1.0 EXECUTIVE SUMMARY

The proposed project of Soapstone Mine of Sri Umesh Chandra Pandey (Partner) in 17.824 ha areas and is situated near Village - Devli, Tehsil - Kanda, District - Bageshwar in the Uttarakhand State. The letter of intent was issued by State Govt. vide letter no. 1093/VII-I/10-Soapstone/2016/2011 dated 14.07.2016 under MCR 1960 rule 24 (A)6. The proposed Soapstone mining project is category “B2” as per EIA Notification dated 14th September 2006 and its subsequent amendments later by MoEFCC, New Delhi.

Mining Plan & PMCP under Rule 22 (4) of MCR 1960 & 23 (B) of MCDR, 1988 was approved vide letter No.–12-Mu.Kha/ Mining Plan-54/Bageshwar Bhu/Khani/E/2016-17 dated 09/11/2016 for the period of five years.

1.1 SALIENT FEATURES OF THE PROJECT

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Particular</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>Nature of the Project</td>
<td>Soapstone Mining Project.</td>
</tr>
<tr>
<td>B.</td>
<td>Size of the Project</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>ML Area</td>
<td>17.824 Hectare (Private Agricultural Land).</td>
</tr>
<tr>
<td>2.</td>
<td>Proposed Production Capacity</td>
<td>Total Recoverable Quantity of Soapstone: 25000 Tonnes/ Annum (Maximum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(As per approved Mining Scheme)</td>
</tr>
<tr>
<td>3.</td>
<td>Lease Period of Mine</td>
<td>Lease was granted for a period of 50 Years.</td>
</tr>
<tr>
<td>C.</td>
<td>Method of Mining</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Method</td>
<td>Open-Cast Manual Mining</td>
</tr>
<tr>
<td>2.</td>
<td>Blasting / Drilling</td>
<td>Not proposed</td>
</tr>
<tr>
<td>D.</td>
<td>Project Location</td>
<td>Location Map is given in Figure.1</td>
</tr>
<tr>
<td>1.</td>
<td>Village</td>
<td>Devli</td>
</tr>
<tr>
<td>2.</td>
<td>Tehsil</td>
<td>Kanda</td>
</tr>
<tr>
<td>3.</td>
<td>District</td>
<td>Bageshwar</td>
</tr>
<tr>
<td>4.</td>
<td>State</td>
<td>Uttarakhand</td>
</tr>
<tr>
<td>5.</td>
<td>Toposheet No.</td>
<td>53 O/13</td>
</tr>
<tr>
<td>6.</td>
<td>Lease Area Coordinates</td>
<td>Latitude : 29°50’0.24” N to 29°50’25.08”N</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Longitude: 79°51’5.4”E to 79°51’23.40” E</td>
</tr>
<tr>
<td>E.</td>
<td>Cost Details</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Project Cost</td>
<td>Rs. 17 Lakhs</td>
</tr>
<tr>
<td>F.</td>
<td>Water Demand</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Requirement</td>
<td>3 KLD</td>
</tr>
<tr>
<td>2.</td>
<td>Source of water</td>
<td>Pipe line of Uttarakhand Jal Santhan</td>
</tr>
</tbody>
</table>


2.0 INTRODUCTION OF THE PROJECT/ BACKGROUND INFORMATION

2.1 IDENTIFICATION OF PROJECT PROPOSENENT

The proposed lease of Soapstone Mine is 17.824 Ha areas and is situated near Village-Devli, Tehsil — Kanda, District - Bageshwar in the Uttarakhand State.

The Lease has been granted in favor of Umesh Chandra Pandey.

2.2 MINING LEASE STATUS

The Mining Lease is non-forest land. The lease area comprises of uneven agricultural land only. Lease has obtained no objection certificate from the individual land owners for the exploitation of mineral Soapstone. Scheme of mining & PMCP under Rule 22 (4) of MCR 1960 & 23 (B) of MCDR, 1988 was approved vide letter No.-12-Mu.Kha/ Mining Plan-54/Bageshwar Bhu/Khani/E/2016-17 dated 09/11/2016 for the period of five years.

About 25000 Tonnes/Annum (maximum) of recoverable quantities of Soapstone will be produced by the end of fifth year and mine get fully developed at that time. Life of the mine with the proposed production will be about 50 years. After five years, the remaining area will be explored with mining pits & exploratory pits, therefore mineable reserve will be enhanced, & accordingly the life of mine will be increased.

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G. Man Power Requirement 56
H. Environmental Setting
1. Nearest Village Devli
2. Nearest Town Bageshwar, 08 Km.
3. Nearest National / State Highway Bageshwar - Munshyari Road, 1 Km
4. Nearest Railway Station Kathgodam, 69.39 Km
5. Nearest Airport Pantnagar, 96.24 Km
6. Ecological Sensitive Areas (National Park, Wild Life Sanctuaries, Biosphere Reserve etc.) within 10 km radius None
7. Reserved / Protected Forest within 10 km radius Bilkhet Reserve Forest, 1 km
8. Water bodies within 10 km radius of the mine site. Punger River, 4 Km in the North
9. Archaeological Important Place None
10. Seismic Zone V

Source: Site visit and Approve Scheme of Mining
Mining of Soapstone from Lease Area at Village- Devli, Tehsil- Kanda, District- Bageshwar, Uttarakhand.

FIGURE 1: LOCATION MAP OF THE PROJECT SITE ON TOPOSHEET
Mining of Soapstone from Lease Area at Village- Devli, Tehsil- Kanda, District- Bageshwar, Uttarakhand.

FIGURE.1.1: LOCATION MAP OF THE PROJECT SITE ON SATELLITE IMAGE
Photographs of the Project Site

07.02.2017

07.02.2017

07.02.2017

07.02.2017
2.3 BRIEF INFORMATION ABOUT THE PROJECT

The project has been proposed for the mining of Soapstone from the Agricultural Land by open pit/cast manual Mining method. The mineral are exploited with the help of spade, crowbar, chisel etc. The interburden of low grade magnesite boulders intermixed with in soapstone body will be removed with the help of chisel, crowbar, Hammer etc.

The Soapstone mineral in Kumaon Himalaya is an alteration a products magnesium bearing minerals, Soapstone occurs as pocket type massive and sometimes confined to the upper part of the magnesium bearing zones.

The area is typically Himalayan undulating Hilly terrain. The area has mild slope towards south & west directions & vegetated with scanty shrubs, bushes & plants. The entire lease hold comprises of agriculture fields. A thin layer of brownish colour of soil having fine grain size exists in the whole area. The average thickness of soil is 0.6 to 1.3 m. However soil will be removed and carefully stored for use in plantation purpose by backfilling the pits & to restore the land for agriculture purpose.

The Soapstone will be exploited manually. Since the deposit is lenticular, the overburden removal & production may remove simultaneously. The mining operation line screening & loading will be done by manual method. The mineral is not meant for captive use. The extracted / collected Soapstone will be sold to different industrial use.

Intermixing of soapstone [Mg_3Si_4O_10(OH)_2] with magnesite occur below the soil cover. Mostly this soapstone or talc is highly prone to easy weathering and erosion due to its softness and thus outcrops are rate. In shallow depth soapstone is massive to highly foliated and shows brightness/whiteness characteristic which generally varies from medium to high At place talc pockets are crushed and crumbled due to associated with shear zones present in the area In the applied area soapstone is fine grained, off-white to white foliated and sometimes powdery due to crushing. In specimens or fragments it shows flexibility in edges due to thinness and trimming. Overburden comprises magnesite boulders intermixed with soapstone. This intermixed magnesite boulders in soapstone are about 60%.

2.4 NEED FOR THE PROJECT AND ITS IMPORTANCE TO THE COUNTRY OR REGION

Soapstone finds its use in many of the industries that include detergent & Paper industries etc. The natural available material in the quarry site has been found suitable from techno economic consideration. The mining project shall provide direct employment to about 56 persons. Additional jobs are created by way of transportation.

No subgrade mineral is produced from the mine. The soapstone is being dressed manually and transport to Haldwani. The final material will be utilized paper & cosmetic industries.

2.5 DEMAND-SUPPLY GAP

Considering the increasing development of industries in the State of Uttarakhand as well as other nearby States, there is huge demand of soapstone as a raw material in various types of
industries including cosmetic, detergent, & paper industries. Therefore, partial demand of material used in such industries can be accomplished from this mine.

2.6 IMPORTS VS. INDIGENOUS PRODUCTION

Import does not apply in the present case as Soapstone is indigenously available at a number of mines under operation in Uttarakhand & other States of India.

2.7 EXPORT POSSIBILITY

Export possibility is neither conceivable nor there is any such demand.

2.8 DOMESTIC/ EXPORT MARKETS

The proposed mining activity is for obtaining soapstone for indigenous consumption and also for sale to nearby industries like Refractory, Cosmetic, detergent, Paper and Talc Powder.

2.9 EMPLOYMENT POTENTIAL

About 56 people shall be engage thorough project proponent for Extraction / Collection shorting, handling and loading of Soapstone in mining area, besides, watch and ward and plantation activity with proper maintenance.

3.1 TYPE OF PROJECT INCLUDING INTERLINKED AND INTERDEPENDENT PROJECTS, IF ANY

The project has been proposed for the production of 25000 Tonne/Annum (maximum in the fifth year) of Soapstone by open pit/cast manual method without drilling/blasting for extraction method in agricultural land. The lease area (17.824 Ha) is Agriculture land. The project has no other interlinked project.

3.2 LOCATION

The mine lease area falls in Village — Devli, Tehsil - Kanda, District - Bageshwar, Uttarakhand. The lease area falls within the survey of India Toposheet No. 53 O/13.

3.3 DETAILS OF ALTERNATE SITES

The mine lease area covered under 17.824 Ha, Village — Devli, Tehsil- Kanda, District - Bageshwar, Uttarakhand is a mine lease allotted to project proponent. Soapstone bearing with grade magnetite was seen in the pit. The Soapstone occurring in this area is weakly foliated, fine grained, off white in colour with its characteristics soapy feel. There is a sufficient reserve of Soapstone within the lease area as per the mine plan, therefore no alternate site was considered.
3.4 SIZE OR MAGNITUDE OF OPERATION

The mine lease area is 17.824 Ha private Agricultural land on hill terrain and the project is contemplated to extracted the mineral (Soapstone) by manual open pit/cast method of mining without blasting.

3.5 GEOLOGY

3.5.1 TOPOGRAPHY

This area lies on northeastern, northern & northwestern slope of hill in a mountainous terrain of rough and rugged topography. The adjacent area is drained by few seasonal nalas. The applied area forms a transverse ridge of Devli village ending northwards and north eastern wards in the valley. The area has sloppy undulating surface and at places flat gentle sloping terraces also. The highest RL is about 1635.1m on the southern side of the applied area, while the lowest RL recorded on the northwestern side of the applied area is about 1496.3m. Topographical survey was provided by the client.

Drainage pattern
An area is drained by three nala flowing almost northern, northwestern & northeasterly directions in the applied area and one of them locates in the southern part of the area.

Vegetation
Mostly about 80% of the applied area is being used for agricultural purposes. Remaining area is either occupied by grassy land or fruit trees. Some fruit trees like Peach, Banana etc. are available within buffer zone.

Climatic condition
The area falls within Lesser Himalayan part. During winter the minimum temperature is 0.5°C and during summer maximum temperature is 33°C. The average rainfall in the area is recorded 979mm per year.

3.5.2 REGIONAL GEOLOGY

The area forms the part of Cale zone of Tejam and Pithoragarh. According to Prof. K.S. Valdiya (Geology of Lesser Himalaya, 1980) and D. K. Banerjee et. al.(Him. Geol., Vol. 5, 1975) the lithostratigraphic sequence of this area is as follow:

<table>
<thead>
<tr>
<th>Group/ Formation</th>
<th>Lithology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berinag Formation</td>
<td>Quartzite, Meta quartzite, Conglomerate, Phyllite</td>
</tr>
<tr>
<td></td>
<td>Unconformity</td>
</tr>
<tr>
<td>Gangolihat magnesite</td>
<td>Magnesite, dolomitic soapstone with algal Structures.</td>
</tr>
<tr>
<td>Magnesite with talcose phyllite intercalations</td>
<td>Unconformity</td>
</tr>
<tr>
<td>Sor Slate</td>
<td>Slate, Phyllite, subgrawake</td>
</tr>
</tbody>
</table>

In this region, rocks of Pithoragarh Formation occur. The development of algal stromatolite in carbonates occurrence or magnesite is a common associate of the carbonates. The Calc-Zone rock units are well known for their structural dispositions (windows, half windows in Lesser Kumaon Himalaya) for stromatolites and minerals (magnesite, dolomite, soapstone and minor metallic occurrences).
3.5.3 LOCAL GEOLOGY

The applied area and its surroundings are constituted in part, by Gangolihat Dolomite sequence. The local lithological sequence is as follows:

- Upper Carbonates
- Middle Talcose Phyllite
- Lower Carbonates

In the applied area and its surrounding consists of Gangolihat magnesite. This rock unit contains magnesite, talcose phyllite and talc lenses etc.

The Upper Carbonates gone contains magnesite and sporadic magnesite, the Middle Talcose Phylite Zone contains the talc in pockets and lenses, whereas the Lower Carbonate Zone contains magnesite intercalated with phyllite/talcose phyllite. Pockets/lenses or veins of soapstone also occur within carbonates of Gangolihat Magnesite.

The applied area lies in the village Devli which is located almost on northern, northwestern & northeastern sloping part of small hill. Both overburden and outcrops of soapstone are present in exploratory opening, magnesite boulders occur on the surface as well as intermixed with soapstone in the applied area.

**Overburden:** Almost whole block of the applied area is covered with overburden material. This overburden comprises grey to brown to dark brown, fine to medium grained silty-clayey soil. Small fragments of soapstone and magnesite are also present in this soil. Thickness of this overburden varies from 0.6 to 1.3 m.

**Soapstone and magnesite:** Intermixing of soapstone \([\text{Mg}_3\text{Si}_4\text{O}_{10}\text{(OH)}_2]\) with magnesite occur below the soil cover. Mostly this soapstone or talc is highly prone to easy weathering and erosion due to its softness and thus its outcrops are rare. In shallow depth soapstone is massive to highly foliated and shows brightness/whiteness characteristic which generally varies from medium to high. At places talc pockets are crushed and crumbled due to association with shear zones present in the area. In the applied area soapstone is fine grained, off-white to white, foliated and sometimes powdery due to crushing. In specimens or fragments it shows flexibility in edges due to thinness and trimming. Overburden comprises magnesite boulders intermixed with soapstone. This intermixed magnesite boulders in soapstone are about 60%.

**Structural features**

The regional and local structural features as could be deciphered in the applied block are as follows:

a) The algal stromatolites are absent in this area. Regionally they have been reported to be significant in interpreting reversal of Upper and Lower Carbonate dispositions.

b) It is evident that the Himalaya structural features and consequent impact on all lithounits is post mineralization (magnesite/soapstone etc.) is evident. Even some magnesite may be
contemporary to depositional/ diagenetic phase and it has also been affected by Himalayan Orogenic Upheavals.

c) The Pre- Tertiary hydrothermal activity and mineralization has also been probably affected by Pre- Tertiary structural disturbances. It has been superposed by Tertiary (Paleocene to Pleistocene) Himalayan tectonic effects effected (crushing, lenticular shape etc. changes in thickness of soapstone etc.) and low grade metamorphism (Phyllite to low grade schistose effected).

3.5.4 MINERAL RESERVES DURING THE LEASE PERIOD

3.5.5 GEOLOGICAL RESERVES OF SOAPSTONE IN TONNES

In this area that the total mineral occurs along the slope in entire 17.824 Ha area and upto depth of 18 m and accordingly total mineral reserves are as given below:

Geological reserves in the entire ML area 3166917.18 MT.

3.5.6 MINEABLE RESERVES OF SOAPSTONE

<table>
<thead>
<tr>
<th>Measured Mineral Resource</th>
<th>1583458.59 MT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicated Mineral Resource</td>
<td>1055639.06 MT</td>
</tr>
<tr>
<td>Inferred Mineral resource</td>
<td>527819.53 MT</td>
</tr>
<tr>
<td>Total</td>
<td>3166917.18 MT</td>
</tr>
</tbody>
</table>

3.5.7 PROPOSED RATE OF PRODUCTION WHEN MINE SHALL BE FULLY DEVELOPED AND EXPECTED LIFE OF THE MINE

In this area the exploration mining and waste dumping has to be simultaneously done and therefore exploitation of the mineral during life of the mine will be much more as estimated above taking into consideration for occurrence of mineral up to 18 m depth. However for all purposes exploitation of mineral during life of the mine can be considered safely as given below and due to exploration and future planning mineral reserves will definitely increase and production schedule as estimated below will change. However, the life of mine is 50 years based on proposed rate of production i.e. 25000 MT/Annum (Maximum).

3.6 PROJECT DESCRIPTION WITH PROCESS DETAILS

3.6.1 PROPOSED METHOD OF MINING

The mining will be done semi-mechanized way in open cast method in quite a systematic mariner by forming 6m high benches. However, there may be minor variation in the width and height which the lessee will keep on mending. The top soil and interburden to be scrapped with the help of JCB machine, dozer, shovels, pickaxe, spade & crowbar and will be stacked
Mining of Soapstone from Lease Area at Village- Devli, Tehsil- Kanda, District- Bageshwar, Uttarakhand.

separately in dump yard located near the working pit. The extracted mineral is properly sorted out at the mine site. Mining work is going on at 21 benches. Crow bars are sometimes used to dislodge the mineral. The excavation for soapstone will be made through JCB Machine, dozer, shovels, pickaxe, spade & crowbar. The benches will be developed from bottom to top at present in nap land only. It is proposed to make 6.0m height benches which will be sliced in two stages each of 3m & 1.5m height. The slope of the faces will be kept 60°-65° and the ultimate slope of the pit will remain 45° Developmental work will be done by construction of road/track to different working benches, removal of top soil and interburden. The soil will be filled into the bags, loaded on mules and unload into stockyard. The interburden generated during mining will be separately stacked and places shown within the applied area which will be backfilled. Sorting of high grade soapstone will be done on the benches by the labourers and it will be graded. The local people will be used for removal of mineral to the nearest road point from where the minerals will be transported by trucks to Haldwani. The mineral will be loaded over the trucks by the manual labour. The pit will be connected by track/foot path to the main road. The slope of track may vary from 1:8 to 1:20. Each mining face will be connected by track/road having width 3.0m. Exploitation of soapstone is small scale of mining and does not require any drilling & blasting. The average rate of production of soapstone is estimated in between 23000 & 25000 tonnes per year. Proper precautionary measures shall be taken to prevent soil erosion. The recovery of the soapstone will be 90% of the total excavation. Office, store, first aid centre, drinking water shed, rest shelter etc. will be constructed temporarily within the applied area. The mining id confined in the applied area and mining benches of the pit will be backfilled to retain its original topography therefore the efforts for afforestation would be done inside the applied area in between lease boundary and UPL, about 0.234ha area will be covered by 234 saplings in first five year and by the end of the lease period 2340 saplings will be planted. The top soil and interburden are stacked separately in dump yard within the applied area and will be used for reclamation of the mineral. Mining operations shall be carried out scientifically by following the provisions of Mining and Minerals (Development & Regulation) Act, 2015, Uttarakhand, Metalliferous Mines Regulations (MMR) 1961, UKMMCR 2001 and time to time directions given by Geology & Mining Unit & State Government will not be over looked at any stage. 7.5 m un-mined barrier will be maintained all along the lease boundary and vegetation growth generated on such boundary to isolate mining from rest of the area. Exploitation of the soapstone will not be done in land for public use.

3.6.2 LOADING

After excavation, sorting of Soapstone will be done manually. The sorted out mineral will be filled into bags & transported to road side by mules or manually for loading into trucks.

The top soil & inter burden shall be kept separately & utilized for used for back filling & reclamation of the mined out area.

3.6.3 STACKING OF SUB GRADE MINERALS

No sub-grade minerals will be generated during the mining / sorting of Soapstone.

3.6.4 CONCEPTUAL MINING PLAN

The conceptual mining plan has been formulated for anticipated life of the mine. The main feature of this plan is as given below:
3.6.5 MINERAL EXPLORATION

In order to demarcate the mineable area, within the approved area in the past, mineral prospection of the lease area was carried-out by the help of trial pits.

The trial pits work reveals that (i) the mineralization extends over the entire ML area (ii) though all the exploratory pits showing the presence of soapstone have been backfilled & reclaimed but on the basis of exploratory details and mineralization based on existing pit (iii) for the purpose of Mining during the life of the mine based on the exploration done in this belt is safety considered to occur upto a depth 18 m for all the purposes.

3.6.6 ULTIMATE PIT LIMIT

The depth of pits by the end of lease period will be 18 m.

3.6.7 DISPOSAL OF WASTE ROCK AND BACKFILLING

Mining is proposed in two pits and separate areas are selected for stacking of waste in external dump and stacking of top soil adjacent to the mining pits. Since these external dumps will be for temporary period and as soon as space in the mining pits will be available and mineral will be excavated waste will be backfilled and top soil will be spread over backfilled area.

These external dumps of waste dump and top soil will also be subsequently vacated and backfilling will be done in the space created in the mining pits. However, since during five year period due to manual mining it will not be possible to vacate the dump.

At all the times it is necessary that top soil will not be allowed to mix with waste rock. Separate stacking will be done, it will also be done separately so that precious top soil is not properly conserved and utilized at all he stages of stacking and backfilling.

Since the land chosen for disposal of waste is mineralized land and also cultivated land therefore, the land will be ultimately vacated and utilized for mineral excavation and also for cultivation.

The proposed quantities of soil & interburden to be generated from all the two pits during last five years are as below:

<table>
<thead>
<tr>
<th>Year</th>
<th>Soil (Tonnes)</th>
<th>Interburden (Tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>9231</td>
<td>6154</td>
</tr>
<tr>
<td>Second</td>
<td>9615</td>
<td>6410</td>
</tr>
<tr>
<td>Third</td>
<td>9231</td>
<td>6154</td>
</tr>
<tr>
<td>Forth</td>
<td>8846</td>
<td>5897</td>
</tr>
<tr>
<td>Fifth</td>
<td>8846</td>
<td>5897</td>
</tr>
<tr>
<td>Total</td>
<td>45769</td>
<td>30512</td>
</tr>
</tbody>
</table>

*Source: Approved mine plan.*
MINING AREA

The area to be occupied due to mining by the end of 5th year is about 2.240 ha. By the end of the five year 2.107 ha will be backfilled and reclaimed for agriculture.

3.6.8 BLASTING

Soapstone is a soft material, its hardness has been considered as 1 on mohs hardness scale which can be mined easily by manual working therefore, and there is no need of drilling & blasting.

3.7 RESOURCE OPTIMIZATION/ RECYCLING AND REUSE

Not applicable in the present case as all size of minerals will be extracted and transported to the Road side site outside the mine lease area.

3.8 AVAILABILITY OF WATER ITS SOURCE, ENERGY / POWER REQUIREMENT & SOURCE

3.8.1 WATER REQUIREMENT

Water requirement for human consumption, plantation and dust suppression is 3 KLD, which shall be met from the Pipeline of Uttaranchal Jal Sansthan. The water will be stored & transported in Canes / Drums / water tanks.

3.8.2 POWER

No electrical power shall be required for mining operations & allied activities.

3.9 QUANTITY OF WASTES TO BE GENERATED (LIQUID AND SOLID) AND SCHEME FOR THEIR MANAGEMENT/ DISPOSAL

3.9.1 SOLID WASTE GENERATION & ITS DISPOSAL

The site for mining is having a soil cover of 0.6 to 1.3 m thickness (average). Dumping material during the mine will consist of soil and waste (Top soil & interburden). Soil & waste stacked separately. The waste dump & top soil stacked near the mining pit will be temporary in nature. The excavated pits would be restoring by the backfilling. Mules will be utilized for transporting of Soapstone; therefore the generated dung will be collected separately & used for manuring in Plantation / agricultural purpose.

3.9.2 LIQUID EFFLUENT

There will be little waste water generation from mining activities. Domestic effluent will be disposed through eco-friendly Mobile Toilet.
4.0 SITE ANALYSIS

4.1 CONNECTIVITY

The proposed site falls at Village — Devli, Tehsil-Kanda, District — Bageshwar, Uttarakhand. The lease area is also connected by Bageshwar- Kanda Road. Soapstone from mine site shall be transported through mules and stacked at road site. Soapstone will be transported to Haldwani via Bageshwar.

4.2 LANDFORM, LAND USE AND LAND OWNERSHIP

4.2.1 LANDFORM

The mine lease area is in uneven agricultural fields.

4.2.2 LANDUSE

The landuse of the mine lease area is classified as uneven agricultural land. The impact on landform or physiography will be landuse on the hilly terrain will undergo radical changes due to the open cast mining.

4.2.3 LAND OWNERSHIP

The designated mine area is private agricultural land & is free from forest land. Project proponent has obtained No Objection Certificate (NOC) from the individual land owners for the exploration of Soapstone in their respective land.

4.3 EXISTING LAND USE PATTERN

The existing land use of mine lease area belongs to landuse category "Uneven Agricultural Land."

4.4 EXISTING INFRASTRUCTURE

The mine lease area is a fallow land which lies in the private agricultural fields and get deposition of Soapstone mineral there is no existing infrastructure, however during mining temporary rest shelters for workers will be provided.

4.5 SOIL CLASSIFICATION

The soil types are controlled by the topography and rock types. The soils, on the fluvial valleys, moderately deep, well drained fine loamy soils with loamy surface with slight erosion. The soils occurring on the cliffs side are very shallow, excessively drained, whereas the soils on the Summits and Ridges moderately shallow, excessively drained, coarse loamy soils with loamy surface and moderate association. Soils occurring in the Lesser Himalayan range are moderately shallow, somewhat excessively drained, thermic, loamy skeletal soils on moderately steep slopes with loamy surface, moderate erosion. The Lesser Himalayan range is mainly composed of highly compressed and altered rocks like granite, phyllites, quartzite etc. and a major part of it is under forest. Intermittent sparse patchy terraced cultivation is also practiced on fairly steep hill slopes whereas dry and wet cultivation are prevalent on the uplands and low-
lies on the periphery of the town. The broader valley slopes dominantly deep, well drained, fine-loamy, moderately acidic and slightly stony.

4.6 CLIMATIC DATA FROM SECONDARY SOURCES

The climate varies from Sub-tropical and sub-humid with three distinct seasons i.e. summer, monsoon (rainy season) and winter. The rainy season starts from the month of middle June to September end, and followed by the winter season, which starts from the end of October and goes up to February. The winter rains are generally experienced in late December or early January, which brings down the temperature and that's how December and January are the coldest months in the region. The summer season starts from March and it goes up to June. The hottest months of the year are May and June. The maximum temperature in the district goes up to 33°C during the summers and the minimum temperature is between 1 and 4°C, further north of the district, the temperature comes down to 0.4°C in winter season.

Rainfall, spatially, is highly variable depending upon the altitude. The intensity of the rainfall increases from south to north and the amount of rainfall decreases in generally from west to east. About 90% of the rainfall received during the monsoon period, and the remaining 10% of the rainfall in non-monsoon period. The average rainfall in the area is recorded 979 mm per year.

4.7 SOCIAL INFRASTRUCTURE

The social infrastructure like educational facilities (primary and higher secondary schools, degree college), drinking water supply, post and telegraph, public transportation and hospitals are by and large are available in the Village Kanda.

5.0 PLANNING BRIEF

5.1 PLANNING CONCEPT

Open pit/cast manual mining method will be adopted for Soapstone mining. Project will produce 25000 Tonne/Annum (maximum in the fifth year) Soapstone, which will be used for meeting the demand of various industries as important raw material.

5.2 ASSESSMENT OF INFRASTRUCTURE DEMAND (PHYSICAL & SOCIAL)

Adequate infrastructure facilities are available in the vicinity of mine lease area and due to the mining activities; no extra infrastructure over and above the existing infrastructure is required.

5.3 AMENITIES/FACILITIES

Proper site services such as First Aid, Rest Shelter, and Drinking Water will be provided to the mine workers.

As per Mine Rules & Regulations following statutory site services have been made available:

5.3.1 MINES OFFICE

The facilities include Manager’s Office, including Time Office, First aid facility, Mine Planning & Central Stores, etc.
5.3.2 REST SHELTER

Rest shelter shall be provided by project proponent outside lease area.

5.3.3 WATER SUPPLY

A water storage tank with adequate capacity provided to cater to the water requirement for mined workers. Water will be supplied by pipe line of Uttaranchal Jal Sansthan.

5.3.4 POWER SUPPLY

The mine will work in day time only, so no lighting arrangement will be required.

5.3.5 TRANSPORT OF MEN AND MATERIAL

Employee will report to the duty on own means. The material from the mine will be transported by trucks.

5.3.6 COMMUNICATION

Mobile phones shall be used for communication.

5.3.7 SECURITY ARRANGEMENTS

Appropriate security arrangement shall be made.

5.3.8 VOCATIONAL TRAINING

The Proponent will provide vocational training / awareness programme at the mines to improve the skills of the workers.

6.0 PROPOSED INFRASTRUCTURE

6.1 INDUSTRIAL AREA (PROCESSING AREA)

Temporary arrangements like Site Office, rest Shelters & approach roads etc. shall be provided. No permanent infrastructure is proposed.

6.2 RESIDENTIAL AREA (NON PROCESSING AREA)

As the local person shall be employed, no residential building, / housing are proposed.

6.3 AFFORESTATION

During first five years plantation shall be undertaken over benap land and it is outside the mine lease area. Plantation at the block of five year period up to the end of lease period is as below:
Local native species like Peach (Khubani), Pears (Nashpati), Apricot (Aaru), Plumk, Mehal, Kaphal, Chilmora etc. shall be planted.

### 6.4 SOCIAL INFRASTRUCTURE

In-line with the Social Responsibility Activities at other operational sites, relevant developmental assistance shall be rendered depending on the local needs identified through studies.

### 6.5 DRINKING WATER MANAGEMENT

Water requirement for drinking and operations will be 3 KLD, which will be supplied by pipe line of Uttaranchal Jal Sansthan.

### 6.6 SEWERAGE SYSTEM

Effluent is not generated in mining activities, hence treatment is not required. Domestic sewage will be disposed through eco-friendly Mobile Toilet.

### 6.7 INDUSTRIAL WASTE MANAGEMENT

Not applicable, as the mining activity will not be generating any waste water.

### 6.8 SOLID WASTE MANAGEMENT

Waste generated during mining operation will be backfilled in the mined out area. There will be no external dumps at the end of life of mine. The overburden soil will be properly stacked and will be consumed in restoration of excavated pit. Waste rock encountered as clay pockets will be removed.

The overburden / waste rock removed will be partially consumed in preparation of roads and ramps, earthen bund / protective barrier / fencing, low lying areas for future plantation program. The remaining waste rock will be dumped in the properly chosen sites with all precautions.

The screen rejects will be used for filling rocky land and low lying area for plantation as most of the part of mining lease area is devoid of top soil cover. The waste rock and screen rejects will be dumped in separate dumps.

Mules will be utilized for transporting of Soapstone; therefore the generated dung will be collected separately & used for manuring in Plantation / agricultural purpose.
Mining of Soapstone from Lease Area at Village- Devli, Tehsil- Kanda, District- Bageshwar, Uttarakhand.

6.9 POWER REQUIREMENT & SUPPLY/ SOURCE

No electrical power requirement for mining activities.

7.0 REHABILITATION AND RESETTLEMENT (R&R) PLAN

The existing mine lease area is designated as private agricultural land and has no human settlements and hence, no R & R is envisaged.

8.0 PROJECT SCHEDULE & COST ESTIMATES

8.1 LIKELY DATE OF START OF CONSTRUCTION AND LIKELY DATE OF COMPLETION

No construction activity is involved under the project activity. The mining is being carried out as per approved mine scheme and will be done till lease period.

8.2 ESTIMATED PROJECT COST

The capital investment for the project is Rs. 17 Lakhs.

9.0 ANALYSIS OF PROPOSAL (FINAL RECOMMENDATIONS)

9.1 FINANCIAL AND SOCIAL BENEFITS WITH SPECIAL EMPHASIS ON THE BENEFIT TO THE LOCAL PEOPLE INCLUDING TRIBAL POPULATION, IF ANY, IN THE AREA

The proposed project is expected to provide employment to local people in different activities such as Mining, sizing, transportation and plantation activities. No displacement, resettlement, or rehabilitation is involved. The project activity will also not have any major impact on the environment being done manually using opencast method of mining. At Post mining stage of proposed project, the existing land shall be reclaimed to its original stage by proper restoration & rehabilitation.

Soapstone mining in this lease area will give following social benefits

i. Employment opportunities to the locals.

ii. Reduction in the migration of jobless labourers from native places to other distant places.

iii. Interaction of local people with outsiders and improvement in communication, which will enhance their present status of knowledge and confidence.

Also the project proponent is committed to take initiatives which will have a positive impact on socio economic fabric of the region. As a part of community development Project proponent has allocated the budget for community activities such as Drinking Water, Housing, Sanitation, Health, Safety & Medical Facilities, Public Transportation & Communication, Educational/ Social Welfare etc.

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