EXECUTIVE SUMMARY

OF

RIVERBED SAND MINING PROJECT

Located at

Plot no. JWR 01 near revenue Village(s): - Biriyakheri Khurd, Paroliya, Aaroliya, Tehsil: - Jhalrapatan, District: - Jhalawar, Rajasthan

Proposed Production: - 2,02,788 TPA

Project Cost: - Rs. 3.02 Crore (Auction cost + Plant & Machinery)

ML Area: - 18.7767 Ha. (Govt. land)

ToR letter issued by SEAC, Rajasthan

Vide letter no.: - RJ/24/SEAC-1(06)/MIN/A Tor/0001 Dated 09.04.2025

For

PUBLIC HEARING

APPLICANT

M/S Shree Balajee

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S. No. 63. List of Accredited EIA Consultant Organizations (as on June, 2025);

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1.1 INTRODUCTION

M/S Shree Balajee has proposed Riverbed Sand Mining Project for an area of 18.7767 ha. located at Plot No.- JWR 01 near revenue Village(s): - Biriyakheri Khurd, Paroliya and Aaroliya of Tehsil: - Jhalrapatan and District: - Jhalawar, Rajasthan for proposed production capacity of 2,02,788 TPA. The need for proposed project is to cater the requirement of the Sand/Bajri by market.

This executive summary has been prepared in reference to the ToR Letter issued by SEAC, Rajasthan, vide letter no. RJ/24/SEAC-1(06)/MIN/A TOR/0001 dated 09.04.2025 to carry out the EIA-EMP study by conducting Public consultation as per EIA Notification 2006 and its further amendments.

1.2 BRIEF DESCRIPTION OF THE PROJECT & ENVIRONMENTAL SETTING

S. No.	Particulars	Details
	Project Description	
1.	Name of the Project	Proposed Riverbed Sand Mining Project
2.	Location	Plot No.- JWR 01 near revenue Village(s): - Biriyakheri Khurd, Paroliya and Aaroliya of Tehsil: - Jhalrapatan and District: - Jhalawar, Rajasthan.
3.	Lease Area	18.7767 ha.
4.	Land Type	Gair mumkin Nadi and Nallah
5.	Latitude & Longitude	Latitude from 24°30'32.136947" to 24°30'34.693939" N Longitude from 76°01'37.130981" to 76°01'37.954865 "E
6.	Toposheet No.	54 D/2, 54 D/3, 45P/14, 45P/15
7.	Elevation (MSL)	Lowest – 342m MSL; Highest – 351m MSL
8.	Probable Mineral Reserves	2,02,788 Tonne
9.	Targeted Production	2,02,788 TPA
10.	Estimated Project Cost	3.02 Crore (Auction cost + plant & machinery)
11.	Man Power	Nos. 26.
12.	Daily Water Demand	5 KLD (Domestic – 1 KLD, Dust Suppression – 4 KLD, Plantation will be carried out under social forestry whereby water will be provided by villagers and local administration)

<table>
<tr><td colspan="3">Environmental Settings</td></tr>
<tr><td>13.</td><td>Nearest Habitation & Population</td><td>Biryakhedi Khurd ~ 0.03 km, East</td></tr>
<tr><td>14.</td><td>Nearest Major Town</td><td>Julmi ~ 8.96 km, NNW</td></tr>
<tr><td>15.</td><td>Nearest Highway</td><td>NH -19-A ~ 2.87 km, North</td></tr>
<tr><td>16.</td><td>Nearest Railway Station</td><td>
<table>
<tr><th rowspan="2">S. No.</th><th rowspan="2">Particulars</th><th>Distance (Km)</th><th>Direction</th></tr>
<tr><th colspan="2">(From Lease Boundary)</th></tr>
<tr><td>1.</td><td>Jhalawar Road Railway Station</td><td>~ 11.31</td><td>WNW</td></tr>
<tr><td>2.</td><td>Jhalawar City Railway Station</td><td>~ 14.3</td><td>NNE</td></tr>
<tr><td>3.</td><td>Ramganj Mandi Railway Station</td><td>~ 17.13</td><td>NNW</td></tr>
</table>
</td></tr>
<tr><td>17.</td><td>Nearest Airport</td><td>Kota Domestic Airport ~ 74.41 km, NNW</td></tr>
<tr><td>18.</td><td>Nearest Tourist Places</td><td>None within 10 km radius.</td></tr>
<tr><td>19.</td><td>Defense Installations</td><td>None within 10 km radius.</td></tr>
<tr><td>20.</td><td>Archaeological Sites (State Protected Monuments)</td><td>None within 10 km radius.</td></tr>
<tr><td>21.</td><td>Eco-Sensitive Zones/ Area</td><td>None within 10 km radius.</td></tr>
<tr><td>22.</td><td>Reserved/ Protected Forest within study area (10 Km radius).</td><td>
<table>
<tr><th>Name of RF/PF</th><th>Near Village (km)</th><th>Distance and Direction (From Lease Boundary)</th></tr>
<tr><td>Kola Ahiran Block P.F.</td><td>~ 7.5</td><td>North</td></tr>
<tr><td>Kalakot P.F.</td><td>~ 8.22</td><td>East</td></tr>
<tr><td>Beedghas Manda, Shyampura P.F.</td><td>~ 9.40</td><td>SE</td></tr>
</table>
Source: - Distances measured taken from SOI, Toposheet are indicative pertinent to the project.
</td></tr>
</table>

23. Nearest Streams/ Rivers

Water Body	Distance and Direction (From Lease Boundary)
Kanwada Main Canal	~ 4.0 km, SE
Rewa nadi	~ 2.60 km, NW
Ahu River	Project Site River

Source: - Distances measured taken from SOI, Toposheet are indicative pertinent to project.

24. Public Building Places

S. No.	Particulars	Distance (km) (From Lease Boundary)	Direction
	Villages		
1.	Biryakhedi Khurd	~ 0.03	East
2.	Aroliya	~ 0.58	North
3.	Paroliya	~ 0.53	NNE
4.	Gadiya	~ 2.62	East
5.	Nadiyakheri	~ 2.01	East
6.	Pipaliya	~ 3.13	NW
7.	Naharawad	~ 1.92	West
8.	Kanwara	~ 2.76	SSE
9.	Sankali Khera	~ 2.02	East
10.	Binolai	~ 3.93	East
	Educational Facilities		
1.	Govt. Sen. Sec. School, Pipaliya	~ 3.08	NW
2.	Upper Primary School, Pipaliya	~ 3.25	NW
3.	Gayatri Public School, Pipaliya	~ 3,72	NW
4.	Government Primary School, Sankhliheda	~2.25	ESE
5.	Govt. Upper Primary School, Nandiyakheri	~ 2.23	ESE
6.	Govt. Primary School, Borakhedi Khurd	~ 3.28	SSW
7.	Govt. Upper Primary School, Sitafal	~ 4.36	ESE
8.	Government Adarsh Sen. Sec. School, Garnawad	~ 5.35	WSW
9.	Govt. Sen. Sec. School, Ganeshpura Garnawad	~ 5.40	WSW
10.	Govt. Sen. Sec. School, Ramniwas Ghatod	~ 9.0	WSW
11.	Govt. Sen. Sec. School, Kanwari	~ 3.24	SSE
	Temple		
1.	Shri Shiv Mandir, Nandakheri	~ 2.0	ESE
2.	Shree Ram Mandir, Dhakar Mohalla Sanklikhera	~ 2.03	ESE
3.	Bevadi Ke Balaji, Pipaliya	~ 2.93	NW
4.	Mataji Mandir Samiya, Pipaliya	~ 3.31	NW
5.	Shiv Temple, Pipaliya	~ 3.88	WNW

		6.	Kaal Bhairu Mandir, Samrai	~ 4.31	ENE
		7.	Namdev Sati Bhairu Place, Bhanvar Kua Samrai	~ 4.57	ENE
		Medical Facilities			
		1.	PHC Hospitals, Garnawad	~ 5.38	SW
		2.	Motipura Primary Satellite Hospital, Motipura	~ 6.36	ENE
		3.	Sarkari Hospital	~ 8.77	SW
		4.	Govt. Hospital Lakahriya	~ 8.51	NW
		5.	Govt. Ayurvedic Hospital, Julmi	~ 9.36	North
		6.	Adarsh PHC Hospital, Julmi	~ 9.38	NNW
		Communication and Post Office			
		1.	Post office Rajpura	~ 6.14	NW
		Others			
		1.	Nearest town, Julmi	~ 8.96	NNW
		2.	Police Station, Chhatrapurs	~ 10.69	WNW
		Source: - Distances measured from SOI, Toposheet and are indicative pertinent to the project.			
25.	Other Industries/ Mines	Suzuki Industries Kotawala (Suzuki Stone Slab & Tiles) ~ 3.88 km, NW			
26.	Seismic Zone	Zone – II as per IS – 1893 (Part-1) -2002			

2.0 GEOLOGICAL AND RECOVERABLE RESERVES

2.1 LOCAL GEOLOGY

The lease area falls in river Gair mumkin Nadi and its nallas which flows in village Biriyakheri khurd, tehsil Jhalrapatan. The base rock of the area is sedimentary rocks; the adjoining parts are covered by Deccan trap twelve basaltic flows (Basalt). The river bed is generally covered with sand above the base rock having a thickness of 1 to 3 meters. The lease is granted for sand which is defined as a naturally occurring granular material composed of finely divided rock and mineral particles. In the lease area the most common constituent of sand is silica, usually in the form of quartz.

2.2 GEOLOGICAL AND RECOVERABLE RESERVES AS PER UNFC CLASSIFICATION

The total mineral resources and reserves have been calculated by surface area method. The mineral reserve thereafter has been calculated by depleting remaining resources from total mineral resources.

Table 2.0: Reserve Estimation as per UNFC Classification

Classification	Code	Sand/ Bajri (Tonnes)
Total Mineable Reserves	--	2,02,788 tonnes
A. **Mineral Reserves**	--	--
1. Proved mineral	111	2,02,788 tonnes
2. Probable Mineral	121	0.00
B. Remaining Resources		
1. Feasibility Mineral Resource	222	--
2. Pre- Feasibility Mineral Resource	223	--
3. Measured Mineral Resource	331	--
4. Indicated Mineral Resource	332	--
5. Inferred Mineral Resource	333	--
6. Reconnaissance Mineral Resource	334	--
Net minable reserves at 60 % recovery	**Total**	2,02,788
Permitted Quantity per year		2,02,788 Tons

Note: Tonnage of sand, gravel has been arrived by computing average bulk density of 2.25 these data are variable and may be established on time series. Thus the tonnages arrived are tentative.

3.0 TYPE AND METHOD OF MINING

The proposed project is confined to dry bed extraction of Bajri/Sand from Ahu River. River bed is dry. Total length of the area as per the description report stretches in the length of approx. 2.53 km.

The salient features of mode of working as per approved Mining Plan are: -

- Mining will be carried out by open cast semi mechanized method.
- Only dry bed mining will be carried out. No in-stream mining will be practiced.
- Light weight excavators like JCB of 0.65m3 bucket capacity will be used for loading of minerals in tippers.
- No OB/ waste material will be generated.
- No drilling/ blasting is required as the material is loose in nature.
- Workings will be restricted within the lease area.
- Mining will be restricted to 1.0 m above the saturation level in river bed.
- Bench will advance parallel to the banks of the river. Height of bench will be 1.0m max. Width of the bench will be more than the height of the bench.
- Roads in the lease area for the movement of loaded trippers / trucks will not have slopes more than 1 in 20.

- Extraction activities will start in the area from the upstream side to downstream side. This will not obstruct the movement of water, if any, during monsoon period in the river course.
- Roads will be properly maintained and water sprinkling will be done for dust suppression.
- Total extent of lease is approx. 2.53 km including prohibited area.

3.1 DRILLING AND BLASTING

As the mineral is loose in nature, drilling and blasting will not be required in sand mining.

3.2 YEAR-WISE DEVELOPMENT IN NEXT FIVE YEARS

The year wise development of mines will progress as per the table below: -

Table 3.0: Year Wise Development in Next Five Years

Year	Excavation M^3	Targeted ROM Production (in T/A)	OB/ Waste (M^3)	Mineral Rejects	Stripping ratio
I	150000	202788	0	0	1:0.0
II	150000*	202788*	0	0	1:0.0
III	150000*	202788*	0	0	1:0.0
IV	150000*	202788*	0	0	1:0.0
V	150000*	202788*	0	0	1:0.0
Total	**750000***	**1013940***	**0**	**0**	

** - Subjected to Replenishment*

3.3 ROPOSED RATE OF PRODUCTION AND LIFE OF MINE

We are considering average production of 2,02,788 TPA of minerals. Life of mine is dependent on the quantum of replenishment in rainy season. It is believed that every year the same quantity of sand will be replenished. In the present case life of mine is one year and with regular replenishment it can be reached to 5 years. The life of mine may change depend upon the prospecting results, rate of replenishment and any change in mechanization as suggested by authorities in future. The reserves are likely to be increased based upon replenishment and accordingly, the life of the mine is expected to increase.

3.4 LAND USE PATTERN

The land use for mining and allied purposes is given below: -

Table 3.1: Land Use Pattern

S. No.	Particulars		Present land use (ha.)	At the End of one Year (ha.)	At the end of mine (ha.)
1.	Pit area		0.0	15.00	15.0
2.	Dump area		0.00	0.00	0.00
3.	Infrastructure (Temp. Office, shelter etc)	Bridge	0.00	0.00	0.00
		Roads 0	0.00	0.00	0.00
		Wells (0 no.)	0.00	0.00	0.00
		7.5 meter barrier	0.00	0.00	0.00
4.	Mineral Storage		0.00	0.00	0.00
5.	Plantation **33 %		0.00	0.00	0.00
6.	Un-worked		18.7767	3.7767	3.7767
Total			**18.7767**	**18.7767**	**18.7767**

**- Rain-fed Reclaimed*

*** Plantation in the riverbed area is not feasible. Hence, proposed plantation will be taken up in the Govt. or Pvt. Land as available.*

4.0 STUDY AREA AT A GLANCE

The study area comprises of 86 villages of Jhalrapatan Tehsil in the 10.0 km of the study area. The total population of the buffer zone is 83,322 accommodating in households 16,406 with an average households size of approx. 5 members per family.

4.1 DEMOGRAPHY

Population			Number of literates			Main workers			Marginal workers			Non workers		
Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
83322	42867	40455	44524	28670	15854	27839	20129	7710	13697	3862	9835	41786	18876	22910

4.2 LAND USE PATTERN WITHIN STUDY AREA

The classification scheme adopted for the preparation of land use/ land cover maps on 1:25,000 scales. Land use/ Land cover classification standardized by NRSC/ ISRO. The land use/ land cover area of the study area. The following land use classes have been observed in the study area: -

Table 4.1: Land Use Pattern within study area

Class	Subclass	Area in Ha.	Area In %
Built-up	Mining	451.25	1.23
	Built-up	2350.41	6.42
Agriculture land	Crop land	9861.82	26.93
	Fallow land	21685.02	59.22
Plantation	Plantation	71.0	0.19
Waste land	Scrubland	721.30	1.97
Water body	Pond/River	1479.82	4.04
Grand Total		**36620.62**	**100**

4.3 AMBIENT AIR MONITORING.

Ambient air quality monitoring has been conducted at 8 locations within the study area of 10 km radial distance from the mine lease area and a summary of ambient air quality results in ***Table 4.2***

Table 4.2: Air Monitoring Results (6th Oct – 31st Dec. 2024)

S. No.	Criteria Pollutant	Locations	Minimum	Maximum	Average	98th percentile	Standard Deviation	CPCB Standards
1	PM_{10}	Project Site	60.1	69.0	64.7	68.9	2.86	100
		Aroliya Village	60.0	65.0	62.6	64.82	1.50	
		Biriyakheri Khurd	58.1	63.1	60.6	62.93	1.53	
		Pipalda	57.1	62.1	59.6	62.01	1.53	
		Nayagaon	58.1	64.0	60.9	63.88	1.79	
		Nandiyakheri	59.0	62.9	61.1	62.78	1.15	
		Nirawad	58.0	62.1	60.0	61.99	1.23	
		Kanwara	59.1	64.0	61.6	63.89	1.48	
2	$PM_{2.5}$	Project Site	35.1	37.8	36.6	37.8	0.79	60
		Aroliya Village	30.0	33.9	32.0	33.79	1.17	
		Biriyakheri Khurd	29.1	32.0	30.6	32.0	0.92	
		Pipalda	28.1	31.3	29.6	31.12	0.92	
		Nayagaon	27.2	32.9	30.3	32.75	1.68	
		Nandiyakheri	30.1	34.9	32.6	34.85	1.53	
		Nirawad	26.0	33.5	29.4	32.89	2.07	
		Kanwara	30.1	34.9	32.6	34.85	1.51	
3	SO_2	Project Site	4.68	6.5	5.75	6.48	0.47	80
		Aroliya	4.26	6.1	5.23	6.09	0.59	

		Village						
		Biriyakheri Khurd	4.25	5.89	5.10	5.87	0.50	
		Pipalda	4.36	5.99	5.29	5.99	0.44	
		Nayagaon	4.67	8.96	5.69	7.59	0.75	
		Nandiyakheri	4.58	5.94	5.34	5.92	0.41	
		Nirawad	4.36	6.1	5.29	6.09	0.49	
		Kanwara	4.25	5.75	5.11	5.75	0.37	
4	NO_2	Project Site	17.1	19.9	18.4	19.8	0.85	80
		Aroliya Village	14.1	19.0	16.6	18.91	1.51	
		Biriyakheri Khurd	13.1	17.9	15.5	17.81	1.48	
		Pipalda	15.1	18.9	17.1	18.81	1.13	
		Nayagaon	14.2	19.8	17.0	19.70	1.72	
		Nandiyakheri	14.1	19.1	16.6	18.97	1.55	
		Nirawad	14.1	19.0	16.5	18.93	1.47	
		Kanwara	15.5	20.9	18.5	20.75	1.52	
5	CO	Project Site	580	940	743.08	890	80.52	4000
		Aroliya Village	680	940	810.0	940	79.08	
		Biriyakheri Khurd	760	990	880.38	985	72.83	
		Pipalda	760	970	873.46	965	64.80	
		Nayagaon	780	970	887.69	965	56.73	
		Nandiyakheri	780	980	890.77	970	51.59	
		Nirawad	850	1020	927.69	1015	48.06	
		Kanwara	860	1030	950.77	1025	47.47	

RESULTS

PM_{10}: The maximum and minimum values for PM_{10} observed are 57.1 & 69.0 µg/m^3.

$PM_{2.5}$: The maximum and minimum value for $PM_{2.5}$ observed are 37.8 & 26.0 µg/m^3

SO_2: The maximum and minimum values for SO_2 observed are 8.96 & 4.25 µg/m^3.

NO_2: The maximum and minimum values for NO_2 observed are 20.9 & 13.1 µg/m^3.

CO: The maximum and minimum value for CO observed are 1030 & 580 µg/m^3.

Conclusions:

The results of the monitored data indicate that the ambient air quality of the region in general is in conformity with respect to norms of National Ambient Air Quality standards, at all locations monitored.

4.4 WATER MONITORING

Eight ground water samples were collected as grab samples and were analyzed for various parameters as per the procedures specified in "Standard Methods for the Examination of Water and Wastewater" published by American Public Health Association (APHA).

Table 4.3: Water Monitoring (6th Oct. – 31st Dec. 2024)

S. No	Parameter	Units	GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8	Acceptable Limit	Permissible Limit
1	pH Value	--	7.60	7.40	7.18	6.99	7.01	7.64	7.68	7.72	6.5-8.5	No relaxation
2	Odour	Agreeable/ Disagreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	-
3	Color	Hazen	<5	<5	<5	<5	<5	<5	<5	<5	5	15
4	Electrical Conductivity	µs/cm	1042.00	2487	1786	915	814	810	2897	910.0	--	--
5	Turbidity	NTU	<1	<1	<1	<1	<1	<1	<1	<1	1	5
6	Total Dissolve Solids	mg/lit.	729.0	1620.00	1165.0	640.0	545.0	580.0	1730.0	595.0	500	2000
7	Total Hardness as $CaCO_3$	mg/lit.	262.0	288.0	272.0	240.0	220.0	252.0	281.0	246.0	200	600
8	Calcium as Ca^+	mg/lit.	55.15	61.56	52.58	48.73	46.17	53.86	57.71	50.01	75	200
9	Magnesium as Mg^+	mg/lit.	30.32	32.65	34.21	28.77	25.66	28.77	33.43	29.54	30	100
10	Chloride as Cl^-	mg/lit.	149.95	509.84	165.94	83.97	73.97	59.98	643.80	91.97	250	1000
11	Fluoride as F^-	mg/lit.	0.36	0.62	0.32	0.24	0.24	0.22	0.26	0.30	1	1.5
12	Sulphates as $SO4^-$	mg/lit.	34.20	180.12	69.50	24.21	23.31	25.30	95.60	35.20	200	400
13	Nitrate as NO_3^-	mg/lit.	18.00	33.61	30.24	18.32	16.98	13.60	35.00	26.64	45	No relaxation
14	Total alkalinity as $CaCO_3$	mg/lit.	325.00	345.00	320.00	265.00	250.00	315.00	395.00	270	200	600
15	Free Residual Chlorine as Cl^-	mg/lit.	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	1.0
16	Iron as Fe	mg/lit.	0.08	0.18	0.13	0.05	0.03	0.04	0.03	0.03	0.30	No relaxation
17	Phenolic Compounds	mg/lit.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.001	0.002

18	Copper as Cu^{+}	mg/lit.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	1.5
19	Anionic Surfactant	mg/lit.	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.2	1.0
20	Boron as B_3^{+}	mg/lit.	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.5	1.0
21	Total Ammonia	mg/lit.	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.5	No relaxation
22	Aluminum as Al^{+}	mg/lit.	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.03	0.2
23	Silver as Ag^{+}	mg/lit.	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	No relaxation
24	Selenium as Se^{2-}	mg/lit.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	No relaxation
25	Zinc as Zn^{+}	mg/lit.	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5.0	15.0
26	Cadmium as Cd^{+}	mg/lit.	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.003	No relaxation
27	Lead as Pb^{2+}	mg/lit.	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.01	No relaxation
28	Arsenic as As	mg/lit.	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	0.05
29	Manganese as Mn^{+}	mg/lit.	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.1	0.3
30	Total Chromium as Cr	mg/lit.	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	No relaxation
31	Mercury as Hg^{2+}	mg/lit.	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.001	No relaxation
32	Total Suspended Solid	mg/lit.	2.0	2.1	2.6	3.1	2.5	3.2	2.4	2.2	--	--

Ground Water

The analysis results indicate that pH and conductivity of the groundwater was to be in range of 6.99 – 7.72 and 810 to 2897 µS/cm. The TDS were found to be in the range of 545-1730 mg/l. Total Hardness was found in the range of i.e. 220-288 mg/l. Other parameters like Chlorides and Sulphate were observed to be well within the prescribed limits and not exceeded as per IS: 10500.

Results & Discussion-

From the analysis it is observed that all the parameter is under the permissible limit. The ground water table will not be intersected because of mining and hence there would not be any contamination of the same by the mining activities.

Table 4.4: Surface Water Analysis Results (6th Oct – 31st Dec 2024)

S. No	Parameter	Test Method	Units	SW1
1	pH Value	IS : 3025 (Part 11) - (2022)	--	7.32
2	Odour	IS : 3025 (Part 5) – 2018	Agreeable/ Disagreeable	Agreeable
3	Color	IS : 3025 (Part 4) - 2021	Hazen	<5
4	Electrical Conductivity	IS : 3025 (Part 14) – 2019	µs/cm	810.0
5	Turbidity	IS : 3025 (Part 10) – 2023	NTU	<1
6	Total Dissolve Solids	IS : 3025 (Part 16) – 2019	mg/L	530.0
7	Total Hardness as $CaCO_3$	IS : 3025 (Part 21) – 2019	mg/L	198.0
8	Calcium as Ca+	IS : 3025 (Part 40) - 2019	mg/L	41.12
9	Magnesium as Mg^+	IS : 3025 (Part 46) – 2023	mg/L	22.13
10	Chloride as Cl^-	IS : 3025 (Part 32) - 2019	mg/L	75.96
11	Fluoride as F^-	APHA (24th Edition) 4500 D: 2023	mg/L	0.22
12	Sulphates as SO_4-	APHA (24th Edition) 4500 SO4-E; 2023	mg/L	30.16
13	Nitrate as NO_3^-	APHA (24th Edition) 4500NO3-B; 2023	mg/L	17.26
14	Total alkalinity as $CaCO^3$	IS : 3025 (Part 23) – 2023	mg/L	240.0
15	Free Residual Chlorine as Cl^-	IS : 3025 (Part 26) : (2021)	mg/L	<0.1
16	Iron as Fe	APHA (24th Edition) 3500 Fe B: 2023	mg/L	0.11
17	Phenolic Compounds	IS : 3025 (Part 43) :(Sec 1 : 2022)	mg/L	<0.01
18	Copper as Cu^+	APHA (24th Edition) 3111B: : 2023	mg/L	<0.01
19	Anionic Surfactant	APHA (24th Edition), 5540 C: 2023	mg/L	<0.02
20	Boron as B	APHA 24th Edition, 4500-B: 2023	mg/L	<0.2
21	Total Ammonia	APHA (24th Edition) 4500-TKN-B:2023	mg/L	<0.1
22	Aluminium as Al^+	APHA (24th Edition) 3111D: 2023	mg/L	<0.1
23	Silver as Ag^+	IS 3025 : Part 79 :2023	mg/L	<0.05
24	Selenium as Se^{2-}	APHA (24th Edition) 3114 B: 2023	mg/L	<0.01
25	Zinc as Zn^+	APHA (24th Edition) 3111 B: 2023	mg/L	<0.2
26	Cadmium as Cd^+	APHA (24th Edition) 3111B: 2023	mg/L	<0.05
27	Lead as Pb^{2+}	APHA (24th Edition) 3111B: : 2023	mg/L	<0.2
28	Arsenic as As	APHA (24th Edition) 3114B: 2023	mg/L	<0.005

29	Manganese as Mn^{+}	APHA (24th Edition) 3111 B: : 2023	mg/L	<0.2
30	Total Chromium as Cr	IS : 3025 (Part 52) – 2019	mg/L	<0.05
31	Mercury as Hg^{2+}	APHA (23rd Edition) 3112B: 2017	mg/L	<0.005
32	Total Suspended Solid	IS : 3025 (Part 17) :1984 2022	mg/L	11.0
33	Dissolved Oxygen	IS : 3025 (Part 38) :1989(RA 2019)	mg/L	4.2
34	Biochemical Oxygen Demand(BOD)	IS : 3025 (Part 44) :1993(RA 2023)	mg/L	8.0
35	Chemical Oxygen Demand (COD)	IS : 3025 (Part 58) :20062023	mg/L	26.0
36	E.coli	IS 15185 : 2016: 2021	MPN/100ml	<02MPN/100ML
37	Total Coliforms	IS 15185 : 2016: 2021	MPN/100ml	<02MPN/100ML

Surface Water

The results obtained for the collected samples indicate that the surface water qualities were found to be well within the prescribed standards Limits (Class C).

4.5 NOISE MONITORING

The noise monitoring has been carried out at eight locations. The analysis results are given in below: -

Table 4.5: Noise Monitoring (6th Oct – 31st Dec 2024)

Time	N-1	N-2	N-3	N-4	N-5	N-6	N-7	N-8
Day time	**RESULTS dB (A)**							
6.00	53.7	52.1	53.7	52.3	53.7	50.7	59.5	56.1
7.00	54.5	55.3	55.1	51.2	52.1	52.3	50.1	53.1
8.00	54.3	53.4	56.7	57	52.7	55.1	51.8	52.1
9.00	55.7	56.1	57.3	56.5	53.1	52.3	53.7	54.4
10.00	56.3	55.5	58.1	56.3	54.8	52.4	52.1	54.7
11.00	57.2	52.3	55.3	56.9	54.8	55.1	53.4	51.5
12 Noon	58.2	53.6	54.3	55.2	50.1	51.1	54.7	54.3
13.00	57.9	55.1	53.7	54.1	52.3	50.4	51.4	55.7
14.00	57.3	55.7	55.7	53.2	53.4	54.6	52.4	54.8
15.00	56.9	55.3	54.9	57.1	54.7	53.1	51.6	51.3
16.00	56.5	56.7	55.3	58.7	56.3	55.3	51.1	51.5
17.00	58.3	51.2	54.1	56.2	53.1	50.4	49.3	52.3
18.00	58.1	52.3	53.7	57.4	52.4	55.9	53.2	51.4
19.00	57.4	56.1	55.1	55.2	55.1	56.0	53.1	52.8
20.00	55.3	55.6	56.1	55.4	56.3	53.4	51.7	50.3
21.00	54.7	56.3	53.9	51.2	56.0	54.1	50.3	54.2
Night time	**RESULTS dB (A)**							
22.00	42.1	39.3	43.5	42.3	42.5	43.7	40.1	43.1
23.00	44.3	40.5	42.7	40.1	41.9	40.3	44.3	40.2
24.00	44.2	42.3	44.5	41.7	43.2	41.5	41.2	43.1
1.00	43.7	41.7	41.2	40.5	43.1	40.2	41.9	41.3
2.00	43.1	42.6	43.5	41.7	42.6	42.7	42.1	42.2
3.00	44.3	43.7	40.7	43.7	40.1	42.1	40.6	40.5
4.00	44.1	44.2	40.7	41.3	40.3	40.5	42.3	41.4
5.00	42.1	40.1	42.1	42.5	41.5	41.3	41.3	42.0
Leq Day	**56.6**	**54.8**	**55.4**	**55.7**	**54.1**	**53.7**	**53.1**	**53.5**
Leq Night	**43.6**	**42.2**	**42.6**	**41.9**	**42.0**	**41.7**	**41.9**	**41.8**
Leq day & night	**55.8**	**54.1**	**54.7**	**54.8**	**53.5**	**53.1**	**52.9**	**53.0**

RESULT: -

A) Day time Noise Levels L_{eq} (day)

The day time Leq(day) noise levels at all the locations were observed to be in the range of 53.1 – 56.6 dB(A). The maximum noise level of 56.6 dB (A) was observed at projet site and the minimum noise level of 53.1 dB(A) was observed at village Nirawad during the study period

B) Night time Noise Levels L_{eq} (night)

The night time Leq(night)) noise levels at all the locations was observed to be in the range of 41.7 – 43.6 dB(A). The maximum noise level of 43.6 dB (A) was observed at Project site and the minimum noise level of 41.7 dB (A) at village Nandiyakheri during the study period.

4.6 SOIL MONITORING

The soil sampling has been carried out at eight locations and observed that the soil is clay in texture and neutral in nature. The nutrient and organic matter contents are medium and the soil is normally fertile.

Table 4.6: Soil Monitoring (6th Oct – 31st Dec 2024)

No.	Parameters	Unit	S1	S2	S3	S4	S5	S6	S7	S8
1	pH	-	7.42	7.54	7.48	7.62	7.56	7.60	7.65	7.74
2	Electrical Conductivity	µS/cm	220.0	240.0	234.0	251.0	265.0	256.0	270.0	320.0
3	Organic Matter	%	0.51	0.46	0.42	0.38	0.50	0.41	0.44	0.48
4	Moister Content	%	0.30	0.35	0.36	0.40	0.37	0.42	0.35	0.34
5	Sodium as Na^+	mg/g	2.2	2.5	1.8	2.3	1.7	2.6	1.9	2.9
6	Potassium as K^+	mg/g	3.4	3.9	3.5	3.7	3.0	3.8	2.9	3.8
7	Total Phosphorous as P	kg/ha.	68.62	74.62	72.62	70.60	69.62	70.52	71.36	68.32
8	Calcium carbonate as $CaCO_3$	%	9.24	10.25	9.26	9.32	9.02	9.12	8.75	8.80
9	Total Soluble Sulphates	%	0.03	0.02	0.02	0.03	0.03	0.02	0.04	0.02
10	Total Nitrogen(TKN)	kg/ha.	124	130	136	144	152	129	132	140
11	Texture	--	Clay Loam	Clay Loam	Clay Loam	Clay Loam	Clay Loam	Clay Loam	Clay Loam	Clay Loam
	Sand	%	45	44	39	29	32	33	39	42
	Silt	%	19	23	23	36	29	32	30	29
	Clay	%	36	33	38	35	39	35	31	29
12	Water holding capacity	%	51.24	50.20	49.96	50.46	51.87	48.79	51.43	50.88
13	Bulk Density	gm/cc	1.31	1.28	1.38	1.40	1.36	1.30	1.34	1.37
14	Chloride as Cl^-	%	0.02	0.01	0.03	0.02	0.01	0.02	0.03	0.04
15	Calcium as Ca^+	mg/kg	230	245	252	282	266	276	292	260
16	Magnesium as Mg+	mg/kg	126	130	134	140	129	136	142	132
17	Organic Carbon	%	0.87	0.79	0.72	0.65	0.86	0.70	0.75	0.82
18	Sodium Absorption Ratio	--	23.32	25.82	18.32	22.39	17.11	25.62	18.24	29.29
19	Zinc as Zn^+	mg/kg	2.8	2.4	3.2	2.9	3.3	4.0	3.8	2.8
20	Copper as Cu^+	mg/kg	3.3	3.8	4.1	3.1	2.9	3.5	3.0	3.2

21	Cadmium as Cd^{+}	mg/kg	0.20	0.19	0.27	0.24	0.32	0.30	0.28	0.23

Field observation:

As per the observation the Soils mostly found are- Sandy loam texture in locations Aroliya, Biriyakheri Khurd, Pipalda, Nayagaon, Nandiyakheri, Nirawad and Karmawas.

Inference:

- As per the observation the Soils mostly found are- Sandy loam texture
- pH of the soil samples of the study area is slightly to moderately alkaline. It varies from 7.42 (Project Site) to 7.74 (Kanwara).
- Organic Matter: Organic Matter in the soil samples varies from 0.38 % Pipalda to 0.51 % Project site.
- Nitrogen: The soil samples have nitrates ranging from 124 kg/ha. at project site to 152 kg/ha. at Nayagaon village.
- Available Potassium: The soil samples have potassium ranging from 2.9 at Nirawad to 3.9 mg/gm at Aroliya village.
- Phosphorus: Phosphorus level in, the soil samples varies from 68.32 kg/ha. at Kanwara village to 74.62 kg/ha. at Aroliya Village.
- Electrical conductivity of soil samples ranges from 220 µS/cm at Project site to 320 µS/cm at Kanwara and are classified as normal soil.

4.7 BIOLOGICAL ENVIRONMENT

FLORA AND FAUNA

The main species of flora found in core and buffer zone are as follows: -

Flora	
Core Zone	**Buffer Zone**
Grass – 3 Species	Grass –5 Species
Herb- 7 Species	Herb -12 Species
Shrubs – 4 Species	Shrubs-10 Species
Tree - 7 Species	Tree – 51 Species
Fauna	
Core Zone	**Buffer Zone**
Butterflies - 3 Species	Butterflies - 3 Species
Reptiles - 2 Species	Reptiles – 6 Species
Avifauna – 18 Species	Avifauna - 43 Species
Mammals – 3 Species	Mammals - 10 Species
Amphibians-2	Amphibians-2
Fishes-5	Fishes-5

5.0 IDENTIFICATION OF HAZARDS AND MITIGATION MEASURES

The proposed project is a conventional open cast semi-mechanized mine.

- To ensure proper haulage road gradients;
- Removal of loose stone and debris from the edges of the excavation;
- Properly maintained vehicles/ trucks with breaking system intact will be only being deployed.
- All mitigation measures like water spraying, green belt development and provision of PPE's must be made to reduce the dust concentration within the specified norms of CPCB.

6.0 AFFORESTATION PROGRAMME

6.1 YEAR WISE CUMULATIVE PLANTATION

Year	Area	Nos of plants to be planted	Cost of plants including transportation, sitting, mulching, watering & casualty replacement @ 300/plant	Species to be planted	Place of Plantation	Survival Rate to be maintained (%)
I	1.0	1000	1,30,000	Kair, Amaltas, Neem, Peepal, Mango, Shisham, Shirish, Babool, Gulmohar and other native Species	Along the roads, along the river bank, in schools and public building	90
II	1.0	1000	1,30,000			
III	1.0	1000	1,30,000			
Total	**3.0**	**3000**	**3,90,000**			

Total green area equaling to 6.20 Ha. (33% of the total lease area of 18.7767 ha.) will be developed with plantation. Out of this 6.20 Ha. the plantation under the social forestry program will be developed around the schools, PHCs, Gram Panchayats and Govt. offices of villages Biriyakhedi Khurd, Aroliya, Paroliya and Pipaliya for a maximum area of 3.0 Ha. due to the restriction of availability of area in riverbed sand mining projects. The deficit area of 3.20 Ha. and its corresponding amount as per the office order of Rajasthan State Pollution Control Board dated 26.07.2023 (Rs. 1,30,000/ hectare)

equaling to Rs. 1,30,000 x 3.20 ha. = Rs. 4,16,000 /- will be deposited to the State Forest Department of Rajasthan.

Apart from this to stabilize the riverbanks, vetiver grass in an area of 1.0 ha. will be planted with cost of Rs. 1.0 Lac during the plan period of the proposed mining project.

In case the areas identified are not suitable for planation or if there is any objection/ issue for developing plantation, the corresponding amount as per the same office order of RSPCB for the entire 6.20 Ha. equaling to Rs. 1,30,000 x 6.20 ha. = Rs. 8,06,000/- will be deposited to the State Forest Department of Rajasthan.

6.2 POST MINING LAND USE OF CORE ZONE WITH ENVIRONMENT MANAGEMENT

S. No.	Description	Land Use (In Ha.)				
		Plantation	Water Body	Public Use	Undisturbed	Total
1	Top Soil Dump	--	--	--	--	--
2	External Waste Dump	--	--	--	--	--
3	(a) Excavation (Voids)	--	15.0	--	--	15.0
	(b) Excavation (replenished)		--	--	--	
4	Road	--	--	--	--	--
5	Infrastructure (Workshop, Admin. Building, etc.)	--	--	--	--	--
6	Township Area	--	--	--	--	--
7	Afforestation	--	--	--	--	--
8	Mineral Storage	--	--	--	--	--
9	Processing	--	--	--	--	--
10	Other (Canal/ Habitation/ Nallah)	--	--	--	--	--
11	Undisturbed Area	--	--	--	3.7767	3.7767
Total		**--**	**15.0**	**--**	3.7767	**18.7767**

**- Rain-fed Reclaimed*

7.0 ENVIRONMENTAL MANAGEMENT PLAN

Environmental Management Plan (EMP) aims at the reservation of ecological system by considering in – built pollution abatement facilities at the mine site.

LAND USE

- Statutory boundary of 7.5 meter will be left from the riverbanks before commencement of mining activities.
- Safety zone of about 45m on each side of the rail/ road bridges and 45m radius around the wells located in the river bed have been earmarked(if any). Bajri excavation will not be carried out in this zone.
- 20m offset will be left against the banks to protect from side collapse.
- To prevent erosion, moving the road or footpath will be kept away from the river's edge

WATER POLLUTION

- Measurement of water level fluctuations to assess impact of mining activity on the water table depletion in close proximity of dug wells and bore wells.
- Regular monitoring and analysis of water samples at strategic locations will be carried out to monitor the water quality of the area.
- Rainwater harvesting (percolation tank) has been proposed to be established in nearby village for augmenting ground water resources and for arresting/ reversing the declining trends of ground water levels.
- Domestic sewage to the tune of 1.0 KLD will be channelized to the Mobile toilet fitted with Modular septic tank.
- Regular sprinkling of water from hired water tankers in the haul roads will be done to arrest the dust.

AIR POLLUTION

<u>Unpaved Roads</u>

- Water sprinkling will be done for dust suppression.
- Leveling of roads will be done to maintain the uniform speed of the trucks/ tippers.

<u>Paved Roads</u>

- The roads will be maintained.
- Regular cleaning will be done to reduce the chances of road dust to become airborne.
- Water sprinkling will be done on a fixed stretch of paved road passing through the villages.

- Adequate transportation routes will be decided to transport the mineral and will be maintained properly.
- Speed breakers will be constructed to restrict the speed of transporting vehicles. However, limiting of vehicular speed will be adopted.

Transportation

- The vehicles will be maintained to control the air emissions.
- The speed of the vehicles will be maintained uniform.
- PUC certified vehicles will be used.
- The loaded vehicles will be covered with tarpaulin.
- Over loading will be avoided.

Other Measures

- Personal Protective Equipments like dust mask, ear plugs, ear muffs etc. will be provided to the persons/ workers.
- Regular monitoring and analysis will be carried out through collection of air samples from strategic monitoring sites. If the parameters go beyond the permissible tolerance limits, corrective regulation measure will be taken.

NOISE POLLUTION

- Noisy activities will be scheduled at normal working hours (daytime hours) to the extent possible when the environment is least sensitive to noise impact.
- Regular inspection and maintenance of vehicles and equipment will be performed to ensure efficiency and worn parts will be replaced.
- Limited numbers of equipments will be used on-site.
- The vehicles will be maintained in good condition and overloading will be avoided.
- Speed limits will be enforced in relation to road conditions and on-route communities.
- Road surfaces will be maintained in good condition to reduce tyres noise and to assure continuous traffic flow to avoid prolonged idling.
- Noise monitoring will be conducted on a regular basis to determine compliance with noise criteria.
- Personal protective devices i.e., earmuffs and earplugs will be provided to workers, working in high noise areas.

OCCUPATIONAL HEALTH AND SAFETY

Heat & Light

- The mine site will have adequate drinking water supply so that workers do not get dehydrated.

- Lightweight and loose-fitting clothes having light colors will be preferred to wear.
- Rigorous exercise and more physical activities will be avoided in hot weather.

Noise

- Noise exposure measurements will be taken to determine the need for noise control strategies.
- The personal protective equipment will be provided for mine workers.
- Supervisor will be instructed for reporting any problems with hearing protectors or noise control equipment.
- At noisy working activity, exposure time will be minimized.
- Machineries will be labeled with noise levels.

Dust Control

- Dust generating sources will be identified and proper control measure will be adopted.
- Face mask will be provided during mining activity.
- Periodic medical examinations will be provided for all workers.
- Awareness program will be organized for workers.

Medical Examination Schedule

- All workers will be subjected to Initial Medical Examination at the time of appointment.
- Periodical Medical Examination will be conducted at least once in five years. All the examination stated in Form – O under Rule – 29 – B as per Mines Rule' 1955 will be carried out.

SOCIO-ECONOMIC

- Direct employment to the 26 local people which help to sustain their livelihood.
- During the operational phase by the implementation of certain CSR activities indirect employment will also generate.
- Improved livelihood.
- Training will be provided to the local persons.
- Awareness programme will be organized.

BIOLOGICAL

- Mining activities will not cause any harm to riparian vegetation cover as the working will not extend beyond the offset left against the banks.
- The lease area is devoid of any vegetation. Hence, it is proposed to develop social forestry in the approach villages at public places like School, PHC's, Panchayat

Bhawan with due permission from Panchayat and in consultation with Forest Department/ local authorities.

- A total of about 3,000 trees of native species along with some fruit bearing and medicinal trees will be planted at various places in a span of three years.
- Provision of planting vetiver grasses in the river bank is also proposed which will be done after the plan period of the lease.

The green belt development will be carried out by Project Proponent and maintenance will be done by the villagers/ NGO's with their active participations.

8.0 ENVIRONMENTAL ACTION PROGRAMME

The Project Proponent (M/S Shree Balajee) is quite conscious of its responsibility for maintaining clean and a healthy environment. The management is also keen to modify and make more efficient measures towards suppression of pollution sources. Adequate fund for Pollution Control Measures are provided as a part of overall project financing to ensure the availability of proper treatment facilities. The overall investment (in form of recurring cost) in the project is assumed to be Rs. 21.30 lacs. This cost will be spending phase wise along with the growth of project. The breakup of the proposed cost for Environment Management Programme is given as under: -

Table 8.0: Provision for Environmental Protection Measures

S. No.	Particulars	Capital Cost (Rs. In Lacs)	Recurring Cost/Annum (Rs. In Lacs)
I.	**Air Pollution Control & Management**		
	Regular Maintenance of Vehicles	0.0	1.0
	One Atomized nozzle mounted on tanker for water sprinkling on haul roads.	0.0	2.0
II.	**Water Pollution Control, Management & Conservation**		
	Mobile Toilet with modular septic tanks	5.0	1.0
III.	**Ecological and Bio-diversity**		
	Plantation (Phase wise development during course of mine within first three years)	0.30	1.30
	Planting Vetiver grass along the river bank	1.0	0.0
IV.	**Rain Water Harvesting Structure**		
	Construction of Rain water Harvesting Structure within consultation of PHED Department	5.0	0.2
V.	**Replenishment Studies**		
	Conducting pre-monsoon and post-monsoon replenishment study	0.0	1.5
VI.	**Social Aspects**		
	Environmental Awareness Program (Vocational Training, Health checkup camps etc.)	0.0	1.0
VII.	Community Development Activities		
	Actions to be taken under Environmental Social Responsibility in form of Community Development Activities - • Repairing of community building in Pipliya • Providing cold water coolers in Government School of Biriyakhedi Khurd. • Providing benches for sitting in Government Community Health Centre of Paroliya • Repairing of public toilets in the nearby areas.	10.0	0.5
	Total	**21.30**	**8.50**

9.0 CONCLUSION

The EIA/ EMP study was conducted as per the standard TOR. Baseline data of land, air, water, noise, biological and socio-economic environment was duly assessed by conducting field investigation as well as by having an access to the available secondary information. The prediction of impacts was identified & evaluated and are suggested to mitigate the environmental concerns. An EMP prepared, which is dynamic, flexible and subject to periodic review.

This will bridge the gap between supply and demand of mineral not only in the region but also State. This will also generate much needed employment to the local people. Economy of the area will get a boost and there will overall be growth of the region in terms of education, health, training, transport, automobile, industry. The standard of living accordingly will also get an up-liftment on the positive side. Thus, the project is contributing to the marginal social benefit.

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