EXECUTIVE SUMMARY

OF

ENVIRONMENTAL MANAGEMENT PLAN REPORT

OF

BHIROD SAND QUARRY

At

Village: Bhirod,

Tehsil: Charama,

District: Uttar Bastar Kanker

State: Chhattisgarh

Area: 9.00 Ha,

Proposed average Capacity: 1,80,000 cum per annum

APPLICANT

Ms. Suman Banjare

District – Durg (Chhattisgarh)

Prepared By

M/s Amaltas Enviro Industrial Consultants LLP (AEC)
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(An ISO 9001:2008 Certified Co.)

Credentials: Accredited by QCI/NABET

1.0 INTRODUCTION

The sole purpose of the Environmental Impact Assessment report is to assess beneficial and adverse impacts of the project on existing environmental system and to propose appropriate pollution control measures. Thus, the EIA report is a summarized presentation of environmental consequences of the project activity so that all the factors are considered before making a decision.

Economic, social and environmental change is inherent to development. Whilst development aims to bring about positive change it can lead to conflicts. In the past, the promotion of economic growth as the motor for increased well being was the main development thrust with little sensitivity to adverse social or environmental impacts. The need to avoid adverse impacts and to ensure long term benefits led to the concept of sustainability. This has become accepted as an essential feature of development if the aim of increased wellbeing and greater equity in fulfilling basic needs is to be met for this and future generations.

Mankind, as it is developed today, cannot live without taking up developmental activities for his food, security and other needs. Consequently, there is a need to harmonize developmental activities with the environmental concerns. Environmental Impact Assessment (EIA) is one of the tools available with the planners to achieve the above mentioned goals.

An Environmental Impact Assessment (EIA) may be defined as:

"A formal process to predict the environmental consequences of human development activities and to plan appropriate measures to eliminate or reduce adverse effects and to augment positive effects".

EIA is an assessment of the possible impact—positive or negative—that a project may have on the environment, together consisting of the natural, social and economic aspects.''

The purpose of the assessment is to ensure that decision makers consider the ensuing environmental impacts when deciding whether to proceed with a project or not.

EIA, thus, has three main functions:

1. To predict problems/impacts
2. To find ways to avoid them, and
3. To enhance positive effects.

Law requires that every project proponent must take Environmental Clearance from MoEF & CC, New Delhi/State Environment Impact Assessment Authority (SEIAA) before starting up any

project. The environmental clearance is also mandatory for the expansion, modernization projects. The conditions are applicable as per the SEAC guidelines and EIA notifications issued and amended from time to time.

To keep the environment congenial for better standard of living, the provisions have been made in the constitution of India and many Enactments have taken place, so that, industrialization may not have adverse impact on the environment. There are many Acts / Rules / Notifications issued by SEAC, Chhattisgarh few of them are mentioned below:

1. Environment (Protection) Act, 1986;
2. Water (Prevention & Control of Pollution) Act, 1974;
3. Air (Prevention & Control of Pollution) Act, 1981;
4. Environmental Impact Assessment (EIA) Notification, dated 14th September¬ 2006 amended time to time.
5. Chhattisgarh Minor Mineral Concession Rules, 1996
6. Chhattisgarh Minor Mineral ordinary Sand (Quarrying and Trade) Rules, 2019.
7. The additional conditions imposed by Govt. of Chhattisgarh and ass the Ministry and Environment and Forest OM No.J-13012/12/2013-IA-II (I) dated 24.12.2013.
8. Sustainable Sand Mining Management Guidelines, 2016
9. Enforcement & Monitoring Guidelines for Sand Mining issued by MoEF & CC, Jan. 2020.

1.1 IDENTIFICATION OF PROJECT PROPONENT

Letter of Intent has been allotted in favor of Suman Banjare (Project Proponent) approved by Collector, District Uttar Bastar Kanker (CG) for Sand Quarry, Khasra No. – 111 and Vide No. 1237/Khanij/sand (reverse auction)/2020-21 dated 02.03.2021.

Terms of Reference have been awarded in favor of Suman Banjare (Project Proponent) by State Environment Impact Assessment Authority, Chhattisgarh for Bhirod Sand Mining and Vide Letter No. 1461/Mine/Bastar/1761 dated 28.09.2021 over an area of 9.00 Ha.

Mining Plan has been approved in favor of Suman Banjare (Project Proponent) by Mining Officer (Department of Geology & Mining, District Uttar Bastar Kanker (CG) for Sand Quarry, Khasra No.

111 and vide letter no. S.No./59/Khanij/Sand/2021-22 dated 13.05.2021

1.2.1 Project Nature, Size & Location

i. Nature

The proposed project is Bhirod Sand Quarry project. The method of mining is Semi Mechanized open-cast and Manual method both with helping of hand tools like shovel, pan, sieves, tippers, tractors, loader, excavator, etc.

ii. Size

The lease area is 9.00 Ha & the proposed capacity is 1, 80,000 M^3/Year.

iii. Location

The mining area is located in the Village: Bhirod, Tehsil: Charama, District: Uttar Bastar Kanker, State: Chhattisgarh.

Table No. 1.1 Latitude & Longitude of Lease Area

Particulates	Latitude	Longitude
A	20°29'26.10"N	81°23'3.44"E
B	20°29'17.55"N	81°23'12.66"E
C	20°29'13.45"N	81°23'26.77"E
D	20°29'10.53"N	81°23'26.75"E
E	20°29'12.72"N	81°23'17.10"E
F	20°29'16.92"N	81°23'7.57"E
G	20°29'22.93"N	81°22'59.52"E

Table No. 1.2 Salient Features of Project

Project Name	Bhirod Sand Quarry
Location of mine	Village : Bhirod Tehsil : Charama District : Uttar Bastar Kanker State : Chhattisgarh

Toposheet number	65H/7
Minerals of mine	Sand
Total Mineable reserves	3,60,000 M^3
Life of mine	2 years as per Approved Mining Plan
Proposed average production of mine	1,80,000 M^3/Year
Ownership of land	Government land
Method of mining	Open - Cast Semi Mechanized
No of working days	240 days/Year
Water demand	Total water requirement is about 7.34 KLD = 0.54 KLD (Drinking & Domestic Uses) + 4.8 KLD (Plantation) + 2.0 KLD (Dust Suppression).
Sources of water	Third Party
Man power	Supervisor – Skilled – 02 Loaders – Unskilled – 44 (Considering an OMS of 10 M^3 Total – 46 **Note-** Number of Daily workers will be increase or decrease as for sand demand.

Table 1.3: Environment Sensitivity

S. No	Particulates	Name of Places	Distance (Km)	Direction
1.	Nearest Airport	Swami Vivekanand International Airport, Raipur	85.45	NNE
2.	Nearest Railway Station	Salhaitola	31.91	West
3.	Nearest Bus Stand	Bus Stand Charama	2.00	WNW
		Bus Stand Prathikya	2.05	WNW
4.	Nearest State Highway/Any other road	Charama Road SH-6	2.96 20.54	ESE S
5.	Nearest National Highway	NH-30	1.26	WSW

6.	Nearest School/College	Sarashwati Shishu Mandir Charama	1.31	WSW
		Govt. Girls School	1.43	W
7.	Nearest Temple	Shiv Temple	3.15	ENE
		Shiva Mandir, Bhirod	0.71	NNE
8.	Nearest Hospital	Mahendra Sinha Hospital	0.21	NNE
		CHC Charama	1.60	WNW
9.	Nearest Police Station	Police Station, Charama	1.65	WNW
10.	Nearest Fire Station	Fire Brigade Office Kanker	25.37	SSE
11.	National Border	Orissa – Chhattisgarh	71.80	SE
12.	International Border	No International Border present in 10 km around project site		
13.	Nearest Pond	Ganrel Reservoir	3.97	NNE
14.	Nearest River/Nallah/Canal	Project lies on Mahanadi River		
15.	Wild Life Sanctuary	Sitanadi Wildlife Sanctuary	36.79	East
16.	Reserved Forest	No Reserved Forest present in 10 km around project site		
17.	Protected Forest	No Protected Forest present in 10 km around project site		
18.	Wetland	No Wetland present in 10 km around project site		

1.2 GREEN BET PLANT

Plantation programme will be carried out side boundary limit of lease area on the both the banks of Mahanadi River in consultation with Soil Conservation Department.

Year- wise plantation programme for first five years is given as under:

Phase	Name of Tree	No. of Plants to be Planted	Location	Rate of Survival
1st Year	Arjun, Jamun, Mango	2250	➢ Both sides of Approach Road-419 ➢ Village/School/Panchayat Area -768 ➢ Distribution of saplings = 1063	80%
2nd Year	Arjun, Jamun, Mango	2250	➢ Both sides of Approach Road-419 ➢ Village/School/Panchayat Area -768 ➢ Distribution of saplings = 1063	

The following characteristics should be taken into consideration while selecting plant species for green belt development and tree plantation.

- They should be fast growing and tall trees.
- They should be perennial and evergreen.
- They should have thick canopy cover.
- Plantation should be done in appropriate alternate rows around the proposed site to prevent lateral pollution dispersion.
- The trees should maintain regional ecological balance and conform to soil and hydrological conditions. Indigenous species should be preferred.
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1.3 BASE LINE DATA

This section contains the description of baseline studies of the 10 Km radius of the area surrounding "Stone Quarry Project". The data collected has been used to understand the existing environment scenario around the proposed mining project against which the potential impacts of the project can be assessed.

Environmental data has been collected in relation to propose mining for:-

(a) Land

(b) Water

(c) Air

(d) Biological

(e) Noise

(f) Socio-economic

1.4 AMBIENT AIR QUALITY

The results of AAQ are given in Annexure, the results when compared with National Ambient Air Quality Standards (NAAQS) of Central Pollution Control Board (CPCB) for "Residential, Rural and Industrial Areas" show that the average values of ambient air quality parameters are well within the stipulated limit.

The minimum and maximum level of PM_{10} recorded within the study area was in the range of 63.45µg/m^3 to 86.22µg/m^3. $PM_{2.5}$ recorded within the study area was in the range of 35.61 µg/m^3 to 56.48 µg/m^3. The minimum and maximum level of SO_2 recorded within the study area was in the range 8.45µg/m^3 to 16.18µg/m^3. The minimum and maximum level of NO_2 recorded within the study area was in the range of 20.12µg/$m^3$to 30.64µg/m^3.

1.5 NOISE ENVIRONMENT

The values of noise observed in some of the areas are primarily owing to vehicular traffic and other anthropogenic activities. Assessment of hourly night time Leq (Ln) varies from 40.1dB (A) to 52.6 dB (A) and the hourly daytime Leq (Ld) varies from 52.4dB (A) to 59.7 dB (A) within the study area.

1.6 WATER ENVIRONMENT

The water quality in the impact zone was assessed through physico- chemical and bacteriological analysis of ground and surface water samples. The results have been compared with the drinking water quality standards specified in IS: 10500. It was observed that all the physico chemical parameters and heavy metals from surface and ground water samples are below stipulated drinking water standards.

All the ground water samples analyzed can be considered fit for drinking purpose in the absence of alternate sources.

Comparing the values of pH, DO, BOD and total coliforms with 'Use based classification of surface waters' published by Central Pollution Control Board; it can be seen that all the analyzed

surface waters can be compared with class "B" and can be used as "Outdoor bathing (Organized)".

1.7 SOIL ANALYSIS REPORT

Physical characteristics of soil were characterized through specific parameters viz bulk density, porosity, water holding capacity, pH, electrical conductivity and texture. Soil pH plays an important role in the availability of nutrients. Soil microbial activity as well as solubility of metal ions is also dependent on pH. In the study area, variations in the pH of the soil were found to be neutral (7.11 to 7.62). Electrical conductivity (EC) is a measure of the soluble salts and ionic activity in the soil. In the collected soil samples the conductivity ranged from 642 to 775µmhos/cm.

The soils with low bulk density have favorable physical condition where as those with high bulk density exhibit poor physical conditions for agriculture crops.

1.8 BIOLOGICAL ENVIRONMENT

The lease area as well as buffer zone area reveals no endangered and endemic species of flora and fauna in the area.

1.9 WATER REQUIREMENT

The total water consumption in the Mine is about 7.34 KLD. The water is used in the following purposes.

- For dust suppression & mining allied activity.
- For drinking & domestic consumption.
- For greenbelt development.

This water will be met from old bore well, hand pump and mine sump located in ML area.

The following table shows the water balance of the mine activity:

Table No. 1.3

WATER CONSUMPTION (KLD)

S. No.	Purpose	Water Requirement(KLD)
1.	Drinking & Domestic Use	0.54
2.	Green Belt/ Afforestation	4.8
3.	Development and Dust Suppression	2.0
	Total	**7.34**

1.10 SOCIO-ECONOMICS

The mine area does not cover any habitation. Hence the mining activity does not involve any displacement of human settlement. No public buildings, places, monuments etc exist within the lease area or in the vicinity. The mining operation will not disturb/ relocate any village or need resettlement. Thus no adverse impact is anticipated.

The impact of mining activity in the area is positive on the socio-economic environment of the region. Bhirod Sand Quarry is providing employment to local population and it will be give preference to the local people whenever there is requirement of man power.

1.11 OCCUPATIONAL HAZARDS AND SAFETY

Occupational safety and health is very closely related to productivity and good employer-employee relationship. The factors of occupational health in Bhirod Sand Quarry are mainly dust and land degradation. Safety of employees during operation and maintenance etc. shall be as per Mines rules and regulations.

To avoid any adverse effect on the health of workers due to various pollutants, sufficient measures relating to safety and health will also be practiced:

- Provision of rest shelters for mine workers with amenities like drinking water etc.
- All safety measures like use of safety appliances, such as dust masks, helmets, shoes, safety awareness programs, awards, posters, slogans related to safety etc.
- Training of employees for use of safety appliances and first aid in vocational training center.
- Regular maintenance and testing of all equipment as per manufacturers' guidelines.
- Periodical Medical Examination (PME) of all workers by a medical Officer
- First Aid facility is provided at the mine site.

- Close surveillance of the factors in working environment and work practices which may affect environment and worker's health.
- Working of mine as per approved mining plan and environmental plans.

1.13 ENVIRONMENTAL MANAGEMENT PLAN

The mining activities involve, excavation, loading, haulage and transportation of mineral. These activities lead to generation of air borne dust, which can cause air pollution in and around the mining lease area, if appropriate control measures are not taken. Similarly mining causes Land Degradation, Noise and Water Pollution etc. in the area.

In order to minimize impacts of mining on different environmental parameters and to keep air and water quality within prescribed limits of CPCB, a rapid Environmental Management Plan (EMP) is prepared to strictly follow it. This helps in resolving all environmental and ecological issues due to mining in the area. The environmental management plan includes all measures and safety precautions necessary for safe mining along with rehabilitation measures for mined out areas.

S. No.	Measures	Capital Cost (In Rs.)	Recurring Cost (In Rs.)
1.	Pollution control Dust Suppression	40,000	40,000
2.	Pollution Monitoring ➢ Air pollution ➢ Water Pollution ➢ Soil Pollution ➢ Noise Pollution	-- --	 12,000 12,000 12,000 12,000
Total		**40,000/-**	**88,000/-**

1.13.1 CORPORATE ENVIRONMENT RESPONSIBILITIES

S. No.	Project activity	Activities	Annual budget proposed by proponent (in lacs)
1.	Heath/drinking water facility	Free distribution of medicines, health check-up installation of hand pumps/Distribution of sanitizer's gloves & N95 masks to nearby village	1.00

2.	Electrification	Solar lamp distribution & solar street light installation in the village.	1.00
3.	Sanitation	Construction of ladies; toilets in the village	0.83
4.	Education	Distribution of school bags & books in nearby primary school education grants to girl child to check drop outs in schools.	1.00
5.	Rain water harvesting structure	Construction of rain water harvesting structure in the primary school nearby village.	0.83
6.	Public awareness programme	Awareness program on personal hygiene (covid 19) and distribution of mask and sanitizers	0.83
	Total		**5.49**

1.15 CONCLUSION

As discussed, it is safe to say that the project is not likely to cause any significant impact on the ecology of the area, as adequate preventive measures will be adopted to contain the various pollutants within permissible limits. Green belt development around the area will also be taken up as an effective pollution mitigates technique, as well as to control the pollutants released from the premises of the Proposed Mine.

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