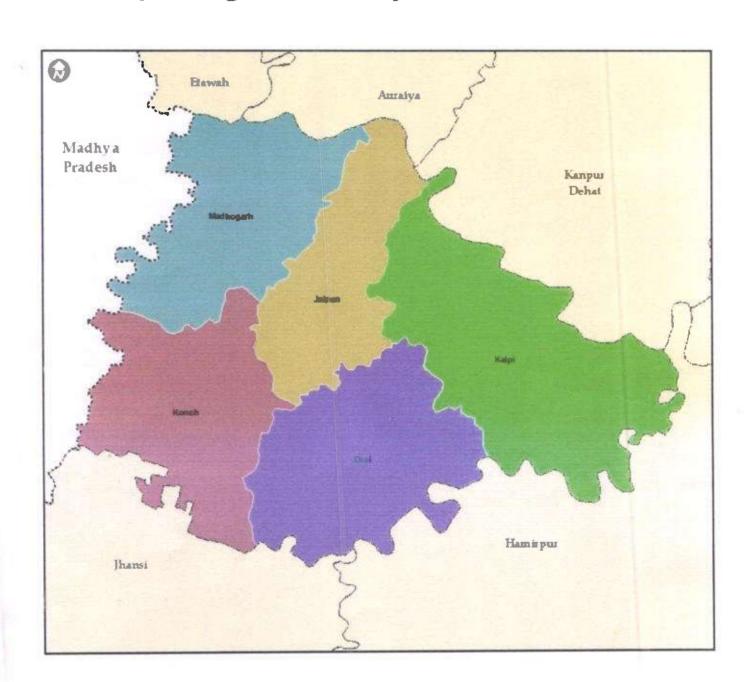
District Survey Report

For (Planning & Execution of) Minor Mineral Excavation



Chairman,
District Environmental Impact Assessment Authority,
Jalaun, U.P.

सदस्य-सचिव डी०ई०ए०सी० जालीत

सदस्य-सचिव डी०ई०आई०ए०ए० जालीन सदस्य डी०ई०आई०ए०ए० जालीन

सदस्य डी०ई०आई०ए०**ए०** जिलाधिकारी/अध्यक्ष डी०ई०आई०ए०ए०

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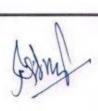
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Plate:1 District map showing Sand mining locations

Preface

On 15 January 2016, Ministry of Environment, Forest and Climate Change, Government of India issued a notification and in which Para 7(iii) (a) and Annexure (x) purpose and structure of District Survey Report has been discussed. District Survey report (DSR) will be prepared in every district for each minor mineral. The District Survey Report will guide systematic and scientific utilization of natural resources, so that present and future generation may be benefitted at large. The purpose of District Survey report (DSR) "Identification of areas of aggradations or deposition where mining can be allowed; and identification of areas of erosion and proximity to infrastructural structures and installations where mining should be prohibited and calculation of annual rate of replenishment and allowing time for replenishment after mining in that area". The District Survey report (DSR) will contain mainly data published and endorsed by various departments and websites about Geology of the area, Mineral wealth details of rivers, Details of Lease and Mining activity in the District along with Sand mining and revenue of minerals. This report also contains details of Forest, Rivers, Soil, Agriculture, Road, Transportation and climate etc.

District Jalaun is rich in occurrence of natural mineral like Road ballast, Bajri, Boulder, sand and morrow. By the side of major river Betwa & Yamuna morang (sand) is available in abundance, which is a basic raw material for any civil construction work. The area is mostly covered by alluvium with exposures of weathered Bundelkhand Granitic Gneisses



confined to the southern part. Two sets of lineaments run along the western boundary of the district trending N-S and NE-SW.

Disclaimer: - The data may vary due to flood, heavy rains and other natural calamities. Therefore, it is recommended that DEIAA may take into consideration all its relevant aspects / data while scrutinizing and recommending the application for EC to the concerned Authority.



Introduction

District Jalaun forms the most northerly portion of the Trans Yamuna tract of the country. In the north Yamuna divides it from the districts of Etawah, Kanpur Dehat and Auraiya. On the west it adjoins Madhya Pradesh and to the south-east Betwa separates it from Jhansi and Hamirpur. The area is mostly covered by alluvium with exposures of weathered Bundelkhand Granitic Gneisses confined to the southern part. Two sets of lineaments run along the western boundary of the district trending N-S and NE-SW.

The district is named after town of Jalaun, which was the former headquarters of a Maratha governor, but the administrative headquarters of the district is at Orai. Other large towns in the district are Kalpi, Konch, and Madhogarh. the HQ. of the District is at Orai, a city on the Kanpur-Jhansi NH25.In early times Jalaun seems to have been the home of two Rajput clans, the Chandelas in the east and the Kachwahas in the west. In 1806 Kalpi was made over to the British, and in 1840, on the death of Nana Gobind Ras, his possessions lapsed to them also. Various interchanges of territory took place, and in 1856 the boundaries of the British district were substantially settled, with an area of 1477 square miles. Jalaun was the scene of much violence during the Revolt of 1857. When the news of the rising at Kanpur reached Kalpi, the men of the 53rd Native Infantry deserted their officers, and in June the Jhansi rebels reached the district, and began their murder of Europeans. It was not until September 1858 that the rebels were finally defeated. In the later 19th century, the district suffered much from the invasive kans grass (Saccharum spontaneum), owing to the spread of which many villages were abandoned and their land thrown out of cultivation. The population of the district



was 399,726 in 1901, and the two largest towns are Konch and Kalpi (pop. 10,139 in 1901). The district was traversed by the line of the Indian Midland railway from Jhansi to Kanpur.



Scale 1:25,000

(Source: mineral.up.nic)

Fig 1: Location map of Jalaun

Silver

General Profile of the district

Jalaun district is surrounded in all four directions by rivers Yamuna, Betwa, Pahuj and Dhasan. The normal rainfall is about 862 mm per annum. The net sown area is 3.50 lakh ha and 1.95 lakh ha as net irrigated area with cropping intensity of 118.82%. Small and marginal farmers contribute 74% of total farm holdings. 52.76% of farmers have land holdings less than 1 ha and 21.69% have land holding of 1-2 ha. Jalaun District is a part of Jhansi Division. The district has an area of 4565 km², and a population of 16,89,974 (2011 census), with a population density of 370 persons per km². The district lies entirely within the level plain of Bundelkhand, north of the hill country, and is almost surrounded by the Yamuna River, which forms the northern boundary of the district, and its tributaries the Betwa, which forms the southern boundary of the district, and the Pahuj, which forms the western boundary. The central region thus enclosed is a dead level of cultivated land, almost destitute of trees, and dotted with villages. The southern portion presents an almost unbroken sheet of cultivation. The Non Riverflows through the centre of the district, which it drains by innumerable small ravines.

The districts of Etawah and Kanpur lie to the north across the Yamuna, while Jalaun District lies to the east and southeast, Jhansi District lies to the southeast, and Bhind District of Madhya Pradesh lies to the west cross the Pahuj.

The district has been under severe drought for the last four years with the average rainfall being about 399 mm which is way behind the average of about 800 mm.

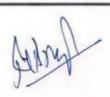
Climate Condition:- The average annual normal rainfall in the district is 862 mm. The climate is sub humid and it is characterised by hot summer, humid monsoon and cold winter seasons. About 90% of rainfall takes place during monsoon period



from the month June to September. During the monsoon surplus water is available for the deep percolation to ground water. After February temperatures begin to increase rapidly. May and early June is hottest part of the year. The mean daily maximum temperature in May is 42.6° C, mean daily minimum temperature is 27.1° C and on individual days the maximum temperature sometimes reaches over 47° C. with the onset of the monsoon in June, the day temperature drop appreciably bu nights continue to be warm as in summer season, January is the coldest month with mean daily minimum temperature is 8.4° C. The mean monthly maximum temperature is 32.4° C and mean monthly minimum temperature is 18.8° C. Air is very humid in monsoon season and the humidity decreases in the cold season. The mean monthly morning relative humidity is 57% and mean monthly evening relative humidity 42%. The mean wind velocity is 703 Kmph. The potential evapotranspiration is 1603.3 mm.

Topography & Terrain:- The topography of the district also plays a key role in locational analysis for any provision of services and facilities. Jhansi is located in the plateau of central India, an area dominated by rocky reliefs and 6 minerals underneath the soil. It has an average altitude of 284 meters. The city has a natural slope in the north as it lies on the south western border of the vast Tarai plains of Uttar Pradesh. The elevation rises on the south. The land is suitable for citrus species fruits. Main crops grown in the district include wheat, pulses, peas & oilseeds. The region relies heavily on Monsoon rains for irrigation purposes.

Water Course & Hydrology:- The area is chiefly drained by three perennial rivers namely, Yamuna, Betwa, and Phuja. There are many minor ephemeral tributaries, viz. Non Nadi, Kunchamalanga Nadi which drains central parts of the district area. Jamuna and Betwa are flowing towards east and Pahuja from south to



north. The overall drainage of the area forms dendritic pattern. Besides, there is good network of canal system draining from Betwa river through Kuthaund and Jalaun branches. The entire area of Jalaun district is underlain by quaternary alluvium, comprising mainly clay, Kankar, sand, and gravel over the basement of Bundelkhand granites. The thickness of alluvium increases towards north which has good potential. Ground water potential in granites is poor as they have littile porosity. The weathered zone in the granite rock usually hold good quantity of water. The ground water in the alluvium occurs under water table conditions in phreatic zones and under semi confined to confined conditions in the lower zone. Ground Water Devlopment:- Agriculture is the main sourse of populace of the district. To meet the requirement of the irrigation, ground water and surface water are being utilized. Ground water irrigation is under operation through 592 state government tube wells, 3014 dug wells. Almost 30.14 % of the area under irrigation is covered by ground water and 68.24 % area is irrigated by canals water and 0.68 % area is irrigated by other sources. Out of the net sown area of 343574 ha, only 209609 ha area has been brought under irrigation andnleaving 133965 ha The average of the stage of ground water development for the district is 38.78 %. The maximum stage of ground water development is in Jalaun block i.e. 51.46 % and minimum in Kadaura block i.e. 23.54 %. Other Seven blocks have the stage of ground water development i.e. Dakore 29.19 %, Konch 48.29 %, Kuthond 47.87 %, Madhogarh 50.43% and Mahewa 46.75%, Nadigaon 35.29% and Rampur 45.85%. Therefore all the 9 blocks are in safe category. So that all blocks having good scope to further develop ground water through shallow and moderately deep tubewells.

Ground Water Quality:

Ground water of the district is colourless, odourless and very slightly alkaline in nature. Electrical conductance ranges from 400-500 micromhos/cm. at 250 C. Out



of the total samples, 18% of water samples analyzed have high NO3 (above permissible limit of 45 mg/l). Fluoride is within permissible limit ranging from 0.08-1.0 mg/l. Phosphate is not found in the district. It is observed that ground water quality is suitable for drinking and irrigation purposes. The As (Arsenic) content has been found within permissible limit (10ppb)

Drainage System

The main physical features of the district are largely determined by the three rivers- the Yamuna, the Betwa and the Pahuj, which nearly encircle it. The same characteristics are common to all, varying in proportion to their respective sizes. They are surrounded by a deep network of ravines running one to three kilometers from the streams. These ravines are succeeded by a bank or belt of higher land the surface of which gradually falls the further the river is left behind. The high lands border on the khadir Valleys of the Betwa and Pahuj, while the low lands occupy the central tract. The latter is thus a wide flat basin encircled by a narrow rim of higher ground which break up into a network of ravines along the river banks, stretching for some kilometers inland from the streams. The levels are clearly indicated from the situation and direction of the branches of the Betwa canal which follows the watersheds closely. The drainage of the central tract is supplied by two minor streams, the Non and the Melunga which flowing north-eastwards unite some 12 kilometers from the Yamuna bank and join that river at an equal distance to the north of the town of Kalpi, Like the larger rivers they too have carved deep ravines which increase in extent the nearer the Yamuna is approached and as a consequence of their action, the Kalpi Tahsil is cut by a tracery of ravines which have scored the greater portion of soil and having more barren and sterile land than in any other part of the district.



The natural divisions into which the district falls are clearly marked. Along the outer edge is the ravine belt fringed here and there, by rich alluvial soil, but for most part consisting of low hummocks thickly strewn with Kankar. The upland which succeeds the ravines is poor in quality. It has a light coloured hard soil, to the north there is a tract of loam, the characteristics of which resemble those of the doab, but practically the whole of the south and centre of the district beyond the upland, excluding, the area in tahsil Kalpi affected by the Non and Melunga is occupied by the dark kakar and the black cotton soil mar. With the exception of two rocky outcrops near Saiyidnagar in tahsil Orai, here are no hills in the district and the red soil which is found in the hilly tracts of Jhansi is also absent but in other respects the district is a typical part of Bundelkhand.

Table 1: Drainage System with Description of main rivers

S.No.	Name of River	Area Covered (Sq.Km.)	% Area Covered
1.	Yamuna	21.2	0.46 %
2.	Betwa	14	0.30%
3.	Pahuj	1.65	0.036 %

Table 2: Salient features of Important rivers and streams

S.No.	Name of River / stream	Total length in the District (in Km)		Altitude at Origin
1	Yamuna	56	Yamunotri glacier near Banderpoonch peaks in the Mussourie	6387 m

12

			range of the lower Himalayas	
2.	Betwa	28	Vindhya Range near Bhopal district	396.24 m
3.	Pahuj	13	Jhansi District of Uttar Pradesh	285 m

Drainage of Jalaun:-

Yamuna River Yamuna enters in Jalaun District at village Kanjusa It further passes through Marhepura and Shivganj. Subsequently river flows through various villages and the exit from district, near village Ikauna.

Table 3: List of Villages through which River Yamuna passes.

S.No.	Name of Place/Village	Elevation
1.	Kanjusa	132 above msl
2.	Marhapura	132 above msl
3.	Shivganj	132 above msl
4.	Mahmudpur	132 above msl
5.	Himmatpur	132 above msl
6.	Gudha	132 above msl
7.	Mahtoli	132 above msl
8.	Patrahi	132 above msl
9.	Silaua	132 above msl
10.	Kota Diwara	132 above msl
11.	Motipur	131 above msl
12.	Tulakpur	131 above msl
13.	Bujuwapur	131 above msl
14.	Paren P.F.	131 above msl
15.	Romai Dewara	131 above msl
16.	Khera Mustaqil	131 above msl
17.	Sipura Mustaqil	131 above msl
18.	Baghwali Mustaqil	131 above msl



19.	Abdullapur Mustaqil	131 above msl
20.	Shankarpur Gaon Mustaqil	131 above msl
21.	Harshankarpur Mustaqil	131 above msl
22.	Bhadekh Diwara	131 above msl
23.	Karmukha Mustaqil R.F.	131 above msl
24.	Karmukha Diwara	131 above msl
25.	Lohai R.F.	130 above msl
26.	Jitamau R.F.	130 above msl
27.	Raipur R.F.	130 above msl
28.	Marhiyaon kalan	130 above msl
29.	Manpur R.F.	130 above msl
30.	Khargai Diwara	130 above msl
31.	Khargai Mustaqil	130 above msl
32.	Deokali Mustaquil	130 above msl
33.	Shekhpur Balda	129 above msl
34.	Kalpi	129 above msl
35.	Roya Diwara	129 above msl
36.	Surauli	129 above msl
37.	Gulauli	129 above msl
38.	Madra Lalpur R.F.	129 above msl
39.	Abhirwa R.F.	128 above msl
40.	Pipariya	128 above msl
41.	Jhagrahi	128 above msl
42.	Pali	128 above msl
43.	Ikauna (W) R.F.	127 above msl
44.	Nidhan	127 above msl
45.	Ikauna	127 above msl
46.	Ikauna (E) R.F.	127 above msl

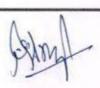
<u>Betwa</u> River Yamuna enters in Jalaun District at village Kanjusa situated 120 m elevation. It further passes through Marhepura and Shivganj. Subsequently river flows through various villages and the exit from district, near village Ikauna.

Table 3: List of Villages through which River Betwa passes.

S.No.	Name of Place/Village	Elevation
47.	Dhera R.F.	132 above msl

July

48.	Maruna-ke-khod	132 above msl
49.	Sala R.F.	132 above msl
50.	Thurat R.F.	132 above msl
51.	Rukhana R.F.	132 above msl
52.	Rukhana	132 above msl
53.	Amror R.F.	132 above msl
54.	Rajapur	132 above msl
55.	Saidnagar	132 above msl
56.	Sudhauli R.F.	132 above msl
57.	Karthara R.F.	131 above msl
58.	Kishor R.F.	131 above msl
59.	Kotra	131 above msl
60.	Sati	131 above msl
61.	Nandha R.F.	131 above msl
62.	Sikri R.F.	131 above msl
63.	Kamtha	131 above msl
64.	Shri Kahta P.F.	131 above msl
65.	Kahta	131 above msl
66.	Makrechha P.F.	131 above msl
67.	Airpatti R.F.	131 above msl
68.	Mohana	131 above msl
69.	Haidalpur P.F.	131 above msl
70.	Bindaula R.F.	131 above msl
71.	Gurha	130 above msl
72.	Simhariya	130 above msl
73.	Tikua	130 above msl
74.	Kharka	130 above msl
75.	Kuruana	130 above msl
76.	Dadri	130 above msl
77.	Sonahata	130 above msl
78.	Kahta Hamirpur	130 above msl
79.	Parason	129 above msl
80.	Almari	129 above msl
81.	Purwa Kunheta	129 above msl



Land form & Seismicity: - The district falls in seismic zone III, and lies in low to moderate hazard risk zone. No earthquake has been observed in the district during last 200 years. The district has, however experienced on a few occasions' earthquakes.

Soil:- The soil of Jalaun is broadly categorized as Ravenous, upland and center plain soils. Based on the texture and colour soils are classified into Rakar, Parwa, Kabar and Mar soil in local parlance. Govt. of India has developed the watershed map of the district. There is more than 1 Lakh ha. of land with shallow and deep ravines having a slope of more than 2.5%. Govt. of India has developed the watershed map of the district. There is more than 1 Lakh ha. of land with shallow and deep ravines having a slope of more than 2.5%.

Cropping Pattern:- In Jalaun district the main crops are wheat and rice. Some area is cultivated under pulses also like Arhar and Urad. The principal sources of irrigation are canals and tubewells. The production and productivity of the major crops in the district are summarized below in Table:

S.No.	Crop	Area (ha)	Production (Qt)	Productivity (Qt/ha)
1.	Rice	3279	75940	23.16
2.	Urd	361	1940	5.37
3.	Moong	06	20	3.33
4.	Arhar	930	7930	8.53
5.	Wheat	51320	1827505	35.61
6.	Total pulses	280	2629	9.39
7.	Total Oil Seeds	1980	23385	13.92
8.	Sugarcane	76047	49050315	773.04



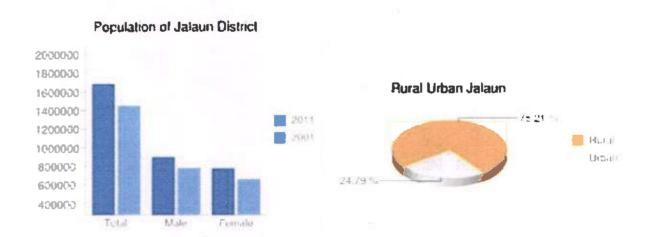
9.	Jawar (Grain)	50	402	8.05
10.	Maize	24	530	22.08

Social Economics:-

An official Census 2011 detail of Jalaun, a district of Uttar Pradesh has been released by Directorate of Census Operations in Uttar Pradesh. Enumeration of key persons was also done by census officials in Jalaun District of Uttar Pradesh. In 2011, Jalaun had population of 1,689,974 of which male and female were 906,092 and 783,882 respectively. In 2001 census, Jalaun had a population of 1,454,452 of which males were 786,641 and remaining 667,811 were females. There was change of 16.19 percent in the population compared to population as per 2001. In the previous census of India 2001, Jalaun District recorded increase of 19.28 percent to its population compared to 1991.

Population Distribution:-

Rural Urban Distribution:-



Actual population	1,689,974	Population growth	16.19%
(a) Male	906,092	Area Sq. Km.	4,565
(b) Female	783,882	Density /Km2	370

Jaling

Average literacy	73.75	Total child population (0-6 years)	231,997
(a) Male literacy	83.48	(a) Male(0-6 years)	123,342
(b) Female literacy	62.46	(b) Female(0-6 years)	108,655
Literates	1,075,196	Sex ratio(per 1000)	865
(a) Male	653,430	Child sex ratio (0-6 years)	881
(b) Female	421,766	Child Proportion	13.73%

Rainfall & Humidity:- The average annual normal rainfall in the district is 862 mm. The climate is sub humid and it is characterised by hot summer, humid monsoon and cold winter seasons. About 90% of rainfall takes place during monsoon period from the month June to September. During the monsoon surplus water is available for the deep percolation to ground water.

Fauna:

The wild animals which are found in this district include the nilgai (Boselaphus tragocamelus), antelok (Anelok cervicapra), pig (Sus scrofa), wolf (Canis lupus), jackal (Conis aureus), fox (Vulpes bengalensis), hare (Lepus ruficandatus), monkey (Macaca mulatta), wild cat (felis bengalensis) and the porcupine (Hystric leucura). The game - birds of the district include the usual varieties found throughout the plains. Among them mention may be made of the peafowl (pavo cristatus), the black partridge (frencolinus francolinus) and the gray partridge (francalinus pondicervanus). Basti is famous for the number and variety of water fowls which visit it during the winter season. The goose (Anser anser), comon teal (Anas crecca), red-cristed pochard duck (netta rufina), white-eyed pochard (aythya rufa) and widgeon (mareca penelope) visit the district only in winter and inhabit the fringes of rivers lakes and swamps. Snakes are common in the district especially in the rural areas, the chief being the Cobra (Naja Naja), karait (Bungarus caeruleus), and rat-snake (ptyas mucosus). Indian crocodile or naka (Crocodilus pulustris), and the ghariyal (gavialis

John

gangeticus) are also found in the river Ghaghra. Fish of almost all the varieties that occur elsewhere in the state are found in the rivers, lakes and ponds of the district, the common species being rohu (lebeo rohita), bhakur (Catla catla), nain (Cirrhina mrigala), parhin (Wallagonia attu), krunch (lebeo calbasu), tengan (Mystus seenghla) and etc.

Flora:

In the former days a large part of the district was covered with forest of sal and other trees, but since then most of it has been cleared and brought under the plough. Though the district is no longer rich in timber, it can still be described as well-wooded, owing to the numerous clumps of mango (Mangitera indica), mahua (Madhuca longifolia), sal (Sorea robusta), and bamboo (Bambusa arundinacea).

Plantations of fast growing species such as bamboo, Eucalyptus (Eucalyptus teritrornis), mango and shisham (Dalbergia sissoo) have been raised in the district.

Table : Forests in Jalaun

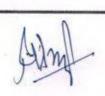
S.No.	S.No. Name of Place/Village		Name of Place/Village	
1.	Sultanpura R.F.	2.	Makrana R.F.	
3.	Billaur P.F.	4.	Makrecha R.F.	
5.	Bhitaura P.F.	6.	Sikri Kahta R.F.	
7.	Mahtauli R.F.	8.	Sikri R.F.	
9.	Silaura R.F.	10.	Kotra R.F.	
11.	Kota Diwara	12.	Nanda R.F.	
13.	Motipur	14.	Kishor R.F.	
15.	Tulakpur	16.	Karthara R.F.	
17.	Bijwapur R.F.	18.	Sudhauli R.F.	
19.	Paren P.F.	20.	Amror R.F.	
21.	Nainapur R.F.	22.	Chirauli R.F.	
23.	Karmukha Mustqil R.F.	24.	Rukhna R.F.	
25.	Tikri R.F.	26.	. Thurat R.F.	

Jahn

27.	Lohari R.F.	28.	Sala R.F.	
29.	Raipur R.F.	30.	Dhera R.F.	
31.	Jitamau R.F.	32.	Budhera R.F.	
33.	Malthua R.F.	34.	Dang Khairai R.F.	
35.	Manpur R.F.	36.	Dang Khaijor R.F.	
37.	Khargoi Mustqil P.F.	38.	Dang Gatiyar R.F.	
39.	Sareni Mustquil R.F.	40.	Angaura R.F.	
41.	Pal R.F.	42.	Atrauli R.F.	
43.	Semra Shiekhpur R.F.	44.	Manpura R.F.	
45.	Narihan R.F.	46.	Gopalpura Rudawali R.F.	
47.	Imli R.F.	48.	Mahaoi R.F.	
49.	Chhunik R.F.	50.	Karmara R.F.	
51.	Vyas R.F.	52.	Asahna R.F.	
53.	Kalpi R.F.	54.	Galampura R.F.	
55.	Alampur R.F.	56.	Megni R.F.	
57.	Dhamna R.F.	58.	Rampura R.F.	
59.	Surauli R.F.	60.	Naraul P.F.	
61.	Gulauli R.F.	62.	Ata R.F.	
63.	Madra Lalpur R.F.	64.	Ukasi R.F.	
65.	Abhirwa R.F.	66.	Ragauli R.F.	
67.	Ikauna R.F.	68.	Bidhauli R.F.	
69.	Dadri R.F.	70.	Haidalpur R.F.	

Physiography

The main physical features of the district are largely determined by the three rivers- the Yamuna, the Betwa and the Pahuj, which nearly encircle it. The same characteristics are common to all, varying in proportion to their respective sizes. They are surrounded by a deep network of ravines running one to three kilometers from the streams. These ravines are succeeded by a bank or belt of higher land the surface of which gradually falls the further the river is left behind. The high lands border on the *khadir* Valleys of the Betwa and Pahuj, while the low lands occupy the central tract. The latter is thus a wide flat basin encircled by a narrow rim of higher ground which break up into a network of ravines along the river banks,



stretching for some kilometers inland from the streams. The levels are clearly indicated from the situation and direction of the branches of the Betwa canal which follows the watersheds closely. The main physical features of the district are largely determined by the three rivers- the Yamuna, the Betwa and the Pahui, which nearly encircle it. The same characteristics are common to all, varying in proportion to their respective sizes. They are surrounded by a deep network of ravines running one to three kilometers from the streams. These ravines are succeeded by a bank or belt of higher land the surface of which gradually falls the further the river is left behind. The high lands border on the khadir Valleys of the Betwa and Pahuj, while the low lands occupy the central tract. The latter is thus a wide flat basin encircled by a narrow rim of higher ground which break up into a network of ravines along the river banks, stretching for some kilometers inland from the streams. The levels are clearly indicated from the situation and direction of the branches of the Betwa canal which follows the watersheds closely. The drainage of the central tract is supplied by two minor streams, the Non and the Melunga which flowing north-eastwards unite some 12 kilometers from the Yamuna bank and join that river at an equal distance to the north of the town of Kalpi, Like the larger rivers they too have carved deep ravines which increase in extent the nearer the Yamuna is approached and as a consequence of their action, the Kalpi Tahsil is cut by a tracery of ravines which have scored the greater portion of soil and having more barren and sterile land than in any other part of the district.

The natural divisions into which the district falls are clearly marked. Along the outer edge is the ravine belt fringed here and there, by rich alluvial soil, but for most part consisting of low hummocks thickly strewn with *Kankar*. The upland which succeeds the ravines is poor in quality. It has a light coloured hard soil, to the north there is a tract of loam, the characteristics of which resemble those of the



doab, but practically the whole of the south and centre of the district beyond the upland, excluding, the area in tahsil Kalpi affected by the Non and Melunga is occupied by the dark *kakar* and the black cotton soil *mar*. With the exception of two rocky outcrops near Saiyidnagar in tahsil Orai, here are no hills in the district and the red soil which is found in the hilly tracts of Jhansi is also absent but in other respects the district is a typical part of Bundelkhand.

Land utilization pattern of the district

The land use pattern (2013-14) in the State has been indicated in the Table 10. The total cultivated area of the state is 454400 ha. And the gross cropped area is 409500 ha. The cropping intensity in the state is 118 %.. Land use Pattern in Jalaun districts is given below:

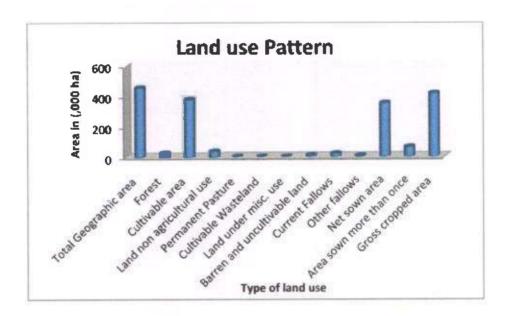
Land use pattern is largely influenced by the available irrigation facilities, which ultimately affect the economy of the area. Irrigation facilitates the intensive use of land resources and results in the increase of Gross Cropped Area and also improves the intensity.

Table 10: Land use pattern of Jalaun

SI. No.	Particulars	Jalaun	
140	Total Geographic area (,000 ha.)	454.4	
2.	Forest (,000 ha.)	28.2	
3.	Cultivable area (,000 ha.)	377.3	
4.	Land non agricultural use (,000 ha.)	39.0	
5.	Permanent Pasture (,000 ha.)	0.2	
6.	Cultivable Wasteland (,000 ha.)	1.5	



7:	Land under misc. use (,000 ha.)	1.6
8.	Barren and uncultivable land (,000 ha.)	9.8
9.	Current Fallows (,000 ha.)	20.7
10.	Other fallows (,000 ha.)	6.8
11.	Net sown area(,000 ha.)	346.7
12.	Area sown more than once(,000 ha.)	62.8
13.	Gross cropped area (,000 ha.)	409.5
14.	Crop intensity	118%



Geology

Geology:-

Jalaun district in the southwestern part of the Uttar Pradesh lies between 250 07" and 250 57" north latitude and 780 10" and 790 25" east longitudes. Total Geographical areas of the district is 5024 sq. km. District headquarter is at Jhansi and there are four number of Tehsils namely Jhansi, Moth, Gauratha and Mauranipur.

July

The rocks mapped in the area are variety of granites having xenoliths of metasediments and metabasites. The granites are intruded by aplite, pegmatite, granite-porphyry, quartz-reefs, dolerite dykes, and secondary veins of quartz and epidosite.

Geological formation of the district consists more or less entirely of alluvium which consists of *kankar* sand, ballast, *maurang* and brick-earth.

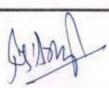
Kankar is available in significant quantity in Konch, Orai and Kalpi tahsils of the district. It is used for metalling the roads and making lime.

Large deposits of sand and *maurang* are found on the bank of the Yamuna. Ballast is found in Orai tahsil.

Geologically, the area is underlain by Bundelkhand granite and complex (BGC) with a capping of quaternary deposits. The setup is as follows:

Younger Alluvium	Recent channel fill deposits and present-day flood plains of
	streams.
Older Alluvium	Older flood plain deposits, which includes bad-lands/
	shallow ravines.

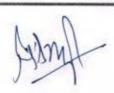
The Bundelkhand granites (BGC) and the banded gneisses of Archaean age, display heterogeneity in texture and composition and are pegmatite in places. They are at certain localities traversed by quartz reef i.e. near Kabrai (80°00'15": 25°23'15") and basically intrusive of deloritic composition i.e. SW of Kharka (80°05': 25°20'45"). A few typical basic dykes trending ENE- WSW originating from the south-western extremities of the area continue towards Mahoba (79°52'30": 25°17'30"). The major bulk of metamorphic rocks are exposed as isolated hills in the southern fringes of the area mapped. The older alluvium on the other hand, comprises finer grained, well-compacted and more mature sediments occupying extensive stretches at relatively higher elevations. These sediments, related to some earlier fluvial episodes, have been at most places stabilized by



vegetation and majority of the badlands are sculptured within it. These sediments characteristically display red and brown colour and are richer in ferruginous content. These older alluvium deposits range from a few metres in the south and increase progressively in thickness up to 70 m to 80 m or so in the northern part of the area under study. The older alluvium supports most of the vegetation in the terrain because of its higher moisture retaining capabilities. The younger alluvium, which is confined to the recent channel fill deposits and present day flood plains or rivers/streams, occurs as narrow strips at lower levels. The sediments are light colored, coarse to very coarse and gravely, poorly sorted and not too well inundated. These immature sediments are relatively deficient in clay/silt fractions and also ferruginous matter.

Geomorphologically the area can be sub-divided into four major units (Plate VIII):

- I. Recent channel-fill and present-day flood-plain deposits and adjacent lowland areas.
- II. Upland areas/river terraces (older alluvium surface).
- III. Badlands/ravenous tracts
- IV. Residual hills.
 - I. Recent Channel fill and present day flood-plain: It is constituted from the deposits carried out by the rivers and all its active network of stream and its periodically inundated contiguous low-lying tracts. It has been designated as younger alluvium.
 - II. The higher alluvial plain: Tracts bordering both the banks of Ken river with extensive lateral continuity have been designated as the older alluvium surface. This unit has a low northerly gradient, in conformity with the basement configuration
 - III. <u>Badlands or Ravines:</u> These are noticed to be essentially confined along the courses of both the Ken river and its network of streams, the former



accounting for better defined and well dissected ravines viz. 3 to 4 m in height. Hummocky ridges and rolling topography characterize badlands areas.

IV. Low residual hills of granitic composition are noticed and they tend to form domes and have steep slopes because of spheroidal weathering.





Geological Survey of India, Northern Region

GEOLOGICAL AND MINERAL MAP OF UTTAR PRADESH AND UTTAR AKHAND.



Mineral wealth

Clay and sand

Ordinary earth / Brick Clay

May

Several kinds of soils are found across Hamirpur. Broadly, the soils fall into following categories:

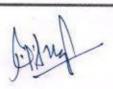
Maar: It is a variety of black soil. This type of soil contents high organic matter and clay, hence it is good for cultivation without using fertilizers. It is most precious soil, it is mostly found in Muskara. By proper handling it is suitable for cultivation of and gram iowar. Kabar: It is a black cotton soils and found in three different color. It is highly adhesive due to the clay content. Hence it retains moisture, and quickly turns to dry and into hard blocks. It is mostly found in Hamirpur sub lands as in Sumerpur, Muskra and Gahrauli. Wheat, gram and rice are main crops of the area. Rankar: It is found on sloping surfaces of ravine land along river banks. It is a variety of loamy, alluvial type soil which is suitable for cultivation where irrigation is available. It is a degraded kind of coarse soil found mostly in Rath and Gohand.

<u>Purwa</u>: It is a variety of red soil, sandy in nature and has some clay content which easily absorbs water. It is suited for cultivation of wheat. <u>Kachhar</u>: Dark soils found along river beds and naalas, known as kacchar / tari soils, suitable to grow water melons and vegetables.

The above types of soils suffer from over-drainage due to a large number of rivers and streams. A number of nalas are flowing across the district, which makes some parts of land worthless. During floods fast-flowing water leads to loss of top surface soil.

Texture and mineralogy of clay

The soil of the district is formed through rocks (sands) and alluvial deposits carried by the river systems, generally rich in iron (Fe) and aluminium (Al) contents which



form clay minerals like kaolinite, illite and montmorrillonite. The major textured group of the soil in the district is sandy loam, black soil, alluvial and clay loam. Soil here is rich in iron, calcium, potash, aluminium and magnesium carbonates but poor in nitrogen, phosphorus and organic matter. These clay minerals are suitable for brick manufacturing.

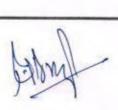
Texture and mineralogy of sand at Jalaun, Uttar Pradesh

Yamuna sand: In Yamuna river, medium to coarse grain sand is mainly constituted of quartz and feldspar mineral with little micaceous minerals. It contains very little amount of clay minerals.

Betwa sand: On the banks of river Betwa lies the "coarse sand", which derive their feldspar from granitic gneisses of the Bundelkhand complex. Based on its coarse grain size, high feldspar content, and gravel class types, the red sediment was derived from Betwa river.

Description of river

The chief river of the district are Yamuna, the Betwa, the Pahuj and several minor streams minor streams among which the Non and the Melunga are notable.



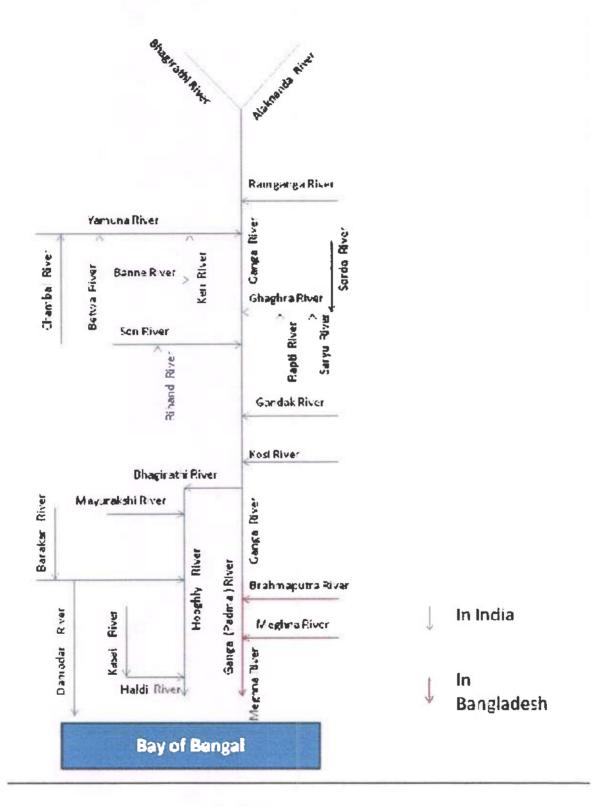
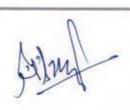


Fig 7: River System of India

Grand

The Upper Ganga plain is the part of the Great Plains lying approximately between the Yamuna in the west covering the parts of Uttarakhand and Uttar Pradesh. The region is delimited in the north by 300m contour which separates it from the Garh-Kum Himalaya, west of Sarda while the International boundary of Nepal marks the limit towards the east. In the south the Yamuna demarcates its border with the Bundelkhand. The axis of the topographic trough paradoxically lies nearer the peninsular block or along the Ganga which traverses the area in a southsoutheastern direction. Thus there is, though not perceptible, a tract adjacent to the foot hills where the slope is higher and has resulted in the preponderance of numerous small streams, assigning a somewhat medium to fine texture to this part. The southern counterparts, particularly north of the Ganga are characterized by the sluggishly-flowing streams like the Ramganga and the Ghaghara studded with oxbows, sandy stretches (the Bhurs) etc. The topographic diversities produced by the changing river courses are predominantly observed in the Ramganga and the Ghaghara valleys, particularly in their flood plains. The streams such as the Kali, the Hindan, and the Pandu etc. have to go a long way parallel to their master streams to empty themselves. Distinct, though are insignificant, in topographic expressions is the Yamuna par or the Yamuna-lower Chambal tract. The deep valley separated by sharp spurs and buttresses are the main features of Upper Ganga Plain. Topographically most significant and complex part of the region is the submontane belt, running at the foot of the Siwaliks from west to east across the area on the northern border consisting of the two parallel strips – the piedmont zone, the bhabar (the doab region) and the adjoining relatively gently sloping tarai belt.



Yamuna: The Yamuna river is the biggest tributary of the Ganga river. It is also considered as sacred river in India. The Yamuna river originates in the Tehri Garhwal district of Uttarakhand from the Yamunotri glacier near Banderpoonch peaks (38° 59'N 78° 27'E) at the elevation of about 6,320m above the sea level in the Mussoorie range of lower Himalayas. Arising from the source, the Yamuna river flows through a series of valleys for about 200 km in lower Himalayas and then emerges into Indo-Gangetic plains. In the upper reaches, the gradient of the river is steep and the entire geomorphology of the valley has been carved by the erosive action of the river water. In the headwater reach of 200 km, the Yamuna draws water from several major streams. The combined stream flows through the Shivalik range of hills of Himachal Pradesh and Uttarakhand states and enters into the plains at Dak Pathar in Uttarakhand. From Dak Pathar, the Yamuna flows through the famous Sikh religious shrine of Poanta Sahib. Flowing through the Poanta Sahib, it emerges from the foothills of Kalesan, north of Hathnikund/Tajewala where the river water gets diverted into Western Yamuna Canal and Eastern Yamuna Canal for irrigation. The Yamuna river enters Delhi near Palla village after traversing for about 224 km. Further downstream, Yamuna flows through the Agra city which is famous for Taj Mahal. Shortly afterwards, it passes through another historical city, Mathura. The total length of Yamuna from its origin to Allahabad (confluence with Ganga) is 1,376 km and the drainage area is 3,66,223 Sq.km. The Yamuna is a mighty river in itself and has a number of tributaries. In its first 170 km stretch, the tributaries the Risiganga, Hanumanganga, Tons and Giri join the main river. Later big rivers, such as the Chambal, the Sind, the Betwa and the Ken join it. The catchment of the Yamuna river system covers the parts of Uttar Pradesh, Uttarakhand, Himachal Pradesh, Haryana, Rajasthan, Madhya Pradesh and Delhi. The tributaries of Yamuna account for 70.9 percent of the catchment area, the balance of 29.1 percent area is directly drained by the



Yamuna. Further the catchment area of Yamuna amounts to 40.2 percent of the area of the Ganga basin and 10.7 percent of the land in our country. The important tributaries of Yamuna river are the Tons, the Chambal, the Hindon, the Sarda, the Betwa and the Ken. The main Yamuna and Tons are fed by glaciers, viz., the Banderpoonch glacier and its branches that originate from the Great Himalayas. Other small tributaries include the Risiganga, the Hanumanganga, the Unta, the Karan, the Rind and the Giri. The Risiganga a tributary of the Yamuna rises 3 km further north-west and joins the Yamunotri stream on its right bank near Banas while other two streams the Unta and the Hanumanganga rising from the Jakhal glacier and the Chhaian Barmak glacier respectively to the south of Bander poonch meet the main stream on its left bank.

Yamuna in Jalaun

The Yamuna forms the northern boundary of the district. It first touches the district at the village of Sitoura in the erstwhile jagir of Jagamanpur, at the point where it is joined by Sindh river. It flows with a gently curving course forming the boundary with Etawah district as far as Shergarh ferry on the road from Jalaun to Auraiya. Then it turns south continuing to form the district limit till it leaves it some 16 kilometers south east of Kalpi town on the border of Baoni. With the exception of a sudden loop north of the old city of Raipur and near Mainupur, its courses is not characterized by any abrupt curves or bends. It's total length within the district limit is approximately 83 Kilometers.

Tributaries of Yamuna- The Yamuna receives water of several tributaries during its course along the border of the district but few are of any importance.



The Non rises in the tahsil of Orai and drains the southern portion of the district. The Melunga starting not far from the town of Konch flows due north as far as Hadrukh and turning near that town abruptly east holda a course parallel to the Yamuna till it unites with the Non at Mahewa in Kalpi. Both the streams are, for the most part deep-bedded and meraly serve to carry off the drainage of the central black soil tract, during the rainy season and then dry up. In the upper portion of their courses they have low and shelving sides, but as they approach the main river they cut more abruptly and have scored out their banks to a considerable extent. Near the junction with the Yamuna which is about 13 kilometers north of the Kalpi town, they have been responsible for more extensive erosion and deterioration.

In the extreme south flows a small but deep bedded stream called the Manmesari nullah which has caused a certain amount of deterioration in the villages that border it. To the south of the tahsil Kalpi flow two small streams, the Rayar and Jondhar which join the Yamuna near Kalpi starting in uneven and undulating but not actually uncultureable land, the two are flanked by ravines before reaching their destination.

A brief description of important tributaries of the Yamuna is given in the following sections:

i. Betwa: The Betwa river is also a tributary of Yamuna river. Its basin extends from longitude 77° to 81°E and latitude 23°8' to 26°0'N. The Betwa river originates at an elevation of 470 m in the Bhopal District in Madhya Pradesh. After traversing a distance of 590 km, the river joins the Yamuna River near Hamirpur at an elevation of 106.68 m. The total catchment area of the Betwa river is 46,580 sq km of which 31,971 sq km

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(68.64%) lies in M.P. and 14,609 sq km (31.36%) lies in U.P. The basin is saucer shaped with sandstone hills around the perimeter. The river has 14 principle tributaries out of which 11 are completely in Madhya Pradesh and 3 lie partly in Madhya Pradesh and partly in Uttar Pradesh. The Halali and Dhasan rivers are the important tributaries of the Betwa river.

Betwa in Jalaun: The Betwa forms the boundary with Jhansi along the southern border from a point a few kilometers east of the town of Erichh to its junction with Dhasan. Its course, which up to the junction runs due east tends then somewhat to the north-east and it meanders along the south-eastern side of tahsil Orai and Kalpi, separating them from Hamirpur. Like the Yamuna it leaves the district on Baoni border. It flows in a tortuous channel with many loops and bends. Its total length along the district border is approximately 96 kilometers, but from point to point it does not exceed 64 kilometers. Both the banks are fringed for some distance inland by uncultureable ravines. Pahuj in Jalaun - The Pahuj river rises in Gwalior district of Madhya Pradesh and flows through Jhansi, enters Jalaun in the south-western comer of tahsil Konch at the village of Savaiya-Buzurg. The river forms the western boundary, except at few points where the district projects here and there beyond the stream. It is a much smaller river than the Betwa and flows in a deep channel between high banks in a sinuous course along the western side of that tahsil and pursues its way north wards along the border of Madhogarh. Within 10 kilometers north-west of this town it flows though the erstwhile jagir of Rampura and the village of Jaghar joins the Sindh



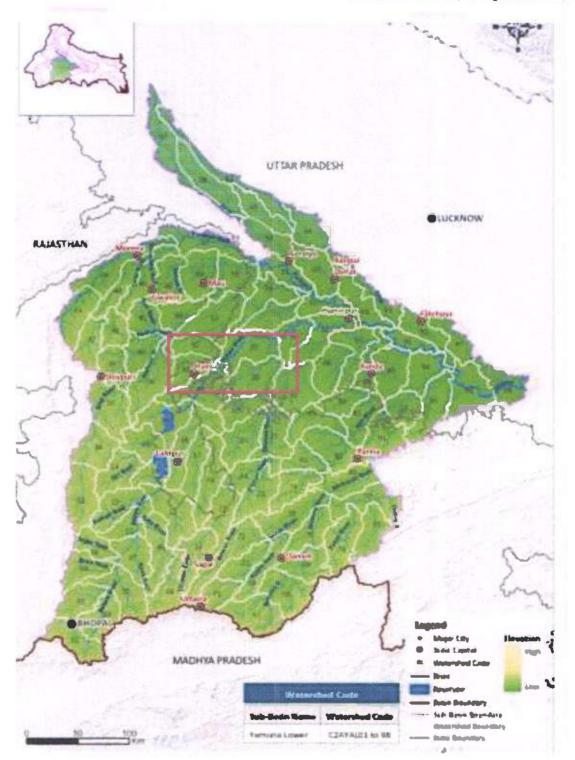


Fig 8: District Jalaun (part of Yamuna lower basin)

Stry

river. On both sides of the river the banks are to a considerable distance cut up into ravines and nullahs.

The Pahuj has no tributaries in the district except, Dhumna, a small stream which rises in Kailia and joins it near Maheshpur.

Process of deposition

Sediment transport is critical to understanding how rivers work because it is the set of processes that mediates between the flowing water and the channel boundary. Erosion involves removal and transport of sediment (mainly from the boundary) and deposition involves the transport and placement of sediment on the boundary. Erosion and deposition are what form the channel of any alluvial river as well as the floodplain through which it moves. The amount and size of sediment moving through a river channel are determined by three fundamental controls: competence, capacity and sediment supply. Competence refers to the largest size (diameter) of sediment particle or grain that the flow is capable of moving; it is a hydraulic limitation. If a river is sluggish and moving very slowly it simply may not have the power to mobilize and transport sediment of a given size even though such sediment is available to transport. So a river may be competent or incompetent with respect to a given grain size. If it is incompetent it will not transport sediment of the given size. If it is competent it may transport sediment of that size if such sediment is available (that is, the river is not supplylimited). Capacity refers to the maximum amount of sediment of a given size that a stream can transport in traction as bedload. Given a supply of sediment, capacity depends on channel gradient, discharge and the calibre of the load (the presence of fines may increase fluid density and increase capacity; the presence of large particles may obstruct the flow and reduce capacity). Capacity transport is the competence-limited sediment transport (mass per unit time) predicted by all



sediment-transport equations, examples of which we will examine below. Capacity transport only occurs when sediment supply is abundant (non-limiting). Sediment supply refers to the amount and size of sediment available for sediment transport. Capacity transport for a given grain size is only achieved if the supply of that calibre of sediment is not limiting (that is, the maximum amount of sediment a stream is capable of transporting is actually available). Because of these two different potential constraints (hydraulics and sediment supply) distinction is often made between supply-limited and capacity-limited transport.

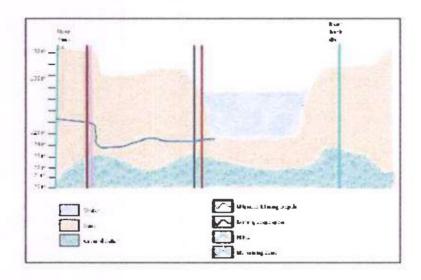
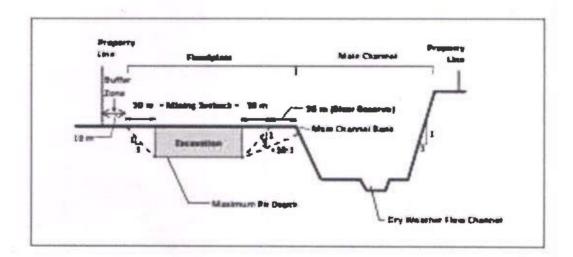


Fig 10: Standard Sand Mining Operation



Gerry

Fig 11: Floodplain Excavation Pit Geometry for Streamlined Floodplain

Most rivers probably function in a sediment-supply limited condition although we often assume that this is not the case. Much of the material supplied to a stream is so fine (silt and clay) that, provided it can be carried in suspension, almost any flow will transport it. Although there must be an upper limit to the capacity of the stream to transport such fines, it is probably never reached in natural channels and the amount moved is limited by supply. In contrast, transport of coarser material (say, coarser than fine sand) is largely capacity limited.

Modes of Sediment Transport

The sediment load of a river is transported in various ways although these distinctions are to some extent arbitrary and not always very practical in the sense that not all of the components can be separated in practice:

- 1. Dissolved load
- 2. Suspended load
- 3. Intermittent suspension (saltation) load
- 4. Wash load
- 5. Bed load

Sediment Transport in Rivers

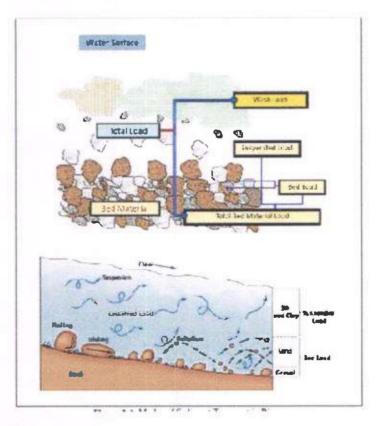
The loose boundary (consisting of movable material) of an alluvial channel deforms under the action of flowing water and the deformed bed with its changing roughness (bed forms) interacts with the flow. A dynamic equilibrium state of the boundary may be expected when a steady and uniform flow has developed



(Nalluri & Featherstone, 2001). The resulting movement of the bed material (sediment) in the direction of flow is called sediment transport and a critical bed shear stress (t) must be exceeded to start the particle movement. Such a critical shear stress is referred as incipient (threshold) motion condition, below which the particles will be at rest and the flow is similar to that on a rigid boundary.

Sediment Influx Rate

Sediment influx in Ephemeral streams is generally confined to the beginning of the rainy season as velocity of the water washes down medium to fine sand and silt depending on the velocity and gradient of land. Cobbles, pebbles and boulders will be transported buy only over short distance. Boulders are normally 256 mm and above are normally transported either by dragging action or by saltation.



(Nallun & Featherstone, 2001).

Fig 12: Sediment Transport in river

Hay

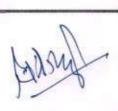
Recharge is in two forms, one general deposition of coarse, medium and fine sand when the velocity of the river water decreases below the carrying capacity.

However, flash floods due to heavy rains in the upper reaches often causes rapid transportation of boulder, sand etc., along with silt which can never deposit.

Recharge Rate: It is dependent upon the following 4 factors

- 1. Velocity of the water and change of velocity
- 2. Size of particles
- 3. Temporary increase in density of carrying media due to presence of silt load.
- Artificial or natural barriers being encountered within the river course, where due to the sudden check in velocity, materials are deposited.

The numerical sedimentation rate varies from 50cm medium sand to as much as 3m of medium and fine sand where the slope of the river bed is less than 10⁰ slope per season. For silt and clay, these only be deposited in the flood area and normally varies between 1-5m over 6 months period.



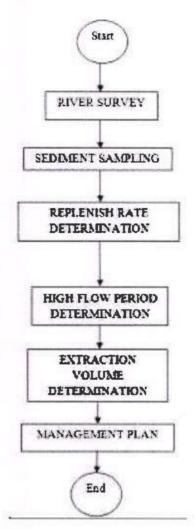


Fig 13: Flow chart for volume estimation

Estimation of Sedimentation

The sedimentation rate in India is estimated using empirical formula, actual observed data and reservoir sedimentation survey. The recommended BIS (12182-1987) method have been widely used for reservoir planning. In addition the sediment data is also collected by the state governments on river systems in their respective territories. Thus there is enough data to estimate both the average annual sediment yield and also the distribution of annual sediment yields. There are also situations where the gauging stations provide nested systems of catchments. In

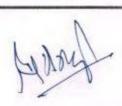
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these situations data can be used to identify the contribution to the total sediment yield from individual sub-catchments. Though this data is extremely useful and is recommended to be fully used for estimation of sediment rate, the data need to be interpreted with care. The sediment measurements are, in general, based on bottle sample taken from near the water surface. In general, the suspended sediment concentration varies with depth, with the sediment concentration being greatest at the lower levels. This means that the measurement may under estimate the suspended sediment concentrations. The data provides an excellent resource for estimating sediment yield directly. The sediment yield depends on catchment area, the average catchment slope, the lithology of the catchment, the land use, the drainage density, the annual/seasonal precipitation and storm events etc. There are a number of empirical methods developed in USA and still used worldwide to assess sediment erosion, including the Universal Soil Loss Equation (USLE), MUSLE, Revised Universal Soil Loss Equation (RUSLE). Some work has been done in India and certain empirical relations have been developed linking annual sediment yield with some of these parameters (CWC, 2010)

Estimation of sediment yield from the catchment area above the reservoir is usually made using river sediment observation data or more commonly from the experience of sedimentation of existing reservoirs with similar characteristics. On adopting the first procedure, it is usually necessary (though often not complied within practice) to evolve proper sediment water discharge rating curve and combine it with flow duration (or stage duration curve) based on uniformly spaced daily or shorter time units in case of smaller river basins. Where observed stage/flow data is available for only shorter periods, these have to be suitably extended with the help of longer data on rainfall to eliminate, as far as possible, the sampling errors due to shortness of records. The sediment discharge rating curves may also be

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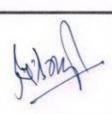
prepared from hydraulic considerations using sediment load formulae, that is, modified Einstein's procedure but this has not yet become popular. It is also necessary to account for the bed load which may not have been measured. While bed load measurement is preferable; when it is not possible, it is often estimated as a percentage generally ranging from 5 to 20 percent of the suspended load. However, practical means of measuring bed load of sediment needs to be undertaken particularly in cases where high bed loads are anticipated. To assess the volume of sediment that would deposit in the reservoir, it is further necessary to make estimates of average trap efficiency for the reservoir in question and the likely unit weight of sediment deposits, time averaged over the period selected. The trap efficiency would depend mainly on the capacity inflow ratio but would also vary with location of controlling outlets and reservoir operating procedures. The density of deposited sediment would vary with the composition of the deposits, the location of the deposit within the reservoir, the flocculation characteristics of clay and water, and the age of the deposit. For coarse material (0.0625 mm and above), variation of density with location and age may be unimportant. For silt and clay, this may be significant. Normally, a time and space average density of these fractions, applicable for the period under study is required for finding the overall volume of deposits. For this purpose, the trapped sediment for the period under study would have to be classified in fractions by corrections in inflow estimates of the fractions by trap efficiency. Most of the sediment removed from the reservoir should be from the silt and clay fraction. In some special cases, local estimates of densities at a point in the reservoir may be required instead of average density over the reservoir. Estimates of annual sediment yield/sedimentation rate assessed from past data are further required to be suitably interpreted and where



necessary, the unit rates which would apply to the future period are computed by analysing data for trends or by making subjective adjustments for the likely future changes. Where the contributing drainage area is likely to be reduced by upstream future storages, only such of the projects as are under construction or which have the same priority of being taken up and completed as the project in question are considered for assessing the total sediment yield. Sediment observation data (see IS: 18QO-1968*) is necessary if the yield is being assessed from hydrometric data. If observational methods are inadequate, the possibility of large errors should be considered. For drawing conclusions from reservoir re-surveys, it is important that reduction of at least 10 percent or more has been observed in the capacities of the two successive surveys; if this is not done, inaccuracies in the successive surveys will distort the estimation of the capacity reduction between the surveys. If the loss of capacity is small, useful conclusions may not be forthcoming, and in such cases, river sediment measurements with its large observational errors may still provide a better estimate. It is essential to make a proper assessment of sediment yield for reservoir under study taking relevant factors into account (BIS:12182-1987)

A proper assessment of the effects of sediment transport and of the measures that may be necessary for its control requires a knowledge of the processes of sediment erosion, transportation, and deposition, and of their interaction with the hydrological processes in the catchment.

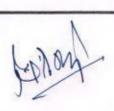
Erosion of catchments The most significant agent for eroding sediments from land is running water. Other agents of land erosion include wind, ice, and gravity. The processes by which water degrades the soil are complicated and depend upon the rainfall properties, soil properties, land slope, vegetation, agricultural methods, and urbanization process. The last two factors account for the



most important effects of man's activities on erosion. Empirical equations have been developed for the determination of soil loss (sheet erosion) from agricultural lands. One of them, developed by Musgrave for conditions prevailing in the United States , is given as an example: $E = IRS1.35\ l0.35\ p1.75\ (59.1)$ where E is the mean annual soil loss, in millimetres, I is the inherent erodibility of the soil, in millimetres, R is a land-cover factor, S is the land slope, in per cent, I is the length of the slope, in metres, and p is the 30-minute, two-year rainfall depth, in millimetres. The values of the parameters I and R are determined empirically from regional studies.

Channel erosion Channel erosion is caused by the forces of the concentrated flow of water. Its rate depends on the hydraulic characteristics of channel flow and on the inherent erodibility of channel materials. In non-cohesive materials, the resistance to erosion is affected by the size, shape, and specific gravity of the particles and by the slope of the bed. In cohesive materials it also depends on the bonding agents. The relationships between the hydraulic variables and the parameters influencing the erodibility of channels are not fully understood and are often expressed by empirical formulae. Stream- and river-control works may have a serious local influence on accelerating channel erosion if they cause an increase in channel depth, flow velocity, change the direction of the flow, or reduce the natural sediment load. The latter effect occurs frequently below dams and may persist for many kilometres downstream. Bare land and badlands may develop gullies with rates of advance that can be computed by empirical formulae containing such parameters as the drainage area of the gully, slope of the approach channel, depth of rainfall, and clay content of the eroding soil.

Transportation of sediments in channels Fine (suspended) sediments transported in rivers originate mainly from the topsoil of the catchment and from the banks of the channels. However, fine sediments also originate from sewage and



other return flows, e.g., such sediments comprise about onethird of the suspendedsediment load in the lower Rhine river. A large portion of the transported material comes to rest on flood plains [4], especially upstream from hydraulic structures. The settled material undergoes compaction and other physical and chemical changes that can sometimes prevent its re-erosion by flows that would have carried it previously. A decrease is usually found in the mean annual sediment transported per unit area of the catchment as the area of the catchment increases. The concentration of suspended sediment in runoff is described by formulae such as [2, 5]: $\log cs = C \log Q + B (59.2)$ in which cs is the concentration expressed in weight per unit volume of water, Q is the water discharge, C is a dimensionless coefficient, and B is a function of the rainfall depth, of the antecedent discharge, or of other meteorological and hydrological variables. The concentration of suspended sediment varies within the channel crosssection. It is relatively high in the lower portion and may also be non-uniform laterally, so that its sampling at several points or along several verticals of the cross-section is often necessary for obtaining its mean. The mean concentration should be evaluated to yield the total sediment weight per unit time when multiplied by the water discharge. The graph of suspended sediment against time usually has a peak that does not occur simultaneously with the peak discharge. This lag is a result of the specific conditions in a watershed, and no generalization has yet been formulated for the evaluation of this difference.

Bed-load transport Coarse sediments (bed load) move by sliding, rolling, and bouncing along channels and are concentrated at or near the channel bed. The variables that govern transport are the size and shape of the particles and the hydraulic properties of the flow. As a consequence of the interaction between the hydraulic forces and the coarse sediment, the channel bed assumes different configurations known as plane, ripples, dunes, flat, standing waves, and antidunes.

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They exert resistance to the flow of water that varies within a wide range and assumes a maximum value for the dune configuration.

Sedimentation When approaching its mouth, the flow velocity of a river decreases along with its ability to carry sediment. Coarse sediments deposit first, then interfere with the channel conveyance, and may cause additional river meanders and distributaries. The area of the flowing water expands, the depth decreases, the velocity is reduced, and eventually even fine sediments begin to deposit. As a result, deltas may be formed in the upper portion of reservoirs. The deposited material may later be moved to deeper portions of the reservoir by hydraulic processes within the water body. Sediments are deposited in accordance with their settling velocity. A significant concentration of suspended sediments may remain in the water column for several days after its arrival in a reservoir. This may interfere with the use of the stored water for certain purposes, e.g., for water supply or recreation. It should be emphasized that not all of the sediment deposits in a reservoir. A large portion of it remains in the upper zones of the watershed, some is deposited upstream from reservoirs, and some is carried downstream by the released water. The sediment-trapping efficiency in a reservoir depends upon the hydraulic properties of the reservoir, the nature of the sediment, and the hydraulic properties of the outlet. The density of newly deposited sediments is relatively low but increases with time. The organic component in the sediment may undergo changes that may reduce its volume and enhance biochemical processes in the stored water (WMO, 1994).

Some of the famous sediment transport equations are:-

- 1. Dandy Bolton Equation
- 2. Modified Universal Soil Loss Equation (MUSLE) developed by Williams and Berndt (1977)
- 3. Yang Equations

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4. Engelund-Hansen Equation

Dandy - Bolton formula is often used to calculate the sedimentation yield because

- The formula uses catchment area and mean annual runoff as key determinants
- Itdoes not differentiate in basin wide smaller streams and their characteristics.
- Dandy and Bolton equation calculates all types of sediment yield i.e.
 Sheet and rill Erosion, gully Erosion, channel Bed and bank erosion and mass movement etc.

DANDY - BOLTON EQUATION

- 1. Dandy Bolton formula is often used to calculate the sedimentation yield.
- However Computed sediment yields normally would be low for highly erosive areas and high for well stabilized drainage basins with high plant density because the equations are derived from average values.
- 3. The equations express the general relationships between sediment yield, run off, and drainage area.
- 4. Many variables influence sediment yield from a drainage basin. They include climate, drainage area, soils, geology, topography, vegetation and land use.
- 5. The effect of any of these variables may vary greatly from one geographic location to another, and the relative importance of controlling factors often varies within a given land resource area.
- 6. The accuracy of the sedimentation surveys varied, ranging from reconnaissance type measurements of sediment deposits to detailed surveys consisting of closely spaced cross-sections or contours.

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Sediment Yield vs. Drainage Area: - On the average, sediment yield is inversely proportional to the 0.16 power of drainage area between 1 and 30,000 square miles.

Sediment Yield vs. Runoff: -

Sediment yield increased sharply to about 1,860 tons per square mile per year as run-off increased from 0 to about 2 inches. As runoff increased from 2 to about 50 inches, sediment yield decreased exponentially. Because sediment yield must approach zero as runoff approaches zero, a curve through the plotted points must begin at the origin. The abrupt change in slope of a curve through the data points at Q equals 2 inches precluded the development of a continuous function that would adequately define this relationship. Thus, there are two equations derived for when Q was less than 2 inches and when Q was greater than 2 inches (Dandy &Bolton, 1976)

Method of Mining

- a) Extracting gravel from an excavation that does not penetrate the water table and is located away from an active stream channel should cause little or no change to the natural hydrologic processes unless the stream captures the pit during periods of flooding. The exception is that changes in evapotranspiration, recharge, and runoff may create minor changes to the ground-water system, which may in turn affect stream flow.
- b) Limiting extraction of material in floodplains to an elevation above the water table generally disturbs more surface area than allowing extraction of material below the water table.
- c) In-stream extraction of gravel from below the water level of a stream generally causes more changes to the natural hydrologic processes than limiting extraction to a reference point above the water level.

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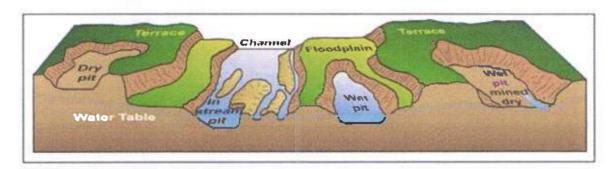


Fig 14: Aggregate extraction can take place in a number of in-stream and near-stream environments

- d) In-stream extraction of gravel below the deepest part of the channel (the thalweg) generally causes more changes to the natural hydrologic processes than limiting extraction to a reference point above the thalweg.
- e) Excavating sand and gravel from a small straight channel with a narrow floodplain generally will have a greater impact on the natural hydrologic processes than excavations on a braided channel with a wide floodplain.
- f) Extracting sand and gravel from a large river or stream will generally create less impact than extracting the same amount of material from a smaller river or stream.

Table 13: Annual Rainfall of Jalaun

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual Total
2004	19	0	0	6.4	3.8	30	151.4	160.9	190	67.9	0	0	629.4
2005	5.5	1	6.5	0	2.5	41.6	242	270.5	105.1	0	0	0	674.7
2006	0	0	N.A.	0	0	14.3	252	66.4	36.2	19.3	0	0	N.A.
2007	0	3.7	14	0	0	77.5	82.9	88.2	57.1	0	N.A.	N.A.	N.A.
2008	N.A.	N.A.	0	0	0	176.2	309.5	135.2	106.8	8.7	0	0	N.A.
2009	0	0	0.4	N.A.	N.A.	0	132.2	154.2	105.4	108.5	27.5	4.8	N.A.
2010	0.3	13.8	0	0	1.7	5.8	243.4	177	216	0	41.5	1	700.5

July

ENVIRONMENT MANAGEMENT PLANFOR KARRA CRUSHER STONE QUARRY

VILLAGE	KARRA
TEHSIL	DABRA
DISTRICT	GWALIOR
STATE	MADHYA PRADESH
MINERAL	GRANITE
KHASRA NO.	766
AREA	2.25 HECTARE

PROJECT PROPONENT

SHRI JITENDRA MORE

RESI – 556, C.P. COLONY, MURAR DISTRICT-GWALIOR (MADHYA PRADESH)

PREPARED BY

SWATI NAMDEO

Address- 200 A, Sector,
New Ashoka Garden Bhopal (MP)
Registration No rqp/dgmmp/011/2013,
Valid Up to 20/04/2023 Contact No. 9669198760

NAME & ADDRESS OF LESSE-

The lease was granted in favour of SHRI JITENDRA MORE. Over area of 2.25 Hectare in survey no. 766 for mining of KARRA CRUSHER STONE near Village-KARRA, Tehsil-DABRA, Dist.-GWALIOR, Madhya Pradesh through The Directorate Bhopal void Letter No. – 6108 Bhopal dated 28/01/2019.

The mining plan has been approved by Directorate of Geology and Mining, Regional Office, BHOPAL Madhya Pradesh vide letter no. 1034/2017-18 dated 26/6/2018 In revenue records lease area belongs to Revenue land. No forest land involved in this area.

Address of the Lessee

Name of Lessee : SHRI JITENDRA MORE

Address : 556, C.P. COLONY, MURAR

District : GWALIOR

State : Madhya Pradesh

SALIENT FEATURES OF THE PROJECT:

Particulars	Details
Name of the Project	KARRA STONE(GITTY)
	QUARRY
Mineral	GRANITE
Mining Lease area	2.25 HECTARE
Khasra Status of khasra	Govt. Land
land in revenue record	
Lease Period	10 Year
Production Capacity	24935 M ³ /Yr

Village	KARRA		
Tehsil	DABRA		
District	GWALIOR		
Project Cost	20 laces		
Man Power	25		
Water demand and Supply	4. KLD		
Nearest habitation /town	The nearest village is KARRA which is		
	about 0.500 KM from mine site.		
Nearest Airport	The nearest Airport is Gwalior 50 KM from mine site.		
Nearest Highway	Public Road, which is about 3.5 km (NH75) from mine site.		
Nearest Railway Station	The nearest Railway Station is DABRA which is about 5 KM from mine site.		

1. DETAILS OF THE AREA

The land covers under the mining lease area as under:

District & State	Tehsil	Village	Khasar No.	Area in Hectare	Type Of Land
GWALIOR Madhya Pradesh	DABRA	KARRA	766	2.25 HECTARE	Govt. Revenue land

Addressing the Bridge and population issue-

As the proposed quarry is a KARRA CRUSHER STONE Quarry and mining will be done by Semi Mechanized method, there will be no adverse impact on the surroundings of the quarry area. Further for the safety purpose a code of traffic will be maintained strictly and supervisors will be appointed to control the traffic while passing from the populated area. Transportation from the densely populated area will be avoided.

2. DETAILS OF MACHINE TO BE USED IN MINING OPERATION

The mining method will be done by Semi Mechanized method.

DETAILS OF MEASUREMENT OF QUARRY PIT EARLIER EXCAVATION IN THE AREA TO BE SANCTIONED AND DETAILS OF MINERAL CONCESSIONS SITUATED WITHIN 100 METER PERIPHERY OF THIS AREA

It is a fresh granted area.

3. SCHEME OF TREE PLANTATION

Plantation is proposed at the safety barrier in Zigzag and it is also recommended to lessee for plantation both side of the approach road and village area with tree guard as required. The Lessee will plant 30 local species per year.

Sr.	Common	No of	%	Area for
No.	Name	Plant/Year	Survival	Plantatio

1.	Neem	25	80%	On Safety
2.	Pipal	25		barrier
3.	Mango	15		
4.	Jamun	15		
5.	Karanj	20		
	TOTAL	100		

^{*}Apart from above, other species will also considered as recommended by the forest department will be planted and local authorities.

Post Plantation Care:

Following precaution to be undertaken for the survival of the plants:

The saplings will be undertaken for the survival of the plants. Healthy tree species will be recommends for plantation.

Every sapling will be covered by a tree guard to avoid damage through cattle grazing.

Necessary arrangement will be provided for watering tree species planted in different parts.

4. DETAILS AND APPROXIMATE DISTANCE OF NATIONAL PARK, SANCTUARY, BIODIVERSITY AREA, INTERSTATE BOUNDARY SITUATED WITHIN PERIPHERY OF 10 KM. FROM THE AREA TO BE SANCTIONED

Proposed project does not located in whole or in part within 10 km from the boundary of:

(Protected areas notified under the Wild Life (Protection) Act, 1972: No

National Park: No

Critically polluted areas as notified by the Central Pollution Control Board from time to time: No

Notified Eco-sensitive areas: No

Inter-state boundaries and international boundaries: No.

5. PROPOSED ANNUAL PRODUCTION OF MINERAL

The yearly proposed production of the quarry is $24,935 \, M^3$.

6.EFFECT ON GROUND WATER LEVEL DUE TO MINING OPERATION AND ITS PREVENTIVE MEASURES

The KARRA CRUSHER STONE query activity is carried out during the dry season when there is no water in the lease area. Hence, water quality impacts are not anticipated. The mining at 28 M depth will not intercept the groundwater table hence no impact on groundwater table is anticipated.

(i) Ground Water: The Minimum water level in the area is 40 m below the general ground level during the monsoon period the maximum water level is 50.00m below the general ground level during summer period seen in the well situated near the lease area. At the same time the maximum depth of working is 28 M including thickness of KARRA CRUSHER STONE (Sand stone) bed & 1m. murrum or the groundwater limit cross then mining will be stopped.

(ii) Water quality: The ground water available in the nearby well, bore-well etc. is of potable in nature and no adverse effect has been noticed in the past due to human consumption and in future also there will not be any change in quality due to future mining activity.

7.DETAILS OF SCHEME OF CONTINUOUS RECLAMATION AND REHABILITATION OF THE LAND DEGRADATION DUE TO MINING OPERATION

Environmental Management Plan is being made by considering implementation and monitoring the protection measure during and after the mining operation.

(i)Proposal for Reclamation of land affected by mining activities-during and at the end of mining:

Quarry operation in general has adverse environmental impacts if proper abatement measures are not taken. The magnitude and significance of the environmental pollution caused by quarry depends on type of mineral, method of quarry and beneficiation etc.

Reclamation and rehabilitation of mined out land are the most important post quarry activities. As a result of quarry operation the original ground profile will be obviously altered. The quarry lease area is having very less top soil and overburden. The quarry lease area is a gentle sloping undulated/flat. The reclamation and rehabilitation activity will be commence only after the optimum thickness Basalt, which is economically viable will be extracted. Prior to that whatsoever soil, waste or generated reject material, will be staked near the lease boundary, so that it can be used for reclamation purpose only. As proposed in quarry plan it will be used for future use only. Reclamation operation will be commenced after attaining the optimum depth in phased pattern from 2018 to onwards.

Reclamation and rehabilitation will be started at the end of mine life. The excavated pit will be converted as reservoir. The stacked soil will be spared around the proposed small reservoir for a forestation and development of garden etc. will be done for public use.

(ii) Dust Suppression:

The points of dust generation are:

- (i) Mining of KARRA CRUSHER STONE
- (ii) Loading of Stone
- (iii) Transportation of KARRA CRUSHER STONE.

Dust suppression of these points will be ensured by

To avoid the dust generation from the drilling operations, wet drilling method will be adopted.

Proper mitigation measures like water sprinkling will be adopted to control dust emissions.

Drill machines will be equipped with dust collectors. Dust mask will be provided to all workers.

Provision of dust filters/ mask to workers working at highly dust prone and affected areas.

Periodical monitoring of ambient air quality in and around the lease area.

Lying of haul road as per the standards Regular maintenance of haul road and service road to reduce air – borne dust.

Dense plantation being carried in and around the proposed mines will help in combating air pollution.

In case of long transportation the trucks after loading will be covered with tarpaulin sheets.

Speed of the vehicles will be maintained within the prescribed limits.

Trucks will not be over loaded and will be maintained to the optimum body level.

(iii) Measures to minimize vibrations due to blasting and check noise pollution:

- 1. There is no requirement of blasting because it is KARRA CRUSHER stone mining.
- 2. All vehicles and drill machine has been maintained in good condition.
- 3. Plantation along statutory zone
- 4. Use of personal protective devices i.e. earmuffs and earplugs by workers, working in high noise areas.

(iv) Stabilization and vegetation of dump:

The quarry lease area is having very less top soil and overburden. The quarry lease area is a gentle sloping undulated/flat. The reclamation and rehabilitation activity will be commence only after the optimum thickness Basalt, which is economically viable will be extracted. Prior to that whatsoever soil, waste or generated reject material, will be staked near the lease boundary, so that it can be used for reclamation purpose only.

(v) Treatment and disposal of water from mine and beneficiation plan: No waste water will be generated.

(vi) Measures for minimizing adverse effects on the water regime:

The surface mining at 28 M. depth is not going to intercept the groundwater table hence no impact on groundwater table is anticipated.

(vii) A forestation of tailing ponds:

No effluent or water etc will be discharged from the mine. Therefore no tailing dam proposed for such a small quarry project.

(viii) A forestation Program:

The forestation is an effective measure to restore the environment and ecological balance in the area affected by mining. A forestation program will be carried out along the mining boundaries. It is proposed to plant 100 saplings of difference species in the area every year. About **500** saplings will be planted in the area in five years. About 1000 (Sq. M) additional area will be cover under plantation up to the mining plan period. Neem, gulmohar and other local species are to be planted.

(ix)Preparation of dumping ground for stacking toxic mineral substance:

No toxic mineral will be produced.

(x) Environment monitoring Cell:

The proposed mining operation is very small in nature and it is not possible to set up an environment cell.

(xi) Socio-economic Benefits arising out of Mining:

With the increase in mining activity over the past years in the mining belt, there has been a considerable change in the socio-economic status of the people around the mining zone. The following facts come after the survey of the area:

- a) Direct and indirect employment will be provided.
- B) More people will start opting for mining as a profession and migration to Towns in search of employment has been reduced.
- C) Public transport system will be improved tremendously.
- D) Living standard will be improved and most of the people using the modern life gadgets like TV, refrigerator, telephones, cars etc.
- E) In addition to the benefits to the local habitat mining will also contributed to the growth of govt. economic by way of royalty, sales tax, road tax, income tax, committee tax etc.

8.DETAILS OF PREVENTIVE AND CONTROL SCHEME OF AIR AND WATER POLLUTION

Negligible air pollution will be created and no water pollution will be happened as this mine will be above the ground water table and also not in the running water.

(i)Water Environment

There is no surface water or ground water body available in the lease area. There is no local Nalla from the lease area. No any Nalla or river is passing with in 1 km. radius of applied area. The water table is available within 40 to 50 meters from the surface level. During the summer water table goes below 40 meters and in the rainy season it comes within 35 meters. This is evident from the nearby well and also informed by village officials. The quarry operation which proposed, is mainly Semi mechanized in nature and does not including any polluting operation on the remarkable scale as it is very small operation. There will be no beneficiation process envisaged, so there is no question arise any toxic discharge or dump which contaminate the surface water or ground water bodies or any other things. However all the precaution will be observed to reduce the chances of any kind of contamination of the available water bodies, during the quarry operation.

Air Environment:

(a) **Noise**: The proposed method of mining is almost semi mechanized in nature. The noise level may not exceed the level of 75 dB. Sources of noise and ground vibration pollution:

- 1. Drilling
- 2. Movement of Vehicles

Measures to minimize vibrations due to blasting and check noise pollution:

- 1. All vehicles and drill machine has been maintained in good condition.
- 2. Plantation along statutory zone.

(b) Air: The points of dust generation are:

- 1. Mining of KARRA CRUSHER STONE
- 2. Loading of KARRA CRUSHER STONE
- 3. Transportation of KARRA CRUSHER STONE.

Dust suppression of these points will be ensured by

To avoid the dust generation from the drilling operations, wet drilling method will be adopted.

Proper mitigation measures like water sprinkling will be adopted to control dust emissions.

Drill machines will be equipped with dust collectors.

Dust mask will be provided to all workers.

Provision of dust filters/ mask to workers working at highly dust prone and affected areas.

Periodical monitoring of ambient air quality in and around the lease area.

Lying of haul road as per the standards Regular maintenance of haul road and service road to reduce air – borne dust. Dense plantation being carried in and around the proposed mines will help in combating air pollution.

In case of long transportation the trucks after loading will be covered with tarpaulin sheets.

Speed of the vehicles will be maintained within the prescribed limits.

Trucks will not be over loaded and will be maintained to the optimum body level.

(c) Climatic Condition: The climatic condition of the area is sub - tropical with the normal annual rainfall is 777.60 mm. The area receives maximum rainfall during south – west monsoon period i.e. June to September. About 90.5% of the annual rainfall received during monsoon season. Only 9.5% of the annual rainfall takes place between Octobers to May period., so it will not help any pollution making activities. The area involved in the proposed mining operation is too small compared to the regional extent; therefore, there will be hardly any impact on climate.

9.PROVISIONS FOR SEPARATE STACKING OF SURFACE SOIL EXCAVATED FROM MINING OPERATION AND IT'S UTILITY

During the five year of quarry very less Soil will be generated from the proposed pit and this quantity will be properly to be stored near the southern lease boundary separately for plantation purpose. The dumping site is shown in the Plate for the five years of quarry. For stabilization of the dump it is proposed to grow grass and plantation over the dump. About 50 nos. of sapling per year proposed for a forestation with proper fencing and watering in dry season.

10.DETAILS OF SOCIAL AND ECONOMIC UP GRADATION OF MINING EFFECTED AREA DUE TO PROPOSED PROJECT

Socio-economic Environment:

- (i) <u>Socio-demographic profile</u>: The local inhabitant is predominantly dependent on agriculture for their livelihood. The mining operation will provide employment for the local people. It will improve the living condition of the poor people. The mining will give positive impact on socio economic life of the people.
- (ii) Occupational Health and Safety: The health and safety of the workers will be the main priority and responsibility of the proponent. Safety measures will be provided to the workers.
- (iii) <u>Human Settlement</u>: Due to this proposed mining activities, possibility of migration of labor will be reduced from the surrounding areas. For this reason there will be increase in human settlement of the area. Due to increased revenue earning in the area there will be development of infrastructure facilities such as transport, road, housing, schooling as well as hospital etc.

(iv) <u>Recreation Facilities</u>: Due to improved earning there will be improvement in entertainment facilities and marketing facilities.

(v)Impact of Mining and Beneficiation on environment: Mining operation is small in nature and open cast method does not effect on the environment on remarkable scale.

11. ENVIRONMENTAL MANAGEMENT IMPLEMENTATION BUDGET: PROPOSED ANNUAL COST FOR EMP

S. no.	Particulars	Amount per year
1	Tree plantation(including post	Rs. 50,000/
	plantation care, protection)	
2	Pollution Control (Water Spray ,etc)	Rs. 10,000/
3	Monitoring	Rs.20,000/
4	Approach Road Maintenance (150 M)	Rs. 20,000/
	TOTAL	Rs. 1,00,000/

PROPOSED ANNUAL COST FOR CSR/ESR

S, No.	Particulars	Amount Per year
		(in thousands)
1.	Water facility for villager	Rs. 10,000/
2.	Contribution for social welfare for	Rs. 20,000/
	villager	
3.	Contribution for school maintenance &	Rs. 10,000/
	other facilities	
4.	Contribution for the compensation to	Rs. 10,000/
	the victims of natural disaster	
	Total	Rs. 50,000/

PROPOSED ANNUAL COST FOR LABOUR WELFARE

Sr. No.	Particulars	Amount Per Year
1.	Drinking Water Facility	Rs. 10,000/
2.	2 Unit Toilet (Separate for male and Female)	Rs. 20,000/
3.	Medical Facility	Rs. 10,000/
4.	Temporary rest Shelter	Rs. 10,000/
5.	Donation For labour Child Education	Rs. 10,000/
	Total	Rs. 60,000/

12. ANY OTHER DETAILS DESIRED TO BE SUBMITTED BY MINERAL CONCESSION HOLDER:

All information regarding EMP has been mentioned above point. Other information is given in Form-1, PFR & Mining plan.

FORM 1

(I) Basic Information

(1)	Dasic information	.
Sr. No.	Item	Details
1.	Name of the project	Environmental Clearance for KARRA Crusher Stone Quarry Deposit
2.	Sr. No. in the Schedule	1(a) i
3.	Proposed capacity/area/length/tonnage to be handles / command area/lease	Lease Period-10 years, Lease area -2.25 Ha., Proposed Capacity-24935 M³/Year.
	area/number of wells to be drilled	
4.	New/Expansion/Modernization	New
5.	Existing Capacity/ Area	none
6	Category of project A or B	В
7.	Does it attract the general condition? If Yes please specify	does not comes under the 10 km radius of National Park, wild life sanctuary & Reserve biosphere zone.
8	Does it attract the specific condition? If Yes please specify	No specific condition is attracted
9.	Location Plot/survey/Khasar no Village Tehsil District State	Lease area is located in GWALIOR district 766 KARRA DABRA GWALIOR M.P.
10.	Nearest railway station/airport along with distance in km	Railway station – DABRA 5 km away
11	Nearest Town City District Headquarter	Nearest Town, city, District, village KARRA-0.500 km
12	Village Panchayat/Zila Parisad/Municipal Corporation/local Body	Village Panchayats- KARRA
13	Name of the Applicant	SHRI JITENDRA MORE
14	Registered add	556, C.P.COLONY, MURAR, GWALIOR (M.P.)
15	Add for correspondence	SURVEY NO 766, KARRAR, DABRA, GWALIOR
	Pin Code	475110, GWALIOR DABRA Madhya Pradesh
	Name	SHRI JITENDRA MORE
	Designation (Owner/partner/CEO)	OWNER
	Address	556, C.P.COLONY, MURAR, GWALIOR (M.P.)
	Pin Code	475110
	E Mail	Sanjeevgsm123@gmail.com
	Telephone No	9644010477
	Fax No	-

16	Details of alternative site examined, if any, Location of these sites should be shown on a Toposheet	Village District State Nil Nil Nil
17	Interlinked Project	No any
18	Whether separate application of interlinked project has been submitted	Not required
19	If Yes date of submission	Not required
20	If no reason	No any
21	Whether the proposal involves approval/clearance under, if yes details of the same a. The forest conservation act 1980 b. The wildlife protection act 1972 c. The CRZ notification 1991	No, any approval required under the forest act 1980, wildlife protection act 1972 and the CRZ notification 1991
22	Whether there is any Govt. order/Policy relevant/relating to the site	There is no objection from any government policy
23	Forest land involved	No, This is a non forest Pvt. waste land
24	Whether there is any litigation pending against the project and/or land in which the project is propose to be set up Name of court a. Case No b. Order/direction of the court, if any and its relevance with the proposed project	No litigation is pending against the project

(II) Activity

1. Construction, operation or decommissioning of the Project involving actions, which will cause

Physical changes in the locality (topography, land use, changes in water bodies, etc.)

S. No.	Information/Checklist confirmation	Yes/N o	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
1.1	Permanent or temporary change in land use, land cover or topography including increase in intensity of land use (with respect to local land use plan)		Area permanently changed due to opencast Mining operation. Land use is mentioned in Approved mine plain.
1.2	Clearance of existing land,	No	This is non agriculture barren land

	vegetation and buildings?		and there is no vegetation
1.3	Creation of new land uses?	Yes	Proposed lease land will be uses for mining activities
1.4	Pre-construction investigations e.g. bore houses, soil testing?	No	Not required
1.5	Construction works?	No	Not required
1.6	Demolition works?	No	Not required
1.7	Temporary sites used for construction works or housing of construction workers?	No	Not required
1.8	Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations	No	Not required
1.9	Underground works including or tunneling?	No	Not required
1.10	Reclamation works?	No	Not required
	Dredging?	No	Not required
1.12	Offshore structures?	No	Not required
1.13	Production and manufacturing processes?	Yes	Mining will be done by semi mechanized Method
1.14	Facilities for storage of goods or materials?	No	Excavated Stone will be stored in designated non-mineralized areas within ML area.
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?	No	Not required
1.16	Facilities for long term housing of operational workers?	No	Not required
1.17	New road, rail or sea traffic during construction or operation?	No	Not required
1.18	New road, rail, air waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc?	No	Not required
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	No	Not required
1.20	New or diverted transmission lines or	No	Not required

pipelines?			
other change hydrology of or aquifers?	ealignment or ges to the of watercourses	No	Not required
1.22 Stream crossin		No	Not required
1.23 Abstraction of water form graduaters?	or transfers of ound or surface	Yes	The total water requirement will be about 5 KLD. This will be supplied through private water tankers from nearby open bore bells.
	vater bodies or rface affecting n-off?	No	Not required
1.25 Transport of materials for operation decommission	construction, or	No	Not required
1.26 Long-term of decommission restoration wo		No	Not required
decommission have an im environment?	tivity during ing which could npact on the	No	Not required
	le to an area in nporarily or	No	Not required
1.29 Introduction species?	of alien	No	Not required
1.30 Loss of nat genetic divers	sity?	No	Not required
1.31 Any other act	ions?	No	Not required

2. Use of Natural resources for construction or operation of the Project (such as land, water, materials or energy, especially any resources which are non-renewable or in short supply):

S. No.	Information/checklist confirmation	Yes/N o	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
2.1	Land especially undeveloped or agricultural land (ha)	Yes	This is Government waste land (non agriculture land)
2.2	Water (expected source & competing users) unit: KLD	Yes	Total water requirement of the mining Operation including dust suppression will be about 5 KLD.

2.3	Minerals (MT)	Yes	Water demand can be met through private sources - nearby bore bell Proposed Capacity- 24935 M³/Year.
2.4	Construction material – stone, aggregates, sand / soil (expected source – MT)	No	Not required
2.5	Forests and timber (source – MT)	No	Not required
2.6	Energy including electricity and fuels (source, competing users) Unit: fuel (MT), energy (MW)	No	Not required
2.7	Any other natural resources (use appropriate standard units)	No	Not required

3. Use, storage, transport, handling or production of substances or materials, which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health.

S. No.	Information/Checklist confirmation	Yes/N o	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
	Use of substances or materials, which are hazardous (as per MSIHC rules) to human health or the environment (flora, fauna, and water supplies)		Manual methods will be used for mining, there are no use of hazardous materials in mining operation, local environment would not be affected by operational activity
	Changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)	No	No changes is envisaged
1	Affect the welfare of people e.g. by changing living	Yes	It will generate employment for local people/dwellers improving their

	conditions?		financial Condition.
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the elderly etc.,		No effect is envisaged
3.5	Any other causes	No	No any

4. Production of solid wastes during construction or operation or decommissioning (MT/month) $\,$

S. No.	Information/Checklist confirmation	Yes/N o	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
4.1	Spoil, overburden or mine wastes	No	No any
4.2	Municipal waste (domestic and or commercial wastes)	No	No any
4.3	Hazardous wastes (as per Hazardous Waste Management Rules)	No	No any
4.4	Other industrial process wastes	No	No any
4.5	Surplus product	No	No any
4.6	Sewage sludge or other sludge from effluent treatment	No	No any
4.7	Construction or demolition wastes	No	No any
4.8	Redundant machinery or equipment	No	No any
4.9	Contaminated soils or other materials	No	No any
4.10	Agricultural wastes	No	No any
4.11	Other solid wastes	No	No any

5. Release of pollutants or any hazardous, toxic or noxious substances to air (Kg/hr)

S. No.	Information/Checklist confirmation	Yes/N o	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
5.1	Emissions from combustion of fossil fuels from stationary or mobile sources		Emission of particulates, SO2, NOx as Exhaust emissions from vehicles deployed during the operational phases
5.2	Emissions from	Yes	Mining process involves fugitive

	production processes		emission during excavation, materials handling, transportation and storage, which will give rise to dust generation. Adequate control Measures will be adopted for it.
5.3	Emissions from materials handling including storage or transport	Yes	Emissions of particulate matters SO2, NOx and CO are envisaged due to vehicular movements
5.4	Emissions from construction activities including plant and equipment	Yes	Dust and vehicular emissions. However, they are localized only
5.5	Dust or odours from handling of materials including construction materials, sewage and waste	Yes	Dust will be generated during transportation of Sand. There is no possibility of any odours generation
5.6	Emissions from incineration of waste	No	No any
5.7	Emissions from burning of waste in open air (e.g. slash materials, construction debris)	No	No any
5.8	Emissions from any other sources	No	No any

6.0 Generation of Noise and Vibration, and Emissions of Light and Heat:

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data with source of information data
6.1	From operation of equipment e.g. engines, ventilation plant, crushers	No	Little noise will be generated during mining operation and vehicular activities.
6.2	From industrial or similar processes	No	No any
6.3	From construction or demolition	No	No any
6.4	From blasting or piling	No	No any
6.5	From construction or operational traffic	Yes	Noise generation is envisaged from mining activities during operational traffic.
6.6	From lighting or cooling systems	No	No any
6.7	From any other sources	No	No any

7. Risks of contamination of land or water from releases of pollutants into the ground or into sewers, surface waters, groundwater, coastal waters or the sea:

S. No.	Information/Checklist confirmation	Yes/N o	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
7.1	From handling, storage, use or spillage of hazardous materials	No	No hazardous material storage or handling is envisaged
7.2	From discharge of sewage or other effluents to water or the land (expected mode and place of discharge)	No	No waste water generation is envisaged
7.3	By deposition of pollutants emitted to air into the land or into water	No	No impact on air is envisaged. However, dust will be controlled by utilization of appropriate control measures like dust suppression by sprinkling of water etc.
7.4	From any other sources	No	No any
7.5	Is there a risk of long term build up of pollutants in the environment from these sources?	No	No any

8. Risk of accidents during construction or operation of the Project, which could affect human health or the environment:

S. No.	Information/Checklist confirmation	Yes/N o	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous substances	No	No any
8.2	From any other causes	No	No any
8.3	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, cloudburst etc)?	No	No any

9. Factors which should be considered (such as consequential development) which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality:

S. No.	Information/Checklist confirmation	Yes/N o	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
9.1	Lead to development of supporting. utilities, ancillary development or development stimulated by the project which could have impact on the environment e.g.: Supporting infrastructure (roads, power supply, waste or waste water treatment, etc.) housing development extractive industries supply industries other	No	No environmental ill effects are envisaged.
9.2	Lead to after-use of the site, which could have an impact on the environment	No	No any
9.3	Set a precedent for later developments	No	No any
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects	No	No any

(III) Environmental Sensitivity

S. No.	Areas	1	Aerial distance (within 15 km.) Proposed project location boundary
1	Areas protected under international conventions, national or local legislation for their ecological,	No	No any

	landscape, cultural or other related value		
2	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests		No any
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration		No any
4	Inland, coastal, marine or underground waters	No	No any
5	State, National boundaries	No	No any
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas		No any
7	Defense installations	No	No any
8	Densely populated or built- up area	No	Village - Karra Tehsil-Dabra DistGwalior(M.P.)
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	No	No any
10	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)		No any
11	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)		No any
12	Areas susceptible to natural hazard which could cause the project to present environmental problems earthquakes, subsidence, landslides,	No	No any

erosion,	floodi	ng (or
extreme	or	advers	se
climatic co	nditions)	

I hereby given undertaking that the data and information given in the application and enclosures are true to best of my knowledge and behalf and I am aware that if any part of data and information submitted is found to be false or misleading at any stage the project will be rejected and clearance given, if any to the project will be revoked at our risk and cost

SHRI JITENDRA MORE

RESI- VILL - KARRA TEHSIL DABRA
DISTRICT- GWALIOR (M.P.)
Signature of
applicant with name & Full address
(Project Proponent/ Authorized Signatory)

Date

कार्यालय क्षेत्रीय प्रमुख संचालनालय भौनिकी तथा खनिकर्म क्षेत्रीय कार्यालय, मोतीमहल, ग्वालियर म.प्र. दरभाष एवं फैक्स 0751,2452350 एवं 468425 ईमेलः ihdgmgwz@mp.gov.in

दूरभाष एवं फैक्स 0751.2452350 एवं 4067425 ईमेला indgmgwz@mp.gov.in ग्वालियर, दिनांक 28.-€-18 क्रमांक - 103 4 माइनिंग प्लान सेल / न.क. 1/2017-18 प्रति. विषय:-जिला - क्रिंग तहसीलं - दुवरो ग्राम - क्रिंग ------- के खनरा नं. <u>766</u> रकवा <u>2.250</u> है। क्षेत्र पर परणर (केजार जिली) खदान हेतु प्रस्तुत माइनिंग प्लान अनुमोदन बाबत्। सन्दर्भ :- आपका पत्र दिनांक 14:06: 2018 **उपरोक्त विषयान्तर्गत प्रस्तुत विषयांकित माइनिंग प्लान को म.प्र. गौण खनिज नियम 1996** के नियम 42 में प्रदत्त शक्तियों के अधीन अनुमोदित किया जाता है। उदत अनुमोदन इस शर्त पर किया जाता है कि आवेदक म.प. गौण खनिज नियन 1996 के प्रावधानों का पालन करेगा। संलग्न – उपरोक्तानुसार (दो प्रतियां मानचित्रां सहित)

क्रमांक -___/माइनिंग प्लान सेल /नंक. 1/2017-18 व्यातियर दिनांक

प्रतिलिपि— कलेक्टर (खनिंज शांखा). जिला — जिला मिर् मिर्म की ओर आवश्यक कार्यवाही हेतु अनुमोदित माइनिंग प्लान की प्रति मानचित्रों सहित संलग्न प्रेहित है।

क्षेत्रीय प्रमुख

कार्यालय संचालक भौमिकी तथा खनिकर्म मध्यप्रदेश

29-ए. ''खनिज भवन'', अरेरा हिल्स, भोपाल फोन एवं फैक्स : 0755-2551795 E-mail: dirgeomn@mp.nic.in

-: आदेश :-

भोपाल, दिनांक

/खनिज/विविध/न.क्र.260/2018, कलेक्टर ग्वालियर द्वारा ग्राम कर्रा क्रमांक के खसरा क्रमांक 766 के रकबा 4.000 हेक्टेयर क्षेत्र पर क्रशर आधारित पत्थर खनिज का उत्खनिपट्टा स्वीकृति हेतु प्रस्तुत आवेदन पत्र को मय सहपत्रों के अग्रेषित किया गया है। संचालनालय के आदेश के विरुद्ध आवेदक द्वारा राज्य शासन के समक्ष पुनरीक्षण अपील प्रस्तुत की गई। जिसमें राज्य शासन द्वारा आदेश दिनांक 29.12.2017 से संचालनालय के आदेश दिनांक 26.12.2016 को अपास्त करते हुए प्रकरण इस निर्देश के साथ प्रत्यावर्तित किया गया कि उपलब्ध ग्रेनाईट कटिंग/पालिशिंग कर ग्रेनाईट के रूप में विक्रय योग्य है या नहीं, का परीक्षण किया जाए। राज्य शासन के आदेश के पालन में क्षेत्रीय प्रमुख ज्वालियर से स्थल जांच कराई जाकर आवेदक के पक्ष में खसरा क्रमांक 766 के उपलब्ध रकवा 2.250 हेक्ट्रेयर क्षेत्र पर कार्यालयीन आदेश क्रमांक ७६१६-१८ दिनांक ०२.०५.२०१८ से सैन्द्रांतिक स्वीकृति जारी की गई १०१६-18 दिनांक ०२.०

अतः कलेक्टर से प्राप्त प्रतिवेदन एवं उपलब्ध कराये गये अभिलेखों के आधार पर आवेदक के पक्ष में निम्नांकित विवरण/शर्त अनुसार उत्खिनपट्टा स्वीकृत किया जाता

श्री जितेन्द्र मोरे, 1. आवेदक का नाम : आत्मज श्री चतुर्भुज मोरे,

द्वारा श्री संजीव कौशिक निवासी 556, सी.पी. कालोनी,

मुरार, जिला ग्वालियर (मध्यप्रदेश)

स्वीकृत क्षेत्र का विवरण : ग्राम- करी खसरा क्रमांक-766 रकबा- 2.250 हेक्टेयर (संलग्न मानचित्र अनुसार) खनिज- क्रशर आधारित पत्थर अवधि- 10 वर्ष

अनुबंध निष्पादन के पूर्व आवेदक के विरुद्ध खनिज राजस्व बकाया नहीं होना सुनिश्चित करते हुए, वन संरक्षण अधिनियम, 1980 के प्रावधानों का पालन भी सुनिश्चित किया जाये। अनुबंध निष्पादन के पश्चात खनन संक्रिया प्रारंभ किये जाने के पूर्व नियमानुसार पर्यावरण स्वीकृति प्राप्त किया जाना अनिवार्य होगा।

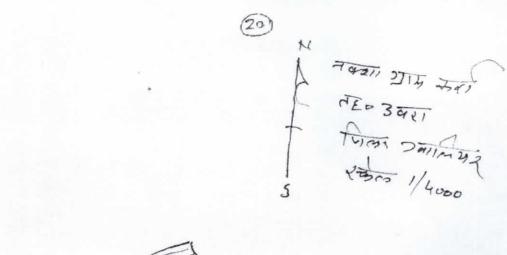
यदि आवेदक को शर्ते मान्य हो तो नियमानुसार अनुबंध का निष्पादन एवं पंजीयन नियमों में निर्धारित समय सीमा के अंदर पूर्ण कराये जाने की कार्यवाही कराई

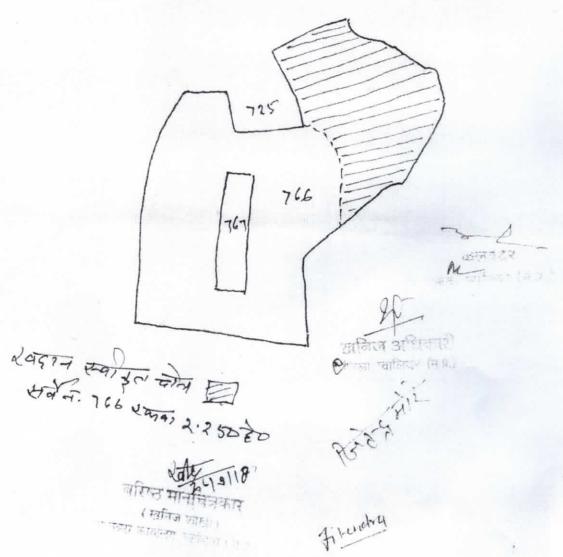
13306-307

/खनिज/विविध/न.क्र.260/2015, भोपाल, दिनांक 27 /7 /18 प्0क्रमांक प्रतिलिपि :-

कलेक्टर (खनिज शाखा) जिला ग्वालियर की ओर प्रकरण से संबंधित मूल अभिलेख संलग्न करते हुए आवश्यक कार्यवाही हेतु प्रेषित।

श्री जितेन्द्र मोरे आत्मज श्री चतुर्भुज मोरे द्वारा श्री संजीव कौशिक निवासी ५५६, सी.पी. कालोनी, मुरार, जिला ग्वालियर (मध्यप्रदेश) की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।





Madhya Pradesh 👺 मध्य प्रदेश कम्प्यूटरीकृत भू-अभिलेख

फार्म पी -11

भूमि का ब्यौरा हेक्टेयर में एवं करों का ब्यौरा रूपये पैसों में

खसरा

ग्रा	ग्रामः कर्रा हल्का : कर्रा रा.नि.म. : डवरा त		तहसील : डबरा जिला : ग्वालिय		। : ग्वालिय	₹	वर्ष: 2018-2019				
			किसी भूमिस्वामी			खाते क	ी भूमि	Name of the last o			
			या पट्टेदार का या किसी मौरूसी	क्षेत्रफल जिस	मे वर्ष के दौर उगाई गई	ान में फसल	Ţ	इती का क्षेत्रप	ल्ल		. 1
क्रमांक	क्षेत्रफल (और यदि भूमि खातो में सम्मिलित न हो तो उसका वर्णन)	कब्जेदार का नाम, उसके पिता का या पित का नाम तथा निवास स्थान, अधिकार जिसके अन्तर्गत भूमि धारण की गई हो और देय राजस्व का लगान	काश्तकार के उप पहेदार का नाम, पिता का नाम, लगान या पटटे की रकम ओर उप-पट्टे पर दिए गये भाग का क्षेत्रफल	फसल का नाम	क्षेत्रफल	दुफसली क्षेत्रफल	चालू वर्ष की पड़ती	2 से 5 वर्ष तक की पड़ती	अन्य पड़ती अर्थात्-ऽ वर्ष से अधिक	खातें के बहर के क्षेत्रों में बोई गई फसल का नामातथा क्षेत्रफल	a de la constant de l
1	2	3	4	V65 (6	7	8 4	(5)	U FO	11	12
66	6.6400पहाड 6.6400	(शासकीय)	Mc	Ut	1	9	1783		10	1.1	12

नोट:-

1. यह प्रपत्र केवल प्रार्थी की जानकारी के लिये हैं।

2. इसका उपयोग किसी भी न्यायालय में साक्ष्य के रूप में नहीं किया जा सकता है।

3. डिजिटली साइंड कॉपी के लिए आई. टी. सेंटर से अथवा ऑनलाइन आवेदन करें।

4 प्रविष्टियों में सुधार संशोधन हेतु संबंधित जिला तह सील कार्यालय में संपर्क करें। pendim

कार्यालय वन मण्डलाधिकारी, सामान्य वनमण्डल ग्वालियर (म०प्र०)

सेन्ट्रल नर्सरी, केप्टन रूप सिंह स्टेडियम के पास. सिटी सेन्टर, ग्वालियर (म०प्र०) Phone : 0751-2341166, Fax : 0751-2341166, E-Mail : dfotgwa@mp.gov.in

कमांक / मा.चि. / प्रति.

दिनांक / /2018

कलेक्टर जिला ग्वालियर

विषय-ग्राम कर्रा तहसील डबरा के सर्वे कमांक 766 रकवा 2.250 हेक्टेयर क्षेत्र पर गौंण खनिज की खदानों में पर्यावरणीय सम्मति प्राप्त करने हेतु निर्धारित परिशिष्ट-1 के बिन्दु कमांक 1, 2, 3, 4 बिन्दुओं का जांच प्रतिवेदन भेजने बावत।

संदर्भ—1—4000 शासन खनिज साधन विभाग मंत्रालय के पत्र कं. 5563—64/1753/2012 दि. 10.10.12 2—खनिज अधिकारी ग्वालियर का पत्र कं. क्यू/3/मा.रा./क्यूएल.—21/2005/5753 दिनांक 12.09.2018

3-उप वनमण्डलाधिकारी ग्वालियर का पत्र कमांक 2382 दिनांक 01.10.2018

विषयांकित प्रकरण में संदर्भित पत्र के द्वारा ग्राम कर्रा तहसील डबरा के सर्वे कमांक 766 रकवा 2.250 हेक्टेयर क्षेत्र पर आवेदक श्री जितेन्द्र मौरे द्वारा श्री संजीव कौशिक ठाटीपुर ग्वालियर द्वारा काला पत्थर (केशर आधारित) खदान उत्खिन पटटा हेतु गौंण खिनज की खदानों में (SEIAA) पर्यावरणीय सम्मित प्राप्त करने हेतु निर्धारित परिशिष्ट—1 के बिन्दु कमांक 1, 2, 3, 4 के संबंध में इस कार्यालय से अभिमत चाहा गया है। प्राप्त पत्र उल्लेखित क्षेत्र की स्थल जांच कराने हेतु वन परिक्षेत्राधिकारी ग्वालियर एवं उप वनमण्डलाधिकारी ग्वालियर को कार्यालयीन पत्र कमांक 8063—64 दिनांक 22.09.2018 से लेख किया गया। जिसके परिपेक्ष्य में उप वनमण्डलाधिकारी ग्वालियर ने अपने पत्र कमांक 2382 दिनांक 01.10.2018 से स्थल जांच प्रतिवेदन निम्नानुसार प्रस्तुत किया गया है:—

 कं0
 निर्धारित बिन्दु
 हॉ / नही
 रिमार्क

 1
 क्या 10 कि0मी0 की परिधि में कोई नेशनल पार्क स्थिति है
 नही

 2
 क्या 10 कि0मी0 की परिधि में कोई अभयारण्य स्थिति है
 नही

 3
 क्या 10 कि0मी0 की परिधि में कोई घोषित जैव विविधता क्षेत्र स्थित है
 नही

 4
 न्या 250 मीटर की परिधि में कोई वन क्षेत्र स्थित है।
 नही

उपरोक्तानुसार प्रस्तावित क्षेत्र के जी.पी.एस. की सहायता से कोर्डिनेट लिये गये जो निम्नानुसार है :- 1-N-25°.52' 06.89" E-78°.22' 06.52" 2-N-25°.52' 08.28" E-78°.22' 08.41" 3- N-25°.52' 07.94" E-78°.22' 12.63" 4-N-25°.52' 04.51" E-78°.22' 12.82" 5- N-25°.52' 03.14" E-78°.22' 10.31" 6-N-25°.52' 03.12" E-78°.22' 08.81" 7-N-25°.52' 04.47" E-78°.22' 08.28" 8-N-56°.52' 04.47" E-78°.22' 06.42"

उक्त सर्वे नम्बर की परिशिष्ट-1 के बिन्दु कमांक 01 से 04 तक पर्यावरणीय अनुमित में लिये मापदण्ड से संबंधित निर्धारित बिन्दुओं की जानकारी अवलोकनार्थ एवं आवश्यक कार्यवाही हेतु संलग्न प्रेषित है। संलग्न-उपरोक्तानुसार

वन संरक्षेक सामान्य वनमण्डल ग्वालियर दिनांक 3///1/2018

पृ० कमांक/मा.चि./ 1074 <u>2</u> प्रतिलिपि-

्र—खनिज अधिकारी जिला ग्वालियर की ओर आपके पत्र कमांक क्यू/3/मा.रा./क्यू.एल.-21/2005/5753 दिनांक 12.09.2018 के संदर्भ में सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

2-उप वनमण्डलाधिकारी ग्वालियर की ओर आपके पत्र कमांक 2382 दिनांक 01.10.2018 के संदर्भ में सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

3- आवेदक श्री जितेन्द्र मौरे द्वारा श्री संजीव कौशिक निवासी ठाटीपुर ग्वालियर की ओर सूचनार्थ प्रेषित। संलग्न-उपरोक्तानुसार

सामान्य वनमण्डल ग्वालियर

Jat 2 18

E:\khanij sakha khadan doc

- 855 -

मांक			दिनांकं/ 2018
ते,			
	1. कलेक्टर 2. सदस्य सचिव		
	जिला • SEIAA पर्यावरण परिसर ई–5, अरोरा कॉलोनी, भोपाल		
षथ	- 05 हैक्टेयर से कम खनिज उत्खनन की पूर्व पर्याव	रण अन्	ुमति के लिये परिशिष्ट—1 में बिन
	क्रमांक 1 से 4 के सत्यापन बावत्।		
पर्भ	000		Marine Marine and the
	उपरोक्त विषयांतर्गत आवेदक श्री जितेन्द्र म	ोरे दा	रा श्री संजीव कौशिक ठाउँ
	उपराक्त विषयातगत आविष्य श्री जिस प्र	anta l	(के क्रेस में) कल रकवा 2 250 है
जेल	ग्वालियर के द्वारा खनिज—काला पत्थर केशर आधारित क्षे	त्रफल	(हिपटपर न) जुल रचना रे.200 ल
म	ईनिंग के लिये लीज अवधि –तक खसरा 766 ग्राम कर	तहसा	ल- डबरा जिला-वालयर हतु
र्याव	रण अनुमति के लिये परिशिष्ट-1 में बिन्दु कमांक 1 से 4 तव	क की ज	नानकारी निम्नानुसार ह :-
₽.	निर्धारित बिन्दु	हा /	जानकारी विवरण (यदि है है) सम्पूर्ण विवरण दें)
	क्या 10 कि0मी0 की परिधि में कोई नेशनल पार्क स्थित	नहीं	90
	₹ ?		उप वन मण्डलाधिकारी उप वन मण्डल ग्वालियर
	A G OO V VI Pure \$ 2	नहीं	04 411
!	वया 10 कि0मी0 की परिधि में कोई अभ्यारण्य स्थित है ?	7161	- American
		1	छपं वन मण्डलाधिकारी छपं वन मण्डल गालियर
		C. Barraia	194 41. ()
	क्या 10 कि0मी0 की परिधि में कोई घोषित जैव विविधता	नही	
3	क्षेत्र स्थित है ?		हरा यन मण्डलाधिकारी
	The second second second second second second	Care I	जप वन मण्डले ग्वालियर
4	वया 250 भीटर की परिधि में कोई वनक्षेत्र स्थित है।	नहीं	K COLON
	(यदि हों तो दिनांक 07.10.2002 से 29.8.2008 तक स्वीकृत		स्य यन मण्डलाधिकारी स्य यन मण्डल ग्यालियर
	माईनिंग लीज के लिये संबंधित जिला पंचायत से अनापत्ति प्रमाण-पत्र एवं 29.8.2008 के बाद वाली माईनिंग लीज के		चित्र अन्य नान्तरा
	लिये प्रमुख सचिव वन की अध्यक्षता में गठित समिति से	图第.	
	अनापत्ति प्रमाण पत्र संलग्न करें)		(h
			(हुस्त्यूध्र्यम्प्रस्तिकोत्तरो उपन्म अधिकारी
			लय वन मण्डल ग्वालियर
		· ·	लाधिकारी/अनुविभागीय अधिकार
		वनमण्ड	वन परिक्षेत्राधिकारी
			दिनांक
	तेलिपि :- आवेदक		
NI	The state of the s		वन अधिकारी
		(वनमण्ड	लाधिकारी/अनुविभागीय आधका वन परिक्षेत्राधिकारी
NII	The state of the s	(वनमण्ड	लाधिकारी / अनुविमागीय अधि

khan-D-Data-2018/SDO Gwalior/4 Bindu ki jankari Prapter

न्मार्यालय नह्सीलपार तहसील डकरा 201/201/8/11//140/18 81/31/9 6/10/18 प्रति! ट्राम्बर्ट किसा जयाविया (स्विति छशाहवा) सन्दर्भ: 05-1425/ मार्या) कर्य एक-21/2005/5754/ Anis 12/9/18 उपरान्त किष्याकारत विषेत्र है कि क्षापक हिए ज्यान करी तहसील डक्य किला ज्या किश्र की व्यासकीय क्रिक निर्क निर्व निर्व निर्व के देनावा र 250 देन कोत्त की खेंबंदर प्राच्य कर छतिबंदन याद गरा ही इतर्वेंबंदर केर कार हर का परवास है भाग मिलेंपक लिक गर् हतका प्रयाह द्वाय उत्लेखिन ०५ वागयन १५ विन्द्रश्त पर अमार्थकर का अतिवेदन केंग्रेन किरि प्राथिताहर अध्य किया ही अविवेद्ध अध्य कार्य महिन्द्र मिका है। सर्कार्काकारवार अविका @ Signon **२ व्यक्त**य

कार्यालय उपखण्ड मजिस्ट्रेट/तहसीलदार, जिला जिला

≖मांक−

दिनांवः / /

चित

कलेक्टर जिला

2.

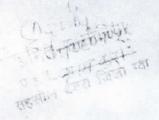
सदस्य सचिव पर्यावरण परिसर ई– 5, अरेरा कॉलोनी भोपाल

विषय:— 5 हैक्टेयर से कम खनिज उत्खनन की पूर्व पर्यावरण अनुमति के लिये परिशिष्ट—1 बिन्दु कमांक 5 से 15 के सत्यापन बावत्।

उपरोक्त विषयान्तर्गत श्री/मैसर्स होते होशि कालाप्यर खिनज क्षेत्रफल हिन्देयर में) 2:25 में माईनिंग के लिये लीज अविध खसरा कमांक 766 ग्राम करी वहसील उसरा जिला जालियर हेतु पूर्व पर्यावरण अनुमित के लिये परिशिष्ट –1 में बिन्दु कमांक 5 से 15 तक की जानकारी निम्नानुसार है:-

Φ.	निर्धारित बिन्दु	हॉ /	ं जनकारी विवरण
		नह	(यदि हाँ है तो सम्पूर्ण विवरण दे) ग्रामकर कीआबारी 272 मीर दूरी परस्थि
5			MINORIS CAMPINIS TO ACCOUNT
6	क्या 500 मीटर की दूरी के अन्दर कोई जलीय निकाय स्थित है ?	otal"	
7	क्या 500 मीटर की दूरी के अन्दर कोई नदी स्थित है ?	नहीं	
8	क्या 500 मीटर की दूरी के अन्दर कोई शैक्षाणिक संस्थान स्थित है?	नहीं	
9	क्या 500 मीटर की दरी के अन्दर कोई चिकित्सालय स्थित है ?	त्रश	
10	क्या 500 सीटर की दरी के अन्दर कोई अतंराज्यीय सीमा है ?	नहीं	
11	क्या 500 मीटर की दूरी के अन्दर कोई राष्ट्रीय धरोहर /पुरातत्वीय		
	महत्व के स्थल स्थित है ?	-	
12	क्या 500 मीटर की दूरी के अन्दर कोई खदान स्थित है ? यदि हॉ	-181-	
-	तो उकका कुल क्षेत्रफल तथा खनिज का नाम	- 14.	
13	प्रस्तावित खनिज का अनुमानित उत्पादन		
14	नदी से रेत खनन के प्रकरण मे		
	(अ) नहीं किनारे से खनन परिसर की दूरी क्या है ?		
	(ब) नदी की कुल चौडाई का 1/5 भाग कितने मीटर		
	मे है ?		
15	क्या प्रस्तावित परियोजना के कारण महत्वपूर्ण जलागम (water	नहीं	-
	Intake) या जलबहाव क्षेत्र मे परिवर्तन होगा ? (यदि हाँ तो परिवर्तन	l'oic,	
	का विवरण दे)		

प्रतिलिपि-: आवेदक



हस्ताक्षर एवं सील उपखण्ड मिन्स्ट्रेट्य सक्सील्यार दिनांक स्टा इसटा (स्ताप्रत)

हस्ताक्षर एवं सील उपखण्ड मजिस्ट्रेट/तहसीलदार दिनांक

कार्यालय कलेक्टर (खनिज शाखा) जिला ग्वालियर

कमांक क्यू.एल-21/2005

ग्वालियर दिनांक 26/09/2018

//प्रमाण पत्र//

प्रमाणित किया जाता है कि पट्टेदार श्री जीतेन्द्र मोरे द्वारा श्री संजीव कौशिक निवासी—556 सी.पी कॉलोनी मुरार जिला ग्वालियर को ग्राम—कर्रा तहसील डबरा जिला ग्वालियर की शासकीय भूमि सर्वे कमांक 766 रकवा रकवा 2.250 हेक्टर क्षेत्र पर खनिज काला पत्थर (केशर आधारित) उत्खनिपट्टा 10 वर्ष हेतु स्वीकृत किया जा चुका है।

उक्त स्वीकृत खदान के 500 मीटर की परिधि में अन्य 01 खदाने स्वीकृत है जिसका रकवा 2•000 हैक्टर है।

> खनि अधिकारी वास्ते कलेक्टर जिला ग्वालियर

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सरपद

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PRE - FEASIBILITY REPORT

KARRA STONE (GITTY) QUARRY AREA OF -2.25 HACTARE

STRICTLY AS PER MOEF GUIDELINE DATE 30/12/2006 IN TERMS OF PROVISIONS OF EIA NOTIFICATION 2006

VILLAGE	KARRA
TEHSIL	DABRA
DISTRICT	GWALIOR
STATE	MADHYA PRADESH
MINERAL	GRANITE
KHASRA NO.	766

PROJECT PRAPONENT

SHRI JITENDRA MORE RESI- 556, C.P.COLONY, MURAR DISTRICT- GWALIOR (M.P.) This pre – feasibility report, report has been prepared as per guidelines OF MOEF and sample application available on website of the department of environment and forest. The contents of the report are geological, legal, operating, economic, social environmental and other relevant factors associate with the activities and are considered in sufficient details in representative forms. We have tried to provide necessary information that it could be reasonably serve as basic for the final decision by competent authority to issue environmental clearance to the proposed project.

EXECUTIVE SUMMARY

The proposed crusher stone quarry site is covering an area of 2.25 hect. At village- Karra, tehsil-Dabra, Dist. - Gwalior, M.P. lease area is well connected with village road 3.5-4 KM (NH75) and the lease area is 43 km from District Gwalior. HQ GWALIOR Nearest railway station GWALIOR is about 5 km by road from the site. The proposed excavation area is less that 25 hectare hence belonging to B2 category. the mining, plan has been approved by the regional head , geology and mining , GWALIOR, M.P. vide letter no. 264/2007 GWALIOR date 19/09/2013 the details of other area of excavation / quarry lease falling within a radius of 500 m are mentioned in EMP.

(I) SALIENT FEATURES OF THE PROJECT:

Particulars	Details
Name of project	KARRA CRUSHER STONE QUARRY
Village	KARRA
Tehsil	DABRA
District	GWALIOR
Quarry lease area	2.25 hectare
Khasra No.	766
Geographical coordinates	
Latitude	N 25° 52′ 33.31″
Longitude	E 78° 22′41.67″

River / Nalla	No major river/Nalla is located within the 500 m of lease area.
Forest (National park, Sanctuary, Bio Div.)	Mining area does not fall within 10 km. from boundary of national park, sanctuary, Bio diversity area.
Mineral	GRANITE
Land use	Govt. land
Lease Validity	10 Years
Production capacity	24935M ³ / year
Estimated project cost	Rs20 Laces
EMP cost	75,000/-
Man power	25 Skilled / Unskilled
Machinery	Jack Hammer drill , Dumper ,Crusher plant, truck etc.
Water requirement and supply	Drinking water 1.0 KLD plantation and environment management 4.0 KLD. Thus total 5 KLD water will be required and will be arrange from nearby village on personal basis.
Nearest habitation / town	KARRA – 0.500 KM.
Nearest dispensary	PHC – KARRA– 0.500 km , District Hospital –GWALIOR 43 km.
Nearest Airport	GWALIOR approx 50 km
Nearest Railway station	GWALIOR Railway station about 5 km.

2. GENERAL

.

The proposed stone quarry area is 2.25 hectares. Crusher Stone mining average capacity shall be $24935~M^3$ annually, mode of excavation will be opencast semi mechanized. Lease area / Status of land of lease area are Pvt. Revenue land .Mining project does not require any land acquisition nor raw material .

(I) <u>Identification of project and project proponent</u>

Name : KARRA CRUSHER STONE QUARRY

Location : VILLAGE KARRA, TEHSIL DABRA,

DISTRICT GWALIOR M. P.

Sanctioned Area : 2.25 Hectare Proposed Production : 24935 M³/Yr

Proposed depth of mining : 23 m

Address of proponent / Lessee:-

SHRI JITENDRA MORE

having resident at 556, C.P.Colony, Murar in tehsil Dabra district Gwalior.

(II) Brief Description of Nature of project

Area under consideration is fully exposed with horizontally sand stone strata and overburden up 0.5m to 0.75m depth. It is Govt. Revenue land, mining activity has to be done following all the security mechanized method.

Total available mineable reserve is 431996 M³ proposed excavation is to be done up to a depth of 28 m with 24935 M³ stone production annually.

As per MOEF notification no. om no. j -1312/12/2013 - IA -II (i) dated 24th December 2013. The project comes under B2 category.

Hence pre – feasibility report has been prepared for a final decision by competent authority to issue environmental clearance to the proposed project.

(III) Need for the project and its importance to the country and / or region:

Mineral Sand stone is most commonly used as building and road construction. The basic objective of the project is fulfillment of the demand of mineral in the region and effective utilization. Sand stone will be supply to nearby area to fulfill the local requirement. After fulfillment of local requirement it will sold in adjoining areas.

(IV) Demand - supply:

Mineral Sand stone is used as building and road material. Lot of development work like road and building are going on in the region .It has sufficient demand to sustain the supply of proposed mineral production.

(V) Import VS. Indigenous production:

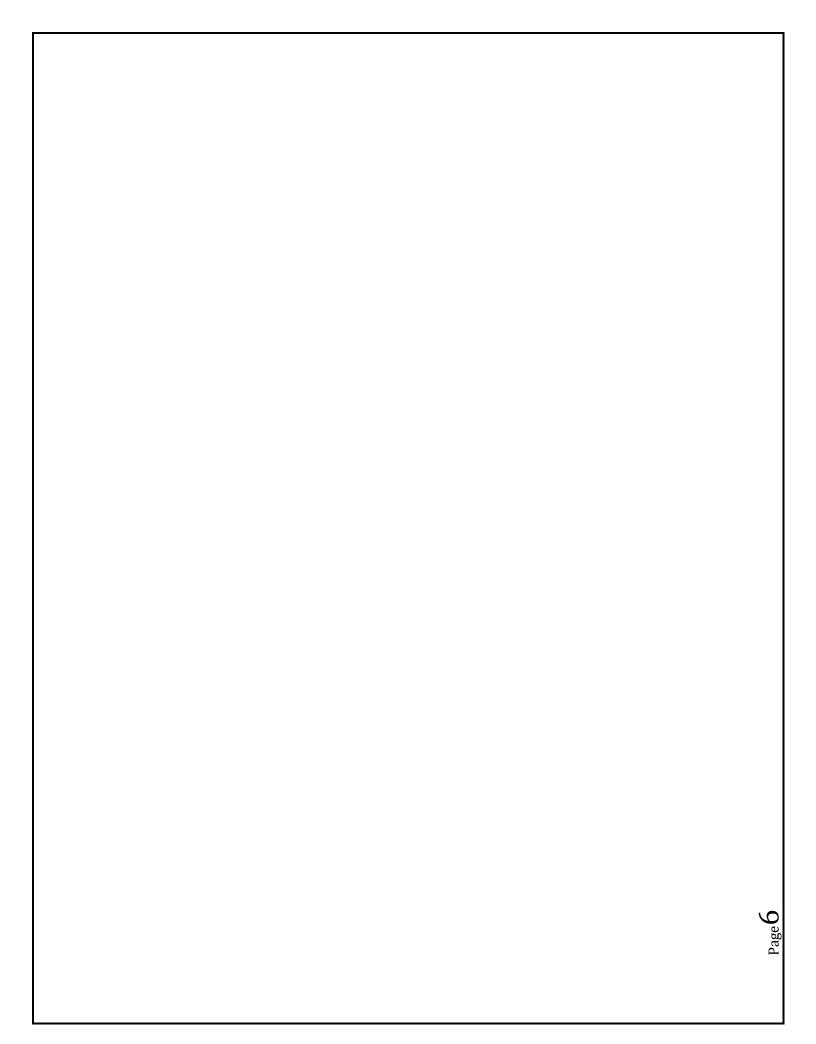
This is indigenous production. This will not be neither exported nor imported.

(VI) Export possibility:

Not expected.

(VII) Employment Generation (Direct and Indirect) due to the project:

Total 25 Numbers of person, Including skilled and unskilled, are likely to be engaged in this project most of these persons will deployed from nearby villages.



3. PROJECT DESCRIPTION

(I) Type of project including interlinked and interdependent projects:

The proposed project is stone quarry in which Sand stone have been involved. There is no any interlinked and interdependent project.

Location:

Location and the geo co – ordinates of the lease area already mention in salient features of the project.

(II) Details of alternate site considered and the basis of selecting proposed site, particularly the environmental consideration gone into highlighted:

This is a site specific project. Hence at present situation no alternate site is considered.

(III) Size / magnitude of operation:

This is a small quarry, it is proposed to CRUSHER stone /material 24935 M³. Annually. It is round the year operation work the total manpower require for the proposed stone mining project will be 25.

(IV) Raw material required along with estimated quantity, likely source, marketing area of final products, mode of transport of raw material and finished product.

Raw material is not required for the stone excavation project, only mining tools are required. the crushed material of varies in size (20mm, 40mm, 60mm) will be carried out by the truck / tractor trolley.

(V) Resource optimization / recycling and resource envisaged in the project, if any, should be briefly outlined:

Resource optimization has been exercised but there is no scope of recycling and re – use in the project only top soil (0.5-0.75M) shall be used in re – generation of soil quality.

(VI) Availability of water and its source, energy/ power requirement and its sources:

The total water requirement for the project is estimated 5.0 KLD for mining spraying and domestic used and will be sourced from nearby village. No electricity is required even so if required in future the same will be arranged by taking connection from MPSEB

(VII) Equipments and Machineries:

It is a small quarry having total area of 2.25 hectare. Proposed annual production is about 24935 M³. Mining method will be open cast Semi mechanized method

4. SITE ANALYSIS

(I) Connectivity

Connectivity details are already given in the salient features of the project.

(II) Land form, land use and land ownership:

District	Tehsil	Village	Khasra	Area In	Status Of	Mineral
And State			No.	Hectare	Land	
GWALIOR	DABRA	KARRA	766	1.821	Govt. land	GRANITE
M.P.						

(III) Existing Land use pattern:

Existing land use pattern and land use after lease period is mention below.

Sr.	Description	Present land	At the end of
No		use (ha)	quarry period
			(ha)
1.	Mine pit	0.00	1.3493
2.	Dump , Office / Shelter	0.000	0.000
3.	Approach road	0.000	0.000
4.	Plantation	0.000	0.4698
5.	Unused	2.250	0.4309
	Total	2.250	2.250

(IV) Existing Infrastructure

Only CRUSHER STONE and shed is present in the lease area.

(V) Social Infa

5. PLANING BRIEF

(I) Planning Concept

Stone mining along with mechanical crushing in the region is a rural business which is categories as small scale unit. It is classified as semi skilled and under any staff oriented mining industries. The area is not covered under any town planning or development authority. Hence no need of any such planning by the proponent also.

(II) Population projection:

Due to proposed mining activity there will not be influx of people from outside as only local people will be engaged.

(III) Land Use Planning.

Mining will be done as per detail given in mining plan. Green belt shall be developed along periphery of the lease area. Details of land use pattern have already been given in previous chapter.

(IV) Assessment of Infrastructure Demand (Physical and Social)

It is not expected for the project under consideration, since the project will not exert any unbearable load on any of this available infrastructure (School, Hospital etc.)

(V) Amenities / Facilities: All available amenities and facilities shall be provided to workers like – medicines, temporary shelter, safe drinking water and security etc. as per their requirement.

06. PROPOSED INFRASTRUCTURE

S. NO.	Particulars	Details
1.	Lease Area	2.25 Hectare
2.	Residential Area	Not proposed
3.	Road Connectivity	The lease area is located about 6 km of KARRA village. It is well connected by road to the dist. HQ of GWALIOR is at a distance of 46 km from lease area.
4.	Green Belt	Green belt of 7.5 m width shall be developed along the periphery on the lease area with locally suitable ever green plants. 100 numbers of trees implant annually.
5.	Social Infrastructure	Physical and social infrastructure will be provided and if necessary other facilities will also be provided by mines proponent.
6.	Water Management	The total water requirement for the project is estimated 5.0 KLD for mining spraying and domestic uses and will be source from nearby village.
7.	Sewerage System	There will be no generation of sewerage due to the project hence no need of this system.
8.	Industrial Waste Management	N.A.
9.	Solid Waste Management	N.A.
10.	Power Requirement	N.A.

MINING PLAN & PROGRESSIVE MINE CLOSURE PLAN FOR KARRA STONE (GITTI) QUARRY

Village : KARRA

Tehsil : DABRA

District : GWALIOR

State : MADHYA PRADESH

Area : 2.2500 HECT.

Proposed Production : 25000 CUM PER ANNUM

Plan Period : 5 YEARS

Details of Area

Revenue Land : 2.2500 HECT.

Survey No. : 766

Type of Land GOVT. LAND

PREPARED UNDER RULE 42 OF MP MINOR MINERALS RULES 1996

FOR

Shri Jitendra More, R/o 556, C.P. Colony, Murar, District- Gwalior (M.P.)

PREPARED BY

Amit Saxena, RQP

Registration No. RQP/DGMMP/32/2013
Valid up to 15-05-2023
12, Vinayak Nagar, Bohra Ganeshji, Udaipur
Mobile No. 098291-61803

YEAR 2018

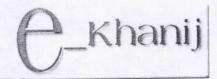
Fitendra

संत्रीय प्रमुख संवालनालय भौभिकी एवं खनिवर म.प्र. क्षेत्रीय कार्यालय, ग्वालिया



Mineral Resources Department, Govt. Of Madhya Pradesh

खनिज साधन विभाग, मध्यप्रदेश शासन



Fitendra

MINING PLAN FOR KARRA STONE GITTI QUARRY (QUARRY LEASE)

MP ID

: 26705

MP SUBMISSION DATE

: 13/06/2018

SUBMITTED AT

: Gwalior

VILLAGE

: KARRAA

: GWALIOR

DISTRICT TEHSIL

: DABARA

MINERAL KHASRA NO : Gitti : 766

AREA

2.2500 HECTARE

PROPOSED MINERAL PRODUCTION DETAILS...

YEAR	FIN. YEAR	PROD. QTY.	UNIT
YEAR-1	2018-2019	25000	CUBIC METER
YEAR-2	2019-2020	25000	CUBIC METER
YEAR-3	2020-2021	25000	CUBIC METER
YEAR-4	2021-2022	25000	CUBIC METER
YEAR-5	2022-2023	25000	CUBIC METER
TOTAL PRODUCTION		125000 CUBI	C METER

PROPOSED PRODUCTION:

STATE

: M.P

LEASE PERIOD

: 10 Year

SANCTION ORDER NO.

: KHANIJ/VIVIDH/N.KR. 260/2015 BHOPAL

SANCTION ORDER DATE

: 28/04/2018

SUBMITTED UNDER RULES 42 OF MPMMR,1996 FOR APPROVAL OF QUARRY LEASE

LESSEE:

NAME:

JITENDAR MORE

FATHER NAME: S/O SHRI CHATARBHUJ MORE

ADDRESS:

R/O 556, C.P. COLONY, MURAR,

DISTRICT:

GWALIOR

PREPARED BY:

RQP NAME

: AMIT SAXENA

RQP ADDRESS

: 12, VINNYAK NAGAR, BOHRA GANESHJI, UDAIPUR, RAJASTHAN

RQP REGISTRATION : RQP/DGMMP/32/2013

VALID UP TO

: 09/05/2018

: 9829161803 MOBILE NO

CONTENT OF

MINING PLAN & PROGRESSIVE MINE CLOSURE PLAN FOR KARRA STONE (GITTY) QUARRY (AREA 2.2500 HECT.)

LESSE: - SHRI JITENDRA MORE

S.No.	Particulars	Page No
1	Chapter 1 (Introduction)	1 - 2
2	Chapter 2 (Location & Land use pattern)	3
3	Chapter 3 (Other information Related To The Quarry)	4 - 5
4	Chapter 4 (Geology)	6-7
5	Chapter 5 (Estimation of mineral reserved)	8 - 10
6	Chapter 6 (Method of Mining)	11-16
7	Chapter 7 (Safety measure to be adopted at the mine)	17 - 18
8	Chapter 8 (Desorption of the conceptual plan)	19
9	Chapter 9 (Disposal of West & Mineral Reject)	20
10	Chapter 10 (Use of Mineral & processing)	21
11	Chapter 11 (Measures for environmental protaction)	22 - 24
12	Chapter 12 (Disaster Management)	25
13	Chapter 13 (Mine closure Plan)	26-27
14	Chapter 14 (Description of the annexure to the mining plan	28

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LIST OF PLATES OF

MINING PLAN & PROGRESSIVE MINE CLOSURE PLAN FOR KARRA STONE (GITTY) QUARRY (AREA 2.2500 HECT.)

LESSE: - SHRI JITENDRA MORE

S.No.	Particulars	Plate No.	Scale
1.	Key Plan	Plate No.1	1:50000
2.	Route Map	Plate No.2	N.T.S.
3.	Khasra Map	Plate No.3	1:4,000
4.	Surface Plan	Plate No.4	1:1,000
5.	Surface Geological Plan & Sections	Plate No.5	1:1,000
6.	Year Wise Development Plan & Sections	Plate No.6	1:1,000
7.	Conceptual Plan and Sections	Plate No.7	1:1,000
8	Reclamation plan	Plate No.8	1:1,000
9.	District Resource Map	Plate No.9	N.T.S.

LIST OF ANNEXURES

OF

MINING PLAN & PROGRESSIVE MINE CLOSURE PLAN FOR KARRA STONE (GITTY) QUARRY (AREA 2.2500 HECT.)

LESSE: - SHRI JITENDRA MORE

S.No.	Particulars	Annexure No.
1.	Copy of LOI	Annexure No.1
2.	Copy of Khasra Map	Annexure No.2
3.	Copy of Forest NOC	Annexure No.3
4.	Copy of Tehsildar NOC	Annexure, No.4
5.	Copy of Spot Inspection Report	Annexure No.5
6.	Copy of RQP certificate	Annexyre No.6

Filendra

DECLARATION

I Amit Saxena, RQP, having registration No. RQP/DGMMP/32/2013, hereby declared that the Mining plan of Karra Stone (Gitti) Quarry has been prepared by me according as par information furnished therein is correct to the best of my knowledge and belief.

I also declare that I will be held responsible for any information furnished by me is found to be false, at a later date.

Place:

Date:

(Amit/Saxena)

RQP/DGMMP/32/2013

CONSENT LETTER FROM THE APPLICANT

The Mining Plan & Progressive Mine Closure Plan in respect of Karra Stone (Gitti) Quarry, area 2.2500 Hect. (Khasra No. 766) in Village- Karra, Tehsil-Dabra District- Gwalior M.P. Shri Jitendra More under Minor Minerals Rules 1996 which has been prepared by Shri AMIT SAXENA, RQP.

I request the Concern authorities to make further correspondence regarding modification of the Mining Plan & Progressive Mine Closure Plan with the said person on his following address.

Shri Amit Saxena
12, Vinayak Nagar, Bohra Ganeshji,
Udaipur (Rajasthan)
Mobile No. 098291-61803

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

Place:	Jitendra More
	Filendra Applicant
Date:	Applicant

MINING PLAN & PROGRESSIVE MINE CLOSURE PLAN OF KARRA STONE (GITTI) QUARRY

MINING CUM PROGRESSIVE MINE CLOSUER PLAN OF KARRA STONE (GITTI) QUARRY CHAPTER 1

1. INTRODUCTION:

1.1 The Rule Under which the Mining Plan has been prepared:

The Mining Plan & Progressive Mine Closure Plan has been prepared under rule 42 of Madhya Pradesh Miner mineral rules, 1996.

The Mining plan & Progressive Mine Closure Plan for Karra Stone (gitty) over an area of 2.2500 Hectares Khasra No.766, near Village-Karra, Tehsil- Dabra, District- Gwalior is being submitted by Shri Jitendar More, S/o Shri Chatrbhuj More, R/o 556, C.P. Colony, Murar, District- Gwalior (M.P.)

1.2 Information regarding sanction of Mining lease /Letter of Intent:

Mining Lease for extraction of Stone, suitable for crushing purpose has been L.O.I. granted.IN-principle over an area of 2.2500 heet. By Directorate of Geology & Mining of Madhy Pradesh Bhopal vide letter no. खनिज / विविध / न क 260/215, Bhopal Dated 28-4-18. For 10 Year's

Fitendra

VIMIL CONTRACTOR

MINING PLAN & PROGRESSIVE MINE CLOSURE PLAN OF KARRA STONE (GITTI) QUARRY

1.3 Accessibility:

- 1.3.1 Natural Water Ways –

 The nearest kandla port at distance of 888 km.
- 1.3.2 Railway Station –

 The nearest Railway station is Dabra at a distance of about 5 Km
- 1.3.3 Bus StandThe nearest bus stand is at Gwalior at distance of 22.00 Km
- 1.3.4 Air Port-

The nearest air port is Gwalior at a distance of 50.00 km

- 1.3.5 State Highway/ National Highway-National Highway No.NH-75 is passing at a distance of 3.30 km
- 1.3.6 District Head Quarter Gwalior at a distance of 40km
- 1.3.7 Tehsil Dabra at a distance of 3.50 km
- 1.3.8 Residential Area –

 The nearest village is Karra at distance of 0.50 km
- 1.3.9 Sensitive Structure There is no sensitive structure within a distance of 10.0 km.
- 1.3.10 Access to the main Road –

 The mine site is connected to NH-75 by 3.30 km long road, of which half portion is Kachha.
- 1.3.11 The water lavel in this area is 40m. Below ground lev

Prepared by: Amit Saxena, RQP (Reg. No. RQP/DGMMP/32/2013)

Address: 12, Vinayak Nagar, Bohra Ganeshji, Udaipur (Rajasthan) Mobile: 098291-61803

Filendra

MINING PLAN & PROGRESSIVE MINE CLOSURE PLAN OF KARRA STONE (GITTI) QUARRY

2. 2. LOCATION OF THE QUARRY & LANDUSE PATTERN OF THE LEAES HOLD:

2.1 Location of the Quarry:

2.1.1 Village - Karra

2.1.2 Tehsil - Dabra

2.1.3 District - Gwalior

2.1.4 Type of Land - Govt. land

2.2. Toposheet No.: - 54 K/5

Coordinates of the lease boundary Pillars:

Pillars	Latitude (N)	Longitude (E)
A	25°52'33.31"	78°22'41.67"
В	25°52'34.53"	78°22'44.42"
C	25 ⁰ 22'31.73"	78°22'48.63"
D	25°22'27.10"	78°22'44.66″/

Fitendra

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3. OTHER INFORMATION RELATED TO THE QUARRY:

3.1 Topography & Drainage Pattern:

The lease hold is almost having level. The elevation of the highest point is 208m AMSL and the elevation of the lowest point is 202m AMSL. The area being almost level no prominent nalla in an around the lease hold. The rain water finally drains down to the river name Sindh at distance of about 16 km

3.2 Environmental Status of District

- 3.2.1 Social Structure: Rural
- 3.2.2 Economic Condition: Agriculture farmer
- 3.2.3 Fauna: Merops orientalis (Little Green Bee-eater), Eudynamys scolopacea (Asian koel), Francolinus pondicerianus (Grey Francolin), Vanellus indicus (Red-wattled Lapwing), Corvus splendens (House crow), Streptopelia decaocto (Eurasian Collared-Dove), Funambulus pennanti (Indian Palm squirrel), Alcedo atthis (Common kingfisher) and Columba livia (Rock Pigeon) were seen in the study area. In the study area Lindenbergia muraria (Patthar-chatti), Acanthospermum hispidum
- 3.2.4 Flora: (Starburr), Lepidagathis trinervis (Pathar Phor buti), Solanum nigrum (Mokoi), Lepidagathis trinervis (Pathar Phor buti), Tridax procumbens (Khalmuriya) and Calotropis procera (Aak) were reported
- 3.2.3 Rainfall: Average annual rainfall of the area is 812 mm.

Temperature: Maximum is 46°C in summer and 2°C i

Prepared by: Amit Saxena, RQP (Reg. No. RQP/DGMMP/32/2013)
Address: 12, Vinayak Nagar, Bohra Ganeshji, Udaipur (Rajasthan) Mobile: 098291-61803

fitendra

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2.1 Location of the Quarry:

- 2.1.1 Village Karra
- 2.1.2 Tehsil Dabra
- 2.1.3 District Gwalior
- 2.1.4 Type of Land -Govt. land
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		1//

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Prepared by: Amit Saxena, RQP (Reg. No. RQP/DGMMP/32/2013)

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- 3.2.1 Social Structure: Rural
- 3.2.2 Economic Condition: Agriculture farmer
- 3.2.3 Fauna: Merops orientalis (Little Green Bee-eater), Eudynamys scolopacea (Asian koel), Francolinus pondicerianus (Grey Francolin), Vanellus indicus (Red-wattled Lapwing), Corvus splendens (House crow), Streptopelia decaocto (Eurasian Collared-Dove), Funambulus pennanti (Indian Palm squirrel), Alcedo atthis (Common kingfisher) and Columba livia (Rock Pigeon) were seen in the study area. In the study area Lindenbergia muraria (Patthar-chatti), Acanthospermum hispidum
- 3.2.4 Flora: (Starburr), Lepidagathis trinervis (Pathar Phor buti), Solanum nigrum (Mokoi), Lepidagathis trinervis (Pathar Phor buti), Tridax procumbens (Khalmuriya) and Calotropis procera (Aak) were reported

3.2.3 Rainfall: Average annual rainfall of the area is 812 mm.

Temperature: Maximum is 46°C in summer and 2°C

Minimum in winter.

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1-1-

- 3.3 Description of Important Buildings/Structures, etc., lying within a radius of 500m:
 - 3.3.1 Public places- Nil
 - 3.3.2 Religious places- Nil
 - 3.3.3 Educational institutions- Nil
 - 3.3.4 Hospitals- Nil
 - 3.3.5 Historical Buildings- Nil
 - 3.3.6 Residential Area- Nil
 - 3.3.7 Water Structure- Nil
 - 3.3.8 Railway Track- Nil

3.4 Description Of Available Infra Structure:

- 3.4.1 Water: Water: Nearest source of drinking water is form of hand pump near QL area
- 3.4.2 Electricity: Electricity facility is available near the QL.
- 3.4.3 Manpower: People from the surrounding local village.

3.5 Location of forest land, etc.:

3.5.1 Distance from Forest boundary: Distance from Forest boundary: There is no National Park/wild sanctuaries/Eco-sensitive area within 5 Km according to clearance given from forest department by District forest officer.

ANNEXURE:-

- 3.5.2 No. of existing trees within the lease hold: There are no existing trees within the lease hold.
- 3.5.3 No. of existing trees within the lease hold:

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4. GEOLOGY:

Geology of the District: The district comprises rocks of Older Alluvium overlain by Gwalior group and Bundelkhand granite complex. The Regional geological succession of rocks is as given below:

Regional Geology Succession

Recent

Alluvium

Older Alluvium

Oxidised silt, gray to brownish

colour, sand with kankar and ferruginous Nodules.

Gwalior group

-Sitla Formation -Ferruginous shale with iron ore

Sigpur formation - Sandstone, Shale with

conglomerate at the bottom.

Bundelkhand

Granites

-Granite, Granite gneisses,

Granite

Pegmatite vine etc.

Complex

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4.1 Geology of the lease hold:

4.1.1 Lithology:

- 4.1.2 Geology of lease hold: The proposed lease area falls under Granite belt. It is a dark grey to black in colour, fine grained hard. Most of the rock broken by relatively smooth fracture known as joint.
- 4.1.3 Lithology: Murram 0.50 0.75 or say average 0.43 m

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Granite (Crusher stone): 0.5 to 28m (continued exposed thickness in nearby quarry and wells.)

The properties of Granite are as under-

Colour

-Grey to Blackish

Texture

-Fine grain

Hardness

-5-6

Luster

-Dull

- 4.1.4 Minerals Available: Granite (crusher stone) 0.5 to 28m.
- 4.1.5 Genesis of Mineral(s): Igneous rock comprises plagioclase and pyroxene mineral.
- 4.1.6 Topsoil: negligible.
- 4.1.7 Overburden: Waste in the form of weathered Granite and murrum.

4.2.1 Mineral Reserves, Quality & Use:

Granite (suitable for road material after getting crushed).

4.2 Brief detail of the geological report prepared by the departmental officer:

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5. ESTIMATION OF MINERAL RESERVES:

- 5.1.1 The Method of Estimation of Reserves:
- 5.1.2 Method of reserves:

The reserves are calculated with X- Section method for below mentioned category where this system having the geological assessment, feasible assessment and economic validity. While calculating the reserves following factor has been considered.

GEOLOGICAL RESERVE FOR STONE

CATEGORY	x- sectional area	Average length in m.	Volume in Cum	Stone 90% Cum	Overburden10% Cum
Proved (208 - 190)	2733.00	124.00	338892.00	305002.80	33889.20
Probable (190 - 185)	908.00	124.00	112592.00	101332.80	11259.20
Possible (185 - 180)	908.00	124.00	112592.00	101332.80	11259.20
	Total		564076.00	507668.40	56407.60

TOTAL GEOLOGICAL RESERVE = 564076.00, JUM

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5.2 Estimation of Mineable Reserves:

MINEABLE RESERVE FOR STONE

CATEGORY	x- sectional area	Average length in m.	Volume in Cum	Stone 90% Cum	Overburden10% Cum
Proved (208 - 190)	2424.00	103.00	249672.00	224704.80	24967.20
Probable (190 - 185)	770.00	97.00	74690.00	67221.00	7469.00
Possible (185 - 180)	752.00	94.00	70688.00	63619.20	7068.80
	Total		395050.00	355545.00	39505.00

5.2.2 Minerals Blocked under statutory barriers:

Area under statutory barriers = 4698 m^2

Mineral blocked under the barrier = $4698 \text{ m}^2 \text{ X } 28 \text{ m} = 131544.00 \text{ m}^3$

5.2.3 Mineral Blocked under Benches: 536.00 m³

5.2.4 Minable reserves: Total Geological Reserve - Reserve Blocked
Statutory Barriers - Reserve Blocked Under Benches

 $564076 - 131544 - 536 = 431996.00 \,\mathrm{m}^3$

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6. METHOD OF MINING:

6.1 Method of mining and extent of mechanization:

It is proposed to carrying out mg operation by mechanized opencast method with the help of Hydraulic Excavator, dumpers, etc. In order to met the annual production is 25000 m³ and average about 83.33 m³ of mineral will have to produce daily, taking 300 working days in a year.

This daily target will be easily achieved by deploying one hydraulic excavator come front and loader of $0.9 \,\mathrm{m}^3$ capacity. The blasted material will be transported to the crushing unit situated within the lease boundary itself. Thus, three dumpers each of 15 tonnes capacity will serve the purpose.

After crushing the stone, the aggregate is temporally stacked at the crushing unit. It is supply to the consumers by truck/tippers/dumpers as per requirement.

DETAILS OF MANPOWER

Supervisory staff	PROPOSED
Excavator operator	
Time keeper/Store keeper cum	1
first aider	1
Mali/watchman/pump operator	
Labour	
Skilled	2
Semi Skilled Frendra	3
Unskilled	2 4
Total manpower	10
Working days :-	300
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Detail of Blasting Parameters

1	Depth and diameter of Hole	1	: 3 m depth 100 mm dia
2	Space between holes	:	: 3 m
3	Burden	1:	: 2.5 m
4	Powder factor	:	6 CuM per kg of explosive
5	Rock breakage per hole	:	45 m ³
6	Rock breakage per week for targeted production 25000 CuM		2976 m ³
7	Total no. of holes/ week	:	67
8	Explosive consumption per hole	:	19.5 Kg
9	Explosive consumption per week	:	1306.5 Kg
0.A	Explosive II st Class 20%	:	261.3 Kg
0.B	ANFO 80%	:	1045.2 Kg

For effecting blasting, a licencesed contractor will be engaged. While carrying out blasting operation all the statuary provision will be take care out.

6.3 Information regarding drainage of rain water from the mining area.

There is no prominent daring system near the lease hold. Arrangement will be made for channelizing, the rain water to a settling tank in order to arrest to flow of silt, etc. As stated earlier, the rain water finally joins the Sindh river situated a distance of 16 km.

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6.4 Details of mining to be carried out during first three-year period.

First year: (2018-19)

In this plan period area will be developed in two productions benches of 3m height. The advancement will be in the lateral direction, during this year RL will reach from 208–202 m. & 220-217m. as per table given below.

Year	Bench	Level	Ве	nch dimer	rsions	Rom, Vol	Stone	Overburden
	From	То	Length in mt	Width in mt	Depth in .mt	Cum	90% in cum	10% in cum
2018 – 19	208	205	88.00	90.00	2	15840.00	14256.00	1584.00
	205	202	30.00	130.00	3	11700.00	10530.00	1170.00
		TO	TAL			27540.00	24786.00	2754.00

Second year: (2019-20)

In this plan period area will be developed in one production bench of 3m height. The advancement will be in the lateral direction, during this year RL will reach from 205 – 202 m. as per table given below.

Year	Bench	Level	Ве	nch dimer	nsions	Rom, Vol	Stone	Overburder
	From	То	Length in mt	Width in mt	Depth in mt	Cum	90% in cum	10% in cum
2019 – 20	205	202	71.00	130.00	3	27690.00	24921.00	2769.00
	44 46	TO	TAL			27690.00	74921.00	2769.00

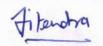
Third year: (2020-21)

In this plan period area will be developed in one production bench of 3m height. The advancement will be in the lateral direction, during this year RL will reach from 202 - 199 m. as per table given below.

Year	Bench	Level	Ве	nch dimer	nsions	Rom, Vol	Stone	Overburden
	From	То	Length in mt	Width in mt	Depth in mt	Cum	90% in cum	10% in cum
2020 – 21	202	199	75.00	123.00	3	27675.00	24907.50	2767.50
		TO	TAL			27675.00	24907.50	2767.50

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Fourth year: (2021-22)

In this plan period area will be developed in two productions benches of 3m height. The advancement will be in the lateral direction, during this year RL will reach from 202 - 196 m. as per table given below.

Year	Bench	Level	Ве	nch dimer	nsions	Rom, Vol	Stone	Overburder
	From	То	Length in mt	Width in mt	Depth in mt	Cum	90% in	10% in cum
2021 - 22	202	199	22.00	123.00	3	8118.00	7306.20	811.80
	199	196	56.50	116.00	3	19662.00	17695.80	1966.20
		TO	TAL			27780.00	25002.00	2778.00

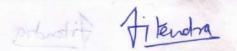
Fifth year: (2022-23)

In this plan period area will be developed in two productions benches of 3m height. The advancement will be in the lateral direction, during this year RL will reach from 199-193 m. as per table given below.

Year	Bench	Level	Ве	nch dimer	nsions	Rom, Vol	Stone	Overburden
dentage	From	То	Length in mt	Width in mt	Depth in mt	Cum	90% in	10% in cum
2022 – 23	199	196	33.50	116.00	3	11658.00	10492.20	1165.80
	196	193	49.50	109.00	3	16186 50	14567 85	1618.65
		TO	TAL			27844.50	25060.05	2784.45

During the ensuing the plan period 1.3493 ha. area including previously mine out pit, will be developed with RL of 208M (average 15 M depth) with a rectangular shape at the top of the lease. Ground water seepage will not encounter because the proposals are given at the top of area and ground water table 40M below the surface ground level.

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FIVE YEAR DEVELOPMENT AND PLANING

Year	Bench	Level	Beni	ch dimensi	ons	Rom, Vol	Stone	Overburde n
	From	То	Length	Width	Depth	Cum	90%	10%
2018 - 19	208	205	88	90	2	15840.00	14256.00	1584.00
2010 13	205	202	30	130	3	11700.00	10530.00	1170.00
		TOT	AL			27540.00	24786.00	2754.00
2019 - 20	205	202	71	130	3	27690.00	24921.00	2769.00
		TOT	AL			27690.00	24921.00	2769.00
2020 - 21	202	199	75	123	3	27675.00	24907.50	2767.50
		TOT	AL			27675.00	24907.50	2767.50
2021 - 22	202	199	22	123	3	8118.00	7306.20	811.80
2021 22	199	196	56.5	116	3	19662.00	17695.80	1966.20
		TOT	AL			27780.00	25002.00	2778.00
2022 - 23	199	196	33.5	116	3	11658.00	10492.20	1165.80
2022 23	196	193	49.5	109	3	16186.50	14567.85	1618.65
		TOT	AL			27844.50	25060.05	2784.45
		G. TO	TAL			138529.50	124676.55	13852.95

Scheme of mining to be done during next five-year period.

	ROM, Vol	Stone	Overburden
Year	Cum	90%	10%
2023-24	27777.78	25000.00	7777.78
2024-25	27777.78	25000.00	7777.78
2025-26	27777.78	25000.00	7777.78
2026-27	27777.78	25000.00	7777.78
2027-28	27777.78	25000.00	7777.78
Total	138889.00	125000.00	38888 90

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- 7. Safety Measures to be adopted at the mine.
 - 7.1 Incidents and accidents likely to take place in the course of proposed mining and proposed safety measures.

Mining is a hazardous operation. If due care is not taken, various type of accident may take place.

Likely incidents and accidents:

- (i) Accidents in the course of playing on vehicle on the road.
- (ii) Sudden breaking of drill rods during drilling
- (iii) Dust hazard while drilling.
- (iv) Accidents due to flying rocks in the course of blasting
- (v) Hearing loss cause by rock drilling and heavy earth moving machinery.
- (vi) Likely accident during loading of rock in to dumper.
- (vii) Accidents while unloading.
- (viii) Accidents at the crushing unit.

Safety Measures:

- (i) Adequate arrangement for dust separation by sprinkling the water on the haulage road.
- (ii) Proper maintains of drilling machines and all other mining machineries
- (iii) Regular checking of drilling rods for detecting cracks developed in them.

- All statutory provision while carrying out blasting. (iv)
- Maintaining well equipped fist stage stations. (v)
- Providing first aid kits to the supervisor. (vi)
- Making arrangement for ambulances whenever required. (vii)
- (viii) Providing personal protective devices to the concern persons.
- (ix) Maintains of proper road.
- Providing good type of footers to the heavy earth moving (X) machinery.
- 7.2 If the depth of the mine is likely to exceed 6.0m from the surface, description of provisions of MMR, 1961, and information in From-13 related to the DGMS, etc.

Opening notice will be given to the DGMS, prior opening notice will be given to the DGMS, Dhanbad.

All the provisions as provided under the Mine Act, 1952 and MMR, 1961 will be taken care of. AME STATE

8. Description of the Conceptual Plan.

8.1 Reclamation and rehabilitation in plan period:

The total lease area of the mines is 2.2500 Hectare. Total mining will be confined in 1.3493 hectare area in plan period.

The plantation will be done on green belt area i.e. 0.4698 hectare in 10 years. The proposed mining plan period is for 5 year period. Therefore, the plantation area covered in coming plan period in the green belt area is 0.2349 hecatre or 2349 sq mts.

In plan period total 100 plants will be planted in green belt for 5 year. Budgetary allocation year wise is given in table below.

Proposed Plantation

Year	No. of plants	No. of survived plants (100%survival rate)	Budget allocated in Rs./-
1st	20	20	5000
2nd	20	20	5000
3rd	20	20	5000
4th	20	20	5000
5th	20	20	5000
Total	100	100	25000

*The compensation of the remaining 20% non- surviving will be done by re-plantation.

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9. Disposal of the waste material and the mineral reject.

The life of the mine is expected to be about 17 years.

The overburden removed and the mineral rejects in mining will find use in the local villages for construction of boundary wall, road repair etc. thus, after completion of mining operation there will be no overburden dump within the lease hold. Hence it will not be possible to backfill the excavated portion.

The excavated portion will be converted into a water reservoir which will be used for local people. The excavated portion will be properly fenced off in accordance with the provision made by the Directorate General of Mine Safety Dhanbad .

By the time the excavation is completed, about – 100 trees will have been planted outside the lease.

Thus, properly fenced off pit and garland type of plantation will add to the aesthetic duty of the area.

As stated under S.No.8, there will be no problem of disposal of either waste or mineral reject, since they will find use in the local villages in construction of wall, roads, etc.

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- 10. Use of the mineral and its processing.
- 10.1 Information regarding its use.

Although basalt is not a rock of economic importance, it is quit suitable as road metal and concrete for RCC work. Being a material of low vale, it cannot be transported to far places. Thus, its use is limited within the district or the nearby district.

10.2 Whether processing of the mineral will take place within the lease hold or outside the lease hold:

The blasted material obtained from the mine is required to be crushed form being used as road metal, etc. The crushing unit is proposed to be installed within the lease hold itself.

Michael P

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11. Measures for Environmental protection.

- 11.1 Assessment of likely impact of mining on forest, land and environment (Water, Air and Noise pollution) and mitigation measures.
- 11.1.a Impact on Air Quality: Mining operations and associated activities generally cause air pollution and the major air pollutant is the suspended particulate matter. Most of the air pollution problems are due to fugitive dust emissions. Dust emissions are more prominent in opencast mines in comparison to underground mines.

The intensity of dust generation in the mining is influenced by factors such as hardness of rock, mining technology and material handling etc.

11.1.b Air Pollution Mitigation Measures:

- i. General water praying on road surface to bind the dust,
- ii. Restriction of vehicle speed,
- iii. Washing of tractors wheels or body at regular intervals,
- iv. Loading and unloading in the area protected from wind,
- v. Minimizing of drop heights,
- vi. Use of proper sheet to cover loaded vehicles,
- vii. Surfacing the internal roads.
- viii. Application of water sprays to moisten transported materials,
 - ix. Effective water sprays for dust suppression during blasting,
 - x. Maintaining compactness, gradient and drainage of haul roads,
- xi. Developing green belt and plantation at site.

haul roads,

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- a) 11.1.c Impact on Water Quality: No adverse effect is expected on surface water, as there is now water reservoir, river or any other source near mining area. Ground water is not likely to be affected, as the mining will not intersect water table. There will be o significant effect over the quality of ground water as mineral gitti insoluble in water and are non toxic.
- 11.2 Information related to provisions made under rule 50 of the Madhya Pradesh Minor Minerals Rules, 1996.

According to rule 50 of the Madhya Pradesh Minor Mineral Rules, 1996 lease mining area will obey following rule:-

- a. Mine leased party will take permission before mining from pollution control board of Madhya Pradesh regarding air and water following condition.
- b. Mining process will not disturb the old water channel and water resource passing by near lease area and ensure to conserve it.
- c. The mining process will restrict up to underground water table.
- d. According to environmental management plan/mining plan, top soil will be conserved temporally.
- e. There will be water sparkling on the point of crusher unloading according to the perimeter given by state pollution control board.
- f. The following adequate precaution will take related to blasting and destructed boulder/stone.
- g. The following precaution will take to ensure that there will be no structural change of nearby area because of blasting in mining process.

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- h. To ensure safety of worker, there will be necessary safety training will be provided to worker.
- i. The mining process will be done according to the mining scheme/mining plan/environmental management by mining lease holder.

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12. Disaster Management.

- a) The disaster in the mine is possible due to failure in adhering to safety and regulatory provisions applicable to mining. Keeping in view the safety requirement during operation and maintenance phases, the proponent formulates safety policies within the following provisions-
- b) To allocate sufficient resources for maintaining safe and healthy condition of work:
- c) To take steps for ensuring that all known safety provisions are considered in the design, operation and maintenance of mining machinery, auxiliary machinery and maintenance equipment.
- d) To ensure safety training and instructions to all employees under Mines Vocational Training Rules.

e) To provide protective equipment, safety appliances and clothing and to enforce/ensure their proper use.

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13. Mine Closure Plan.

13.1 Information regarding land use pattern, Environmental Impact Assessment etc.

Reclamation and rehabilitation of mined out land are most important post mining activities. The mining lease area is having soil top and overburden. The quarry lease is a gentle sloping elongated hillock. Overburden and generated reject materials will be user near the lease boundary for plantation purpose and overburden material use for lease area road repairing. Reclamation operation will be commencing after attaining the optimum depth. The following plantation will be done on the outer reserved area of mine according to mine rule.

13.1.1 Final use of the mining area.

Since, no waste material will be available for backfilling the excavated portion, it will be not be economically feasible, to reclaimed the area by backfill. Therefore, the only option is to convert the area into a picnic spot by converting the worked out pit into a water reservoir. And undertaking adequately plantation (100 trees) outside the lease area

The local people will be increased to develop pisciculture.

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The local people will be increased to develop pisciculture.

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13.1.2 Environmental Impact Assessment and mitigation measures.

The excavated mine is large pit which caused to accidental closure so the following mined area will be converted into water reservoir with safety fence. Safety procedure should be taking according to mine rule.

13.1.3 Detailed description of land use of the mining area at the end of the plan period.

S.No.	Particulars	Present area in (hect.)	At the end of plan period (hect.)
1.	Mined out area (pit)	0.0000	1.3493
2.	*Water reservoir	-	1.3493
3.	*Plantation area	- 12	0.4698
4.	Unused	2.2500	0.4309
	Total	2.2500	2.2500

- This area is not calculated
- Plantation will be done outside the lease area

13.1.4 Information regarding afforestation and land improvement/upgradation.

33% of the mining lease area will be reclaimed by plantation. outside the leasearea

13.2 Information regarding financial assurance/security.

Rs 15000 per hectare will be submitted by the quarry lease owner in favour of competent authority of State govt for 2.2500 hectare area.

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Literatra

14. Description of the annexure to the Mining Plan.

- 14.1 Photocopy of the Registration Certificate of the RQP.
- 14.2 Consent letter issued by the lessee to the RQP for the preparation of the Modified Mining Plan.
- 14.3 Declaration made by the RQP.

(Amit Saxena) RQP/DGMMP/32/2013

Fitendo



संचालनालय भौमिकी तथा खनिकर्म मध्यप्रदेश

मध्यप्रदेश गौण खनिज नियम 1996 के अंतर्गत मान्यता प्राप्त योग्य व्यक्ति

प्रमाण पत्र



श्री अमित सक्सेना, पिता श्री रामदास सक्सेना, पता 12, विनायक नगर, बोहरा गणेशजी, उदयपुर (राजस्थान), जिनकी फोटो तथा हस्ताक्षर अभिप्रमाणित है, को म.प्र. गौण खनिज नियम 1996 के अंतर्गत मान्यता प्राप्त योग्य व्यक्ति के रूप में प्रदत्त पंजीयन क्रमांक RQP/DGMMP/32/2013, दिनांक 16.05.2018 से 15.05.2023 की अवधि के लिये नवीनीकृत किया जाता है।

मान्यता प्राप्त व्यक्ति के हस्ताक्षर –

Kn

भोपाल, दिनांक 04.05.2018

Fitendra

प्राप्ता संचालक भौभिकी तथा खनिकर्म मध्यप्रदेश, भोपाल



Pillars	Latitude (N)	Longitude (E)
C	25°52'31.73"	78022'48.63"
B	25°52'27.10"	78022'44.66"

Pillars	Latitude (N)	Longitude (E)
A	25°52'33.31"	78022'41.67"
В	25°52'34.53"	78022'44.42"

Fikendra

PLATENO 3 KHASRA MAP OF KARRA STONE (GITTI) CLASSIC NEAR VILLAGE:- KARRA, TEHSIL:- DABRA DISTRICT-GWALLER SURVEY NO. 766, AREA: - 2.2500 HECT LESSEE:- SHRI JITENDRA MORE SCALE:-1CM= 40 METRES 725 766 767

INDEX
/// LEASE BOUNDARY

(AMIT SAXENA) RQP/DGMMP/32/2013

Filendra

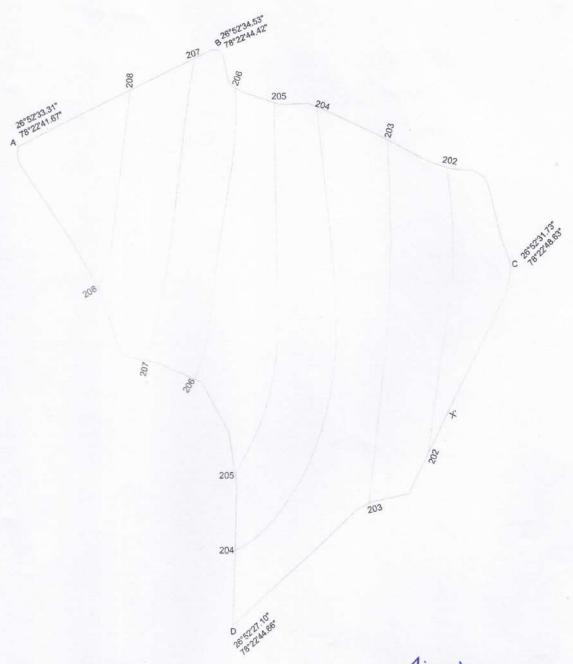
PLATE NO.4

SURFACE PLAN OF KARRA STONE QUARRY
NEAR VILLAGE:-KARRA, TEHSIL:-DABRA, DISTRICT:-GWALIOR(M.P.)
(KHASRA NO. 766) AREA:-2.2500 HECT.

LESSEE : SHRI JITENDAR MORE

SCALE:-1CM=10 METRES

MN.



Ji Kendra

LEASE BOUNDARY
CONTOUR

PLATE NO.4

CERTIFIED THAT THE PLAN IS CORRECT

DATE OF SURVEY

25-05-18

(AMIT SAXENA)

अनुसादिल एक हैंग भेतीय प्रमुख संवालनात्रय भौमिकी एवं खिनकर्म

PLATE NO.5 SURFACE GEOLOGICAL PLAN & SECTIONS OF KARRA STONE QUARRY NEAR VILLAGE:-KARRA, TEHSIL:-DABRA, DISTRICT:-GWALIOR(M.P.) AREA:-2.2500 HECT. (KHASRA NO. 766) LESSEE: SHRI JITENDAR MORE MN SCALE:-1CM=10 METRES В 207 208 205 204 203 202 208 205 203 204 INDEX LEASE BOUNDARY 7.5 M. BOUNDARY D CONTOUR 210 206 205 SOIL 200 STONE PROVED LIMIT 190 PROBABLE LIMIT PROBABLE LIMIT POSSIBLE LIMIT 180 SECTION ALONG X-X' PLATE NO.5 210 CERTIFIED THAT THE PLAN & SECTIONS ARE CORRECT 205 200 DATE OF PROVED LIMIT 195 SURVEY 190 PROBABLE LIMIT 25-05-18 180

(AMIT SAXENA)

210

200

190

180

200

190

180

SECTION ALONG Y - Y'

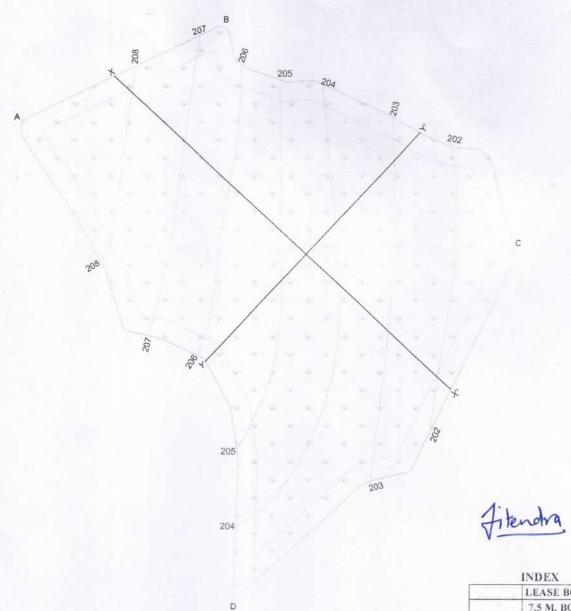
PLATE NO.5

SURFACE GEOLOGICAL PLAN & SECTIONS OF KARRA STONE QUARRY NEAR VILLAGE:-KARRA, TEHSIL:-DABRA, DISTRICT:-GWALIOR(M.P.) (KHASRA NO. 766) AREA:-2.2500 HECT.

LESSEE: SHRI JITENDAR MORE

SCALE:-1CM=10 METRES





	LEASE BOUNDARY
	7.5 M. BOUNDARY
206	CONTOUR
	SOIL
	STONE
	PROVED LIMIT
	PROBABLE LIMIT
	POSSIBLE LIMIT

PLATE NO.5

CERTIFIED THAT THE PLAN & SECTIONS ARE CORRECT

DATE OF SURVEY

25-05-18

(AMIT SAXENA) ROP/DGMMP/32/2013

PLATE NO.6 YEAR WISE DEVELOPMENT PLAN & SECTIONS OF KARRA STONE QUARRY NEAR VILLAGE:-KARRA, TEHSIL:-DABRA, DISTRICT:-GWALIOR(M.P.) AREA:-2.2500 HECT. (KHASRA NO. 766) LESSEE: SHRI JITENDAR MORE MN SCALE:-1CM=10 METRES 207 208 205 204 203 202 205 203 204 INDEX LEASE BOUNDARY 7.5 M. BOUNDARY 206 CONTOUR SECTION LINE X LYEAR 210 210 205 200 200 IV YEAR 190 190 180 SECTION ALONG X - X' PLATE NO.6 CERTIFIED THAT THE PLAN & SECTIONS ARE CORRECT 210 210 205 DATE OF 200 SURVEY 200 195 195 25-05-18 190 190 185 185 180 180 SECTION ALONG Y-Y' (AMIT SAXENA) RQP/DGMMP/32/2013