

**EXECUTIVE SUMMARY**  
**OF**  
**DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT &**  
**ENVIRONMENTAL MANAGEMENT PLAN**

**FOR**  
**PUBLIC HEARING**  
**OF**

**Expansion in Limestone Production Capacity**  
**from 3.8 to 12.5 Million TPA and Top Soil 0.1455 Million TPA,**  
**Overburden 1.1257 Million TPA**  
**(Total Excavation: 13.7712 Million TPA)**  
**along with One Existing Crusher of 1200 TPH Capacity and**  
**Installation of One Additional Proposed Crusher of**  
**1200 TPH Capacity along with Wobbler in Kodla Limestone Mine**  
**(ML Area- 517.61 ha, M L No. 2673 & 2674)**

**At**  
**Villages: Kodla & Benakanahalli,**  
**Taluka: Sedam, District: Kalaburagi**  
**(Karnataka)**

**APPLICANT**



**Shree Cement Ltd.**

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## Executive Summary

### 1.0 PROJECT DESCRIPTION

#### 1.1 INTRODUCTION OF PROJECT PROPONENT

##### About Shree Cement Limited (SCL)

Shree Cement Limited (SCL) is a Public Limited Company and environment friendly business organization incorporated under the Companies Act, 1956 (no. 1 of 1956) on 25<sup>th</sup> October 1979. The Company is engaged in the business of cement manufacturing, mining of mineral for Cement manufacturing facilities in India & United Arab Emirates (UAE) and generation of electrical power for captive use & sale.

##### Cement manufacturing facilities

Presently, our cement production capacity stands at 47.4 Million TPA. The Company's Cement and Clinker manufacturing facilities are located at Beawar & Ras in Rajasthan, Balodabazar-Bhatapara in Chhattisgarh, at Sedam Taluk in District: Kalaburagi in Karnataka and Ras Al Khaimah (RAK) in United Arab Emirates (UAE). It has split grinding units at nine locations viz. Khushkhera, Suratgarh, Jobner in Rajasthan, Roorkee in Uttarakhand, Aurangabad in Bihar, Bulandshahr in Uttar Pradesh Panipat in Haryana, Saraikela-kharsawan in Jharkhand and Cuttack in Odisha.

##### Power Generation Facilities

Total Thermal Power Plants Capacity of the Company is 762.5 MW (including 211 MW Waste Heat Recovery Green Power Capacity which is the largest capacity of Green Power in the entire world cement industry excluding China, 4.25 MW Solar Plant and 39.25 MW Wind Plant). The power generated from these plants is primarily utilized for consumption in its own cement plants as well as to sell to the outside parties.

##### Products

The Company pursues with multi-brand portfolio strategy consisting of four brands viz; Shree Jang Rodhak Cement, Bangur Cement, Rockstrong Cement and Roofon. The Company currently enjoys the highest market share in Rajasthan, Delhi and Haryana, Punjab, West Uttar Pradesh and Uttarakhand.

#### 1.2 TYPE OF PROJECT

Shree Cement Limited (SCL) is proposing expansion in Kodla Limestone Mine ML Area- 517.61 ha, ML No. 2673 & 2674) at Villages: Kodla & Benakanahalli, Taluka: Sedam, District: Kalaburagi, Karnataka with Limestone Production capacity from 3.8 to 12.5 Million TPA and Top Soil 0.1455 Million TPA, Over burden 1.1257 Million TPA (Total Excavation: 13.7712 Million TPA) along with one existing crusher of 1200 TPH Capacity and installation of proposed crusher of 1200 TPH Capacity along with wobbler to meet the total limestone requirement of the proposed expansion of Integrated Cement Plant.

As per EIA Notification dated 14<sup>th</sup> September, 2006 as amended from time to time, the project falls under Category “A”, Project or Activity 1 (a) (3) for Mining of Mineral and Project Activity 2(b) (3) for Mineral Beneficiation (Crusher with Wobbler).

Application (Form-1 and Pre-Feasibility Report) has been uploaded on MoEFCC web Portal, New Delhi on 20.03.2021. First Technical Presentation (for ToR approval) held before MoEFCC, New Delhi on 06.04.2021 and ToR letter was issued by MOEFCC Vide letter no. IA-J-11015/24/2021-IA.II (M) dated 19.07.2021.

### 1.3 NEED FOR THE PROJECT

- Shree Cement Limited is proposing Expansion of existing Integrated Cement Plant - Clinker (2.4 to 8.0 Million TPA), Cement (4.0 to 9.0 Million TPA), Waste Heat Recovery Power Generation (30 to 70 MW), along with Installation of Captive Power Plant (2 x 25 MW), Synthetic Gypsum Plant (1560 TPD) and D.G. Set (2000 KVA to 3000 KVA) & Railway siding at Village: Benkanhalli, Taluka: Sedam, District: Kalaburagi (Karnataka).
- To meet the total limestone requirement after the expansion of existing Integrated Cement Plant, SCL is proposing expansion in Limestone Production Capacity from 3.8 Million TPA to 12.5 Million TPA and Top Soil 0.1455 Million TPA, Over burden 1.1257 Million TPA (Total Excavation: 13.7712 Million TPA) along with one existing crusher of 1200 TPH Capacity and installation of proposed crusher of 1200 TPH Capacity along with wobbler in Kodla Limestone Mine (ML Area: 517.61 ha, ML No. 2673 & 2674) at Villages: Kodla & Benakanahalli, Taluka: Sedam, District: Kalaburagi, Karnataka.

### 1.4 Brief Description of the Project

Table – 1  
Brief Description of the Project

S. No.	Particulars	Details				
A.	Nature of project	Expansion in Kodla Limestone Mine				
B.	Size of project					
1.	ML area	517.61 ha				
2.	Production Level	S.No	Project Activity	Existing (In MTPA)	Additional (In MTPA)	Capacity After Expansion (In MTPA)
		1	Total Excavation	3.98	9.7912	13.7712
		2	Limestone	3.80	8.70	12.50
		3	Top Soil	0.09	0.0555	0.1455
		4	Overburden	0.09	1.0357	1.1257
		5	Crusher	1 x 1200 TPH	1 x 1200 TPH Along with wobbler	2 x 1200 TPH Along with wobbler
C	Project Location					
1.	Villages	Kodla & Benakanahalli				
2.	Tehsil	Sedam				

Expansion in Limestone Production Capacity from 3.8 to 12.5 Million TPA and Top Soil 0.1455 Million TPA, Over burden 1.1257 Million TPA (Total Excavation: 13.7712 Million TPA) along with one existing crusher of 1200 TPH Capacity and installation of one additional proposed crusher of 1200 TPH Capacity along with Wobbler in Kodla Limestone Mine ML Area- 517.61 ha, (M L No. 2673 & 2674) At Villages: Kodla & Benakanahalli, Taluka: Sedam, District: Kalaburagi, Karnataka

Executive Summary of Draft EIA/EMP Report

S. No.	Particulars	Details
3.	District	Kalaburagi
4.	State	Karnataka
5.	Coordinates	Latitude: 17°00'41.48402" N to 17°02'23.14289" N Longitude: 77° 12'37.9107" E to 77°14'24.3641" E
6.	Toposheet No.	Core Zone: 56G/4 Buffer Zone: 56 G/4, 56G/8 (E43R8), 56H/1 (E43X1) & 56 H/5 (E43X5)
<b>D</b>	<b>Environmental Setting Details (with approx. aerial distance &amp; direction from the mining lease boundary)</b>	
1.	Nearest Highway	State highway 15 (~ 2.5 km in East Direction) State highway 126 (~ 5.5 km in WSW Direction) State highway - 122 (~ 6.0 km in SSE direction)
2.	Nearest Railway Station	Malkhaid (~ 12 km in NNW direction)
3.	Nearest Airport	Rajiv Gandhi International Airport, Hyderabad (~129 km in ENE direction)
4.	National Park, Wild Life Sanctuaries, Biosphere Reserves, Wildlife corridors, Tiger/Elephant Reserves etc. within 10 km radius study area	There is no National Park, Wild Life Sanctuaries, Biosphere Reserves, Tiger Reserves, and Wildlife Corridors etc. within 10 km radius of study area.
5.	Reserve/Protected Forest within 10 km radius study area	Yadgir RF (~8.5Km in the WSW direction)
6.	Water Bodies within 10 km radius of the mine site	Kamalavati Nadi (~7.5 km in East Direction)
7.	Seismic Zone	Zone – II as per IS: 1893 (Part-I): 2002
<b>D</b>	<b>Cost Details</b>	
1.	Project Cost	<b>RS. 201.56 CRORE</b> (RS. 125.08 Crore Existing + RS. 76.48 Crore Proposed)
2.	Cost of EMP	<b>Capital Cost: Rs. . 6.77 CRORES</b> (RS. 1.42 Crores Existing + RS. 5.35 Crores Proposed) <b>Recurring Cost: RS. 1.00 CRORES</b> (RS. 0.25 Crores Existing + RS. 0.75 Crores Proposed/Per Annum)

Source: Site Visit & Pre-feasibility Report

1.5 Location map

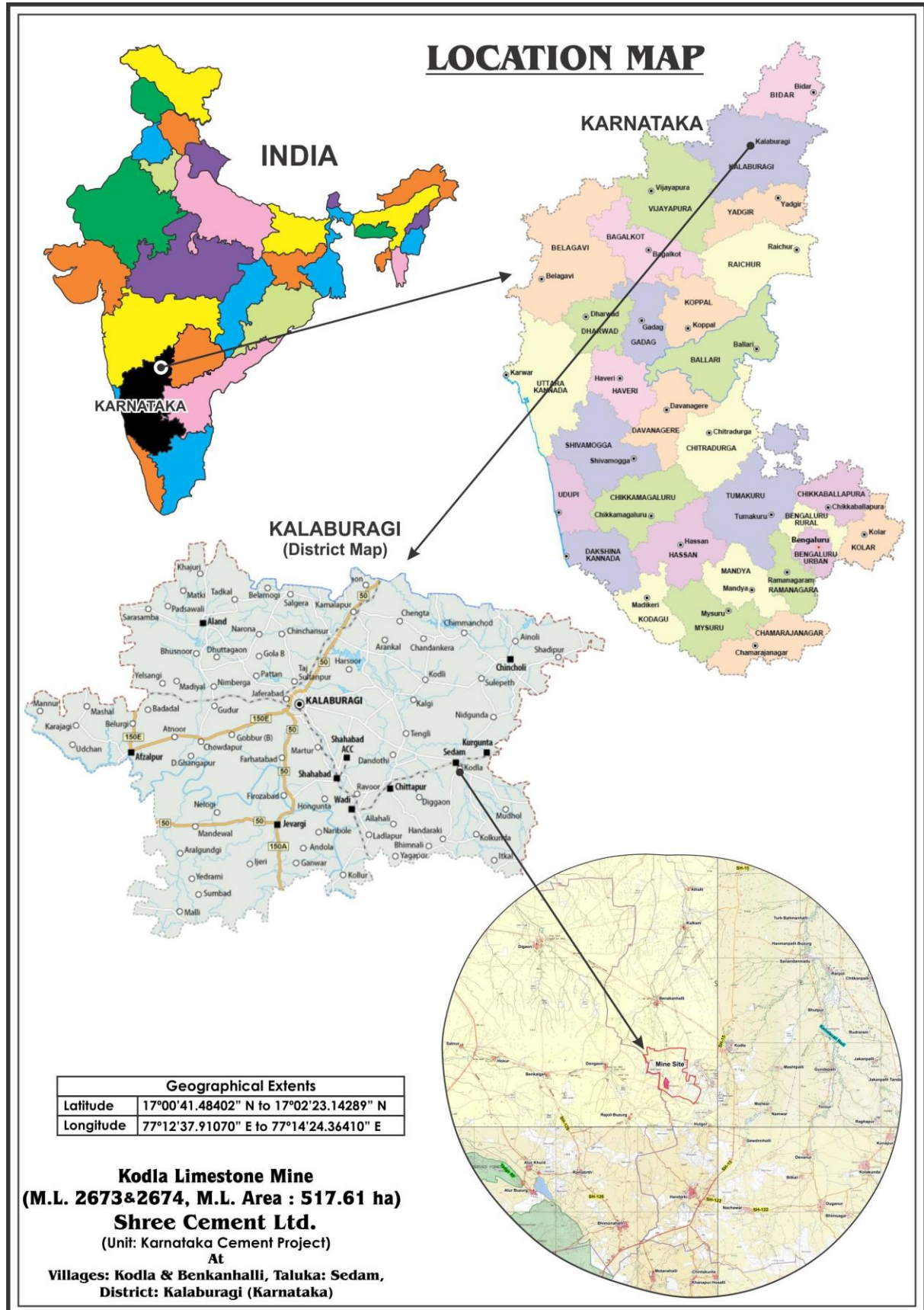


Figure-1: Location map (Showing general as well as specific location of the ML area)

## 1.6 MINE DESCRIPTION

### 1.6.1 MINING LEASE STATUS

- The mining lease over an area of 551.36 ha was sanctioned in favor of Shree Cement Limited vide Notification no. DMG-MLS: 957-AML-07/2009-10/7024 dated 10.09.2009. During the execution of the lease, DMG split the Total M L Area (i.e. 517.61 ha) into two M L areas and the same has been executed as M L No. 2673 over an area of 91.87 ha on 07.06.2014 and M L No. 2674 over an area of 425.74 ha on 05.08.2014. Thereafter, SCL applied to Director, DMG for amalgamation of both ML Area under Rule 38 of Mineral concession rules 1960 on 20.08.2014. Later on, DMG recommended the State Government for amalgamation on 18.09.2015 and the State Government granted the permission for amalgamation vide letter no. C17CMC2016 dated 04.05.2017. Now, the amalgamated Mining Lease deed has been executed over an area of 517.61 ha by Department of Mines & Geology Bangalore, Government of Karnataka vide their letter no. DMG/MLS/ML-2673/2674/2018-4453 dated 07.11.2018 upto 06.06.2044 (Co-terminus with Lease period whose period will expire first).
- Now, Mining Plan has been Modified along with Progressive Mine Closure Plan over an area of 517.61 ha has been approved by IBM, regional Controller of Mines, Bangalore Vide letter no. 279/1043/2009/BNG dated 23.02.2021

### 1.6.2 MINING DETAILS

**Table – 2**  
**Mining Details**

S. No.	Particulars	Details
1	Method of mining	Open Cast Mechanized Mining Method
2	Production Capacity	12.50 Million TPA Limestone
3	Total Geological Resources	271.13 Million Tones as on 31.12.2020
4	Mineable reserves	240.92 Million Tones as on 31.12.2020
5	Life of the Mine	20 Years
6	Bench Height and Width	Bench Height – 12 m Bench Width – 30 m (working width)
7	Elevation Range	476 m AMSL to 539 m AMSL
8	General Ground Level	507 mRL
9	Water table	Post Monsoon: 462 mRL (45 mbgl) Pre-Monsoon: 452 mRL (55 mbgl)
10	Ultimate Working Depth	458 mRL (49m bgl)
11	Stripping Ratio (Ore: waste) (tonnes: tonnes)	1:0.06
12	Overall Pit Slope	45°
13	Number of working days	361 days
14	Number of shifts per day	3 shifts

**Source:** Approved Mining Plan & Progressive Mine Closure Plan

### 1.6.3 METHOD OF MINING

Mining operations are being carried out by mechanized opencast mining method i.e. by combination of shovel and dumper with drilling and blasting. Bench height and bench width is



maintained at 12 m and 30 m (working width) respectively. Drilling is being carried out by crawler mounted DTH hammer Drill machine. Conventional blasting is being done using ANFO/non-cap sensitive slurry explosives with the use of milli second delay detonators/non-electric delay initiation system. Loading is being done by Hydraulic Excavators and transport of limestone and OB/IB is being done by dumper to crusher (located in mining lease area). The crushed limestone is being transported from the mine site to cement plant at a distance of 530 meter by covered Conveyor belt. Same Mining method will be used in future for the proposed Expansion in Mining Project. One Crusher of 1200TPH Production capacity has already been installed within the Mine Lease area of 517.61 ha. Second crusher of same capacity i.e. 1200 TPH will be installed. In the Crusher feed size of the mineral will be 1200 to 1500 mm and output size of the mineral will be -90 mm.

## 2.0 DESCRIPTION OF THE ENVIRONMENT

### 2.1 Presentation of Results (Air, Noise, Water & Soil)

The Primary baseline data for specific micro – meteorology data, ambient air quality, waste quality, noise level, soil and flora & fauna has been collected during winter season i.e. December, 2018 to February, 2019. The monitoring results of ambient air, surface water, soil, ambient noise and ground water have been reported and no major divergence was observed with respect to concentration values of various parameters of collected samples.

Baseline study of the study area was conducted during Winter Season, Dec., 2018 to Feb., 2019.

The concentrations of PM<sub>10</sub> and PM<sub>2.5</sub> for all the 10 AAQM stations were found between 50.5 to 74.1 µg/m<sup>3</sup> and 24.8 to 43.6 µg/m<sup>3</sup> respectively. The concentrations of SO<sub>2</sub> and NO<sub>2</sub> were found to be in range of 5.12 to 14.56 µg/m<sup>3</sup> and 8.21 to 22.8 µg/m<sup>3</sup>, respectively.

Ambient noise levels were measured at 10 locations around the Mine site. Noise levels varied from 47.6 to 60.6 Leq dB (A) during day time and from 40.7 to 57.4 Leq dB (A) during night time.

The ground water analysis for all the 9 sampling stations shows that pH varied from 7.52 to 7.72, total hardness varied from 218 mg/l to 404 mg/l & total dissolved solids varied from 454 mg/l to 875 mg/l. The water samples contain chloride from 47.49 to 219.92 mg/l, SO<sub>4</sub> varies from 48.32 to 134.85 mg/l, calcium from 43.65 to 92.93 mg/l, Mg varies from 22.85 to 41.76 mg/l.

Samples collected from identified soil locations indicate pH value ranging from 7.08 to 7.89. The soil texture is silty clay loam. Organic Matter ranges from 1.15% to 1.93% in the soil samples. Nitrogen is found to be in moderate amount as it ranges from 110.54 kg/ha to 151.68 kg/ha and Phosphorous in less amount i.e. from 31.25 kg/ha to 41.72 kg/ha, whereas the Potassium is found to be ranging from 201.03 kg/ha to 373.1 kg/ha.

### 2.2 Biological Environment

Flora: Species which are most commonly found in the study area are: Indigenous & fruit bearing species like *Cassia fistula*, *Saraca asoka*, *Ficus religiosa*, *Casia samia*, *Delonix regia*, *Conocarpus* etc. have been already planted by SCL. Species to be planted by SCL are *Azadirachta indica*, *Tectona grandis*, *Phyllanthus emblica*, *Butea monosperma*, *Delonix regia*, *Pongamia pinnata*, *Saraca indica*,



*Syzygium cumini, Tamarindus indica, Psidium guajava, Ficus religiosa, Cassia fistula, Cuscuta reflexa, Casia samia, Annona Squamosa, Conocarpus, Morus alba* etc.

Fauna: Species which are most commonly found in the study area are *Boselaphus tragocamelus* (Nilgai), *Felis chaus* (Jungle cat), *Presbytes entellus* (Flying Fox), *Periplaneta Americana* (Cockroach), *Herpestes edwardsii* (Common Mongoose), *Danaus chrysippus* (Plain tiger), *Stegodyphus* (Social Spider), *Suncus murinus* (Grey Musk Shrew), *Sus scrofa* (Wild Boar), *Naja naja* (Indian Cobra) *Canis aureus* (Jackal) etc.

### 2.3 SOCIO-ECONOMIC ENVIRONMENT

The total area for the buffer zone is 415.94 km<sup>2</sup> & total population as per 2011 Census records is 61057 (for 10 km radius buffer zone of both mine and cement plant). Scheduled Caste population of the study area (10 km) is 25%, Scheduled Tribe is 4% and others are 71%. Total no. of household in the area is 11042. The percentage of total working population is 49% (Out of which 40% are main workers and 9% are marginal workers), Remaining, 51% of the total population is considered as non-workers.

### 3.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

#### ➤ Impact on Air Environment

##### Due to Mining

The key air emissions from the mining activities (drilling, blasting, crushing, loading, haulage and transportation) are Particulate Matter (PM), Oxides of Nitrogen (NO<sub>x</sub>) and Sulphur dioxide (SO<sub>2</sub>). Gaseous emissions will be generated from HEMMs, crusher & transportation of vehicles. Use of proper mitigation measures is being/will be taken like water sprinkling during transport activities & development of green area to control fugitive emissions. Better maintenance of equipments also helps to reduce such emissions.

#### ➤ Impact on Water Environment –

##### Surface Water:

There is no major surface water body i.e. nallah or streams within the lease area. There is no perennial water body within the study area. Kamalavati Nadi flows approx 7.5 km in East direction exist within the study area.

At conceptual stage, 334.34 ha area will be converted into water reservoir which will serve as recharge pit.

- To control the surface run-offs, Garland drain & series of check pits is being/will be provided at the toe of the dumps, to channelize the runoff water from dumps into the water reservoir (i.e. mined out pits) & around the active pits to restrict rainy water from entering in to the working pit.
- The existing working will not affect any of the streamlets.
- No waste water is being/will be generated during mining operations. Wastewater generated from office toilets is being/will be disposed off in soak pit via septic tank. Waste water generated from workshop & from washing is being/will be treated with

Oil/ grease/ Water separator and treated water is being/will be used for dust suppression, plantation etc.

- Therefore, there is no significant impact on the water environment due to the mining operations in limestone Mining Lease area.

#### Ground Water

- General Ground level of the mining lease area is 507 m AMSL.
- According to groundwater monitoring, water table level for Pre-Monsoon Season will be (452 AMSL) 55 m bgl & for Post-Monsoon Season will be (457 AMSL) 50 m bgl.
- Ultimate working depth of the mining operation will be 458m AMSL (49m bgl). Groundwater intersection will be encountered due to mining activities in post monsoon season in the later stages of mining.
- Moreover, the mineral limestone and associated rocks do not contain any toxic substance. Therefore, there is no significant impact of mining activities on any source of water.

#### ➤ Impact of Noise & Vibration –

##### Due to Mining Activities

Major noise generating sources of the mining activity are drilling, blasting, crushing and HEMMs movement used for transportation of limestone. The plantation and the green belt around the mining lease boundary help in reducing noise level and proper mitigation measures is being/will be carried out.

Total Mining Lease area is 517.61 ha. There is no habitation within the lease area. However, All DGMS guidelines are being/will be followed to reduce the impact of blasting on the nearest habitation. Controlled blasting techniques through proper blast design and explosive selection is being/will be used to reduce the vibrations to a greater extent.

- **Impact on Land Environment** – The land use of the lease area is being/will be altered from waste land as well as agricultural land to mining area including pits, temporary dumps, greenbelt etc but will not have any significant effect on the surface features of the surrounding areas.

At conceptual stage, total excavated area will be 494.17 ha, out of which about 159.83 ha area will be backfilled and remaining area i.e. 334.34 ha will be converted as water reservoir.

At the end of the life of mine total 171 ha (159.83 ha on backfilled area, 11.17 ha on virgin area including the 7.5m barrier along the ML boundary) area will be covered under greenbelt and plantation which is 33% of the total ML Area of 517.61ha. Local and Indigenous plant species will be planted in consultation with forest department.

#### 4.0 POST PROJECT ENVIRONMENTAL MONITORING PROGRAMME

**Table 4**  
**Post Project Monitoring**

S. No.	DESCRIPTION	FREQUENCY OF MONITORING
1.	Ambient Air Quality	Fort nightly

2.	Water Quality and Level	Quarterly
3.	Noise Level Monitoring	Quarterly
4.	Vibration Monitoring	On every blast
5.	Stack Monitoring	Regular

## 5.0 ADDITIONAL STUDIES

Additional Studies i.e. Hydro-Geological Study, Risk Assessment & Disaster Management Plan, Land use and land cover study, Ecology and Biodiversity, Rehabilitation and Resettlement Plan are covered in Draft EIA/EMP Report as per the Terms of reference granted by MoEFCC, New Delhi vide letter no. IA-J-11015/24/2021-IA.II (M) dated 19.07.2021 in favor of Shree Cement Limited.

## 6.0 PROJECT BENEFITS

The project activity is being/will help in meeting the growing demand of cement & hence helps in the economic growth of the country. It is being/will be helpful in the development of basic needs of the local area like education, Health & family welfare, women empowerment, Natural resource management, water conservation, roads etc. It will result in growth of the surrounding areas by increasing direct and indirect employment opportunities in the region including ancillary development and supporting infrastructure.

## 7.0 ENVIRONMENT MANAGEMENT PLAN

### 7.1 Air Quality Management

#### Drilling

- Drilling machines is being/will be provided with wet drilling arrangements to prevent dust from being air borne.

#### Blasting

- Controlled blasting is being/will be adopted and optimum use of explosive energy will help in reducing the air pollution.
- Rock breaker is deployed in place of secondary blasting.
- Water spray on blasted muck pile before dozing/loading to control dust generation.

#### Crushing

- Crusher is being/will be provided with bag filters and water sprinkling system.
- Plantation is being/will be done around the vicinity of crusher.
- Dust masks are being /will be provided to the workers & operators working in dusty zones.

#### Loading & Transportation

- Haul roads & loading & unloading areas are being/ will be regularly sprayed with water to arrest dust from becoming air-borne.
- Development of green belt/plantation around mine boundary and other places are being/ will be carried out.

- Proper maintenance of the HEMMs & transportation vehicles are being/will be done.
- Vehicular emissions are being/will be kept under norms.
- Personal Protective Equipment like dust masks are being/ will be provided to all employees.
- Periodic air quality monitoring is being/ will be carried out.

## 7.2 NOISE QUALITY MANAGEMENT

### Drilling

- Drilling is being/ will be done with sharp drill bits to achieve optimum drilling performance and to reduce noise generation at source.
- Closed cabin is being/ will be provided for drill operator.
- Personal protective equipments i.e. earplug at drilling, crushing & at other high noise areas is being/ will be ensured.
- Periodic noise quality is being/ will be monitored regularly.

### Blasting & Vibration

- Ground vibrations is being/ will not affect the structures in the vicinity of ML area as blasting will be done in accordance with standards prescribed by DGMS for controlled blasting technique.
- Explosives charge per hole and per delay is being/ will be maintained as per DGMS guidelines & is being/will be based on outcome after scientific study of blasting.
- Blasting is being/ will be carried out by use of non-electric initiation system and the impact of noise generated due to blasting will be momentary.
- Vibrations generated by blasting are being/will be monitored regularly.

### Transportation

- Adequate silencers in HEMMs are being/will be provided to reduce generation of noise.
- Proper maintenance, oiling and greasing of machines at regular intervals is being/will be done to reduce generation of noise.
- All HEMMs is being/will be equipped with acoustic a/c closed cabins for operators.
- The workers employed at HEMMs is being/will be provided with protective equipment, earmuffs and earplugs as a protective measure from the high noise level generated at the mine site and wherever required.
- Development of green belt & plantation around lease boundary, roads and other places is being/will be carried out.
- Periodical monitoring of noise is being/will be carried out regularly.

## 7.3 Waste Water Management

### Waste Water

- Domestic wastewater generated from mines office is being/will be disposed off in soak pit via septic tank.

- Waste water generated from the work shop & from washing of machineries is being/will be used for dust suppression & for plantation after oil and grease separation.

#### **Surface Run-off**

- Garland drains & series of check pits is being/will be constructed at toe of dump.
- The rainwater falling directly into the mine pits is being/ will be stored and used for plantation & dust suppression.
- Periodical monitoring of ground water quality is being/will be carried out.

### **7.4 Top soil and Solid Waste Generation & Management**

#### **Top Soil Generation & Management**

- At end of the mining plan period, total 0.1867 million tonnes top soil will be generated. At conceptual stage, total 1.97 Million tons of top soil will be generated.
- Top Soil excavated during Mining plan period will be used for plantation purpose within and outside Mining Lease Area.
- Top Soil generated will be partly stacked in temporary storage in the mining lease area and partly will be used in plantation.

#### **Solid Waste Generation & Management**

- At end of the mining plan period, total 0.7029 Million cubic meter (1.2647 Million tonnes) of OB waste will be generated. There will be no generation of inter-burden.
- At the end of life of mine, total 17 Million tones waste will be generated which will be used for backfilling in the 159.83 ha up to maximum height of 7m.
- At present, generated waste (OB) is being dumped at earmarked location.
- During mining Plan period, waste will be sent for stacking separately in proposed dump which will be utilized for backfilling after ultimate depth of pit is reached.
- At the end of life of mine, maximum amount of waste will be backfilled in the excavated area and plantation will be done over it after spreading top soil over it and remaining waste will be dumped which will be stabilized by plantation later.

### **7.5 Land use pattern**

At conceptual stage, total excavated area will be 494.17 ha, out of which about 159.83 ha area will be backfilled and remaining area i.e. 334.34 ha will be converted as water reservoir.

At the end of the life of mine total 171 ha (159.83 ha on backfilled area, 11.17 ha around the 7.5m barrier zone) area will be covered under greenbelt plantation and grassification. Local and Indigenous plant species will be planted in consultation with forest department. An area of 12.27 ha will remain undisturbed.

### **7.6 Greenbelt Development and Plantation Program**

- Total 4.84 ha area with 12100 no. of plants will be covered under Greenbelt development.

- The plants and saplings suitable for the existing soil and site conditions should be considered. Preference is being/ will be given for fast growing local plant species, which can adapt to the local climate. This is being/ will be done in consultation with local forest department.
- Species like *Cassia fistula*, *Saraca asoka*, *Ficus religiosa*, *Casia samia*, *Delonix regia*, *Conocarpus* etc. have been already planted by SCL.
- Species to be planted by SCL are *Azadirachta indica*, *Tectona grandis*, *Phyllanthus emblica*, *Butea monosperma*, *Delonix regia*, *Pongamia pinnata*, *Saraca indica*, *Syzygium cumini*, *Tamarindus indica*, *Psidium guajava*, *Ficus religiosa*, *Cassia fistula*, *Cuscuta reflexa*, *Casia samia*, *Annona Squamosa*, *Conocarpus*, *Morus alba* etc.
- The plant species selected for green belt are local and native plant species.
- Above mentioned plant species have greater ecological value and are of good utility value to the local population. These species are also tolerant to pollution.

