

EXECUTIVE SUMMARY

OF

DRAFT ENVIRONMENTAL IMPACT

ASSESSMENT REPORT

FOR

PUBLIC HEARING

OF

**Expansion of Integrated Steel Plant;
Mini Blast Furnace (1,80,000 TPA to 5,00,000 TPA),
Sinter Plant (10,90,000 TPA to 14,40,000 TPA) &
Pellet Plant (9,00,000 TPA to 12,00,000 TPA) by
Revamping, Augmentation & Up gradation of Existing Technologies
& Facilities and Increasing Annual Working Days along with
Expansion in Pig Casting Machine (600 TPD to 1500 TPD)
& Oxygen Plant (60 TPD TO 260 TPD)**

At
**Village Gokulpur, P.O. Shyamraipur,
P.S. Kharapur (Local), District West Medinipur,
West Bengal**

APPLICANT

RASHMI METALIKS LIMITED

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Expansion of Integrated Steel Plant

At Village Gokulpur, P.O. Shyamraipur, P.S. Kharagpur (Local), District West Medinipur, West Bengal

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Expansion of Integrated Steel Plant; Mini Blast Furnace (1,80,000 TPA to 5,00,000 TPA), Sinter Plant (10,90,000 TPA to 14,40,000 TPA) & Pellet Plant (9,00,000 TPA to 12,00,000 TPA) by revamping, augmentation & up gradation of existing technologies & facilities and increasing annual working days along with Expansion in Pig Casting Machine (600 TPD to 1500 TPD) & Oxygen Plant (60 TPD to 260 TPD) at Village Gokulpur, P.O. Shyamraipur, P.S. Kharagpur (Local), District West Medinipur, West Bengal by Rashmi Metaliks Limited.

2.0 Products and capacities. If expansion proposal, then existing products with capacities and reference to earlier EC.**Production Capacities & Product Before and After Expansion**

Name of the Units	Existing Production Capacity with configuration	Proposed Additional Production Capacity	Total Production Capacity after proposed expansion	Current Production as per Valid CTO	Products
Mini Blast Furnace	1,80,000 TPA (1x215 m ³)	3,20,000 TPA (Capacity enhancement)	5,00,000 TPA (1 x 450 m ³)	1,80,000 TPA (1 x 215 m ³)	Molten Iron
Sinter Plant*	10,90,000 TPA (2 x 25 m ² + 1 x 70 m ²)	3,50,000 (Capacity enhancement)	14,40,000 TPA (2 x 25 m ² + 1 x 70 m ²)	6,00,000 TPA	Iron Ore Sinter
Pig Casting Machine	600 TPD	900 TPD (New Installation)	1500 TPD	600 TPD	Pig Iron
Pellet Plant	9,00,000 TPA	3,00,000 TPA (Capacity enhancement)	12,00,000 TPA	9,00,000 TPA	I/O Pellets
Oxygen Plant	60 TPD	200 TPD (New Installation)	260 TPD (1 x 60 + 1 x 200 TPD)	60 TPD	Oxygen
SMS*	5,00,000 TPA (7 x 20 T I.F /AOD)	0	5,00,000 TPA (7 x 20 T I.F /AOD)	4,44,000 TPA	M.S. Billets
Ductile Iron Pipe Plant	5,50,000 TPA	0	5,50,000 TPA	4,50,000 TPA	DI Pipe
Lime Calcination Plant	1200 TPD	0	0	To be dropped	-
Rolling Mill	3,65,200 TPA	0	3,65,200 TPA	3,65,200 TPA	TMT Bars, Wire & Wire Rod
Coal Gasifier (Stand By)	6000 Nm ³ /hr	0	6000 Nm ³ /hr	6000 Nm ³ /hr	Coal Gas
Railway Siding	88,50,000 TPA	0	88,50,000 TPA	88,50,000 TPA	Material Handling

* Under implementation (Applied to WBPCB for getting consent for balance approved production)

The details of Environment Clearance obtained for the unit from concerned authorities is tabulated below: -

Details of Existing Environmental Clearances

Name of the Unit	Existing Facility & Production Capacity	Environmental Clearance for Existing Capacity
Mini Blast Furnace	1,80,000 TPA	From MoEFCC, New Delhi vide File No. J-11011 /227 /2007-IA- II (I) dated 12.06.2008 validity extended on 12.02.2015 & transfer of EC on 06.01.2017 and latest consolidated EC vide File No. J-11011 /237/2016-IA.II (I) dated 17.05.2019
Sinter Plant*	10,90,000 TPA (2 x 25 m ² + 1 x 70 m ²)	
Pig Casting Machine	600 TPD	
SMS*	5,00,000 TPA (7 x 20 T I.F /AOD)	

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Name of the Unit	Existing Facility & Production Capacity	Environmental Clearance for Existing Capacity
Oxygen Plant	60 TPD	
Lime Calcination Plant	1200 TPD	
Pellet Plant	9,00,000 TPA	J-11011 /372 /2014-IA- II (I), from MoEFCC, New Delhi dated 06.12.2016 and latest consolidated EC vide File No. J-11011 /237/2016-IA.II (I) dated 17.05.2019
Ductile Iron Pipe Plant	5,50,000 TPA	J-11011 /237/2016-IA.II (I), from MoEFCC, New Delhi dated 17.05.2019 for Expansion of Ductile Iron Plant (DIP) (2,00,000 TPA to 5,50,000 TPA)
Rolling Mill	3,65,200 TPA	Memo No.253 -2N-77/2016 (E) from WBPCB - No increase in Pollution Load Committee, West Bengal and latest consolidated EC vide File No. J-11011 /237/2016-IA.II (I) dated 17.05.2019
Coal Gasifier (Stand By)	6000 Nm ³ /hr	
Railway Siding	88,50,000 TPA	-

3.0 Requirement of land, raw material, water, power, fuel with source of supply (Quantitative)**a) Land requirement**

Total Plant area - 58.27 ha (144 Acres). Proposed expansion will be done within existing plant premises.

b) Raw Material requirement

Details regarding quantity of raw materials required their source along with mode of transportation for expansion project have been tabulated below:

Raw Material and chemicals requirement

S. No.	Raw Materials	Estimated Quantity (in TPA)			Source of Raw Materials	Mode of Transportation	Distance from Project Site (Km)
		Existing	Proposed	Final			
1	I/o Lumps & Fines	23,10,731	(+) 7,75,269	30,86,000	Barbil-Joda, Orissa	Rail/ Road	201
2	Coal and Coal Dust	56,900	(+) 35,500	92,400	E-Auction, Purchased from BCCL, Dhanbad or Imported	Rail/ Road	177
3	Ferro Alloys	8,650	-	8,650	Rashmi Cement Limited, Jhargram	Road	40
4	Coke & Coke fines	1,57,400	(+) 83,400	2,40,800	Existing source (Jindal, VISA, Bengal Energy etc.)/ Imported	Rail/ Road	100
5	Dolomite	87,200	(+) 28,000	1,15,200	From Birmitrapur, Orissa / Bilaspur, CG	Rail/ Road	264/541
6	Limestone	1,41,894	(+)36,106	1,78,000	From Birmitrapur, Orissa / Bilaspur, Raipur CG / Katni MP	Rail/ Road	264/541
7	Quartzite	73,800	(+) 1,31,200	2,05,000	From Belpahar Orissa / Bilaspur, Raipur CG	Rail/ Road	264/541
8	Pyroxenite	5,400	(+) 9,600	15,000	From Jharkhand, Orissa	Rail/Road	264/541
9	Inoculants	528	-	528	Local Market	Road	<150
10	Magnesium	935	-	935	Local Market	Road	<150
11	Runner Coat	2811	-	2811	Local Market	Road	<150
12	Slag Coagulant	762	-	762	Local Market	Road	<150
13	Zinc	1040	-	1040	Local Market	Road	<150
14	Bitumen Solution/ Epoxy Paint	2314 KL/Year	-	2314 KL/Year	WRAS* Approved Vendor	Rail/ Road	<150
15	Bentonite	9,000	(+) 3,000	12,000	From Kutch, Gujarat	Rail/ Road	--

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S. No.	Raw Materials	Estimated Quantity (in TPA)			Source of Raw Materials	Mode of Transportation	Distance from Project Site (Km)
		Existing	Proposed	Final			
16	Mould Powder	1,491	-	1,491	Local Market	Road	<150
17	Sponge Iron	4,90,000	-	4,90,000	Rashmi Cement Limited, Jhargram, Orissa Metaliks Private Limited, Kharagpur	Road	5/40
18	Molten Hot Metal	3,00,000	(-) 2,00,000	1,00,000	Orissa Metaliks Private Limited Unit-II, Kharagpur	Rail	--

c) Other Basic Requirements of the project

Other basic requirements for the project are given in Table below.

Basic Requirements for the Project

S. No.	Particulars	Existing requirement	Additional requirement	After expansion	Source
1.	Fresh Water (KLPD)	1950	05 (Domestic)	1955	Borewell (1458 KLPD) and Kharagpur municipality (500 KLPD)
2.	Power (MW)	106.48	9.3	115.78	State Grid (WBSEDCL) & Group Company.
3.	Manpower (Persons) (Operational phase)				
	Regular	1647	100	1747	Source: Unskilled/ Semi-skilled-local area; skilled- nearby areas & outside areas also.
	Contractual	3260	200	3460	
	Total	4907	300	5207	

4.0 Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes. Material balance shall be represented.

Enhancement in production capacity will be achieved by:

- **Revamping** of existing MBF by changing core of blast size from 215 m³ to 450 m³.
- **Augmentation** –
 - a) **Blast furnace:** Oxygen charging in blast furnace, increasing hot gas temperature of blast furnace, change in raw material feed, modification of blower.
 - b) **Pellet Plant:** Increasing number of discs for pellet plant, increasing speed of conveyor belt and kiln operating range.
 - c) **Sinter Plant:** Oxygen enrichment in ignition hood, improvement in sinter feed, Modification in burner of Sinter Machine, Increase in rate of Air flow and machine speed control of Sinter plant.
- **Up gradation** – Installation of Top Pressure Recovery Turbine (TRT)&Bell Less Top (BLT) charging system on blast furnace, Pre heating of Sinter Mix by utilizing waste heat of sinter cooler, Installation of evaporator to recover Waste heat of Sinter, Installation of online screening in Sinter plant, increasing in annual working days (MBF & Pellet - 300 to 350 days/ annum, Sinter – 300 to 330 days /annum). Installation of new 900 TPD pig Casting Machine & 200 TPD oxygen plant.

The process description of each unit is brief is given below: -**❖ Mini Blast Furnace:**

The purpose of the mini blast furnace is to chemically reduce and physically convert iron oxides into liquid iron called "hot metal". The blast furnace is lined with refractory bricks, where iron ore, coke and limestone are charged at the top, and preheated air is blown into the bottom which reduces the iron to molten iron. The limestone reacts with the sand to form slag which is the major by-product of the steel industry. The slag is 100%

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granulated and utilized in own captive cement plant. Effluent generated from slag granulation will be treated in primary ETP and will be reused. The molten iron is poured into the pig casting machine to produce pig iron which are cooled subsequently with recirculation water and utilized for steel making. Proper APCDs are installed to treat the flue gas emissions. Material balance of the plant before & after expansion is shown below.

Name of the Input Materials	Existing	After expansion	Name of the output Materials	Existing	After expansion
	Quantity input in (TPA)	Quantity input in (TPA)		Quantity output in (TPA)	Quantity output in (TPA)
Iron Ore Pellet (@0.96 t/t)	61,920	4,80,000	Hot metal	1,80,000	5,00,000
Iron Ore Lump (@0.16 t/t)	46,440	80,000	Slag	1,07,500	1,90,000
Sinter (@0.48 t/t)	2,01,240	2,40,000	Dust & Sludge	1,04,500	2,42,800
Coke & Coal Dust (@0.40 t/t)	1,17,200	2,00,000	LOI, etc.	1,14,000	2,87,200
Quartzite (@0.41 t/t)	73,800	2,05,000			
Pyroxenite (0.03 t/t)	5,400	15,000			
Total	5,06,000	12,20,000		5,06,000	12,20,000

❖ **Sinter Plant:**

All iron bearing materials like iron ore fines, flue dust, BF return fines, limestone, dolomite & coke breeze are moistened & mixed in the nodulizing drum where lime is added as a nodulizing agent. Ignition furnace with gas firing burner is provided at the end for firing the materials and form sinter. The sinter is cooled using forced draught fans in sinter cooler and is transferred to the screening house where sinter is screened and stored for further use. Dust generated will be recycled in the process whereas effluent will be used for dust suppression. Material balance of the plant before & after expansion is shown below.

Name of the Input Materials	Existing	After expansion	Name of the output Materials	Existing	After expansion
	Quantity input (in TPA)	Quantity input in (TPA)		Quantity output (in TPA)	Quantity output (in TPA)
Iron Ore Fines	12,85,291	16,98,000	Iron Ore Sinter	10,90,000	14,40,000
Mill Scale, Dust from APCD	48,825	64,628	Sinter Dust	2,62,297	3,46,521
Lime Stone Fines	87,200	1,15,200	LOI, etc	2,53,713	3,36,107
Dolomite Fines	87,200	1,15,200			
Coke Fines	76,300	1,00,800			
Calcined Lime Fines	21,194	28,800			
Total	16,06,010	21,22,628		16,06,010	21,22,628

❖ **Pellet Plant:**

Iron ore concentrate produced from iron ore slurry is mixed with additives like coke fines, limestone powder, bentonite and water and conveyed to balling discs for formation of green pellets. The green pellets are fired in an indurating furnace operating with coal gas where the pellets are hardened. Subsequently, the pellets are cooled, discharged and stored in sheds. Pellet dust collected from ESP will be 100% recycled in the process. Water is mainly used at the time of making green granules. No effluents will be generated. Material balance of the plant before & after expansion is shown below.

Name of the Input Materials	Existing	After expansion	Name of the output Materials	Existing	After expansion
	Quantity input (in TPA)	Quantity input in (TPA)		Quantity output (in TPA)	Quantity output (in TPA)
High Grade Iron ore	9,81,000	13,08,000	Pellets	9,00,000	12,00,000
Coal	24,300	32,400	LOI	72,600	98,500
Limestone	1,500	2,000	Dust	25,200	33,600
Bentonite	9,000	12,000	Pellet Fines	18,000	22,300
Total	10,15,800	13,54,400		10,15,800	13,54,400

❖ **SMS Unit:**

The SMS unit mainly comprises of Induction Furnace, Ladle & Continuous Casting Machine (CCM). The DRI, Iron scraps and ferro alloy scraps are charged into the induction furnace for preparation of liquid steel. As a by-product, SMS Slag is also obtained which is being used for low land filling, Road Making/ Paver Block Making. The final composition adjustment of steel is made in the ladle. Molten metal is solidified into a "semi-finished" Billet through CCM for subsequent rolling in the finishing mills. The molten metal is transferred from ladle furnace to caster for casting through mould in different sections. Rejected scrap will be used in Steel Melting Shop (SMS) & no liquid waste generation is envisaged. Material balance of the plant is shown below.

Name of the Input Materials	Quantity input (in TPA)	Name of the output Materials	Quantity output (in TPA)
Sponge Iron	4,90,000	Mild Steel / Billets	5,00,000
Pig Iron	17,000	Slag	16,200
Scraps	32,500	Dust	24,800
Lime Stone / Dolomite	32,000	Scale	530
Ferro Alloys	7,000	LOI	36,970
Total	5,78,500		5,78,500

❖ **Oxygen Plant:**

Oxygen plant or Air Separation Unit (ASU) is required to meet the demands of oxygen, nitrogen & argon in the plant. The gases are produced by air separation process based on low-pressure cryogenic cycle and double column rectification. The gases can be liquefied when subjected to temperature as low as -195°C at atmospheric pressure. When pressure is increased, the condensation temperature also increases. The separation of the components of a liquid mixture is obtained by vaporization of the mixture, the more volatile components being driven off from the others. In this way the different boiling points of nitrogen, oxygen and argon make their separation possible by distillation. There will no waste generation from oxygen plant.

❖ **Rolling Mill & Wire Rod Mill:**

The raw material for the unit is billets. The billets are fed into the furnace and made molten, which makes it feasible to pass it through the rollers. The molten billets are passed through series of mills & processes for obtaining the finished products, i.e., TMT Bars, wire and Wire Rods which are stored in the yards for transportation to markets. No wastewater is discharged. Miss rolls/end cuts will be reused in the SMS Unit. Material balance of the plant is shown below.

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SL. No.	Item	Source	Mode of Transportation	Qty/Annum
1.	Billets	RML	Through Crane/ conveying System	3,80,000 TPA Product- 3,65,200 TPA (Saleable) H.R. Coils/Plates (Flat & checkered) TMT Bar (8-32 mm) Wire Rod- (5.5- 12 mm) & Wire/

❖ **DIP Unit:**

Hot metal is prepared in the blast furnace along with addition of ferro alloys like Silico-Manganese, Magnesium, carbon etc. and melted with 1460-1520°C of temperature for the preparation of DI pipes. The molten iron is fed into centrifugal casting machine. During the process, the treated liquid iron is poured into spinning mould through a runner. The hot metal starts solidification in the water cooled mould and is extracted as complete pipe. Water cooling system is provided for the solidification of the pipe. Finally, the extractor will extract the pipe after it is solidified completely and finishing is done by spraying bitumen/zinc. ETP Sludge (cement slurry) from DI Pipe is used for Brick making and also being used in Captive Cement Plant. Material balance of the plant is shown below.

Name of the Input Materials	Quantity input in (TPA)	Name of the output Materials	Quantity output in (TPA)
Hot Metal from B.F	5,83,000	D. I. Pipes	5,50,000
Mould Powder	1491	Slag	14,749
Refractory (WH-A+K)	3245	Dust & Sludge	19,027
Ferro Silicon	1650	LOI, etc	14,000
Inoculants	528		
Magnesium	935		
Runner Coat	2811		
Slag Coagulant	762		
Zinc	1040		
Bituminous/Epoxy Solution	2314 KL/ Year		
Total	5,97,776		5,97,776

5.0 Measures for mitigating the impact on the environment and mode of discharge or disposal.

Particulars	Details
Air quality management	<ul style="list-style-type: none"> ➤ All pollution control systems are connected to energy meters and the records are maintained for run hours, failure time and efficiency. ➤ Clean technologies/measures are implemented in the following way:- Flue gases are used for drying the Green pellet, De-dusting is provided for product handling area. ➤ Water sprinkling is being carried out at suitable intervals to control dust generation. This effort will be continued along with avenue plantations in-and-around the plant premises. Dust suppression system (Pulse jet Bag Filter with Silicon coating bags) is adopted to control the fugitive dust emanated during extra quantity of raw materials unloading operations. ➤ Proper maintenance of vehicles and machineries is being/ will be done and combustion efficiency of vehicles & machineries is being/ will be tested regularly both by the proponent as well as the contractors engaged. ➤ 33% of the total area is developed as greenbelt & plantation within premises. After proposed expansion total area under greenbelt and plantation will be 35%. ➤ Ambient air quality and stack emission is being/will be regularly monitored to ensure that

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Particulars	Details
	<p>emission level is within the ambient air and flue gas emissions quality standards.</p> <ul style="list-style-type: none"> ➤ The dust generated in the material handling system is being/ will be extracted through suction hoods located at various drop points. ➤ The hoods will be connected to a common duct which will be provided with a motorized damper for isolation. ➤ An on-line booster fan will be provided for generating the necessary suction at the suction hoods.
Water quality management	<ul style="list-style-type: none"> ➤ The company is completely based on Zero Liquid discharge. ➤ Contaminated water is cleaned and recycled to process. Waste water is being/ will be used in greenbelt & dust suppression. ➤ Continuous attempt is being/ will be made to optimize/reduce the use of water and to avoid wastage and leakage of water. ➤ Record of water consumption on daily basis is being/ will be maintained as per present practice. ➤ Non-contaminated and potentially contaminated run-off is being/ will be channelized separately. Non-contaminated run-off is being/ will be routed to off-site areas via silt traps. Sediment trap is being/ will be provided to prevent the discharge of excessive suspended solids. ➤ Oil and grease trap are being/ will be provided in plant drainage lines to prevent contamination by accidental oil spillage. ➤ Proper storm water drainage network exists. ➤ Waste water generated from the domestic activities will be treated in STP. ➤ Raw materials stock pile, open dump yard is made inside the plant premises, which have the potential to contaminate the groundwater level through seepage. Mitigation measures like Stockpiles of all raw materials and coal is made on pucca platform (preferably concrete / clay compacted) and provided with garland drains and sedimentation pit, Stockpiles preferably being covered under covered shed and temporarily using tarpaulin, etc., Wind breakers in the form of tin sheds are installed around open stock yard are followed to avoid any groundwater contamination.
Noise Management	<ul style="list-style-type: none"> ➤ Time to time oiling and servicing of machines is being/will be done. ➤ Acoustic enclosures for DG sets are provided. ➤ Earmuffs provided to workers while running the equipment of the plant. ➤ Periodic monitoring is being/will be carried out. ➤ Greenbelt of appropriate width inside the plant premises and at the plant boundary has been developed and same will be maintained in the future. ➤ Sound absorbing material is provided in rooms where both the noise source and plant personal is present so that the reflecting sound is absorbed.
Solid & Hazardous Waste Management	<ul style="list-style-type: none"> ➤ Used oils are industrial lubricating oils are stored in closed barrels with appropriate seal and stored in a designated HW Facility and is being/ will be sold to authorized vendor. ➤ ETP Sludge (cement slurry) from DI Pipe is used for Brick making and also being used in Captive Cement Plant. ➤ Contaminated cotton and wiping clothes collected from all units is sent to Common Hazardous

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Particulars	Details
	<p>Waste Treatment, Storage and Disposal Facility (CHWTSDF).</p> <ul style="list-style-type: none"> ➤ SMS slag is being used for low land filling, Road Making/ Paver Block Making. ➤ MBF slag is being/ will be used in Captive Cement Plant. ➤ Miss roll and End cuts are used in SMS plant.
Greenbelt development & plantation	<ul style="list-style-type: none"> ➤ Out of the total plant area, approx. 33% i.e. 19.23 ha (47.52 acres) area developed under greenbelt & plantation. Company will increase the greenbelt from 19.23 ha (33%) to 20.39 ha (35%). Thus, after proposed expansion total greenbelt & plantation will be 20.39 ha. ➤ The greenbelt & plantation development in 33% area all around and inside the plant helps to attenuate the pollution level. ➤ Greenbelt is being developed as per Central Pollution Control Board (CPCB) guidelines. ➤ Plantation of selected tree species, which are suitable to area condition, has been done for attenuation of air & noise pollution. ➤ Native species have been planted in consultation with the local DFO.

6.0 Capital cost of the project, estimated time of completion

COST	
Total Cost of the Project	Rs. 90 Crores
Cost for Environmental Protection Measures	
Capital Cost	Rs. 5.4 Crores
Recurring Cost	Rs. 54 Lakhs/annum
ESTIMATED TIME OF COMPLETION	
	3 years

7.0 Site selected for the project-Nature of land- agricultural (single/double crop), barren, Govt./private land, status of its acquisition, nearby (in 2-3 km) water body, population, within 10 km other industries, forest, eco-sensitive zones, accessibility (Note- in case of industrial estate this information may not be necessary).**a) Nature of land**

Total Plant area is 58.27 ha (144 Acres) which is already industrial. Out of the total plant area, approx. 33% i.e. 19.23 ha (47.52 acres) area developed under greenbelt & plantation. Company will increase the greenbelt from 19.23 ha (33%) to 20.39 ha (35%). Thus, total greenbelt & plantation will be 20.39 ha. The study area mainly comprises of agricultural land (48.39%) followed by 20.84% of human settlement. Grazing/community land occupies 12.92% of the total area and 7.72 % of the total area falls under forest land. Thus, other classes occupy only 0.42 % of the area. Only 3.66 % of the total area is occupied by surface water bodies.

b) Status of its acquisition

Total existing plant area is 58.27 ha (144 Acres) which is already acquired by the company. The proposed expansion will be done within existing plant premises.

c) Nearby (in 2-3 km) water body, forest, eco-sensitive zones, accessibility**Environmental Setting Details (with approximate aerial distance and direction from the plant site)**

S. No.	PARTICULARS	DETAILS
1.	Nearest City	Kharagpur (3.0 km in SE direction)
2.	Nearest National / State Highway	<ul style="list-style-type: none"> ○ NH - 6 (Adjacent to plant site in South direction) ○ NH - 60 (4.5 km in ENE direction)
3.	Nearest Railway Station	<ul style="list-style-type: none"> ○ Gokulpur Railway Station (~1 km in North direction) ○ Kharagpur Railway Station (~3 km in SE direction)

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S. No.	PARTICULARS	DETAILS
4.	Nearest Airport	Netaji Subhash Chandra Bose International Airport, Kolkata (~120 km in NE direction)
5.	National Parks, Wildlife Sanctuaries, Biosphere Reserves, Reserve Forests (RF) / Protected Forests (PF) etc. within 10 km radius	No National Parks, Wildlife Sanctuaries, Biosphere Reserves, Reserve forest lies within 10 km radius. 2 Protected Forests lies in 10 km radius: - o ~6.0 km in North direction o ~6.0 km in South direction
6.	Water Bodies within 10 km radius	o Kasai River (4km in NE direction) o Medinipur high level canal (6 km in NE direction) Ponds like Shabhaspally pond, Bhagwanpur pond, Vidyasagarpur pond, Chandabila pond, Gokulpur pond, Alichak pond, Narayanpurpond and Rupnarayanpur pond exists in 10 km radius area.
7.	Defence installations	Kalaikunda Airforce Station (~8 km in West direction)
8.	Seismic Zone	Zone - III [as per IS 1893 (Part-I): 2002]

d) List of major industries within 10 km radius study area

S. No.	Name of Industry	Aerial Distance (Approx.)	Direction
1.	Rashmi Alloy Steel Private Limited	900 m	East
2.	Orissa Metaliks Pvt. Ltd (Unit-I)	2.1 Km	North
3.	Orissa Metaliks Pvt. Ltd (Unit-II)	0.0 km	West
4.	Orissa Metaliks Pvt. Ltd	2.2 Km	North
5.	Bansal Cement Private Limited	2.9 km	North
6.	Tata Metaliks Ltd.	3.0 km	North
7.	Tata Bearing Ltd	3.2 km	South
8.	Bhagwati Biscuit Factory Food Pvt. Ltd.	1.5 km	South
9.	WBSEDCL Ltd.	1.5 km	South
10.	ASO Cement Ltd	8.5 km	South
11.	Siemens Pvt. Ltd.	4.1 km	South
12.	Essen Fabricators Pvt Ltd	8.0 km	South
13.	BRG Ltd.	4 km	East
14.	Tata Telcom	4 km	East
15.	Tata Hitachi	4.5 km	East
16.	ACE Feeds Pvt. Ltd.	5.5 km	East
17.	Ramco Cements Ltd. (Kgp Unit)	6 km	SW
18.	Tractor India Ltd.	7.7 km	East
19.	Kharagpur Metal Reforming Industries Pvt. Ltd.	9 km	East

8.0 Baseline environmental data- air quality, surface and ground water quality, soil characteristic, flora and fauna, socio economic condition of the nearby population.**a) Presentation of Results (Air, Noise, Water & Soil)**

Baseline study of the study area was conducted during Post Monsoon Season (October to December, 2019). Ambient Air Quality Monitoring reveals that the concentrations of PM10 and PM2.5 for all the 8 AAQM stations were found between 58.3 to 96.8 µg/m³ and 24.8 to 54.9 µg/m³ respectively. The concentrations of SO₂ and NO₂ were found to be in range of 5.8 to 20.4 µg/m³ and 10.2 to 29.8 µg/m³ respectively. The PM10 and PM2.5 concentration is on higher side as National Highway (NH-6- Bombay road) four lane construction work is going on.

Ambient noise levels were measured at 8 locations within the 10 km radius area from the project site. Noise levels vary from 51.7 to 71.2 Leq dB (A) during day time and 40.2 to 65.8 Leq dB(A) during night time which is within CPCB Standards.

The ground water analysis for all the 8 sampling stations shows that pH varies from 6.64 to 6.86, Total hardness varies from 106 to 434.6 mg/l, Total dissolved solids vary from 164 to 402 mg/l. The groundwater samples from the project site and from study area are of good quality, not polluted and good for irrigation or for domestic use. The surface water analysis for Kasai river shows that the physical quality of river water samples was good & total dissolved solids are 172 mg/l which supports the insight that the water is not bitter, salty or brackish. The values of BOD (5.10 mg/l) and COD (19.8 mg/l) indicates marginal pollution of river water samples.

Soil monitoring was carried out at 7 locations and the analysis results show that soil is moderately acidic to alkaline in nature, pH value ranging from 5.83 to 7.85, with organic matter from 0.61 to 1.38 %. Soil texture is clay or clay loam with medium phosphorus content (22.61 to 43.36 kg/ha). Total nitrogen ranges from 137.95 to 275.72 kg/ha, indicates that nitrogen is in sufficient amount in this soil. The soils are of medium fertility and may require addition of fertilizers during plantation and greenbelt development.

b) Biological Environment

Flora: Most common species found in the area are Akashmoni (*Acacia auriculiformis*), Siris (*Albizia lebeck*), Kadam (*Anthocephalus cadamba*), Kathal (*Artocarpus heterophyllus*), Neem (*Azadirachta indica*), Palm Tree (*Borassus flabellifer*), Amaltas (*Cassia fistula*), Radhachura (*Peltophorum pterocarpum*), Mahua (*Madhuca indica*), Devdaru (*Polyalthia longifolia*), Arjun (*Terminalia arjuna*), Eucalyptus (*Eucalyptus globules*), Mango (*Mangifera indica*) etc.

Fauna: Commonly found species in the study area are House rat (*Rattus rattus*), Domestic Cat (*Felis domesticus*), House Crow (*Corvus splendens*), Pigeon (*Columba livia*), Common Garden lizard (*Calotes versicolor*), Indian bull frog (*Rana tigrina*), House gecko (*Hemidactylus flaviviridis*), etc.

c) Socio-Economic Environment

The population as per 2011 Census records is 201979 (for 10 km radius). Scheduled Caste fraction of the population is 20.74% and Schedule Tribe is 21.88% whereas remaining 57.38% population is observed as others. Literacy rate of the area is 74.17%. Population of workers engaged in occupation is 41.82%. Of these 27.63% are main workers whereas 14.19% are marginal workers. Remaining 58.18% of the total population is considered as non workers.

9.0 Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.

Unit	Description of Plausible Hazard	Impact	Mitigation measures
Steel Mating Shop	a. Fire & Explosion due to Molten metal contact with water. b. Molten Metal Spillage c. Steam Explosion d. Hot SMS Slag e. Break out in CCM f. Extreme Temperature g. Exposure to controlled and uncontrolled energy sources h. Moving machinery, on-site transport, forklifts and cranes i. Falls from height j. Hot Metal transfer	Fire / Explosion due to core damage and hot metal spillage; Burn/ injuries because of steam leakage, fatal due to collapsing of cranes and electrical shock , eye irritation due to dust	<ul style="list-style-type: none"> • Provision of first aid facility. • Provision of fire fighting facilities. • Provision of proper PPEs to workers.
Rolling Mill	a. Fire in rolling mill due to hydraulic oil cellar. b. Spillage of acid tank c. Slippery surface because of heavy use of lubricant d. Steam explosion e. Manual handling and repetitive work	Fire ; Burn injuries, health problem, injury, skin allergy, electric shock	
MBF	a. Fire & Explosion due to Molten metal contact with water. b. Molten Metal Spillage c. Steam Explosion d. Hot SMS Slag e. Break out in CCM f. Extreme Temperature g. Exposure to controlled and uncontrolled energy sources h. Moving machinery, on-site transport, forklifts and cranes i. Falls from height j. Hot Metal transfer	Fire / Explosion due to core damage and hot metal spillage; Burn/ injuries because of steam leakage, fatal due to collapsing of cranes and electrical shock , eye irritation due to dust	
Pellet & Sinter Plant	a. Fire in Coal stock yard b. Noise and vibration c. Exposure to controlled and uncontrolled energy sources d. Moving machinery, on-site transport, forklifts and crane e. Inhalable agents (gases, vapors, dusts and fumes) f. Falls from height	Fire / Explosion due to core damage and hot metal spillage; Burn/ injuries because of steam leakage, fatal due to collapsing of cranes and electrical shock , eye irritation due to dust	
Di Pipe Plant	a. Inhalable agents (gases, vapors, dusts and fumes) b. Exposure to controlled and uncontrolled energy sources c. Molten Metal Spillage d. Moving machinery, on-site transport, forklifts and cranes. e. Hot Rejected DI Pipe scraps f. Break out in cement slurry pump	Fire / Explosion due to core damage and hot metal spillage; Burn/ injuries because of steam leakage, fatal due to collapsing of cranes and electrical shock , eye irritation due to dust ;	
Transportation of	a. High concentration of traffic during	Accident and fatal.	

Expansion of Integrated Steel Plant

At Village Gokulpur, P.O. Shyamraipur, P.S. Kharagpur (Local), District West Medinipur, West Bengal

Executive Summary

material	duty hours b. Heterogeneous traffic c. Violation of traffic rules/ speed limit d. Road Condition e. Condition of vehicle		
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10.0 Likely impact of the project on air,water,land, flora-fauna and nearby population.

S. No.	Project Activity/Units	Aspect	Impact	Mitigation
1.	Transportation of raw materials/finished products	Dust generation	<ul style="list-style-type: none"> Increase in dust concentration in the ambient air Significant impact on biotic environment Spread of respiratory diseases in nearby population 	<ul style="list-style-type: none"> Paved Road Speed limit in plant premises Control for vehicular movement Water sprinkling Vehicles should be PUC certified Greenbelt & plantation on both sides of the internal roads & plant boundary.
		Increase in number of vehicles	<ul style="list-style-type: none"> Congestion of roads due to increase in existing traffic load. Noise generation due to vehicular movement and increase in noise level 	<ul style="list-style-type: none"> Flow of vehicles to be maintained Maintenance of parking area
2.	Mini Blast Furnace, SMS unit, DIP Plant	Air pollution due to emission of dust & Particulate Matter	<ul style="list-style-type: none"> Increase in Particulate Matter & dust concentrations in surrounding air 	<ul style="list-style-type: none"> Installation of proper APCD for arresting the Particulate Matter from emissions Adequate stack height Online Continuous Monitoring System for Particulate Matter & Gaseous Analyzer Dust generated in MBF is being/will be used in Sinter Plant
		Solid waste generation	<ul style="list-style-type: none"> Generation of solid wastes (specially slag) inside the premises & its deposition creates a nuisance as it can affect the soil composition of the area Deposition of Rejected scrapswill affect the soil 	<ul style="list-style-type: none"> Slag generated from the MBF will be granulated in SGU & reused in the captive cement plant SMS slag is being used for low land filling, Road Making/ Paver Block Making Rejected scraps will be reused in the Electric Arc Furnace in SMS ETP Sludge (cement slurry) from DI Pipe is used for Brick making and also being used in Captive Cement Plant.
		Effluent generation from SGU	<ul style="list-style-type: none"> Contaminate water, if discharged untreated & increase pollution level of water bodies & soil 	<ul style="list-style-type: none"> Will be treated in primary ETP and reused in the plant
3.	Sinter & Pellet Plant	Generation of sinter/pellet dust	<ul style="list-style-type: none"> Increase in Particulate Matter & dust concentrations in surrounding air 	<ul style="list-style-type: none"> Installation of Electrostatic precipitators for arresting the Particulate Matter from emissions Adequate stack height Online Continuous Monitoring System for Particulate Matter Dust will be 100% recycled in the plant
4.	Domestic Water usage	Water Pollution	Contaminate water, if discharged untreated	<ul style="list-style-type: none"> Domestic waste water is being/will be treated in Sewage treatment plant.

11.0 Emergency preparedness plan in case of natural or in plant emergencies

In case of emergency, the company has certain designated hierarchy of persons with specific responsibilities and duties allotted. The emergency communication system is provided and emergency sirens are used for informing. The emergency power supply and fire-fighting facilities are provided to deal with disasters related to fire. The medical facilities are provided for casualties or injured people, if any. There are certain emergency contact numbers displayed on main gate to be used during emergencies.

12.0 Issues raised during public hearing (if applicable) and response given.

Public hearing is yet to be conducted

13.0 CER plan with proposed expenditure

The proposed CER Cost is Rs. 90 Lakhs (1% of the total project cost i.e. 90 Crores) for Brownfield project as per the latest O.M. released by MoEFCC on CER dated 1st May, 2018. Detailed year-wise action plan for next 2 years for CER activities to be undertaken by the company is given in Table below.

Proposed budget for ESC

S. No.	PROPOSED CER ACTIVITIES	INVESTMENT (IN LAKHS)	
		Year 1	Year 2
1	Open Defecation free village by introducing community & Individual Toilets	10	5
2	Drinking Water Infrastructure ATM Water Machine 5 nos. @ Rs 3 lakhs	0	15
3	Repairing of metal road in villages	10	0
4	Providing equipment to the local hospitals, Developing/ up gradation of primary health center	10	0
5	Skill development to unemployed local youth through National Skill Development Corporation, Govt. of India Scheme	10	10
6	Supporting schools for establishment of mini outdoor sports complex or playgrounds in providing the facilities like badminton court, tennis court and leveling of ground.	5	0
7	Workshop centre with latest tailoring machines for training women (like tailoring, stitching, Pickle & Sauces making, Soft Toys & Gem Jeweller, and Beautician Courses and for making affordable price of Sanitary Pads.)	7	5
8	Provide Dustbin in Village (under Swach Bharta Scheme)	3	0
TOTAL		90 Lakhs	

14.0 Occupational health measures

- Well-equipped Occupational Health Centre with adequate paramedical staff
- Routine and special investigation related to occupational health
- Health surveillance and maintenance of health record
- Rules and procedure for effective implementation of Safety Health and Environment policy and made to know all employees
- Round the clock Ambulance facility
- Sufficient number of First aid boxes
- Formulation of OHS implementation team/ cell
- Risk assessment of each and every activity
- Implementation of OHS management program
- Displaying the safety and health policy and instructions at various locations
- Display of safe operating procedure (SOP) at various locations

- Job safety analysis
- Carry out daily plant safety inspection by internal safety department
- Investigation of fatal, serious accidents and near miss accident
- Investigation of reports of occupational diseases
- Monthly safety meeting of all employees & workers to discuss last month accident if any, reason and corrective measures taken.
- Organize campaigns, competitions, contests etc. to promote safety
- Organize safety training, seminars for safe working and safe vehicle and traffic movement within the plant premises and regular training for safe driving outside the plant premises
- Prepare annual reports of accidents and occupational diseases. Preparation and updating of Onsite Emergency Plan and Liaison with external agencies and authorities
- Ensure use of PPEs according to the job like helmet, safety shoes, goggle, dust mask, ear plug and hand gloves etc.
- Periodic Safety Audits both internal and external, review and implementation of recommendations
- First aid boxes will be kept in every department for emergency. First aid training will be organized for the employees.

15.0 Post project monitoring plan**Post Project Monitoring**

S. No.	Description	Frequency of Monitoring	Location
1.	Ambient Air Quality	As per EC/CTO condition	Plant site & nearby areas (4 locations)
2.	Stack Monitoring	Continuous Online Monitoring & as per EC/CTO condition	All stacks
3.	Noise Level Monitoring	As per EC/CTO condition	Plant boundary & nearby areas
4.	Surface water Quality	Twice a year (Pre and Post Monsoon)	In plant site and adjacent areas
5.	Ground water Quality	Twice a year (Pre and Post Monsoon)	In plant site and adjacent areas
6.	Soil quality	Yearly	Nearby areas
7.	Medical checkup of employees	Yearly	Nearby hospitals/on-site

