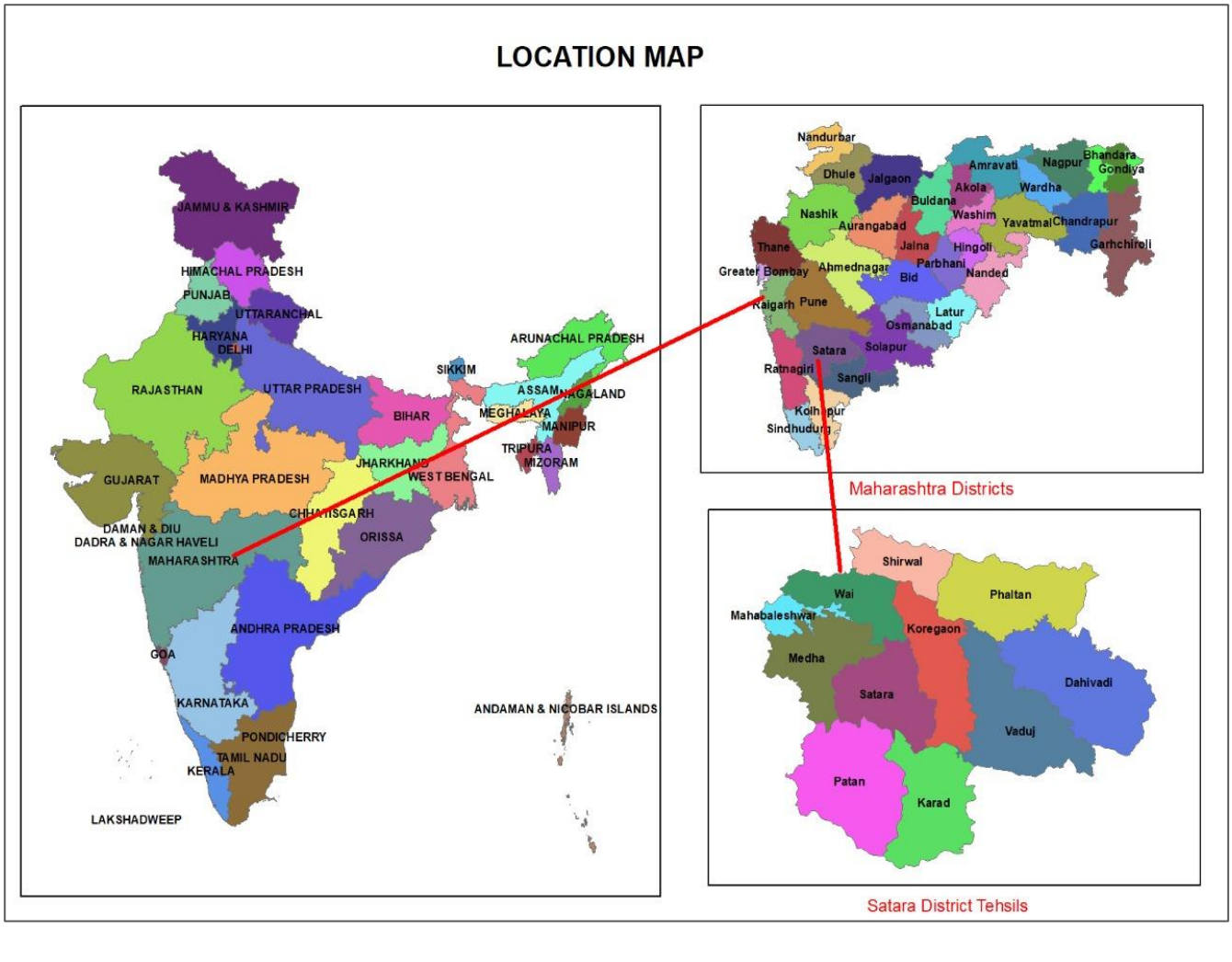
Public Hearing for Fourteen District Level Sand Spots, Satara District, Maharashtra.

EXECUTIVE SUMMARY

1. INTRODUCTION

- Environmental Clearance is sought for 5 sand spots located in Khandala, Karad, Satara, Khatav Talukas in Satara, District, Maharashtra.
- M/s. Integrated Precision Systems & Services Pvt. Ltd., was awarded work to obtain Environmental Clearances for Sand Spots of Satara by Collector Office, Satara.
- Mining plan has been approved by DGM Kolhapur.
- Application in Form-1M, PFR, EMP, RA, DSR along with Approved Mining Plans for Sand Spots will be submitted along with Public Hearing Proceedings for Environmental Clearance.

2. LOCATION MAP



3. MINING METHODOLOGY:

a. **Method of Mining:** Opencast manual method without drilling & Blasting. Only manual labor with hand tools such as spade, Ghamela, will be used. Excavation of sand from dry riverbed only.

b. **Machinery / Equipment's required:** Spades, Ghamela, Tractor with trolley.

c. **Transportation:** By tractor trolley from sand spot to stock yard & to consumers.

d. **Reclamation:** Mined out area will be replenished automatically after monsoon. Plantation will be carried out along river bank and along transport road.

4. ENVIRONMENTAL MANAGEMENT PLAN

a. Air Pollution Control Measures

- Periodic water sprinkling on kutcha road used for sand transport.
- Transport of sand by tractor trolleys trucks covered with tarpaulin.
- Spillage of sand during transport shall be prevented by proper sealing of gaps.
- Plantation will be carried out along river banks and on free spaces near sand spot.

b. Noise Control Measures

- Mining and sand transport will be carried out during day time only.
- Only noise due to sand transport is expected
- Periodic maintenance of sand transportation vehicles will be ensured to minimize noise
- Speed of sand transport vehicles will be regulated.

c. Water Pollution Control Measures

- Sand mining will be carried out in dry river bed only.
- Depth of the mine pit will be maintained above river water level.
- River streams will not be diverted to form inactive channels.
- Washing of vehicles in the river will be prohibited.
- No effluent will be generated from mining activities.
- Provision of mobile toilets for workers.
- Mining will be avoided during monsoon and floods This will allow the sand deposit to replenish.

d. Land Environment

- Sand mining will create temporary pits in the dry river bed, which will be replenished during monsoon.
- Safety distance of 3 meter or 1/10 th of the width of the river whichever is more will be left from both the bank of the river (as per "Sustainable sand mining guidelines").
- Waste material like polythene bag, jute bag, etc. will not be allowed to remain/ spill in river bed.
- Mining will not exceed beyond the allowed extraction capacity.
- Plantation will be developed along river bank and nearby free spaces.

5. GREENBELT DEVELOPMENT PLAN

Location of greenbelt	On the banks of both sides of the lease boundary & Haul Road outside riverbed
No. of plants to be planted	500 plants/Hectare
Spacing of plants	2 m grid interval
Species selected	Native species

Tree species recommended for Plantation

Botanical name	**Local name**	**Importance**
Azadirachta indica	Neem	Neem oil & neem products
Tectona grandis	Teek	Antibacterial, Antifungal, Antiulcer
Ficus religiosaa	Peepal	Medicinal Use, Fruits & figs
Bambusa vulgaris	Bamboo	Anthelmintic Anti-inflammatory, Astringent Properties
Madhuca longifolia	Mahua	Acts as a Stimulant & cough relief

6. OCCUPATIONAL HEALTH SAFETY MANAGEMENT

- Mine operators will be provided with personal protective equipment's.
- safety helmets and footwear, in addition to ear, eye, and hand protection devices.
- Dust masks will be provided for workers.
- Potable drinking water shelter for mine workers will be provided.
- First aid kit will be provided at the mine site.

7. CONCLUSION

- Applied Sand Spots located in Khandala, Karad, Satara, Khatav Talukas in Satara Talukas in Satara, District, Maharashtra are under B2 category as per MoEF&CC guidelines.
- Quarries are not likely to cause significant impact on the environment due to small scale of mining and will prove beneficial to the nearby community.
- The proposed project would provide indirect employment opportunities to local residents.
- The proposed project will also make a positive contribution to social infrastructure and overall development of the region.
- All environmental issues like air, water, noise, soil, solid waste management etc will be dealt as per the MoEF&CC guidelines.

APPENDIX VIII
(See paragraph 6)
FORM 1 M
APPLICATION FOR MINING OF MINOR MINERALS UNDER CATEGORY 'B2' FOR LESS THAN AND EQUAL TO FIVE HECTARE

(I) Basic Information

(i) Name of the Mining Lease site: Wathar Bk Sand Spot

(ii) Location / site (GPS Co-ordinates):

Boundary points of Wathar Bk. sand spot	Latitude	Longitude
B.P 1	18° 7'52.69"N	74° 7'18.94"E
B.P 2	18° 7'50.63"N	74° 7'24.22"E
B.P 3	18° 7'46.08"N	74° 7'25.84"E
B.P 4	18° 7'43.64"N	74° 7'31.23"E
B.P 5	18° 7'42.95"N	74° 7'30.83"E
B.P 6	18° 7'45.63"N	74° 7'25.30"E
B.P 7	18° 7'50.11"N	74° 7'23.82"E
B.P 8	18° 7'51.97"N	74° 7'18.70"E

(iii) Size of the Mining Lease (Hectare): 1.00 HA

(vi) Capacity of Mining Lease (TPA): 795 Brass

(v) Period of Mining Lease: 1 year

(vi) Expected cost of the Project: 52.4223 Lakhs

(vii) Contact Information: District Mining Officer Satara, Maharashtra

(II) Environmental Sensitivity

S. No.	Areas	Distance in Kilometer/Details
1	Distance of project site from nearest rail or road bridge over the concerned River, Rivulet, Nallah etc.	Dam,2.97Km SW
2	Distance from infrastructural facilities Railway line National Highway State Highway Major District Road	 Nira RailwayStation,9.48Km, SE NH4, 142Km, SW SH-70, 269Km, S Veer Mandaki Road, 1.68Km, NE

	Any Other Road Electric transmission line pole or tower Canal or check dam or reservoirs or lake or ponds In-take for drinking water pump house Intake for Irrigation canal pumps	0.60 Km, N 0.41 Km, SW Nira River Bed Nil Nil
k	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	Nil
4	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	Water bodies: this is the case of river sand mining in Nira River bed
5	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, overwintering, migration	Nil
6	Inland, coastal, marine or underground waters	Nira River Bed
7	State, National boundaries	Nil
8	Routes or facilities used by the public for access to recreation or other tourist, Pilgrim areas	SH-70, 269Km, S
9	Defence installations	Nil
10	Densely populated or built-up area, distance from nearest human habitation	Veer, 4.50Km, NW
11	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	There were some schools, hospitals temples, within in the boundary not in the core zone
12	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	Nira River Bed (this is the case of river sand mining)
13	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	Nil
14	Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions)	The mine lease area falls in Seismic Zone III (Moderate), according to the Indian Standard Seismic Zoning Map.
15	Is proposed mining site located over or near fissure / fracture for ground water recharge	No
16	Whether the proposal involves approval or	No

	clearance under the following Regulations or Acts, namely:- (a) The Forest (Conservation) Act, 1980; (b) The Wildlife (Protection) Act, 1972; (c) The Coastal Regulation Zone Notification, 2011. If yes, details of the same and their status to be given.	
17	Forest land involved (hectares)	Nil
18	Whether there is any litigation pending against the project and/or land in which the project is propose to be set up? (a) Name of the Court (b) Case No. (c) Orders or directions of the Court, if any, and its relevance with the proposed project.	Nil

PRE-FEASIBILITY REPORT

- District Collector Satara vides his right to auction Sand as a minor mineral intends to auction the Sand in Satara district.
- District Collector Satara appointed M/s Integrated Precision Systems & Services Pvt. Ltd., for preparation of Mining Plan and grant of environmental clearance.
- Applicant proposed to auction the said Sand Spot over an area of 1.00 Ha (0.75 Ha. Mineable & 0.25 Ha. Non-Mineable area and identified for preparation of mining plan and for grant of Environmental Clearance.
- Mining Plans are prepared by Recognized Qualified Person and approved by Directorate of Geology & Mining Govt. of Maharashtra.
- About 795 Brass sand is proposed to auction from proposed sand spot.
- Proposed site is located at the Nira river bank.

1. Physiography

Physiography is one of the dominant parameters of physical environment and its impact on patterns and density of agriculture is immense. The study of the influence of environment upon the nature and the distribution of crop and livestock is of prime importance in agricultural geography.

Satara district is the part of Deccan trap of Indian Peninsula. The physical setting of district is divided in the hilly range, valley, tableland, plateau, and plain area. The physiographic landscape of district influences the spatio-temporal climatic characteristics. The variation of relief height is 1426 meter in the Sahyadri range to the 405 meter in the basin of the Nira river in the Phaltan tahsil above Mean Sea Level. However, the district can be broadly divided into major four morphological units, viz. The Sahyadri's, Krishna valley, Nira valley, and Mahadev hills and Eastern plateau.

The Sand Ghat area as per survey is River bed of Nira River. The slope is of 4 m from 475 to 479 MSL. The slope of Sand Ghat area towards SE side. The highest MSL is 479 & lowest 475 MSL. The flow of Nira River is from NW to SE direction.

2. Local Geology

The local geology is Sand of various size up to depth of 2.0-2.5-meter depth.

3. Details of Exploration

There is sufficient reserve of Sand available & 70% of sand replenishes after every year monsoon season therefore conceptual period of mining will be till existence of river bed.

Mining - The mining will be continued with present method of open cast mining by cutting slice of 0.30 m of Sand along topography, by advancing from SE to NW direction as per allotted area by auction. The production can be at the rate of 2250 Cu. M or 795 brass till 1 year(2020-2021) from the date of mining plan approval. The size of pit at the end will be 0.75 HA.

4. Introduction of the project/ background information

The Wathar Bk. Sand Spot has been kept for Auction which is situated at Village Wathar Bk., Taluka Khandala, and District Satara and hence prior to go for Auction a Mining Plan and Environmental Clearance are required and hence Mining Plan is being prepared.

i) Brief description of project

There is sufficient reserve of Sand available & 70% of sand replenishes after every year monsoon season therefore conceptual period of mining will be till existence of river bed.

Mining - The mining will be continued with present method of open cast mining by cutting slice of 0.30 m of Sand along topography, by advancing from SE to NW direction as per allotted area by auction. The production can be at the rate of 2250 Cu. M or 795 brass till 1 year(2020-2021) from the date of mining plan approval. The size of pit at the end will be 0.75 HA.

ii) Need for the project.

The Sand or Sand Spot under reference is aimed at exploring Sand as ROM in various sizes i.e. fine to Coarse grain which is Transported to consumer site in outside Sand Spot area, for the infrastructure development i.e. Construction activity to produce Concrete for putting in the floor, roof- slabs, Column, Pillars, Bridges & Dam construction.

5. Project Description

This mining project is an independent project and not an interlinked project.

i) Location

Wathar Bk. is a small Village/hamlet in Khandala Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 55 KM towards SW from District headquarters Satara. Approximately 170 KM from State capital Mumbai.

The sand spot area is connected to approach road at 312 meter in North direction. SH-70 road is situated at 2.5 km. in the east of the sand ghat spot. Satara Railway Station is present at 53 km.
The area is covered in SOI Toposheet No- 47J/4. The GPS reading of boundary point are given below:

Boundary points of Wathar Bk.	Latitude	Longitude
B.P 1	18° 7'52.69"N	74° 7'18.94"E
B.P 2	18° 7'50.63"N	74° 7'24.22"E
B.P 3	18° 7'46.08"N	74° 7'25.84"E
B.P 4	18° 7'43.64"N	74° 7'31.23"E
B.P 5	18° 7'42.95"N	74° 7'30.83"E
B.P 6	18° 7'45.63"N	74° 7'25.30"E
B.P 7	18° 7'50.11"N	74° 7'23.82"E
B.P 8	18° 7'51.97"N	74° 7'18.70"E

ii) Alternate Sites

No alternate site is proposed.

iii) Magnitude of Operation

Proposed period for mining of sand will be decided by the office of district Collectorate 2250 Cu.m. will be excavated during the period.

iv) Project description-mining details

The Agency will start the work after getting Allocation Letter from the competent Authority by Opencast manual mining method. The size of the pit is mentioned as 500m Length X 15m Width at the end of Sand Spot mining period. There will be no dumps of material inside the Sand Spot area as all the mined-out sand will be saleable. These Mine features are shown on Surface Plan and are enclosed as Plate No – 3.

The Sand Spot has sufficient Reserve of Sand to work at 2250 Cu.m for a specified period mentioned i.e., 1 year (2020-2021 from the date of mining plan approval as per agreement, from there the Sand Spot will be due for another Mining plan. The mining will continue with opencast method of Mining by cutting 0.30 m slice of Sand by advancing from SW to NE direction as per allotted Sand Spot area and handling of material with the help of laborers into the tractor having capacity of 1 Brass for transport of Sand to the various dealer sites located outside the Sand Spot area.

v) Raw material, marketing & transport of ore

The proposed sand spot will be auctioned, and successful bidder will be responsible for carrying out mining operations as per environmental terms and conditions, approved mining method as per approved mining plan and other terms and conditions. The loading of Sand generated to the tractor/tipper/dumpers will be done by loaders & material transported to the dealer site.

vi) Resource optimization, recycle, reuse.

Production of sand will be decided by the factors like replenishable nature of sand, ecological sensitivity and various features existing in buffer zone. The decision regarding auctioning of sand will be on yearly basis and the above factors will be studied before decision is taken.

vii) Water & energy requirement

The major water requirement in the lease area is for dust suppression and for drinking use. The total water requirement is estimated as 6.24 KLD. The required water for dust suppression can be arranged through tankers from nearby village and drinking water will be provided in earthen pots for laborers. The vehicles used for transportation will use diesel of about 125-150 litres /day.

viii) Quantity of waste & scheme for management

There will not be any waste generation within the lease area.

ix) Schematic Representations

It is a proposal of opencast manual sand mining from river bed. Mining plan is approved by the competent authority.

6. Site Analysis

i) Connectivity

Wathar Bk. is a small Village/hamlet in Khandala Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 55 KM towards SW from District headquarters Satara. Approximately 170 KM from State capital Mumbai.

The sand spot area is connected to approach road at 312 meter in North direction. SH-70 road is situated at 2.5 km. in the east of the sand ghat spot. Satara Railway Station is present at 53 km.

ii) Land Use, form & Ownership

The ultimate land use pattern for the lease area of 1.00 Ha. will be consisting of

1. Mining Area:	1.00 Ha.
2. Construction of Temporary Roads:	0.00 ha.
3. Total:	1.00 Ha.

At present ownership of this sand spot area is in the hand of Govt. of Maharashtra, after approval of mining plan and EC quarry area will be transfer to bidder after auction.

iii) Geology

The proposed sand spot area is the case of a river bed which contains mixture of sand, pebbles and gravels of various sizes.

Existing land use pattern

Existing Sand spot is a river bed having 2.0-2.5 m of sand.

7. Social-Economic Environment

Critically analyzing the existing environmental status of the socio-economic profile and visualizing the scenario with the project, the impacts of the project would be varied and may generate positive impacts of the mining of sand quarry in the region that are stated below:

A. The mining operations will provide direct & indirect employment to the village people.

B. The villages and their inhabitants & domestic animals will not be disturbed due to mining as quarry is far from their settlements.

C. Local workforce will be given first preference for employment.

D. Mining activities will benefit the local people due to provision of more infrastructural facilities (developments of approach routes within the village area).

8. Planning brief

The proposed project is opencast manual sand mining activity.

Supply demand ratio:

Information required on demand and supply of district (2020-21)			
Sr. No	**Name of District**	**Total Sand Demand of District in Brass (Approximately)**	**Total Sand Available in district in Brass (Approximately)**
1	**Satara**	**154227**	**98871**

Tahsil Office Sand Information (2020-21)			
Sr. No	**Name of Tahsil**	**Total Sand Demand if Tahsil in Brass (Approximately)**	**Total Sand Available in Tahsil in Brass (Approximately)**
1	Satara	15266	14269
2	Patan	12461	0
3	Koregaon	11696	10233
4	Karad	30143	3536
5	Jawali	2495	0
6	Khatav	22657	21367
7	Man	23671	22982
8	Khandala	2940	2372
9	Wai	5480	0
10	Phaltan	25315	24112
11	Mahabaleshwar	2103	0
		154227	**98871**

Ongoing Government Civil/ infrastructural works in the district (2020-21)			
Sr. No	**Name of Govt. Yojana**	**Details of work**	**Approx Qty of Sand required in Brass**
1	Satara Irrigation Department, Satara	Dam work of Kas, Kudali, Tarali, Wang, Morana, Dhom-Balakwadi	21158
2	Public Works Department (West)	Government College of Engineering Library and other building Work	2297
3	Public Works Department ZP Satara	Primary Health Centre Building Work	1150
4	Phaltan Nagarpalika Phaltan	Gharkul Project	130
5	Mhaswad Nagarpalika Dahiwadi	Gharkul Project	415
6	Khatav Nagarpalika Vaduj	Gharkul Project	211
Total			**25361**

वाळूच्या **Demand and supply ratio** नुसार तफावत दिसत असली तरी आपण एका हेक्टरपेक्षा कमी क्षेत्र असलेले वाळुगट वगळलेले आहे.

सातारा जिल्ह्यातील काही स्टोनक्रशर धारकांनी दगडाद्वारे वाळू तयार करण्याचे मशिनी बसवलेल्या आहेत. त्याद्वारे कृत्रीम वाळूची निर्मीती करुन बांधकामासाठी उपलब्ध होत असलेने शासकीय यंत्रणांकडून व इतर व्यवसायिकांकडून वाळूची मागणी होत नसलेचे दिसून येत आहे.

सातारा जिल्ह्यातील **CREDAI** संघटनेकडील माहितीदवारे असे निदर्शनास आले की, काही बांधकाम व्यवसायीक बांधकामासाठी **FLY Ash** द्वारे निर्माण केलेल्या विटांचा वापर करतात सदर विटा रासायनिक पदार्थ वापरुन जोडल्या जातात व आतील प्लास्टरसाठी **gypsum** चा वापर केला जातो.

Replenishment:

- Area of deposition and erosion was calculated for each cross-section after giving due regard to stability & safety of active channel banks & other features of importance.
- DGPS and other survey tools have been used to define topography, contours and offsets of lease area.
- Contour & elevation benchmarks are provided with the baseline data for assessing pre and post-study period scenario.
- Physical benchmarks are fixed at intervals (1 in 30 m) & Reduced Levels (RL) are validated from a nearby standard RL.
- These RL are engraved on a steel plate (Bench Plate) & are fixed & placed at locations which are free from any damages & are available in pre- and post-study period.
- Bench plates are available for use during the mining period as reference for all mining activity.
- Baseline data on elevation status for a grid of 10 m x 10 m is taken to ensure the accuracy in the assessment.
- It was made sure that two consecutive cross-sections in longitudinal and lateral direction is not more than 10-meter distance apart.
- Changes have been observed in the elevation in per and post scenario at each node and were depicted in graphical forms with an appropriate scale for estimating the area of deposition & erosion.
- Elevation level was placed in reference to the nearest bench-plates established for the purpose.
- The levels (MSL & RL) of corner point of each grid were identified and safety barriers (Non-Mining) are demarcated as restricted in consensus with Mineral Concession Rules of respective State, and the provision mentioned in this Sustainable Sand Mining Management Guidelines.
- A clear identification was highlighted between grids under mineable and grids under the non-mineable area. These baseline data (pre and post) was subjected to stimulation with the help of data mine software to derive at the replenishment area and corresponding volume and estimated weight.
- The database was structured in a tabulated form clearly depicting the nomenclature of the section lines, latitude and longitude of the starting point, chain-age and respective levels of all the points taken on that section line.
- Net area was derived after summation of area of deposition minus area of erosion for each cross-section.
- Volume was estimated by multiplying distance between two cross-sections with average of net area of these two consecutive cross-sections.
- One sample per 900 square meters (30 m x 30 m) was preferred for sample density for assessment of bulk density for estimation of deposition rate.
- Care was taken that the sample for assessment of bulk density is taken from the deposition zone & not from erosion. During the replenishment studies, Areas selected have large depositions are selected for sand mining and degraded land is avoided for Sand Mining. Taluka Level committee has approved the sand mines with large amount of sand depositions.
- Physical survey is done to ensure that the approved areas have large amounts of sand depositions.

- During the Physical Survey-Benchmarks has been established along the river banks and ensured that the Bifurcation of Mining and Non-Mining is done.

Sediment Yield Calculations for River Streams

DANDY-BOLTON EQUATION

1. **For Runoff Less Than 2 Inches**

S=*1280*(Q)*0.46*(1.46-0.26log(A)) *F

1. **For Runoff More Than 2 Inches**

S=*1958*(Q)*(e-0.055*Q) *(1.43-0.26log (A))

Where?

S=sediment yield of stream (t/yr/km2),

Q= average annual runoff (m3),

A= net drainage area in sq. mile

5. Sand Ghat Site specific enforcement & monitoring plan as per guidelines stipulated in the Enforcement and Monitoring Guidelines for sand mining issued by MoEF&CC in January 2020

- District administration shall provide detailed information on its website about the sand mines in its district for public information with an objective to extend all information in public domain so that the citizens are aware of the mining activities and can also report to the district administration on any deviation observed.
- Appropriate feedback and its redressal mechanism shall also be made operational.
- Details shall include, but not limited to, lease area, geo-coordinates of lease area and mineable area, transport routes, permitted capacity, regulatory conditions for operation including mining, environmental and social commitments etc.
- Independent committee of the expert constituted by DLTF will assess the environmental or ecological damage caused due to illegal mining and recommend recovery of environmental compensation from the miner's concern.
- The recommendation may also include action under the provision of E(P) Act, 1986.

It will be ensured that following security features are included in the Transport Permission/Permits (TP) so that duplicate/fraudulent/forged TPs for transport, not accounted for in the IT-based system, is not possible:

- Printed on Indian Bank Association (IBA) Approved
- Magnetic Ink Character Recognition Code (MICR) paper
- Unique Barcode
- Unique Quick Response Code (QR)
- Fugitive Ink Background
- Invisible Ink Mark
- Void Pantograph
- Watermark
- CCTV at mine lease site
- GPS Based Vehicle Tracking System

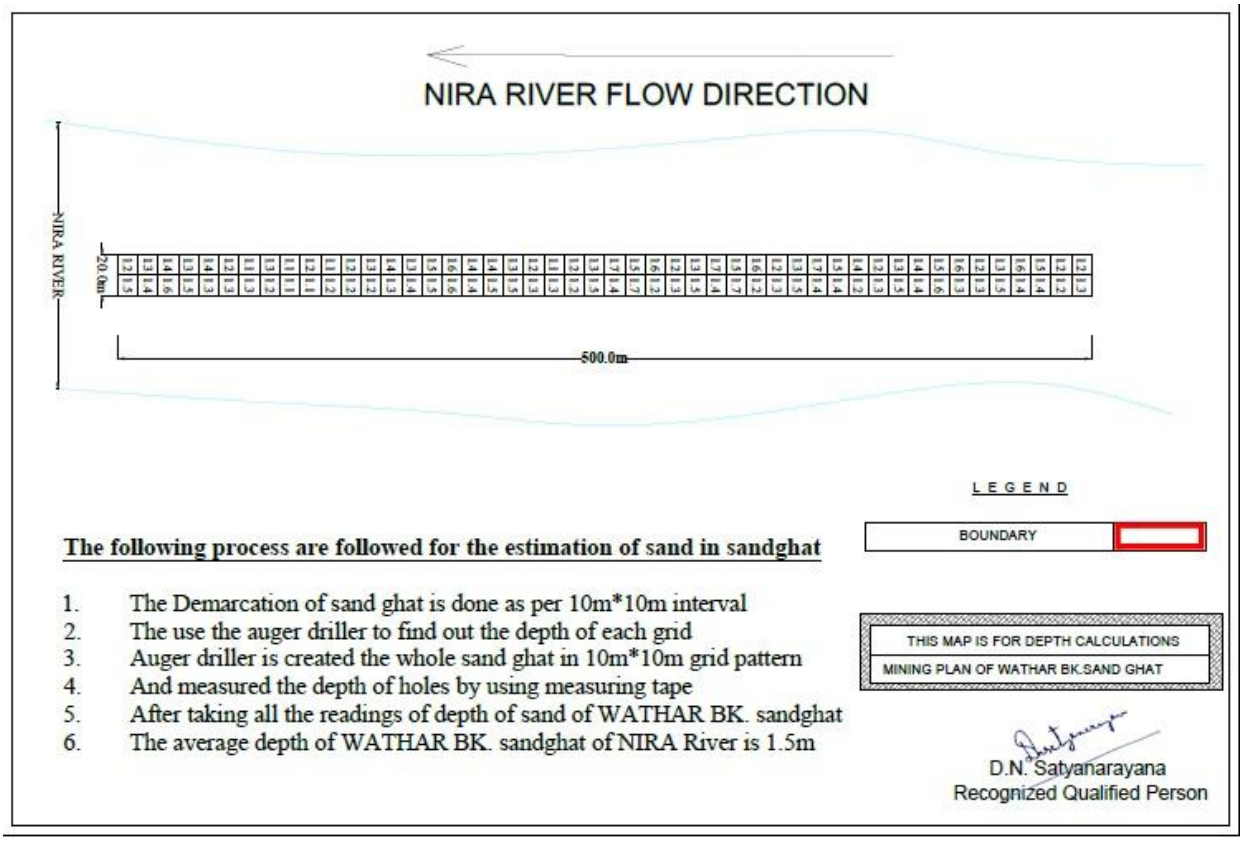
The site services as per statute, like Mine office, storeroom, workshop, first aid Room & water point will be provided outside Sand Spot area.

District Collector ensures that they meet all the compliances of the sustainable sand mining guidelines of 2020 by

1. Appointing an Environmental auditor and a three non-official committee to associate with the Environmental auditor in auditing the reports and in sending it to the District authority and making sure that the same will be accommodated in the DSR.
2. Mobile app - The officers involved in monitoring will be provided with mobile application and/or bar code scanners using which the TP can be checked anywhere on road. As soon as the bar or QR code on TP gets scanned through using the mobile application and/or scanner or vehicle number is entered into the application or sent by SMS to a predefined number, all details of TP such as plot details, vehicle details, validity time, etc. should be fetched from the server. This means if anything is re-written on TP and attempt is made to reuse the same, it can be traced immediately. Various reports can be generated using the system showing daily lifting reports and user performance report. This way the vehicles carrying sand can be tracked from source to destination.
3. Online portal – IT Enabled real time monitoring system would be built to monitor the CCTV Cameras 24*7 and the footages would be made available on the public domain for the Public to enhance transparency in the sand mining and to avoid illegal mining. Budget for CCTV Monitoring in allocated in EMP.
4. Customer care/ telephone call – Would be provided to the citizens to report illegal mining in the district from time to time.
5. The District Collector will get all necessary Permissions from the Electricity Board for power supply to operate the CCTV cameras at sand quarry site and depots.
6. The District Collector will be providing a Minimum of two CCTV cameras, one each at the entry and exit point and one PTZ camera will be installed at all quarries/depots to monitor illegality if any taking place in the sand quarry/depot.
7. The District Collector will ensure uninterrupted seamless live streaming of videos from the surveillance cameras by ensuring a high-speed Internet Lease Line connection at all quarries/depots.

8. The district collector will get live streaming of the videos monitored at a Centralised control room and the data stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the grievance of the public.
9. District collector will ensure that all the Earlier Environmental Clearance conditions would be implemented on time as per the Sustainable sand Mining Guidelines 2020.
10. Ground Water Level Monitoring - Collector will ensure that the Piezometer's would be installed in the Quarry site and all the wells with in one km radius of the Quarry would be monitored regularly. Fluctuations in the ground water would be recorded and necessary measures would be taken from time to time to avoid water depletion. And a separate Budget for Ground water monitoring in included in the EMP.
11. Collector would ensure that senior officials would be doing regular audits with the local police officers that are involved with mining mafia. District collector along with the DSP will ensure that all the FIR's that are in place would be investigated from time to time and necessary action would be taken.
12. All Transportation routes – One from Quarry to sand depo and another from sand depo to the Main road and to end consumer would be tracked and monitored by ensuring only authenticated GPS Vehicle tracking vehicles being allowed to transport the mineral.
13. For road degradation – Budget is allocated in EMP and district collector ensures that the roads are maintenance is properly done by the bidder or through local funds available with collector.
14. Collector will make sure that the Bidder develops Greenbelt plantation along the river bank and on either sides of the approach road and even at the sand depos to prevent air pollution. And all bidders would be enforced only to transport mineral by covering the mineral with tarpaulin covers.
15. Collector will ensure that the bidder develops necessary infrastructure like CCTV Monitoring, CCTV Monitoring, Noise monitoring and Plantations across river bank and approach road in that lease area where the bidder takes lease of the land for storage of the sand.

Sand Quantity Evaluation:



6. Proposed Infrastructure

The site services as per statute, like Mine office, storeroom, workshop, first aid Room & water point will be provided in outside Sand Spot area.

7. R&R Plan

R&R is not involved.

8. Project schedule

Period of mining for the proposed sand spot will be decided by the Office of District Collectorate.

9. Analysis of Proposal

Description of the project included in items 1-10 above indicates the following:

1. It is proposed for opencast manual river sand mining.
2. Opencast mining without hampering the present environmental quality of the area.
3. Income to local people is uncertain & initiation of mining will ensure regular income to local people.

10. Costing

Costing parameters will be decided by the District Authorities.

11. Compliance to Environment Clearance

a. Last time Satara District had got 13 Sand Ghats Environment clearance. Out of those 09 sand Ghats were allotted to sand scooping. Out of which 04 sand Ghats auctioned to private person and 05 allotted to irrigation department. At time of allocation sand Ghats owner were deposited EMD, EMP amount and GB to Collector office.
b. During sand Ghats operating period so or tahsildar level team verify the given term and conditions time to time. If sand ghats owner complied all given term and conditions deposit like EMD, EMP amount and GB refunded.
c. In this way year 2018-19 13 sand Ghats owner and concern tahsildar submitted the Environment and sand mining policy terms and conditions compliance report.

12. Any Other Information:

Whether there are any serious violation of safety rules and regulation which may jeopardize human health and safety. If so, give details of violations and state the steps proposed to be taken with the time scheduled to rectify the violations:

No, there are not any serious violation of safety rules and regulation, which may jeopardize human health and safety. The applicant has given a commitment in this effect and undertaking also given to follow and implement, as specified in the mining plan. The applicant is undertake to abide and implement any special conditions imposed by various authorities and also to complete formalities under provision of the Mines & Mineral (Development & Regulation) Act, 1957 and the Bombay Minor Mineral rules, the Mineral Conservation and Development Rules, 1988 as amended, the Maharashtra Minor Minerals Extraction (Development and Regulation) Rule 2013, MoEF & CC Notification S.O. 141 (E) dated 15th January 2016, and MoEF & CC Sustainable Sand Mining Management Guidelines 2016, Sustainable Sand Mining Management Guidelines 2019,Sand Mining Policy 2020

Stringent stipulations have been laid out while issuing EC. This includes regular monitoring of environmental parameters and carrying out various mitigates measures to protect the environment.

These things will be religiously followed, and its report will be periodically 9) Virgin lease area for Sand Mine & Other Uses 3.11 0.000 10) Road - - 11) Railway - - 12) Tailing Pond - - 13) Effluent Treatment Plant - - 14) Mineral separation plant - - 15) Township Area - - 16) Others to specify - - 17) Ownership Government River Government River Total 3.11 3.11 submitted to the concerned authority.

All Notices, Letters received from Government and all communication with Government (Court, NGT, DGMS, Directorate of Geology and Mining, District Mining Officer, Collector, Tehsildar, Grampanchayat, Talathi, Pollution Control Board, Forest department, Environment department, Irrigation department, Public Works Departments, Controller of Explosive, Labor Commissioner, Sale tax etc.) regarding Mine Lease and Mining will be strictly followed by Mine Owner. Mine Owner must follow all provisions of the Maharashtra Minor Minerals Extraction (Development and Regulation) Rule-2013, MoEF & CC Notification S.O. 141 (E) dated 15th January 2016, and MoEF & CC Sustainable Sand Mining Management Guidelines 2016, the

Environment (Protection) Act 1986 and Rules made there under, the Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Hazardous Wastes (Management and Handling) Rules 1989, the Wildlife (Protection) Act 1972, the Forest Conservation Act-1980, the Forest Conservation Rule-2003, the Mineral Conservation and Development Rule-1988, the Mineral Concession Rules-1960, the Mines and Minerals (Development and Regulation) Act-1957, the Mines Act, the Mines Rule, the Mines Regulations, the public Liability Insurance Act 1991 and its amendments, Orders and Bye Laws made there under and any laws or guidelines that may be applicable to mine / area from time to time whether made by Central or State Government or any other authority. Wherever specific permissions are required, the applicant will approach the Directorate General of Mines Safety, Indian Bureau of Mines and Directorate of Geology and Mining. Mine Owner should obtain relevant clearances as per Environment Protection Act-1986 and EIA notification dated 21.01.1994 and 04.09.2006.

Environmental Management Plan

Wathar Bk. sand spot over an extent of 1 HA (MINEABLE AREA-0.75 HA & NON-MINEABLE AREA-0.25 HA) At Nira Riverbed Gut No. 88,90, 91, 92, 93, 94, 89 Wathar Bk. Village, Tehsil- Khandala, Satara District, Maharashtra.

1. Introduction

Ministry of Environment and Forest (MoEF) Notification 2006 and Sustainable Sand Mining Management Guidelines 2016 and as per provision in Mines and Minerals (Development and Regulation) Act 1957 Schedule 60 section 15, Govt Of Maharashtra makes a Minor Mineral Extraction Rules 2013 to extract all the minor mineral in scientific way so that there is no adverse impact on Environment and Climate. To extract every minor mineral from any land (either Government or Private) there is provision of mining plan which is approved by competent authority; For long term leased minor mineral (5 – 10 years period) and Sand excavation from river bed, Senior Deputy Director of Directorate of Geology and Mining is a Competent authority, for short term Temporary permits which is valid for one year, Committee headed by Hon. Collector is Final authority to Approved the District Mining Plan.

As per Minor Mineral Extraction Rules 2013 Rules 70, Disposal of sand from River bed, Nallah and creeks by way of public auction, in this regards Govt resolution Gaukhni -10/0615/case No. 289/kha dated 3rd January 2018 is applicable in entire state. As per Sustainable sand mining management guidelines 2016, Standard Environment condition for sand mining and sustainable mining practices, district level survey report should be prepared and area suitable for mining and area prohibited for mining be identified.

2. Project Description

Wathar Bk. is a small Village/hamlet in Khandala Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 55 KM towards SW from District headquarters Satara. Approximately 170 KM from State capital Mumbai.

The sand spot area is connected to approach road at 312 meter in North direction. SH-70 road is situated at 2.5 km. in the east of the sand ghat spot. Satara Railway Station is present at 53 km.
The area is covered in SOI Toposheet No- 47J/4.

Table 1: Salient Features of the Project

<table>
<tr><th>Items</th><th>Details</th></tr>
<tr><td>Location</td><td>Wathar Bk Village, Tehsil-Khandala, Satara District, Maharashtra.</td></tr>
<tr><td>Latitude and Longitude</td><td>
<table>
<tr><th>BOUNDARY PILLAR</th><th>LATITUDE</th><th>LONGITUDE</th></tr>
<tr><td>B.P 1</td><td>18° 7'52.69"N</td><td>74° 7'18.94"E</td></tr>
<tr><td>B.P 2</td><td>18° 7'50.63"N</td><td>74° 7'24.22"E</td></tr>
<tr><td>B.P 3</td><td>18° 7'46.08"N</td><td>74° 7'25.84"E</td></tr>
<tr><td>B.P 4</td><td>18° 7'43.64"N</td><td>74° 7'31.23"E</td></tr>
<tr><td>B.P 5</td><td>18° 7'42.95"N</td><td>74° 7'30.83"E</td></tr>
<tr><td>B.P 6</td><td>18° 7'45.63"N</td><td>74° 7'25.30"E</td></tr>
<tr><td>B.P 7</td><td>18° 7'50.11"N</td><td>74° 7'23.82"E</td></tr>
<tr><td>B.P 8</td><td>18° 7'51.97"N</td><td>74° 7'18.70"E</td></tr>
</table>
</td></tr>
</table>

Sand spot area (In Ha)	1.00
Proposed production capacity (In Brass)	795
Manpower Requirement (considering 3-month period)	5 labors + 1 mate + 1 Supervisor = 7 man/day
Infrastructure Requirement (As per Govt Resolution 3rd January 2018)	1. Room / Hut for Official records 2. Electricity / Battery for Running CCTV on 24X 7 daily. 3. One Computer / Android base Mobile for the online generation of Invoice number.
Water requirement & source	6.24 KLD – Tankers from nearby village.
Project cost INR (Lakh)	52.4223

3. Baseline Environmental Studies

a. Topography

Satara district is the part of Deccan trap of Indian Peninsula. The physical setting of district is divided in the hilly range, valley, tableland, plateau, and plain area. The physiographic landscape of district influences the spatio-temporal climatic characteristics. The variation of relief height is 1426 meter in the Sahyadri range to the 405 meter in the basin of the Nira river in the Phaltan tehsil above Mean Sea Level. However, the district can be broadly divided into major four morphological units, viz. The Sahyadri's, Nira valley, Nira valley, and Mahadev hills and Eastern plateau.

The Sand Ghat area as per survey is River bed of Nira River. The slope is of 4 m from 475 to 479 MSL. The slope of Sand Ghat area towards SE side. The highest MSL is 479 & lowest 475 MSL. The flow of Nira River is from NW to SE direction.

b. Hydrology

There will be no change in water table during mining operation, as the depth of mining shall be restricted to 0.30m water level, which is less likely to affect surface level or ground water table. There is no proposal of any stream modification/diversion due to this mining activity hence there will not be any impact on flow of water.

c. Soil Environment

The area is not having any top soil or fertile soil. The depth of mining shall be restricted to 0.30m. There is no major impact on soil of the study area is envisaged due to mining activities.

d. Land Use Land Cover

The project area does not consist of any forest land. It does not consist of any human habitations. Any change in scope of mining as per approved mining plan can lead to bank erosion /cutting and thereby river channel shifting degradation of land, causing loss of properties and degradation of surrounding landscape.

e. Water Environment

There will not be any wastewater discharges to water bodies from the mining operations. As observed in the River, the thickness of sand to be excavated will be 0.30m only so there will not be any intersection with ground water table. It is observed from the dug well in the adjacent plain area and in the nearby villages that the ground water table varies depending upon seasonal variations. The depth to water levels in the district ranges from 0.90 to 25.00 m BGL in pre-monsoon season and the depth to water levels in post-monsoon ranges from 0.10 to 19.10 m BGL. As the mining activities presently proposed are maximum upto 0.30m that to within the river course and the total mining operation will be achieved through manual means, there will be no effect on ground water table. All the stipulations of MoEF for sand mining and guidelines as per the Maharashtra Minor Mineral Extraction [Development and Regulation] Rules, 2013 of Section 15 of MMDR Act 1957 [67 of 1957] will be followed. Hence, impact on water regime due to the proposed sand mining is not anticipated.

1. Precautionary measures will be initiated for closing the operation and shifting the men and transport vehicles prior to onset of monsoon.
2. No oils or lubricants will be discharged in the sand to avoid water pollution.

f. Climate

The Indian Meteorology Department, Pune divided Satara district into four seasons.1

(i) Cold season -December to February

(ii) Hot season- March to May

(iii)Southwest monsoon season - June to September

(iv)Post monsoon or the retreating monsoon season - October and November

Temperature, rainfall, humidity, evaporation, and wind speed are important elements of the climate. The climatic condition of Satara district depends on geographical factor. Generally, the climatic conditions of India change latitude wise but, in the district, it changes longitudinal. Rainfall: The rainfall ranges from the rainiest in the Mahabaleshwar region, which has an average annual all over 5805 mm to the driest in Man tahsil where the average annual rainfall is about 557 mm. Average annual rainfall of Satara district is 1436.4 mm. The rainfall is received in the three seasons. June to September is the south west monsoon season whereas October to December constitutes the post-monsoon season or the retreating monsoon season. The pre monsoon or hot season is from March to the end of May. The normal rainfall trend in the district increases towards the east to west and reaches maximum around Mahabaleshwar.

g. Biological Environment

The project is only of extraction of minor minerals viz. sand from the river quarry.

Flora: The area is completely barren and devoid of any vegetation in the river. Only few thorny bushes are seen on the banks of the River.

Fauna: As there is no forest cover, no wild life can be seen in this area.

1. There will be no significant impact of the river quarry mining project on the biological diversity found in the 5km. radius of the site.

2. The mining lease area is in non-forest land i.e., sandy river quarry where presence of fauna is not at all seen. As such, there will be no adverse impact of the manual mining activity on fauna around the mining lease area.

3. No adverse impacts will be envisaged on the existing aquatic fauna, on downstream side (away from site) as the mining confined to above water level only and at all touching/disturbing water table.

h. Socio-Economic Environment

Critically analyzing the existing environmental status of the socio-economic profile and visualizing the scenario with the project, the impacts of the project would be varied and may generate positive impacts of the mining of sand quarry in the region that are stated below:

1. The mining operations will provide direct & indirect employment village people.
2. The villages and their inhabitants & domestic animals will not be disturbed due to mining as quarry is far from their settlements.
3. Local work force will be given first preference for employment.
4. Mining activities will benefit the local people due to provision of more infrastructural facilities (developments of approach routes within the village area)

4. Project Benefits

a. The proposed expansion project will lead to the following benefits:
b. Sand is available for Building and Construction work and by regular removal of sand there is no possibility of flood.
c. This project will contribute additional revenue to the state Exchequer in the form of revenue.
d. The project will result in the employment opportunities to the unskilled/skilled local people. Thereby, the quality of life of the employed people will increase.

5. Sand Ghat Closure Plan

Sl. No	Head	Area put on use. at start of plan [in Ha]	Additional Requirement during Plan period [in Ha]	Total [in Ha]	Area considered as	Net considers for calculation
1	Area under mining / pit	-	1.00	1.00	---	1.00
2	Area under dump	NIL	---	---	---	
3	Infrastructure Work shop Administrative Building etc					
4	Roads					
5	Mineral reject					
6	Green Belt Plantation /Soil dump					
7	Tailing Dam /pond					
8	Effluent Treatment Plant					
9	Mineral storage					
10	Township area					
11	Other to specify					
GRAND TOTAL			1.00	1.00	1.00	1.00

- Mining will be avoided during monsoon and floods; this will allow the sand deposit to replenish.
- Gabion structure will be constructed for the sand to replenish during monsoon season.

Environmental Management Plan

Wathar Bk. sand spot over an extent of 1 HA (MINEABLE AREA-0.75 HA & NON-MINEABLE AREA-0.25 HA) At Nira Riverbed Gut No. 88,90, 91, 92, 93, 94, 89 Wathar Bk. Village, Tehsil- Khandala, Satara District, Maharashtra.

7. Environmental Management Plan indicating sufficient budgetary provisions for mitigation of identified impacts on all Environmental Parameters.

S. No	Impact Source	Impact	Control measure	Budget (In INR)
1	Transport Road	On Air Quality	Compaction, gradation, and drainage on both sides.	50000
		Road Degradation	Budget for Road Repairs and Maintenance from Approach Road to Main Road	46800
		Road Construction	Road Construction from Quarry to Access Road	78000
		Air Environment	Dust Supression by Regular water spraying.	46800
			Air quality will be monitoring at impacted village. (For One Day Monitoring)	50000
			Health Check-up of Employees.	8400
2	Truck/ Tractor Movement	Air Quality	Sand carrying trucks will be effectively covered by tarpaulin to avoid escape of fines to the atmosphere. (2 Tarpaulin)	5000
			Regular monitoring of the exhaust fumes.	2500
			Barriers & Traffic Management Expenses. (Excluding Man Power Salary which is included in labour costs)	35880
3	Ramp and Sand Reach	Mining Operations	Regular ramp Inspection and Ramp maintenance. (Excluding Man Power Salary which is included in labour costs)	39000
			Provision of dusk masks.	15000
4	Bank Management	Bank Erosion/Flood Plain management	Green Belt along Road	156000
			Green belt along bank (For Green Belt Development)	312
5	Final Mine Closer Plan implementation	Replenishment of Sand	Provisions of Gabion bunds for protection of bank erosion & replenishment facility.	22500
6	Mobile toilet, sewage handling & treatment		Mobile toilet, sewage handling & treatment	100000
7	CCTV Monitoring		CCTV Camera	60000
			CCTV Monitoring Framework	60000

8	Safety		Signage Boards	6000
			Fencing	18000
			Watching	25000
9	Drinking Water			60000
10	Sanitation			60000
11	Ground Water Monitoring	Water Environment	Ground Water Level monitoring of wells within 1 Km of Quarry Site	50000
			Piezometer installation at quarry location.	45000
12	Noise Monitoring		Regular Maintenance of Vehicles	75000
13	Physical Survey		Provision for physical survey & associated works if different funds are not available.	200000
14	Development of Market Model		Provision for development of market model & associated works if different funds are not available.	25000
15	Environmental Audit		Provision for third party environmental audit if different funds are not available.	50000
			Total EMP Budget	1390192
			Capital Cost	1025092
			Recurring Cost	365100

8. Sand Ghat Site specific enforcement & monitoring plan as per guidelines stipulated in the Enforcement and Monitoring Guidelines for sand mining issued by MoEF&CC in January 2020

- District administration shall provide detailed information on its website about the sand mines in its district for public information with an objective to extend all information in public domain so that the citizens are aware of the mining activities and can also report to the district administration on any deviation observed.
- Appropriate feedback and its redressal mechanism shall also be made operational.
- Details shall include, but not limited to, lease area, geo-coordinates of lease area and mineable area, transport routes, permitted capacity, regulatory conditions for operation including mining, environmental and social commitments etc.

- Independent committee of the expert constituted by DLTF will assess the environmental or ecological damage caused due to illegal mining and recommend recovery of environmental compensation from the miner's concern.
- The recommendation may also include action under the provision of E(P) Act, 1986.

It will be ensured that following security features are included in the Transport Permission/Permits (TP) so that duplicate/fraudulent/forged TPs for transport, not accounted for in the IT-based system, is not possible:

- Printed on Indian Bank Association (IBA) Approved
- Magnetic Ink Character Recognition Code (MICR) paper
- Unique Barcode
- Unique Quick Response Code (QR)
- Fugitive Ink Background
- Invisible Ink Mark
- Void Pantograph
- Watermark
- GP Based Vehicle Tracking System

9. Wathar Bk. Site specific enforcement & monitoring plan as per guidelines stipulated in the Enforcement and Monitoring Guidelines for sand mining issued by MoEF&CC in January 2020.

District Collector ensures that they meet all the compliances of the sustainable sand mining guidelines of 2020 by

1. Appointing an Environmental auditor and a three non-official committee to associate with the Environmental auditor in auditing the reports and in sending it to the District authority and making sure that the same will be accommodated in the DSR.
2. Mobile app - The officers involved in monitoring will be provided with mobile application and/or bar code scanners using which the TP can be checked anywhere on road. As soon as the bar or QR code on TP gets scanned through using the mobile application and/or scanner or vehicle number is entered into the application or sent by SMS to a predefined number, all details of TP such as plot details, vehicle details, validity time, etc. should be fetched from the server. This means if anything is re-written on TP and attempt is made to reuse the same, it can be traced immediately. Various reports can be generated using the system showing daily lifting reports and user performance report. This way the vehicles carrying sand can be tracked from source to destination.
3. Online portal – IT Enabled real time monitoring system would be built to monitor the CCTV Cameras 24*7 and the footages would be made available on the public domain for the Public to enhance transparency in the sand mining and to avoid illegal mining. Budget for CCTV Monitoring in allocated in EMP.

4. Customer care/ telephone call – Would be provided to the citizens to report illegal mining in the district from time to time.
5. The District Collector will get all necessary Permissions from the Electricity Board for power supply to operate the CCTV cameras at sand quarry site and depots.
6. The District Collector will be providing a Minimum of two CCTV cameras, one each at the entry and exit point and one PTZ camera will be installed at all quarries/depots to monitor illegality if any taking place in the sand quarry/depot.
7. The District Collector will ensure uninterrupted seamless live streaming of videos from the surveillance cameras by ensuring a high-speed Internet Lease Line connection at all quarries/depots.
8. The district collector will get live streaming of the videos monitored at a Centralised control room and the data stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the grievance of the public.
9. District collector will ensure that all the Earlier Environmental Clearance conditions would be implemented on time as per the Sustainable sand Mining Guidelines 2020.
10. Ground Water Level Monitoring - Collector will ensure that the Piezometer's would be installed in the Quarry site and all the wells with in one km radius of the Quarry would be monitored regularly. Fluctuations in the ground water would be recorded and necessary measures would be taken from time to time to avoid water depletion. And a separate Budget for Ground water monitoring in included in the EMP.
11. Collector would ensure that senior officials would be doing regular audits with the local police officers that are involved with mining mafia. District collector along with the DSP will ensure that all the FIR's that are in place would be investigated from time to time and necessary action would be taken.
12. All Transportation routes – One from Quarry to sand depo and another from sand depo to the Main road and to end consumer would be tracked and monitored by ensuring only authenticated GPS Vehicle tracking vehicles being allowed to transport the mineral.
13. For road degradation – Budget is allocated in EMP and district collector ensures that the roads are maintenance is properly done by the bidder or through local funds available with collector.
14. Collector will make sure that the Bidder develops Greenbelt plantation along the river bank and on either sides of the approach road and even at the sand depos to prevent air pollution. And all bidders would be enforced only to transport mineral by covering the mineral with tarpaulin covers.
15. Collector will ensure that the bidder develops necessary infrastructure like CCTV Monitoring, CCTV Monitoring, Noise monitoring and Plantations across river bank and approach road in that lease area where the bidder takes lease of the land for storage of the sand.

10. Compliance of earlier Environmental Clearance

a. Last time Satara district had got 13 sand Ghats Environment clearance. Out of these 09 sand Ghats were allotted to sand scooping. Out of which 04 sand Ghats auctioned to private person and 05 allotted to irrigation department. At time of allocation sand Ghats owner were deposited EMD, EMP amount and GB to collector office.

b. During sand Ghats operating period so or tahsildar level team verify the given term and conditions time to time. If sand Ghats owner complied all given term and conditions his deposit like EMD, EMP amount and GB refunded.
c. In this way year 2018-19 13 sand Ghats owner and concern tahsildar submitted the EC and sand mining policy terms and conditions compliance report.

11. Information about any general or specific order passed by competent Hon'ble court.

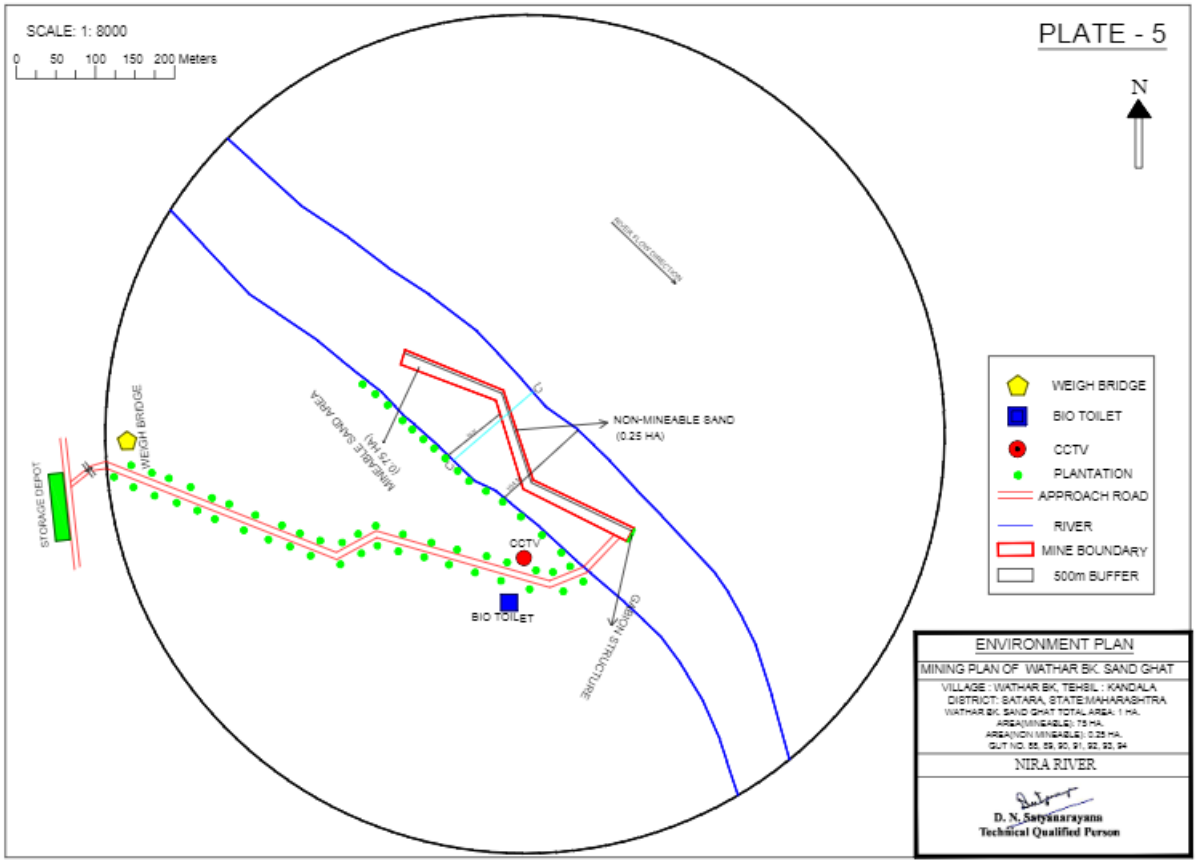
Nil

Conditions Reply:

12. DMO Satara to submit cluster certificate with reference to the EIA Notification 2006 amended from time to time with specific remarks on the cluster formation in the periphery of the proposed sand ghat along with area map showing distances between adjoining sand mine areas. Proposed Wathar Bk. sand ghat does not fall in cluster.

13. PP to submit layout of proposed sand ghat showing mine area, non-mine area, location of bio toilets, location of CCTV cameras, fencing, weigh bridge, approach road etc.

Proposed sand ghat showing mine area, non-mine area, location of bio toilets, location of CCTV cameras, fencing, weigh bridge, approach road etc. layout is given below:



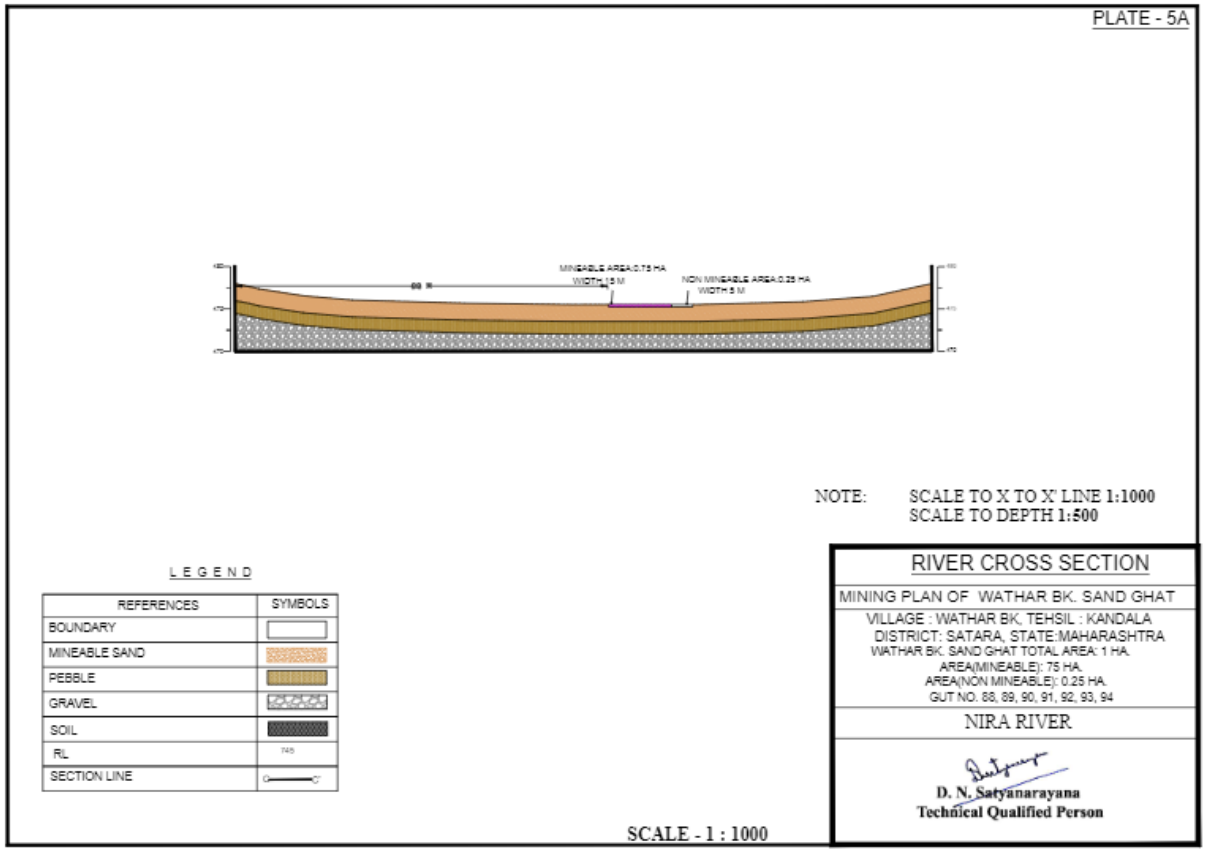
Wathar Bk. sand spot over an extent of 1 HA (MINEABLE AREA-0.75 HA & NON-MINEABLE AREA-0.25 HA) At Nira Riverbed Gut No. 88,90, 91, 92, 93, 94, 89 Wathar Bk. Village, Tehsil- Khandala, Satara District, Maharashtra.

PP to submit details of proposed approach road for transport of mined sand from sand ghat to the storage area and consent of storage area from the concerned land owners is an after-auction activity to use their land as approach road.

The proposed approach road length is 312 m, and it belongs to Gram Panchayat, the mined-out sand from sand ghat will be stored adjacent to approach near the river bank. Consent of road submitted by Khandala Tahsildar is enclosed for use of land as approach road. The successful bidder will be deciding the storage area and get concern from land owner.

3. **PP to submit cross section of river bed showing distance of proposed sand mine area from the river bank and other details as prescribed in the Enforcement & Monitoring Guidelines for sand mining published in January 2020 by MoEF&CC.**

Cross section of river bed is shown below:

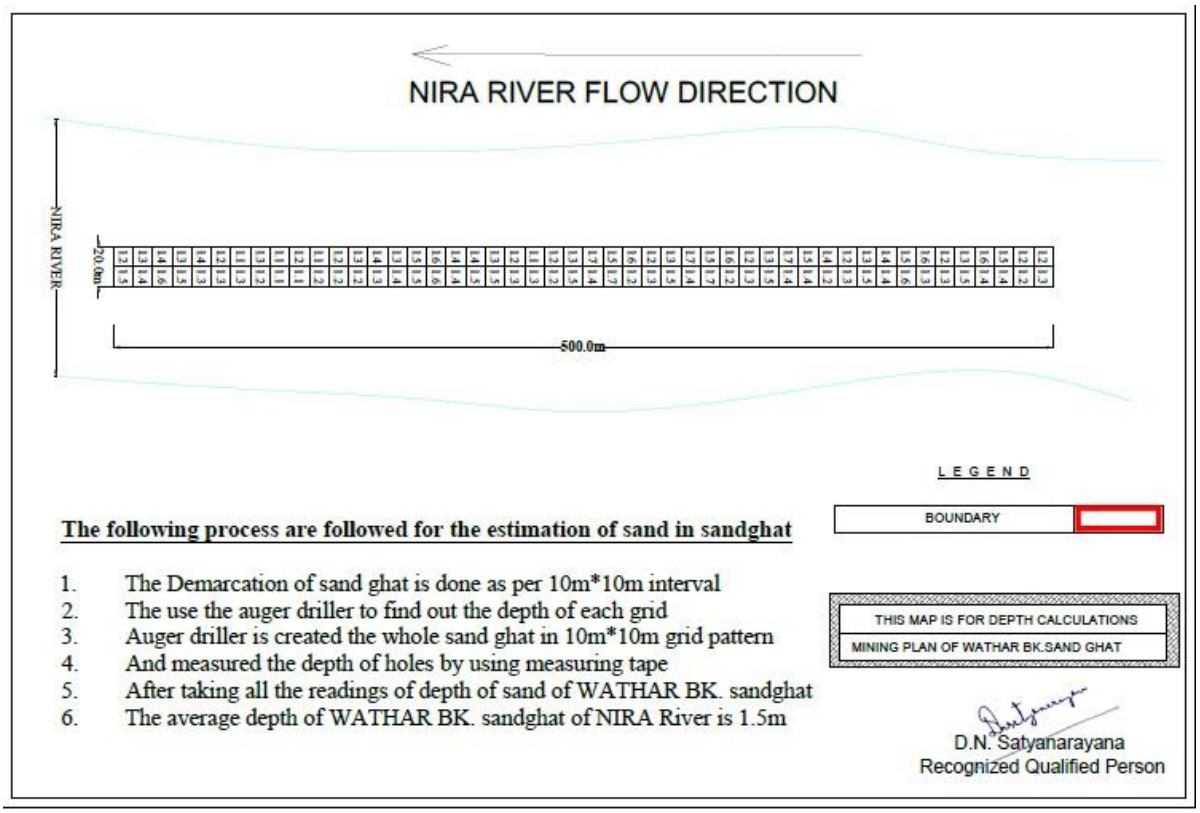


4. **PP to submit details of District Level Task Force committee meetings and status of compliance of its recommendations if any.**

District Level Task Force Committee Meeting details is enclosed.

5. **PP to submit revised replenishment study of sand in the proposed ghat along with details of methodology, technology used to identify the existing reserve and replenishment of the same.**

Wathar Bk. sand spot over an extent of 1 HA (MINEABLE AREA-0.75 HA & NON-MINEABLE AREA-0.25 HA) At Nira Riverbed Gut No. 88,90, 91, 92, 93, 94, 89 Wathar Bk. Village, Tehsil- Khandala, Satara District, Maharashtra.



6. Sediment Yield Calculation

DANDY-BOLTON EQUATION

1. **For Runoff Less Than 2 Inches**
   S=*1280*(Q)*0.46*(1.46-0.26log(A)) *F
2. **For Runoff More Than 2 Inches**
   S=*1958*(Q)*(e-0.055*Q) *(1.43-0.26log (A))

Where

S=sediment yield of stream (t/yr/km2),

Q= average annual runoff (m3),

A= net drainage area in sq. mile

Conclusion:

As per above data sedimentation yield for Nira River. The sedimentation yield is more than permitted sand mining quantity. Hence, the sand mining is safe of environmentally friendly.

7. PP to submit details of proposed plantation plan along with its location and requisite permission to be obtained from the Competent Authority.

Plantation details are presented below:

Location of greenbelt	Both sides of approach road, On the river banks of both sides of the sand spot & nearby open areas Haul Road outside riverbed
Afforestation area/ annum	1624 Sq.m /annum
No. of plants to be planted	812 Per Hectare
Spacing of plants	2 m grid interval
Species selected	Native species

Tree species recommended for Plantation:

Botanical name	**Local name**	**Importance**
Azadirachta indica	Neem	Neem oil & neem products
Tectona grandis	Teek	Antibacterial, Antifungal, Antiulcer
Ficus religiosaa	Peepal	Medicinal Use, Fruits & figs
Bambusa vulgaris	Bamboo	Anthelmintic Anti-inflammatory, Astringent Properties
Madhuca longifolia	Mahua	Acts as a Stimulant & cough relief,

BUDGET FOR CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

S.No.	Budget Allocated	Budget (In INR)
1	Installation of water tankers in nearby village	60000
2	Providing books and uniforms to nearby village school	20000
3	Awareness to local farmers to increase yield of crop and fodder	45000
4	Plantation in community areas	45000
5	Repair of village roads	80000
6	Community Infrastructure Development	150000
	Total	400000

Summary and Conclusion

The environmental status of the project site and study area of 10 km radius is delineated with respect to air, noise, water, land, biological and socio-economic environment. The different project activities in the construction and operation phases are identified. To identify the impacts, the interaction between the project activities and different components of the environment are classified phase wise. A summary of the identified impacts is given in the following paragraphs.

During the operational phase, transportation of sand could cause a temporary disturbance to local environment which will be prevented with the proposed mitigation measures proposed in Point no. 4.

Proposed project will not have any major significant negative impacts. The minor impacts arising out during Excavation and Transportation phases can be mitigated with the help of the proposed Environmental Management Plan.

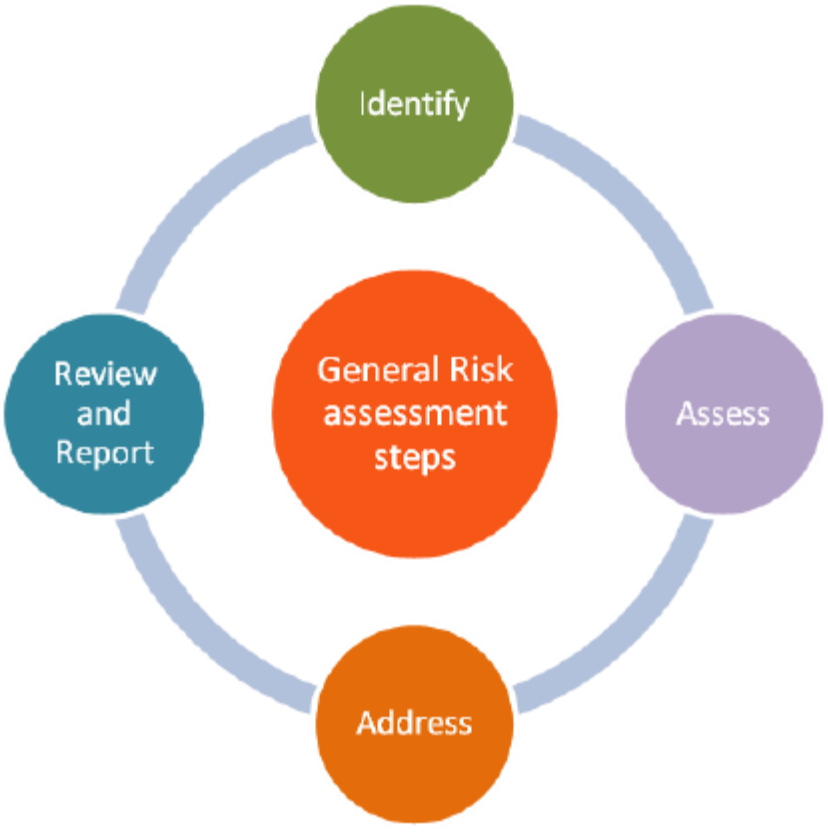
In general, Sand excavation from Wathar Bk Sand Spot will be useful to the developmental work in the district and generate employment opportunities.

Risk Assessment for Wathar Bk Sand Spot

1. Introduction

A main principle of risk assessment is that it should take place before any changes are made. Risks should be assessed, and control measures are put into action before new work is introduced.
or systems are changed. The process should influence budgets and allocation of resources, rather than being an afterthought when the decisions have already been made.

The risk management process is continuous, with well-defined steps that support better decision making by contributing greater insight into risks and their impacts. Risks from all sources are identified and once they pass the materiality threshold, a formal process begins in which causal factors and consequences are identified and the correlation with other risks and the current risk mitigating strategy is reviewed. One of the challenges is to ensure that mitigating strategies are geared to deliver reliable and timely risk information to support better decision-making.



The mining operations at WATHAR BK SAND SPOT are subjected to the risks and hazards normally encountered in open-cast mining operations. These risks include operational risks relating to

materials handling, accidents, removing material from quarry area. Mining processes also rely on key inputs, for example fuel. Appropriate insurance can provide protection from some, but not all, the costs that may arise from unforeseen events. If any of these risks should materialize, such an event could result in serious harm to employees and contractors, delays in production, increased production costs and possible increase in liabilities.

Disruption to the supply of key inputs, or changes in their pricing, may have a material and adverse impact on WATHAR BK SAND SPOT asset values, costs, earnings, and cash flows. Failure to meet production target results in increased unit costs. The impact is more pronounced at operations with a high level of fixed costs. Mitigation strategies include efforts to secure strategic supplies at competitive prices, energy reduction, and application of group water management guidelines, adoption of lean production principles and practices and business improvement initiatives to reduce unit costs.

There are certain aspects which should be taken care of, in a quarrying plan with accordance of risk management.

Components	Risk Involved
Land Slides	The continues mining of river sand may affect, on the long run, the stability of banks of the river which in turn may lead to land slides
Fire	Only trucks and tractors will make use of diesel for transportation. Diesel is not so highly inflammable but accidental fires can take place.
Road Accidents	Vehicles are used for transporting the material from quarry area to the buyer's location. Due to some improper maintenance of the vehicle a road accident can occur leading to fatal results.

To minimize the risk, certain measures can be taken like implying safety rules, facilities of basic first aid near the site and having training for the workers about personal safety.

Disaster Management Plan is envisaged with a goal to prevent hazards and accidents at work places by careful design, operation, and maintenance of equipments. All safety precautions and provisions of Metalliferous Mines Regulation-1961 will be strictly followed. Suitable control measures will be adopted to take care of hazards/disasters that may occur during mining operation.

- Firefighting, first aid provisions & safety appliances will be made available to the staff and their use regularly checked.
- Regular maintenance of all haulage roads & mining machinery as per manufacturer's guidelines will be done.

APPENDIX VIII
(See paragraph 6)
FORM 1 M
APPLICATION FOR MINING OF MINOR MINERALS UNDER CATEGORY 'B2' FOR LESS THAN AND EQUAL TO FIVE HECTARE

(I) Basic Information

(i) Name of the Mining Lease site: Songaon Sanimb Sand Spot

(ii) Location / site (GPS Co-ordinates):

Boundary points of Songaon Sanimb sand spot	Latitude	Longitude
BP1	17°42'44.84"N	74° 3'28.69"E
BP2	17°42'43.94"N	74° 3'30.49"E
BP3	17°42'38.65"N	74° 3'27.80"E
BP4	17°42'39.52"N	74° 3'26.03"E

(iii) Size of the Mining Lease (Hectare): 1.08 HA

(vi) Capacity of Mining Lease (TPA): 2862 Brass

(v) Period of Mining Lease: 1 year

(vi) Expected cost of the Project: 188.72028 Lakhs

(vii) Contact Information: District Mining Officer Satara, Maharashtra

(II) Environmental Sensitivity

S. No.	Areas	Distance in Kilometer/Details
1	Distance of project site from nearest rail or road bridge over the concerned River, Rivulet, Nallah etc.	Bridge, 2869m SW
2	Distance from infrastructural facilities Railway line National Highway State Highway Major District Road Any Other Road Electric transmission line pole or tower Canal or check dam or reservoirs or lake or ponds	 Satara railway station,1.23Km,E NH4,3.32Km,W SH-72, 5.1Km,SW 0.68Km, E 0.47Km, W 0.31Km, W Krishna River Bed

	In-take for drinking water pump house Intake for Irrigation canal pumps	Nil Nil
k	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	Nil
4	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	Water bodies: this is the case of river sand mining in Krishna River bed
5	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, overwintering, migration	Nil
6	Inland, coastal, marine or underground waters	Krishna River Bed
7	State, National boundaries	Nil
8	Routes or facilities used by the public for access to recreation or other tourist, Pilgrim areas	SH-72, 5.1Km,SW
9	Defence installations	Nil
10	Densely populated or built-up area, distance from nearest human habitation	Patkhal, 1.38Km, NW
11	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	There were some schools, hospitals temples, within in the boundary not in the core zone
12	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	Krishna River Bed (this is the case of river sand mining)
13	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	Nil
14	Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions)	The mine lease area falls in Seismic Zone III (Moderate), according to the Indian Standard Seismic Zoning Map.
15	Is proposed mining site located over or near fissure / fracture for ground water recharge	No
16	Whether the proposal involves approval or clearance under the following Regulations or Acts, namely:- (a) The Forest (Conservation) Act, 1980;	No

	(b) The Wildlife (Protection) Act, 1972; (c) The Coastal Regulation Zone Notification, 2011. If yes, details of the same and their status to be given.	
17	Forest land involved (hectares)	Nil
18	Whether there is any litigation pending against the project and/or land in which the project is propose to be set up? (a) Name of the Court (b) Case No. (c) Orders or directions of the Court, if any, and its relevance with the proposed project.	Nil

PRE-FEASIBILITY REPORT

- District Collector Satara vides his right to auction Sand as a minor mineral intends to auction the Sand in Satara district.
- District Collector Satara appointed M/s Integrated Precision Systems & Services Pvt. Ltd., for preparation of Mining Plan and grant of environmental clearance.
- Applicant proposed to auction the said Sand Spot over an area of 1.08 Ha (0.81 Ha. Mineable & 0.27 Ha. Non-Mineable area and identified for preparation of mining plan and for grant of Environmental Clearance.
- Mining Plans are prepared by Recognized Qualified Person and approved by Directorate of Geology & Mining Govt. of Maharashtra.
- About 2862 Brass sand is proposed to auction from proposed sand spot.
- Proposed site is located at the Krishna river bank.

1. Physiography

Physiography is one of the dominant parameters of physical environment and its impact on patterns and density of agriculture is immense. The study of the influence of environment upon the nature and the distribution of crop and livestock is of prime importance in agricultural geography.

Satara district is the part of Deccan trap of Indian Peninsula. The physical setting of district is divided in the hilly range, valley, tableland, plateau, and plain area. The physiographic landscape of district influences the spatio-temporal climatic characteristics. The variation of relief height is 1426 meter in the Sahyadri range to the 405 meter in the basin of the Nira river in the Phaltan tehsil above Mean Sea Level. However, the district can be broadly divided into major four morphological units, viz. The Sahyadri's, Krishna valley, Nira valley, and Mahadev hills and Eastern plateau.

The Sand Ghat area as per survey is River bed of Krishna River. The slope is of 8 m from 549 to 557 MSL. The slope of Sand Ghat area is towards SW side. The highest MSL is 557 & lowest 549 MSL. The flow of Krishna River is from NE to SW direction.

2. Local Geology

The local geology is Sand of various size up to depth of 2.0-2.5-meter depth.

3. Details of Exploration

There is sufficient reserve of Sand available & 70% of sand replenishes after every year monsoon season therefore conceptual period of mining will be till existence of riverbed.

Mining - The mining will be continued with present method of open cast mining by cutting slice of 1.00 m of Sand along topography, by advancing from SW to NE direction as per allotted area by auction. The production can be at the rate of 8100 Cu. M or 2862 brass till 1 year (2020-2021)

from the date of mining plan approval. The size of pit at the end will be 0.81HA.

4. Introduction of the project/ background information

The Songaon Sanimb Sand Spot has been kept for Auction, which is situated at Village Songaon Sanimb, Taluka Satara, and District Satara and hence prior to go for Auction a Mining Plan and Environmental Clearance are required and hence Mining Plan is being prepared.

i) Brief description of project

There is sufficient reserve of Sand available & 70% of sand replenishes after every year monsoon season therefore conceptual period of mining will be till existence of riverbed.

Mining - The mining will be continued with present method of open cast mining by cutting slice of 1.00 m of Sand along topography, by advancing from SW to NE direction as per allotted area by auction. The production can be at the rate of 8100 Cu. M or 2862 brass till 1 year (2020-2021) from the date of mining plan approval. The size of pit at the end will be 0.81HA.

ii) Need for the project.

The Sand or Sand Spot under reference is aimed at exploring Sand as ROM in various sizes i.e., fine to Coarse grain which is Transported to consumer site in outside Sand Spot area, for the infrastructure development i.e., Construction activity to produce Concrete for putting in the floor, roof- slabs, Column, Pillars, Bridges & Dam construction.

5. Project Description

This mining project is an independent project and not an interlinked project.

i) Location

Songaon Sanimb is a small Village/hamlet in Satara Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 5.6 KM towards SW from District headquarters Satara. Approximately 195 KM from State capital Mumbai.

The sand spot area is connected to approach road at 739 meter in East direction. NH-4 road is situated at a distance of 3.5 km. in the west of the sand ghat spot. Satara Railway Station is present at a distance of 5.5 km.

The area is covered in SOI Toposheet No- 47K/2. The GPS reading of boundary point are given below:

Boundary points of Songaon Sanimb	Latitude	Longitude
BP1	17°42'44.84"N	74° 3'28.69"E
BP2	17°42'43.94"N	74° 3'30.49"E
BP3	17°42'38.65"N	74° 3'27.80"E
BP4	17°42'39.52"N	74° 3'26.03"E

ii) Alternate Sites

No alternate site is proposed.

iii) Magnitude of Operation

Proposed period for mining of sand will be decided by the office of district Collectorate 8100 Cu.m. will be excavated during the period.

iv) Project description-mining details

The Agency will start the work after getting Allocation Letter from the competent Authority by Opencast manual mining method. The size of the pit is mentioned as 180m Length X 45m Width at the end of Sand Spot mining period. There will be no dumps of material inside the Sand Spot area as all the mined-out sand will be saleable. These Mine features are shown on Surface Plan and are enclosed as Plate No – 3.

The Sand Spot has sufficient Reserve of Sand to work at 8100 Cu.m for a specified period mentioned i.e., 1 year (2020-2021 from the date of mining plan approval as per agreement, from there the Sand Spot will be due for another Mining plan. The mining will continue with opencast method of Mining by cutting 1.00 m slice of Sand by advancing from SW to NE direction as per allotted Sand Spot area and handling of material with the help of laborers into the tractor having capacity of 1 Brass for transport of Sand to the various dealer sites located outside the Sand Spot area.

v) Raw material, marketing & transport of ore

The proposed sand spot will be auctioned, and successful bidder will be responsible for carrying out mining operations as per environmental terms and conditions, approved mining method as per approved mining plan and other terms and conditions. The loading of Sand generated to the tractor/tipper/dumpers will be done by loaders & material transported to the Dealer site.

vi) Resource optimization, recycle, reuse.

Production of sand will be decided by the factors like replenishable nature of sand, ecological sensitivity and various features existing in buffer zone. The decision regarding auctioning of sand will be on yearly basis and the above factors will be studied before decision is taken.

vii) Water & energy requirement

The major water requirement in the lease area is for dust suppression and for drinking use. The total water requirement is estimated as 14.78 KLD. The required water for dust suppression can be arranged through tankers from nearby village and drinking water will be provided in earthen pots for laborers. The vehicles used for transportation will use diesel of about 125-150 litres /day.

viii) Quantity of waste & scheme for management

There will not be any waste generation within the lease area.

ix) Schematic Representations

It is a proposal of opencast manual sand mining from river bed. Mining plan is approved by the competent authority.

6. Site Analysis

i) Connectivity

Songaon Sanimb is a small Village/hamlet in Satara Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 5.6 KM towards SW from District headquarters Satara. Approximately 195 KM from State capital Mumbai.

The sand spot area is connected to approach road at 739 meter in East direction. NH-4 road is situated at a distance of 3.5 km. in the west of the sand ghat spot. Satara Railway Station is present at a distance of 5.5 km.

ii) Land Use, form & Ownership

The ultimate land use pattern for the lease area of 1.08 Ha. will be consisting of

1. Mining Area:	1.08 Ha.
2. Construction of Temporary Roads:	0.00 ha.
3. Total:	1.08 Ha.

At present ownership of this sand spot area is in the hand of Govt. of Maharashtra, after approval of mining plan and EC quarry area will be transfer to bidder after auction.

iii) Geology

The proposed sand spot area is the case of a river bed which contains mixture of sand, pebbles, and gravels of various sizes.

Existing land use pattern

Existing Sand spot is a river bed having 2.0-2.5 m of sand.

7. Social-Economic Environment

Critically analyzing the existing environmental status of the socio-economic profile and visualizing the scenario with the project, the impacts of the project would be varied and may generate positive impacts of the mining of sand quarry in the region that are stated below:

A. The mining operations will provide direct & indirect employment to the village.

B. The villages and their inhabitants & domestic animals will not be disturbed due to mining as quarry is far from their settlements.

C. Local workforce will be given first preference for employment.

D. Mining activities will benefit the local people due to provision of more infrastructural facilities (developments of approach routes within the village area).

8. Planning brief

The proposed project is opencast manual sand mining activity.

Supply demand ratio:

Information required on demand and supply of district (2020-21)			
Sr. No	**Name of District**	**Total Sand Demand of District in Brass (Approximately)**	**Total Sand Available in district in Brass (Approximately)**
1	**Satara**	**154227**	**98871**

Tahsil Office Sand Information (2020-21)			
Sr. No	**Name of Tahsil**	**Total Sand Demand if Tahsil in Brass (Approximately)**	**Total Sand Available in Tahsil in Brass (Approximately)**
1	Satara	15266	14269
2	Patan	12461	0
3	Koregaon	11696	10233
4	Karad	30143	3536
5	Jawali	2495	0
6	Khatav	22657	21367
7	Man	23671	22982
8	Khandala	2940	2372
9	Wai	5480	0
10	Phaltan	25315	24112
11	Mahabaleshwar	2103	0
		154227	**98871**

Ongoing Government Civil/ infrastructural works in the district (2020-21)			
Sr. No	**Name of Govt. Yojana**	**Details of work**	**Approx Qty of Sand required in Brass**
1	Satara Irrigation Department, Satara	Dam work of Kas, Kudali, Tarali, Wang, Morana, Dhom-Balakwadi	21158
2	Public Works Department (West)	Government College of Engineering Library and other building Work	2297
3	Public Works Department ZP Satara	Primary Health Centre Building Work	1150
4	Phaltan Nagarpalika Phaltan	Gharkul Project	130
5	Mhaswad Nagarpalika Dahiwadi	Gharkul Project	415
6	Khatav Nagarpalika Vaduj	Gharkul Project	211
		Total	**25361**

वाळूच्या **Demand and supply ratio** नुसार तफावत दिसत असली तरी आपण एका हेक्टरपेक्षा कमी क्षेत्र असलेले वाळुगट वगळलेले आहे.

सातारा जिल्ह्यातील काही स्टोनक्रशर धारकांनी दगडाद्वारे वाळू तयार करण्याचे मशिनी बसवलेल्या आहेत. त्याद्वारे कृत्रीम वाळूची निर्मीती करुन बांधकामासाठी उपलब्ध होत असलेने शासकीय यंत्रणांकडून व इतर व्यवसायिकांकडून वाळूची मागणी होत नसलेचे दिसून येत आहे.

सातारा जिल्ह्यातील **CREDAI** संघटनेकडील माहितीदवारे असे निदर्शनास आले की, काही बांधकाम व्यवसायीक बांधकामासाठी **FLY Ash** द्वारे निर्माण केलेल्या विटांचा वापर करतात सदर विटा रासायनिक पदार्थ वापरुन जोडल्या जातात व आतील प्लास्टरसाठी **gypsum** चा वापर केला जातो.

Replenishment:

- Area of deposition and erosion was calculated for each cross-section after giving due regard to stability & safety of active channel banks & other features of importance.
- DGPS and other survey tools have been used to define topography, contours, and offsets of lease area.
- Contour & elevation benchmarks are provided with the baseline data for assessing pre and post-study period scenario.
- Physical benchmarks are fixed at intervals (1 in 30 m) & Reduced Levels (RL) are validated from a nearby standard RL.
- These RL are engraved on a steel plate (Bench Plate) & are fixed & placed at locations which are free from any damages & are available in pre- and post-study period.
- Bench plates are available for use during the mining period as reference for all mining activity.
- Baseline data on elevation status for a grid of 10 m x 10 m is taken to ensure the accuracy in the assessment.
- It was made sure that two consecutive cross-sections in longitudinal and lateral direction is not more than 10-meter distance apart.
- Changes have been observed in the elevation in per and post scenario at each node and were depicted in graphical forms with an appropriate scale for estimating the area of deposition & erosion.
- Elevation level was placed in reference to the nearest bench-plates established for the purpose.
- The levels (MSL & RL) of corner point of each grid were identified and safety barriers (Non-Mining) are demarcated as restricted in consensus with Mineral Concession Rules of respective State, and the provision mentioned in this Sustainable Sand Mining Management Guidelines.
- A clear identification was highlighted between grids under mineable and grids under the non-mineable area. These baseline data (pre and post) was subjected to stimulation with the help of data mine software to derive at the replenishment area and corresponding volume and estimated weight.
- The database was structured in a tabulated form clearly depicting the nomenclature of the section lines, latitude and longitude of the starting point, chainage, and respective levels of all the points taken on that section line.
- Net area was derived after summation of area of deposition minus area of erosion for each cross-section.
- Volume was estimated by multiplying distance between two cross-sections with average of net area of these two consecutive cross-sections.
- One sample per 900 square meters (30 m x 30 m) was preferred for sample density for assessment of bulk density for estimation of deposition rate.
- Care was taken that the sample for assessment of bulk density is taken from the deposition zone & not from erosion. During the replenishment studies, Areas selected have large depositions are selected for sand mining and degraded land is avoided for Sand Mining. Taluka Level committee has approved the sand mines with large amount of sand depositions.
- Physical survey is done to ensure that the approved areas have large amounts of sand depositions.

- During the Physical Survey-Benchmarks has been established along the river banks and ensured that the Bifurcation of Mining and Non-Mining is done.

Sediment Yield Calculations for River Streams

DANDY-BOLTON EQUATION

1. **For Runoff Less Than 2 Inches**

S=*1280*(Q)*0.46*(1.46-0.26log(A)) *F

1. **For Runoff More Than 2 Inches**

S=*1958*(Q)*(e-0.055*Q) *(1.43-0.26log (A))

Where:

S=sediment yield of stream (t/yr/km2),

Q= average annual runoff (m3),

A= net drainage area in sq. mile

5. Sand Ghat Site specific enforcement & monitoring plan as per guidelines stipulated in the Enforcement and Monitoring Guidelines for sand mining issued by MoEF&CC in January 2020

- District administration shall provide detailed information on its website about the sand mines in its district for public information with an objective to extend all information in public domain so that the citizens are aware of the mining activities and can also report to the district administration on any deviation observed.
- Appropriate feedback and its redressal mechanism shall also be made operational.
- Details shall include, but not limited to, lease area, geo-coordinates of lease area and mineable area, transport routes, permitted capacity, regulatory conditions for operation including mining, environmental and social commitments etc.
- Independent committee of the expert constituted by DLTF will assess the environmental or ecological damage caused due to illegal mining and recommend recovery of environmental compensation from the miner's concern.
- The recommendation may also include action under the provision of E(P) Act, 1986.

It will be ensured that following security features are included in the Transport Permission/Permits (TP) so that duplicate/fraudulent/forged TPs for transport, not accounted for in the IT-based system, is not possible:

- Printed on Indian Bank Association (IBA) Approved
- Magnetic Ink Character Recognition Code (MICR) paper
- Unique Barcode
- Unique Quick Response Code (QR)
- Fugitive Ink Background
- Invisible Ink Mark
- Void Pantograph
- Watermark
- CCTV at mine lease site
- GPS Based Vehicle Tracking System

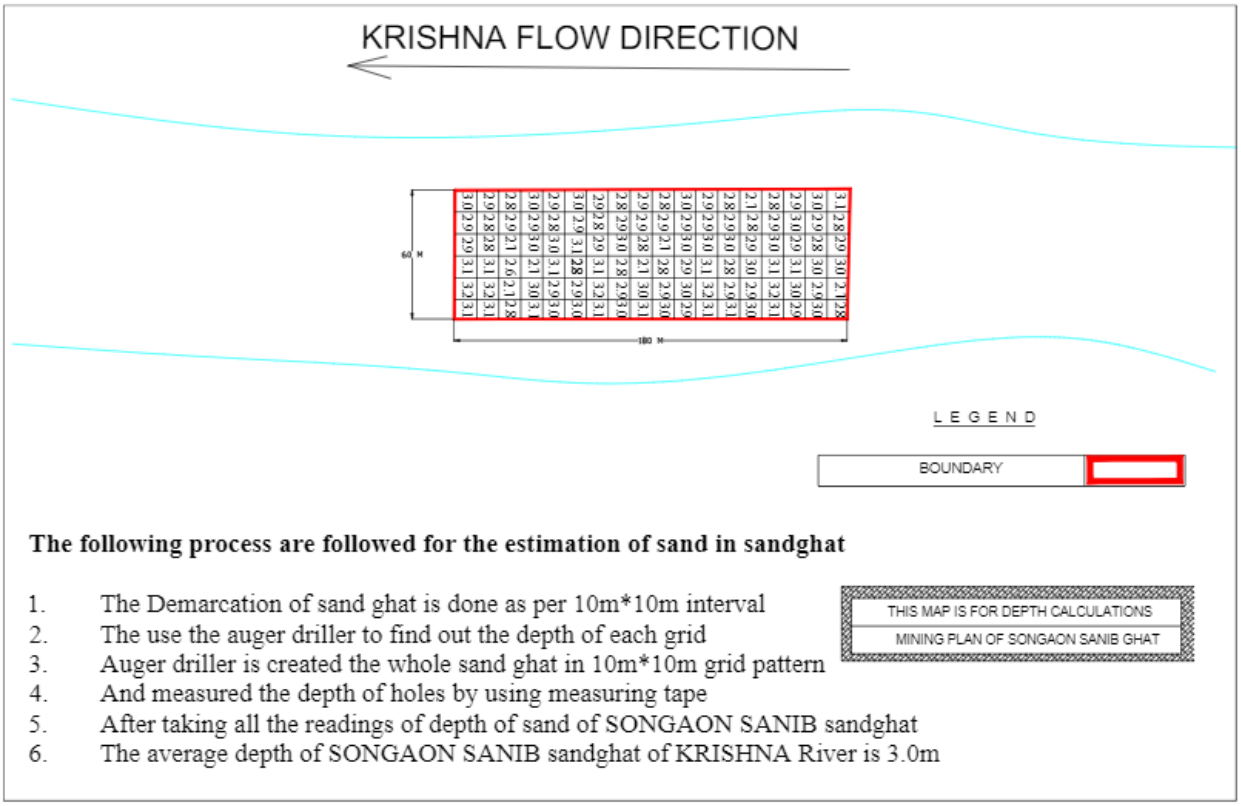
The site services as per statute, like Mine office, storeroom, workshop, first aid Room & water point will be provided outside Sand Spot area.

District Collector ensures that they meet all the compliances of the sustainable sand mining guidelines of 2020 by

1. Appointing an Environmental auditor and a three non-official committee to associate with the Environmental auditor in auditing the reports and in sending it to the District authority and making sure that the same will be accommodated in the DSR.
2. Mobile app - The officers involved in monitoring will be provided with mobile application and/or bar code scanners using which the TP can be checked anywhere on road. As soon as the bar or QR code on TP gets scanned through using the mobile application and/or scanner or vehicle number is entered into the application or sent by SMS to a predefined number, all details of TP such as plot details, vehicle details, validity time, etc. should be fetched from the server. This means if anything is re-written on TP and attempt is made to reuse the same, it can be traced immediately. Various reports can be generated using the system showing daily lifting reports and user performance report. This way the vehicles carrying sand can be tracked from source to destination.
3. Online portal – IT Enabled real time monitoring system would be built to monitor the CCTV Cameras 24*7 and the footages would be made available on the public domain for the Public to enhance transparency in the sand mining and to avoid illegal mining. Budget for CCTV Monitoring in allocated in EMP.
4. Customer care/ telephone call – Would be provided to the citizens to report illegal mining in the district from time to time.
5. The District Collector will get all necessary Permissions from the Electricity Board for power supply to operate the CCTV cameras at sand quarry site and depots.
6. The District Collector will be providing a Minimum of two CCTV cameras, one each at the entry and exit point and one PTZ camera will be installed at all quarries/depots to monitor illegality if any taking place in the sand quarry/depot.
7. The District Collector will ensure uninterrupted seamless live streaming of videos from the surveillance cameras by ensuring a high-speed Internet Lease Line connection at all quarries/depots.

8. The district collector will get live streaming of the videos monitored at a centralised control room and the data stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the grievance of the public.
9. District collector will ensure that all the Earlier Environmental Clearance conditions would be implemented on time as per the Sustainable sand Mining Guidelines 2020.
10. Ground Water Level Monitoring - Collector will ensure that the Piezometer's would be installed in the Quarry site and all the wells with in one km radius of the Quarry would be monitored regularly. Fluctuations in the ground water would be recorded and necessary measures would be taken from time to time to avoid water depletion. And a separate Budget for Ground water monitoring in included in the EMP.
11. Collector would ensure that senior officials would be doing regular audits with the local police officers that are involved with mining mafia. District collector along with the DSP will ensure that all the FIR's that are in place would be investigated from time to time and necessary action would be taken.
12. All Transportation routes – One from Quarry to sand depo and another from sand depo to the Main road and to end consumer would be tracked and monitored by ensuring only authenticated GPS Vehicle tracking vehicles being allowed to transport the mineral.
13. For road degradation – Budget is allocated in EMP and district collector ensures that the roads are maintenance is properly done by the bidder or through local funds available with collector.
14. Collector will make sure that the Bidder develops Greenbelt plantation along the river bank and on either sides of the approach road and even at the sand depos to prevent air pollution. And all bidders would be enforced only to transport mineral by covering the mineral with tarpaulin covers.
15. Collector will ensure that the bidder develops necessary infrastructure like CCTV Monitoring, CCTV Monitoring, Noise monitoring and Plantations across river bank and approach road in that lease area where the bidder takes lease of the land for storage of the sand.

Sand Quantity Evaluation:



The following process are followed for the estimation of sand in sandghat

1. The Demarcation of sand ghat is done as per 10m*10m interval
2. The use the auger driller to find out the depth of each grid
3. Auger driller is created the whole sand ghat in 10m*10m grid pattern
4. And measured the depth of holes by using measuring tape
5. After taking all the readings of depth of sand of SONGAON SANIB sandghat
6. The average depth of SONGAON SANIB sandghat of KRISHNA River is 3.0m

6. Proposed Infrastructure

The site services as per statute, like Mine office, storeroom, workshop, first aid Room & water point will be provided in outside Sand Spot area.

7. R&R Plan

R&R is not involved.

8. Project schedule

Period of mining for the proposed sand spot will be decided by the Office of District Collectorate.

9. Analysis of Proposal

Description of the project included in items 1-10 above indicates the following:

1. It is proposed for opencast manual river sand mining.
2. Opencast mining without hampering the present environmental quality of the area.
3. Income to local people is uncertain & initiation of mining will ensure regular income to local people.

10. Costing

Costing parameters will be decided by the District Authorities.

11. Compliance to Environment Clearance

a. Last time Satara District had got 13 Sand Ghats Environment clearance. Out of those 09 sand Ghats were allotted to sand scooping. Out of which 04 sand Ghats auctioned to private person and 05 allotted to irrigation department. At time of allocation sand Ghats owner were deposited EMD, EMP amount and GB to Collector office.
b. During sand Ghats operating period so or tahsildar level team verify the given term and conditions time to time. If sand ghats owner complied all given term and conditions deposit like EMD, EMP amount and GB refunded.
c. In this way year 2018-19 13 sand Ghats owner and concern tahsildar submitted the Environment and sand mining policy terms and conditions compliance report.

12. Any Other Information:

Whether there are any serious violation of safety rules and regulation which may jeopardize human health and safety. If so, give details of violations and state the steps proposed to be taken with the time scheduled to rectify the violations:

No, there are not any serious violation of safety rules and regulation, which may jeopardize human health and safety. The applicant has given a commitment in this effect and undertaking also given to follow and implement, as specified in the mining plan. The applicant is undertake to abide and implement any special conditions imposed by various authorities and also to complete formalities under provision of the Mines & Mineral (Development & Regulation) Act, 1957 and the Bombay Minor Mineral rules, the Mineral Conservation and Development Rules, 1988 as amended, the Maharashtra Minor Minerals Extraction (Development and Regulation) Rule 2013, MoEF & CC Notification S.O. 141 (E) dated 15th January 2016, and MoEF & CC Sustainable Sand Mining Management Guidelines 2016, Sustainable Sand Mining Management Guidelines 2019,Sand Mining Policy 2020

Stringent stipulations have been laid out while issuing EC. This includes regular monitoring of environmental parameters and carrying out various mitigates measures to protect the environment.

These things will be religiously followed, and its report will be periodically 9) Virgin lease area for Sand Mine & Other Uses 3.11 0.000 10) Road - - 11) Railway - - 12) Tailing Pond - - 13) Effluent Treatment Plant - - 14) Mineral separation plant - - 15) Township Area - - 16) Others to specify - - 17) Ownership Government River Government River Total 3.11 3.11 submitted to the concerned authority.

All Notices, Letters received from Government and all communication with Government (Court, NGT, DGMS, Directorate of Geology and Mining, District Mining Officer, Collector, Tehsildar, Grampanchayat, Talathi, Pollution Control Board, Forest department, Environment department, Irrigation department, Public Works Departments, Controller of Explosive, Labor Commissioner, Sale tax etc.) regarding Mine Lease and Mining will be strictly followed by Mine Owner. Mine Owner must follow all provisions of the Maharashtra Minor Minerals Extraction (Development and Regulation) Rule-2013, MoEF & CC Notification S.O. 141 (E) dated 15th January 2016, and MoEF & CC Sustainable Sand Mining Management Guidelines 2016, the

Environment (Protection) Act 1986 and Rules made there under, the Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Hazardous Wastes (Management and Handling) Rules 1989, the Wildlife (Protection) Act 1972, the Forest Conservation Act-1980, the Forest Conservation Rule-2003, the Mineral Conservation and Development Rule-1988, the Mineral Concession Rules-1960, the Mines and Minerals (Development and Regulation) Act-1957, the Mines Act, the Mines Rule, the Mines Regulations, the public Liability Insurance Act 1991 and its amendments, Orders and Bye Laws made there under and any laws or guidelines that may be applicable to mine / area from time to time whether made by Central or State Government or any other authority. Wherever specific permissions are required, the applicant will approach the Directorate General of Mines Safety, Indian Bureau of Mines and Directorate of Geology and Mining. Mine Owner should obtain relevant clearances as per Environment Protection Act-1986 and EIA notification dated 21.01.1994 and 04.09.2006.

Environmental Management Plan

Songaon Sanimb sand spot over an extent of 1.08 HA (MINEABLE AREA-0.81 HA & NON-MINEABLE AREA-0.27 HA) At Krishna Riverbed Gut No. 1368/1, 1368/2, 1367/2, 1364अ, 1364ब, 1357, 1347, 1366/1, 1366/2, 1348 - Songaon Sanimb Village, Tehsil-Satara, Satara District, Maharashtra.

---

1. Introduction

Ministry of Environment and Forest (MoEF) Notification 2006 and Sustainable Sand Mining Management Guidelines 2016 and as per provision in Mines and Minerals (Development and Regulation) Act 1957 Schedule 60 section 15, Govt Of Maharashtra makes a Minor Mineral Extraction Rules 2013 to extract all the minor mineral in scientific way so that there is no adverse impact on Environment and Climate. To extract every minor mineral from any land (either Government or Private) there is provision of mining plan which is approved by competent authority; For long term leased minor mineral (5 – 10 years period) and Sand excavation from river bed, Senior Deputy Director of Directorate of Geology and Mining is a Competent authority, for short term Temporary permits which is valid for one year, Committee headed by Hon. Collector is Final authority to Approved the District Mining Plan.

As per Minor Mineral Extraction Rules 2013 Rules 70, Disposal of sand from River bed, Nallah and creeks by way of public auction, in this regards Govt resolution Gaukhni -10/0615/case No. 289/kha dated 3rd January 2018 is applicable in entire state. As per Sustainable sand mining management guidelines 2016, Standard Environment condition for sand mining and sustainable mining practices, district level survey report should be prepared and area suitable for mining and area prohibited for mining be identified.

2. Project Description

Songaon Sanimb is a small Village/hamlet in Satara Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 5.6 KM towards SW from District headquarters Satara. Approximately 195 KM from State capital Mumbai.

The sand spot area is connected to approach road at 739 meter in East direction. NH-4 road is situated at a distance of 3.5 km. in the west of the sand ghat spot. Satara Railway Station is present at a distance of 5.5 km.
The area is covered in SOI Toposheet No- 47K/2.

Table 1: Salient Features of the Project

<table>
<tr><th>Items</th><th>Details</th></tr>
<tr><td>Location</td><td>Songaon Sanimb Village, Tehsil-Satara, Satara District, Maharashtra.</td></tr>
<tr><td>Latitude and Longitude</td><td>
<table>
<tr><th>BOUNDARY PILLAR</th><th>LATITUDE</th><th>LONGITUDE</th></tr>
<tr><td>BP1</td><td>17°42'44.84"N</td><td>74° 3'28.69"E</td></tr>
<tr><td>BP2</td><td>17°42'43.94"N</td><td>74° 3'30.49"E</td></tr>
<tr><td>BP3</td><td>17°42'38.65"N</td><td>74° 3'27.80"E</td></tr>
</table>
</td></tr>
</table>

	BP4 17°42'39.52"N 74° 3'26.03"E
Sand spot area (In Ha)	1.08
Proposed production capacity (In Brass)	2862
Manpower Requirement (considering 3-month period)	10 labors + 1 mate + 1 Supervisor = 12man/day
Infrastructure Requirement (As per Govt Resolution 3rd January 2018)	1. Room / Hut for Official records 2. Electricity / Battery for Running CCTV on 24X 7 daily. 3. One Computer / Android base Mobile for the online generation of Invoice number.
Water requirement & source	14.78 KLD – Tankers from nearby village.
Project cost INR (Lakh)	188.72028

3. Baseline Environmental Studies

a. Topography

Satara district is the part of Deccan trap of Indian Peninsula. The physical setting of district is divided in the hilly range, valley, tableland, plateau, and plain area. The physiographic landscape of district influences the spatio-temporal climatic characteristics. The variation of relief height is 1426 meter in the Sahyadri range to the 405 meter in the basin of the Nira river in the Phaltan tehsil above Mean Sea Level. However, the district can be broadly divided into major four morphological units, viz. The Sahyadri's, Krishna valley, Nira valley, and Mahadev hills and Eastern plateau.

The Sand Ghat area as per survey is River bed of Krishna River. The slope is of 8 m from 549 to 557 MSL. The slope of Sand Ghat area is towards SW side. The highest MSL is 557 & lowest 549 MSL. The flow of Krishna River is from NE to SW direction.

b. Hydrology

There will be no change in water table during mining operation, as the depth of mining shall be restricted to 1m water level, which is less likely to affect surface level or ground water table. There is no proposal of any stream modification/diversion due to this mining activity hence there will not be any impact on flow of water.

c. Soil Environment

The area is not having any top soil or fertile soil. The depth of mining shall be restricted to 1m. There is no major impact on soil of the study area is envisaged due to mining activities.

d. Land Use Land Cover

The project area does not consist of any forest land. It does not consist of any human habitations. Any change in scope of mining as per approved mining plan can lead to bank erosion /cutting and thereby river channel shifting degradation of land, causing loss of properties and degradation of surrounding landscape.

e. Water Environment

There will not be any wastewater discharges to water bodies from the mining operations. As observed in the River, the thickness of sand to be excavated will be 1.00m only so there will not be any intersection with ground water table. It is observed from the dug well in the adjacent plain area and in the nearby villages that the ground water table varies depending upon seasonal variations. The depth to water levels in the district ranges from 0.90 to 25.00 m BGL in pre-monsoon season and the depth to water levels in post-monsoon ranges from 0.10 to 19.10 m BGL. As the mining activities presently proposed are maximum upto 1.00m that to within the river course and the total mining operation will be achieved through manual means, there will be no effect on ground water table. All the stipulations of MoEF for sand mining and guidelines as per the Maharashtra Minor Mineral Extraction [Development and Regulation] Rules, 2013 of Section 15 of MMDR Act 1957 [67 of 1957] will be followed. Hence, impact on water regime due to the proposed sand mining is not anticipated.

1. Precautionary measures will be initiated for closing the operation and shifting the men and transport vehicles prior to onset of monsoon.
2. No oils or lubricants will be discharged in the sand to avoid water pollution.

f. Climate

The Indian Meteorology Department, Pune divided Satara district into four seasons.1

(i) Cold season -December to February

(ii) Hot season- March to May

(iii)Southwest monsoon season - June to September

(iv)Post monsoon or the retreating monsoon season - October and November

Temperature, rainfall, humidity, evaporation and wind speed are important elements of the climate. The climatic condition of Satara district depends on geographical factor. Generally, the climatic conditions of India change latitude wise but, in the district, it changes longitudinal. Rainfall: The rainfall ranges from the rainiest in the Mahabaleshwar region, which has an average annual all over 5805 mm to the driest in Man tahsil where the average annual rainfall is about 557 mm. Average annual rainfall of Satara district is 1436.4 mm. The rainfall is received in the three seasons. June to September is the south west monsoon season whereas October to December constitutes the post-monsoon season or the retreating monsoon season. The pre monsoon or hot season is from March to the end of May. The normal rainfall trend in the district increases towards the east to west and reaches maximum around Mahabaleshwar.

g. Biological Environment

The project is only of extraction of minor minerals viz. sand from the river quarry.

Flora: The area is completely barren and devoid of any vegetation in the river. Only few thorny bushes are seen on the banks of the River.

Fauna: As there is no forest cover, no wild life can be seen in this area.

1. There will be no significant impact of the river quarry mining project on the biological diversity found in the 5km. radius of the site.

2. The mining lease area is in non-forest land i.e., sandy river quarry where presence of fauna is not at all seen. As such, there will be no adverse impact of the manual mining activity on fauna around the mining lease area.

3. No adverse impacts will be envisaged on the existing aquatic fauna, on downstream side (away from site) as the mining confined to above water level only and at all touching/disturbing water table.

h. Socio-Economic Environment

Critically analyzing the existing environmental status of the socio-economic profile and visualizing the scenario with the project, the impacts of the project would be varied and may generate positive impacts of the mining of sand quarry in the region that are stated below:

1. The mining operations will provide direct & indirect employment village people.
2. The villages and their inhabitants & domestic animals will not be disturbed due to mining as quarry is far from their settlements.
3. Local work force will be given first preference for employment.
4. Mining activities will benefit the local people due to provision of more infrastructural facilities (developments of approach routes within the village area)

4. Project Benefits

a. The proposed expansion project will lead to the following benefits:
b. Sand is available for Building and Construction work and by regular removal of sand there is no possibility of flood.
c. This project will contribute additional revenue to the state Exchequer in the form of revenue.
d. The project will result in the employment opportunities to the unskilled/skilled local people. Thereby, the quality of life of the employed people will increase.

5. Sand Ghat Closure Plan

S. No	Head	Area put on use. at start of plan [in Ha]	Additional Requirement during Plan period [in Ha]	Total [in Ha]	Area considered as	Net considers for calculation
1	Area under mining / pit	-	1.08	1.08	---	1.08
2	Area under dump	NIL	---	---	---	
3	Infrastructure Work shop Administrative Building etc					
4	Roads					
5	Mineral reject					
6	Green Belt Plantation /Soil dump					
7	Tailing Dam /pond					
8	Effluent Treatment Plant					
9	Mineral storage					
10	Township area					
11	Other to specify					
GRAND TOTAL				1.08	1.08	1.08

- Mining will be avoided during monsoon and floods; this will allow the sand deposit to replenish.
- Gabion structure will be constructed for the sand to replenish during monsoon season.

Environmental Management Plan

Songaon Sanimb sand spot over an extent of 1.08 HA (MINEABLE AREA-0.81 HA & NON-MINEABLE AREA-0.27 HA) At Krishna Riverbed Gut No. 1368/1, 1368/2, 1367/2, 1364अ, 1364ब, 1357, 1347, 1366/1, 1366/2, 1348 - Songaon Sanimb Village, Tehsil-Satara, Satara District, Maharashtra.

---

7. Environmental Management Plan indicating sufficient budgetary provisions for mitigation of identified impacts on all Environmental Parameters.

S. No	Impact Source	Impact	Control measure	Budget (In INR)
1	Transport Road	On Air Quality	Compaction, gradation, and drainage on both sides.	150000
		Road Degradation	Budget for Road Repairs and Maintenance from Approach Road to Main Road	110850
		Road Construction	Road Construction from Quarry to Access Road	184750
		Air Environment	Dust Supression by Regular water spraying.	110850
			Air quality will be monitoring at impacted village. (For One Day Monitoring)	50000
			Health Check-up of Employees.	14400
2	Truck/ Tractor Movement	Air Quality	Sand carrying trucks will be effectively covered by tarpaulin to avoid escape of fines to the atmosphere. (2 Tarpaulin)	10000
			Regular monitoring of the exhaust fumes.	2500
			Barriers & Traffic Management Expenses. (Excluding Man Power Salary which is included in labour costs)	84985
3	Ramp and Sand Reach	Mining Operations	Regular ramp Inspection and Ramp maintenance. (Excluding Man Power Salary which is included in labour costs)	92375
			Provision of dusk masks.	15000
4	Bank Management	Bank Erosion/Flood Plain management	Green Belt along Road	369500
			Green belt along bank (For Green Belt Development)	739
5	Final Mine Closer Plan implementation	Replenishment of Sand	Provisions of Gabion bunds for protection of bank erosion & replenishment facility.	22500
6	Mobile toilet, sewage handling & treatment		Mobile toilet, sewage handling & treatment	100000
7	CCTV		CCTV Camera	60000

	Monitoring		CCTV Monitoring Framework	60000
8	Safety		Signage Boards	6000
			Fencing	18000
			Watching	25000
9	Drinking Water			60000
10	Sanitation			60000
11	Ground Water Monitoring	Water Environment	Ground Water Level monitoring of wells within 1 Km of Quarry Site	50000
			Piezometer installation at quarry location.	45000
12	Noise Monitoring		Regular Maintenance of Vehicles	75000
13	Physical Survey		Provision for physical survey & associated works if different funds are not available.	200000
14	Development of Market Model		Provision for development of market model & associated works if different funds are not available.	25000
15	Environmental Audit		Provision for third party environmental audit if different funds are not available.	50000
			Total EMP Budget	2052449
			Capital Cost	1400874
			Recurring Cost	651575

8. Sand Ghat Site specific enforcement & monitoring plan as per guidelines stipulated in the Enforcement and Monitoring Guidelines for sand mining issued by MoEF&CC in January 2020

- District administration shall provide detailed information on its website about the sand mines in its district for public information with an objective to extend all information in public domain so that the citizens are aware of the mining activities and can also report to the district administration on any deviation observed.
- Appropriate feedback and its redressal mechanism shall also be made operational.

- Details shall include, but not limited to, lease area, geo-coordinates of lease area and mineable area, transport routes, permitted capacity, regulatory conditions for operation including mining, environmental and social commitments etc.
- Independent committee of the expert constituted by DLTF will assess the environmental or ecological damage caused due to illegal mining and recommend recovery of environmental compensation from the miner's concern.
- The recommendation may also include action under the provision of E(P) Act, 1986.

It will be ensured that following security features are included in the Transport Permission/Permits (TP) so that duplicate/fraudulent/forged TPs for transport, not accounted for in the IT-based system, is not possible:

- Printed on Indian Bank Association (IBA) Approved
- Magnetic Ink Character Recognition Code (MICR) paper
- Unique Barcode
- Unique Quick Response Code (QR)
- Fugitive Ink Background
- Invisible Ink Mark
- Void Pantograph
- Watermark
- GP Based Vehicle Tracking System

9. Songaon Sanimb-Sand Ghat Site specific enforcement & monitoring plan as per guidelines stipulated in the Enforcement and Monitoring Guidelines for sand mining issued by MoEF&CC in January 2020.

District Collector ensures that they meet all the compliances of the sustainable sand mining guidelines of 2020 by

1. Appointing an Environmental auditor and a three non-official committee to associate with the Environmental auditor in auditing the reports and in sending it to the District authority and making sure that the same will be accommodated in the DSR.
2. Mobile app - The officers involved in monitoring will be provided with mobile application and/or bar code scanners using which the TP can be checked anywhere on road. As soon as the bar or QR code on TP gets scanned through using the mobile application and/or scanner or vehicle number is entered into the application or sent by SMS to a predefined number, all details of TP such as plot details, vehicle details, validity time, etc. should be fetched from the server. This means if anything is re-written on TP and attempt is made to reuse the same, it can be traced immediately. Various reports can be generated using the system showing daily lifting reports and user performance report. This way the vehicles carrying sand can be tracked from source to destination.

3. Online portal – IT Enabled real time monitoring system would be built to monitor the CCTV Cameras 24*7 and the footages would be made available on the public domain for the Public to enhance transparency in the sand mining and to avoid illegal mining. Budget for CCTV Monitoring in allocated in EMP.
4. Customer care/ telephone call – Would be provided to the citizens to report illegal mining in the district from time to time.
5. The District Collector will get all necessary Permissions from the Electricity Board for power supply to operate the CCTV cameras at sand quarry site and depots.
6. The District Collector will be providing a Minimum of two CCTV cameras, one each at the entry and exit point and one PTZ camera will be installed at all quarries/depots to monitor illegality if any taking place in the sand quarry/depot.
7. The District Collector will ensure uninterrupted seamless live streaming of videos from the surveillance cameras by ensuring a high-speed Internet Lease Line connection at all quarries/depots.
8. The district collector will get live streaming of the videos monitored at a Centralised control room and the data stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the grievance of the public.
9. District collector will ensure that all the Earlier Environmental Clearance conditions would be implemented on time as per the Sustainable sand Mining Guidelines 2020.
10. Ground Water Level Monitoring - Collector will ensure that the Piezometer's would be installed in the Quarry site and all the wells with in one km radius of the Quarry would be monitored regularly. Fluctuations in the ground water would be recorded and necessary measures would be taken from time to time to avoid water depletion. And a separate Budget for Ground water monitoring in included in the EMP.
11. Collector would ensure that senior officials would be doing regular audits with the local police officers that are involved with mining mafia. District collector along with the DSP will ensure that all the FIR's that are in place would be investigated from time to time and necessary action would be taken.
12. All Transportation routes – One from Quarry to sand depo and another from sand depo to the Main road and to end consumer would be tracked and monitored by ensuring only authenticated GPS Vehicle tracking vehicles being allowed to transport the mineral.
13. For road degradation – Budget is allocated in EMP and district collector ensures that the roads are maintenance is properly done by the bidder or through local funds available with collector.
14. Collector will make sure that the Bidder develops Greenbelt plantation along the river bank and on either sides of the approach road and even at the sand depos to prevent air pollution. And all bidders would be enforced only to transport mineral by covering the mineral with tarpaulin covers.
15. Collector will ensure that the bidder develops necessary infrastructure like CCTV Monitoring, CCTV Monitoring, Noise monitoring and Plantations across river bank and approach road in that lease area where the bidder takes lease of the land for storage of the sand.

10. Compliance of earlier Environmental Clearance

a. Last time Satara district had got 13 sand Ghats Environment clearance. Out of these 09 sand Ghats were allotted to sand scooping. Out of which 04 sand Ghats auctioned to private person and 05 allotted to irrigation department. At time of allocation sand Ghats owner were deposited EMD, EMP amount and GB to collector office.

b. During sand Ghats operating period so or tahsildar level team verify the given term and conditions time to time. If sand Ghats owner complied all given term and conditions his deposit like EMD, EMP amount and GB refunded.

c. In this way year 2018-19 13 sand Ghats owner and concern tahsildar submitted the EC and sand mining policy terms and conditions compliance report.

11. Information about any general or specific order passed by competent Hon'ble court.

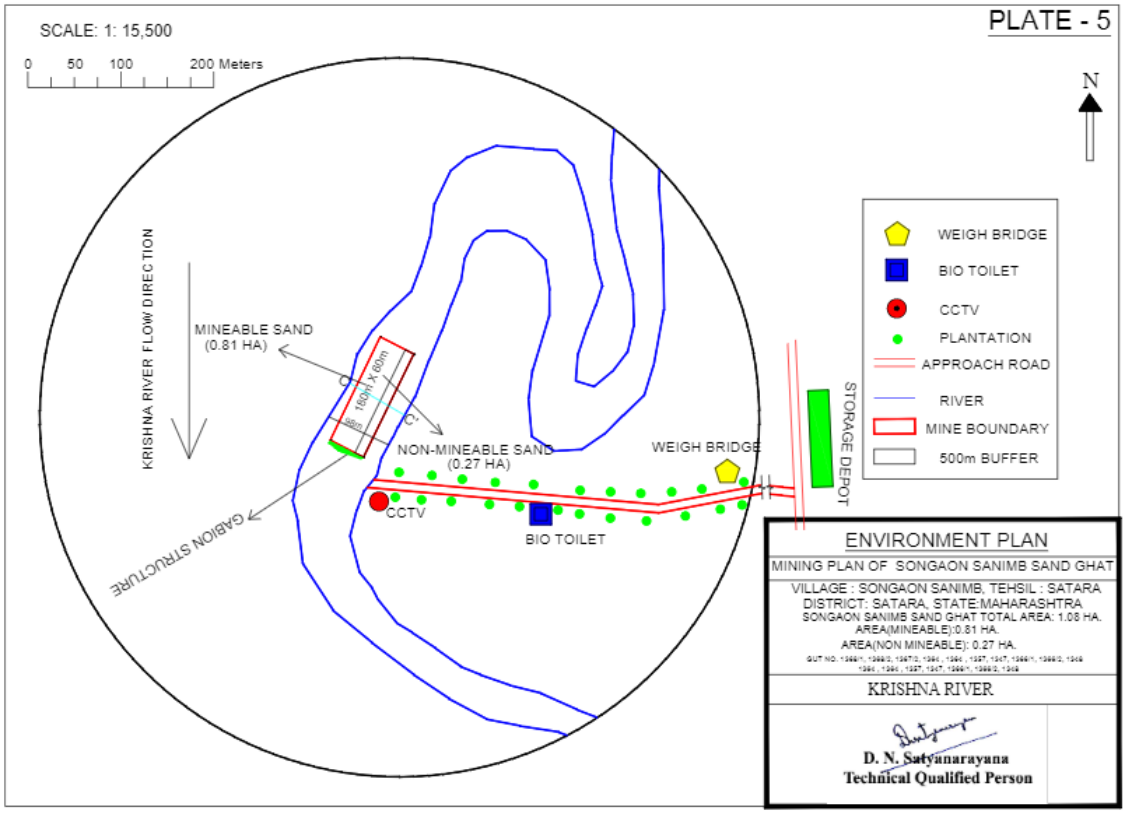
Nil

Conditions Reply:

12. DMO Satara to submit cluster certificate with reference to the EIA Notification 2006 amended from time to time with specific remarks on the cluster formation in the periphery of the proposed sand ghat along with area map showing distances between adjoining sand mine areas. Proposed Songaon Sanimb sand ghat does not fall in cluster.

13. PP to submit layout of proposed sand ghat showing mine area, non-mine area, location of bio toilets, location of CCTV cameras, fencing, weigh bridge, approach road etc.

Proposed sand ghat showing mine area, non-mine area, location of bio toilets, location of CCTV cameras, fencing, weigh bridge, approach road etc. layout is given below:

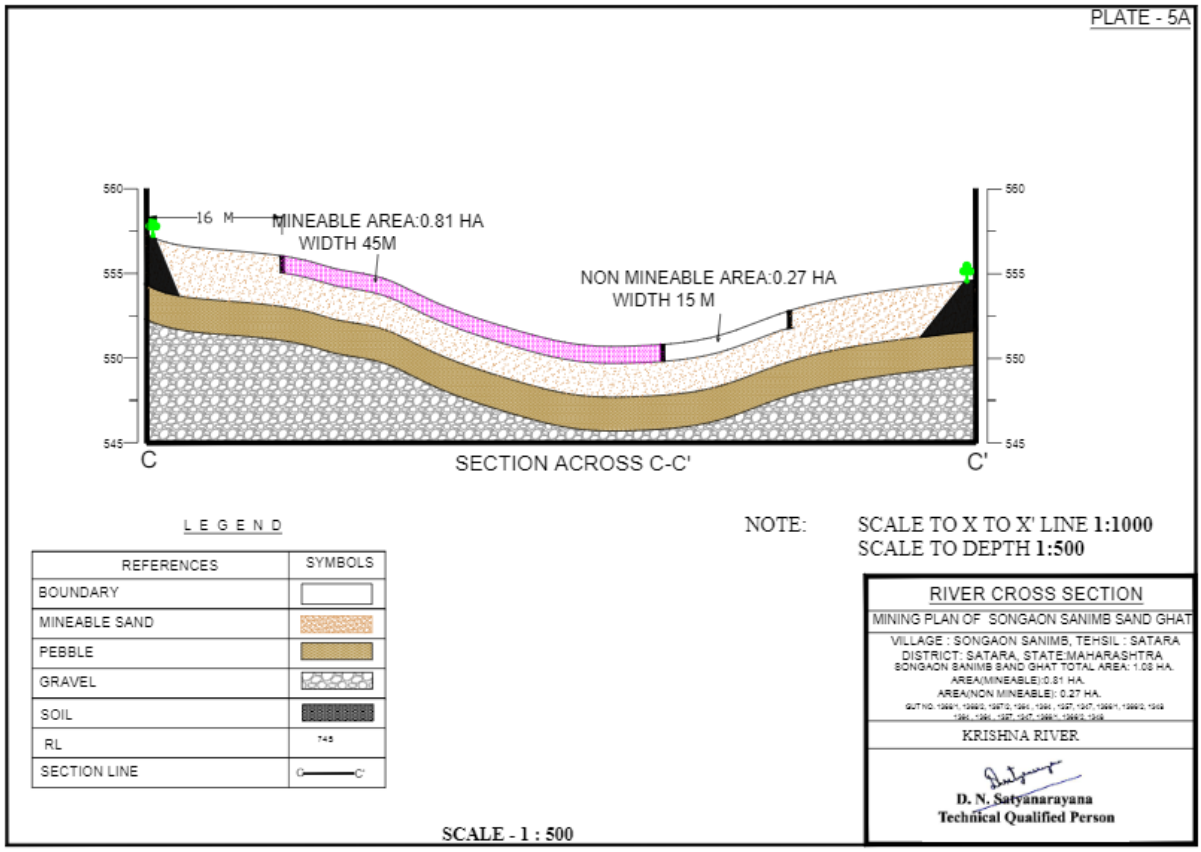


PP to submit details of proposed approach road for transport of mined sand from sand ghat to the storage area and consent of storage area from the concerned land owners is an after-auction activity to use their land as approach road.

The proposed approach road length is 739 m and it belongs to Gram Panchayat, the mined out sand from sand ghat will be stored adjacent to approach near the river bank. Consent of road submitted by Satara Tahsildar is enclosed for use of land as approach road. The successful bidder will be deciding the storage area and get concern from land owner.

3. **PP to submit cross section of river bed showing distance of proposed sand mine area from the river bank and other details as prescribed in the Enforcement & Monitoring Guidelines for sand mining published in January 2020 by MoEF&CC.**

Cross section of river bed is shown below:



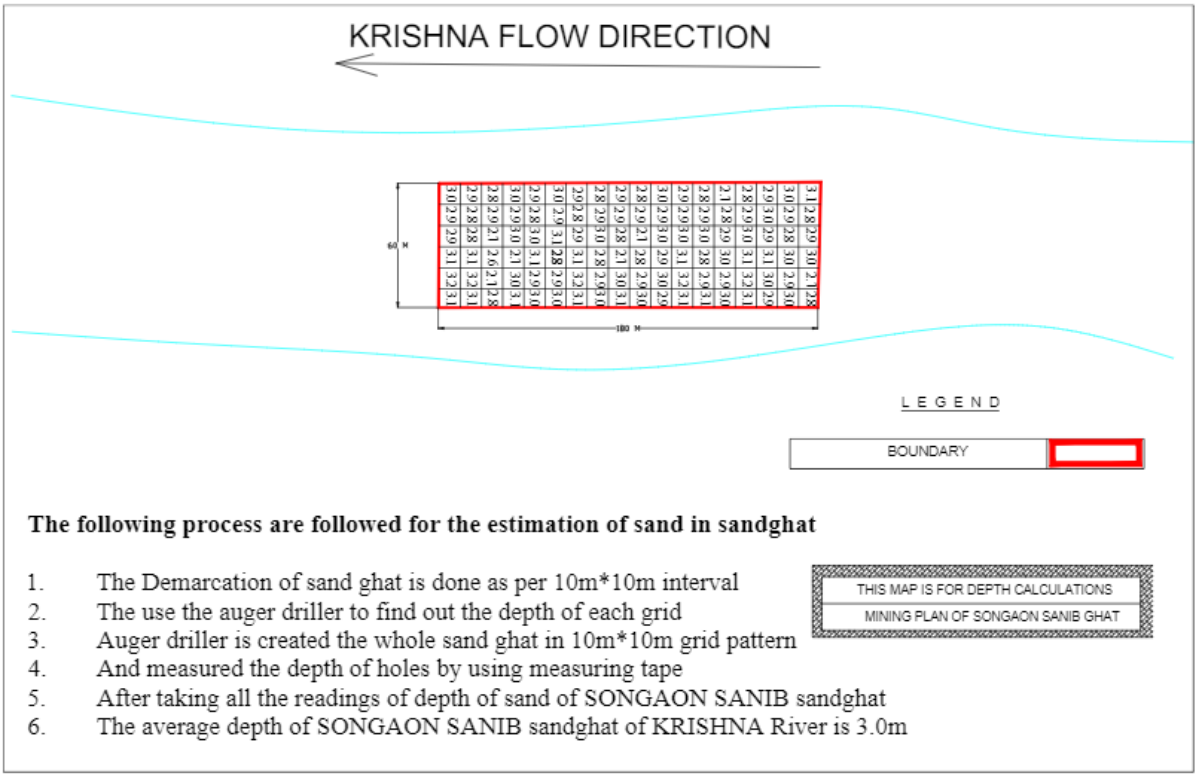
4. **PP to submit details of District Level Task Force committee meetings and status of compliance of its recommendations if any**

District Level Task Force Committee Meeting details is enclosed.

5. **PP to submit revised replenishment study of sand in the proposed ghat along with details of methodology, technology used to identify the existing reserve and replenishment of the same.**

Environmental Management Plan

Songaon Sanimb sand spot over an extent of 1.08 HA (MINEABLE AREA-0.81 HA & NON-MINEABLE AREA-0.27 HA) At Krishna Riverbed Gut No. 1368/1, 1368/2, 1367/2, 1364अ, 1364ब, 1357, 1347, 1366/1, 1366/2, 1348 - Songaon Sanimb Village, Tehsil-Satara, Satara District, Maharashtra.



The following process are followed for the estimation of sand in sandghat

1. The Demarcation of sand ghat is done as per 10m*10m interval
2. The use the auger driller to find out the depth of each grid
3. Auger driller is created the whole sand ghat in 10m*10m grid pattern
4. And measured the depth of holes by using measuring tape
5. After taking all the readings of depth of sand of SONGAON SANIB sandghat
6. The average depth of SONGAON SANIB sandghat of KRISHNA River is 3.0m

6. Sediment Yield Calculation

DANDY-BOLTON EQUATION

1. **For Runoff Less Than 2 Inches**
   S=*1280*(Q)*0.46*(1.46-0.26log(A)) *F
2. **For Runoff More Than 2 Inches**
   S=*1958*(Q)*(e-0.055*Q) *(1.43-0.26log (A))

Where

S=sediment yield of stream (t/yr/km2),

Q= average annual runoff (m3),

A= net drainage area in sq. mile

Conclusion:

As per above data sedimentation yield for Krishna River. The sedimentation yields are more than permitted sand mining quantity. Hence, the sand mining is safe of environmentally friendly.

7. PP to submit details of proposed plantation plan along with its location and requisite permission to be obtained from the Competent Authority.

Plantation details are presented below:

Location of greenbelt	Both sides of approach road, On the river banks of both sides of the sand spot & nearby open areas Haul Road outside riverbed
Afforestation area/ annum	1838 Sq.m /annum
No. of plants to be planted	919 Per Hectare
Spacing of plants	2 m grid interval
Species selected	Native species

Tree species recommended for Plantation:

Botanical name	**Local name**	**Importance**
Azadirachta indica	Neem	Neem oil & neem products
Tectona grandis	Teek	Antibacterial, Antifungal, Antiulcer
Ficus religiosaa	Peepal	Medicinal Use, Fruits & figs
Bambusa vulgaris	Bamboo	Anthelmintic Anti-inflammatory, Astringent Properties
Madhuca longifolia	Mahua	Acts as a Stimulant & cough relief,

Environmental Management Plan

Songaon Sanimb sand spot over an extent of 1.08 HA (MINEABLE AREA-0.81 HA & NON-MINEABLE AREA-0.27 HA) At Krishna Riverbed Gut No. 1368/1, 1368/2, 1367/2, 1364अ, 1364ब, 1357, 1347, 1366/1, 1366/2, 1348 - Songaon Sanimb Village, Tehsil-Satara, Satara District, Maharashtra.

BUDGET FOR CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

S.No.	Budget Allocated	Budget (In INR)
1	Installation of water tankers in nearby village	60000
2	Providing books and uniforms to nearby village school	20000
3	Awareness to local farmers to increase yield of crop and fodder	45000
4	Plantation in community areas	45000
5	Repair of village roads	80000
6	Community Infrastructure Development	150000
	Total	400000

Summary and Conclusion

The environmental status of the project site and study area of 10 km radius is delineated with respect to air, noise, water, land, biological and socio-economic environment. The different project activities in the construction and operation phases are identified. To identify the impacts, the interaction between the project activities and different components of the environment are classified phase wise. A summary of the identified impacts is given in the following paragraphs.

During the operational phase, transportation of sand could cause a temporary disturbance to local environment which will be prevented with the proposed mitigation measures proposed in Point no. 4.

Proposed project will not have any major significant negative impacts. The minor impacts arising out during Excavation and Transportation phases can be mitigated with the help of the proposed Environmental Management Plan.

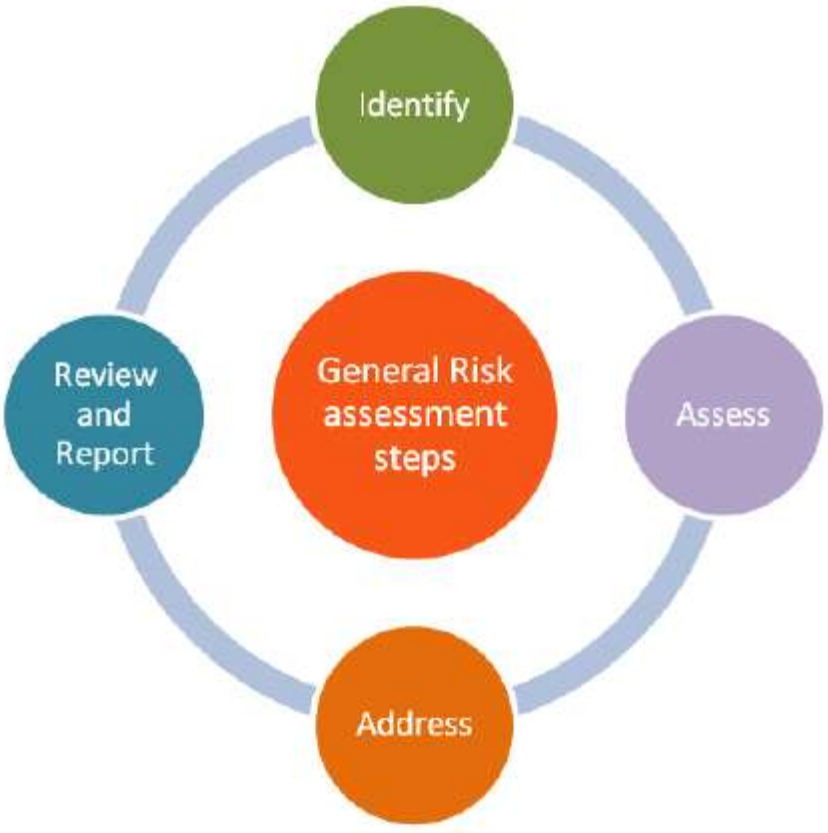
In general, Sand excavation from Songaon Sanimb Sand Spot will be useful to the developmental work in the district and generate employment opportunities.

Risk Assessment for Songaon Sanimb Sand Spot

1. Introduction

A main principle of risk assessment is that it should take place before any changes are made. Risks should be assessed and control measures are put into action before new work is introduced or systems are changed. The process should influence budgets and allocation of resources, rather than being an afterthought when the decisions have already been made.

The risk management process is continuous, with well-defined steps that support better decision making by contributing greater insight into risks and their impacts. Risks from all sources are identified and once they pass the materiality threshold, a formal process begins in which causal factors and consequences are identified and the correlation with other risks and the current risk mitigating strategy is reviewed. One of the challenges is to ensure that mitigating strategies are geared to deliver reliable and timely risk information to support better decision-making.



The mining operations at SONGAON SANIMB SAND SPOT are subjected to the risks and hazards normally encountered in open-cast mining operations. These risks include operational risks relating to

materials handling, accidents, removing material from quarry area. Mining processes also rely on key inputs, for example fuel. Appropriate insurance can provide protection from some, but not all, the costs that may arise from unforeseen events. If any of these risks should materialize, such an event could result in serious harm to employees and contractors, delays in production, increased production costs and possible increase in liabilities.

Disruption to the supply of key inputs, or changes in their pricing, may have a material and adverse impact on SONGAON SANIMB SAND SPOT asset values, costs, earnings and cash flows. Failure to meet production target results in increased unit costs. The impact is more pronounced at operations with a high level of fixed costs. Mitigation strategies include efforts to secure strategic supplies at competitive prices, energy reduction, and application of group water management guidelines, adoption of lean production principles and practices and business improvement initiatives to reduce unit costs.

There are certain aspects which should be taken care of, in a quarrying plan with accordance of risk management.

Components	Risk Involved
Land Slides	The continues mining of river sand may affect, on the long run, the stability of banks of the river which in turn may lead to land slides
Fire	Only trucks and tractors will make use of diesel for transportation. Diesel is not so highly inflammable but accidental fires can take place.
Road Accidents	Vehicles are used for transporting the material from quarry area to the buyer's location. Due to some improper maintenance of the vehicle a road accident can occur leading to fatal results.

To minimize the risk, certain measures can be taken like implying safety rules, facilities of basic first aid near the site and having training for the workers about personal safety.

Disaster Management Plan is envisaged with a goal to prevent hazards and accidents at work places by careful design, operation, and maintenance of equipments. All safety precautions and provisions of Metalliferous Mines Regulation-1961 will be strictly followed. Suitable control measures will be adopted to take care of hazards/disasters that may occur during mining operation.

- Fire fighting, first aid provisions & safety appliances will be made available to the staff and their use regularly checked
- Regular maintenance of all haulage roads & mining machinery as per manufacturer's guidelines will be done

APPENDIX VIII
(See paragraph 6)
FORM 1 M
APPLICATION FOR MINING OF MINOR MINERALS UNDER CATEGORY 'B2' FOR LESS THAN AND EQUAL TO FIVE HECTARE

(I) Basic Information

(i) Name of the Mining Lease site: Jihe Sand Spot

(ii) Location / site (GPS Co-ordinates):

Boundary points of Jihe sand spot	Latitude	Longitude
BP1	17°37'47.91"N	74° 9'30.97"E
BP2	17°37'48.33"N	74° 9'32.53"E
BP3	17°37'52.12"N	74° 9'31.20"E
BP4	17°37'55.53"N	74° 9'28.22"E
BP5	17°37'54.51"N	74° 9'26.93"E
BP6	17°37'51.41"N	74° 9'29.87"E

(iii) Size of the Mining Lease (Hectare): 1.16 HA

(vi) Capacity of Mining Lease (TPA): 3078 Brass

(v) Period of Mining Lease: 1 year

(vi) Expected cost of the Project: 202.96332 Lakhs

(vii) Contact Information: District Mining Officer Satara, Maharashtra

(II) Environmental Sensitivity

S. No.	Areas	Distance in Kilometer/Details
1	Distance of project site from nearest rail or road bridge over the concerned River, Rivulet, Nallah et	Bridge, 2Km, SE
2	Distance from infrastructural facilities Railway line National Highway State Highway Major District Road Any Other Road	 Rahimatpur Railway Station, 2.55Km, SE NH4, 14.6Km, W SH72, 2Km, SE 0.91Km, W Jihe Rd, 0.35Km,W

	Electric transmission line pole or tower Canal or check dam or reservoirs or lake or ponds In-take for drinking water pump house Intake for Irrigation canal pumps	0.17Km, W Krishna River Bed Nil Nil
k	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	Nil
4	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	Water bodies: this is the case of river sand mining in Krishna River bed
5	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, overwintering, migration	Nil
6	Inland, coastal, marine or underground waters	Krishna River Bed
7	State, National boundaries	Nil
8	Routes or facilities used by the public for access to recreation or other tourist, Pilgrim areas	SH72, 2Km, SE
9	Defence installations	Nil
10	Densely populated or built-up area, distance from nearest human habitation	Jihe, 1.83Km, SW
11	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	There were some schools, hospitals temples, within in the boundary not in the core zone
12	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	Krishna River Bed (this is the case of river sand mining)
13	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	Nil
14	Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions)	The mine lease area falls in Seismic Zone III (Moderate), according to the Indian Standard Seismic Zoning Map.
15	Is proposed mining site located over or near fissure / fracture for ground water recharge	No
16	Whether the proposal involves approval or	No

	clearance under the following Regulations or Acts, namely:- (a) The Forest (Conservation) Act, 1980; (b) The Wildlife (Protection) Act, 1972; (c) The Coastal Regulation Zone Notification, 2011. If yes, details of the same and their status to be given.	
17	Forest land involved (hectares)	Nil
18	Whether there is any litigation pending against the project and/or land in which the project is propose to be set up? (a) Name of the Court (b) Case No. (c) Orders or directions of the Court, if any, and its relevance with the proposed project.	Nil

PRE-FEASIBILITY REPORT

- District Collector Satara vides his right to auction Sand as a minor mineral intends to auction the Sand in Satara district.
- District Collector Satara appointed M/s Integrated Precision Systems & Services Pvt. Ltd., for preparation of Mining Plan and grant of environmental clearance.
- Applicant proposed to auction the said Sand Spot over an area of 1.16 Ha (0.87 Ha. Mineable & 0.29 Ha. Non-Mineable area and identified for preparation of mining plan and for grant of Environmental Clearance.
- Mining Plans are prepared by Recognized Qualified Person and approved by Directorate of Geology & Mining Govt. of Maharashtra.
- About 3078 Brass sand is proposed to auction from proposed sand spot.
- Proposed site is located at the Krishna river bank.

1. Physiography

Physiography is one of the dominant parameters of physical environment and its impact on patterns and density of agriculture is immense. The study of the influence of environment upon the nature and the distribution of crop and livestock is of prime importance in agricultural geography.

Satara district is the part of Deccan trap of Indian Peninsula. The physical setting of district is divided in the hilly range, valley, tableland, plateau, and plain area. The physiographic landscape of district influences the spatio-temporal climatic characteristics. The variation of relief height is 1426 meter in the Sahyadri range to the 405 meter in the basin of the Nira river in the Phaltan tahsil above Mean Sea Level. However, the district can be broadly divided into major four morphological units, viz. The Sahyadri's, Krishna valley, Nira valley, and Mahadev hills and Eastern plateau.

The Sand Ghat area as per survey is River bed of Krishna River. The slope is of 8 m from 528 to 536 MSL. The slope of Sand Ghat area towards SE side. The highest MSL is 536 & lowest 528 MSL. The flow of Krishna River is from NW to SE direction.

2. Local Geology

The local geology is Sand of various size up to depth of 2.0-2.5-meter depth.

3. Details of Exploration

The Sand Spot has sufficient Reserve of Sand to work at 8712 Cu.m for a specified period mentioned i.e. 1 year (2020-2021 from the date of mining plan approval as per agreement, from there the Sand Spot will be due for another Mining plan. The mining will continue with opencast method of Mining by cutting 1.00 m slice of Sand by advancing from NE to SW direction as per

allotted Sand Spot area and handling of material with the help of laborers into the tractor having capacity of 1 Brass for transport of Sand to the various dealer sites located outside the Sand Spot area.

4. Introduction of the project/ background information

The Jihe Sand Spot has been kept for Auction which is situated at Village Jihe, Taluka Satara, and District Satara and hence prior to go for Auction a Mining Plan and Environmental Clearance are required and hence Mining Plan is being prepared.

i) Brief description of project

The Sand Spot has sufficient Reserve of Sand to work at 8712 Cu.m for a specified period mentioned i.e., 1 year (2020-2021 from the date of mining plan approval as per agreement, from there the Sand Spot will be due for another Mining plan. The mining will continue with opencast method of Mining by cutting 1.00 m slice of Sand by advancing from SE to SW direction as per allotted Sand Spot area and handling of material with the help of laborers into the tractor having capacity of 1 Brass for transport of Sand to the various dealer sites located outside the Sand Spot area.

ii) Need for the project

The Sand or Sand Spot under reference is aimed at exploring Sand as ROM in various sizes i.e. fine to Coarse grain which is Transported to consumer site in outside Sand Spot area, for the infrastructure development i.e. Construction activity to produce Concrete for putting in the floor, roof- slabs, Column, Pillars, Bridges & Dam construction.

5. Project Description

This mining project is an independent project and not an interlinked project.

i) Location

Jihe is a small Village/hamlet in Satara Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 16 KM towards west from District headquarters Satara. Approximately 208 KM from State capital Mumbai.

The sand spot area is connected to approach road at 1441 meter in South direction. NH-4 road is situated at a distance of 13 km. in the SW of the sand ghat spot. Satara Railway Station is present at a distance of 15 km.

The area is covered in SOI Toposheet No- 47K/2. The GPS reading of boundary point are given below:

Boundary points of Jihe	Latitude	Longitude
BP1	17°37'47.91"N	74° 9'30.97"E
BP2	17°37'48.33"N	74° 9'32.53"E
BP3	17°37'52.12"N	74° 9'31.20"E
BP4	17°37'55.53"N	74° 9'28.22"E
BP5	17°37'54.51"N	74° 9'26.93"E
BP6	17°37'51.41"N	74° 9'29.87"E

ii) Alternate Sites

No alternate site is proposed.

iii) Magnitude of Operation

Proposed period for mining of sand will be decided by the office of district Collectorate 8712 Cu.m. will be excavated during the period.

iv) Project description-mining details

The Agency will start the work after getting Allocation Letter from the competent Authority by Opencast manual mining method. The size of the pit is mentioned as 242m Length X 36m Width at the end of Sand Spot mining period. There will be no dumps of material inside the Sand Spot area as all the mined-out sand will be saleable. These Mine features are shown on Surface Plan and are enclosed as Plate No – 3.

The Sand Spot has sufficient Reserve of Sand to work at 8712 Cu.m for a specified period mentioned i.e., 1 year (2020-2021 from the date of mining plan approval as per agreement, from there the Sand Spot will be due for another Mining plan. The mining will continue with opencast method of Mining by cutting 1.00 m slice of Sand by advancing from SE to NW direction as per allotted Sand Spot area and handling of material with the help of laborers into the tractor having capacity of 1 Brass for transport of Sand to the various dealer sites located outside the Sand Spot area.

v) Raw material, marketing & transport of ore

The proposed sand spot will be auctioned and successful bidder will be responsible for carrying out mining operations as per environmental terms and conditions, approved mining method as per approved mining plan and other terms and conditions. The loading of Sand generated to the tractor/tipper/dumpers will be done by loaders & material transported to the Dealer site.

vi) Resource optimization, recycle, reuse

Production of sand will be decided by the factors like replenishable nature of sand, ecological sensitivity and various features existing in buffer zone. The decision regarding auctioning of sand will be on yearly basis and the above factors will be studied before decision is taken.

vii) Water & energy requirement

The major water requirement in the lease area is for dust suppression and for drinking use. The total water requirement is estimated as 28.82 KLD. The required water for dust suppression can be arranged through tankers from nearby village and drinking water will be provided in earthen pots for labours. The vehicles used for transportation will use diesel of about 125-150 litres /day.

viii) Quantity of waste & scheme for management

There will not be any waste generation within the lease area.

ix) Schematic Representations

It is a proposal of opencast manual sand mining from river bed. Mining plan is approved by the competent authority.

6. Site Analysis

i) Connectivity

Jihe is a small Village/hamlet in Satara Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 16 KM towards west from District headquarters Satara. Approximately 208 KM from State capital Mumbai.

The sand spot area is connected to approach road at 1441 meter in South direction. NH-4 road is situated at a distance of 13 km. in the SW of the sand ghat spot. Satara Railway Station is present at a distance of 15 km.

ii) Land Use, form & Ownership

The ultimate land use pattern for the lease area of 1.16 Ha. will be consisting of

1. Mining Area:	1.16 Ha.
2. Construction of Temporary Roads:	0.00 ha.
3. Total:	1.16 Ha.

At present ownership of this sand spot area is in the hand of Govt. of Maharashtra, after approval of mining plan and EC quarry area will be transfer to bidder after auction.

iii) Geology

The proposed sand spot area is the case of a river bed which contains mixture of sand, pebbles and gravels of various sizes.

Existing land use pattern

Existing Sand spot is a river bed having 2.0-2.5 m of sand.

7. Social-Economic Environment

Critically analyzing the existing environmental status of the socio-economic profile and visualizing the scenario with the project, the impacts of the project would be varied and may generate positive impacts of the mining of sand quarry in the region that are stated below:

A. The mining operations will provide direct & indirect employment to the village people.

B. The villages and their inhabitants & domestic animals will not be disturbed due to mining as quarry is far from their settlements.

C. Local workforce will be given first preference for employment.

D. Mining activities will benefit the local people due to provision of more infrastructural facilities (developments of approach routes within the village area).

8. Planning brief

The proposed project is opencast manual sand mining activity.

Supply demand ratio:

Information required on demand and supply of district (2020-21)			
Sr. No	**Name of District**	**Total Sand Demand of District in Brass (Approximately)**	**Total Sand Available in district in Brass (Approximately)**
1	**Satara**	**154227**	**98871**

Tahsil Office Sand Information (2020-21)			
Sr. No	**Name of Tahsil**	**Total Sand Demand if Tahsil in Brass (Approximately)**	**Total Sand Available in Tahsil in Brass (Approximately)**
1	Satara	15266	14269
2	Patan	12461	0
3	Koregaon	11696	10233
4	Karad	30143	3536
5	Jawali	2495	0
6	Khatav	22657	21367
7	Man	23671	22982
8	Khandala	2940	2372
9	Wai	5480	0
10	Phaltan	25315	24112
11	Mahabaleshwar	2103	0
		154227	**98871**

Ongoing Government Civil/ infrastructural works in the district (2020-21)			
Sr. No	**Name of Govt. Yojana**	**Details of work**	**Approx. Qty of Sand required in Brass**
1	Satara Irrigation Department, Satara	Dam work of Kas, Kudali, Tarali, Wang, Morana, Dhom-Balakwadi	21158
2	Public Works Department (West)	Government College of Engineering Library and other building Work	2297
3	Public Works Department ZP Satara	Primary Health Centre Building Work	1150
4	Phaltan Nagarpalika Phaltan	Gharkul Project	130
5	Mhaswad Nagarpalika Dahiwadi	Gharkul Project	415
6	Khatav Nagarpalika Vaduj	Gharkul Project	211
		Total	**25361**

वाळूच्या **Demand and supply ratio** नुसार तफावत दिसत असली तरी आपण एका हेक्टरपेक्षा कमी क्षेत्र असलेले वाळुगट वगळलेले आहे.

सातारा जिल्ह्यातील काही स्टोनक्रशर धारकांनी दगडाद्वारे वाळू तयार करण्याचे मशिनी बसवलेल्या आहेत. त्याद्वारे कृत्रीम वाळूची निर्मीती करुन बांधकामासाठी उपलब्ध होत असलेने शासकीय यंत्रणांकडून व इतर व्यवसायिकांकडून वाळूची मागणी होत नसलेचे दिसून येत आहे.

सातारा जिल्ह्यातील **CREDAI** संघटनेकडील माहितीदवारे असे निदर्शनास आले की, काही बांधकाम व्यवसायीक बांधकामासाठी **FLY Ash** द्वारे निर्माण केलेल्या विटांचा वापर करतात सदर विटा रासायनिक पदार्थ वापरुन जोडल्या जातात व आतील प्लास्टरसाठी **gypsum** चा वापर केला जातो.

Replenishment:

- Area of deposition and erosion was calculated for each cross-section after giving due regard to stability & safety of active channel banks & other features of importance.
- DGPS and other survey tools have been used to define topography, contours and offsets of lease area.
- Contour & elevation benchmarks are provided with the baseline data for assessing pre and post-study period scenario.
- Physical benchmarks are fixed at intervals (1 in 30 m) & Reduced Levels (RL) are validated from a nearby standard RL.
- These RL are engraved on a steel plate (Bench Plate) & are fixed & placed at locations which are free from any damages & are available in pre and post-study period.
- Bench plates are available for use during the mining period as reference for all mining activity.
- Baseline data on elevation status for a grid of 10 m x 10 m is taken to ensure the accuracy in the assessment.
- It was made sure that two consecutive cross-sections in longitudinal and lateral direction is not be more than 10-meter distance apart.
- Changes have been observed in the elevation in per and post scenario at each node and were depicted in graphical forms with an appropriate scale for estimating the area of deposition & erosion.
- Elevation level was placed in reference to the nearest bench-plates established for the purpose.
- The levels (MSL & RL) of corner point of each grid were identified and safety barriers (Non-Mining) are demarcated as restricted in consensus with Mineral Concession Rules of respective State, and the provision mentioned in this Sustainable Sand Mining Management Guidelines.
- A clear identification was highlighted between grids under mineable and grids under the non-mineable area. These baseline data (pre and post) was subjected to stimulation with the help of data mine software to derive at the replenishment area and corresponding volume and estimated weight.
- The database was structured in a tabulated form clearly depicting the nomenclature of the section lines, latitude and longitude of the starting point, chain-age and respective levels of all the points taken on that section line.
- Net area was derived after summation of area of deposition minus area of erosion for each cross-section.
- Volume was estimated by multiplying distance between two cross-sections with average of net area of these two consecutive cross-sections.
- One sample per 900 square meters (30 m x 30 m) was preferred for sample density for assessment of bulk density for estimation of deposition rate.
- Care was taken that the sample for assessment of bulk density is taken from the deposition zone & not from erosion. During the replenishment studies, Areas selected have large depositions are selected for sand mining and degraded land is avoided for Sand Mining. Taluka Level committee has approved the sand mines with large amount of sand depositions.
- Physical survey is done to ensure that the approved areas have large amounts of sand depositions.

- During the Physical Survey-Benchmarks has been established along the river banks and ensured that the Bifurcation of Mining and Non-Mining is done.

Sediment Yield Calculations for River Streams

DANDY-BOLTON EQUATION

1. **For Runoff Less Than 2 Inches**

   S=*1280*(Q)*0.46*(1.46-0.26log(A)) *F

1. **For Runoff More Than 2 Inches**

   S=*1958*(Q)*(e-0.055*Q) *(1.43-0.26log (A))

   Where

   S=sediment yield of stream (t/yr/km2),

   Q= average annual runoff (m3),

   A= net drainage area in sq. mile

5. Sand Ghat Site specific enforcement & monitoring plan as per guidelines stipulated in the Enforcement and Monitoring Guidelines for sand mining issued by MoEF&CC in January 2020

- District administration shall provide detailed information on its website about the sand mines in its district for public information with an objective to extend all information in public domain so that the citizens are aware of the mining activities and can also report to the district administration on any deviation observed.
- Appropriate feedback and its redressal mechanism shall also be made operational.
- Details shall include, but not limited to, lease area, geo-coordinates of lease area and mineable area, transport routes, permitted capacity, regulatory conditions for operation including mining, environmental and social commitments etc.
- Independent committee of the expert constituted by DLTF will assess the environmental or ecological damage caused due to illegal mining and recommend recovery of environmental compensation from the miner's concern.
- The recommendation may also include action under the provision of E(P) Act, 1986.

It will be ensured that following security features are included in the Transport Permission/Permits (TP) so that duplicate/fraudulent/forged TPs for transport, not accounted for in the IT-based system, is not possible:

- Printed on Indian Bank Association (IBA) Approved
- Magnetic Ink Character Recognition Code (MICR) paper
- Unique Barcode
- Unique Quick Response Code (QR)
- Fugitive Ink Background
- Invisible Ink Mark
- Void Pantograph
- Watermark
- CCTV at mine lease site
- GPS Based Vehicle Tracking System

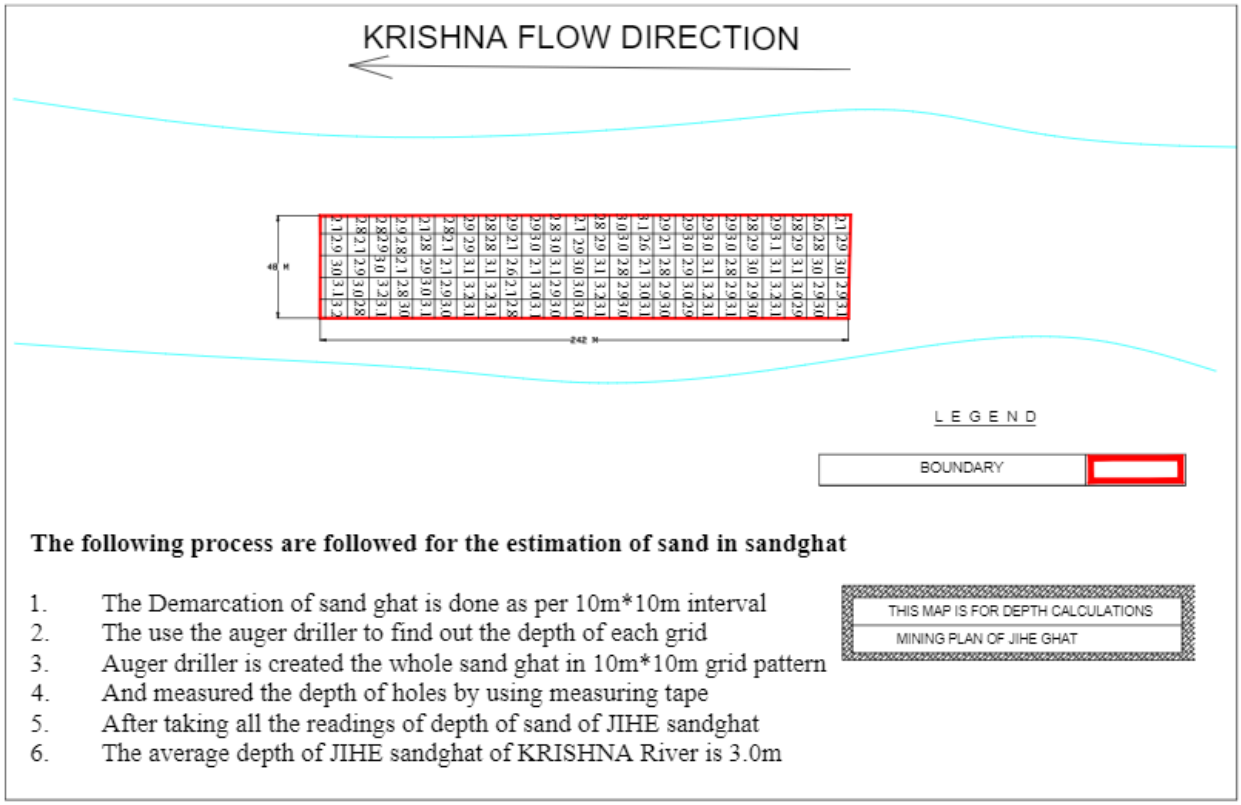
The site services as per statute, like Mine office, storeroom, workshop, first aid Room & water point will be provided outside Sand Spot area.

District Collector ensures that they meet all the compliances of the sustainable sand mining guidelines of 2020 by

1. Appointing an Environmental auditor and a three non-official committee to associate with the Environmental auditor in auditing the reports and in sending it to the District authority and making sure that the same will be accommodated in the DSR.
2. Mobile app - The officers involved in monitoring will be provided with mobile application and/or bar code scanners using which the TP can be checked anywhere on road. As soon as the bar or QR code on TP gets scanned through using the mobile application and/or scanner or vehicle number is entered into the application or sent by SMS to a predefined number, all details of TP such as plot details, vehicle details, validity time, etc. should be fetched from the server. This means if anything is re-written on TP and attempt is made to reuse the same, it can be traced immediately. Various reports can be generated using the system showing daily lifting reports and user performance report. This way the vehicles carrying sand can be tracked from source to destination.
3. Online portal – IT Enabled real time monitoring system would be built to monitor the CCTV Cameras 24*7 and the footages would be made available on the public domain for the Public to enhance transparency in the sand mining and to avoid illegal mining. Budget for CCTV Monitoring in allocated in EMP.
4. Customer care/ telephone call – Would be provided to the citizens to report illegal mining in the district from time to time.
5. The District Collector will get all necessary Permissions from the Electricity Board for power supply to operate the CCTV cameras at sand quarry site and depots.
6. The District Collector will be providing a Minimum of two CCTV cameras, one each at the entry and exit point and one PTZ camera will be installed at all quarries/depots to monitor illegality if any taking place in the sand quarry/depot.
7. The District Collector will ensure uninterrupted seamless live streaming of videos from the surveillance cameras by ensuring a high-speed Internet Lease Line connection at all quarries/depots.

8. The district collector will get live streaming of the videos monitored at a centralised control room and the data stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the grievance of the public.
9. District collector will ensure that all the Earlier Environmental Clearance conditions would be implemented on time as per the Sustainable sand Mining Guidelines 2020.
10. Ground Water Level Monitoring - Collector will ensure that the Piezometer's would be installed in the Quarry site and all the wells with in one km radius of the Quarry would be monitored regularly. Fluctuations in the ground water would be recorded and necessary measures would be taken from time to time to avoid water depletion. And a separate Budget for Ground water monitoring in included in the EMP.
11. Collector would ensure that senior officials would be doing regular audits with the local police officers that are involved with mining mafia. District collector along with the DSP will ensure that all the FIR's that are in place would be investigated from time to time and necessary action would be taken.
12. All Transportation routes – One from Quarry to sand depo and another from sand depo to the Main road and to end consumer would be tracked and monitored by ensuring only authenticated GPS Vehicle tracking vehicles being allowed to transport the mineral.
13. For road degradation – Budget is allocated in EMP and district collector ensures that the roads are maintenance is properly done by the bidder or through local funds available with collector.
14. Collector will make sure that the Bidder develops Greenbelt plantation along the river bank and on either sides of the approach road and even at the sand depos to prevent air pollution. And all bidders would be enforced only to transport mineral by covering the mineral with tarpaulin covers.
15. Collector will ensure that the bidder develops necessary infrastructure like CCTV Monitoring, CCTV Monitoring, Noise monitoring and Plantations across river bank and approach road in that lease area where the bidder takes lease of the land for storage of the sand.

Sand Quantity Evaluation:



6. Proposed Infrastructure

The site services as per statute, like Mine office, storeroom, workshop, first aid Room & water point will be provided in outside Sand Spot area.

7. R&R Plan

R&R is not involved.

8. Project schedule

Period of mining for the proposed sand spot will be decided by the Office of District Collectorate.

9. Analysis of Proposal

Description of the project included in items 1-10 above indicates the following:

1. It is proposed for opencast manual river sand mining.
2. Opencast mining without hampering the present environmental quality of the area.
3. Income to local people is uncertain & initiation of mining will ensure regular income to local people.

10. Costing

Costing parameters will be decided by the District Authorities.

11. Compliance to Environment Clearance

a. Last time Satara District had got 13 Sand Ghats Environment clearance. Out of those 09 sand Ghats were allotted to sand scooping. Out of which 04 sand Ghats auctioned to private person and 05 allotted to irrigation department. At time of allocation sand Ghats owner were deposited EMD, EMP amount and GB to Collector office.
b. During sand Ghats operating period so or tahsildar level team verify the given term and conditions time to time. If sand ghats owner complied all given term and conditions deposit like EMD, EMP amount and GB refunded.
c. In this way year 2018-19 13 sand Ghats owner and concern tahsildar submitted the Environment and sand mining policy terms and conditions compliance report.

12. Any Other Information:

Whether there are any serious violation of safety rules and regulation which may jeopardize human health and safety. If so, give details of violations and state the steps proposed to be taken with the time scheduled to rectify the violations:

No, there are not any serious violation of safety rules and regulation, which may jeopardize human health and safety. The applicant has given a commitment in this effect and undertaking also given to follow and implement, as specified in the mining plan. The applicant is undertake to abide and implement any special conditions imposed by various authorities and also to complete formalities under provision of the Mines & Mineral (Development & Regulation) Act, 1957 and the Bombay Minor Mineral rules, the Mineral Conservation and Development Rules, 1988 as amended, the Maharashtra Minor Minerals Extraction (Development and Regulation) Rule 2013, MoEF & CC Notification S.O. 141 (E) dated 15th January 2016, and MoEF & CC Sustainable Sand Mining Management Guidelines 2016, Sustainable Sand Mining Management Guidelines 2019,Sand Mining Policy 2020

Stringent stipulations have been laid out while issuing EC. This includes regular monitoring of environmental parameters and carrying out various mitigates measures to protect the environment.

These things will be religiously followed, and its report will be periodically 9) Virgin lease area for Sand Mine & Other Uses 3.11 0.000 10) Road - - 11) Railway - - 12) Tailing Pond - - 13) Effluent Treatment Plant - - 14) Mineral separation plant - - 15) Township Area - - 16) Others to specify - - 17) Ownership Government River Government River Total 3.11 3.11 submitted to the concerned authority.

All Notices, Letters received from Government and all communication with Government (Court, NGT, DGMS, Directorate of Geology and Mining, District Mining Officer, Collector, Tehsildar, Grampanchayat, Talathi, Pollution Control Board, Forest department, Environment department, Irrigation department, Public Works Departments, Controller of Explosive, Labor Commissioner, Sale tax etc.) regarding Mine Lease and Mining will be strictly followed by Mine Owner. Mine Owner must follow all provisions of the Maharashtra Minor Minerals Extraction (Development and Regulation) Rule-2013, MoEF & CC Notification S.O. 141 (E) dated 15th January 2016, and MoEF & CC Sustainable Sand Mining Management Guidelines 2016, the

Environment (Protection) Act 1986 and Rules made there under, the Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Hazardous Wastes (Management and Handling) Rules 1989, the Wildlife (Protection) Act 1972, the Forest Conservation Act-1980, the Forest Conservation Rule-2003, the Mineral Conservation and Development Rule-1988, the Mineral Concession Rules-1960, the Mines and Minerals (Development and Regulation) Act-1957, the Mines Act, the Mines Rule, the Mines Regulations, the public Liability Insurance Act 1991 and its amendments, Orders and Bye Laws made there under and any laws or guidelines that may be applicable to mine / area from time to time whether made by Central or State Government or any other authority. Wherever specific permissions are required, the applicant will approach the Directorate General of Mines Safety, Indian Bureau of Mines and Directorate of Geology and Mining. Mine Owner should obtain relevant clearances as per Environment Protection Act-1986 and EIA notification dated 21.01.1994 and 04.09.2006.

Environmental Management Plan

Jihe sand spot over an extent of 1.16 HA (MINEABLE AREA-0.87 HA & NON-MINEABLE AREA-0.29 HA) At Krishna Riverbed Gut No. 22 to 24, 25 to 27 Jihe Village, Tehsil-Satara, Satara District, Maharashtra.

---

1. Introduction

Ministry of Environment and Forest (MoEF) Notification 2006 and Sustainable Sand Mining Management Guidelines 2016 and as per provision in Mines and Minerals (Development and Regulation) Act 1957 Schedule 60 section 15, Govt Of Maharashtra makes a Minor Mineral Extraction Rules 2013 to extract all the minor mineral in scientific way so that there is no adverse impact on Environment and Climate. To extract every minor mineral from any land (either Government or Private) there is provision of mining plan which is approved by competent authority; For long term leased minor mineral (5 – 10 years period) and Sand excavation from river bed, Senior Deputy Director of Directorate of Geology and Mining is a Competent authority, for short term Temporary permits which is valid for one year, Committee headed by Hon. Collector is Final authority to Approved the District Mining Plan.

As per Minor Mineral Extraction Rules 2013 Rules 70, Disposal of sand from River bed, Nallah and creeks by way of public auction, in this regards Govt resolution Gaukhni -10/0615/case No. 289/kha dated 3rd January 2018 is applicable in entire state. As per Sustainable sand mining management guidelines 2016, Standard Environment condition for sand mining and sustainable mining practices, district level survey report should be prepared and area suitable for mining and area prohibited for mining be identified.

2. Project Description

Jihe is a small Village/hamlet in Satara Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 16 KM towards west from District headquarters Satara. Approximately 208 KM from State capital Mumbai.

The sand spot area is connected to approach road at 1441 meter in South direction. NH-4 road is situated at a distance of 13 km. in the SW of the sand ghat spot. Satara Railway Station is present at a distance of 15 km.
The area is covered in SOI Toposheet No- 47K/2.

Table 1: Salient Features of the Project

<table>
<tr><th>Items</th><th>Details</th></tr>
<tr><td>Location</td><td>Jihe Village, Tehsil-Satara, Satara District, Maharashtra.</td></tr>
<tr><td>Latitude and Longitude</td><td>
<table>
<tr><th>BOUNDARY PILLAR</th><th>LATITUDE</th><th>LONGITUDE</th></tr>
<tr><td>BP1</td><td>17°37'47.91"N</td><td>74° 9'30.97"E</td></tr>
<tr><td>BP2</td><td>17°37'48.33"N</td><td>74° 9'32.53"E</td></tr>
<tr><td>BP3</td><td>17°37'52.12"N</td><td>74° 9'31.20"E</td></tr>
<tr><td>BP4</td><td>17°37'55.53"N</td><td>74° 9'28.22"E</td></tr>
<tr><td>BP5</td><td>17°37'54.51"N</td><td>74° 9'26.93"E</td></tr>
<tr><td>BP6</td><td>17°37'51.41"N</td><td>74° 9'29.87"E</td></tr>
</table>
</td></tr>
</table>

Sand spot area (In Ha)	1.16
Proposed production capacity (In Brass)	3078
Manpower Requirement (considering 3-month period)	10 labors + 1 mate + 1 Supervisor = 12man/day
Infrastructure Requirement (As per Govt. Resolution 3rd January 2018)	1. Room / Hut for Official records 2. Electricity / Battery for Running CCTV on 24X 7 daily. 3. One Computer / Android base Mobile for the online generation of Invoice number.
Water requirement & source	28.82KLD – Tankers from nearby village.
Project cost INR (Lakh)	202.96332

3. Baseline Environmental Studies

a. Topography

Satara district is the part of Deccan trap of Indian Peninsula. The physical setting of district is divided in the hilly range, valley, tableland, plateau, and plain area. The physiographic landscape of district influences the spatio-temporal climatic characteristics. The variation of relief height is 1426 meter in the Sahyadri range to the 405 meter in the basin of the Nira river in the Phaltan tehsil above Mean Sea Level. However, the district can be broadly divided into major four morphological units, viz. The Sahyadri's, Krishna valley, Nira valley, and Mahadev hills and Eastern plateau.

The Sand Ghat area as per survey is River bed of Krishna River. The slope is of 8 m from 528 to 536 MSL. The slope of Sand Ghat area towards SE side. The highest MSL is 536 & lowest 528 MSL. The flow of Krishna River is from NW to SE direction.

b. Hydrology

There will be no change in water table during mining operation, as the depth of mining shall be restricted to 1m water level, which is less likely to affect surface level or ground water table. There is no proposal of any stream modification/diversion due to this mining activity hence there will not be any impact on flow of water.

c. Soil Environment

The area is not having any top soil or fertile soil. The depth of mining shall be restricted to 1m. There is no major impact on soil of the study area is envisaged due to mining activities.

d. Land Use Land Cover

The project area does not consist of any forest land. It does not consist of any human habitations. Any change in scope of mining as per approved mining plan can lead to bank erosion /cutting and thereby river channel shifting degradation of land, causing loss of properties and degradation of surrounding landscape.

e. Water Environment

There will not be any wastewater discharges to water bodies from the mining operations. As observed in the River, the thickness of sand to be excavated will be 1.00m only so there will not be any intersection with ground water table. It is observed from the dug well in the adjacent plain area and in the nearby villages that the ground water table varies depending upon seasonal variations. The depth to water levels in the district ranges from 0.90 to 25.00 m BGL in pre-monsoon season and the depth to water levels in post-monsoon ranges from 0.10 to 19.10 m BGL. As the mining activities presently proposed are maximum upto 1.00m that to within the river course and the total mining operation will be achieved through manual means, there will be no effect on ground water table. All the stipulations of MoEF for sand mining and guidelines as per the Maharashtra Minor Mineral Extraction [Development and Regulation] Rules, 2013 of Section 15 of MMDR Act 1957 [67 of 1957] will be followed. Hence, impact on water regime due to the proposed sand mining is not anticipated.

1. Precautionary measures will be initiated for closing the operation and shifting the men and transport vehicles prior to onset of monsoon.
2. No oils or lubricants will be discharged in the sand to avoid water pollution.

f. Climate

The Indian Meteorology Department, Pune divided Satara district into four seasons.1

(i) Cold season -December to February

(ii) Hot season- March to May

(iii)Southwest monsoon season - June to September

(iv)Post monsoon or the retreating monsoon season - October and November

Temperature, rainfall, humidity, evaporation, and wind speed are important elements of the climate. The climatic condition of Satara district depends on geographical factor. Generally, the climatic conditions of India change latitude wise but, in the district, it changes longitudinal. Rainfall: The rainfall ranges from the rainiest in the Mahabaleshwar region, which has an average annual all over 5805 mm to the driest in Man tahsil where the average annual rainfall is about 557 mm. Average annual rainfall of Satara district is 1436.4 mm. The rainfall is received in the three seasons. June to September is the south west monsoon season whereas October to December constitutes the post-monsoon season or the retreating monsoon season. The pre monsoon or hot season is from March to the end of May. The normal rainfall trend in the district increases towards the east to west and reaches maximum around Mahabaleshwar.

g. Biological Environment

The project is only of extraction of minor minerals viz. sand from the river quarry.

Flora: The area is completely barren and devoid of any vegetation in the river. Only few thorny bushes are seen on the banks of the River.

Fauna: As there is no forest cover, no wild life can be seen in this area.

1. There will be no significant impact of the river quarry mining project on the biological diversity found in the 5km. radius of the site.

2. The mining lease area is in non-forest land i.e., sandy river quarry where presence of fauna is not at all seen. As such, there will be no adverse impact of the manual mining activity on fauna around the mining lease area.

3. No adverse impacts will be envisaged on the existing aquatic fauna, on downstream side (away from site) as the mining confined to above water level only and at all touching/disturbing water table.

h. Socio-Economic Environment

Critically analyzing the existing environmental status of the socio-economic profile and visualizing the scenario with the project, the impacts of the project would be varied and may generate positive impacts of the mining of sand quarry in the region that are stated below:

1. The mining operations will provide direct & indirect employment village people.
2. The villages and their inhabitants & domestic animals will not be disturbed due to mining as quarry is far from their settlements.
3. Local work force will be given first preference for employment.
4. Mining activities will benefit the local people due to provision of more infrastructural facilities (developments of approach routes within the village area)

4. Project Benefits

a. The proposed expansion project will lead to the following benefits:
b. Sand is available for Building and Construction work and by regular removal of sand there is no possibility of flood.
c. This project will contribute additional revenue to the state Exchequer in the form of revenue.
d. The project will result in the employment opportunities to the unskilled/skilled local people. Thereby, the quality of life of the employed people will increase.

5. Sand Ghat Closure Plan

S. No	Head	Area put on use. at start of plan [in Ha]	Additional Requirement during Plan period [in Ha]	Total [in Ha]	Area considered as	Net considers for calculation
1	Area under mining / pit	-	1.16	1.16	---	1.16
2	Area under dump	NIL	---	---	---	

3	Infrastructure Work shop Administrative Building etc					
4	Roads					
5	Mineral reject					
6	Green Belt Plantation /Soil dump					
7	Tailing Dam /pond					
8	Effluent Treatment Plant					
9	Mineral storage					
10	Township area					
11	Other to specify					
GRAND TOTAL			1.16	1.16	1.16	1.16

- Mining will be avoided during monsoon and floods; this will allow the sand deposit to replenish.
- Gabion structure will be constructed for the sand to replenish during monsoon season.

7. Environmental Management Plan indicating sufficient budgetary provisions for mitigation of identified impacts on all Environmental Parameters.

S. No	Impact Source	Impact	Control measure	Budget (In INR)
1	Transport Road	On Air Quality	Compaction, gradation and drainage on both sides.	120000
		Road Degradation	Budget for Road Repairs and Maintenance from Approach Road to Main Road	216150
		Road Construction	Road Construction from Quarry to Access Road	360250
		Air Environment	Dust Supression by Regular water spraying.	216150
			Air quality will be monitoring at impacted village. (For One Day Monitoring)	50000
			Health Check-up of Employees.	14400

2	Truck/ Tractor Movement	Air Quality	Sand carrying trucks will be effectively covered by tarpaulin to avoid escape of fines to the atmosphere. (2 Tarpaulin)	10000
			Regular monitoring of the exhaust fumes.	2500
			Barriers & Traffic Management Expenses. (Excluding Man Power Salary which is included in labour costs)	165715
3	Ramp and Sand Reach	Mining Operations	Regular ramp Inspection and Ramp maintenance. (Excluding Man Power Salary which is included in labour costs)	180125
			Provision of dusk masks.	15000
4	Bank Management	Bank Erosion/Flood Plain management	Green Belt along Road	720500
			Green belt along bank (For Green Belt Development)	1441
5	Final Mine Closer Plan implementation	Replenishment of Sand	Provisions of Gabion bunds for protection of bank erosion & replenishment facility.	22500
6	Mobile toilet, sewage handling & treatment		Mobile toilet, sewage handling & treatment	100000
7	CCTV Monitoring		CCTV Camera	60000
			CCTV Monitoring Framework	60000
8	Safety		Signage Boards	6000
			Fencing	18000
			Watching	25000
9	Drinking Water			60000
10	Sanitation			60000
11	Ground Water Monitoring	Water Environment	Ground Water Level monitoring of wells within 1 Km of Quarry Site	50000
			Piezometer installation at quarry location.	45000
12	Noise Monitoring		Regular Maintenance of Vehicles	75000
13	Physical Survey		Provision for physical survey & associated works if different funds are not available.	200000

14	Development of Market Model		Provision for development of market model & associated works if different funds are not available.	25000
15	Environmental Audit		Provision for third party environmental audit if different funds are not available.	50000
			Total EMP Budget	29,28,731
			Capital Cost	20,08,806
			Recurring Cost	9,19,925

8. Sand Ghat Site specific enforcement & monitoring plan as per guidelines stipulated in the Enforcement and Monitoring Guidelines for sand mining issued by MoEF&CC in January 2020

- District administration shall provide detailed information on its website about the sand mines in its district for public information with an objective to extend all information in public domain so that the citizens are aware of the mining activities and can also report to the district administration on any deviation observed.
- Appropriate feedback and its redressal mechanism shall also be made operational.
- Details shall include, but not limited to, lease area, geo-coordinates of lease area and mineable area, transport routes, permitted capacity, regulatory conditions for operation including mining, environmental and social commitments etc.
- Independent committee of the expert constituted by DLTF will assess the environmental or ecological damage caused due to illegal mining and recommend recovery of environmental compensation from the miner's concern.
- The recommendation may also include action under the provision of E(P) Act, 1986.

It will be ensured that following security features are included in the Transport Permission/Permits (TP) so that duplicate/fraudulent/forged TPs for transport, not accounted for in the IT-based system, is not possible:

- Printed on Indian Bank Association (IBA) Approved
- Magnetic Ink Character Recognition Code (MICR) paper
- Unique Barcode
- Unique Quick Response Code (QR)
- Fugitive Ink Background
- Invisible Ink Mark
- Void Pantograph
- Watermark

- GP Based Vehicle Tracking System

9. Jihe-SandGhat Site specific enforcement & monitoring plan as per guidelines stipulated in the Enforcement and Monitoring Guidelines for sand mining issued by MoEF&CC in January 2020.

District Collector ensures that they meet all the compliances of the sustainable sand mining guidelines of 2020 by

1. Appointing an Environmental auditor and a three non-official committee to associate with the Environmental auditor in auditing the reports and in sending it to the District authority and making sure that the same will be accommodated in the DSR.
2. Mobile app - The officers involved in monitoring will be provided with mobile application and/or bar code scanners using which the TP can be checked anywhere on road. As soon as the bar or QR code on TP gets scanned through using the mobile application and/or scanner or vehicle number is entered into the application or sent by SMS to a predefined number, all details of TP such as plot details, vehicle details, validity time, etc. should be fetched from the server. This means if anything is re-written on TP and attempt is made to reuse the same, it can be traced immediately. Various reports can be generated using the system showing daily lifting reports and user performance report. This way the vehicles carrying sand can be tracked from source to destination.
3. Online portal – IT Enabled real time monitoring system would be built to monitor the CCTV Cameras 24*7 and the footages would be made available on the public domain for the Public to enhance transparency in the sand mining and to avoid illegal mining. Budget for CCTV Monitoring in allocated in EMP.
4. Customer care/ telephone call – Would be provided to the citizens to report illegal mining in the district from time to time.
5. The District Collector will get all necessary Permissions from the Electricity Board for power supply to operate the CCTV cameras at sand quarry site and depots.
6. The District Collector will be providing a Minimum of two CCTV cameras, one each at the entry and exit point and one PTZ camera will be installed at all quarries/depots to monitor illegality if any taking place in the sand quarry/depot.
7. The District Collector will ensure uninterrupted seamless live streaming of videos from the surveillance cameras by ensuring a high-speed Internet Lease Line connection at all quarries/depots.
8. The district collector will get live streaming of the videos monitored at a Centralised control room and the data stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the grievance of the public.
9. District collector will ensure that all the Earlier Environmental Clearance conditions would be implemented on time as per the Sustainable sand Mining Guidelines 2020.
10. Ground Water Level Monitoring - Collector will ensure that the Piezometer's would be installed in the Quarry site and all the wells with in one km radius of the Quarry would be monitored regularly. Fluctuations in the ground water would be recorded and necessary measures would be taken from time to time to avoid water depletion. And a separate Budget for Ground water monitoring in included in the EMP.
11. Collector would ensure that senior officials would be doing regular audits with the local police officers that are involved with mining mafia. District collector along with the DSP will ensure

that all the FIR's that are in place would be investigated from time to time and necessary action would be taken.

12. All Transportation routes – One from Quarry to sand depo and another from sand depo to the Main road and to end consumer would be tracked and monitored by ensuring only authenticated GPS Vehicle tracking vehicles being allowed to transport the mineral.
13. For road degradation – Budget is allocated in EMP and district collector ensures that the roads are maintenance is properly done by the bidder or through local funds available with collector.
14. Collector will make sure that the Bidder develops Greenbelt plantation along the river bank and on either sides of the approach road and even at the sand depos to prevent air pollution. And all bidders would be enforced only to transport mineral by covering the mineral with tarpaulin covers.
15. Collector will ensure that the bidder develops necessary infrastructure like CCTV Monitoring, CCTV Monitoring, Noise monitoring and Plantations across river bank and approach road in that lease area where the bidder takes lease of the land for storage of the sand.

10. Compliance of earlier Environmental Clearance

a. Last time Satara district had got 13 sand Ghats Environment clearance. Out of these 09 sand Ghats were allotted to sand scooping. Out of which 04 sand Ghats auctioned to private person and 05 allotted to irrigation department. At time of allocation sand Ghats owner were deposited EMD, EMP amount and GB to collector office.
b. During sand Ghats operating period so or tahsildar level team verify the given term and conditions time to time. If sand Ghats owner complied all given term and conditions his deposit like EMD, EMP amount and GB refunded.
c. In this way year 2018-19 13 sand Ghats owner and concern tahsildar submitted the EC and sand mining policy terms and conditions compliance report.

11. Information about any general or specific order passed by competent Hon'ble court.

Nil

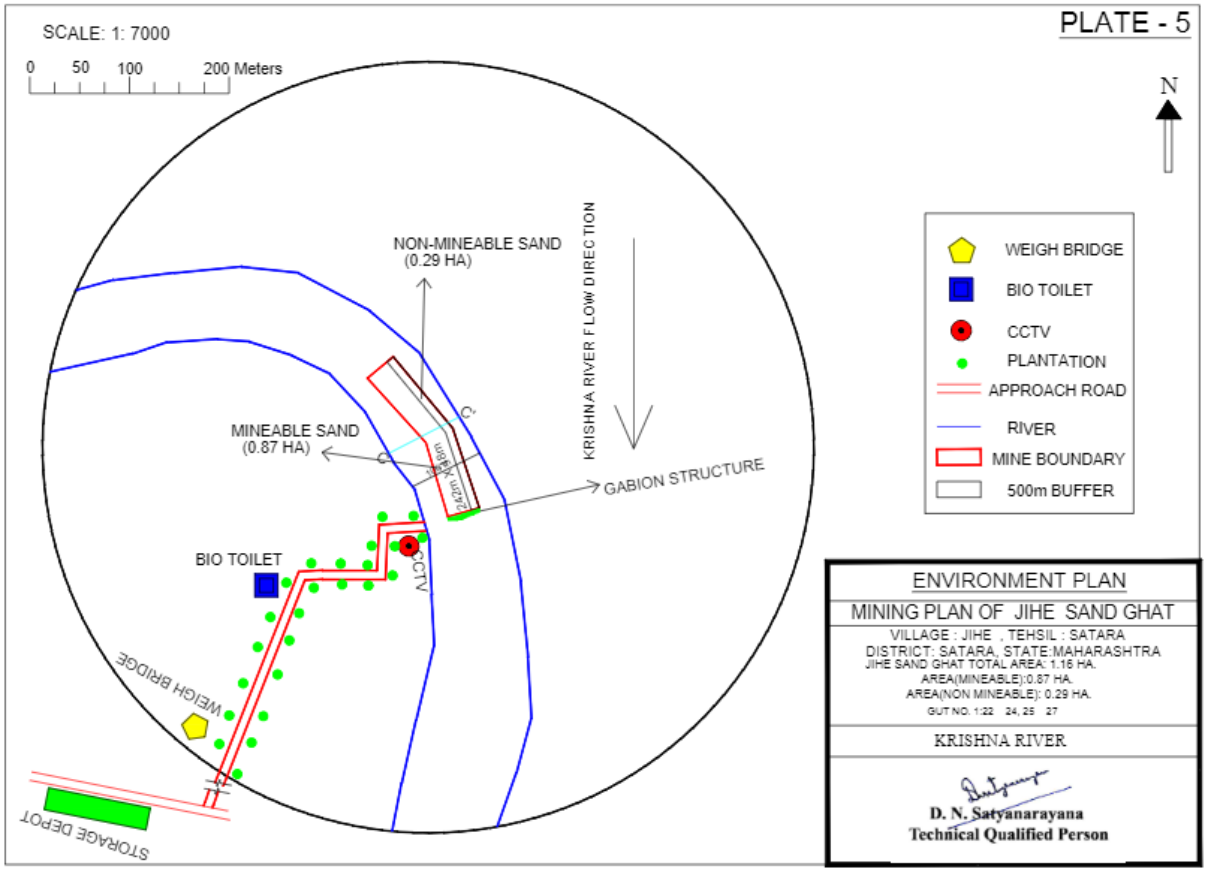
Conditions Reply:

12. DMO Satara to submit cluster certificate with reference to the EIA Notification 2006 amended from time to time with specific remarks on the cluster formation in the periphery of the proposed sand ghat along with area map showing distances between adjoining sand mine areas. Proposed Jihe sand ghat does not fall in cluster.

13. PP to submit layout of proposed sand ghat showing mine area, non-mine area, location of bio toilets, location of CCTV cameras, fencing, weigh bridge, approach road etc.

Proposed sand ghat showing mine area, non-mine area, location of bio toilets, location of CCTV cameras, fencing, weigh bridge, approach road etc. layout is given below:

Jihe sand spot over an extent of 1.16 HA (MINEABLE AREA-0.87 HA & NON-MINEABLE AREA-0.29 HA) At Krishna Riverbed Gut No. 22 to 24, 25 to 27 Jihe Village, Tehsil-Satara, Satara District, Maharashtra.

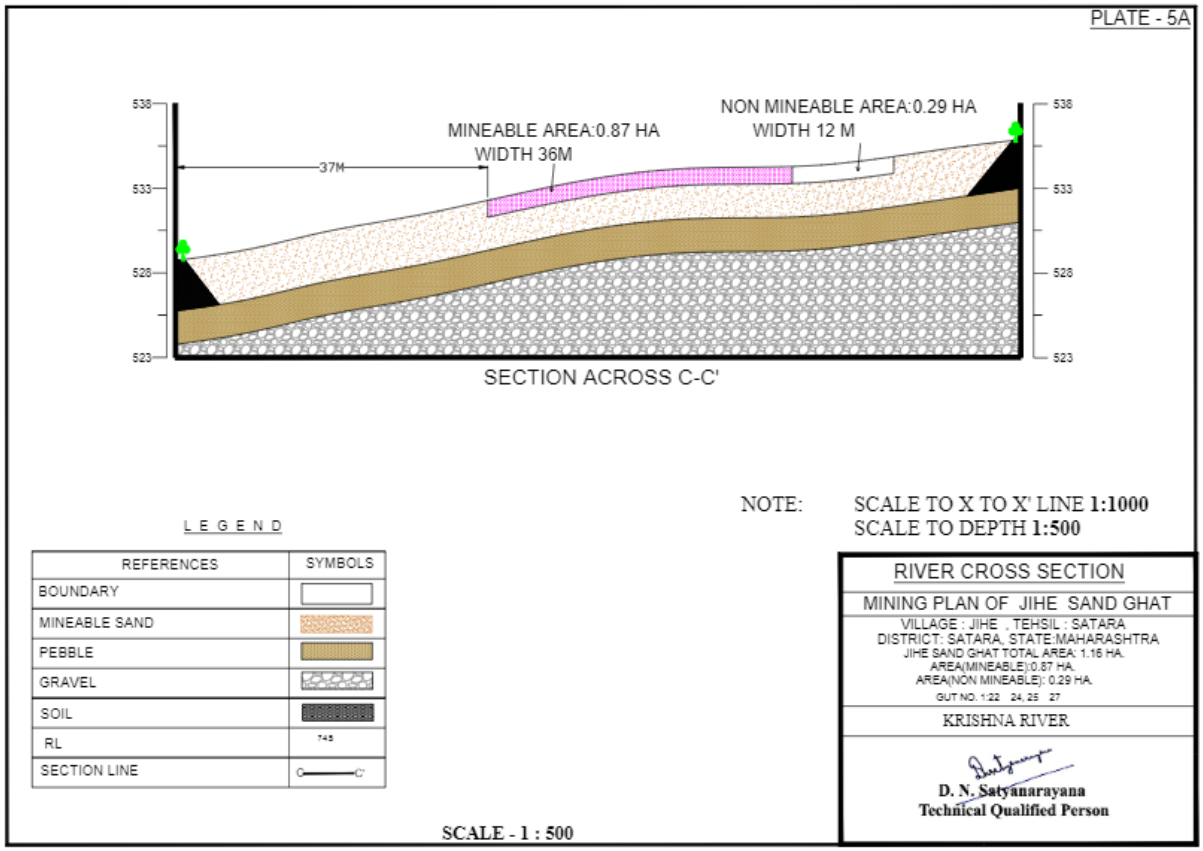


PP to submit details of proposed approach road for transport of mined sand from sand ghat to the storage area and consent of storage area from the concerned land owners is an after auction activity to use their land as approach road.

The proposed approach road length is 1441 m and it belongs to Gram Panchayat, the mined out sand from sand ghat will be stored adjacent to approach near the river bank. Consent of road submitted by Satara Tahsildar is enclosed for use of land as approach road. The successful bidder will be deciding the storage area and get concern from land owner.

3. **PP to submit cross section of river bed showing distance of proposed sand mine area from the river bank and other details as prescribed in the Enforcement & Monitoring Guidelines for sand mining published in January 2020 by MoEF&CC.**

Cross section of river bed is shown below:

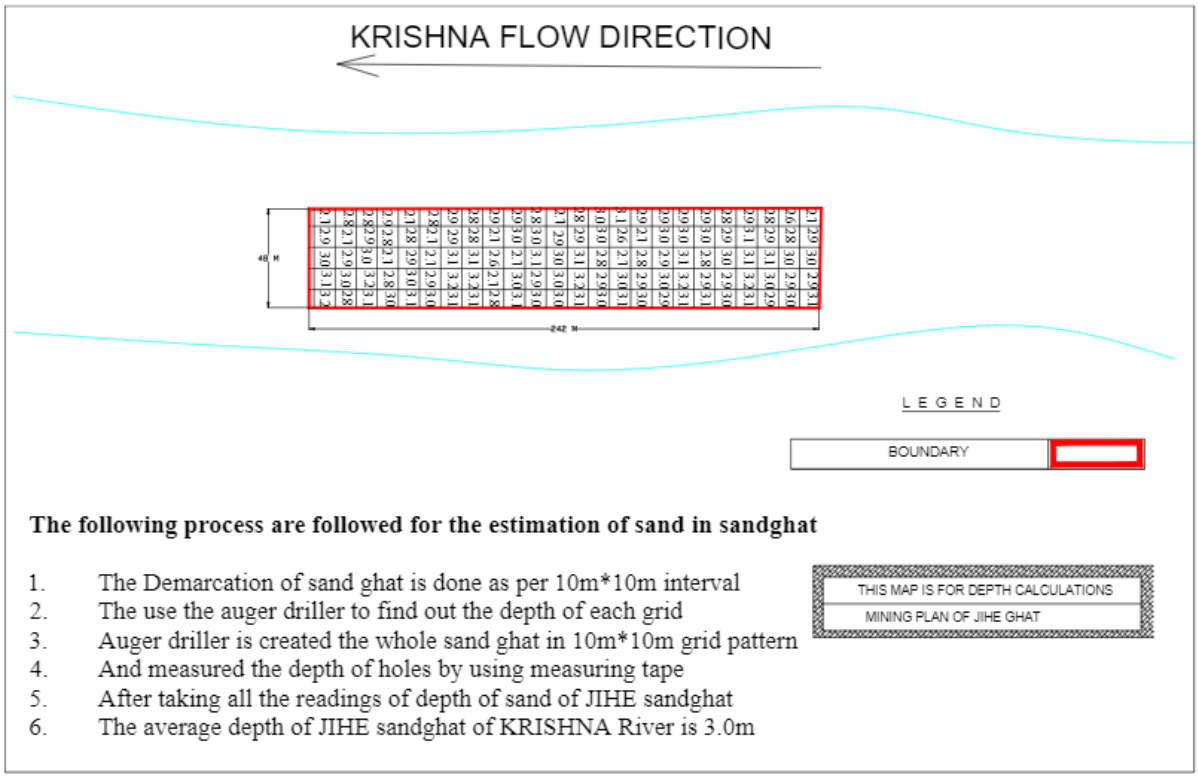


4. **PP to submit details of District Level Task Force committee meetings and status of compliance of its recommendations if any.**

   District Level Task Force Committee Meeting details is enclosed.

5. **PP to submit revised replenishment study of sand in the proposed ghat along with details of methodology, technology used to identify the existing reserve and replenishment of the same.**

Jihe sand spot over an extent of 1.16 HA (MINEABLE AREA-0.87 HA & NON-MINEABLE AREA-0.29 HA) At Krishna Riverbed Gut No. 22 to 24, 25 to 27 Jihe Village, Tehsil-Satara, Satara District, Maharashtra.



6. Sediment Yield Calculation

DANDY-BOLTON EQUATION

1. **For Runoff Less Than 2 Inches**
   S=*1280*(Q)*0.46*(1.46-0.26log(A)) *F
2. **For Runoff More Than 2 Inches**
   S=*1958*(Q)*(e-0.055*Q) *(1.43-0.26log (A))

Where:

S=sediment yield of stream (t/yr/km2),

Q= average annual runoff (m3),

A= net drainage area in sq. mile

Conclusion:

As per above data sedimentation yield for Krishna River. The replenishment rate is more than permitted sand mining quantity. Hence, the sand mining is safe of environmentally friendly.

7. PP to submit details of proposed plantation plan along with its location and requisite permission to be obtained from the Competent Authority.

Plantation details are presented below:

Location of greenbelt	Both sides of approach road, On the river banks of both sides of the sand spot & nearby open areas Haul Road outside riverbed
Afforestation area/ annum	3366 Sq.m /annum
No. of plants to be planted	1683 Per Hectare
Spacing of plants	2 m grid interval
Species selected	Native species

Tree species recommended for Plantation:

Botanical name	**Local name**	**Importance**
Azadirachta indica	Neem	Neem oil & neem products
Tectona grandis	Teek	Antibacterial, Antifungal, Antiulcer
Ficus religiosaa	Peepal	Medicinal Use, Fruits & figs
Bambusa vulgaris	Bamboo	Anthelmintic Anti-inflammatory, Astringent Properties
Madhuca longifolia	Mahua	Acts as a Stimulant & cough relief,

BUDGET FOR CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

S.No.	Budget Allocated	Budget (In INR)
1	Installation of water tankers in nearby village	60000
2	Providing books and uniforms to nearby village school	20000
3	Awareness to local farmers to increase yield of crop and fodder	45000
4	Plantation in community areas	45000
5	Repair of village roads	80000
6	Community Infrastructure Development	150000
	Total	400000

Summary and Conclusion

The environmental status of the project site and study area of 10 km radius is delineated with respect to air, noise, water, land, biological and socio-economic environment. The different project activities in the construction and operation phases are identified. To identify the impacts, the interaction between the project activities and different components of the environment are classified phase wise. A summary of the identified impacts is given in the following paragraphs.

During the operational phase, transportation of sand could cause a temporary disturbance to local environment which will be prevented with the proposed mitigation measures proposed in Point no. 4.

Proposed project will not have any major significant negative impacts. The minor impacts arising out during Excavation and Transportation phases can be mitigated with the help of the proposed Environmental Management Plan.

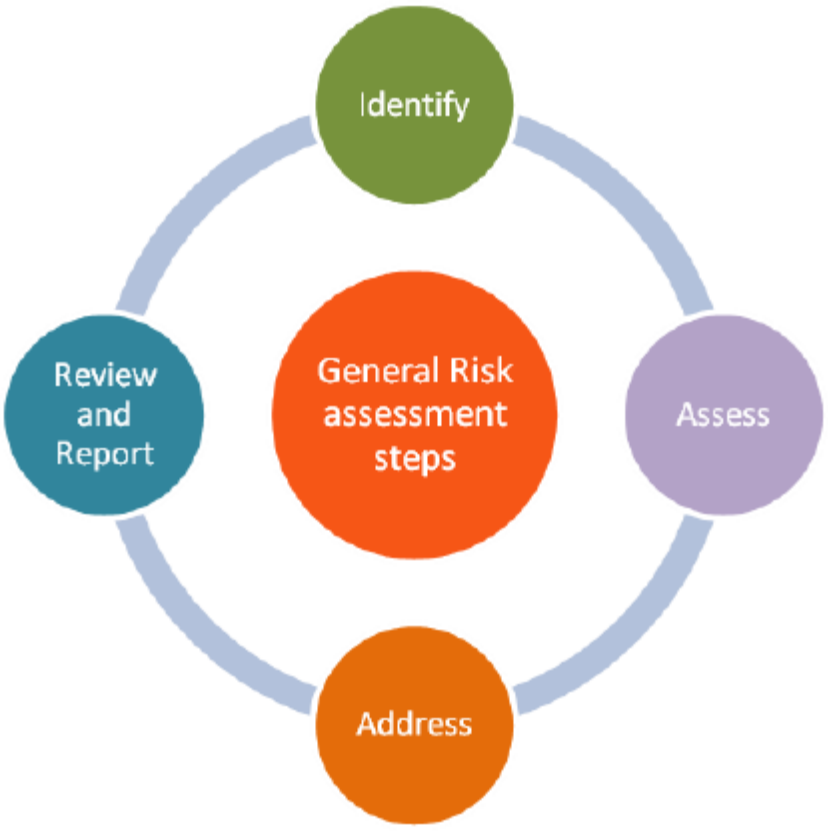
In general, Sand excavation from Jihe Sand Spot will be useful to the developmental work in the district and generate employment opportunities.

Risk Assessment for Jihe Sand Spot

1. Introduction

A main principle of risk assessment is that it should take place before any changes are made. Risks should be assessed and control measures are put into action before new work is introduced or systems are changed. The process should influence budgets and allocation of resources, rather than being an afterthought when the decisions have already been made.

The risk management process is continuous, with well-defined steps that support better decision making by contributing greater insight into risks and their impacts. Risks from all sources are identified and once they pass the materiality threshold, a formal process begins in which causal factors and consequences are identified and the correlation with other risks and the current risk mitigating strategy is reviewed. One of the challenges is to ensure that mitigating strategies are geared to deliver reliable and timely risk information to support better decision-making.



The mining operations at JIHE SAND SPOT are subjected to the risks and hazards normally encountered in open-cast mining operations. These risks include operational risks relating to

materials handling, accidents, removing material from quarry area. Mining processes also rely on key inputs, for example fuel. Appropriate insurance can provide protection from some, but not all, the costs that may arise from unforeseen events. If any of these risks should materialize, such an event could result in serious harm to employees and contractors, delays in production, increased production costs and possible increase in liabilities.

Disruption to the supply of key inputs, or changes in their pricing, may have a material and adverse impact on JIHE SAND SPOT asset values, costs, earnings and cash flows. Failure to meet production target results in increased unit costs. The impact is more pronounced at operations with a high level of fixed costs. Mitigation strategies include efforts to secure strategic supplies at competitive prices, energy reduction, and application of group water management guidelines, adoption of lean production principles and practices and business improvement initiatives to reduce unit costs.

There are certain aspects which should be taken care of, in a quarrying plan with accordance of risk management.

Components	Risk Involved
Land Slides	The continues mining of river sand may affect, on the long run, the stability of banks of the river which in turn may lead to land slides
Fire	Only trucks and tractors will make use of diesel for transportation. Diesel is not so highly inflammable but accidental fires can take place.
Road Accidents	Vehicles are used for transporting the material from quarry area to the buyer's location. Due to some improper maintenance of the vehicle a road accident can occur leading to fatal results.

To minimize the risk, certain measures can be taken like implying safety rules, facilities of basic first aid near the site and having training for the workers about personal safety.

Disaster Management Plan is envisaged with a goal to prevent hazards and accidents at work places by careful design, operation, and maintenance of equipments. All safety precautions and provisions of Metalliferous Mines Regulation-1961 will be strictly followed. Suitable control measures will be adopted to take care of hazards/disasters that may occur during mining operation.

- Fire fighting, first aid provisions & safety appliances will be made available to the staff and their use regularly checked.
- Regular maintenance of all haulage roads & mining machinery as per manufacturer's guidelines will be done

APPENDIX VIII
(See paragraph 6)
FORM 1 M
APPLICATION FOR MINING OF MINOR MINERALS UNDER CATEGORY 'B2' FOR LESS THAN AND EQUAL TO FIVE HECTARE

(I) Basic Information

(i) Name of the Mining Lease site: Gojegaon Sand Spot

(ii) Location / site (GPS Co-ordinates):

Boundary points of Gojegaon sand spot	Latitude	Longitude
BP1	17°39'39.26"N	74° 6'26.78"E
BP2	17°39'41.07"N	74° 6'32.19"E
BP3	17°39'40.15"N	74° 6'36.06"E
BP4	17°39'38.87"N	74° 6'35.76"E
BP5	17°39'39.76"N	74° 6'32.22"E
BP6	17°39'37.78"N	74° 6'26.79"E

(iii) Size of the Mining Lease (Hectare): 1.14 HA

(vi) Capacity of Mining Lease (TPA): 3021 Brass

(v) Period of Mining Lease: 1 year

(vi) Expected cost of the Project: 199.20474 Lakhs

(vii) Contact Information: District Mining Officer Satara, Maharashtra

(II) Environmental Sensitivity

S. No.	Areas	Distance in Kilometer/Details
1	Distance of project site from nearest rail or road bridge over the concerned River, Rivulet, Nallah et	Bridge, 1.99Km, W
2	Distance from infrastructural facilities Railway line National Highway State Highway Major District Road Any Other Road	 Satara Railway Station, 5.70Km, NW NH4, 9.56Km, W SH72, 1.52Km, S 1.99Km, W 0.58Km, NE

	Electric transmission line pole or tower Canal or check dam or reservoirs or lake or ponds In-take for drinking water pump house Intake for Irrigation canal pumps	0.37Km, NE Krishna River Bed Nil Nil
k	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	Nil
4	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	Water bodies: this is the case of river sand mining in Krishna River bed
5	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, overwintering, migration	Nil
6	Inland, coastal, marine or underground waters	Krishna River Bed
7	State, National boundaries	Nil
8	Routes or facilities used by the public for access to recreation or other tourist, Pilgrim areas	SH72, 1.52Km, S
9	Defence installations	Nil
10	Densely populated or built-up area, distance from nearest human habitation	Gojegaon , 1.52Km, S
11	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	There were some schools, hospitals temples, within in the boundary not in the core zone
12	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	Krishna River Bed (this is the case of river sand mining)
13	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	Nil
14	Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions)	The mine lease area falls in Seismic Zone III (Moderate), according to the Indian Standard Seismic Zoning Map.
15	Is proposed mining site located over or near fissure / fracture for ground water recharge	No
16	Whether the proposal involves approval or	No

	clearance under the following Regulations or Acts, namely:- (a) The Forest (Conservation) Act, 1980; (b) The Wildlife (Protection) Act, 1972; (c) The Coastal Regulation Zone Notification, 2011. If yes, details of the same and their status to be given.	
17	Forest land involved (hectares)	Nil
18	Whether there is any litigation pending against the project and/or land in which the project is propose to be set up? (a) Name of the Court (b) Case No. (c) Orders or directions of the Court, if any, and its relevance with the proposed project.	Nil

PRE-FEASIBILITY REPORT

- District Collector Satara vides his right to auction Sand as a minor mineral intends to auction the Sand in Satara district.
- District Collector Satara appointed M/s Integrated Precision Systems & Services Pvt. Ltd., for preparation of Mining Plan and grant of environmental clearance.
- Applicant proposed to auction the said Sand Spot over an area of 1.14 Ha (0.86 Ha. Mineable & 0.29 Ha. Non-Mineable area and identified for preparation of mining plan and for grant of Environmental Clearance.
- Mining Plans are prepared by Recognized Qualified Person and approved by Directorate of Geology & Mining Govt. of Maharashtra.
- About 3021 Brass sand is proposed to auction from proposed sand spot.
- Proposed site is located at the Krishna river bank.

1. Physiography

Physiography is one of the dominant parameters of physical environment and its impact on patterns and density of agriculture is immense. The study of the influence of environment upon the nature and the distribution of crop and livestock is of prime importance in agricultural geography.

Satara district is the part of Deccan trap of Indian Peninsula. The physical setting of district is divided in the hilly range, valley, tableland, plateau, and plain area. The physiographic landscape of district influences the spatio-temporal climatic characteristics. The variation of relief height is 1426 meter in the Sahyadri range to the 405 meter in the basin of the Nira river in the Phaltan tehsil above Mean Sea Level. However, the district can be broadly divided into major four morphological units, viz. The Sahyadri's, Krishna valley, Nira valley, and Mahadev hills and Eastern plateau.

The Sand Ghat area as per survey is River bed of Krishna River. The slope is of 6 m from 531 to 537 MSL. The slope of Sand Ghat area is towards SE side. The highest MSL is 537 & lowest 531 MSL. The flow of Krishna River is from SW to SE direction.

2. Local Geology

The local geology is Sand of various size up to depth of 2.0-2.5-meter depth.

3. Details of Exploration

The Sand Spot has sufficient Reserve of Sand to work at 8550 Cu.m for a specified period mentioned i.e. 1 year (2020-2021 from the date of mining plan approval as per agreement, from there the Sand Spot will be due for another Mining plan. The mining will continue with opencast method of Mining by cutting 1.00 m slice of Sand by advancing from NE to SW direction as per

allotted Sand Spot area and handling of material with the help of laborers into the tractor having capacity of 1 Brass for transport of Sand to the various dealer sites located outside the Sand Spot area.

4. Introduction of the project/ background information

The Gojegaon Sand Spot has been kept for Auction which is situated at Village Gojegaon, Taluka Satara, and District Satara and hence prior to go for Auction a Mining Plan and Environmental Clearance are required and hence Mining Plan is being prepared.

i) Brief description of project

The Sand Spot has sufficient Reserve of Sand to work at 8550 Cu.m for a specified period mentioned i.e., 1 year (2020-2021 from the date of mining plan approval as per agreement, from there the Sand Spot will be due for another Mining plan. The mining will continue with opencast method of Mining by cutting 1.00 m slice of Sand by advancing from SE to SW direction as per allotted Sand Spot area and handling of material with the help of laborers into the tractor having capacity of 1 Brass for transport of Sand to the various dealer sites located outside the Sand Spot area.

ii) Need for the project

The Sand or Sand Spot under reference is aimed at exploring Sand as ROM in various sizes i.e. fine to Coarse grain which is Transported to consumer site in outside Sand Spot area, for the infrastructure development i.e. Construction activity to produce Concrete for putting in the floor, roof- slabs, Column, Pillars, Bridges & Dam construction.

5. Project Description

This mining project is an independent project and not an interlinked project.

i) Location

Gojegaon is a small Village/hamlet in Satara Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 9.8 KM towards NW from District headquarters Satara. Approximately 202 KM from State capital Mumbai.

The sand spot area is connected to approach road at 1003 meter in East direction. NH-4 road is situated at a distance of 10.5 km. in the west of the sand ghat spot. Satara Railway Station is present at a distance of 8.5 km.

The area is covered in SOI Toposheet No- 47K/2. The GPS reading of boundary point are given below:

Boundary points of Gojegaon	Latitude	Longitude
BP1	17°39'39.26"N	74° 6'26.78"E
BP2	17°39'41.07"N	74° 6'32.19"E
BP3	17°39'40.15"N	74° 6'36.06"E
BP4	17°39'38.87"N	74° 6'35.76"E
BP5	17°39'39.76"N	74° 6'32.22"E
BP6	17°39'37.78"N	74° 6'26.79"E

ii) Alternate Sites

No alternate site is proposed.

iii) Magnitude of Operation

Proposed period for mining of sand will be decided by the office of district collectorate 8550 Cu.m. will be excavated during the period.

iv) Project description-mining details

The Agency will start the work after getting Allocation Letter from the competent Authority by Opencast manual mining method. The size of the pit is mentioned as 525m Length X 15m Width at the end of Sand Spot mining period. There will be no dumps of material inside the Sand Spot area as all the mined-out sand will be saleable.

The Sand Spot has sufficient Reserve of Sand to work at 8550 Cu.m for a specified period mentioned i.e. 1 year (2020-2021 from the date of mining plan approval as per agreement, from there the Sand Spot will be due for another Mining plan. The mining will continue with opencast method of Mining by cutting 1.00 m slice of Sand by advancing from NE to SW direction as per allotted Sand Spot area and handling of material with the help of laborers into the tractor having capacity of 1 Brass for transport of Sand to the various dealer sites located outside the Sand Spot area.

v) Raw material, marketing & transport of ore

The proposed sand spot will be auctioned and successful bidder will be responsible for carrying out mining operations as per environmental terms and conditions, approved mining method as per approved mining plan and other terms and conditions. The loading of Sand generated to the tractor/tipper/dumpers will be done by loaders & material transported to the Dealer site.

vi) Resource optimization, recycle, reuse

Production of sand will be decided by the factors like replenishable nature of sand, ecological sensitivity and various features existing in buffer zone. The decision regarding auctioning of sand will be on yearly basis and the above factors will be studied before decision is taken.

vii) Water & energy requirement

The major water requirement in the lease area is for dust suppression and for drinking use. The total water requirement is estimated as 20.06 KLD. The required water for dust suppression can be arranged through tankers from nearby village and drinking water will be provided in earthen pots for labours. The vehicles used for transportation will use diesel of about 125-150 litres /day.

viii) Quantity of waste & scheme for management

There will not be any waste generation within the lease area.

ix) Schematic Representations

It is a proposal of opencast manual sand mining from river bed. Mining plan is approved by the competent authority.

6. Site Analysis

i) Connectivity

Gojegaon is a small Village/hamlet in Satara Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 4 KM towards west from District headquarters Satara. Approximately 197 KM from State capital Mumbai.

The sand spot area is connected to approach road at 364 meter in North direction. NH-4 road is situated at a distance of 16 km. in the south of the sand ghat spot. Satara Railway Station is present at a distance of 3.5 km.

ii) Land Use, form & Ownership

The ultimate land use pattern for the lease area of 1.14 Ha. will be consisting of

1. Mining Area:	1.14 Ha.
2. Construction of Temporary Roads:	0.00 ha.
3. Total:	1.14 Ha.

At present ownership of this sand spot area is in the hand of Govt. of Maharashtra, after approval of mining plan and EC quarry area will be transfer to bidder after auction.

iii) Geology

The proposed sand spot area is the case of a river bed which contains mixture of sand, pebbles and gravels of various sizes.

Existing land use pattern

Existing Sand spot is a river bed having 2.0-2.5 m of sand.

7. Social-Economic Environment

Critically analyzing the existing environmental status of the socio-economic profile and visualizing the scenario with the project, the impacts of the project would be varied and may generate positive impacts of the mining of sand quarry in the region that are stated below:

A. The mining operations will provide direct & indirect employment to the village people.

B. The villages and their inhabitants & domestic animals will not be disturbed due to mining as quarry is far from their settlements.

C. Local workforce will be given first preference for employment.

D. Mining activities will benefit the local people due to provision of more infrastructural facilities (developments of approach routes within the village area).

8. Planning brief

The proposed project is opencast manual sand mining activity.

Supply demand ratio:

Information required on demand and supply of district (2020-21)			
Sr. No	**Name of District**	**Total Sand Demand of District in Brass (Approximately)**	**Total Sand Available in district in Brass (Approximately)**
1	**Satara**	**154227**	**98871**

Tahsil Office Sand Information (2020-21)			
Sr. No	**Name of Tahsil**	**Total Sand Demand if Tahsil in Brass (Approximately)**	**Total Sand Available in Tahsil in Brass (Approximately)**
1	Satara	15266	14269
2	Patan	12461	0
3	Koregaon	11696	10233
4	Karad	30143	3536
5	Jawali	2495	0
6	Khatav	22657	21367
7	Man	23671	22982
8	Khandala	2940	2372
9	Wai	5480	0
10	Phaltan	25315	24112
11	Mahabaleshwar	2103	0
		154227	**98871**

Ongoing Government Civil/ infrastructural works in the district (2020-21)			
Sr. No	**Name of Govt. Yojana**	**Details of work**	**Approx Qty of Sand required in Brass**
1	Satara Irrigation Department, Satara	Dam work of Kas, Kudali, Tarali, Wang, Morana, Dhom-Balakwadi	21158
2	Public Works Department (West)	Government College of Engineering Library and other building Work	2297
3	Public Works Department ZP Satara	Primary Health Centre Building Work	1150
4	Phaltan Nagarpalika Phaltan	Gharkul Project	130
5	Mhaswad Nagarpalika Dahiwadi	Gharkul Project	415
6	Khatav Nagarpalika Vaduj	Gharkul Project	211
Total			**25361**

वाळूच्या **Demand and supply ratio** नुसार तफावत दिसत असली तरी आपण एका हेक्टरपेक्षा कमी क्षेत्र असलेले वाळुगट वगळलेले आहे.

सातारा जिल्ह्यातील काही स्टोनक्रशर धारकांनी दगडाद्वारे वाळू तयार करण्याचे मशिनी बसवलेल्या आहेत. त्याद्वारे कृत्रीम वाळूची निर्मीती करुन बांधकामासाठी उपलब्ध होत असलेने शासकीय यंत्रणांकडून व इतर व्यवसायिकांकडून वाळूची मागणी होत नसलेचे दिसून येत आहे.

सातारा जिल्ह्यातील **CREDAI** संघटनेकडील माहितीदवारे असे निदर्शनास आले की, काही बांधकाम व्यवसायीक बांधकामासाठी **FLY Ash** द्वारे निर्माण केलेल्या विटांचा वापर करतात सदर विटा रासायनिक पदार्थ वापरुन जोडल्या जातात व आतील प्लास्टरसाठी **gypsum** चा वापर केला जातो.

Replenishment:

- Area of deposition and erosion was calculated for each cross-section after giving due regard to stability & safety of active channel banks & other features of importance.
- DGPS and other survey tools have been used to define topography, contours and offsets of lease area.
- Contour & elevation benchmarks are provided with the baseline data for assessing pre and post-study period scenario.
- Physical benchmarks are fixed at intervals (1 in 30 m) & Reduced Levels (RL) are validated from a nearby standard RL.
- These RL are engraved on a steel plate (Bench Plate) & are fixed & placed at locations which are free from any damages & are available in pre and post-study period.
- Bench plates are available for use during the mining period as reference for all mining activity.
- Baseline data on elevation status for a grid of 10 m x 10 m is taken to ensure the accuracy in the assessment.
- It was made sure that two consecutive cross-sections in longitudinal and lateral direction is not be more than 10-meter distance apart.
- Changes have been observed in the elevation in per and post scenario at each node and were depicted in graphical forms with an appropriate scale for estimating the area of deposition & erosion.
- Elevation level was placed in reference to the nearest bench-plates established for the purpose.
- The levels (MSL & RL) of corner point of each grid were identified and safety barriers (Non-Mining) are demarcated as restricted in consensus with Mineral Concession Rules of respective State, and the provision mentioned in this Sustainable Sand Mining Management Guidelines.
- A clear identification was highlighted between grids under mineable and grids under the non-mineable area. These baseline data (pre and post) was subjected to stimulation with the help of data mine software to derive at the replenishment area and corresponding volume and estimated weight.
- The database was structured in a tabulated form clearly depicting the nomenclature of the section lines, latitude and longitude of the starting point, chain-age and respective levels of all the points taken on that section line.
- Net area was derived after summation of area of deposition minus area of erosion for each cross-section.
- Volume was estimated by multiplying distance between two cross-sections with average of net area of these two consecutive cross-sections.
- One sample per 900 square meters (30 m x 30 m) was preferred for sample density for assessment of bulk density for estimation of deposition rate.
- Care was taken that the sample for assessment of bulk density is taken from the deposition zone & not from erosion. During the replenishment studies, Areas selected have large depositions are selected for sand mining and degraded land is avoided for Sand Mining. Taluka Level committee has approved the sand mines with large amount of sand depositions.
- Physical survey is done to ensure that the approved areas have large amounts of sand depositions.

- During the Physical Survey-Benchmarks has been established along the river banks and ensured that the Bifurcation of Mining and Non-Mining is done.

Sediment Yield Calculations for River Streams

DANDY-BOLTON EQUATION

1. **For Runoff Less Than 2 Inches**

   S=*1280*(Q)*0.46*(1.46-0.26log(A)) *F

2. **For Runoff More Than 2 Inches**

   S=*1958*(Q)*(e-0.055*Q) *(1.43-0.26log (A))

   Where

   S=sediment yield of stream (t/yr/km2),

   Q= average annual runoff (m3),

   A= net drainage area in sq. mile

5. Sand Ghat Site specific enforcement & monitoring plan as per guidelines stipulated in the Enforcement and Monitoring Guidelines for sand mining issued by MoEF&CC in January 2020

- District administration shall provide detailed information on its website about the sand mines in its district for public information with an objective to extend all information in public domain so that the citizens are aware of the mining activities and can also report to the district administration on any deviation observed.
- Appropriate feedback and its redressal mechanism shall also be made operational.
- Details shall include, but not limited to, lease area, geo-coordinates of lease area and mineable area, transport routes, permitted capacity, regulatory conditions for operation including mining, environmental and social commitments etc.
- Independent committee of the expert constituted by DLTF will assess the environmental or ecological damage caused due to illegal mining and recommend recovery of environmental compensation from the miner's concern.
- The recommendation may also include action under the provision of E(P) Act, 1986.

It will be ensured that following security features are included in the Transport Permission/Permits (TP) so that duplicate/fraudulent/forged TPs for transport, not accounted for in the IT-based system, is not possible:

- Printed on Indian Bank Association (IBA) Approved
- Magnetic Ink Character Recognition Code (MICR) paper
- Unique Barcode
- Unique Quick Response Code (QR)
- Fugitive Ink Background
- Invisible Ink Mark
- Void Pantograph
- Watermark
- CCTV at mine lease site
- GPS Based Vehicle Tracking System

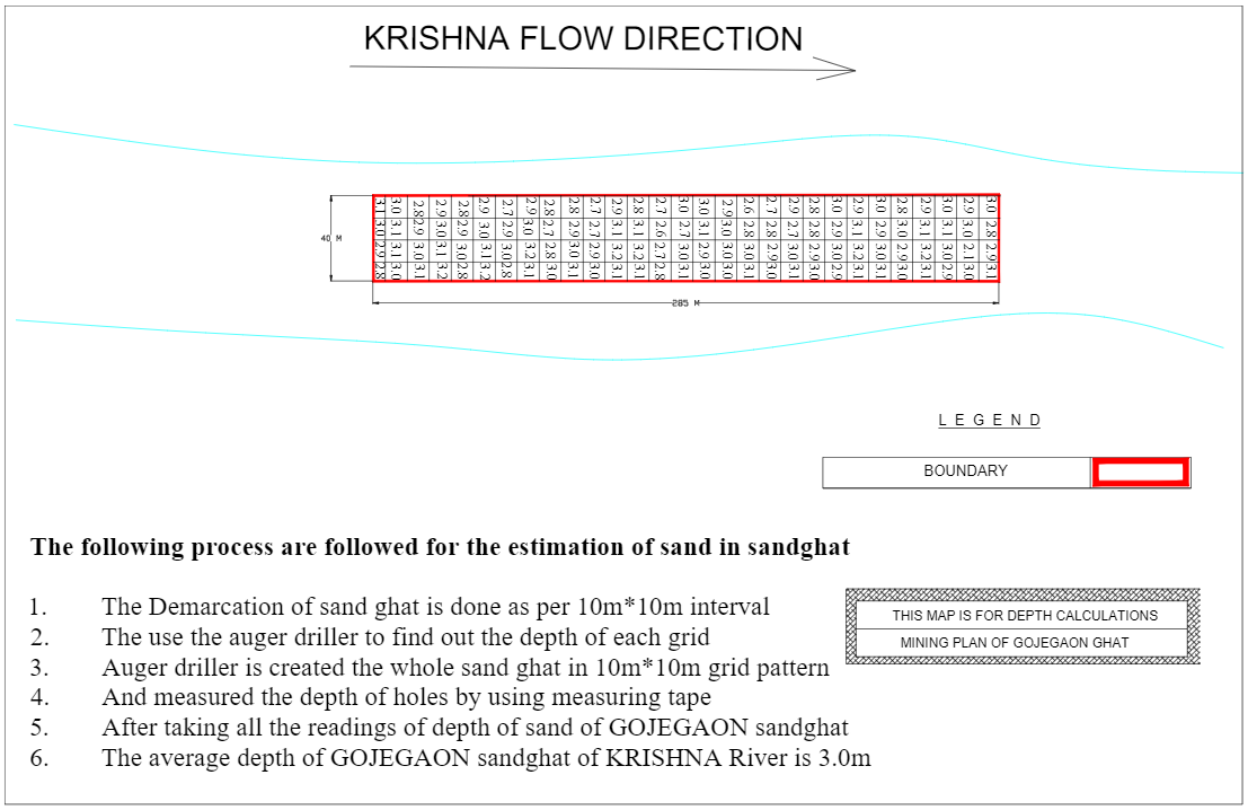
The site services as per statute, like Mine office, storeroom, workshop, first aid Room & water point will be provided outside Sand Spot area.

District Collector ensures that they meet all the compliances of the sustainable sand mining guidelines of 2020 by

1. Appointing an Environmental auditor and a three non-official committee to associate with the Environmental auditor in auditing the reports and in sending it to the District authority and making sure that the same will be accommodated in the DSR.
2. Mobile app - The officers involved in monitoring will be provided with mobile application and/or bar code scanners using which the TP can be checked anywhere on road. As soon as the bar or QR code on TP gets scanned through using the mobile application and/or scanner or vehicle number is entered into the application or sent by SMS to a predefined number, all details of TP such as plot details, vehicle details, validity time, etc. should be fetched from the server. This means if anything is re-written on TP and attempt is made to reuse the same, it can be traced immediately. Various reports can be generated using the system showing daily lifting reports and user performance report. This way the vehicles carrying sand can be tracked from source to destination.
3. Online portal – IT Enabled real time monitoring system would be built to monitor the CCTV Cameras 24*7 and the footages would be made available on the public domain for the Public to enhance transparency in the sand mining and to avoid illegal mining. Budget for CCTV Monitoring in allocated in EMP.
4. Customer care/ telephone call – Would be provided to the citizens to report illegal mining in the district from time to time.
5. The District Collector will get all necessary Permissions from the Electricity Board for power supply to operate the CCTV cameras at sand quarry site and depots.
6. The District Collector will be providing a Minimum of two CCTV cameras, one each at the entry and exit point and one PTZ camera will be installed at all quarries/depots to monitor illegality if any taking place in the sand quarry/depot.
7. The District Collector will ensure uninterrupted seamless live streaming of videos from the surveillance cameras by ensuring a high-speed Internet Lease Line connection at all quarries/depots.

8. The district collector will get live streaming of the videos monitored at a centralised control room and the data stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the grievance of the public.
9. District collector will ensure that all the Earlier Environmental Clearance conditions would be implemented on time as per the Sustainable sand Mining Guidelines 2020.
10. Ground Water Level Monitoring - Collector will ensure that the Piezometer's would be installed in the Quarry site and all the wells with in one km radius of the Quarry would be monitored regularly. Fluctuations in the ground water would be recorded and necessary measures would be taken from time to time to avoid water depletion. And a separate Budget for Ground water monitoring in included in the EMP.
11. Collector would ensure that senior officials would be doing regular audits with the local police officers that are involved with mining mafia. District collector along with the DSP will ensure that all the FIR's that are in place would be investigated from time to time and necessary action would be taken.
12. All Transportation routes – One from Quarry to sand depo and another from sand depo to the Main road and to end consumer would be tracked and monitored by ensuring only authenticated GPS Vehicle tracking vehicles being allowed to transport the mineral.
13. For road degradation – Budget is allocated in EMP and district collector ensures that the roads are maintenance is properly done by the bidder or through local funds available with collector.
14. Collector will make sure that the Bidder develops Greenbelt plantation along the river bank and on either sides of the approach road and even at the sand depos to prevent air pollution. And all bidders would be enforced only to transport mineral by covering the mineral with tarpaulin covers.
15. Collector will ensure that the bidder develops necessary infrastructure like CCTV Monitoring, CCTV Monitoring, Noise monitoring and Plantations across river bank and approach road in that lease area where the bidder takes lease of the land for storage of the sand.

Sand Quantity Evaluation:



The following process are followed for the estimation of sand in sandghat

1. The Demarcation of sand ghat is done as per 10m*10m interval
2. The use the auger driller to find out the depth of each grid
3. Auger driller is created the whole sand ghat in 10m*10m grid pattern
4. And measured the depth of holes by using measuring tape
5. After taking all the readings of depth of sand of GOJEGAON sandghat
6. The average depth of GOJEGAON sandghat of KRISHNA River is 3.0m

6. Proposed Infrastructure

The site services as per statute, like Mine office, storeroom, workshop, first aid Room & water point will be provided in outside Sand Spot area.

7. R&R Plan

R&R is not involved.

8. Project schedule

Period of mining for the proposed sand spot will be decided by the Office of District Collectorate.

9. Analysis of Proposal

Description of the project included in items 1-10 above indicates the following:

1. It is proposed for opencast manual river sand mining.
2. Opencast mining without hampering the present environmental quality of the area.
3. Income to local people is uncertain & initiation of mining will ensure regular income to local people.

10. Costing

Costing parameters will be decided by the District Authorities.

11. Compliance to Environment Clearance

a. Last time Satara District had got 13 Sand Ghats Environment clearance. Out of those 09 sand Ghats were allotted to sand scooping. Out of which 04 sand Ghats auctioned to private person and 05 allotted to irrigation department. At time of allocation sand Ghats owner were deposited EMD, EMP amount and GB to Collector office.
b. During sand Ghats operating period so or tahsildar level team verify the given term and conditions time to time. If sand ghats owner complied all given term and conditions deposit like EMD, EMP amount and GB refunded.
c. In this way year 2018-19 13 sand Ghats owner and concern tahsildar submitted the Environment and sand mining policy terms and conditions compliance report.

12. Any Other Information:

Whether there are any serious violation of safety rules and regulation which may jeopardize human health and safety. If so, give details of violations and state the steps proposed to be taken with the time scheduled to rectify the violations:

No, there are not any serious violation of safety rules and regulation, which may jeopardize human health and safety. The applicant has given a commitment in this effect and undertaking also given to follow and implement, as specified in the mining plan. The applicant is undertake to abide and implement any special conditions imposed by various authorities and also to complete formalities under provision of the Mines & Mineral (Development & Regulation) Act, 1957 and the Bombay Minor Mineral rules, the Mineral Conservation and Development Rules, 1988 as amended, the Maharashtra Minor Minerals Extraction (Development and Regulation) Rule 2013, MoEF & CC Notification S.O. 141 (E) dated 15th January 2016, and MoEF & CC Sustainable Sand Mining Management Guidelines 2016, Sustainable Sand Mining Management Guidelines 2019,Sand Mining Policy 2020

Stringent stipulations have been laid out while issuing EC. This includes regular monitoring of environmental parameters and carrying out various mitigates measures to protect the environment.

These things will be religiously followed, and its report will be periodically 9) Virgin lease area for Sand Mine & Other Uses 3.11 0.000 10) Road - - 11) Railway - - 12) Tailing Pond - - 13) Effluent Treatment Plant - - 14) Mineral separation plant - - 15) Township Area - - 16) Others to specify - - 17) Ownership Government River Government River Total 3.11 3.11 submitted to the concerned authority.

All Notices, Letters received from Government and all communication with Government (Court, NGT, DGMS, Directorate of Geology and Mining, District Mining Officer, Collector, Tehsildar, Grampanchayat, Talathi, Pollution Control Board, Forest department, Environment department, Irrigation department, Public Works Departments, Controller of Explosive, Labor Commissioner, Sale tax etc.) regarding Mine Lease and Mining will be strictly followed by Mine Owner. Mine Owner must follow all provisions of the Maharashtra Minor Minerals Extraction (Development and Regulation) Rule-2013, MoEF & CC Notification S.O. 141 (E) dated 15th January 2016, and MoEF & CC Sustainable Sand Mining Management Guidelines 2016, the

Environment (Protection) Act 1986 and Rules made there under, the Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Hazardous Wastes (Management and Handling) Rules 1989, the Wildlife (Protection) Act 1972, the Forest Conservation Act-1980, the Forest Conservation Rule-2003, the Mineral Conservation and Development Rule-1988, the Mineral Concession Rules-1960, the Mines and Minerals (Development and Regulation) Act-1957, the Mines Act, the Mines Rule, the Mines Regulations, the public Liability Insurance Act 1991 and its amendments, Orders and Bye Laws made there under and any laws or guidelines that may be applicable to mine / area from time to time whether made by Central or State Government or any other authority. Wherever specific permissions are required, the applicant will approach the Directorate General of Mines Safety, Indian Bureau of Mines and Directorate of Geology and Mining. Mine Owner should obtain relevant clearances as per Environment Protection Act-1986 and EIA notification dated 21.01.1994 and 04.09.2006.

Environmental Management Plan

Gojegaon sand spot over an extent of 1.14 HA (MINEABLE AREA-0.86 HA & NON-MINEABLE AREA-0.29 HA) At Krishna Riverbed Gut No. 1 & 2 Gojegaon Village, Tehsil-Satara, Satara District, Maharashtra.

---

1. Introduction

Ministry of Environment and Forest (MoEF) Notification 2006 and Sustainable Sand Mining Management Guidelines 2016 and as per provision in Mines and Minerals (Development and Regulation) Act 1957 Schedule 60 section 15, Govt Of Maharashtra makes a Minor Mineral Extraction Rules 2013 to extract all the minor mineral in scientific way so that there is no adverse impact on Environment and Climate. To extract every minor mineral from any land (either Government or Private) there is provision of mining plan which is approved by competent authority; For long term leased minor mineral (5 – 10 years period) and Sand excavation from river bed, Senior Deputy Director of Directorate of Geology and Mining is a Competent authority, for short term Temporary permits which is valid for one year, Committee headed by Hon. Collector is Final authority to Approved the District Mining Plan.

As per Minor Mineral Extraction Rules 2013 Rules 70, Disposal of sand from River bed, Nallah and creeks by way of public auction, in this regards Govt resolution Gaukhni -10/0615/case No. 289/kha dated 3rd January 2018 is applicable in entire state. As per Sustainable sand mining management guidelines 2016, Standard Environment condition for sand mining and sustainable mining practices, district level survey report should be prepared and area suitable for mining and area prohibited for mining be identified.

2. Project Description

Gojegaon is a small Village/hamlet in Satara Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 9.8 KM towards NW from District headquarters Satara. Approximately 202 KM from State capital Mumbai.

The sand spot area is connected to approach road at 1003 meter in East direction. NH-4 road is situated at a distance of 10.5 km. in the west of the sand ghat spot. Satara Railway Station is present at a distance of 8.5 km.
The area is covered in SOI Toposheet No- 47K/2.

Table 1: Salient Features of the Project

<table>
<tr><th>Items</th><th>Details</th></tr>
<tr><td>Location</td><td>Gojegaon Village, Tehsil-Satara, Satara District, Maharashtra.</td></tr>
<tr><td>Latitude and Longitude</td><td>
<table>
<tr><th>BOUNDARY PILLAR</th><th>LATITUDE</th><th>LONGITUDE</th></tr>
<tr><td>BP1</td><td>17°39'39.26"N</td><td>74° 6'26.78"E</td></tr>
<tr><td>BP2</td><td>17°39'41.07"N</td><td>74° 6'32.19"E</td></tr>
<tr><td>BP3</td><td>17°39'40.15"N</td><td>74° 6'36.06"E</td></tr>
<tr><td>BP4</td><td>17°39'38.87"N</td><td>74° 6'35.76"E</td></tr>
<tr><td>BP5</td><td>17°39'39.76"N</td><td>74° 6'32.22"E</td></tr>
<tr><td>BP6</td><td>17°39'37.78"N</td><td>74° 6'26.79"E</td></tr>
</table>
</td></tr>
</table>

Sand spot area (In Ha)	1.14
Proposed production capacity (In Brass)	3021
Manpower Requirement (considering 3-month period)	10 labors + 1 mate + 1 Supervisor = 12man/day
Infrastructure Requirement (As per Govt Resolution 3rd January 2018)	1. Room / Hut for Official records 2. Electricity / Battery for Running CCTV on 24X 7 daily. 3. One Computer / Android base Mobile for the online generation of Invoice number.
Water requirement & source	20.06 KLD – Tankers from nearby village.
Project cost INR (Lakh)	199.20474

3. Baseline Environmental Studies

a. Topography

Satara district is the part of Deccan trap of Indian Peninsula. The physical setting of district is divided in the hilly range, valley, tableland, plateau, and plain area. The physiographic landscape of district influences the spatio-temporal climatic characteristics. The variation of relief height is 1426 meter in the Sahyadri range to the 405 meter in the basin of the Nira river in the Phaltan tehsil above Mean Sea Level. However, the district can be broadly divided into major four morphological units, viz. The Sahyadri's, Krishna valley, Nira valley, and Mahadev hills and Eastern plateau.

The Sand Ghat area as per survey is River bed of Krishna River. The slope is of 6 m from 531 to 537 MSL. The slope of Sand Ghat area is towards SE side. The highest MSL is 537 & lowest 531 MSL. The flow of Krishna River is from SW to SE direction.

b. Hydrology

There will be no change in water table during mining operation, as the depth of mining shall be restricted to 1m water level, which is less likely to affect surface level or ground water table. There is no proposal of any stream modification/diversion due to this mining activity hence there will not be any impact on flow of water.

c. Soil Environment

The area is not having any top soil or fertile soil. The depth of mining shall be restricted to 1m. There is no major impact on soil of the study area is envisaged due to mining activities.

d. Land Use Land Cover

The project area does not consist of any forest land. It does not consist of any human habitations. Any change in scope of mining as per approved mining plan can lead to bank erosion /cutting and thereby river channel shifting degradation of land, causing loss of properties and degradation of surrounding landscape.

e. Water Environment

There will not be any wastewater discharges to water bodies from the mining operations. As observed in the River, the thickness of sand to be excavated will be 1.00m only so there will not be any intersection with ground water table. It is observed from the dug well in the adjacent plain area and in the nearby villages that the ground water table varies depending upon seasonal variations. The depth to water levels in the district ranges from 0.90 to 25.00 m BGL in pre-monsoon season and the depth to water levels in post-monsoon ranges from 0.10 to 19.10 m BGL. As the mining activities presently proposed are maximum upto 1.00m that to within the river course and the total mining operation will be achieved through manual means, there will be no effect on ground water table. All the stipulations of MoEF for sand mining and guidelines as per the Maharashtra Minor Mineral Extraction [Development and Regulation] Rules, 2013 of Section 15 of MMDR Act 1957 [67 of 1957] will be followed. Hence, impact on water regime due to the proposed sand mining is not anticipated.

1. Precautionary measures will be initiated for closing the operation and shifting the men and transport vehicles prior to onset of monsoon.
2. No oils or lubricants will be discharged in the sand to avoid water pollution.

f. Climate

The Indian Meteorology Department, Pune divided Satara district into four seasons.1

(i) Cold season -December to February

(ii) Hot season- March to May

(iii)Southwest monsoon season - June to September

(iv)Post monsoon or the retreating monsoon season - October and November

Temperature, rainfall, humidity, evaporation, and wind speed are important elements of the climate. The climatic condition of Satara district depends on geographical factor. Generally, the climatic conditions of India change latitude wise but, in the district, it changes longitudinal. Rainfall: The rainfall ranges from the rainiest in the Mahabaleshwar region, which has an average annual all over 5805 mm to the driest in Man tahsil where the average annual rainfall is about 557 mm. Average annual rainfall of Satara district is 1436.4 mm. The rainfall is received in the three seasons. June to September is the south west monsoon season whereas October to December constitutes the post-monsoon season or the retreating monsoon season. The pre monsoon or hot season is from March to the end of May. The normal rainfall trend in the district increases towards the east to west and reaches maximum around Mahabaleshwar.

g. Biological Environment

The project is only of extraction of minor minerals viz. sand from the river quarry.

Flora: The area is completely barren and devoid of any vegetation in the river. Only few thorny bushes are seen on the banks of the River.

Fauna: As there is no forest cover, no wild life can be seen in this area.

1. There will be no significant impact of the river quarry mining project on the biological diversity found in the 5km. radius of the site.

2. The mining lease area is in non-forest land i.e., sandy river quarry where presence of fauna is not at all seen. As such, there will be no adverse impact of the manual mining activity on fauna around the mining lease area.

3. No adverse impacts will be envisaged on the existing aquatic fauna, on downstream side (away from site) as the mining confined to above water level only and at all touching/disturbing water table.

h. Socio-Economic Environment

Critically analyzing the existing environmental status of the socio-economic profile and visualizing the scenario with the project, the impacts of the project would be varied and may generate positive impacts of the mining of sand quarry in the region that are stated below:

1. The mining operations will provide direct & indirect employment village people.
2. The villages and their inhabitants & domestic animals will not be disturbed due to mining as quarry is far from their settlements.
3. Local work force will be given first preference for employment.
4. Mining activities will benefit the local people due to provision of more infrastructural facilities (developments of approach routes within the village area)

4. Project Benefits

a. The proposed expansion project will lead to the following benefits:
b. Sand is available for Building and Construction work and by regular removal of sand there is no possibility of flood.
c. This project will contribute additional revenue to the state Exchequer in the form of revenue.
d. The project will result in the employment opportunities to the unskilled/skilled local people. Thereby, the quality of life of the employed people will increase.

5. Sand Ghat Closure Plan

S. No	Head	Area put on use. at start of plan [in Ha]	Additional Requirement during Plan period [in Ha]	Total [in Ha]	Area considered as	Net considers for calculation
1	Area under mining / pit	-	1.14	1.14	---	1.14
2	Area under dump	NIL	---	---	---	

3	Infrastructure Work shop Administrative Building etc					
4	Roads					
5	Mineral reject					
6	Green Belt Plantation /Soil dump					
7	Tailing Dam /pond					
8	Effluent Treatment Plant					
9	Mineral storage					
10	Township area					
11	Other to specify					
GRAND TOTAL			1.14	1.14	1.14	1.14

- Mining will be avoided during monsoon and floods; this will allow the sand deposit to replenish.
- Gabion structure will be constructed for the sand to replenish during monsoon season.

7. Environmental Management Plan indicating sufficient budgetary provisions for mitigation of identified impacts on all Environmental Parameters.

S. No	Impact Source	Impact	Control measure	Budget (In INR)
1	Transport Road	On Air Quality	Compaction, gradation, and drainage on both sides.	100000
		Road Degradation	Budget for Road Repairs and Maintenance from Approach Road to Main Road	150450
		Road Construction	Road Construction from Quarry to Access Road	250750
		Air Environment	Dust Supression by Regular water spraying.	150450
			Air quality will be monitoring at impacted village. (For One Day Monitoring)	50000
			Health Check-up of Employees.	14400

2	Truck/ Tractor Movement	Air Quality	Sand carrying trucks will be effectively covered by tarpaulin to avoid escape of fines to the atmosphere. (2 Tarpaulin)	10000
			Regular monitoring of the exhaust fumes.	2500
			Barriers & Traffic Management Expenses. (Excluding Man Power Salary which is included in labour costs)	115345
3	Ramp and Sand Reach	Mining Operations	Regular ramp Inspection and Ramp maintenance. (Excluding Man Power Salary which is included in labour costs)	125375
			Provision of dusk masks.	15000
4	Bank Management	Bank Erosion/Flood Plain management	Green Belt along Road	501500
			Green belt along bank (For Green Belt Development)	1003
5	Final Mine Closer Plan implementation	Replenishment of Sand	Provisions of Gabion bunds for protection of bank erosion & replenishment facility.	22500
6	Mobile toilet, sewage handling & treatment		Mobile toilet, sewage handling & treatment	100000
7	CCTV Monitoring		CCTV Camera	60000
			CCTV Monitoring Framework	60000
8	Safety		Signage Boards	6000
			Fencing	18000
			Watching	25000
9	Drinking Water			60000
10	Sanitation			60000
11	Ground Water Monitoring	Water Environment	Ground Water Level monitoring of wells within 1 Km of Quarry Site	50000
			Piezometer installation at quarry location.	45000
12	Noise Monitoring		Regular Maintenance of Vehicles	75000
13	Physical Survey		Provision for physical survey & associated works if different funds are not available.	200000

14	Development of Market Model		Provision for development of market model & associated works if different funds are not available.	25000
15	Environmental Audit		Provision for third party environmental audit if different funds are not available.	50000
			Total EMP Budget	23,43,273
			Capital Cost	16,29,498
			Recurring Cost	7,13,775

8. Sand Ghat Site specific enforcement & monitoring plan as per guidelines stipulated in the Enforcement and Monitoring Guidelines for sand mining issued by MoEF&CC in January 2020

- District administration shall provide detailed information on its website about the sand mines in its district for public information with an objective to extend all information in public domain so that the citizens are aware of the mining activities and can also report to the district administration on any deviation observed.
- Appropriate feedback and its redressal mechanism shall also be made operational.
- Details shall include, but not limited to, lease area, geo-coordinates of lease area and mineable area, transport routes, permitted capacity, regulatory conditions for operation including mining, environmental and social commitments etc.
- Independent committee of the expert constituted by DLTF will assess the environmental or ecological damage caused due to illegal mining and recommend recovery of environmental compensation from the miner's concern.
- The recommendation may also include action under the provision of E(P) Act, 1986.

It will be ensured that following security features are included in the Transport Permission/Permits (TP) so that duplicate/fraudulent/forged TPs for transport, not accounted for in the IT-based system, is not possible:

- Printed on Indian Bank Association (IBA) Approved
- Magnetic Ink Character Recognition Code (MICR) paper
- Unique Barcode
- Unique Quick Response Code (QR)
- Fugitive Ink Background
- Invisible Ink Mark
- Void Pantograph
- Watermark
- GP Based Vehicle Tracking System

9. Gojegaon-Sand Ghat Site specific enforcement & monitoring plan as per guidelines stipulated in the Enforcement and Monitoring Guidelines for sand mining issued by MoEF&CC in January 2020.

District Collector ensures that they meet all the compliances of the sustainable sand mining guidelines of 2020 by

1. Appointing an Environmental auditor and a three non-official committee to associate with the Environmental auditor in auditing the reports and in sending it to the District authority and making sure that the same will be accommodated in the DSR.
2. Mobile app - The officers involved in monitoring will be provided with mobile application and/or bar code scanners using which the TP can be checked anywhere on road. As soon as the bar or QR code on TP gets scanned through using the mobile application and/or scanner or vehicle number is entered into the application or sent by SMS to a predefined number, all details of TP such as plot details, vehicle details, validity time, etc. should be fetched from the server. This means if anything is re-written on TP and attempt is made to reuse the same, it can be traced immediately. Various reports can be generated using the system showing daily lifting reports and user performance report. This way the vehicles carrying sand can be tracked from source to destination.
3. Online portal – IT Enabled real time monitoring system would be built to monitor the CCTV Cameras 24*7 and the footages would be made available on the public domain for the Public to enhance transparency in the sand mining and to avoid illegal mining. Budget for CCTV Monitoring in allocated in EMP.
4. Customer care/ telephone call – Would be provided to the citizens to report illegal mining in the district from time to time.
5. The District Collector will get all necessary Permissions from the Electricity Board for power supply to operate the CCTV cameras at sand quarry site and depots.
6. The District Collector will be providing a Minimum of two CCTV cameras, one each at the entry and exit point and one PTZ camera will be installed at all quarries/depots to monitor illegality if any taking place in the sand quarry/depot.
7. The District Collector will ensure uninterrupted seamless live streaming of videos from the surveillance cameras by ensuring a high-speed Internet Lease Line connection at all quarries/depots.
8. The district collector will get live streaming of the videos monitored at a Centralised control room and the data stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the grievance of the public.
9. District collector will ensure that all the Earlier Environmental Clearance conditions would be implemented on time as per the Sustainable sand Mining Guidelines 2020.
10. Ground Water Level Monitoring - Collector will ensure that the Piezometer's would be installed in the Quarry site and all the wells with in one km radius of the Quarry would be monitored regularly. Fluctuations in the ground water would be recorded and necessary measures would be taken from time to time to avoid water depletion. And a separate Budget for Ground water monitoring in included in the EMP.
11. Collector would ensure that senior officials would be doing regular audits with the local police officers that are involved with mining mafia. District collector along with the DSP will ensure that all the FIR's that are in place would be investigated from time to time and necessary action would be taken.

12. All Transportation routes – One from Quarry to sand depo and another from sand depo to the Main road and to end consumer would be tracked and monitored by ensuring only authenticated GPS Vehicle tracking vehicles being allowed to transport the mineral.
13. For road degradation – Budget is allocated in EMP and district collector ensures that the roads are maintenance is properly done by the bidder or through local funds available with collector.
14. Collector will make sure that the Bidder develops Greenbelt plantation along the river bank and on either sides of the approach road and even at the sand depos to prevent air pollution. And all bidders would be enforced only to transport mineral by covering the mineral with tarpaulin covers.
15. Collector will ensure that the bidder develops necessary infrastructure like CCTV Monitoring, CCTV Monitoring, Noise monitoring and Plantations across river bank and approach road in that lease area where the bidder takes lease of the land for storage of the sand.

10. Compliance of earlier Environmental Clearance

a. Last time Satara district had got 13 sand Ghats Environment clearance. Out of these 09 sand Ghats were allotted to sand scooping. Out of which 04 sand Ghats auctioned to private person and 05 allotted to irrigation department. At time of allocation sand Ghats owner were deposited EMD, EMP amount and GB to collector office.
b. During sand Ghats operating period so or tahsildar level team verify the given term and conditions time to time. If sand Ghats owner complied all given term and conditions his deposit like EMD, EMP amount and GB refunded.
c. In this way year 2018-19 13 sand Ghats owner and concern tahsildar submitted the EC and sand mining policy terms and conditions compliance report.

11. Information about any general or specific order passed by competent Hon'ble court.

Nil

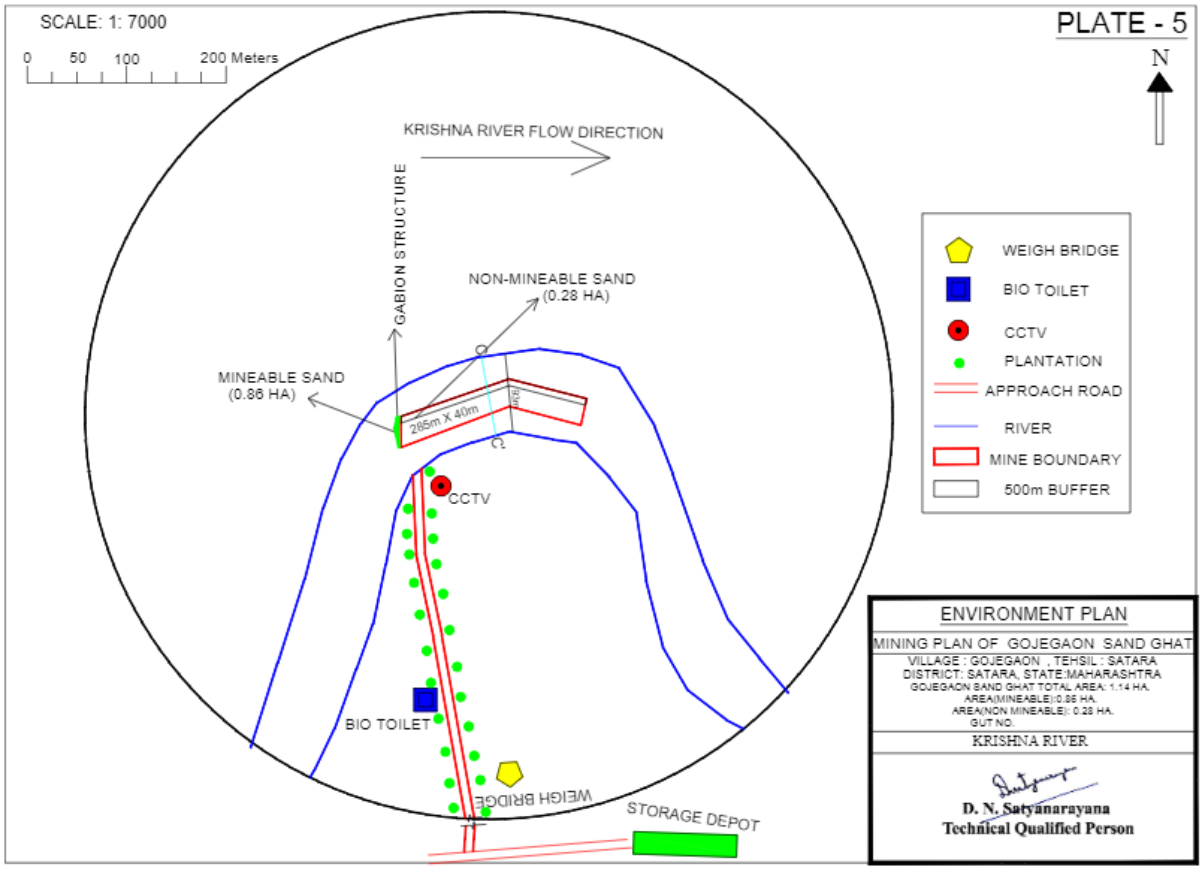
Conditions Reply:

12. DMO Satara to submit cluster certificate with reference to the EIA Notification 2006 amended from time to time with specific remarks on the cluster formation in the periphery of the proposed sand ghat along with area map showing distances between adjoining sand mine areas. Proposed Gojegaon sand ghat does not fall in cluster.

13. PP to submit layout of proposed sand ghat showing mine area, non-mine area, location of bio toilets, location of CCTV cameras, fencing, weigh bridge, approach road etc.

Proposed sand ghat showing mine area, non-mine area, location of bio toilets, location of CCTV cameras, fencing, weigh bridge, approach road etc. layout is given below:

Gojegaon sand spot over an extent of 1.14 HA (MINEABLE AREA-0.86 HA & NON-MINEABLE AREA-0.29 HA) At Krishna Riverbed Gut No. 1 & 2 Gojegaon Village, Tehsil-Satara, Satara District, Maharashtra.



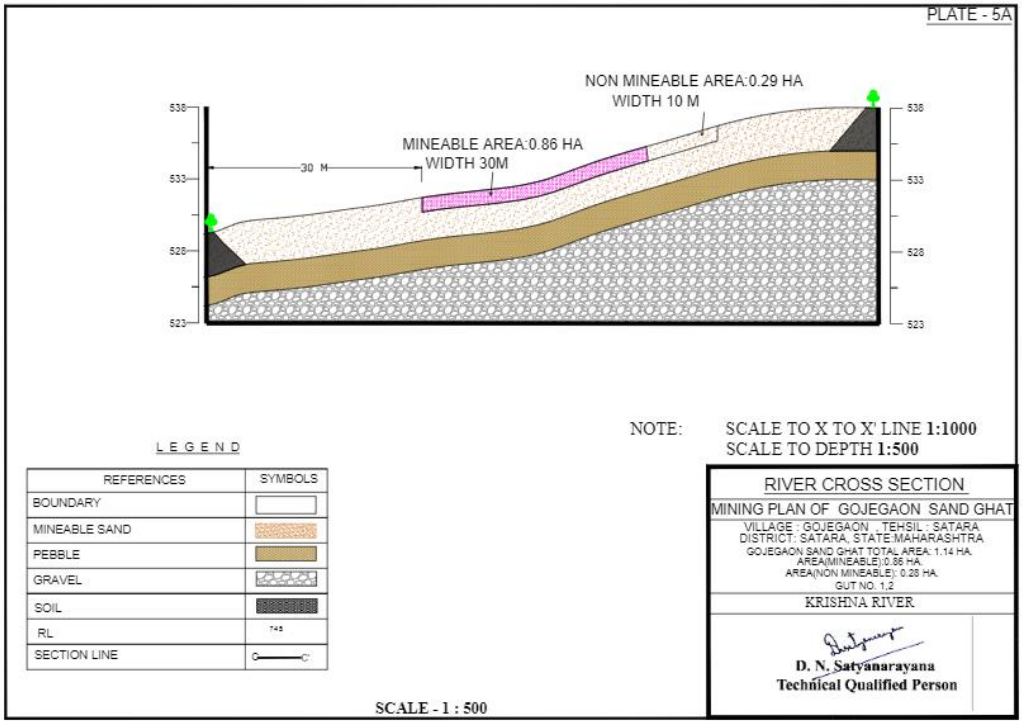
PP to submit details of proposed approach road for transport of mined sand from sand ghat to the storage area and consent of storage area from the concerned land owners is an after-auction activity to use their land as approach road.

The proposed approach road length is 1003 m, and it belongs to Gram Panchayat, the mined-out sand from sand ghat will be stored adjacent to approach near the river bank. Consent of road submitted by Satara Tahsildar is enclosed for use of land as approach road. The successful bidder will be deciding the storage area and get concern from land owner.

3. **PP to submit cross section of river bed showing distance of proposed sand mine area from the river bank and other details as prescribed in the Enforcement & Monitoring Guidelines for sand mining published in January 2020 by MoEF&CC.**

Cross section of river bed is shown below:

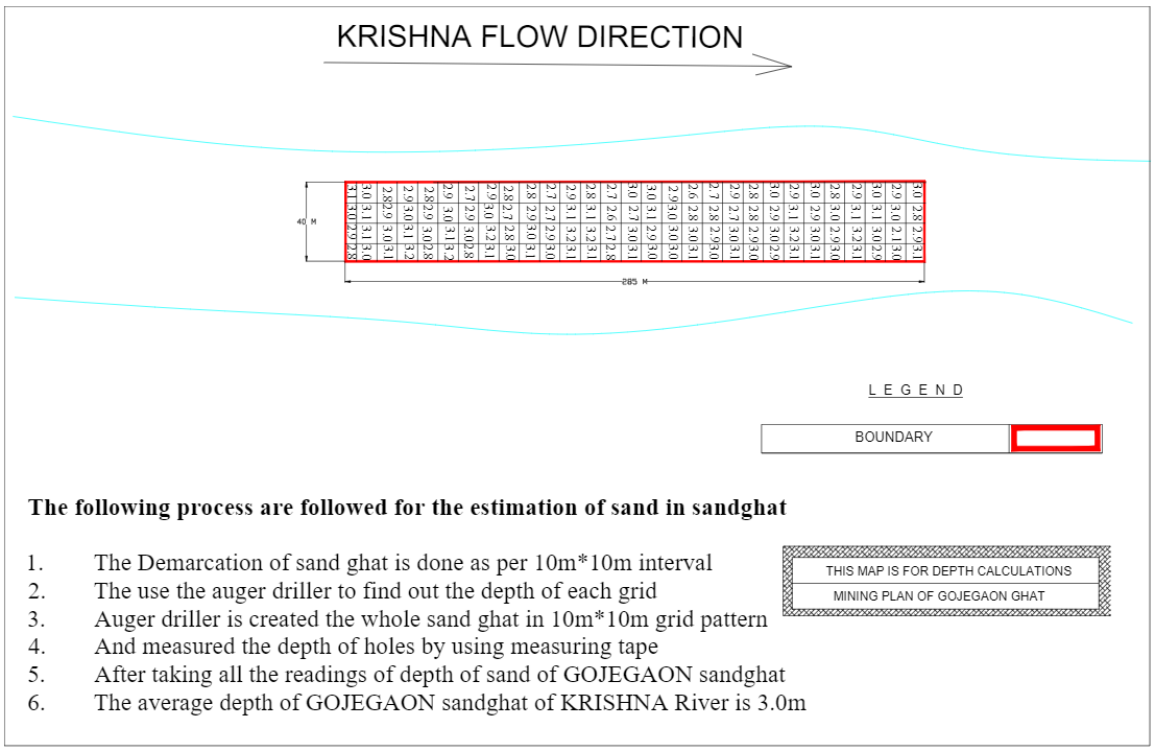
Gojegaon sand spot over an extent of 1.14 HA (MINEABLE AREA-0.86 HA & NON-MINEABLE AREA-0.29 HA) At Krishna Riverbed Gut No. 1 & 2 Gojegaon Village, Tehsil-Satara, Satara District, Maharashtra.



4. **PP to submit details of District Level Task Force committee meetings and status of compliance of its recommendations if any.**

   District Level Task Force Committee Meeting details is enclosed.

5. **PP to submit revised replenishment study of sand in the proposed ghat along with details of methodology, technology used to identify the existing reserve and replenishment of the same.**



The following process are followed for the estimation of sand in sandghat

1. The Demarcation of sand ghat is done as per 10m*10m interval
2. The use the auger driller to find out the depth of each grid
3. Auger driller is created the whole sand ghat in 10m*10m grid pattern
4. And measured the depth of holes by using measuring tape
5. After taking all the readings of depth of sand of GOJEGAON sandghat
6. The average depth of GOJEGAON sandghat of KRISHNA River is 3.0m

6. Sediment Yield Calculation

DANDY-BOLTON EQUATION

1. **For Runoff Less Than 2 Inches**
   S=*1280*(Q)*0.46*(1.46-0.26log(A)) *F
2. **For Runoff More Than 2 Inches**
   S=*1958*(Q)*(e-0.055*Q) *(1.43-0.26log (A))

Where:

S=sediment yield of stream (t/yr/km2),

Q= average annual runoff (m3),

A= net drainage area in sq. mile

Conclusion:

As per above data sedimentation yield for Krishna River. The replenishment rate is more than permitted sand mining quantity. Hence, the sand mining is safe of environmentally friendly.

7. PP to submit details of proposed plantation plan along with its location and requisite permission to be obtained from the Competent Authority.

Plantation details are presented below:

Location of greenbelt	Both sides of approach road, On the river banks of both sides of the sand spot & nearby open areas Haul Road outside riverbed
Afforestation area/ annum	2576 Sq.m /annum
No. of plants to be planted	1288 Per Hectare
Spacing of plants	2 m grid interval
Species selected	Native species

Tree species recommended for Plantation:

Botanical name	**Local name**	**Importance**
Azadirachta indica	Neem	Neem oil & neem products
Tectona grandis	Teek	Antibacterial, Antifungal, Antiulcer
Ficus religiosaa	Peepal	Medicinal Use, Fruits & figs
Bambusa vulgaris	Bamboo	Anthelmintic Anti-inflammatory, Astringent Properties
Madhuca longifolia	Mahua	Acts as a Stimulant & cough relief,

BUDGET FOR CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

S.No.	Budget Allocated	Budget (In INR)
1	Installation of water tankers in nearby village	60000
2	Providing books and uniforms to nearby village school	20000
3	Awareness to local farmers to increase yield of crop and fodder	45000
4	Plantation in community areas	45000
5	Repair of village roads	80000
6	Community Infrastructure Development	150000
	Total	4,00,000

Summary and Conclusion

The environmental status of the project site and study area of 10 km radius is delineated with respect to air, noise, water, land, biological and socio-economic environment. The different project activities in the construction and operation phases are identified. To identify the impacts, the interaction between the project activities and different components of the environment are classified phase wise. A summary of the identified impacts is given in the following paragraphs.

During the operational phase, transportation of sand could cause a temporary disturbance to local environment which will be prevented with the proposed mitigation measures proposed in Point no. 4.

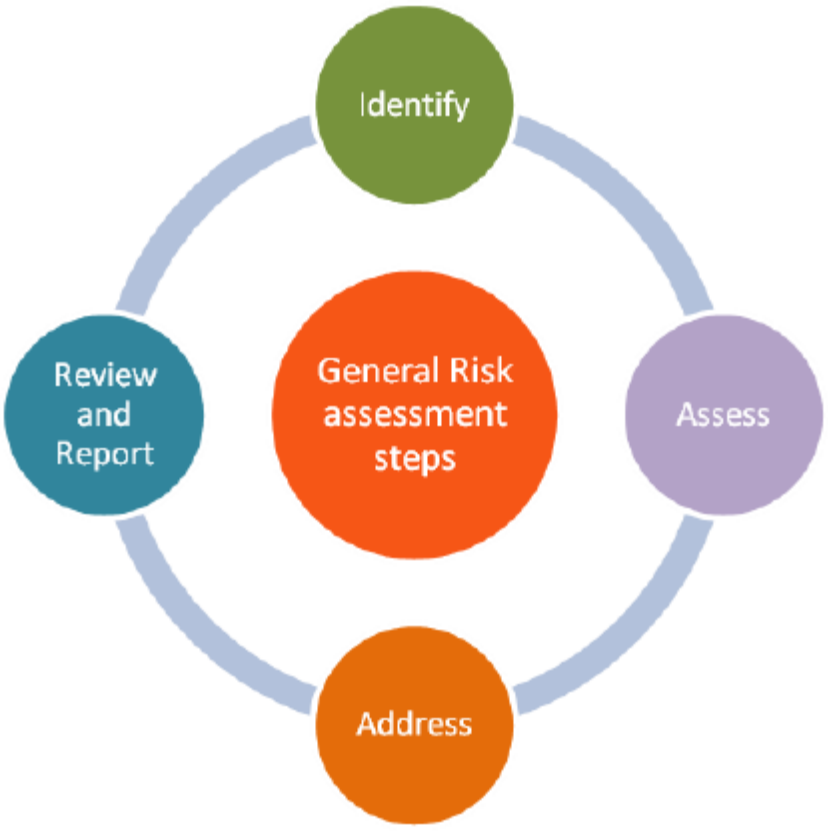
Proposed project will not have any major significant negative impacts. The minor impacts arising out during Excavation and Transportation phases can be mitigated with the help of the proposed Environmental Management Plan. In general, Sand excavation from Gojegaon Sand Spot will be useful to the developmental work in the district and generate employment opportunities.

Risk Assessment for Gojegaon Sand Spot

1. Introduction

A main principle of risk assessment is that it should take place before any changes are made. Risks should be assessed and control measures are put into action before new work is introduced or systems are changed. The process should influence budgets and allocation of resources, rather than being an afterthought when the decisions have already been made.

The risk management process is continuous, with well-defined steps that support better decision making by contributing greater insight into risks and their impacts. Risks from all sources are identified and once they pass the materiality threshold, a formal process begins in which causal factors and consequences are identified and the correlation with other risks and the current risk mitigating strategy is reviewed. One of the challenges is to ensure that mitigating strategies are geared to deliver reliable and timely risk information to support better decision-making.



The mining operations at GOJEGAON SAND SPOT are subjected to the risks and hazards normally encountered in open-cast mining operations. These risks include operational risks relating to

materials handling, accidents, removing material from quarry area. Mining processes also rely on key inputs, for example fuel. Appropriate insurance can provide protection from some, but not all, the costs that may arise from unforeseen events. If any of these risks should materialize, such an event could result in serious harm to employees and contractors, delays in production, increased production costs and possible increase in liabilities.

Disruption to the supply of key inputs, or changes in their pricing, may have a material and adverse impact on GOJEGAON SAND SPOT asset values, costs, earnings and cash flows. Failure to meet production target results in increased unit costs. The impact is more pronounced at operations with a high level of fixed costs. Mitigation strategies include efforts to secure strategic supplies at competitive prices, energy reduction, and application of group water management guidelines, adoption of lean production principles and practices and business improvement initiatives to reduce unit costs.

There are certain aspects which should be taken care of, in a quarrying plan with accordance of risk management.

Components	Risk Involved
Land Slides	The continues mining of river sand may affect, on the long run, the stability of banks of the river which in turn may lead to land slides
Fire	Only trucks and tractors will make use of diesel for transportation. Diesel is not so highly inflammable but accidental fires can take place.
Road Accidents	Vehicles are used for transporting the material from quarry area to the buyer's location. Due to some improper maintenance of the vehicle a road accident can occur leading to fatal results.

To minimize the risk, certain measures can be taken like implying safety rules, facilities of basic first aid near the site and having training for the workers about personal safety.

Disaster Management Plan is envisaged with a goal to prevent hazards and accidents at work places by careful design, operation, and maintenance of equipments. All safety precautions and provisions of Metalliferous Mines Regulation-1961 will be strictly followed. Suitable control measures will be adopted to take care of hazards/disasters that may occur during mining operation.

- Fire fighting, first aid provisions & safety appliances will be made available to the staff and their use regularly checked.
- Regular maintenance of all haulage roads & mining machinery as per manufacturer's guidelines will be done.

APPENDIX VIII
(See paragraph 6)
FORM 1 M
APPLICATION FOR MINING OF MINOR MINERALS UNDER CATEGORY 'B2' FOR LESS THAN AND EQUAL TO FIVE HECTARE

(I) Basic Information

(i) Name of the Mining Lease site: Bhurkawadi, Siddheshwar Kuroli Sand Spot

(ii) Location / site (GPS Co-ordinates):

Boundary points of Bhurkawadi, Siddheshwar Kuroli sand spot	Latitude	Longitude
B.P 1	17°37'46.82"N	74°24'2.91"E
B.P 2	17°37'40.16"N	74°24'0.19"E
B.P 3	17°37'35.76"N	74°24'1.59"E
B.P 4	17°37'36.43"N	74°24'5.78"E
B.P 5	17°37'36.66"N	74°24'9.57"E
B.P 6	17°37'36.32"N	74°24'12.69"E
B.P 7	17°37'35.87"N	74°24'12.59"E
B.P 8	17°37'36.23"N	74°24'9.51"E
B.P 9	17°37'35.95"N	74°24'5.82"E
B.P 10	17°37'35.09"N	74°24'1.21"E
B.P 11	17°37'40.20"N	74°23'59.69"E
B.P 12	17°37'47.02"N	74°24'2.46"E

(iii) Size of the Mining Lease (Hectare): 1.05 HA

(vi) Capacity of Mining Lease (TPA): 2783 Brass

(v) Period of Mining Lease: 1 year

(vi) Expected cost of the Project: 183.51102 Lakhs

(vii) Contact Information: District Mining Officer Satara, Maharashtra

(II) Environmental Sensitivity

S. No.	Areas	Distance in Kilometer/Details
1	Distance of project site from nearest rail or road bridge over the concerned River, Rivulet, Nallah etc.	Dam, 0.73Km, SE
2	Distance from infrastructural facilities Railway line National Highway State Highway Major District Road Any Other Road Electric transmission line pole or tower Canal or check dam or reservoirs or lake or ponds In-take for drinking water pump house Intake for Irrigation canal pumps	 Rahimatpur Railway Station, 24.2 Km W NH4, 37.4KM, W SH146, 0.80Km, NE SH146, 0.80Km, NE 0.24Km, SW 0.70Km, NE Yerala River Bed Nil Nil
K	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	Nil
4	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	Water bodies: this is the case of river sand mining in Yerala River bed
5	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, overwintering, migration	Nil
6	Inland, coastal, marine or underground waters	Yerala River Bed
7	State, National boundaries	Nil
8	Routes or facilities used by the public for access to recreation or other tourist, Pilgrim areas	SH146, 0.80Km, NE
9	Defence installations	Nil
10	Densely populated or built-up area, distance from nearest human habitation	Bhurkawadi, 0.99Km, N
11	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	There were some schools, hospitals temples, within in the boundary not in the core zone
12	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	Yerala River Bed (this is the case of river sand mining)
13	Areas already subjected to pollution or	Nil

	environmental damage. (those where existing legal environmental standards are exceeded)	
14	Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions)	The mine lease area falls in Seismic Zone III (Moderate), according to the Indian Standard Seismic Zoning Map.
15	Is proposed mining site located over or near fissure / fracture for ground water recharge	No
16	Whether the proposal involves approval or clearance under the following Regulations or Acts, namely:- (a) The Forest (Conservation) Act, 1980; (b) The Wildlife (Protection) Act, 1972; (c) The Coastal Regulation Zone Notification, 2011. If yes, details of the same and their status to be given.	No
17	Forest land involved (hectares)	Nil
18	Whether there is any litigation pending against the project and/or land in which the project is propose to be set up? (a) Name of the Court (b) Case No. (c) Orders or directions of the Court, if any, and its relevance with the proposed project.	Nil

PRE-FEASIBILITY REPORT

- District Collector Satara vide his right to auction Sand as a minor mineral intends to auction the Sand in Satara district.
- District Collector Satara appointed M/s Integrated Precision Systems & Services Pvt. Ltd., for preparation of Mining Plan and grant of environmental clearance.
- Applicant proposed to auction the said Sand Spot over an area of 1.05 Ha (0.79 ha. Mineable & 0.26 ha. Non-Mineable area and identified for preparation of mining plan and for grant of Environmental Clearance.
- Mining Plans are prepared by Recognized Qualified Person and approved by Directorate of Geology & Mining Govt. of Maharashtra.
- About 2783 Brass sand is proposed to auction from proposed sand spot.
- Proposed site is located at the Yerala river bank.

1. Physiography

Physiography is one of the dominate parameter of physical environment and its impact on patterns and density of agriculture is immense. The study of the influence of environment upon the nature and the distribution of crop and livestock is of prime importance in agricultural geography.

Satara district is the part of Deccan trap of Indian Peninsula. The physical setting of district is divided in the hilly range, valley, tableland, plateau, and plain area. The physiographic landscape of district influences the spatio-temporal climatic characteristics. The variation of relief height is 1426 meter in the Sahyadri range to the 405 meter in the basin of the Nira river in the Phaltan tahsil above Mean Sea Level. However, the district can be broadly divided into major four morphological units, viz. The Sahyadri's, Krishna valley, Nira valley, and Mahadev hills and Eastern plateau.

The Sand Ghat area as per survey is River bed of Yerala River. The slope is of 3 m from 655 to 658 MSL. The slope of Sand Ghat area towards SE side. The highest MSL is 658 & lowest 655 MSL. The flow of Yerala River is from N to SE direction.

2. Local Geology

The local geology is Sand of various size up to depth of 2.0-2.5-meter depth.

3. Details of Exploration

There is sufficient reserve of Sand available & 70% of sand replenishes after every year monsoon season therefore conceptual period of mining will be till existence of river bed. Mining - The mining will be continued with present method of open cast mining by cutting slice of 1 m of Sand along topography, by advancing from SE to North direction as per allotted area by auction.

The production can be at the rate of 7875 Cu. M or 2783 brass till 1 year (2020-2021) from the date of mining plan approval. The size of pit at the end will be 0.79HA.

4. Introduction of the project/ background information

The Bhurkawadi,Siddheshwar ,Kuroli Sand Spot has been kept for Auction which is situated at Village Bhurkawadi,Siddheshwar ,Kuroli, Taluka Khatav, and District Satara and hence prior to go for Auction a Mining Plan and Environmental Clearance are required and hence Mining Plan is being prepared.

i) Brief description of project

The Sand Spot has sufficient Reserve of Sand to work at 7875 Cu.m for a specified period mentioned i.e., 1 year (2020-2021 from the date of mining plan approval as per agreement, from there the Sand Spot will be due for another Mining plan. The mining will continue with opencast method of Mining by cutting 1 m slice of Sand by advancing from SE to North direction as per allotted Sand Spot area and handling of material with the help of laborers in to the tractor having capacity of 1 Brass for transport of Sand to the various dealer sites located outside the Sand Spot area.

ii) Need for the project

The Sand or Sand Spot under reference is aimed at exploring Sand as ROM in various sizes i.e., fine to Coarse grain which is Transported to consumer site in outside Sand Spot area, for the infrastructure development i.e., Construction activity to produce Concrete for putting in the floor, roof- slabs, Column, Pillars, Bridges & Dam construction.

5. Project Description

This mining project is an independent project and not an interlinked project.

i) Location

Bhurkawadi -Siddheshwar Kuroli are separated by Yerala River in Khatav taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 40 KM towards west from District headquarters Satara. Approximately 220 KM from State capital Mumbai.
The sand spot area is connected to approach road at 209 meter in SW direction. SH-146 road is situated at a distance of 0.60 km. in the NE of the sand ghat spot. Satara Railway Station is present at a distance of 42 km. The area is covered in SOI Toposheet No- 47K/10.

The GPS reading of boundary point are given below:

Boundary points of Bhurkawadi,Siddheshwar Kuroli	Latitude	Longitude
B.P 1	17°37'46.82"N	74°24'2.91"E
B.P 2	17°37'40.16"N	74°24'0.19"E
B.P 3	17°37'35.76"N	74°24'1.59"E
B.P 4	17°37'36.43"N	74°24'5.78"E
B.P 5	17°37'36.66"N	74°24'9.57"E
B.P 6	17°37'36.32"N	74°24'12.69"E
B.P 7	17°37'35.87"N	74°24'12.59"E
B.P 8	17°37'36.23"N	74°24'9.51"E
B.P 9	17°37'35.95"N	74°24'5.82"E
B.P 10	17°37'35.09"N	74°24'1.21"E
B.P 11	17°37'40.20"N	74°23'59.69"E
B.P 12	17°37'47.02"N	74°24'2.46"E

ii) Alternate Sites

No alternate site is proposed.

iii) Magnitude of Operation

Proposed period for mining of sand will be decided by the office of district Collectorate 7875 Cu.m. will be excavated during the period.

iv) Project description-mining details

The Agency will start the work after getting Allocation Letter from the competent Authority by Opencast manual mining method. The size of the pit is mentioned as 700m Length X 11.25m Width at the end of Sand Spot mining period. There will be no dumps of material inside the Sand Spot area as all the mined-out sand will be saleable

The Sand Spot has sufficient Reserve of Sand to work at 7875 Cu.m for a specified period mentioned i.e., 1 year (2020-2021 from the date of mining plan approval as per agreement, from there the Sand Spot will be due for another Mining plan. The mining will continue with opencast method of Mining by cutting 1 m slice of Sand by advancing from SE to North direction as per allotted Sand Spot area and handling of material with the help of laborers in to the tractor having capacity of 1 Brass for transport of Sand to the various dealer sites located outside the Sand Spot area.

v) Raw material, marketing & transport of ore

The proposed sand spot will be auctioned and successful bidder will be responsible for carrying out mining operations as per environmental terms and conditions, approved mining method as per approved mining plan and other terms and conditions. The loading of Sand generated to the tractor/tipper/dumpers will be done by loaders & material transported to the Dealer site.

vi) Resource optimization, recycle, reuse

Production of sand will be decided by the factors like replenishable nature of sand, ecological sensitivity and various features existing in buffer zone. The decision regarding auctioning of sand will be on yearly basis and the above factors will be studied before decision is taken.

vii) Water & energy requirement

The major water requirement in the lease area is for dust suppression and for drinking use. The total water requirement is estimated as 4.18 KLD. The required water for dust suppression can be arranged through tankers from nearby village and drinking water will be provided in earthen pots for labours. The vehicles used for transportation will use diesel of about 125-150 litres /day.

viii) Quantity of waste & scheme for management

There will not be any waste generation within the lease area.

ix) Schematic Representations

It is a proposal of opencast manual sand mining from river bed. Mining plan is approved by the competent authority.

6. Site Analysis

i) Connectivity

Bhurkawadi,Siddheshwar Kuroli are Village(s)/hamlet(s) in Khatav Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 4 KM towards west from District headquarters Satara. Approximately 197 KM from State capital Mumbai.

The sand spot area is connected to approach road at 364 meter in North direction. NH-4 road is situated at a distance of 16 km. in the south of the sand ghat spot. Satara Railway Station is present at a distance of 3.5 km.

ii) Land Use, form & Ownership

The ultimate land use pattern for the lease area of 1.05 ha. will be consisting of

1. Mining Area:	1.05 ha.
2. Construction of Temporary Roads:	0.00 ha.
3. Total:	1.05 ha.

At present ownership of this sand spot area is in the hand of Govt. of Maharashtra, after approval of mining plan and EC quarry area will be transfer to bidder after auction.

iii) Geology

The proposed sand spot area is the case of a river bed which contains mixture of sand, pebbles and gravels of various sizes.

Existing land use pattern

Existing Sand spot is a river bed having 2.0-2.5 m of sand.

7. Social-Economic Environment

Critically analyzing the existing environmental status of the socio-economic profile and visualizing the scenario with the project, the impacts of the project would be varied and may generate positive impacts of the mining of sand quarry in the region that are stated below:

A. The mining operations will provide direct & indirect employment to the village. people

B. The villages and their inhabitants & domestic animals will not be disturbed due to mining as quarry is far from their settlements.

C. Local workforce will be given first preference for employment.

D. Mining activities will benefit the local people due to provision of more infrastructural facilities (developments of approach routes within the village area).

8. Planning brief

The proposed project is opencast manual sand mining activity.

Supply demand ratio:

Information required on demand and supply of district (2020-21)			
Sr. No	**Name of District**	**Total Sand Demand of District in Brass (Approximately)**	**Total Sand Available in district in Brass (Approximately)**
1	**Satara**	**154227**	**98871**

Tahsil Office Sand Information (2020-21)			
S. No	**Name of Tahsil**	**Total Sand Demand if Tahsil in Brass (Approximately)**	**Total Sand Available in Tahsil in Brass (Approximately)**
1	Satara	15266	14269
2	Patan	12461	0
3	Koregaon	11696	10233
4	Karad	30143	3536
5	Jawali	2495	0
6	Khatav	22657	21367
7	Man	23671	22982
8	Khandala	2940	2372
9	Wai	5480	0
10	Phaltan	25315	24112
11	Mahabaleshwar	2103	0
		154227	**98871**

Ongoing Government Civil/ infrastructural works in the district (2020-21)			
Sr. No	**Name of Govt. Yojana**	**Details of work**	**Approx Qty of Sand required in Brass**
1	Satara Irrigation Department, Satara	Dam work of Kas, Kudali, Tarali, Wang, Morana, Dhom-Balakwadi	21158
2	Public Works Department (West)	Government College of Engineering Library and other building Work	2297
3	Public Works Department ZP Satara	Primary Health Centre Building Work	1150
4	Phaltan Nagarpalika Phaltan	Gharkul Project	130
5	Mhaswad Nagarpalika Dahiwadi	Gharkul Project	415
6	Khatav Nagarpalika Vaduj	Gharkul Project	211
Total			**25361**

वाळूच्या **Demand and supply ratio** नुसार तफावत दिसत असली तरी आपण एका हेक्टरपेक्षा कमी क्षेत्र असलेले वाळुगट वगळलेले आहे.

सातारा जिल्ह्यातील काही स्टोनक्रशर धारकांनी दगडाद्वारे वाळू तयार करण्याचे मशिनी बसवलेल्या आहेत. त्याद्वारे कृत्रीम वाळूची निर्मीती करुन बांधकामासाठी उपलब्ध होत असलेने शासकीय यंत्रणांकडून व इतर व्यवसायिकांकडून वाळूची मागणी होत नसलेचे दिसून येत आहे.

सातारा जिल्ह्यातील **CREDAI** संघटनेकडील माहितीदवारे असे निदर्शनास आले की, काही बांधकाम व्यवसायीक बांधकामासाठी **FLY Ash** द्वारे निर्माण केलेल्या विटांचा वापर करतात सदर विटा रासायनिक पदार्थ वापरुन जोडल्या जातात व आतील प्लास्टरसाठी **gypsum** चा वापर केला जातो.

Replenishment:

- Area of deposition and erosion was calculated for each cross-section after giving due regard to stability & safety of active channel banks & other features of importance.
- DGPS and other survey tools have been used to define topography, contours and offsets of lease area.
- Contour & elevation benchmarks are provided with the baseline data for assessing pre and post-study period scenario.
- Physical benchmarks are fixed at intervals (1 in 30 m) & Reduced Levels (RL) are validated from a nearby standard RL.
- These RL are engraved on a steel plate (Bench Plate) & are fixed & placed at locations which are free from any damages & are available in pre and post-study period.
- Bench plates are available for use during the mining period as reference for all mining activity.
- Baseline data on elevation status for a grid of 10 m x 10 m is taken to ensure the accuracy in the assessment.
- It was made sure that two consecutive cross-sections in longitudinal and lateral direction is not be more than 10-meter distance apart.
- Changes have been observed in the elevation in per and post scenario at each node and were depicted in graphical forms with an appropriate scale for estimating the area of deposition & erosion.
- Elevation level was placed in reference to the nearest bench-plates established for the purpose.
- The levels (MSL & RL) of corner point of each grid were identified and safety barriers (Non-Mining) are demarcated as restricted in consensus with Mineral Concession Rules of respective State, and the provision mentioned in this Sustainable Sand Mining Management Guidelines.
- A clear identification was highlighted between grids under mineable and grids under the non-mineable area. These baseline data (pre and post) was subjected to stimulation with the help of data mine software to derive at the replenishment area and corresponding volume and estimated weight.
- The database was structured in a tabulated form clearly depicting the nomenclature of the section lines, latitude and longitude of the starting point, chain-age and respective levels of all the points taken on that section line.
- Net area was derived after summation of area of deposition minus area of erosion for each cross-section.
- Volume was estimated by multiplying distance between two cross-sections with average of net area of these two consecutive cross-sections.
- One sample per 900 square meters (30 m x 30 m) was preferred for sample density for assessment of bulk density for estimation of deposition rate.
- Care was taken that the sample for assessment of bulk density is taken from the deposition zone & not from erosion. During the replenishment studies, Areas selected have large depositions are selected for sand mining and degraded land is avoided for Sand Mining. Taluka Level committee has approved the sand mines with large amount of sand depositions.
- Physical survey is done to ensure that the approved areas have large amounts of sand depositions.

- During the Physical Survey-Benchmarks has been established along the river banks and ensured that the Bifurcation of Mining and Non-Mining is done.

Sediment Yield Calculations for River Streams

DANDY-BOLTON EQUATION

1. **For Runoff Less Than 2 Inches**

S=*1280*(Q)*0.46*(1.46-0.26log(A)) *F

2. **For Runoff More Than 2 Inches**

S=*1958*(Q)*(e-0.055*Q) *(1.43-0.26log (A))

Where:

S=sediment yield of stream (t/yr/km2),

Q= average annual runoff (m3),

A= net drainage area in sq. mile

5. Sand Ghat Site specific enforcement & monitoring plan as per guidelines stipulated in the Enforcement and Monitoring Guidelines for sand mining issued by MoEF&CC in January 2020

- District administration shall provide detailed information on its website about the sand mines in its district for public information with an objective to extend all information in public domain so that the citizens are aware of the mining activities and can also report to the district administration on any deviation observed.
- Appropriate feedback and its redressal mechanism shall also be made operational.
- Details shall include, but not limited to, lease area, geo-coordinates of lease area and mineable area, transport routes, permitted capacity, regulatory conditions for operation including mining, environmental and social commitments etc.
- Independent committee of the expert constituted by DLTF will assess the environmental or ecological damage caused due to illegal mining and recommend recovery of environmental compensation from the miner's concern.
- The recommendation may also include action under the provision of E(P) Act, 1986.

It will be ensured that following security features are included in the Transport Permission/Permits (TP) so that duplicate/fraudulent/forged TPs for transport, not accounted for in the IT-based system, is not possible:

- Printed on Indian Bank Association (IBA) Approved
- Magnetic Ink Character Recognition Code (MICR) paper
- Unique Barcode
- Unique Quick Response Code (QR)
- Fugitive Ink Background
- Invisible Ink Mark
- Void Pantograph
- Watermark
- CCTV at mine lease site
- GPS Based Vehicle Tracking System

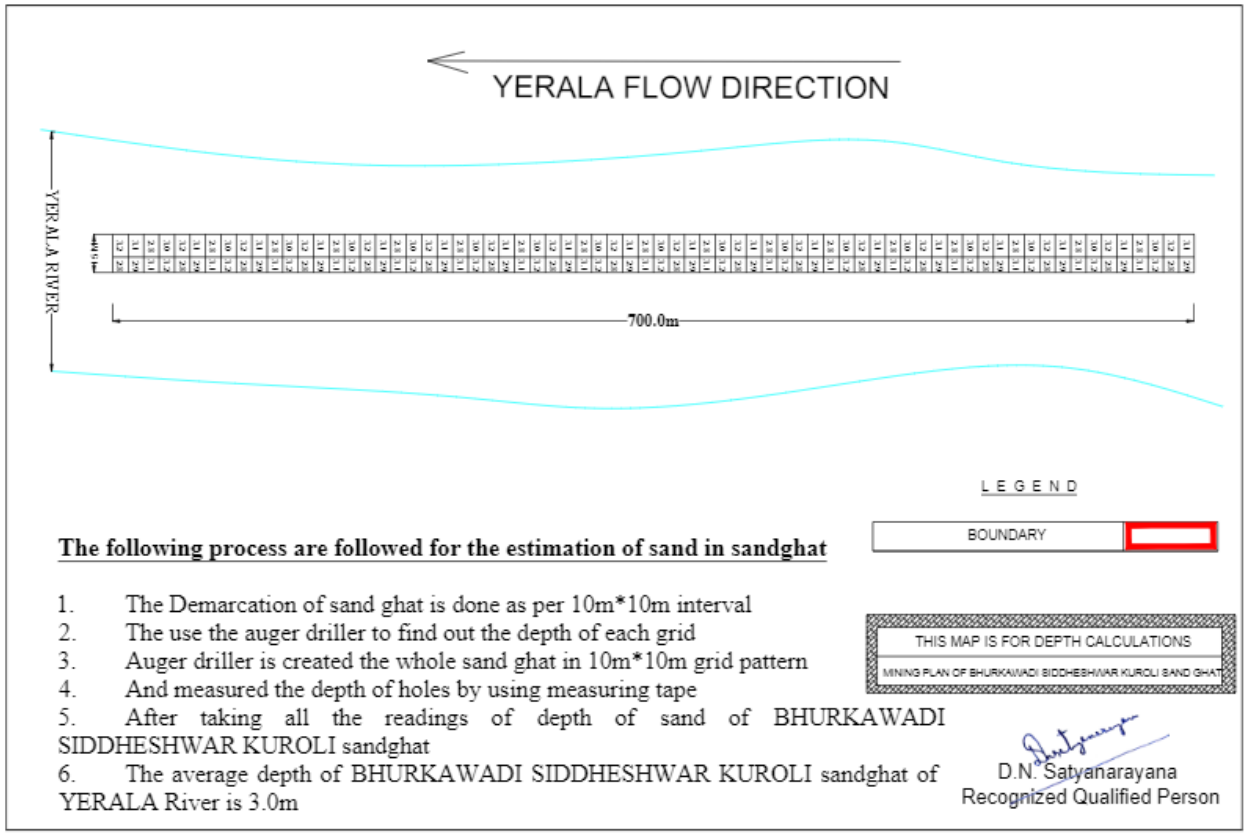
The site services as per statute, like Mine office, storeroom, workshop, first aid Room & water point will be provided outside Sand Spot area.

District Collector ensures that they meet all the compliances of the sustainable sand mining guidelines of 2020 by

1. Appointing an Environmental auditor and a three non-official committee to associate with the Environmental auditor in auditing the reports and in sending it to the District authority and making sure that the same will be accommodated in the DSR.
2. Mobile app - The officers involved in monitoring will be provided with mobile application and/or bar code scanners using which the TP can be checked anywhere on road. As soon as the bar or QR code on TP gets scanned through using the mobile application and/or scanner or vehicle number is entered into the application or sent by SMS to a predefined number, all details of TP such as plot details, vehicle details, validity time, etc. should be fetched from the server. This means if anything is re-written on TP and attempt is made to reuse the same, it can be traced immediately. Various reports can be generated using the system showing daily lifting reports and user performance report. This way the vehicles carrying sand can be tracked from source to destination.
3. Online portal – IT Enabled real time monitoring system would be built to monitor the CCTV Cameras 24*7 and the footages would be made available on the public domain for the Public to enhance transparency in the sand mining and to avoid illegal mining. Budget for CCTV Monitoring in allocated in EMP.
4. Customer care/ telephone call – Would be provided to the citizens to report illegal mining in the district from time to time.
5. The District Collector will get all necessary Permissions from the Electricity Board for power supply to operate the CCTV cameras at sand quarry site and depots.
6. The District Collector will be providing a Minimum of two CCTV cameras, one each at the entry and exit point and one PTZ camera will be installed at all quarries/depots to monitor illegality if any taking place in the sand quarry/depot.
7. The District Collector will ensure uninterrupted seamless live streaming of videos from the surveillance cameras by ensuring a high-speed Internet Lease Line connection at all quarries/depots.

8. The district collector will get live streaming of the videos monitored at a Centralised control room and the data stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the grievance of the public.
9. District collector will ensure that all the Earlier Environmental Clearance conditions would be implemented on time as per the Sustainable sand Mining Guidelines 2020.
10. Ground Water Level Monitoring - Collector will ensure that the Piezometer's would be installed in the Quarry site and all the wells with in one km radius of the Quarry would be monitored regularly. Fluctuations in the ground water would be recorded and necessary measures would be taken from time to time to avoid water depletion. And a separate Budget for Ground water monitoring in included in the EMP.
11. Collector would ensure that senior officials would be doing regular audits with the local police officers that are involved with mining mafia. District collector along with the DSP will ensure that all the FIR's that are in place would be investigated from time to time and necessary action would be taken.
12. All Transportation routes – One from Quarry to sand depo and another from sand depo to the Main road and to end consumer would be tracked and monitored by ensuring only authenticated GPS Vehicle tracking vehicles being allowed to transport the mineral.
13. For road degradation – Budget is allocated in EMP and district collector ensures that the roads are maintenance is properly done by the bidder or through local funds available with collector.
14. Collector will make sure that the Bidder develops Greenbelt plantation along the river bank and on either sides of the approach road and even at the sand depos to prevent air pollution. And all bidders would be enforced only to transport mineral by covering the mineral with tarpaulin covers.
15. Collector will ensure that the bidder develops necessary infrastructure like CCTV Monitoring, CCTV Monitoring, Noise monitoring and Plantations across river bank and approach road in that lease area where the bidder takes lease of the land for storage of the sand.

Sand Quantity Evaluation:



6. Proposed Infrastructure

The site services as per statute, like Mine office, storeroom, workshop, first aid Room & water point will be provided in outside Sand Spot area.

7. R&R Plan

R&R is not involved.

8. Project schedule

Period of mining for the proposed sand spot will be decided by the Office of District Collectorate.

9. Analysis of Proposal

Description of the project included in items 1-10 above indicates the following:

1. It is proposed for opencast manual river sand mining.
2. Opencast mining without hampering the present environmental quality of the area.
3. Income to local people is uncertain & initiation of mining will ensure regular income to local people.

10. Costing

Costing parameters will be decided by the District Authorities.

11. Compliance to Environment Clearance

a. Last time Satara District had got 13 Sand Ghats Environment clearance. Out of those 09 sand Ghats were allotted to sand scooping. Out of which 04 sand Ghats auctioned to private person and 05 allotted to irrigation department. At time of allocation sand Ghats owner were deposited EMD, EMP amount and GB to Collector office.
b. During sand Ghats operating period so or tahsildar level team verify the given term and conditions time to time. If sand ghats owner complied all given term and conditions deposit like EMD, EMP amount and GB refunded.
c. In this way year 2018-19 13 sand Ghats owner and concern tahsildar submitted the Environment and sand mining policy terms and conditions compliance report.

12. Any Other Information:

Whether there are any serious violation of safety rules and regulation which may jeopardize human health and safety. If so, give details of violations and state the steps proposed to be taken with the time scheduled to rectify the violations:

No, there are not any serious violation of safety rules and regulation, which may jeopardize human health and safety. The applicant has given a commitment in this effect and undertaking also given to follow and implement, as specified in the mining plan. The applicant is undertake to abide and implement any special conditions imposed by various authorities and also to complete formalities under provision of the Mines & Mineral (Development & Regulation) Act, 1957 and the Bombay Minor Mineral rules, the Mineral Conservation and Development Rules, 1988 as amended, the Maharashtra Minor Minerals Extraction (Development and Regulation) Rule 2013, MoEF & CC Notification S.O. 141 (E) dated 15th January 2016, and MoEF & CC Sustainable Sand Mining Management Guidelines 2016, Sustainable Sand Mining Management Guidelines 2019,Sand Mining Policy 2020

Stringent stipulations have been laid out while issuing EC. This includes regular monitoring of environmental parameters and carrying out various mitigates measures to protect the environment.

These things will be religiously followed and its report will be periodically 9) Virgin lease area for Sand Mine & Other Uses 3.11 0.000 10) Road - - 11) Railway - - 12) Tailing Pond - - 13) Effluent Treatment Plant - - 14) Mineral separation plant - - 15) Township Area - - 16) Others to specify - - 17) Ownership Government River Government River Total 3.11 3.11 submitted to the concerned authority.

All Notices, Letters received from Government and all communication with Government (Court, NGT, DGMS, Directorate of Geology and Mining, District Mining Officer, Collector, Tehsildar, Grampanchayat, Talathi, Pollution Control Board, Forest department, Environment department, Irrigation department, Public Works Departments, Controller of Explosive, Labor Commissioner, Sale tax etc.) regarding Mine Lease and Mining will be strictly followed by Mine

Owner. Mine Owner must follow all provisions of the Maharashtra Minor Minerals Extraction (Development and Regulation) Rule-2013, MoEF & CC Notification S.O. 141 (E) dated 15th January 2016, and MoEF & CC Sustainable Sand Mining Management Guidelines 2016, the Environment (Protection) Act 1986 and Rules made there under, the Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Hazardous Wastes (Management and Handling) Rules 1989, the Wildlife (Protection) Act 1972, the Forest Conservation Act-1980, the Forest Conservation Rule-2003, the Mineral Conservation and Development Rule-1988, the Mineral Concession Rules-1960, the Mines and Minerals (Development and Regulation) Act-1957, the Mines Act, the Mines Rule, the Mines Regulations, the public Liability Insurance Act 1991 and its amendments, Orders and Bye Laws made there under and any laws or guidelines that may be applicable to mine / area from time to time whether made by Central or State Government or any other authority. Wherever specific permissions are required, the applicant will approach the Directorate General of Mines Safety, Indian Bureau of Mines and Directorate of Geology and Mining. Mine Owner should obtain relevant clearances as per Environment Protection Act-1986 and EIA notification dated 21.01.1994 and 04.09.2006.

Environmental Management Plan

Bhurkawadi, Siddheshwar Kuroli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.79 HA & NON-MINEABLE AREA-0.26 HA) At Yerala Riverbed Gut No. Bhurkwadi 686, 687, 691, 692, 699, 700 Siddheshwar Kuroli 411, 310, 312, 313, 314, 315, 316, 317, 318, 319 Bhurkawadi, Siddheshwar Kuroli Village, Tehsil-Khatav, Satara District, Maharashtra.

---

1. Introduction

Ministry of Environment and Forest (MoEF) Notification 2006 and Sustainable Sand Mining Management Guidelines 2016 and as per provision in Mines and Minerals (Development and Regulation) Act 1957 Schedule 60 section 15, Govt Of Maharashtra makes a Minor Mineral Extraction Rules 2013 to extract all the minor mineral in scientific way so that there is no adverse impact on Environment and Climate. To extract every minor mineral from any land (either Government or Private) there is provision of mining plan which is approved by competent authority; For long term leased minor mineral (5 – 10 years period) and Sand excavation from river bed, Senior Deputy Director of Directorate of Geology and Mining is a Competent authority, for short term Temporary permits which is valid for one year, Committee headed by Hon. Collector is Final authority to Approved the District Mining Plan.

As per Minor Mineral Extraction Rules 2013 Rules 70, Disposal of sand from River bed, Nallah and creeks by way of public auction, in this regards Govt resolution Gaukhni -10/0615/case No. 289/kha dated 3rd January 2018 is applicable in entire state. As per Sustainable sand mining management guidelines 2016, Standard Environment condition for sand mining and sustainable mining practices, district level survey report should be prepared and area suitable for mining and area prohibited for mining be identified.

2. Project Description

Bhurkawadi-Siddheshwar Kuroli are separated by Yerla River in Khatav Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 40 KM towards west from District headquarters Satara. Approximately 220 KM from State capital Mumbai.

The sand spot area is connected to approach road at 209 meter in SW direction. SH-146 road is situated at a distance of 0.60 km. in the NE of the sand ghat spot. Satara Railway Station is present at a distance of 42 km.

The area is covered in SOI Toposheet No- 47K/10.

Table 1: Salient Features of the Project

Items	Details
Location	Bhurkawadi-Siddheshwar Kuroli Village, Tehsil-Khatav, Satara District, Maharashtra.

Bhurkawadi, Siddheshwar Kuroli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.79 HA & NON-MINEABLE AREA-0.26 HA) At Yerala Riverbed Gut No. Bhurkwadi 686, 687, 691, 692, 699, 700 Siddheshwar Kuroli 411, 310, 312, 313, 314, 315, 316, 317, 318, 319 Bhurkawadi, Siddheshwar Kuroli Village, Tehsil-Khatav, Satara District, Maharashtra.

<table>
<tr><td>Latitude and Longitude</td><td>
<table>
<tr><th>BOUNDARY PILLAR</th><th>LATITUDE</th><th>LONGITUDE</th></tr>
<tr><td>B.P 1</td><td>17°37'46.82"N</td><td>74°24'2.91"E</td></tr>
<tr><td>B.P 2</td><td>17°37'40.16"N</td><td>74°24'0.19"E</td></tr>
<tr><td>B.P 3</td><td>17°37'35.76"N</td><td>74°24'1.59"E</td></tr>
<tr><td>B.P 4</td><td>17°37'36.43"N</td><td>74°24'5.78"E</td></tr>
<tr><td>B.P 5</td><td>17°37'36.66"N</td><td>74°24'9.57"E</td></tr>
<tr><td>B.P 6</td><td>17°37'36.32"N</td><td>74°24'12.69"E</td></tr>
<tr><td>B.P 7</td><td>17°37'35.87"N</td><td>74°24'12.59"E</td></tr>
<tr><td>B.P 8</td><td>17°37'36.23"N</td><td>74°24'9.51"E</td></tr>
<tr><td>B.P 9</td><td>17°37'35.95"N</td><td>74°24'5.82"E</td></tr>
<tr><td>B.P 10</td><td>17°37'35.09"N</td><td>74°24'1.21"E</td></tr>
<tr><td>B.P 11</td><td>17°37'40.20"N</td><td>74°23'59.69"E</td></tr>
<tr><td>B.P 12</td><td>17°37'47.02"N</td><td>74°24'2.46"E</td></tr>
</table>
</td></tr>
<tr><td>Sand spot area (In Ha)</td><td>1.05</td></tr>
<tr><td>Proposed production capacity (In Brass)</td><td>2783</td></tr>
<tr><td>Manpower Requirement (considering 3-month period)</td><td>10 labors + 1 mate + 1 Supervisor = 12man/day</td></tr>
<tr><td>Infrastructure Requirement (As per Govt Resolution 3rd January 2018)</td><td>1. Room / Hut for Official records
2. Electricity / Battery for Running CCTV on 24X 7 daily.
3. One Computer / Android base Mobile for the online generation of Invoice number.</td></tr>
<tr><td>Water requirement & source</td><td>4.18 KLD – Tankers from nearby village.</td></tr>
<tr><td>Project cost INR (Lakh)</td><td>183.51102</td></tr>
</table>

3. Baseline Environmental Studies

a. Topography

Satara district is the part of Deccan trap of Indian Peninsula. The physical setting of district is divided in the hilly range, valley, tableland, plateau, and plain area. The physiographic landscape of district influences the spatio-temporal climatic characteristics. The variation of relief height is 1426 meter in the Sahyadri range to the 405 meter in the basin of the Nira river in the Phaltan tahsil above Mean Sea Level. However, the district can be broadly divided into major four morphological units, viz. The Sahyadri's, Yerala valley, Nira valley, and Mahadev hills and Eastern plateau.

The Sand Ghat area as per survey is River bed of Yerala River. The slope is of 3 m from 655 to 658 MSL. The slope of Sand Ghat area towards SE side. The highest MSL is 658 & lowest 655 MSL. The flow of Yerala River is from N to SE direction.

.

b. Hydrology

There will be no change in water table during mining operation, as the depth of mining shall be restricted to 1m water level, which is less likely to affect surface level or ground water table. There is no proposal of any stream modification/diversion due to this mining activity hence there will not be any impact on flow of water.

c. Soil Environment

The area is not having any top soil or fertile soil. The depth of mining shall be restricted to 1m. There is no major impact on soil of the study area is envisaged due to mining activities.

d. Land Use Land Cover

The project area does not consist of any forest land. It does not consist of any human habitations. Any change in scope of mining as per approved mining plan can lead to bank erosion /cutting and thereby river channel shifting degradation of land, causing loss of properties and degradation of surrounding landscape.

e. Water Environment

There will not be any wastewater discharges to water bodies from the mining operations. As observed in the River, the thickness of sand to be excavated will be 1.00m only so there will not be any intersection with ground water table. It is observed from the dug well in the adjacent plain area and in the nearby villages that the ground water table varies depending upon seasonal variations. The depth to water levels in the district ranges from 0.90 to 25.00 m BGL in pre-monsoon season and the depth to water levels in post-monsoon ranges from 0.10 to 19.10 m BGL. As the mining activities presently proposed are maximum up to 1.00m that to within the river course and the total mining operation will be achieved through manual means, there will be no effect on ground water table. All the stipulations of MoEF for sand mining and guidelines as per the Maharashtra Minor Mineral Extraction [Development and Regulation] Rules, 2013 of Section 15 of MMDR Act 1957 [67 of 1957] will be followed. Hence, impact on water regime due to the proposed sand mining is not anticipated.

1. Precautionary measures will be initiated for closing the operation and shifting the men and transport vehicles prior to onset of monsoon.
2. No oils or lubricants will be discharged in the sand to avoid water pollution.

f. Climate

The Indian Meteorology Department, Pune divided Satara district into four seasons.1

(i) Cold season -December to February

(ii) Hot season- March to May

(iii)Southwest monsoon season - June to September

(iv)Post monsoon or the retreating monsoon season - October and November

Temperature, rainfall, humidity, evaporation, and wind speed are important elements of the climate. The climatic condition of Satara district depends on geographical factor. Generally,

the climatic conditions of India change latitude wise but, in the district, it changes longitudinal. Rainfall: The rainfall ranges from the rainiest in the Mahabaleshwar region, which has an average annual all over 5805 mm to the driest in Man tahsil where the average annual rainfall is about 557 mm. Average annual rainfall of Satara district is 1436.4 mm. The rainfall is received in the three seasons. June to September is the south west monsoon season whereas October to December constitutes the post-monsoon season or the retreating monsoon season. The pre monsoon or hot season is from March to the end of May. The normal rainfall trend in the district increases towards the east to west and reaches maximum around Mahabaleshwar.

g. Biological Environment

The project is only of extraction of minor minerals viz. sand from the river quarry.

Flora: The area is completely barren and devoid of any vegetation in the river. Only few thorny bushes are seen on the banks of the River.

Fauna: As there is no forest cover, no wild life can be seen in this area.

1. There will be no significant impact of the river quarry mining project on the biological diversity found in the 5km. radius of the site.

2. The mining lease area is in non-forest land i.e. sandy river quarry where presence of fauna is not at all seen. As such, there will be no adverse impact of the manual mining activity on fauna around the mining lease area.

3. No adverse impacts will be envisaged on the existing aquatic fauna, on downstream side (away from site) as the mining confined to above water level only and at all touching/disturbing water table.

h. Socio-Economic Environment

Critically analysing the existing environmental status of the socio-economic profile and visualizing the scenario with the project, the impacts of the project would be varied and may generate positive impacts of the mining of sand quarry in the region that are stated below:

1. The mining operations will provide direct & indirect employment village people.
2. The villages and their inhabitants & domestic animals will not be disturbed due to mining as quarry is far from their settlements.
3. Local work force will be given first preference for employment.
4. Mining activities will benefit the local people due to provision of more infrastructural facilities (developments of approach routes within the village area)

4. Project Benefits
    a. The proposed expansion project will lead to the following benefits:
    b. Sand is available for Building and Construction work and by regular removal of sand there is no possibility of flood.
    c. This project will contribute additional revenue to the state Exchequer in the form of revenue.
    d. The project will result in the employment opportunities to the unskilled/skilled local people. Thereby, the quality of life of the employed people will increase.

5. Sand Ghat Closure Plan

Sl. No	**Head**	**Area put on use. at start of plan [in Ha]**	**Additional Requirement during Plan period [in Ha]**	**Total [in Ha]**	**Area considered as**	**Net considers for calculation**
1	Area under mining / pit	-	1.05	1.05	---	1.05
2	Area under dump	NIL	---	---	---	
3	Infrastructure Work shop Administrative Building etc					
4	Roads					
5	Mineral reject					
6	Green Belt Plantation /Soil dump					
7	Tailing Dam /pond					
8	Effluent Treatment Plant					
9	Mineral storage					
10	Township area					
11	Other to specify					
GRAND TOTAL			1.05	1.05	1.05	1.05

- Mining will be avoided during monsoon and floods; this will allow the sand deposit to replenish.
- Gabion structure will be constructed for the sand to replenish during monsoon season.

7. Environmental Management Plan indicating sufficient budgetary provisions for mitigation of identified impacts on all Environmental Parameters.

S. No	Impact Source	Impact	Control measure	Budget (In INR)
1	Transport Road	On Air Quality	Compaction, gradation, and drainage on both sides.	37500
		Road Degradation	Budget for Road Repairs and Maintenance from Approach Road to Main Road	31350
		Road Construction	Road Construction from Quarry to Access Road	52250
		Air Environment	Dust Suppression by Regular water spraying.	31350
			Air quality will be monitoring at impacted village. (For One Day Monitoring)	50000
			Health Check-up of Employees.	14400
2	Truck/ Tractor Movement	Air Quality	Sand carrying trucks will be effectively covered by tarpaulin to avoid escape of fines to the atmosphere. (2 Tarpaulin)	10000
			Regular monitoring of the exhaust fumes.	2500
			Barriers & Traffic Management Expenses. (Excluding Man Power Salary which is included in labour costs)	24035
3	Ramp and Sand Reach	Mining Operations	Regular ramp Inspection and Ramp maintenance. (Excluding Man Power Salary which is included in labour costs)	26125
			Provision of dusk masks.	15000
4	Bank Management	Bank Erosion/Flood Plain management	Green Belt along Road	104500
			Green belt along bank (For Green Belt Development)	209
5	Final Mine Closer Plan implementation	Replenishment of Sand	Provisions of Gabion bunds for protection of bank erosion & replenishment facility.	22500
6	Mobile toilet, sewage handling & treatment		Mobile toilet, sewage handling & treatment	100000

7	CCTV Monitoring		CCTV Camera	60000
			CCTV Monitoring Framework	60000
8	Safety		Signage Boards	6000
			Fencing	18000
			Watching	25000
9	Drinking Water			60000
10	Sanitation			60000
11	Ground Water Monitoring	Water Environment	Ground Water Level monitoring of wells within 1 Km of Quarry Site	50000
			Piezometer installation at quarry location.	45000
12	Noise Monitoring		Regular Maintenance of Vehicles	75000
13	Physical Survey		Provision for physical survey & associated works if different funds are not available.	200000
14	Development of Market Model		Provision for development of market model & associated works if different funds are not available.	25000
15	Environmental Audit		Provision for third party environmental audit if different funds are not available.	50000
			Total EMP Budget	12,55,719
			Capital Cost	9,41,894
			Recurring Cost	3,13,825

8. Sand Ghat Site specific enforcement & monitoring plan as per guidelines stipulated in the Enforcement and Monitoring Guidelines for sand mining issued by MoEF&CC in January 2020

- District administration shall provide detailed information on its website about the sand mines in its district for public information with an objective to extend all information in public domain so that the citizens are aware of the mining activities and can also report to the district administration on any deviation observed.
- Appropriate feedback and its redressal mechanism shall also be made operational.

- Details shall include, but not limited to, lease area, geo-coordinates of lease area and mineable area, transport routes, permitted capacity, regulatory conditions for operation including mining, environmental and social commitments etc.
- Independent committee of the expert constituted by DLTF will assess the environmental or ecological damage caused due to illegal mining and recommend recovery of environmental compensation from the miner's concern.
- The recommendation may also include action under the provision of E(P) Act, 1986.

It will be ensured that following security features are included in the Transport Permission/Permits (TP) so that duplicate/fraudulent/forged TPs for transport, not accounted for in the IT-based system, is not possible:

- Printed on Indian Bank Association (IBA) Approved
- Magnetic Ink Character Recognition Code (MICR) paper
- Unique Barcode
- Unique Quick Response Code (QR)
- Fugitive Ink Background
- Invisible Ink Mark
- Void Pantograph
- Watermark
- GP Based Vehicle Tracking System

9. Bhurkawadi-Siddheshwar Kuroli-Sand Ghat Site specific enforcement & monitoring plan as per guidelines stipulated in the Enforcement and Monitoring Guidelines for sand mining issued by MoEF&CC in January 2020.

District Collector ensures that they meet all the compliances of the sustainable sand mining guidelines of 2020 by

1. Appointing an Environmental auditor and a three non-official committee to associate with the Environmental auditor in auditing the reports and in sending it to the District authority and making sure that the same will be accommodated in the DSR.
2. Mobile app - The officers involved in monitoring will be provided with mobile application and/or bar code scanners using which the TP can be checked anywhere on road. As soon as the bar or QR code on TP gets scanned through using the mobile application and/or scanner or vehicle number is entered into the application or sent by SMS to a predefined number, all details of TP such as plot details, vehicle details, validity time, etc. should be fetched from the server. This means if anything is re-written on TP and attempt is made to reuse the same, it can be traced immediately. Various reports can be generated using the system showing daily

lifting reports and user performance report. This way the vehicles carrying sand can be tracked from source to destination.

3. Online portal – IT Enabled real time monitoring system would be built to monitor the CCTV Cameras 24*7 and the footages would be made available on the public domain for the Public to enhance transparency in the sand mining and to avoid illegal mining. Budget for CCTV Monitoring in allocated in EMP.
4. Customer care/ telephone call – Would be provided to the citizens to report illegal mining in the district from time to time.
5. The District Collector will get all necessary Permissions from the Electricity Board for power supply to operate the CCTV cameras at sand quarry site and depots.
6. The District Collector will be providing a Minimum of two CCTV cameras, one each at the entry and exit point and one PTZ camera will be installed at all quarries/depots to monitor illegality if any taking place in the sand quarry/depot.
7. The District Collector will ensure uninterrupted seamless live streaming of videos from the surveillance cameras by ensuring a high-speed Internet Lease Line connection at all quarries/depots.
8. The district collector will get live streaming of the videos monitored at a Centralised control room and the data stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the grievance of the public.
9. District collector will ensure that all the Earlier Environmental Clearance conditions would be implemented on time as per the Sustainable sand Mining Guidelines 2020.
10. Ground Water Level Monitoring - Collector will ensure that the Piezometer's would be installed in the Quarry site and all the wells with in one km radius of the Quarry would be monitored regularly. Fluctuations in the ground water would be recorded and necessary measures would be taken from time to time to avoid water depletion. And a separate Budget for Ground water monitoring in included in the EMP.
11. Collector would ensure that senior officials would be doing regular audits with the local police officers that are involved with mining mafia. District collector along with the DSP will ensure that all the FIR's that are in place would be investigated from time to time and necessary action would be taken.
12. All Transportation routes – One from Quarry to sand depo and another from sand depo to the Main road and to end consumer would be tracked and monitored by ensuring only authenticated GPS Vehicle tracking vehicles being allowed to transport the mineral.
13. For road degradation – Budget is allocated in EMP and district collector ensures that the roads are maintenance is properly done by the bidder or through local funds available with collector.
14. Collector will make sure that the Bidder develops Greenbelt plantation along the river bank and on either sides of the approach road and even at the sand depos to prevent air pollution. And all bidders would be enforced only to transport mineral by covering the mineral with tarpaulin covers.
15. Collector will ensure that the bidder develops necessary infrastructure like CCTV Monitoring, CCTV Monitoring, Noise monitoring and Plantations across river bank and approach road in that lease area where the bidder takes lease of the land for storage of the sand.

10. Compliance of earlier Environmental Clearance

a. Last time Satara district had got 13 sand Ghats Environment clearance. Out of these 09 sand Ghats were allotted to sand scooping. Out of which 04 sand Ghats auctioned to private person and 05 allotted to irrigation department. At time of allocation sand Ghats owner were deposited EMD, EMP amount and GB to collector office.
b. During sand Ghats operating period so or tahsildar level team verify the given term and conditions time to time. If sand Ghats owner complied all given term and conditions his deposit like EMD, EMP amount and GB refunded.
c. In this way year 2018-19 13 sand Ghats owner and concern tahsildar submitted the EC and sand mining policy terms and conditions compliance report.

11. Information about any general or specific order passed by competent Hon'ble court.

Nil

Conditions Reply:

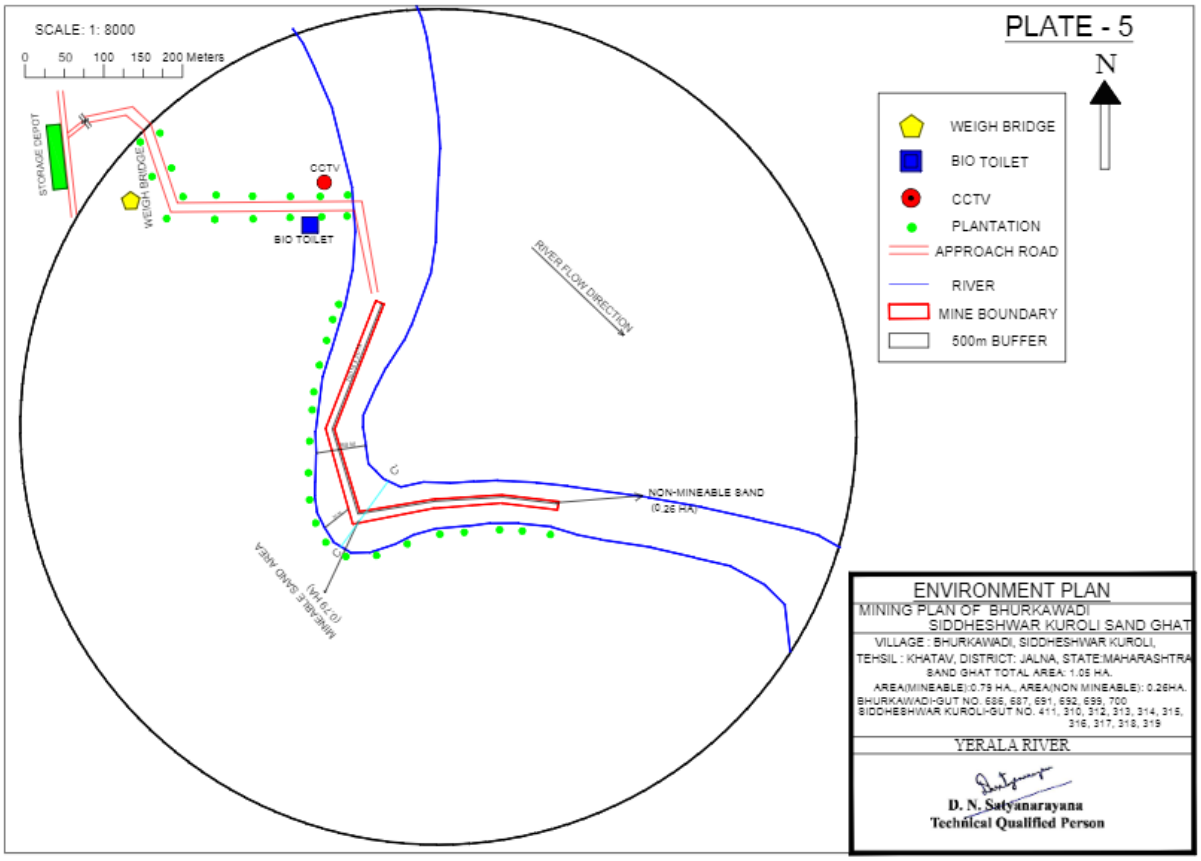
12. DMO Satara to submit cluster certificate with reference to the EIA Notification 2006 amended from time to time with specific remarks on the cluster formation in the periphery of the proposed sand ghat along with area map showing distances between adjoining sand mine areas. Proposed Bhurkawadi-Siddheshwar Kuroli sand ghat does not fall in cluster.

13. PP to submit layout of proposed sand ghat showing mine area, non-mine area, location of bio toilets, location of CCTV cameras, fencing, weigh bridge, approach road etc.

Proposed sand ghat showing mine area, non-mine area, location of bio toilets, location of CCTV cameras, fencing, weigh bridge, approach road etc. layout is given below:

Environmental Management Plan

Bhurkawadi, Siddheshwar Kuroli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.79 HA & NON-MINEABLE AREA-0.26 HA) At Yerala Riverbed Gut No. Bhurkwadi 686, 687, 691, 692, 699, 700 Siddheshwar Kuroli 411, 310, 312, 313, 314, 315, 316, 317, 318, 319 Bhurkawadi, Siddheshwar Kuroli Village, Tehsil-Khatav, Satara District, Maharashtra.



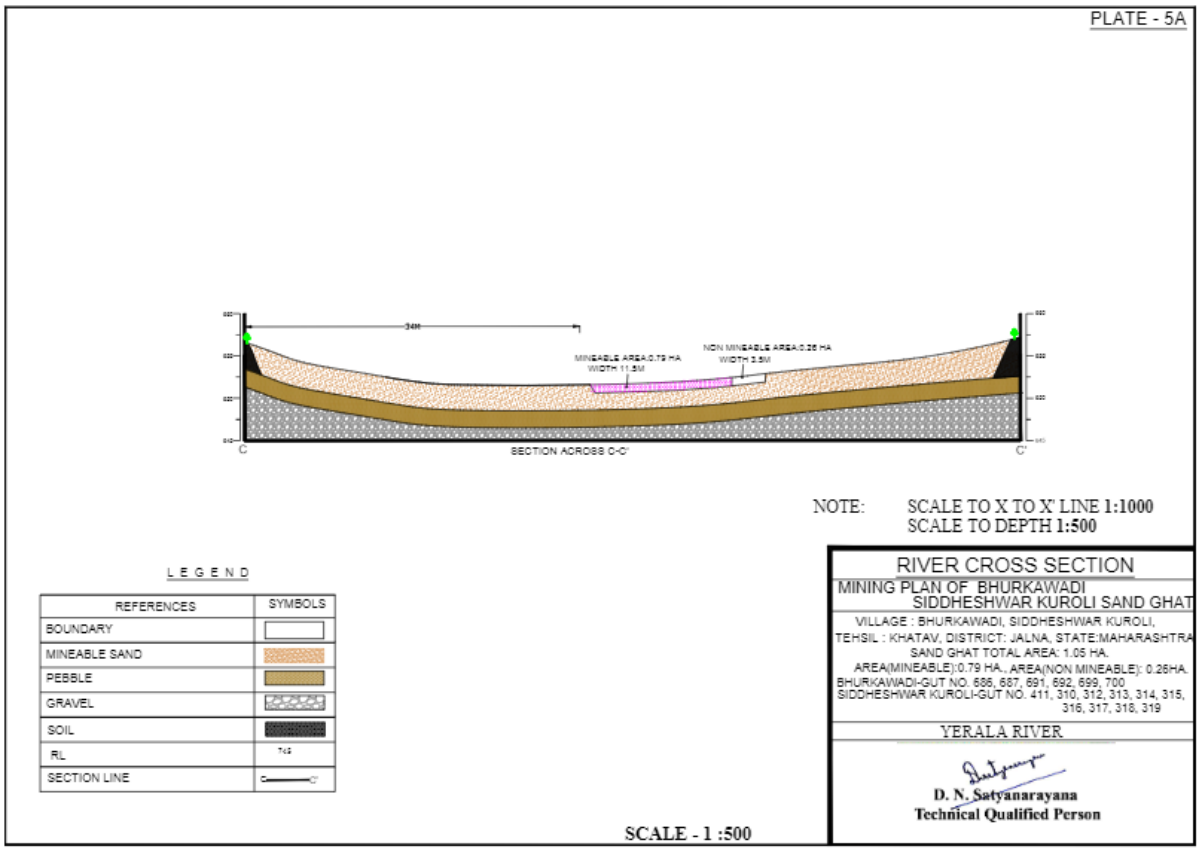
PP to submit details of proposed approach road for transport of mined sand from sand ghat to the storage area and consent of storage area from the concerned land owners is an after-auction activity to use their land as approach road.

The proposed approach road length is 209 m, and it belongs to Gram Panchayat, the mined out sand from sand ghat will be stored adjacent to approach near the river bank. Consent of road submitted by Khatav Tahsildar is enclosed for use of land as approach road. The successful bidder will be deciding the storage area and get concern from land owner.

3. **PP to submit cross section of river bed showing distance of proposed sand mine area from the river bank and other details as prescribed in the Enforcement & Monitoring Guidelines for sand mining published in January 2020 by MoEF&CC.**

Cross section of river bed is shown below:

Bhurkawadi, Siddheshwar Kuroli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.79 HA & NON-MINEABLE AREA-0.26 HA) At Yerala Riverbed Gut No. Bhurkwadi 686, 687, 691, 692, 699, 700 Siddheshwar Kuroli 411, 310, 312, 313, 314, 315, 316, 317, 318, 319 Bhurkawadi, Siddheshwar Kuroli Village, Tehsil-Khatav, Satara District, Maharashtra.

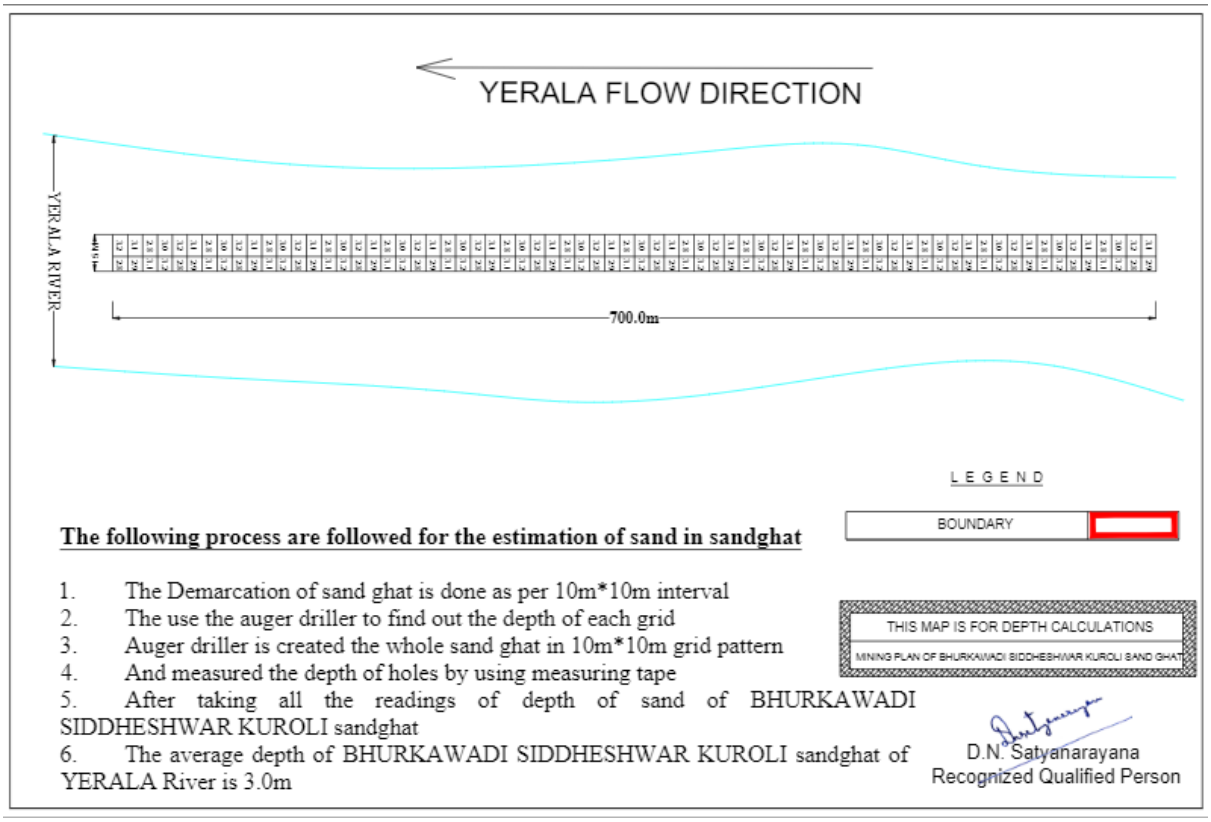


4. PP to submit details of District Level Task Force committee meetings and status of compliance of its recommendations if any

District Level Task Force Committee Meeting details is enclosed.

5. PP to submit revised replenishment study of sand in the proposed ghat along with details of methodology, technology used to identify the existing reserve and replenishment of the same.

Bhurkawadi, Siddheshwar Kuroli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.79 HA & NON-MINEABLE AREA-0.26 HA) At Yerala Riverbed Gut No. Bhurkwadi 686, 687, 691, 692, 699, 700 Siddheshwar Kuroli 411, 310, 312, 313, 314, 315, 316, 317, 318, 319 Bhurkawadi, Siddheshwar Kuroli Village, Tehsil-Khatav, Satara District, Maharashtra.



6. Sediment Yield Calculation

DANDY-BOLTON EQUATION

1. **For Runoff Less Than 2 Inches**
   S=*1280*(Q)*0.46*(1.46-0.26log(A)) *F
2. **For Runoff More Than 2 Inches**
   S=*1958*(Q)*(e-0.055*Q) *(1.43-0.26log (A))

Where:

S=sediment yield of stream (t/yr/km2),

Q= average annual runoff (m3),

A= net drainage area in sq. mile

Conclusion:

As per above data sedimentation yield for Yerala River. The replenishment rate is sedimentation yield so much more than permitted sand mining quantity. Hence, the sand mining is safe of environmentally friendly.

7. PP to submit details of proposed plantation plan along with its location and requisite permission to be obtained from the Competent Authority.

Plantation details are presented below:

Location of greenbelt	Both sides of approach road, On the river banks of both sides of the sand spot & nearby open areas Haul Road outside riverbed
Afforestation area/ annum	1818 Sq.m /annum
No. of plants to be planted	909 Per Hectare
Spacing of plants	2 m grid interval
Species selected	Native species

Tree species recommended for Plantation:

Botanical name	**Local name**	**Importance**
Azadirachta indica	Neem	Neem oil & neem products
Tectona grandis	Teek	Antibacterial,Antifungal, Antiulcer
Ficus religiosaa	Peepal	Medicinal Use, Fruits & figs
Bambusa vulgaris	Bamboo	Anthelmintic Anti-inflammatory, Astringent Properties
Madhuca longifolia	Mahua	Acts as a Stimulant & cough relief

Environmental Management Plan

Bhurkawadi, Siddheshwar Kuroli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.79 HA & NON-MINEABLE AREA-0.26 HA) At Yerala Riverbed Gut No. Bhurkwadi 686, 687, 691, 692, 699, 700 Siddheshwar Kuroli 411, 310, 312, 313, 314, 315, 316, 317, 318, 319 Bhurkawadi, Siddheshwar Kuroli Village, Tehsil-Khatav, Satara District, Maharashtra.

Summary and Conclusion

The environmental status of the project site and study area of 10 km radius is delineated with respect to air, noise, water, land, biological and socio-economic environment The different project activities in the construction and operation phases are identified. To identify the impacts, the interaction between the project activities and different components of the environment are classified phase wise. A summary of the identified impacts are given in the following paragraphs.

During the operational phase, transportation of sand could cause a temporary disturbance to local environment which will be prevented with the proposed mitigation measures proposed in Point no. 4.

Proposed project will not have any major significant negative impacts. The minor impacts arising out during Excavation and Transportation phases can be mitigated with the help of the proposed Environmental Management Plan.

In general, Sand excavation from Bhurkawadi-Siddheshwar Kuroli Sand Spot will be useful to the developmental work in the district and generate employment opportunities.

BUDGET FOR CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

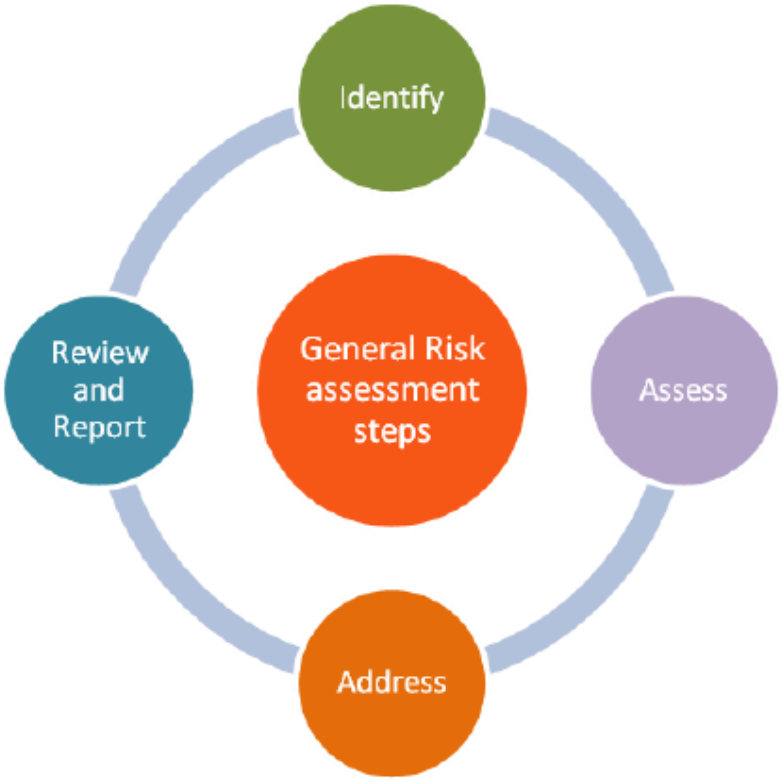
S. No.	Budget Allocated	Budget (In INR)
1	Installation of water tankers in nearby village	60000
2	Providing books and uniforms to nearby village school	20000
3	Awareness to local farmers to increase yield of crop and fodder	45000
4	Plantation in community areas	45000
5	Repair of village roads	80000
6	Community Infrastructure Development	150000
	Total	400000

Risk Assessment for Bhurkawadi, Siddheshwar Kuroli Sand Spot

1. Introduction

A main principle of risk assessment is that it should take place before any changes are made. Risks should be assessed and control measures are put into action before new work is introduced or systems are changed. The process should influence budgets and allocation of resources, rather than being an afterthought when the decisions have already been made.

The risk management process is continuous, with well-defined steps that support better decision making by contributing greater insight into risks and their impacts. Risks from all sources are identified and once they pass the materiality threshold, a formal process begins in which causal factors and consequences are identified and the correlation with other risks and the current risk mitigating strategy is reviewed. One of the challenges is to ensure that mitigating strategies are geared to deliver reliable and timely risk information to support better decision-making.



The mining operations at BHURKAWADI, SIDDHESHWAR, KUROLI SAND SPOT are subjected to the risks and hazards normally encountered in open-cast mining operations. These risks include operational risks relating to

materials handling, accidents, removing material from quarry area. Mining processes also rely on key inputs, for example fuel. Appropriate insurance can provide protection from some, but not all, the costs that may arise from unforeseen events. If any of these risks should materialize, such an event could result in serious harm to employees and contractors, delays in production, increased production costs and possible increase in liabilities.

Disruption to the supply of key inputs, or changes in their pricing, may have a material and adverse impact on BHURKAWADI, SIDDHESHWAR KUROLI SAND SPOT asset values, costs, earnings and cash flows. Failure to meet production target results in increased unit costs. The impact is more pronounced at operations with a high level of fixed costs. Mitigation strategies include efforts to secure strategic supplies at competitive prices, energy reduction, and application of group water management guidelines, adoption of lean production principles and practices and business improvement initiatives to reduce unit costs.

There are certain aspects which should be taken care of, in a quarrying plan with accordance of risk management.

Components	Risk Involved
Land Slides	The continues mining of river sand may affect, on the long run, the stability of banks of the river which in turn may lead to land slides
Fire	Only trucks and tractors will make use of diesel for transportation. Diesel is not so highly inflammable but accidental fires can take place.
Road Accidents	Vehicles are used for transporting the material from quarry area to the buyer's location. Due to some improper maintenance of the vehicle a road accident can occur leading to fatal results.

To minimize the risk, certain measures can be taken like implying safety rules, facilities of basic first aid near the site and having training for the workers about personal safety.

Disaster Management Plan is envisaged with a goal to prevent hazards and accidents at work places by careful design, operation, and maintenance of equipments. All safety precautions and provisions of Metalliferous Mines Regulation-1961 will be strictly followed. Suitable control measures will be adopted to take care of hazards/disasters that may occur during mining operation.

- Fire fighting, first aid provisions & safety appliances will be made available to the staff and their use regularly checked.
- Regular maintenance of all haulage roads & mining machinery as per manufacturer's guidelines will be done.