

PAHARPUR CLUSTER MINING PLAN

(SUBMITTED UNDER NOTIFICATION OF THE MOEF&CC For
PREPARATION OF THE CLUSTER MINE PLAN)

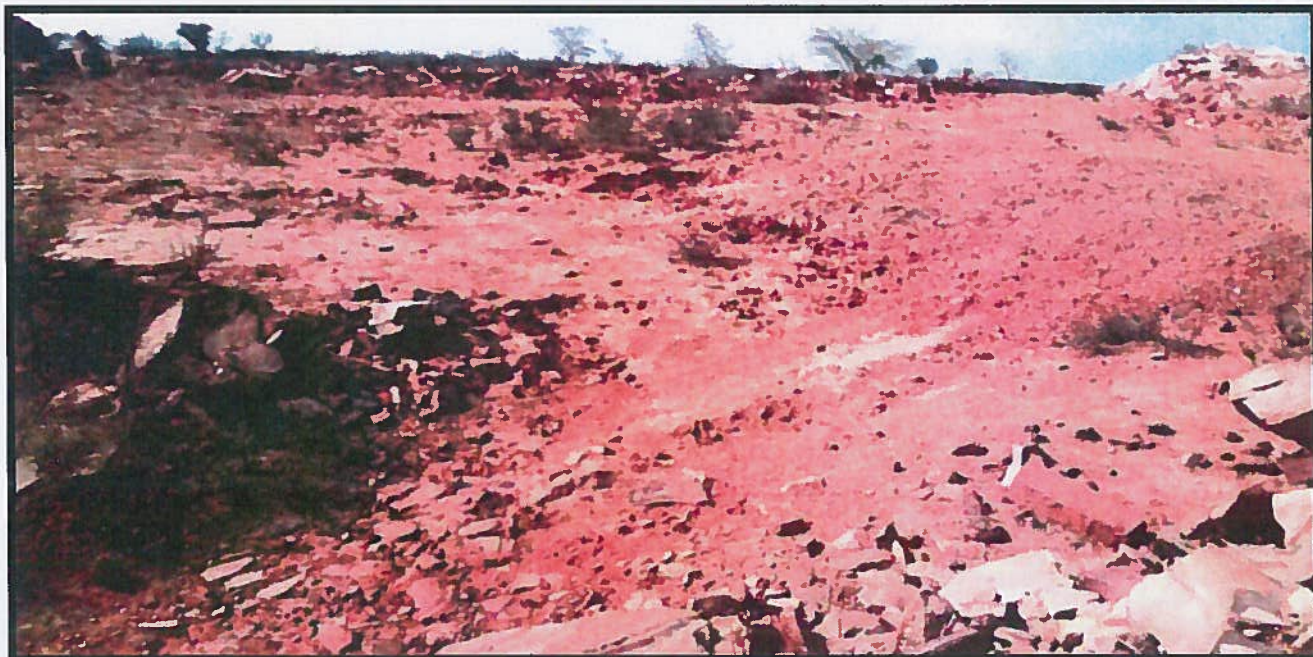
FOREST DIVERSION AREA: - 189.2515 HECT.

PAHARPUR SAND STONE (BLOCK A & B)

NEAR VILLAGE-PAHARPUR,

TEHSIL-ROOPWAS

DISTRICT-BHARATPUR, STATE-RAJASTHAN



IN FAVOR OF

Assistant Mining Engineer

Department of mines & Geology

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

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

Approved vide Letter No. 290-293

SME/Bharat-Cr./Mining Plan/Scheme/

DL. 26/06/2023

CLUSTER PLAN

PREPARED BY

AMIT KUMAR BANSAL

(RQP/SME/BHARATPUR/2015/03)

M/S BANSAL GEO AND ENVIRO SERVICES

Office Add: 607, 6th floor, Okay Plus Square,
Patel Marg, Mansarovar, Jaipur (Raj) - 302020

MOBILE – +919887695208,

EMAIL – amit.bansal@bansalgeo.com

अधीक्षण खनि, अभियन्ता
खान एवं भू- विज्ञान विभाग
भारतपुर जिला, भारतपुर (राज.)

कार्यालय सहायक खनि अभियन्ता, खान एवं भू-विज्ञान विभाग, रूपवास (भरतपुर)



CERTIFICATE

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

1. The cluster mine plan has been prepared in the light of the MoEF & CC notification of 15.01.2017 and 16.07.2017.
2. Cluster Mine plan has been prepared and provided by the office of Assistant Mining Engineer, Department of Mines and Geology, Roopwas.
3. We have used the data from the mine plan of the individual Sand Stone leases and website of D.M.G., Rajasthan.
4. 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.)
5. 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.
6. It is further certified that the aforesaid Mining Plan is prepared as per the copies of the records and documents provided by the applicants.
7. 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.
8. 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.
9. The plans and sections of individual leases are available in their respective mine plan.

Assistant Mining Engineer,

Roopwas, Bharatpur (Raj.)

सहायक खनि अभियन्ता
खान एवं भू-विज्ञान विभाग
रूपवास जिला भरतपुर

कार्यालय सहायक खनि अभियन्ता,
खान एवं भू-विज्ञान विभाग, रूपवास (भरतपुर)



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.)

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.

3582

Assistant Mining Engineer,
सहायक खनि अभियन्ता
Roopwas, Bharatpur (Raj.)
खान एवं भू-विज्ञान विभाग,
रूपवास जिला भरतपुर

कार्यालय सहायक खनि अभियन्ता,
खान एवं भू-विज्ञान विभाग, रूपवास (भरतपुर)




DECLARATION

The Cluster Mine Plan of mineral Sand Stone. Villages - Paharpur, Tehsil- Roopwas, Distt.- Bharatpur (Raj.)

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.



सहायक खनि अभियन्ता,
खान एवं भू-विज्ञान विभाग,
रूपवास, भरतपुर (राज.)
रूपवास जिला भरतपुर

कार्यालय सहायक खनि अभियन्ता,
खान एवं भू-विज्ञान विभाग, रूपवास (भरतपुर)



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 Assistant Mining Engineer, Department of Mines and Geology, Opposite Police Station, Dholpur Road, Roopwas, Distt-Bharatpur (Raj.), Email- Id:- ame.roopwas@rajasthan.gov.in and its knowledge partner is known to us.
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 hereby 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,
सहायक खनि अभियन्ता
खान एवं भू-विज्ञान विभाग,
रूपवास जिला भरतपुर



CONTENTS

Ch.	Particular	Page
1	General	8
2	Location and Accessibility	10
3	Geology and Reserves	10
4	Mining & Blasting	20 - 25
5	Mine Drainage	26 - 26
6	Stacking of Mineral Reject/ sub grade Material and Disposal of waste	27 - 27
7	Beneficiation	27 - 27
8	Surface Transportation	27 - 27
9	Uses	27 - 27
10	Site Service And Details of Employment	28 - 28
11	Environment Management Plan	29 - 38

List of Plates

S. N	Particular	Scale	Plate
1	Location Plan	Not To Scale	1
2	Key Plan and Land Use Pattern	1: 50000	2
3	Surface Plan	1: 2000	3
4	Surface Geological Plan & Sections	1: 2000	4
5	Environment Plan	1: 5000	5
6	Conceptual Plan	1: 2000	6

CHAPTER – 1: GENERAL INFORMATION ABOUT AREA

(a) **Applicant:** Asst. Mining Engineer, Roopwas

Department of Mines and Geology,
Opposite Police Station, Dholpur Road,
Roopwas, Distt- Bharatpur (Raj.)

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

Contact No: 6350502799



(b) **Status of the Lessee:**

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 Engineer, Roopwas has already initiated action in the matter and prepared a cluster mine plan along with EIA/ Notification Dated.1.7.2016)

(c) **Status of the Existing Mine Lease with in Block A & B**

Table – 1: Existing Mine Leases Area

S.No	Lessee	M L No.	In forest	Area Falls in ESZ	Non Forest	Total Area
			(A)	(B)	(C)	(A+B+C)
1	Betal Singh	82/90	39.0285	Nil	0.9715	40.0000
2	Jain Stone Gangsaw	175/97	0.3000	Nil	0.7000	1.0000
3	Vijay Gupta	39/83	45.0303	Nil	9.1497	54.1800
4	Ramsahay	07/99	49.4892	15.30	32.3608	97.1500
Total			133.8480	15.30	43.1820	192.33

(d) **The minerals occurring in the cluster Area**

Sand Stone

(e) **Period for which the mining lease is applied for granted/renewed/applied:**

50 Years

(f) Name of person preparing the mining plan,

Amit Kumar Bansal

RQP/SME/BHARATPUR/2015/03

M/s Bansal Geo And Enviro Services

607, 6th floor, Okay Plus Square, Patel Marg,

Mansarovar, Jaipur (Raj) - 302020

Mobile: +919887695208, E-Mail: amit.bansal@bansalgeo.com



(g) Name of Prospecting agency

The area had been extensively worked by existing lease holders of the cluster which is evident from about numerous nos of pits present within the block 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.



CHAPTER 2: LOCATION AND ACCESSIBILITY

- a) **Location of the area:** The lease area falls in G.T. sheet No. 54F/5 & 54F/9
- b) The area under consideration has been shown in Location plan at Plate-1 and Plate-2 (Key Plan) of this Mine plan.

Cluster Area:- Block A= 72.6514 ha + Block B= 116.6001 ha

Cluster Area: 189.2515 ha

Forest Land: - 189.2515 ha. (Annexure 2)

Accessibility: The proposed lease area can be approached from Bharatpur (district Head quarter) via Rudawal- Banshi Paharpur village road and is about 40 km from Bharatpur in the south. The lease area is about 1.50 Km SW of Village Paharpur & Roopwas at a distance of 10.7 km SE by Kachcha/tar road.

Existence of public road etc.: -

- SH-23 is at a distance of 11.32 km in NE direction
- SH-39 is at a distance of 12.38 km in South direction
- SH-43 is at a distance of 11.13 km in North direction
- SH-45 is at a distance of 3.89 km in North direction

- c) **Land Details of lease area with Khasara map:**

Table - 2: Details of the area

Forest Area (ha)	Khasra No.	Non Forest Area (ha)	Total Area (ha)	G.T. Sheet No.
189.2515	01, 74 & 76 Village - Paharpur	Nil	189.2515	54 F/5 & 54 F/9
Total Area			189.2515	

Nearby Reserved & Protected Forest

- Richhoha R.F. is at 3.6 km in SE direction from Block h
- Nasaua R.F. is at 11.1 km in South direction from Block A
- Bargawan R.F. is at 5.8 km in SE direction from Block A
- Meoli R.F. is at 14.2 SE direction from Block A
- Bidhauri R.F. is at 14.7 km in SE direction from Block A
- Kathumari P.F. is at 8.1 km in SE direction from Block A
- Bajna P.F. is at 12.9 km in SW direction from Block A
- Banshi Paharpur P.F. is at 0.0 km (Diverted Forest Land)
- Jagnair P.F is at 12.2 Km in SE direction from Block A

Nearby Archaeological Important Place

- Lal Mahal at 10.0 km in NE direction from the Block A
- Battle Field of Khanwa at 9.75 km in NE direction from Block A
- Historical Babri at 13.50 km in West direction from The Block A

Nearby Rivers/Seasonal Nallah

Ghambhir River is 5.5 km in North direction from Block A

Pichuna Canal 10.9 km in NW direction from Block A

Kakund Nadi is 8.7 km in West direction from Block A

Baretha Lake is 9.1 km in SW direction from Block A



d) **Coordinates of the Lease Area:** - Enclosed as annexures

e) **General location map showing area and access routes have been attached:** -

Location plan of the area is shown in map at Plate no – 1 & key plan is showing area falling within a radius of 10 km of the lease boundary marked on Toposheet No. 54F/5 on the scale 1:50,000 is enclosed as Plate No.2.

f) **Infrastructure Facilities:** -

Nearest Railway Station	Banshi-Paharpur Railway Station located at 2.0 Km.
Police Station	Police Station, Rudawal is about 10.5 Km
Post Office	Banshi-Paharpur is located at 1.5 Km
Medical Facilities	Primary Health Centre Banshi-Paharpur
Water & Electricity	Water requirement for drinking and mining purposes will be met by the nearby village source. ➤ RSEB electric power lines of 220 volts and 440 volts are available along tar road in village Banshi Paharpur.
Education Facilities	Upper Primary School is available at Banshi Paharpur,



CHAPTER – 3: GEOLOGY AND RESERVES

The fieldwork carried out during the first week of Oct. 2022 for topographical survey, contouring & Geological Mapping in the area, after this Mine Plan has been prepared.

a) Detail description of the topography, drainage pattern, vegetation, climate, and rainfall data:

Topography: Regionally the lease area is hilly with some hillocks and mounds of sandstone. The lease area falls in G.T. sheet No.54F/5 & 54F/9. The lease area comprises part of a mound trending NW. The highest elevation of the lease area is 258mRL and lowest elevation of 205mRL. The whole lease area covered with Sandstone. It is a forest land.

Drainage: There is no permanent drainage stream within the lease area as there is no upland and the area is mild hilly. However, regionally the drainage in the area is Southeastern of the lease area.

Vegetation: Practically no vegetation except some scanty bushes and shrubs of xerophytes nature could be seen within this lease area throughout the year.

Climate: - The climate of the region is semi-arid, with winters months are October to March, summer months are April to June and Monsoon period is from July to September. The Max temperature reaches to 50⁰ in the summer and minimum temperature in the winters are in the range of subzero.

Rainfall data: - The average rainfall in this area is around 620.30mm.

b) Regional Geology:

Bharatpur district is in Eastern Rajasthan bordering with Uttar Pradesh, covers an area of 5066 km² falling in Survey of India degree sheets 54A, E and F. The area has been divided into two river basins, namely, the Barah river basin towards north and the Banganga river basin towards south. Almost the entire northern part of the district is covered by alluvium & blown sand, with few isolated hills of schist & quartzite belonging to Aravalli & Delhi Groups.

The regional Geological settings of Bharatpur District show a wide variety of rock type belonging to the pre – Cambrian to Alwar and Ajabgarh group of the Delhi Super group of Lower - Middle Proterozoic age. The Delhi Super Group sedimentations have taken place in the coastal environment of unstable shelf, characterized by intermittent vertical tectonics. The rocks of the Alwar group are well exposed in the southern part of district around Khankhera and Ajabgarh group of rocks consists of conglomerate & quartzites are exposed near Weir, Deeg & Kama region. The rocks of the Delhi Super group are

succeeded by sandstone of the Bhandar group which forms a part of the Vindhyan Super Group (Upper Proterozoic). The Rocks of The Bhandar Group Are Well- exposed in Southern and southeastern parts of the district in Roopwas Tehsil.

The rock types exposed in the 10 km of the lease area mainly comprised of Bhandar group in Vindhyan Super Group. Bhandar sandstone is underlain at places by light green to olive green shale. General trend of the area is N-S and dipping westerly. Sandstone of the area is Medium to fine grained, hard, compact in nature and red to pink in colour.

The Geological setup map of the Vindhyan Super group by Kaur & etal 2019 is given below in fig-1.

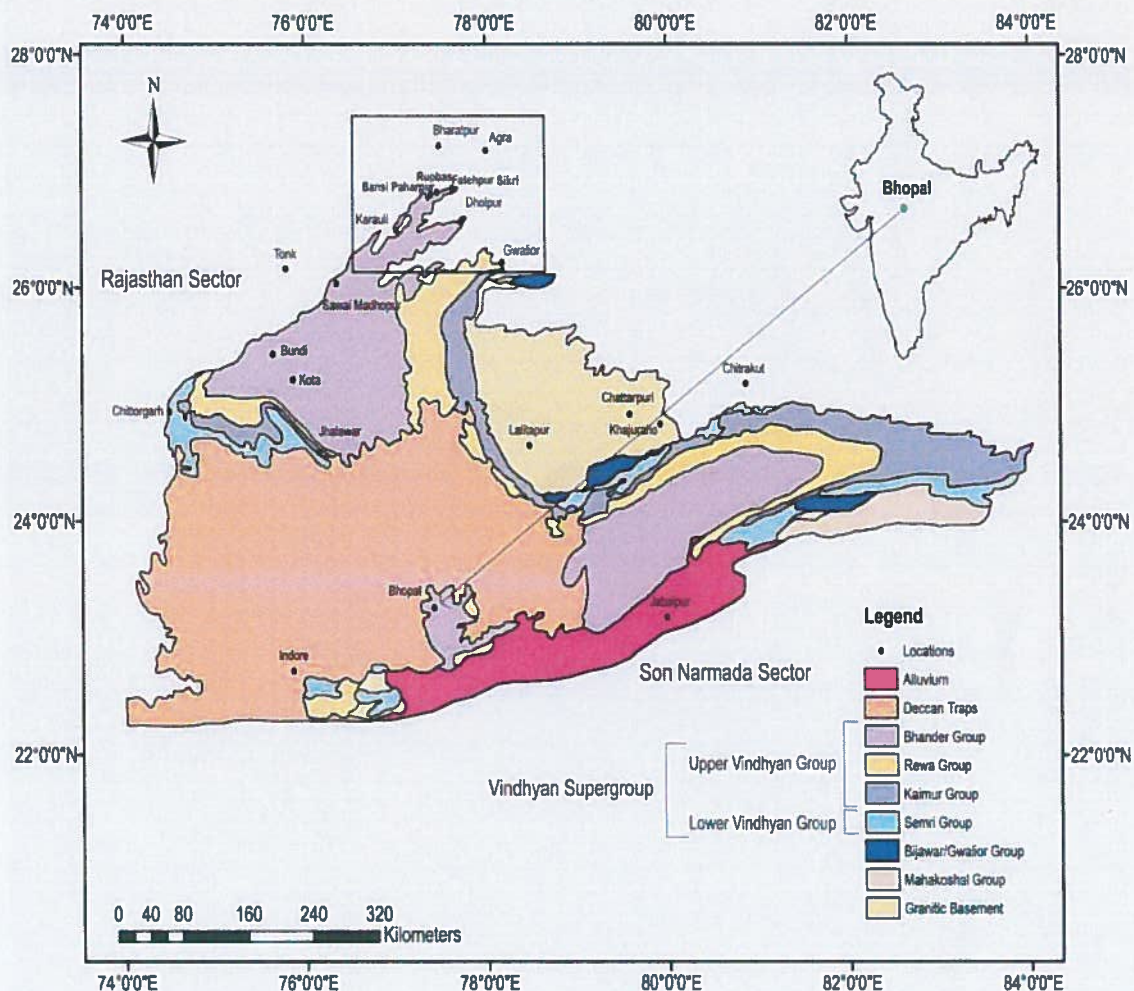


Fig-1: Geological Setup of Vindhyan Supergroup (Source: Kaur & et al., 2019)

The regional Geological succession map of the Bharatpur District as described in District Resource Map by Geological Survey of India is given below in fig-2.

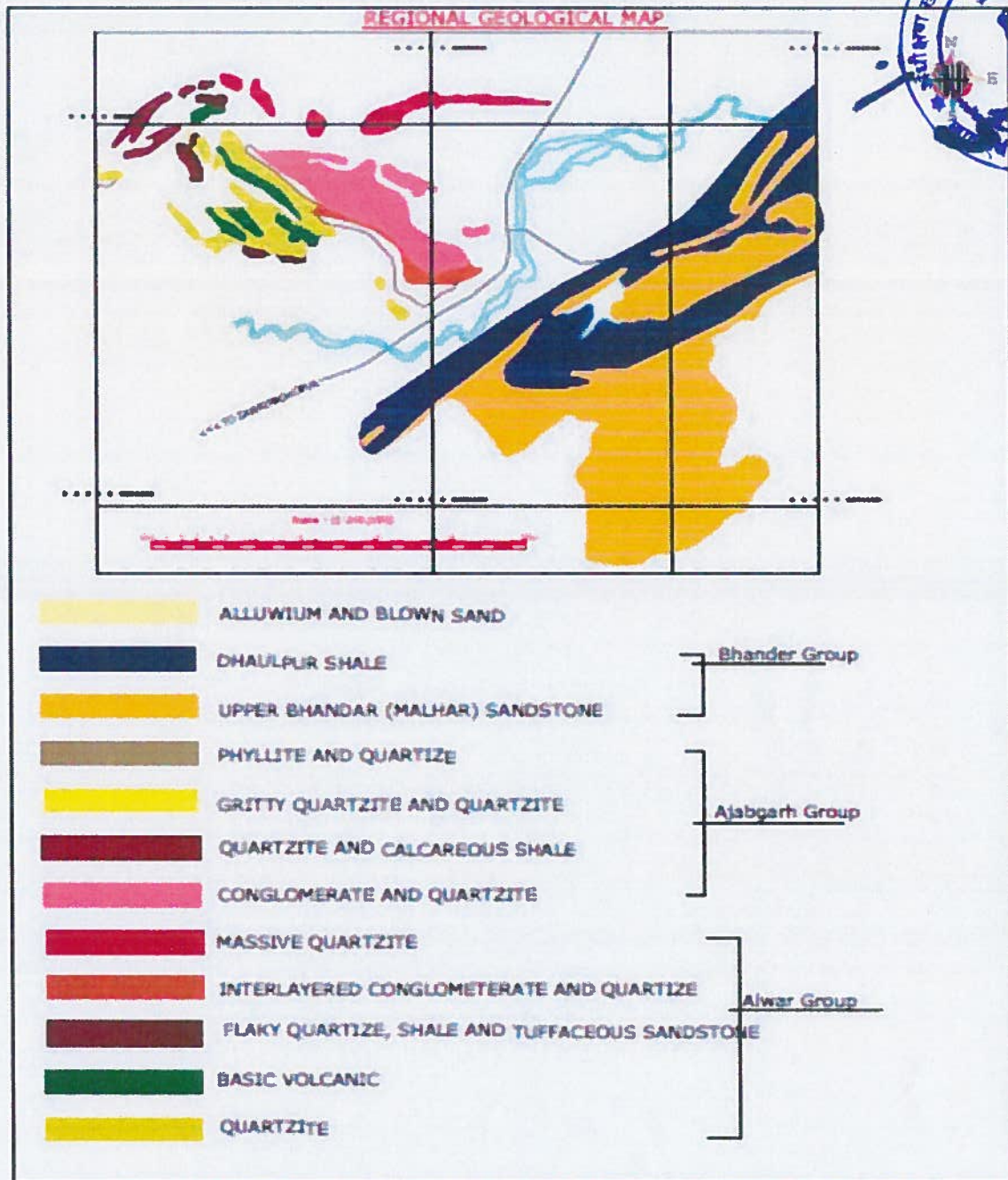


Fig-2: Regional Geological succession of the Bharatpur District

A generalized Regional Stratigraphic succession of litho units exposed in and around the mining lease area may enumerate as under Table 5.

Table 3: Regional Geological Sequence of the Region

Quaternary		Soil & Alluvium
Vindhyan Super group	Bhandar Group	Dholpur Shale
		Upper Bhandar (Maihar) Sandstone
Delhi Super group	Ajabgarh Group	Quartzite, Carbonaceous Phyllite, Impure Marble
	Alwar Group	Quartzite, Gritty Quartzite



c) Local Geology & Mode of Occurrence of Mineral: -

The area comprises of the largest Proterozoic sedimentary basin of Bhandar group of Vindhyan Supergroup. Paharpur area is covered by alluvium, with Undulated outcrops of Sandstone. The area belongs to semi-arid zone. The general trend of the area is almost NS direction. Geologically rocks of the area belonging to Bhandar group of Vindhyan Super group. Banshi-Paharpur sandstone is a unique type of sandstone (a type of sedimentary rock) that is noted for its pink color. In this region texture of Sandstone is fine grained. Sandstone varies in color from buff- red to pink and creamish pink, at places spotted pink is also seen. The general dipping of the area is $8^{\circ} - 10^{\circ}$ towards westerly and trend is 350° .

Table -4: General Lithology chronology of the area

Overburden	2-4 meter
Fractured Red (Tomato color) Stone	4-6 meter
Red (Carrot color) stone	7-12 meter
Shell Layer	12-13 meter
Spotted Stone (Red spot-on White color)	13-16 meter
Shell later	16-18 meter
Pink/white stone	Below 18 meter

Stratigraphic succession of the area is given below:

Table – 5: Local Geological Successions

Quaternary		Soil & Alluvium
Vindhyan Super group	Bhandar Group	Dholpur Shale
		Upper Bhandar (Maihar) Sandstone

d) Details of samples analysis indicating type of sample:

Sand stone is being used as construction material, decorative stone as flooring, wall tiles etc. Thus, there is no sample rock samples were collated and analyzed from the mine lease.

GRADE AND CHEMICAL PROPERTIES

The sand stone is fine to medium grained and soft, usually of a red colour with white specks. When light colored, they often show red streaks, observed in the lease area. The rocks are fractured at surface. These Rocks are fairly thick bedded and yielded large blocks which are used in building.

Table no. 6: -Physical Properties of Sandstone

S.NO.	CHARACTERS	PROPERTY
1.	Color	Red, white
2.	Water Absorption	Less than 1.0 %

3.	Hardness	6-7
4.	Density	2.5 T/m ³
5.	Porosity	Low to very low
6.	Compressive Strength	365 Kg/m ²



The chemical constitution of sandstone is the same as that of sand; the rock is thus composed essentially of quartz. The natural cementing material that binds the sand together as rock is usually composed of silica, calcium carbonate, or iron oxide. Chemically sandstone is very resistant Mono-Mineralic rock, with silica as the principal. The percentage of each constituent is as follows:

Table no. 7: -General Chemical Properties of Sandstone

S.NO.	CHEMICAL COMPOSITION	%
1.	SiO ₂	93-94
2.	Iron (Fe ₂ O ₃)	1.5-1.6
3.	Alumina (Al ₂ O ₃)	1.4-1.5
4.	Soda (Na ₂ O) & Potash (K ₂ O)	1.0-1.2
5.	Lime (CaO)	0.8-0.9
6.	Magnesia (MgO)	0.2-0.25
7.	Loss On Ignition (LOI)	1.0-1.2

- e) The surface plan of the lease area is prepared on a scale of 1:1000 or 1:2000 with contour interval of 1 meter as per the local topography and size of the area duly marked by grid lines showings all features indicated.

Surface Topographical Map was prepared after carrying out a systematic survey by 1:2,000 scale and counterling was done at 2 meter Interval (Attached plate No. 3).

- f) **Preparation of geological plan,**

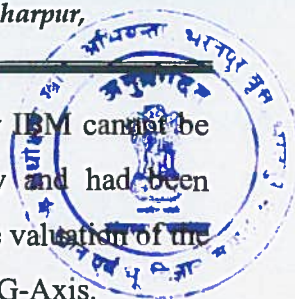
Surface geological plan prepared on a scale of scale of 1:2000. Based on the structural configuration of the applied area, Surface geological mapping has been done on a scale of 1:2000 and geological cross sections are prepared accordingly. The mineral is well exposed in the lease area. (Attached as plate No. 4)

- g) **Geological section prepared on 1:2000 scale across the lease area from boundary to boundary:**

Attached as plate No. 4

- h) **Reserves and Resources as per UNFC with respect to the threshold value notified by IBM may be furnished in a tabular form as given below:**

Mineral Resources: (Mineral resources may be estimated purely based on level of exploration, with reference to the threshold value of minerals declared by IBM).



Resources as per UNFC with respect to the threshold value notified by IBM cannot be calculated as the auctioned area has not been explored geologically and had been auctioned by the DMGR on "As is Where is Basis" without assessing the valuation of the resources/reserves, whereas, UNFC mandates for exploration at least on G-Axis.

As the area has only surface geological evidences of mineral existence, exploration, development and exploitation are proposed to be carried out, once the mining lease is sanctioned and mining operations are commenced, it is proposed to carry out detailed geological exploration by established geological Principles and procedures. This plan is prepared based on surface Geological observation, Surface Geological Mapping and assumptions. These assumptions may prove to be wrong after opening of the pit or execution of the Mineral exploration.

The reserves of mineral have been estimated/extrapolated by cross sectional area method. On the basis of the outcrop findings in the area, structural behavior & the control of mineralization the physical limits of the mineral Sandstone such as length, width & depth extension has been recorded assuming that the same is likely to be continuing through its length, width and depth. Plan area has been calculated from the surface geological plan.

**i) Detailed Calculation of Reserves/Resources: -
Estimation of Reserves**

It is assumed as per the present mining scenario:

- **Proved category** of mineral reserves has been considered 40 meters in Block A & 80 meters in Block B
- **Probable category:** Average 20m depth in block A & B below proved category has been considered for probable category reserves.
- Possible Reserves are not being computed at this stage.
- 2.5 tones /M³ have been considered as Bulk density of Sandstone.
- Soil covered area has been excluded in reserve calculations. Average 0.5m to 1.0m of covers considered as topsoil.
- Recovery of Sandstone is considered 70% of total reserves whereas, 30% is considered as sub grade mineral & Waste/Mining Loss of total reserves.

Above mentioned parameters may vary after actual exploration, exploitation and change in deployment of machinery by the lessee.

Table 8: Block A Reserve

Geological Reserves and Grades:

Reserve = Area x Depth x Bulk density x Recovery factor

(i) Proved Reserve:-

Area (M ²)	Depth (m)	Volume (m ³)	Bulk Density	ROM in tones	REC. Mineral (70%)	Waste (30%)
726514	40	29060560	2.5	72651400	50855980	21795420

II Probable Reserve:

Area (M ²)	Depth (m)	Volume (m ³)	Bulk Density	ROM in tones	REC. Mineral (70%)	Waste (30%)
726514	20	14530280	2.5	36325700	25427990	10897710

Total Reserve Black (A)

Nature of Reserve	UNFC	Mineral (Tones)	Rec. Mineral 70% (Tones)	Waste tones 30%
Proved	111	72651400	50855980	21795420
Probable	121	36325700	25427990	10897710
Total		108977100	76283970	32693130

Table 9: Block B Reserve

Geological Reserves and Grades:

Reserve = Area x Depth x Bulk density x Recovery factor

(i) Proved Reserve:-

Area (M ²)	Depth (m)	Volume (m ³)	Bulk Density	ROM in tones	REC. Mineral (70%)	Waste (30%)
1166001	80	93280080	2.5	233200200	163240140	69960060

II Probable Reserve:

Area (M ²)	Depth (m)	Volume (m ³)	Bulk Density	ROM in tones	REC. Mineral (70%)	Waste (30%)
1166001	20	23320020	2.5	58300050	40810035	17490015

Total Reserve Black (B)

Nature of Reserve	UNFC	Mineral (Tones)	Rec. Mineral 70% (Tones)	Waste tones 30%
Proved	111	233200200	163240140	69960060
Probable	121	58300050	40810035	17490015
Total		291500250	204050175	87450075



Table 10: Summarized Reserves of Block A & B

Block A + B Total reserve				
Nature of Reserve	UNFC	Mineral (Tonnes)	Rec. Mineral 70% (Tonnes)	Waste tonnes 30%
Proved	111	305851600	214096120	91755480
Probable	121	94625750	66238025	28387725
Total		400477350	280334145	120143205
In Million Tonnes		400.47	280.33	120.14

Table 11: the mineral reserves are computed as per UNFC

Particulars	Code	Reserves
Total Mineral Resources (A+B) – Already excavate		400477350 tonnes
1 Mineral Reserves		
Proved Mineral Reserves	111	305851600 tonnes
Probable Mineral Reserves	121	91755480 tonnes
Remaining Mineral		
Feasibility Mineral Resources		
Prefeasibility Mineral Resources	211	Nil
Measured Mineral Resources	221 & 222	Nil
Indicated Mineral Resources	331	Nil
Inferred Mineral Resources	332	Nil
Reconnaissance Mineral Resources	333	
	334	

Details of UNFC classification

UNFC is a three-digit code-based system, the economic viability axis representing the first digit, the feasibility axis the second digit and the geological axis the third digit. Each digit provided

Codes 1, 2 and 3 are in decreasing order. The highest category of resources under UNFC system has code (111) and for lowest category the code is (334).

Code (111): This code is provided for the economically mineable part of the measured mineral resources (proved category reserves).

Code (121): This code is provided for the economically mineable part of the indicated mineral resources (probable category reserves).

Code (211): The part of the measured mineral resources (proved category), which as per feasibility study has not found economically mineable. The reserves blocked in 7.5 meters buffer zone and 45 meters from permanent structure.

Code (222): The part of the indicated mineral resources (probable category), which as per feasibility study has not found economically mineable. The reserves blocked in 7.5 meters buffer zone and 45 meters from permanent structure.

Code (333): Tonnage, Grade and mineral contents can be estimated with low level of confidence and resources are also inferred from geological reserves.



Avg. Annual Production

The proposed annual production of Sand stone is about 9462575 Tonnes per annum (9.46 million Tonnes) from this area.

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



CHAPTER 4 : MINING & BLASTING

A. Open Cast Mining

a) Briefly describe the existing as well as proposed method for excavation with all design parameters indicating on plans /sections: -

Proposed Mining Method: -

Since the deposit is exposed on surface in the form of an isolated hillock therefore the mining is being done by Semi Mechanized / fully mechanized open cast method of mining.

- The mine will be developed towards the Southwestern to Northeastern direction by proper formation of benches.
- Permission for working by a system of shot hole blasting and use of heavy machinery for digging excavation and removal of mineral and overburden shall be obtained from DGMS under regulation 106(2)(b) of MMR 1961.
- Hydraulic dumpers and tippers will be done by using Hydraulic Excavator/ Pay loader and truck(s)/dumper(s)/tipper(s)/ tractor(S) combinations deployed for transportation of ROM/Granite from mine site to consumers.
- Proposed average bench height is 6 Mts. and bench width 6 Mts., Further, the bench height & width shall be maintained in accordance with the provisions of DGMS.
- Proposed Individual bench slope shall be around 85° and over all slopes shall be around 45°
- The top soil shall be removed with JCB and stacked on the non-utilized zone.
- The overburden shall be removed adopting SMALL Blasting with low charge of holes just to loosen the rocks is proposed in upper layers to remove the hard overburden.
- When Blockable Sandstone is exposed, a free face in the strike direction along weak zone of strata is opened out by digging a trench box of 10m x 6m this in local terminology is called galli preparation. Subsequently abrasive beads pierced wire is coupled in to a loop with the help of motored pullies to move in traction mode. Continuous abrasion on rock by beads gives a cut gradually. Wire saw unit moves on a horizontal track and movement of wire produces a cut in vertical and horizontal directions. Thus, a bench is formed. The height of bench is 6.0m. Vertical holes of 25mm dia are drilled by Jack hammer drill and with the wedging the big blocks are Handling, movement and loading of blocks are with the help of hydraulic excavators, loaders and cranes.



- Blockable & Sub grade mineral shall be separate with combination of manually & excavator and Sub grade mineral will be sold to other parties as per market demand/feasibility.
- Before loading water is sprinkled on blasted material. Water is also sprinkled on haul roads, mine roads, mineral processing plant hopper, and all material transfer points.
- Sandstone Processing plant (Gang-Saw & Cobble Plant) is proposed near Pillar B for further value addition of mineral viz. cutting, splitting Polishing etc.
- Suitable power supply may be 828KVA/1000HP (KW) shall be obtained from JVVNL which shall meet all the power requirements domestic & industrial. In Future, the additional power supply may be added in the present connection as per the need.

Bench Parameters shall be

- 1 Height - 6m
- 2 Width - >3m
- : 85°
- : 45°
- : 1 in 16 (ramps)
- : 5M - 8M

Face slope

Overall slope

Gradient of the Haul Road

Width of the approach Road

(b) Indicate year-wise tentative Excavation in metric tonnes indicating development, ROM & pit wise.

The proposed methodology of mining operations and related activity for the next five year shall be same as mentioned earlier in this chapter.

I. Proposed Year Wise Excavation

Cumulative year wise production of excavation of Mine lease is given table 17 for which this Mining Plan is prepared.

Mineral Reject: The excavated material that do not constitute useful material.

ROM: The material excavated from mineralized zone and includes mineral reject and useable mineral component.

OB: Means overburden capping waste.

Table -12: Showing the proposed excavation of Sandstone of Mine Lease

Year	Proposed Excavation (ROM)	Salable Mineral	Sub Grade Mineral	Waste
	Tonnes	Tonnes	Tonnes	Tonnes
Ist Year	9462575	70% of the ROM	20% of the ROM	10% of the ROM
IIInd Year	9462575	70% of the ROM	20% of the ROM	10% of the ROM
IIIrd Year	9462575	70% of the ROM	20% of the ROM	10% of the ROM
IVth Year	9462575	70% of the ROM	20% of the ROM	10% of the ROM
Vth Year	9462575	70% of the ROM	20% of the ROM	10% of the ROM



II. Proposed year wise development for next five years.

The development will include lateral extension of excavation as well as downwards progressive excavation also. The Year wise details of development have been provided in table 11 to 12. The upper layer of lease area upto 0.5-to-1.0-meter depth is considered as topsoil whereas below the topsoil upto 4.0-to-5.0-meter depth is considered as overburden.

d) Salient features of working

The mining method shall be Open Cast Semi Mechanized mining. Proposed pit extension will be both directions laterally as well as in depth. As per established method of mining, similar designing of benches will be made keeping 6m height. Haul road & Bench to Bench ramp shall be made of 1 in 16 gradient & the width of the road shall be more than 6m. The loading shall be done by Semi mechanized equipment in the dumper. This will help in better utilization of the resources and systematic development of the mine.

Utilization of mineral: -

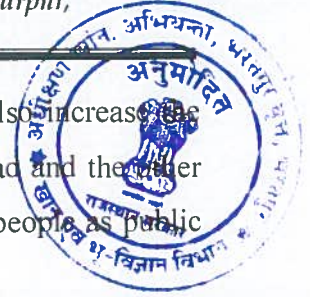
Sandstones are used for variety of purposes. They are mainly used in building construction i.e., paving, roofing, flooring and stair case etc. Weathered sand stone is used in wall making in nearby villages. They are also used in making beams, pillars, doors and window sills, wall facing, fence posts etc. Sandstones are resistant to saline air, which make it perfect for exterior cladding in sea-shore buildings. They are also acid and alkali resistant. So, they are used in chemical industry for flooring, wall-covering. They are thermal resistant so used for making fireplaces. Thus, keeping in mind this requirement, mining of Sand Stone is necessary for durability and to beautify by carving as per the requirement of the consumer

Waste & Sub Grade Handling; - Waste will be generated during the proposed Scheme of mining period & while transportation & loading and lots of waste are used for preparation of haul roads. Unused / unsold Waste quantity will be stacked temporarily in the mining lease areas. Permanent dumping zone will be developed outside the forest area.

f) CONCEPTUAL MINING PLAN

i. Proposal of Conceptual Plan

The Proposals of the Conceptual Closure are based on the Geology and Topography of the region. A part of the excavated region shall be converted into water reservoir after exhausting the complete available mineral. This will also induce recharge of ground water. The Lessee shall make water drains for the purpose. The surroundings of the proposed Water Reservoir would be fenced. Remaining part of the excavated region shall



be backfilled and afforestation shall be carried out over it. This shall also increase the aesthetic beauty of the area. The office and other buildings, the mine road and the other entire infrastructure developed by the Lessee shall be used by the local people as public buildings. The virgin region shall be used for plantation purposes.

ii. Land Degradation and Reclamation

For the end of life, the Land Degradation and Reclamation is as follows: -

Total Excavated Area	: 180.2250 ha.
Area to be Converted into Water Reservoir	: 155.2250 ha.
Area to be Reclaimed	: 25.00 ha.

iii. Rehabilitation

No inhabitants are expected to be migrated due to mining in the lease area.

iv. Plantation Proposals

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.

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

- Nearby area of the school
- At the Dump & Soil cover
- Statutory boundary barrier of the individual lease area
- Along the village Road Side & Place notified by Gram Panchayat
- Plantation Zone of Paharpur Cluster Area

v. Anticipated Life of Mine

The total reserve in the cluster area is 400477350 tonnes target of around 9462575 tonnes per year &

Life of mine is 50 years (As per the Rule 9 of RMMCR'2017).

g) Extent of Mechanization

Since the mine is proposed to open by fully mechanized open-cast method and the equipment recommended for the project are indigenous, diesel engine driven and mostly proven in the Indian mining Industry.

It is proposed that Lessee shall be hire required machinery on contract / rent basis, Later the lessee will introduce his own equipments.



****A code of practice shell be framed and distributed to all persons engaged in the operation and maintenance schedule of machinery and shell is strictly followed. Also, a traffic rules shell be framed and followed accordingly for transportation of vehicles inside the pit.**

Table – 13: List of Mining Equipment for per mining lease

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

Haulage within the Mining Lease hold

Haulage through Dumpers fitted with exhaust conditioner to control the air pollution.

Transport from mine head to the destination

The mined out mineral Sandstone shall be carried to the temporary Stack Yard & Sub grade stack yard, and then further loaded for onwards transportation by dumper to the users. The waste rock produced shall be loaded by Semi mechanized & dumped by dumper for its transportation to the reject dump yard.

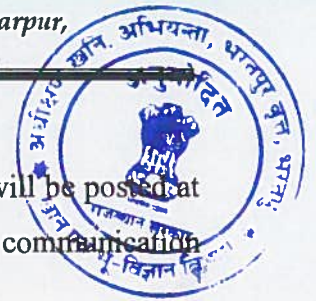
DRILLING &BLASTING

Mainly Muffle blasting by tractor compressor will be proposed for removal of overburden layers only. The drill machine will be Hydraulic cum pneumatically operated. The drilling machine operation with diesel operated compressor of 450 c.f.m to 600c.f.m capacity. The Blasting will be done by the authorized contractors on contractual Basis. These contractors have their own safety explosive container as well as Explosive License.

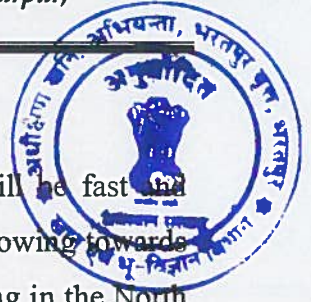
Storage of explosive the explosive shall be supplied by the authorized contractor at the blasting site at the time of blasting. The explosive shall be directly used and therefore no requirement of storage.

Safety Precautions

1. During handling all care shall be taken that no inflammable elements should be there.
2. Only safety explosive container with explosive license shall be used for safe & secure transportation of explosive.
3. Efficient Siren will be blown prior to the blasting & after clearance of blasting.
4. Holes shall not be fired except during the house of day light.

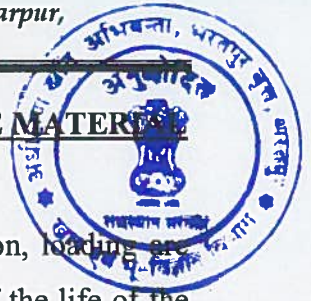


5. All holes charged on any one day, shall be fired on the same day.
6. If any part of a public road lies within the danger zone, two persons will be posted at both the extreme points of such road by efficient system of telephonic communication or hooter or loud speakers etc.



CHAPTER - 5 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 flow in the streams.
- Small Nalas/anicut in 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 – 6 STACKING OF MINERAL REJECTS/SUB GRADE MATERIAL AND DISPOSAL OF WASTE

Waste will be generated during mining operations & while transportation, loading are used for preparation of haul roads, building construction etc. The end of the life of the mine any quantity remains, finally it will be stabilized through plantation or backfilling material

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

CHAPTER-7

BENEFICIATION

No Beneficiation is required. The Sand Stone will be loaded by excavator into dumpers and transported directly to the consumers / plants.

CHAPTER-8

SURFACE TRANSPORT

The Sandstone is transported from mine by dumpers & tractor –trolleys.

CHAPTER-9

USES

Sandstones are used for variety of purposes.

- In building construction i.e., paving, roofing, flooring, wall making and stair case etc.
- In temple & Statue construction
- They are also used in making beams, pillars, doors and window sills, wall facing, fence posts etc.
- Sandstones are resistant to saline air, which make it perfect for exterior cladding in sea-shore buildings.
- They are also acid and alkali resistant. So, they are used in chemical industry for flooring, wall-covering.



CHAPTER – 10 SITE SERVICES & DETAILS OF EMPLOYMENT

a) Site Services

• Electricity

The Electric Power line does not exist in the lease area. The nearby villages are electrified. However, it is proposed to obtain a Power connection of Suitable capacity for processing plant.

• Water Supply

Water shall be required for processing plant, drilling, drinking purposes, dust suppressing at faces and on haul roads and plantation. Water requirement shall be met through water tankers from the nearby villages .

- First Aid:** Primary First aid facility is proposed to be kept in mine office.
- Mine office:** Permanent mine office is proposed in the lease area.
- Rest Shelter:** Permanent rest shelter is proposed.
- Sanitation:** At the mine site toilets are proposed.

b) EMPLOYMENT POTENTIAL

The mine owner shall employ Mine official (Mines Manager, Forman) in accordance with the provision under MCR 2016 & MCDR 1988. The workers to be employed shall be semi-skilled and unskilled. Most of them will come from the nearby villages. Considering the Semi mechanized mining the organizational set up proposed is given below: -

The proposed organizational set up is given below:

Mining Engineer/Mines Manager	- 1
Attendance	- 1
Watchman	- 1
Skilled labors/operators	- 3
Unskilled labors	- 4

Total 4-10 manpower required each individual lease

- Additional workers shall be employed as and when required.
- The lessee has given preference to eligible local in employment



CHAPTER – 11: ENVIRONMENT MANAGMENT PLAN

The mine development in the lease area needs to be interviewed with judicious utilization of natural resources within the limits of permissible assimilative capacity. The assimilative capacity of the lease area is the maximum amount of pollution load that can be discharged in the environment without affecting the designated use and is governed by dilution, dispersion and removal due to natural physicochemical and biological processes.

The environmental management must be integrated into the process of mine planning so that ecological balance of the area is maintained and adverse effects are minimized. An Environmental Management Plan (EMP) is a site specific plan developed to ensure that the project is implemented in an environmentally sustainable manner. An effective EMP ensures the application of best practice environment management to a project. The detailed elaboration for protection of environment and in continuation of eco friendly mining in around the mining lease area follows under these headings:-

11.1 ENVIRONMEMT BASE LINE INFORMATION: Attach a note on the status of baseline Information with regard to the following

The existing land use in the area is mound and hilly terrain. Pit, stack, haul road etc. observed in the area. There is no agriculture land exist in this area.

11.1.1 Water regime and presence of water reservoir

The average rainfall in the area is low it hardly exceeds 630.50 mm. On the basis of the groundwater data available with state ground water department observed during their annual observation of the nearby bore wells / tube wells, the water table in the area is varying from 24 to 30m (170mRL-164mRL) below ground level. Thus, ground water will not encounter in the workings. The rainwater of direct precipitation will encounter on workings and this water has to dewater during rains. The nearest sources of drinking water are wells from where the potable water is fetched and stored.

- Ghambhir River is 5.5 km in North direction from Block A
- Baretha Lake is 9.1 km in SW direction from Block A

11.1.2 Quality of Air, ambient noise level and water: -

No survey has been conducted of the preparation of present scheme of mining. The quality of air could be said quite clean and natural. free from any harmful gases arising out of any industrial establishment/ complex including mining ventures.

The area in and around the mine could be said free from any nuisance due to repetitive nature such as noise. The source of noise generation will only be due to plying of



machinery and is within bearable limit. However, as extra precaution safety gadgets like ear plug and dust masks will be provided to workers.

Ground water will not encounter in the workings thus, it is quite calm. Quality of ground water is free from pollution. Water is parable.

11.1.3 Flora & Fauna: -

Predominant flora like Babul, Neem, Juli flora (English Babul), etc. are found around the lease area. The rains are also scanty hence it is essential that the sapling of plant should be such which required minimum water hence it is proposed to plant 50 trees per year. The total area of plantation has been marked and shown on conceptual mine plan of the area (Plate 8). Seasonal bushes and shrubs are located in the area.

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

- Nearby area of the school
- At the Dump & Soil cover
- At Own Private Land
- Statutory boundary barrier of the lease area
- Along the village Road Side & Place notified by Gram Panchayat

In 5 Kms periphery, the flora mainly located near villages is Neem, Khejri, Peepal, Bud and Babul. In agriculture land main flora is Babul, Neem, and Khejri. Density of vegetation in the area is poor. Moreover, there is no demarcated/protected forest within the allotted area.

There is no wild life in core zone, buffer zone and lease area. The barren and agricultural lands with urban activities all around the area do not provide favorable home land to wild fauna thus fauna remains away from the lease area. Blue Bulls sometimes come across in agriculture lands at night time. Rabbits, snakes, lizards, chameleon, etc. are sometimes seen near the mound and in agriculture fields

11.1.4 Climatic condition

The climate of the region is semi-arid, with winters months are October to March, summer months are April to June and Monsoon period is from July to September. The Max temperature reaches to 48⁰ in the summer and minimum temperature in the winters are in the range of 4⁰ C. Strong wind blows during the summer season. The winds charge the atmosphere with the dust particles. The wind direction in general is usually NE - SW.

The monsoon starts from June and ends in September. The annual rainfall in the area is about 630 mm.



11.1.5 Human settlement

The population in and around this lease area is very thin. The nearest human settlement area is the village Banshi Paharpur located at 1.50km towards NW corner of the lease area. The villages located in 5Kms periphery are illustrated on Plate-2. The workers will be employed from the nearby villages. The habitants mainly belong to Minority, SC, ST, OBC and general categories but all are Indian's nationals.

The main vocation of the habitants is agriculture and service in nearby town. Human settlement is in kuchha and pukka houses.

11.1.6 Public Building, Places of Worship and Monument: -

Public Building, National Monument, place of Worship, Sanctuary, National Park, exist in and around the lease area as follows:

- Lal Mahal at 10.0 km in NE direction from the Block A
- Battle Field of Khanwa at 9.75 km in NE direction from Block A
- Historical Babri at 13.50 km in West direction from The Block A

11.1.7 Indicate any sanctuary is located in the vicinity of leasehold.

Ecological Sensitive Zone is crossing along the periphery of Block B. The Cluster area is falling in the 10 km radius of Band Baretha WLS. ESZ of the Band Baretha Sanctuary 1km. Proposed area does not fall in ESZ.

- Richhoha R.F. is at 3.6 km in SE direction from Block A
- Nasaua R.F. is at 11.1 km in South direction from Block A
- Bargawan R.F. is at 5.8 km in SE direction from Block A
- Meoli R.F. is at 14.2 SE direction from Block A
- Bidhauri R.F. is at 14.7 km in SE direction from Block A
- Kathumari P.F. is at 8.1 km in SE direction from Block A
- Bajna P.F. is at 12.9 km in SW direction from Block A
- Banshi Paharpur P.F. is at 0.0 km (Diverted Forest Land)
- Jagnair P.F is at 12.2 Km in SE direction from Block A

11.2 ENVIRONMENTAL IMPACT ASSESSMENT STATEMENT: Attach an Environmental Impact Assessment Statement describing the impact of mining and beneficiation on environment on the following: -

Mining is considered to be detrimental activity of the surrounding environment & ecosystem. Though, it is essential for economic development of the nation. Thus, sustainable development of the mine operations is the need & the obligatory part of the lessee. The impact assessment with respect to the environmental attributes that may be affected, are air quality, water quality, soil quality, noise level, ecology, land use, socio-



economic environment and infrastructure development, health etc. Various activities causing impacts have been considered under various stages namely “Operational” (mine operation and secondary activities)” and “mine Closure”. The adverse impact may be mitigated by proper monitoring of the parameter in core zone & buffer zone periodically & the common adverse effects of mining on environment are as under:

11.2.1 Land area

As a result of mining activities there shall be less effect on present landscape. The area will be affected due to mining, dumping of O/B and soil. Suitable plantation will be carried out to protect the aesthetic environment. The total area of the lease which will be disturbed at the end of the life of mine will be around **180.2250** ha. The land degradation vis-à-vis its rehabilitation is shown in the table.

Table No.15: At the End of proposed mining plan

S.No.	Particulars	Present (In ha.)	End of Life of Mine (In ha.)
1	Pits & Quarries	-	180.2250
2	Safety Zone	-	6.3010
3	Green Belt	-	2.7255
4	Non-Utilized	189.2515	--
Total		189.2515	189.2515

- Waste generated during the mining will be stacked temporarily mining lease area
- About 11 ha will be used for plantation during the mining period, that area is part of the mining area.

Proposals for Land Reclamation

Reclamation is the combined process by which adverse environmental effects of surface mining are minimized and mined lands are returned to a beneficial end use. Some components of reclamation include practices that control erosion and sedimentation, stabilize slopes, and avoid and repair impacts to wildlife habitat. The mineral extraction and reclamation process must ensure return of sustainable ecosystem to former degraded land.



Table No.16: Proposals for Land Reclamation

Particular	Total Area (ha.)
Back filled area	25.00 (may be use for plantation)
Water reservoir	155.2250
Green Belt	2.7255
*Total Greenbelt area is 27.7255 ha (2.7255 plantation area + 25.00ha backfilled area) within the cluster area.	

Steps for Land Reclamation:

1. Backfilling:

The landscape of this lease area is changed marginally by excavation of mineral from pits. At the end of the life of mine 25.00 ha area out of the will be backfilled from the waste dump material & spread topsoil also. The backfilled area will be converted into green belt. The revegetation of mine spoil by tree cover stabilizes an ecosystem for the long term via their ameliorative effects on soil quality improving both potential commercial and aesthetic values.

2. Voids (Pits) convert into Water Reservoir:

After backfilling a total 155.2250 ha area remains as abandoned quarries/pits. This area will be converted into water reservoir at the end of mine life which is helpful to enhance ground water level as well as used by the nearby villagers & wildlife too.

3. Fencing:

Fencing will be done around the water reservoir area, dumping Zone & green belt zone etc. as a precautionary measures to avoid the any accident.

4. Retaining Wall & Garland Drains

Garland drains & retaining wall will be build around the dumping zone during the mining activity to avoid the contamination of run-off rainy water.

5. Green Belt Development

Total Greenbelt area is 27.7255 ha (2.7255 plantation area + 25.00 ha backfilled area) within the cluster area.

****The goal of reclamation is to conserve and enhance biodiversity, protect the environment, and turn lands where mining has occurred over to new and productive uses. This work can include establishing healthy wildlife areas and wetlands, or preparing for future economic or recreational uses.**



11.2.2 Air Quality: - The only source to pollute air is the generation of dust while undertaking the Semi mechanized mining operation including sizing the mineral. But the level of dust concentration is practically of very low order.

11.2.3 Water Quality: - The mineral produced and the waste rocks generated are not likely to pollute the water quality in any manner.

11.2.4 Noise Level: - Generation of ground vibration and noise is practically under limit and low enough with the Semi mechanized mining operation to have any adverse impact on this account to the workers and local inhabitants.

11.2.5 Vibrations Levels (due to blasting): -not applicable.

11.2.6 Water Regime: - In absence of water regime in near Lease area no impact will anticipate on water regime. The Ground water table in the area is varying from 24 to 30m (170mRL 164mRL) below ground level on the basis of the groundwater data available with state ground water department observed during their annual observation of the nearby Borewell / tube wells.

11.2.7 Acid mine drainage: -not applicable.

11.2.8 Surface subsidence -

Mining method is proposed is open cast Semi mechanized mining of shallow depth with scientific mine design and hence there is no scope of surface subsidence during and after the course of mining.

11.2.9 Socio-Economics: - by having an economic activity near the villages, the socio and demographical profile of the local habitants will get positive impact, by direct and indirect jobs.

11.2.10 Historical Monuments: No historical monument or building is present in the lease area.

11.3 ENVIRONMENTAL MANAGEMENT PLAN:

The following measurements or protection will be made to overcome the environment impact caused by the mining activities.

A LAND ENVIRONMENT

(I) Land Landscape & Land use pattern.

The landscape of this lease area is changed marginally by excavation of mineral from pits. The life of mine is much more than the period of this mining plan and hence reclamation/backfilling is not proposed in this plan. The scheme of reclamation/backfilling will be provided at suitable time whenever it applicable.



In case of abandoned quarries/pits are proposed to be converted as water reservoir at the end of mine life.

(II) Aesthetic Environment:

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

(III) Agriculture:

No Environment management plan required

(IV) Forest: No measures are needed.

(V) Vegetation:

The proposed plantation will enhance the density of trees in the area.

(VI) Public Buildings, Places of Worship and Monuments

In absence of such things in 500 meters periphery no adverse impact will be observed on such things thus no protection will be taken up for cure these things.

B WATER ENVIRONMENT

There is no source of surface water in and around the mining lease area and ground water will not intersect the workings at any stage, thus no impact will be anticipated on Surface & ground water thus no environment management plan is required to protect it.

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.

Hence no measures are needed to control it.

C AIR & NOISE ENVIRONMENT

(I) **To Prevent Air Pollution:** The following measures are proposed:

- a. Sharp drill bits are used and the drilling machine is kept leakage proof Dust extractor will be provided in drill machine.
- b. Water Sprinklers provided over haul road to control the fly of dust.
- c. All the haul roads will be kept wide, leveled and compact. If dust exceed than permissible level water Sprinklers should be done on approach road from tar road once in a day during peak transpiration time.
- d. The green belt as shown on plate 6 in and near the lease area will minimize dispersion of dust in nearby area. The proposed plantation is illustrated on the plan.



- e. The proposed plantation along both sides of haul road from tar road will also check the spread of dust in nearby area.
- f. The loading of stone will be in form of lumps thus dust will not create.

(II) To Prevent Noise Pollution

- a. The adequate silencers will be provided in diesel operated min machineries including trucks and tractors.
- b. Compact and leveled haul road are proposed for smooth running of transport vehicles
- c. The transport vehicles should be filled up to rated capacity of the vehicle to minimize the noise.
- d. The shrubs and bushes located in the area and proposed plantation will check the propagation of noise.
- e. The approach roads will keep wide and smooth.
- f. To control this noise the machines will be regularly maintain properly by greasing, oiling etc. as well as providing protective equipment's to all the mine workers.

(III) To Prevent Gaseous Pollution

- a. The emissions from diesel engines will be minimized by proper maintenance of all diesel operated mine machineries like diesel engines, D.G sets and transport vehicles.
- b. The gaseous pollution due to blasting is for a shor duration. The gases are diluted by wind in a short period in opencast mining
- c. All the machineries like compressor, trucks should be operated by trained operators
- d. Gaseous pollution from diesel engines is proposed to minimize by using good quality of silencers.

D SOCIO-ECONOMIC ENVIRONMENT

(I) Social & Demographic Profile

The Lessee should spend 2% of profit for the development of the area by donating the amount for the educational facilities in the school for drinking water, Books to the

poor student, Medicine in the hospital for treatment of the poor temple and other social work.



(II) Occupational Health & 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 the 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 be immediately removed from the affected area and will be provided with proper medical care as per provision of Mines Rule.

(III) Safety

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

- a. The workers will be trained in vocational training whenever available in nearby area. Where they will get proper training in particular work area.
- b. Proper benches will be formed
- c. They will be provided proper safety wearing and equipment such as hand gloves, safety boots, helmets, and lifeline etc.
- d. Apart from this all-safety precaution will be taken as per Act, Rules Regulation and Byelaws made there under

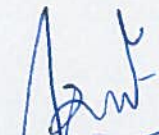


(IV) Human Settlements

The local inhabitant will be protected during blasting operations by booming-siren before its operation.

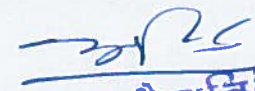
(V) Recreational Facilities

No impact will be encountered on recreational facilities by proposed mining and presently there is no recreational facility available. The lessee is proposing to have in-house recreational facilities like carom, ludo, chess etc.



अधीक्षक खनि. अभियन्ता
भारतपुर



Amit Kumar Bansal
(RQP/SME/BRT/2015/03)


वरिष्ठ भू-वैज्ञानिक
खान एवं भू-विज्ञान विभाग
भारतपुर

Sr. Geologist
Department of Mines & Geology
Bharatpur


अधीक्षक खनि. अभियन्ता
खान एवं भू-विज्ञान विभाग
भारतपुर

Assistant Mining Engineer
Department of Mines & Geology
Roopwas (Bharatpur)



Block A Geo-coordinates (72.6514 ha)

SN	UTM coordinates		DMS Coordinates	
	Easting	Northing	LATITUDE	LONGITUDE
1	747540.44	2981635.62	26° 56' 04.6731" N	77° 29' 35.0805" E
2	747616.59	2981643.13	26° 56' 04.8681" N	77° 29' 37.8447" E
3	747655.81	2981671.91	26° 56' 05.7776" N	77° 29' 39.2862" E
4	748149.88	2981719.37	26° 56' 07.0018" N	77° 29' 57.2200" E
5	748173.16	2981750.15	26° 56' 07.9864" N	77° 29' 58.0855" E
6	748144.38	2981811.73	26° 56' 10.0045" N	77° 29' 57.0869" E
7	748061.75	2982236.54	26° 56' 23.8520" N	77° 29' 54.3975" E
8	748007.42	2982516.33	26° 56' 32.9723" N	77° 29' 52.6294" E
9	747663.71	2982447.64	26° 56' 30.9622" N	77° 29' 40.1271" E
10	747636.8	2982442.41	26° 56' 30.8097" N	77° 29' 39.1483" E
11	747632.55	2982435.49	26° 56' 30.5877" N	77° 29' 38.9894" E
12	747696.99	2982395.84	26° 56' 29.2588" N	77° 29' 41.2958" E
13	747625.76	2982226	26° 56' 23.7894" N	77° 29' 38.5936" E
14	747612.07	2982193.33	26° 56' 22.7373" N	77° 29' 38.0742" E
15	747581.47	2982109.45	26° 56' 20.0331" N	77° 29' 36.9056" E
16	747556	2981793.53	26° 56' 09.7908" N	77° 29' 35.7570" E
17	748147.19	2981812.89	26° 56' 10.0403" N	77° 29' 57.1895" E
18	748244.08	2981820.95	26° 56' 10.2398" N	77° 30' 00.7056" E
19	748259.87	2981860.31	26° 56' 11.5078" N	77° 30' 01.3059" E
20	748354.62	2981839.33	26° 56' 10.7657" N	77° 30' 04.7236" E
21	748476.67	2981914.07	26° 56' 13.1142" N	77° 30' 09.1990" E
22	748460.58	2981963.85	26° 56' 14.7410" N	77° 30' 08.6518" E
23	748532.92	2981971.7	26° 56' 14.9494" N	77° 30' 11.2783" E
24	748533.53	2982029.35	26° 56' 16.8210" N	77° 30' 11.3418" E
25	748535.55	2982089.75	26° 56' 18.7810" N	77° 30' 11.4583" E
26	748516.92	2982164.75	26° 56' 21.2284" N	77° 30' 10.8371" E
27	748496.75	2982213.21	26° 56' 22.8150" N	77° 30' 10.1411" E
28	748469.55	2982261.53	26° 56' 24.4015" N	77° 30' 09.1903" E
29	748438.83	2982304.82	26° 56' 25.8270" N	77° 30' 08.1084" E
30	748431.76	2982318.55	26° 56' 26.2774" N	77° 30' 07.8621" E
31	748390.47	2982427.27	26° 56' 29.8343" N	77° 30' 06.4441" E
32	748361.83	2982491.37	26° 56' 31.9342" N	77° 30' 05.4524" E
33	748281.34	2982462.52	26° 56' 31.0491" N	77° 30' 02.5154" E
34	748308.26	2982402.01	26° 56' 29.0669" N	77° 30' 03.4474" E
35	748335.19	2982341.51	26° 56' 27.0850" N	77° 30' 04.3797" E



36	748349.1	2982323.28	26° 56' 26.4841" N	77° 30' 01.8706" E
37	748354.41	2982316.32	26° 56' 26.2547" N	77° 30' 05.0580" E
38	748377.64	2982285.85	26° 56' 25.2503" N	77° 30' 05.8778" E
39	748412.61	2982223.72	26° 56' 23.2104" N	77° 30' 07.1002" E
40	748441.01	2982123.52	26° 56' 19.9384" N	77° 30' 08.0573" E
41	748442.74	2982065.89	26° 56' 18.0659" N	77° 30' 08.0787" E
42	748441.01	2982048.11	26° 56' 17.4897" N	77° 30' 08.0032" E
43	748443.65	2982010.44	26° 56' 16.2647" N	77° 30' 08.0718" E
44	748370.26	2982002.35	26° 56' 16.0492" N	77° 30' 05.4071" E
45	748390.14	2981953.79	26° 56' 14.4596" N	77° 30' 06.0925" E
46	748270.23	2981873.84	26° 56' 11.9405" N	77° 30' 01.6909" E
47	748177.48	2981891.22	26° 56' 12.5644" N	77° 29' 58.3430" E
48	747744.34	2982871	26° 56' 44.6580" N	77° 29' 43.3513" E
49	747856.64	2982869.09	26° 56' 44.5240" N	77° 29' 47.4189" E
50	747875.59	2983012.54	26° 56' 49.1699" N	77° 29' 48.2082" E
51	747843.74	2983105.45	26° 56' 52.2074" N	77° 29' 47.1207" E
52	747738.23	2983296.74	26° 56' 58.4867" N	77° 29' 43.4346" E
53	747704.4	2983310.94	26° 56' 58.9695" N	77° 29' 42.2190" E
54	747630.34	2983530.04	26° 57' 06.1316" N	77° 29' 39.6922" E
55	747610.65	2983527.56	26° 57' 06.0637" N	77° 29' 38.9770" E
56	747582.52	2983579.3	26° 57' 07.7618" N	77° 29' 37.9947" E
57	747531.4	2983685.65	26° 57' 11.2480" N	77° 29' 36.2184" E
58	747505.02	2983832.22	26° 57' 16.0244" N	77° 29' 35.3673" E
59	747488.06	2983938.51	26° 57' 19.4868" N	77° 29' 34.8288" E
60	747529.87	2983958.26	26° 57' 20.1013" N	77° 29' 36.3580" E
61	747519.21	2983991.97	26° 57' 21.2028" N	77° 29' 35.9958" E
62	747366.41	2983911.3	26° 57' 18.6811" N	77° 29' 30.4012" E
63	747342.08	2983869.99	26° 57' 17.3553" N	77° 29' 29.4901" E
64	747389.54	2983649.82	26° 57' 10.1755" N	77° 29' 31.0525" E
65	747433.82	2983566.36	26° 57' 07.4370" N	77° 29' 32.5973" E
66	747471.23	2983495.84	26° 57' 05.1230" N	77° 29' 33.9024" E
67	747503.7	2983497.97	26° 57' 05.1714" N	77° 29' 35.0805" E
68	747552.64	2983370.55	26° 57' 01.0024" N	77° 29' 36.7627" E
69	747576.38	2983304.83	26° 56' 58.8531" N	77° 29' 37.5759" E
70	747613.58	2983292.13	26° 56' 58.4169" N	77° 29' 38.9147" E
71	747719.16	2983110.36	26° 56' 52.4467" N	77° 29' 42.6102" E
72	747755.64	2983013.35	26° 56' 49.2732" N	77° 29' 43.8626" E
73	747934.32	2983563.56	26° 57' 07.0251" N	77° 29' 50.7308" E
74	748065.42	2983596.01	26° 57' 07.9946" N	77° 29' 55.5045" E
75	748062.6	2983776.74	26° 57' 13.8651" N	77° 29' 55.5318" E



76	747957.16	2983784.56	26° 57' 14.1867" N	77° 29' 51.7168" E
77	747996.34	2983935.74	26° 57' 19.0707" N	77° 29' 53.2448" E
78	747955.48	2983967.54	26° 57' 20.1296" N	77° 29' 51.7870" E
79	747953.3	2984002.83	26° 57' 21.2769" N	77° 29' 51.7333" E
80	747945.56	2984045.83	26° 57' 22.6782" N	77° 29' 51.4836" E
81	747938.31	2984134.3	26° 57' 25.5557" N	77° 29' 51.2843" E
82	747915.61	2984350.64	26° 57' 32.5953" N	77° 29' 50.6167" E
83	747745.12	2984305.98	26° 57' 31.2545" N	77° 29' 44.4067" E
84	747797.66	2983944.26	26° 57' 19.4749" N	77° 29' 46.0516" E
85	747838.09	2983916.31	26° 57' 18.5414" N	77° 29' 47.4966" E
86	747803.78	2983764.23	26° 57' 13.6250" N	77° 29' 46.1444" E
87	747914.66	2983760.01	26° 57' 13.4168" N	77° 29' 50.1592" E

Annexure: 3

Block B Geo-coordinates (116.6001 ha)

SN	UTM coordinates		DMS Coordinates	
	Easting	Northing	LATITUDE	LONGITUDE
1	745138.2	2978245.98	26° 54' 16.1322" N	77° 28' 05.6512" E
2	745156.33	2978250.27	26° 54' 16.2601" N	77° 28' 06.3109" E
3	745165.95	2978245.02	26° 54' 16.0835" N	77° 28' 06.6556" E
4	745200.91	2978262.49	26° 54' 16.6286" N	77° 28' 07.9343" E
5	745184.3	2978287.83	26° 54' 17.4620" N	77° 28' 07.3505" E
6	745276.92	2978346.65	26° 54' 19.3134" N	77° 28' 10.7469" E
7	745233.16	2978411.4	26° 54' 21.4438" N	77° 28' 09.2076" E
8	745245.53	2978420.29	26° 54' 21.7246" N	77° 28' 09.6619" E
9	745239.05	2978432.73	26° 54' 22.1327" N	77° 28' 09.4360" E
10	745252.62	2978444.71	26° 54' 22.5131" N	77° 28' 09.9360" E
11	745262.82	2978431.11	26° 54' 22.0650" N	77° 28' 10.2959" E
12	745280.68	2978445.56	26° 54' 22.5229" N	77° 28' 10.9530" E
13	745342.77	2978371.61	26° 54' 20.0822" N	77° 28' 13.1496" E
14	745432.92	2978440.46	26° 54' 22.2608" N	77° 28' 16.4636" E
15	745388.69	2978502.5	26° 54' 24.3035" N	77° 28' 14.9055" E
16	745714.69	2978613.23	26° 54' 27.6924" N	77° 28' 26.7919" E
17	745853.34	2979049.3	26° 54' 41.7647" N	77° 28' 32.1231" E
18	746347.94	2979045.68	26° 54' 41.3326" N	77° 28' 50.0361" E
19	746407.15	2979147.79	26° 54' 44.6107" N	77° 28' 52.2534" E
20	746443.22	2979208.82	26° 54' 46.5695" N	77° 28' 53.6033" E
21	746490.5	2979288.82	26° 54' 49.1372" N	77° 28' 55.3728" E
22	746529.34	2979354.54	26° 54' 51.2466" N	77° 28' 56.8264" E
23	746548.51	2979386.98	26° 54' 52.2878" N	77° 28' 57.5438" E
24	746552.88	2979394.38	26° 54' 52.5253" N	77° 28' 57.7074" E
25	746557.47	2979401.93	26° 54' 52.7675" N	77° 28' 57.8790" E
26	746564.55	2979413.11	26° 54' 53.1260" N	77° 28' 58.1434" E
27	744772.84	2978577.62	26° 54' 27.1329" N	77° 27' 52.6517" E
28	744772.4	2978582.75	26° 54' 27.2998" N	77° 27' 52.6393" E
29	744732.03	2979052.66	26° 54' 42.5848" N	77° 27' 51.5086" E
30	744663.06	2979111.13	26° 54' 44.5271" N	77° 27' 49.0516" E
31	744664.07	2978974.74	26° 54' 40.0974" N	77° 27' 48.9919" E
32	744657.09	2978615.26	26° 54' 28.4284" N	77° 27' 48.4856" E
33	744655.29	2978525.59	26° 54' 25.5177" N	77° 27' 48.3571" E
34	746815	2979258.45	26° 54' 47.9441" N	77° 29' 07.1055" E
35	746818.68	2979261.57	26° 54' 48.0431" N	77° 29' 07.2410" E



36	746691.9	2979472.49	26° 54' 54.9731" N	77° 29' 02.7987" E
37	746684.23	2979468.92	26° 54' 54.8620" N	77° 29' 02.5183" E
38	746681.09	2979472.79	26° 54' 54.9897" N	77° 29' 02.4873" E
39	746660.12	2979463.01	26° 54' 54.6855" N	77° 29' 01.6408" E
40	746749.53	2979353.59	26° 54' 51.0753" N	77° 29' 04.8017" E
41	747267.08	2979810	26° 55' 05.5657" N	77° 29' 23.8743" E
42	747642.44	2980092.85	26° 55' 14.5103" N	77° 29' 37.6734" E
43	747373.39	2980484.31	26° 55' 27.3942" N	77° 29' 28.2065" E
44	747695.62	2980691.58	26° 55' 33.9185" N	77° 29' 40.0277" E
45	747393.37	2981100.05	26° 55' 47.3760" N	77° 29' 29.3698" E
46	747356.63	2981149.95	26° 55' 49.0199" N	77° 29' 28.0744" E
47	747311.19	2981147.37	26° 55' 48.9651" N	77° 29' 26.4264" E
48	747306.04	2981050.12	26° 55' 45.8105" N	77° 29' 26.1704" E
49	747306.68	2981008.58	26° 55' 44.4612" N	77° 29' 26.1639" E
50	747284.77	2980999.57	26° 55' 44.1826" N	77° 29' 25.3637" E
51	747255.13	2981044	26° 55' 45.6443" N	77° 29' 24.3217" E
52	747208.72	2981175.38	26° 55' 49.9402" N	77° 29' 22.7340" E
53	747174.61	2981042.37	26° 55' 45.6429" N	77° 29' 21.4034" E
54	747290.87	2980597.47	26° 55' 31.1215" N	77° 29' 25.2978" E
55	747190.2	2980552.33	26° 55' 29.7201" N	77° 29' 21.6187" E
56	747202.72	2980498.13	26° 55' 27.9521" N	77° 29' 22.0336" E
57	747065	2980425.71	26° 55' 25.6885" N	77° 29' 16.9929" E
58	746972.26	2980563.22	26° 55' 30.2130" N	77° 29' 13.7313" E
59	746865.99	2980430.95	26° 55' 25.9857" N	77° 29' 09.7873" E
60	746881.22	2980406.9	26° 55' 25.1950" N	77° 29' 10.3219" E
61	746890.69	2980406.15	26° 55' 25.1646" N	77° 29' 10.6644" E
62	747098.77	2980079.52	26° 55' 14.4252" N	77° 29' 17.9695" E
63	747275.85	2980208.19	26° 55' 18.4903" N	77° 29' 24.4760" E
64	747364.02	2980086.83	26° 55' 14.4930" N	77° 29' 27.5834" E
65	747179.51	2979952.78	26° 55' 10.2581" N	77° 29' 20.8039" E
66	747211.81	2979902.1	26° 55' 08.5917" N	77° 29' 21.9379" E
67	744542.68	2979337.56	26° 54' 51.9561" N	77° 27' 44.8507" E
68	744666.63	2979394.58	26° 54' 53.7294" N	77° 27' 49.3809" E
69	744966.91	2979391.85	26° 54' 53.4507" N	77° 28' 00.2562" E
70	745322.06	2979523.64	26° 54' 57.5052" N	77° 28' 13.2143" E
71	745548.73	2979732.42	26° 55' 04.1411" N	77° 28' 21.5730" E
72	745579.11	2979795.29	26° 55' 06.1634" N	77° 28' 22.7181" E
73	745652.92	2979860.98	26° 55' 08.2497" N	77° 28' 25.4383" E
74	745836.68	2979953.64	26° 55' 11.1418" N	77° 28' 32.1607" E
75	745842.9	2980021.04	26° 55' 13.3266" N	77° 28' 32.4338" E



76	745627.65	2979918.57	26° 55' 10.1358" N	77° 28' 24.5681" E
77	745587.44	2979880.13	26° 55' 08.9131" N	77° 28' 23.0799" E
78	745551.6	2979812.87	26° 55' 06.7517" N	77° 28' 21.7348" E
79	745300.72	2979624.18	26° 55' 00.7836" N	77° 28' 12.5124" E
80	744928.02	2979529.3	26° 54' 57.9387" N	77° 27' 58.9446" E
81	744625.56	2979558.12	26° 54' 59.0660" N	77° 27' 48.0085" E
82	744396.54	2979486.49	26° 54' 56.8847" N	77° 27' 39.6619" E