PRE FEASIBILITY REPORT

TABLE OF CONTENT

1. EXECUTIVE SUMMARY

The present set up of **Foundry Park** is accommodated with 150 Foundry Units and 1No. Pig Iron Plant with a support of 31nos of ancillary units and adequate common infrastructure and utility services. This industrial park falls under the category 'A' as per the schedule of projects or activities requiring prior environmental clearance mentioned in the Gazette Notification of India, Extraordinary, Part – II, and section 3, Sub- Section (ii), Ministry of Environment & Forest, New Delhi, 14th September' 2006. The plant is positioned around at 215 M^3 blast furnace. Total 924 acres of land is required to produce 1.0 million tone of Foundry products and 1,80,000 MT/Year pig iron with adequate infrastructure present. The site is located at Hauli Bagan on the Ranihati – Amta road at a distance of 20 Km from Vidyasagar Setu and 5 Km from Ranihati crossing (NH-6) towards west and south west respectively. The site is well connected by road. The nearest railway station at Jalalsi is 4.0 Km away, Dhulagarh truck terminal is 7 Km away, Kolkata is 26 Km away and the Haldia port 150 km away from the project site.

2. INTRODUCTION OF THE PROJECT /BACKGROUND INFORMATION

2.1. Identification of the project and project proponent.

Foundry Park (SEZ) is being developed to produce 1.0 million ton Foundry product and 1, 80,000 MT/year pig iron. The project is carried out to accommodate about 150 Foundry units and 1 no. pig iron plant with support of 31 nos. of ancillary units and adequate common infrastructure and utility services. Development of Industrial Estate "Foundry Park" will be comprises of Category A and B type industries as per the EIA Notification 2006.

Blast furnace operation is carried out with iron ore, coke, limestone and other fluxes being added at intervals from the top, while molten iron and slag are drawn off at the bottom at regular interval.

The foundry park will be developed on about 924 acre (nearly 37, 39,298.64 sqm) of land at Hauli Bagan, Ranihati - Amta Road, P.S.: Jagatballavpur, Howrah-711322. The acquired land is fully developed.

BACKGROUND OF THE PROMOTERS

The background of the promoters is given as follows:

Particulars

Name: Mr. Tapash Chatterjee

Designation (Owner/Partner/CEO) **:** CEO cum Secretary

Registered Address: Foundry Cluster Development Association, 4, Indian Exchange Place, 7th Floor, Kolkata-700001, West Bengal

Telephone No : 9830194819

2.2. Need for the Project & Importance to the Country

Steel is considered as the backbone of national economic development. Steel is used in different industries like energy, construction, automotive and transportation, infrastructure, packaging and machinery. It is also the key material used for delivering renewable energy such as thermal, solar and tidal power. Housing sector and Construction is also the biggest consumer of steel today. Per capita consumption of steel is one of the significant index for measurement of development of socioeconomic status and living standards of the people in any country. Steel consumption in India has grown substantially since evolving of modern steel industry during nineteenth century. During the past two decade steel consumption has grown at a faster pace driven by liberalization, decontrol of steel industry, growing population, infrastructure development and changing lifestyle of people. Per capita steel consumption in India (57.8 kg: 2013) which is considerably low compared to global average (315 kg: 2013) is estimated

to grow substantially during the next ten years in proportionate with the growing economy.

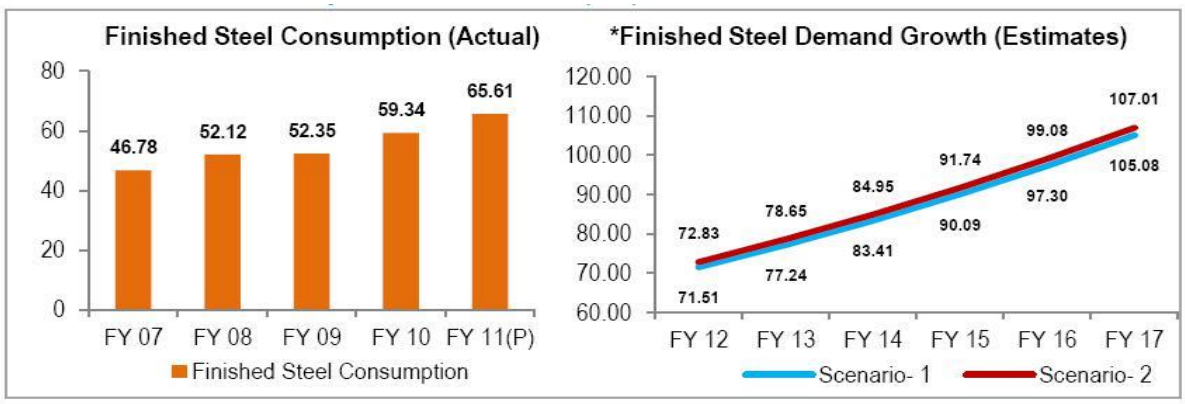
Steel demand has outpaced supply over the last five years:

- In FY15, the consumption of finished steel grew to 76.99 MT although the CAGR increased to 5.74 per cent during FY08-15.
- Steel consumption is expected to reach 104 MT by 2017 due to rising infrastructure development and growing demand for automotives.
- It is expected that per capita consumption would rise supported by fast growth in the industrial sector, and rising infra expenditure projects in railways, roads & highways, etc.

- For FY15, per capita consumption of steel in India was 60 kg against the world average of 222 kg.

In 2014, the world crude steel production reached 1661.5 million tones and showed a growth of 1.2% over 2013-14 (Source: World Steel Association or WSA). China remained the world's largest crude steel producer in 2014-15 (823 million tones) followed by Japan (110.7 million tones), the USA (88.3 million tones) and India (83.2 million tones) at the 4^{th} position. WSA has projected that global apparent steel use will increase by 2% to 1562 million tones in 2014-15 following growth of 3.8% in 2013-14 while in 2015-16 world steel demand will grow by another 2% and will reach 1594 million tones. As per their forecast, India's outlook is improving and in 2014-15, India's steel demand is expected to grow by 3.4% to 76.2 million tones, following growth of 1.8% in 2013-14. In 2015-16 structural reforms and improving confidence will support a further growth in Indian Steel demand.

Figure: 1: Steel Consumption and Demand



*Source: WSA, Joint Plant Committee: MoS-GoI: working group report 2012-17, *Estimates*

The domestic steel industry faces new challenges. The domestic demand too has not improved to significant levels. The Indian steel industry is broadly categorised into public sector and private sector players. These players are either integrated producers or standalone producers of various steel products.

From assessment of secondary information, it is noted that

- Public sector players like Steel Authority of India Limited (SAIL), and Rashtriya Ispat Nigam Limited (RINL) as well as private players like Jindal Steel and Power Limited JSPL, Jai Balaji Industries Limited, Tata Steel and JSW Steel are integrated producers.
- Integrated Producers are players whose value chain extends from iron ore processing to finished steel production at a single location or at a combination of locations.
- These players mostly adopt the primary route for manufacturing steel.
- The major charecteristics of the integrated producers are,

- Integrated players are big in size with facility starting from BF to rolling mills, that is they operate in the entire value chain.

- Some of the integrated players also have iron ore mining facility of their own or through their subsidiary companies.
- Overall, many of these players have been the pioneers in the industry in India.
- These players generate better margin because of their presence in the entire value chain.

▪ Standalone Producers are referred to those players, who may not be operating in the entire value chain, rather they operate in one or two intermediates/ products lines only. These include players like Essar Steel, Lloyds Steel and Ispat Industries. These players mostly adopt the secondary route for manufacturing of steel.

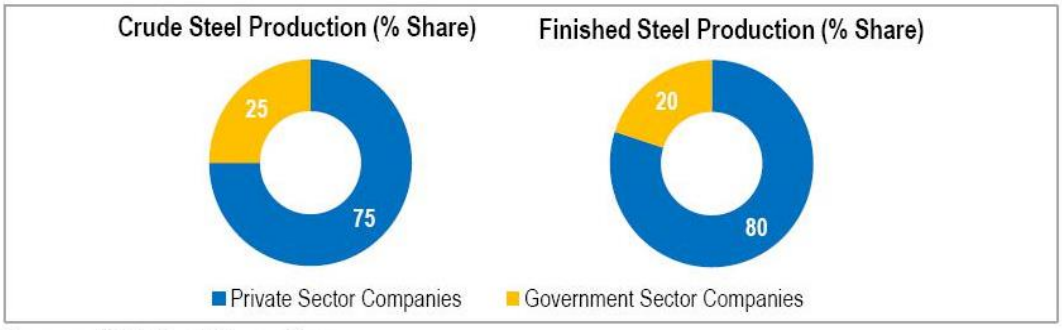
▪ The charecteristics of the standalone producers are,

- They does not operate across the value chain.
- A large number of small players exists in the secondary producers segment.
- While large players among the standalone producers enjoy economics of scale, small players strive for survival.

India is the first country using Induction Melting Furnaces for making mild steel. The bulk of structural quality mild steel for long products is manufactured by Induction Melting Furnaces. During 2001-2002 period, over 4.5 million tonnes of steel were produced by Induction Furnaces.

There are economic advantages in making steel through Induction Furnaces route. The only snag is that at present bulk quantity steel cannot be produced through Induction Furnace route.

Figure: 2: Comparison of Steel Production



Source: Joint Plant Committee

Overview of Steel Sector:

- Automobile sector to drive domestic demand for steel consumption in the near term, however cheaper imports to be a major concern for Indian steel producers.
- After the enactment of the Mines And Mineral (Development & Regulation) Amendment Act , 2015 (MMDR Act 2015), mining leases which expired after their first renewal stand automatically extended till 31 March 2020 (for merchant miners) and up to 31 March 2030 (for captive miners).
- Contribution to District Mineral Foundation, as per the MMDR Act is estimated to raise the cost of steel production in India. As per the MMDRA Act 2015, for leases signed before January 2015 the Government has recommended up to 100% of the royalty payment to be shared by the miners with the District Mineral Foundation (DMF) which will be used for development activities in areas affected by mining.
- World steel capacity utilization declined to 76.7% in FY14 from 78.4% in FY13 as a result of surplus capacity and weak demand conditions globally. As per the World Steel Association (WSA), crude steel production growth stood at 1.2% in FY15. Slowing economic growth and clampdown on pollution by the government in China reporting lowest production growth since 1981.
- The global steel sector remains under pressure. Globally several rapid growth markets have not performed up to the expectations in creating demand during the past two years.

Table - 1: Production Scenario of Indian steel industry

Indian steel industry : Production for Sale (in million tonnes)					
Category	2010-11	2011-12	2012-13	2013-14	2014-15
Pig Iron	5.68	5.371	6.870	7.950	9.694
Sponge Iron	25.08	19.63	14.33	18.20	20.38
Total Finished Steel (alloy +	68.62	75.70	81.68	87.67	91.46

Indian steel industry : Production for Sale (in million tonnes)					
non alloy)					
Source: Joint Plant Committee					

2.3. Demand and Supply gap

Demand - Availability Projection

- Demand – availability of iron and steel in the country is projected by Ministry of Steel in its Five Yearly Plan documents.
- Gaps in availability are met mostly through imports.
- Interface with consumers by way of a Steel Consumers' Council exists, which is conducted on regular basis.
- Interface helps in redressing availability problems, complaints related to quality.

Demand Supply Gap

Table - 2: Domestic Steel Demand Supply Gap (in MMT)

Description	FY-08	FY-09	FY-10	FY-11	FY-12
Demand	58.03	58.57	64.76	69.35	71.82
Supply	56.08	57.16	60.62	66.01	69.24
Gap	1.95	1.40	4.13	3.34	2.57

Source: Ministry of Steel (GOI) and MM Analysis

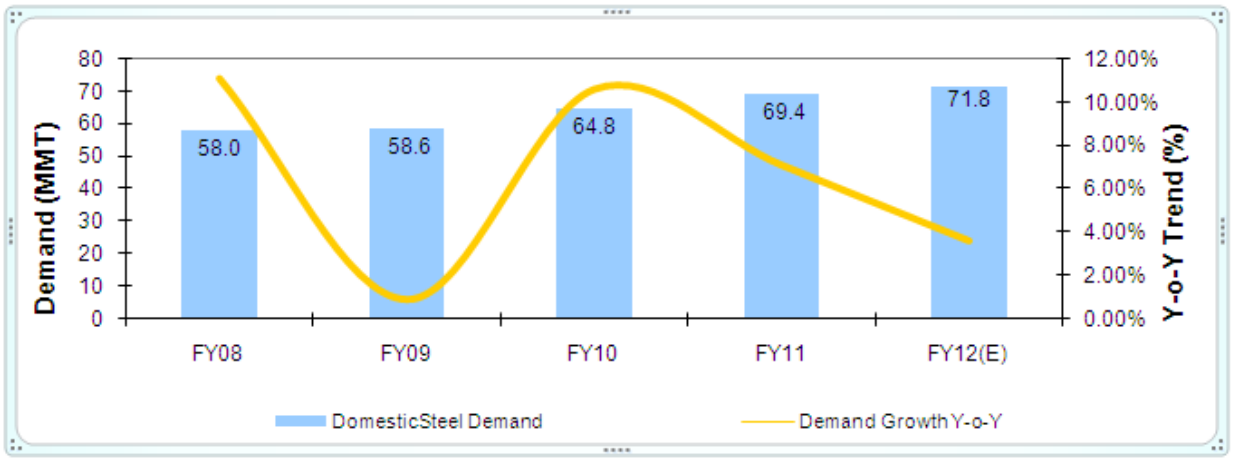
Demand supply gap exists in the domestic steel market which can be attributed from the fact that imports have been always more than exports during FY08-12. Hence the excess demand has been met by imports.

- **Demand**

Figure - 3 represents the domestic demand for finished steel. The domestic apparent consumption have been considered has historic demand for India. It is observed that:

- Domestic demand for steel has registered a CAGR of 6.58% during the period 2007-12.
- The demand shrunk in FY 09 influenced by the slow down in the industrial and infrastructure activity due to global recessionary impacts.
- The same rebounded in FY10 due to increased infrastructure investment. The Y-o-Y growth over FY09 has been attractive at 10.6%.

Figure: 3: Domestic Demand of Steel



Source: MOS and MM Analysis

- **Supply**

The production trend for steel have been indicated. It is inferred from the analysis of that:

- Domestic production registered a CAGR of 5.7% during 2007-12.

–Although the domestic steel industry have been growing steadily to pace up with the demand, it is noted that the growth rate in production have been lagging behind the growth rate in demand.

–The decline in growth during FY12 can be attributed to the fact that the industry faced raw material constraint in the form of shortage of iron ore.

The demand supply gap may be as follows:

Table - 3: Demand Supply Gap

(Figure in MnT)

Products	**2017 (Phase 1)**	**2021 (Phase 2)**	**2027 (Phase 3)**
Projected Demand	117.52	152.24	200.84
Supply from Domestic producers	111.76	143.16	184.80
Demand supply Gap	**5.76**	**9.08**	**16.04**

The demand supply gap is met through imports. However the domestic suppliers have the option to narrow down the gap. The Indian steel industry is expected to turn around with a sizable growth in years to come.

2.4. Imports Vs. Indigenous production

The state and pattern of growth of the economy determine the steel requirement. The requirements of steel may be fulfilled either through indigenous production and/or through imports. It is not possible for a developing country to import huge quantities of steel because of foreign exchange constraints where as it is better for a country to be self-sufficient in its steel requirements.

Table - 4: Imports of Indian Steel Industry

Indian Steel Industry: Imports (in million Tons)						
Category	2009-10	2010-11	2011-12	2012-13	2013-14	April to December (2014-2015)
Total finished Steel	7.38	6.66	6.86	7.93	5.45	6.492
Source: www.steel.gov.in/ Joint Plant Committee (JPC)						

2.5. Export Possibility

In 2014, the world crude steel production reached 1665 million tonnes (mt) and showed a growth of 1% over 2013. India remained at the 3rd position as the world's crude steel producer in 2015. There may be large opportunities to become

a global supplier of quality steel. Also there exists ample market opportunities in the neighboring regions of Asia, Africa and the Middle East.

Table - 5: Exports of Indian Steel Industry

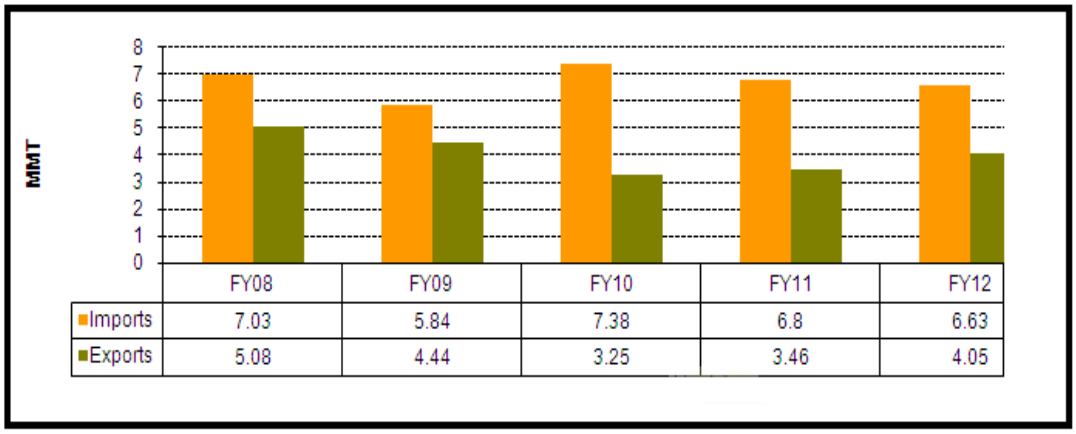
Indian Steel Industry: Exports (in million Tons)						
Category	2009-10	2010-11	2011-12	2012-13	2013-14	April to December (2014-2015)
Total finished Steel	3.25	3.64	4.59	5.37	5.98	4.066
Source: www.steel.gov.in/ Joint Plant Committee (JPC)						

2.6. Domestic/Export Markets

Import Export Trend

The domestic import export trend of steel during FY08-12 is indicated in Figure 4.

Figure 4 : Steel Imports Exports Trend



Source : MoS and DGFT

It is observed that, import has been in an increasing trend, while export is declining. To be specific, while import has increased at a CAGR of 6.1% during FY08-12, export has registered a negative CAGR of 5.1% during the same period.

Import Export trend of steel during 2013-14 & 2014-15 are given below:

Total Finished Steel (Alloy + Non Alloy) (In Million Tonnes)		
Year	**2013-14**	**2014-15**
Imports	**5.45**	**9.32**
Exports	**5.98**	**5.59**
Source: Joint Plant Committee		

2.7. Employment Generation (Direct & Indirect) due to the project

For proposed unit there will be requirement of temporary workers during construction. During operation there will be requirement of skilled employees. Most of these workers will be local one. The project will generate more than 10,000 jobs.

3. PROJECT DESCRIPTION

3.1. Type of Project

As mentioned earlier the plant will be centered around at 215 M^3 blast furnace. There is a Pig Iron Plant with a support of 31nos of ancillary units.

3.2. Location (map showing general location, specific location and project boundary & project site layout) with coordinates.

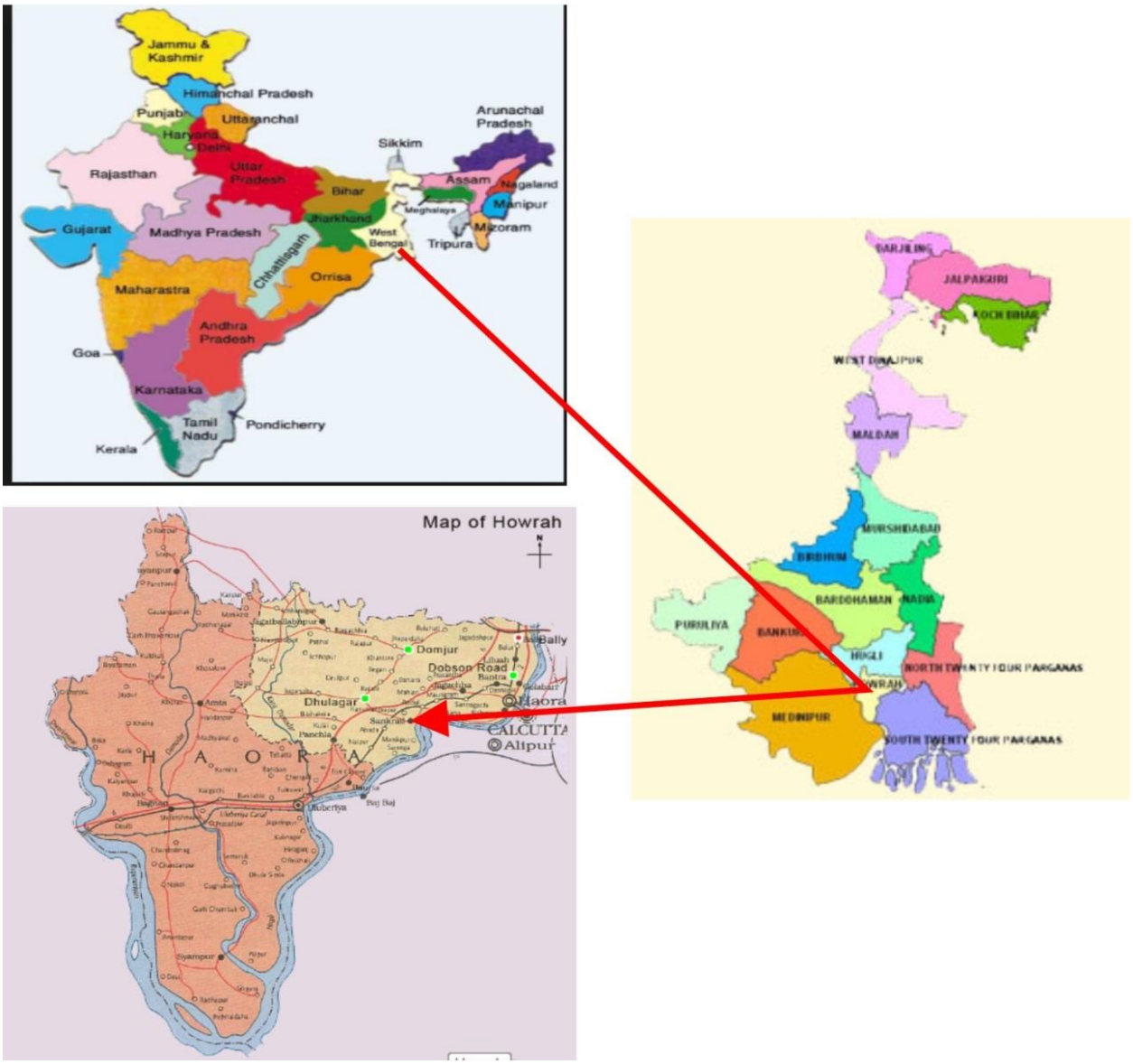
The site is located at Hauli Bagan on the Raihati - Amta Road, District – Howrah, West Bengal. The site is only 5 KM and 20 KM away from National Highway (NH-6) and Second Hooghly Bridge respectively.

The Site Coordinates of the project are as

Latitude: 22°34'29.77"N

Longitude: 88° 6'22.25"E

Figure 5: Project Location



3.3. Details of alternate sites considered and the basis of selecting the proposed site, particularly the environmental consideration gone into should be highlighted.

- At a suitable distance from forest cover
- Proximity of NH6
- Far from nearest habitation
- Near a convenient perennial water source
- Located near Dhulagarh Industrial Belt.

3.4. Size and Magnitude of Operation

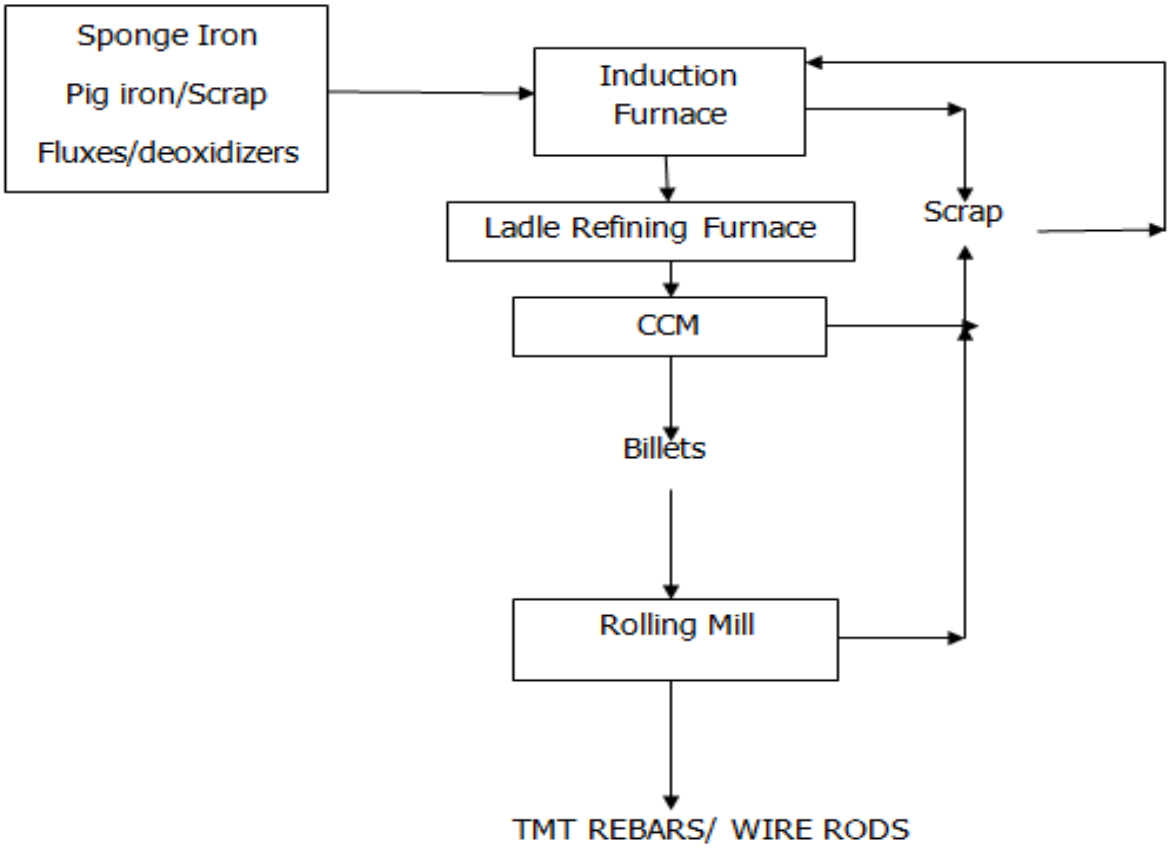
Raw material required for production which are manufactured through Induction Furnace. Sponge iron, Steel scrap, Pig iron and other Ferro Alloys are required for manufacturing.

Size and Magnitude of operation of the proposed projects include:

1.0 million ton Foundry product and 1,80,000 MT/year pig iron

3.5. Project description with process details (a schematic diagram/flow chart showing the project layout, components of the project etc. should be given)

FLOW SHEET OF MANUFACTURING PROCESS AS A WHOLE



3.6. Raw Material Required Along Estimated Quantity, Likely Source, and Marketing Area of Final Product/s Mode Of Transport Of Raw Material And Finished Product.

Raw Material Requirement at 100 % Capacity

Pig Iron	**93700 MT**
Steel Scrap	98600MT
Hard Coke	123300MT
Lime Stone	41000MT
Bentonite	28750MT

Coal Dust	59100MT
Ferro Alloys	24600MT
Foundry Flux	16250 MT
Iron Ore Lumps	365200 CT
Coking Coal	279000 CT
Limestone	45700 CT
Dolomite	23200CT
Manganese	6700CT
Quartzite	17800 CT

3.7. Availability of water its source, Energy/Power requirement and source should be given.

Electricity: The estimated power demand of Foundry Park is 90MW which will be sourced from West Bengal State Electricity Board.

Water: Required water for proposed unit will be 5.25 MLD supplied by deep water tube well. Water distribution system shall include:

Particulars	Quantity (MLD)
Industrial Purpose	3.15
Domestic Purpose	1.75
Other Uses	0.35

3.8. Quantity of waste to be generated (liquid and solid) and scheme for their management/disposal.

Total solid waste generation will be approx. 6.0 Lakh tones/year. Most of the industrial solid waste are recyclable. Storing facilities will be developed in 3 acres of land and solid waste will be either sold or disposed within maximum 1 month of storing. 2 Lakh tones/year of iron ore and coke fines will be sold or recycled by individual units. About 3.6 lakh tones/year slag will be generated from pig iron plant and foundry units which will be sold to the cement manufacturers. 0.4

tones/year of sludge/ debris will be generated and it will be disposed for land filling/ road construction.

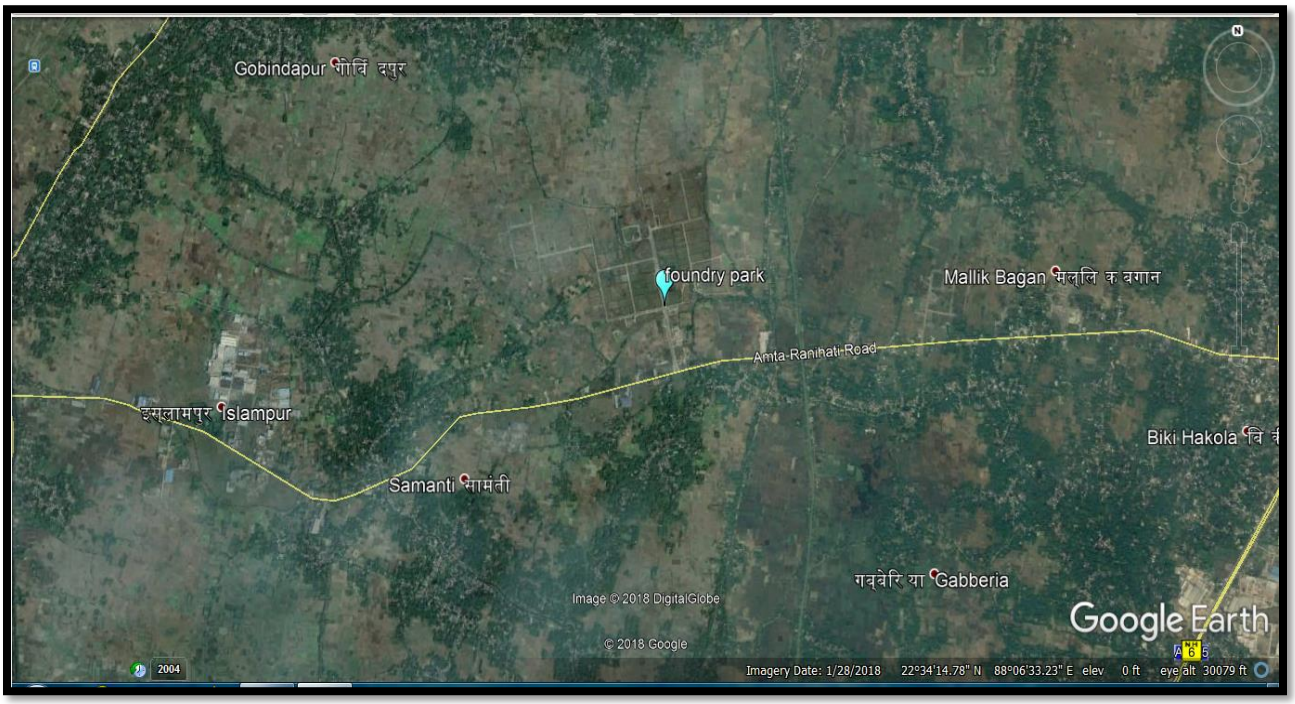
Waste water generation from the industrial unit will be 0.0015 MLD only as most of the water will be lost through evaporation. Treated water will be generated from waste water treatment plant which will be used for maintenance of greenbelt and horticulture purposes. There will be liquid effluent from domestic section. Part of this effluent will be taken into septic tank and the overflow will be sent to soak pit.

4. SITE ANALYSIS

4.1 Connectivity

The site is located at Hauli Bagan on the Ranihati – Amta road at a distance of 20 km from Vidyasagar Setu (Second Hooghly Bridge) and 5 km from Ranihati crossing (NH-6) towards west and south west respectively. The site is well connected by road. The nearest railway station at Sankrail is 12 km away. Dhulagarh truck terminal is 7 km away, Kolkata is 26 km away and Haldia port 60 Km away from the Project Site.

Figure 7: Map of Project site



4.2. Land form, Land use and Land ownership.

The foundry park will be developed on about 924 acre (nearly 3739298.64 sqm) of land at Hauli Bagan, Ranihati, Amta Road, P.S.: Jagatballavpur, Howrah- 711322. The acquired land is fully developed.

4.3. Topography (along with map)

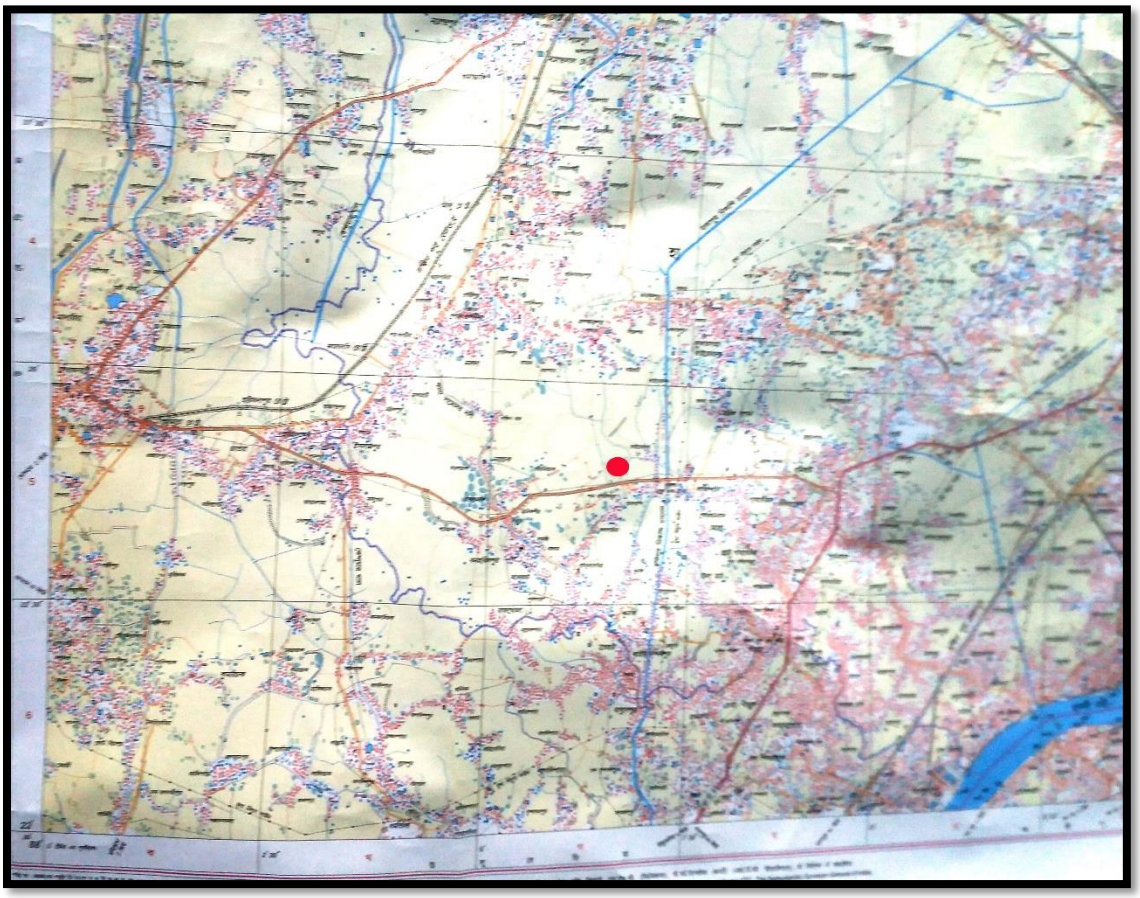


Figure 8: Topo Map of Project site

4.4. Existing land use pattern (Agriculture, on-agriculture, forest, water bodies (including area under CRZ), shortest distances from the periphery of the project to the periphery of the forests, national park, wild life sanctuary, eco sensitive areas, water bodies (distance from the HFL of the river), CRZ in case of notified industrial area, a copy of the Gazette notification should be industrial area, a copy of the Gazette notification should be given.

- **Existing General land use**

The land use/ land cover units viz. cultivation (single or double crop), fallow land, seasonal water logging land and plantation could be delineated well by using real time satellite data product. The settlement (urban or rural), water bodies (river/stream/pond/tank), the present day transportation network via roads, railway tracks also can be demarcated. Assessment of land use/ land cover units were based on image signatures as well as land characteristics, relief and drainage network.

a) Settlement:

This is the most dominant landuse / cover class present within 10 km radius of the proposed site near the said area. About 54.60% of the total area is occupied by this unit. It is a mixed type of settlement which shows both radial, linear pattern in the industrial area and scattered type in the rural area.

b) Agriculture land:

This is the next dominant land use class present within the 10 km radius of the proposed site. Nearly 27.67 % of study area is under this category. The agriculture is mostly mixed type i.e. both single crop as well as double crop pattern is available in the surround area.

c) Industrial Area:

Industrial area occupies about 8.18% of the total land i.e. the 10 km surrounding area of proposed site. Industrial units are concentrated specifically in the north eastern and south eastern sector of the proposed project site. This unit is also found along the banks of the river Hooghly in the south eastern part of the proposed site.

d) River:

This unit covers about 5.04% of the total area. Navigation and availability of water are two important services provided by this category.

e) Vegetation other than agriculture:

About 1.96% of the study area is occupied by this terrestrial vegetation unit. This class is present as pure strand. This terrestrial vegetation is also clubbed with settlement class but here area statistics is presented for pure strand only.

f) Waterbody: Surface water in the form of mainly ponds and tanks are predominant in the area. These two units together comprise 1.10% of the total area.

g) Brick Kiln: This unit is present along the sides of river Hooghly. About 1.07% of the total area is occupied by this unit.

Although other landuse classes are present as insignificant percentage but needs to be considered for environmental degradation of the area which includes open/ vacant land, other infrastructure, present in the vicinity of the proposed site.

4.5. Soil Classification

The proposed project area falling in Howrah District of West Bengal is a part of delta proper under the Lower Ganga Plain region. It occupies the western most portion of the great Ganga Delta. Its origin is a current phenomenon dating back to middle Miocene period. At that time the rivers from the Himalayas filled the 'Sag' or 'foredeep' which was caused by the Himalayan mountain building process. The pre-existing narrow neck of the Peninsular (Gondwana) landmass resulting in the formation of the Rajmahal-Garo gap finally diverts the waters of the ancient Siwalik river southward into the Bay of Bengal. The gap which was slowly filled by sediments like sands, silts and clays were associated with occasional gravel beds and lenses of peaty organic matter (Wadia, 1939; Krishnan, 1949).

4.6. Climatic data from secondary sources

The main seasons are summer, rainy season, a short autumn, and winter. The summer in this region is prominent for excessive humidity, with annual maximum temperature varies between 32-39°C. In early summer, brief squalls and severe thunderstorms known as Kalbaisakhi or Norwesters, often seen. Monsoon arrives

in the 1st /2nd week of June and stay up to 1st week of October. Annual normal rainfall is 1450 millimetre per year. Winter (December - February) is mild and pleasant and exists for a short period with chilling dry wind coming from the northeast. The temperature generally does not fall below 100C. A cold and dry northern wind blows in the winter, substantially lowering the humidity level.

4.7. Social Infrastructure available

As per Census of India, population of Howrah in 2011 is 4,850,029; whereas male and female are 2,500,819 and 2,349,210 respectively. In 2001 census, Howrah had a population of 4,273,099 of which males were 2,241,898 and remaining 2,031,201 were females. As per Census of India 2011, numbers of Schedule Caste & Schedule Tribe peoples are 718,951 and 15,094 respectively. Total Population in the age-group 0-6 is 522,802 among which males are 266,472 and females are 256,330. The difference of socio economic feature of the district between 2001 and 2011 are represented in Table 3.12 below. There was change of 13.50% in the 2011 population compared to 2001 population. There was an increase of 14.57 percent population in 2001 than 1991. As per 2011 census, out of the total Howrah population 63.38 percent lives in urban regions of district. In total 3,074,144 people lives in urban areas of which males are 1,591,300 and females are 1,482,844.

On the other hand, 36.62 % population of Howrah districts lives in rural areas of villages. Total population living in rural areas is 1,775,885 of which males and females are 909,519 and 866,366 respectively

Description	2001	2011
Actual Population	4,273,099	4,850,029
Male	2,241,898	2,500,819
Female	2,031,201	2,349,210
Population Growth	14.57%	13.50%
Density/km2	2,913	3,306
Sex Ratio (Per 1000)	906	939
Child Sex Ratio (0-6 Age)	956	962

Total Child Population (0-6 Age)	513,218	522,802
Male Population (0-6 Age)	262,391	266,472
Female Population (0-6 Age)	250,827	256,330
Average Literacy	77.01	83.31
Male Literacy	83.22	86.95
Female Literacy	70.11	79.43
Child Proportion (0-6 Age)	12.01%	10.78%
Boys Proportion (0-6 Age)	11.70%	10.66%
Girls Proportion (0-6 Age)	12.35%	10.91%

Details of Population:

	Total	Male	Female
Population	343,933	176,748	167,185
Population in the age-group 0-6	37,531	19,233	18,298
Scheduled Castes population	77,458	39,590	37,868
Scheduled Tribes population	1,272	641	631

5. PLANNING BRIEF

5.1. Planning concept (type of industries, facilities, transportation etc.) town and country planning/Development authority Classification.

The site is falling at at Hauli Bagan, Ranihati - Amta Road, P.S.: Jagatballavpur, Howrah- 711322.

5.2. Population Projection

As per Census of India, population of Howrah in 2011 is 4,850,029; whereas male and female are 2,500,819 and 2,349,210 respectively. In 2001 census, Howrah had a population of 4,273,099 of which males were 2,241,898 and remaining 2,031,201 were females. As per Census of India 2011, numbers of Schedule Caste & Schedule Tribe peoples are 718,951 and 15,094 respectively. Total Population in the age-group 0-6 is 522,802 among which males are 266,472 and females are

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On the other hand, 36.62 % population of Howrah districts lives in rural areas of villages. Total population living in rural areas is 1,775,885 of which males and females are 909,519 and 866,366 respectively.

5.3. Land use planning (breakup along with green belt etc.)

The land use/ land cover units viz. cultivation (single or double crop), fallow land, seasonal water logging land and plantation could be delineated well by using real time satellite data product. The settlement (urban or rural), water bodies (river/stream/pond/tank), the present day transportation network via roads, railway tracks also can be demarcated. Assessment of land use/ land cover units were based on image signatures as well as land characteristics, relief and drainage network.

Table 5: Area Statistics

Categories of Landuse	Area in Sq Km	Area in Hectare	% Area
Agricultural land	87.00	8700.45	27.67
Brick kiln	3.35	335.11	1.07
Industry/ Godown	25.73	2572.71	8.18
Open/Vacant land	0.36	35.72	0.11
River	15.84	1584.18	5.04
Settlement	171.68	17167.75	54.60
Structure other than industry	0.81	81.33	0.26
Vegetation other than	6.17	617.21	1.96

Categories of Landuse	Area in Sq Km	Area in Hectare	% Area
agriculture			
Waterbody	3.47	347.37	1.10

5.4. Assessment of Infrastructure Demand (Physical & Social)

Physical & Social Infrastructure

For assessment of socio-economic condition, sample survey for some villages in the study area was conducted. Selected Parameters were medical facilities, electricity, drinking water facility, educational facility, public transport, post and telegraph office, bank and entertainment facilities etc. Secondary survey has revealed that drinking water facility is a satisfactory to the local people as all the villages are having either well or tube well as source of drinking water. Under medical facilities all the system such as allopathic, homeopathic medicines are available at Howrah. There is higher educational facility in the area. There is electricity in most of the villages. This project will provide employment directly/ indirectly.

5.5. Amenities/Facilities

- Drinking water is available by the water tankers from nearby area.
- Power is available at nearby villages.
- Greenbelt area may be developed in the surrounding project site.
- First aid box with all necessary materials will kept all time in the office building for use as and when required.

6. PROPOSED INFRASTRUCTURE

6.1. Industrial Area (Processing Area)

Developing of Greenbelt area inside the plant and surrounding the area.

6.2. Resident Area (Non Processing Area)

No residential area is proposed.

6.3. Green Belt

196.703 acres of the site area i.e. 21.288% of the total area has been designated in the plan as green belt along with the green area of individual industrial plot. The proposed road and existing nallahs which have to be retained in view of future drainage of the site and supply of irrigation water to neighbouring areas have been assimilated into design. Approximately 2 m wide green belt along the two edges of the nallah and road with a total area of 13.401 acres.

LIT OF BIG TREES FOR PROPOSED PLANTATION IS GIVEN BELOW

No.	Common name	*Scientific name*	Family
01.	Arjun, Arjuna	*Terminalia arjuna*	Combretaceae
02.	Peepal	*Ficus religiosa*	Mulberry
03.	Cashew	*Anacardium occidentale*	Cashews
04.	Katha	*Acacia catechu*	Legumes
05.	Bot	*Ficus benghalensis*	Moraceae
06.	Lobaw	*Boswellia serrata*	Torchwoods
07.	Palash	*Butea monosperma*	Legumes
08.	Amaltas	*Cassia fistula*	Legumes
09.	Eaastern Rosewood	*Dalbergia latifolia*	Fabaceae
10.	Coral Tree	*Erythrina Indica*	Legumes
11.	Karanj	*Derris indica*	Fabaceae
12.	Peepal	*Ficus religiosa*	Mulberry
13.	Sandal	*Santalum album*	Santalaceae
14.	Clove	*Syzgium cuminii*	Myrtle
15.	Mahua	*Madhuca latifolia*	Sapotaceae
16.	Harad	*Terminalia bellirica*	Combretaceae
17.	Teak	*Tectona grandis*	Mints
18.	Jackfruit	*Artocarpus heterophyllum*	Moraceae
19.	Coconut	*Cocos nucifera*	Arecaceae
20.	Ashok	*Polyalthia longifolia*	Annonaceae

6.4. Social Infrastructure

See section 4viii.

6.5. Connectivity (Traffic and transportation Road/Rail/Metro/Water ways etc)

The site is located at Hauli Bagan on the Ranihati – Amta road at a distance of 22 km from Vidyasagar Setu (Second Hooghly Bridge) and 5 km from Ranihati crossing (NH-6) towards west and south west respectively. The site is well connected by road. The nearest railway station at Sankrail is 12 km away. Dhulagarh truck terminal is 7 km away, Kolkata is 26 km away and Haldia port 60 Km away from the Project Site.

Important Transport Basis.

Kolkata Port – 21 KM

Haldia Port – 60 KM

Netaji Subhas Chandra Bose International Airport – 35 KM

Howrah Railway Station – 23 KM

6.6. Water Management (Source & supply of water)

Water: Total 3nos. of water reservoir planned in the park area out of which 2 nos. of reservoir set up in the non-SEZ area and 1 no. of reservoir set up in the SEZ area. Water requirement for the Foundry Park mainly consists of the following components:

- Process water for pollution control and for mixing the sand.
- Water for domestic consumption and other requirements, viz. Fire Reserve, Lawn Irrigation.
- Process water for pollution control and for mixing the sand.
- Water for domestic consumption and other requirements, viz. Fire Reserve, Lawn Irrigation.

Total water requirement for Foundry Park is approximately 5.25 MLD as detailed of water requirement shown below

SL No	Components	Total Water Requirements (MLD)
1.	Industrial	3.15
2.	Domestics	1.75
3.	Others	0.35
	Sub Total of Raw Water (Ground)	**5.25**
4.	Fire Demand (One time requirement)	0.625
5.	Fugitive Dust suppression of road and other area,(recycled water)	0.50
6.	Horticulture and green area, (Recycled Water)	0.900

6.7. Waste Water Treatment Plant:

Foundry is a process by which a metallic product of any complicated shape can be produced in a simple manner. The process of manufacture involves heating of the metal or alloy. Water used for molding process of foundry industries is mainly evaporated and part of the water required for air pollution control will be recycled. Hence the common waste water treatment plant will mainly take care of the treatment of domestic waste. Details are given below in tabular form:

Use	Wastewater Generation (MLD)		
	Non SEZ	SEZ	Total
Industrial	0.00105	0.00045	0.0015
Domestic	1.131	0.569	1.70
Utility	0.018	0.002	0.020
Total	**1.15005**	**0.57145**	**1.7215**

Treated waste water will be fully used for dust suppression and horticulture & green belt maintenance.

6.8. Solid waste Management

The total quantity of domestic waste has been worked out as 3.75 MT per day at the ultimate stage of development. For disposing off this domestic waste and the non-hazardous industrial waste, a solid waste disposal site has been located within

the park. Biodegradable part (70%) of the domestic waste will be vermi-culture and rest 30% will be used for landfill.

During operation there will be approx. 6.0 Lakh tones/year generation of solid waste which will be recycled.

6.9. Power Requirement

Pole / Plinth mounting substations with fencing etc are proposed with transformers of 160, 250 & 400 KVA capacities to feed supply at 440 volts to water-works, WWTP, Common facilities and utilities. The 11 K.V. transformers shall have operated air break switches and drop out fuses. The L.T. side of transformers shall have A.C. Bs and M.C.C.Bs.

7. REHABILITATION AND RESETTLEMENT(R&R PLAN)

(Policy to adopted (Central State) in respect of the project affected person including home oustees, land oustee and landless labour (A brief outline to be given).

No, R&R Plan is proposed.

8. PROJECT SCHEDULE AND COST ESTIMATES

8.1. (Likely date of start of construction and likely date of completion (time schedule for the project to be given)

The Schedule Of Implementation For The Proposed Project Is Given Below

Activity	**Commencement**	**Completion**
Land acquisition and development		
Civil works, Buildings, Foundation of Machineries		
Structural fabrication and erection of technological structures		
Placement of Orders of Plant and Machinery		
Erection of Equipments		

Trial Run and Commissioning	
Commercial Operation Date	

8.2. Estimated project cost and along with analysis in terms of economic viability of the project.

The cost of the project and means of finance is proposed to be as follows:

Detail of Investment in the Project

S. No.	Project Component	Approved Cost (In Rs. Lakhs)
1	**Boundary Wall including Entrance Gate**	321.11
	Physical Infrastructure:	
	(a) Road Work	3992.74
	(b) Drainage Systems	1509.08
	(c) Water Distribution System	674.71
	(d) Power Distribution System	588
2	**Information ,Marketing, HRD & Management Upgradation**	382.95
	Common Facilities:	
	(a) Testing Laboratory	536.02
	(b) Tools Room	310.87
3	**Miscellaneous (Shifting of Utilities, telephone connection etc.)**	87
4	**Industrial Training Institute**	530.91
5	**Sewerage Networks & CEPT**	569.33
	Total	**9502.72**

The project cost is reasonable and comparable as per our opinion in the current date of assessment. We have also made sample checks from the market and also discussed with the industry experts on similar field.

Means of Finance

The means of finance for the proposed project is as follows:

Particulars	In LACS.
Capital Requirement	9502.72

9. ANALYSIS OF PROPOSAL (FINAL RECOMMENDATION)

CONCLUSION

The technical feasibility and financial viability of the project has been evaluated with reference to the new project with reference to overall company as a whole. On the basis of the current scenario and documents made available to us by the company, our review has been done. We have made the assessment over and made the changes in assumptions wherever felt required.

Based on our analysis it may be inferred that

a) The project is technically feasible and financially viable.

b) The overall financial liquidity and profitability parameters of the project appeared to be reasonable and satisfactory.

c) The promoters are likely to honour the commitment towards repayment of term loan barring any unexpected difficulties.

d) We conclude the capital expenditure of the company as a **viable option** subject to the weakness and threats associated with a business venture.

The operation of plant has significant positive impact on the socio-economic environment of the area which helps for development of this area including further development of physical infrastructure facilities. In the interest of mineral development and improve the social conditions of the local habitants this project should be allowed after considering all the environment aspects.