

**PROCEEDINGS OF THE MEETING OF STATE LEVEL EXPERT APPRAISAL  
COMMITTEE, ODISHA HELD ON 15<sup>TH</sup> MAY, 2024**

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The SEAC met on 15<sup>th</sup> May, 2024 at 04:00 PM by Virtual mode (VC) through video conferencing in Google Meet under the Chairmanship of Sri Shashi Paul. The following members were present in the meeting.

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|-------------------------------|---|-----------------------|
| 1. Sri Shashi Paul            | - | Chairman (through VC) |
| 2. Dr. K. Murugesan           | - | Member Secretary      |
| 3. Dr. Chittaranjan Panda     | - | Member (through VC)   |
| 4. Prof. (Dr.) H.B. Sahu      | - | Member (through VC)   |
| 5. Sri Jayant Das             | - | Member (through VC)   |
| 6. Er. Fakir Mohan Panigrahi  | - | Member (through VC)   |
| 7. Prof. (Dr.) B.K. Satapathy | - | Member (through VC)   |
| 8. Dr. K.C.S Panigrahi        | - | Member (through VC)   |
| 9. Prof. (Dr.) Abanti Sahoo   | - | Member (through VC)   |
| 10. Dr. Ashok Kumar Sahu      | - | Member (through VC)   |
| 11. Dr. Rabinarayan Patra     | - | Member (through VC)   |
| 12. Er. Kumud Ranjan Acharya  | - | Member (through VC)   |

**CONSIDERATION OF OLD PROPOSALS (COMPLIANCE RECEIVED):**

The compliances furnished by the proponents were verified by the members through e-mail and also proceedings of the meeting were confirmed by the members through e-mail. The decision of the committee on case-to-case basis as follows:

**ITEM NO. 01**

**PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S REGEN MATERIALS PVT. LTD FOR CHROME ORE BENEFICIATION PLANT OVER AN AREA OF 2.66ACRES OR 1.0765 HA. WITH THROUGHPUT CAPACITY OF 19,000 TPA WITHIN THE EXISTING UNIT AT KURUNTI UNDER ODAPADA TAHASIL OF DHENKANAL DISTRICT OF SRI RABINDRA KUMAR NAYAK - TOR**

1. The proposal was considered by the committee to determine the "Terms of Reference (ToR)" for undertaking detailed EIA study for the purpose of obtaining environmental clearance in accordance with the provisions of the EIA Notification, 2006 and amendment thereafter.
2. This proposal is for Terms of Reference (ToR) for obtaining Environmental Clearance of M/s Regen Materials Pvt. Ltd for Chrome ore Beneficiation plant over an area of 2.66Acres or 1.0765 Ha. with throughput capacity of 19,000 TPA within the existing unit At Kurunti under Odapada Tahasil of Dhenkanal District of Sri Rabindra Kumar Nayak.

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*J. Nayak*  
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3. **Category:** The proposed project is for beneficiation facility of Chrome ore with throughput of 19000 TPA capacity. The project comes under sector 2 (b) and Category B2 (<20000 TPA) as per EIA Notification 2006 and subsequent amendments.
4. The proposed project is for Chrome ore beneficiation unit with throughput of 190000 TPA capacity.
5. **Location and connectivity:** The unit bounded between Latitude 20°48'55.37"N to 20°48'59.59"N and Longitude 85°16'49.39"E to 85°16'54.31"E and falls under Toposheet number F45T/5. The project covers total land 2.66acres or 1.07655 Ha. & total 9 no. of plots bearing plot no. 3886/6792, 3885, 3892/4840,3930/4841, 3892 under the kissam of Sarada dui and plot no. -3890/4029, 3889, 3891and 3932 under Gharabarikissam of Mouza- Kurunti, PS-Motanga of Tahasil Odapada in the district Dhenkanal, Odisha. The project site is about 200m from NH-55 i.e.,Sambalpur –Cuttack Highway in the Northern direction. Nearest railway station is at Meramundali railway station located at a distance of 3 Km from the project site. There is no wild life sanctuary, corridor, National park, biosphere reserve located within 10Km buffer zone of the project site. Nearest Wildlife Sanctuary (Tikarapada Wildlife Sanctuary) is at 30Km
6. **Project details:** M/s Regen Material Private Limited is a private limited company established in 01.02.2022 with Sri Biswajit Das as Managing Director. The applicant of the project is Sri Rabindra Kumar Nayak, Power of Attorney holder of M/s Regen Materials Pvt. Ltd, attested by Director of the company Sri Biswajit Das. The company is involved in production of Chromium Oxide black since last 2 years.
7. **Briefing of EC if issued earlier:** The company is involved in production of Chromium Oxide black since last 2 years which is exempted from Environment clearance as per EIA Notification, 2006 and subsequent amendment. Now the proposed project application for establishment of Chrome ore Beneficiation plant over an area of 2.66 Acres with throughput capacity of 19,000 TPA within the existing Chrome monolithic unit and this application is for grant of environment clearance for the proposed beneficiation plant.
8. **Statutory Clearances obtained earlier:** The existing unit is operating with valid consent to establish vide the letter no 2930/MISC/ROSPCB/AGL/75/2019-20 dated 01.10.2022 and consent to operate (CTO) Vide letter no 399/MISC/ROSPCB/AGL/75/2019-20dated 06.02.2023 valid till 31.03.2027 from Odisha State Pollution Control Board. No forest land involved in the proposed project as it is private land over an area of 2.66Acres or 1.0765 Ha. At Kurunti under Odapada Tahasil of Dhenkanal District, Odisha.
9. **Existing production and proposed production with beneficiation plant for which Terms of Reference (ToR) has been applied for:** Details of M/s Regen Materials Pvt. Ltd. existing Chrome monolithic unit:

**Existing production of the project:**

- Chromium Oxide Black :30000MT/annum
- Nickel Oxide: 2000 MT/Annum

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- Ferro Alloy Metals (Reclaimed from Ferro alloy slag) : 720 MT/annum

**By Products**

- Aluminum oxide: 5500 MT/Annum
- Iron oxide: 5500 MT/Annum
- Salt (Nacl): 2500 MT/Annum

**Proposed unit: Chrome ore Beneficiation: 19000TPA**

The throughput capacity of the beneficiation unit will be 19000 TPA and beneficiated ore production will be 14250 TPA. The low-grade chrome ore will be procured from OMC, Sukinda through auction process.

Units	Products and By Products	Existing	Additional	After Expansion
TPA	Chrome Ore	--	19000	19000

- 10. Tailing generation:** From the Chrome Ore beneficiation tailing of 4940 TPA (<10% Cr<sub>2</sub>O<sub>3</sub>) (25%) will be generated.
- 11. Waste generation and management:** The major solid waste will be the tailings generated from beneficiation process. The quantity of tailings to be 4940 TPA having <10% Cr<sub>2</sub>O<sub>3</sub>. The tailings will be collected & treated with Ferro-Sulphate solution and dried through a filter press. An area has been demarcated for storage of tailing within the plant premises. The tailing will be stored in the tailing dump. After drying the tailing will be sold for brick manufacturing. Each batch of tailing before dispatch to brick manufactures will be analyzed for hexavalent chromium for its safe disposal and use. The capacity of the tailing disposal area will be 410 sq.m which can store dry tailing upto one year.
- 12. Baseline Study Details:** The baseline data is being collected for the period of December 2023 to February 2024.
- 13. Water Requirement and wastewater management:** Total water requirement for the proposed project will be 153 KLD and make up water requirement will be 13 KLD. Out of the makeup water requirement 1 KLD used for drinking purpose which will be sourced from nearby village through tankers and rest water requirement of 12 KLD will be sourced from Rain Water Harvesting Pond. The water utilized in the process will be recycled resulting in zero discharge of wastewater. The tailing pond of adequate capacity will be constructed with suitable impervious lining to prevent percolation into ground water.
- 14. Power Requirement and solar power details:** The power requirement is estimated as 100 KVA and will be procured from TPCODL, Odisha. Also proposed to install 125 kVA DG set.
- 15. Rain water Harvesting Details:** There will be construction of rain water recharge pit used for recharge of rain water in the premises.
- 16. Greenbelt Development:** Plantation will be carried out over an area of 0.1486 Ha of the area with 900 saplings.

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PROPOSED GREEN BELT PLAN			
Location	Area Under Plantation (Sq.m)	No. of saplings Proposed	Species Proposed
Green Belt around the plant boundary. Near entrance gate	2550 (5m width)	650	<i>Cassia siamea, Gmelia arborea, Tectona grandis, Alstonia scholaris, Azadirachta indica, Mangifera indica, Bamboo sps, Phylanthus emblica, Punica granatum, Psidium guajva, Mimosups elengii, Hibiscus rosa sinensis, Nerium oliander, Saraca asoka</i>
Plantation in open space	1072 Sq.m	250	<i>Dalbergia sisoo, Cassia siamea, Gmelia arborea, Acacia sps, Tectona grandis, Alstonia scholaris</i>
<b>Total</b>	<b>3622</b>	<b>900</b>	
<b>The proposed Green belt will be developed within 1 years of the plant operation</b>			

17. **Total Employment:** Proposed employment generation from proposed project will be 12 direct employments which includes operator -2, supervisor 2, 4 no of semi-skilled labour and 4 no of unskilled labour.

18. **Project Cost and EMP, CSR Cost:** Total project cost is approx.. 5Crore rupees. Cost of EMP will be 30.0 lakhs and CSR cost will be 10.0 Lakhs.

Sl. No	Particulars	Amount ( Rs in Lakhs)
<b>Capital Cost</b>		
01	Pollution Control Measures	16.00
02	Acoustics	5.00
03	Env. monitoring and management	3.00
04	Green Belt Development	2.0
05	Occupational Health & safety	2.0
<b>Total</b>		<b>30.0</b>
<b>Recurring Cost</b>		
01	Environmental Monitoring	3.00
02	Occupational health & safety	1.00
03	Greenbelt Development and maintenance	1.0
<b>Total</b>		<b>5.0</b>

19. **Environment Consultant:** The Environment consultant M/s Kalyani Laboratories Pvt Ltd, Bhubaneswar along with the proponent made a presentation on the proposal before the Committee.

20. The SEAC in its meeting held on dated 09-02-2024 recommended the following:

**A. The proponent may be asked to submit the following for further processing of TOR application:**

i) Process details in flow sheet of the existing plant along with mass balance.

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- ii) Note on ETP details, disposal of ETP sludge and treatment process.
- iii) Copy of documentation in support of raw material sourcing for proposed expansion.
- iv) Particle size analysis.
- v) Note on calculation of Surface run off considering the highest rainfall and treatment system to be adopted.
- vi) Copy of Agreement (MOU) with raw material suppliers for the existing Monolithic plant.
- vii) Submit water balance, material balance, chromium content and hexavalent Chromium content in the whole process.
- viii) Layout of the whole plant demarcating the settling pond, jigging plant, spiral area, parking area, storage space and Surface Runoff treatment system.

**B. The proposed site shall be visited by Sub-Committee of SEAC to verify the followings**

- i) Environmental compliance of the existing project and adequacy of the land available for setting of the proposed project.
- ii) Construction activities if any carried out for the proposed project.
- iii) Drainage network at the site.
- iv) Discharge point for discharge of treated waste water and distance of the discharge point from the project site.
- v) Area available for tailings management.
- vi) Road connectivity to the project site.
- vii) Any other issues including local issues.

21. The proponent has furnished the compliance and the SEAC verified the same as follows:

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent	Views of SEAC
i.	Process details in flow sheet of the existing plant along with mass balance.	Detail process and flow sheet of the existing plant is attached as <b>Annexure 1</b>	complied
ii.	Note on ETP details, disposal of ETP sludge and treatment process.	A brief note on the ETP, disposal of sludge and treatment process is attached as <b>Annexure 2</b>	complied
iii.	Copy of documentation in support of raw material sourcing for proposed expansion.	Copy of MoU for sourcing of raw material is attached <b>Annexure 3</b>	MoU with Sukinda Chrome Block, Kalarangiatta, Dist – Jajpur for supply of raw material has been submitted.
iv.	Particle size analysis.	Particle size analysis report will be submitted with the Final EIA / EMP report at the time of EC application	To be submitted in Final EIA report.

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Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent	Views of SEAC
v.	Note on calculation of Surface runoff considering the highest rainfall and treatment system to be adopted.	A brief note on calculation of surface runoff considering highest rainfall and treatment system is attached as Annexure 4	Total Harvestable Rainwater calculated – 5990cum/Annum
vi.	Copy of Agreement (MOU) with raw material suppliers for the existing Monolithic plant.	Copy of MoU attached Annexure 3	-
vii.	Submit water balance, material balance, chromium content and hexavalent Chromium content in the whole process.	Detail water balance, material balance is attached as Annexure 5	-
viii.	Layout of the whole plant demarcating the settling pond, jigging plant, spiral area, parking area, storage space and Surface Runoff treatment system.	Layout plan showing different facilities is attached as Annexure 6	-

22. The proposed site was visited by the sub-committee of SEAC on 29.03.2024. Following are the observations of the sub-committee:

- a) The site is very near and connected to the high way. The PP and Consultant have explained the plant and equipment positioning in the layout.
- b) The site has sufficient empty area to build the plant and tailing ponds etc. for the beneficiation plant. PP explained that the unit will maintain ZLD.
- c) Although the shed is there it was almost empty and no plant or industrial activity being observed and no construction work has been initiated for beneficiation plant. PP explained that they intended initially to produce chrome black but to make it viable they realised to go for chrome beneficiation plant first.
- d) Since it is for TOR and capacity is only 19000 TPA, the sub committee recommends to grant TOR and the PP may be advised to furnish the following along with other information asked during presentation while applying for EC and incorporate the same in the EIA study:
  - i) Plan for ZLD in details
  - ii) Drain network, tailing/settling pond details
  - iii) Management of Cr+6
  - iv) RWH plan and green belt details
  - v) All other points asked during presentation.

23. The MoEF&CC, Govt. of India O.M. No. J/13012/12/2013-IA-II(I), dated 24.12.2013 stipulates the Mineral Beneficiation activity listed in the schedule as Category-B will be treated as Category-B2 with throughput  $\leq 20,000$  TPA, involving only physical beneficiation.

24. The SEAC, Odisha observed that the proposed Chrome Ore Beneficiation plant is having throughput 19,000 TPA involving only physical beneficiation. However, the Committee

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opined that the Chrome Ore Beneficiation plant is having significant environmental impact to the surrounding areas in terms of water pollution and tailing disposal and there is a need for detailed EIA study.

25. The SEAC, Odisha recommended to consider the project as Category-B2 as per MoEF&CC, Govt. of India O.M. No. J/13012/12/2013-IA-II(I), dated 24.12.2013 for exemption of public hearing. However, the Committee recommended to consider Environmental Clearance for the proposal after the proponent submits detailed EIA study report.

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s Kalyani Laboratories Pvt Ltd, Bhubaneswar**, the SEAC recommended to issue Terms of References (ToRs) exempting public hearing for conducting EIA study as per **Annexure – A** with following specific TORs:

- i) Plan for ZLD in details.
- ii) Drain network, tailing/settling pond details
- iii) Management of Cr+6
- iv) RWH plan and green belt details
- v) Particle size analysis.
- vi) Process details in flow sheet of the existing plant along with mass balance.
- vii) Note on ETP details, disposal of ETP sludge and treatment process.
- viii) Copy of documentation in support of raw material sourcing for proposed expansion.
- ix) Note on calculation of Surface run off considering the highest rainfall and treatment system to be adopted.
- x) Copy of Agreement (MOU) with raw material suppliers for the existing Monolithic plant.
- xi) Submit water balance, material balance, chromium content and hexavalent Chromium content in the whole process.
- xii) Layout of the whole plant demarcating the settling pond, jigging plant, spiral area, parking area, storage space and Surface Runoff treatment system
- xiii) Detail plan of handling, storage and disposal of the proposed chrome ore beneficiation plant tailings (4940 ton / year containing <10% Cr<sub>2</sub>O<sub>3</sub>) as reported by the PP) to be submitted.
- xiv) Environmental compliance of the existing project is not submitted in the ADS. The submitted ADS, however gives a brief on the process details of the existing plant and the same inter alia involves leaching of finely ground chrome ore in mineral acids. The proposed chrome ore beneficiation plant is to be in the premises of an existing industrial unit owned and operated by the project proponent. Details of compliance with the CTE and CTO order of the existing operating unit having installed capacity of products (Chromium Oxide Black: 30000MT/annum, Nickel Oxide: 2000 MT/Annum, Ferro Alloy Metals (Reclaimed from Ferro alloy slag) : 720 MT/annum and by products (Aluminium

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oxide: 5500 MT/Annum, Iron oxide: 5500 MT/Annum, Salt (Nacl): 2500 MT/Annum) to be submitted.

#### ITEM NO. 02

**PROPOSAL OF ENVIRONMENTAL CLEARANCE OF M/S. NAWAH CORPORATE PRIVATE LIMITED FOR RESIDENTIAL APARTMENT PROJECT "9 EMPORIO" TOTAL BUILT UP AREA 28899.79 SQM LOCATED AT PLOT NO. 203, 205, 202/3352/3637/4137, 202/3352/4136, 205/3973, 206/1764, 191/4275, 191/4276 & 204/3607 KHATA NO -511/3668, 511/3669, 511/2648, 511/3688, 511/3689 & 511/3585, OF MOUZA- RAGHUNATH PUR JALI, TEHSIL - BHUBANESWAR, DISTRICT- KHURDA OF SRI SIDHARTHA SEKHAR MOHAPATRA – EC.**

1. This proposal is for Environmental Clearance of M/s. Nawah Corporate Private Limited for Residential Apartment Project "9 Emporio" total Built up area 28899.79 sqm located at Plot No. 203, 205, 202/3352/3637/4137, 202/3352/4136, 205/3973, 206/1764, 191/4275, 191/4276 & 204/3607 Khata No -511/3668, 511/3669, 511/2648, 511/3688, 511/3689 & 511/3585, of Mouza- Raghunathpur Jali, Tehsil - Bhubaneswar, District- Khurda of Sri Sidhartha Sekhar Mohapatra.
2. **Category:** This project falls under Category "B" under 8(a) - Building and Construction projects as per EIA Notification dated 14<sup>th</sup> Sept, 2006 and its amendments.
3. **Location and connectivity:** The project site is located at Plot No. 203,205, 202/3352/3637/4137, 202/3352/4136, 205/3973, 206/1764, 191/4275, 191/4276 & 204/3607 Khata No -511/3668, 511/3669, 511/2648, 511/3688, 511/3689 & 511/3585, of Mouza - Raghunathpur Jali, Tehsil- Bhubaneswar, District- Khurda, Odisha. The geographical co-ordinates of centre of project site are 20°22'55.10"N and 85°49'24.56"E. Toposheet no. F44T15. The Nearest Highway is NH-16 which is 6.3km in East direction from the project site, NH-316 A is 7.5km towards ESE direction, NH-55 is 11.5 km towards North East direction, & Nandankanan Road Site connecting road is adjacent to the project site in east direction. The nearest Railway Station is Bhubaneswar New Junction Station, which is about 1.3 km (East) away from the project site. Biju Patnaik International Airport is at 13.5 km (S) from project site.
4. The site is coming under Bhubaneswar Development Authority.
5. The plot area is 3,925.32 m<sup>2</sup> (0.97 Acre) with total built-up area 28,899.79 m<sup>2</sup>.
6. Statutory Clearances obtained;
  - a. CGWA NOC has been obtained vide no. CGWA/NOC/INF/ORIG/2023/19024 valid from 16<sup>th</sup> Aug. 2023 to 15<sup>th</sup> Aug. 2028.
7. **Area Statement –**

S. No.	Particulars	Total Area (m <sup>2</sup> )
1.	Total Plot Area	3,925.32
	Area affected by Road	449.02
	Net Plot Area (1-2)	3,476.30
2.	Permissible Ground Coverage (@ 40% of the net plot area)	1390.52
3.	Proposed Ground Coverage (@34.36% of the net plot area)	1,194.60

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4.	Total Permissible FAR (@6 of the net plot area)	20,857.8
5.	Total Proposed FAR (@5.99 of the net plot area)	20,846.43
6.	Non-FAR (Parking and Services)	8,053.36
7.	Total Built Up Area (2B+S+34)	28,899.79 m <sup>2</sup>
8.	Green Area Proposed (20.06 % of net plot area)	697.25 m <sup>2</sup>
9.	Maximum Height of the Building up to terrace level (meter)	111.15

8. The total population is 3163 Nos (as per earlier EC & Expansion).
9. **Power Requirement:** The power supply will be through TP Central Odisha Distribution Limited (TPCODL). The total maximum demand is estimated as 1498.82 kVA. 5% of the total power demand will be met through solar energy i.e. 74.941 kVA along with 5% for LED lighting and other conservation measures. Solar energy will be utilized for street lighting, solar blinkers and signage to reduce electricity consumption. There is provision of 1 nos. of DG sets of total 1010 kVA (1 X 1010 kVA) capacity for power back up. The DG set will be equipped with acoustic enclosure to minimize noise generation and adequate stack height for proper dispersion as per CPCB norms.
10. **Water requirement:** During operation phase, the source of water supply will be Ground water. The total water requirement for the project will be approx. 96 KLD out of which domestic water demand is 93 KLD. The fresh water requirement will be 61 KLD.
11. **Wastewater details:** The project will generate approx. 81 KLD of wastewater. The wastewater will be treated in onsite STP of 112 KLD capacity. The treated effluent will be reused for flushing & horticulture. Surplus treated effluent will be discharged to external sewer.
12. **Rainwater harvesting details:** They have proposed for 1 RWH pit of 75 m<sup>3</sup> capacity for artificial ground water recharge.
13. **Parking details:** Proposed Parking Area = 5,864.82 m<sup>2</sup>. Total 193 ECS parking is proposed.
14. **Solid waste generation:** During the operation phase, waste will comprise domestic as well as horticultural waste. The solid waste generated from the project shall be approx. 365 kg per day (@ 0.5 kg per capita per day for residents, @ 0.15 kg per capita per day for the visitor, 0.25 kg per capita per day for the staff members and landscape waste @ 0.2 kg/acre/day).
15. **Fire fighting Installations:** Fire fighting measures will be adopted as per the guidelines of NBC. External yard hydrants shall be installed around all buildings in the complex in galvanized steel fire house cabinet (weather proof). All external yard hydrants shall be at one meter height from finished ground level as per NBC at a distance of 60 m along the road. External fire hydrants shall be located such that no portion of any building is more than 45 m from a hydrant and the external hydrants are not vulnerable to mechanical or vehicular damage.
16. **Greenbelt:** Green Belt will be developed over an area of 697.25 m<sup>2</sup> i.e. 20.06% of the plot area. Total 60 Nos. of plants to be planted and 3m spacing between plants and it will be 2 tier plantation.

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17. **Project cost:** The estimated Project cost is 58 Crores (Land and Development Cost) and cost form EMP is 25.42 lakhs.

18. **Environment Consultant:** The Environment consultant M/s. Grass Roots Research & Creation India (P) Ltd., Noida along with the proponent made a presentation on the proposal before the Committee.

19. The SEAC in its meeting held on dated 28.02.2024 recommended the following:

**A. The proponent may be asked to submit the following for further processing of EC application:**

- i) Width kept for fire corridor with layout
- ii) NOC/Permission from Road authority to discharge the storm water to nearest roadside drain.

**B. The proposed site shall be visited by Sub-Committee of SEAC to verify the followings**

- i) Environmental compliance of the existing project and adequacy of the land available for setting of the proposed project.
- ii) Construction activities if any carried out for the proposed project.
- iii) Drainage network at the site.
- iv) Discharge point for discharge of treated waste water and distance of the discharge point from the project site.
- v) Road connectivity to the project site.
- i) Any other issues including local issues.

20. The proponent has furnished the compliance and the SEAC verified the same as follows:

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent	Views of SEAC
1.	Width kept for fire corridor with layout	Width of fire corridor is 7.5 m. Layout Plan showing the same is attached as Annexure-I.	Layout showing 7.5m width of fire corridor is submitted.
2.	NOC/Permission from Road authority to discharge the storm water to nearest roadside drain.	We have submitted the request letter to discharge the storm water to nearest roadside drain to the superintending engineer, Division-III, R&D Bhubaneswar. Request letter along with undertaking regarding the same is attached as Annexure-II.	Request letter for NOC/Permission from Road authority to discharge the storm water to nearest roadside drain has been submitted.
<b>Reply to Site visit</b>			
1.	Environmental compliance of the existing project and adequacy of the land available for setting of the	The proposed project is fresh project. Land documents of the same is attached as Annexure-III.	Land Documents submitted.

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Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent	Views of SEAC
	proposed project.		
2.	Construction activities if any carried out for the proposed project.	Current status of the project along with Photographs is enclosed as <b>Annexure- IV.</b>	
3.	Drainage network at the site.	Wastewater discharge plan showing drain connectivity is attached as <b>Annexure- V.</b>	Drainage layout submitted.
4.	Discharge point for discharge of treated waste water and distance of the discharge point from the project site.	Details provided above in point no. 3.	-
5.	Road connectivity to the project site.	The connecting road is Nanadakanan Road which is adjacent to the project site. The Nearest Highway is NH-16 which is approx. 6.3 km in east direction from the project site, NH 316A is approx. 7.5 km (ESE) away, NH-55 is approx.. 11.5 km (NE) away from the project site.	-
6.	Any other issues including local issues.	No other issues.	-

21. The proposed site was visited by the sub-committee of SEAC on **26.04.2024**. Following are the observations of the sub-committee:

- a) The site is connected with Nandan Kanan Road and no construction activity taken place. Green belt trees have started growing.
- b) The layout plan was explained in details with location of STP, Transformer etc.
- c) PP needs to submit the following:
  - BDA Plan provisionally approved.
  - No of basements, stilts and floors.
  - Parking percentage with ECS, complying to MOEF norms.
  - Drainage approval and permission from appropriate authority to discharge the excess treated water and storm water to the near road side drain.
  - Rain water harvesting details and number of RWH unit.
- d) All other points asked during presentation to be complied.
- e) PP to maintain safety from fire, dual plumbing, maximize use of treated water.

22. The SEAC observed that the documents asked during site visit has been submitted by Project Proponent. However, Drainage approval and permission from appropriate authority to discharge the excess treated water and storm water to the near road side drain has not

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been obtained and request letter from project proponent for the same has been submitted as mentioned in Compliance report (ADS).

Considering the information furnished and the presentation made by the consultant, M/s. Grass Roots Research & Creation India (P) Ltd., Noida along with the project proponent, the SEAC recommended for grant of Environmental Clearance valid for 10 years with stipulated conditions as per Annexure – B in addition to the following specific conditions.

- i) **PP to maintain safety from fire, dual plumbing, maximize use of treated water.**
- ii) The Proponent before implementation of the project shall convert the land to Gharabari and shall take the ownership of the land if not already taken.
- iii) **The Proponent shall obtain permission/NOC from Executive Engg. (PHD) and / or from the appropriate authority for disposal of excess STP treated water and storm water to the nearest drain without which the Proponent will not start construction work. Also, in case of the connecting drain passing through others land (Govt. or Private land), the Proponent shall obtain the permission and possession as the case may be.**
- iv) The proponent shall use solar energy at least to the tune of 5% of total power requirement as proposed.
- v) The proponent shall obtain permission from concerned Fire Safety Authority.
- vi) Trees located within the project area shall be transplanted to alongside the boundary green development area.
- vii) The proponent shall implement the Pollution Control Measures and safeguards as proposed in the Environment Management Plan (EMP) of project report.
- viii) The project proponent shall maximise utilisation of treated water in flushing, plantations and ground washings etc. as per need to reduce water discharge to drain. This shall be verified in future compliance report.
- ix) The PP will not commence construction unless the drain lay out is finalized and permission given for the same by the authority to discharge excess treated water & storm water.
- x) All compliances submitted/ committed by PP(s) shall be strictly adhered to them in addition to all the conditions/ specific conditions of EC.
- xi) Before starting the construction project physical properties as well as engineering properties of the soil along with its bearing capacity should be undertaken and the report should be submitted.

**ITEM NO. 03**

**PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR KUSHABHADRA RIVER SAND QUARRY, KESURA OVER AN AREA OF 16.25 HA. IN VILLAGE - KESURA UNDER BHUBANESWAR TAHASIL OF KHORDHA DISTRICT OF SRI SIKHARA JENA – EC**

1. This proposal is for Environmental Clearance of Kushabhadra River Sand Quarry, Kesura over an area of 16.25 Ha. in Village - Kesura under Bhubaneswar Tahasil of Khordha District of Sri Sikhara Jena.
2. **Category:** As per the EIA notification 2006, and its subsequent amendments, proposed project falls in category B under schedule of Item 1(a)-Mining of minerals.
3. The quarry lease Kushabhadra River Sand Quarry, Kesura has been granted by the Tahasildar Bhubaneswar to Sri Sikhar Chandra Jena (Successful Bidder) vide letter no 12761 dated on 08.08.2022 for excavation of minor mineral (River Sand) for five years.
4. As per the Director of Geology, Odisha, the modification of mining plan has been approved vide memo no. 5517/DG on dated 16.09.2021 for Kushabhadra Sand Quarry.
5. This is a new mine and as per the approved DSR the said sand mine is in the page no. 22 and SI no. 17.
6. **TOR details:** Terms of Reference (TOR) was granted by SEIAA vide proposal no: SIA/OR/MIN/81256/2022 on dated 11.11.2022.
7. **Public hearing details:** The Public Hearing meeting held on dated 09.07.2023 at 11.00 am at Antanjami High School under Bhubaneswar Tahasil of Khordha district, Odisha. Issues raised during public hearing are development of road condition from river embankment to village road and finally up to main road for easy movement of vehicles, suppression of fugitive dust during transportation of sand carrying vehicles, declaration of sand extraction with death for restoration of ground water level, prohibition of transportation of sand loaded vehicle during night time, safe driving of loaded vehicle nearby the School area within village road and providing safety to the life of school going children i.e. lease to keep vigilant on the vehicle movement, preference to be provided for employment facility to the local labour class people during mining period, Playground of the village children to be protected near river side and road from embankment up to main road via village road should be widened. The public hearing issues will be addressed and a time bound action plan has been prepared in compliance to the issues raised by public. A cost of Rs. 8.85 Lakhs has been allocated for implementation of activities proposed during public hearing.
8. **Location and connectivity:** The proposed project is located at village Kesura under Bhubaneswar Tahasil of Khordha District, Odisha. The project site is located in Survey of India Toposheet no. F45T15 and bounded between the latitudes of 20°15'59.7"N to 20°16'41.20"N and longitudes of 85°52'58.80"E to 85°53'10.80"E and comes under Nadi Kissam bearing Khata no. 549 and plot no 1000. The Nearest Railway station is Bhubaneswar Railway station at a distance of 4.2 Km W from the project site. The site is well connected to NH-316, at a distance of 1.40 Km W & SH-60 at a distance of 8 Km NE.

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Environmental Scientist, SEAC

The nearest sanctuary is Nandan Kanan wildlife sanctuary is situated 15km distance from the lease area.

9. **Total Reserves and proposed production:** As estimated, total Geological reserve of lease area is 840480m<sup>3</sup> and total mineable reserve of lease area is 450000m<sup>3</sup>. Production per annum is 90000 m<sup>3</sup> and total production in 5 years is 450000 m<sup>3</sup>.

Year	Vol. of Sand in m <sup>3</sup>
1 <sup>st</sup>	90000
2 <sup>nd</sup>	90000
3 <sup>rd</sup>	90000
4 <sup>th</sup>	90000
5 <sup>th</sup>	90000
<b>Total</b>	<b>450000</b>

10. **Replenishment study details:** The field survey and data generated for the pre and post monsoon survey have been done and analyzed with the help of standard engineering and mining software. The 1<sup>st</sup> survey i.e pre monsoon replenishment study has been carried out on 10<sup>th</sup> June 2023 and the post monsoon study has been carried out 04<sup>th</sup> November 2023. Considering a common safe workable area of 4024m<sup>2</sup> it is observed that replenishment of 1429 m<sup>3</sup> has been done with an average thickness of 0.35m. The volume of sand available during post monsoon survey around 10302 m<sup>3</sup> over a small patch of land of 8622 m<sup>2</sup> which is very less as the major part of the sand patch is submerged with water and can be treated as submerged sand. However, with advancement of summer, the water level will fall and the submerged sand will be exposed for mining and resulting in increase in safe workable area and accordingly, the quantum of extractable sand will also enhance to the tune of 11000 m<sup>3</sup> per annum and the annual production is proposed at around 11000cum.
11. **Mining method:** Mining will operate in semi mechanized method. Total Production in per year is 90000 cum. The mining activity will carry out up to a maximum depth of 3m below the surface level. Equipments like Excavator for excavation of sand and (Haiwa /Trucks/Tractors) for transport of sand will be used in the sand mine.
12. **Water requirement:** The total requirement of water will be 5 KLD. Out of which only 3 KLD of water to be used for domestic purpose; 0.5 KLD towards green belt development and 1.5 KLD water to be used for the purpose of water sprinkling for dust suppression.
13. **Baseline study details:** Baseline Study conducted in the period December 2022 to February 2023.
- **Ambient Air Quality:** During the study period, the concentration of PM10 varies from 42.0 to 66.68µg/m<sup>3</sup>; the concentration of PM2.5 varies from 19.1 to 38.63µg/m<sup>3</sup>. The concentration of SO<sub>2</sub> varies from 6.0µg/m<sup>3</sup> to 11.1 µg/m<sup>3</sup> and the concentration of NOx within the project site ranges between 11.0-21.7µg/m<sup>3</sup>. From the ambient air quality monitoring, it has been found that the concentrations of the particulate matter, SO<sub>2</sub>, NOx, are within the NAAQS standard as prescribed by CPCB.

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*J. Nayak*  
Environmental Scientist, SEAC

- **Surface-Water Quality Monitoring:** The water sample were analysed and it is found that pH of samples ranges between 7.5 to 7.7, Electrical conductivity varies from 168 to 178  $\mu\text{s/cm}$ , Chemical oxygen demand varies from 5-13mg/l, Biochemical Oxygen demand varies from 1 to 2.2 mg/l, Total hardness varies from 88 to 96 mg/l, Dissolved oxygen varies from 6.1 to 6.8 mg/l and Total coliform varies from 50-130 MPN/100ml.
- **Ground-Water Quality Monitoring:** The water sample were analyzed and it is found that pH of samples ranges between 6.5 to 7.3, Total dissolved solid varies from 130 mg/l to 300 mg/l, Fluoride content varies from 0.17 mg/l to 0.44 mg/l, Sulphate 1.9 mg/l to 19 mg/l, Total hardness varies from 100- 188 mg/l. The above result shows that ground water is suitable for human consumption. Higher values of turbidity and hardness may require purification of the ground water for drinking purpose.
- **Noise Environment:** The study area includes industrial and residential areas. The ambient noise levels were measured in 6 sampling locations. In the project site the day time noise level is 44.6 dB (A) and the night time noise level is 32.4dB (A). The maximum noise level is 48.3dB (A) during the day time at Pandra village and minimum noise level is 33.6 dB (A) during the night time at Bankual Village.

14. **Greenbelt development:** The green belt is proposed to be developed in a width of 7.5 m in safety zone along the boundary of mine lease area covering 2.190 ha and along the roadside. An amount of Rs.1,00,000 has been allocated for development of greenbelt.

Sl. No.	Year	No. of Saplings proposed for Krushabhadra River Sand Quarry	Area covering in Ha.	Type of saplings
1.	1 <sup>st</sup> Year	1000	Plantation will be carried out safety zone of the Lease area (River Bank)	Teak, Mango, Jammu, Neem, Jhaun etc.

15. **Manpower requirement:** Due to the proposed sand mining, there will be generation of employment for 104 persons in sand mines. Out of these 15 nos are skilled, 35 semiskilled, 53nos are unskilled.

16. **Project cost:** The total cost of the project is Rs. 30 lakhs and the updated capital cost and recurring cost (per annum) for the environmental facilities for the proposed mining project works out to be Rs. 4.50 lakhs.

Sl. No.	Particulars	Cost/ Annum (in Lakhs)
1.	Environmental Monitoring: Air, Noise 3 Point each and Water 2 points (Twice yearly)	Rs. 1.00
2.	Water sprinkling on the haul road & maintenance of the transporting road	Rs.2.00
3.	Green belt development in river bank	Rs. 1.00
4.	Occupational health	Rs. 0.50

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 Environmental Scientist, SEAC

Total	Rs. 4.50
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17. **Environment Consultant:** The Environment consultant **M/s Kalyani Laboratories Private Limited, Bhubaneswar** along with the proponent made a presentation on the proposal before the Committee.

18. The SEAC in its meeting held on dated **01-02-2024** recommended the following:

A. **The proponent may be asked to submit the following for further processing of EC application:**

- i) Submit Traffic study report.
- ii) Comparative table to be submitted w.r.t the level of accuracy of measurement in X, Y, Z direction of the camera and Ground control points and as per the SOP guidelines laid down by ORSAC for Drone method.
- iii) Clarification how replenishment study was carried out when 80% of the lease area is covered under water.

B. **The proposed site shall be visited by Sub-Committee of SEAC to verify the followings**

- a) Environmental settings of the project site.
- b) Availability of sand.
- c) Road connectivity to the lease area.
- d) Present condition of lease area, as in KML file, it is observed that 80% of the lease area is covered under water.
- e) Any other issues including local issues.

19. The proponent has furnished the compliance and the SEAC verified the same as follows:

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent	Views of SEAC
3.	Submit Traffic study report.	Attached as annexure-I	As per Traffic study report the LOS is B
4.	Comparative table to be submitted w.r.t the level of accuracy of measurement in X, Y, Z direction of the camera and Ground control points and as per the SOP guidelines laid down by ORSAC for Drone method.	Attached as annexure-II	-
5.	Clarification how replenishment study was carried out when 80% of the lease area is covered under water.	The southern and central portion of the lease area is covered with water due to unusual rain. But, the northern portion of the lease has sand deposit which covers around 30% of the lease which was also	-

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Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent	Views of SEAC
		observed during the site visit by the members of SEIAA. The replenishment factor and the post monsoon reserve of the lease area has been calculated taking into consideration of the exposed sand in the northern part of the lease.	
<b>FINDINGS/QUERRIES DURING THE SITE VISIT BY THE MEMBERS, SEAC</b>			
1.	Approach road from the proposed quarry to the connecting road.	As the sand mining shall be done in the northern part, the approach road shall follow the western boundary and connect to the village road to the ring road. (Attached Surface map).	-
2.	Presence of school and power lifting point, Big Basket warehouse.	These structures are well away from the lease boundary. The minimum distance from the lease boundary is around 62 meters. Since it is a sand mining project without blasting, there will be no vibrations and no adverse effect.	-
3.	Human settlement & Eco System.	The human settlement is well away from the project site. There are no trees in the quarry area. All measures will be followed not to disturb the eco system.	-
4.	Permission from the Irrigation Department.	The permission has been obtained by the Competent authority before declaration of the source.	-
5.	Presence of power transmission line.	There is no power transmission line passing through the lease area.	-

20. The proposed site was visited by the sub-committee of SEAC on 30.03.2024. Following are the observations of the sub-committee:

- a) Environmental settings of the project site. :- A portion of temporary road for transportation of sand constructed earlier is seen at mid portion of lease area. A school is located adjacent to lease area. Many human dwellings are seen adjacent to quarry area. PP was asked to submit a site plan showing adjacent schools and other infrastructures as seen in KML file mentioning shortest distance of each structure.
- b) Availability of sand :- It is observed that sand is available at northern part of lease area (i.e. upstream side). PP was also asked to show the exact area of availability of sand by identifying the mining and non-mining zone by defining the area of sensitivity as per latest guidelines for sand mine.
- c) Road connectivity to the lease area:- For transportation of available sand, the PP stated to construct a temporary road within lease area. He was advised to obtain permission from competent authority of Water Resources Department of Government of Odisha for construction of such temporary road. The PP was also advised to obtain NOC /

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*Jwajak*  
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Permission from concerned Sarapanch for use of Village road up to public road during transportation of sand.

- d) Present condition of lease area, as in KML file, it is observed that 80% of the lease area is covered under water :- Water is available in major portion of lease area. The PP was advised to calculate the safe mining zone as well as the sand that can be extracted from this zone. The demand of 11000 cum in replenishment study report needs re-calculation basing on replenishment study report and safe mining zone.
- e) Any other issues including local issues:- The PP had not submitted the compliance to observation of SEAC meeting held on 01.02.2024 justifying the quantity to be extracted from safe mineable area. The river banks seem to be moving towards urbanization with human settlements. No adequacy of sand deposit seems in kml file. Any alteration of river regime shall endanger the riverine ecosystem by further erosion of bank during flooding.
- f) The PP needs to revise the approved mining plan after taking into consideration the safe workable area stated in the replenishment study report based on drone survey.
- g) The traffic study is conducted at the point where the village road from the riverbed sand ML area is meeting the Hi-Tech hospital road. The traffic study report in the ADS states LOS "B".
- h) The permission details for using the village road for evacuation of the mined riverbed sand from the ML area is not seen in the submitted ADS though the PP has stated that he is in possession of the same. There is a school at a distance of 62 m from the ML area boundary.
- i) The ADS has furnished RLs of the river water surface to be 9.0 m as well as that of the riverbed sand in the ML area to be 11.0 m. The approved mining plan has stated a depth of mining to be 3.0 m. These differences in reported RLs to be reconciled in the revised mining plan.
- j) The replenishment study report has stated sand deposit of 0.35 m based on pre and post monsoon surveys. The ADS has stated camera location errors to be X – 1.21051 m, Y – 5.50846 m, Z – 37.7023 m. The reported riverbed sand surface level difference of 0.35 m is not significant as it is within the stated elevation measurement errors of 37.7023 m.
- k) The inspection team has stated that the riverbanks seem to be moving towards urbanization with human settlements. The extent of such changes can only be ascertained from comparing the satellite maps of the ML area at least for over past 5 years. This information is not given in the ADS.

After detailed discussion, the SEAC decided to take the decision on the proposal after receipt of the details from the proponent as raised during site visit in Para 20.

**ITEM NO - 4**

**PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR M/S SHREE RADHARAMAN STONE CRUSHER PVT. LTD FOR BASENPALI STONE QUARRY MINE OVER AN AREA OF 5.56 HA OR 13.75ACRE. IN VILLAGE BASENPALI, TAHASIL-LAKHANPUR, DISTRICT-JHARSUGUDA OF SRI SUSHIL KUMAR AGRAWAL - EC**

1. This is a proposal for Environmental Clearance of M/s Shree Radharaman Stone Crusher Pvt. Ltd for Basenpali Stone Quarry mine over an area of 5.56 Ha or 13.75acre. in village Basenpali, Tahasil-Lakhanpur, District-Jharsuguda of Sri Sushil Kumar Agrawal.
2. The project falls under category "B" or activity 1(a) - Mining of Minerals projects under EIA Notification dated 14th September 2006 as amended from time to time
3. **Terms of Reference (ToR)** was issued by SEIAA, Odisha vide File No. SIA/OR/MIN/78723/2022 dated 23.12.2022.
4. The Basenpali stone quarry has been granted by the Tahasildar, Lakhanpur and M/s Radharaman Stone Crusher Pvt. Ltd has been declared as the successful bidder for grant of Basenpali stone quarry over 13.75 Ac.(5.56 Ha.) in Mouza- Basenpali, Khata No. 1 and Plot No. 580,106/829(P),106/828(P) and 594/832(P) for a period of 5-Years vide Lease Letter No.102, dated 08.01.2018.
5. The mining plan for Basenpali Stone quarry has been approved by the Director Geology Sambalpur Odisha vide letter no.1269/ZS on dated 17.05.2018.
6. The Mining lease is an identified sairat source in the DSR page no. 43 & sl.no. 16. This is a new mine.
7. As per the Tahasildar of Lakhanpur, Jharsuguda there is no other mine located in the 500meters radius of the said mining project.
8. **Location and Connectivity** - The lease is located in survey of India toposheet no. F44R9(64O/9) and bounded between the latitudes of 21°47'30.5" E to 21°47'46.5" E and longitudes of 83°32'57.3" N to 83°33'09.0" N. on Khata No. 1 and Plot No. 1(P),3(P) Kisam: Jalabhandar. Nearest Railway station is Raigarh Railway Station at a distance of 19 Km from the project site. The nearest road is NH 200 located at a distance of 0.5 Km. Nearest airport is Jharsuguda airport at a distance of 55 Km from the mining Lease area. Nearest water reservoir is Hirakud – 4.5km. Nearest habitation – Basenpalli at 1.9km. Nearest RF – Jhargan at 2.5km. Eco sensitive zone of Debrigarh wild life sanctuary at 7.5km as certified by DFO, Jharsuguda. Nearest State Boundaries (Odisha- Chatishgarh) at 1.5km. Nearest road bridge at 0.6km.
9. **Total Reserves** – Geological reserve is 976557cum and Mineable reserve is 596203cum.
10. **Method of Mining and Production**- The method of mining will be semi mechanized method. The total production in five years is up to 276777m<sup>3</sup> per annum. The details of year wise production is given below.

**Table No.1.1: Details of Year Wise Production**

Year	Length Of Influence(M)	X-Area Of Rock Mass (M <sup>2</sup> )	Vol. Of Excavation (M <sup>3</sup> )	Vol. Of Rock Mass	Vol. Of Waste (M <sup>3</sup> )	X-Area Of Soil (M <sup>2</sup> )	Vol. Of Soil
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*J Nayak*  
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A	C	D	E = C X D	F = E x 90% (M <sup>3</sup> )	G = E x 10% (M <sup>3</sup> )	H	I = H X C (M <sup>3</sup> )
1st Year	153	400	61200	55080	6120	10	1530
2nd Year	153	401	61353	55218	6135	9	1377
3rd Year	153	402	61506	55355	6151	10	1530
4th Year	153	403	61659	55493	6166	11	1683
5th Year	153	404	61812	55631	6181	10	1530
<b>Total</b>			<b>307530</b>	<b>276777</b>	<b>30753</b>		<b>7650</b>

**Mining Method** - In the applied lease area mining of rock mass will be worked out by semi-mechanised method of mining. Handling of rock mass will be done both manually and by excavators. Handpicks, spade, chisel, hammer will be used by manual labours for sorting and sizing. Loosening of rock mass will be done by drilling and without blasting through use of Rock cracking chemical (Fosroc Lokfix- Polyester Resin Grout). The excavated rock mass will be loaded in to 0.9m<sup>3</sup>capacity tippers or tractors by excavators. As the loading, drilling and transportation will be partly achieved through use of machineries, the mines comes under OTFM A category. As the mining activities will be carried out in the lease area by semi-mechanized means loading of the Stone to transporting vehicles will be achieved through deployment of excavator/ loader of small capacity.

11. Mine road will be maintained between benches with Suitable gradient of haul road will be maintained in between 1 in 16 to 1 in 20.
12. Ultimate depth of Mining 178 mRL respectively. The proposed pit dimension will be 196m x 145m after plan period.
13. **Transportation:** A ramp from the Basenpali Stone Quarry lease area to the village road connecting NH 200 has been constructed by the lessee. This ramp is 6m wide and 0.5km length. The maintenance of the road will be done by lessee. Through this road the Stone will be transported to the user agency through NH 200. Daily load for stone transportation from the lease area is 278cu.m which required 17 vehicles which include 10Trucks and 7Tippers.
14. **Waste generation and management:** During the course of mining plan period, There are 30753 cum waste will be generated in the plan period of. The total volume of waste to be excavated would be utilised by the applicant for making of mine road and allied infrastructures. So there is no waste dumping plan has been arise.
15. **Water Requirement** - 3KLD of water will be required from which 1KLD of water will be required for drinking & domestic purpose. 2 KLD of water is suggested to be utilized for dust suppression and plantation purpose. Water will be sourced from private water tankers and rain water harvesting from the existing quarry.
16. **Green Belt** - In the process, 1618 nos. of saplings will be used for plantation in the quarried out areas of 1.011Ha. within lease respectively. An amount of Rs.3,00,000 Lakhs has been allocated for development of greenbelt.
17. **Power Requirement** - No use of electric power as the operation will be done in day time. However solar lights will be used for day to day living purposes. Tipper & Dumper will be

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used for transportation. So the approximate quantity of the fuel/Diesel used per day is 100 Lit/day.

18. **Employment Potential** - The mining activity will generate employment for 12 workers (Skilled-1nos., Semi-skilled-02nos. and Un-skilled-07nos.& Mines Manager/Mine Permit Manager-02nos).

19. **Baseline Study** conducted in the period from October to December 2020. Following are observations for air, water, noise and soil monitoring.

PERIOD	October to December 2020	Applicable Standards
AAQ PARAMETERS AT 7 LOCATIONS	PM2.5 – 12.5 to 31.7 µg/cu.m	60 µg/cu.m
	PM10 – 31.3 to 60.1 µg/cu.m	100 µg/cu.m
	SO2 – 5.1 to 9.4 µg/cu.m	80 µg/cu.m
	Nox – 9.1 to 19.7 µg/cu.m	80 µg/cu.m
Ground water Quality at 4 Locations	pH – 7.1 to 8.1	6.5 to 8.5
	Total Hardness – 122 to 198 mg/l	600 mg/l
	Chloride - 10.6 to 86.7 mg/l	250 mg/l
	Fluorides – 0.36 to 0.95 mg/l	1.5 mg/l
	TDS – 200 to 380 mg/l	1000 mg/l
	Heavy metals : BDL (Cd <0.001, As <0.01, Hg<0.0001) mg/l Detection limits of analysis method	Heavy metals: (Cd <0.003, As <0.01, Hg<0.001) mg/l
Surface water at 5 locations	pH – 7.6 to 8.1	
	Dissolved Oxygen – 5.9 to 6.0 mg/l	
	Biochemical Oxygen Demand – < 1 mg/l	
	Chemical Oxygen demand – < 5 mg/l	
Noise at 7 locations	Day (dBA Leq) 38.5 to 42.9	55
	Night (dBA Leq) 25.6 to 35.7	45
Soil Quality at 4 locations	pH – 5.5 to 6.2, Potassium – 107.5 to 161.3 Kg/Ha., Available Phosphorous – 176.1 to 293.4 kg/Ha, Total Organic Carbon % – 0.29 to 1.43, Electrical Conductivity- 110 to 210 (µs/Cm)	

20. **Public Hearing Details** - The Public Hearing meeting held on held on Dtd. 05.07.2023 at 11.00 am at village Basenpali, Tehsil Lakhanpur in the district of Jharsuguda.

Issued raised by the Public:

- Blasting which is cause of cracks in houses so they suggest for an alternative blasting method.
- employment of the local people,

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*J Nayak*  
Environmental Scientist, SEAC

- health facilities of the local people,
- local road development and sports activities for you in village.

The public hearing issues will be addressed and a time bound action plan has been prepared in compliance to the issues raised by public. A cost of Rs.14.75 Lakhs has been allocated for implementation of activities proposed during public hearing.

21. **Project Cost & EMP Cost:** Total project cost of the mining is 20 Lakhs., The updated capital cost and recurring cost (per annum) for the environmental facilities for the project works out to 11.0 Lakhs and 9.50 Lakh / year respectively.
22. The Environment consultant M/s Kalyani Laboratories (Pvt) Ltd. Pahala, Bhubaneswar along with the proponent has made a presentation on the proposal before the Committee.
23. The SEAC decided in its meeting held on 13.03.2024 to take decision on the proposal after receipt of the following from the proponent. The proponent has furnished the compliance and the SEAC verified the same as follows:

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent	Views of SEAC								
i.	Copy of NOC/Permission from Hirakud Dam Authority that mining activities will not affect the reservoir to be submitted.	<p>The Office of the Superintending Engineer, Main Dam Division, Burla vide letter no 985 dated 29.01.2024 (Copy Enclosed) has granted no objection for granting of temporary quarry permit for lifting stone for the Basenpali Stone Quarry with the following conditions:</p> <table border="1"> <thead> <tr> <th>CONDITIONS</th> <th>COMPLIANCES</th> </tr> </thead> <tbody> <tr> <td>Debris or rock after lifting of stone should be disposed far away from Hirakud reservoir to prevent re-entry.</td> <td>The left out debris shall be moved away from the spot to avoid reentry.</td> </tr> <tr> <td>Blasting operation or use of any type of explosives is totally prohibited.</td> <td>There will be no blasting for the mining operations. Only short hole drilling (3 meters) and use of rock cracking chemicals will be used.</td> </tr> <tr> <td>The environment of the area should</td> <td>Environmental measures such as water</td> </tr> </tbody> </table>	CONDITIONS	COMPLIANCES	Debris or rock after lifting of stone should be disposed far away from Hirakud reservoir to prevent re-entry.	The left out debris shall be moved away from the spot to avoid reentry.	Blasting operation or use of any type of explosives is totally prohibited.	There will be no blasting for the mining operations. Only short hole drilling (3 meters) and use of rock cracking chemicals will be used.	The environment of the area should	Environmental measures such as water	-
CONDITIONS	COMPLIANCES										
Debris or rock after lifting of stone should be disposed far away from Hirakud reservoir to prevent re-entry.	The left out debris shall be moved away from the spot to avoid reentry.										
Blasting operation or use of any type of explosives is totally prohibited.	There will be no blasting for the mining operations. Only short hole drilling (3 meters) and use of rock cracking chemicals will be used.										
The environment of the area should	Environmental measures such as water										

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		be kept safe for people residing nearby villages.	sprinkling, plantation etc shall be followed to keep the environment safe.	
		Purpose for which permission is granted cannot be altered for any other purposes.	Agreed.	
		No deed against the interest of public in any shape should be allowed.	There will be no such action which hampers the interest of the public.	
		The ecological balances should not be disturbed.	All the measures as per EIA & EMP shall be followed in spirit to maintain the ecological balance.	
		The permission so granted should be renewed one month before its expiry.	Agreed	
		Necessary required no objection certificate is to be obtained from Odisha State Pollution Control Board.	Already under process.	
		In case of violation of the above conditions or any other reason the	Agreed	

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Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent	Views of SEAC
		<p>authority has the right to cancel the permission at any time without any notice.</p> <p>Letter from Hirakud Dam authority attached - Annexure 1</p>	
ii.	<p>The Dam Safety Authority of the Hirakud Reservoir has allowed for the mining activity without blasting. However, mining plan has been approved for mining activity with blasting. The proponent has ensured during presentation that loosening of rock mass will be done by drilling and without blasting through use of Rock cracking chemical (Fosroc Lokfix- Polyester Resin Grout). An undertaking shall be furnished that they will modify and approve the mining plan before mining operating incorporating that they will not go for blasting as recommended by the dam safety authority.</p>	<p>The project proponent herewith undertakes not to use blasting for mining operations also undertakes to modify and approve the mining plan before mining operating incorporating that there will be no blasting as recommended by the Dam Safety Authority (Undertaking Attached). Annexure -2.</p>	-

Considering the information furnished and the presentation made by the consultant, M/s Kalyani Laboratories (Pvt) Ltd. Pahala, Bhubaneswar along with the project proponent, the SEAC recommended for grant of Environmental Clearance upto lease period with stipulated conditions as per Annexure – C and following additional conditions;

- i) The project proponent shall not use blasting for mining operation and accordingly, modify and approve the mining plan before mining operation incorporating that there will be no blasting as recommended by the Dam Safety Authority.
- ii) The lessee shall not use wagon drilling blasting.
- iii) No storage and usage of blasting materials/explosives inside the lease area shall be permitted.
- iv) The proponent shall obtain NOC from CGWA and permission from WR department, Govt. Of Odisha for use of ground water.
- v) The project proponent shall maintain periodic health check-up records of their employees and ensure use of face mask by workers in crushing and handling sections of the stone quarry for ensuring that working personnel are not affected by silicosis.

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- vi) The project proponent shall undertake re-grassing of the area or any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for fodder, flora, fauna etc. after ceasing mining operation that is at the time of mine closure.
- vii) Haulage road shall be developed and maintained perennially and perpetually by the proponent in consultation with the concerned authority of the Govt.
- viii) Detail risk and hazard management procedure as per the Annexure – D shall be followed by the lessee.

#### **ITEM NO. 05**

#### **PROPOSAL OF ENVIRONMENTAL CLEARANCE FOR JUJUMARA DECORATIVE STONE MINES OVER AN AREA 1.80 HA IN VILLAGE JUJUMARA, DIST: SAMBALPUR OF MOHAMMAD KHAN - EC**

1. This proposal is for Environmental Clearance of Jujumara Decorative Stone Mines over an area 1.80 Ha in village Jujumara, Dist: Sambalpur of Mohammad Khan.
2. **Category:** As per the EIA Notification dated 14<sup>th</sup> September 2006 and its subsequent amendments the proposed project falls under category B2 (<5ha) of Schedule in item 1 (a) – mining of minerals.
3. This is an existing mine operating since 29<sup>th</sup> July 2004. As the lease area is less than 5.0 Ha and operating before 14<sup>th</sup> September 2006, Environment Clearance was not applicable for the mines. However, for renewal of mines EC is applicable to all the lease area.
4. This is a B2 category project and public hearing has been exempted as per EIA Notification 2006 and subsequent amendments.
5. **List of Statutory Clearances obtained earlier -**
  - a) The Mining Plan along with PMCP was approved by Directorate of Mines & Geology, Steel & Mines Department, Govt. of Odisha, Bhubaneswar vide letter no. 5440/DM dated 27.06.2022.
  - b) As per Cluster Certificate issued by The Tahasildar, Jujumara Tahasil, there is no other mineral lease located within the 500m from the periphery of the proposed project and the it doesn't come under DLC area.
6. **Location and connectivity:** The project area is located in village Jujumara of Sambalpur District, Odisha. The lease area is entirely located in waste land under Patita Category under the revenue head of Abada Ajogya Anabadi Kissam bearing khata no 296 and plot no. 644/P. The ML area is located in Topo sheet no. 73C/4 and bounded by Latitude 21°14'27" to 21°14'39" N and Longitude 84°07'53" to 84°07'57" E. The lease area is located at a distance of 0.75 km from the NH 55 i.e. Sambalpur- Cuttack Road. From NH- 55 the lease area is connected through all weathered road. Sambalpur –Jharsuguda Railway line is located at a distance of 0.66 km from the lease area. The nearest railway station of located at 1.5 Km from the lease area. Nearest habitation is Jujumara village which is at a distance of 1.0 Km from the lease area. The project is not located within Eco-Sensitive Zone (ESZ) or

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Eco-Sensitive Area (ESA) notified by the MoEF&CC. Ushakothi Wild Life Sanctuary is situated 25km distance from the lease area.

7. **Total Reserves Production:** The total Geological Reserves for the ML area is 111546 Cum, Mineable Reserves for the ML area is 47728Cum.
8. **Water requirement:** About 2KLD of water will be required in the mine for domestic and non-domestic purpose.
9. **Mining Plan Details:**
  - a) **Details of Minerals:** There will be production of Decorative Stone of quantity 2080(cum)/annum.
  - b) **Method of Mining:** Semi Mechanized Open cast Method with drilling and wedge and feather cutting. The maximum depth of mining will be 10m. The equipment used are Poclain, Wire saw, Jack hammer Drill, Compressor, drill rod, water tanker and safety equipments.
  - c) **Transportation:** From the mines the transportation will be carried out once in a week with 2 nos. of trailers. The haul road from the lease area to the main road is of 0.75 Km with a width of 10m. The haulage road meet to NH 55.The road is not passing through any village or habitation.
10. **Solid waste generation:** A total waste of 15480m<sup>3</sup> will be generated during the conceptual period.
11. **Mitigation of solid waste produced:** The waste rejects (50%) amounting 7740 cu.m will be dumped over an area of 1548m<sup>2</sup> at 7.5m height. Depending upon the essentiality, remaining 50% waste/rejects will be sold to the local entrepreneurs for construction of building and roads. These stone will be utilized con-currently for construction & maintenance of road in the lease area.
12. **Greenbelt Development:** They have proposed for afforestation program of 1400 saplings in the safety zone over an area of 5260sq.m.
13. **Total Employment:** A total of 23 nos. of people will be employed in the mine.
14. **Project Cost:** The total project cost is 250 Lakh. The Capital cost allocated for implementation of EMP is 9.0 Lakh and recurring cost allocated for EMP is 5.8lakh.
15. **Environment Consultant:** The Environment consultant M/s Kalyani Laboratories Private Limited, Bhubaneswar along with the proponent made a presentation on the proposal before the Committee.
24. The SEAC in its meeting held on dated 20-10-2023 decided to take decision on the proposal after receipt of the following from the proponent. The proponent has furnished the compliance and the SEAC verified the same as follows:

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent	Views of SEAC
1.	Copy of DSR for proposed project	Copy of the DSR is attached	-

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Sr. No.	Information Sought by SEAC	Compliance furnished by the proponent	Views of SEAC
	i.e. Jujumara Decorative Stone mines prepared by the district administration, which is in the process of approval by the District Administration.	Annexure 1.	
2.	Detailed dimension of the settling pond, its capacity and frequency of the de-siltation to be carried out from the settling ponds.	The dump slope will be provided with retaining wall of 59 mtr and garland drain of 64 mtr will be erected around the dumping yard to arrest the washing off of loose sediments. The garland drain will provide with 3nos settling tanks of 5 m x 5m x3m (225cu.m) where water will be settled and the overflow will connected to the rain water harvesting sump in the lease area. De siltation will be carried out once in a month during the rainy season.	-
3.	Permission obtained from the local authority for creation of Pond in the ML area rather than back filling followed by plantation.		
4.	Details of mRL for both before and after the mining for surface water and ground water.	Before the mining operation the mRL is 227m and the ultimate depth of mining will be 220 mRL It has been observed from the nearby wells and tube wells that the ground water table occurs at 210mRL (pre-monsoon) to 213 mRL (post monsoon).	-
5.	Mine closure plan approved by concerned authority.	Approved mine closure plan is attached for reference. <b>Annexure 2</b>	-
6.	Clarification from Steel & Mines Deptt., Govt. of Odisha regarding extension of mining lease.	As per Letter issued by The Deputy Director of Mines, Sambalpur Circle vide letter no. 1158/Mines on Dated.01.07.2023, the mine lease was executed and registered on Dated.06.08.2004 for the period of ten years upto 05.08.2014. Further, the application of RML has been filed on Dtd.25.03.2014 within stipulated time period as per Rule 8 (7) of OMMCR – 2004. According to the OMMC Amendment Rule 2016 (Pl. Refer to The Odisha Gazette Notification Dated.21 <sup>st</sup> May'2016 published on behalf of Deptt. Of Steel and Mines) Clause 3:	

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Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent	Views of SEAC
		<p>wherein it is mentioned that "Notwithstanding anything contained in these rules, any holder of the mining lease for decorative stone granted before the date of commencement of OMMC Rules, 2016 shall be entitled for extension of lease period, if any, or a period of thirty years from the date of grant of such mining lease with the same terms and conditions, whichever is later, such mining lease with the same terms and conditions whichever is later, subject to the condition that the terms and conditions of the lease have been .....</p> <p>As per the said notification, the mining lease due to expired on Dtd.05.08.2014 deemed to be extended up to Dtd.05.08.2034 as per the new rule.</p> <p>The mine is subsistence as per all statutory norms and regulations of the Govt. A letter of correspondence in this regard has been issued by the Mining Officer, Sambalpur Circle is enclosed herewith. <b>Annexure 3.</b></p>	
7.	Rectified mining plan removing the blasting activity, as there is provision of blasting in the said mining plan whereas it has been presented before the SEAC that there won't be any blasting activity.	As per the approved mining plan there is no proposal for blasting in the mines. Copy of the mining plan highlighting the same is attached <b>Annexure 4.</b>	
8.	Precautionary measures to be taken w.r.t. Noise and Vibration as there is a school nearby.	<p>There will be no blasting carried out for the cutting of stone. Though the noise pollution in the said mines is very less then also following mitigation measures will be adopted for control of noise and vibration:</p> <ul style="list-style-type: none"> <li>• The DG set will be kept within the acoustic enclosure made by the stone blocks.</li> <li>• Drills will be equipped with sharp bits and wet drilling will be adopted.</li> <li>• A well-planned green belt is proposed for the mining to</li> </ul>	

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Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent	Views of SEAC
		reduce noise level. <ul style="list-style-type: none"> <li>• Regular maintenance of the machineries and vehicles to reduce the noise level.</li> <li>• Use of earmuffs by the workers with occupational exposure to noise.</li> </ul>	

Considering the information furnished and the presentation made by the consultant, **M/s Kalyani Laboratories Pvt. Ltd., Bhubaneswar** along with the project proponent, the SEAC recommended for grant of Environmental Clearance upto lease period with stipulated conditions as per **Annexure – C** and following additional conditions;

- i) The project proponent shall not carryout blasting activity for cutting of stone as proposed.
- ii) Haulage road shall be developed and maintained perennially and perpetually by the proponent in consultation with the concerned authority of the Govt.
- iii) The project proponent shall maintain periodic health check-up records of their employees and ensure use of face mask by workers in crushing and handling sections of the decorative stone quarry for ensuring that working personnel are not affected by silicosis.
- iv) The project proponent shall follow proper procedure as advised by Forest Deptt. for tree felling or transplantation of those tress within safety zone. Provision for compensatory afforestation must be done by equal number of plantations in consultation with Forest Deptt.
- v) The project proponent shall undertake re-grassing of the area or any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for fodder, flora, fauna etc. after ceasing mining operation that is at the time of mine closure.
- vi) Detail risk and hazard management procedure as per the Annexure – D shall be followed by the lessee.
- vii) Project Proponent shall take extra care and precautions for causing no disturbance of any kind to the nearby school.

**ITEM NO. 06**

**PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S SREE METALIKS LTD FOR KHANDBANDH IRON ORE MINES (35.774 HA) FROM 1.50 MTPA TO 1.80 MTPA ALONG WITH CRUSHING & SCREENING PLANTS LOCATED IN BAITARANI RESERVE FOREST NEAR VILLAGE KHANDBANDH UNDER BARBIL TAHASIL OF KEONJHAR DISTRICT OF SRI REWATI RAMAN SHARMA- EC**

1. This proposal is for Environmental Clearance of M/s Sree Metaliks Ltd for Khandbandh Iron Ore Mines (35.774 Ha) from 1.50 MTPA To 1.80 MTPA along with Crushing & Screening Plants Located In Baitarani Reserve Forest Near Village Khandbandh Under Barbil Tahasil of Keonjhar District of Sri Rewati Raman Sharma.

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2. The MoEF&CC, Govt. of India vide Office Memorandum (O.M.) no. F. No. IA3-22/10/2022-IA.III [E177258] dated 11/4/2022 has issued guidelines for granting Environmental clearance under para 7(ii)(a) of EIA Notification 2006 for expansion upto 50%, within the existing premises / mining lease area, without additional land acquisition and Environmental Public Hearing. The proponent has requested for 20% increase in production capacity under above OM of MoEF&CC, Govt. of India.
3. **Category:** This project falls under Category "B" or Schedule 1(a): Mining of Mineral as per EIA Notification dated 14th Sept, 2006 and its amendments.
4. **ToR details:** Terms of Reference (TOR) is not required for the proposed project as the expansion is applied under 7 (ii) for 20% expansion as per the MoEF & CC, Gol, office memorandum dated 11th April 2022
5. **Public hearing details:** As this proposal is coming under 7(ii) category there is no need of public hearing for expansion to 1.80 MTPA.
6. **List of Statutory Clearances obtained earlier -**
  - a) The Mining Lease granted Vide letter no III(A)SM-36/2002/407/SM dated 11.01.2017 under Rule 8(2) of MCR 2016 for a period of 50 years in favour of M/s Sree Metaliks Ltd.
  - b) Environmental Clearance for the production capacity of 1.5MTPA capacity vide the letter No-EC22B001OR133726 dated 30.06.2022.
  - c) Review of Mining Plan with PMCP approved by IBM vide its letter no. MCDR-MIFL0FE/29/2023-BBS-IBM\_RO\_BBS dated 04.01.2024.
  - d) Stage-II Forest clearance over 30.980 Ha obtained vide letter no. 5-ORC097/2010-BHU dated 16.12.2016.
  - e) Consent to Operate from SPCB, Odisha for the production capacity of 1.5 MTPA vide the letter No 4967/IND-I-CON-6573 Dated 28.03.2023 and is valid up to 31.03.2024.
  - f) Surface Right over 30.980 ha has been obtained vide letter No 746 dated 08.06.2017.
  - g) Permission by Department of Water Resources, Govt of Odisha for withdrawal of 149 KLD of Surface water from Sona River Vide letter no.6704/WR dated 08/03/10.
  - h) Permission by Central Ground Water Authority, Govt. of India CGWA/NOC/MIN/ORID/2019/6703 for withdrawal of 9.80 KLD Ground water.
  - i) Site Specific Conservation Plan prepared and approved by PCCF (wild Life) and Chief Wild Life Warden, Odisha vide memo No 4400/1WL(C) SSP-311/2011 dated 02.07.2011.
7. **Location and connectivity:** Khandbandh Iron Ore Mines (35.774 Ha) of M/s Sree Metaliks Limited is located inside Baitarani Reserve forest, coming under village- Khandbandh, Tahsil-Barbil, District-Keonjhar. The geo-coordinates of project site is Latitude-22° 06' 16.72057" to 22° 07' 41.65495"N & Longitude-85° 25' 32.28303" to 85° 26' 40.67115"E. The project falls under Survey of India bearing Topo sheet no. 73G/5. The kissam of Land is Forest. The nearest approachable Road is from Joda via Bichhakundi. It is 8 km away from

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Joda. The nearest State Highway is Joda-Bamebari State Express way at a distance of 8 Km, National Highway- NH-520 (earlier NH-215) 7.km from lease area (aerial distance), Airport- Bhubaneswar-320 Km away by road (190 Km aerial distance), Railway Station- Bansapani Railway Station-10Km & Jururi Railway Station-12Km, Nearest Water Bodies- Suna Nadi adjacent to the lease area, Kakarapani Nalla 2.8 Km, Reserve Forest- Mine is inside Baitarani Reserve Forest. Sidhamath RF is 0.2 Km from lease area. There are no Eco-sensitive areas, Biosphere reserve, National park & wildlife sanctuary within 10km radius.

8. The mining lease area involves 35.774Ha of forest land.
9. Comparative table for Previous EC and proposed enhanced production for which applied:

Aspects	Existing EC	Proposed EC
Production	1.5 MTPA	1.8 MTPA
Water requirement	159.80 m <sup>3</sup> /day	same
Power requirement	600 KVA	Additional 135 KVA
Man power requirement	166	Additional 50
Crushing & Screening plant	Through 1X200TPH Integrated crusher & Screen plant, 1X200 TPH Mobile Screen and 1X200 Mobile crushing unit.	Additional Wet Screen plant of 1X100 TPH

10. **Baseline study conducted:** Baseline study was conducted during Oct, 2023 to Dec, 2023.

- a) **Ambient Air monitoring:** - The baseline air quality data the average PM10 ranges from 42.2-80.4 µg/m<sup>3</sup>, PM2.5 ranges from 20.9-42.6 µg/m<sup>3</sup>, SO2 ranges from <4.0-11.6 µg/m<sup>3</sup>, NOx ranges from <9.0-19.2 µg/m<sup>3</sup> and CO ranges from 0.19-0.54 µg/m<sup>3</sup>.
- b) **Ground Water quality monitoring:** The pH of the GW samples collected ranged from 6.78- 7.46 and within the acceptable limit of 6.5 to 8.5. The total dissolved solids were found in the range of 40 to 234 mg/l . Total Hardness is ranged from 35 to 125 mg/l. Chloride ranges from 28.32- 34.0 mg/l. Sulphate ranges from 3.2-4.2 mg/l. Iron ranges from 0.15- 0.21 mg/l. However, as per GW standard IS 10500:2012 all the values are within the acceptable limit at all locations.
- c) **Surface Water quality monitoring:** The pH of the water samples collected ranged from 7.08 to 7.16. TDS ranges from 104 to 108 mg/l, Sulphate ranges from 3.8 to 4.5 mg/l, Nitrate ranges from 1.12 to 1.56 mg/l, Chloride ranges from 16.0 to 21.0 mg/l, Fluoride ranges from 0.26 to 0.54mg/l. it is observed that all the 4 location water are within the permissible limit.
- d) **Ambient Noise monitoring:** Noise quality ranges in day time 55.1 to 66.4 dB(A) & at night time 40.1-54.8 dB(A). So, as per CPCB Work zone area day time will be 75 dB(A)& night time will be 70 dB(A) from which it is understood that the core zone noise quality is within the norms.
- e) **Soil monitoring:** The study area is characterized by two types of soil – Alfisols and Ultisols. Soil samples from 5 locations are taken within the core and buffer zone for

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analysis. From the analysis the pH ranges from 6.56 to 6.89 from this the it concluded that soil is weak acidic in nature, Bulk Density ranges from 1.29-1.32 gm/CC, Nitrogen ranges from 0.051- 0.061 %. Phosphorus ranges from 0.019- 0.022 %. Potassium ranges from 0.067- 0.070 %. From the above soil analysis data soil is fertile and good for agriculture process.

11. **Water requirement:** Total quantity of water requirement for the project is 159.80 m<sup>3</sup>/day out of which 150 m<sup>3</sup>/day being met from Sona River and 9.80 m<sup>3</sup>/day being met from ground water.
12. **Rainwater harvesting details:** 23787.4cum/yr volume of water is being recharged to ground water through Rain water harvesting structures which are at strategic points has been implemented within & outside the lease area as per the Rain Water harvesting plan.
13. **Products generated:**

Units	Products and By products	Existing	Additional	After Expansion
	Iron Ores	Nil	1.0 Lakh Ton Iron Ore/Annum	1.0 Lakh Ton Iron Ore/Annum
	Manganese ore	Nil	1000 Ton Manganese Ore/Annum	1000 Ton Manganese Ore/Annum

#### 14. Mining Plan Details:

##### a) Details of Minerals:

Units	Products and By products	Existing	Additional	After Expansion
Existing Iron Ore Mines	Iron Ore	1.5 MTPA	0.3 MTPA	1.8 MTPA

- b) **Method of Mining:** Open Cast Fully Mechanized method of mining will be adopted with deployment of machines like Wagon drills, Excavator, Volvo, Tipper, Screening and crushing and transported by Tippers through 25t to 30t dumper/Volvo. The bench height and width will be maintained at 6m and 9m respectively. DTH drilling of 115mm dia hole. Blasting by power gel explosive, detonator and safety fuse. The slope of individual bench will be vertical (80%) & horizontal (37%). Ultimate pit depth will be 546 mRL. Ground water table is at 510 mRL.
- c) **Waste generation:** Total generation of waste during ensuing plan period is 1276218 Metric Ton. Out of which 30% i.e. 386825 Metric Ton will be utilized for road maintenance. Remaining 70% i.e. 8933527 Metric Ton will be backfilled in the earmarked site. Till 2022-23 3.490 Ha already back filled as per the approved Mining Plan. At the end of conceptual period apart from road i.e. 0.110, rest 35.664 Ha will be back filled and stabilized by plantation.
- d) **Details of crushers/screen/beneficiation plant if any with capacity and numbers, water requirement for the project, plantation details, greenbelt details:** Existing

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Crusher & Screen plant - 1X200TPH integrated crusher & Screen plant, 1X200 TPH Mobile Screen and 1X200 Mobile crushing unit and Proposed Crusher & Screen plant - Wet Screen plant of 1X100 TPH.

- e) **Mitigation of waste produced-** Over Burden is stored at earmarked place within mines, 30% Road maintenance at mines & 70% back filling and Stabilization by coir matting & plantation. The Waste Water will be disposed through soak pit and Used Oil & oil Contaminated Waste will be disposed as per provision under Hazardous Waste handling Rule,2016.
- f) **Land use as per mining plan at the end of plan period and at conceptual stage:**

Sl. No.	Head	At present (Ha.)	At the end of SOM period (Ha.)	At the end of conceptual period (Ha.)
1	Area under mining	17.16	20.95	29.772
2	Storage for Top soil	0.00	0.00	0.00
3	Waste dump site	3.16	3.16	0.00
4	Mineral rejects stack/ mineral storage	1.48	2.14	1.516
5	Infrastructure (Workshop, administrative building etc)	0.88	1.88	0.696
6	Roads	1.36	0.91	0.110
7	Mineral Separation Plant, Crushing/ Screening Unit and DG, Store Room etc.	0.420	0.420	0.420
8	Others	1.31	1.31	0.00
	Sub-total	25.77	30.77	32.514
9	Safety zone for ML Boundary	1.620	1.620	1.620
10	River safety zone	1.640	1.640	1.640
11	Right of way for 33KV Power line	1.020	0.00	0.00
12	Right of way for 11KV Power line	0.514	0.00	0.00
13	Unused area	5.210	1.744	0.00
	Total	35.774	35.774	35.774

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15. **Power Requirement & solar power details:** Total Electricity required for project is 735 KVA and same is being sourced from state Grid. One no DG set of 82.5 KVA has been installed for standby purpose. There will be no change in electricity requirement.
16. **Greenbelt Development:** A total of 3.260 Ha. area has already been covered under plantation in safety zone area etc. within the lease area. Further, during ensuing plan period it has been planned to make gap filling plantation with 2800 no's of saplings within safety zone area of lease boundary. Till date 25000 plantation has been done in & around lease area.
17. **Total Employment:** Total Existing employment is 166 nos., proposed employment is 50nos. So, total no. of employment after expansion will be 216 nos.
18. **Project Cost:** The estimated cost is ₹10.0 Crore and Proposed EMP Capital Cost is Rs 75.00lakhs & Annual Recurring EMP Cost is 19.00Lakhs, CER Cost-Rs 110Lakhs.
19. **Environment Consultant:** The Environment consultant **M/s EHS 360 Labs Pvt. Ltd.**, along with the proponent made a presentation on the proposal before the Committee.
20. The SEAC in its meeting held on dated **13-03-2024** decided to take decision on the proposal after receipt of the following from the proponent:
- The MoEF&CC, Govt. of India vide Office Memorandum (O.M.) no. F. No. IA3-22/10/2022-IA.III [E177258] dated 11/4/2022 has issued guidelines for granting Environmental clearance under para 7(ii)(a) of EIA Notification 2006 for expansion upto 50%, within the existing premises / mining lease area, without additional land acquisition and Environmental Public Hearing. The proponent has requested for 20% increase in production capacity under above OM of MoEF&CC, Govt. of India. The pointwise compliance to the above O.M. dated 11.04.2022 shall be submitted.
  - EIA/EMP report has not been prepared based on standard and specific ToRs. Revised EIA/EMP Report shall be prepared based on standard and specific ToRs and submitted.
  - Certified compliance report from MoEF&CC, Govt. of India w.r.t. conditions stipulated in earlier Environmental Clearance.
  - Compliance to NEERI recommendations for the existing mining activities.
  - Compliance to issues raised by the public during the last public hearing.
  - Forest clearance status of entire lease area including safety zone and copy of the Forest Clearance obtained for the mining lease.
  - The part of lease area (safety zone) for which Forest Clearance is not obtained should be earmarked in the layout of mining lease area. An undertaking for not carrying out any mining activity in the above said earmarked area without Forest Clearance shall be submitted.
  - Layout of the project with parking area details w.r.t to enhanced production.
  - An undertaking to complete all the proposed Programmes/activities as assured by the Project Proponent during public hearing within a timeline of 6 months.

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- x) Any modification in Site Specific Conservation Plan if required w.r.t to enhanced production should be consulted and approved by concerned DFO.

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent	Views of SEAC
1.	The MoEF&CC, Govt. of India vide Office Memorandum (O.M.) no. F. No. IA3-22/10/2022-IA.III [E177258] dated 11/4/2022 has issued guidelines for granting Environmental clearance under para 7(ii)(a) of EIA Notification 2006 for expansion upto 50%, within the existing premises / mining lease area, without additional land acquisition and Environmental Public Hearing. The proponent has requested for 20% increase in production capacity under above OM of MoEF&CC, Govt. of India. The pointwise compliance to the above O.M. dated 11.04.2022 shall be submitted.	The point wise compliance to the O.M. dated 11.04.2022 is attached as <b>Annexure-1</b>	
2.	EIA/EMP report has not been prepared based on standard and specific ToRs. Revised EIA/EMP Report shall be prepared based on standard and specific ToRs and submitted.	The revised EIA/EMP report based on standard & specific ToR is attached as <b>Annexure-2</b>	
3.	Certified compliance report from MoEF&CC, Govt. of India w.r.t. conditions stipulated in earlier Environmental Clearance.	Certified compliance report from MoEF&CC, Govt. of India w.r.t. conditions stipulated in earlier Environmental Clearance is attached as <b>Annexure-3</b>	
4.	Compliance to NEERI recommendations for the existing mining activities.	Compliance to NEERI recommendations for the existing mining activities is attached as <b>Annexure-4</b>	
5.	Compliance to issues raised by the public during the last public hearing.	Compliance to issues raised by the public during last public hearing is attached as <b>Annexure-5</b>	
6.	Forest clearance status of entire lease area including safety zone and copy of the Forest Clearance obtained for the mining lease.	Stage-II Forest clearance over 30.980 Ha obtained vide letter no. 5-ORC097/2010-BHU dated 16.12.2016. Further, Forest clearance under section 2 (iii) of FC Act, 1980 granted over 35.774 Ha vide letter dated 10th January 2017.  Further, Stage-II FC over remaining 4.794 Ha including boundary & nalla safety zone has been applied on 29.12.2022 having proposal no.	

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*J Nayak*  
Environmental Scientist, SEAC

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent	Views of SEAC
		FP/OR/MIN/QRY/411936/2022 and is under process at DFO, Keonjhar. The copy of the clearance details and present application is attached as <b>Annexure-6.</b>	
7.	The part of lease area (safety zone) for which Forest Clearance is not obtained should be earmarked in the layout of mining lease area. An undertaking for not carrying out any mining activity in the above said earmarked area without Forest Clearance shall be submitted.	Map showing the part of the lease area (safety zone) for which Forest Clearance is not obtained is attached as <b>Annexure-7A.</b>  An undertaking for not carrying out any mining activity in the above said earmarked area without forest clearance is attached as <b>Annexure-7B.</b>	
8.	Layout of the project with parking area details w.r.t to enhanced production.	Project layout showing the parking area details w.r.t to enhanced production is attached as <b>Annexure-8.</b>	
9.	An undertaking to complete all the proposed Programmes/activities as assured by the Project Proponent during public hearing within a timeline of 6 months.	We are herewith undertaking that all the proposed programmes /activities assured by Khandbandh Iron Ore Mines of M/s Sree Metaliks Limited shall be completed within 6 months. An undertaking in this regard is attached as <b>Annexure-9.</b>	
10.	Any modification in Site Specific Conservation Plan if required w.r.t to enhanced production should be consulted and approved by concerned DFO.	It is to be informed you that the site specific wildlife conservation plan of said mines got approved by PCCF (wildlife) vide its letter dated 02.07.2011 for a total budget of Rs 82.00 Lakhs (for ML area Rs 14.00 Lakhs + for project impact area Rs 68.00 Lakhs) for 10 years. The amount of Rs 68.00 lakhs deposited by user agency subsequently. The said mine got executed on 11.01.2017 and started its production in the financial year 2017-18. Approved budget with payment attached as <b>Annexure-10A.</b> Further, regarding modification in Site Specific Wildlife Conservation plan we have consulted DFO, Keonjhar vide our letter dated 4 <sup>th</sup> April 2024. Letter is attached as <b>Annexure-10B.</b> Further, If there is any need of modification in conservation plan it will be prepared & approved by DFO. An undertaking in this regard is attached as <b>Annexure-10C.</b>	

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Considering the information furnished and the presentation made by the consultant **M/s EHS 360 Labs Pvt. Ltd.** along with the project proponent, the SEAC recommended for grant of Environmental Clearance for 20% (0.3 MTPA) increase in production capacity (i.e. from 1.50 MTPA To 1.80 MTPA) under 7(ii) (a) of EIA notification 2006 as per MoEF&CC, Govt. of India OM dated 11th April 2022 with stipulated conditions as per **Annexure – E** with following specific conditions.

- i) The project proponent needs to preserve or utilize the ore and fine's containing Fe between 35-45%, following IBM guidelines.
- ii) The project proponent shall maintain adequate greenbelt in the lease area.
- iii) OB dump sites shall be managed properly as proposed.
- iv) The additional fines generated due to proposed enhancement shall be managed properly.
- v) Proper Air Pollution Control measures shall be provided to control dust emission and local dust generation.
- vi) The Project Proponent shall get the Final Mine Closure Plan along with Financial Assurance approved from Indian Bureau of Mines/Department of Mining & Geology as required under the Provision of the MMDR Act, 1957 and Rules/ Guidelines made there under. A copy of approved final mine closure plan shall be submitted within 2 months of the approval of the same from the competent authority to the concerned Regional Office of the Ministry of Environment, Forest and Climate Change for record and verification.
- vii) Traffic management shall be done as per recommendation of Traffic Management Study Report duly vetted by institute of repute.
- viii) As a part of six-monthly compliance, the PP shall submit the status of Tailing Pond and its annual make-up to ascertain its capacity to take care of expansion in production including mineralogical & chemical analysis of excavated ore, dump materials and rejects. Also, actual layout after expansion may be submitted as a part of six-monthly compliance to the SEIAA, Odisha and Regional Office, MoEF&CC, Govt. of India, Bhubaneswar.
- ix) Adequate measures shall be adopted for management of noise, vibration and fly rocks.
- x) Bench and dump slopes are to be designed and maintained based on scientific studies as stipulated by DGMS, so that their failure is avoided.

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ITEM NO. 07

**PROPOSAL OF ENVIRONMENTAL CLEARANCE OF M/S FERRO ALLOYS CORPORATION LTD FOR CHROMITE ORE PRODUCTION FROM 0.24 MILLION TPA (OPENCAST) TO 1.5 MILLION TPA (OPENCAST AND UNDERGROUND) WITH MAXIMUM EXCAVATION OF 2.5 MILLION TPA (OPENCAST AND UNDERGROUND) ALONG WITH INSTALLATION OF A NEW CRUSHER AND COB PLANT TO ENHANCE THE BENEFICIATED CHROME ORE FROM 0.1 MTPA (OPENCAST) TO 0.8 MTPA (OPENCAST AND UNDERGROUND) AND A BACKFILL PLANT IN OSTAPAL CHROMITE MINE (72.843 HA) AT VILLAGE GURUJANGA TEHSIL SUKINDA DISTRICT JAJPUR OF SRI SANDEEP KITTANA ACHARYA - EC**

1. This proposal is for Environmental Clearance of M/s Ferro Alloys Corporation Ltd for Chromite ore production from 0.24 Million TPA (opencast) to 1.5 million TPA (Opencast and underground) with maximum excavation of 2.5 million TPA (Opencast and underground) along with installation of a new crusher and COB plant to enhance the beneficiated chrome ore from 0.1 MTPA (opencast) to 0.8 MTPA (Opencast and underground) and a Backfill plant in Ostapal Chromite Mine (72.843 ha) at Village Gurujanga Tehsil Sukinda District Jajpur of Sri Sandeep Kittana Acharya.
2. **Category:** As per EIA Notification dated 14th September 2006, as amended from time to time; the project falls under S. No. '1' (Mining of Minerals), Project or Activity '1 (a) - (4)', and S.No.'2' (Mineral Beneficiation) Project or Activity '2 (b) - (4)' Category "B-1".
3. **Status of Mining Lease:** The mining lease over an area of 72.843 Ha, which comes under the part of Daitari Protected Forest and Village Gurujanga, was granted to M/s Ferro Alloys Corporation Limited ("FACOR") on 13/08/1985 for 20 years i.e., from 13/08/1985 to 12/08/2005. Mining lease deed was executed on 13.08.1985 and registered on 13.09.1985 in favour of M/s Ferro Alloys Corporation Limited ("FACOR"). The lease was continued to conduct the mining operations in the said lease under the deemed extension provisions of section 8 of the MMDRA, 1957 with Rule- 24- A (6) of the MCR, 1960 till 21/08/2016. The supplementary Lease Deed has been executed on 22/08/2016. As per the MMDR amendment Ordinance, 2015 under sec. 8A, the lease period has been extended for a period of fifty years i.e., from 13/08/1985 to 12/08/2035. Thereafter, Hon'ble NCLT Cuttack Bench under the provisions of Insolvency and Bankruptcy Code (IBC)-2016 vide its order dt. 30.01.2020, has approved the resolution plan of M/s Sterlite Power Transmission Limited (Vedanta Ltd.). Pursuant to the said order with of NCLT Cuttack, the Board of Directors of M/s. Ferro Alloys Corporation Ltd. have been changed with effective from dt. 21.09.2020. Consequently, the Board of Directors have appointed the nominated owner of the company vide its resolution dt. 27.09.2020, in accordance with the statutory provisions.
4. Modified Mining Plan has been approved by IBM; Bhubaneshwar vide their letter no MCDR-MiFLOCR/6/2023-BBS dated 14.06.2023.
5. **TOR details:** Terms of Reference (ToR) was issued by State Environmental Impact Assessment Authority, Odisha vide letter no. SIA/OR/MIN/426324/2023 dated 09.10.2023.
6. **Public hearing details:** Public hearing was conducted on 08.12.2023 at village- Gurujanga, Over Khata No. 39, Plot No. 359, Area- AC 6.16 dec, Kissam: Gochar, Tehsil- Sukinda, District- Jajpur, Odisha. Major issues raised during hearing are education, peripheral

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development, health, infrastructure and environmental issues. Company will be allocated the Budget as capital cost 347.80 lakhs and recurring cost 41.8 lakhs per annum for addressing issues of during public hearing.

**7. Existing and proposed details:**

S. No.	Facilities	Existing	After Expansion
1.	Production capacity of the Mine	0.24 million TPA (Opencast)	1.5 million TPA (Opencast and Underground)
2.	Capacity of the COB Plant	0.1 Million TPA Concentrate	0.8 Million TPA Concentrate
3.	Electric Power	0.55 MW	10.55 MW
4.	COB Plant	Wet process beneficiation plant 20 TPH	Wet process beneficiation plant 250 TPH
5.	Crusher	-	250 TPH
6.	Backfill plant	-	1 million TPA
7.	Washing Plant	-	20 TPH
8.	Batch plant	-	30 Cum/Hr
9.	STP	30 KLD (20 + 10) KLD	30 KLD (20 + 10) KLD
10.	ETP	600 Cum/hr	600 Cum/hr
11.	Standby Power	9 DG (including movable Lighting Tower) sets of different capacity of around 1.004 MVA	9 DG (including movable Lighting Tower) sets of different capacity of around 1.004 MVA 2 DG Sets having capacity 4 MVA

8. **Location and Connectivity:** The mine site is located at Village: Gurujanga Tehsil: Sukinda District: Jajpur, Odisha. The area of mining lease 72.843 ha. It's located between latitude atitude: 21° 03' 26.60" N to 21° 04' 00.98" N and longitude 85° 47' 04.39"E to 85°47' 34.29" E. Core zone of the project is falls under the Survey of India Topo sheet No. F45N16 (73G/16) and Buffer Zone falls under 73G/16, 73G/12, 73H/9 & 73H/13. The mine is connected by Tomka - Mangalpur State Highway (~0.34 km in South Direction) AND NH-200 (~14 km in South East Direction). The nearest railway station is Jajpur Railway Station (~ 55 km in SE direction) and nearest airport is Biju Patnaik International Airport, Bhubaneswar (~142 km in South direction). Khendujhar- Jajpur district boundary (Inter District Boundary) which is ~3.5 km in NE direction. Daitari Potected forest partially falls within the Lease area. Nearest water body from mine site is Damasala Nallah which is ~0.18 km in South direction.
9. Within the 10 km radius of study area, there are No National Park Wildlife Sanctuary, Biosphere Reserves, Wildlife corridors, Tiger/Elephant Reserves etc. However, there is an Elephant corridor present within the study area.
10. **Reserves:** As per Approved modified Mining Plan, total estimated Mineral Resources are 37.21 million tonnes, out of which total mineable reserves for open cast under UNFC category

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111 is 1.03 million and total mineable reserves for Underground Mining under UNFC category 122 is 18.67 million tons.

S. No	Particular	Capacity (Million TPA)	Normative Capacity (TPD)	Peak Production by increasing 20% capacity (TPD)
1.	Ore Production	1.5	4286	5143
2.	Waste	1.0	2858	3430
3.	Total Excavation	2.5	7144	8573

#### 11. Mining Method:

- (a) **Existing mining method:** Opencast fully mechanized method of mining has been adopted. All operations of mining are being/ will be done by deployment of Heavy Earth Moving Machineries for deep hole drilling and blasting, excavation, loading & transport. Various mining activities such as drilling, blasting, loading, hauling and transportation is being/ will be so conducted as to ensure maximum mineral conservation and minimum environmental degradation.
- (b) **Proposed Method of Mining:** Sublevel Stoping with backfilling method of Underground Mining is proposed. Mode of Entry will be decline. The selected mining method is predominantly Longitudinal Long hole Open Stoping (LHOS) with backfilling. Vertical stoping method utilizing long-hole drilling and blasting, mined out stopes are backfilled with CRF or Paste. Ore will be extracted from the stope via the lower extraction crosscut/ore drives using loaders. The LHD (Loader) will load ore/waste into the LPDT. The LPDT will move ore/waste to surface via the decline. Finally, the mineral will be transported to existing (20 TPH) and proposed crusher (250 TPH) crusher pad by trucks/dumpers.
12. **Waste Generation and Management:** At conceptual stage, no waste is generated through opencast mine, and a total of 2 million tons waste is generated through underground mining. No mineral reject will be generated from opencast mining as well as underground mining and approx. 12 million tonnes of tailing will be generated. The generated tailing shall be used for backfilling of underground void.
13. **Water requirement:** Existing Fresh water requirement for the project is 1520 KLD which will be increased to 3400 KLD after expansion. Water is being/ will be sourced from mine seepage water (3300 KLD) & borewell water (100KLD).
14. **Power requirement:** Existing power requirement for this project is 0.55 MW which will be 10.55 MW after expansion. Power is being sourced from Grid Corporation of Odisha Limited (erstwhile Orissa State Electricity Board).
15. **Manpower requirement:** Existing manpower requirement of project is 657 persons and total 80 additional requirements for the expansion of the project. Thus, total requirement of the project is 737 (125 permanent & 612 is contractual employment). Unskilled /semi-skilled manpower is being/ will be sourced from the local area. Preference is being/ will

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be given to the locals as per their eligibility criteria.

16. **Baseline Study:** The baseline data were collected in core as well as buffer zone (10 km distance from the Mine Lease boundary) during Winter Season (Dec 2022 to Feb 2023). Ambient Air Quality Monitoring reveals that the concentrations of PM10 and PM2.5 for total eight AAQM stations were found between 49.6 to 92.0  $\mu\text{g}/\text{m}^3$  and 24.4 to 55.8  $\mu\text{g}/\text{m}^3$ , respectively. As per the gaseous pollutants SO2 and NO2 are concerned, the prescribed CPCB limit of 80  $\mu\text{g}/\text{m}^3$  has never surpassed at any station. The concentrations of SO2 and NO2 were found in range of 6.13 to 13.53  $\mu\text{g}/\text{m}^3$  and 13.5 to 30.99  $\mu\text{g}/\text{m}^3$  respectively. Concentrations of Carbon Monoxide (CO) is ranges between the 0.53 to 0.83  $\mu\text{g}/\text{m}^3$  and Polycyclic aromatic hydrocarbons (PAHs) is below from detection limit for all the samples. The Surface / sample collected from 9 locations. The pH of collected Surface water samples varied from 7.07 to 7.73, Total hardness varied from 55 mg/l to 102 mg/l, Total dissolved solids varied from to 120 mg/l to 180 mg/l, BOD varied from 3.6 mg/l to 11.0 mg/l, COD varied from 20 mg/l to 39 mg/l. Phosphate varied from 0.06 mg/l to 0.18 mg/l, Total Suspended Solids varied from 5.5 mg/l to 8.5 mg/l. The ground water/drinking water samples were collected from 6 locations and the pH of collected water samples varied from 6.83 to 7.4. Total hardness varied from 90. 1mg/l to 190 mg/l. Total dissolved solids varied from 155 mg/l to 354 mg/l. The water samples contain, chloride from 2.46 to 82.54 mg/l, SO4 varied from 4.2 to 26.82 mg/l, Ca from 8.02 to 55.4 mg/l, Mg varied from 4.86 to 29.18 mg/l, fluoride varied from 0.12 to 0.29 mg/l, Nitrate varied from 0.43 to 8.56 mg/l, Iron varied from 0.15 to 0.65 mg/l, Sodium varied from 10 to 19 mg/l, Potassium varied from 2 to 5 mg/l and conductivity aired from 160 to 520 mg/l. The soil samples exhibit bright yellowish to dark brownish which indicates good fertility and presence of organic matter in the soil samples. The organic matter (0.57 % to 2.6 %) and organic carbon (0.33 % to 1.51%) present in the soil observed to be appropriate for the plant growth. The texture of the soil samples was Silty Sand. All soil samples have very strong acidic to slightly alkaline having pH ranging from 4.92 to 7.75.

Parameters	Numbers of Locations	Description	
		Parameter ( $\mu\text{g}/\text{m}^3$ )	Permissible Limit ( $\mu\text{g}/\text{m}^3$ )
Ambient Air Quality Monitoring	09 Locations	PM10 – 49.6 to 92.0 $\mu\text{g}/\text{m}^3$	100 $\mu\text{g}/\text{m}^3$ (24 hours)
		PM2.5 – 24.4 to 55.8 $\mu\text{g}/\text{m}^3$	60 $\mu\text{g}/\text{m}^3$ (24 hours)
		SO <sub>2</sub> – 6.13 to 13.53 $\mu\text{g}/\text{m}^3$	80 $\mu\text{g}/\text{m}^3$ (24 hours)
		NO <sub>2</sub> – 13.50 to 30.99 $\mu\text{g}/\text{m}^3$	80 $\mu\text{g}/\text{m}^3$ (24 hours)
Noise Level Monitoring	08 Locations	Noise Level During Day Time 50.5 to 55.9 Leq dB (A)	75 Leq dB (A)
		Noise Level During Night time 40.7 to 44.8 Leq dB (A)	70 Leq dB (A)
Water Sampling	Ground water Sampling at	pH – 6.83 to 7.4	6.5-8.5

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	Locations	Total Hardness – 90.1 to 190 mg/l	200-600 mg/l
		TDS – 155.0 to 354.0 mg/l	500-2000 mg/l
	Surface water Sampling at Locations	pH- 7.07 to 7.73	-
		Total Hardness – 55.0 to 102.0 mg/l	-
		Total Dissolved Solids – 120.0 to 180.0 mg/l	-
Soil Sampling	6 Locations	pH – 4.92 to 7.75	-
		Organic Matter – 0.57 % to 2.6 %	-
		Available Nitrogen – 542.11 to 918.16 kg/ha	-

17. **Greenbelt/Plantation:** Total area under greenbelt/plantation is estimated as 17.13 ha (Greenbelt on 4.07 ha & Plantation on 13.36 ha) which has been completed. At conceptual stage, total area under green belt and plantation will be 25.00 ha.

PLANTATION WITHIN THE MINE					
YEAR	AREA ( In Ha.)		Plantation ( in Ha.)		Survival Rate
	Proposed	Actual	Proposed	Actual	
2018-19	2.385	3.07	5960	7673	82%
2019-20	2.37	2.42	5920	6050	85%
2020-21	2.09	2.1	5230	5250	85%
2021-22	0.795	1.15	1990	2897	84%
2022-23	0.57	1	1430	2502	89%
2023- 24	0.41	1.10	1010	2720	94%
Total	8.62	10.84	21540	27092	-

18. **Project cost:** Total cost of the Project is: Rs: 600 Crore, Capital Cost for Environment Protection for the Project is Rs. ~44.33 Crore and Recurring cost will be Rs. 5.91 Crore.

S. No.	Particulars	Budget
1.	Project Cost	Rs. 600 Crore

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Cost for EMP		
2.	Cost for Environment Protection	Rs. 44.33 Crore
	Budget for addressing the Public Hearing issues	Rs. 3.478 Crore
	Total Capital Cost for EMP	Rs. 47.808 Crore
3.	Recurring Cost for EMP (Per annum)	Rs. 5.91 Crore / Annum
4.	Recurring Cost for addressing PH issues (Per annum)	Rs. 0.418 Crore / Annum

#### CSR Activities with Expenditure

S. No.	Particulars	2022-23		2021-22		2020-21	
		Amount	Beneficiaries	Amount	Beneficiaries	Amount	Beneficiaries
1	Support for Drinking Water & Agriculture	15.63	2000	1.81	500	5.83	520
2	Support to Health & Medical Services	8.87	4635	11.51	2874	1.37	850
3	Support to Skill development & Education	17.1	912	12.42	137	4.13	130
4	Support to Transportation Services & Infrastructure	26.98	3255	2.51	375	0.09	320
5	Support to livelihood support	9.59	150	3.52	110	73.24	2060
	<b>Total</b>	<b>78.17</b>		<b>31.77</b>		<b>84.66</b>	

19. **Environment Consultant:** The Environment consultant M/s JM EnviroNet Pvt. Ltd., Haryana along with the proponent made a presentation on the proposal before the Committee.

20. The SEAC in its meeting held on dated 22.03.2024 decided to take decision on the proposal after receipt of the following information / documents from the proponent:

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent
	Copy of permission from Department of Water Resources for use of ground water.	Copy of permission for use of ground water from Department of Water Resources is enclosed as Annexure I.

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Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent
ii.	Detailed note on additional safety measures that will be adopted during underground mining operation and back filling.	Detail note on additional safety measures that will be adopted during underground mining & backfilling is enclosed as <b>Annexure – II</b> .
iii.	The committee felt that backfilling and mining process done simultaneously might result in fatal accidents. Hence, PP shall submit an undertaking that backfilling from freshly generated tailings will not be carried out simultaneously with the underground mining process during operational phase.	Undertaking is enclosed as <b>Annexure III</b> .
iv.	Copy of geo-technical study report done by CSIR-CIMFR, Dhanbad, IIT-ISM, Dhanbad, NIT-RKL, IIT,KGP/ IIT BBS, consultant details, along with complete process showing backfilling for underground mining can be done simultaneously.	Geotechnical Study Report approved by CSIR-CIMFR is enclosed as <b>Annexure IV</b> , and complete process of backfilling for underground mining has been designed by Global renowned Expert Mining Consultant (A & B Global Mining, South Africa) is enclosed as <b>Annexure –IVA</b> .
v.	Revised clear and simple layout plan showing all units like storage of tailings generated, garland drains, settling pond etc. of the proposed expansion.	Revised layout plan for the proposed expansion in Ostapal Chromite Mine is enclosed as <b>Annexure V</b> .
vi.	PP shall explore the possibility for adoption of Membrane Technology method to reduce Hexavalent Chromium.	We do hereby assure that we shall explore the possibility for adoption of the membrane-based filtration Technology to reduce Hexavalent Chromium.
vii.	Detailed note on mine drainage water management, quantity estimation of mine drainage water generated and plan for its reuse.	Detail note on mine drainage water management, quantity estimation of mine drainage water generated and plan for its reuse is enclosed as <b>Annexure No- VI</b> .
viii.	Note on route for truck movement and parking plaza management w.r.t to enhanced production.	Note on route for truck movement and parking plaza management w.r.t to enhanced production is enclosed as <b>Annexure No.-VII</b> .
ix.	Copy of Stage-I clearance obtained for Forest Land involves in lease area.	Stage I forest clearance has been obtained vide Letter no. 8-86/96-FC dated 28.2.1997. Copy of same is enclosed as <b>Annexure VIII</b> .
x.	Traffic study report shall be vetted by institute of repute.	Traffic Study Report vetted by Prof. Pravat Kumar Parhi of Odisha University of Technology & Research, Bhubaneswar (Formerly CET, Bhubaneswar). Report is enclosed as <b>Annexure IX</b> .

Considering the information furnished and the presentation made by the consultant M/s JM EnviroNet Pvt. Ltd., Haryana along with the project proponent, the SEAC recommended for grant of Environmental Clearance with stipulated conditions as per **Annexure – F** and following specific conditions.

- i) The mine shall explore implementation of membrane-based technology for removing Hexavalent Chromium from Surface run off & mine drainage water. Alternately,

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scientific studies/R&D studies should be carried out to develop a suitable low cost material for treatment of hexavalent chromium.

- ii) The project proponent shall monitor analysis of hexavalent chromium in nearby soil and water body periodically and follow mitigation measures if necessary.
- iii) Since, mining has already intersected the ground water table; the steps proposed for augmentation of ground water resources are not adequate. The project proponent shall put adequate number of recharge pits beyond the zone of influence based on a detailed hydro-geological study.
- iv) The effluent from the ore beneficiation plant shall be treated in the tailing thickener and the tailings slurry shall be transported through a closed pipeline to the tailing pond.
- v) The tailing pond shall be lined with appropriate impervious lining on all sides as well as the bottom to prevent any leachate going from the tailing pond into groundwater.
- vi) The garland drain shall be constructed around the tailing pond before the starting operation on the project.
- vii) The decanted water from the tailing pond shall be re-circulated and there should be zero discharge from the tailing pond.
- viii) Appropriate technology shall be used for maximum recovery of ore in order to reduce slurry discharge and to increase the life of the tailing pond.
- ix) Garland drains with appropriate size, gradient and length shall be constructed to arrest silt and sediment flows from ore dumps and directly into the water bodies. The water so collected shall be utilized for watering the roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly.
- x) Effluents containing Cr+6 shall be treated to meet the prescribed standards before reuse. Effluent Treatment Plant should be provided for treatment of wastewater generated from the beneficiation plant.
- xi) Run off from the mineral and reject dumps and other surface run off should be analyzed for Cr+6 and in case its concentration is found higher than the permissible limit the water should be treated before reuse.
- xii) The mine should adhere to "Zero Liquid Discharge". However, if it is not possible, then the waste water is required to be treated so that the contaminants are brought below the permissible limit and the water discharged with installation of an online continuous monitoring system at the point of discharge. The contamination of Damsala nallah by hexavalent chromium is to be prevented.
- xiii) Use of nano based technology or membrane based technology for hexavalent Cr removal to be explored.
- xiv) **All the compliances submitted/ committed by PP (s) shall be strictly adhered to by them.**

  
MEMBER SECRETARY, SEAC

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Environmental Scientist, SEAC

## ANNEXURE- A

### **TERMS OF REFERENCE (TOR) FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY AND INFORMATION TO BE INCLUDED IN EIA/EMP REPORT FOR M/S REGEN MATERIALS PVT. LTD FOR CHROME ORE BENEFICIATION PLANT OVER AN AREA OF 2.66ACRES OR 1.0765 HA. WITH THROUGHPUT CAPACITY OF 19,000 TPA WITHIN THE EXISTING UNIT AT KURUNTI UNDER ODAPADA TAHASIL OF DHENKANAL DISTRICT OF SRI RABINDRA KUMAR NAYAK - TOR**

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1. The alternate sites considered, the relative merits and demerits and the reasons for selecting the proposed site for the Beneficiation Plant should be indicated.
2. Details of the technology and process involved for beneficiation should be given.
3. Location of the proposed Plant w.r.t. the source of raw material and mode of transportations of the ore from mines to the beneficiation plant should be justified.
4. Treatment of run of mine (ROM) and or of the fines/waste dump should be spelt out.
5. Estimation of the fines going into the washings should be made and its management described.
6. Details of the equipment, settling pond etc. should be furnished.
7. Detailed material balance should be provided.
8. Sources of raw material and its transportation should be indicated. Steps proposed to be taken to protect the ore from getting air borne should be brought out.
9. Management and disposal of tailings and closure plan of the tailing pond, if any after the project is over, should be detailed in a quantified manner.
10. 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 also be indicated.
11. A copy of the document in support of the fact that the Proponent is the rightful lessee of the unit should be given.
12. All documents including EIA and public hearing should be compatible with one another in terms of the production levels, waste generation and its management and technology and should be in the name of the lessee.
13. All corner coordinates of the Unit, superimposed on a High Resolution Imagery/Toposheet should be provided. Such an Imagery of the proposed Unit should clearly show the land use and other ecological features of the study area (core and buffer zone).
14. Issues relating to Safety should be detailed. The proposed safeguard measures in each case should also be provided. Disaster management plan shall be prepared and included in the EIA/EMP Report.
15. The study area will comprise of 10 km zone around the Plant.

16. Cumulative impact study of both Beneficiation Plant with suggested mitigation measures as per the study should be described.
17. Option to provide only silo for storage of minerals instead of open stacking to avoid fugitive dust should be explored and arrangements finalized justified.
18. 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 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.
19. Details of the land for any Over Burden Dumps outside the lease, such as extent of land area, distance from lease, its land use, R&R issues, if any, should be given.
20. 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.
21. The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
22. A study shall be got done to ascertain the impact of the 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.
23. Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, 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.
24. 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.

25. Proximity to Areas declared as 'Critically Polluted' shall also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB/CPCB shall be secured and furnished to the effect that the proposed activities could be considered.
26. 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 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.
27. 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 unit in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
28. Air quality modelling 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 modelling 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.
29. 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.
30. Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be secured and copy furnished. .
31. 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.
32. 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.



33. Details of any stream, seasonal or otherwise, passing through the project area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
34. 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. 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 the pollution.
35. 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.
36. Details of the onsite shelter and facilities to be provided to the workers should be included 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 should 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. Public hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
41. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the project should be given.
42. The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
43. A brief background of the Project, its financial position, Group Companies and legal issues etc. should be provided with past and current important litigations if any.
44. Benefits of the Project, if the project is implemented should be outlined. The benefits of the projects shall clearly indicate environmental, social, economic, employment potential, etc.

45. 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 project 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 also 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.
  - (i) 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. 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 by the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
46. **THE TORS PRESCRIBED SHALL BE VALID FOR A PERIOD OF THREE YEARS FOR SUBMISSION OF THE EIA-EMP REPORTS ALONG WITH PUBLIC HEARING PROCEEDINGS (WHEREVER STIPULATED) AS PER MOEF&CC, GOVT. OF INDIA O.M. NO. J-11013/41/2006-IA-II(I)(P), DATED 07.11.2014.**

**CONDITIONS TO BE STIPULATED IN ENVIRONMENTAL CLEARANCE FOR M/S. NAWAH CORPORATE PRIVATE LIMITED FOR RESIDENTIAL APARTMENT PROJECT "9 EMPORIO" TOTAL BUILT UP AREA 28899.79 SQM LOCATED AT PLOT NO. 203,205,202/3352/3637/4137, 202/3352/4136, 205/3973, 206/1764, 191/4275,191/4276 & 204/3607 KHATA NO -511/3668, 511/3669, 511/2648, 511/3688,511/3689 & 511/3585, OF MOUZA- RAGHUNATHPUR JALI, TEHSILBHUBANESWAR, DISTRICT- KHURDA OF SRI SIDHARTHA SEKHAR MOHAPATRA - EC**

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**PART A - SPECIFIC CONDITIONS:**

1. Consent to Establish / Operate for the project shall be obtained from the State Pollution Control Board as required under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.
2. The approval of the Competent Authority shall be obtained for structural safety of buildings due to earthquakes, adequacy of fire fighting equipment etc. as per National Building Code including protection measures from lightening etc.
3. The project proponent shall obtain all necessary clearance/ permission from all relevant agencies including town planning authority before commencement of work. All the construction shall be done in accordance with the local building byelaws.
4. The project proponent shall ensure that the guidelines for building and construction projects issued vide this Ministry's OM NO.19-2/2013-IA.III dated 9th June, 2015, are followed to ensure sustainable environmental management.
5. The proponent shall obtain prior clearance from the Standing Committee of the National Board for Wild Life if the project will be located within any Eco-Sensitive Zone of Wild Life Sanctuary.

**TOPOGRAPHY AND NATURAL DRAINAGE**

6. The natural drain system should be maintained for ensuring unrestricted flow of water. No construction shall be allowed to obstruct the natural drainage through the site, on wetland and water bodies. Check dams, bio-swales, landscape and other Sustainable Urban Drainage Systems (SUDS) are allowed for maintaining the drainage pattern and to harvest rain water. Buildings shall be designed to follow the natural topography as much as possible. Minimum cutting and filling should be done.
7. The permission from competent authority will be obtained to discharge the excess storm water to drain if any. The proponent shall renovate the existing drain to accommodate the discharge and maintain it perennially.
8. Permission for construction of drain alongside the adjacent NH under construction for allowing the proponent to discharge the treated waste water as well excess runoff water during monsoon from NH Authority shall be obtained. The construction of drains shall be synchronized with the completion of the construction of the Housing Project.

**WATER REQUIREMENT, CONSERVATION, RAIN WATER HARVESTING, AND GROUND WATER RECHARGE**

9. As proposed, fresh water requirement from ground water shall not exceed 61 KLD.
10. A certificate shall be obtained from the local body supplying water, specifying the total

annual water availability with the local authority, the quantity of water already committed the quantity of water allotted to the project under consideration and the balance water available. This should be specified separately for ground water and surface water sources, ensuring that there is no impact on other users.

11. The quantity of fresh water usage, water recycling and rainwater harvesting shall be measured and recorded to monitor the water balance as projected by the project proponent. The record shall be submitted to the Regional Office, MoEF&CC and SEIAA, Odisha along with six monthly Monitoring reports.
12. Installation of dual pipe plumbing for supplying fresh water for drinking, cooking and bathing etc. and other for supply of recycled water for flushing, landscape irrigation, car washing, thermal cooling, conditioning etc. shall be done.
13. Use of water saving devices/ fixtures (viz. low flow flushing systems; use of low flow faucets tap aerators etc.) for water conservation shall be incorporated in the building plan.
14. Separation of grey and black water should be done by the use of dual plumbing system. In case of single stack system separate recirculation lines for flushing by giving dual plumbing system be done.
15. Water demand during construction should be reduced by use of pre-mixed concrete, curing agents and other best practices referred.
16. The local bye-law provisions on rain water harvesting should be followed. If local bye-law provision is not available, adequate provision for storage and recharge should be followed as per the Ministry of Urban Development Model Building Byelaws, 2016. Rain water harvesting recharge pits of 01 no. shall be provided.
17. Any ground water dewatering should be properly managed and shall conform to the approvals and the guidelines of the CGWA in the matter. Formal approval shall be taken from the CGWA for any ground water abstraction or dewatering. The proponent shall also obtain permission from Water Resources Department, Govt. of Odisha for drawl of water.
18. The proponent shall keep one bore well as standby domestic water source once municipal water supply is made available in the project area.

#### **SOLID WASTE MANAGEMENT**

19. The provisions of the Solid Waste (Management) Rules, 2016, E-Waste (Management) Rules, 2016, and the Plastics Waste (Management) Rules, 2016 shall be followed.
20. Disposal of muck during construction phase shall not create any adverse effect on the neighbouring communities and be disposed taking the necessary precautions for general safety and health aspects of people, only in approved sites with the approval of competent authority.
21. Separate wet and dry bins must be provided in each unit and at the ground level for facilitating segregation of waste. Solid waste shall be segregated into wet garbage and inert materials. Wet garbage shall be composted in Organic Waste Converter. Adequate area shall be provided for solid waste management within the premises which will include area for segregation, composting. The inert waste from group housing project will be sent to dumping site.
22. Any hazardous waste generated during construction phase, shall be disposed off as per applicable rules and norms with necessary approvals of the State Pollution Control Board.

23. A certificate from the competent authority handling municipal solid wastes, indicating the existing civic capacities of handling and their adequacy to cater to the Municipal Solid Waste generated from project shall be obtained.

#### **SEWAGE TREATMENT PLANT**

24. Sewage shall be treated in STP of capacity 112 KLD. The treated effluent from STP shall be reused for flushing, landscaping, floor & car washing.
25. Excess treated water shall be discharged to the drain only after getting the permission from the concerned authority. The proponent shall renovate the existing drain to accommodate the discharge and maintain it perennially. To this effect the proponent has to give a legal affidavit before going for construction activity.
26. A certificate from the competent authority shall be obtained for discharging treated effluent/ untreated effluents into the Public sewer/disposal/drainage systems along with the final disposal point.
27. Separate large recharge pits shall be constructed inside the project area to accommodate the rainwater in case the housing project period and the CDP of the Govt. does not synchronize with reference to construction of road and drain.
28. No sewage or untreated effluent water would be discharged through storm water drains.
29. The installation of the Sewage Treatment Plant (STP) shall be certified by an independent expert and a report in this regard shall be submitted to the SEIAA, Odisha before the project is commissioned for operation. Periodical monitoring of water quality of treated sewage shall be conducted. Necessary measures should be made to mitigate the odour problem from STP.
30. Sludge from the onsite sewage treatment, including septic tanks, shall be collected, conveyed and disposed as per the Ministry of Urban Development, Central Public Health and Environmental Engineering Organization (CPHEEO) Manual on Sewerage and Sewage Treatment Systems, 2013.
31. The proponent shall obtain permission from the concerned authority to discharge the liquid waste to any drain i.e. the competent authority of the drain and "Nala" before commencement of any activity at the project site.

#### **ENERGY**

32. Compliance with the Energy Conservation Building Code (ECBC) of Bureau of Energy Efficiency shall be ensured. Buildings in the States which have notified their own ECBC, shall comply with the State ECBC. Outdoor and common area lighting shall be LED. Concept of passive solar design that minimize energy consumption in buildings by using design elements, such as building orientation, landscaping, efficient building envelope, appropriate fenestration, increased day lighting design and thermal mass etc. shall be incorporated in the building design. Wall, window, and roof u-values shall be as per ECBC specifications.
33. Energy conservation measures like installation of CFLs / LED for the lighting the area outside the building should be integral part of the project design and should be in place before project commissioning. Used CFLs, TFL and LED shall be properly collected and disposed off/sent for recycling as per the prevailing guidelines/rules of the regulatory authority to avoid mercury contamination.

34. Solar, wind or other Renewable Energy shall be installed to meet electricity generation equivalent to 5% of the demand load or as per the state level/ local building bye-laws requirement, whichever is higher. Follow super ECBC requirement of ECBC 2017 and provide compliance report.
35. Solar power shall be used for lighting in the apartment to reduce the power load on grid. Separate electric meter shall be installed for solar power. Solar water heating shall be provided to meet 20% of the hot water demand of the commercial and institutional building or as per the requirement of the local building bye-laws, whichever is higher. Residential buildings are also recommended to meet its hot water demand from solar water heaters, as far as possible.
36. Use of environment friendly materials in bricks, blocks and other construction materials, shall be required for at least 20% of the construction material quantity. These include Fly Ash bricks, hollow bricks, AACs, Fly Ash Lime Gypsum blocks, compressed earth blocks, and other environment friendly materials. Fly ash should be used as building material in the construction as per the provision of Fly Ash Notification of September, 1999 and amended as on 27th August, 2003 and 25th January, 2016. Ready mixed concrete must be used in building construction.
37. A certificate of adequacy of available power from the agency supplying power to the project along with the load allowed for the project shall be submitted.

#### AIR QUALITY AND NOISE

38. Construction site shall be adequately barricaded before the construction begins. Dust, smoke & other air pollution prevention measures shall be provided for the building as well as the site. These measures shall include screens for the building under construction, continuous dust/ wind breaking walls all around the site (at least 3-meter height). Plastic/tarpaulin sheet covers shall be provided for vehicles bringing in sand, cement, morram and other construction materials prone to causing dust pollution at the site as well as taking out debris from the site. Sand, morram, loose soil, cement, stored on site shall be covered adequately so as to prevent dust pollution. Wet jet shall be provided for grinding and stone cutting. Unpaved surfaces and loose soil shall be adequately sprinkled with water to suppress dust.
39. All construction and demolition debris shall be stored at the site (and not dumped on the roads or open spaces outside) before they are properly disposed. All demolition and construction waste shall be managed as per the provisions of the Construction and Demolition Waste Rules, 2016. All workers working at the construction site and involved in loading, unloading, carriage of construction material and construction debris or working in any area with dust pollution shall be provided with dust mask.
40. **Notification GSR 94(E) dated 25.01.2018 of MoEF&CC regarding Mandatory Implementation of Dust Mitigation Measures for Construction and Demolition Activities for projects requiring Environmental Clearance shall be complied with.**
41. The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution. Low sulphur diesel shall be used. The location of the DG set and exhaust pipe height shall be as per the provisions of the Central Pollution Control Board (CPCB) norms.

42. For indoor air quality the ventilation provisions as per National Building Code of India shall be provided.
43. Ambient noise levels shall conform to residential standard both during day and night as per Noise Pollution (Control and Regulation) Rules, 2000. Incremental pollution loads on the ambient air and noise quality shall be closely monitored during construction phase. Adequate measures shall be made to reduce ambient air and noise level during construction phase, so as to conform to the stipulated standards by CPCB / SPCB.

#### **GREEN COVER**

44. No tree cutting/transplantation of existing trees has been proposed in the instant project. A minimum of 1 tree for every 80 m<sup>2</sup> of land should be planted and maintained. The existing trees will be counted for this purpose. The landscape planning should include plantation of native species. The species with heavy foliage, broad leaves and wide canopy cover are desirable. Water intensive and/or invasive species should not be used for landscaping. As proposed approx. 697.25sqm (20.06% of total plot area) shall be provided for green area development.

#### **TOP SOIL PRESERVATION AND REUSE**

45. Topsoil should be stripped to a depth of 20 cm from the areas proposed for buildings, roads, paved areas, and external services. It should be stockpiled appropriately in designated areas and reapplied during plantation of the proposed vegetation on site.

#### **TRANSPORT**

46. A comprehensive mobility plan, as per Ministry of Urban Development best practices guidelines (URDPFI), shall be prepared to include motorized, non-motorized, public, and private networks. Road should be designed with due consideration for environment, and safety of users. The road system can be designed with these basic criteria.
- Hierarchy of roads with proper segregation of vehicular and pedestrian traffic.
  - Traffic calming measures
  - Proper design of entry and exit points.
  - Parking norms as per local regulation
47. A detailed traffic management and traffic decongestion plan shall be drawn up to ensure that the current level of service of the roads within a 05 kms radius of the project is maintained and improved upon after the implementation of the project.
48. This plan should be based on cumulative impact of all development and increased habitation being carried out or proposed to be carried out by the project or other agencies in this 05 Kms radius of the site in different scenarios of space and time and the traffic management plan shall be duly validated and certified by the State Urban Development department and the P.W.D./ competent authority for road augmentation and shall also have their consent to the implementation of components of the plan which involve the participation of these departments.
49. Vehicles hired for bringing construction material to the site should be in good condition and should have a pollution check certificate and should conform to applicable air and noise emission standards be operated only during non-peak hours.

50. A dedicated entry/exit and parking shall be provided for commercial activities.
51. Barricades shall be provided around project boundary.
52. Speed of the vehicles shall be restricted upto 15 kmph by erecting speed bumps at regular intervals at project site and proper signage shall be provided for guided vehicular movement and speed restrictions.
53. Parking shall be prohibited on the access road to the proposed project site.
54. Footpath shall be seamless with sufficient width.
55. No vehicles shall be allowed to stop and stand in front of the gate on main access.
56. A buffer of minimum 10 m shall be maintained between the entry/exit gate and the road to avoid traffic congestion.
57. The Traffic Management Plan prepared by the proponent shall be duly validated and certified by the State Concerned Competent Authority and shall have also their consent before implementation.

### **ENVIRONMENT MANAGEMENT PLAN**

58. An Environmental Management Plan (EMP) shall be prepared and implemented to ensure compliance with the environmental conditions specified above. A dedicated Environment Monitoring Cell with defined functions and responsibility shall be put in place to implement the EMP. The environmental cell shall ensure that the environment infrastructure like Sewage Treatment Plant, Landscaping, Rain Water Harvesting, Energy efficiency and conservation, water efficiency and conservation, solid waste management, renewable energy etc. are kept operational and meet the required standards. The environmental cell shall also keep the record of environment monitoring and those related to the environment infrastructure.

### **OTHERS**

59. Provisions shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
60. A First Aid Room shall be provided in the project both during construction and operations of the project.
61. The company shall draw up and implement corporate social Responsibility plan as per the Company's Act of 2013.
62. As per the MoEF&CC, Govt. of India Office Memorandum F.No.22-65/2017-IA.III dated 1st May 2018, the project proponent is required to prepare and implement Corporate Environment Responsibility (CER) Plan. As per para 6(II) of the said O.M. appropriate funds shall be earmarked for the activities such as infrastructure creation for drinking water supply, sanitation, health, education, skill development, roads, cross drains, electrification including solar power, solid waste management facilities, scientific support and awareness to local farmers to increase yield of crop and fodder, rain water harvesting, soil moisture conservation works, avenue plantation, plantation in community areas etc. The activities proposed under CER shall be restricted to the affected area around the project. The entire



activities proposed under the CER shall be treated as project and shall be monitored. The monitoring report shall be submitted to the regional office as a part of half yearly compliance report, and to the District Collector. It should be posted on the website of the project proponent.

#### **PART B – GENERAL CONDITIONS**

1. A copy of the Environmental Clearance letter shall also be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industries centre and Collector's Office/ Tehsildar's office for 30 days.
2. The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to the SEIAA, Odisha and MoEF&CC, Govt. of India and its concerned Regional Office.
3. Officials from the Regional Office of MoEF&CC, Bhubaneswar who would be monitoring the implementation of environmental safeguards should be given full cooperation, facilities and documents/data by the project proponents during their inspection.
4. In the case of any change(s) in the scope of the project, the project would require a fresh appraisal by the SEIAA, Odisha.
5. The SEIAA, Odisha reserves the right to add additional safeguard measures subsequently, if found necessary, and to take action including revoking of the environment clearance under the provisions of the Environmental (Protection) Act, 1986, to ensure effective implementation of the suggested safeguard measures in a time bound and satisfactory manner.
6. All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, the Forest Conservation Act, 1980 and the Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.
7. These stipulations would be enforced among others under the provisions of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and the EIA Notification, 2006.
8. The project proponent shall advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environmental Clearance and copies of clearance letters are available with the State Pollution Control Board and may also be seen on the website of the SEIAA, Odisha. The advertisement shall be made within Seven days from the date of receipt of the Clearance letter and a copy of the same shall be forwarded to the Regional Office of MoEF&CC, Bhubaneswar.
9. Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
10. A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parisad / Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The

clearance letter shall also be put on the website of the company by the proponent.

11. The proponent shall submit/upload six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF&CC, Govt. of India, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM, SO<sub>2</sub>, NO<sub>x</sub> (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.
12. The environmental statement for each financial year ending 31<sup>st</sup> March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of MoEF&CC, Govt. of India by E-mail.

**CONDITIONS TO BE STIPULATED IN ENVIRONMENTAL CLEARANCE FOR  
DECORATIVE STONE MINES & STONE QUARRY**

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**A. Specific conditions**

1. The Project Proponent shall obtain consent from the State Pollution Control Board, Odisha and effectively implement all the conditions stipulated therein.
2. Project Proponent shall appoint an Occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the Project and records maintained; also, Occupational health check-ups for workers having some ailments like BP, diabetes, habitual smokers, etc. shall be undertaken once in six months and necessary remedial/preventive measures taken accordingly. Recommendations of National Institute for Labour for ensuring good occupational environment for mine workers would also be adopted; All the old age people of the surrounding villages may be provided medical facilities.
3. Transport of minerals shall be done either by dedicated road or it should be ensured that the trucks/dumpers carrying the mineral should not be allowed to pass through the villages. The Project Proponent shall ensure that the road may not be damaged due to transportation of the mineral; and transport of minerals will be as per IRC Guidelines with respect to complying with traffic congestion and density.
4. Project Proponent shall ensure the safeguard and wellbeing of villagers and school, regular health monitoring of all residents in the area and the compliance Report shall be submitted to the Regional office of the Ministry and SEIAA, Odisha.

**B. Standard conditions**

1. A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the SEIAA, Odisha 5 years in advance of final mine closure for approval.
2. No mining activities will be allowed in forest area, if any, for which the Forest Clearance is not available.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Odisha.
4. No change in the calendar plan including excavation, quantum of mineral and waste should be made.
5. The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of water (surface water and ground water) for the project.
6. Mining shall be carried out as per the provisions outlined in the approved mining plan as well as by abiding to the guidelines of Directorate General Mines Safety (DGMS).
7. Protection of vegetation in the surrounding areas, and proper storage of solid waste, subgrade ore and their use have to be given priority during mining operation.
8. Digital processing of the entire lease area using remote sensing technique shall be

- carried out regularly once in three years for monitoring land use pattern and report submitted to Ministry of Environment, Forest and Climate Change its Regional Office and SEIAA, Odisha.
9. Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of PM10 and PM2.5 such as haul road, loading and unloading point and transfer points. Fugitive dust emissions from all the sources shall be controlled regularly. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard. Monitoring of Ambient Air Quality to be carried out based on the Notification 2009, as amended from time to time by the Central Pollution Control Board.
  10. Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and constructing new piezometers during the mining operation. The project proponent shall ensure that no natural water course and/or water resources shall be obstructed due to any mining operations. The monitoring shall be carried out four times in a year pre- monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board.
  11. Transportation of the minerals by road passing through the village shall not be allowed. A 'bypass' road should be constructed (say, leaving a gap of at least 200 meters) for the purpose of transportation of the minerals so that the impact of sound, dust and accidents could be mitigated. The project proponent shall bear the cost towards the widening and strengthening of existing public road network in case the same is proposed to be used for the Project. No road movement should be allowed on existing village road network without appropriately increasing the carrying capacity of such roads.
  12. The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day light/night hours.
  13. Sufficient number of Gullies to be provided for better management of water. Regular Monitoring of pH shall be included in the monitoring plan and report shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office on six monthly basis.
  14. There shall be planning, developing and implementing facility of rainwater harvesting measures on long term basis and implementation of conservation measures to augment ground water resources in the area in consultation with Central Ground Water Board.
  15. The Project Proponent has to take care of gullies formed on slopes. Dump mass should be consolidated with proper filling/leveling with the help of dozer/compactors.
  16. The reclamation at waste dump sites shall be ecologically sustainable. Scientific reclamation shall be followed. The local species may be encouraged and species are so chosen that the slope, bottom of the dumps and top of the dumps are able to sustain these species. The aspect of the dump is also a factor which regulates some climatic

- parameters and allows only species adapted to that micro climate.
17. The top soil, if any, shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation. The over burden (OB) generated during the mining operations shall be stacked at earmarked dump site(s) only and it should not be kept active for a long period of time. The maximum height of the dumps shall not exceed 8m and width 20 m and overall slope of the dumps shall be maintained to 45°. The OB dumps should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles shall be undertaken for stabilization of the dump. The entire excavated area shall be backfilled and afforested. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office on six monthly basis.
  18. Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, mineral and OB dumps to prevent run off of water and flow of sediments directly into the river and other water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly. The drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed both around the mine pit and over burden dumps to prevent run off of water and flow of sediments directly into the river and other water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.
  19. Plantation shall be raised in a 7.5m wide green belt in the safety zone around the mining lease, backfilled and reclaimed area, around water body, along the roads etc. by planting the native species in consultation with the local DFO/Agriculture Department and as per CPCB Guidelines. The density of the trees should be around 2500 plants per ha. Greenbelt shall be developed all along the mine lease area in a phased manner and shall be completed within first five years.
  20. The Project Proponent shall make necessary alternative arrangements, where required, in consultation with the State Government to provide alternate areas for livestock grazing, if any. In this context, Project Proponent should implement the directions of the Hon'ble Supreme Court with regard to acquiring grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded against felling and plantation of such trees should be promoted.
  21. The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna, if any, spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. A copy of action plan shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office.
  22. As per the Company Act, the CSR cost should be 2 % of average net profit of last three years. Hence CSR expenses should be as per the Company Act/Rule for the Socio

- Economic Development of the neighborhood Habitats which could be planned and executed by the Project Proponent more systematically based on the 'Need based door to door survey' by established Social Institutes/Workers. The report shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office on six monthly basis.
23. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
  24. Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.
  25. Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.
  26. The project authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
  27. The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment, Forest and Climate Change, its Regional Office, Central Pollution Control Board and State Pollution Control Board.
  28. A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.
  29. State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office/ Tehsildar's Office for 30 days.
  30. The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment, Forest and Climate Change at [www.environmentclearance.nic.in](http://www.environmentclearance.nic.in) and a copy of the same should be forwarded to the Regional Office.
  31. The SEIAA, Odisha may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.
  32. Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
  33. The above mentioned stipulated conditions shall be complied in a time-bound manner. Failure to comply with any of the conditions mentioned above may result in cancellation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.

## **5.5. HAZARDS AND RISK MANAGEMENT**

### **5.5.1 Explosives**

Blasting is done by means of explosives which are hazardous during of handling, storage and blasting.

#### **5.5.1.1. Storage and Handling**

The Applicant is advised to store the explosives as per the Indian Explosives Act, 1958 and the Explosive Rules, 1983. Necessary permissions should be obtained from the Joint Controller of Explosives to store and uses of explosives in the quarry in the magazine permit under Form - 23 or Agreement shall be made with holder of Form - 22 who can supply and fire explosives as per safety practices. However blasting in the mine or quarry shall be done as per the MMR, 1961 under the supervision of Mines Blaster certificate holder, appointed under Reg. 160 of Metalliferous Mines Regulations, 1961.

#### **5.5.1.2. Blasting**

Poorly designed shots can result in misfires early ignition and flying rock. Safety can be ensured by planning for round of shots to ensure face properly surveyed, holes correctly drilled, direction logged, the weight of explosion for good fragmentation. Blast design, charge and fire around of explosives should be carried out by a trained person.

#### **5.5.1.3. Drilling**

Slipping and Falling of labours from the edge of a bench during drilling is possible. Part of training should include instructions to face towards the open edge of the bench so any inadvertent backward step is away from the edge. Suitable portable rail fencing which can be erected between the drilling operations and the edge of the mine can be provided. Attachment of a safety line to the drilling rig and provide harness for the driller to wear can be done. Newer drill machines are provided with cabin which controls noise level within cabins. Driller operators should be protected with ear protection.

### **5.5.2. Loading**

Possible risks during loading of mined rocks are falling of rock on the driver, plant toppling over due to uneven ground, failure of hydraulic system, fires, fall while gaining access to operating cabin, electrocution in Draglines, failure of wire ropes in Dragline. In order to overcome these risks:



- Operator cabin should be of suitable strength to protect the driver in event of rock fall.
- Electrical supply to dragline should be properly installed with adequate earth continuity and earth leakage protection.
- Wire rope should be suitable for work undertaken and be examined periodically.
- Ensure that loaders are positioned sufficiently away from face edges

### 5.5.3. Transportation

Brake failure, lack of all-around visibility from driver position, vehicle movements particularly while reversing, rollover, Vibrations, Noise, Dust and improper / no signalling are some of the factors causing risk. This can be avoided by following measures:

- Visibility defects can be eliminated by the use of visibility aids such as closed circuit television and suitable mirrors.
- Edge protection is necessary to prevent inadvertent movement.
- Seatbelt to protect driver in event of vehicle rollover.
- Good maintenance and regular testing necessary to reduce possibility of brake failure.
- Avoid driving at the edge of roadway under construction
- Heavy earth moving equipment and vehicle drivers and those giving signals should be well trained.

### 5.5.4. Unstable face

Chances of Rock fall or slide exists. Regular examination of face must be done and remedial measures must be taken to make it safe if there is any doubt that a collapse could take place. Working should be advanced in a direction taken into account the geology such that face and quarry side remain stable.

### 5.5.5. General safety measures

Provisions of the Mines Act, Rules and Regulations orders made there under shall be complied with, so that the safety of the mine, machinery and persons will be ensured. Permission, relaxation or exemption wherever required for the safe and scientific mining of the deposit will be obtained from the Department of Mine Safety. Copy of Agreement for handling of Explosives under License Holder at Proposed site is given in additional document.

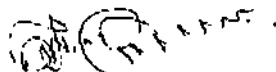
- Safety kits should be located in easily accessible place with major first aid materials in it.
- Entry of any unauthorized person into mine and plant areas shall be completely prohibited
- Arrangements for fire fighting in the mine's office complex and mining area

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- Provision of all the safety appliances such as safety boot, helmets, goggles, ear plugs etc. shall be made available for the employees
- Mining will be undertaken in coexistence with the requirements of the Mining Plan which shall be updated from time to time
- Handling of explosives, charging and blasting shall be undertaken only by a competent person
- Adequate safety equipment shall be provided at the explosive magazine

All the mining equipment shall be maintained as per the guidelines of the manufacturer.



**CONDITIONS TO BE STIPULATED IN ENVIRONMENTAL CLEARANCE FOR PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR M/S SREE METALIKS LTD FOR KHANDBANDH IRON ORE MINES (35.774 HA) FROM 1.50 MTPA TO 1.80 MTPA ALONG WITH CRUSHING & SCREENING PLANTS LOCATED IN BAITARANI RESERVE FOREST NEAR VILLAGE KHANDBANDH UNDER BARBIL TAHASIL OF KEONJHAR DISTRICT OF SRI REWATI RAMAN SHARMA – EC.**

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**(I) Statutory compliance**

- (i) This Environmental Clearance (EC) is subject to orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
- (ii) The Project proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors before commencing the mining operations.
- (iii) The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors.
- (iv) This Environmental Clearance shall become operational only after receiving formal NBWL Clearance from MoEF&CC subsequent to the recommendations of the Standing Committee of National Board for Wildlife, if applicable to the Project,
- (v) This Environmental Clearance shall become operational only after receiving formal Forest Clearance (FC) under the provision of Forest Conservation Act, 1980, if applicable to the project.
- (vi) Project Proponent (PP) shall obtain Consent to Operate after grant of EC and effectively implement all the conditions stipulated therein. The mining activity shall not commence prior to obtaining Consent to Establish / Consent to Operate from the concerned State Pollution Control Board.
- (vii) The PP shall adhere to the provision of the Mines Act, 1952, Mines and Mineral (Development & Regulation), Act, 2015 and rules & regulations made there under. PP shall adhere to various circulars issued by Directorate General Mines Safety (DGMS) and Indian Bureau of Mines from time to time.
- (viii) The Project Proponent shall obtain consents from all the concerned land owners, before start of mining operations, as per the provisions of MMDR Act, 1957 and rules made thereunder in respect of lands which are not owned by it.
- (ix) The Project Proponent shall follow the mitigation measures provided in MoEF&CC's Office Memorandum No. Z-I1013/57/2014-IA.II (M), dated 29<sup>th</sup> October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".

- (x) The Project Proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water and from CGWA for withdrawal of ground water for the project.
- (xi) A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any, from whom suggestion / representation has been received while processing the proposal.
- (xii) State Pollution Control Board shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tehsildar's Office for 30 days.
- (xiii) The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board and web site of the Ministry of Environment, Forest and Climate Change ([www.environmentclearance.nic.in](http://www.environmentclearance.nic.in)). A copy of the advertisement may be forwarded to the concerned MoEF&CC Regional Office for compliance and record.
- (xiv) The Project Proponent shall inform the MoEF&CC/SEIAA, Odisha for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred than mining operation shall only be carried out after transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.

(II) **Air quality monitoring and preservation**

- (i) The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>2</sub>, CO and SO<sub>2</sub> etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PC/II, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.
- (ii) Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM<sub>10</sub> and PM<sub>2.5</sub> are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEF&CC/ Central Pollution Control Board.

**(III) Water quality monitoring and preservation**

- (i) In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEF&CC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.
- (ii) Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintain. The natural water bodies and or streams which are flowing in an around the village, should not be disturbed. The Water Table should be nurtured so as not to go down below the pre-mining period. In case of any water scarcity in the area, the Project Proponent has to provide water to the villagers for their use. A provision for regular monitoring of water table in open dug wall located in village should be incorporated to ascertain the impact of mining over ground water table. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.
- (iii) Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.
- (iv) The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease and maintain its records. The project proponent shall undertake regular monitoring of water quality upstream and downstream of water bodies passing within and nearby/ adjacent to the mine lease and maintain its records. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. PP shall carryout regular monitoring w.r.t. pH and included the same in monitoring plan. The parameters to be monitored shall include their water quality vis-a-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEF&CC / SEIAA, Odisha. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, SEIAA, Odisha, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly basis.
- (v) Quality of polluted water generated from mining operations which include

Chemical Oxygen Demand (COD) in mines run-off; acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J-20012/1 /2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.

- (vi) The project proponent shall construct retaining wall and settling pond within the lease area. Further, check dams shall be constructed at strategic locations in which rain water passes in rainy season. Finally, the excess supernatant after sedimentation shall be allowed to spill away through stone pitch structure to the nearby valley.
  - (vii) De-silting of agricultural lands in buffer zone and beyond including nearby Nalas/rivers perennially periodically and perpetually caused due to wash up of minerals/OB/dumps shall be done as per SOP submitted. A legal affidavit shall be submitted within 6 months from the date of issue of Environmental Clearance to this effect with periodicity of de-silting.
  - (viii) Detail design of the existing retaining wall and the proposed for the expansion from a chartered Civil Engineer shall be submitted within 6 months from the date of issue of Environmental Clearance to ensure that no silt after wash up is escaped from the core / buffer zone of the mines.
  - (ix) An area of 3.40Ha shall be kept for public use as pond and road. Hence, remaining 52.956Ha shall be planted during life of the mine in a phased manner i.e. within a period of 20 years.
  - (x) Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office, MoEF&CC annually.
  - (xi) Industrial waste water (workshop and waste water from the mine) should be properly collected and treated in an ETP as proposed so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.
  - (xii) The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF&CC and State Pollution Control Board.
- (IV) Noise and vibration monitoring and prevention**
- (i) The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.
  - (ii) The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders

and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.

- (iii) The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The worker engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.

**(V) Mining Plan**

- (i) The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of mineral, waste, over burden, inter burden and top soil etc.. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management, O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of EC or granted by State Govt. in the form to Short Term Permit (STP), Query license or any other name.
- (ii) The Project Proponent shall get the Final Mine Closure Plan along with Financial Assurance approved from Indian Bureau of Mines/Department of Mining & Geology as required under the Provision of the MMDR Act, 1957 and Rules/ Guidelines made there under. A copy of approved final mine closure plan shall be submitted within 2 months of the approval of the same from the competent authority to the concerned Regional Office of the Ministry of Environment, Forest and Climate Change for record and verification.
- (iii) The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-a-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEF&CC and its concerned Regional Office / SEIAA, Odisha.

**(VI) Land reclamation**

- (i) The Overburden (O.B.) generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by D.G.M.S w.r.t. safety in mining

operations shall be strictly adhered to maintain the stability of top soil/OB dumps. The topsoil shall be used for land reclamation and plantation.

- (ii) The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.
- (iii) The reclamation of waste dump sites shall be done in scientific manner as per the Approved Mining Plan cum Progressive Mine Closure Plan.
- (iv) The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas, use of geo textiles/ geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.
- (v) The Project Proponent shall carry out slope stability study in case the dump height is more than 30 meters. The slope stability report shall be submitted to concerned regional office of MoEF&CC, Govt. of India, Bhubaneswar as well as SEIAA, Odisha.
- (vi) Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and topsoil / OB / waste dumps to prevent runoff of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.
- (vii) Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the comers of the garland drains.
- (viii) The top soil, if any, shall temporarily be stored at earmarked site(s) within the mine lease only and should not be kept unutilized for long. The physical parameters of the top soil dumps like height, width and angle of slope shall be governed as per the approved Mining Plan and as per the guidelines framed by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of dumps. The topsoil shall be used for land reclamation and plantation purpose.

- (ix) The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.

**(VII) Transportation**

- (i) No Transportation of the minerals shall be allowed in case of roads passing through transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers.
- (ii) The Main haulage road within the mine lease should be provided with a permanent water arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.
- (iii) Traffic management shall be done as per recommendation of Traffic Management Study Report.
- (iv) The Project Proponent shall provide parking plaza for the heavy vehicles within the lease area as recommendation of NEERI.

**(VIII) Green Belt**

- (i) The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.
- (ii) The Project Proponent shall carryout plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those



species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of trees.

- (iii) The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.
- (iv) The Project Proponent shall undertake all precautionary measures for conservation and protection of endangered flora and fauna and Schedule-I species during mining operation. A Wildlife Conservation Plan shall be prepared for the same clearly delineating action to be taken for conservation of flora and fauna. The Plan shall be approved by Chief Wild Life Warden of the State Govt.
- (v) And implemented in consultation with the State Forest and Wildlife Department. A copy of Wildlife Conservation Plan and its implementation status (annual) shall be submitted to the Regional Office of the Ministry.

**(IX) Public hearing and human health issues**

- (i) The Project Proponent shall appoint an Occupational Health Specialist for Regular as well as Periodical medical examination of the workers engaged in the mining activities, as per the DGMS guidelines. The records shall be maintained properly. PP shall also carryout Occupational health check-ups in respect of workers which are having ailments like BP, diabetes, habitual smoking, etc. The check-ups shall be undertaken once in six months and necessary remedial/ preventive measures be taken. A status report on the same may be sent to MoEF&CC Regional Office and DGMS on half-yearly basis.
- (ii) A commitment in form of an undertaking for periodical occupational health checkup of the employee and the local people shall be done through an occupational health expert as per the detailed action plan submitted with the proposal within 6 months from the date of issue of Environmental Clearance.
- (iii) The Project Proponent must demonstrate commitment to work towards 'Zero Harm' from their mining activities and carry out Health Risk Assessment (HRA) for identification workplace hazards and assess their potential risks to health and determine appropriate control measures to protect the health and wellbeing of workers and nearby community. The proponent shall maintain accurate and systematic records of the HRA. The HRA for neighborhood has to focus on Public Health Problems like Malaria, Tuberculosis, HIV, Anaemia, Diarrhoea in children under five, respiratory infections due to bio mass cooking. The proponent shall also create awareness and educate the nearby community and workers for Sanitation, Personal Hygiene, Hand washing, not

to defecate in open, Women Health and Hygiene (Providing Sanitary Napkins), hazard of tobacco and alcohol use. The Proponent shall carry out base line HRA for all the category of workers and thereafter every five years.

- (iv) The Proponent shall carry out Occupational health surveillance which be a part of HRA and include Biological Monitoring where practical and feasible, and the tests and investigations relevant to the exposure (e.g. for Dust a X-Ray chest; For Noise Audiometric; for Lead Exposure Blood Lead, For Welders Full Ophthalmologic Assessment; for Manganese Miners a complete Neurological Assessment by a Certified Neurologist, and Manganese (Mn) estimation in Blood; For Inorganic Chromium- Fortnightly skin inspection of hands and forearms by a responsible person. Except routine tests all tests would be carried out in a Lab accredited by NABH. Records of Health Surveillance must be kept for 30 years, including the results of and the records of Physical examination and tests. The record of exposure due to materials like Asbestos, Hard Rock Mining, Silica, Gold, Kaolin, Aluminium, Iron, Manganese, Chromium, Lead, Uranium need to be handed over to the Mining Department of the State in case the life of the mine is less than 30 years. It would be obligatory for the State Mines Departments to make arrangements for the safe and secure storage of the records including X-Ray. Only conventional X-Ray will be accepted for record purposes and not the digital one). X-Ray must meet ILO criteria (17 x 14 inches and of good quality).
- (v) The Proponent shall maintained a record of performance indicators for workers which includes (a) there should not be a significant decline in their Body Mass Index and it should stay between 18.5 -24.9, (b) the Final Chest X-Ray compared with the base line X-Ray should not show any capacities, (c) At the end of their leaving job there should be no Diminution in their Lung Functions Forced Expiratory Volume in one second (FEV1), Forced Vital Capacity (FVC), and the ratio) unless they are smokers which has to be adjusted, and the effect of age, (d) their hearing should not be affected. As a proof an Audiogram (first and last need to be presented), (e) they should not have developed any Persistent Back Pain, Neck Pain, and the movement of their Hip, Knee and other joints should have normal range of movement, (f) they should not have suffered loss of any body part. The record of the same should be submitted to the Regional Office, MoEF&CC annually along with details of the relief and compensation paid to workers having above indications.
- (vi) The Project Proponent shall ensure that Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.
- (vii) Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.

- (viii) The activities proposed in Action plan prepared for addressing the issues raised during the Public Hearing conducted on 09.11.2021 shall be completed as per the budgetary provisions mentioned in the Action Plan and within the stipulated time frame. The Status Report on implementation of Action Plan shall be submitted to the concerned Regional Office of the Ministry along with District Administration.
- (ix) Issues raised and recorded in proceedings of public hearing w.r.t. environment / pollution / CER shall be complied by the Mining Authority as per OM F. No. 22-65/2017-IA.III, dated 30.09.2020 of MoEF&CC, Govt. of India.
- (X) Corporate Environment Responsibility (CER)**
- (i) The activities and budget earmarked for Corporate Environmental Responsibility (CER) as per Ministry's O.M No 22-65/2017-IA. II (M) dated 01.05.2018 or as proposed by SEAC should be kept in a separate bank account. The activities proposed for CER shall be implemented in a time bound manner and annual report of implementation of the same along with documentary proof viz. photographs, purchase documents, latitude & longitude of infrastructure developed & road constructed needs to be submitted to Regional Office MoEF&CC annually along with audited statement.
- (ii) Project Proponent shall keep the funds earmarked for environmental protection measures in a separate account and refrain from diverting the same for other purposes. The Year wise expenditure of such funds should be reported to the MoEF&CC and its concerned Regional Office / SEIAA, Odisha.
- (XI) Miscellaneous**
- (i) The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF&CC.
- (ii) The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
- (iii) The project proponent shall establish a solar power plant with 30KVA capacity within the lease area as proposed.
- (iv) The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MoEF&CC & its concerned Regional Office, SEIAA, Odisha, Central Pollution Control Board and State Pollution Control Board.
- (v) A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC.
- (vi) The proponent shall comply all the specific conditions as recommended by CSIR-NEERI on carrying capacity study (as applicable) in time bound manner as proposed.

- (vii) The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
- (viii) The project proponent shall augment infrastructure on drinking water, health care and education in nearby villages as per time bound action plan submitted.
- (ix) The project proponent shall obtain permission from DGMS under 106(2b) to carry out blasting operation within the lease area.
- (x) The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data / information / monitoring reports.
- (xi) Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

**CONDITIONS TO BE STIPULATED IN ENVIRONMENTAL CLEARANCE FOR M/S FERRO ALLOYS CORPORATION LTD FOR CHROMITE ORE PRODUCTION FROM 0.24 MILLION TPA (OPENCAST) TO 1.5 MILLION TPA (OPENCAST AND UNDERGROUND) WITH MAXIMUM EXCAVATION OF 2.5 MILLION TPA (OPENCAST AND UNDERGROUND) ALONG WITH INSTALLATION OF A NEW CRUSHER AND COB PLANT TO ENHANCE THE BENEFICIATED CHROME ORE FROM 0.1 MTPA (OPENCAST) TO 0.8 MTPA (OPENCAST AND UNDERGROUND) AND A BACKFILL PLANT IN OSTAPAL CHROMITE MINE (72.843 HA) AT VILLAGE GURUJANGA TEHSIL SUKINDA DISTRICT JAJPUR OF SRI SANDEEP KITTANA ACHARYA.**

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**A. SPECIFIC CONDITIONS:**

- 1) Waste should be dumped on the earmarked sites within the mining lease area and no waste should be dumped outside the lease area.
- 2) The Project Proponent shall start the plantation and cover at least 50% of the proposed area under plantation in the next 5 years. The density of the plantation should not be less than 2500 saplings/Ha. The species to be selected for the plantation should be in consultation with local forest department or any other expert agency engaged for the same. The Project Proponent shall keep the record of saplings planted, survival rate, area covered under plantation, location etc. In addition to this gap filling needs to be done to as and when require for maintaining the density of plantation. The PP shall submit the drone images of area before and after the plantation. PP shall carry out pilot study for phytoremediation of hexavalent chromium through IMMT, CSIR, Bhubaneswar. The budget earmarked for the plantation shall be kept in separate bank account and audited annually. PP shall submit the detail such as photographs (before & after with gee-location date & time), details of expert agency engaged, details of species planted, number of species planted, survival rate, density of plantation and outcome of the pilot study etc. to the Regional Office of MoEF&CC, Bhubaneswar and SEIAA, Odisha before 1st July of every year for the activities carried out during previous year.
- 3) Approval/permission of CGWA/SGWA shall be obtained before drawing ground water for the project activities. State Pollution Control Board (SPCB) concerned shall not issue Consent to Operate (CTO) till the project proponent obtains such permission.
- 4) The amount proposed under **Corporate Environment Responsibility (CER)** head should be kept in a separate bank account and should be audited annually. The PP should annually submit the audited statement and details of implementation of CER activities along with proof of activities viz. photographs (before & after with geo-location date & time), purchase documents, photographs & Geo-location of the infrastructures/facilities developed, etc. to the Regional Office of MoEF&CC, Bhubaneswar and SEIAA, Odisha before 1st July of every year for the activities carried out during previous year.
- 5) The amount (except occupational health) proposed under Environmental Management Plan (EMP) head should be kept in a separate bank account and should be audited annually. The PP should annually submit the audited statement and detailed environment monitoring report along with proof of activities viz. photographs (before & after with geo-location date & time), purchase documents, sampling reports,

photographs & Geo-location of the infrastructures/facilities developed, details of persons engaged in Environment Management Cell etc. to the Regional Office of MoEF&CC, Bhubaneswar and SEIAA, Odisha before 1<sup>st</sup> July of every year for the activities carried out during previous year.

- 6) The amount proposed under Occupational Health plan head should be kept in a separate bank account and should be audited annually. The PP should annually submit the audited statement and detailed environment monitoring report along with proof of activities viz. photographs (before & after with geo-location date & time), purchase documents, sampling reports, photographs & Geo-location of the infrastructures/facilities developed, details of persons engaged in Environment Management Cell etc. to the Regional Office of MoEF&CC, Bhubaneswar and SEIAA, Odisha before 1st July of every year for the activities carried out during previous year.
- 7) The Project Proponent shall set up an Environmental Management Cell comprises of persons having qualification and experience in the field of environment along with supporting staff. The details of the same needs to be submitted to the SEIAA, Odisha within 3 months of the grant of EC.
- 8) The project proponent shall give an undertaking by way of affidavit to comply with all the statutory requirements and judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors. before grant of ToR/ EC. The undertaking inter-alia include commitment of the PP not to repeat any such violation in future.
- 9) In case of violation of above undertaking, the ToR/Environmental Clearance shall be liable to be terminated forthwith.
- 10) The Environmental Clearance will not be operational till such time the Project Proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors.
- 11) State Government concerned shall ensure that mining operation shall not commence till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors.
- 12) The Project Proponent shall implement the short term and long term measures proposed to be taken in order to get rid from the adversity of Cr (VI) contamination, needs to be implemented and status report of the same along with benefit occurred needs to be submitted to Regional Office of MoEF&CC, Bhubaneswar and SEIAA, Odisha annually.
- 13) The Project Proponent shall keep a record of each blasting viz. location, number of holes, delay assigned of each hole, explosive quantity of each hole, blasting pattern etc.

**B. STANDARD CONDITIONS: (AS MINISTRY'S O.M NO 22-34/2018-IA.III DATED 8.01.2019 & 16.01.2020)**

### Statutory compliance

- 14) This Environmental Clearance (EC) is subject to orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
- 15) The Project Proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2nd August,2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India &Ors before commencing the mining operations.
- 16) The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors.
- 17) This Environmental Clearance shall become operational only after receiving formal NBWL Clearance from MoEF&CC subsequent to the recommendations of the Standing Committee of National Board for Wildlife, if applicable to the Project.
- 18) This Environmental Clearance shall become operational only after receiving formal Forest Clearance (FC) under the provision of Forest Conservation Act, 1980, if applicable to the Project.
- 19) Project Proponent (PP) shall obtain Consent to Operate after grant of EC and effectively implement all the conditions stipulated therein. The mining activity shall not commence prior to obtaining Consent to Establish / Consent to Operate from the concerned State Pollution Control Board/Committee.
- 20) The Project Proponent shall adhere to the provision of the Mines Act, 1952, Mines and Mineral (Development & Regulation), Act, 2015 and rules & regulations made there under. PP shall adhere to various circulars issued by Directorate General Mines Safety (DGMS) and Indian Bureau of Mines from time to time.
- 21) The Project Proponent shall obtain consents from all the concerned land owners, before start of mining operations, as per the provisions of MMDR Act, 1957 and rules made there under in respect of lands which are not owned by it.
- 22) The Project Proponent shall follow the mitigation measures provided in MoEF&CC's Office Memorandum No. Z-11013/57/2014-1A. II (M), dated 29th October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".
- 23) The Project Proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water and from CGWA for withdrawal of ground water for the project.
- 24) A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any, from whom suggestion / representation has been received while processing the proposal.
- 25) State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tehsildar's

Office for 30 days.

- 26) The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the
- 27) State Pollution Control Board/Committee and web site of the Ministry of Environment, Forest and Climate Change ([www.parivesh.nic.in](http://www.parivesh.nic.in)). A copy of the advertisement may be forwarded to the concerned MoEF&CC Regional Office for compliance and record.
- 28) The Project Proponent shall inform the MoEF&CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred than mining operation shall only be carried out after transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.

#### **Air quality monitoring and preservation**

- 29) The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM 10, PM2.5, NO2, CO and SO2 etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCI/I, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.
- 30) Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEFCC/ Central Pollution Control Board.

#### **Water quality monitoring and preservation**

- 31) In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEF&CC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.
- 32) Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintain. The natural water



bodies and or streams which are flowing in an around the village, should not be disturbed. The Water Table should be nurtured so as not to go down below the pre-mining period. In case of any water scarcity in the area, the Project Proponent has to provide water to the villagers for their use. A provision for regular monitoring of water table in open dug wall located in village should be incorporated to ascertain the impact of mining over ground water table. The Report on changes in Ground water level and quality shall be submitted on six- monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.

- 33) The Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.
- 34) The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease and maintain its records. The project proponent shall undertake regular monitoring of water quality upstream and downstream of water bodies passing within and nearby/ adjacent to the mine lease and maintain its records. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. PP shall carryout regular monitoring w.r.t. pH and included the same in monitoring plan. The parameters to be monitored shall include their water quality vis-a-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEF&CC. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly basis.
- 35) Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off; acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J- 20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.
- 36) Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEF&CC annually.
- 37) Industrial waste water (workshop and waste water from the mine) should be properly

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collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.

- 38) The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF&CC and State Pollution Control Board/Committee.

**Noise and vibration monitoring and prevention**

- 39) The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.
- 40) The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.
- 41) The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.

**Mining plan**

- 42) The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of mineral, waste, over burden, inter burden and top soil etc.. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management , O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of EC or granted by State Govt., in the form to Short Term Permit (STP), Query license or any other name.
- 43) The Project Proponent shall get the Final Mine Closure Plan along with Financial Assurance approved from Indian Bureau of Mines/Department of Mining & Geology as required under the Provision of the MMDR Act, 1957 and Rules/ Guidelines made there under. A copy of approved final mine closure plan shall be submitted within 2 months of the approval of the same from the competent authority to the concerned Regional Office of the Ministry of Environment, Forest and Climate Change for record and verification.
- 44) The land-use of the mine lease area at various stages of mining scheme as well as at

the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-a-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEF&CC and its concerned Regional Office.

#### Land reclamation

- 45) The Overburden (O.B.) generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by D.G.M.S w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of top soil/OB dumps. The topsoil shall be used for land reclamation and plantation.
- 46) The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.
- 47) The reclamation of waste dump sites shall be done in scientific manner as per the Approved Mining Plan cum Progressive Mine Closure Plan.
- 48) The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas, use of geo textiles/ geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.
- 49) The Project Proponent shall carry out slope stability study in case the dump height is more than 30 meters. The slope stability report shall be submitted to concerned regional office of MoEF&CC.
- 50) Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OBA/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be desilted regularly, particularly after monsoon season, and maintained properly.
- 51) Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/

- sumps shall be constructed at the corners of the garland drains.
- 52) The top soil, if any, shall temporarily be stored at earmarked site(s) within the mine lease only and should not be kept unutilized for long. The physical parameters of the top soil dumps like height, width and angle of slope shall be governed as per the approved Mining Plan and as per the guidelines framed by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of dumps. The topsoil shall be used for land reclamation and plantation purpose.
  - 53) The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
  - 54) Slope study by an expert of repute of water dumps to be done and submitted within six months from the date of issue of EC to SEAC / SEIAA

#### Transportation

- 55) No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a 'bypass' road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load.
- 56) The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers.
- 57) The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt- conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.
- 58) Haulage road shall be developed and maintained perennially and perpetually by the proponent in construction with the concerned authority of the Govt. and to this effect, the proponent shall submit an undertaking in form of a legal affidavit
- 59) Traffic density study if not done by domain expert, then the expert to be ratified / authenticated by domain expert and submitted within a month time.

#### Green Belt

- 60) The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.
- 61) The Project Proponent shall carryout plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of trees.
- 62) The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.
- 63) The Project Proponent shall undertake all precautionary measures for conservation and protection of endangered flora and fauna and Schedule-1 species during mining operation. A Wildlife Conservation Plan shall be prepared for the same clearly delineating action to be taken for conservation of flora and fauna. The Plan shall be approved by Chief Wild Life Warden of the State Govt.
- 64) And implemented in consultation with the State Forest and Wildlife Department. A copy of Wildlife Conservation Plan and its implementation status (annual) shall be submitted to the Regional Office of the Ministry.

#### Human Health Issues

- 65) The Project Proponent shall appoint an Occupational Health Specialist for Regular as well as Periodical medical examination of the workers engaged in the mining activities, as per the DGMS guidelines. The records shall be maintained properly. PP shall also carryout Occupational health check-ups in respect of workers which are having ailments like BP, diabetes, habitual smoking, etc. The check-ups shall be undertaken once in six months and necessary remedial/ preventive measures be taken. A status report on the same may be sent to MoEF&CC Regional Office and DGMS on half-yearly basis.
- 66) The Project Proponent must demonstrate commitment to work towards 'Zero Harm' from their mining activities and carry out Health Risk Assessment (HRA) for identification workplace hazards and assess their potential risks to health and determine appropriate control measures to protect the health and wellbeing of workers and nearby community. The proponent shall maintain accurate and systematic records of the HRA. The HRA for neighborhood has to focus on Public Health Problems like

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Malaria, Tuberculosis, HIV, Anaemia, Diarrhoea in children under five, respiratory infections due to bio mass cooking. The proponent shall also create awareness and educate the nearby community and workers for Sanitation, Personal Hygiene, Hand washing, not to defecate in open, Women Health and Hygiene (Providing Sanitary Napkins), hazard of tobacco and alcohol use. The Proponent shall carryout base line HRA for all the category of workers and thereafter every five years.

- 67) The Proponent shall carry out Occupational health surveillance which be a part of HRA and include Biological Monitoring where practical and feasible, and the tests and investigations relevant to the exposure (e.g. for Dust a X-Ray chest; For Noise Audiometric; for Lead Exposure Blood Lead, For Welders Full Ophthalmologic Assessment; for Manganese Miners a complete Neurological Assessment by a Certified Neurologist, and Manganese (Mn) Estimation in Blood; For Inorganic Chromium- Fortnightly skin inspection of hands and forearms by a responsible person. Except routine tests all tests would be carried out in a Lab accredited by NABH. Records of Health Surveillance must be kept for 30 years, including the results of and the records of Physical examination and tests. The record of exposure due to materials like Asbestos, Hard Rock Mining, Silica, Gold, Kaolin, Aluminium, Iron, Manganese, Chromium, Lead, Uranium need to be handed over to the Mining Department of the State in case the life of the mine is less than 30 years. It would be obligatory for the State Mines Departments to make arrangements for the safe and secure storage of the records including X-Ray. Only conventional X-Ray will be accepted for record purposes and not the digital one). X-Ray must meet ILO criteria (17 x14 inches and of good quality).
- 68) The Proponent shall maintained a record of performance indicators for workers which includes (a) there should not be a significant decline in their Body Mass Index and it should stay between 18.5 -24.9, (b) the Final Chest X-Ray compared with the base line X-Ray should not show any capacities ,(c) At the end of their leaving job there should be no Diminution in their Lung Functions Forced Expiratory Volume in one second (FEV1), Forced Vital Capacity (FVC), and the ratio) unless they are smokers which has to be adjusted, and the effect of age, (d) their hearing should not be affected. As a proof an Audiogram (first and last need to be presented), (e) they should not have developed any Persistent Back Pain, Neck Pain, and the movement of their Hip, Knee and other joints should have normal range of movement, (f) they should not have suffered loss of any body part. The record of the same should be submitted to the Regional Office, MoEFCC annually along with details of the relief and compensation paid to workers having above indications.
- 69) The Project Proponent shall ensure that Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.
- 70) Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.

- 71) The proponent shall implement the mitigative measures as suggested in the Study Report on effect of chromite mines to nearest human habitation.
- 72) Occupational health check-up shall be done by occupational health expert periodically for employees as well as nearby villagers.

**Corporate Environment Responsibility (CER)**

- 73) The activities and budget earmarked for Corporate Environmental Responsibility (CER) as per Ministry's O.M No 22-65/2017-IA. II (M) dated 01.05.2018 or as proposed by EAC should be kept in a separate bank account. The activities proposed for CER shall be implemented in a time bound manner and annual report of implementation of the same along with documentary proof viz. photographs, purchase documents, latitude & longitude of infrastructure developed & road constructed needs to be submitted to Regional Office MoEF&CC annually along with audited statement.
- 74) Project Proponent shall keep the funds earmarked for environmental protection measures in a separate account and refrain from diverting the same for other purposes. The Year wise expenditure of such funds should be reported to the MoEF&CC and its concerned Regional Office.

**Miscellaneous**

- 75) The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF&CC, Bhubaneswar and SEIAA, Odisha.
- 76) The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
- 77) The project proponent shall install solar panel inside the mine to generate 5KW of power required for Administrative Building as proposed.
- 78) The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MOEF&CC & its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.
- 79) A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC, Bhubaneswar and SEIAA, Odisha.
- 80) The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data / information / monitoring reports.
- 81) In pursuant to Ministry's O.M No 22-34/2018-IA.III dated 16.01.2020 to comply with the direction made by Hon'ble Supreme Court on 8.01.2020 in W.P. (Civil) No 114/2014 in the matter Common Cause vs Union of India, the mining lease holder shall after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to other mining activities and restore the land to a

condition which is fit for growth of fodder, flora, fauna etc.

- 82) The SEIAA, Odisha or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.
- 83) Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- 84) The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/ High Court and any other Court of Law relating to the subject matter.
- 85) The site will be visited by the sub-Committee of SEAC after six months to review the progress of recommendations of SEAC on specific conditions.
- 86) Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.