SUMMARY ON

ENVIRONMENTAL IMPACT ASSESSMENT

REPORT

OF

Ajay Ingot Rolling Mill Pvt. Ltd.

Expansion of Steel Plant

Up gradation of existing 3 x 8 MT Induction Furnaces to 3 x 10 MT (59,904 TPA to 84,240 TPA) of Hot Metal / MS Ingots / Billets, Establishment of New 2 x 12 MT (67392 TPA) Induction Furnaces, Modernization of existing Rolling Mill (58,656 TPA) (hot charging to reheating furnace heating), Establishment of new Rolling Mill of 1,48,650 TPA (through hot charging)

at

193, 194 & 195, OP Jindal industrial Park,

Punjipathra Village, Gharghoda Tehsil, Raigarh District, Chhattisgarh

Submitted to

CHHATTISGARH ENVIRONMENT CONSERVATION BOARD

Chhattisgarh

1.0 PROJECT DESCRIPTION

AJAY INGOT ROLLING MILL PVT. LTD. has obtained **Environment Clearance** vide order no. 392 / SEIAA, CG / Rolling / Raigarh / 598 Naya Raipur dated 03-08-2017 for establishment of 3 x 8 MT capacity Induction Furnace for manufacturing 59,904 TPA of MS Ingots / Billets, Rolling Mill (through Hot Charging) for manufacturing 58,656 TPA of TMT bars & Structural steels & Gasifier unit of 4400 Nm^3/Hr to produce Producer Gas at Plot Nos. 193, 194 & 195, O.P. Jindal Industrial Park, Village Punjipathra, Tehsil Gharghoda, District Raigarh, Chhattisgarh.

Now, it is proposed to Up gradation of existing 3 x 8 MT Induction Furnaces to 3 x 10 MT and establishment of New 2 x 12 MT Induction Furnaces, Modernization of existing rolling mill of 58,656 TPA (hot charging to reheating furnace heating) and establishment of new Rolling Mill of 1,48,650 TPA (through hot charging) in the existing plant premises only. The project cost envisaged for the proposed expansion project is Rs. 24.25 Crores.

As per the Ministry of Environment, Forest & Climate Change (MOEF&CC), New Delhi notification, dated 14th September, 2006 and its subsequent amendments, all the non – toxic secondary metallurgical processing industries are falling under Sl. No. 3 (a), classified as Category 'B' for the grant of Environmental Clearance at State Level. SEIAA, C.G. has accorded Terms of Reference (TOR) for the proposed expansion project vide letter no. **344/ SEAC-C.G /ROLLING MILL/RAIGARH/756 dated 10th June 2019**. The EIA Report has been prepared considering the TOR issued by MOEF&CC.

Pioneer Enviro Laboratories & Consultants Private Limited, Hyderabad, which is accredited by NABET, Quality Council of India, vide certificate No. NABET/ EIA/ 1619/ RA 026, for preparing EIA report for Metallurgical Unit, have prepared Draft Environmental Impact Assessment (EIA) report for the proposed expansion project by incorporating the TOR approved by SEIAA, C.G. The report contains detailed description of the following:

- Characterization of status of environment with in an area of 10 km radius from the plant for major environmental components including air, water, noise, soil, flora, fauna and socio-economic environment.
- Assessment of air emissions, liquid waste and solid waste from the proposed expansion project along with the noise level assessment.

- Environmental Management Plan comprising of emission control measures proposed to be adopted in the proposed expansion project, solid waste management, Greenbelt development.
- Post Project Environmental Monitoring & Budget for Environmental Protection Measures.

1.1 ENVIRONMENTAL SETTING WITHIN 10 Km. RADIUS OF THE PLANT SITE

The following is the environmental setting within the 10 Km. radius of the Plant site:

Salient Features / Environmental features	Distance w.r.t. site / Remarks
Type of Land (for Expansion)	The plant is situated in Industrial Park developed by O.P. JINDAL GROUP. The expansion project will be taken up in the existing plant premises.
Type of Land (Study Area)	As per LULC the land use within 10 Km. is as follows: Settlements –2.9 %; Industrial Area- 7.6 %; Water Bodies – 6.8 %; Scrub Forest & Dense Forest area – 34.4%; Single crop land –17.4 %; Double Crop Land – 5.2%; Plantation - 1.1%; Land with scrub – 17.6 %; Land without scrub – 5.2 % & Gullied land – 1.8 %.
National Park/ Wild life sanctuary / Biosphere reserve / Tiger Reserve / Elephant Corridor / migratory routes for Birds	There are no notified National Park/ Wild life sanctuary / Biosphere reserve / Tiger Reserve/ migratory routes for Birds with in 10 Km. radius of the plant. **However, movement of Elephants is observed within 10 Kms. radius of the plant, as per the secondary source. Conservation plan is prepared.**
Historical places / Places of Tourist importance / Archeological sites	Banjari temple is situated at a distance of 3.8 Kms. from the plant.
Industrial areas / cluster (MoEF&CC office memorandum dated 13thJanuary 2010)	Nil
Defence Installations	Nil
Nearest village	Tumidih village is the Nearest habitation - 0.65 Kms.
Nearest Hospital	PHC is near to the Industrial Park
Reserved forests	Taraimal RF (0.6 Kms.), Samaruma RF (2.9 Kms), Suhai RF (5.8 Kms.), Rabo RF (7.0 Kms), Urdana RF (6.7 Kms.) Punjipathra PF (0.5 Kms.), Pajhar PF (4.0 Kms.), Maghat P.F. (4.7), Kharidungri PF (9.2 Kms.), Lakha PF's (8.0 Kms.) exist within 10 Km. radius of the plant site.
Water body	Kelo river (6.6 Kms.) & Kurket River (7.8 Kms.), Rabo Dam back water (7.3 Kms.) & Few seasonal nalas, ponds exists with in 10 Km. radius of the plant site.
Crops in the Study Area	Major Crops - Paddy, Arhar, Mung, Groundnut Minor crops - Wheat, Maize, gram, Masur, Urad etc. Horticulture crops – Lemons, Papaya, Banana, Leechie,

	Potato, Mango, Tomato, Onion, Cabbage, Chilly, Ginger etc.
Nearest Railway station	Nil (Bhupdeopur R.S. – 11 Kms.)
Nearest Highway	Raigarh – Ambikapur State Highway – 1.65 Kms.
Nearest Port facility	Nil
Nearest Airport	Nil (Jindal Air strip – 13.7 Kms.)
Nearest Interstate Boundary	No interstate boundary within 10 Km radius of the plant site.
Seismic zone as per IS-1893	Seismic zone – II
R & R	There is no rehabilitation and resettlement issue, as the proposed expansion of steel plant will be taken up in the existing plant premises only.
List of Industries within 10 Km. radius	The following industries are situated in O.P. Jindal Industrial Park.

List of Industries with the Industrial Park

S.No.	Name of the Industry	Type	Plant Configuration & Product Capacity
1.	M/s. Alok Ispat Pvt. Ltd.	Steel Plant	1x7 MT IF -18000 TPA
2.	M/s. Ganga Ispat Pvt. Ltd.	Steel Plant	1x7 MT IF -18900 TPA
3.	M/s. G.P.Global India Pvt. Ltd.	Steel Plant	1x7 MT IF - 18900 TPA
4.	M/s. Narmada Iron and steel Pvt. Ltd.	Steel Plant	2x6 MT IF - 33500 TPA
5.	M/s. Epic Alloys Steel Pvt. Ltd.	Steel Plant	2x 5 MT IF - 31500 TPA
6.	M/s. Eureka Iron and Energy Pvt. Ltd	Steel Plant	1x6 MT IF - 18000 TPA
7.	M/s. Harsh Vinimay Pvt. Ltd.	Steel Plant	1x7 MT IF - 18900 TPA
8.	M/s. Jagdamba Sponge Pvt. Ltd.	Steel Plant	1x6 MT IF - 18000 TPA
9.	M/s. Maabanjari Ispat Pvt. Ltd.	Steel Plant	1x7 MT & 1x10 MT IF - 59000 TPA
10.	M/s. Mamta Electro casting Pvt. Ltd.	Steel Plant	1x6 MT IF - 18000 TPA
11.	M/s. Sri Nirmalanand Steel Casting Pvt. Ltd.	Steel Plant	1x6 MT IF +Rolling-59000 TPA
12.	M/s. R.S. Ispat Pvt. Ltd.	Steel Plant	2x10 MT & 2x12 MT IF - 1,20,000 TPA
13.	M/s. Radhe Govind Steel and Alloy	Steel Plant	1 x 6 MT IF - 14500 TPA
14.	M/s. Raigarh Iron and industries	Steel Plant	2 x 50 TPD - 24000 TPA
15.	M/s. Rajat IspatPvt. Ltd.	Steel Plant	1 x 6 MT IF - 18000 TPA
16.	M/s. Satguru IspatPvt. Ltd	Steel Plant	1x6 MT IF - 18000 TPA
17.	M/s. Sai Ram Steel Pvt. Ltd	Steel Plant	1x6 MT IF - 25200 TPA
18.	M/s. Shova IspatPvt. Ltd	Steel Plant	Closed
19.	M/s. Sri Banke Bihari IspatPvt. Ltd.	Steel Plant	1x6 MT IF - 18000 TPA
20.	M/s. Shree Ram Hi Tech Steel & Power (P) Ltd.	Steel Plant	1x6 MT IF - 18000 TPA
21.	M/s. Sri Balaji Ispat	Steel Plant	1x6 MT IF - 18000 TPA
22.	M/s. Shree Consultant Pvt. Ltd.	Steel Plant	2x6 MT IF - 33000 TPA
23.	M/s. Suryoday Steel Plant Pvt. Ltd.	Steel Plant	1x6 MT IF - 18000 TPA
24.	M/s. Zeon Steel Pvt. Ltd.	Steel Plant	2x6 MT IF - 33000 TPA
25.	M/s. Siddhi Vinayak Oxygen Pvt. Ltd	Oxygen Plant	250 cu/m/h - 75000 cylinder/Year

26.	M/s. Orion Ferro Alloys	Ferro Alloys	1x 4 MVA - SiMn–8000 TPA
27.	M/s. Vandana Energy Pvt. Ltd	Ferro Alloys	1x 6.5 MVA – SiMn - 5000 TPA; (OR) FeMn - 6000TPA
28.	M/s. V.A. Power Pvt. Ltd	Ferro Alloys	1x9 MVA – FeMn - 14400 TPA (OR) SiMn - 14400 TPA
29.	M/s. AR Ispat	Steel Plant	2 x 7 T Induction Furnace 30,000 TPA MS Ingots / Billets
30.	M/s. Tirumala Balaji Alloys Pvt. Ltd.	Ferro Alloys	3x9 MVA – 48,000 TPA

List of Industries with in 10 Km. radius (excluding Jindal Industrial Park)

S.No.	Name of the Industry	Type	Capacity of Plant under operation
1	M/s. Shree shyam Ispat Pvt. Ltd.	Steel & Power Plant	Sponge Iron Plant – 1,20,000 TPA; Steel ingots/ billets – 60,000 TPA; Power Generation - 24 MW
2	M/s. NALWA steel & Power Ltd.	Steel & Power Plant	Sponge Iron Plant – 1,98,000 TPA Steel ingots/ billets – 1,60,000 TPA Rolled Products R–2,50,000 TPA Power Generation - 24 MW
3	M/s. B.S. Sponge Pvt. Ltd.	Steel Plant	Sponge Iron Plant – 90,000 TPA
4	M/s. Shree Ambika Sponge (P) Ltd.	Steel Plant	Sponge Iron Plant – 90000 TPA
5	M/s. Salasar Sponge & Power Pvt. Ltd.	Steel & power Plant	Sponge Iron Plant – 90,000 TPA Steel ingots/ billets – 90,000 TPA Coal Washery – 4,80,000 TPA Power Generation - 80 MW
6	M/s. Singhal Energy Ltd.	Steel & power Plant	Sponge Iron Plant – 60,000 TPA Ferro Alloys – 2 x9 MVA
7	M/s. Singhal enterprises pvt. Ltd.	Steel & power Plant	Sponge iron – 2,83,500 TPA, Billets- 2,16,000 TPA,Rolled products- 90,000 TPA, Ferro Alloys - 10,800 TPA, Coal washery - 1,50,000 TPA & Power –64 MW
8	M/s. Scania Steels & Powers Ltd.	Steel Plant	Sponge Iron Plant – 66,000 TPA
9	M/s. Anjani Steels Ltd	Steel Plant	Sponge Iron Plant – 1,08,000 TPA; Steel ingots / billets – 72,000 TPA; Rolled Products – 72,000 TPA; Power Generation - 12 MW
10	M/s. Raigarh Ispat & Power (P)Ltd.	Steel Plant	Sponge Iron Plant – 60,000 TPA
11	M/s. Maa Kali Alloys Udyog Pvt. Ltd.	Steel Plant	Sponge Iron Plant – 60,000 TPA Steel ingots/ billets – 56,000 TPA Power Generation - 8 MW
12	M/s. Nav Durga Fuel Pvt Ltd	Steel & power Plant	Sponge Iron Plant – 90,000 TPA; Steel ingots/ billets – 60,000 TPA; Rolled Products – 10,000 TPA; Power Generation - 11 MW; Coal Washery – 3,00,000 TPA
13	M/S. SELENO STEELS	Steel Plant	Sponge Iron Plant – 45,000 TPA

14	M/S. NR ISPAT PVT. LTD.	Steel & power Plant	Sponge Iron Plant – 60,000 TPA Steel ingots/ billets – 48,000 TPA Rolled Products – 55,000 TPA Power Generation - 8 MW
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1.2 Plant Configuration and Production Capacity

The proposed Steel Plant envisages manufacturing of the following products:

S.No.	Unit	Existing Plant (In operation) As per E.C. issued on 03-08-2017	Proposed Expansion	After Proposed Expansion
1	Induction Furnace (MS Billets / Ingots / Hot Metal)	3 x 8 T (59,904 TPA)	Modernization of existing Induction Furnaces 3 x 8 T to 3 x 10 T (84,240 TPA) & New Induction Furnaces 2 x 12 T (67,392 TPA) Total = 1,51,632 TPA	Modernization of existing Induction Furnaces 3 x 8 T to 3 x 10 T (84,240 TPA) & New Induction Furnaces 2 x 12 T (67,392 TPA) Total = 1,51,632 TPA
2	Rolling Mill (TMT bars & Structural steels)	58,656 TPA [Through Hot Charging]	Modernization of existing Rolling Mill 58,656 TPA [Reheating Furnace Using a Gasifier] & New Rolling Mill 1,48,650 TPA [Through Hot Charging]	Modernization of existing Rolling Mill 58,656 TPA [Reheating Furnace Using a Gasifier] & New Rolling Mill 1,48,650 TPA [Through Hot Charging]
3	Gasifier	4400 Nm^3/Hr	---	4400 Nm^3/Hr.

1.3 Raw Materials

The following will be the raw material requirement for the proposed expansion project:

S.No.	Raw Material	Quantity (in TPA)	Sources	Mode of Transport
1	**For Induction Furnace (MS Billets / Ingots / Hot Metal) - 1,51,632 TPA**			
a)	Sponge Iron	1,26,000	Chhattisgarh & Orissa	By Road (through covered trucks)
b)	Scrap	54,000	Chhattisgarh & Orissa	By road (through covered trucks)
c)	Ferro Alloys	2,300	Chhattisgarh & Orissa	By road (through covered trucks)

2	**For Rolling Mill [Hot charging (TMT bars & Structural Steel) – 1,48,650 TPA]**				
a)	Hot metal		1,51,632	Own generation	----
3)	**For Rolling Mill [Reheating Furnace Using a Gasifier] - 58,656 TPA]**				
a)	Steel billets		61,600	Own generation/ nearby area	----
b)	Furnace oil		6,600 KLD	Nearby HPCL / IOCL depots	Tankers
	OR				
c)	Coal for Gasifier	Indian	20625	MCL / SECL / open market	By road (through covered trucks)
		Imported	13200	Imported from Indonesia / Australia	By road (through covered trucks)

1.4 Manufacturing Process

Manufacturing of Hot Metal / M.S.Ingots / M.S. Billets through Induction Furnace

Earlier Environment Clearance has been taken for installation of 3x8 T Induction furnaces, now it is proposed to install 3x10 T Induction Furnaces in place of 3x8 T. Raw materials such as Sponge Iron will be melted along with melting scrap and other fluxes to make pure liquid steel and then to mould it in required size billets. The SMS will consist of Induction furnace, Ladles, Cranes & Continuous Casting Machine (CCM). The Hot Metal produced from LRF will be directly sent to Rolling Mill through Direct Charging OR Hot Metal will be sent to CCM to manufacture M.S. Billets / Ingots which will be sent to Rolling Mill through Re-heating the Billets in Re-heating Furnace by Conventional Rolling Mill method.

It is proposed to produce a total of 1,51,632 TPA of Hot Metal / M.S. Billets / M.s. Ingots through 3x10 T & 2x12 T Induction Furnaces.

Manufacturing of Rolled products through Rolling Mill

The Hot Metal produced from Existing & Proposed Induction Furnaces (3x10 T & 2x12 T) i.e. from will be directly sent to Rolling Mill to produce Rolled Products of 1,48,650 TPA called as Hot Charging method. In the other method M.S. Billets / M.s. Ingots purchased from other industries which will be fed to Reheating furnace for the heating and will be sent to Rolling Mill. Furnace will be heated with existing Prodcuer Gas / Furnace oil to produce 58,656 TPA of TMT bars & Structural steels.

1.5 Water Requirement

Water required for the existing plant for which consent has been accorded is 95 KLD and same is envisaged to source through Ground water resources. Water required for the expansion project will be 125 KLD and same will be sourced through Ground water resources. Water drawl permission will be obtained from CGWA. The following is the break-up of the water requirement for entire project.

Break-up of Water requirement

S.No.	Unit	Quantity in KLD		
		Existing Plant	Proposed Expansion	Total after Expansion
1.	Induction Furnaces	30	35	65
2.	Rolling Mill	30	75	105
3.	Gasifier	20	0	20
4.	Domestic	5	5	10
5.	Greenbelt development	5	5	10
6.	Dust Suppression	5	5	10
	Total	**95**	**125**	**220**

1.6 Waste Water Generation

In the proposed project, The wastewater generated from the proposed unit will be sent to Settling pond after it will be recycled again as closed circuit cooling system is provided. Scrubber blowdown will be recycled back. Oil & grease traps will be provided, to treat if water is getting mixed with oil, grease and cleaning agents. Sanitary waste water generation due to expansion will be **8 KLD** and will be treated in STP. Treated sewage will be utilized for Greenbelt development.

1.7 Wastewater Characteristics

PARAMETER	Sanitary waste water untreated
pH	7.0 – 8.5
BOD (mg/l)	200 – 250
COD (mg/l)	300 – 400
TDS (mg/l)	800 – 900

2.0 DESCRIPTION OF ENVIRONMENT

Base line data has been collected on ambient air quality, water quality, noise levels, soil quality, flora and fauna and socio economic details of people within 10 km radius of the plant.

2.1 Ambient air quality

Ambient air quality was monitored for $PM_{2.5}$, PM_{10}, SO_2, NOx & CO at 8 stations including project site during **1st March 2019 to 31st May 2019.** The following are the concentrations of various parameters at the monitoring stations:

Parameter		Concentration
$PM_{2.5}$	:	22.6 to 48.1 µg/m^3
PM_{10}	:	41.2 to 84.4 µg/m^3
SO_2	:	7.8 to 24.1 µg/m^3
NO_X	:	7.3 to 31.5 µg/m^3
CO	:	454 to 1466 µg/m^3

2.2 Water Quality

2.2.1 Surface Water Quality

Three (4) nos. of Surface water samples have been collected, 2 nos. of surface water sample have been collected each from Kelo river (6.6 Kms.), 1 no. sample collected from Kurket River (7.8 Kms.) & 1 no. from Tumidih Pond (0.8 Kms.) to assess surface water quality. The analysis of samples shows that all the parameters are in accordance with BIS-2296 specifications.

2.2.2 Ground Water Quality

8 No. of ground water samples from open wells / bore wells were collected from the nearby villages to assess ground water quality impacts and analyzed for various Physico-Chemical parameters. The analysis of samples shows that all the parameters are in accordance with BIS: 10500 specifications.

2.3 Noise Levels

Noise levels were measured at 8 locations during day time & Night time. The noise levels at the monitoring stations are ranging from **46.40 dBA to 63.38 dBA.**

3.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

3.1 Prediction of impacts on air quality

The likely emissions from the proposed expansion project are PM_{10}, NOx & CO. The predictions of Ground level concentrations have been carried out using Industrial Source Complex (ISC-3) model. Meteorological data such as wind direction, wind speed, max. and min. temperatures collected at the site have been used as input data to run the model.

The predicted max. Incremental PM_{10} concentrations (24 hourly) due to the proposed expansion project will be 1.28 μg/M^3 at a distance of 750 m from the stack in the down wind direction over the baseline concentrations.

The predicted incremental rise in Particulate Matter concentration due to the Vehicular emission will be 0.14 μg/m^3.

The predicted max incremental SO_2 concentrations (24 hourly) due to the proposed expansion project will be 5.15 μg/m^3 at a distance of 750 m from the stack in the down wind direction over the baseline concentrations.

The predicted max incremental Nox concentrations (24 hourly) due to the proposed expansion project will be 8.24 μg/m^3 at a distance of 750 m from the stack in the down wind direction over the baseline concentrations.

The predicted incremental rise in Nox concentration due to the Vehicular emissions will be 1.12 μg/m^3.

The predicted incremental rise in CO concentration due to the Vehicular emission will be 0.70 μg/m^3.

The net resultant concentrations (Maximum baseline conc. + predicted incremental rise in conc.) of PM, NO_X & CO are shown in Table below by considering the emissions from other industries in the area will be well within the National Ambient Air Quality Standards (NAAQS) when the expansion project commences the operation.

Net Resultant maximum concentrations due to the proposed expansion project

Item	PM_{10} («g/m^3)	SO_2 («g/m^3)	NO_X («g/m^3)	CO («g/m^3)
Maximum baseline conc. in the study area	84.4	24.1	31.5	1466
Maximum predicted incremental rise in concentration due to proposed expansion project (Point Sources)	1.28	5.15	8.24	---
Maximum predicted incremental rise in concentration due to proposed expansion project (Vehicular emissions)	0.14	---	1.12	0.7
Net resultant concentrations during operation of the expansion project	**85.69**	**29.25**	**40.86**	**1466.7**
National Ambient Air Quality Standards	**100**	**80**	**80**	**2000**

The net resultant Ground level concentrations during operation of the expansion project are within the NAAQS. Hence there will not be any adverse impact on air environment due to the proposed expansion project.

3.2 Prediction of impacts on noise quality

The major noise generating sources are Furnace & DG set. Silencer will be provided to the DG Set. The ambient noise levels will be within the standards prescribed by MoEF i.e. the noise levels will be less than 75 dBA during day time and less than 70 dBA during night time. 5.32 Acres of extensive greenbelt will be developed covering more than 1/3rd of the total area helps in further attenuating the noise levels. Hence there will not be any adverse impact due to noise on population in surrounding areas due to the proposed expansion project.

3.3 Prediction of impacts on Water Environment

In the proposed project, The wastewater generated from the proposed unit will be sent to Settling pond after it will be recycled again as closed circuit cooling system is provided. Scrubber blowdown will be recycled back. Oil & grease traps will be provided, to treat if water is getting mixed with oil, grease and cleaning agents. Sanitary waste water generation due to existing & expansion units will be **8 KLD** and will be treated in STP. Treated sewage will be utilized for Greenbelt development.

3.4 Prediction of Impacts on Land Environment

Zero effluent discharge will be adopted. All the required air pollution control systems will be provided to comply with CPCB / CECB norms. All solid wastes will be disposed / utilized as per CPCB / SPCB norms. 5.32 Acres of greenbelt has already been developed

as per guidelines. Hence there will not be any adverse impact on land environment due to the proposed expansion project.

3.5 Prediction of Impacts on Biological Environment

- There are no National Parks, Wild life Sanctuaries and Bird Sanctuaries within 10 Km. radius of the plant site. The area is known to have Elephant movement. Conservation plan is prepared.
- Taraimal RF (0.6 Kms.), Samaruma RF (2.9 Kms), Suhai RF (5.8 Kms.), Rabo RF (7.0 Kms), Urdana RF (6.7 Kms.) Punjipathra PF (0.5 Kms.), Pajhar PF (4.0 Kms.), Maghat P.F. (4.7), Kharidungri PF (9.2 Kms.), Lakha PF's (8.0 Kms.) exist within 10 Km. radius of the plant site.
- All the required Air emissions control systems in the expansion project will be installed and operated to comply with MOEF/CPCB/CECB norms.
- Zero liquid effluent discharge is being maintained in the existing plant and similar practice will be maintained after expansion also.
- All solid waste disposal will be in accordance with the norms.
- Extensive Greenbelt of 5.32 acres will be developed in the plant premises.

When all norms are complied and with proper implementation of Environment Management Plan, there will not be any adverse impact on flora & Fauna due to the proposed expansion.

3.6 Socio - Economic Environment

There will be lot of opportunities in employment to local people during construction as well as in operation phase. There will be further upliftment in Socio Economic status of the people in the area. Hence there will be further development of the area due to the proposed expansion project.

4.0 ENVIRONMENTAL MONITORING PROGRAMME

Post project monitoring will be conducted as per the guidelines of CECB and MoEF&CC are tabulated below:

MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

S.No.	Particulars	Frequency of Monitoring	Duration of sampling	Parameters required to be monitored
1. Water & Waste water quality				
A.	Water quality in the area	Monitored on quarterly basis.	Grab sampling	As per IS: 10500
B.	Sanitary waste water	Once in a month	Grab sampling	As per EPA Rules1996
2. Air Quality				
A.	Stack Monitoring	Online monitors Once in a month		PM PM, SO_2 & NOx
B.	Ambient Air quality	Once in a month	24 hours continuously	$PM_{2.5}$, PM_{10}, NOx & CO
C.	Fugitive emissions	Quarterly basis	8 hours	PM
3. Meteorological Data				
	Meteorological data to be monitored at the plant.	Daily	Continuous monitoring	Temperature, Relative Humidity, rainfall, wind direction & wind speed.
4. Noise level monitoring				
	Ambient Noise levels	Twice in a year	Continuous for 24 hours with 1 hour interval	Noise levels

5.0 ADDITIONAL STUDIES

No rehabilitation and resettlement is required as the plant is located in O.P. Jindal Industrial Park.

6.0 PROJECT BENEFITS

With the establishment of the proposed expansion project employment potential will increase. Land prices in the area will increase. The economic status of the people in the area will improve due to the proposed project. Top priority will be given to locals in employment. A separate budget will be allocated for CER activities which will be implemented in the nearby villages. These activities will help in contributing to the development of villages in the nearby areas.

7.0 ENVIRONMENT MANAGEMENT PLAN

7.1 Air Environment

The following are air emission control systems proposed in the expansion project:

S.No.	Stack attached to	No. of Stacks	Control Equipment	Particulate emission at the outlet
1.	Up gradation of existing Induction Furnaces (3x8 T to 3 x 10 T)	1 no. (Tri flues)	Modification of existing Fume extraction system followed by Bag filter	< 30 mg/Nm^3
2.	Proposed Induction Furnaces (2 x 12 T)	1 no. (Twin flues)	Fume extraction system followed by Bag filter	< 30 mg/Nm^3
3.	Existing Rolling Mill of 58,656 TPA (Reheating Furnace with Coal Gasifier)	1 no. (existing)	Scrubber	< 30 mg/Nm^3
4.	New Rolling Mill 1,48,650 TPA [Through Hot Charging]	1 no.	No APCS is required as no fuel is used	----

- All conveyors will be completely covered with G.I. sheets to control fugitive dust.
- All bins will be totally packed and covered so that there will not be any chance for dust leakage.
- All discharge points and feed points, wherever the possibility of dust generation is there a de-dusting suction point will be provided to collect the dust.

7.2 Water Environment

In the proposed project, the wastewater generated from the proposed units will be sent to Settling pond after it will be recycled again as closed circuit cooling system will be adopted. Sanitary waste water generation due to expansion will be **8 KLD** and will be treated in STP. The treated sewage will be utilized for Greenbelt development. Provision of traps will be provided, if water is getting mixed with oil, grease and cleaning agents.

7.3 Noise Environment

The major sources of noise generation in the proposed expansion project will be Furnace & DG set, etc. Silencer will be provided to D.G. set. All the machinery will be manufactured in accordance with MoEF&CC norms on Noise levels. The employees working near the noise generating sources will be provided with earplugs. The extensive

greenbelt will be developed within the plant premises and will help in attenuating the noise levels further.

7.4 Land Environment

There will be no effluent generation from the manufacturing process as closed circuit cooling system will be adopted. Sanitary waste water will be treated in septic tank followed by subsurface dispersion trench.

Solid wastes will be disposed off as per norms. Extensive greenbelt will be developed in the plant premises. Hence there will not be any impact due to the proposed expansion project.

Solid waste generation and disposal

Following will be the solid waste generation & proposed method of disposal.

S.NO.	WASTE	AFTER PROPOSED EXPANSION (IN TPD)	METHOD OF DISPOSAL
Induction Furnace			
1	Slag	48.6	Slag from SMS will be crushed and iron will be recovered & remaining non-magnetic material being inert by nature will be used as sub base material in road construction / will be given to brick manufacturers / will be sent to common disposal yard within the Industrial Park.
Rolling mill			
2	Mill scales	3.8	Mill scales will be given to nearby Ferro alloys manufacturing units or casting units in the O.P. Jindal Industrial Park.
3	End Cuttings	6.7	Recycled back as raw material in own induction Furnaces.
4	Coal Tar	0.1	Will be Given to TAR recyclers or Road making contractors.
5	Cinders	1.4	Will be given to nearby Bricks manufacturing units.
Note: Solid wastes such as slag will be stored in designated storage yard. All stock piles will be made on top of a stable liner to avoid leaching of materials to ground water.			

7.5 Greenbelt Development

Extensive Greenbelt of 5.32 Acres will be developed in the existing plant premises covering more than 1/3rd of the total area.

Capital Cost for Environment Protection for proposed plant : Rs. 2.45 Crores

Recurring Cost per annum for Environmental protection : Rs.27 Lakhs

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