Executive Summary

Environmental Impact Assessment

for

Proposed 2 x 500 TPD Standalone Cement Grinding Unit

at

Khasra Nos. 302/1/K, 302/1/G, 322, 323, 324, 325, 326, 327/2 and Part of 17, Village- Mohbhatta, Tehsil – Bilha, District- Bilashpur, Chhattisgarh

Project Proponent:

M/s. High Tech Super Cement & Steel Pvt. Ltd.

Khasra Nos. 302/1/K, 302/1/G, 322, 323, 324, 325, 326, 327/2 and Part of 17, Village- Mohbhatta, Tehsil – Bilha, District- Bilashpur, Chhattisgarh.

Environment Consultant:

M/s. AmplEnviron Private Limited

H. No - 02-067, Plot No: M - 4, Sri Radhakrishna Nilayam, Mahadevapuram, Phase-3, Hyderabad, Telangana – 500 055
(Certificate No. NABET/EIA/2023/IA0061, Validity: 23.04.2024)
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CONTENT

Executive Summary

1.0   Project Description

M/s. High Tech Super Cement & Steel Pvt. Ltd. is proposing standalone Cement Grinding Unit at Khasra Nos. 302/1/K, 302/1/G, 322, 323, 324, 325, 326, 327/2 and Part of 17, Village- Mohbhatta, Tehsil- Bilha, District- Bilaspur, Chhattisgarh. The proposed unit and its rated capacity per annum is presented in **Table-1.**

Table-1: Proposed Units

S. No.	Unit and Products	Proposed Production Capacity
1.	2 x 500 TPD Cement Grinding Unit (Ordinary Portland Cement/ Portland Pozzolana Cement/ Portland Slag Cement/ Portland Composite Cement)	1000 TPD

As per the Environmental Impact Assessment (EIA); Notification S.O. 1533, 14.09.2006 issued by MoEFCC, Government of India, the proposed project is categorized as Category – B1 project, which mandates obtaining prior Environmental Clearance from SEIAA, Chhattisgarh. **M/s. High Tech Super Cement & Steel Pvt. Ltd.** submitted the application for Environmental Clearance as per the new notification along with prescribed Form-1, proposed Terms of Reference for EIA study and pre-Feasibility report. the proposal was considered by SEAC and on the recommendation of SEAC, SEIAA issued TOR vide issued TOR vide Kr.3137/SEACCG/Washery/Bilaspur/2528 Nava Raipur Atal Nagar, dated 29/02/2024 for undertaking detailed EIA study along with the specific ToR which are incorporated in the EIA report. The details of the project are given in **Table 2.**

Table-2: Details of the Project

Sr. No.	Particular	Details
1	Land	7.22 acres of land is available for proposed project.
2	Water	25 KLD water will be required for proposed project. Water will be sourced from ground water.
3	Electricity	The estimated power requirement of the proposed unit is around 2500 kVA. The power requirement will be met from State Electricity Board.
4	Man Power	140 Nos of persons will be required for proposed project.
5	Investment	About INR 10.0 Crores will be invested as Capital Cost.
6	Plant & Machinery	Ball Mill, Raw Material handling unit Air Pollution unit.
7	Raw Material	Raw Material: Clinker, Fly ash, Gypsum, slag Source: Clinker from nearby Cement Plants, Fly ash from nearby Power plant.

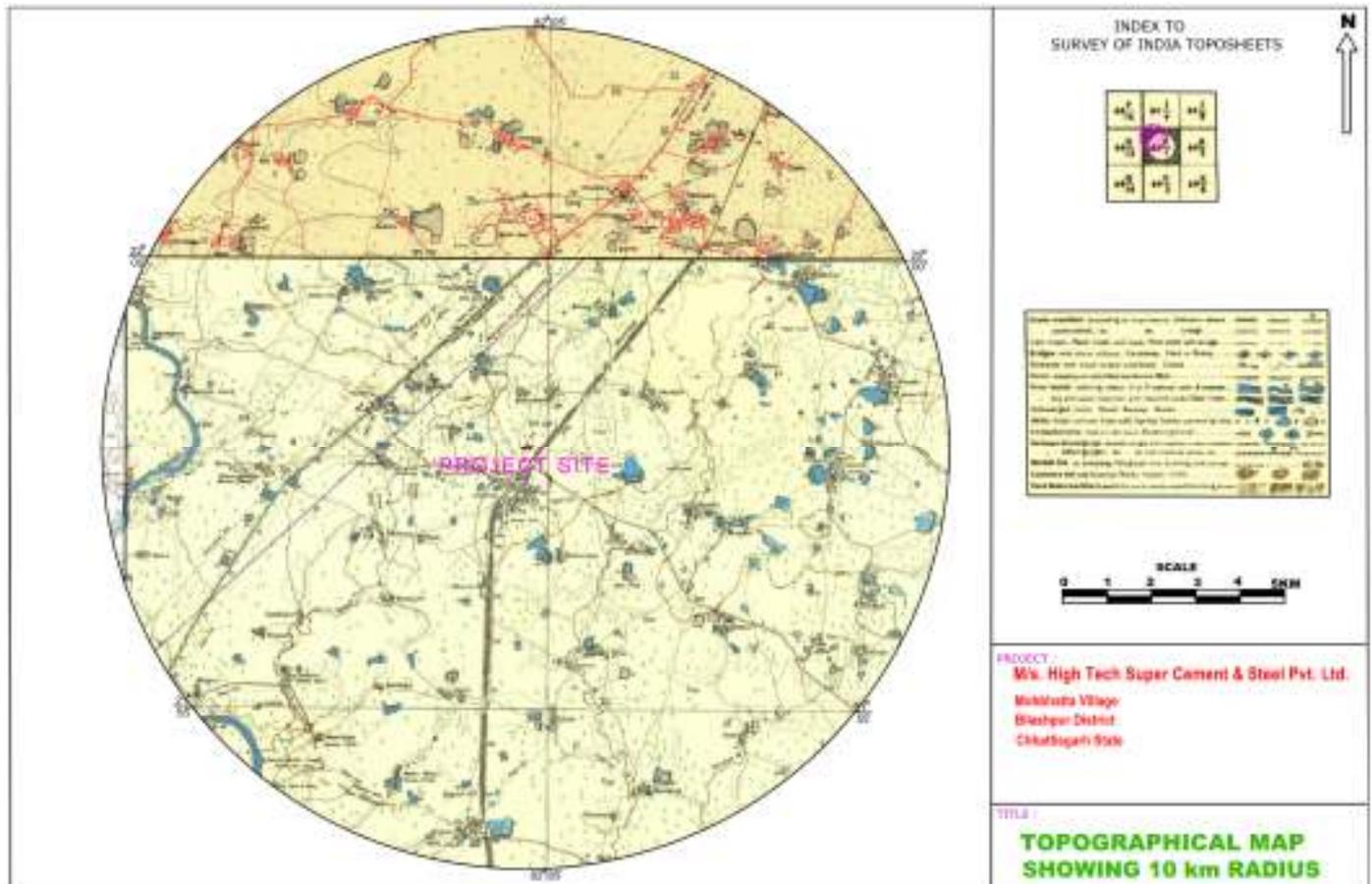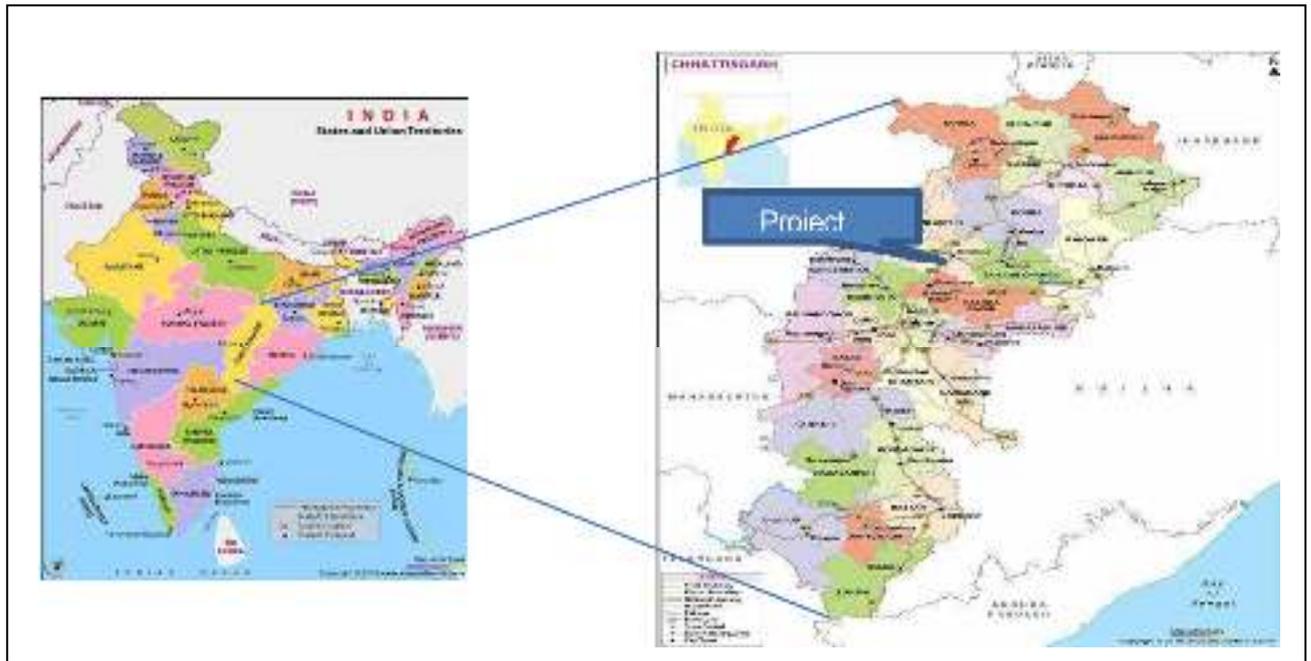**Figure 1: Project Location Map**

Figure 2: Topographical Map of the Project Site - 10km Radius

2.0   Project Requirements

2.1   Raw Material Requirement

The raw materials required for the project are given in **Table 3**

Table 3: Raw Material Requirement

Sr. No.	Raw Material	Quantity (TPD)	Mode of Transportation
Ordinary Portland Cement (OPC)			
1	Clinker	950	Road/Rail
2	Gypsum	50	Road/Rail
Portland Pozzolana Cement (PPC)			
1	Clinker	600	Road/Rail
2	Gypsum	50	Road/Rail
3	Fly ash	350	Road/Rail
Portland Slag Cement (PSC)			
1	Clinker	500	Road/Rail
2	Gypsum	50	Road/Rail
3	Slag	450	Road/Rail
Portland Composite Cement (PCC)			
1	Clinker	450	Road/Rail
2	Gypsum	50	Road/Rail
3	Slag	250	Road/Rail
4	Flyash	250	Road/Rail

2.2   Water Requirement

The manufacturing process of cement does not require water at any stage. The water will be mainly used for greenbelt, dust suppression and domestic purpose only. The total water requirement of the plant is 25.0 KLD. Water will be sourced from Ground water. NOC from CGWA has been obtained**.** The details of water requirement for different purposes are presented in **Table 4.**

Table 4: Water Requirement

Item	Total Water Requirement (KLD)
Dust Management	10.0
Domestic Purpose	8.0
Greenbelt and Green Cover	7.0
Total	**25.0**

There is no generation of process wastewater in the proposed project. Domestic wastewater will be sent to the septic tank followed by soak pit. Zero Discharge norms will be followed.

2.3 Land Requirement

HTSCSPL has acquired 7.22 acres of land. The land breakup details of plant are presented in **Table 5.**

Table 5: Land Break-up Details

Sr. No.	Particular	Area in Acers	Area in %
1	Plant Area	1.90	26.32
2	Parking Area	0.91	12.60
3	Greenbelt Area	2.98	41.27
4	Open Area	0.96	13.30
5	Road Area	0.47	6.57
Total		**7.22**	**100**

2.4 Power Requirement

The power requirement will be 2500 kVA. The power will be sourced from the State Electricity Board.

2.5 Man Power Requirement

The skilled/semiskilled /unskilled work force required for the proposed Project is estimated is 140. The manpower requirement will be fulfilled from the surrounding villages, as per CG government Policy. It will help for the improvement of the socio-economic status in the surrounding rural areas.

2.6 Technology and Process Description

Technology for cement manufacturing is easily available and there are several cement plant suppliers who provide services on turnkey basis. Grinding unit mainly consist of few processes which are detailed here.

All the raw material such as clinker, gypsum, fly-ash, slag etc. are used in a prefixed formula and fed through a volumetric feeder in fixed proportion to a bucket elevator which in turn feeds a hopper fitted with a volumetric table feeder, feeding the ball mill, the ball mill grind the mix to a homogeneous mixture and this mixture is known as cement. This homogeneous mixture is then stored in the silos and packed when needed. In between the ball mill and storing silos there is a dust collector, which plays a crucial role in the prevention of pollution by sucking all the dust produced by the grinding process. The process flow diagram is given in **Figure 3.**
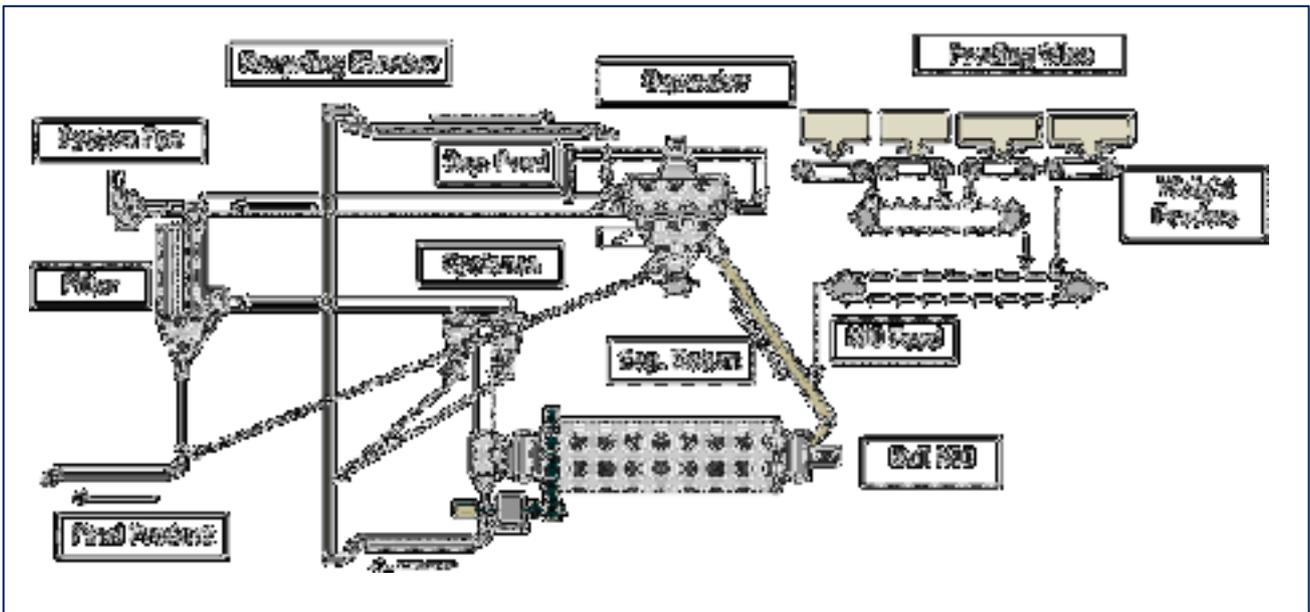
Figure 3: Manufacturing Process

3.0   Baseline Environmental Studies

Baseline environmental studies were conducted in the proposed project area and in the area within 10 km radius from the proposed project area to assess the existing environmental scenario in the area. The baseline environmental quality data for various components of environment, viz. Meteorology, Ambient Air Quality, Water Quality, Noise Levels, Soil Quality, Ecology Biodiversity, Geology & Hydrology, Traffic study and Socio-economic status were monitored.

3.1   Meteorology

Site Specific Wind Pattern (Windrode Diagram)
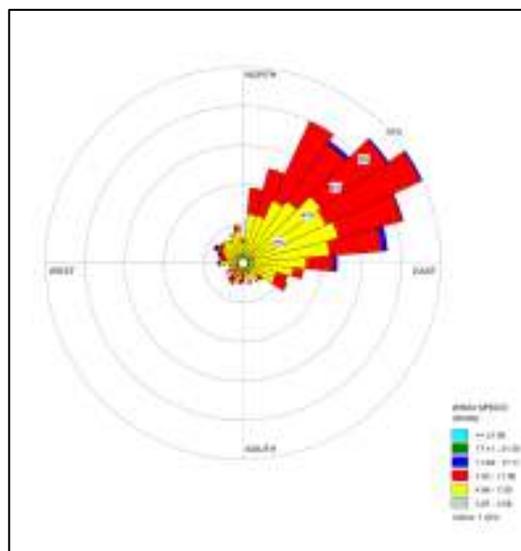
3.2   Ambient Air Quality Status

Ambient air quality of the study area has been assessed through a network of 8 ambient air quality locations. Ambient Air Quality studies were carried out during from October 2021 to December 2021. The significant parameters viz. Particulate Matter 10 (PM10), Particulate Matter 2.5 (PM2.5), Sulphur dioxide (SO2), Nitrogen dioxide (NO_2), Carbon monoxide (CO). The Minimum and Maximum concentration of PM10 was found in the range of 42.6 to 82.5 µg/m^3. The Minimum and Maximum concentration of PM2.5 was found in the range of 17.1 to 36.2 µg/m^3. The Minimum and Maximum concentration of SO_2 and NOx were found in the ranges of 10.2 to 16.5 µg/m^3 and 13.0 to 21.8 µg/m^3.

All the parameters at the sampling locations were found well within the prescribed National Ambient Air Quality standards (NAAQS).

3.3   Ambient Noise Levels

Ambient noise level monitoring was carried out at the 8 monitoring locations. The Maximum Noise (day) value was observed 61.4 dB(A) and the minimum noise (day) valve was observed 51.6 dB(A). The Maximum Noise (night) value was observed 53.6 dB(A) and the minimum noise (night) valve was observed 42.6 dB(A). The Day and Night time Noise values find within in CPCB prescribed Norms.

3.4   Surface and Ground Water Quality

8 ground water samples and 3 surface water samples were collected in 10 km radius study area. Some of the significant parameters are as under:

Groundwater Samples within 10 km Radius

* pH of the ground water samples collected was in the range of 6.71– 8.11.
* Total Dissolved Solids in the samples was in the range of 387 – 553 m g /l.
* Total Hardness was found to vary between 213 – 328 mg/l.
* Chlorides concentration was found to vary between 59.08 – 112.05 mg/l.
* Fluoride concentration was found to vary between 0.59 – 0.89 mg/l.
* Heavy metal concentrations in all the samples were found to be well within the limits.

Surface Water Samples within 10 km Radius

* pH of the ground water samples collected was in the range of 7.70 – 7.90.
* Total Dissolved Solids in the samples was in the range of 219 – 258 m g /l.
* Total Hardness was found to vary between 130.44 – 143.01 mg/l.
* Dissolved Oxygen was found to vary between 6.8- 7.8 m g /l.
* Biological Oxygen Demand was found to vary between 5.0 – 5.80 mg/l.
* Heavy metal concentrations in all the samples were found to be well within the limits.

3.5   Land use/Land Cover

The Land Cover classes and their coverage are summarized in **Table 6**.

Table 6: Land Use Pattern of the Study Area

S. No.	Particulars	Area (Ha.)	PGA*** (%)
1	Waterbodies/River/Canal/Streams	685.23	2.18
2	Agricultural Land	7544.40	24.01
3	Plantation	11296.16	35.96
4	Fallow Land	4031.84	12.83
5	Built Up Land	2344.71	7.46
6	Waste/Open/Scrub Lands	2667.89	8.49
7	Barren Land	2180.52	6.94
8	Project Site	47.10	0.15
9	Road	539.24	1.72
10	Railway Track	78.89	0.25
	Total	**31415.97**	**100.00**

3.6   Soil Quality

The soil samples were collected from 6 sampling locations within an area of 10 km radius around the proposed project for analysis of the physico-chemical characteristics of the soil quality. The following are the highlights of soil quality in the study area:

- pH of the soil samples was found to be in the range of 6.55 to 6.89.
- Nitrogen content is ranging between 210 to 267 kg/ha thereby indicating that soils are Low to medium in Nitrogen.
- Phosphate content is ranging between 13.65 to 24.30 kg/ha thereby indicating that soils are high in Phosphates.
- Potassium content is ranging between 144 to 245.10 kg/ha thereby indicating that soils are low to Medium in Potassium.

3.7   Biological Environment

Ecological survey covering an area of 10 km radius from the proposed project boundary was done for generation of primary data to understand baseline ecological status, important flora, fauna and collection of secondary data from Forest Working Plan.

There is no National Park, Wild life Sanctuary, Ecological sensitive area in the study area, which provide habitat to wild life. Therefore, no wildlife was observed in the study area during study period. Considerable number of domestic animals mainly cow, goat, sheep and buffalos, hens, pigs were observed in the 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.

The significant demographic features of area are:

- Total population of the region as per 2011 census is **106112** out of which are **53679** male and **52433** are female.
- Total number of households in the region about **22560.**
- Sex ratio (number of male per thousand female) in the region is **977.**
- Out of the total population Scheduled Caste and Scheduled Tribe population is about **24.6 %** and **11.2%** respectively
- Total main worker population is about **29.5%, 12.4%** comes under marginal worker category and **58.1 %** belongs to non-workers category
- Literacy rate of the population in the study area is about **60.9%**.

4.0   Environmental Impacts & Mitigation Measures

4.1   Air Environment

The major air emissions from the proposed project, which will have the impact on the surrounding is mainly from the Furnace section where the dust is release through flue gases to the atmosphere.

Prediction of cumulative ground level concentration due to emissions from the proposed project has been computed using EPA approved AERMOD model. Cumulative Scenarios within study area is given in **Table 7**

Table 7: Cumulative Scenarios within Study area

24 Hourly Concentrations	Particulate Matter (PM10) ($\mu g/m^3$)
Baseline Scenario (Max)	82.5
Predicted Ground Level Concentration (Max)	3.30
Overall Scenario	**85.8**
NAAQ Standards	**100**

It is observed from the model output that the incremental concentrations for PM10 level, maximum GLCs of **3.30 $\mu g/m^3$** was observed in **SW direction** from the proposed project site. It is noted that after adding the incremental concentrations to maximum baseline values also, the ambient levels will be within the specified limits.

Hence it can be concluded that, though there will be an increase in GLC levels, no major significant impact on the air quality due to the proposed project is envisaged.

Mitigation Measures:

- Stack height would be approx. 30 m (1 nos.) for gaseous emission confirming to the CPCB norms. D. G. Sets, stack height of 3.0 m above the roof level will be maintained.
- Stack emission level will be kept within permissible limit by installation of bag filter (efficiency: 99.9%) and online stack emission monitoring will be done.
- Ambient air quality and stack emission would be regularly monitored and effective control exercised, so as to keep limits on stack emission loads would be met honestly at all the time. APC System performance will be regularly monitored.
- The ambient air monitoring will be carried out regularly in the work zone and surrounding areas, to check that ambient air levels of the contaminants, are well below the stipulated norms.
- Green belt around the periphery and within premises will be developed which will help in attenuating the pollutants emitted by the plant.

Action Plan to Control Fugitive Emission

Main source of fugitive emissions is transportation of men and material during operational phase.

- In order to avoid fugitive emissions from different sources spraying of water shall be used,
- The roads within the premises will be concreted / paved to avoid vehicular emissions,
- All transportation vehicles shall carry a valid PUC (Pollution under Control) Certificate,
- Proper servicing and maintenance of vehicles will be carried out,
- Regular sweeping of all the roads and floors will be done through Vacuum Cleaner,
- About 41.27% (2.98 Acres) of the total plant area will be developed as green area. Green belt act as surface for settling of dust particle,
- Ambient air quality will be regularly monitored and effective control exercised, to keep emission within the limits.

4.2   Water Environment

The total water requirement of the plant is 25.0 KLD. The water will be mainly used for greenbelt, dust suppression and domestic purpose only. Zero discharge norms will be followed.

4.3   Noise Pollution Control

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

- Time to time oiling and servicing of machineries will be done.

- Acoustic enclosure for D.G. sets will be provided.
- Greenbelt 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   Greenbelt Development and Plantation

Greenbelt will be developed within the plant premises covering a total area of about 41.27% (2.98 Acres) of total Plant area. The plantation work for greenbelt development will be carried out as per CPCB guidelines, native species would be preferred.

4.5   Solid Waste and Industrial waste Generation

No solid waste will be generated from the process. About 2.0 TPD bag filter dust will be generated and it will be reused in process.

Hazardous Waste Generation, Storage & Disposal

1. Waste oil: 0.1 KL/Annum

This will be stored in covered HDPE drums in a designated area and will be given to SPCB authorized recyclers & re-processors.

2. Used Batteries

Used batteries will be given back to the supplier under buy back agreement with supplier.

5.0   Project Benefits

- The skilled/semiskilled manpower required for the proposed project is estimated is 140 no's. Preference will be given to local people for employment during construction phase as well as operation phase considering their skills and capability.
- This project will improve the overall physical infrastructure in this area. Rain water harvesting will be done for groundwater recharging that will improve the ground water table in the area.
- Project will maintain the roads in good conditions so that the road connectivity will improve for transport, villagers will be benefitted.
- Social Welfare activities such as organizing medical check-up camps will be provided.
- CER activities and the local employment can fill the gap and enhance the satisfaction of the people also it will reduce the impact.
- Training will improve the workers efficiency also it will enhance the numbers of trained worker and the quality of work.

6.0   EMP Details and CER Amount

Budget for implementation of environment management plan is given in **Table 8.**

Table 8: EMP Budget

	Item	Capital Cost (Rs. Lakhs)	Recurring Cost/Annum (Rs. Lakhs)	Time Frame
1	Air Pollution Control • Bag filter • Dust Management System • Online Monitoring System	55.0	10.0	Within 1 Year
2	Water Pollution Control • STP • Rain Water Harvesting • Drainage	20.0	5.0	Within 6 Months
3	Noise Pollution Control	10.0	2.5	Within 1 Year
4	Solid waste Management	5.0	1.0	Within 1 Year
5	Environment Monitoring and Management	5.0	5.0	Within 6 Months
6	Occupational Health	10.0	10.0	Ongoing
7	Greenbelt	23.6	3.0	Within 1 Year
	Total	**128.6**	**36.5**	

Budget for Corporate Environment Responsibility

An amount INR 20 Lakhs is earmarked for corporate environment responsibility.

7.0 Conclusion

There will be no significant impact on the area, as adequate preventive measures will be adopted to contain the various pollutants within permissible limits. Regular monitoring of all the components of environment, adequate preventive measures will be adopted to contain the various pollutants within permissible limits. Greenbelt development around the area will also be taken up as an effective pollution mitigation measure, as well as to control the pollutants released from the premises of the project. Increased social welfare measures taken by the company will lead to development in the nearby villages. The proposed project will be beneficial to the local people as more infrastructure development, improvement in education and health facilities, roads, etc. in near-by villages will be done.