EXECUTIVE SUMMARY

1.1 Purpose of the Report

M/s. Shivkrupa Steel and Alloys Pvt. Ltd. (SSAPL) has proposed expansion of Induction Furnace from 40,000 TPA to 60,000 TPA and production of 60,000 TPA TMT Round Bars located at **Gut No. 54, 11/1/A, Village Torne, Vashind Road, Taluka: Wada, District: Palghar, Maharashtra**. Total land in possession is 1.486 ha (14860 sq. m.) at Village Torne. The production details are given in **Table 1.1.**

Table ES.1: Production Details

Sr. No.	Product Name	Existing Capacity (TPA)	Proposed Capacity (TPA)	Total Capacity (TPA)
1	M.S. Billets, Ingots, Runners, Risers	40,000	20,000	60,000
2	TMT Round Bars	--	60,000	60,000

The proposed expansion of this unit is covered under Category 'B' of Schedule 3(a) "Metallurgical Industries" of Environmental Impact Assessment {EIA) Notification 2006 & its further amendments. In view of this, SSAPL had made online application for TOR and submitted at State Environment Impact Assessment Authority on 02.06.2022 for Proposed Expansion project along with the application in prescribed format (Form-I), copy of Pre-feasibility report and proposed ToRs for undertaking detailed EIA study as per the EIA Notification, 2006. The State Expert Appraisal Committee considered the project and issues the **Terms of Reference (ToR) (Annexure 1).**

The Environmental Impact Assessment (EIA) report preparation and the corresponding work are entrusted to our Environmental Consultant M/s. Mahabal Enviro Engineers Pvt. Ltd. The EIA prepared using the baseline data collected during winter season i.e. from March – May, 2022.

ES-2 History of Project –

The factory is an existing site currently having a manufacturing capacity upto 40,000 TPA. The industry is spread over an area of 14860 sq. m. The land use has been converted to N.A vide SANAD document no NAP/IND/SANAD/SR/89/08 dated 10.11.2009 by Tahsildar, Wada for

the entire plot. The document is attached as **Annexure – 2**. The industry has obtained EC from MoEF & CC for 40,000 TPA vide no – ENV-2009/41/CR.15TC-2 dated 17th February 2010. The document is attached as **Annexure – 3**. Accordingly industry has subsequently acquired consent to establish and operate and periodically renewed thereafter. Currently the company has valid consent to operate dated 05.04.2021 vide consent no: BO/JD(APC)/Y UAN NO – 100086/R/CC-216 valid till31.10.2022. The document is attached as **Annexure – 4.**

Table No. ES-1: Salient Features of the Project

<table>
<tr><td>Project Name</td><td>M/s. Shivkrupa Steel and Alloys Pvt. Ltd.</td></tr>
<tr><td>Project Location</td><td>Gut No. 54, 11/1/A, Village Torne, Vashind Road, Taluka: Wada, District: Palghar, Maharashtra</td></tr>
<tr><td>Total Area</td><td>1.486 ha (14860 sq. m.)</td></tr>
<tr><td>Co-ordinates</td><td>
<table>
<tr><th>Corner</th><th>Latitude</th><th>Longitude</th></tr>
<tr><td>Centre</td><td>19°34'3.01"N</td><td>73°11'2.47"E</td></tr>
<tr><td>A</td><td>19°34'6.83"N</td><td>73°11'2.99"E</td></tr>
<tr><td>B</td><td>19°34'2.26"N</td><td>73°11'0.21"E</td></tr>
<tr><td>C</td><td>19°33'58.89"N</td><td>73°11'3.71"E</td></tr>
<tr><td>D</td><td>19°34'2.54"N</td><td>73°11'3.88"E</td></tr>
</table>
</td></tr>
<tr><td>Production Capacity</td><td>
<table>
<tr><th>Sr. No.</th><th>Product Name</th><th>Existing Capacity (TPA)</th><th>Proposed Capacity (TPA)</th><th>Total Capacity (TPA)</th></tr>
<tr><td>1</td><td>M.S. Billets, Ingots, Runners, Risers</td><td>40,000</td><td>20,000</td><td>60,000</td></tr>
<tr><td>2</td><td>TMT Round Bars</td><td>--</td><td>60,000</td><td>60,000</td></tr>
</table>
</td></tr>
<tr><td>Raw Material Requirement</td><td>
<table>
<tr><th>Sr. No.</th><th>Raw Material</th><th>Existing Requirement (TPA)</th><th>Proposed Requirement (TPA)</th><th>Total Requirement (TPA)</th></tr>
<tr><td colspan="5">Rolling Mill</td></tr>
<tr><td>1.</td><td>Molten Billets</td><td>-</td><td>60,000</td><td>60,000</td></tr>
<tr><td colspan="5">Induction Furnace</td></tr>
<tr><td>1.</td><td>Sponge</td><td>12,915</td><td>11,585</td><td>24,500</td></tr>
<tr><td>2.</td><td>Scrap</td><td>54,300</td><td>75,890</td><td>1,30,190</td></tr>
<tr><td>3.</td><td>Flux</td><td>890</td><td>950</td><td>1840</td></tr>
</table>
</td></tr>
</table>

	4.	Silico Manganese as Additives	1200	1150	2350
Water Demand	Existing Water Requirement: 10 KLD Proposed Water Requirement: 19 KLD Total Water Requirement: 29 KLD				
Source of Water	Tanker				
Power Requirement	Total Power Requirement: 7230 kVA Existing: 3730 kVA, Proposed: 3500 kVA Source: MSEDCL				
Manpower	Existing: 100, Proposed: 80 Total Man Power: 180				
Project Cost	Existing: 18.11 Cr., Proposed: 6.05 Cr. Total Cost: 24.16 Cr.				
Nearest railway station	Atgaon Railway Station at 16.60 km				
Nearest airport	Chhatrapati Shivaji Maharaj International Airport at 62.91 km				

ES-3 Justification of project

The company manufactures secondary steel products which are used in construction and infrastructure development projects which will help in infrastructure development. Currently, there's a tremendous work going on throughout the country for infrastructure which will require steel as a basic raw material.

ES-4 Process Description:

MS Billets is produced by melting scrap and sponge iron/directly reduced iron (DRI) in an induction furnace. The melting process is a batch process and each batch is referred to as 'Heat'. MS scrap is introduced into the induction furnace and molten through the process of induction. Based on requirement, additives known as Ferrro Alloys are added in small quantities to maintain a chemical composition suitable for manufacture of TMT Bars. The heat of liquid metal so obtained is then transferred to a ladle through which it is transferred to a continuous casting machine (CCM). The CCM moulds and cools the liquid metal into solid MS billets.

Hydraulic shears which are a part of the CCM cut the billet so produced to required lengths. MS billets are intermediate products further used by Rolling Mill for production of TMT bars.

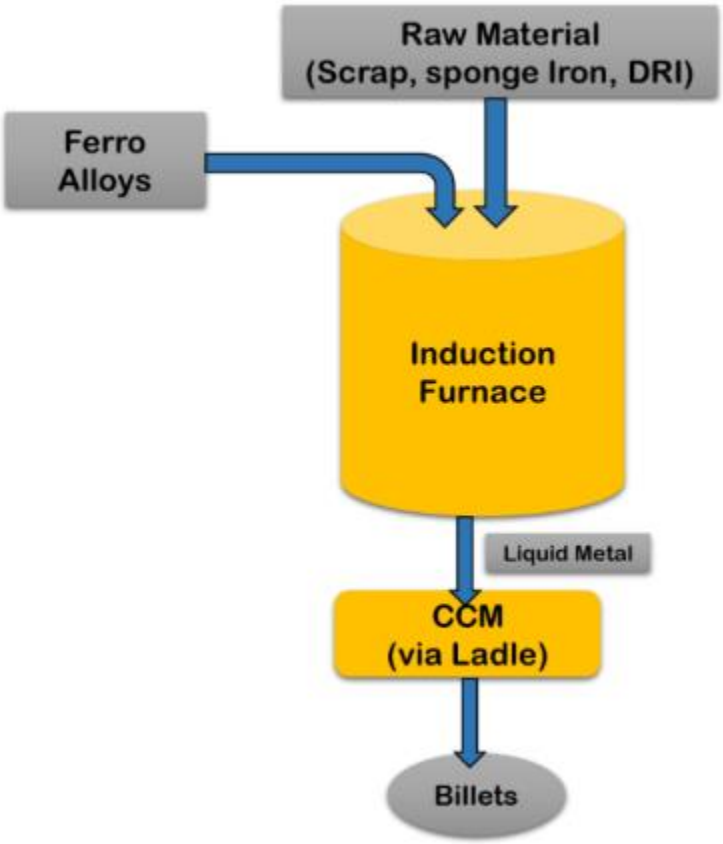

Figure ES-1: Process flow chart for Hot Billet Rolling process

Manufacturing process of TMT Bars

Manufacturing process of TMT Bars Hot billets are then passed through a number of rolls, with its physical dimensions and shape changing during each pass through the roll and final shape is taken in the finishing roll. Billets that smoothly pass through the finishing roll are then quenched using a Thermex Quenching system to get the desired physical properties. The TMT bars so produced are transferred to the cooling bed and cut to standard length. The wastage arising from the cutting is referred to as end cutting/melting and transferred to the scrap yard.

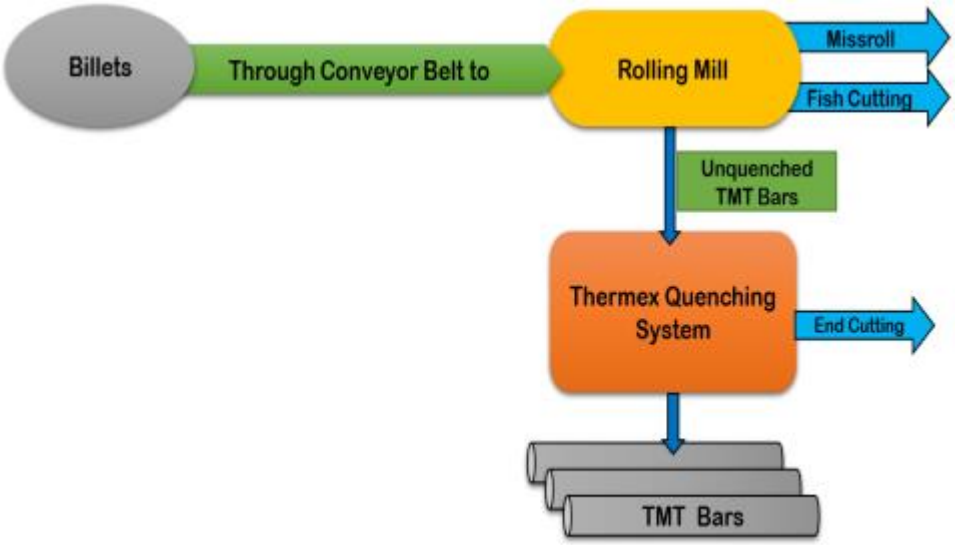

Figure ES-2: Process flow chart for Hot Billet Rolling process

ES-5 Baseline Environmental Status

The study area is 10 km radial distance from centre of plant site. All the monitoring has been completed in various locations within the study area during the period of March 2022 – May 2022. The findings of the baseline environmental status on Land (Topography, Soil Quality, Land Use Pattern), Micrometeorology (Temperature, Humidity, Rainfall, Wind Speed), Air (Ambient Air Quality- PM_{10}, $PM_{2.5}$, SO_2, NOx, and CO), Noise Level, Biotic Environment (Flora, Fauna & assessment of conservation aspects), Socio Economic conditions are presented in the report and interpreted with reference to Standards.

ES-5.1 Air Environment

PM_{10}

The maximum & minimum concentrations recorded for PM_{10} was 74.34 and 52.49 µg/m^3 respectively. The maximum concentration was recorded at sampling location A1 (Project Site; ZP School Torane) which is located around the factory premises and the minimum concentration was recorded at location at A11 (Forest Rest House). The minimum & maximum average concentrations of PM_{10} during the study ranged between 57.88 µg/m^3 to 71.09 µg/m^3. The maximum concentration of particulate matter recorded at A1 may be due to transportation

activity on the road which lies at a distance of 0.02 km and industrial activity of the proposed expansion project which lies at a distance of 0.03 km from the A1 location.

$PM_{2.5}$

The maximum concentration of $PM_{2.5}$ 37.48 µg/m^3 during the study period was recorded at location A7 (Moj), whereas the minimum concentration 24.32 µg/m^3 was recorded at A10 location (Kudus). The minimum concentration recorded at location A10 is an indicative of minimal combustion and vehicular activity around Kudus area and on the other hand the high concentration recorded at A7 location can be attributed due to the vehicular movement on the nearby roads. The average 24 hourly concentrations of $PM_{2.5}$ during the study period were in the range of 28.88 to 35.78 µg/m^3.

Sulphur dioxide (SO_2)

The minimum & maximum concentrations of SO_2 recorded at all the monitoring locations during the study period were in the range of 7.63 to 27.43 µg/m^3 respectively. The lowest and highest concentrations of SO_2 viz. were recorded at locations A9 and A2 and A9 respectively. The average concentration of SO_2 at all the monitoring locations varied in the range of 9.12 to 23.27 µg/m^3.

Oxides of Nitrogen (NO_X)

The various forms of Nitrogen in NO, NO_2 and N_2O are collectively called as Oxides of Nitrogen (NO_x). During the study period amongst all the monitoring locations the maximum value 35.15 µg/m^3 of NO_x was recorded at location A10 and the minimum value 21.63 µg/m^3 was recorded at location A10 and the average concentrations of NO_x were in the range of 27.55 to 30.21 µg/m^3.

Carbon monoxide (CO)

The source of CO in the ambient air for the study area in consideration can be attributed to vehicular movement in the study area. The maximum concentrations of CO at all the locations recorded during the study period were in the range of 0.08 to 0.17 mg/m^3 whereas the minimum concentrations ranged between 0.07 to 0.13 mg/m^3.The highest average value for CO was recorded at location A4 and the lowest was recorded at A1 and A6.

ES-5.2 Noise Environment

Noise monitoring was conducted as per the standard operating procedures.

Industrial Zone

The day time noise level at the project premises was observed to be 54.2 dB (A) Leq while during night time the noise level was recorded to be 41 dB (A) Leq. It should be noted that the noise levels during the day time as well as night time were observed to be within the prescribed standards by Central Pollution Control Board.

Residential Zone

The noise monitoring was conducted at representative sites at ten locations for 24hr. As prescribed the sampling was carried out once in a week and average hourly readings were recorded. The minimum noise level recorded during the daytime was 45.7 dB (A) which was observed at location N4, whereas the maximum noise levels recorded during the daytime was 57.3 dB (A) which was observed at location N2. The minimum noise level recorded during the night time was 34.4 dB (A) which was observed at location N4, whereas the maximum noise levels recorded during the night time was 49.9 dB (A) which was observed at location N7. The high values of noise are due to the presence of major road in the vicinity of the sampling location. It should be noted that the permissible limits for noise did not exceed at any of the locations selected for sampling.

ES-5.3 Water Environment

Surface Water Study

Based on the analysis results of water samples it can be stated that the pH of all the samples was found to vary between 7.23 – 7.77 this is to infer that the values obtained were within the desirable limit for pH as prescribed by CPCB. The total hardness was observed to be ranging between 252 to 296 mg/l. The maximum value of hardness was recorded at SW6 and the minimum value was recorded at SW2 & SW9. The concentration of Total Dissolved Solids was in the range of 412 mg/l to 440 mg/l. The maximum concentration of Total Dissolved Solids (TDS) was observed at SW3 whereas the minimum TDS concentration was observed at SW5. The Chemical Oxygen Demand (COD) values were calculated to be in the range of 24.12

mg/l to 40.10 mg/l. It is important to note the nitrate concentration in the surface water ranges from 2.10 to 2.70 mg/l. The values of also indicate that domestic sewage, washing of clothes & bathing can be a major source of pollution in the selected water bodies.

Ground Water Study

The results indicate that the pH of all the ground water samples was within the prescribed standards following in the range of 7.20 - 7.88.

The hardness of all the ground water samples was found to be ranging between 110 - 192 mg/lit. It can be observed that the values for total dissolved solids in all the sampling locations were estimated to be under the permissible standards for drinking water. The concentration of total dissolved solids ranged between 352 - 390mg/lit. The maximum concentration was observed at location GW6 whereas the minimum concentration was observed at GW7.

The nitrates concentrations were ranging between 1.03 – 1.70 mg/l well below the acceptable limits of drinking water. The probable sources of nitrates in the ground water could be the use of fertilizers in the nearby agricultural activity.

Thus based on the above results it can be stated that the water from the said samples can be considered fit for domestic purpose with primary treatment.

ES-5.4 Soil Environment

The findings of the study reveal that pH of the soil in the study area ranged between 8.10 to 8.73 this is indicative of the alkaline nature of soil. The values for Nitrogen at all locations varied between 52.80 to 61.40 kg/ha. Maximum concentration of nitrogen was observed at location S8, while the minimum concentration was observed at location S5.

ES-5.5 Biological Environment

Out of the total 131 species found in the study areas there are 32 herbs, 25 shrubs, 63 trees, 9 creepers and 2 small plants found in the study. None of the flora belongs to Schedule – I species as per IWPA, 1972.

During the present investigation, **81** bird species were recorded. The present study revealed presence of **81** species of birds belonging to **38** families. Out of these, **45** species were resident,

18 migrant, **18** local migrants' species were observed. Total 2 nos. of schedule – I species, Peacock and Forest Owlet was found in the study area.

Total seven species of butterfly, 5 species of spiders were found in the study area.

Total 9 species of mammals were found in the study area, out of which the Indian Leopard falls under Schedule – I Category of the Indian Wildlife Protection Act, 1972.

Total 9 species of snakes were found in the study area out of which, Indian Rock Python falls in Schedule – I species.

Conservation Plan has been prepared for all the Schedule – I species and according 6.05 lakhs have been allocated for the same which will be spend in co-ordination with Forest Department.

The proposed project activity does not pose any threat to any species of conservation importance also does not involve any sort of liquid or solid discharge/disposal on the ground or in the water bodies within the study area. Hence no adverse impacts are anticipated on the surrounding biotic environment.

ES-5.6 Socio Environment

Data Interpretation:

Questions were asked to respondents to seek their opinions, perceptions and aspirations regarding the proposed project. Opinions are important vehicle through which one could understand the existing mental attitude of people in general and groups, and community in particular.

Concerning the sex structure of the respondents, 54 percent of the respondents were males while 46 percent were females. This finding is in line with the trend of the sex structure of household heads in India, whereby males dominate.

The average household size was found to be 4 members.

Education is one of the keys to success and development and as such, people pay much attention to their educational status. Most of the sample respondents interviewed had some kind of formal education. Nearly three fourth of the respondents had attained secondary education till 5th to 12th. Whereas 15 present of the respondents have completed graduation also Post

Graduation, 10 percent of the respondents have education till primary (Class 1-5) as the formal education.

Questions were asked about the number of earning members in the family their type of income and their respective jobs. Most of the respondents are private employee working in industry sector. Also some peoples having self-employed occupation like Motor garage, small shops, fruit and vegetables seller. Out of the working respondents, 10 percent peoples are working in government jobs like Primary and secondary Teacher, Irrigation Engineer, etc.

House constitutes the most vital aspect of the basic needs of man and basic amenities form an integral part of the housing facility. All respondent using Pakka type of house having Cement Concrete and Tin shade.

Basic amenities are measured through the availability of drinking water facility, toilet, drainage, garbage disposal, electricity, cooking fuel etc. most of respondent using LPG Gas for cooking fuel Also some respondent use wood as a fuel (in rural area). Gram Panchayat provide drinking water in Gaothan area other area respondent are use own well water and Bore wall water for Drinking.

Availability of toilet is an important indicator of the sanitation. Most of respondent are using private own toilet facility.

When asked about the most pressing problem faced in surrounding area respondent highlighted the Road quality problem in study area. Also, traffic problem in Gaothan area because of long vehicles coming from MIDC and Industrial area. But still the people were happy.

Questions were asked to respondents to seek their opinions, perceptions and aspirations regarding the project. Opinions are important vehicle through which one could understand the existing mental attitude of people in general and groups, and community in particular.

Many respondents were aware of the project, which reflects that the project proponent has carried out regular consultation with the local peoples. Most of the respondents are in support of the project fully, but they need regular flow of information from the point person provided by the community as well as the project person regarding the progress of the project. Their only demand is to give the preference to local people for labour contractors, transporters and raw material suppliers etc. in construction phase and job opportunity in operation phase.

ES-6 Prediction of Impacts & Mitigation Measures

The summary of mitigation measures is presented in tabulated format in Table ES-2 & ES-3.

Sr. No.	Particulars	Mitigation Measures	
		During Construction	**During Operation**
1	**Air Environment**	• Dust pollution being/ will be minimized at the source by water spraying and maintenance of road. • Construction material will be stored in temporary storage yard. • There will be no basement; hence quantity of the soil excavation will be comparatively less. However, soil will be kept moist to reduce dust emission during excavation for piling. • The excavated materials will be place only on the designated disposal areas. • The heights, from which materials will be dropped, will be the minimum practical height to limit fugitive dust generation. • The construction area will be shielded with the help of tarpaulin from all the four sides to contain the air emissions within the premises. • Dust or dusty material will not be swept without effectively treating it with water or other substances in order	• The unit will take all possible measures to control the emissions from all sources. • Adequate stack height as per CPCB emission regulations of 30 m for furnace for proper dispersion of pollutants into the atmosphere. • Green belt development is being/ will be done to attenuate the pollution. Only local species will be planted. It will cover 33% area of the proposed plant. • Ambient air quality and stack emissions is being/ will regularly monitored (as per CPCB/SPCB) to ensure that ambient air quality standards and suggested limits of the stack emission loads are met honestly all the time. And also, to check the efficiency of Air Pollution Control Equipment's. • PUC certified vehicles is being/ will be used for transportation of raw material/products. • To check the functioning of pollution control equipment the unit will prepare environment monitoring schedule during operation. In case of value found above the statuary limit, plant will be shut down immediately and the environment cell of the unit will be informed for further action. • Raw material is being/ will be kept in storage yard and base of storage yard will have

		to minimize its dust emission. • Suitable covered skips and enclosed chats or other suitable measures will be provided in order to minimize dust emission to the atmosphere when materials & waste will be removed from the premises. • Rapid clean-up of project related track out or material spills on paved road. • Natural topography will be maintained to the greatest extent possible. • Parking lot and paved road will be constructed first. • Upwind portion of the project will be constructed first. • During high wind condition, construction activities will be restricted, so that minimum flow of dust particle takes place. • The first and most important step towards emission control for the large in-use fleet of vehicles is the formulation of an inspection and maintenance system. It is possible to reduce 30-40% pollution loads generated by vehicles through proper periodical inspections	impermeable base surfaces, usually constituted from the material being stored. Other raw materials will be stored under cover sheds. • Local exhaust ventilation is being/ will be provided to vent out the emissions to suitable arrestment plant to meet the emission limit. • Dust and fumes is being/ will be minimized by discharging slag from the induction furnace into slag pots, rather than on to the ground. • Indoor air monitoring is being/ will be done to check the exposure level of the worker for periodical basis. (at least once in six months)

		and maintenance of vehicles. • All transportation vehicles will be suitably covered with tarpaulin & overloading of the vehicles will be avoided. • PUC certified vehicles will be used to avoid the exhaust emission.	
2	**Water Environment**	Measures is being/ will be implemented to prevent seepage of liquid materials into ground where it could contaminate groundwater; • Ensure prompt cleaning up of accidental spillages. • Measures are being/ will be followed to prevent the contamination of hydrological features by diesel, grease, oil, etc. derived from the working area. • The machinery / equipment is being/ will be maintained in a good operating condition;/ • Specially designated areas is being/ will be created for vehicle maintenance; • Accidental spillages are being/ will be cleaned up promptly. • Curing water is being/ will be sprayed and after liberal curing, all concrete structures will be covered with gunny bags this will conserves water.	• Industrial waste water is being/ will be treated. • Domestic Waste water is being/ will be deposed off in existing soak pit and septic tank. • Rain water harvesting structure is being/ will be installed in the unit. • Regular water monitoring is • being/ will be done. • All effluents containing acid/alkali/organic/toxic wastes is being/ will be treated by appropriate methods

		• Provisions is being/ will be made to ensure the construction vehicles stick to the access track to prevent mud & dirt being deposited on roads. • Fence is being/ will be constructed around the site to trap sediments whilst allowing the water to flow through. • All mud & dirt deposited on the roads from the construction activities is being/ will be cleaned. • Adopting good construction and engineering practices is being/ will help in mitigating the water pollution.	
3	**Solid & Hazardous waste**	• Design, planning and site management would minimize waste of materials such as concrete, mortars and cement grouts. The contractor will make inventory of all types of solid waste that are expected during the construction activity before starting the work. • Complete excavated material from the earthworks will be re-used on site as structural fill or for landscaping purposes by balancing with cut & fill operations. • Construction waste generated will be	• The slag collected from the bottom is being/ will be again re-charged in the furnace. The cycle will continue till the end waste is formed. Slag accumulated inside the furnace, will be continuously removed and will be sent to cement manufacturing units. Iron will be separated from slag with the help of magnate and will be reused for manufacturing of mild steel as a raw material. • Slag obtained is being/ will be properly staged on a platform above ground level and is being/ will be suitable covered with tarpaulin sheets. **Transportation -** The ash is being/will be disposed in ash pond. Ash collected in silo is being/ will be

		disposed off according to the nature of the waste. • Proper disposal and collection points will be established around the all-construction work sites. • The transportation of construction spoil will be allowed only to designated dump sites after obtaining permission of. • No solid waste will be kept in open spaces.	transported through trucks. Efforts are being/ will be made to dispose the ash to landfill use etc. **Accretion -** The generated accretion is being/will be Used in Land filling activity. Hazardous Waste Generation, Disposal and Management are discussed in Chapter 2.
4	**Noise Environment**	• Complete construction work especially heavy work will be done during day time. • Vehicular movement carrying raw materials is being/ will be avoided during night time. • The vehicles are will be regularly maintained and optimum use of the same will be made. • Adequate PPE's (ear plugs, ear muffs, helmet, mask etc) will be provided to the workers. • PUC certified vehicles will be used.	• All equipment's are being/ will be procured meeting the permissible noise standards. • The insulation provided for prevention and loss of heat a PPE is being/ will also act as noise reducer. • Foundations and structures are being/ will be designed to minimize vibrations and noise. • Regular equipment maintenance and better work habits is being/ will be adopted. • The acoustic enclosure is being/will be designed for minimum 25 dB(A) insertion loss for meeting the ambient noise standards, whichever is on the higher side. • Necessary safety and personal protective equipment such as ear plugs, ear muffs, helmet etc is being/ will be provided to the workers. • Noise levels generated is being/will be maintained to comply with the Factories Act &

<table>
<tr><td></td><td></td><td></td><td>Rules and will not exceed 75 dB (A) at 1m distance.
• Implementation of green belt within the premises of plant will absorb the noise. Thus, is being/will help to control the noise pollution.
• Proper lubrication and housekeeping are being/ will be usually done to avoid excessive noise generation.
• Supervisor is being/ will be responsible to control the noise by maintaining conditions of machineries and silencers.
• 33% of the total plot area is under greenbelt.</td></tr>
<tr><td>5</td><td>Socio-Economic Environment</td><td colspan="2">• Periodic training to local villagers in the premises and recruitment of local workers from the study area.
• Rest rooms / recovery rooms will be provided to local workers to avoid tiresome commuting to their houses.
• The enroute will be restricted to the major road State and National highways.
• Periodic maintenance and emission check of vehicles shall be ensured to restrict air pollution.
• Occupation Health records are maintained.</td></tr>
<tr><td>6</td><td>Energy Conservation & Natural resource conservation</td><td colspan="2"><table><tr><th>Energy Conservation</th><th>Natural Resource Conservation</th></tr><tr><td>Electricity has been conserved at the plant site as the electricity is being / will be produced in captive plan.</td><td>Water: Waste water generated during the industrial process will be reused in the process and domestic processes are being disposed off in the soak pit and septic tank.
Water is used for COC purposes in induction furnace.</td></tr></table></td></tr>
</table>

			Recycling of solid wastes – Solid wastes like scrap, sludges form soak pit and septic tank, etc, are already in partially processed stage while getting generated during various production processes. Recycling of these solid waste materials saves energy since it reduces equivalent amount of raw materials usage and the energy needed for the processing of these raw materials.	**Rain Water Harvesting: -** Rain Water harvesting pit is exists in the premises to conserve the rain water through rooftop. **Scrap as Raw Material:** Scrap is used for the manufacturing of TMT bar. **Slag** is re-used for the road making parking of truck area.

ES-7 Risk Assessment Study

The most critical hazard in a steel industry is physical hazard like burns and physical injuries which is mainly caused to moving parts and burning concerns. Hazards identified in construction and operation phase are tabulated below –

Construction Phase -

Activity	Hazards	Risk	Mitigation Measures
Excavation	• Excavation collapses • Excavated material • Falling objects or objects near an excavation • Powered mobile equipment • Slips, trips, and falls • Hazardous atmospheres • Flooding/water hazards • Underground facilities	Property Loss, Physical injury, Life loss	• Work Permit System will be followed. • Only experienced person will asset to team. • Excavated materialwill be stacked safely. • Area will be barricaded. • Training will be Provided to allworkers • PPEs will be provided. • Unauthorized person entry will be banned.
Construction of building	• Heavy Material may fall down during	Physical Injury, Life	• Work permit system will be followed.

Activity	Hazards	Risk	Mitigation Measures
	loading and unloading • Structure may fall downif poor practice done. • Waste stored in openmay cause cut in feet. • Storage of fuel may cause fire. • Workers may fall downfrom the height.	loss, Physically handicapped, Property Loss	• PPEs will be provided to all workers. • IS code will be followed for Building construction. • Fuel will be stored separately area will be isolated fromingenious material. • Fire extinguisher will be provided • Height work permit will be issued to the person. • Safety belt will be provided to workers working on above 1.8 M height. • Adequate trainings will be provided forspecific job works.
Commissioning of high-rise structure (i.e. Stack);	• Material may fall down • Fall Hazards	Physical injury, Life loss	• High rise structure will be constructed as per detailed engineering drawing. • Safety belt will be provided to workers working on above 1.8m height. • Height work permit will be implemented • Proper training will be provided for scaffolding. • PPEs will be provided.
Material Handling (Loading and Unloading)	Extra weight lifting can cause strain in body muscles.	Physical Injury	• Material will lift as per safety norms. • PPEs will be provided.
Cutting and	• Welding, cutting,	Physical Injury,	• Hot work permit will

Activity	Hazards	Risk	Mitigation Measures
Welding	and allied processes produce molten metal,sparks, slag, and hotwork surfaces cancause fire or explosion if precautionary measures are not followed. • Electric shock from electrical welding and cutting equipment canresult in death orsevere burns. • Gas cylinder can cause fire accident.	Burn Injury, Property loss, Life loss	be followed. • Standards Work Procedure will be developed. • Training will be provided • Job will be assigned to only authorizedperson • Proper PPEs will be provided. • Loose connection will be avoided. • Area will be barricaded • Gas cylinder will be stored as per guidelines
Installation of Machineries	• Due to over load liftingbelt break out • Un authorized operatorof Lifting and Crain cancreate an emergency • During placement of machinery structure may collapse	Property loss, Physical Injury, Life loss	• Only authorizedperson will operate the machine • Appropriate belt will be used for lifting of material • During lifting and placing of material area will be man free. • Appropriate platform will be designed as per the load bearing calculation.

Operation Phase -

Block/Area	Hazards Identification	Control
Production area	Heat and current	• Only authorized personswith adequate PPEs willpermit to the area. • Adequate fire protection system will be developed. • Good Housekeepingpractices will be done.
Raw Material	Material may Fall	• Proper height not more than 6-m will be maintained for stacking ofthe Raw Material.

Block/Area	Hazards Identification	Control
Storage Area	down if proper stacking and height not maintained	• Safety fencing will be provided. • Authorizes and trained persons will perform the job in particular area. • Use of PPEs will be strictly followed.
Finished Goods	Material may Fall down if proper stacking and height not maintained	• Proper height not more than 6-m will be maintained for stacking of the Raw Material • Safety fencing will be provided • Authorizes and trained persons will perform the job in particular area. • Use of PPEs will be strictly followed.
Transformers / Switch Yard	Electric Current and Fire	• Safety fencing will be provided to control the direct contact of workers. • Only authorized persons with adequate PPEs will permit to the area. • Adequate fire protection system will be developed. • Good Housekeeping practices will be done.
Road Area	Accident may happen	• Vehicle Speed will be maintained inside the plant. • Speed breakers will be provided. • Drinking will be strictly prohibited. • Sufficient parking area will be provided. • Proper Maintenance of the Road will be done

ES-8 Disaster Management Plan

In view of the secondary steel industry manufacturing industry, Onsite and Offsite Emergency Plans are important hence, has been prepared for the industry. During operational phase, surrounding population shall be made aware of safety precautions to be taken in case of any emergency situation due to the overall project activity. On-site disaster management plan and Off-site emergency management plan, commands communication and controls will be established and maintained. Adequate provisions like emergency response, response organization, response plan, Material Safety Data Sheets (MSDS), command and control, capabilities, transportation, medical facilities, mitigation measures, training, education, public awareness emergency plan review etc. to control any disaster situation will be made available.

ES-9 CER Activity

The company manufactures secondary steel products which are used in construction and infrastructure development projects which will help in infrastructure development.

The industry will spend 1% of project cost i.e. 6.05 lakhs on CER expenditures which will be used for basic infrastructure developments in nearby villages in the study area.

The CER plan is prepared and presented in Table ES-2 below.

Table No.ES-2: List of CER Activity

-Cost of Project expansion	**Cost for the CER Activity**	**Year of Implementation**	**Activity**	**Amount in Lakhs**
6.05 Crores	1% of project cost – 6.05 Lakhs	**2023**	Provision of 10 Solar street lights in Torne	2,50,000/-
		2023	Provision of 10 Solar street lights in Kambre	2,50,000/-
		2023	Provision of Computer with project, white board and speaker in Gram Panchayat Village - Torne	1,05,000/-

ES-10 Occupational Health Measures

The company will strictly adhere to the rules of Factories Act 1948 with its latest amendments regarding the occupational health facilities to be provided to the workers of the company. The company has planned all the necessary control measures to prevent air pollution, water pollution and degradation of soil in the project surrounding areas. Since all the pollution control measures are planned. Minor accidents, noise, poor ventilation and accidental chemical exposure are the only possible occupational health hazards from the manufacturing activities. For the prevention of it, the company will educate the operators and workers for the safety rules, procedure and preventive measures and to use personnel protective measures.

The company has provided budgetary allocation of Rs.75,00,000/- for purchase of Personal Protective Equipment's (PPEs) & Rs. 15,00,000/- per annum as recurring expenditure for annual medical, health check-up & other occupational safety related aspects of workers for 300 Nos. of manpower as a part of Occupational Health & Safety measures.

ES -11 Post Project Monitoring Plan

Monitoring of environmental parameters shall be done as per the guidelines provide by MoEF&CC / CPCB / MPCB. The method followed shall be recommended / standard method approved/recommended by MoEF&CC/CPCB. The table below explains the approach for environmental monitoring program.

Table No. ES-6: Environmental Monitoring Program

Sr. No.	Activity / Area	Pollutant	Parameters	Location	Frequency	Responsibility
		OPERATION PHASE				
1.	Vehicular Movement	Dust Emission	CO, SO_2, NO_X, PM_{10}, $PM_{2.5}$ in Ambient Air	3 locations	Quarterly	EHS Dept

Sr. No.	Activity / Area	Pollutant	Parameters	Location	Frequency	Responsibility
2.	Furnace	Air emissions	CO, SO_2, NO_X, SPM from furnace	Stack	Quarterly	EHS Dept
4.	Manufacturing area, Rolling and cutting areas, STP, Work Place Area	Sound	Noise Level dB (A)	5 locations	Quarterly	EHS Dept
5.	Sewage treatment plant	Sewage water	Ph., TDS, TSS, MLSS, MLVSS BOD.	Treated effluent from STP	Daily (By project proponent), Quarterly by accredited laboratory)	EHS Dept
6.	Hazardous Wastes	Spent Oil, Slag	H.W. characteristics	--	As and when the waste is generated	EHS Dept
8.	Soil Monitoring	Soil Analysis within plant premises.	General parameters	One in Plant premises	Quarterly	EHS Dept