

EXECUTIVE SUMMARY

**OF
ENVIRONMENTAL IMPACT ASSESSMENT REPORT
&
ENVIRONMENTAL MANAGEMENT PLAN
FOR
PUBLIC HEARING**

OF

Proposed Mandivali Bauxite Block (ML Area 139.05 ha) with
Bauxite Production Capacity 0.22 Million TPA along with
installation of crusher with capacity of 200 TPH

At

**Village- Mandivali, Taluka Dapoli,
District-Ratnagiri, Maharashtra**

APPLICANT

Smt. Hanifa Haroon Fazlani

Patto Plaza, Panaji

District: North Goa - 415639 (Goa)

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EXECUTIVE SUMMARY

1.0 PROJECT DESCRIPTION

1.1 INTRODUCTION OF PROJECT PROPONENT

Project proponent is Smt. Hanifa Haroon Fazlani, widow of late Haroon Ahamed Fazlani, aged 66 years, Citizen of India having Permanent Account Number AABPF1087D, residing at 3937, Al-Huda, Plot No: R-72, Zadgaon, Udyamnagar, MIDC, Near Karvi Samaj Hall, Mirjole, MIDC (RTG), Ratnagiri, Maharashtra-415639

1.2 STATUS OF PROJECT

Smt. Hanifa Haroon Fazlani is proposing a Mandivali Bauxite Block (ML Area 139.05 ha) with Bauxite Production Capacity 0.22 Million TPA having maximum total excavation of 0.26 Million TPA (Bauxite 0.22 million TPA and waste 0.04 million TPA) along with installation of crusher with 200 TPH at Village Mandivali, Taluka Dapoli, District - Ratnagiri, Maharashtra.

As per EIA Notification dated 14th September 2006, as amended from time to time; the project falls under S. No. '1' (Mining of Minerals), Project or Activity '1(a) - (4)', 'Category "B"

Application for the Terms of Reference has been submitted to SEIAA, Maharashtra on 13.04.2023 and standard ToR Letter issued vide file no. SIA/MH/MIN/430437/2023, dated 26.05.2023.

1.3 NEED FOR THE PROJECT

- The Bauxite produced by the Mandivali Bauxite Block (Area- 139.05 ha) by Smt. Hanifa Haroon Fazlani at Village- Mandivali, Taluka Dapoli, District-Ratnagiri, Maharashtra will be sold to open market.
- High grade bauxite will be sold to Alumina Industry whereas low grade bauxite will be sold to Cement Plants.
- Besides this, the project will prove beneficial in terms of socio-economic development as it will provide employment to locals. Further, the average income level, which is the indicator of socio – economic status of households is expected to increase, which will ultimately result in better standard of living of the local people.

1.4 BRIEF DESCRIPTION OF THE PROJECT

Table – 1
Brief Description of the Project

S. No.	Particulars	Details
A.	Nature of project	Mechanized Opencast mining
B.	Size of project	
1.	ML area	139.05 ha (Private Land)
2.	Production capacity	<ul style="list-style-type: none"> ➤ Bauxite production capacity: 0.22 million TPA ➤ Waste Generation: 0.04 million TPA ➤ Total Excavation: 0.26 million TPA ➤ Crusher with capacity of 200 TPH
C.	Project Location	

S. No.	Particulars	Details		
1.	Villages	Mandivali		
2.	Tehsil	Dapoli		
3.	District	Ratnagiri		
4.	State	Maharashtra		
5.	Latitude	17° 55'16 "N to 17° 55'41" N		
6.	Longitude	73° 07' 25" E to 73° 07'44"E		
7.	Toposheet No.	47 G/1 & 47 F/4		
D.	Environmental Setting Details			
1.	Villages within close proximity	S. No	Nearest Habitation	Distant and Direction
		1.	Habitation of Village- Mandivali	~70 m in NW direction from block – I
		2.	Habitation of Village – Kawadoli	~500 m in NW direction from block – II
		3.	Habitation of Village – Rawtoli	~1.0 km in NW direction from block – II
2.	State /National Highway	➤ SH-100 (~7.7 km in NNW direction)		
3.	Nearest Railway Station	➤ Vinhere Railway Station (~ 26 km in East direction)		
4.	Nearby Airports	Pune international Airport (~108 km in NE direction)		
5.	Nearest Town/City	Dapoli (~ 21 km in SSE direction)		
6.	National Park, Wild Life Sanctuaries, Biosphere Reserves, Tiger Reserves, Wildlife Corridors, Protected/Reserved Forest etc. Within 10km radius study area.	No National Park Wild Life Sanctuary, Biosphere Reserves, Wildlife corridors, Tiger/Elephant Reserves etc exist within 10 km radius study area. One Protected Forest falls ~ 9.5 km in WNW direction from the mine site		
7.	Inter District Boundary	Ratnagiri & Raigadh, Maharashtra (~5.2 Km in NNW direction)		
8.	Reserved / Protected Forest within 10km radius (Boundary to boundary distance)	<ul style="list-style-type: none"> ➤ RF (~ 9.0 km in North direction) ➤ RF (~ 8.0 km in North direction) ➤ RF (~ 7.0 km in NNW) ➤ RF (~ 9.0 km in SSE direction) ➤ RF (~ 8.0 km in South direction) ➤ RF (~ 8.0 km in North direction) ➤ RF (~ 9.5 km in NNW direction) 		
9.	Water Bodies within 10 km radius study area	<ul style="list-style-type: none"> ➤ Bharja River (~0.25 km in East direction) ➤ Tulsi Dam (~9.5 km in NE direction) ➤ Arasbian sea (~6.0 km in SW direction) ➤ Utamber khadi (4.5 km in SW direction) ➤ Savitri River (~5.0 km in NNW direction) 		

Proposed Mandivali Bauxite Block (ML Area 139.05 ha) with Bauxite Production Capacity 0.22 Million TPA along with installation of crusher with capacity of 200 TPH at village- Mandivali, Taluka Dapoli, District-Ratnagiri, Maharashtra by Smt. Hanifa Haroon Fazlani.

Executive Summary of Draft EIA/EMP Report

S. No.	Particulars	Details
10.	Seismic Zone	Zone – III as per IS: 1893 (Part-I): 2002
E.	Cost Details	
1.	Project Cost	The total project cost is Rs. 20.6 Crore
2.	Cost of EMP	Capital Cost: Rs 0.5 Crore-
		Recurring Cost: Rs. 0.15 Crore/annum

Source: Site Visit & Pre-feasibility Report

1.5 LOCATION MAP

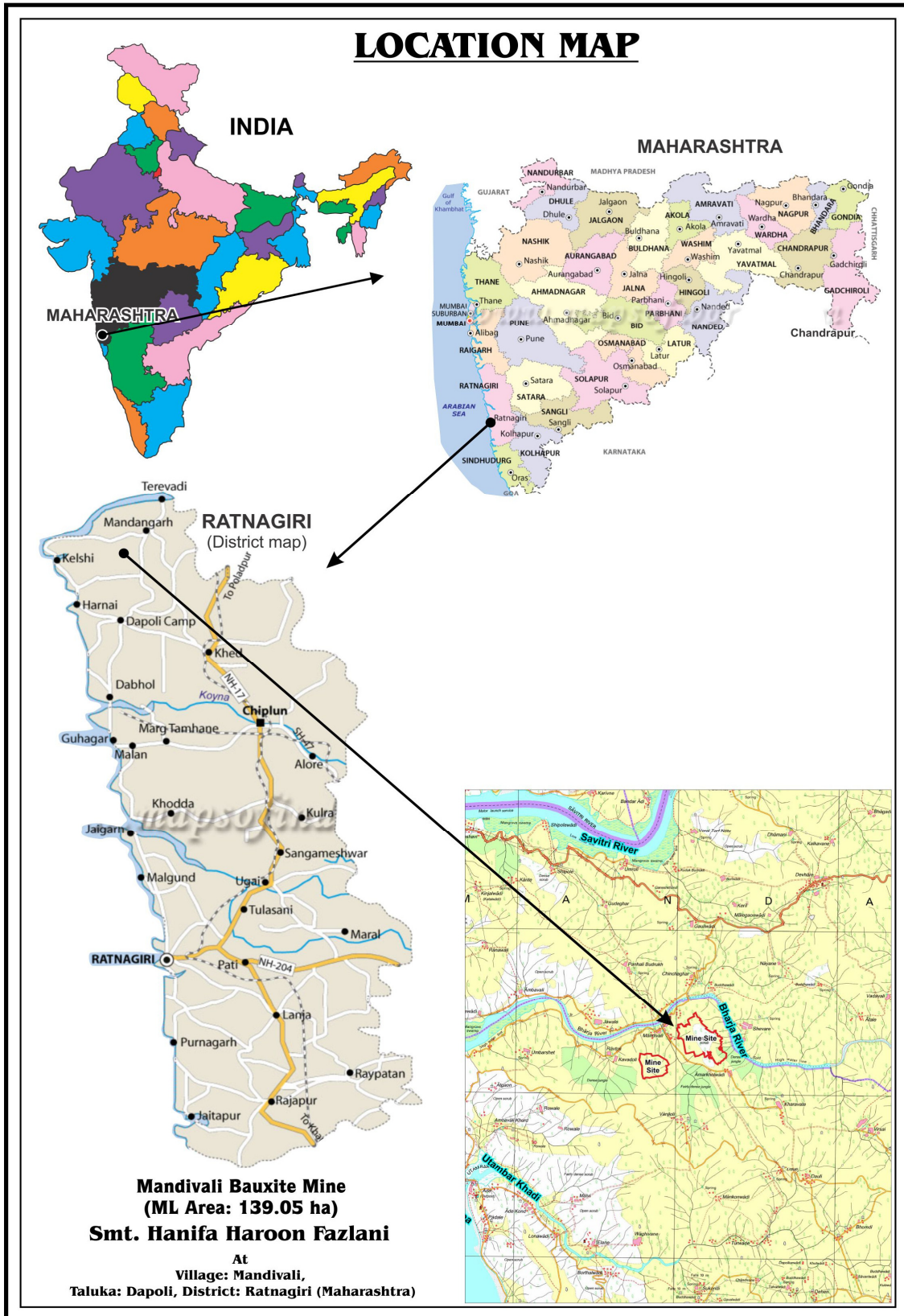


Figure-1: Location map (Showing general as well as specific location of the ML area)

1.6 MINE DESCRIPTION

1.6.1 MINING LEASE STATUS

- Initially letter of intent (LOI) was issued by state government of Maharashtra in favour of Shri Haroon Ahamed Fazlani for a period of 20 years dated on 18.06.2007.
- Late Shri Haroon Ahamed Fazlani resident of Ruby Apartment, Fazlani Nagar, Thiba Palace Road, Ratnagiri 415612 had applied for the grant of the mining lease for bauxite over an area of 139.05 ha. in Village Mandivali, Tahsil Dapoli, District Ratnagiri, Maharashtra.
- Mining lease was granted on 11.01.2017 over an area of 139.05 ha.
- The said Mr. Haroon Ahamed Fazlani, expired on 16.05.2008 and upon his demise, under Rule 13 A (1) of the Mineral Concession Rules, 1960, all rights, titles and interests devolved upon his wife Smt. Hanifa Haroon Fazlani. Where state government of Maharashtra has extended time for execution of lease deed by 90 days by letter MMN-1005/Pra Kra 747/Udyog-9b dated- 12/12/2022
- The Mining lease deed was executed on 01.04.2023 for a period of 50 years.

1.6.2 MINING DETAILS

Table – 2
Mining Details

S. No.	Particulars	Details
1.	Method of mining	Mechanized Opencast mining
2.	Total Geological Reserves	5.08 million tonnes
3.	Total Mineable reserves	4.296 million tonnes
4.	Life of the Mine	20 years
5.	Bench Height	6 m
6.	Bench Width	10 m
8.	Elevation Range	70 m AMSL to 280 m AMSL
9.	Ultimate Working Depth	6 m
10.	ROM/Waste Ratio (Tonnes: Cum)	1:0.36
11.	Number of Working Days	300
12.	Number of shifts per day	One shift

Source: Approved Mining Plan with Progressive Mine Closure Plan

1.6.3 METHOD OF MINING

a) Top soil/OB Removal and Excavation

Mining will be done by mechanized opencast method using Hydraulic excavator/ loader.

b) Drilling & Blasting

Drilling or blasting will be done for Bauxite production. The operations involved are drilling by using 110 mm dia, Atlas Copco Wagon for drilling holes of 2 and 4 m depth in OB and Bauxite Zone respectively. Blasting will be done using ANFO and slurry explosive with Nonel Shock Tube. Controlled Blasting will be undertaken so that minimum fly rock generation and ground vibration are there.

Drilling & Blasting Parameter

Particular	Details
Drill diameter	110 mm
Depth of holes	2/3/4 m
Burden	1.8 to 2 m
Spacing	2 m
Stemming height	1.5 m
Decking	Top air deck using gunny bags

c) LOADING

Loading operations will be carried out by excavators/ wheel loader. The excavator of 1.0 m³ capacity will be used for loading.

d) HAULING

Haul Road is proposed to haul the blasted ROM ore from pit head to crushing by 10 tons capacity Tippers. OB transportation will be carried out by tippers to earmarked sites

e) CRUSHING

The ROM shall be crushed in crusher of capacity 200 TPH.

f) TRANSPORTATION

The crushed ore will be loaded by loaders into 10 tonnes capacity of tippers for transportation to the buyers.

Flow chart showing process of mining given below:

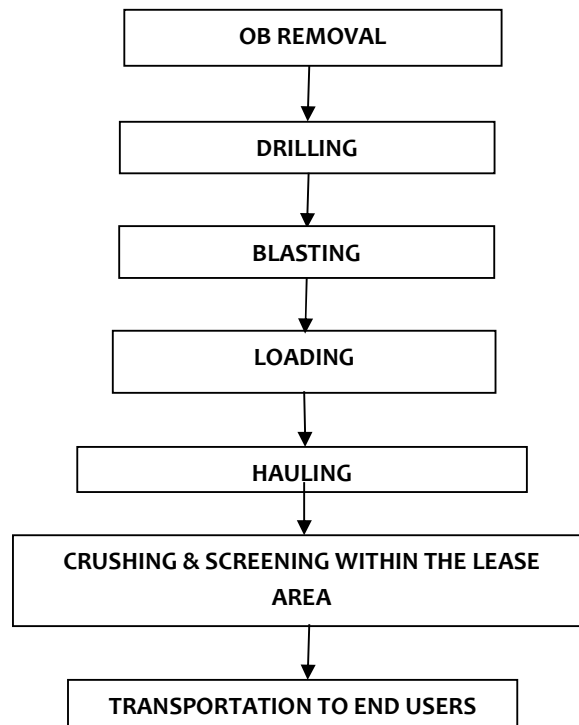


Figure: 2.6 Flow chart for mining process

2.0 DESCRIPTION OF THE ENVIRONMENT

2.1 PRESENTATION OF RESULTS (AIR, NOISE, WATER & SOIL)

The Primary baseline data for specific micro – meteorology data, ambient air quality, waste quality, noise level, soil and flora & fauna has been collected during Summer Season (March to May, 2023). The monitoring results of ambient air, surface water, soil, ambient noise and ground water have been reported.

Table – 3
Summary of Air, Noise, Water and Soil Parameters

Parameters	Number of locations	Description	Standards
Ambient Air Quality Monitoring	08 Locations	PM10 – 21.3 to 37.5 µg/m ³	100 µg/m ³ (24 hours)
		PM2.5 – 49.7 to 68 µg/m ³	60 µg/m ³ (24 hours)
		SO ₂ – 5.2 to 12.3 µg/m ³	80 µg/m ³ (24 hours)
		NO ₂ – 12.7 to 22.5 µg/m ³	80 µg/m ³ (24 hours)
		All other parameters were also found within the permissible limit as per the NAAQS 2009.	
Noise Level Monitoring	08 Locations	Noise Level During Day Time – 50.8 to 53.6 Leq dB (A)	75 Leq dB (A)
		Noise Level During Night Time – 39.7 to 43.3 Leq dB (A)	70 Leq dB (A)
Surface Water	02 Locations	pH - 7.42 to 7.56	
		Total Hardness – 325.62 to 465.12 mg/l	
		Total Dissolved Solids -- 24980 to 31860 mg/l	
Ground Water Sampling	05 Locations	pH – 7.12 to 7.88	6.5 to 8.5
		Total Hardness – 121.22 to 162.28 mg/l	600 mg/l
		Fluoride - 0.36 to 0.47 mg/l	1 to 1.5
		TDS – 202 to 241 mg/l	2000 mg/l
Soil Sampling	05 Locations	Soil nature – Sandy Clay Loam pH – 7.98 to 8.21 Organic Matter – 1.02 to 1.41% Available Nitrogen – 212.43 to 341.96 Kg/hect Phosphorous – 21.74 to 29.88 Kg/hect Potassium – 211.28 to 350.36 Kg/hect	-

2.2 BIOLOGICAL ENVIRONMENT

No adverse impact is envisaged as there is no existence of protected forest and reserved forest within lease area. Letter for the same has been received from Deputy Division Forest Officer, Chiplun, vide letter no. A/survey/ 312/2009 – 10 Dapoli dated 04.07.2009.

A primary field survey was carried out within 10 km radius impact zone in and around the project area to study the floral and faunal diversity of the terrestrial and aquatic environment of the study area. Common faunal species found in the area are fox, rabbit, bhekar, salinder, jungle pig, ghorpad, monkey and vanar these animals are available is confirmed after the final inquiry.

As per the survey report, common plant species found in the area are aain, kinjal, kudkudi, harad, hela, jambhul, shevar, umber, also there is small jungle plant like karvand, alu, kuda, ghaneri.

2.3 SOCIO-ECONOMIC ENVIRONMENT

The 10 km radius study area from mine site, comprises of District Ratnagiri, Maharashtra is covered under 10 km radius. Total no. of villages observed within the 10 km radius from the project area is 71.

The population as per 2011 Census records is 39,740 (for the 10 km buffer zone). Total no. of household is 1713, 5372 and 3583 respectively, in primary, secondary and outer zone. Sex ratio is 1476, 1324 and 1169 (females per 1000 males) observed in primary, secondary and outer zone respectively. SC population distribution is 569, 328 and 342 respectively in primary, secondary and outer zone. ST population distribution is 197, 304 and 385 respectively in primary, secondary and outer zone respectively.

3.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

➤ Impact on Air Environment

The key air emissions from the mining activities (OB Removal, drilling, Blasting, loading, unloading, transportation of material, crushing & Screening within the lease area) are Particulate Matter, Oxides of Nitrogen (NOx) and Sulphur dioxide (SO₂). Gaseous emissions will be generated from HEMMs & transportation of vehicles. To indicate incremental due to this project based on emission modelling is done. As per the prediction, the impact of the proposed project has been found to be within the prescribed limits of CPCB/MoEF&CC. The maximum predicted incremental value s of various pollutants are given in Table 4 below:

Table – 4
Predicted Incremental & Ground Level Concentration (GLC)

S. No.	Particular	Concentration for Mine and Plant (µg/m ³)			
		PM10	PM2.5	SO ₂	NO ₂
1.	Monitored Maximum concentrations	55.9	29.4	10.1	18.1
2.	Predicted incremental Maximum concentrations	0.79	0.314	0.51	0.46
3.	Resultant Maximum concentrations	56.69	29.714	10.61	18.56
4.	NAAQS (dated 2009)	100	60	80	80

➤ Impact on Water Environment –

No seasonal/perennial water body fall within the mining lease area. However, there are some water bodies (Nallah/Canal) within the study area which may be impacted due to mining activity. Nearest water body is Bharja River (~0.25 km in East direction) while other water bodies present in buffer zone are Tulsi Dam (~9.5 km in NE direction), Arasbian sea

(~6.0 km in SW direction), Utamber khadi (4.5 km in SW direction), Savitri River (~5.0 km in NNW direction) from mine site.

Surface water is encountered during monsoon. There will be broken area in the form of access road, pit, stacks, temporary dump etc. Surface water flowing along these broken areas will get affected. It may carry fine particles along with it. This water will join a seasonal water course flowing at lower levels. The quality of water of this watercourse will get affected. There will be sedimentation of fine particles in the water course.

- To prevent the entry of surface runoff outside to the mining lease, Garland drains Retaining walls will be constructed.
- Proposed working is of very low level and mostly carried out in the dry season. Drains will be made along at key places to guide the rainwater so that erosion will avoid.
- Greenbelt covering an area of 6.3 ha will be covered within two years.
- No waste water will be discharged out of the mining lease area.
- Waste water generated from mine office, toilets & canteen will be disposed-off in soak pits via septic tanks.
- Regular water Quality Monitoring of River and canal will be done.

➤ **IMPACT ON GROUND WATER**

There will be impact on ground water by following ways:

1. **Ground water pollution by toxic substances:** Ground water pollution can take place only if the mining rejects contain toxic substances, which get leached by the precipitation of water and percolate to the ground water table thus polluting it. Any nearby wells or other sources of water can be rendered unfit for drinking and even for industrial use. The mineral Bauxite and associated rocks do not contain any toxic substance. Therefore, there is no significant impact of mining activities on any source of water and its quality.
2. **Ground water Withdrawal:** Total water requirement for the proposed mining project will be about 45 KLD which will be supplied by private vendor by water tankers. No ground water will be used by the proposed mining project.
3. **Ground water intersection due to Mining activity:** No ground water is encountered anywhere in the area. Depth of pit will be very shallow and will be restricted to maximum 6m to 7m. we do not expect ground water to be encountered at such shallow working depth. Ground water in local area encountered at least 10m below the lowest working depth. There is no any type of mine seepage in the pits. The average depth to water level during pre and post monsoon season is 12 - 14 m bgl to 10 - 12 m bgl. During plan period working will be up to 6m. Ultimate working depth of the mining operation will be 254 m AMSL (6m bgl). As there is no groundwater intersection at any working phase of mining.

➤ **Impact of Noise & Vibration**

Due to Mining Activities

With the mining operations for mine development, excavation and transportation of Bauxite, it is imperative that noise levels would increase.

1. Noise Generated due to Drilling, Excavation, and Transportation & Crushing

The drilling operations in the Bauxite mine will be carried out with sharp drill machine. The noise levels in the working environment will be maintained within the standards prescribed by Central Pollution Control Board/ Maharashtra Pollution Control Board. These standards were established with the emphasis on reducing the hearing loss. The permissible limits, as laid down by CPCB, are presented in following table.

2. Noise Generated Due to Blasting

- Noise generated from blasting will be for a short duration and will be instantaneous.
- Noise of blast will be site specific and depends on type, quantity and strength of explosives, dimensions of drill holes, and degree of compaction of explosive in the blast holes.
- The noise levels tend to decrease with distance. The impact of noise will be restricted to proposed mining activity area only, as plantation/ green belt will be developed around the mine which restricts the propagation of noise.

3. Noise Impact Analysis on Community

Ambient noise levels were measured at 08 locations in and around the proposed mine site. Noise level varied from 50.8 to 53.6 Leq dB (A) during day time and from 39.7 to 43.3 Leq dB (A) during night time. Overall, it can be stated that the impact on the present noise levels due to mining operations will mainly be restricted to the active mine area only and it will attenuate fast at ML boundary in majority of directions. Therefore, no significant increase in ambient noise levels is anticipated as the majority of habitation is away from the ML Boundary.

The highest predicted levels of generated noise will be in range within the mining lease area and are well within the prescribed standards for industrial area.

➤ Impact on Land Environment

A. Core Zone: This is a proposed Bauxite mining project. The total mining lease area is 139.05 ha is entirely Private land which falls under Village Mandivali, Taluka Dapoli, District-Ratnagiri, Maharashtra.

a) Impact on Land Use & Mitigation measures

- The land use of the lease area will alter due to mining activities such as formation of pits, built up areas of office, workshop, crusher, greenbelt, Plantation etc.
- At the conceptual stage, out of the total lease area (i.e., 139.05 ha), total excavated area will be 67 ha, out of which 13.20 ha will be backfilled & rehabilitated by plantation and 53.80 ha will be remained as voids, plantation will be done during the course of mining.
- Total area to be covered under greenbelt /plantation is 139.05 Ha. Out of which 13.20 Ha area will be covered under backfilled area, 6.3 ha under 7.5 m peripheral greenbelt

(1.7 ha in Block – 1 + 4.6 ha in Block – 2) and 72.05 ha under afforestation on Non – mined / unworked area.

- The trees will be planted @ 1000 saplings per ha of land.

b) Impact on public Road

- Public road (Velvi – Kelshi road) is passing through the Northwestern part of block -1 of mining lease area having length of ~200 m and width of ~4.5 m joining villages Mandivali to Dauli.
- Public road will not be disturbed at any stage of mining, at conceptual stage of mining, public road is ~250 m away from the ultimate pit limit line. Proper safety measures will be taken.

B. Buffer Zone

Buffer zone is comprised by Nalla, Canal, water pond, agriculture land and village habitation.

To reduce the impact on nearby agriculture fields due to mining, following mitigation measures will be taken:

- Mining activity will be confined to the mineralized zone and proper pollution control measures will be adopted to restrict the pollution load within the active zone in order to prevent any negative impact on nearby areas. Mitigation measures will be taken to control the pollutants within active mine area.
 - Mine lease periphery (7.5 m safety barrier) having an area of 6.3 ha will be developed as greenbelt within 2 years. It will act as bio-filter and will help to control and confine the emission within ML boundary.
 - Water Spray arrangement will be provided at crusher hopper and haul roads, loading & unloading areas to control the fugitive emission.
 - Haul roads will be kept wide to support smooth traffic movement. The roads will be properly maintained by road compactor and regular water spraying will be done during work hours to prevent generation of dust from vehicular movement.
 - Curtains will be provided at crusher hopper to arrest dust while unloading of dumpers.
 - Bag filter will be provided at crusher house for dust collection.
 - Crusher building will be provided with sheet cladding.
 - Ambient Air Quality and Fugitive Dust Emission monitoring will be carried out as per prescribed norms stipulated by CPCB/CECB
 - Crusher Stack emission monitoring will be carried out at periodic interval.
 - Rainwater harvesting practices will be encouraged which will lead to ground water recharge and ultimately increased productivity in the study area.
 - Awareness for new methodologies of agricultural practices viz. mixed farming, crop rotation and agricultural cropping pattern suitable for the study area will also be carried out under EMP to increase the agricultural productivity of the study area.
- **Impact on Soil Environment**
- In such working area top soil is absent. No topsoil will be generated during the plan period. Hence no need to handle top soil. In present mine lease area, some part of the in-situ origin of bauxite ore is observed on top of the plateau along with the laterite. No major impact on soil of

the study area is envisaged due to mining activities, as mining process neither involves any wet neither mineral beneficiation process nor any chemical mineral beneficiation process. Fugitive dust of mining area will mainly be confined within ML area and will not impact soil of buffer zone. Further, dust in mining area is of neutral nature and does not contain toxic elements which may impact soil. Greenbelt area shall be developed in 7.5 m safety barrier all around the ML and this will help to contain fugitive dust within ML area itself.

There will be no discharge of industrial waste water to surrounding areas and hence impact on the soil is not envisaged.

Run Off

- To prevent the entry of surface runoff outside to the mining lease, Two Garland drain having dimension (L-7725 m X W - 0.5m X D - 1m) will be constructed, One around the periphery of the plateau broken portion and second between the two protective walls at the foot of the broken portion around the slope portion.
- Settling tanks – Three in number in each block on the lower side of the lowest protective wall having sizes of 50m x 5m x 5m. (Settling tanks to be cleaned before monsoon and every month during monsoon).
- Three number of Protective Stone wall will be constructed having dimension of (L- 10985 m X W - 0.5m X D - 1m), (one at the edge of the plateau and two, with the gap of 30m at the foot of the broken area on the slope).

Soil Erosion

- Total area to be covered under greenbelt /plantation is 139.05 Ha. Out of which 13.20 Ha area will be covered under backfilled area, 6.3 ha under 7.5 m peripheral greenbelt (1.7 ha in Block – 1 + 4.6 ha in Block – 2) and 72.05 ha under afforestation on Non – mined / unworked area.
- Plantation will substantially prevent soil erosion.

Hence, no major impact on soil of the study area is envisaged due to the proposed mining activities, as mining process neither involves any wet mineral beneficiation process nor any chemical mineral beneficiation process.

4.0 POST PROJECT ENVIRONMENTAL MONITORING PROGRAMME

Table 3
Post Project Monitoring

S. No.	DESCRIPTION	FREQUENCY OF MONITORING
1.	Ambient Air Quality	Twice a week (Manually) and Online CAAQMS
2.	Water Quality & Level	Quarterly
3.	Noise Level Monitoring	Quarterly
4.	Vibration Monitoring	On every blast
5.	Stack Monitoring	Monthly
6.	Soil Monitoring	Half Yearly
7.	Poly Achromatic Hydrocarbons	Annually

5.0 ADDITIONAL STUDIES

Additional Studies i.e., Risk Assessment & Disaster Management Plan, Land use and land cover study, Ecology and Biodiversity, Blasting and Vibrational Study, Hydrological Study are covered in Draft EIA/EMP Report as per the Standard ToR Letter was issued by SEIAA, Maharashtra vide letter no. SIA/MH/MIN/430437/2023 dated 26.05.2023.

6.0 PROJECT BENEFITS

At the conceptual stage, out of the total lease area (i.e., 139.05 ha), total excavated area will be 67 ha, out of which 13.20 ha will be backfilled & rehabilitated by plantation and 53.80 ha will be remained as voids, plantation will be done during the course of mining.

Total area to be covered under greenbelt /plantation is 139.05 Ha. Out of which 13.20 Ha area will be covered under backfilled area, 6.3 ha under 7.5 m peripheral greenbelt (1.7 ha in Block – 1 + 4.6 ha in Block – 2) and 72.05 ha under afforestation on Non – mined / unworked area.

The Project will generate direct and indirect employment. Manpower will be required for mining operations and other mining related activities such as transportation, day to day operations etc.

The total manpower is 38 persons including Skilled, Semi-skilled & Unskilled staff and preference is will be given to the locals as per their eligibility report

The project is also contributing/will contribute additional revenue to the State and Central Govt. in the form of royalty and other taxes etc.

➤ **Economic Benefit:**

The Mining project will provide Job opportunities to the local people which will improve earning and spending capacity of the local people.

The project is also will contribute additional revenue to the State and Central Govt. in the form of royalty and other taxes etc.

The mine shall be contributing around Rs. 4.0348 Crore every year to the State and Central Govt. exchequer by way of mining revenue (Royalty, DMF, NMET etc).

➤ **Environmental Benefit:**

Proposed mining project will be beneficial for environment in following ways:

- At the conceptual stage, out of the total lease area (i.e., 139.05 ha), total excavated area will be 67 ha, out of which 13.20 ha will be backfilled & rehabilitated by plantation and 53.80 ha will be remained as voids, plantation will be done during the course of mining.
- Total area to be covered under greenbelt /plantation is 139.05 Ha. Out of which 13.20 Ha area will be covered under backfilled area, 6.3 ha under 7.5 m peripheral greenbelt (1.7 ha in Block – 1 + 4.6 ha in Block – 2) and 72.05 ha under afforestation on Non – mined / unworked area.

➤ **Social Benefits**

The Company will organize skill development training, vocational training, entrepreneur development programmes for the locals including women members and will provide advice for starting suitable small scale industry. Smt. Hanifa Haroon Fazlani will encourage entrepreneurship amongst locals or their qualified family members by awarding services, contracts for activities such as canteens, vehicle hiring, maintenance of gardens, office services and cleanliness, courier services, and material supplies to the villages falling within the ML area and/impact zone of the ML area under CER plan. With the implementation of the

Proposed Mining Project. It is envisaged that the Employment need of the people of the area will be fulfilled to a greater extent.

7.0 ENVIRONMENT MANAGEMENT PLAN

7.1 AIR QUALITY MANAGEMENT

The following mitigation measures is will be adopted to mitigate air pollution generated due to the mining activities:

1. DRILLING

- Drill machine will be having wet drilling arrangement as well as dust collection system.
- Latest generation drill machine with high fuel efficiency & low emission norms will be deployed.

2. BLASTING

- Wet drill cuttings and subsequent tight stemming in blast holes will be practiced.
- Use of NONEL shock tubes & controlled blasting will be practiced.
- No secondary blasting will be carried out.
- Rock breakers will be used for breaking over-sized boulders.
- Water spray on blasted muck pile before loading to control dust generation.

3. LOADING & TRANSPORTATION

- While loading; overloading of dumpers will be avoided.
- Water tanker for water sprinkling on other haul roads & mining areas.
- Regular haul road maintenance by deployment of motor grader & soil compactor.
- Vehicular movement speed will be controlled to avoid dust generation.
- Proper maintenance of Motor grader and soil compactor for haul road maintenance.
- Exhaust emission monitoring of HEMMs & transport vehicles will be carried out regularly and corrective actions will be taken.
- PPEs like dust masks will be provided to mine workers.
- Development of green belt/plantation around mine boundary, roads and other places will be carried out to control the air pollution.

4. CRUSHING

- Curtains at crusher dump hopper to arrest dust while unloading of dumpers.
- Provision of Bag filter at crusher house for dust collection.
- Crusher building will be provided with sheet cladding.
- Green-belt around crusher, mine boundary, safety zones, backfilled area etc.

5. MONITORING

- Ambient Air Quality will be monitored and maintained at mine site as per prescribed norms.
- Fugitive dust emission monitoring will be carried out and maintained as per prescribed norms.
- Personal dust monitoring will be done as per prescribed norms.

7.2 NOISE & VIBRATION QUALITY MANAGEMENT

The following control measures is will be adopted to keep the ambient noise levels within the limits:-

➤ DRILLING

- Sharp drill bits will be used to reduce noise generation at source.
- Drill machine will be equipped with acoustic air-conditioned closed cabins for operators.
- PPEs i.e., earplug in drilling & in high noise area shall be used.
- Regular maintenance of drill machine will be carried out.

➤ BLASTING

- Non-Electric detonators (NONEL) will be used 100% in blasting.
- Explosives Charge per delay will be optimized for minimal ground vibrations.
- Proper delay interval between the holes and between the rows in blasting will be maintained.
- Blast induced ground vibrations shall be daily monitored and analysed for corrective actions.

➤ USE OF HEMMs

- New generation and advanced technology HEMMs will be deployed.
- Proper and routine maintenance of HEMMs at periodic intervals shall be carried out.
- All HEMMs will be provided with air-conditioned operators' cabin.
- Development of green belt & plantation around the periphery of mine lease area & other areas will be carried out.
- Peak Particle Velocity Monitoring will be carried out for nearest habitation as per prescribed norms.
- Personal noise monitoring will be carried using dosimeter as per prescribed norms.
- Work place noise monitoring will be carried out as per prescribed norms.
- Whole Body Vibration Exposure health risk assessment in use of HEMM will be carried out.
- Regular monitoring of Ambient Noise level will be carried out as per prescribed norms.

IMPACT DUE TO CRUSHING

The major impact of crushing will slightly increase in levels during crushing process.

MITIGATION MEASURES

- Insulators will be provided in the crusher to control the noise pollution.
- Use of Closed acoustic systems for controlling the noise from the crusher.
- Regular maintenance and on time greasing of equipment will be done.
- Development of green belt/plantation will be done all around the crusher.

7.3 WATER MANAGEMENT

- No waste water will be discharged out of the mining lease area.
- Waste water generated from mine office, toilets & canteen will be disposed-off in soak pits via septic tanks.
- Garland drains and retaining wall is proposed around the waste dumps to prevent flow of surface off outside the mining lease area.

- Two Garland drain having dimension (L-7725 m X W - 0.5m X D - 1m) will be constructed, One around the periphery of the plateau broken portion and second between the two protective walls at the foot of the broken portion around the slope portion.
- Settling tanks – Three in number in each block on the lower side of the lowest protective wall having sizes of 50m x 5m x 5m. (Settling tanks to be cleaned before monsoon and every month during monsoon).

7.4 POST MINING LAND USE PATTERN

At the conceptual stage, out of the total lease area (i.e., 139.05 ha), total excavated area will be 67 ha, out of which 13.20 ha will be backfilled & rehabilitated by plantation and 53.80 ha will be remained as voids, plantation will be done during the course of mining.

Total area to be covered under greenbelt /plantation is 139.05 Ha. Out of which 13.20 Ha area will be covered under backfilled area, 6.3 ha under 7.5 m peripheral greenbelt (1.7 ha in Block – 1 + 4.6 ha in Block – 2) and 72.05 ha under afforestation on Non – mined / unworked area.

7.5 GREENBELT DEVELOPMENT AND PLANTATION PROGRAM

- Total area to be covered under greenbelt /plantation is 139.05 Ha. Out of which 13.20 Ha area will be covered under backfilled area, 6.3 ha under 7.5 m peripheral greenbelt (1.7 ha in Block – 1 + 4.6 ha in Block – 2) and 72.05 ha under afforestation on Non – mined / unworked area.
- The trees will be planted @ 1000 saplings per ha of land.
- The plants and saplings suitable for the existing soil and site conditions will be considered. Preference will be given for fast growing local plant species, which can adapt to the local climate. Indigenous & fruit bearing species will be planted by Smt. Hanifa Haroon Fazlani in consultation with local forest department.
- About capital cost of Rs. 1.35 crores are proposed as cost for development of plantation/greenbelt over 53.8 Ha including cost for sapling, fertilizers, tree guard, tool stackers and maintenance etc.