

Executive Summary
of
Draft Environmental Impact Assessment
for

M/s. Arya Steels Rolling (India) Pvt. Ltd.,

Expansion in Production of MS Rolled, TMT Bars and Structural Steels from Capacity 9,000 MTM to 15,000 MTM

at

Plot No.: B-6, Five Star MIDC, Kagal Hatkanangale, Tehsil: Kagal, District: Kolhapur, Maharashtra.



Project Proponent:

M/s. Arya Steels Rolling (India) Pvt. Ltd.,

Plot No.: B-6, Five Star MIDC, Kagal Hatkanangale, Tehsil: Kagal, District: Kolhapur, Maharashtra.

Consultant



Southern Enviro Engineers Pvt. Ltd.
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(Certificate No.: NABET/EIA/2326/IA 0119, Validity: 29.03.2026)

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EXECUTIVE SUMMARY

1.0 Introduction

Environmental Impact Assessment (EIA) is a process, used to identify the environmental, social and economic impacts of a project prior to decision-making. It is a decision-making tool, which guides the decision makers in taking appropriate decisions for existing project. EIA systematically examines both beneficial and adverse consequences of the project and ensure that these impacts are taken into account during the project designing.

1.1 purpose of the Report

The project is being running with an installed capacity of 9,000 MTM (1,08,000 MTPA) for MS Rolled, TMT Bars and Structural Steels. **M/s. Arya Steels Rolling (India) Pvt. Ltd.** is proposing an expansion of existing production of MS Rolled, TMT Bars and Structural Steels from 9,000 MTM (1,08,000 MTPA) to 15,000 MTM (1,80,000 MTPA) at Plot No.: B-6, Five Star MIDC, Kagal Hatkanangale Tehsil: Kagal, District: Kolhapur, Maharashtra. Earlier Re-Rolling/Cold Rolling Units/Cold Rolled Coils established or operating with Consent to Establish/Operate from concerned State Pollution Control Board (SPCB) and does not require Environmental Clearance. As per the Environmental Impact Assessment (EIA); Notification S.O. 1533, 14.09.2006 and its subsequent amendments made time to time by MoEFCC, Government of India, the MS Billets & TMT Bars Manufacturing Unit is categorized as Category B project which mandates obtaining prior Environmental Clearance from Ministry of Environment, Forest and Climate Change.

M/s. Arya Steels Rolling (India) Pvt. Ltd. received MPCB Circular vide Ref. No.: MPCB/JD(APC)/Rolling Mill/TB/B-0141 Dated: 20/07/2021 for obtaining Environmental Clearance for its installed Rolling Mill which is having production capacity of 9,000 MTM. Accordingly, we are applying to obtain Environmental Clearance for Rolling Mill with expansion activity from 9,000 MTM to 15,000 MTM. As per EIA Notification, 2006 secondary metallurgical processing industrial units for M/s. Arya Steels Rolling (India) Pvt. Ltd. submitted the application for obtaining Environmental Clearance with prescribed Form 1, PFR and Proposed Terms of Reference for obtaining TOR for the project on Dated: 19th September 2021 to MoEF&CC, New Delhi vide Proposal No: SIA/MH/IND/67696/2021. The State Environmental Impact Assessment Authority considered the project and issued the Terms of Reference vide proposal no.: SIA/MH/IND/67696/2021 Dated: 22th September, 2021.

Project proponent operating the existing plant for manufacturing of MS Rolled, TMT Bars and Structural Steels by obtaining "Consent to Establish" issued to the project by MPCB vide Consent No.: BO/ROPCI-II/KP/E/265-06/CC-289 Dated: 20/9/2006 and "Consent to Operate" was issued to

the project by MPCB vide Consent No.: RO-KOLHAPUR/CONSENT/1803001218/120/18 Dated: 23/03/2018 which is valid up to 31/03/2028. The screening category is B appraised at state level. Proposed project activity falls in Category of Metallurgical Industries (Ferrous & Non-Ferrous)

1.2 Environmental Clearance

Proposed project activity falls in Category of Metallurgical Industries (Ferrous & Non-Ferrous) Sector 8 as per NABET scheme and 3(a) as per MoEF&CC Notification. As per the Environmental Impact Assessment (EIA); Notification S.O. 1533, 14-09-2006 and its subsequent amendments made time to time by MoEF & CC, Government of India, the Secondary Metallurgical Unit is categorized as Category – B project, which mandates obtaining prior Environmental Clearance from Ministry of Environment, Forest and Climate Change.

1.3 Terms of Reference

M/s. Arya Steels Rolling (India) Pvt. Ltd. (ASRPL) has submitted the application for prior Environmental Clearance as per the new notification along with prescribed Form-1, proposed Terms of Reference for EIA study and Pre-Feasibility Report. The State Environmental Impact Assessment Authority considered the project and issued the Terms of Reference vide proposal no.: SIA/MH/IND/67696/2021 Dated: 22th September, 2021.

1.4 Nature, Size and Location of Project site

M/s. Arya Steels Rolling (India) Pvt. Ltd., is proposing an expansion project of MS Rolled, TMT Bars and Structural Steels production from 9,000 MTM to 15,000 MTM at Plot No.: B-6, Five Star MIDC, Kagal Hatkanangale, Tehsil: Kagal, District: Kolhapur, Maharashtra. The proposed expansion will be done within the existing project site premises. Project Details & Environmental Setting in 10 km study Area of the Project is given in **Table 1**. The project location map is given in **Figure 1**, 10 km study area map is given in **Figure 2**, Google image of the project is given in **Figure 3**, and project layout map is given in **Figure 4**.

Table 1: Project Details & Environmental Setting in 10km Study Area of the Project Site

Particulars	Details
Project Name	M/s. Arya Steels Rolling (India) Pvt. Ltd.
Project Location	Plot No.: B-6, Five Star MIDC, Kagal Hatkanangale, Tehsil: Kagal, District: Kolhapur, Maharashtra
Total Proposed Area	Existing Area – 16903 sq. m

	Proposed Area – 9651.26 sq. m Total Area – 26554.26 sq. m																											
Latitude and Longitude	<table border="1"> <thead> <tr> <th>S. N.</th> <th>Latitude (N)</th> <th>Longitude (E)</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>16°37'46.09"N</td> <td>74°20'39.76"E</td> </tr> <tr> <td>B</td> <td>16°37'45.63"N</td> <td>74°20'33.74"E</td> </tr> <tr> <td>C</td> <td>16°37'42.61"N</td> <td>74°20'33.94"E</td> </tr> <tr> <td>D</td> <td>16°37'43.93"N</td> <td>74°20'31.50"E</td> </tr> <tr> <td>E</td> <td>16°37'37.64"N</td> <td>74°20'32.76"E</td> </tr> <tr> <td>F</td> <td>16°37'38.12"N</td> <td>74°20'34.29"E</td> </tr> <tr> <td>G</td> <td>16°37'42.28"N</td> <td>74°20'33.96"E</td> </tr> <tr> <td>H</td> <td>16°37'42.96"N</td> <td>74°20'39.93"E</td> </tr> </tbody> </table>	S. N.	Latitude (N)	Longitude (E)	A	16°37'46.09"N	74°20'39.76"E	B	16°37'45.63"N	74°20'33.74"E	C	16°37'42.61"N	74°20'33.94"E	D	16°37'43.93"N	74°20'31.50"E	E	16°37'37.64"N	74°20'32.76"E	F	16°37'38.12"N	74°20'34.29"E	G	16°37'42.28"N	74°20'33.96"E	H	16°37'42.96"N	74°20'39.93"E
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Project Site falling in GSI Toposheet	47 L/6																											
Production Capacity	Rolling Mill (MS Rolled, TMT Bars and Structural Steels) Existing Rolling Mill: 9,000 MTM (1,08,000 MTPA) Proposed Rolling Mill: 6,000 MTM (72,000 MTPA) Total Capacity after Expansion: 15,000 MTM (1,80,000 MTPA)																											
Raw Material	For Rolling Mill: Existing MS Billets/Ingots Requirement: 9,060 MTM/1,08,720 MTPA Proposed MS Billets/Ingots Requirement: 6,030 MTM/72,360 MTPA Total Requirement after Expansion: 15,090 MTM/1,81,080 MTPA																											
Water Demand	Existing water Requirements: 102 KLD Proposed water Requirement: 66 KLD Total Requirement after expansion: 168 KLD.																											
Sources of Water	MIDC																											
Man Power	Existing Numbers of Manpower: 90 Proposed Numbers of Manpower: 60 Total Numbers of Manpower: 150																											
Electricity Consumption	Present power consumption: 3.00 MW Proposed increase in power consumption: 2.00 MW																											

	Total power consumption: 5.00 MW Source: Maharashtra State Electricity Board Distribution Company.
Land Use	Industrial Use
Nearest Road	Hupari – Kolhapur Road: 0.25 km - NE
Nearest Railway Station	Valivade Railway Station: 17 Km – NW
Nearest airport	Kolhapur: 15 Km – NW
Seaport	Mormugao Port: 145.30 km SW
Nearest Village	Halsavade: 0.99 km NW
Place of Religious Importance	Kolhapur Laxmi Temple: 13.62 NE
National Parks/ Wild Life Sanctuaries/Biosphere within 10 Km radius	There is no National Parks/ Wild Life Sanctuaries/ Biosphere Reserves
Water bodies	Tamgaon Lake: 6.99 km NW Kaneri Lake: 6.63 km W Rendal Lake: 8 km E Pimpalgaon Khurd Lake: 8.15 km SW
Total Project Cost (Existing and Proposed)	Existing Project Cost: Rs. 17.40 Crores/1740 Lakh Project Cost for Expansion: Rs. 10.00 Crores/ 1000 Lakh Total Project Cost – Rs. 27.40 Crores /2740 Lakh
EMP Budget	Capital Cost – Rs. 153.00 Lakh Recurring Cost – Rs. 19.34 Lakh Total EMP Budget – Rs. 172.34 Lakh
Corporate Environment Responsibility Cost	INR 10.0 Lakh
Time of Completion	Construction was already done and plant is in operation. No any construction or demolition activities are balance.

Executive Summary for Proposed Expansion in Production of MS Rolled, TMT Bars and Structural Steels from capacity 9,000 MTM to 15,000 MTM at Plot No.: B-6, Five Star MIDC, Kagal Hatkanangale Tehsil: Kagal, District: Kolhapur, Maharashtra by M/s. Arya Steels Rolling (India) Pvt. Ltd.

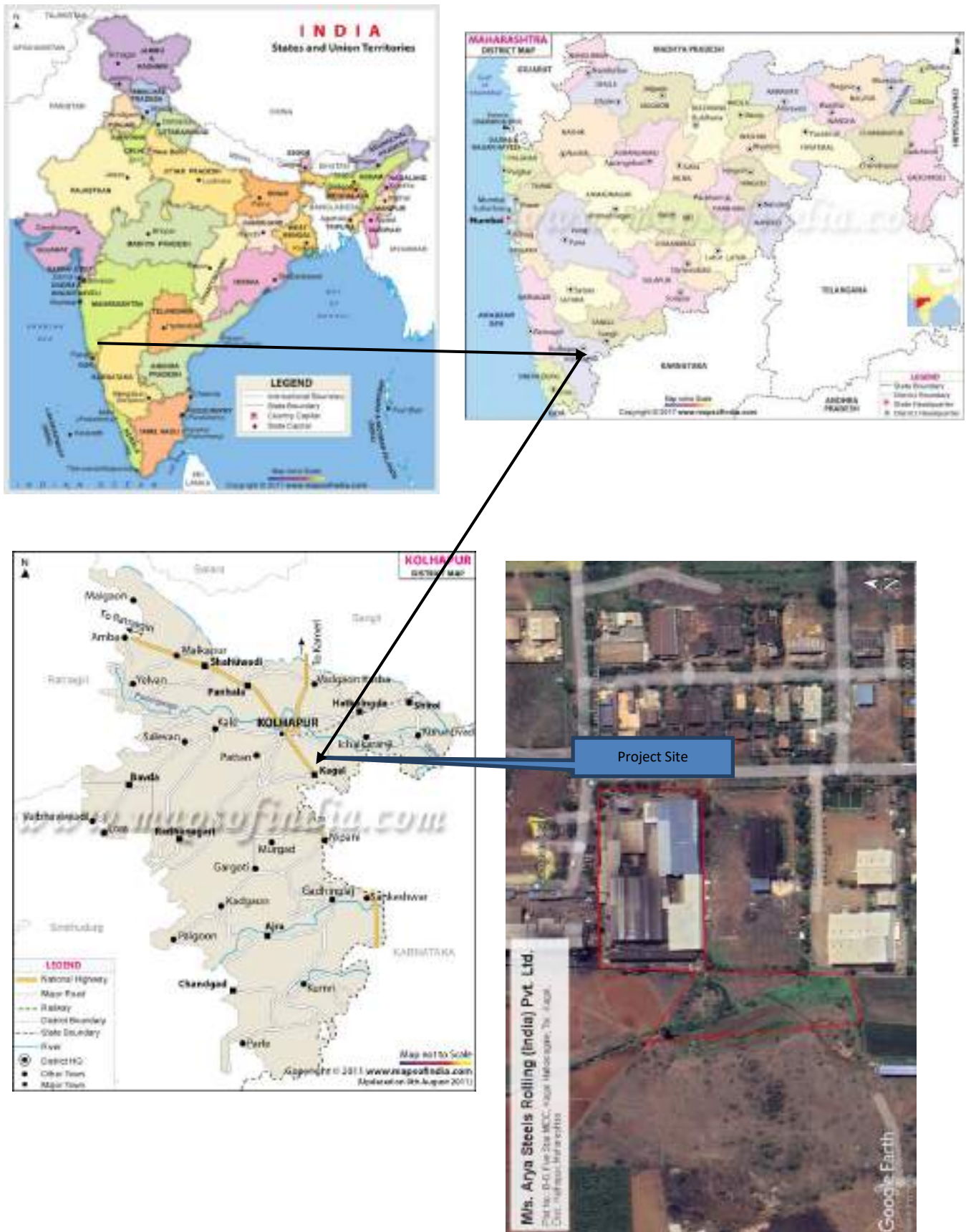


Figure 1: Location Map of the Project Site

Executive Summary for Proposed Expansion in Production of MS Rolled, TMT Bars and Structural Steels from capacity 9,000 MTM to 15,000 MTM at Plot No.: B-6, Five Star MIDC, Kagal Hatkanangale Tehsil: Kagal, District: Kolhapur, Maharashtra by M/s. Arya Steels Rolling (India) Pvt. Ltd.

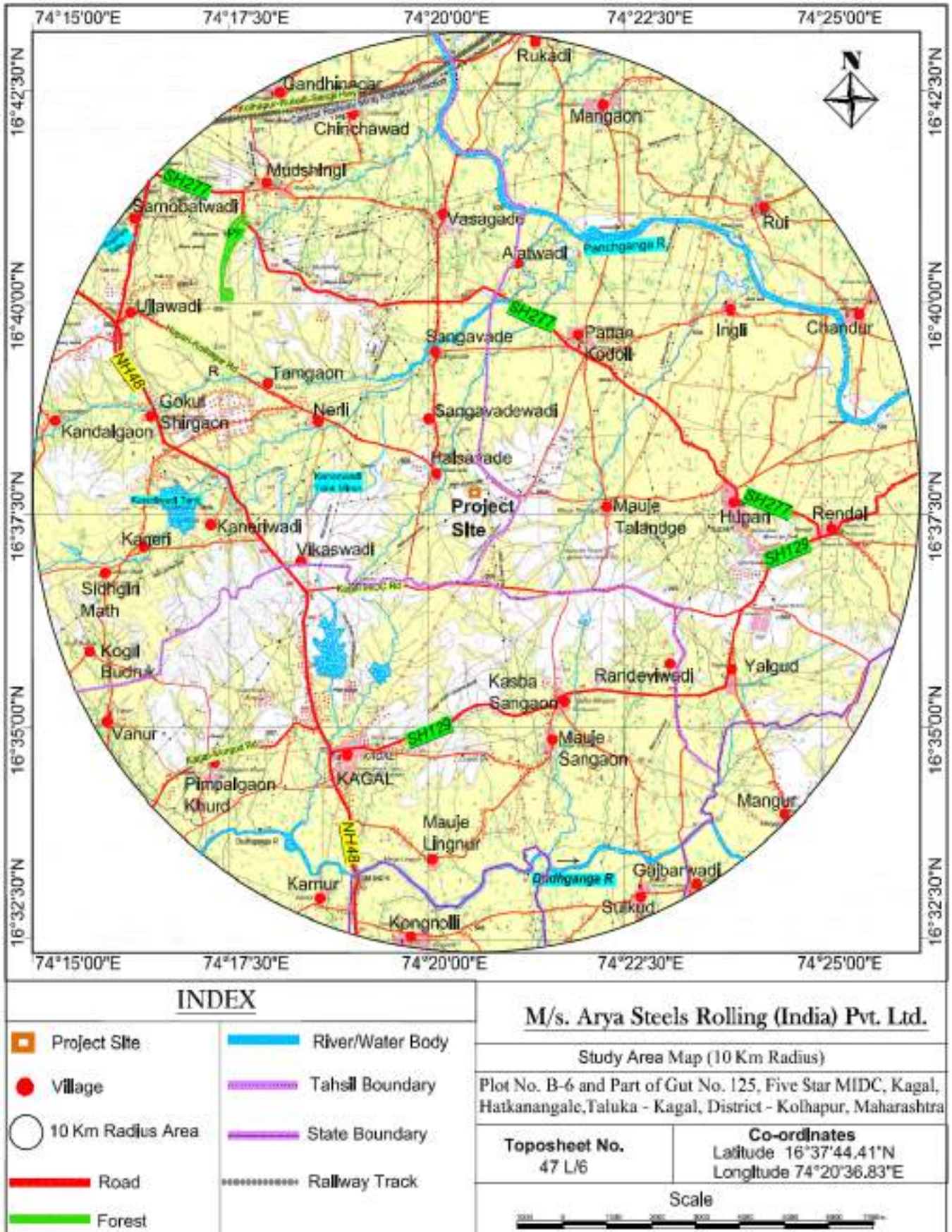


Figure 2: 10 KM Study Area Map of the Project Site



Figure 3: Google Image of the Project Site

Executive Summary for Proposed Expansion in Production of MS Rolled, TMT Bars and Structural Steels from capacity 9,000 MTM to 15,000 MTM at Plot No.: B-6, Five Star MIDC, Kagal Hatkanangale Tehsil: Kagal, District: Kolhapur, Maharashtra by M/s. Arya Steels Rolling (India) Pvt. Ltd.

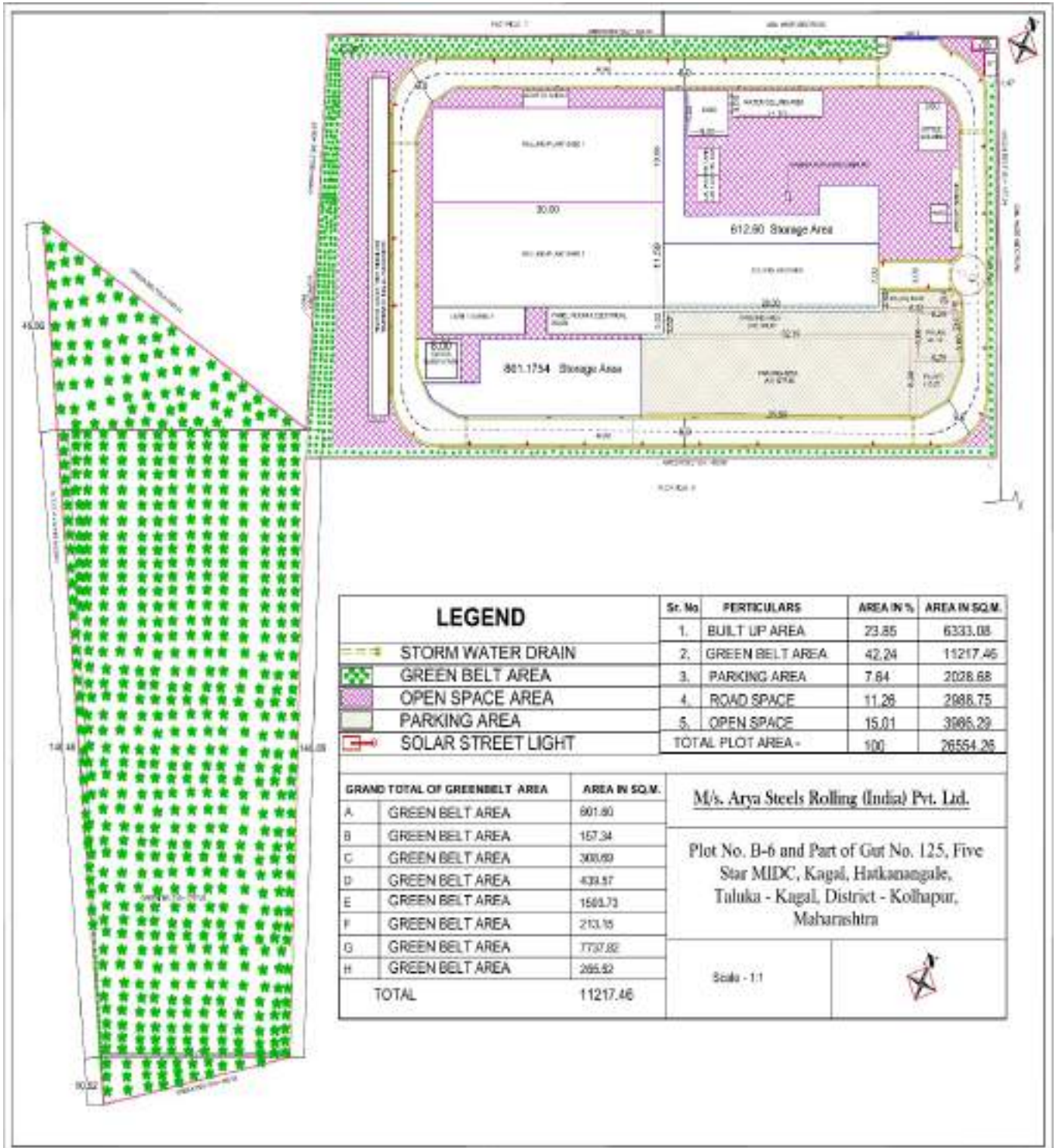


Figure 4: Project Layout Map

2.0 Project Description

2.1 Brief Description of Project

The project is an expansion of existing production of MS Rolled, TMT Bars and Structural Steels from 9,000 MTM (1,08,000 MTPA) to 15,000 MTM (1,80,000 MTPA) at Plot No.: B-6, Five Star MIDC, Kagal Hatkanangale Tehsil: Kagal, District: Kolhapur, Maharashtra. Total available Land with ASRPL is 26,554.26 sq. m (Existing plot area: 16,903 sq. m, Proposed plot area: 9651.26 sq. m). The project location map is given in **Figure 1**, 10 km study area map is given in **Figure 2**, Google image of the project in **Figure 3** and project layout map is given in **Figure 4**. The production details are given in **Table 2**.

Table 2: Production Details

Production Capacity			
Product	Existing	Proposed	Total
Rolling Mill (MS Rolled, TMT Bars and Structural Steels)	9,000 MTM	6,000 MTM	15,000 MTM

Project Proponents

The proposed project is an expansion project of MS Rolled, TMT Bars and Structural Steels production from 9,000 MTM to 15,000 MTM at Plot No.: B-6, Five Star MIDC, Kagal Hatkanangale, Tehsil: Kagal, District: Kolhapur, Maharashtra.

M/s. Arya Steels Rolling (India) Pvt. Ltd. is a private organization incorporated on 5th January 2006. It is classified as Non-Govt. Company and is registered at Registrar of Companies, Goa. Mr. Alok Bansal is the Director of the company. It is involved in Manufacture of Basic Iron & Steel. They are taking production of MS Rolled, TMT Bars and Structural Steels of 1,08,000 MTPA (9,000 MTM). Required raw material i.e.; Hot/Cold MS billets will be conveyed by conveyor belt from the adjacent steel industry i.e.; M/s. Neelanjan Iron Pvt. Ltd. and manufacturing Flats and Rolled Bars for which they have installed Rolling Mill.

2.2 Raw Material Requirement

The major raw materials for the proposed expansion project are MS Billets/MS Ingots. The raw material requirement per month is given in **Table 3**.

Table 3: Raw Material Characteristics (MS Rolled, TMT Bars and Structural Steels Manufacturing)

S. N.	Raw Materials	Existing Quantity (MTM)	Proposed Quantity (MTM)	Total Quantity (MTM)	Source	Mode of Transportation
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Executive Summary for Proposed Expansion in Production of MS Rolled, TMT Bars and Structural Steels from capacity 9,000 MTM to 15,000 MTM at Plot No.: B-6, Five Star MIDC, Kagal Hatkanangale Tehsil: Kagal, District: Kolhapur, Maharashtra by M/s. Arya Steels Rolling (India) Pvt. Ltd.

1	MS Billets/MS Ingots	9,060	6,030	15,090	Sister Industry	Conveyor belt
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2.3 Water Requirement

The manufacturing process does not require water for the proposed project activity except cooling purpose. The water requirement in the project will be for domestic consumption, cooling purpose, greenbelt development and dust suppression. Total water requirement for the project will be 168 KLD. Water requirement for existing project activity is 102 KLD & for proposed expansion activity is 66 KLD. This requirement will be met from Maharashtra Industrial Development Corporation (MIDC). The details of water requirement for different purposes are presented below in **Table 4**.

Water Balance Diagram for the existing project activity is shown in below **Figure 5**.

Table 4: Water Requirement

S. N.	Item	Existing (KLD)	Proposed (KLD)	Total (KLD)
1	Domestic Purpose	4.05	2.70	6.75
2	Cooling Purpose	90	60.00	150.00
3	Green Belt	6.0	3.00	9.00
4	Dust Suppression	2.0	0	2.00
	Total	105.05	65.70	167.75
	Total Water Requirement (Rounded Off)			168

**All values in KLD*

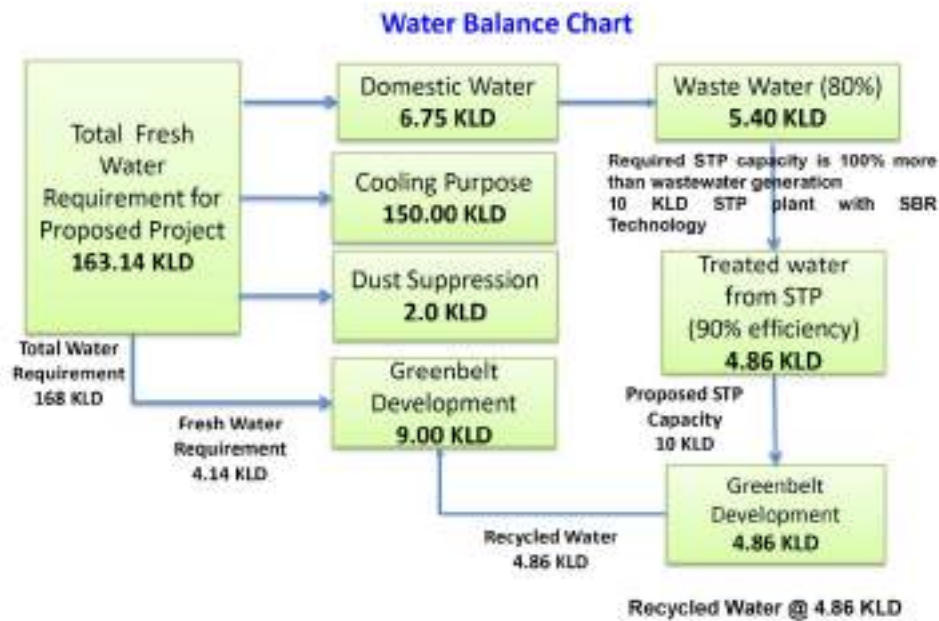


Figure 5: Water Balance Diagram

2.4 Land Requirement

The project is located in 26,554.26 sq. m land. There will not be change in land use as the land already has converted in Industrial Area. 33% land area which is 8,762.91 sq. m is under development of green belt. Some of the open spaces is developing in landscaping. Land Breakup Details are given below in **Table 5**.

Table 5: Land Break-up Details

S. N.	Particulars	Area (m ²)	Area (%)
1	Built Up Area	6,333.08	23.85
2	Green Belt Area	8,762.91	33
3	Parking Area	2,028.68	7.64
4	Road Area	2,988.75	11.26
5	Open Area	6,440.84	24.25
	Total	26,554.26	100

2.5 Power Requirement

Power requirement for existing Project is 3.00 MW and additional power of 2.00 MW will be required for proposed expansion. The total power requirement after expansion will be 5.00 MW.

The power will be sourced from the Maharashtra State Electricity Distribution Company Limited (MSEDCL). DG sets with a total capacity of 650 kVA (150 KVA existing and 500 KVA proposed) will also be provided for emergency purposes. The details of existing and proposed power requirement are given in **Table 6** and fuel requirement is given in **Table 7**.

Table 6: Power Requirement

S. N.	Particular	Quantity	Source
1	Electricity for Existing Rolling Mill and Other Equipment's	3.0 MW	Maharashtra State Electricity Distribution Company Limited (MSEDCL)
2	Proposed	2.00MW	
	Total after Expansion	5.00MW	

Backup Power: DG Set Provided

Existing DG Set: 1 X 150 KVA = 150 KVA

Proposed DG Set: 1 X 500 KVA = 500 KVA

Total DG Sets Provided after expansion: 2 Nos. of 650 KVA

Table 7: Fuel Requirement

S. N.	Fuel Requirement	Existing Quantity
1	HSD	45 lit./hr.

2.6 Man Power Requirement

The skilled/semiskilled/unskilled manpower is required for the proposed expansion project. The man power requirement will be fulfilled from the surrounding villages, to help for the improvement of the socio-economic status in the surrounding rural areas. The details of employment are given in **Table 8**.

Table 8: Man Power Requirement

S. N.	Particular	Numbers
1	Existing Manpower (Staff +Worker)	90
2	Proposed Manpower (Staff + Worker)	60
	Total	150

2.7 Technology and Process Description

Procurement of Raw Material:

For the manufacturing of MS Rolled, TMT Bars and Structural Steels, the raw material MS Billets will be received by conveyor belt from adjacent M/s. Neelanjan Iron Pvt. Ltd. No segregation and stacking of the received MS Billets are required as it will be consumed in daily production of Flats and Rolled Bars as received basis. No transportation of raw material is required as it will be conveyed by conveyor belt which is connecting to M/s. Neelanjan Iron Pvt. Ltd. to M/s. Arya Steels Rolling (India) Pvt. Ltd. 100% required raw material for the production of MS Rolled, TMT Bars and Structural Steels will be received from neighboring industry i.e.; M/s. Neelanjan Iron Pvt. Ltd. There is no any need to bring required raw material from any other industry.

Production Process:

The said hot/cold billets are received to the storage site with the help of conveyor belt. It will be fed to the reheating furnace to get the required temperature of 1200⁰C. After getting required temperature, it will be fed to the quenching box to get suitable plastic deformation of steel. Then it will be sent to the cooling bed for cooling purpose. Final product of MS Rolled, TMT Bars and Structural Steels will be come out after cooling activity. After testing of the finished product, it will be supply to the market as per order. The hot gases from the Rolling Mill are being handled by special de-dusting equipment followed by Dust Collector before it is let out to atmosphere through a self-supported chimney. Thereafter, they are assembled and bundled and sent for onward dispatch. The process flow sheet is presented in the diagram below in **Figure 6**.

MANUFACTURING PROCESS CHART

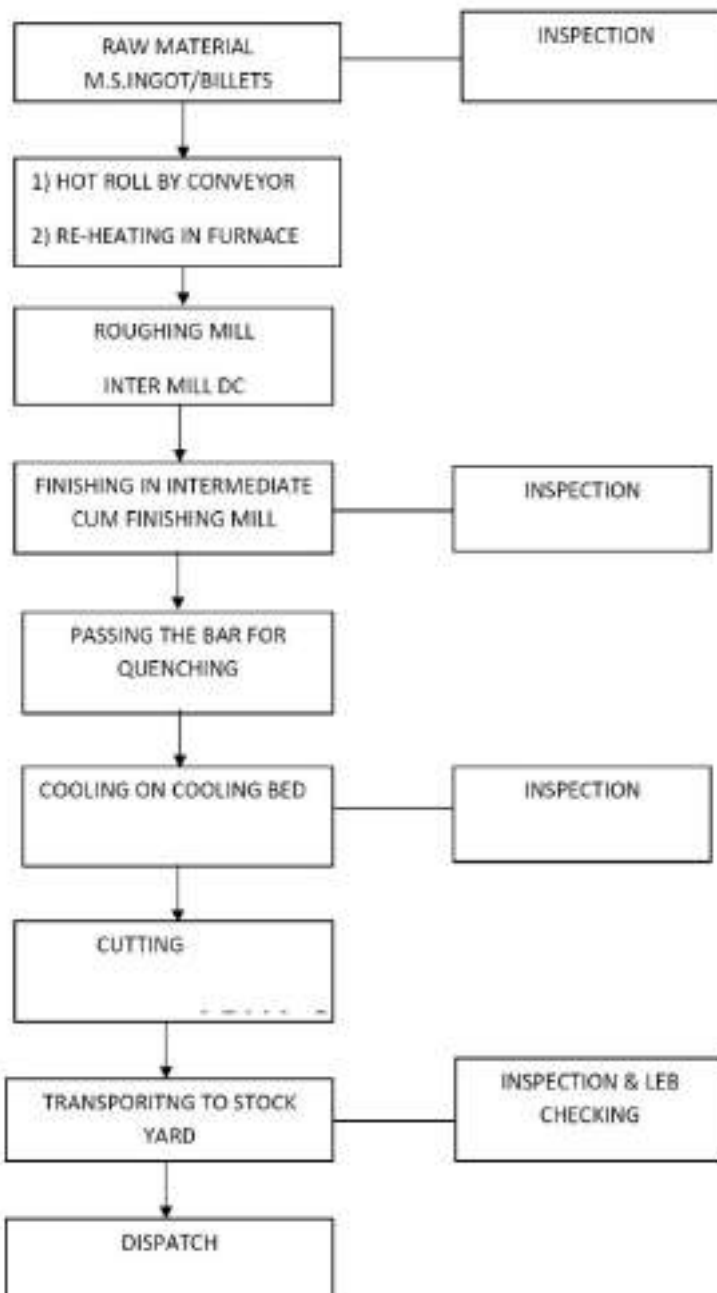


Figure 6: Process Flow Chart for Manufacturing of Flat and Rolled Bars

3.0 Baseline Environmental Studies

Baseline environmental monitoring was carried out as per the obtained Terms of Reference (TOR) previously which was applied for expansion category vide File No. SIA/MH/IND/67696/2021 Dated: 22/09/2021. Now, Project Proponent is planning for proposed expansion activity and want to obtain environmental clearance for total expansion capacity of the Re-Rolling Mill which 15,000 MTM (1,80,000 MTPA). The environmental monitoring is done to assess performance of baseline monitoring values of air, noise, soil, ground & surface water for the existing project. The sampling

and analysis of environmental attributes including monitoring locations point sites are as per the guidelines of the Central Pollution Control Board.

Environmental monitoring was conducted for the period of 3 months in winter season by M/s. Arya Steels Rolling (India) Pvt. Ltd. to assess the pollution level in and around the existing project area.

The attributes, which require regular monitoring, are specified underneath:

- 1] Air quality;
- 2] Ground and Surface Water quality;
- 3] Noise levels;
- 4] Soil quality;
- 5] Ecology and biodiversity (In 10 km study area);
- 6] Land Use and Land Cover (In 10 km study area);
- 7] Socio Economic aspects and community development (In 10 km study area).

3.1 Meteorology

3.1.1 Summary of the Meteorological Data Generated at Site

The site-specific meteorological data is given in **Table 9** and wind rose diagram is given in **Figure 7**.

Table 9: Site Specific Climatological Data

Month	Temperature (°C)		Relative Humidity (%)	Rainfall (mm)
	Min	Max		
December 2021	12.3	26.1	46	3
January 2022	16.3	28.7	45	0
February 2022	17.2	28.9	41	0
Total				3

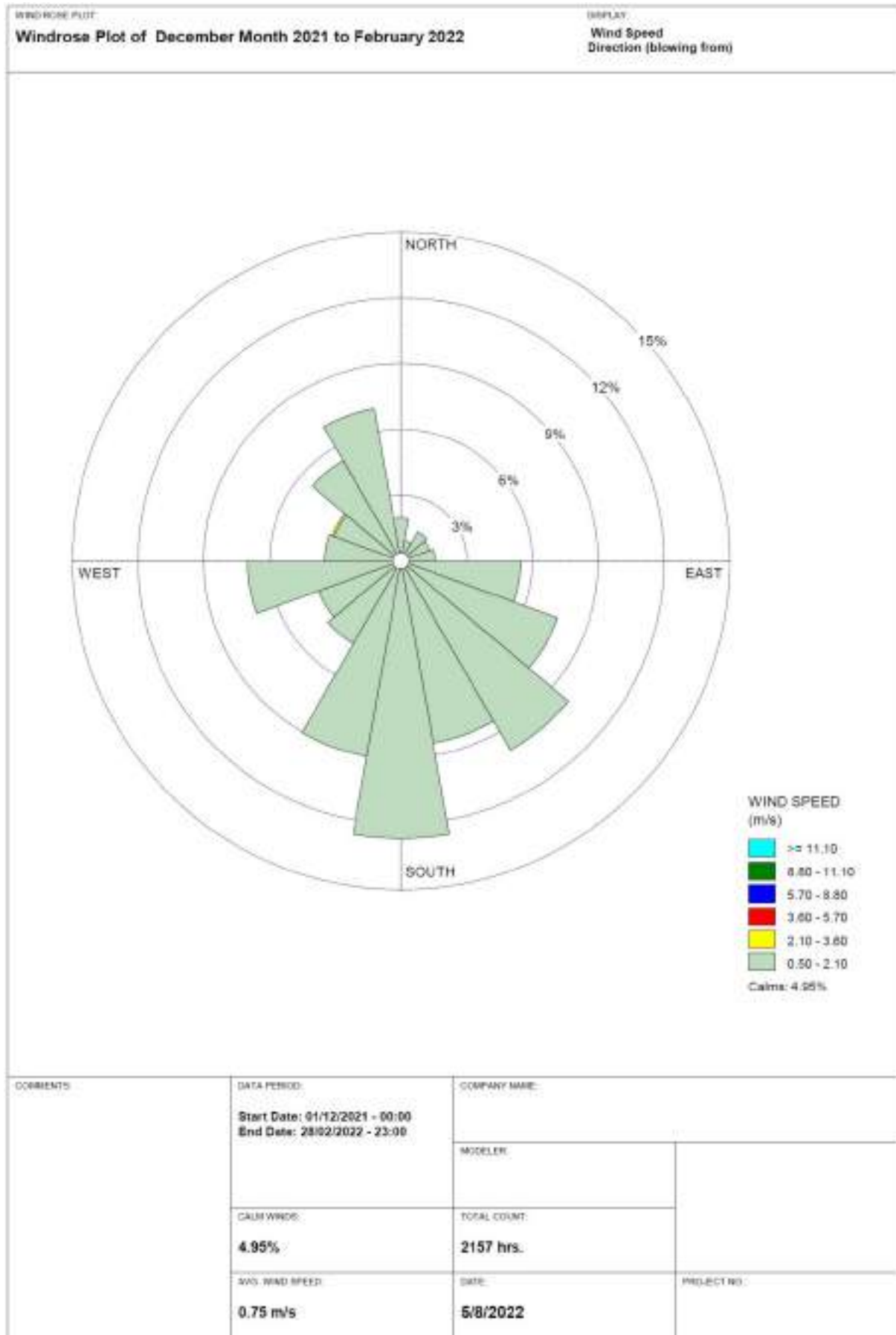


Figure 7: Wind Rose Diagram – December 2021 to February 2022 (IMD Specific)

3.2 Ambient Air Quality Status

The status of ambient air quality within the study area was monitored for the period of during December 2021 to February 2022 at 8 locations including the Plant area and in nearby villages. Total 8 sampling locations were selected based on the meteorological conditions considering upwind and downwind directions. The levels of Respirable Particulate Matter (PM₁₀), Fine Particulates (PM_{2.5}), Sulphur Dioxide (SO₂) and Oxides of Nitrogen (NO_x) were monitored. Based on the above, the AAQ stations have been identified and locations of ambient air quality stations are presented in **Table 10**. Ambient Air Quality Monitoring Locations is shown in **Figure 8**. The minimum and maximum values of monitoring results are summarized in **Table 11**.

Table 10: Ambient Air Quality Monitoring Stations

S.N.	Code	Sampling Location	Distance w.r.t Project Site	Direction w.r.t Project Site
1	A1	Project Site	--	--
2	A2	Halsavade Village	1.0 km	NW
3	A3	Sangawade Village	3.0 km	N
4	A4	Vasagade Village	6.0 km	N
5	A5	Pattan kadoli Village	3.5 km	NE
6	A6	Taladange Village	3.0 km	E
7	A7	Sangaon Kasaba Village	4.0 km	S
8	A8	Vikaswadi Village	4.0 km	W

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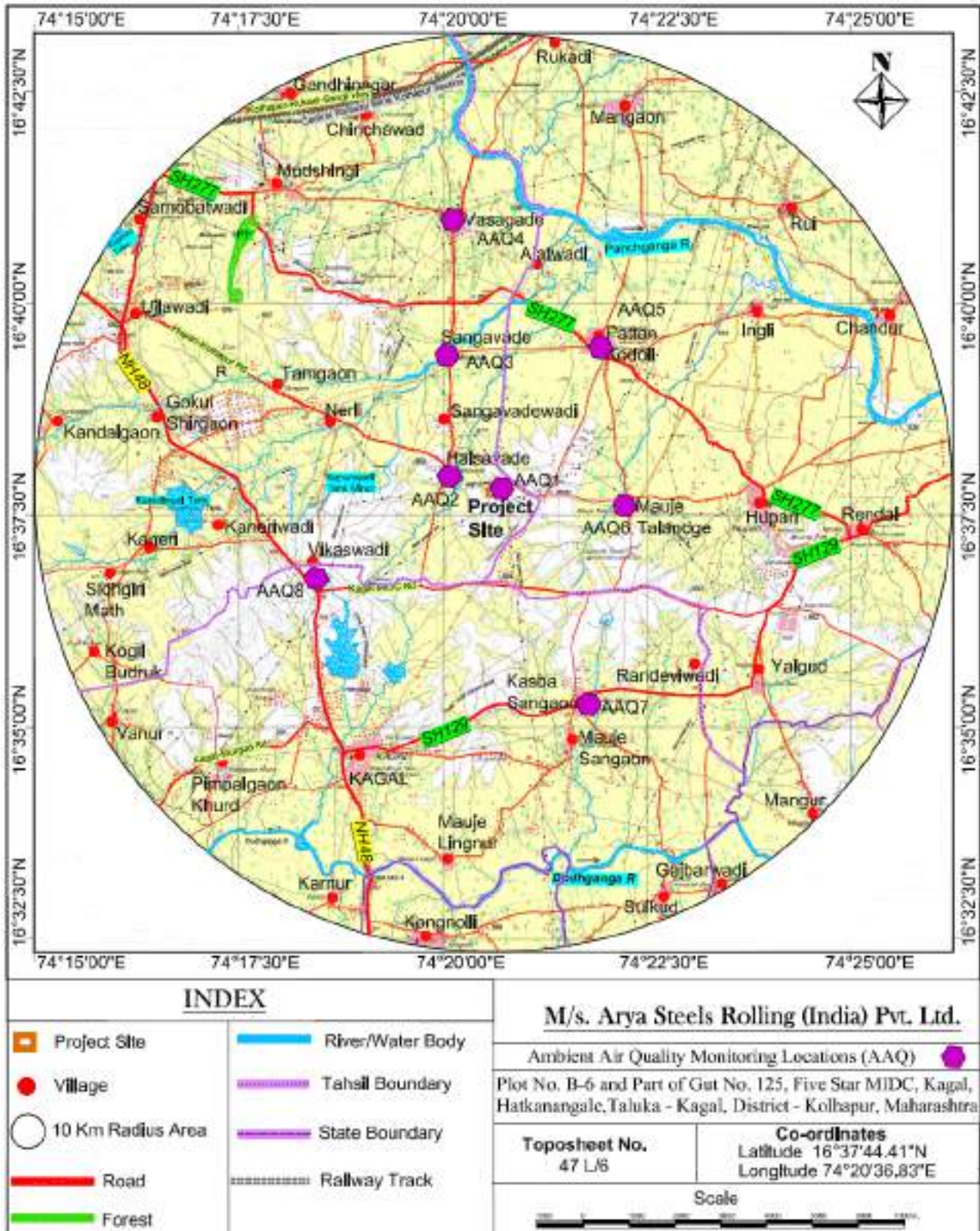


Figure 8: Ambient Air Quality Monitoring Locations

Table 11: Summary of Ambient Air Quality Results

Table 11.1: Particulate Matter – PM₁₀

All Values are in µg/m³

Location Name	A1	A2	A3	A4	A5	A6	A7	A8
Minimum	53.25	42.54	40.21	42.43	42.27	42.17	42.36	41.27
Maximum	62.51	49.54	47.46	49.65	48.61	49.52	49.65	49.55
Average	57.86	45.36	44.72	45.63	45.35	46.26	45.53	44.95
98 th Percentile	62.06	49.48	47.45	49.27	48.49	49.33	49.00	48.76
CPCB Standards	100							

Table 11.2: Particulate Matter – PM_{2.5}

All Values are in µg/m³

Location Name	A1	A2	A3	A4	A5	A6	A7	A8
Minimum	15.38	12.87	12.68	13.14	13.24	13.84	12.85	15.26
Maximum	28.10	20.87	21.87	21.37	21.66	21.64	21.78	21.46
Average	22.67	17.43	17.63	17.80	17.44	16.96	16.40	17.65
98 th Percentile	27.86	20.32	21.83	20.95	21.05	21.00	21.53	21.40
CPCB Standards	60							

Table 11.3: Sulphur Dioxide - SO₂

All Values are in µg/m³

Location Name	A1	A2	A3	A4	A5	A6	A7	A8
Minimum	11.57	7.83	8.36	7.36	7.85	8.32	7.68	7.68
Maximum	17.82	11.87	11.75	11.80	11.75	11.89	11.84	11.87
Average	14.74	9.82	10.27	10.01	10.15	10.11	10.11	10.18
98 th Percentile	17.63	11.84	11.60	11.79	11.58	11.78	11.75	11.87
CPCB Standards	80							

Table 11.4: Oxides of Nitrogen – NO_x

All Values are in µg/m³

Location Name	A1	A2	A3	A4	A5	A6	A7	A8
Minimum	18.56	12.54	12.52	12.86	12.54	13.62	12.98	12.84
Maximum	25.54	17.54	17.22	17.54	17.47	17.56	17.58	17.65
Average	22.27	15.30	14.85	15.50	15.18	15.70	15.37	15.10
98 th Percentile	25.49	17.53	17.22	17.46	17.36	17.43	17.56	17.60
CPCB Standards	80							

Table 11.5: Carbon Monoxide – CO

Location Name	All Values are in mg/m ³							
	A1	A2	A3	A4	A5	A6	A7	A8
Minimum	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Maximum	0.05	0.03	0.05	0.02	0.05	0.03	0.03	0.04
Average	0.02	0.01	0.02	0.01	0.02	0.02	0.01	0.02
98 th Percentile	0.05	0.02	0.04	0.02	0.04	0.03	0.03	0.03

From the above results, it is observed that the ambient air quality with respect to PM₁₀, PM_{2.5}, SO₂, NOx and CO at all the monitoring locations was within the permissible limits specified by CPCB.

As per the baseline data collection, the maximum value of the PM₁₀ was recorded at Project Site (A1)– 62.51 µg/m³ and minimum value at Sangawade Village(A3) – 40.21 µg/m³. As per the baseline data collection, the maximum value of the PM_{2.5} was recorded at Project site(A1) – 28.10 µg/m³ and minimum value at Sangawade Village(A3) – 12.68 µg/m³. As per the baseline data collection, the maximum value of the SO₂ was recorded at Project Site(A1) – 17.82 µg/m³ and minimum value at Vasagade Village(A4) – 7.36 µg/m³. As per the baseline data collection, the maximum value of the NOx was recorded at Project Site(A1) – 25.54 µg/m³ and minimum value at Sangawade Village (A3)– 12.52 µg/m³.

3.3 Ambient Noise Levels

Ambient noise level monitoring was carried out at the 8 monitoring locations; those were selected for ambient air quality monitoring. The noise recording stations are shown in **Table 12**. Noise Monitoring Locations are shown in **Figure 9**. The monitoring results are summarized in **Table 13**.

Table 12: Ambient Noise Quality Monitoring Stations

S.N.	Code	Sampling Location	Distance w.r.t Project Site	Direction w.r.t Project Site
1	N1	Project Site	--	--
2	N2	Halsavade Village	1.0 km	NW
3	N3	Sangawade Village	3.0 km	N
4	N4	Vasagade Village	6.0 km	N
5	N5	Pattan kadoli Village	3.5 km	NE
6	N6	Taladange Village	3.0 km	E
7	N7	Sangaon Kasaba Village	4.0 km	S
8	N8	Vikaswadi Village	4.0 km	W

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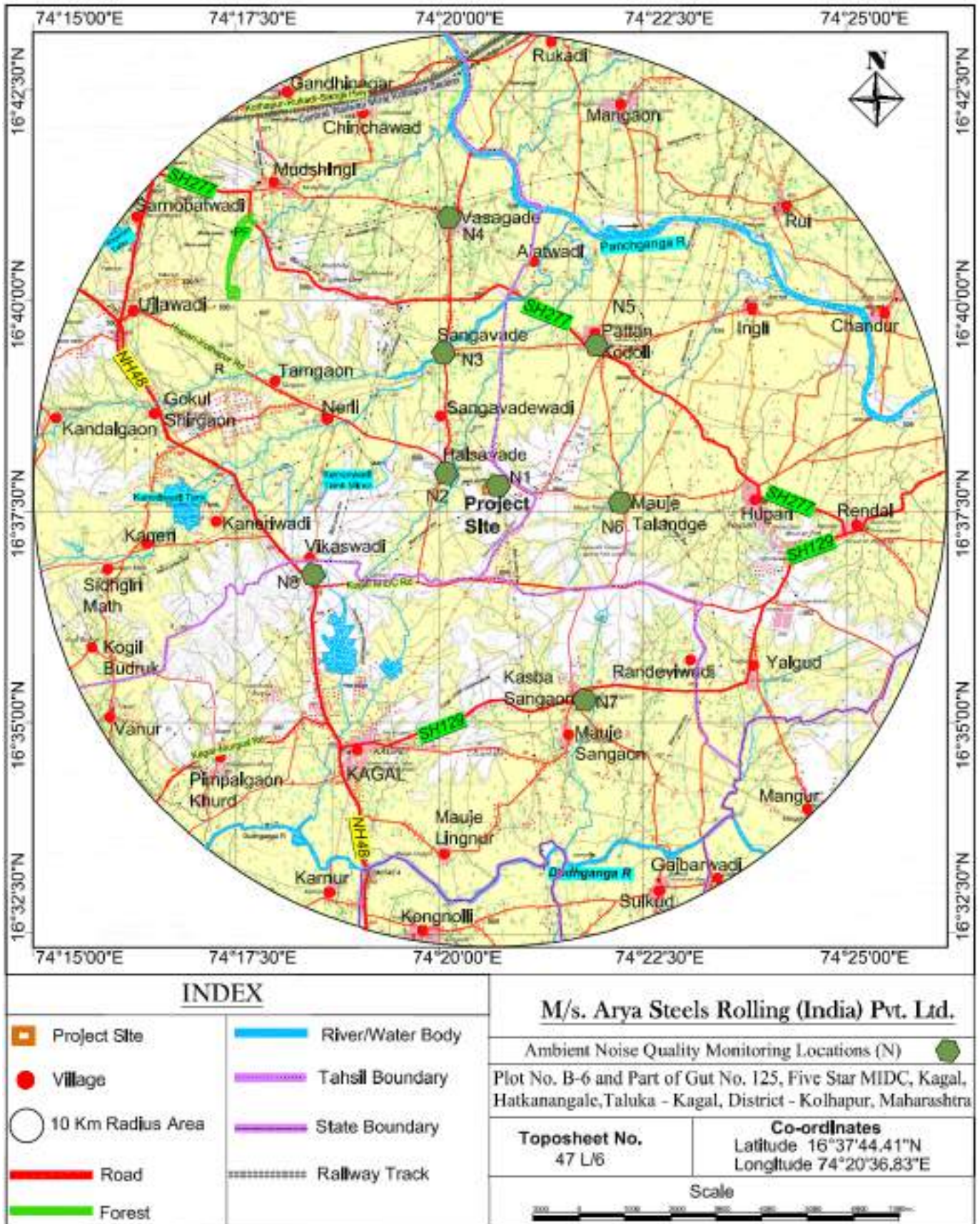


Figure 9: Noise Monitoring Locations

Table 13: Summary of Ambient Noise Level Monitoring Results

Equivalent Noise levels	N1	N2	N3	N4	N5	N6	N7	N8
(Day) L_{Max}	63.4	47.4	49.4	49.2	49.2	51.3	51.2	52.8
(Day) L_{Min}	52.3	42.2	41.9	42.2	41.5	41.0	40.8	41.8
(Night) L_{Max}	49.5	39.5	39.5	37.6	38.2	39.1	38.2	39.6
(Night) L_{Min}	42.2	33.6	33.6	32.4	33.3	32.1	32.6	34.2
L_d	59.25	44.98	45.63	45.36	44.94	46.3	46.16	44.86
L_n	45.82	36.25	36.03	34.9	36	35.38	35.31	36.7
CPCB	75	55	55	55	55	55	55	55
L_d	70	45	45	45	45	45	45	45

L_{min} : Minimum Noise Level Recorded

L_{max} : Maximum Noise Level Recorded

L_d : Day Equivalent

L_n : Night Equivalents

L_{dn} : Day-Night Equivalents

Conclusion

The Maximum Noise (day) value was observed 63.4 dB (A) at Project site (N1) and the Minimum Noise (day) value was observed 40.8 dB (A) at Sangaon Kasaba Village (N7). The Maximum Noise (night) value was observed 49.5 dB (A) at Project Site (N1) and the Minimum Noise (night) value was observed 32.1 dB (A) at Taladange Village (N6).

The minimum and maximum day time equivalent noise levels were found in the range of 44.86 to 59.25 dB (A) and the minimum and maximum night time equivalent noise levels were found in the range of 34.9 to 45.82 dB (A).

3.4 Surface and Ground Water Resources & Quality

Assessment of water quality in the study area has been carried out as per the Indian standard IS 10500:2012 (drinking water standard). The locations of Ground water sampling are shown in **Figure 10 and Table 14**.

Table 14: Ground Water Sampling Locations

S.N.	Code	Location	Distance w.r.t Project Site	Direction w.r.t Project Site
1	GW1	Project Site	-	-
2	GW2	Halsavade Village	1.0 km	NW
3	GW3	Sangawade Village	3.0 km	N
4	GW4	Vasagade Village	6.0 km	N
5	GW5	Pattan Kadoli Village	3.5 km	NE
6	GW6	Taladange Village	3.0 km	E
7	GW7	Sangaon Kasaba Village	4.0 km	S
8	GW8	Vikaswadi Village	4.0 km	W

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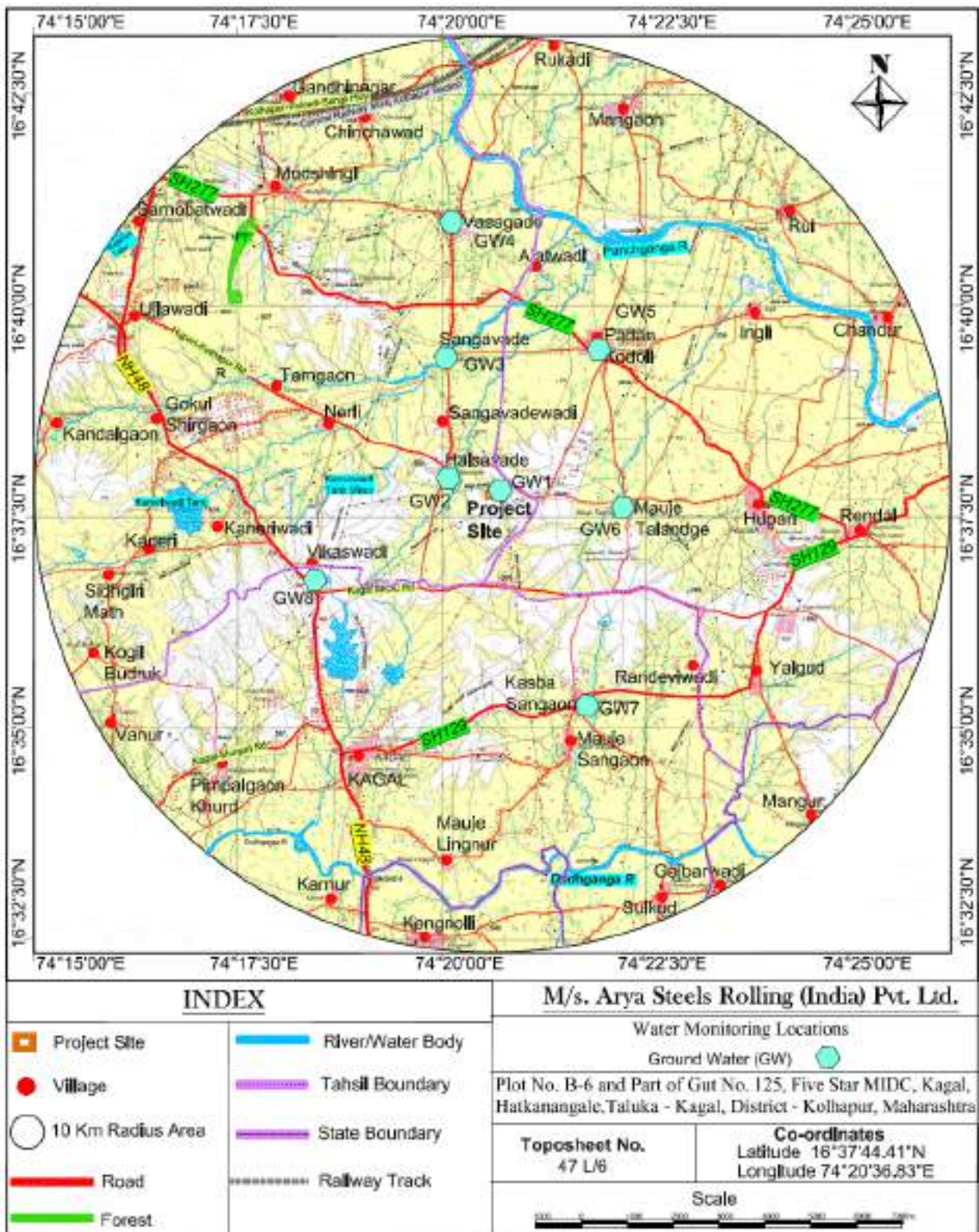


Figure 10: Ground Water Sampling Locations

Ground Water

- pH of the ground water samples collected was in the range of 7.2 - 7.54.
- Total dissolved solids in the samples were in the range of 214 – 354 mg/l.
- Total Hardness was found to vary between 122.5 – 174.2 mg/l.
- Chloride's concentration was found to vary between 121.2 – 194.1 mg/l.
- Fluoride concentration was found to vary between 0.010 – 0.030 mg/l.
- Sulphates concentration was found to vary between 105.3 – 127.4 mg/l.
- Heavy metal concentrations in all samples were found to be well within the limits.

Surface Water

Sampling was carried out at 2 locations during the study period. Sampling and analysis were carried out, as per standard methods and frequency of the sampling was thrice/stations. The locations of surface water sampling with its distance and directions w.r.to the project site given in **Table 15** and the locations of Surface water sampling are shown in **Figure 11**. The summary of the results is presented below:

Table 15: Surface Water Sampling Locations

S.N.	Code	Location	Distance w.r.t Project Site	Direction w.r.t Project Site
1	SW1	Kaneriwadi Tank	6.5 km	W
2	SW2	Panchganga River	6.5 km	N

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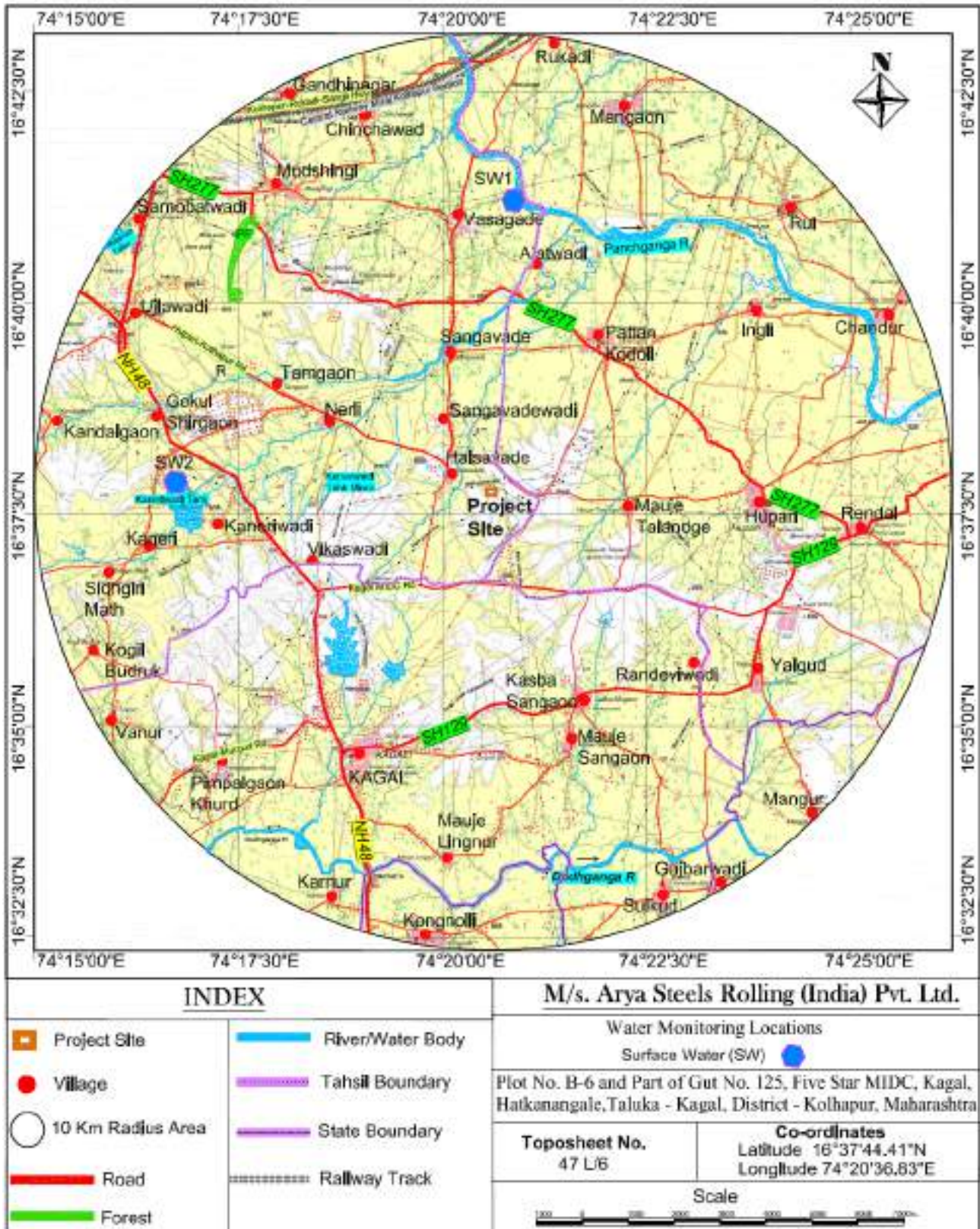


Figure 11: Surface Water Sampling Locations

Conclusion:

- pH of the surface water samples collected was in the range of 7.79 – 7.92.
- Total Dissolved Solids in the samples was in the range of 341 - 370 mg/l.
- Total Hardness was found to vary between 126.5 – 147.2 mg/l.
- Chloride's concentration was found to vary between 128.6 – 145.5 mg/l.
- Fluoride concentration was found to vary between 0.079 – 0.087 mg/l.
- Sulphates concentration was found to vary between 157.4 – 159.1 mg/l.
- Heavy metal concentrations in all samples were found to be well within limits.

3.5 Soil Quality

The soil samples were collected from 8 sampling locations within an area of 10 km radius around the project for analysis of the physico-chemical characteristics of the soil quality. The locations of soil sampling are given in **Table 16** and the soil sampling locations is shown in **Figure 12**.

The summary of the results is presented below:

Table 16: Soil Sampling Locations

S.N.	Code	Location	Distance w.r.t Project Site	Direction w.r.t Project Site
1	S1	Project Site	-	-
2	S2	Halsavade Village	1.0 km	NW
3	S3	Sangawade Village	3.0 km	N
4	S4	Vasagade Village	6.0 km	N
5	S5	Pattan Kadoli Village	3.5 km	NE
6	S6	Taladange Village	3.0 km	E
7	S7	Sangaon Kasaba Village	4.0 km	S
8	S8	Vikaswadi Village	4.0 km	W

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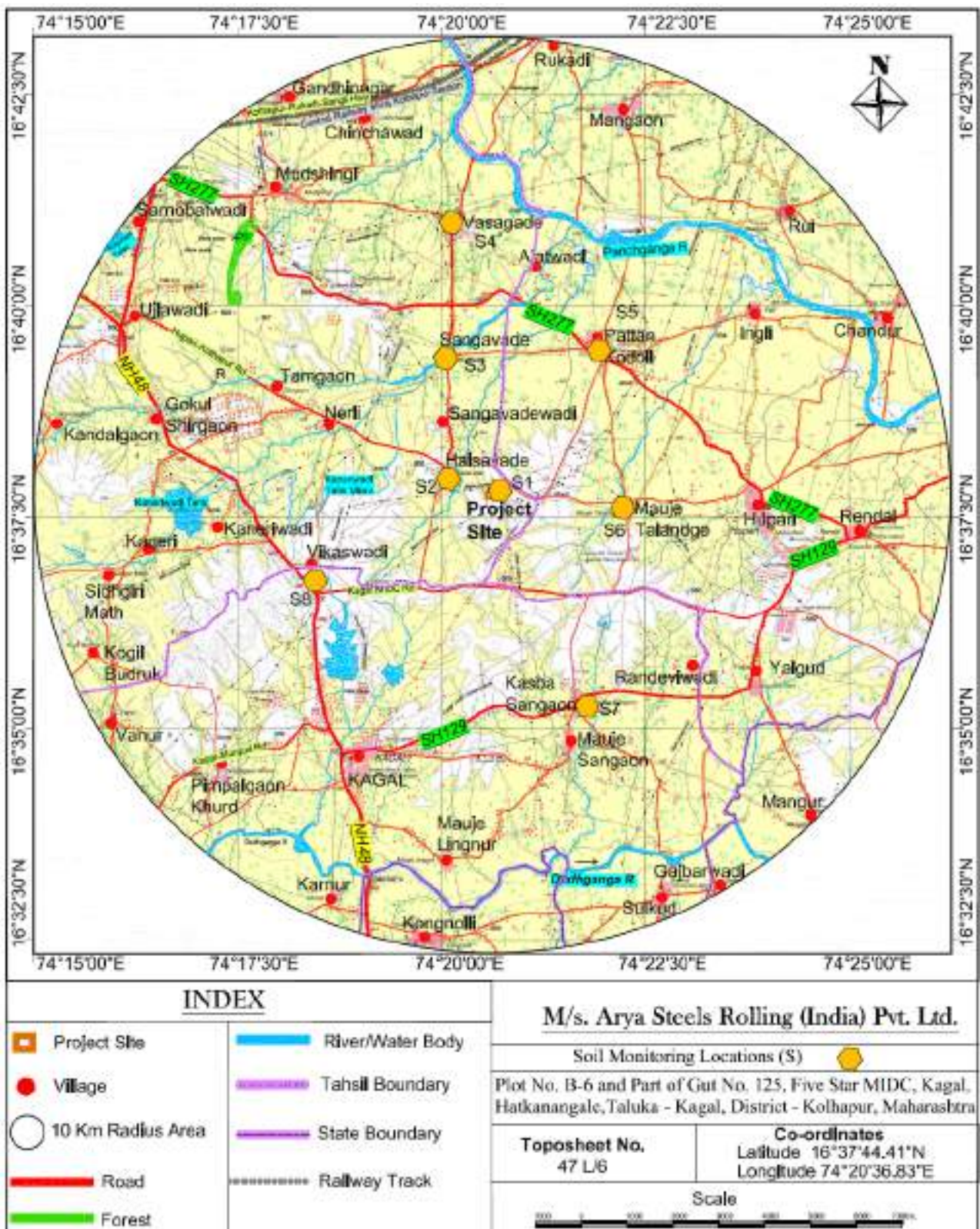


Figure 12: Soil Sampling Locations

Conclusion:

- pH of the soil samples was found to be in the range of 5.40 – 8.1
- Organic content of the soil samples was found to be medium exhibiting in the range of 0.25 % - 0.51 % and average fertility
- Soils in the area were found to be Silty Clay Loam in texture with sand percentage in the range between 23 – 44 %, silt between 21 – 42 % and Clay 24 – 37 %.
- Conductivity was observed in the range of 0.21 – 0.56 $\mu\text{S/cm}$
- Bulk density was observed in the range of 1.40 - 1.90 gm/cc.

3.6 Land use Land Cover classification

The land use pattern of the study area is given in **Table 17** and the same is shown in **Figure 13**.

Table 17: Land Use Pattern of the Study Area

S. N.	Land Use Class (Level-I)	Land use/Land cover Classes (Level – II)	Area in (Sq. km) 314	Area in (%) 100
1	Forest	Vegetation	13.61	4.33
2	Water bodies	Waterbody	2.76	0.88
3	Agricultural Land	Crop Land	117.53	37.43
		Fallow Land	105.07	33.46
4	Built-up Land	Built-up Land	38.29	12.19
5	Land with Shrubs	Land with Shrubs	36.74	11.70
		Total	314.00	100.00

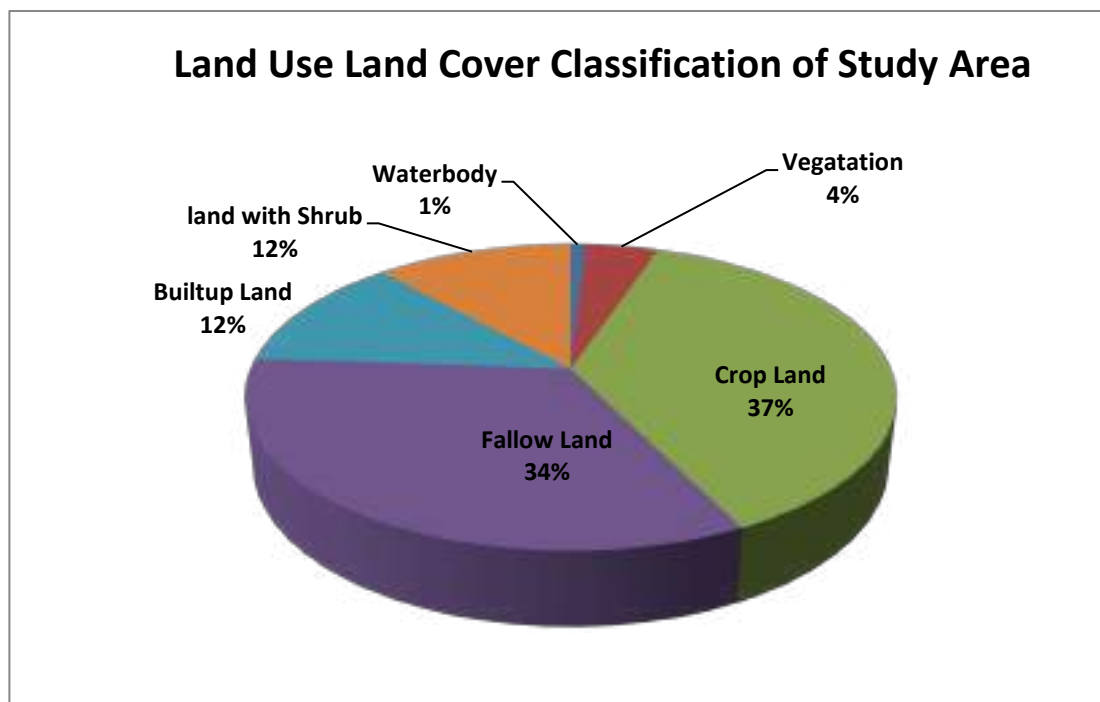


Figure 13: Pie Chart of Percentage Wise Availability Land Use Land Covers Classes

3.7 Biological Environment

Rare and Endangered Flora in the Study Area

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 enumerated flora in the study area, none of them were assigned any threat category, by RED data book of Indian Plants.**

Flora and fauna studies have been carried out in 10 km radius study area and no any endangered species were found out in the study area.

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 from census 2011 & village directory 2011. Summary of the socio-economic status of the study area is given in **Table 18**.

Table 18: Population Details

S. N.	Particulars	0-10 km
1	Number of households	68511

2	Male population	165158
3	Female population	155415
4	Total population	320573
5	SC population	55987
6	ST population	4325
7	Average household size	4.68
8	% of males to the total Population	51.5 %
9	% of females to the total population	48.4%
10	Total Literates	237113
11	Male Literates	130599
12	Female Literates	106514

4.0 Environmental Impact Assessment and Mitigation Measures

4.1 Air Pollution

The air quality modeling has been done and the details of Incremental emission load due to construction activity contributing in existing baseline values is given in **Table 19 A** and **Table 19 B**.

Table 19(A): Incremental Emission Load due to Construction Activity Contributing in Existing Baseline Values due to Point Source

S. N.	Sampling Location Code & Name	PM ₁₀ (µg/m ³)			SO ₂ (µg/m ³)			NO _x (µg/m ³)			CO (mg/m ³)		
		BV	IV	RV	BV	IV	RV	BV	IV	RV	BV	IV	RV
1	*A1	62.51	0.26	62.77	17.82	0.19	18.01	25.54	0.27	25.81	0.05	0.00	0.05
2	A2	49.54	-	49.54	11.87	-	11.87	11.87	-	11.87	0.03	-	0.03
3	A3	47.46	-	47.46	11.75	-	11.75	11.75	-	11.75	0.05	-	0.05
4	A4	49.65	-	49.65	11.80	-	11.80	11.80	-	11.80	0.02	-	0.02
5	A5	48.61	-	48.61	11.75	-	11.75	11.75	-	11.75	0.05	-	0.05
6	A6	49.52	-	49.52	11.89	-	11.89	11.89	-	11.89	0.03	-	0.03
7	A7	49.65	-	49.65	11.84	-	11.84	11.84	-	11.84	0.03	-	0.03
8	A8	49.55	-	49.55	11.87	-	11.87	11.87	-	11.87	0.04	-	0.04
NAAQS Standards		100 (24 hourly)			80 (24 hourly)			80 (24 hourly)			4 (1 Hour)		

Table 19(B): Incremental Emission Load due to Construction Activity Contributing in Existing Baseline Values due to Line Source

S. N.	Sampling Location Code & Name	PM ₁₀ (µg/m ³)			SO ₂ (µg/m ³)			NO _x (µg/m ³)			CO (mg/m ³)		
		BV	IV	RV	BV	IV	RV	BV	IV	RV	BV	IV	RV
1	*A1	62.51	0.32	62.83	17.82	0.34	18.16	25.54	0.23	25.77	0.05	0.81	0.86
2	A2	49.54	-	49.54	11.87	-	11.87	11.87	-	11.87	0.03	-	0.03
3	A3	47.46	-	47.46	11.75	-	11.75	11.75	-	11.75	0.05	-	0.05
4	A4	49.65	-	49.65	11.80	-	11.80	11.80	-	11.80	0.02	-	0.02
5	A5	48.61	-	48.61	11.75	-	11.75	11.75	-	11.75	0.05	-	0.05
6	A6	49.52	-	49.52	11.89	-	11.89	11.89	-	11.89	0.03	-	0.03
7	A7	49.65	-	49.65	11.84	-	11.84	11.84	-	11.84	0.03	-	0.03
8	A8	49.55	-	49.55	11.87	-	11.87	11.87	-	11.87	0.04	-	0.04
NAAQS Standards		100 (24 hourly)			80 (24 hourly)			80 (24 hourly)			4 (1 Hour)		

Mitigation Measures

The predicted average concentrations with baseline along with the negligible existing contribution from the project will be below the standards. Hence, considering the present and the future scenario, it can be concluded that there is minimal impact of the project. Therefore, following environment management measures need consideration the prevailing conditions;

- Stack height would be approx. 30 m existing (1 no.) for gaseous emission conforming to the CPCB norms. DG Sets 2 nos. (Existing 150 KVA having 7.2 m of stack height, proposed 500 KVA having 7.8 m of stack height level will be maintained).
- Air pollution control equipment's which includes fume extraction system with extraction hood and duct followed by Dust Collector is already installed.
- As raw material is taken from neighboring industry through conveyor belt so no trucks are required for carrying raw material. All trucks moving between railway siding to the plant site for transporting solid waste & product shall be fully covered with tarpaulin to avoid dust pollution. With strict traffic management system and various environmental management practices, contribution of pollutants in the ambient air will be kept under control so as to create minimum disturbances in the neighborhood.

- The vehicular traffic plying in and out of the project site will also be one of the significant sources of air pollution. It will be mitigated by properly regulating the traffic and by following strict and disciplined vehicular movement and operation in the project site.
- Adequate and planned road network is set in the existing project for smooth movement of the finished goods vehicles. It would be ensured that all the vehicles plying in the working zone are properly tuned and maintained to keep emissions within the permissible limits.
- At loading and unloading points, arrangement for Water sprinkling will be made so that dust generation during transportation of materials will be minimized further.
- All the internal roads within the plant shall be metaled; hence dust arising from the internal roads shall be insignificant. The green belt development shall further help in reduction in fugitive emissions.
- With strict traffic management system and various environmental management practices, contribution of pollutants in the ambient air will be kept under control so as to create minimum disturbances in the neighborhood.

4.2 Water Quality Management

The total water requirement of the plant is 168 KLD. The water will be mainly used for furnace cooling purpose, green belt, dust suppression and domestic purpose only. Cooling water will be continuously recalculated in the cooling circuit and domestic effluent is sent to septic tank followed by soak pit. The water is supplied for cooling purpose in reheating Furnace. Water used for cooling purpose will be reuse and recycle in the manufacturing process. The water for other areas i.e., for green belt, dust suppression and domestic use is supplied directly. Wastewater/ sewage 5.04 KLD generated from domestic activities will be treated in the SBR Technology based STP having treatment capacity of 10 KLD. Treated water will be used for green belt development. Zero discharge norms will be followed.

4.3 Noise Pollution Control

Noise level at the plant boundary is expected to be less than 60 dB (A) without considering any attenuation factors.

Various components of industrial operations will cause some amount of noise, which will be controlled by proper maintenance and compact technology.

- i. Time to time oiling and servicing of machineries will be done.
- ii. Acoustic enclosure for DG sets will be provided.

- iii. Green belt development (plantation of dense trees across the boundary) will help in reducing noise levels in the plant as a result of attenuation of noise generated due to plant operations, and transportation.

4.4 Green belt Development and Plantation

33 % of total land availability are reserved for green belt development plan.

Total Project Site Area = 26554.26 sq. m

33% Green belt Area of the total available area = 8762.91 sq. m = 0.9 Ha.

No. of Saplings to be planted per Hectare in Green belt = 2000 Nos.

Total plant should be planted as per MoEFCC recommendation

= 0.9 x 2000 = 1,800 nos. of trees required

- Plant species will be planted after consultation of local forest department.
- The tree species to be selected for the plantation are pollutant tolerant, fast growing, and wind firm, deep rooted.
- A three-tier plantation is proposed comprising of an outer most belt of taller trees which will act as barrier, middle core acting as air cleaner and the innermost core which may be termed as absorptive layer consisting of trees which are known to be particularly tolerant to pollutants.

Existing saplings of development of green belt area are given in below **Table 20**.

Table 20: List of Trees in Green belt Area

S. N.	Name of The Plant	Scientific Name	No. of Plants
1	Pimpal	<i>F. religiosa</i>	100
2	Banyan tree (Wad)	<i>Ficus benghalensis</i>	100
3	Neem	<i>Azadirachta indica</i>	200
4	Sisam	<i>Dalbergia sissoo</i>	100
5	Sagwan	<i>Tectona grandis</i>	100
6	Badam	<i>Prunus dulcis</i>	100
7	Karanj	<i>Millettia pinnata</i>	200
8	Umber	<i>Ficus racemosa</i>	100
9	Aapta	<i>Bauhinia racemosa</i>	100
10	Amba (Mango)	<i>Mangifera indica</i>	100
11	Jambul	<i>Syzygium cumini</i>	100
12	Ashoka	<i>Saraca asoca</i>	100

13	Raktchandan	<i>Pterocarpus santalinus</i>	100
14	Palas	<i>Butea monosperma</i>	60
15	Other Different Species		240
		Total	1800

4.5 Solid and Hazardous Waste Generation and Management

No any other solid waste is generating from the existing manufacturing process.

4.6 Environment Management Plan

To mitigate the negative impact of the project adequate mitigation measures will be taken. Detail environment management plan is prepared and accordingly it was implemented during the existing project activity. Environment management plan is for the proposed expansion project activity divided into two parts i.e.; one is capital cost & one is recurring cost. Total fund earmarked for EMP is Rs. 172.34 Lakhs (Rs. 1.72 Crores) in which capital cost is Rs. 153.00 Lakhs (Rs. 1.53 Crores) and recurring cost is Rs. 19.34 Lakhs (Rs. 0.19 Crores).

Details of environment management plan are given in **Table 21**.

Table 21: EMP Budget

S. N.	Item	Capital Cost (Rs. In Lakhs)	Recurring Cost (Rs. In Lakhs)
1	Air Pollution Control Facility	35.00	5.0
2	RWH & Water Pollution Control	30.00	2.0
3	Noise Pollution Control	10.00	1.0
4	Environment Monitoring and Management	15.00	2.34
5	Occupational Health	5.00	1.0
6	Green Belt Development	20.00	5.0
7	Safety Management	5.00	1.0
8	Renewable Energy	18.00	1.0
9	DG SET (1 x 500 KVA)	15.00	1.0
	Total Amount	153.00	19.34
	Total Amount (Capital Cost & Recurring Cost)	172.34 Lakhs	
	Total Amount (Capital Cost & Recurring Cost)	1.72 Crores	

4.7 Corporate Environment Responsibility

M/s. Arya Steels Rolling (India) Pvt. Ltd. earmarked Rs. 10.00 lakhs towards Corporate Environment Responsibility (CER) as per Office Memorandum of MoEF&CC. Total project cost of the proposed expansion activity will be Rs. 27.40 Crores. CER is Calculated (@1.0 % of additional Capital Cost of the expansion project) as per MOEFCC OM Dated: 1st May 2018. Fund Allocation for the CER as per Office Memorandum is given in **Table 22**. CER budget is developed as per our understanding. However, it will be modified after completion of public hearing as per the needs/demands of the peoples in the public hearing and instruction of the Chairperson of the proposed public hearing. Proposed CER activities as per preliminary understanding is given in **Table 23**.

Table 22: Fund Allocation for the CER as per Office Memorandum

S. N.	Capital Investment/ Additional Capital Investment (in Rs.)	Greenfield Project - % of Capital Investment	Brownfield Project - % of Capital Investment
I	II	III	IV
1	≤ 100 Crores	2.0 %	1.0 %
2	> 100 Crores to ≤ 500 Crores	1.5 %	0.75 %
3	> 500 Crores to ≤ 1000 Crores	1.0 %	0.5 %
4	> 1000 Crores to ≤ 10000 Crores	0.5 %	0.25 %
5	> 10000 Crores	0.25 %	0.125 %

Table 23: Proposed CER Activities

S. N.	Planned Activities under CER as per specific needs	Amount in Rs. Lakhs
1	Community Health Improvement. <ul style="list-style-type: none"> • Health camps and health awareness programs in Project surrounding villages • Health awareness camps for child and mother care, health and hygiene practices • Sanitary facilities for project surrounding villages 	3.00
2	Community Education Facilities <ul style="list-style-type: none"> • Award scholarship to meritorious students & Education (Vocational training) • Distribution of educational books, stationary, uniforms and aids etc. • Providing desktop computers to schools 	1.00
3	Infrastructural Development <ul style="list-style-type: none"> • Maintenance/ Repair of Hand Pumps/ Bore wells • Gram Panchayat dug well de-siltation & deepening 	3.00

	<ul style="list-style-type: none"> Maintenance/ Repair of surrounding village roads 	
4	<p>Afforestation Programs</p> <ul style="list-style-type: none"> Plantation of trees in villages road side/ Panchayat House/ Public Health Center/ schools Development of nursery Scientific support and awareness to local farmers to increase yield of crop and fodder 	2.00
5	<p>Community Welfare Activities</p> <ul style="list-style-type: none"> Solar Street Lights for common community area and village main approach roads as per the instruction of respective Gram Panchayat 	1.00
Total Amount (Rs. in Lakhs)		10.0
Total Amount (Rs. in Crores)		0.1

5.0 Conclusion

As discussed, it is safe to say that the project is not likely to cause any significant impact on the ecology of the area, as adequate preventive measures will be adopted to contain the various pollutants within permissible limits. Green belt development around the area will also be taken up as an effective pollution mitigative technique, as well as to control the pollutants released from the premises of the project.
