EXECUTIVE SUMMARY

INTRODUCTION

Demand and production of steel is increasing day by day and the developing countries like China, India are increasing their production capacity significantly. Total world steel production has crossed 1200 million metric tons per year and China is producing more than one third of total production. The existing supply of bars and rods is adequate to meet both local and global demand of steel. In near future to meet the growing demand of bars and rods the manufactures are adding new units to sustain the demand surge. The domestic demand for bars and rods will witness an average annual growth of about 6% during 2009-16.

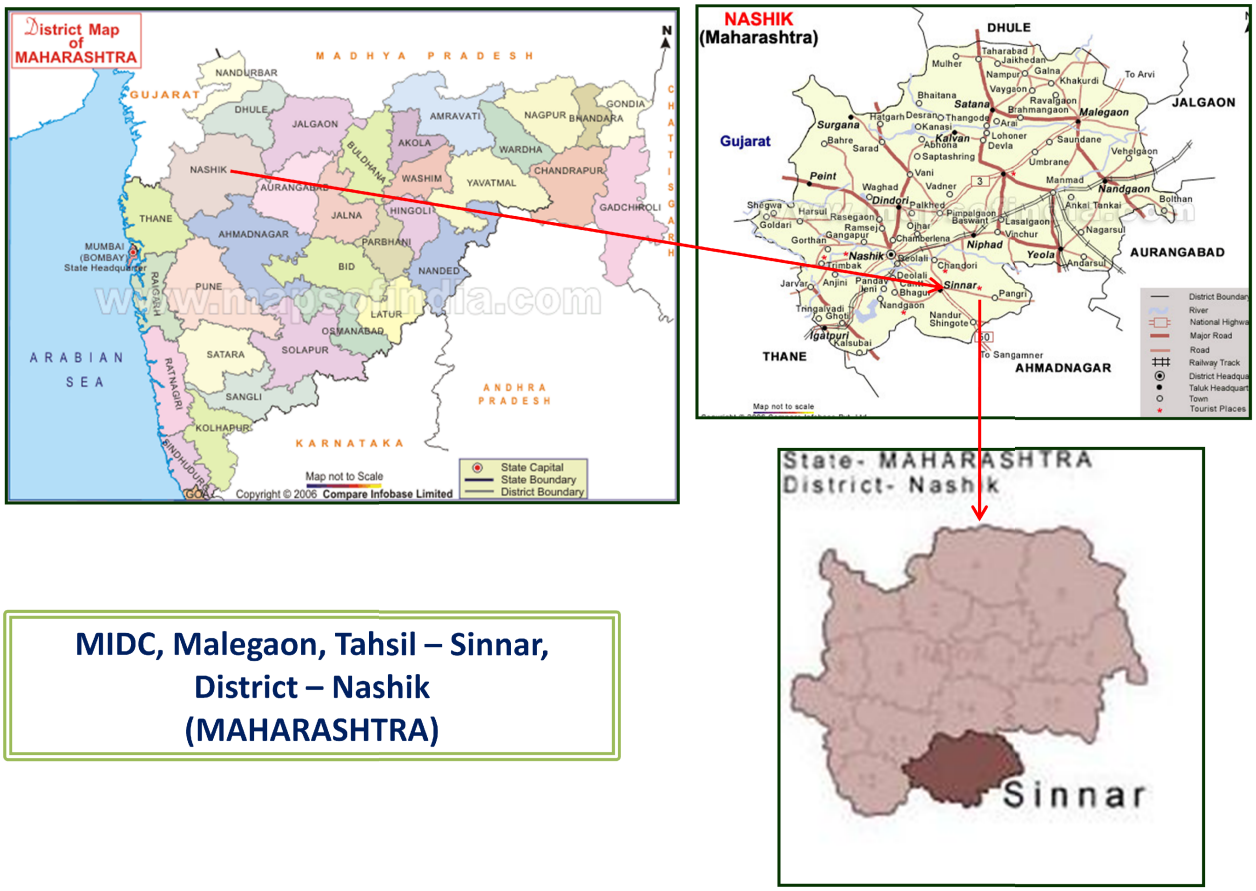
SITE SELECTION CRITERIA

- Notified Industrial Area
- Availability of Infrastructure of existing unit and MIDC
- No nallah/water body and public roads within the project site.
- No National Park, Biosphere Reserve and Wildlife Sanctuary including Notified Eco Sensitive Areas.
- No notified critically polluted area.
- No archaeological monument, interstate boundary and defense installation.
- No Rehabilitation/Resettlement required.
- Availability of Raw Material.
- Availability of Water (350 M^3/Day), Source: MIDC water supply.
- Uninterrupted Power supply 20 MVA, Source: MSEB.
- Market available for finished products.
- Availability of man power.

DETAILS OF THE PROJECT SITE

The proposed project has been identified in Plot No. G – 7, MIDC Malegaon, Taluka Sinnar, District Nashik. The plot has been given on lease which is 88,000 Sq.m in size.

The location map is shown in the **Figure** and details of the project site are presented in **Table below**.



MIDC, Malegaon, Tahsil – Sinnar, District – Nashik (MAHARASHTRA)

Figure: Location of the Project Site

TABLE
DETAILS OF THE PROJECT SITE

Sr No	Particulars	Details	
1	Project Site	G-7, MIDC Malegaon, Tahsil – Sinnar, District: Nashik (Maharashtra)	
2	Latitude	19^0 53'20" N	
3	Longitude	73^0 58' 39"E	
4	Elevation above MSL	740 m	
5	Toposheet	47E/13, 47 I/1	
6	Present landuse	Industrial Area, MIDC Malegaon.	
7	Climatic conditions Secondary Data :(Based on IMD data)	Annual Average Maximum 31.5^0 C Annual Average Minimum 17.6^0 C Annual Average Humidity 69 % Annual Average Rainfall 703 mm	
8	Nearest National Highway/State Highway	NH-50 Nasik Pune Highway 2 kms.	
9	Nearest Airport/ Air Strip	Nashik	
10	Nearest town	Nearest village boundary is Sinnar at 5 Km	
11	Forest	R.F Patch	NE 1.5 km
		R.F Patch	E 5 km
		R.F Patch	E 9.5 km
12	Ecologically Sensitive Zones like wild life sanctuaries, national parks and biospheres	Nil	
13	Water Bodies	Godavari River at 22 km away from site.	

1.1 PURPOSE OF EIA

M/s Bhagawati Ferro Metals Pvt. Ltd. has proposed the production of 25000 TPM M.S. Billets. The proposed unit will be located in the Notified Maharashtra Industrial Development Corporation (MIDC), Malegaon, Nashik, Maharashtra which requires environmental clearance as per the EIA notification dated 14th September 2006 of Ministry of Environment & Forest, New Delhi (MoEF). The proposed project facility falls under the category 'B' (As per Notification 3(a)). The expected project capital cost will be Rs. 18 Crores.

DESCRIPTION OF PROCESS

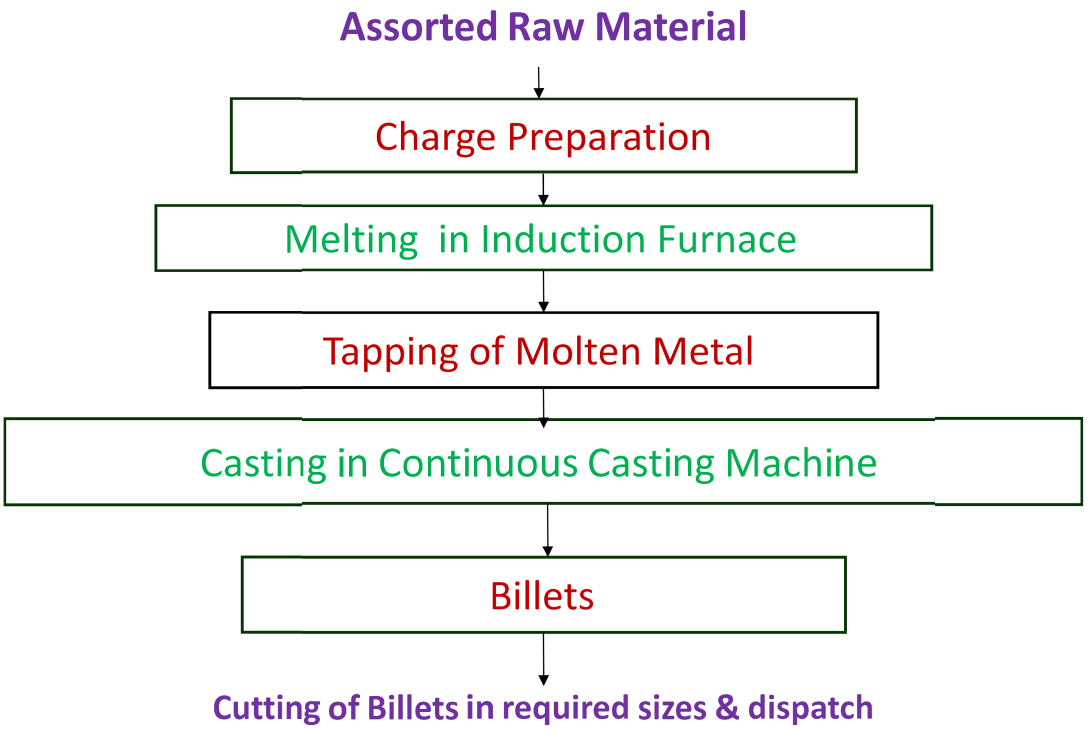
The induction furnace is used to melt many different sorts of metals, from common steel to more exotic alloys or precious metals. Iron. The furnace is used by almost all manufacturing plants while making steel or aluminium. The greatest advantage of the induction furnace is its low capital cost compared with other types of melting units. Its installation is relatively easier and its operation is simpler. Among other advantages, there is very little heat loss due to radiation from the furnace as the induction bath is covered. Also there is practically no noise generated during its operation. The molten metal in induction furnace is circulated automatically by electro-magnetic action so that when alloy additions are made, a homogeneous product is ensured in minimum time. While making mild or carbon steel in an induction furnace, the primary consideration is the optimum utilization of the furnace and elimination of delays. Time between tap & charge, charging time and power delays etc. are the items of the care in meeting the objective of maximum output in tonnes per hour at a low operational cost.

The raw material (Sponge Iron, MS scrap, Ferro Manganese and Ferro Silicon) is charged into the induction furnace. The charge should be compact and should consist of a number of small pieces of solid selected steel scrap mixed with clean turnings, borings and the required amount of sponge iron. This is to provide the initial conditions of a high flux path through the charge for facilitating generation of heat and commencement of melting.

As soon as the furnace is charged, the switches admitting power current to the induction coil are closed.

After the furnace is switched on, current starts flowing at a high rate and a comparatively low voltage through the induction coil of the furnace, producing an induced magnetic field inside the central space of the coils where the crucible is located. The induced magnetic fluxes thus generated cut through the packed charge in the crucible. As the magnetic fluxes cut through the scraps and complete the circuit, they generate an induced current in the scrap. This induced current known as eddy current, as it flows through the highly resistive path of the scrap mix, generates tremendous amounts of heat and melting of scrap starts. It is thus apparent that the melting rate depends primarily on two things (1) the density of magnetic fluxes (2) compactness of the charge mix. The magnetic fluxes can be controlled by varying input of power to the furnace, mainly the current and frequency. The heat thus generated due to highly resistive path of scrap, developed in the outer rim of the metal in the charge but is carried quickly to the center by conduction. Soon a pool of molten metal forms in the bottom causing the charge to sink. The induced current which is generated in the charge mixed and heated more homogenously. As soon as the charge has melted clearly, any objectionable slag is skimmed off, and the necessary alloying elements are added. When these additives have melted completely, the power input may be increased to bring the temperature of metal upto the point most desirable for pouring. The current is then turned off and the furnace is tilted for pouring into a crucible. As soon as pouring has ceased the crucible is cleaned completely from any slag or metal droplets adhering to the wall of the crucible and the furnace is now ready for charging again. The temperature of the furnace will be 1650^0C. When the total scrap as per the capacity of the crucible is molten, the sample is taken from liquid steel and tested for the composition of steel and the carbon contents. Therefore some additives of ferro-alloys like Silico-managanese, silicon, aluminum shots and boric acid are added to the liquid steel to maintain the composition and quality. After confirmation of the carbon content the liquid steel is poured into the specially designed heated moulds to give the desired shape and size. After they are molded into the desired shapes, the strippings are removed and they are finally given the dressing i.e. cleaning and removal of unwanted

particles finishing cleaning etc. The said hot/cold billets are removed to the storage site or trucks with the help of hot and cold magnetic cranes for further dispatch. Thereafter they are assembled and bundled and sent for onward dispatch.



DESCRIPTION OF ENVIRONMENT

The baseline environmental quality for the month of Feb, March, April – 2012 was assessed in an area of 10 km radius around the proposed project site.

Air Environment

During the study period, the predominant wind directions were from WNW and NW.

The ambient air quality monitored at 7 locations selected based on predominant wind direction, indicated the following ranges;

PM_{10} - 27.6 to 54.9 µg/m^3.

$PM_{2.5}$ - 9.4 to 25.5 µg/m^3

SO_2 - 6.8 to 12.8 µg/m^3

NO_x - 7.6 to 14.7 µg/m^3

Industrial Area Residential, Rural Area (CPCB Norms)	PM_{10}	$PM_{2.5}$	SO_2	NOx
	100 µg/m^3	60 µg/m^3	80 µg/m^3	80 µg/m^3

The concentrations of PM_{10}, $PM_{2.5}$, SO_2 and NO_x were found within the National Ambient Air Quality Standards (NAAQ).

Water Environment

A total 7 samples including three surface & four ground water samples were collected and analyzed. The water samples were analyzed as per Standard Methods for Analysis of Water and Wastewater, American Public Health Association (APHA) Publication.

The data indicates that the ground water as well as the surface water quality are below the stipulated standard for drinking water (BIS 10500 – 2012 except high concentration of total coli form in surface water, which may be due to the human activities.

Noise Environment

Noise levels measured at all seven stations are within limit of 55.0 dB (A) for Residential Area or 75.0 dB (A) for Industrial Area as given in MoEF Gazette notification for National Ambient Noise Level Standard.

Area Code	**Category of Area**	**Limits in dB(A) Leq**	
		Day time	**Night time**
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone**	50	40

** Silence zone is defined as area up to 100 meters around premises of hospitals, educational institutions and courts. Use of vehicle horns, loud speakers and bursting of crackers are banned in these zones

Land Environment

Three Soil samples were collected analyzed for physico-chemical characteristics at selected locations in the study area to assess the existing soil conditions around the proposed project site. The relevant parameters show the following characteristics.

- Texture of all soil samples are silty-Loam in Texture Classification.
- Colour of soil sample from Agriculture land is grayish and sample from Forest land is reddish and sample from Barren land is gray in colour.
- The bulk density of soil sample from Agriculture land is in the range of 1.25 to1.45 gm/cc and sample from Forest land is in the range of 1.44 to 1.51 gm/cc and sample from Barren land is in the range of 1.32 to 1.39 gm/cc.
- Soil samples from Agriculture land have pH values between 7.73 to 8.37 and sample from Forest land have 7.91 to 8.13 and sample from Barren land have 8.36 to 8.41 ranges of pH values. The pH values are indicating nature of soil samples as between slightly neutral to slightly alkaline.
- Soil samples from Agriculture land have Organic Matter between 1.02 to 1.20 % and sample from Forest land have between 0.42 to 0.60 % and sample from Barren land have between 0.42 to 0.54 Organic Matter. These values represent average fertility of soils.
- Soil samples from Agriculture land have concentration of Available Nitrogen values ranged between 412.5 to 487.4 kg/ha and samples from Forest land have range between 168.8 to 243.8 samples from Barren land range between 93.4 to 113.6 kg/ha Available Nitrogen value.
- Soil sample from Forest land have concentration of Available Phosphorous values ranged between 29.7 to 33.7 kg/ha, soil samples from Agriculture land have concentration of Available phosphorous as its values are 77.5 to 79.7 kg/ha and soil samples from Barren land have concentration values ranges from 59.0 to 66.3 kg/ha.
- Soil sample from Agriculture lands have concentration of Available Potassium values range between 363.7 to 387.5 kg/ha, it have good concentration of available Potassium, whereas sample from Forest land have concentration of Available Potassium values

range between 131.2 to 145.5 kg/ha and sample from Barren lands concentration of Available Potassium as its values range between 137.2 to 187.3 kg/ha.

ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

Impact on Land Environment

During construction phase following major activities are involved:

- ❖ Erection of structures, plants and machinery
- ❖ Construction of storage areas
- ❖ Laying conveyors, ducts, pipe lines etc.
- ❖ Auxiliaries and service centers

The proposed activities will be limited to the industrial area. The site has been allotted in MIDC Malegaon, hence no displacement of residential areas. The agricultural area around the proposed site does not have any irrigation system and is only rain dependent; hence no major loss of agricultural productivity is envisaged.

Mitigation measures

- After completion of the construction phase, the surplus earth shall be utilized to fill up the low lying areas, the rubble will be cleared and all un-built surfaces will be reinstated.
- It is proposed to level the project site and use the excavated material for leveling. There will be no tall structures except stacks. The contours of natural drainage will not be disturbed. In view of the above, there will be no major adverse impact on topography of the project site.
- The top soil from the excavated during the construction phase will be preserved in separate area for green belt development
- There will be minimum concreting of the top surfaces so that there is a scope for maximum ground water recharge due to rainfall.

Impact on Air Quality

The impacts on air quality due to source of the air pollution in the proposed facilities have been identified. The major impact identified is primary fumes generated in Ladle Refining Furnace and Induction Furnace which is conveyed by double walled/tubular water cooled duct in case of fumes of LRF and Single wall plain duct in case of IF's fumes to De-dusting plant where dust is removed and clean gas containing dust level less than 50 mg/m^3 through stack/chimney.

Mitigation Measures

The pollution control equipments for de-dusting plant shall comprise of the following facilities:-

- Primary fume extraction in LRF: - Water cooled duct work to pick up and convey the fumes generated in LRF during refining of metal.
- Primary fume extraction in IF's:- Pick up the fumes and convey by a canopy hood and single walled duct work placed above the furnace.
- Secondary Fume extraction of IF's placed at the top of the shed – pick up fumes and convey by a canopy hood and single walled duct.
- The three duct lines namely, one leading from LRF and the other two eminating from Induction furnaces will be provided with butterfly dampers to control the flow of fumes.
- The temperature sensors will be provided in line sources of pollution and also before the bag Filter to know their temperatures.
- The fumes of LRF and that of IF's are mixed at a convenient point as per the lay-out and the resulting mixture is fed to Bag House via a spark arrestor.
- The duct lines viz: LRF and two separate lines of IF's will have a regulating valve for the purpose of flow control.
- Flue gas dilution provision is made by a motorized damper, which is interlinked with temperature controller.
- The bag house is of six modules each having 140 bags. The filter bags are of Polyester with special surface finish to suit the application. A sequential timer is

provided to automate the pulsing of pulse valves to clean the bags and reduce the pressure across the bag house.

- The dirty air/ contaminated gas enters the filter through the module inlet nozzle. A special designed baffle plate distributes the air/gas uniformly the housing and drops out heavy particulates into the hopper(s).
- The dust-laden air/gas then passes travel through a number of filter bags (circular), which retain the dust particulates on the external surface while allowing the clean air/gas to pass through the module outlet nozzle.
- The filtered dust gets collected in bag filter hopper and is discharged continuously into a drum kept below the hopper. The hopper on being filled with dust has to be manually disposed to a suitable location.
- The cleaning system of filter bags consists of a solid state sequential timer which actuates electric solenoid governing the air diaphragm valves .These valves deliver a momentarily pulse of high pressure of Air/N_2 through the manifold pipes situated above the row of filter bags. This pulse of air/N_2 creates a reverse airflow, which expands the filter bag to remove the collected cake/dust.
- The dust when pulsed from the filter media falls directly into the filter hopper where it is removed by either Rotary valve/slide valve or other dust conveying system.
- The cleaned gas is left to atmosphere through a chimney at height of approximately 30M elevation.

The driving force required to pick up the fumes from respective pollution generation sources and convey through ducting network, Spark Arrestor, Bag House and chimney is created by the centrifugal fan. This fan is the main backbone of the system. The centrifugal fan is of high efficiency backward curved bladed fan and has static efficiencies over 80% plus. The cleaned filtered gas containing not over 50mg/Nm^3 TSS is vented to atmosphere.

Raw Material Handling / Transport System

The major impact due to transportation of the raw material i.e. Sponge Iron, MS scrap.

The emissions due to transportation of vehicles in the study area were determined from fuel-based emission factors and number of vehicles plying on roads in the area. Loading and transportation of raw materials are the significant sources of emissions.

The majority of trucks (95%) plying in the study area are manufactured in India as per the standard norms hence it is assumed that emission from these trucks will be similar, as emission norms are same for the vehicle used in India and is mandatory for the manufactures to follow emission norms under the Motor Vehicle Act. The emissions through transportation are assessed based on Emission factors for on-road vehicles (CPCB Publication 1998)

Mitigation Measures

- The vehicles transporting coal, coal fines and iron ore will be covered by tarpaulin in order to prevent dust emission during the transport.
- The vehicles used in transportation will comply norms as per the motor vehicle act.

Impact on Water Environment

The total water requirement for the proposed activities is 350 m^3/day. There will not be any impact on the water quality as no wastewater will be generated from the process. The sewage will be generated approximately 17m^3/day for toilet and bathrooms which will be disposed through septic tank.

Impact on Noise Environment

During operation, the major noise generating sources are crushing mill, auto loading sections, electric motors etc. These sources will be located far off from each other. Under any circumstances the noise level from each of these sources will not exceed 85 dB (A). Noise levels generated in the project site will be confined within the Proposed plant the impact of noise levels on surrounding will be insignificant.

Mitigation Measures

The noise levels stipulated be Central Pollution Control Board at any point of time will not exceed the standards. The equipments will have inbuilt noise control devices. The measured noise level produced by any equipment will not exceed 85 dB (A) at a distance of 1.0 – m from its boundary in any direction under any load condition. The noise produced in valves and piping associated with handling compressible and incompressible fluids will be attenuated to 75 dB(A) at a distance of 1.0 m from the source by the use of low noise trims, baffle plate silencers/ line silencers, acoustic lagging (insulation), thick-walled pipe work as and where necessary. The general mitigation for the attenuation of the noise are given below:

- By providing padding at various locations to avoid sharp noise due to vibration.
- Encasement of noise generating equipment where otherwise noise cannot be controlled
- In all the design/installation precautions are taken as specified by the manufacturers with respect to noise control will be strictly adhered to;
- High noise generating sources will be insulated adequately by providing suitable enclosures;
- Use of lagging with attenuation properties on plant components / installation of sound attenuation panels around the equipment
- Other than the regular maintenance of the various equipment, ear plugs/ear muffs are recommended for the personnel working close to the noise generating units;
- Inlet and outlet mufflers will be provided which are easy to design and construct.
- All rotating items will be well lubricated and provided with enclosures as far as possible to reduce noise transmission. Extensive vibration monitoring system will be provided to check and reduce vibrations. Vibration isolators will be provided to reduce vibration and noise wherever possible;
- The insulation provided for prevention of loss of heat and personnel safety will also act as noise reducers.

SOLID WASTE

Solid Waste Generation & Mitigation Measures

Waste	Quantity	Mitigation Measures
Slag from Induction Furnace	750 TPM	Slag generated will be used for filling nearby stone quarries and village road constructions after receiving approval from the authorities. Solid waste will also be use for landfill, in factory premises.

SOCIO-ECONOMIC ENVIRONMENT

The impacts of the proposed project, during its operation, on demography and socio-economic condition can be identified as follows.

- Negative impacts can be on the surrounding air quality which will be insignificant due to the judicious operation of pollution control equipments.
- Growth in service sectors.
- During operation phase 175 technical and nontechnical people will be employed.
- Increase in consumer prices of indigenous produce and services, land prices, house rent rates and Labour prices.
- The overall impact on the socio economic environment will be beneficial.

The management of M/s. Bhagwati Ferro Metal Pvt. Ltd. has proposed to give preference to local people for recruitment in semi skilled and unskilled categories.

ENVIRONMENT MONITORING PROGRAMME

Regular monitoring program of the environmental parameters is essential to take into account the environmental pollutant of the study area. The objective of monitoring is:

- To verify the result of the impact assessment study in particular with regards to new developments;

- To follow the trend of parameters which have been identified as critical;
- To check or assess the efficiency of the Pollution Control Equipment;
- To ensure that new parameters, other than those identified in the impact assessment study, do not become critical due to the commissioning of proposed facilities;
- To establish a database for future Impact Assessment Studies for new projects.

The attributes, which needs regular monitoring, are specified below:

- Air quality
- Water and wastewater quality;
- Noise levels;
- Soil quality;
- Ecological preservation and afforestation; and
- Socio Economic aspects and community development

ENVIRONMENT MANAGEMENT PLAN

Air Environment

M.S. BILLETS

SOURCE	POLLUTANTS	CONTROL MEASURES
A. Air pollution from induction furnace due to melting of hot metal	$PM_{10,}PM_{2.5}$	Bag filters
B. Solid waste	Slag from induction furnace	Slag generated will be used for filling nearby stone quarries and village road constructions after receiving the necessary approval from the authorities. Solid waste will be use for landfill, in factory premises.

Action Plan to Control of fumes

- The primary fumes of LRF are sucked from the water cooled elbow provided on its 4^{th} hole. Water cooled ducting is provided to convey the fumes.

- The primary fume pick up from Induction Furnace will be by a canopy hood placed over the furnace and to convey the same single walled MS ducting will be employed.
- Fugitive emission from material unloading operations, material transfer points will be controlled fully with total enclosure.
- Fugitive as well ambient air quality monitoring shall be carried out on regular basis to ensure the compliance with National Ambient Air Quality Standards (NAAQS). The ambient air quality within the factory premises shall not exceed the standards (PM_{10} 100 $\mu g/m^3$, $PM_{2.5}$ 60 $\mu g/m^3$, SO_2 80 $\mu g/m^3$, NO_x 80 $\mu g/m^3$ and CO 04 $\mu g/m^3$) prescribed by CPCB.
- The monitoring frequency of air quality shall be as per the consent issued by State Pollution Control Board and reports shall be submitted as part of compliance. The records will be maintained.
- Regular Stack Monitoring will be done. All the emissions from the plant will be controlled to meet the relevant standard set by CPCB/State Pollution Control Board
- Details regarding volumetric flow, temperature and emission rate of pollutants from different stacks shall be collected and compiled regularly
- Effective steps shall be taken to control fugitive emission inside the plant. All internal roads will be Tar Roads. Efficient arrangements will be provided to control fugitive dust emission during handling/transportation of Raw materials / finished product etc
- The emission from induction furnace, ladle furnace continuous casting machine area will be extracted and treated in a fume extraction system.
- Fumes will be evacuated directly from induction furnaces through hoods with swirling mechanism and ducting.
- The fumes from Ladle Refining Furnace (LRF) will be collected through a water cooled hood and duct work. The duct carrying fumes from induction furnaces and LRF will join in a mixing chamber from where the gases will be led to the bag house by means of ID fan. Clean gases having less than 50 mg/Nm^3 of dust content

will be exhausted through a stack of 30 m height. Whenever air pollution control system fails, production in the unit will be stopped till the air pollution control system is rectified.

- A avenue plantation will be developed to control fugitive emissions & gaseous pollutants to keep clean and healthy environment.
- During induction melting of steel scrap, lots of sparks get generated. For the purpose of arresting sparks & flame, it is necessary to have a arrestor which arrests sparks. The device provided will be a centrifugal cyclone, which removes sparks and also collects coarser particles. The collected dust in the cyclone hopper can be drained periodically into a drum when the system is shut or a continuous motorized rotary air lock valve can be provided.

Water Environment

- Close circuit system will be provided in cooling of M.S. billets and bar structures. Hence there will not be any waste water generation from the process and cooling in the proposed plant.
- The necessary design parameters and material of construction for cooling system including cooling towers will be selected in such a way that they are able to utilize water from the clarifier. Provision for oil/grease separators will be made to skim oil / grease, if any in the waste water. After skimming of the oil water will be stored in guard pond.

Noise Environment

- The industry will take care while procuring major noise generating machines/equipment to ensure that the manufactures have taken adequate measures to minimize generation of noise.
- The areas where noise levels are high will be partitioned off, noise levels will be minimized at the source, and noise reflection and transmission will be minimized.
- The operator's cabins will be properly insulated with special doors and observation windows.

- The workers working in the high noise areas will be provided with ear muffs/ear plugs.
- Acoustic laggings and silencers will be provided in equipment wherever necessary. Ventilation fans shall be installed in enclosed premises.
- Supply ducts and grills on the ventilation and air conditioning system will be suitably sized for minimum noise level.
- The silencers and mufflers of the individual machines shall be regularly checked
- The noise level shall not exceed the limit 75 dB (A) during the day time 70 dB (A) night time within the plant premises.

Land Environment

The green belt helps to capture the fugitive emissions and attenuate the noise apart from improving the aesthetics quality of the region. A 35 – 50 m wide greenbelt will be developed along the periphery of the plant. Avenue plantation will also be developed as per the standard norms. Approximately 1600 trees per Ha will be planted in consultation with the local Forest Department.

The general guidelines for development of greenbelt will be as follows:

- Trees growing up to 5 m or more will be planted along the plant premises and along the road sides
- Planting of trees will be undertaken in rows.
- Open areas inside the plant boundary will be covered with grass lawns.
- Planting of trees in each row will be in staggered orientation.
- Shrubs and trees will be planted in encircling rows around the project site.
- The short trees (<10 m height) will be planted in the first two rows (towards plant side) of the green belt. The tall trees (>10 m height) will be planted in the outer three rows (away from plant side).

Management Plan of Solid waste

- Process needs refractory lining and is being changed every month.

- Solid waste of slag generation is about 750 TPM.
- Solid waste is non hazardous and non-toxic in nature.
- Slag generated will be used for filling nearby stone quarries and village road constructions after receiving the necessary approval from the authorities.
- Solid waste will be use for land filling, in own premises, for which M/s. Bhagwati Ferro Metal Pvt. Ltd. have already acquired adjacent plot from MIDC.
- Temporary Landfill will be designed for slag and dust as per the guidelines of MoEF New Delhi. This will use only for undisposed waste.

Socio Economic Environment

The project proponent would aid in the overall social and economic development of the region. The plant will give employment to about 175 people of local area. In order to mitigate the adverse impacts likely to arise in the proposed project activities and also to minimize the apprehensions to the local people, it is necessary to formulate an affective EMP for smooth initiation and functioning of the project. The suggestions are given below:

- Communication with the local people will be established regular basis by project authority to provide an opportunity for local youth.
- Project authorities will undertake regular environmental awareness program on environmental management
- Job opportunities are the most demanding factor, the local people as per their education will be employed.
- For social welfare activities to be undertaken by the project authorities, collaboration should be sought with the local administration, gram panchayat, block development office etc for better coordination.

Occupational Safety & Health Management

Project proponent will provide all necessary provisions under Factory Act. In addition a Safety committee will be formed and manned by equal participants from Management and Workers. All personal protect equipments like Safety shoes, helmet & uniform will be issued to each employee based on the nature of job involved. In case a person inhales

fumes, he should be removed to fresh air and given mediated oxygen through a mask for 30 minutes and if required cardiopulmonary resuscitation should be performed.

Conclusion

The potential environmental, social and economic impacts have been assessed. The proposed activities will have the marginal impacts on the local environment. With effective implementation of proposed environment management plan and mitigation measures, these impacts will be insignificant. Implementation of the project has beneficial impact in terms of providing direct and indirect employment opportunities. This will be a positive socio-economic development in the region.