Executive Summary

Of

PROPOSED EXPANSION IN PRODUCTION CAPACITY OF CL, SG & STEEL CASTINGS FROM 28,800 TPA TO 60,000TPA

Proponent

M/s Synergy Green Industries Ltd (SGIL)
Plot No. C-18, Five Star MIDC, Kagal, Kolhapur, Pin code - 416216

By

Pollution & Ecology Control Services
NAGPUR

Nabet Extn. Letter No. QCI/NABET/ENV/ACO/21/1730
Valid till 12th August 2021

Executive Summary

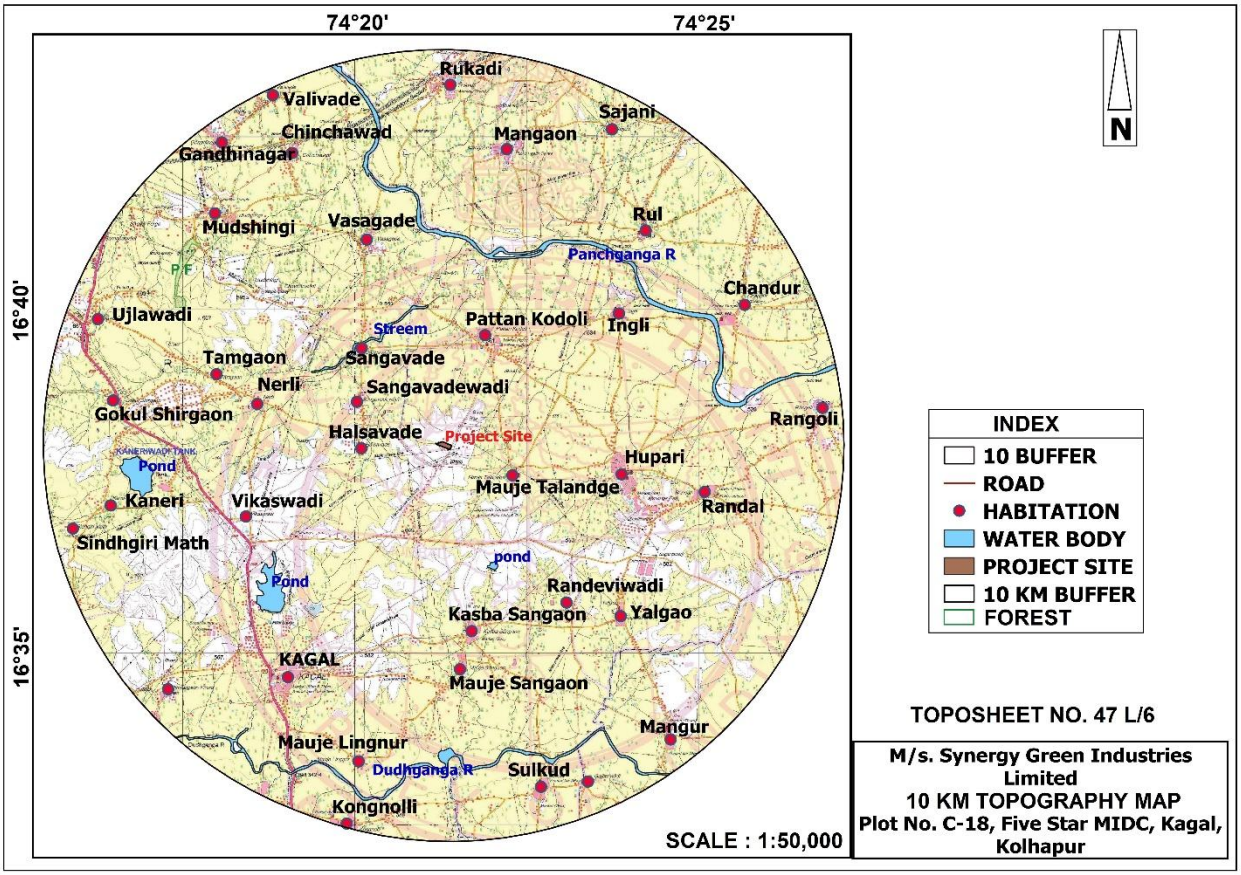
PREAMBLE

Environment 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 projects. It aims for predicting environmental impacts at an early stage of project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decision makers. By using EIA, both environmental and economic benefits can be achieved. EIA systematically examines both beneficial and adverse consequences of the project and ensures that these impacts are taken into account during the project design. By considering environmental effects and mitigation early in the project planning cycle, there are many benefits, such as protection of the environment, optimum utilization of resources and saving overall time and cost of the project. Properly conducted EIA also lessens conflicts by promoting community participation, informs decision-makers, and helps lay the base for environmentally sound projects.

The proposed expansion project is to increase the production capacity of Cl, SG & Steel Castings - 28,800 TPA to 60,000 TPA of M/s Synergy Green Industries Ltd (SGIL) by using the Induction Furnaces, Metallizing Booth, paint Booth, Shot Blasting Machine at Plot No. C-18, Five Star MIDC, Kagal, Kolhapur, Pin code - 416216. The standard TOR has been issued vide letter no File No. SIA/MH/IND/58616/2020 dated 26-11-2020 from SEAC-I, Maharashtra.

Total land in possession is 4.016 ha at MIDC Kagal Kolhapur. Pollution & Ecology Control Services (PECS), Nagpur presents this Environmental Impact Assessment Report on behalf of M/s Synergy Green Industries Ltd (SGIL). The proposed expansion of foundry unit is covered under category “B” of the Schedule 3 (a) “Metallurgical Industries” of Environmental Impact Assessment (EIA) Notification 2006 & its further amendments

The Topographical map of 10 km radius is given in the figure below



Project cost: The total cost of proposed expansion project is estimated as Rs. 5000 Lakhs

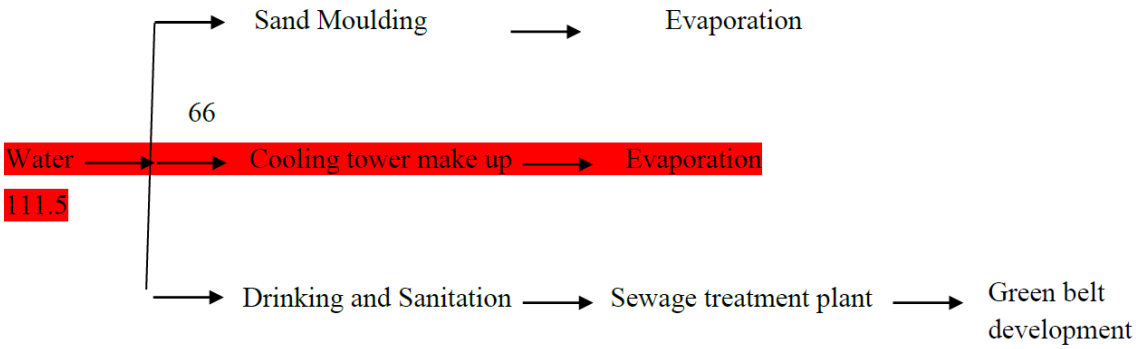
Power Requirement: The sanctioned power by MSEDCL for the existing plant is about 8000 KVA. After the proposed expansion it will be increased to 14,000 KVA and the same will be sourced from MSEDCL through a dedicated line.

Raw Material Requirement: Existing and Proposed raw material requirement for the project is as below:-

Item Description	Existing (TPA)	Proposed (TPA)	Location	Distance (km)
CRCA Trimming Scrap	11,000	32,000	Mumbai	400
Pig Iron	6,720	20,000	Goa	200
In-house Returns	6,000	28,000	--	0
Iron / Silica/ Magnessium	280	1,200	Nagpur	950
Ladle Inoculant	100	480	Nagpur	950
Mould Inoculant	40	160	Nagpur	950
Graphite	463	1,440	Kolhapur	30
Furnace Lining Material	78	180	Kolhapur	30
Furan Resin	900	2,700	Mumbai	400
Catalyst	320	1,080	Mumbai	400
Zircon Paint	160	500	Mumbai	400
Dry Silica Sand	4,418	17,000	Kolhapur	15
Grinding Wheels (Nos.)	1,00,000	2,50,000	Kolhapur	30

WATER REQUIREMENT

The total water requirement after the proposed expansion will be increased from 104 KLD to 115.5 KLD. The detailed break-up is given as under. The source of water is MIDC. The sewage generation will also increase from 20.70 KLD to 22.70 KLD after the expansion. Existing sewage is treated in STP of capacity 25.0 KLD. For expansion, existing STP capacity is enough.



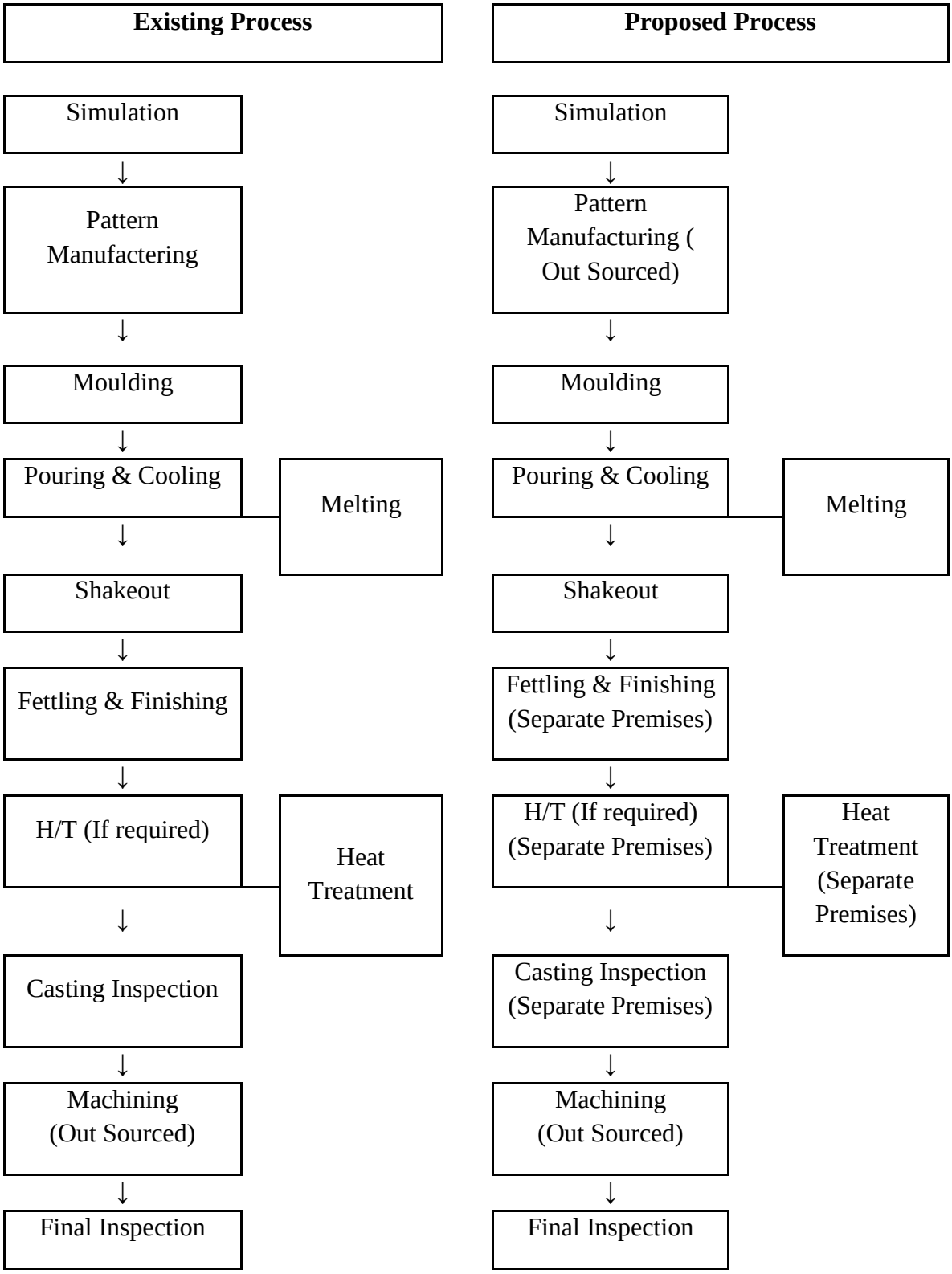
MAN POWER REQUIREMENT

Existing no. of manpower is 457 nos., the proposed expansion project will provide employment to about 100 persons. Total Manpower requirement after expansion will be 557 nos.

PROCESS DETAILS

This plant is a state of the art foundry unit for manufacturing large size SG Iron & Grey Iron castings. A brief description of the manufacturing process is given below. The manufacturing process of castings involves the following steps in sequence. The details of each step are described below.

- Simulation
- Patternmaking
- Mould making
- Melting
- Pouring, Cooling & Shakeout
- Fettling & Inspection
- Heat Treatment
- Machining
- Final Inspection


Existing Process
Simulation
Pattern Manufactering
Moulding
Pouring & Cooling
Melting
Shakeout
Fettling & Finishing
H/T (If required)
Heat Treatment
Casting Inspection
Machining (Out Sourced)
Final Inspection
Proposed Process
Simulation
Pattern Manufacturing (Out Sourced)
Moulding
Pouring & Cooling
Melting
Shakeout
Fettling & Finishing (Separate Premises)
H/T (If required) (Separate Premises)
Heat Treatment (Separate Premises)
Casting Inspection (Separate Premises)
Machining (Out Sourced)
Final Inspection

DESCRIPTION OF ENVIRONMENT

The baseline environmental quality for the period of 1st March 2021 to 31st May 2021 was assessed in an area of 10 km radius around the proposed project site.

Air Environment

The ambient air quality monitored at 8 locations selected based on predominant wind direction, indicated the following ranges;

PM_{10} : 42.4 to 67.0µg/m^3

$PM_{2.5}$: 18.1to 29.4µg/m^3

SO_2 : 10.0 to 19.7µg/m^3

NO_x : 12.4 to 28.4 µg/m^3

Industrial Area Residential, Rural Area (CPCB Norms)	PM_{10}	$PM_{2.5}$	SO_2	NOx
	100 µg/m^3	60 µg/m^3	80 µg/m^3	80 µg/m^3

The concentrations of PM_{10}, $PM_{2.5}$, SO_2 and NO_x were found within the National Ambient Air Quality Standards (NAAQ).

Water Environment

A total 16 samples including eight surface & eight ground water samples were collected and analyzed. The water samples were analyzed as per Standard Methods for Analysis of Water and Wastewater, American Public Health Association (APHA) Publication.

The data indicates that the ground water as well as the surface water quality are below the stipulated standard for drinking water (BIS 10500 – 2012).

Noise Environment

Noise levels measured at eight stations are within limit of 55.0 dB (A) for Residential Area or 75.0 dB (A) for Industrial Area as given in MoEF Gazette notification for National Ambient Noise Level Standard.

Area Code	**Category of Area**	**Limits in dB(A) Leq**	
		Day time	**Night time**
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone**	50	40

**** Silence zone is defined as area up to 100 meters around premises of hospitals, educational institutions and courts. Use of vehicle horns, loud speakers and bursting of crackers are banned in these zones

Land Environment

Soil samples were collected analyzed for physico-chemical characteristics at selected locations in the study area to assess the existing soil conditions around the proposed project site. From the analysis results of the soil samples, it was observed that the soil was medium fertile and having average productivity. The soil in the study area needs additional fertilizers for improving the fertility status and increase in crop productivity. Overall the soil quality in the area was found medium fertile with moderate productivity.

ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

Impact on Air Quality

The impacts on air quality due to source of the air pollution in the proposed expansion activities have been identified.

The present baseline concentrations were monitored in the EIA study. The additional emissions are mainly from induction furnace during melting process.

The proposed project activity will result in air emissions from the following areas.

a) Raw material Handling and storage area

b) Induction Furnace

c) Transportation

The atmospheric dispersion modeling and the prediction of ground level pollutant concentrations has great relevance in the following activities:

- Estimation of impact of industry on surrounding environment.
- Estimation of maximum ground level concentration and its location in the study area.

The mathematical model used for predictions on air quality impact in the present study area is AERMOD.

The predicted ground level concentrations obtained when superimposed on the baseline concentrations are within the prescribed NAAQ Standards for residential areas.

In point source emissions, the stacks are subjected to plume rise which again is dependent on force of buoyancy and momentum. The higher is the plume rise or stack, the lesser will be ground level concentrations (GLC's).The emissions when released into the atmosphere are subjected to transportation, dispersion, transformation, and fall out and wash out and finally reach the ground level at a particular distance. That's why the GLC is comparatively low at project site

Mitigation Measures

- M/s. Synergy Green Industries Limited shall provide dust suction system which will control fugitive emission due to material and raw material handling.
- Regular monitoring of air quality parameters.
- Three Stack of 20 mt height will be attached to furnaces with cassette type filter to minimize the concentration of mainly PM_{10} and $PM_{2.5}$ pollutants
- The vehicles transporting raw materials will be covered with tarpaulin in order to prevent dust emission during the transport.
- It would be ensured that all the vehicles in the working zone are properly 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 brought down to minimal.
- The finished product will be transported by the same trucks carrying raw material.
- Plantation in the plant premises will be done in the 33% of the total land.
- All the internal roads shall be concreted / asphalted to reduce the fugitive dust due to vehicular movement

- Whenever, APCS is not working, then raw material feed will be stopped. Consequently there will be no production in the unit till APCS is rectified.

Impact on Water

The total water requirement for the proposed activities is 115.5 KLD. During plant operation no waste water will be generated from the process.. Existing sewage is treated in STP of capacity 25.0 KLD. For expansion, existing STP capacity is enough.

Solid Waste Generation

SL.	Type of Waste	Existing Quantity	Proposed Quantity	Total Quantity	UOM	Treatment	Disposal
1	STP Sludge	100	0	100.00	kg/M	Drying	Used as Manure
2	Slag & Ladle Skull	1.0	1.0	2.00	T/Day	Land fill	Land fill in Low Lying Area
3	Sand Dust	3.0	2.0	5.00	T/Day	Land fill	Land fill in Low Lying Area
4.	Wastes or residues containing oil	1500	500	2000	Ltr/ Annum	Incineration	CHWTSDF
5.	Empty barrels/container /liners contaminated with hazardous chemicals /wastes	1500	1500	3000	Nos./Y	Decontamination	CHWTSDF
6.	Process wastes, residues and sludge's	500	300	800	Kg/ Annum	Landfill	CHWTSDF

Impact on Demography and Socio-Economics

The impacts of the proposed project, during its operation, on demography and socio-economic condition can be identified as follows.

- Negative impacts can be depletion of natural resources like water and land. The impact on the air quality will be marginal.
- Increase in employment opportunities and Reduction in migrants to outside for employment.
- After expansion, 100 people will be employed.
- Increase in consumer prices of indigenous produce and services, land prices, house rent rates and Labour prices.
- Improvement in socio-economic environment of the study area.
- Improvement in transport, communication, health and educational services.
- Increase in employment due to increased business, trade commerce and service sector.
- The overall impact on the socio economic environment will be beneficial.

ENVIRONMENT MONITORING PROGRAMME

The environmental monitoring is important to assess performance of pollution control equipment installed in the proposed expansion project of Synergy Green Industries Ltd (SGIL). 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.

Environmental monitoring will be conducted on regular basis by Synergy Green Industries Ltd (SGIL) to assess the pollution level in the proposed expansion project as well as in the surrounding area. Therefore, regular monitoring program of the environmental parameters is essential to take into account the environmental pollutant of the study area.

The objective of monitoring is:

- To verify the result of the impact assessment study in particular with regards to new developments;
- To follow the trend of parameters which have been identified as pollutants;
- To check or assess the efficiency of the controlling measures;
- To ensure that new parameters, other than those identified in the impact assessment study, do not become critical due to the commissioning of proposed expansion facilities;
- To check assumptions made with regard to the development and to detect deviations in order to initiate necessary measures;
- To establish a database for future Impact Assessment Studies for new projects.

The attributes, which needs regular monitoring, are specified below:

- Air quality
- Water and wastewater quality;
- Noise levels;
- Soil quality;
- Ecological preservation and afforestation; and
- Socio Economic aspects and community development

ENVIRONMENT MANAGEMENT PLAN

The Company is bounded to take all mitigation measures as given in the report. The company has a well-defined policy to keep the environment clean.

Air Environment

The sources of air pollution are raw material handling system, materials transportation, raw materials feeding to the operating equipment. The automatic process equipment will be deployed for the raw material feeding system.

Adequate measures already adopted to arrest the emission of pollutants within the stipulated & statutory norms.

- Cassatte type filter along with fume extraction system is proposed in expansion phase followed by stack.
- Fugitive emission from material unloading operations, material transfer points will be controlled fully with total enclosure.
- Fugitive as well ambient air quality monitoring shall be carried out on regular basis to ensure the compliance with National Ambient Air Quality Standards (NAAQS). The ambient air quality within the factory premises shall not exceed the standards (PM_{10} 100μg/m^3, $PM_{2.5}$ 60μg/m^3 SO_2 80μg/m^3, NO_x 80μg/m^3) prescribed by CPCB.
- Regular Stack Monitoring are being carried out and same will be continue in expansion phase. It will ensure that all the emissions from the plant will be controlled to meet the relevant standard set by CPCB/State Pollution Control Board after expansion of project

Noise Environment

Regular maintenance of the various equipment, ear plugs/muffs will be provided for the personnel working close to the noise generating units. Further all the openings like covers, partitions will be designed properly to abate noise pollution.

Water Environment

The quantity of waste water generation depends upon the quantity of water used for various purposes. As the foundry unit will be operated on the dry process, water is not used in the process where as water is used at certain portion of ancillary services of the plant like Cooling Tower make-up and sand mould making. There is no trade effluent generation from the existing plant as the entire water used for cooling and sand molding is evaporated. It is also not expected any trade effluent after the proposed expansion too. The sewage generation will also increase from 20.70 KLD to 22.70 KLD after the expansion. Existing sewage is treated in STP of capacity 25.0 KLD. For expansion project existing capacity is enough. The treated sewage will be utilized for green belt

development within the plant premises as the greenbelt area is enough to handle the sewage.

Management Plan of Solid waste

- Slag & Ladle Skull are being used for Land filling in Low Lying Area and will be continued after expansion
- Sand Dust are being used for Land filling in Low Lying Area and will be continued after expansion
- Wastes or residues containing oil disposed via incineration in CHWTSDF
- Empty barrels/containers/liners contaminated with hazardous chemicals /wastes disposed to CHWTSDF at Maharashtra Enviro Power Limited (MEPL), Pune

Socio Economic Environment

Synergy Green Industries Ltd (SGIL) would aid in the overall social and economic development of the region. The plant will give employment 100 people of local area after expansion. In order to mitigate the adverse impacts likely to arise in the proposed expansion project activities and also to minimize the apprehensions to the local people, it is necessary to formulate an affective EMP for smooth initiation and functioning of the project. The suggestions are given below:

- Communication with the local people will be established regular basis by project authority to provide an opportunity for local youth.
- Project authorities will undertake regular environmental awareness program on environmental management.
- Job opportunities are the most demanding factor, the local people as per their education will be employed.
- For social welfare activities to be undertaken by the project authorities, collaboration should be sought with the local administration, gram panchayat, block development office etc for better coordination.

Green Belt Development

The factory has a total of 8540.26 Sq. M. as greenbelt out of a total area of 40160 Sq.M. There are about 270 No of trees of varying species of plants are grown within the factory premises. Now it is proposed to increase the green belt area by planting 2400-2500 No of plants on 4712.0 Sq.m. to achieve the mandatory requirement of 33% of greenbelt requirement by CPCB/MoEF.

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