MINING PLAN

OF AUCTIONED QUARRY/MINE
IN FAVOUR OF
MAHENDER SINGH & COMPANY
RESIDENT OF DEVINAGAR,
TEHSIL PAONTA SAHIB, DISTRICT
SIRMAUR, HIMACHAL PRADESH

Seal of Geological wing, Industries Deptt. Govt. of H.P.
APPROVED

PREPARED BY

SUBHASH CHAND KAURA (EX. DDG, GSI)

HOUSE NO. 1114, SECTOR 46 B, CHANDIGARH, 160047

RQP No. RQP/D.N.N./182/2011/A

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APPROVED
With Condition
शर्तों के साथ अनुमोदित
Vide Letter No. Udyog-B2h(KLani-4) Legal-475/2016-12284
Dated 1/3/18
दिनांक

State Georogist,
Himachal Pradesh

MINING PLAN OF AUCTIONED QUARRY ALLOTTED ON CONTRACT IN FAVOUR OF MAHENDER SINGH & COMPANY DEVI NAGAR, P.O RAMPUR GHAT, TEHSIL PAONTA SAHIB, DISTRICT. SIRMOUR, HIMACHAL PRADESH

INTRODUCTION

M/s Mahender Singh & Co., Devinagar, Tehsil Paonta Sahib, District Sirmaur, Himachal Pradesh, has been issued a letter of intent by the Department vide letter No Udyog- Bhu- (Khani-4) Laghu 475/2016-5569 dated 09-08-2016 for the grant of Auctioned Quarry for the extraction of Stone, Bajri and Sand over an area situated in Khasra No. 74 measuring 17-31-10 Hectares (Govt. Land) in Mauza and Mohal Devinagar, Tehsil Paunta Sahib, District Sirmour (HP). The Auctions were held on 06.05.2016 & 07.05.2016 by the auction committee constituted under the Chairmanship of Additional District Magistrate, Nahan, Distt. Sirmaur. The tender for the said area in Yamuna River had the highest bid of Rs. 1.40/- crore quoted by Mahender Singh & Co., Devinagar, Tehsil Paonta Sahib, District Sirmaur, Himachal Pradesh. On the basis of the recommendation of the Auction Committee, the matter was referred to the Government and as per approval conveyed by Government vide letter No. Ind-II (F)7-5/2013 dated 12-07-2016 conveyed the approval for the issuance of Letter of Intent in favour of Mahender Singh & Co., Devinagar, Tehsil Paonta Sahib, District Sirmaur, Himachal Pradesh, being highest bidder.

The said Contractor approached the undersigned having R.Q.P. No. H.P./ RQP/D.N.N./182/2011/A. for preparation of the Mining Plan of the site to fulfil one of the conditions of Letter of Intent which says that "the Party shall have to submit the approved Mining Plan under the rule 35(1) of Himachal Pradesh Minor Minerals (Concession) and Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules, 2015 before the execution of Auctioned deed". The Mining Plan of the area has been prepared as per the format circulated (Form-M) by the State Geologist Himachal Pradesh and in accordance with the various provisions made in the Himachal Pradesh Minor Minerals (Concession) and Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules, 2015.

On the request of the said Contractor to prepare the Mining Plan, the mapping of the Auctioned Quarry was carried out encompassing Topographical, Lithological and other features. The Mining Plan includes the systematic and scientific exploitation of

minor mineral from within the Auctioned Quarry encompassing a phased program for aforestation and point of public utility.

The Auctioned Quarry lies in the Yamuna River, located near Nawada village and is about 4 Km from Paunta Sahib. Mining **Auctioned Quarry** was mapped on 1:2000 Scale, encompassing Topographical, Lithological and other features. The Mining Plan includes the systematic and scientific exploitation of minor mineral from within the Auctioned Quarry encompassing a phased program for afforestation and protection of point of public utility if any.

1. GENERAL

1.1 NAME AND ADDRESS OF THE CONTRACTOR

1.1. a Name of the Contractor	Mahender Singh & Co.
1.1. b Address of the Contractor	DeviNagar Tehsil Paunta Sahib, District Sirmour(HP).

1.2 STATUS OF THE CONTRACTOR

Private Individual

1.3 MINERAL WHICH THE CONTRACTOR INTENDS TO MINE

The Contractor intends to mine Stone, Bajri and Sand from the Auctioned area. The extracted stone shall be used in already existing crusher for manufacturing grit and sand to be sold in the open market as per the demand.

1.4 PERIOD FOR WHICH THE MINING AUCTIONED IS TO BE GRANTED

15 Years as per the terms and conditions of Auctions under the provisions of Himachal Pradesh Minor Minerals (Concession) and Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules 2015 & will be decided at the time of Grant of Mining Auctioned .

1.5 NAME AND ADDRESS OF R.Q.P.

Subhash Chand Kaura
(Ex. DDG, GSI)
Flat No. 604, Victoria Tower,
Chandigarh Enclave, Zirkpur (Punjab)
RQP No. RQP/D.N.N./182/2011/A
Valid upto 24-01-2021

1.6 NAME OF PROSPECTING AGENCY.

The area has been discovered by the Geological Wing of Department of Industries and further investigated by the R.Q.P. having vast experience in mineral exploration.

2. LOCATION AND APPROACH TO THE AREA (PLATE -1).

2.1 TOPOSHEET NO. 53F/11

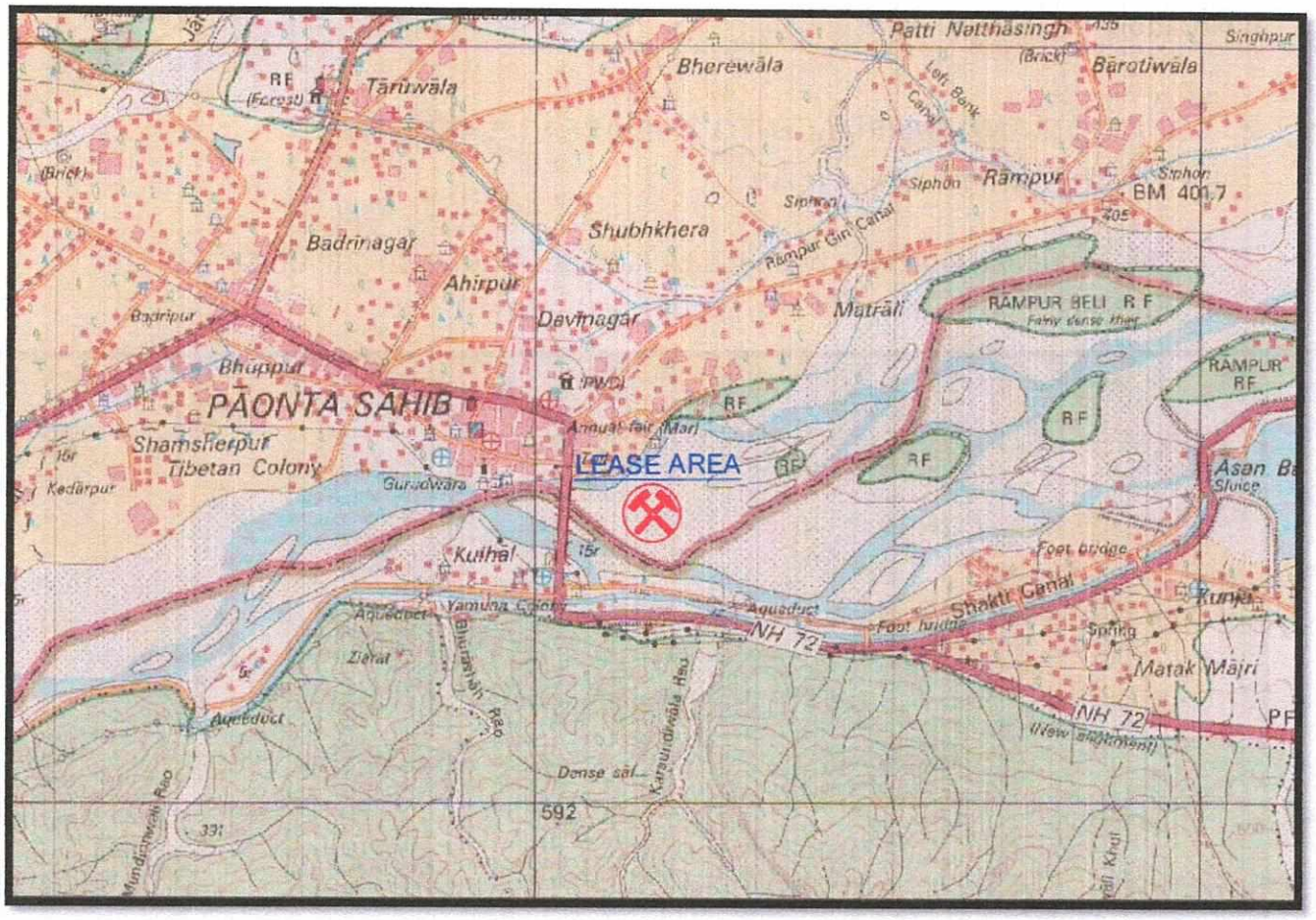
The Auctioned Quarry is bounded by latitudes North 30° 28' 06.55": 30° 28' 7.59" and longitudes East 77° 41' 19.15" : 77° 41' 22.16".

GOOGLE MAP SHOWING THE LOCATION OF AUCTIONED QUARRY

2.2. LOCATION DETAILS OF THE AREA

Village	Kunja
Patwar Circle	Devi Nagar
Post Office	Devi Nagar
Sub Division Office (Civil)	Paunta sahib
Sub Division (Forest)	Paunta sahib
Sub Division (IPH)	Paunta sahib
Sub Division (PWD)	Paunta sahib
Tehsil	Paunta sahib

District	Sirmaur
State	Himachal Pradesh



TOPOSHEET IMAGE SHOWING THE LOCATION OF AUCTIONED QUARRY

2.3. REVENUE DETAILS OF AREA

AUCTIONED AREA OF MAHENDER SINGH & CO.							
Sr.No	**Mauza/ Mohal**	**Khasra Numbers**	**Area**	**Kisam**	**Status**	**Land owner**	**Panchyat**
1	Devi Nagar	74	17-31-10	Gair mumkin Nadi	Kabza (HP Govt)	Govt. Land	Kunja
Total Area 17-31-10 Hectares							

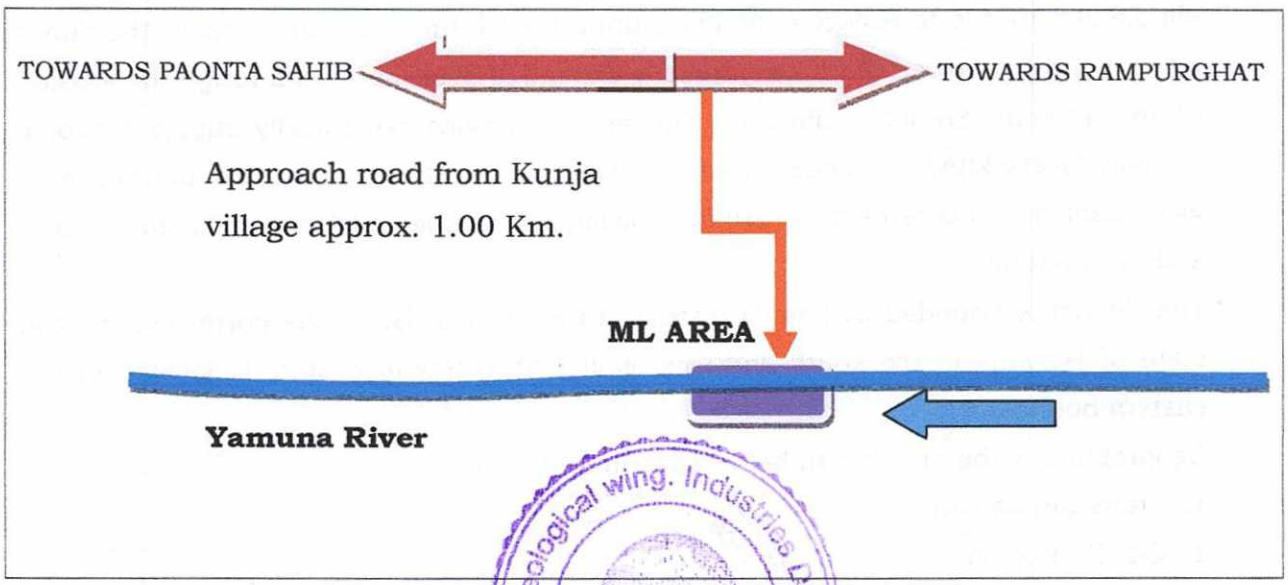
2.4. DISTANCE FROM IMPORTANT PLACES

The distances of important places from the auctioned quarry are as follows:

Sr. No.	Places	Transport Facility	Distance in Km.
1	Paonta sahib (Sub division office)	Road	3 Km
2	Shimla (State Capital)	Road	185 Km
3	Nahan District HQ	Road	45 Km
4	Ambala	Road	110 Km
5	Chandigarh	Road	135 Km
6	Sarahan Pur	Road	80 Km
7	Dehradun	Road	50 Km

2.5 APPROCH OF THE AREA

The proposed mining site is located on the opposite side of village Kunja on the right bank of Yamuna River. The auctioned quarry lies in the first stream of River Yamuna. The site is approachable through an approach road originating from Paonta-Chakrata-Manpur road near Kunja village about 3.0 kilometres from Paonta Sahib. The highest point of mining auctioned quarry is 452 meters above MSL and lowest point is 449 meters above MSL and average width is 550 to 650 mtrs. however; the total width of river Yamuna in this part is approximately 800 - 1000 meters.



3. PHYSIOGRAPHIC ASPECTS OF THE AREA

3.1. GENERAL PHYSIOGRAPHY

The auctioned quarry is located in the Kher Da Dune. In general the area forms a part of Siwalik Range, particularly a part of Dun Valley.

The area falls in the Siwalik foothill Belt. The Siwalik range extends from Pakistan in the west to India, Nepal, and Bhutan in the east. The width of this belt ranges from 6 to 90Km, generally become narrowed and steeper from west to east in a distance of 2000 Km. The tectonic activity and ongoing erosion has greatly modified the topography of the Siwalik belt. The present day morphology comprises of hogback ridges, consequent, subsequent, obsequent and resquent valleys of various orders; gullies. Choes (seasonal streams) and earth pillars, rilled earth buttresses of conglomerate formation, semicircular choe- divides, talus cone, colluvial cones, water gaps and choe terraces. The associated badland features include the lack of vegetation, steep slopes, high drainage density and rapid erosion rates.

To the south of the Siwaliks are the Indo-Gangetic plains and in the north they are bordered by the Lesser Himalayan metamorphites.

Intermittently located between the Siwaliks and Lesser Himalayas are duns, flat bottomed longitudinal structural valleys with their own drainage systems. These comprise several large Himalayan piedmont alluvial fans and terraces. The dunes consist of lacustrine, fluvial, Aeolian and swamp environment deposits ranging from Middle Pleistocene to Holocene in age. During their formative stage most of the dunes were slightly narrower and have gradually expanded over the time through the erosion of the adjacent Siwalik sediments. The monsoon rains temporarily supply seasonal streams locally known as choes, khads or nalas. These stream banks and their terraces yield sizable numbers of lithic artifacts owing to the sheared location for both water and raw material.

The district is bounded by Shimla district in the north Solan in the northwest and the state of Haryana in the south and west while the Uttrakhand state is located in the eastern boundary.

Geographically the district can be divisible in three parts

1. Trans-Giri Region
2. Cis-Giri Region
3. The Plains of Kiar Da Dun

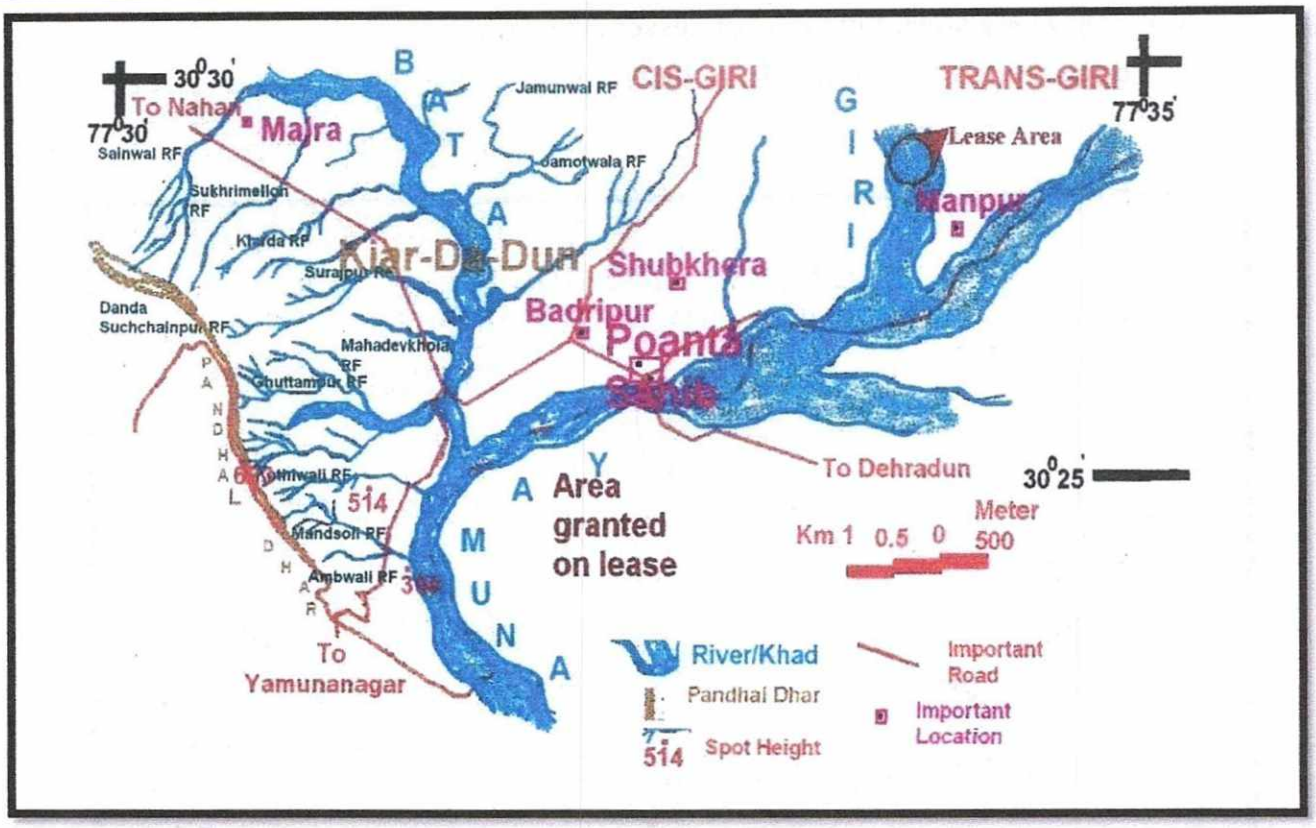


FIGURE SHOWING THE KIAR DA DUN VALLEY OF DISTRICT SIRMOUR,H.P

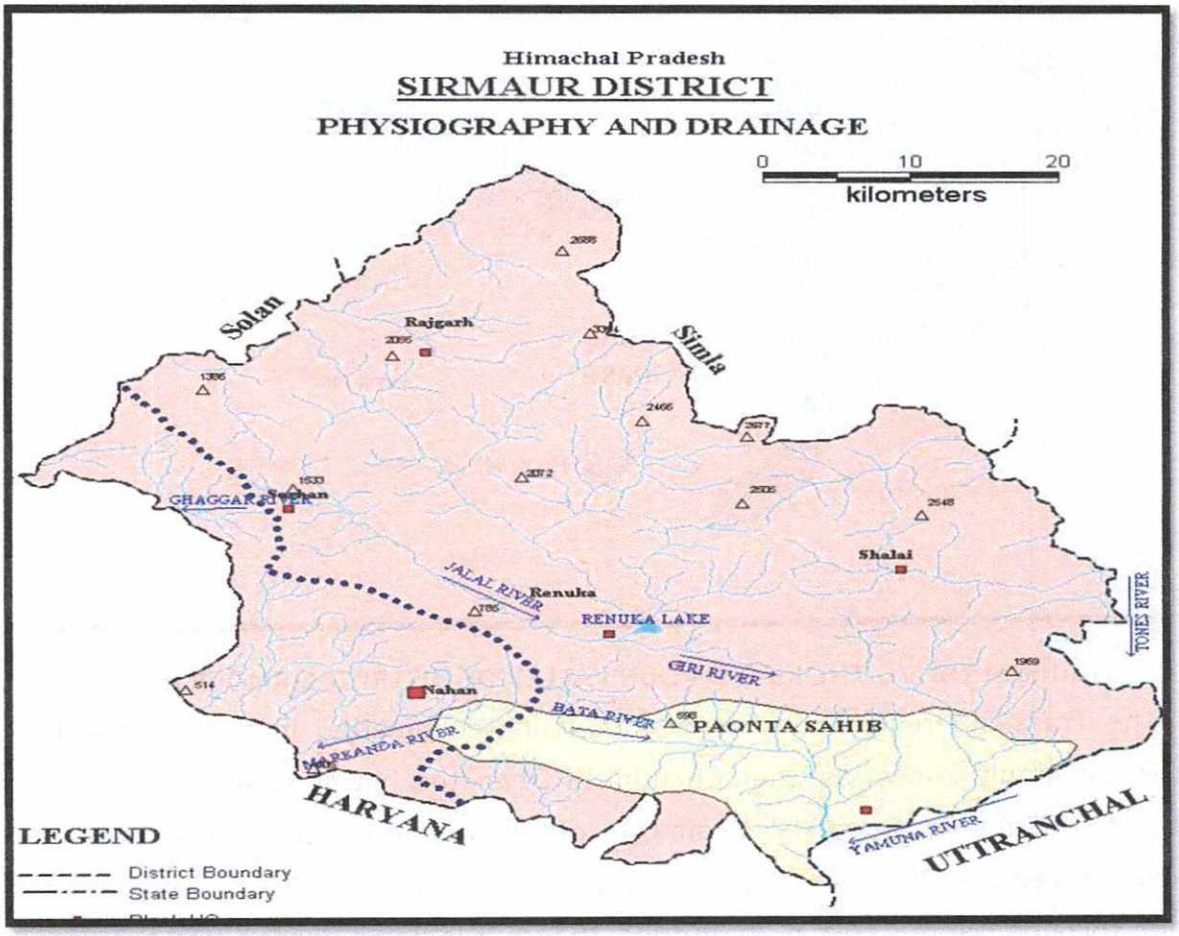
1. The Trans-Giri region consists of mountains culminating into the Chaur Peak which is commonly known as Chur Chandni Ki Dhar (the hill of silver bangle). It has altitude of 3647metres above MSL. From this lofty mountain run two ranges one in the north-west called the Dhar Taproli-Jadol and other Dhar Naura which run in south east direction towards Haripur Fort at an altitude 2677m it is again divided into two ranges one running in the east to the tons valley and other runs NW called Dudham Dhar which in the southwest have many spurs towards Giri river. The second range run initially in SW known as Nigali Dhar and then turns to east called Dhar Kamrau. The Shalai Dhar parallel to it and in the northern side and both of them combined forms the Valley of Nera River.

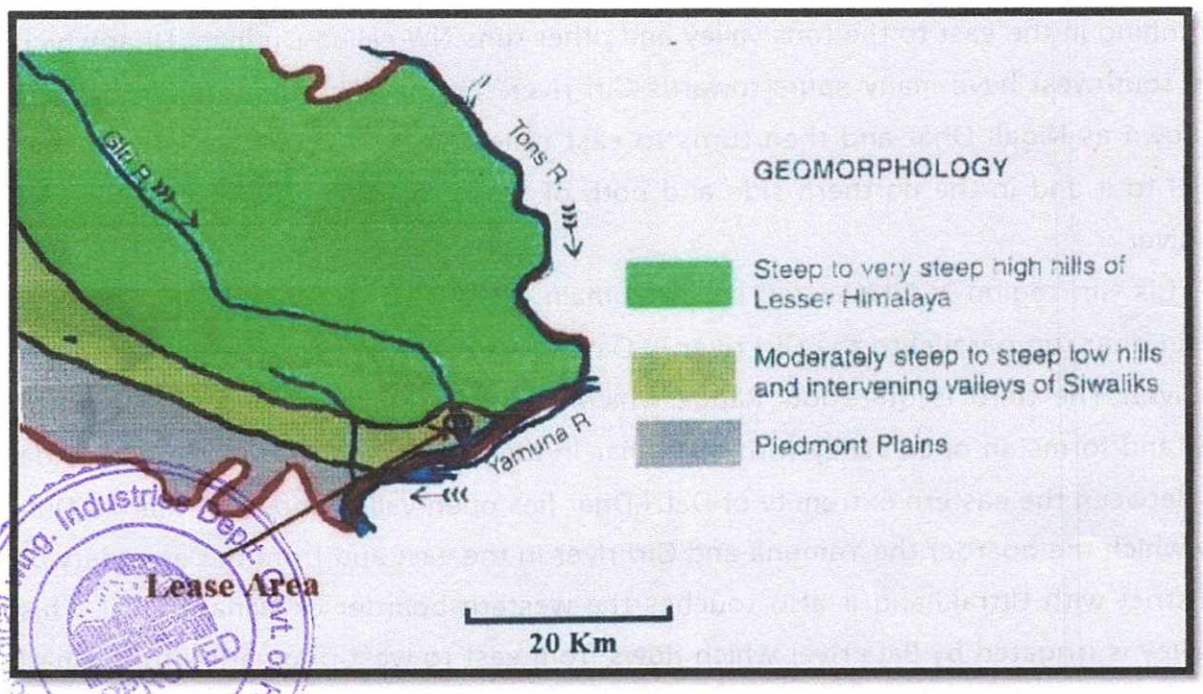
2. Cis Giri region is intersected by three main ranges which run from NW to SE is the Sain dhar run parallel to the Giri river ii) Datri Dhar between the two ranges run the Jalal River. The third is quite low Range which run from Kala Amb area to south of Nahan and forms an open valley with dhai dhar in the western part flows the Markanda river. Between the eastern extremity of Datri Dhar lies open valley known as Kiar ka Dun valley which the boarder the Yamuna and Giri river in the east and from the boundary of the district with Uttrakhand it also touches the western boarder of Nahan tehsil. This flat valley is irrigated by Bata river which flows from east to west originating from Dhati Dhar. Geomorphologically the district can be divided into three zones

1.Steep to vary steep high hills of Lesser Himalaya

2. Moderately steep to low hills and intervening valleys of Siwaliks and

3. Piedmount Plains.

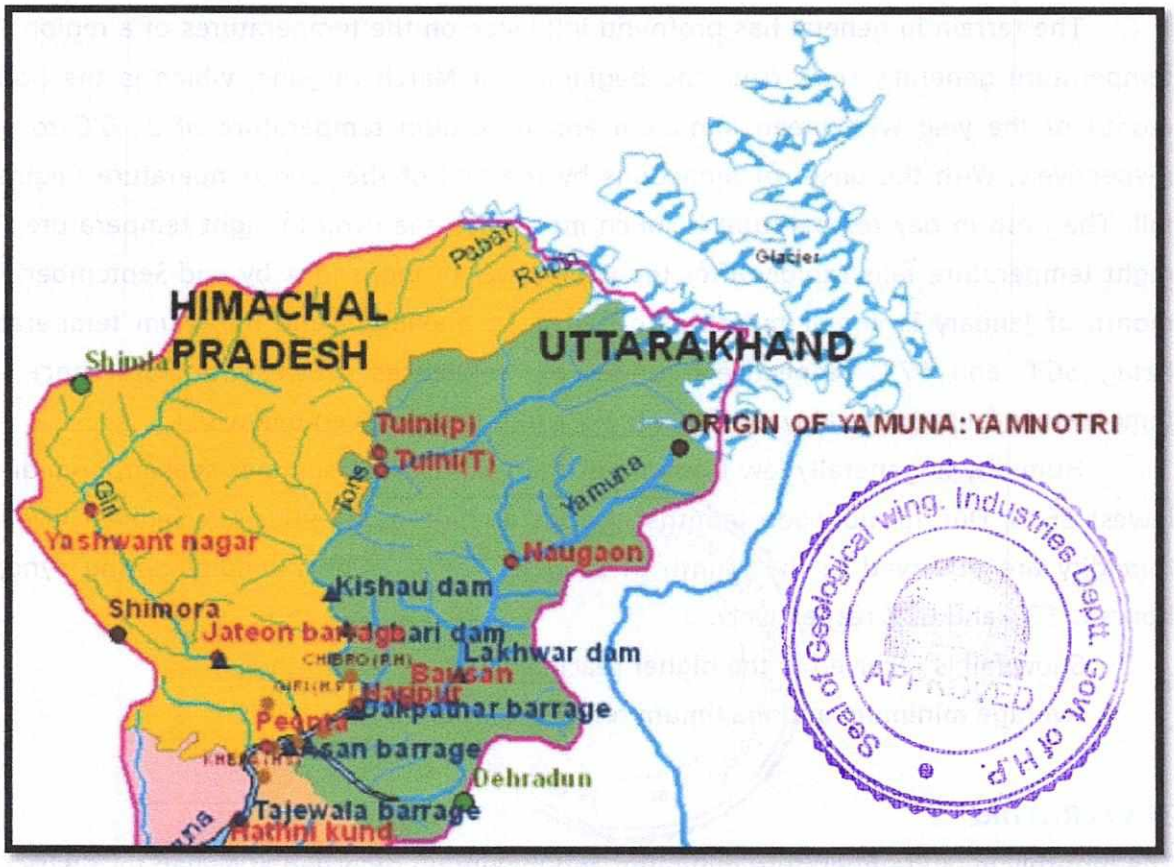




GEOMORPHOLOGICAL MAP OF PART OF SIRMOUR DISTRICT

3.2 ALTITUDE, GENERAL TERRAIN DESCRIPTION, WITH MAP AND CONTOURS ENCOMPASSING THE MINE AREA

The auctioned area for mining purpose lies in the Yamuna River which is a major tributary of Ganges River. This River is perennial in nature and it originates from the Yamunotri Glacier near Baderpoonch peaks (38°29' N 78° 27'E) at an elevation of about 6387 meters above mean sea level (MSL) in district Uttarkashi of State of Uttarakhand. The Yamuna catchment drains the Punjab-Kumaon Himalayas from Shimla in the northwest to Mussoorie in the southeast. After flowing in a south-eastern direction for approximately 120 Kms, it is joined by Tons river its principle tributary near Dakpathar. The River Tons drains a large catchment area hence carries a large volume of water than river Yamuna. From the west, river Giri, another important tributary of river Yamuna joins near Paonta Sahib. The river pierces the lower Shiwalik range and enters the plains near Tajewala. From Tajewala onwards, it flows in a Southern direction for a distance of 240 Kms. up to Okhla headwater near Delhi. The Yamuna River after receiving water through other important tributaries joins the river Ganages and the underground Saraswati at Prayagraj (Allahabad) after travelling a distance of about 950 Kms.



THE RELIEF MAP OF YAMUNA RIVER CATCHMENT AREA

The Auction area is located downstream of Dakpathar Barrage and the majority of the effective catchment area lies above this Barrage however; the Gates of Dakpathar Barrage are opened frequently to be Auctioned the additional water as well as the sediments collected upstream of the Barrage for de-silting purpose. In addition to this, the gates of this Barrage are full time partially opened during the rainy season. Hence, there are sufficient mineral reserves available as well as sufficient amount of minor minerals are being replenished in this area.

The mining Auctioned Quarry was mapped on 1:2000 scale with one meter contour interval (Plate - 3) The highest point in the Auctioned Quarry is 452 meters above MSL and the lowest point is 449 meters above MSL.

3.3 CLIMATE OF THE AREA

The region has four distinct seasons. The area experiences severe winter from December to March followed by servers summer season lasting from April to June. The area receives rainfall under the influence of south -west monsoon from July to mid-September followed by post -monsoon seaso n lasting up to November.

The terrain in general has profound influence on the temperatures of a region. The temperature generally rises from the beginning of March till June, which is the hottest month of the year with mean minimum and maximum temperature of 25.6°C to 44°C respectively. With the onset of monsoons by the end of the June temperature begins to fall. The drop in day temperature is much more than the drop in night temperature. The night temperature falls rapidly after the withdrawal of monsoons by mid-September. The month of January is cooler month with the mean maximum and minimum temperature being 36°C and 07°C respectively. Under the influences of western disturbance, the temperature falls appreciably during winters and it may go even below 0° C.

Humidity is generally low throughout the year. During summer season, humidity is lowest 36 %. During monsoon months, it goes as high as 80-90%. The highest levels of humidity are observed in the month of August. The average humidity during synoptic hours is 53% and 62% respectively.

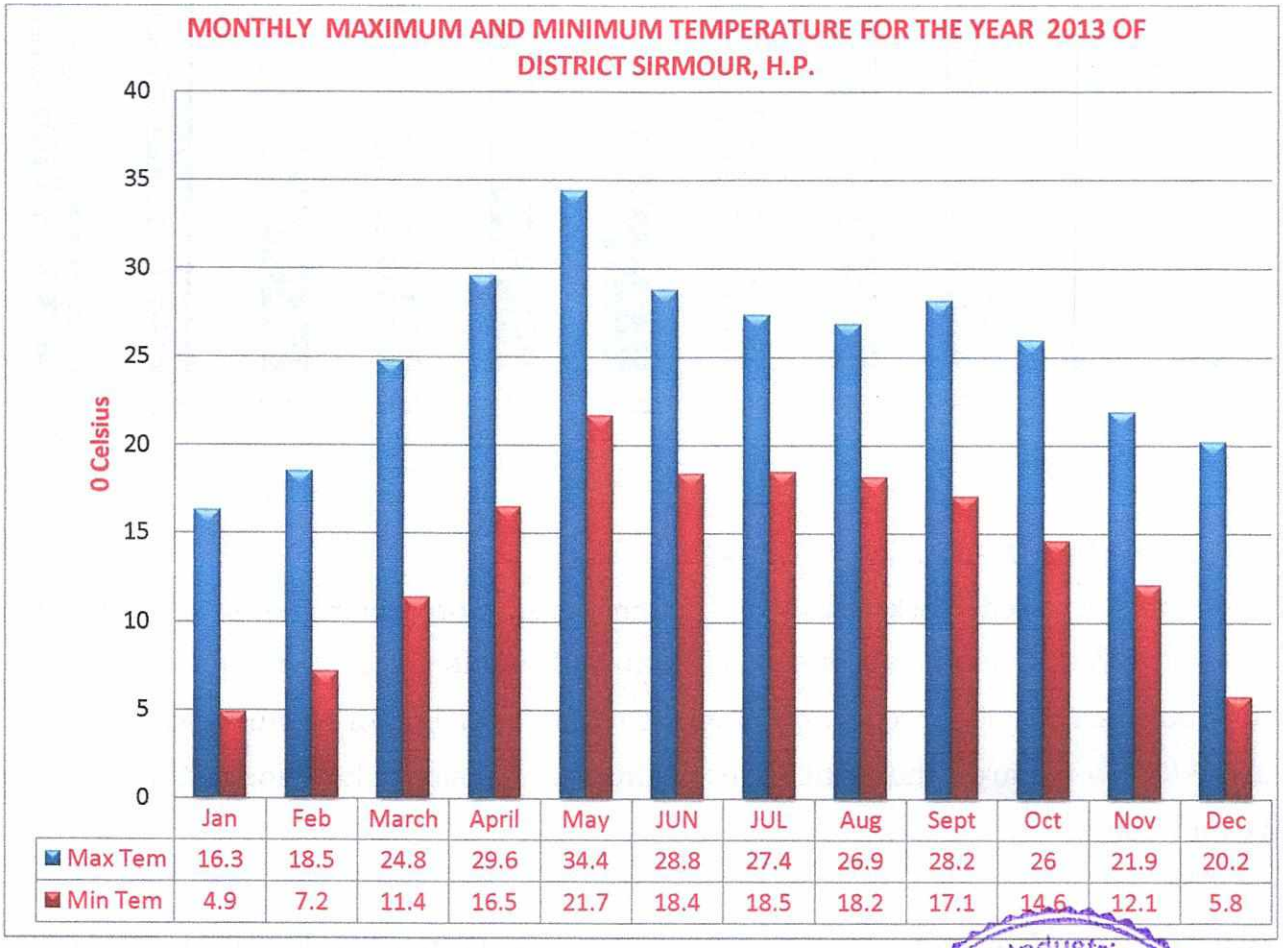
Snow fall is received in the higher reaches of Chaur Dhar ranges.

Average minimum and maximum temperature are 6°C and 36°C

TEMPERATURE

The monthly mean temperature minimum and maximum recorded at Nahan for district Sirmour for the year 2013 is given in table below:

Month	Jan	Feb	March	April	May	JUN	JUL	Aug	Sept	Oct	Nov	Dec
Max Tem	16.3	18.5	24.8	29.6	34.4	28.8	27.4	26.9	28.2	26.0	21.9	20.2
Min Tem	4.9	7.2	11.4	16.5	21.7	18.4	18.5	18.2	17.1	14.6	12.1	5.8

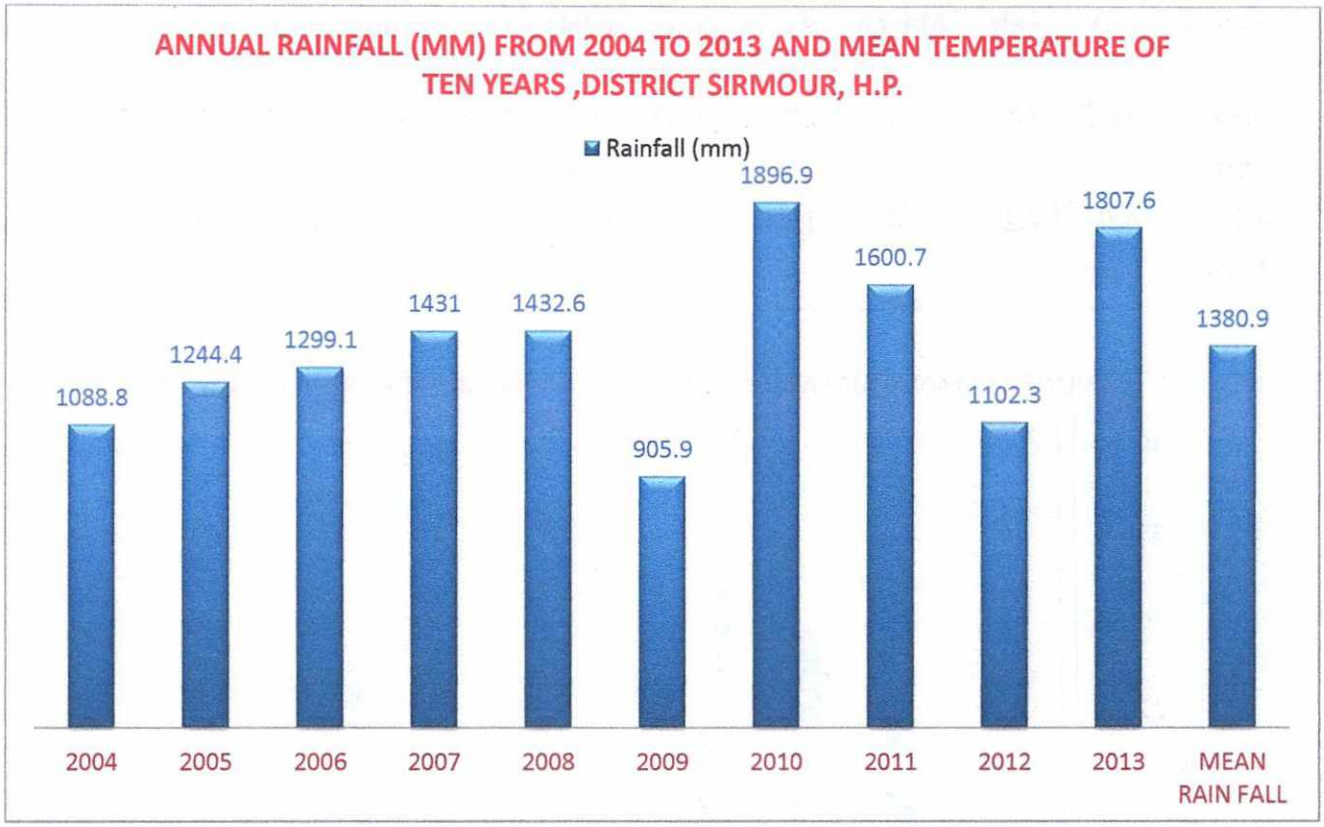


3.4 RAINFALL

The annual rainfall from 2004 to 2013 and mean of 10 years

The Fig-8 shows the general rainfall in the district. The annual rainfall in the district is given below:

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	MEAN RAIN FALL
Rainfall (mm)	1088.8	1244.4	1299.1	1431	1432.6	905.9	1896.9	1600.7	1102.3	1807.6	1380.9



3.5 ANY OTHER IMPORTANT FEATURE

The Auctioned block lies in the catchment area of Yamuna River which flows from North West to south east direction. Yamuna River is glacier fed from Himalaya mountain ranges. The area in question is in the river bed of Yamuna River near village Kunja towards the right bank of this river besides the Paonta-Chakrata-Manpur road.

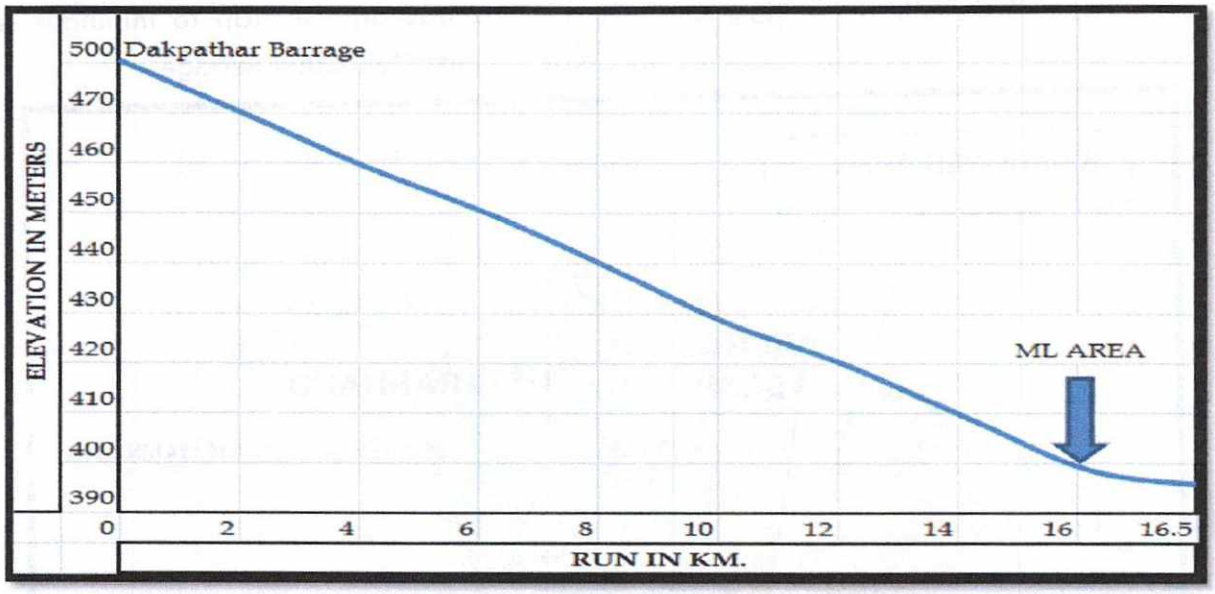
3.6. DESCRIPTION OF THE AREA IN WHICH THE AUCTIONED QUARRY IS SITUATED

The auctioned quarry is situated near Kunja Village and lies in the central part of Yamuna River. The general flow of YAMUNA River in this section is from North West to south east direction. The general altitudes of the area vary from 452m to 449m.

PART- I
DESCRIPTION OF GEOMORPHOLOGY AND MINE DEVELOPMENT

1.1 GENERAL

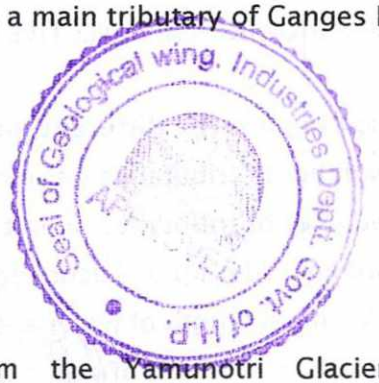
The auctioned quarry lies in River Yamuna, a main tributary of Ganges River. This River is perennial in nature and it originates from the Yamunotri Glacier near Baderpoonch peaks (38º 29' N 78º 27'E) at an elevation of about 6387 meters above mean sea level (MSL) in district Uttarkashi of State of Uttarakhand.



GRADIENT MAP OF YAMUNA RIVER (Meters/1000Meters) FROM DAKPATHAR BARRAGE

1.2 NAME OF THE RIVER/STREAM IN WHICH THE AUCTIONED QUARRY IS SITUATED

The mining area lies in Yamuna River which is a main tributary of Ganges River



1.3 DRAINAGE SYSTEM

It forms a part of Yamuna Drainage system.

1.4 TYPE OF DRAINAGE

Dendritic

1.5 ORIGIN OF RIVER/STREAM

The River Yamuna originates from the Yamunotri Glacier near Baderpoonch peaks (38 ' 29' N 78 ' 27'E) at an elevation of about 6387 meters above mean sea level (MSL) in district Uttarkashi of State of Uttarakhand.

1.6 ALTITUDE AT ORIGIN:

About 6387 meters above mean sea level. The highest point of the Auctioned area is 452 meters and lowest is 449 meters above mean sea level.

1.7 GEOMETRY OF THE CATCHMENT OF THE RIVER IMPACTING THE REPLENISHMENT OF DEPOSITS

Geometry of Yamuna River

Total Area of catchment = 74208 Sq. Km.

Area of catchment up to mining site = 20,000 Sq. Km. (Up to mining area below Dakpathar Barrage)

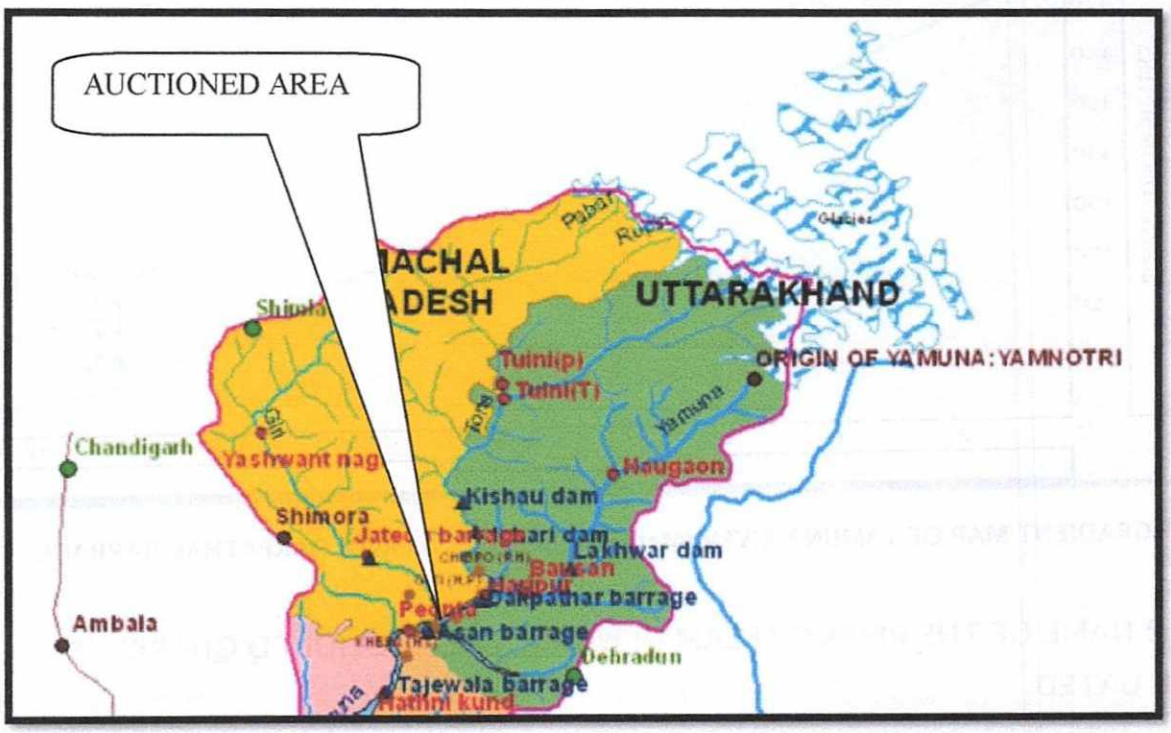


IMAGE SHOWING THE EFFECTIVE CATCHMENT OF YAMUNA UPTO AUCTIONED AREA

The following are the different ingredients of the Yamuna River

Number of tributaries on right bank	9 major and many small
Number of tributaries on left bank	5 major and many small
Stream order up to Auctioned area	3
Maximum length of water shed	120 km
Maximum breadth of water shed	62 Km

Length breadth ratio = 1.93: 1 Higher the ratio, higher is the asymmetry of water shed.

Profile of River Bed

Elevation at origin	6387 M

Elevation at Auctioned area	452 to 449M
Total length of River	137.0 Km
Cumulative Elevation Loss	5986 M
Average Slope	6.0 % about 2.7°
Slope angle at Auctioned area	5.2% about 2.34°

Profile of River Bed

1.	Elevation at origin	=	6387 M
2.	Elevation at Auctioned area	=	452 to 449M
3.	Total length of River up to mining area	=	137.0 Km
4.	Total Elevation Loss up to mining area	=	5986 M
5.	Average Slope	=	3.2 % about 1.44°
6.	Slope angle at mining area	=	<1% about 0.30°

Cycle of erosion at mining area is old.

1.8 ANNUAL DEPOSITION AT THE PLACE OF MINING:

3cm to 5cm in Auctioned Quarry area.

1.9 THE COMPETENCY OF THE RIVER/STREAM AT THE MINING SITE:

The general competency of the river at the mining area is 4 to 6 kg approximate. The largest boulder varies 9to14CmX8 to12X7 to12 Cm (length x breadth x height)

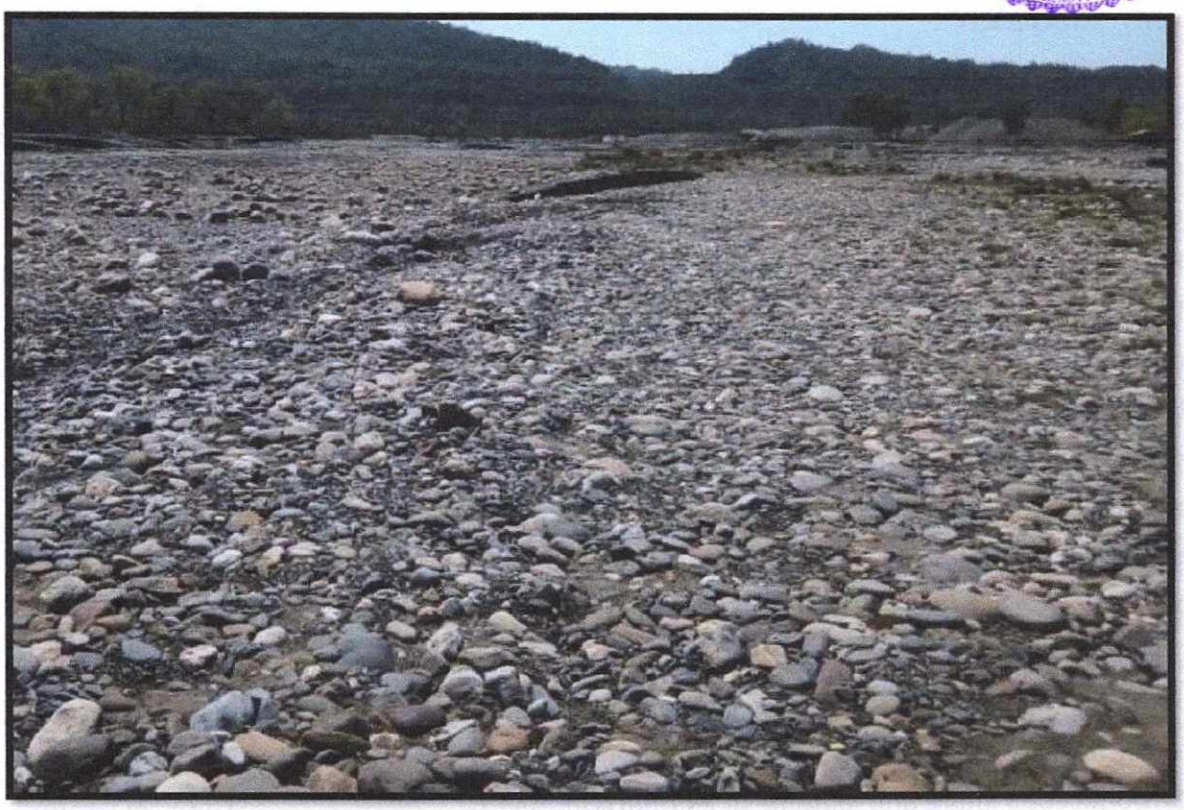


PHOTO SHOWING THE COMPETENCY OF YAMUNA RIVER AT AUCTIONED AREA

1.10 Meandering Pattern of the River near mining site

During monsoons due to flash floods the water level rises by 1.5 to 2.0 meters for short spells and the river is perennial in nature. The landform being depositional, the meandering thread constantly changes during the rains depending upon the water level. The highest flood level is maximum rise level and the lowest flood level is riverbed level.

1.11 Altitude of the Mining area

The highest contour in the lease area is 452 Mts. and the lowest is 449 Mts.

1.12 Description of the Ground water table in the Mining Area, before and Post Monsoon.

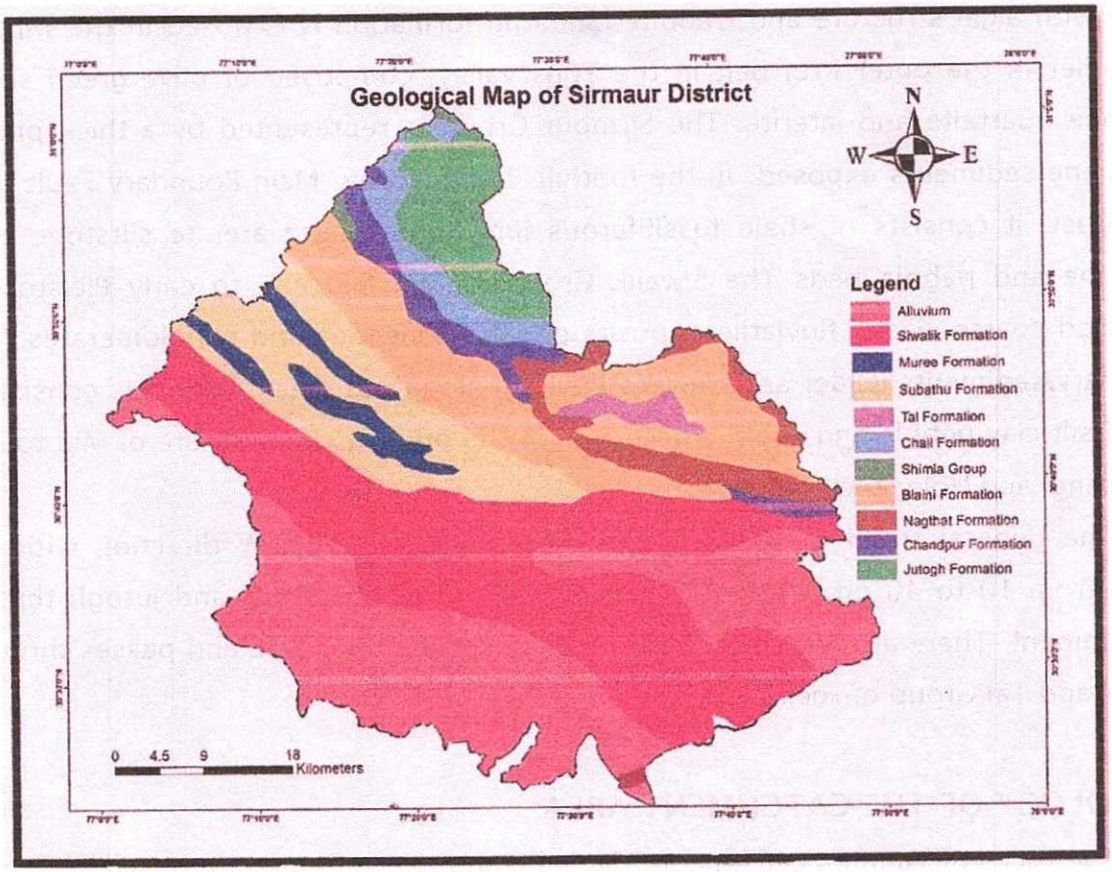
The area is located in the Siwalik system, which consist of boulders bed and has minimum water retention capacity. The area is a hilly terrain as such cannot have any regular water table but the percolated water comes out in the shape of spring at those places where there is non pervious formation is available to stop the water from further percolation. After monsoon period the springs can be seen functional in number of places but the intensity of discharge start reducing after September and most of the springs goes dry after November and the major sources of water remains the course of the Yamuna River where the water is available along the course of river where the wells are developed.

(2). GEOLOGY

2.1 Geology of the catchment Area

Sirmour District lying within the Lesser Himalaya and the Shiwalik Foothill comprises rocks ranging in age from Proterozoic to Quaternary. The oldest rocks of undifferentiated Proteomic age belong to the Jutogh Group Comprising carbonaceous Phyllis, schist, gneiss, quartzite and marble. The Chorgranitoid (Undifferentiated Proterozoic age) occurs as an intrusive body within the Jutogh Group of rock. This granite body is well foliated and composed of gneisses, granite with minor aplite and basic veinlets. The Sundernagar Group of Rocks of Meso-Proterozoic age is represent by quartzite with basic flow. The Deoban/ Shali Group of Rocks (Meso - Proterozoic)Comrising limestone, dolomite, (at places stromatolytic) slate, & quartzite occurs along the Main Boundary Fault and also in northeastern parto of the District. The argillo-arenaceous sequence of Shimla/Jaunsaur Group rests uncomfortably over the Deoban Group. The Jaunsaur Group of arenoargillaceous rocks is homotaxial with Shimla Group and assigned Meso-Proterozoic age. Both Shimla and Jaunsaur Group of rocks are unconformably succeeded by the Baliana Group, comprising diamicite, pink dolomite, carbonaceous shale and slate besides quartzite bands. The Krol Group

overlies by the Baliana rocks dominantaly a carbonaceous sequence with minor shales and sandstone.



REGIONAL GEOLOGY OF DISTRICT SIRMOUR, H.P.

GEOLOGICAL MAP OF THE SOUTHWESTERN PART OF SIRMOUR DISTRICT.

The Tal Group of early Cambrian age is heterolithic sequence of siltstone dolomite shale ash grey tuffs chert/ phosphorite, carbonaceous shale grit and quartz arenite with algal structure and trilobite. Subathu formation is exposed in the window and outlier in the outer Krol belt in the Tons valley, composed of olive green shale, limestone quartzite and laterite. The Sirmour Group is represented by a thick pile of Palaeogene sediments exposed in the foothill bounded by Main Boundary Fault and Krol thrust; it consists of shale fossiliferous limestone quartz arenite siltstone clay, sandstone and pebble beds The Siwalik Group of Mid Miocene to early Pleistocene Composed coarse clastic fluviatile deposits of sandstone clay and conglomerates. The quaternary sediments (Older and Newer Alluvium) along prominent channels consisting of sand silt clay pebble and cobble occurring in the present channels are of Mid to late Pleistocene and Holocene age.

The general trend of rocks in the area is NW-SE and E-W direction with dip varying from 10 to 40 on either side. Beside MBF, Krol, Giri, Chail and Jutogh thrusts are prominent. There are two major synformal axis, running NW-SE and passes through the Krol and Tal Group of rocks.

1.2 GEOLOGY OF THE CATCHMENT AREA:

The rocks of Yamuna catchment mainly belong to Pre Cambrian to Siwalik Group, older alluvium, newer alluvium. The stratigraphic sequence of the effective catchment is given in the table below and in figure

Formation/Group	Lithology	Age
Newer Alluvium	Grey micaceous sand silt clay and boulders	Holocene
Dun Gravel	Sand clay pebble cobble and boulders	Mid to Late Pleistocene
Siwalik Group	Sandstone, clay and conglomerates	Mid Miocene to Early Pleistocene
Sirmour Group	Shale sandstone clay local pebble beds and limestone lenses	Eocene to Miocene
Shali Group	Limestone ,dolomite slate and quartzite	Meso- Proterozoic
Jaunsar Group	Shale siltstone quartzite limestone and quartzite	Upper Proterozoic
Baliana Group	Pink dolomite, carbonaceous slate, shale	Upper Proterozoic

	and quartzite	
Krol Group	Dolomite, limestone red shale and sandstone	Upper Proterozoic
Tal Group	Siltstone dolomite, chert, phosphorite carb shale tuffs sandstone limestone and grit	Cambrian

2.2 GEOLOGY OF THE AUCTIONED AREA

The Auctioned Quarry forms a part of the stream bed covered with boulders cobble pebbles, river born bajri sand and clay deposits of channel alluvium. The rocks along the banks are Terrace alluvium and Fan Alluvium and in the higher reaches of catchments is Upper Siwalik Formation.

GEOLOGICAL SUCCESSION OF SIRMOUR DISTRICT AROUND AUCTIONED AREA

GROUP		LITHOLOGY		AGE
Newer Alluvium	Channel Alluvium	Grey fine to coarse sand and silt along with cobble and pebbles of fans and terrace alluvium		QUARTRNARY
	Terrace Alluvium	Grey micaceous, fine to coarse grained sand, silt, clay and cobble and pebbles		
	Fan Alluvium	Brownish grey clay, sand and gravel white to grey cobble-pebble sequence		
Older Alluvium	Dun Gravels	Multicyclic sequence of brown to grey silt, clay with kankar and reddish brown to grey micaceous sand with pebble and cobbles		
Siwalik Group	Upper Siwalik	B	Massive conglomerates with red clays matrix, minor sandstone and earthly buff-brown clay stone	NEOGENE
		A	Sandston, ,clay and conglomerate alternations	
	Middle Siwalik	B	Massive sandstone and minor conglomerate with local variegated clay stone	
		A	Medium to coarse sandstone and red clay alternation subordinate pebbly clay stone with lenses of conglomerate	
	Lower Siwalik	B	Fine to medium grained occasionally	

			pebbly sandstone having calcareous cement and chocolate to maroon clay stone alternations	
		A	Red clay stone with thin intercalations of medium to fine grained sandstone	

SIWALIK GROUP: The Siwalik Group composed mainly of fluvial sequences i.e. mudstone, sandstone and coarsely bedded conglomerates which were laid down in a vast basin during Middle Miocene to Upper Pleistocene time. The sediments were deposited by the rivers flowing southwards from the greater Himalayas. The sediments were uplifted through intense tectonic regimes resulting subsequently in a unique topographic entity-the Siwalik Ranges. The Siwaliks are divided into three major subgroups-Lower, Middle and Upper.

The erosion and tectonic activity has greatly affected the topography of the Siwaliks. Their present day morphology comprised valleys of various orders, gullies, earth pillars etc.

Lower Siwalik: The lower Siwaliks consists essentially of sandstone-clay alteration. The basal sequence consists of medium grained sub-greywacke interbedded with thick red clay. The upper sequence composed of sandstone which is coarser and clasts become more frequent while the clays proportion is less. The top horizon consists of conglomerate with well rounded clasts of grey quartzite possibly derived from Shali/Nagthat Formations. The total thickness is 1600m.

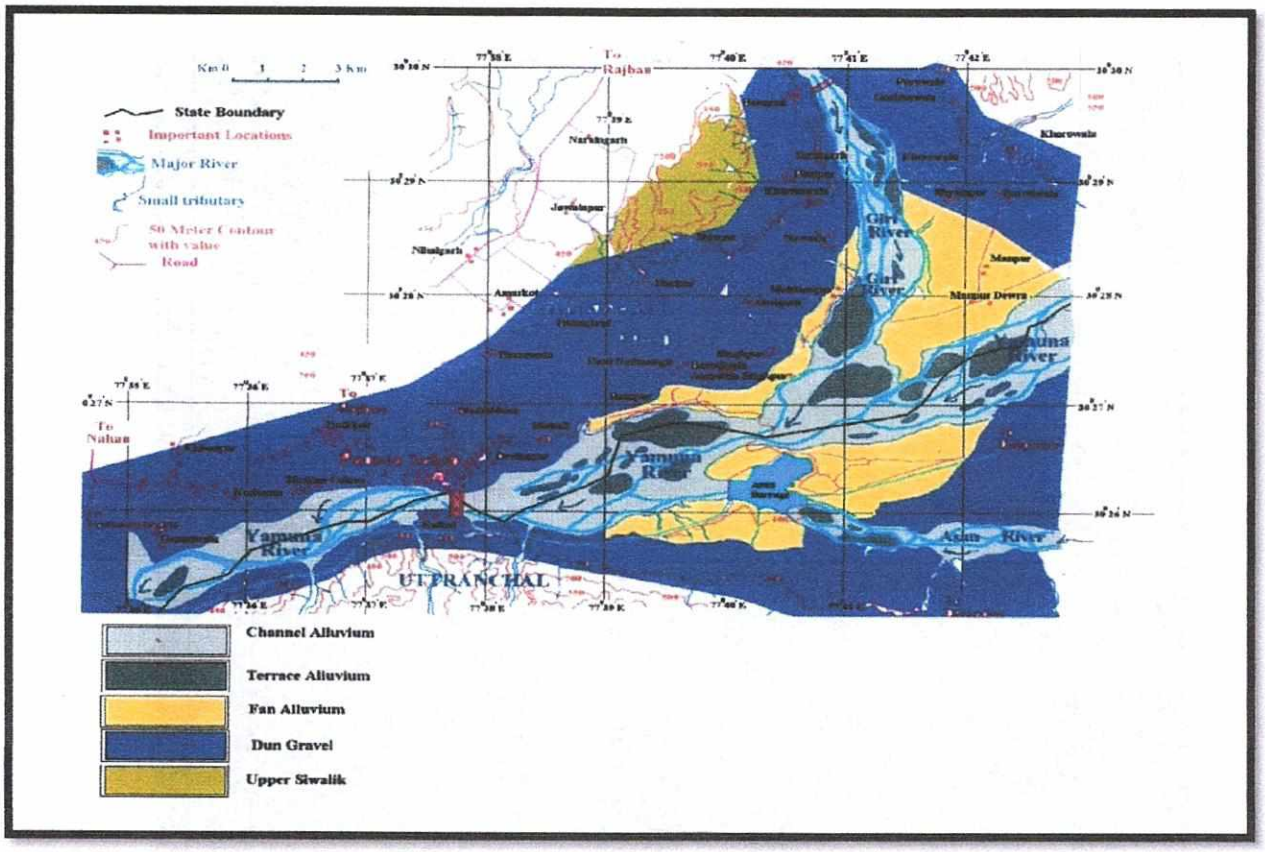
Middle Siwalik: The middle Siwaliks subgroup comprises large thickness of coarse micaceous sandstone along with some inter-beds of earthy clay and conglomerate. The sandstone is less sorted than those in the Lower Siwaliks. The clay bands are dull coloured and silty. The general thickness is 1400 to2000m.

Upper Siwaliks: The upper Siwaliks represented mainly by sandstone interbedded with silt and conglomerates. The basal part is represented consist of soft, massive, pebbly sandstone with intercalations of conglomerates). In the upper portion the conglomerate intercalations are replaced by the clay intercalations. The thickness is about 2300m.

Older Alluvium: The older alluvium in the Dun valley is designated as Dun gravels. It is a multi-cyclic sequence of brown to grey silt, clay with kankar and radish brown to

grey silt, clay with kankar and radish brown to grey micaceous sand with pebbles and cobbles.

Newer Alluvium: The newer alluvium has been subdivided into fan alluvium composing brownish grey clay, sand and gravel white to grey cobble and pebble sequence lying diconformably over the older alluvium within a narrow zone immediately to the south of Siwalik Range.



GEOLOGICAL MAP AROUND AUCTIONED AREA

The terraces of Soan River are composed of cyclic sequence of grey micaceous fine to coarse grained sand, silt, clays, cobble and pebbles. Channel alluvium exposed as point bar/channel bars within the active channels is composed of grey, fine to coarse micaceous sand and silt along with cobbles and pebbles of the fans and terrace alluvium.

The Auctioned Quarry comprises predominantly the quartzite boulders, sand and river born Bajri of sandstone material.

2.3 NATURE OF BOULDERS/COBBLES AND SAND

The Auctioned Quarry lies within the regular course of Yamuna River; it gets floods in the rainy season. The deposits consist of quartzite and sand fraction of granite, limestone and braccia fragments. The boulders are white, spotted white, greenish white, pink, purple and dark green in colour. Quartzite fragments are rounded

to sub-rounded and discoidal in shape, having smooth surfaces. The size varies from gravel to boulder (Fig- 15). The thickness of the deposit varies from one to three meters. During the monsoon season the mine pits are replenished to a large extent ascribed to erosion of Siwalik rocks due to heavy rainfall and consequent fast flowing water in the higher regions of the catchment area. The Auctioned Quarry being located in the gentle gradient region there is a sudden decrease in the carrying capacity and competency of the river thus there is annual deposition of 3 to 5 cm in the Auctioned Quarry.

NATURE OF BOULDERS OCCURING IN THE YAMUNA RIVER BED IN AUCTIONED AREA

2.4 NATURE OF THE ROCK ALONG THE BANK

The rocks exposed along the banks belong to terrace alluvium, Dune gravel of Newer alluvium Formation consisting of clay sand and loose boulders pebble, cobbles etc.

2.5 THE DESCRIPTION OF ANNUAL DEPOSITION WITH RESPECT TO GEOLOGY OF CATCHMENT AREA:

From field experience and data collected during monsoon, it has been observed that in this type of stream, the replenishment factor is 100% of the material excavated during the year. Therefore, the material excavated up to the one meter depth which has been replenished during the raining season (Non working Season)

3 RESERVE ESTIMATE

3.1 PERCENTAGE WISE DISTRIBUTION OF STONE, GRAVEL SAND ETC.

In order to calculate the percentage of various sediments in the river bed four trial pits were dug having Length1mX Width1mX Depth 1m at four different locations of Auctioned Quarry, the material excavated from these pits was collected and composited and sieved first into said four categories.

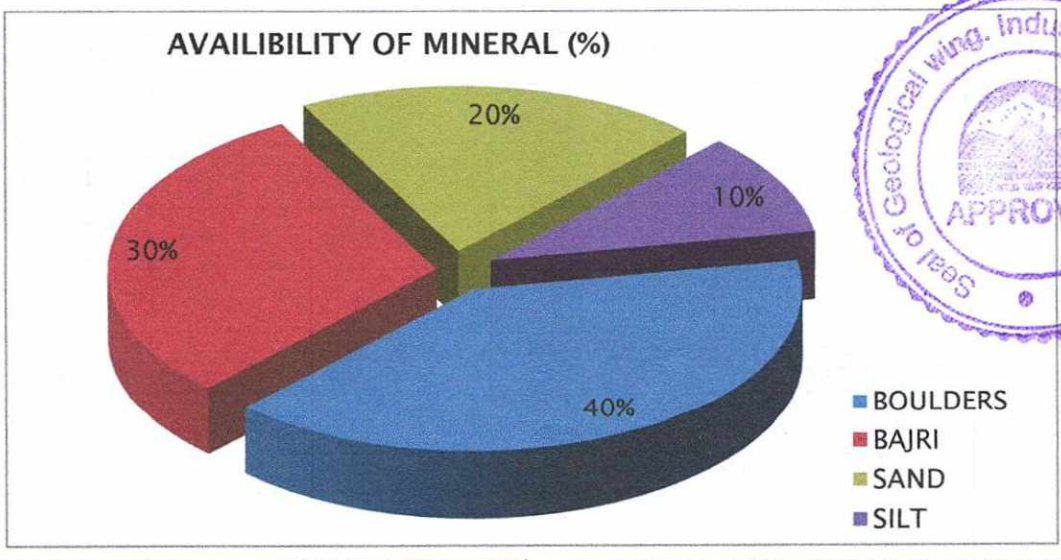
The total river bed material obtained is classified into the following four categories.

Sr. No.	Category/mineral/ material	Size	End Use
1	Boulders	>64 mm	The material to be used in making grit
2	River born Bajri	64mm to12mm	To be sold in the market after screening for construction work
3	Sand	12mm to1/16mm	After screening to be sold in open market
4	Silt sand -clay mixture	>1/16mm	To be used in back filling

THE PERCENTAGE OF EACH CATEGORY IS GIVEN BELOW:

Percentage of River material in the Auctioned Quarry Yamuna river			
Category-1	**Category-2**	**Category-3**	**Category-4**
Boulders	River born Bajri	Sand	Silt/sand-clay mixture
40%	30%	20%	10%

PIE DIAGRAM SHOWING PERCENTAGE OF MINERALS IN AUCTIONED QUARRY



3.2 ESTIMATE OF GEOLOGICAL RESERVES

The average depth of sediments in the mining area is expected to be more than 10.00 meters in total mining area as per information gathered from Public works department and other departments like IPH involve in construction of bridges and wells respectively, the geological reserves up to the depth of three meter are given below:

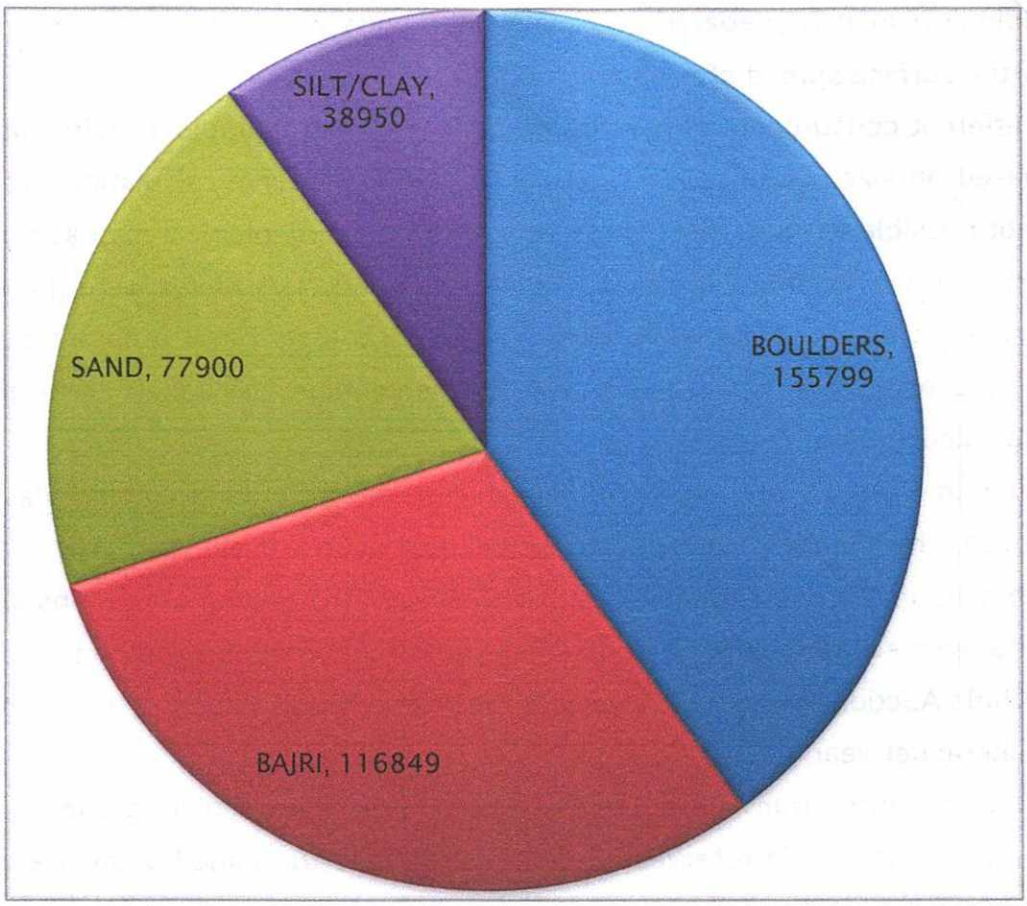
GEOLOGICAL RESERVES (METRIC TONNES) OF DIFFERENT CATEGORY MINERALS AVAILABLE IN THE 173110 SQ. M AREA/ YEAR, IN YAMUNA RIVER AT AUCTIONED QUARRY , UPTO A DEPTH OF THREE METER			
Category-1	**Category-2**	**Category-3**	**Category-4**
BOULDERS	RIVER BORN BAJRI	SAND	SILT/SAND-CLAY MIXTURE
467397	350548	233699	116849
TOTAL RESERVES OF DIFFERENT CATEGORY MINERALS AVAILABLE IN AUCTIONED QUARRY		**1168493** METRIC TONNES	

3.3 ESTIMATE OF MINEABLE RESERVES OF BOULDER, BAJRI (GRAVELS) AND SAND

The average depth of sediments in the Auctioned area is expected to be more than 3.00 meters in total Auctioned Quarry however considering the guidelines of river bed mining policy the Mineable reserves were computed in Auctioned Quarry up to the one meter depth.

The Mineable reserves up to the depth of one meter are given below:

ESTIMATED MINEABLE RESERVES (METRIC TONNES) OF DIFFERENT CATEGORY MINERALS AVAILABLE IN THE 173110 SQ. M AREA/ YEAR, IN YAMUNA RIVER AT AUCTIONED QUARRY , UPTO A DEPTH OF ONE METER			
Category-1	**Category-2**	**Category-3**	**Category-4**
BOULDERS	RIVER BORN BAJRI	SAND	SILT/SAND-CLAY MIXTURE
155799	116849	77900	38950
TOTAL RESERVES OF DIFFERENT CATEGORY MINERALS AVAILABLE IN AUCTIONED QUARRY		389498 METRIC TONNES	
TOTAL MINEABLE RESERVES OF MARKETABLE/ COMMERCIALLY EXPLOITABLE MATERIAL AVAILABLE (CATEGORY 1 TO CATEGORY 3)		**350548 METRIC TONNES**	



PIE DIAGRAM SHOWING QUANTITY (IN MT) OF MINERALS IN AUCTIONED QUARRY PER YEAR

3.4 ESTIMATE DEPOSITION OF DIFFERENT CONSTITUENTS OF MINERAL OF MINEABLE RESERVES OF BOULDER, BAJRI (GRAVELS) AND SAND

As the mineral replenishes every year, the reserves are always renewable and shall not exhaust as such geological reserves in river bed has no relevance to the production size. It has been experienced that during monsoon, it has been observed that in this type of stream, the replenishment factor is 100% of the material excavated during the year. The material excavated up to one meter depth would be replenished during the raining season (i.e. Non working Season).

(4) MINE DEVELOPMENT AND PLAN OF PROGRESSIVE MINING

4.1 Development and production Programme for First Five years

The purpose of Auctioned minerals is to use the material in the already installed stone crusher unit as source of raw material for manufacture of Grit. As such, the primary raw material required for stone crusher is boulders and Bajri. The river borne material contains boulders, sand, bajri and mixture of clay/silt. The clay/silt does not have any market value and this material will be used for rehabilitation work. In order to calculate the mineable reserves, the following points are taken in to consideration.

1 A Geological map is prepared and main Litho-units were marked on the plan to know the surface spread of each unit.

2 The different constituents of river borne deposits such as boulder, bajri, sand and silt based on size classification were considered for reserve calculation. Although it is not possible to mark these units separately on the geological map as such two pits at different locations in the Auctioned area of 1x1x1 meter were got dug in the mining area and material so excavated was separated into different size and their percentage was worked out and this percentage was taken in to account during calculation of reserves.

3 Keeping in view of the replenishment factor, no rotational mining has been proposed. The complete mineable area shall be explored every year.

4 The mining shall be undertaken manually however; the mining operations shall be undertaken mechanically if the competent authority permits for the same.

5 The Whole Auctioned Quarry is available for the mining as per total requirement of the mineral per year.

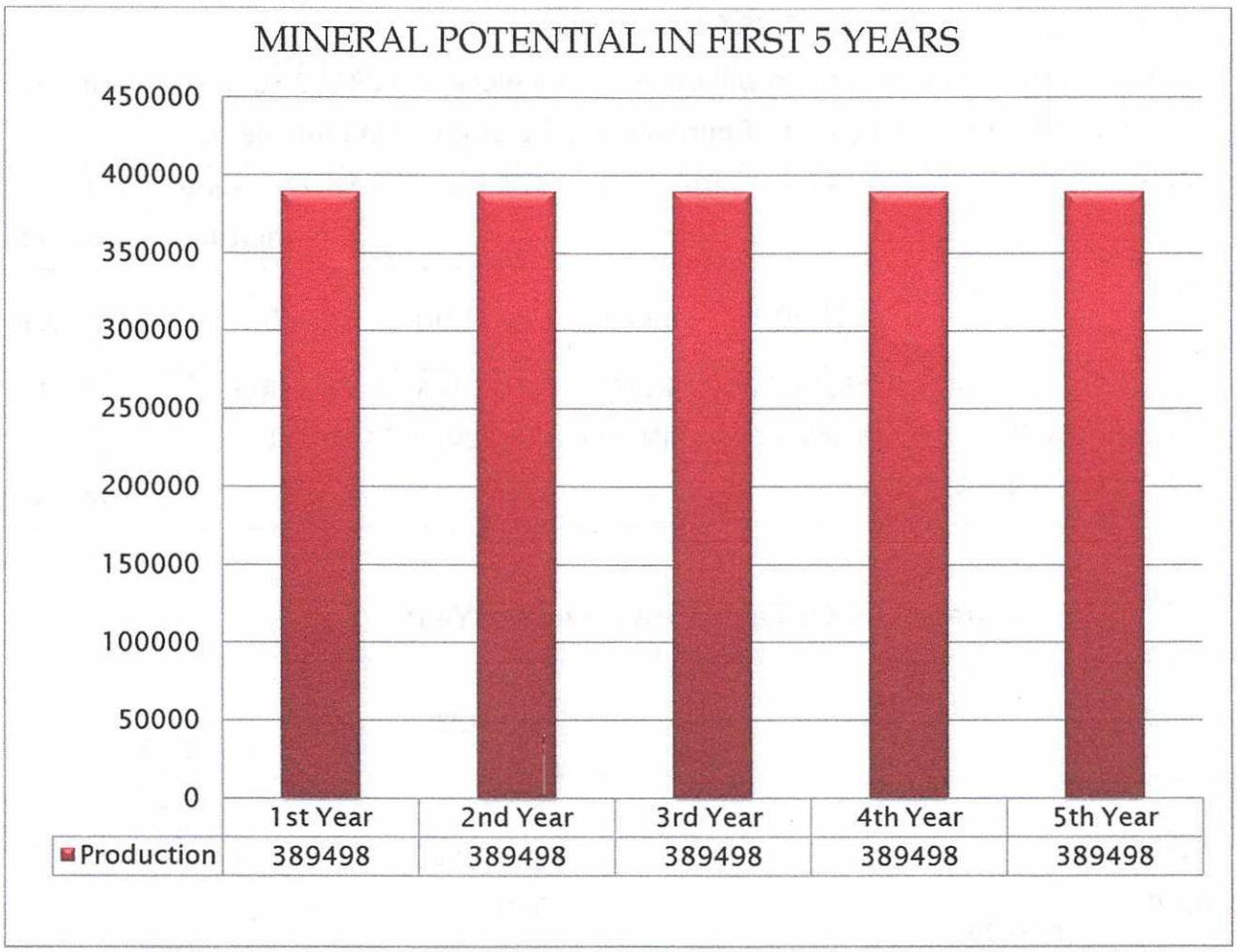
6 One meter depth from the surface is considered for calculating the Mineable reserves. The mineable reserves are inexhaustible as the mined areas are getting replenished during the successive rainy season

7 The specific gravity of boulders and bajri is 2.65 and of sand and mixture of clay/silt is 1.85 hence the average specific gravity of 2.25 has been considered for calculation of deposit in the Auctioned Quarry.

8 The Mineable reserves calculated as per the production requirement have been calculated in the mineable area.

TOTAL AUCTIONED AREA	*173110 Sq. m*
AVAILABLE MINEABLE AREA AFTER LEAVING NO MINING ZONE	*173110 Sq. m (100%)*

FIVE YEAR POTENTIAL					
YEAR	BOULDERS	BAJRI	SAND	SILT/CLAY	TOTAL
1st Year	155799	116849	77900	38950	389498
2nd Year	155799	116849	77900	38950	389498
3rd Year	155799	116849	77900	38950	389498
4th Year	155799	116849	77900	38950	389498
5th Year	155799	116849	77900	38950	389498
TOTAL	778995	584246	389498	194749	1947488



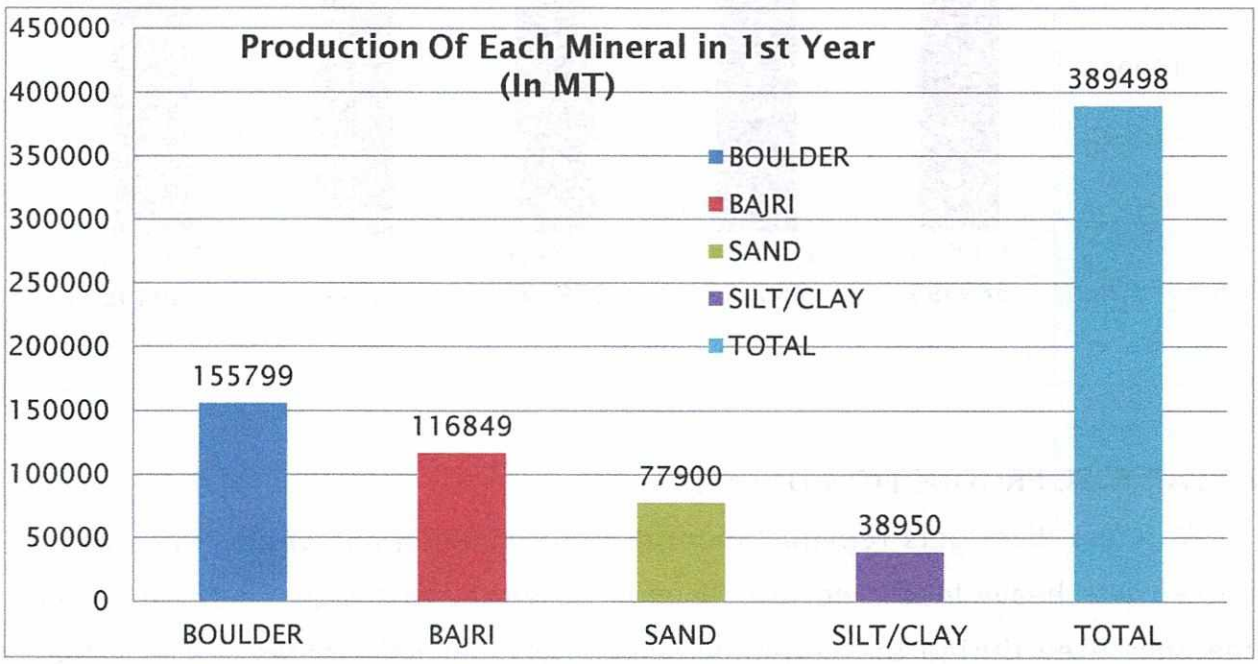
4.2 YEAR WISE PRODUCTION DETAILS

Yamuna River gets replenishment during monsoon and winter rains when the river gets heavy load. The river level is raised up to 1.5 to 2.00 meters for sometimes even during the non-rainy season whenever the gates of Dakpathar Barrage are opened for de-silting purpose. The mining has been planned in full block up to the depth of 1.00 metre to give a better chance for complete replenishment. The worked out block shall get replenishment during monsoon and winter rain seasons for recharging the worked out area and the worked out area shall be fully replenished. Full 173110 Sq. meters of area shall be available for working every year.

4.2.A PRODUCTION IN THE FIRST YEAR (Plate No. 4)

During the first year mining will be done in a block of 173110 Sq. Meters and the production of different categories of minerals will be as given in table below

Material	Boulders	River born Bajri	Sand	Silt/ sand/ clay mixture	Total Production
Production in First year (Metric Tonnes)	155799	116849	77900	38950	389498
PRODUCTION OF MARKETABLE/ COMMERCIALLY EXPLOITABLE MATERIAL I.E. BOULDERS, BAJRI AND SAND)AVAILABLE IN YAMUNA RIVER(CATEGORY 1 TO CATEGORY -3) IN FIRST YEAR					350548 Metric Tonnes



Afforestation – Whole of the area is within the high flood level, therefore there is no possibility of any plantation within the Auctioned Quarry. Contractor shall find out suitable palace in consultation with concerned Gram Panchayat near the Auctioned Quarry and raise plantation of local species.

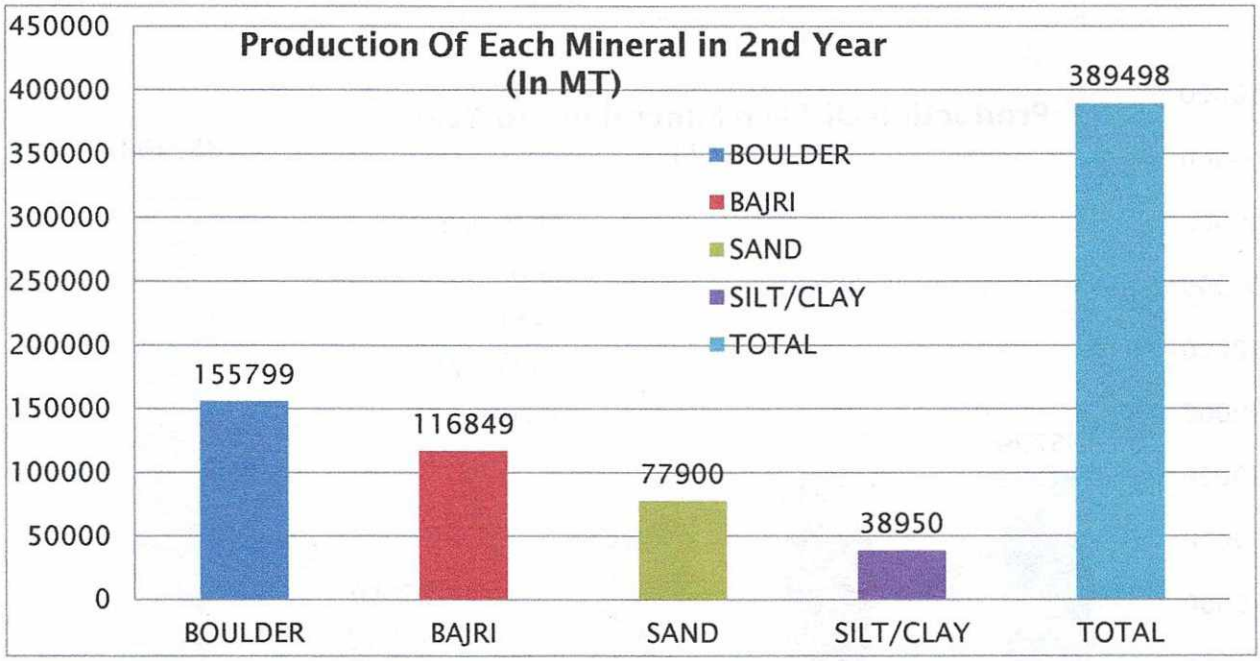
Protection of banks – The mining Block lies almost in the centre of the river. And excavation of river bed material in the block is not likely to impact the banks in any way. Moreover the adjoining land belongs to different private individuals. Therefore no check dams are proposed along banks in the Auctioned Quarry.

Soil dump – The material i.e. Silt/sand-clay mixture (category-4) generated during the mining process as waste and will be used for back filling of the mining pits as road filling.

4.2.B PRODUCTION IN THE SECOND YEAR (Plate No. 4)

During the second year mining will be done in a block of 173110 Sq. Meters and the production of different categories of minerals will be as given in table below

Material	Boulders	River born Bajri	Sand	Silt/ sand/ clay mixture	Total Production
Production in Second year (Metric Tonnes)	155799	116849	77900	38950	389498
PRODUCTION OF MARKETABLE/ COMMERCIALLY EXPLOITABLE MATERIAL I.E. BOULDERS, BAJRI AND SAND)AVAILABLE IN YAMUNA RIVER(CATEGORY 1 TO CATEGORY -3) IN SECOND YEAR					350548 Metric Tonnes



Afforestation – Whole of the area is within the high flood level, therefore there is no possibility of any plantation within the Auctioned area. Contractor shall find out suitable palace in consultation with concerned Gram Panchayat near the Auctioned Quarry and raise plantation of local species.

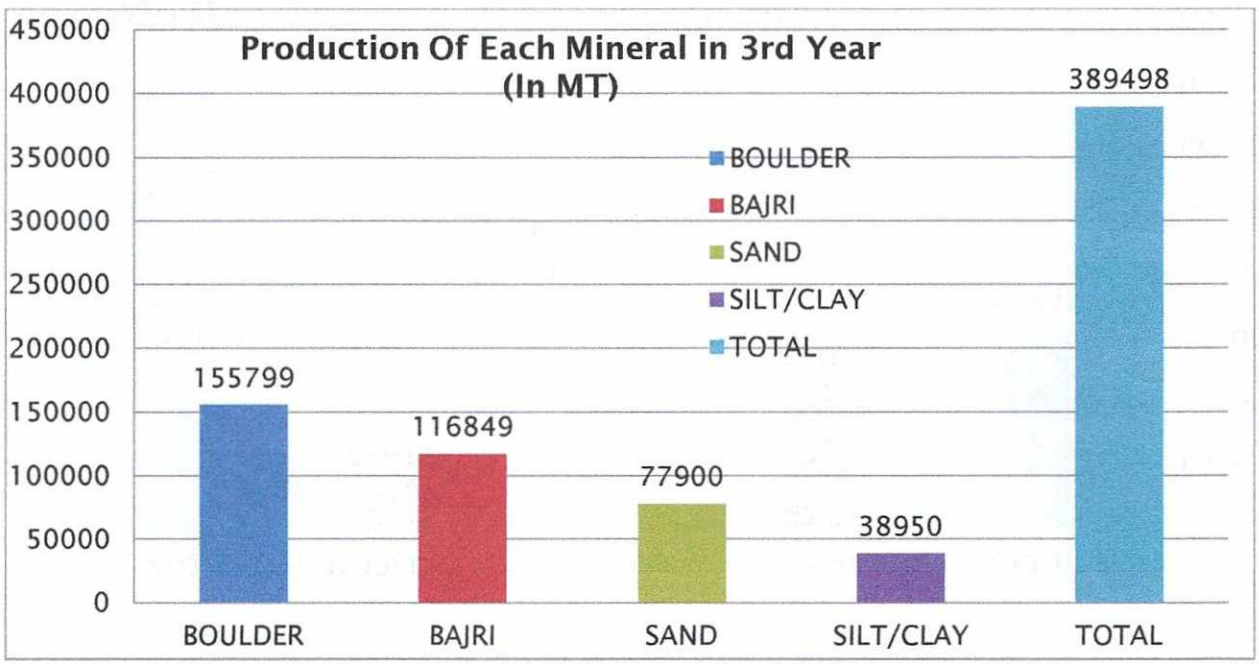
Protection of banks – The mining Block lies almost in the centre of the river. And excavation of river bed material in the block is not likely to impact the banks in any way. Moreover the adjoining land belongs to different private individuals. Therefore no check dams are proposed along banks in the Auctioned Quarry.

Soil dump – The material i.e. Silt/sand-clay mixture (category-4) generated during the mining process as waste and will be used for back filling of the mining pits as road filling.

4.2.C PRODUCTION IN THE THIRD YEAR (Plate No. 4)

During the third year mining will be done in a block of 173110 Sq. Meters and the production of different categories of minerals will be as given in table below

Material	Boulders	River born Bajri	Sand	Silt/ sand/ clay mixture	Total Production
Production in Second year (Metric Tonnes)	155799	116849	77900	38950	389498
PRODUCTION OF MARKETABLE/ COMMERCIALLY EXPLOITABLE MATERIAL I.E. BOULDERS, BAJRI AND SAND)AVAILABLE IN YAMUNA RIVER(CATEGORY 1 TO CATEGORY -3) IN THIRD YEAR					350548 Metric Tonnes



Afforestation – Whole of the area is within the high flood level, therefore there is no possibility of any plantation within the Auctioned Quarry. Contractor shall find out suitable palace in consultation with concerned Gram Panchayat near the Auctioned Quarry and raise plantation of local species.

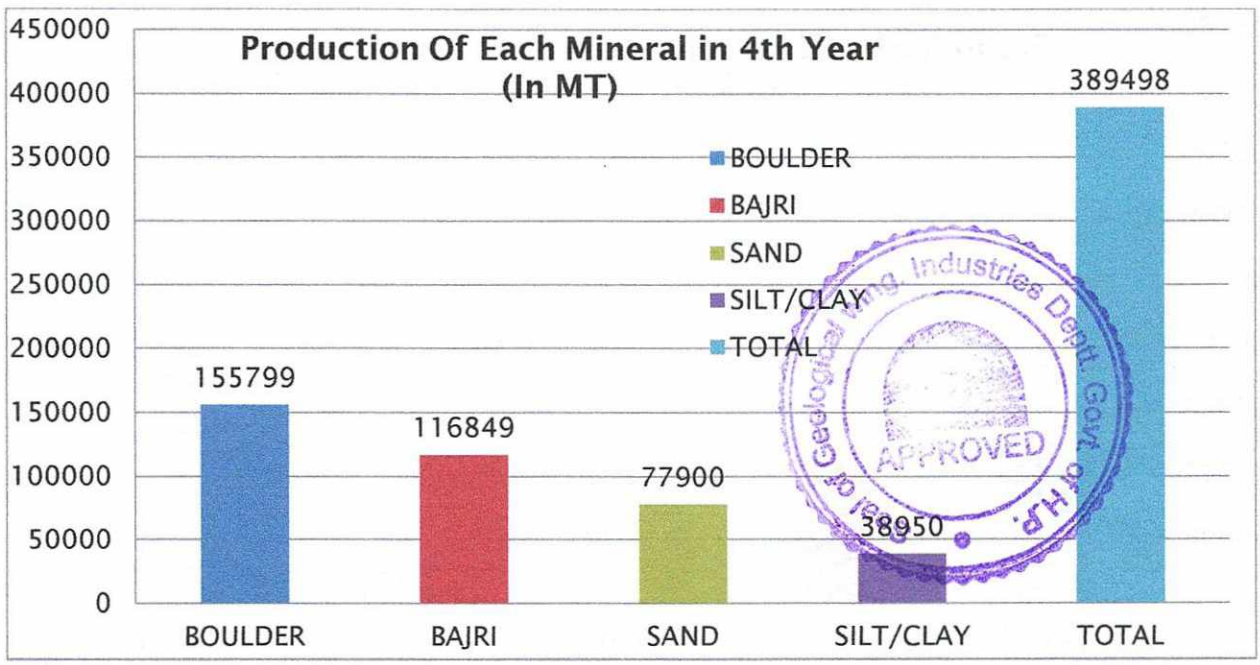
Protection of banks – The mining Block lies almost in the centre of the river. And excavation of river bed material in the block is not likely to impact the banks in any way. Moreover the adjoining land belongs to different private individuals. Therefore no check dams are proposed along banks in the Auctioned area.

Soil dump – The material i.e. Silt/sand-clay mixture (category-4) generated during the mining process as waste and will be used for back filling of the mining pits as road filling.

4.2.D PRODUCTION IN THE FOURTH YEAR (Plate No. 4)

During the fourth year mining will be done in a block of 173110 Sq. Meters and the production of different categories of minerals will be as given in table below

Material	Boulders	River born Bajri	Sand	Silt/ sand/ clay mixture	Total Production
Production in Second year (Metric Tonnes)	155799	116849	77900	38950	389498
PRODUCTION OF MARKETABLE/ COMMERCIALLY EXPLOITABLE MATERIAL I.E. BOULDERS, BAJRI AND SAND)AVAILABLE IN YAMUAN RIVER(CATEGORY 1 TO CATEGORY -3) IN FOURTH YEAR					350548 Metric Tonnes



Afforestation – Whole of the area is within the high flood level, therefore there is no possibility of any plantation within the Auctioned Quarry. Contractor shall find out suitable palace in consultation with concerned Gram Panchayat near the Auctioned Quarry and raise plantation of local species.

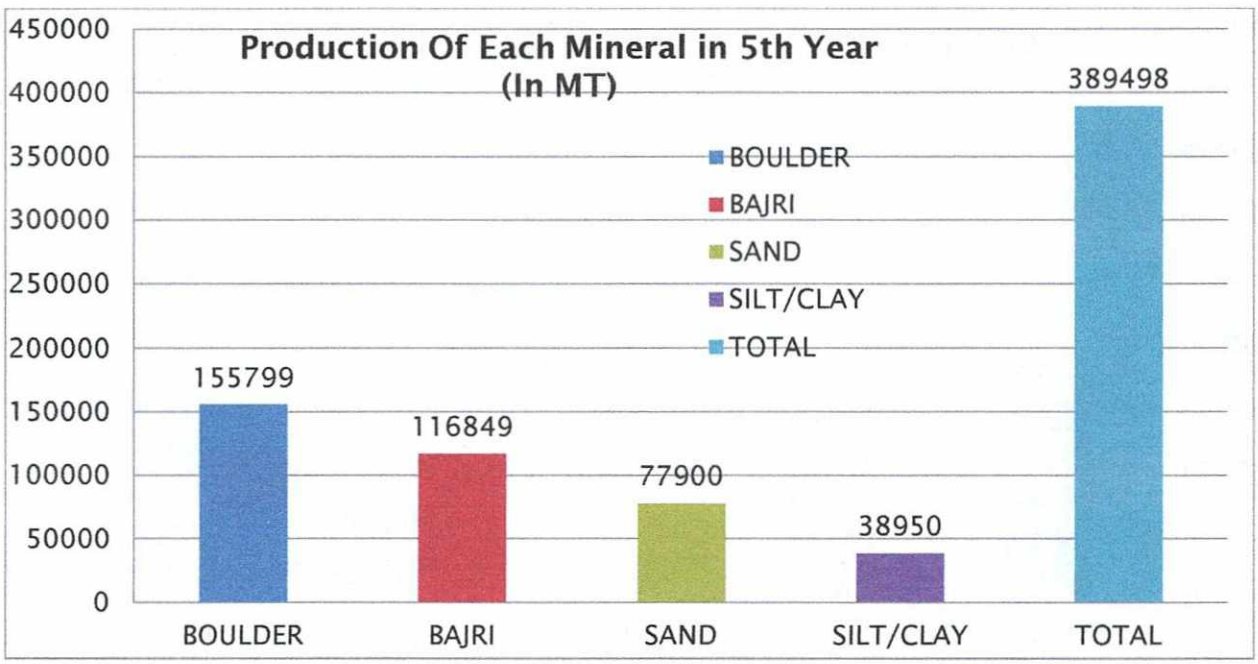
Protection of banks – The mining Block lies almost in the centre of the river. And excavation of river bed material in the block is not likely to impact the banks in any way. Moreover the adjoining land belongs to different private individuals. Therefore no check dams are proposed along banks in the Auctioned Quarry.

Soil dump – The material i.e. Silt/sand-clay mixture (category-4) generated during the mining process as waste and will be used for back filling of the mining pits as road filling.

4.2.E PRODUCTION IN THE FIFTH YEAR (Plate No. 4)

During the Fifth year mining will be done in a block of 173110 Sq. Meters and the production of different categories of minerals will be as given in table below:

Material	Boulders	River born Bajri	Sand	Silt/ sand/ clay mixture	Total Production
Production in Fifth year (Metric Tonnes)	155799	116849	77900	38950	389498
PRODUCTION OF MARKETABLE/ COMMERCIALLY EXPLOITABLE MATERIAL I.E. BOULDERS, BAJRI AND SAND)AVAILABLE IN YAMUNA RIVER(CATEGORY 1 TO CATEGORY -3) IN FIFTH YEAR					350548 Metric Tonnes



Afforestation – Whole of the area is within the high flood level, therefore there is no possibility of any plantation within the Auctioned Quarry. Contractor shall find out suitable palace in consultation with concerned Gram Panchayat near the Auctioned Quarry and raise plantation of local species.

Protection of banks – The mining Block lies almost in the centre of the river. And excavation of river bed material in the block is not likely to impact the banks in any way. Moreover the adjoining land belongs to different private individuals. Therefore no check dams are proposed along banks in the Auctioned Quarry

Soil dump – The material i.e. Silt/sand-clay mixture (category-4) generated during the mining process as waste and will be used for back filling of the mining pits as road filling.

4.3 END USE OF MINERAL: -

The extracted stone shall be used for manufacturing of grit and possibility shall also be explored to use the waste material in road construction works.

4.4 TRANSPORT OF MINERAL

The Auctioned Quarry is in the river bed and there is very low to no traffic from the mining Auctioned area till the stone crusher site however; for the transporation of the loaded vehicles to the nearest approach road, the vehicles may pass through private as well as Govt. Lands. The project proponent shall made necessary arrangements between land owners (Pvt. & Govt.) and will take care of other issues if any at his own for the mineral transportation to the nearest road.

The main connectivity of this is with the Paonta-Chakrata-Manpur road. This road is in good condition enough to bear the additional truck/ transport created by operation of the stone crusher unit. As per proposed production of 389498 (389498-38950= 350548) metric tonnes of material shall be transported in a year by trucks. At this rate only 511 meteric tonnes of material shall be tranported at an average per day (Total working days 300/year) for which an average 34-35 trucks with 15 metric tonnes capacity are required.

PART -II

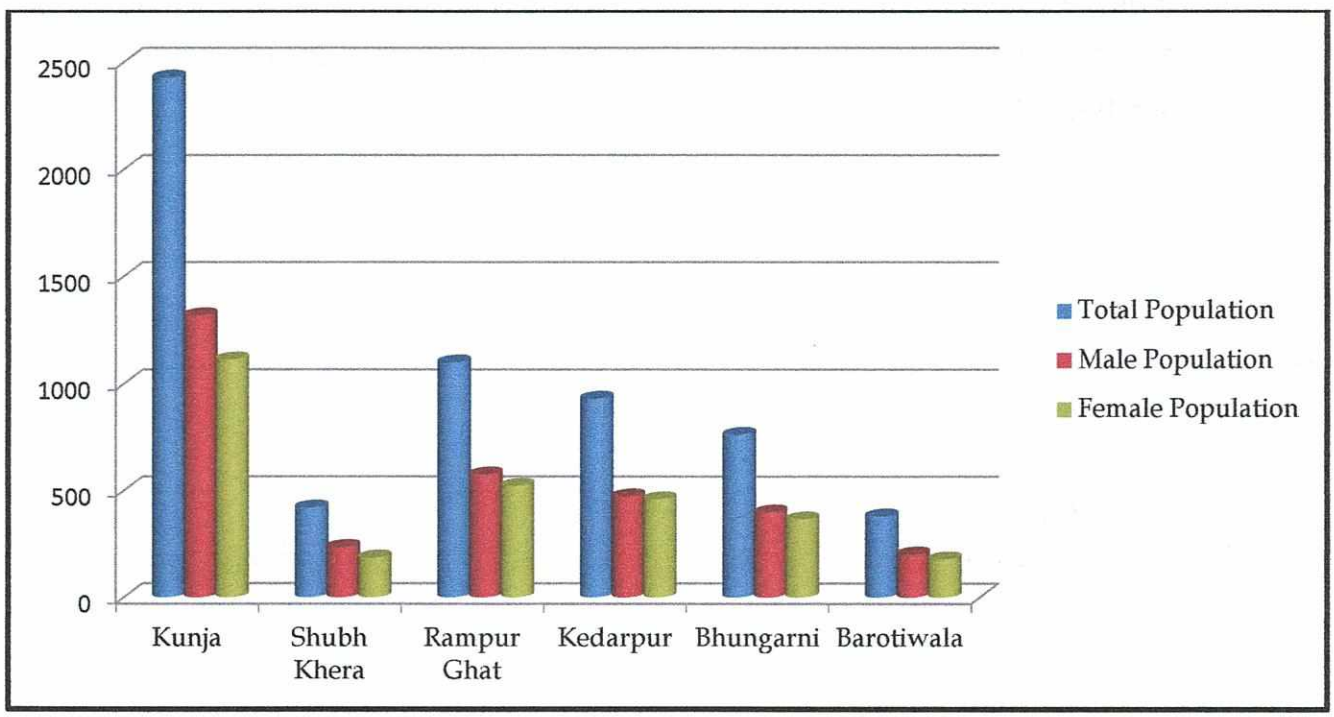
ENVIRONMENT MANAGEMENT PLAN

(1) BASE LINE DATA

1.1. Detail of Population Distribution

Table Showing Details of Population Distribution

Sr. No.	Name of Villages	Total Population	Male Population	Female Population
1	Kunja	2427	1316	1111
2	Shubh Khera	419	234	185
3	Rampur Ghat	1098	576	522
4	Kedarpur	931	472	459
5	Bhungarni	762	397	365
6	Barotiwala	379	201	178



Graph Showing Details of Population Distribution

1.2 SOCIO ECONOMY OF THE VILLAGE

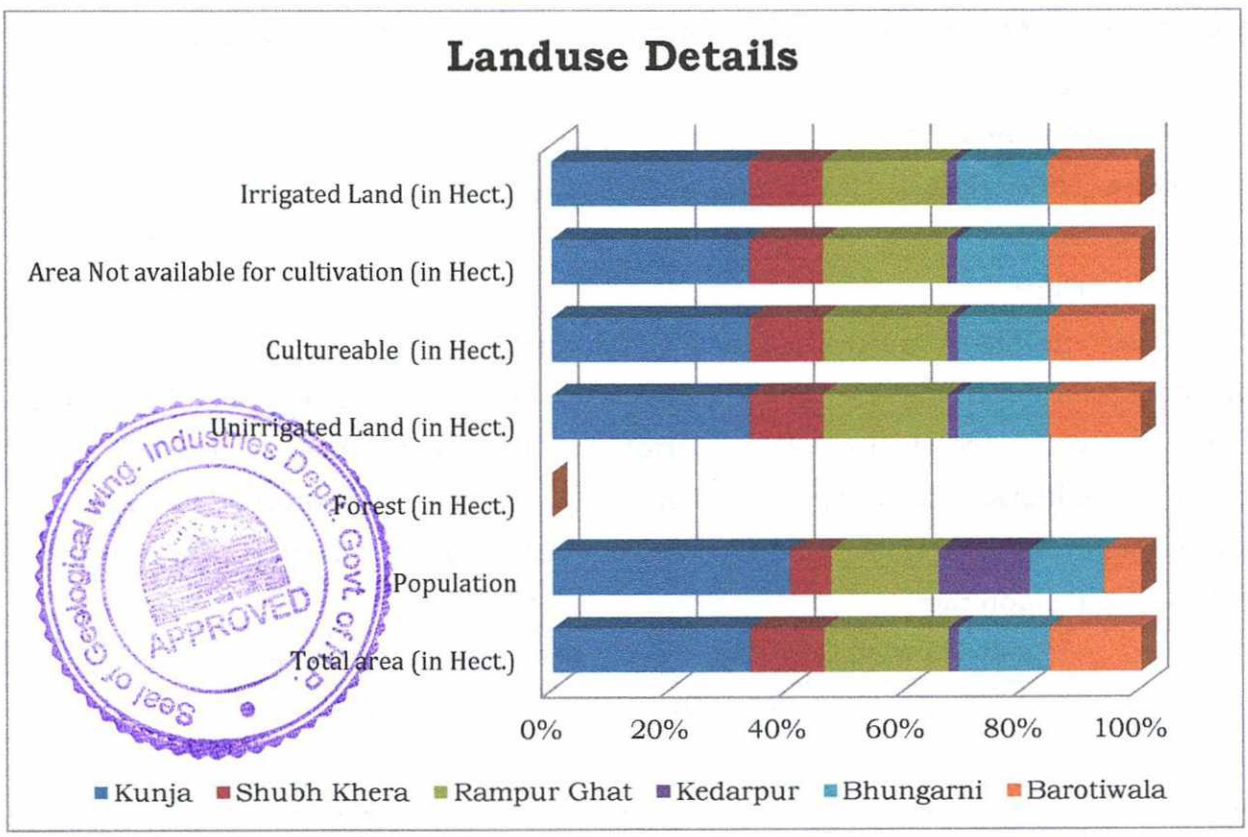
The general economy of the village in agriculture and animal husbandry based and people go to find out job opportunities in far flung industrial area outside the state of Himachal as there is no industry in the nearby are. Therefore any job opportunity created by any entrepreneur may be of small magnitude shall add to the economy of

the people. The people who are offered job in the mining as well in the stone crusher, shall be a local employment at the door and such worker in the off hours, shall be able to look after their retinue agriculture and live stock.

1.3 LAND USE DETAIL WITH 5 KMS. RADIUS (ENCLOSED AS PLATE NO. - II)

Table Showing Details of Surrounding Villages

Sr. No.	Name of Villages	Total area (in Hect.)	Population	Forest (in Hect.)	Unirrigated Land (in Hect.)	Cultureable (in Hect.)	Area Not available for cultivation (in Hect.)	Irrigated Land (in Hect.)
1	Kunja	235.49	2427	0	63.58	80.07	28.26	63.58
2	Shubh Khera	87.62	419	0	23.66	29.79	10.51	23.66
3	Rampur Ghat	147.86	1098	0	39.92	50.27	17.74	39.92
4	Kedarpur	12.00	931	0	3.24	4.08	1.44	3.24
5	Bhungarni	108.06	762	0	29.18	36.74	12.97	29.18
6	Barotiwala	109.56	379	0	29.58	37.25	13.15	29.58



Graph Showing General Land Use Pattern of Surrounding Villages

1.4 AGRICULTURE

Agriculture is the main occupation of the people in the District, having different types of soil and agro-climate conditions which are quite suitable for the growing of various types of cereals vegetables, temperate and stone fruits and other crops. The major crops grown in the district are wheat, Paddy, Maize, Barley, Millet. Besides these, potato and a variety of vegetable like green-peas, cauliflower, cabbage, spinach tomatoes, etc. are also grown in the district. The economy is mostly agrarian and majority of population depend on agriculture and activities allied to it for earning their lively hood. The most of the land is un-irrigated and depends upon the rainy season. The part of the lands are irrigated and the irrigation facilities are provided by lifting water from streams, shallow Dug wells and medium to deep tube wells in the valley area. The source of water type of irrigation can be classified into following five classes.

1 Lift irrigation scheme
2 Well used for irrigation
3 Well use for domestic purpose
4 Kuhls
5 Tube wells

The water flows throughout the year in this khad. The land holding in the district are small and scattered. The farmers grow more than two crops in a year so as to get maximum production from the land. The crop rotation followed in the district is:

I. Maize- Toria-Wheat
II. Maize-Potato-Potato
III. Maize- Toria-Wheat-Baisakhi Moong
IV Paddy Wheat
V Maize-Wheat

Wheat and Maize are major crops of the district. These are followed by gram, Paddy and other pulses. Besides these, Barley, Ragi, Mustered, Seasmum and Sugarcane are also grown in the district. Peas, Carrot, Cabbage, Ladyfinger, Tomato, Brinjal, Capsicum, Cauliflower, Cucumber, Pumpkin etc. Vegetables are also grown. About 95% of the total cultivable area in the district is rain fed. Hence production of the district mainly depends upon rain.

Table Showing Crop Pattern Surrounding Auctioned Area

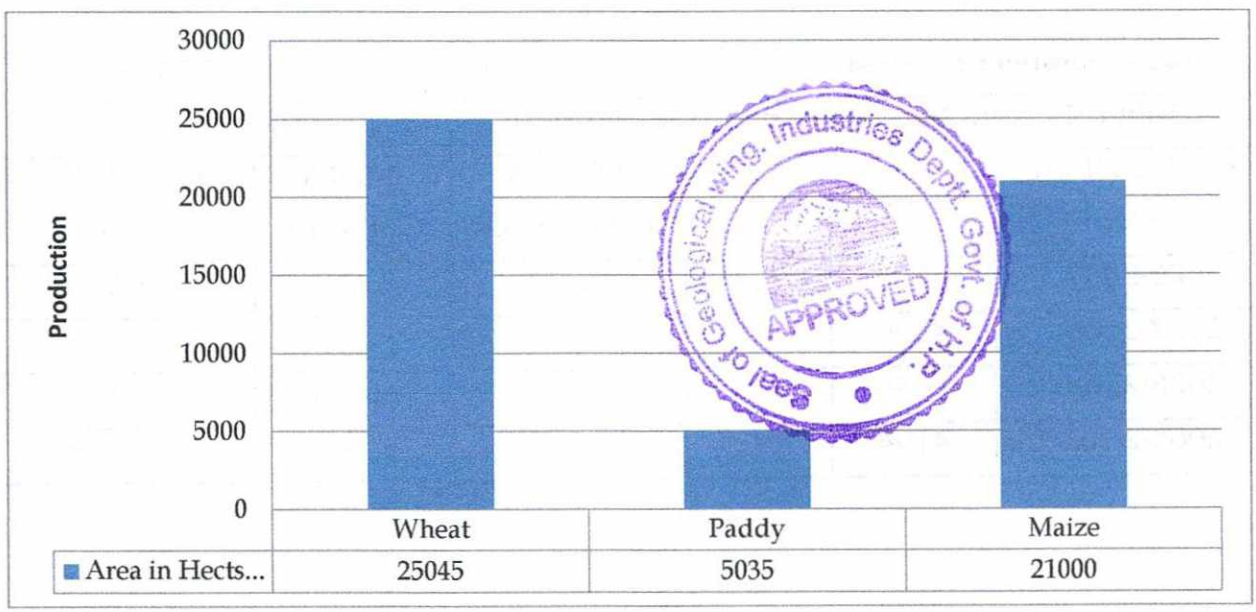
June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Maize				Wheat				Maize			
Maize			Toria			Wheat			Maize		
Maize			Patato			Wheat			Maize		
Maize			Potato			Potato			Maize		

Bhindi	Cauliflower		French Bean/Tomato/brinjal/Capsicum Cucubits	
Sesame		Sarson/Raya/G.Sarson		
Ginger/Caucasia/Turmeric	Potato	Wheat	Ginger	
Paddy		Wheat		
Paddy		Barseem		
Paddy		Potato		
Kulthi Mash			B. Sarson/Raya/G. Sarson/Taramira(Eruca Sativa)	
Mash		Wheat		
Maize+ Mash		Wheat		
Arhar				

Table Showing Area under high yielding verities crops.

Name Crops	Area in Hects.
Wheat	25045
Paddy	5035
Maize	21000

Graph Showing Production of High Yielding Varieties Crops in District Sirmour



Adjoining to the mining areas, the terraces formed above flood plains of Yamuna river support agriculture crops. The water flows throughout the year in this River.

Production of vegetables as per the Statistical Outline of Himachal Pradesh 2007-08 for Sirmour District is as under :-

Table Showing Production of Vegetables in District Sirmour

Name Vegetables	Area in Hects.	Production in M.T.
Potato	1400	17500
Other Vegetables	5750	115000

Graph Showing Production of Vegetables in District Sirmour

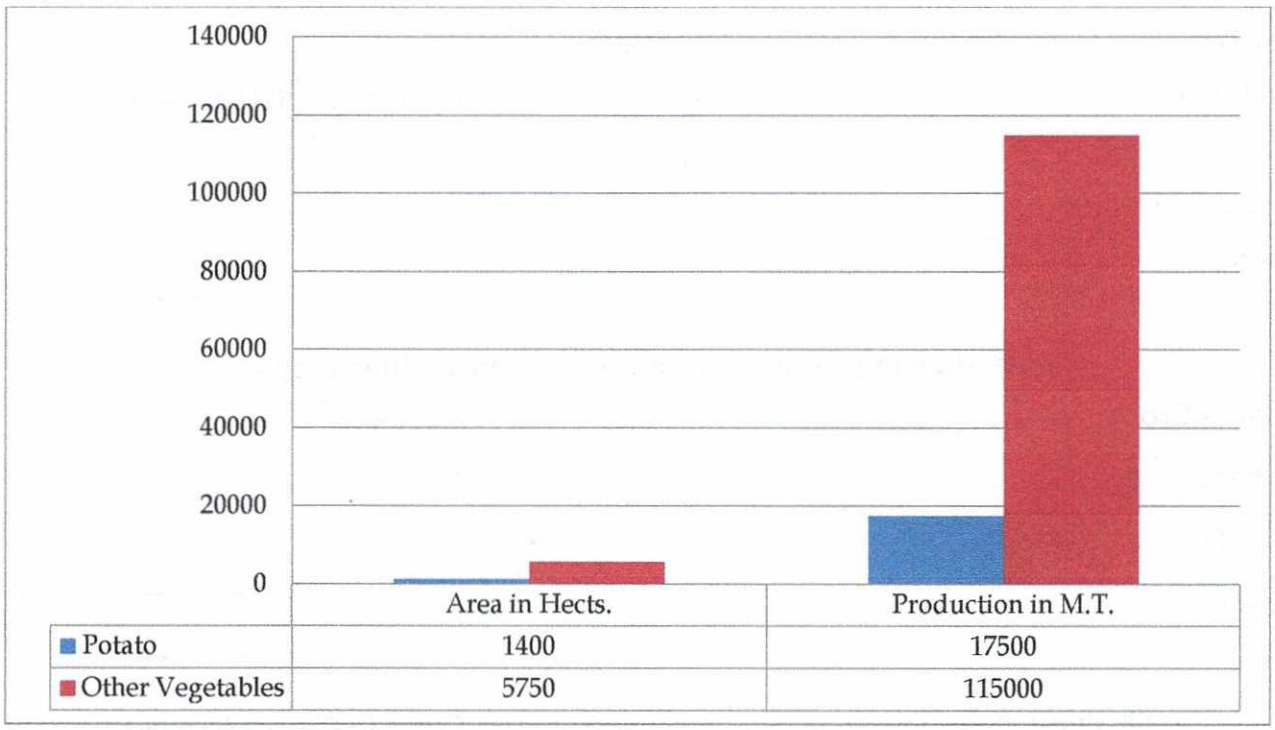
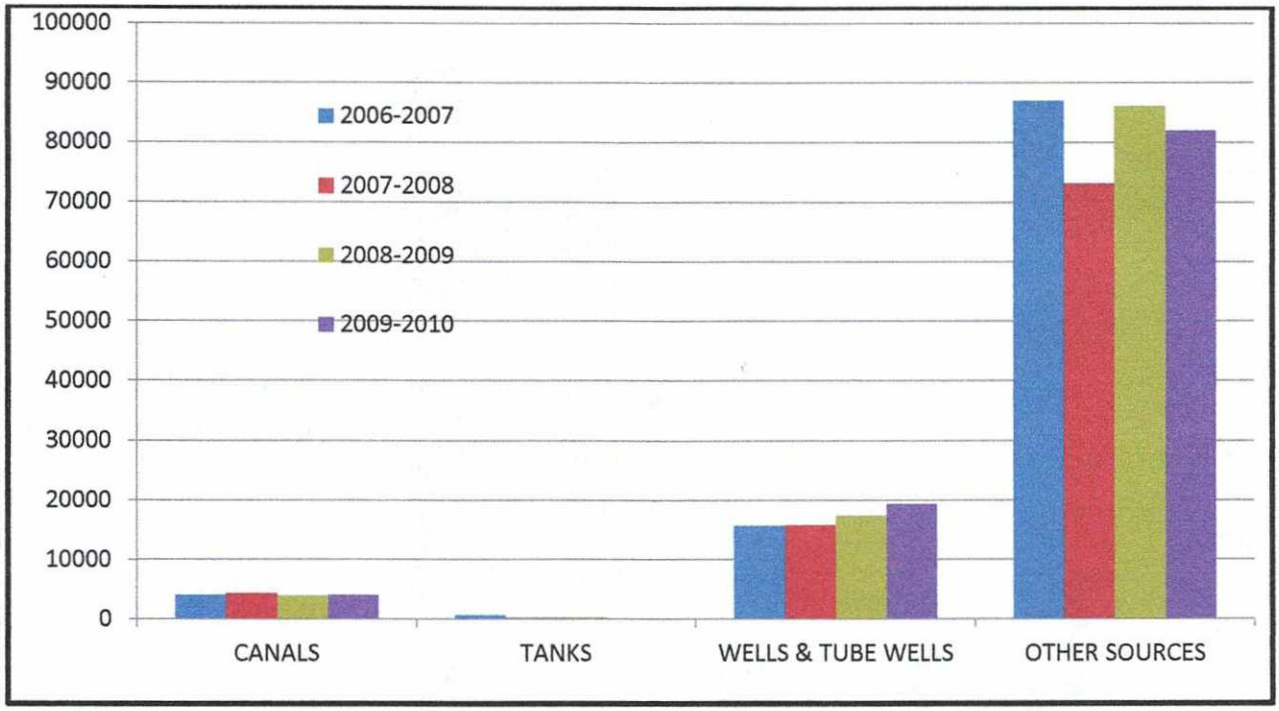


Table Showing Net Irrigated Area of the State During 2006-2007 To 2009-2010

Table Showing Net Irrigated area of the State during 2006-07 to 2009-10					
AGRICULTURAL YEAR	CANALS	TANKS	WELLS & TUBE WELLS	OTHER SOURCES	TOTAL AREA IN HECTS)
2006-2007	4107	701	15744	86997	107549
2007-2008	4390	236	15752	73172	93550
2008-2009	4046	283	17432	86091	107852
2009-2010	4104	149	19357	81966	105576

Graph Showing Net Irrigated Area of The State During 2006-2007 To 2009-2010



1.5 HORTICULTURE

The topography and agro-climatic conditions of the district are quite suitable for the productions of various fruits. The topography of the district can be grouped into three categories namely High hill areas located at the higher elevation mid hill areas and low lying valley areas Fruits of various kinds depending upon the terrain climatic condition and soil are grown in the district. The Main horticulture produce of the area can be classified into four categories

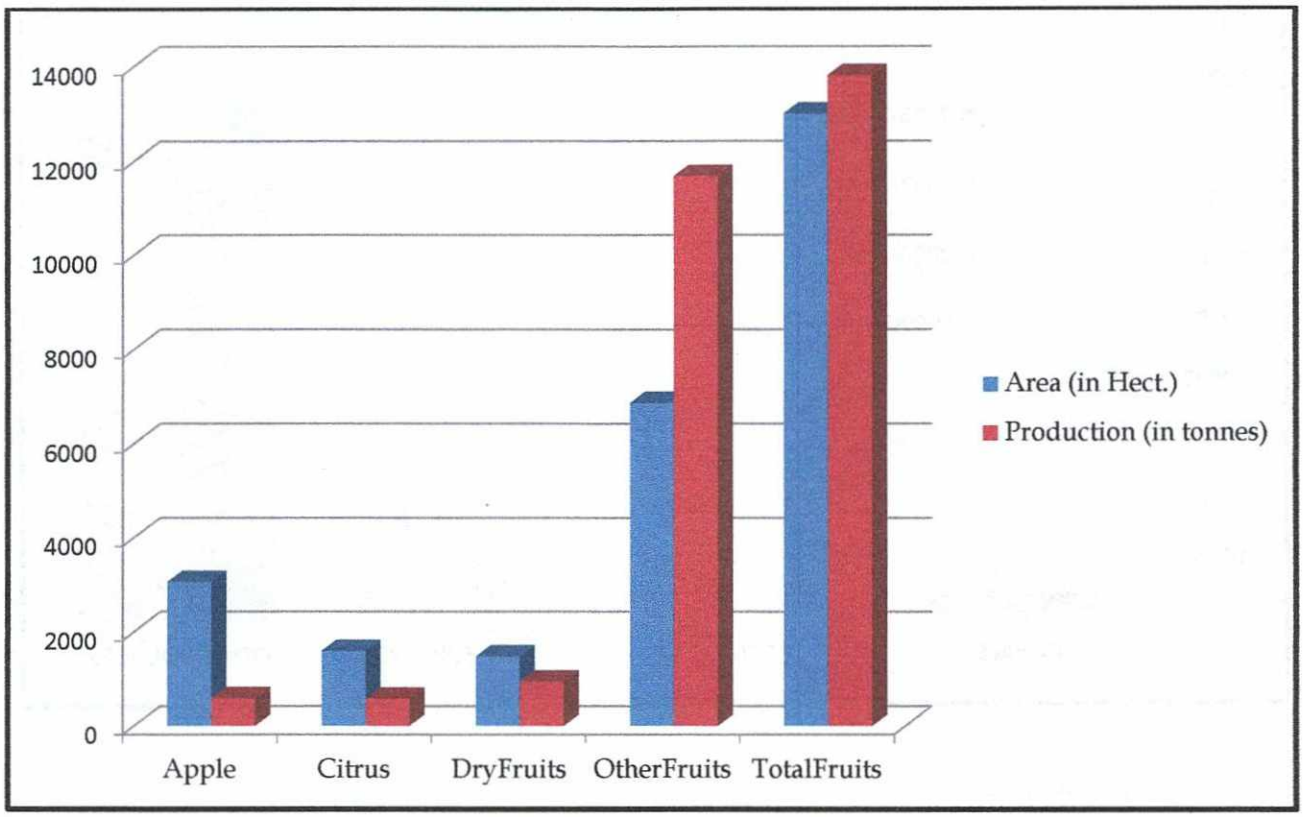
1 Citrus Fruits
2 Sub-tropical Fruits
3 Nuts and dry fruits
4 Other temperate fruits

The following table shows the area under cultivations of each fruit in district Sirmaur.

Table Showing Area under Each Category Of Fruits In Sirmaur - 2009-10

Sr. No.	Fruit	Area (in Hect.)	Production (in tonnes)
1	Apple	3052	597
2	Citrus	1599	585
3	Dry Fruits	1485	947
4	Other Fruits	6870	11683
5	Total Fruits	13006	13812

Graph Showing Area Under Each Category Of Fruits In Sirmaur - 2009-10



1.6 ANIMAL HUSBANDRY

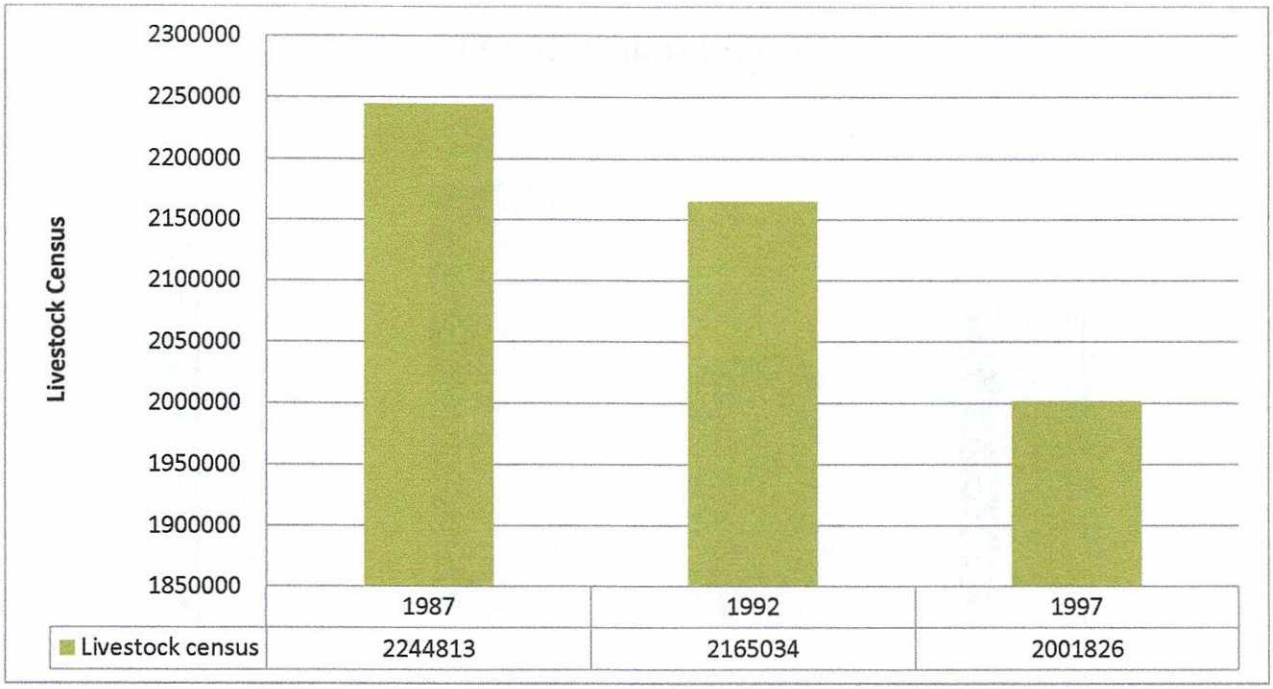
Livestock is the main wealth next to agriculture of the predominant population of the district. The entire terrain in the district is mountainous with high slopes and deep valleys. The development of agriculture, therefore, broadly depends upon the development of animal husbandry. Animal husbandry has several direct and indirect uses for a farmer and so it is an almost integral part of agriculture. To improve the fertility of the soil and to plough the fields, they need animals. Besides this milk and wool is also the need of the people. The people keep the following kind of animals:-

1	Cow	2	Buffalo
3	Sheep	4	Horse and Ponies
5	Mules	6	Donkey
7	Camel	8	Pigs
9	Dogs	10	Poultry

Table Showing Livestock census of the District

Sr. No.	Year	Livestock census
1	1987	2244813
2	1992	2165034
3	1997	2001826

Graph Showing Livestock census of the District



1.7 FISHERIES

Fisheries play an important role in the rural economy by augmenting food supply, generating employment and raising nutritional contents of food. There is abundance of fishes in rivers and perennial streams. The important species are Mahasheer, Rohu, singhara, Baranguli, Kali Macchi, Kala banas, Bhareli, Mrigal, and Bhunga. Fishery activities in district Sirmour include riverine fisheries and aquaculture. Department of Fisheries, Himachal Pradesh issues annual licence to the fishermen for fishing in riverine stretches using cast nets. Main rivers & their tributaries flowing through the district are Giri, Yamuna, Markanda, Roon Bata, Jalal, Nera & Tonnes. Presently 554 licensed fishermen are engaged in fishery profession catching approximately 706 metric tonnes of fish annually. Culture of fish in ponds is called aquaculture. Although pisciculture is a non- traditional activity, yet depletion of fish in rivers and increasing market demands have forced the Government as well as farmers to think on these lines. There is a vast scope of fishery development in the district. Paonta and to some extent Rajgarh areas are suitable for fish culture. There is also a good scope for running water fish culture in Shillai area.

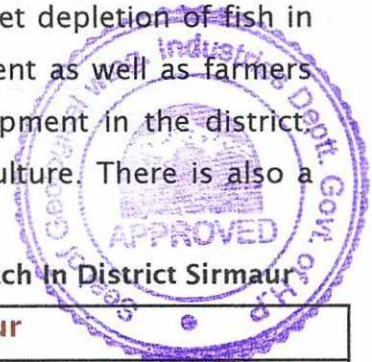
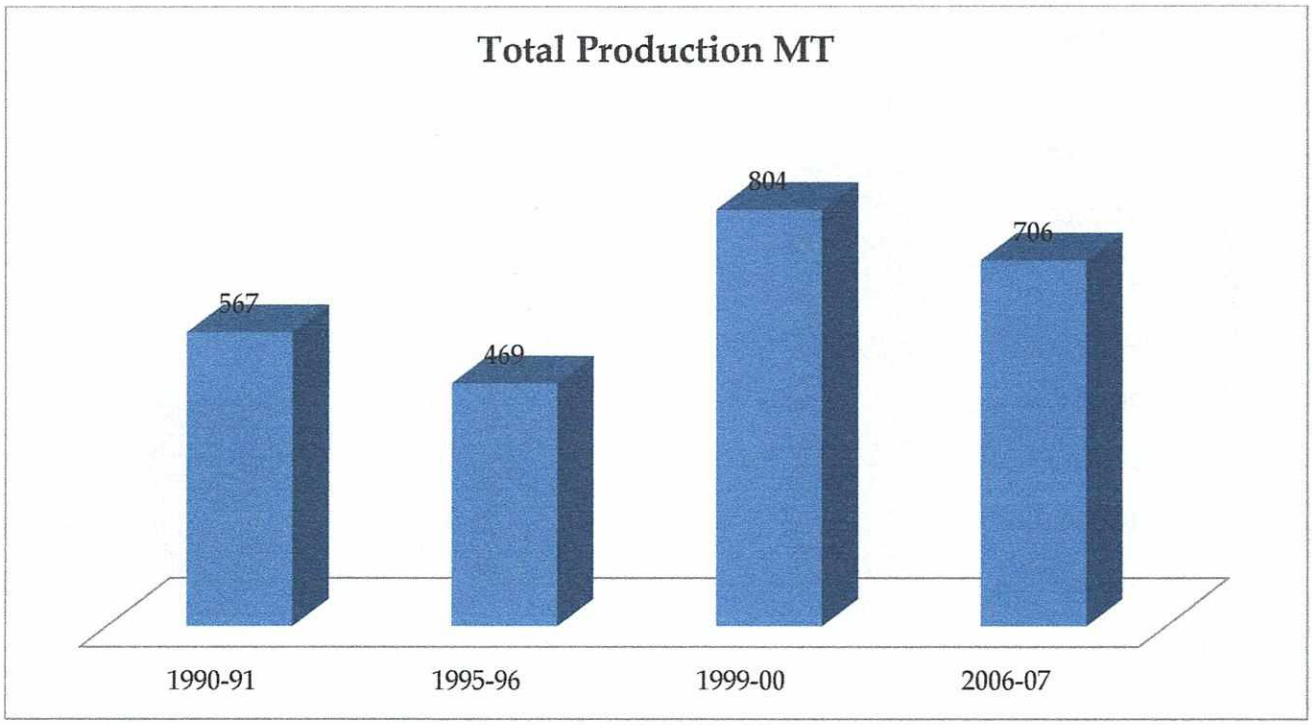


Table Showing Annual Production Of Fisheries And Its Value Of Catch In District Sirmaur

Production of Fisheries in District Sirmaur					
Particulars	Units	1990-91	1995-96	1999-00	2006-07
Total Production	MT	567	469	804	706

Graph Showing Annual Production Of Fisheries In District Sirmaur



1.8 FLORA

The topography climate and nature of soil is mainly responsible for the growth of various types of trees and shrubs which are important for making the environment of the area most suitable for the survival of living beings. The tree and shrubs grow according to the heights. The Chil is considered the prevailing conifer up to about 1950 meter when it gives place to the Deodar and the blue pines. The forest range between shrubs sal and bamboo forest of the low hills to the fur and alpine forest of the higher elevation. Lowest point of the southern boundary of the district is less than 300 meter above mean sea level and highest range is at an elevation of 5500 meters in the north. The forests grown between these two extremes vary as the elevation. The following most prominent varieties of trees are found in the different elevation.

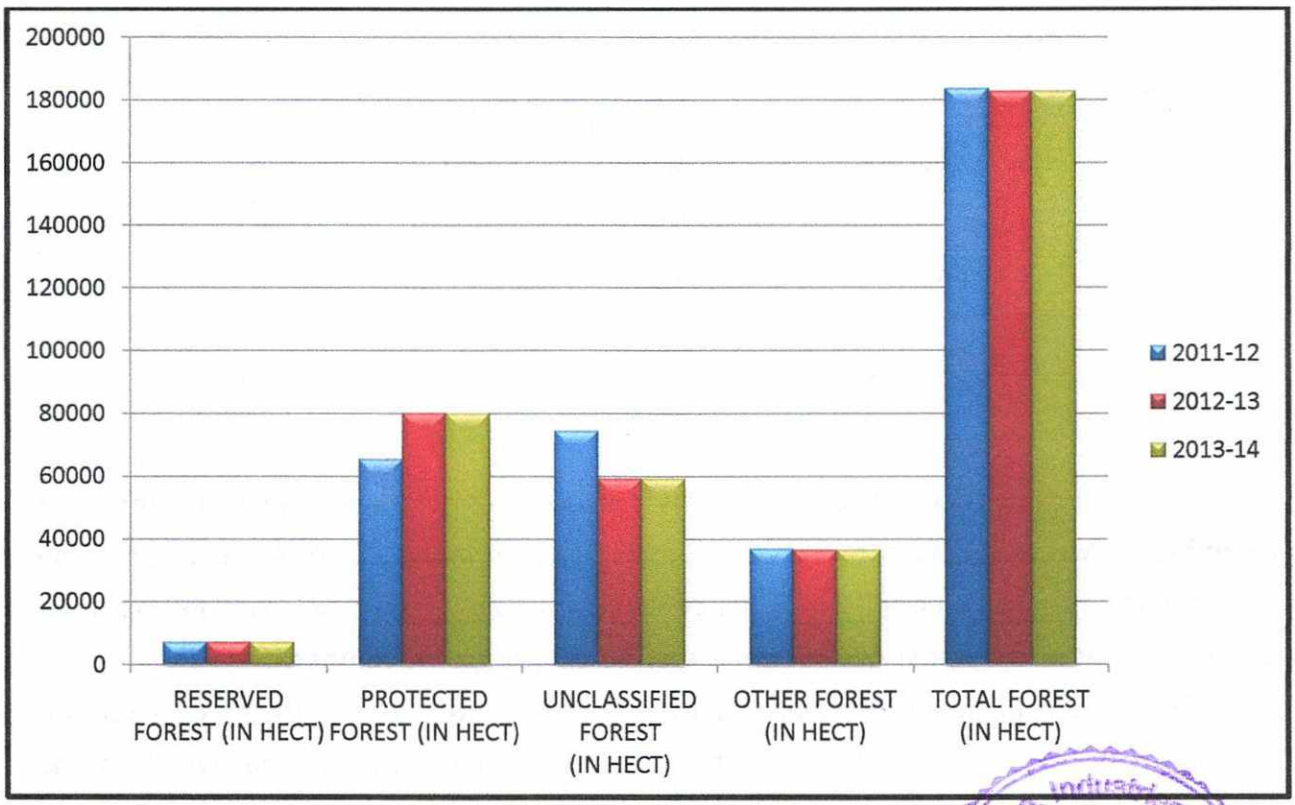
Mango	(Magni feraindica)
Tali	(Dalbergia sisoo))
Pipal	(Ficus religiosa)
Behul	(Grewia oppsitifolia)
Chil	(Pinus Rose burghi)
Simbal	(Bombere malabaricum)
Tuni	(Cedrcla toana)
Jamun	(Engenia jambolana
Bamboo	

Brah	
Tos	
Broad leaf species	
Ber and other bushes	

Table Showing Total forest cover in H.P.

Table Showing Total Forest cover in Distt Kangra					
YEAR	RESERVED FOREST (IN HECT)	PROTECTED FOREST (IN HECT)	UNCLASSIFIED FOREST (IN HECT)	OTHER FOREST (IN HECT)	TOTAL FOREST (IN HECT)
2011-12	7070	65435	74436	36838	183779
2012-13	7072	80093	59247	36557	182969
2013-14	7072	80093	59246	36551	182962

Graph Showing Total Forest Cover in Himachal Pradesh



Fauna

Common mammals found in the area are Fox, Hare, Jungle cat & common avifauna are crow, common pigeon, Hawk etc. Details of common mammals are given below in the table: -

1	Black bear	(Selenarctos thebatanus)
2	Samber	(Cerveus unicolor)
3	Leopard	(Felis bengalensis)
4	Musk deer	(moschu mischifarus
5	Hare	(Lepus nigricoilies)
6	Fox	(Vaulepus bengalanesis)
7	Langoor	(Preshytes entellus)
8	Flying squirrel	(Hylopetus fimbriatus
9	Bat	(Hippsideros armiger)
10	Snow leopard	(Panthera unica)
11	Monkey	(Macaca mulatta)
12	Barking deer	(Munteicus muntisk)
13	Pigeon	(Columbia livia)
14	Mor	(Payo crisslatus)
15	Crow	(Crovus splendes)
16	Parrot	(Prottacula karneri)
17	House sparrow	(Parser domcrticus)
18	Cranes	(Grurs species)
19	Himalayan fly catcher	(Terpsibhous paradisi)
20	Wood pecker	(Picoides Macer)

1.9 CLIMATE OF THE AREA

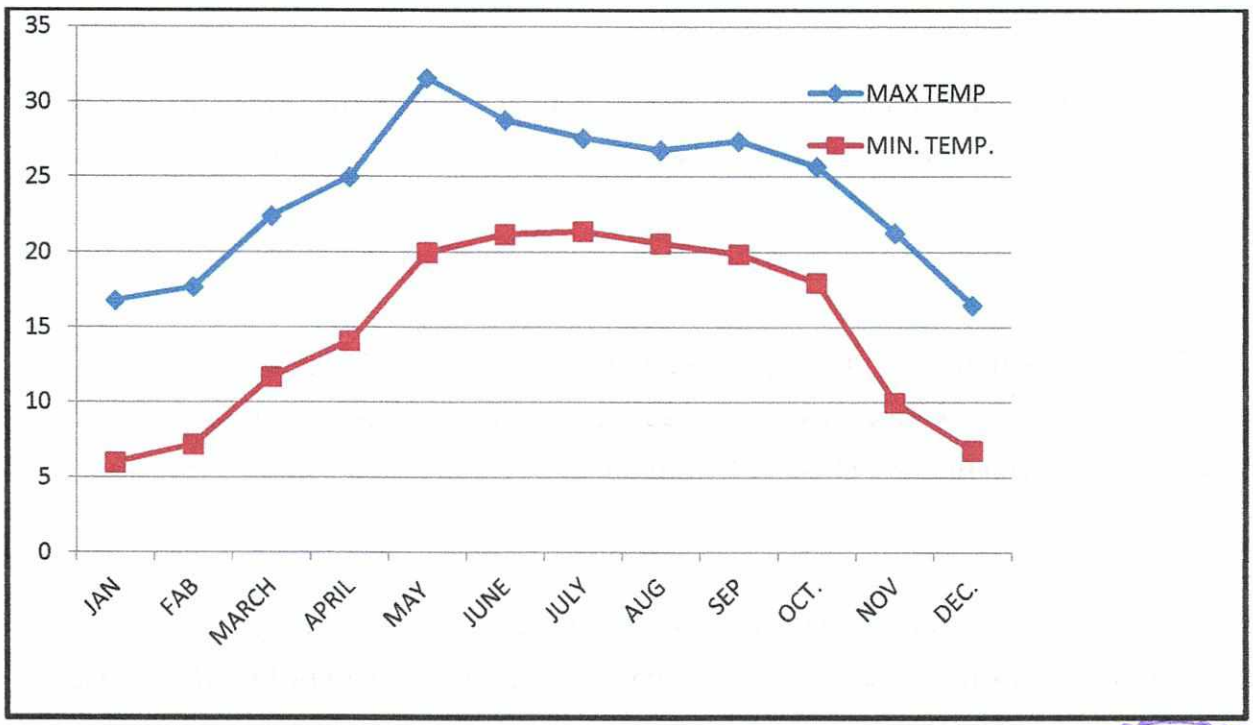
The region has four distinct seasons. The area experiences severe winter from December to March followed by servers summer season lasting from April to June. The area receives rain fall under the influence of south -west monsoon from July to mid-September followed by post -monsoon season lasting up to November.

The terrain in general has profound influence on the temperatures of a region. The temperature generally rises from the beginning of March till June, which is the hottest month of the year with mean minimum and maximum temperature of 25.6°C to 44°C respectively. With the onset of monsoons by the end of the June temperature begins to fall. The drop in day temperature is much more than the drop in night temperature. The night temperature falls rapidly after the withdrawal of monsoons by mid-September. The month of January is cooler month with the mean maximum and minimum temperature being 24°C and 1.7°C respectively. Under the influences of

western disturbance, the temperature falls appreciably during winters and it may go even below 0° C.

Humidity is generally low throughout the year. During summer season, humidity is lowest 36 %. During monsoon months, it goes as high as 80-90%. The highest levels of humidity are observed in the month of August. The average humidity during synoptic hours is 53% and 62% respectively.

CLIMATE OF THE AUCTIONED AREA DISTRICT SIRMAUR HIMACHAL PRADESH			
CLIMATE	**WINTER**	**SUMMER**	**RAINY SEASON**
PERIOD	OCT.-MID MARCH	MID MARCH -JUNE	JULY-SEPTEMBER
Weather	Cool	Hot	Humid



Graph Showing Monthly Mean Maximum and Minimum Temperature data for the Year 2013

(2) ENVIRONMENT MANAGEMENT PLAN

2.1 Impact on Air

The magnitude of mining is not very high and restricted to the limited area as such there is hardly any impact other than dust emission to smaller extent which can be controlled by sprinkling water on the working face so that the dust be suppressed.

2.2 Impact on Water

There is no water source such as well or spring near the Auctioned Quarry. The Yamuna River is a perennial river. Therefore, it has no adverse impact on the flow of the

river; neither there is any intake of Kuhl within the Quarry or below the Auctioned Area which could be affected.

2.3 Impact on Noise Level

The area is away from the habitation and the noise shall be caused only by plying tractors/tippers/trucks to bring mineral to the stone crusher site, which shall be kept under control by proper lubrication and the working would only be done during day time to keep noise level below the permissible limit prescribed. No blasting operations are involved as the process is only to lift the material manually/mechanically with the help of tyre mounted excavator (if permitted) and to load in tractors/tippers/trucks hence, the noise level will not exceed the required level.

2.4 Waste Disposal Arrangement, if Any

The waste which is silt shall generate and shall be used for the maintenance of the approach road of the crusher however; if required, it would be dumped in the adjoining private lands of the Contractor.

2.5 Socio Economic benefits

The mining shall provide employment to approx. 20 to 25 local people who are unskilled and are in need of additional source of income when they are free from agriculture engagements and shall be helpful in raising additional source of income.

2.6 Transport of Mineral

The Auctioned Quarry is in the river bed and there is very low to no traffic from the mining area till the stone crusher site however; for the transporation of the loaded vehicles to the nearest approach road, the vehicles may pass through private as well as Govt. Lands. The project proponent shall made necessary arrangements between land owners (Pvt. & Govt.) and will take care of other issues if any at his own for the mineral transportation to the nearest road.

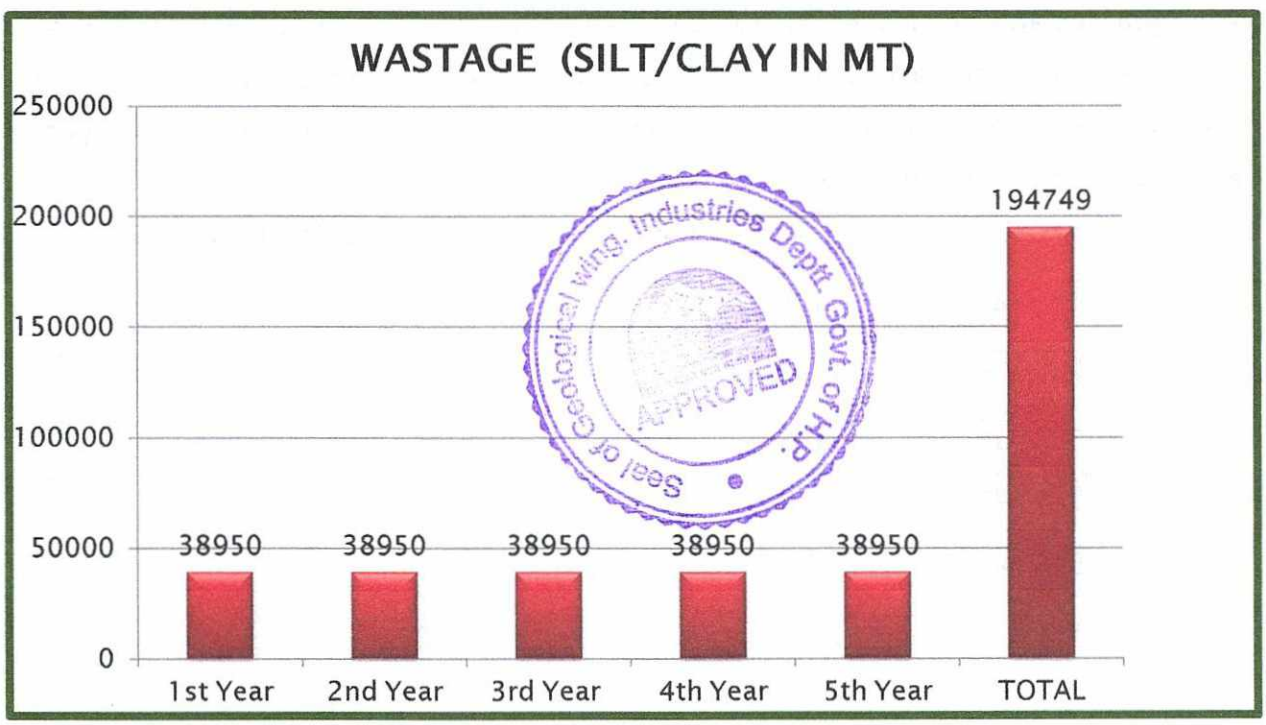
The main connectivity of this is with the Paonta-Chakrata-Manpur road. This road is in good condition enough to bear the additional truck/ transport created by operation of the stone crusher unit. As per proposed production of 389498 (389498-38950= 350548) metric tonnes of material shall be transported in a year by trucks. At this rate only 511 meteric tonnes of material shall be tranported at an average per day (Total working days 300/year) for which an average 34-35 trucks with 15 metric tonnes capacity are required.

PART-III
PROGRESSIVE MINE CLOSURE PLAN/ RECLAMATION PLAN

1.1 MINE WASTE DISPOSAL

The following type of waste will be generated during the course of mining in the area in the form of Silty sand and clay mixture. The quantity of waste generated (Fig-40) is as follows:

WASTAGE IN MT	
	SILT/CLAY
1st Year	38950
2nd Year	38950
3rd Year	38950
4th Year	38950
5th Year	38950
TOTAL	194749



Most of the waste will be left in the river bed for back filling and for maintenance the mining road.

(A) Cost of Mine Waste Disposal

The material shall be brought to the dump site manually and it shall add little addition to the mining cost around Rs. 10/- per tonnes of waste. The total waste production in 5 years is194749 tonnes. The total cost of dumping shall be around Rs 1947490/- in 5 years.

1.2 TOP SOIL ARRANGEMENT

There is no top soil available in the river bed.

1.3 PREVENTIVE RETAINING STRUCTURES

No check dams in the Auctioned Quarry are proposed as the adjoining land belongs to different private individuals. Moreover the mining almost in the centre of the river is not likely to impact the banks in any way.

1.4 PLANTATION WORK

The afforestation programme is the most important as to improve the environment and ecological balance of the area. Grasses and bushes which have fibrous roots are at the first instance grown which give the binding property to the soil. After growing grasses and bushes, other tree species in consultation with the experts will be raised, based on the characteristics of soil, topography and climatic conditions. The site for plantation shall be decided in consultation with the local Gram Panchayat. The year wise area proposed for plantation is as under:-

SR NO	YEAR	AREA IN SQ MTS.	NO OF PLANTS
1	1st Year	400	40
2	2nd year	400	40
3	3rd year	400	40
4	4th Year	400	40
5	5th Year	400	40
	Total	**2000**	**200**

The total cost of plantation and its protection by engaging a part time Gardner shall cost 24,000 per year and in five years; the expenditure shall amount to Rs. 1, 20,000. The estimated survival rate proposed to be achieved shall be 80%.

1.5 STRATEGY FOR PROTECTION OF POINT OF PUBLIC UTILITY, ETC.: -

There is no point of public utility or of interest which need to be protected while under taking mining operations.

1. 6 MAN POWER DEVELOPMENT: -

The mining activity in the area will generate direct and indirect employment opportunities to the local population. It will bring out up-liftment in their Economy and side by they can pursuit their original profession like agriculture etc. Around 20 to 25 unskilled people shall be employed to carry on the mining and associated activities and preference shall be given to employ local population.

1.7 ANY OTHER RELEVANT INFORMATION

There is a tremendous growth in the infrastructure in the recent years in Government and private sector. The widening of the existing roads, construction of new roads, housing and other development work is the need of today. Glass, Stone, grit and sand is the basic requirement for construction work. The material thus produced has a vast market scope locally.

Certificate

And

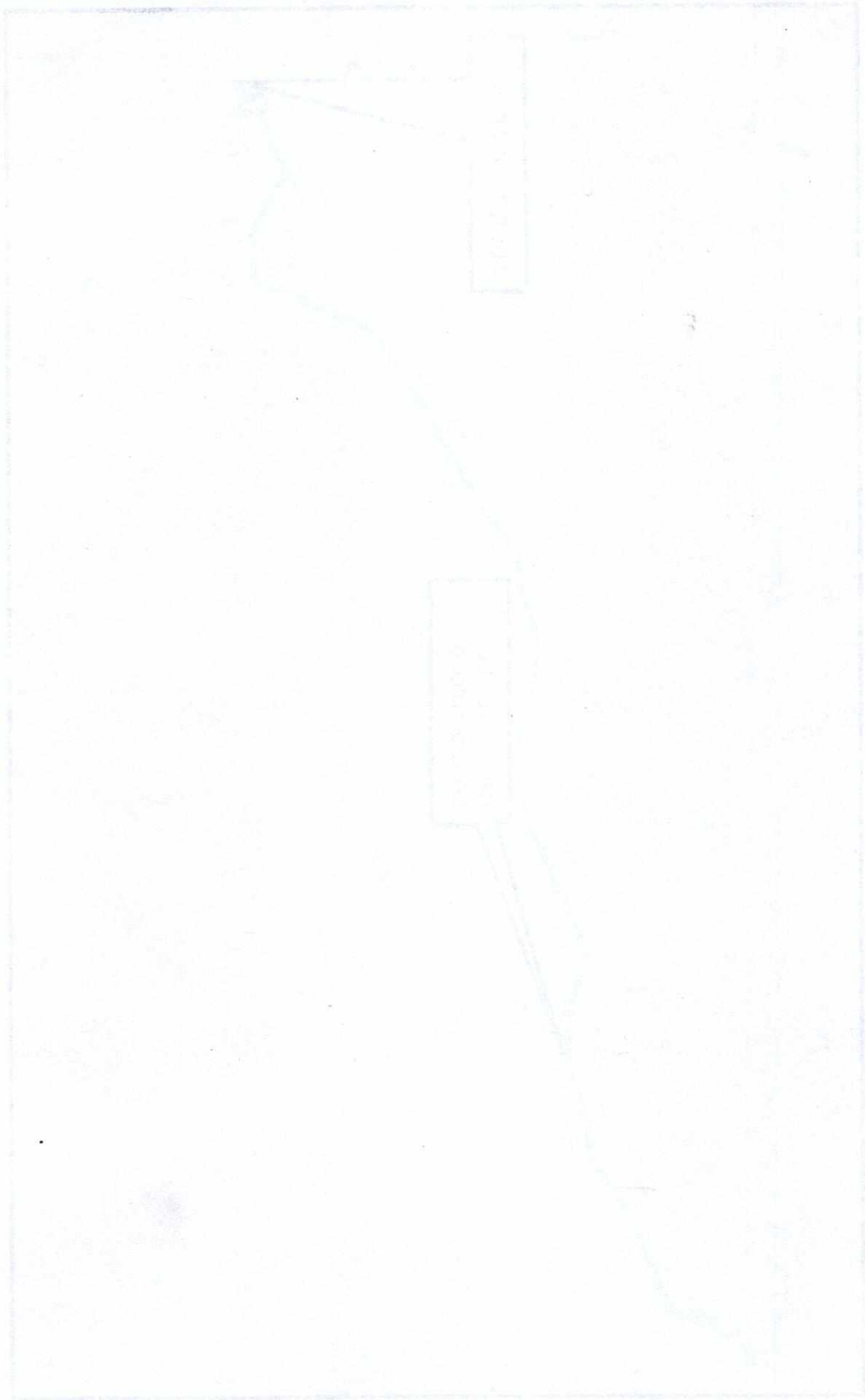
Declaration

Certificate

And

Declaration

LOCATION AN APPROACH TO LEASE AREA



CERTIFICATE

Certified that the provisions of the Himachal Pradesh Minor Minerals (Concession) and Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules, 2015 Matliferous Mines Regulation 1961 and other guidelines issued from time to time in this regard have been complied for the preparation of Mining Plan of Auctioned area on contract for extraction of Boulders, river born bajari and sand mine falling in Khasra Nos. 73 (River Bed) measuring 17-31-10 Hectares (Govt. Land) in Mauza and Mohal Devinagar, Tehsil Paunta Sahib, District Sirmour Himachal Pradesh of Highest bidder of Auctioned area Mahender Singh & Co., Devinagar, Tehsil Paonta Sahib, District Sirmaur, Himachal Pradesh

While preparing the mining plan including progressive mine closer plan all statutory rules, regulation, orders made by competent authorities of the State or Central Government or orders passed by Courts have been taken into consideration.

The information provided and the data furnished in this Mining Plan is correct to thebest of my knowledge.

Date

Place

Signature of. RQP

Address of the. RQP

Subhash Chand Kaura
(Ex. DDG, GSI)
House No. 1114, Sector 46 B,
Chandigarh, 160047,

Registration No.

RQP No. RQP/D.N.N./182/2011/A
Valid upto 24-01-2021

Seal of Geological wing, Industries Deptt. Govt. of H.P. APPROVED

DECLARATION

This is to declare that the Mining Plan including Progressive Mine Closure Plan Mining Plan of Auctioned area on contract for extraction of Boulders, river born bajari and sand mine falling in Khasra Nos. 73 (River Bed) measuring 17-31-10 Hectares (Govt. Land) in Mauza and Mohal Devinagar, Tehsil Paunta Sahib, District Sirmour Himachal Pradeshhas been prepared with my consent and approval and that we/I shall abide by all commitment there-under.

"The Mining Plan and 'Progressive Mine Closure Plan' complies all statutory rules, regulations, orders made by competent authorities of State or Central Government or orders passed by courts have been taken into consideration and wherever specific permission is required, shall be obtained.

We undertake to implement all the measures proposed in this Mining Plan and Progressive Mine Closure Plan' in a time bound manner.

We have deposited a sum of Rs..... with the competent authority of the State Government in form of Fixed Deposit Receipt as financial assurance of the same.

In case of default on my/our part, the approval of Mining Plan may be withdrawn and the aforesaid sum assured may be forfeited.

Place:
Date

Signature of Contractor

Name of Contractor Mahender Singh & Co.,

Address of Contractor Devinagar, Tehsil Paonta Sahib,
District Sirmaur,
Himachal Pradesh