

Executive Summary

Of

Proposed installation of Induction Furnaces (Billets / Ingots / Hot Billets – 5,28,000 TPA), Rolling Mill through Hot Charging (TMT Bars /Structural Steel – 5,00,000 TPA) & Ferro Alloys Unit (FeMn – 70,000 TPA / SiMn – 56,000 TPA/ Pig Iron – 1,40,000 TPA)

Project by

M/s Rajuri Steels & Alloys India Private Limited

At Plot No. A – 29, MIDC, Mul Growth Centre,

District Chandrapur, Maharashtra.

Environmental Consultant

Pollution and Ecology Control Services

Accreditation no.: NABET/EIA/2225/RA 0291 Valid up to 16th October 2025

Executive Summary

1.0 Name of the project along with applicable schedule and category as per EIA, 2006

M/s. Rajuri Steels & Alloys India Private Limited Proposed for the installation of Induction Furnaces (Billets / Ingots / Hot Billets – 5,28,000 TPA), Rolling Mill through Hot Charging (TMT Bars /Structural Steel – 5,00,000 TPA) & Ferro Alloys Unit (FeMn – 70,000 TPA / SiMn – 56,000 TPA/ Pig Iron – 1,40,000 TPA) at Plot No. A – 29, MIDC, Mul Growth Centre, District Chandrapur, Maharashtra. The proposed project attracts the provisions of EIA Notification, 2006 and falls under Category “A” of 3 (a), Metallurgical Industries (Ferrous and Non-ferrous). in Schedule to the Notification.

As a part of EIA process, proponent has made online application on 10th March, 2023 along with Form-1, copy of pre-feasibility report and other documents. The Ministry vide letter IA-J-11011/542/2021-IA-II(IND-I) dated 15th March, 2023 prescribed Standard ToRs for EIA study.

2.0 Location and accessibility

The proposed project will be located at Plot No. A – 29, MIDC, Mul Growth Centre, District Chandrapur, Maharashtra. The total area requirement for the proposed project is 16.0 ha. The nearest highway is NH-930 at 320 m in South of South East direction. The nearest Airport is Nagpur International Airport 131 km.

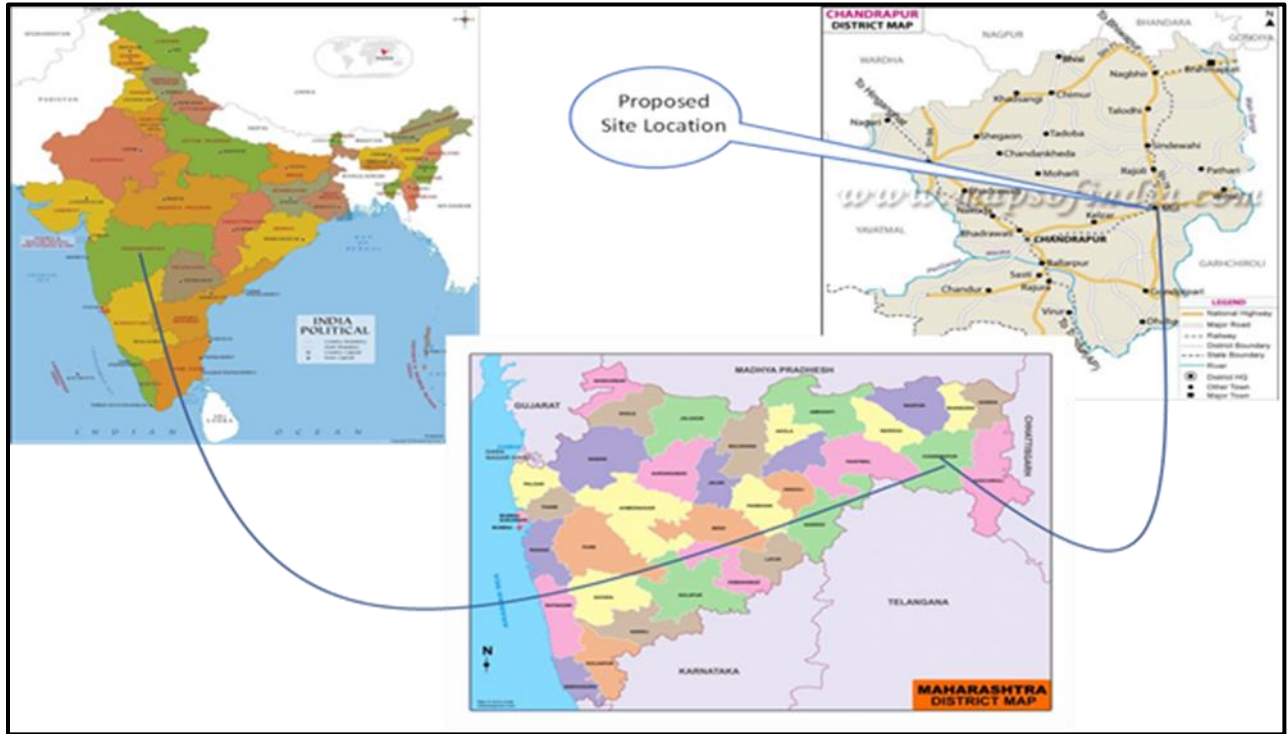
The details of environmental setting are given in **Table 1.1** and the location map is given in **Figure 1.1** .

Table: 1.1 Details of the Project Site

Sr No	Particulars	Details
1	Project site	Rajuri Steels & Alloys India Private Limited at Plot No. A – 29 MIDC, Mul Growth Centre, District – Chandrapur, Maharashtra

2	Co-ordinates	A) 20° 4'30.59"N 79°42'49.75"E B) 20° 4'29.85"N 79°42'39.20"E C) 20° 4'30.94"N 79°42'33.78"E D) 20° 4'35.85"N 79°42'37.07"E E) 20° 4'40.96"N 79°42'39.01"E F) 20° 4'46.89"N 79°42'41.05"E G) 20° 4'47.27"N 79°42'47.23"E H) 20° 4'43.39"N 79°42'48.85"E
3	Elevation above MSL	190 MSL
4	Toposheet No.	55 P/12, 55 P/16, 56 M/9, 56 M/13
5	Present land use	Industrial
6	Nearest National Highway/State Highway	MSH9 : 590 m (W) NH - 930 : 320m (SSE)
7	Nearest Airport/ Air Strip	Dr. Babasaheb Ambedkar International Airport: 131.0 Km (NNW)
8	Nearest Railway Station	Maroda Railway Station : 5.5 Km (WNW)
9	Nearest Village	Maregaon : 280m (SW)
10	Forest patch	Rajoli Reserved Forest : 2.5 Km (NNE) Mul Reserved Forest : 8.5 Km (WSW)
11	Ecologically Sensitive Zones like wild life sanctuaries, national parks and biospheres	The project is located at distances of 2.57 km from the Wildlife Corridor and 4.69 kms from the outer boundary of ESZ of Tadoba Andhari Tiger Reserve (TATR) and 16.72 kms from the protected area of TATR. The ESZ of TATR was notified by Ministry vide notification no. 192. S.O. 3249(E) dated 11.09.2019.
12	Water Bodies	Mul River : 1.0 Km (WSW) Human Nadi : 3.5 Km (NW) Pathri Nadi : 3.0 Km (E) Saoli Nadi : 1.5 Km (SSE) Mungejhari Nala : 6.0 Km (NW) Banasyoran Nala : 4.5 Km (NNW) Bheokund Nala : 3.5 Km (NW)
13	Nearest School	Vidyamandir Convent : 3.0 Km (WSW), Z.P. School Mul : 3.5 Km (WSW) St. Annes High School : 4.0 Km (WSW)
14	Nearest Hospital	Dr. Bokarey Clinic : 3.5 Km (WSW) Dr. Tagade Clinic Mul : 5.5 Km (SW)

15	Temple	Gajanan Maharaj Temple : 5.4 Km (WSW) Hanuman Temple : 4.5 Km (SW)
16	Industries	Greta Energy Ltd.: Adjacent (S) G.R. Krishna Ferro Alloys Pvt. Ltd. :700 m(NNW) Mahalaxmi Rice Industries:2.0 Km (SW)



Source: Maps of India

Figure: 1.1 General Location Map

3.0 Resource Requirements:

Raw Material Requirement:

The details pertaining raw material requirement along with source and mode of transportation is provided in the following table:

S.No.	Raw Material	Quantity (TPA)	Sources	Distance from site (in Kms.)	Mode of Transport
1.	For Steel Melting Shop (Billets/ Ingots/Hot Billets) – 5,28,000 TPA				
a)	Sponge Iron	5,28,000	Own generation	---	Through covered conveyers
b)	MS Scrap / Pig Iron	1,05,600	Chhattisgarh	~ 100 Kms.	By Road through covered trucks
c)	Ferro alloys	6,336	Own generation	---	By Road through covered trucks
2.	For Rolling Mill through Hot charging (Rolled Products) – 5,00,000 TPA				
a)	Hot Billets / Billets / Ingots	5,28,500	Own generation	---	----
b)	LDO / LSHS	17,000 Kl/annum	Nearby IOCL Depot	~ 100 Kms.	By road (through Tankers)
3.	For Ferro Alloys (2 x 16.5 MVA)				
3 (i)	For Ferro Manganese – 70,000 TPA				
a)	Manganese Ore	105,000	MOIL / OMC	~ 500 Kms.	By Road through covered trucks)
b)	MN Slag	56,000	Andhra Pradesh	~ 500 Kms.	By Road through covered trucks)
c)	Dolomite	28,000	Chhattisgarh / Andhra Pradesh	~ 500 Kms.	By Road through covered trucks)
d)	Reluctant	52,500	Inhouse Generation	---	By Road through covered trucks)
e)	Electrode Paste	1,050	Maharashtra / West Bengal	~ 300 Kms.	By Road through covered trucks)
f)	Casing Sheet, MS Round, Lancing Pipe	700	Own generation	---	---
3 (ii)	For Silico Manganese – 56,000 TPA				

a)	Manganese Ore	84,000	MOIL / OMC	~ 500 Kms.	By Rail & Road (through covered trucks)
b)	Hi Mn. Slag	56,000	Andhra Pradesh	~ 500 Kms.	By Road through covered trucks)
c)	Quartz	14,000	Local Market	~200 Kms	By Road
d)	Coke/Coal/Charcoal	42,000	In house generation	---	----
e)	Electrode paste	1,400	Chhattisgarh / Andhra Pradesh	~ 500 Kms.	By Road through covered trucks)
f)	Casing Sheet, MS Round, Lancing Pipe	560	Maharashtra / West Bengal	~ 300 Kms.	By Road through covered trucks)
3(iii)	For Pig Iron – 140,000 TPA				
a)	Iron Ore & Mill Scale	210,000	Surjagadh iron ore mine Gadchiroli	100	By Rail & Road
b)	Coke/Coal/Charcoal	84,350	In house generation	-	-
c)	Dolomite/Lime / Lime Stone	14,350	Chhattisgarh / Andhra Pradesh	~ 500 Kms.	By Road through covered trucks)
d)	Electrode Paste	2,156	Local Market	200	By Road
e)	MS Scrap	980	Local Market	300	By Road
f)	Lancing Pipe	420	Local Market	200	By Road

Water Requirement:

The total water requirement will be 1048 KLD which will be sourced MIDC, Mul. M/s Rajuri Steels & Alloys India Private Limited is committed for ZERO Liquid Discharge; entire wastewater will be treated and reused.

Land Requirement:

The proposed project will be established over an area of 16.0 ha. The entire land is in possession of the proponent for industrial set up as well as green belt development.

Man Power Requirement:

The manpower requirement for the operational phase of the project is 600 people. In addition, there will be an indirect employment for skilled/ semi-skilled people during project life. All attempts will be made to employ suitable, locally available, skilled personnel from the nearby area. In case of non-availability of skilled persons, people will be employed from outside area.

Power Requirement

Total Power required for the proposed project during operation is 87 MW, which will be sourced from power plant of the proponent located in the same MIDC. In case of excess power requirement, same will be met from Maharashtra State Power Transmission Corporation Limited. Power requirement during construction will be met from Maharashtra State Power Transmission Corporation Limited.

4.0 Operational Activity:

The production process of each plant is explained in brief in the following paragraphs:

Steel Melting Shop (Induction Furnace along with Continuous Casting Machine):

Sponge iron, scrap and fluxes will be melted in an induction furnace using electric power. The hot metal from the induction furnace will be sent to ladle refining furnace for further refining, chemistry adjustment, inclusion modifications, etc. CCM will be used to continuously cast the liquid steel in required cross section and in length. It consists of Tundish, Mould, Bow with withdrawal mechanism, straightening mechanism and cooling bed, hydraulic system for withdrawal mechanism, water pumps and cooling towers for water spray on the withdrawn section as well as on the cooling bed.

The Induction Furnace Unit shall be equipped with helmet type swiveling Hood for suction of gases to a suitable Bag Filter through two cyclones. There shall be additional suction hoods mounted on the walls and roof of the Induction Furnace shed to suck up extra fumes and fumes released during tapping operations.

Rolling Mill

The process of shaping metals into semi-finished or finished forms by passing between rollers is called rolling. Rolling is the most widely used metal forming process. It is employed to convert metal billets to simple stock members like bars. In rolling, the metal is plastically deformed by passing it between rollers rotating in opposite direction. There is negligible increase in width, so that the decrease in thickness results in an increase in length.

Submerged Arc Furnace:

The submerged arc process is a reduction smelting operation. The reactants consist of metallic ores (ferrous oxides, silicon oxides and manganese oxides) and a carbon-source reducing agent, usually in the form of coke, charcoal, high and low-volatility coal. Dolomite may also be added as a flux material. Raw materials are crushed, sized, and, in some cases, dried, and then conveyed to a mix house for weighing and blending. Conveyors, buckets, skip hoists, or cars transport the processed material to hoppers above the furnace. The mix is then gravity-fed through a feed chute either continuously or intermittently, as needed. At high temperatures in the reaction zone, the carbon source reacts with metal oxides to form carbon monoxide and to reduce the ores to base metal.

5.0 Key Pollution Concerns:

The key pollution concerns from the proposed project will be stack emissions, fugitive emissions, wastewater generation, noise levels and solid waste generation. The project will provide pollution control equipment for restricting the pollution from stack emissions. Dust suppression system will be provided for controlling the fugitive emissions. Green belt will be developed and equipment will be maintained regularly. Zero liquid discharge will be implemented. Solid waste generated will be recycled/supplied to others for re-utilization, etc.

6.0 Baseline Environmental Studies:**Ambient Air Quality:**

The ambient air quality monitored at 8 locations for 12 weeks during March-May 2023.

The ambient air quality levels were as follows:

PM₁₀ – 41.8-66.8 µg/m³.

PM_{2.5} – 17.6-39.4 µg/m³

SO₂ – 10-24.9 µg/m³

NO_x – 14.9-31.5 µg/m³

The concentrations of PM₁₀, PM_{2.5}, SO₂ and NO_x were found within the National Ambient Air Quality Standards (NAAQ).

Ambient Noise Quality:

Noise levels measured at eight stations within the study area. Recorded noise levels in the study area of proposed project site, are in the range of 37.6 – 51.2 (night time) to 38.2– 56.1 dB (A) (day time) at all eight monitoring stations. Noise levels measured are within limit of 55dB(A) for Residential Area or 75 dB(A) for Industrial Area.

Traffic Study:

The traffic study was carried out at 2 locations namely near Government ITI on Maharashtra State Highway no.7 and near MIDC Road T Point on MIDC Road. Based on the study it is observed that, the baseline V/C ration found 0.14 and level of service A-Very Good. after completion of project the V/C ration change to 0.21 and level of service remain the same i.e A-Very Good

Surface & Ground Water Quality:

A total 16 samples including eight surface & eight 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 is within respective prescribed standards.

Soil Quality:

Eight Soil samples were collected analyzed for physico-chemical characteristics at selected locations in the study area. Texture of all Soil samples are found to be Silty clay, Silty sand with gravel, as per Texture Classification. Colour of all Soil samples are found to be Gray to Black Cotton. pH values varied between 6.74 to 7.85. The NPK levels of soils in the study area found to be in good range.

Biologic Environment:

During the Ecology & Biodiversity survey total 157 species of plant have been observed. During Fauna study total 14 species of fish, 3 species of Amphibian, 16 species of Reptiles, 47 species of Birds & 16 species of Mammals have been reported from the discussion with local people. No endangered plant was observed during survey but vegetation is rich, many diversity of herbs and shrubs. Many medicinal plants were observed. Some quadrates have shown dominance of herb and shrub.

Land use:

The majority of the study area is occupied by agriculture land. Forest occupies 16% of the study area. Water bodies along with rivers/stream/canals occupied 1.98 % of the study area.

Socio-Economic Environment:

During the baseline survey and based on the census data, literacy rate observed to be 36.67% and 29.93% in male & female respectively. Female to Male population found to be 1001 females to 1000 males. People expressed satisfaction about quality and quantity of drinking water. Communication facilities are very poor in the villages. Agriculture is the main occupation of the respondents. Rainfed crops are grown. Unemployment is a crucial problem.

7.0 Anticipated Impacts:**Impact on Ambient Air Quality:**

The major pollutants of air in a proposed plant are the particulate matters from the various stacks and fugitive emissions due to material handling. SO₂ and NO_x also add to the pollutant level due to proposed project operation. Company will take all measures to effectively control the air emissions and periodic monitoring of the stack emissions. During operation phase, air emissions both gaseous and fugitive will be on account of process emissions from stacks of Steel Melting Shop, Sub Merged Arc Furnace, as well as transportation of men and material. The maximum incremental concentrations of PM₁₀, PM_{2.5}, SO₂, NO_x found to be 1.06 µg/m³, 0.579 µg/m³, 1.24 µg/m³ and 0.818

$\mu\text{g}/\text{m}^3$ respectively. As per the worst-case scenario, the maximum incremental concentrations of PM_{10} , $\text{PM}_{2.5}$ found to be $14.1 \mu\text{g}/\text{m}^3$, $8.85 \mu\text{g}/\text{m}^3$. The total (baseline +incremental) concentration even after considering the worst-case scenario found to be within prescribed standards.

Impact on Ambient Noise Quality:

During operation, the major noise generating sources are crushing mill, auto loading section, 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 to the noise generating plant units hence the impact of noise levels on surroundings will be insignificant.

Impact on road and traffic:

Based on the study it is observed that, after completion of plant maximum 160 to 161 trucks per day (13 to 14 trucks per hour will move in and out for material transportation and for finished product and other allied work.

Impact on Surface & Ground Water Resources and Quality:

The water for the proposed project will be supplied by MIDC. The project will implement zero liquid discharge. No ground water will be abstracted.

Impact on Terrestrial and Aquatic Habitat:

The project will be located in notified industrial area. Project will implement zero liquid discharge. Hence impacts on terrestrial and aquatic habitat is negligible. A wildlife conservation plan with financial outlay of Rs. 50,00,000/- was prepared. The conservation activities proposed in the plan will be implemented in consultation with Forest Department.

Impact on Socio Economic Environment:

Rajuri Steels & Alloys India Private Limited is providing direct employment 600 workers. The local persons have been given preference in employment as per the qualification and technical competencies. The project will also carry out developmental activities under CER and CSR.

8.0 Alternative Analysis:

The technologies for manufacturing of different products have been selected based on the technologies available in India and already proven and widely used by different industries. The preferred site is located in notified industrial area and having readily available facilities such as water supply, power supply, etc. and has locational advantage w.r.t. the alternative site.

9.0 Environmental Monitoring Program:

The project will carry out the post project monitoring for ambient air, stack emissions, fugitive emissions, water quality, soil quality regularly through MoEF&CC recognized laboratory. The monitoring reports will be submitted to statutory agencies concerned. Annual budget will be allocated for environment protection measures in addition to capital budget of Rs. 27.9 Crores.

10.0 Additional Studies:

The additional studies as per the ToR issued by MoEF&CC are Public Consultation, Risk Assessment, & Disaster Management Plan.

11.0 Project Benefits:

M/s. Rajuri Steels & Alloys India Private Limited would aid in the overall social and economic development of the region. A budget of Rs. 3 Crores will be allocated for development works (based on the issues raised in the public hearing) in the nearby villages. The project will provide employment to about 600 nos. of people.

12.0 Environment Management Plan:

The environment management plan will provide the mitigation measures for the proposed impacts due to the project. The attribute wise plan is as follows:

Air quality management plan:

The pollution control equipment like bag filters/dust collectors will be provided for controlling the emissions from stack. Dust suppression system will be provided for controlling fugitive emissions. Green belt will be developed. Ambient air quality, stack emissions and fugitive emissions will be monitored regularly.

Noise quality management plan:

Padding/insulation will be provided at various locations to avoid noise due to various activity. Regular maintenance of the various equipment will be done. Ear plugs/muffs will be provided. Ambient and work zone noise levels will be monitored.

Solid and Hazardous Waste Management Plan:

The solid waste generated from the proposed plant will be managed as per the existing rules, authorization to be obtained from MPCB. Part of the solid waste will be reused and others will be supplied to different vendors for reusing.

Effluent Management Plan

The project will implement zero liquid discharge. Entire wastewater generated will be reused after suitable treatment. A packaged STP will be provided for the treatment of sewage. Treated sewage will be reused for plantation.

Storm Water Management Plan

RWH structures will be provided to harvest the rain water around the plant area and roof top. The collected rain water shall be utilized for plant uses to minimize the raw water requirement from the source. The surface water run-off from the main plant area would be led to a sump for settling and the over flow would be collected in the common water basin for further uses in the plant to optimize the raw water requirement of the plant.

Occupational Health & Safety Management Plan:

M/s. Rajuri Steels & Alloys India Private Limited 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 protective equipment like Safety shoes, helmet & uniform will be issued to each employee based on the nature of job involved. Regular health check-up of all the workers at nearby Hospitals. First aid training shall be given to the employees.

Greenbelt Development Plan:

The plantation will be developed along the boundary, along roads and open areas. The green belt in the project will be developed over an area of 5.28 ha. i.e. 33% of the project area. The species will be selected in consultation with local forest department.

Socio-economic management plan:

M/s. Rajuri Steels & Alloys India Private Limited would aid in the overall social and economic development of the region. The plant will give employment to about 600 nos. of people. 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.

Project Cost and EMP Implementation Budget:

The estimated project cost for the proposed project is about Rs. 300 Cr. The project proposes to allocate a budget of Rs. 27.9 Crores for capital works under Environment Management and recurring cost is Rs. 1.1 Crores annual operation and maintenance.

CONCLUSION

It can be concluded that the proposed project activities will not have any major adverse effect on the surrounding environment. Further, due to proposed project, local people will get employment.