EXECUTIVE SUMMARY

FOR

"PROPOSED SHER & SALHEBHATHA BRICK EARTH CLAY QUARRY MINING PROJECT & FIX CHIMNEY BRICK PLANT"

MINE LEASE AREA (SHER) = 6.93 HA.

MINE LEASE AREA (SALHEBHATHA) = 5.36 HA

TOTAL MINING LEASE AREA = 12.29 HA

TOTAL CLUSTER AREA-12.87 HA

AT

VILLAGE : - SHER & SALHEBHATHA, TEHSIL : - MAHASAMUND, DISTRICT : - MAHASAMUND (C.G.).

TOTAL PROPOSED PRODUCTION CAPACITY

EARTH CLAY 5,102 CUM. & 51, 02,000 Nos. OF BRICKS (SHER)

EARTH CLAY 5,102 CUM. & 51, 02,000 Nos. OF BRICKS (SALEHBHATHA)

TOTAL PRODUCTION 10,204.00 CUM & 1, 02, 04,000 No. Of BRICKS

PROJECT ACTIVITY- MINING OF MINERALS 1(a) (i)
PROJECT CATEGORY – B1 (DUE TO CLUSTER)
TYPE OF PROJECT – NEW

MONITORING PERIOD- 15 th MARCH, 2021 TO 15 th JUNE 2021

PROJECT PROPONENT	PROJECT PROPONENT
JIVRAJ CHANDRAKAR (Lease Owner) Address –City/P.O. Labharakhurd, Tehsil & District:- Mahasamund (C.G.) PIN - 493445 Email id :- 2021. Jivrajch andrakar @ gmai.com	BRIJLAL DIWAN (Lease Owner) Address – Village-Sher Tehsil & District :- Mahasamund (C.G.) PIN - 493445 Email id : - brijlaldiwan140@gmail.com

ENVIRONMENT CONSULTANT

M/S. ASERIES ENVIROTEK INDIA PVT. LTD
(QCI/NABET Accredited Consultant)
B-107, B Block, Sector 6, Noida, Uttar Pradesh 201301
E -mail: geocon.rpr@gmail.com
Contact - 9300672000

EXECUTIVE SUMMARY

1.0 INTRODUCTION

1.1 Project proposal

The Applied Mine leases are situated in Sher & Salehbhatha mining Cluster and are fresh leases. The Project Proponent of Sher & Salehbhatha mining Cluster are Shri Jivraj Chandrakar, and Shri Brijlala Diwan. The details about the client are given in ***Table 1-1***

Name	Sher Brick Earthclay Quarry Mine & Fix Chimney Brick Plant of Shri Jivraj Chandrakar	Salehbhatha Brick Earthclay Quarry Mine & Fix Chimney Brick Plant of Shri Brijlal Diwan	Total
Reference of TOR	663/ Mine/ Mahasa- mund / 1612/ Nawa Raipur Atal nagar, Raipur	659/ Mine/ Mahas amund/ 1608/Nawa Raipur, Atal Nagar, Raipur, dated 28/06/2021	-
Area	6.93 hect.	5.36 hect.	12.29 hect
Khasra No.	3615, 3618, 3649, 3650, 3651, 3652, 3658, 3661, 3662, 3663, 3722/1, 3664/1, 3664/2, 3666, 3596, 3722/2, 3723	158/1, 158/2, 158/3, 159,187, 188/1, 188/2, 188/3, 189, 190/1, 190/2, 190/3, 190/4, 190/5, 196,201, 202, 203,204, 205,	
Applied /ProductionCapacity	Earthclay 5,102 cum. & 51,02,000 nos. of Bricks per year	Earthclay -5,102 cum. & 51,02,000 nos. of Bricks per year	Earthclay - 10,204 cum. & 1,02,04000 nos. of Bricks per year
Village	Sher	Salehbhatha	
District	Mahasamund	Mahasamund	
LOI	1615/Ka/Utkhani Patta/Kha.li. Na. Kra.69/2019 Mahasamund dated: 10/11/2020	1919/Ka/Utkhani Patta/Kha.li./Na.Kra.68/2019 Mahasamund dated:- 24/12/2020.	**-**
	Extension letter no - 05/ khani 02/U.P. Anu. Nispa/ Na.kra. 50/ 2017 (4) Nawa Raipur Dated 01/01/2022.	Extension letter no - 04/ khani 02/U.P. Anu. Nispa/ Na.kra. 50/ 2017 (4) Nawa Raipur Dated 01/01/2022.	
NOC by Gram Panchayat	Gram Panchayat Sher dated 13/11/2019	Gram Panchayat Mongra dated 06/07/2020	**-**
NOC by Forest Office	Noc of forest office Mahasamund letter kramank/ma. Chi./3134 dated 03/06/2019	Noc of forest office Mahasamund letter kramank/ma. Chi./3131 dated 03/06/2019	**-**
Approval letter of Mine Plan	Letter No. - No.968/ Khani 02./Ma.Pla. Anumodan/ Na .Kra. 02/ 2019 (2) Nawa Raipur dated: - 12/02/2021	letter No. 970/ Khani-02./Ma.Pla.Anumodan/Na. Kra..02 / 2019(2) Nawa Raipur Dated:-12/02/2021	**-**
Geological Reserves	1,38, 600.00 cum	1, 07,200.0 cum.	2,45,800.00 cum
Mineable Reserves	**1,28,775.00 cum**	**97,391.00 cum**	2,26,166.00 cum

Recoverable Reserves	**1,26,199.50 cum**	**95,443.18 cum**	2,21,642.68 cum
Maximum Annual Mining Capacity	Earthclay 5,102 cum. & 51,02,000 nos. of Bricks per year	Earthclay 5,102 cum. & 51,02,000 nos. of Bricks per year	Earthclay - 10,204 cum. & 1,02,04000 nos. of Bricks per year
Cluster Area	12.87 hect	12.87 hect	-
Cost of Project	94.95 lac	48.78 lac	143.73lac

1.2 Terms of Reference

The application for the Terms of Reference for the proposed both two projects was considered in the 371th meeting of the Chhattisgarh. SEAC held on 28th May, 2021. Based on the submissions and presentation made by the project proponent in SEAC Raipur CG, & SEIAA has issued the TOR for the EIA study on vide letter No. 663/ Mine/ Mahasamund/ 1612/ Nawa Raipur Atal nagar, Raipur & 659/ Mine/ Mahasamund/ 1608/Nawa Raipur, Atal Nagar, Raipur, dated 28/06/2021.

2.0 PROJECT DESCRIPTION

2.1 Location & surrounding features

The Proposed Sher & Salhebhatha Brick Earthclay Quarry Mine & Fix Chimney Brick Plant Project of Near Village:–Sher & Salhebhatha, Tehsil & District:- Mahasamund (Chhattisgarh). The mining lease area is located in survey of India toposheet no. 64K/4. Geographical coordinates of different boundary pillars (BP) of the lease area are given in **Table-1**

Table 1 Detail of Co-ordinates

Sher Brick Earthclay Quarry Mine & Fix Chimney Brick Plant

BOUNDRY POINT	LATITUDE	LONGITUDE
BL1	21° 3'37.01"N	82° 6'48.75"E
BL2	21° 3'37.73"N	82° 6'52.29"E
BL3	21° 3'36.98"N	82° 6'52.46"E
BL4	21° 3'36.81"N	82° 6'53.50"E
BL5	21° 3'35.38"N	82° 6'53.76"E
BL6	21° 3'36.47"N	82° 6'56.06"E
BL7	21° 3'38.20"N	82° 6'55.62"E
BL8	21° 3'38.67"N	82° 6'57.63"E
BL9	21° 3'39.19"N	82° 7'3.11"E
BL10	21° 3'36.62"N	82° 7'3.16"E
BL11	21° 3'36.63"N	82° 7'1.71"E
BL12	21° 3'37.15"N	82° 7'1.50"E

BL13	21° 3'37.03"N	82° 7'0.70"E
BL14	21° 3'34.65"N	82° 7'0.79"E
BL15	21° 3'34.84"N	82° 7'2.35"E
BL16	21° 3'35.18"N	82° 7'4.16"E
BL17	21° 3'32.78"N	82° 7'4.17"E
BL18	21° 3'32.79"N	82° 7'2.51"E
BL19	21° 3'33.24"N	82° 7'2.51"E
BL20	21° 3'33.25"N	82° 7'1.72"E
BL21	21° 3'32.27"N	82° 7'1.67"E
BL22	21° 3'32.19"N	82° 7'4.10"E
BL23	21° 3'31.25"N	82° 7'4.06"E
BL24	21° 3'31.00"N	82° 7'2.01"E
BL25	21° 3'31.78"N	82° 7'2.09"E
BL26	21° 3'31.83"N	82° 7'0.11"E
BL27	21° 3'30.82"N	82° 7'0.03"E
BL28	21° 3'30.90"N	82° 6'52.93"E
BL29	21° 3'32.10"N	82° 6'53.81"E
BL30	21° 3'33.63"N	82° 6'53.47"E
BL31	21° 3'33.15"N	82° 6'51.53"E
BL32	21° 3'35.27"N	82° 6'50.51"E
BL33	21° 3'35.21"N	82° 6'49.26"E

Salehbhatha Brick Earthclay Quarry Mine & Fix Chimney Brick Plant

BOUNDRY POINT	LATITUDE	LONGITUDE
BL1	21°3'28.93"N	82°7'4.70"E
BL2	21°3'27.10"N	82°7'6.14"E
BL3	21°3'25.66"N	82°7'8.07"E
BL4	21°3'24.81"N	82°7'13.43"E
BL5	21°3'25.79"N	82°7'17.46"E
BL6	21°3'26.61"N	82°7'17.22"E
BL7	21°3'26.86"N	82°7'17.81"E
BL8	21°3'26.21"N	82°7'18.22"E
BL9	21°3'26.50"N	82°7'18.99"E
BL10	21°3'27.57"N	82°7'18.93"E
BL11	21°3'27.57"N	82° 7'18.62"E
BL12	21°3'28.49"N	82°7'18.38"E
BL13	21°3'28.62"N	82°7'18.52"E
BL14	21°3'29.04"N	82°7'18.45"E
BL15	21°3'28.73"N	82°7'16.41"E
BL16	21°3'27.36"N	82°7'16.26"E
BL17	21°3'27.05"N	82°7'13.80"E
BL18	21°3'26.70"N	82°7'13.72"E
BL19	21°3'27.66"N	82°7'10.37"E
BL20	21°3'28.93"N	82°7'10.90"E
BL21	21°3'28.33"N	82°7'12.28"E
BL22	21°3'29.17"N	82°7'13.57"E
BL23	21°3'29.89"N	82°7'12.95"E

BL24	21°3'30.76"N	82°7'14.24"E
BL25	21°3'32.84"N	82°7'13.53"E
BL26	21°3'32.79"N	82°7'12.14"E
BL27	21°3'32.69"N	82°7'12.07"E
BL28	21°3'32.70"N	82°7'10.20"E
BL29	21°3'32.83"N	82°7'9.96"E
BL30	21°3'32.17"N	82°7'6.84"E
BL31	21°3'31.07"N	82°7'6.58"E
BL32	21°3'30.87"N	82°7'6.76"E
BL33	21°3'29.41"N	82°7'6.68"E
BL34	21°3'29.31"N	82°7'6.23"E
BL35	21°3'28.80"N	82°7'5.70"E

Locations of environmentally sensitive & site connectivity objects in the area surrounding the project site are presented in Table-2

Table 2: Details of Environmental Sensitivity/ site connectivity

<table>
<tr><th rowspan="2">S. No.</th><th rowspan="2">Area</th><th colspan="2">Aerial Distance in Km and Direction from M.L area</th></tr>
<tr><th>Core Zone</th><th>Buffer Zone</th></tr>
<tr><td>1.</td><td>National Parks/ Wildlife Sanctuaries</td><td>Nil</td><td>Nil</td></tr>
<tr><td>2</td><td>Biosphere Reserves/ Tiger Reserves/ Elephant Reserves and any other reserves</td><td>Nil</td><td>Nil</td></tr>
<tr><td>3.</td><td>Forest (PF/RF/Unclassified) & Water body</td><td>Nil</td><td>
<table>
<tr><th rowspan="2">Particulars</th><th>Sher Bricks Earthclay Quarry Mine</th><th>SalehbhathaBricks Earthclay Quarry Mine</th></tr>
<tr><th colspan="2">Distance & Direction</th></tr>
<tr><td>Bagnai River</td><td>~3.60 Km, SouthWest</td><td>~3.40Km South-West</td></tr>
<tr><td>Keshwa Nallah</td><td>~155mtr , South</td><td>~145 mtr , South-east</td></tr>
<tr><td>Village Pond</td><td>~680 mtr, East</td><td>~365 mtr, north-west</td></tr>
<tr><td>Canal</td><td>~480mtr, North- East</td><td>~510 mtr, North.</td></tr>
<tr><td>Reservoir</td><td>~16.00 km, East</td><td>~15.60 km, East</td></tr>
<tr><td>Boriyajhar PF</td><td>~2.5 km, North</td><td>~2.5 km, North</td></tr>
</table>
</td></tr>
<tr><td>4</td><td>Habitat for migratory birds</td><td>Nil</td><td>Nil</td></tr>
<tr><td>5</td><td>Corridor for animals of Schedule I and II of the wildlife (Protection Act 1972)</td><td>Nil</td><td>Nil</td></tr>
<tr><td>6</td><td>Archaeological Site (notified, Other)</td><td>Nil</td><td>Nil</td></tr>
<tr><td>7</td><td>Defense Installation</td><td>Nil</td><td>Nil</td></tr>
</table>

<table>
<tr><th rowspan="2">S. No.</th><th rowspan="2">Area</th><th colspan="3">Aerial Distance in Km and Direction from M.L area</th></tr>
<tr><th>Core Zone</th><th colspan="2">Buffer Zone</th></tr>
<tr><td>8</td><td>Industries / Thermal Power Plant</td><td>Nil</td><td colspan="2">Nil</td></tr>
<tr><td>9</td><td>Other Mines</td><td></td><td colspan="2"><table><tr><td>Name</td><td>Area</td></tr><tr><td>Shri Jivraj Chandrakar</td><td>6.93ha</td></tr><tr><td>Shri Brijlal Diwan</td><td>5.36ha</td></tr><tr><td>Smt. Savitri Chandrakar</td><td>0.58 ha.</td></tr><tr><td>Total</td><td>12.87ha</td></tr></table></td></tr>
<tr><td>10</td><td>Airport</td><td>Nil</td><td colspan="2">Nil</td></tr>
<tr><td rowspan="2">11</td><td rowspan="2">Railway Lines</td><td rowspan="2">Nil</td><td>Sher Brick Earthclay Mine</td><td>SalehbhathaEarthclay Mine</td></tr>
<tr><td>Railway line at a distance of ~5.50 km towards North direction from Mine boundary.</td><td>Railway line at a distance of ~5.70 km towards North direction from Mine boundary.</td></tr>
<tr><td>12</td><td>National Highways/ State Highway</td><td>Nil</td><td>1.NH-353 (Bhawanipatna - Raipur Road) at a distance of ~2.80/ km towards North – East direction from Mine boundary.
2. SH-2 (Abhanpur-Rajim Road) at a distance of ~ 26.40 km towards South – West direction from Mine boundary.
3. Major district Road at a distance of ~0.59 km towards North - West direction from mine site.</td><td>1.NH-353 (Bhawanipatna - Raipur Road) at a distance of ~2.50 km towards North – East direction from Mine boundary.
2. SH-2 (Abhanpur-Rajim Road) at a distance of ~26.50 km towards South – West direction from Mine boundary.
3. Major district Road at a distance of ~0.980 km towards North - West direction from mine site.</td></tr>
<tr><td>13</td><td>Human Habitations</td><td>Nil</td><td>Sher ~680 mtr, West from mine site.</td><td>Salehbhatha~450 mtr, north-east from mine site.</td></tr>
</table>

2.2 METHOD OF MINING

The mode of working will be open-cast manual method of mining. The Mining of clay will be carried out manually with the help of simple instruments like Gaity, Fawda, Tagadi etc.

In order to mitigate the norms issued by Government of India Ministry of Environment & Forests time to time, a berm/ boundary of 1.0 meter will be left around 4 sides (N, E, S, and W)

as barrier for afforestation.

The excavation of earth clay activity will be restricted to a maximum depth of 2m below general ground level but shall be restricted to 2 m above the ground water table at the site. Mining will be started from the top itself.

The production of Brick Earth clay Quarry Mining Project & Fix Chimney Brick Plant for the 10 years of Plan period is given in **table 3**

Table 3: Details of Year Wise Production of both Mines

Year	Total Production in Nos.
1st	51,02,000
2nd	51,02,000
3rd	51,02,000
4th	51,02,000
5th	51,02,000
6th	51,02,000
7th	51,02,000
8th	51,02,000
9th	51,02,000
10th	51,02,000
Total	5,10,20,000

2.3 WATER REQUIREMENT

The Total water requirement will be approx. 18.90 KLD at the mine site for drinking and dust suppression purpose which will be met from hired Tanker supply.

S. No	Activity	Water requirement (KLD)
1.	Dust suppression	2.00
2.	Plantation	4.98
3.	Domestic	1.30
4.	Clay Moulding	10.62
Total		**18.90 KLD**

2.4 ELECTRIC POWER

All the activity will be carried out in day time only. All machineries used for mining will be driven by diesel. Electricity will be required for Mine Office and Rest Room, which will be provided by CSEB Chhattisgarh through temporary connection.

2.5 MANPOWER

The mine will provide direct and indirect employment. Directly employment of about 52 persons will be employed for extraction/collection, transporting of clay, clay moulding and loading of Earth clay in the mining area. All the workers will be employed as contract laborers. Additional employment will be created through transportation.

2.6 DESCRIPTION OF ENVIRONMENT

The scope of the study is as per standard TOR issued by SEAC C.G. Based on the submissions and presentation made by the project proponent, the SEAC has issued the TOR for the EIA study on vide letter No. 663/MINE/ MAHASAMUND/1612, RAIPUR, & 659/Mine/Mahasamund/1608/Atal nagar, Raipur, DATED-2806/2021. As part of the study, description of biological environment and human environment such as environmental settings, demography & socio-economics, land-use/ land cover, ecology & biodiversity have been carried out for entire 10 km radius.

- Air Environment
- Noise Environment
- Soil Environment
- Water Environment
- Biological Environment
- Socio-economic Environment

2.7 AIR ENVIRONMENT

Ambient Air Quality Monitoring reveals that the **minimum** and **maximum** concentrations of PM_{10} for all the 8 Air Quality monitoring stations were found to be **52.0 ug/m^3 and 76.0 ug/m^3** respectively, while for **$PM_{2.5}$** Varies between **24 ug/m^3** and **47 ug/m^3**. As far as the gaseous pollutants SO_2, NO_2, & CO are concerned, the prescribed limits under NAAQ Standards for residential and rural areas has never surpassed at any station. The **minimum** and **maximum** concentrations of SO_2 were found to be 6.0 ug/m^3 and 16.0 ug/m^3 respectively. The minimum and maximum concentrations of NO_2 were found to be 12.0 ug/m^3 and 26.0 ug/m^3 respectively. The minimum and maximum concentrations of CO were found to be 0.48 mg/m^3 and 0.84 mg/m^3 respectively. The prescribed limits of SO_2 and NO_2 are 80ug/m^3 and CO is 2 mg/m^3 for residential and rural areas has never surpassed at any monitoring station.

2.8 NOISE ENVIRONMENT

Ambient noise levels were measured at 8 locations around the proposed project site. Minimum

and maximum noise levels recorded during the day time were from **38.2 Leq dB and 52.4 Leq dB** respectively and minimum and maximum level of noise during night time were **31.2 Leq dB and 41.6 Leq dB** respectively.

2.9 SOIL ENVIRONMENT

The analysis results show that soil is basic in nature as pH value ranges from 6.94 to 7.57 with organic matter 1.12 % to 1.42%.The concentration of Nitrogen (18.2 mg/100gm to 22.4 mg/100gm and Potassium (0.9 mg/100gm to 1.6 mg/100gm.) & Phosphorus (0.78 mg/100gm to 0.96 mg/100gm.) has been found to be in good amount in the soil samples. The consumption of fertilizers is as important factor as their production.

2.10 WATER ENVIORNMENT

Ground Water was measured at 08 locations around the proposed project site.

Analysis results of **ground water** reveal the following:

- pH varies from to 7.12 to 7.81
- Total Hardness varies from 174 to 344 mg/L.
- Total Dissolved Solids varies from 148 to 623 mg/L.
- Sodium varies from 42 to 65 mg/L.
- Potassium varies from 4.0 to 8.0 mg/L.

Analysis results of Surface Water reveal the following:

- pH varies from to 6.80 to 7.65
- Total Dissolved Solids varies from 225 to 681 mg/L.
- Dissolved Oxygen varies from 5.9 to 7.1 mg/L.
- BOD varies from 16 to 22.0 mg/L.
- COD varies from 86 to 134 mg/L.

A review of the above chemical analysis reveals that there is some variation in chemical composition of water tapped from different sources but the ground water from all sources remains suitable for drinking purposes as all the constituents are within the limits prescribed for drinking water standards promulgated by Indian Standards (IS: 10500). It can be observed that the surface water quality does not indicate any industrial pollution.

2.11 BIOLOGICAL ENVIRONMENT

The environment baseline study was conducted in the project area by both secondary data & primary data collection. Abiotic factors including air, water and soil were studied for the core & buffer zone. It was found that most of the parameters were within the limits as per the Indian Standards. In general, there is no major threat to the quality of these parameters. Similarly, the study for the biotic factors was conducted. Hence it can be concluded that the present environment status of the study area is good enough for the project activity. Adoption of adequate pollution control measures will protect the surrounding environment.

No ***schedule I*** species found in Project area within 10 to 15 Km radius.

2.12 SOCIO ECONOMIC

The implementation of this mining project will generate both direct and indirect employment. The project will also provide impetus to industrialization of the area and mining would be boon for the district as it will not only result in employment opportunity but also infrastructure development and overall growth of the area. At present agriculture is the main occupation of the people as more than half of the population depends on it. With the implementation of the proposed mining project the occupational pattern of the people in the area will change making more people. It was found that most of the parameters were within the limits as per the Indian Standards. In general, there is no major threat to the quality of these parameters. Similarly, the study for the biotic factors was conducted. Hence it can be concluded that the present environment status of the study area is good enough for the project activity. Adoption of adequate pollution control measures will protect the surrounding environment.

3. ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

3.1 Air Environment:

The mining is proposed to be carried out by opencast manual method. The air borne particulate matter generated by ore and handling operations as well as transportation is the main air pollutant. The emissions of Particulate Matter, Sulphur dioxide (SO2), Oxides of Nitrogen (NOx) contributed by vehicles plying on haul roads are marginal. Prediction of impacts on air environment has been carried out taking into consideration proposed production and net increase in emissions.

3.2 MITIGATION MEASURES

- Fix Chimney brick manufacturing process has to be adopted with installation of fix chimney Killen of 33.0 meter height along with Zig-Zag pattern, so that the coal burnt gases will be released at the height of 33 meter in the air. So that gases will be assimilated properly in the

very height with long propagation in the air with the wind.

- The better maintenance of diesel operated equipment/vehicle will help to reduce emissions (SOx and NOx) and maintain below permissible limit as these are dispersed by the wind.
- No overloading of earth clays/Bricks for transportation will be committed so that no spillage of earth clays / dust takes place.
- Mineral carrying trucks will be effectively covered be tarpaulin to avoid escape of fines to atmosphere.
- Only P.U.C. certified vehicles will be permitted.
- Development of green belt/plantation will be done.
- Half yearly monitoring will be carried out for assessment of impact for generation of dust due to vehicular movement and loading etc. and measures will be carry out to minimize the pollution.

3.3 NOISE ENVIRONMENT- Negligible

MITIGATION MEASURES

- Proper care and maintenance of the trucks /Tractor will be carried out.
- Personal protective equipment's will be provided to the workers.
- Dense plantation will be carried out, on the sides of approach roads & around office complex, safety zone. This would help in arresting noise at source due to mining activities in the area.
- Periodical monitoring of noise level of mining machines and at mine and records will be maintained.
- **Blasting:** -Not Applicable
- **Drilling:** - Not Applicable

3.4 WATER ENVIRONMENT

ANTICIPATED IMPACTS

- As there is no river or nallah passing through the mine site, hence no impact is anticipated on the hydrological regime of the area due to mining activity.
- No natural course of water stream is interrupted or diverted due to mining activity; hence no impact on natural drain is anticipated.
- Surface run off distribution during rainy season may get affected due to excavated pits and overburden stack.

- Runoff from the mining benches or from overburden during the rainy season may get contaminated.
- Ground water pollution can take place only if the mining rejects contain toxic substances, which get leached by the precipitation water and percolate to the ground water table thus polluting it. Any nearby wells or other sources of water can be rendered unfit for drinking and even for industrial use.
- Domestic sewage will be generated which can create contamination.

MITIGATION MEASURES

- Overall drainage planning has been done in such a manner that the existing pre - There will be no waste water generation from the mining operation. Only waste water generation will be sanitary waste water, which will. Be treated in septic tank followed by subsurface vehicle etc.
- Surface water: no surface water source such as rivers, streams & dam exists in the mining lease area. proper maintenance of transport vehicle & prevention of washing of transport vehicle in ponds etc. be helpful to control water pollution, and it is mandatory for lessee.
- Ground water: Mining for each successive year is proposed to its optimum depth of earth clay bed and the mining will not goes to touch the ground water table so there is no chance to disturbance in ground water table. The dug out pit will help in recharging of Ground water by decreasing the runoff.
- Natural pits will be used for rainwater conservation and harvesting.
- Rain water harvesting practices will be done which will lead to ground water recharge.
- After complete extraction of earth clay from land the balance unreclaimed pit is proposed to be developed as agriculture land.
- The project do not consume any process water except for clay molding, drinking, dust suppression and plantation.

3.5 BIOLOGICAL ENVIRONMENT

ANTICIPATED IMPACTS

The mine lease area is private land with no vegetation. Thus there shall not be any adverse impact on biological environment due to expansion of the mine.

The mine area after reclamation will be planted resulting in an improvement in surrounding environment.

MITIGATION MEASURES

Keeping all this in mind the following mitigations have been suggested under environmental management plan. With the above understanding of the role of plant species as bio-filter to control air pollution, appropriate plant species (mainly tree species) have been suggested conceding the area/site requirements and needed performance of specific species.

3.6 SOICO-ECONOMIC ENVIRONMENT

The Socio-Economic Impact Assessment is the systematic analysis used during EIA to identify and evaluate the potential socio-economic and cultural impacts of a proposed development on the lives and circumstances of people, their families and their communities. It can identify and distinguish numerous measurable impacts of a proposed development but not every impact may be significant. The populations who are impacted either directly or indirectly have a say whether the impacts are significant or not.

ANTICIPATED IMPACTS

- As the proposed project is a Private land and is devoid of any settlements of habitation. No Resettlement & Rehabilitation is required.
- Increased funding to improve social infrastructure and cultural maintenance programs. Since the surrounding study area is an undeveloped area, the overall Socio-economic status of the local population is below average.
- From the primary Socio-economic survey & through secondary data available from established literature and census data 2001 & 2011, it is found that Socio-economic condition of the nearby area is good. They have ample opportunity for employment and there is positive impact on the current employment scenario as the proposed project will create additional job opportunities.
- The villages and their inhabitants in the buffer zone will not be disturbed from their settlements due to the mining operations. There is no inhabitation within the lease area. Therefore neither villages nor any part of village or any hamlet will be disturbed during the entire life of the mine. As the mining operations will not disturb or relocate any village or settlement, no adverse impact is anticipated on any human settlement.
- The local people only employment to depend on is agriculture, which is seasonal. In the absence of any high employment potential activities, the people are economically backward.

MITIGATION MEASURES

- Through mining activities, jobs and opportunities will be created in local people, and significant contributions are made to the State's economy. Mining can provide a significant source of revenue through profit related royalty payments and fixed taxation.

- It is suggested that during mining the site services like rest room shelter, first aid box, drinking water & toilet facilities of a portable toilet and portable disposal system of fecal sewage will be provided for the workers at the mine site.
- Various direct and indirect employment opportunities will be generated.
- A better standard of living due to increased access to employment, business opportunities training and education.
- The area is poor in the health care facilities. The project authorities would provide mobile vans for emergency services in the area.

3.7 TRAFFIC STUDY

The traffic survey, to ascertain the traffic density in the study area was conducted on the junction of Fingeshwar - Mahasamund Road and the connecting haul road to mining site of Sher and Salehbhatha Earth quarry mine & Fix Chimney Brick plant. The composition of Traffic includes two wheelers, three wheelers, four wheeler (Passenger Cars) and four wheeler like heavy vehicles like Trucks, Lorries, Bus etc. The recommended PCU Factors for various types of vehicles on Rural Roads has been adopted from IRC 64-1990**.**

Comparison Carrying Capacity of Road in Existing &Proposed PCU

Location	Existing Traffic Load			Total Traffic load including applied project		
	No of PCUs	V/C	LoS	No of PCUs	V/C	LoS
Project site to Fingeswar - Mahasamund Road	757	0.126	**A**	853.00	0.142	**A**

**LOS- Level of Services*

Conclusion

Not much impact will be there on the local transport. The LOS value from the proposed mine may be "Excellent" for Fingeswar Mahasamund road. So, the additional load on the carrying capacity of the concern roads is not likely to have any significant adverse effect.

4 ANALYSIS OF ALTERNATIVES

The proposed project is Brick Earth clay Quarry Mining Project & Fix Chimney Brick Plant. It is a site specific mining project; therefore no alternate site has been selected.

5 ENVIRONMENTAL MONITORING PROGRAM

Regular monitoring of environmental parameters is of immense importance to assess the status of environment during project operation. With the knowledge of baseline conditions, the monitoring programme will serve as an indicator of any deterioration in environmental conditions due to operation of the project, to enable taking up suitable mitigatory steps in time to safeguard the environment. Monitoring is also important to evaluate the efficiency of control

measures. The objectives of monitoring are to :-

- Verify effectiveness of planning decisions;
- Evaluate effectiveness of operational procedures;
- Confirm statutory and corporate compliance;
- Identify unexpected changes; and
- Energy and resources conservation

6 ADDITOINAL STUDIES

The details and proceedings of public hearing will be incorporated in the final report after conduct of public hearing. This is a requirement of the Occupational Health and Safety Act 2000. Risk assessments will help to prioritize the risks and provide information on the need to safely control the risks. In this way, mine owners and operators will be able to implement safety improvements. A worker in a mine will be able to work under conditions, which are adequately safe and healthy.

A green belt will be developed around the core zone. The Green belt plantation will be started with the beginning of the mining and will be completed within five years from the beginning. This plantation will be done at selected places only and only local species will be used in the plantation.

7 PROJECT BENEFIT

The management will recruit the semi-skilled and unskilled workers from the nearby villages. The project activity and the management will definitely support the local Panchayat and provide another form of assistance for the development of public amenities in this region. The company management will contribute to the local schools, dispensaries for the welfare of the villagers. A suitable combination of trees that can grow fast and also have good leaf cover will be adopted to develop the green belt. It is proposed to plant 1988 no's of native species along with some fruit bearing and medicinal trees during the mining plan period. The project proponent has allocated Rs. 5.65 Lakhs for 5 year CER Activities. This amount will be spent by lease holder for the protection of the environment in the nearby surrounding area. Other than this social development of the village will be considered as per social activities.

8 ENVIRONMENTAL COST BENEFIT ANALYSIS

Shri Jivraj Chandrakar & Shri Brijlal Diwan will operate the mining activities for the extraction of Earth clay to supply to the various consumers in the state and outside the state. The improved market conditions witnessed recently, after a grip of recession over a long

period, are expected to continue due to high priority being given by the Government to housing and infrastructure and also in view of the massive investment proposed in industry and rural sectors to enhance or improve their capacity for the end users which will support the economic growth and industrial improvement.

The cost of the project is estimated to be Rs. 94.95 lakh for the production of 51,02,000 nos. of bricks & Earthclay 5,102 cum for Sher Brick Earth clay Quarry Mining Project & Fix Chimney Brick Plant Mining of brick earth has been practiced since ancient times in India.

The cost of the project is estimated to be Rs. 48.78 lakh for the production of 51, 02,000 nos. of bricks & Earthclay 5,102 cum for Salehebatha Brick Earth clay Quarry Mining Project & Fix Chimney Brick Plant Mining of brick earth has been practiced since ancient times in India.

10.0 ENVIRONMENT MANAGEMENT PLAN

As per Above discussion there is no major impact on the environment due to mining except fugitive emission in the form of dust generated during handling & transportation of clay & bricks. The adequate preventive measures will be adopted to contain the various pollutants within Permissible limits. Plantation development will be carried out in the mine premises, along the approach roads, around Govt. buildings, schools. It will prove an effective pollution mitigate technique, and help avoid soil erosion during monsoon season. Employment opportunities will be provided to the locals only as providing extraction of minerals from the mine site is the only prevailing occupation for them for their livelihood.

11.0 CONCLUSION

From the baseline study and various discussions on the probable impacts of all the operational activity, it has been concluded that this project will more positive impact and will generate the revenue and employment in the area. On the above facts and baseline study, the proposed activity is recommended for the commencement with proper mitigation measure as suggested.

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