

अनुमोदित

MINING PLAN

FOR SAND, *BAJRI* AND BOULDER
IN
GAULA RIVER
KHASRA Nos. 2519 अ
AREA: 6.00 ha

At

VILLAGE - BHAURSHA,
TEHSIL & DISTRICT - NAINITAL
(UTTARAKHAND)

APPLICANT

SHRI SATAYENDRA KUMAR TOMAR S/o SHRI TEZ SINGH TOMAR,
R/o VILLAGE BAMORI TALLI KHAAM,
TEHSIL- HALDWANI, DISTT. - NAINITAL
UTTARKHAND

PREPARED BY
Harish Kainthola
RQP/DDN/141/2002-A
मुंखण/05/खनन/RQP/2015-16

शुभका एच एच आर जे कुमार्
उद्योग निगम, उत्तराखण्ड
(एच आर जे अड्डा)
देहरादून

शर्तों के अधीन अनुमोदित
खणक 945/30 खण/माण्डा
दिनांक 18-10-2018

18/10/18
अपर निदेशक

CONTENTS

	<i>Page No.</i>
Chapter- 1 GENERAL INFORMATION	1
Chapter- 2 GEOREFERENCING	2-11
Chapter- 3 DETAIL INFORMATION OF QUARRY LEASE	12-13
Chapter- 4 GEOLOGY AND RESERVES	14-15
Chapter- 5 MINING	16-23
Chapter- 6 USE OF MINERAL	23
Chapter- 7 MINE DRAINAGE	23
Chapter- 8 STACKING OF MINERAL REJECTS AND DISPOSAL OF WASTE	23
Chapter- 9 OTHER	23-24
Chapter- 10 BENEFICIATION	24
Chapter- 11 ENVIRONMENT	24-26
Chapter- 12 CLOSURE PLAN	26-27
Chapter- 13 CONCLUSION	28



LIST OF ANNEXURE

<i>Title</i>	<i>Annexure No.</i>
Letter of Intent	1
Demarcated Khasra Map	2
Joint Demarcated Report	3
Authorization Letter	4
Acceptance Letter	5
RQP Certificate	6
e- tender cum e- auction Letter	7
Site Photographs	8

LIST OF PLATES

<i>Title</i>	<i>PLATE No.</i>
Location map	1
Georeferenced Cadastral Map	2
Surface Plan on Georeferenced Cadastral Map	3
Georeferenced Map on 1:10,000	4
Satellite Location Map	5
Geological Map	6
Geological section	7
Pit layout plan at the end of I year	8
Pit layout plan at the end of II year	9
Pit layout plan at the end of III year	10
Pit layout plan at the end of IV year	11
Pit layout plan at the end of V year	12
Pit sections	13
Environment/ Ultimate Pit Plan	14
Slice Plan	15

CHAPTER - 1

GENERAL INFORMATION

Shri Satyendra Kumar Tomar S/o Shri Tez Singh Tomar, Residence of village Bamori Talli Khaam, Tehsil- Haldwani,, District- Nainital, Uttarakhand has got LOI No. 799/VII-I/ 2018 / 6ख / 2018 dated 15-05-2018 in village Bhaursha, Tehsil & Distt.- Nainital, (Uttarakhand) for taking Environment Clearance for Mining License (ML) over an area of 6.00 ha for exploitation of sand, *bajri* & boulder in single blocks for the period of 05 year through E-tendering (Annexure -1). Demarcated Cadastral (*Khasra*) Map (Annexure -2) relevant documents and other informations about surrounding the project area are provided by the client. Coordinates and contour plan of the area is taken with the help of DGPS. The applied area is jointly demarcated by different state Govt. authorities (Annexure -3). The cadastral map of the area has been georeferenced with the help of DGPS and the applied area was marked on it with the help of DGPS coordinates of the demarcated pillars of the proposed mining area (Plate -2). Surface Plan on Georeference cadastral map indicating land use (Civi land, *Nap* land and Forest land) on (1:1000) of the applied area is shown in Plate-3. Georeference map on 1:10000 is enclosed as (Plate -4) in this report. Satellite location map showing mineable area leaving 15% from both bank of the river is given in Plate- 5.

This mining plan has been prepared under Uttarakhand Minor Mineral Concession (Amendment) Rule 28(क) (13) of 2017. Mineable quantity of sand, *bajri* and boulder and mining method described in page no. 17 under Chapter -5. Mining will be done manually in open cast method in quite systematic manner. About 132000 Tonne per year of sand, *bajri* and boulder will be produced.

Shri Satyendra Kumar Tomar has assigned/ authorized Shri Harish Kainthola, RQP No. मु०ख०/०५/खनन/RQP/2015-16 & RQP/DDN/141/2002-A to prepare the Mining Plan of Village- Bhaursha, Tehsil & Distt.- Nainital, (Uttarakhand) over an area 6.00 ha (Annexure-4) and acceptance for the same is enclosed as Annexure- 5. As per G.O No. 844/VII-1/2015/68-Kha/2015 Dehradun dated 31-07-2015 Shri Satyendra Kumar Tomar has authorised Shri Harish Kainthola, RQP No. RQP/DDN/141/2002-A (Annexure- 6) to prepare the Mining Plan in respect of Bhaursha over an area of 6.00 ha for estimating the reserve of mineral (sand, *bajri*, boulder) having the *khasra* Nos.2519 अ falls under civil land. Maximum quantity of minor mineral allowed to Geology and Mining Unit by their letter no. 001_Nainital_Bhaursha_Nainital_6.00ha/मूखनि०ई०/ई०खनि०सह०ने०न०/२०१७-2018, Dated 5 February 2018 issued to Shri Satyendra Kumar Tomar after the completion of e- tender cum e- auction process for Bhaursha mining lot (Annexure- 7). Maximum quantity of the mineral can be extracted per year as per recommended by the District Environmental Appraisal Committee duly authorized in Minor Mineral Policy, 2016.

Mining plan has been prepared for the period of five years for exploitation of deposited mineral. Site photograph of mining area are enclosed as Annexure- 8.



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CHAPTER - 2

GEOREFERENCING

Georeferencing means that the internal coordinate system of a map or aerial photo image can be related to a ground system of geographic coordinates. Georeferencing means to associate something with locations in physical space. Geographic locations are most commonly represented using a coordinate reference system, which in turn can be related to a geodetic reference system.

To georeference an image, one first needs to establish control points, input the known geographic coordinates of these control points, choose the coordinate system and other projection parameters and then minimize residuals. Residuals are the difference between the actual coordinates of the control points and the coordinates predicted by the geographic model created using the control points. They provide a method of determining the level of accuracy of the georeferencing process.

In situations where data has been collected and assigned to postal or area codes, it is usually necessary to convert these to geographic coordinates by use of a definitive directory or *Khasra* file. A cadastre commonly includes details of the ownership, the tenure, the precise location

A Cadastre is normally a parcel based, and up-to-date land information system containing a record of interests in land (e.g. rights, restrictions and responsibilities). It usually includes a geometric description of land parcels linked to other records describing the nature of the interests, the ownership or control of those interests, and often the value of the parcel and its improvement. Updating cadastral information is crucial for recording land ownership and property division changes in a timely fashioned manner. In most cases, the existing cadastral maps do not provide up-to-date information on land parcel boundaries. Such a situation demands that all the cadastral data and parcel boundaries information in these maps to be updated in a timely fashion. The existing techniques for acquiring cadastral information are discipline-oriented based on different disciplines such as geodesy, surveying, and photogrammetric. All these techniques require a large number of manpower, time, and cost when they are carried out separately. There is a need to integrate these techniques for acquiring cadastral information to update the existing cadastral data and produce cadastral maps in an efficient manner. To reduce the time and cost involved in cadastral data acquisition, this study develops an integrated approach by integrating global position system (GPS) data, remote sensing (RS) imagery, DGPS and existing cadastral maps. The regions of study are river bed in Gaula river around village Bhaursha in Nainital. The results are the creation of updated cadastral maps with a lot of cadastral information which can be used in updating the existing cadastral data with less time and cost. Pillar no. with coordinates are tabulated below:



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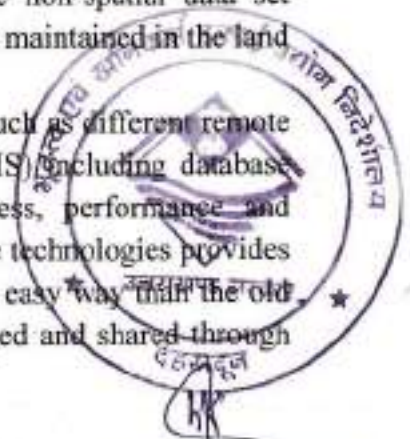
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Pillar No.	Latitude	Longitude
A	N29°16'43.38"	E79°36'25.07"
B	N29°16'41.57"	E79°36'21.07"
C	N29°16'41.41"	E79°36'19.32"
D	N29°16'38.72"	E79°36'19.74"
E	N29°16'35.81"	E79°36'18.69"
F	N29°16'32.95"	E79°36'17.80"
G	N29°16'26.98"	E79°36'15.26"
H	N29°16'24.68"	E79°36'15.60"
I	N29°16'24.57"	E79°36'16.37"
J	N29°16'23.70"	E79°36'17.94"
K	N29°16'21.40"	E79°36'19.15"
L	N29°16'21.18"	E79°36'25.05"
M	N29°16'26.48"	E79°36'23.87"
N	N29°16'26.20"	E79°36'22.37"
O	N29°16'23.88"	E79°36'22.87"
P	N29°16'22.41"	E79°36'23.19"
Q	N29°16'22.29"	E79°36'22.40"
R	N29°16'26.53"	E79°36'18.71"
S	N29°16'28.50"	E79°36'18.42"
T	N29°16'31.96"	E79°36'19.36"
U	N29°16'34.94"	E79°36'21.04"
V	N29°16'38.48"	E79°36'22.30"

Cadastral information system is a set of processes for parcel/property based data collections including land tenure, land use, and land value. Cadastre provides spatial integrity and unique identification of each and every land parcel. Cadastres provide security of tenure by recording land rights in a land registry (Williamson et al., 2010). A cadastre itself is a description of systematically organised land parcels in an area describing individual land parcels/properties. This description is made through maps and land registers where the maps show shape, size, and location of the land parcels on ground while the ownership, rights, area, and other information is maintained in the land registers.

The quality of cadastral data largely depends on processes (both legal and technical) or methodologies and standards used for acquiring, structuring, and updating changes of ownership data and spatial division of property units. While establishing land information systems (LIS), cadastral datasets are normally digitised using the available cadastral maps and land registers where the cadastral maps show spatial data set such as shape, size, boundary, and location of land parcels on the ground while the non-spatial data set including; ownership, rights, area, and other relevant information are maintained in the land registers.

The theoretical and practical developments in technologies such as different remote sensing satellite images and geographical information systems (GIS) including database management concepts can improve the quality, cost effectiveness, performance and maintainability of LASs (Aleksic et al., 2005). The adoption of these technologies provides enormous opportunities to share land related information in a more easy way than the old fashioned technologies/methods in which the information is managed and shared through



manual records and procedures. This can really reduce the chance of duplication in data creation and updating for better performance of the organisations dealing with land information and management.

On technical process side, the existing method for acquiring cadastral information and parcel boundaries surveying in mining lease area is based on field surveying method that involves identification of boundary points using measuring tapes and manual drawing cadastral maps without any standards. It is difficult to carry out these field surveys in remote/mountainous areas due to harsh weather and other security constraints. Such method also requires a large number of manpower and time, and the quality standard is difficult to achieve.

Geo-information methodology is based on integration of global positioning system (GPS), remote sensing (RS), DGPS and digital photography including existing maps or document for spatial data acquisition (Tuladhar, 2005a).

Land Information System (LIS) consists of spatial and non-spatial data. Both these spatial data (such as parcel boundary, shape, and location) and non-spatial data (such as ownership, rights, and area) are stored, maintained, and accessed in the database environment. The cadastral surveying is done by three possible methods; (a) field survey, (b) aerial survey, and (c) satellite images. The first method comes under direct technique while the remaining two methods come within indirect technique as shown in Fig. 1.

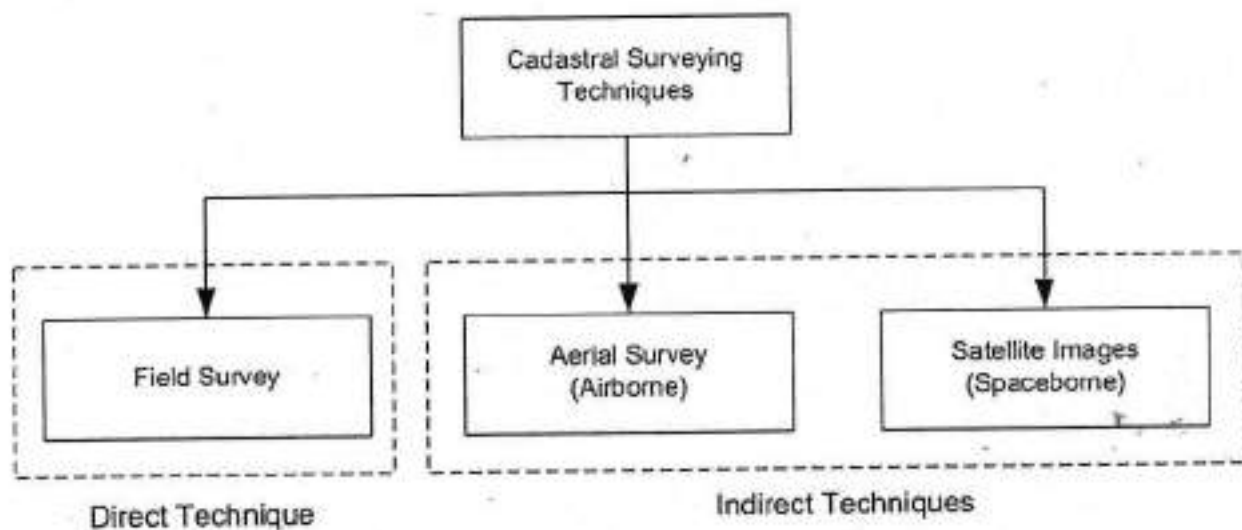
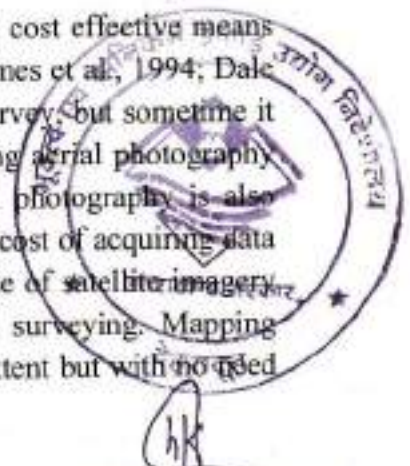


Fig. 1. Cadastral Surveying Techniques.

Aerial surveys from large-scale aerial photography offers a rapid and cost effective means of extracting topographic and cadastral information for mapping (Barnes et al., 1994; Dale and McLaughlin, 1988). Aerial survey is a best alternative to field survey, but sometime it is impossible in many countries when there are restrictions for taking aerial photography due to military security reasons in the area to be surveyed. Aerial photography is also highly dependent on weather and climatic conditions. Because of the cost of acquiring data and the time involved in processing many aerial photographs, the use of satellite imagery appears to be the most feasible technology to adopt for cadastral surveying. Mapping procedure from satellite images is similar to aerial photos in some extent but with no need



Harish Kainthola

मुंबई/05/खनन/ROP/2015-16

for flight mission, photo laboratory processes, scanning as well as it requires less ground works. Therefore, the satellite imagery can be considered as an interesting input for indirect land surveying technique with its utility for surveying large areas in a time and cost effective manner.

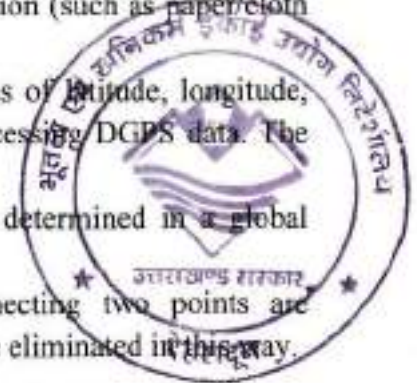
Satellite images constitute one of the vital elements in providing many of the much-needed spatial inputs to digital cadastral maps. The fact that Remote Sensing (RS) imagery is in digital form so that it could be zoomed at any required scale making it a fundamental tool, quicker, and cheaper as compared to aerial photographs (Ondulo and Kalande, 2006). RS images on the wide area can be achieved more repeatedly and economically compared to aerial photos (Jeong et al., 2003). The use of RS images also plays an important role for extracting and updating land related information. One advantage of using RS images is that they provide a historical record of the areas that can be revisited in the future to see what changes have taken place.

An integrated approach seeks to collect cadastral data and survey cadastral boundaries in an efficient manner as compared to these different techniques. This also helps to update the existing old cadastral maps and produce new data as per users' needs. The integration of these techniques depends upon the purpose of cadastral surveying i.e. whether it is carried out for the first time registration or for the maintenance of existing cadastral boundaries. The process flow of integrated approach is shown in Fig. 2. The main components of this approach are; the data sources, pre-processing, main process, and final output. The data sources include; GPS data, DGPS data, RS imagery, and the existing cadastral maps. GPS is used to measure the position of prominent features on RS imagery in the original place which can be used to provide ground control points (GCPs) for geometric correction during the pre-processing of RS imagery.

RS imagery constitutes one of the vital elements in providing many of the much-needed spatial inputs to the digital cadastral maps. The topographic structure of the area, size of the land parcel, and the vegetation coverage in the area to be surveyed also playing an important role in the selection of RS imagery for extracting cadastral information. However, necessary image processing techniques will be required to make the RS imagery ready for cadastral information extraction. The existing cadastral maps and filed sketches that are used as a base map for extracting information on land parcels and their boundaries. These maps are normally available in paper format but also exist on a piece of cloth in some cases as observed in this study. These maps are used as an input in digitising parcel boundaries and extracting other information for cadastral databases. However, the quality of this data depends upon the scale of the map, its physical condition (such as paper/cloth quality), and the cadastral information contained in it.

DGPS receiver displays its location on the planet in terms of latitude, longitude, height, and time. There are different ways for acquiring and processing DGPS data. The possible surveying strategies are (Gomarasca, 2009);

- (i) Absolute positioning: in this case, the point coordinates are determined in a global reference system.
- (ii) Relative positioning: the components of the vector connecting two points are determined. The systematic errors in the two ground stations can be eliminated in this way.



Harish Kainthola

मुळक्र०/०५/खनन/१०१/२०१५-१६

(iii) Differential positioning: satellite-to-receiver measurements are corrected on the basis of a reference station whose coordinates are known.

In the first case, the absolute coordinates of a single point at a time are determined, while in the relative and differential positioning coordinates of a point are defined relative to another point selected as reference. Though GPS really modernise the surveying of ground points for geodetic purposes, some limitations exist especially related to the presence of a great variety of obstacles that can strongly affect their functioning. For example, the signal is completely absent or irregular in urban areas, in dense woods, and in mountain areas.

Either hard copies or soft copies of RS imagery can be used for drawing parcel boundaries and extracting other cadastral information. In case of hard copies, the parcel boundaries are marked on hard copies which are then digitised after scanning. While in case of soft copies, the parcel boundaries are digitised on soft copy of RS imagery via on-screen digitising technique. To use the soft copy of RS imagery, some image processing techniques such as DEM generation, ortho-rectification, and image enhancement techniques (pan-sharpening) are required to overcome all distortions in RS imagery which are produced during the capturing of the data by satellite. Once the RS imagery is corrected completely then it can be used for drawing parcel boundaries and extracting other cadastral information.

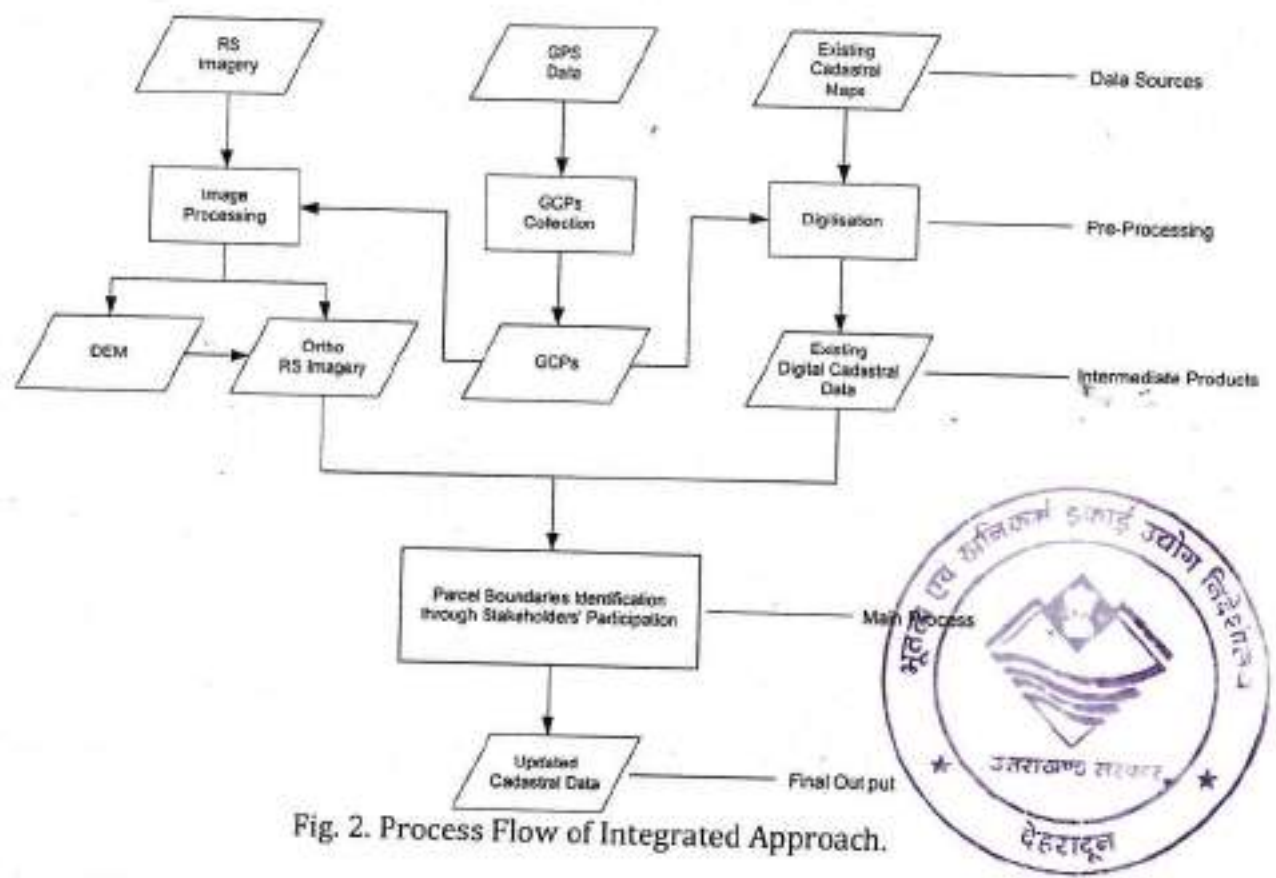


Fig. 2. Process Flow of Integrated Approach.

Pan-sharpening is the process of combining several images or some of their features, acquired by two or more sensors at the same time or different times, together to form a single image to enhance the information. This process is carried out to improve the interpretability of RS imagery for extracting cadastral information. The existing cadastral

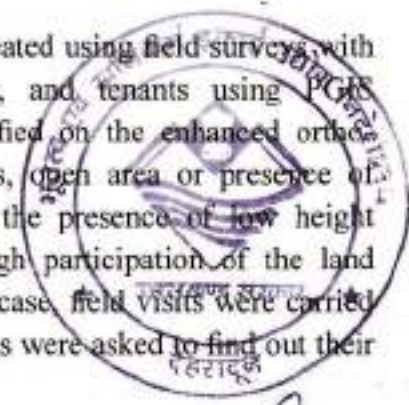
maps are digitised in this process which can be used later on for locating cadastral parcels on RS imagery. The basic steps in this process are scanning, geo-referencing, and digitising the existing cadastral maps. Different techniques such as digital camera or scanner can be used to scan the existing cadastral maps. These scanned maps also need to be georeferenced using collected GCPs before digitising the existing spatial cadastral information. This information can be digitized using digitising table or personal computer (PC) using on-screen digitising techniques. Cadastral boundaries are digitised in this process if the map quality is good and the information contained is updated. This information can be then used in identifying parcel boundaries on RS imagery.

PGIS process includes the identification of parcel boundaries on ortho-rectified RS imagery. This is done by involving the stakeholders including; land owners, tenants and land agency officials through PGIS technique. PGIS plays an important role as base for identifying cadastral boundaries to integrate the local people knowledge by face-to-face format with geo-information technology (Jankowski, 2009). PGIS also helps the people in a society to use GIS and other technologies to represent peoples' spatial knowledge in the forms of virtual or physical maps (2D or 3D) that can be used as interactive medium for spatial learning, discussion, information exchange, analysis, and decision making and support. The parcel boundaries are identified on ortho-rectified RS imagery in this process using the local knowledge of the stakeholders and information obtained from the digitised existing cadastral maps. The stakeholders are involved in this exercise to point out their parcel boundaries on the HRSI. In this process, the parcel boundaries are manually drawn on the ortho-rectified RS imagery using on screen digitisation technique.

The updated cadastral data is the final output product of this integrated approach. This cadastral data include; the attribute data such as, parcel area, location, parcel number, etc. and the graphical data such as parcel boundaries, shape and other features which are described on cadastral map as per cadastral system requirement. This updated cadastral information is then further used in keeping the up-to-date LIS. The updated cadastral map is also one of the outputs that can be used for tracking changes on geographical information of land parcel. The existing cadastral maps of the study areas were scanned and uploaded to laptop for further use. These maps were used for identifying old survey points in the field to locate the parcels boundaries. These maps were also georeferenced and overlapped on the satellite imagery for further analyses.

After doing the pre-processing techniques, the parcel boundaries were delineated and digitised on ortho-rectified QuickBird HRSI for cadastral mapping. The workflow for parcel boundaries digitisation is shown in Fig. 3.

The parcel boundaries in both study areas were delineated using field surveys, with the participation of land agency officials, land owners, and tenants using GIS technique. The parcel boundaries in area were easily identified on the enhanced ortho-rectified HRSI. In this case, the parcel borders were trees, open area or presence of vegetation, roads or foot paths, and water drainage with the presence of low height vegetation. The boundaries were digitised on HRSI through participation of the land agency official, land owners, and tenants in the field. In this case, field visits were carried out by loading the HRSI on laptop screen and the stakeholders were asked to find out their



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cadastral boundaries visually. The boundaries were then digitized using on-screen digitising techniques in the field after confirming with the leasee.

Bhaursha area is mountainous in nature and it was not so easy to identify cadastral boundaries on HRSI. The field shapes were also not regular and field sizes were very small to identify on HRSI easily. Furthermore, the quality of HRSI was not so good due to mountainous terrain and irregular scattering effect which is normally occurred during data acquisition by the satellite. The shadow effect was also observed on HRSI in some parts of the study area creating problems in identifying cadastral boundaries efficiently. This study introduces an integrated approach for acquiring cadastral data and mapping parcel boundaries by integrating DGPS data, GPS data, RS imagery, and existing cadastral maps through PGIS technique. The newly developed approach was tested in both flat and mountainous areas using navigation receiver, ortho-rectified QuickBird images, and SPOT-5 stereopair data. The cadastral information were acquired and parcel boundaries were digitised on soft copies of the RS imagery using on-screen digitization technique during field visits by involving the stakeholders including; land agency officials, land owners, and tenants.

It was found in this study that more cadastral boundaries can be extracted with less time and cost through this approach as compared to existing field surveying technique.

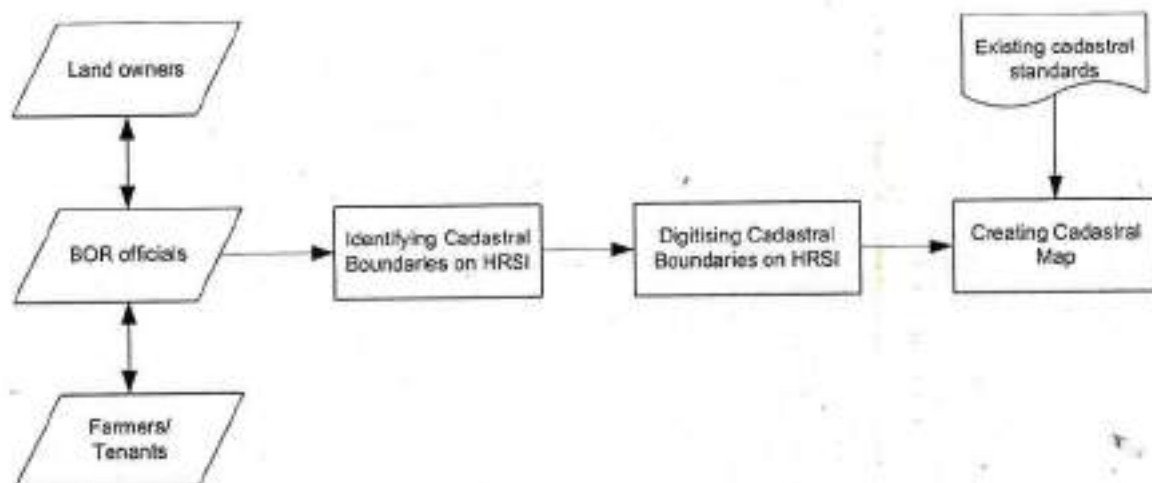


Fig. 3. Workflow for capturing cadastral boundaries using PGIS technique.

This approach provided an effective technique for capturing cadastral data and doing cadastral surveys in a country like India with less time and cost. It is found in this study that the cadastral parcels surveying time can be reduced to one third using this approach as compared to the old fashioned field surveying technique. This approach also proved that a less number of manpower is required with basic photogrammetry training to digitise parcel boundaries on RS imagery as compared to the existing field surveying technique. In this way, the number of manpower can be reduced to one half in this approach as compared to the previous approach where a large number of manpower is always required to do field surveys.

The integrated approach an efficient tool for collecting cadastral information and surveying cadastral parcel boundaries with less labour, time, and cost as compared to the old fashioned field surveying technique where a large number of labour, time, and cost are

required for collecting cadastral data. This approach integrates GPS data, RS imagery, and existing cadastral maps through PGIS technique. The collection of ground control points and orthorectification of RS imagery are the key elements of this approach as these data sources provide background knowledge for extracting cadastral information. The cadastral maps generated through this approach can be easily re-produced, updated, and retrieved to do different calculations with less time and cost. In a nut shell, the cost and time for gathering cadastral data and generating cadastral maps can be reduced to on half in a country like India by integrating DGPS data, RS imagery, and existing cadastral maps through PGIS technique.

PROJECT: Preparation of Georeference Map for Mine Plan

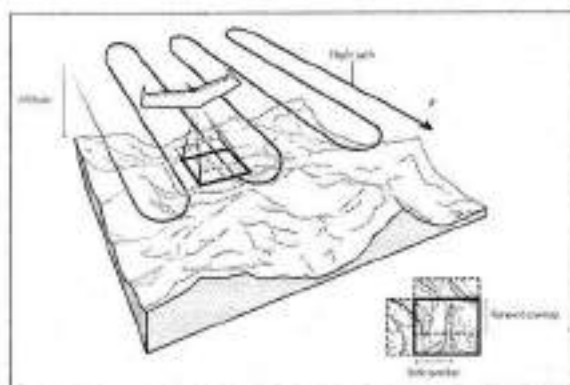
Scope of Work

- Drone Survey of plots situated at the shore of River.
- Co-referencing of *Khasra* and ground.
- Preparation of Map showing *khasra* and contours over drone imagery.

Step 1: Taking GCPS on Ground

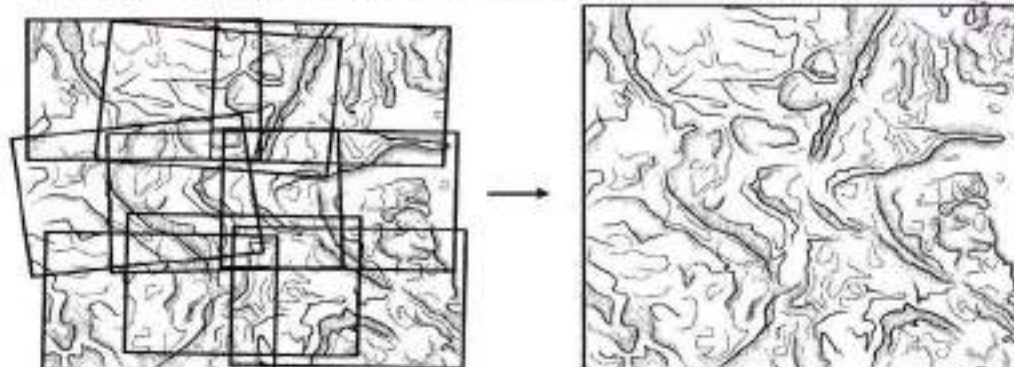
- GCPs are taken with the help of DGPS.
- Number of GCPs varies between 6 and 10, depending on the area of plot/Site.

Step2: Flight Planning/ Flight of Drone



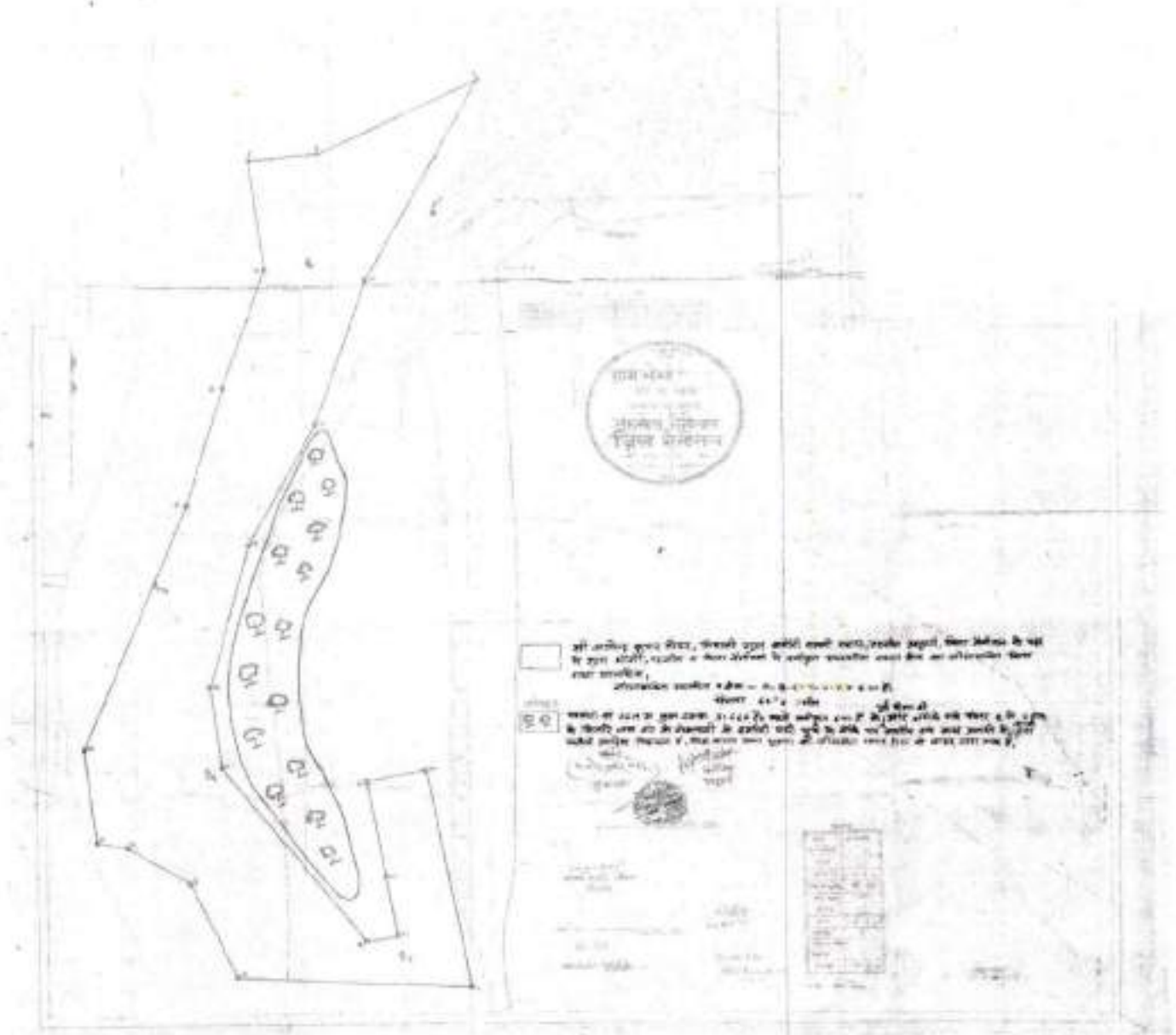
Step 3 Data Processing/Outputs

- After the flight of drone, the outputs are images with the XYZ of DGPS.
- We process these images in order to obtain 2 main outputs:
 - ❖ Orthomosaic Single Image.
 - ❖ Digital Elevation Model (DEM) which is further used to generate contours.



Step 4: Georeferencing of *Khasra*

- *Khasra* is extracted in the form of hard copies, which are scanned to get a raster image.
- This raster image is further georeferenced with the help of Drone imagery by finding common features in the two.
- After georectification, these *khasras* are digitized in order to prepare final maps.



Typical *Khasra* extracted by *Patwari*

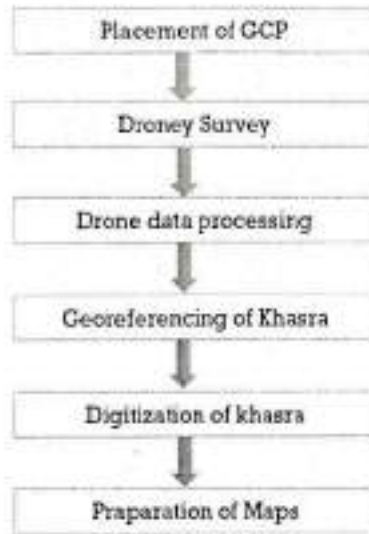


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Flow Chart of Methodology



Problems Faced

- It is very difficult for us to convince *Patwari* and extract *Khasra* from them. In all Unavailability of *Khasra* of Sites.
- *Khasra* not in scale.
- There is huge distortion between *khasra* map and on ground plots.
- This distortion may be due to the land being the shore of River and every year in monsoon the ground is submerged in water.

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CHAPTER - 3

DETAIL INFORMATION OF QUARRY LEASE

Name & Address of the Applicant:

Shri Satyendra Kumar Tomar S/o Shri Tez Singh Tomar, Residence of village Bamori Talli Khaam, Tehsil- Haldwani , Distt.- Uttarkhand.

Status of the Applicant:

Private, Individual Owner. Applicant has 5 year experience in mining activities./

Minerals which are occurring in the area and which the applicant intends to mine:

Sand, *bajri* and boulder (RBM)

Status of the area:

As per joint demarcation report Shri Sateyendra Kumar Tomar, has applied for an area of 6.00 ha having the *khasra* No. 25193 falls under civil land in village Bhaursha, Tehsil & Distt.- Nainital, Uttarakhand,

Period for which the mining lease is granted / renewed / proposed to be applied:

5 years

Name, Address & Registration No. of the recognized person, who prepared the Mining Plan:

Shri Harish Kainthola,
Lane No. 8, Indraprastha,
Mussoorie by pass road, Upper Nathanpur,
Dehra Dun- 248008 (Uttarakhand)
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Registration No. - RQP/DDN/141/2002-A & मु०ख०/०५/खनन/RQP/2015-16

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मु०ख०/०५/खनन/RQP/2015-16



Infrastructure facilities –

Power & Electricity:

The lease area falls in village- Bhaursha, which is electrified by 220 volt supply; nearly 80% area fall 5 km periphery of the area is electrified.

Water Supply:

Water table of this area is about 60-250ft below the ground. Dug wells and spring water are used for drinking water purposes. For irrigation, small canal are made on the perennial *nalas* and water supply for drinking purpose through pipelines by Uttarakhand Jal Sasthan.

Post office & Telegraph:

Post Office is situated at Katgodam which is about 14 km away from lease hold area.

Education institute:

Primary School and Junior High School is available in the Bhaursha which is about 5 km away from lease hold area.

High School, Intermediate are available in the Bhaursha which is about 5 km away from lease hold area. Degree collages is situated at Haldwani main road which is about 15 km away from lease hold area.

Health facility:

In Bhaursha a Govt. hospital is available, which is about 5 km from lease area.

Police station:

The nearest police station is at Haldwani which is about 16 km from applied area.

Bank:

Bank is available at Ranigawn which is about 10km from the applied area.

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CHAPTER-4

GEOLOGY AND RESERVES

Physiography:

This area lies on the NW-NE of a hill in a mountainous terrain of rough and rugged topography. The adjacent area is drained by a Gaula river. The applied area forms a transverse ridge of Bhaursha village ending northwards in the valley. The area has sloppy undulating surface and at places gentle sloping also. The highest RL is about 648m on the SE side of the applied area, while the lowest RL recorded on the NE side of the applied area is about 635m.

Geology:

The Almora Crystalline Zone comprises a synformally folded thrust sheet, and consists of garnetiferous mica schists with interbedded flaggy quartzites, calc-silicate rocks and graphite schists. These crystalline metasediments are interspersed with numerous big and small bands of gneissic and granitic rocks. The Almora Thrust is supposed to separate these Precambrian younger crystalline rocks from the underlying Krol-Nappe. Rocks of the Almora Crystalline Zone have undergone three major folding movements. The earliest folding (F1) gave rise to numerous isoclinal reclined folds and the axial plane schistosity (S1). This deformation synchronised with the regional metamorphism as shown by the rocks. With continued deformation, the isoclinal folding culminated in a major thrust, along which the older Precambrian rocks were pushed over younger rocks of Palaeozoic age. At some later date, the Almora Thrust was synformally folded (F2). The third fold episode is seen as a widespread open flexure with NE-SW axial planes, which have affected both the limbs of the synform.

The rocks of the area belong to the Crystalline Zone of Almora of Heim and Gansser (1939). The name Crystalline Zone of Almora Was proposed by them to include a great thickness of metamorphic and associated intrusive in the Almora region to the west of the area under consideration. In the present area, the Crystalline Zone of Almora is divisible into two district lithologic units: (i) Sarju Formation of Valdiya (1963) of Lohaghat areas. (ii) Duram Formation represented by quartzites. The stratigraphic sequence of the area is given below:

Crystalline Zone of Almora	Duram Formation	Quartzites
	Sarju Formation	Schist Member
		Gneiss Member
		Porphyry Member
-----North Almora Thrust-----		

Exploration:

No, exploration was carried out as the minerals are abundant in the proposed lease area.



Estimation and Categories of reserve:

The method of cross section has been adopted for computing the geological reserve. The mining lease boundary & mining limits are marked on the plans. The intersectional volume between two section lines has been determined by the following manner:

$$V = (S1+S2)/2 \times L, \text{ where}$$

V= volume

S1 & S2= Sectional area of the mineral body

L=Strike influence

The mining lease has been applied only in river bed area. Geological reserves have been estimated through geological cross sections (Plate-7). The strike influence of sections is 36m to 44m. The area of each section line is calculated and sectional area is multiplied by the strike influence in between lease boundary and section line to give the volume of each section line. The incidence of RBM has been taken as 90% of the total volume considering rest 10% as waste and would be used as backfilled material for reclaiming the excavated benches. While computing the geological mineral reserves the depth of mineralization is taken upto 3m in all the applied area.

There are two categories of reserve; namely measured/proved & indicated/probable, inferred/possible. The proved categories include mineral upto 2 m depth. The probable category includes 1 m after the proved depth as far as this lease is concerned.

The proved reserve & probable reserves are 236570.40 tonnes, 118285.20 tonnes respectively.

Following table shows the calculation of different categories of reserve:

Measured/Proved Reserve

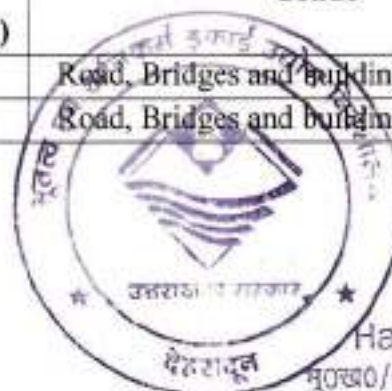
Section Line	Sectional area (m ²)	Strike influence (m)	Volume (m) ³	Recoverable reserves (tonnes)
LB to X-X'	1498	44	59320.80	130505.76
X-X' to END	1488	36	48211.20	106064.64
Total	2986		107532.00	236570.40

Indicated/Probable reserve

Section Line	Sectional area (m ²)	Strike influence (m)	Volume (m) ³	Recoverable reserves (tonnes)
LB to X-X'	749	44	29660.40	65252.88
X-X' to END	744	36	24105.60	53032.32
Total	1493		53766.00	118285.20

Category according to UNFC classification

Reserves	UNFC code	Geological Reserves (tonnes)	Grade
Proved	131	236570.40	Road, Bridges and building construction
Probable	122	118285.20	Road, Bridges and building construction



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CHAPTER - 5

MINING

Mining (Past)

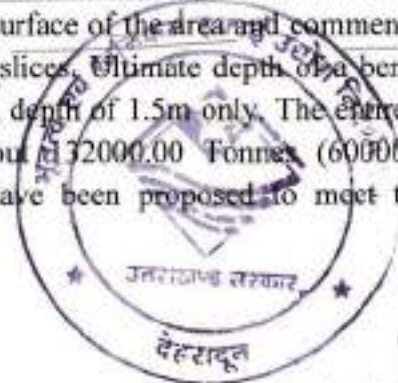
Applied area for mining is 6.00 ha has been considered for exploitation of the mineral (RBM). The present topography shows some depositional or erosion and mining activity during past years. The lease area has gentle slope towards NW-NE. Highest point is at 648 m RL in the SE corner of the area where as lowest point 635 m RL is in the NE corner of the area. As per data collected during field work the quantity of minor mineral is 80-85% of the total mineable material available i.e. 132000.00 Tonne and rest is considered as a residue / waste material.

Proposed Method of Mining

Applied area is a part of a river bed and mining will be done manually in open cast method in quite a systematic manner by forming benches of 1.5m high. However, there may be variation in the width which the lessee will keep on mending. As per slice plan mineable material is 188100.00 Tonne per year. So total available material is 188100.00 Tonne up to the maximum allowable depth i.e. 1.5m. About 132000.00 Tonnes (60000.00 Cum) mineral will be exploited per year as per base value given in Geology and Mining Unit letter. From first year to fifth year total 660000.00 Tonnes mineral will be produced. The proposed area is within river bed and mined out area will be replenished gradually during succeeding rainy season. The sandy soil to be scrapped manually with the help of pickaxe, spade & crowbar and will be stacked separately in dump yard located near the working pit.

Once the overburden has been removed the sand, *bajri* and boulder is excavated depending upon the lithological variation, no blasting may be used to make the sand containing material more amenable to excavation. Excavation is typically performed by manual means. Hand operated tools like spade; tasla etc will be used to collect the sand. The excavated material may be directly loaded into trucks, dumpers, tippers and tractors trolleys and send to the destination wherever it is required for construction and other purposes.

Transportation of sand, *bajri* and boulder from the mine is a process to deliver mined out material to the location where it is going to be collected. Mined out sand, *bajri* and boulder will manually be loaded into truck and transported to its destination where it will ultimately be used. Sufficient space will be left for loading of trucks. Excavation of river bed minerals will commence from the top surface of the area and commence towards down removing the minerals manually in 1.5m slices. Ultimate depth of a bench will be 1.5m. Mining will be restricted upto a maximum depth of 1.5m only. The entire area does not require excavating at once. Per year about 132000.00 Tonnes (60000.00 Cum) production of river sand, *bajri* and boulder have been proposed to meet the market requirement.



Harish Kainthola

मु0ख0/05/खनन/RQP/2015-16

The mineral extraction will be done for a period of 225 days in a year. During this period the areas of mining quarry will be free from submergence. During mining operation the river flow will be away to enable dry pit mining. In the lease area the river flow being reduced and sediment load get deposited. During flood season, the area gets replenished with sediments and source of erosion at this location is comparatively less.

The guidelines of the Ministry of Environment & Forests and Directorate of Geology and Mining will be followed; the most important is as under:

- Dry pit mining will be followed which means mining an all times will be above the flowing river water level. Mining activity will be immediately stopped when water comes in the mining pits.
- Sand, *bajri* and boulder will be collected in slices upto a depth of 1.5 m or river water level whichever less than prescribed.
- Stream will not be diverted to form inactive channel. Mining at the concave side of the river channel will be avoided to prevent bank erosion.
- Plantation will be done on such area to isolate mining operation form the rest of the area.
- Area of mining lease will be demarcated prior to mining for sustainable development and Pillars will be erected on ground.
- No mining operations shall be carried out in proximity of any bridge and or embankment.
- Any other terms & condition mention in EC and GO will also be applicable during excavation of the mineral.
- In the sanctioned lease area, width of the river is measured about 269m from one end to other end. Lease boundary is minimum 41m (15%) away from its left bank and generally 44m (16%) away from right bank after excluded some part from the sanctioned lease area as non mining area /restricted mining zone. So coordinates of the pillars of mineable area are measured by DGPS instrument a (A) N29°16'43.38" E79°36'25.07" ,(B) N29°16'41.57" E79°36'21.07", (C) N29°16'41.41" E79°36'19.32" ,(D) N29°16'38.72" E79°36'19.74" , (E) N29°16'35.81" E79°36'18.69", (F) N29°16'32.95" E79°36'17.80", (G) N29°16'26.98" E79°36'15.26" ,(H) N29°16'24.68" E79°36'15.60", (I) N29°16'24.57" E79°36'16.37" ,(J) N29°16'23.70" E79°36'17.94", (K) N29°16'21.40" E79°36'19.15" (L) N29°16'21.18" E79°36'25.05", (M) N29°16'26.48" E79°36'23.87", (N) N29°16'26.20" E79°36'22.37", (O) N29°16'23.88" E79°36'22.87", (P) N29°16'22.41" E79°36'23.19" (Q) N29°16'22.29" E79°36'22.40", (R) N29°16'26.53" E79°36'18.71", (S) N29°16'28.50" E79°36'18.42" ,(T) N29°16'31.96" E79°36'19.36", (U) N29°16'34.94" E79°36'21.04" ,(V) N29°16'38.48" E79°36'22.30".Coordinates of the non mining area are N29°16'21.18" E79°36'25.05", N29°16'26.48" E79°36'23.87"

Proposed Rate of Production and Life of Mine

Depending upon the market about 132000.00 Tonnes (60000.00 Cum) per annum of river sand, *bajri* and boulder is proposed to be swiped out from the mining area. This mineral will be expected to be replenished during the next rainy season.



HP

Year Wise Mining & Development

Area does not show any outcrop of in-situ deposit. The production is generally in the form of sand, *bajri* and boulder. The general recovery of the material i.e. sand, *bajri* and boulder is about 80-85% has been considered as per our past experience considering rest as wastage. Tonnage factor of 2.2 has been considered. Thus, total saleable quantity from I year to V year in tonnes will be around 660000.00 Tonnes. From I year to V year about 775m long retaining wall will be constructed along the plantation & dump area and about 100m long retaining wall will be constructed along the edge of bench.

I Year:

The mining face will be started from northeast direction from the lower level and advance towards higher levels. During this year mining is proposed from RL. 635 m to open the mining faces and transportation of mineral. In this year about 155m long retaining wall will be constructed along the plantation & dump area.

The sandy soil will be removed from river bank with the help of crowbar & spade and stacked separately. Height of the benches will be 1.0m to 1.3m. The net recovery of RBM has been considered 80-85% of total excavation. The net saleable mineral of RBM will be 132000.00 Tonnes (60000.00 Cum). The bench wise proposed quantity, production and closing recoverable reserves are given below:

Bench Level (m)	Area of Bench (m) ²	Quantity of the mineral (Tonnes)	Depth (m)	Production (Tonnes)	Residue (Tonnes)
635	468.21	1236.07	1.2	1114.00	122.07
636	2783.40	7348.18	1.3	7222.00	126.18
637	4253.72	11229.82	1.3	11152.00	77.82
638	5270.50	13914.12	1.3	13814.00	100.12
639	8775.11	23166.29	1.3	23066.00	100.29
640	4320.51	11406.15	1.3	11323.00	83.15
641	3574.47	9436.60	1.3	9345.00	91.60
642	7198.19	19003.22	1.3	18961.00	42.22
643	3602.69	9511.10	1.3	9401.00	110.10
644	1861.40	4914.10	1.3	4814.00	100.10
645	5249.02	13857.41	1.3	13675.00	182.41
646	2725.43	7195.14	1.3	7051.00	144.14
647	436.17	1151.49	1.2	1052.00	99.49
648	7.35	19.40	1.0	10.00	9.40
Total	50526.17	133389.09		132000.00	1389.09

The position of benches in I year is shown in Plate - 8.

II Year:

As mentioned that the mined out area of I year will be replenished during the monsoon season and the mineral will be filled back over the mined out pit. The mining face will be started from northeast direction from the lower level and advance towards higher levels. During this year mining is proposed from RL. 635m to open the mining faces and



transportation of mineral. In this year about 155m long retaining wall will be constructed along the plantation & dump area.

The sandy soil will be removed from river bank with the help of crowbar & spade and stacked separately. Height of the benches will be 1.0m to 1.3m. The net recovery of RBM has been considered 80-85% of total excavation. The net saleable mineral of RBM will be 132000.00 Tonnes (60000.00 Cum). The bench wise proposed quantity, production and closing recoverable reserves are given below:

Bench Level (m)	Area of Bench (m) ²	Quantity of the mineral (Tonnes)	Depth (m)	Production (Tonnes)	Residue (Tonnes)
635	468.21	1236.07	1.2	1114.00	122.07
636	2783.40	7348.18	1.3	7222.00	126.18
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639	8775.11	23166.29	1.3	23066.00	100.29
640	4320.51	11406.15	1.3	11323.00	83.15
641	3574.47	9436.60	1.3	9345.00	91.60
642	7198.19	19003.22	1.3	18961.00	42.22
643	3602.69	9511.10	1.3	9401.00	110.10
644	1861.40	4914.10	1.3	4814.00	100.10
645	5249.02	13857.41	1.3	13675.00	182.41
646	2725.43	7195.14	1.3	7051.00	144.14
647	436.17	1151.49	1.2	1052.00	99.49
648	7.35	19.40	1.0	10.00	9.40
Total	50526.17	133389.09		132000.00	1389.09

The position of benches in II year is shown in Plate - 9.

III Year:

As mentioned that the mined out area of II year will be replenished during the monsoon season and the mineral will be filled back over the mined out pit. The mining face will be started from northeast direction from the lower level and advance towards higher levels. During this year mining is proposed from RL 635m to open the mining faces and transportation of mineral. In this year about 155m long retaining wall will be constructed along the plantation & dump area.

The sandy soil will be removed from river bank with the help of crowbar & spade and stacked separately. Each bench will be of 1.5m high with 0.75m high sub benches. The net recovery of RBM has been considered 80-85% of total excavation. The net saleable mineral of RBM will be 132000.00 Tonnes (60000.00 Cum). The bench wise proposed quantity, production and closing recoverable reserves are given below:



Harish Kainthola
मुख्य/05/खनन/RQP/2015-16

Bench Level (m)	Area of Bench (m) ²	Quantity of the mineral (Tonnes)	Depth (m)	Production (Tonnes)	Residue (Tonnes)
635	468.21	1236.07	1.2	1114.00	122.07
636	2783.40	7348.18	1.3	7222.00	126.18
637	4253.72	11229.82	1.3	11152.00	77.82
638	5270.50	13914.12	1.3	13814.00	100.12
639	8775.11	23166.29	1.3	23066.00	100.29
640	4320.51	11406.15	1.3	11323.00	83.15
641	3574.47	9436.60	1.3	9345.00	91.60
642	7198.19	19003.22	1.3	18961.00	42.22
643	3602.69	9511.10	1.3	9401.00	110.10
644	1861.40	4914.10	1.3	4814.00	100.10
645	5249.02	13857.41	1.3	13675.00	182.41
646	2725.43	7195.14	1.3	7051.00	144.14
647	436.17	1151.49	1.2	1052.00	99.49
648	7.35	19.40	1.0	10.00	9.40
Total	50526.17	133389.09		132000.00	1389.09

The position of benches in III year is shown in Plate – 10.

IV Year

As mentioned that the mined out area of III year will be replenished during the monsoon season and the mineral will be filled back over the mined out pit. The mining face will be started from northeast direction from the lower level and advance towards higher levels. During this year mining is proposed from R/L 635m to open the mining faces and transportation of mineral. In this year about 155m long retaining wall will be constructed along the plantation & dump area.

The sandy soil will be removed from river bank with the help of crowbar & spade and stacked separately. Height of the benches will be 1.0m to 1.3m. The net recovery of RBM has been considered 80-85% of total excavation. The net saleable mineral of RBM will be 132000.00 Tonnes (60000.00 Cum). The bench wise proposed quantity, production and closing recoverable reserves are given below:

Bench Level (m)	Area of Bench (m) ²	Quantity of the mineral (Tonnes)	Depth (m)	Production (Tonnes)	Residue (Tonnes)
635	468.21	1236.07	1.2	1114.00	122.07
636	2783.40	7348.18	1.3	7222.00	126.18
637	4253.72	11229.82	1.3	11152.00	77.82
638	5270.50	13914.12	1.3	13814.00	100.12
639	8775.11	23166.29	1.3	23066.00	100.29
640	4320.51	11406.15	1.3	11323.00	83.15
641	3574.47	9436.60	1.3	9345.00	91.60
642	7198.19	19003.22	1.3	18961.00	42.22
643	3602.69	9511.10	1.3	9401.00	110.10
644	1861.40	4914.10	1.3	4814.00	100.10
645	5249.02	13857.41	1.3	13675.00	182.41

646	2725.43	7195.14	1.3	7051.00	144.14
647	436.17	1151.49	1.2	1052.00	99.49
648	7.35	19.40	1.0	10.00	9.40
Total	50526.17	133389.09		132000.00	1389.09

The position of benches in IV year is shown in Plate - 11.

V Year

As mentioned that the mined out area of IV year will be replenished during the monsoon season and the mineral will be filled back over the mined out pit. The mining face will be started from northeast direction from the lower level and advance towards higher levels. During this year mining is proposed from RL 635m to open the mining faces and transportation of mineral. In this year about 155m long retaining wall will be constructed along the plantation & dump area.

The sandy soil will be removed from river bank with the help of crowbar & spade and stacked separately. Height of the benches will be 1.0m to 1.3m. The net recovery of RBM has been considered 80-85% of total excavation. The net saleable mineral of RBM will be 132000.00 Tonnes (60000.00 Cum). The bench wise proposed quantity, production and closing recoverable reserves are given below:

Bench Level (m)	Area of Bench (m) ²	Quantity of the mineral (Tonnes)	Depth (m)	Production (Tonnes)	Residue (Tonnes)
635	468.21	1236.07	1.2	1114.00	122.07
636	2783.40	7348.18	1.3	7222.00	126.18
637	4253.72	11229.82	1.3	11152.00	77.82
638	5270.50	13914.12	1.3	13814.00	100.12
639	8775.11	23166.29	1.3	23066.00	100.29
640	4320.51	11406.15	1.3	11323.00	83.15
641	3574.47	9436.60	1.3	9345.00	91.60
642	7198.19	19003.22	1.3	18961.00	42.22
643	3602.69	9511.10	1.3	9401.00	110.10
644	1861.40	4914.10	1.3	4814.00	100.10
645	5249.02	13857.41	1.3	13675.00	182.41
646	2725.43	7195.14	1.3	7051.00	144.14
647	436.17	1151.49	1.2	1052.00	99.49
648	7.35	19.40	1.0	10.00	9.40
Total	50526.17	133389.09		132000.00	1389.09

The position of benches in V year is shown in Plate - 12.

Ultimate pit limit and life of the mine:

About 6.00 ha area will be available for the production of RBM up to the life of the mine. The proposed area is within river bed and mined out area will be replenished gradually during succeeding rainy season. Hence there will be no change in land use, land cover or topography of the area. Mining will be undertaken through manually. The height and width of the mining faces will be kept 1.5m each and ultimate pit slope will be 45°. The existing track will be used for the opening of the faces and transportation of mineral. The waste material will stack separately and will be kept in the earmarked stack site.

Mineable reserve of the area is calculated with the help of slices (Plate-15) which are tabulated below:

Mineable reserve

Bench Level (m)	Area of Bench (m) ²	Depth (m)	Volume (m) ³	Recoverable material (m) ³	Recoverable material (Tonnes)
1	2	3	4	5	6
635	468.21	1.5	702.32	561.85	1236.07
636	2783.40	1.5	4175.10	3340.08	7348.18
637	4253.72	1.5	6380.58	5104.46	11229.82
638	5270.50	1.5	7905.75	6324.60	13914.12
639	8775.11	1.5	13162.67	10530.13	23166.29
640	4320.51	1.5	6480.77	5184.61	11406.15
641	4274.99	1.5	6412.49	5129.99	11285.97
642	8343.60	1.5	12515.40	10012.32	22027.10
643	4002.76	1.5	6004.14	4803.31	10567.29
644	2498.16	1.5	3747.24	2997.79	6595.14
645	6932.31	1.5	10398.47	8318.77	18301.30
646	5345.05	1.5	8017.58	6414.06	14110.93
647	2718.63	1.5	4077.95	3262.36	7177.18
648	13.05	1.5	19.58	15.66	34.45
Total	60000.00		90000.00	72000.00	158400.00

Conceptual Mine Plan and Life of Mine

The lease is small in size. No sand, *bajri* and boulder will be collected from the proximity of any bridge/embankment. Collection of sand, *bajri* and boulder is restricted up to a maximum depth of 1.5m. River/stream will not be diverted in any case. No mining is proposed during rainy season. A quantity of material about 587 tonnes per day RBM has been proposed to collect during the course of mining. This will be replenished during the next rainy season. The environment / ultimate plan is shown in Plate- 14.

Afforestation:

The entire mining lease area being a part of river bed, there is no vegetation in the leased out area. Hence there would be no clearance of existing land and vegetation. Plantation will be done on southwestern corner of the lease.

Infrastructure:

Track having width 3.0m and gradient varies 1:20 to 1:30 will be made for different working pits and up to sandy soil stack. The entire mining lease area being a part of river bed, there is no buildings in the leased out area. Hence there would be no clearance of existing land.



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Backfilling:

The mining will be undertaken on the river bed. The mined out pit will be restored by backfilling of waste material (sandy soil). The final backfilling can be started once the ultimate benches are formed and mineral is completely excavated. However the mined out area will be replenished during the monsoon season and the mineral will be filled back over the mined out pit itself.

CHAPTER - 6

USE OF MINERAL:

The RBM containing sand, *bajri* & boulders of quartzite mineral is an important material for construction. The RBM will be used in road, bridge and building constructions.

CHAPTER - 7

MINE DRAINAGE:

The Gaula river has formed alluvial deposit in the area. The deposit is situated in the river bed and has a moderate to heavy rainfall. The highest RL is about 648 m RL on the southeastern part of the area, while the lowest RL recorded on the northeastern part of the area is about 635 m RL and general slope is towards NW-SE direction. Provision of garland drainage is given along the lease boundary with proper gradient towards NW-SE direction.

CHAPTER - 8

STACKING OF MINERAL REJECTS AND DISPOSAL OF WASTE:

The top RBM containing sandy soil will be removed with the help of pickaxe, spade & crowbar and stacked separately. Part of these rejects will be utilized in construction and maintenance of retaining walls.

CHAPTER - 9

OTHER

Site Services

The following site services will be provided:

- (i) Office
- (ii) Store
- (iii) First Aid Centre
- (iv) Drinking water shed
- (v) Rest shelter



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Harish Kainthola

मुख्य/05/खनन/RQP/2015-16

Employment Potential

The mine manager should be a graduate engineer holding at least second class manager's certificate.

The category-wise employments are given as below:

Manager/Foreman	:	1
Skilled		
Supervisor	:	2
Time Keeper	:	1
Office Assistant/Dispatch Supervisor	:	1
Un-skilled		
Daily wages/mining workers	:	117
Total	:	122

The services of following persons/agencies may be retained on part time basis.

- (i) Geologist
- (ii) Mining Engineer
- (iii) Environment consultancy agency
- (iv) Surveyor

CHAPTER - 10

BENEFICIATION:

No beneficiation of mineral processing will required for sand, *bajri* and boulders. There for no such investigations have been conducted.

CHAPTER - 11

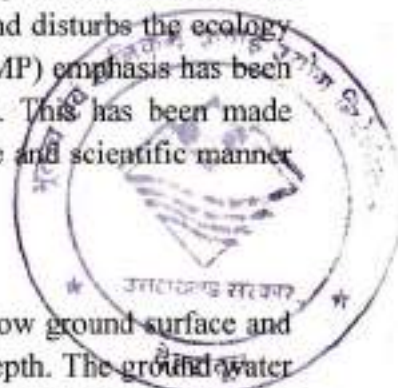
ENVIRONMENT:

Land use:

Land degradation and ecological disturbances generally occurs in open cast mining. In preparation of mining plan for sand, *bajri* and boulders emphasis on environmental protection has been given to minimize the adverse impact on the present environmental status. Opencast method of mining causes some land degradation and disturbs the ecology of the area. While preparing the Environment Management Plan (EMP) emphasis has been laid on restoring the ecology of the area as much as is possible. This has been made possible by planning the mine workings in the most systematic, safe and scientific manner with due regard to conservation of mineral.

Water regime:

The ground water table in this region is at shallow depth below ground surface and hence ground water may interfere in opencast mining below 1.5m depth. The ground water conditions in alluvial parts of Nainital district are considerably influenced by the varying



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lithology of the subsurface formations. Alluvium is the main water bearing formation in the area, which consists of coarse sand, fine sand and silt. Ground water in Nainital district occurs under unconfined, confined and semi-confined conditions. The aquifers are separated with thick clay with considerable thickness, which act as confining layers.

Flora and fauna:

Vegetation

This Forest Division is located in Nainital District is famous for its rich biodiversity and is occupied by fast growing tree species and trees with economic value like Shisham, Segun, Khair, Semul, etc. There are also a lot of plantation activities being taken up in this forest division of Nainital district.

The core Zone of Gaula River where mining operation is proposed consists of riparian vegetation in which aquatic and marshland plants are the main component. Most among them are weeds. Riparian vegetation is found along the river side.

Shrubs: *Calotropis procera*, with a few *Datura innoxia* and *Ipomoea carnea* etc. occurs in the depressions.

Herbs: *Ageratum conyzoides*, *Amaranthus spinosus*, *Cannabis savita* and *Hydrolea zeylanica*.

Quality of air, ambient noise level and water:

Mining activities includes excavation and lifting of minerals. The proposed mining activity is manual in nature. No drilling and blasting is envisaged for the mining activity. Hence the only impact anticipated is due to movement of vehicles deployment for transportation of minerals. The location of the monitoring stations will be selected based on predominant wind direction and sensitive locations within the study area.

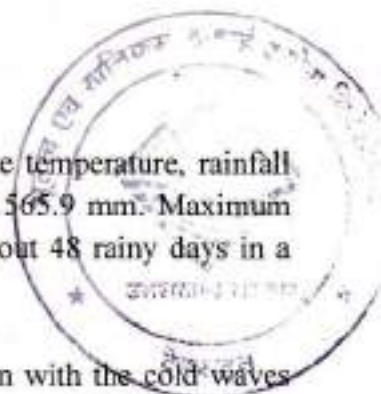
Water quality:

The surface drainage system in the area is perennial. The flow in the natural drain is observed more immediately after the rainfall. Drinking water quality will not deteriorate by mining and allied activities.

Climatic condition:

Rainfall: Nainital is characterized by humid climate with moderate temperature, rainfall and luxuriant vegetation. The annual rainfall in the area remains 1565.9 mm. Maximum rainfall seems during July and August. On an average there are about 48 rainy days in a year.

Temperature: Maximum temperature reaches 39⁰C. In association with the cold waves arising in the wake of the western disturbance which travels East wards, the minimum temperature goes down to about 3⁰ and at times leads to frosts.



Harish Kainthola

मु.ख.0/05/खनन/RQP/2015-16

Socio-Economics:

Social and demographic profile:

The scale of operation is small. It is expected that 90% employment will be local. Therefore there will be positive impact on socio-economic status of people.

Historical monuments etc

There is no historical building in and around the lease area.

Programme of afforestation:

Plantation is proposed along the slope on the southwestern corner of the lease. Rehabilitation of extracted land has to be designed skilfully in order to restore it to its formal use, or to an alternative use that is compatible with the surroundings. Plantation with grasses, herbs, shrubs and trees is an important means for restoring such areas.

Stabilizing and re-vegetate the de-vegetated areas viz. debris, dumps and slopes which get degraded due to vehicle movement, rolling stones, etc are important for conservation of soil, regulation of surface and underground water and for rehabilitation of wild life habitat. Protective engineering measures, in conjunction, become necessary.

Top layer of RBM having some sandy soil is considered as an overburden and will be stacked separately and nature of this dump will be temporary. Mining pits will be backfilled from first year onwards in the proposed pit.

CHAPTER - 12

CLOSURE PLAN:

Mined Out land:

Plantation is proposed along the southwestern side of the lease. The mining will commence from the lower levels and will advance towards higher levels. Intermittent backfilling will commence from the lower levels and subsequently advance, towards the higher elevations. The year wise proposal for reclamation is shown in Plate – 8 to 12.

Water Quality Management:

The mineral as well as soil are non-toxic and mining is also proposed at small scale. Hence no proposal has been provided for the surface and ground water bodies.

Air Quality Management:

The lease area is situated in the river bed. The manual mining without drilling and blasting has been proposed. Therefore the impact on air environment will be negligible. Mining and allied activities are going on a comparatively small scale; the existing air is absolutely clean.



Harish Kainthola

मुख्य/05/खनन/RQP/2015-16

Waste Management:

The RBM containing sandy soil will be stacked separately and these dumps are temporary in nature. The dumping will be undertaken manually. The toe wall having width 1.5m and height 1.0m will be made along the side and slope of the soil and width & height 1.5m each retaining wall for protecting RBM dump to avoid the wash off material during intermittent rains.

Infrastructure:

In river bed sand, *bajri* and boulders is manual open cast mining. No mechanization is required. The tracks having width of 3.0m and gradient 1:20 to 1:50 will be made for the advancement of mining faces and for the transportation of RBM and waste material. There will not be any change in existing infrastructure.

Disposal of Mining Machinery:

The sand, *bajri* and boulders mine is manual open cast. Hence disposal of mining machineries are not required.

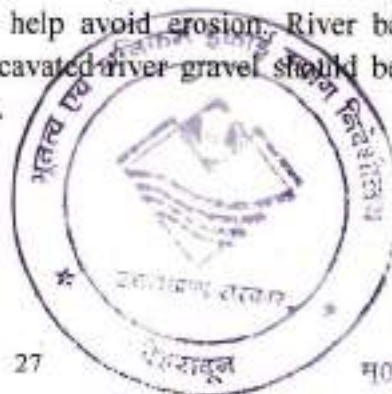
Safety and Security:

Each worker employed in the mine will be provided helmets and shoes. Safety belts will be used for working in the top of the benches.

Therefore protective works like parapet walls, garland drains shall be provided before the mine/pit is abandoned.

Disaster Management and Risk Assessment:

At present the mining is proposed in a mild sloping *civil* land in river bed. When the mining will reach up to the optimum economical depth. The mining faces shall be dressed properly because any hanging boulders/loose material may create fatal accidents to the labourers while working in the pit. The mine shall be critically examined for its proneness to any natural hazard and assessment regarding danger of hazard and precautions to be taken and should be reviewed so that chances of slope failures will be minimized. At present the mining is proposed in a mild sloping civil land in river bed. Pits will be created of limited depth of 1.5 m only, thus the chance of failure of pit slope does not exist. A worker in a mine should be able to work under adequately safe and healthy condition. Safety of the mine and the employees is taken care of by the Mining Rules & Regulations. The minerals will be mined out in a uniform wash so that the river flow/course shall not get disturbed. Mining is to be done leaving safety barrier on both sides and maximum barrier should be on concave side of the river, preferably the flow channel (excavation void) created should be kept straight so as to help avoid erosion. River banks will not be excavated to form access ramps. Only excavated river gravel should be used to deposit against the river bank to form access ramps.



Harish Kainthola

मं०ख०/०५/खनन/ROP/2015-16

CHAPTER - 13

CONCLUSION:

This applied area is suitable for constructional material and can be used for making road, bridge, buildings and other constructional work. This is a part of Govt. of India's policy to develop maximum infrastructure facility in India. This making of road or bridge will generate direct & indirect employment to the local people. Lease holder will undertake mining activity as per the plan indicated in the above chapters with proper taking care of environmental aspects i.e. without disturbing the ambient condition.



Harish Kainthola

मु.ख.०/०५/ख.ग.न./RQP/2015-16



उत्तराखण्ड शासन
औद्योगिक विकास अनुभाग-1
संख्या: 139 / VII-1 / 2018 / 603 / 2018
देहशदून दिनांक: 15 मई, 2018
आशय पत्र (Letter of Intent)

अधिसूचना संख्या-1582/VII-1/2017/31 ख/17, दिनांक 31 अक्टूबर, 2017 द्वारा प्रख्यापित उत्तराखण्ड उपखनिज (परिहार) (संशोधन) नियमावली, 2017 के प्रावधानानुसार जनपद व तहसील नैनीताल के ग्राम मौसा क्षेत्रान्तर्गत 6.00 हेक्टेयर (राजस्व क्षेत्र) में उपलब्ध उपखनिज (बालू, बजरी एवं बोल्टर) को ई-निविदा सह ई-नीलामी के माध्यम से आवंटन हेतु भूतत्व एवं खनिकर्म इकाई, उद्योग निदेशालय, उत्तराखण्ड देहरादून द्वारा प्रकाशित आमंत्रण प्रपत्र संख्या-001_Nainital_Bhaursha_Nainital_6.00ha/ भूखनिज/ई0/ई0निविदासहई0नीला0/2017-18, दिनांक 10 जनवरी, 2018 के क्रम में उक्त नियमावली, 2017 के नियम 27 ग (द्वितीय चरण) के उपनियम 5 के प्रावधानानुसार श्री सत्येन्द्र कुमार तोमर पुत्र श्री तेज सिंह तोमर, निवासी ग्राम बमोरी तल्ली खाम, तहसील हल्द्वानी, जिला नैनीताल (पंजीकरण सं० MI71228140932340) को उनके द्वारा दर्ज अंतिम उच्चतम बोली रु० 5,020,9500.00 (रु० पांच करोड़ बीस लाख नौ हजार पांच सौ मात्र) के आधार पर H2 घोषित किया गया है।

2. श्री सत्येन्द्र कुमार तोमर को उक्त नियमावली के नियम 28.क के उपनियम 2 के अनुसार बोली गयी अधिकतम उच्चतम बोली रु० 5,020,9500.00 (रु० पांच करोड़ बीस लाख नौ हजार पांच सौ मात्र) का दस प्रतिशत धनराशि अर्थात् रु० 50,20,950.00 (रु० पचास लाख बीस हजार नौ सौ पचास मात्र) जमा किये जाने, विभागीय वेबसाइट में पंजीकरण के दौरान प्रेषित समस्त अभिलेखों की मूल प्रतियाँ सहित भूतत्व एवं खनिकर्म इकाई, उद्योग निदेशालय, देहरादून में जमा करने के उपरान्त सफल बोलीदाता घोषित माना गया है। उक्त नियमावली के नियम 28.क के उपनियम-3 के अनुसार श्री सत्येन्द्र कुमार तोमर द्वारा उच्चतम बोली का दस प्रतिशत धनराशि अर्थात् रु० 50,20,950.00 (रु० पचास लाख बीस हजार नौ सौ पचास मात्र) निर्धारित विभागीय लेखाशीर्षक में जमा करने के उपरान्त प्रोस्पेक्टिव पट्टाधारक माने जाने के दृष्टिगत उत्तराखण्ड उपखनिज (परिहार) (संशोधन) नियमावली, 2017 के प्रावधानानुसार श्री सत्येन्द्र कुमार तोमर पुत्र श्री तेज सिंह तोमर, निवासी ग्राम बमोरी तल्ली खाम, तहसील हल्द्वानी, जिला नैनीताल के पक्ष में जनपद व तहसील नैनीताल के ग्राम मौसा क्षेत्रान्तर्गत 6.00 हे० में उपखनिज के चुगान/खनन हेतु 05 वर्ष की अवधि हेतु चुगान/खनन पट्टा स्वीकृत किये जाने हेतु 06 माह की अवधि हेतु आशय पत्र (Letter of Intent) निम्नलिखित शर्तों के अधीन स्वीकृत किया जाता है :-

- (1) प्रोस्पेक्टिव पट्टाधारक द्वारा आशय पत्र में स्वीकृत क्षेत्र का उत्तराखण्ड उपखनिज (परिहार) (संशोधन) नियमावली, 2001 के नियम-17 के प्रावधानानुसार सीमाबन्धन कराये जाने, खनन योजना अनुमोदित कराये जाने एवं पर्यावरणीय अनुमति प्राप्त किये जाने की कार्यवाही 06 (छः) माह के अन्तर्गत सम्पादित की जायेगी।
- (2) आशय पत्र निर्गत होने के उपरान्त प्रोस्पेक्टिव पट्टाधारक द्वारा अधिकतम वार्षिक ई-नीलामी बोली का पच्चीस प्रतिशत धनराशि रु० 1,25,52,375.00 (रु० एक करोड़ पच्चीस लाख बावन हजार तीन सौ पचहत्तर मात्र) धरोहर धनराशि (Security Money) समस्त औपचारिकतायें पूर्ण कराये जाने हेतु आशय पत्र में निर्धारित समयबन्धि के लिए बैंक गारन्टी के रूप में निदेशक, भूतत्व एवं खनिकर्म इकाई के पक्ष में सात कार्यदिवसों के अन्तर्गत बंधक करायी जायेगी। धरोहर धनराशि जमा करने बाद प्रोस्पेक्टिव पट्टाधारक द्वारा जमा की गई प्री-बिड अर्नस्ट मनी वापस कर दी जायेगी। बैंक गारन्टी की स्कैन कॉपी सात कार्य दिवसों के अन्तर्गत विभागीय वेबसाइट पर लॉग इन कर प्रेषित की जानी आवश्यक होगी तथा मूल प्रति निदेशक, भूतत्व एवं खनिकर्म इकाई के जनपदीय कार्यालय में जमा करायी जानी होगी। यदि निर्धारित समयबन्धि के अन्तर्गत समस्त औपचारिकतायें पूर्ण नहीं होती हैं या अग्रतर समयवृद्धि राज्य सरकार द्वारा प्रदान नहीं की जाती है तो जमा बैंक गारन्टी की धनराशि को जब्त कर लिया जायेगा।
- (3) प्रोस्पेक्टिव पट्टाधारक को खनन योजना, निदेशक, भूतत्व एवं खनिकर्म द्वारा अधिष्ठित Registered Qualified personnel (RQP) से तैयार कराकर निदेशक, भूतत्व एवं खनिकर्म इकाई से अनुमोदित कसबदी जानी होगी, जिसमें निकासी किये जाने वाले खनिज की मात्रा तथा उक्त खनिज का तकनीकी एवं पर्यावरणीय दृष्टिकोण से खनन सक्रियतायें संचालित किये जाने की विधि का वर्णन सहित होगा। खनन योजना में खनन क्षेत्र के डी0जी0पी0एस0 कोर्डिनेटस का वर्णन व जिओरिफरेंसस खसरा मानचित्र पर अंकन किया जाना होगा तथा खनन क्षेत्र में समाहित यथा स्थिति राजस्व भूमि, वन भूमि व निजी नाम भूमि के स्वामियों का क्षेत्रफलवार राजस्व विभाग द्वारा सत्यापित वर्णन, संलग्न किया जाना होगा। इसके अतिरिक्त 100 मीटर की परिधि में आने वाली सभी सार्वजनिक स्थलों, सभीपस्थ पुलों को प्रदर्शित करता 1:10,000 की सैटेलाइट मानचित्र संलग्न करना होगा, जिसमें नदी की अद्यतन सीमा स्पष्ट रूप से चिह्नित हो तथा नदी

के दोनों किनारों से निर्धारित दूरी छोड़ते हुए चिन्हित किया गया खनन क्षेत्र क्षेत्रफल लगभग कम से कम होना चाहिए। किसी भी खनन क्षेत्र को कोनो से 300मी/0पी/एलएड को निर्धारित क्षेत्रफल बना ही अतिरिक्त क्षेत्र न बड़े खनन क्षेत्र को दूरी से प्रत्येक 100 मीटर की दूरी पर 300मी/0पी/एलएड को निर्धारित क्षेत्रफल बना ही अतिरिक्त क्षेत्र होना। राजस्व वन भूमि एवं निजी नाम भूमि को स्पष्ट रूप से चिन्हित किया जाना होगा। खनन क्षेत्र/क्षेत्र की डिजिटल प्रति भी प्रेषित की जानी होगी।

- (4) प्रोस्पेक्टिव पट्टाधारक को विभाग द्वारा अधिकृत कार/0पी/0पी से खनन योजना तैयार कराकर व खनन योजना अनुमोदन शुल्क ₹0 50,000/- निर्धारित लेखाशोधक 0853 अर्थात् खनन धातु कर्म एवं खनन उद्योग में जमा कर निदेशक को प्रस्तुत की जायेगी। निदेशक, भूतत्व एवं खनिकर्म इकाई द्वारा सात दिन के अन्दर खनन योजना का अनुमोदन किया जा सकेगा।
- (5) प्रोस्पेक्टिव पट्टाधारक को खनन योजना में अनुमोदन प्राप्त होने के उपरान्त पर्यावरण वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार के ई0आई0एड नोटिफिकेशन दिनांक 14.09.2008 के प्रावधानों के अनुसार पर्यावरणीय अनुमति (Environmental Clearance) प्राप्त करनी होगी।
- (6) पट्टाधारक पर्यावरणीय अनुमति एवं अनुमोदित खनन योजना में दी गयी शर्तों एवं प्रतिबन्धों के अधीन ही खनन सक्रियता सम्पादित करेगा।
- (7) राष्ट्रीय मार्ग के सम्बन्ध में, तत्समय प्रचलित प्रावधानों के अनुसार दूरी में निर्धारित मानकों के अन्तर्गत पड़ने वाले खनन पट्टा क्षेत्र हेतु एन0बी0ब्ल्यू0एल0 की अनुमति पट्टाधारक द्वारा प्राप्ता की जानी होगी।
- (8) उत्तराखण्ड शासन, मा0 न्यायालयों एवं मा0 राष्ट्रीय हरित अधिकरण द्वारा समत-समय पर दिये गये आदेश बाध्यकारी होंगे।
- (9) सफल बोलीदाता/प्रोस्पेक्टिव पट्टाधारक द्वारा खनन पट्टा के सम्बन्ध में की जा रही कार्यवाही के दौरान आकरिमिक निधन अथवा गम्भीर आहत होने की दशा में अग्रततर कार्यवाही उनके विधिक वारिंट द्वारा की जा सकेगी।
- (10) राज्य में अधिकतम पांच खनन पट्टे या 400 है0 से अधिक के घुगान/खनन क्षेत्र को किसी एक स्थायी निवासी अथवा स्थायी निवासियों की समिति जो कोअपरेटिव सोसाइटी एक्ट में पंजीकृत हो के पक्ष में स्वीकृत नहीं किया जायेगा। यदि किन्हीं परिस्थितियों में एक स्थायी निवासी अथवा स्थायी निवासियों की समिति जो कोअपरेटिव सोसाइटी एक्ट में पंजीकृत हो द्वारा अपने पक्ष में 05 खनन पट्टे या 400 है0 से अधिक के खनन पट्टे स्वीकृत करा लिया जाता है, तो बड़े खनन पट्टा क्षेत्रफल से कम क्षेत्रफल के खनन पट्टा क्षेत्रों के क्षेत्रफल को जोड़ा जायेगा व 400 है0 पूर्ण होने पर अवशेष पट्टों हेतु अर्हता समाप्त मानी जायेगी व उक्त क्षेत्र समर्पित माने जायेंगे। इस प्रकार समर्पित हुए उपखनिज क्षेत्रों के लिए H2 व कोटिगमानुसार कार्यवाही की जायेगी, परन्तु किसी खनन क्षेत्र का क्षेत्रफल 400 है0 से अधिक है तो उक्त दशा में एक स्थायी निवासी अथवा स्थायी निवासियों की समिति जो कोअपरेटिव सोसाइटी एक्ट में पंजीकृत हो को एक खनन पट्टा स्वीकृत हो सकेगा।
- (11) (क) यदि आशय पत्र में निर्धारित समयावधि के अन्तर्गत प्रोस्पेक्टिव पट्टाधारक द्वारा दायित औपचारिकतायें पूर्ण नहीं की जाती हैं तो प्रोस्पेक्टिव पट्टाधारक द्वारा आशय पत्र के नवीनीकरण हेतु आशय पत्र में स्वीकृत अवधि की समाप्ति से न्यूनतम पन्द्रह कार्य दिवस से पूर्व ऑन लाईन आवेदन प्रस्तुत किया जाना होगा।
(ख) पांच हैक्टयर के प्रोस्पेक्टिव पट्टाधारक को आशय पत्र का छः माह के उपरान्त बिना किसी अतिरिक्त दायक के ऑन लाईन नवीनीकरण आवेदन पत्र प्रस्तुत करने पर आगामी अधिकतम छः माह हेतु नवीनीकृत किया जा सकेगा किन्तु आशय पत्र जारी होने के एक वर्ष की अवधि पूर्ण हो जाने के उपरान्त यदि आशय पत्र के अग्रततर नवीनीकरण आवेदन पत्र प्रस्तुत किया जाता है तो ऐसी दशा में उसके द्वाक ई-नोलानी के उच्चतम बोली का 20 प्रतिशत धनराशि पुनः जमा की जानी होगी और पूर्व प्रस्तुत 25 प्रतिशत बैंक गारन्टी को नवीनीकृत कराकर निदेशक, भूतत्व एवं खनिकर्म इकाई के पक्ष में बन्धक के रूप में जमा कराना होगा। उक्त प्रक्रिया में अग्रततर वर्ष पूर्ण होने पर समान रूप से लागू करते हुए आशय पत्र का नवीनीकरण किया जा सकेगा।

प्रोस्पेक्टिव पट्टाधारक द्वारा विभिन्न स्तर पर अपेक्षित कार्यवाही निर्धारित समयान्तर्गत पूर्ण न किये जाने की दशा में यह माना जायेगा कि प्रोस्पेक्टिव पट्टाधारक पट्टा लेने की मंशा नहीं रखते हैं व इस स्थिति में आशय पत्र निरस्त करते हुए पूर्व में जमा की गयी अग्रिम धनराशि तथा बैंक गारन्टी राज्य सरकार के पक्ष में समाहित कर दी जायेगी।

- (12) आशय पत्र में उल्लिखित समस्त औपचारिकतायें पूर्ण करने के उपरान्त प्रोस्पेक्टिव पट्टाधारक द्वारा समस्त अभिलेख निदेशक, भूतत्व एवं खनिकर्म इकाई के पोर्टल पर ऑन लाईन जमा कराया जायेगा। निदेशक द्वारा प्राधिकृत अधिकारी द्वारा उक्त अभिलेखों का ऑन लाईन परीक्षण करने के उपरान्त, यदि किसी प्रकार व कमी या आपत्ति पायी जाती है, तो निदेशक द्वारा पट्टाधारक को उक्त का निश्चित समयान्तर्गत निराकर



(Handwritten signature)

किये जाने हेतु ऑन लाईन अंशदा करवा जायेगा। प्रोस्पेक्टिव पट्टाधारक द्वारा प्रेषित एवं प्राप्तित्व को निराकरण और लाईन किये जाने के उपरान्त, निदेशक भूतत्व एवं खनिकर्म इकाई की ऑन लाईन सम्पत्ति पर राज्य सरकार द्वारा, खनन पट्टे के आशय पत्र में स्वीकृत कूल अवधि में से आवश्यक अवधि हेतु खनन पट्टा स्वीकृति सम्बन्धी आदेश और लाईन निर्गत किया जा सकेगा।

- (13) खनन पट्टा स्वीकृति सम्बन्धी आदेश जारी होने के उपरान्त Performance Guarantee प्रेषित स्वीकृत खनन क्षेत्र हेतु अधिकतम वार्षिक ई-नीलामी शर्तों की धरराशि का पश्चिम प्रवेश, निर्धारित दिनांक पर पेमेंट गेटवे के द्वारा सात कार्यदिवसों के अन्तर्गत जमा किया जायेगा। वार्षिक वीलामी धरराशि का पश्चिम प्रतिशत धरराशि अग्रिम रूप में जमा की जायेगी, जिसका समायाजन पट्टे के अन्तिम वर्ष में उपर्युक्त निकासी मात्रा के सापेक्ष किया जायेगा। Performance Guarantee जमा किये जाने के बाद आशय पत्र निर्गत किये जाने के समय जमा कराई गई धरराशि शेष (बैंक गारन्टी) अयमुक्त कर दी जायेगी।
- (14) निदेशक, भूतत्व एवं खनिकर्म इकाई द्वारा सात कार्य दिवसों के अन्तर्गत पट्टा विलेख तैयार कर ऑन लाईन प्रोस्पेक्टिव पट्टाधारक को प्रेषित किया जा सकेगा, जिसकी सूचना जनपद एवं शासन के नभित नोडल अधिकारी को भी ऑन लाईन होगी। प्रोस्पेक्टिव पट्टाधारक द्वारा पट्टा विलेख प्रारम्भ को डाउनलोड कर हस्ताक्षरित प्रतियां जिलाधिकारी, नैनीताल को हस्ताक्षर किये जाने हेतु सम्बन्धित जनपद के विभागीय अधिकारी को उपलब्ध करायी जायेगी। विभागीय अधिकारी नैनीताल द्वारा हस्ताक्षर के उपरान्त जिलाधिकारी, नैनीताल को दो कार्य दिवसों के अन्तर्गत प्रस्तुत की जा सकेगी। जिलाधिकारी, नैनीताल द्वारा आवश्यक रूप से सात कार्यदिवसों के अन्तर्गत पट्टा विलेख हस्ताक्षरित कर पट्टाधारक को उपलब्ध करायी जा सकेगी।
- (15) पट्टे की अवधि की सगणना आशय पत्र निर्गत होने की तिथि से की जायेगी।
- (16) आशय पत्र पर स्वीकृत खनिज लॉट का सीम्बकन, खसरा विवरण एवं पीलरबन्दी की कार्यवाही-सीमांकन शुल्क नियम-17 के अनुसार, सीमास्तम्भ (साईज-05 फिट जमीन के ऊपर तथा 03 फिट जमीन के भीतर, जो 2 X 2 फिट की चौड़ाई जीपीएस रिडिंग सहित) प्रोस्पेक्टिव पट्टाधारक द्वारा स्वयं के व्यय से निर्मित किये जायेंगे।
- (17) पट्टा विलेख के निष्पादन व पंजीकरण के दिनांक से खनन संक्रियायें प्रारम्भ करेगा और तत्पश्चात जान बूझकर कोई स्थगन किये बिना ऐसी खनन संक्रियाओं का संचालन उचित और दक्षतापूर्ण रीति से कुशल कारीगर की भांति करेगा।
- (18) प्रोस्पेक्टिव पट्टाधारक द्वारा विभिन्न स्तर पर अपेक्षित कार्यवाही निर्धारित समयान्तर्गत पूर्ण न किये जाने की दशा में यह माना जायेगा कि प्रोस्पेक्टिव पट्टाधारक पट्टा लेने की भंशा नहीं रखता है तथा इस स्थिति में आशय पत्र निरस्त करते हुए पूर्व के समस्त जमा अग्रिम धरराशि एवं बैंक गारन्टी आदि जल्द कर राज्य सरकार के पक्ष में समाहित कर दिया जायेगा। ऐसे क्षेत्रों के सम्बन्ध में जिस स्तर पर कार्यवाही लकी हो, उससे अग्रतर कार्यवाही के सम्बन्ध में अथवा पुन विज्ञापित किये जाने के सम्बन्ध में निदेशक द्वारा निर्णय लिया जायेगा।
- (19) उत्तराखण्ड उपखनिज (परिहार) नियमावली (संगोचित), 2017 के नियम 29(क)(1) स्वीकृत क्षेत्रान्तर्गत उपखनिज चुगान कार्य अधिकतम 1.5 मीटर की गहराई अथवा भू-जल स्तर, जो भी कम हो, तक किया जायेगा।

आनन्द बर्दान
प्रमुख सचिव

संख्या: 399 (1)/VII-I/2018 तददिनांकित।

प्रतिलिपि: निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित :-

1. जिलाधिकारी, नैनीताल।
2. निदेशक, भूतत्व एवं खनिकर्म इकाई, उद्योग निदेशालय, उत्तराखण्ड, देहरादून को उनके पत्र सं०-3223/ई०-निवि०सहई-नीला०/भू०खनि०ई०/गौसा/2017-18, दिनांक 28 मार्च, 2018 के क्रम में सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।
3. श्री सत्येन्द्र कुमार तोमर पुत्र श्री तेज सिंह तोमर, ग्राम बमोरी तल्लीखाम, तहसील हल्द्वानी, जिला नैनीताल।
4. गार्ड फाईल।



आज्ञा से,
(गरिमा रौकली)
संयुक्त सचिव

संयुक्त सीमाबन्धन आख्या

उत्तराखण्ड शासन औद्योगिक विकास अनुभाग-1 देहरादून के आशय पत्र संख्या 799/VII-1/2018/6-ख/ 2018 दिनांक 15 मई 2018 के द्वारा आवेदक श्री सत्येन्द्र कुमार तोमर पुत्र श्री तेज सिंह तोमर निवासी ग्राम बनौरी तल्ली खाम तहसील हल्द्वानी, जिला नैनीताल के पक्ष में तहसील व जनपद नैनीताल के ग्राम भौसा में राजस्व अभिलेखानुसार खसरा संख्या 2519 अ कुल रकबा 31.665 हेक्टेयर मध्ये 6.00 हे० राजस्व भूमि में उपखनिज (रिता, बजरी, बोल्डर, आर०बी०एम०) के खनन कार्य हेतु 05 वर्ष की अवधि के लिए स्वीकृत किया गया है। उक्त आशय पत्र के क्रम में जिलाधिकारी महोदय के पत्र संख्या: 1048/30-जी०सी०/2017-18 दिनांक 18.06.2018 के अनुपालन में उपनिदेशक खनन, भूतत्व एवं खनिकर्म इकाई उद्योग निदेशालय उत्तराखण्ड हल्द्वानी के पत्र संख्या 531/भू०खनि०इ०/ख०प०/2017-18 दिनांक 19 जुलाई 2018 के द्वारा संयुक्त सीमांकन की तिथि 21.07.2018 को निर्धारित की गयी थी, जिसके अनुपालन में प्रश्नगत क्षेत्र का सीमाबन्धन भूतत्व एवं खनिकर्म इकाई, उद्योग निदेशालय उत्तराखण्ड, नैनीताल स्थित हल्द्वानी के अधिकारी/कर्मचारियों एवं राजस्व विभाग द्वारा संयुक्त रूप से आवेदक की उपस्थिति में किया गया। मौके पर राजस्व उपनिरीक्षक के द्वारा दिखाये एवं बताये गये सन्दर्भ बिन्दु (खसरा संख्या 2523 मोटर मार्ग से गोला नदी को जाने वाले रास्ता) के आधार पर सीमाबन्धन किया गया। सार्वजनिक भवन, नहर, सड़क, पुल व वन क्षेत्र आदि से नियमानुसार दूरी छोड़ते हुये स्वीकृत क्षेत्र 6.00 हेक्टेयर भूमि चुगान/खनन कार्य हेतु उपयुक्त पायी गयी, जिसे मानचित्र पर हरे रंग से दर्शाया गया है।

आवेदक को मौके पर ही सीमाबन्धित किये गये क्षेत्र की सीमाएं एवं पिलर स्तम्भ दिखाये गये, जिस पर मौके पर ही पट्टेधारक द्वारा सीमा स्तम्भ (कंक्रीट पिलर) लगा दिये गये हैं।

सीमाबन्धित क्षेत्र की चौहद्दी:-

क्षेत्र के उत्तर में- पिलर संख्या: A,B,C एवं कुमाऊ मण्डल विकास निगम को स्वीकृत खनन पट्टा क्षेत्र।

क्षेत्र के दक्षिण में- पिलर संख्या: H,I,J,K,L तत्पश्चात गोला नदी क्षेत्र।

क्षेत्र के पूर्व में - पिलर संख्या: M,N,Q,R,S,T,U,V तत्पश्चात गोला नदी एवं जमरानी मोटर मार्ग।

क्षेत्र के पश्चिम में-पिलर संख्या: C,D,E,F,G,H तत्पश्चात ग्राम रौशिल की भूमि।



(Signature)
सर्वेक्षक
भूतत्व एवं खनिकर्म इकाई

उपरोक्त सीमाबन्धन से मैं पूर्णतः सहमत हूँ। मेरे पक्ष में 6.00 हेक्टेयर स्वीकृत राजस्व भूमि में सीमाबन्धन के चुगान/खनन हेतु उपयुक्त पायी गयी, जिससे मैं सहमत हूँ।



(Signature)
पट्टेधारक

AUTHORISATION LETTER

Date: 14-06-2018

I, Satyendra Kumar Tomar have authorised Shri Harish Kainthola, (RQP No. RQP/DDN/141/2002-A) to preparation for Mining Plan in respect of Bhaursha having (*khasra* Nos. 2519अ) over an area of 6.00 ha. for minor mineral, falls under Government land in village Bhaursha, Tehsil & Distt.- Nainital, (Uttarakhand).

I request the Director, Geology and Mining Unit, Directorate of Industry, Govt. of Uttarakhand, Dehradun to make further correspondence regarding modification and collection of the aforesaid Mining Plan with the said recognized person on his following address:

Name of RQP : Shri Harish Kainthola
Registration No. : मु०ख०/०५/खनन/RQP/2015-16
Validity : (Valid upto 29th Dec, 2020)

Address of RQP

Lane No. 8,
Indraprastha, Upper Nathanpur,
Ring road, P.O. Nehrugram- 248008,
Dehra Dun (Uttarakhand)

Correspondence address:

3/1 Ekta Enclave,
(Way to Seemadwar -ITBP)
Near Hotel Sun Park Inn,
GMS Road, Dehradun
Telephone: 09412028745(Office),
7895217990, 8077856332 (Cell)
E- mail: hkainthola@gmail.com



(Satyendra Kumar Tomar)
S/o Shri Tez Singh Tomar,
Residence of village- Bamori
Talli Khaam
Tehsil- Haldwani,
Distt- Nainital, Uttarkhand



KainGeotech

Engineering Geological- Geotechnical Solutions & Consultancy in Underground Excavation,
Dams, Slope Stability, Remote Sensing-GIS, Site Identification, Feasibility, Investigation, DPR,
Mining Plan, Environment Clearance, Rock/ Soil testing, Hydrology, Surveying.

Mr. Harish Kainthola
RQP (IBM, GMU-Uk), MIGC, MISEG
Key Personal: INFRACON
Consulting Geologist:
PWD (Uttarakhand), SJVNL,
URRDA, L&T, PIU, PMGSY, CDBRMS

Head Office:
3/1 Ekta Enclave, Way to Seema Dwar-
ITBP, (Opposite Hotel Sun Park Inn),
GMS Road, Dehradun-248001,
Uttarakhand

Branch Office:
Lane no. 8, Indraprasth,
Upper Natthanpar,
Mussoorie Bypass Road
Dehradun- 248008, Uttarakhand

M: 08077856332, 09412028745, (O) 0135-2790566.

E- mail: hkainthola@gmail.com , kaingeotech@gmail.com

Website: www.kaingeotech.com

Ref No.: KG/L-519/RBM/DDN18

Date:02-07-2018

ACCEPTANCE

Satyendra Kumar Tomar, Residence of village- Bamori Talli Khaam, Tehsil- Haldwani, District- Nainital, Uttarakhand, vide their letter dated 14-06-2018 has authorised me to prepare Mining Plan of minor mineral (Sand, Bajri and Boulder) in village – Bhaursha, Tehsil & Distt. – Nainital.

The provisions of Uttarakhand Minor Mineral Concession Rules, 2001 have been observed in the Mining Plan for Bhaursha Sand, Bajri and Boulder Mine, over an area of 6.00 ha and wherever specific permission are required the applicant will approach the concerned authorities of Director, Geology and Mining Department, Dehradun.

(Harish Kainthola)


मु0ख0/05/खनन/RQP/2015-16,

Place: Dehradun



GOVT OF UTTARAKHAND
GEOLOGY AND MINING UNIT,
BHOPALPANI, UTTARAKHAND
DEHRADUN.




specimen signature of
Recognised Person here


CERTIFICATE OF RECOGNITION AS RECOGNISED PERSON
(Under Rule 22C of Mineral Concession Rules, 1960)

Shri Harish Kainthola S/O Shri Madan Mohan Sharma resident of Lane No. 8 Inderprasth Mussoorie bypass Road Uppar Nathanpur Post Office Nehrugram Dehradun affixed herein above, having given satisfactory evidence of his qualifications and experience is hereby RECOGNISED under Government Industrial Development Department, Uttarakhand Notification No. 844/VII-1/2015/68-kha/2015, Date, 31-07-2015 and Notification No. 1589/VII-1/2015/68/kha/2015, Date 07-10-2015 as Recognised Person to Prepare Mining Plans, Scheme of Mining of Mine Closer Plan.

His registration number is १०२४० / ०५ / खनन / RQP / 2015-16

This recognition is valid for a period of 05 (Five) years ending on 29-12-2020

This certificate is liable to be withdrawn/cancelled in the event of furnishing the wrong information/documents in the mining plan Scheme of Mining of Mine Closer Plan submitted by him.


Director/Geology & Mining,
Bhopalpani, Uttarakhand
Dehradun

Place : D. Dun.
Date : 10-3-2016



निदेशक, भूतत्व एवं खनिकर्म इकाई,
उद्योग निदेशालय उत्तराखण्ड, भोपालपानी, देहरादून

संख्या: 001_Nainital_Bhaursha_Nainital_6.010a/भूखनि0ई0/ई0निवि0सहई0नीला0/2017-18

दिनांक: 06 फरवरी, 2018

ई-निविदा सह ई-नीलामी आमंत्रण प्रपत्र-

ई-निविदा सह ई-नीलामी हेतु भूतत्व एवं खनिकर्म इकाई, उद्योग निदेशालय उत्तराखण्ड, देहरादून के विभागीय वेब पोर्टल www.dgm.uk.gov.in पर वैध पंजीकृत बिडर्स हेतु जनपद नैनीताल की तहसील नैनीताल के ग्राम मौसामे पर्वतीय क्षेत्रान्तर्गत रिक्त राजस्व क्षेत्र में तालिका-2 के अनुसार वर्णित उपलब्ध उपखनिज के खनन क्षेत्र हेतु औद्योगिक विकास अनुभाग-1, उत्तराखण्ड शासन के शासनादेश संख्या 1577/VII-1/2017/46 ख/17, दिनांक 07 नवम्बर, 2017 के द्वारा विज्ञापित किये जाने हेतु प्रदत्त स्वीकृति के कम में उत्तराखण्ड उप खनिज (परिहार) (संशोधन) नियमावली, 2017 के सुसंगत नियमों के अधीन ई-निविदा सह ई-नीलामी के माध्यम से परिहार पर स्वीकृत किये जाने हेतु पारदर्शिता पूर्ण कार्यवाही किये जाने के लिए भूतत्व एवं खनिकर्म विभाग की वेबसाइट www.dgm.uk.gov.in के अन्तर्गत ई-निविदा सह ई-नीलामी में प्रतिभाग के इच्छुक बोलीदाताओं हेतु द्वितीय चरण ई नीलामी में निम्नलिखित विवरणानुसार आमंत्रित की जाती है :-

तालिका-1

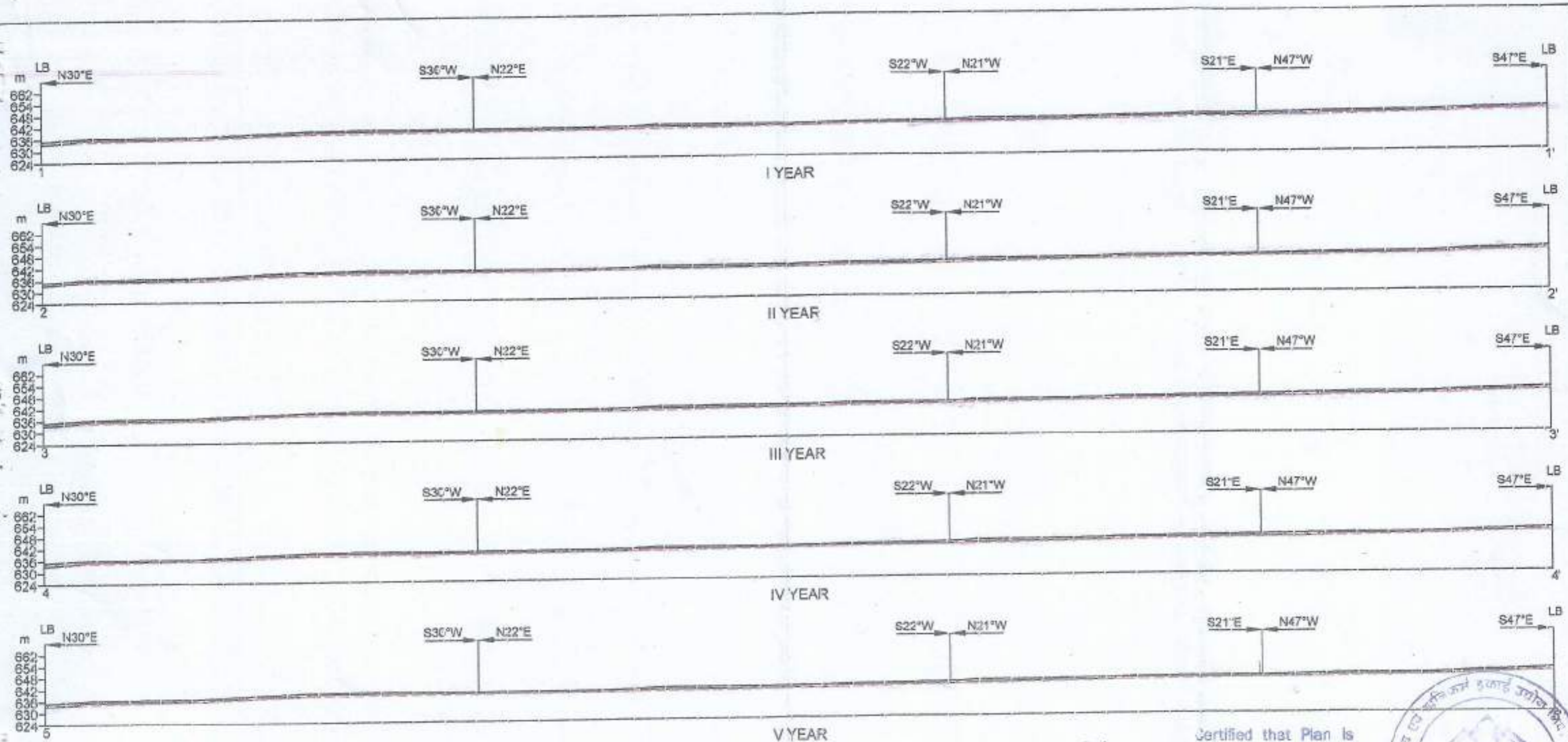
द्वितीय चरण (ई-नीलामी)- (दिनांक 06.02.2018 प्रातः 10:00 बजे से दिनांक 16.02.2018 तक सांय 05:00 बजे तक)	
https://eauction.gov.in में ई नीलामी में प्रतिभाग करने के लिये पंजीकरण की अवधि एवं समय	https://eauction.gov.in में पंजीकरण की अवधि दिनांक 06.02.2018 प्रातः 10:00 बजे से 11.02.2018 सांय 03:00 बजे तक। (इच्छुक बोली दाता द्वारा)
ई-नीलामी के ऑन लाईन प्रकाशन की तिथि एवं समय (Creating + Publishing):	06.02.2018 (मंगलवार) सांय 5:00 बजे तक (विभाग द्वारा)
प्रथम चरण के सफल बोली दाताओं हेतु ई नीलामी प्रशिक्षण कार्यक्रम	08.02.2018 (बृहस्पतिवार) प्रातः 11:00 बजे से 01:00 बजे तक
ई-नीलामी के ऑन लाईन प्रकाशन में परिशुद्धता के लिये शुद्धि पत्र के प्रकाशन (यदि कोई हो) की तिथि	08.02.2018 (बृहस्पतिवार) सांय 5:00 बजे (विभाग द्वारा)
ई आवेशन प्रपत्र भरने व Document की स्कैन कॉपी पीडीएफ प्रति अपलोड करने की तिथि	11.02.2018 (रविवार) सांय 5:00 बजे तक (बोली दाता द्वारा)
विभाग द्वारा बिड्स का ऑन लाईन नीलामी में प्रतिभाग करने हेतु अनुमति की तिथि	12.02.2018 (सोमवार) सांय 5:00 बजे तक
ऑनलाईन ई-नीलामी में बोली दाता द्वारा प्रतिभाग करने की तिथि एवं समय	15.02.2018 (1) आरम्भ का समय 10:00 बजे (बृहस्पतिवार) (2) समाप्ति का समय 1:00 बजे तक
ई-नीलामी मूल्यांकन की तिथि एवं समय व ई-नीलामी समिति की मूल्यांकन आख्या अपलोड करने की तिथि	दिनांक 16.02.2018 (शुक्रवार) सांय 3:00 बजे तक
ई-नीलामी के परिणाम की घोषणा अपलोड करने की तिथि	दिनांक 16.02.2018 (शुक्रवार) सांय 5:00 बजे तक

ई-नीलामी में वही वैध पंजीकृत बिडर्स प्रतिभाग कर सकेंगे जिन्होंने उपरोक्त तालिका-1 वर्णित eauction.gov.in में समयान्तर्गत पंजीकरण करा लिया है।



Photographs of Mining Area





Certified that Plan is correct to the best of my knowledge & belief.

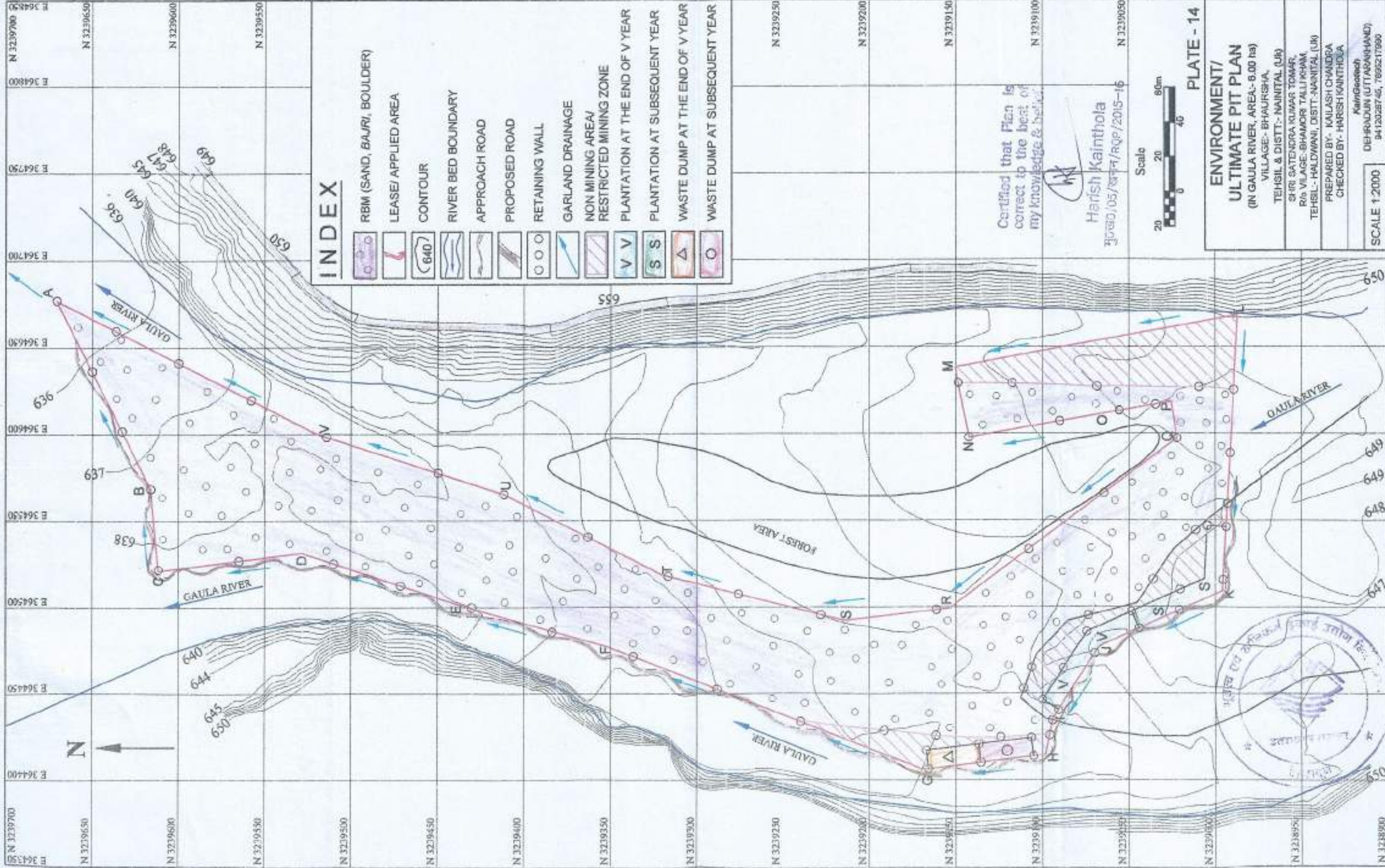
HK

Harish Kainthola
 मुद्रांक/05/समय/RQP/2015-16



INDEX	
	RM (SAND, GRAVEL, BOLDED QUATERNARY)
	LEASE BOUNDARY
	BENCH ADVANCEMENT
	ULTIMATE PIT (DEPTH 1.5M)

PIT SECTIONS	
(IN GALIYA RIVER AREA - 8.00 ha)	
VILLAGE- BHARSHA,	
TEHSIL & DISTT- NAINITAL (UK)	
SHRI SATENDRA KUMAR TOMER,	
P/o VILLAGE- BHAMORI TALU KHAM,	
TEHSIL- HALDWANI, DISTT- NAINITAL (UK)	
PREPARED BY- KAILASH CHANDRA	
CHECKED BY- HARISH KANTHOLA	
KainGeotech	
DEHRADUN (UTTARAKHAND)	
SCALE 1:2000	9412028745, 79952 17990



INDEX

-  RBM (SAND, BAJRI, BOULDER)
-  LEASE/ APPLIED AREA
-  CONTOUR
-  RIVER BED BOUNDARY
-  APPROACH ROAD
-  PROPOSED ROAD
-  RETAINING WALL
-  GARLAND DRAINAGE
-  NON MINING AREA/ RESTRICTED MINING ZONE
-  PLANTATION AT THE END OF V YEAR
-  PLANTATION AT SUBSEQUENT YEAR
-  WASTE DUMP AT THE END OF V YEAR
-  WASTE DUMP AT SUBSEQUENT YEAR

Certified that Plan is correct to the best of my knowledge & belief.

(Signature)

Harish Kainthola

REGD. 05/2017/RGE/2015-16



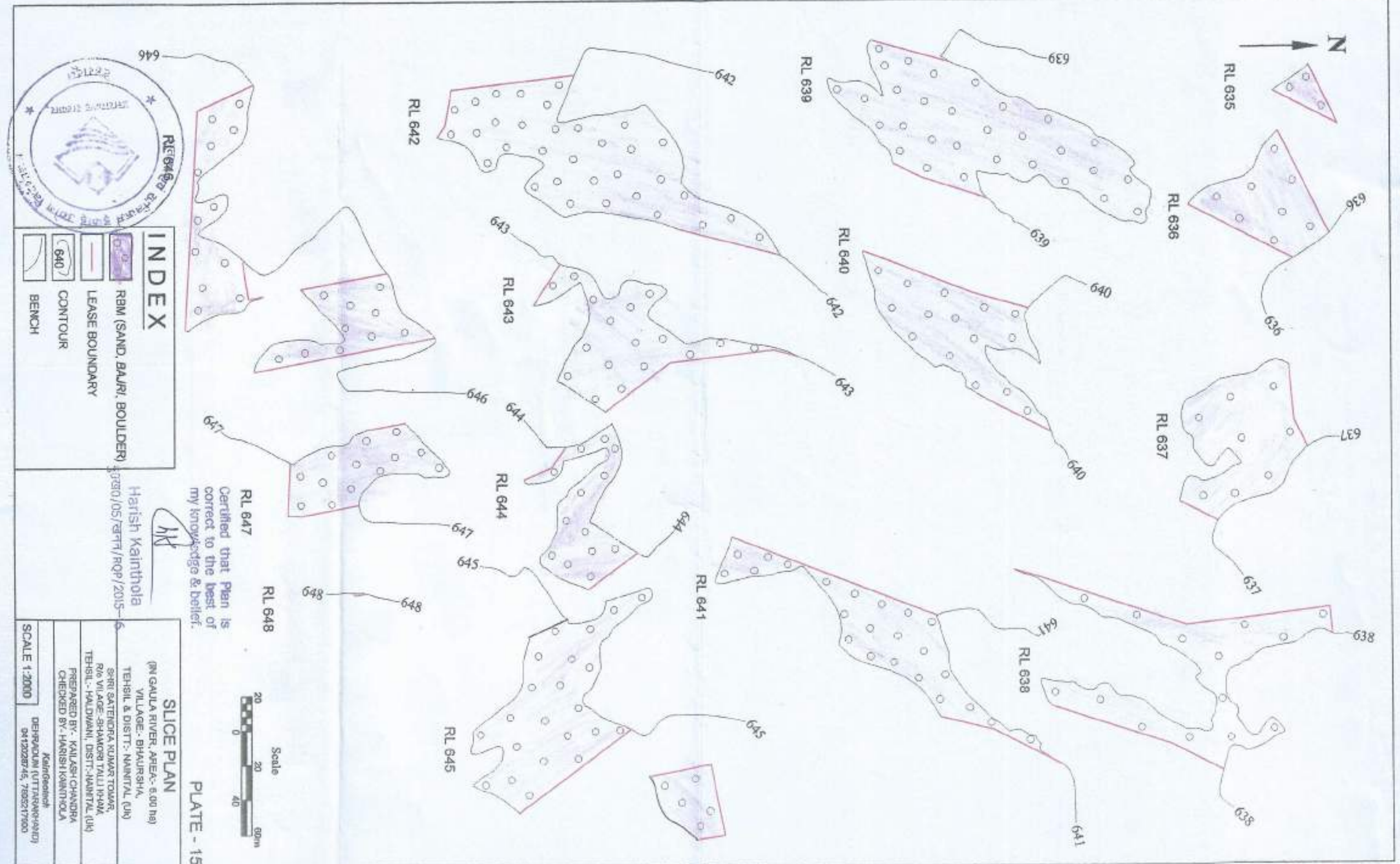
PLATE - 14

**ENVIRONMENT/
ULTIMATE PIT PLAN**
(IN GAULA RIVER, AREA:- 8.00 ha)
VILLAGE:- BHAIKISHA,
TEHSIL & DISTT:- NAINITAL (UR)

SHRI SATEENDRA KUMAR TOMAR,
R/o VILLAGE-BHAMORI TALI KHAM,
TEHSIL:- HALDWANI, DISTT:-NAINITAL (UR)
PREPARED BY:- KAILASH CHAUDHRA
CHECKED BY:- HARISH KAINTHOLA

SCALE 1:2000
DEHRADUN (UTTARAKHAND)
9412028746, 7895217990





INDEX

- RBM (SAND, BAURI, BOULDER)
- LEASE BOUNDARY
- CONTOUR
- BENCH

Certified that Plan is correct to the best of my knowledge & belief.

HK

Harish Kainthola

10291/05/3971/ROP/2015

SLICE PLAN

(IN GAULA RIVER, AREA- 6.00 ha)

VILLAGE:- BHAIURSHA,

TEHSIL & DISTT:- NANITAL (UK)

SHRI SATEENDRA KUMAR TOMAR,

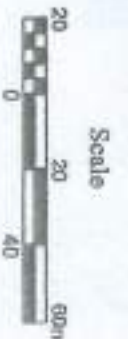
R/o VIL AGE:- SHAMOR TALU H-HAM,

TEHSIL:- HALDWANI, DISTT:- NANITAL (UK)

PREPARED BY:- KAILASH CHANDRA

CHECKED BY:- HARISH KAINTHOLA

PLATE - 15



SCALE 1:2000

DEHRADUN (UTTARAKHAND)
0412028745, 7895217500

79°35'30"E

79°36'0"E

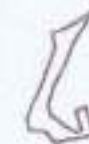
79°36'30"E

79°37'0"E



Georeferenced Map of Proposed Mining Lease

Legend Harish Kainthola
RQP/05/अनन/RQP/2015-16



Lease Area

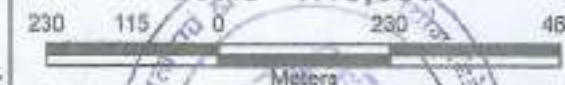
A

Pillar

DGPS Coordinates

Pillar	Latitude - Longitude
A	29°16'43.38"N, 79°36'25.07"E
B	29°16'41.57"N, 79°36'21.07"E
C	29°16'41.41"N, 79°36'19.32"E
D	29°16'38.72"N, 79°36'19.74"E
E	29°16'35.81"N, 79°36'18.69"E
F	29°16'32.95"N, 79°36'17.80"E
G	29°16'26.98"N, 79°36'15.26"E
H	29°16'24.68"N, 79°36'15.60"E
I	29°16'24.57"N, 79°36'16.37"E
J	29°16'23.70"N, 79°36'17.94"E
K	29°16'21.40"N, 79°36'19.15"E
L	29°16'21.18"N, 79°36'25.05"E
M	29°16'26.48"N, 79°36'23.87"E
N	29°16'26.20"N, 79°36'21.37"E
O	29°16'23.88"N, 79°36'22.87"E
P	29°16'22.41"N, 79°36'23.19"E
Q	29°16'22.29"N, 79°36'22.40"E
R	29°16'26.53"N, 79°36'18.71"E
S	29°16'28.50"N, 79°36'18.42"E
T	29°16'31.96"N, 79°36'19.36"E
U	29°16'34.94"N, 79°36'21.05"E
V	29°16'38.48"N, 79°36'22.30"E

Scale = 1:10,000



Note:-
DGPS reading are observed on the pillar which are marked by Applicant on the ground.

PLATE-4

Georeferenced Map of Hakiwani
(In Gaula River, Area - 6 Hektar)
Village - Bhaursa, Tehsil & District - Nainital
Shri Satendra Kumar Tomar
S/o Shri Tez Singh Tomar
Rio Bamouri Talli Khan
Tehsil - Haidwani, District - Nainital
Surveyed by - Himalayan Surveying Services Pvt. Ltd
Presented by - Harish Kainthola (RQP)

29°17'0"N

29°17'0"N

29°16'30"N

29°16'30"N

29°16'0"N

29°16'0"N

79°35'30"E

79°36'0"E

79°36'30"E

79°37'0"E

Satellite Location Map

(PLATE-5)

APPLICANT:- SHRI SATAYENDRAKUMAR TOMAR,
VILLAGE:- BHAURSHA, TEHSIL & DISTT- NAINITAL,
UTTARAKHAND,
(IN GAULA RIVER, AREA:- 8.00 ha.)

- Legend**
- Lease Boundary
 - River Bank
 - Non Mining Area



N 29° 16' 41.41"
E 79° 36' 18.32"

N 29° 16' 43.38"
E 79° 36' 25.07"

Rausil

269m

N 29° 16' 24.68"
E 79° 36' 15.60"

N 29° 16' 26.48"
E 79° 36' 23.87"

44m (36%)

N 29° 16' 22.41"
E 79° 36' 23.49"

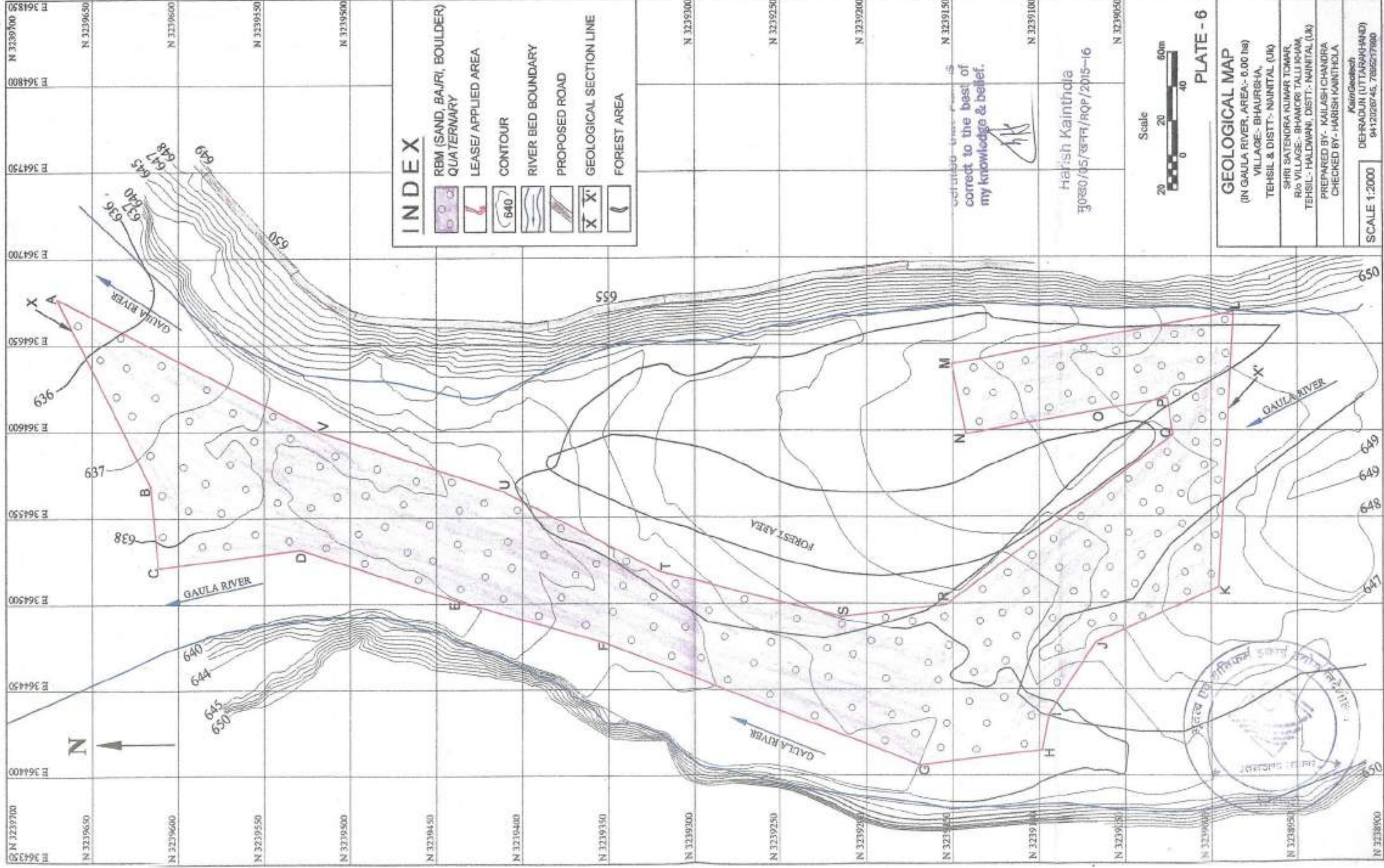
269m

Google Earth

© 2015 Google



Harish Kainthola
मसं/05/अनन/R0P/2015-16



INDEX

- RBM (SAND, BAJRI, BOULDER) QUATERNARY
- LEASE/ APPLIED AREA
- CONTOUR
- RIVER BED BOUNDARY
- PROPOSED ROAD
- GEOLOGICAL SECTION LINE
- FOREST AREA

उत्तराखण्ड सरकार
 correct to the best of
 my knowledge & belief.

(Signature)

Harish Kaintholia
 30080/05/उत्तराखण्ड/ROF/2015-16



PLATE - 6

GEOLOGICAL MAP

(IN GAULA RIVER, AREA:- 0.00 ha)
 VILLAGE:- BHAIURSHA,
 TEHSIL & DISTT:- NAINITAL (UK)

SHRI SATENDRA KUMAR TOMAR,
 R/o VILLAGE:- BHAIURSHA, TALLI KHAM,
 TEHSIL:- HALDWANI, DISTT:- NAINITAL (UK)
 PREPARED BY:- KAILASH CHANDRA
 CHECKED BY:- HARISH KAINTHOLIA

KainGeotech
 DEHRADUN (UTTARAKHAND)
 9412026745, 785217980

SCALE 1:2000

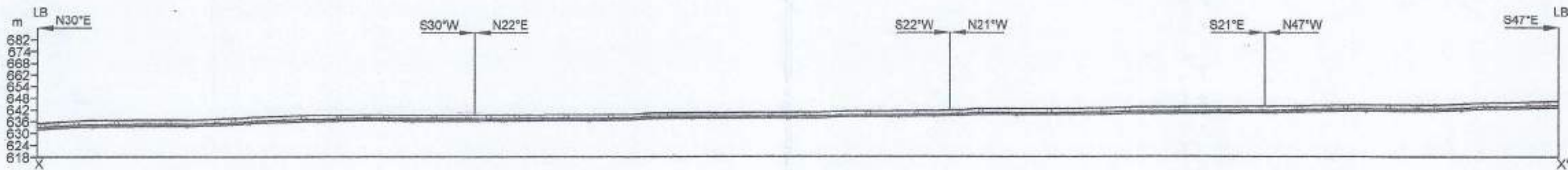


PLATE - 7

Certified that Plan is correct to the best of my knowledge & belief.

Harish Kainthola
मु०ख०/०५/अनन/१०१/२०१५-१६

INDEX	
	RIM (SAND, BAIRI BOULDER) QUATERNARY
	LEASE BOUNDARY
	MEASURED MINERAL CONTACT
	INDICATED MINERAL CONTACT

GEOLOGICAL SECTION	
(IN GAULA RIVER, AREA:- 6.00 ha)	
VILLAGE:- BHAURSHA,	
TEHSIL & DISTT:- NAINITAL (UK)	
SHRI SATENDRA KUMAR TOMAR,	
R/o VILLAGE:- BHAMORI TALLI KHAM,	
TEHSIL:- HALDWAN, DISTT:- NAINITAL (UK)	
PREPARED BY:- KAILASH CHANDRA	
CHECKED BY:- HARISH KAINTHOLA	
KainGeotech	
DEHRADUN (UTTARAKHAND)	
8412026745, 7885217980	
SCALE 1:2000	

