

EXECUTIVE SUMMARY

Of

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENTAL MANAGEMENT PLAN REPORT

**(Submitted for Public Hearing as per the provisions of
EIA Notification 2006 & amendments thereof)**

FOR

OBTAINING

Environmental Clearance

Schedule SL No. 1 (a) (i): Mining Project

(Category B1-Minor Mineral-Cluster-Private Land)

Total Proposed Area – 9.98 Ha; Cluster Extent: 62.02 Ha

BASALT STONE/ROCK QUARRY CLUSTER

STUDY PERIOD - October 2020 to December 2020

Located at

**SURVEY/KHASRA NOS. 8 & 9, VILLAGE SALAIMENDHA,
TALUKAA- UMRED, DISTRICT- NAGPUR, MAHARASHTRA**

Project Proponent/Lessee

| Name of the Lessee | Khasra No. | Proposed Area |
|--|-------------------|----------------------|
| M/s. Pawanputra Bulkcon Private Limited (Earlier P.P. Anil S. Wath) | 8 & 9 | 9.98 Ha |

ENVIRONMENT CONSULTANT

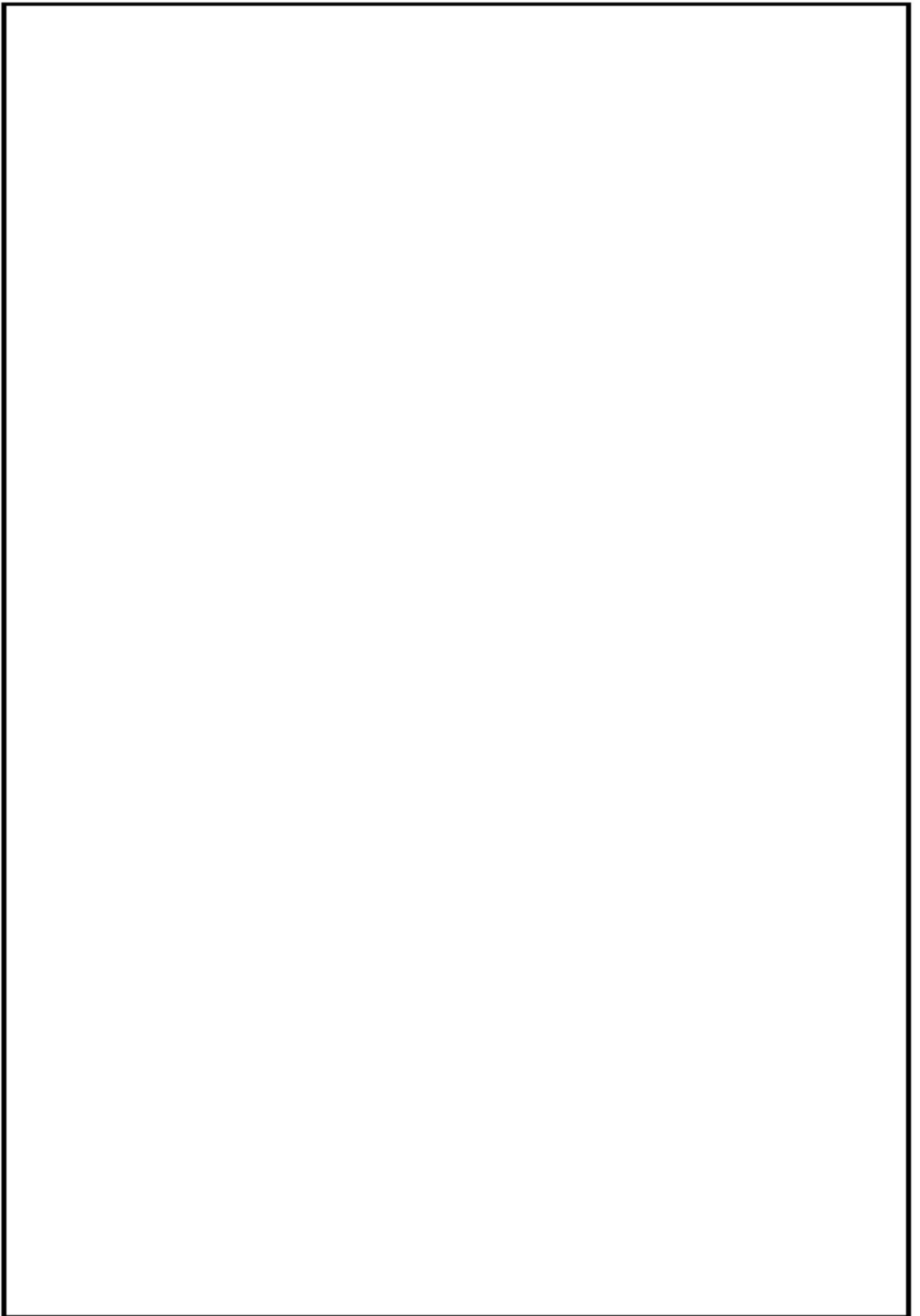


Environment Service Provider

...Towards Primitive Nature

**(NABET Certificate No: NABET/EIA/2023/IA0068)
Reg. Add. 20S, Neelkanth Tower CHS, Karnik Road, Near Shankar
Mandir, Kaylan West, Thane 421301 Maharashtra**

AUGUST 2022



Draft EIA/EMP for Salaimendha Stone Quarry Cluster with new proposed area of 9.98 Ha, while the cluster area is 62.02.0 Ha, located in Salaimendha Village, Umred Taluka, Nagpur District, Maharashtra.

Lessee: M/s. Pawanputra Buildcon Private Limited (Earlier P.P. Anil S. Wath)

Executive Summary

1. INTRODUCTION

Basalt rock is the major requirements for construction industry. This EIA report is prepared by considering Cumulative load of all proposed & existing quarries of Basalt Rock Quarries Cluster consisting of 3 Proposed and 24 Existing Quarry with total extent of Cluster of 62.02.0 Ha at Salaimendha Village, Umred Taluka, Nagpur District, Maharashtra, cluster area calculated as per MoEF & CC Notification S.O. 2269(E), Dated 1st July 2016. The proposed project falls under "B1" Category as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018

This EIA Report is prepared in compliance with ToR obtained vide -

- Letter No. SIA/MH/MIN/61635/2021, dated 04/06/2021
(In Name of Anil S. Wath).
- Transfer ToR Letter No. SIA/MH/MIN/276864/2022, dated 19/07/2022
(In name of M/s. Pawanputra Buildcon Private Limited).

The Baseline Monitoring study has been carried out during the period of October 2020 to December 2020 and this EIA and EMP report is prepared for considering cumulative impacts arising out of these projects, the Cumulative Environmental Impact Assessment study is undertaken, which is followed by preparation of a detailed Environmental Management Plan (EMP) individually to minimize those adverse impacts.

"Draft EIA report prepared on the basis of ToR Issued & Standard ToR for carrying out EIA Studies for the Grant of Environmental Clearance from SEIAA. - Maharashtra"

1.1 DETAILS OF PROJECT PROPONENT -

| | |
|-----------------------------|---|
| Name of the Project | M/s. Pawanputra Buildcon Private Limited (Earlier P.P. Anil S. Wath) |
| KHASRA No. | Kh. Nos. 8 & 9 |
| Extent | 9.98 Ha |
| Land Type | Private Land / Patta land |
| Village Taluka and District | Salaimendha Village, Umred Taluka, Nagpur District, Maharashtra |

1.2 QUARRY DETAILS WITHIN 500 M RADIUS

| CODE | Name of the Owner | Khasra Nos | Extent | Status/Lease Status |
|------------------------|--|--------------|--------|---------------------|
| PROPOSED QUARRY | | | | |
| P1 | Shri Tekchand Gurlmal Gangwani | 546/6, 546/7 | 3.82 | - |
| P2 | Aditi Stone Industries C/o Shri Dilip | 41 | 2.12 | - |

Draft EIA/EMP for Salaimendha Stone Quarry Cluster with new proposed area of 9.98 Ha, while the cluster area is 62.02.0 Ha, located in Salaimendha Village, Umred Taluka, Nagpur District, Maharashtra.

Lessee: M/s. Pawanputra Buildcon Private Limited (Earlier P.P. Anil S. Wath)

Executive Summary

| CODE | Name of the Owner | Khasra Nos | Extent | Status/Lease Status |
|--------------------------|--|------------------------|-----------------|---|
| | Rajaramji Varjurkar | | | |
| P3 | M/s. Pawanputra Buildcon Pvt. Ltd (Earlier Anil Sadashiv Wath) | 8 & 9 | 9.98 | क्र.खणी-3/कक्ष-21/कावी-5/ 2021 dated दि.24/09/2022 10 years Period |
| TOTAL | | | 15.93 Ha | |
| EXISTING QUARRIES | | | | |
| E1 | M/s. Pawanputra Building Solutions Pvt. Ltd. Shri Taori | 43/1, 43/2 | 1.82 | 05.05.2015 to 04.05.2020 |
| E2 | Shri Nitin Kedar kavale | 57 | 2.02 | 28.04.2016 to 27.04.2021 |
| E3 | Shri Stone Crusher Shri Dinesh Chandanlal Pagariya | 37/1 | 1.74 | 08.11.2016 to 07.11.2021 |
| E4 | Shri Krushna Stone Crusher C/O Shri Rupesh Khat | 66, 67, 68, 71, 72 | 3.92 | 02.12.2016 to 01.12.2021 |
| E5 | Devandra Suryabhan Shirbhate | 37/22 | 1.00 | 31.12.2016 to 30.11.2021 |
| E6 | Shri Gajanan Stone Industries C/O Shri Ravikumar Prabhakar Pillare | 118/1 | 1.2 | 20.03.2017 to 19.03.2022 |
| E7 | Shri Vinod Gulabrao Pillare | 16/1 | 1.01 | 06.10.2017 to 05.10.2022 |
| E8 | Shweta Stone C/O Part Shashikant Avagate | 29/22 | 1.00 | 29.11.2017 to 28.11.2022 |
| E9 | Shri Amol Prabhakar Pillare | 18/2 | 1.2 | 06.12.2017 to 05.12.2022 |
| E10 | Bhavani Stonne Mrs. Jyotiben Patel | 534 | 1.96 | 30.03.2015 to 29.03.2020 |
| E11 | Harinarayan Shtam Gupta | 531 | 3.08 | 01.12.2016 to 30.11.2021 |
| E12 | Shri Tekchand Gurlmal Gangwani | 540, 546/4, 535, 536/1 | 3.00 | 29.11.2016 to 28.11.2021 |
| E13 | Venkaytesh Basalt | 523/2, 523/3 | 1.60 | 20.04.2017 to |

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Executive Summary

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|-----------------------------|---|--------------|-----------------|--------------------------|
| | Incorporate C/O Mrs. Uma Sushil Mudhanda | | | 19.04.2022 |
| E14 | Mrs. Priya Pradip Kolhe | 510, 511 | 1.60 | 29.11.2017 to 28.11.2022 |
| E15 | Shri Venkatesh Casting Pvt. Ltd. C/O Shri Jitendra Sarada | 512/2, 513 | 1.88 | 14.11.2018 to 13.11.2023 |
| E16 | M.D.C. Gurubakshani | 494/1, 494/2 | 2.50 | 01.06.2017 to 31.05.2022 |
| E17 | Shri basant Ramji Atram | 20 | 1.47 | 28.08.2015 to 27.08.2020 |
| E18 | Shankar Stone Quarry | 13 | 2.00 | 29.09.2015 to 20.09.2020 |
| E19 | Shri Rajesh ladharam Madhwani | 37 | 2.30 | 21.12.2016 to 26.12.2021 |
| E20 | Shri Nayan Jamnadas Makadiya | 30/7, 30/9 | 2.00 | 19.11.2016 to 18.11.2021 |
| E21 | Shri San Toshkumar Okaarmal Yaduka | 21/1 | 2.02 | 04.07.2017 to 03.07.2022 |
| E22 | Shri Vijaykumar Okarmal Yadukaa | 45/1 | 1.78 | 05.06.2017 to 04.06.2022 |
| E23 | Shri Purushottam Bhimaji Patel | 516, 517 | 1.96 | 30.03.2015 to 29.03.2020 |
| E24 | Shri Kisanchand Lilaram Lulla | 17/2, 17/3 | 2.03 | 30.03.2015 to 29.03.2020 |
| TOTAL | | | 46.09 Ha | |
| TOTAL CLUSTER EXTENT | | | 62.02 Ha | |

1.3 COMMON SALIENT FEATURES OF THE CLUSTER

| S. No. | Particulars | Details |
|--------|---------------------------------------|--|
| 1. | Topo sheet Number | 55 0/04 |
| 2. | Land use at the proposed project site | Non-Forest Land / Private Land Land Cover: Grazing Land |
| 3. | Climatic Conditions | Avg. Ambient air temp - 39° C to 5.5° C Annual rainfall - 1080 mm |
| 4. | Ground water level | The Ground water is about 40-45m depth from ground level. |
| 5. | Seismic zone | Seismically, this area is categorized under Zone-II as per IS-1893 (Part-1)-2002. Hence, seismically the site is Less Damage Risk Zone. With MSK scale of VII. |

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Lessee: M/s. Pawanputra Buildcon Private Limited (Earlier P.P. Anil S. Wath)

Executive Summary

| S. No. | Particulars | Details | | |
|--------|---|---|----------------------|------------------|
| 6. | Nearest State/National Highway | NH 353D - (Nagpur - Armori Road) at 4.11 Km, E SH 254 - (Kardha - Chanpa Road) at 4.33 Km, E | | |
| 7. | Nearest Railway Station | Khapri Railway Station at 11.27 Km, NW | | |
| 8. | Nearest Air Port | Dr. Babasaheb Ambedkar International Airport- 13.47 Km, NW | | |
| 9. | Nearest village/major town | Salaimendha Village - 0.65 Km. (SE) | | |
| 10. | Nearest Town, city, District Headquarters along with distance in kms. | Umred: 25.7 Km, SE Nagpur: 16.89 Km, NW | | |
| 11. | Nearest Hospital | Swami Vivekanand Medical Mission - 10.99 Km, NW | | |
| 12. | Ecologically sensitive zone | No wildlife sanctuary, national park or biosphere reserve within 500m radius of mine lease area. | | |
| 13. | Reserved/Protected forests | No wildlife sanctuary, national park or biosphere reserve within 500m radius of mine lease area. | | |
| 14. | Historical/tourist places | None within 300m radius of mine lease area | | |
| 15. | Water bodies within 10 Km Radius | Water bodies | Distance (Km) | Direction |
| | | Pachgaon Lake | 2.26 | NE |
| | | Wadad Lake | 4.06 | SW |
| | | Mangli Lake | 6.26 | SE |
| | | Khasarmari Lake | 7.51 | SW |
| | | Saiki Lake | 10.10 | SE |
| | | Khapri Lake | 10.11 | SE |
| 16. | Reserve Forest within 10Km Radius | Nil within 10Km Radius | | |
| 17. | Details of other quarries for a radius of 500m around the quarry site | There are following quarries located within the radius of 500m from the proposed project site. Details: Existing quarry- 24 Nos (46.09.0 Ha) Proposed quarry- 3 Nos (15.93.0 Ha) The total extent of the Existing and proposed quarry within the radius of 500m is 62.02.0 Ha. The project falls under the cluster situation. | | |
| 18. | Overburden /Waste | No waste would be generated except top soil. The generated waste would be simultaneously utilized along with production and the soil shall be used for plantation in safety barrier of 7.5 mts | | |
| 19. | Type of Project | Basalt Stone/Rock Mine Lessee: M/s. Pawanputra Buildcon Private Limited | | |
| 20. | Mine area applied | 9.98 Ha | | |

Draft EIA/EMP for Salaimendha Stone Quarry Cluster with new proposed area of 9.98 Ha, while the cluster area is 62.02.0 Ha, located in Salaimendha Village, Umred Taluka, Nagpur District, Maharashtra.

Lessee: M/s. Pawanputra Buildcon Private Limited (Earlier P.P. Anil S. Wath)

Executive Summary

| S. No. | Particulars | Details | |
|--------|----------------------------|---|--------------------------------|
| 21. | Project Location | Khasra No. 8 & 9 Salaimendha Village, Umred Taluka, Nagpur District, Maharashtra | |
| 22. | Location on WGS 1984 datum | Latitude | Longitude |
| | | 21° 0'9.02"N to 21° 0'10.29"N | 79° 8'53.41"E to 79° 8'47.79"E |
| 23. | Site Topography | The lease applied area is exhibits plain topography. The area has gentle sloping towards Southern side. | |
| 24. | Site elevation | The highest R.L recorded in the lease area is 306 m while the lowest R.L. recorded is 302m. | |
| 25. | Reserves | Basalt Rock | |
| | Production in MT / Annum | 12,00,000 | |
| | Total Reserves in MT | 59,73,156 MT | |
| 26. | Lease period | 10 years (Life of Mine) | |
| 27. | Proposed depth of Mining | 30m below ground level | |
| 28. | Ground water level | The Ground water is about 40-45m depth from ground level. | |
| 29. | Water requirement & source | Total water requirement for 9.09 KLD from nearby Bore well. | |
| 30. | Employment Generation | 25 Nos. | |
| 31. | Cost of the project | 3.50 Crore | |

1.5 STATUTORY DETAILS

- The proponent applied for Basalt rock Quarry Lease Dated: 22.02.2021
- LOI Letter was issued by the District Magistrate, Nagpur district, क्र.खणी-3/कक्ष-21/कावी-5/ 2021, दि 25.09.2021 .
- The Mining Plan was prepared by Recognized Qualified Person and approved by Senior Deputy Director, Department of Geology and Mining, Maharashtra, vide BON/MINING/MMP/215/2021/246 dated: 10.03.2021
- Proponent applied for ToR for Environmental Clearance vide. online Proposal No. SIA/MH/MIN/59226/2020 and ToR was granted by SEAC with letter no. SIA/MH/MIN/61635/2021 dated 04/06/2021 and ToR Transfer by SEIAA, Maharashtra vide- SIA/MH/MIN/276864/2022 dated 19/07/2022

2. PROJECT DESCRIPTION

The proposed projects are site specific and there is no additional area required for this project. There is no effluent generation/discharge from the proposed quarries. Method is mining is common for all the proposed quarries in the cluster. Basalt rock is proposed to be excavated by opencast mechanized method involving splitting of rock mass of

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Executive Summary

considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Basalt rock from pithead to the needy crushers and rock breakers to avoid secondary blasting.

2.1 LAND USE PATTERN OF THE LEASE APPLIED AREA

| SL. NO. | DESCRIPTION | AREA IN Ha. | | |
|--------------|--|------------------|--------------------|-------------------|
| | | Present Land Use | End of Plan Period | Conceptual Period |
| 1 | Area to be excavated | 0 | 8.974 | 8.974 |
| 2 | Storage for top soil | 0 | 0 | 0 |
| 3 | Overburden/dump | 0 | 0 | 0 |
| 4 | Mineral storage | 0 | 0 | 0 |
| 5 | Infrastructure (Mine Office, Shelter, Store) | 0 | 0 | 0 |
| 6 | Roads | 0 | 0 | 0 |
| 7 | Green belt | 0 | 1.006 | 1.006 |
| 8 | Area Undisturbed | 9.98 | 0 | 0 |
| Total | | 9.98 | 9.98 | 9.98 |

2.2 METHOD OF MINING

Proposed Method of Mining is common for all the Proposed Projects – The method of mining is Opencast Mechanized Mining Method is being proposed by formation of 6 meter height bench with a 3.5m bench width . The Basalt Stone is a batholith formation and the splitting of rock mass of considerable volume from the parent rock mass will be carried out by deploying jackhammer drilling Explosives will be used for blasting. Hydraulic Excavators attached with Rock Breakers unit will be deployed for breaking large boulders to required fragmented sizes to avoid secondary blasting and hydraulic excavators attached with bucket unit will be deployed for loading the Rough Stone into the tippers and then the stone is transported from pithead to the nearby crushers.

Draft EIA/EMP for Salaimendha Stone Quarry Cluster with new proposed area of 9.98 Ha, while the cluster area is 62.02.0 Ha, located in Salaimendha Village, Umred Taluka, Nagpur District, Maharashtra.

Lessee: M/s. Pawanputra Buildcon Private Limited (Earlier P.P. Anil S. Wath)

Executive Summary



FIGURE 1 GOOGLE IMAGE SHOWING APPLIED QUARRY LEASE AREA

2.3 PROPOSED MACHINERY DEPLOYMENT

| S. No | Particulars | Size capacity | Motive Power |
|-------|----------------------------------|---------------|----------------|
| 1. | Jack hammer (30-35mm dia hole) | 1.2m to 2.0m | Compressed air |
| 2. | Compressor | 400 psi | Diesel drive |
| 3. | Excavator with Bucket and Rock B | 300 | Diesel drive |
| 4. | Tippers | 20 tonnes | Diesel drive |

2.4 DESCRIPTION OF THE ENVIRONMENT

Field monitoring studies to evaluate the base line status of the project site were carried out during October 2020 to December 2020 as per CPCB guidelines. Environmental Monitoring data has been collected with reference to proposed quarry by M/s. Excellent Enviro Laboratory & Research Center, Aurangabad an NABL Certified & MoEF Notified Laboratory

Draft EIA/EMP for Salaimendha Stone Quarry Cluster with new proposed area of 9.98 Ha, while the cluster area is 62.02 Ha, located in Salaimendha Village, Umred Taluka, Nagpur District, Maharashtra.

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Executive Summary

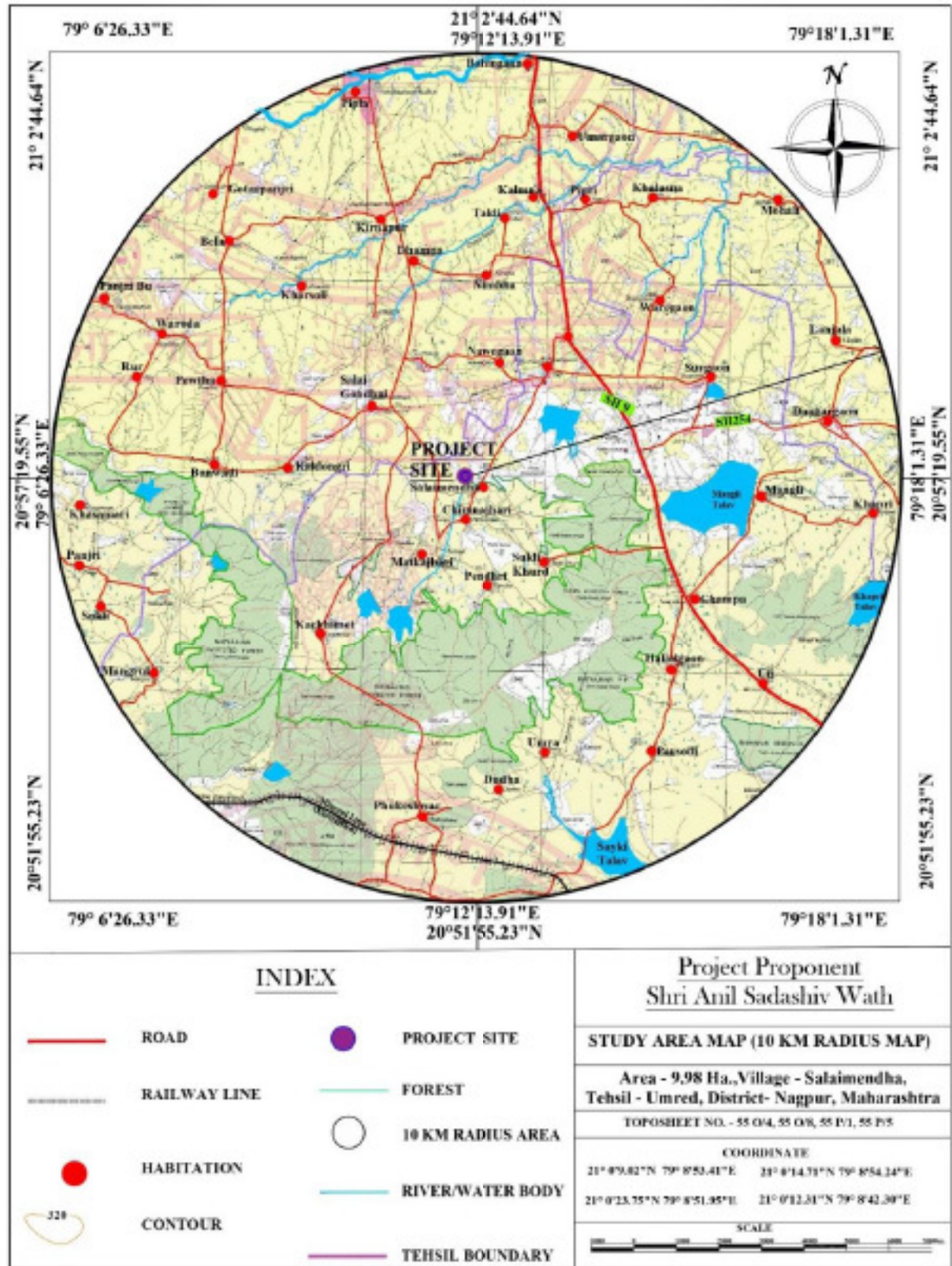


FIGURE - 7: TOPOSHEET MAP COVERING 10 KM RADIUS

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Executive Summary

3.1 ENVIRONMENT MONITORING ATTRIBUTES

| S. No. | Attributes | Parameters | Frequency |
|--------|------------------------|--|--|
| 1 | Ambient Air Quality | PM ₁₀ , SO ₂ , NO _x & mineralogical composition of PM ₁₀ , particularly for free silica | 24 hourly samples, twice a week for three months at 8 locations. |
| 2 | Meteorology | Wind speed, Wind direction, Temperature, Relative humidity and Rainfall | Continuous hourly recording (one season) at project site. Secondary data from the nearest IMD station. |
| 3 | Water quality | Physical and Chemical parameters. | Grab samples collected once during study period from 13 ground water and 6 surface water locations. |
| 4 | Soil Quality | Physical and Chemical parameters. | Grab samples collected once during study period from 13 locations. |
| 5 | Ecology | Existing terrestrial flora and fauna covering Core Zone (9.98 Ha) & Buffer Zone (10-Km radius). Existing aquatic ecological status in Buffer Zone (10-Km radius). | Through field studies once during study period. Secondary data also collected. |
| 6 | Noise levels | Noise levels in dB (A) Day and Night. | Hourly Noise levels in and around the project area for 24 hours at each location once during study period at 13 locations. |
| 7 | Land use | Current land use scenario | Once during study period based on recent satellite imagery and ground-truthing at site. |
| 8 | Geology | Geological details | Once during study period. Data collected from secondary sources |
| 9 | Hydrogeology | Drainage area and pattern, nature of streams, aquifer characteristics, recharge and discharge areas, etc. | Based on primary and secondary sources, once during study period. |
| 10 | Socio-Economic aspects | Socio-economic aspects like demography, population dynamics, infrastructure resources, health status, economic resources, etc. | From primary and secondary sources (like census abstracts of census of India 2011) once during the study period. |

Draft EIA/EMP for Salaimendha Stone Quarry Cluster with new proposed area of 9.98 Ha, while the cluster area is 62.02 Ha, located in Salaimendha Village, Umred Taluka, Nagpur District, Maharashtra.

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Executive Summary

3.2 LAND ENVIRONMENT

| Sr. No. | Level-I | Level-II | Area (Sq. Km ²) | Percentage (%) |
|--------------|------------------------------|---------------------|-----------------------------|----------------|
| 1 | Built-up land | Settlement | 7.22 | 2.21 |
| | | Road Infrastructure | 2.08 | 0.64 |
| 2 | Agricultural Land/ Crop Land | Double Crop | 72.14 | 22.04 |
| | | Single Crop | 140.20 | 42.84 |
| 3 | Forest Area | Reserve Forest | 47.46 | 14.50 |
| | | Open Mixed Jungle | 7.91 | 2.42 |
| | | Fairly Dense Jungle | 0.85 | 0.26 |
| 4 | Scrubs/Wastelands | Fairly Dense Scrub | 3.07 | 0.94 |
| | | Open Scrub | 29.24 | 8.93 |
| 5 | Waterbodies | River/Nala/Stream | 4.22 | 1.29 |
| | | Pond/Lake | 5.76 | 1.76 |
| 6 | Mines Area | Stone Quarry | 7.14 | 2.18 |
| Total | | | 327.29 | 100 |

The mining area contributes only about 2.18% of the total mining area within the study area. This small percentage of Mining Activities shall not have any significant impact on the environment

3.3 SOIL ENVIRONMENT

Physical Characteristics -

The physical properties of the soil samples were examined for texture, bulk density, porosity and water holding capacity. The soil texture found in the study area is Clay Loam Soil and Bulk Density of Soils in the study area varied between 1.14 to 1.7 g/cm³. The Water Holding Capacity and Porosity of the soil samples is found to be medium i.e. ranging from 23 to 36.7%.

Chemical Characteristics -

1. The nature of soil is slightly alkaline to strongly alkaline with pH range 7.29 to 7.43.
2. The available Total Nitrogen content range between 13.5 to 19.0 mg/kg
3. The available Phosphorus content range between 2.0 to 2.6 mg/kg
4. The available Potassium range between 62.3 to 85 mg/kg

3.4 WATER ENVIRONMENT

The pH limit fixed for drinking water samples as per IS: 10500 is 6.5 to 8.5 beyond this range the water will affect the mucus membrane and or water supply system. During the study period, the pH was varying for ground waters from 7.24-7.42 and in surface water the pH was varying between 8.16-8.34. The pH values for all the samples collected in the study area during study period were found to be within the limits.

The desirable limit for total dissolved solids as per IS: 10500 are 500 mg/l whereas the permissible limits in absence of alternate source is 2000 mg/l, beyond this palatability decreases and may cause gastro intestinal irritation. In ground water samples collected from the study area, the total dissolved solids are varying from 470.1-540.2 mg/l. The TDS within the permissible limit of 2000 mg/l. In surface waters the total dissolved solids were in the range of 568.5-690 mg/l which were within the desirable limit.

The desirable limit for chloride is 250 mg/l as per IS: 10500 whereas the permissible limit of the same is 1000 mg/l beyond this limit taste, corrosion and palatability are affected. The Chloride levels in the ground water samples collected in the study area were ranging from 48.5-61.7 mg/l. All are within the desirable limits. In surface waters the chlorides were in the range of 97.3-134.5 mg/l, which are within the desirable limits.

The desirable limit as per IS: 10500 for hardness is 300 mg/l whereas the permissible limit for the same is 600 mg/l beyond this limit encrustation in water supply structure and adverse effects on domestic use will be observed. In the ground water samples collected from the study area, the hardness is varying from 191-237.5 mg/l. In surface waters the hardness is varying between 315-350.2 mg/l.

Fluoride is the other important parameter, which has the desirable limit of 1 mg/l and permissible limit of 1.5 mg/l. However, the optimum content of fluoride in the drinking water is 0.6 to 1.5 mg/l. If the fluoride content is less than 0.6 mg/l it causes dental carries, above 1.5 mg/l it causes staining of tooth enamel, higher concentration in range of 3 - 10 mg/l causes fluorosis. In the ground water samples of study area the fluoride value were in the range of 0.11-0.22 mg/l. where as in the surface waters the fluoride was in range of 0.30-0.45 mg/l.

Dissolved oxygen (DO) refers to the amount of oxygen (O₂) dissolved in water. Because in surface water fish and other aquatic organisms cannot survive without oxygen, DO is one of the most important water quality parameters. In surface water the reported value of range of 4 - 7 mg/l. Phosphorus (as PO₄) is an important nutrient for plants and algae. Because phosphorus is in short supply in most fresh waters, even a modest increase in phosphorus can cause excessive growth of plants and algae that deplete dissolved oxygen (DO) as they decompose. The range of Phosphorus (as PO₄) was found to be below detectable limit or absent.

3.5 AIR ENVIRONMENT

The baseline studies on air environment include identification of specific air pollution parameters and their existing levels in ambient air. The ambient air quality with respect

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Lessee: M/s. Pawanputra Buildcon Private Limited (Earlier P.P Anil S. Wath)

Executive Summary

to the study zone of 10 km radius around the proposed quarry forms the baseline information.

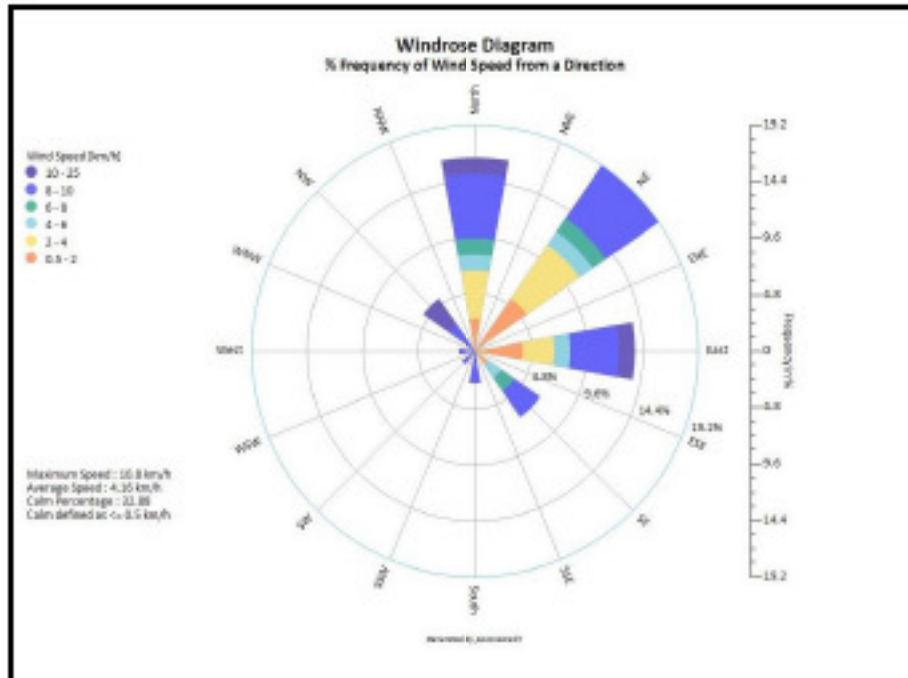


FIGURE - 3: WIND ROSE DIAGRAM

The results of ambient air quality monitoring for the period (October 2020 to December 2020) are presented in the report. Data has been compiled for three months. As per monitoring data, PM_{10} ranges from 68.4 to 78.4 $\mu\text{g}/\text{m}^3$, $PM_{2.5}$ data ranges from 30.5 to 41.3 $\mu\text{g}/\text{m}^3$, SO_2 ranges from 9.3 to 15.4 $\mu\text{g}/\text{m}^3$ and NO_2 data ranges from 15.6 to 26.4 $\mu\text{g}/\text{m}^3$. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

3.6 NOISE ENVIRONMENT

Ambient noise levels were measured at 13 (Thirteen) locations around the proposed project area. It is observed that the ambient noise levels at all the monitoring locations and villages are within the permissible limits of 55 dB(A) for day time and 45 dB(A) for night time observed within permissible limit.

3.7 ECOLOGICAL ENVIRONMENT

The study involved in the collection of primary data by conducting a survey in the field, examination of floral and faunal records in previously published reports and records. Analysis of the information is the view of the possible alteration in the environment of the project site. For the survey of fauna, both direct and indirect observation methods were used. There is no schedule I species of animals observed within study area as per Wildlife Protection Act 1972 as well as no species is in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area. Hence this small operation over short period of time will not have any significant impact on the surrounding flora and fauna.

3.8 SOCIO ECONOMIC ENVIRONMENT

It includes demographic structure of the area, provision of basic amenities viz., housing, education, health and medical services, occupation, water supply, sanitation, communication, transportation, prevailing diseases pattern as well as feature like temples, historical monuments etc., at the baseline level. This will help in visualizing and predicting the possible impact depending upon the nature and magnitude of the project. The socio-economic study of surveyed villages gives a clear picture of its population, average household size, literacy rate and sex ratio etc. It is also found that a part of population is suffering from lack of permanent job to run their day-to-day life. Their expectation is to earn some income for their sustainability on a long-term basis. The proposed projects will aim to provide preferential employment to the local people there by improving the employment opportunity in the area and in turn the social standards will improve.

4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES – IN COMMON FOR ALL PROPOSED QUARRIES

To maintain the environmental commensuration with the mining operation, it is essential to undertake studies on the existing environmental scenario and assess the impact on different environmental components. This would help in formulating suitable management plans sustainable resource extraction.

4.1 LAND ENVIRONMENT: ANTICIPATED IMPACT

- Permanent or temporary change on land use and land cover.
- Change in Topography: Topography of the ML area will change at the end of the life of the mine.
- Movement of heavy vehicles sometimes cause problems to agricultural land, human habitations due to dust, noise and it also causes traffic hazards.
- Due to degradation of land by pitting the aesthetic environment of the core zone may be affected.
- Earthworks during the rainy season increase the potential for soil erosion and sediment laden water entering the water ways.

If no due care is taken wash off from the exposed working area may choke the water course & can also causes the siltation of water course

MITIGATION MEASURES

- The mining activity will be gradual confined in blocks and excavation will be undertaken progressively along with other mitigative measures like phase wise development of greenbelt etc.
- Construction of garland drains all around the quarry pits and construction of check dam at strategic location in lower elevations to prevent soil erosion due to surface runoff during rainfall and also to collect the storm water for various uses within the proposed area
- Green belt development along the boundary within safety zone. The small quantity of water stored in the mined-out pit will be used for greenbelt

- Thick plantation will be carried out on unutilized area, top benches of mined out pits, on safety barrier, etc.,
- At conceptual stage, the land use pattern of the quarry will be changed into Greenbelt area and temporary reservoir
- In terms of aesthetics, natural vegetation surrounding the quarry will be retained (such as in a buffer area i.e., 7.5 m safety barrier and other safety provided) so as to help minimise dust emissions.
- Proper fencing will be carried out at the conceptual stage, Security will be posted round the clock, to prevent inherent entry of the public and cattle.

4.2 WATER ENVIRONMENT

ANTICIPATED IMPACT

- The major sources of water pollution normally associated due to mining and allied operations are:
 - Generation of waste water from vehicle washing.
 - Washouts from surface exposure or working areas
 - Domestic sewage
 - Disturbance to drainage course in the project area
 - Mine Pit water discharge
- Increase in sediment load during monsoon in downstream of lease area
- This being a mining project, there will be no process effluent. Waste from washing of machinery may result in discharge of Oil & grease, suspended solids.
- The sewage from soak pit may percolate to the ground water table and contaminate it.
- Surface drainage may be affected due to Mining
- Abstraction of water may lead to depletion of water table

MITIGATION MEASURES

- Garland drains, settling tank will be constructed along the individual mining leases. The Garland drains of the individual leases will be connected to settling tank and after settling the water will be discharged out to the natural drainage
- Rainwater will be collected in sump in the mining pits and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression onwards and such sites where dust likely to be generated and for developing green belt. The proponent will collect and judiciously utilize the rainwater as part of rainwater harvesting
- Providing benches with inner slopes and through a system of drains and channels, allowing rain water to descent into surrounding drains, so as to minimize the effects of erosion & water logging arising out of uncontrolled descent of water.
- Reuse the water collected during storm for dust suppression and greenbelt development within the mines

- Installing interceptor traps/oil separators to remove oils and greases. Water from the tipper wash-down facility and machinery maintenance yard will pass through interceptor traps/oil separators prior to its reuse;
- Using flocculating or coagulating agents to assist in the settling of suspended solids during monsoon seasons;
- Periodic analysis of quarry pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in ML is discharged in septic tank followed by soak pits.
- Waste water discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes.
- De-silting will be carried out before and immediately after the monsoon season.
- Regular monitoring and analysing the quality of water in open well, bore wells and surface water

4.3 AIR ENVIRONMENT

ANTICIPATED IMPACT

- During mining, at various stages activities such as excavation, drilling, blasting, and transportation of materials, particular matter (PM), gases such as Sulphur dioxide, oxides of Nitrogen from vehicular exhaust are the main air pollutants.
- Emissions of noxious gases due to incomplete detonation of explosive may sometimes pollute the air.
- The fugitive dust released from the mining operations may cause effect on the mine workers who are directly exposed to the fugitive dust.
- Simultaneously, the air-borne dust may travel to longer distances and settle in the villages located near the mine lease area.

MITIGATION MEASURES

DRILLING – To control dust at source, wet drilling will be practiced. Where there is a scarcity of water, suitably designed dust extractor will be provided for dry drilling along with dust hood at the mouth of the drill-hole collar.

ADVANTAGES OF WET DRILLING:-

- In this system dust gets suppressed close to its formation. Dust suppression become very effective and the work environment will be improved from the point of occupational comfort and health.
- Due to dust free atmosphere, the life of engine, compressor etc., will be increased.
- The life of drill bit will be increased.
- The rate of penetration of drill will be increased.
- Due to the dust free atmosphere visibility will be improved resulting in safer working conditions.

BLASTING –

- Establish time of blasting to suit the local conditions and water sprinkling on blasting face

- Avoid blasting i.e., when temperature inversion is likely to occur and strong wind blows towards residential areas
- Controlled blasting includes Adoption of suitable explosive charge and short delay detonators, adequate stemming of holes at collar zone and restricting blasting to a particular time of the day i.e. at the time lunch hours, controlled charge per hole as well as charge per round of hole
- Before loading of material water will be sprayed on blasted material
- Dust mask will be provided to the workers and their use will be strictly monitored

HAUL ROAD & TRANSPORTATION –

- Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation
- Transportation of material will be carried out during day time and material will be covered with tarpaulin
- The speed of tippers plying on the haul road will be limited below 20 km/hr to avoid generation of dust.
- Water sprinkling on haul roads & loading points will be carried out twice a day
- Main source of gaseous pollution will be from vehicle used for transportation of mineral; therefore, weekly maintenance of machines improves combustion process & makes reduction in the pollution.
- The un-metalled haul roads will be compacted weekly before being put into use.
- Over loading of tippers will be avoided to prevent spillage.
- It will be ensured that all transportation vehicles carry a valid PUC certificate
- Grading of haul roads and service roads to clear accumulation of loose materials

GREEN BELT –

- Planting of trees all along main mine haul roads and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of dumpers/trucks
- Green belt of adequate width will be developed around the project areas

OCCUPATIONAL HEALTH –

- Dust mask will be provided to the workers and their use will be strictly monitored
- Annual medical check-ups, trainings and campaigns will be arranged to ensure awareness about importance of wearing dust masks among all mine workers & tipper drivers
- Ambient Air Quality Monitoring will be conducted six month once to assess effectiveness of mitigation measures proposed

4.4 NOISE ENVIRONMENT

ANTICIPATED IMPACT

- Noise pollution poses a major health risk to the mine workers. Following are the sources of noise in the existing open cast mine project are being observed such as Drilling, & Blasting, Loading and during movement of vehicles.

MITIGATION MEASURES

- Usage of sharp drill bits while drilling which will help in reducing noise;
- Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders;
- Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained;
- The blasting will be carried out during favourable atmospheric condition and less human activity timings by using nonelectrical initiation system;
- Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise;
- Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise;
- Silencers / mufflers will be installed in all machineries;
- Green Belt/Plantation will be developed around the project area and along the haul roads. The plantation minimizes propagation of noise;
- Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured through training and awareness.
- Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects.

4.5 BIOLOGICAL ENVIRONMENT

ANTICIPATED IMPACT

There are no National Park and Archaeological monuments within project area. There are no migratory corridors, migratory avian-fauna, rare endemic and endangered species. There are no wild animals in the area. No breeding and nesting site were identified in project site. No National Park and Wildlife Sanctuary found within 10km radius. The dumps / bunds around the mine itself act as a good barrier for entry of stray animals. In the post mining stage, barbed wire fencing is proposed all around the mined-out void to prevent fall of animals in the mine pits.

MITIGATION MEASURES

To reduce the adverse effects on natural flora/fauna status of the area due to deposition of dust generated from mining operations, water sprinkling and water spraying systems will be ensured in all dust prone areas to arrest dust generation. Methodical and well-planned plantation scheme will be carried out.

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Lessee: M/s. Pawanputra Buildcon Private Limited (Earlier P.P Anil S. Wath)

Executive Summary

4.5.1 GREENBELT DEVELOPMENT PLAN

| Code | No of Trees proposed to be planted | Survival % | Name of the Species | No. of Trees expected to be grown |
|---------------------|------------------------------------|------------|---|-----------------------------------|
| Salaimendha Cluster | 1715 | 80% | Neem, Pipal, Wad Imli, Bel, Babool Palas Etc. As Per Soil Condition | 1372 |

Based on the Mining Plans its anticipated that there shall be growth of native species of Neem, Pipal, etc. 1715 nos of Trees Planted over a period of 5 Years with Survival Rate of 80% and expected growth is around 1372 Trees.

4.6 SOCIO ECONOMIC ENVIRONMENT

ANTICIPATED IMPACT

- Employment generation due to the project will provide direct employment for about 25 persons.

MITIGATION MEASURES

- Good maintenance practices will be adopted for plant machinery and equipment, which will help to avert potential noise problems.
- Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines.
- Appropriate air pollution control measure will be taken to minimize the environmental impact within the core zone.
- For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices will be provided as per mines act and rules.
- Benefit to the State and the Central governments through financial revenues by way of royalty, tax, DMF, NMET etc, from this project directly and indirectly.

5. ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

- The site has been selected based on geological investigation and exploration as below:
 - Occurrence of minerals at the specific site.
 - Transportation facility for materials & manpower.
 - Overall impact on environment and mitigation feasibility
 - Socio - economic background.
- The mineral deposits are site specific in nature; hence question of seeking alternate site does not arise for this project.

6. ENVIRONMENT MONITORING PROGRAM

Usually, an impact assessment study is carried over short period of time and the data cannot bring out all variations induced by natural or human activities. Hence regular

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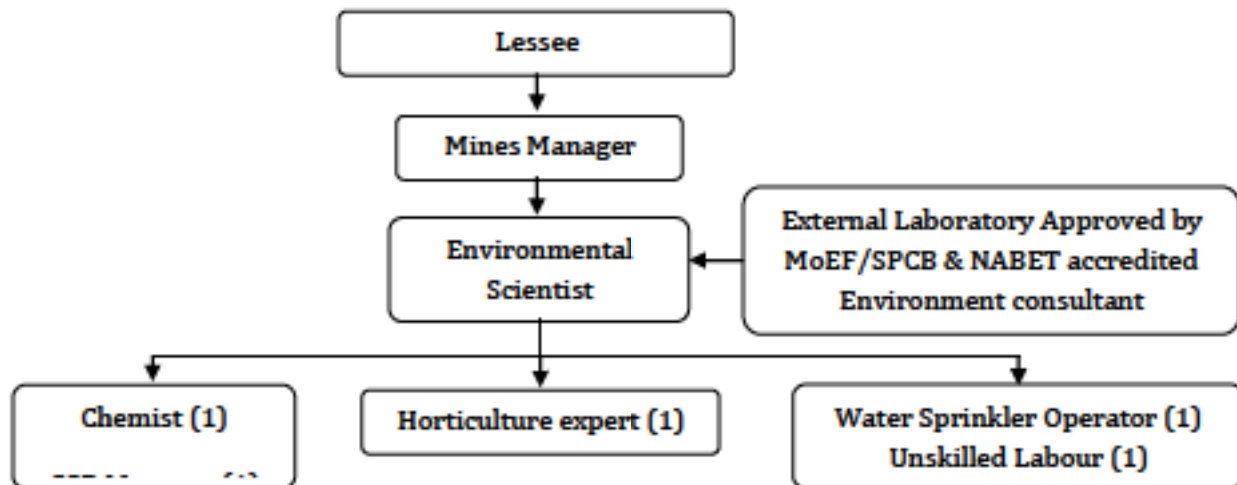
Executive Summary

monitoring program of Environmental parameters is essential to consider the changes in the Environment.

The Objective of Monitoring -

- ✚ To check or assess the efficiency of the controlling measures;
- ✚ To establish a data base for future impact assessment studies.

6.1 ENVIRONMENTAL MONITORING CELL



6.2 POST ENVIRONMENTAL CLEARANCE MONITORING SCHEDULE IN COMMON

| S. No. | Environment Attributes | Location | Monitoring | | Parameters |
|--------|--------------------------|--|----------------|------------------------------|---|
| | | | Duration | Frequency | |
| 1 | Air Quality | 2 Locations (1 Core & 1 Buffer) | 24 hours | Once in 6 months | Fugitive Dust, PM _{2.5} , PM ₁₀ , SO ₂ and NO _x |
| 2 | Meteorology | At mine site before start of Air Quality Monitoring & IMD Secondary Data | Hourly / Daily | Continuous online monitoring | Wind speed, Wind direction, Temperature, Relative humidity and Rainfall |
| 3 | Water Quality Monitoring | 1 Locations (1 GW) | - | Once in 6 months | Parameters specified under IS:10500, 1993 & CPCB Norms |
| 4 | Hydrology | Water level in open wells in buffer zone around 1 km at specific wells | - | Once in 6 months | Depth in bgl |
| 5 | Noise | 2 Locations (1 Core & 1 Buffer) | Hourly - 1 Day | Once in 6 months | Leq, Lmax, Lmin, Leq Day & Leq Night |

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Lessee: M/s. Pawanputra Buildcon Private Limited (Earlier P.P Anil S. Wath)

Executive Summary

| S. No. | Environment Attributes | Location | Monitoring | | Parameters |
|--------|------------------------|--|------------|---------------------------|---------------------------------------|
| | | | Duration | Frequency | |
| 6 | Vibration | At the nearest habitation (in case of reporting) | - | During blasting Operation | Peak Particle Velocity |
| 7 | Soil | 2 Locations (1 Core & 1 Buffer) | - | Once in six months | Physical and Chemical Characteristics |
| 8 | Greenbelt | Within the Project Area | Daily | Monthly | Maintenance |

7. ADDITIONAL STUDIES

7.1 RISK ASSESSMENT

The methodology for the risk assessment has been based on the specific risk assessment guidance issued by the Directorate General of Mine Safety (DGMS), Dhanbad, vide Circular No.13 of 2002, dated 31st December, 2002. The DGMS risk assessment process is intended to identify existing and probable hazards in the work environment and all operations and assess the risk levels of those hazards in order to prioritize those that need immediate attention. Further, mechanisms responsible for these hazards are identified and their control measures, set to timetable are recorded along with pinpointed responsibilities. The whole quarry operation will be carried out under the direction of a Qualified Competent Mine Manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad. Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening.

7.2 DISASTER MANAGEMENT PLAN

The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

The objective of the Disaster Management Plan is to make use of the combined resources of the mine and the outside services to achieve the following:

- ✚ Rescue and medical treatment of casualties;
- ✚ Safeguard other people;
- ✚ Minimize damage to property and the environment;
- ✚ Initially contain and ultimately bring the incident under control;
- ✚ Secure the safe rehabilitation of affected area; and
- ✚ Preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of the emergency

7.3 CUMULATIVE IMPACT STUDY

The Cumulative Impact is anticipated due to drilling & blasting and excavation and transportation activities from proposed mines within the 500 meter radius from the proposed mines and major impact anticipated is on Air & Noise Environment and Ground Vibrations due to blasting. The current monitoring was done as existing quarry are working which gives the ambient or present condition of air quality as well as noise.

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Lessee: M/s. Pawanputra Buildcon Private Limited (Earlier P.P Anil S. Wath)

Executive Summary

PREDICTED AIR INCREMENTAL VALUE

| S. No. | Locations | PM10 ($\mu\text{g}/\text{m}^3$) | | | PM2.5 ($\mu\text{g}/\text{m}^3$) | | | SO2 ($\mu\text{g}/\text{m}^3$) | | | NO2 ($\mu\text{g}/\text{m}^3$) | | |
|--|-----------|-----------------------------------|------|-------|------------------------------------|------|-------|----------------------------------|------|-------|----------------------------------|------|-------|
| | | Inc | Max | Total | Inc | Max | Total | Inc | Max | Total | Inc | Max | Total |
| 1. | AAQ-1 | 0.0 | 73.9 | 73.9 | 0.0 | 38.6 | 38.6 | 0.0 | 13.2 | 13.2 | 0.0 | 23.5 | 23.5 |
| 2. | AAQ-2 | 1.3 | 75.1 | 76.4 | 0.3 | 41.3 | 41.6 | 0.3 | 12.9 | 13.2 | 0.2 | 24.5 | 24.7 |
| 3. | AAQ-3 | 0.1 | 78.4 | 78.5 | 0.0 | 40.2 | 40.2 | 0.1 | 12.7 | 12.8 | 0.1 | 23.9 | 24 |
| 4. | AAQ-4 | 1.3 | 75.1 | 76.4 | 0.5 | 37.8 | 38.3 | 0.2 | 13.2 | 13.4 | 0.1 | 24.7 | 24.8 |
| 5. | AAQ-5 | 0.7 | 75.6 | 76.3 | 0.2 | 35.6 | 35.8 | 0.1 | 13.9 | 14 | 0.2 | 24.6 | 24.8 |
| 6. | AAQ-6 | 1.2 | 75.8 | 77.0 | 0.6 | 36.8 | 37.4 | 0.3 | 14.2 | 14.5 | 0.1 | 25.7 | 25.8 |
| 7. | AAQ-7 | 2.6 | 75.6 | 78.2 | 0.9 | 34.7 | 35.6 | 0.6 | 14.7 | 15.3 | 0.3 | 25.3 | 25.6 |
| 8. | AAQ-8 | 1.6 | 74.9 | 76.5 | 0.3 | 36.5 | 36.8 | 0.1 | 14.7 | 14.8 | 0.0 | 25.4 | 25.4 |
| 9. | AAQ-9 | 1.1 | 74.2 | 75.3 | 0.1 | 36.6 | 36.7 | 0.1 | 14.5 | 14.6 | 0.0 | 24.8 | 24.8 |
| 10. | AAQ-10 | 1.0 | 75.9 | 76.9 | 0.1 | 35.2 | 35.3 | 0.0 | 15.4 | 15.4 | 0.1 | 26.4 | 26.5 |
| 11. | AAQ-11 | 1.1 | 75.4 | 76.5 | 0.1 | 35.6 | 35.7 | 0.1 | 13.9 | 14 | 0.1 | 25.4 | 25.5 |
| 12. | AAQ-12 | 1.0 | 76.3 | 77.3 | 0.1 | 35.8 | 35.9 | 0.1 | 14.3 | 14.4 | 0.0 | 25.3 | 25.3 |
| 13. | AAQ-13 | 1.1 | 75.1 | 76.2 | 0.1 | 35.4 | 35.5 | 0.1 | 14.9 | 15.0 | 0.0 | 24.4 | 24.4 |
| NAAQS ($\mu\text{g}/\text{m}^3$) | | 100 | | | 60 | | | 80 | | | 80 | | |

MAXIMUM GROUND LEVEL CONCENTRATION

| Pollutants | Max. GLC observed, ($\mu\text{g}/\text{m}^3$) | Distance and Direction |
|-------------------|---|------------------------|
| PM ₁₀ | 12.8 | 1000, SW |
| PM _{2.5} | 7.4 | 1000, SW |
| SO ₂ | 6.0 | 1000, SW |
| NO ₂ | 6.4 | 1000, SW |

PREDICTED NOISE INCREMENTAL VALUE

| Equipment with Highest Noise Level | Location ID | Background Value (Day) dB(A) | Incremental Value dB(A) | Total Predicted dB(A) | Residential Area Standards dB(A) |
|------------------------------------|------------------|------------------------------|-------------------------|-----------------------|----------------------------------|
| Drilling 90 dB(A) | Salaimendha (N8) | 51.1 | 26.9 | 51.1 | 55 |
| Shovel 85 dB(A) | | 51.1 | 21.9 | 51.1 | |
| Tipper 75 dB(A) | | 51.1 | 11.9 | 51.1 | |
| Compressor 85 dB(A) | | 51.1 | 21.9 | 51.1 | |
| Excavator 102 dB(A) | | 51.1 | 38.9 | 51.4 | |

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Executive Summary

ESTIMATED PEAK PARTICLE VELOCITY FOR EXPLOSIVE CHARGE FOR PROPOSED MINES

| Distance from blasting site, m | Quantity of Explosive/Blast, Kg For different proposed project | PPV, mm/s For different proposed project |
|--------------------------------|--|--|
| 50 | 44 | 32.5 |
| 100 | 44 | 13.5 |
| 150 | 44 | 8.1 |
| 200 | 44 | 5.6 |
| 250 | 44 | 4.2 |
| 300 | 44 | 3.4 |
| 350 | 44 | 2.8 |
| 400 | 44 | 2.3 |
| 450 | 44 | 2.0 |
| 500 | 44 | 1.8 |
| 550 | 44 | 1.6 |
| 600 | 44 | 1.4 |
| 650 | 44 | 1.3 |
| 700 | 44 | 1.2 |
| 750 | 44 | 1.1 |

Note: The empirical formula does not consider the delay factor in blasting due to use of Delay Detonators.

The nearest habitation from cluster is Salaimendha Village at 0.6 Km in E direction. From the above table, the blasting will not cause any significant ground vibrations in the area. The ground vibrations at nearest habitation will be well within the permissible limits recommended by DGMS.

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Executive Summary

ESTIMATED PEAK PARTICLE VELOCITY OF EXISTING MINES
 PPV, mm/s FOR DIFFERENT EXISTING MINES ON EXPLOSIVE PER BLAST

| Distance from blasting site, m | E1 (NO) | E2 (NO) | E3 (12) | E4 (10) | E5 (7) | E6 (8) | E7 (7) | E8 (11) | E9 (11) | E10 (NO) | E11 (22) | E12 (18) | E13 (11) | E14 (5) | E15 (7) | E16 (5) | E17 (NO) | E18 (NO) | E19 (NO) | E20 (14) | E21 (47) | E22 (13) | E23 (17) | E24 (17) |
|--------------------------------|---------|---------|---------|---------|--------|--------|--------|---------|---------|----------|----------|----------|----------|---------|---------|---------|----------|----------|----------|----------|----------|----------|----------|----------|
| 50 | 0 | 0 | 14.3 | 12.7 | 10.1 | 11.0 | 10.1 | 13.5 | 13.5 | 0 | 20.9 | 18.4 | 13.5 | 8.2 | 10.1 | 8.2 | 0 | 0 | 0 | 15.7 | 33.8 | 15.0 | 17.8 | 17.8 |
| 100 | 0 | 0 | 5.9 | 5.3 | 4.2 | 4.6 | 4.2 | 5.6 | 5.6 | 0 | 8.7 | 7.7 | 5.6 | 3.4 | 4.2 | 3.4 | 0 | 0 | 0 | 6.5 | 14.1 | 6.2 | 7.4 | 7.4 |
| 150 | 0 | 0 | 3.6 | 3.2 | 2.5 | 2.8 | 2.5 | 3.4 | 3.4 | 0 | 5.2 | 4.6 | 3.4 | 2.0 | 2.5 | 2.0 | 0 | 0 | 0 | 3.9 | 8.4 | 3.7 | 4.4 | 4.4 |
| 200 | 0 | 0 | 2.5 | 2.2 | 1.8 | 1.9 | 1.8 | 2.3 | 2.3 | 0 | 3.6 | 3.2 | 2.3 | 1.4 | 1.8 | 1.4 | 0 | 0 | 0 | 2.7 | 5.9 | 2.6 | 3.1 | 3.1 |
| 250 | 0 | 0 | 1.9 | 1.7 | 1.3 | 1.4 | 1.3 | 1.8 | 1.8 | 0 | 2.7 | 2.4 | 1.8 | 1.1 | 1.3 | 1.1 | 0 | 0 | 0 | 2.1 | 4.4 | 2.0 | 2.3 | 2.3 |
| 300 | 0 | 0 | 1.5 | 1.3 | 1.1 | 1.1 | 1.1 | 1.4 | 1.4 | 0 | 2.2 | 1.9 | 1.4 | 0.9 | 1.1 | 0.9 | 0 | 0 | 0 | 1.6 | 3.5 | 1.6 | 1.8 | 1.8 |
| 350 | 0 | 0 | 1.2 | 1.1 | 0.9 | 0.9 | 0.9 | 1.2 | 1.2 | 0 | 1.8 | 1.6 | 1.2 | 0.7 | 0.9 | 0.7 | 0 | 0 | 0 | 1.3 | 2.9 | 1.3 | 1.5 | 1.5 |
| 400 | 0 | 0 | 1.0 | 0.9 | 0.7 | 0.8 | 0.7 | 1.0 | 1.0 | 0 | 1.5 | 1.3 | 1.0 | 0.6 | 0.7 | 0.6 | 0 | 0 | 0 | 1.1 | 2.4 | 1.1 | 1.3 | 1.3 |
| 450 | 0 | 0 | 0.9 | 0.8 | 0.6 | 0.7 | 0.6 | 0.8 | 0.8 | 0 | 1.3 | 1.1 | 0.8 | 0.5 | 0.6 | 0.5 | 0 | 0 | 0 | 1.0 | 2.1 | 0.9 | 1.1 | 1.1 |
| 500 | 0 | 0 | 0.8 | 0.7 | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 | 0 | 1.1 | 1.0 | 0.7 | 0.4 | 0.6 | 0.4 | 0 | 0 | 0 | 0.9 | 1.8 | 0.8 | 1.0 | 1.0 |
| 550 | 0 | 0 | 0.7 | 0.6 | 0.5 | 0.5 | 0.5 | 0.7 | 0.7 | 0 | 1.0 | 0.9 | 0.7 | 0.4 | 0.5 | 0.4 | 0 | 0 | 0 | 0.8 | 1.6 | 0.7 | 0.9 | 0.9 |
| 600 | 0 | 0 | 0.6 | 0.5 | 0.4 | 0.5 | 0.4 | 0.6 | 0.6 | 0 | 0.9 | 0.8 | 0.6 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 | 0.7 | 1.5 | 0.6 | 0.8 | 0.8 |
| 650 | 0 | 0 | 0.6 | 0.5 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 | 0 | 0.8 | 0.7 | 0.5 | 0.3 | 0.4 | 0.3 | 0 | 0 | 0 | 0.6 | 1.3 | 0.6 | 0.7 | 0.7 |
| 700 | 0 | 0 | 0.5 | 0.5 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 | 0 | 0.7 | 0.7 | 0.5 | 0.3 | 0.4 | 0.3 | 0 | 0 | 0 | 0.6 | 1.2 | 0.5 | 0.6 | 0.6 |
| 750 | 0 | 0 | 0.5 | 0.4 | 0.3 | 0.4 | 0.3 | 0.4 | 0.4 | 0 | 0.7 | 0.6 | 0.4 | 0.3 | 0.3 | 0.3 | 0 | 0 | 0 | 0.5 | 1.1 | 0.5 | 0.6 | 0.6 |

Draft EIA/EMP for Salaimendha Stone Quarry Cluster with new proposed area of 9.98 Ha, while the cluster area is 62.02 Ha, located in Salaimendha Village, Umred Taluka, Nagpur District, Maharashtra.

Lessee: M/s. Pawanputra Buildcon Private Limited (Earlier P.P. Anil S. Wath)

Executive Summary

8. PROJECT BENEFITS

Proposed Project for Quarrying Basalt Stone at Salaimendha Village aims to produce rock over a period of 5 Years. This will enhance the socio-economic activities in the adjoining areas and will result in the following benefits.

- ✚ Increase in Employment Potential
- ✚ Improvement in Socio-Economic Welfare
- ✚ Improvement in Physical Infrastructure
- ✚ Improvement in Social infrastructure

SOCIO ECONOMIC BENEFITS FROM PROPOSED 1 MINES

| Project Cost in Rs. | CER in Rs. |
|---------------------|------------|
| 35000000 | 700000 |

Considering this case greenfield project. As per Memorandum No:F NO 22-65/2017-IA-III dated 01/05/2018 the applicable CER is 2% in greenfield of project cost.

9. ENVIRONMENT MANAGEMENT PLAN

The Environment Monitoring Cell discussed formed by the mine management will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level.

The said team will be responsible for:

1. Implementation of pollution control measures as suggested in Environmental Management Plan and recommended in EC
2. Conducting environmental monitoring as per EMP and EC stipulation through external laboratories approved by MoEF/SPCB and NABL
3. Ensuring compliance with other conditions stipulated in Environmental Clearance for the project.
4. Ensuring compliance with the conditions stipulated in 'Consent to Operate' for the project.
5. Timely submission of compliance status to MoEF/ SPCB
6. Seeking experts' guidance, as and when required.
7. Conducting CSR activities in nearby villages.
8. Co-ordination of the environment related activities within the project as well as with outside agencies
9. Collection of health statistics of the workers and population of the surrounding villages
10. Green belt development
11. Monitoring the progress of implementation of the environmental monitoring programme
12. Monitoring of the water/ waste water quality, air quality and solid waste generated
13. Analysis of the water and air samples collected through external laboratory
14. Implementation and monitoring of the pollution control and protective measures/ devices which shall include financial estimation, ordering, installation of air pollution control equipment, waste water treatment plant, etc

Draft EIA/EMP for Salaimendha Stone Quarry Cluster with new proposed area of 9.98 Ha, while the cluster area is 62.02 Ha, located in Salaimendha Village, Umred Taluka, Nagpur District, Maharashtra.

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Executive Summary

15. Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

BUDGET FOR IMPLEMENTATION OF EMP

| Proposed Mine | Capital Cost | Recurring Cost |
|--|--------------|----------------|
| M/s. Pawanputra Buildcon Private Limited (Earlier P.P. Anil S. Wath) | 23,20,220 | 5,09,726 |

10. CONCLUSION

It can be concluded from overall assessment of the impacts, in terms of positive and negative effects on various environmental components, that the mining activities will not have any adverse effect on the surrounding environment.

To mitigate any impacts due to the mining activities, a well-planned EMP and a detailed post project monitoring system is provided for regular monitoring and immediate rectification at site. Due to the cluster quarrying activities, socio economic conditions in and around the project site will be improved substantially. Hence, the Prior Environmental Clearance shall be granted at the earliest.