Executive Summary

for

Environmental Public Hearing

of

Proposed Iron Ore Mining @ 1,40,598 TPA

(Proposed Mining Lease Area – 35.73 HaR)

at

M/s Sunflag Iron & Steel Co. Ltd.
(Loharadongri Iron Ore Block),
Village - Loharadongri,
Taluka- Bramhapuri, Dist. Chandrapur, Maharashtra..

December – 2021

Executive Summary

1.0 Project Description

M/s Sunflag Iron & Steel Company Limited has state-of-the-art Integrated Steel Plant of capacity @ 0.75 Million TPA situated at District -Bhandara, Maharashtra.

Bulk raw materials used for steel making are iron ore , coal and coke. The coal is sourced from captive U/G Belgaon Coal Mine. Iron ore availability is very scare and Sunflag Steel is facing lot of problems to procure it.

Loharadongri Iron Ore Block is located at Forest Compartment No. 439 (Old Forest Compartment No. 95), Village- Loharadongri, Tal- Bramhapuri, District- Chandrapur and it is auctioned by Directorate of Geology and Mining (DGM) ,Government of Maharashtra and subsequently allotted at 90.2 % bid price of IBM average sale price to M/s Sunflag Iron & Steel Co. Ltd through tendering and e-auction process in May 2019.

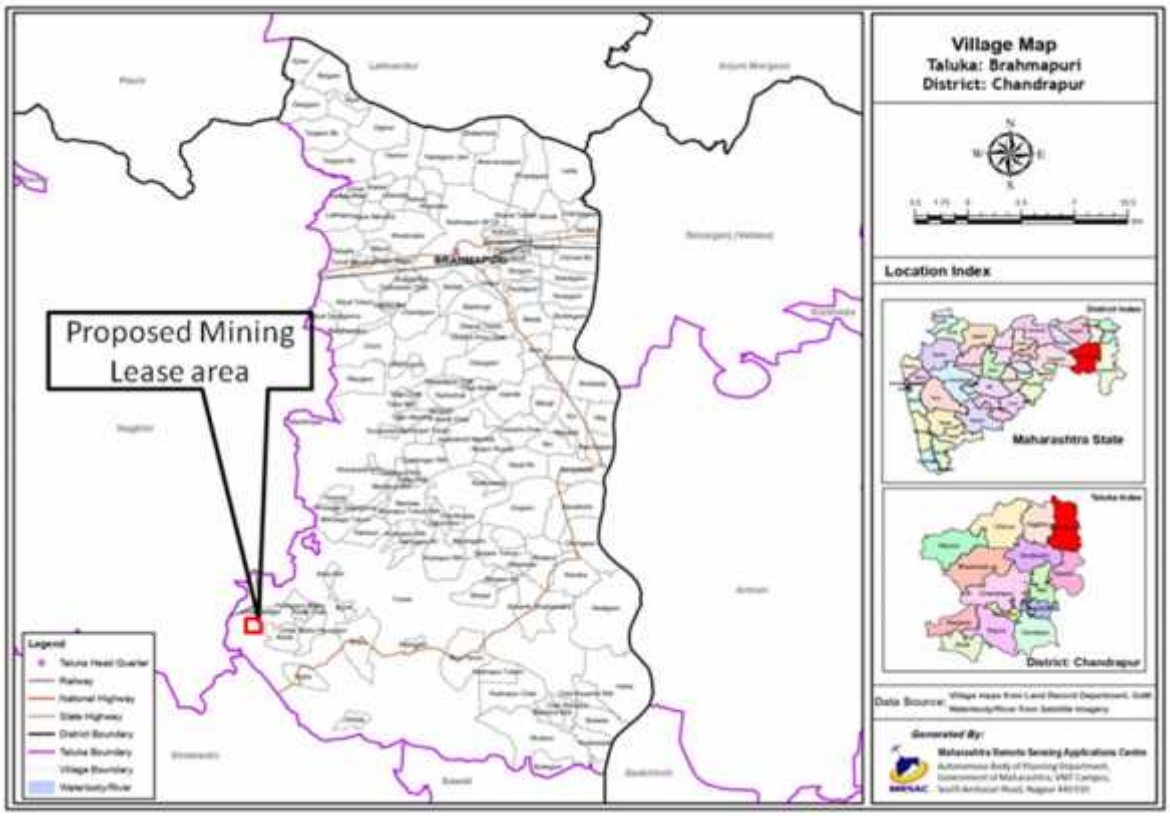
SEIAA, Govt of Maharashtra has granted Terms of References (TOR) for prior environment clearance of project under category B1 for carrying out EIA study and public hearing.

Proposed Loharadongri iron Ore Block area lies between latitude 20°23'17.65" N to 20°23'37.29" N and longitude 78°43'58.73" E & 78°44'18.31" E. Topography of the mine area is hilly and altitude of the site is 350 m above MSL. Loharadongri, the nearest village is located at a crow fly distance of about 0.5 km in North direction of the proposed mine site.

The proposed mining operations will be commenced from crest of the hill surface exposing the ore body and subsequently descending downward forming systematic benches of six meter high and width not less than the height i.e. six metre and slope of individual bench to 60^{o} from horizontal.

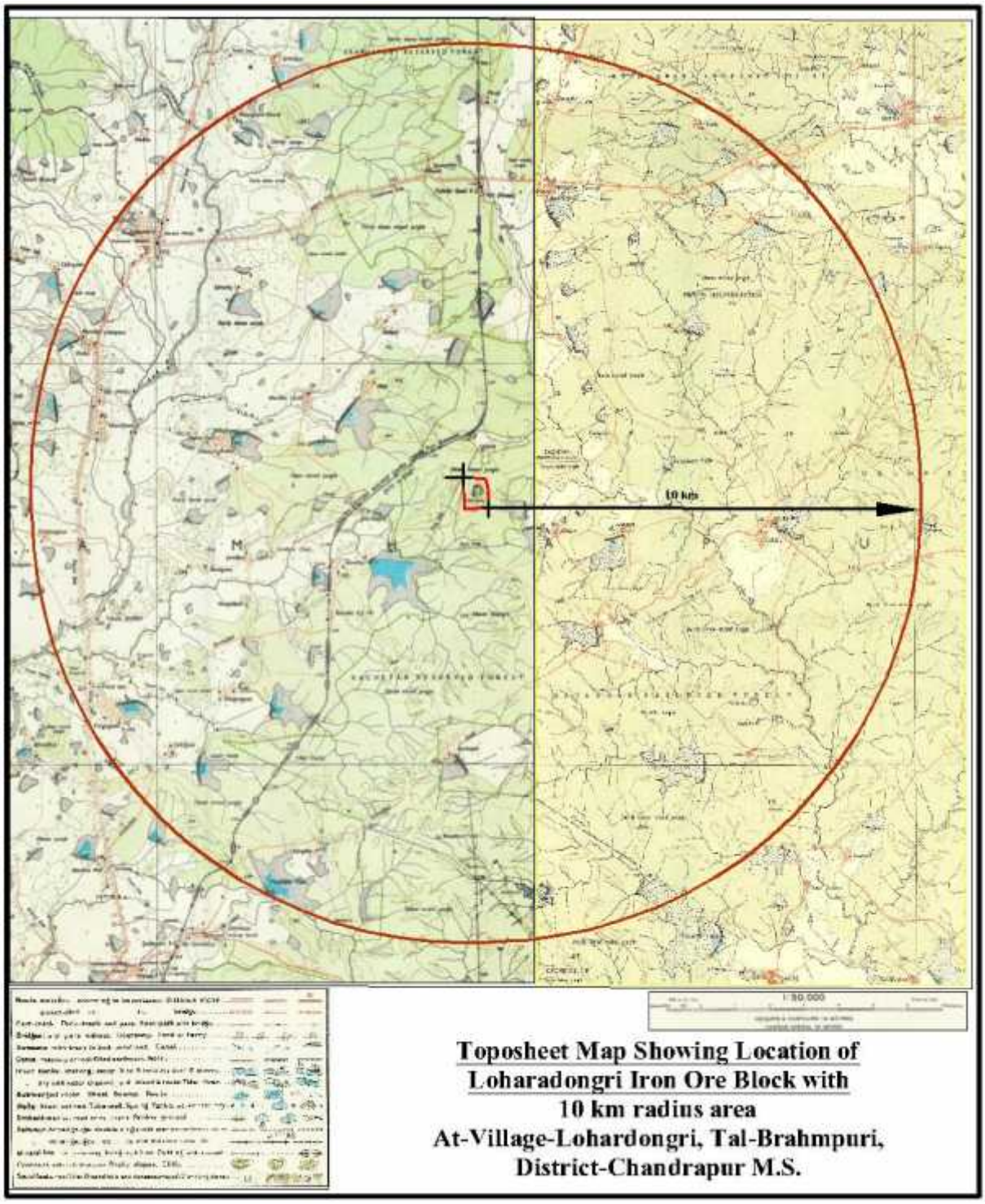
Iron ore will be loaded to trucks (about 10 to 30 Tonnes capacity) as per dispatch schedule to Sunflag Steel Plant, Bhandara.

The project cost is Rs. 1050 Lakhs and it comprises of mines office, furniture , rest rooms, first aid room, utilities, pre-production mine development expenditure etc. The mining machineries and movable crusher cum screening plant will be deployed on contract basis.



MAP OF BRAMHAPURI TEHSIL SHOWING LOCATION OF PROPOSED MINE

MAP SHOWING LOCATION OF PROPOSED MINE AND 500 M SURROUNDING AREA



TOPOSHEET MAP OF BUFFER ZONE (10 KM RADIUS) SHOWING VARIOUS FEATURES

2.0 Baseline Environmental Scenario

The baseline environmental status of the study area covering 10 km radius around the proposed mine site with reference to the prominent environmental attributes has been carried out in the Summer 2021. The salient features of various environmental components are given hereunder.

2.1 Land Environment

The study area falls under Survey of India Toposheet No. 55P/11, 55P/15 and covers part of the Bramhapuri, Sindewahi and Nagbhid Taluka of Chandrapur District. Major part of study area falls in Nagbhid taluka of Chandrapur district.

Low height hills are existing in the central and NE part of the study area. Mountains, Historical Monuments and Defense Installation etc are not existing in the study area.

The rock of the study area falls in Sakoli group and it is made up of low grade metamorphic rocks, The iron ore deposit occurs in the hillock existing in the proposed lease area rises to a height of about 64 m from the general ground level with banded hematite quartzite and surrounded by granitic intrusion with an aureole of composite and injection gneisses.

Study area comes under Zone II of the Bureau of Indian Standards (BIS) 2000 Seismic Zone Map for India. Zone II is defined to be seismologically least to moderately active, thus, study area is seismologically safe.

As per Census Data 2011 , land use pattern of the study area has forest land of 51.09%, un-irrigated & irrigated land of 30.24 % and land under tree crops , non agriculture uses, barren , un-cultivable , grazing , waste land, fallows land etc occupies 18.67 % .

The soil texture in the study area predominantly is sandy clay loam. The cultivable soils are spread over in the study area. Organic Matter is found in the range of 0.93 – 1.11 %. Available nitrogen is found in the range of 208.7 – 273.9 kg/ha and it is sufficient . Overall, soil quality in the study area is adequate.

2.2 Biological Environment

In the study area , dominant trees observed & reported were Sagwan, Saja/Ain, Bija, Kalam, Bhirra, Parad, Dhaman, Sehma, Garadi, Shisam, Badhwa, Kojan, Chichawa, Mohu, Khair, Rohan, Dhawda, Tiwas, Sillari, Tendu etc .

In the study area, crops are grown in both Kharif & Rabi seasons. Major kharif crops are rice & tur and major rabi crops are wheat & gram .

There is no National Park or Wildlife Sanctuary falling in the 10 km radius study area. In 10 km radius study area , Reserve Forests and Zudpi Jungle are existing in half of the study area. Proposed site is existing in Kachepar Reserve Forest and this forest has covered southern part of the study area. The notified Tadoba-Andhari Tiger Reserve (TATR) is about 18.1 km (from buffer zone boundary) towards SW direction of the boundary of proposed mining area. Notified Ghodazari Wildlife Sanctuary is about 15.5 km towards NNW.

In the study area , 17 species of mammals were reported as well as mentioned in the Working Plan of Bramhapuri Forest Division. The dominant mammals reported in the study area were tiger, hyaena, jackal, fox, sambar , cheetal , wild pig, sloth bear , porcupine etc. The livestock observed in the study area comprises cows, buffaloes, goats , dogs , poultry etc.

2.3 Air Environment

Air environment baseline status of the study area has been monitored & micrometeorological data has been collected using automatic weather station. Predominant Wind Direction was observed to be NNW.

In the study area during Summer 2021 , maximum concentration of PM_{10} at all stations ranged between 20.1-30.5 µg/m3 in summer season. The maximum concentration of other parameters as $PM_{2.5}$, Sulphur Dioxide, Nitrogen Dioxide, Ozone, Lead, Carbon Monoxide, Ammonia, Benzene, Benzo(a) Pyrene, Arsenic, Nickel, Free Silica was found to be well below the standards prescribed by MoEF&CC.

2.4 Noise Environment

In the study area during Summer 2021, noise levels in the human settlements of the study area during day and night time varied in between 48.1 dB(A) to 52.2 dB(A) and 40.1 dB(A) to 41.8 dB(A) respectively.

Ambient noise levels in the study area are found to be well within prescribed norms.

2.5 Water Environment

Drainage pattern in proposed mine lease area is towards SW direction. Drainage of the proposed mine lease area is controlled by seasonal gullies and streams flowing southerly and finally meeting to Alewahi lake existing in SW direction of the proposed site at about 2.0 km. Since the slopes are formed towards Alewahi water lake, various seasonal drains are formed at various places depending on the local topography of the slope , but none of them is perennial in nature.

In the 10 km radius study area, the general drainage pattern is towards SE direction and dendritic in nature . All the streams and local nallas including Bokardoh River of the study area are generally dry except for monsoon season. However, lakes existing in the study area contains water in all seasons.

Groundwater condition in the study area appears to be quite good as seen in the nearby wells. The water table in dug wells varies from 5 to 10 meters from winter to summer season

In surface water samples of the study area , pH values ranged between 7.6-8.0 which indicate their neutral nature. Total dissolved solids contents ranged between 86.0-216.0 mg/l and total hardness ranged between 31.2-83.9 mg/l

In ground water samples of the study area , pH was found in the range of 7.01-8.04, indicating desirable range required for potability. Total dissolved solids are in the range of 275.0 – 1848.0 mg/l and found within the permissible limit. Total hardness is found in the range of 132.8 – 722.6 mg/l showing that some of water sources are found exceeding the permissible limit . The heavy metals analyzed are found below the permissible limit.

2.6 Socio-economic Environment

Baseline data such as demographic pattern, occupational status, educational, health and other amenities as existing in the study area have been studied.

As per Census Book 2011, total population of the study area is 58,375 out of which 29,523 are male and 28,852 are female. Sex ratio (number of male per thousand female) in the study area is 978 this shows that the female population is slightly lower as compared with the male population.

In the study area , percentage of literates male and females are 76.49 % and 59.42 % respectively.

Medical facilities are poor in the villages of the study area. Water supply in the rural area of the study area is through lakes, wells, hand pump and tap water. Most of the villages have govt. bus facility as a mode of traveling. Nearby travelling is carried out by two-wheelers. Commercial bank facility is available only in Talodhi and Balapur Bk village of the study area. Big market facilities are available at nearest towns i.e. Bramhapuri. The villages of the study area are well connected by roads. Almost all the villages in the study area are electrified.

Total male and female workers in the study area are 61.92 % and 53.03 % of the total male and female population respectively

3.0 Proposed Mitigation Measures to abate probable Environmental Impacts

Based on pollution load to be discharged, the environmental impacts are predicted using various mathematical models as well technical interpretation.

3.1 Land Environment

- In the proposed iron ore project, mine pit development will not be carried out as the mineralized ore body is above the ground level in the form of small hillock having height of 60 mtr above ground level. Thus scientific development of benches and haul roads will be carried out with care to minimize the changes in topography.

- At the proposed site , top soil is not available. There will be generation of over burden ,inter burden and side burden. These materials will be systematically transported to the designated dumping sites within the proposed lease area. The waste will be disposed in retreating manner. In this process, the waste will be first dumped at the one end of the dump and with 10 m high retreating towards other side. In this process, it will get time for stabilization and will have minimum erosion.

- In the proposed iron ore mine project 64 m height hillock will be slashed in the proposed mining process and the area will be mostly plain. After exhausting the mineral from mineral block, the mined out area will be planted with local varieties. About 35,000 trees of local varieties will be developed before final mine closure.

- Land use pattern of the study area will not change due to proposed mining activities as it will be on small scale basis. No ancillary activity related to proposed mine will not be carried out in the study area.

- There is no top soil in mineral block but it has lateritic material mixed with iron ore pebbles. Therefore, there will not be generation of top soil during proposed mining.

- Over burden, inter burden , side burden waste and lateritic material generation will be in the form of quartzite, intrusive granite, laterite amounting to 4,75,577 m^3 during five year period.

- For stacking , two separate waste dumps will be developed on area of 81,007.61 m2 having maximum height of ten meter till conceptual mining.

- Mining machineries repair & maintenance work will not be carried out at proposed mine site. Thus there will be no generation and unscientific disposal used oil of mine machineries.

Thus**,** land environment would not be adversely affected.

3.2 Biological Environment

- The proposed mine site is covered by vegetation/trees grown naturally during the last years. The existing vegetation is a property of forest department and before handing over of the proposed site , cutting/shifting of vegetation will be carried out by Forest department.

- In the proposed project, well planned green belt as per the guidelines will be developed which will ensure the increase in the green cover substantially in the mine lease area till the mine closure.

- In case of proposed mining activities, adequate air pollution control measures such as regular water sprinkling measures, thick green belt development, controlled blasting will abate dust particles from dispersing outside lease area. The chances of deposition of fugitive dust on the nearby agriculture fields will be insignificant.

- In the study area , wildlife is conserved by Bramhapuri Forest Division under various rules and regulations, framed from time to time under Wildlife (Protection) Act, 1972 as well as the latest amendment to this Acts.
- In the study area, all possible measures will be taken by project management, to protect and conserve wildlife of the area.
- To ensure maintenance of viable population of wildlife and to increase the population of wildlife, the project management will contribute with Forest division for proper habitat management including shelter, water, food etc in the Bramhapuri forest division.
- Project management will contribute to Forest Division in maintenance and strengthening of all the existing waterholes, creation of new waterholes and artificial supply of water, cleaning of existing water holes, de-siltation of waterholes, construction of bandharas, artificial supply of water in summers, creation of saucer shaped cement ponds, arrangement of half cut hume pipes sealed on one side and some places bore-wells with the hand pump.
- Project management will contribute to Forest Division in wildlife conservation measures such as (i) Keeping track of wild animal's movement , (ii) Help of the local Forest Protection Committees and (iii) Check on Illegal trade in wild animals.
- To avoid man- animal conflict , Project management will contribute to Forest Division in minimizing the Man-Animal .

- Wildlife conservation measures will be implemented as (i) insurance against crop damage. (ii) raising stonewall between fields and forest to prevent crop-damage. (iii) hunting wild-pigs, if it is unavoidable. (iv) establishing control cell at circle level. (v) monitoring of wildlife population , (vi) establishment of secret information network,(vii) periodical estimation of wildlife population and (viii) establishment of effective 'Network of Informers'.

Thus with implementation of the planned mitigation measures , the biological environment will not be affected due to proposed mining activities.

3.3 Air Environment

The air environment impact are predicted using latest AERMOD model. The predicted incremental maximum ground level concentration of PM_{10} considering air pollution sources after proposed mining activity is found to be 0.945 $\mu g/m^3$ within the proposed mine lease area. Maximum concentration of PM_{10} monitored at nearest village Loharadongri (0.5 km in N direction) was 0.202 $\mu g/m^3$ which may increase to 22.602 $\mu g/m^3$ in worst condition during operational phase of proposed mining activity.

The major part of mined Iron Ore will be dispatched to the steel plant existing at a distance of 108 km in north direction. From the exit gate of proposed mine initially trucks will be passed though approach road of 350 m and it meets to Loharadongri to Bodra single tarred road (3.0 km) . After Bodra, the two lane tarred road starts and meet State Highway No. 9 at village Talodhi via Mendki (35 km) .

With present level of traffic density on the village road and the predicted increase in existing traffic due to the proposed project, adequacy of road/highway during operational phase of the mine has been estimated. The total traffic load after implementation of the mine project will be 294 PCU and it well within the IRC stipulated maximum load of 2,000 PCU/day for a single lane road. It can be predicted that the existing road network is adequate.

In the proposed mining , wet drilling with inbuilt air pollution control system comprising bag filter to wagon drill will be used. There will insignificant fugitive dust during drilling. Thus drilling operation on regular basis will not emit dust in to atmosphere .

Controlled blasting techniques by using advanced non- electric detonator will be used for proposed mining. The non electric type blasting has about 70 % less effect on environment than conventional electric type blasting and there will be minimum ground vibration, noise pollution, fly rock generation, dust generation etc

Regular water spraying on overburden inter burden and side burden reject material dumps by tankers will be carried out. Thick green belt around mining area and dumps will also be scientifically developed , stabilized and covered by green belt in due course of mining. Green belt with high leaf area saplings will also be developed all along the boundary to arrest fugitive dust. Thus disposal of loose material at dumps will not controlled and fugitive emissions will be abated.

Thus, the proposed mining operations will not have adverse impact on air environment.

3.4 Noise Environment

From the DHWANI PRO (version 9.1.282) modeling it is observed that the predicted noise level at nearest village Loharadongri (0.5 km towards North) is 48.1 dB(A). The mine will be operated in single shift during day time. The maximum baseline ambient noise level measured during day time at village Loharadongri in summer season was 51.3 dB(A) . The resultant ambient noise level after the operation various noise sources of proposed mine will be 53.6 dB(A). From the noise modeling, it can be stated that the impact on the present noise levels after the proposed mining mine will be within the standards of ambient noise .

Mining machineries generating the noise and vibrations will be provided with acoustic enclosures. Regular maintenance of the mining machineries will be carried out to minimize noise generation. The operator's cabins of JCB and Excavator will be acoustically insulated. All the mining operations will be carried out in single shift during day time only. Use of heavy machineries in proposed mine will not lead to increase in noise and vibration.

All trucks and tippers transporting Iron Ore material will have regular maintenance, fuel efficient to minimize noise generation. Noise barriers in the form of trees/plantation will be grown on approach road and it will be especially developed with green cover with suitable species. Plying of Iron Ore transportation vehicles on approach road and public road will not increase noise and vibration significantly and it will meet the norms.

The proposed mining operations will not have adverse impact on noise environment.

3.5 Water Environment

In the proposed mine, water requirement for drinking and for mining activity purposes will be @ 7.2 KLD. The water requirement will be met from the proposed one borewell to be drilled within proposed mine lease area. The proposed mine comes under MSME category and will have ground water withdrawal of less than 10 KLD . Based on this information, Certificate of Exemption for Groundwater Withdrawal will be applied to CGWA.

Mine surface run off water will be passed through the check dams and settling pond for removal of silt and suspended particles. water from pond will be used for green belt development and agricultural purposes in the surrounding area. As there will be no mining below ground level , the groundwater table will not be intercepted and ground water level in villages will not depleted .

In collaboration with grampanchyats, awareness programmes will be arranged for water quality improvement, health & hygiene improvement, rain water harvesting etc in the nearby villages.

Rain water recharge percolation wells will be constructed within proposed mine lease area. Channeling of surface run-offs will be carried out by constructing small check dams in natural drainage slopes . Rain water runoff will be arrested by construction of small check dams. Water stored in depressions created by such constructions will induce groundwater recharge.

Thus, there will be no negative impacts on water environment due to proposed mining activity.

3.6 Socio-Economic Environment

Any development activities would cause certain impact on the socio-economic environment of the study area.

Proposed mining project will generate direct as well as indirect employment. In the proposed mine project, about 32 personnel will be employed. There will be opportunity for increase in indirect employment as daily wage worker in material handling , drivers , transportation activities, supply of raw material, auxiliary and ancillary works etc. For ensuring this socio economic benefit, project proponent is committed to recruit local manpower as far as possible. There will be increase in income, employment & revenue generation benefit to the locals**.**

There will be likely to be growth in the revenue generation to the local gram panchayats. Continuous mining activity will be a source of regular income to local inhabitants and royalty to exchequer, which will improve the standard of living of local population and local and regional economy. There will be growth in the revenue generation to the local gram panchayats.

Locals will be employed in proposed mining activity by providing the training due to which influx of the outsiders is not foreseen or it will be very minimal. There will be no immigration of outsiders within the study area due to proposed mining activity,

Periodic health checkup camps will be organized by project authority for villagers, contract laborers, employees and their family. Awareness programs will be arranged on health, hygiene and sanitation.

Thus, there will be positive impacts on socio-economic environment due to proposed mining project.

4.0 Environmental Monitoring Programme

The quality of soil, biological parameters, air, water, noise levels will be monitored on regular basis as per specified norms. Environmental monitoring will be carried out through MoEF&CC approved laboratory.

Budgetary provisions for environmental monitoring are made which includes proposed recurring expenditure of Rs. 2.9 lakhs per annum. The expenditure on CER will be carried out carefully such that needy people will get maximum benefits.

5.0 Additional Studies

The additional studies as public hearing , risk assessment and social impact assessment are discussed below

5.1 Public Consultation

At present , draft EIA is prepared and it is submitted for Environmental Public Hearing

5.2 Risk Assessment :

All the activities related to proposed mining activity will not have any major risk factors which can affect public at large. The complete mining operations will be carried out under the management control and direction of a qualified Mine Manager. Chances of disaster occurrence in this proposed open cast mine will be very less.

Mines Manager will be overall incharge for all operational and administrative functions in case of any disaster affecting mine. Supervisor will inform all persons working in the mines at different locations; Ensure facilities like vehicles and ambulance; and try to rescue, maintain order, salvage and contain.

Anyone noticing a fire or explosion or any other kind of emergency will raise a verbal alarm to attract attention of other persons. Attempt to isolate/extinguish the fire or isolate the incident with available men and equipment on site. Assist further emergency control activities. Mines Manager will control the incident from Emergency Control Centre.

5.3 Social Impact Assessment

There will be no displacement of souls, community facilities , assets etc because of the proposed mining project.

It is anticipated that the proposed project would bring benefits to the people of the surrounding villages such as generation of direct and indirect employment and improved standard of living . Increase opportunities of auxiliary and ancillary business. Increased revenue to the state by way of royalty, taxes and duties and improved green cover. Thus there will be socio-economic development.

6.0 Project Benefits

The project benefits includes improvements in physical infrastructure, improvements in social infrastructure, increase in employment potential, contribution to the exchequer, prevention of illegal mining, enhancement of green cover etc in the study area.

The planned developmental activities will be executed under Corporate Environment Responsibility in the study area villages are given below :

- Community Health Improvement by maintaining hygiene and sanitation by disinfectants spraying in the village residential areas. Provision of sanitation facilities, bio toilets, drinking water facilities etc in nearby ZP school. Arranging health awareness camps on health in villages.

- Community Water Conservation Facilities by decreasing water scarcity problem to the possible extent during scarcity period by arranging drinking water tankers and constructing rain water harvesting pits . arranging water conservation programs in the villages.

- Community Infrastructure Development by improving village road with the help of concerned officials and adjacent mine owners and other infrastructural developmental activities such as temple beautification etc. **S**olar panel electrification of nearby ZP school.

- Community Education by distribution of educational books & aids to needy students of villages.

- Community Capacity Building by vocational training for technical skills, self employment training for women as stitching, embroidery tailoring, handicrafts etc to the villagers.

- Community Welfare by distributing seeds and saplings in the nearby villages.

The planned developmental activities will be executed under CER in the study area villages by carrying the capital expenditure of Rs. 10.0 lakhs and recurring expenditure of Rs. 1.25 lakhs per annum.

7.0 Environmental Management Plan

The mitigation measures detailed in the EIA will be implemented & monitored on regular basis. Similarly, environmental non-compliances will be satisfactorily addressed.

7.1 Administrative Aspects of ensuring Implementation and Monitoring of Mitigation Measures

Mines Manager will be responsible for ensuring implementation and monitoring of proposed mitigation measures. The focus of administrative aspects for effective environmental management will be mainly on i)) management of overburden , inter burden and side burden, water conservation , fuel optimization, pollution control etc , ii) achieving the zero accidents by implementing measures related safety, welfare and occupational health of the workers , iii) conservation of environment including preservation of greenbelt, regular maintenance of mining machinery for efficient operation etc.

Budgetary provisions for implementation and monitoring of proposed mitigation measures are made which includes proposed capital expenditure of Rs. 153 lakhs and proposed recurring expenditure of Rs. 8.5 lakhs per annum.

7.2 Environmental Policy

M/s Sunflag Iron & Steel Co. Ltd (Loharadongri Iron Ore Block) is committed to sustainable development and the protection of the environment. All applicable environmental laws, regulations and requirements will be complied by the company. Company is committed to establishing and maintaining environmental management system to identify, monitor and control the environmental aspects of mining. Company ensures that employees and contractors will carry out their responsibilities in accordance with Environmental Policy. Company will conduct audits to monitor, measure and evaluate the effectiveness of environmental management system and non-compliances will be addressed satisfactorily. Company will work to continually improve the environmental performance on time .

7.3 Organization Structure of Environmental Management Cell

The Environmental Management Cell will be headed by the Mine Manager and he will take advice from the Director and he will be assisted by the personnel from different levels. Mines Manager will be overall responsible for environmental protection in the mine. He shall take effective steps to curb the pollution during mining operations. Geologist with supervisors will be responsible for supervising the environmental protection measures in addition to his regular duties. Environmental Consultant (On contract basis) will be responsible for suggesting the measures related to environmental protection during mining operations. Plantation and Watering Staff will implement plantation to be carried out in and around the mine lease area as also development & maintenance of green belt. They will be responsible for dust suppression by water sprinkling .

7.4 SOP for Reporting and Closure of Environmental Non-Compliances (NCs)

The environmental work which do not conform to specific requirements will be raised as NCs. The show cause notice and direction issued by MPCB, MoEF&CC, SEIAA etc will be considered as NCs.

The Mines Manager will take the feedback from the concerned for corrective & preventive action taken for closure of NC. The Mines Manager will evaluate the significance of the non conforming work and take corrective action immediately. Corrective & Preventive Action Reports for major NCs will be referred & discussed in Emergency Review Meeting. Mines Manager will ensure the completion of the action on taken corrective & preventive action report.

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