EXECUTIVE SUMMARY

1.0 INTRODUCTION

M/s. N.R. Steel and Ferro Private Limited (hereafter referred as NRSFPL) have proposed to implement greenfield facilities for production MS Billet, Steel Rerolled products, Wire Rod, Drawn Wire; Ferro Alloys and/or Pig Iron. Proposed Greenfield project will be established in 8 Ha of total land area. Letter of Intent (LOI) for Land & Power has been provided to M/s. NR Steel and Ferro Pvt. Ltd. by Jindal Steel and Power at OP Jindal Industrial Park; Punjipathra - Tumidih; Raigarh. Chhattisgarh State. Industrial Development Corporation (CSIDC) which is a Government of Chhattisgarh undertaking (registered under the Companies Act, 1956) had provided land to M/s. Jindal Steel & Power Ltd. for development of industrial estate on lease for 99 years commencing from 05.06.2004.

It is proposed to implement 15 MT X 4 Nos. Induction furnaces along with CCMs and 15 ton LRFs to produce 164160 TPA MS Ingot/ Billet along with direct hot charging facility to produce 160800 TPA rerolled steel products; mainly in the form of wire rod or TMT. It is also proposed to implement a cold wire drawing unit of 157500 TPA capacity of MS Wire to add value to wire rod produced through fuel free process.

Along with above, it is also proposed to implement Ferro Alloys production facility with Submerged Arc Furnaces (9 MVA X 4 Nos.) to produce about 82000 TPA Ferro Alloys (mainly Silico Manganese) or in case it is utilized to produce Pig Iron; then it will be able to produce 164000 tonnes Pig iron per annum. The unit proposes to use hot molten pig iron for further processing as and when pig iron will be produced. This will lead to reduction of melting power required in the Induction furnace units to the extent of cold pig iron likely to be reduced.

As per Environmental Impact Assessment Notification dated 14th September, 2006 and subsequent amendment thereof, the overall project falls under **Category "A"**; project activity '**3(a)**' Metallurgical Industries and requires Environmental Clearance (EC) to be obtained from EAC (Metallurgical industries (ferrous & non-ferrous)), MoEF&CC, New Delhi.

The online application prior to Environmental Clearance (Form-1) for proposed metallurgical project was submitted to EAC, MoEF&CC, New Delhi vide Online Proposal No. IA/CG/IND/171925/2020 on 09th Sept. 2020. The proposal was considered by the Expert Appraisal Committee (EAC) and ToR was granted vide file no. J-11011/200/2020-IA.II(I) on 19th September, 2020 for preparation of the draft EIA-EMP report. An application to seek amendment in TOR was made on 31 Oct 2020 vide proposal no: IA/CG/IND/180780/2020 to increase the capacity of Ferro Alloys furnaces from 9 MVA x 2 nos to 9 MVA x 4 nos . The same was considered in the 25th Meeting of EAC on date 25.11.2020 and amended ToR was granted on 16th December,2020 .

Anacon Laboratories Pvt. Ltd., Nagpur, is QCI-NABET accredited in 'Category A' environment consultant organization has been assigned to undertake an Environmental Impact Assessment (EIA) study and preparation of Environment Management Plan (EMP) for various environmental components, which may be affected due to the impacts arising out of the proposed project.

The Environmental Impact Assessment (EIA) and Environment Management Plan report is prepared for obtaining Environmental Clearance (EC) from MoEF&CC, New Delhi for the proposed project.

Anacon Laboratories Pvt. Ltd. had conducted the baseline study for one of the steel project within Jindal Industrial Park along with 10 Km radius Study area surrounded to the project site during Pre Monsoon Season (15th March 2019 to 15th June 2019) accordingly, EIA study report is prepared and submitted to Public Hearing for the same. Since, NR Steel and Ferro Pvt. Ltd. is located within Jindal

Industrial Park which is near to earlier studied project, thus the aforesaid baseline data for preparation of EIA study report is also used for preparation of the EIA. Moreover, additional one month (Oct'20) air quality data for proposed project site is also generated. This EIA report is prepared based on the ToR conditions along with amended ToR recommended by EAC (Industry – I), New Delhi and project related technical details provided by M/s. NRSFPL.

1.1   IDENTIFICATION OF PROJECT

M/s. NRSFPL has proposed implementation of production facilities for MS Ingot/Billet and CCM (164160 TPA); Steel Rerolled products from Hot Charging Rolling Mills (160800 TPA); MS Wire drawing unit (157000 TPA); Ferro Alloys (82000 TPA) and/or Pig Iron (164000 TPA) as a Greenfield project on 8 hectare industrial land at Plot No. 251, 252, 253 & 254, O.P. Jindal Industrial Park, Punjipathra, Village – Tumidih, Tahsil - Gharghoda, District - Raigarh, Chhattisgarh – 496109.

1.2   LOCATION OF THE PROJECT

The proposed plant is located at Plot No. 251, 252, 253 & 254, O.P. Jindal Industrial Park, Punjipathra, Village – Tumidih, Tahsil - Gharghoda, District - Raigarh, Chhattisgarh – 496109. The nearest city is Raigarh which is around 18.9 km in south east direction. Nearest airport is Veer Surendra Sai Airport ,Jharsuguda Airport which is around 75.00 km at east south east direction. The nearest habitation is Tumidih Village which is 1.2 km at N direction from the project site. The nearest roadway is State Highway 1 (SH-1) Ambikapur Highway which is 2.4 km in east direction. The nearest railway station is Bhupdeopur Railway Station which is 11.8 km in the south west direction. The study area of 10 km radial distance from the project site is shown in **Figure 1**.

1.3   EIA/EMP REPORT

In line with the approved ToR obtained from EAC (Industry –I), MoEFCC, New Delhi, baseline environmental monitoring was already conducted during Pre monsoon season (15th March 2019 to 15th June 2019) has been considered for determining the status of ambient air quality, ambient noise levels, surface and groundwater quality, soil quality, status of flora, fauna and eco-sensitive areas and socio-economic status of the villages within 10 km radius study area from the project site **(Figure 1).** The observations of the studies are incorporated in the draft EIA/EMP report. Impacts of the proposed project activities during construction and operation stages were identified and duly addressed in the draft.

EIA/EMP report alongwith the proposed management plan to control / mitigate the impacts. Environmental Management Plan is suggested to implement the pollution control in the project.

Proposed implementation of production facilities for MS Ingot/Billet and CCM (164160 TPA); Steel Rerolled products from Hot Charging Rolling Mills 160800 TPA; MS Wire drawing unit 157500 TPA; Ferro Alloys 82000 TPA and/or Pig Iron 164000 TPA (Greenfield project) at Plot No. 251, 252, 253 & 254, OP Jindal Industrial Park, Punjipathra, Village Tumidih, Tahsil - Gharghoda, District - Raigarh, (CG) **M/s. N.R. Steel and Ferro Pvt. Ltd.**

ANACONLABS
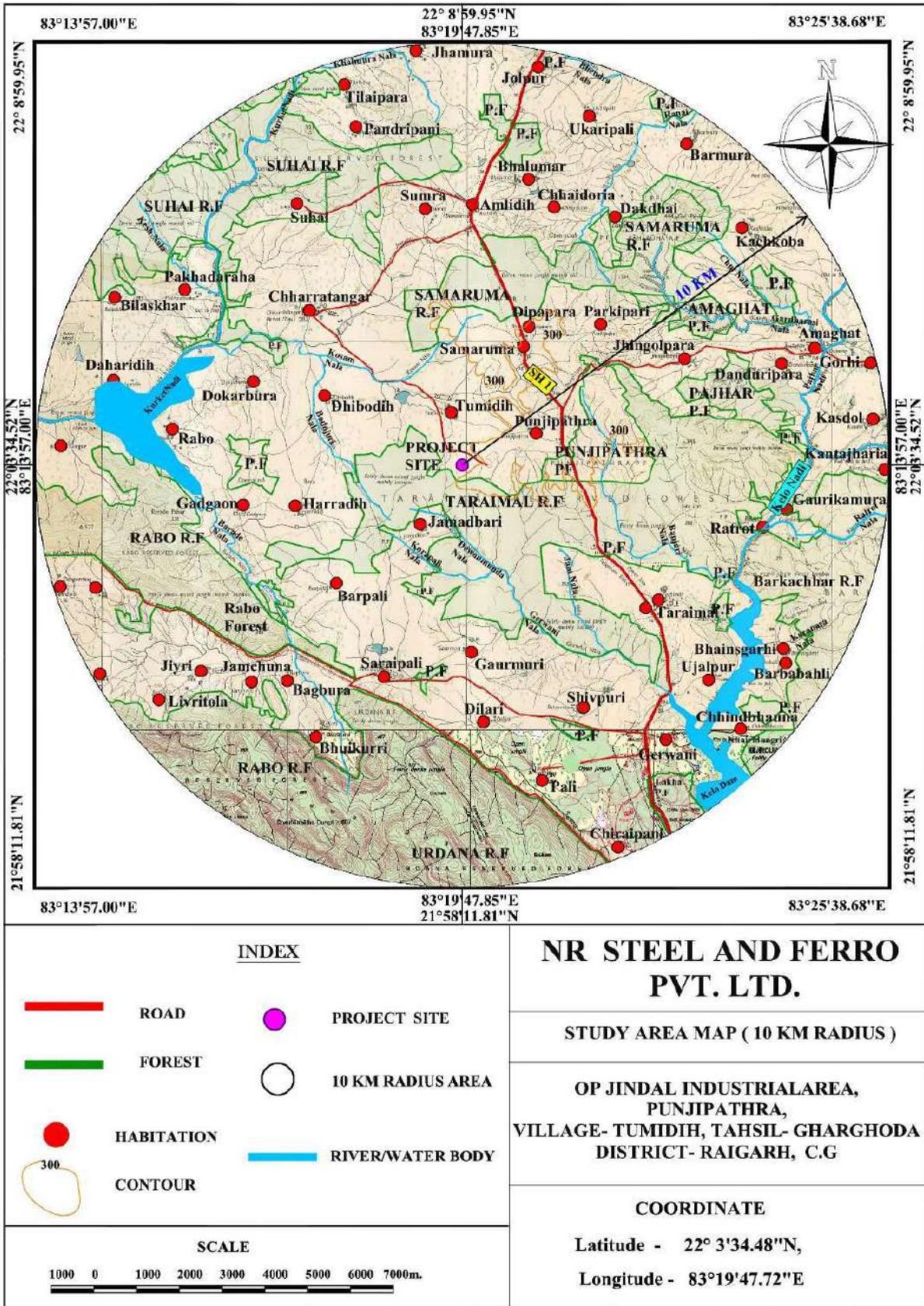
FIGURE 1: STUDY AREA (10 KM RADIAL DISTANCE)

TABLE 1
DETAILS OF ENVIRONMENTAL SETTINGS

Sl.	Particulars	Details
1.	Project Location	Plot No. 251, 252, 253 & 254, OP Jindal Industrial Park Punjipathra Village Tumidih, Tehsil - Gharghoda, District - Raigarh (Chhattisgarh).
2.	Co ordinate	Latitude / Longitude (a) 22^0 3'29.38 N / 83^0 19'52.51 E (b) 22^0 3'28.03 N / 83^0 19'45.59 E (c) 22^0 3'40.84 N / 83^0 19'43.25 E (d) 22^0 3'41.83 N / 83^0 19'50.16 E
3.	Toposheet No.	No.64 N/8
4.	Climatic Conditions	Mean annual rainfall is 1394 mm Temperature : Pre monsoon 20.5 ^{0}C (Min.) 41.4 ^{0}C(Max.) : Winter 13.1 ^{0}C (Min.) 30.8 ^{0}C (Max) : Post monsoon 17.5 ^{0}C (Min.) 32.4 ^{0}C(Max.) Source: IMD, Raigarh
5.	Nearest IMD station	IMD Raigarh – 19.0 Km
6.	Land Form, land Use and Ownership	• The project is proposed on the available land of total area 8 Hectare. • Land is already obtained through lease from OP Jindal Industrial Park. • Chhattisgarh State Industrial Development Corporation (CSIDC), a Government of Chhattisgarh undertaking (registered under the Companies Act, 1956), provided land to M/s. Jindal Steel & Power Ltd. for development of industrial estate on lease for 99 years commencing from 05.06.2004. • Total 39.01% area (3.12 Ha.) will be developed as greenbelt..
7.	Site topography	Project site located at min. 294 m, max. 301 m (above MSL)
8.	Nearest roadway	SH-1 (Ambikapur Highway) – 2.4 Km, E
9.	Nearest Railway Station	Bhupdeopur Railway Station – 11.8 Km, SW
10.	Nearest Air Port	Veer Surendra Sai Airport,Jharsuguda Airport – 75.00 Km, ESE
11.	Nearest Port	NA
12.	Nearest lake	Kelo Reservoir –9.8, SE
13.	Nearest State/National Boundaries	Odisha – 24.7 km, E
14.	Nearest major city with 2,00,000 population	Raigarh –18.9km, SE.
15.	Nearest village/major town	Tumidih – 1.2 km, N.
16.	Distance for sea coast	Bay of Bengal– 347 km, SE.
17.	Hills/valleys	NA
18.	Nearest Reserved/ Protected forests	• Urdana RF – 6.9, S • Suhai RF – 5.0, NW • Barkachhar RF –7. 9, SE • PF near Saraipali – 4.7, S • Kharidungri RF –9.6, SE • PF near Rabo – 4.3, W • Taraimal RF – 0.2, S PF near Dokarbura – 4.8NW, • PF (Near Vill. Jamadbhari) – 2.6, S • PF near Bhalumar – 7.1, N • Rabo RF – 5.2, SW • PF near Barmura – 9.4,NE • Samaruma RF –2.7, N • PF near Amaghat – 8.1, NE • Punjipathra PF – 2.2, E • PF near Shivpuri – 6.3, SE • Panjhar PF –5.5, NE • PF near Saraipali – 4.7, S

Proposed implementation of production facilities for MS Ingot/Billet and CCM (164160 TPA); Steel Rerolled products from Hot Charging Rolling Mills 160800 TPA; MS Wire drawing unit 157500 TPA; Ferro Alloys 82000 TPA and/or Pig Iron 164000 TPA (Greenfield project) at Plot No. 251, 252, 253 & 254, OP Jindal Industrial Park, Punjipathra, Village Tumidih, Tahsil - Gharghoda, District - Raigarh, (CG) **M/s. N.R. Steel and Ferro Pvt. Ltd.**

Sl.	Particulars	Details	
19.	Nearest water bodies	**Rivers :**	
		• Kelo River – 7.7, E	• Kosam Nala – 2.4, NW
		• Pajhar Nadi – 8.0 ENE	• Khalmura Nala – 8.0,N
		• Jam Nala – 3.3, SE	• Bhendra Nala – 9.7, NNE
		• Dewanmunda Nala – Adjacent, W	• Ranai Nala – 5.5, NE
		• Korapali Nala – 2.2, S W	• Chui Nala – 8.0, NE
		• Barade Nala – 5.5, WSW	• Gardharasi Nala – 7.2, NENE
		• Bodojuri Nala – 2.1, SW	• Ratrot Nala – 7.2, SE
		• Kesh Nala – 6.9, WNW	• Banjari Nala – 3.8, E
		• Kurket Nadi – 6.4, WNW	• Gerwani Nala – 4.1, S E
		• Karanara Nala – 8.4, SE	
20.	Areas already subjected to pollution or environmental damage	Project located within OP Jindal Industrial Park. Park is not classified or notified as severally or critically polluted area.	
21.	Seismic zone	The proposed project site falls in zone-II as per IS 1893 (Part-I): 2002. Hence, seismically it is a stable zone.	

2.0   PROJECT DESCRIPTION

2.1   PROCESS DESCRIPTION

2.1.1 Manufacturing process of Steel Melting Shop with CCM

- The manufacturing process installed in the unit is one which is well established and proven technology presently being followed by majority of similar manufacturing units mostly in small or medium scale sector.

- In order to achieve high energy efficiency 4 numbers of Induction Furnaces (each 15 MT capacity) with medium power input capacity of 6 to 7.5 MVA each will be setup with automatic charging facility and Power Sharing software. Electronic software will be installed to monitor the input power and maintaining power factor to almost unity level and operate at full load in any given time.

- The melting process involves taking sample of Sponge Iron & Pig Iron; Iron Powder and mild steel scrap, end cutting from rolling mills or scrap from user units is taken from raw material storage.

- Homogeneous molten mass is poured hydraulically into the ladle.

- **LRF (Ladle Refining Furnace):**

  The production of molten steel the production of quality requires refining of the same for which one Ladle Refining Furnace

- **CCM:**

- The ladle containing liquid steel is placed on the Continuous Casting Machine platform and continuous casting of hot billet is carried out in the same.

2.1.2   Manufacturing process of Cold Wire Drawing Unit

The wire-drawing process consists of pointing the rod, threading the pointed end through a die, and attaching the end to a drawing block. Fine wire is made by a multiple-block machine.

2.1.3   Manufacturing process of Ferro Alloys Plant

High Carbon Ferro/Silico Manganese: High Carbon Ferro/Silico Manganese as a finished product produces through a conventional 9 MVA X 4 Nos. Submerged Arc Electric Furnace

2.1.4   Manufacturing process of Pig Iron Plant

Pie Iron is also proposed to produce alternately from the same 9 MVA X 4 Nos. Submerged Arc Furnace by using lower grades Iron ore and Magnetite Iron ores and takes the liquid Iron (Hot Metal) to Induction Furnaces for production of steel.

2.2   LAND REQUIREMENT

The total proposed project area is 8 Hectare. Land is obtained through lease in OP Jindal Industrial park CSIDC, a Government of Chhattisgarh undertaking (registered under the Companies Act, 1956), provided land to M/s. Jindal Steel & Power Ltd. for development of industrial estate on lease for 99 years commencing from 05.06.2004. The land details are provided as follows:

TABLE 2
AREA STATEMENT

S. No.	Particulars	Area (n Ha.)	Percentages in proposed area
1	Constructed Area	2.64	33.04%
2	Roads	0.46	5.7%
3	Open Area	1.78	22.25%
4	Green Belt	3.12	39.01%
	Total	**8.00**	

2.3   RAW MATERIALS REQUIREMENT, SOURCE & MODE OF TRANSPORT

The raw material will be transported through truck. It is estimated that approx. 143 trucks/day required for transportation of raw materials and finished products of the plant

2.3.1   Solid and Hazardous waste generation

Total Solid wastes generation through process is estimated to be about 189750.00 TPA which includes Melting Scrap 8514 TPA, Mil Scale 6786 TPA, Slag from Induction Furnace 25534 TPA, Refractory and Ramming Mass waste 216 TPA and Slag from Ferro Alloys Plant 82000 TPA or in case of Pig Iron 164000 TPA. Waste oil/used oil will be 5 KL/Yr which are classified as hazardous waste. Maximum generated solid wasted will be reused in the process except slag will be given to landfill and road making.

2.4   WATER REQUIREMENT & SOURCE

The total makeup water requirement for the project will be 560 m^3/day. (18 KL for domestic purpose).The water will be source from subsurface i.e. groundwater. According to CGWB the area falls under Safe zone for ground water development.

2.5   POWER REQUIREMENT & SUPPLY

Power requirement will be around 50 MW which will be drawn from JSPL power supply network. An emergency backup DG set of 1500 KVA x 2 Nos. will be installed for backup power.

2.6   MANPOWER REQUIREMENT

M/s. N.R. Steel and Ferro Pvt. Ltd. will provide employment to 360 peoples as direct employment which includes 37 people as administrative staff and 323 people will be production staff whereas indirect employment 500 persons also generated. Preference will be given to local people, depending upon their qualification and skill.

2.7   FIRE FIGHTING FACILITIES

In order to combat any occurrence of fire in plant premises, fire protection facilities are envisaged for the various units of the plant. All plant units, office buildings, laboratories, etc. will be provided with adequate number of portable fire extinguishers to be used as first aid fire appliances.

2.8   PROJECT COST

The project cost of the project is estimated as Rs. 11900 Lakhs

3.0   EXISTING ENVIRONMENTAL SCENARIO

3.1   BASELINE ENVIRONMENTAL STUDIES

Baseline environmental studies were conducted at project site along with 10 km radial distance from the project site. The baseline environmental quality data for various components of environment, viz. Air, Noise, Water, Land were monitored during Post monsoon season (15th March 2019 to 15th June 2019).

3.2   METEOROLOGY & AMBIENT AIR QUALITY

Summary of the Meteorological Data Generated At Site (15th March 2019 to 15th June 2019)

Predominant Wind Direction	Pre monsoon season
First Predominant Wind Direction	WNW (10.53 %)
Second Predominant Wind Direction	W (9.30 %)
Calm conditions (%)	0.46
Avg. Wind Speed (m/s)	2.40

The status of ambient air quality within the study area was monitored for pre-monsoon season of the year 2019 for at 8 locations covering project site (Reference project site for M/s. Maa Shiva Steel and Alloys LLP at O.P. Jindal Industrial Area, 0.5 Km away from M/s. NRSFPL), Punjipathra, Dhibodih, Harradih, Barpali, Shivpuri, Parkipari and Kantajharia. All these 8 sampling locations were selected based on the meteorological conditions considering upwind and downwind, cross wind directions and reference point. In addition to this, one month AAQM for Project Site (M/s. NRSFPL at O.P. Jindal Industrial Area) was also carried out in Oct. –2020. Thus, total 9 sampling locations. The levels of Respirable Particulate Matter (PM_{10}), Fine Particulates ($PM_{2.5}$), Sulphur Dioxide (SO_2,), Oxides of Nitrogen (NO_X) and carbon monoxide (CO), Ammonia, Ozone, Benzene and BAP were monitored. The details of Ambient Air Quality Monitoring Results are summarized and given in **Table 3**.

TABLE 3
SUMMARY OF AMBIENT AIR QUALITY MONITORING RESULTS

Sr. No.	Location		PM_{10} $\mu g/m^3$	$PM_{2.5}$ $\mu g/m^3$	SO_2 $\mu g/m^3$	NO_2 $\mu g/m^3$	CO mg/m^3	Ozone $\mu g/m^3$	NH_3 $\mu g/m^3$
1.	Project Site	Min	57.8	19.3	9.5	23.1	0.287	8.2	6.3
		Max	86.2	28.7	19.7	30	0.354	11.2	9.8
		Avg	72.3	24.6	16.0	25.9	0.317	9.7	8.0
		98th	85.8	28.6	19.7	29.8	0.347	11.1	9.8
2.	Punjipathra	Min	50.5	18.4	11.1	18.2	0.264	6.3	4.2

Sr. No.	Location		PM$_{10}$ µg/m^3	PM$_{2.5}$ µg/m^3	SO$_2$ µg/m^3	NO$_2$ µg/m^3	CO mg/m^3	Ozone µg/m^3	NH$_3$ µg/m^3
		Max	75.3	26.1	14.2	26.3	0.347	11.8	9.9
		Avg	66.1	22.5	12.6	21.8	0.323	8.0	6.5
		98th	75.1	25.9	14.2	25.3	0.346	11.6	9.8
3.	Dhibodih	Min	64.1	22.1	5	14.8	0.377	7.9	5.8
		Max	84.9	29.8	15.4	23.1	0.429	13.5	10.2
		Avg	74.2	25.7	9.6	18.4	0.410	10.9	7.5
		98th	84.3	29.6	14.9	22.6	0.429	13.0	10.1
4.	Harradih	Min	52.6	18.8	8.8	18.9	0.317	7.2	5.2
		Max	75.5	27.1	14.1	26.7	0.369	10.4	8.6
		Avg	64.0	22.7	11.6	22.1	0.347	8.6	6.9
		98th	75.1	26.7	14.0	26.1	0.369	10.4	8.5
5.	Barpali	Min	42.4	15.3	7.4	14.1	0.317	9.8	5.4
		Max	60.4	22.4	15.1	23.6	0.369	15.3	10.6
		Avg	51.1	18.0	9.7	17.9	0.348	11.8	7.8
		98th	60.2	21.8	14.9	23.0	0.369	15.2	10.4
6.	Shivpuri	Min	64.3	19.7	9	20.8	0.337	8.8	7.2
		Max	85.1	28.7	20.1	29.1	0.389	14.4	11.6
		Avg	74.4	24.7	13.6	24.4	0.370	11.7	8.9
		98th	84.5	28.5	19.3	28.6	0.389	13.9	11.5
7.	Parkipari	Min	46.4	15.5	4.7	15.0	0.267	7	6.1
		Max	72.1	24.0	13	21	0.319	10.5	10.4
		Avg	59.3	19.8	8.8	18.0	0.301	8.7	7.8
		98th	71.7	23.9	12.9	21.0	0.319	10.4	10.3
8.	Kantajharia	Min	54.7	18.2	8.8	21.5	0.347	11.5	8.4
		Max	77.6	25.9	14	29	0.401	14.6	11.8
		Avg	66.1	22.0	11.5	24.7	0.378	12.9	10.0
		98th	77.2	25.7	13.9	28.5	0.400	14.6	11.7
CPCB Standards			**100 (24hr)**	**60 (24hr)**	**80 (24hr)**	**80 (24hr)**	**2 (8hr)**	**100 (8hr)**	**400 (24hr)**

TABLE 3 (B)
SUMMARY OF AMBIENT AIR QUALITY RESULTS FOR M/S. NRSFPL PROJECT SITE FOR ONE MONTH, OCTOBER-2020

Location		PM$_{10}$ µg/m^3	PM$_{2.5}$ µg/m^3	SO$_2$ µg/m^3	NO$_2$ µg/m^3	CO mg/m^3	Ozone µg/m^3	NH$_3$ µg/m^3
Project Site (for M/s. NRSFPL at O.P. Jindal Industrial Area)	Min	51.6	18.8	9.2	19.7	0.262	7.8	5.9
	Max	82.3	26.2	16.9	27.8	0.347	10.8	9.4
	Avg	68.6	22.6	13.8	24	0.313	9.4	7.6
	98th	82	26	16.8	27.7	0.342	10.8	9.3
CPCB Standards		**100 (24hr)**	**60 (24hr)**	**80 (24hr)**	**80 (24hr)**	**2 (8hr)**	**100 (8hr)**	**400 (24hr)**

From the above results, it is observed that the ambient air quality at all the monitoring locations was within the permissible limits specified by CPCB.

3.3   AMBIENT NOISE LEVELS

Ambient noise level monitoring was carried out at the 08 monitoring locations; those were selected for ambient air quality monitoring. The monitoring results are summarized in **Table 4.**

TABLE 4
SUMMARY OF AMBIENT NOISE LEVEL MONITORING RESULTS

Sr. No.	Monitoring Locations	Equivalent Noise Level	
		Leq$_{Day}$	Leq$_{Night}$
Residential Area			
1.	Taraimal	46.1	38.7
2.	Gaurmuri	51.7	41.9
CPCB Standards dB(A)		**55.0**	**45.0**
Commercial Area			
3.	Jamadbari	52.9	41.6
4.	Dhibodih	51.9	43.8
CPCB Standards dB(A)		**65.0**	**55.0**
Silence Zone			
5.	Samaruma	47.1	37.2
6.	Tumidih	48.6	37.2
CPCB Standards dB(A)		**50.0**	**40.0**
Industrial Area			
7.	Project Site	61.7	52.9
8.	Punjipathra	51.4	41.6
CPCB Standards dB(A)		**75.0**	**70.0**

Source: Field monitoring and analysis by Anacon Laboratories Pvt. Ltd., Nagpur

3.4 SURFACE AND GROUND WATER RESOURCES & QUALITY

3.4.1 Local Geology

The lithology in 10 km study area mainly consists of Undeformed and un metamorphosed sedimentary sequence of rocks belonging to Chhattisgarh Super group of Proterozoic age, conglomerate variegated sandstone with cay, shale and coal and some part of the study area also consist of Calc-argillite and Glauconite quartz arenite and shale. The study area around the project site does not have major faults or shear zone.

3.4.2 Local Hydrogeology and Aquifer Systems

Hard rock mainly consist of limestone, shale, dolomite and sandstone belong to Chhattisgarh Super group of Proterozoic age. Ground water occurs in phreatic condition in the weathered mantle of these rocks, The aquifer material controlling ground water flow can be broadly divided into two major media (1) Fractured media and (2) Porous media. The weathered mantle and shallow fractures mainly constitute the shallow aquifers and most of the study area consist of discontinuous, confined to semi-confined aquifers, restricted to weathered Zone and fractured contact zone. The sandstone of Kamthi and Barakar formation are the main source rocks which has good yielding capacity of the water. The thickness of weathered mantle varies from 5 to 20 mbgl. Nearly 90% of wells are in the depth range between 5 and15 mbgl.

Pre-monsoon water level: 4.8 – 9.5 mbgl

Post- monsoon water level: 3.2 - 5.2 mbgl

3.4.3 Geomorphology

Geomorphologically the district is having matured type of land forms and can be broadly divided into two prominent geomorphic units. These are

1. Dissected Pediplain made by Proterozoic shale- limestone dolomite area.

2. Alluvial Plain formed by Seonath-Mahanadi Alluvium.

The Central Chhattisgarh Plain is represented by Structural Plain on Proterozoic & Gondwana rocks which cover most of the part of study area. They are having gently sloping erosion surfaces and thin to moderate cover of soil and other part of the study area covered by denudational hills, pediments & valley on the other rocks. The Topography of the surrounding area is near about flat and no major geomorphic feature is present.

On the basis of geomorphological map and their features, it shows that Kelo River flows from N to S direction and located in E side of the project area and on the basis of drainage morphology drainage pattern is dendritic.

3.4.4 Water Quality

Groundwater and surface water quality was assessed by identifying 8 groundwater (Borewell/ handpump) locations in different villages and 5 surface water samples.

A. Groundwater Quality

The analysis results indicate that the pH ranged between 6.67-7.92. The TDS was ranging from 168-342 mg/l. Total hardness was found to be in the range of 100.58-181.15 mg/l. The fluoride concentration was found in the range of 0.1-0.32 mg/l. The nitrate and sulphate were found in the range of 7.46-90.64 mg/l and 3.11-12.17 mg/l respectively. Heavy metals content (i.e. As, Al, Cd, Cr, Cu, Pb, Mn, Zn and Hg) were found to be below detection limit and within specified standards.

Sr. No.	Locations	WQI	Quality	Remark
1	Project Site	57.75	Good	
2	Punjipathra	43.23	Excellent	
3	Dilari	30.05	Excellent	Water quality assessed based upon above physico-chemical parameters and most samples are physico-chemically good to excellent
4	Shivpuri	41.01	Excellent	
5	Taraimal	48.11	Excellent	
6	Ratrot	30.01	Excellent	
7	Dhibodih	33.47	Excellent	
8	Chhaidoria	36.27	Excellent	

B. Surface Water Quality

The analysis results indicate that the pH ranged between 7.54-7.91 which are well within the specified standard of 6.5 to 8.5. The pH of water indicates whether the water is acid or alkaline. The TDS was observed to be 116-284 mg/l which is within the permissible limit of 2000 mg/l. The total hardness recorded was in the range of 51.36-154.08 mg/l as $CaCO_3$ which is also within the permissible limit of 600 mg/l. The levels of chloride and sulphate were found to be in the range of 23.5-79.42 mg/l and 5.83-58.31 mg/l respectively.

Dissolved oxygen (DO) refers to the amount of oxygen (O_2) dissolved in water. Because fish and other aquatic organisms cannot survive without oxygen, DO is one of the most important water quality parameters. The reported value of range of 6.3-6.4 mg/lt. Phosphorus (as PO_4) is an important nutrient for plants and algae. Because phosphorus is in short supply in most fresh waters, even a modest increase in phosphorus can cause excessive growth of plants and algae that deplete dissolved oxygen (DO) as they decompose. Heavy metals content (i.e. As, Al, Cd, Cr, Cu, Pb, Fe, Mn, Zn and Hg) were found to be very low and within specified standards.

Proposed implementation of production facilities for MS Ingot/Billet and CCM (164160 TPA); Steel Rerolled products from Hot Charging Rolling Mills 160800 TPA; MS Wire drawing unit 157500 TPA; Ferro Alloys 82000 TPA and/or Pig Iron 164000 TPA (Greenfield project) at Plot No. 251, 252, 253 & 254, OP Jindal Industrial Park, Punjipathra, Village Tumidih, Tahsil - Gharghoda, District - Raigarh, (CG) **M/s. N.R. Steel and Ferro Pvt. Ltd.**

C. Bacteriological Characteristics

Coliform group of organisms are indicators of faecal contamination in water. Bacteriologically, all surface water samples were contaminated and water treatment followed by chlorination or disinfection treatment is needed before use for domestic purpose whereas groundwater samples were not bacteriologically contaminated.

3.5   LAND USE LAND COVER CLASSIFICATION

The land-use & land cover map of the 10 km radial study area from the periphery of project site has been prepared using Resource SAT-1 (IRS-P6), sensor-LISS-3 having 23.5m spatial resolution and date of pass 15th April 2018satellite image with reference to Google Earth data. In order to strengthen the baseline information on existing land use pattern, the following data covering 10 km radius is approximate about 21°58'12.33"N to21°08'55.51"N latitude and 83°14'18.29"Eto 83°25'52.06"Elongitude and elevation 230 – 588 meter are used as per the project site confined within that area.

The Land Cover classes and their coverage are summarized in **Table 5.**

TABLE 5

S.No.	Level-I	Level-II	Area (Sq.Km²)	Percentage (%)
		LU/LC Classification System		
1	Built-up land	Settlement	10.25	3.26
		Industrial Infrastructure	8.69	2.77
		Road Infrastructure	0.74	0.24
2	Agricultural Land	Cropland	98.57	31.4
		Barren Land	1.1	0.35
3	Forest Land	Reserve forest / Protected Forest	163.92	52.2
4	Scrubs	Open Scrub	6.87	2.19
5	Water bodies	Canal/River/Pond/ Tank	22.36	7.12
6	Others	Brick Kiln	0.56	0.18
		Mining Area	0.94	0.29
Total			**314**	**100**

3.6   SOIL QUALITY

For studying soil quality of the region, sampling locations were selected to assess the existing soil conditions in and around the proposed project site representing various land use conditions. The physical, chemical properties and heavy metals concentrations were determined. The samples were

collected by ramming a core-cutter into the soil up to a depth of 30 cm. Total 8 samples within the study area were collected and analyzed.

Physical Characteristics of Soil

From the analysis results of the soil samples, it was observed, the bulk density of the soil in the study area ranged between 1.49-1.68g/cc which indicates favorable physical condition for plant growth. The water holding capacity is between 19.05-21.44%. Infiltration rate, in the soil is in the range of 16.92-20.26mm/hr.

Chemical Characteristics of Soil

pH is an important parameter indicative of alkaline or acidic nature of soil. It is found to be neutral to moderately alkaline (5.71-8.2) in reaction. Electrical conductivity, a measure of soluble salts in the soil is in the range of 62.29-332.8 µS/cm. The important soluble cations in the soil are calcium and magnesium whose concentration levels ranged from 242.63-422.25 mg/Kg and 102.61-212.69 mg/Kg respectively. Chloride is in the range of 282.59-386.79 mg/Kg.

3.7 BIOLOGICAL ENVIRONMENT

Floral composition in Study Area

Floral characteristics within project site and surrounding areas including various villages were studied during post-monsoon season. Total 143 floral species were observed in the study area. The details about the floral composition are as follows.

a. **Trees:** Total 94 species were found in the study area

b. **Shrubs (small trees):** Total 16 species were enumerated from the study area.

c. **Herbs:** In the study area 15 species were observed.

d. **Bamboo & Grasses: 15** species were enlisted from the study area

e. **Climbers and Twiners:** Total 12 species of climbers/ twiners were recorded in the study area.

f. **Parasite :** Each 1 species enlisted in the area

RET (Rare, Endangered and Threatened species) STATUS

According to IUCN Status report 2013 out of total 143 plant species identified within study area among the observed species *Chloroxylon swietenia* which is Vulnerable (VU) species as per IUCN Ret list. The other identified plant species in the study area belongs to least concern (LC), Data Deficient (DD) and Data not available (NA), as per IUCN status. Thus, none of reported species in study area belongs to Rare, Endangered or Threatened category.

Fauna Details:

As per IUCN RED (2013) list

The IUCN Red List is the world's most comprehensive inventory of the global conservation status of plant and animal species. It uses a set of criteria to evaluate the extinction risk of thousands of species and subspecies. These criteria are relevant to all species and all regions of the world. With its strong scientific base, the IUCN Red List is recognized as the most authoritative guide to the status of biological diversity.

Among the reported animals, the categorization of species as per IUCN is as follows:

Mammals: *Elephas maximus* – Asiatic Elephant (Endangered) *Melursus ursinus* – Sloth Bear (Vulnerable), *Hyaena hyaena* – Hyena (Near Threatened)

Proposed implementation of production facilities for MS Ingot/Billet and CCM (164160 TPA);
Steel Rerolled products from Hot Charging Rolling Mills 160800 TPA; MS Wire drawing unit
157500 TPA; Ferro Alloys 82000 TPA and/or Pig Iron 164000 TPA (Greenfield project) at
Plot No. 251, 252, 253 & 254, OP Jindal Industrial Park, Punjipathra, Village Tumidih, Tahsil
- Gharghoda, District - Raigarh, (CG) **M/s. N.R. Steel and Ferro Pvt. Ltd.**

ANACONLABS

Reptiles: *Python molurus* – Indian Python (Threatened)

Avifauna: Nil as per IUCN.

As per Indian Wild Life (Protection) Act, 1972

Wild Life (Protection) Act, 1972, as amended on 17th January 2003, is an Act to provide for the protection of wild animals, birds and plants and for matters connected therewith or ancillary or incidental thereto with a view to ensuring the ecological and environmental security of the country.

Some of the sighted fauna was given protection by the Indian Wild Life (Protection) Act, 1972 by including them in different schedules. Among the birds in the study area, Pea fowl (*Pavo cristatus*), is included in schedule I of Wild life protection Act (1972), while many other birds are included in schedule IV.

Among the reptiles, *Python molurus* (Indian Python) and *Varanus bengalensis* (Bengal Monitor Lizard) categorized as Schedule –I Whereas, Indian Cobra (*Naja naja*), Common rat snakes (*Ptyas mucosus*), are provided protection as per Schedule-II of Wild life protection act, (1972).

Among mammals; *Elephas maximus* – Asiatic Elephant and *Melursus ursinus*– Sloth Bear Categorised under Schedule – I. Whereas, Mongoose (*Herpestes edwardsi*), *Macaca mulata* (Rhesus macaque), Jungle cat (*Felis chaus*), Indian Fox (*Vulpes bengalensis*) are schedule –II animals. Wild boar (*Sus sucrofa*) and *Hyaena hyaena* (Hyena) is protected as Schedule-III animal and Hares & Five striped squirrel are included in schedule IV of Wild Life Protection act 1972. Fruit bat & Rats protected in Schedule V of Wild Life Protection act 1972.

3.8   SOCIO-ECONOMIC ENVIRONMENT

Information on socio-demographic status and the trends of the communities in the 10 km radius was collected through primary social survey and secondary data collection from census 2011 & District Census hand book 2011. Summary of the socio-economic status of the study area is given in Table 1. Details regarding education and infrastructure facilities 2011 are presented in Table 2 respectively

TABLE 6
SUMMARY OF SOCIO-ECONOMIC ENVIRONMENT OF VILLAGES WITHIN 10 KM RADIUS AREA

No. of villages	40
Total households	8366
Total population	33778
Male Population	17303
Female population	16475
SC Population	3380
ST Population	16326
Total literates	20957
Total Illiterates	12821
Total workers	15801
Total main workers	11005
Total marginal workers	4796
Total non-workers	17977

Source: Primary census abstract 2011, District Raigarh, state Chhattisgarh.

TABLE 7
INFRASTRUCTURE FACILITIES AVAILABLE IN THE STUDY AREA

Yr.	In percentage (%)

	Educ ation	Drink ing water	Road	Power	Comm unicati on	Transp ortation	Govt. PHC & SC	Social Security	Drainage	Recreation
Availa bility	100	100	95	100	77	44	21	5	69	74

Source: District census handbook, District Raigarh, state Chhattisgarh.

SALIENT OBSERVATION OF THE SOCIO-ECONOMIC SURVEY

➢ **Employment**: Main occupation in the study area was agriculture and Labor Work its allied activities eg. Cattle rearing, dairy farming, agro-horticulture, bamboo-agricultural crop patterns, floriculture, bee-keepings etc. Other income generation sources of the area, small business; private jobs etc. The labors were getting daily wags in the range of 300-350 Rs, depending on type of work they set. It is observed that the Raigarh District is having huge scope for employment as industrialization is more in this area. But due to lack of Vocational training centers in the area the Industries are outsourcing some of the key employees from other areas.

➢ **Agriculture and labor** - Main occupations are mostly day labour and agriculture but other business includes preparation of leaf tray, leaf cups, collection of Mahua for the preparation of countryside liquor. People in the study area resort to rearing of livestock as a source of income. As per the local interview during field survey, it was observed that the most common animal reared by the people are cow, buffalo, poultry and goat.

➢ **Major crops of study area, production & yield**: About 45% of the study area, as per site survey, belongs to the agricultural land category. Both (Rabi and Kharif) type of cropping practice is prevailing in this area and the type of crops includes paddy, ragi, green gram and black gram. Til, groundnut, mustard, jute, sugar cane etc are the major commercial crops grown in the study area. Banana and mango are the major fruits grown in this area.

➢ **Migration from other states**: Main industries were coal washery, power plant, steel industry etc. in the study area Migration from other states eg. UP, Bihar & Odisha for employment purpose found in the study area.

➢ **Education facilities**: The Primary & secondary data reveals that literacy levels in all the villages is varying from 60 to 80 %. Most of the students in Villages in the study area are going to Raigarh town for their studies which is about 23 Kms. from the plant. The schools are also not having proper infrastructure facilities. College facility is available in Taraimal and Raigarh in the study area.

➢ **Transportation facility:** For transportation purpose auto, jeep and private bus services were available in the study area; however villagers reported that transportation facilities were not frequently available. Private vehicles like bicycles & motor cycles were also used by villagers for transportation purpose. Kirodimal, Railway Station – 14.2 km.

➢ **Medical facilities:** The Primary & secondary data reveals that there are only 01nos. of Sub Health Centers & 1 nos. of PHC's in the Study area. During FGD villagers made various issues in health care facilities, such as health facilities available at PHCs, Laboratory testing and Delivery facilities at Government Health Centers, availability of clean toilet and drinking water at PHCs, and distance of the nearest health center from the Village. To control the spread of diseases (Malaria & Dengue cases) and reduce the growing rates of mortality due to lack of adequate health facilities, special attention needs to be given to the health care in rural areas. The key challenges in the healthcare sector are low quality of care, poor accountability, lack of

awareness, and limited access to facilities. It is also observed that Malnutrition is the common in most of the villages.

➢ **Drinking water, sanitation & infrastructure**: It was observed that only 31 villages have Pucca Road facilities. It means nearly 75.60 % of the villages have road facility. It was observed that there is good improvement in Power Supply. As the study area comprises of few Power Plants. This ultimately solved the Power cuts & Power Fluctuations in the villages of entire Raigarh District. It is observed that the source of water for Drinking & Agriculture in most of the Villages is groundwater. And the remaining villages which are proximate to the River use that as source of drinking water & for Agriculture. It was observed that most of the Houses in the villages are not having sanitation facilities including in several schools. It was observed that now a day's Internet is playing major role in society, but in the study area only one Internet shop is available. Need to go to Raigarh.

➢ **Banking facility**: The study area has almost all the schedule commercial banks with ATM facility at urban areas and the district HQ.

➢ **Sports & social ailment issues:**

   ❖ Social ailment issues like child marriage, alcoholism among tribes.
   ❖ It is observed during FGD that there are only a few people got the benefit of Self-employment scheme and needs substantial improvement.
   ❖ It is observed that there is no encouragement for sports as there are less Schools & Colleges in the Study area. Raigarh is the only place where Sports training facilities are available in entire District.

3.8.1   Awareness and opinion of the respondents about the project

Public opinion is the aggregate of individual attitudes or beliefs. It is very important to take opinion of the villagers about the project. The awareness will not only promote community participation but also enable them to understand the importance of the project and encourage them to express there view. To know the awareness and opinion of the villagers about the project, group discussion, meeting with school teachers/village leaders were carried out in the study area.

• In nearby villages, majority of the respondents were aware about the project site both they were unaware about the project activity

• The respondents were happy to know about the project and they opined positively because the activity would definitely contribute development in the study area

• Village leaders asked to give employment opportunities to local people

• Main demands of villagers in study area were for medical facility and employment opportunity.

3.8.2   Interpretation

Socioeconomic survey was carried out to know the infrastructural activities amenities available within 10 km radius from Project Site. The information regarding facilities available and the opinion of the people was sought by floating questionnaires and interaction with the people. This is done for observing the impact due to the project wrt social aspects so that proper actions / measures could be taken up for the benefit of the people (economically and wrt quality of life) and the project.

During the primary survey it was observed that almost pakka road facility is available in all villages within 10 km radius. Literacy rate of the study region is from 62.04%. On the basis of survey for literacy rate data it is interpreted that there is need to promote educate more and more people.

Almost all the villages have more than 53.22% people as non-workers. It indicates that the problem of unemployment can be solved by providing proper training and education. There is also need to establish more industries so that maximum number of employment can be generated. Basic amenities like Education facilities Health care facilities, water supply, electric power supply, mode of transportation etc. are available in all villages.

4.0   ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Air Environment

The implementation of proposed project will have impact on the air quality parameters like PM_{10}, $PM_{2.5}$, SO_2, NO_X and CO. The raw material handling plant along with proposed Induction Furnaces, steel melting shops and submerged arc furnaces process will emit dust and fumes. Apart from the above, there will be fugitive dust emissions due to transportation, storage and processing of raw materials.

The mathematical Model ISCST-3, was used for predicting the GLCs, which is entirely in line with the requirement of Central Pollution Control Board, New Delhi. The maximum ground level concentrations (GLCs) for particulate matter and gaseous emission of SO_2, NO_2 due to proposed new installations were carried out. The maximum ground level concentrations (GLCs) for particulate matter and gaseous emission of SO_2, NO_2 due to proposed new installations were carried out. The predicted 24 hourly maximum contribution in AAQ concentrations from main process unit facilities for particulate matter, SO_2 and NO_2 are found to be 0.38 µg/m^3, 2.0 µg/m^3 and 2.6 µg/m^3 occurring at a distance of about 7.6 km each respectively in ESE and E direction and emissions from standby DG sets for particulate matter, SO_2 and NO_2 are found to be 0.25 µg/m^3, 0.19 µg/m^3 and 4.4 µg/m^3 occurring at a distance of about 5.3 km each respectively in ESE and E direction. No significant incremental concentration was found due to proposed installation activities.

The mitigation measures adopted are:

- The primary & secondary emissions from the Induction furnaces, continuous casting machine area and submerged arc furnace area will be extracted and treated in a fume extraction system.

- Adequate capacity dust extraction measures with swivel hood, ID fan shall be provided at different loading, unloading and transfer points in the raw material handling section.

- Fumes will be evacuated directly from induction furnaces through hoods with swiveling mechanism and ducting.

- The duct carrying fumes from Induction furnaces will join in a mixing chamber from where the gases will be led to the bag house by means of ID fan.

- The emission mainly carried out through Induction furnaces. To control air pollution company will be installed Bag Filters with 30 meter stack and ID/FD fan capacity to cater the future requirement to control emission less than 30 mg/Nm³.

- The emission level within 30 mg/Nm^3 from Ferro alloy plant (SAF) will be controlled with 50 m height stack. Submerged Arc Furnace will be provided with Flue gas cooler and Bag filters with central dust collection system.

- Adequate dust suppression system in the form of water sprinklers shall be provided at raw material yard, temporary solid waste dump site and along the vehicular roads.

- There will be dedicated roads for vehicles carrying raw materials and products.

- Stacks will be provided with porthole and working platform so that stack monitoring can be done as per norms of statutory authority.

Noise Environment:

During the normal operation of manufacturing process noise will be generated due to Induction Furnaces, ID Fan, Blower/air Fan, Cutting/Shearing Machine, SAF process and DG Set, etc. the ambient noise levels are expected to increase significantly with the attributes of the respective equipment, but this noise will be restricted close to the concerned equipment. The preventive measures are given below:

- Equipment will be standard and equipped with silencer. The equipment will be in good working conditions, properly lubricated and maintained to keep noise within permissible limits.

- High noise zone will be marked and earplugs will be provided to the workmen near high noise producing equipment. The workmen will be made aware of noise and vibration impacts on their health and mandatory use earplugs.

- Proper shifting arrangement will be made to prevent over exposure to noise and vibration.

- Tall trees with broad foliage shall be planted along the boundary of camp / project site / plantation area, which will act as a natural barrier to propagating noise.

- Silent DG sets shall be used at construction camp / project site.

- Speed limits shall be enforced on vehicle.

- Use of horns / sirens will be prohibited.

- Use of loud speakers will be complying with the regulations set forth by CPCB.

- Regular noise monitoring will be carried at construction camp / project site to check compliance with prevailing rules.

Water Environment:

The implementation of proposed project may have some impact on the water environment. The impact may be on the source of water in the form of depletion of water resources of the area and in the form of deterioration of quality of natural water resources due to discharge of plant effluent.

The various control measures that will be adopted are:

- No pre-treatment of raw water is required. As the water will be used for cooling purpose only.

- No wastewater generation from the process

- Closed circuit cooling system will be implemented.

- Water for Industrial Cooling and domestic purposes will be extracted from ground water.

- Waste water generated through sanitary/toilet activities. This will be treated in STP and treated water will be used for plantation purposes and dust suppression.

- All stock piles will be on pucca flooring to prevent for any ground water contamination.

Vehicular Movement

All the major raw materials and finished products will be transported through trucks by road. All the dry powdery material like Sponge Iron; Ore and Coke/Coal/Charcoal, etc will be transported in covered trucks.

Biological Environment

There is no ecological sensitive area like national park, sanctuary, biosphere reserve, within 10 km radial distance from the project site. The project site located within the OP Jindal Industrial area, no forest land involved in the project activities. Thus, no significant impact envisaged on biological environment.

The total plant area is 8.00 Ha. The total plantation by M/s. NRSFPL is about 4680 nos. will be carried out on 3.12 Ha. (39.01%) @ 1500 trees/ha, some trees shall be planted along approach road side in proposed project area. It is proposed to developed 3 - tier green belt will be planned within the plant premises.

Socio-economic Impacts:

The present land use is change. Moreover, proposed implantation of project will be carried out within Industrial complex, thus there will be no issue of involvement of any agriculture land or settlement on the contrary there will be positive impact on the socio economic environment of the area. Increase in direct/indirect job opportunity shall take place. Services in the locality shall be used and accordingly growth in economic structure of the area will take place.

5.0   ENVIRONMENTAL MONITORING PROGRAM

An Environmental Management Cell (EMC) will be established for the proposed project under the control of Executive Director followed by General Manager. The EMC will be headed by an Environmental Officer having adequate qualification and experience in the field of environmental management. Environmental monitoring of ambient air quality, surface and ground water quality, ambient noise levels, etc. will be carried out through MoEF&CC accredited agencies regularly and reports will be submitted to CECB/MoEF&CC.

6.0   RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

The assessment of risk in the proposed project has been estimated for fire, explosion and toxicity and corresponding mitigation measures are suggested in the EIA/EMP report.

A detailed Disaster Management Plan for facing disasters due to natural effects and human reasons is prepared and incorporated in the draft EIA/EMP report for ensuring safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities. For effective implementation of Disaster Management Plan, it will be widely circulated and personnel training through rehearsals. Site facilities, procedures, duties and responsibilities, communications, etc. are considered in details in the Disaster Management Plan.

7.0   PROJECT BENEFITS

Proposed Social Welfare Arrangement

The proposed project would provide development of area and consequent indirect and direct job opportunities which would finally result in improvement in the quality of life of people in the central region. M/s. NRSFPL will carry community welfare activities in the following areas:

- Community development
- Education
- Health& medical care
- Drainage and sanitation
- Roads

The project proponent will comply with its obligation for CSR as per Company's Act too.

Although the MOEFCC vide its OM dated 30 September 2020 has provided that the CER value for the project would be based on Public Hearing outcome and as per the commitments made by the project promoters during the Public hearing however the provisions for CER are made in the proposal as per TOR which required to consider O.M. dated 01/05/2018 and 30.09.2020issued by MoEF&CC, New Delhi proposals regarding Corporate Environment Responsibility (C.E.R.). The CER budget along with capital expanses with different heads are given below.

The proposed cost of the project is Rs. 11900 Lakhs. Thus, as per CER 1.5% i.e. 180 lakhs will be spent towards the Improvement of Environment. The action plan along with budgetary provision towards Corporate Environment Responsibility (C.E.R.) is provided in **Table 8**.

TABLE 8
ACTION PLAN WITH BUDGETARY PROVISIONS TOWARDS CORPORATE ENVIRONMENT RESPONSIBILITY

Sl.	Activity Proposed	Year wise Expenditure			Total (in Rs. lakhs)
		Yr. 1	Yr. 2	Yr. 3	
1	Providing equipment for supporting schools and for sustainability of educational initiatives.	10	10	10	30
2	Solar Drinking water structure (Bore well with Motor fitting) including Soak Pit for Water Recharging in villages/schools	8	8	8	24
3	Installation of Sanitary Napkin Vending Machines (3 Nos.) with maintenance for a period of 03 years.	5	5	5	15
4	Provision of solar street lights comprising of MS pole, solar panel, LED lamps, battery, wiring for 3 villages with complete setup	8	8	8	24
5	Tree plantations in 3 nos. of nearby villages approx 2.00 ha of Land @ 1500 trees / ha	5	5	5	15
6	Health Camps to monitor the pulmonary diseases, ENT, Diabetes and Hypertension health status of nearby villages	8	7	7	22
7	Construction of paved roads in nearby villages	20	15	15	50
	Total =	64	58	58	180

8.0 ENVIRONMENTAL MANAGEMENT PLAN

An Environmental Management Plan comprising following set of mitigation, management, monitoring and institutional measures to be taken during implementation and operation of the project, to eliminate adverse environmental impacts or reduce them to acceptable levels.

- Overall conservation of environment.

- Minimization of natural resources and water.

- Ensure effective operation of all control measures.

- Monitoring of cumulative and longtime impacts.

- Ensure effective operation of all control measures.

- Control of waste generation and pollution.

Judicious use of the environmental management will be implemented with addressing of components of environment, which will be likely affected during construction and operation of the proposed project. The capital cost required to implement the EMP for proposed project is estimated to be Rs. 180 Lakhs. The annual recurring expenses will be Rs.60 Lakhs has been allocated for implementation of the Environmental Management Plan for proposed project.

Proposed implementation of production facilities for MS Ingot/Billet and CCM (164160 TPA); Steel Rerolled products from Hot Charging Rolling Mills 160800 TPA; MS Wire drawing unit 157500 TPA; Ferro Alloys 82000 TPA and/or Pig Iron 164000 TPA (Greenfield project) at Plot No. 251, 252, 253 & 254, OP Jindal Industrial Park, Punjipathra, Village Tumidih, Tahsil - Gharghoda, District - Raigarh, (CG) **M/s. N.R. Steel and Ferro Pvt. Ltd.**

9.0   CONCLUSION

The proposed project of M/s. N.R. Steel and Ferro Pvt. Ltd. will be beneficial for the overall development of the nearby villages. Some environmental aspects like dust emission, noise, wastewater, traffic density, etc. will have to be controlled better than the permissible norms to avoid impacts on the surrounding environment. Necessary pollution control equipment like bag house, water sprinklers, enclosures, etc. form integral part of the plant infrastructure. Additional pollution control measures and environmental conservation measures will be adopted to control/minimize impacts on the environment and socio-economic environment of the area. Measures like development of green belt and plantation in nearby village and along transport road, adoption of rainwater harvesting/recharging in the plant and in nearby villages will be carried out. The proposed CSR/CER activities to be initiated by the industry will be helpful to improve the social, economic and infrastructure availability status of the nearby villages.

Thus, it can be concluded that with the judicious and proper implementation of the pollution control and mitigation measures, the proposed project will not add adverse pollution levels to the environment, moreover, it will be beneficial to the society and will help to reduce the demand-supply gap of steel to some extent and will contribute to the economic development of the region and thereby the country.

10.0   DISCLOSURE OF CONSULTANTS

The Environmental studies for proposed project of M/s NRSFPL are carried out by M/s Anacon Laboratories Pvt. Ltd., Nagpur (M/s ALPL). Anacon established in 1993 as an analytical testing laboratory and now a leading Environmental Consultancy firm backed by testing lab for environment and food in Central India region. M/s ALPL is a group of experienced former Scientists from the Government Institutions and excellent young scientist of brilliant career with subject expertise. It is recognized by Ministry of Environment & Forests, New Delhi for carrying out environmental Studies & accredited by Quality Council of India (QCI) for conducting Environmental studies having Accreditation Certificate No.: NABET/EIA/1922/RA 0150 dtd. 03 Feb 2020 Valid till September 30, 2022.