

EXECUTIVE SUMMARY

PROPOSED EXPANSION OF EXISTING PRODUCTION FACILITIES FOR COLD ROLLED COILS & SHEETS (FROM 210000 TPA 300000 TPA), HOT ROLLED PICKLED SKIN PASS COILS (FROM 90000 TPA TO 150000 TPA) AND ADDITION OF NEW FACILITY FOR HOT ROLLED PICKLED GALVANIZED COILS (820000 TPA) AT PLOT NO. S-76, MIDC, TARAPUR INDUSTRIAL AREA, PO. BOISAR, TEHSIL – PALGHAR, DISTRICT - PALGHAR, MAHARASHTRA – 401 506

**Terms of Reference: File No. SIA/MH/IND/253862/2022 (Amended ToR) dated 2nd Sept 2022 & File No. SIA/MH/IND/68607/2021 dated 21st Oct 2021
Category B₁, Schedule 3 (a) Metallurgical Industries
Baseline Period: Post-monsoon season (15th October 2021 – 15th January 2022)**

Project Proponent



M/s. Tata Steel Limited, CRC West

Environmental Consultant



M/s Anacon Laboratories Pvt. Ltd., Nagpur

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Report No. ANqr/PD/20A/2022/197**

OCTOBER - 2022

EXECUTIVE SUMMARY**1.0 INTRODUCTION**

The company “M/s. Tata Steel Limited CRC West” (hereafter referred as TSL CRCW) was established in 1993 to produce Cold rolled coils and sheets for various applications. The main objective of the organization is to achieve optimum production with high safety health & environment standard. The proposal is for expansion of existing production facilities for CR Coils & Sheets 210000 TPA to 300000 TPA and Hot rolled pickled skin pass coils 90000 TPA to 150000 TPA and addition of new facility for Hot Rolled Pickled Galvanized Coils (820000 TPA).

The existing production facilities for CR Coils & Sheets 210000 TPA and Hot rolled pickled skin pass coils 90000 TPA is located at Plot No. S-76, MIDC, Tarapur Industrial Area, Boisar, Tehsil & District – Palghar Maharashtra – 401 506. The existing plant is under operation for which CTO was granted vide letter no. Format 1.0/CAC/UAN No. 0000106989/CR 2202000726 dated 11.02.2022 valid upto 28.02.2024.

The existing unit has earlier received ToR for regularization of existing project from SEAC, Maharashtra dtd. 21.10.2021 (Online Proposal No. SIA/MH/IND/68607/2021) in line with NGT order dtd. 12th Feb, 2020 and MPCB vide Circular no./MPCB/ID(APC)/Rolling Mill/TB/B-041 dtd. 20th July, 2021

Now, M/s. TSL – CRC West have granted amendment in ToR vide file no. SIA/MH/IND2/253862/2022 on dtd. 02/09/2022 for Expansion of existing production facilities for Cold Rolled Coils & Sheets (from 210000 to 300000 TPA), Hot Rolled Pickled Skin Passed Coils (from 90000 to 150000 TPA) with Addition of new facility for Hot Rolled Pickled Galvanized Coils (820000 TPA) at Plot No. S-76, MIDC Tarapur Industrial Area, Boisar, Tehsil & Dist.- Palghar, Maharashtra – 401506.

As per Environmental Impact Assessment Notification dated 14th September, 2006 and subsequent amendment thereof, the project falls under **Category ‘B’** and project activity covered under **Sector 3 (a)**, therefore, Environmental Clearance (EC) to be obtained from State Environment Impact Assessment Authority (SEIAA), Maharashtra.

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

The Environmental Impact Assessment (EIA) report is prepared for obtaining Environmental Clearance (EC) from SEIAA-SEAC, Maharashtra for the expansion of existing project facilities.

This EIA report is prepared based on the ToR conditions recommended by SEAC, Maharashtra and project related technical details provided by M/s. Tata Steel CRC West Limited.

The public hearing will be conducted as per the EIA Notification (dated 14th September 2006) and subsequent amendments thereof. The final report will be upgraded and submitted after public hearing, incorporating with issues by public with respective compliances by project proponent at the time of public hearing.

1.1 IDENTIFICATION OF PROJECT

M/s. Tata Steel CRC West Limited proposed expansion of existing production facilities for Cold Rolled Coils & Sheets (from 210000 to 300000 TPA), Hot Rolled Pickled Skin Passed Coils (from 90000 to 150000 TPA) with addition of new facility for Hot Rolled Pickled Galvanized Coils (820000 TPA) at Plot No. S-76, MIDC Tarapur Industrial Area, Boisar, Tehsil and District - Palghar, Maharashtra – 401506.

The proposed expansion of Plant is designed to manufacture CRCA coils & sheets, HRPO and HRPSO coils. These products are supplied to Auto companies, General Engineering. Following manufacturing processes are carried out.

1. Pickling.
2. Cold Rolling Mill.
3. Cleaning Line.
4. Annealing.
5. Skin Pass Mill
6. Slitting Line.
7. Blanking Lines.

To carry out these processes following utilities are maintained in the plant:

EOT Cranes, Air Compressors, Pump House, Effluent Treatment Plants & RO Plant, Roll Grinding, EDT machine, Chilling plants, H2 gas generation, Nitrogen storage, DM water plants, HCL storage, Steam Boiler & Hot water Generator, DG set, Carpentry Shop for Packing of finished Goods.

TABLE: 1(A)
CONFIGURATION OF THE PLANT
EXISTING PRODUCTION CAPACITY OF THE PLANT

Sr. No.	Name of products	Production Capacity (TPA)	Remarks
1.	Cold Rolled Coils & Sheets	210000	The existing plant is under operation as per the Consent Vide letter no. Format 1.0/CAC/UAN No. 0000106989/CR 2202000726 dated 11.02.2022 valid upto 28 th Feb 2024.
2.	Hot Rolled Pickled Skin Passed Coils	90000	

TABLE: 1(B)
EXISTING AND PROPOSED EXPANSION CAPACITY

Sr. no.	Name of products	Existing Cap. TPA	Proposed Capacity TPA	Total Cap. After expansion TPA
1.	CR Coils & Sheets	210000	90000	300000
2.	Hot rolled pickled skin pass coils	90000	60000	150000
3.	Hot rolled pickled Galvanized coils	---	820000	820000

1.2 LOCATION OF THE PROJECT

The project located is in the MIDC Tarapur Industrial Area, Boisar, Tehsil - Palghar Dist.- Palghar, Maharashtra, Latitude: 19°47'7.29"N, Longitude: 72°43'52.07"E, Boisar Railway Station is the nearest railway station which is about 3.3 Km in ENE direction and Nearest Airport is Chhatrapati Shivaji International Airport, Mumbai which is about 76.5 Km in S direction. The project site can be reached from nearest City Tarapur which is just 9.4 Kms from the site. The project is well connected to all weather roads.

The study area of 10 km radial distance from the project site is shown in **Figure 1**.

1.3 EIA/EMP REPORT

In line with the approved ToR obtained from SEIAA, Maharashtra, baseline environmental monitoring was already conducted during Post monsoon season **post-monsoon season (15th October 2021 – 15th January 2022)** has been considered for determining the status of ambient air quality, ambient noise levels, surface and groundwater quality, soil quality, status of flora, fauna and eco-sensitive areas and socio- economic status of the villages within 10 km radius study area from the project site **(Figure 1)**. The observations of the studies are incorporated in the EIA/EMP report. Impacts of the existing project activities were identified and duly addressed in the EIA- EMP report.

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

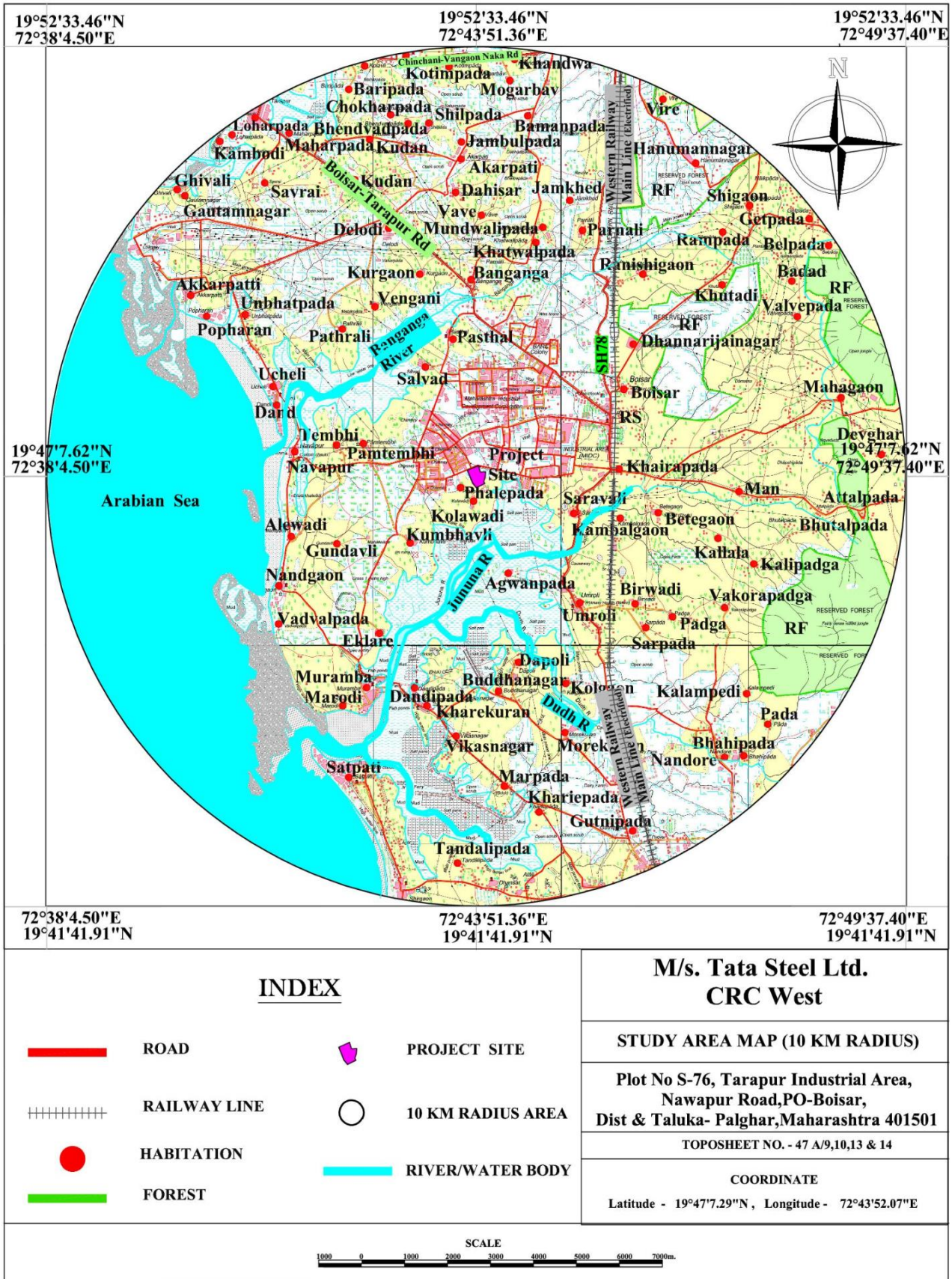


FIGURE 1: STUDY AREA (10 KM RADIAL DISTANCE)

**TABLE 2
DETAILS OF ENVIRONMENTAL SETTING**

Sl.	Particulars	Name
1.	Plant Location	Plot No S-76, MIDC Tarapur Industrial Area, Boisar, Tehsil – Palghar, District - Palghar, Maharashtra - 401506
2.	Geographical Locations	Latitude: 19°47'7.29"N, Longitude: 72°43'52.07"E
3.	Toposheet No.	47A/9,10,13 & 14
4.	Climatic Conditions	Mean annual rainfall is 1874.6 mm Temperature: Pre monsoon 17.8 ^o C (Min.) 36.3 ^o C (Max.) : Winter 15.1 ^o C (Min.) 31.0 ^o C (Max) : Post monsoon 17.3 ^o C (Min.) 36.0 ^o C (Max.) Source: IMD, DAHANU
5.	Nearest IMD station	Dahanu Meteorological Station
6.	Land Form, land Use and Ownership	10.09 Ha (No additional land area will be acquired. The Land is already diverted for industrial use. The land is already owned by the Tata Steel CRC West Ltd.
7.	Site topography	Min 8 m. – max 13 m.
8.	Nearest roadway	SH74 - 2.9 Km/E NH48(Earlier NH8)-19.0 Km/E
9.	Nearest Railway Station	Boisar Railway Station - 3.3 Km/ENE
10.	Nearest Air Port	Chhatrapati Shivaji Maharaj International Airport-76.5 Km/S
11.	Nearest Port	Wadarai Port – Jetty – 13 Km/SSW Nhava Sheva Port – 93.8 Km/SSE Satpati-Murba Boat Ferry – Shipyard – 6.8 Km/SSW
12.	Nearest state/National Boundaries	Gujarat -38.4 Km/N
13.	Nearest major city with 2,00,000 population	Palghar - 9.4 Km/SSE
14.	Nearest village/major town	Village Kolavade - 0.14 Km/SW
15.	Distance for sea coast	Arabian Sea - 4.3 Km/W
16.	Hills/valleys	<ul style="list-style-type: none"> • One Tree Hill, Boisar – 8.4 Km/E • Asava Fort Hill – 9.0 Km/ESE
17.	Nearest tourist place	<ul style="list-style-type: none"> • Nandgaon Beach – 5.6 Km/SW • Chokhar Aali Beach Point – 5.7 Km/SW • Dhodhadi Waterfall – 7.7 Km/SE • Asava Fort – 9.0 Km/ESE • Tarapur Beach-9.7 Km/NE • Dargah Sayyed Jamalshah Sabri Qadri R.u.a. Tarapur -8.9 Km/NW • Satpati Fishing Port – 6.8 Km/SSW
18.	Archaeologically important places	<ul style="list-style-type: none"> • Tarapur Fort – 9.7 Km/NW • Shirgaon Fort – 9.7 Km/SSW
19.	Nearest Reserved/ Protected forests	<ul style="list-style-type: none"> • RF near Boisar – 4.3 Km/ENE • RF near Mahagaon – 8.9 Km/ENE • RF near Bhutalpada – 8.1 Km/E • RF near Hanumannagar – 6.6 Km/NE
20.	Nearest Water Bodies	<ul style="list-style-type: none"> • Banganga River - 3.1 Km/NNW • Ucheli Creek- 4.9 Km/W • Surya Dam - 15.6 Km/SE • Devkhope Dam - 10.8 Km/SE • Jununa N - 1.0 Km/S • Alwadi Lake - 3.9 Km/WSW • Nandgaon Lake - 4.7 Km/SW • Dhobi Talav - 10.5 Km/NNW • Vikas Nagar Talav - 5.8 Km/S • Old Akkarpatti Lake - 7.7 Km/NW • Navale Lake - 10.8 Km/NNW

Sl.	Particulars	Name
		<ul style="list-style-type: none"> • Bhandara Talav - 3.8 Km/SW • Gundale Talav-3.4 Km/SW • Talav(Navapur) - 3.8 Km/W • Shirgaon Lake - 9.3 Km/SSW • Tambhi Lake - 2.9 Km/WNW
21.	Nearest Industries	<ul style="list-style-type: none"> • Tarapur MIDC • Galaxy Surfactants Ltd.- Chemical plant • Paradyes Acid And Chemicals – Chemical Exporter • Glenfin Chemical Pvt. Ltd. – Manufacturer • Pioneer Industrial Corporation – Chemical Manufacturer • Siddhichem Industries – Chemical plant • Sharda industries L- Textile Engineer • Nikita Chemical Industries – Chemical Manufacturer • Vap Industries – Chemical Manufacturer • JSW Steel Coated Products Ltd., - Steel construction company • Viraj SMS Plant – Iron & Steel Industry • D'Decor Home Fabrics Pvt.Ltd – Textile mill • Siyaram silk mills – Textile mill • Maxheal Pharmaceuticals India Ltd – Boisar Plant – Pharmaceutical company • Amrut Drug Research Lab Pvt Ltd – Pharmaceutical company • Custom Capsules Pvt.Ltd. – Pharmaceutical company • Apurva India Pvt. Ltd. – Paint Manufacturer • Aarti Drugs Ltd, - Pharmaceutical company • Bombay Rayon Fashion Ltd. – Weaving mill • Lupin Ltd. – Pharmaceutical company • Camlin Limited • Lavino Kapur Cottons Pvt. Ltd. – Textile Engineer • Tarapur Atomic Power Station
22.	Areas already subjected to pollution or environmental damage	CPCB Monitoring for CEPI Index during 2017-18: Tarapur Industrial Area CEPI Score 93.69.
23.	Seismic zone	Zone-III [As per IS :1893 (Part-I): 2002]
24.	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, Universities, Community Hall etc.)	<ol style="list-style-type: none"> 1. Tuljabhavani Aai & Khandoba mandir, Kolavade - 0.2 Km/SW 2. Swami Vivekanand High School & Jr. college, Kolavade - 0.2 Km/S 3. Shri Datta Nagesh Mandir - 2.6 Km/ENE 4. I.T.I. Vangaon - 10.2 Km/NNE 5. Rural Hospital Vangaon - 10.3 Km/NNE 6. Dargha Hazrat Shahdawla R.a Hazrat Kamil Shah R.a-10.3 Km/NNW 7. Primary Health Centre, Murbe - 5.2 Km/SSW 8. Primary Health Centre Tarapur-9.2 Km/NW 9. Primary Health Centre Khairapada - 3.6 Km/E 10. Khairapada Anganwadi - 3.1 Km/E 11. Jeevan Vikas Shikshan Santha's S T. Kadam High school & Junior College - 8.5 Km/SSE 12. Modern English School -3.1 Km/NNE 13. Triratna Buddha Vihar, Pasthal - 3.5 Km/NNW 14. New india church of god, Atmashakti Nagar - 3.1 Km/NNE 15. Primary Health Centre, Dandi, Boisar - 5.2 Km/NW 16. Janta High School Navapur - 4.0 Km/W 17. SDSM College, Tembhode - 8.4 Km/SSE 18. St. Peters Church - 8.5 Km/SSE 19. Government ITI Palghar - 7.7 Km/SSE

2.0 PROJECT DESCRIPTION

2.1 PROJECT DESCRIPTION

The current proposal is for expansion of existing production facilities for CR Coils & Sheets 300000 TPA and Hot rolled pickled skin pass coils 150000 TPA along with addition of new facility for Hot Rolled Pickled Galvanized Coils (820000 TPA).

The project site can be reached from nearest City Tarapur which is just 9.4 Kms. The project is well connected to all weather road. No extra land required for the project activities.

Thus the availability of logistic support; water; power; manpower; adequate existing land and safe distance from the habitat area as well as back ground existing pollution levels were some of the criteria studies need to explore for future viability of the project.

The existing unit has following production facilities:

Manufacturing of Cold Rolled Coils & Sheets/Hot Rolled Pickled Skin Passed Coils

Cold Rolled Coils & Sheets/Hot Rolled Pickled Skin Passed Coils are produced by following the below steps:

- Pickling line
- 4-Hi Mill
- Cleaning
- Annealing
- Skin Pass Mill
- CR Slitting line
- MBL& CTL

Gas Fired Boiler Process

The Boiler of 6 TPH capacity is installed in the plant to maintain the temperature of alkali and water need to be used in strip cleaning process. During proposed expansion additional 7 TPA capacities Boiler will be added. Thus, total capacity of Boiler after expansion will be 13 TPH. Further to note that, besides 13 TPH, additional 6 TPH will be on standby mode. PNG is used as a fuel. PNG is used as a fuel. Heat generated by combustion is absorbed by the water in the boiler drum and steam is formed. Temperature and pressure of the boiler drum is monitored by temperature and pressure transmitter respectively and flame regulation is done by the modulation motor through PID controller. High temperature flue gases generated out of combustion are passed through air preheater and then discharged to flue gas chimney. Two safety valves are installed along with one fusible plug at boiler top to release excess pressure in case of interlock malfunction.

Process Description of Hot Rolled Pickled Galvanised Coils

The pickled HR coil is skin passed, heated in a furnace, galvanised and again skin passed to get the final properties. These involve Pickling, HR Skin Pass Mill, Galvanizing, Skin Pass Mill & Chemical Coating and Recoiling.

2.2 LAND REQUIREMENT

M/s. TSL CRC West is having existing established operational unit within land of 10.09 Ha. Moreover, out of the total land, 6.27 Ha. is under built up area, 1.66 Ha. is Road and Paved area, Green Belt area is 1.01 Ha. and Open Area is 1.09 Ha after expansion.

TABLE 2 (A)
AREA STATEMENT OF PLANT AREA

Land Use	Existing	Proposed Change	Total Area After expansion	Area (in %)
Built Up	2.74	3.53	6.27	62.14
Road and Paved	1.23	0.49	1.72	17.05
Green Belt	1.84	- 0.83	1.01	10.01
Parking & Open Area	4.28	- 3.19	1.09	10.80
Total	10.09		10.09	100.00

Note-

- As per existing CTO Conditions 33% greenbelt of the available open area should be developed.
- The available existing open area is 4.15 Ha. And existing green belt is of 1.84 Ha.(44.33%) which complied the existing CTO condition.
- TSL CRC West has also developed greenbelt within Housing Colony Area of 3.17 Ha (Total Colony Area is 9.61 Ha.). Thus, total green belt after expansion will be 4.18 Ha. [Green belt 1.01 Ha.(Plant Area after expansion) + 3.17 Ha (Colony Area)= 4.18 Ha. (Plant + Colony Area) (41.4 %)]

Request: The existing plant is running since 1994, we have explored all possibilities to enhance greenbelt within plant area and is has been finalized to 10.01 % after expansion. Hence, in order to comply 33% green belt area conditions you are requested to consider green belt developed within housing colony.

TABLE 2 (B)

AREA STATEMENT OF PLANT AREA (AFTER EXPANSION) OF CRC WEST AND HOUSING COLONY

Land Use	CRC WEST plant Area (In Hectare)	Housing colony Area (in Hectare)	Total area in Hectare	Greenbelt Area in %.
Built Up Area	6.27	0.69	6.96	
Road and Paved Area	1.72	0.52	2.24	
Green Belt Area	1.01	3.17	4.18	41.4%
Open Area	1.09	6.14	7.23	
Total	10.09	10.52		

2.3 RAW MATERIALS REQUIREMENT & MODE OF TRANSPORT

The raw material required for the project is Hydrochloric acid, PNG, Alkali, Rolling Oil, etc. Some of these raw materials are readily available within 200 km radius and these will be transported through covered trucks. Hot Rolled Coils are brought From Mother Plant TATA STEEL JSR & Kalinga Nagar Local Market by Railway upto nearest railway siding from there will be transported by truck through road to the plant.

The major raw materials required are HR Coils, HCL, Rolling oil etc. The raw material is being transported through truck. Natural Gas required is transported through pipeline. It is estimated that approx. 147 trips per day i.e. 294 trucks per day required for transportation of raw materials and finished products of the plant.

2.3.1 Solid and Hazardous waste generation

The details Solid and Hazardous waste generation are given in **Table 3**.

**TABLE 3
SOLID AND HAZARDOUS WASTE GENERATION**

Name of Waste generated	Category No	Existing Consent Quantity (TPA)	Proposed Quantity (TPA)	Total Quantity (TPA)	Disposal Plan
Used Oil /spent Oil/ Oil sludge	5.1	50	20	70	Disposal Facility- Mumbai Waste Management Ltd, or MPCB authorised Recycler
ETP Lime Sludge	34.3	600	100	700	
Waste Coolant Oil	5.2	1560	312	1872	
Tank Bottom Sludge	3.3	7.2	3	10.2	
Spent Acid	12.1	11512	30851	42363	Own ARP Facility at Plot S-76 or own facility at plot F-7/1
Barrels containers used to handle hazardous waste	33.1	3900	1560	5460	Disposal Facility- Mumbai Waste Management Ltd Or Authorised Recyclers
Chromate waste (solid)		-----	3.35	3.35	
Zinc dross Dust		-----	5700	5700	
Rinse water for ARP		-----	100	100	Self ETP & RO Recycler

2.4 WATER REQUIREMENT & SOURCE

The existing water requirement is 731 KLD and proposed additional water requirement is 574 KLD. Total water requirement is 1305 KLD (including Process + Domestic purpose). The water is being sourced from MIDC Water supply. Water supply agreement for existing water requirement already issue by MIDC. No ground water extraction in the plant. The details of water requirement are provided in **Table 2.7**.

**TABLE 3
WATER REQUIREMENT BREAKUP (UNIT: IN KLD)**

Sr. No	Description for use of Water	Existing CTO quantity	Proposed Additional quantity	Total quantity after expansion
1	Industrial Cooling , Spraying in boiler feed	510	285	795
2	Processing whereby water gets polluted and pollutants are easily biodegradable	200	280	480
3	Domestic purpose	21	09	30
	Total	731	574	1305

Note: The total quantity of water requirement existing as per consent is 731 KLD and proposed additional water quantity requirement is 574 KLD. Hence total water requirement will be 1305 KLD. . The existing source of water supplied by MIDC water supply scheme and additional water required will also be sourced from MIDC. The request letter for additional water allocation is submitted to MIDC, Tarapur

The existing ETP & RO plant capacity is 200 KLD, which will be increased to treat the additional 100 KLD, hence The overall capacity after expansion of ETP & RO plant will be 350 KLD which is adequate to treat the total waste water generated after expansion.

The waste RO reject will be send to Mumbai waste management plant for disposal.

2.5 POWER REQUIREMENT & SUPPLY

The existing power requirement 8.5 MW and proposed 6.5 MW. Total power requirement is 15 MW taken from MSEDCL power sourcing through dedicated Grid Power Supply. 250 KVA DG used as backup / standby source only for lighting purpose. Diesel Engine Pump of 167 HP Capacity used only for firefighting.

2.6 MANPOWER REQUIREMENT

The unit has already existing manpower of 450 and proposed manpower is 250 total manpower required is 700. Mostly local people are employed for project related activities.

2.7 FIRE FIGHTING FACILITIES

In order to combat any occurrence of fire in plant premises, a central fire- fighting facilities is proposed which will have access to various units of the plant. In addition to this, all plant units, office buildings, laboratories, etc. will be provided with adequate number of portable fire extinguishers to be used as first aid fire appliances.

2.8 PROJECT COST

Existing project cost – 141.9 Cr whereas proposed expansion cost is 1119 Cr. Thus, total cost is 1260.9 Cr.

3.0 DESCRIPTION OF THE ENVIRONMENT

3.1 BASELINE ENVIRONMENTAL STUDIES

Baseline environmental studies were conducted at project site along with 10 km radial distance from the project site. The baseline environmental quality data for various components of environment, viz. Air, Noise, Water, Land were monitored during **post-monsoon season (15th October 2021 – 15th January 2022)** along with secondary data.

3.2 METEOROLOGY & AMBIENT AIR QUALITY

Summary of the Meteorological Data Generated At Site

Predominant Wind Direction	Post Monsoon Season
First Predominant Wind Direction	NNE (17.07%)
Second Predominant Wind Direction	N (16.26%)
Calm conditions (%)	0.41
Avg. Wind Speed (m/s)	3.32

The status of ambient air quality within the study area was monitored for post-monsoon season of the year 2021-22 at 8 locations covering project site. The levels of Respirable Particulate Matter (PM₁₀), Fine Particulates (PM_{2.5}), Sulphur Dioxide (SO₂), Oxides of Nitrogen (NO_x) and carbon monoxide (CO), Ammonia, Ozone, Benzene and BAP were monitored. The details of Ambient Air Quality Monitoring Results are summarized and given in **Table 4**.

**TABLE 4
SUMMARY OF AMBIENT AIR QUALITY MONITORING RESULTS**

Sr. No.	Location		PM ₁₀	PM _{2.5}	SO ₂	NO ₂	CO	Ozone	NH ₃
			µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	µg/m ³
1	Project Site	1. Min	61.2	23.4	17.3	28.8	0.522	14.3	36.3
		2. Max	83.8	35.6	30.7	44.2	0.879	30.2	60.3
		3. Avg	71.3	28.7	24.4	36.1	0.728	22.5	48.6
		4. 98 th	82.6	34.8	30.0	42.9	0.867	29.7	58.8
2	Phalepada	1. Min	63.9	26.8	20.2	27.9	0.659	14.9	42.3
		2. Max	86.2	36.3	31.8	41.7	0.944	28.3	76.8
		3. Avg	74.4	31.2	25.2	34.8	0.811	21.7	58.5
		4. 98 th	85.0	35.9	30.9	40.8	0.927	28.0	76.1
3	Kolawadi	1. Min	62.6	25.4	18.0	25.9	0.679	15.8	39.4
		2. Max	79.3	35.5	26.2	35.7	0.813	22.6	66.1
		3. Avg	71.8	30.5	21.7	29.6	0.763	19.6	49.8
		4. 98 th	78.7	34.9	25.5	34.8	0.811	22.6	61.8
4	Banganga	1. Min	56.4	20.9	15.1	24.2	0.518	13.3	19.5
		2. Max	76.6	28.8	22.7	32.4	0.701	19.5	28.2
		3. Avg	65.6	25.2	18.5	27.7	0.619	16.9	23.8
		4. 98 th	75.6	28.6	22.4	32.1	0.692	19.2	27.9
5	Pamtembhi	1. Min	53.6	20.1	13.8	18.9	0.502	11.5	29.2
		2. Max	74.2	27.1	21.5	28.1	0.563	18.2	43.9
		3. Avg	63.9	24.2	17.1	23.8	0.535	14.7	36.0
		4. 98 th	73.0	26.9	21.2	28.0	0.561	17.8	42.8
6	Umroli	1. Min	64.3	25.5	16.7	21.7	0.467	10.4	22.9
		2. Max	81.2	44.3	24.9	31.5	1.007	24.6	43.2
		3. Avg	72.6	33.5	20.7	26.4	0.672	17.5	30.7
		4. 98 th	79.9	43.5	24.3	30.7	0.994	24.2	40.9
7	Pasthal	1. Min	56.2	24.6	15.9	19.8	0.524	14.6	30.3
		2. Max	76.5	32.6	24.2	30.6	0.648	23.4	46.4
		3. Avg	67.1	28.4	19.8	25.2	0.596	18.3	37.5
		4. 98 th	75.4	32.4	23.7	29.8	0.642	22.2	45.1
8	Boisar	1. Min	65.8	28.8	18.7	28.6	0.647	16.5	41.1
		2. Max	85.7	39.2	26.2	39.2	0.876	24.1	63.3
		3. Avg	75.8	35.1	22.7	33.6	0.742	19.9	52.5
		4. 98 th	85.1	39.2	25.9	38.8	0.865	23.8	61.9
CPCB Standards			100 (24hr)	60 (24hr)	80 (24hr)	80 (24hr)	2 (8hr)	100 (8hr)	400 (24hr)

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

3.3 AMBIENT NOISE LEVELS

Ambient noise level monitoring was carried out at the 08 monitoring locations; The monitoring results are summarized in **Table 5**.

**TABLE 5
SUMMARY OF AMBIENT NOISE LEVEL MONITORING RESULTS**

Sr. No.	Monitoring Locations	Equivalent Noise Level	
		Leq _{Day}	Leq _{Night}
Residential Area			
1.	Kolawadi	53.2	42.6
2.	Kharpada	51.8	40.9
CPCB Standards dB(A)		55.0	45.0
Commercial Area			
3.	Phalepada	58.3	45.1
4.	Salvad	56.9	43.5
5.	Boisar	60.4	46.7
CPCB Standards dB(A)		65.0	55.0
Silence Zone			
6.	Pamtembhi	45.7	39.2
7.	Saravali	46.2	38.8
CPCB Standards dB(A)		50.0	40.0
Industrial Area			
8.	Project Site	68.7	57.6
CPCB Standards dB(A)		75.0	70.0

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

3.4 SURFACE AND GROUND WATER RESOURCES & QUALITY

3.4.1 Regional geology

10 km radius study area is comprised of Deccan trap basalt of cretaceous age and Coastal Alluvium. In the study area 4 major flows of basalt are observed. There are no major geological structure present in study area as far as concern with construction of buildings and other structure. Study area falls in seismic zone-III.

Site specific Geology:

Project area is mostly covered by soil cover which is having thickness of around 0.2-1.0m. Outcrops of Basalt are observed at project site.

3.4.2 Regional Hydrogeology

Ground water in Deccan Traps mostly occurs in the weathered and fractured parts down to 10-15m depth. The weathered portions of both vesicular and massive units have better porosity and permeability. Intensity of weathering is less in hilly region as seen in the eastern part of the study area, while it is higher in plain area i.e. towards coastal belt.

The yield of dug wells tapping phreatic aquifer ranges between 18 to 152cum/day, which have 5-12m depth range. The bore wells are generally drilled down to 40 to 60m tapping weathered and fracture/vesicular zones, these wells have a discharge of 2 to 4lps.

Water levels in Pre-monsoon: 2.5 to 10m bgl

Water levels in Post-monsoon: 1 to 5m bgl

3.4.3 Geomorphology

Study area is comprises of younger coastal plains as area is adjoining the coastal belt. There are no major geomorphological structures present in study area.

3.4.4 Water Quality

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

A. Groundwater Quality

The analysis results indicate that the pH was found to be in the range of 7.25 - 7.83. The TDS was ranging from 421-530 mg/l. Total hardness was found to be in the range of 187.77 – 299.26 mg/l. The fluoride concentration was found to be in the range of 0.31 to 0.45 mg/l. The nitrate and sulphate were found in the range of 12.36 – 18.21 mg/l and 19.49 – 26.77 mg/l respectively. The chloride concentration was found in the range of 54.93 to 117.98 mg/l. The Total suspended solid concentration was found below detection limit (DL -10mg/l) at all sampling location. Heavy metals like As, Pb, Ni were found below detection limit i.e. BDL (DL-0.01), BDL (DL-0.001), BDL (DL-0.1) respectively. Iron was found to be in the range of 0.15 to 0.32 mg/l.

Heavy metals content (i.e., As, Al, Cd, Cr, Cu, Pb, Mn, Zn and Hg) were found to be below detection limit and within specified standards.

Sr. No.	Locations	WQI	Quality	Remark
1	Project site	57.99	Good	Water quality assessed based upon above physico-chemical parameters and samples were found to be physico-chemically good.
2	Phalepada	72.25	Good	
3	Kolawadi	83.04	Good	
4	Khairpada	84.93	Good	
5	Pamtembhi	67.43	Good	
6	Saravali	86.67	Good	
7	Salvad	74.66	Good	
8	Boisar	79.87	Good	

B. Surface Water Quality

The analysis results indicate that the pH ranged between 6.89 - 7.72, which is well within the specified standard of 6.5 to 8.5. The pH of water indicates whether the water is acid or alkaline. The TDS was observed to be 171 - 274 mg/l which is within the permissible limit of 2000 mg/l. The total hardness recorded was in the range of 51.36 – 141.08 mg/l as CaCO₃ which is also within the permissible limit of 600 mg/l. The levels of chloride and sulphate were found to be in the range of 14.08 – 49.21 mg/l and 5.21 – 49.24 mg/l respectively.

Dissolved oxygen (DO) refers to the amount of oxygen (O₂) dissolved in water. Because fish and other aquatic organisms cannot survive without oxygen, DO is one of the most important water quality parameters. The reported value of range of 5.4-6.2 mg/l. Phosphorus (as PO₄) is an important nutrient for plants and algae. Because phosphorus is in short supply in most fresh waters, even a modest increase in phosphorus can cause excessive growth of plants and algae that deplete dissolved oxygen (DO) as they decompose. PO₄ was found below detection limit at all location. Biological oxygen demand and Chemical oxygen demand was found to be in the range of BDL (DL-2) – 21.6 and 18 - 68 mg/l.

C. Bacteriological Characteristics

Coliform group of organisms are indicators of faecal contamination in water. All surface water samples were found to be bacteriologically contaminated. Presence of total coliforms in surface water indicates that a contamination pathway exists between any source of bacteria (septic system, animal waste, etc.) and the surface water stream. A defective well can often be the cause when coliform bacteria are found in well water. For surface water, treatment followed by chlorination or disinfection treatment is needed before use for domestic purpose. Groundwater samples were not found to be bacteriologically contaminated.

3.5 LAND USE LAND COVER CLASSIFICATION

The land-use & land cover map of the 10 km radial study area from the periphery of project site has been prepared using Resource SAT-1 (IRS-P6), sensor-LISS-3 having 23.5m spatial resolution and date of pass 21st May 2021 satellite image with reference to Google Earth data. In order to strengthen the baseline information on existing land use pattern, the following data covering 10 km radius is approximate about 19°47'52.155"N to 19°47'56.268"N latitude and 72°38'7.93"E to 72°49'35.769"E longitude and elevation -12 to 319 meters are used as per the project site confined within that area. The Land Cover classes and their coverage are summarized in **Table 6**.

TABLE 6
LAND COVER CLASSES AND THEIR COVERAGE ARE SUMMARIZED

LU/LC Classification System				
S.No.	Level-I	Level-II	Area (Sq. Km ²)	Percentage (%)
1	Built-up land	Settlement	25.44	7.77
		Industrial Settlement	13.06	3.99
		Road Infrastructure	3.28	1.00
		Railway	0.88	0.27
2	Agricultural Land/ Crop Land	Double Crop	12.00	3.67
		Single Crop	130.00	39.71
3	Forest Area	Reserve Forest	19.25	5.88
		Fairly Mixed Jungle	1.34	0.41
		Openly Mixed jungle	6.70	2.05
4	Scrubs/Wastelands	Barren Land	0.50	0.15
		Land with scrub/Open Scrub	15.31	4.68
5	Water bodies	River/Nala/Stream	3.05	0.93
		Pond/Tank	0.50	0.15
		Creek	1.21	0.37
		Ferry	2.01	0.61
		Low water Line	0.98	0.30
		Mud	0.48	0.15
6	others	Arabian Sea	46.20	14.11
		Salt Pan	12.83	3.92
		Sand Area	3.31	1.01
		Swamp	13.06	3.99
		Embankment	15.97	4.88
		Total	327.36	100.00

3.6 SOIL QUALITY

For studying soil profile of the region, sampling locations were selected to assess the existing soil conditions in and around the project site representing various land use conditions. The physical, chemical and heavy metal concentrations were determined. The samples were collected by ramming a core-cutter into the soil from 15 cm up to a depth of 60 cm. Total 8 representative samples were collected from different locations within the study area and analyzed.

Physical Characteristics of Soil

The bulk density of the soil in the study area ranged between 1.687 - 1.792 g/cc which indicates favourable physical condition for plant growth. The water holding capacity is between 25.97 - 30.27%. Infiltration rate, in the soil is in the range of 19.86 – 22.12 mm/hr

Chemical Characteristics of Soil

pH is an important parameter indicative of alkaline or acidic nature of soil. It greatly affects the microbial population as well as solubility of metal ions and regulates nutrient availability. Variation in the pH of the soil is found to be neutral (6.90 – 7.93) in reaction. Electrical conductivity, a measure of soluble salts in the soil is in the range of 152.6 - 361.8 μ S/cm.

The important soluble cations in the soil are calcium and magnesium whose concentration levels ranged from 392.23 – 972.46 mg/Kg and 92.06 - 394.57 mg/Kg respectively. Chloride is in the range of 281.18 – 594.08 mg/Kg.

Organic matter and organic carbon present in the soil influences its physical and chemical conditions and is responsible for stability of soil aggregates. Organic matter and organic carbon were found in the range of 0.55% – 1.63% and 0.32% – 0.95%.

3.7 BIOLOGICAL ENVIRONMENT

Floral composition in the study area

Floral characteristics at select forests and surrounding areas including villages were studied during Post Monsoon Season - 2021. Forest Plan of Palghar District as secondary data was studied for primary survey. Total 203 floral species were observed in the study area. The details about the floral composition are as follows:

- a. Trees: Total 118 species were found in the study area
- b. Shrubs (small trees): Total 27 species were enumerated from the study area.
- c. Herbs: In the study area 15 species were observed.
- d. Bamboo & Grasses: 22 species were enlisted from the study area
- e. Climbers and Twiners: Total 21 species of climbers/ twiners were recorded in the study area.

RET STATUS

According to IUCN Status report 2013 out of total 203 plant species identified within study area. Among the observed species most of the species belongs to least concern (LC), Data not available (NA), as per IUCN status. Thus, none of reported species in study area belongs to Rare, Endangered or Threatened category.

Fauna Details:

Total 78 faunal species was recorded through primary and secondary sources. Out of which 9 species belongs to class mammalian, 17 species belongs to class Reptiles and Amphibians, 38 species belongs to class Aves and 14 species belongs to class Pisces.

Rare and Endangered fauna of the study area:**As per IUCN RED (2013) list**

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

As per Indian Wild Life (Protection) Act, 1972

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

All of the sighted Avi - fauna are provided protection as per Schedule-IV of Wild life protection act, (1972).

Among the reptiles, Indian Chameleon (*Chamaeleo zeylanicus*), Russell's Viper (*Daboia russelii*), Indian Cobra (*Naja naja*) and Common Ret Snake (*Ptyas mucosa*) are provided protection as per Schedule-II (Part - II) of Wild life protection act, (1972).

Among mammals, Common Langur - (*Presbytis entellus*), Rhesus monkey – (*Macaca mulatta*) and Jungle Cat – (*Felis chaus*) are schedule – II animals. Wild boar (*Sus sucrofa*), Striped Hyena (*Hyaena hyaena*), Spotted Deer (*Axis axis*) and Barking Deer (*Muntiacus muntjak*) is protected as Schedule - III animal and Black naped Hare (*Lepus nigricollis*) are included in Schedule - IV of Wild Life Protection act, (1972).

3.8 SOCIO-ECONOMIC ENVIRONMENT

Information on socio-demographic status and the trends of the communities in the 10 km radius was collected through primary social survey and secondary data collection from census 2011 & District Census hand book 2011. Summary of the socio-economic status of the study area is given in **Table 7**. Details regarding education and infrastructure facilities 2011 are presented in **Table 8**.

TABLE 7
SUMMARY OF SOCIO-ECONOMIC ENVIRONMENT OF VILLAGES WITHIN 10 KM RADIUS AREA

No. of villages	68
Total households	51082

Total population	216794
Male Population	114572
Female population	102222
SC Population	7184
ST Population	54846
Total literates	156055
Total Illiterates	60739
Total workers	92492
Total main workers	74386
Total marginal workers	18106
Total non-workers	124302

Source: Primary census abstract 2011, State Maharashtra.

TABLE 8
INFRASTRUCTURE FACILITIES AVAILABLE IN THE STUDY AREA

Yr. 2011	In percentage (%)									
	Education	Drinking water	Road	Power	Communication	Transportation	Govt. PHC & SC	Bank	Drainage	Recreation
Availability	96.88	100	100	96.88	95.31	87.50	40.63	67.19	71.88	64.06

Source: Primary census abstract 2011, State Maharashtra.

SALIENT OBSERVATION OF THE SOCIO-ECONOMIC SURVEY

- **Employment:** It is observed that in rural areas half of the people are engaged in agriculture activities and half of the population is working in private companies as skilled and unskilled labours. In urban area, people's occupation is not agriculture but people are engaged in different activities. i.e private jobs, govt. jobs, businesses etc.
- **Major crops of study area, production & yield:** The main crop in the study area is rice. Due to availability of plenty amount of water for irrigation, the land is perfect for production of rice. Banganga River, Januna River and Dudh River are the major rivers in the study that meets Arabian Sea. Around the river ending to Arabian Sea there was presence of plenty of coconut trees which gives a source of income to many of the people.
- **Migration from other states:** Main industries were power plant, steel industry etc. in the study area. Migration from other states eg. UP, Bihar & Odisha for employment purpose found in the study area.
- **Education facilities:** The Primary & secondary data reveals that literacy levels in all the villages is varying from 70 % to 85 %. It is observed that most of the villages have schools and colleges but the building infrastructure for schools were lacking.
- **Transportation facility:** For transportation purpose railway train, auto, jeep and private bus services were available in the study area and the transportation facilities are frequently available. Private vehicles like bicycles & motor cycles were also used by villagers for transportation purpose. The main problem found that in the Study area gravel roads is that they often deteriorate rapidly, especially in the wet season, disrupting transport services.
- **Medical facilities:** The Primary & secondary data reveals that there are only 17 nos. of Sub Health Centers & 03 nos. of PHC's in the Study area. During FGD villagers made various issues in health care facilities, such as health facilities available at PHCs, Laboratory testing and Delivery facilities at Government Health Centers, availability of clean toilet and drinking water at PHCs, and distance of the nearest health center from the Village. To control the spread of

diseases (Malaria & Dengue cases) and reduce the growing rates of mortality due to lack of adequate health facilities, special attention needs to be given to the health care in rural areas. The key challenges in the healthcare sector are low quality of care, poor accountability, lack of awareness, and limited access to facilities. The other problem is the long distances that ambulances and patients must travel.

➤ **Drinking water, sanitation & infrastructure:**

In most of the villages, it is observed that people were facing difficulties for safe drinking water. In village Salvad, Pam, Salgaon etc. people reported that they are not getting clean water and Groundwater is also pollute. Some people in the area reported that the water they get supplied from MIDC is not sufficient; hence there is shortage of safe drinking water.

It was observed that most of the villages have drainage facilities (open and closed) but due to poor maintenance there was problems created in terms of hygiene.

➤ **Banking facility:** The study area has almost all the schedule commercial banks with ATM facility at urban areas and the district HQ. In the rural area, banks and ATMs were present in less number.

➤ **Sports & social ailment issues:**

- It is observed during FGD that there are only a few people got the benefit of Self-employment scheme and needs substantial improvement.
- It is observed that there is no encouragement for sports in the rural area, whereas in the urban area different sport clubs are there to encourage the in sports field.

3.8.1 Awareness and opinion of the respondents about the project

Public opinion is a set of individual views or beliefs. It is very important to get the opinion of the villagers about the project. The awareness will not only promote community participation but also encourage them to understand the importance of the project and express their views there. To know the awareness and opinion of the villagers about the project, group discussions, meeting with school teachers/village leaders were conducted in the study area.

The plant is under operation for last 28 years and is well known in the region.

- 1 In core zone villages, majority of the respondents were aware about the project site but were unaware about the project activity.
- 2 Respondents expressed happiness to know about the project and they gave positive opinion as the activity will definitely contribute to the development of the study area.
- 3 Rural leaders asked to give employment opportunities to the local people.
- 4 The main demand of villagers of the study area was for medical facilities and employment opportunities.

3.8.2 Interpretation

The share of rural people in total population is decreasing day by day due to increase in industrialization. People (especially young generation) are moving to urban region for employment. Environment and Industrial development cannot go side by side, though proper mitigation measure should be followed to reduce the pollution. That main problem heard from the public is that, the environment in the area is polluted and causing health problems in the people. Apart from this, project there are plenty of industries in the region which release pollutants in air, water and land.

Development of more and more greenbelt will be beneficial for the improvement of Environment. Health camps and Medical Camps should be arranged for people to get good life.

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 AIR ENVIRONMENT

The impact on air environment mainly depends on magnitude of operation and threshold limit of the project. The sources of emissions are mainly in the form of fugitive emission and point source.

Fugitive Emission

The major sources of fugitive emissions are as detailed below:

- Loading/unloading of Bulk Primary raw materials like hot rolled coils at project site.
- Transportation and conveying from storage yard to processing unit
- Stacking of semi -finished raw materials.

Fugitive emissions in the material unloading area are avoided by providing dust suppression system. All internal conveyors are covered with Galvanized iron (GI) sheets to prevent the fugitive dust emission.

Fugitive emissions are regularly monitored in the plant area and CPCB stipulations regarding fugitive emission control and monitoring are strictly followed.

Details of Air Dispersion Model

The impact of a source or group of sources on air quality is evaluated using mathematical models. The widely accepted interpretation models simulate the relationships between air pollutant emissions and its impact on air quality. For the present study, AERMOD model was used for predicting the GLCs

The maximum ground level concentrations (GLCs) for particulate matter and gaseous emission of SO₂ due to proposed project expansion activities was carried out. Due to proposed expansion activities the predicted 24-hourly maximum contribution of particulate matter and SO₂ will be found to be 3.33 µg/m³ and 0.98 µg/m³ occurring at about 110 m in South Direction 220 m in SE direction respectively.

Details of Air Pollution Control System

- Stack height 12 M attached to wet scrubber for acidic fumes coming from pickling plant, neutralised using normal water. The acidic water generated after scrubbing (having pH 3 - 4) is reused in acid tanks for pickling to maintain acidic strength.
- In the cold rolling process thickness of HR coils is reduced to desired thickness and converted into CR coils. Since the temperature of rolled coil is around 40 - 45⁰C due to presence of coolant minor fumes of coolant needs to be vented out. Hence vent stack is attached to this section having stack height of 31 M. Blower having capacity of 55 KW.
- After picking the CR sheets it rolled further for desired thickness and in the process lubricant oil / coolant gets coated on the sheet which needs to be cleaned using 2 % alkaline (NaOH) solution at 70⁰C. Stack height 20 M attached to wet scrubber for alkaline fumes coming from cleaning, neutralised using normal water. The alkaline water generated after scrubbing (having pH 10-11) is reused in alkali tanks for cleaning to maintain alkali strengths.

- In order to maintain the temperature of acid tanks, hot water is circulated through heat exchangers. There are two separate stacks are provided. Fuel used for heating is PNG is used. Separate stack (S -1 height 33 M and S – 2 stack height is 33 M) is provided at heat exchanger for emission of flue gases. Blower capacity of S-1 is 3980 CFM and S-2 is 2900 CFM.
- DG capacity 250 KVA is used as backup power for lighting only are installed. This is a CPCB emission compliant DG sets, make Kirloskar & Cummins, having 3 M stack height.
- Alkali tank temperature is maintained by circulating the steam through heat exchanger coils, Steam is generated in boiler where PNG is used as fuel. Separate stack is provided for emission of flue gases.

Additional Measures to reduce/control pollution control

- Most of the materials are being stored under covered shed.
- Regular maintenance of vehicles and machineries are being and will be carried out in order to control emissions.
- Green belt is already developed all along the roads, plant premises, sides of approach road etc. and it is also enhanced further.
- Personal Protective equipment's are being provide to all the workers working in dusty environment.
- Avoiding overloading of the trucks

Details of Air Pollution Control System/Mitigation measures

S. No	Name of Process	Type of Control Equipment
1	Pickling	Wet Scrubber
2	Cleaning line	Wet Scrubber
3	Boiler Stack	1 No Stack for Flue gases
4	Hot water generator 1	1 No Stack for Flue gases
5	Hot water generator 2	1 No Stack for Flue gases
6	ARP	Wet scrubber system with chimney
7	ARP Dust (Fe ₂ O ₃)	1 no of Bag Filter
8	PGL HCL Scrubber	Wet scrubber system with chimney
9	PGL Furnace	1 No Stack for Flue gasses
10	PGL Scale breaker	1 no of Bag Filter
11	DG Set 1000 KVA	Acoustic Enclosure

4.2 NOISE ENVIRONMENT:

The sound pressure levels generated through noise sources decreases with increasing distance from the source due to wave divergence.

Day and night sound pressure levels are often used to describe the community exposure. . The nearest human settlements Phalepada and Kolawadi are 200 m away from project site and resultant noise level at this villages are 60.5 dB(A) & 56.9 dB(A) and 58.2 dB(A) & 56.8 dB(A) at day night respectively. The preventive measures are given below:

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

- High noise zone should be marked and earplugs shall be provided to the workmen near high noise producing equipment. The workmen should be made aware of noise and vibration impacts on their health and mandatory use earplugs.
- Proper shifting arrangement shall be made to prevent over exposure to noise and vibration.
- Tall trees with heavy foliage shall be planted along the boundary / project site / plantation area, which will act as a natural barrier to propagating noise.
- Silent DG sets shall be used at project site.
- Speed limits shall be enforced on vehicle.
- Use of horns / sirens shall be prohibited.
- Use of loud speakers shall comply with the regulations set forth by CPCB.

4.3 WATER ENVIRONMENT:

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

The various control measures that will be adopted are:

- ZLD conditions are maintained.
- Closed circuit circulation systems are in place and it will be continued after expansion.
- Rainwater collection and use for industrial cooling during monsoon season.
- All stock piles are on pucca flooring to prevent for any ground water contamination.

4.4 Solid and Hazardous Waste Generation

The major solid and hazardous waste generated from existing plant are Used Oil /spent Oil/ Oil sludge, ETP Lime Sludge, Waste Coolant Oil, Tank Bottom Sludge and Spent Acid. The generated waste is being given to Mumbai Waste Management Ltd.

Possible Impacts due to mishandling of waste

- DG set and lubrications of machineries are the source of generation of used oil/waste oil during the project.
- Waste oil/Used oil if spilled tends to accumulate in the environment, causing soil and water pollution.
- Toxic gases and harmful metallic dust particles are produced by the ordinary combustion of used oil. The high concentration of metal ions, lead, zinc, chromium, and copper in used oil can be toxic to ecological systems and to human health if they are emitted from the exhaust stack of uncontrolled burners.
- Lubricating oil is transformed by the high temperatures and stress of an engine's operation. This results in oxidation, nitration, cracking of polymers and decomposition of organo - metallic compounds

SOLID AND HAZARDOUS WASTE GENERATION

Name of Waste generated	Category No	Existing Consent Quantity (TPA)	Proposed Quantity (TPA)	Total Quantity (TPA)	Disposal Plan
Used Oil /spent Oil/ Oil sludge	5.1	50	20	70	Disposal Facility- Mumbai Waste Management Ltd, or MPCB authorized Recycler
ETP Lime Sludge	34.3	600	100	700	
Waste Coolant Oil	5.2	1560	312	1872	
Tank Bottom Sludge	3.3	7.2	3	10.2	
Spent Acid	12.1	11512	30851	42363	Own ARP Facility at Plot S-76 or own facility at plot F-7/1
Barrels containers used to handle hazardous waste	33.1	3900	1560	5460	Disposal Facility- Mumbai Waste Management Ltd Or Authorized Recyclers
Chromate waste (solid)		--	3.35	3.35	
Zinc dross Dust		--	5700	5700	
Rinse water for ARP		--	100	100	Self ETP & RO Recycler

Vehicular Movement

A detailed traffic and transportation study due to the existing project was carried out to assess the impact of additional traffic likely to be generated due to the existing project in Village Kolawade, MIDC Tarapur Industrial Area, Boisar, Tehsil - Palghar Dist. – Palghar, Maharashtra. It is observed that the project is connected to Boisar-MIDC Internal Road. The inclusion of additional vehicle carrying raw material and finished products to the existing traffic will not having much change in the traffic.

4.5 BIOLOGICAL ENVIRONMENT

Ecology & Biodiversity: Aspect - Impact identification and mitigation measures suggestion for proposed expansion project.

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

Surrounding Pollution Aspects

The predicted concentration due to proposed expansion plant process viz. Particulate matter, SO₂ and NO_x observed within the permissible limit. The site specific control measures will be helpful to maintain the balance wrt surrounding environment.

Greenbelt development

The total plant area is 10.09 Ha. The green belt after expansion will be 1.01 Ha. Moreover, CRC West has also developed greenbelt within Housing Colony Area of 3.17 Ha (Total Colony Area is 9.61 Ha.). Thus, total green belt is 4.18 Ha. [Green belt 1.01 Ha. (Plant Area after expansion) + 3.17 Ha (Colony Area) = 4.18 Ha. (Plant + Colony Area) (41.4 %).

The total plantation after expansion considering Plant + Colony Area will be 10450 nos (Considering 2500 nos./Ha.). As on date around 2000 trees are present in 1.01 Ha within plant premises, further plantation will be carried out through Miyawaki Method.

4.6 SOCIO-ECONOMIC IMPACTS:

The project would have created certain impacts which could be beneficial as well as adverse. It is necessary to identify the extent of these impacts for further planning of control measures leading to mitigation of the adverse impact. The project is in operation since 1993 and present in industrial area of Tarapur which is a place of many industries. The impact on the population is identified as created through the number of existing industries and not only due to this project. The impacts due to existing project on parameters of human interest are assessed and given below

Positive impacts

- Since the town is fully industrial, there are several businesses running from here hence, a multiplier effect are felt on the creation of indirect employment through the local community establishing small shops like tea stalls, supply of intermediate raw materials, repair outlets, hardware stores garages etc.
- Economic growth due to development of area and increase in quality of life.
- Improvement in green cover due to the plantation of trees in the Study area, also are leading to a decrease in environmental pollution.
- Improvement in social and infrastructural development by the industries as a part of CER and EMP.

Negative impacts

- Environmental pollution due to emission of pollutants may affect the health of the people.
- During operation phase heavy vehicular movement lead to dispersed dust particles which affects the health of the workers and Local Peoples. Trucks, tankers and other vehicles may cause additional air pollution to the surrounding areas. The effects may be more prominent in nearby villages.
- Possibilities of Hazards and accident which may cause harm to the workers working or loss of life of the workers.
- If influx of workers from outside areas then there are an increased pressure on residential accommodation the neighborhood.
- If massive Increase in vehicular traffic may lead to higher incidence of road accidents.

Mitigation Measures

In order to mitigate the adverse impact likely to arise in social, cultural and economic aspects in the surrounding region due to the existing project and improvement in quality of life following mitigation measures should be adopted:

- Air pollution control measures should be taken and proper maintenance of industrial and pollution control equipment should be done to ensure minimum pollution.
- Ensure that roads are properly signed, vehicles are well maintained and drivers are well trained and safety conscious.
- All health and safety measures should be adopted by the company and safety awareness should be improved amongst the workers to ensure the safety of the workers and the surrounding society.

- Project proponent should take appropriate steps to keep environment clean and Green belts development/ Plantation along with the internal Road.
- Transportation of hazardous waste should be done as per CPCB Guidelines. The heavy trucks are covered to prevent spillage or dusting. The drivers should be imparted training.
- Priority is given to local people in employment.
- Social infrastructure development activities should be proposed by the company.

5.0 ENVIRONMENTAL MONITORING PROGRAM

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

6.0 ADDITIONAL STUDIES

6.1 RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

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

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

7.0 PROJECT BENEFITS

Proposed Social Welfare Arrangement

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

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

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

As per MoEF&CC notification vide its OM dated 30th Sept. 2020 has provided that the CER plan would be based on the Public Consultation and commitments by the promoters to take up the Physical work during then. The, CER are made in the proposal are as per TOR which required considering O.M. dated 01/05/2018 and 30.09.2020 issued by MoEF&CC, New Delhi proposals regarding Corporate Environment Responsibility (C.E.R.). Thus, Rs. 1.80 Cr. will be spent for social and infrastructure development in the study area.

8.0 ENVIRONMENTAL MANAGEMENT PLAN

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

- Overall conservation of environment.
- Minimization of natural resources and water.
- Ensure effective operation of all control measures.
- Monitoring of cumulative and longtime impacts.
- Ensure effective operation of all control measures.
- Control of waste generation and pollution.

Judicious use of the environmental management is being implemented with addressing of components of environment. The cost for proposed Expansion is **Rs. 1119 Crores**. The budgetary provision for EMP (which includes existing + proposed = total cost) is Capital cost of **Rs. 93.7 Crores** (Existing – Rs. 36.7 Crs. + Proposed – Rs. 57 Crs.) and Recurring Cost of **Rs. 7.8 Crs.** (Existing – Rs. 4 Crs. + Proposed – Rs. 3.8 Crs.).

9.0 CONCLUSION

The proposed expansion project of M/s. Tata Steel Ltd. will be beneficial for the overall development of the nearby villages. The environmental aspects like dust emission, noise, wastewater, traffic density, etc. are being controlled better than the permissible norms to avoid impacts on the surrounding environment. Necessary pollution control equipment like wet scrubber system, bag house, dust extraction system, enclosures, etc. forms integral part of the plant infrastructure. Additional pollution control measures and environmental conservation measures will be adopted to control/minimize impacts on the environment and socio-economic environment of the area. Measures like development of green belt and plantation in nearby village and along transport road, adoption of rainwater collection and utilization plant area will be carried out. The proposed CSR/CER activities to be initiated by the industry will be helpful to improve the social, economic and infrastructure availability status of the nearby villages. Natural Gas is one of the cleanest burning fuels which are being used as a source of fuel instead of Coal and FO. The proposed expansion is quite environmentally sustainable as it is proposed to control the PM emission to less than 50 mg/Nm³ and ensure Zero discharge and 100% solid waste disposal for useful purposes. The project is located away from human habitation.

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

10.0 DISCLOSURE OF CONSULTANTS

The Environmental studies for existing project of M/s. Tata steel Limited. are carried out by M/s. Anacon Laboratories Pvt. Ltd., Nagpur (M/s ALPL). Anacon established in 1993 as an analytical testing laboratory and now a leading Environmental Consultancy firm backed by testing lab for environment and food in Central India region. M/s. ALPL is a group of experienced former Scientists



from the Government Institutions and excellent young scientist of brilliant career with subject expertise. It is recognized by Ministry of Environment & Forests, New Delhi for carrying out environmental Studies & accredited by Quality Council of India (QCI) for conducting Environmental studies having Accreditation Certificate No.: NABET/EIA/2023/SA 0160 dtd. Apr. 13, 2022 Valid till Mar. 29, 2023.