150

GOVERNMENT OF RAJASTHAN
Office of the Superintending Mining Engineer, Bharatpur Circle, Bharatpur

No. SME/BP/Cluster M..Plan/2021/1033 Dated: - 02.11.2021

To,

Assistant Mining Engineer,
Department of Mines & Geology
Roopwas, Distt.- Bharatpur (Raj.)

Sub : Approval of Cluster Mining Plan in respect of Mineral Sand Stone (Block A & B). Cluster area 248.5515 Hectares (Forest Diversion Land), Near village- Paharpur, Tehsil - Roopwas District – Bharatpur (Rajasthan), submitted under Rule 29 of R.M.M.C.R. 2017 For the purpose of only Forest Diversion Area (Block A & B)

Ref : Assistant Mining Engineer, Roopwas office Letter No. SP- 1 Dated 02.11.2021

In Exercise of the power conferred by the rule 29 of Rajasthan Minor Mineral Concession Rules, 2017, I hereby APPROVE the above said Cluster Mining Plan. This approval is subject the Following conditions.

(i) This Cluster Mining Plan is approved without prejudice to any other laws applicable to the Cluster/area from time to time whether made by the Central Government, State Government or any other authority.

(ii) It is clarified that the approval of your aforesaid Cluster Mining Plan does not in way imply the approval of the govement in terms of any other provision of the Mines and Minerals (Regulation and Development) Act, 1957 or the Mineral Concession Rules 1960, or any other laws including forest (Conservation) Act, 1980, Environment (protection) Act, 1986 and the rules made there under.

(iii) It is further clarified that the approval of the Cluster Mining Plan is subject to the provision of Forest (Conservation) Act, 1980, Forest (Conservation) Rules, 1981 and other relevant statutes, orders and guidelines as may be applicable to the Cluster from time to time.

(iv) The Cluster Mining Plan is approved without prejudice to any order or direction from any court of competent jurisdiction.

(v) If any thing is found concealed as required by the Mines Act 1952 and Environment protection act 1986 and rules in the contents of the Cluster Mining Plan and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.

(vi). This Cluster Mining Plan is approved Only For Diversion purpose.

(Avinash Kuldeep)
Superintending Mining Engineer
Bharatpur Circle, Bharatpur

S.No. SME/BP/Cluster M.Plan /2021/1034-36 Dated: 02.11.2021

Copy forwarded for kind information to:

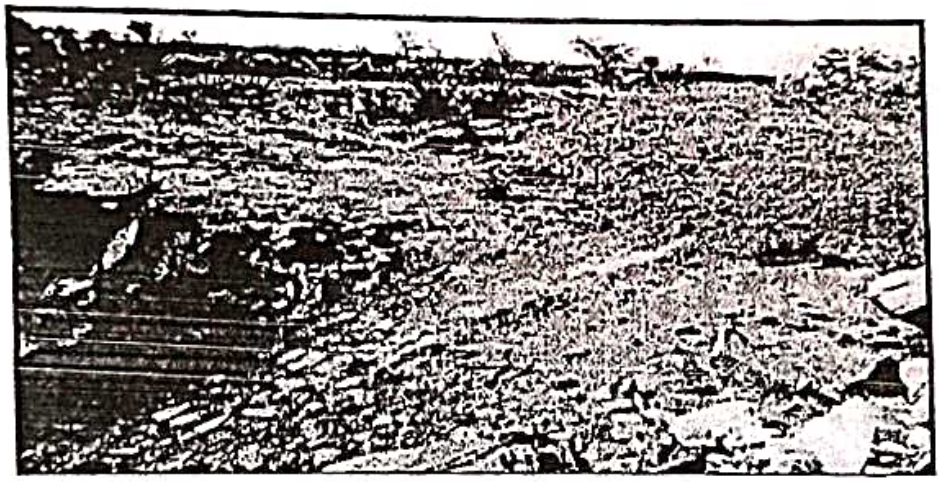
1. Director, Department of Mines & Geology , Rajasthan, Udaipur.
2. Senior Geologist, Bharatpur.
3. Guard file

Superintending Mining Engineer
Bharatpur Circle, Bharatpur

BANSI PAHARPUR CLUSTER MINING PLAN

(SUBMITTED UNDER NOTIFICATION OF THE MOEF&CC TOWARDS PREPARATION OF THE CLUSTER MINE PLAN AND ITS APPRAISAL IN THE LIGHT OF THE NOTIFICATION DATED 15.01.2017 AND 16.07.2017)

CLUSTER AREA- 248.5515 HECT.
FOREST DIVERSION LAND: - 248.5515 HECT.
PAHARPUR SAND STONE AREA (BLOCK A+B)
MINERAL SAND STONE
NEAR VILLAGE-PAHARPUR,
TEHSIL-ROOPWAS
DISTRICT-BHARATPUR, STATE-RAJASTHAN



IN FAVOR OF	PREPARED BY
Assistant Mining Engineer Department of mines & Geology Opposite Police Station, Dholpur Road, Roopwas, Distt- Bharatpur (Raj.) Email- Id:- ame.roopwas@rajasthan.gov.in Contact No:- 9460955312	Represent By Vardan Environet Shivdayal Godara Reg. No. – RQP/SME/AJMER/913/2017 Address: Bhakal Bhawan, Staff Colony, Near Manasar Chorayn, Nagaur (Raj.) Mobile no:- 9549956601, EMAIL ID- sgodara332@gmail.com

SME/Bharat Cr. /Mining Plan/Scheme/
Dt. ..... M.P. No. .....

सहायक खान अभियन्ता
खान एवं भू-विज्ञान विभाग
भरतपुर (राज.)

Contents

AUTHORIZATION LETTER

Paharpur Cluster comprises of mine leases of Sand Stone as mineral. The revenue villages/panchayats falling in the area are Paharpur, Tehsil- Roopwas, Distt.- Bharatpur (Raj.).

The mine owners of the Paharpur Cluster are committed for the notification of the MoEF&CC towards preparation of the cluster mine plan and its appraisal in the light of the notification dated 15.01.2017 and 16.07.2017.

It is hereby submitted that Office of the Assistant Mining Engineer, Department of Mines and Geology, Opposite Police Station, Dholpur Road, Roopwas, Distt- Bharatpur, Rajasthan to let prepare the cluster mining plan.

We request the Supt. Mining Engineer, Bharatpur to make onward correspondence and needful regarding modification / withdrawal / resubmission and to collect the approved copies of the aforesaid cluster mining plan.

CERTIFICATE

It is hereby certified that the following provisions of the mining have been addressed in the true spirit, while preparation of Paharpur Cluster.

The cluster mine plan has been prepared in the light of the MoEF &CC notification of 15.01.2017 and 16.07.2017.

Cluster Mine plan has been prepared and provided by the office of Assistant Mining Engineer, Department of Mines and Geology, Roopwas.

We have used the data from the mine plan of the individual Sand Stone leases and website of D.M.G., Rajasthan.

The provisions of Mineral Conservation and Development Rules 1988 have been observed in the Paharpur Cluster Mine Plan for mineral is Sand Stone Villages Paharpur, Tehsil- Roopwas, Distt.- Bharatpur (Raj.) and State Rajasthan

It is also certified that the provisions of Mines Act, Rules and Regulations made there have been observed in the aforesaid mining plan and wherever specific permissions are required the applicant will approach the director general of mines safety.

It is further certified that the aforesaid Mining Plan is prepared as per the copies of the records and documents provided by the applicants.

It is also certified that the information furnished in the aforesaid Mining Plan are true and correct to the best of my knowledge and belief and in case of default the approval would be withdrawn.

The samples of minerals were collected by the applicant from the lease area and got analyzed from NABL accredited lab. It task has already been completed, during preparation of the mine plan for individual leases.

The plans and sections of individual leases are available in their respective mine plan.

CERTIFICATE

It is certified that the provisions of Mines Act, Rule and Regulations have been observed in the preparation of the Cluster Mine Plan for Paharpur Cluster for the mineral Sand Stone.

The leases fall in the revenue villages at Paharpur, Tehsil- Roopwas, Distt.- Bharatpur (Raj.) and State Rajasthan.

Wherever specific permissions are required, the Mine Lease owners will approach the Director General of Mines Safety. Further, the standards as per prescribed by DGMS in respect of miners health will be strictly implemented.

All the lease owners in the cluster will comply with all statutory rules & regulations; orders made by the central government or state government, statutory organizations, court etc. and have been taken into consideration. Wherever any specific permission is required, all the lessees will approach the concerned authorities.

DECLARATION

The Cluster Mine Plan for Paharpur Cluster for the mineral Sand Stone. The revenue villages at Paharpur, Tehsil- Roopwas, Distt.- Bharatpur (Raj.) comprehends the area of the cluster.

This is hereby stated that cluster mine plan have been prepared in full consultation with all the mine owners. We understand its contents and agree to implement the same in accordance with the law and in case of default the approval would be withdrawn.

It is also declared that after approval of above said document if any change occurs in the name and address of lessee / power of attorney it will be informed promptly.

Assistant Mining Engineer,
Roopwas, Bharatpur (Raj.)

UNDERTAKING

1. We, the lease owners of the cluster hereby undertake that all the commitments made in the cluster mine plan, prepared by the office of Mining Engineer, Department of Mines and Geology, Opposite Police Station, Dholpur Road, Roopwas, Distt- Bharatpur (Raj.), Email- Id:- ame.roopwas@rajasthan.gov.in, Contact No:- 9460955312 and its knowledge partner is known to us. They have our consent for the same and we undertake to abide by the laws in all respect.

2. We, the lease owners of the cluster hereby also undertake that all the measures proposed in this mining plan will be implemented in a time bound manner from the date of approval of this mining plan as proposed.

3. Further, We the lease owners of the cluster herby undertake that information and requisite plates as required under CCOM'S Circular 2/10 regarding provisions of fixing of boundary pillars, Geo referenced Cadastral Map/ mining lease plan etc. shall be submitted within 180 days from the date of approval of this document comprising cluster mine plan for all the mining leases. Any such requirement will be furnished at the earliest.

Assistant Mining Engineer,
Roopwas, Bharatpur (Raj.)

AME, Roopwas

CAPTER-1
GENERAL INTRODUCTION

(a) Name of Applicant & Complete Address

Assistant Mining Engineer

Department of Mines and Geology,

Opposite Police Station, Dholpur Road, Roopwas, Distt- Bharatpur (Raj.)

Email- Id:- ame.roopwas@rajasthan.gov.in,

Contact No:- 9460955312

(b) Status of Applicant

In response to the guidelines issued by MoEF & CC vide EIA/Notification Dated.1.7.2016, The SEAC, on their part had examined the documents pertaining to the cases forwarded to them. These were related to compliance of provisions contained in EIA/Notification Dated.1.7.2016. The Committee observed deficiencies in the information which were pertaining to total excavation area in the cluster, total area under the dumps, area of plantation, data of Air, Water and Noise quality of the cluster, total reserves, environmental sensitivity etc.

Further, the Committee desired that the required information as stated above may be compiled and submitted to them.

The Assistant Mining Department, Roopwas has already initiated action in the matter and prepared a cluster mine plan. **Annexure-1** along with EIA/Notification Dated.1.7.2016)

(c) Minerals which are occurring in the area and which the applicant intends to mine

The minerals occurring in the cluster is Sand Stone. The lease holders in the cluster want to mine out the said mineral.

(d) Period for which the mining lease is applied for granted/renewed/applied

The mining leases in the cluster applied for grant of lease to the state government for a period of 50 years from the date of registration.

(e) Name of Knowledge partner preparing the mining plan:

Represent of Vardan Environet

Shivdayal Godara

RQP & GEOLOGIST

REG. No- RQP/SMR/AJMER/913/2017
Bhakal Bhawan, Staff Colony, Near Manasar Choraha, Nagaur (Raj.)
Email- Id –sgodara332@gmail.com,Contact No :- 9549956601

(f) Name of prospecting agency

The area has been explored by the lease holders of the cluster and it confirms that the area possess the mineral Sand Stone. The area was systematically mapped by GSI and Department of Mines and Geology, Rajasthan.

2. LOCATION AND ACCESSIBILITY

(a) Details of area (with location map)

The Cluster falls in Toposheet No 54F/5 & 54F/9

Cluster Area:- Block A= 108.055 + Block B= 140.4965

Cluster Area: 248.5515 Ha

Forest Diversion Land: - 248.5515 Hect. (Annexure 2.)

District and state: Bharatpur, Rajasthan

Tehsil: Roopwas

Villages: Paharpur

INFRASTRUCTURE

Sr.No.	Infrastructure	
1	Railway Station	The nearest railway station is Paharpur which is located on 1.2 km. from cluster site.
2	Police Station	The nearest police station is Rudawal which is about 6.31 km. from cluster site.
3	Post Office	The nearest post office located in Paharpur which is situated at a distance of 1.2 km. from the cluster site.
4	Medical Facilities	The medical facilities are available at paharpur which is about 1.2 km. from cluster site.
5	Availability of Water	Water for drinking purpose is brought from nearby village- Paharpur. The water of hand pump and well located nearby area has potable & drinkable quality, the villagers and habitants and labors are using this water since long. Water required for dust suppression will also supplied from the well by water tanker brought on hire basis.
6	Electricity	There is no electric line passing through the mine area. But the proposed mining and mineralized area is about 1.2 km. away from village Paharpur where electric line/pole is available.
7	Educational Facilities	The school facilities are available up to 8th std. in village Paharpur which is about 1.3 km. from cluster site.
8	Mode of transportation of Mineral	Railway transportation facilities are available at paharpur. Mineral will be transported by truck/dumper from cluster site to end user.
9	River/ Canal	There is no river/canal passing through the cluster area.

10	Other relevant information	Banking and all other facilities are available at Rudwal/Roopwas.

Cluster Area (Hectares): 248.5515 Ha.

Whether the area is recorded to be in forest (please specify whether protected reserves etc): No, the cluster is not having any forest area.

Ownership/occupancy: Total area of cluster is 248.5515 Ha.

Existence of public road/railway line, if any nearby and approximate distance

NH-3/A: About 9.3 Km in Waste direction from periphery of the cluster.

SH 23: About 9 Km in Waste direction from periphery of the cluster.

SH 45: About 8.76 Km in Waste direction from periphery of the cluster.

MDR: (i) Gramin Road: About 2 Km in EW direction from periphery of the cluster.

Toposheet No: 54F/5& 54F/9

CHAPTER-3GEOLOGY AND EXPLORATION

3.0 Physiography

The M.L. area falls in G.T. sheet No 54F/5& 54F/9, Cluster Area is located 1.2 km. North east of village Paharpur. The area for which Bansi Paharpur Cluster Mining Plan is prepared is plain area. The Mining Cluster Area- 248.5515 Hect. Occupied sandstone and negligible quantity of Alluvium. The highest RL of the area is 261.36 mRL and lowest RL of the area is 205.13 mRL.

General drainage pattern is Eastern side of the Mining Cluster Area.

Climate

The climate is generally dry except during rainy season. Bharatpur district has amazing view and climate in monsoon and winters.. Maximm temperature is 47 C during summers and minimum temperature is 3 C during winters. The normal anual rainfall is 671.5 mm.

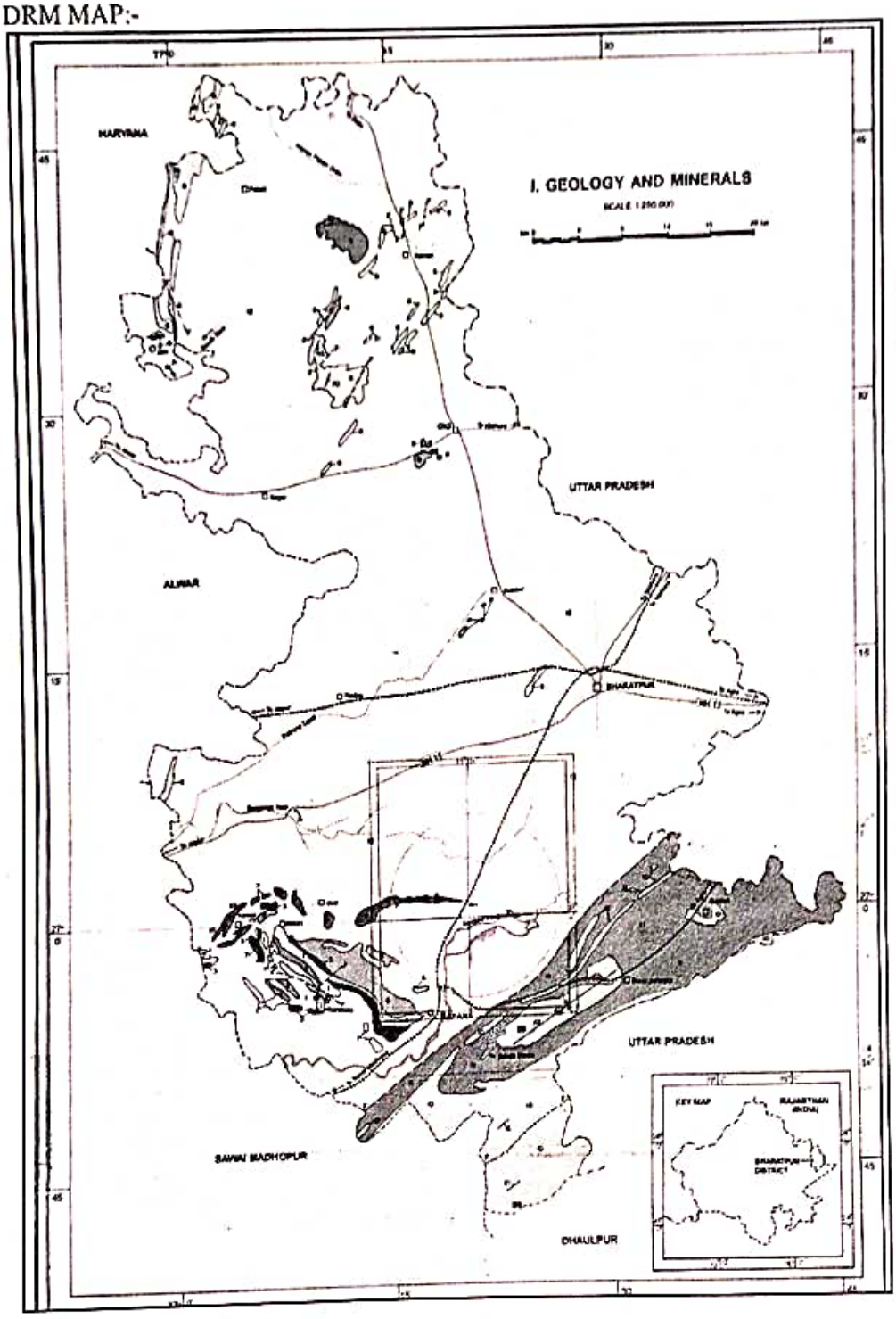
Regional Geology:-

Almost the entire northern part of the district is covered by alluvium, with few isolated hills of schist & quartzites belonging to Aravalli & Delhi Groups. Geologically Bharatpur district comprises of rocks belonging the Aravalli Super group, Delhi Super group and Vindhyan Super group. Map enclosed The Pre Delhi rocks include schists, Phyllites, quartzite and highly altered basic rocks (probably Volcanics). The Delhi Super group is characterised by a thick pile of conglomerate - quartzite assemblage of Alwar Group, and lower part of the Raialo Group, basic volcanics and quartzite inter beds of the upper part of Raialo Group, arenaceous rocks of weir formation and phyllites and shales of Kushalgarh formation of Ajabgarh Group. During the first phase of Delhi orogeny the Bayana sub-basin is reported to have suffered northerly monoclinal tilting. Resulting in very open monoclinical fold with NW –SE to WNW- ESE axial trend superimposed in the limb of earlier folds. Ajabgarh group disconfirmably overlies the Alwar group comprising litho assemblage of carbonaceous shale, phyllite ferruginous quartzite & white quartzite. Nature of contact between Alwar and Ajabgarh groups is not clear though it's observable near village Hathori. Milky white, grey and pink quartz veins and also the jasper veins are the abundant post Delhi intrusive of the area. These are

either along the regular joint planes, irregular fractures or in the Form of gash veins. In places, quartz veins occupy the tensional fractures in the hige zone and in other places they are co folded with the primary bedding. The Delhi Super Group sedimentations have taken place in the coastal environment of unstable shelf, characterized by intermittent vertical tectonics. Vindhyan Super group of rocks assemblage is represented by sand stone and shales etc, which are exposed in the north eastern part of the district in Rupwas Tehsil. Bhander sandstone is underlain at places by light green to olive green shales.

The Pre Delhi rocks include schists, Phyllites, quartzite and highly altered basic rocks (probably Volcanics). The Delhi Super group is characterised by a thick pile of conglomerate - quartzite assemblage of Alwar Group, and lower part of the Raialo Group, basic volcanics and quartzite inter beds of the upper part of Raialo Group, arenaceous rocks of weir formation and phyllites and shales of Kushalgarh formation of Ajabgarh Group. During the first phase of Delhi orogeny the Bayana sub-basin is reported to have suffered northerly monoclinal tilting. Resulting in very open monoclinical fold with NW –SE to WNW- ESE axial trend superimposed in the limb of earlier folds. Ajabgarh group disconfirmably overlies the Alwar group comprising litho assemblage of carbonaceous shale, phyllite ferruginous quartzite & white quartzite. Nature of contact between Alwar and Ajabgarh groups is not clear though it's observable near village Hathori. Milky white, grey and pink quartz veins and also the jasper veins are the abundant post Delhi intrusive of the area. These are either along the regular joint planes, irregular fractures or in the Form of gash veins. In places, quartz veins occupy the tensional fractures in the hige zone and in other places they are cofolded with the primary bedding. The Delhi Super Group sedimentations has taken place in the coastal environment of unstable shelf, characterized by intermittent vertical tectonics. Vindhyan Super group of rocks assemblage is represented by sand stone and shales etc, which are exposed in the north eastern part of the district in Rupbas Tehsil. Bhander sandstone is underlain at places by light green to olive green shales.

DRM MAP:-


I. GEOLOGY AND MINERALS
HARYANA
UTTAR PRADESH
ALWAR
BHARATPUR
UTTAR PRADESH
SAWAI MADHOPUR
DHAULPUR
KEY MAP

3.1 GEOLOGY OF THE AREA

GEOLOGY

Bharatpur district in eastern Rajasthan, bordering Uttar Pradesh, covers an area of 5066 km² falling in Survey of India degree sheets 54A, E and F. The district has ten tehsils, namely, Pahari, Kaman, Nagar, Dig, Kumher, Nadbai, Bharatpur, Wer, Bayana, and Rupbas. Large area of the district falls in sheet 54E. The area is well served by a network of rails and roads. The NH-11 passes through the middle of the district. The Phulera - Rewari and the Dausa-Agra metre gauge sections of the Western Railway are the important railway routes. Semi - arid to dry climate prevails in the area. The average annual rainfall is 577 mm.

The rock types exposed are grouped under the Alwar and the Ajabgarh Groups belonging to the Delhi Supergroup (Lower to Middle Proterozoic) (Map-I). The rocks of the Alwar Group comprising quartzite, basic volcanic, tuffaceous sandstone, shale etc. are well-exposed in the southwestern part of the district around Khankhera. The Ajabagarh Group of rocks consisting of conglomerate and quartzite are exposed near Wer and around Dig and Kaman. The rocks of the Delhi Supergroup are succeeded by sandstone of the Bhander Group which forms a part of the Vindhyan Supergroup (Upper Proterozoic). The rocks of the Bhander Group are well - exposed in southern and southeastern parts of the district. The major part of the district is occupied by Quaternary alluvium and blown sand which conceal the hard rock geology.

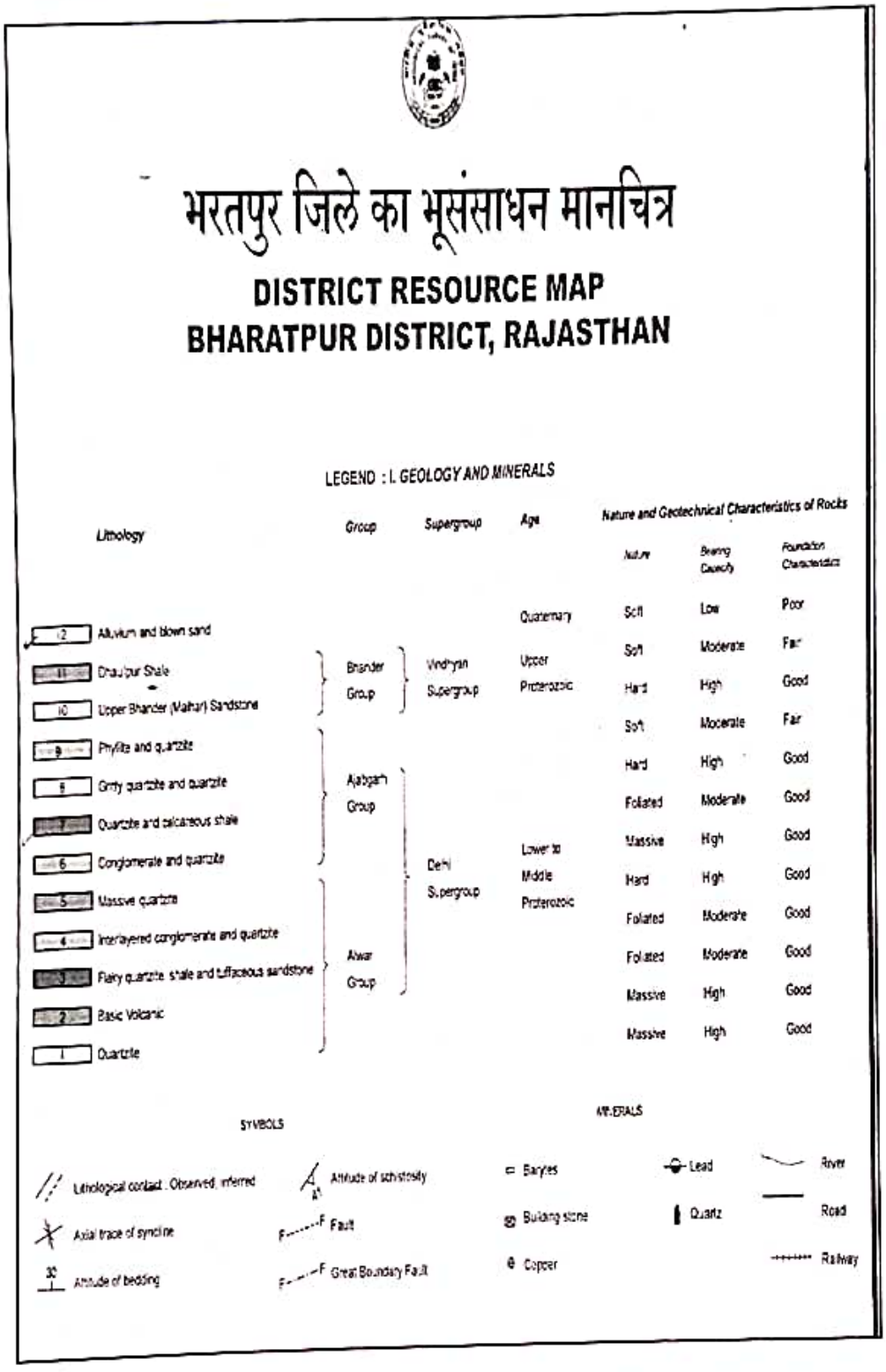
The area has been divided into two river basins, namely, the Barah river basin towards north and the Banganga river basin towards south (map-II). Hydrogeological domains of unconsolidated and consolidated rock formations with varying ground water potential have also been depicted in this map.

The Bayana dam site is an important irrigation project of the district. Natural hazards mainly ravinous area, water - logged area, salinity - prone area have also been depicted (map-III). Geomorphologically, the district is classified into seven geomorphic units namely, hill and valley, younger flood plain, older flood plain, alluvial plain, ravine, obstacle dune and pediment / pediplain. Palaeochannels have also been shown (map-IV). The Land use map shows the distribution of forest, grazing ground, unirrigated crop land etc. (map-V).

MINERAL RESOURCES

Barytes, building stone and quartz are the important minerals of the district. Barytes closely associated with the basic intrusive occurs in the rocks of the Delhi Supergroup. Barytes veins occur as fissure filling in quartzite. Occurrences are reported from Hatori (27°00':77°06'), Karwar (27°00': 77°03') etc. Small deposit of copper with an indicated reserve of 1 million tonne with 1% Cu is located near Khankhera (26°55' : 77°08'). Minor occurrence of lead is reported from Jotri (27°35: 76°58'). Quartz is available at many places in the district. Quartzite and sandstone are quarried at Bansi Paharpur (26°56': 77°03'), Dig (27°27': 77°19') etc. White-spotted, reddish sandstone of the Bhander Group is in great demand as building stone.

Statigraphic succession of the rock units of Bharatpur region is as given below:



भरतपुर जिले का भूसंसाधन मानचित्र

DISTRICT RESOURCE MAP
BHARATPUR DISTRICT, RAJASTHAN

LEGEND : I. GEOLOGY AND MINERALS

Lithology	Group	Supergroup	Age	Nature and Geotechnical Characteristics of Rocks		
				Nature	Bearing Capacity	Foundation Characteristics
12 Alluvium and blown sand			Quaternary	Soft	Low	Poor
11 Dhaulpur Shale	Bhander Group	Vindhyan Supergroup	Upper Proterozoic	Soft	Moderate	Fair
10 Upper Bhander (Mahari) Sandstone				Hard	High	Good
9 Phyllite and quartzite	Alabpahi Group	Delhi Supergroup	Lower to Middle Proterozoic	Soft	Moderate	Fair
8 Gritty quartzite and quartzite				Hard	High	Good
7 Quartzite and calcareous shale				Foliated	Moderate	Good
6 Conglomerate and quartzite				Massive	High	Good
5 Massive quartzite	Alwar Group			Hard	High	Good
4 Interlayered conglomerate and quartzite				Foliated	Moderate	Good
3 Flaky quartzite, shale and tuffaceous sandstone				Foliated	Moderate	Good
2 Basic Volcanic				Massive	High	Good
1 Quartzite				Massive	High	Good

SYMBOLS

Lithological contact : Observed, inferred
Axial trace of syncline
Attitude of bedding
Attitude of schistosity
Fault
Great Boundary Fault

MINERALS

Barytes
Building stone
Copper
Lead
Quartz
River
Road
Railway

B. Local Geology:

Geologically, the rocks of the mining Cluster Area- 248.5515 Hect. belong to Vindhyan Super group. Sandstone is the major litho-unit in the area. The stratigraphic sequence of the litho-unit of the area present in the area is as follows:

Sub Recent to Recent	-	Soil/Alluvium
Vindhyan super group	Bhander Group	Dholpur Shale
		Upper Shale (Maihar) Sandstone

To understand the structural configurations of the lease are surface geological mapping has been done on a scale of 1:1000. Geological cross-section and longitudinal section is prepared on a scale 1:1000 (V), 1:1000 (H) so as to understand the structural configuration of the Cluster Area- 248.5515 Hect.. Sandstone in the present area only Sandstone is available.

A Litho-logy

Sand stone is observed in the Cluster Area- 248.5515 Hect. as shown on plate-4. No other rock unit is exposed in the applied area.

B STRUCTURE

No fault, fold or any other geological disturbances encounter in the Cluster Area- 248.5515 Hect. as the area is covered with sand stone.

The sand stone is bedding deposit. The strike is almost N60°E - S60°W with gentle dip of 4^0 to 8° due southeasterly.

C Nature of mineralization

It is a bedding deposit of Sand stone. The sand stone is reddish, white and reddish with white spots are observed in this area. The grain size varies from fine to medium. The sand stone is hard and compact and has cracks and joints at surface. The sand stone is observed in layers.

No other rock unit is exposed in the area.

D OCCURANCE

The sand stone occurs in Bhander Group of Vindhyan Super Group.

E WEATHERING EFFECT

The weathering effect observed at surface only on the rock.

FNATURE OF WALL ROCKS

The wall rock is not exposed in the Cluster Area- 248.5515 Hect.

G PHYSICAL AND CHEMICAL CHARACTRISTICS

Physically the sand stone is of reddish, white and reddish with white spots in colour. Bulk density is 2.6 as the rock is hard and compact. The grain size is fine to medium

II RECOVERY

The recovery of mineral is around 70% in this deposit. Rest 30% is small pieces, intrusions etc which generate during mining. In sand stone mining all the excavated material is marketable as patti, farshi and khanda.

3.3 (A) Topographical plan:

The topographical plan in scale 1:1000 is prepared with 3 meters contour interval. All requisite details are given in this plan "Surface Geological Plan & Sections" plate-3.

(B) Sections:

Geological sections prepared at 60 meters interval in 1:1000 scales are provided on plate-3.

The sections are prepared for one block. Rest area is covered with long grass and working is not observed in major parts of the block. Thus prospecting pits are proposed in all the blocks.

CHAPTER-4 GEOLOGICAL RESERVE

4.1 Parameters of estimation of category of reserves and there categorize:

Based on available information and exposed Sandstone at various places, it can be said that the complete Cluster Area can be considered as a mineralized area. Besides, following points have been considered for reserve calculation.

(i) Average 1.5m Cover has been considered as Soil/Alluvium.
(ii) Average 3.5m Cover has been considered as Fractured Sandstone.
(iii) Average Block A=50 mtr & Block B= 90 mtr depth of sandstone has been considered for proved category of reserve.
(iv) Average Block A=10 mtr & Block B= 10 mtr depth of sandstone below proved category has been considered for probable category reserve.
(v) Average 5m depth of sandstone below probable category has been considered for possible category reserve.
(vi) 2.5 tones/m^3 have been considered as a Specific Gravity of sandstone.
(vii) Recovery of sandstone is 70% of total reserve.
(viii) Recovery of sandstone is 70%, 30% is Rejecting of total reserve.

Reserve estimation:

The base line information for computation of the reserve has been generated based on geological information and parameters observed in the working pit in Cluster Area accordingly the surface geologically plan and the prepared geological cross-section and longitudinal sections on a scale 1:1000 (V), 1:1000 (H). Based on the experience gained at the time of survey, the estimated reserves have been divided in to proved, probable & possible category. The reserves for sandstone have been calculated based on cross-sectional area method.

Block A Reserve

PROVED RESERVE:

Mineralized zone Area (m2)	Depth (m)	Mineral Vol. (m3)	Bulk Den. MT/m3	Mineral (tones)	Rec. Mineral 70% (tones)	Waste tones 30%
1080550	50	54027500	2.5	135068750	94548125	40520625
Total				135068750	94548125	40520625

PROBABLE RESERVE:

Mineralized zone Area (m2)	Depth (m)	Mineral Vol. (m3)	Bulk Den. MT/m3	Mineral (tones)	Rec. Mineral 70% (tones)	Waste tones 30%
1080550	10	10805500	2.5	27013750	18909625	8104125
Total				27013750	18909625	8104125

POSSIBLE RESERVE:

Mineralized zone Area (m2)	Depth (m)	Mineral Vol. (m3)	Bulk Den. MT/m3	Mineral (tones)	Rec. Mineral 70% (tones)	Waste tones 30%
1080550	5	5402750	2.5	13506875	9454812.5	4052062.5
Total				13506875	9454812.5	4052062.5

Block B Reserve

PROVED RESERVE:

Mineralized zone Area (m2)	Depth (m)	Mineral Vol. (m3)	Bulk Den. MT/m3	Mineral (tones)	Rec. Mineral 70% (tones)	Waste tones 30%
1394284	90	125485560	2.5	313713900	219599730	94114170
Total				313713900	219599730	94114170

PROBABLE RESERVE:

Mineralized zone Area (m2)	Depth (m)	Mineral Vol. (m3)	Bulk Den. MT/m3	Mineral (tones)	Rec. Mineral 70% (tones)	Waste tones 30%
1394284	10	13942840	2.5	34857100	24399970	10457130
Total				34857100	24399970	10457130

POSSIBLE RESERVE:

Mineralized zone Area (m2)	Depth (m)	Mineral Vol. (m3)	Bulk Den. MT/m3	Mineral (tones)	Rec. Mineral 70% (tones)	Waste tones 30%
1394284	5	6971420	2.5	17428550	12199985	5228565
Total				17428550	12199985	5228565

Total Reserve Black (A)

Nature of Reserve	UNFC	Mineral (Tones)	Rec. Mineral 70%	Waste tones 30%
Proved	111	135068750	94548125	40520625
Probable	121	27013750	18909625	8104125
Total		162082500	113457750	48624750

Total Reserve Block (B)

Nature of Reserve	UNFC	Mineral (Tones)	Rec. Mineral 70%	Waste tones 30%
Proved	111	313713900	219599730	94114170
Probable	121	34857100	24399970	10457130
Total		348571000	243999700	104571300

Block A + B Total reserve

Nature of Reserve	UNFC	Mineral (Tones)	Rec. Mineral 70% (Tones)	Waste tones 30%
Proved	111	448782650	314147855	134634795
Probable	121	61870850	43309595	18561255
Total		510653500	357457450	153196050

3.6 Reserves & Resources as per UNFC code:

Classification	Code	Reserve in T
Total Mineral Resource		
A. Mineral Reserve		
1. Proved Mineral Reserves	111	**448782650**
2. Probable Mineral Reserves	121 & 122	**61870850**
B. Remaining Resources		
1. Feasibility Mineral Resources	211	
2. Pre-feasibility Mineral Resources	221	
3. Measured Mineral Resources	331	
4. Indicated Mineral Resources	332	
5. Inferred Mineral Resources	333	
6. Reconnaissance Mineral Resources	334	

4.3 Waste Generated

Total waste generated about **153196050** MT includes (out of Proved, Probable recovery)

Mineable Reserve: Proved + Probable

= 448782650 + 61870850 = 510653500

4.4 Anticipated Life of Mine

Average production proposed is about of 10125000 T of per annum. Therefore Anticipated Life = Mineable Reserve/ Avg. Annual Production

= **510653500**/10125000

= About 50.43 Years

The Life of mine may change depend upon the prospecting results, rate of production and the extent of mechanization done by the lessee in near future.

Chapter -5Mining

Proposed Year wise development for five Years:

The year-wise plan and the sections and position of the pit at the end of each year have been given in plate 4.

As per notification issued by MoEF & CC vide EIA Notification Dated.1.7.2016, the concept of grouping of mines into a cluster is proposed. The cluster approach is taken for grouping of small mining leases for minor mineral. As said by notification, a cluster shall be formed when the distance between the peripheries of one lease is less than 500 meters from the periphery of other lease in a homogeneous mineral area. The clusters of mine leases are prepared by their respective mining offices only.

The proposed cluster is prepared and drafted by Department of Mines and Geology, Roopwas which is having 70-75 mine leases. All mines are of Sand Stone only. Opencast Semi Mechanized mining method will be practiced for the mining of mineral in the proposed cluster. Excavation of mineral needs removal of overburden. Deposits will be excavated by Excavators, Loaders, tippers, JCB etc. and some hand tools like shovels, pan, spades, pickaxes etc. will be practiced for mining. Mining will be done by systematic benching. Roads and ramps will be made at gentle gradient during mining as per requirement. The height of the benches will not be kept more than 5 mt. for any mineral and width of the benches will always kept more than the height. Controlled blasting measures will be adopted. Top soil/overburden will be removed by JCB and stacked in soil stack yard. Loading of overburden will be done by tractors, trolleys, and trucks and then transported to dump yard.

First Year

Details showing estimation of bench-wise production of minerals and generation of overburden waste during 1st year of Cluster Planning.

Plan area in m^2	Depth in m.	Volume in m3	Sp. Grave.	ROM excavation in tone	Saleable Sandstone in tones of ROM	Waste in tones
460000	3	1380000	2.5	3450000	2415000	1035000
				3450000	2415000	1035000

Second Year

Details showing estimation of bench-wise production of minerals and generation of overburden waste during 2nd year of Cluster Planning.

Plan area in m^2	Depth in m.	Volume in m3	Sp. Grave.	ROM excavation in tone	Saleable Sandstone in tones of ROM	Waste in tones
460000	3	1380000	2.5	3450000	2415000	1035000
				3450000	2415000	1035000

Third Year

Details showing estimation of bench-wise production of minerals and generation of overburden waste during 3rd year of Cluster Planning.

Plan area in m^2	Depth in m.	Volume in m3	Sp. Grave.	ROM excavation in tone	Saleable Sandstone in tones of ROM	Waste in tones
460000	3	1380000	2.5	3450000	2415000	1035000
				3450000	2415000	1035000

Fourth Year

Details showing estimation of bench-wise production of minerals and generation of overburden waste during 4th year of Cluster Planning.

Plan area in m^2	Depth in m.	Volume in m3	Sp. Grave.	ROM excavation in tone	Saleable Sandstone in tones of ROM	Waste in tones
460000	3	1380000	2.5	3450000	2415000	1035000
				3450000	2415000	1035000

Fifth Year

Details showing estimation of bench-wise production of minerals and generation of overburden waste during 5th year of cluster planning.

Plan area in m^2	Depth in m.	Volume in m3	Sp. Grave.	ROM excavation in tone	Saleable Sandstone in tones of ROM	Waste in tones
460000	3	1380000	2.5	3450000	2415000	1035000
				3450000	2415000	1035000

First Five years Production

Year	ROM In Tones	Sandstone	Reject
Ist Year	3450000	2415000	1035000
IInd Year	3450000	2415000	1035000
IIIrd Year	3450000	2415000	1035000
IVth Year	3450000	2415000	1035000
VthYear	3450000	2415000	1035000
Total	**17250000**	**12075000**	**5175000**

Attach composite plan and year wise section:-

The plan and sections showing the pit positions in first five years are prepared on a scale of 1:1000

Attach plan showing pit layouts, dumps, sub grade & mineral tack etc:-

Surface geological & proposed year wise working plan will be prepared.

Indicate proposed rate of production when the mine/cluster is fully developed, and the expected life of the mine/cluster and the year from which effected.

The targeted annual production or capacity for the cluster will be approx 3500000 MT. Then the estimated mining life of the cluster with the current production will be about 50 years.

Conceptual plan for the life of mines in the cluster: -

Exploration:

All the mining leases in the Cluster are having individual programme of exploration. The mines has proposed one bore hole of 25 m depth at the pit bottom of the proposed working pit to know the presence of any other Mineral bed below. If another Mineral bed is not found in the pit then backfilling will be started in subsequent years i.e., rest of the period of mining plan.

Programme of Exploration in next 5 years in the Cluster

Year	No. of borcholes	Total Meterage	Remarks
1st	On an average, 10 Bore holes in the Cluster	An average of 25 m depth	To check the presence of another mineral bed.
	Approximately 2 or 3, as per requirement exploratory shafts	An average of 30 m depth	To check the presence of another mineral bed.

	have been proposed in Cluster		

(ii) Quantity of waste/O.B. expected during life of mine:-

Mineral recovery is taken as 70% and reject is 30%. At the end of mining life of cluster (proved reserves + probable reserves) **175000000** of the mineral will be excavated from the area.

At the proposed rate of production reject generated will be (@ 30% of total production) **17250000** MT will be generated for first five years.

(iii) Space: - Soil dump will be stacked temporarily near safety zone in the mining lease of the cluster area and after completed one pit the waste will be backfilled in excavated area.

(iv) Reclamation:-

Reclamation will be done by adopting two measures, first is backfilling and the other is formation of water reservoir. At end of the mining life of the cluster, out of the total excavated about 40 hectares will be backfilled with excavated O.B./waste and top soil spread over it. The land may be used for agriculture purpose and some trees will also be planted over it to preserve the aesthetic look of the area.

(v) Plantation: – Plantation will be done in each mining lease, but due to the hard surface of the mining area, it is difficult to grow trees and plants, so the top soil will be generated during mining, it will be spread in the boundary barriers and plantation will be done and the area will be backfill after mining. The top soil spread on the backfill area and Plantation will be done by lessee.

Total 82.0219 hectares will be covered along the boundary barriers of the individual mine leases for plantation by the end of mining.

(g) Opencast Mines

(i) Salient features of mode of working:-

The mineral excavation of Sand Stone will be carried out by opencast semi mechanized method. It will be done by making systematic benches and with the help of Excavators, Loaders, tippers, JCB, Wire saw etc. and some hand tools like shovels, pan, spades, pickaxes etc. The height of the benches will not be kept more than 3-4 mt. for any mineral and width of the benches will always kept more than the height. The overburden will be removed with help of JCB or small capacity excavator on hire basis as and when required. The Sand Stone will be sorted out according to grade at the faces on the basis of color, texture and material shall be loaded on the trucks and transported to destinations as required.

(h) Extent of Mechanization: -

It is proposed to do mining operations by semi mechanized open cast working by use of JCB. As the whole area is covered by soil this will be removed first and stacked separately for plantation purpose and spreading over the backfilled area. Below the soil, Fractured Sand Stone found which will be removed with help of JCB/Small capacity excavator. Sans Stone is found underneath the soil, which will be extracted by manual means and loaded in to trucks at pit bottom.

List of Mining Equipment for per mining lease

S. No.	Machine	No's
1	Air Compressor	2
2	Jack Hammer	1
3	Loader	2
4	Dumper	4
5	Excavator	2
6	Tractor	2
7	Wire Saw	2
8	Derrick Crane	2

(i) Drilling Machine

The only source to pollute air is the generation of dust while undertaking the mechanized mining operation including loading transportation & unloading sizing the mineral. Running of external transport machinery, like dumpers, trucks in the mining area. Due to these mining impact will be very low/negligible. This will be contending by spraying water in the mining area, Haul roads & wet drilling.

(ii) Loading Equipment:-

Loading will be done by loaders, tippers, excavators etc. which will be hired as per need. Manual loading will also be adopted along with the machines.

(iii) Haulage and Transport Equipment:-

(a) Haulage within the mining area:-

Trucks will be loaded by material (overburden or minerals) and transported to desired location.

(b) Transport from mine head to the destination: - Trucks/Dumper will be used.

(iv) Miscellaneous Operation:- No allied operation requires machinery

CHAPTER -6 BLASTING

BLASTING

In general blasting is not required in sand stone mine. Blasting will require for removal of overburden and side burden. The controlled blasting is proposed by adopting all the safety measures as per Mines Act' and with the permission of DGMS.

A. Broad blasting parameters

1.	Spacing	: 1.20 Mtr
2.	Burden	: 0.8497 Mtr
3.	Depth of hole	: 1.6 Mt. (In two stages)
4.	Tonnage of each hole	: 4.77Mt
5.	Charge per hole ANFO	: 0.40 Kg
6.	No. of Cartridge	: 1
7.	No. of hole per round	: 20
8.	No. of round per day	: 2 to 3
9.	No. of row	: 1
10.	Wt. of Cartridge	: 125 gm
11.	Powder factor	: 6.05 tonnes/Kg

B. Types of explosive to be uses

1. ANFO (AN 94%, FO 6%)
2. Slurry Explosive
3. Detonating Fuse
4. Ordinary Detonator/Electric detonator
5. Safety fuse

C. Powder factor

Powder factor =Spacing x burden x hole depth x bulk density/ total charge in kg

$$= \frac{1 \times 0.8 \times 1.5 \times 2.6}{0.125+0.5}$$

$$= 3.12/0.625$$

= 4.992 tonne rock! kg of explosive

D. Secondary Blasting

Secondary blasting will not needed

E. Storage of explosive

As mining Operation is on a limited scale, therefore, requirement of explosive will be very low. Therefore, No explosive will be stored at the mine site. Explosive required for blasting will be transported from nearby magazine in a approved explosive van and the residue explosive after blasting will be returned to the same magazine. There will not be any infrastructure and mining operation in 50 Mtr. radiuses of magazine. Suitable provision of fencing, guard huts etc will be done as per Indian Explosive Act. Blasting operation will be done by blaster /mines manager appointed by the lessee.

Chapter -7 Mine Drainage

- As the area Plain and country rock is hard, the runoff water will be fast and percolation of water will be less. All the surface water shall be flowing towards North Western direction and join to a bigger nala, which is flowing in the North Western side of Cluster Area.

- The proposed Mining will start from above surface level, so there will be no effect on ground water table. The general ground water table in the area varies from 40m to 45m below ground level. Therefore, ground water table will not be touched during first five years of mining. Rain water may get accumulated rainy season. Pumping shall be done for collected water, if any, during rainy season.

- The water streams in the diverted forest land shall be protected as per the standard condition in the forest (conservation) guideline; the state govt. shall ensure that soil and moisture conservation activities are undertaken on the banks of these water streams by user agency, along with mining operation, to sustain water floe in the streams.

- Small Nalas/anicut in Bansi Paharpur A and B block can be used as garland drains to provide/recharge water in to Bandh Baretha Dam. Village pond of Bansi Paharpur village should be conserved by the user agency. All natural/man made existing water bodies shall be conserved and protected by user agency and no hindrance shall be caused to obstruct flow of water in such water bodies.

Chapter -8 Disposal of waste

8.1Nature of Waste

Waste generated is contaminated sandstone and mineral rejects from patti & Katla mining of 30%

Year	Mineral reject (in cum)
First year	1035000
Second Year	1035000
Third Year	1035000
Fourth year	1035000
Fifth year	1035000
Total	**5175000**

Selection of dumping site:

The waste stack as well as Sandstone stone chips generated during the first five years will be dumped inside the 7.5m safety zone the area as shown in development plan plate no. 4. The land selected for waste dumping belongs to applicant itself.

Maximum height and spread of dumps:

The 70% of the total mined out rock is only marketable. The remaining rock is stacked as waste. The plan of period generation of waste rock will be about **5175000** tones in five years period.

Stacking of Sub grade Mineral:

No sub grade mineral will be generated during the course of mining.

Selection of Site and Spread for Stacking of Sub grade Mineral:

No Site and Spread is required I the sub-grade mineral as no sub-grade mineral will be generated

Top soil management:- Top soil stack properly in 7.5msaefty zone. After rainy season the top soil spread and used for plantation.

CHAPTER-9

BENEFICIATION

No Beneficiation is required. The Sand Stone will be loaded by excavator into dumpers and transported to the plant.

CHAPTER-10

SURFACE TRANSPORT

The overburden is transported from mine by dumpers of 25MT

CHAPTER-11

USES

Traditional Sand Stone Building, Roads, Dams, Bridge and other construction work.

CHAPTER-12SITE SERVICES

Power supply

Electric power supply Line exists near the mining lease site. It is proposed to connect the mine with supply connection.

Water Supply

Water is being supplied from a tube well near the mining Cluster Area and a tractor-mounted tanker is proposed for supply of water to mining work, spraying, watering the plants and drinking purposed.

First Aid

First aid facility shall be available at office.

Mine office

Temporary office is proposed

Rest shelter

Temporary rest shelter has been provided near mining lease site.

Latrines and Urinals

At the mining lease site urinal and latrine are proposed.

EMPLOYMENT POTENTIAL

The company shall employ Mine official (Mines Manager, Forman) in accordance with the provision of the MMR 1961, Mining engineer under MCDR 88 & R.M.M.C.R., 2017 (Amended 2017).

The workers to be employed shall be semi-skilled and unskilled. Most of them will come from the nearby villages. With the increase in the production additional man power shall be required. Considering the OMS 4.2 in the mechanized mining the organizational set up proposed is given below:

As per Lease

Mines Manager	-1
Labors	-8
Helper	-2
Mechanic	-2

Total 10- 12 Manpower required and other manpower is on contractual basis as and when required.

CHAPTER-13

ENVIRONMENTAL MANAGEMENT PLAN

Measure taken and to be taken for protection of environment in and around mining Cluster Area.

Regularly water is being sprinkled out on every place where there is a vehicular movement, at work place, rest shelter etc.

1. **Existing Land Use Pattern**
2. Sand Stone and soil are mostly occupying the mining Cluster Area. The surface texture varies from rugged terrain of debris and mild Gradient terrain covered by bushes. There is no agriculture land exist in the area. This soil is generally poor in Nitrogen. The existing land use pattern is given in the format.

s.no.	*All the areas are given in SQ Mtr	Forest Land	Crop Land	Waste Land (Pvt.)	Waste Land (Govt.)	Total
1	Area under Excavation	-	-	-	0	0
2	Storage of Top Soil	-	-	-	-	-
3	O/B Dump	-	-	-	0	0
4	Mineral Storage	-	-	-	-	-
5	Sub Grade Mineral Storage	-	-	-	-	-
6	Infrastructure	-	-	-	-	-
7	Road/Cart Track	-	-	-	0	0
8	Railway	-	-	-	-	-
9	Green Belt/Plantation	-	-	-	0	0
10	Tailing Pond	-	-	-	-	-
11	Effluent Treatment Plant	-	-	-	-	-
12	Mineral Separation Plant	-	-	-	-	-
13	Town Ship	-	-	-	-	-
14	Electric line	-	-	-	-	-
15	Others	-	-	-	-	-
16	Virgin area	-	-	-	248.5515	248.5515
	Total	-	-	-	248.5515	248.5515

Agriculture work is being done outside of mining Cluster Area- 248.5515 Hect., where soil is available for cultivation. Bazra, wheat etc. are common varieties of the crops, which are grown on the agriculture land. As land is not fertile, yield is very poor.

(ii) **Water Regime:** No surface water present in the Cluster Area- 248.5515 Hect.. These are serving the purpose of conveying rainwater into pond. The mine does not approach to ground water table. The water table is at about 40-45 m from surface in the area. The quality of water is reported to be potable.

(iii)**Flora &Fauna**: Few bushes can be seen in the area. Moreover there is no demarcated/protected forest close to the area. The protected wildlife animal in & around mining Cluster Area. is also not present.

(iv)Climatic Condition: The area is characterized by semi arid with and average annual rainfall of about 598mm, which is mainly received during monsoon season of June to September. There is a large variation of temperature in the area. In winter the minimum temperature goes to 1.575°C and maximum 30°C, while is summer it is 25°C and 40°C respectively. Relative humidity in the area is above 80% during the monsoon season but is below 20% during the months of March-May. Wind velocity in the area is medium.

(v) Public Buildings, places and monuments: No such buildings, places and monuments exist in or nearby the area.

(vi) Quality of Air:

Impact of mining

The various sources of air pollution in the area will be from dust rising from unpaved roads, running of mining machineries and vehicle traffic.

Dust is generated by the following mining activities.

1. During movement of transportation machinery.

Remedies

1. Water spray is suggested over the filled material of the tippers to minimize the dust during dumping/transportation.
2. Water spray is suggested over the haul road during the working hours.
3. Earplug will be provided to the work persons. During drilling in the stone used wet drilling machine.

End of Five Year Land Use Pattern

s.no.	*All the areas are given in SQ Mtr	Forest Land	Crop Land	Waste Land (Pvt.)	Waste Land (Govt.)	Total
1	Area Under Excavation	-	-	-	100.0	100.0
2	Storage of Top Soil	-	-	-	10.0	10.0
3	O/B Dump	-	-	-	20.0	20.0
4	Mineral Storage	-	-	-	4.0	4.0
5	Sub Grade Mineral Storage	-	-	-	-	-
6	Infrastructure	-	-	-	1.0	1.0
7	Road/Cart Track	-	-	-		
8	Railway	-	-	-	-	-
9	Green Belt/Plantation	-	-	-	50.0	50.0
10	Tailing Pond	-	-	-	-	-
11	Effluent Treatment Plant	-	-	-	-	-
12	Mineral Separation Plant	-	-	-	-	-
13	Town Ship	-	-	-	-	-
14	Electric line	-	-	-	-	-
15	Others	-	-	-	-	-
16	Virgin area	-	-	-	63.5515	63.5515
	Total	-	-	-	248.5515	248.5515

End of Mining lease

s.no.	*All the areas are given in SQ Mtr	Forest Land	Crop Land	Waste Land (Pvt.)	Waste Land (Govt.)	Total
1	Area Under Excavation	-	-	-	115.0	115.0
2	Storage of Top Soil	-	-	-	-	-
3	O/B Dump	-	-	-	-	-
4	Mineral Storage	-	-	-	--	--
5	Sub Grade Mineral Storage	-	-	-	-	-
6	Infrastructure	-	-	-	-	-
7	Road/Cart Track	-	-	-	-	-
8	Railway	-	-	-	-	-
9	Green Belt/Plantation	-	-	-	53.5515	53.5515
10	Tailing Pond	-	-	-	-	-
11	Effluent Treatment Plant	-	-	-	-	-
12	Mineral Separation Plant	-	-	-	-	-
13	Town Ship	-	-	-	-	-
14	Electric line	-	-	-	-	-
15	Backfilled (Used as Plantation)	-	-	-	80.0	80.0
16	Virgin area	-	-	-	0	0
	Total	-	-	-	248.5515	248.5515

ENVIRONMENT

Impact of mining on the Environment: The common adverse effect of mining on environment is as under:

(A) Land Environment

(i) Land Scrape

The land escape of this mine will be disturbed only marginally by the proposed mining in the area, the total area of the lease which will be worked in five year the depth that will be reached in five years will be at 15 m.

(ii) Aesthetic Environment

The area is having little aesthetic surrounding and there will be little effect on aesthetic environment by the mining activities and the proposed plantation will compensate minor impact.

(iii) Soil and Land Use Pattern

The soil cover in the area is very marginal and by the mining activities the soil will only be disturbed at the place of excavation, on the proposed dumping site it is having practically very little soil cover.

The land use will only be changed at the place where the mining activities will take place and the pit excavation will take place, the soil in the area is only very marginal.

(iv) Agriculture

The proposed mining will be done on Govt. Waste Land. Therefore, there will be impact on agriculture land but the proposed mining is on very small scale so there will be no/Negligible impact on agriculture by the proposed mining activities.

(v) **Forest**

The mining area does not fall in reserve forest. In the operating are the density of vegetation is also so poor and by the proposed pit development, no tree will be cut. Hence no more impact will take place on the forest.

(vi) **Vegetation**

The vegetation in mining area is in poor state. Only some small bushes exist and as such no more effect will take place by mining activities on vegetation.

(vii) **Public Building, Places and Monuments**

No public building, places of monuments are exists in or nearby the Cluster Area, so there will be no effect by mining activities on any public building, places and monuments.

MEASURE TAKEN AND TO BE TAKEN FOR THE CONTROL OF WATER, NOISE AND AIR POLLUTION:

Measures taken for water, Noise & Air Pollution:

Surface Water: There is no source of surface water in and around the mining Cluster Area.

Ground Water: Working has not approached the ground water table, hence no measures taken.

Noise: Machines are well maintained. Personnel protective equipment provided to all mine workers.

Measures to be taken for control of water, Noise and air pollution in/or nearby leases area are as follows:

(A) Water Pollution

(i) Surface Water

No nalah, spring or surface water is exists in the proposed mining area and hence there will be no effect on surface water due to mining activities.

(ii)Ground Water

The water table in the area is low as 30 m to 35 m from surface. There will be no discharge of toxic substance from proposed mining and hence due to proposed mining activities no impact on ground water will take place.

The proposed excavation will reach only up to 6m from the surface level, so it will be much above water table.

(iii) Water Quality

No impact will take place due to mining activities on water quality, as no toxic or polluted water will be discharged, neither the pit depth will go below water table.

(B) Noise Pollution:

The source of the noise in mining particularly in this area can be due to

(1) Mobile plant (Drilling, Running of compressors etc.

(2) External Transport Plant related with supply of material running of trucks and dumpers etc.

(3) Explosive detonation, sound waves etc. No sound pollution will be caused by above source, as the sound generated will be kept within permissible limit. The noise level during blasting will be high but it will be for momentarily. Scientific blasting will be adopted hence ground vibration will not take place.

(C) Air Pollution

Dust

The impact on the air due to mining activities can take place by following activities

Formation of Dust: following reason makes Formation of dust:

Running of external transport machinery like tractor, trucks in the mining area. Due to small scale mining impact will be very low in the form of small amount of air borne dust.

(iii) Climatic Condition

Climatic condition of area will have no change by mining activities, as the mining activities will be of a very limits nature, so there will be no impact of mining on climatic condition.

a) **Drilling and Blasting**

b) Running of external transport machinery, like dumpers, trucks in the mining area. Due to these mining impact will be very low/negligible. This will be contending by spraying water in the area & wet drilling.

(iii)Climatic condition: -

Climatic condition of area will have no change by mining activities will be of very limited nature. So there will be no impact of mining on climatic condition.

(D) Socio-Economic Environment

(i) Social and Demographic Profile

As far as the social and demographic profile is concerned there will be a positive effect on the status of the persons employed in the mines because they will get employment and their financial position will be improved and their status will also improve, because there is hardly any employment potentiality in the area for the persons. The works will also be

provided with facilities life medical care, money saving scheme as provident Fund, Bonus etc and thus there will be all around improvement in their social life. There will be a positive effect on the area due to their employment. As far as the demographic profile is concerned on the persons will be affected due to mining activities.

(ii) Human Settlement

No human settlement exists in Cluster Area. Hence to impact will take place on human settlement.

(iii) Recreational Facility

The proposed mining activities will not have any impact on the recreational facility of the area, as the proposed mining activities will not take place on any playground or field.

MANAGEMENT PLAN

The following management plan will be made to overcome the impact caused by the mining activities.

A) Landscape will not be changed much except the excavation of pit. The area is scanty and favorable; pit will be concerted to the water reservoir at the end of mine life.

B) Aesthetic Environment

Aesthetic beauty will improve in the form of green belt created by plantation.

C) Agriculture

No management plan required.

D) Forest

No management Plan proposed. The proposed plantation will enhance the density of trees in the area.

E) Vegetation

Plantation will be done as proposed in the programme of plantation.

F) Public Building, Places and Monuments

No management plan required.

B) Water Environment

(i) Surface Water

No management plan required.

(ii) Ground Water

No management plan required.

(iii) Water Quality

No management plan required.

(iv) Air Environment

(i) Noise-Regular maintenance of drills and excavator and replacement of damaged/worn out part when even required. As an extra precaution earplugs will be provided to the persons exposed to high noise level.

(ii) Spraying of water from time to time and maintenance of road will also save breakdown of machinery and as well as less dust generation. Dust generation during drilling will be

overcome by application of wet drilling or use suitable dust collector. Dusk masks will be provided to the drilling crew and persons exposed to dust.

(iii) Climatic Conditions

No impact will take place on climatic conditions of the area and hence to management plan is proposed.

(D) Social Economic Environment

(i) Social and Demographic Profile

The lease shall spend 1% of profit for the development of the area. She donates money in the school, to poor for treatment, temple and other social work.

(ii) Occupational Health and Safety

To prevent the occupational disease the measure as proposed in drilling operation in previous columns will be taken. This will prevent the inhalation of dust by the workers. The workers will be periodically medically examined under Rule 29 (b) of mines Rule. If any worker found to have contracted with any occupational disease he will immediately removed from the affected area and will be provided with proper medical care as per provision of mines Rule.

Safety

to prevent the worker getting any injury during work following measure will be taken:

(i) The workers will be trained in vocational training whenever available in nearby area. Where they will get proper training in their particular work area.

(ii) They will be provided proper safety wearing and equipments such as hand gloves safety boots, helmets, and lifeline etc.

(iii) Proper benches with be formed.

Apart from this all safety precaution will be taken as per Act, Rules Regulation and Byelaws made there under.

(iii) Human Settlement

There will be no impact on human settlement by mining activities as the mining is small scale & mine is situated away from the nearby settlement. In spite of this mining in the area provides employment to the local inhabitants that help them to raise their living standards.

(iv) Recreational Facility

No impact will take place on the recreational facilities and hence no management plan is proposed.

PROGRAMME FOR PLANTATION

The area falls is semi arid zone and there is a shortage of water so a large-scale plantation is not possible. The rains are also scanty hence it is essential that the sapling of plant should be such which required minimum water and hence it is essential that the sapling of plant should be such which required minimum water and hence it is proposed to plant 10 trees per year of the following:

1. Babul
2. Vilayati Babul
3. Khejari
4. AmalTas
5. Perkin Sonia
6. Neem

The lessee is also a member of the Association and the Association shall also plants as per their plan. Schedule of plantation for the next five year. Since the area highly refractory and the rainfall is also low, to ensure successful plantation in the safety zone and at other designated places, the plantation in and around the purposed area should be carried out under the supervision of expert institutions, Like AFRI,Jodhpur.

Table: Plantation for five year.

S.No.	Year of Plantation	Target of Plantation	Assumed Survival	Replenishment of Casualties	Total

1	I Year	700	490	-	490
2	II Year	700	490	210	700
3	III Year	700	490	210	700
4	IV Year	700	490	210	700
5	V Year	700	490	210	700

Place of Proposed Plantation: - The plantation shall be done at the following places:-

1. In the school, Community Centre & Hospital near by the area.
2. At the place marked on the plan.

Post Plantation care

1. **Protection from Grazing**
   Protection from grazing will be done by erecting suitable boundary in the plantation area. As such in this area lessee will erect stonewall. This will protect plant from grazing.
2. **Watering during Dry Spell**
   Watering will be done daily during1st year from March to July, & thrice a week from September to February by water tanker/Over head tank in the plantation area. Thereafter each year watering will be done alternate day from January to June and once in Five day September to February. After five years no watering will be required
3. **Manuring**
   The manuring will be done while plantation work is taken up, for this purpose goat Dung will be dumped in the pit only once, because once the Goat Dung manuring is given it will last for five years. No other mauring is required for the proposed plantation.
4. Protection from pest like white aunt etc. will be done during the plantation and in the proposed pit 10gms of BSC powder will be given before plantation. After a few months liquid pesticide mixed with 100 times water will be spread near the planted sapling.

5. **Replenishment of Casualties**
   The loss of each year will be counted and in subsequent plantation casualties will be again planted at same place. This way in the end of 5years 2100 healthy trees will remain in the area giving proper density.

AME,
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Sr. Geologist
Bharatpur

Shivdayal Godara

RQP/SME/AJM/913/2017

वरिष्ठ भूविज्ञानिक
खान एवं भू विज्ञान विभाग

अधीक्षण खनि. अभियन्ता