

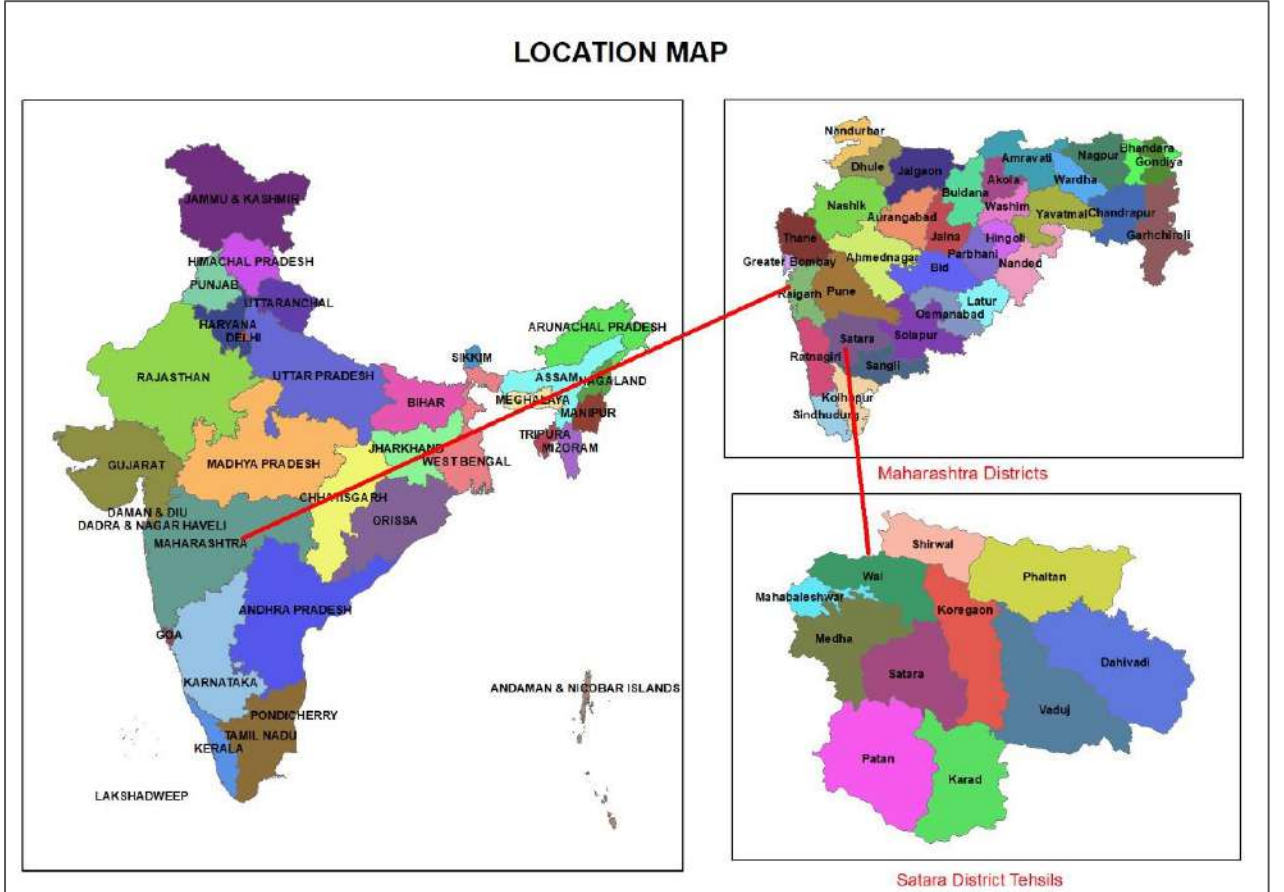
# सातारा जिल्ह्यातील 14 (चौदा) वाळूगटांसाठी जनसुनावणी

## कार्यकारी सारांश

### 1) प्रस्तावना

- ✓ सातारा जिल्ह्यातील खंडाळा, कराड, कोरेगाव, सातारा, माण, खटाव आणि फलटण तालुक्यातील एकूण 14 वाळू घाटासाठी पर्यावरण मंजूरी घेण्यात येणार आहे.
- ✓ M/s. Integrated Precision Systems & Services Pvt. Ltd. यांना जिल्हाधिकारी कार्यालय, सातारा यांचे मार्फत वाळू घाटांसाठी पर्यावरण मंजूरी प्राप्त करून देण्याचे काम देण्यात आलेले आहे..
- ✓ भूविज्ञान आणि खनिकर्म संचालनालय, कोल्हापूर यांचेकडून वाळू घाटाच्या खाणकाम आराखड्यास मंजूरी घेण्यात आलेली आहे.
- ✓ Form - 1 M, PFR, EMP, RA, DSR व मंजूर खाणकाम आराखड्यासह जन सुनावणीची कार्यवाही करून वाळू घाटासाठी पर्यावरण मंजूरीसाठी अर्ज सादर करणेत येणार आहे.

### 2) स्थळदर्शक नकाशा



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### 3) खाणकाम पद्धती

- अ) उत्खननाची पद्धत : ड्रिलिंग आणि ब्लास्टिंग पद्धतीचा वापर न करता वाळू घाटातून वाळूचे उत्खनन करण्यात येईल. फक्त कुदळ, फावडी, घमेले यांसारख्या साधनांचा वापर करून मंजुराद्वारे कोरड्या नदी पात्रातून वाळूचे उत्खनन करण्यात येईल.
- आ) यंत्रसामग्री / आवश्यक उपकरणे : कुदळ, फावडी, घमेले, ट्रॉलीसह ट्रॅक्टर.
- इ) वाहतूक : वाळूच्या जागेपासून डेपोसाठी निश्चित केलेल्या जागे पर्यंत व ग्राहकांना ट्रॅक्टर ट्रॉलीद्वारे.
- ई) पुर्नभरण : उघडे पडलेले क्षेत्र पावसाळ्यानंतर आपोआप पुन्हा भरले जाईल. वाहतुकीच्या रस्त्यालगत वृक्षारोपण केले जाईल.

### 4) पर्यावरण व्यवस्थापन योजना

#### अ) वायू प्रदूषण नियंत्रण उपाय यंत्रणा :-

- वाळू वाहतुकीसाठी वापरल्या जाणाऱ्या कच्या रोडवर वेळोवेळी पाणी शिंपडले जाईल.
- ट्रॅक्टर ट्रॉली व ट्रकवर ताडपत्री अच्छादन करूनच वाळूची वाहतूक टप्प्या-टप्प्याने केली जाईल.
- वाहतुकी दरम्यान वाळूची गळती होणार नाही याची पुरेपुर काळजी घेण्यात येईल.
- नदीकाठी व वाळूच्या जागे जवळील मोकळ्या जागेवर वृक्षारोपण केले जाईल.

#### ब) ध्वनी नियंत्रण उपाय :-

- उत्खनन व वाळू वाहतूक केवळ दिवसा केली जाईल.
- अल्प प्रमाणात ध्वनीप्रदूषण अपेक्षित असेल.
- गाड्यांचा आवाज कमी करण्यासाठी वाळू वाहतूक करणाऱ्या वाहनांची नियमित देखभाल केली जाईल.
- वाळू वाहतूक वाहनांच्या गती नियंत्रीत केल्या जातील.

#### क) जल प्रदूषण नियंत्रण उपाय :-

- वाळू उत्खनन केवळ कोरड्या नदीच्या पात्रातूनच केले जाईल.
- उत्खनन केलेल्या खड्याची खोली नदीच्या पाण्याच्या पातळीपेक्षा वर ठेवली जाईल.
- नदीचा प्रवाह कृत्रीमरित्या वळविला जाणार नाही.
- नदी पात्रात वाहने धुण्यास मनाई राहिल.
- उत्खननातून कोणत्याही सांडपाण्याचा प्रवाह तयार होणार नाही.
- कामगारांसाठी शोषखड्यांसह शौचालयांची व्यवस्था केली जाईल.
- पावसाळ्यात आणि पूरात उत्खनन टाळण्यात येईल. जेणे करून नवीन वाळूचा थर जमा होण्यास मदत होईल.

## सातारा जिल्ह्यातील 14 (चौदा) वाळूगटांसाठी जनसुनावणी

### ड) जमीन प्रदूषण नियंत्रण :-

- कोरड्या नदीच्या पात्रात वाळू उत्खननामुळे तात्पुरते खड्डे तयार होतील, जे पावसाळ्यात पुन्हा भरून येतील
- नदीच्या रुंदीच्या तीन मीटर किंवा रुंदीच्या 1/10 व्या जागेचे सुरक्षा अंतर नदीच्या काठापासून (Sustainable sand mining guidelines) सोडले जाईल.
- पॉलिथीन पिशवी, जूट पिशवी इत्यादी कचरा नदीच्या पात्रात पडून राहणार नाही अगर सांडणार नाही याची दक्षता घेणेत येईल.
- उत्खननास दिलेल्या परवानगी पेक्षा जास्त उत्खनन होणार नाही.
- नदीकाठी आणि जवळपास मोकळ्या जागेवर वृक्षारोपण केले जाईल.

### 5) हरित पट्टा निर्माण योजना :-

हरित पट्ट्याची जागा	लीजच्या सीमेच्या दोन्ही बाजूंच्या आणि नदीकाठच्या बाहेर कच्या रोडच्या कडेला
वनीकरण क्षेत्र/ वार्षिक	1178 चौ. मीटर / वार्षिक
रोपांची संख्या	500 रोपे
दोन रोपामधील अंतर	2 मीटर
प्रजातींची निवड	चांगल्या प्रजातींची शिफारस केली जाईल.

### • वृक्षारोपणांसाठी चांगल्या प्रजातींची शिफारस :-

वृक्षाच्या जातीचे नाव	स्थानिक नाव	महत्व
आझादिरक्ता इंडिका	कडुलिंब	तेल उत्पादन
टेक्टोना ग्रॅडिस	टीक	एंटीबैक्टीरियल, अँटीफंगल
फिकस रिलिओसिया	पिंपळ	औषधी उपयोग, फळे
बांबूसा वल्गारिस	बांबू	एन्थेलमिंटिक अँटी-इंफ्लेमेटरी, अँस्ट्रिजंट
मधुका लाँगिफोलिया	महू	उत्तेजक आणि खोकल्यासाठी

### 6) व्यावसायिक आरोग्य सुरक्षा व्यवस्थापन :-

- खाण चालकांना वैयक्तिक संरक्षणात्मक उपकरणे दिली जातील.
- कान, डोळा आणि हाताचे संरक्षणाची साधने या व्यतिरिक्त सुरक्षा हेल्मेट आणि पादत्राणे दिली जातील.
- कामगारांना डस्ट मास्क दिले जातील.
- खाण कामगारांसाठी पिण्याच्या पाण्यासाठीची सोय करून देण्यात येईल.
- खाण साइटवर प्रथमोपचार किट प्रदान केले जाईल.

## सातारा जिल्ह्यातील 14 (चौदा) वाळूगटांसाठी जनसुनावणी

### 7. निष्कर्ष: -

- सदरील वाळू घाट हे सातारा जिल्ह्यातील खंडाळा, कराड, कोरेगाव, सातारा, माण, खटाव आणि फलटण असून हे सर्व वाळू घाट MoEF & CC च्या मार्गदर्शक सूचनांनुसार बी 2 श्रेणीतील आहे.
- उत्खननाच्या कमी प्रमाणामुळे पर्यावरणावर परिणाम होण्याची शक्यता नाही आणि त्यामुळे हे गावाच्या फायद्याचे ठरेल.
- प्रस्तावित प्रकल्प स्थानिक रहिवाशांना अप्रत्यक्ष रोजगाराच्या संधी प्रदान करेल.
- प्रस्तावित प्रकल्प सामाजिक पायाभूत सुविधा आणि या क्षेत्राच्या सर्वांगीण विकासास सकारात्मक योगदान देईल.
- हवा, पाणी, ध्वनी, माती, घनकचरा व्यवस्थापन इ. सारख्या सर्व पर्यावरणीय प्रश्नांवर MoEF & CC च्या मार्गदर्शक सूचनांनुसार कार्यवाही केली जाईल.

***Koparde sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA- 0.26 HA) At Koparde Odha Tarwadi Wasti River Bed Gut No. 433, 375, 430, 431, 432 Koparde Village, Tehsil-Khandala, Satara District, Maharashtra.***

**Form 1M**

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**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: Koparde Sand Spot

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

Boundary points of Koparde	Latitude	Longitude
BP1	17°59'25.57"N	74° 9'50.80"E
BP2	17°59'25.50"N	74° 9'51.46"E
BP3	17°59'23.84"N	74° 9'50.11"E
BP4	17°59'23.32"N	74° 9'49.44"E
BP5	17°59'19.97"N	74° 9'47.89"E
BP6	17°59'17.64"N	74° 9'47.89"E
BP7	17°59'15.66"N	74° 9'48.50"E
BP8	17°59'12.94"N	74° 9'50.44"E
BP9	17°59'11.71"N	74° 9'51.18"E
BP10	17°59'10.52"N	74° 9'51.54"E
BP11	17°59'10.40"N	74° 9'50.87"E
BP12	17°59'12.83"N	74° 9'49.74"E
BP13	17°59'16.49"N	74° 9'47.28"E
BP14	17°59'19.77"N	74° 9'47.01"E
BP15	17°59'23.70"N	74° 9'48.92"E
BP16	17°59'24.35"N	74° 9'49.89"E

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

(vi) Capacity of Mining Lease (TPA): 835 Brass

(v) Period of Mining Lease: 1 year

(vi) Expected cost of the Project: 55.059 Lakhs

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

**Koparde sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA- 0.26 HA) At Koparde Odha Tarwadi Wasti River Bed Gut No. 433, 375, 430, 431, 432 Koparde Village, Tehsil-Khandala, Satara District, Maharashtra.**

**Form 1M**

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**(II) Environmental Sensitivity**

<b>S. No.</b>	<b>Areas</b>	<b>Distance in Kilometer/Details</b>
1	Distance of project site from nearest rail or road bridge over the concerned River, Rivulet, Nallah et	Nil
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	Salpa railway station,2.96km,S NH-4, 17.87 Km, W SH-61,0.73Km, E 0.70 Km,E Shirur sataraRoad,0.72Km,E 1.61 Km,NE Koparde Odha Tarwadi Wasti River Bed Nil Nil
3	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 Koparde Odha Tarwadi Wasti 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	Koparde Odha Tarwadi Wasti 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-61,0.73Km, E
9	Defence installations	Nil
10	Densely populated or built-up area, distance from nearest human habitation	Lonand junction,6.32Km,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,	Koparde Odha Tarwadi Wasti River Bed ( this is the case of river sand mining)

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**Form 1M**

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	tourism, minerals)	
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 II(Least active), 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

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Koparde Village, Tehsil-Khandala, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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**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 1.05 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 835 Brass sand is proposed to auction from proposed sand spot.
- Proposed site is located at the Koparde Odha Tarwad Wasti river bank.

**1. Physiography**

The Sand Ghat area as per survey is River bed of Koparde Odha Tarwadi Wasti River. The slope is of 9 m from 693 to 686 MSL. The slope of Sand Ghat area towards North side. The highest MSL is 693 & lowest 686 MSL. The flow of Koparde Odha Tarwadi Wasti River is from South to North 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 2362.5 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 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 Koparde Sand Spot has been kept for Auction which is situated at Village Koparde, Taluka Khandala, and District Satara and hence prior to go for Auction a Mining Plan and



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***Pre-Feasibility Report***

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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 2362.5 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 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.

**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**

Koparde is a small Village/hamlet in Khandala Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located at 37 KM from District headquarters Satara. Approximately 190 KM from State capital Mumbai.

The sand spot area is connected to approach road at 678 meter in North West direction. SH-61 road is situated at a distance of 0.80 km. in the east of the sand ghat spot. Satara Railway Station is present at a distance of 35 km.

The area is covered in SOI Toposheet No- 47J/4. The GPS reading of boundary point are given below:

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**Pre-Feasibility Report**

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BP11	17°59'10.40"N	74° 9'50.87"E
BP12	17°59'12.83"N	74° 9'49.74"E
BP13	17°59'16.49"N	74° 9'47.28"E
BP14	17°59'19.77"N	74° 9'47.01"E
BP15	17°59'23.70"N	74° 9'48.92"E
BP16	17°59'24.35"N	74° 9'49.89"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. 2362.5 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 2362.5 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 NE to SW direction as per allotted Sand Spot area and handling of material with the help of laborers into the tractor having

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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 13.56 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.

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### **6. Site Analysis**

#### **i) Connectivity**

Koparde is a small Village/hamlet in Khandala Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located at 37 KM from District headquarters Satara. Approximately 190 KM from State capital Mumbai.

The sand spot area is connected to approach road at 678 meter in North West direction. SH-61 road is situated at a distance of 0.80 km. in the east of the sand ghat spot. Satara Railway Station is present at a distance of 35 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).

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**8. Planning brief**

The proposed project is opencast manual sand mining activity.

**Supply demand ratio:**

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

<b>Tahsil Office Sand Information (2020-21)</b>			
<b>Sr. No</b>	<b>Name of Tahsil</b>	<b>Total Sand Demand if Tahsil in Brass (Approximately)</b>	<b>Total Sand Available in Tahsil in Brass (Approximately)</b>
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
		<b>154227</b>	<b>98871</b>

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<b>Ongoing Government Civil/ infrastructural works in the district (2020-21)</b>			
<b>Sr. No</b>	<b>Name of Govt. Yojana</b>	<b>Details of work</b>	<b>Approx Qty of Sand required in Brass</b>
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
<b>Total</b>			<b>25361</b>

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 निर्मिती करुन बांधकामासाठी उपलब्ध होत असलेने शासकीय यंत्रणांकडून व इतर व्यवसायिकांकडून वाळूची मागणी होत नसलेचे दिसून येत आहे.

सातारा जिल्ह्यातील **CREDAI** संघटनेकडील माहितीद्वारे 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.

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**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 pre 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.

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- 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**

$$S=1280*(Q)^{0.46}*(1.46-0.26\log(A)) *F$$

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

$$S=1958*(Q)^{(e-0.055*Q)}*(1.43-0.26\log(A))$$

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

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:



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- 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/depos 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/depos.

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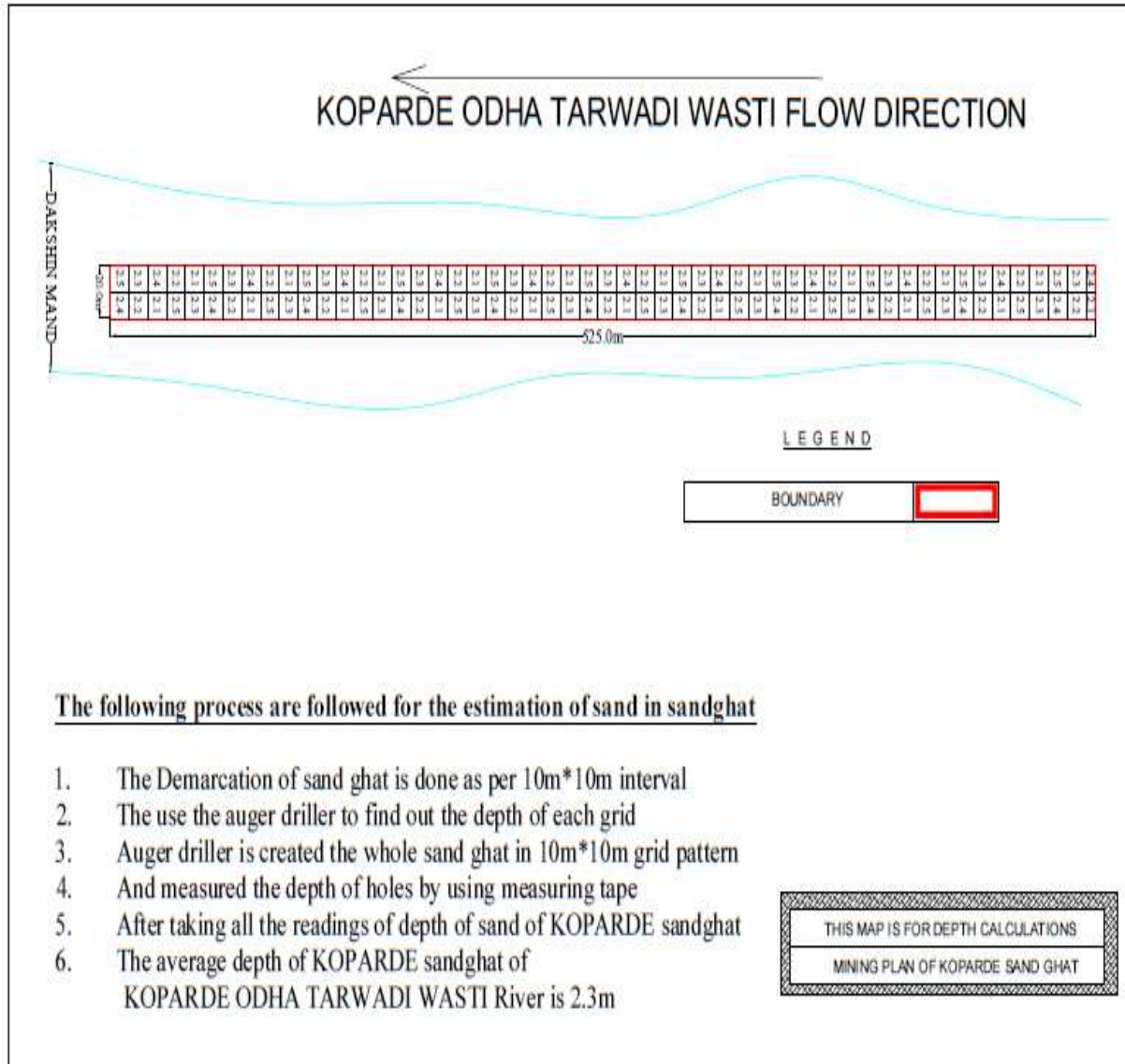
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8. The district collector will get live streaming of the videos monitored at a Centralised control room and the data stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the 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 is 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 depots 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, 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.

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#### 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.

***Koparde sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA-0.26HA) At Koparde Odha Tarwadi Wasti River Bed Gut No. 433, 375, 430, 431, 432  
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**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 Envirnoment 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

***Koparde sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA-0.26HA) At Koparde Odha Tarwadi Wasti River Bed Gut No. 433, 375, 430, 431, 432  
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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

**Koparde sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA-0.26 HA)  
At Koparde Odha Tarwadi Wasti River Bed Gut No. 433, 375, 430, 431, 432 Koparde Village, Tehsil-  
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## 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 the 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

Koparde is a small Village/hamlet in Khandala Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 37 KM towards west from District headquarters Satara. Approximately 190 KM from State capital Mumbai.

The sand spot area is connected to approach road at 678 meter in North West direction. SH-61 road is situated at a distance of 0.80 km. in the east of the sand ghat spot. Satara Railway Station is present at a distance of 35 km.

The area is covered in SOI Toposheet No- 47J/4

**Table 1: Salient Features of the Project**

Items	Details		
Location	Koparde Village, Tehsil-Khandala, Satara District, Maharashtra.		
Latitude and Longitude	<b>Boundary points of Koparde</b>	<b>Latitude</b>	<b>Longitude</b>
	BP1	17°59'25.57"N	74° 9'50.80"E
	BP2	17°59'25.50"N	74° 9'51.46"E
	BP3	17°59'23.84"N	74° 9'50.11"E

## Environmental Management Plan

**Koparde sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA-0.26 HA)  
At Koparde Odha Tarwadi Wasti River Bed Gut No. 433, 375, 430, 431, 432 Koparde Village, Tehsil-  
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	BP4	17°59'23.32"N	74° 9'49.44"E
	BP5	17°59'19.97"N	74° 9'47.89"E
	BP6	17°59'17.64"N	74° 9'47.89"E
	BP7	17°59'15.66"N	74° 9'48.50"E
	BP8	17°59'12.94"N	74° 9'50.44"E
	BP9	17°59'11.71"N	74° 9'51.18"E
	BP10	17°59'10.52"N	74° 9'51.54"E
	BP11	17°59'10.40"N	74° 9'50.87"E
	BP12	17°59'12.83"N	74° 9'49.74"E
	BP13	17°59'16.49"N	74° 9'47.28"E
	BP14	17°59'19.77"N	74° 9'47.01"E
	BP15	17°59'23.70"N	74° 9'48.92"E
	BP16	17°59'24.35"N	74° 9'49.89"E
Sand spot area (In Ha)	1.05		
Proposed production capacity (In Brass )	835		
Manpower Requirement (considering 3 month period)	5 labors + 1 mate + 1 Supervisor = 7man/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	13.56 KLD – Tankers from nearby village.		
Project cost INR (Lakh)	55.0599		

### 3. Baseline Environmental Studies

#### a. Topography

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

# Environmental Management Plan

**Koparde sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA-0.26 HA)  
At Koparde Odha Tarwadi Wasti River Bed Gut No. 433, 375, 430, 431, 432 Koparde Village, Tehsil-  
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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 Sahyadries, Krishna valley, Nira valley, and Mahadev hills and Eastern plateau.

The Sand Ghat area as per survey is River bed of Koparde Odha Tarwadi Wasti River. The slope is of 9 m from 693 to 686 MSL. The slope of Sand Ghat area towards North side. The highest MSL is 693 & lowest 686 MSL. The flow of Koparde Odha Tarwadi Wasti River is from South to North 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 25.00m BGL in pre-monsoon season and the depth to water levels in post-monsoon ranges from 0.10 to 19.10m BGL. As the mining activities presently proposed are maximum up to 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.



# Environmental Management Plan

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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.<sup>1</sup>

(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.

## Environmental Management Plan

**Koparde sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA-0.26 HA)  
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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 consider 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					
<b>GRAND TOTAL</b>				1.05	1.05	1.05

## Environmental Management Plan

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- 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	Koparde
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	101700
		Road Construction	Road Construction from Quarry to Access Road	169500
		Air Environment	Dust Suppression by Regular water spraying.	101700
			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)	77970
3	Ramp and Sand Reach	Mining Operations	Regular ramp Inspection and Ramp maintenance.(Excluding Man Power Salary which is included in labour costs)	84750
			Provision of dusk masks.	15000
4	Bank Management	Bank Erosion/Flood Plain management	Green Belt along Road	339000
			Green belt along bank(For Green Belt Development)	678
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

## Environmental Management Plan

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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 aren't available.	200000
14	Development of Market Model		Provision for development of market model & associated works if different funds aren't available.	25000
15	Environmental Audit		Provision for third party environmental audit if different funds aren't available.	50000
			Total EMP Budget	1862698
			Capital Cost	1342048
			Recurring Cost	520650

**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.

## Environmental Management Plan

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- 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. Koparde-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.

## Environmental Management Plan

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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 is 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 within 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 is 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 depots 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, 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**

# Environmental Management Plan

**Koparde sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA-0.26 HA)  
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- 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

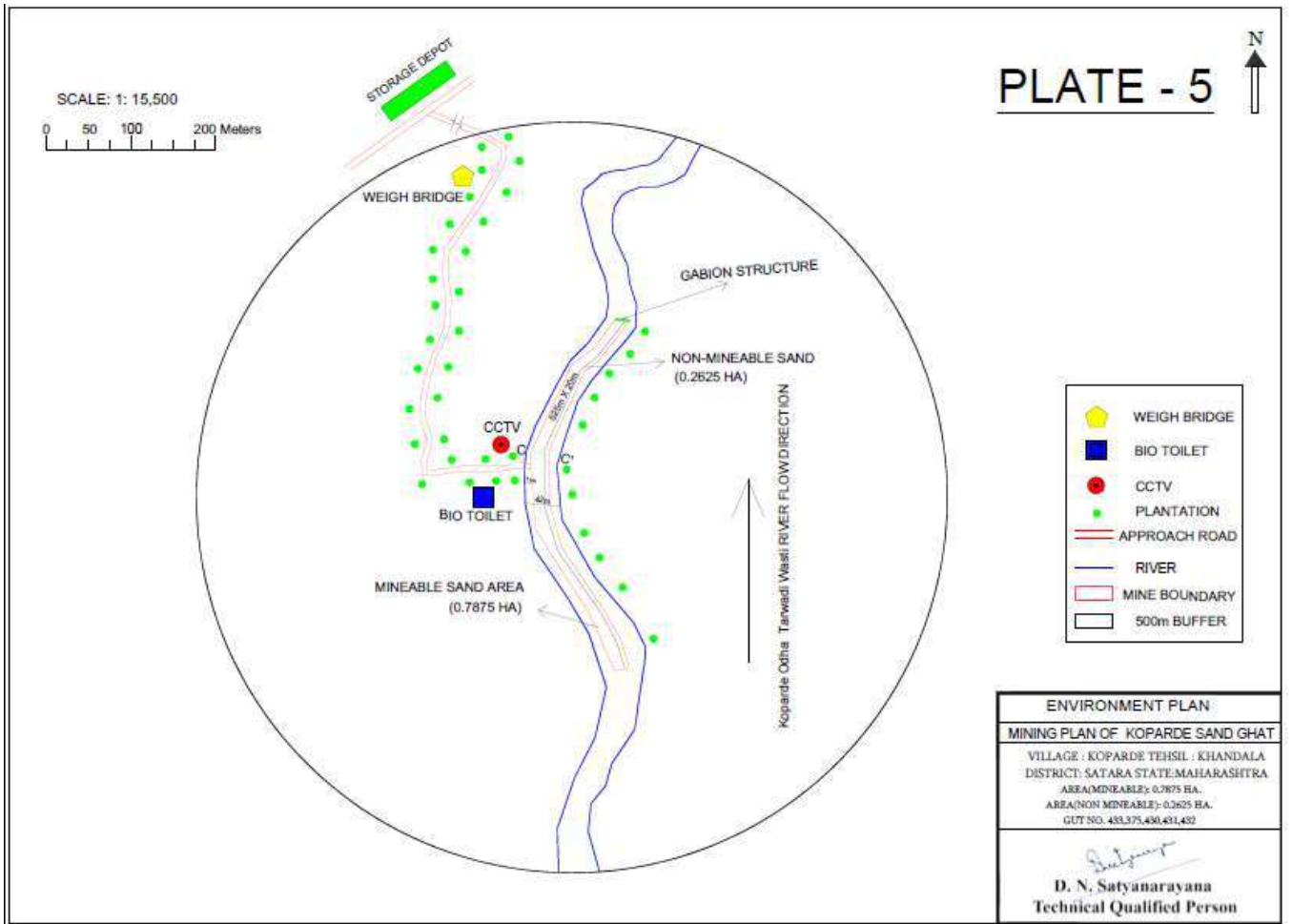
**Conditions Reply:**

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 Koparde 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

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**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 678 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.

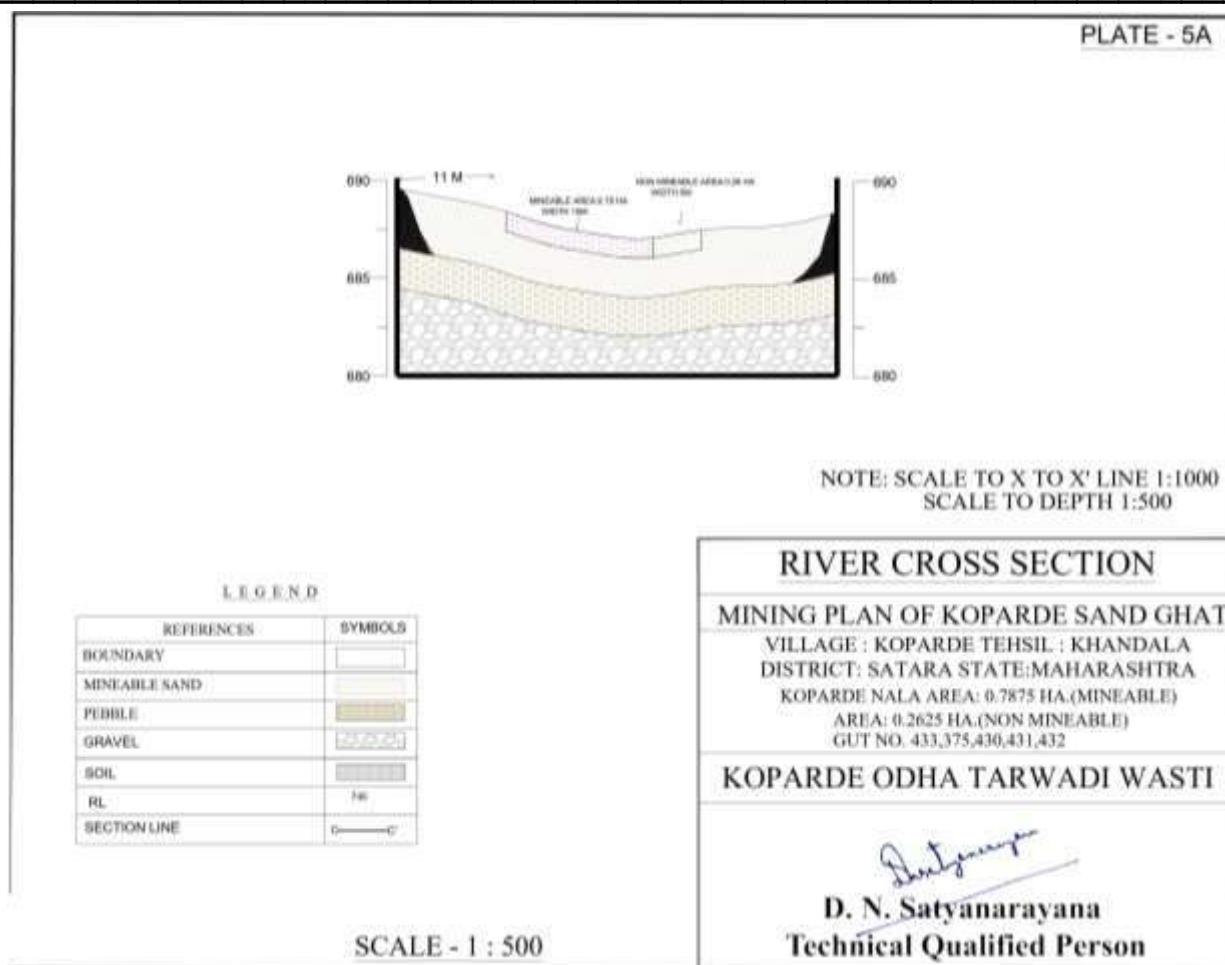
3. **PP to submit cross section of river bed showing distance of proposed sand mine area from the river bank and other details as prescribed in the Enforcement & Monitoring Guidelines for sand mining published in January 2020 by MoEF&CC.**

**Cross section of river bed is shown below:**



# Environmental Management Plan

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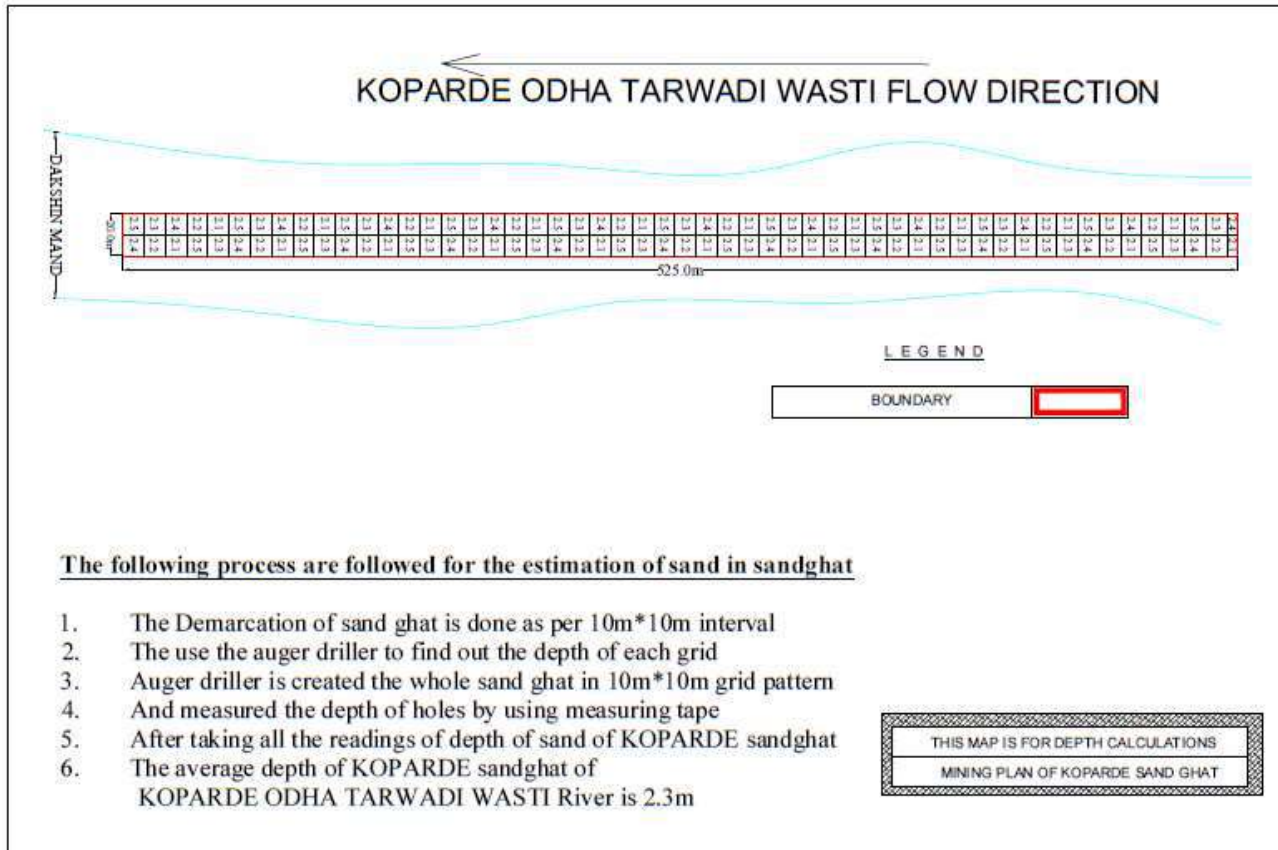
4. PP to submit details of District Level Task Force committee meetings and status of compliance of its recommendations if any

District Level Task Force Committee Meeting details is enclosed.

# Environmental Management Plan

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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.



## 6. Sediment Yield Calculation

### DANDY-BOLTON EQUATION

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

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

A= net drainage area in sq. mile

### Conclusion:

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

## Environmental Management Plan

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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:

<b>Location of greenbelt</b>	Both sides of approach road, On the river banks of both sides of the sand spot & nearby open areas Haul Road outside riverbed
<b>Afforestation area/ annum</b>	2406 Sq.m /annum
<b>No. of plants to be planted</b>	1203 Per Hectare
<b>Spacing of plants</b>	2 m grid interval
<b>Species selected</b>	Native species

Tree species recommended for Plantation:

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

# Environmental Management Plan

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## 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 Koparde Sand Spot will be useful to the developmental work in the district and also generate employment opportunities.

## BUDGET FOR CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

SNo.	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

*Aaund sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75 HA & NON-MINEABLE AREA-0.25 HA) At Dhakshin Mandh Riverbed Gut No. 118, 119, 121,122,155, 157, 158, 160 165 Aaund Village, Tehsil-Karad, Satara District, Maharashtra.*

Form 1M

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**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: Aaund Sand Spot

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

<b>BOUNDARY PILLAR COORDINATE</b>		
<b>BOUNDARY POINTS</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
BP1	17°10'7.79"N	74° 6'39.94"E
BP2	17°10'8.21"N	74° 6'39.14"E
BP3	17°10'10.13"N	74° 6'40.21"E
BP4	17°10'11.66"N	74° 6'41.04"E
BP5	17°10'14.42"N	74° 6'43.01"E
BP6	17°10'15.41"N	74° 6'43.80"E
BP7	17°10'16.47"N	74° 6'44.90"E
BP8	17°10'17.07"N	74° 6'46.26"E
BP9	17°10'17.28"N	74° 6'47.30"E
BP10	17°10'16.42"N	74° 6'47.48"E
BP11	17°10'16.23"N	74° 6'46.55"E
BP12	17°10'15.74"N	74° 6'45.43"E
BP13	17°10'14.83"N	74° 6'44.49"E
BP14	17°10'13.90"N	74° 6'43.75"E
BP15	17°10'11.22"N	74° 6'41.82"E
BP16	17°10'9.72"N	74° 6'41.01"E

(iii) Size of the Mining Lease (Hectare): 1.0 HA

(vi) Capacity of Mining Lease (TPA): 1327 Brass

(v) Period of Mining Lease: 1 year

(vi) Expected cost of the Project: 87.502 Lakhs

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

**(II) Environmental Sensitivity**

***Aaund sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75 HA & NON-MINEABLE AREA-0.25 HA) At Dhakshin Mandh Riverbed Gut No. 118, 119, 121,122,155, 157, 158, 160 165 Aaund Village, Tehsil-Karad, Satara District, Maharashtra.***

**Form 1M**

**Page: 2 of 2**

<b>S. No.</b>	<b>Areas</b>	<b>Distance in Kilometer/Details</b>
1	Distance of project site from nearest rail or road bridge over the concerned River, Rivulet, Nallah et	Nil
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	Shenoli railway station,15.30Km,NE NH-4-8.02Km,NE SH-144,1.0Km,N 0.55Km,E Manav-Patimla,1.10Km,NE 0.19Km,E Dhakshin Mandh River Bed Nil Nil
3	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 Dhakshin Mandh 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	Dhakshin Mandh 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-144,1.0Km,N
9	Defence installations	Nil
10	Densely populated or built-up area, distance from nearest human habitation	Kasegaon,9.48 Km,E
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)	Dhakshin Mandh 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

***Aaund sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75 HA & NON-MINEABLE AREA-0.25 HA) At Dhakshin Mandh Riverbed Gut No. 118, 119, 121,122,155, 157, 158, 160 165 Aaund Village, Tehsil-Karad, Satara District, Maharashtra.***

**Form 1M**

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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

*Aaund sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA- 0.25 HA) At Dakshin Mand River Bed Gut No. 118, 119, 121,122,155, 157, 158, 160 to 165 Aaund Village, Tehsil-Karad, Satara District, Maharashtra.*

**Pre-Feasibility Report**

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**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 1327 Brass sand is proposed to auction from proposed sand spot.
- Proposed site is located at the Dakshin Mand river bank.

**1. Physiography**

The Sand Ghat area as per survey is River bed of Dakshin Mand River. The slope is of 3 m from 661 to 658 MSL. The slope of Sand Ghat area towards SW side. The highest MSL is 661 & lowest 658 MSL. The flow of Dakshin Mand 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**

The Sand Spot has sufficient Reserve of Sand to work at 3756.375 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 0.50 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 Aaund Sand Spot has been kept for Auction which is situated at Village Aaund, Taluka Karad, 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.



*Aaund sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA- 0.25 HA) At Dakshin Mand River Bed Gut No. 118, 119, 121,122,155, 157, 158, 160 to 165 Aaund Village, Tehsil-Karad, Satara District, Maharashtra.*

#### **Pre-Feasibility Report**

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##### **i) Brief description of project**

The Sand Spot has sufficient Reserve of Sand to work at 3756.375 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 0.50 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.

##### **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**

Aaund is a small Village/hamlet in Karad Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 55 KM towards NW from District headquarters Satara. Approximately 245 KM from State capital Mumbai.

The sand spot area is connected to approach road at 1008 meter in North direction. NH-4 road is situated at 8 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- 47K/3. The GPS reading of boundary point are given below:

*Aaund sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA- 0.25 HA) At Dakshin Mand River Bed Gut No. 118, 119, 121,122,155, 157, 158, 160 to 165 Aaund Village, Tehsil-Karad, Satara District, Maharashtra.*

**Pre-Feasibility Report**

Boundary points of Aaund	Latitude	Longitude
BP1	17°10'7.79"N	74° 6'39.94"E
BP2	17°10'8.21"N	74° 6'39.14"E
BP3	17°10'10.13"N	74° 6'40.21"E
BP4	17°10'11.66"N	74° 6'41.04"E
BP5	17°10'14.42"N	74° 6'43.01"E
BP6	17°10'15.41"N	74° 6'43.80"E
BP7	17°10'16.47"N	74° 6'44.90"E
BP8	17°10'17.07"N	74° 6'46.26"E
BP9	17°10'17.28"N	74° 6'47.30"E
BP10	17°10'16.42"N	74° 6'47.48"E
BP11	17°10'16.23"N	74° 6'46.55"E
BP12	17°10'15.74"N	74° 6'45.43"E
BP13	17°10'14.83"N	74° 6'44.49"E
BP14	17°10'13.90"N	74° 6'43.75"E
BP15	17°10'11.22"N	74° 6'41.82"E
BP16	17°10'9.72"N	74° 6'41.01"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. 3756.375 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 3756.375 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 0.50 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

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#### **Pre-Feasibility Report**

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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 20.16 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.

*Aaund sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA- 0.25 HA) At Dakshin Mand River Bed Gut No. 118, 119, 121,122,155, 157, 158, 160 to 165 Aaund Village, Tehsil-Karad, Satara District, Maharashtra.*

#### **Pre-Feasibility Report**

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### **6. Site Analysis**

#### **i) Connectivity**

Aaund is a small Village/hamlet in Karad Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 55 KM towards NW from District headquarters Satara. Approximately 245 KM from State capital Mumbai.

The sand spot area is connected to approach road at 1008 meter in North direction. NH-4 road is situated at 8 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).

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**Pre-Feasibility Report**

**8. Planning brief**

The proposed project is opencast manual sand mining activity.

**Supply demand ratio:**

Informataion 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
		<b>154227</b>	<b>98871</b>

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**Pre-Feasibility Report**

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
<b>Total</b>			<b>25361</b>

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 माहितीद्वारे 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.

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#### **Pre-Feasibility Report**

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##### **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 pre 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.

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#### **Pre-Feasibility Report**

- 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**

$$S = 1280 * (Q)^{0.46} * (1.46 - 0.26 \log(A)) * F$$

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

$$S = 1958 * (Q)^{(e - 0.055 * Q)} * (1.43 - 0.26 \log(A))$$

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

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:



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***Pre-Feasibility Report***

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- 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 is 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/depos 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/depos.

***Aaund sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA- 0.25 HA) At Dakshin Mand River Bed Gut No. 118, 119, 121,122,155, 157, 158, 160 to 165 Aaund Village, Tehsil-Karad, Satara District, Maharashtra.***

***Pre-Feasibility Report***

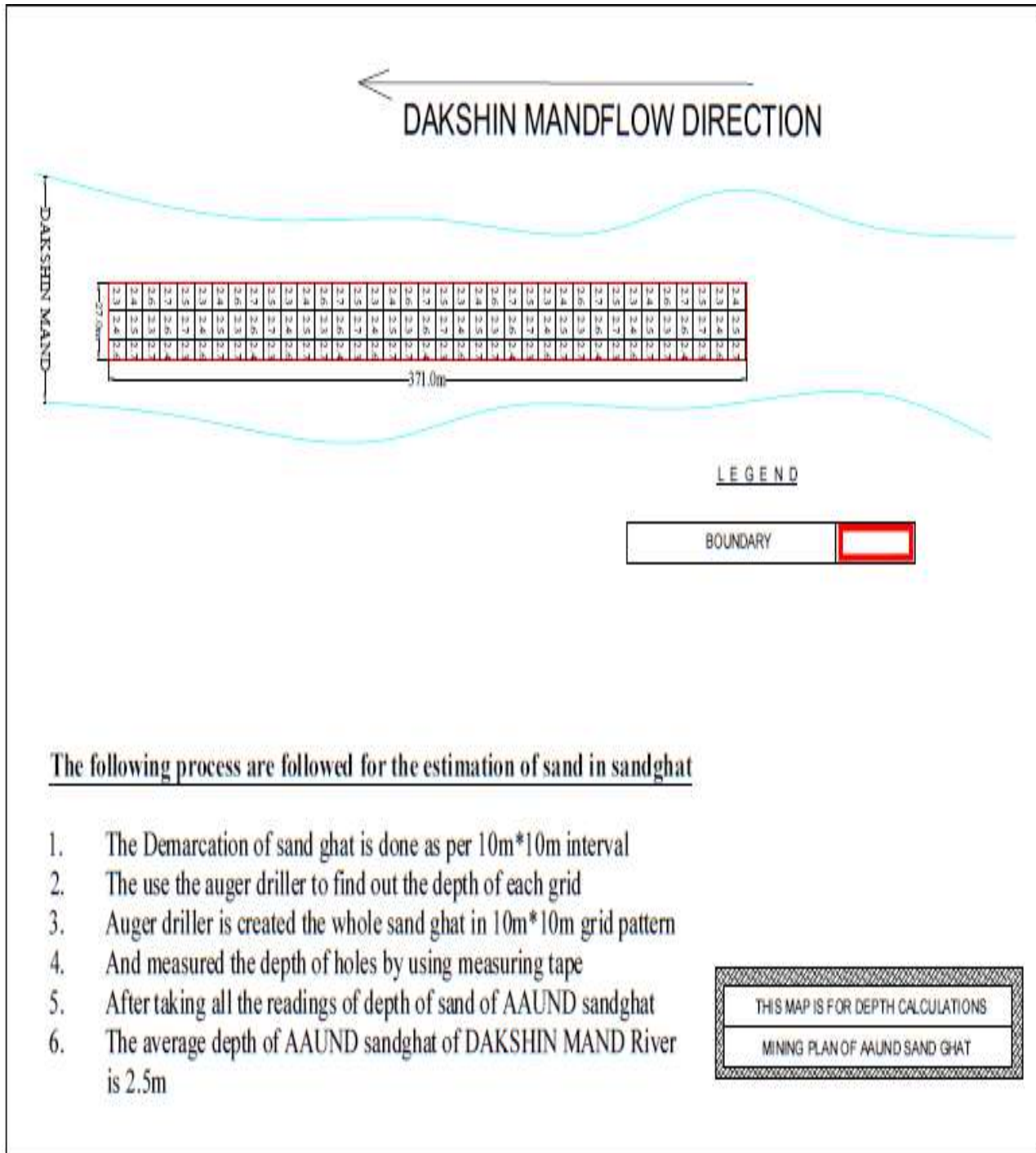
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8. The district collector will get live streaming of the videos monitored at a Centralised control room and the data stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the 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 depots 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, 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.

**Aaund sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA- 0.25 HA) At Dakshin Mand River Bed Gut No. 118, 119, 121,122,155, 157, 158, 160 to 165 Aaund Village, Tehsil-Karad, Satara District, Maharashtra.**

**Pre-Feasibility Report**

**Sand Quantity Evaluation:**



*Aaund sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA- 0.25 HA) At Dakshin Mand River Bed Gut No. 118, 119, 121,122,155, 157, 158, 160 to 165 Aaund Village, Tehsil-Karad, Satara District, Maharashtra.*

#### **Pre-Feasibility Report**

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#### **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,

***Aaund sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA- 0.25 HA) At Dakshin Mand River Bed Gut No. 118, 119, 121,122,155, 157, 158, 160 to 165 Aaund Village, Tehsil-Karad, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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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

**Aaund sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75 HA & NON-MINEABLE AREA-0.25 HA)  
At Dhakshin Mandh Riverbed Gut No. 118, 119, 121,122,155, 157, 158, 160 to 165 Aaund Village, Tehsil-Karad, 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 the 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

Aaund is a small Village/hamlet in Karad Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 55 KM towards NW from District headquarters Satara. Approximately 245 KM from State capital Mumbai.

The sand spot area is connected to approach road at 1008 meter in North direction. NH-4 road is situated at 8 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- 47K/3.

**Table 1: Salient Features of the Project**

Items	Details		
Location	Aaund Village, Tehsil-Karad, Satara District, Maharashtra.		
Latitude and Longitude	BOUNDARY POINTS	LATITUDE	LONGITUDE
	BP1	17°10'7.79"N	74° 6'39.94"E

## Environmental Management Plan

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	BP2	17°10'8.21"N	74° 6'39.14"E
	BP3	17°10'10.13"N	74° 6'40.21"E
	BP4	17°10'11.66"N	74° 6'41.04"E
	BP5	17°10'14.42"N	74° 6'43.01"E
	BP6	17°10'15.41"N	74° 6'43.80"E
	BP7	17°10'16.47"N	74° 6'44.90"E
	BP8	17°10'17.07"N	74° 6'46.26"E
	BP9	17°10'17.28"N	74° 6'47.30"E
	BP10	17°10'16.42"N	74° 6'47.48"E
	BP11	17°10'16.23"N	74° 6'46.55"E
	BP12	17°10'15.74"N	74° 6'45.43"E
	BP13	17°10'14.83"N	74° 6'44.49"E
	BP14	17°10'13.90"N	74° 6'43.75"E
	BP15	17°10'11.22"N	74° 6'41.82"E
	BP16	17°10'9.72"N	74° 6'41.01"E
Sand spot area (In Ha)	1.00		
Proposed production capacity (In Brass )	1327		
Manpower Requirement (considering 3 month period)	5 labors + 1 mate + 1 Supervisor = 7man/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	<b>20.16 KLD</b> – Tankers from nearby village.		
Project cost INR (Lakh)	87.50238		

# Environmental Management Plan

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## **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, Krishna valley, Nira valley, and Mahadev hills and Eastern plateau.

The Sand Ghat area as per survey is River bed of Dakshin Mand River. The slope is of 3 m from 661 to 658 MSL. The slope of Sand Ghat area towards SW side. The highest MSL is 661 & lowest 658 MSL. The flow of Dakshin Mand 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 0.50m 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 0.50m. 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 25.00m BGL in pre-monsoon season and the depth to water levels in post-monsoon ranges from 0.10 to 19.10m BGL. As the mining activities presently proposed are maximum up to 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



# Environmental Management Plan

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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.<sup>1</sup>

(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**

# Environmental Management Plan

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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 consider for calculatio n
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 dump /Soil					

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7	Tailing Dam /pond					
8	Effluent Treatment Plant					
9	Mineral storage					
10	Township area					
11	Other to specify					
<b>GRAND TOTAL</b>				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

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

S. No	Impact Source	Impact	Control measure	Aaund
1	Transport Road	On Air Quality	Compaction, gradation and drainage on both sides.	67500
		Road Degradation	Budget for Road Repairs and Maintenance from Approach Road to Main Road	151200
		Road Construction	Road Construction from Quarry to Access Road	252000
		Air Environment	Dust Suppression by Regular water spraying.	151200
			Air quality will be monitoring at impacted village.(For One Day Monitoring)	50000
			Health Checkup 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)	115920
3	Ramp and Sand Reach	Mining Operations	Regular ramp Inspection and Ramp maintenance.(Excluding Man Power Salary which is included in labour costs)	126000

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			Provision of dusk masks.	15000
4	Bank Management	Bank Erosion/Flood Plain management	Green Belt along Road	504000
			Green belt along bank(For Green Belt Development)	1008
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 aren't available.	200000
14	Development of Market Model		Provision for development of market model & associated works if different funds aren't available.	25000
15	Environmental Audit		Provision for third party environmental audit if different funds aren't available.	50000
			Total EMP Budget	2306228
			Capital Cost	1627828
			Recurring Cost	678400

## Environmental Management Plan

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**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. Aaund-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

## Environmental Management Plan

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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 is 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 is 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.

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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, 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:**

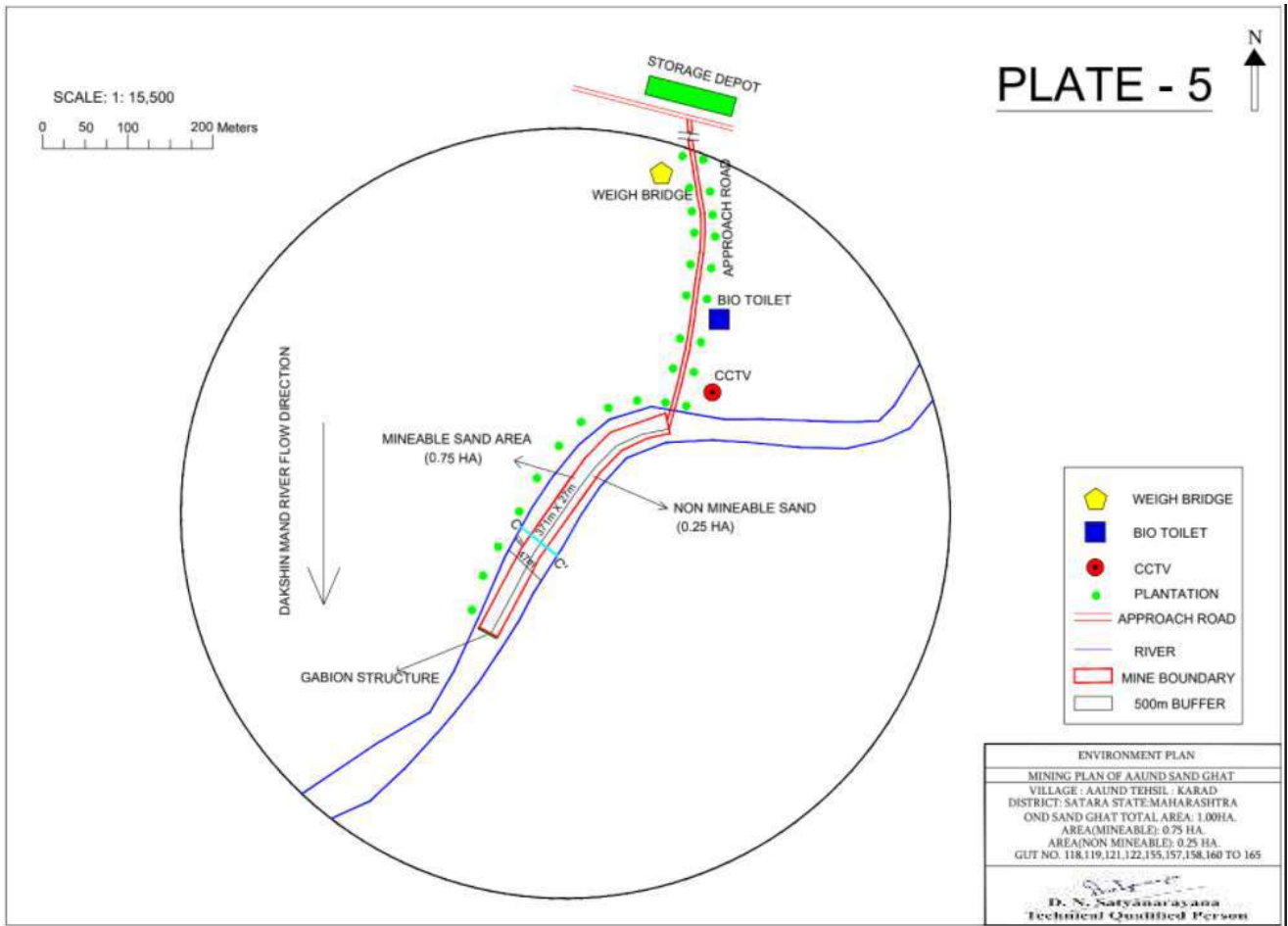
12. DMO Satara to submit cluster certificate with reference to the EIA Notification 2006 amended from time to time with specific remarks on the cluster formation in the periphery of the proposed sand ghat along with area map showing distances between adjoining sand mine areas. Proposed Aaund sand ghat 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

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**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 1008 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 Karad 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.

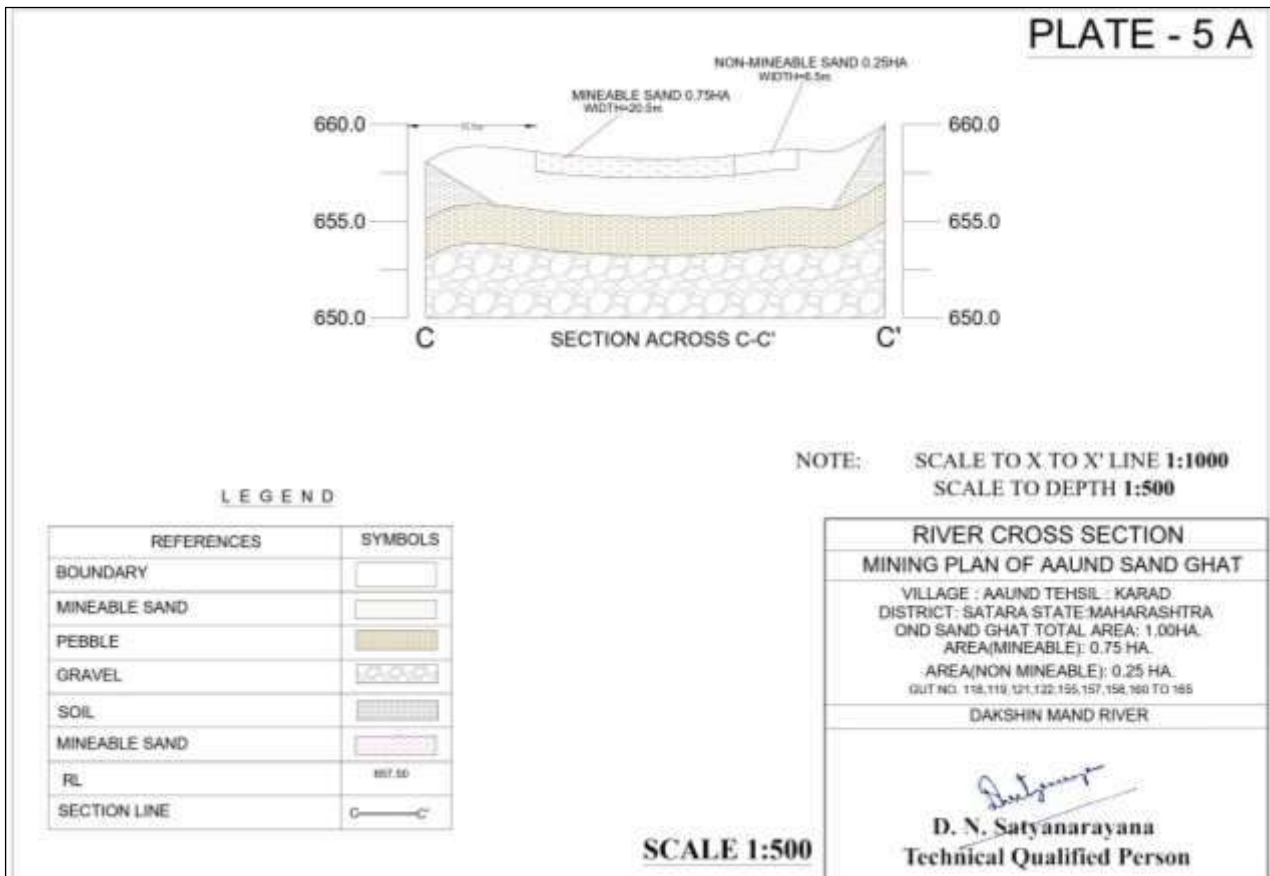
- 3. PP to submit cross section of river bed showing distance of proposed sand mine area from the river bank and other details as prescribed in the Enforcement & Monitoring Guidelines for sand mining published in January 2020 by MoEF&CC.**

**Cross section of river bed is shown below:**



## Environmental Management Plan

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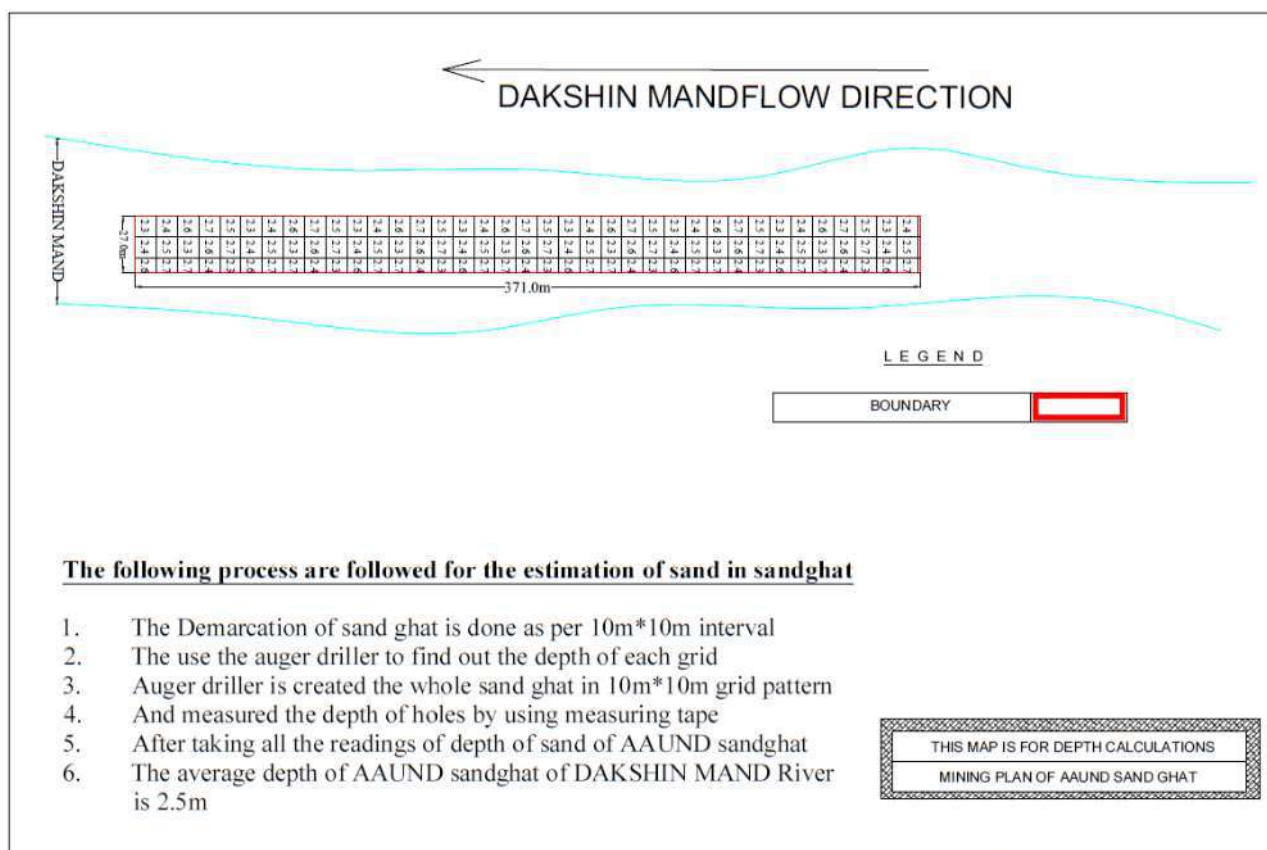
4. PP to submit details of District Level Task Force committee meetings and status of compliance of its recommendations if any

District Level Task Force Committee Meeting details is enclosed.

# Environmental Management Plan

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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.



## 6. Sedimentation yield Calculation

### DANDY-BOLTON EQUATION

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

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

A= net drainage area in sq. mile

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Karad, Satara District, Maharashtra.***

### Conclusion:

As per above data sedimentation yield for Dhakshin Mandh 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:

<b>Location of greenbelt</b>	Both sides of approach road, On the river banks of both sides of the sand spot & nearby open areas Haul Road outside riverbed
<b>Afforestation area/ annum</b>	2758 Sq.m /annum
<b>No. of plants to be planted</b>	1379 Per Hectare
<b>Spacing of plants</b>	2 m grid interval
<b>Species selected</b>	Native species

Tree species recommended for Plantation:

<b>Botanical name</b>	<b>Local name</b>	<b>Importance</b>
<i>Azadirachta indica</i>	Neem	Neem oil & neem products
<i>Tectona grandis</i>	Teek	Antibacterial,Antifungal, Antiulcer
<i>Ficus religiosaa</i>	Peepal	Medicinal Use, Fruits & figs

## Environmental Management Plan

***Aaund sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75 HA & NON-MINEABLE AREA-0.25 HA)  
At Dhakshin Mandh Riverbed Gut No. 118, 119, 121,122,155, 157, 158, 160 to 165 Aaund Village, Tehsil-  
Karad, Satara District, Maharashtra.***

<i>Bambusa vulgaris</i>	Bamboo	Anthelmintic Anti inflammatory,Astringent Properties
<i>Madhuca longifolia</i>	Mahua	Acts as a Stimulant & cough relief,

### 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 Aaund Sand Spot will be useful to the developmental work in the district and also generate employment opportunities.

### BUDGET FOR CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

SNo.	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

*Deur sand spot over an extent of 1.02 HA (MINEABLE AREA-0.77 HA & NON-MINEABLE AREA-0.26 HA) At Wasna Riverbed Gut No. 977, 58, 1397, 1398, 1399, 1421, 1417, 1419, 1420, 1422 Deur Village, Tehsil-Koregaon, Satara District, Maharashtra.*

Form 1M

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**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: Deur Sand Spot

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

<b>BOUNDARY POINT COORDINATES</b>		
<b>BOUNDARY POINT</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
BP1	17° 51' 23.69" N	74° 06' 46.56" E
BP2	17° 51' 24.45" N	74° 06' 47.14" E
BP3	17°51' 23.98" N	74° 06'48.19" E
BP4	17°51' 25.68" N	74° 06'51.07" E
BP5	17°51' 28.62" N	74° 06'52.85"E
BP6	17°51' 29.85" N	74° 06'51.08" E
BP7	17°51' 30.60" N	74° 06'51.52"E
BPS	17°51' 28.95" N	74° 06'53.73" E
BP9	17°51' 25.92" N	74° 06'52.59" E
BP10	17°51' 24.95" N	74° 06'51.43" E
BP11	17°51' 22.84" N	74° 06'48.23" E

(iii) Size of the Mining Lease (Hectare): 1.02 HA

(vi) Capacity of Mining Lease (TPA): 2705 Brass

(v) Period of Mining Lease: 1 year

(vi) Expected cost of the Project: 178.3677 Lakhs

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

**(II) Environmental Sensitivity**

<b>S. No.</b>	<b>Areas</b>	<b>Distance in Kilometer/Details</b>
1	Distance of project site from nearest rail or road bridge over the concerned River, Rivulet, Nallah et	Nil
2	Distance from infrastructural facilities	

**Deur sand spot over an extent of 1.02 HA (MINEABLE AREA-0.77 HA & NON-MINEABLE AREA-0.26 HA) At Wasna Riverbed Gut No. 977, 58, 1397, 1398, 1399, 1421, 1417, 1419, 1420, 1422 Deur Village, Tehsil-Koregaon, Satara District, Maharashtra.**

**Form 1M**

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	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	Wathar railway station,4.42Km,N NH-4,16.48Km,W SH-72,4.31Km,N Shirur satara road,0.64Km,E Deur-Asangaon road,2.37Km,W 0.43 Km,SE Wasna River Bed Nil Nil
3	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 Wasna 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	Wasna 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-72,4.31Km,N
9	Defence installations	Nil
10	Densely populated or built-up area, distance from nearest human habitation	Deur,0.24Km,E
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)	Wasna 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	The mine lease area falls in Seismic Zone II (Least active), according to the Indian Standard Seismic Zoning Map.

**Deur sand spot over an extent of 1.02 HA (MINEABLE AREA-0.77 HA & NON-MINEABLE AREA-0.26 HA) At Wasna Riverbed Gut No. 977, 58, 1397, 1398, 1399, 1421, 1417, 1419, 1420, 1422 Deur Village, Tehsil-Koregaon, Satara District, Maharashtra.**

**Form 1M**

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	conditions)	
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

*Deur sand spot over an extent of 1.02 HA (MINEABLE AREA- 0.77 HA & NON-MINEABLE AREA- 0.26 HA) At Wasna River Bed Gut No. 977, 58, 1397, 1398, 1399, 1421, 1417, 1419, 1420, 1422. Deur Village, Tehsil-Koregaon, Satara District, Maharashtra.*

**Pre-Feasibility Report**

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**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 1.02 Ha (0.77 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 2705 Brass sand is proposed to auction from proposed sand spot.
- Proposed site is located at the Wasna River bank.

**1. Physiography**

The Sand Ghat area as per survey is River bed of Wasna River. The slope is of 5 m from 821 to 816 MSL. The slope of Sand Ghat area towards West side. The highest MSL is 821 & lowest 816 MSL. The flow of Wasna River is from NW to West 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 7656 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 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 Deur Sand Spot has been kept for Auction which is situated at Village Deur, Taluka Koregaon, 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.



*Deur sand spot over an extent of 1.02 HA (MINEABLE AREA- 0.77 HA & NON-MINEABLE AREA- 0.26 HA) At Wasna River Bed Gut No. 977, 58, 1397, 1398, 1399, 1421, 1417, 1419, 1420, 1422. Deur Village, Tehsil-Koregaon, Satara District, Maharashtra.*

#### **Pre-Feasibility Report**

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##### **i) Brief description of project**

The Sand Spot has sufficient Reserve of Sand to work at 7656 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 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.

##### **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**

Deur is a small Village/hamlet in Koregaon Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 23 KM towards west from District headquarters Satara. Approximately 183 KM from State capital Mumbai.

The sand spot area is connected to approach road at 673 meter in North direction. SH-61 road is situated at a distance of 0.80 km. in the east of the sand ghat spot. Satara Railway Station is present at a distance of 25 km.

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

*Deur sand spot over an extent of 1.02 HA (MINEABLE AREA- 0.77 HA & NON-MINEABLE AREA- 0.26 HA) At Wasna River Bed Gut No. 977, 58, 1397, 1398, 1399, 1421, 1417, 1419, 1420, 1422. Deur Village, Tehsil-Koregaon, Satara District, Maharashtra.*

#### **Pre-Feasibility Report**

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<b>Boundary points of Deur</b>	<b>Latitude</b>	<b>Longitude</b>
BP1	17°51'23.69"N	74° 06'46.56"E
BP2	17°51'24.45"N	74° 06'47.14"E
BP3	17°51'23.98"N	74° 06'48.19"E
BP4	17°51'25.68"N	74° 06'51.07"E
BP5	17°51'28.62"N	74° 06'52.85"E
BP6	17°51'29.85"N	74° 06'51.08"E
BP7	17°51'30.60"N	74° 06'51.52"E
BP8	17°51'28.95"N	74° 06'53.73"E
BP9	17°51'25.92"N	74° 06'52.59"E
BP10	17°51'24.95"N	74° 06'51.43"E
BP11	17°51'22.84"N	74° 06'48.23"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. 7656 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 7656 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 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.

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#### **Pre-Feasibility Report**

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##### **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 13.46 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**

Deur is a small Village/hamlet in Koregaon Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 23 KM towards west from District headquarters Satara. Approximately 183 KM from State capital Mumbai.

The sand spot area is connected to approach road at 673 meter in North direction. SH-61 road is situated at a distance of 0.80 km. in the east of the sand ghat spot. Satara Railway Station is present at a distance of 25 km.

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**Pre-Feasibility Report**

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**ii) Land Use, form & Ownership**

The ultimate land use pattern for the lease area of 1.02 ha. will be consisting of

- |                                     |          |
|-------------------------------------|----------|
| 1. Mining Area :                    | 1.02 ha. |
| 2. Construction of Temporary Roads: | 0.00 ha. |
| 3. Total :                          | 1.02 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).

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**Pre-Feasibility Report**

**8. Planning brief**

The proposed project is opencast manual sand mining activity.

**Supply demand ratio:**

Informataion 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
		<b>154227</b>	<b>98871</b>

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**Pre-Feasibility Report**

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 Dahiawadi	Gharkul Project	415
6	Khatav Nagarpalika Vaduj	Gharkul Project	211
<b>Total</b>			<b>25361</b>

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 माहितीद्वारे 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.

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#### **Pre-Feasibility Report**

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##### **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 pre 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.

*Deur sand spot over an extent of 1.02 HA (MINEABLE AREA- 0.77 HA & NON-MINEABLE AREA- 0.26 HA) At Wasna River Bed Gut No. 977, 58, 1397, 1398, 1399, 1421, 1417, 1419, 1420, 1422. Deur Village, Tehsil-Koregaon, Satara District, Maharashtra.*

#### **Pre-Feasibility Report**

- 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**

$$S = 1280 * (Q)^{0.46} * (1.46 - 0.26 \log(A)) * F$$

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

$$S = 1958 * (Q)^{(e - 0.055 * Q)} * (1.43 - 0.26 \log(A))$$

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

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:



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- 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 is 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/depos 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/depos.

***Deur sand spot over an extent of 1.02 HA (MINEABLE AREA- 0.77 HA & NON-MINEABLE AREA- 0.26 HA) At Wasna River Bed Gut No. 977, 58, 1397, 1398, 1399, 1421, 1417, 1419, 1420, 1422. Deur Village, Tehsil-Koregaon, Satara District, Maharashtra.***

***Pre-Feasibility Report***

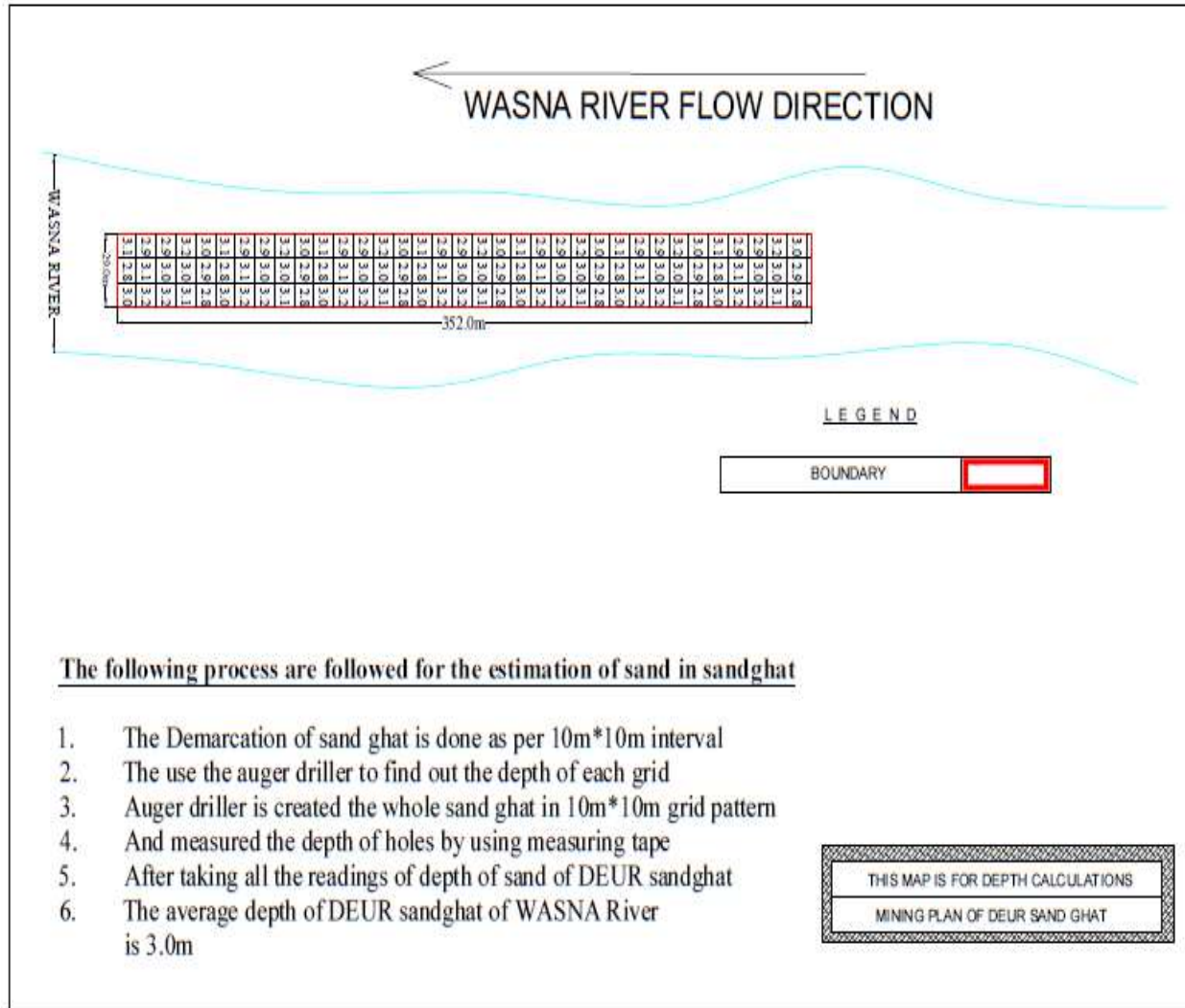
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8. The district collector will get live streaming of the videos monitored at a Centralised control room and the data stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the 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 depots 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, 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.

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## Pre-Feasibility Report

### 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.

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#### **Pre-Feasibility Report**

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### **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.

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***Pre-Feasibility Report***

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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

**Deur sand spot over an extent of 1.02 HA (MINEABLE AREA-0.77 HA & NON-MINEABLE AREA-0.26 HA)  
At Wasna Riverbed Gut No. 977, 58, 1397, 1398, 1399, 1421, 1417, 1419, 1420, 1422 Deur Village, Tehsil-  
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## 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 the 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

Deur is a small Village/hamlet in Koregaon Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 23 KM towards west from District headquarters Satara. Approximately 183 KM from State capital Mumbai.

The sand spot area is connected to approach road at 673 meter in North direction. SH-61 road is situated at a distance of 0.80 km. in the east of the sand ghat spot. Satara Railway Station is present at a distance of 25 km.

The area is covered in SOI Toposheet No- 47K/2.

**Table 1: Salient Features of the Project**

Items	Details		
Location	Deur Village, Tehsil-Koregaon, Satara District, Maharashtra.		
Latitude and Longitude	<b>BOUNDARY POINT</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
	BP1	17° 51' 23.69" N	74° 06' 46.56" E
	BP2	17° 51' 24.45" N	74° 06' 47.14" E
	BP3	17°51' 23.98" N	74° 06'48.19" E
	BP4	17°51' 25.68" N	74° 06'51.07" E
	BP5	17°51' 28.62" N	74° 06'52.85"E
	BP6	17°51' 29.85" N	74° 06'51.08" E

## Environmental Management Plan

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	BP7	17°51' 30.60" N	74° 06'51.52"E
	BPS	17°51' 28.95" N	74° 06'53.73" E
	BP9	17°51' 25.92" N	74° 06'52.59" E
	BP10	17°51' 24.95" N	74° 06'51.43" E
	BP11	17°51' 22.84" N	74° 06'48.23" E
Sand spot area (In Ha)	1.02		
Proposed production capacity (In Brass )	2705		
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	13.46 KLD – Tankers from nearby village.		
Project cost INR (Lakh)	178.3677		

### 3. Baseline Environmental Studies

#### a. Topography

Satara district is the part of Deccan trap of Indian Peninsula. The physical setting of district is divided into 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 Sahyadries, Krishna valley, Nira valley, and Mahadev hills and Eastern plateau.

The Sand Ghat area as per survey is River bed of Wasna River. The slope is of 5 m from 821 to 816 MSL. The slope of Sand Ghat area towards West side. The highest MSL is 821 & lowest 816 MSL. The flow of Wasna River is from NW to West 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

# Environmental Management Plan

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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 19.1 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.<sup>1</sup>

(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



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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.

## Environmental Management Plan

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### 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 consider for calculatio n
1	Area under mining / pit	-	1.02	1.02	---	1.02
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					
<b>GRAND TOTAL</b>				1.02	1.02	1.02

- 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	Deur
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## Environmental Management Plan

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1	Transport Road	On Air Quality	Compaction, gradation and drainage on both sides.	72500
		Road Degradation	Budget for Road Repairs and Maintenance from Approach Road to Main Road	100950
		Road Construction	Road Construction from Quarry to Access Road	168250
		Air Environment	Dust Suppression by Regular water spraying.	100950
			Air quality will be monitoring at impacted village.(For One Day Monitoring)	50000
			Health Checkup 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)	77395
3	Ramp and Sand Reach	Mining Operations	Regular ramp Inspection and Ramp maintenance.(Excluding Man Power Salary which is included in labour costs)	84125
			Provision of dusk masks.	15000
4	Bank Management	Bank Erosion/Flood Plain management	Green Belt along Road	336500
			Green belt along bank(For Green Belt Development)	673
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

## Environmental Management Plan

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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 aren't available.	200000
14	Development of Market Model		Provision for development of market model & associated works if different funds aren't available.	25000
15	Environmental Audit		Provision for third party environmental audit if different funds aren't available.	50000
Total EMP Budget				1889743
Capital Cost				1343718
Recurring Cost				546025

**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.

## Environmental Management Plan

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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
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- GP Based Vehicle Tracking System

### **9. Deur-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.**

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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.
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4. Customer care/ telephone call – Would be provided to the citizens to report illegal mining in the district from time to time.
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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 depots 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.

# Environmental Management Plan

**Deur sand spot over an extent of 1.02 HA (MINEABLE AREA-0.77 HA & NON-MINEABLE AREA-0.26 HA)  
At Wasna Riverbed Gut No. 977, 58, 1397, 1398, 1399, 1421, 1417, 1419, 1420, 1422 Deur Village, Tehsil-  
Koregaon, Satara District, Maharashtra.**

- 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.

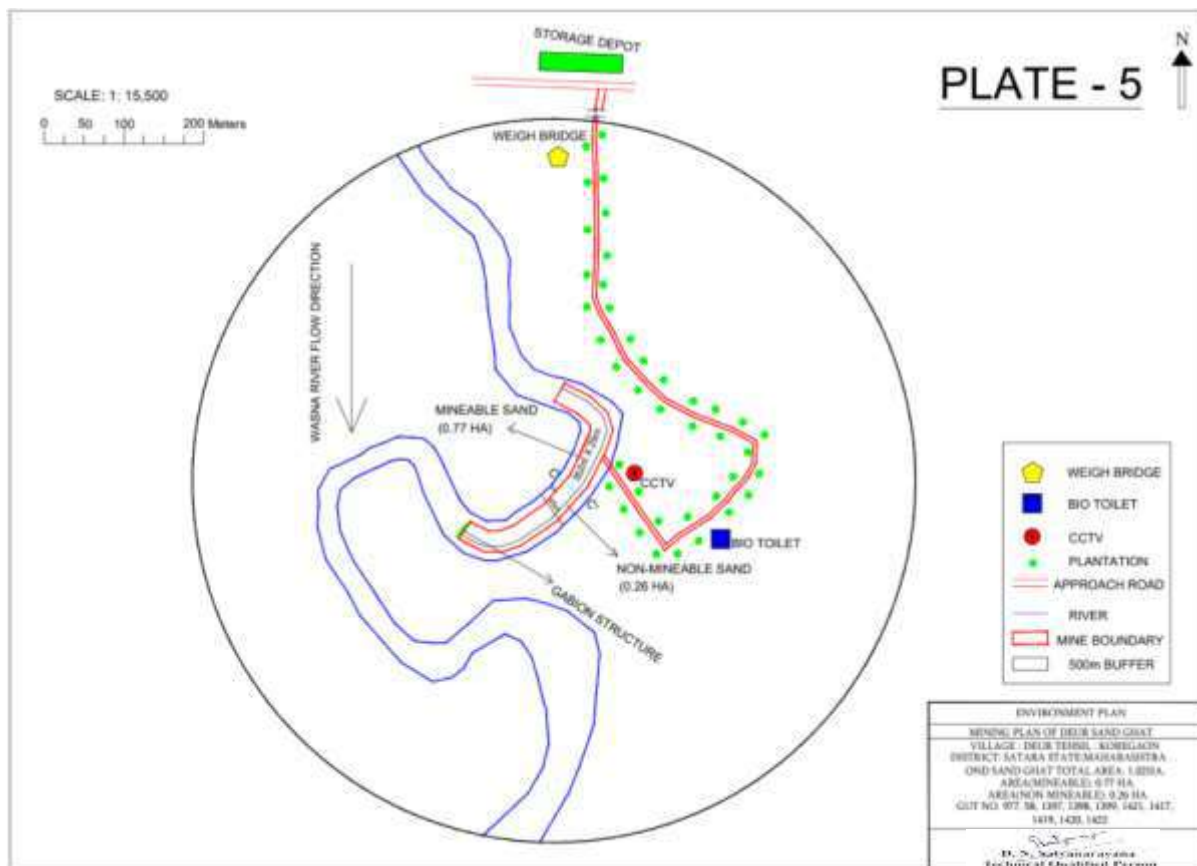
## 11. Information about any general or specific order passed by competent Hon'ble court.

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 Deur 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

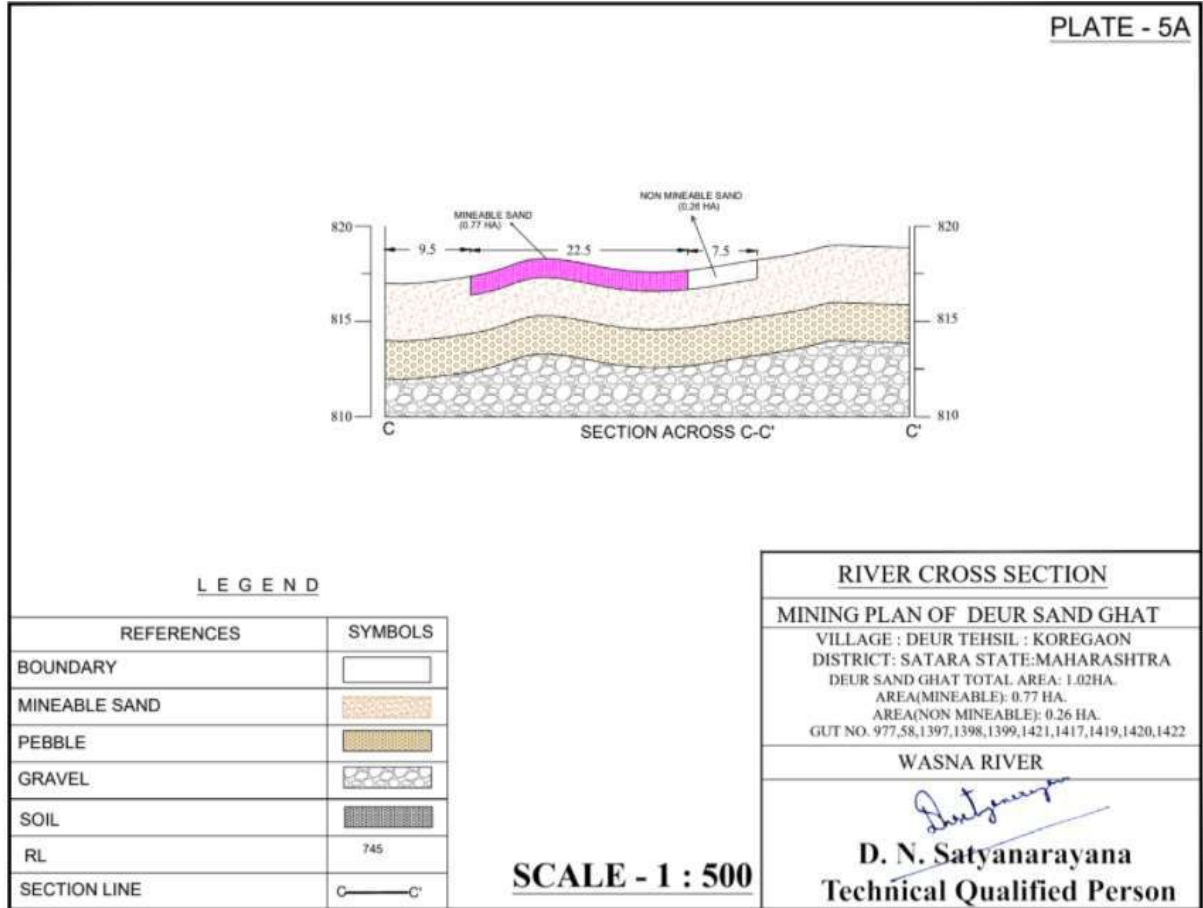
**Deur sand spot over an extent of 1.02 HA (MINEABLE AREA-0.77 HA & NON-MINEABLE AREA-0.26 HA)  
At Wasna Riverbed Gut No. 977, 58, 1397, 1398, 1399, 1421, 1417, 1419, 1420, 1422 Deur Village, Tehsil-  
Koregaon, Satara District, Maharashtra.**

14. 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 673 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 Koregaon 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

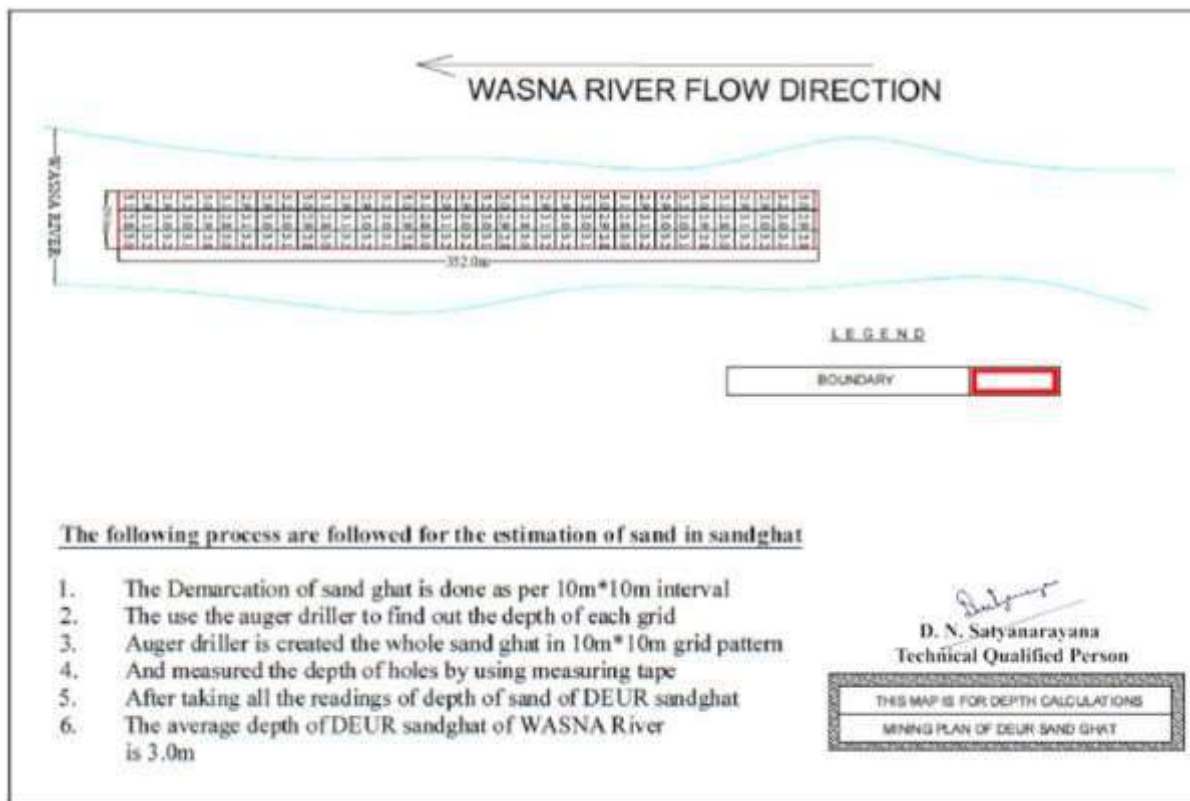
District Level Task Force Committee Meeting details is enclosed.



# Environmental Management Plan

**Deur sand spot over an extent of 1.02 HA (MINEABLE AREA-0.77 HA & NON-MINEABLE AREA-0.26 HA)  
At Wasna Riverbed Gut No. 977, 58, 1397, 1398, 1399, 1421, 1417, 1419, 1420, 1422 Deur Village, Tehsil-  
Koregaon, Satara District, Maharashtra.**

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.



6. Sediment yield Calculation

## DANDY-BOLTON EQUATION

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

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

A= net drainage area in sq. mile

## Conclusion:

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

## Environmental Management Plan

**Deur sand spot over an extent of 1.02 HA (MINEABLE AREA-0.77 HA & NON-MINEABLE AREA-0.26 HA)  
At Wasna Riverbed Gut No. 977, 58, 1397, 1398, 1399, 1421, 1417, 1419, 1420, 1422 Deur Village, Tehsil-  
Koregaon, Satara District, Maharashtra.**

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:

<b>Location of greenbelt</b>	Both sides of approach road, On the river banks of both sides of the sand spot & nearby open areas Haul Road outside riverbed
<b>Afforestation area/ annum</b>	2050 Sq.m /annum
<b>No. of plants to be planted</b>	1025 Per Hectare
<b>Spacing of plants</b>	2 m grid interval
<b>Species selected</b>	Native species

Tree species recommended for Plantation:

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

# Environmental Management Plan

***Deur sand spot over an extent of 1.02 HA (MINEABLE AREA-0.77 HA & NON-MINEABLE AREA-0.26 HA)  
At Wasna Riverbed Gut No. 977, 58, 1397, 1398, 1399, 1421, 1417, 1419, 1420, 1422 Deur Village, Tehsil-  
Koregaon, 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 Deur Sand Spot will be useful to the developmental work in the district and also generate employment opportunities.

## BUDGET FOR CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

SNo.	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

***Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA-0.81 HA & NON-MINEABLE AREA-0.27 HA) At Wasna Riverbed Gut No. 108, 97, 109, 118, 107, 106, 105, 89, 88, 86 Bobdewadi Village, Tehsil-Koregaon, Satara District, Maharashtra.***

**Form 1M**

**Page: 1 of 2**

**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: Bobdewadi Sand Spot

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

<b>Boundary points of Bobdewadi sand spot</b>	<b>Latitude</b>	<b>Longitude</b>
B.P 1	17° 43' 26.65"N	74° 08' 59.39"E
B.P 2	17° 43' 27.10"N	74° 08' 59.87"E
B.P 3	17° 43' 24.16"N	74° 09' 02.82"E
B.P 4	17°43' 23.74"N	74° 09' 02.86"E
B.P 5	17°43' 23.17"N	74° 09' 02.42"E
B.P 6	17° 43' 19.25"N	74° 08' 58.48"E
B.P 7	17°43' 18.74"N	74° 08' 56.63"E
B.P 8	17°43' 17.92"N	74° 08' 55.58"E
B.P 9	17°43' 16.84"N	74° 08' 54.85"E
B.P 10	17° 43' 14.35"N	74° 08' 55.09"E
B.P 11	17° 43' 14.19"N	74° 08' 54.43"E
B.P 12	17°43' 17.04"N	74° 08' 54.31"E
B.P 13	17°43' 18.82"N	74° 08' 55.68"E
B.P 14	17°43' 19.88"N	74° 08' 58.06"E
B.P 15	17°43' 23.80"N	74° 09' 02.17"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: 188.72 Lakhs

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

***Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA-0.81 HA & NON-MINEABLE AREA-0.27 HA) At Wasna Riverbed Gut No. 108, 97, 109, 118, 107, 106, 105, 89, 88, 86 Bobdewadi Village, Tehsil-Koregaon, Satara District, Maharashtra.***

**Form 1M**

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**(II) Environmental Sensitivity**

<b>S. No.</b>	<b>Areas</b>	<b>Distance in Kilometer/Details</b>
1	Distance of project site from nearest rail or road bridge over the concerned River, Rivulet, Nallah et	Nil
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	Koregaon railway station,3.31Km,S NH-4,13.19Km,S SH-61,12.73Km,W Wathar-Koregaon,0.39Km,W Bhakarwadi-Chandvadi,0.99Km,NE 0.40kKm,N Wasna River Bed Nil Nil
3	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 Wasna 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	Wasna 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-61,12.73Km,W
9	Defence installations	Nil
10	Densely populated or built-up area, distance from nearest human habitation	Koregaon, 3.05km,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)	Wasna River Bed ( this is the case of river sand mining)
13	Areas already subjected to pollution or	Nil

***Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA-0.81 HA & NON-MINEABLE AREA-0.27 HA) At Wasna Riverbed Gut No. 108, 97, 109, 118, 107, 106, 105, 89, 88, 86 Bobdewadi Village, Tehsil-Koregaon, Satara District, Maharashtra.***

**Form 1M**

**Page: 3 of 2**

	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

***Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA- 0.81 HA & NON-MINEABLE AREA-0.27 HA) At Wasna River Bed Gut No. 108, 97, 109, 118, 107, 106, 105, 89, 88, 86. Bobdewadi Village, Tehsil- Koregaon, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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## **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 Wasna river bank.

### **1. Physiography**

The Sand Ghat area as per survey is Riverbed of Wasna River. The slope is of 3 m from 731 to 734 MSL. The slope of Sand Ghat area towards NW side. The highest MSL is 734 & lowest 731 MSL. The flow of Wasna River is from NW to South 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 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 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 Bobdewadi Sand Spot has been kept for Auction which is situated at Village Bobdewadi, Taluka Koregaon, 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.

***Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA- 0.81 HA & NON-MINEABLE AREA-0.27 HA) At Wasna River Bed Gut No. 108, 97, 109, 118, 107, 106, 105, 89, 88, 86. Bobdewadi Village, Tehsil- Koregaon, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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**i) Brief description of project**

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 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.

**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**

Bobdewadi is a small Village/hamlet in Koregaon Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 10 KM towards South West from District headquarters Satara. Approximately 200 KM from State capital Mumbai.

The sand spot area is connected to approach road at 807 meter in East direction. NH-4 road is situated at a distance of 15 km. in the West of the sand ghat spot. Satara Railway Station is present at a distance of 8 km.

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



***Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA- 0.81 HA & NON-MINEABLE AREA-0.27 HA) At Wasna River Bed Gut No. 108, 97, 109, 118, 107, 106, 105, 89, 88, 86. Bobdewadi Village, Tehsil- Koregaon, Satara District, Maharashtra.***

**Pre-Feasibility Report**

Boundary points of Bobdewadi	Latitude	Longitude
BP1	17°43'26.65"N	74° 08'59.39"E
BP2	17°43'27.10"N	74° 08'59.87"E
BP3	17°43'24.16"N	74° 08'02.82"E
BP4	17°43'23.74"N	74° 08'02.86"E
BP5	17°43'23.17"N	74° 08'02.42"E
BP6	17°43'19.25"N	74° 08'58.48"E
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BP8	17°43'17.92"N	74° 08'55.58"E
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BP10	17°43'14.35"N	74° 08'55.09"E
BP11	17°43'14.19"N	74° 08'54.43"E
BP12	17°43'17.04"N	74° 08'54.31"E
BP13	17°43'18.82"N	74° 08'55.68"E
BP14	17°43'19.88"N	74° 08'58.06"E
BP15	17°43'23.80"N	74° 08'02.17"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 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 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 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.

***Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA- 0.81 HA & NON-MINEABLE AREA-0.27 HA) At Wasna River Bed Gut No. 108, 97, 109, 118, 107, 106, 105, 89, 88, 86. Bobdewadi Village, Tehsil- Koregaon, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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**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 16.14 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**

Bobdewadi is a small Village/hamlet in Koregaon Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 10 KM towards South West from District headquarters Satara. Approximately 200 KM from State capital Mumbai.

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***Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA- 0.81 HA & NON-MINEABLE AREA-0.27 HA) At Wasna River Bed Gut No. 108, 97, 109, 118, 107, 106, 105, 89, 88, 86. Bobdewadi Village, Tehsil- Koregaon, Satara District, Maharashtra.***

**Pre-Feasibility Report**

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**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 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).

***Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA- 0.81 HA & NON-MINEABLE AREA-0.27 HA) At Wasna River Bed Gut No. 108, 97, 109, 118, 107, 106, 105, 89, 88, 86. Bobdewadi Village, Tehsil- Koregaon, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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**8. Planning brief**

The proposed project is opencast manual sand mining activity.

**Supply demand ratio:**

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

<b>Tahsil Office Sand Information (2020-21)</b>			
<b>Sr. No</b>	<b>Name of Tahsil</b>	<b>Total Sand Demand if Tahsil in Brass (Approximately)</b>	<b>Total Sand Available in Tahsil in Brass (Approximately)</b>
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
		<b>154227</b>	<b>98871</b>

**Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA- 0.81 HA & NON-MINEABLE AREA-0.27 HA) At Wasna River Bed Gut No. 108, 97, 109, 118, 107, 106, 105, 89, 88, 86. Bobdewadi Village, Tehsil- Koregaon, Satara District, Maharashtra.**

**Pre-Feasibility Report**

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
<b>Total</b>			<b>25361</b>

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 माहितीद्वारे 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.

***Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA- 0.81 HA & NON-MINEABLE AREA-0.27 HA) At Wasna River Bed Gut No. 108, 97, 109, 118, 107, 106, 105, 89, 88, 86. Bobdewadi Village, Tehsil- Koregaon, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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**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 pre 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.

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***Pre-Feasibility Report***

- 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**

$$S = 1280 * (Q)^{0.46} * (1.46 - 0.26 \log(A)) * F$$

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

$$S = 1958 * (Q)^{(e - 0.055 * Q)} * (1.43 - 0.26 \log(A))$$

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

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:

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***Pre-Feasibility Report***

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- 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 is 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/depos 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/depos.



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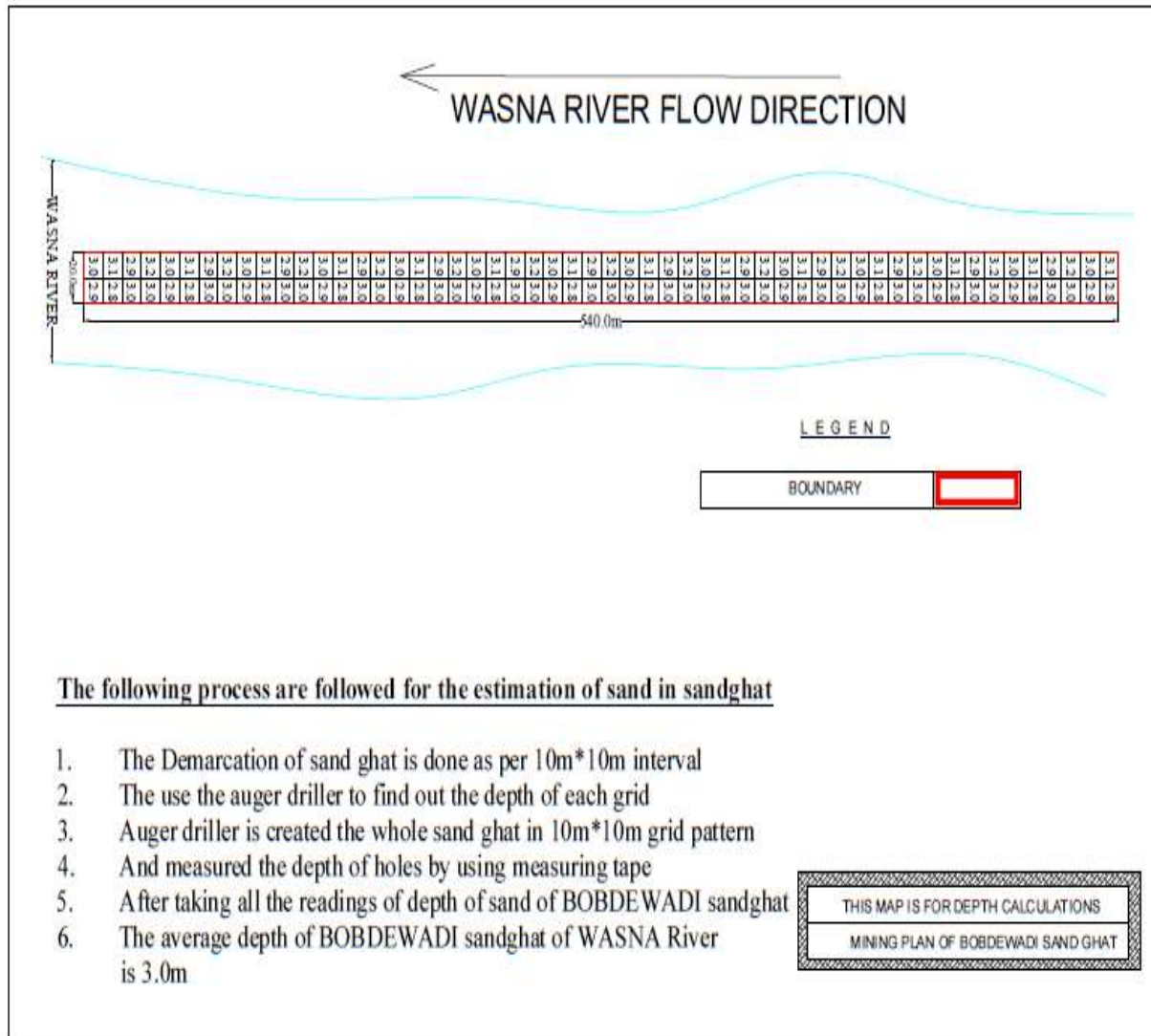
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8. The district collector will get live streaming of the videos monitored at a Centralised control room and the data stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the 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 depots 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.

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#### Pre-Feasibility Report

#### 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.

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**Pre-Feasibility Report**

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**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

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***Pre-Feasibility Report***

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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

***Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA-0.77 HA & NON-MINEABLE AREA-0.81 HA)  
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## 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 the 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

Bobdewadi is a small Village/hamlet in Koregaon Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 10 KM towards South West from District headquarters Satara. Approximately 200 KM from State capital Mumbai.

The sand spot area is connected to approach road at 807 meter in East direction. NH-4 road is situated at a distance of 15 km. in the West of the sand ghat spot. Satara Railway Station is present at a distance of 8 km.

The area is covered in SOI Toposheet No- 47K/2.

**Table 1: Salient Features of the Project**

Items	Details		
Location	Bobdewadi Village, Tehsil-Koregaon, Satara District, Maharashtra.		
Latitude and Longitude	BOUNDARY PILLAR	LATITUDE	LONGITUDE
	BP1	17° 43' 26.65"N	74° 08' 59.39"E
	BP2	17° 43' 27.10"N	74° 08' 59.87"E
	BP3	17° 43' 24.16"N	74° 09' 02.82"E
	BP4	17°43' 23.74"N	74° 09' 02.86"E
	BP5	17°43' 23.17"N	74° 09' 02.42"E
	BP6	17° 43' 19.25"N	74° 08' 58.48"E

## Environmental Management Plan

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	BP7	17°43' 18.74"N	74° 08' 56.63"E
	BP8	17°43' 17.92"N	74° 08' 55.58"E
	BP9	17°43' 16.84"N	74° 08' 54.85"E
	BP10	17° 43' 14.35"N	74° 08' 55.09"E
	BP11	17° 43' 14.19"N	74° 08' 54.43"E
	BP12	17°43' 17.04"N	74° 08' 54.31"E
	BP13	17°43' 18.82"N	74° 08' 55.68"E
	BP14	17°43' 19.88"N	74° 08' 58.06"E
	BP15	17°43' 23.80"N	74° 09' 02.17"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	16.14 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 districts 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 Sahyadries, Krishna vally, Nira vally, and Mahadev hills and Eastern plateau.

# Environmental Management Plan

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The Sand Ghat area as per survey is Riverbed of Wasna River. The slope is of 3 m from 731 to 734 MSL. The slope of Sand Ghat area towards NW side. The highest MSL is 734 & lowest 731 MSL. The flow of Wasna River is from NW to South 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 1m 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 19.10m BGL. As the mining activities presently proposed are maximum up to 1m 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

# Environmental Management Plan

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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.



## Environmental Management Plan

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- 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 consider for calculatio n
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					
<b>GRAND TOTAL</b>				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

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

## Environmental Management Plan

***Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA-0.77 HA & NON-MINEABLE AREA-0.81 HA)  
At Wasna Riverbed Gut No. 108, 97, 109, 118, 107, 106, 105, 89, 88, 86 Bobdewadi Village, Tehsil-  
Koregaon, Satara District, Maharashtra.***

S. No	Impact Source	Impact	Control measure	Bobdewadi
1	Transport Road	On Air Quality	Compaction, gradation and drainage on both sides.	50000
		Road Degradation	Budget for Road Repairs and Maintanence from Approach Road to Main Road	121050
		Road Construction	Road Construction from Quarry to Access Road	201750
		Air Environment	Dust Supression by Regular water spraying.	121050
			Air quality will be monitoring at impacted village.(For One Day Monitoring)	50000
			Health Checkup 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)	92805
3	Ramp and Sand Reach	Mining Operations	Regular ramp Inspection and Ramp maintenance.(Excluding Man Power Salary which is included in labour costs)	100875
			Provision of dusk masks.	15000
4	Bank Management	Bank Erosion/Flood Plain management	Green Belt along Road	403500
			Green belt along bank(For Green Belt Development)	807
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 Monitoriong Framework	60000
8	Safety		Signage Boards	6000

## Environmental Management Plan

***Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA-0.77 HA & NON-MINEABLE AREA-0.81 HA)  
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			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 aren't available.	200000
14	Development of Market Model		Provision for development of market model & associated works if different funds aren't available.	25000
15	Environmental Audit		Provision for third party environmental audit if different funds aren't available.	50000
			Total EMP Budget	2040237
			Capital Cost	1459762
			Recurring Cost	580475

**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.

## Environmental Management Plan

***Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA-0.77 HA & NON-MINEABLE AREA-0.81 HA)  
At Wasna Riverbed Gut No. 108, 97, 109, 118, 107, 106, 105, 89, 88, 86 Bobdewadi Village, Tehsil-  
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- 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. Bobdewadi-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 is allocated in EMP.

## Environmental Management Plan

***Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA-0.77 HA & NON-MINEABLE AREA-0.81 HA)  
At Wasna Riverbed Gut No. 108, 97, 109, 118, 107, 106, 105, 89, 88, 86 Bobdewadi Village, Tehsil-  
Koregaon, Satara District, Maharashtra.***

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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 depots 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, 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.

## Environmental Management Plan

***Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA-0.77 HA & NON-MINEABLE AREA-0.81 HA)  
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- 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:**

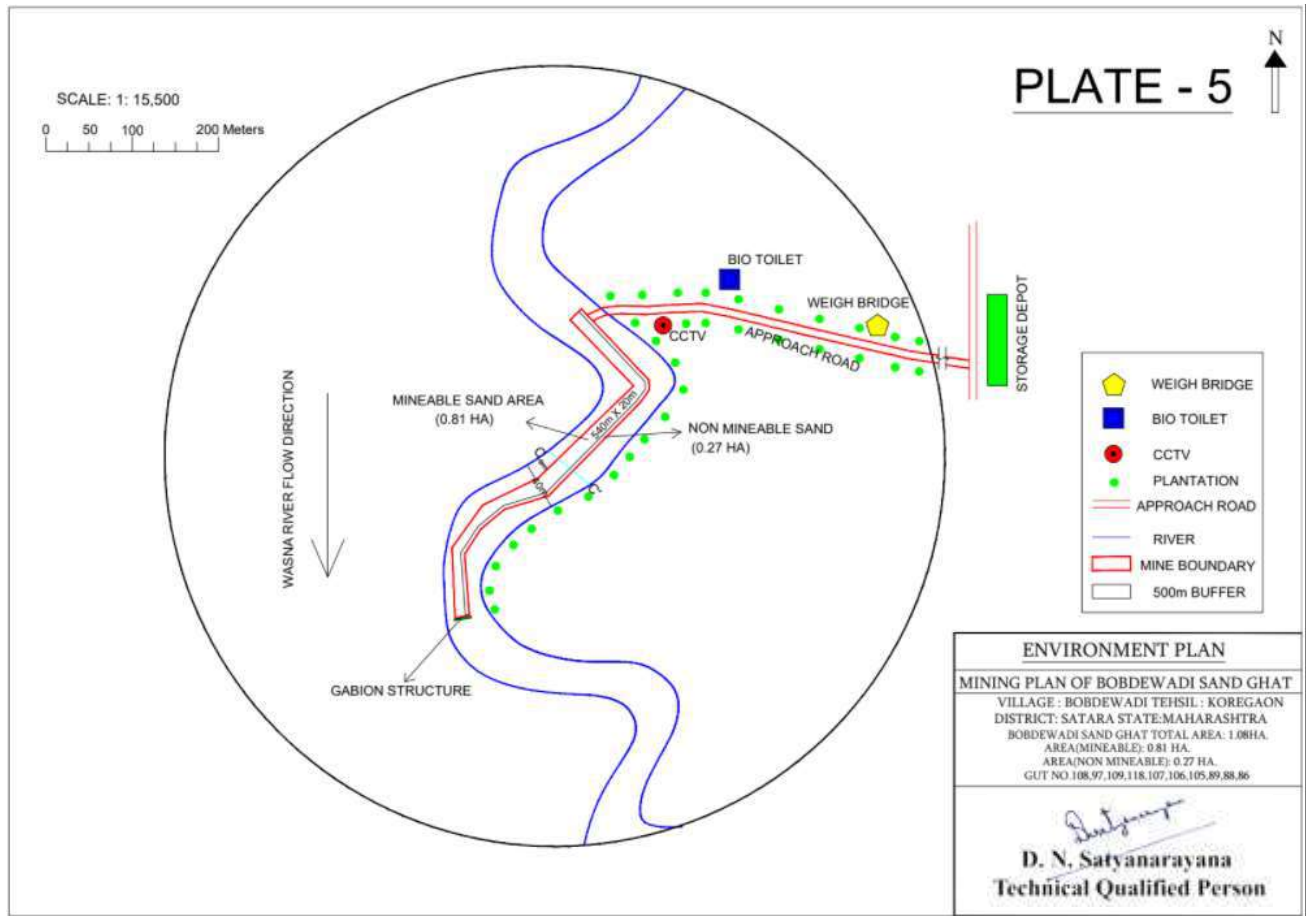
- 12. DMO Satara to submit cluster certificate with reference to the EIA Notification 2006 amended from time to time with specific remarks on the cluster formation in the periphery of the proposed sand ghat along with area map showing distances between adjoining sand mine areas. Proposed Bobddewadi sand 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

**Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA-0.77 HA & NON-MINEABLE AREA-0.81 HA)  
At Wasna Riverbed Gut No. 108, 97, 109, 118, 107, 106, 105, 89, 88, 86 Bobdewadi Village, Tehsil-  
Koregaon, 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 807 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 Koregaon 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.

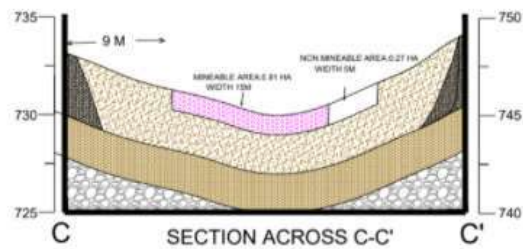
3. **PP to submit cross section of river bed showing distance of proposed sand mine area from the river bank and other details as prescribed in the Enforcement & Monitoring Guidelines for sand mining published in January 2020 by MoEF&CC.**

**Cross section of river bed is shown below:**

## Environmental Management Plan

**Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA-0.77 HA & NON-MINEABLE AREA-0.81 HA)  
At Wasna Riverbed Gut No. 108, 97, 109, 118, 107, 106, 105, 89, 88, 86 Bobdewadi Village, Tehsil-  
Koregaon, Satara District, Maharashtra.**

PLATE - 5A



NOTE: SCALE TO X TO X' LINE 1:1000  
SCALE TO DEPTH 1:500

### LEGEND

REFERENCES	SYMBOLS
BOUNDARY	
MINEABLE SAND	
PEBBLE	
GRAVEL	
SOIL	
RL	745
SECTION LINE	C—C'

SCALE - 1 : 500

### RIVER CROSS SECTION

#### MINING PLAN OF BOBDEWADI SAND GHAT

VILLAGE : BOBDEWADI TEHSIL : KOREGAON  
DISTRICT: SATARA STATE:MAHARASHTRA  
BOBDEWADI SAND GHAT TOTAL AREA: 1.08HA.  
AREA(MINEABLE): 0.81 HA.  
AREA(NON MINEABLE): 0.27 HA.  
GUT NO.108,97,109,118,107,106,105,89,88,86

#### WASNA RIVER

**D. N. Satyanarayana**  
Technical Qualified Person

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

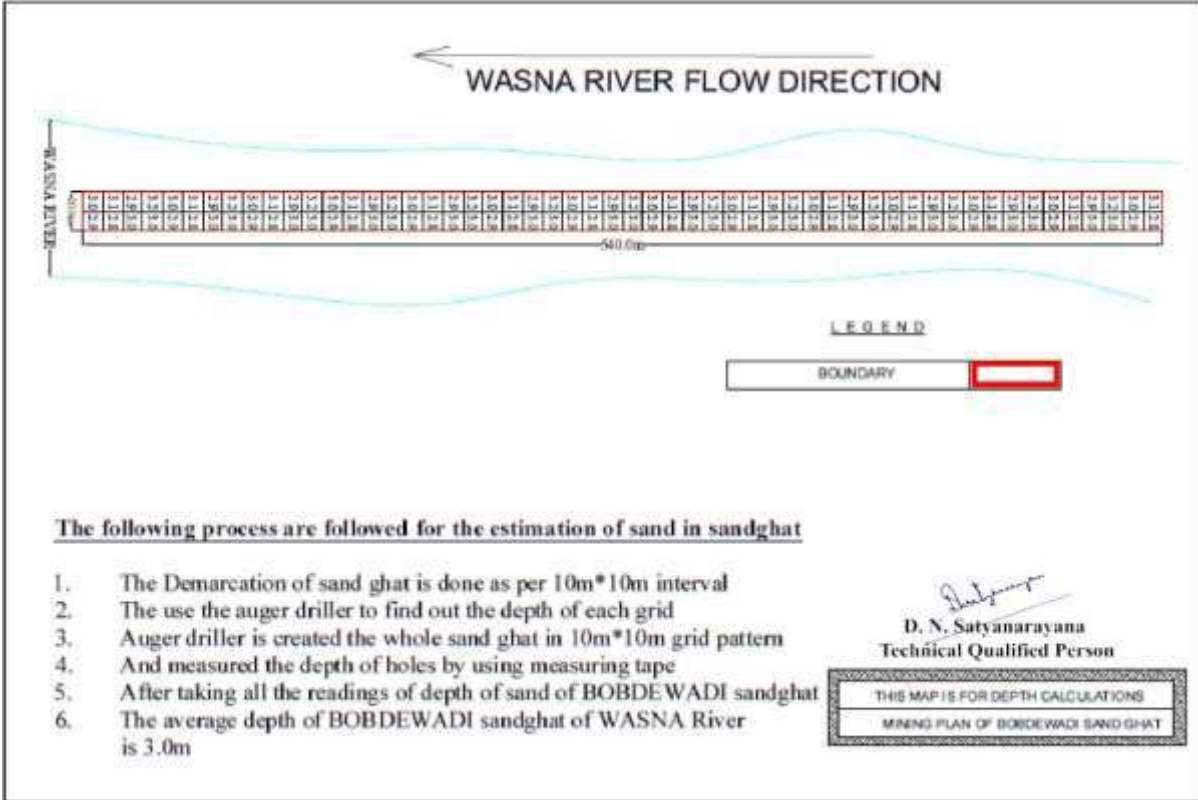
District Level Task Force Committee Meeting details is enclosed.



# Environmental Management Plan

**Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA-0.77 HA & NON-MINEABLE AREA-0.81 HA)  
At Wasna Riverbed Gut No. 108, 97, 109, 118, 107, 106, 105, 89, 88, 86 Bobdewadi Village, Tehsil-  
Koregaon, Satara District, Maharashtra.**

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.



## 6. Sediment Yield Calculation

### DANDY-BOLTON EQUATION

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

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

A= net drainage area in sq. mile

### Conclusion:

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

## Environmental Management Plan

***Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA-0.77 HA & NON-MINEABLE AREA-0.81 HA)  
At Wasna Riverbed Gut No. 108, 97, 109, 118, 107, 106, 105, 89, 88, 86 Bobdewadi Village, Tehsil-  
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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:

<b>Location of greenbelt</b>	Both sides of approach road, On the river banks of both sides of the sand spot & nearby open areas Haul Road outside riverbed
<b>Afforestation area/ annum</b>	2694 Sq.m /annum
<b>No. of plants to be planted</b>	1347 Per Hectare
<b>Spacing of plants</b>	2 m grid interval
<b>Species selected</b>	Native species

Tree species recommended for Plantation:

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

# Environmental Management Plan

***Bobdewadi sand spot over an extent of 1.08 HA (MINEABLE AREA-0.77 HA & NON-MINEABLE AREA-0.81 HA)  
At Wasna Riverbed Gut No. 108, 97, 109, 118, 107, 106, 105, 89, 88, 86 Bobdewadi Village, Tehsil-  
Koregaon, 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 **Bobdewadi** Sand Spot will be useful to the developmental work in the district and also generate employment opportunities.

## BUDGET FOR CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

SNo.	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

***Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.78 HA & NON-MINEABLE AREA-0.26 HA) At Krishna Riverbed Gut No. 165, 161/1, 161/2, 161/3, 159 Shetramahuli Village, Tehsil-Satara, Satara District, Maharashtra.***

**Form 1M**

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**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: Kshetramahuli Sand Spot

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

Boundary points of Kshetramahuli sand spot	Latitude	Longitude
B.P 1	17° 40' 51.52"N	74° 3' 13.04"E
B.P 2	17° 40' 49.82"N	74° 3' 12.43"E
B.P 3	17° 40' 49.14"N	74° 3' 16.55"E
B.P 4	17° 40' 49.61"N	74° 3' 19.78"E
B.P 5	17° 40' 51.32"N	74° 3' 19.24"E
B.P 6	17° 40' 50.64"N	74° 3' 16.24"E

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

(vi) Capacity of Mining Lease (TPA): 2769 Brass

(v) Period of Mining Lease: 1 year

(vi) Expected cost of the Project: 182.588 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	SH-58,0.93Km,N
2	Distance from infrastructural facilities Railway line National Highway State Highway Major District Road Any Other Road	Satara railway station,1.23Km,E NH-4,3.46Km,W SH-58,0.93Km,N 0.78Km,NE Kshetramahuli-Kalashi,1.01Km,W

***Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.78 HA & NON-MINEABLE AREA-0.26 HA) At Krishna Riverbed Gut No. 165, 161/1, 161/2, 161/3, 159 Shetramahuli Village, Tehsil-Satara, Satara District, Maharashtra.***

**Form 1M**

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	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	0.94Km,E 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	SH-58,0.93Km,N
9	Defence installations	Nil
10	Densely populated or built-up area, distance from nearest human habitation	Satara,5.42Km,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	No

***Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.78 HA & NON-MINEABLE AREA-0.26 HA) At Krishna Riverbed Gut No. 165, 161/1, 161/2, 161/3, 159 Shetramahuli Village, Tehsil-Satara, Satara District, Maharashtra.***

**Form 1M**

**Page: 3 of 2**

	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

***Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA-0.26 HA) At Krishna River Bed Gut No. 165, 161/1, 161/2, 161/3, 159, Kshetramahuli Village, Tehsil-Satara, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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**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 1.05 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 2769 Brass sand is proposed to auction from proposed sand spot.
- Proposed site is located at the Krishna river bank.

**1. Physiography**

The Sand Ghat area as per survey is River bed of Krishna River. The slope is of 4 m from 672 to 676 MSL. The slope of Sand Ghat area towards East side. The highest MSL is 676 & lowest 672 MSL. The flow of Krishna River is from West to East 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 7837.5 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 Kshetramahuli Sand Spot has been kept for Auction which is situated at Village Kshetramahuli, 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.

***Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA-0.26 HA) At Krishna River Bed Gut No. 165, 161/1, 161/2, 161/3, 159, Kshetramahuli Village, Tehsil-Satara, Satara District, Maharashtra.***

**Pre-Feasibility Report**

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**i) Brief description of project**

The Sand Spot has sufficient Reserve of Sand to work at 7837.5 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.

**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**

Kshetramahuli 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.

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



***Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA-0.26 HA) At Krishna River Bed Gut No. 165, 161/1, 161/2, 161/3, 159, Kshetramahuli Village, Tehsil-Satara, Satara District, Maharashtra.***

**Pre-Feasibility Report**

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Boundary points of Kshetramahuli	Latitude	Longitude
BP1	17°40'51.52"N	74° 3'13.04"E
BP2	17°40'49.82"N	74° 3'12.43"E
BP3	17°40'49.14"N	74° 3'16.55"E
BP4	17°40'49.61"N	74° 3'19.78"E
BP5	17°40'51.32"N	74° 3'19.24"E
BP6	17°40'50.64"N	74° 3'16.24"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 7837.5 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 7837.5 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.

***Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA-0.26 HA) At Krishna River Bed Gut No. 165, 161/1, 161/2, 161/3, 159, Kshetramahuli Village, Tehsil-Satara, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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**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 7.28 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.

***Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA-0.26 HA) At Krishna River Bed Gut No. 165, 161/1, 161/2, 161/3, 159, Kshetramahuli Village, Tehsil-Satara, Satara District, Maharashtra.***

**Pre-Feasibility Report**

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**6. Site Analysis**

**i) Connectivity**

Kshetramahuli 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 1.05 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).

***Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA-0.26 HA) At Krishna River Bed Gut No. 165, 161/1, 161/2, 161/3, 159, Kshetramahuli Village, Tehsil-Satara, Satara District, Maharashtra.***

**Pre-Feasibility Report**

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**8. Planning brief**

The proposed project is opencast manual sand mining activity.

**Supply demand ratio:**

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

<b>Tahsil Office Sand Information (2020-21)</b>			
<b>Sr. No</b>	<b>Name of Tahsil</b>	<b>Total Sand Demand if Tahsil in Brass (Approximately)</b>	<b>Total Sand Available in Tahsil in Brass (Approximately)</b>
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
		<b>154227</b>	<b>98871</b>

***Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA-0.26 HA) At Krishna River Bed Gut No. 165, 161/1, 161/2, 161/3, 159, Kshetramahuli Village, Tehsil-Satara, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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
<b>Total</b>			<b>25361</b>

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 माहितीद्वारे 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.

***Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA-0.26 HA) At Krishna River Bed Gut No. 165, 161/1, 161/2, 161/3, 159, Kshetramahuli Village, Tehsil-Satara, Satara District, Maharashtra.***

#### **Pre-Feasibility Report**

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##### **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 pre 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.

***Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA-0.26 HA) At Krishna River Bed Gut No. 165, 161/1, 161/2, 161/3, 159, Kshetramahuli Village, Tehsil-Satara, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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- 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**

$$S=1280*(Q)^{0.46}*(1.46-0.26\log(A)) *F$$

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

$$S=1958*(Q)^{(e-0.055*Q)}*(1.43-0.26\log(A))$$

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

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:

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- 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/depos 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/depos.



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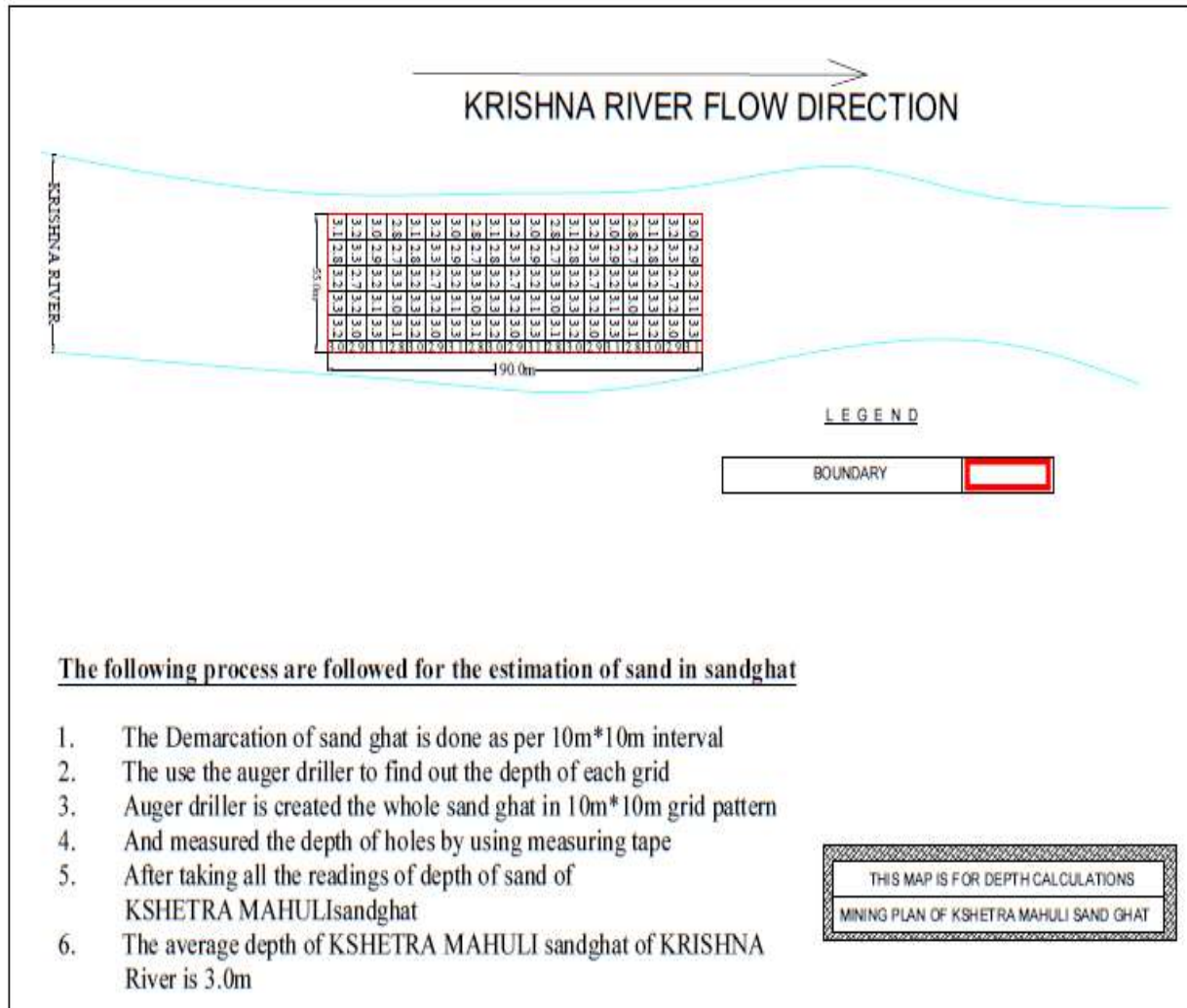
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8. The district collector will get live streaming of the videos monitored at a Centralised control room and the data stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the 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 is 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 depots 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, 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.

***Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA-0.26 HA) At Krishna River Bed Gut No. 165, 161/1, 161/2, 161/3, 159, Kshetramahuli Village, Tehsil-Satara, Satara District, Maharashtra.***

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**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 KSHETRA MAHULI sandghat
6. The average depth of KSHETRA MAHULI 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.

***Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA-0.26 HA) At Krishna River Bed Gut No. 165, 161/1, 161/2, 161/3, 159, Kshetramahuli Village, Tehsil-Satara, Satara District, Maharashtra.***

**Pre-Feasibility Report**

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**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 Envirnoment 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

***Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA- 0.79 HA & NON-MINEABLE AREA-0.26 HA) At Krishna River Bed Gut No. 165, 161/1, 161/2, 161/3, 159, Kshetramahuli Village, Tehsil-Satara, Satara District, Maharashtra.***

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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

**Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.78 HA & NON-MINEABLE AREA-0.26 HA)  
At Krishna Riverbed Gut No. 165, 161/1, 161/2, 161/3, 159 Kshetramahuli 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 the 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

Kshetramahuli 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.

The area is covered in SOI Toposheet No- 47K/2.

**Table 1: Salient Features of the Project**

Items	Details		
Location	Kshetramahuli Village, Tehsil-Satara, Satara District, Maharashtra.		
Latitude and Longitude	BOUNDARY PILLAR	LATITUDE	LONGITUDE
	BP1	17° 40' 51.52"	74° 3' 13.04"
	BP2	17° 40' 49.82"	74° 3' 12.43"
	BP3	17° 40' 49.14"	74° 3' 16.55"
	BP4	17° 40' 49.61"	74° 3' 19.78"
	BP5	17° 40' 51.32"	74° 3' 19.24"
	BP6	17° 40' 50.64"	74° 3' 16.24"

## Environmental Management Plan

**Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.78 HA & NON-MINEABLE AREA-0.26 HA)  
At Krishna Riverbed Gut No. 165, 161/1, 161/2, 161/3, 159 Kshetramahuli Village, Tehsil-Satara, Satara District,  
Maharashtra.**

Sand spot area (In Ha)	1.05
Proposed production capacity (In Brass )	2769
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	7.28 KLD – Tankers from nearby village.
Project cost INR (Lakh)	182.58786

### 3. Baseline Environmental Studies

#### a. Topography

Satara district is the part of Deccan trap of Indian Peninsula. The physical setting of district is divided into 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 Sahyadries, 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 4 m from 672 to 676 MSL. The slope of Sand Ghat area towards East side. The highest MSL is 676 & lowest 672 MSL. The flow of Krishna River is from West to East 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

# Environmental Management Plan

**Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.78 HA & NON-MINEABLE AREA-0.26 HA)  
At Krishna Riverbed Gut No. 165, 161/1, 161/2, 161/3, 159 Kshetramahuli Village, Tehsil-Satara, Satara District,  
Maharashtra.**

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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**

# Environmental Management Plan

**Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.78 HA & NON-MINEABLE AREA-0.26 HA)  
At Krishna Riverbed Gut No. 165, 161/1, 161/2, 161/3, 159 Kshetramahuli Village, Tehsil-Satara, Satara District,  
Maharashtra.**

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	Additional Requirement during Plan	Total [in Ha]	Area considered as	Net consider for calculatio
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## Environmental Management Plan

**Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.78 HA & NON-MINEABLE AREA-0.26 HA)  
At Krishna Riverbed Gut No. 165, 161/1, 161/2, 161/3, 159 Kshetramahuli Village, Tehsil-Satara, Satara District,  
Maharashtra.**

		[in Ha]	period [in Ha]			n
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					
<b>GRAND TOTAL</b>				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	Kshetramahuli
1	Transport Road	On Air Quality	Compaction, gradation and drainage on both sides.	137500

## Environmental Management Plan

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At Krishna Riverbed Gut No. 165, 161/1, 161/2, 161/3, 159 Kshetramahuli Village, Tehsil-Satara, Satara District,  
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		Road Degradation	Budget for Road Repairs and Maintainence from Approach Road to Main Road	54600
		Road Construction	Road Construction from Quarry to Access Road	91000
		Air Environment	Dust Supression by Regular water spraying.	54600
			Air quality will be monitoring at impacted village.(For One Day Monitoring)	50000
			Health Checkup 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)	41860
3	Ramp and Sand Reach	Mining Operations	Regular ramp Inspection and Ramp maintenance.(Excluding Man Power Salary which is included in labour costs)	45500
			Provision of dusk masks.	15000
4	Bank Management	Bank Erosion/Flood Plain management	Green Belt along Road	182000
			Green belt along bank(For Green Belt Development)	364
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 Monitoriong Framework	60000
8	Safety		Signage Boards	6000
			Fencing	18000
			Watching	25000
9	Drinking Water			60000

## Environmental Management Plan

**Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.78 HA & NON-MINEABLE AREA-0.26 HA)  
At Krishna Riverbed Gut No. 165, 161/1, 161/2, 161/3, 159 Kshetramahuli Village, Tehsil-Satara, Satara District,  
Maharashtra.**

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 aren't available.	200000
14	Development of Market Model		Provision for development of market model & associated works if different funds aren't available.	25000
15	Environmental Audit		Provision for third party environmental audit if different funds aren't available.	50000
Total EMP Budget				1555824
Capital Cost				1076124
Recurring Cost				479700

**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.

## Environmental Management Plan

**Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.78 HA & NON-MINEABLE AREA-0.26 HA)  
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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. Kshetramahuli-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 is 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.

## Environmental Management Plan

**Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.78 HA & NON-MINEABLE AREA-0.26 HA)  
At Krishna Riverbed Gut No. 165, 161/1, 161/2, 161/3, 159 Kshetramahuli Village, Tehsil-Satara, Satara District,  
Maharashtra.**

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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 is 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 depots 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, 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.

# Environmental Management Plan

**Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.78 HA & NON-MINEABLE AREA-0.26 HA)  
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Maharashtra.**

- 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.

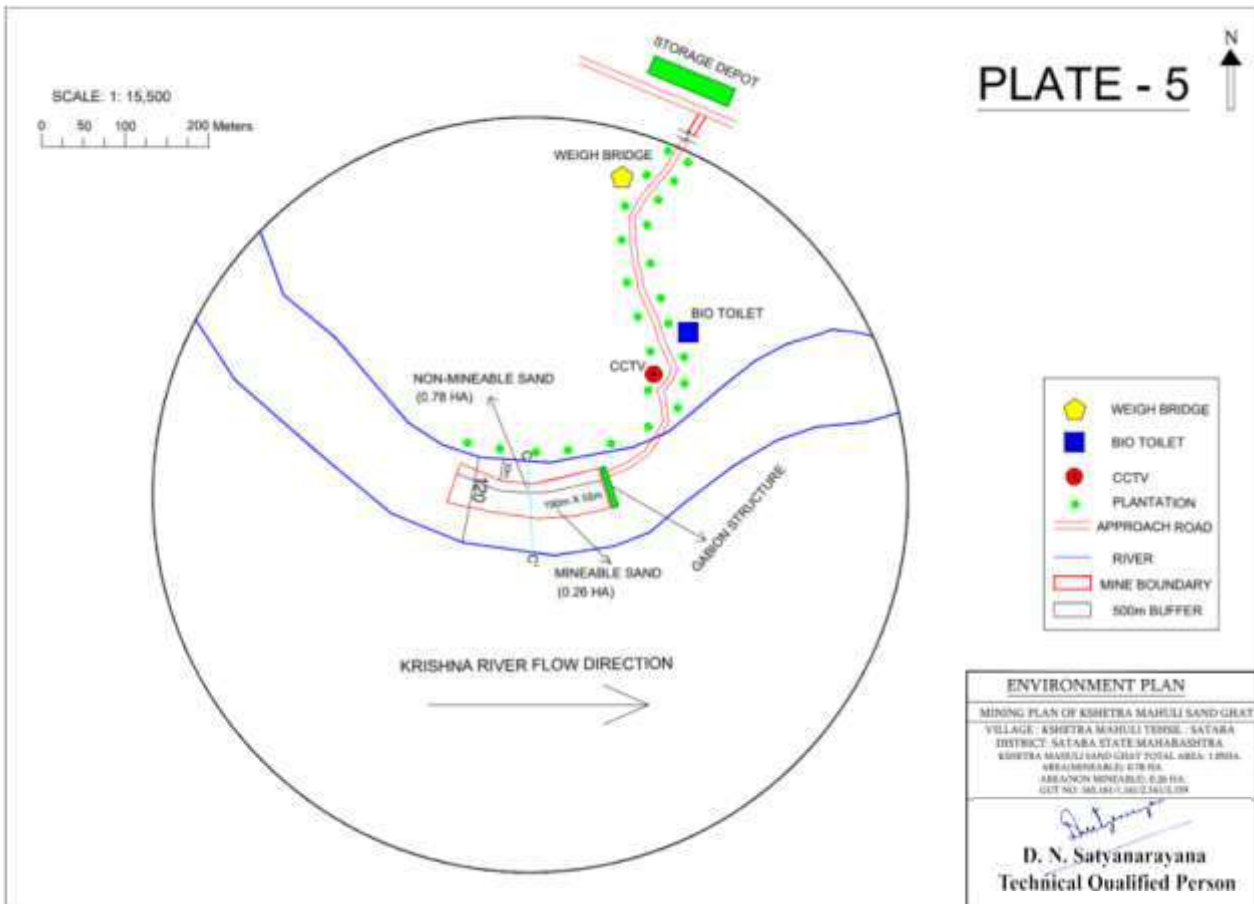
Nil

### 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 Kshetramahuli 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

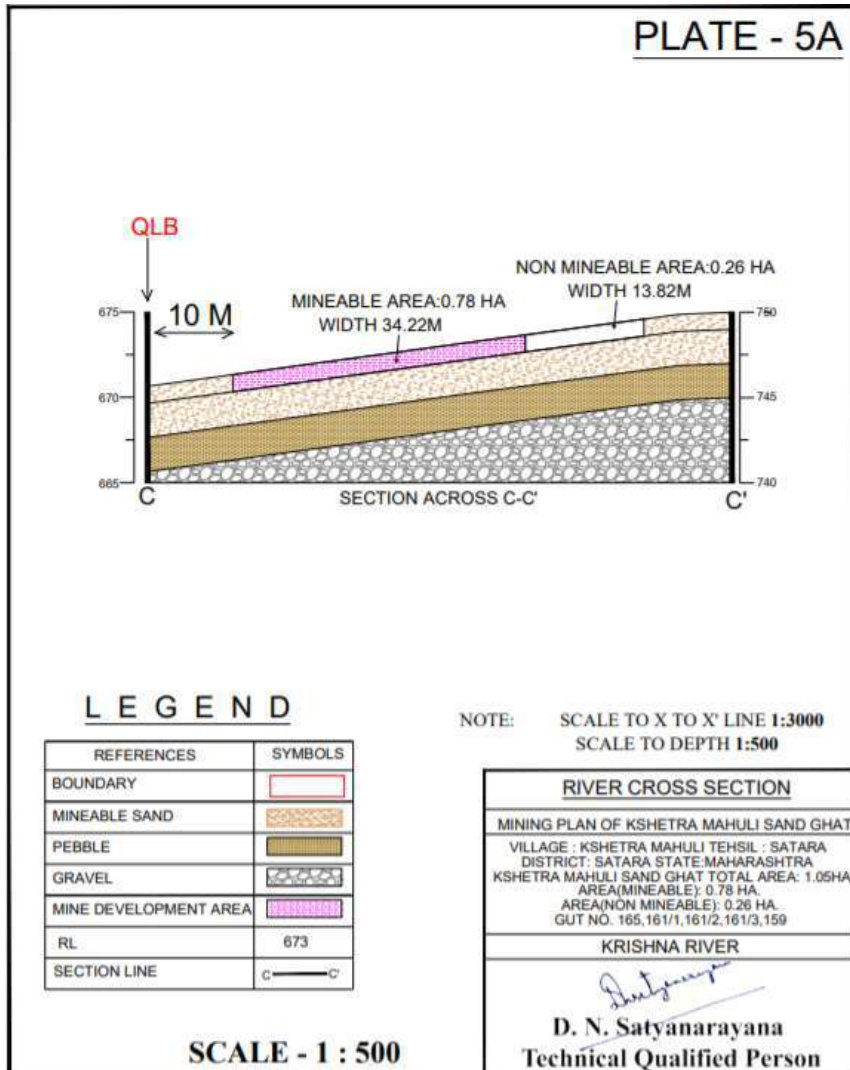
Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.78 HA & NON-MINEABLE AREA-0.26 HA)  
At Krishna Riverbed Gut No. 165, 161/1, 161/2, 161/3, 159 Kshetramahuli Village, Tehsil-Satara, Satara District,  
Maharashtra.

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 364 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:



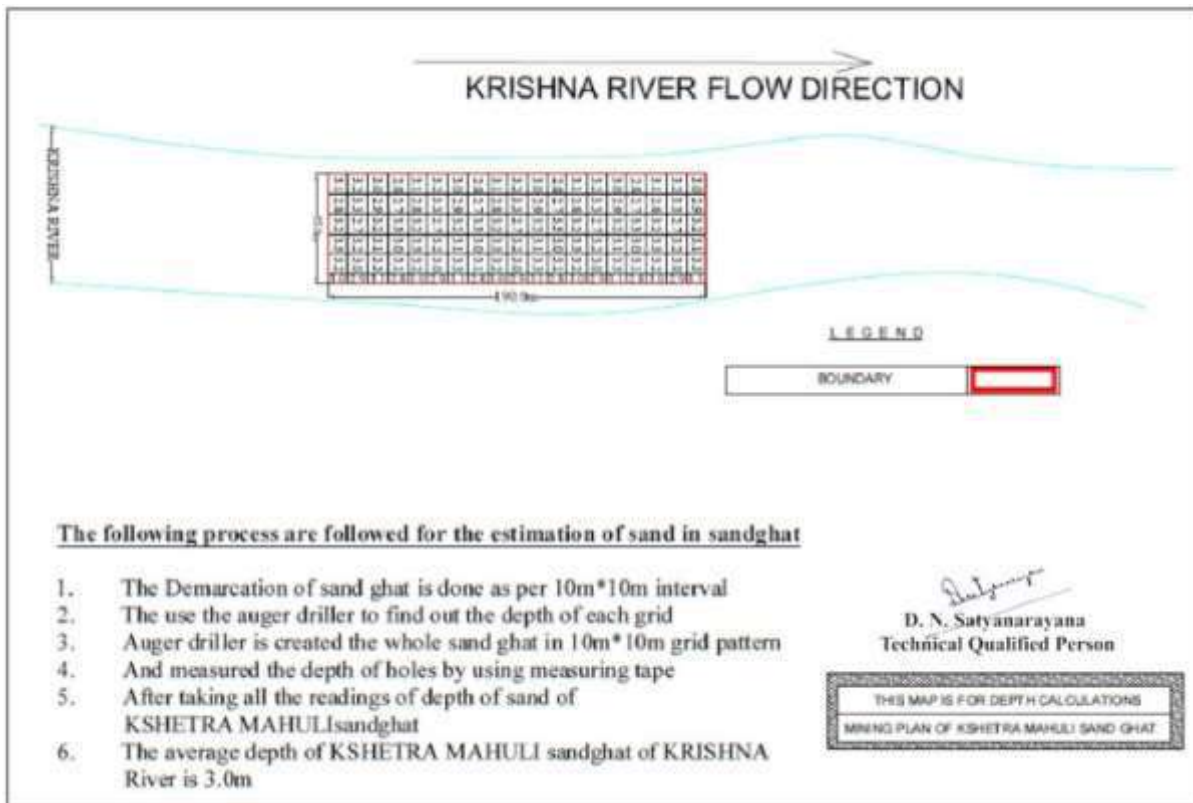
# Environmental Management Plan

Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.78 HA & NON-MINEABLE AREA-0.26 HA)  
At Krishna Riverbed Gut No. 165, 161/1, 161/2, 161/3, 159 Kshetramahuli 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.



## 6. Sediment Yield Calculation

### DANDY-BOLTON EQUATION

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

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),



## Environmental Management Plan

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Maharashtra.**

Q= average annual runoff (m<sup>3</sup>),

A= net drainage area in sq. mile

### Conclusion:

As per above data sedimentation yield for Krishna 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:

<b>Location of greenbelt</b>	Both sides of approach road, On the river banks of both sides of the sand spot & nearby open areas Haul Road outside riverbed
<b>Afforestation area/ annum</b>	1108 Sq.m /annum
<b>No. of plants to be planted</b>	554 Per Hectare
<b>Spacing of plants</b>	2 m grid interval
<b>Species selected</b>	Native species

Tree species recommended for Plantation:

<b>Botanical name</b>	<b>Local name</b>	<b>Importance</b>
<i>Azadirachta indica</i>	Neem	Neem oil & neem products
<i>Tectona grandis</i>	Teek	Antibacterial, Antifungal, Antiulcer

## Environmental Management Plan

**Kshetramahuli sand spot over an extent of 1.05 HA (MINEABLE AREA-0.78 HA & NON-MINEABLE AREA-0.26 HA)  
At Krishna Riverbed Gut No. 165, 161/1, 161/2, 161/3, 159 Kshetramahuli Village, Tehsil-Satara, Satara District,  
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<i>Ficus religiosa</i>	Peepal	Medicinal Use, Fruits & figs
<i>Bambusa vulgaris</i>	Bamboo	Anthelmintic Anti inflammatory,Astringent Properties
<i>Madhuca longifolia</i>	Mahua	Acts as a Stimulant & cough relief,

### 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 Kshetramahuli Sand Spot will be useful to the developmental work in the district and also generate employment opportunities.

### BUDGET FOR CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

SNo.	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

*Var.-Mhaswad-1 sand spot over an extent of 1.52 HA (MINEABLE AREA-1.14HA & NON-MINEABLE AREA-0.38HA) At Manganga Riverbed Gut No18 to 20, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18,5 Var-Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.*

Form 1M

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**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: Var-Mhaswad-1 Sand Spot

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

<b>BOUNDARY POINTS COORDNATES</b>		
<b>BOUNDARY POINTS</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
BP1	17°27'19.05"N	74°29'33.42"E
BP2	17°27'18.94"N	74°29'34.43"E
BP3	17°27'29.57"N	74°29'35.63"E
BP4	17°27'34.77"N	74°29'37.74"E
BP5	17°27'35.12"N	74°29'36.79"E
BP6	17°27'29.79"N	74°29'34.64"E

(iii) Size of the Mining Lease (Hectare): 1.52 HA

(vi) Capacity of Mining Lease (TPA): 4031 Brass

(v) Period of Mining Lease: 1 year

(vi) Expected cost of the Project: 265.80 Lakhs

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

**(II) Environmental Sensitivity**

<b>S. No.</b>	<b>Areas</b>	<b>Distance in Kilometer/Details</b>
1	Distance of project site from nearest rail or road bridge over the concerned River, Rivulet, Nallah et	Satara-Pandapur road,5.58 Km,NE
2	Distance from infrastructural facilities Railway line National Highway State Highway	Wasud railway station,54.59Km,SE NH-4,74.42Km,W SH-145,4.60Km,SE

**Var.-Mhaswad-1 sand spot over an extent of 1.52 HA (MINEABLE AREA-1.14HA & NON-MINEABLE AREA-0.38HA) At Manganga Riverbed Gut No18 to 20, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18,5 Var-Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.**

**Form 1M**

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	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	0.96Km,E Wrki-Warkute Mhaswad,2.01Km,NE 1.05Km,E Manganga River Bed Nil Nil
3	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 Manganga 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	Manganga 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-145,4.60Km,SE
9	Defence installations	Nil
10	Densely populated or built-up area, distance from nearest human habitation	Mhaswad-6.86Km,SE
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)	Manganga 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 II (Least active), according to the Indian Standard Seismic Zoning Map.
15	Is proposed mining site located over or near	No

**Var.-Mhaswad-1 sand spot over an extent of 1.52 HA (MINEABLE AREA-1.14HA & NON-MINEABLE AREA-0.38HA) At Manganga Riverbed Gut No18 to 20, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18,5 Var-Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.**

**Form 1M**

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	fissure / fracture for ground water recharge	
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

*Var.-Mhaswad-1 sand spot over an extent of 1.52 HA (MINEABLE AREA- 1.14 HA & NON-MINEABLE AREA-0.38 HA) At Manganga River Bed Gut No. 18 to 20, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 5 Var.-Mhaswad-1 Village, Tehsil-Maan, Satara District, Maharashtra.*

## **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 1.52 Ha (1.14 ha. Mineable & 0.38 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 4031 Brass sand is proposed to auction from proposed sand spot.
- Proposed site is located at the Manganga river bank.

### **1. Physiography**

The Sand Ghat area as per survey is River bed of Manganga River. The slope is of 1 m from 673 to 672 MSL. The slope of Sand Ghat area towards NW side. The highest MSL is 673 & lowest 632 MSL. The flow of Manganga River is from SE to NW 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 11407.5 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 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 Var.-Mhaswad-1 Sand Spot has been kept for Auction which is situated at Village Var.-Mhaswad, Taluka Maan, 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.

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### **i) Brief description of project**

The Sand Spot has sufficient Reserve of Sand to work at 11407.5 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 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.

### **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**

Var.-Mhaswad is a small Village/hamlet in Maan Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 77 KM towards west from District headquarters Satara. Approximately 245 KM from State capital Mumbai.

The sand spot area is connected to approached road at a distance of 50 meter in south direction, these road is further connected to Highway (Pashane-Utkalwadi Road). This road is situated in south direction at a distance of 4.0 km. Chawalkheda Railway Station is present at a distance of 12.5 km.

Area covered in SOI Toposheet No- 46 O/8. The GPS reading of boundary point are given below:

**Var.-Mhaswad-1 sand spot over an extent of 1.52 HA (MINEABLE AREA- 1.14 HA & NON-MINEABLE AREA-0.38 HA) At Manganga River Bed Gut No. 18 to 20, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 5 Var.-Mhaswad-1 Village, Tehsil-Maan, Satara District, Maharashtra.**

<b>Boundary points of Var.-Mhaswad-1</b>	<b>Latitude</b>	<b>Longitude</b>
BP1	17°27'19.05"N	74° 29'33.42"E
BP2	17°27'18.94"N	74° 29'34.43"E
BP3	17°27'29.57"N	74° 29'35.63"E
BP4	17°27'34.77"N	74° 29'37.74"E
BP5	17°27'35.12"N	74°29'36.79"E
BP6	17°27'29.79"N	74°29'34.64"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. 11407.5 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 11407.5 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 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.



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**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 13.56 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.

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## **6. Site Analysis**

### **i) Connectivity**

Var.-Mhaswad is a small Village/hamlet in Maan Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 77 KM towards west from District headquarters Satara. Approximately 245 KM from State capital Mumbai.

The sand spot area is connected to approach road at 678 meter in North West direction. SH-74 road is situated at a distance of 4.4 km. in the south of the sand ghat spot. Satara Railway Station is present at a distance of 75 km.

### **ii) Land Use, form & Ownership**

The ultimate land use pattern for the lease area of 1.52 ha. will be consisting of

- |                                     |          |
|-------------------------------------|----------|
| 1. Mining Area :                    | 1.52 ha. |
| 2. Construction of Temporary Roads: | 0.00 ha. |
| 3. Total :                          | 1.52 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).

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## **8. Planning brief**

The proposed project is opencast manual sand mining activity.

### **Supply demand ratio:**

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

<b>Tahsil Office Sand Information (2020-21)</b>			
<b>Sr. No</b>	<b>Name of Tahsil</b>	<b>Total Sand Demand if Tahsil in Brass (Approximately)</b>	<b>Total Sand Available in Tahsil in Brass (Approximately)</b>
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
		<b>154227</b>	<b>98871</b>

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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
<b>Total</b>			<b>25361</b>

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 माहितीद्वारे 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.

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**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 pre 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.

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- 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**

$$S=1280*(Q)^{0.46}*(1.46-0.26\log(A)) *F$$

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

$$S=1958*(Q)^{(e-0.055*Q)}*(1.43-0.26\log(A))$$

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

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:

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- 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 is 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/depos 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/depos.

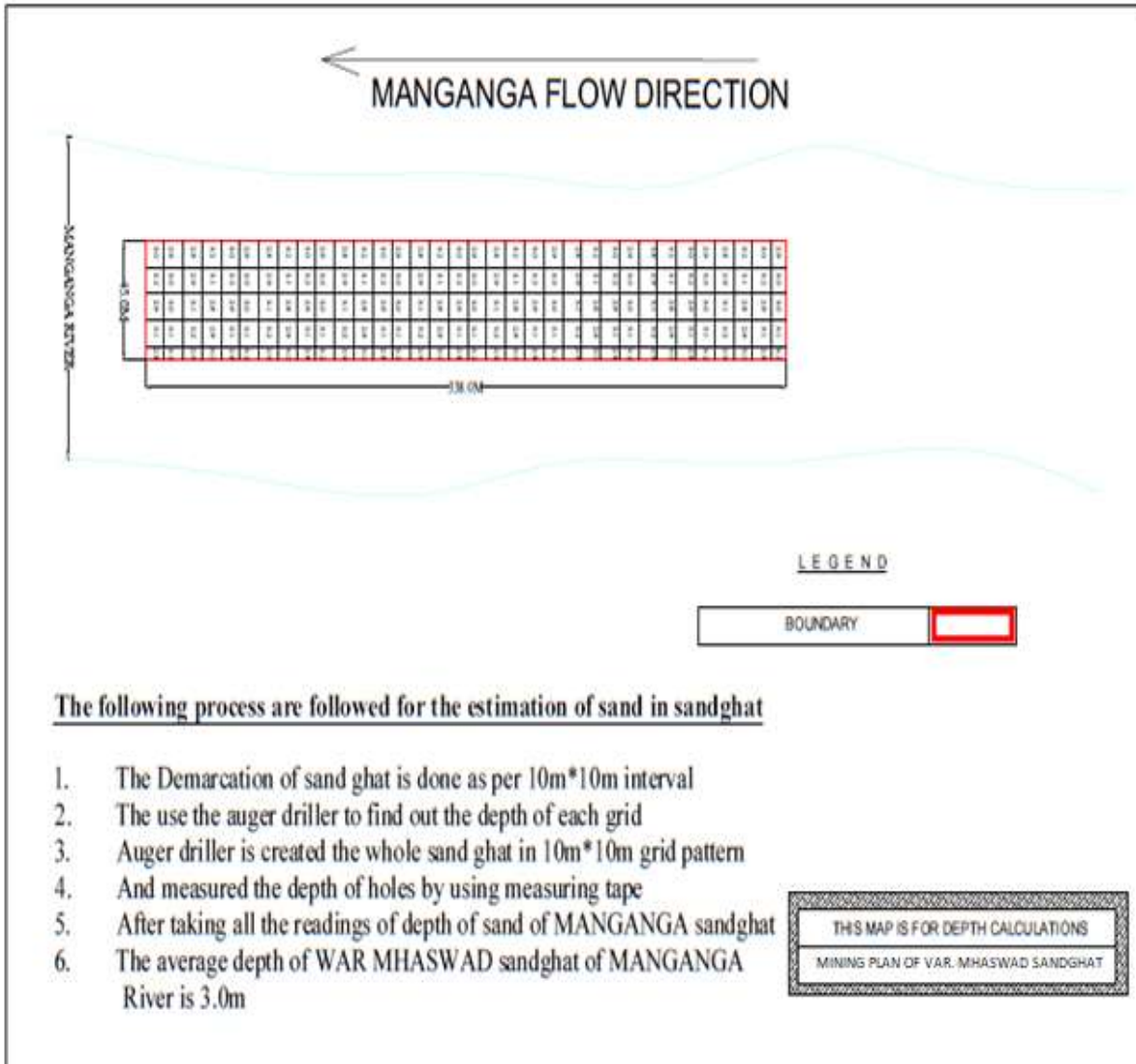
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8. The district collector will get live streaming of the videos monitored at a Centralised control room and the data stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the 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 depots 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.



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## 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.

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## **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 Envirnoment 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.

***Var.-Mhaswad-1 sand spot over an extent of 1.52 HA (MINEABLE AREA- 1.14 HA & NON-MINEABLE AREA-0.38 HA) At Manganga River Bed Gut No. 18 to 20, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 5 Var.-Mhaswad-1 Village, Tehsil-Maan, Satara District, Maharashtra.***

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

**Var-Mhaswad sand spot over an extent of 1.52 HA (MINEABLE AREA-1.14HA & NON-MINEABLE AREA-0.38HA) At Manganga Riverbed Gut No18 to 20, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 5, Var-Mhaswad Village, Tehsil-Maan , 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 the 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

Var.-Mhaswad is a small Village/hamlet in Maan Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 77 KM towards west from District headquarters Satara. Approximately 245 KM from State capital Mumbai.

The sand spot area is connected to approach road at 678 meter in North West direction. SH-74 road is situated at a distance of 4.4 km. in the south of the sand ghat spot. Satara Railway Station is present at a distance of 75 km.

The area is covered in SOI Toposheet No- 47K/9.

**Table 1: Salient Features of the Project**

Items	Details		
Location	Var-Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra		
Latitude and Longitude	<b>BOUNDARY POINTS</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
	BP1	17°27'19.05"N	74°29'33.42"E
	BP2	17°27'18.94"N	74°29'34.43"E
	BP3	17°27'29.57"N	74°29'35.63"E
	BP4	17°27'34.77"N	74°29'37.74"E
	BP5	17°27'35.12"N	74°29'36.79"E

## Environmental Management Plan

**Var-Mhaswad sand spot over an extent of 1.52 HA (MINEABLE AREA-1.14HA & NON-MINEABLE AREA-0.38HA) At Manganga Riverbed Gut No18 to 20, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 5, Var-Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra**

	BP6	17°27'29.79"N	74°29'34.64"E
Sand spot area (In Ha)	1.52		
Proposed production capacity (In Brass )	4031		
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	13.56 KLD – Tankers from nearby village.		
Project cost INR (Lakh)	265.80414		

### 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 Sahyadries, Krishna vally, Nira vally, and Mahadev hills and Eastern plateau.

The Sand Ghat area as per survey is River bed of Manganga River. The slope is of 1 m from 673 to 672 MSL. The slope of Sand Ghat area towards NW side. The highest MSL is 673 & lowest 632 MSL. The flow of Manganga River is from SE to NW direction.

#### b. Hydrology

The 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 be no any impact on flow of water.

#### c. Soil Environment

# Environmental Management Plan

***Var-Mhaswad sand spot over an extent of 1.52 HA (MINEABLE AREA-1.14HA & NON-MINEABLE AREA-0.38HA) At Manganga Riverbed Gut No18 to 20, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 5, Var-Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra***

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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 waste water discharges to water bodies from the mining operations. As observed in the River, the thickness of sand to be excavated will be 1m 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 25.50 m BGL in pre-monsoon season and the depth to water levels in post-monsoon ranges from 0.10 to 19.1 m BGL. As the mining activities presently proposed are maximum upto 1m 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**

# Environmental Management Plan

**Var-Mhaswad sand spot over an extent of 1.52 HA (MINEABLE AREA-1.14HA & NON-MINEABLE AREA-0.38HA) At Manganga Riverbed Gut No18 to 20, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 5, Var-Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra**

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	Additional Requirement during Plan	Total [in Ha]	Area considered as	Net consider for calculatio
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## Environmental Management Plan

**Var-Mhaswad sand spot over an extent of 1.52 HA (MINEABLE AREA-1.14HA & NON-MINEABLE AREA-0.38HA) At Manganga Riverbed Gut No18 to 20, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 5, Var-Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra**

		[in Ha]	period [in Ha]			n
1	Area under mining / pit	-	1.52	1.52	---	1.52
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					
<b>GRAND TOTAL</b>				1.52	1.52	1.52

- 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	Var. Mhaswad
1	Transport Road	On Air Quality	Compaction, gradation and drainage on both sides.	112500



## Environmental Management Plan

**Var-Mhaswad sand spot over an extent of 1.52 HA (MINEABLE AREA-1.14HA & NON-MINEABLE AREA-0.38HA) At Manganga Riverbed Gut No18 to 20, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 5, Var-Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra**

		Road Degradation	Budget for Road Repairs and Maintenance from Approach Road to Main Road	101700
		Road Construction	Road Construction from Quarry to Access Road	169500
		Air Environment	Dust Supression by Regular water spraying.	101700
			Air quality will be monitoring at impacted village.(For One Day Monitoring)	50000
			Health Checkup 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)	15000
			Regular monitoring of the exhaust fumes.	2500
			Barriers & Traffic Management Expenses. (Excluding Man Power Salary which is included in labour costs)	77970
3	Ramp and Sand Reach	Mining Operations	Regular ramp Inspection and Ramp maintenance.(Excluding Man Power Salary which is included in labour costs)	84750
			Provision of dusk masks.	15000
4	Bank Management	Bank Erosion/Flood Plain management	Green Belt along Road	339000
			Green belt along bank(For Green Belt Development)	678
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

## Environmental Management Plan

**Var-Mhaswad sand spot over an extent of 1.52 HA (MINEABLE AREA-1.14HA & NON-MINEABLE AREA-0.38HA) At Manganga Riverbed Gut No18 to 20, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 5, Var-Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra**

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 aren't available.	200000
14	Development of Market Model		Provision for development of market model & associated works if different funds aren't available.	25000
15	Environmental Audit		Provision for third party environmental audit if different funds aren't available.	50000
Total EMP Budget				1941198
Capital Cost				1348048
Recurring Cost				593150

**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.

## Environmental Management Plan

***Var-Mhaswad sand spot over an extent of 1.52 HA (MINEABLE AREA-1.14HA & NON-MINEABLE AREA-0.38HA) At Manganga Riverbed Gut No18 to 20, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 5, Var-Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra***

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. Var. Mhaswad-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 is 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.

## Environmental Management Plan

***Var-Mhaswad sand spot over an extent of 1.52 HA (MINEABLE AREA-1.14HA & NON-MINEABLE AREA-0.38HA) At Manganga Riverbed Gut No18 to 20, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 5, Var-Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra***

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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 depots 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.

# Environmental Management Plan

**Var-Mhaswad sand spot over an extent of 1.52 HA (MINEABLE AREA-1.14HA & NON-MINEABLE AREA-0.38HA) At Manganga Riverbed Gut No18 to 20, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 5, Var-Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra**

- 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.

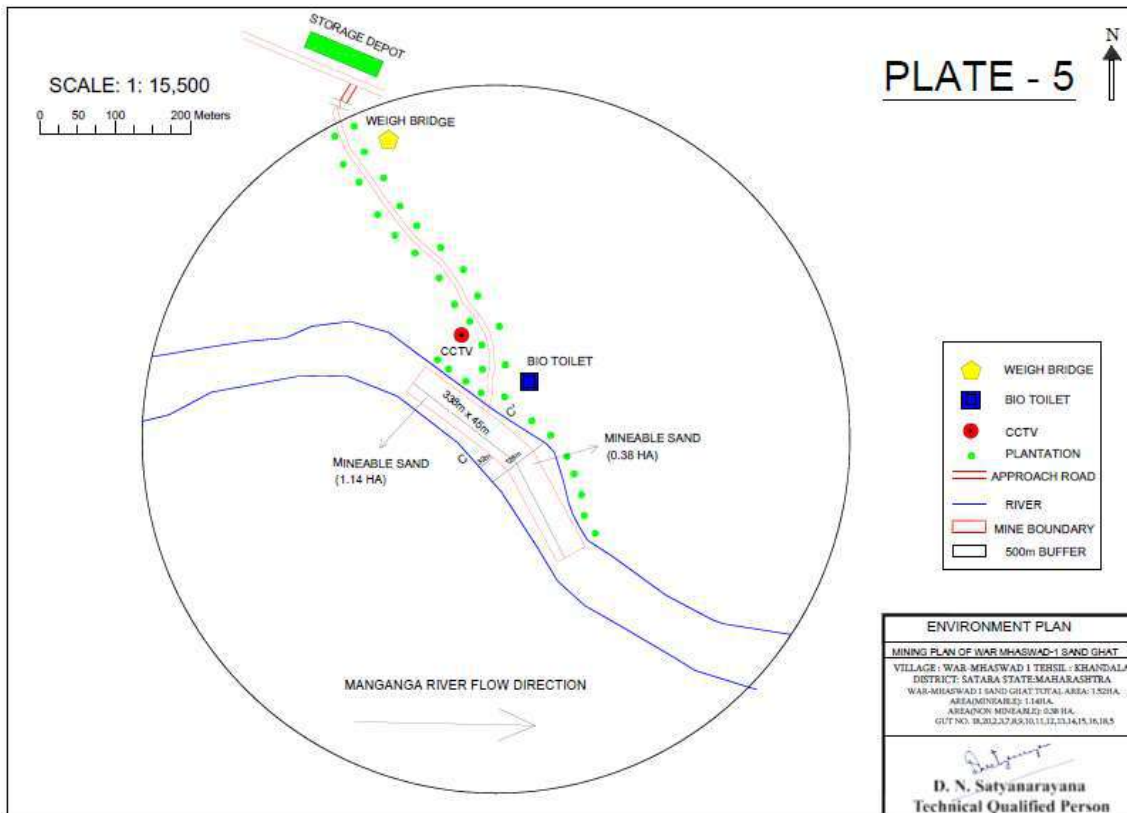
Nil

### 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 Var. Mhaswad 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

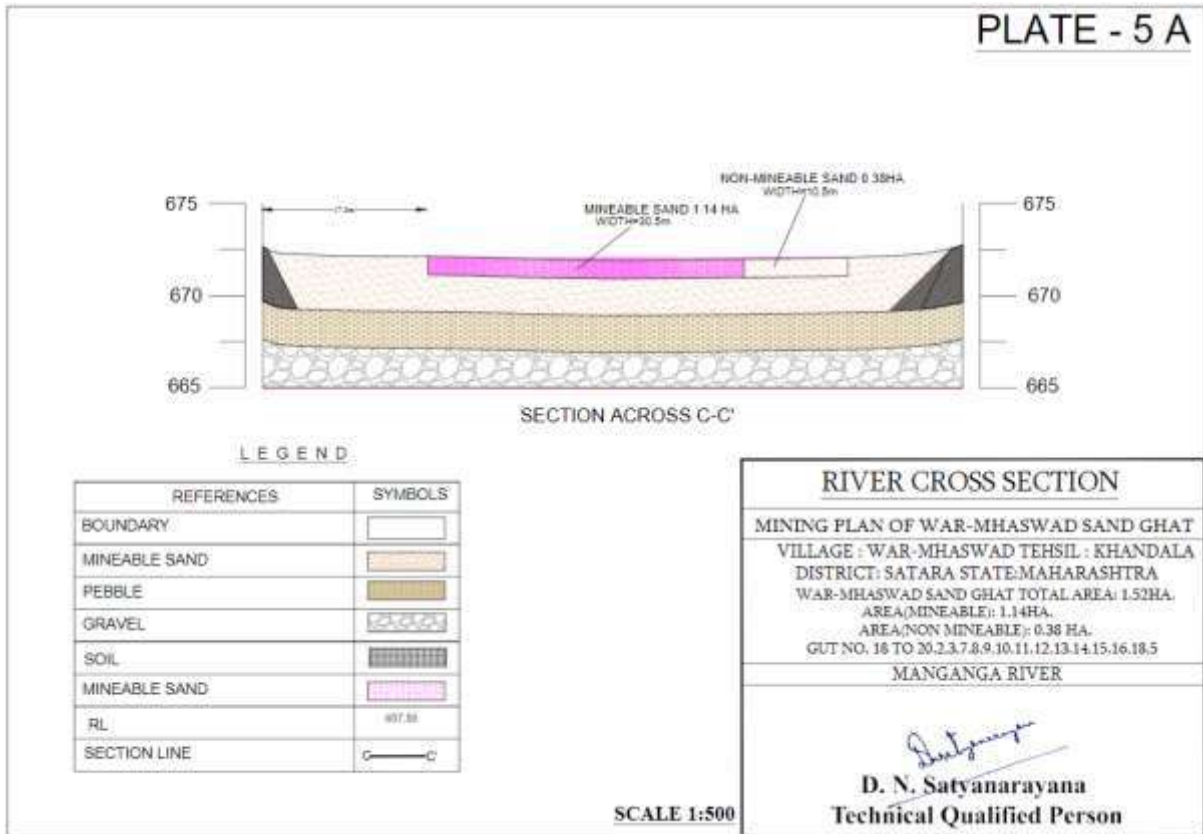
**Var-Mhaswad sand spot over an extent of 1.52 HA (MINEABLE AREA-1.14HA & NON-MINEABLE AREA-0.38HA) At Manganga Riverbed Gut No18 to 20, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 5, Var-Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra**

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 678 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 Maan 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:



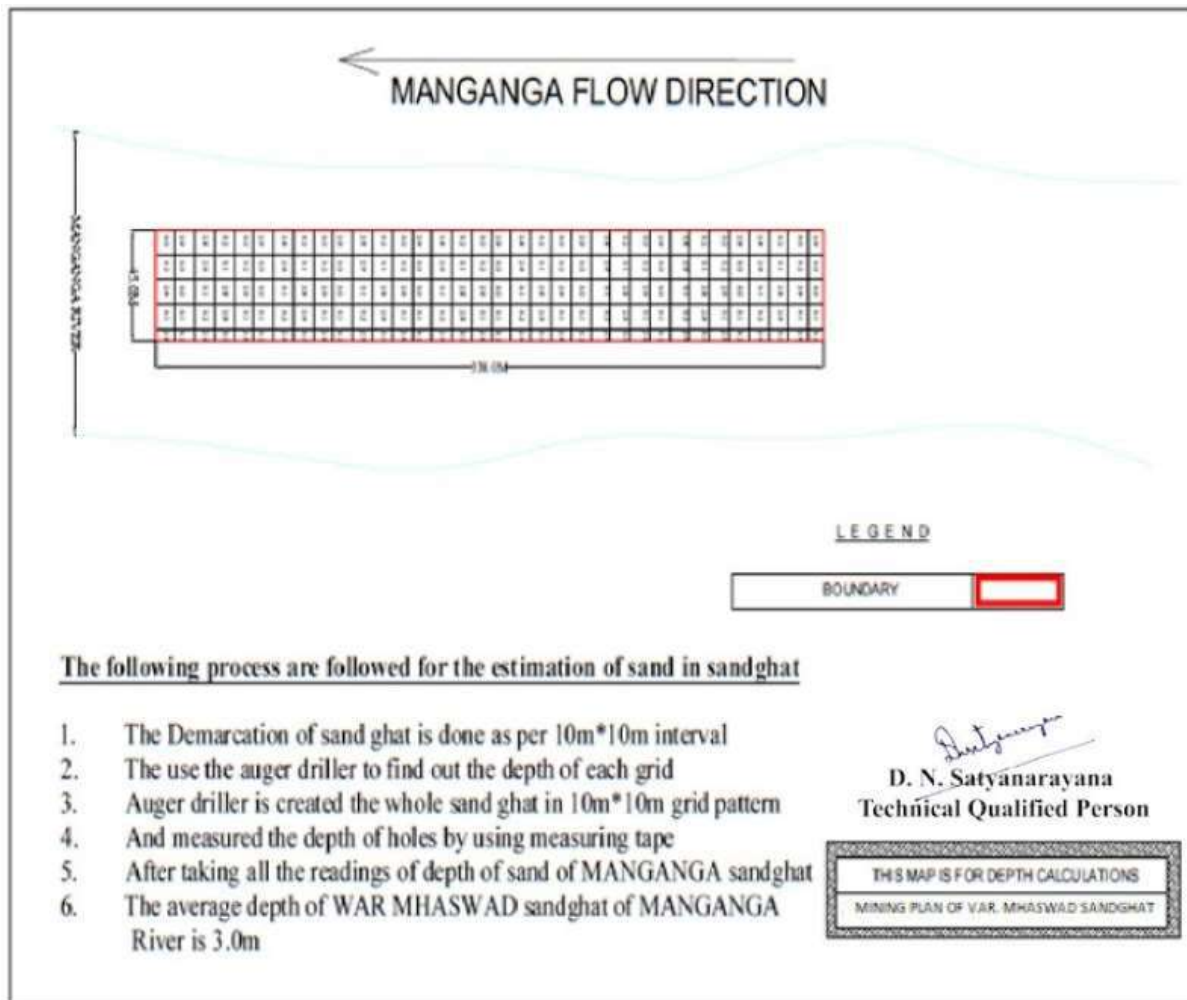
4. PP to submit details of District Level Task Force committee meetings and status of compliance of its recommendations if any

District Level Task Force Committee Meeting details is enclosed.

## Environmental Management Plan

**Var-Mhaswad sand spot over an extent of 1.52 HA (MINEABLE AREA-1.14HA & NON-MINEABLE AREA-0.38HA) At Manganga Riverbed Gut No18 to 20, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 5, Var-Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra**

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.



### 6. Sediment Yield Calculation

#### DANDY-BOLTON EQUATION

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

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

A= net drainage area in sq. mile

## Environmental Management Plan

**Var-Mhaswad sand spot over an extent of 1.52 HA (MINEABLE AREA-1.14HA & NON-MINEABLE AREA-0.38HA) At Manganga Riverbed Gut No18 to 20, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 5, Var-Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra**

### Conclusion:

As per above data sedimentation yield for Manganga 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:

<b>Location of greenbelt</b>	Both sides of approach road, On the river banks of both sides of the sand spot & nearby open areas Haul Road outside riverbed
<b>Afforestation area/ annum</b>	2032 Sq.m /annum
<b>No. of plants to be planted</b>	1016 Per Hectare
<b>Spacing of plants</b>	2 m grid interval
<b>Species selected</b>	Native species

Tree species recommended for Plantation:

<b>Botanical name</b>	<b>Local name</b>	<b>Importance</b>
<i>Azadirachta indica</i>	Neem	Neem oil & neem products
<i>Tectona grandis</i>	Teek	Antibacterial,Antifungal, Antiulcer
<i>Ficus religiosaa</i>	Peepal	Medicinal Use, Fruits & figs



## Environmental Management Plan

**Var-Mhaswad sand spot over an extent of 1.52 HA (MINEABLE AREA-1.14HA & NON-MINEABLE AREA-0.38HA) At Manganga Riverbed Gut No18 to 20, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 5, Var-Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra**

<i>Bambusa vulgaris</i>	Bamboo	Anthelmintic Anti inflammatory,Astringent Properties
<i>Madhuca longifolia</i>	Mahua	Acts as a Stimulant & cough relief,

### 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 VarMhaswad Sand Spot will be useful to the developmental work in the district and also generate employment opportunities.

### BUDGET FOR CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

SNo.	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

*Var.-Mhaswad-2 sand spot over an extent of 1.74 HA (MINEABLE AREA-1.30HA & NON-MINEABLE AREA-0.43HA) At Manganga Riverbed Gut No. 36, 37, 38, 39, 84, 85, 90, 94, 95, 96, 98 Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.*

Form 1M

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**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: Var-Mhaswad2 Sand Spot

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

<b>BOUNDARY POINTS COORDNATES</b>		
<b>BOUNDARY POINTS</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
BP1	17° 40' 12.95"	74° 43' 20.83"
BP2	17° 40' 14.28"	74° 43' 20.19"
BP3	17° 40' 16.45"	74° 43' 25.47"
BP4	17° 40' 16.22"	74° 43' 33.21"
BP5	17° 40' 14.80"	74° 43' 32.83"
BP6	17° 40' 15.03"	74° 43' 25.88"

(iii) Size of the Mining Lease (Hectare): 1.74 HA

(vi) Capacity of Mining Lease (TPA): 4603 Brass

(v) Period of Mining Lease: 1 year

(vi) Expected cost of the Project: 303.52 Lakhs

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

**(II) Environmental Sensitivity**

<b>S. No.</b>	<b>Areas</b>	<b>Distance in Kilometer/Details</b>
1	Distance of project site from nearest rail or road bridge over the concerned River, Rivulet, Nallah et	SH-148,6.38Km,NE
2	Distance from infrastructural facilities Railway line National Highway State Highway Major District Road Any Other Road	Pandharpur railway station,63.17Km,E NH-204,54.67Km,NE SH-148,6.38Km,NE Sathara-Pandharpur road-3.03Km,S Nawalw wasti-waaki road 3.21,W

**Var.-Mhaswad-2 sand spot over an extent of 1.74 HA (MINEABLE AREA-1.30HA & NON-MINEABLE AREA-0.43HA) At Manganga Riverbed Gut No. 36, 37, 38, 39, 84, 85, 90, 94, 95, 96, 98 Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.**

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	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	0.29Km,S Manganga River Bed Nil Nil
3	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 Manganga 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	Manganga 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-148,6.38Km,NE
9	Defence installations	Nil
10	Densely populated or built-up area, distance from nearest human habitation	Mhaswad,7.76Km,E
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)	Manganga 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 II (Least active), 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

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	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 1.74 HA (1.30 HA. Mineable & 0.43 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 4603 Brass sand is proposed to auction from proposed sand spot.
- Proposed site is located at the Manganga river bank.

### **1. Physiography**

The Sand Ghat area as per survey is River bed of Manganga River. The slope is of 2 m from 678 to 676 MSL. The slope of Sand Ghat area towards SE side. The highest MSL is 678 & lowest 676 MSL. The flow of Manganga 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 13027.5 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 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 Var.-Mhaswad-2 Sand Spot has been kept for Auction which is situated at Village Var.-Mhaswad, Taluka Maan, 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.

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### **i) Brief description of project**

The Sand Spot has sufficient Reserve of Sand to work at 13027.5 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 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.

### **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**

Var.-Mhaswad is a small Village/hamlet in Maan Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 75 KM towards west from District headquarters Satara. Approximately 248 KM from State capital Mumbai.

The sand spot area is connected to approach road at 667 meter in North West direction. SH-74 road is situated at a distance of 4.7 km. in the south of the sand ghat spot. Satara Railway Station is present at a distance of 73km.

The area is covered in SOI Toposheet No- 47K/10. The GPS reading of boundary point are given below:

**Var.-Mhaswad-2 sand spot over an extent of 1.74 HA (MINEABLE AREA- 1.30 HA & NON-MINEABLE AREA-0.43 HA) At Manganga River Bed Gut No. 36, 37, 38, 39, 84, 85, 90, 94, 95, 96, 98 Var.-Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.**

<b>Boundary points of Var.-Mhaswad-2</b>	<b>Latitude</b>	<b>Longitude</b>
BP1	17° 40' 12.95"N	74° 43' 20.83"E
BP2	17° 40' 14.28"N	74° 43' 20.19"E
BP3	17° 40' 16.45"N	74° 43' 25.47"E
BP4	17° 40' 16.22"N	74° 43' 33.21"E
BP5	17° 40' 14.80"N	74° 43' 32.83"E
BP6	17° 40' 15.03"N	74° 43' 25.88"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. 13027.5 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 13027.5 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 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.

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**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 13.34 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.



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## **6. Site Analysis**

### **i) Connectivity**

Var.-Mhaswad is a small Village/hamlet in Maan Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 75 KM towards west from District headquarters Satara. Approximately 248 KM from State capital Mumbai.

The sand spot area is connected to approach road at 667 meter in North West direction. SH-74 road is situated at a distance of 4.7 km. in the south of the sand ghat spot. Satara Railway Station is present at a distance of 73km.

### **ii) Land Use, form & Ownership**

The ultimate land use pattern for the lease area of 1.74 HA. will be consisting of

- |                                     |          |
|-------------------------------------|----------|
| 1. Mining Area :                    | 1.74 HA. |
| 2. Construction of Temporary Roads: | 0.00 ha. |
| 3. Total :                          | 1.74 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).

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## **8. Planning brief**

The proposed project is opencast manual sand mining activity.

### **Supply demand ratio:**

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

<b>Tahsil Office Sand Information (2020-21)</b>			
<b>Sr. No</b>	<b>Name of Tahsil</b>	<b>Total Sand Demand if Tahsil in Brass (Approximately)</b>	<b>Total Sand Available in Tahsil in Brass (Approximately)</b>
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
		<b>154227</b>	<b>98871</b>

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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
<b>Total</b>			<b>25361</b>

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 निर्मिती करुन बांधकामासाठी उपलब्ध होत असलेने शासकीय यंत्रणांकडून व इतर व्यवसायिकांकडून वाळूची मागणी होत नसलेचे दिसून येत आहे.

सातारा जिल्ह्यातील **CREDAI** संघटनेकडील माहितीद्वारे 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.

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**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 pre 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.

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- 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**

$$S=1280*(Q)^{0.46}*(1.46-0.26\log(A)) *F$$

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

$$S=1958*(Q)^{(e-0.055*Q)}*(1.43-0.26\log(A))$$

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

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:

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- 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

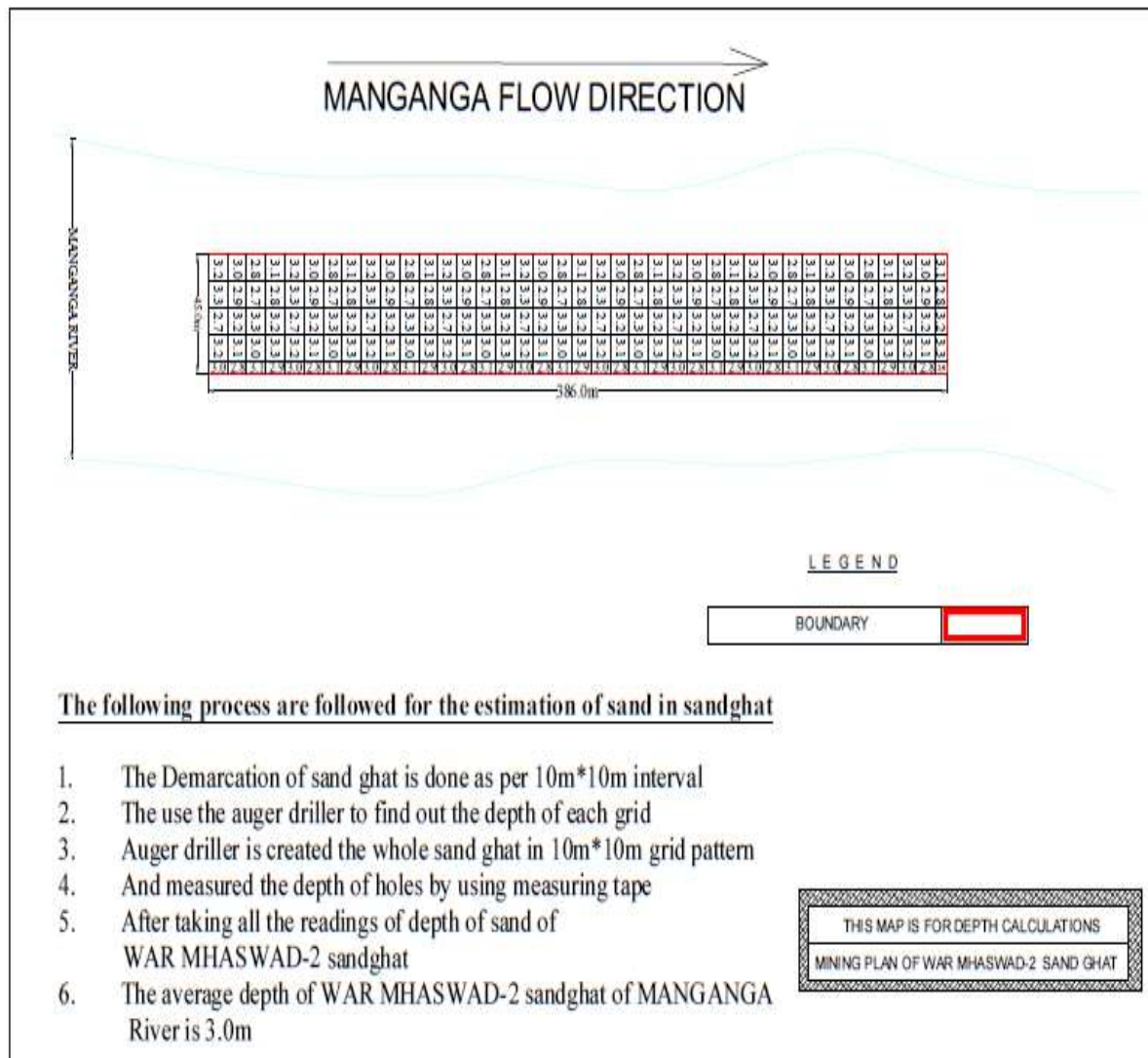
1. Appointing an Environmental auditor and a three non-official committee to associate with the Environmental auditor in auditing the reports and in sending it to the District authority and making sure that the same will be accommodated in the DSR.
2. Mobile app - The officers involved in monitoring 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/depos 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/depos.

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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 depots 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.

**Var.-Mhaswad-2 sand spot over an extent of 1.74 HA (MINEABLE AREA- 1.30 HA & NON-MINEABLE AREA-0.43 HA) At Manganga River Bed Gut No. 36, 37, 38, 39, 84, 85, 90, 94, 95, 96, 98 Var.-Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.**

## 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.



*Var.-Mhaswad-2 sand spot over an extent of 1.74 HA (MINEABLE AREA- 1.30 HA & NON-MINEABLE AREA-0.43 HA) At Manganga River Bed Gut No. 36, 37, 38, 39, 84, 85, 90, 94, 95, 96, 98 Var.-Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.*

## **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 Envirnoment 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

***Var.-Mhaswad-2 sand spot over an extent of 1.74 HA (MINEABLE AREA- 1.30 HA & NON-MINEABLE AREA-0.43 HA) At Manganga River Bed Gut No. 36, 37, 38, 39, 84, 85, 90, 94, 95, 96, 98 Var.-Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.***

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

**Var.-Mhaswad-2 sand spot over an extent of 1.74 HA (MINEABLE AREA-1.30HA & NON-MINEABLE AREA-0.43HA) At Manganga Riverbed Gut No. 36, 37, 38, 39, 84, 85, 90, 94, 95, 96, 98 Mhaswad Village, Tehsil-Maan , 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 the 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

Var.-Mhaswad-2 is a small Village/hamlet in Maan Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 75 KM towards west from District headquarters Satara. Approximately 248 KM from State capital Mumbai.

The sand spot area is connected to approach road at 667 meter in North West direction. SH-74 road is situated at a distance of 4.7 km. in the south of the sand ghat spot. Satara Railway Station is present at a distance of 73km.

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

**Table 1: Salient Features of the Project**

Items	Details		
Location	Var-Mhaswad-2 Village, Tehsil-Maan , Satara District, Maharashtra		
Latitude and Longitude	<b>BOUNDARY POINTS</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
	BP1	17° 40' 12.95"	74° 43' 20.83"
	BP2	17° 40' 14.28"	74° 43' 20.19"
	BP3	17° 40' 16.45"	74° 43' 25.47"
	BP4	17° 40' 16.22"	74° 43' 33.21"
	BP5	17° 40' 14.80"	74° 43' 32.83"
	BP6	17° 40' 15.03"	74° 43' 25.88"

## Environmental Management Plan

**Var.-Mhaswad-2sand spot over an extent of 1.74 HA (MINEABLE AREA-1.30HA & NON-MINEABLE AREA-0.43HA) At Manganga Riverbed Gut No. 36, 37, 38, 39, 84, 85, 90, 94, 95, 96, 98 Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.**

Sand spot area (In Ha)	1.74
Proposed production capacity (In Brass )	4603
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	13.34 KLD – Tankers from nearby village.
Project cost INR (Lakh)	303.52182

### 3. Baseline Environmental Studies

#### a. Topography

Satara district is the part of Deccan trap of Indian Peninsula. The physical setting of district is divided into 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 Sahyadries, Krishna valley, Nira valley, and Mahadev hills and Eastern plateau.

The Sand Ghat area as per survey is River bed of Manganga River. The slope is of 2 m from 678 to 676 MSL. The slope of Sand Ghat area towards SE side. The highest MSL is 678 & lowest 676 MSL. The flow of Manganga 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 be no 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.

# Environmental Management Plan

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## 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 waste water discharges to water bodies from the mining operations. As observed in the River, the thickness of sand to be excavated will be 1m 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 19.1 m BGL. As the mining activities presently proposed are maximum upto 1m 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.<sup>1</sup>

(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.

# Environmental Management Plan

**Var.-Mhaswad-2sand spot over an extent of 1.74 HA (MINEABLE AREA-1.30HA & NON-MINEABLE AREA-0.43HA) At Manganga Riverbed Gut No. 36, 37, 38, 39, 84, 85, 90, 94, 95, 96, 98 Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.**

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 consider for calculatio n
1	Area under mining / pit	-	1.74	1.74	---	1.74

## Environmental Management Plan

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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					
<b>GRAND TOTAL</b>				1.74	1.74	1.74

- 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	Var. Mhaswad
1	Transport Road	On Air Quality	Compaction, gradation and drainage on both sides.	112500
		Road Degradation	Budget for Road Repairs and Maintainence from Approach Road to Main Road	100050
		Road Construction	Road Construction from Quarry to Access Road	166750
		Air Environment	Dust Supression by Regular water spraying.	100050

## Environmental Management Plan

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			Air quality will be monitoring at impacted village.(For One Day Monitoring)	50000
			Health Checkup 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)	15000
			Regular monitoring of the exhaust fumes.	2500
			Barriers & Traffic Management Expenses. (Excluding Man Power Salary which is included in labour costs)	76705
3	Ramp and Sand Reach	Mining Operations	Regular ramp Inspection and Ramp maintenance.(Excluding Man Power Salary which is included in labour costs)	83375
			Provision of dusk masks.	15000
4	Bank Management	Bank Erosion/Flood Plain management	Green Belt along Road	333500
			Green belt along bank(For Green Belt Development)	667
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 Monitoriong 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



## Environmental Management Plan

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12	Noise Monitoring		Regular Maintenance of Vehicles	75000
13	Physical Survey		Provision for physical survey & associated works if different funds aren't available.	200000
14	Development of Market Model		Provision for development of market model & associated works if different funds aren't available.	25000
15	Environmental Audit		Provision for third party environmental audit if different funds aren't available.	50000
Total EMP Budget				1926997
Capital Cost				1338522
Recurring Cost				588475

**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

## Environmental Management Plan

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- Unique Quick Response Code (QR)
- Fugitive Ink Background
- Invisible Ink Mark
- Void Pantograph
- Watermark
- GP Based Vehicle Tracking System

**9. Var. Mhaswad-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 is 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.

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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 within 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 is 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 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 depots 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, 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

## Environmental Management Plan

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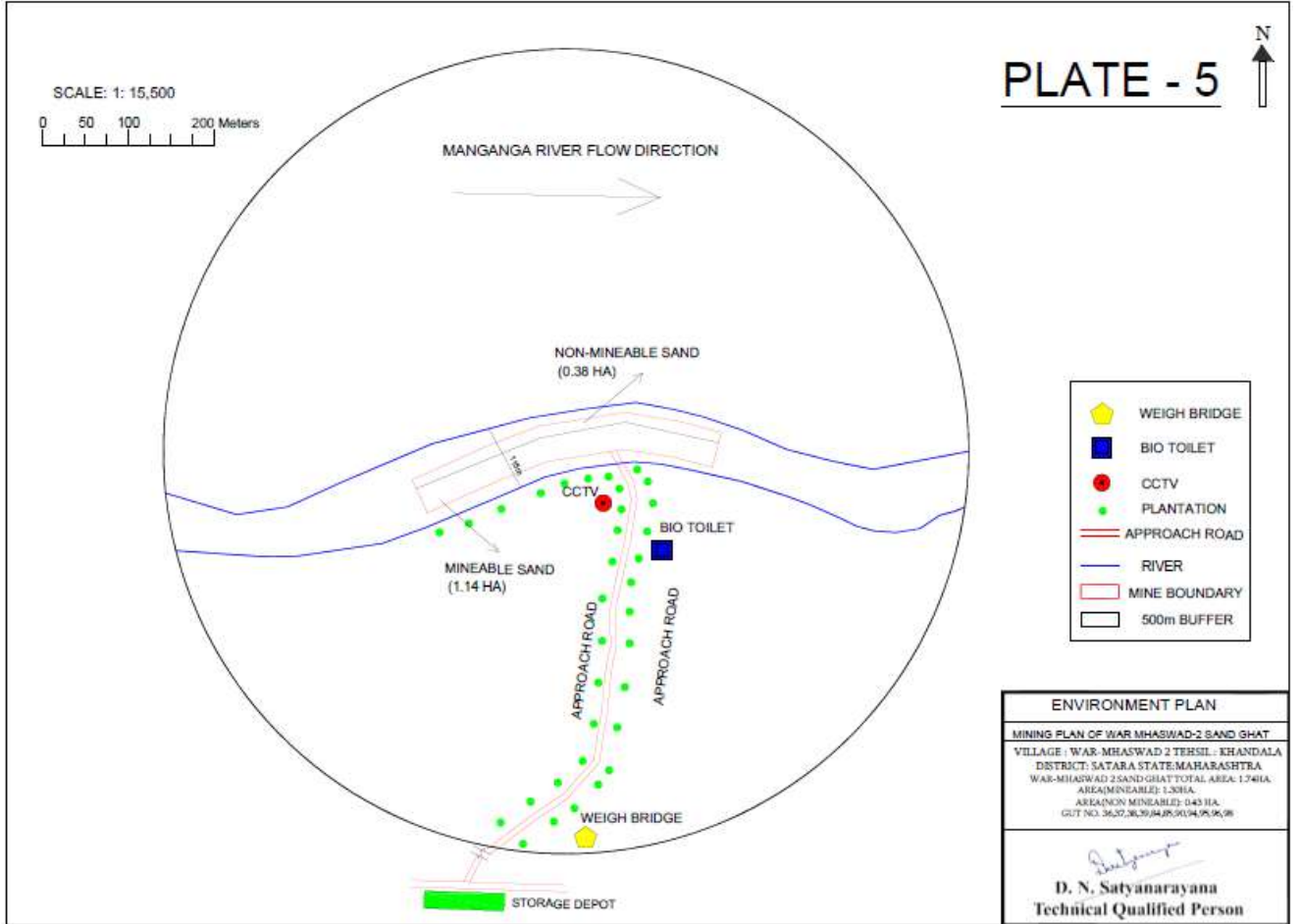
periphery of the proposed sand ghat along with area map showing distances between adjoining sand mine areas. Proposed Var. Mhaswad sand ghat does not fall in cluster.

- 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

**Var.-Mhaswad-2 sand spot over an extent of 1.74 HA (MINEABLE AREA-1.30HA & NON-MINEABLE AREA-0.43HA) At Manganga Riverbed Gut No. 36, 37, 38, 39, 84, 85, 90, 94, 95, 96, 98 Mhaswad Village, Tehsil-Maan , 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.

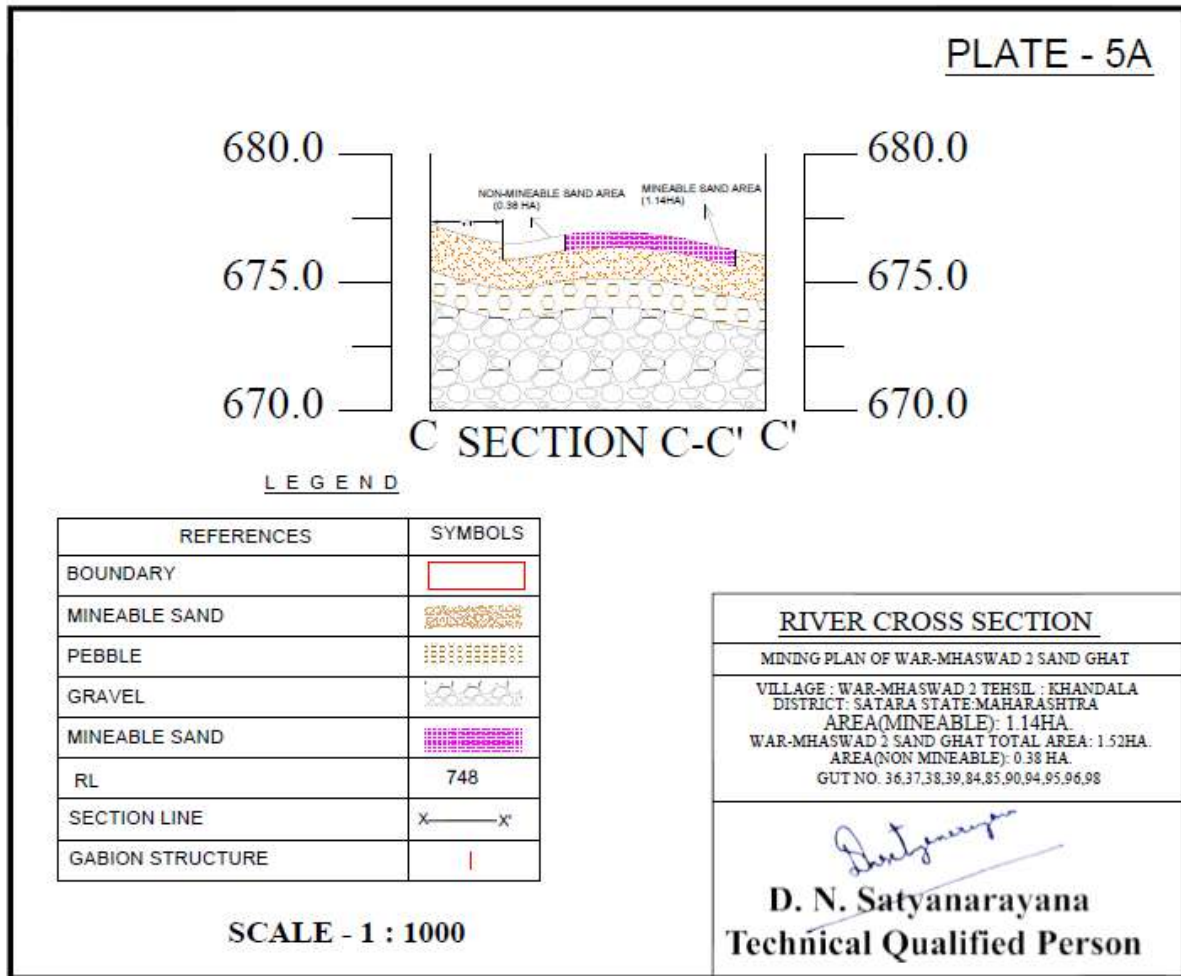
The proposed approach road length is 667 m and it belongs to Gram Panchayat, the mined out sand from sand ghat will be stored adjacent to approach near the river bank. Consent of road submitted by Maan Tahsildar is enclosed for use of land as approach road. The successful bidder will be deciding the 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:

## Environmental Management Plan

**Var.-Mhaswad-2 sand spot over an extent of 1.74 HA (MINEABLE AREA-1.30HA & NON-MINEABLE AREA-0.43HA) At Manganga Riverbed Gut No. 36, 37, 38, 39, 84, 85, 90, 94, 95, 96, 98 Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.**



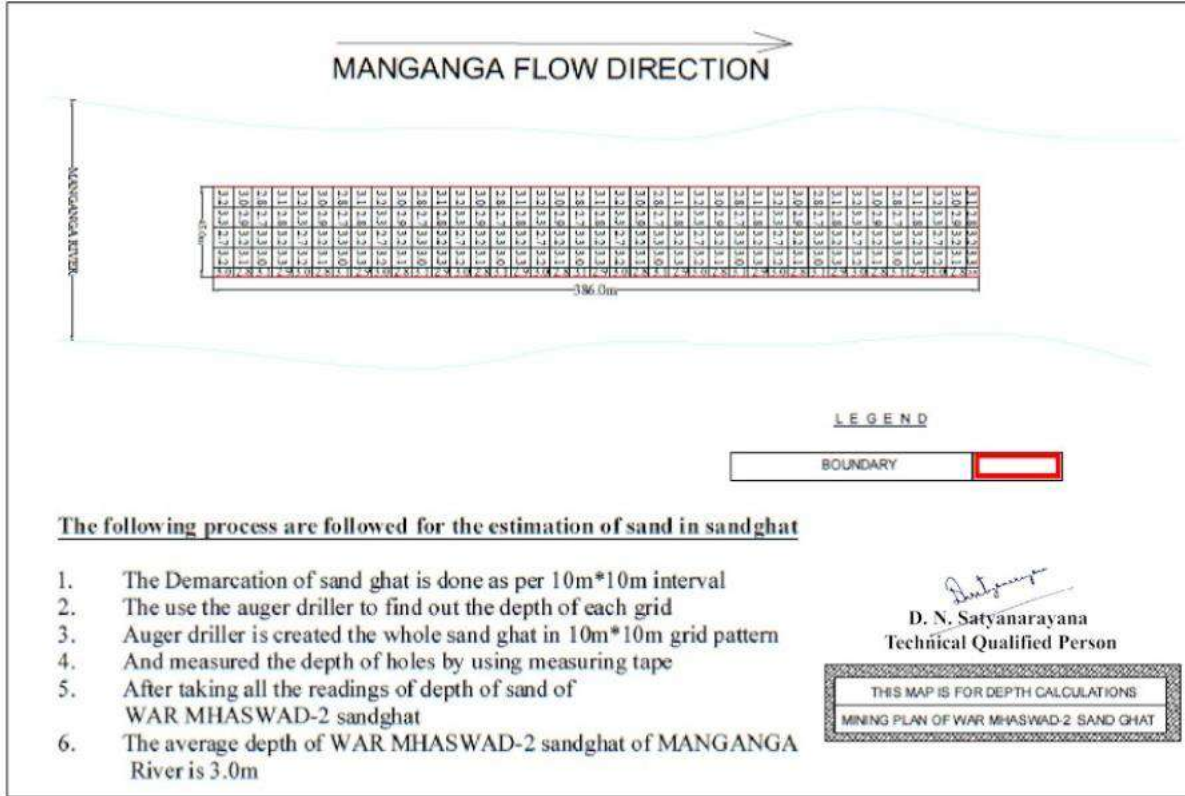
4. PP to submit details of District Level Task Force committee meetings and status of compliance of its recommendations if any

District Level Task Force Committee Meeting details is enclosed.

# Environmental Management Plan

**Var.-Mhaswad-2 sand spot over an extent of 1.74 HA (MINEABLE AREA-1.30HA & NON-MINEABLE AREA-0.43HA) At Manganga Riverbed Gut No. 36, 37, 38, 39, 84, 85, 90, 94, 95, 96, 98 Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.**

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.



## 6. Sediment Yield Calculation

### DANDY-BOLTON EQUATION

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

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

A= net drainage area in sq. mile

### Conclusion:

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

## Environmental Management Plan

**Var.-Mhaswad-2sand spot over an extent of 1.74 HA (MINEABLE AREA-1.30HA & NON-MINEABLE AREA-0.43HA) At Manganga Riverbed Gut No. 36, 37, 38, 39, 84, 85, 90, 94, 95, 96, 98 Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.**

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:

<b>Location of greenbelt</b>	Both sides of approach road, On the river banks of both sides of the sand spot & nearby open areas  Haul Road outside riverbed
<b>Afforestation area/ annum</b>	2106 Sq.m /annum
<b>No. of plants to be planted</b>	1053 Per Hectare
<b>Spacing of plants</b>	2 m grid interval
<b>Species selected</b>	Native species

Tree species recommended for Plantation:

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



# Environmental Management Plan

**Var.-Mhaswad-2 sand spot over an extent of 1.74 HA (MINEABLE AREA-1.30HA & NON-MINEABLE AREA-0.43HA) At Manganga Riverbed Gut No. 36, 37, 38, 39, 84, 85, 90, 94, 95, 96, 98 Mhaswad Village, Tehsil-Maan, 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 VarMhaswad-2 Sand Spot will be useful to the developmental work in the district and also generate employment opportunities.

## BUDGET FOR CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

SNo.	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

**Mhaswad-1 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA) At Manganga Riverbed Gut No.1181, 1167, 1226. Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.**

**Form 1M**

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**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: Mhaswad-1 Sand Spot

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

Boundary points of Mhaswad-1	Latitude	Longitude
BP1	17°38'35.32"N	74°46'15.87"E
BP2	17°38'36.15"N	74°46'17.13"E
BP3	17°38'30.16"N	74°46'21.41"E
BP4	17°38'29.33"N	74°46'20.15"E

(iii) Size of the Mining Lease (Hectare): 1.0 HA

(vi) Capacity of Mining Lease (TPA): 2659 Brass

(v) Period of Mining Lease: 1 year

(vi) Expected cost of the Project: 175.33 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,1.63Km, NW
2	Distance from infrastructural facilities Railway line National Highway State Highway Major District Road Any Other Road Electric transmission line pole or tower	Pandharpur, 58.2km, E NH204, 50.4Km SE SH145, 0.67KM, SW 0.24Km, NE 1.15Km, SW 0.25Km, SW

**Mhaswad-1 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA) At Manganga Riverbed Gut No.1181, 1167, 1226. Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.**

**Form 1M**

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	Canal or check dam or reservoirs or lake or ponds In-take for drinking water pump house Intake for Irrigation canal pumps	Manganga River Bed Nil Nil
3	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 Manganga 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	Manganga River Bed
7	State, National boundaries	Nil
8	Routes or facilities used by the public for access to recreation or other tourist, Pilgrim areas	SH145, 0.67KM, SW
9	Defence installations	Nil
10	Densely populated or built-up area, distance from nearest human habitation	Mhaswad, 1.81km SE
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)	Manganga 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	No

***Mhaswad-1 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA) At Manganga Riverbed Gut No.1181, 1167, 1226. Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.***

**Form 1M**

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	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

*Mhaswad-1 sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Manganga River Bed Gut No. 1181, 1167, 1226 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.*

**Pre-Feasibility Report**

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**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 & 0.25HA. 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 2659 Brass sand is proposed to auction from proposed sand spot.
- Proposed site is located at the Manganga river bank.

**1. Physiography**

The Sand Ghat area as per survey is River bed of Manganga River. The slope is of 2 m from 663 to 661 MSL. The slope of Sand Ghat area towards NW side. The highest MSL is 663 & lowest 661 MSL. The flow of Manganga River is from SE to NW 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 7526 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.

**4. Introduction of the project/ background information**

The Mhaswad-1 Sand Spot has been kept for Auction which is situated at Village Mhaswad, Taluka Maan, 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.

***Mhaswad-1 sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Manganga River Bed Gut No. 1181, 1167, 1226 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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**i) Brief description of project**

The Sand Spot has sufficient Reserve of Sand to work at 7526 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.

**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**

Mhaswad is a small Village/hamlet in Maan Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located at 80 KM from District headquarters Satara. Approximately 254 KM from State capital Mumbai.

The sand spot area is connected to approach road at 769 meter in South direction. SH-145 road is situated at a distance of 0.60 km. in the south of the sand ghat spot. Satara Railway Station is present at a distance of 78 km.

The area is covered in SOI Toposheet No- 47K/10. The GPS reading of boundary point are given below:

***Mhaswad-1 sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Manganga River Bed Gut No. 1181, 1167, 1226 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.***

**Pre-Feasibility Report**

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Boundary points of Mhaswad-1	Latitude	Longitude
BP1	17°38'35.32"N	74°46'15.87"E
BP2	17°38'36.15"N	74°46'17.13"E
BP3	17°38'30.16"N	74°46'21.41"E
BP4	17°38'29.33"N	74°46'20.15"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. 7526 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 7526 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.

***Mhaswad-1 sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Manganga River Bed Gut No. 1181, 1167, 1226 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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**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 15.38 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.



***Mhaswad-1 sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Manganga River Bed Gut No. 1181, 1167, 1226 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.***

#### **Pre-Feasibility Report**

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### **6. Site Analysis**

#### **i) Connectivity**

Mhaswad is a small Village/hamlet in Maan Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located at 80 KM from District headquarters Satara. Approximately 254 KM from State capital Mumbai.

The sand spot area is connected to approach road at 769 meter in South direction. SH-145 road is situated at a distance of 0.60 km. in the south of the sand ghat spot. Satara Railway Station is present at a distance of 78 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).

***Mhaswad-1 sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Manganga River Bed Gut No. 1181, 1167, 1226 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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**8. Planning brief**

The proposed project is opencast manual sand mining activity.

**Supply demand ratio:**

Informataion 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

**Mhaswad-1 sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Manganga River Bed Gut No. 1181, 1167, 1226 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.**

**Pre-Feasibility Report**

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 Dahiawadi	Gharkul Project	415
6	Khatav Nagarpalika Vaduj	Gharkul Project	211
<b>Total</b>			<b>25361</b>

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 माहितीद्वारे 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.

***Mhaswad-1 sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Manganga River Bed Gut No. 1181, 1167, 1226 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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**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 pre 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.

***Mhaswad-1 sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Manganga River Bed Gut No. 1181, 1167, 1226 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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- 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**

$$S=1280*(Q)^{0.46}*(1.46-0.26\log(A)) *F$$

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

$$S=1958*(Q)^{(e^{-0.055*Q})}*(1.43-0.26\log(A))$$

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

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:

***Mhaswad-1 sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Manganga River Bed Gut No. 1181, 1167, 1226 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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- 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 is 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/depos 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/depos.

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***Pre-Feasibility Report***

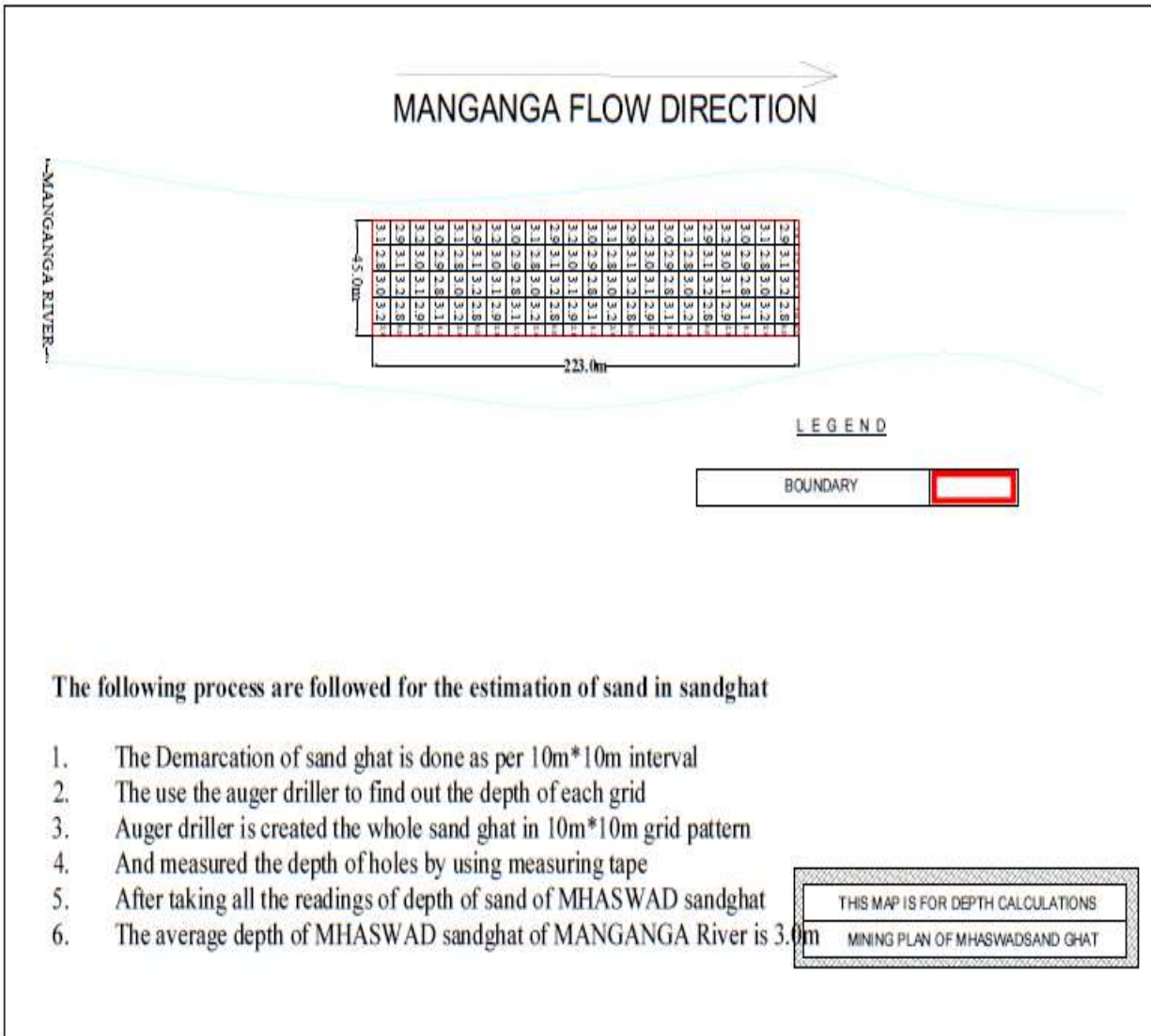
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8. The district collector will get live streaming of the videos monitored at a Centralised control room and the data stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the 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 depots 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, 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.

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**Pre-Feasibility Report**

**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.



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***Pre-Feasibility Report***

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**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 Envirnoment 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.

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***Pre-Feasibility Report***

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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

**Mhaswad-1 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA)  
At Manganga Riverbed Gut No.1181, 1167, 1226. Mhaswad Village, Tehsil-Maan , 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 the 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

Mhaswad-1 is a small Village/hamlet in Maan Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located at 80 KM from District headquarters Satara. Approximately 254 KM from State capital Mumbai.

The sand spot area is connected to approach road at 769 meter in South direction. SH-145 road is situated at a distance of 0.60 km. in the south of the sand ghat spot. Satara Railway Station is present at a distance of 78 km.

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

**Table 1: Salient Features of the Project**

Items	Details		
Location	Mhaswad-1 Village, Tehsil-Maan , Satara District, Maharashtra		
Latitude and Longitude	<b>Boundary points of Mhaswad-1</b>	<b>Latitude</b>	<b>Longitude</b>
	BP1	17°38'35.32"N	74°46'15.87"E
	BP2	17°38'36.15"N	74°46'17.13"E
	BP3	17°38'30.16"N	74°46'21.41"E
	BP4	17°38'29.33"N	74°46'20.15"E

## Environmental Management Plan

**Mhaswad-1 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA)  
At Manganga Riverbed Gut No.1181, 1167, 1226. Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.**

Sand spot area (In Ha)	1.00
Proposed production capacity (In Brass )	2659
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	15.38 KLD – Tankers from nearby village.
Project cost INR (Lakh)	175.33446

### 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, Krishna valley, Nira valley, and Mahadev hills and Eastern plateau.

The Sand Ghat area as per survey is River bed of Manganga River. The slope is of 2 m from 663 to 661 MSL. The slope of Sand Ghat area towards NW side. The highest MSL is 663 & lowest 661 MSL. The flow of Manganga River is from SE to NW 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 be no 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

# Environmental Management Plan

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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 waste water 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 19.1 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.

# Environmental Management Plan

**Mhaswad-1 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA)  
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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 consider for calculatio n
1	Area under mining / pit	-	1.00	1.00	---	1.00
2	Area under dump	NIL	---	---	---	

## Environmental Management Plan

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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					
<b>GRAND TOTAL</b>				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

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

S. No	Impact Source	Impact	Control measure	Mhaswad1
1	Transport Road	On Air Quality	Compaction, gradation and drainage on both sides.	112500
		Road Degradation	Budget for Road Repairs and Maintanence from Approach Road to Main Road	115350
		Road Construction	Road Construction from Quarry to Access Road	192250
		Air Environment	Dust Supression by Regular water spraying.	115350
			Air quality will be monitoring at impacted village.(For One Day Monitoring)	50000

## Environmental Management Plan

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			Health Checkup 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)	88435
3	Ramp and Sand Reach	Mining Operations	Regular ramp Inspection and Ramp maintenance.(Excluding Man Power Salary which is included in labour costs)	96125
			Provision of dusk masks.	15000
4	Bank Management	Bank Erosion/Flood Plain management	Green Belt along Road	384500
			Green belt along bank(For Green Belt Development)	769
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 aren't available.	200000



## Environmental Management Plan

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14	Development of Market Model		Provision for development of market model & associated works if different funds aren't available.	25000
15	Environmental Audit		Provision for third party environmental audit if different funds aren't available.	50000
			Total EMP Budget	2053679
			Capital Cost	1426854
			Recurring Cost	626825

**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.
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- Watermark
- GP Based Vehicle Tracking System

### **9. Mhaswad-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 is allocated in EMP.
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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.
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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 depots 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, 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:**

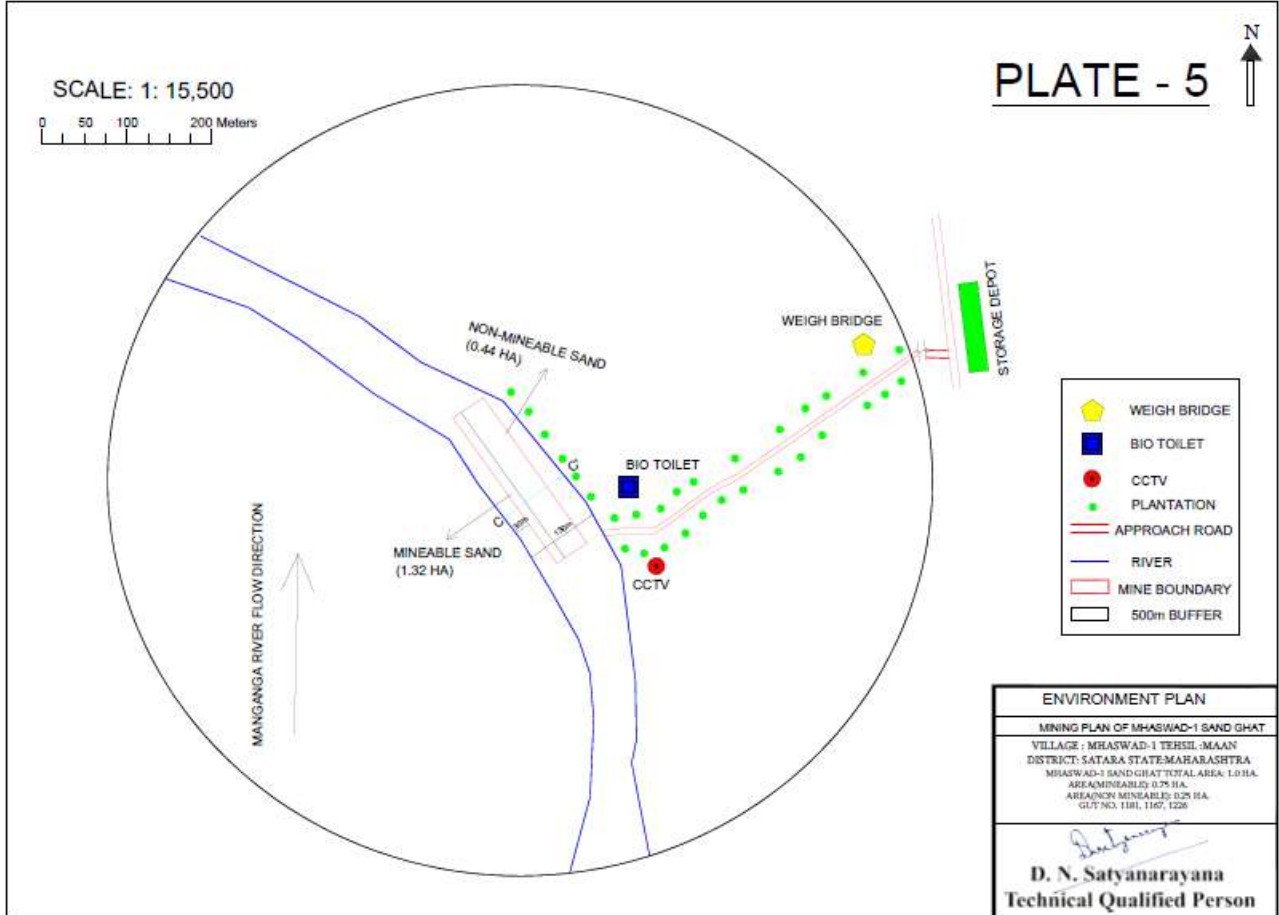
12. DMO Satara to submit cluster certificate with reference to the EIA Notification 2006 amended from time to time with specific remarks on the cluster formation in the periphery of the proposed sand ghat along with area map showing distances between adjoining sand mine areas. Proposed Mhaswad-1 sand 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.

# Environmental Management Plan

**Mhaswad-1 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA)  
At Manganga Riverbed Gut No.1181, 1167, 1226. Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.**

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 769 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 Maan 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.

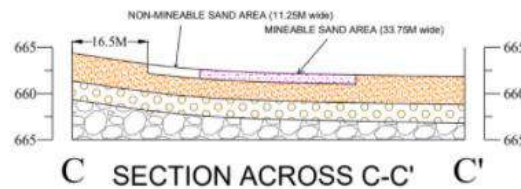
3. PP to submit cross section of river bed showing distance of proposed sand mine area from the river bank and other details as prescribed in the Enforcement & Monitoring Guidelines for sand mining published in January 2020 by MoEF&CC.

Cross section of river bed is shown below:

## Environmental Management Plan

**Mhaswad-1 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA)  
At Manganga Riverbed Gut No.1181, 1167, 1226. Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.**

### PLATE - 5A



#### LEGEND

REFERENCES	SYMBOLS
BOUNDARY	
MINEABLE SAND	
PEBBLE	
GRAVEL	
RL	748
SECTION LINE	X—X'
GABION STRUCTURE	

Note: Horizontal Scale 1:1000  
Vertical Scale 1:500

**SCALE - 1 : 1000**

<b>SURFACE CUM GEOLOGICAL PLAN</b>
<b>MINING PLAN OF MHASWAD SAND GHAT</b>
VILLAGE : MHASWAD TEHSIL : MAN
DISTRICT : SATARA STATE: MAHARASHTRA
MHASWAD SAND GHAT TOTAL AREA: 1.0035HA.
AREA(MINEABLE): 0.753 HA.
AREA(NON MINEABLE): 0.251HA.
GUT NO. 1181,1167,1226
<b>D. N. Satyanarayana</b>
<b>Technical Qualified Person</b>

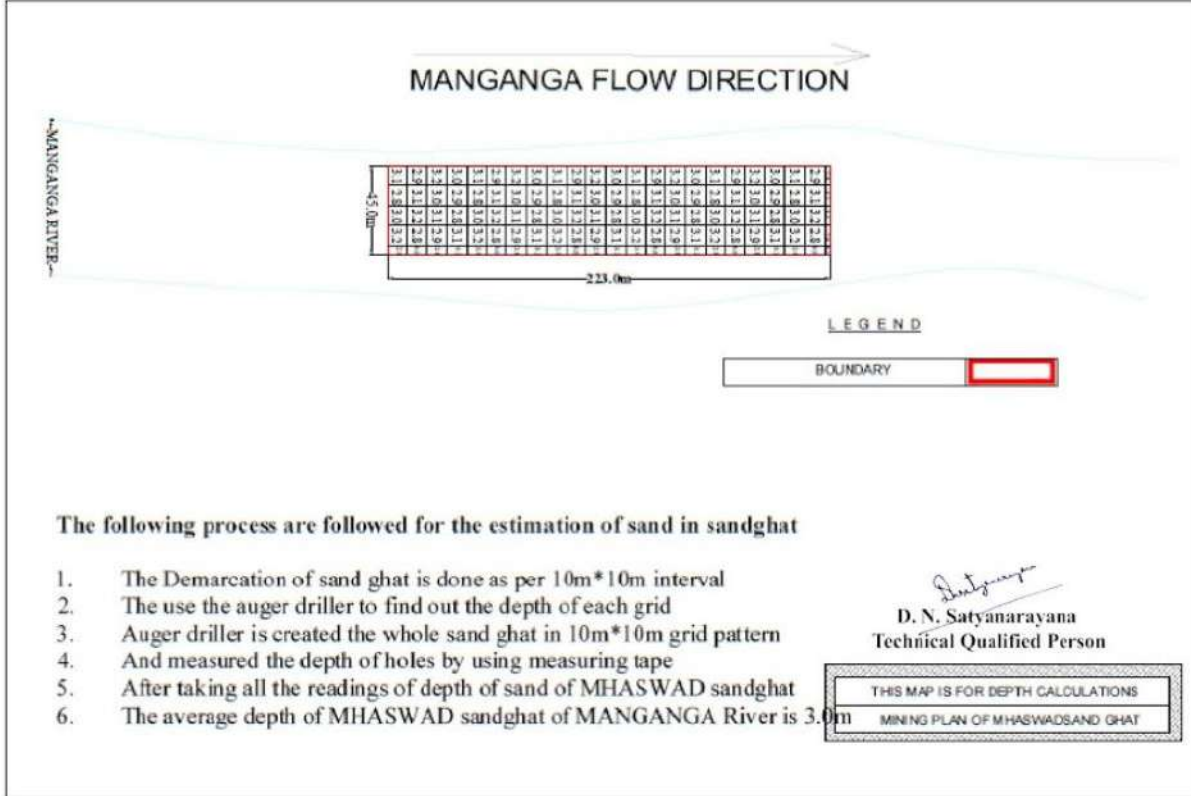
4. PP to submit details of District Level Task Force committee meetings and status of compliance of its recommendations if any

District Level Task Force Committee Meeting details is enclosed.

# Environmental Management Plan

**Mhaswad-1 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA)  
At Manganga Riverbed Gut No.1181, 1167, 1226. Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.**

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.



## 6. Sediment Yield Calculation

### DANDY-BOLTON EQUATION

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

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

A= net drainage area in sq. mile

### Conclusion:

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

## Environmental Management Plan

**Mhaswad-1 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA)  
At Manganga Riverbed Gut No.1181, 1167, 1226. Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.**

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:

<b>Location of greenbelt</b>	Both sides of approach road, On the river banks of both sides of the sand spot & nearby open areas  Haul Road outside riverbed
<b>Afforestation area/ annum</b>	1984 Sq.m /annum
<b>No. of plants to be planted</b>	992 Per Hectare
<b>Spacing of plants</b>	2 m grid interval
<b>Species selected</b>	Native species

Tree species recommended for Plantation:

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

# Environmental Management Plan

**Mhaswad-1 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA)  
At Manganga Riverbed Gut No.1181, 1167, 1226. Mhaswad Village, Tehsil-Maan, 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 Mhaswad-1 Sand Spot will be useful to the developmental work in the district and also generate employment opportunities.

## BUDGET FOR CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

SNo.	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



**Mhaswad-2 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA) At Manganga Riverbed Gut No.534, 541, 500 Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.**

**Form 1M**

**Page: 1 of 2**

**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: Mhaswad-2 Sand Spot

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

<b>Boundary points of Mhaswad-2</b>	<b>Latitude</b>	<b>Longitude</b>
BP1	17°37'34.62"N	74°47'48.43"E
BP2	17°37'35.62"N	74°47'49.45"E
BP3	17°37'30.35"N	74°47'55.08"E
BP4	17°37'29.35"N	74°47'54.06"E

(iii) Size of the Mining Lease (Hectare): 1.0 HA

(vi) Capacity of Mining Lease (TPA): 2644 Brass

(v) Period of Mining Lease: 1 year

(vi) Expected cost of the Project: 174.34 Lakhs

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

**(II) Environmental Sensitivity**

<b>S. No.</b>	<b>Areas</b>	<b>Distance in Kilometer/Details</b>
1	Distance of project site from nearest rail or road bridge over the concerned River, Rivulet, Nallah et	Bridge, 0.86Km, NW
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	Pandharpur, 55.9Km, E NH204, 44Km, SE SH77, 0.75Km, W Mhaswad-Varkute Rd, 0.53Km SW 0.35Km, W 0.32Km, W Manganga River Bed

**Mhaswad-2 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA) At Manganga Riverbed Gut No.534, 541, 500 Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.**

**Form 1M**

**Page: 2 of 2**

	In-take for drinking water pump house Intake for Irrigation canal pumps	Nil Nil
3	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 Manganga 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	Manganga River Bed
7	State, National boundaries	Nil
8	Routes or facilities used by the public for access to recreation or other tourist, Pilgrim areas	SH77, 0.75Km, W
9	Defence installations	Nil
10	Densely populated or built-up area, distance from nearest human habitation	Mhaswad, 1.27Km, 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)	Manganga 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 (Least activeModerate), 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:-	No

***Mhaswad-2 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA) At Manganga Riverbed Gut No.534, 541, 500 Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.***

**Form 1M**

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	(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

***Mhaswad-2 sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Manganga River Bed Gut No. 534, 541, 500 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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## **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 & 0.25HA. 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 2644 Brass sand is proposed to auction from proposed sand spot.
- Proposed site is located at the Manganga river bank.

### **1. Physiography**

The Sand Ghat area as per survey is River bed of Manganga River. The slope is of 2 m from 663 to 661 MSL. The slope of Sand Ghat area towards NW side. The highest MSL is 663 & lowest 661 MSL. The flow of Manganga River is from SE to NW 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 7482 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.

### **4. Introduction of the project/ background information**

The Mhaswad-2 Sand Spot has been kept for Auction which is situated at Village Mhaswad, Taluka Maan, 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.

***Mhaswad-2 sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Manganga River Bed Gut No. 534, 541, 500 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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**i) Brief description of project**

The Sand Spot has sufficient Reserve of Sand to work at 7482 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.

**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**

Mhaswad is a small Village/hamlet in Maan Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located at 79 KM from District headquarters Satara. Approximately 254 KM from State capital Mumbai.

The sand spot area is connected to approach road at 621 meter in SW direction. SH-77 road is situated at a distance of 0.70 km. in the south of the sand ghat spot. Satara Railway Station is present at a distance of 76 km.

The area is covered in SOI Toposheet No- 47K/10. The GPS reading of boundary point are given below:

***Mhaswad-2 sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Manganga River Bed Gut No. 534, 541, 500 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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<b>Boundary points of Mhaswad-2</b>	<b>Latitude</b>	<b>Longitude</b>
BP1	17°37'34.62"N	74°47'48.43"E
BP2	17°37'35.62"N	74°47'49.45"E
BP3	17°37'30.35"N	74°47'55.08"E
BP4	17°37'29.35"N	74°47'54.06"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. 7482 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 7482 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.

*Mhaswad-2 sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Manganga River Bed Gut No. 534, 541, 500 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.*

**Pre-Feasibility Report**

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**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 12.42 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.

***Mhaswad-2 sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Manganga River Bed Gut No. 534, 541, 500 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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## **6. Site Analysis**

### **i) Connectivity**

Mhaswad is a small Village/hamlet in Maan Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located at 79 KM from District headquarters Satara. Approximately 254 KM from State capital Mumbai.

The sand spot area is connected to approach road at 621 meter in SW direction. SH-77 road is situated at a distance of 0.70 km. in the south of the sand ghat spot. Satara Railway Station is present at a distance of 76 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).



*Mhaswad-2 sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Manganga River Bed Gut No. 534, 541, 500 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.*

**Pre-Feasibility Report**

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**8. Planning brief**

The proposed project is opencast manual sand mining activity.

**Supply demand ratio:**

Informataion 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

**Mhaswad-2 sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Manganga River Bed Gut No. 534, 541, 500 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.**

**Pre-Feasibility Report**

<b>Ongoing Government Civil/ infrastructural works in the district (2020-21)</b>			
<b>Sr. No</b>	<b>Name of Govt. Yojana</b>	<b>Details of work</b>	<b>Approx Qty of Sand required in Brass</b>
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
<b>Total</b>			<b>25361</b>

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 माहितीद्वारे 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.

***Mhaswad-2 sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Manganga River Bed Gut No. 534, 541, 500 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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**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 pre 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.

***Mhaswad-2 sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Manganga River Bed Gut No. 534, 541, 500 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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- 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**

$$S = 1280 * (Q)^{0.46} * (1.46 - 0.26 \log(A)) * F$$

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

$$S = 1958 * (Q)^{(e^{-0.055 * Q})} * (1.43 - 0.26 \log(A))$$

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

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.
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- 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

***Mhaswad-2 sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Manganga River Bed Gut No. 534, 541, 500 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.***

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- 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 is 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.

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***Pre-Feasibility Report***

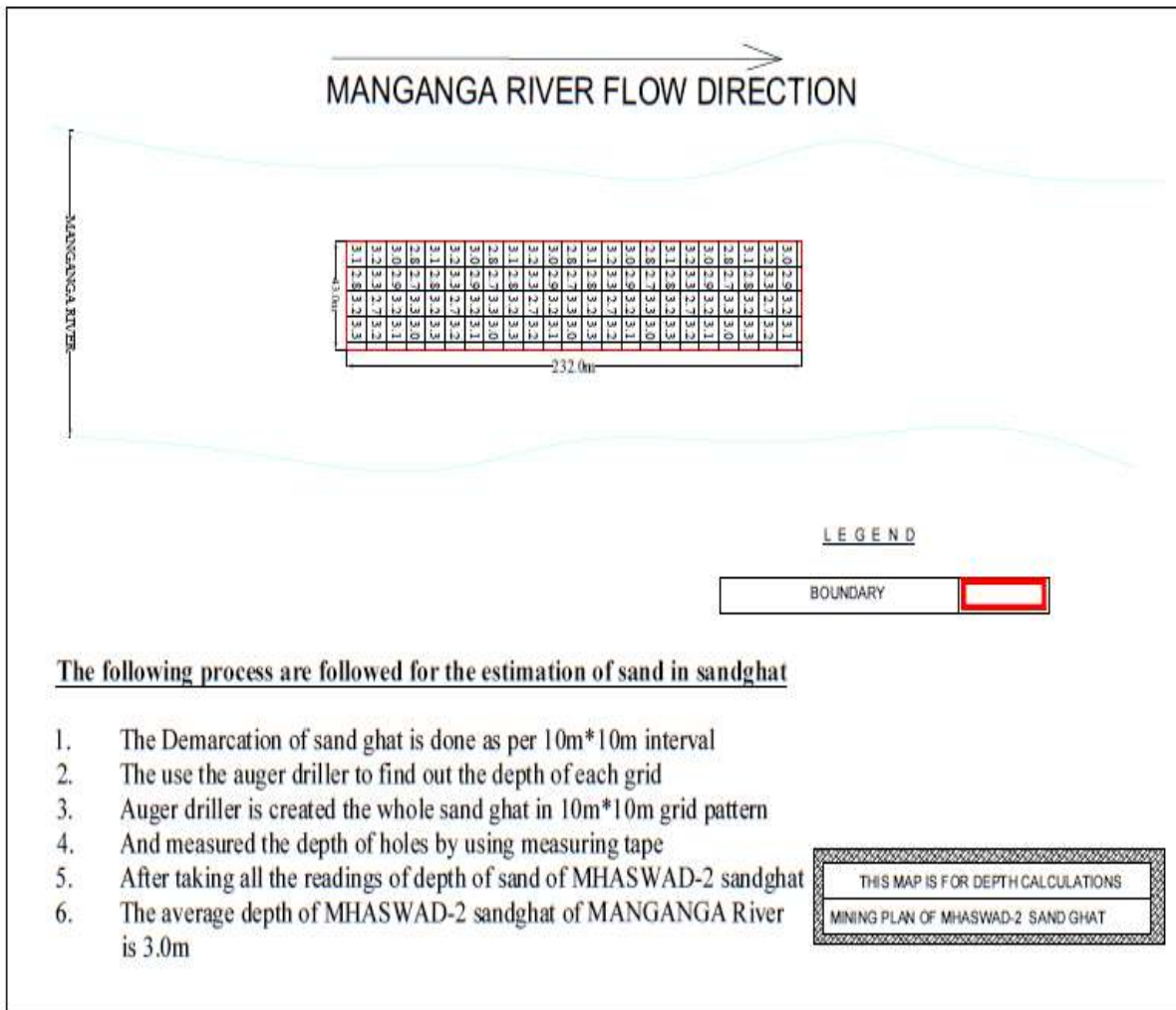
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9. District collector will ensure that all the Earlier Environmental Clearance conditions would be implemented on time as per the Sustainable sand Mining Guidelines 2020.
10. Ground Water Level Monitoring - Collector will ensure that the Piezometer's 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 is 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 depots 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.

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**Pre-Feasibility Report**

**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.

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***Pre-Feasibility Report***

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**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 Envirnoment 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



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***Pre-Feasibility Report***

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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

**Mhaswad-2 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA)  
At Manganga Riverbed Gut No. 534, 541, 500 Mhaswad Village, Tehsil-Maan , 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 the 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

Mhaswad-2 is a small Village/hamlet in Maan Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located at 79 KM from District headquarters Satara. Approximately 254 KM from State capital Mumbai.

The sand spot area is connected to approach road at 621 meter in SW direction. SH-77 road is situated at a distance of 0.70 km. in the south of the sand ghat spot. Satara Railway Station is present at a distance of 76 km.

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

**Table 1: Salient Features of the Project**

Items	Details		
Location	Mhaswad-2 Village, Tehsil-Maan , Satara District, Maharashtra		
Latitude and Longitude	<b>Boundary points of Mhaswad-2</b>	<b>Latitude</b>	<b>Longitude</b>
	BP1	17°37'34.62"N	74°47'48.43"E
	BP2	17°37'35.62"N	74°47'49.45"E
	BP3	17°37'30.35"N	74°47'55.08"E
	BP4	17°37'29.35"N	74°47'54.06"E

## Environmental Management Plan

***Mhaswad-2 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA)  
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Sand spot area (In Ha)	1.00
Proposed production capacity (In Brass )	2644
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	12.42 KLD – Tankers from nearby village.
Project cost INR (Lakh)	174.34536

### 3. Baseline Environmental Studies

#### a. Topography

Satara district is the part of Deccan trap of Indian Peninsula. The physical setting of districts 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 Manganga River. The slope is of 2 m from 650 to 648 MSL. The slope of Sand Ghat area towards SE side. The highest MSL is 650 & lowest 648 MSL. The flow of Manganga River is from SE to NW direction.

#### b. Hydrology

The 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 be no 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.

# Environmental Management Plan

***Mhaswad-2 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA)  
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**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 waste water 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 19.1 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.<sup>1</sup>

(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.

# Environmental Management Plan

**Mhaswad-2 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA)  
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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 consider for calculatio n
1	Area under mining / pit	-	1.00	1.00	---	1.00

## Environmental Management Plan

**Mhaswad-2 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA)  
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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					
<b>GRAND TOTAL</b>				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

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

S. No	Impact Source	Impact	Control measure	Mhaswad2
1	Transport Road	On Air Quality	Compaction, gradation and drainage on both sides.	107500
		Road Degradation	Budget for Road Repairs and Maintenance from Approach Road to Main Road	93150
		Road Construction	Road Construction from Quarry to Access Road	155250
		Air Environment	Dust Suppression by Regular water spraying.	93150
			Air quality will be monitoring at impacted village.(For One Day Monitoring)	50000

## Environmental Management Plan

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			Health Checkup 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)	71415
3	Ramp and Sand Reach	Mining Operations	Regular ramp Inspection and Ramp maintenance.(Excluding Man Power Salary which is included in labour costs)	77625
			Provision of dusk masks.	15000
4	Bank Management	Bank Erosion/Flood Plain management	Green Belt along Road	310500
			Green belt along bank(For Green Belt Development)	621
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 aren't available.	200000

## Environmental Management Plan

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14	Development of Market Model		Provision for development of market model & associated works if different funds aren't available.	25000
15	Environmental Audit		Provision for third party environmental audit if different funds aren't available.	50000
			Total EMP Budget	1857611
			Capital Cost	1298686
			Recurring Cost	558925

**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.
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- 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



## Environmental Management Plan

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- Watermark
- GP Based Vehicle Tracking System

### **9. Mhaswad-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 is 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/depos 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/depos.
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 within 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 is included in the EMP.

## Environmental Management Plan

***Mhaswad-2 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA)  
At Manganga Riverbed Gut No. 534, 541, 500 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.***

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 depots 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, 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:**

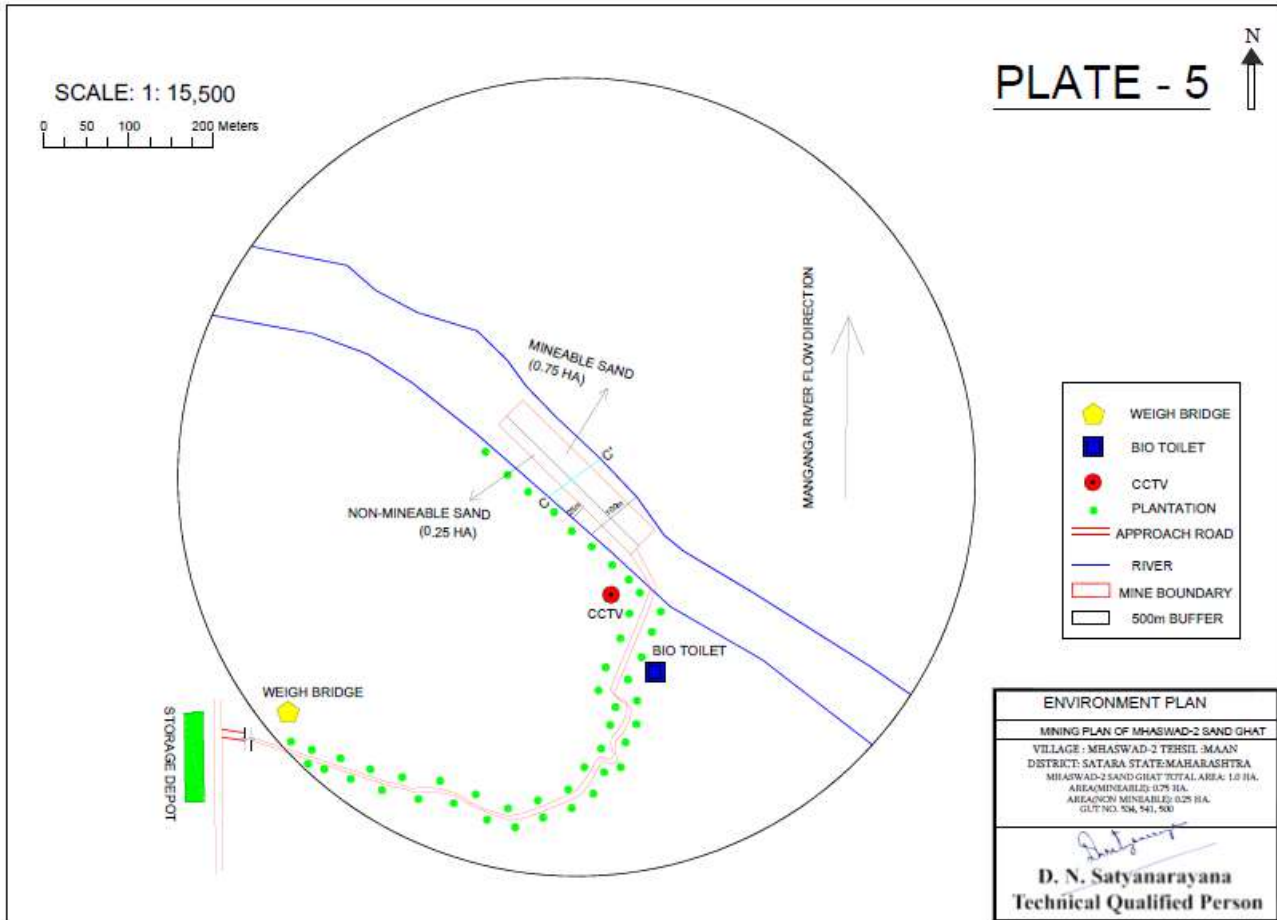
12. DMO Satara to submit cluster certificate with reference to the EIA Notification 2006 amended from time to time with specific remarks on the cluster formation in the periphery of the proposed sand ghat along with area map showing distances between adjoining sand mine areas. Proposed Mhaswad-2 sand 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.

# Environmental Management Plan

**Mhaswad-2 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA)  
At Manganga Riverbed Gut No. 534, 541, 500 Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.**

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.

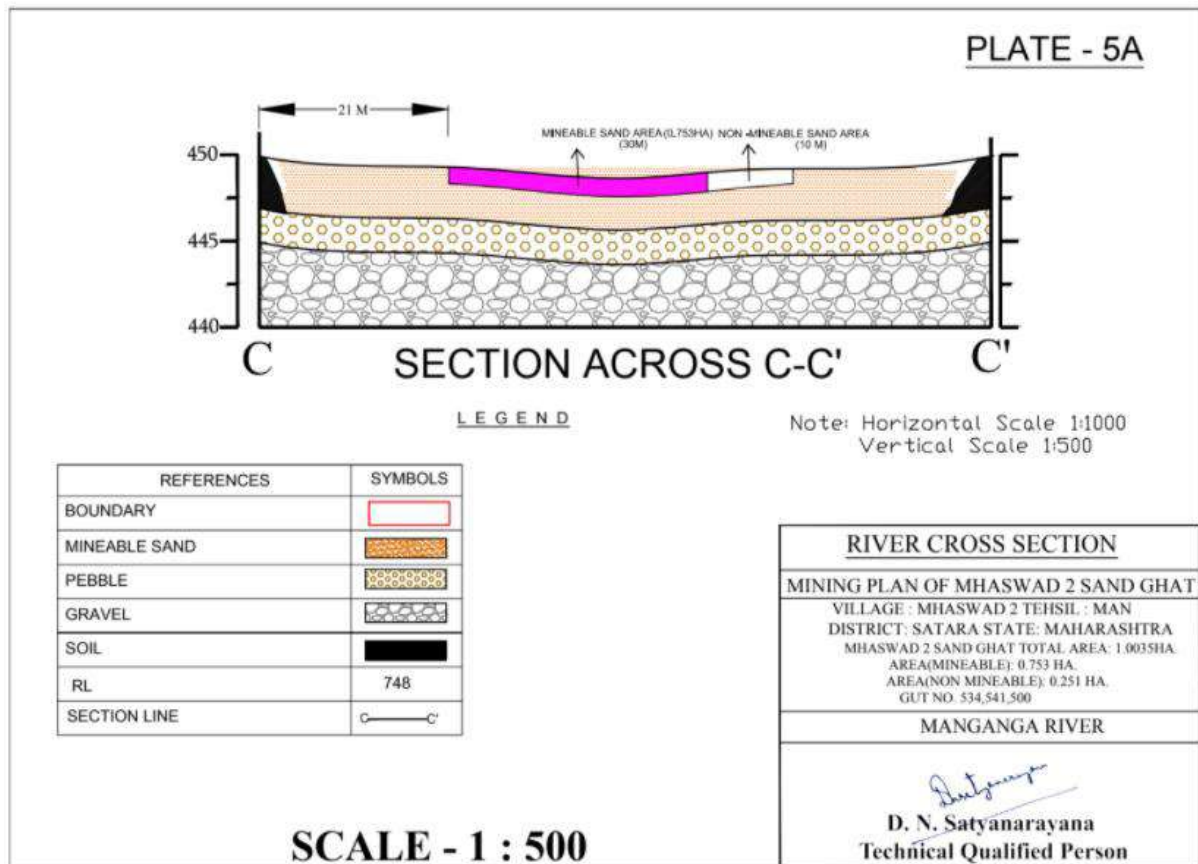
The proposed approach road length is 621m and it belongs to Gram Panchayat, the mined out sand from sand ghat will be stored adjacent to approach near the river bank. Consent of road submitted by Maan Tahsildar is enclosed for use of land as approach road. The successful bidder will be deciding the storage 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:

## Environmental Management Plan

**Mhaswad-2 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA)  
At Manganga Riverbed Gut No. 534, 541, 500 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.**



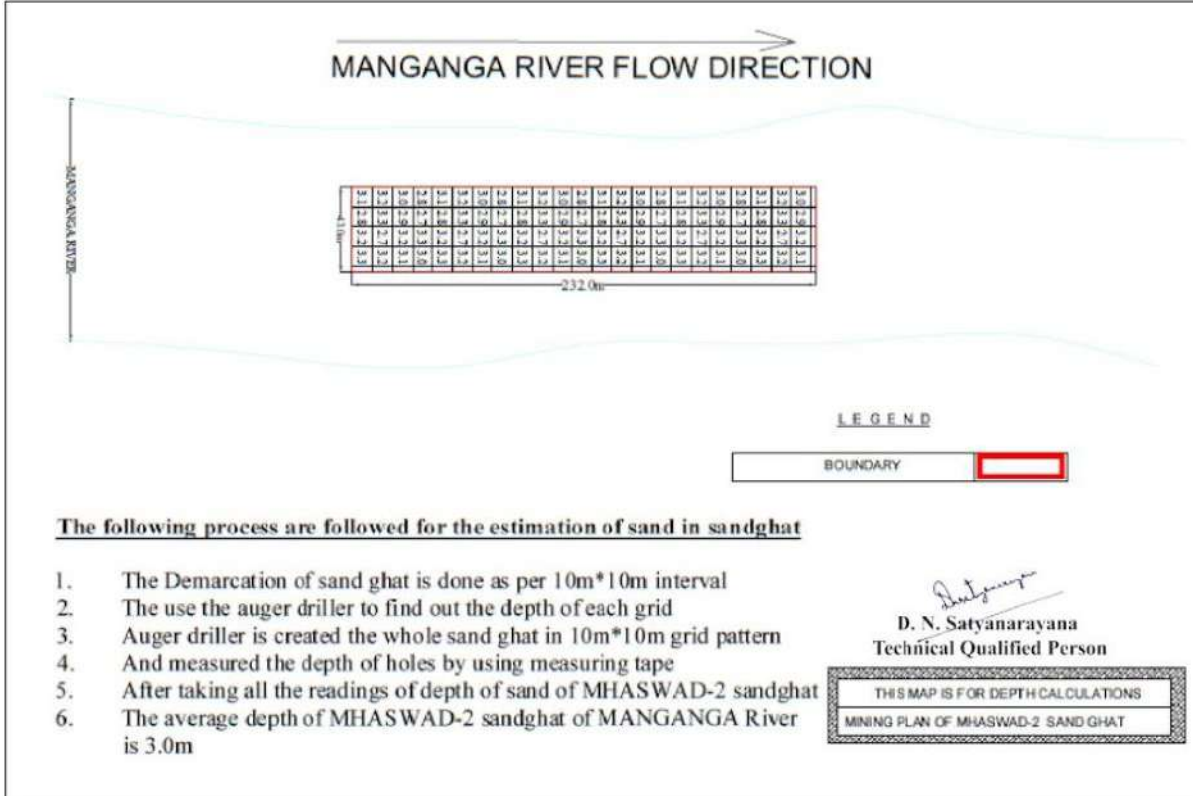
4. PP to submit details of District Level Task Force committee meetings and status of compliance of its recommendations if any

District Level Task Force Committee Meeting details is enclosed.

# Environmental Management Plan

**Mhaswad-2 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA)  
At Manganga Riverbed Gut No. 534, 541, 500 Mhaswad Village, Tehsil-Maan , Satara District, Maharashtra.**

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.



## 6. Sediment Yield Calculation

### DANDY-BOLTON EQUATION

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

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

A= net drainage area in sq. mile

### Conclusion:

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

## Environmental Management Plan

**Mhaswad-2 sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA)  
At Manganga Riverbed Gut No. 534, 541, 500 Mhaswad Village, Tehsil-Maan, Satara District, Maharashtra.**

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:

<b>Location of greenbelt</b>	Both sides of approach road, On the river banks of both sides of the sand spot & nearby open areas  Haul Road outside riverbed
<b>Afforestation area/ annum</b>	1706 Sq.m /annum
<b>No. of plants to be planted</b>	853 Per Hectare
<b>Spacing of plants</b>	2 m grid interval
<b>Species selected</b>	Native species

Tree species recommended for Plantation:

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

# Environmental Management Plan

**Mhaswad-2sand spot over an extent of 1.0 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA)  
At Manganga Riverbed Gut No. 534, 541, 500 Mhaswad Village, Tehsil-Maan , 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 Mhaswad-2Sand Spot will be useful to the developmental work in the district and also generate employment opportunities.

## BUDGET FOR CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

SNo.	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

*Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA-1.13 HA & NON-MINEABLE AREA-0.38HA) At Yerala Riverbed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Katav, Satara District, Maharashtra.*

Form 1M

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**APPENDIX VIII**  
**(See paragraph 6)**

**FORM 1 M**

**APPLICATION FOR MINING OF MINOR MINERALS UNDER CATEGORY 'B2' FOR LESS THAN AND TO FIVE HECTARE**

**(I) Basic Information**

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

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

<b>Boundary points of Nimsod</b>	<b>Latitude</b>	<b>Longitude</b>
B.P 1	17°27'19.05"N	74°29'33.42"E
B.P 2	17°27'18.94"N	74°29'34.43"E
B.P 3	17°27'29.57"N	74°29'35.63"E
B.P 4	17°27'34.77"N	74°29'37.74"E
B.P 5	17°27'35.12"N	74°29'36.79"E
B.P 6	17°27'29.79"N	74°29'34.64"E

(iii) Size of the Mining Lease (Hectare): 1.50 HA

(vi) Capacity of Mining Lease (TPA): 3975 Brass

(v) Period of Mining Lease: 1 year

(vi) Expected cost of the Project: 262.115 Lakhs

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

**(II) Environmental Sensitivity**

<b>S. No.</b>	<b>Areas</b>	<b>Distance in Kilometer/Details</b>
1	Distance of project site from nearest rail or road bridge over the concerned River, Rivulet, Nallah et	Bridge, 1.16Km, S
2	Distance from infrastructural facilities Railway line National Highway State Highway Major District Road Any Other Road	Karad Railway station, 33.6Km, SW NH4, 38.9Km, SW SH77, 2.93Km, SE 2.95Km, W 0.36Km, E



*Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA-1.13 HA & NON-MINEABLE AREA-0.38HA) At Yerala Riverbed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Katav, Satara District, Maharashtra.*

**Form 1M**

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	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	0.1Km, W Yerala River Bed Nil Nil
3	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	SH77, 2.93Km, SE
9	Defence installations	Nil
10	Densely populated or built-up area, distance from nearest human habitation	Nimsod, 2.95Km, W
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 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

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	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

*Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA- 1.13 HA & NON-MINEABLE AREA-0.38 HA) At Yerala River Bed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Khatav, Satara District, Maharashtra.*

**Pre-Feasibility Report**

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**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 1.50 HA (1.13 HA. Mineable & 0.38 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 3975 Brass sand is proposed to auction from proposed sand spot.
- Proposed site is located at the Yerala river bank.

**1. Physiography**

The Sand Ghat area as per survey is River bed of Yerala River. The slope is of 3 m from 728 to 731 MSL. The slope of Sand Ghat area towards SW side. The highest MSL is 731 & lowest 728 MSL. The flow of Yerala 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**

The Sand Spot has sufficient Reserve of Sand to work at 11250 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 NE to SW 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.

**4. Introduction of the project/ background information**

The Nimsod Sand Spot has been kept for Auction which is situated at Village Nimsod, 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.

*Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA- 1.13 HA & NON-MINEABLE AREA-0.38 HA) At Yerala River Bed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Khatav, Satara District, Maharashtra.*

**Pre-Feasibility Report**

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**i) Brief description of project**

The Sand Spot has sufficient Reserve of Sand to work at 11250 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 NE to SW 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**

Nimsod is a small Village/hamlet in Khatav Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 55 KM towards west from District headquarters Satara. Approximately 240 KM from State capital Mumbai.

The sand spot area is connected to approach road at 474 meter in West direction. SH-77 road is situated at a distance of 2.7 km. in the south of the sand ghat spot. Satara Railway Station is present at a distance of 52 km.

The area is covered in SOI Toposheet No- 47K/10. The GPS reading of boundary point are given below:

*Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA- 1.13 HA & NON-MINEABLE AREA-0.38 HA) At Yerala River Bed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Khatav, Satara District, Maharashtra.*

**Pre-Feasibility Report**

Boundary points of Nimsod	Latitude	Longitude
BP1	17°27'19.05"N	74°29'33.42"E
BP2	17°27'18.94"N	74°29'34.43"E
BP3	17°27'29.57"N	74°29'35.63"E
BP4	17°27'34.77"N	74°29'37.74"E
BP5	17°27'35.12"N	74°29'36.79"E
BP6	17°27'29.79"N	74°29'34.64"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. 11250 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 11250 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 NE to SW 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.

*Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA- 1.13 HA & NON-MINEABLE AREA-0.38 HA) At Yerala River Bed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Khatav, Satara District, Maharashtra.*

**Pre-Feasibility Report**

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**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 9.48 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.

*Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA- 1.13 HA & NON-MINEABLE AREA-0.38 HA) At Yerala River Bed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Khatav, Satara District, Maharashtra.*

**Pre-Feasibility Report**

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## **6. Site Analysis**

### **i) Connectivity**

Nimsod is a small Village/hamlet in Khatav Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 55 KM towards west from District headquarters Satara. Approximately 240 KM from State capital Mumbai.

The sand spot area is connected to approach road at 474 meter in West direction. SH-77 road is situated at a distance of 2.7 km. in the south of the sand ghat spot. Satara Railway Station is present at a distance of 52 km.

### **ii) Land Use, form & Ownership**

The ultimate land use pattern for the lease area of 1.50 HA. will be consisting of

- |                                     |          |
|-------------------------------------|----------|
| 1. Mining Area :                    | 1.50 HA. |
| 2. Construction of Temporary Roads: | 0.00 HA. |
| 3. Total :                          | 1.50 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).

*Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA- 1.13 HA & NON-MINEABLE AREA-0.38 HA) At Yerala River Bed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Khatav, Satara District, Maharashtra.*

**Pre-Feasibility Report**

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**8. Planning brief**

The proposed project is opencast manual sand mining activity.

**Supply demand ratio:**

Informataion 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
		<b>154227</b>	<b>98871</b>



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**Pre-Feasibility Report**

<b>Ongoing Government Civil/ infrastructural works in the district (2020-21)</b>			
<b>Sr. No</b>	<b>Name of Govt. Yojana</b>	<b>Details of work</b>	<b>Approx Qty of Sand required in Brass</b>
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
<b>Total</b>			<b>25361</b>

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 माहितीद्वारे 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.

*Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA- 1.13 HA & NON-MINEABLE AREA-0.38 HA) At Yerala River Bed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Khatav, Satara District, Maharashtra.*

**Pre-Feasibility Report**

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**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 pre 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.

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**Pre-Feasibility Report**

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- 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**

$$S = 1280 * (Q)^{0.46} * (1.46 - 0.26 \log(A)) * F$$

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

$$S = 1958 * (Q)^{(e^{-0.055 * Q})} * (1.43 - 0.26 \log(A))$$

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

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:

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***Pre-Feasibility Report***

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- 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/depos 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/depos.

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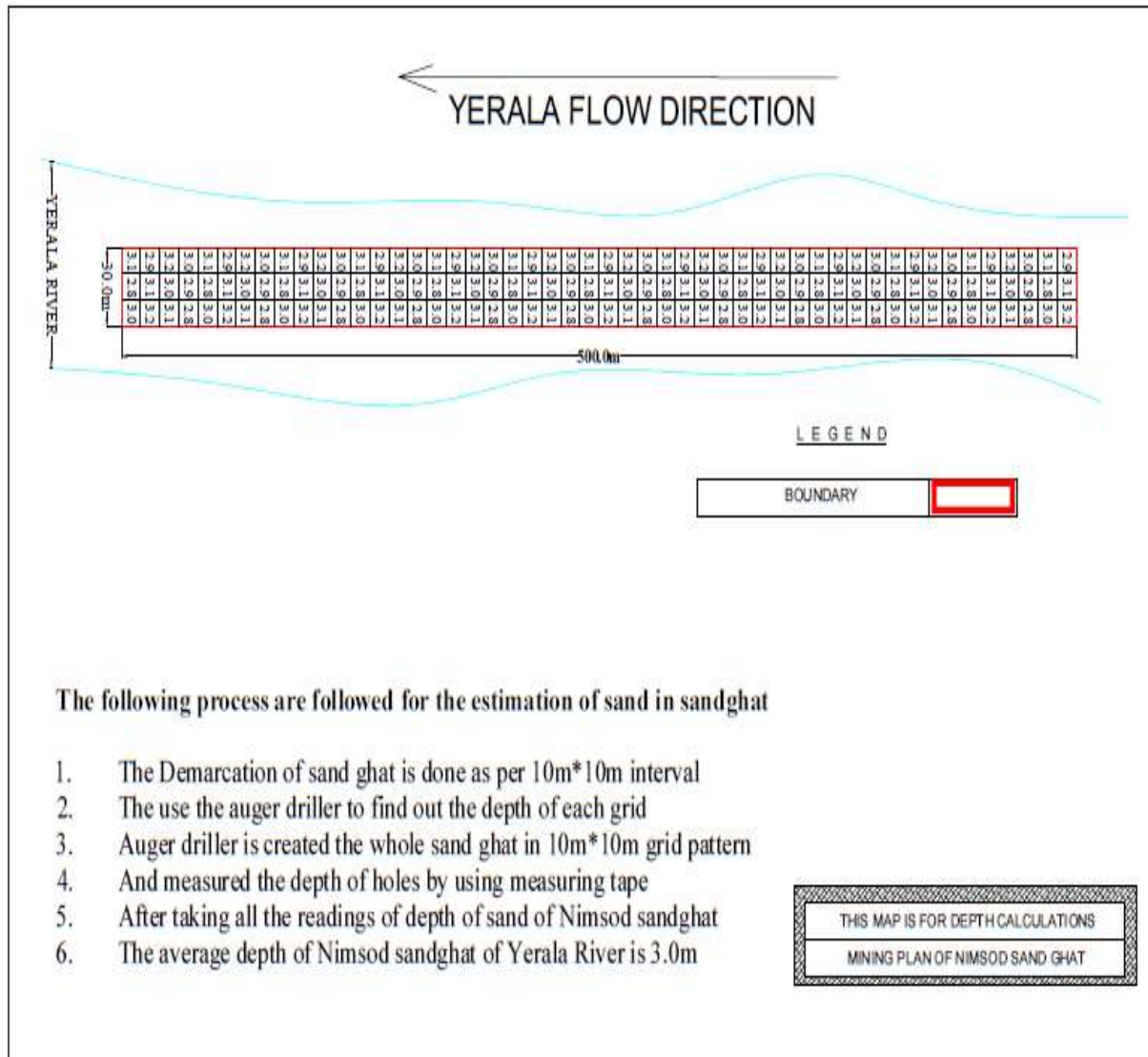
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8. The district collector will get live streaming of the videos monitored at a Centralised control room and the data stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the 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 depots 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, 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.

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## Pre-Feasibility Report

### 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.

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**Pre-Feasibility Report**

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**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 Clearence**

- 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 Envirnoment 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.

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***Pre-Feasibility Report***

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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

***Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA-1.13 HA & NON-MINEABLE AREA-0.38HA) At Yerala Riverbed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Katav, 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 the 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

Nimsod is a small Village/hamlet in Khatav Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 55 KM towards west from District headquarters Satara. Approximately 240 KM from State capital Mumbai.

The sand spot area is connected to approach road at 474 meter in West direction. SH-77 road is situated at a distance of 2.7 km. in the south of the sand ghat spot. Satara Railway Station is present at a distance of 52 km.

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

**Table 1: Salient Features of the Project**

Items	Details		
Location	Nimsod Village, Tehsil-Katav, Satara District, Maharashtra.		
Latitude and Longitude	<b>Boundary points of Nimsod</b>	<b>Latitude</b>	<b>Longitude</b>
	B.P 1	17°27'19.05"N	74°29'33.42"E
	B.P 2	17°27'18.94"N	74°29'34.43"E
	B.P 3	17°27'29.57"N	74°29'35.63"E
	B.P 4	17°27'34.77"N	74°29'37.74"E

## Environmental Management Plan

***Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA-1.13 HA & NON-MINEABLE AREA-0.38HA) At Yerala Riverbed Gut No. 2247, 2249, 2251, 2252, 2254 Nimsod Village, Tehsil-Katav, Satara District, Maharashtra.***

	B.P 5	17°27'35.12"N	74°29'36.79"E
	B.P 6	17°27'29.79"N	74°29'34.64"E
Sand spot area (In Ha)	1.50		
Proposed production capacity (In Brass )	3975		
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	9.48 KLD – Tankers from nearby village.		
Project cost INR (Lakh)	262.1115		

### 3. Baseline Environmental Studies

#### a. Topography

Satara district is the part of Deccan trap of Indian Peninsula. The physical setting of district is divided into 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 Sahyadries, 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 728 to 731 MSL. The slope of Sand Ghat area towards SW side. The highest MSL is 731 & lowest 728 MSL. The flow of Yerala 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.

## Environmental Management Plan

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There is no proposal of any stream modification/diversion due to this mining activity hence there will be no 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 waste water discharges to water bodies from the mining operations. As observed in the River, the thickness of sand to be excavated will be 1m 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 19.1 m BGL. As the mining activities presently proposed are maximum upto 1m 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.<sup>1</sup>

(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

# Environmental Management Plan

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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**

## Environmental Management Plan

*Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA-1.13 HA & NON-MINEABLE AREA-0.38HA) At Yerala Riverbed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Katav, Satara District, Maharashtra.*

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 consider for calculatio n
1	Area under mining / pit	-	1.50	1.50	---	1.50
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					
<b>GRAND TOTAL</b>				1.50	1.50	1.50

- 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	Nimsod
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## Environmental Management Plan

***Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA-1.13 HA & NON-MINEABLE AREA-0.38HA) At Yerala Riverbed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Katav, Satara District, Maharashtra.***

1	Transport Road	On Air Quality	Compaction, gradation and drainage on both sides.	75000
		Road Degradation	Budget for Road Repairs and Maintenance from Approach Road to Main Road	71100
		Road Construction	Road Construction from Quarry to Access Road	118500
		Air Environment	Dust Supression by Regular water spraying.	71100
			Air quality will be monitoring at impacted village.(For One Day Monitoring)	50000
			Health Checkup 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)	15000
			Regular monitoring of the exhaust fumes.	2500
			Barriers & Traffic Management Expenses. (Excluding Man Power Salary which is included in labour costs)	54510
3	Ramp and Sand Reach	Mining Operations	Regular ramp Inspection and Ramp maintenance.(Excluding Man Power Salary which is included in labour costs)	59250
			Provision of dusk masks.	15000
4	Bank Management	Bank Erosion/Flood Plain management	Green Belt along Road	237000
			Green belt along bank(For Green Belt Development)	474
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 Monitoriong Framework	60000
8	Safety		Signage Boards	6000
			Fencing	18000
			Watching	25000

## Environmental Management Plan

*Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA-1.13 HA & NON-MINEABLE AREA-0.38HA) At Yerala Riverbed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Katav, Satara District, Maharashtra.*

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 aren't available.	200000
14	Development of Market Model		Provision for development of market model & associated works if different funds aren't available.	25000
15	Environmental Audit		Provision for third party environmental audit if different funds aren't available.	50000
Total EMP Budget				1640334
Capital Cost				1171384
Recurring Cost				468950

**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.

## Environmental Management Plan

*Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA-1.13 HA & NON-MINEABLE AREA-0.38HA) At Yerala Riverbed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Katav, Satara District, Maharashtra.*

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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. Nimsod-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 is 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.



## Environmental Management Plan

*Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA-1.13 HA & NON-MINEABLE AREA-0.38HA) At Yerala Riverbed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Katav, Satara District, Maharashtra.*

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.

## Environmental Management Plan

*Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA-1.13 HA & NON-MINEABLE AREA-0.38HA) At Yerala Riverbed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Katav, Satara District, Maharashtra.*

- 
- 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:**

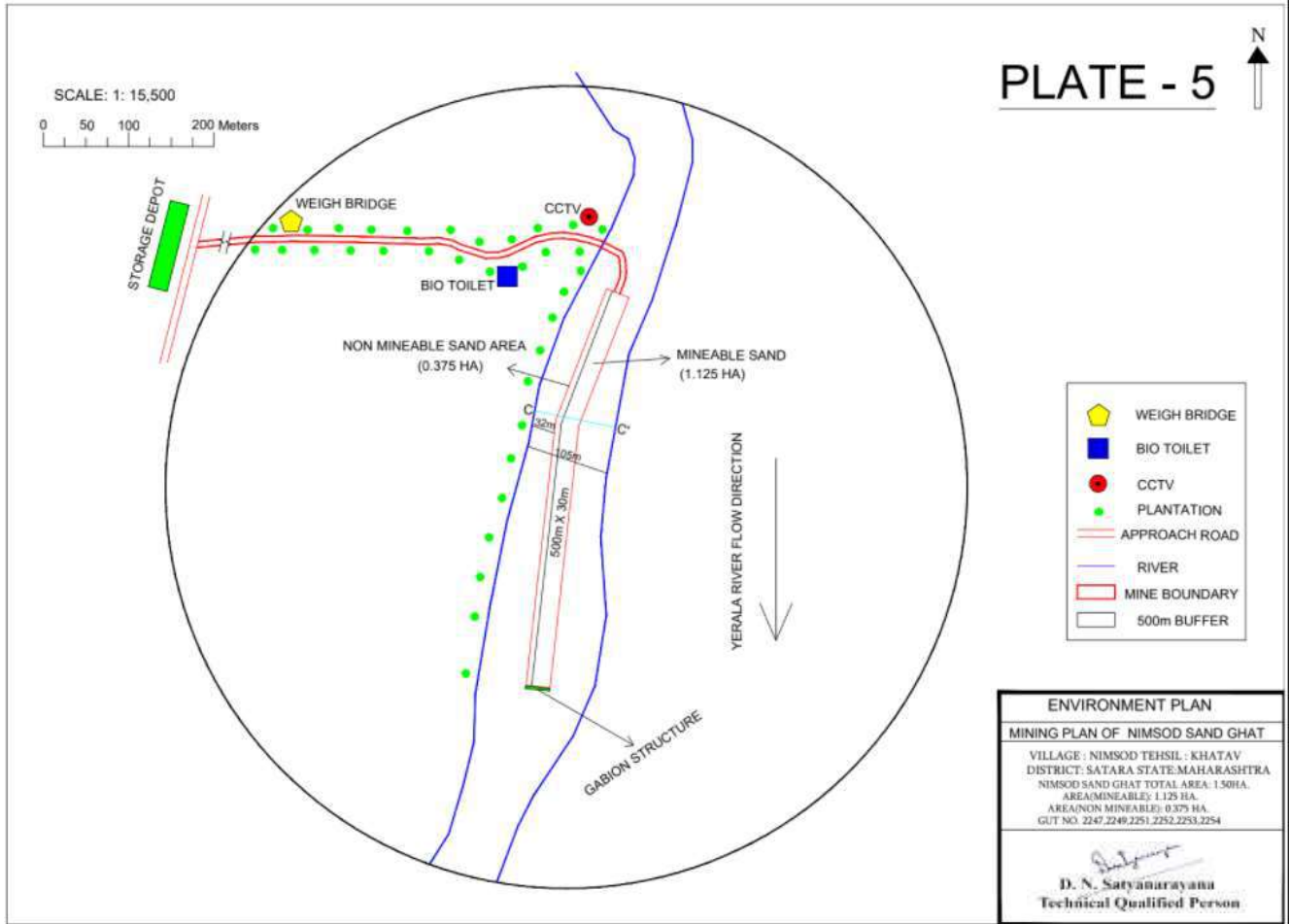
12. DMO Satara to submit cluster certificate with reference to the EIA Notification 2006 amended from time to time with specific remarks on the cluster formation in the periphery of the proposed sand ghat along with area map showing distances between adjoining sand mine areas. Proposed Nimsod sand ghat 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

*Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA-1.13 HA & NON-MINEABLE AREA-0.38HA) At Yerala Riverbed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Katav, 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.

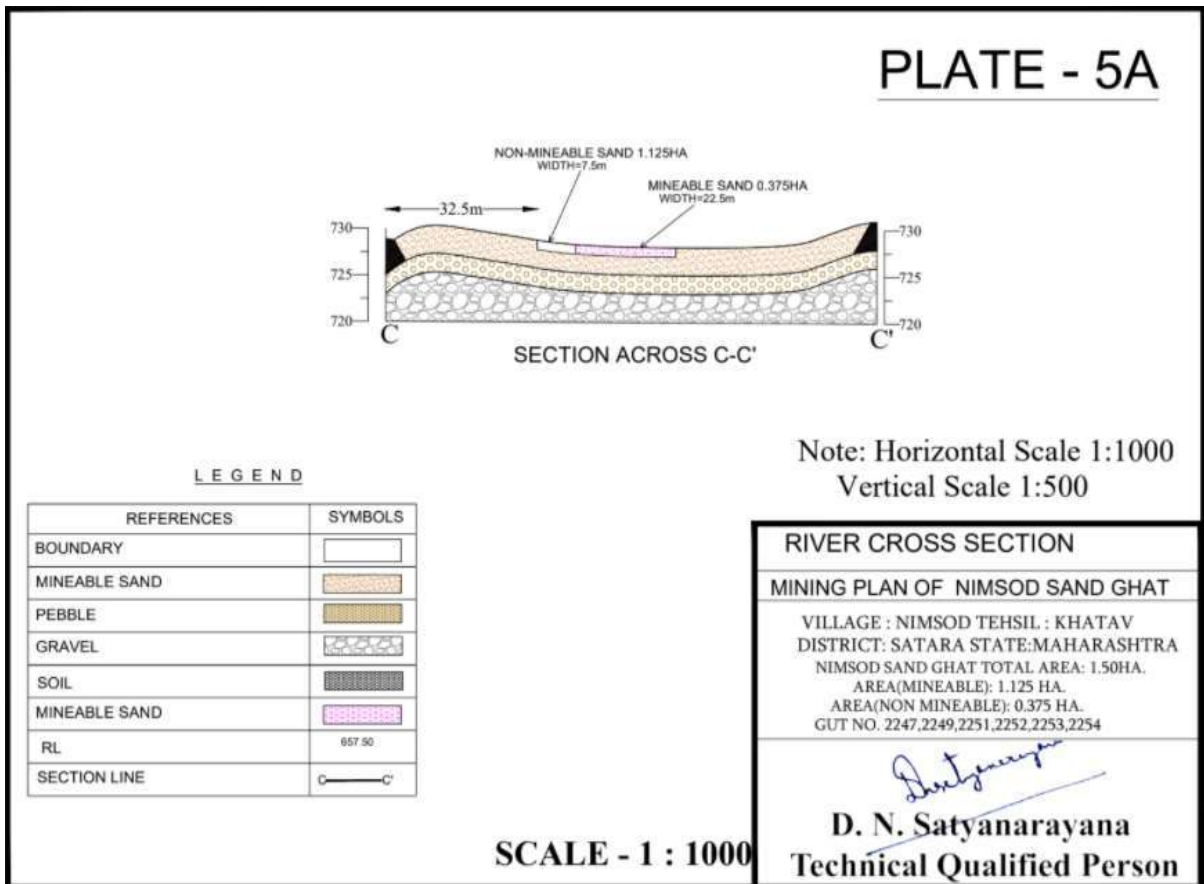
The proposed approach road length is 474m and it belongs to Gram Panchayat, the mined out sand from sand ghat will be stored adjacent to approach near the river bank. Consent of road submitted by Katav Tahsildar is enclosed for use of land as approach road. The successful bidder will be deciding the 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:

## Environmental Management Plan

*Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA-1.13 HA & NON-MINEABLE AREA-0.38HA) At Yerala Riverbed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Katav, Satara District, Maharashtra.*



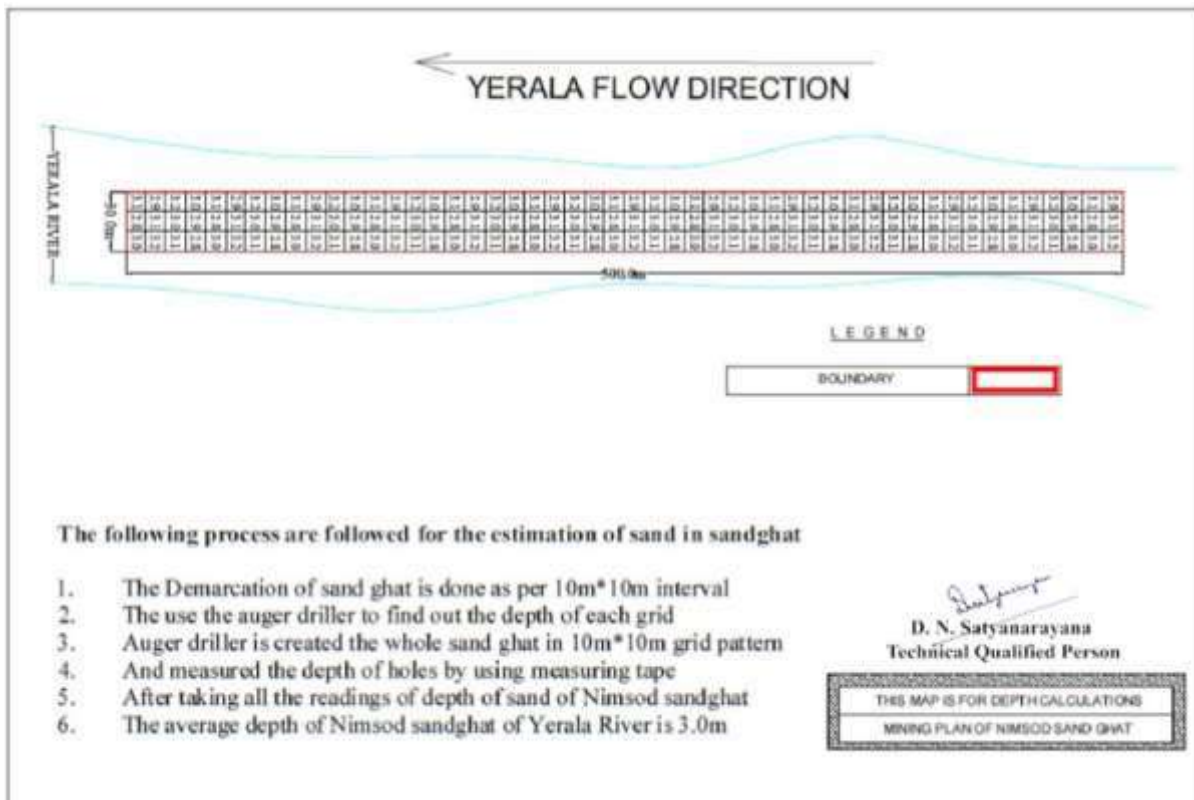
4. PP to submit details of District Level Task Force committee meetings and status of compliance of its recommendations if any

District Level Task Force Committee Meeting details is enclosed.

## Environmental Management Plan

*Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA-1.13 HA & NON-MINEABLE AREA-0.38HA) At Yerala Riverbed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Katav, Satara District, Maharashtra.*

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.



## 6. Sediment Yield Calculation

### DANDY-BOLTON EQUATION

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

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

A= net drainage area in sq. mile

## Environmental Management Plan

*Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA-1.13 HA & NON-MINEABLE AREA-0.38HA) At Yerala Riverbed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Katav, Satara District, Maharashtra.*

### 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:

<b>Location of greenbelt</b>	Both sides of approach road, On the river banks of both sides of the sand spot & nearby open areas Haul Road outside riverbed
<b>Afforestation area/ annum</b>	1948 Sq.m /annum
<b>No. of plants to be planted</b>	974 Per Hectare
<b>Spacing of plants</b>	2 m grid interval
<b>Species selected</b>	Native species

Tree species recommended for Plantation:

<b>Botanical name</b>	<b>Local name</b>	<b>Importance</b>
<i>Azadirachta indica</i>	Neem	Neem oil & neem products
<i>Tectona grandis</i>	Teek	Antibacterial, Antifungal, Antiulcer
<i>Ficus religiosaa</i>	Peepal	Medicinal Use, Fruits & figs

## Environmental Management Plan

*Nimsod sand spot over an extent of 1.50 HA (MINEABLE AREA-1.13 HA & NON-MINEABLE AREA-0.38HA) At Yerala Riverbed Gut No. 2247, 2249, 2251, 2252, 2253, 2254 Nimsod Village, Tehsil-Katav, Satara District, Maharashtra.*

<i>Bambusa vulgaris</i>	Bamboo	Anthelmintic Anti inflammatory,Astringent Properties
<i>Madhuca longifolia</i>	Mahua	Acts as a Stimulant & cough relief,

### 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 Nimsod Sand Spot will be useful to the developmental work in the district and also generate employment opportunities.

### BUDGET FOR CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

SNo.	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

*Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA-0.94 HA & NON-MINEABLE AREA-0.31 HA) At Yerala Riverbed Gut No.390, 389, 385 Pimpri Village, Tehsil-Khatav, Satara District, Maharashtra.*

Form 1M

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**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: Pimpri Sand Spot

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

<b>Boundary points of Pimpri</b>	<b>Latitude</b>	<b>Longitude</b>
B.P 1	17° 30' 53.21"	74° 29' 38.94"
B.P 2	17° 30' 53.84"	74° 29' 40.50"
B.P 3	17° 30' 46.34"	74° 29' 43.78"
B.P 4	17° 30' 45.71"	74° 29' 42.21"

(iii) Size of the Mining Lease (Hectare): 1.25 HA

(vi) Capacity of Mining Lease (TPA): 3313 Brass

(v) Period of Mining Lease: 1 year

(vi) Expected cost of the Project:218.46 Lakhs

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

**(II) Environmental Sensitivity**

<b>S. No.</b>	<b>Areas</b>	<b>Distance in Kilometer/Details</b>
1	Distance of project site from nearest rail or road bridge over the concerned River, Rivulet, Nallah et	DAM, 1.56Km, NE
2	Distance from infrastructural facilities Railway line National Highway State Highway Major District Road Any Other Road Electric transmission line pole or tower	Rahimatpur Railway Station,35.7Km, NW NH-4, 44.9, W SH-146,3.27Km, E 2.42Km, W 2Km, SW 0.24Km, SW



***Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA-0.94 HA & NON-MINEABLE AREA-0.31 HA) At Yerala Riverbed Gut No.390, 389, 385 Pimpri Village, Tehsil-Khatav, Satara District, Maharashtra.***

**Form 1M**

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	Canal or check dam or reservoirs or lake or ponds In-take for drinking water pump house Intake for Irrigation canal pumps	Yerala River Bed Nil Nil
3	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	2.42Km, W
9	Defence installations	Nil
10	Densely populated or built-up area, distance from nearest human habitation	Ambavade, 2.42Km, W
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 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	No

***Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA-0.94 HA & NON-MINEABLE AREA-0.31 HA) At Yerala Riverbed Gut No.390, 389, 385 Pimpri Village, Tehsil-Khatav, Satara District, Maharashtra.***

**Form 1M**

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	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

*Pimpari sand spot over an extent of 1.25 HA (MINEABLE AREA- 0.94 HA & NON-MINEABLE AREA-0.31HA) At Yerala River Bed Gut No. 390, 389, 385 Pimpari Village, Tehsil-Khatav, Satara District, Maharashtra.*

**Pre-Feasibility Report**

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**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 1.25 HA (0.94 HA. Mineable & 0.31 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 3313 Brass sand is proposed to auction from proposed sand spot.
- Proposed site is located at the Yerala river bank.

**1. Physiography**

The Sand Ghat area as per survey is River bed of Yerala River. The slope is of 4 m from 746 to 750 MSL. The slope of Sand Ghat area towards SE side. The highest MSL is 750 & lowest 746 MSL. The flow of Yerala 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 9375 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 NW to SE 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.

**4. Introduction of the project/ background information**

The Pimpari Sand Spot has been kept for Auction which is situated at Village Pimpari, 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.

*Pimpari sand spot over an extent of 1.25 HA (MINEABLE AREA- 0.94 HA & NON-MINEABLE AREA-0.31HA) At Yerala River Bed Gut No. 390, 389, 385 Pimpari Village, Tehsil-Khatav, Satara District, Maharashtra.*

#### **Pre-Feasibility Report**

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#### **i) Brief description of project**

The Sand Spot has sufficient Reserve of Sand to work at 9375 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 NW to SE 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**

Pimpari is a small Village/hamlet in Khatav Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 30 KM towards west from District headquarters Satara. Approximately 240 KM from State capital Mumbai.

The sand spot area is connected to approach road at 636 meter in North East direction. SH-146 road is situated at a distance of 3.0 km. in the east of the sand ghat spot. Satara Railway Station is present at a distance of 56 km.

The area is covered in SOI Toposheet No- 47K/10. The GPS reading of boundary point are given below:

***Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA- 0.94 HA & NON-MINEABLE AREA-0.31HA) At Yerala River Bed Gut No. 390, 389, 385 Pimpri Village, Tehsil-Khatav, Satara District, Maharashtra.***

**Pre-Feasibility Report**

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Boundary points of Pimpri	Latitude	Longitude
BP1	17° 30' 53.21"N	74° 29' 38.94"E
BP2	17° 30' 53.84"N	74° 29' 40.50"E
BP3	17° 30' 46.34"N	74° 29' 43.78"E
BP4	17° 30' 45.71"N	74° 29' 42.21"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. 9375 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 9375 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 NW to SE 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.

*Pimpari sand spot over an extent of 1.25 HA (MINEABLE AREA- 0.94 HA & NON-MINEABLE AREA-0.31HA) At Yerala River Bed Gut No. 390, 389, 385 Pimpari Village, Tehsil-Khatav, Satara District, Maharashtra.*

**Pre-Feasibility Report**

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**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 12.72 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.

*Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA- 0.94 HA & NON-MINEABLE AREA-0.31HA) At Yerala River Bed Gut No. 390, 389, 385 Pimpri Village, Tehsil-Khatav, Satara District, Maharashtra.*

#### **Pre-Feasibility Report**

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### **6. Site Analysis**

#### **i) Connectivity**

Pimpri is a small Village/hamlet in Khatav Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 30 KM towards west from District headquarters Satara. Approximately 240 KM from State capital Mumbai.

The sand spot area is connected to approach road at 636 meter in North East direction. SH-146 road is situated at a distance of 3.0 km. in the east of the sand ghat spot. Satara Railway Station is present at a distance of 56 km.

#### **ii) Land Use, form & Ownership**

The ultimate land use pattern for the lease area of 1.25 HA. will be consisting of

- |                                     |          |
|-------------------------------------|----------|
| 1. Mining Area :                    | 1.25 HA. |
| 2. Construction of Temporary Roads: | 0.00 HA. |
| 3. Total :                          | 1.25 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).

*Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA- 0.94 HA & NON-MINEABLE AREA-0.31HA) At Yerala River Bed Gut No. 390, 389, 385 Pimpri Village, Tehsil-Khatav, Satara District, Maharashtra.*

#### **Pre-Feasibility Report**

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### **8. Planning brief**

The proposed project is opencast manual sand mining activity.

### **Supply demand ratio:**

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

<b>Tahsil Office Sand Information (2020-21)</b>			
<b>Sr. No</b>	<b>Name of Tahsil</b>	<b>Total Sand Demand if Tahsil in Brass (Approximately)</b>	<b>Total Sand Available in Tahsil in Brass (Approximately)</b>
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
		<b>154227</b>	<b>98871</b>



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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, Dhoni-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
<b>Total</b>			<b>25361</b>

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 निर्मिती करून बांधकामासाठी उपलब्ध होत असलेले शासकीय यंत्रणांकडून व इतर व्यवसायिकांकडून वाळूची मागणी होत नसलेचे दिसून येत आहे.

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

***Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA- 0.94 HA & NON-MINEABLE AREA-0.31HA) At Yerala River Bed Gut No. 390, 389, 385 Pimpri Village, Tehsil-Khatav, Satara District, Maharashtra.***

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**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 pre 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.

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- 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**

$$S = 1280 * (Q)^{0.46} * (1.46 - 0.26 \log(A)) * F$$

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

$$S = 1958 * (Q)^{(e - 0.055 * Q)} * (1.43 - 0.26 \log(A))$$

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

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:

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- 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 is 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/depos 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/depos.

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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 within 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 is 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 depots 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, 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.

## Pre-Feasibility Report

**NIRA RIVER FLOW DIRECTION**

**GRID**

**520.0m**

**LEGEND**

**BOUNDARY**

**THIS MAP IS FOR DEPTH CALCULATIONS**

**MINING PLAN OF PIMPARE SAND GHAT**

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 PIMPARE sandghat
6. The average depth of PIMPARE sandghat of NIRA River is 2.3m

R&R is not involved.

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### **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 Envirnoment 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.

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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

***Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA-0.94 HA & NON-MINEABLE AREA-0.31 HA) At Yerala Riverbed Gut No.390, 389, 385 & Pimpri 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 the 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

Pimpri is a small Village/hamlet in Khatav Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 30 KM towards west from District headquarters Satara. Approximately 240 KM from State capital Mumbai.

The sand spot area is connected to approach road at 636 meter in North East direction. SH-146 road is situated at a distance of 3.0 km. in the east of the sand ghat spot. Satara Railway Station is present at a distance of 56 km.

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

**Table 1: Salient Features of the Project**

Items	Details		
Location	Pimpri Village, Tehsil-Khatav, Satara District, Maharashtra.		
Latitude and Longitude	<b>Boundary points of Pimpri</b>	<b>Latitude</b>	<b>Longitude</b>
	B.P 1	17° 30' 53.21"	74° 29' 38.94"
	B.P 2	17° 30' 53.84"	74° 29' 40.50"
	B.P 3	17° 30' 46.34"	74° 29' 43.78"
	B.P 4	17° 30' 45.71"	74° 29' 42.21"

## Environmental Management Plan

***Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA-0.94 HA & NON-MINEABLE AREA-0.31 HA) At Yerala Riverbed Gut No.390, 389, 385 & Pimpri Village, Tehsil-Khatav, Satara District, Maharashtra.***

Sand spot area (In Ha)	1.25
Proposed production capacity (In Brass )	3313
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	12.72 KLD – Tankers from nearby village.
Project cost INR (Lakh)	218.45922

### 3. Baseline Environmental Studies

#### a. Topography

Satara district is the part of Deccan trap of Indian Peninsula. The physical setting of district is divided into 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 Sahyadries, 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 4 m from 746 to 750 MSL. The slope of Sand Ghat area towards SE side. The highest MSL is 750 & lowest 746 MSL. The flow of Yerala 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 be no any impact on flow of water.

#### c. Soil Environment

## Environmental Management Plan

***Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA-0.94 HA & NON-MINEABLE AREA-0.31 HA) At Yerala Riverbed Gut No.390, 389, 385 & Pimpri Village, Tehsil-Khatav, Satara District, Maharashtra.***

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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 waste water discharges to water bodies from the mining operations. As observed in the River, the thickness of sand to be excavated will be 1m 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 19.1 m BGL. As the mining activities presently proposed are maximum upto 1m 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**

# Environmental Management Plan

***Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA-0.94 HA & NON-MINEABLE AREA-0.31 HA) At Yerala Riverbed Gut No.390, 389, 385 & Pimpri Village, Tehsil-Khatav, Satara District, Maharashtra.***

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	Total [in Ha]	Area considered as	Net consider for calculatio
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## Environmental Management Plan

***Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA-0.94 HA & NON-MINEABLE AREA-0.31 HA) At Yerala Riverbed Gut No.390, 389, 385 & Pimpri Village, Tehsil-Khatav, Satara District, Maharashtra.***

			period [in Ha]			n
1	Area under mining / pit	-	1.25	1.25	---	1.25
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					
<b>GRAND TOTAL</b>				1.25	1.25	1.25

- 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	Pimpari
1	Transport Road	On Air Quality	Compaction, gradation and drainage on both sides.	125000

## Environmental Management Plan

***Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA-0.94 HA & NON-MINEABLE AREA-0.31 HA) At Yerla Riverbed Gut No.390, 389, 385 & Pimpri Village, Tehsil-Khatav, Satara District, Maharashtra.***

		Road Degradation	Budget for Road Repairs and Maintenance from Approach Road to Main Road	95400
		Road Construction	Road Construction from Quarry to Access Road	159000
		Air Environment	Dust Suppression by Regular water spraying.	95400
			Air quality will be monitoring at impacted village.(For One Day Monitoring)	50000
			Health Checkup 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)	73140
3	Ramp and Sand Reach	Mining Operations	Regular ramp Inspection and Ramp maintenance.(Excluding Man Power Salary which is included in labour costs)	79500
			Provision of dusk masks.	15000
4	Bank Management	Bank Erosion/Flood Plain management	Green Belt along Road	318000
			Green belt along bank(For Green Belt Development)	636
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

## Environmental Management Plan

***Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA-0.94 HA & NON-MINEABLE AREA-0.31 HA) At Yerla Riverbed Gut No.390, 389, 385 & Pimpri Village, Tehsil-Khatav, Satara District, Maharashtra.***

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 aren't available.	200000
14	Development of Market Model		Provision for development of market model & associated works if different funds aren't available.	25000
15	Environmental Audit		Provision for third party environmental audit if different funds aren't available.	50000
Total EMP Budget				1894476
Capital Cost				1311676
Recurring Cost				582800

**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.

## Environmental Management Plan

*Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA-0.94 HA & NON-MINEABLE AREA-0.31 HA) At Yerala Riverbed Gut No.390, 389, 385 & Pimpri Village, Tehsil-Khatav, Satara District, Maharashtra.*

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. Pimpri-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 is 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.



## Environmental Management Plan

*Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA-0.94 HA & NON-MINEABLE AREA-0.31 HA) At Yerala Riverbed Gut No.390, 389, 385 & Pimpri Village, Tehsil-Khatav, Satara District, Maharashtra.*

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 is 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 depots 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, 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.

# Environmental Management Plan

***Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA-0.94 HA & NON-MINEABLE AREA-0.31 HA) At Yerala Riverbed Gut No.390, 389, 385 & Pimpri Village, Tehsil-Khatav, Satara District, Maharashtra.***

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

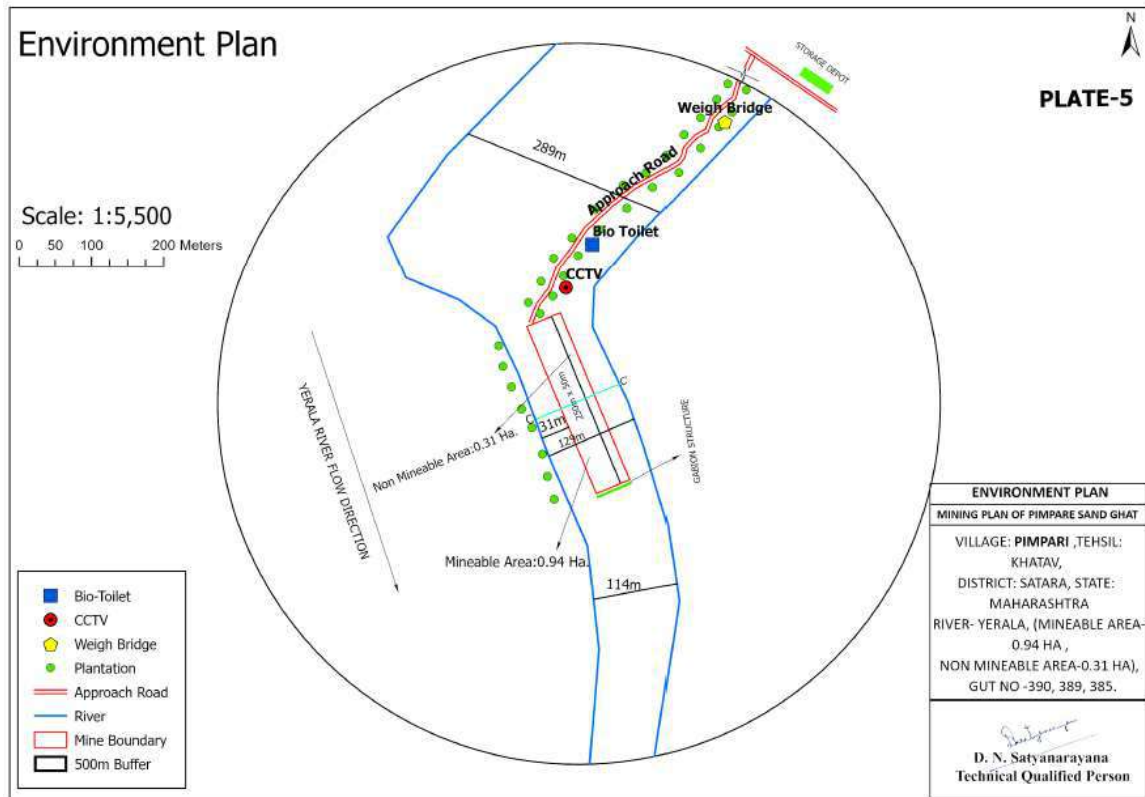
Nil

### 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 Pimpri 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.

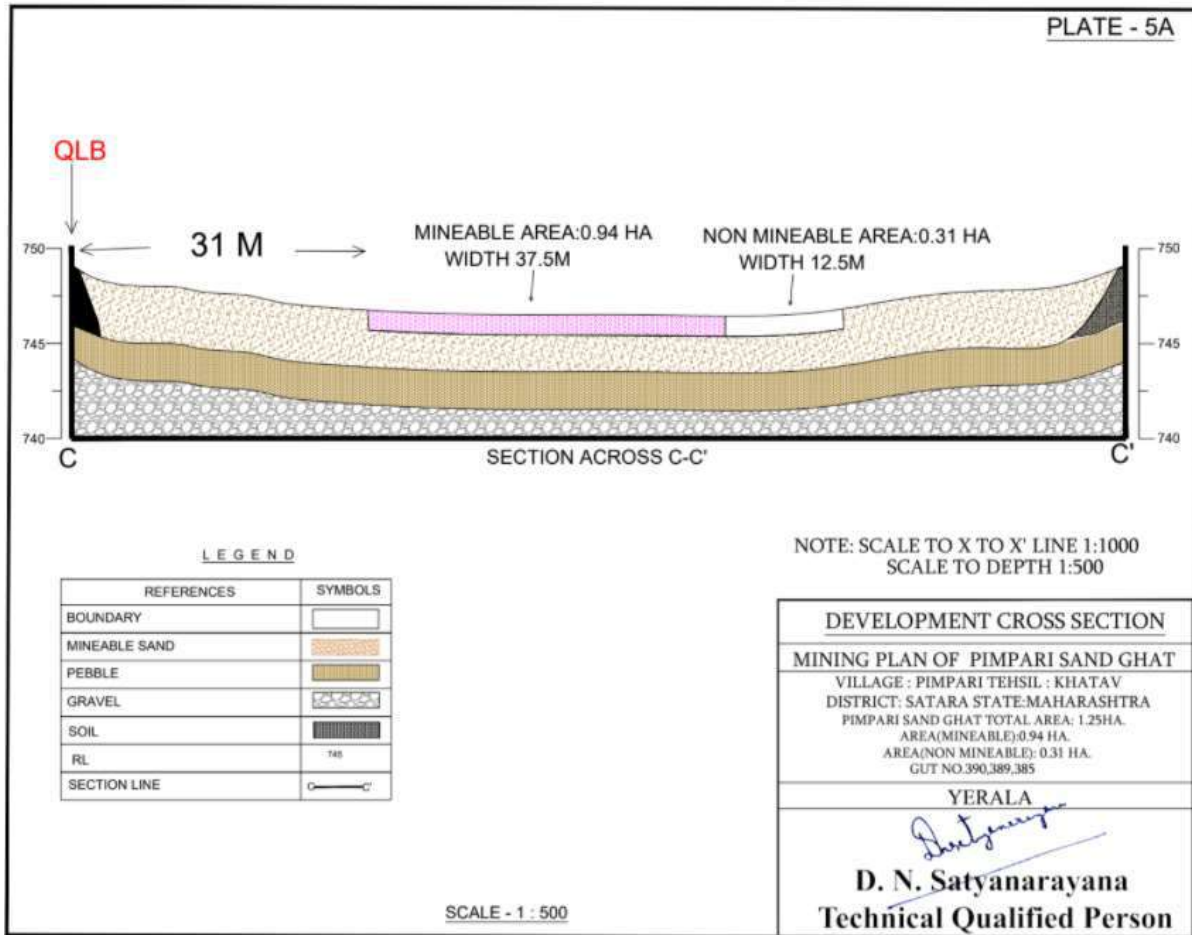
## Environmental Management Plan

***Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA-0.94 HA & NON-MINEABLE AREA-0.31 HA) At Yerala Riverbed Gut No.390, 389, 385 & Pimpri Village, Tehsil-Khatav, Satara District, Maharashtra.***

The proposed approach road length is 636m 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 Katav 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:



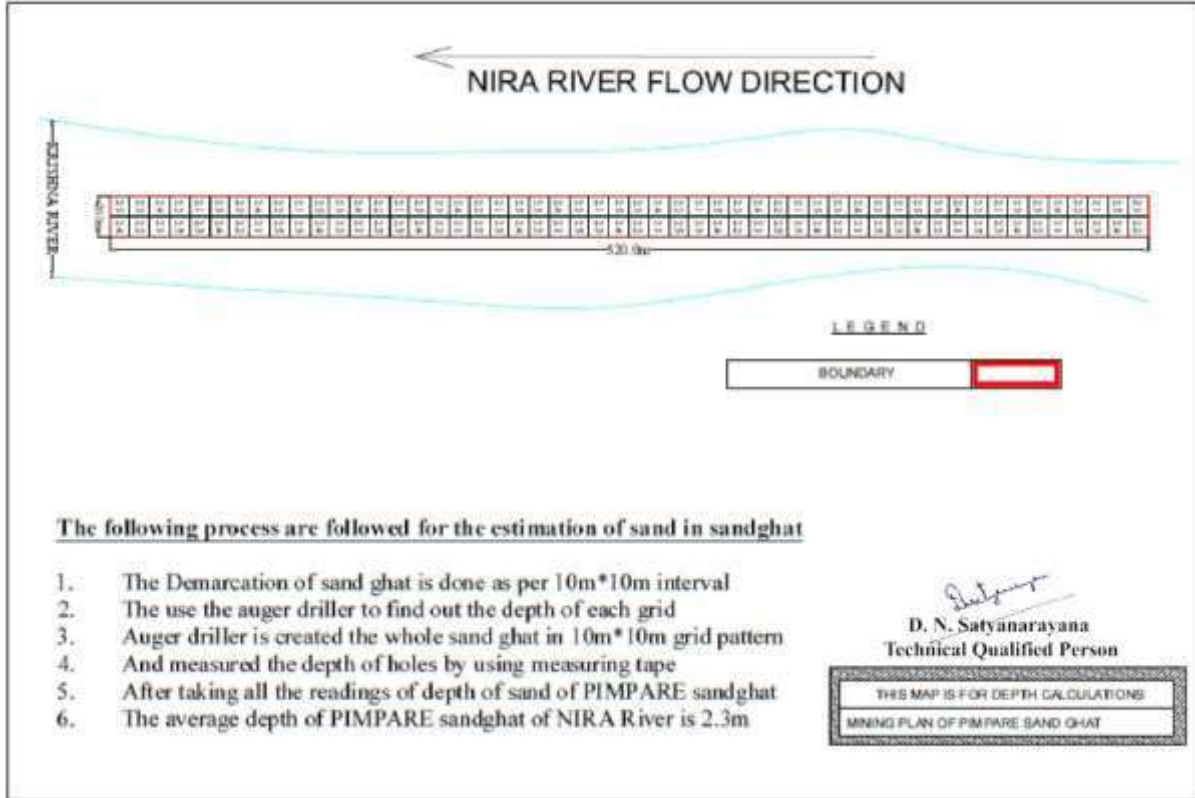
4. PP to submit details of District Level Task Force committee meetings and status of compliance of its recommendations if any

District Level Task Force Committee Meeting details is enclosed.

## Environmental Management Plan

*Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA-0.94 HA & NON-MINEABLE AREA-0.31 HA) At Yerala Riverbed Gut No.390, 389, 385 & Pimpri Village, Tehsil-Khatav, Satara District, Maharashtra.*

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.



## 6. Sediment Yield Calculation

### DANDY-BOLTON EQUATION

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

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

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.

## Environmental Management Plan

*Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA-0.94 HA & NON-MINEABLE AREA-0.31 HA) At Yerala Riverbed Gut No.390, 389, 385 & Pimpri Village, Tehsil-Khatav, Satara District, Maharashtra.*

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:

<b>Location of greenbelt</b>	Both sides of approach road, On the river banks of both sides of the sand spot & nearby open areas Haul Road outside riverbed
<b>Afforestation area/ annum</b>	1772 Sq.m /annum
<b>No. of plants to be planted</b>	886 Per Hectare
<b>Spacing of plants</b>	2 m grid interval
<b>Species selected</b>	Native species

Tree species recommended for Plantation:

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

# Environmental Management Plan

***Pimpri sand spot over an extent of 1.25 HA (MINEABLE AREA-0.94 HA & NON-MINEABLE AREA-0.31 HA) At Yerala Riverbed Gut No.390, 389, 385 & Pimpri 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 Pimpri Sand Spot will be useful to the developmental work in the district and also generate employment opportunities.

## BUDGET FOR CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

SNo.	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

*Aasu-1 sand spot over an extent of 1.44 HA (MINEABLE AREA-1.08 HA & NON-MINEABLE AREA-0.36 HA) At Nira Riverbed Gut No. 835 to 840, 846, 847, 848, 851, 68, 69, 71, 87, Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.*

Form 1M

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**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: Aasu-1 Sand Spot

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

<b>BOUNDARY POINTS</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
BP1	18° 2'45.74"N	74°38'34.13"E
BP2	18° 2'46.04"N	74°38'33.51"E
BP3	18° 2'57.60"N	74°38'38.57"E
BP4	18° 3'0.97"N	74°38'42.16"E
BP5	18° 3'3.88"N	74°38'48.02"E
BP6	18° 3'3.27"N	74°38'48.25"E
BP7	18° 3'0.40"N	74°38'42.48"E
BP8	18° 2'57.15"N	74°38'39.08"E

(iii) Size of the Mining Lease (Hectare): 1.44 HA

(vi) Capacity of Mining Lease (TPA): 3816 Brass

(v) Period of Mining Lease: 1 year

(vi) Expected cost of the Project: 251.62 Lakhs

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

**(II) Environmental Sensitivity**

<b>S. No.</b>	<b>Areas</b>	<b>Distance in Kilometer/Details</b>
1	Distance of project site from nearest rail or road bridge over the concerned River, Rivulet, Nallah et	Bridge, 1.37Km,SW
2	Distance from infrastructural facilities Railway line National Highway State Highway	LonandJunctionrailway station,48km,W NH9, 24.6KM, NE SH221, 8.40Km, N

**Aasu-1 sand spot over an extent of 1.44 HA (MINEABLE AREA-1.08 HA & NON-MINEABLE AREA-0.36 HA) At Nira Riverbed Gut No. 835 to 840, 846, 847, 848, 851, 68, 69, 71, 87, Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.**

**Form 1M**

**Page: 2 of 2**

	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	Pawarwadi-Rajale Road, 2.36Km, SW Phaltan-asu road, 0.39Km, SE 0.23Km, NE Nira River Bed Nil Nil
3	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	Phaltan-asu road, 0.39Km, SE
9	Defence installations	Nil
10	Densely populated or built-up area, distance from nearest human habitation	Asu, 1.27Km, E
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



***Aasu-1 sand spot over an extent of 1.44 HA (MINEABLE AREA-1.08 HA & NON-MINEABLE AREA-0.36 HA) At Nira Riverbed Gut No. 835 to 840, 846, 847, 848, 851, 68, 69, 71, 87, Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.***

**Form 1M**

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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

***Aasu-1 sand spot over an extent of 1.44 HA (MINEABLE AREA- 1.08 HA & NON-MINEABLE AREA- 0.36HA) At Nira River Bed Gut No. 835 to 840, 846, 847, 848, 851, 68, 69, 71, 87 Aasu Village, Tehsil- Phaltan, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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**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 1.44 HA (1.08 HA. Mineable & 0.36 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 3816 Brass sand is proposed to auction from proposed sand spot.
- Proposed site is located at the Nira river bank.

**1. Physiography**

The Sand Ghat area as per survey is River bed of Nira River. The slope is of 2 m from 663 to 661 MSL. The slope of Sand Ghat area towards NW side. The highest MSL is 663 & lowest 661 MSL. The flow of Nira River is from SE to NW 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 10800 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 Aasu-1 Sand Spot has been kept for Auction which is situated at Village Aasu, Taluka Phaltan, and District Satara and hence prior to go for Auction a Mining Plan and Environmental

***Aasu-I sand spot over an extent of 1.44 HA (MINEABLE AREA- 1.08 HA & NON-MINEABLE AREA- 0.36HA) At Nira River Bed Gut No. 835 to 840, 846, 847, 848, 851, 68, 69, 71, 87 Aasu Village, Tehsil- Phaltan, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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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 10800 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.

**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**

Aasu is a small Village/hamlet in Phaltan Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 78 KM towards SW from District headquarters Satara. Approximately 218 KM from State capital Mumbai.

The sand spot area is connected to approach road at 862 meter in SW direction. SH-70 road is situated at 11 km. in the south of the sand ghat spot. Satara Railway Station is present at 75 km.

The area is covered in SOI Toposheet No- 47K/5. The GPS reading of boundary point are given below:

***Aasu-I sand spot over an extent of 1.44 HA (MINEABLE AREA- 1.08 HA & NON-MINEABLE AREA- 0.36HA) At Nira River Bed Gut No. 835 to 840, 846, 847, 848, 851, 68, 69, 71, 87 Aasu Village, Tehsil- Phaltan, Satara District, Maharashtra.***

**Pre-Feasibility Report**

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<b>Boundary points of Aasu-2</b>	<b>Latitude</b>	<b>Longitude</b>
BP1	18° 2'45.74"N	74°38'34.13"E
BP2	18° 2'46.04"N	74°38'33.51"E
BP3	18° 2'57.60"N	74°38'38.57"E
BP4	18° 3'0.97"N	74°38'42.16"E
BP5	18° 3'3.88"N	74°38'48.02"E
BP6	18° 3'3.27"N	74°38'48.25"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. 10800 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 10800 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.

*Aasu-I sand spot over an extent of 1.44 HA (MINEABLE AREA- 1.08 HA & NON-MINEABLE AREA- 0.36HA) At Nira River Bed Gut No. 835 to 840, 846, 847, 848, 851, 68, 69, 71, 87 Aasu Village, Tehsil- Phaltan, Satara District, Maharashtra.*

**Pre-Feasibility Report**

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**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 17.24 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 labors. The vehicles used for transportation will use diesel of about 125-150 liters /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.

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**Pre-Feasibility Report**

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**6. Site Analysis**

**i) Connectivity**

Aasu is a small Village/hamlet in Phaltan Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 78 KM towards SW from District headquarters Satara. Approximately 218 KM from State capital Mumbai.

The sand spot area is connected to approach road at 862 meter in SW direction. SH-70 road is situated at 11 km. in the south of the sand ghat spot. Satara Railway Station is present at 75 km.

**ii) Land Use, form & Ownership**

The ultimate land use pattern for the lease area of 1.44 HA. will be consisting of

- |                                     |          |
|-------------------------------------|----------|
| 1. Mining Area:                     | 1.44 HA. |
| 2. Construction of Temporary Roads: | 0.00 HA. |
| 3. Total:                           | 1.44 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).

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**Pre-Feasibility Report**

**8. Planning brief**

The proposed project is opencast manual sand mining activity.

**Supply demand ratio:**

Informataion 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

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**Pre-Feasibility Report**

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
<b>Total</b>			<b>25361</b>

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 माहितीद्वारे 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.



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**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 pre 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.

***Aasu-I sand spot over an extent of 1.44 HA (MINEABLE AREA- 1.08 HA & NON-MINEABLE AREA- 0.36HA) At Nira River Bed Gut No. 835 to 840, 846, 847, 848, 851, 68, 69, 71, 87 Aasu Village, Tehsil- Phaltan, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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- 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**

$$S = 1280 * (Q)^{0.46} * (1.46 - 0.26 \log(A)) * F$$

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

$$S = 1958 * (Q)^{(e^{-0.055 * Q})} * (1.43 - 0.26 \log(A))$$

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

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:

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- 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 is 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/deposits 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/deposits.

***Aasu-I sand spot over an extent of 1.44 HA (MINEABLE AREA- 1.08 HA & NON-MINEABLE AREA- 0.36HA) At Nira River Bed Gut No. 835 to 840, 846, 847, 848, 851, 68, 69, 71, 87 Aasu Village, Tehsil- Phaltan, Satara District, Maharashtra.***

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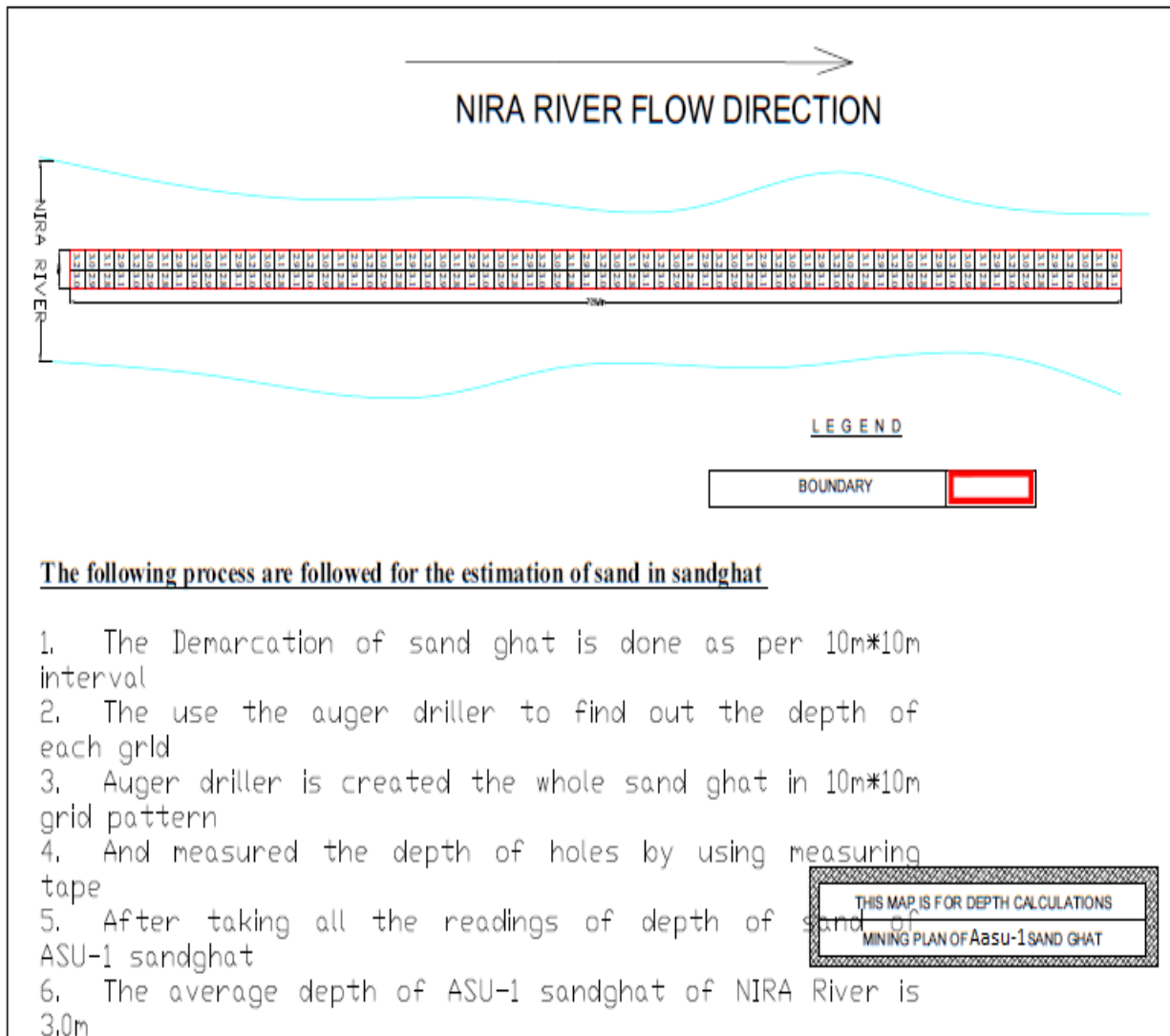
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8. The district collector will get live streaming of the videos monitored at a Centralised control room and the data stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the 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 is 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 depots 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, 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.

**Aasu-1 sand spot over an extent of 1.44 HA (MINEABLE AREA- 1.08 HA & NON-MINEABLE AREA- 0.36HA) At Nira River Bed Gut No. 835 to 840, 846, 847, 848, 851, 68, 69, 71, 87 Aasu Village, Tehsil- Phaltan, Satara District, Maharashtra.**

#### Pre-Feasibility Report

#### 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.

*Aasu-I sand spot over an extent of 1.44 HA (MINEABLE AREA- 1.08 HA & NON-MINEABLE AREA- 0.36HA) At Nira River Bed Gut No. 835 to 840, 846, 847, 848, 851, 68, 69, 71, 87 Aasu Village, Tehsil- Phaltan, Satara District, Maharashtra.*

**Pre-Feasibility Report**

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**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.

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#### ***Pre-Feasibility Report***

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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

**Aasu sand spot over an extent of 1.44 HA (MINEABLE AREA-1.08 HA & NON-MINEABLE AREA-0.36 HA) At Nira Riverbed Gut No. 835,836, 839, 840, 846, 847, 848, 851, 68, 69, 71, 87, Aasu Village, Tehsil-Phaltan, 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 the 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

Aasu is a small Village/hamlet in Phaltan Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 78 KM towards SW from District headquarters Satara. Approximately 218 KM from State capital Mumbai.

The sand spot area is connected to approach road at 862 meter in SW direction. SH-70 road is situated at 11 km. in the south of the sand ghat spot. Satara Railway Station is present at 75 km. The area is covered in SOI Toposheet No- 47K/5.

**Table 1: Salient Features of the Project**

Items	Details		
Location	Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.		
Latitude and Longitude	<b>BOUNDARY POINTS</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
	BP1	18° 2'45.74"N	74°38'34.13"E
	BP2	18° 2'46.04"N	74°38'33.51"E
	BP3	18° 2'57.60"N	74°38'38.57"E



## Environmental Management Plan

***Aasu sand spot over an extent of 1.44 HA (MINEABLE AREA-1.08 HA & NON-MINEABLE AREA-0.36 HA) At Nira Riverbed Gut No. 835,836, 839, 840, 846, 847, 848, 851, 68, 69, 71, 87, Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.***

	BP4	18° 3'0.97"N	74°38'42.16"E
	BP5	18° 3'3.88"N	74°38'48.02"E
	BP6	18° 3'3.27"N	74°38'48.25"E
	BP7	18° 3'0.40"N	74°38'42.48"E
	BP8	18° 2'57.15"N	74°38'39.08"E
Sand spot area (In Ha)	1.44		
Proposed production capacity (In Brass )	3816		
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	17.24 KLD – Tankers from nearby village.		
Project cost INR (Lakh)	251.62704		

### 3. Baseline Environmental Studies

#### a. Topography

Satara district is the part of Deccan trap of Indian Peninsula. The physical setting of district is divided into 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 Sahyadries, 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 4 m from 746 to 750 MSL. The slope of Sand Ghat area towards SE side. The highest MSL is 750 & lowest 746 MSL. The flow of Yerala River is from NW to SE direction.

#### b. Hydrology

# Environmental Management Plan

***Aasu sand spot over an extent of 1.44 HA (MINEABLE AREA-1.08 HA & NON-MINEABLE AREA-0.36 HA) At Nira Riverbed Gut No. 835,836, 839, 840, 846, 847, 848, 851, 68, 69, 71, 87, Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.***

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The 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 be no 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 waste water 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 19.1 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.<sup>1</sup>

(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

# Environmental Management Plan

***Aasu sand spot over an extent of 1.44 HA (MINEABLE AREA-1.08 HA & NON-MINEABLE AREA-0.36 HA) At Nira Riverbed Gut No. 835,836, 839, 840, 846, 847, 848, 851, 68, 69, 71, 87, Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.***

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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**

## Environmental Management Plan

**Aasu sand spot over an extent of 1.44 HA (MINEABLE AREA-1.08 HA & NON-MINEABLE AREA-0.36 HA) At Nira Riverbed Gut No. 835,836, 839, 840, 846, 847, 848, 851, 68, 69, 71, 87, Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.**

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 consider for calculatio n
1	Area under mining / pit	-	1.44	1.44	---	1.44
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					
<b>GRAND TOTAL</b>				1.44	1.44	1.44

- 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	Aasu
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## Environmental Management Plan

**Aasu sand spot over an extent of 1.44 HA (MINEABLE AREA-1.08 HA & NON-MINEABLE AREA-0.36 HA) At Nira Riverbed Gut No. 835,836, 839, 840, 846, 847, 848, 851, 68, 69, 71, 87, Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.**

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	129300
		Road Construction	Road Construction from Quarry to Access Road	215500
		Air Environment	Dust Supression by Regular water spraying.	129300
			Air quality will be monitoring at impacted village.(For One Day Monitoring)	50000
			Health Checkup 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)	99130
3	Ramp and Sand Reach	Mining Operations	Regular ramp Inspection and Ramp maintenance.(Excluding Man Power Salary which is included in labour costs)	107750
			Provision of dusk masks.	15000
4	Bank Management	Bank Erosion/Flood Plain management	Green Belt along Road	431000
			Green belt along bank(For Green Belt Development)	862
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 Monitoriong Framework	60000
8	Safety		Signage Boards	6000
			Fencing	18000
			Watching	25000

## Environmental Management Plan

**Aasu sand spot over an extent of 1.44 HA (MINEABLE AREA-1.08 HA & NON-MINEABLE AREA-0.36 HA) At Nira Riverbed Gut No. 835,836, 839, 840, 846, 847, 848, 851, 68, 69, 71, 87, Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.**

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 aren't available.	200000
14	Development of Market Model		Provision for development of market model & associated works if different funds aren't available.	25000
15	Environmental Audit		Provision for third party environmental audit if different funds aren't available.	50000
Total EMP Budget				2111242
Capital Cost				1507392
Recurring Cost				603850

**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.

## Environmental Management Plan

***Aasu sand spot over an extent of 1.44 HA (MINEABLE AREA-1.08 HA & NON-MINEABLE AREA-0.36 HA) At Nira Riverbed Gut No. 835,836, 839, 840, 846, 847, 848, 851, 68, 69, 71, 87, Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.***

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. Aasu-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 is 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.

## Environmental Management Plan

***Aasu sand spot over an extent of 1.44 HA (MINEABLE AREA-1.08 HA & NON-MINEABLE AREA-0.36 HA) At Nira Riverbed Gut No. 835,836, 839, 840, 846, 847, 848, 851, 68, 69, 71, 87, Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.***

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 is 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 depots 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.



# Environmental Management Plan

**Aasu sand spot over an extent of 1.44 HA (MINEABLE AREA-1.08 HA & NON-MINEABLE AREA-0.36 HA) At Nira Riverbed Gut No. 835,836, 839, 840, 846, 847, 848, 851, 68, 69, 71, 87, Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.**

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

Nil

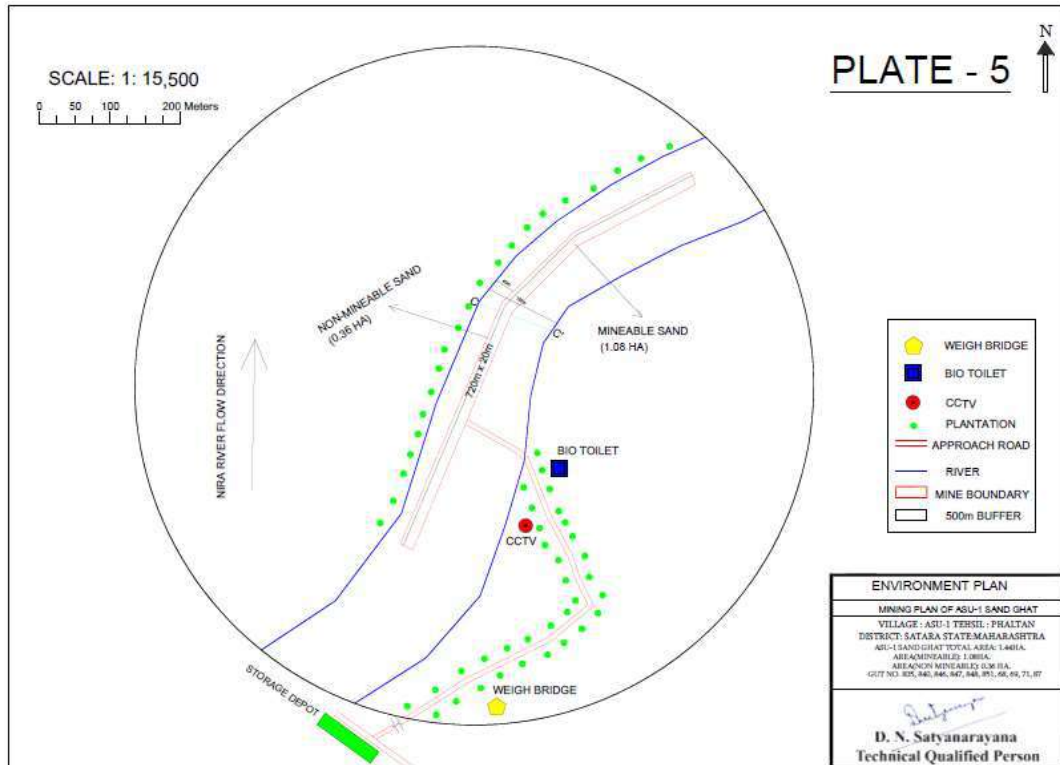
### Conditions Reply:

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 Aasu 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



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.

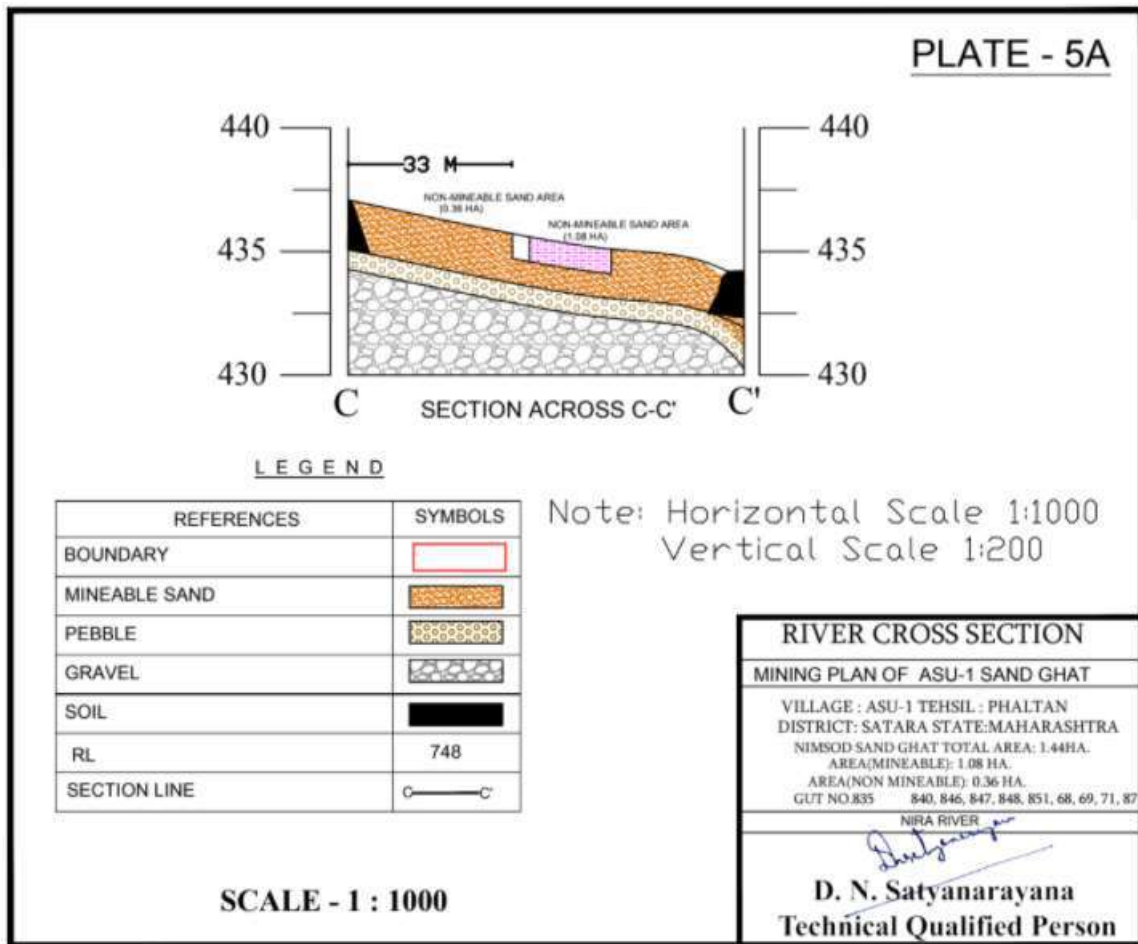
## Environmental Management Plan

**Aasu sand spot over an extent of 1.44 HA (MINEABLE AREA-1.08 HA & NON-MINEABLE AREA-0.36 HA) At Nira Riverbed Gut No. 835,836, 839, 840, 846, 847, 848, 851, 68, 69, 71, 87, Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.**

The proposed approach road length is 862m 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 Phaltan 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:



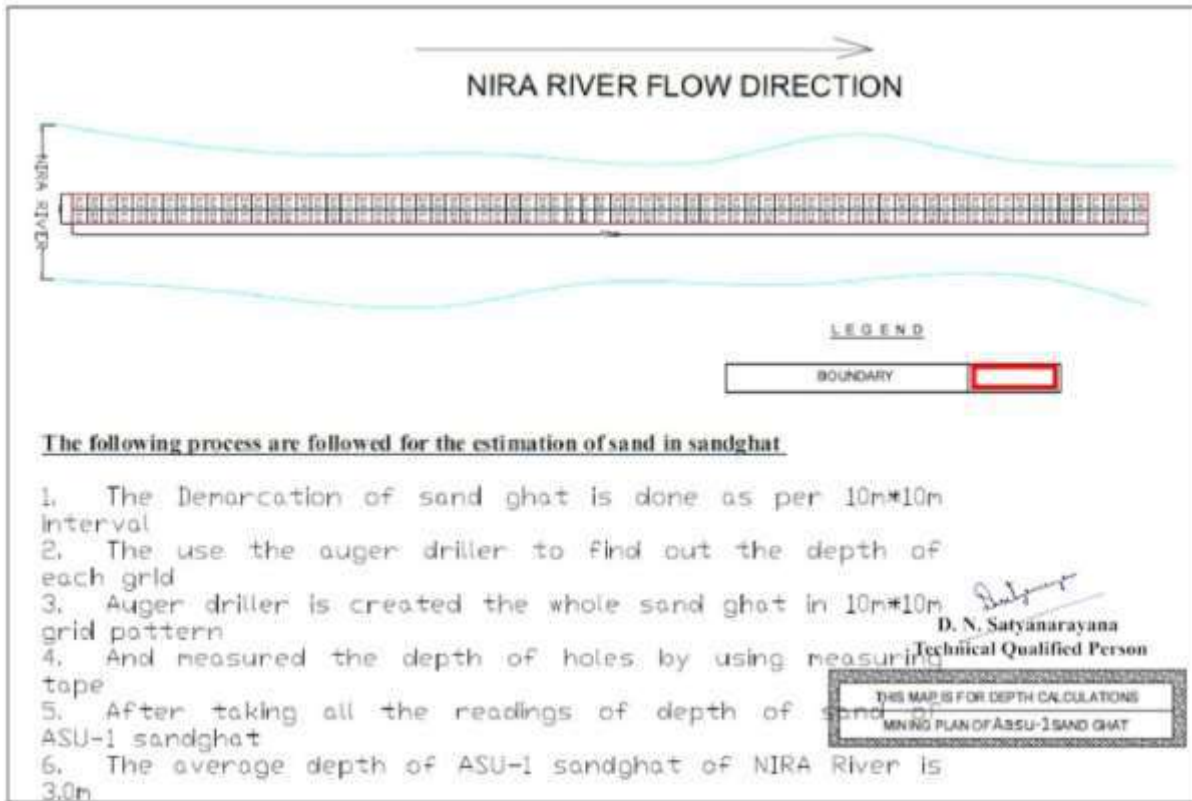
4. PP to submit details of District Level Task Force committee meetings and status of compliance of its recommendations if any

District Level Task Force Committee Meeting details is enclosed.

## Environmental Management Plan

**Aasu sand spot over an extent of 1.44 HA (MINEABLE AREA-1.08 HA & NON-MINEABLE AREA-0.36 HA) At Nira Riverbed Gut No. 835,836, 839, 840, 846, 847, 848, 851, 68, 69, 71, 87, Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.**

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.



### 6. Sediment Yield Calculation

#### DANDY-BOLTON EQUATION

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

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

A= net drainage area in sq. mile

#### Conclusion:

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

## Environmental Management Plan

***Aasu sand spot over an extent of 1.44 HA (MINEABLE AREA-1.08 HA & NON-MINEABLE AREA-0.36 HA) At Nira Riverbed Gut No. 835,836, 839, 840, 846, 847, 848, 851, 68, 69, 71, 87, Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.***

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:

<b>Location of greenbelt</b>	Both sides of approach road, On the river banks of both sides of the sand spot & nearby open areas Haul Road outside riverbed
<b>Afforestation area/ annum</b>	3164 Sq.m /annum
<b>No. of plants to be planted</b>	1582 Per Hectare
<b>Spacing of plants</b>	2 m grid interval
<b>Species selected</b>	Native species

Tree species recommended for Plantation:

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

# Environmental Management Plan

***Aasu sand spot over an extent of 1.44 HA (MINEABLE AREA-1.08 HA & NON-MINEABLE AREA-0.36 HA) At Nira Riverbed Gut No. 835,836, 839, 840, 846, 847, 848, 851, 68, 69, 71, 87, Aasu Village, Tehsil-Phaltan, 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 Aasu Sand Spot will be useful to the developmental work in the district and also generate employment opportunities.

## BUDGET FOR CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

SNo.	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

*Aasu-2 sand spot over an extent of 1.76 HA (MINEABLE AREA-1.32HA & NON-MINEABLE AREA-0.44HA) At Nira Riverbed Gut No.109 to113, 244 to 251, 338,339,342,345,346,349,350,351 Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.*

Form 1M

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**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: Aasu-2 Sand Spot

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

BOUNDARY POINT	LATITUDE	LONGITUDE
BP1	18° 3'43.46" N	74°40' 27.63" E
BP2	18° 3'44.07" N	74°40'27.89" E
BP3	18° 3' 37.61" N	74°40'42.54" E
BP4	18° 3' 37.20" N	74°40'56.25" E
BP5	18° 3' 36.55" N	74°40'56.13" E
BP6	18° 3' 36.96" N	74°40'42.40" E

(iii) Size of the Mining Lease (Hectare): 1.76 HA

(vi) Capacity of Mining Lease (TPA): 4664 Brass

(v) Period of Mining Lease: 1 year

(vi) Expected cost of the Project: 307.54 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, 1.51km, NW
2	Distance from infrastructural facilities Railway line National Highway State Highway Major District Road	Lonand Junction railway station, 52km, W NH9, 21.5Km, NE SH221, 6.38Km, N Baramati-Songaon Road, 0.53Km, NE

**Aasu-2 sand spot over an extent of 1.76 HA (MINEABLE AREA-1.32HA & NON-MINEABLE AREA-0.44HA) At Nira Riverbed Gut No.109 to113, 244 to 251, 338,339,342,345,346,349,350,351 Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.**

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	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	0.96Km, W 0.16Km, S Nira River Bed Nil Nil
3	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	0.96Km, W
9	Defence installations	Nil
10	Densely populated or built-up area, distance from nearest human habitation	Asu, 2.53Km, 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)	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

**Aasu-2 sand spot over an extent of 1.76 HA (MINEABLE AREA-1.32HA & NON-MINEABLE AREA-0.44HA) At Nira Riverbed Gut No.109 to113, 244 to 251, 338,339,342,345,346,349,350,351 Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.**

**Form 1M**

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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



*Aasu-2 sand spot over an extent of 1.76 HA (MINEABLE AREA- 1.32 HA & NON-MINEABLE AREA- 0.44 HA) At Nira River Bed Gut No. 109 to 113, 244 to 251, 338, 339, 342, 345, 346, 349, 350, 351 Aasu Village, Tehsil- Phaltan, Satara District, Maharashtra.*

**Pre-Feasibility Report**

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**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 1.76 HA (1.32 HA. Mineable & 0.44 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 4664 Brass sand is proposed to auction from proposed sand spot.
- Proposed site is located at the Nira river bank.

**1. Physiography**

The Sand Ghat area as per survey is River bed of Nira River. The slope is of 4 m from 436 to 432 MSL. The slope of Sand Ghat area towards NW side. The highest MSL is 436 & lowest 432 MSL. The flow of Nira River is from East to NW 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 13200 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 East 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.

**4. Introduction of the project/ background information**

The Aasu-2 Sand Spot has been kept for Auction which is situated at Village Aasu, Taluka Phaltan, 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.

*Aasu-2 sand spot over an extent of 1.76 HA (MINEABLE AREA- 1.32 HA & NON-MINEABLE AREA- 0.44 HA) At Nira River Bed Gut No. 109 to 113, 244 to 251, 338, 339, 342, 345, 346, 349, 350, 351 Aasu Village, Tehsil- Phaltan, Satara District, Maharashtra.*

#### **Pre-Feasibility Report**

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#### **i) Brief description of project**

The Sand Spot has sufficient Reserve of Sand to work at 13200 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 East 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.

#### **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**

Aasu is a small Village/hamlet in Phaltan Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 78 KM towards SW from District headquarters Satara. Approximately 218 KM from State capital Mumbai.

The sand spot area is connected to approach road at 1326 meter in SW direction. SH-221 road is situated at 6.5 km. in the north of the sand ghat spot. Satara Railway Station is present at 75 km.

The area is covered in SOI Toposheet No- 47K/5. The GPS reading of boundary point are given below:

***Aasu-2 sand spot over an extent of 1.76 HA (MINEABLE AREA- 1.32 HA & NON-MINEABLE AREA- 0.44 HA) At Nira River Bed Gut No. 109 to 113, 244 to 251, 338, 339, 342, 345, 346, 349, 350, 351 Aasu Village, Tehsil- Phaltan, Satara District, Maharashtra.***

**Pre-Feasibility Report**

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<b>Boundary points of Aasu-2</b>	<b>Latitude</b>	<b>Longitude</b>
BP1	18° 3'43.46" N	74°40' 27.63" E
BP2	18° 3'44.07" N	74°40'27.89" E
BP3	18° 3' 37.61"N	74°40'42.54" E
BP4	18° 3' 37.20"N	74°40'56.25" E
BP5	18° 3' 36.55"N	74°40'56.13" E
BP6	18° 3' 36.96"N	74°40'42.40" 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. 13200 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 13200 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 East 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.

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**Pre-Feasibility Report**

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**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 26.52 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.

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## **Pre-Feasibility Report**

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### **6. Site Analysis**

#### **i) Connectivity**

Aasu is a small Village/hamlet in Phaltan Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 78 KM towards SW from District headquarters Satara. Approximately 218 KM from State capital Mumbai.

The sand spot area is connected to approach road at 1326 meter in SW direction. SH-221 road is situated at 6.5 km. in the north of the sand ghat spot. Satara Railway Station is present at 75 km.

#### **ii) Land Use, form & Ownership**

The ultimate land use pattern for the lease area of 1.76 HA. will be consisting of

- |                                     |          |
|-------------------------------------|----------|
| 1. Mining Area :                    | 1.76 HA. |
| 2. Construction of Temporary Roads: | 0.00 ha. |
| 3. Total :                          | 1.76 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).

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**Pre-Feasibility Report**

**8. Planning brief**

The proposed project is opencast manual sand mining activity.

**Supply demand ratio:**

Informataion 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

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**Pre-Feasibility Report**

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
<b>Total</b>			<b>25361</b>

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 माहितीद्वारे 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.

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#### **Pre-Feasibility Report**

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##### **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 pre 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.



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#### **Pre-Feasibility Report**

- 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**

$$S = 1280 * (Q)^{0.46} * (1.46 - 0.26 \log(A)) * F$$

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

$$S = 1958 * (Q)^{(e^{-0.055 * Q})} * (1.43 - 0.26 \log(A))$$

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

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)

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#### **Pre-Feasibility Report**

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- 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 is 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/depos 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/depos.
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.

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***Pre-Feasibility Report***

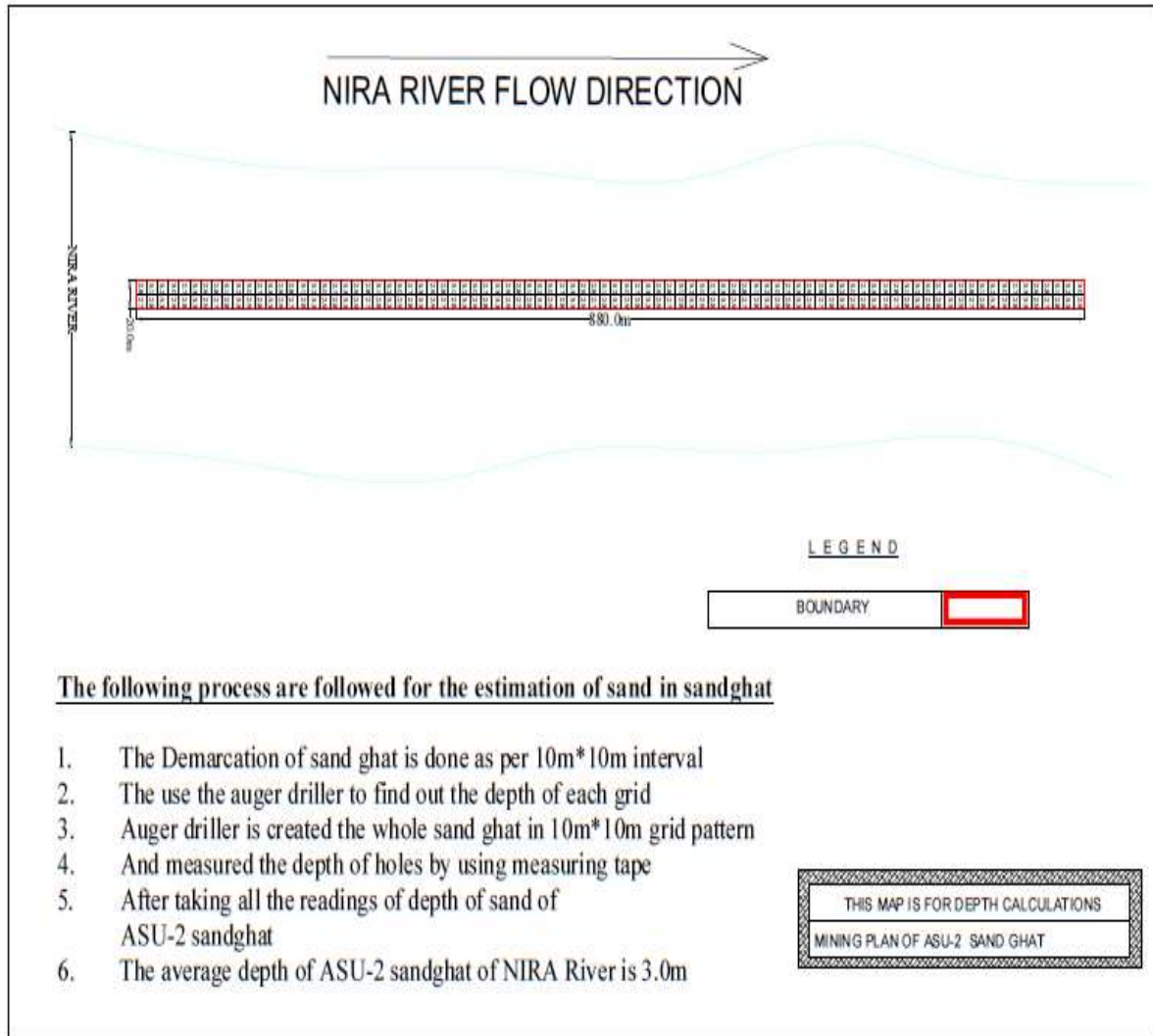
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10. Ground Water Level Monitoring - Collector will ensure that the Piezometer's would be installed in the Quarry site and all the wells with in one km radius of the Quarry would be monitored regularly. Fluctuations in the ground water would be recorded 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.

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#### **Pre-Feasibility Report**

#### **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.

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#### **Pre-Feasibility Report**

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### **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.

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#### **Pre-Feasibility Report**

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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

***Aasu-2 sand spot over an extent of 1.76 HA (MINEABLE AREA-1.32HA & NON-MINEABLE AREA-0.44HA) At Nira Riverbed Gut No.109 to113, 244 to 251, 338,339,342,345,346,349,350,351 Aasu Village, Tehsil-Phaltan, 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 the 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

Aasu-2 is a small Village/hamlet in Phaltan Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 78 KM towards SW from District headquarters Satara. Approximately 218 KM from State capital Mumbai.

The sand spot area is connected to approach road at 1326 meter in SW direction. SH-221 road is situated at 6.5 km. in the north of the sand ghat spot. Satara Railway Station is present at 75 km. The area is covered in SOI Toposheet No- 47K/5.

**Table 1: Salient Features of the Project**

Items	Details		
Location	Aasu-2 Village, Tehsil-Phaltan, Satara District, Maharashtra.		
Latitude and Longitude	<b>BOUNDARY POINT</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
	BP1	18° 3'43.46" N	74°40' 27.63" E
	BP2	18° 3'44.07" N	74°40'27.89" E
	BP3	18° 3' 37.61" N	74°40'42.54" E
	BP4	18° 3' 37.20" N	74°40'56.25" E
	BP5	18° 3' 36.55" N	74°40'56.13" E
	BP6	18° 3' 36.96" N	74°40'42.40" E

## Environmental Management Plan

***Aasu-2 sand spot over an extent of 1.76 HA (MINEABLE AREA-1.32HA & NON-MINEABLE AREA-0.44HA) At Nira Riverbed Gut No.109 to113, 244 to 251, 338,339,342,345,346,349,350,351 Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.***

Sand spot area (In Ha)	1.76
Proposed production capacity (In Brass )	4664
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	26.52 KLD – Tankers from nearby village.
Project cost INR (Lakh)	307.54416

### 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 Sahyadries, Krishna vally, Nira vally, 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 436 to 432 MSL. The slope of Sand Ghat area towards NW side. The highest MSL is 436 & lowest 432 MSL. The flow of Nira River is from East to NW direction.

#### b. Hydrology

The 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 be no 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.



## Environmental Management Plan

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**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 waste water 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 19.1 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.<sup>1</sup>

(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.

# Environmental Management Plan

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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 consider for calculatio n
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## Environmental Management Plan

**Aasu-2 sand spot over an extent of 1.76 HA (MINEABLE AREA-1.32HA & NON-MINEABLE AREA-0.44HA) At Nira Riverbed Gut No.109 to113, 244 to 251, 338,339,342,345,346,349,350,351 Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.**

1	Area under mining / pit	-	1.76	1.76	---	1.76
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					
<b>GRAND TOTAL</b>				1.76	1.76	1.76

- 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	Aasu-2
1	Transport Road	On Air Quality	Compaction, gradation and drainage on both sides.	50000
		Road Degradation	Budget for Road Repairs and Maintainence from Approach Road to Main Road	198900
		Road Construction	Road Construction from Quarry to Access Road	331500

## Environmental Management Plan

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		Air Environment	Dust Supression by Regular water spraying.	198900
			Air quality will be monitoring at impacted village.(For One Day Monitoring)	50000
			Health Checkup 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)	15000
			Regular monitoring of the exhaust fumes.	2500
			Barriers & Traffic Management Expenses. (Excluding Man Power Salary which is included in labour costs)	152490
3	Ramp and Sand Reach	Mining Operations	Regular ramp Inspection and Ramp maintenance.(Excluding Man Power Salary which is included in labour costs)	165750
			Provision of dusk masks.	15000
4	Bank Management	Bank Erosion/Flood Plain management	Green Belt along Road	663000
			Green belt along bank(For Green Belt Development)	1326
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 Monitoriong 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

## Environmental Management Plan

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			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 aren't available.	200000
14	Development of Market Model		Provision for development of market model & associated works if different funds aren't available.	25000
15	Environmental Audit		Provision for third party environmental audit if different funds aren't available.	50000
			Total EMP Budget	2715266
			Capital Cost	1909216
			Recurring Cost	806050

**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

## Environmental Management Plan

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- Unique Barcode
- Unique Quick Response Code (QR)
- Fugitive Ink Background
- Invisible Ink Mark
- Void Pantograph
- Watermark
- GP Based Vehicle Tracking System

**9. Aasu-2-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 is 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.

## Environmental Management Plan

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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 depots 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, 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.**

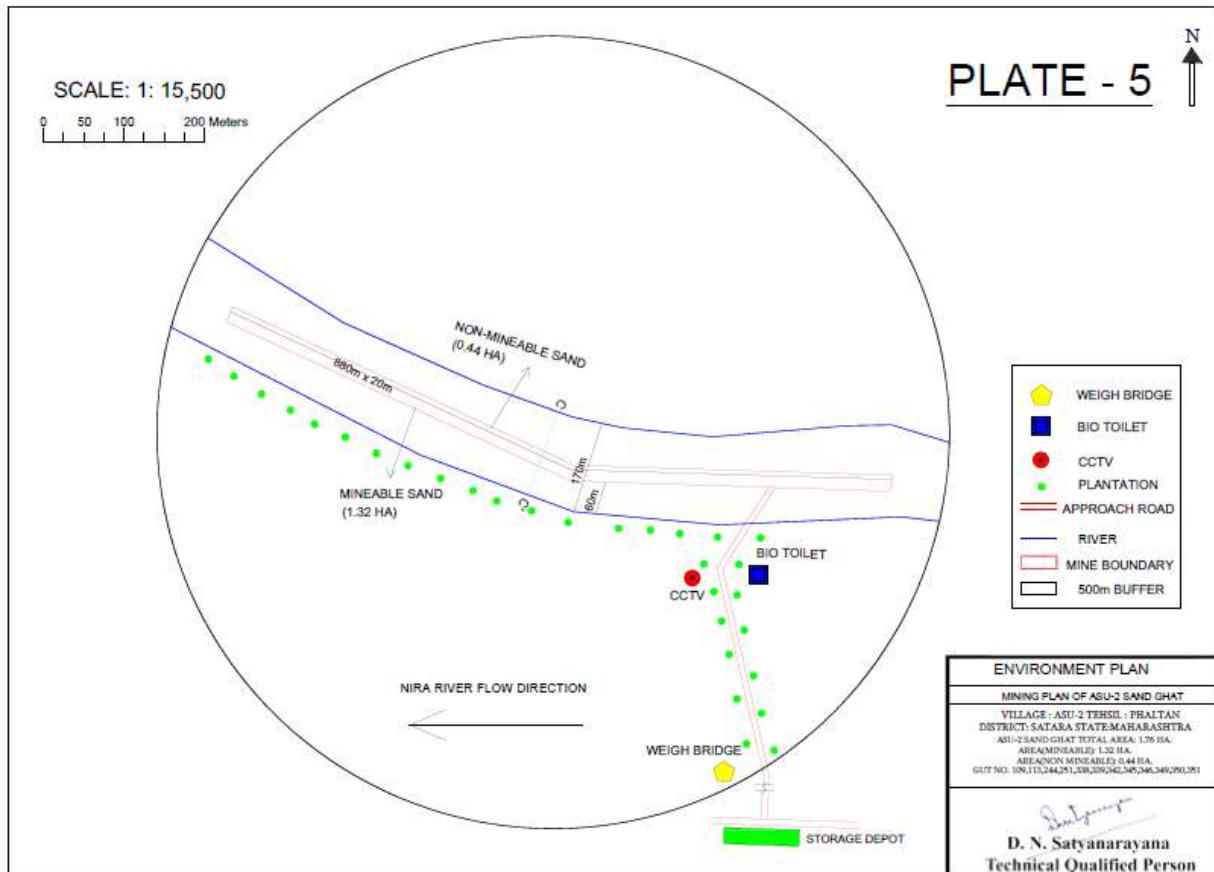
Nil

**Conditions Reply:**

## Environmental Management Plan

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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 Aasu-2 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 1326m 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



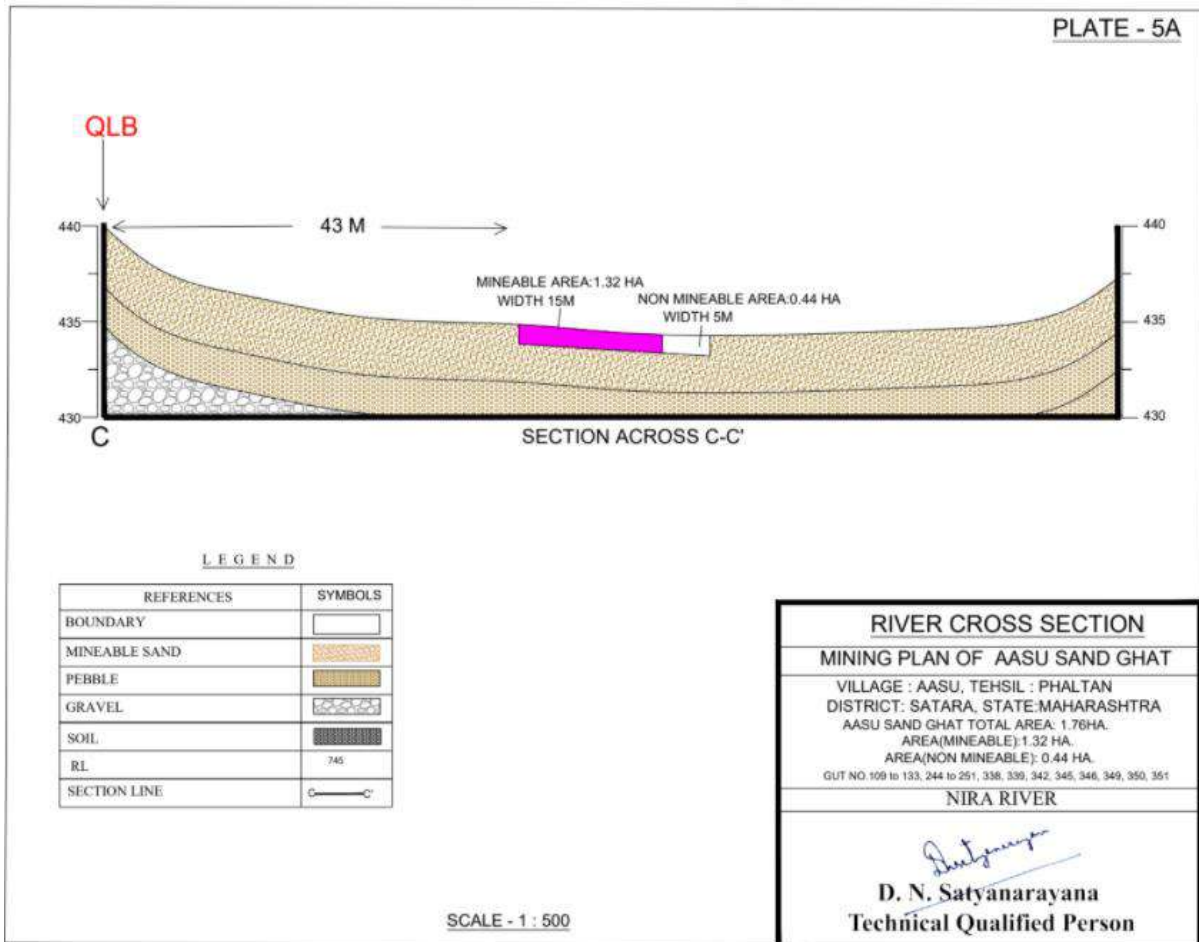
## Environmental Management Plan

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submitted by Phaltan 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:

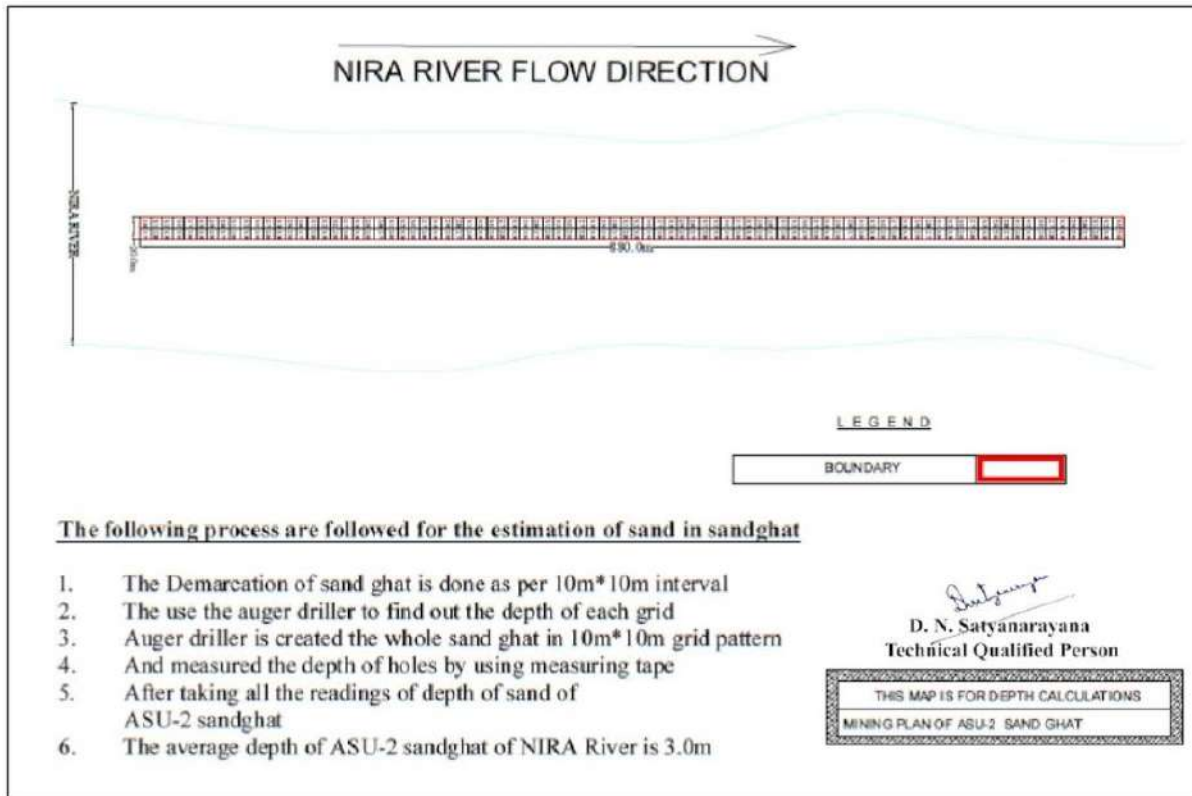


4. PP to submit details of District Level Task Force committee meetings and status of compliance of its recommendations if any District Level Task Force Committee Meeting details is enclosed.

# Environmental Management Plan

**Aasu-2 sand spot over an extent of 1.76 HA (MINEABLE AREA-1.32HA & NON-MINEABLE AREA-0.44HA) At Nira Riverbed Gut No.109 to113, 244 to 251, 338,339,342,345,346,349,350,351 Aasu Village, Tehsil-Phaltan, Satara District, Maharashtra.**

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.



## 5. Sediment Yield Calculation

### DANDY-BOLTON EQUATION

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

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

A= net drainage area in sq. mile

### Conclusion:

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

## Environmental Management Plan

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6. 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:

<b>Location of greenbelt</b>	Both sides of approach road, On the river banks of both sides of the sand spot & nearby open areas Haul Road outside riverbed
<b>Afforestation area/ annum</b>	4412 Sq.m /annum
<b>No. of plants to be planted</b>	2206 Per Hectare
<b>Spacing of plants</b>	2 m grid interval
<b>Species selected</b>	Native species

Tree species recommended for Plantation:

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

# Environmental Management Plan

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## 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 Aasu-2 Sand Spot will be useful to the developmental work in the district and also generate employment opportunities.

## BUDGET FOR CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

SNo.	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

**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: Padegaon Sand Spot

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

<b>BOUNDARY POINTS</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
BP1	18° 5'45.65"N	74°14'37.92"E
BP2	18° 5'46.25"N	74°14'38.75"E
BP3	18° 5'37.49"N	74°14'45.45"E
BP4	18° 5'36.92"N	74°14'44.65"E

(iii) Size of the Mining Lease (Hectare): 1 HA

(vi) Capacity of Mining Lease (TPA): 2655 Brass

(v) Period of Mining Lease: 1 year

(vi) Expected cost of the Project: 175.05 Lakhs

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

**(II) Environmental Sensitivity**

<b>S. No.</b>	<b>Areas</b>	<b>Distance in Kilometer/Details</b>
1	Distance of project site from nearest rail or road bridge over the concerned River, Rivulet, Nallah et	Bridge at distance 1.20 Km, NW
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	Nira railway station,4km, NW NH-4, 26.2 Km, W SH221_1.58Km_N, SH61, 3.32Km NW Malashi Nimbut Road , 0.53Km, N Malashi Nimbut Road , 0.53Km, N 0.39Km, NW Nira River Bed Nil Nil

3	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	Malashi Nimbut Road , 0.53Km, N
9	Defence installations	Nil
10	Densely populated or built-up area, distance from nearest human habitation	Nira, 3.59Km, 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 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.	No

***Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA) At Nira Riverbed Gut No.173, Padegaon Village, Tehsil-Phaltan Satara District, Maharashtra.***

**Form 1M**

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	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

*Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Nira River Bed Gut No. 173 Padegaon Village, Tehsil-Phaltan, Satara District, Maharashtra.*

**Pre-Feasibility Report**

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**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 & 0.25HA. 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 2655 Brass sand is proposed to auction from proposed sand spot.
- Proposed site is located at the Nira river bank.

**1. Physiography**

The Sand Ghat area as per survey is River bed of Nira River. The slope is of 1 m from 461 to 460 MSL. The slope of Sand Ghat area towards NW side. The highest MSL is 461 & lowest 460 MSL. The flow of Nira River is from SE to NW 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 7515 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.

**4. Introduction of the project/ background information**

The Padegaon Sand Spot has been kept for Auction which is situated at Village Padegaon, Taluka Phaltan, 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.



*Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Nira River Bed Gut No. 173 Padegaon Village, Tehsil-Phaltan, Satara District, Maharashtra.*

**Pre-Feasibility Report**

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**i) Brief description of project**

The Sand Spot has sufficient Reserve of Sand to work at 7515 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.

**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**

Padegaon is a small Village/hamlet in Phaltan Taluka in Satara District of Maharashtra State, India. It comes under Padegaon Panchayath. It belongs to Western Maharashtra region. It is located 52 KM from District headquarters Satara. Approximately 185 KM from State capital Mumbai.

The sand spot area is connected to approached road at a distance of 730 meter in SW direction. SH-221 road is situated at a distance of 2 km. in NW of the sand ghat spot. Satara Railway Station is present at a distance of 47 km.

Area covered in SOI Toposheet No- 46 K/5. The GPS reading of boundary point are given below:

*Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Nira River Bed Gut No. 173 Padegaon Village, Tehsil-Phaltan, Satara District, Maharashtra.*

**Pre-Feasibility Report**

Boundary points of Padegaon	Latitude	Longitude
BP1	18° 5'45.65"N	74°14'37.92"E
BP2	18° 5'46.25"N	74°14'38.75"E
BP3	18° 5'37.49"N	74°14'45.45"E
BP4	18° 5'36.92"N	74°14'44.65"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. 7515 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 7515 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.

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**Pre-Feasibility Report**

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**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 14.6 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.

*Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Nira River Bed Gut No. 173 Padegaon Village, Tehsil-Phaltan, Satara District, Maharashtra.*

#### **Pre-Feasibility Report**

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### **6. Site Analysis**

#### **i) Connectivity**

Padegaon is a small Village/hamlet in Phaltan Taluka in Satara District of Maharashtra State, India. It comes under Padegaon Panchayath. It belongs to Western Maharashtra region. It is located 52 KM from District headquarters Satara. Approximately 185 KM from State capital Mumbai.

The sand spot area is connected to approached road at a distance of 730 meter in SW direction. SH-221 road is situated at a distance of 2 km. in NW of the sand ghat spot. Satara Railway Station is present at a distance of 47 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).

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**Pre-Feasibility Report**

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**8. Planning brief**

The proposed project is opencast manual sand mining activity.

**Supply demand ratio:**

Informataion 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

*Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Nira River Bed Gut No. 173 Padegaon Village, Tehsil-Phaltan, Satara District, Maharashtra.*

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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
<b>Total</b>			<b>25361</b>

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 माहितीद्वारे 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.

*Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Nira River Bed Gut No. 173 Padegaon Village, Tehsil-Phaltan, Satara District, Maharashtra.*

**Pre-Feasibility Report**

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**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 pre 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.

***Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Nira River Bed Gut No. 173 Padegaon Village, Tehsil-Phaltan, Satara District, Maharashtra.***

***Pre-Feasibility Report***

- 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**

$$S=1280*(Q)^{0.46}*(1.46-0.26\log(A)) *F$$

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

$$S=1958*(Q)^{(e-0.055*Q)} *(1.43-0.26\log (A))$$

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

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:



***Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Nira River Bed Gut No. 173 Padegaon Village, Tehsil-Phaltan, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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- 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 is 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/depos 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/depos.

***Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Nira River Bed Gut No. 173 Padegaon Village, Tehsil-Phaltan, Satara District, Maharashtra.***

***Pre-Feasibility Report***

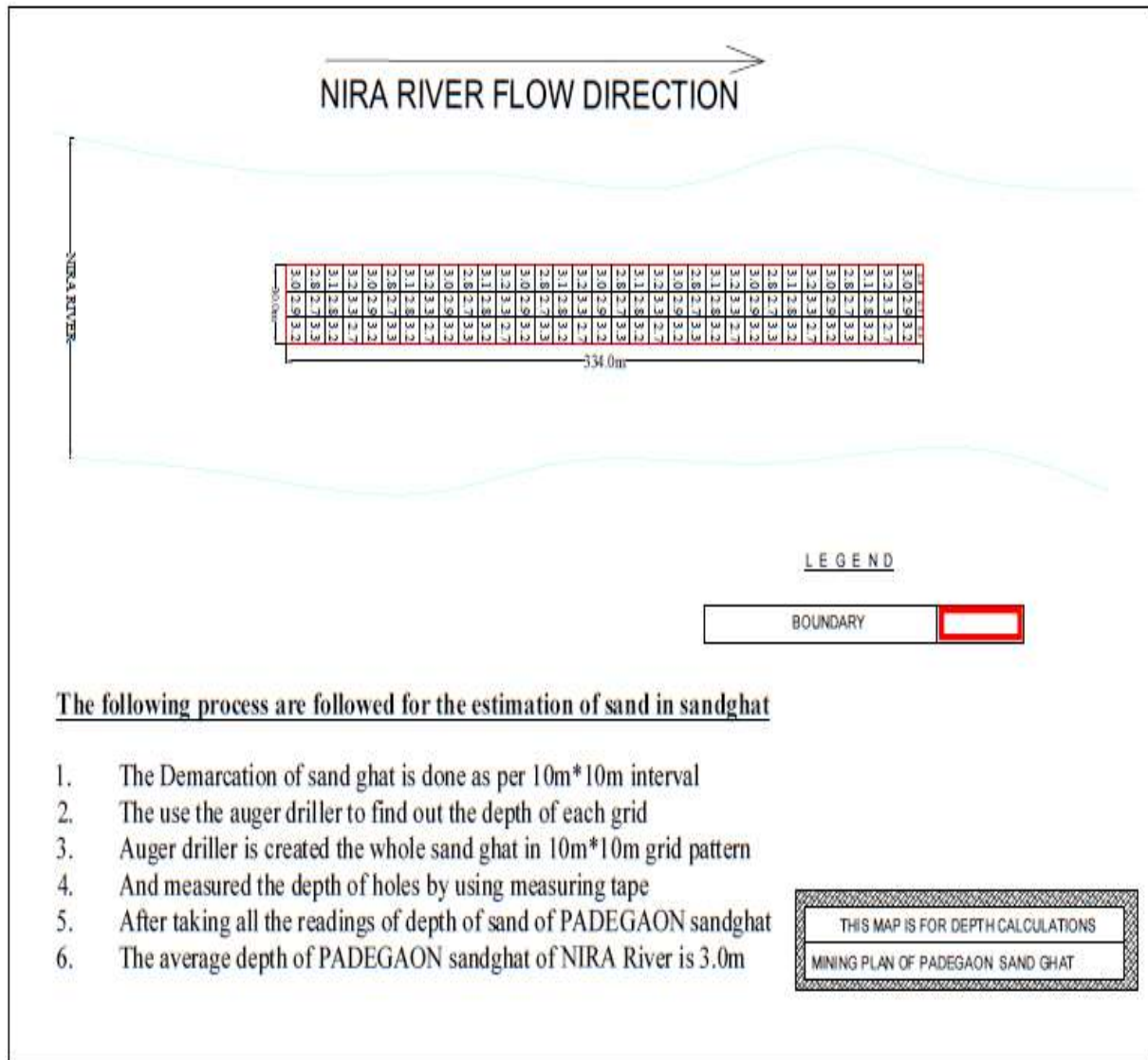
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8. The district collector will get live streaming of the videos monitored at a Centralised control room and the data stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the 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 depots 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.

**Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Nira River Bed Gut No. 173 Padegaon Village, Tehsil-Phaltan, Satara District, Maharashtra.**

## Pre-Feasibility Report

### 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.

*Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Nira River Bed Gut No. 173 Padegaon Village, Tehsil-Phaltan, Satara District, Maharashtra.*

**Pre-Feasibility Report**

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**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 Envirnoment 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.

***Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA- 0.75 HA & NON-MINEABLE AREA-0.25HA) At Nira River Bed Gut No. 173 Padegaon Village, Tehsil-Phaltan, Satara District, Maharashtra.***

***Pre-Feasibility Report***

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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

***Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA) At Nira Riverbed Gut No.173, Padegaon Village, Tehsil-Phaltan 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 the 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

Aasu is a small Village/hamlet in Phaltan Taluka in Satara District of Maharashtra State, India. It belongs to Western Maharashtra region. It is located 78 KM towards SW from District headquarters Satara. Approximately 218 KM from State capital Mumbai.

The sand spot area is connected to approach road at 1326 meter in SW direction. SH-221 road is situated at 6.5 km. in the north of the sand ghat spot. Satara Railway Station is present at 75 km. The area is covered in SOI Toposheet No- 47K/5.

**Table 1: Salient Features of the Project**

Items	Details		
Location	Padegaon Village, Tehsil-Phaltan, Satara District, Maharashtra.		
Latitude and Longitude	<b>BOUNDARY POINTS</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
	BP1	18° 5'45.65"N	74°14'37.92"E
	BP2	18° 5'46.25"N	74°14'38.75"E

## Environmental Management Plan

***Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA) At Nira Riverbed Gut No.173, Padegaon Village, Tehsil-Phaltan Satara District, Maharashtra.***

	BP3	18° 5'37.49"N	74°14'45.45"E
	BP4	18° 5'36.92"N	74°14'44.65"E
Sand spot area (In Ha)	1.00		
Proposed production capacity (In Brass )	2655		
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	14.6 KLD – Tankers from nearby village.		
Project cost INR (Lakh)	175.0707		

### 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 Sahyadries, Krishna vally, Nira vally, 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 436 to 432 MSL. The slope of Sand Ghat area towards NW side. The highest MSL is 436 & lowest 432 MSL. The flow of Nira River is from East to NW direction.

#### b. Hydrology

The 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.

# Environmental Management Plan

***Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA) At Nira Riverbed Gut No.173, Padegaon Village, Tehsil-Phaltan Satara District, Maharashtra.***

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There is no proposal of any stream modification/diversion due to this mining activity hence there will be no 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 waste water 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 19.1 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



# Environmental Management Plan

***Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA) At Nira Riverbed Gut No.173, Padegaon Village, Tehsil-Phaltan Satara District, Maharashtra.***

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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**

## Environmental Management Plan

***Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA) At Nira Riverbed Gut No.173, Padegaon Village, Tehsil-Phaltan Satara District, Maharashtra.***

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 consider for calculatio n
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					
<b>GRAND TOTAL</b>				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

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

S. No	Impact Source	Impact	Control measure	Padegaon
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## Environmental Management Plan

***Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA) At Nira Riverbed Gut No.173, Padegaon Village, Tehsil-Phaltan Satara District, Maharashtra.***

1	Transport Road	On Air Quality	Compaction, gradation and drainage on both sides.	75000
		Road Degradation	Budget for Road Repairs and Maintenance from Approach Road to Main Road	109500
		Road Construction	Road Construction from Quarry to Access Road	182500
		Air Environment	Dust Supression by Regular water spraying.	109500
			Air quality will be monitoring at impacted village.(For One Day Monitoring)	50000
			Health Checkup 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)	83950
3	Ramp and Sand Reach	Mining Operations	Regular ramp Inspection and Ramp maintenance.(Excluding Man Power Salary which is included in labour costs)	91250
			Provision of dusk masks.	15000
4	Bank Management	Bank Erosion/Flood Plain management	Green Belt along Road	365000
			Green belt along bank(For Green Belt Development)	730
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 Monitoriong Framework	60000
8	Safety		Signage Boards	6000
			Fencing	18000
			Watching	25000

## Environmental Management Plan

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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 aren't available.	200000
14	Development of Market Model		Provision for development of market model & associated works if different funds aren't available.	25000
15	Environmental Audit		Provision for third party environmental audit if different funds aren't available.	50000
Total EMP Budget				1965830
Capital Cost				1393080
Recurring Cost				572750

**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.

## Environmental Management Plan

***Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA) At Nira Riverbed Gut No.173, Padegaon Village, Tehsil-Phaltan Satara District, Maharashtra.***

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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. Padegaon-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 is 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.

## Environmental Management Plan

***Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA) At Nira Riverbed Gut No.173, Padegaon Village, Tehsil-Phaltan Satara District, Maharashtra.***

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 depots 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.

# Environmental Management Plan

**Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA) At Nira Riverbed Gut No.173, Padegaon Village, Tehsil-Phaltan Satara District, Maharashtra.**

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

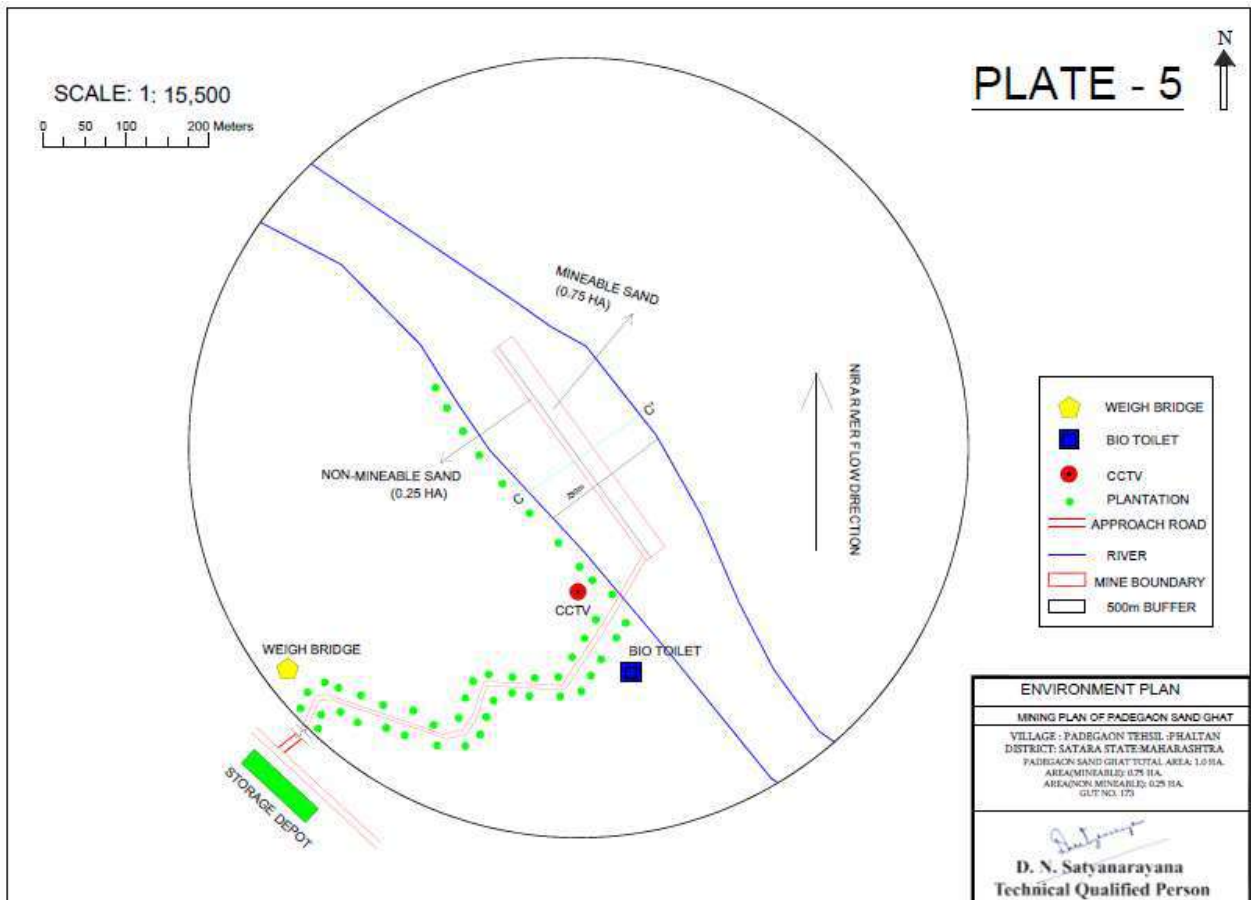
Nil

### 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 Padegaon 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

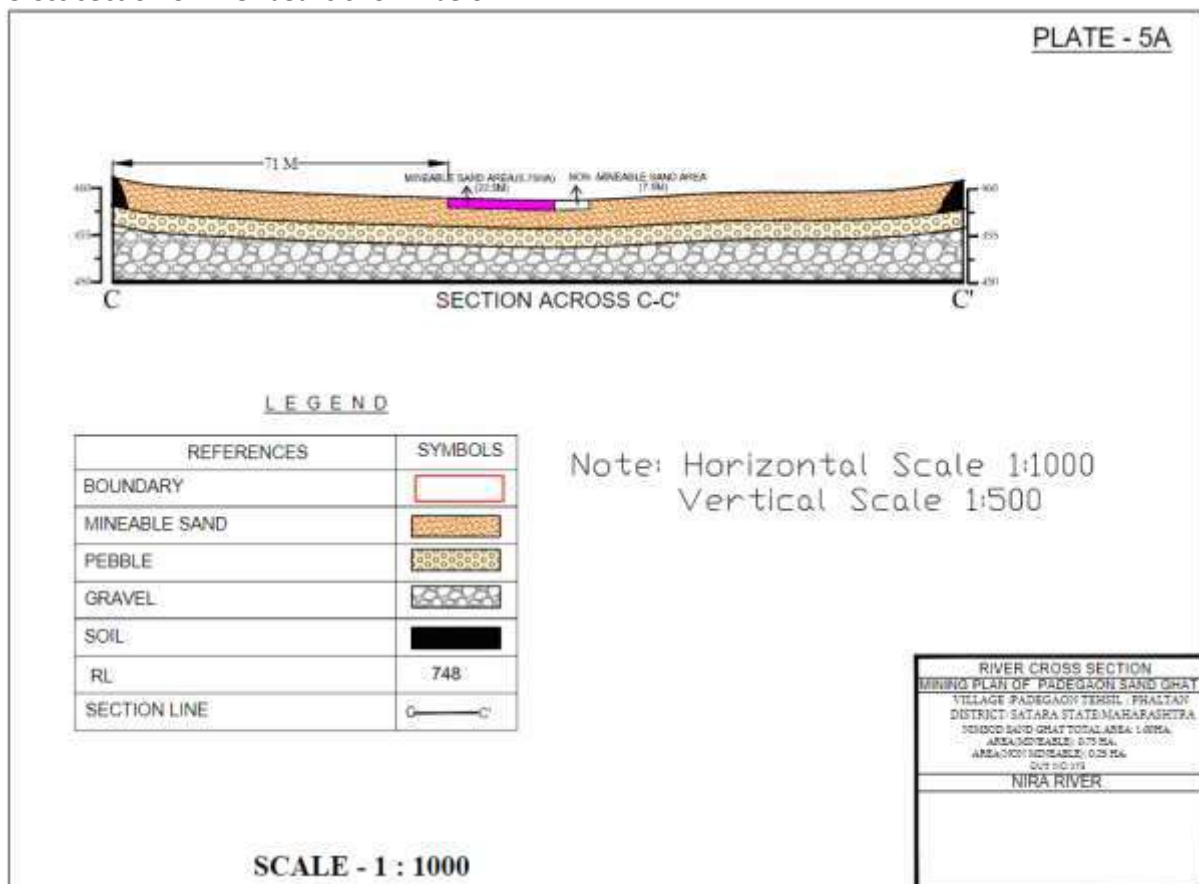
**Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA) At Nira Riverbed Gut No.173, Padegaon Village, Tehsil-Phaltan Satara District, Maharashtra.**

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 730m 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 Phaltan 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

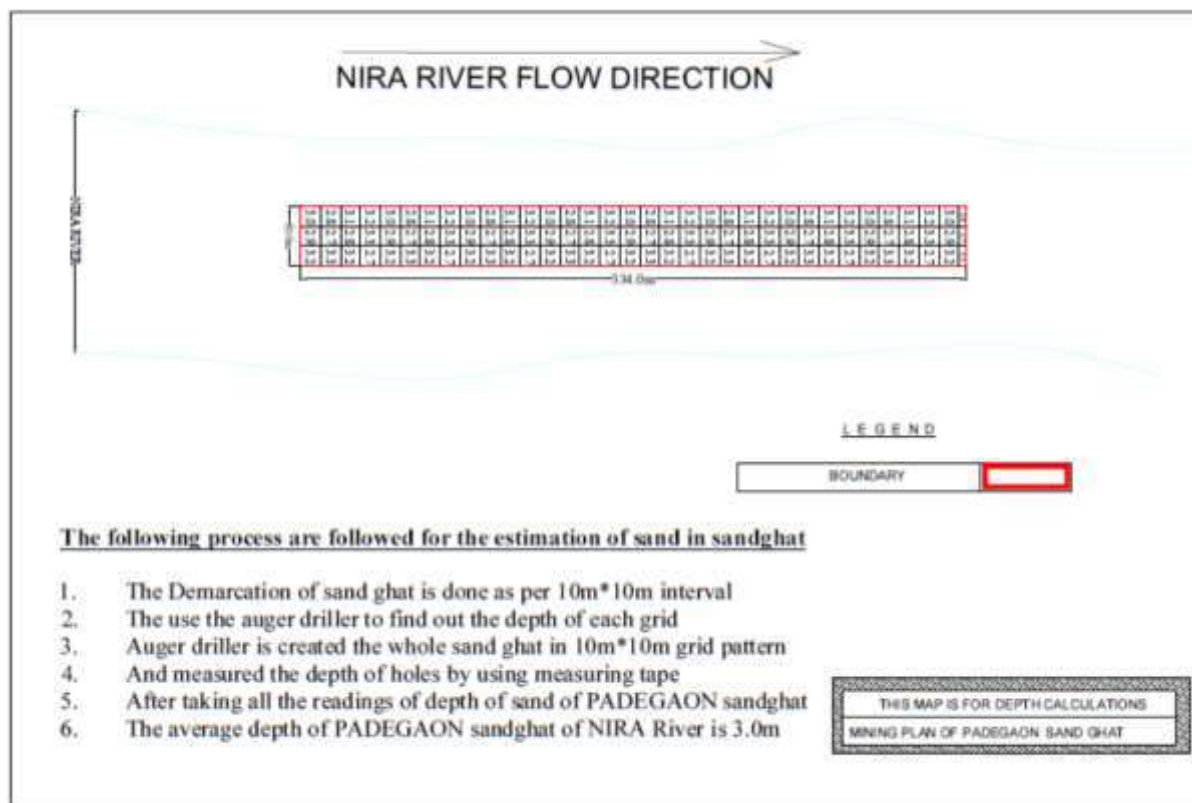
District Level Task Force Committee Meeting details is enclosed.



# Environmental Management Plan

***Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA) At Nira Riverbed Gut No.173, Padegaon Village, Tehsil-Phaltan Satara District, Maharashtra.***

**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.**



**5.**

### DANDY-BOLTON EQUATION

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

Where

S=sediment yield of stream (t/yr/km<sup>2</sup>),

Q= average annual runoff (m<sup>3</sup>),

A= net drainage area in sq. mile

### Conclusion:

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

## Environmental Management Plan

***Padegaon sand spot over an extent of 1.00 HA (MINEABLE AREA-0.75HA & NON-MINEABLE AREA-0.25HA) At Nira Riverbed Gut No.173, Padegaon Village, Tehsil-Phaltan Satara District, Maharashtra.***

6. 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:

<b>Location of greenbelt</b>	Both sides of approach road, On the river banks of both sides of the sand spot & nearby open areas Haul Road outside riverbed
<b>Afforestation area/ annum</b>	2128 Sq.m /annum
<b>No. of plants to be planted</b>	1064 Per Hectare
<b>Spacing of plants</b>	2 m grid interval
<b>Species selected</b>	Native species

Tree species recommended for Plantation:

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

# Environmental Management Plan

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## 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 Aasu Sand Spot will be useful to the developmental work in the district and also generate employment opportunities.

## BUDGET FOR CORPORATE ENVIRONMENT

SNo.	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

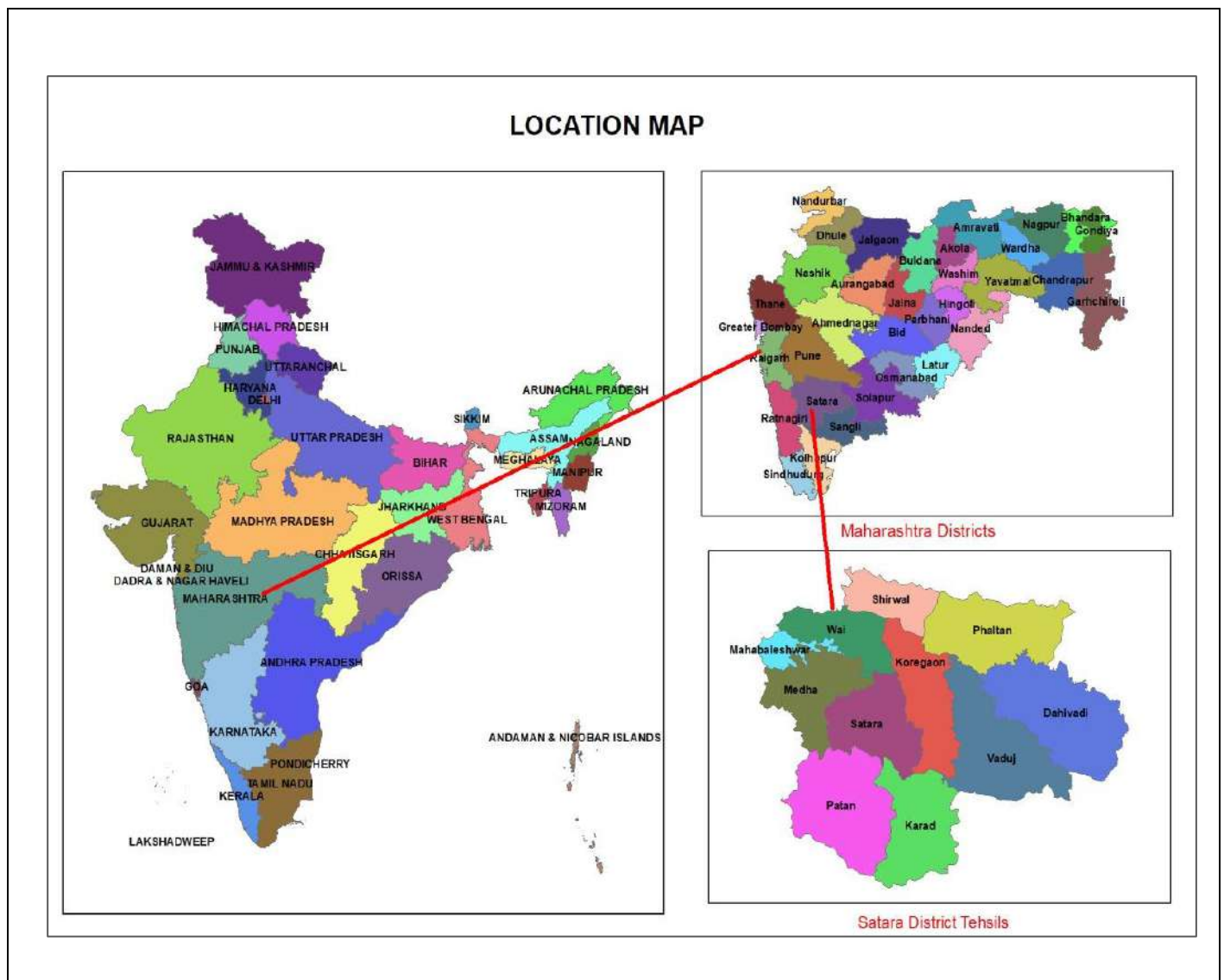
# Public Hearing for Fourteen District Level Sand Spots, Satara District, Maharashtra.

## EXECUTIVE SUMMARY

### 1. INTRODUCTION

- ❖ Environmental Clearance is sought for 14 sand spots located in Khandala, Karad, Koregaon, Satara, Maan, Khatav and Phaltan 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



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

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### 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.

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### 5. GREENBELT DEVELOPMENT PLAN

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

#### Tree species recommended for Plantation

<b>Botanical name</b>	<b>Local name</b>	<b>Importance</b>
<i>Azadirachta indica</i>	Neem	Neem oil & neem products
<i>Tectona grandis</i>	Teek	Antibacterial, Antifungal, Antiulcer
<i>Ficus religiosaa</i>	Peepal	Medicinal Use, Fruits & figs
<i>Bambusa vulgaris</i>	Bamboo	Anthelmintic Anti-inflammatory, Astringent Properties
<i>Madhuca longifolia</i>	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.

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

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### **7. CONCLUSION**

- Applied Sand Spots located in Khandala, Karad, Koregaon, Satara, Maan, Khatav and Phaltan 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.