

EXECUTIVE SUMMARY

of

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

For

“Proposed Captive Resin Plant with a Production Capacity of 21250 kg/day for Manufacturing of Plywood & Block Boards at 4329 MT/Month’

By

HG Industries Limited (HGIL)

(formally known as Himalaya Granites Limited) is a subsidiary of Greenlam Industries Limited)

AT

Sy. Nos: 139/2A2, 139/2B, 139/3, 140/1A2, 140/1B, 140/2, 140/3, 140/4, 140/5, 140/6, 140/7, 140/8, 146/1, 146/3B & 146/4

Village : Panchalam, Melpettai (PO)

Taluk : Tindivanam

District: Villupuram

State: Tamil Nadu

[Terms of Reference : SEAC-TN/F.No.9416/2022/5(f)/ToR-1270/2022; 08.10.2022]

[Baseline Period : June 2022 to Aug 2022]

[Doc.ID : EHSL/EIA-PH/5(f)/01/Nov/2022]

CONSULTANT



ASHOK NAGAR, CHENNAI-68

(NABET/EIA/2225/IA 0098 | Validity up to 24.06.2025)

DECEMBER 2022

1. Introduction

M/s HG Industries Ltd., formally known as Himalaya Granites Limited is a subsidiary of M/s. Greenlam Industries Limited have proposed “Captive Resin Plant with a Production Capacity of 21250 kg/day for Manufacturing of Plywood & Block Board, at 4329 MT/Month” at Survey No: 139/2A2, 139/2B, 139/3 ,140/ 1A2, 140/1B, 140/2, 140/3, 140/4, 140/5, 140/6, 140/7, 140/8, 146/1, 146/3B & 146/4 in the name of HG Industries Limited (Formerly Himalaya Granites Limited), Panchalam Village, Melpettai Post, Tindivanam, Villupuram District. Pin: 604307. HGIL proposed project is envisaged to meet the demand supply gap in both the domestic market and export market, as plywood & block boards demand is increasing day by day.

HG Industries Ltd proposed a green field project, However, initially project proponent was planned only for plywood manufacturing facility and obtained CTE for the same, vide No. 2101240864569 dated on 25.10.2021. The existing Himalaya Granite Ltd constructed sheds and building are being removed (except quarters. The demolished waste will be used in forthcoming land development activities.

Since synthetic resin is a captive consumption in the plywood factory and for cost effectiveness of Raw materials (Resins) for manufacturing the plywood products, proponent proposed the Captive Resin manufacturing facility within the same premises and revised the plywood manufacturing layout as required for resin manufacturing facility.

Hence, M/s. HG Industries Ltd proposed to establish a new manufacturing facility for manufacturing of Plywood & block board (4329 Ton/Month), It is to manufacture different type of resins for captive use like Modified Phenol resin (Phenol Formaldehyde Resin 8775 kg/day), Melamine formaldehyde resin (8075 kg/day) & Urea formaldehyde resin (4400 kg/day). *The individual resin product quantity may vary as per the market demand, but all three products' total quantity will not exceed the total proposed quantity (21250 Kg/day).*

Manufacturing of resins require Environmental Clearance (EC Products) whereas Plywood & Block boards does not require EC (Non-EC Products) and project termed under Schedule 5(f), Synthetic Organic Chemicals, Category B as per the EIA notification dated 14th September 2006 and its subsequent amendments and Environmental Clearance (EC) to be obtained from State Environmental Impact Assessment Authority (SEIAA) Tamil Nadu before the commencement of ground activity.

In line with the said notification, TOR application was filed to SEAC/SEIAA on 20th July 2022 vide proposal No SIA/TN/IND3/81014/2022. TOR meeting is held in SEAC-TN on 16.09.2022, ToR has granted with public hearing. Base line Studies are carried out during the period of June 2022 to August 2022 as per OM. No. J-11013/41/2006-IA-II (I) (Part) dated, 29th August 2017 & the draft EIA report has been prepared in line with the prescribed ToR vide Lr. No. SEAC-TN/F.No.9416/2022/5(f)/ToR-1270/2022; 08.10.2022. EIA report has been prepared according to obtained ToR and as per generic structure described in EIA Notification for Public Consultation as per the said notification and SEIAA TN. The project will be appraised by the TNSEIAA after Public Hearing.

Environmental Setting of the project site (Within The 15km Radius)

| S. No | Particulars | Details | | | |
|-------|---------------------------------|--|------------------------|-----------------------|------------------|
| 1 | Plant site latitude | 12°15'37.17"N (Centre Co-ordinate) | | | |
| 2 | Plant site longitude | 79°40'54.03"E (Centre Co-ordinate) | | | |
| 3 | Elevation of Project site | ~57m Above MSL | | | |
| 4 | Nearest Highway | NH - 45 (Chennai – Trichy) Adjacent, W | | | |
| 5 | Nearest railway Station | Panchalam ~1.98Km, NE | | | |
| 6 | Nearest Airport (Domestic) | Pondicherry Airport, ~35.14Km, SSE | | | |
| | Nearest Airport (International) | Chennai ~ 94.42 Km, NNE | | | |
| 7 | Nearest Village | Melpettai at ~560m, N | | | |
| 8 | Nearest Town | Tindivanam: ~2.71Km, WSW | | | |
| 9 | Nearest City | Pondicherry: ~34.24Km, SSE | | | |
| 10 | Reserve Forests | Savur RF 5.75km (ESE) | | | |
| 11 | Monuments | Pallava Rock-cut shrine, Kilmavilangai, 10.80Km, NW Seetha Cave, 8.81Km, SE | | | |
| 12 | Waterbodies | S. No | Name | Distance (~km) | Direction |
| | | 1 | Canal | 14.26 | N |
| | | 2 | Nedungal Ar | 12.04 | NNE |
| | | 3 | Vadammanipakkam Oodai | 10.32 | N |
| | | 4 | Canal | 9.46 | N |
| | | 5 | Nedungal Ar | 12.04 | NNE |
| | | 6 | Edaiyalam Ar | 14.60 | NE |
| | | 7 | Ongur Ar | 14.94 | NE |
| | | 8 | Saram Ar | 5.09 | NE |
| | | 9 | Eri Odai | 5.13 | SW |
| | | 10 | Kondamur Ar | 8.39 | S |
| | | 11 | Melpettai Lake | 0.30 | ENE |
| | | 12 | Panchalam lake | 0.48 | NNW |
| | | 13 | Salavadi Pond | 1.02 | SSW |
| | | 14 | Vittalapuram Lake | 1.42 | SSE |
| | | 15 | Kattalai Lake | 4.56 | SE |
| | | 16 | Brammadesam Lake | 11.33 | SE |
| | | 17 | Mettupalaiyam Lake | 11.49 | SSE |
| | | 18 | Lake near Omandur | 9.15 | S |
| | | 19 | Lake near Annamputtur | 8.23 | S |
| | | 20 | Kaveripakkam Lake | 3.53 | SW |
| | | 21 | Lake near Jakkampettai | 7.48 | SW |
| | | 22 | Lake near Singanur | 7.78 | SW |
| | | 23 | Botheri/Gidangal Lake | 5.02 | SW |
| | | 24 | Lake near Pattanam | 2.98 | WSW |
| | | 25 | Lake near Melpakkam | 3.07 | NW |
| 26 | Lake near Pattanam | 4.89 | W | | |

| | | | | | |
|--|--|----|----------------------|------|-----|
| | | 27 | Lake near Puliyur | 2.40 | NNW |
| | | 28 | Lake near Vairapuram | 5.85 | NNW |
| | | 29 | Lake near Kodiyam | 8.75 | NW |
| | | 30 | Lake near Purangarai | 2.65 | NNE |
| | | 31 | Lake near Olakkur | 6.13 | NNE |
| | | 32 | Lake near Ettipattu | 9.64 | N |
| | | 33 | Lake near Karasangal | 9.59 | NE |

2. Project Description:

Project site is situated at Survey No's: 139/2A2, 139/2B, 139/3, 140/1A2, 140/1B, 140/2, 140/3, 140/4, 140/5, 140/6, 140/7, 140/8, 146/1, 146/3B & 146/4 in the name of HG Industries Limited (Formerly Himalaya Granites Limited), Panchalam Village, Melpettai Post, Tindivanam Taluk, Villupuram District. Tamil Nadu Pin: 604307. The site is located in a longitude 79°40'54.03"E and latitude 12°15'37.17"N. The plant site is located at adjacent to Chennai - Trichy, National highway NH-45 in west direction. The nearest railway station of Panchalam at a distance of ~1.98 km in Northeast direction and the nearest airport Pondicherry is located at a distance of ~35.14km in southeast direction.

Project Summary:

| S. No | Particulars | Proposed details |
|-------|---|---|
| 1 | Category of products | Synthetic Resins for Captive consumption of plywood manufacturing |
| 2 | Product -3 Nos of Resins (Kg/Day) | 21250 |
| 3 | Plywood (MT/Month) | 4303 |
| 4 | Block boards (MT/Month) | 26 |
| 5 | Total Land area(acres) | 14.76 |
| 6 | Total Built up area (sq .m) | 32,832.69 |
| 7 | Total Water Requirement (KLD) | 127.52 |
| 8 | Recycled (KLD) | 55.54 |
| 9 | Fresh water (KLD) | 71.98 |
| 10 | Source of Water | Private suppliers |
| 11 | Effluent Generation in KLD | 0.24 |
| 12 | Sewage Generation in KLD | 55.3 |
| 13 | Wastewater Treatment System & capacity | 1 KLD of ETP (ZLD Concept) |
| 14 | Domestic Wastewater treatment system | 60 KLD of STP |
| 15 | Power (kVA) Source: TANGEDCO | 2745 |
| 16 | Power Backup-DGs (kVA) | 1 x 2000 & 2 x 750 |
| 17 | Air Compressor (m ³ /minute) | 6 x 5.5 |
| 18 | TFH (Thermic Fluid heater (Lakh Kcal) | 1 x 100 |
| 19 | Diesel for DG Sets (Lts/Day/DG)-During power failure only | 800 |
| 20 | Wood Scrap for TFH (T/Month) | 2125 |
| 21 | TFH oil for top-up (Lt/Yr)-Not combustible | 800 |
| 22 | Grease (Kg/Year) as a lubricant | 200 |

| | | |
|----|---|----------|
| 23 | Permanent Manpower (Nos) | 980 |
| 24 | Temporary Manpower (Nos) | 200 |
| 25 | Municipal Solid Waste (kg/day)- Construction phase | 90 |
| 26 | Municipal Solid Waste (kg/day)-Operation phase | 444 |
| 27 | Project Cost in crores (INR) | 111.14** |
| 28 | Environmental Management Plan (EMP) Cost (Crores) | 2.70 |
| 29 | CER on Resins manufacturing cost (Lakhs) | 5.5 |

Note: **Total project cost Rs. 111.14 crores (Resins: INR.3.63 crores and Non-EC Products: 107.51 crores)

Proposed Products

M/s. **HG Industries Ltd** proposed to establish new manufacturing facility for manufacturing Plywood & block boards with following capacities.

| S. No | Name of the product | Units | Capacity |
|------------------------|----------------------------------|-----------|--------------|
| EC- Products | | | |
| 1 | Modified Phenol resin | Kg/day | 8775 |
| 2 | Melamine Urea Formaldehyde Resin | Kg/day | 8075 |
| 3 | Urea Formaldehyde Resin | Kg/day | 4400 |
| Total | | | 21250 |
| Non-EC Products | | | |
| S. No | Name of the product | Units | Capacity |
| 1 | Plywood | Ton/Month | 4303 |
| 2 | Block board | Ton/Month | 26 |
| Total | | | 4329 |

Note:

- The individual resin product quantity may vary as per the market demand. But all three products' total quantity will not exceed the total proposed quantity (21250 Kg/day).
- The proponent will manufacture Resin products for its own use. However, in case of any emergency or plant shutdown where the proponent cannot hold the stock as the product may lost its self-life, may get transferred to other sister concerns or may sale to other similar manufacturing companies.
- The individual Plywood product's (Plywood &Block boards) quantity may vary as per the market demand. But all two products' total quantity will not exceed the total proposed quantity (4329 MT/Month).

Manufacturing process:

- ✓ HGIL is planning the latest technology to manufacture Modified Resin. In the main manufacturing Process and setting the state-of-the-art Machines/Equipment with modern Technology to minimize the overall resin consumption, which will finally result to reduction of raw material consumption.
- ✓ Kettle is designed with Water Circulation System and Jacket to Ensure Emergency arresting the process. Each Kettle equipped with Water Tube Condensers for Reflux the Solvents /Condensates to the Kettle -ensure Zero loss and Emission.

- ✓ HGIL will be provided dedicated kettle for each category of resins to avoid daily washing, weekly washed water will be reused in manufacturing of next batch of Resin.
- ✓ HGIL will explore all possibilities to reduce the raw materials (Solvent) in the process of manufacturing on continuous basis (as & when there is a technology upgrade).

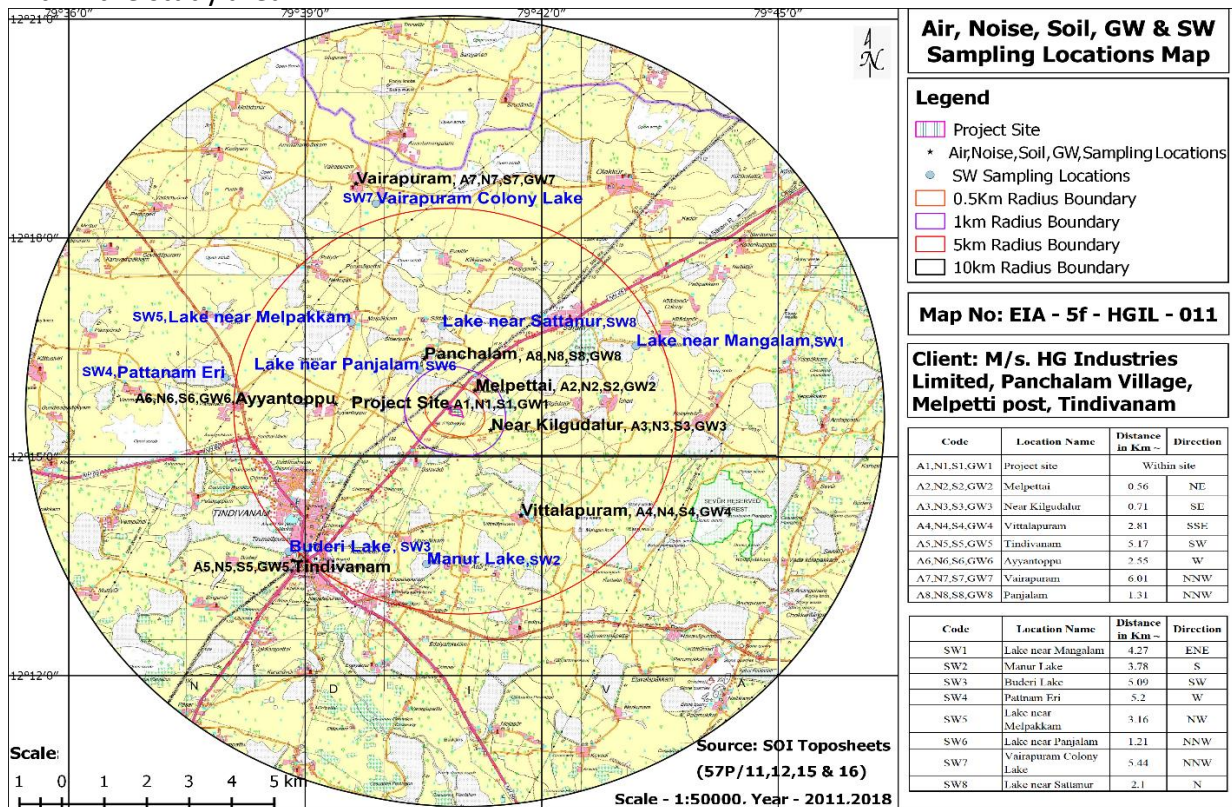
Proposed Project Cost (Estimated):

Total project cost Rs. **111.14** crores (Resins: INR.**3.54** crores and Non-EC Products: **107.6** crores)

| S. No | Description | Lakhs (INR) | | |
|--------------|---|-----------------|-----------------|-------------------------|
| | | GFA-Plywood | GFA-Resin Plant | Cumulative Project cost |
| 1 | Land | 11.33 | 0.00 | 11.33 |
| 2 | Land development/other supporting Works | 138.67 | 0.00 | 138.67 |
| 3 | Building | 6169.78 | 68.37 | 6238.15 |
| 4 | Plant & Machinery | 4022.76 | 257.82 | 4280.58 |
| 5 | Environment Management Plan (EMP) Cost (STP, ETP & APC) | 250.00 | 20.00 | 270.00 |
| 6 | Other Assets | 130.00 | 8.50 | 138.50 |
| | Project Consultancy | 21.14 | 0.71 | 21.85 |
| | Statutory clearance & Contingency | 7.00 | 8.00 | 15.00 |
| Total | | 10750.68 | 363.40 | 11114.08 |

3. Description of the Environment:

The primary baseline data monitored covered three (3) months i.e., from **June 2022 – August 2022**, and secondary data was collected from Government and Semi-Government organizations. AAQ, Noise, Surface water, Ground water and Soil is monitored in 8 locations within the study area.



I. Air Environment:

Meteorological Data for the Study Period (June 2022 – August 2022)

| S. No | Parameter | Observation |
|-------|--|--|
| 1 | Study period | June-August 2022 |
| 2 | Temperature | Max Temperature: 38 °C Min Temperature: 24 °C Avg Temperature: 33.8 °C |
| 3 | Average Relative Humidity | 55.26 % |
| 4 | Average Wind Speed | 2.79 m/s |
| 5 | Predominant Wind Direction during study period | West |

Ambient air Quality:

The ambient air quality has been monitored at 8 locations for 12 parameters as per NAAQS within the study area. All the parameters are well within the National Ambient Air Quality Standards at all monitoring locations during the study period. Based on comparison study of results for tested parameters with NAAQS, it is interpreted that ambient air quality of studied locations is average. This interpretation narrates to the results found for corresponding locations and study period.

- PM10 (41.1- 64.6 $\mu\text{g}/\text{m}^3$)
- PM2.5 (15.2 – 26.3 $\mu\text{g}/\text{m}^3$)
- SO₂(6.3 – 15.4 $\mu\text{g}/\text{m}^3$)
- NO₂(14 – 27.8 $\mu\text{g}/\text{m}^3$)

II. Noise Environment:

The Noise levels recorded during the daytime (6:00 a.m to 10:00 p.m) and night-time (10:00 p.m to 6:00 a.m) at all stations are within the CPCB limits. The major source of noise in the study area is transportation and vehicular movement since the project site located near highway.

- In Industrial areas daytime noise levels was about 55.9 dB(A) and 48.3 dB(A) during night time, which is within prescribed limit by CPCB (75 dB(A) Day time & 70 dB(A) Night time).
- In residential areas daytime noise levels varied from 49.5 dB(A) to 52.6 dB(A) and night time noise levels varied from 40.6 dB(A) to 42.5 dB(A) across the sampling stations. The field observations during the study period indicate that the ambient noise levels are well within the prescribed limit by CPCB (55 dB(A) Day time & 45 dB(A) Night time).

III. Water Environment:

Surface Water:

The surface water results were compared with IS 2296:1992 standard and in respect of CPCB water Quality Criteria for designated best use. Based on comparison study of test results with Surface water Quantity Standards (Is 2296 Class A), it is interpreted that water qualities of studied locations are classified under Class E, which can be used for irrigation industrial cooling, and controlled waste disposal.

- pH value ranges from 6.82 to 7.7.
- The Electrical Conductivity (EC) 397 $\mu\text{S}/\text{cm}$ - 769 $\mu\text{S}/\text{cm}$.

- The chloride content from 59.7 mg/l -105.3 mg/l.
- The sulphate content ranges from 10.6 mg/l to 30.4 mg/l.
- The Total hardness ranges from 74.7 mg/l to 153.2 mg/l.
- COD of the collected surface water sample ranges from 11.4 mg/l to 34.9 mg/l.
- BOD of the collected surface water sample ranges from 4.3 mg/l to 13.7 mg/l.

Ground Water:

Based on comparison study of test results with drinking water standard, it is interpreted that water qualities of studied locations meet with the drinking water standards as per IS 10500: 2012. These interpretations relate to the sample tested for location only. To prevent ground water contamination and improving the quality and Quantity, rainwater harvesting, and groundwater recharging may be helpful.

- The pH range varies between 6.83 and 7.95(Desirable limit)
- The Total Dissolved Solids range between 839 mg/l – 1274 mg/l (permissible limits).
- The chloride ranges between 236.9 mg/l – 346.8 mg/l (permissible limits).
- The sulphate content varies between 124.6 mg/l – 186.4 mg/l (permissible limits).

IV. Soil Environment:

As per the Indian Council of Agricultural research characterization all locations soils are having PH, Neutral to Slight Alkaline range, Electrical conductivity is Sensitive to salts, potassium as very less, Nitrogen as N is better range and Phosphorus range from medium to More than Sufficient range.

- The pH of the soil samples ranged from 6.8 to 7.76.
- Conductivity ranged from 149 µmhos/cm to 304 µmhos/cm.
- Nitrogen content ranged from 176 kg/ha to 314 kg/ha.
- Phosphorous ranged from 48 kg/ha to 102 kg/ha.
- Potassium content ranges from 51 kg/ha to 114 kg/ha.

V. Biological Environment:

- This area hosts common animals. Indian Dogs, Jungle and Domestic cat, Rhesus macaque, Domestic Cows, Buffaloes, Bullocks, and Goat etc. are found amongst mammals. Indian cobra, bande Kraits and other common snakes, and lizards like garden lizards are commonly found amongst reptiles.
- There are no rare, endemic species and endangered species identified in the study area.

VI. Socio Environment:

- The total population of the project area is 184327. Total villages in study area is 77 Nos. The area has 92399 male (50.13%) and 91928 female (49.87%) population. The percentage of Scheduled caste is 29.28 and Scheduled tribe population is 1.39.
- The literacy rate of the study region is 69.66%. The study area has more than 50% non-workers. There is a need to establish more industries so that maximum number of employments can be generated.

4. Anticipated Environmental Impacts and Mitigation Measures

I. Air Environment:

The Major sources of Air pollution due to proposed project will be Double Dimension Saw Machines, Calibrator & Sanding Machines, Thermic Fluid Heater, Fugitive vapors/emissions from Resin kettles, D.G. sets & Construction activities.

The stacks are considered as point sources to predict impact on ambient air quality during operational phase. The prediction has been done by using AERMOD View model prescribed by CPCB/MoEF&CC. It was observed that the maximum concentration of PM₁₀, PM_{2.5}, SO₂, NO_x observed due to proposed stacks are 11.5µg/m³, 6.9 µg/m³, 1.35µg/m³ and 7.39µg/m³ without control measures. The incremental Ground level concentration for PM₁₀, PM_{2.5}, SO₂, & NO_x is 72.9 µg/m³, 32.2 µg/m³, 16.45 µg/m³ & 34.09 µg/m³ So, it can be concluded that the impact envisaged is minimum and well within the CPCB standard.

Air Pollution Control Measures:

| S. No | Source of Generation | Pollutant | APC measures | Point of Discharge height |
|-------|--|--|---|---------------------------|
| 1 | Double Dimension Saw Machine (2 Nos), Calibrator & Sanding Machine (3 Nos) | Dust | Bag filter only dust collector- With Electro Pneumatic Suction, storage Suction, storage in Silo and Auto Pneumatic feeding to TFH as Fuel. | - |
| 2 | Hot press and dryer | Hot/Humid air | Hood/exhaust for hot and humid air ventilation. Building will have roof top monitor, side louvers along with windows and Insulated roof with center height of 16.4m to avoid heat from process and rooftop. | - |
| 3 | TFH wood based (100 Lakh kg/Cal) | SO ₂ , NO _x & PM | ESP followed by common stack | 30m AGL |
| 4 | 1 x 2000 kVA DG | SO ₂ , NO _x & PM | Acoustic enclosure & followed by Common Stack | 30m AGL |
| 5 | 2 X 750* kVA DG | | | |
| 6 | Resin Kettles | Process Emissions/VO C | Condensers. (Condensates will be collected inside the kettle) | - |
| 7 | Chemical handling/liquid raw material transferring to kettle | Fugitive emissions | Storing liquid material in closed storage tanks as well closed loop transfer system. | - |
| 8 | Handling of raw materials | Dust | Stored in normal atmosphere condition in closed room with provision of exhaust ventilation & Provision of PPE | - |

| | | | | |
|---|--------------------------------|---------------|---|---|
| 9 | During Construction activities | Fugitive dust | Sprinkling of water & Materials will be Covered with HDPE Covers. | - |
|---|--------------------------------|---------------|---|---|

II. Water Environment:

During operation phase, water requirement of proposed project will be mainly for process, Process washings, Core Veneer treatment, Plywood preservative treatment, cooling tower, Fire hydrant, Machine radiator, Tractor radiator, Floor washings, Canteen, Domestic use & Green belt etc.,

During construction phase, the domestic sewage will generate 9.0 KLD and will be disposed through septic tank followed by soak pit, Septic tank will be cleaned periodically.

Water and wastewater management

| S. No | Description | Effluent generation (KLD) | Method of Treatment |
|-------|--|---------------------------|--|
| 1 | Proposed effluent & Domestic Wastewater quantity and treatment details | Domestic- 55.3 KLD | Domestic Wastewater generation will be 55.3 KLD, will be treated in proposed STP (60 KLD) and treated water (55.3 KLD) will be used for Greenbelt (50 KLD) and Flushing (5.3KLD). Solid waste will be composed and reused as manure for internal greenbelt. |
| | | Effluents- 0.25 KLD | Effluent from Process washings will be treated in ETP (1 KLD). Treated effluent (0.24 KLD) will be used in the plant for Floor washings. Solar Evaporation sludge will be sent to TSDF or Authorized recycler. |

III. Noise Environment:

The major sources of noise are Machineries, Generators, Compressors, TFH, and Vehicular movements during operation phase for loading/unloading activities, feed pumps, ID fans, FD fans and other noise generating units like process equipment may increase noise level. The following measures are proposed to mitigate the negative impact of operation phase of the project on the surrounding noise environment.

- ✓ DG sets are provided with integral acoustic enclosures and 30m stack and air compressors are provided with integral acoustic enclosures.
- ✓ Calibrator and sanding machines will have inbuilt acoustic panels.
- ✓ 33.07% of Greenbelt & Land scaping around the factory building and premises to control the intensity of noise to the surrounding area.
- ✓ Providing personal protective equipment as a safety measure wherever required.
- ✓ Noise monitoring will be carried out to check the efficacy of maintenance schedules undertaken to reduce noise levels and noise protection measures.

IV. Solid and Hazardous Waste Management

Municipal Solid Waste Management:

| Construction Phase: | | | |
|---------------------|--------------------|-----------------|---|
| S. No | Type | Quantity Kg/day | Disposal method |
| 1 | Bio-degradable | 67.5 | Used as manure after composting within the facility |
| 2 | Non-Bio-degradable | 22.5 | TNPCB authorized recyclers |
| Total | | 90.0 | |
| Operational Phase: | | | |
| 1 | Bio-degradable | 330.75 | Used as manure after composting within the facility |
| 2 | Non-Bio-degradable | 110.25 | TNPCB authorized recyclers |
| 3 | STP Sludge | 3.0 | Will be used as a manure |
| Total | | 444 | |

Other Solid Waste during Operation Phase:

| S. No | Nature of Solid Waste | Category of the Waste | Quantity (MTPM) | Method of Handling Disposals |
|-------|--------------------------|-----------------------|-----------------|---------------------------------------|
| 1 | Paper / Card Board | Industrial Waste | 0.2 | For recycling units |
| 2 | Dry leaves Grass | Solid waste | 1 | Decayed in the pit and used as Manure |
| 3 | Wooden scrap | Industrial Waste | 2125 | TFH Fuel |
| 4 | Ash | Industrial Waste | 170 | Sent to Brick Manufacturers |
| 5 | Empty Small drums in Nos | Industrial Waste | 10 | Sold to traders/recycling |
| 6 | Rubber Hand Gloves | Nos | 48 | Dispose through traders/recycling |
| 7 | Leather Hand gloves | Nos | 120 | Dispose through traders/recycling |

Hazardous waste generation and Management:

| Stream | Hazardous waste generated | Proposed | Disposal Method |
|--------------------|---|----------|---|
| 34.3 of Schedule-I | ETP Sludge (kg/day) | ~0.1 | Disposed through TSDF |
| 33.1 of Schedule-I | Containers and Container liners (Nos/annum) | 32 | After complete detoxification, shall be sold to Authorized agencies |
| 33.1 of Schedule-I | Containers and Container liners (Kg/annum) | 700 | After complete detoxification, shall be sold to Authorized agencies |
| 5.1 of Schedule-I | Waste oil (kg/Year) | 200 | Authorized recyclers/preprocessors |
| 33.2 of Schedule-I | Cotton waste (kg/Year) | 600 | Dispose through traders/recycling |
| - | Used batteries (Nos /annum) | 04 | Sold to Recycles/ battery manufactures/ dealers on buy |

| | | | |
|--|--|--|---|
| | | | back basis as per E-waste Management rules 2016 |
|--|--|--|---|

V. Land Environment:

The following measures are proposed to mitigate negative impact during operational phase of the project on the land environment.

- ✓ Following measures are proposed to mitigate impact on Land Environment during operational phase of the project.
- ✓ Excavated earth will be backfilled in the trench after foundation work and topsoil will be restored for gardening purpose.
- ✓ The construction debris as well as debris from demolition work shall be utilized within the site for levelling purpose and base course preparation of internal roads.
- ✓ Municipal solid waste, Non-Hazardous and Hazardous waste will be disposed as per norms.
- ✓ ETP and STP will be provided to treat the effluents and Domestic wastewater. No effluent is discharged directly on land.
- ✓ Hazardous materials are prohibited to be drained or dumped in the premises. Accidental spills will be cleaned, reported and monitored. HW will be disposed as per norms.

Implementing Soil Conservation methods like 33.07% of Greenbelt development with native plants, Windbreaks are composed of shrubs, plants and trees in garden/lawn areas, Regular watering soil along with plants, adding earthworms to soil and Control Storm Water

VI. Biological Environment

There is no potential source of impact on terrestrial biology due to proposed project within the project study area. The air pollution control devices along with greenbelt will control the release of air pollutants to a greater extent. It is expected that the ecology of the region is preserved by these mitigation measures.

- ✓ There is no eco-sensitive and there are no wildlife sanctuaries or national parks or biosphere reserves or wetlands, or important bird areas or migratory corridors of wildlife within 10km from the project site.
- ✓ The core area is non-planned land. It is sparsely covered by isolated thorny bushes and invasive weeds. There are no timber trees or any of the threatened taxa of the BSI. There are no Reserve/Protected Forests within 5km of the core area.
- ✓ The existing flora and vegetation of the project site is going to be lost on account of construction activities (fabrication and erection of sheds, workshops, material handling and storage facilities).
- ✓ Implementing Soil Conservation methods like, Windbreaks are composed of shrubs, plants and trees in garden/lawn areas, Regular watering soil along with plants, adding earthworms to soil for improvement of soil fertility and perennial fodder production.
- ✓ Greenbelt will be developed from the construction phase to improve the aesthetic value in the area and to screen out the fugitive dust generated during construction & will be minimized through paving and water sprinkling.

Greenbelt Development:

HG Industries Ltd proposed a captive Resin Plant in an area of 59744.41 Sq. m (14.76Ac). Proponent is allocated 33.07% (19761.42 Sq. m) of land for greenbelt development and Proponent will be planted 2400 nos of trees under Greenbelt Development in a phased manner during development of project. Total 183 no of big trees & 50 Nos of small trees are already existing in the project site the same will be retained. Other than existing 2400 nos of trees are proposed. Any other suitable species may be included on consultation with Forest Dept.

A capital cost of INR 10.0 Lakhs will be earmarked for this purpose and INR of 0.5 Lakhs will be allocated for recurring expenses towards green belt development and maintenance

VII. Socio Economic Environment

- ✓ The proposed project area is a patta land, total project land is belonging to the M/s. HG. Industries Ltd., formally known as Himalaya Granites Limited is a subsidiary of M/s. Greenlam Industries Limited. The project site shall require no displacement of habitation as it is located away from the habitation area. Hence, no R&R issues envisaged.
- ✓ The Land classified as non-Planned area as per the Directorate of Town and Country Planning records.
- ✓ The project site shall require no displacement of habitation as it is located away from the habitation area.
- ✓ Due to proposed project the socio-economic scenario of the area will be changed & Development of surrounding region
- ✓ Socio-economic benefit to the locals as it would provide both direct employment (980 Nos) and indirect beneficiary (1500–2000 Nos) during operational phase and during construction phase (200 Nos).
- ✓ Employment generation for local people, farmers, transporters, carpenters, labourer and other businesses and ancillary industry in the state
- ✓ Establishment of small and medium scale engineering ancillaries
- ✓ The plywood produced from social agroforestry timber will motivate farmers to plant such trees and result in additional income
- ✓ HGIL allocated 1.5 % on the Resin plant project cost is Rs.363.40 Lakhs which is (5.5 Lakhs, to nearby villages (Panchalam & Melpettai), under CER as per OM F. No. 22-65/2017-IA.III dated 01.05.2018.

5. Alternative Studies:

Site:

The project site is already in industrial use as Himalaya Granites Limited, the existing constructed sheds) and building (Himalaya Granites Industries are being removed (except quarters), and revised the layout as required for captive resin facility and manufacturing of plywood and block boards.

Due to the high cost of Raw materials (Resins) for manufacturing plywood products. So, proponent is proposed the Captive Resin manufacturing facility within the same area.

Power:

The total power requirement will be 2745 kVA, will be sourced from TANGEDCO. As per the obtained TOR, Proponent proposed 50% energy consumption through renewable energy (Solar energy). The main building shed is designed suitably to take the load of solar panel. HGIL will explore phase wise installation of solar panel as Renewal energy source.

6. Environmental Monitoring Program

The main aim of the monitoring program is to track, timely and regularly, the change in environmental conditions and to take timely action for protection of surrounding environment. Environmental sampling and monitoring will be done as per the guidelines provided by MoEFCC & CPCB. Budget for environmental management will be prepared and revised regularly as per requirement. Total project cost Rs. 111.14 crores (Resins: INR.3.63 crores and Non-EC Products: INR. 107.51 crores). Environmental Management Plan Capital cost of the proposed project is Rs. 2.70 Crores. Cost of the Environment Monitoring will be Rs. 15,75,000 /Annum.

| S. No | Area of Monitoring | Number of Sampling Stations | Frequency of Sampling | Parameters to be Analyzed |
|-------|-------------------------------|--|----------------------------------|--|
| 1. | Meteorology | One | Hourly and Daily basis. | Wind speed and direction, Temperature, Relative Humidity, Atmospheric pressure, Rainfall. |
| 2. | Ambient Air Quality | 2 Stations (In downwind) | Twice a week 24 hourly period | PM ₁₀ , PM _{2.5} , SO ₂ , VOC and NO ₂ |
| 3. | Noise | 4 (two within plant premises and two outside plant premises) | Once every season | Ambient Equivalent Continuous Sound Pressure Levels (Leq) at day and Nighttime. |
| 4. | Liquid Effluents | Main Plant Effluents& Sewage | Weekly | pH, Temp, Conductivity, TSS, TDS, BOD. |
| 5. | Exhaust from DG set | Stack of DG set | Quarterly | PM ₁₀ , PM _{2.5} , SO ₂ & CO |
| 6. | Vehicular Emissions | Parking area | Periodic monitoring of vehicles | Air emission and noise, PCU |
| 7. | Solid waste / Hazardous waste | Check conformance to HWM rules | Quantity and Quality monitoring | Periodically |
| 8. | Soil | Two Locations within the Project Site | Yearly Once | Physico chemical properties, Nutrients, Heavy metals |
| 9. | Terrestrial Ecology | Within 10km, around the project | Once in three years | Symptoms of injuries on plants |
| 10. | Occupational Health | Employment checkup | Entry level & Yearly once | Pre-employment Checkup – Audiometric, Vision, Color Blindness, Chest, Urine, RBS, T.B., Cancer, AIDS, Liver Function Tests (LFT), Eye Test, CBC |

| | | | | |
|-----|---------------------------------------|--|---|---|
| | | | | Urine, Chest X-Ray Glutamic Pyruvic Transaminase (SGPT) and Stool D/R etc. |
| | | | 1 time/1Year for <30 yr. 1time/ 4 years for 31- 40 yr. 1 time/2 years for 41- 50 yr. 1 time/year for >50 yr. | Periodical Checkup– Audiometric Test, Liver Function Tests (LFT), Color Blindness, Eye Test, Urine, RBS, complete blood count, dental X ray, Anemia, X Ray, Serum Glutamic Pyruvic Transaminase (SGPT) and Stool D/R, Medical fit test for use of Breathing Apparatus, vision etc |
| 11. | Renewal of Consents and Authorization | As per orders | 3 months before expiry of validity | Renewing consent to operate under applicable acts |
| 12. | Compliance of EC condition | As per orders | Once in 6 months | Submission of 6 monthly compliance reports |
| 13. | Socio Economic | As per Commitments give during public Consultation | Yearly | Workers, employment pattern, CSR/CER activities, Budget, expenses etc. |

7. Additional Studies

Public Hearing:

The proposed project is in a Non-Notified Industrial area, So, the project attracts the public consultation as per EIA Notification 2006 and its Amendments & Office Memorandum, dated 3rd June 2009 and Terms of Reference obtained from SEIAA-TN. The draft EIA report has been prepared in line with the prescribed ToR vide Lr. No. SEAC-TN/F. No. 9416/2022/5(f)/ToR-1270/2022; 08.10.2022 for submission to TNPCB for Public consultation. Public hearings will be conducted as per EIA notification and its amendment hereafter.

Risk Assessment

Quantitative Risk Assessment not conducted since, NFPA (fire) rating is less than 3 for all 7 Chemicals including solids and Liquids. The NFPA rating for proposed liquid chemicals is phenol-2, Fomaline-2, Oxalic Acid-1 & Acetic acid-0. So, the qualitative Risk Assessment has been carried out as per HIRA and proposed adequate handling measures.

Disaster Management Plan

HGIL has prepared the Disaster Management Plan (onsite and offsite) as a part of additional study. The management structure includes personnel like Site Main Controllers, Incident Controller and Key Personnel and Essential Workers with their roles at the time of emergency. Other elements of DMP are Emergency control center, Security Department, Fire control arrangements, Emergency evacuation, Assembly Point, Signage, Emergency lighting system, First aid arrangement and Training and Mock drill.

Offsite Disaster Management Plan:

The Offsite DMP will be in place for emergencies which are out of control of the HGIL and which require help of external agencies. List of bodies to be contacted in case of an offsite emergency include police station, fire station, nearest clinics, hospitals, etc.

8. Project Benefits

Proposed project will give major Financial and social & Environmental benefits due to development of infrastructure, Manufacturing of Plywood as well as generation of employment. project would help in increasing the living standard of the near populations/ habitants through CER program

Financial Benefits:

- ✓ Revenue to Government
- ✓ Total project cost Rs. 111.14 crores (EC category-Resin plant: INR.3.63 crores and Non-EC Products-Plywood plant: INR. 107.51 crores).
- ✓ Expected Annual Turnover: Rs.425 Cr & projected Annual Profit: Rs.25.5 Cr

Social Benefits:

- ✓ The project site shall require no displacement of habitation as it is located away from the habitation area.
- ✓ The total manpower will be 980 no during operation phase. 200 nos during construction phase as direct employment. Indirect employment generation (1500-2000 people) for local people, farmers, transporters, carpenters, labourers and other businesses and ancillary industry in the state
- ✓ 1.5% of project cost (5.5 Lakhs) is allocated under CER to nearby villages/neighbourhoods & 2% on revenue will be provided for CSR & Development of surrounding region & Income generation of the large community of farmers

Environmental Benefits:

- ✓ Electrostatic precipitator (ESP) and Bag filters will be provided to control the release of emission from the process.
- ✓ 33.07% of land is allocated for Greenbelt development in and around the project site to capture the fugitive emissions, attenuate the noise generated and improve the aesthetics.
- ✓ Effluent Treatment Plant will be provided to treatment of wastewater recycling for reuse within the facility& Sewage Treatment Plant will be provided to treatment of domestic wastewater for recycling for reuse within the facility
- ✓ Rainwater harvesting & Storm Water Management will be implemented to reduce reliance on natural resources (Fresh water usage)
- ✓ Solid waste including Hazardous wastes & Other Wastes and Municipal Solid Wastes will be segregated at sources as per the properties of wastes disposed as per norms.
- ✓ Soil Conservation measures will be implemented as proposed

9. Environmental Management Plan

The main purpose of EMP is to minimize the identified potential environmental impacts to be generated from the proposed project and to mitigate the consequences. During construction phase materials will be transported through covered trucks. Greenbelt has been developed and will be maintained to reduce noise impacts. Regular water sprinkling will be done to reduce PM concentration in the atmosphere. PPEs will be provided to workers and first aid facilities will be kept at designated locations. During operation phase the industry will maintain Environment Management Plan in place for the proposed unit which will cover all the environment protection measures to mitigate environmental impact. Solid/Hazardous waste management will be done as per HW (Management, Handling and Trans boundary Movement) – 2016. Noise level within the plant premises will be measured regularly and will try to maintain range within permissible limit.

Rain Water Harvesting:

29092.78 m² of area (Built-up area) is proposed for roof top rainwater harvesting, i.e 600 KLD of storage tanks is proposed as estimated Rainwater of 566.1 KLD as per the Rainwater Harvesting in India an Appraisal – Hosted by CPCB & MoEFCC, for reuse Greenbelt, area washings etc. 30,651.63 m² of Vacant, Open, roads, Parking area and Greenbelt area considered under runoff collection through proposed 33 Nos Ground Recharge pits.

Budget for ETP is Rs. 15,00,000 lakhs, for STP is Rs. 25,00,000 lakhs, for APC is 190,00,000 Lakhs, for Hazardous and Solid Waste is Rs. 5,00,000 Lakhs, for Environmental OH&S is Rs. 20,00,000 Lakhs, for Greenbelt is Rs. 10,00,000 Lakhs, for Rainwater Harvesting is 5,00,000 and Budget for CER is Rs. 5.5 Lakhs to be spent within a period of three years

10. Conclusions

With the implementation of the mitigation measures and Environmental Management Plan, the proposed project activities will have positive beneficial effect on the local population, economic output, and other related facilities viz. employment, development of business, transportation etc. Risk assessment including emergency response plan & DMP has been prepared to handle any sort of emergencies. The industry will be proposed 33.07% green belt area. The proponent has prepared a CER plan and allocated 1.5 % (5.5 Lakhs) on the Resin plant project cost is Rs.363.40 Lakhs, to nearby villages (Panchalam & Melpettai) during period 2023-24 to 2025-26).

Hence looking to the overall project justification, process, pollution potential and pollution prevention measures, technological adoption and Environmental Management activities of the proponent has been concluded that, the proposed project would not have any significant impacts on environment as well as socio-economic and ecological conditions of the project area. Further, the proponent will also undertake CER activities which will have beneficial impacts on the socio-economic environment. Looking to the overall project scenario, employment potential and allied development plans. Hence proposed project may be recommended, considering Environmentally safe and sustainable.
