



EXECUTIVE SUMMARY

EXECUTIVE SUMMARY**1.0 INTRODUCTION**

M/s. Neerganga Ispat Private Limited (hereafter referred as NIPL) has proposed Greenfield project for installation of manufacturing facilities for production of Sponge Iron 231000 TPA; Mild Steel Billet 232848 TPA; Rolled Steel Products through Hot Charging and through Reheating Furnace 225863 TPA; Captive Power 25MW (16MW through WHRB and 9MW through AFBC) and Fly Ash Bricks of 34600TPA.

Following facilities proposed to be implemented as:

- Two nos. of 350 TPD DRI (Sponge Iron) Kilns along with 8 MW x 2 nos total 16 MW WHRB boilers
- 232848 TPA MS Billets production facility (20 MT X 4Nos. of Induction Furnaces along with CCMs and LRFs)
- 225,863 TPA rolled steel production; out of which 171,144 TPA rolled steel products through Hot Charging facility and remaining 54,719 TPA rolled steel production through use of Billet Reheating Furnace along with coal gasifier.
- Coal based AFBC based Captive power plant of 9 MW. Total captive power generation capacity will be 25 MW (16 MW WHRB + 9 MW AFBC).
- Fly Ash Bricks and other product manufacturing facility of 34,600 TPA will also be implemented.

M/s. Neerganga Ispat Private Limited had made an online application vide proposal no. IA/CG/IND/214437/2021 on dated 08.06.2021 and resubmission of application was made on dated 22.06.2021 along with the EDS reply, the application in prescribed format (Form-I), copy of pre-feasibility report and proposed ToR for undertaking detailed EIA study as per the EIA Notification, 2006 for the proposed project. Terms of References was granted by EAC (Industry-I) MoEF&CC, New Delhi, vide file no. IA-J-11011/262/2021-IA-II(I) dated 2nd August, 2021.

As per Environmental Impact Assessment Notification dated 14th September, 2006 and subsequent amendment thereof, the Sponge Iron and Steel Melting Shop (Induction Furnaces, with LRF) fall under S. No. 3(a) of schedule EIA Notification 2006. The AFBC based power plant is falls under falls under S.No. 1(d) of schedule EIA Notification 2006. The overall project falls under **Category "A"**; project activity **'3(a)'** Metallurgical Industries and **'1(d)'** Thermal Power Plant, and requires Environmental Clearance (EC) to be obtained from EAC (Industry - I), MoEF& CC, New Delhi.

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 and the Consent for Establishment from the Chhattisgarh Environment Conservation Board (CECB) for the proposed project.

Environmental baseline studies were carried out during winter season (1st December 2020 - 28th February 2021). The EIA report is prepared based on ToR conditions recommended by EAC (Industry – I), New Delhi and project related technical details provided by M/s. NIPL, for obtaining EC from EAC (Industry – I), New Delhi.

1.1 IDENTIFICATION OF PROJECT

M/s. NIPL has proposed Greenfield project for installation of manufacturing facilities for production of Sponge Iron 231000 TPA; Mild Steel Billet 232848 TPA; Rerolled Steel Products through Hot Charging and through Reheating Furnace 225863 TPA; Captive Power 25MW (16MW through WHRB and 9MW through AFBC) and Fly Ash Bricks of 34600 TPA, in an area of 19.16 Ha. at Village- Boriya, Tehsil- Berla, District- Bemetara, Pincod- 491332 (Chhattisgarh).

1.2 LOCATION OF THE PROJECT

The proposed plant is located at Village- Boriya, Tehsil- Berla, District- Bemetara, Pincod - 491332 (Chhattisgarh).. The project site is located in Durg district border and border of Bemetara District. Durg District is considered as industrially advanced district. The nearest city is Bemetara which is around 26 km in NNE direction. Nearest airport is Swami Vivekanand Airport, Mana, Raipur which is about 43.6 km at SE direction. The nearest habitation is Boriya Village which is 1.6 km at W direction from the project site. The nearest roadway is NH 200 and NH 12A, 23.2 km in E direction. The nearest railway stations are Mandhar Railway Station, 29.6 km in SE direction and Tilda Railway Station, 34.8 km, ENE direction. The nearest railway line is South East Central Railway Bhilai Ahiwara (Deorihal) branch, 12.7 km in SSW direction. The study area of 10 km radial distance from the project site is shown in **Figure 1**. The project is located in the border of Bemetara and Durg District as shown in the Fig: 1 B

1.3 EIA/ EMP REPORT

As per approved ToR obtained from EAC (Industry –I), MoEFCC, New Delhi, baseline environmental monitoring was already conducted during winter season (1st December 2020 - 28th February 2021) 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 EIA/EMP report. Impacts of the proposed project activities during construction and operation stages were identified and duly addressed in the EIA- EMP report.

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

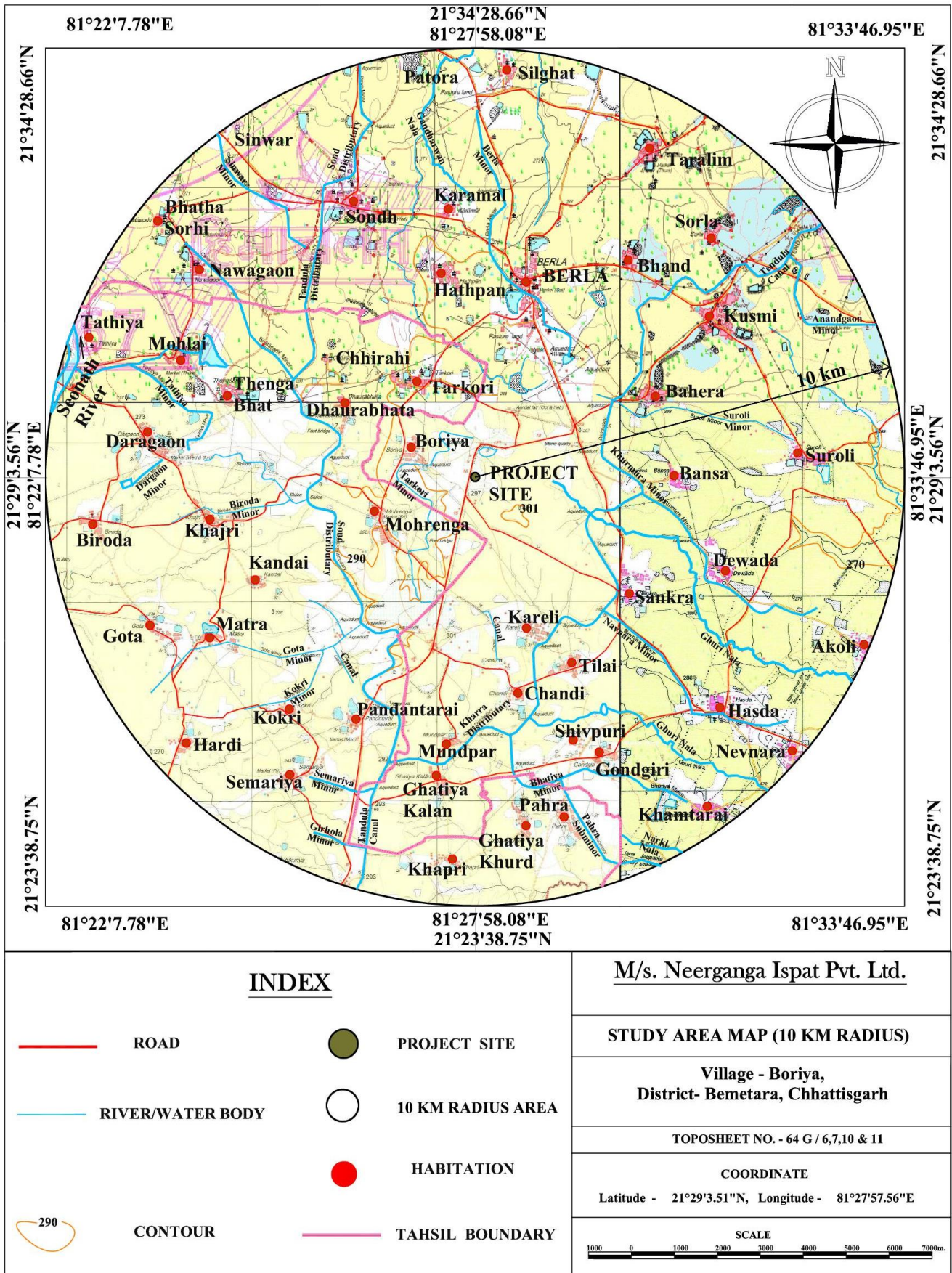


FIGURE 1 A: STUDY AREA (10 KM RADIAL DISTANCE)

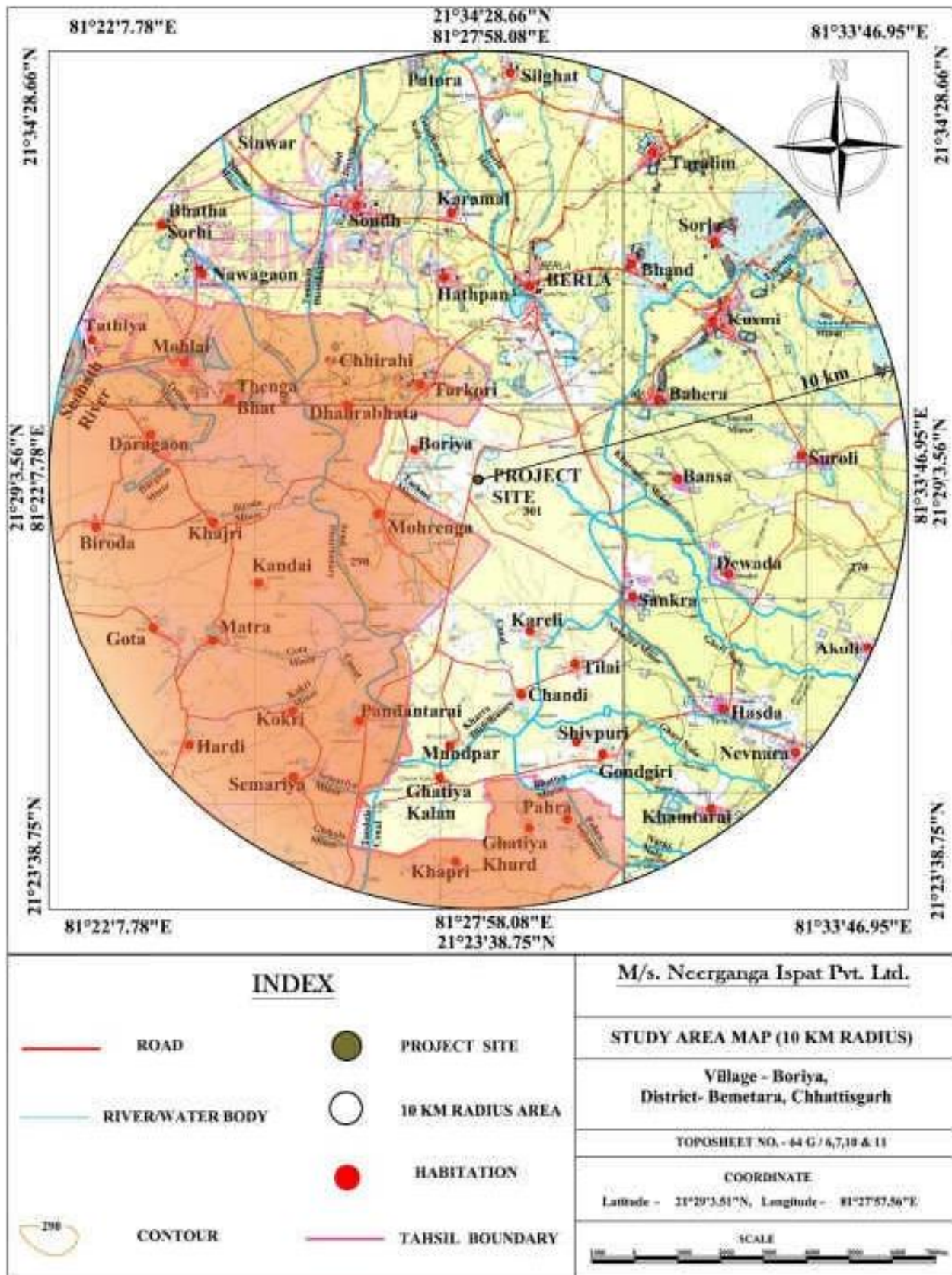


FIGURE 1 B: (DURG DISTRICT BOUNDARY -1.2 KM/SW) PROJECT LOCATION WITH RESPECT TO INDUSTRIALLY ADVANCED DISTRICT DURG

TABLE 1
DETAILS OF ENVIRONMENTAL SETTINGS

Sl.	Particulars	Details
1.	Project Location	Khasra no.: 1341/1, 1541, 1552, 1542, 1322, 1344, 1345, 1346, 1349, 1350, 1539, 1298/1,1298/2,1299/1,1304/1 ,1306/1, 1337, 1307, 1308, 1309/1, 1340, 1342, 1343/1, 1343/6, 1343/7, 1343/5, 1343/3, 1343/4, 1351, 1544/2, 1550, 1551, 1546, 1547, 1352, 1543, 1545, 1548, Village-Boriya, Tehsil- Berla, District- Bemetara, Pincode- 491332 (Chhattisgarh).
2.	Geographical Locations	Latitude - 21°29'3.37"N, Longitude - 81°27'57.79"E
3.	Toposheet No.	64 G/6,7,10 and 11
4.	Climatic Conditions	Mean annual rainfall is 1252.8 mm Temperature: Pre monsoon 20.6 ⁰ C (Min.) 41.7 ⁰ C (Max.) : Winter 13.3 ⁰ C (Min.) 31.0 ⁰ C (Max) : Post monsoon 17.3 ⁰ C (Min.) 31.8 ⁰ C (Max.) Source: IMD, Raipur
5.	Nearest IMD station	IMD Raipur – 43.6 km, SE
6.	a. Land Form, land Use and Ownership	The project is proposed on the land of 19.16 Hectare. The company has signed purchase agreement and it is in process for registration of the land. The land will be diverted to industrial purpose. The state Govt of CG has issued a notification vide circular no 25/04/2016 to allow to change the land use easily for industrial purposes. Around 35 % (i.e. 6.706 Ha.) of total land will be used for green belt development.
	b. Site topography	292.61 m
7	Near by Industries	<ol style="list-style-type: none"> 1. JK Laxmi Cement Ltd (2 Million tonnes Cement Plant) 12.5 KM South 2. Lohia Paper Mills Pvt Ltd : 11 KM South East 3. Nandini Lime Stone Mines Bhilai Steel Plants at Ahiwara: 13 KM South West 4. Dania Kakad Dolomite Mines: 11 KM South West (21.4116211,81.372498,3172). 5. ACC Ltd (Jamul Cement Works and Lime Stone Mines) 25 KM SSE
8.	Nearest roadway	NH 200 and NH 12A – 23.2 km, E
9.	Nearest Railway Station	Silyari Railway Station – 30.6 km, EES, Kumhari Railway Station: 31. KM South. Tilda Railway Station – 34.8 km, ENE
10.	Nearest Air Port	Swami Vivekanand Airport, Mana, Raipur – 43.6 km, SE
11.	Nearest Port	NA
12.	Nearest lake	NA
13.	Nearest State/National Boundaries	Madhya Pradesh – 76.2 km, W
14.	Nearest major city with 2,00,000 population	Bemetara – 26.0 km, NNE
15.	Nearest village/major town	Boriya – 1.6 km, W
16.	Distance for sea coast	Bay of Bengal– 485 km, E.
17.	Hills/valleys	NA (None within 15 KM radius of the Project)
18.	Nearest tourist place	NA (None within 15 KM radius of the Project)
19.	Archaeologically important places	NA (None within 15 KM radius of the Project)
20.	Nearest Reserved/ Protected forests	NA (None within 15 KM radius of the Project)

Sl.	Particulars	Details		
		Name	Distance (km)	Direction
21.	Nearest water bodies	1. Seonath River	9.6	W
		2. Khurmura Minor	3.0	E
		3. Tarkori Minor	1.0	W
		4. Tandula Canal	8.0	ENE
		5. Anandgaon Minor	9.2	ENE
		6. Berla Minor	3.5	NE
		7. Gandharwan Nala	6.5	N
		8. Tandula Distributary	4.6	WNW
		9. Sinwar Minor	6.6	NW
		10. Sond Distributary	3.3	WSW
		11. Biroda Minor	4.3	WSW
		12. Dargaon Minor	7.2	WSW
		13. Gota Minor	4.3	SE
		14. Kokri Minor	5.3	SE
		15. Canal nr. Kokri	5.5	SE
		16. Semariya Minor	7.9	SSE
		17. Girhola Minor	9.0	SSE
		18. Tandula Canal	4.0	SE
		19. Kharra Distributary	6.7	S
		20. Bhatiya Minor	6.0	SE
		21. Pahra Subminor	7.3	SE
		22. Narki Nala	8.9	SE
		23. Ghuri Nala	5.7	SE
		24. Navnara Minor	4.3	SE
		25. Suroli Minor	3.7	NE
		26. Tathiya Minor	6.2	W
22.	Areas already subjected to pollution or environmental damage	Project site is not classified or notified as severally or critically polluted area.		
23.	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 Sponge Iron (DRI)

- Iron ore, coal, dolomite/limestone is fed in the weighed quantity and the kiln is rotated at a speed of about 0.5 RPM. A reducing atmosphere is created and temperature between 1000°C to 1050°C is maintained in about 70% of the kiln length towards discharge end side for required reaction.
- After the reaction, the product is taken into an indirect cooling drum cooler. The product is cooled to 100°C and taken for product separation. The product is separated from the coal ash and coal char and then taken for final use.
- The waste gas is taken to an after-burner chamber and the Combustibles are burnt then passed thru WHRB/FD cooler where the gas are cooled to about 160°C and then taken to ESP for final dust separation, before going to stack via ID Fans.
- The kiln has three functions; heat exchange, chemical reaction in vessel and conveying solids.

2.1.2 Manufacturing process of Steel Melting Shop with CCM

- A well established and proven manufacturing process technology based on Induction Melting Furnaces; presently being followed by majority of similar manufacturing units; mostly in small or medium scale sector is proposed.
- In order to achieve high energy efficiency 4 numbers of Induction Furnaces (each 20 T capacity) with medium power input capacity of 7.5 to 8.5 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.

2.1.3 Manufacturing process of rerolled steel through billet heating furnace fired rolling mill

- Raw Material i.e. Cold Steel Billets received in the mill are cut to size; either by Gas Cutting. The sized billets are then pushed into Billet reheating furnace fired with Coal Hot Producer Gas. After the Billet is Red Hot then these are pushed out to rolling stands for re-rolling. A portion of red hot Billets are directly received from CCM through hot Billet conveyor for Hot Charging in Rolling mill. Hot Steel Pieces are rolled through several stands in order to get required shape of finished goods i.e. Rods; TMT; Strips or Flats; MS Channel, Structures; and other rerolled product are produced.

2.1.4 WHRB based Power Generation

- The Waste heat Recovery boilers are attached with DRI Kiln. The flue gases released from DRI Kilns will be passed through Waste Heat Recovery Boiler, where waste heat will be recovered and steam will be generated in required temperature and pressure. The source of energy is the heat content in waste flue gases released from DRI Kilns.

2.1.5 AFBC based Power Generation

- Power generation by using Atmosphere Fluidized Bed Combustors (AFBC) boiler by use of Char Dolo Char and reject Coals will be set up based on Air Cooled condenser. .

2.1.6 Process and Process flow diagram of Brick making from waste

- Fly ash, Lime sand and Gypsum are manually fed into a pan mixer, where water is added in the required proportion for intimate mixing. It is proposed to mix Fly Ash, Grounded Slag from Induction Furnace; Lime; Gypsum and Cement and if required River Sand in small portion.

- After mixing; the Mortar mixture is shifted to hydraulic/ mechanical presses for brick moulding. Then molded bricks are carried on wooded pellets to the open area where they are dried and cured by autoclave machine. The bricks are tested and sorted before dispatch.

2.2 LAND REQUIREMENT

The total proposed project area is 19.16 Hectare. The company has signed purchase agreement and it is in process for registration of the land. The land will be diverted to industrial purpose. Sufficient flat land, free from major undulations and sparse vegetation is available within the plant premises. Green belt will be developed in 6.706 Ha. (i.e. 35%). The detail of land use planning is provided as follows:

**TABLE 2
AREA STATEMENT**

Particulars	Area (n Ha.)	Percentages in proposed area
Built Up	8.712	45.47
Road and Paved	0.716	3.74
Green Belt	6.706	35.00
Open Area	3.026	15.79
Total Land Area	19.160	100.00

2.3 RAW MATERIALS REQUIREMENT, SOURCE & MODE OF TRANSPORT

Availability of raw material is abundant within 100 km area of Bemetara District. The raw material will be transported through truck. It is estimated that approx. 332 trips per day (including to and fro) 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 218491 TPA which includes Char Dolochar, Bottom Flue Dust Ash, Kiln Accretion and Refractory waste, Defective Billets, Mill Scale, Slag from Induction Furnace, Refractory and Ramming Mass waste, defective and Miss Roll, Ash from Coal firing in Mill, Fly ash from Char Dolochar, Ash from coal and Fluidized bed material. Waste oil/used oil will be 4 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 daily makeup water requirement in peak situation at 100% capacity utilization is estimated to be 1180 KLD (389400 KLA) out of which 29 KLD is estimated for domestic purpose. Surface water from Shivnath River and collected rain water will be the sources. Company has applied to WRD Govt of Chhattisgarh, Chhattisgarh vide Lr. NIPL/2020-21/SPB/WA Date 11.01.2021 for allocation of required quantity of water. The management had decided to implement a 50000 KL Rain water collection tank which will be enough to cater water requirement of 42 days and in rainy day of 75 days water requirement will be met through rain water collections in it. Therefore, it is considered that about 117 days (138,060 KLA) water requirement will be met through rain water and rain water collection, and balance 213 days water (251,340 KLA) will be sourced from surface water from Shivnath River. The project site is located in an area classified as 'Semi Critical Zone' as per the guidelines of CGWB.

2.5 POWER REQUIREMENT & SUPPLY

The project is a power intensive, total power requirement will be 30 MW out of which 25 MW will be met through captive power plant and 5 MW will be sourced through State Grid (CSPDCL). In addition to this total 2 Nos. of 3300 kVA DG sets are proposed for emergency backup. The state of

Chhattisgarh is safe and surplus in power. Hence the emergency DG sets are required only to run the emergency loads like water, air and light supplies.

2.6 MANPOWER REQUIREMENT

M/s. Neerganga Ispat Pvt. Ltd. will provide employment to 630 peoples as direct employment which includes 50 people as administrative staff and 580 people will be production staff whereas indirect employment 800 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. 26,505.00 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 Winter season (1st December 2020 to 28th Feb 2021).

3.2 METEOROLOGY & AMBIENT AIR QUALITY

Summary of the Meteorological Data Generated At Site (1st December 2020 – 28th February 2021)

Predominant Wind Direction	Winter season
First Predominant Wind Direction	E (14.1)
Second Predominant Wind Direction	ENE (12.4%)
Calm conditions (%)	3.52
Avg. Wind Speed (m/s)	1.82

The status of ambient air quality within the study area was monitored for Winter Season of the year 2020- 2021 at 9 locations covering project site. The levels of Respirable Particulate Matter (PM₁₀), Fine Particulates (PM_{2.5}), Sulphur Dioxide (SO₂), 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	PM _{2.5}	SO ₂	NO ₂	CO	Ozone	NH ₃
			µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	µg/m ³
1	Project Site	1. Min	52.2	21.2	7.5	15.1	0.286	5.3	6.5
		2. Max	74.1	31.8	9.6	19.5	0.336	8.3	8.6
		3. Avg	65.5	27.2	8.5	17.7	0.310	6.8	7.4
		4. 98 th	73.7	31.5	9.5	19.4	0.335	8.2	8.5
2	Boriya	1. Min	55.9	22.1	6.4	14.8	0.295	5.2	6.4
		2. Max	74.2	36.4	13.1	23.9	0.374	8.9	10.6
		3. Avg	67.2	30.0	9.5	18.3	0.338	7.1	8.2
		4. 98 th	74.2	36.1	12.6	23.8	0.372	8.8	10.5

Sr. No.	Location		PM ₁₀	PM _{2.5}	SO ₂	NO ₂	CO	Ozone	NH ₃
			µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	µg/m ³
3	Mohrenga	1. Min	55.4	20.9	6.1	14.1	0.262	4.4	6.4
		2. Max	72.6	39.5	12.9	26.3	0.404	9.3	10.8
		3. Avg	62.6	27.1	9.2	18.5	0.311	7.1	8.6
		4. 98 th	71.7	37.0	12.7	25.3	0.395	9.2	10.8
4	Pandantarai	1. Min	51.1	17.8	6.3	14.5	0.232	4.8	5.4
		2. Max	64.4	29.5	10.7	21.8	0.299	7.6	9.1
		3. Avg	57.1	23.3	8.2	16.5	0.267	6.5	7.4
		4. 98 th	63.0	28.4	10.7	20.6	0.297	7.5	9.1
5	Mundpur	1. Min	53.8	19.3	6.1	15.1	0.237	6.1	6.2
		2. Max	66.4	29.6	10.3	21.2	0.341	8.3	9.2
		3. Avg	59.8	24.7	7.9	17.3	0.288	6.8	7.5
		4. 98 th	65.4	29.3	10.3	21.2	0.337	8.1	9.0
6	Sankra	1. Min	54.6	20.5	5.7	14.6	0.279	6	5.8
		2. Max	74.1	31.7	12.5	20.8	0.369	9.5	9.7
		3. Avg	61.8	25.6	8.7	17.4	0.314	7.7	8.3
		4. 98 th	73.0	30.8	11.9	20.8	0.365	9.5	9.7
7	Berla	1. Min	53.3	19.4	6.5	13.5	0.264	4.4	5.8
		2. Max	64.1	33.8	10.3	22.0	0.387	9.4	10.3
		3. Avg	58.2	24.6	8.1	17.7	0.300	6.3	7.5
		4. 98 th	63.7	33.8	10.3	22.0	0.379	9.1	10.0
8	Bhand	1. Min	46.4	18.3	5.8	13.7	0.249	5.5	5.0
		2. Max	58.5	29.6	10.3	19.7	0.311	7.7	9.1
		3. Avg	51.9	22.7	7.8	15.6	0.281	6.7	7.2
		4. 98 th	58.2	28.4	10.0	19.7	0.310	7.6	8.9
9	Kandai	1. Min	56.1	21.3	7.2	15.9	0.305	5.2	5.4
		2. Max	71.5	34.9	12.6	26.4	0.474	8.3	9.2
		3. Avg	64.5	26.9	9.8	19.1	0.363	6.8	6.9
		4. 98 th	71.0	33.8	12.6	25.6	0.457	8.3	9.0
CPCB Standards			100 (24hr)	60 (24hr)	80 (24hr)	80 (24hr)	2 (8hr)	100 (8hr)	400 (24hr)

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}
A.	Industrial Zone		
1.	Project site (center point)	63.1	51.7
2.	Project site boundary	67.2	54.5
B.	Commercial Zone		
3.	Mohrenga	59.7	43.8
4.	Tarkori	56.3	42.5
C.	Residential Zone		
5.	Boriya	51.9	39.4
6.	Kerli	52.1	40.6
D.	Silent zone		
7.	Boriya	46.2	37.1
8.	Tarkori	47.6	36.2
CPCB Standards dB(A)			
Silence Zone		50.0	40.0
Residential Area		55.0	45.0

Sr.	Monitoring Locations	Equivalent Noise Level	
		Commercial Area	65.0
Industrial Area	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 Geology and Hydrogeology

Regional Geology

10 km radius study area is mainly comprised of sedimentary rock formations, like stromatolitic limestone, argillaceous dolomites, shale, some lateritic patches also seen at some places. All these formations are of Proterozoic age. There are no major geological structure present in study area as far as concern with construction of buildings and other structure. Study area falls in seismic zone-II i.e. low damage risk zone.

Site specific Geology

Project area is mostly covered by soil cover which is having thickness of around 0.8-1.2m. Outcrops are very rare in project site.

Hydrogeology

Entire study area is comprises of calcareous sedimentary rock formations of Proterozoic age and belongs to Chattisgarh supergroup. The primary porosity and permeability of these formations is very poor. The ground water in these formations occurs under water table, semi confined and confined conditions. The weathered and the cavernous part of the formation and also the fractured zones constitute the aquifers in the area. The maximum thickness of the weathered formation in the area is around 25m. The cavernous zones are occurring mostly in the depth range of 10 to 70 m.

Depth to water level scenario in the study area:

Pre-monsoon Water levels- 3.9 to 13 m bgl

Post-monsoon water levels: 1 to 4.5 m bgl

(Reference: WRIS portal data)

Geomorphology:

Study area is comprises of gently sloping plains on Proterozoic age. Flood plains are observed along River courses. There are no major geomorphological structures present in study area.

3.4.2 Water Quality

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

A. Groundwater Quality

The analysis results indicate that the pH ranged between 6.87 - 8.16. The TDS was ranging from 466 to 782 mg/l. Total hardness was found to be in the range of 179.21 – 543.20 mg/l. The fluoride concentration was found in the range of 0.13 - 0.22 mg/l. The nitrate and sulphate were found in the range of 7.86 - 25.44 mg/l and 17.94 - 96.63 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	86.11	Good	Water quality assessed based upon above physico-chemical parameters and samples were found to be physico-chemically good and excellent at Kareli sampling location.
2	Mohrenga	56.32	Good	
3	Boriya	52.79	Good	
4	Kareli	44.18	Excellent	
5	Bansa	68.01	Good	
6	Karamal	61.94	Good	
7	Sankra	52.71	Good	
8	Pandantarai	50.46	Good	

B. Surface Water Quality

The analysis results indicate that the pH ranged between 6.62 - 7.17 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 174 - 288 mg/l which is within the permissible limit of 2000 mg/l. The total hardness recorded was in the range of 97.0 - 202.86 mg/l as CaCO₃ 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 13.4 - 56.94 mg/l and 10.64 – 21.63 mg/l respectively.

Dissolved oxygen (DO) refers to the amount of oxygen (O₂) 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 6.0-6.4 mg/l. Phosphorus (as PO₄) 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. PO₄ ranges from 0.21-0.57 mg/l

C. Bacteriological Characteristics

Coliform group of organisms are indicators of faecal contamination in water. All surface water samples were found to be bacteriologically contaminated. Presence of total coliforms in surface water indicates that a contamination pathway exists between any source of bacteria (septic system, animal waste, etc.) and the surface water stream. A defective well can often be the cause when coliform bacteria are found in well water. For surface water, treatment followed by chlorination or disinfection treatment is needed before use for domestic purpose. Groundwater samples were not found to be 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 2021 satellite 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°23'39.63"N to 21°34'12.99"N latitude and 81°27'49.32"E to 81°33'37.95"E longitude and elevation 260 – 305 meters 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
LU/LC CLASSIFICATION SYSTEM

Sr. No.	Level-I	Level-II	Area (Sq. Km ²)	Percentage (%)
1	Built-up land	Settlement	35.52	11.31
		Industrial Settlement	1.23	0.39
		Road Infrastructure	3.28	1.04
2	Agricultural Land	Cropland	222.34	70.81

Sr. No.	Level-I	Level-II	Area (Sq. Km ²)	Percentage (%)
3	Scrubs/Wastelands	Barren Land	6.88	2.19
		Land with scrub/Open Scrub	18.21	5.80
4	Water bodies	River/Nala/Stream/ Canal	12.41	3.95
		Pond/Tank	9.85	3.14
5	Others	Mining/Stone Quarry	4.28	1.36
		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.



FIGURE 2 : SHOWING THE LAND OPPOSITE TO THE PROPOSED LOCATION WHICH IS FOUND TO BE BARREN LATERITIC SOIL LAND.

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 1.527 - 1.729 g/cc which indicates favorable physical condition for plant growth. The water holding capacity is between 21.44 - 26.75%. Infiltration rate, in the soil is in the range of 18.74 - 23.17 mm/hr.

Chemical Characteristics of Soil

pH is an important parameter indicative of alkaline or acidic nature of soil. It is found to be neutral (6.87 – 7.14) in reaction. Electrical conductivity, a measure of soluble salts in the soil is in the range of 215.13 - 312.14 μ S/cm. The important soluble cations in the soil are calcium and magnesium whose concentration levels ranged from 196.40 – 304.81 mg/Kg and 48.73 - 152.81 mg/Kg respectively. Chloride is in the range of 134.43 – 172.94 mg/Kg. As per the sampled soil result at project site, the available concentration of major nutrients with respect to organic carbon is moderately fertile whereas with respect to nitrogen, phosphorus and potassium the soil is low fertile. The nutrient status in terms of NPK value is found to be in the range of 166.20 – 403.24 kg/ha, 11.50 - 32.94 kg/ha and 98.5 – 341.0 kg/ha respectively.

3.7 BIOLOGICAL ENVIRONMENT

Floral composition in Study Area

The baseline study for existing biological environment was carried out during December, 2020. Total 98 plant species were enlisted within the study site out of which habitwise details are given below:

- a. **Trees:** Total 44 species were found in the study area
- b. **Shrubs (small trees):** Total 30 species were enumerated from the study area.
- c. **Herbs:** In the study area 13 species were observed.
- d. **Bamboo & Grasses:** 07 species were enlisted from the study area
- e. **Climbers and Twiners:** Total 03 species of climbers/ twiners were recorded in the study area.
- f. **Parasite Plant :** 1 species enlisted in the area

RET (Rare, Endangered and Threatened species) STATUS

According to IUCN Status report 2013 out of total 98 plant species identified with study area. Among the observed species most of the species belongs to the least concern (LC), Data Deficient (DD) and Not Assessed (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

Among the reported animals all wild fauna including avifauna are categorized under least concern category.

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 were given protection by the Indian Wild Life (Protection) Act, 1972 by including them in different schedule. Among the Avifauna in the study area, All birds observed in the study area are protected in schedule IV as per Wild life protection Act (1972) and subsequent amendments thereof.

Among mammals; *Canis aureus* (Jackal), Common Langur, *Herpestes edwardsi* (Common Mongoose), are protected in schedule –II. whereas, *Lepus nigricollis* (Black-naped hare), *Funambulus pinnati* (Palm squirrel) protected in Schedule IV and Rats protected in Schedule V

Among the Herpetofauna, Indian Cobra (*Naja naja*), and Common Rat Snake (*Ptyas mucosa*) were provided protection as per Schedule-II of Wild life protection act, (1972) and Common Indian Krait (*Bungarus caeruleus*), Indian Toad (*Bufo parietalis*) were provided as per Schedule – IV of Wildlife protection act 1972 and as amended.

Among the Avifauna: All birds were observed in the study area included in schedule IV as per wildlife protection act.

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 6. Details regarding education and infrastructure facilities 2011 are presented in **Table 6** and **Table 7** respectively.

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

No. of villages	48
Total households	14875
Total population	73103
Male Population	36451
Female population	36652
SC Population	17751
ST Population	3010
Total literates	44085
Total Illiterates	29018
Total workers	38351
Total main workers	24600
Total marginal workers	13751
Total non-workers	34752

Source: Primary census abstract 2011, State Chhattisgarh.

TABLE 7
INFRASTRUCTURE FACILITIES AVAILABLE IN THE STUDY AREA

Yr. 2011	In percentage (%)									
	Educa tion	Drinki ng water	Road	Power	Communi cation	Transpor tation	Govt. PHC & SC	Bank & Society	Drainage	Recreation
Availa bility	100	100	97.92	100	47.92	70.84	47.92	12.50	47.92	79.17

Source: Primary census abstract 2011, State Chhattisgarh.

SALIENT OBSERVATION OF THE SOCIO-ECONOMIC SURVEY

- **House pattern:** Types of housing varied from thatched to pucca (pakka) houses 70% houses were in pucca (pakka) form 20% in semi pakka and 10% houses were observed in kaccha form.
- **Employment:** Main occupation in the study area was Labour Work and Agricultural. Other income generation sources of the area, small business; private jobs etc. The labours were getting daily wages in the range of 300-400 Rs, depending on type of work they set.
- **Fuel:** The primary sources of cooking fuel were LPG, cow dung etc.
- **Main crops:** The principal crops grown in agricultural Commodities (first) were Paddy; wheat, soyabean, Gram and Vegetables etc. During discussion with villagers/farmers it was revealed that crop productivity of the study area is average . Various types of crop production was being performed in the study area. The statistical data available from the Govt Agriculture department reveal that main crop in the area is Kharif Based Paddy which has average yield of about 2282 kg/Hectare.
- **Migration from other states:** During survey it was found that some migration populations were for employment purpose. It was also found that a number of villagers go for employment to Raipur and Durg industrial area also.
- **Language:** Chhattisgarhi is the mother tongue of most of the Chhattisgarhi population. Along with Chhattisgarhi, Hindi and English are all official languages.

- **Sanitation:** Toilet facility is one of the most basic facilities required in a house. It was observed that more than 80% of the households were having toilet facilities in their houses. There was no proper drainage line in the villages.
- **Drinking water Facilities:** During the survey it was observed diverse sources of drinking water supply in villages. Major source of drinking water in the study area were hand pumps, tap water and dug wells and canal. During survey people from some villages, reported Water Quality are good but water Shortage in Summer Season.
- **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 Bemetara for their studies which is approximate 25-26 Km.
 - ❖ Schools are also not having proper infrastructure facilities.
 - ❖ College facility is available Bemetara 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.
- **Communication facilities:** For communication purpose mainly mobile phones, news papers & post offices were present in the villages
- **Medical facilities:** The Primary & secondary data reveals that there are only 10 nos. of Sub Health Centers.
 - ❖ 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.
 - ❖ Perception survey of patients who visited healthcare facilities more than once showed that 43% of patients on average, in study Area were not satisfied with the medical treatment provided by the health facilities. Of the patients surveyed, 34% complained of staff absenteeism, 32% of shortage of medicines 13% of long waits; 3% said centers were shut, 2% claimed that there were no facilities .
- **Electricity:** All villages were availing electricity facility for domestic and agriculture purposes. Solar Street lights were seen in some of the villages.
- **Market facility:** Study area was predominantly rural. In villages, small shops were available for daily need things. Weekly market facility was available in some villages. Wholesale market was available Bemetara villages the basic amenities exist at all villages.
- **Recreation facilities:** Television and radio are the main recreation facilities in the study area. News paper/magazine facilities are also used by villagers.
- **Improved Standard of Living:** Employment opportunities created by the project will increase income and therefore improve the overall standards of living in the area. The value of land around project has already increased significantly with the announcement of the project. It is expected that the value of surrounding land will further enhance once the implementation of project starts. Villagers around the project site will reap the benefit of enhanced value of the land

the project will also bring in many workers of different categories who will be looking for accommodation outside the project boundary. Local people will have continuous source of earning by letting out their house for accommodation to these families.

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 their 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.

Almost all respondents were aware about the M/s NIPL Project area but some respondents were unaware about the project activity. During the site visit, the affected villages residents demanded to know the details.

- The respondents were happy to know about the project and they opined positively because the activity would definitely contribute development in the study area.
- Main demands of villagers in study area were for Pucca Roads.
- Village leaders asked to give employment opportunities to local people.
- They also demanded for Water Spray by panchayat to curb down the effects of air pollution in the area due to the project.
- They Demanded plantation on the both Side of the road to prevent Pollution due to the Proposed Project.
- Villagers demanded medical related facilities.

While giving information about project of M/s NIPL respondents gave positive opinion and they strongly believe that it will help to develop quality of life in the study area with employment opportunities.

3.8.2 Interpretation

Socioeconomic survey was carried out to know the infrastructural activities amenities available in 10 km radius 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 10 km Radius project Site. The sanitation coverage has increased from 60 % in 2011 to 80 % in 2021. Literacy rate of the study region is from 60.31%. 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 47.54 % 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 Water supply, electric power supply, mode of transportation etc. are available in all villages. Health care facilities can be made available in the villages.

The proposed project shall generate direct/indirect employment and indirect service sector enhancement in the region and would help in the socioeconomic upliftment of the state as well as the local area.

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 AIR ENVIRONMENT

The proposed stacks will be sources of air pollution. Different plant units will be provided with necessary air pollution control devices like ESP; Bag filter with central dust collection system etc. to control dusts, heat & gases and also to limit emission within the prescribed standards. The emission factors, air handling capacity of the proposed installation and emission norms will be used to estimate the amount of emission that will be generated from the proposed Sponge Iron Plant; Power Plant; induction furnace with LRFs and Reheating furnace.

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 SO₂, NO₂ 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, SO₂ and NO₂ are found to be 0.7µg/m³, 10.5 µg/m³ and 2.0µg/m³ occurring at a distance of about 4.4 km each respectively in W and WSW direction and emissions from standby DG sets for particulate matter, SO₂ and NO₂ are found to be 0.34µg/m³, 0.34 µg/m³ and 6.0 µg/m³ occurring at a distance of about 3.0 km each respectively in W and WSW direction. No significant incremental concentration was found due to proposed installation activities.

The following air pollution control equipments will be installed:

- The main pollutants discharged from the Sponge Iron Plant and Power Plant and Induction Furnace will be particulate matter. In case of power failure DG set will be used and emissions generated from DG set operation will be PM, SO₂ and NO_x. Other gaseous emissions due to AFBC power plant, BRF, sponge iron plant which is considered maximum consumption of raw material i.e. worst condition considered but all the predicted values well within the standard.
- In Sponge Iron Plant and Power Plant ESP with Dust Collectors will be installed with 66 meter stack and to control emission less than 30 mg/Nm³. Bag Filters for Product house; Kiln discharge end and transfer points. Total 8 Nos.
- In Induction Furnace; LRF and Sponge Iron Material handling area, Dust Collector along with the Bag Filter Will be installed with 33 meter stack and ID/FD fan capacity to cater the future requirement to control emission less than 30 mg/Nm³.
- In Billet reheating Furnace Wet Scrubbers with Cyclone will be installed to control emission less than 30 mg/Nm³ with 30 meter stack
- In AFBC based power plant ESP with 45 meter Chimney and 2 Bag Filters at Coal conveyors
- Water spraying will be used to control the fugitive emissions in the internal open storage yards.
- The emission mainly carried out through Induction furnaces. To control air pollution company will be installed Bag Filters
- 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.

4.2 NOISE ENVIRONMENT

During the normal operation of manufacturing process noise will be generated due to Induction Furnaces, Sponge Iron Plant, Billet Reheating Furnace, Rolling Mill, Captive Power Plant, Fly Ash Brick Plant 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:

1. Equipment should be standard and equipped with silencer. The equipment should be in good working conditions, properly lubricated and maintained to keep noise within permissible limits.
2. High noise zone should be marked and earplugs shall be provided to the workmen near high noise producing equipment. The workmen should be made aware of noise and vibration impacts on their health and mandatory use earplugs.
3. Proper shifting arrangement shall be made to prevent over exposure to noise and vibration.
4. Tall trees with heavy foliage shall be planted along the boundary / project site / plantation area, which will act as a natural barrier to propagating noise.
5. Silent DG sets shall be used at project site.
6. Speed limits shall be enforced on vehicle.
7. Use of horns / sirens shall be prohibited.
8. Use of loud speakers shall comply with the regulations set forth by CPCB.
9. Regular noise monitoring shall be carried at construction camp / project site to check compliance with prevailing rules.

Vehicular Movement

There will be NO_x emission impact observed 2656 gm/km-hr on the surrounding environment due to 332 vehicles/day. The impact due to the emission of other pollutants will be insignificant. This quantum spread over the whole day at Maximum production is considered low and shall not make significant impact on the transportation route on the road.

The LoS value from the proposed activity is found to be “Excellent” for adjacent road which is connected to NH200_24.6 km away highway which was also “very good”. So the additional load only of (166 trips/day) will add insignificant contribution on the carrying capacity of the concern roads. Hence it is concluded that it is not likely to have any significant adverse effect.

4.3 WATER ENVIRONMENT

Total water requirement will be 1180 KLD and waste water generation will be 83 KLD which will be recycled and reused.

The project will have a 100 KLD ETP to treat Industrial waste water and 30 KLD STP for treatment of domestic waste water. Treated Industrial water from ETP will be utilised in dust suppression, Ash conditioning and Slag quenching whereas treated domestic waste water from STP will be used for green belt and dust suppression purposes. The project site is located in an area classified as ‘Semi Critical Zone’ as per the guidelines of CGWB.

Mitigating Measures for Water Environment:

- Closed circuit circulation system will be followed
- Rain water charged to ground water.

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

4.4 BIOLOGICAL ENVIRONMENT

There is no ecological sensitive area like national park, sanctuary, biosphere reserve, wetland, forest, etc. within 10 km radial distance from the project site.

The total plant area is 19.16 Ha. The total plantation is about 16765 nos. will be carried out on 6.706 Ha. (35%) @ 2500 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. Moreover 30 m thick greenbelt will be developed towards West direction from the project site.

4.5 SOCIO-ECONOMIC IMPACTS

There is likely to be growth in the revenue generation and economy at local /regional. There will certainly be improvement in standard of living due to required facilities provided by management under CER. During operation phase heavy vehicular movements will lead to dispersed dust particles which will affects the health of the workers and Local Peoples. If influx of workers from outside areas then there will be an increased pressure on residential accommodation the neighborhood during construction phase.

5.0 ENVIRONMENTAL MONITORING PROGRAM

Environmental monitoring shall be done as per the guidelines provided by CPCB/SPCB. The methods conducted or applied shall be approved or accepted by the any recognized body or authority i.e. MoEFCC/CPCB/SPCB. The suggested monitoring shall be done to ensure that Environmental management practices/technologies are adequate to meet the requirement of the prescribed norms as prescribed by state pollution control board.

Environment Management Department with suitably qualified and experienced staff and environmental laboratory to cater the routine monitoring requirement will be implemented in the plant.

As part of the Board structure, Audit & Compliance reporting team shall also oversee the environmental status inclusive of the conditions prescribed under various environmental consents and clearances, as and when obtained from various State and Central Govt. authorities, as well as the corporate norms, standards and targets that exceed the legal compliance requirements.

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 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 PUBLIC CONSULTATION

The draft EIA- EMP report is submitted for public consultation process as per the provisions of EIA Notification 2006 and amendments thereof. After completing the public consultation process, the points raised and commitment of project proponent during the public hearing will be incorporated in the final EIA/EMP report for final submission to Environmental Clearance.

8.0 PROJECT BENEFITS

Proposed Social Welfare Arrangement

The activities along with budgetary provision i.e. Rs. 150.00 Lakhs provided under CER, M/s. NIPL will also support social welfare activities under CSR obligation under companies act.

The Social welfare/CSR activities will aim at strengthening the bond between the project authorities and the local population in the vicinity of project area. In line with CSR policy, M/s NIPL will carry community welfare activities in the following areas:

- Community development
- Education
- Health & medical care
- Drainage and sanitation
- Roads
- Drinking water supply occasionally in the event of water scarcity through tankers, etc.

The CER budget and Physical items to be implemented would be based on Public Hearing outcome and as per the commitments made by project promoters during the Public hearing however the provisions for CER are made in the proposal as per TOR which required to Consider as per O.M. dated 30.09.2020 issued by MoEF&CC New Delhi proposals regarding Corporate Environment Responsibility (C.E.R.). The CER budget along with capital expenses with different heads will be finalized after PH and as per decision of EAC. The promoters proposed plan are given below.

The proposed cost of the project is Rs.26505.00 Lakhs. Rs. 150.00 lakhs (Lumpsum) will spent towards the Improvement of Environment.

The CER amount will be spent on two phases in first phase and estimated sum of Rs 70.00 Lakhs will be spent on the following surrounding Environment improvements:

- The main focus of the CER will be augment the ground water recharge to improve the water table for which water shed management will be taken up.
- Roof water harvesting in Community Buildings like schools and Panchayats will be promoted.
- The proposed unit is located adjacent to the Boriya Diversion which has accumulated silt to almost more than 1.5 meter depth the desilting of the Pond will help to increase the storage volume as well as improve the ground water recharge.
- Green Belt development in the Community land and community grass land
- The unit will promote the use of Bio Gas in Community
- Some of the Village streets which are found Kachha will be Paved with proper drainage system
- It will also participate in Rural domestic Waste Management to create Rural waste composting facilities
- It will help Panchayat to set up Plastics waste segregation facility
- The Unit will create Public Toilets at the Village community tank for Males and Females separately along with Bathing facility which would be equipped with Septic Tank and Green area for treated water recharge.
- Solar Cooking will be promoted for Midday meal cooking in the Village schools
- Solar Power will also be given to Schools.
- The primary objective of the CER will be to help the surrounding villages improve their surrounding environment,

The action plan for the Second Phase of CER along with budgetary provision of Rs 80.00 Lakhs towards Corporate Environment Responsibility (C.E.R.) is provided in **Table 8 and Table 9.**

**TABLE 8
ACTION PLAN WITH BUDGETARY PROVISIONS TOWARDS PHASE WISE CORPORATE ENVIRONMENT RESPONSIBILITY PROPOSED**

The main focus of the CER will be augment the ground water recharge to improve the water table of the area for which water shed management will be taken up.

S. No.	General Head of expense	Year 1	Year 2	Year 3	Amount to be spent for head (in Rs. (Lac))
1	Roof water harvesting in Community Buildings like schools and Panchayats will be promoted	3	3	3	9
2	The proposed unit is located adjacent to the Boriya Diversion which has accumulated silt to almost more than 1.5 meter depth the desilting of the Pond will help to increase the storage volume as well as improve the ground water recharge	5	1	1	7
3	Green Belt development in the Community land and community grass land	2	2	2	7
4	The unit will promote the use of Bio Gas in Community	2	2	2	7
5	Some of the Village streets which are found Kachha will be Paved with proper drainage system	5	5	5	7
7	It will also participate in Rural domestic Waste Management to create Rural waste composting facilities	5	3	3	7
8	It will help Panchayat to set up Plastics waste segregation facility	5			7
9	The Unit will create Public Toilets at the Village community tank for Males and Females separately along with Bathing facility which would be equipped with Septic Tank and Green area for treated water recharge.	5			7
10	Solar Cooking will be promoted for Midday meal cooking in the Village schools	2	2	2	7
11	Solar Power will also be given to Schools				7
	Total::	34	18	18	70

The primary objective of the CER will be to help the surrounding villages improve their surrounding environment,

The action plan in II phase along with budgetary provision of Rs 80.00 Lakhs towards Corporate Environment Responsibility (C.E.R.) is provided in **Table 9.**

**TABLE 9
ACTION PLAN WITH BUDGETARY PROVISIONS TOWARDS CORPORATE ENVIRONMENT RESPONSIBILITY FOR SECOND PHASE**

General Head of expense	Year 1	Year 2	Year 3	Amount to be spent for head (in Rs. (Lac))
Drinking water facilities	9.00	4.00	3.00	16.00
a) Solar Drinking water structure (Bore well with Motor fitting)				
b) RO water System with storage containers				

General Head of expense	Year 1	Year 2	Year 3	Amount to be spent for head (in Rs. (Lac))
Plantation Tree plantations in 3 nos. of nearby villages approx 2.00 ha of Land @ 1500 trees / ha in Nearest villages.	6.00	3.00	3.00	12.00
Agricultural Donation of seeds, fertilizers, manure to needy farmers, Financial assistance for Irrigation facilities, Construction of farm ponds for needy farmers	9.00	6.00	3.00	18.00
Infrastructure a) Repair of School building and toilets b) Rain water harvesting projects under Rural Infrastructure Development. c) Installation of groundwater recharge and any other issues as per Public Issue demand.	16.00	12.00	6.00	34.00
Total	40.00	25.00	15.00	80.00

Total CER expenses will be 150 Lakhs Rs.

9.0 ENVIRONMENTAL MANAGEMENT PLAN

The major objective and benefit of utilizing Environmental Impact Assessment in project planning stage itself, is to prevent avoidable losses of environmental resources and values as a result of Environmental Management. Environmental Management includes protection/mitigation/enhancement measures as well as suggesting post project monitoring program. Environmental management may suggest revision of project site or operation to avoid adverse impacts. The industrial development in the study area needs to be intertwined with judicious utilization of nonrenewable resources of the study area and within the limits of permissible assimilative capacity. The Environment Management Plant (EMP) is required to ensure sustainable development in the study area of the proposed project site, hence it needs to be an all comprehensive plan for which the proposed industry, Government, Regulating agencies like Pollution Control Board working in the region and more importantly the affected population of the study area need to extend their cooperation and contribution.

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 budgetary provision for EMP for proposed project towards Capital cost of **Rs. 1934 Lakhs** and Recurring Cost of **Rs. 78 Lakhs**.

10.0 CONCLUSION

The proposed project of M/s. Neerganga Ispat 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 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. As per employment point of view, 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.

11.0 DISCLOSURE OF CONSULTANTS

The Environmental studies for proposed project of M/s NIPL 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.