

**ENVIRONMENT MANAGEMENT PLAN
FOR
DAUDKHEDI SHALE STONE QUARRY**

VILLAGE	:	DAUDKHEDI
TEHSIL	:	MANDSAUR
DISTRICT	:	MANDSAUR
STATE	:	MADHYA PRADESH
AREA	:	3.376 HECT.
PROPOSED PRODUCTION :		20,000 CUM STONE PER ANNUM
<u>DETAILS OF AREA</u>		
REVENUE LAND	:	GOVT. LAND
		159, 161/1, 171
NEW KHASRA NO.	:	(Old Khasra No. 1/1, 25)

APPLICANT

**Shri Gopal Krishna Mandovara,
S/o Shri Badri Lal Ji Mandovara,
Address:- R/o B.P.L. Chouraha,
Mandsaur, District – Mandsaur (M.P.)**

PREPARED BY

Amit Saxena, RQP

Registration No. RQP/DGMMP/32/2013

Registration valid up to 15.05.2023

12, Vinayak Nagar, Bohra Ganeshji, Udaipur

Mobile No. 098291-61803

YEAR 2019

C E R T I F I C A T E

- A. Certified that the provisions of MP MINOR MINERALS RULES 1996 made there under have been observed in the Environment Management Plan.
- B. This is to certify that the provisions of Minor Mineral Rules 1996 have been observed in the Environment Management Plan of Daudkhedi Shale stone Quarry, area 3.376 hectare [New Khasra No. 159, 161/1, 171 (Old Khasra No. 1/1, 25)] in Village Daudkhedi, Tehsil Mandsaur, District Mandsaur of M.P. lessee by Shri Gopal Krishna Mandovara and wherever specific permissions are required the lessee will approach the concerned authorities for granting the permissions.
- C. It is also certified that the information furnished in the above Environment Management Plan are true and correct to the best of my knowledge & belief.

Place:

(Amit Saxena)

Date:

RQP/DGMMP/32/2013

CONSENT LETTER FROM THE APPLICANT

The Environment Management Plan in Daudkhedi Shale stone Quarry, area 3.376 hectare [New Khasra No. 159, 161/1, 171 (Old Khasra No. 1/1, 25)] in Village Daudkhedi, Tehsil Mandsaur, District Mandsaur of M.P. lessee by Shri Gopal Krishna Mandovara under Minor Minerals Rules 1996 which has been prepared by Shri AMIT SAXENA, RQP.

I request the Concern authorities to make further correspondence regarding modification of the Environment Management Plan with the said person on his following address.

Shri Amit Saxena, RQP
12, Vinayak Nagar, Bohra Ganeshji,
Udaipur (Rajasthan)
Mobile: 098291-61803

I hereby undertake that all the modification so made in the Environment Management Plan by the recognized person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respect, “understood the contents of the Environment Management Plan and agree to implement”. Boundary pillars are marked preciously in the field, which formed the basis for preparation of Environment Management Plan.

Place:

(Gopal Krishna Mandovara)

Date:

Applicant

**ENVIRONMENTAL MANAGEMENT PLAN
OF
DAUDKHEDI SHALE STONE (GITTY) QUARRY
(APPLICANT: SHRI GOPAL KRISHNA MANDOVARA)**

ENVIRONMENTAL MANAGEMENT PLAN

1.0 Introduction

The Applicant, Shri Gopal Krishna Mandovara has approached us for the preparation of an Environmental Management Plan (EMP) for a targeted production of 1,000 Cum stone per annum from an area measuring 3.376 ha. As per his advice, the Environmental Management plan has been prepared in the light of the amendments made in Rule 48 of Madhya Pradesh Minor Mineral Rules 1996, by the State Government; vide Gazette Notification, dated 23rd March, 2013.

The 14 points given in the Notification have been discussed in the following table 1, with replies and references. A detailed study was carried out to generate baseline data in order to assess the likely impact on the environment and its management.

Table 1:

S. No.	Particulars	
1.	Name and address of the Holder of the quarry lease/action quarry	Shri Gopal Krishna Mandovara, S/o Shri Badri Lalji Mandovara, Address:- R/o B.P.L. Chouraha, District – Mandsaur (M.P.)
2.	Details of the area	3.376 ha.
i)	Date of in-principle sanction	Mining Lease for extraction of Stone, suitable for crushing purpose has been LOI granted by Mineral Resource Department, Bhopal in-principle over an area of 3.376 hect. for a period of 20 years. Prepared mining plan vide letter No. F-3-48/2000/12-1 Bhopal dated 28.08.2001. Now the lease deed period is extended up to 50 years, hence lease is valid up to 26.09.2052, Collector Mandsaur Order No. 141/Mineral/2016 dated 27.01.2016.
ii)	Period	50 Years

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iii)	Map showing boundary of sanctioned area	Location map enclosed Sanctioned lease boundary map enclosed												
iv)	Khasra number/Area	New Khasra No. 159, 161/1, 171 (Old Khasra No. 1/1, 25)												
v)	Name of the Village/Tehsil/ District of sanctioned area	Near Village Daudkheri, Tehsil Mandsaur, District Mandsaur (Madhya Pradesh)												
3.	Details of Machine to be used in mining operation	<table border="1"> <thead> <tr> <th>S. No</th> <th>Type</th> <th>No.</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>JCB</td> <td>1</td> </tr> <tr> <td>2.</td> <td>Tractor</td> <td>1</td> </tr> <tr> <td>3.</td> <td>Water tanker with sprinkler</td> <td>1</td> </tr> </tbody> </table>	S. No	Type	No.	1.	JCB	1	2.	Tractor	1	3.	Water tanker with sprinkler	1
S. No	Type	No.												
1.	JCB	1												
2.	Tractor	1												
3.	Water tanker with sprinkler	1												
4.	Details of measurement of quarry pit earlier excavation in the area to be sanctioned and details of mineral concessions situated within 100 meter periphery of this area	a) Measurement of quarry pit : 0.000 Ha b) There are no other mines within a periphery of 100 m of the lease hold.												
5.	Scheme of tree plantation	Table nos. 7 & 8												
6.	Details and approximate distance of National park, Sanctuary, Biodiversity area, Interstate boundary situated within periphery of 10 km. from the area to be sanctioned	No National park or Interstate Boundary exists within 10.0 km of radius study area.												
7.	Proposed annual production of mineral	1,000 M.T. per annum of Shale Stone												
8.	Effect on ground water level due to mining operation and its preventive measures	Water Table : 425 m AMSL Present mine pit bottom: 441 m AMSL After 5 yr pit bottom level: 441 m AMSL Ultimate pit bottom level: 441 m AMSL Therefore, the mining operations will not penetrate the ground water table.												
9.	Details of scheme of continuous	The reclamation of mining pit can be started												

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	reclamation and rehabilitation of the land degraded due to mining operation	only after the mineral gets exhausted from the pit. During Plan period it will not be feasible to reclaim the mine pit as the mineral continues to occur underneath.
10.	Details of preventive and control scheme of air and water pollution	Details provided in clause 3.2 and 3.3 here in below.
11.	Provisions for separate stacking of surface soil excavated from mining operation and its utility	The top soil excavated will be stacked separately and will be used for plantation purposes.
12.	Details of social and economic up-gradation of mining affected area due to proposed project	The mining project being small, the provisions of CSR are not applicable. However, the proponent has made the provisions: as detailed in Table no. 9.
13.	Details of budgetary arrangement for environmental management	Details of proposed expenditure on environmental management and statutory provisions are provided in table 10.
14.	Any other details desired to be submitted by mineral concession holder	Nil

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2.0 Base Line Information

The existing environmental setting has been taken into consideration to adjudge the baseline environmental conditions, which are described with respect to climate, atmospheric conditions, water quality, vegetation pattern, ecology, socio-economic profiles of people, land use.

The objective of this section is to define the present environmental status which would help in assessing the environmental impacts arising due to the proposed mining operations. Base line study has been carried out for an area having a radius of 10 Km around the mining lease area.

Daudkhedi Shale stone quarry lease has an area of 3.376 ha and it is situated Near village Daudkhedi, Tehsil & District Mandsaur (M.P.). This area falls in G.T. Sheet No. 45 P/8, having **Latitudes & Longitudes of all boundary pillars of mine site are given below:**

Pillar No.	Latitude (N)	Longitude (E)
BP - 1	24 ⁰ 04'18.95"	75 ⁰ 01'39.63"
BP - 2	24 ⁰ 04'14.53"	75 ⁰ 01'40.07"
BP - 3	24 ⁰ 04'13.70"	75 ⁰ 01'39.60"
BP - 4	24 ⁰ 04'14.30"	75 ⁰ 01'39.70"
BP - 5	24 ⁰ 04'14.90"	75 ⁰ 01'39.30"
BP - 6	24 ⁰ 04'14.90"	75 ⁰ 01'39.20"
BP - 7	24 ⁰ 04'18.10"	75 ⁰ 01'28.10"
BP-8	24 ⁰ 04'20.40"	75 ⁰ 01'27.60"
BP-9	24 ⁰ 04'18.80"	75 ⁰ 01'30.40"
BP-10	24 ⁰ 04'20.10"	75 ⁰ 01'33.90"
BP-11	24 ⁰ 04'20.00"	75 ⁰ 01'35.40"
BP-12	24 ⁰ 04'16.10"	75 ⁰ 01'36.30"
BP-13	24 ⁰ 04'16.40"	75 ⁰ 01'37.60"

2.1 The existing land use pattern of mine site

Although there are no trees or plant within the lease area, the area is a piece of private land.

2.2 Water Environment

The quality of ground water resources within the study area has been considered to evaluate the anticipated impact on the quality of water due to the proposed mining activity.

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There are no water bodies in or around the project. No drainage system will be affected as a result of opening of the mine.

The ground water table is at 425 m AMSL, and the mining operation will remain confined much above the ground water table.

The requirement of water at the mining project is given below:

- (a) Drinking (@ of 200 litres/day)
- (b) Drilling – 300 litres/day
- (c) Dust Suppression – 300 litres/day
- (d) Afforestation- 400 litres/day
- (e) Crushing unit- 300 litres/day

Total requirement of water- 1500 litres/day (say 1.5 KLD)

Water will be obtained from tube well situated outside the lease hold.

Quality of Ground Water: We have analysed the quality of water in a laboratory and found that parameters like pH, T.D.S., Calcium, Magnesium, Chlorides, Sulphates, Nitrates, Fluorides, and Hardness etc are within the permissible limits as prescribed under IS-10500, Drinking Water Standards 2012. This water will be used for drinking purpose. No change in quality of ground water is likely to take place as a result of mining. Since basalt does not contain toxic substances, the ground water will not be contaminated due to leaching.

2.3 Flora and Fauna

A large area of District especially north-west plateau is covered with forest. Mostly Salai trees are found here. Apart from this Dhaora, Khair, Mokha, Dudhi and Malgal trees area available here. In some areas Bamboo plants area also available here. Under forest production, Tendu Patta and gum area the main product of the District.

There are vegetation in the mining lease area is very scanty. Some common birds and mammals are seen in the study area. There are no rare or endangered species in the area.

2.4 Ambient Air quality:

The ambient air quality within study area was satisfactory, during site visit it was observed that no air polluting industry exists within 500 meter radius.

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2.5 Noise Level

Physical description of sound concerns its loudness as function of frequency. Noise in general is sound which is composed of many frequency components of various loudness distributed over the audible frequency range. Various noise scales have been designed to describe, in a single number, the response of an average human to a complex sound made up to various frequencies at different loudness levels. The most common and universally accepted scale is the “A”, a weighted Scale measured as dB (A). This is more suitable for audible range of 20 to 20,000 Hz. The scale has been designed to weigh various components of noise according to the response of a human ear.

The noise levels recorded in core zone are given in table 4 below.

Table 4: Noise level dB(A)

S. No.	Location	Observed value
1.	Mines site	56.1

The above observed value is within the permissible limits prescribed.

Consumer owned tractors with trailers arriving/departing from mine will produce little noise (within prescribed permissible limits).

2.6 Climatic Conditions of District Headquarter

2.6.1 Temperature conditions

A perusal of the data shows that Maximum and Minimum Yearly Average Temperature varies from 45⁰ C and 7⁰ C, respectively.

2.6.2 Rainfall

Average rainfall of the study area is 833.90 mm per year. Most of the rainfall is received in the month of June to September

2.6.3 Relative Humidity

The maximum and minimum relative humidity of area was observed as 66% (during August) and 42% (during April).

2.6.4. Wind Speed

According to the Climatological data, the Maximum and Minimum Average Wind Speed is observed 19 and 1 Km per hour, respectively and wind blows form NE-SW (Oct. to Feb.) to W-E (Mar. to Sept.). Monitoring data of wind speed for day and night time is given in table.

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Table 5: Wind speed

Time	N	NE	E	SE	S	SW	W	NW	Calm
Morning 8:30 am	3	10	4	4	4	15	25	12	23
Evening 17:30 Pm	10	16	3	3	4	15	17	24	8

2.7 Socioeconomics

The growth of mining and industrial sectors and infrastructure developments in and around the agriculture dominant areas, villages and towns is bound to create its impact on the socio-economic aspects of the local population of the area experiencing development. For assessing the prevailing socio-economic aspects of people in the study area around the existing mine, the required data has been collected from various secondary sources and analyzed.

2.8. National Park

No National Park is located in the study area.

3.0 Environmental Impact Assessment

3.1 Impact on Land

It is true that as a result of excavation of any mineral by surface mining, degrades land. But in this case earth will be excavated from a piece of private land. Therefore a piece of waste land will be put to beneficial use in public interest.

Since the present look of the land can not to be said to be beautiful, the aesthetic beauty of the area will not be adversely affected.

Land degradation Mitigation Measures

However all efforts will be made to reclaim the excavated land partially by backfilling and partially by converting the pits into water reservoir.

There is negligible quantity of top soil in the area. Whatever little top soil that is available will be stacked separately for use.

Total area likely to be affected by the end of mining is tabulated below:

Table 6: Anticipated Land Use Pattern at the end of Mining

S. No.	Particular's	Area Put on at start of Plan in ha.	At the end of Plan period in ha.	At the end of leaseperiod in ha.
1	Mining Pit	0.4600	0.6700	0.8770
2	Dumping of waste/ rejects	0.0400	0.3200	0.4000

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3	Dumping of top soil	Nil		Nil
4	Area under storage of mineral	Nil	0.0500	0.0500
5	Shed/building etc.	Nil	0.0100	0.0100
6	Road	0.3600	0.3600	0.3600
7	Plantation	Nil	0.1800	0.2520
Used Area		0.8600	1.5900	1.949
Un used Area		2.5160	1.7860	1.4270
Total Lease Area		3.3760	3.3760	3.3760

3.2 Impact on Air Quality

Anticipated Impact: Mining operations and associated activities generally cause air pollution and the major air pollutant is the suspended particulate matter. Most of the air pollution problems are due to fugitive dust emissions and dust generated during crushing screening operations. The intensity of dust generation in mining and crushing is influenced by factors such as hardness of rock, mining technology and crushing /sizing etc.

Air Pollution Mitigation Measures: The following mitigation measures will be adopted:

- Practicing wet drilling.
- Water sprinkling will be regularly done on haul roads/primary crusher hopper.
- Minimizing drop height of stone in trippers/provide telescopic chutes to drop crushed stone on the stockpile.
- Restriction of vehicle speed,
- Minimization of drop heights at transfer points from crusher to belt conveyors and then on screens.
- Providing/installing covered hoods with suction pumps attached with dust containers made of thick canvas over high dust generation points.
- Proper maintenance of mining machinery.
- Developing green belt by plantation.
- Practicing controlled blasting
- Pollution check (from PUC) will be regularly done for the vehicles coming into the study area.

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3.3 Impact on water regime and water quality

No adverse effect is expected on surface water, as there is no water reservoir, river or any other source near mining area. Ground water is not likely to be affected, as the mining will not intersect water table. The stone is inert and does not react or dissolve with water and is non-toxic. No discharge of water effluents from the mine will take place.

3.4 Biodiversity

The impact on terrestrial ecology will be there due to emission of gaseous pollutants like NO_x, SO₂ and dust/SPM. To check air pollution, the mitigation measures will be taken as discussed in preceding paragraphs.

3.5 Impact on Noise Level

Some noise is anticipated due to working of mining machinery. However, its intensity will be very low. The adverse effect of noise will be minimized by taking suitable standard measures and use of personal protective devices like earplugs/earmuffs etc. Proper maintenance of machinery will be done, which will keep the noise level within permissible limit.

3.6 Impact on Ground Vibrations (Due to Blasting)

As a result of blasting ground vibration will take place. But by adopting proper method of blasting the ground vibrations will be kept within the limits as prescribed by the Directorate General of Mines Safety.

3.7 Socio- Economic Impact

The socio-demographic profile is not likely to be adversely affected by mining activities in the area. There will be no displacement of people from their habitats. The mining activity will create jobs both direct as well as indirect for the local population. The socio-economic profile in the area will improve. The improvement in transportation, medical and educational facilities will improve the quality of life of the people.

4.0 Environmental Management Plan

To control the adverse effect of mining activity, a suitable environmental management plan is needed to adopt measures for soil utilization, waste dump management, land reclamation and afforestation etc. The following measures are proposed.

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(a) Proposal for Reclamation of Degraded Land

Mining operations will be carried out in the whole area in coming for Plan period. The mine workings in the lease area, during next Plan, will not reach to the stage where reclamation or rehabilitation of degraded land can be taken up because the mineral is likely to continue in depth. However, if insisted upon, the waste material lying on the surface at the time of closure will be filled back into the pit. Finally the pit will be used for storage of rain water.

(b) Programme of Afforestation

The plantation will be done over 33% of the lease area i.e. 1.1140 ha., within 10 years. The proposed lease period is for 10 years. Therefore, the plantation area covered in coming 5 years will be 1.1140 hect. or 1.1140 m².

In 5 years total 1140 plants will be planted in outside Lease area .Considering the survival rate of 80 percent. Local native species types of plants and fast growing plants will be proposed to plant by the project proponent.

Table 8: Proposed Plantation for Plan Period

Year	Inside lease area		Budget allocation
	Area (Ha.)	No. of plants	
1 st	0.228	228	68400
2 nd	0.228	228	68400
3 rd	0.228	228	68400
4 th	0.228	228	68400
5 th	0.228	228	68400
Total	1.14	1140	342000

Note: Assumed survival rate of plants will be about 80%, then next year 20% of plants will be planted in addition to current year proposed plantation.

(c) Water management

Ground water is not likely to be encountered in mining pits as mining will be carried out much above the water table in the area. Some rain water may get accumulated in rainy season. The accumulated rainwater will be utilized for mining operations and for green belt development. Rain water harvesting will be done and collected in umps. Garland drains will be constructed around the mine pit and channelized water will be used for irrigation /plantation and sprinkling on haul road.

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(d) Flora and Fauna

There is no significant vegetal cover and there are no rare or endangered species of fauna in the study area. No National Parks or sanctuaries are present in the study area.

(e) Socio-Economic Benefits Arising out of Mining

Socio-economic conditions of area will improve as mining activities create additional employment opportunity for local inhabitants. Socio-economic status of local populace will improve due to social welfare activities undertaken by PP. Improvements in education; medical, cultural, availability of water etc. will improve the quality of life. CSR activities as proposed will also contribute to the betterment of population. Accordingly, the proposed CSR for the project focuses on educational, health, Social and other aspects of the said population.

Table 9: Proposed CSR Activities

S. No.	Proposed activity	Amount (Rs.)
1.	Financial contribution to the school	30,000/-
	Total	30,000/-

2% of the annual profits will be spent CSR activities.

Table 10: Cost of statutory compliance and environment protection measures

S. No	Particulars	Annual expenditure in Rs.
Statutory expenses		
1	Recurring expenditure for providing personal protective equipments like, helmets, earplugs, dust masks etc.	15,000
2	Annual Health Check up of all employees	10,000
3	First aid facilities and transporting the injured to nearby hospital	15,000
4	Employees welfare, food snacks etc.	30,000
Environment protection expenses		
5	Annual/periodical monitoring of environmental parameters	20,000
	Total	90,000
Green belt development/plantation for Plan Period		3,42,000

Place:	(Amit Saxena)
Date:	RQP/DGMMP/32/2013