EXECUTIVE SUMMARY

OF

MADAN PYRDA (BLOCK-I) LIMESTONE DEPOSIT

For Public Hearing

At

Vill- Chiehruphi, Tehsil- Narpuh Elaka, District: East Jaintia Hills

State: Meghalaya

Lease Area: 4.89 ha.

Lessee: Green Valliey Industries Limited

Applicant: Pawan Joshi, Assist.Vice President

Address: Vill.: Nongsning, PO: Chiehruphi

Distt: East Jaintia Hills, State: Meghalaya

Environmental Consultant

M/s Perfact Enviro Solutions Pvt. Ltd

NABET (ISO 9001: 2015 &ISO 14001: 2015 Certified Organization
List 1- Rev 71/12th November, 2018 at S.No. 117
503-507, 5th Floor, NN Mall, Mangalam Palace
Sector 3, Rohini, New Delhi, Phone No.: 011- 49281377, Email-info@perfactgroup.in

EXECUTIVE SUMMARY

Introduction: The proposed project is for mining of limestone mineral from lease area of 4.89 ha. The maximum production from the mine will be 0.204 million TPA. Mining of mineral will be done by opencast mechanized method. The applicant of the project is Green Valliey Industries Limited (GVIL), a company registered under Companies Act, 1956. **M/s. Green Valliey Industries Limited**, the applicant of the proposed project has already set up a cement plant in Village- Nongsning with present capacity of 1,300 TPD with provision of expansion to 2,600 TPD depending upon the availability of raw material. The Plant has been working since 2012 after grant of EC vide letter no. SEIAA/PROJECT-1/2007/22 dated 28.3.2009. Sri Pawan Joshi, Assist.Vice President of Green Valliey Industries Limited is the authorized signatory. The applicant has vast experience in the mineral sector. ROM from this mine is proposed to be supplied to the cement plant of M/s. Green Valliey Industries Limited located in Village: Nongsning, PO: Chiehruphi, District: East Jaintia Hills, Meghalayaat a distance of 6km from the mine site.

Government of Meghalaya has issued an order on dated 4th January, 2018 vide letter no. MG.6/2011/187.for grant of Mining Lease over an area of 4.89 Ha.in Madan Pyrda (Block-1) Village-Chiehruphi, NarpuhElaka, District –East Jaintia Hills, State – Meghalaya for Mineral Limestone. The period of lease will be mentioned in the lease deed as and when executed. However, as per amended MMDR act 2015, all the new leases of major mineral will be granted for 50 years from the date of grant of lease. The lease area forms a part of the individual owned land. However, subsequently this land was declared as Deemed forest. Land transfer application in the name of company has been submitted. The mine plan of the Madan Pyrda (Block-1) limestone deposit of M/s GVIL over an area of 4.89 ha was approved by IBM, Guwahati vide letter no. IBM/GHY/MEG/JNH/LST/MP-62 dated 29.07.2016.

The project has been greanted ToR by SEIAA vide Letter NO. SEIAA/P-25/30/2016/43/972 dated 4TH January, 2018.

The proposed mine area is a gentle sloping bowl shaped land and falls under "Deemed forest land". Applicant has already applied for forest clearance with Proposal No. FP/ML/MIN/8842/2014. The application is under consideration in the Forest Department.

The project comes under Schedule no. 1 (a) and category B as the mine area is less than 50 ha. There is Narpuh Wildlife Sanctuary at 7.95 km S.E. from Lease boundary.

Location Details: The latitude of the project area is 25°12'38.51"N to 25°12'43.84" N and longitude is 92°22'56.49" E to 92°23'10.83" E with maximum contour of 788 mRL and minimum contour of 769 mRL. The area falls in the Survey of India Topo-sheet no. 83C/8(Restricted topo sheet).

Reserves & Life of Mine: The geological reserves and its quality have been established by borehole drilling, surface sampling and recently through quarry groove sampling.

a) Probable Mineral Resource (121) estimated at 1.339 million T.

b) Pre-Feasibility Mineral Resource (221+ 222) estimated at (4.560 +0.193) = 4.753 million T.

c) Geological reserves come out to be 6.092 million T.

The mineable reserve of the mine area is 1.339 million tonnes. Taking the maximum production target of 0.204 Million tonnes per year from the 4th year of production, the life of mine is estimated to be about 8years based on present exploration and restriction on the depth of mining. However, considering total 6.092 million Tonnes reserve/resource the life of the mine is likely to increase upto 30years based on future exploration. Therefore we will consider the life of the mine upto 30Years.

Mining Method:

- Mechanized open cast mining will be undertaken with drilling and blasting.
- Mine working will be in 2 shifts of 8 hrs between 6 AM to 2 PM and 2PM to 10PM respectively.
- The ultimate bench design will be 6*6m (working bench width will be more than 15m), ultimate depth of mining will be 768-724.5 mRL i.e. 43.5 m and ultimate slope will be 45^0.
- **Drilling and Blasting**: Drilling will be done by keeping hole diameter-110 - 115 mm, hole depth-6.5 m (including sub-grade drilling), spacing- 3.0 m, burden- 2.50 m followed by blasting. Blasting will be carried out with the help of explosive (slurry type) boosters and ANFO and Class- VI explosives (TLD, electric detonators and detonating fuse).
- Secondary drilling and blasting will not be taken up in that place for secondary breaking hydraulic rock breakers will be deployed.
- Daily explosives consumption will be Ammonium Nitrate Prilled= 79 kg, Booster Cartridge= 7nos. or 20 kg.
- ROM from the mine will be transported to the GVIL's cement plant.

Raw Material Required:

Inputs	Approx Quantity required per day
High Speed Diesel Requirement	
Diesel	400 Liters (at peak production)
Water Requirement	
Water for Drinking	1KLD
Water for Sprinkling	6 KLD
Water for green belt development	2 KLD
Miscellaneous	1 KLD
Explosives Consumption	
Ammonium Nitrate Prilled	79 kg
Booster Cartridge	20 kg

Description of the Environment: The baseline data has been collected from December 2017 to February 2018. The details area given below:

i. **Temperature:** Temperature of the area varied from 7.0^0C to 31.0^0C.

ii. **Relative Humidity:** Humidity of the area varied from 8.0 % to 100.0 %.

iii. **Wind Speed:** Wind speed was in the range of 0.0 Km/hr to 23.0 Km/hr.

Ambient Air Quality Results: Samples were collected from 8 sampling locations during Baseline season from March-May 2018. The results are given below:

Core Zone: The mean value of $PM_{2.5}$ is ranging from 26.4-27.2µg/m^3 against standard limit of 60 µg/m^3. Mean value of PM_{10} is ranging from 64.9 -66.8 µg/m^3 against standard limit of 100 µg/m^3. The mean value of SO_2 ranges from 7.0-7.2 µg/m^3against standard limit of 80 µg/m^3& mean value of NOx ranges from 12.1-12.4 µg/m^3 against standard limit of 80 µg/m^3.

Buffer Zone: The results of the Buffer Zone shows that all mean value of air results of nearby Cement Plant(A-4) were maximum(within prescribed standard limits) and Thangskai village(A-6) were minimum. The $PM_{2.5}$ in Thankgskai village to Cement Plant is ranging from 25.1-34.4µg/m^3. PM_{10} is ranging from 61.7-84.4 µg/$m^{3.}$ The SO_2 in Thankgskai village to Plant is ranges from 6.6-9.0 against standard limit of 80

µg/m^3& NOx ranges from 11.5-15.7 µg/m^3 against standard limit of 80 µg/m^3. These are within standard limits of National ambient air quality standards.

Noise Quality results: Samples were collected from 5 locations.

Core Zone: The ambient noise level during day time at the proposed project site varies from 51.1 dB (A) which iswithin the standard limit of Industrial area~75 dB (A). During night the noise level at the project site ranges from 43.7 dB (A) which is also within the night-time noise standard limit of 70 dB (A).

Buffer Zone: Buffer zone at day time are maximum at Umbadoh village 62.2 dB(A) as per the standard limit of residential area are ~ 55 dB (A). The night time noise results at the locations is 52.8 dB (A) which is also above standard limits of residential area which is~ 45 dB (A). The noise results at NH-6 (Earlier NH -44)in day time are 68.6 dB (A)which is slightly above the standard limit of commercial area i.e. ~ 65 dB (A) and night time are 53.8 dB (A) which is within standard limits of commercial area i.e. ~ 55 dB (A).

Water Quality Results: 6 water samples(5 ground water and 1 surface water) were collected:

- **Core Zone** shows that parameters like Total Hardness (112 mg/l); Total dissolved solids (130.4 mg/l), Magnesium (6.8 mg/l), & Alkalinity (48 mg/l) are well within drinking water standards (IS:10500).
- **Buffer zone: Ground Water results:** All results were found within standard drinking water standards (IS: 10500).

Surface Water results: The Surface water quality of the **Thangskai river** shows that all the parameters are within the CPCB Water Quality Criteria Class of water 'A', 'B', 'C', 'D' & 'E'. BOD (5.4mg/l) of the river, which is less than CPCB Water Quality Criteria Class of water 'C'; DO (5.2 mg/l) is acceptable as per CPCB Water Quality Criteria Class of water 'A'.

Soil Quality Results: The samples were collected from 5 locations:

Core Zone: The result shows that colour is **5/2 Grayish Brown**, pH is 7.1.The availability of many plant nutrients in the soil changes as a result of reactions in the soil, which are largely controlled by soil pH. Amount of primary nutrients like Organic matter 1.02 %, the available nitrogen 95 mg/kg is lower in range, the available Potassium 5.0mg/kg is Lower in range while available Phosphorous 12.4 mg/kg is Higher in range, Primary nutrient profile shows that soil is low in fertility due to the availability of low amount of nitrogen and potassium

Buffer Zone: Data collected shows as below:

The result shows that texture of soil has clay loam texture. Colour varies from 4/4 Dull Reddish Brown to 4/6 Brown and 5/6 Yellowish Grey, pH ranges from 7.7 to 8.3. Amount of primary nutrients like Organic matter 0.92% to 1.30%, the available nitrogen 80mg/kg to 155 mg/kg, the available phosphorus 15

mg/kg- 23.0 mg/kg is higher in range while Available Potassium 4.5 mg/kg to 6.2 mg/kg is lower in range, Primary nutrient profile shows that soil is low in fertility due to the availability of low amount of nitrogen, available potassium.

Ecology and Biodiversity Results:

Flore: Core Zone: In the Core Zone, place where mining is to be done is vacant land with patches of *Cyanodondactylon*, few shrubs and weeds.

Buffer Zone: There is Narpuh WLS at 7.95 km SE having vast variety of flora in it. Few species are *Adina cordifolia* (Haldu) *, Baliospermummontana* (wild castor)*, Callicarpa arborea* (Beauty berry)*, etc.*

Fauna Core zone: During study, it was found that the faunal diversity in the core site was limited to butterflies, insects, some species of mammals & reptile and common avifauna such as crow, pigeon etc.

Buffer Zone: Common fauna was reported in buffer zone. There are **Ten Schedule-I species** reported in the buffer zone for which conservation plan has been prepared.

- Dust generation during mining and transportation may impact vegetation.

Socio Economic Study Results: ***Results of Socio economic study:*** Total 21 villages fall in the buffer zone. The study has been conducted by primary survey and secondary data source from Census of India 2011. The primary socio economic study has been conducted in 4 villages. The results are discussed below:

- **Core Zone:** There is no habitation in the core zone
- ***Buffer Zone****:* The total number of Households of the study area in rural village area are 1558 as per Census of India, 2011 data. The details are given below.
- **Population:**

  The total population of the study area is 8848 constituting 1558 households, implying that there are average 5.6 members per house. The average sex ratio of the study area is 993 as per census 2011.
- **Social Structure**

  The proportion of Scheduled Caste (SC) population within the study area is 0 % and the percentage of schedule Tribe (ST) is 99%.
- **Literacy**

  The total proportion of literate within the study area is 53.00% of total population.In percentage the male literacy 48.00% and the female literacy is 52.00% respectively within study area.

Traffic Study Results: The study is given below:

Carrying capacity of NH-6 (Earlier NH -44) road =2143 PCU/hr.

Existing traffic density at NH-6 (Earlier NH -44) road =837 PCU /hr.

Proposed peak traffic from site= 4 PCU/hr.

Road 1 Total proposed LOS = 0.39

Road 2 Total proposed LOS = 0.0052

Hence it is concluded that since carrying capacity of **NH-6 (Earlier NH -44)** is much higher than proposed traffic volume.

Therefore, the traffic to & fro of proposed "**Madan Pyrda(Block-1) Limestone Mine**" will not create any traffic congestion.

Anticipated Impact and Mitigation Measures:

1. **Land Environment:** Mining may cause land degradation. Hence, Green belt development shall be done from the top soil excavated during mining in the 7.5m statutory boundary and at ultimate stage whole area will be planted.
2. **Water Environment:** Total water requirement in the proposed mining project is 10KLD. Dust suppression shall be done by collecting operational pit water collected during rain. Drinking water will be sourced by from Cement plan by water tanker.
3. **Air Environment:** The air borne particulate matter is the main air pollutant contributed by opencast mining with drilling and blasting. Various emission sources are identified from the proposed mining operations. Therefore, sprinkling shall be done and workers will be given protective gears such as goggles, dust masks, gloves, and helmets.
4. **Noise Environment:** The proposed mining operations will be carried by using latest equipments by open cast fully mechanized mining method. Hydraulic excavator will be used in excavation. Hence workers will be given protective gears such as goggles, dust masks, gloves, helmets and earmuffs. Plantation will be done to create cover from high noise.
5. **Biological Environment:** Forest area diversion is required in the proposed mining as the land is deemed forest land. The diversion application has already been submitted. The fauna in the vicinity of the mine is restricted to few common species. There will be no impact on flora and fauna due to the proposed project. For Conservation of Sc-I species found in buffer zone a sum of Rs.50Lakh has been allocated.
6. **Socio- Economic environment:** The project will enhance direct and indirect employment in the area. Therefore overall economic development is much likely after the commencement of the project.

7. **Mine Waste:** Mine waste will be transported and backfilled in the fallow land near Cement plant. The quarry area will be extensively planted by using soil generated from proposed mining. Biodegradable waste will be composted and used as manure.
8. **Impacts due to transportation:** The entire mineral will be transported to the client's own Cement plant through trucks. Transportation shall be done by 4 no. of 21 tonner trucks. As per study done there will not be any congestion due to proposed project on the road.

Environmental Monitoring Programme: Environmental monitoring at various locations, within the mining lease area and in the study area of 10 km radius will be carried out on periodic basis. A comprehensive network for monitoring has been prepared. Sampling locations have been identified by considering the source of pollution due to mining operations, drainage pattern, topography of the area and biological environment.

Risk Assessment & Disaster Management Plan: Mining will be carried out by mechanized opencast mining, with mining equipments as hydraulic excavator, dumpers etc involving drilling and blasting. Mining will be done under strict supervision hence the rate of operational risks is minimal.

Rehabilitation and Resettlement- There will be no rehabilitation and resettlement on account of mining. There is no human habitation at the project site and the land is deemed forest land.

Project benefits: The proposed mining project has a significant positive impact on the socio-economic environment and it will help sustain the overall development of the area.

The proposed project significantly contributes the economic development by providing direct employment to 19 people and indirect employment to many more people in the area.

PP will organize Camps for vocational training to generate employment.

Environmental Management Plan: Preparation of Environmental Management Plan (EMP) is required for formulation, implementation and monitoring of environmental protection measures during and after commissioning of the proposed mining project. The project cost is Rs.116 Lakh and the EMP capital cost Rs. 8.0 Lakh and recurring cost as Rs, 16.31Lakhs.

Budget towards Corporate Social Responsibilities will be Rs.5.5 Lakh as capital budget and Rs.4.5lakh as recurring budget. A recurring budget is also proposed for Occupational Health is Rs. 2.5 Lakhs and Public health is Rs. 2.0Lakhs. For Conservation of Sc-I species found in buffer zone a sum of Rs.50Lakh has been allocated.

Green belt development has been initiated by the proponent 0.447ha will be planted during plan period. However as per conceptual plan entire lease area will be planted. Locally thriving species will be planted in consultation with forest department.

Among other environmental protection following measures are listed below:

- Sprinkling of water for dust suppression on mine haul roads.
- Regular Compaction & grading of haul roads and service roads to clear accumulation of loose material.
- Avoid overloading of dumpers and consequent spillage on the roads.
- Good maintenance of vehicles & machinery.
- Water sprinklers of fixed type will be provided at the mine approach roads from mine face / benches to crush hopper to prevent the generation of dust.