Executive Summary

For

Proposed Manufacturing of 2,500 TPM of Manganese Oxide (Greenfield Project)

At

Plot No. D-50, MIDC Butibori, Tehsil-Hingna, District -Nagpur, Maharashtra

Project Proponent

M/s. Manmohan Minerals & Chemicals Pvt. Ltd.

Environmental Consultant

Pollution and Ecology Control Services
Near Dhantoli Police Station, Dhantoli, Nagpur, Maharashtra

Accreditation no.: NABET/EIA/2225/RA 0291
Valid upto 16th October, 2025

EXECUTIVE SUMMARY

INTRODUCTION

M/s. Manmohan Minerals & Chemicals Pvt Ltd has envisaged to manufacture 2500 TPM of Manganese Oxide by roasting. The proposed project will be carried out at Plot No. D-50 MIDC Butibori, Tehsil-Hingna, District-Nagpur, State Maharashtra. The land earmarked for the proposed project is 0.8460 ha (8460 sqm). As the proposed land earmarked as Industrial land, thus, no alternate location is identified for the proposed project. The proposed cost of the project is estimated to be Rs. 14.0 Crores. As per the Environmental Impact Assessment (EIA) Notification dated 14th September, 2006, Metallurgical Industries (Ferrous & Non-Ferrous) falls under category 'A' which requires Environmental Clearance (EC) to be obtained from MoEF&CC before the commencement of ground activity.

SITE SELECTION CRITERIA

The site for the proposed project is identified in the Butibori Industrial area, MIDC, a Notified Industrial Area. The proposed site has existing empty shed at Plot No. D-50, MIDC Butibori, Tehsil-Hingna, District-Nagpur, State Maharashtra.

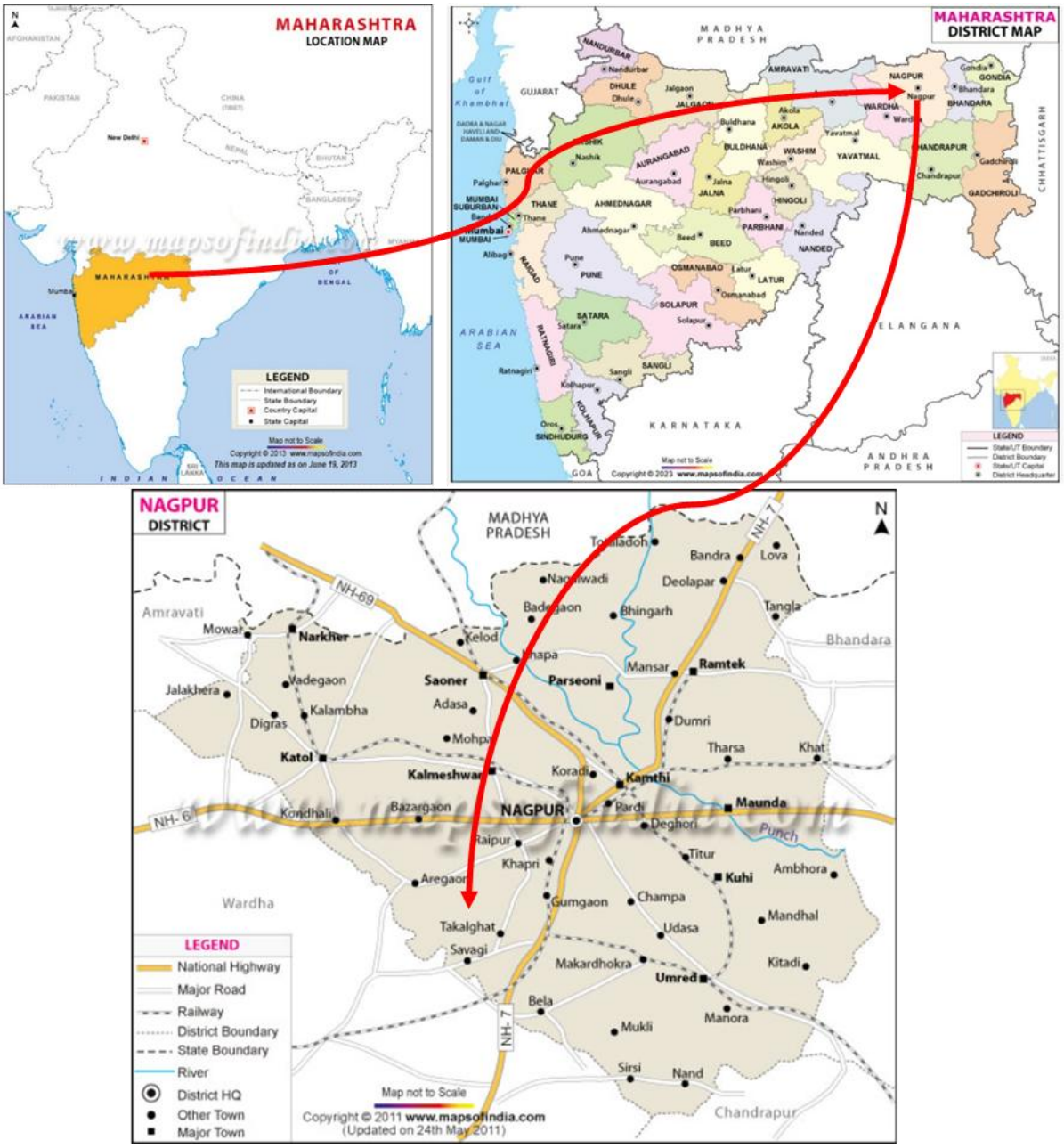
The site selection criteria are given below

- Assured Water Supply from MIDC.
- No Rehabilitation/Resettlement required.
- No archaeological monument and defence installation.
- No nallah/water body, public roads, forests within the project site.
- Availability of Raw Material.
- Availability of Water.
- Assured Power Supply
- Availability of Man power.
- Availability of industrial infrastructure.
- Market available for finished products

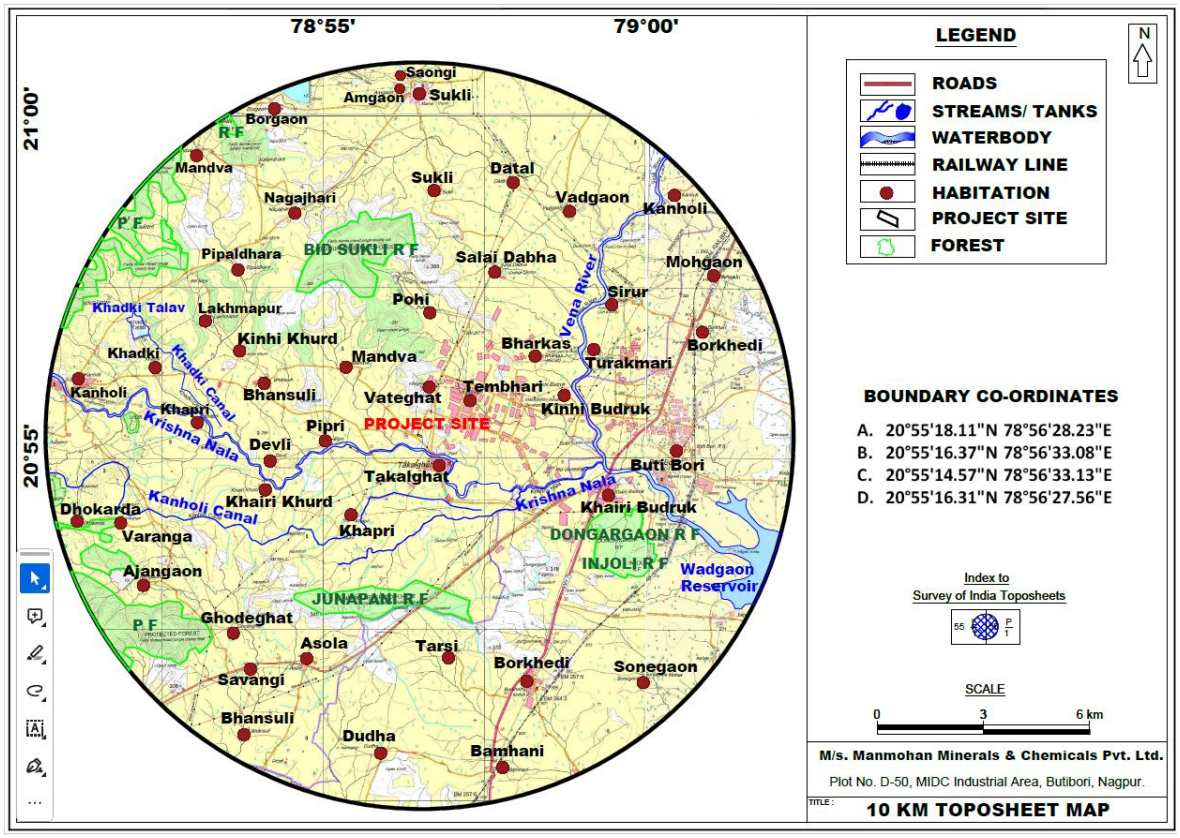
DETAILS OF THE PROJECT SITE

Sr. No.	Particulars	Details
1	Project Site	Plot No. D-50 MIDC Butibori, Tehsil-Hingna, District-Nagpur, State Maharashtra Total land: 0.8460 Ha (8460 sq. mt).
2	Geographical Coordinates	A: 20°55'16.35"N 78°56'33.11"E B: 20°55'18.10"N 78°56'28.22"E C: 20°55'16.31"N 78°56'27.58"E D: 20°55'14.56"N 78°56'33.11"E
3	Elevation above MSL	298 m
4	Toposheet	55 K/16, 55 O/4, 55 L/13, 55 P/1
5	Present Land Use	Industrial Use
6	Nearest National Highway / State Highway	NH – 44: 3.5 Km (ESE)
7	Nearest Airport/ Air Strip	Dr. Babasaheb Ambedkar International Airport: 20.5 Km (NE)
8	Nearest Village	Takalghat: 0.6 Km (SE)
9	Nearest Town	Butibori: 5.5 Km (E)
10	Forest	1) Bid Sukli R F: 4.5 Km (NW) 2) Junapani R F: 7.1 Km (SSW) 3) Dongergaon R F: 5.4 Km (NW) 4) PF: 7.6 Km (SW)
11	Ecologically Sensitive Zones like wild life sanctuaries, national parks and biospheres	Nil
12	Water Bodies	1) Vena River: 4.3 Km (E) 2) Krishna Nala: 0.8 Km (S) 3) Kanholi Nala: 2.5 Km (SSW) 4) Wadgaon Reservoir: 9.0 Km (SE) 5) Khadki Talav: 7.5 Km (W)
13	School	1) Z P Primary School: 0.85 Km (SE) 2) Shri Datta Vidya Mandir School: 5.1 Km (ENE) 3) Ira International School: 5.5 Km (ENE) 4) Holy Cross Convent: 6.5 Km (E)
14	Hospital	1) Public Health Centre: 0.8 Km (S) 2) Rachana Hospital: 6.0 Km (ESE) 3) Maya Hospital: 4.9 Km (ESE)
15	Temple	1) Shiv Temple: 0.85 Km (SE) 2) Vikto Baba Vihar Temple: 1.6 Km (SSE)
16	Industries	1) Indo Rama Synthetics India Limited: 0.8 Km (E) 2) IRCTC Rail Neer Plant: Adjacent 3) Tapadia Polyesters Private Limited: 0.5 Km (N) 4) Bharat Gas Plant.: 0.10 Km (W) 5) Morarjee Textile Limited: 3.8 m (NEE) 6) Ceat Tyers Manufacturing Plant 3.0 km (N) 7) Amar Industries: 2.15 Km (NE) 8) Reliance Power Plant: 0.80 Km (NW) 9) Saini electrical & Engineering Works:1.7 Km

Sr. No.	Particulars	Details
		(NW) 10) Karamtara Engg. Pvt. Ltd : 0.86 Km (N)



Location Map of the Proposed Project Site



Source: SOI Toposheet

Topographical Map (10 Km Radius)

PURPOSE OF EIA

The proposed project attracts the provisions of EIA Notification, 2006 and falling under Category A of Schedule, 3 (a) Metallurgical Industries (Ferrous and Non-ferrous). Thus, proposed project requires prior Environmental Clearance from MoEF&CC as per the procedure laid down in the Notification.

As a part of EIA process, proponent has made online application on 29th December, 2023 along with Form-1, copy of pre-feasibility report and other documents for proposing Terms of Reference (TOR) for undertaking detailed EIA study. The proposal was appraised in the EAC (Industry-1) meeting held virtually during 11-12 June, 2024 and the committee recommended for prescribing TOR for undertaking EIA study for proposed project. Accordingly, the Ministry had prescribed TOR vide IA-J-11011/455/2023-IA-II(IND-I) dated 1st July, 2024 (**Annexure-I**).

In order to assist the M/s. Manmohan Minerals & Chemicals Pvt Ltd. for getting the Environmental Clearance, M/s Pollution and Ecology Control Services (PECS) Nagpur is entrusted the task of undertaking (EIA) study and prepare Environmental Impact Assessment report and Environmental Management Plan. The EIA report was

prepared using the baseline data generated undertaken by PECS during 1st January to 31st March 2024.

PRCOESS DETAILS

SIZE OR MAGNITUDE OF OPERATION

The production scenario of the proposed plant is given in following Table

Sr. No.	Product	Configuration	Production Capacity
1	Manganese Oxide by Roasting Furnace	8 x 15 T	2500 TPM (30,000 TPA)

RAW MATERIAL

The raw material requirement for the proposed unit is given as follow

Sr. No	Product	Raw Material Quantity	Source	Mode of Transportation
1	Manganese Ore	39,000 TPA	MOIL	Tarpaulin covered trucks. Distance: 200 km
2	Hard Coke	7,500 TPA	Open Market	Tarpaulin covered trucks. Distance: 200 km
3	Fire Wood	3,000 TPA	Open Market	Tarpaulin covered trucks. Distance: 50 km

WATER REQUIREMENT

Water requirement for the proposed project is 50.0 KLD. Water is mainly required for furnace cooling, Furnace Cooling and Jigging process as well as for domestic uses, drinking, plantation & other purposes. Water will be sourced from MIDC. Unit wise water requirement is given in following Table.

Water Requirements during Operation Phase (m^3/day)

Sr. No.	Unit	Water Requirement KLD	Wastewater Generation KLD	Mode of disposal of wastewater	Treatment
1	Furnace Cooling and Jigging	45.0	40.5	Reused	Settling Tank
2	Domestic Purpose	3.0	2.5	Recycle and reused in Process or Plantation	Packaged Type STP
3	Green Belt Development	2.0	0.0	NA	NA

Wastewater from Furnace Cooling and Jigging process will be collected in settling tank which will be further recycled and the domestic wastewater will be treated in packaged Type STP. Hence, the zero-wastewater discharge is proposed for the said project.

POWER REQUIREMENT

The estimated power requirement for the proposed project will be 300 KW and will be supplied by Maharashtra State Electricity Board.

LAND REQUIREMENT

The land required for the proposed project is 8460 sqm (0.846 Ha).

EMPLOYMENT POTENTIAL

The proposed project creates employment for about 60 people.

TECHNOLOGY AND PROCESS DESCRIPTION

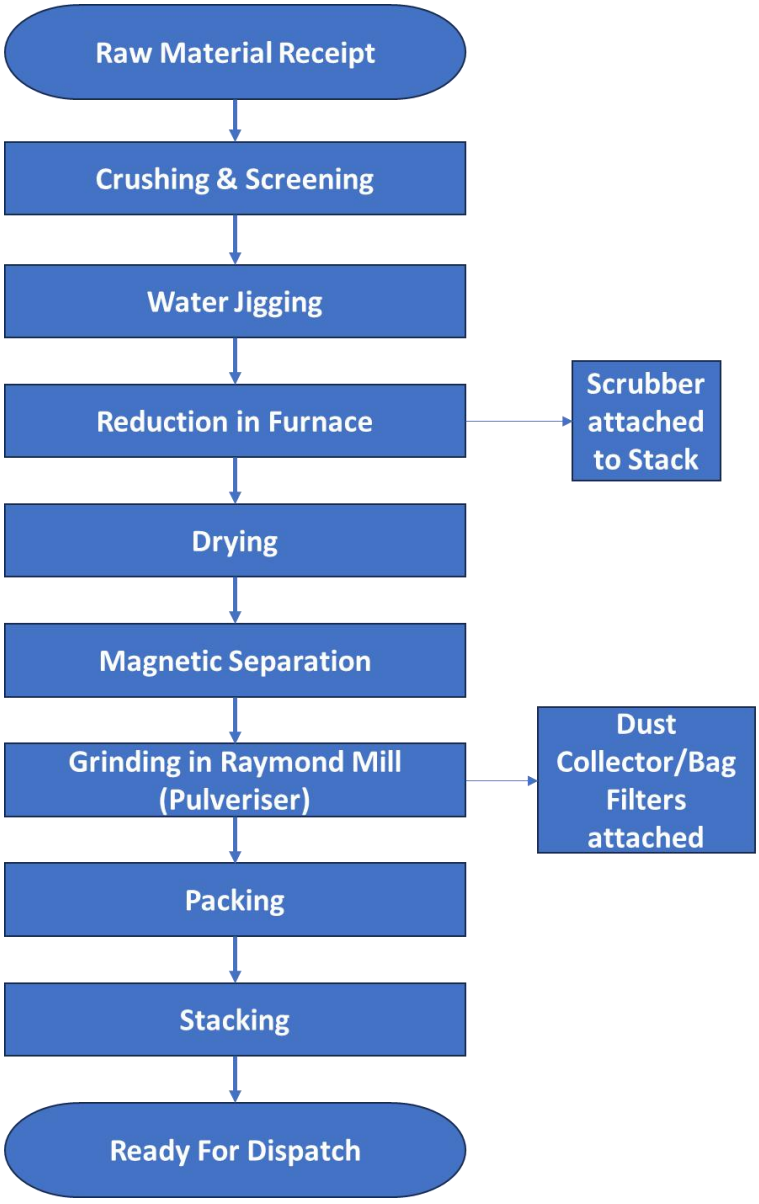
MANUFACTURING PROCESS OF MANGAESE DIOXIDE

- After Manganese Ore receipt at the site, it is tested for the contents of various elements and then the material is crushed and then screened. After screening you get different sizes which are jigged in automatic water jigging machine.
- The material is then roasted in Hard Coke fired furnace (Bhatti) for 10 to 12 hours. After cooling the furnace, it is unloaded and then shifted for drying and magnetic separation.
- Then the material is dried (through wood fired hot plate driers) and after Magnetic Separation it is fed to grinding Machine, where it is powdered in grinding machine in the required mesh size.
- After grinding it is semi automatically packed in 25 kg/50 kg HDPE Bags and 1250 kg Jumbo bags and kept ready for dispatch.

Manufacturing Process

The proposed project is for Crushing, Screening, Jigging, roasting in Furnace, Drying and Grinding of Manganese Oxide. The flow diagram showing manufacturing process is given below

PROCESS FLOW CHART OF MnO PRODUCTION



MITIGATION MEASURES

Air Environment

In the proposed project the source emission is envisaged from furnace during roasting of manganese ore with coal and grinding of Manganese Ore. A common Stack of 30 m height will be attached to both the roasting Furnace/Bhatti with movable hood attached to dust collector and bag filters followed by stack to control PM emission within 50 mg/NM^3. Dust suction system will control fugitive emission due to material and raw material handling. Dust suppression system will be provided in the form of water sprinklers.

Noise Pollution & control measures

Noises from fans, centrifugal pumps, electrical motors etc. will be kept in control so that the ambient noise level shall not exceed 75dBA during daytime and 70dBA during nighttime. Noise pollution control measures will be provided in respective departments by way of providing silencers soundproofs cubicles / covers and proper selection of less noise prone machinery and by development of green belt. In plant, workers shall be provided with ear plugs or ear muffs working in plant in order to avoid exposure to high levels noise. The employees shall be trained in the mitigation measures and personal protection measures to be taken to prevent noise related health impacts.

Impact on Water

The total water requirement for the proposed activities is 50 KLD. During plant operation waste water will be generated from the Furnace Cooling and Jigging process. The wastewater generated in this process will be stored in the settling tank and will be reused in the process. The sewage will be treated in Packaged Type STP. No wastewater be discharge outside the plant premises and maintained Zero liquid discharge

Solid Waste Generation & Management

The solid waste generation and management in the proposed plant is given in following Table.

Solid Waste Generation & Mitigation Measures

Waste	Quantity TPA	Mitigation Measures
Hard Coke Ash	800	Will be sold to brick manufacturers
Firewood Ash	240	Will be sold to brick manufacturers

DESCRIPTION OF THE ENVIRONMENT (BASELINE DATA)

Air Environment

Ambient air quality (AAQ) samples were collected on basis of 24-hour sampling and twice a week at each site. The ambient air quality samples were collected from January 2024 to March 2024 for continuous 12 weeks in an area of 10 km radius around the proposed project site. Results for various parameter are as follows

PM_{10} – 39.2 to 72.9 µg/m^3.

$PM_{2.5}$ – 18.0 to 40.9 µg/m^3

SO_2 – 11.7 to 32.6 µg/m^3

NOx – 17.5 to 39.6 µg/m^3

CO – BDL to 0.630 mg/m^3

The concentrations of PM_{10}, $PM_{2.5}$, SO_2, NOx and CO 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 analysed during January 2024. The water samples were analysed 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 is below the permissible limits of drinking water standard (IS 10500 – 2012).

Noise Environment

It has been found that the noise levels are in the range of 39.4 – 55.7 dB (A) at all eight stations. Maximum levels of noise have recorded in day hours which are natural as our most of activities have done in day hours. Noise levels measured 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.

Land Environment

The characteristics of the soil sample were compared with respective parameters in eight stations. The soil analysis report indicates that the soil has sufficient nutrients and better in fertility which will support plant growth.

Socio Economic Environment

The Socio-economic environment was studied by collecting Data/Information through secondary sources (i.e. Census 2011, Government department, maps, literature research etc.). The data indicated that average Sex ratio is 895.76 in the study area. Employment pattern indicated that total working population was 29,877 (37.77%) of total population which indicated that about two persons from each family are working. Out of main workers, 3,862 (13%) were cultivator workers, 8,555 (29%) workers

engaged as agricultural labours, 573 (2%) were involved in household industry related work and other working population were 16,887 (56%).

ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

Air Environment

In the proposed project the source emission is envisaged from furnace during roasting of manganese ore with coal and grinding of Manganese Ore.

Cumulative Predicted 24-hourly Ground Level Incremental Concentrations (GLCs) are given in the following table.

Predicted Ground Level Concentrations

Pollutant	Maximum Incremental Levels (μg/m^3)	Distance (km)	Direction
PM_{10}	0.729	0.780 Km	SW
$PM_{2.5}$	0.386	0.750 Km	SW
SOx	1.11	0.650 Km	SW
NOx	0.746	0.500 Km	SW

Air Pollution Control Measures

- Particulate matter will be controlled below 50 mg/Nm^3 by providing dust collector and bag filer to stack. Water spray system shall be installed in the material handling system transfer points.
- Green belt will be developed inside plant area.
- The internal road will be concreted to reduce the fugitive dust due to vehicular movement
- Water spraying will be practiced frequently.
- The emissions from the stacks shall be monitored regularly for exit concentration of Sulphur dioxide, Nitrogen oxides and PM. Sampling ports shall be provided in the stacks according to CPCB guidelines.

Noise Pollution & control measures

In plant, workers particularly working near higher noise sources, may be exposed to higher level upto 75 dB(A) for longer durations. However, provision of ear plugs or ear muffs shall be made for in-plant workers working at such locations in order to

avoid exposure to high levels whenever they come near the high noise generating sources.

Impact on Water

The water requirement for the proposed activities is 50.0 KLD. During plant operation wastewater will be generated from the jigging/washing process. The wastewater generated in this process will be treated in the settling tank and will be reused in the process and cooling. The sewage generated from the domestic usage in the proposed plant will be 2.5 KLD which will be treated in packed type STP and treated sewage will be reused in the plantation purpose.

Solid Waste Generation and its Management

The major solid waste generated will Hard Coke Ash and Firewood Ash.

- Solid waste is non-hazardous and non-toxic in nature.
- Hard Coke Ash and Firewood Ash generated will be sold to brick manufacturing.

ENVIRONMENTAL MONITORING PROGRAMME

Environmental Monitoring will be carried out on regular basis. The ambient air quality, water quality, noise levels etc. will be monitored as per the MoEF&CC/CPCB & MPCB guidelines.

ADDITIONAL STUDIES

The additional studies as per the TOR issued by MoEF&CC are Public Consultation, Risk Assessment, & Disaster Management Plan.

PROJECT BENEFITS

Company will give direct employment to near about 60 persons. The proposed capital budget of Rs. 14 Lacs which is 1% of the project cost will be spent towards CER activities in 3 years. The amount will be spent in various activities like construction of toilets, education etc.

ENVIRONMENTAL MANAGEMENT PLAN

Company is committed towards protection of environment and the community and also to practice best environmental management practices, regular maintenance and consistent operation of pollution control systems, and adoption of cleaner and

environment friendly technologies etc. company are bound take all the necessary steps to identify and control pollution and EMP which includes effective pollution control measures, green belt development, adequate safety measures, and post project monitoring facilities for the estimation of pollutants.

OCCUPATIONAL SAFETY & HEALTH MANAGEMENT

M/s. Manmohan Minerals & Chemicals Pvt. Ltd will provide all necessary provisions under Factory Act. In addition, a Safety committee will be formed and manned by equal participants from Management and Workers. All personal protect equipments like Safety shoes, helmet & uniform will be issued to each employee based on the nature of job involved.

CONCLUSION

The potential environmental, social and economic impacts have been assessed. The proposed activities will have the marginal impacts on the local environment. With effective implementation of proposed environment management plan and mitigation measures, these impacts will be insignificant. Implementation of the project has beneficial impact in terms of providing direct and indirect employment opportunities. This will be a positive socio-economic development in the region.