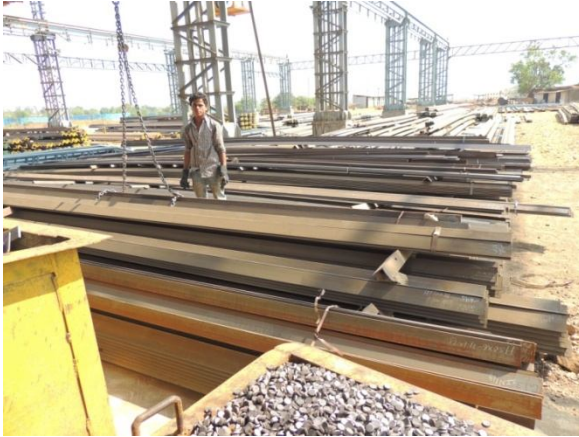


EXECUTIVE SUMMARY

For Expansion of Integrated Steel Plant



Prepared For

M/s Shree Vaishnav Metal & Power Pvt. Ltd

Gut. No. 24, 45/1, 45/2, 46/1, 46/2, 46/3,

47 to 50, 51/1 to 51/3, 52 & 57

Village: Bhaveghar, Tal. Wada

Dist. Thane, Maharashtra

Prepared By



MITCON Consultancy and Engineering Services Ltd

Environment Management & Engineering Division

Pune

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1. Introduction

Since India is a developing country and industries have always played major role in the economic development of the country. Steel is crucial to the development of any modern economy and is considered to be the backbone of human civilization. The level of per capita consumption of steel is treated as one of the important indices of the level of socio-economic development and living standard of the people in any country. The period till 1947 thus witnessed a small but viable steel industry in the country, which operated with a capacity of about 1 million tonne and was completely in the private sector. Now, India has become the second best in terms of growth amongst the top ten steel producing countries in the world and a net exporter of steel during 2013–14.

Domestic steel demand is increased due to the rapid development in industrial, infrastructure & highway construction. In view of the market scenario of the steel demand, **M/s Shree Vaishnav Metal and Power Pvt Ltd., (SVMPPPL)** has trying to made efforts to fulfill demand by installing steel industry of manufacturing MS Ingots/ Billets/ Blooms at Bhaveghar village in Wada Tehsil of Thane district, Maharashtra. The estimated capital cost of the project is Rs. 93.00 crores.

M/s. Shree Vaishnav Metal and Power Pvt Ltd. (SVMPPPL) is one of the pioneering steel industry, having existing Galvanizing & Fabrication unit of capacity 300 MT/day located at Gut. No. 24, 45/1, 45/2, 46/1, 46/2, 46/3, 47 to 50, 51/1 to 51/3, 52 & 57 Village: Bhaveghar, Tal. Wada Dist. Thane, Maharashtra. The promoters have decided to expand the steel product by installing 2 x 30 MT Induction furnaces within the same premises of SVMPPPL.

2. Scope of the Study

The purpose of this report is to present the environment-related issues of the proposed steel plant. As per the EIA Notification dated 14th September 2006 and subsequent amendment dated 1st December 2009 the project schedule in 3(a) of category 'B' under

subhead “ii.)All other non –toxic secondary metallurgical processing industries>5000 tonnes/annum” therefore it shall be appraised at Department of Environment by State Expert Appraisal Committee & State Environment Impact Assessment Authority for Environmental Clearance.

3. Project Description

The proposed expansion will be done as an ancillary to the existing unit. Raw material for Fabrication & Galvanizing viz. Ingots, Billets will easily available from proposed expansion.

In the proposed expansion SVMPPPL will install 2 x 30 MT of Induction furnace which have production capacity 18000 MT/ Month of MS Ingots & Billet. The raw material for Induction furnace such as MS Scarp - 13600 MT/Month & Sponge Iron - 6000 MT/Month will be easily available from local market. Water requirement in the proposed expansion will be 55CMD and source will be tanker water. SVMPPPL has total plot area 24 Acre out of which 6 acre is in used for existing facility.

4. Salient features of Project Site

- ❖ Land is in possession of SVMPPPL and it is developed for industrial purpose.
- ❖ Proposed industrial development will take place in backward area of Thane district
- ❖ Site having following geographical reference
Latitude: 19°35'42.34" N
Longitude: 73° 4'4.42" E
MSL: 44 Meter
- ❖ Availability of all basic facilities like fuel, water, power, man power, raw materials, etc.
- ❖ Nearest Town Wada Tahsil at 10 KM
- ❖ Accessibility from MSH-36 (Wada- Bhiwandi) at 5 KM from project site
- ❖ No R & R will be involved
- ❖ Vaitrana River is 1.5 KM away from project site

5. Process Description

Semi finished steel in the form of Steel Ingots & Billets is manufactured through Induction Furnace with contact that works on the principle of induction melting of Sponge Iron/ scrap/ Pig Iron with the help of electric power. An alternating electromagnetic field induces eddy current in the metal so that the electrical energy converts into heat whose quantity depends on the resistivity of the charge. If the charge consists of the metal scrap, chips other metal rejections then the eddy currents arise between separate pieces of charge because of high contact resistance. So small charge pieces require increase frequency of current that feeds the induction heater in order to speed up melting of the charge. Induction furnaces operate on current of commercial frequencies or on current of higher frequencies. Induction furnaces are beneficial in steelmaking for low melting loss.

Solid/ Hazardous Waste Generation and Mode of Disposal

Sl. No	Type of waste	Quantity	Mode of Disposal
A	Industrial		
<u>Existing</u>			
1.	34.3 Chemical Sludge from waste water Treatment	5 MT/Month	CHWTSDf
2.	6.2 Zinc fines /dust / dross/ash/skimming (dispersible from)	20 MT/Month	Sale
3.	21.1 Spent Acid/ residue	5 MT/Month	CHWTSDf
<u>Proposed</u>			
1	Slag & Dust	500 MT/Month	Recycle by slag processing unit and sell to Brick & Cement manufacturing unit
2	Scale	10 MT/Month	Recharging in process
B	Domestic		
<u>Existing</u>			
1.	Sludge	75 MT/Month	Used for land filling
<u>Proposed</u>			
1	Sludge	35 Kg/Month	Used as fertilizer for gardening

6. Description of the Environment

Any developmental activity may cause some environmental impacts on the surrounding environment. In order to know the cumulative impacts due to the proposed site on the surrounding environment, it is very important to know the baseline environmental status in the study area.

The environmental influence due to the project is likely to be restricted to 10 km region around the factory site. Therefore, the study area for monitoring of environmental quality includes 10 km region around the project site. Proposed site area covers the 10 KM radial study area in SOI toposheet nos. 47 E/6 & 47 E/2. The studies were conducted during the post-monsoon period of the October 2012- December 2012. Ecology & Biodiversity study has been carried out in April 2014 as per the directions given by Environmental Expert Appraisal Committee, Maharashtra.

Meteorology

The regional climatological data obtained from the IMD Dahanu was used as a guideline to decide the predominant wind direction during study period. The meteorological data was collected at the site by installing an automatic weather monitoring station (AWS) during study period (1stOctober 2012 – 31stDecember 2012). It shows that predominant wind direction is North- West. During study period maximum wind blows 2.1 m/s from North West direction. In study period 10.8 % clam wind found.

Micro metrological Data of Study Period

Sr. No.	Particulars		Details
1	Monitoring Period		October to December 2012
2	Temperature (°C)	Min	October : 23.8
			November: 20.1
			December: 19.1

Sr. No.	Particulars		Details
		Max	October: 31.2
			November : 31
			December : 31
3	Avg. Wind Speed (m/s)		October : 1.2
			November : 0.91
			December : 1.3
4	Wind Direction		October : NW-NWN
			November : NW-E
			December : NW - W
5	Relative Humidity (%)		October : Avg.- 30 %
			November : Avg.- 37 %
			December : Avg. – 45 %
6	Rainfall		None

Air Environment

- ❖ The concentration of PM_{2.5} was found to be between 5.7 µg/m³ (Khanivali) to 14.1 µg/m³(Bhaveghar). The average concentration was in the range of 8.3 to 9.7 µg/m³.
- ❖ The concentration of PM₁₀ was between 10.1µg/m³ (Nichole) to 28.4 µg/m³ (Bhaveghar) and the average concentrations were observed in the range of 18.1 to 24.6 µg/m³
- ❖ The SO₂ concentrations were between 8.1µg/m³ (Ambiste Budruk) to 29.7µg/m³(Project Site).The average concentrations were observed in the range between 14.4µg/m³ to 21.8µg/m³.
- ❖ The NO_x concentrations were between 10.9µg/m³ (Khanivali) to 29.4µg/m³ (Bhaveghar) with average values being observed in the range of 19.8 µg/m³ to 25.1µg/m³.

Conclusion: Ambient air quality of study area found to be within the National Ambient Air Quality Standards.

Noise Environment

On the basis of twenty four hours average, noise levels (57.2 to 68.3dB (A)) within the plant site are in compliance with the prescribed limit of 75 dB (A) by the National Environment Quality Standards.

Water Environment

The ground water quality parameters were assessed as per the Indian Standard IS 10500:2012 (Drinking Water Standard). The observations are given below:

- ❖ It is observed that the pH of the ground water and surface water samples are in the range of 6.92 to 8.23
- ❖ Total dissolved solids (TDS) of the ground water & surface water samples were in the range 158 to 532 mg/l
- ❖ Total hardness of the ground water & surface water samples was found to vary between 120 to 340 mg/l

Soil Environment

Soil is the unconsolidated material on the earth surface that serves as a natural medium for plant growth.

- ❖ All the samples having pH in range of 5.08 – 7.41
- ❖ All the samples having average concentration of Electrical Conductivity and Organic Carbon
- ❖ Concentration of Nitrogen, Phosphorus and Potassium were found in the range of 0.006 to 0.02, 0.001 to 0.005 & 0.002 to 0.3 respectively

Land Environment

Land Use Land Cover Statistics of the Study Area (Census 2001)

Sr. No	Class	Area in Ha	Percentage
1	Forest	8110.14	35.995
2	Irrigable_River	0.67	0.003
3	Unirrigated Area	11807.31	52.405
4	Culturable Waste	948.74	4.211
5	Area Not Available for Cultivation	1664.18	7.386
	Total	22531.04	100.00

Ecology & Biodiversity

The vegetation of the area is deciduous type along with patch of the reserve forest. As per the ecological studies conducted it can be seen that the study area shows extreme species diversity. Total 75 tree species recorded & no RET floral species is reported in the study area. The most abundant species in the study areas are *Tectona grandis* L.f., *Azadirachta indica* Linn., *Syzygium cumini* (L.) Skeels, *Butea monosperma* L., *Carissa congesta* Wight, *Ziziphus jujuba* L. etc

Six species of Mammals & 21 species of birds were recorded in and around the periphery of the project during the study period. Animals, which are found within the project area and categorized under schedule I to Schedule IV of Wild Life Protection Act 1972 & subsequent amendment along with IUCN status respectively and are strictly protected.

Socio-Economic Environment

The Study area covers total 47 nos. of Villages from Wada Tahsil. Total population of the study area is found to be 51785 out of which 26833 nos. of male & 24952 nos. of female. The sex ratio of the study area is found to be 930. Total main workers & non workers are found to be 48.54 % & 51.46 % respectively. The average annual income of the people is Rs. 85000/-

7. Anticipated Environmental Impacts & Mitigation Measure

The identification of an environmental impact has been made by co-relating the relationship between project activity and environmental parameters. The environmental impacts can be categorized as either primary or secondary.

The impact due to proposed factory expansion on the environment can be classified in two phases.

- ❖ During Construction Phase
- ❖ During Operation Phase

The environment impact due to proposed activities will be evaluated considering the following parameters in construction and operational phase,

- ❖ Topography
- ❖ Air Environment
- ❖ Noise Environment
- ❖ Water Environment
- ❖ Soil Environment
- ❖ Ecology (Flora and Fauna)
- ❖ Socio-Economic Environment

Nature of Impacts during Construction Phase

Activity	Impact
Acquisition of land for industrial development	No negative impact will envisage as the proposed expansion will be done the existing premises.
Topographical changes such as leveling of undulating surface to facilitate construction	Affects air quality due to increase in PM _{2.5} , PM ₁₀ levels, impact on soil and noise quality.
Construction of roads and civil engineering structures, movement of heavy earth movers and vehicles.	Affects air quality due to increase in PM _{2.5} , PM ₁₀ , SO ₂ and NO _x levels, impact on noise quality.
Migration of Labour	Impact on infrastructure like housing, creates health hazards due to poor sanitation problems.

Measures:

- ❖ Site is already developed for industrial use therefore no negative impact will be envisaged due to proposed expansion
- ❖ Within the plant premises internal roads are asphalted so there will be minimal dust generation
- ❖ Regularly water sprinkling will be carried out in dust born area
- ❖ Excavated soil preserved for plantation and filling low lying areas
- ❖ Plantation will be done from the initial stage of construction
- ❖ PPE's such as earmuff, earplug, nose mask, safety shoes, safety goggles will be provided to worker
- ❖ Construction activity strictly prohibited in day time only
- ❖ SVMPPPL has already provided well developed sanitation facility for worker
- ❖ In construction phase more preference will be given to local youth according to their educational qualification
- ❖ Generated solid waste according to their category recycled and reused.

Operation of the plant results in air emissions and generation of solid waste. The impacts due to the operational phase in respect of air, water, noise and transport activities are as under.

Aspects	Impact
Air emissions	The impact on air quality is due to increase in PM ₁₀ , PM _{2.5} , SO ₂ and NO _x levels which depend upon the type of process.
Effluent discharges	Affects water quality, soil quality of the region due to release of waste waters
Noise emissions	Affects community noise environment of the region due to increase in day-night equivalent noise levels
Transportation	Impact on existing infrastructure
Ecology	Disturbance of flora and fauna

Socio Economic

Job opportunity to local youth, infrastructural development, good wages to workers

Measures**Air**

- ❖ Adequate stack height of 33 meter along with *Venturi Scrubber* should be provided to better dilution and dispersion of pollutant
- ❖ Suction hood at dust emission sources will be provided
- ❖ Airborne fugitive emissions from the loading & unloading areas, vehicle movement will be controlled by regular water sprinkling in this area.

Noise

- ❖ Efforts should be taken by SVMPPPL to minimize noise pollution by providing silence, muffler, enclosures and noise abatement facility at defined equipment's.
- ❖ All rotating items will be well maintained and lubricated
- ❖ PPE' will be provided to workers working in noise prone area

Water

- ❖ There is no industrial effluent waste water generation from proposed activity
- ❖ Waste water from existing unit is treated in ETP
- ❖ 15 CMD water will be required for cooling purpose
- ❖ Cooling water will be continuously recycled and reused
- ❖ 24 CMD Domestic waste water will be treated in package STP

Solid Waste

- ❖ Generated slag around 500 MT/Month recycle by slag processing unit and sell to Brick & Cement manufacturing unit
- ❖ 10 MT/ Month of scale recharging in process
- ❖ 75 Kg/ Month of sludge generated from package STP used as fertilizer for gardening purpose.

Ecology & Biodiversity

- ❖ Construction activities needs to be restricted to day hours only and the movements of workers and vehicles should be completely banned during early morning and late evening when wildlife activities are at peak.
- ❖ Workers should be briefed about do's and don'ts like No hunting, vegetation burning, off-road driving, speeding, improper behavior towards local residents
- ❖ All efforts should be taken be by SVMPPPL for enriching biodiversity

Socio Economic

- ❖ Positive impacts too can be identified as the project promotes sustainable development by reusing / recycling wastes, plantation activities, etc.
- ❖ Growth in service sectors.
- ❖ Increase in consumer prices of indigenous produce and services, land prices, house rent rates and Labour prices.
- ❖ Improvement in socio cultural environment of the study area.
- ❖ Improvement in transport, communication, health and educational services.
- ❖ SVMPPPL will create job opportunities for 512nos of worker

Corporate Social Responsibility (CSR)

Its CSR initiatives will be prioritized on local needs, which focus on Health, Education, Sustainable Livelihood, Social Mobilization, Infrastructure Development, Water Harvesting, Agriculture and Environment Conservation. SVMPPPL incurred Rs. 24 Lakhs towards CSR activities in proposed expansion.

Transportation:

For the transportation purpose SH -36Wada – Bhiwandi will be used. It is 5KM away from project site. It is capable to bearing heavy traffic. Palsaiphata- Kanivali Tar road is 500 meter away from project site. During construction and operation phase daily 8 -10 & 20 trucks respectively plying between plant site and indigenous market.

8. Analysis of Alternative

SVMPPPL is an existing unit, involved in Galvanizing & Fabrication Unit. Site is already developed for industrial purpose. During designing of proposed expansion all aspects will be selected environmental point of view. Rather than using convention coal fired heating furnace; electric Induction furnace will be selected. Better dilution and dispersion of pollutant; stack along with venturi scrubber will be provided. To avoid losses of electric transmission and breakdown electrical switching station will be installed by MSEDCL at site. To reduce the hazard and safety purpose whole plant will automation. Solid waste recycling purpose slag processing unit will be proposed. Plant is located away from thickly populated area. In the proposed expansion no R & R is involved.

9. Environmental Monitoring Programme

The effectiveness of environmental pollution measures; is ascertained by systematic monitoring of discharges at factory level and at receiving level. The sampling and analysis of environmental attributes including monitoring locations will be as per the guidelines of the Central Pollution Control Board/ State Pollution Control Board. Accordingly, environmental

monitoring will be conducted on regular basis to assess the pollution level in the plant as well in the surrounding area.

Implementation Plan to Mitigate Environmental Impact

Sr. No.	Recommendations	Time Requirement	Action
1	Air pollution control measures	Before commissioning of respective units	Immediate
2	Water pollution control measures	Before commissioning of the plant	Immediate
3	Noise control measures	Along with the commissioning of the Plant	Immediate
4	Ecological preservation and up gradation	Stage wise implementation	Immediate & Progressive
5.	Green Belt development	Stage wise implementation	Immediate & Progressive

Environmental Monitoring Programme

Nature of Analysis	Frequency of Analysis	Number of Sample
Stack Monitoring of each stack	Monthly	2 locations
Ambient Air Quality Monitoring	Monthly for 24 hours or as per the statutory conditions	3 locations
Noise Pollution	Monthly for 24 hours or as per the statutory conditions	6 to 8 locations
Heath check up of workers	As per the statutory guideline	All the workers
Work zone monitoring (Heat stress & Noise)	Heat stress- once in three months Noise- once in a month	3 to 4 locations

10. Additional Studies

It is imperative to conduct risk analysis for all the projects which involves construction activity, erection of plant and raw material as well as finished product are handled and transported. Additional studies will helps to identified health hazard due to proposed

expansion. It is imperative to formulate risk at planning stage of project. On the basis of risk identification we can formulate onsite and offsite emergency plan which will helpful in exigency. Additional studies represent the public orientation towards project.

11. Project Benefit

Project benefit focused on those points which become beneficial to the surrounding area or community in terms of infrastructural development, Social development, boosting employment and other tangible benefits due to upcoming or proposed activities in the form side benefits. The proposed project expansion has a potential for employment of skilled, semi-skilled and unskilled employees during construction phases well as operational phase.

Proposed project will emerging following developments

- ❖ Education facilities
- ❖ Banking facilities
- ❖ Post offices and Communication facilities
- ❖ Medical facilities
- ❖ Recreation facilities
- ❖ Business establishments
- ❖ Community facilities

12. Environment Management Plan

In view of the global concept of sustainable development, Environment Management is a crucial segment of Industrial Management. EMP comprise of environmental attribute, social development, Health and Safety Management System, to prepare a checklist for statutory compliance to keep the environment neat and clean. The objective of Environment Management Plan (EMP) is to conserve resources, minimize waste generation, treatment of wastes and protect natural properties. Environmental

Management Plan (EMP) has been prepared on the basis of existing environmental status of the project location and the expected impacts of the project activities on environment.

Following attributes broadly consider in EMP

Air: The monitored ambient air quality has been found to be very much within the norms established by the regulating agency such as Central Pollution Control Board. However the precautionary measures will be taken to minimize air pollution.

Water: There is no industrial effluent generation. Water logs will be maintained to minimize water consumption. Domestic waste water will be treated in ETP.

Noise: Efforts should be taken by SVMPPPL; threshold limit of noise never to be exceed. Regularly work zone noise monitoring will be done by internal and external agency. All rotating equipment's well lubricated.

Solid Waste: Generated solid waste during construction and operation recycle internally and by external agency. Slag recycle processing unit will be installed and it will be sold to cement industry. Authorized vendor will be selected for recycling of hazardous waste.

Rainwater Harvesting: Rain water from terraces/rooftop areas shall be collected through rain water down-take pipes & collected to catch basins or stored in rain water tanks. Rain water harvesting pits shall be provided wherever feasible so that maximum rain water recharged into the ground before it reaches the storm water mains. Collected rainwater used for irrigation purpose within plant premises.

Green Belt Development: Total greenbelt area after expansion will be around 28328m². The green belt developed by planting drought resistant trees suitable for local climate. Moreover, avenue trees will be planted all along the roads and local species are recommended to plant. The density of tree will be 1000 tree per acres i.e. 1 tree per 4 m² to minimize the effect of air and noise pollution and to improve overall environment.

Health & Safety: SVMPPPL has followed occupational health program right from the start of production as per Factory Act, 1948.

CSR Plan: CSR activities covering social and environmental performance of the unit. This activity includes Treatment of staff, Treatment of people working in the supply chain and Community activities. In addition to above, Environmental Performance is one of the vital parts of CSR activities.

Environmental Management Cell: To practice environmental management plan Environmental Management Cell will be established, which will be supervised and comply all statutory guidelines prescribed Central Pollution Control Board. Environmental Management Cell headed by Director and independent Plant Manager supported by a team of technically qualified personnel apart from other operating staff.

13. Budgetary Provision for Environmental Management Plan

- ❖ The Capital Cost of the proposed expansion of SVMPPPL is Rs.93/- Crores (as proposed to be approved by the funding agency/financial institution).
- ❖ Capital and recurring cost will be Rs 155. Lakhs & Rs. 26.4 Lakhs respectively

14. Conclusion

Based on the study

- ❖ There will be no major impact on water environment as there is no industrial wastewater generation. Only domestic effluent will be generated which will be treated in package STP.
- ❖ Emission from stack will be within norms
- ❖ Water use will be minimized by developing various techniques.
- ❖ To prevent fugitive emission various step will taken like regular sprinkling of water and pucca road.

- ❖ Adequate arrangement for handling and disposal of Hazardous/solid waste will be made.
- ❖ Fire protection and safety measures will be provided to take care of fire and explosion hazard.
- ❖ Suggestions of qualitative risk analysis study will be followed to minimize accidents and for safe operations.
- ❖ Recommendations suggested in Environmental Management Plan will be followed to minimize the impact of proposed project.

Overall, direct and indirect employment opportunities, improvement in basic infrastructures by development of industry etc. will be observed with negligible impact on environment.

It can be concluded that on positive implementation of mitigation measures and environmental management plan during the construction and operational phase, there will be negligible impact on the environment.