



**State Level Environment Impact Assessment Authority, Jharkhand**

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Letter No.- EC/SEIAA/2023-24/2924/2023/

Ranchi, Date :

**To: M/s R. B. Stone Works,  
Partner – Shri Ranjit Kumar Tiwary  
S/o Shri Harihar Parasad Tiwary,  
At - Harindanga Bazar, P.S. - Pakur,  
District – Pakur – 816107, (Jharkhand).**

**Sub: Prescribing of ToR to “Mayurkola Stone Mine of M/s R.B. Stone Works (Partner : Shri Ranjit Kumar Tiwary) at Village : Mayurkola, Pipaljori & Lohatia, Anchal : Barharwa, Distt. : Sahibganj, Jharkhand (4.55 Ha)” (Proposal No. : SIA/JH/MIN/443668 /2023) – regarding.**

**Ref: Your application no. Nil, dated – 18.09.2023.**

Sir,

It is in reference to the project to “Mayurkola Stone Mine of M/s R.B. Stone Works (Partner : Shri Ranjit Kumar Tiwary) at Village : Mayurkola, Pipaljori & Lohatia, Anchal : Barharwa, Distt. : Sahibganj, Jharkhand (4.55 Ha)” along with the application in the prescribed format (Form-1) and a copy of the pre-feasibility report and approved mine plan to prescribe the ToRs for undertaking detailed EIA study for the purpose of obtaining environmental clearance under the provisions of the EIA Notification, 2006 in respect of the above mentioned project.

**Project Category : B1 – Application for Terms of Reference (re-appraisal of Environment Clearance issued by DEIAA, Sahibganj)**

**EC Application for : Proposed Capacity- 58742.68 cum/year or 1,70,353.77 TPA**

The project has been granted EC by DEIAA, Sahibganj vide letter no. EC/DEIAA/2017-18/111 . dated 19.03.2018.

As per O.M. dated 28<sup>th</sup> April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Sahibganj which has been taken up for consideration on 23.09.2023. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B2

Existing baseline condition as per monitoring report submitted by PP is as follows PM10 - 82.0µg/m<sup>3</sup> PM 2.5-46.0 µg/m<sup>3</sup> SO<sub>2</sub>-12.88 NO<sub>2</sub>- 28.09µg/m<sup>3</sup> All the data are within the permissible limit.

Data generated by JSPCB empanelled Laboratory has been also submitted by PP. All the data are within prescribed limit.

Dust suppression is being carried out on regular basis.

Near about 1300 plantation has been done in safety zone and haul road.

Production detail as per memo no. 712/M dated 11.07.2023 by D.M.O. Sahibganj is within the permissible limit of EC.

Certified compliance report vide reference no. 1931 dated 13.09.23 by JSPCB has been also submitted by PP. All the conditions given in EC letter is also found to be satisfactory.

**Project and Location Details :**

| Sl | Parameter          | Details                                                                                                                                                                           |
|----|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Project Name       | : Mayurkola Stone Mine                                                                                                                                                            |
| 2  | Lessee:            | : M/s R. B. Stone Works<br>Partner – Shri Ranjit Kumar Tiwary<br>S/o Shri Harihar Parasad Tiwary<br>Address:- At - Harindanga Bazar, P.S. - Pakur,<br>District - Pakur, Jharkhand |
| 3  | Lease Address      | : Village – Mayurkola, Pipaljori & Lohatia, District – Sahibganj, Jharkhand                                                                                                       |
| 4  | Lease Area         | : 4.55ha Acres- 11.25 Acres                                                                                                                                                       |
| 5  | Type of Land       | : Non- Forest (Raiyati Land)                                                                                                                                                      |
| 6  | Project Cost       | : Rs. 50 Lakhs                                                                                                                                                                    |
| 7  | EMP Budget         | : Capital: 4.92 Lakhs Recurring: 4.27 Lakh / year                                                                                                                                 |
| 8  | New or Expansion   | : New                                                                                                                                                                             |
| 9  | Mineable Reserves  | : cum.: 641383.10 cum Tonnes: 1860011.00 tons                                                                                                                                     |
| 10 | Mine Life          | : 6.54 years                                                                                                                                                                      |
| 11 | Man power          | : 28                                                                                                                                                                              |
| 12 | Water Requirement  | : 9.22 ~ 9.20 KLD (Drinking: 0.28 KLD, Dust Suppression: 5.77 KLD, Plantation: 3.17 KLD)                                                                                          |
| 13 | Water Source       | : From Nearby villages by tankers                                                                                                                                                 |
| 14 | DG Set / power     | : 500 KVA                                                                                                                                                                         |
| 15 | Crusher            | : No crusher                                                                                                                                                                      |
| 16 | Nearest Water Body | : Kanli nadi, approx. 3.0 km towards North direction of mine site.                                                                                                                |
| 17 | Nearest            | : Phulchua Approx 0.57 km towards NE direction.                                                                                                                                   |

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|    |                      |   |                                                                                                                                                                                                                                                                                       |
|----|----------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Habitation           | : |                                                                                                                                                                                                                                                                                       |
| 18 | Nearest Rail Station | : | Kotalpukur Railway station, approx. 2.80km towards ESE direction.                                                                                                                                                                                                                     |
| 19 | Nearest Air Port     | : | Deoghar Airport, approx. 116.0 km towards WSW direction.                                                                                                                                                                                                                              |
| 20 | Nearest Forest       | : | Protected forest -Approx. 0.20 km towards West direction of mine site.<br>Protected Forest-Approx 1.0 km towards N direction of mine site.<br>Protected Forest-Approx. 4.5 km towards E direction of mine site.<br>Protected Forest-Approx. 4.7 km towards SW direction of mine site. |
| 21 | Road & Highways      | : | NH- 133A, approx. 6.80 km in W direction.                                                                                                                                                                                                                                             |

#### CO-ORDINATES

|   |           |                     |                  |
|---|-----------|---------------------|------------------|
| 1 | Latitude  | From 24°45'13.60" N | To 24°45'0.21"N  |
| 2 | Longitude | From 87°47'57.23" E | To 87°47'50.70"E |

#### LAND DETAILS:

| Mauza     | Khata No. | Plot No.                                  |
|-----------|-----------|-------------------------------------------|
| Mayurkola | 208       | 786(P), 787(P), 788(P),<br>797(P), 798(P) |
| Pipaljori | 211       | 145, 146(P), 147, 148, 149,<br>150        |
| Lohatia   | 210       | 67(P), 68(P), 69(P), 70(P)                |

#### STATUTORY CLEARANCES:

|   |                       |   |                                                                                                                                                                                                             |
|---|-----------------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Lease Deed/Lease docs | : | Lease Deed 25.01.2019 to ten years.                                                                                                                                                                         |
| 2 | CO                    | : | The CO, Barwaha (Sahibganj) vide memo no. : 1062/Ra, dated 11.09.2023 has mentioned the plot no. of the project is not recorded as "Jungle Jhari" in R.S. Khatian & Register II.                            |
| 3 | DMO                   | : | DMO, Sahibganj, vide memo no. 796/M, dated 05.08.2023 certified that 02 other mining lease area (4.13 Acre & 7.07 Acre) exists within 500 m radius from proposed project site and total area is 23.45 Acre. |

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|----|---------------------------------------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4  | DFO Wild Life                         | : | DFO –cum- Incharge Wildlife Sanctuary, Udhwa (Sahibganj) vide memo no. : 1442 dated 02.08.2023 certified that the proposed project site is outside Eco Sensitive Zone of Udhwa Bird Sanctuary.                                                         |
| 5  | DFO Forest Distance                   | : | DFO, Sahibganj Forest Division vide memo no. : 1598, dated 03.11.2016 certified that the distance of notified forest is 7.70KM from project site.                                                                                                      |
| 6  | DSR                                   | : | This project is mentioned in District Survey Report (DSR) of Sahibganj.                                                                                                                                                                                |
| 7  | Gram Sabha                            | : | Gram Sabha conducted on 02.12.2016.                                                                                                                                                                                                                    |
| 8  | Mine Plan Approval                    | : | Mine Plan Approved by Deputy Director Mines, Santhal Pargana Circle, Dumka vide letter no. 435/DDM, dated 20.09.2017.                                                                                                                                  |
| 9  | Production Report                     | : | Production figure issued by DMO, Sahibganj vide memo no. 712/M, dated 11.07.2023.                                                                                                                                                                      |
| 10 | Consent to Establish (CTE)            | : | CTE issued by JSPCB vide Ref. no. : JSPCB/HO/RNC/CTE-4780095 /2019/295, dated 01.05.2019.                                                                                                                                                              |
| 11 | Consent to Operate (CTO)              | : | CTO issued by JSPCB vide Ref. no. : JSPCB/RO/DMK/CTO-12441835 /2022/56, dated 24.03.2022.                                                                                                                                                              |
| 12 | Previous Environmental Clearance (EC) | : | Previous EC granted by DEIAA, Sahibganj vide letter no. EC/DEIAA/2017-18/111 , dated 19.03.2018.                                                                                                                                                       |
| 13 | Compliance report of previous EC      | : | Compliance report certified by Regional Office cum Laboratory, JSPCB, Dumka vide Ref. no. : 1931, dated 13.09.2023 and also certified that the proposed project site situated outside of negative supporting carrying capacity Grid no. 1, 3, 4 and 7. |

#### Working Details

|   |                        |   |                                 |
|---|------------------------|---|---------------------------------|
| 1 | Mining Method          | : | Opencast Semi-mechanised method |
| 2 | Quarry Area            | : | 4.55 Ha                         |
| 3 | Waste Generation       | : | 24477.00 cum                    |
| 4 | Stripping Ratio        | : | 1:0.02                          |
| 5 | Working Days           | : | 300                             |
| 6 | Bench: size & No       | : | 6m to 6m                        |
| 7 | Elevation of Mine      | : | 41AMSL to 49 AMSL               |
| 8 | Ground Level Elevation | : | 41AMSL                          |

|    |                         |   |                                  |
|----|-------------------------|---|----------------------------------|
| 9  | Ultimate Working Depth  | : | 22 AMSL                          |
| 10 | Water Table             | : | 27AMSL (25mbgl)                  |
| 11 | Topography of Mine      | : | Area represents a small hillock. |
| 12 | Explosive Requirement   | : | 110kg/day                        |
| 13 | Diesel/Fuel requirement | : | 110 litre/day                    |

#### Production Details

| Year            | Production of stone (Cum) | Production of stone (Tonnes) | Total Waste in (cum) | Bench RL in Meters |
|-----------------|---------------------------|------------------------------|----------------------|--------------------|
| 1 <sup>st</sup> | 60208.00                  | 174604.00                    | 5647.00              | 47-27              |
| 2 <sup>nd</sup> | 60622.00                  | 175803.00                    | 4863.00              | 47-22              |
| 3 <sup>rd</sup> | 61391.00                  | 178034.00                    | 4775.00              | 47-22              |
| 4 <sup>th</sup> | 63111.00                  | 183021.00                    | 4389.00              | 47-17              |
| 5 <sup>th</sup> | 62934.00                  | 182510.00                    | 4803.00              | 32-27              |
| <b>Total</b>    | <b>308266.00</b>          | <b>893972.00</b>             | <b>24477.00</b>      |                    |

#### Land Use

| Pattern of Utilization | Existing Land Use (Ha) | At the end of Plan period (Ha)               | Conceptual stage (Ha) (after life of mine)                                                    |
|------------------------|------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------|
| Quarry                 | 3.284                  | 3.957<br>(0.109 ha area shall be backfilled) | 4.230<br>(0.109 ha area shall be backfilled & 3.382 ha area shall be left as water reservoir) |
| Road                   | 0.043                  | 0.009                                        | 0.009                                                                                         |
| Waste Dump             | -                      | -                                            | -                                                                                             |
| Safety Zone            | ---                    | 0.314<br>(Plantation)                        | 0.314<br>(Plantation)                                                                         |
| <b>Total</b>           | <b>3.327</b>           | <b>4.280</b>                                 | <b>4.553</b>                                                                                  |
| <b>Balance</b>         | <b>1.226</b>           | <b>0.273</b>                                 | <b>0.00</b>                                                                                   |
| <b>Lease Hold Area</b> | <b>4.553</b>           | <b>4.553</b>                                 | <b>4.553</b>                                                                                  |

## ENVIRONMENT MANAGEMENT

### Green Belt Development

| S. No. | Location                        | Area/Length | No of Trees |
|--------|---------------------------------|-------------|-------------|
| 1      | Safety Zone                     | 0.314ha     | 785         |
| 2      | Along Approach Road             | 0.70 km     | 700         |
| 3      | In consulting local authorities | -           | 100         |

### Solid Waste Management

It has been calculated that total 8392.49cum insitu or 10490.61 cum loose or 8917.02 cum Compact waste shall be generated during this scheme period. The total waste generated during 1<sup>st</sup> to 3rd year shall be stacked at southern portion of lease area with 5m height and during the fourth & fifth year all the generated waste and waste material of dump shall be removed and used for backfilling of exhausted portion of quarry in western generation of the lease area with 6m height which will cover 0.1 09 ha area.

### Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

### Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission



- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

### RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

#### Probability/Likelihood of Occurrence of Hazard

| Likelihood Level | Probability       | Description                                                            |
|------------------|-------------------|------------------------------------------------------------------------|
| L5               | Very Unlikely     | Has not occurred/reported within last 5 years.                         |
| L4               | Remote / Moderate | May occur if conditions exist. Has occurred within last 3 years.       |
| L3               | Occasional        | Likely to occur if conditions exist. Has occurred within last 2 years. |
| L2               | Probable          | Very likely to occur. Has occurred within last year.                   |
| L1               | Frequent          | Almost certain to occur. Has occurred more than one within last year.  |

#### Severity/Impact Intensity

| Severity Level | Severity      | Description                                                                                                               |
|----------------|---------------|---------------------------------------------------------------------------------------------------------------------------|
| C1             | Catastrophic  | May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation. |
| C2             | Major         | May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.         |
| C3             | Moderate      | Minor injury to personnel or environment                                                                                  |
| C4             | Minor         | Minor damage but does not cause injury to personnel                                                                       |
| C5             | Insignificant | May result in no, or less minor, illness, injury or system damage                                                         |

#### Risk Assessment Chart (Qualitative Method)

| Risk Rank<br>(Likelihood x Consequence) | L5 (Very Unlikely) | L4 (Remote) | L3 (Occasional) | L2 (Probable) | L1 (Frequent) |
|-----------------------------------------|--------------------|-------------|-----------------|---------------|---------------|
| C1                                      | 5                  | 4           | 3               | 2             | 1             |

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|--------------------|----|----|----|----|---|
| (Catastrophic)     |    |    |    |    |   |
| C2 (Major)         | 10 | 8  | 6  | 4  | 2 |
| C3 (Moderate)      | 15 | 12 | 9  | 6  | 3 |
| C4 (Minor)         | 20 | 16 | 12 | 8  | 4 |
| C5 (Insignificant) | 25 | 20 | 15 | 10 | 5 |

#### Risk Rating Scale

| S.No. | Rating      | Scale |
|-------|-------------|-------|
| 1     | High Risk   | 1-4   |
| 2     | Medium Risk | 5-12  |
| 3     | Low Risk    | 13-25 |

#### Hazard identification & Risk Analysis in Stone Mining operation

| S.No | Activity                        | Hazard                                                         | Probability   | Severity      | Score |
|------|---------------------------------|----------------------------------------------------------------|---------------|---------------|-------|
| 1    | Temporary Storage of Explosives | Unintended Explosion                                           | Very Unlikely | Catastrophic  | 5     |
| 2    | Charging of Explosives          | Unwanted Explosion                                             | Very Unlikely | Catastrophic  | 5     |
| 3    | Blasting                        | Hit by fly rock (Bodily Injury)                                | Occasional    | Major         | 6     |
| 4    | Drilling                        | Exposure to Dust                                               | Frequent      | Insignificant | 5     |
| 5    | Bench Formation                 | Fall/Slide/Tripping (Bodily Injury)                            | Probable      | Moderate      | 6     |
| 6    | Loading/Unloading               | Bodily injury by hitting by loading material, Exposure to Dust | Very Unlikely | Minor         | 20    |
| 7    | Transportation                  | Vehicle Accident, Exposure to Dust                             | Remote        | Minor         | 16    |

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "Acceptable"





## **Preventive Measures:**

### **Face Stability**

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

### **Drilling Operations**

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

### **Falls from the edge of a bench**

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

### **Control Measures**

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation: part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.



### **Dust generation during drilling**

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

### **Noise Generation during drilling**

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

### **Blasting Operations**

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.

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- The vibrations should be monitored periodically in consultation with the local Mining authorities.

### **Handling of Explosives**

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department.

Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

### **Health Hazards**

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept. The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

### **Accident at Site**

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)

- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

### **Transportation**

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipments are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

### **Undertaking submitted affirming:**

- a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
- c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- d. The Boundary Pillars of the proposed mine lease area will be maintained properly.





- e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- i. If any tree felling than necessary permission shall be taken from the competent authority.
- j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
- l. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

SEAC, Jharkhand has suggested the ToRs in its **108<sup>th</sup>** meeting held on **19<sup>th</sup>, 20<sup>th</sup>, 21<sup>st</sup>, 22<sup>nd</sup>, 23<sup>rd</sup>, 24<sup>th</sup> and 25<sup>th</sup> September, 2023** in the light of Hon`ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC OM dated 12.12.18 for undertaking detailed EIA / EMP study and SEIAA. Jharkhand has approved the ToRs in its **109<sup>th</sup>** meeting held on **27<sup>th</sup> & 28<sup>th</sup> September, 2023**.

**The TORs prescribed for undertaking detailed EIA study are as follows:**

**Specific Condition:**

1. Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.
2. This TOR letter is subject to Hon`ble NGT order dated 13.09.2018, order dated : 11.12.2018 and MoEF & CC OM dated : 12.12.2018.
3. Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
4. A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.



5. All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
6. All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
7. Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
8. Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
9. It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
10. Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
11. The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
12. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
13. Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
14. A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event



of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.

15. Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
16. Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
17. The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
18. A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
19. Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
20. A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled- I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
21. Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
22. Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).



23. R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
24. One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
25. Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
26. The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
27. Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
28. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
29. Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
30. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers



present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.

31. Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
32. Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
33. A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
34. Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
35. Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
36. Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
37. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
38. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
39. Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.







40. Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
41. Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
42. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
43. The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
44. A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
45. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
46. Besides the above, the below mentioned general points are also to be followed :-
  - a. Executive Summary of the EIA/EMP Report.
  - b. All documents to be properly referenced with index and continuous page numbering.
  - c. Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
  - d. Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF & CC / NABL accredited laboratories. All the original analysis / testing reports should be available during appraisal of the Project.
  - e. Where the documents provided are in a language other than English, an English translation should be provided.
  - f. The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
  - g. While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
  - h. Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF & CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation
  - i. As per the circular no. J-11011/618/2010-IA.II (I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the



existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.

- j. The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.
47. After preparing the draft EIA (as per the generic structure prescribed in Appendix- III of the EIA Notification, 2006) covering the above mentioned issues, the proponent will get the public hearing conducted and take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
48. The Prescribed ToRs is valid as per O.M. F. No. IA3-22/10/2022-IA.III[E177258], dated 08.06.2022 of MoEF & CC, Govt. of India.

Sd/-

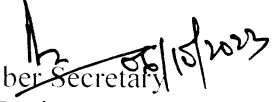
Member Secretary  
State Level Environment Impact  
Assessment Authority, Jharkhand

Memo No : EC/SEIAA/2023-24/2924/2023/ 313

Dated: 06/10/2023

Copy to:

1. Member Secretary, Jharkhand State Pollution Control Board, Ranchi for information and necessary action.
2. Secretary, SEAC, Jharkhand, Ranchi for information and necessary action.

  
Member Secretary  
State Level Environment Impact  
Assessment Authority, Jharkhand



