

EXECUTIVE SUMMARY

PROJECT DESCRIPTION

District Survey Report of District SBS Nagar has been approved by State Environment Impact Assessment Authority (SEIAA) vide letter No. SEIAA/MS/2023/212 dated 02/02/2023. As per approved DSR, the proposed project involves mining of minor mineral i.e. sand from the bed of river Sutlej (PO_SN_NS_ST_34_35) in village- Behloor Khurd and sand from the bed of river Sutlej (PO_SN_NS_ST_36_37_37A_38_39) in village- Phol Makauri, Tehsil- Nawashehar, District- SBS Nagar, State Punjab from an area of 10.38 Ha for site 34 & 35 and 6.20 Ha for site 36, 37, 37A, 38 & 39. Hadbast No. for Behloor Khurd: 256; Khasra No. (Site-no.34)- 5//22, 23, 24, 25, 10//5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 24, 25, 11//1, 2, 3, 5, 8, 9, 10, 11, 12, 13, 19, 20, 21, 12//1, (Site-no.35) 11//16, 17, 23, 24, 25, 14//1, 2, 15//5. & Hadbast No. for Phol Makauri: 257, 268; Khasra No. 15//12/(8-0), 19(8-0), 22(8-0), 19//1(8-0), 2(8-0), 20//6(8-0), 20//7(8-0), 15//7 min(7-11), 13 min(8-0), 17 min(8-0), 23 min(8-0), 15//6 min(4-0), 15 min(4-0), 16 min(4-0), 17//10 min(1-16), 11 min(1-16), 12//6(8-0), 7(8-0), 13//4(8-0) 5(8-0), 9(8-0), 11/1(4-0), 11/2(4-0), 12(8-0), 14//4(8-0), 5.

The sand is in high demand in the local market; it is basically used for commercial (construction) or public purpose.

Year wise development and production for three years for Behloor Khurd site 34_35:

Table 1 Production during 1st Year

Site No.	Mineable Area (M ²)	depth (m)	Reserves in Tonnes	
			Total Mineable Reserves (Tonnes)	Recoverable Reserves (Tonnes) (40% of Mineable Reserve)
34	75446	0.76	89448	35779
35	10324	2.95	47511	19004
Total	85770		136959	54783

Table 2 Production during 2nd Year

Site No.			Reserves in Tonnes



	Mineable Area (M ²)	depth (m)	Total Mineable Reserves (Tonnes)	Recoverable Reserves (Tonnes) (40% of Mineable Reserve)
34	75446	0.76	89448	35779
35	10324	2.95	47511	19004
Total	85770		136959	54783

Table 3 Production during 3rd Year

Site No.	Mineable Area (M ²)	depth (m)	Reserves in Tonnes	
			Total Mineable Reserves (Tonnes)	Recoverable Reserves (Tonnes) (40% of Mineable Reserve)
30	75446	0.76	89448	35779
32	10324	2.95	47511	19004
Total	85770		136959	54783

Table 4 Production of sand in three year

Year	RESERVES	
	Total Mineable Reserves (Tonnes)	Recoverable Mineable Reserves (Tonnes) (40% of Mineable Reserve)
First	136959	54783
Second	136959	54783
Third	136959	54783
Total	4,10,877	1,64,349



For Behloor Khurd site 34 & 35 it is proposed to produce about 1,64,349 tonnes of sand in three years and accordingly average proposed production for yearly shall be 54,783 tonnes/Annum.

Year wise development and production for three years for Phol Makaori/Saidpur 36_37_37A_38_39:

Table 5 Production of sand in 1st year

Site No.	Mineable Area (M ²)	Depth (m)	Reserves in Tonnes		
			Total Reserves (Tonnes)	Mineable Reserves (Tonnes)	Recoverable Reserves (Tonnes) (40% of Mineable Reserve)
36	11267	2.95	51850		20740
37	13447	1.05	22026		8810
38	3543	0.89	4919		1967
39	11973	0.58	10833		4333
	Total		89628		35850

Table 6 Production of sand in 2nd year

Site No.	Mineable Area (M ²)	Depth (m)	Reserves in Tonnes		
			Total Reserves (Tonnes)	Mineable Reserves (Tonnes)	Recoverable Reserves (Tonnes) (40% of Mineable Reserve)
36	11267	2.95	51850		20740
37	13447	1.05	22026		8810
38	3543	0.89	4919		1967
39	11973	0.58	10833		4333
	Total		89628		35850



Table 7 Production of sand in 3rd year

Site No.	Mineable Area (M ²)	Depth (m)	Reserves in Tonnes		
			Total Reserves (Tonnes)	Mineable Reserves (Tonnes)	Recoverable Reserves (Tonnes) (40% of Mineable Reserve)
36	11267	2.95	51850		20740
37	13447	1.05	22026		8810
38	3543	0.89	4919		1967
39	11973	0.58	10833		4333
	Total		89628		35850

Table 8 Production of sand in three year

Year	RESERVES		
	Total Reserves (Tonnes)	Mineable Reserves (Tonnes)	Recoverable Reserves (Tonnes) (40% of Mineable Reserve)
First	89628		35850
Second	89628		35850
Third	89628		35850
Total	268884		107550

For Phol Makauri site 36, 37, 38 & 39 it is proposed to produce about 1,07,550 tonnes of sand in three years and accordingly average proposed production for yearly shall be 35,850 tonnes/Annum.

Table 9 Production of sand in three year total for both Sites

Year	RESERVES		
	Total Reserves (Tonnes)	Mineable Reserves (Tonnes)	Recoverable Reserves (Tonnes) (40% of Mineable Reserve)
First	1,36,959 + 89,628 = 226587		54,783 + 35850 = 90,633
Second	1,36,959 + 89,628 = 226587		54,783 + 35850 = 90,633
Third	1,36,959 + 89,628 = 226587		54,783 + 35850 = 90,633



Total	6,79,761	2,71,899
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Therefore, this total project is proposed to produce about 2,71,899 tonnes of sand in three years and accordingly average proposed production for yearly shall be 90,633 tonnes/Annum.

Proponent & Address:

As per Chief Engineer/Drainage & Mines and Geology, Punjab office Memo No.5598-5602 dated 05.09.2022, Executive Engineer- cum- District Mining Officer, SBS Nagar has been nominated as Project proponent and authorized to carry out mining operation in District SBS Nagar.

Address: XEN/DMO, Drainage cum Mines and Geology WRD Punjab, Canal Colony Kapurthala Road, SBS Nagar.

Table 10 Brief Details of Project

S. No.	Particulars	Description																					
A	Mining Lease & Location Details																						
1.	Name of the Project	Sand Mining Project, (Village- Behloor Khurd (Site 34 & 35) and Phol Makauri (Site 36, 37, 38, 39) District- SBS Nagar, State Punjab by Executive Engineer/SBS Nagar, Drainage cum Mines and Geology WRD Punjab)																					
2.	Location																						
a.	Villages	Behloor Khurd & Phol Makauri/Saidpur																					
b.	District	SBS Nagar																					
c.	State	Punjab																					
3.	Lease Area Coordinate	<table border="1"> <thead> <tr> <th>Pillar No.</th> <th>Latitude</th> <th>Longitude</th> </tr> </thead> <tbody> <tr> <td colspan="3">Behloor Khurd (Site 34, 35)</td> </tr> <tr> <td colspan="3">PIT-1</td> </tr> <tr> <td>1</td> <td>30°59'58.81"N</td> <td>76°10'35.14"E</td> </tr> <tr> <td>2</td> <td>30°59'59.83"N</td> <td>76°10'36.09"E</td> </tr> <tr> <td>3</td> <td>31° 0'1.13"N</td> <td>76°10'40.69"E</td> </tr> <tr> <td>4</td> <td>31° 0'2.15"N</td> <td>76°10'47.63"E</td> </tr> </tbody> </table>	Pillar No.	Latitude	Longitude	Behloor Khurd (Site 34, 35)			PIT-1			1	30°59'58.81"N	76°10'35.14"E	2	30°59'59.83"N	76°10'36.09"E	3	31° 0'1.13"N	76°10'40.69"E	4	31° 0'2.15"N	76°10'47.63"E
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4	31° 0'2.15"N	76°10'47.63"E																					



5	31° 0'3.91"N	76°10'54.14"E
6	31° 0'1.29"N	76°11'1.76"E
7	31° 0'1.42"N	76°10'56.18"E
8	31° 0'2.97"N	76°10'56.13"E
9	31° 0'2.94"N	76°10'53.33"E
10	30°59'58.33"N	76°10'53.29"E
11	30°59'54.89"N	76°10'47.27"E
12	30°59'53.83"N	76°10'43.64"E
13	30°59'57.13"N	76°10'41.85"E
14	30°59'57.04"N	76°10'36.29"E
PIT-2		
1	30°59'54.53"N	76°10'52.63"E
2	30°59'55.16"N	76°10'53.12"E
3	30°59'56.07"N	76°10'59.37"E
4	30°59'54.06"N	76°10'59.44"E
5	30°59'53.82"N	76°11'2.34"E
6	30°59'52.74"N	76°11'0.08"E
7	30°59'53.90"N	76°10'55.11"E
Phol Makauri (Site 36, 37, 38, 39)		
SITE-36		
1	30°59'51.60"N	76°10'15.85"E
2	30°59'51.53"N	76°10'20.50"E
3	30°59'49.18"N	76°10'22.99"E
4	30°59'48.32"N	76°10'22.98"E
5	30°59'47.46"N	76°10'20.71"E
6	30°59'47.41"N	76°10'19.88"E
SITE-37		
1	30°59'41.03"N	76°10'2.68"E
2	30°59'43.92"N	76°10'10.59"E
3	30°59'45.47"N	76°10'11.57"E



4	30°59'47.91"N	76°10'11.46"E
5	30°59'48.70"N	76°10'12.31"E
6	30°59'47.82"N	76°10'13.44"E
7	30°59'47.78"N	76°10'12.84"E
8	30°59'45.82"N	76°10'12.83"E
9	30°59'45.82"N	76°10'15.37"E
10	30°59'46.93"N	76°10'15.39"E
11	30°59'46.05"N	76°10'18.08"E
12	30°59'44.52"N	76°10'15.33"E
13	30°59'43.89"N	76°10'14.15"E
14	30°59'43.88"N	76°10'12.81"E
15	30°59'43.11"N	76°10'12.80"E
16	30°59'41.94"N	76°10'7.72"E
17	30°59'41.37"N	76°10'7.70"E
18	30°59'40.04"N	76°10'2.65"E
PITE-37A		
1	30°59'44.93"N	76° 9'59.25"E
2	30°59'45.92"N	76°10'1.48"E
3	30°59'45.93"N	76°10'3.01"E
4	30°59'43.98"N	76°10'1.49"E
5	30°59'43.99"N	76° 9'59.45"E
SITE-38		
1	30°59'43.44"N	76° 9'50.04"E
2	30°59'44.04"N	76° 9'52.17"E
3	30°59'44.02"N	76° 9'55.08"E
4	30°59'42.28"N	76° 9'53.80"E
5	30°59'42.17"N	76° 9'52.40"E
6	30°59'42.91"N	76° 9'50.03"E
SITE-39 (PIT 1)		
1	30°59'40.37"N	76° 9'26.02"E



		2	30°59'41.49"N	76° 9'29.76"E
		3	30°59'40.33"N	76° 9'29.77"E
		4	30°59'40.31"N	76° 9'32.27"E
		5	30°59'42.02"N	76° 9'32.37"E
		6	30°59'42.25"N	76° 9'34.85"E
		7	30°59'38.35"N	76° 9'34.81"E
		8	30°59'38.38"N	76° 9'29.75"E
		SITE-39 (PIT 2)		
		1	30°59'40.30"N	76° 9'37.34"E
		2	30°59'40.22"N	76° 9'39.87"E
		3	30°59'38.34"N	76° 9'37.37"E
		SITE-39 (PIT 3)		
		1	30°59'43.02"N	76° 9'37.40"E
		2	30°59'43.44"N	76° 9'42.41"E
		3	30°59'42.19"N	76° 9'41.34"E
		4	30°59'42.24"N	76° 9'37.40"E
4.	Lease Period of Mine	03 Years		
5.	Cost of the project	Behloor Khurd (Site 34, 35) - Rs. 2,30,08,860 (Approximate) Phol Makauri (Site 36, 37, 38, 39) - Rs 1,50,57,000 (Approximate) Total - Rs 3,80,65,860 (Approximately)		
6.	Man Power Requirement	Behloor Khurd (Site 34, 35) - 30 Nos. Phol Makauri (Site 36, 37, 38, 39) - 20 Nos. Total - 50 Nos.		
7.	Water Requirement & Source	Type	Site 34, 35	Site 36, 37, 37A 38, 39
		Domestic	1.35 KLD	0.9 KLD
		Dust Suppression	1.2 KLD	1.2 KLD
		Total Water Requirement	2.55 KLD	2.10 KLD
		Total	4.65 KLD	



		Source: water tankers.
B	Environmental Settings	
8.	Elevation(RL)	The highest level is 247 mRL and lowest level is 244 mRL for both mining sites.
9.	Nearest National Highway / State Highway	Machhiwara - Rahon Highway - 2.24 Km
10.	Nearest Railway Station	Rahon Railway Station, approx.. 9.08 km towards North
11.	Nearest Airport	Nearest Airport – Ludhiana airport is approx. 26.08 km towards SW direction
12.	Ecological Sensitive Areas (Wildlife Sanctuaries)	None
13.	Reserved/Projected Forests	Mattewara Reserved Forest is about 15.73 km in West
14.	Nearest Village/Town/City	Sainsowal Khurd, 0.92 km S and Rahon, 7.65Km km NW
15.	Nearest River	Sutlej River
16.	Seismic Zone	Zone IV



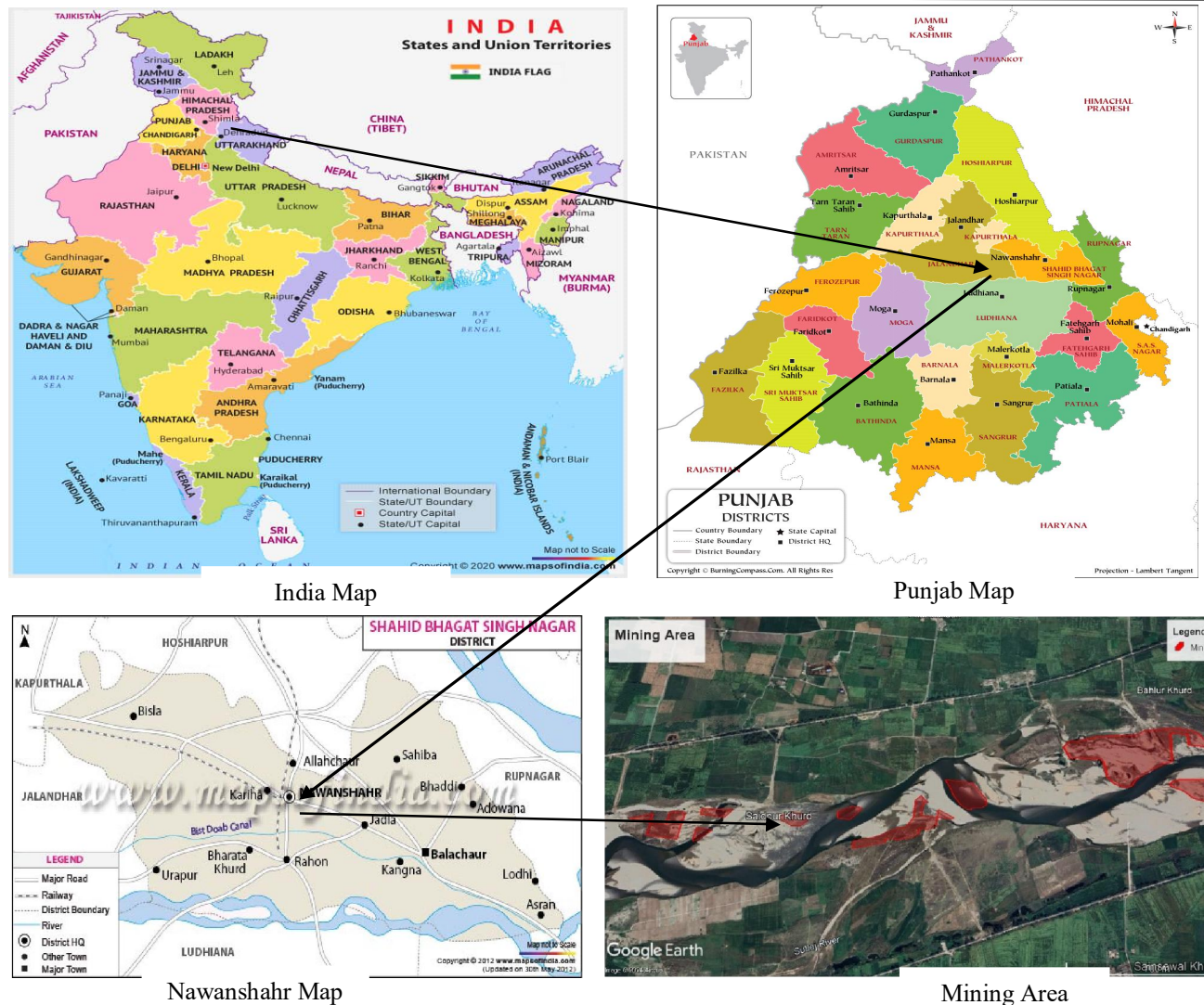


Figure 1 The Proposed Project Location

STATUS OF REGULATORY CLEARANCES OF THE PROJECT

The Mining plan has been approved by Assistant Geologist, Mines & Geology, Water Resources Department, Punjab, Chandigarh vide Memo No. Glg/Pb/M.P/Behloor Khurd/2784 & Glg/Pb/M.P/Phol Makauri - Saidpur/241 dated 10.11.2023 & 21.02.2024 respectively. There is no National Park, Wildlife Sanctuary & National Monument, within core zone or 10 km radius of the ML area. There is no legal issue against the project in the court of law.

METHOD OF MINING

The mining proposed by opencast semi- mechanized method without drilling and blasting. The minor mineral i.e. sand is proposed to be excavated by backhoe type excavator/JCB and directly loading in to trucks/dumpers & dispatch to market. The loading of the mineral shall be mechanical while transport of mineral from river bed shall be done by private trucks/ dumper operators. The



mining plan has been prepared for three years. River bed mining is for extracting sand from River bed. Area is 10.38 Ha for site 34 & 35 and 6.20 Ha for site 36, 37, 38 & 39 whereas proposed minable area is 8.54 Ha and 4.02 Ha respectively after leaving the safety zone of the proposed lease. Mining activity will be carried out in allocated areas only. There will be no OB or waste generation as the sand is exposed on the river bed.

Mining shall be carried out by systematic manner so that there would be no obstruction to the movement of water flow. Sand will be excavated in slices of 1 metre thickness upto a depth of Mining Depth: 2.95 m (Site No. 36), 1.05 m (Site No. 37), 0.89 m (Site No. 38), 0.58 m (Site No. 39) (as per DSR report) for site Phol Makaori – Saidpur & 0.76 m (Site No. 34), 2.95m (Site No. 35) (as per DSR report) for site Behloor Khurd. Sand deposit falls in replenish able area of the river bed. The height of slices of layer will be kept 1 m each with face slope of 45 degrees. 7.5 m barrier zone will be provided along with the lease boundary as stated under MMR 1961. No mining will be done during the rainy season (monsoon season). A distance of 3m or 10% of width of river whichever is more to be left intact as no mining zone. Mineral extraction will be done for a period of about 270 days in a year. No mining will be done in rainy season.

DESCRIPTION OF THE ENVIRONMENT

The entire proposed mine lease area is considered as core zone. The surrounding area covering 10 km radius from the periphery of the core zone is considered as buffer zone. The study area covers 10 km radius of the Sand Mining Project located at Village- Behloor Khud & Phol Makauri, Tehsil Nawashehar, District-SBS Nagar, State-Punjab. The climate of district is characterised by dryness except in the brief monsoon season, a very hot summer and a bracing winter. The cold season is from about the middle of November to the early part of March. The succeeding period up to about the end of the June is the hot season. July, August and first half of September constitute the south-west monsoon. The period from mid-September to about the middle of November may be termed the post-monsoon or transitional period.

The base-line data has been collected in the summer season from April to June 2023 in the project site and 10 km buffer zone for prominent environmental attributes like Ambient Air Quality, Ambient Noise Level, Water quality and Soil profile. In order to get an idea about the existing state of the environment, various environmental attributes such as meteorology, air quality, water quality, soil quality, noise level, ecology and socio-economic environment have been studied/monitored. The results of all the parameters were found within the prescribed limits.

ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Based on the Baseline Environment, environmental impacts of the mining activity on the surrounding environment are described in following sub-sections.

Impact on Land Use Pattern and Mitigation Measures

Sand mining activities result in surface degradation due to road network and river bank erosion. But by adopting the following mitigation measures, the impact will be minimized:

- Road will be maintained in good condition by using local earth material.
- Regular levelling of transportation route.
- Sand mining will create temporary activity in the dry river bed, which will be replenished during monsoon.
- The mining will not be carried out below the river water level.

Impact on Air Quality and Mitigation Measures

The mining operations, loading, and transportation operations may cause deterioration in air quality. Semi mechanized mining method shall be adopted for the mining of sand and following mitigation measures will be implemented:

- Loaded vehicles will be covered with tarpaulin.
- PUC certified vehicles will be used.
- Overloading will be avoided.
- Plantation will be carried out along the approach road and vicinity area.
- Periodic air quality monitoring will be done and adequate measures will be done.

Impact of Noise Levels and Mitigation Measures

Noise level will increase due to transportation. To minimize the impact of noise, following mitigation measures will be adopted:

- Proper maintenance of vehicles will be done on regular basis.
- Necessary Personnel protective equipment will be provided to the workers.
- Adequate silencers will be provided in all the diesel engines of vehicles.
- Minimum use of horns and speed limit of 10km/hr in the village area.
- Plantation will be carried out along the approach road and vicinity area.

Impact on Water Resources and Mitigation Measures

No waste water is generated from the mining activity of minor mineral. However, following mitigation measures will be adopted:

Surface Water Resources

- There is a possibility of mixing of freshly disturbed material with the rain water. To take care of such happenings, retaining walls will be provided along the backfilled pits which will be used as a water reservoir for rain water.
- Monitoring of water will be carried out periodically. Water analysis will be carried out seasonally.

Groundwater Resources

- Regular monitoring of water levels and quality in the existing open wells and bore wells in the vicinity will be carried out. If found necessary, additional observation wells will be sunk for monitoring the water levels and quality around the mine representing both upstream and downstream conditions. In addition to this, following mitigation measures will also be adopted:
- River streams will not be diverted to form inactive channels.
- Groundwater will not be intersected during mining activities.
- Mobile toilets will be made available near mine's office away from the river.
- Washing of vehicles in the river will be prohibited.

Impact on Biological Environment and Mitigation Measures

- Ecological impact on aquatic life, flora and fauna and surrounding habitat due to fugitive emission. Following mitigation measures will be adopted:

Flora

- Pollutant like dust, gaseous emanations will be minimized at the generation point itself and adequate measures will be taken to prevent their impact on environment.
- There is no forest in the core zone of mining lease area. So, there will be no deforestation due to mining.
- The mining lease area is devoid of vegetation. So, the greenery to be developed under green belt development programme in the village panchayat land and along the approach road will improve the floral environment of the area.

Fauna

- No mining will be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season.
- The lease area is not inhabited by any wild life, as there is no forest cover, hence there will not be any effect on migration or extinction of wildlife.

Socio-Economic Profile

The social demographic profile of the area is not likely to be much affected, as there is no displacement of people due to the project. The mining in the area has created rural employment. The mining activity in the region has positive impact on the social economic condition of the area by providing employment to the local inhabitants; wages paid increase the per capita income.

ENVIRONMENTAL MONITORING PROGRAMME

Following table depicts the monitoring schedule for environmental parameters:

S.No.	Particulars	Parameters for Monitoring	Duration of Station	Monitoring Frequencies	Location
1	Air Emission	PM ₁₀ , PM _{2.5} , SO ₂ , NO _x and CO	24 hr	Twice a week	One location inside and One outside
2	Noise	Spot Noise level recording Leq (day), Leq (night), Leq (dn)	8 hr	Once in a month (Day/ Night)	One location inside and One outside
3	Surface & Ground Water	Physical, Chemical	Grab	Quarterly	One location Surface water and One Location Ground Water
4	Soil Sampling	Physico - chemical parameters and metals	Grab	Twice in a year	One location inside and One outside

ADDITIONAL STUDIES

Risk Assessment

The complete mining operation will be carried out under the management control and direction of a qualified mine manager holding Mines Manager's Certificate of Competency. Moreover, mining staff will be sent to refresher courses from time to time to keep them updated.

Disaster Management Plan



Emergency preparedness is an important aspect in the planning of Disaster Management. Personnel would be trained suitably and prepared mentally and physically in emergency response through carefully planned, simulated procedures. Similarly, the key personnel and essential personnel shall be trained in the operations.

Public Hearing

As per Terms of Reference (TOR) issued for Behloor Khurd site from SEIAA vide letter No. SEIAA/PB/MIN/2023/TOR/52 & dated 14.12.2023. under EIA Notification of the MoEF dated 14-9-2006, as amended from time to time, public hearing has to be conducted.

PROJECT BENEFITS

The impact on the civic amenities will be substantial after the commencement of mining activities. Medical facilities will be provided in the form of first-aid facility at the mine. These medical facilities will also be available to local people in the surrounding in case of emergencies.

- Generation of employment and improved standard of living;
- Increased revenue to the State by way of royalty, taxes and duties; and
- Superior communication and transport facilities etc.

The employment of local people in primary and secondary sectors of project will upgrade the prosperity of the region.

ENVIRONMENT MANAGEMENT PLAN

The summary of environmental management plan is given below:

Table 11 EMP

S.No.	Parameter	EMP
1	Land Environment	Fugitive emission shall remain confined locally within working area and emission at haul road will be controlled by water sprinkling and plantation.
2	Air Environment	Water spraying will be done for dust suppression. Trucks will be covered with tarpaulin to stop dust emission. PUC Certified Trucks will be deployed for transportation.
3	Water Environment	Mining will not interfere with the ground water table.
4	Noise Environment	Minimum use of Horns near the village area. Use of loud sound systems in transport vehicles will be



		prohibited.
5	Biological Environment	Awareness program will be conducted for labours to sensitize them about importance of biological environment
6	Health & Safety	Labours will be made aware of the ways of working and safety measures. Medical facilities & first aid boxes along with anti-venom will be provided in the mine premises. Health Awareness Programmes and camps shall be arranged for local villagers.

