EXECUTIVE SUMMARY

A. BACKGROUND OF THE PROJECT

Environment Impact Assessment report is prepared to comply with the term of Reference (TOR) received from SEAC, Uttarakhand. Under EIA Notification of the MoEF&CC dated 19-08-2006, and its subsequent amendment and EIA Guidance Manual for Mining of Minerals (Feb, 2010) of MoEF&CC, Govt. of India, for seeking environment clearance for mining of soapstone in the applied mining lease area measuring 10.33 ha. The proposed project falls under Category "B" as per EIA Notification 2006.

The proposed project is to mine soapstone over an area of 10.33 ha. near village Dhapoli, Tehsil and district Bageshwar, Uttarakhand. Lease was executed on 30.04.1997 for a period of 30 years in favour of Shri N.C. Tewari & later on lease was transferred to M/s Ram Bharat Mines. It is an existing lease and lease shall be expired on 29.04.2027.

B. STATUS OF REGULARTORY CLEARANCE OF THE PROJECT

The Mining plan/scheme of mining has been approved vide Letter No. 614(2) M.S.-B-177/08-DDN dated 20-02-2014 under MCDR, 1988/MCR, 1980.

There is no National Park, Wildlife sanctuary & National Monument, within core zone or 10 Km radius of the ML area. There are no legal issues against the project in the court of law.

C. STATUS OF ENVIRONMENTAL CLEARANCE

The application for prior Environment clearance (Form-1) for the proposed project was considered by the State Level Expert Appraisal Committee (SEAC) (Mining Project) in the meeting held during August 9th , 2015, for determination of the Term of reference (ToR) for preparation of the Environment Impact Assessment (EIA) report. The committee has issued Terms of reference vide Letter No. 540/SEAC dated 22.08.2015. The EIA report has been prepared as per the TOR coverage mine lease core area and 10 km along the buffer area.

D. IMPORTANCE OF THE PROJECT

- **Market Potential**

Soapstone mineral is an important raw material for various industries. The soapstone is used in number of industries like paper, textile, rubber, ceramics, talcum powder, fertilizers, and manufactures of insecticide and pesticides. The soapstone available from lease area is good grade and suitable for even cosmetic and paper industries.

E. BRIEF DESCRIPTION OF THE PROJECT (Nature, size and Location)

Production capacity of mine is about 19,292 TPA (maximum). The estimated Project cost is Rs. 30 lacks. The anticipated life of mine is 30 year based on the recoverable Reserves.

This mining project falls under Category "B" as per EIA Notifications 2006 and its amendments. Lease area is a part of Hillock located near village Dhapoli, Tehsil and district Bageshwar, Uttarakhand.

- **Location details:**

The mining lease area falls near village Dhapoli, Tehsil and district Bageshwar, Uttarakhand. It is approached through an all season road, 10km from Bageshwar on Bageshwar-Munsyari Road. The area falls on Toposheet no. 53O/13.

Coordinates	Latitude: $29^0$49'5.62"N to $29^0$49'15.7"N Longitude:$79^0$52'2.04"E to $79^0$52'26.0"E
Toposheet No.	53O/13
Nearest Railway Station	Kathgodam – 205 Km NE (Aerial)
Nearest Airport	Pantnagar – 102 Km SW (Aerial)
Nearest Highway	Bageshwar Munsyari Road – .50 Km N(Aerial) State Highway 37 Road – 9 km W (Aerial)

F. TOPOGRAPHY & DRAINAGE

The highest elevation of mine lease is 1004.5 m AMSL towards north-west corner and the lowest elevation is 983.5 m AMSL towards south.

Drainage of the area is mainly controlled by Saryu, Gomti and Pindar Rivers and their tributaries (locally called Nadi, Gad or Gadhera) viz. PungarNadi, Khir Ganga Nadi, BhadrapatiNadi, Revti Ganga, Kanal Gad, LahorNadi, Jagtana Gad, Kulur Gad, Sukunda Gad etc. Sub-trellis, sub-rectangular and sub-dendritic are the most common drainage patterns in the area. The Central and North-Central parts of the district are drained by Saryu River. Gomti River drains the western and south eastern parts whereas Pindar River drains the northern part. These rivers are primarily fed by snowmelt with relatively smaller contribution from ground water. However, during the lean period, the rivers are fed by ground water occurring as base flow

- **Proposed Method of Mining:**

  - The mining will be carried out manually
  - The top soil will be scrapped manual means & stack separately
  - The soapstone mining is small scale & will not call for any specific development.
  - The existing footpath of the area will be used to transport the material up to the road head.
  - During the course of mining, mining faces shall be advanced through bench 1.5m height.
  - The face length will vary from 60m. to 80m., width of faces will vary 1.5 m. to 2.0 m.
  - The overall slope of the working pit will be maintained 45 deg.

Year wise Production details are given in the Table below.

Table: Year wise Production

Year	Interburden (Cum)	ROM of soapstone (Tonnes)	Soil (Cum)	Stripping ratio Tonnes / m^3
2013-14	6948	7676	126	0.7:1
2014-15	9240	10297	98	1.0:1
2015-16	9296	10369	134	0.8:1
2016-17	12936	14415	288	0.8:1
2017-18	17304	19292	232	0.9:1
Total	**55724**	**62049**	**878**	**0.90:1**

- **Anticipated life of mine**

At the end of fifth year mine will be fully developed. The life of mine has been calculated demonstrated recoverable reserves/maximum rate of production with proposed production of 19292 tonnes (maximum).

Year wise details of protective measures

Activities	Years				
	2013-14	2014-15	2015-16	2016-17	2017-18
Toe wall at the base of soil stack	15m	Nil	Nil	Nil	Nil
Toe wall at the base of interburden dump	70m	Nil	Nil	Nil	Nil

G. WASTE GENERATION AND ITS DISPOSAL

The top soil from the working benches will be scrapped manual means and to be stacked separately. All the quantities of soil to be generated will be stacked separately and it will be spread over the interburden in the mined out pit to restore the land for agricultural purpose. The yearly generation of soil and inter burden is given in **Table** below.

Generation of Soil and Inter Burden

Year	Interburden (Cum)	Quantities of interburden offer loosened factor 1.3	Soil (Cum)	Soil offer loosened factor1.3
2013-14	6948	8954	126	134
2014-15	9240	12012	98	127
2015-16	9296	12085	134	174
2016-17	12936	16817	288	374
2017-18	17304	22495	232	302
Total	**55724**	**72363**	**878**	**1111**

- **Post mining reclamation and restoration**

Mining is proposed in such a way that land will be reclaimed concurrently from second year onward as the mining pits shall reach the maximum economical depth (9.0m). No premature backfilling shall be carried out. The reclaimed land will be used in agriculture purpose.

Plantation Details along 7.5m wide strip

Year	Area (ha)	No. saplings
I	0.10	100
II	0.10	100
III	0.10	100
IV	0.10	100
V	0.10	100
Total	**0.50**	**500**

Peach (khumani), Pears (Nashpati), Apricot (Aaru), Faliyat, Surai, Chilmora, etc shall be planted.

- **Existing land use pattern:**

The total lease area (10.33ha) is a piece of private agriculture land. The existing landuse of the area is almost hundred percent agriculture land. The present landuse and their pattern is given in the **Table** below.

Table: Present Landuse

Type of land	Area (Ha.)
Forest land	Nil
Waste land	Nil
Agricultural land	10.33
Grazing land	-
Total	**10.33**

Table: Existing Landuse Pattern

Sl. No.	Activities	Type of land				Total (in Ha.)
		Agriculture (in Ha.)	Forest	Grazing	Waste	
1	Mining Pits	0.506	-	-	-	0.506
2	Dumps	0.417	-	-	-	0.417
3	Backfilled	0.33	-	-	-	0.33
4	Foot Track	0.087	-	-	-	0.087
5	Remaining Undisturbed land	8.99	-	-	-	8.99
Total		**10.33**	**-**	**-**	**-**	**10.33**

H. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Land Environment:

- **Impact on landuse:**

The proposed opencast mine will result in change of land use pattern of the ML area. The land degradation is expected during mining activities like excavation, overburden dumping, soil extraction etc. Land requirement for the project has been assessed considering functional needs. The drainage pattern is not likely to be disturbed, as there no perennial and seasonal nalla or water body within the leasehold area, therefore to safeguard the existing drainages in the area following precautions are proposed.

Therefore to safeguard the existing drainages in the area following precautions are proposed.

- The mining pits will be properly benched; and waste dumps will be properly terraced with retaining walls at the toe so that there is no land slide during the rains.
- Toe wall having width and height 1.0m respectively, will made at the base of the soil stack and at the base of interburden dump to avoid the wash off soil and interburden material due to intermittent rains.
- The waste rocks dumping will also be done by formation of terraces which will be subsequently vacated.
- The land required for mining and allied activities will be used gradually and simultaneously backfilling will be done and as soon as the use of the land will cease will be handed over to cultivators.
- During rainy season the crop will be taken by the farmers. Therefore there will be no substantial impact on agriculture / grazing due to use of land.
- We are proposing to develop the land suitable for grasses / some fruit trees which will be beneficial during the mining and also after closure of the mines.

- **Impact of mining activity on the fertility status of soil in the study area**

- The topsoil generated will be systematically stacked and vegetation by grasses will be made so as to maintain fertility of soil.
- The selection of species of afforestation covers forestry, species and also grasses suitable for cattle's of the area and therefore the land will be suitable for forestry as well as grazing activities and fertility of soil will improve.

- **Top Soil Management:**

The quantum of soil removed during the mining will be very less . Soil collected during mining operations will be stacked temporarily for future use. For this purpose, the backfilled area shall be carpeted by available soil.

I. Air Environment

➢ Impact on Air Quality

Opencast mining activity causes some adverse impacts on the surrounding environment unless proper environmental management plan is adopted. Selecting suitable sites for mining and also adopting all the guidelines prescribed by the ministry of Environment and Forest and Indian Bureau of mines (IBM) can minimize the major possible impacts. We have taken enough care in the mining plan to avoid impacts on the surrounding environment.

➢ Air Pollution Abatement Measures

➢ Proposed mitigation measures for dust suppression

Air pollution is caused mainly due to dust generation added with gaseous emission from transportation activities along with mining operation like evacuation, loading, haulage etc. Proper mitigation measures will be practiced during mining activities to control air pollution load below the prescribed limits. The same are as follows:

➢ Control of Fugitive Emissions

- ❖ Use of Personal Protection Equipments (PPE) like dust masks, ear plugs etc. by the mine workers
- ❖ No Blasting will be done.
- ❖ Regular water sprinkling on haul roads & loading points will be carried out.
- ❖ Development of green belt/plantation around the lease boundary, roads, dumps etc.
- ❖ Ambient Air Quality Monitoring will be conducted on regularly basis to assess the quality of ambient air.

➢ Prevention and control of Gaseous Pollution

- ❖ In mining activities, the sources of gaseous emissions would be through truck movements
- ❖ Proper maintenance of vehicles improves combustion process & makes reduction in the pollution. Good maintenance and monitoring of fuel and oil will not allow significant addition in the gaseous emission.
- ❖ All the vehicles used will have PUC certificate.
- ❖ Taxi mode of vehicles carrying mined out material while loading and unloading will not be allowed.
- ❖ Vehicles carrying mineral will be covered with tarpaulin sheet. This will prevent dust emission.

J. Noise Environment

➢ Noise Impact on Working Environment

As mining will be done by manual means, noise will only be generated due evacuation, transportation activities.

The impact of noise on the villages is negligible as the villages are far located from the mine workings. Since there is no involvement of machinery, the impact of noise levels will be minimal.

- **Noise Abatement and Control**

In this mine the noise level will be up to tolerable limit (70 dbA°) and the noise level can be reduced by:

- Proper maintenance, oiling and greasing of transport vehicles at regular intervals will be done to reduce the generation of noise_
- Adequate silencers will be provided in all the diesel engines.
- Plantation along the sides of approach roads, around office building and mine area will be done to minimize the propagation of noise.
- Personal Protective Equipments (PPE) like earmuffs/earplugs will be provided to all operators and employees working near mining machineries or at higher noise zone.
- Periodical noise level monitoring will be done.

K. Greenbelt and Plantation

- **Proposed Plantation at the Mine Site**

Greenbelt around peripheral portions of the ML and Plantation will be raised along the boundaries of the mining lease by planting the native species around ML area, backfilled and reclaimed area, around water body, etc. in consultation with the local DFO/Agriculture department. Around 100 plants will be planted in the plan period.

- **Greenbelt Development in ML area**

The entire plantation will be done on the periphery of the reclaimed area. Precautionary measures will be taken for care of the forestation made by regular watering in the plantation area, to protect from grazing animals and proper manuring.

L. WATER ENVIRONMENT

- **Impact on Water Resources**

- **Impact on Water Quality**

Mining activities cause adverse impacts due to mine drainage, siltation due to storm water and contaminated water from workshops and domestic sewage water. Various components have been identified for study of impact of the mine operations.

- **Impact on Surface Water Quality**

As there no perennial and seasonal nalla or water body within the leasehold area, therefore no change will be observed due to mining operation.

Due to mining activities it is anticipated that interburden and mineral fines flowing with water may cause siltation and affect the flow of drainage courses. Mining activity and degradation of land and subsequent flow of water is likely to disturb the drainage course. The quality of water flowing in these drainages will also be polluted.

Therefore to safeguard the existing drainages in the area following precautions are proposed:-

- The mining pits will be properly benched; and waste dumps will be properly terraced with retaining walls at the toe so that there is no land slide during the rains.
- Premature backfilling shall be carried out before the commencement of monsoon & all the quantities of interburden & soil shall be filled back in the mining pit, leveled & it shall be used for agricultural purpose.
- The benches of mining pits, terraces of waste dumps will have grass plantation during the rains and if possible local cultivators will be allowed to grow vegetables and other seasonal crops so that it will also reduce the land degradation and will provide additional income to the local people. Cultivated land reduces the soil erosion and this aspect will be utilized for reducing the soil erosion and also the effect of siltation on drainages
- Check dams will also be constructed so that speed of water flowing during rains does not increase abruptly to cause land slide and degradation of land and these check dams will also works for settlement of the silts before the clean water flows out of the lease area.
- Regular monitoring of quality of water and surface water flow in these drainages are proposed to take care of adverse impact due to mining.

Analysis results of surface water samples collected from rivers and nallas in the buffer zone indicate that total dissolved solids (TDS) are well below the prescribed limits.

No adverse impact was noticed. Backfilling will be done before the onset of monsoon, Garland drains will be made for proper drainage of rain water. This will protect rain water accumulation.

- **Impact on Ground Water Quality**

The proposed bottom level of working pit is expected up to 928 m.RL. Water table will not be intersected by mining operations as springs are about 1.5km away from the proposed working site. Extraction of water for mining operation is not anticipated. Therefore project will not affect the ground hydrogeology and water depth. Jal Nigam has provided pipes to the supply of water.

- **Wastewater Generation, Treatment & Disposal**

The total water consumption in the proposed Soapstone Mine is about 5 KLD. The water is used in the following purposes.

- For dust suppression
- For domestic consumption
- For greenbelt development

It is proposed to obtain water for drinking and plantation from nearby springs. Jal Nigam has provided pipes to the supply of water.

There will be no waste water generation from Mining activities. However, a small amount of domestic wastewater generation will happen as a result of water used by humans. The domestic and service building effluents will be disposed through soak pits.

There will no settlement near the site as the workers will be hired from nearby villages so no significant liquid effluent will be generated.

- **Measures for Minimizing Adverse Impacts**

Surface Water:

- There is a possibility of mixing of freshly disturbed material with the rain water. To take care of such happenings, retaining walls have been provided along the backfilled pits and along the soil and interburden dumps.

- Monitoring of water will be carried out periodically. Water analysis will be carried out seasonally.

Waste Management:

- Waste management soil and interburden will be stacked separately and shall be dumped over dump yard & it shall be secured with retaining wall. It shall be used for backfilling in the mining pit, leveled & it shall be used for agricultural purpose. Waste is free from toxic and hazardous waste.

M. Biological Environment

There is no National Parks, Sanctuary, Breeding, roosting places or ecologically sensitive areas within the 10 km periphery of the mine lease area. However, most of the area surrounding to project site are covered with forest land.

No loss of forest resource is envisaged due to the project. No medicinal plants exist in the area.

- **Impact on Biodiversity**

Present data have been collected through direct inventory as well as various Government Departments such as forests, agriculture, fisheries, animal husbandry and various offices to establish the pre-project biological environmental conditions. There are no endangered species, wildlife sanctuary, wildlife corridors, faunal migratory routes or eco-sensitive area near the whole study area. Save the flora/fauna around the project area, is one of the basic objective of present project. For this, mine owner agency will plant a good roadside plantation along both side of the mine road. No endangered species of schedule I near the whole study area.

N. Socio - Economic Environment

The mine area does not cover any habitation. Hence the mining activity does not involve any displacement of human settlement. The mining operation will not disturb/ relocate any village or need resettlement. Thus no adverse impact is anticipated.

The impact of mining activity in the area is positive on the socio-economic environment of the region. Proposed project will provide employment to local population and preference will be given to the local people whenever there is requirement of man power.

O. ENVIRONMENTAL MONITORING PROGRAMME

Environmental Monitoring Programme will be carried out of Air, Water, Soil, Noise & Socio Economic to know the quality of the environment.

- Monitoring of Ambient Air Quality parameters such as (PM_{10}, $PM_{2.5}$, SO_2 & NO_x) will be carried out once in a season at five locations.
- Monitoring of Water quality (Surface and Ground Water) will be carried out Diurnal and Season wise during pre and post-monsoon as per IS 10500.
- Monitoring of Ambient Noise will be carried out Quarterly / Half yearly as per CPCB Norms at mine lease area.
- Monitoring of Soil will be carried out Quarterly / Half yearly as per USDA method at locations project impact area.
- Socioeconomic survey is based on proportionate, stratified and random sampling method will be carried out,

P. CORPORATE SOCIAL RESPONSIBILITY

S.No.	Activities	Allocation of Fund (Rs. Lacks)/Year
1	Health Camps	0.50
2	Up gradation of toilets of government school in	0.50
3	Distribution of Books and Notebooks among meritorious girl child belonging to Scheduled Caste and Scheduled Tribe population.	0.25
4	Repair and Painting of School Building in the	0.25
Total		**1.50**

Q. ENVIRONMENT BUDGET

Sl. No.	Measures	Capital cost (Rs.)	Annual recurring cost (Rs.)
		Proposed	**Proposed**
I	Pollution Control	-	1,00,000
2	Pollution Monitoring	-	1,00,000
3	Occupational Health	50,000	10,000
4	Green Belt	2,00,000	-
5	Others (specify)	-	-
TOTAL		**2,50,000**	**2,10,000**