EXECUTIVE SUMMARY (ENGLISH)

For

SAND MINING (MINOR MINERAL) FOR FOLLOWING VILLAGES

SR. NO.	NAME OF SANDGHAT	VILLAGE NAME	KHASRA NO	TOTAL LEASE AREA	Total Production / Brass (TPA)	TOTAL PROJECT COST
1.	DEVGAV MAHI PART-2 AND NIMGAV GURU RIVER SAND MINE AT KHADAKPURNA RIVER	DEVGAV MAHI PART-2 AND NIMGAV GURU	111 to 114, 137, 138 (DEVGAV MAHI PART-2) AND 307 to 315, 333 to 337 (NIMGAV GURU)	4.90	6184	78,90,784
2.	NARAYANKHED AND NIMGAV GURU RIVER SAND MINE AT KHADAKPURNA RIVER	NARAYAN KHED AND NIMGAV GURU	166 to 172, 184 to 188, 206 to 210 (NARAYANKHED) AND 39 to 45, 50, 51 (NIMGAV GURU)	4.75	3710	47,33,960
3.	DIGRAS BK RIVER SAND MINE AT KHADAKPURNA RIVER	DIGRAS BK	436, 437, 450, 70	1.13	2226	28,40,376

OF

TALUKA: - DEOOLGAONRAJA, DISTRICT – BULDHANA (Maharashtra)

Lease Validity: - 2020-2021 (1 YEAR), Study Period: - Nov, Dec & January

FOR

ENVIRONMENTAL CLEARANCE (PUBLIC HEARING)

("B" under category 1(a) of EIA Notification dated 2006, S.O. 141(E) dated 15. 01. 2016, MoEF& CC, S.O. 3611(E), Dated 25.07.2018, Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020

Applicant District Mining Officer, Buldhana
Government of India

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Accredited by NABET: No.: - NABET/EIA/1619/RA0060/ Sept 30, 2020)

August – 2020

Introduction:

Executive summary is the brief of report prepared for Environmental Management Plan of Sand Spot Mines of Minor Minerals of Buldhana District, Tehsil Deoolgaonraja by M/s. District Mining Office, Buldhana, Maharashtra (Govt. of Maharashtra). The mining is confined to extraction of sand in villages viz. Devgav Mahi Part-2 and Nimgav Guru (4.90 Ha), Narayankhed and Nimgav Guru (4.75 Ha) and Digras Bk. (1.13). Sand exposed in the lease area needed to mine by opencast manual mining method without drilling and blasting.

Project Identification

The sand (minor minerals) occurred in Buldhana district required to carry out mining practise as per mining Plan of PMCP under Rule 16 (1) of MCR 2016 and PMCP under Rule 23B of MCDR 1988 is approved by Deputy Director, Directorate of Geology and Mining, Regional Office, Aurangabad vide letter no. STC-10/2020(M.P. Sand) 52 dated 04/02/2020. Proposed lease area is Government land.

Identification of Project Proponent

Table 1: Name and address of the Applicant

Applicant
District Mining Officer, Buldhana **(Govt. of Maharashtra)** **State Bank Chowk Road, Buldhana, Maharashtra 443001** **Mob No: - 07262-242411** **Email Id:-dmobul@gmail.com**

1.1.3 Location of Project

Table 2: Details of Project Location

Particulars	Devgav Mahi Part-2 and Nimgav Guru	Narayankhed and Nimgav Guru	Digras Bk
Name of the applied mine area	DEVGAV MAHI PART-2 AND NIMGAV GURU RIVER SAND MINE AT KHADAKPURNA RIVER	NARAYANKHED AND NIMGAV GURU RIVER SAND MINE AT KHADAKPURNA RIVER	DIGRAS BK RIVER SAND MINE AT KHADAKPURNA RIVER
Nearby village	Narayankhed, Nimgav Guru	Narayankhed, Sathegaon	Digras Bk, Digras Kh, Sathegaon
Tehsil	Deoolgaonraja		
District	Buldhana		

State	Maharashtra		
Toposheet no.	55D/5	55D/5	55D/5
Latitude (N)	20°3'46.75"N	20°3'34.23"N	20°3'4.31"N
Longitude (E)	76°11'4.78"E	76°11'30.98"E	76°14'5.83"E

Background of the Project

The sand and gravel are the most important construction materials. The sand is produced by weathering of rock carried away by geological agents and deposited in river which will replenish every year with monsoonal cycle. Availability of sand is vital for the development of the infrastructure in the country development. As the rise in demand of these construction materials government need to ensure sustainable environment and supply this essential to sustain its developmental activities. This project provides opportunities for sustainable utilisation of resources to Government of Maharashtra. In the recent climatic changes, the sand mining is beneficial as it help to lower the inundation levels at time of floods.

Local geology: Buldhana districts large part occupied of rocks of Deccan trap formation, represented by of most horizontal lava flows of basaltic composition, emplaced by fissures aged to Mesozoic era, on to the lower tertiary era.

Table 3: Available Brass and Life of Mine

Name of Village	Devgav Mahi Part-2 and Nimgav Guru	Narayankhed and Nimgav Guru	Digras Bk
Quantity of sand for Excavation (Brass)	6184	3710	2226
Life of Mine	1 YEAR	1 YEAR	1 YEAR

Proposed Working: - Opencast Manual Mining Method will be adopted for extraction of Sand deposits in Khadakpurna River Bed

The Modified River Bed Sand Mine Working Guidance No.11(1X) and 12 of the Notification of Revenue and Forest Department, Mantralaya Mumbai, The Government of Maharashtra vides Government Decision No. Gaukhani-10/0615/Pra. Kra. 289/Kha dated 03.01.2018; mining will be done manually only with the use of labours, man heads, spades (Pawadas), ghamelas/pans.

Each cycle of operation shall consist of the following operation.

i) Over Burden Removal: No overburden is anticipated. So there is no need of removal of Overburden.

ii) Digging of Sand: Digging of Sand will be done by manually by Labours with the help of Spades (Pawadas).

iii) Loading of Tractor Trolley: Loading of Tractor Trolley will be done by manually with the help of Man heads, Labours with the help of Spades (Pawadas) and Pans (Ghamelas) combination.

iv) Transportation of Sand by Tractor Trolley from River Bed Mine/Sand Ghat to Stack yard: Mine Owner will prepare the Stack yard outside the River bed or Sand Ghat on nearer road. By the use of Tractor Trolley the material will be transported from Sand Ghat to Stockyard.

v) Transportation of Sand from Stack yard to Customers: Transportation of Sand will be done by the use of tractors trolleys from Stack yard to various Customers with permissible quantity. Transportation will be done as per the rules and regulations.

vi) Reclamation: Applicant will do scientific mining so that in Monsoon the Mine Lease area will be automatically backfilled. Only plantation will be done by the applicant on the both bank side of the River and other free places.

Extent of Mechanization: Mining Operations will be done by manual means only. No Mechanization. Services

Description of the Environment (Baseline Environment Status)

The environmental monitoring carried out during winter season of year February 2020. The various environmental components which are thoroughly studied during the study period include:

Meteorological condition

The observed maximum temperature recorded 32°C and Minimum temperature 21°C and wind blows from east and north.

Ambient Air Quality

The ambient air quality founds under permissible levels of pollution standards.

Ambient Noise Level

In the monitoring stations of four Locations observed maximum level was: 59.1 during day-time and minimum was 34.8 during night-time and found ambient noise level is within prescribed limit.

Water Quality

The water analysis conducted at four sample locations for groundwater and surface water. The major findings are follows.

Ground Water Quality

- It is observed that pH of the ground water samples is range of 6.10 to 7.51, which is between the acceptable pH limit for drinking water.
- Concentration of Total dissolved solids (TDS) and Total hardness observed in different groundwater samples are in range of permissible category stipulated by Bureau of Indian Standards.
- Fluoride Concentration is in between 0.1 to 0.4 mg/l. The desirable limit of 1 mg/l and permissible limit of 1.5 mg/l.
-

Surface water quality

- Biochemical oxygen Demand - All surface water samples have BOD indicate very low organic pollution load. All BOD values are within prescribed limit (<30.0 mg/lt as in IS 10500:2012).
- Chemical oxygen demand (COD) - All surface water samples have COD values which indicates low level of organic pollution load in term of COD.
- From the analysis data it is observed all parameters are within permissible limit of drinking water standard.

Soil Characteristics

The pH values of the collected samples were in the range of 6.14 to 8.31, organic matter in the range of 0.883(%) to 1.89 (%), water holding capacity in the range of 5.61 to 7.75%, potassium in the range of 0.09 to 171, total nitrogen in the range of 0.012 to 0.013 %, bulk density in the range of 1.19 to 1.40gm/cc. These all parameter indicate that soil is not so fertile in this area.

TABLE 4: LAND USE PATTERN OF THE CORE AREA

Sr. No.	Particulars	DEVGAV MAHI PART-2 AND NIMGAV GURU		NARAYANKHED AND NIMGAV GURU		DIGRAS BK	
		As on Today in Ha	After 1 Years in Ha	As on Today in Ha	After 1 Years in Ha	As on Today in Ha	After 1 Years in Ha
1.	Area of top soil spread for a forestation	-	-	-	-	-	-
2.	Storage for top soil	-	-	-	-	-	-
3.	Green Belt	-	-	-	-	-	-
4.	Over burden	-	-	-	-	-	-

	Dump						
5.	Mineral Storage	-	**-**	-	**-**	-	**-**
6.	Infrastructure (Workshop, Admin. Building etc.)	-	**-**	-	**-**	-	**-**
7.	Mine road in Mine lease area	-	**-**	-	**-**	-	**-**
8.	Utilized area for Sand Mining	**0.000**	**4.90**	**0.000**	**4.75**	**0.000**	**1.13**
9.	Virgin lease area for Sand Mine & Other Uses	**4.90**	**0.000**	**4.75**	**0.000**	**1.13**	**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	Government River	Government River	Government River	Government River
Total		**4.90**	**4.90**	**4.75**	**4.75**	**1.13**	**1.13**

Biological Environment

The flora and fauna analysis found as follows

Flora - The study area is mainly dominated by Southern Dry Mixed Deciduous Forests with major species are Aam, Babul, Bel, Bor, Chandan, Jambhul, Karnj, Neem etc.

Fauna - The faunal species commonly encountered during study within the study area are Hare, Rat, Indian fox, etc. No endemic endangered or threatened species of flora and fauna observed during study period.

Demography and Socio- Economics

Deoolgaon Raja Tehsil as per census of India 2011, study area consists of 64 villages with total population of 30,827.

Anticipated Environmental Impact and Mitigation Measures

Impact on Air Quality: - The mining operations to be carried out by manual method and no machinery, drilling and Blasting not allowed. The impact on air quality is not envisaged. Transportation needs to allow only by tractor-trolley of the sand from the ghat to nearby depot or desired destination. The transport routes to be capable for handling this additional traffic.

Mitigation Measures: Following care to be taken for air pollution control.

- Water sprinkling to be done on the roads regularly. This reduces dust emission further by 75%.
- Care to be taken to prevent spillage by covering the carrying vehicles with tarpaulin and sprinkling of water, if dry.
- Fortnightly scraping of road in order to keep the roads almost levelled which ensures smooth flow of vehicles and also prevents spillage.
- Overloading will be strictly prohibited.
- Proper tuning of vehicles to keep the gas emissions under check.

Plantation of trees along the roads will help to reduce the impact of dust in the nearby villages.

Impact on Noise Quality: - No significant noise will be generated due to sand mining as entire operation to be carried out manually. Noise generated only due to tractor trolley being used in sand transportation.

Mitigation measures: The off-site receptors are not significantly affected due to noise generated by sand ghat which is insignificant but some disturbances can be occur due to vehicle movement which is not avoidable. The tractor trolley to be maintains in good running condition which will help to reduce noise to a minimum possible level. An optimum Speed limits to be imposed on tractor trolleys which used for sand transport.

Impact on Water Environment: - Mining of sand from within or near a streambed which has a direct impact on the stream's physical habitat characteristics. As the project activity to be carried out in the dry part of the river bed which will not affect the water environment or riparian habitats. The project to be executed without divert or truncate any stream also envisaged the pumping of water either from the river or tapping the ground water not allowed. The mining activity happening in summer months which will not affect the base flow of the river and this minimise the adverse impact on surface hydrology and ground water regime. The proponent to be adhere all guidelines and rules for proper and scientific method of mining during the period of extraction of sand.

Mitigation measures: During the lease period, the deposit to be worked from the top surface to approved depth of mining within the demarcated lease area only.

Impact on land Environment- The mining and allied activities involved in river bed mining are creation of temporary haul roads / transportation track and formation of mined pits inside river, etc. This sand mining project does not involve any waste generation. Thus no waste dump sites are needed for the project.

Mitigation Measures:

- The mining to be carried out below the water table.
- The contractor with the satisfaction of competent authority to provide drinking water, rest shelter, first aid box and welfare facilities as per prevailing laws.
- The river bed areas to be dug during dry season. At rainy season, sand get replenished during monsoon.
- Sand/Gravel deposit in rainy season in which the material so deposited will available for fresh quarrying.
- The contractors to abide by the Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.

Impact on Biological Environment

The table summarised about the studies of biological environment.

Anticipated impact and mitigation measures for biological environment

Impact Predicted	Suggestive measure
Disturbance to free movement /living of wild fauna viz. Birds, Reptiles etc.	• If birds are noticed crossing the core zone, they will not be disturbed at all; • Labourers will not be allowed to discard food, polythene waste etc., which can attract animals/birds near the core site;

Impact Predicted	Suggestive measure
	• Only low polluting vehicles h0aving PUC will be allowed for carrying mining materials. • Noise level will be maintained within permissible limit (silent zone-50dB (A) during day time or residential zone 55dB (A)) as per Noise Pollution (Regulation and Control) Rules 2000, CPCB norms
Disturbance of riparian ecosystem/ wetlands	The riparian ecosystem or the wetlands will not be disturbed by the workers.
Monitoring of upstream and downstream water quality	Water quality will be monitored from upstream and downstream area once every month to assess the impact on water quality and mining activity will be controlled to maintain the clean water conditions.

Ecological Impacts: Excessive and unscientific riverbed sand mining results in the destruction of aquatic and riparian habitat through large changes in the channel morphology. Impacts include bed degradation, bed coarsening, lowered water tables near the streambed, and channel instability. These physical impacts cause degradation of riparian and aquatic biota and may lead to the undermining of bridges and other structures. Continued extraction may also cause the entire streambed to degrade to the depth of excavation.

Sand mining generates extra vehicle traffic, which negatively impairs the environment. Where access roads cross riparian areas, the local environment may be impacted.

Mitigation measures: As the proposed mining to be carried out in a scientific manner not much significant impact is anticipated, however, the following mitigation measure will be taken to further minimize it:

1. The activity to be carried out manually to minimize associate loss, as stated earlier.
2. No mining to be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season.
3. As the mining site has no vegetation, no clearance of vegetation is required.
4. No mining to be carried out in the vicinity of important structure like bridges, dam and other structures if any.
5. Mining to be carried out on the dry part of the lease area to avoid disturbance to the aquatic habitat and movement of fish species.
6. No mining to be carried out during the rainy season to minimize impact on aquatic life.
7. The mining activity needs to deploy a tractor for transportation of sand from the mine to desired destination that may cause some loss to riparian habitat. Safe site / site having least impact will be selected for transportation, all the vehicles employed for

transportation purpose will be PUC certified. On closure of mining operations / during the rainy season the eroded bank will be restored / reclaimed to minimize negative impacts.

8. No lighting allowed in the lease area.
9. No piling of sand allowed in the area.
10. No discard of food, polythene waste etc. allowed in the lease area which would distract/attract the wildlife.
11. No night time mining allowed which may catch the attention of wild life.
12. Access roads will not encroach into the riparian zones and no riparian vegetation cleared off for the mining transportation of sand.

Analysis of Alternatives

Site Alternatives- The mine is located along the where the sand exists in enough quantity to be economically extracted. Mining locations are preferred near the markets or along the transportation route.

Technology alternatives: -No alternative technology only opencast Manual Mining Method will be adopted for extraction of Sand deposits.

Environment Monitoring Program

During the execution of the project activity, the sampling and analysis of various environmental attributes to be carried out as per guidelines of central pollution control board and State pollution control board. An Environment Management Cell to be set-up to implement this mining program.

Additional Studies

Risk Studies-Hazard identification and risk analysis involves identification of undesirable events that leads to a hazard, the analysis of hazard mechanism by which this undesirable event could occur and usually the estimation of extent, magnitude and likelihood of harmful effects

Disaster Studies: - Proper disaster is planning to be done to meet any emergency situation arising due to fire, explosion, sudden leakage of gas etc. Fire fighting equipment and other safety appliances are to be kept ready for use during disaster/emergency situation including natural calamities like earthquake/flood.

ENVIRONMENT MANAGEMENT PLAN (EMP)

This opencast mining operation may comprises for various activities related to digging and material handling which may be potential sources of environment pollution. The Sand Mine to be develops systematically by forming benches with over all pit slopes of 45° or angle of response which stabilizes the benches. Also stringent efforts to be ensure to suppress the dust at source by adequate watering. A mobile water of 2000 litters capacity to be engaged available throughout the working shift. The EMP implementation and sampling parameters summarised in following table.

Environmental Issue	Management Measures	Implementation
Air Environment	• To avoid fugitive dust emissions at the time of excavation, regular sprinkling of water will be done on regular basis. • Sand is transported to the sites by road through tractor trolleys. The sand carrying vehicles shall be covered by tarpaulin sheets. • The Green Belt development will be prepared along the haul roads, which will act as a pollution sink. • To minimize the vehicular pollution from the sand transporting vehicles, the following conditions will insist to permit the vehicles of the transporters	Project authorities through regular monitoring.
Noise and Vibration	• Phasing out of old and worn out tractor trolleys. • Provision of green belts along the road networks. • Care will be taken to produce minimum sound during sand loading. • Use of Backhoe and ear plugs may be provided to protect the labors working at the site.	Project authorities through regular monitoring.
Water environment	• Mining is avoided during the monsoon season and at the time of floods. This will help in replenishment of sand in the river bed.	Project authorities through regular monitoring.

	• River stream will not be diverted to form in active channels. • Utmost care will be taken to minimize or control leakage vehicles to be used for sand. • Transportation. • The washing of tractor trolleys in the river will be avoided. • The contractor will follow all guidelines and rules for proper and scientific method of • Mining during the period of extracting the sand.	
Biological Environment	• Mining activities will be restricted to day-time so that fauna will not disturb at night. • Material will be covered with tarpaulin during transportation. • Water sprinkling will be done on haul roads to control fugitive emissions.	Project authorities through regular monitoring.
Occupational health and safety and public Health and safety.	• Regular water sprinkling on haul roads. • Dust mask will be provided to the workers. • Safety of the employee during mining will be taken care as per Mine regulations. • Medical records will be kept maintained.	Project authorities through regular monitoring.
Socio economic Environment	• Employment will be given to local people. • Regular medical camps will be organized. • Funds will be provided for development activities in nearby villages.	Regular monitoring by Project authorities.

TABLE 6: COST ESTIMATES OF EMP IMPLEMENTATION

(Investment and recurring cost in lacs/year)

Sr. No.	Component	Devgav Mahi Part-2 and Nimgav Guru		Narayankhed and Nimgav Guru		Digras Bk	
		Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)
1	Environmental Monitoring programme	0.60	1.00	0.50	1.00	1.2	1.5

2	Air Pollution Control	0.90	2.0	0.80	1.6	0.4	0.09
3	Approach Road Maintenance	0	1.30	0	1.30	0	0.10
4	Plantation (500 plants planted)	1.25	2.5	1.72	3.44	0.07	0.26
5	Gabian Structure for arresting gravels	1.00	0.20	1.00	0.20	0.14	0.31
6	Monitoring of Sand	0.30	0.60	0.30	0.60	0.05	0.25
7	Water Pollution Control	0.60	Nil	0.50	Nil	0.05	Nil
8	Noise pollution	1.00	0.50	0.90	1.8	0.09	0.08
9	Occupational Health & safety	-	1.00	-	1.00	-	1.05
	Total	**5.65**	**8.1**	**6.12**	**9.94**	**2.00**	**3.64**

TABLE 7: MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

Particulars	Monitoring Frequencies	Duration of Station	Important Monitoring Parameters
Surface water / Tube well	Twice in a year	Grab	pH, SS, TDS, Iron, Hardness, Alkalinity Chlorides, Nitrates Sulphate & Fluorides
Ambient air monitoring	Twice in a year	24 hr.	PM10, PM2.5, SOx and NOx
Noise Pollution	Twice in a year	-	Level in dB(A) and dB(C)
Working environment	Once in a year	-	PH, Conductivity, Sulphate, Nitrate, Phosphates, Alkalinity & texture

EXECUTIVE SUMMARY (ENGLISH)

For

SAND MINING (MINOR MINERAL)

FOR FOLLOWING VILLAGES

SR. NO.	NAME OF SANDGHAT	VILLAGE NAME	KHASRA NO	TOTAL LEASE AREA	Total Production/ Brass (TPA)	TOTAL PROJECT COST
1.	PALSODA A RIVER SAND MINE AT PURNA RIVER	PALSODA	10 to 14, 17	1.76	3544	45,09,384
2.	PALSODA B RIVER SAND MINE AT PURNA RIVER	PALSODA	20 to 22, 24, 26 to 31, 53 to 57	1.76	5088	64,92,288
3.	PATONDA RIVER SAND MINE AT PURNA RIVER	PATONDA	270 to 273, 281 to 284	1.07	2827	36,07,252
4.	BHOTA RIVER SAND MINE AT PURNA RIVER	BHOTA	184 to 191	1.80	5088	64,92,288
5.	ROTI A RIVER SAND MINE AT PURNA RIVER	ROTI	1 to 4	2.63	9276	1,18,36,176
6.	ROTI B RIVER SAND MINE AT PURNA RIVER	ROTI	124 to 129	2.10	6678	85,21,128
7.	YERLI RIVER SAND MINE AT PURNA RIVER	YERLI	20 to 26	1.80	6360	81,15,360
8.	BELAD RIVER SAND MINE AT PURNA RIVER	BELAD	19, 28, 29	0.60	1060	13,52,560
9.	KHEDGAV A RIVER SAND MINE AT PURNA RIVER	KHEDGAV	185	0.08	3092	39,45,392
10.	KHEDGAV B RIVER SAND MINE AT PURNA RIVER	KHEDGAV	13 to 17, 22 to 25	0.10	4240	54,10,240
11.	JIGAON RIVER SAND MINE AT PURNA RIVER	JIGAON	414 to 416, 2, 83	0.40	2827	36,07,252
12.	ISARKHED RIVER SAND MINE AT PURNA RIVER	ISARKHED	122 E-Class Gut No. 1 Pimprikoli Govt	0.39	1378	17,58,328

OF

TALUKA: - NANDURA, DISTRICT – BULDHANA (Maharashtra)

Lease Validity: - 2020-2021 (1 YEAR), Study Period: - February

FOR

ENVIRONMENTAL CLEARANCE (PUBLIC HEARING)

("B" under category 1(a) of EIA Notification dated 2006, S.O. 141(E) dated 15. 01. 2016, MoEF& CC, S.O. 3611(E), Dated 25.07.2018, Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020

Applicant District Mining Officer, Buldhana
Government of India

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Accredited by NABET: No.: - NABET/EIA/1619/RA0060/ Sept 30, 2020)
August – 2020

Introduction:

Executive summary is the brief of report prepared for Environmental Management Plan of Sand Spot Mines of Minor Minerals of Buldhana District, Tehsil Nandura by M/s. District Mining Office, Buldhana, Maharashtra (Govt. of Maharashtra). The mining is confined to extraction of sand in villages viz. Palsoda A (1.76 Ha), Palsoda B (1.76 Ha), Patonda (1.07), Bhota (1.80 Ha), Roti A (2.63 Ha), Roti B (2.10 Ha), Yerli (1.80 Ha), Belad (0.60 Ha), Khedgav A (0.08 Ha), Khedgav B (0.10 Ha), Jigaon (0.40 Ha) and Isarkhed (0.39 Ha). Sand exposed in the lease area needed to mine by opencast manual mining method without drilling and blasting.

Project Identification

The sand (minor minerals) occurred in Buldhana district required to carry out mining practise as per mining Plan of PMCP under Rule 16 (1) of MCR 2016 and PMCP under Rule 23B of MCDR 1988 is approved by Deputy Director, Directorate of Geology and Mining, Regional Office, Aurangabad vide letter no. STC-10/2020(M.P. Sand) 52 dated 04/02/2020. Proposed lease area is Government land.

Identification of Project Proponent

Table 1: Name and address of the Applicant

Applicant
District Mining Officer, Buldhana **(Govt. of Maharashtra)** **State Bank Chowk Road, Buldhana, Maharashtra 443001** **Mob No: - 07262-242411** **Email Id:-dmobul@gmail.com**

1.1.3 Location of Project

Table 2: Details of Project Location

Particulars	Palsoda A	Palsoda B	Patonda	Bhota	Roti A	Roti B
Name of the applied mine area	PALSODA A RIVER SAND MINE AT PURNA RIVER	PALSODA B RIVER SAND MINE AT PURNA RIVER	PATONDA RIVER SAND MINE AT PURNA RIVER	BHOTA RIVER SAND MINE AT PURNA RIVER	ROTI A RIVER SAND MINE AT PURNA RIVER	ROTI B RIVER SAND MINE AT PURNA RIVER
Nearby village	Palsoda, Gaulkhed	Palsoda, Gaulkhed	Patonda, Kodarkhed	Mahuli, Hingana Bhota	Roti, Golegaon Bk	Roti, Golegaon Kh

Tehsil	Nandura					
District	Buldhana					
State	Maharashtra					
Toposheet no.	55D/5	55D/5	55D/5	55D/5	55D/5	55D/5
Latitude (N)	20°56'21.31"N	20°56'10.79"N	20°55'40.44"N	20°55'28.27"N	20°55'54.43"N	20°55'55.77"N
Longitude (E)	76°24'27.59"E	76°25'1.77"E	76°26'0.39"E	76°31'16.79"E	76°29'47.14"E	76°30'48.20"E

Particulars	**Yerli**	**Belad**	**Khedgav A**	**Khedgav B**	**Jigaon**	**Isarkhed**
Name of the applied mine area	YERLI RIVER SAND MINE AT PURNA RIVER	BELAD RIVER SAND MINE AT PURNA RIVER	KHEDGAV A RIVER SAND MINE AT PURNA RIVER	KHEDGAV B RIVER SAND MINE AT PURNA RIVER	JIGAON RIVER SAND MINE AT PURNA RIVER	ISARKHED RIVER SAND MINE AT PURNA RIVER
Nearby village	Yerli, Golegaon Bk	Hinga Balapur, Kharkundi	Rigaon, Isarkhed	Khedgav, Nimkarad	Jigaon Old, Sultanpur	Isarkhed, Mandwa
Tehsil	Nandura					
District	Buldhana					
State	Maharashtra					
Toposheet no.	55D/5	55D/5	55D/5	55D/5	55D/5	55D/5
Latitude (N)	20°55'48.47"N	20°55'31.77"N	20°56'56.48"N	20°56'45.25"N	20°56'34.62"N	20°57'7.20"N
Longitude (E)	76°28'44.58"E	76°26'52.92"E	76°20'52.52"E	76°21'22.73"E	76°22'50.13"E	76°20'7.71"E

Background of the Project

The sand and gravel are the most important construction materials. The sand is produced by weathering of rock carried away by geological agents and deposited in river which will replenish every year with monsoonal cycle. Availability of sand is vital for the development of the infrastructure in the country development. As the rise in demand of these construction materials government need to ensure sustainable environment and supply this essential to sustain its developmental activities. This project provides opportunities for sustainable utilisation of resources to Government of Maharashtra. In the recent climatic changes, the sand mining is beneficial as it help to lower the inundation levels at time of floods.

Local geology: Buldhana districts large part occupied of rocks of Deccan trap formation, represented by of most horizontal lava flows of basaltic composition, emplaced by fissures aged to Mesozoic era, on to the lower tertiary era.

Table 3: Available Brass and Life of Mine

Name of Village	Palsoda A	Palsoda B	Patonda	Bhota	Roti A	Roti B
Quantity of sand for Excavation (Brass)	3544	5088	2827	5088	9276	6678
Life of Mine	1 YEAR	1 YEAR	1 YEAR	1 YEAR	1 YEAR	1 YEAR

Name of Village	Yerli	Belad	Khedgav A	Khedgav B	Jigaon	Isarkhed
Quantity of sand for Excavation (Brass)	6360	1060	3092	4240	2827	1378
Life of Mine	1 YEAR	1 YEAR	1 YEAR	1 YEAR	1 YEAR	1 YEAR

Proposed Working: - Opencast Manual Mining Method will be adopted for extraction of Sand deposits in Purna River Bed

The Modified River Bed Sand Mine Working Guidance No.11(1X) and 12 of the Notification of Revenue and Forest Department, Mantralaya Mumbai, The Government of Maharashtra vides Government Decision No. Gaukhani-10/0615/Pra. Kra. 289/Kha dated 03.01.2018; mining will be done manually only with the use of labours, man heads, spades (Pawadas), ghamelas/pans.

Each cycle of operation shall consist of the following operation.

i) Over Burden Removal: No overburden is anticipated. So there is no need of removal of Overburden.

ii) Digging of Sand: Digging of Sand will be done by manually by Labours with the help of Spades (Pawadas).

iii) Loading of Tractor Trolley: Loading of Tractor Trolley will be done by manually with the help of Man heads, Labours with the help of Spades (Pawadas) and Pans (Ghamelas) combination.

iv) Transportation of Sand by Tractor Trolley from River Bed Mine/Sand Ghat to Stack yard: Mine Owner will prepare the Stack yard outside the River bed or Sand Ghat on nearer

road. By the use of Tractor Trolley the material will be transported from Sand Ghat to Stockyard.

v) Transportation of Sand from Stack yard to Customers: Transportation of Sand will be done by the use of tractors trolleys from Stack yard to various Customers with permissible quantity. Transportation will be done as per the rules and regulations.

vi) Reclamation: Applicant will do scientific mining so that in Monsoon the Mine Lease area will be automatically backfilled. Only plantation will be done by the applicant on the both bank side of the River and other free places.

Extent of Mechanization: Mining Operations will be done by manual means only. No Mechanization. Services

Description of the Environment (Baseline Environment Status)

The environmental monitoring carried out during winter season of year February 2020. The various environmental components which are thoroughly studied during the study period include:

Meteorological condition

The observed maximum temperature recorded 34°C and Minimum temperature 22°C and wind blows from east and north.

Ambient Air Quality

The ambient air quality founds under permissible levels of pollution standards.

Ambient Noise Level

In the monitoring stations of four Locations observed maximum level was: 60.3 during day-time and minimum was 33.5 during night-time and found ambient noise level is within prescribed limit.

Water Quality

The water analysis conducted at four sample locations for groundwater and surface water. The major findings are follows.

Ground Water Quality

- It is observed that pH of the ground water samples is range of 6.05 to 7.27, which is between the acceptable pH limit for drinking water.
- Concentration of Total dissolved solids (TDS) and Total hardness observed in different groundwater samples are in range of permissible category stipulated by Bureau of Indian Standards.
- Fluoride Concentration is in between 0.13 to 0.38 mg/l. The desirable limit of 1 mg/l and permissible limit of 1.5 mg/l.

Surface water quality

- Biochemical oxygen Demand - All surface water samples have BOD indicate very low organic pollution load. All BOD values are within prescribed limit (<30.0 mg/lt as in IS 10500:2012).
- Chemical oxygen demand (COD) - All surface water samples have COD values which indicates low level of organic pollution load in term of COD.
- From the analysis data it is observed all parameters are within permissible limit of drinking water standard.

Soil Characteristics

The pH values of the collected samples were in the range of 6.22 to 8.43, organic matter in the range of 0.795(%) to 1.91 (%), water holding capacity in the range of 5.60 to 7.57%, potassium in the range of 0.10 to 175, total nitrogen in the range of 0.013 to 0.016 %, bulk density in the range of 1.24 to 1.49 gm/cc. These all parameter indicate that soil is not so fertile in this area.

TABLE 4: LAND USE PATTERN OF THE CORE AREA

Sr. No.	Particulars	PALSODA A		PALSODA B		PATONDA	
		As on Today in Ha	After 1 Years in Ha	As on Today in Ha	After 1 Years in Ha	As on Today in Ha	After 1 Years in Ha
1.	Area of top soil spread for a forestation	-	-	-	-	-	-
2.	Storage for top soil	-	-	-	-	-	-
3.	Green Belt	-	-	-	-	-	-
4.	Over burden Dump	-	-	-	-	-	-
5.	Mineral Storage	-	-	-	-	-	-
6.	Infrastructure (Workshop, Admin. Building etc.)	-	-	-	-	-	-
7.	Mine road in Mine lease area	-	-	-	-	-	-

8.	Utilized area for Sand Mining	**0.000**	**1.76**	**0.000**	**1.76**	**0.000**	**1.07**
9.	Virgin lease area for Sand Mine & Other Uses	**1.76**	**0.000**	**1.76**	**0.000**	**1.07**	**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	Government River	Government River	Government River	Government River
Total		**1.76**	**1.76**	**1.76**	**1.76**	**1.07**	**1.07**

Sr. No.	**Particulars**	**BHOTA**		**ROTI A**		**ROTI B**	
		As on Today in Ha	**After 1 Years in Ha**	**As on Today in Ha**	**After 1 Years in Ha**	**As on Today in Ha**	**After 1 Years in Ha**
1.	Area of top soil spread for a forestation	-	**-**	-	**-**	-	**-**
2.	Storage for top soil	-	**-**	-	**-**	-	**-**
3.	Green Belt	-	**-**	-	**-**	-	**-**
4.	Over burden Dump	-	**-**	-	**-**	-	**-**
5.	Mineral Storage	-	**-**	-	**-**	-	**-**
6.	Infrastructure (Workshop, Admin.	-	**-**	-	**-**	-	**-**

	Building etc.)						
7.	Mine road in Mine lease area	-	**-**	-	**-**	-	**-**
8.	Utilized area for Sand Mining	**0.000**	**1.80**	**0.000**	**2.63**	**0.000**	**2.10**
9.	Virgin lease area for Sand Mine & Other Uses	**1.80**	**0.000**	**2.63**	**0.000**	**2.10**	**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	Government River	Government River	Government River	Government River
Total		**1.80**	**1.80**	**2.63**	**2.63**	**2.10**	**2.10**

Sr. No.	**Particulars**	**YERLI**		**BELAD**		**KHEDGAV A**	
		As on Today in Ha	**After 1 Years in Ha**	**As on Today in Ha**	**After 1 Years in Ha**	**As on Today in Ha**	**After 1 Years in Ha**
1.	Area of top soil spread for a forestation	-	**-**	-	**-**	-	**-**
2.	Storage for top soil	-	**-**	-	**-**	-	**-**
3.	Green Belt	-	**-**	-	**-**	-	**-**
4.	Over burden Dump	-	**-**	-	**-**	-	**-**
5.	Mineral	-	**-**	-	**-**	-	**-**

	Storage						
6.	Infrastructure (Workshop, Admin. Building etc.)	-	**-**	-	**-**	-	**-**
7.	Mine road in Mine lease area	-	**-**	-	**-**	-	**-**
8.	Utilized area for Sand Mining	**0.000**	**1.80**	**0.000**	**0.60**	**0.000**	**0.08**
9.	Virgin lease area for Sand Mine & Other Uses	**1.80**	**0.000**	**0.60**	**0.000**	**0.08**	**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	Government River	Government River	Government River	Government River
Total		**1.80**	**1.80**	**0.60**	**0.60**	**0.08**	**0.08**

Sr. No.	**Particulars**	**KHEDGAV B**		**JIGAON**		**ISARKHED**	
		As on Today in Ha	**After 1 Years in Ha**	**As on Today in Ha**	**After 1 Years in Ha**	**As on Today in Ha**	**After 1 Years in Ha**
1.	Area of top soil spread for a forestation	-	**-**	-	**-**	-	**-**
2.	Storage for top soil	-	**-**	-	**-**	-	**-**

3.	Green Belt	-	**-**	-	**-**	-	**-**
4.	Over burden Dump	-	**-**	-	**-**	-	**-**
5.	Mineral Storage	-	**-**	-	**-**	-	**-**
6.	Infrastructure (Workshop, Admin. Building etc.)	-	**-**	-	**-**	-	**-**
7.	Mine road in Mine lease area	-	**-**	-	**-**	-	**-**
8.	Utilized area for Sand Mining	**0.000**	**0.10**	**0.000**	**0.40**	**0.000**	**0.39**
9.	Virgin lease area for Sand Mine & Other Uses	**0.10**	**0.000**	**0.40**	**0.000**	**0.39**	**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	Government River	Government River	Government River	Government River
Total		**0.10**	**0.10**	**0.40**	**0.40**	**0.39**	**0.39**

Biological Environment

The flora and fauna analysis found as follows

Flora - The study area is mainly dominated by Southern Dry Mixed Deciduous Forests with major species are Aam, Babul, Bel, Bor, Chandan, Jambhul, Karnj, Neem etc.

Fauna - The faunal species commonly encountered during study within the study area are Hare, Rat, Indian fox, etc. No endemic endangered or threatened species of flora and fauna observed during study period.

Demography and Socio- Economics

Nandura Tehsil as per census of India 2011, study area consists of 111 villages with total population of 1,76,018.

Anticipated Environmental Impact and Mitigation Measures

Impact on Air Quality: - The mining operations to be carried out by manual method and no machinery, drilling and Blasting not allowed. The impact on air quality is not envisaged. Transportation needs to allow only by tractor-trolley of the sand from the ghat to nearby depot or desired destination. The transport routes to be capable for handling this additional traffic.

Mitigation Measures: Following care to be taken for air pollution control.

- Water sprinkling to be done on the roads regularly. This reduces dust emission further by 75%.
- Care to be taken to prevent spillage by covering the carrying vehicles with tarpaulin and sprinkling of water, if dry.
- Fortnightly scraping of road in order to keep the roads almost levelled which ensures smooth flow of vehicles and also prevents spillage.
- Overloading will be strictly prohibited.
- Proper tuning of vehicles to keep the gas emissions under check.

Plantation of trees along the roads will help to reduce the impact of dust in the nearby villages.

Impact on Noise Quality: - No significant noise will be generated due to sand mining as entire operation to be carried out manually. Noise generated only due to tractor trolley being used in sand transportation.

Mitigation measures: The off-site receptors are not significantly affected due to noise generated by sand ghat which is insignificant but some disturbances can be occur due to vehicle movement which is not avoidable. The tractor trolley to be maintains in good running

condition which will help to reduce noise to a minimum possible level. An optimum Speed limits to be imposed on tractor trolleys which used for sand transport.

Impact on Water Environment: - Mining of sand from within or near a streambed which has a direct impact on the stream's physical habitat characteristics. As the project activity to be carried out in the dry part of the river bed which will not affect the water environment or riparian habitats. The project to be executed without divert or truncate any stream also envisaged the pumping of water either from the river or tapping the ground water not allowed. The mining activity happening in summer months which will not affect the base flow of the river and this minimise the adverse impact on surface hydrology and ground water regime. The proponent to be adhere all guidelines and rules for proper and scientific method of mining during the period of extraction of sand.

Mitigation measures: During the lease period, the deposit to be worked from the top surface to approved depth of mining within the demarcated lease area only.

Impact on land Environment- The mining and allied activities involved in river bed mining are creation of temporary haul roads / transportation track and formation of mined pits inside river, etc. This sand mining project does not involve any waste generation. Thus no waste dump sites are needed for the project.

Mitigation Measures:

- The mining to be carried out below the water table.
- The contractor with the satisfaction of competent authority to provide drinking water, rest shelter, first aid box and welfare facilities as per prevailing laws.
- The river bed areas to be dug during dry season. At rainy season, sand get replenished during monsoon.
- Sand/Gravel deposit in rainy season in which the material so deposited will available for fresh quarrying.
- The contractors to abide by the Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.

Impact on Biological Environment

The table summarised about the studies of biological environment.

Anticipated impact and mitigation measures for biological environment

Impact Predicted	Suggestive measure
Disturbance to free movement /living of wild fauna viz. Birds,	• If birds are noticed crossing the core zone, they will not be disturbed at all;

Impact Predicted	Suggestive measure
Reptiles etc.	• Labourers will not be allowed to discard food, polythene waste etc., which can attract animals/birds near the core site; • Only low polluting vehicles h0aving PUC will be allowed for carrying mining materials. • Noise level will be maintained within permissible limit (silent zone-50dB (A) during day time or residential zone 55dB (A)) as per Noise Pollution (Regulation and Control) Rules 2000, CPCB norms
Disturbance of riparian ecosystem/ wetlands	The riparian ecosystem or the wetlands will not be disturbed by the workers.
Monitoring of upstream and downstream water quality	Water quality will be monitored from upstream and downstream area once every month to assess the impact on water quality and mining activity will be controlled to maintain the clean water conditions.

Ecological Impacts: Excessive and unscientific riverbed sand mining results in the destruction of aquatic and riparian habitat through large changes in the channel morphology. Impacts include bed degradation, bed coarsening, lowered water tables near the streambed, and channel instability. These physical impacts cause degradation of riparian and aquatic biota and may lead to the undermining of bridges and other structures. Continued extraction may also cause the entire streambed to degrade to the depth of excavation.

Sand mining generates extra vehicle traffic, which negatively impairs the environment. Where access roads cross riparian areas, the local environment may be impacted.

Mitigation measures: As the proposed mining to be carried out in a scientific manner not much significant impact is anticipated, however, the following mitigation measure will be taken to further minimize it:

1. The activity to be carried out manually to minimize associate loss, as stated earlier.
2. No mining to be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season.
3. As the mining site has no vegetation, no clearance of vegetation is required.
4. No mining to be carried out in the vicinity of important structure like bridges, dam and other structures if any.
5. Mining to be carried out on the dry part of the lease area to avoid disturbance to the aquatic habitat and movement of fish species.
6. No mining to be carried out during the rainy season to minimize impact on aquatic life.

7. The mining activity needs to deploy a tractor for transportation of sand from the mine to desired destination that may cause some loss to riparian habitat. Safe site / site having least impact will be selected for transportation, all the vehicles employed for transportation purpose will be PUC certified. On closure of mining operations / during the rainy season the eroded bank will be restored / reclaimed to minimize negative impacts.
8. No lighting allowed in the lease area.
9. No piling of sand allowed in the area.
10. No discard of food, polythene waste etc. allowed in the lease area which would distract/attract the wildlife.
11. No night time mining allowed which may catch the attention of wild life.
12. Access roads will not encroach into the riparian zones and no riparian vegetation cleared off for the mining transportation of sand.

Analysis of Alternatives

Site Alternatives- The mine is located along the where the sand exists in enough quantity to be economically extracted. Mining locations are preferred near the markets or along the transportation route.

Technology alternatives: -No alternative technology only opencast Manual Mining Method will be adopted for extraction of Sand deposits.

Environment Monitoring Program

During the execution of the project activity, the sampling and analysis of various environmental attributes to be carried out as per guidelines of central pollution control board and State pollution control board. An Environment Management Cell to be set-up to implement this mining program.

Additional Studies

Risk Studies-Hazard identification and risk analysis involves identification of undesirable events that leads to a hazard, the analysis of hazard mechanism by which this undesirable event could occur and usually the estimation of extent, magnitude and likelihood of harmful effects

Disaster Studies: - Proper disaster is planning to be done to meet any emergency situation arising due to fire, explosion, sudden leakage of gas etc. Fire fighting equipment and other

safety appliances are to be kept ready for use during disaster/emergency situation including natural calamities like earthquake/flood.

ENVIRONMENT MANAGEMENT PLAN (EMP)

This opencast mining operation may comprises for various activities related to digging and material handling which may be potential sources of environment pollution. The Sand Mine to be develops systematically by forming benches with over all pit slopes of 45° or angle of response which stabilizes the benches. Also stringent efforts to be ensure to suppress the dust at source by adequate watering. A mobile water of 2000 litters capacity to be engaged available throughout the working shift. The EMP implementation and sampling parameters summarised in following table.

Environmental Issue	Management Measures	Implementation
Air Environment	• To avoid fugitive dust emissions at the time of excavation, regular sprinkling of water will be done on regular basis. • Sand is transported to the sites by road through tractor trolleys. The sand carrying vehicles shall be covered by tarpaulin sheets. • The Green Belt development will be prepared along the haul roads, which will act as a pollution sink. • To minimize the vehicular pollution from the sand transporting vehicles, the following conditions will insist to permit the vehicles of the transporters	Project authorities through regular monitoring.
Noise and Vibration	• Phasing out of old and worn out tractor trolleys. • Provision of green belts along the road networks. • Care will be taken to produce minimum sound during sand loading. • Use of Backhoe and ear plugs may be provided to protect the labors working at the site.	Project authorities through regular monitoring.

Water environment	• Mining is avoided during the monsoon season and at the time of floods. This will help in replenishment of sand in the river bed. • River stream will not be diverted to form in active channels. • Utmost care will be taken to minimize or control leakage vehicles to be used for sand. • Transportation. • The washing of tractor trolleys in the river will be avoided. • The contractor will follow all guidelines and rules for proper and scientific method of • Mining during the period of extracting the sand.	Project authorities through regular monitoring.
Biological Environment	• Mining activities will be restricted to day-time so that fauna will not disturb at night. • Material will be covered with tarpaulin during transportation. • Water sprinkling will be done on haul roads to control fugitive emissions.	Project authorities through regular monitoring.
Occupational health and safety and public Health and safety.	• Regular water sprinkling on haul roads. • Dust mask will be provided to the workers. • Safety of the employee during mining will be taken care as per Mine regulations. • Medical records will be kept maintained.	Project authorities through regular monitoring.
Socio economic Environment	• Employment will be given to local people. • Regular medical camps will be organized. • Funds will be provided for development activities in nearby villages.	Regular monitoring by Project authorities.

TABLE 6: COST ESTIMATES OF EMP IMPLEMENTATION

(Investment and recurring cost in lacs/year)

Sr. No.	Component	Palsoda A		Palsoda B		Patonda	
		Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)

1	Environmental Monitoring programme	0.80	1.60	0.80	1.60	0.90	1.80
2	Air Pollution Control	0.80	1.50	0.80	1.50	0.75	1.60
3	Approach Road Maintenance	0	1.00	0	1.00	0	1.00
4	Plantation (500 plants planted)	1.85	3.70	1.85	3.70	1.85	3.70
5	Gabian Structure for arresting gravels	1.00	0.20	1.00	0.20	1.00	0.20
6	Monitoring of sand	0.30	0.60	0.30	0.60	0.30	0.60
7	Water Pollution Control	0.50	Nil	0.50	Nil	0.50	Nil
8	Noise pollution	0.80	1.40	0.80	1.40	0. 80	1.50
9	Occupational Health & safety	-	1.00	-	1.00	-	1.00
	Total	**6.05**	**11**	**6.05**	**11**	**6.1**	**11.4**

Sr. No.	**Component**	**Bhota**		**Roti A**		**Roti B**	
		Capital cost Rs. in Lacs	**Operational and Maintenance cost (Rs. in Lacs/year)**	**Capital cost Rs. in Lacs**	**Operational and Maintenance cost (Rs. in Lacs/year)**	**Capital cost Rs. in Lacs**	**Operational and Maintenance cost (Rs. in Lacs/year)**
1	Environmental Monitoring programme	1.1	1.2	1.10	2.20	1.00	2.00
2	Air Pollution Control	0.5	1.03	1.20	2.50	1.10	2.20
3	Approach Road Maintenance	0	0.20	0	1.00	0	1.00

4	Plantation (500 plants planted)	0.15	0.32	2.225	4.5	2.225	4.5
5	Gabian Structure for arresting gravels	0.34	0.42	1.00	0.20	1.00	0.20
6	Monitoring of sand	0.15	0.32	0.30	0.60	0.30	0.60
7	Water Pollution Control	0.05	Nil	0.80	Nil	0.80	Nil
8	Noise pollution	0.06	0.15	1.00	1.80	1.00	1.80
9	Occupational Health & safety	-	1.25	-	1.20	-	1.20
	Total	**2.35**	**4.89**	**7.625**	**14**	**7.425**	**13.50**

Sr. No.	**Component**	**Yerli**		**Belad**		**Khedgav A**	
		Capital cost Rs. in Lacs	**Operational and Maintenance cost (Rs. in Lacs/year)**	**Capital cost Rs. in Lacs**	**Operational and Maintenance cost (Rs. in Lacs/year)**	**Capital cost Rs. in Lacs**	**Operational and Maintenance cost (Rs. in Lacs/year)**
1	Environmental Monitoring programme	0.90	1.80	0.1	0.80	0.60	1.20
2	Air Pollution Control	1.00	2.00	0.2	0.10	0.70	1.50
3	Approach Road Maintenance	0	1.00	0	0.20	0	1.00
4	Plantation (500 plants planted)	1.85	3.70	0.11	0.22	1.35	2.70
5	Gabian Structure for arresting gravels	1.00	0.20	0.26	0.30	1.00	0.20

6	Monitoring of sand	0.30	0.60	0.12	0.20	0.30	0.60
7	Water Pollution Control	0.70	Nil	0.03	Nil	0.35	Nil
8	Noise pollution	0.80	1.60	0.02	0.09	0.70	1.20
9	Occupational Health & safety	-	0.90	-	0.15	-	0.80
	Total	**6.55**	**11.8**	**0.84**	**2.06**	**5.0**	**9.2**

Sr. No.	**Component**	**Khedgav B**		**Jigaon**		**Isarkhed**	
		Capital cost Rs. in Lacs	**Operational and Maintenance cost (Rs. in Lacs/year)**	**Capital cost Rs. in Lacs**	**Operational and Maintenance cost (Rs. in Lacs/year)**	**Capital cost Rs. in Lacs**	**Operational and Maintenance cost (Rs. in Lacs/year)**
1	Environmental Monitoring programme	0.60	1.20	0.3	0.07	0.1	0.07
2	Air Pollution Control	0.70	1.50	0.2	0.09	0.2	0.09
3	Approach Road Maintenance	0	1.00	0	0.07	0	0.10
4	Plantation (500 plants planted)	1.35	2.70	0.06	0.11	0.05	0.14
5	Gabian Structure for arresting gravels	1.00	0.20	0.06	0.18	0.06	0.18
6	Monitoring of sand	0.30	0.60	0.05	0.10	0.02	0.11
7	Water Pollution Control	0.35	Nil	0.03	Nil	0.03	Nil
8	Noise pollution	0.70	1.20	0.02	0.09	0.02	0.09
9	Occupational Health &	-	0.80	-	0.08	-	0.08

	safety						
	Total	**5.0**	**9.2**	**0.66**	**1.51**	**0.48**	**1.58**

TABLE 7: MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

Particulars	Monitoring Frequencies	Duration of Station	Important Monitoring Parameters
Surface water / Tube well	Twice in a year	Grab	pH, SS, TDS, Iron, Hardness, Alkalinity Chlorides, Nitrates Sulphate & Fluorides
Ambient air monitoring	Twice in a year	24 hr.	PM10, PM2.5, SOx and NOx
Noise Pollution	Twice in a year	-	Level in dB(A) and dB(C)
Working environment	Once in a year	-	PH, Conductivity, Sulphate, Nitrate, Phosphates, Alkalinity & texture

EXECUTIVE SUMMARY (ENGLISH)

For

SAND MINING (MINOR MINERAL)

FOR FOLLOWING VILLAGES

SR. NO.	NAME OF SANDGHAT	VILLAGE NAME	KHASRA NO	TOTAL LEASE AREA	Total Production / Brass (TPA)	TOTAL PROJECT COST
1.	**DEULGAON** RIVER SAND MINE AT PURNA RIVER	DEULGAON	22 to 28, 19,18,15	0.45	795	10,14,420
2.	**Oladera** RIVER SAND MINE AT PURNA RIVER	Oladera	297,298,353,354, 355,356,357	0.41	724	9,25,100
3.	**Jambleshwar** RIVER SAND MINE AT PURNA RIVER	Jamblesh war	222,226,229,230, 233,291to 293	0.52	919	11,72,644
4.	**TakliPunch-A**RIVER SAND MINE AT PURNA RIVER	TakliPunc h-A	25 to 27, 35, 36	0.32	565	7,20,940
5.	**Aswand-A**RIVER SAND MINE AT PURNA RIVER	Aswand-A	53 to 58	0.30	530	6,76,280
6.	**Aswand-D**RIVER SAND MINE AT PURNA RIVER	Aswand-D	94,95,97,98,99	0.30	530	6,76,280

OF

TALUKA: -SANGRAMPUR, DISTRICT – BULDHANA (Maharashtra)

Lease Validity: -2020-2021 (1 YEAR), Study Period: -Nov, Dec & January

FOR

ENVIRONMENTAL CLEARANCE (PUBLIC HEARING)

("B" under category 1(a) of EIA Notification dated 2006, S.O. 141(E) dated 15. 01. 2016, MoEF& CC, S.O. 3611(E), Dated 25.07.2018, Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020

Applicant District Mining Officer, Buldhana
Government of India

MANTRAS GREEN RESOURCES LTD
QCI-NABET ACCREDITED EIA CONSULTANT,
Hall No.1, First Floor, NICE Sankul, MIDC
Satpur, Nashik, Maharashtra

Email: Info@mantrasresources.com,
uksharma@mantrasresources.com
Accredited by NABET: No.: - NABET/EIA/1619/RA0060/ Sept 30, 2020)
August – 2020

Introduction:

Executive summary is the brief of report prepared for Environmental Management Plan of Sand Spot Mines of Minor Minerals of Buldhana District, Tehsil Sangrampur by M/s. District Mining Office, Buldhana, Maharashtra (Govt. of Maharashtra). The mining is confined to extraction of sandin villages viz.Deulgaon(0.45 Ha), Oladera (0.41Ha),) Jambleshwar0.52Ha), Takli Punch-A (0.32Ha), Aswand-A (0.30Ha) and Aswand-D (0.30Ha). Sand exposed in the lease area needed to mine by opencast manual mining method without drilling and blasting.

Project Identification

The sand (minor minerals) occurred in Buldhana district required to carry out mining practise as per mining Plan of PMCP under Rule 16 (1) of MCR 2016 and PMCP under Rule 23B of MCDR 1988 is approved by Deputy Director, Directorate of Geology and Mining, Regional Office, Aurangabad vide letter no. STC-10/2020(M.P. Sand) 52 dated 04/02/2020. Proposed lease area is Government land.

Identification of Project Proponent

Table 1: Name and address of the Applicant

Applicant
District Mining Officer, Buldhana **(Govt. of Maharashtra)** **State Bank Chowk Road, Buldhana, Maharashtra 443001** **Mob No: - 07262-242411** **Email Id:-dmobul@gmail.com**

1.1.3 Location of Project

Table 2: Details of Project Location

Particulars	DEULGAON	OLADERA	JAMBLESHWAR
Name of the applied mine area	**DEULGAON** RIVER SAND MINE AT PURNA RIVER	**OLADERA** RIVER SAND MINE AT PURNA RIVER	**JAMBLESHWAR** RIVER SAND MINE AT PURNA RIVER
Nearby village	**KAJIKHED, KHEEL DALVI PATUDA**	**KAJIKHED, NAGAD**	**KAJIKHED, KHEEL DALVI PATUDA**
Tehsil	Sangrampur		
District	Buldhana		
State	Maharashtra		
Toposheet no.	55D/5	55D/5	55D/5

Latitude (N)	20°55'5.61"N	20°55'34.50"N	20°55'28.55"N
Longitude (E)	76°43'11.48"E	76°44'50.19"E	76°44'8.02"E

Particulars	TAKLI PUNCH-A	ASWAND-A	ASWAND-D
Name of the applied mine area	**TAKLI PUNCH-A**RIVER SAND MINE AT PURNA RIVER	**ASWAND-A** RIVER SAND MINE AT PURNA RIVER	**ASWAND-D**RIVER SAND MINE AT PURNA RIVER
Nearby village	Nimba, Nagad	Aswand, TakaliPanchgavhan, Kundhegaon	Aswand, TakaliPanchgavhan, Kundhegaon
Tehsil	Sangrampur		
District	Buldhana		
State	Maharashtra		
Toposheet no.	55D/5	55D/5	55D/5
Latitude (N)	20°55'21.36"N	20°55'22.72"N	20°55'10.84"N
Longitude (E)	76°45'38.46"E	76°46'3.23"E	76°46'30.75"E

Background of the Project

The sand and gravel are the most important construction materials. The sand is produced by weathering of rock carried away by geological agents and deposited in river which will replenish every year with monsoonal cycle. Availability of sand is vital for the development of the infrastructure in the country development. As the rise in demand of these construction materials government need to ensure sustainable environment and supply this essential to sustain its developmental activities. This project provides opportunities for sustainable utilisation of resources to Government of Maharashtra. In the recent climatic changes, the sand mining is beneficial as it help to lower the inundation levels at time of floods.

Local geology: Buldhana districts large part occupied of rocks of Deccan trap formation, represented by of most horizontal lava flows of basaltic composition, emplaced by fissures aged to Mesozoic era, on to the lower tertiary era.

Table 3: Available Brass and Life of Mine

Name of Village	Deulgaon	Oladera	Jambleshwar	Takli Punch-A	Aswand-A	Aswand-D
Quantity of sand for Excavation (Brass)	**795**	**724**	**919**	**565**	**530**	**530**
Life of Mine	**1 YEAR**					

Proposed Working: - Opencast Manual Mining Method will be adopted for extraction of Sand deposits in Purna River Bed

The Modified River Bed Sand Mine Working Guidance No.11(1X) and 12 of the Notification of Revenue and Forest Department, Mantralaya Mumbai, The Government of Maharashtra vides Government Decision No. Gaukhani-10/0615/Pra. Kra. 289/Kha dated 03.01.2018; mining will be done manually only with the use of labours, man heads, spades (Pawadas), ghamelas/pans.

Each cycle of operation shall consist of the following operation.

i) Over Burden Removal: No overburden is anticipated. So there is no need of removal of Overburden.

ii) Digging of Sand: Digging of Sand will be done by manually by Labours with the help of Spades (Pawadas).

iii) Loading of Tractor Trolley: Loading of Tractor Trolley will be done by manually with the help of Man heads, Labours with the help of Spades (Pawadas) and Pans (Ghamelas) combination.

iv) Transportation of Sand by Tractor Trolley from River Bed Mine/Sand Ghat to Stack yard: Mine Owner will prepare the Stack yard outside the River bed or Sand Ghat on nearer road. By the use of Tractor Trolley the material will be transported from Sand Ghat to Stockyard.

v) Transportation of Sand from Stack yard to Customers: Transportation of Sand will be done by the use of tractors trolleys from Stack yard to various Customers with permissible quantity. Transportation will be done as per the rules and regulations.

vi)Reclamation: Applicant will do scientific mining so that in Monsoon the Mine Lease area will be automatically backfilled. Only plantation will be done by the applicant on the both bank side of the River and other free places.

Extent of Mechanization: Mining Operations will be done by manual means only. No Mechanization. Services.

Description of the Environment(Baseline Environment Status)

The environmental monitoring carried out during winter season of year February 2020. The various environmental components which are thoroughly studied during the study period include:

Meteorological condition

The observed maximum temperature recorded 33°C and Minimum temperature 21°C and wind blows from east and north.

Ambient Air Quality

The ambient air quality founds under permissible levels of pollution standards.

Ambient Noise Level

In the monitoring stations of four Locations observed maximum level was: 60.2 during day-time and minimum was 33.5 during night-time and found ambient noise level is within prescribed limit.

Water Quality

The water analysis conducted at four sample locations for groundwater and surface water. The major findings are follows.

Ground Water Quality

- It is observed that pH of the ground water samples is range of 6.05 to 7.42, which is between the acceptable pH limit for drinking water.
- Concentration of Total dissolved solids (TDS) and Total hardness observed in different groundwater samples are in range of permissible category stipulated by Bureau of Indian Standards.
- Fluoride Concentration is in between 0.1 to 0.35 mg/l. The desirable limit of 1 mg/l and permissible limit of 1.5 mg/l.

Surface water quality

- Biochemical oxygen Demand - All surface water samples have BOD indicate very low organic pollution load. All BOD values are within prescribed limit (<30.0 mg/lt as in IS 10500:2012).
- Chemical oxygen demand (COD) - All surface water samples have COD values which indicates low level of organic pollution load in term of COD.
- From the analysis data it is observed all parameters are within permissible limit of drinking water standard.

Soil Characteristics

The pH values of the collected samples were in the range of 6.22 to 8.21, organic matter in the range of 0.656(%) to 1.56 (%), water holding capacity in the range of 5.43 to 7.55%, potassium in the range of 0.08 to 165, total nitrogen in the range of 0.011 to 0.014 %, bulk density in the range of 1.25 to 1.35gm/cc. These all parameter indicate that soil is not so fertile in this area.

TABLE 4: LAND USE PATTERN OF THE CORE AREA

Sr. No.	Particulars	Deulgaon		Oladera		Jambleshwar	
		As on Today in Ha	After 1 Years in Ha	As on Today in Ha	After 1 Years in Ha	As on Today in Ha	After 1 Years in Ha
1.	Area of top soil spread for a forestation	-	**-**	-	**-**	-	**-**
2.	Storage for top soil	-	**-**	-	**-**	-	**-**
3.	Green Belt	-	**-**	-	**-**	-	**-**
4.	Over burden Dump	-	**-**	-	**-**	-	**-**
5.	Mineral Storage	-	**-**	-	**-**	-	**-**
6.	Infrastructure (Workshop, Admin. Building etc.)	-	**-**	-	**-**	-	**-**
7.	Mine road in Mine lease area	-	**-**	-	**-**	-	**-**
8.	Utilized area for Sand Mining	**0.000**	**0.45**	**0.000**	**0.41**	**0.000**	**0.52**
9.	Virgin lease area for Sand Mine & Other Uses	**0.45**	**0.000**	**0.41**	**0.000**	**0.52**	**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	Government River	Government River	Government River	Government River
Total		**0.45**	**0.45**	**0.41**	**0.41**	**0.52**	**0.52**

Sr. No.	**Particulars**	**TakliPunch-A**		**Aswand-A**		**Aswand-D**	
		As on Today in Ha	**After 1 Years in Ha**	**As on Today in Ha**	**After 1 Years in Ha**	**As on Today in Ha**	**After 1 Years in Ha**
1.	Area of top soil spread for a forestation	-	**-**	-	**-**	-	**-**
2.	Storage for top soil	-	**-**	-	**-**	-	**-**
3.	Green Belt	-	**-**	-	**-**	-	**-**
4.	Over burden Dump	-	**-**	-	**-**	-	**-**
5.	Mineral Storage	-	**-**	-	**-**	-	**-**
6.	Infrastructure (Workshop, Admin. Building etc.)	-	**-**	-	**-**	-	**-**
7.	Mine road in Mine lease area	-	**-**	-	**-**	-	**-**
8.	Utilized area for Sand Mining	**0.000**	**0.32**	**0.000**	**0.30**	**0.000**	**0.30**
9.	Virgin lease area for Sand Mine & Other Uses	**0.32**	**0.000**	**0.30**	**0.000**	**0.30**	**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	Government River	Government River	Government River	Government River
Total		**0.32**	**0.32**	**0.30**	**0.30**	**0.30**	**0.30**

Biological Environment

The flora and fauna analysis found as follows

Flora - The study area is mainly dominated by Southern Dry Mixed Deciduous Forests with major species are Aam, Babul, Bel, Bor, Chandan, Jambhul, Karnj, Neem, etc.

Fauna - The faunal species commonly encountered during study within the study area are Hare, Rat, Indian fox, etc.No endemic endangered or threatened species of flora and fauna observed during study period.

Demography and Socio- Economics

Sangrampur Tehsil as per census of India 2011, study area consists of 122 nos. of villages, in which 70369 male population and 66723 female population with total population of 137092.

Anticipated Environmental Impact and Mitigation Measures

Impact on Air Quality: -The mining operations to be carried out by manual method and no machinery, drilling and Blasting not allowed. The impact on air quality is not envisaged. Transportation needs to allow only by tractor-trolley of the sand from the ghat to nearby depot or desired destination.The transport routes to be capable for handling this additional traffic.

Mitigation Measures: Following care to be taken for air pollution control.

- Water sprinkling to be done on the roads regularly. This reduces dust emission further by 75%.

- Care to be taken to prevent spillage by covering the carrying vehicles with tarpaulin and sprinkling of water, if dry.
- Fortnightly scraping of road in order to keep the roads almost levelled which ensuressmooth flow of vehicles and also prevents spillage.
- Overloading will be strictly prohibited.
- Proper tuning of vehicles to keep the gas emissions under check.

Plantation of trees along the roads will help to reduce the impact of dust in the nearby villages.

Impact on Noise Quality: -No significant noise will be generated due to sand mining as entire operation to be carried out manually. Noise generated only due to tractor trolley being used in sand transportation.

Mitigation measures: The off-site receptors are not significantly affected due to noise generated by sand ghat which is insignificant but some disturbances can be occur due to vehicle movement which is not avoidable. The tractor trolley to be maintains in good running condition which will help to reduce noise to a minimum possible level. An optimum Speed limits to be imposed on tractor trolleys which used for sand transport.

Impact on Water Environment: -Mining of sand from within or near a streambed which has a direct impact on the stream's physical habitat characteristics. As the project activity to be carried out in the dry part of the river bedwhich will not affect the water environment or riparian habitats. The project to be executed without divert or truncate any stream also envisaged the pumping of water either from the river or tapping the ground water not allowed. The mining activity happening in summer months which will not affect the base flow of the river and this minimise the adverse impact on surface hydrology and ground water regime. The proponent to be adhere all guidelines and rules for proper and scientific method of mining during the period of extractionof sand.

Mitigation measures: During the lease period, the deposit to be worked from the top surface to approved depth of mining within the demarcated lease area only.

Impact on land Environment-The mining and allied activities involved in river bed mining are creation of temporary haul roads / transportation track and formation of mined pits inside river, etc. This sand mining project does not involve any waste generation. Thus no waste dump sites are needed for the project.

Mitigation Measures:

- The mining to be carried out below the water table.
- The contractor with the satisfaction of competent authority to provide drinking water, rest shelter, first aid box and welfare facilities as per prevailing laws.
- The river bed areas to be dug during dry season. At rainy season, sand get replenished during monsoon.
- Sand/Gravel deposit in rainy season in which the material so deposited will available for fresh quarrying.
- The contractors to abide by the Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.

Impact on Biological Environment

The table summarised about the studies of biological environment.

Anticipated impact and mitigation measures for biological environment

Impact Predicted	Suggestive measure
Disturbance to free movement /living of wild fauna viz. Birds, Reptiles etc.	• If birds are noticed crossing the core zone, they will not be disturbed at all; • Labourers will not be allowed to discard food, polythene waste etc., which can attract animals/birds near the core site; • Only low polluting vehicles h0aving PUC will be allowed for carrying mining materials. • Noise level will be maintained within permissible limit (silent zone-50dB (A) during day time or residential zone 55dB (A)) as per Noise Pollution (Regulation and Control) Rules 2000, CPCB norms
Disturbance of riparian ecosystem/ wetlands	The riparian ecosystem or the wetlands will not be disturbed by the workers.
Monitoring of upstream and downstream water quality	Water quality will be monitored from upstream and downstream area once every month to assess the impact on water quality and mining activity will be controlled to maintain the clean water conditions.

Ecological Impacts: Excessive and unscientific riverbed sand mining results in the destruction of aquatic and riparian habitat through large changes in the channel morphology. Impacts

include bed degradation, bed coarsening, lowered water tables near the streambed, and channel instability. These physical impacts cause degradation of riparian and aquatic biota and may lead to the undermining of bridges and other structures. Continued extraction may also cause the entire streambed to degrade to the depth of excavation.

Sand mining generates extra vehicle traffic, which negatively impairs the environment. Where access roads cross riparian areas, the local environment may be impacted.

Mitigation measures: As the proposed mining to be carried out in a scientific manner not much significant impact is anticipated, however, the following mitigation measure will be taken to further minimize it:

1. The activity to be carried out manually to minimize associate loss, as stated earlier.
2. No mining to be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season.
3. As the mining site has no vegetation, no clearance of vegetation is required.
4. No mining to be carried out in the vicinity of important structure like bridges, dam and other structures if any.
5. Mining to be carried out on the dry part of the lease area to avoid disturbance to the aquatic habitat and movement of fish species.
6. No mining to be carried out during the rainy season to minimize impact on aquatic life.
7. The mining activity needs to deploy a tractor for transportation of sand from the mine to desired destination that may cause some loss to riparian habitat. Safe site / site having least impact will be selected for transportation, all the vehicles employed for transportation purpose will be PUC certified. On closure of mining operations / during the rainy season the eroded bank will be restored / reclaimed to minimize negative impacts.
8. No lighting allowed in the lease area.
9. No piling of sand allowed in the area.
10. No discard of food, polythene waste etc. allowed in the lease area which would distract/attract the wildlife.
11. No night time mining allowed which may catch the attention of wild life.
12. Access roads will not encroach into the riparian zones and no riparian vegetation cleared off for the mining transportation of sand.

Analysis of Alternatives

Site Alternatives- The mine is located along the where the sand exists in enough quantity to be economically extracted. Mining locations are preferred near the markets or along the transportation route.

Technology alternatives: -No alternative technologyonlyopencast Manual Mining Method will be adopted for extraction of Sand deposits.

Environment Monitoring Program

During the execution of the project activity, the sampling and analysis of various environmental attributes to be carried out as per guidelines of central pollution control board and State pollution control board. An Environment Management Cell to be set-up to implement thismining program.

Additional Studies

Risk Studies-Hazard identification and risk analysis involves identification of undesirable events that leads to a hazard, the analysis of hazard mechanism by which this undesirable event could occur and usually the estimation of extent, magnitude and likelihood of harmful effects

Disaster Studies: -Proper disaster is planning to be done to meet any emergency situation arising due to fire, explosion, sudden leakage of gas, etc. Fire fighting equipment and other safety appliances to be kept ready for use during disaster/emergency situation including natural calamities like earthquake/flood.

ENVIRONMENT MANAGEMENT PLAN (EMP)

This opencast mining operation may comprises for various activities related to digging and material handling which may be potential sources of environment pollution. The Sand Mine to be develops systematically byforming benches with over all pit slopes of 45° or angle of response which stabilizes the benches. Also stringent efforts to be ensure to suppress the dust at source by adequate watering. A mobile water of 2000 litters capacity to be engaged available throughout the working shift. The EMP implementation and sampling parameters summarised in following table.

Environmental Issue	Management Measures	Implementation
Air Environment	• To avoid fugitive dust emissions at the time of excavation, regular sprinkling of water will be done on regular basis. • Sand is transported to the sites by road through tractor trolleys. The sand carrying vehicles shall be covered by tarpaulin sheets. • The Green Belt development will be prepared along the haul roads, which will act as a pollution sink. • To minimize the vehicular pollution from the sand transporting vehicles, the following conditions will insist to permit the vehicles of the transporters	Project authorities through regular monitoring.
Noise and Vibration	• Phasing out of old and worn out tractor trolleys. • Provision of green belts along the road networks. • Care will be taken to produce minimum sound during sand loading. • Use of Backhoe and ear plugs may be provided to protect the labors working at the site.	Project authorities through regular monitoring.
Water environment	• Mining is avoided during the monsoon season and at the time of floods. This will help in replenishment of sand in the river bed. • River stream will not be diverted to form in active channels. • Utmost care will be taken to minimize or control leakage vehicles to be used for sand. • Transportation. • The washing of tractor trolleys in the river will be avoided. • The contractor will follow all guidelines and rules for proper and scientific method of • Mining during the period of extracting the sand.	Project authorities through regular monitoring.
Biological Environment	• Mining activities will be restricted to day-time so that fauna will not disturb at night. • Material will be covered with tarpaulin during	Project authorities through regular

	transportation. • Water sprinkling will be done on haul roads to control fugitive emissions.	monitoring.
Occupational health and safety and public Health and safety.	• Regular water sprinkling on haul roads. • Dust mask will be provided to the workers. • Safety of the employee during mining will be taken care as per Mine regulations. • Medical records will be kept maintained.	Project authorities through regular monitoring.
Socio economic Environment	• Employment will be given to local people. • Regular medical camps will be organized. • Funds will be provided for development activities in nearby villages.	Regular monitoring by Project authorities.

TABLE 6: COST ESTIMATES OF EMP IMPLEMENTATION

(Investment and recurring cost in lacs/year)

Sr. No.	Component	Deulgaon		Oladera		Jambleshwar	
		Capital cost Rs. in Lacs	**Operational and Maintenance cost (Rs. in Lacs/year)**	**Capital cost Rs. in Lacs**	**Operational and Maintenance cost (Rs. in Lacs/year)**	**Capital cost Rs. in Lacs**	**Operational and Maintenance cost (Rs. in Lacs/year)**
1	Environmental Monitoring programme	0.60	1.2	0.60	1.20	0.50	0.90
2	Air Pollution Control	0.60	1.2	0.70	1.4	0.50	0.80
3	Approach Road Maintenance	0	0.50	0	0.50	0	0.50
4	Plantation (500 plants planted)	1.10	1.00	0.75	1.00	1.05	1.00
5	Gabian Structure for arresting gravels	0.80	1.6	0.50	1.00	0.80	1.6
6	Monitoring of Sand	0.60	1.2	0.50	0.80	0.52	0.60
7	Water Pollution Control	0.50	Nil	0.40	Nil	0.40	Nil
8	Noise pollution	0.50	1.00	**0.60**	1.2	0.40	0.90

9	Occupational Health & safety	-	1.00	-	0.60	-	0.80
	Total	**4.75**	**8.7**	**4.05**	**7.7**	**4.17**	**7.1**

Sr. No.	Component	Takli Punch-A		Aswand-A		Aswand-D	
		Capital cost Rs. in Lacs	**Operational and Maintenance cost (Rs. in Lacs/year)**	**Capital cost Rs. in Lacs**	**Operational and Maintenance cost (Rs. in Lacs/year)**	**Capital cost Rs. in Lacs**	**Operational and Maintenance cost (Rs. in Lacs/year)**
1	Environmental Monitoring programme	0.50	0.90	0.50	0.90	0.50	0.90
2	Air Pollution Control	0.40	0.80	0.40	0.80	0.40	0.80
3	Approach Road Maintenance	0	0.50	0	0.50	0	0.50
4	Plantation (500 plants planted)	0.90	0.80	0.75	0.80	0.75	0.80
5	Gabian Structure for arresting gravels	0.20	0.40	0.20	0.40	0.20	0.40
6	Monitoring of Sand	**0.32**	0.60	0.30	0.60	0.30	0.60
7	Water Pollution Control	0.20	Nil	0.20	Nil	0.20	Nil
8	Noise pollution	**0.32**	0.90	0.30	0.90	0.30	0.90
9	Occupational Health & safety	-	0.80	-	0.80	-	0.80
	Total	**2.84**	**5.7**	**2.65**	**5.7**	**2.65**	**5.7**

TABLE 7: MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

Particulars	Monitoring Frequencies	Duration of Station	Important Monitoring Parameters
Surface water / Tube well	Twice in a year	Grab	pH, SS, TDS, Iron, Hardness, Alkalinity Chlorides, Nitrates, Sulphate & Fluorides
Ambient air monitoring	Twice in a year	24 hr.	PM10, PM2.5, SOx and NOx
Noise Pollution	Twice in a year	-	Level in dB(A) and dB(C)
Working environment	Once in a year	-	PH, Conductivity, Sulphate,Nitrate, Phosphates, Alkalinity & texture

EXECUTIVE SUMMARY (ENGLISH)

For

SAND MINING (MINOR MINERAL) FOR FOLLOWING VILLAGES

SR. NO.	NAME OF SANDGHAT	VILLAGE NAME	KHASRA NO	TOTAL LEASE AREA	Total Production / Brass (TPA)	TOTAL PROJECT COST
1.	BODGAON RIVER SAND MINE AT PURNA RIVER	BODGAON	174 to 176	1.22	2160	27,56,160
2.	BHONGAON RIVER SAND MINE AT PURNA RIVER	BHONGAON	1, 7 to 10	1.65	2915	37,19,540

OF

TALUKA: - LONAR, DISTRICT – BULDHANA (Maharashtra)

Lease Validity: - 2020-2021 (1 YEAR), Study Period: - February

FOR

ENVIRONMENTAL CLEARANCE (PUBLIC HEARING)

("B" under category 1(a) of EIA Notification dated 2006, S.O. 141(E) dated 15. 01. 2016, MoEF& CC, S.O. 3611(E), Dated 25.07.2018, Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020

Applicant District Mining Officer, Buldhana
Government of India

MANTRAS GREEN RESOURCES LTD
QCI-NABET ACCREDITED EIA CONSULTANT,
Hall No.1, First Floor, NICE Sankul, MIDC
Satpur, Nashik, Maharashtra

Email: Info@mantrasresources.com,
uksharma@mantrasresources.com
Accredited by NABET: No.: - NABET/EIA/1619/RA0060 Sept 30, 2020)
August – 2020

Introduction:

Executive summary is the brief of report prepared for Environmental Management Plan of Sand Spot Mines of Minor Minerals of Buldhana District, Tehsil Shegaon by M/s. District Mining Office, Buldhana, Maharashtra (Govt. of Maharashtra). The mining is confined to extraction of sand in villages viz. Bodgaon (1.22 Ha) and Bhongaon (1.65 Ha). Sand exposed in the lease area needed to mine by opencast manual mining method without drilling and blasting.

Project Identification

The sand (minor minerals) occurred in Buldhana district required to carry out mining practise as per mining Plan of PMCP under Rule 16 (1) of MCR 2016 and PMCP under Rule 23B of MCDR 1988 is approved by Deputy Director, Directorate of Geology and Mining, Regional Office, Aurangabad vide letter no. STC-10/2020(M.P. Sand) 52 dated 04/02/2020. Proposed lease area is Government land.

Identification of Project Proponent

Table 1: Name and address of the Applicant

Applicant
District Mining Officer, Buldhana **(Govt. of Maharashtra)** **State Bank Chowk Road, Buldhana, Maharashtra 443001** **Mob No: - 07262-242411** **Email Id:-dmobul@gmail.com**

1.1.3 Location of Project

Table 2: Details of Project Location

Particulars	**Bodgaon**	**Bhongaon**
Name of the applied mine area	BODGAON RIVER SAND MINE AT PURNA RIVER	BHONGAON RIVER SAND MINE AT PURNA RIVER
Nearby village	Bhon, Khatkhed	Bhon, Khatkhed
Tehsil	Shegaon	
District	Buldhana	
State	Maharashtra	
Toposheet no.	55D/5	55D/5
Latitude (N)	20°55'17.26"N	20°55'9.57"N
Longitude (E)	76°37'53.05"E	76°37'27.38"E

Background of the Project

The sand and gravel are the most important construction materials. The sand is produced by weathering of rock carried away by geological agents and deposited in river which will replenish every year with monsoonal cycle. Availability of sand is vital for the development of the infrastructure in the country development. As the rise in demand of these construction materials government need to ensure sustainable environment and supply this essential to sustain its developmental activities. This project provides opportunities for sustainable utilisation of resources to Government of Maharashtra. In the recent climatic changes, the sand mining is beneficial as it help to lower the inundation levels at time of floods.

Local geology: Buldhana districts large part occupied of rocks of Deccan trap formation, represented by of most horizontal lava flows of basaltic composition, emplaced by fissures aged to Mesozoic era, on to the lower tertiary era.

Table 3: Available Brass and Life of Mine

Name of Village	Bodgaon	Bhongaon
Quantity of sand for Excavation (Brass)	2160	2915
Life of Mine	1 YEAR	1 YEAR

Proposed Working: - Opencast Manual Mining Method will be adopted for extraction of Sand deposits in Purna River Bed

The Modified River Bed Sand Mine Working Guidance No.11(1X) and 12 of the Notification of Revenue and Forest Department, Mantralaya Mumbai, The Government of Maharashtra vides Government Decision No. Gaukhani-10/0615/Pra. Kra. 289/Kha dated 03.01.2018; mining will be done manually only with the use of labours, man heads, spades (Pawadas), ghamelas/pans.

Each cycle of operation shall consist of the following operation.

i) Over Burden Removal: No overburden is anticipated. So there is no need of removal of Overburden.

ii) Digging of Sand: Digging of Sand will be done by manually by Labours with the help of Spades (Pawadas).

iii) Loading of Tractor Trolley: Loading of Tractor Trolley will be done by manually with the help of Man heads, Labours with the help of Spades (Pawadas) and Pans (Ghamelas) combination.

iv) Transportation of Sand by Tractor Trolley from River Bed Mine/Sand Ghat to Stack yard: Mine Owner will prepare the Stack yard outside the River bed or Sand Ghat on nearer road. By the use of Tractor Trolley the material will be transported from Sand Ghat to Stockyard.

v) Transportation of Sand from Stack yard to Customers: Transportation of Sand will be done by the use of tractors trolleys from Stack yard to various Customers with permissible quantity. Transportation will be done as per the rules and regulations.

vi) Reclamation: Applicant will do scientific mining so that in Monsoon the Mine Lease area will be automatically backfilled. Only plantation will be done by the applicant on the both bank side of the River and other free places.

Extent of Mechanization: Mining Operations will be done by manual means only. No Mechanization. Services

Description of the Environment (Baseline Environment Status)

The environmental monitoring carried out during winter season of year February 2020. The various environmental components which are thoroughly studied during the study period include:

Meteorological condition

The observed maximum temperature recorded 31°C and Minimum temperature 20°C and wind blows from east and north.

Ambient Air Quality

The ambient air quality founds under permissible levels of pollution standards.

Ambient Noise Level

In the monitoring stations of four Locations observed maximum level was: 57.8 during day-time and minimum was 35.5 during night-time and found ambient noise level is within prescribed limit.

Water Quality

The water analysis conducted at four sample locations for groundwater and surface water. The major findings are follows.

Ground Water Quality

- It is observed that pH of the ground water samples is range of 6.30 to 7.31, which is between the acceptable pH limit for drinking water.
- Concentration of Total dissolved solids (TDS) and Total hardness observed in different groundwater samples are in range of permissible category stipulated by Bureau of Indian Standards.

- Fluoride Concentration is in between 0.09 to 0.28 mg/l. The desirable limit of 1 mg/l and permissible limit of 1.5 mg/l.
-

Surface water quality

- Biochemical oxygen Demand - All surface water samples have BOD indicate very low organic pollution load. All BOD values are within prescribed limit (<30.0 mg/lt as in IS 10500:2012).
- Chemical oxygen demand (COD) - All surface water samples have COD values which indicates low level of organic pollution load in term of COD.
- From the analysis data it is observed all parameters are within permissible limit of drinking water standard.

Soil Characteristics

The pH values of the collected samples were in the range of 6.21 to 8.15, organic matter in the range of 0.799(%) to 1.85 (%), water holding capacity in the range of 5.50 to 7.60%, potassium in the range of 0.08 to 169, total nitrogen in the range of 0.013 to 0.014 %, bulk density in the range of 1.25 to 1.47gm/cc. These all parameter indicate that soil is not so fertile in this area.

TABLE 4: LAND USE PATTERN OF THE CORE AREA

Sr. No.	Particulars	BODGAON		BHONGAON	
		As on Today in Ha	After 1 Years in Ha	As on Today in Ha	After 1 Years in Ha
1.	Area of top soil spread for a forestation	-	-	-	-
2.	Storage for top soil	-	-	-	-
3.	Green Belt	-	-	-	-
4.	Over burden Dump	-	-	-	-
5.	Mineral Storage	-	-	-	-
6.	Infrastructure (Workshop, Admin. Building etc.)	-	-	-	-

7.	Mine road in Mine lease area	-	**-**	-	**-**
8.	Utilized area for Sand Mining	**0.000**	**1.22**	**0.000**	**1.65**
9.	Virgin lease area for Sand Mine & Other Uses	**1.22**	**0.000**	**1.65**	**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	Government River	Government River
Total		**1.22**	**1.22**	**1.65**	**1.65**

Biological Environment

The flora and fauna analysis found as follows

Flora - The study area is mainly dominated by Southern Dry Mixed Deciduous Forests with major species are Aam, Babul, Bel, Bor, Chandan, Jambhul, Karnj, Neem etc.

Fauna - The faunal species commonly encountered during study within the study area are Hare, Rat, Indian fox, etc. No endemic endangered or threatened species of flora and fauna observed during study period.

Demography and Socio- Economics

Shegaon Tehsil as per census of India 2011, study area consists of 73 villages with total population of 1,56,116.

Anticipated Environmental Impact and Mitigation Measures

Impact on Air Quality: - The mining operations to be carried out by manual method and no machinery, drilling and Blasting not allowed. The impact on air quality is not envisaged. Transportation needs to allow only by tractor-trolley of the sand from the ghat to nearby depot or desired destination. The transport routes to be capable for handling this additional traffic.

Mitigation Measures: Following care to be taken for air pollution control.

- Water sprinkling to be done on the roads regularly. This reduces dust emission further by 75%.
- Care to be taken to prevent spillage by covering the carrying vehicles with tarpaulin and sprinkling of water, if dry.
- Fortnightly scraping of road in order to keep the roads almost levelled which ensures smooth flow of vehicles and also prevents spillage.
- Overloading will be strictly prohibited.
- Proper tuning of vehicles to keep the gas emissions under check.

Plantation of trees along the roads will help to reduce the impact of dust in the nearby villages.

Impact on Noise Quality: - No significant noise will be generated due to sand mining as entire operation to be carried out manually. Noise generated only due to tractor trolley being used in sand transportation.

Mitigation measures: The off-site receptors are not significantly affected due to noise generated by sand ghat which is insignificant but some disturbances can be occur due to vehicle movement which is not avoidable. The tractor trolley to be maintains in good running condition which will help to reduce noise to a minimum possible level. An optimum Speed limits to be imposed on tractor trolleys which used for sand transport.

Impact on Water Environment: - Mining of sand from within or near a streambed which has a direct impact on the stream's physical habitat characteristics. As the project activity to be carried out in the dry part of the river bed which will not affect the water environment or riparian habitats. The project to be executed without divert or truncate any stream also envisaged the pumping of water either from the river or tapping the ground water not allowed. The mining activity happening in summer months which will not affect the base

flow of the river and this minimise the adverse impact on surface hydrology and ground water regime. The proponent to be adhere all guidelines and rules for proper and scientific method of mining during the period of extraction of sand.

Mitigation measures: During the lease period, the deposit to be worked from the top surface to approved depth of mining within the demarcated lease area only.

Impact on land Environment- The mining and allied activities involved in river bed mining are creation of temporary haul roads / transportation track and formation of mined pits inside river, etc. This sand mining project does not involve any waste generation. Thus no waste dump sites are needed for the project.

Mitigation Measures:

- The mining to be carried out below the water table.
- The contractor with the satisfaction of competent authority to provide drinking water, rest shelter, first aid box and welfare facilities as per prevailing laws.
- The river bed areas to be dug during dry season. At rainy season, sand get replenished during monsoon.
- Sand/Gravel deposit in rainy season in which the material so deposited will available for fresh quarrying.
- The contractors to abide by the Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.

Impact on Biological Environment

The table summarised about the studies of biological environment.

Anticipated impact and mitigation measures for biological environment

Impact Predicted	Suggestive measure
Disturbance to free movement /living of wild fauna viz. Birds, Reptiles etc.	• If birds are noticed crossing the core zone, they will not be disturbed at all; • Labourers will not be allowed to discard food, polythene waste etc., which can attract animals/birds near the core site; • Only low polluting vehicles h0aving PUC will be allowed for carrying mining materials. • Noise level will be maintained within permissible limit (silent zone-50dB (A) during day time or residential zone 55dB (A)) as per Noise Pollution (Regulation and Control) Rules 2000, CPCB norms
Disturbance of riparian ecosystem/ wetlands	The riparian ecosystem or the wetlands will not be disturbed by the workers.

Impact Predicted	Suggestive measure
Monitoring of upstream and downstream water quality	Water quality will be monitored from upstream and downstream area once every month to assess the impact on water quality and mining activity will be controlled to maintain the clean water conditions.

Ecological Impacts: Excessive and unscientific riverbed sand mining results in the destruction of aquatic and riparian habitat through large changes in the channel morphology. Impacts include bed degradation, bed coarsening, lowered water tables near the streambed, and channel instability. These physical impacts cause degradation of riparian and aquatic biota and may lead to the undermining of bridges and other structures. Continued extraction may also cause the entire streambed to degrade to the depth of excavation.

Sand mining generates extra vehicle traffic, which negatively impairs the environment. Where access roads cross riparian areas, the local environment may be impacted.

Mitigation measures: As the proposed mining to be carried out in a scientific manner not much significant impact is anticipated, however, the following mitigation measure will be taken to further minimize it:

1. The activity to be carried out manually to minimize associate loss, as stated earlier.
2. No mining to be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season.
3. As the mining site has no vegetation, no clearance of vegetation is required.
4. No mining to be carried out in the vicinity of important structure like bridges, dam and other structures if any.
5. Mining to be carried out on the dry part of the lease area to avoid disturbance to the aquatic habitat and movement of fish species.
6. No mining to be carried out during the rainy season to minimize impact on aquatic life.
7. The mining activity needs to deploy a tractor for transportation of sand from the mine to desired destination that may cause some loss to riparian habitat. Safe site / site having least impact will be selected for transportation, all the vehicles employed for transportation purpose will be PUC certified. On closure of mining operations / during the rainy season the eroded bank will be restored / reclaimed to minimize negative impacts.
8. No lighting allowed in the lease area.
9. No piling of sand allowed in the area.
10. No discard of food, polythene waste etc. allowed in the lease area which would distract/attract the wildlife.
11. No night time mining allowed which may catch the attention of wild life.

12. Access roads will not encroach into the riparian zones and no riparian vegetation cleared off for the mining transportation of sand.

Analysis of Alternatives

Site Alternatives- The mine is located along the where the sand exists in enough quantity to be economically extracted. Mining locations are preferred near the markets or along the transportation route.

Technology alternatives: -No alternative technology only opencast Manual Mining Method will be adopted for extraction of Sand deposits.

Environment Monitoring Program

During the execution of the project activity, the sampling and analysis of various environmental attributes to be carried out as per guidelines of central pollution control board and State pollution control board. An Environment Management Cell to be set-up to implement this mining program.

Additional Studies

Risk Studies-Hazard identification and risk analysis involves identification of undesirable events that leads to a hazard, the analysis of hazard mechanism by which this undesirable event could occur and usually the estimation of extent, magnitude and likelihood of harmful effects

Disaster Studies: - Proper disaster is planning to be done to meet any emergency situation arising due to fire, explosion, sudden leakage of gas etc. Fire fighting equipment and other safety appliances are to be kept ready for use during disaster/emergency situation including natural calamities like earthquake/flood.

ENVIRONMENT MANAGEMENT PLAN (EMP)

This opencast mining operation may comprises for various activities related to digging and material handling which may be potential sources of environment pollution. The Sand Mine to be develops systematically by forming benches with over all pit slopes of 45° or angle of response which stabilizes the benches. Also stringent efforts to be ensure to suppress the

dust at source by adequate watering. A mobile water of 2000 litters capacity to be engaged available throughout the working shift. The EMP implementation and sampling parameters summarised in following table.

Environmental Issue	Management Measures	Implementation
Air Environment	• To avoid fugitive dust emissions at the time of excavation, regular sprinkling of water will be done on regular basis. • Sand is transported to the sites by road through tractor trolleys. The sand carrying vehicles shall be covered by tarpaulin sheets. • The Green Belt development will be prepared along the haul roads, which will act as a pollution sink. • To minimize the vehicular pollution from the sand transporting vehicles, the following conditions will insist to permit the vehicles of the transporters	Project authorities through regular monitoring.
Noise and Vibration	• Phasing out of old and worn out tractor trolleys. • Provision of green belts along the road networks. • Care will be taken to produce minimum sound during sand loading. • Use of Backhoe and ear plugs may be provided to protect the labors working at the site.	Project authorities through regular monitoring.
Water environment	• Mining is avoided during the monsoon season and at the time of floods. This will help in replenishment of sand in the river bed. • River stream will not be diverted to form in active channels. • Utmost care will be taken to minimize or control leakage vehicles to be used for sand. • Transportation. • The washing of tractor trolleys in the river	Project authorities through regular monitoring.

	will be avoided. • The contractor will follow all guidelines and rules for proper and scientific method of • Mining during the period of extracting the sand.	
Biological Environment	• Mining activities will be restricted to day-time so that fauna will not disturb at night. • Material will be covered with tarpaulin during transportation. • Water sprinkling will be done on haul roads to control fugitive emissions.	Project authorities through regular monitoring.
Occupational health and safety and public Health and safety.	• Regular water sprinkling on haul roads. • Dust mask will be provided to the workers. • Safety of the employee during mining will be taken care as per Mine regulations. • Medical records will be kept maintained.	Project authorities through regular monitoring.
Socio economic Environment	• Employment will be given to local people. • Regular medical camps will be organized. • Funds will be provided for development activities in nearby villages.	Regular monitoring by Project authorities.

TABLE 6: COST ESTIMATES OF EMP IMPLEMENTATION

(Investment and recurring cost in lacs/year)

Sr. No.	Component	Bodgaon		Bhongaon	
		Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)
1	Environmental Monitoring programme	0.40	0.80	0.30	0.60
2	Air Pollution Control	0.50	1.00	0.30	0.60
3	Approach Road Maintenance	0	0.50	0	0.50

4	Plantation (500 plants planted)	0.60	1.20	0.50	1.00
5	Gabian Structure for arresting gravels	0.50	1.00	0.20	0.40
6	Monitoring of Sand	0.30	0.60	0.30	0.60
7	Water Pollution Control	0.50	Nil	0.40	Nil
8	Noise pollution	0.50	1.00	0.40	0.80
9	Occupational Health & safety	-	1.00	-	0.50
	Total	**3.3**	**7.1**	**2.4**	**4.1**

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SAND MINING (MINOR MINERAL) FOR FOLLOWING VILLAGES

SR. NO.	NAME OF SANDGHAT	VILLAGE NAME	KHASRA NO	TOTAL LEASE AREA	Total Production / Brass (TPA)	TOTAL PROJECT COST
1.	KALEGAON RIVER SAND MINE AT VISHWAGANGA RIVER	KALEGAON	100, 6, 7, 30, 36, 35, 33, 31	0.60	1060	13,52,560

OF

TALUKA: - MALKAPUR, DISTRICT – BULDHANA (Maharashtra)
Lease Validity: - 2020-2021 (1 YEAR), Study Period: - February

FOR

ENVIRONMENTAL CLEARANCE (PUBLIC HEARING)
("B" under category 1(a) of EIA Notification dated 2006, S.O. 141(E) dated 15. 01. 2016, MoEF& CC, S.O. 3611(E), Dated 25.07.2018, Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020

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Accredited by NABET: No.: - NABET/EIA/1619/RA0060/ Sept 30, 2020)
August – 2020

Introduction:

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1.1.3 Location of Project

Table 2: Details of Project Location

Particulars	Kalegaon
Name of the applied mine area	KALEGAON RIVER SAND MINE AT KHADAKPURNA RIVER
Nearby village	Harsoda, Sawargaon Chahu
Tehsil	Malkapur
District	Buldhana
State	Maharashtra
Toposheet no.	55D/5
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Longitude (E)	76°17'46.58"E

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-

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4.	Over burden Dump	-	-
5.	Mineral Storage	-	-
6.	Infrastructure	-	-

	(Workshop, Admin. Building etc.)		
7.	Mine road in Mine lease area	-	**-**
8.	Utilized area for Sand Mining	**0.000**	**0.60**
9.	Virgin lease area for Sand Mine & Other Uses	**0.60**	**0.000**
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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		**0.60**	**0.60**

Biological Environment

The flora and fauna analysis found as follows

Flora - The study area is mainly dominated by Southern Dry Mixed Deciduous Forests with major species are Aam, Babul, Bel, Bor, Chandan, Jambhul, Karnj, Neem etc.

Fauna - The faunal species commonly encountered during study within the study area are Hare, Rat, Indian fox, etc. No endemic endangered or threatened species of flora and fauna observed during study period.

Demography and Socio- Economics

Malkapur Tehsil as per census of India 2011, study area consists of 73 villages with total population of 1,78,534.

Anticipated Environmental Impact and Mitigation Measures

Impact on Air Quality: - The mining operations to be carried out by manual method and no machinery, drilling and Blasting not allowed. The impact on air quality is not envisaged. Transportation needs to allow only by tractor-trolley of the sand from the ghat to nearby depot or desired destination. The transport routes to be capable for handling this additional traffic.

Mitigation Measures: Following care to be taken for air pollution control.

- Water sprinkling to be done on the roads regularly. This reduces dust emission further by 75%.
- Care to be taken to prevent spillage by covering the carrying vehicles with tarpaulin and sprinkling of water, if dry.
- Fortnightly scraping of road in order to keep the roads almost levelled which ensures smooth flow of vehicles and also prevents spillage.
- Overloading will be strictly prohibited.
- Proper tuning of vehicles to keep the gas emissions under check.

Plantation of trees along the roads will help to reduce the impact of dust in the nearby villages.

Impact on Noise Quality: - No significant noise will be generated due to sand mining as entire operation to be carried out manually. Noise generated only due to tractor trolley being used in sand transportation.

Mitigation measures: The off-site receptors are not significantly affected due to noise generated by sand ghat which is insignificant but some disturbances can be occur due to vehicle movement which is not avoidable. The tractor trolley to be maintains in good running condition which will help to reduce noise to a minimum possible level. An optimum Speed limits to be imposed on tractor trolleys which used for sand transport.

Impact on Water Environment: - Mining of sand from within or near a streambed which has a direct impact on the stream's physical habitat characteristics. As the project activity to be carried out in the dry part of the river bed which will not affect the water environment or riparian habitats. The project to be executed without divert or truncate any stream also

envisaged the pumping of water either from the river or tapping the ground water not allowed. The mining activity happening in summer months which will not affect the base flow of the river and this minimise the adverse impact on surface hydrology and ground water regime. The proponent to be adhere all guidelines and rules for proper and scientific method of mining during the period of extraction of sand.

Mitigation measures: During the lease period, the deposit to be worked from the top surface to approved depth of mining within the demarcated lease area only.

Impact on land Environment- The mining and allied activities involved in river bed mining are creation of temporary haul roads / transportation track and formation of mined pits inside river, etc. This sand mining project does not involve any waste generation. Thus no waste dump sites are needed for the project.

Mitigation Measures:

- The mining to be carried out below the water table.
- The contractor with the satisfaction of competent authority to provide drinking water, rest shelter, first aid box and welfare facilities as per prevailing laws.
- The river bed areas to be dug during dry season. At rainy season, sand get replenished during monsoon.
- Sand/Gravel deposit in rainy season in which the material so deposited will available for fresh quarrying.
- The contractors to abide by the Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.

Impact on Biological Environment

The table summarised about the studies of biological environment.

Anticipated impact and mitigation measures for biological environment

Impact Predicted	Suggestive measure
Disturbance to free movement /living of wild fauna viz. Birds, Reptiles etc.	• If birds are noticed crossing the core zone, they will not be disturbed at all; • Labourers will not be allowed to discard food, polythene waste etc., which can attract animals/birds near the core site; • Only low polluting vehicles h0aving PUC will be allowed for carrying mining materials. • Noise level will be maintained within permissible limit (silent zone-50dB (A) during day time or residential zone 55dB (A)) as per Noise Pollution

Impact Predicted	Suggestive measure
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Disturbance of riparian ecosystem/ wetlands	The riparian ecosystem or the wetlands will not be disturbed by the workers.
Monitoring of upstream and downstream water quality	Water quality will be monitored from upstream and downstream area once every month to assess the impact on water quality and mining activity will be controlled to maintain the clean water conditions.

Ecological Impacts: Excessive and unscientific riverbed sand mining results in the destruction of aquatic and riparian habitat through large changes in the channel morphology. Impacts include bed degradation, bed coarsening, lowered water tables near the streambed, and channel instability. These physical impacts cause degradation of riparian and aquatic biota and may lead to the undermining of bridges and other structures. Continued extraction may also cause the entire streambed to degrade to the depth of excavation.

Sand mining generates extra vehicle traffic, which negatively impairs the environment. Where access roads cross riparian areas, the local environment may be impacted.

Mitigation measures: As the proposed mining to be carried out in a scientific manner not much significant impact is anticipated, however, the following mitigation measure will be taken to further minimize it:

1. The activity to be carried out manually to minimize associate loss, as stated earlier.
2. No mining to be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season.
3. As the mining site has no vegetation, no clearance of vegetation is required.
4. No mining to be carried out in the vicinity of important structure like bridges, dam and other structures if any.
5. Mining to be carried out on the dry part of the lease area to avoid disturbance to the aquatic habitat and movement of fish species.
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8. No lighting allowed in the lease area.
9. No piling of sand allowed in the area.

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11. No night time mining allowed which may catch the attention of wild life.
12. Access roads will not encroach into the riparian zones and no riparian vegetation cleared off for the mining transportation of sand.

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Site Alternatives- The mine is located along the where the sand exists in enough quantity to be economically extracted. Mining locations are preferred near the markets or along the transportation route.

Technology alternatives: -No alternative technology only opencast Manual Mining Method will be adopted for extraction of Sand deposits.

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During the execution of the project activity, the sampling and analysis of various environmental attributes to be carried out as per guidelines of central pollution control board and State pollution control board. An Environment Management Cell to be set-up to implement this mining program.

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ENVIRONMENT MANAGEMENT PLAN (EMP)

This opencast mining operation may comprises for various activities related to digging and material handling which may be potential sources of environment pollution. The Sand Mine

to be develops systematically by forming benches with over all pit slopes of 45° or angle of response which stabilizes the benches. Also stringent efforts to be ensure to suppress the dust at source by adequate watering. A mobile water of 2000 litters capacity to be engaged available throughout the working shift. The EMP implementation and sampling parameters summarised in following table.

Environmental Issue	Management Measures	Implementation
Air Environment	• To avoid fugitive dust emissions at the time of excavation, regular sprinkling of water will be done on regular basis. • Sand is transported to the sites by road through tractor trolleys. The sand carrying vehicles shall be covered by tarpaulin sheets. • The Green Belt development will be prepared along the haul roads, which will act as a pollution sink. • To minimize the vehicular pollution from the sand transporting vehicles, the following conditions will insist to permit the vehicles of the transporters	Project authorities through regular monitoring.
Noise and Vibration	• Phasing out of old and worn out tractor trolleys. • Provision of green belts along the road networks. • Care will be taken to produce minimum sound during sand loading. • Use of Backhoe and ear plugs may be provided to protect the labors working at the site.	Project authorities through regular monitoring.
Water environment	• Mining is avoided during the monsoon season and at the time of floods. This will help in replenishment of sand in the river bed. • River stream will not be diverted to form in active channels. • Utmost care will be taken to minimize or control leakage vehicles to be used for	Project authorities through regular monitoring.

	sand. • Transportation. • The washing of tractor trolleys in the river will be avoided. • The contractor will follow all guidelines and rules for proper and scientific method of • Mining during the period of extracting the sand.	
Biological Environment	• Mining activities will be restricted to day-time so that fauna will not disturb at night. • Material will be covered with tarpaulin during transportation. • Water sprinkling will be done on haul roads to control fugitive emissions.	Project authorities through regular monitoring.
Occupational health and safety and public Health and safety.	• Regular water sprinkling on haul roads. • Dust mask will be provided to the workers. • Safety of the employee during mining will be taken care as per Mine regulations. • Medical records will be kept maintained.	Project authorities through regular monitoring.
Socio economic Environment	• Employment will be given to local people. • Regular medical camps will be organized. • Funds will be provided for development activities in nearby villages.	Regular monitoring by Project authorities.

TABLE 6: COST ESTIMATES OF EMP IMPLEMENTATION

(Investment and recurring cost in lacs/year)

Sr. No.	Component	Kalegaon	
		Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)
1	Environmental Monitoring programme	0.30	0.60
2	Air Pollution Control	0.40	0.80
3	Approach Road Maintenance	0	0.50
4	Plantation (500 plants planted)	0.75	0.80
5	Gabian Structure for arresting gravels	0.30	0.40

6	Monitoring of Sand	0.30	0.60
7	Water Pollution Control	0.30	Nil
8	Noise pollution	0.30	0.60
9	Occupational Health & safety	-	0.40
	Total	**2.65**	**4.7**

TABLE 7: MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

Particulars	**Monitoring Frequencies**	**Duration of Station**	**Important Monitoring Parameters**
Surface water / Tube well	Twice in a year	Grab	pH, SS, TDS, Iron, Hardness, Alkalinity Chlorides, Nitrates Sulphate & Fluorides
Ambient air monitoring	Twice in a year	24 hr.	PM10, PM2.5, SOx and NOx
Noise Pollution	Twice in a year	-	Level in dB(A) and dB(C)
Working environment	Once in a year	-	PH, Conductivity, Sulphate, Nitrate, Phosphates, Alkalinity & texture

EXECUTIVE SUMMARY (ENGLISH)

For

SAND MINING (MINOR MINERAL) FOR FOLLOWING VILLAGES

SR. NO.	NAME OF SANDGHAT	VILLAGE NAME	KHASRA NO	TOTAL LEASE AREA	Total Production / Brass (TPA)	TOTAL PROJECT COST
1.	BHUMRALA RIVER SAND MINE AT KHADAKPURNA RIVER	BHUMRALA	472, 460 to 464, 458, 449, 443, 441, 439, 438	2.40	4240	54,10,240
2.	SAWARGAONTELI CHANGEFAL RIVER SAND MINE AT KHADAKPURNA RIVER	SAWARGAONTELI CHANGEFAL	135, 136, 131, 132, 133, 128, 125, 93, 92 (Changefal) and 69, 72, 73, 75, 78, 79, 85, 88 to 91 (Sawargaonteli)	2.50	4417	56,36,092
3.	SAWARGAONTELI-A RIVER SAND MINE AT KHADAKPURNA RIVER	SAWARGAONTELI-A	57, 47, 46, 45, 43, 42	2.50	3092	39,45,392

OF

TALUKA: - LONAR, DISTRICT – BULDHANA (Maharashtra)

Lease Validity: - 2020-2021 (1 YEAR), Study Period: - February

FOR

ENVIRONMENTAL CLEARANCE (PUBLIC HEARING)

("B" under category 1(a) of EIA Notification dated 2006, S.O. 141(E) dated 15. 01. 2016, MoEF& CC, S.O. 3611(E), Dated 25.07.2018, Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020

Applicant District Mining Officer, Buldhana
Government of India

MANTRAS GREEN RESOURCES LTD
QCI-NABET ACCREDITED EIA CONSULTANT,
Hall No.1, First Floor, NICE Sankul, MIDC
Satpur, Nashik, Maharashtra

Email: Info@mantrasresources.com,
uksharma@mantrasresources.com
Accredited by NABET: No.: - NABET/EIA/1619/RA0060/ Sept 30, 2020)
August – 2020

Introduction:

Executive summary is the brief of report prepared for Environmental Management Plan of Sand Spot Mines of Minor Minerals of Buldhana District, Tehsil Lonar by M/s. District Mining Office, Buldhana, Maharashtra (Govt. of Maharashtra). The mining is confined to extraction of sand in villages viz. Bhumrala (2.40 Ha), Sawargaonteli Changefal (2.50 Ha) and Sawargaonteli-A (2.50). Sand exposed in the lease area needed to mine by opencast manual mining method without drilling and blasting.

Project Identification

The sand (minor minerals) occurred in Buldhana district required to carry out mining practise as per mining Plan of PMCP under Rule 16 (1) of MCR 2016 and PMCP under Rule 23B of MCDR 1988 is approved by Deputy Director, Directorate of Geology and Mining, Regional Office, Aurangabad vide letter no. STC-10/2020(M.P. Sand) 52 dated 04/02/2020. Proposed lease area is Government land.

Identification of Project Proponent

Table 1: Name and address of the Applicant

Applicant
District Mining Officer, Buldhana **(Govt. of Maharashtra)** **State Bank Chowk Road, Buldhana, Maharashtra 443001** **Mob No: - 07262-242411** **Email Id:-dmobul@gmail.com**

1.1.3 Location of Project

Table 2: Details of Project Location

Particulars	Bhumrala	Sawargaonteli Changefal	Sawargaonteli-A
Name of the applied mine area	BHUMRALA RIVER SAND MINE AT KHADAKPURNA RIVER	SAWARGAONTELI CHANGEFAL RIVER SAND MINE AT KHADAKPURNA RIVER	SAWARGAONTELI-A RIVER SAND MINE AT KHADAKPURNA RIVER
Nearby village	Changefal, Devkhed	Tandulwadi, Devkhed	Tandulwadi, Devkhed
Tehsil	Lonar		
District	Buldhana		
State	Maharashtra		

Toposheet no.	55D/5	55D/5	55D/5
Latitude (N)	19°55'24.65"N	19°56'21.37"N	19°56'26.24"N
Longitude (E)	76°22'32.51"E	76°20'43.75"E	76°21'35.33"E

Background of the Project

The sand and gravel are the most important construction materials. The sand is produced by weathering of rock carried away by geological agents and deposited in river which will replenish every year with monsoonal cycle. Availability of sand is vital for the development of the infrastructure in the country development. As the rise in demand of these construction materials government need to ensure sustainable environment and supply this essential to sustain its developmental activities. This project provides opportunities for sustainable utilisation of resources to Government of Maharashtra. In the recent climatic changes, the sand mining is beneficial as it help to lower the inundation levels at time of floods.

Local geology: Buldhana districts large part occupied of rocks of Deccan trap formation, represented by of most horizontal lava flows of basaltic composition, emplaced by fissures aged to Mesozoic era, on to the lower tertiary era.

Table 3: Available Brass and Life of Mine

Name of Village	Bhumrala	Sawargaonteli Changefal	Sawargaonteli-A
Quantity of sand for Excavation (Brass)	4240	4417	3092
Life of Mine	1 YEAR	1 YEAR	1 YEAR

Proposed Working: - Opencast Manual Mining Method will be adopted for extraction of Sand deposits in Khadakpurna River Bed

The Modified River Bed Sand Mine Working Guidance No.11(1X) and 12 of the Notification of Revenue and Forest Department, Mantralaya Mumbai, The Government of Maharashtra vides Government Decision No. Gaukhani-10/0615/Pra. Kra. 289/Kha dated 03.01.2018; mining will be done manually only with the use of labours, man heads, spades (Pawadas), ghamelas/pans.

Each cycle of operation shall consist of the following operation.

i) Over Burden Removal: No overburden is anticipated. So there is no need of removal of Overburden.

ii) Digging of Sand: Digging of Sand will be done by manually by Labours with the help of Spades (Pawadas).

iii) Loading of Tractor Trolley: Loading of Tractor Trolley will be done by manually with the help of Man heads, Labours with the help of Spades (Pawadas) and Pans (Ghamelas) combination.

iv) Transportation of Sand by Tractor Trolley from River Bed Mine/Sand Ghat to Stack yard: Mine Owner will prepare the Stack yard outside the River bed or Sand Ghat on nearer road. By the use of Tractor Trolley the material will be transported from Sand Ghat to Stockyard.

v) Transportation of Sand from Stack yard to Customers: Transportation of Sand will be done by the use of tractors trolleys from Stack yard to various Customers with permissible quantity. Transportation will be done as per the rules and regulations.

vi) Reclamation: Applicant will do scientific mining so that in Monsoon the Mine Lease area will be automatically backfilled. Only plantation will be done by the applicant on the both bank side of the River and other free places.

Extent of Mechanization: Mining Operations will be done by manual means only. No Mechanization. Services

Description of the Environment (Baseline Environment Status)

The environmental monitoring carried out during winter season of year February 2020. The various environmental components which are thoroughly studied during the study period include:

Meteorological condition

The observed maximum temperature recorded 32°C and Minimum temperature 21°C and wind blows from east and north.

Ambient Air Quality

The ambient air quality founds under permissible levels of pollution standards.

Ambient Noise Level

In the monitoring stations of four Locations observed maximum level was: 58.6 during day-time and minimum was 33.8 during night-time and found ambient noise level is within prescribed limit.

Water Quality

The water analysis conducted at four sample locations for groundwater and surface water. The major findings are follows.

Ground Water Quality

- It is observed that pH of the ground water samples is range of 6.18 to 7.42, which is between the acceptable pH limit for drinking water.
- Concentration of Total dissolved solids (TDS) and Total hardness observed in different groundwater samples are in range of permissible category stipulated by Bureau of Indian Standards.
- Fluoride Concentration is in between 0.09 to 0.36 mg/l. The desirable limit of 1 mg/l and permissible limit of 1.5 mg/l.

Surface water quality

- Biochemical oxygen Demand - All surface water samples have BOD indicate very low organic pollution load. All BOD values are within prescribed limit (<30.0 mg/lt as in IS 10500:2012).
- Chemical oxygen demand (COD) - All surface water samples have COD values which indicates low level of organic pollution load in term of COD.
- From the analysis data it is observed all parameters are within permissible limit of drinking water standard.

Soil Characteristics

The pH values of the collected samples were in the range of 6.27 to 8.19, organic matter in the range of 0.755(%) to 2.03 (%), water holding capacity in the range of 5.49 to 7.85%, potassium in the range of 0.11 to 179, total nitrogen in the range of 0.0125 to 0.0139 %, bulk density in the range of 1.18 to 1.48 gm/cc. These all parameter indicate that soil is not so fertile in this area.

TABLE 4: LAND USE PATTERN OF THE CORE AREA

Sr. No.	Particulars	BHUMRALA		SAWARGAONTELI CHANGEFAL		SAWARGAONTELI-A	
		As on Today in Ha	After 1 Years in Ha	As on Today in Ha	After 1 Years in Ha	As on Today in Ha	After 1 Years in Ha
1.	Area of top soil spread for a forestation	-	-	-	-	-	-
2.	Storage for top soil	-	-	-	-	-	-
3.	Green Belt	-	-	-	-	-	-
4.	Over burden Dump	-	-	-	-	-	-

5.	Mineral Storage	-	**-**	-	**-**	-	**-**
6.	Infrastructure (Workshop, Admin. Building etc.)	-	**-**	-	**-**	-	**-**
7.	Mine road in Mine lease area	-	**-**	-	**-**	-	**-**
8.	Utilized area for Sand Mining	**0.000**	**2.40**	**0.000**	**2.50**	**0.000**	**2.50**
9.	Virgin lease area for Sand Mine & Other Uses	**2.40**	**0.000**	**2.50**	**0.000**	**2.50**	**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	Government River	Government River	Government River	Government River
Total		**2.40**	**2.40**	**2.50**	**2.50**	**2.50**	**2.50**

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Noise and Vibration	• Phasing out of old and worn out tractor trolleys. • Provision of green belts along the road networks. • Care will be taken to produce minimum sound during sand loading. • Use of Backhoe and ear plugs may be provided to protect the labors working at the site.	Project authorities through regular monitoring.
Water environment	• Mining is avoided during the monsoon season and at the time of floods. This will help in replenishment of sand in the river bed. • River stream will not be diverted to form in active channels.	Project authorities through regular monitoring.

	• Utmost care will be taken to minimize or control leakage vehicles to be used for sand. • Transportation. • The washing of tractor trolleys in the river will be avoided. • The contractor will follow all guidelines and rules for proper and scientific method of • Mining during the period of extracting the sand.	
Biological Environment	• Mining activities will be restricted to day-time so that fauna will not disturb at night. • Material will be covered with tarpaulin during transportation. • Water sprinkling will be done on haul roads to control fugitive emissions.	Project authorities through regular monitoring.
Occupational health and safety and public Health and safety.	• Regular water sprinkling on haul roads. • Dust mask will be provided to the workers. • Safety of the employee during mining will be taken care as per Mine regulations. • Medical records will be kept maintained.	Project authorities through regular monitoring.
Socio economic Environment	• Employment will be given to local people. • Regular medical camps will be organized. • Funds will be provided for development activities in nearby villages.	Regular monitoring by Project authorities.

TABLE 6: COST ESTIMATES OF EMP IMPLEMENTATION

(Investment and recurring cost in lacs/year)

Sr. No.	Component	Bhumrala		Sawargaonteli Changefal		Sawargaonteli-A	
		Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)
1	Environmental Monitoring programme	0.60	1.20	2.1	2.25	2.1	2.25
2	Air Pollution Control	0.50	1.00	1.5	1.50	1.5	1.50

3	Approach Road Maintenance	0	0.50	0	0.30	0	0.30
4	Plantation (500 plants planted)	0.75	0.80	0.30	1.45	0.30	1.45
5	Gabian Structure for arresting gravels	0.30	0.40	0.34	0.40	0.34	0.40
6	Monitoring of Sand	0.30	0.60	0.25	0.32	0.25	0.32
7	Water Pollution Control	0.30	Nil	0.10	Nil	0.10	Nil
8	Noise pollution	0.40	0.40	0.09	0.25	0.09	0.25
9	Occupational Health & safety	-	0.80	-	2.25	-	2.25
	Total	**3.15**	**5.7**	**4.68**	**8.72**	**4.68**	**8.72**

TABLE 7: MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

Particulars	Monitoring Frequencies	Duration of Station	Important Monitoring Parameters
Surface water / Tube well	Twice in a year	Grab	pH, SS, TDS, Iron, Hardness, Alkalinity Chlorides, Nitrates Sulphate & Fluorides
Ambient air monitoring	Twice in a year	24 hr.	PM10, PM2.5, SOx and NOx
Noise Pollution	Twice in a year	-	Level in dB(A) and dB(C)
Working environment	Once in a year	-	PH, Conductivity, Sulphate, Nitrate, Phosphates, Alkalinity & texture

EXECUTIVE SUMMARY (ENGLISH)

For

SAND MINING (MINOR MINERAL) FOR FOLLOWING VILLAGES

SR. NO.	NAME OF SANDGHAT	VILLAGE NAME	KHASRA NO	TOTAL LEASE AREA	Total Production / Brass (TPA)	TOTAL PROJECT COST
1.	DEVKHED LINGA RIVER SAND MINE AT PURNA RIVER	DEVKHED LINGA	DEVKHED – 3, 4, 7, 19 to 26 LINGA – 14, 25, 26, 29, 30, 31	2.40	4240	54,10,240
2.	NIMGAON WAYAL RIVER SAND MINE AT PURNA RIVER	NIMGAON WAYAL	299 to 303, 316 to 319	3.00	5300	67,62,800

OF

TALUKA: - SINDKHEDRAJA, DISTRICT – BULDHANA (Maharashtra)
Lease Validity: - 2020-2021 (1 YEAR), Study Period: - February

FOR

ENVIRONMENTAL CLEARANCE (PUBLIC HEARING)
("B" under category 1(a) of EIA Notification dated 2006,
S.O. 141(E) dated 15. 01. 2016, MoEF& CC, S.O. 3611(E), Dated 25.07.2018,
Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020

Applicant District Mining Officer, Buldhana
Government of India

MANTRAS GREEN RESOURCES LTD
QCI-NABET ACCREDITED EIA CONSULTANT,
Hall No.1, First Floor, NICE Sankul, MIDC
Satpur, Nashik, Maharashtra

Email: Info@mantrasresources.com,
uksharma@mantrasresources.com
Accredited by NABET: No.: - NABET/EIA/1619/RA0060/ Sept 30, 2020)
August – 2020

Introduction:

Executive summary is the brief of report prepared for Environmental Management Plan of Sand Spot Mines of Minor Minerals of Buldhana District, Tehsil Sindkhedraja by M/s. District Mining Office, Buldhana, Maharashtra (Govt. of Maharashtra). The mining is confined to extraction of sand in villages viz. Devkhed Linga (2.40 Ha) and Nimgaon Wayal (3.00 Ha). Sand exposed in the lease area needed to mine by opencast manual mining method without drilling and blasting.

Project Identification

The sand (minor minerals) occurred in Buldhana district required to carry out mining practise as per mining Plan of PMCP under Rule 16 (1) of MCR 2016 and PMCP under Rule 23B of MCDR 1988 is approved by Deputy Director, Directorate of Geology and Mining, Regional Office, Aurangabad vide letter no. STC-10/2020(M.P. Sand) 52 dated 04/02/2020. Proposed lease area is Government land.

Identification of Project Proponent

Table 1: Name and address of the Applicant

Applicant
District Mining Officer, Buldhana **(Govt. of Maharashtra)** **State Bank Chowk Road, Buldhana, Maharashtra 443001** **Mob No: - 07262-242411** **Email Id:-dmobul@gmail.com**

1.1.3 Location of Project

Table 2: Details of Project Location

Particulars	**Devkhed Linga**	**Nimgaon Wayal**
Name of the applied mine area	DEVKHED LINGA RIVER SAND MINE AT KHADAKPURNA RIVER	NIMGAON WAYAL RIVER SAND MINE AT KHADAKPURNA RIVER
Nearby village	Jaulka, Tadshivni	Takarkhed Wayal, Nimgaon Wayal
Tehsil	Sindkhedraja	
District	Buldhana	
State	Maharashtra	
Toposheet no.	55D/5	55D/5
Latitude (N)	19°58'18.11"N	20°3'2.62"N

Longitude (E)	76°18'35.92"E	76°15'4.35"E

Background of the Project

The sand and gravel are the most important construction materials. The sand is produced by weathering of rock carried away by geological agents and deposited in river which will replenish every year with monsoonal cycle. Availability of sand is vital for the development of the infrastructure in the country development. As the rise in demand of these construction materials government need to ensure sustainable environment and supply this essential to sustain its developmental activities. This project provides opportunities for sustainable utilisation of resources to Government of Maharashtra. In the recent climatic changes, the sand mining is beneficial as it help to lower the inundation levels at time of floods.

Local geology: Buldhana districts large part occupied of rocks of Deccan trap formation, represented by of most horizontal lava flows of basaltic composition, emplaced by fissures aged to Mesozoic era, on to the lower tertiary era.

Table 3: Available Brass and Life of Mine

Name of Village	Devkhed Linga	Nimgaon Wayal
Quantity of sand for Excavation (Brass)	4240	5300
Life of Mine	1 YEAR	1 YEAR

Proposed Working: - Opencast Manual Mining Method will be adopted for extraction of Sand deposits in Khadakpurna River Bed

The Modified River Bed Sand Mine Working Guidance No.11(1X) and 12 of the Notification of Revenue and Forest Department, Mantralaya Mumbai, The Government of Maharashtra vides Government Decision No. Gaukhani-10/0615/Pra. Kra. 289/Kha dated 03.01.2018; mining will be done manually only with the use of labours, man heads, spades (Pawadas), ghamelas/pans.

Each cycle of operation shall consist of the following operation.

i) Over Burden Removal: No overburden is anticipated. So there is no need of removal of Overburden.

ii) Digging of Sand: Digging of Sand will be done by manually by Labours with the help of Spades (Pawadas).

iii) Loading of Tractor Trolley: Loading of Tractor Trolley will be done by manually with the help of Man heads, Labours with the help of Spades (Pawadas) and Pans (Ghamelas) combination.

iv) Transportation of Sand by Tractor Trolley from River Bed Mine/Sand Ghat to Stack yard: Mine Owner will prepare the Stack yard outside the River bed or Sand Ghat on nearer road. By the use of Tractor Trolley the material will be transported from Sand Ghat to Stockyard.

v) Transportation of Sand from Stack yard to Customers: Transportation of Sand will be done by the use of tractors trolleys from Stack yard to various Customers with permissible quantity. Transportation will be done as per the rules and regulations.

vi) Reclamation: Applicant will do scientific mining so that in Monsoon the Mine Lease area will be automatically backfilled. Only plantation will be done by the applicant on the both bank side of the River and other free places.

Extent of Mechanization: Mining Operations will be done by manual means only. No Mechanization. Services

Description of the Environment (Baseline Environment Status)

The environmental monitoring carried out during winter season of year February 2020. The various environmental components which are thoroughly studied during the study period include:

Meteorological condition

The observed maximum temperature recorded 32°C and Minimum temperature 19°C and wind blows from east and north.

Ambient Air Quality

The ambient air quality founds under permissible levels of pollution standards.

Ambient Noise Level

In the monitoring stations of four Locations observed maximum level was: 59.3 during day-time and minimum was 34.1 during night-time and found ambient noise level is within prescribed limit.

Water Quality

The water analysis conducted at four sample locations for groundwater and surface water. The major findings are follows.

Ground Water Quality

- It is observed that pH of the ground water samples is range of 6.11 to 7.19, which is between the acceptable pH limit for drinking water.

- Concentration of Total dissolved solids (TDS) and Total hardness observed in different groundwater samples are in range of permissible category stipulated by Bureau of Indian Standards.
- Fluoride Concentration is in between 0.12 to 0.31 mg/l. The desirable limit of 1 mg/l and permissible limit of 1.5 mg/l.

Surface water quality

- Biochemical oxygen Demand - All surface water samples have BOD indicate very low organic pollution load. All BOD values are within prescribed limit (<30.0 mg/lt as in IS 10500:2012).
- Chemical oxygen demand (COD) - All surface water samples have COD values which indicates low level of organic pollution load in term of COD.
- From the analysis data it is observed all parameters are within permissible limit of drinking water standard.

Soil Characteristics

The pH values of the collected samples were in the range of 6.18 to 8.23, organic matter in the range of 0.805(%) to 1.90 (%), water holding capacity in the range of 5.46 to 7.48%, potassium in the range of 0.11 to 155, total nitrogen in the range of 0.013 to 0.014 %, bulk density in the range of 1.26 to 1.45gm/cc. These all parameter indicate that soil is not so fertile in this area.

TABLE 4: LAND USE PATTERN OF THE CORE AREA

Sr. No.	Particulars	DEVKHED LINGA		NIMGAON WAYAL	
		As on Today in Ha	After 1 Years in Ha	As on Today in Ha	After 1 Years in Ha
1.	Area of top soil spread for a forestation	-	-	-	-
2.	Storage for top soil	-	-	-	-
3.	Green Belt	-	-	-	-
4.	Over burden Dump	-	-	-	-
5.	Mineral Storage	-	-	-	-
6.	Infrastructure	-	-	-	-

	(Workshop, Admin. Building etc.)				
7.	Mine road in Mine lease area	-	**-**	-	**-**
8.	Utilized area for Sand Mining	**0.000**	**2.40**	**0.000**	**3.00**
9.	Virgin lease area for Sand Mine & Other Uses	**2.40**	**0.000**	**3.00**	**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	Government River	Government River
Total		**2.40**	**2.40**	**3.00**	**3.00**

Biological Environment

The flora and fauna analysis found as follows

Flora - The study area is mainly dominated by Southern Dry Mixed Deciduous Forests with major species are Aam, Babul, Bel, Bor, Chandan, Jambhul, Karnj, Neem etc.

Fauna - The faunal species commonly encountered during study within the study area are Hare, Rat, Indian fox, etc. No endemic endangered or threatened species of flora and fauna observed during study period.

Demography and Socio- Economics

Sindkhedraja Tehsil as per census of India 2011, study area consists of 113 villages with total population of 1,76,303.

Anticipated Environmental Impact and Mitigation Measures

Impact on Air Quality: - The mining operations to be carried out by manual method and no machinery, drilling and Blasting not allowed. The impact on air quality is not envisaged. Transportation needs to allow only by tractor-trolley of the sand from the ghat to nearby depot or desired destination. The transport routes to be capable for handling this additional traffic.

Mitigation Measures: Following care to be taken for air pollution control.

- Water sprinkling to be done on the roads regularly. This reduces dust emission further by 75%.
- Care to be taken to prevent spillage by covering the carrying vehicles with tarpaulin and sprinkling of water, if dry.
- Fortnightly scraping of road in order to keep the roads almost levelled which ensures smooth flow of vehicles and also prevents spillage.
- Overloading will be strictly prohibited.
- Proper tuning of vehicles to keep the gas emissions under check.

Plantation of trees along the roads will help to reduce the impact of dust in the nearby villages.

Impact on Noise Quality: - No significant noise will be generated due to sand mining as entire operation to be carried out manually. Noise generated only due to tractor trolley being used in sand transportation.

Mitigation measures: The off-site receptors are not significantly affected due to noise generated by sand ghat which is insignificant but some disturbances can be occur due to vehicle movement which is not avoidable. The tractor trolley to be maintains in good running condition which will help to reduce noise to a minimum possible level. An optimum Speed limits to be imposed on tractor trolleys which used for sand transport.

Impact on Water Environment: - Mining of sand from within or near a streambed which has a direct impact on the stream's physical habitat characteristics. As the project activity to be carried out in the dry part of the river bed which will not affect the water environment or riparian habitats. The project to be executed without divert or truncate any stream also

envisaged the pumping of water either from the river or tapping the ground water not allowed. The mining activity happening in summer months which will not affect the base flow of the river and this minimise the adverse impact on surface hydrology and ground water regime. The proponent to be adhere all guidelines and rules for proper and scientific method of mining during the period of extraction of sand.

Mitigation measures: During the lease period, the deposit to be worked from the top surface to approved depth of mining within the demarcated lease area only.

Impact on land Environment- The mining and allied activities involved in river bed mining are creation of temporary haul roads / transportation track and formation of mined pits inside river, etc. This sand mining project does not involve any waste generation. Thus no waste dump sites are needed for the project.

Mitigation Measures:

- The mining to be carried out below the water table.
- The contractor with the satisfaction of competent authority to provide drinking water, rest shelter, first aid box and welfare facilities as per prevailing laws.
- The river bed areas to be dug during dry season. At rainy season, sand get replenished during monsoon.
- Sand/Gravel deposit in rainy season in which the material so deposited will available for fresh quarrying.
- The contractors to abide by the Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.

Impact on Biological Environment

The table summarised about the studies of biological environment.

Anticipated impact and mitigation measures for biological environment

Impact Predicted	Suggestive measure
Disturbance to free movement /living of wild fauna viz. Birds, Reptiles etc.	• If birds are noticed crossing the core zone, they will not be disturbed at all; • Labourers will not be allowed to discard food, polythene waste etc., which can attract animals/birds near the core site; • Only low polluting vehicles h0aving PUC will be allowed for carrying mining materials. • Noise level will be maintained within permissible limit (silent zone-50dB (A) during day time or residential zone 55dB (A)) as per Noise Pollution

Impact Predicted	Suggestive measure
	(Regulation and Control) Rules 2000, CPCB norms
Disturbance of riparian ecosystem/ wetlands	The riparian ecosystem or the wetlands will not be disturbed by the workers.
Monitoring of upstream and downstream water quality	Water quality will be monitored from upstream and downstream area once every month to assess the impact on water quality and mining activity will be controlled to maintain the clean water conditions.

Ecological Impacts: Excessive and unscientific riverbed sand mining results in the destruction of aquatic and riparian habitat through large changes in the channel morphology. Impacts include bed degradation, bed coarsening, lowered water tables near the streambed, and channel instability. These physical impacts cause degradation of riparian and aquatic biota and may lead to the undermining of bridges and other structures. Continued extraction may also cause the entire streambed to degrade to the depth of excavation.

Sand mining generates extra vehicle traffic, which negatively impairs the environment. Where access roads cross riparian areas, the local environment may be impacted.

Mitigation measures: As the proposed mining to be carried out in a scientific manner not much significant impact is anticipated, however, the following mitigation measure will be taken to further minimize it:

1. The activity to be carried out manually to minimize associate loss, as stated earlier.
2. No mining to be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season.
3. As the mining site has no vegetation, no clearance of vegetation is required.
4. No mining to be carried out in the vicinity of important structure like bridges, dam and other structures if any.
5. Mining to be carried out on the dry part of the lease area to avoid disturbance to the aquatic habitat and movement of fish species.
6. No mining to be carried out during the rainy season to minimize impact on aquatic life.
7. The mining activity needs to deploy a tractor for transportation of sand from the mine to desired destination that may cause some loss to riparian habitat. Safe site / site having least impact will be selected for transportation, all the vehicles employed for transportation purpose will be PUC certified. On closure of mining operations / during the rainy season the eroded bank will be restored / reclaimed to minimize negative impacts.
8. No lighting allowed in the lease area.
9. No piling of sand allowed in the area.

10. No discard of food, polythene waste etc. allowed in the lease area which would distract/attract the wildlife.
11. No night time mining allowed which may catch the attention of wild life.
12. Access roads will not encroach into the riparian zones and no riparian vegetation cleared off for the mining transportation of sand.

Analysis of Alternatives

Site Alternatives- The mine is located along the where the sand exists in enough quantity to be economically extracted. Mining locations are preferred near the markets or along the transportation route.

Technology alternatives: -No alternative technology only opencast Manual Mining Method will be adopted for extraction of Sand deposits.

Environment Monitoring Program

During the execution of the project activity, the sampling and analysis of various environmental attributes to be carried out as per guidelines of central pollution control board and State pollution control board. An Environment Management Cell to be set-up to implement this mining program.

Additional Studies

Risk Studies-Hazard identification and risk analysis involves identification of undesirable events that leads to a hazard, the analysis of hazard mechanism by which this undesirable event could occur and usually the estimation of extent, magnitude and likelihood of harmful effects

Disaster Studies: - Proper disaster is planning to be done to meet any emergency situation arising due to fire, explosion, sudden leakage of gas etc. Fire fighting equipment and other safety appliances are to be kept ready for use during disaster/emergency situation including natural calamities like earthquake/flood.

ENVIRONMENT MANAGEMENT PLAN (EMP)

This opencast mining operation may comprises for various activities related to digging and material handling which may be potential sources of environment pollution. The Sand Mine

to be develops systematically by forming benches with over all pit slopes of 45° or angle of response which stabilizes the benches. Also stringent efforts to be ensure to suppress the dust at source by adequate watering. A mobile water of 2000 litters capacity to be engaged available throughout the working shift. The EMP implementation and sampling parameters summarised in following table.

Environmental Issue	Management Measures	Implementation
Air Environment	• To avoid fugitive dust emissions at the time of excavation, regular sprinkling of water will be done on regular basis. • Sand is transported to the sites by road through tractor trolleys. The sand carrying vehicles shall be covered by tarpaulin sheets. • The Green Belt development will be prepared along the haul roads, which will act as a pollution sink. • To minimize the vehicular pollution from the sand transporting vehicles, the following conditions will insist to permit the vehicles of the transporters	Project authorities through regular monitoring.
Noise and Vibration	• Phasing out of old and worn out tractor trolleys. • Provision of green belts along the road networks. • Care will be taken to produce minimum sound during sand loading. • Use of Backhoe and ear plugs may be provided to protect the labors working at the site.	Project authorities through regular monitoring.
Water environment	• Mining is avoided during the monsoon season and at the time of floods. This will help in replenishment of sand in the river bed. • River stream will not be diverted to form in active channels. • Utmost care will be taken to minimize or control leakage vehicles to be used for	Project authorities through regular monitoring.

	sand. • Transportation. • The washing of tractor trolleys in the river will be avoided. • The contractor will follow all guidelines and rules for proper and scientific method of • Mining during the period of extracting the sand.	
Biological Environment	• Mining activities will be restricted to day-time so that fauna will not disturb at night. • Material will be covered with tarpaulin during transportation. • Water sprinkling will be done on haul roads to control fugitive emissions.	Project authorities through regular monitoring.
Occupational health and safety and public Health and safety.	• Regular water sprinkling on haul roads. • Dust mask will be provided to the workers. • Safety of the employee during mining will be taken care as per Mine regulations. • Medical records will be kept maintained.	Project authorities through regular monitoring.
Socio economic Environment	• Employment will be given to local people. • Regular medical camps will be organized. • Funds will be provided for development activities in nearby villages.	Regular monitoring by Project authorities.

TABLE 6: COST ESTIMATES OF EMP IMPLEMENTATION

(Investment and recurring cost in lacs/year)

Sr. No.	Component	Devkhed Linga		Nimgaon Wayal	
		Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)
1	Environmental Monitoring programme	1.00	2.00	1.00	2.00
2	Air Pollution Control	1.10	2.20	1.10	2.20
3	Approach Road Maintenanc	0	1.00	0	1.00

	e				
4	Plantation (500 plants planted)	2.225	4.5	1.25	4.5
5	Gabian Structure for arresting gravels	1.00	0.20	1.20	0.20
6	Monitoring of Sand	0.30	0.60	0.30	0.60
7	Water Pollution Control	0.70	Nil	0.70	Nil
8	Noise pollution	0.90	1.50	0.90	1.50
9	Occupational Health & safety	-	1.00	-	1.00
	Total	**7.225**	**13**	**6.45**	**13**

TABLE 7: MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

Particulars	Monitoring Frequencies	Duration of Station	Important Monitoring Parameters
Surface water / Tube well	Twice in a year	Grab	pH, SS, TDS, Iron, Hardness, Alkalinity Chlorides, Nitrates Sulphate & Fluorides
Ambient air monitoring	Twice in a year	24 hr.	PM10, PM2.5, SOx and NOx
Noise Pollution	Twice in a year	-	Level in dB(A) and dB(C)
Working environment	Once in a year	-	PH, Conductivity, Sulphate, Nitrate, Phosphates, Alkalinity & texture