BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

IN

ORIGINAL APPLICATION NO. 119/2025

IN THE MATTER OF:

MURSLEEN APPLICANT

Versus

STATE OF UTTAR PRADESH & ORS. RESPONDENT(s)

With

ORIGINAL APPLICATION NO. 134/2025

ARIF KHAN & ORS APPLICANT(s)

Versus

STATE OF UTTAR PRADESH & ORS. RESPONDENT(s)

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1.	Additional Reply Affidavit of District Magistrate Saharanpur in compliance of	

	order dated 07.05.2025 passed by this Hon'ble Tribunal	
2.	**Annexure-R-1(Colly)** Copies of Replenishment Study for year 2022, 2023 and 2024.	

Dated: 11.09.2025

Ankit Verma

FILED THROUGH

(ANKIT VERMA)
STANDING COUNSEL STATE OF UP
A-15 FF, NIZAMUDDIN EAST, NEW DELHI- 110013
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BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

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ADDITIONAL REPLY AFFIDAVIT OF DISTRICT MAGISTRATE SAHARANPUR IN COMPLIANCE OF ORDER DATED 07.05.2025 PASSED BY THIS HON'BLE TRIBUNAL

The Respondent No. 4 herein states as under:

MOST RESPECTFULLY SHOWETH:

I, Manish Bansal aged about 35 years, S/o Ram Avtar Bansal, presently posted as District Magistrate – Saharanpur, the deponent, do hereby solemnly state and affirm as under:-

1. That I am the above-mentioned authorized officer of answering Respondent No. 4 and is duly competent to file the present additional affidavit. That the Deponent is well conversant with the facts and the circumstance of the instant case and is competent to swear this affidavit.

2. That the Deponent has read and understood the contents of the present additional affidavit. The contents of the same have been drafted and prepared by my counsel on my instructions.

NOTARY PUBLIC Kaleem Ahmad Advocate & Notary Distt. Saharanpur Reg.- 8286/10 GOVT. OF INDIA

3. That this Hon'ble Tribunal vide its order dated 07.05.2025 was pleased to issue the following directions: -

"..... 5. Counsel for the applicant has submitted that along with the reply only two pages of the replenishment study have been enclosed, therefore,

respondent no. 4 is directed to produce replenishment study, which was done prior to issuance of the auction notice.....

4. That the present additional reply is being filed in respectful compliance of the order dated 07.05.2025 passed by this Hon'ble Tribunal, in this present Original Application.

5. That the District Survey Report 2024 of District Saharanpur has been meticulously prepared after conducting proper Replenishment Study, Pre and post Monsoon Study was done by the Sub Divisional Committee in the year 2022, 2023.

NOTARY PUBLIC Kaleem Ahmad Advocate & Notary Distt. Saharanpur Reg.- 8286/10 GOVT. OF INDIA

6. That it is further submitted that the District Survey Report of year 2024 was prepared after a comprehensive replinshment study which has been duly approved by the SEIAA, UP and pursuant to its implementation auction notices dated 28.02.2025, 26.05.2025, 05.06.2025, and 07.08.2025 were issued for Fourteen vacant sand/RBM mining areas in accordance with the law. A copy of

Replenishment Studies for year 2022, 2023 and 2024 is collectively annexed herewith and marked as **Annexure R-1(Colly)**

7. That in light of the aforesaid facts and circumstances, it is most respectfully prayed that the instant additional reply may be taken on record by this Hon'ble Tribunal.

DEPONENT

NOTARY PUBLIC
Kaleem Ahmad
Advocate & Notary
Distt. Saharanpur
GOVT. OF INDIA

VERIFICATION

Verified at ....., on ..... that the contents of the paras 1 to of this affidavit are true and correct to the best of my knowledge. No part of it is false and nothing material has been concealed therefrom.

DEPONENT

IDENTIFIED BY
KALEEM AHMAD
Advocate
Reg. No.-10533/01
Ch.-63, Civil Court, SRE
Mob.-9359206239

SH 3061
This affidavit is made before me to
is my office. at 12.50 A.M./P.M.
By Shri Manish Anand & Ram Avtar Rawal
who is identified by Shri Kaleem Ahmad,
The contents of the affidavit have been
explained the deponent who admi
to understand them.
Saharanpur Kaleem Ahmad
U.P. INDIA Advocate & Notary
5/9/2024

Item Nos. 20-21 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 119/2025
(IA No. 189/2025)

Mursleen — Applicant

Versus

State of Uttar Pradesh & Ors. — Respondent(s)

With

Original Application No. 134/2025
(IA No. 239/2025)

Arif Khan & Ors. — Applicant(s)

Versus

State of Uttar Pradesh & Ors. — Respondent(s)

Date of hearing: 07.05.2025

CORAM: HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON
HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICAL MEMBER
HON'BLE DR. A. SENTHIL VEL, EXPERT MEMBER
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER

Applicant: Ms. Srishti Agnihotri & Ms. Tara Elizabeth Kurien, Advs. for Applicant in OA 119/2025
Mr. Ajit Sharma, Mr. Kanchan Kumar & Mr. Yuvraj Singh Solanki, Advs. for Applicant in OA 134/2025

Respondents: Mr. V.K. Shahi, AAG with Mr. Ankit Verma, Adv. for the State of UP
Ms. Priyanka Swami, Adv. for the State of UP & SEIAA, UP
Mr. Pradeep Misra & Mr. Daleep Dhyani, Advs. for UPPCB
Mr. Kishan Pandey, proxy counsel for Mr. Ajay Kumar Pandey, Adv. for R - 4 (Through VC)

ORDER

1. In these Original Applications (OAs), applicant has challenged the E-Auction Notice and submission of Counsel for the applicant is that District Survey Report (DSR) for District Saharanpur and E-Auction Notice are bad in law for want of prior Replenishment Study (RS).

2. Respondent no.4-District Magistrate, Saharanpur has filed reply affidavit dated 05.05.2025.

3. Reply affidavit filed by respondent no.4- District Magistrate, Saharanpur in paragraph no. 30 states that revised DSR was issued in 2024.

4. SEIAA, UP will disclose in its reply if said revise DSR has been approved by SEIAA.

5. Counsel for the applicant has submitted that along with the reply only two pages of the replenishment study have been enclosed, therefore, respondent no. 4 is directed to produce replenishment study, which was done prior to issuance of the auction notice.

6. Learned Counsel appearing for respondent nos. 5 and 6 also seeks three weeks to file the reply.

7. Counsel for the applicant will have the liberty to file rejoinder to the reply of respondent no.4 within the same period.

8. Applicant is permitted to implead the project proponents to whom LOI has been issued on the basis of the impugned auction notice.

9. Let the cause title of the OA be amended, service on the newly added respondents be effected and affidavit of service be filed.

10. List on 12.09.2025.

Prakash Shrivastava, CP

Sudhir Agarwal, JM

Dr. A. Senthil Vel, EM

Dr. Afroz Ahmad, EM

May 07, 2025
Original Application No. 119/2025
(IA No. 189/2025) & Original Application No. 134/2025
(IA No. 239/2025)
JG..

Annexure-R-1

जनपद सहारनपुर
DISTRICT SAHARANPUR

Pre-Monsoon Replenishment Study
&
Reserve Estimation Report of
R.B.M. Mining Leases - District Saharanpur

(Study period – Pre-monsoon-2022)



VOLUME-1

Prepared by M/s GreencIndia Consulting Pvt. Ltd.

A QCI/NABET Accredited Origination under Mining Sector 1(a) as per MoEF & CC Schedule.

Under Supervision of Sub-Divisional Committee – District Saharanpur

Submitted to Hon'ble District Magistrate, Saharanpur

GREENINDIA CONSULTING (P) LTD. GHAZIABAD

संयुक्त निदेशक
खनिज कार्यालय
सहारनपुर

अपर जिलाधिकारी (वि/रा)
प्रभारी अधिकारी खनिज
सहारनपुर

PREFACE

A Drainage system is the pattern formed by streams, rivers and lakes in a drainage basin. In a drainage system, streams or rivers always connect together to form networks. Several factors such as topography, soil type, bedrock type, climate and vegetation cover influence input, output and transport of sediment and water in a drainage basin *(Charlton, 2008)*. Such factors also influence the nature of the pattern of water bodies *(Twidale, 2004)*. As a consequence, drainage pattern can reflect geographical characteristics of a river network to a certain extent. There are several types of drainage pattern. So far, much research has been done on the description of drainage patterns in geography and hydrology *(e.g. Howard, 1967; Lambert, 1998; Twidale, 2004; Pidwirny, 2006)*.

In addition, sediment transport knowledge is important in river restoration, ecosystem protection, navigation, watershed studies and its management. Bed load represents the lower portion of sediment load in natural rivers. Fluvial sediment load materials are transported by rivers. Sediment load can be divided into bed load and suspended load based on the mode of transport. Bed load is transported close to the bed where particles moved by rolling, sliding, or jumping *(Adegbola, 2012)*. *Xlaoqing (2003)* explained that bed load transport in natural rivers is a complicated phenomenon. Its movement is quite uneven in both the transverse and longitudinal directions, which vary considerably.

The state of Uttar Pradesh has great importance in the local, regional, national and international perspectives due to its distinct physiographic conditions. It is endowed with diverse vegetation types, ranging from tropical to subtropical, temperate and alpine including riverine, grasslands and wetlands. The rivers of Uttar Pradesh play's an important role for the nation and provide water required by various sectors such as irrigation, drinking, recreation and industrial requirements etc. Besides, mining activities are also being carried out in the rivers for the developmental process.

Removal of excess sand and stone from river bed helps to maintain the carrying capacity and provides protection from flooding during monsoon season. Further, continuous flow of river is essential for ecological and economic needs such as irrigation and biodiversity etc. Therefore, drainage study of the river helps to understand potential carrying capacity of water during monsoon season which is generated from rainfall in the watershed and quantity of di-siltation of rivers under mining affected areas.

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In line with same, Replenishment study was carried out for operative/new/planned R.B.M. leases of District Saharanpur. Quantification and estimation of river bed material (RBM) was accomplished by followed three scientific approaches as envisaged in Sustainable Sand Management Guidelines – 2016 (SSMG-2016) and its contemporary guidelines Enforcement & Monitoring Guidelines for Sand Mining (EMSM-2020)issued by MoEF&CC in January-2020.

Mining areas were geo-tagged and surveyed for analysis of study of the availability/potential of sand and gravel. Estimation of deposition and safe limit for extraction/ removal of deposited river bed material (RBM) available in the various rivers/streams were done by analysing elevation profiles and pit profiles at regular intervals and Drone based Survey.

The Report has been prepared and published in Three Volumes namely VOLUME-1, VOLUME-2 and VOLUME-3.

The quantity and elevations has been arrived upon considering the various factors as per guidelines and thse data shall be corelated with the post-monsoon results.

Subdivisional Committee – District Saharanpur

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3	Methodology
4	District and River Profile
5	Sediment Composition
6	Enforcement & Monitoring Guidelines for Sand Mining-2020
7	Inventory of R.B.M. Leases in District Saharanpur
8	Study and Results of Leases in pre-monsoon (2022) scenario.
9	Conclusion & Recommendation
10	Annexures

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Introduction to the Project

INTRODUCTION

The sediment of a river is commonly considered to be aesthetically displeasing and environmentally degrading. Conversely, part of the sediment (sand and gravel) may represent a natural resource for use by society. The potential usefulness of the sediment is enhanced when it is composed of particle sizes found in deposits on the river-bed that would be replenished by newly transported sediment after mining. As such, river deposits become renewable resources, periodically replaced by sediment transport in the river.

- **Bed-load Material:** The mixture of sediment that composes a streambed. Bed material is stationary, but particle size is important to sediment transport because as energy level of a stream increases, some bed-material particles are mobilized and become part of the bed-load or suspended load.

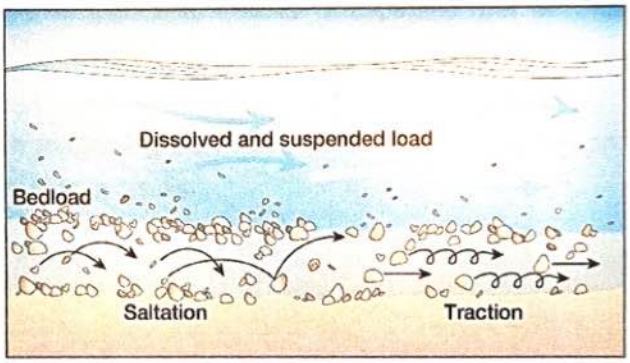


Figure 1-1: Sediment deposition and transportation method

- **Bed-load discharge:** A measure of the quantity (weight) of bed-load per unit time also referred to as bed-load-transport rate.
- **Bed Material:** The mixture of sediment that composes a streambed. Bed material is stationary, but particle size is important to sediment transport because as energy level of a stream increases, some bed-material particles are mobilized and become part of the bed -load or suspended load. In this report, composition of bed material is defined by particle -size distribution.
- **Suspended Sediment Material:** Usually small particles, suspended by turbulence of the flow or existing as colloids, and transported at about the same downstream velocity as the flowing water. Suspended sediment is distributed at all depths in flowing water.
- **Suspended-sediment load:** A general term referring to the quantity (weight) of suspended sediment in transport.
- **Suspended-sediment discharge:** A computed value of the quantity (weight) of suspended sediment per unit time, also referred to as suspended-sediment transport rate.

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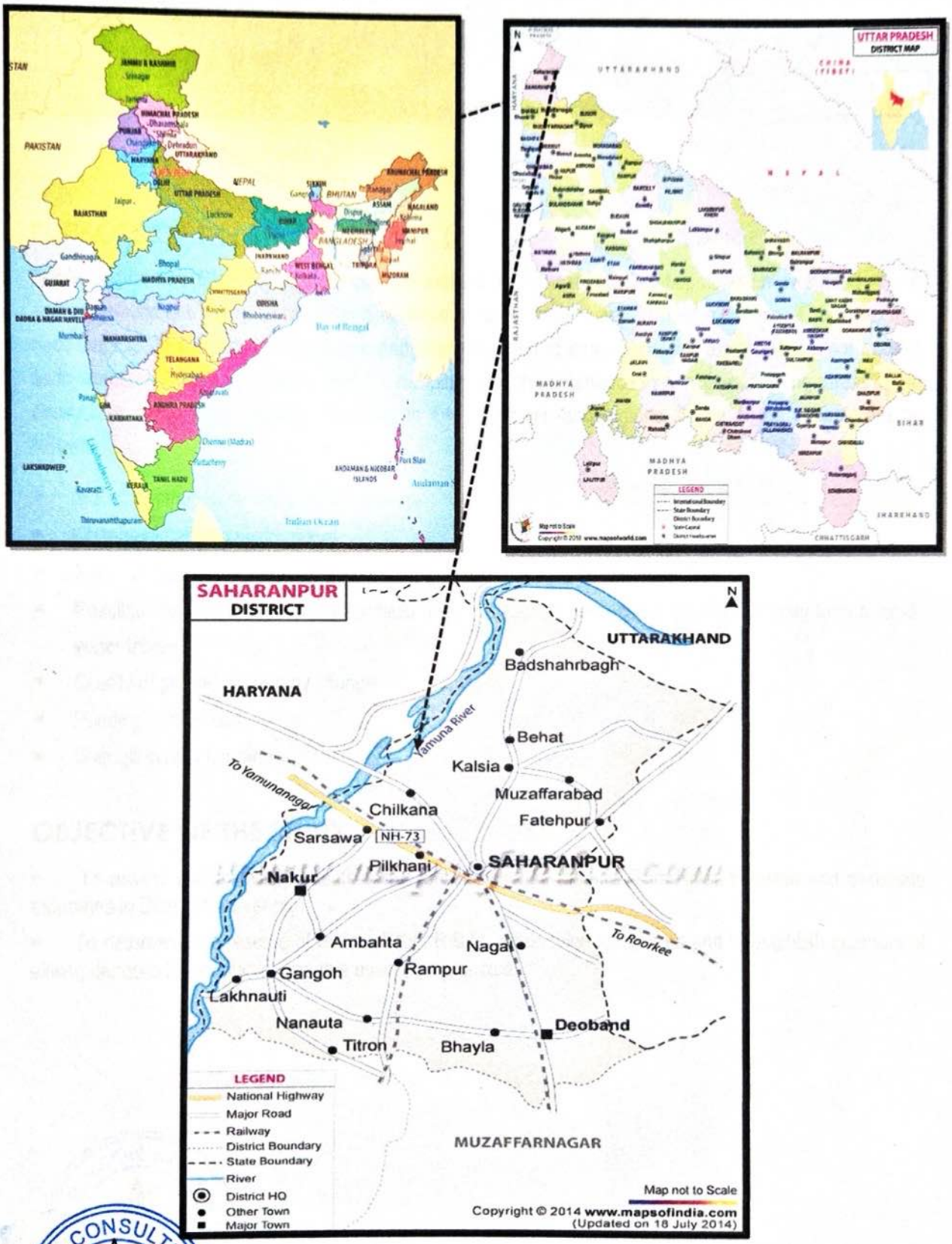
- **Total sediment load:** The sum of bed load and suspended sediment load.
- **Total sediment discharge:** The sum of bed load discharge and suspended-sediment discharge

Report Coverage :-

- The report covers the study of River Bed Material (R.B.M.) in the stretch of Yamuna and its allied sub-tributaries in Tehsil Behat of District Saharanpur.
- Removal of excess sand and stone from river bed helps to maintain the carrying capacity and provides protection from flooding during monsoon season. Further, continuous flow of river is essential for ecological and economic needs such as irrigation and biodiversity etc.
- Therefore, drainage study of the river helps to understand potential carrying capacity of water during monsoon season which is generated from rainfall in the watershed and quantity of di-siltation of rivers under mining affected areas.
- Replenishment potential of the existing/inoperative mining areas are studied to assess the availability/potential of sand and gravel.
- Estimation of deposition and safe limit for extraction/ removal of deposited river bed material (RBM) available in the various rivers/streams were done by analysing elevation profiles and pit profiles at regular intervals.
- The conclusion has been arrived upon considering the various factors as per guidelines and the data shall be correlated with the post-monsoon results.

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Study Area - Location Map
Saharanpur, Uttar Pradesh



Chapter 2

Objective of Study

PURPOSE OF THE STUDY

For ecological and environmental sustainable balance there must be a balance between river sand mining and replenishment. The extracted sand is required to be replenished in next monsoon. Therefore, it is necessary to do sand budgeting before and after monsoon to ensure that the extraction will not exceed sedimentation. Due to unscientific and & over extraction, the imbalance may cause following threat to the ecosystem of the area / region, especially in arid and semi -arid regions. Some of the impacts are as follows.

- Transformation of river into buried channel
- Changes in abiotic environment
- Soil / land erosion (especially at banks) at the time of flood
- Possible changes in regional water table (may increase or decrease in pockets) or may form a local water tables
- Quality of ground-water may change
- Ponding in river bed
- Change in river course

OBJECTIVE OF THE STUDY

- To assess the possibility of safe extraction of river bed material from River **Yamuna** and associate tributaries in District Saharanpur
- To determine the reserve of replenishable R.B.M. within mine lease area and to establish quantum of exiting deposits by conducting reserve estimation exercise.

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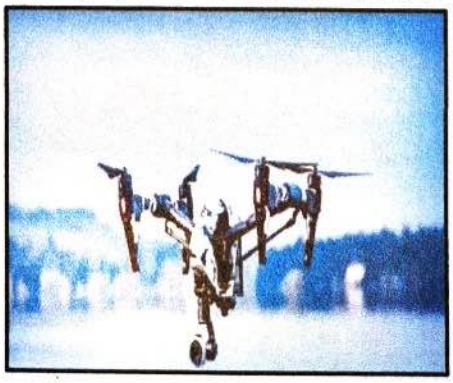
METHODOLOGY

- The main aim of the survey work and measurements is to carry out the collection of baseline data in pre-monsoon period which will be repeated in post-monsoon period to assess the quantum of replenishment.
- For river R.B.M. reserve estimation the river was surveyed at the ground and the corner coordinates were determined with the help of DGPS so that the lease area boundaries are obtained.
- The survey is based on three layered approach.



- **Layer one approach includes physical survey of lease** and collection of information related to existing reserves and by conducting pit profiles are regular intervals with the help of JCB Machine and digging equipment's such as Auger, spade, hand shovel, hammer, measuring tape etc. upto a depth of three meters.
- **Layer two approach includes DGPS survey.** A number of ground control points have been established on each site at permanent structure at prominent locations on the banks of various rivers under study. The DGPS survey observations are taken at a regular grid interval in longitudinal direction and in perpendicular across direction depending on the geological conditions of leases. The number of sections along and across the river depend on the length and width of lease, its dimension as well as ground conditions.





- **Layer three approach includes DRONE based survey**. Drone technology is becoming a common element in any surveyor or site manager's day-to-day toolkit. This is

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ushering in a new era in topographic surveying thus enabling the capture of detailed site maps, including ground contours and existing features of the earth's surface, at a fraction of the time and cost of traditional methods. Drone helps us to achieve survey-grade accuracy in a photogrammetric map or 3D model. The survey outputs in the form of difference 3D Maps will be correlated with post-monsoon data and a 3D Digital Elevation Model shall be created to analyse the quantum of replenishment occurring due to change in contours / elevations.

- The methodology followed is in conformity to the Enforcement & Monitoring Guidelines for Sand Mining – 2020 issued by MoEF in January-2020 which envisages that Regular Replenishment study needs to be carried out to keep a balance between deposition and extraction.
- Specific emphasis has been given to the norms provided in the Section-5 of Enforcement & Monitoring Guidelines for Sand Mining – 2020 which provides procedure to be followed for conducting replenishment study.
- Since it is for the first time that such baseline data's are being collected, both the approach of conducting replenishment study *(i.e. Physical DGPS survey of the field by the conventional method and Use of UAV/Drone and other image data processing techniques)* has been followed to ensure the accuracy of results.

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DISTRICT PROFILE

District Saharanpur is north-western part of Uttar Pradesh, lying between 29°34' and 30°24' N latitude and 77°07' and 77°58' E longitude falling within the survey of India toposheet nos. 53F and 53G. River Yamuna marks the western boundary of the district separating U.P. from adjoining state of Haryana. The extreme north-western part like beak structure touches with Sirmaur district of Himanchal Pradesh. In north lies Dehradun (Uttarakhand) and in the east it faces Haridwar district also being the part of Uttarakhand State. Muzaffar Nagar and Shamli districts marks southern boundary.

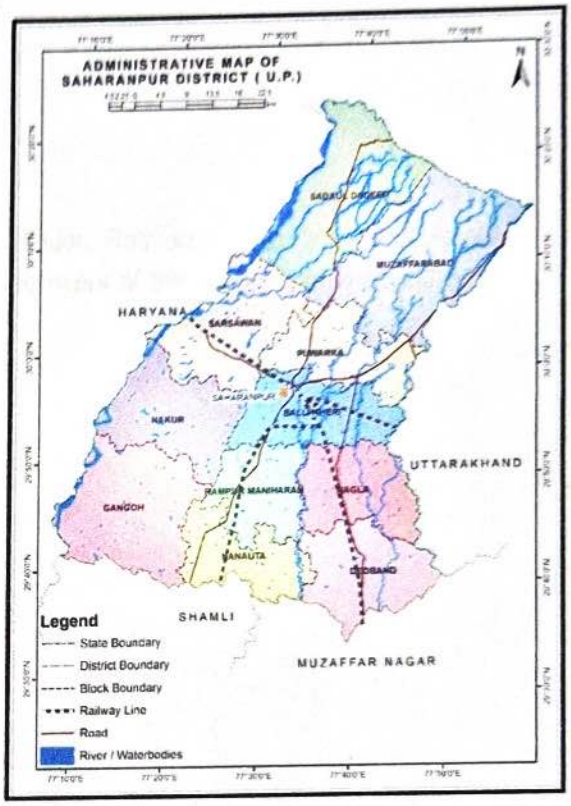


Figure 4-1 – District Map of Saharanpur

Saharanpur forms the most northerly position of the Doab land which stretches between the holy rivers of the Ganges and the Yamuna, The Shivalik hills rise above it on the northern frontier. The portion of Doab in which Saharanpur is situated was probably one of the first region of upper India occupied by the Aryans colonisers as they spread eastward from the Punjab.

Saharanpur district attained the status as Saharanpur division in 1997 of Uttar Pardesh. As regards its physical features the north and the north east of the district is surrounded by Shivalik hills and separates it from the Dehradun district in the recently created state of Uttranchal. The river Yamuna forms its boundary in the west which separates it from Karnal and Yamunanagar districts of Haryana. In the East lies the district of Haridwar which was the part of district Saharanpur before 1989 and in the south lies the district Muzafarnagar. At the time of the British Rule District Muzafarnagar was also a part of district Saharanpur.

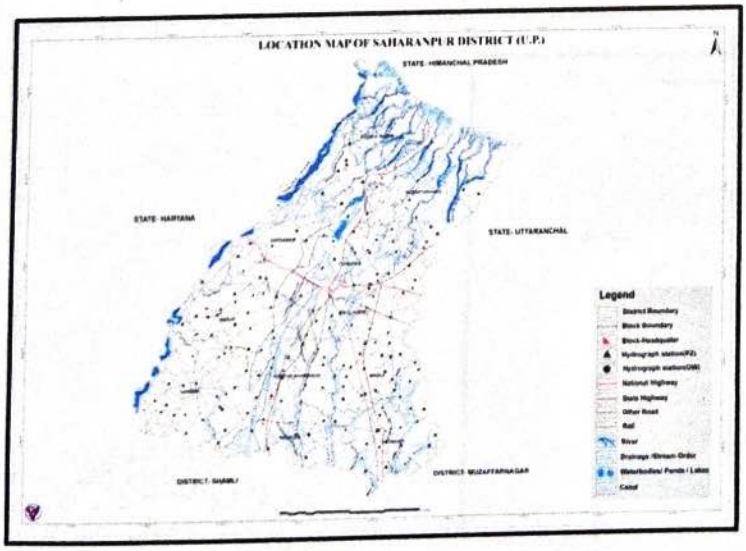


Figure 4.2 - Location Map of Saharanpur

The district presents many varieties of features and differs in general appearance

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than any other portion of the Doab and Gangetic plain as a whole. It is true that most of the area belongs to the upland Bangar which stretches in a continuous line up to Allahabad i.e. Junction of the two great rivers and on the either side is the broad and low lying valley full of swamps and back waters with wide open grass plains and Tamarisk jungle but in the north, There are the steep hills of Shivalik chain which appear in a far more marked form in Saharanpur than any other district of Uttar Pardesh while below the hills are to be seen in a modified form the prevailing characteristics of the Bhabar and Tarai region.

The main characteristics of the district can be divided into four parts.

1. Shivalik Hill Tract
2. The Bhabar Land
3. Bangar Land
4. Khadar Land (Yamuna, Hindon)

Yamuna is the important river of the district. Apart from this Solani, Hindon, Ratmau, Nagdev have also played an important role in the physical reconstruction of the district. All the rivers of the district submerge either in Yamuna or in the Ganges.

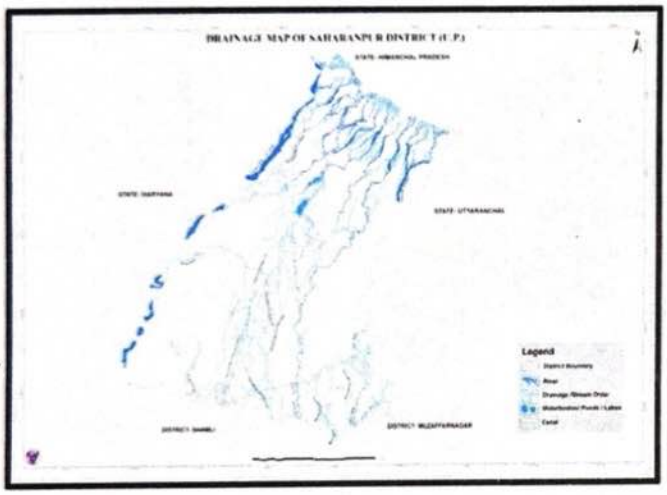
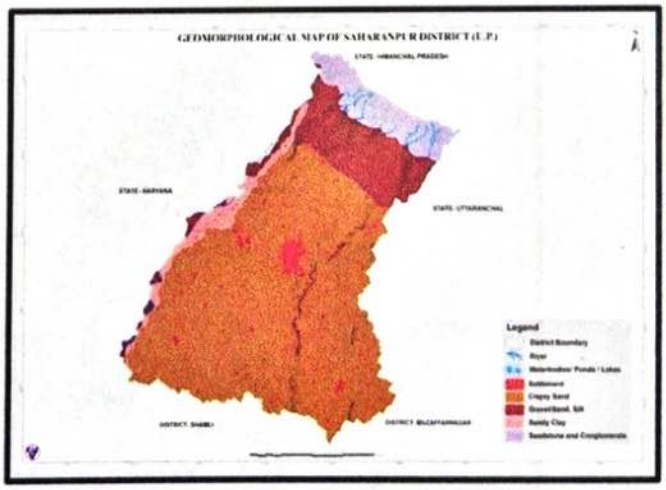


Figure 4.3 - Drainage Map of Saharanpur

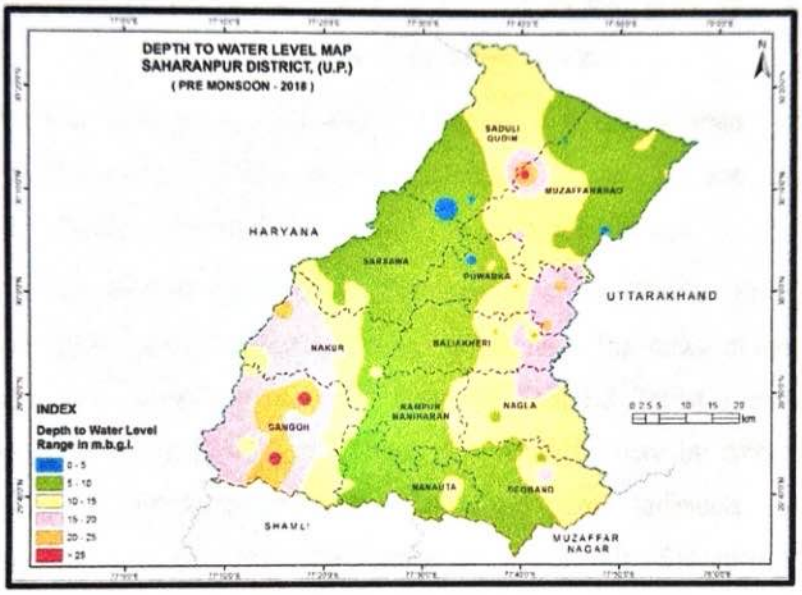


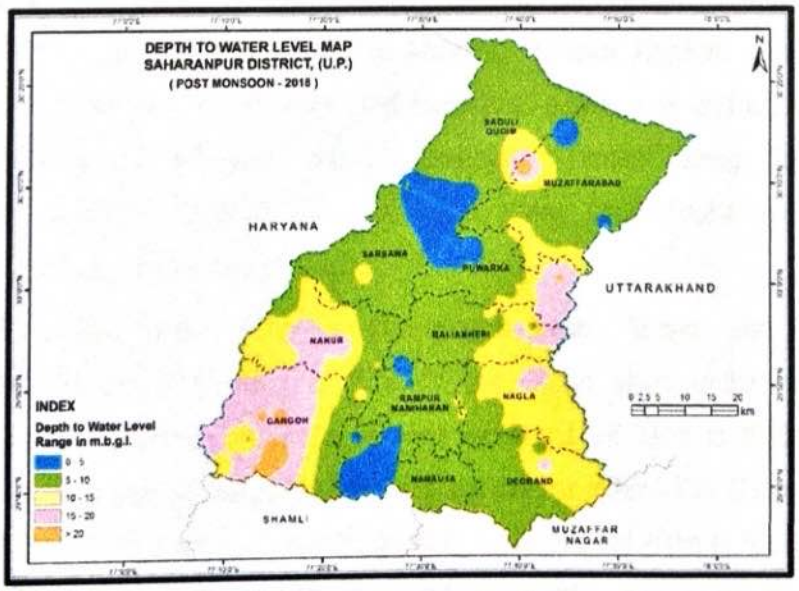
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Figure 4.4 - Geomorphological Map of Saharanpur

Ground Water Scenario :-

Ground water occurs under phreatic to semi confined and confined conditions. The near surface aquifer is under unconfined / water table condition. The shallow phreatic aquifer is tapped by dugwells.In 2018 the depth to water level ranges from 2.40 (Shakhambari at Muzaffarabad block) to 22.44mbgl (Gangoh block) duringpre-monsoon whereas it ranges from 2.17 (Ghuna at Puwarka block) to 21.60mbgl (Gangoh block) in post-monsoon. The pre & post- monsoon water level fluctuation varies from 0.02 (Shakhambari at Muzaffarabad block) to 4.81 m (Babail Buzurg at Muzaffarabad). The depth to water level map prepared from the water level data of GWD, Saharanpur of pre-monsoon 2018.





GEOLOGY

Saharanpur district of Uttar Pradesh in located between latitudes 29°33' and 30°25' N and longitude 77°06' and 78°13 'E. It occupies an area of 3689 sq.km and has a population of about 23,09,000 with a population density of 625 persons per square kilometre *(Census Report 1991);*
The climate in the district is moderate humid and tropical with annual rainfall of 901 mm. This district was bifurcated into two districts, namely, Saharanpur and Haridwar in the year 1989. Haridwar district has recently been included in the newly created Uttaranchal State.

Geologically, the area consists of sandstone, claystone and conglomerate of Siwalik Group of Pliocene to Early Pleistocene in age and unconsolidated sand, silt and clay represented by Older and Newer Alluvium of Middle Pleistocene to Holocene in age.

Siwalik Group in this area is divisible into two formations i.e. Middle Siwalik consisting mainly of sandstone and Upper Siwalik consisting of conglomerate. The rocks of the Siwalik Group are folded and faulted and override the Alluvium along the Foot Hill Thrust (concealed). The Siwalik rocks have been recorded up to a depth 4170m. The Alluvium may be differentiated in to Older Alluvium, consisting of oxidized (brown, yellow and *khaki* color) sediments, and Newer Alluvium comprising unoxidised (grey and *khaki* color) sediments. In Saharanpur district Varanasi Alluvium of Pleistocene age represents Older Alluvium. The Varanasi Alluvium contains polycyclic sequence of micaceous sand, silt, and clay with occasional *kankar* layers. The Newer Alluvium of Holocene age is divisible into Fan Alluvium, Terrace Alluvium and Channel Alluvium. Fan Alluvium overlies the Varanasi Alluvium and comprises gravel beds and coarse sand with minor silt and clay. Sequence of gravel, sand and silt occupying Terrace along Ganga and Yamuna rivers, comprises constitute Channel Alluvium. Loose gravel, sand of point- and-channel-bars and sand-silt offlood plain, of rivers , constitute Channel Alluvium.

Geomorphologically, the terrain of Saharanpur lying between Ganga and Yamuna rivers is differentiated into Low Structural Hills, to the north, and Ganga plain, to the south. Low Structural Hills (sub-Himalaya), constituting a narrow zone with elevations of 500m to 1000m above mean sea level trend NW -SE, has high drainage density and ruggedness index. The Ganga plain lying to the south contains Upland and Lowland. The Upland with elevations of 200m to 500m above mean sea level slopes southward, occupies interfluves and is divisible into Varanasi Plain and Alluvial

Fan. Alluvial Fan can be distinguished into a northern rugged, gravelly ground with straight incised streams, commonly known as *Bhabhar*, and a southern undulating, silty ground with shallow sluggish streams, generally known as *Tarai*. The *Tarai* merges with Varanasi Plain.

The ground of Varanasi Plain is silty to sandy with relict fluvial features. The Lowland, separated from Upland by 5 to 25 m bluffs, contains one to two levels of Terrace Plain and Channel Plain. Riverbed and its flood plain make Channel Plain.

In Saharanpur resources of land and water are in Ganga and Yamuna drainage basins. Ganga and Yamuna originate from Himalaya and are gravelly to sandy, braided, snow fed and perennial rivers. Spring and groundwater fed streams/rivers originating from foothills are Solani, Hindon, Sahansra Rao, Ratmau Rao, Budhi, Yamuna, Kali and Krishnai. Surface water -streams, *Tals* and canals (Ganga and Yamuna channel systems)- and groundwater found in sand layers (aquifers) sustain domestic and irrigation needs. Groundwater occurs in a four-tier aquifer system under water table and confined conditions.

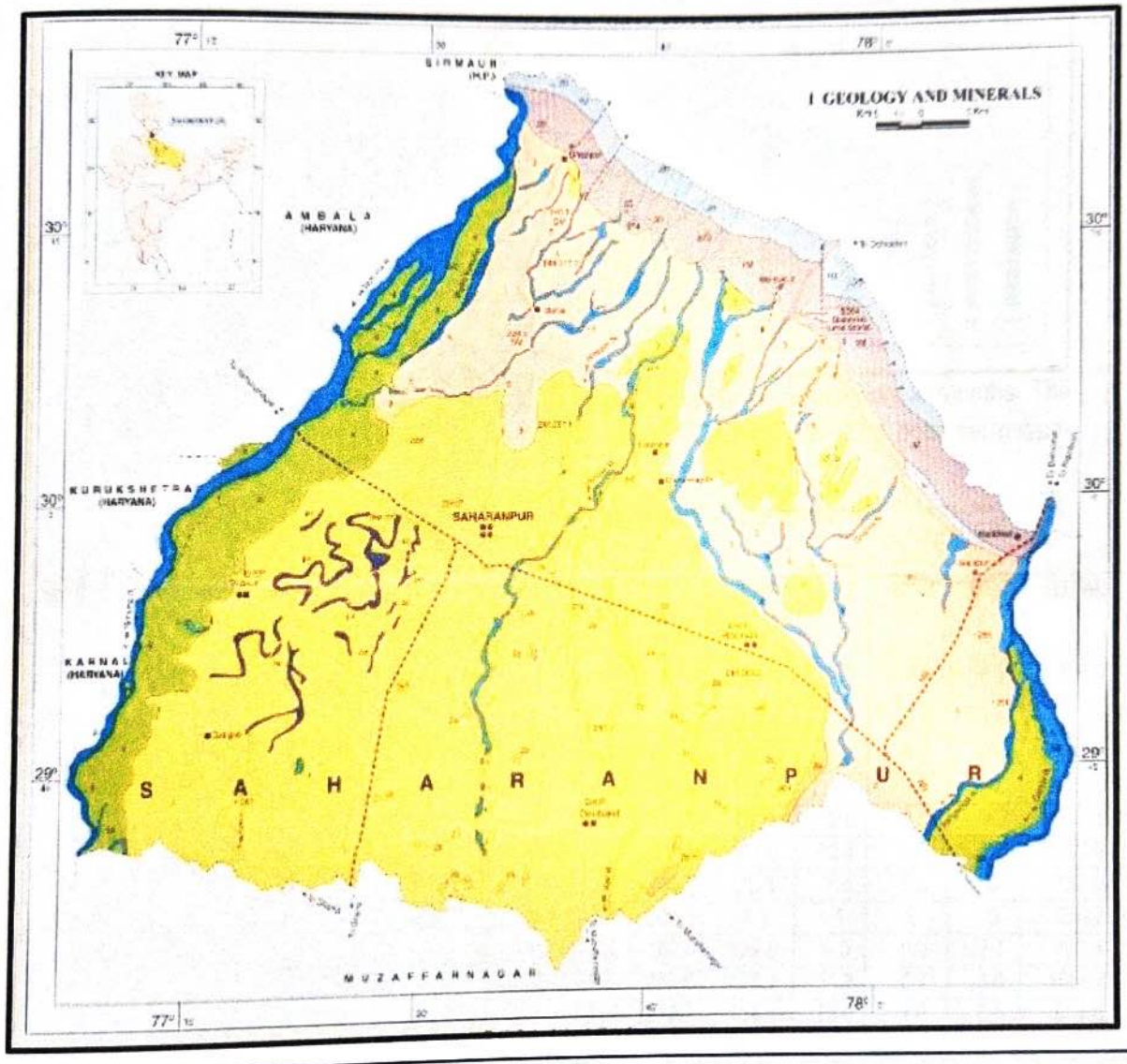
Aggregate/construction material is excavated from Channel Alluvium, Fan Alluvium deposit and upper Siwaliks. River water of major rivers is tamed and utilized for human sustenance.

Alluvium, Alluvial Fan and sub-Himalaya belt of soft to moderately hard sedimentaries constitute geotechnical provinces of Saharanpur. Bhabhar part of the Fan is not suitable for settlement. Landslides in hills, gully erosion in *Bhabhar*, bank erosion by Ganga and Yamuna in Floods affecting terraces are hazards of Saharanpur district.

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DISTRICT RESOURCE MAP – GEOLOGY AND MINERALS

(SOURCE G.S.I.)



EXPLANATION
I GEOLOGY AND MINERALS

GEOLOGY GEOLOGICAL UNIT	LITHOLOGY	GROUP	AGE
Channel Alluvium	Grey, micaceous sand, gravel lenses and silt	Newer Alluvium	Holocene
Terrace Alluvium	Grey sand, silt and clay and gravel lenses		
Fan Alluvium	Gravel, sand, greyish brown silt and clay		
Varanasi Alluvium	Brownish silt and clay with kankar (2) and sand (2a) Recycled Varanasi Alluvium sediments (Recent) in palaeochannels included	Older Alluvium	Middle to Late Pleistocene
Upper Siwalik	Conglomerate, sandstone and claystone sequence	Siwalik Group	Pliocene to Early Pleistocene
Middle Siwalik	Grey micaceous sandstone, siltstone with conglomerate lenses		

MINERALS
- Construction material (Gravel and sand)

INFRASTRUCTURE AND OTHER FEATURES
- Railway
- Road
- State Highway
- Educational institution
- Hospital
- Post / Telegraph
- Power (Electricity)
- Bore hole location and data
- Fault
- Bedding
- Height Triangulated spot
- Bench mark
- River
- Palaeochannel
- Abandoned channel
- Tal

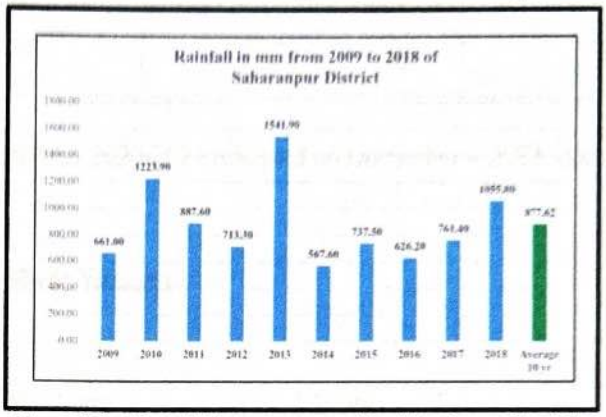
GEOLOGICAL CONTACT
- Formation boundary (Firm / Inferred)
- Facies boundary

ADMINISTRATIVE
- State boundary
- District boundary
- Tahsil boundary
- District headquarters
- Tahsil headquarters
- Other localities

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RAINFALL & CLIMATE

The average annual rainfall (Year 1951-2000) in the district is 963.9 mm. About 80% of rainfall takes places from June to September. During monsoon surplus water is available for deep percolation to ground water. The climate is sub humid and it is characterized by general dryness except in the brief period during the monsoon season. Summer is hot and winter is pleasant cold season. There is a meteorological observatory at Meerut, which may be taken as representative of meteorological condition. May is the hottest month. The mean daily maximum temperature is about 40^{0}C, mean daily minimum temperature is about 24^{0}C and maximum temperature some time rises to 44^{0}C. With the onset of southern monsoon by the end of June, there is appreciable drop in temperature. January is the coldest month with mean daily temperature at about 20^{0}C and mean daily minimum at 7^{0}C. The air is dry during the major parts of the year. In south-west monsoon season, the air is very humid and April and May are usually driest months. The mean monthly relative humidity is 67%. The mean wind velocity is 6.70 Km/h. The potential evapo-transpiration is 1545.90 mm.



Rainfall Data (mm) of Saharanpur District, U.P. (2009-2018)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
2009	0.0	30.6	0.0	0.0	0.0	0.0	128.0	243.0	254.5	0.0	0.0	4.9	661.0
2010	8.3	20.0	0.0	0.0	19.3	28.3	462.0	285.3	399.7	0.0	0.0	1.0	1223.9
2011	0.0	32.7	13.3	9.0	64.0	295.7	191.7	154.9	126.3	0.0	0.0	0.0	887.6
2012	10.3	1.7	3.3	18.3	2.0	4.0	153.0	349.6	162.3	0.0	0.0	8.8	713.3
2013	93.4	163.1	0.0	0.0	0.0	311.0	376.0	434.7	67.0	72.0	0.0	24.7	1541.9
2014	65.0	52.2	32.3	9.4	12.7	20.0	147.0	67.3	107.0	32.7	0.0	22.0	567.6
2015	17	18	108	18.6	8.7	51.7	233.9	189.7	75.3	7.3	9.3	0	737.5
2016	0	5	18.3	5	58.7	46.9	275.7	204.3	8.3	4	0	0	626.2
2017	48.3	3.3	6.7	9.0	1.0	184.1	132.3	182.0	192.0	0.0	0.0	2.7	761.4
2018	2.0	10.3	3.7	15.3	11.3	113.9	449.7	262.5	151.1	34.3	0.7	1.0	1055.8
AVERAGE	24.4	33.7	18.6	8.5	17.8	105.6	254.9	237.3	154.4	15.0	1.0	6.5	**877.6**

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Summary of Rainfall Data:-

Year / Duration	Average Annual Rainfall (mm)
(Year 1951-2000) – 50 years	963.9
(Year 2009-2018) – 10 years	877.62
(Year 2019)	NA
(Year (2020)	973.10
(Year 2021)	NA

(Source CGWB – Ground Water Year Book, Uttar Pradesh 2020-2021 released on December – 2021 and its past editions)

- **Water discharge data of Hatnikund Barage – River Yamuna**

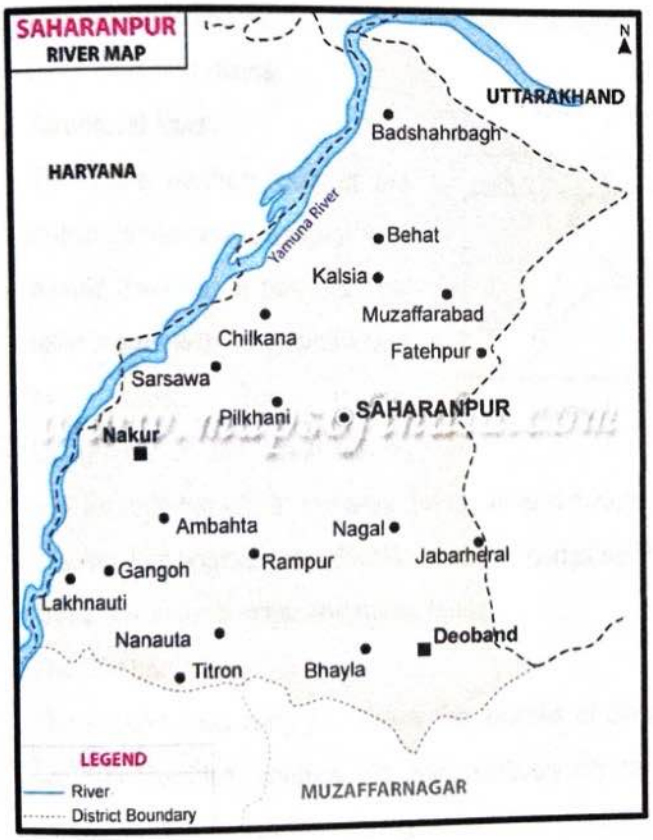
Sl no	Salient Feature	Height/Volume	Units
1.	High Flood Discharge for (in 100 years frequency)	7,79,900	CUSECS
2.	High Flood Discharge for (in 500 years frequency)	9,95,900	CUSECS
3.	Highest Flood Level	342.35	M
4.	Pond Level	334.32	M
5.	Crest Level		
	I – Spillway Portion	330.0	M
	II – Undersluice Portion	329.0	M

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DESCRIPTION OF YAMUNA RIVER

The area occupies a part of Ganga-Yamuna doab zone and underlain by thick alluvial sediments deposited by fluvial action of river Yamuna and it's tributaries. The land slopes gently towards south and SE. Main streams flowing through the area are Katha, Budhi, Saundli nadi which are tributaries of Yamuna river.

Saharanpur District in the northern most of the districts of Uttar Pradesh State, India. Bordering the State of Haryana, Himachal Pradesh and Uttrakhand and close to the foothills of shivalik range, it lies in the state of Uttar Pradesh. Saharanpur District forms part of Saharanpur Commissionary and it is commissionary Head Quarter. District Saharanpur lies in the extreme uppermost comer of Ganga Yammu doab region. The District is bounded in the west of river Yamuna & Haryana, Uttarakhand to the northen east and district Muzaffar Nagar and Shamli to its South.



Out of total 23 leases under study, a total of 16 lease are located on the bank of Yamuna River which is a perennial river and has source of origin from catchment area of Shivaliks. The region has limited potential except river bed materials as Sand / Bajri / Boulders are only main exposed minerals. Limestone has substantial exposure in Shivalik hills and used for building and construction purpose. The mineral observed in the river bed is a result of transportation as the upstream is much exposed to slope which causes natural deposition.

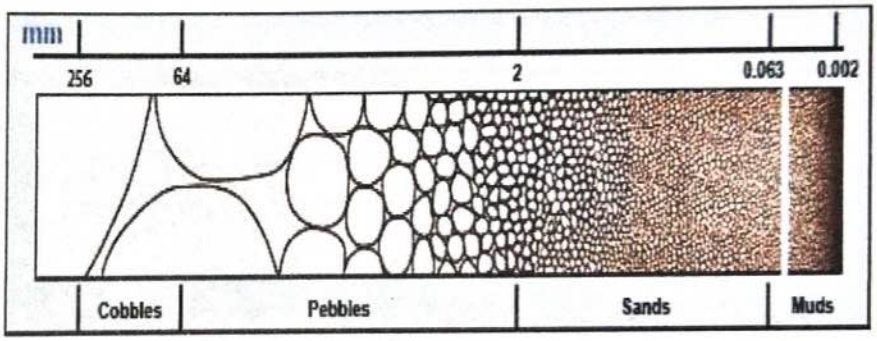
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INTRODUCTION

District Saharanpur can be divided into three physiographic divisions, the **structural hills**, the upper physiographic divisions, the structural hills, the upper piedmont plains or **the Bhabar**, and **the Terai** or the lower piedmont plains.

Structural Hills:



The entire northern part of the district is formed structural hills named Siwaliks. In this area the relief is high with steep and sharp hill slopes. The rugged topography of the area affords well for high run off. In the area the upper and middle Siwaliks are encountered but the lower Siwaliks are missing. Lithologically the Siwaliks here are composed of sand stones, conglomerates, sand, clays and silts. There are several major and minor faults.

The Bhabar:

The second units lying just below the foothills of Siwalik locally called as Bhabhar, is characterized by boulders, pebbles, cobbles etc. with relatively dry terrains fringing. The Siwalik foot hills with gradient around 5 m/km. which is much higher than the southern plains.

Geologically the term Bhabhar is used to deposits formed along the foothill zone by coalescence of series of alluvial and talus cones, composed of heterogeneous materials ranging in texture from boulder, gravel to sand and silt. These Bhabhars in Saharanpur district are known as 'Dhar' covering mostly the 'Muzaffarabad' and 'SadauliQuadim' blocks.

Tarai:

Just south of Bhabar zone lies the 'Tarai' or the plains of piedmont plain. The plains sloping gradually by

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southward have around 1.5m/km. gradient. Lithologically, the area is characterized by coarse sand & gravel. These plains are further divided into lower piedmont plains the older alluvial plains and the younger alluvial plains. The lower piedmont plains show flat to undulating plains with gradient towards southwest. The older alluvial plains also show flat to undulating topography characterized by sediments brought by rivers Yamuna and Ganga.

The younger alluvial plains lie along river Yamuna exhibiting gently sloping and slightly undulating terrains. It comprises younger unconsolidated alluvial material of varying lithology consisting of fluvial land formed as paleo-channels, meanness scar and point bars. The younger alluvial plains also consist of sand bars flood plains and ravines along river Yamuna.

(source – CGWB NR, Lucknow Report on Aquifer Mapping & Management of Ground Water Resources, Saharanpur , Uttar Pradesh; J.P Gautam Scientist 'D')

R.B.M. (Sand/Bajri/Boulder) Deposit in Saharanpur District



Results of Particle Size Distribution and Bulk Density of Deposited Material

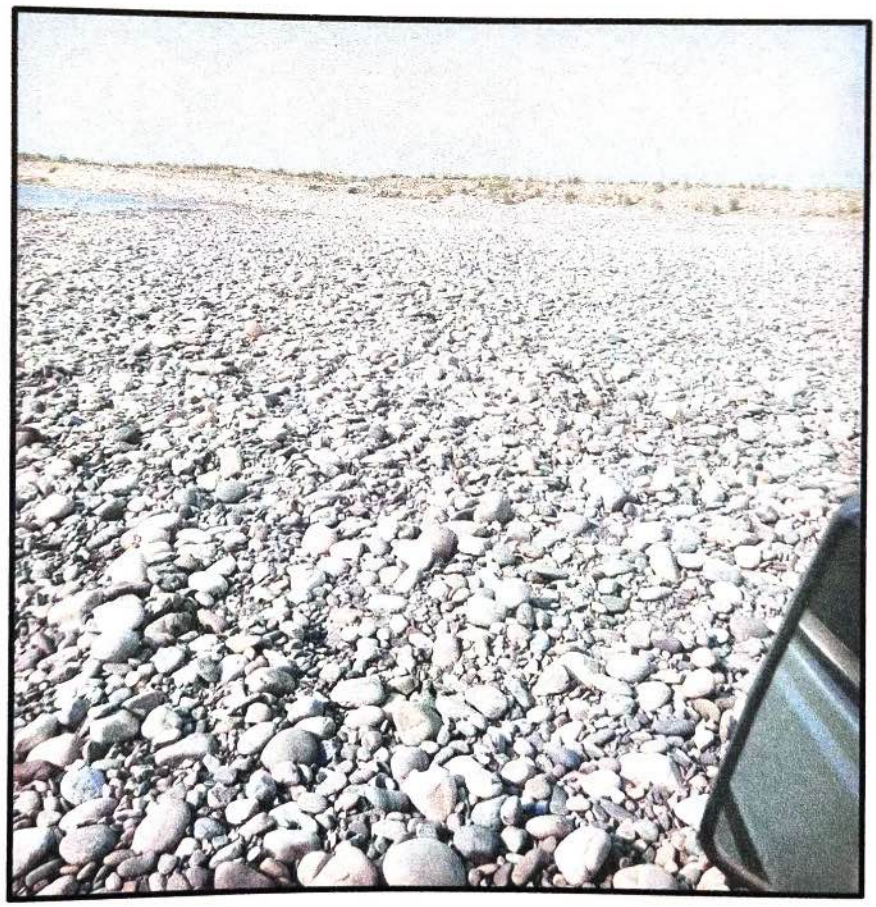
(Reference :- EMGSM – 2020 Guidelines ; Section 5.2 , page – 28)

Samples of 5 Kg each from the dry river bed of Six (06) Rivers namely Yamuna , Badkala Ra, Badshahibagh Rao, Gaisara Rao, Kaluwala and Khairawali Ra were taken in the temper proof polybag and analysed of particle size and Bulk density through NABL Laboratory. The analysis of results are as under: -

RESULTS

1. **The formation of mineral observed in the study area is a mix of Silt, Sand (0.125 mm to 0.50 mm in size) , Bajri (2 mm to 4 mm in size *[granule]*) , Pebble/Cobble (4mm to 256mm) and Boulders of large size (more than 256 mm). Results co-related with Wentworth Grain Size Chart.**

2. **The percentage of Pebble/Cobble and Boulders of large size in percentage are predominant in River Yamuna which is a perennial in nature.**

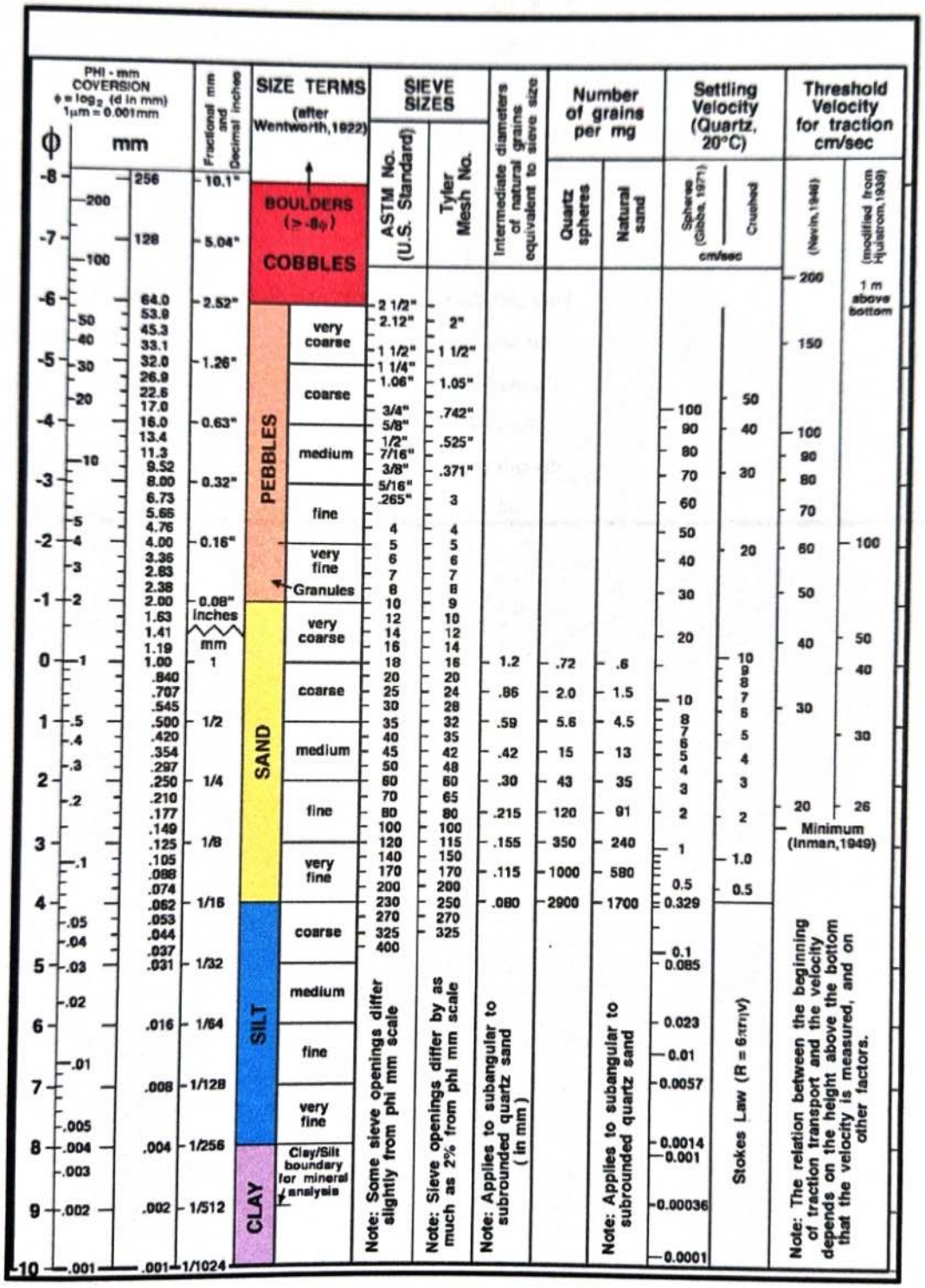


3. **Whereas the percentage of Silt, Sand and Bajri is predominant in the rest 5 seasonal tributaries of Yamuna River (namely Badkala Ra, Badshahibagh Rao, Gaisara Rao, Kaluwala and Khairawali Ra)**



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Particle Size Analysis Reference :- Classification of Sediments (Wentworth Grain Size Chart)



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Sediment grain sizes (mm)	Wentworth grade	Phi (Φ) scale
>256	Boulder	−8
>64 to 256	Cobble	−6
>4 to 64	Pebble	−2
>2 to 4	Granule	−1
>1 to 2	Very coarse sand	0
>0.50 to 1	Coarse sand	1
>0.25 to 0.50	Medium sand	2
>0.125 to 0.25	Fine sand	3
>0.0625 to 0.125	Very fine sand	4
>0.0313 to 0.0625	Coarse silt	5
> 0.0156 to 0.0313	Medium silt	6
>0.0078 to 0.0156	Fine silt	7
>0.0039 to 0.0078	Very fine silt	8
<0.0039	Clay	>8

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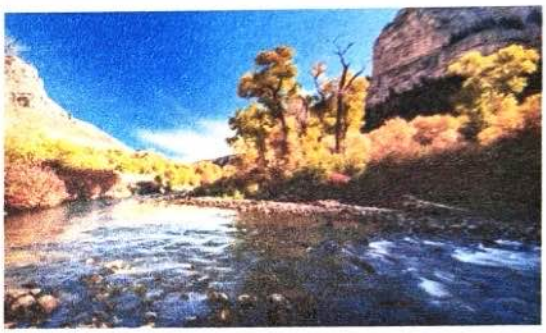
Gradient Analysis of River Yamua:-

Intruduction & Background :-

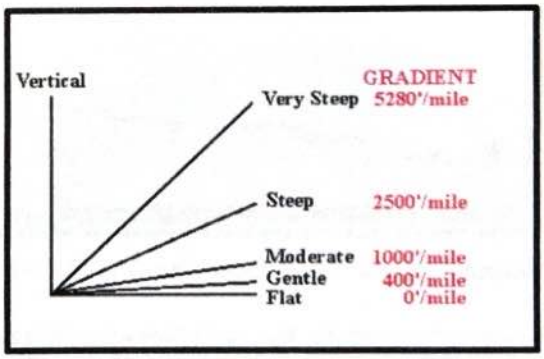
1. River / Stream gradient is the grade measured by the ratio of drop in elevation of a stream per unit horizontal distance, which is usually expressed as meters per kilometer or feet per mile.
2. A high gradient indicates a steep slope and rapid flow of water where it has more ability to erode. High gradient streams tend to have steep, narrow V-shaped valleys, and are referred to as young streams.



3. A low gradient indicates a more nearly level stream bed and sluggishly moving water, that may be able to carry only small amounts of very fine sediment. Low gradient streams have wider and less rugged valleys, with a tendency for the stream to meander.



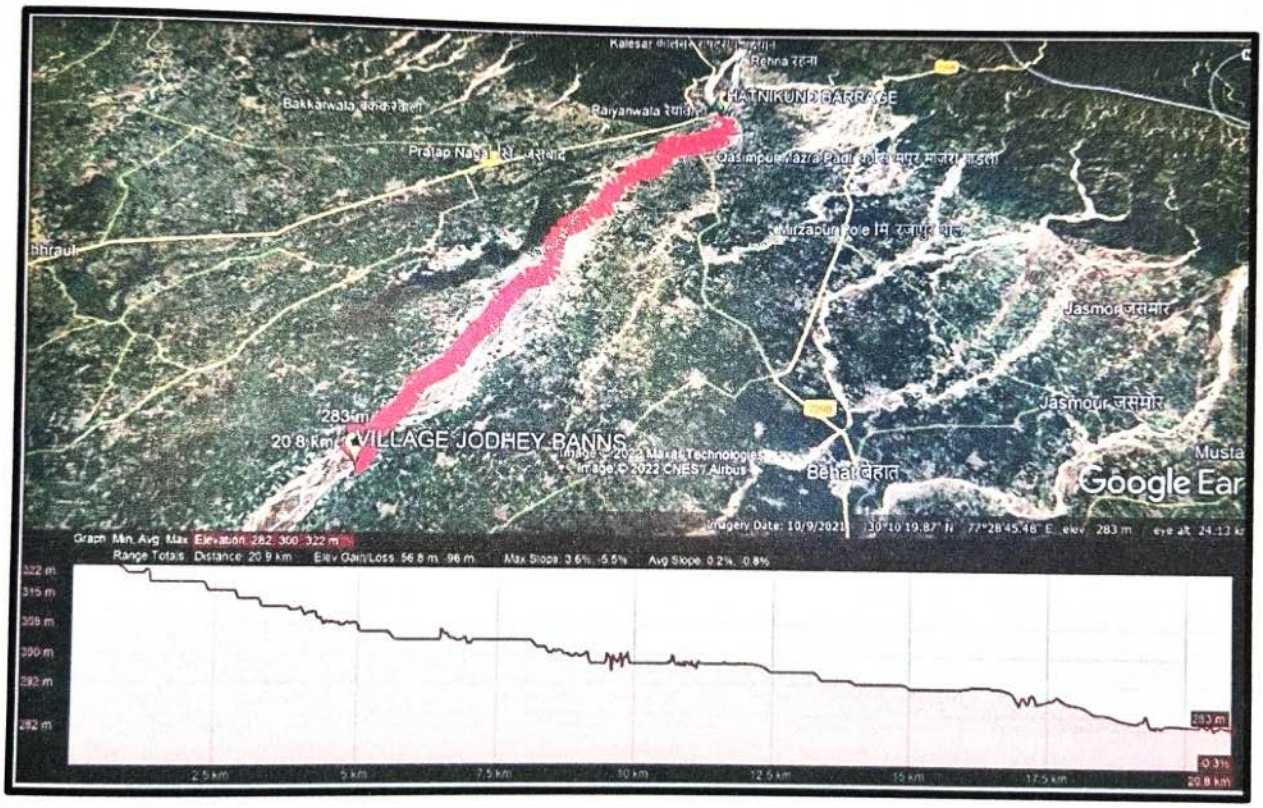
4. The GRADIENT OF A RIVER = ELEVATION DIFFERENCE / DISTANCE ALONG THE STREAM OR HORIZENTAL DISTANCE
5. The interpretation of gradient may be expressed in a score of Very Steep, Steep, Moderate, Gental and Flat.



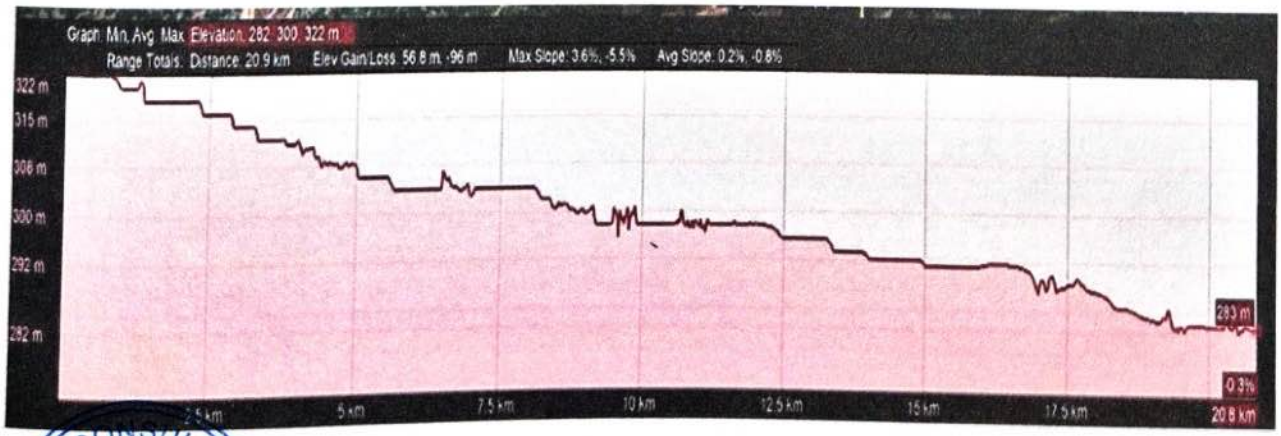
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Methodology for Study for Gradient Analysis :-

1. A length patch of 29.90 kms approx in river Yamuna was identified. The length patch of 29.90 kms (distance along the stream) starts from Hatnikund Barrage and ends near Jodhey Banns village.
2. The elevation of Hatnikund Barrage is 329 MrL and the elvation recorded in Jodhey Banns villahe is 283 MrL. Thus the total elevation drop (difference in elevation or slope) is 39 meters.
3. Hence the Gradient of the study area comes to 1.30 meters / kilometer or 6.89 feet / mile.



Gradient Study Area Map – River Yamuna



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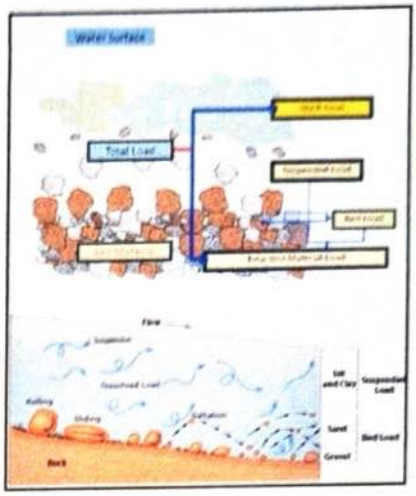
Observation:-

1. The gradient level of study area shows that it is Gental. The major attibute for RBM deposit in the area is occurance of higher HFL (High Flood Levels) due to which the RBM in mix state travelles from upstream and deposits in the lease and near by areas.
2. It has been reported by CGWB NR, Lucknow on Aquifer Mapping & Management of Ground Water Resources, Saharanpur , Uttar Pradesh that the Tarai plains slop gradually by southward have around 1.5m/km. gradient (Chapeter-5 of this Report).
3. The Gradient analysis of study areca reveals outcome of 1.30 meters / kilometer or 6.89 feet / mile which is almost equlivant to the CGWB Report and results found co-related and found stable.
4. The area of Yamuna under study shows that the stream consist of multiple small, shallow channels that divide and recombine numerous times forming a pattern resembling a **Braided Stream.** Generally a Braided streams are formed where the sediment load is so heavy that some of the sediments are deposited as shifting islands or bars between the channels as likewise observed in the study area.



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SEDIMENT TRANSPORT



Sediment transport is the movement of solid particles (sediment), typically due to a combination of gravity acting on the sediment, and/or the movement of the fluid in which the sediment is entrained. Sediment transport occurs in natural systems where the particles are clastic rocks (sand, gravel, boulders, etc.), mud or clay; the fluid is air, or water, and the force of gravity acts to move the particles along the sloping surface on which they are resting. Sediment transport due to fluid motion occurs in rivers, oceans, lakes, seas, and other bodies of water due to currents and tides. Sediment transport due only to gravity can occur on sloping surfaces in general, including hill- slopes, scarps, cliffs, and the continental shelf-continental slope boundary.

TYPES OF SEDIMENT LOAD

- **Bed-load:** That portion of the sediment load that is transported along the bed by sliding, rolling or hopping. The bed-load moves at velocities slower than the flow and spends most of its time on or near the stream bed. The mechanisms of grain motion are as follows:
- **Traction (rolling and sliding):** Important factors: frictional drag and lift forces exerted by the flow and slope.
- **Saltation (hopping):** Grains are temporarily suspended by fluid vortices or by ballistic impact and then released Grain movement may be continuous or intermittent depending on the flow regime.

Suspended load: They area particulate sediment that is carried in the body of the flow and moves at the same velocity as the flow. A small particle (e.g. clay and fine silt), with a large relative surface area, is held in suspension more easily because of the electrostatic attraction between the unsatisfied charges on grain's surface and the water molecules. This force, tending to keep the particle in the flow, is large compared to the weight of the particle.

The Hjulstrom curve shows that a much higher velocity is required to entrain clay and fine silt than coarse sand. However, once the fine sediment is in suspension, a much lower velocity is required to maintain it in suspension.The quantity and quality of the load is defined in terms of competence and capacity.

Dissolved load: material that is chemically carried in the water. The factors that govern the percentage of dissolved and suspended load include:

- Climate: temperature, precipitation, vegetation
- Vegetation: type and amount

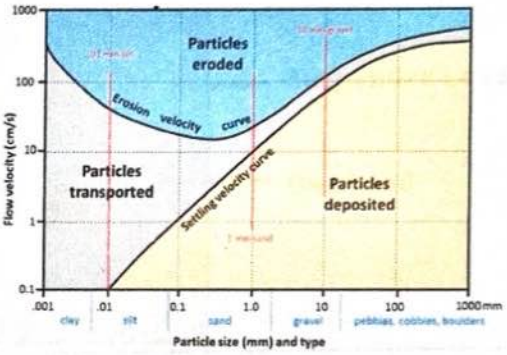
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- Activity by man: mining, construction, clear cutting, etc.
- Rock solubility: e.g. hard water in carbonate terranes
- Erodibility of materials in the drainage basin
- Relief and slope (affects PE of flow)

Wash Load: Sometimes finer particles from upland catchment (sizes which are not present in the bed material),called wash load,are also transported in suspension.The combined bed material and wash load is called Total load.

TRANSPORT RATE

When the velocity of water flowing over a bed of non-cohesive sediment flow overcomes the resistance offered by the grain due to its mass, cohesion and other forces. Properties like shape and position of centre of gravity of the grain play important roles in determining the degree of resistance offered. A diagram complied by Hjulstrom (1935) revealed the relationship between critical erosion velocity and grain size. The field above the curve indicates the condition suitable for entrainment of grains.



Formulas to calculate sediment transport rate exist for sediment moving in several different parts of the flow. These formulas are often segregated into bed load, suspended load, and wash load. They may sometimes also be segregated into bed material load and wash load.

DEFINING BED LOAD

Bed load moves by rolling, sliding, and hopping (or saltating) over the bed, and moves at a small fraction of the fluid flow velocity. Bed load is generally thought to constitute 5 -10% of the total sediment load in a stream, making it less important in terms of mass balance. However, the bed material load (the bed load plus the portion of the suspended load which comprises material derived from the bed) is often dominated by bed load, especially in gravel -bed rivers. This bed material load is the only part of the sediment load that actively interacts with the bed. As the bed load is an important component of that, it plays a major role

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in controlling the morphology of the channel. Bed load transport rates are usually expressed as being related to excess dimensionless shear stress raised to some power. Excess dimensionless shear stress is a non –dimensional measure of bed shear stress about the threshold for motion.

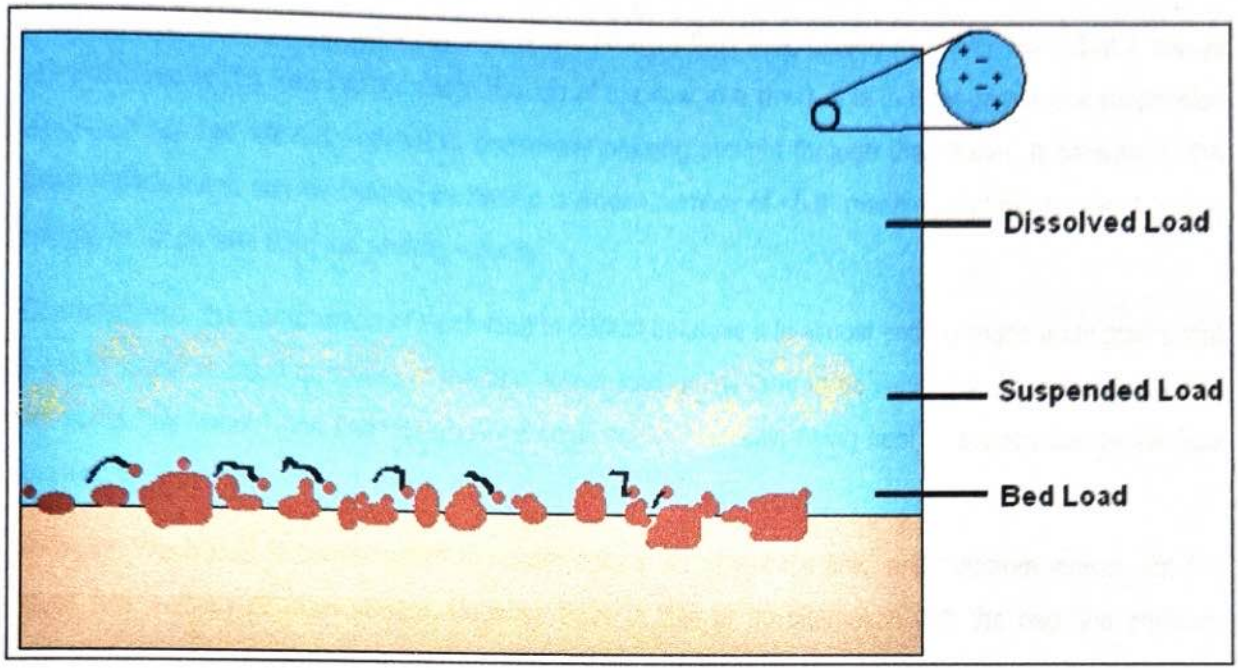


Figure No. 4.2: Sediment load movement

Dissolved load is not sediment. It is composed of disassociated ions moving along with the flow. It may, however, constitute a significant proportion (often several percent, but occasionally greater than half) of the total amount of material being transported by the stream.

DEFINING WASHLOAD

The distinction between bed-material-load and wash-load components of the total load adopted here is that wash load is not found in appreciable quantities in the bed of channel. However,the precise definition of what constitutes an appreciable quantity un clear, meaning that the threshold grain size separating bed-material load and wash load may be defined in several ways. Wash load is the grain size of which 10 percent of the bed mixture is finer. This basically different behaviour of the fine and the coarse parti cles in the same channel has led the author and collaborators to assume that the fine particles in the flows till behave like material called Wash load in the concrete channel whereas the coarse particle act like the sediment in a strictly alluvial channel.

These investigators give the limiting grain size between wash load and alluvial or bed load in terms of the composition of the sediment deposit in the bed. They state that all particle sizes that are not significantly represented in the deposit must be considered as wash load. More specifically, the limiting size may be

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arbitrarily chosen from the mechanical analysis of the deposit as that grain size of which 10 percent of the bed mixture is finer. This rule seems to be rather generally applicable as long as low-water and dead-water deposits are excluded from the bed sediment."

Wash load is the portion of sediment that is carried by a fluid flow, usually in a river, such that it always remains close to the free surface (near the top of the flow in a river). It is in near-permanent suspension and is transported without deposition, essentially passing straight through the stream. It consists of the finest particles and can be defined by having a Rouse number of <0.8, meaning that the turbulent mixing velocity is far greater than the settling velocity.

Composition: The composition of wash load is distinct because it is almost entirely made up of grains that are only found in small quantities in the bed. Wash load grains tend to be very small (mostly clays & silts but some fine sands) and therefore have a small settling velocity, being kept in suspension by the flow turbulence.

Velocity: Wash load is carried within the water column as part of the flow, and therefore moves with the mean flow velocity of main stream. Because there is little or no interaction with the bed, the particles extract only negligible momentum from the flow.

Wash Load Dynamics: There is no universally accepted definition of wash load, yet despite this, the wider concept that sediment in transport that is finer than that making up the bed of the channel behaves differently and plays a different role in the sediment transfer system is widely perceived to have merit and has often proven useful in river engineering studies. In this respect, there are three tenants within the wash load and bed-material load concept that are relevant from a practical regional sediment management perspective. It follows that changes in the quantity of wash load in transport (due to the addition or removal of washload sources) will seldom trigger significant morphological responses and marked changes to the stability of the channel. Conversely, imbalances in the bed-material load will usually drive local morphological response through channel scour (where transport capacity exceeds supply) or fill (where supply exceeds transport capacity). Second, the quantity of wash load carried by a stream is limited not by the streams's sediment transport capacity, but by the available supply. It follows that it is only the bed-material load that most sediment transport equations can calculate on the basis of the transport capacity indicated by the local flow hydraulics. Wash-load transport cannot be predicted this way, but can only be estimated on the basis of comprehensive, quantitative assessment of wash-load sediment sources. Third, the movement of wash load is relatively rapid compared to that of the bed-material load. In a sand-bed channel, where the wash load is composed of fine sands, silts and clays that are fairly evenly distributed throughout the water column, wash load may move through the channel.

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SUSTAINABLE RIVER BED SAND MINING

As per Sustainable Sand Mining Management Guideline, 2016, by Ministry of Environment, Forest and Climate Change, following considerations should be kept in mind for sand / gravel mining:

- Parts of the river reach that experience deposition or aggradation shall be identified first. The Lease holder/Environmental Clearance holder may be allowed to extract the sand and gravel deposit in these locations to manage aggradation problem.
- The distance between sites for sand and gravel mining shall depend on the replenishment rate of the river. Sediment rating curve for the potential sites shall be developed and checked against the extracted volumes of sand and gravel.
- Sand and gravel may be extracted across the entire active channel during the dry season.
- Abandoned stream channels on terrace and inactive floodplains are preferred rather than active channels and their deltas and flood plains. Stream should not be diverted to form inactive channel.
- Layers of sand and gravel which could be removed from the river bed shall depend on the width of the river and replenishment rate of the river.
- Sand and gravel shall not be allowed to be extracted where erosion may occur, such as at the concave bank.
- Segments of braided river system should be used preferably falling within the lateral migration area of the river regime that enhances the feasibility of sediment replenishment.
- Sand and gravel shall not be extracted within 200 to 500 meter from any crucial hydraulic structure such as pumping station, water intakes, and bridges. The exact distance should be ascertained by the local authorities based on local situation. The cross-section survey should cover a minimum distance of 1.0 km upstream and 1.0 km downstream of the potential reach for extraction. The sediment sampling should include the bed material and bed material load before, during and after extraction period. Develop a sediment rating curve at the upstream end of the potential reach using the surveyed cross- section. Using the historical or gauged flow rating curve, determine the suitable period of high flow that can replenish the extracted volume. Calculate the extraction volume based on the sediment rating curve and high flow period after deter mining the allowable mining depth.
- Sand and gravel could be extracted from the downstream of the sand bar at river bends.

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Retaining the upstream one to two thirds of the bar and riparian vegetation is accepted as a method to promote channel stability.

- Flood discharge capacity of the river could be maintained in areas where there are significant flood hazard to existing structures or infrastructure. Sand and gravel mining may be allowed to maintain the natural flow capacity based on surveyed cross- section history.
- Alternatively off-channel or floodplain extraction is recommended to allow rivers to replenish the quantity taken out during mining.
- The Piedmont Zone (Bhabhar area) particularly in the Himalayan foothills, where riverbed material is mined, this sandy-gravelly track constitutes excellent conduits and holds the greater potential for ground water recharge. Mining in such areas should be preferred in locations selected away from the channel bank stretches.
- Mining depth should be restricted to 3 meter and distance from the bank should be 3 meter or 10 percent of the river width whichever less.
- The borrow area should preferably be located on the river side of the proposed embankment, because they get silted up in course of time. For low embankment less than 6 m in height, borrow area should not be selected within 25 m from the toe/heel of the embankment. In case of higher embankment the distance should not be less than 50 m. In order to obviate development of flow parallel to embankment, cross bars of width eight times the depth of borrow pits spaced 50 to 60 meters centre-to-centre should be left in the borrow pits.
- Demarcation of mining area with pillars and geo-referencing should be done prior to start of Mining.

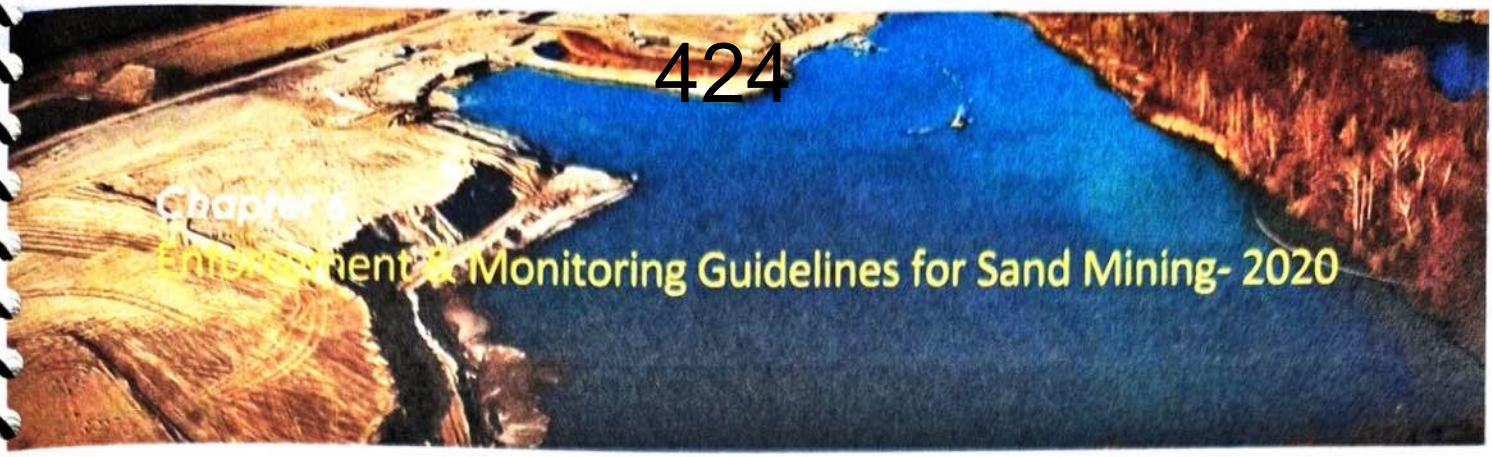
The effects of unscientific and excessive sand and gravel mining are as follows:

- Extraction of bed material in excess of replenishment by transport from upstream causes the bed to lower (degrade) upstream and downstream of the site of removal.
- In-stream habitat is impacted by increase in river gradient, suspended load, sediment transport and deposition. Excessive sediment deposition for replenishment increases turbidity which prevents penetration of light required for photosynthesis and reduces food availability of aquatic fauna.
- Riparian habitat including vegetative cover on and adjacent to the river banks it controls erosion, provide nutrient inputs into the stream and prevents intrusion of pollutants in the stream through runoff. Bank erosion and change of morphology of the river can destroy the riparian vegetative cover.
- Bed degradation are responsible for channel shifting, causing loss of properties and degradation of landscape, it can also undermine bridge supports, pipe lines or other structures.
- Degradation may change the morphology of the river bed, which constitutes one aspect of the aquatic habitat.

- Degradation can deplete the entire depth of gravelly bed material, exposing other substrates that may underlie the gravel, which could in turn affect the quality of aquatic habitat. Lowering of ground water table in the flood plain because of lowering of riverbed level as well as river water level takes place because of extraction and draining out of excessive ground water from the adjacent areas. So, if a floodplain aquifer drains to the stream, groundwater levels can be lowered as a result of bed degradation.
- Lowering of the water table can destroy riparian vegetation.
- Excessive pumping of ground water in the process of mining in abandoned channels depletes ground water causing scarcity of irrigation and drinking water. In extreme cases it may create ground fissures and subsidence in adjacent areas.
- Flooding is reduced as bed elevations and flood heights decrease, reducing hazard for human occupancy of floodplains and the possibility of damage to engineering works.
- The supply of overbank sediments to floodplains is reduced as flood heights decrease.
- An un-scientific and unregulated sand and gravel mining tends to increase channel bank scouring and erosion. This causes a large degree of meandering of rivers and sometimes it could be in kms.
- Rapid bed degradation may induce bank collapse and erosion by increasing the heights of banks.
- Polluting ground water by reducing the thickness of the filter material especially if mining is taking place at top of recharge fissures.
- Choking of sand layer which acts as filter for ingress of ground water from river by dumping of finer material, compaction of filter zone due to movement of heavy vehicles. It also reduces the permeability and porosity of the filter material.
- Removal of gravel from bars may cause downstream bars to erode if they subsequently receive less bed material than is carried downstream from them by fluvial transport.
- Ecological effects on bird nesting, fish migration, angling, etc.
- Indiscrete mining activities lead to increased concentration of suspended sediment in the river which in turn causes siltation of water resources projects.
- Un-scientific and unregulated sand and gravel mining leads to the severe health hazards like air quality degradation and dust fog.
- Impacts on coastal processes.

As such, it becomes essential to conduct a replenishment study.

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- The need for replenishment study for river bed sand is required in order to nullify the adverse impacts arising due to excessing sand extraction. Mining within or near riverbed has a direct impact on the stream's physical characteristics, such as channel geometry, bed elevation, substratum composition and stability, in-stream roughness of the bed, flow velocity, discharge capacity, sediment transport capacity, turbidity, temperature etc. Alteration or modification of the above attributes may cause an impact on the ecological equilibrium of the riverine regime, disturbance in channel configuration and flow-paths. This may also cause an adverse impact on in- stream biota and riparian habitats. It is assumed that the riparian habitat disturbance is minimum if the replenishment is equal to excavation for a given stretch. Therefore, to minimize the adverse impact arising out of sand mining in a given river stretch, it is imperative to have a study of replenishment of material during the defined period.

- As per the provisions of EM Guidelines for Sand Mining – 2020, replenishment study requires filed surveys. For this, original ground level (OGL) are to be recorded and area of aggradation/deposition needs to be ascertained by comparing the level difference between the outside riverbed OGL and water level.

- The river reaches with sand provide the resource and thus it is necessary to ascertain the rate of replenishment of the mineral. Regular replenishment study needs to be carried out to keep a balance between deposition and extraction.

- The current study has been done on the basis of Physical Survey of field as per proviso of Section 5.2.1 of EMSM-2020 Guidelines.

- The conventional survey using DGPS and other survey tools are used to define elevation contours of the lease area as the contour and the elevation benchmarks provide the baseline data for assessing the pre and post-study period scenario.

- Baseline data on elevation status by formation of grids has been done on intervals depending on the geographical and site-specific conditions

- The changes observed in the elevation in per and post scenario shall be depicted in graphical forms along with reserve estimation of the mining area.



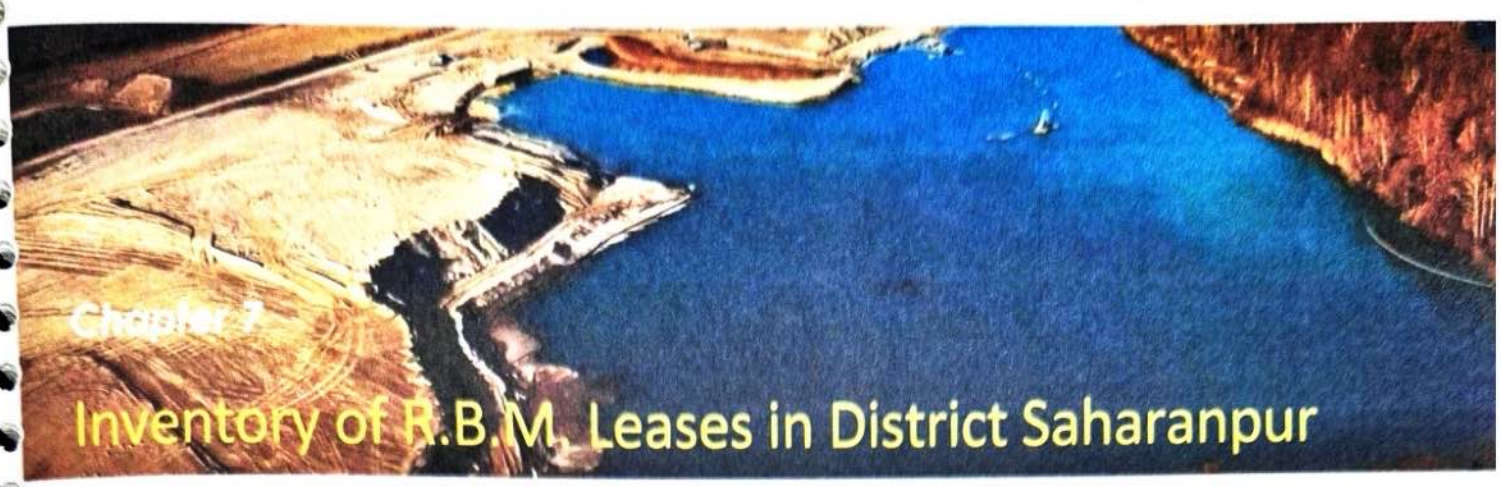


Chapter 6 cont

LIST OF EQUIPMENTS/MANPOWER AND SOFTWARES

Statutory Requirement :- As per Section 5.2.2 of EMGSM-2020 Guidelines the details of Manpower/Experts , Equipment's and Software's are as under:-

Head	Details	Quantity/Nos.
	Manpower/Experts	
1. Manpower	Geologist	1
2. Manpower	Geologist & R.Q.P.	1
3. Manpower	Senior Environment Expert	2
4. Manpower	Program Coordinator	1
5. Manpower	Field Expert / Foreman	4
6. Manpower	CAD/GIS Expert	2
7. Manpower	Coordinator (Mining)	1
8. Manpower	Environment Planner – Data compilation and Report	1
	Equipment's	
• For Pit Profile	JCB Machine for Drilling	4
• For Reserve Estimation and assessment of Mineral Quality	Augar / JCB / Measurement Devices	12
• For Geo-coordinates	Garmin GPS	8
• For Collecting Elevation Profiles	DGPS Equipment & Drone	4
	Software's	
• For reporting surface/geological sections	ArcGIS	2
• For Lease Detail modelling and Remote data collection	Google Earth	2
• For collection of onsite work profiles	Time Stamp Camera	6
• For Report / For Baseline Data Modelling	MS-Word/ MS-Excel	2
• For Data Modelling	Q-GIS	1



Chapter 7

Inventory of R.B.M. Leases in District Saharanpur

OPERATIVE LEASES

S4.2 .No	Tehsil	River	Village	Gata No. / Khand No. / Zone No.	Area	Pillar	Latitude	Longitude
1	Behat	Badshahibagh Rao	**Mayapur Rooppur**	Gata No. 14/1	3.100	A	30° 19' 21.41" N	77° 38' 26.35" E
						B	30° 19' 17.62" N	77° 38' 30.56" E
						C	30° 19' 13.68" N	77° 38' 25.07" E
						D	30° 19' 17.44" N	77° 38' 20.78" E
2	Behat	Yamuna	**Bartha Korsi**	Gata No. - 1	36.000	A	30° 14' 00.94" N	77° 31' 13.91" E
						B	30° 14' 16.50" N	77° 31' 24.43" E
						C	30° 14' 13.69" N	77° 31' 31.19" E
						D	30° 14' 19.59" N	77° 31' 37.85" E
						E	30° 14' 37.10" N	77° 31' 40.80" E
						F	30° 14' 39.19" N	77° 31' 36.25" E
						G	30° 14' 26.08" N	77° 31' 29.05" E
						H	30° 14' 09.19" N	77° 31' 02.18"E
3	Behat	Badkala Ra	**Haidarpur Hindwala**	Khand No / Gata No. - 8/1 , 19 & 22	4.200	A	30° 15' 20.64" N	77° 40' 42.10" E
						B	30° 15' 20.54" N	77° 41' 00.42" E
						C	30° 15' 17.98" N	77° 41' 01.84" E
						D	30° 15' 17.71" N	77° 40' 42.89" E
4	Behat	Khurwali Ra	**Sherpur**	Gata No. - 378/2 &	7.000	A	30° 15' 52.04" N	77° 39' 22.56" E

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			Pelon	379/2		B	30° 15' 51.84" N	77° 39' 27.43" E
						C	30° 16' 06.24" N	77° 39' 31.26" E
						D	30° 16' 07.18" N	77° 39' 25.07" E
5	Behat	Yamuna	**Nuniyari Achatmal**	Gata No. - 1/1/1 Laat 38	24.290	A	30°11'00.90" N	77°29"25.83"E
						B	30°11'12.98" N	77°29"12.21" E
						C	30°11'24.95" N	77°29"26.28" E
						D	30°11'21.79" N	77°29"29.68" E
						E	30°11'20.39" N	77°29"33.03" E
						F	30°11'18.64" N	77°29"33.83" E
						G	30°11'17.01" N	77°29"34.70" E
						H	30°11'14.93" N	77°29"32.91" E
						I	30°11'09.54" N	77°29"31.35" E
						J	30°11'03.46" N	77°29"29.55" E
6	Behat	Yamuna	**Rehna**	Khand No. / Gata no. - 03, Lot No - 03	8.050	A	30° 21' 36.45" N	77° 36' 05.61" E
						B	30° 21' 29.62" N	77° 36' 00.26" E
						C	30° 21' 37.95" N	77° 35' 50.38" E
						D	30° 21' 41.71" N	77° 36' 02.50" E
7	Behat	Gaisara Rao	**Rahena**	Gata No. 179/2	3.750	A	30° 19' 56.17" N	77° 36' 33.21" E
						B	30° 19' 52.90" N	77° 36' 33.93" E
						C	30° 19' 50.54" N	77° 36' 20.87" E
						D	30° 19' 53.90" N	77° 36' 20.01" E
8	Nukur	Yamuna	**Dhikkan Kalan**	Gata No. - 839, 841 to 856, 858, 859, 860, 861, 863,864,865,866,867, 871, 872, 888, 889, 406 , 407	52.63	A	30° 1'20.61"N	77°17'23.68"E
						B	30° 1'24.58"N	77°17'15.45"E
						C	30° 1'32.77"N	77°17'19.87"E
						D	30° 1'42.25"N	77°17'24.49"E
						E	30° 1'41.34"N	77°17'31.04"E
						F	30° 1'52.02"N	77°17'39.09"E
						G	30° 1'54.80"N	77°17'51.61"E
						H	30° 1'56.88"N	77°17'52.96"E
						I	30° 2'2.71"N	77°18'5.82"E
						J	30° 1'59.86"N	77°18'8.25"E
						K	30° 1'57.85"N	77°18'7.25"E
						L	30° 1'58.76"N	77°18'5.82"E
						M	30° 1'57.46"N	77°18'4.89"E

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						N	30° 1'57.00"N	77°18'1.96"E
						O	30° 1'53.50"N	77°18'0.53"E
						P	30° 1'47.64"N	77°17'52.52"E
						Q	30° 1'42.10"N	77°17'46.53"E
						R	30° 1'32.38"N	77°17'39.44"E
						S	30° 1'27.11"N	77°17'31.55"E

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NON-OPERATIVE LEASES

S.No	Tehsil	River	Village	Gata No. / Khand No. / Zone No.	Area	Pillar	Latitude	Longitude
1	Behat	Khairawali Ra	Sherpur Pelon	403 , 404/1 , 405 , 406/1 , 416/2 , 421/1 , 422/2 , 423/2 , 424/2 , 429 and 431	6.475	A	30°16'35.16"N	77°39'44.44"E
						B	30°16'32.34"N	77°39'51.41"E
						C	30°16'21.11"N	77°39'36.26"E
						D	30°16'22.11"N	77°39'34.41"E
2	Behat	Kaluwala	Kaluwala Pahadipur	119/1 , 120/1 , 192/1 , 193/1 , 125/4	14.900	A	30°12'08.76"N	77°45'37.77"E
						B	30°12'06.03"N	77°45'42.25"E
						C	30°12'00.52"N	77°45'38.93"E
						D	30°11'40.91"N	77°45'32.39"E
						E	30°11'41.72"N	77°45'25.51"E
						F	30°12'02.80"N	77°45'33.06"E
3	Behat	Yamuna	Akbarpur Bans Aehatmal	1	17.900	A	30°16'27.80"N	77°32'46.96"E
						B	30°16'34.01"N	77°32'47.53"E
						C	30°16'42.58"N	77°32'53.94"E
						D	30°16'43.84"N	77°32'58.19"E
						E	30°16'50.96"N	77°32'47.76"E
						F	30°16'46.69"N	77°32'43.28"E
						G	30°16'39.98"N	77°32'41.04"E
						H	30°16'36.08"N	77°32'33.91"E
4	Behat	Yamuna	Arazi Jevadi Ahatmal and Masoodpur Garh Aehatmal	1 and 1	13.800	A	30°15'51.33"N	77°32'21.84"E
						B	30°15'58.45"N	77°32'08.63"E
						C	30°15'45.65"N	77°32'03.15"E
						D	30°15'41.84"N	77°32'13.01"E
5	Behat	Yamuna	Shehjadpur Bans Aehatmal	1	13.000	A	30°15'24.84"N	77°31'57.01"E
						B	30°15'12.32"N	77°31'47.88"E
						C	30°15'16.91"N	77°31'36.94"E

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						D	30°15'28.43"N	77°31'48.83"E
6	Behat	Yamuna	Alauddinpur Bans Aehatmal	1/1	9.580	A	30°16'14.92"N	77°32'39.76"E
						B	30°16'17.99"N	77°32'32.74"E
						C	30°16'08.09"N	77°32'23.84"E
						D	30°16'02.92"N	77°32'31.72"E
7	Behat	Yamuna	Mehmoodpur Nangli Aehatmal	1	15.700	A	30°16'02.98"N	77°32'30.74"E
						B	30°16'10.84"N	77°32'18.84"E
						C	30°16'00.40"N	77°32'11.56"E
						D	30°15'51.70"N	77°32'23.64"E
8	Behat	Yamuna	Shahpur Bans Aehatmal	1/1	15.600	A	30°16'27.75"N	77°32'46.14"E
						B	30°16'16.01"N	77°32'38.50"E
						C	30°16'20.43"N	77°32'28.70"E
						D	30°16'35.53"N	77°32'33.20"E
9	Behat	Yamuna	Nityanandpur Aehatmal and Said-mohamadpur Aehatmal	1 and 1ma	17.700	A	30°15'25.77"N	77°31'57.79"E
						B	30°15'41.32"N	77°32'12.89"E
						C	30°15'46.16"N	77°32'00.64"E
						D	30°15'28.87"N	77°31'50.13"E
10	Behat	Yamuna	Abutalibpur Garh Aehatmal	1	37.000	A	30°14'41.78"N	77°31'38.30"E
						B	30°14'49.46"N	77°31'21.34"E
						C	30°15'16.20"N	77°31'36.25"E
						D	30°15'11.96"N	77°31'46.05"E
11	Behat	Yamuna	Nuniyari Athmal – Khand Second	1/1/1	23.200	A	30°11'00.50"N	77°29'25.19"E
						B	30°10'59.39"N	77°29'23.26"E
						C	30°10'58.86"N	77°29'15.55"E
						D	30°10'55.77"N	77°29'10.53"E

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						E	30°10'46.29"N	77°29'04.02"E
						F	30°10'39.87"N	77°29'00.42"E
						G	30°10'46.96"N	77°29'51.89"E
						H	30°10'51.56"N	77°29'56.86"E
						I	30°10'49.46"N	77°29'58.83"E
						J	30°11'02.30"N	77°29'11.12"E
						K	30°11'07.26"N	77°29'05.46"E
						L	30°11'12.52"N	77°29'11.64"E
12	Behat	Yamuna	**Aslampur Bartha – First**	1/1M	36.600	A	30°13'45.87"N	77°31'09.07"E
						B	30°13'23.05"N	77°30'53.85"E
						C	30°13'13.45"N	77°30'42.33"E
						D	30°13'16.67"N	77°30'36.60"E
						E	30°13'50.98"N	77°30'57.80"E
13	Behat	Yamuna	**Rasoolpur Urf Rasooli**	1/1	34.000	A	30°12'17.09"N	77°30'18.81"E
						B	30°12'16.42"N	77°30'17.32"E
						C	30°12'05.34"N	77°30'13.17"E
						D	30°11'59.82"N	77°30'01.24"E
						E	30°11'46.33"N	77°29'58.50"E
						F	30°11'59.32"N	77°29'43.47"E
						G	30°12'21.10"N	77°30'16.04"E
14	Behat	Yamuna	**Aslampur Bartha – Second**	1/1M	28.160	A	30°13'04.93"N	77°30'44.59"E
						B	30°12'35.50"N	77°30'28.50"E
						C	30°12'38.19"N	77°30'18.84"E
						D	30°13'09.39"N	77°30'35.57"E

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Study and Results of Leases in pre-monsoon (2022) scenario.

1. Pre-monsoon study of total Twenty-Two (22) operative leases where done as per the methodology elaborated in Chapter-3 of the Report.
2. The present survey is the done to report the quantity of mineral before monsoon along with baseline data collection of elevation profiles through DGPS and Drone Survey.
3. It is anticipated that results of year wise surveys will help the state government to establish the replenishment rate of the river based on which future action may be planned.
4. The Physical topographic Survey of the leases using DGPS and Drone Survey to record and report the current elevation profiles of the lease areas. Further Pit profiles up-to the depth of 3 meters were done to estimate the quantity of reserve and analyse sustainable mining to be recommended for grant/operations of leases.
5. Baseline data of elevation status in grids where recorded on cross sections and prepared depending on the condition of site.
6. Field books and database of recordings were structured in a tabulated manner narrating the mRL of OGL (On Ground Level) Points having longitude/latitude.
7. GIS software modelling were done to correlate the data and net results are shown in graphical forms with appropriate scales.
8. Lease wise results are reported in the subsequent sections. The results of pre-monsoon baseline data collection shall be co-related with post-monsoon data to report overall replenishment.

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OPERATIVE LEASES

Particulars	Details / Observation
Serial Number	01
Tehsil	Behat
Village	Mayapur Rooppur
Gata No. / Khand No.	Gata No. 14/1
Area	3.100 ha.
River	Badshahibagh Rao (Seasonal River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 394.662 • The lowest elevation observed is 388.980. • The lease has an overall elevation difference of 5.682 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation profile recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx.. 92993 cum. • The current mineral reserve is capable to support production for long term periods. • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

GREEN INDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	02
Tehsil	Behat
Village	**Bartha Korsi**
Gata No. / Khand No.	Gata No. – 1
Area	36.000 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 302.492 • The lowest elevation observed is 292.200. • The lease has an overall elevation difference of 10.292 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation profile recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx.. 173732 cum. • **Since the lease is operative, the current mineral reserve be treated as pre-monsoon-2022 closing balance and analyzed for sustainable production for long term periods with post monsoon data.** • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

GREENCINDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	03
Tehsil	Behat
Village	**Haidarpur Hindwala**
Gata No. / Khand No.	Khand No / Gata No. - 8/1 , 19 & 22
Area	4.200 ha.
River	Badkala Ra (Seasonal River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 377.00 • The lowest elevation observed is 368.000. • The lease has an overall elevation difference of 9.000 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation profile recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx.. 143893 cum. • The current mineral reserve is capable to support production for long term periods. • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

GREENINDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	04
Tehsil	Behat
Village	**Sherpur Pelon**
Gata No. / Khand No.	Gata No. - 378/2 & 379/2
Area	7.000 ha.
River	Khurwali Ra (Seasonal River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 355.000 • The lowest elevation observed is 349.000. • The lease has an overall elevation difference of 6.000 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation profile recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx. 206037 cum. • The current mineral reserve is capable to support production for long term periods. • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

GREENCINDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	05
Tehsil	Behat
Village	**Nuniyari Aehatmal**
Gata No. / Khand No.	Gata No. - 1/1/1 Laat 38
Area	24.290 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 294.000 • The lowest elevation observed is 284.000. • The lease has an overall elevation difference of 10.000 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation profile recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx. 607313 cum. • The current mineral reserve is capable to support production for long term periods. • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

GREEN INDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	06
Tehsil	Behat
Village	**Rehna**
Gata No. / Khand No.	Khand No. / Gata no. - 03, Lot No – 03
Area	8.050 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 356.665 • The lowest elevation observed is 345.100 • The lease has an overall elevation difference of 11.565 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation profile recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx. 195089 cum. • The current mineral reserve is capable to support production for long term periods. • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

GREENINDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	07
Tehsil	Behat
Village	**Rehna**
Gata No. / Khand No.	Gata No. 179/2
Area	3.750 ha.
River	Gaisara Rao (Seasonal River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 357.739 • The lowest elevation observed is 351.120. • The lease has an overall elevation difference of 6.619 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation profile recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx. 111795 cum. • The current mineral reserve is capable to support production for long term periods. • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

GREENCINDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	08
Tehsil	Nukur
Village	**Dhikkan Kalan**
Gata No. / Khand No.	Gata No. - 839, 841 to 856, 858, 859, 860, 861, 863,864,865,866,867, 871, 872, 888, 889, 406 , 407
Area	52.63 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	Ordinary Sand
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 276.669 • The lowest elevation observed is 261.100 • The lease has an overall elevation difference of 15.569 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation profile recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx.. 26767 cum • **The current mineral reserve to support production for long term periods shall be analyzed along with after post-monsoon replenished data.** • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

GREENCINDIA CONSULTING (P) LTD. GHAZIABAD

NON-OPERATIVE LEASES

Particulars	Details / Observation
Serial Number	01
Tehsil	Behat
Village	**Sherpur Pelon**
Gata No. / Khand No.	403 , 404/1 , 405 , 406/1 , 416/2 , 421/1 , 422/2 , 423/2 , 424/2 , 429 and 431
Area	6.475 ha.
River	Khairawali Ra (Seasonal River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 375.859 • The lowest elevation observed is 360.100. • The lease has an overall elevation difference of 15.759 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• Current elevation recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx. 229913 cum • The current mineral reserve is capable to support production for long term periods. • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

GREEN INDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	02
Tehsil	Behat
Village	**Kaluwala Pahadipur**
Gata No. / Khand No.	119/1 , 120/1 , 192/1 , 193/1 , 125/4
Area	14.900 ha.
River	Kaluwala (Seasonal River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 385.520 • The lowest elevation observed is 358.833 • The lease has an overall elevation difference of 26.687 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx.. 359485 cum. • The current mineral reserve is capable to support production for long term periods. • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

GREENCINDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	03
Tehsil	Behat
Village	**Akbarpur Bans Aehatmal**
Gata No. / Khand No.	1
Area	17.900 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 319.090 • The lowest elevation observed is 307.100 • The lease has an overall elevation difference of 11.990 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation profile recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx. 248739 cum • **The current mineral reserve is capable to support production for mid-term periods.** • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

GREENINDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	04
Tehsil	Behat
Village	**Arazi Jevadi Ahatmal and Masoodpur Garh Aehatmal**
Gata No. / Khand No.	1 and 1
Area	13.800 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 313.546 • The lowest elevation observed is 302.000 • The lease has an overall elevation difference of 11.546 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation profile recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx. 412595 cum. • The current mineral reserve is capable to support production for long term periods. • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

GREEN INDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	05
Tehsil	Behat
Village	**Shehjadpur Bans Aehatmal**
Gata No. / Khand No.	1
Area	13.000 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 310.605 • The lowest elevation observed is 301.990 • The lease has an overall elevation difference of 8.615 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation profile recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx. 383857. • The current mineral reserve is capable to support production for long term periods. • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

GREEN INDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	06
Tehsil	Behat
Village	**Alauddinpur Bans Aehatmal**
Gata No. / Khand No.	1/1
Area	9.580 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 311.562 • The lowest elevation observed is 303.990 • The lease has an overall elevation difference of 7.572 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation profile recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx. 145022 cum. • **The current mineral reserve is capable to support production for mid term periods.** • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

GREEN INDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	07
Tehsil	Behat
Village	**Mehmoodpur Nangli Aehatmal**
Gata No. / Khand No.	1
Area	15.700 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 319.060 • The lowest elevation observed is 303.100 • The lease has an overall elevation difference of 15.960 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation profile recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx. 528459 cum. • The current mineral reserve is capable to support production for long term periods. • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

GREEN INDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	08
Tehsil	Behat
Village	**Shahpur Bans Aehatmal**
Gata No. / Khand No.	1/1
Area	15.600 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 320.461 • The lowest elevation observed is 306.980 • The lease has an overall elevation difference of 13.481 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation profile recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx..351410 cum. • The current mineral reserve is capable to support production for long term periods. • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

GREEN INDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	09
Tehsil	Behat
Village	**Nityanandpur Aehatmal and Said-mohamadpur Aehatmal**
Gata No. / Khand No.	1 and 1ma
Area	17.700 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 311.392 • The lowest elevation observed is 296.859 • The lease has an overall elevation difference of 14.533 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation profile recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx. 593005 cum. • The current mineral reserve is capable to support production for long term periods. • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

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Particulars	Details / Observation
Serial Number	10
Tehsil	Behat
Village	**Abutalibpur Garh Aehatmal**
Gata No. / Khand No.	1
Area	37.000 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 307.806 • The lowest elevation observed is 298.200 • The lease has an overall elevation difference of 9.606 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation profile recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx. 1217817 cum,. • The current mineral reserve is capable to support production for long term periods. • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

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Particulars	Details / Observation
Serial Number	11
Tehsil	Behat
Village	**Nuniyari Athmal – Khand Second**
Gata No. / Khand No.	1/1/1
Area	23.200 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 288.593 • The lowest elevation observed is 281.874 • The lease has an overall elevation difference of 6.719 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation profile recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx.. 519716 cum. • The current mineral reserve is capable to support production for long term periods. • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

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Particulars	Details / Observation
Serial Number	12
Tehsil	Behat
Village	**Aslampur Bartha – First**
Gata No. / Khand No.	1/1 M
Area	36.600 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 306.747 • The lowest elevation observed is 292.100 • The lease has an overall elevation difference of 14.647 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation profile recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx. 1250795 cum. • The current mineral reserve is capable to support production for long term periods. • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

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Particulars	Details / Observation
Serial Number	13
Tehsil	Behat
Village	**Rasoolpur Urf Rasooli**
Gata No. / Khand No.	1/1
Area	34.000 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 295.824 • The lowest elevation observed is 286.839 • The lease has an overall elevation difference of 8.985 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation profile recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx. 897564 cum. • The current mineral reserve is capable to support production for long term periods. • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

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Particulars	Details / Observation
Serial Number	14
Tehsil	Behat
Village	**Aslampur Bartha – Second**
Gata No. / Khand No.	1/1m
Area	28.160 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	June-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME II & II of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 300.106 • The lowest elevation observed is 288.120 • The lease has an overall elevation difference of 11.986 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre-monsoon Ground Control Points were fixed and elevation profiles were recorded which are serially tabulated and schematically presented in surface map in VOLUME-II. The net change in elevation profile shall be recorded in post-monsoon scenario and replenished volume shall be reported in post-monsoon report along with cross sections.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion	• The current elevation profile recorded by DRONE and DGPS methods shows exposure of existing reserves of R.B.M in mixed state to a quantum of approx. 726618 cum, • The current mineral reserve is capable to support production for long term periods. • The results of post-monsoon replenishment reserve shall be added/co-related with present reserve to recommend the overall sustainable production quantity and period as per Guidelines.

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Chapter 9

Conclusion & Recommendation

- The pre-monsoon (2022) replenishment study survey was conducted by Sub-Divisional Committee nominated by **Hon'ble District Magistrate Saharanpur**. The required technical assistance for the pre-monsoon replenishment study was provided by hired support agency.

- In total Twenty-Two (22) leases measuring 422.635 ha. were surveyed and studied in various River Channels in pre-monsoon period.

- The Maximum elevation levels in 22 leases varied between 26.678 to 6.000 from the elevation of River Water channel.

- Existing deposits in various leases were identified, as mining has not been commenced in such leases over several years. The occurrence of existing deposits attribute to the result of periodic replenishment in layers, which has occurred in several years.

- Lase wise results has been reported on Chapter 8 of this report. The interpretation of results are on the basis of supporting Drainage Maps, DGPS baseline data, Drone Survey Data as reported in VOLUME-II of the Report and also on the basis of lease wise study coverage and filed photographs of Physical Survey, DGPS Survey and Drone Survey which is covered in VOLUME-III of this report.

- The overall results of 22 operative leases show that they have adequate geological and minable deposits in the pre-monsoon period of Year-2022. Sustainable reserves were found in all the 22 leases and lease wise recommendation of sustainable production for mid-terms / long-terms has been provided on the basis of existing reserves.

- The exposure of existing reserves along with replenished reserves shall be studied in post-monsoon period to report the overall sustainable production for 5 years.

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- **The pre-monsoon baseline data of 22 leases has been collected and adequate minable reserves has been found in all the leases. The sub-divisional committee recommends that lease wise present quantum of deposit and results should be co-related in post-monsoon scenario. The Macro Assessment of river stretch shall be done to report overall mineral potential in the entire river stretch area so as to assess and determine the overall sediment flow patter of the rivers.**

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Chapter 10

ANNEXURES

Annexure Number	Details
VOLUME-II	**LEASE WISE base maps & plan -** • Study AREA MAP (area and drainage features on S.O.I. TOPSHEET) • Study AREA MAP (area and drainage features on google earth) **LEASE WISE DGPS survey RECORDS /RESULTS-** • GROUND control points (GCP) RECORD SHEET in tabular format. • MAPPING GROUND control points (GCP) RECORD SET ON SURFACE MAP. **LEASE WISE DRONE SURVEY RECORDS /RESULTS** • Contour map • D.S.M. MAP • Ortho map • R.B.M. (Sand/bajri/boulder) EXPOSURE MAP • Water map • Open area map
VOLUME-III	**Lease-wise pictorial view Investigation Details:** • Physical Survey • Drone Survey • DGPS Survey



Reference's

1.	Directorate of Geology and Mining, Lucknow
2.	Geological Survey of India
3.	CGWB (Ministry of Jal Shakti)
4.	District Survey Report of Saharanpur
5.	Sustainable Sand Mining Management Guidelines 2016,MoEF & CC, Government of India, New Delhi
6.	Enforcement & Monitoring Guidelines for Sand Mining 2020 issued by MoEF&CC
7.	Survey of India Toposheet
8.	Interaction of local people.

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जनपद सहारनपुर
DISTRICT SAHARANPUR

Post-Monsoon Replenishment Study
&
Reserve Estimation Report of
R.B.M. Mining Leases - District Saharanpur

(Study period – Post-monsoon-2022)



VOLUME-IV

Prepared by M/s GreenCIndia Consulting Pvt. Ltd.

A QCI/NABET Accredited Origination under Mining Sector 1(a) as per MoEF & CC Schedule.

Under Supervision of Sub-Divisional Committee – District Saharanpur

Submitted to Hon'ble District Magistrate, Saharanpur

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संयुक्त निदेशक
खनिज कार्यालय
सहारनपुर

अपर जिलाधिकारी (वि/रा)
प्रभारी अधिकारी खनिज
सहारनपुर

PREFACE

A Drainage system is the pattern formed by streams, rivers and lakes in a drainage basin. In a drainage system, streams or rivers always connect together to form networks. Several factors such as topography, soil type, bedrock type, climate and vegetation cover influence input, output and transport of sediment and water in a drainage basin *(Charlton, 2008)*. Such factors also influence the nature of the pattern of water bodies *(Twidale, 2004)*. As a consequence, drainage pattern can reflect geographical characteristics of a river network to a certain extent. There are several types of drainage pattern. So far, much research has been done on the description of drainage patterns in geography and hydrology *(e.g. Howard, 1967; Lambert, 1998; Twidale, 2004; Pidwirny, 2006)*.

In addition, sediment transport knowledge is important in river restoration, ecosystem protection, navigation, watershed studies and its management. Bed load represents the lower portion of sediment load in natural rivers. Fluvial sediment load materials are transported by rivers. Sediment load can be divided into bed load and suspended load based on the mode of transport. Bed load is transported close to the bed where particles moved by rolling, sliding, or jumping *(Adegbola, 2012)*. *Xlaoqing (2003)* explained that bed load transport in natural rivers is a complicated phenomenon. Its movement is quite uneven in both the transverse and longitudinal directions, which vary considerably.

The state of Uttar Pradesh has great importance in the local, regional, national and international perspectives due to its distinct physiographic conditions. It is endowed with diverse vegetation types, ranging from tropical to subtropical, temperate and alpine including riverine, grasslands and wetlands. The rivers of Uttar Pradesh play's an important role for the nation and provide water required by various sectors such as irrigation, drinking, recreation and industrial requirements etc. Besides, mining activities are also being carried out in the rivers for the developmental process.

Removal of excess sand and stone from river bed helps to maintain the carrying capacity and provides protection from flooding during monsoon season. Further, continuous flow of river is essential for ecological and economic needs such as irrigation and biodiversity etc. Therefore, drainage study of the river helps to understand potential carrying capacity of water during monsoon season which is generated from rainfall in the watershed and quantity of di-siltation of rivers under mining affected areas.

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In line with same, Replenishment study was carried out for operative/new/planned R.B.M. leases of District Saharanpur. Quantification and estimation of river bed material (RBM) was accomplished by followING three scientific approaches as envisaged in Sustainable Sand Management Guidelines – 2016 (SSMG-2016) and its contemporary guidelines Enforcement & Monitoring Guidelines for Sand Mining (EMSM-2020)issued by MoEF&CC in January-2020.

Mining areas were geo-tagged and surveyed for analysis of study of the availability/potential of sand and gravel. Estimation of deposition and safe limit for extraction/ removal of deposited river bed material (RBM) available in the various rivers/streams were done by analysing elevation profiles and pit profiles at regular intervals and Drone based Survey.

The Pre-Monsoon Report was prepared and published in Three Volumes namely VOLUME-I, VOLUME-II and VOLUME-III and is completed with results.

The current report has been prepared and published in next Three Volumes namely VOLUME-IV, VOLUME-V and VOLUME-VI

The pre and post monsoon data has been analysed and co-related and final results with river wise recommendation has been recommended in the report.

Sub Divisional Committee – District Saharanpur

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TABLE OF CONTENT

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1	Background & Introduction of post-monsoon Replenishment Study Report
2	Inventory of R.B.M. Leases in District Saharanpur
3	The concept of Natural Resource Accounting with Monitoring Mechanism
4	Lease wise analysis , post monsoon (2022) replenishment study results with recommendation
5	Final Recommendation of Sub-Divisional Committee
6	Environmental Observations and Enforcement Monitoring recommendation
7	Annexures • VOLUME-V and • VOLUME-VI

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CHAPTER	**1**
CONTENT	**Background & Introduction of post-monsoon Replenishment Study Report.**

Background

- The replenishment study report of district Saharanpur has been prepared in compliance the provisions of Sustainable Sand Management Guidelines – 2016 and its latest guidelines EM Guidelines for Sand Mining – 2020.
- The important details related to sediment transport and composition, purpose of study, methodology , district profile , ground water scenario, regional geology of district, mineral resources, rainfall & climate , description of study area rivers, analysis of particle size distribution, gradient analysis , list of software / manpower and equipment's, inventory of leases with pre-monsoon results has been covered in the VOLUME-I of the report.
- The details related to Three Layer Survey method i.e physical, DGPS and Drone based survey has been covered in Chapter-3 of the the VOLUME-1 of the report.
- The details and findings related to drainage and features of study area has been mapped on Survey of India Toposheet and google earth images, lease wise DGPS survey records having contour map, DSM , Otho Maps and DGPS record sets in tabular format and

its mapping in surface map has been reported in the VOLUME-II of the report.

- The conclusion of pre-monsoon results along with recommendations has been covered on the Chapter-8 of the VOLUME-I of the pre-monsoon replenishment study report.
- In total Twenty-Two (22) leases measuring 422.635 ha. were surveyed and studied in various River Channels in pre-monsoon period.
- The concluding recommendation of the Sub-Divisional committee in the pre-monsoon report and its operative para is as under:-

> *"The pre-monsoon baseline data of 22 leases has been collected and adequate minable reserves has been found in all the leases. The sub-divisional committee recommends that lease wise present quantum of deposit and results should be co-related in post-monsoon scenario. The Macro Assessment of river stretch shall be done to report overall mineral potential in the entire river stretch area so as to assess and determine the overall sediment flow patter of the rivers"*

Introduction of post-monsoon Replenishment Study Report

- The current post-monsoon report has been prepared and published in 3 volumes namely VOLUME-IV , VOLUME-V0 and VOLUME-VI.
- The final interpretation of leases, replenished quantity, mineral reserves estimation with conclusion and recommendation has been reported in the VOLUME-IV of the post-monsoon replenishment study report.

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- The interpretation of post-monsoon replenishment study results on the basis of supporting Drainage Maps, DGPS baseline data, Drone Survey Data as reported in VOLUME-IV of the Report and lease wise study coverage and filed photographs of Physical Survey, DGPS Survey and Drone Survey has been covered in VOLUME-VI of this report.



CHAPTER	2
CONTENT	Inventory of R.B.M. Leases in District Saharanpur

OPERATIVE LEASES

Sl. .No	Tehsil	River	Village	Gata No. / Khand No. / Zone No.	Area	Pillar	Latitude	Longitude
1	Behat	Badshahibagh Rao	Mayapur Rooppur	Gata No. 14/1	3.100	A	30° 19' 21.41" N	77° 38' 26.35" E
						B	30° 19' 17.62" N	77° 38' 30.56" E
						C	30° 19' 13.68" N	77° 38' 25.07" E
						D	30° 19' 17.44" N	77° 38' 20.78" E
2	Behat	Yamuna	Bartha Korsi	Gata No. - 1	36.000	A	30° 14' 00.94" N	77° 31' 13.91" E
						B	30° 14' 16.50" N	77° 31' 24.43" E
						C	30° 14' 13.69" N	77° 31' 31.19" E
						D	30° 14' 19.59" N	77° 31' 37.85" E
						E	30° 14' 37.10" N	77° 31' 40.80" E
						F	30° 14' 39.19" N	77° 31' 36.25" E
						G	30° 14' 26.08" N	77° 31' 29.05" E
						H	30° 14' 09.19" N	77° 31' 02.18"E
3	Behat	Badkala Ra	Haidarpur Hindwala	Khand No / Gata No. - 8/1 , 19 & 22	4.200	A	30° 15' 20.64" N	77° 40' 42.10" E
						B	30° 15' 20.54" N	77° 41' 00.42" E
						C	30° 15' 17.98" N	77° 41' 01.84" E
						D	30° 15' 17.71" N	77° 40' 42.89" E
4	Behat	Khurwali Ra	Sherpur Pelon	Gata No. - 378/2 & 379/2	7.000	A	30° 15' 52.04" N	77° 39' 22.56" E
						B	30° 15' 51.84" N	77° 39' 27.43" E
						C	30° 16' 06.24" N	77° 39' 31.26" E
						D	30° 16' 07.18" N	77° 39' 25.07" E
5	Behat	Yamuna	Nuniyari Achatmal	Gata No. - 1/1/1 Laat 38	24.290	A	30°11'00.90" N	77°29"25.83"E
						B	30°11'12.98" N	77°29"12.21" E
						C	30°11'24.95" N	77°29"26.28" E
						D	30°11'21.79" N	77°29"29.68" E
						E	30°11'20.39" N	77°29"33.03" E

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						F	30°11'18.64" N	77°29"33.83" E
						G	30°11'17.01" N	77°29"34.70" E
						H	30°11'14.93" N	77°29"32.91" E
						I	30°11'09.54" N	77°29"31.35" E
						J	30°11'03.46" N	77°29"29.55" E
6	Behat	Yamuna	**Rehna**	Khand No. / Gata no. - 03, Lot No - 03	8.050	A	30° 21' 36.45" N	77° 36' 05.61" E
						B	30° 21' 29.62" N	77° 36' 00.26" E
						C	30° 21' 37.95" N	77° 35' 50.38" E
						D	30° 21' 41.71" N	77° 36' 02.50" E
7	Behat	Gaisara Rao	**Rahena**	Gata No. 179/2	3.750	A	30° 19' 56.17" N	77° 36' 33.21" E
						B	30° 19' 52.90" N	77° 36' 33.93" E
						C	30° 19' 50.54" N	77° 36' 20.87" E
						D	30° 19' 53.90" N	77° 36' 20.01" E
8	Nukur	Yamuna	**Dhikkan Kalan**	Gata No. - 839, 841 to 856, 858, 859, 860, 861, 863,864,865,866,867, 871, 872, 888, 889, 406 , 407	52.63	A	30° 1'20.61"N	77°17'23.68"E
						B	30° 1'24.58"N	77°17'15.45"E
						C	30° 1'32.77"N	77°17'19.87"E
						D	30° 1'42.25"N	77°17'24.49"E
						E	30° 1'41.34"N	77°17'31.04"E
						F	30° 1'52.02"N	77°17'39.09"E
						G	30° 1'54.80"N	77°17'51.61"E
						H	30° 1'56.88"N	77°17'52.96"E
						I	30° 2'2.71"N	77°18'5.82"E
						J	30° 1'59.86"N	77°18'8.25"E
						K	30° 1'57.85"N	77°18'7.25"E
						L	30° 1'58.76"N	77°18'5.82"E
						M	30° 1'57.46"N	77°18'4.89"E
						N	30° 1'57.00"N	77°18'1.96"E
						O	30° 1'53.50"N	77°18'0.53"E
						P	30° 1'47.64"N	77°17'52.52"E
						Q	30° 1'42.10"N	77°17'46.53"E
						R	30° 1'32.38"N	77°17'39.44"E
						S	30° 1'27.11"N	77°17'31.55"E

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NON-OPERATIVE LEASES

S.No	Tehsil	River	Village	Gata No. / Khand No. / Zone No.	Area	Pillar	Latitude	Longitude
1	Behat	Khairawali Ra	Sherpur Pelon	403 , 404/1 , 405 , 406/1 , 416/2 , 421/1 , 422/2 , 423/2 , 424/2 , 429 and 431	6.475	A	30°16'35.16"N	77°39'44.44"E
						B	30°16'32.34"N	77°39'51.41"E
						C	30°16'21.11"N	77°39'36.26"E
						D	30°16'22.11"N	77°39'34.41"E
2	Behat	Kaluwala	Kaluwala Pahadipur	119/1 , 120/1 , 192/1 , 193/1 , 125/4	14.900	A	30°12'08.76"N	77°45'37.77"E
						B	30°12'06.03"N	77°45'42.25"E
						C	30°12'00.52"N	77°45'38.93"E
						D	30°11'40.91"N	77°45'32.39"E
						E	30°11'41.72"N	77°45'25.51"E
						F	30°12'02.80"N	77°45'33.06"E
3	Behat	Yamuna	Akbarpur Bans Aehatmal	1	17.900	A	30°16'27.80"N	77°32'46.96"E
						B	30°16'34.01"N	77°32'47.53"E
						C	30°16'42.58"N	77°32'53.94"E
						D	30°16'43.84"N	77°32'58.19"E
						E	30°16'50.96"N	77°32'47.76"E
						F	30°16'46.69"N	77°32'43.28"E
						G	30°16'39.98"N	77°32'41.04"E
						H	30°16'36.08"N	77°32'33.91"E
4	Behat	Yamuna	Arazi Jevadi Ahatmal and Masoodpur Garh Aehatmal	1 and 1	13.800	A	30°15'51.33"N	77°32'21.84"E
						B	30°15'58.45"N	77°32'08.63"E
						C	30°15'45.65"N	77°32'03.15"E
						D	30°15'41.84"N	77°32'13.01"E
5	Behat	Yamuna	Shehjadpur Bans Aehatmal	1	13.000	A	30°15'24.84"N	77°31'57.01"E
						B	30°15'12.32"N	77°31'47.88"E
						C	30°15'16.91"N	77°31'36.94"E
						D	30°15'28.43"N	77°31'48.83"E
6	Behat	Yamuna	Alauddinpur Bans Aehatmal	1/1	9.580	A	30°16'14.92"N	77°32'39.76"E
						B	30°16'17.99"N	77°32'32.74"E
						C	30°16'08.09"N	77°32'23.84"E
						D	30°16'02.92"N	77°32'31.72"E

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7	Behat	Yamuna	**Mehmoodpur Nangli Aehatmal**	1	15.700	A	30°16'02.98"N	77°32'30.74"E
						B	30°16'10.84"N	77°32'18.84"E
						C	30°16'00.40"N	77°32'11.56"E
						D	30°15'51.70"N	77°32'23.64"E
8	Behat	Yamuna	**Shahpur Bans Aehatmal**	1/1	15.600	A	30°16'27.75"N	77°32'46.14"E
						B	30°16'16.01"N	77°32'38.50"E
						C	30°16'20.43"N	77°32'28.70"E
						D	30°16'35.53"N	77°32'33.20"E
9	Behat	Yamuna	**Nityanandpur Aehatmal and Said-mohamadpur Aehatmal**	1 and 1ma	17.700	A	30°15'25.77"N	77°31'57.79"E
						B	30°15'41.32"N	77°32'12.89"E
						C	30°15'46.16"N	77°32'00.64"E
						D	30°15'28.87"N	77°31'50.13"E
10	Behat	Yamuna	**Abutalibpur Garh Aehatmal**	1	37.000	A	30°14'41.78"N	77°31'38.30"E
						B	30°14'49.46"N	77°31'21.34"E
						C	30°15'16.20"N	77°31'36.25"E
						D	30°15'11.96"N	77°31'46.05"E
11	Behat	Yamuna	**Nuniyari Athmal – Khand Second**	1/1/1	23.200	A	30°11'00.50"N	77°29'25.19"E
						B	30°10'59.39"N	77°29'23.26"E
						C	30°10'58.86"N	77°29'15.55"E
						D	30°10'55.77"N	77°29'10.53"E
						E	30°10'46.29"N	77°29'04.02"E
						F	30°10'39.87"N	77°29'00.42"E
						G	30°10'46.96"N	77°29'51.89"E
						H	30°10'51.56"N	77°29'56.86"E
						I	30°10'49.46"N	77°29'58.83"E
						J	30°11'02.30"N	77°29'11.12"E
						K	30°11'07.26"N	77°29'05.46"E
						L	30°11'12.52"N	77°29'11.64"E
12	Behat	Yamuna	**Aslampur Bartha – First**	1/1M	36.600	A	30°13'45.87"N	77°31'09.07"E
						B	30°13'23.05"N	77°30'53.85"E
						C	30°13'13.45"N	77°30'42.33"E
						D	30°13'16.67"N	77°30'36.60"E
						E	30°13'50.98"N	77°30'57.80"E
13	Behat	Yamuna	**Rasoolpur Urf Rasooli**	1/1	34.000	A	30°12'17.09"N	77°30'18.81"E
						B	30°12'16.42"N	77°30'17.32"E
						C	30°12'05.34"N	77°30'13.17"E

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						D	30°11'59.82"N	77°30'01.24"E
						E	30°11'46.33"N	77°29'58.50"E
						F	30°11'59.32"N	77°29'43.47"E
						G	30°12'21.10"N	77°30'16.04"E
14	Behat	Yamuna	**Aslampur Bartha – Second**	1/1M	28.160	A	30°13'04.93"N	77°30'44.59"E
						B	30°12'35.50"N	77°30'28.50"E
						C	30°12'38.19"N	77°30'18.84"E
						D	30°13'09.39"N	77°30'35.57"E

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CHAPTER	3
CONTENT	The concept of Natural Resource Accounting with Monitoring Mechanism

- The Sub-Divisional committee went through following references while conducting Replenishment Study of the leases prior recommending the promulgation of the concept of Natural Resource Accounting with Monitoring Mechanism: -

Sl. No	Reference	Details
1	Section-3 of the Enforcement & Monitoring Guidelines for Sand Mining-2020	The Section deals with the Objective of Guidelines wherein Identification and Quantification of Mineral Resource and its optimal utilization, To regulate the Sand & Gravel Mining in the Country since its identification to its final end-use by the consumers and the general public, Reduction in demand & supply gaps. To control the instance of illegal mining and other factors has been recommended.
2	Uttar Pradesh Sand Mining Policy – 2017 and subsequent G.O.'s	The said policies and G.O.'s deals with the identification and allotment of long term lease for a period of 5 (five) years on e-auction basis.
3	Section-9 of the Enforcement & Monitoring Guidelines for Sand Mining-2020	The Section deals with the Monitoring Mechanism by referring the provisions of 23(C) of MMDR Act empowering State Government to make rules to prevent illegal mining and transportation (9.1) , standard practice for assessing illegal mining and Monitoring Mechanism (9.4)
4	EAC meeting Minutes Dated 24 & 25 – October – 2016 (non-coal mining)	Wherein the EAC opined the issues related to replenishment study for perennial and non-perennial rivers.

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5	Sand Mining Framework 2018 issued by Ministry of Mines	Registration of lease holder, stock holders and transporters in portal, assessment of quantity by joint inspection team, geo-fencing, monitoring the de-casting of river beds, e-permits, transportation monitoring using CCTV/Drone.

The Sub-Divisional Committee opines and suggests following: -

1. Time to time identification of lease with mineral potential is required to canalize river.
2. Time to time identification of lease with mineral potential is required to address the market needs and demand/supply gaps.
3. Time to time identification of lease with mineral potential and its timely auction is required; as there are larger chances of illegal mining in vacant lease areas.
4. Time to time identification of lease with mineral potential is required to generate employment, state royalties to enable development.
5. However, there has to be balance between exploitation and conservation of mineral resources and the same has to be closely monitored.
6. The exploitation / conservation monitoring to promote and regulate sustainable mining can be achieved by a check-n-balance model.
7. The studies has shown that leases in its existing form are mineral rich and surface removal is required for occurrence of new replenishment and river channelization.
8. The Sub-Divisional Committee suggests the concept of Natural Resource Accounting with Monitoring Mechanism.

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Proposed Concept of Natural Resource Accounting with Monitoring Mechanism:-

1. The concept shall work in the simple but effective principals of accounting methods wherein the existing mineral potential shall be treated as opening balance and replenished quantity shall be treated as a income.
2. The addition of existing mineral potential and replenished quantity shall be treated a Total Mineral Balance available on the lease.
3. A life of mine (in years) shall be derived by dividing Total Mineral Balance with the sanctioned annual production.
4. The Total Mineral Balance will then be reduced by subtracting the actual mineral dispatches and revised life of mine (in years) shall be derived on yearly basis.
5. If the life of mine (in years) at any juncture of point shall be observed to be less than 3 (three) months , a red alert shall be raised and the Monitoring Mechanism shall be implemented as per the recommended clause ***"Project Proponent shall decrease / stop the mining in case replenishment is lower than the approved rate of production till the replenishment is completed"***

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6. The illustrative Natural Resource Accounting with Monitoring Mechanism model is proposed as under:-

SL.	Lease Detail	Sanctioned Production	Existing Reserve	Replenished Reserve	Net Reserve	Life of Mine	Mineral Production	Balance Reserve	Revised Life of Mine
		(in cum)	(in cum)	(in cum)	(in cum)	(in years)	(in cum)	(in cum)	(in years)
I	A	B	C	D	E = C+D	F = E /B	G	H = E – G	I = H / B
	XYZ	4,00,000	12,50,000	3,00000	15,50,000	3.90	400000	1250000	3.125
	XYZ	4,00,000	12,50,000	2,00,000	14,50,000	3.62	400000	10,50,000	2.625

7. The summary of lease wise pre and post monsoon replenishment study with replenished quantity and net reserves along with expected Life Of Mine has been reported in TABLE No. - PM/001.

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CHAPTER	**4**
CONTENT	**Lease wise analysis , post monsoon (2022) replenishment study results with recommendation**

1. Post-monsoon study of total Twenty-Two (22) operative leases where done as per the methodology elaborated in VOLUME-I of the Report.

2. The present survey is was done to report the quantity of new mineral arriving / depleting after monsoon after interpreting the post-monsoon baseline data collection of elevation profiles through DGPS and Drone Survey.

3. The results of such year wise surveys will help the state government to establish the replenishment rate of the river based on which future action may be planned.

4. The Physical topographic Survey of the leases using DGPS and Drone Survey was done in post-monsoon period in order to record and report the current elevation profiles of the lease areas. Pit profiles up-to the depth of 3 meters were done to estimate the quantity of reserve and analyse sustainable mining to be recommended for grant/operations of leases.

5. Baseline data of elevation status in grids where recorded on cross sections and prepared depending on the condition of site.

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6. Field books and database of recordings were prepared in a tabulated manner narrating the mRL of OGL (On Ground Level) Points having longitude/latitude.

7. GIS software modelling were done to correlate the data and net results are shown in graphical forms with appropriate scales.

8. Lease wise results are reported in this chapter. The results of pre-monsoon baseline data collection have been co-related with post-monsoon data to report overall replenishment occurring in the study areas.

OPERATIVE LEASES

Particulars	Details / Observation
Serial Number	01
Tehsil	Behat
Village	Mayapur Rooppur
Gata No. / Khand No.	Gata No. 14/1
Area	3.100 ha.
River	Badshahibagh Rao (Seasonal River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 395.331 • The lowest elevation observed is 389.971. • The lease has an overall elevation difference of 5.360 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 92993 cum. • Replenished Quantity – 6895 cum • Post -monsoon reserves – 99888 cum • The current mineral reserve is capable to support production for long term periods.

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Particulars	Details / Observation
Serial Number	02
Tehsil	Behat
Village	**Bartha Korsi**
Gata No. / Khand No.	Gata No. – 1
Area	36.000 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 303.601 • The lowest elevation observed is 292.200. • The lease has an overall elevation difference of 11.401meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 173732 cum. • Replenished Quantity – 700626 cum • Post -monsoon reserves – 874358 cum • The current mineral reserve is capable to support production for long term periods.

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Particulars	Details / Observation
Serial Number	03
Tehsil	Behat
Village	**Haidarpur Hindwala**
Gata No. / Khand No.	Khand No / Gata No. - 8/1 , 19 & 22
Area	4.200 ha.
River	Badkala Ra (Seasonal River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 377.38 • The lowest elevation observed is 367.496 • The lease has an overall elevation difference of 9.884meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 143893 cum. • Replenished Quantity – 14683 cum • Post -monsoon reserves – 158576 cum • The current mineral reserve is capable to support production for long term periods.

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Particulars	Details / Observation
Serial Number	04
Tehsil	Behat
Village	**Sherpur Pelon**
Gata No. / Khand No.	Gata No. - 378/2 & 379/2
Area	7.000 ha.
River	Khurwali Ra (Seasonal River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 355.444 • The lowest elevation observed is 349.38. • The lease has an overall elevation difference of 6.064meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 206037cum. • Replenished Quantity – 12627 cum • Post -monsoon reserves – 218664 cum • The current mineral reserve is capable to support production for long term periods.

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Particulars	Details / Observation
Serial Number	05
Tehsil	Behat
Village	**Nuniyari Aehatmal**
Gata No. / Khand No.	Gata No. - 1/1/1 Laat 38
Area	24.290 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 296.203 • The lowest elevation observed is 284.652. • The lease has an overall elevation difference of 11.551meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 607313 cum. • Replenished Quantity – 359639 cum • Post -monsoon reserves – 966952 cum • The current mineral reserve is capable to support production for long term periods.

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Particulars	Details / Observation
Serial Number	06
Tehsil	Behat
Village	**Rehna**
Gata No. / Khand No.	Khand No. / Gata no. - 03, Lot No – 03
Area	8.050 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 358.565 • The lowest elevation observed is 345.816 • The lease has an overall elevation difference of 12.749meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 195089 cum. • Replenished Quantity – 71575 cum • Post -monsoon reserves – 266664 cum • The current mineral reserve is capable to support production for long term periods.

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Particulars	Details / Observation
Serial Number	07
Tehsil	Behat
Village	**Rehna**
Gata No. / Khand No.	Gata No. 179/2
Area	3.750 ha.
River	Gaisara Rao (Seasonal River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 357.431 • The lowest elevation observed is 351.681. • The lease has an overall elevation difference of 5.750 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 111795 cum. • Replenished Quantity – 7252 cum • Post -monsoon reserves – 119047 cum • The current mineral reserve is capable to support production for long term periods.

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Particulars	Details / Observation
Serial Number	08
Tehsil	Nukur
Village	**Dhikkan Kalan**
Gata No. / Khand No.	Gata No. - 839, 841 to 856, 858, 859, 860, 861, 863,864,865,866,867, 871, 872, 888, 889, 406 , 407
Area	52.63 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	Ordinary Sand
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 278.005 • The lowest elevation observed is 261.100 • The lease has an overall elevation difference of 16.905 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 26767 cum. • Replenished Quantity – 755349 cum • Post -monsoon reserves – 782116 cum • The current mineral reserve is capable to support production for long term periods.

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NON-OPERATIVE LEASES

Particulars	Details / Observation
Serial Number	01
Tehsil	Behat
Village	**Sherpur Pelon**
Gata No. / Khand No.	403 , 404/1 , 405 , 406/1 , 416/2 , 421/1 , 422/2 , 423/2 , 424/2 , 429 and 431
Area	6.475 ha.
River	Khairawali Ra (Seasonal River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 377.84 • The lowest elevation observed is 360.109. • The lease has an overall elevation difference of 17.731 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 229913 cum. • Replenished Quantity – 66426 cum • Post -monsoon reserves – 296339 cum • The current mineral reserve is capable to support production for long term periods.

GREENINDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	02
Tehsil	Behat
Village	**Kaluwala Pahadipur**
Gata No. / Khand No.	119/1 , 120/1 , 192/1 , 193/1 , 125/4
Area	14.900 ha.
River	Kaluwala (Seasonal River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 385.730 • The lowest elevation observed is 359.12 • The lease has an overall elevation difference of 26.610 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 359485 cum. • Replenished Quantity – 130439 cum • Post -monsoon reserves – 489924 cum • The current mineral reserve is capable to support production for long term periods.

GREENINDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	03
Tehsil	Behat
Village	**Akbarpur Bans Aehatmal**
Gata No. / Khand No.	1
Area	17.900 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 319.057 • The lowest elevation observed is 308.100 • The lease has an overall elevation difference of 10.957 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 248739 cum. • Replenished Quantity – 485450 cum • Post -monsoon reserves – 734189 cum • The current mineral reserve is capable to support production for long term periods.

GREEN INDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	04
Tehsil	Behat
Village	**Arazi Jevadi Ahatmal and Masoodpur Garh Aehatmal**
Gata No. / Khand No.	1 and 1
Area	13.800 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 319.036 • The lowest elevation observed is 302.818 • The lease has an overall elevation difference of 16.218 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 412595 cum. • Replenished Quantity – 119541 cum • Post -monsoon reserves – 532136 cum • The current mineral reserve is capable to support production for long term periods.

GREENINDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	05
Tehsil	Behat
Village	**Shehjadpur Bans Aehatmal**
Gata No. / Khand No.	1
Area	13.000 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 312.585 • The lowest elevation observed is 302.563 • The lease has an overall elevation difference of 10.022 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 383857cum. • Replenished Quantity – 188528 cum • Post -monsoon reserves – 572385 cum • The current mineral reserve is capable to support production for long term periods.

GREEN INDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	06
Tehsil	Behat
Village	**Alauddinpur Bans Aehatmal**
Gata No. / Khand No.	1/1
Area	9.580 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 312.715 • The lowest elevation observed is 303.99 • The lease has an overall elevation difference of 8.725 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 145022 cum. • Replenished Quantity – 335551 cum • Post -monsoon reserves – 480573 cum • The current mineral reserve is capable to support production for long term periods.

GREEN INDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	07
Tehsil	Behat
Village	**Mehmoodpur Nangli Aehatmal**
Gata No. / Khand No.	1
Area	15.700 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 319.259 • The lowest elevation observed is 303.237 • The lease has an overall elevation difference of 16.022 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 528459 cum. • Replenished Quantity – 181049 cum • Post -monsoon reserves – 709508 cum • The current mineral reserve is capable to support production for long term periods.

GREENINDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	08
Tehsil	Behat
Village	**Shahpur Bans Aehatmal**
Gata No. / Khand No.	1/1
Area	15.600 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 321.442 • The lowest elevation observed is 306.286 • The lease has an overall elevation difference of 15.156 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 351410 cum. • Replenished Quantity – 144427 cum • Post -monsoon reserves – 495837 cum • The current mineral reserve is capable to support production for long term periods.

GREENCINDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	09
Tehsil	Behat
Village	**Nityanandpur Aehatmal and Said-mohamadpur Aehatmal**
Gata No. / Khand No.	1 and 1ma
Area	17.700 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 311.403 • The lowest elevation observed is 297.159 • The lease has an overall elevation difference of 14.244 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 593005 cum. • Replenished Quantity – 328459 cum • Post -monsoon reserves – 921464 cum • The current mineral reserve is capable to support production for long term periods.

GREENCINDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	10
Tehsil	Behat
Village	**Abutalibpur Garh Aehatmal**
Gata No. / Khand No.	1
Area	37.000 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 308.291 • The lowest elevation observed is 297.116 • The lease has an overall elevation difference of 11.175 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 1217817 cum. • Replenished Quantity – 983797 cum • Post -monsoon reserves – 2201614 cum • The current mineral reserve is capable to support production for long term periods.

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Particulars	Details / Observation
Serial Number	11
Tehsil	Behat
Village	**Nuniyari Athmal – Khand Second**
Gata No. / Khand No.	1/1/1
Area	23.200 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 290.173 • The lowest elevation observed is 281.874 • The lease has an overall elevation difference of 8.299 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 519716 cum. • Replenished Quantity – 225414 cum • Post -monsoon reserves – 745130 cum • The current mineral reserve is capable to support production for long term periods.

GREENCINDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	12
Tehsil	Behat
Village	**Aslampur Bartha – First**
Gata No. / Khand No.	1/1m
Area	36.600 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 309.568 • The lowest elevation observed is 292.056 • The lease has an overall elevation difference of 17.512 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 1250795 cum. • Replenished Quantity – 414321 cum • Post -monsoon reserves – 1665116 cum • The current mineral reserve is capable to support production for long term periods.

GREENINDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	13
Tehsil	Behat
Village	**Rasoolpur Urf Rasooli**
Gata No. / Khand No.	1/1
Area	34.000 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 298.059 • The lowest elevation observed is 286.839 • The lease has an overall elevation difference of 11.220 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 897564 cum. • Replenished Quantity – 364931 cum • Post -monsoon reserves – 1262495 cum • The current mineral reserve is capable to support production for long term periods.

GREENINDIA CONSULTING (P) LTD. GHAZIABAD

Particulars	Details / Observation
Serial Number	14
Tehsil	Behat
Village	**Aslampur Bartha – Second**
Gata No. / Khand No.	1/1 m
Area	28.160 ha.
River	Yamuna (Perennial River)
Classification of Minor Mineral	R.B.M. (River Bed Material – Sand/Bajri/Boldure) in mixed state.
Period of Survey	Nov-2022
References for interpretation of pre-monsoon baseline data results and conclusion	Site inspection by Sub-Divisional Committee members conducting Physical Survey, DGPS Survey, Drone Survey, collection of on-ground records/elevation profiles is reports in VOLUME V & VI of the report.
Interpretation of DRONE Survey Baseline Data Results	• The highest elevation observed in the lease is 300.668 • The lowest elevation observed is 289.023 • The lease has an overall elevation difference of 11.645 meters and existing deposits were verified during physical survey.
Interpretation of DGPS Survey Baseline Data Results	• Pre & Post monsoon Ground Control Points and elevation profiles are recorded, serially tabulated and schematically presented in VOLUME-V. Section wise net change in elevation profile has been interpreted and replenished volume has been reported.
Results of Physical Pit Profiles for reserve estimation	• Pit Profiles upto depth of 3 meters were conducted at regular intervals. • R.B.M. in mixed state in moist form was found up-to a depth of 3 meters. • Ground water intersection was non observed while conducting pit profiles.
Conclusion:- • The Replenished quantity has been derived upon, on the basis of comparative change in elevation profiles of lease in pre and post monsoon period recorded by DRONE and DGPS survey method's. • The reserves of lease have been calculated by offsetting all elevated contours upto one meter above the water level.	• Pre-monsoon reserves - 726618 cum. • Replenished Quantity – 225401 cum • Post-monsoon reserves – 952019 cum • The current mineral reserve is capable to support production for long term periods.

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CHAPTER	5
CONTENT	Final Recommendation of Sub-Divisional Committee

Final Recommendation of Sub-Divisional Committee

- The Sub-Divisional Committee of district Saharanpur has identified and evaluated the mineral potential and replenishment of 22 leases admeasuring 422.635 ha. which are spread across 6 Rivers.
- On the basis of pre-monsoon and post-monsoon replenishment study results the recommendation of the Sub-Divisional committee is as under:-

Recommendation on River Yamuna -

- Out of 22 leases, 16 leases admeasuring 383.21 ha. are located in river Yamuna which is a perennial river, has shown existing mineral potential and replenishment.
- The study results show naturally occurring replenishment in these areas and no erosion and land cutting where observed in post-monsoon period. The list of 16 leases are located in river Yamuna is summarised as under :-

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
1	Behat	R.B.M.	Yamuna	Rehna	Khand No. / Gata no. - 03, Lot No - 03	8.050
2	Behat	R.B.M.	Yamuna	Akbarpur Bans Aehatmal	1	17.900
3	Behat	R.B.M.	Yamuna	Arazi Jevadi Ahatmal and Masoodpur Garh Aehatmal	1 and 1	13.800
4	Behat	R.B.M.	Yamuna	Alauddinpur Bans Aehatmal	1/1	9.580

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5	Behat	R.B.M.	Yamuna	Mehmoodpur Nangli Aehatmal	1	15.700
6	Behat	R.B.M.	Yamuna	Shahpur Bans Aehatmal	1/1	15.600
7	Behat	R.B.M.	Yamuna	Nityanandpur Aehatmal and Said-mohamadpur Aehatmal	1 and 1ma	17.700
8	Behat	R.B.M.	Yamuna	Shehjadpur Bans Aehatmal	1	13.000
9	Behat	R.B.M.	Yamuna	Abutalibpur Garh Aehatmal	1	37.000
10	Behat	R.B.M.	Yamuna	Bartha Korsi	Gata No. - 1	36.000
11	Behat	R.B.M.	Yamuna	Aslampur Bartha – First	1/1M	36.600
12	Behat	R.B.M.	Yamuna	Aslampur Bartha – Second	1/1M	28.160
13	Behat	R.B.M.	Yamuna	Rasoolpur Urf Rasooli	1/1	34.000
14	Behat	R.B.M.	Yamuna	Nuniyari Aehatmal	Gata No. - 1/1/1 Laat 38	24.290
15	Behat	R.B.M.	Yamuna	Nuniyari Athmal – Khand Second	1/1/1	23.200
16	Nukur	Sand	Yamuna	Dhikkan Kalan	Gata No. - 839, 841 to 856, 858, 859, 860, 861,863,864,865,866,867, 871, 872, 888, 889, 406 , 407	52.630
TOTAL AREA						383.210

- **It was also observed that 12 out of 16 leases in river Yamuna are non-operational since past 5-6 years which are currently over replenished. The elevation levels of such leases above the water level are much high, as a result of which the replenishment has now started in its adjourning areas. It is recommended that removal of existing deposits in such leases should be done in a timely manner so as to maintain the natural river course. In such manner time-to-time surface removal of excessive deposits will enable to maintain the geometry of river and invite proper replenishment in coming times.**
- **The timely operations of such lease is also recommended to control the illegal mining (if any) in the vacant areas which are having existing substantial deposits.**

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- **The list of such long vacant 12 leases are as under:-**

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
1	Behat	R.B.M.	Yamuna	Akbarpur Bans Aehatmal	1	17.900
2	Behat	R.B.M.	Yamuna	Arazi Jevadi Ahatmal and Masoodpur Garh Aehatmal	1 and 1	13.800
3	Behat	R.B.M.	Yamuna	Alauddinpur Bans Aehatmal	1/1	9.580
4	Behat	R.B.M.	Yamuna	Mehmoodpur Nangli Aehatmal	1	15.700
5	Behat	R.B.M.	Yamuna	Shahpur Bans Aehatmal	1/1	15.600
6	Behat	R.B.M.	Yamuna	Nityanandpur Aehatmal and Said-mohamadpur Aehatmal	1 and 1ma	17.700
7	Behat	R.B.M.	Yamuna	Shehjadpur Bans Aehatmal	1	13.000
8	Behat	R.B.M.	Yamuna	Abutalibpur Garh Aehatmal	1	37.000
9	Behat	R.B.M.	Yamuna	Aslampur Bartha – First	1/1 M	36.600
10	Behat	R.B.M.	Yamuna	Aslampur Bartha – Second	1/1 M	28.160
11	Behat	R.B.M.	Yamuna	Rasoolpur Urf Rasooli	1/1	34.000
12	Behat	R.B.M.	Yamuna	Nuniyari Athmal – Khand Second	1/1/1	23.200

- **The sub-divisional committee further observed that replenishment rate varies depending on the local geological conditions as the local geology is undulated in these areas.**
- **Replenishment of one R.B.M. lease operational in the area was observed and it was found that voids / working pits having depth of 2.5 to 3 meters of the mined out area were properly replenished upto 1.95 meters and there is occurrence of additional deposits in the lease area which is basically attributed to the movement of mineral coming from adjoining over recharged non-operative leases. The detail of once operative lease is as under:-**

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Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
1	Behat	R.B.M.	Yamuna	Bartha Korsi	Gata No. - 1	36.000

- It is recommended that keeping in the view the concept of Natural Resource Accounting method and long term operations of leases in a sustainable manner, the mining in lease areas of river Yamuna can be permitted upto a depth of 3 meters from mineral deposit surface and one meter above the water level of river channel whichever reaches out earlier.
- However, on aspect of environment protection, mineral conservation and long term sustainable operations of lease, it is also recommended that out of the total available net reserve ; not more that 60% of the mineral potential volume available upto a depth of 3 meters should be recommended for annual production at one point of time.

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Recommendation on other Five Rivers

- The remaining 6 leases admeasuring 39.425 ha. are located in five rivers namely Badkala Ra , Badshahibagh Rao , Gaisara Rao Kaluwala and Khurwali Ra.
- The list of 6 leases is as under:-

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
1	Behat	R.B.M.	Khurwali Ra	Sherpur Pelon	403 , 404/1 , 405 , 406/1 , 416/2 , 421/1 , 422/2 , 423/2 , 424/2 , 429 and 431	6.475
2	Behat	R.B.M.	Kaluwala	Kaluwala Pahadipur	119/1 , 120/1 , 192/1 , 193/1 , 125/4	14.900
3	Behat	R.B.M.	Badshahibagh Rao	Mayapur Rooppur	Gata No. 14/1	3.100
4	Behat	R.B.M.	Badkala Ra	Haidarpur Hindwala	Khand No / Gata No. - 8/1 , 19 & 22	4.200
5	Behat	R.B.M.	Khurwali Ra	Sherpur Pelon	Gata No. - 378/2 & 379/2	7.000
6	Behat	R.B.M.	Gaisara Rao	Rahena	Gata No. 179/2	3.750
TOTAL AREA						39.425

- The study results show that all these five rivers are non- perennial in nature. All the five rivers experienced shallow water flow in current monsoon period, which has now withdrawn and the rivers are dry. No erosion and land cutting where observed in post-monsoon period.
- The committee observed that these five rivers do not replenish annually as they are non–perennial in nature.
- Hence the study of annual replenishment in such rivers has to be more specific and nature based due to non-periodic rainfall. With the pit profiles conducted while physical survey, study results, elevation profiles , river geometry and stake holding with local

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villagers it was observed that these rivers in the recent past of 5-10 years got over replenished due to sudden one time occurrence of huge rainfall due to which substantial quantum's of RBM has come from the from the upstream and eventually got deposited in the leases.

- The present levels of deposits show that it can be utilised over a spread of next years, however the operations of these mines is to be critically evaluated while recommending annual production. This is due to the fact that after operations of mines if they are not replenished property the leases may turn into permanent depressions leading to change in natural channel geometry.
- It is recommended that keeping in the view the concept of Natural Resource Accounting method and long term operations of leases in a sustainable manner, the mining in identified lease areas can be permitted upto a depth of 3 meters from mineral deposit surface and one meter above the water level of river channel whichever reaches out earlier, as there are substantial existing reserves, due to sudden one-time occurrence explained above.
- However, on aspect of environment protection, mineral conservation and long term sustainable operations of lease, it is also recommended that out of the total available net reserve; not more that 40% of the mineral potential volume available upto a depth of 3 meters should be recommended for annual production at one point of time.

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CHAPTER	6
CONTENT	Environmental Observations and Enforcement Monitoring recommendation

Environmental Observations and Enforcement Monitoring recommendation :-

- The Sub-Divisional committee shall periodically monitor the results of replenishment study, levels of mineral production, erosion levels and erosion points.
- Management and maintenance plans of erosion levels and erosion points shall be prepared and implemented on the basis of observations made.
- Mining shall only be permitted upto a depth of 3 meters or 1 meter above the water level whichever is reached earlier.
- The results of scientific replenishment study shall be co-related with production levels and a mineral resource accounting systems will be implemented.
- The monitoring and evaluation of such results shall be done once in three months by Sub-Divisional Committee.
- The minable production and permissible depth of mining will be evaluated further on the basis of trend analysis in years to come and recommendations, as so, shall be made.
- The mineral resource accounting system model is proposed to be implemented to keep the checks and balances on minerals deposits.

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POST-MONSOON REPLENISHMENT STUDY REPORT YEAR - 2022 - (VOLUME-IV)

CHAPTER	**7**
CONTENT	**Annexures** **•VOLUME-V and** **•VOLUME-VI**

Volume-V and Volume-VI are Annexures of this report and published separately for the ease of searching references and relevant sections.

अपर जिलाधिकारी
(वि०/रा०), सहारनपुर
(अध्यक्ष)

प्रभागीय निदेशक,
सामाजिक वानिकी प्रभाग,
सहारनपुर
(सदस्य)

अधिशाषी अभियंता,
सिंचाई निर्माण खण्ड,
सहारनपुर
(सदस्य)

अधिशाषी अभियंता,
लोक निर्माण विभाग,
सहारनपुर
(सदस्य)

क्षेत्रीय अधिकारी,
उ० प्र० प्रदूषण नियंत्रण
बोर्ड, सहारनपुर
(सदस्य)

खान अधिकारी,
सहारनपुर
(सदस्य)

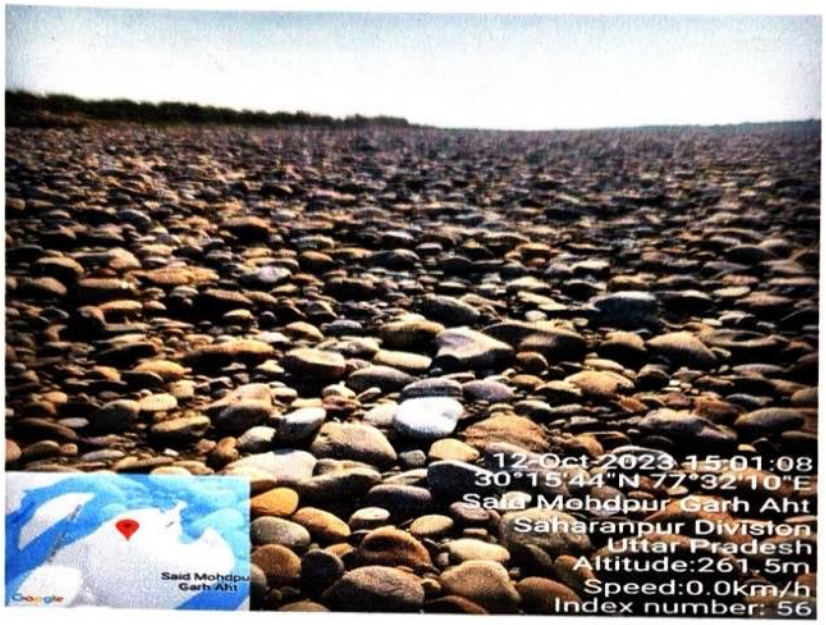
जिलाधिकारी
सहारनपुर।

END OF VOLUME-IV

GREENINDIA CONSULTING (P) LTD. GHAZIABAD

Annexure-R-1

Pre &Post-Monsoon Replenishment Study
With
Reserve Estimation Report of
R.B.M. / Sand Mining Leases - District Saharanpur
Study Period —2023



Mines Inspector
Saharanpur (Member)

Mines Officer
Saharanpur(Member)

Executive Engineer
Irrigation Construction Division
Saharanpur (Member)

Executive Engineer
Public Works Department
Saharanpur (Member)

Regional Officer
U.P Pollution Control Board
Saharanpur (Member)

Divisional Forest Officer
Shivalik Forest Division
Saharanpur (Member)

SDO Forest
Saharanpur (Member)

SDM Nakur
Saharanpur (Member)

SDM Behat
Saharanpur (Member)

संयुक्त निदेशक
खनन कार्यालय
सहारनपुर

Additional District Magistrate
(F&R)
Saharanpur (Chairmen)

Prepared - Sub-Divisional Committee – District Saharanpur

Formed vide. D.M. Office Order dated 05/01/2023 , ref. no. 1617/खo अनु०/ जिला०सर्वे० रिप०/2021

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2	Objective of Study
3	Methodology
4	District and River Profile
5	Sediment Composition
6	Inventory of R.B.M. Leases in District Saharanpur
7	The concept of Natural Resource Accounting with Monitoring Mechanism
8	Lease wise analysis , post monsoon (2023) replenishment study results with recommendation
9	Conclusion & Recommendation of Sub-Divisional Committee
10	Environmental Observations and Enforcement Monitoring recommendation
11	Annexures • Study Area Maps in SOI Toposheet

	• Survey Maps in Satellite Images with Geo-coordinates and River Flow • Ground Control Records of Leases • Lease wise Index of profile Sections

1 - Background & Introduction

Background

- A replenishment study, particularly in the context of sand mining, aims to assess the rate at which sand is naturally replenished in a river or stream, ensuring that extraction doesn't exceed the river's capacity to naturally replenish itself, thereby preventing ecological damage.
- The Chapter-5 of the Enforcement & Monitoring Guidelines for Sand Mining (EMGSM-2020) issue by MoEF&CC provides generic structure and mechanism for conducting Replenishment Studies.
- The replenishment study in district Saharanpur was earlier conducted in Year-2022 by Sub-Divisional Committee which was prepared in compliance the provisions of Sustainable Sand Management Guidelines – 2016 and its latest guidelines EM Guidelines for Sand Mining – 2020.
- Important details related to sediment transport and composition, purpose of study, methodology , district profile , ground water scenario, regional geology of district, mineral resources, rainfall & climate , description of study area rivers, analysis of particle size distribution, gradient analysis , list of software / manpower and equipment's, inventory of leases were incorporated in the Report of Year-2022.
- In total Twenty-Two (22) leases measuring 422.635 ha. were surveyed and studied in various River Channels.

- The findings of Replenishment Studies of year 2022 is summarized as under:-

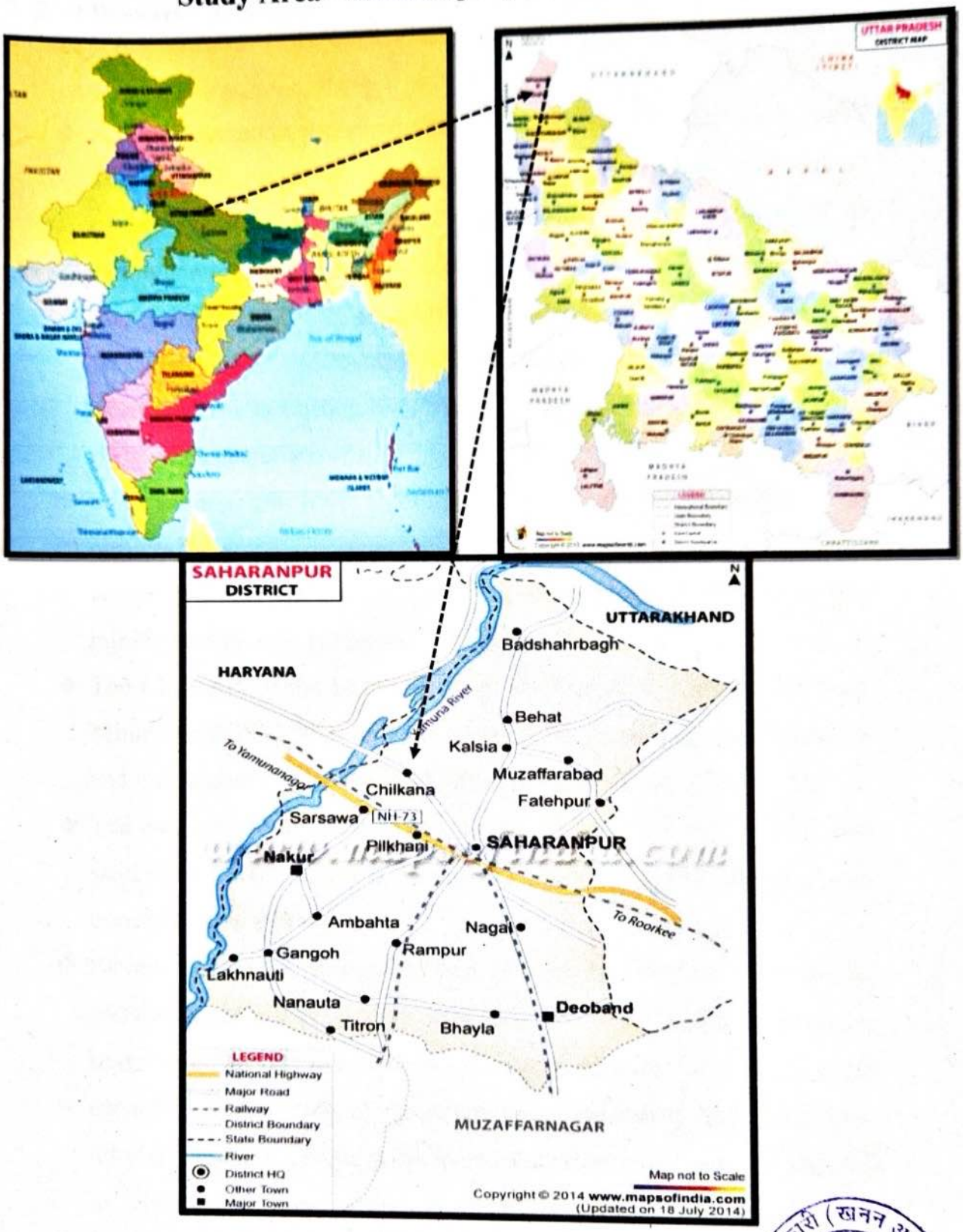
Sl.	Teshil	River	Village	Gata / Khand	Area (in Ha.)	Pre-Monsoon Reserve - 2022 (A) - cum	Post-Monsoon Replenishment - 2022 (B) - cum	Total Quantity in Lease (A+B) - cum	Annual Quantity proposed in DSR out of Total available Quantity- cum
1	Behat	Badshahibagh Rao	Mayapur Rooppur	Gata No. 14/1	3.100	92993	6895	99888	69750
2	Behat	Yamuna	Bartha Korsi	Gata No. - 1	36.000	173732	700626	874358	756000
3	Behat	Badkala Ra	Haidarpur Hindwala	Khand No / Gata No. - 8/1 , 19 & 22	4.200	143893	14683	158576	94500
4	Behat	Khurwali Ra	Sherpur Pelon	Gata No. - 378/2 & 379/2	7.000	206037	12627	218664	197500
5	Behat	Yamuna	Nuniyari Aehatmal	Gata No. - 1/1/1 Laat 38	24.290	607313	359639	966952	437247
6	Behat	Yamuna	Rehna	Khand No. / Gata no. - 03, Lot No - 03	8.050	195089	71575	266664	138462
7	Behat	Gaisara Rao	Rahena	Gata No. 179/2	3.750	111795	7252	119047	67500
8	Nukur	Yamuna	Dhikkan Kalan	Gata No. - 839, 841 to 856, 858, 859, 860, 861,863,864, 865,866,867, 871, 872, 888, 889, 406 , 407	52.630	26767	755349	782116	947368
9	Behat	Khurwali Ra	Sherpur Pelon	403 , 404/1 , 405 , 406/1 , 416/2 , 421/1 , 422/2 , 423/2 , 424/2 , 429 and 431	6.475	229913	66426	296339	77700
10	Behat	Kaluwala	Kaluwala Pahadipur	119/1 , 120/1 , 192/1 , 193/1 , 125/4	14.900	359485	130439	489924	178800
11	Behat	Yamuna	Akbarpur Bans Aehatmal	1	17.900	248739	485450	734189	322200
12	Behat	Yamuna	Arazi Jevadi Ahatmal and Masoodpur Garh Aehatmal	1 and 1	13.800	412595	119541	532136	248400

Sl.	Teshil	River	Village	Gata / Khand	Area (in Ha.)	Pre-Monsoon Reserve - 2022 (A) - cum	Post-Monsoon Replenishment - 2022 (B) - cum	Total Quantity in Lease (A+B) - cum	Annual Quantity proposed in DSR out of Total available Quantity- cum
13	Behat	Yamuna	Shehjadpur Bans Aehatmal	1	13.000	383857	188528	572385	234000
14	Behat	Yamuna	Alauddinpur Bans Aehatmal	1/1	9.580	145022	335551	480573	172440
15	Behat	Yamuna	Mehmoodpur Nangli Aehatmal	1	15.700	528459	181049	709508	282600
16	Behat	Yamuna	Shahpur Bans Aehatmal	1/1	15.600	351410	144427	495837	280800
17	Behat	Yamuna	Nityanandpur Aehatmal and Said-mohamadpur Aehatmal	1 and 1ma	17.700	593005	328459	921464	318600
18	Behat	Yamuna	Abutalibpur Garh Aehatmal	1	37.000	1217817	983797	2201614	666000
19	Behat	Yamuna	Nuniyari Athmal – Khand Second	1/1/1	19.00	519716	225414	745130	342000
20	Behat	Yamuna	Aslampur Bartha – First	1/1 M	36.600	1250795	414321	1665116	658800
21	Behat	Yamuna	Rasoolpur Urf Rasooli	1/1	34.000	897564	364931	1262495	612000
22	Behat	Yamuna	Aslampur Bartha – Second	1/1 M	28.160	726618	225401	952019	506880

Introduction of Replenishment Study Report – Year-2023

- The current studies are report has been prepared by taking the methodology, references and baseline date of Report published in Year-2022.
- On the basis of same, fresh field investigation and D.G.P.S based survey were conducted in pre & post monsoon period of year 2023 in 22 leases and results are reported on the basis of collected baseline data.
- Out of total 22 leases, three (03) leases were operational which attained production and mineral dispatch in this period. Rest 19 leases were closed/vacant which replenished in past year as well as this year.
- Final interpretation on leases, replenished quantity, mineral reserves estimation with conclusion and recommendation has been reported in this replenishment study report.

Study Area - Saharanpur, Uttar Pradesh



2 - Objective of Study

- A replenishment study, particularly in the context of sand mining, aims to assess the rate at which sand is naturally replenished in a river or stream, ensuring that extraction doesn't exceed the river's capacity to naturally replenish itself, thereby preventing ecological damage.
- The primary goal of a replenishment study is to determine the "sustainable yield" of a river, meaning the amount of sand that can be extracted without causing long-term harm to the river's ecosystem or its physical characteristics.
- Sand mining can have significant impacts on riverbeds, including changes in channel geometry, bed elevation, and substratum composition. A replenishment study helps to understand these impacts and ensure that mining activities do not lead to unsustainable practices.
- The Chapter-5 of the Enforcement & Monitoring Guidelines for Sand Mining (EMGSM-2020) issue by MoEF&CC provides generic structure and mechanism for conducting Replenishment Studies.
- The main emphasis for the need for replenishment study for river bed sand is required in order to nullify the adverse impacts arising due to excessing sand extraction.
- Removal of excess sand and stone from river bed helps to maintain the carrying capacity and provides protection from flooding during monsoon season. Further, continuous flow of river is essential for ecological and economic needs such as irrigation and biodiversity etc. Therefore, drainage study of the river helps to understand potential carrying capacity of water during monsoon season which is generated from rainfall in the watershed and quantity of di-siltation of rivers under mining affected areas.

- In line with same, Replenishment study was carried out for Sand/R.B.M. leases of District Saharanpur. Quantification and estimation of river bed material (RBM) was accomplished by following three scientific approaches as envisaged in Sustainable Sand Management Guidelines – 2016 (SSMG-2016) and its contemporary guidelines Enforcement & Monitoring Guidelines for Sand Mining (EMSM-2020) issued by MoEF&CC in January-2020.
- Mining areas were geo-tagged and surveyed for analysis of study of the availability/potential of sand and gravel. Estimation of deposition and safe limit for extraction/ removal of deposited river bed material (RBM) available in the various rivers/streams were done by analysing elevation profiles and pit profiles at regular intervals with the help of D.G.P.S. based Survey.
- The pre and post monsoon data were collected and analysed and co-related and final results with river wise recommendation has been recommended in the report.

3 - Methodology

- **For Resource estimation in pre-monsoon period.**
  - ❖ The main aim of the survey work and measurements is to carry out the collection of baseline data in pre-monsoon period which will be repeated in post-monsoon period to assess the quantum of replenishment.
  - ❖ For river R.B.M. reserve estimation the river was surveyed at the ground and the corner coordinates were determined with the help of D.G.P.S. so that the lease area boundaries are obtained.
  - ❖ Deposits 1 meter above the river water level was considered as existing deposits in pre-monsoon period. For this base flow level of river was determined.
  - ❖ Physical survey of lease and collection of information related to existing reserves and by conducting pit profiles are regular intervals with the help of JCB Machine and digging equipment's such as Auger, spade, hand shovel, hammer, measuring tape etc. were done.

- **Methodology of Replenishment Study in pre and post monsoon periods**
  - ❖ The main aim of the survey work and measurements was to carry out the collection of baseline data in pre-monsoon period which was repeated in post-monsoon period to assess the quantum of replenishment.
  - ❖ The leases were divided in a grid of regular intervals for point specific D.G.P.S. survey. A number of Ground Control Points in each corner of grid were established on each site. The D.G.P.S. survey observations were taken at regular grid intervals in longitudinal direction and in perpendicular across direction depending on the geological conditions of

leases. The number of sections along and across the river depend on the length and width of lease, its dimension as well as ground conditions.

- The studies were done on the basis of individual mines approach. Study plans were prepared for all the leases and each lease was surveyed with DGPS and elevation records in regular intervals were recorded. Inventory of the recorded "Elevation Index" of leases were prepared in pre and post monsoon period.
- Changes in the elevation in pre and post monsoon period in each interval (called Ground Control Point- GCP) was tabulated. Area of deposition for each cross section was calculated and summation deposition at each GCP was done to report the overall thickness observed in the post-monsoon period.
- The methodology followed is in conformity to the Enforcement & Monitoring Guidelines for Sand Mining – 2020 issued by MoEF in January-2020 which envisages that Regular Replenishment study needs to be carried out to keep a balance between deposition and extraction.
- Specific emphasis has been given to the norms provided in the Section-5 of Enforcement & Monitoring Guidelines for Sand Mining – 2020 which provides procedure to be followed for conducting replenishment study.

4 - District and River Profile

- District Saharanpur is north-western part of Uttar Pradesh, lying between $29^0$34' and $30^0$24' N latitude and $77^0$07' and $77^0$58' E longitude falling within the survey of India toposheet nos. 53F and 53G. River Yamuna marks the western boundary of the district separating U.P. from adjoining state of Haryana. The extreme north-western part like beak structure touches with Sirmaur district of Himanchal Pradesh. In north lies Dehradun (Uttarakhand) and in the east it faces Haridwar district also being the part of Uttarakhand State. Muzaffar Nagar and Shamli districts marks southern boundary.
- Saharanpur forms the most northerly position of the Doab land which stretches between the holy rivers of the Ganges and the Yamuna, The Shivalik hills rise above it on the northern frontier. The portion of Doab in which Saharanpur is situated was probably one of the first region of upper India occupied by the Aryans colonisers as they spread eastward from the Punjab.
- Saharanpur district attained the status as Saharanpur division in 1997 of Uttar Pardesh. As regards its physical features the north and the north east of the district is surrounded by Shivalik hills and separates it from the Dehradun district in the recently created state of Uttranchal. The river Yamuna forms its boundary in the west which separates it from Karnal and Yamunanagar districts of Haryana. In the East lies the district of Haridwar which was the part of district Saharanpur before 1989 and in the south lies the district Muzafarnagar. At the time of the British Rule District Muzafarnagar was also a part of district Saharanpur.

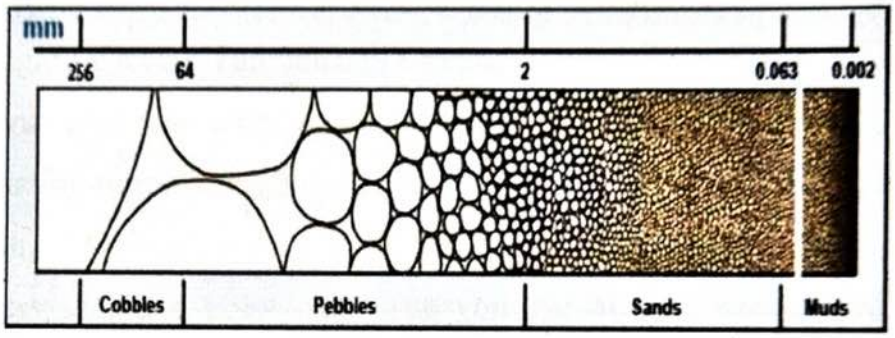
- The district presents many varieties of features and differs in general appearance than any other portion of the Doab and Gangetic plain as a whole. It is true that most of the area belongs to the upland Bangar which stretches in a continuous line up to Allahabad i.e. Junction of the two great rivers and on the either side is the broad and low lying valley full of swamps and back waters with wide open grass plains and Tamarisk jungle but in the north, There are the steep hills of Shivalik chain which appear in a far more marked form in Saharanpur than any other district of Uttar Pardesh while below the hills are to be seen in a modified form the prevailing characteristics of the Bhabar and Tarai region.
- The main characteristics of the district can be divided into four parts.
    - Shivalik Hill Tract
    - The Bhabar Land
    - Bangar Land
    - Khadar Land (Yamuna, Hindon)

- Yamuna is the important river of the district. Apart from this Solani, Hindon, Ratmau, Nagdev have also played an important role in the physical reconstruction of the district. All the rivers of the district submerge either in Yamuna or in the Ganges.

5 - Sediment Composition

District Saharanpur can be divided into three physiographic divisions, the **structural hills**, the upper physiographic divisions, the structural hills, the upper piedmont plains or **the Bhabar**, and **the Terai** or the lower piedmont plains.

Structural Hills:



The entire northern part of the district is formed structural hills named Siwaliks. In this area the relief is high with steep and sharp hill slopes. The rugged topography of the area affords well for high run off. In the area the upper and middle Siwaliks are encountered but the lower Siwaliks are missing. Lithologically the Siwaliks here are composed of sand stones, conglomerates, sand, clays and silts. There are several major and minor faults.

The Bhabar:

The second units lying just below the foothills of Siwalik locally called as Bhabhar, is characterized by boulders, pebbles, cobbles etc. with relatively dry terrains fringing. The Siwalik foot hills with gradient around 5 m/km. which is much higher than the southern plains.

Geologically the term Bhabhar is used to deposits formed along the foothill zone by coalescence of series of alluvial and talus cones, composed of heterogeneous materials ranging in texture from boulder, gravel to sand and silt. These Bhabhars in Saharanpur district are known as 'Dhar' covering

mostly the 'Muzaffarabad' and 'SadauliQuadim' blocks.

Tarai:

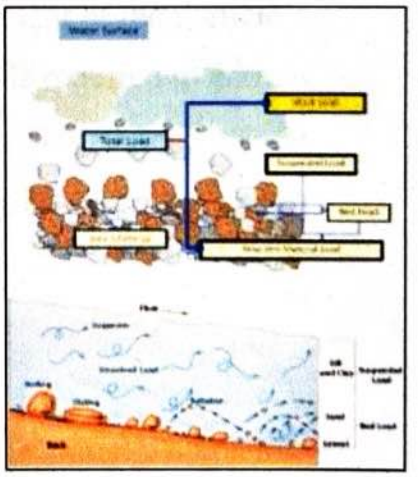
Just south of Bhabar zone lies the 'Tarai' or the plains of piedmont plain. The plains sloping gradually by southward have around 1.5m/km. gradient. Lithologically, the area is characterized by coarse sand & gravel.

These plains are further divided into lower piedmont plains the older alluvial plains and the younger alluvial plains. The lower piedmont plains show flat to undulating plains with gradient towards southwest.

The older alluvial plains also show flat to undulating topography characterized by sediments brought by rivers Yamuna and Ganga.

The younger alluvial plains lie along river Yamuna exhibiting gently sloping and slightly undulating terrains. It comprises younger unconsolidated alluvial material of varying lithology consisting of fluvial land formed as paleo-channels, meanness scar and point bars. The younger alluvial plains also consist of sand bars flood plains and ravines along river Yamuna.

SEDIMENT TRANSPORT



Sediment transport is the movement of solid particles (sediment), typically due to a combination of gravity acting on the sediment, and/or the movement of the fluid in which the sediment is entrained. Sediment transport occurs in natural systems where the particles are clastic rocks (sand, gravel, boulders, etc.), mud or clay; the fluid is air, or water, and the force of gravity acts to move the particles along the sloping surface on which they are resting. Sediment transport due to fluid motion occurs in rivers, oceans, lakes, seas, and other bodies of water due to currents and tides. Sediment transport due only to gravity can occur on sloping surfaces in general, including hill- slopes, scarps, cliffs, and the continental shelf-continental slope boundary.

TYPES OF SEDIMENT LOAD

- **Bed-load:** That portion of the sediment load that is transported along the bed by sliding, rolling or hopping. The bed-load moves at velocities slower than the flow and spends most of its time on or near the stream bed. The mechanisms of grain motion are as follows:
- **Traction (rolling and sliding):** Important factors: frictional drag and lift forces exerted by the flow and slope.
- **Saltation (hopping):** Grains are temporarily suspended by fluid vortices or by ballistic impact and then released Grain movement may be continuous or intermittent depending on the flow regime.

Suspended load: They area particulate sediment that is carried in the body of the flow and moves at the same velocity as the flow. A small particle (e.g. clay and fine silt), with a large relative surface area, is held in suspension more easily because of the electrostatic attraction between the unsatisfied charges on grain's surface and the water molecules. This force, tending to keep the particle in the flow, is large compared to the weight of the particle. The Hjulstrom curve shows that a much higher velocity is required to entrain clay and fine silt than coarse sand. However, once the fine sediment is in suspension, a much lower velocity is required to maintain it in suspension.The quantity and quality of the load is defined in terms of competence and capacity.

Dissolved load: material that is chemically carried in the water. The factors that govern the percentage of dissolved and suspended load include:

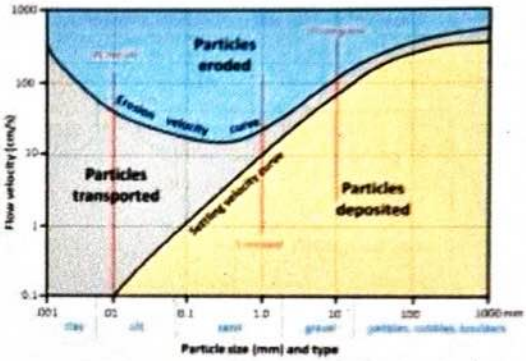
- Climate: temperature, precipitation, vegetation
- Vegetation: type and amount
- Activity by man: mining, construction, clear cutting, etc.

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- Rock solubility: e.g. hard water in carbonate terranes
- Erodibility of materials in the drainage basin
- Relief and slope (affects PE of flow)

Wash Load: Sometimes finer particles from upland catchment (sizes which are not present in the bed material),called wash load,are also transported in suspension. The combined bed material and wash load is called Total load.

TRANSPORT RATE



When the velocity of water flowing over a bed of non- cohesive sediment flow overcomes the resistance offered by the grain due to its mass, cohesion and other forces. Properties like shape and position of centre of gravity of the grain play important roles in determining the degree of resistance offered. A diagram complied by Hjulstrom (1935) revealed the relationship between critical erosion velocity and grain size. The field above the curve indicates the condition suitable for entrainment of grains.

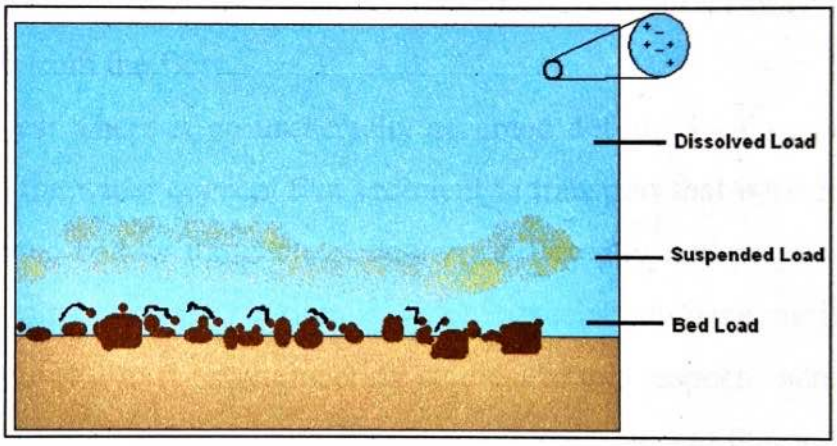
Formulas to calculate sediment transport rate exist for sediment moving in several different parts of the flow. These formulas are often segregated into bed load, suspended load, and wash load. They may sometimes also be segregated into bed material load and wash load.

DEFINING BED LOAD

Bed load moves by rolling, sliding, and hopping (or saltating) over the bed, and moves at a small fraction of the fluid flow velocity. Bed load is generally thought to constitute 5 -10% of the total sediment load in a stream, making it less important in terms of mass balance. However, the bed material load (the bed load plus the portion of the suspended load which comprises material

derived from the bed) is often dominated by bed load, especially in gravel - bed rivers. This bed material load is the only part of the sediment load that actively interacts with the bed. As the bed load is an important component of that, it plays a major role

in controlling the morphology of the channel. Bed load transport rates are usually expressed as being related to excess dimensionless shear stress raised to some power. Excess dimensionless shear stress is a non –dimensional measure of bed shear stress about the threshold for motion.



Dissolved load is not sediment. It is composed of disassociated ions moving along with the flow. It may, however, constitute a significant proportion (often several percent, but occasionally greater than half) of the total amount of material being transported by the stream.

DEFINING WASHLOAD

The distinction between bed-material-load and wash-load components of the total load adopted here is that wash load is not found in appreciable quantities in the bed of channel. However, the precise definition of what constitutes an appreciable quantity un clear, meaning that the threshold grain size separating bed- material load and wash load may be defined in several ways. Wash load is the grain size of which 10 percent of the bed mixture is finer. This basically different behaviour of the fine and the coarse particles in the same channel has led the author and collaborators to assume that the fine particles

in the flows till behave like material called Wash load in the concrete channel whereas the coarse particle act like the sediment in a strictly alluvial channel.

Composition: The composition of wash load is distinct because it is almost entirely made up of grains that are only found in small quantities in the bed. Wash load grains tend to be very small (mostly clays & silts but some fine sands) and therefore have a small settling velocity, being kept in suspension by the flow turbulence.

Velocity: Wash load is carried within the water column as part of the flow, and therefore moves with the mean flow velocity of main stream. Because there is little or no interaction with the bed, the particles extract only negligible momentum from the flow.

Wash Load Dynamics: There is no universally accepted definition of wash load, yet despite this, the wider concept that sediment in transport that is finer than that making up the bed of the channel behaves differently and plays a different role in the sediment transfer system is widely perceived to have merit and has often proven useful in river engineering studies. In this respect, there are three tenants within the wash load and bed-material load concept that are relevant from a practical regional sediment management perspective. It follows that changes in the quantity of wash load in transport (due to the addition or removal of washload sources) will seldom trigger significant morphological responses and marked changes to the stability of the channel. Conversely, imbalances in the bed-material load will usually drive local morphological response through channel scour (where transport capacity exceeds supply) or fill (where supply exceeds transport capacity). Second, the quantity of wash load carried by a stream is limited not by the streams's sediment transport capacity, but by the available supply. It follows that it is only the bed-material load that most sediment transport equations can calculate on the basis of the transport capacity indicated by the local flow hydraulics. Wash-load

transport cannot be predicted this way, but can only be estimated on the basis of comprehensive, quantitative assessment of wash-load sediment sources. Third, the movement of wash load is relatively rapid compared to that of the bed-material load. In a sand-bed channel, where the wash load is composed of fine sands, silts and clays that are fairly evenly distributed throughout the water column, wash load may move through the channel.

6 - Inventory of R.B.M./Sand Leases in District Saharanpur

Sl. No	Tehsil	River	Village	Gata No. / Khand No.	Area (ha.)	Pillar	Latitude	Longitude
1	Behat	Badshahibagh Rao	Mayapur Rooppur	Gata No. 14/1	3.100	A	30° 19' 21.41" N	77° 38' 26.35" E
						B	30° 19' 17.62" N	77° 38' 30.56" E
						C	30° 19' 13.68" N	77° 38' 25.07" E
						D	30° 19' 17.44" N	77° 38' 20.78" E
2	Behat	Yamuna	Bartha Korsi	Gata No. - 1	36.000	A	30° 14' 00.94" N	77° 31' 13.91" E
						B	30° 14' 16.50" N	77° 31' 24.43" E
						C	30° 14' 13.69" N	77° 31' 31.19" E
						D	30° 14' 19.59" N	77° 31' 37.85" E
						E	30° 14' 37.10" N	77° 31' 40.80" E
						F	30° 14' 39.19" N	77° 31' 36.25" E
						G	30° 14' 26.08" N	77° 31' 29.05" E
						H	30° 14' 09.19" N	77° 31' 02.18"E
3	Behat	Badkala Ra	Haidarpur Hindwala	Khand No / Gata No. - 8/1 , 19 & 22	4.200	A	30° 15' 20.64" N	77° 40' 42.10" E
						B	30° 15' 20.54" N	77° 41' 00.42" E
						C	30° 15' 17.98" N	77° 41' 01.84" E
						D	30° 15' 17.71" N	77° 40' 42.89" E
4	Behat	Khurwali Ra	Sherpur Pelon	Gata No. - 378/2 & 379/2	7.000	A	30° 15' 52.04" N	77° 39' 22.56" E
						B	30° 15' 51.84" N	77° 39' 27.43" E
						C	30° 16' 06.24" N	77° 39' 31.26" E
						D	30° 16' 07.18" N	77° 39' 25.07" E
5	Behat	Yamuna	Nuniyari Aehatmal	Gata No. - 1/1/1 Laat 38	24.290	A	30°11'00.90" N	77°29"25.83"E
						B	30°11'12.98" N	77°29"12.21" E
						C	30°11'24.95" N	77°29"26.28" E
						D	30°11'21.79" N	77°29"29.68" E
						E	30°11'20.39" N	77°29"33.03" E
						F	30°11'18.64" N	77°29"33.83" E
						G	30°11'17.01" N	77°29"34.70" E
						H	30°11'14.93" N	77°29"32.91" E
						I	30°11'09.54" N	77°29"31.35" E
						J	30°11'03.46" N	77°29"29.53" E

Sl. .No	Tehsil	River	Village	Gata No. / Khand No.	Area (ha.)	Pillar	Latitude	Longitude
6	Behat	Yamuna	**Rehna**	Khand No. / Gata no. - 03, Lot No - 03	8.050	A	30° 21' 36.45" N	77° 36' 05.61" E
						B	30° 21' 29.62" N	77° 36' 00.26" E
						C	30° 21' 37.95" N	77° 35' 50.38" E
						D	30° 21' 41.71" N	77° 36' 02.50" E
7	Behat	Gaisara Rao	**Rahena**	Gata No. 179/2	3.750	A	30° 19' 56.17" N	77° 36' 33.21" E
						B	30° 19' 52.90" N	77° 36' 33.93" E
						C	30° 19' 50.54" N	77° 36' 20.87" E
						D	30° 19' 53.90" N	77° 36' 20.01" E
8	Nukur	Yamuna	**Dhikkan Kalan**	Gata No. - 839, 841 to 856, 858, 859, 860, 861, 863,864,865,866,867, 871, 872, 888, 889, 406 , 407	52.63	A	30° 1'20.61"N	77°17'23.68"E
						B	30° 1'24.58"N	77°17'15.45"E
						C	30° 1'32.77"N	77°17'19.87"E
						D	30° 1'42.25"N	77°17'24.49"E
						E	30° 1'41.34"N	77°17'31.04"E
						F	30° 1'52.02"N	77°17'39.09"E
						G	30° 1'54.80"N	77°17'51.61"E
						H	30° 1'56.88"N	77°17'52.96"E
						I	30° 2'2.71"N	77°18'5.82"E
						J	30° 1'59.86"N	77°18'8.25"E
						K	30° 1'57.85"N	77°18'7.25"E
						L	30° 1'58.76"N	77°18'5.82"E
						M	30° 1'57.46"N	77°18'4.89"E
						N	30° 1'57.00"N	77°18'1.96"E
						O	30° 1'53.50"N	77°18'0.53"E
						P	30° 1'47.64"N	77°17'52.52"E
						Q	30° 1'42.10"N	77°17'46.53"E
						R	30° 1'32.38"N	77°17'39.44"E
						S	30° 1'27.11"N	77°17'31.55"E
9	Behat	Khairawali Ra	**Sherpur Pelon**	403 , 404/1 , 405 , 406/1 , 416/2 , 421/1 , 422/2 , 423/2 , 424/2 , 429 and 431	6.475	A	30°16'35.16"N	77°39'44.44"E
						B	30°16'32.34"N	77°39'51.41"E
						C	30°16'21.11"N	77°39'36.26"E
						D	30°16'22.11"N	77°39'34.41"E

Sl. .No	Tehsil	River	Village	Gata No. / Khand No.	Area (ha.)	Pillar	Latitude	Longitude
10	Behat	Kaluwala	Kaluwala Pahadipur	119/1 , 120/1 , 192/1 , 193/1 , 125/4	14.900	A	30°12'08.76"N	77°45'37.77"E
						B	30°12'06.03"N	77°45'42.25"E
						C	30°12'00.52"N	77°45'38.93"E
						D	30°11'40.91"N	77°45'32.39"E
						E	30°11'41.72"N	77°45'25.51"E
						F	30°12'02.80"N	77°45'33.06"E
11	Behat	Yamuna	Akbarpur Bans Aehatmal	1	17.900	A	30°16'27.80"N	77°32'46.96"E
						B	30°16'34.01"N	77°32'47.53"E
						C	30°16'42.58"N	77°32'53.94"E
						D	30°16'43.84"N	77°32'58.19"E
						E	30°16'50.96"N	77°32'47.76"E
						F	30°16'46.69"N	77°32'43.28"E
						G	30°16'39.98"N	77°32'41.04"E
						H	30°16'36.08"N	77°32'33.91"E
12	Behat	Yamuna	Arazi Jevadi Ahatmal and Masoodpur Garh Aehatmal	1 and 1	13.800	A	30°15'51.33"N	77°32'21.84"E
						B	30°15'58.45"N	77°32'08.63"E
						C	30°15'45.65"N	77°32'03.15"E
						D	30°15'41.84"N	77°32'13.01"E
13	Behat	Yamuna	Shehjadpur Bans Aehatmal	1	13.000	A	30°15'24.84"N	77°31'57.01"E
						B	30°15'12.32"N	77°31'47.88"E
						C	30°15'16.91"N	77°31'36.94"E
						D	30°15'28.43"N	77°31'48.83"E
14	Behat	Yamuna	Alauddinpur Bans Aehatmal	1/1	9.580	A	30°16'14.92"N	77°32'39.76"E
						B	30°16'17.99"N	77°32'32.74"E
						C	30°16'08.09"N	77°32'23.84"E
						D	30°16'02.92"N	77°32'31.72"E
15	Behat	Yamuna	Mehmoodpur Nangli Aehatmal	1	15.700	A	30°16'02.98"N	77°32'30.74"E
						B	30°16'10.84"N	77°32'18.84"E
						C	30°16'00.40"N	77°32'11.56"E
						D	30°15'51.70"N	77°32'23.64"E

Sl. .No	Tehsil	River	Village	Gata No. / Khand No.	Area (ha.)	Pillar	Latitude	Longitude
16	Behat	Yamuna	Shahpur Bans Achatmal	1/1	15.600	A	30°16'27.75"N	77°32'46.14"E
						B	30°16'16.01"N	77°32'38.50"E
						C	30°16'20.43"N	77°32'28.70"E
						D	30°16'35.53"N	77°32'33.20"E
17	Behat	Yamuna	Nityanandpur Achatmal and Said-mohamadpur Achatmal	1 and 1ma	17.700	A	30°15'25.77"N	77°31'57.79"E
						B	30°15'41.32"N	77°32'12.89"E
						C	30°15'46.16"N	77°32'00.64"E
						D	30°15'28.87"N	77°31'50.13"E
18	Behat	Yamuna	Abutalibpur Garh Achatmal	1	37.000	A	30°14'41.78"N	77°31'38.30"E
						B	30°14'49.46"N	77°31'21.34"E
						C	30°15'16.20"N	77°31'36.25"E
						D	30°15'11.96"N	77°31'46.05"E
19	Behat	Yamuna	Nuniyari Athmal – Khand Second	1/1/1	19.000	A	30°11'6.47"N	77°29'18.52"E
						B	30°11'4.27"N	77°29'16.54"E
						C	30°10'59.70"N	77°29'14.05"E
						D	30°10'55.77"N	77°29'10.53"E
						E	30°10'46.29"N	77°29'4.02"E
						F	30°10'39.87"N	77°29'0.42"E
						G	30°10'46.96"N	77°28'51.89"E
						H	30°10'51.56"N	77°28'56.26"E
						I	30°10'49.46"N	77°28'58.83"E
						J	30°11'2.30"N	77°29'11.12"E
						K	30°11'7.26"N	77°29'5.46"E
						L	30°11'12.52"N	77°29'11.64"E
20	Behat	Yamuna	Aslampur Bartha – First	1/1M	36.600	A	30°13'45.87"N	77°31'09.07"E
						B	30°13'23.05"N	77°30'53.85"E
						C	30°13'13.45"N	77°30'42.33"E
						D	30°13'16.67"N	77°30'36.60"E
						E	30°13'50.98"N	77°30'57.80"E
21	Behat	Yamuna	Rasoolpur Urf Rasooli	1/1	34.000	A	30°12'17.09"N	77°30'18.81"E
						B	30°12'16.42"N	77°30'17.32"E
						C	30°12'05.34"N	77°30'13.17"E
						D	30°11'59.82"N	77°30'01.24"E
						E	30°11'46.33"N	77°29'58.50"E
						F	30°11'59.32"N	[illegible]

						G	30°12'21.10"N	77°30'16.04"E
Sl. .No	**Tehsil**	**River**	**Village**	**Gata No. / Khand No.**	**Area (ha.)**	**Pillar**	**Latitude**	**Longitude**
	Behat	Yamuna	Aslampur Bartha – Second	1/1M	28.160	A	30°13'04.93"N	77°30'44.59"E
						B	30°12'35.50"N	77°30'28.50"E
						C	30°12'38.19"N	77°30'18.84"E
						D	30°13'09.39"N	77°30'35.57"E

7 - The concept of Natural Resource Accounting with Monitoring Mechanism

The Sub-Divisional committee in past studies of year 2022 went through following references while conducting Replenishment Study of the leases prior recommending the promulgation of the concept of Natural Resource Accounting with Monitoring Mechanism: -

Sl. No	Reference	Details
1	Section-3 of the Enforcement & Monitoring Guidelines for Sand Mining-2020	The Section deals with the Objective of Guidelines wherein Identification and Quantification of Mineral Resource and its optimal utilization, To regulate the Sand & Gravel Mining in the Country since its identification to its final end-use by the consumers and the general public, Reduction in demand & supply gaps. To control the instance of illegal mining and other factors has been recommended.
2	Uttar Pradesh Sand Mining Policy – 2017 and subsequent G.O.'s	The said policies and G.O.'s deals with the identification and allotment of long term lease for a period of 5 (five) years on e-auction basis.
3	Section-9 of the Enforcement & Monitoring	The Section deals with the Monitoring Mechanism by referring the provisions of 23(C) of MMDR Act empowering State

	Guidelines for Sand Mining-2020	Government to make rules to prevent illegal mining and transportation (9.1) , standard practice for assessing illegal mining and Monitoring Mechanism (9.4)
4	EAC meeting Minutes Dated 24 & 25 – October – 2016 (non-coal mining)	Wherein the EAC opined the issues related to replenishment study for perennial and non-perennial rivers.
5	Sand Mining Framework 2018 issued by Ministry of Mines	Registration of lease holder, stock holders and transporters in portal, assessment of quantity by joint inspection team, geo-fencing, monitoring the de-casting of river beds, e-permits, transportation monitoring using CCTV/Drone.

The Sub-Divisional Committee opined and suggests following: -

1. Time to time identification of lease with mineral potential is required to canalize river.
2. Time to time identification of lease with mineral potential is required to address the market needs and demand/supply gaps.
3. Time to time identification of lease with mineral potential and its timely auction is required; as there are larger chances of illegal mining in vacant lease areas.
4. Time to time identification of lease with mineral potential is required to generate employment, state royalties to enable development.

5. However, there has to be balance between exploitation and conservation of mineral resources and the same has to be closely monitored.
6. The exploitation / conservation monitoring to promote and regulate sustainable mining can be achieved by a check-n-balance model.
7. The studies has shown that leases in its existing form are mineral rich and surface removal is required for occurrence of new replenishment and river channelization.
8. The Sub-Divisional Committee suggests the concept of Natural Resource Accounting with Monitoring Mechanism.

Concept of Natural Resource Accounting with Monitoring Mechanism:-

1. The concept shall work in the simple but effective principals of accounting methods wherein the existing mineral potential shall be treated as opening balance and replenished quantity shall be treated as a income.
2. The addition of existing mineral potential and replenished quantity shall be treated a Total Mineral Balance available on the lease.
3. A life of mine (in years) shall be derived by dividing Total Mineral Balance with the sanctioned annual production.
4. The Total Mineral Balance will then be reduced by subtracting the actual mineral dispatches and revised life of mine (in years) shall be derived on yearly basis.
5. If the life of mine (in years) at any juncture of point shall be observed to be less than 3 (three) months , a red alert shall be raised and the Monitoring Mechanism shall be implemented as per the recommended clause ***"Project Proponent shall decrease / stop the mining in case replenishment is lower than the approved rate of production till the replenishment is completed"***

8 - Lease wise analysis of Year 2023 Replenishment Study Results with Recommendation

Sl.	Teshil	River	Village	Gata / Khand	Area (in Ha.)	Pre Monsoon Reserve - 2023 (A) - cum	Post Monsoon Replenishment - 2023 (B) - cum	Total Resource in - 2023 (A+B) - cum	Annual Production proposed in DSR out of Total Resource - cum
1	Behat	Badshahibagh Rao	Mayapur Rooppur	Gata No. 14/1	3.100	99980	29039	129019	69750
2	Behat	Yamuna	Bartha Korsi	Gata No. - 1	36.000	174518	802800	977318	756000
3	Behat	Badkala Ra	Haidarpur Hindwala	Khand No / Gata No. - 8/1 , 19 & 22	4.200	64708	100004	164712	94500
4	Behat	Khurwali Ra	Sherpur Pelon	Gata No. - 378/2 & 379/2	7.000	218677	202300	420977	197500
5	Behat	Yamuna	Nuniyari Aehatmal	Gata No. - 1/1/1 Laat 38	24.290	950600	456773	1407373	437247
6	Behat	Yamuna	Rehna	Khand No. / Gata no. - 03, Lot No - 03	8.050	266780	139265	406045	138462
7	Behat	Gaisara Rao	Rahena	Gata No. 179/2	3.750	119102	71813	190915	67500
8	Nukur	Yamuna	Dhikkan Kalan	Gata No. - 839, 841 to 856, 858, 859, 860, 861,863,864,865, 866,867, 871, 872, 888, 889, 406 , 407	52.630	158700	1089441	1248141	947368
9	Behat	Khurwali Ra	Sherpur Pelon	403 , 404/1 , 405 , 406/1 , 416/2 , 421/1 , 422/2 , 423/2 , 424/2 , 429 and 431	6.475	296450	104895	401345	77700
10	Behat	Kaluwala	Kaluwala Pahadipur	119/1 , 120/1 , 192/1 , 193/1 , 125/4	14.900	489972	299490	789462	178800
11	Behat	Yamuna	Akbarpur Bans Aehatmal	1	17.900	734092	345470	1079562	322200
12	Behat	Yamuna	Arazi Jevadi Ahatmal and Masoodpur Garh Aehatmal	1 and 1	13.800	532096	251160	783256	248400
13	Behat	Yamuna	Shehjadpur Bans Aehatmal	1	13.000	572455	129740	702195	234000
14	Behat	Yamuna	Alauddinpur Bans Aehatmal	1/1	9.580	480653	189684	670337	172440
15	Behat	Yamuna	Mehmoodpur Nangli Aehatmal	1	15.700	709400	284170	993570	282600

Sl.	Teshil	River	Village	Gata / Khand	Area (in Ha.)	Pre Monsoon Reserve - 2023 (A) - cum	Post Monsoon Replenishment - 2023 (B) - cum	Total Resource in Lease - 2023 (A+B) - cum	Annual Production proposed in DSR out of Total Resource - cum
16	Behat	Yamuna	Shahpur Bans Achatmal	1/1	15.600	495866	291876	787742	280800
17	Behat	Yamuna	Nityanandpur Achatmal and Said-mohamadpur Achatmal	1 and 1ma	17.700	921500	350460	1271960	318600
18	Behat	Yamuna	Abutalibpur Garh Achatmal	1	37.000	2201550	713360	2914910	666000
19	Behat	Yamuna	Nuniyari Athmal – Khand Second	1/1/1	19.000	745000	375250	1120250	342000
20	Behat	Yamuna	Aslampur Bartha – First	1/1 M	36.600	1665200	688080	2353280	658800
21	Behat	Yamuna	Rasoolpur Urf Rasooli	1/1	34.000	1262100	631380	1893480	612000
22	Behat	Yamuna	Aslampur Bartha – Second	1/1 M	28.160	951900	520960	1472860	506880

IMPORTANT NOTE:-

- **Total Quantity available in each lease in year 2023 is result of pre-monsoon existing reserves and post monsoon replenishment.**
- **Pre-monsoon existing reserves in 14 leases are higher in quantity as they have not been operated in past many years and are getting replenished every years. Deposits from these lease needs to be timely removed to ensure river channelization and river diversion.** ***(mainly Sl. No. 9 to Sl. No.22)***
- **However, after applying the principals of SSMG-2016 and EMGSM-2020 Guidelines, only a sustainable volume of less than 60% of total resource has been proposed for annual production. Hence the balance resource and quantity due to forthcoming replenishments in coming years will be used in phased to ensure sustainable productions and mineral conservation to ensure demand supply gaps.**

9 - Conclusion & Recommendation of Sub-Divisional Committee

Conclusion:-

- In year-2023, Pre & Post-monsoon study of total Twenty-Two (22) leases in district Saharanpur where done as per the methodology elaborated in the Report.
- The Study was done to report the quantity of new mineral arriving / depleting after monsoon after interpreting the pre and post-monsoon baseline data collection of elevation profiles through D.G.P.S. at regular intervals.
- Since the district is located in foothills of Himalaya's and Downstream of Hatnikund Barrage the rate of replenishment in all the leases is substantial due to supportive gradient levels and discharges of mineral from Barrage in monsoon.
- The results of such year wise surveys will help the state government to establish the replenishment rate of the river based on which future action may be planned.
- Pit profiles up-to the depth of 3 meters in each lease were done to estimate the quantity of reserve and analyse sustainable mining to be recommended for grant/operations of leases. No water intersection was observed.

Recommendation on River Yamuna -

- Out of 22 leases, 16 leases admeasuring 383.21 ha. are located in river Yamuna which is a perennial river.
- It was observed that 12 out of 16 leases in river Yamuna are non-operational since past 5-6 years which are currently over replenished. The elevation levels of such leases above the water level are much high, as a result of which the replenishment has now started in its adjourning

areas. It is recommended that removal of existing deposits in such leases should be done in a timely manner so as to maintain the natural river course. In such manner time-to-time surface removal of excessive deposits will enable to maintain the geometry of river and invite proper replenishment in coming times.

- The timely operations of such lease is also recommended to control the illegal mining (if any) in the vacant areas which are having existing substantial deposits.
- It is recommended that keeping in the view the concept of Natural Resource Accounting method and long term operations of leases in a sustainable manner, the mining in lease areas of river Yamuna can be permitted upto a depth of 3 meters from mineral deposit surface and one meter above the water level of river channel whichever reaches out earlier.
- However, on aspect of environment protection, mineral conservation and long term sustainable operations of lease, it is also recommended that out of the total available net reserve ; not more that 60% of the mineral potential volume available upto a depth of 3 meters should be recommended for annual production at one point of time.

Recommendation on other Five Rivers

- The remaining 6 leases admeasuring 39.425 ha. are located in five rivers namely Badkala Ra , Badshahibagh Rao , Gaisara Rao Kaluwala and Khurwali Ra.
- The study results show that all these five rivers are non- perennial in nature. All the five rivers experienced heavy water flow in current monsoon period.
- The committee observed that these five rivers do not replenish annually as they are non–perennial in nature.

- Hence the study of annual replenishment in such rivers has to be more specific and nature based due to non-periodic rainfall. With the pit profiles conducted while physical survey, study results, elevation profiles , river geometry and stake holding with local villagers it was observed that these rivers in the recent past of 5-10 years got over replenished due to sudden one time occurrence of huge rainfall due to which substantial quantum's of RBM has come from the from the upstream and eventually got deposited in the leases.
- The present levels of deposits show that it can be utilised over a spread of next years, however the operations of these mines is to be critically evaluated while recommending annual production. This is due to the fact that after operations of mines if they are not replenished property the leases may turn into permanent depressions leading to change in natural channel geometry.
- It is recommended that keeping in the view the concept of Natural Resource Accounting method and long term operations of leases in a sustainable manner, the mining in identified lease areas can be permitted upto a depth of 3 meters from mineral deposit surface and one meter above the water level of river channel whichever reaches out earlier, as there are substantial existing reserves, due to sudden one-time occurrence explained above.
- However, on aspect of environment protection, mineral conservation and long term sustainable operations of lease, it is also recommended that out of the total available net reserve; not more that 40% of the mineral potential volume available upto a depth of 3 meters should be recommended for annual production at one point of time.

10 - Environmental Observations and Enforcement Monitoring recommendation

1. The Sub-Divisional committee shall periodically monitor the results of replenishment study, levels of mineral production, erosion levels and erosion points.
2. Management and maintenance plans of erosion levels and erosion points shall be prepared and implemented on the basis of observations made.
3. Mining shall only be permitted upto a depth of 3 meters or 1 meter above the water level whichever is reached earlier.
4. The results of scientific replenishment study shall be co-related with production levels and a mineral resource accounting systems will be implemented.
5. The monitoring and evaluation of such results shall be done once in three months by Sub-Divisional Committee.
6. The minable production and permissible depth of mining will be evaluated further on the basis of trend analysis in years to come and recommendations, as so, shall be made.
7. The mineral resource accounting system model is proposed to be implemented to keep the checks and balances on minerals deposits.

11 - Annexures

- Study Area Maps in SIO Toposheet
- Survey Maps in Satellite Images with Geo-coordinates and River Flow
- Ground Control Records of Leases
- Lease wise Index of profile Sections

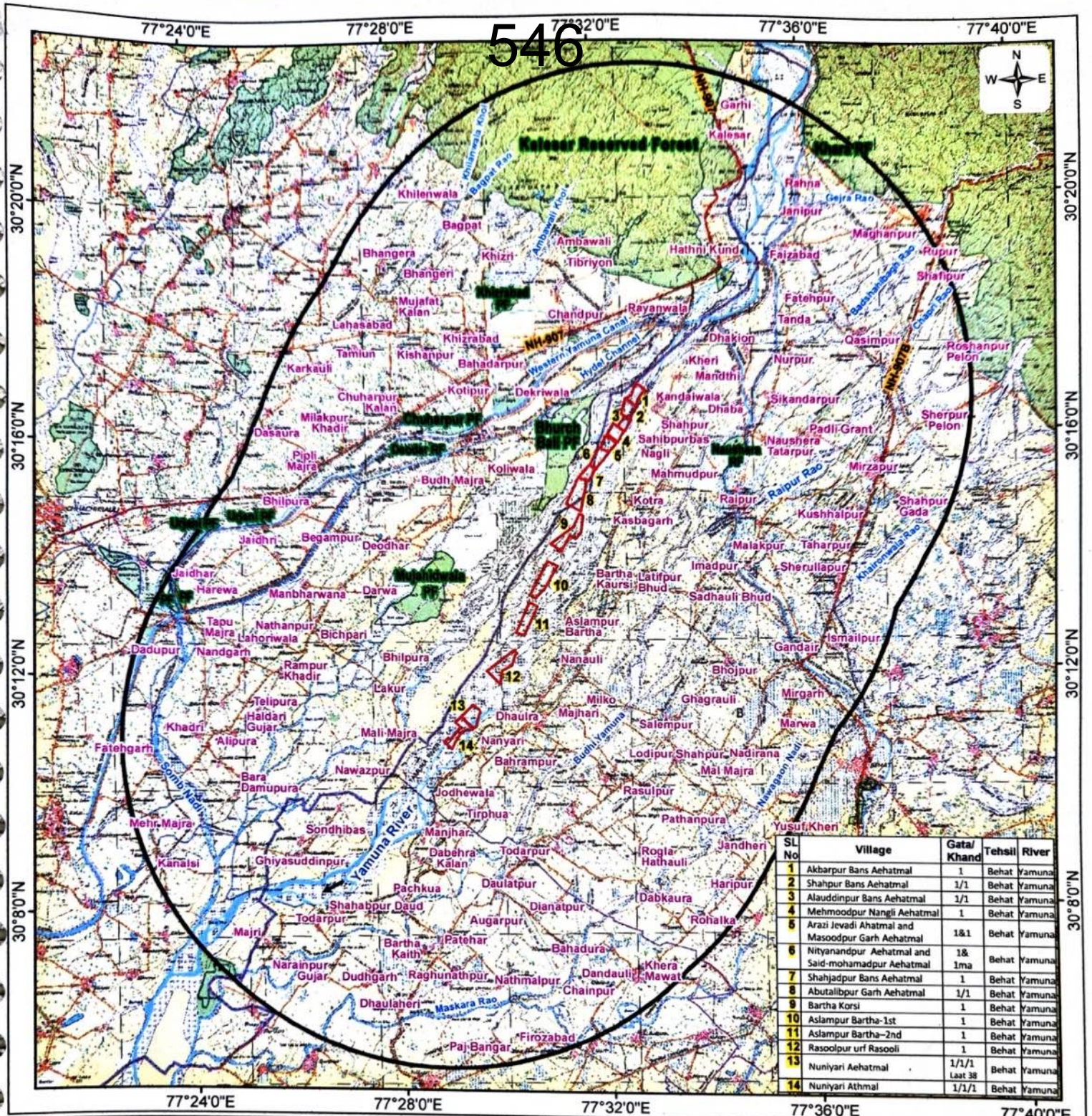
Lease wise

Study Area Maps

Site on S.O.I.

Toposheet Covering

5 Km Catchment Area



SL No	Village	Gata/ Khand	Tehsil	River
1	Akbarpur Bans Aehatmal	1	Behat	Yamuna
2	Shahpur Bans Aehatmal	1/1	Behat	Yamuna
3	Alauddinpur Bans Aehatmal	1/1	Behat	Yamuna
4	Mehmoodpur Nangli Aehatmal	1	Behat	Yamuna
5	Arazi Jevadi Ahatmal and Masoodpur Garh Aehatmal	1&1	Behat	Yamuna
6	Nityanandpur Aehatmal and Said-mohamadpur Aehatmal	1& 1ma	Behat	Yamuna
7	Shahjadpur Bans Aehatmal	1	Behat	Yamuna
8	Abutalibpur Garh Aehatmal	1/1	Behat	Yamuna
9	Bartha Korsi	1	Behat	Yamuna
10	Aslampur Bartha-1st	1	Behat	Yamuna
11	Aslampur Bartha–2nd	1	Behat	Yamuna
12	Rasoolpur urf Rasooli	1	Behat	Yamuna
13	Nuniyari Aehatmal	1/1/1 Laat 38	Behat	Yamuna
14	Nuniyari Athmal	1/1/1	Behat	Yamuna

Key Map of Uttar Pradesh



Legend

- Village/Town
- Project Site
- 10km Buffer

Source:

1. Sol Toposheet No. 53F/7, 53F/8, 53F/11 & 53F/12
2. Project Layout Plan, RBM
3. Google Satellite Imagery, 2021

Software Used:

1. ArcGIS 10.1
2. AutoCAD 2012
3. Erdas Imagine 10

RF:- 1:115,000

Graphic Scale:

0 1,150 2,300 4,600 6,900 9,200 m

Figure 0.00: Drainage and Study Area Map

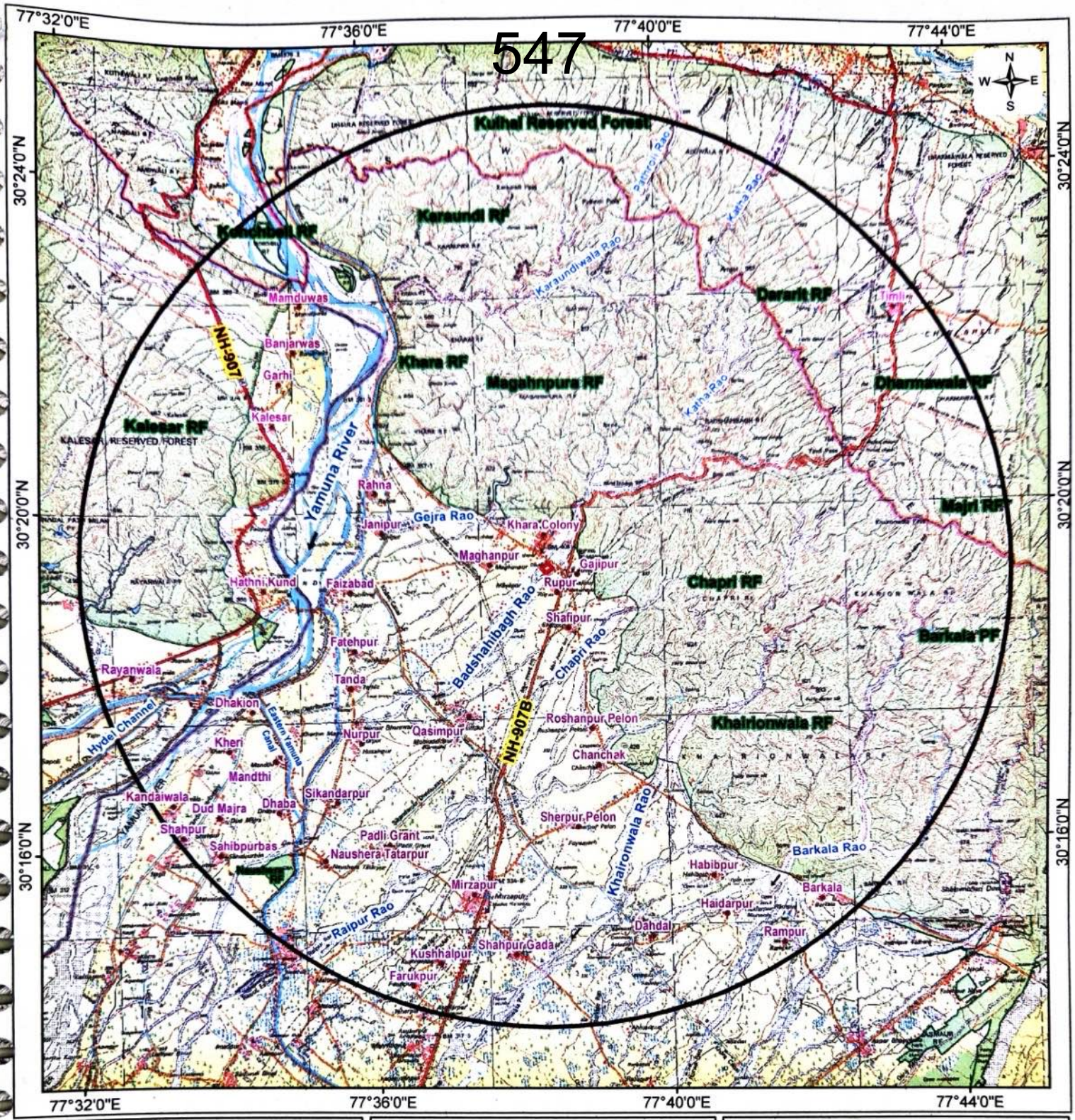
Project:
R.B.M. Mining Project
Tehsil: Behat, District: Saharanpur, Uttar Pradesh

Sub Divisional Committee Saharanpur

Drafted By:	Checked By:	Approved By:

Date			
Revision			

Path: E:\Projects\Mapping\Mining\UP\Sand\Saharanpur\SHP\Drainage _ Study Area Map\Drainage_Study Area Map Akbarpur_Nuniyari-14Mines Layout.mxd



Key Map of Uttar Pradesh



Scale: Not to Scale
Source: http://www.trackthemissingchild.gov.in/trackchild/state_map/uttar_pradesh_map.png

Legend

- Village/Town
- Project Site
- 10km Buffer

Source:

1. Sol Toposheet No. 53F/11, 53F/12, 53F/15 & 53F/16
2. Project Layout Plan, RBM
3. Google Satellite Imagery, 2021

Software Used:

1. ArcGIS 10.1
2. AutoCAD 2012
3. Erdas Imagine 10

RF:- 1:60,000

Graphic Scale:

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Figure 0.00: Drainage and Study Area Map

Project:
R.B.M. Mining Project
Tehsil: Behat, District: Saharanpur, Uttar Pradesh

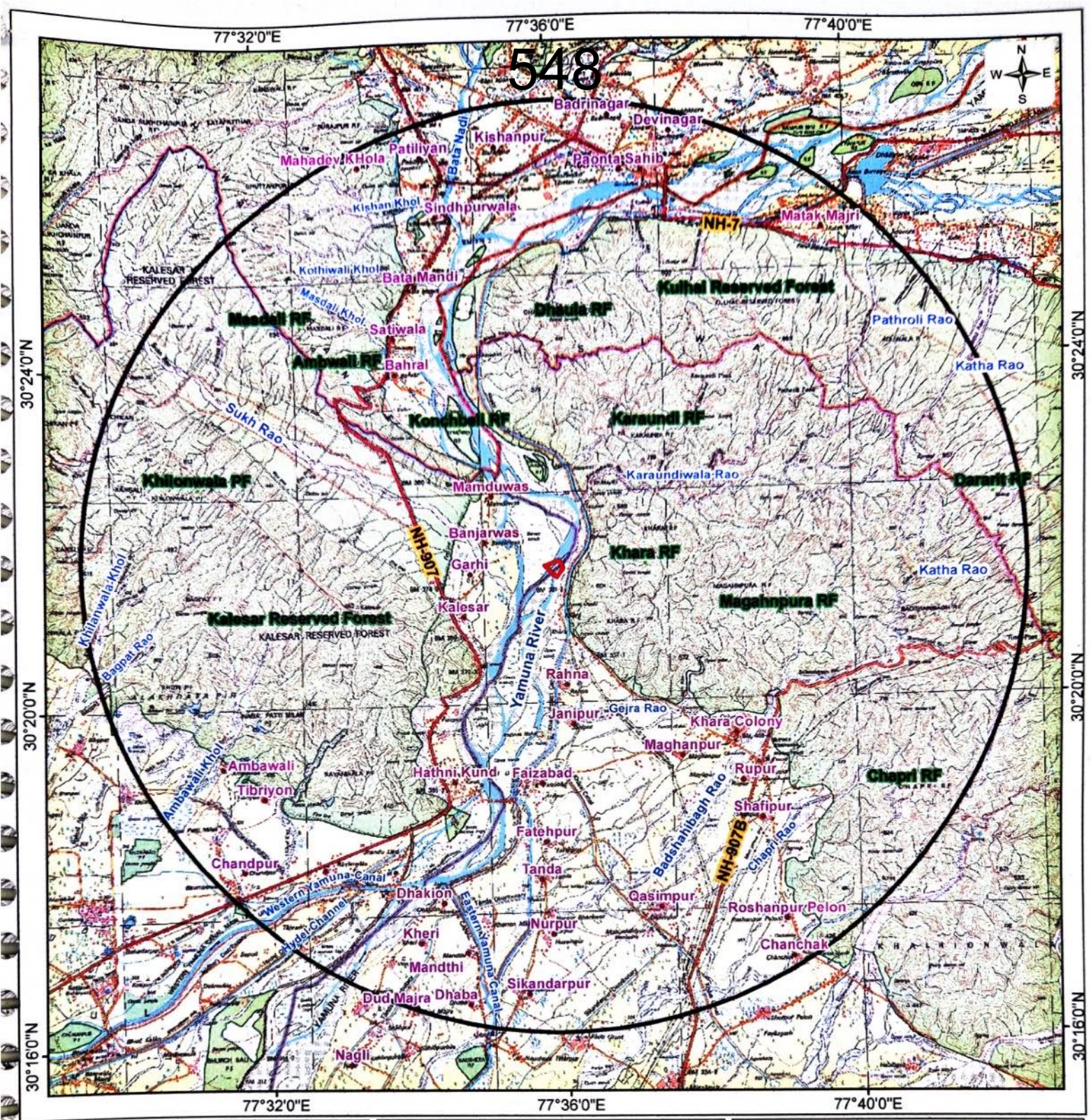
Village: Mayapur Rooppur, Gata No./Khand No.: 14/1, Area: 3.10ha

Sub Divisional Committee Saharanpur

Drafted By:	Checked By:	Approved By:

Date			
Revision			

Path: E:\Projects I\Mapping\Mining\UP\Sand\Saharanpur\SHP\Drainage _ Study Area Map\Mayapur Rupur-Badshahibagh Rao.mxd



Key Map of Uttar Pradesh



Scale: Not to Scale
Source: http://www.trackthemissingchild.gov.in/trackchild/state_map/uttar_pradesh_map.png

Legend

- Village/Town
- Project Site
- 10km Buffer

Source:

1. Sol Toposheet No. 53F/7 & 53F/11
2. Project Layout Plan, RBM
3. Google Satellite Imagery, 2021

Software Used:

1. ArcGIS 10.1
2. AutoCAD 2012
3. Erdas Imagine 10

RF:- 1:80,000

Graphic Scale:

0 800 1,600 3,200 4,800 6,400 m

Figure 0.00: Drainage and Study Area Map

Project:
R.B.M. Mining Project
Tehsil: Behat, District: Saharanpur, Uttar Pradesh

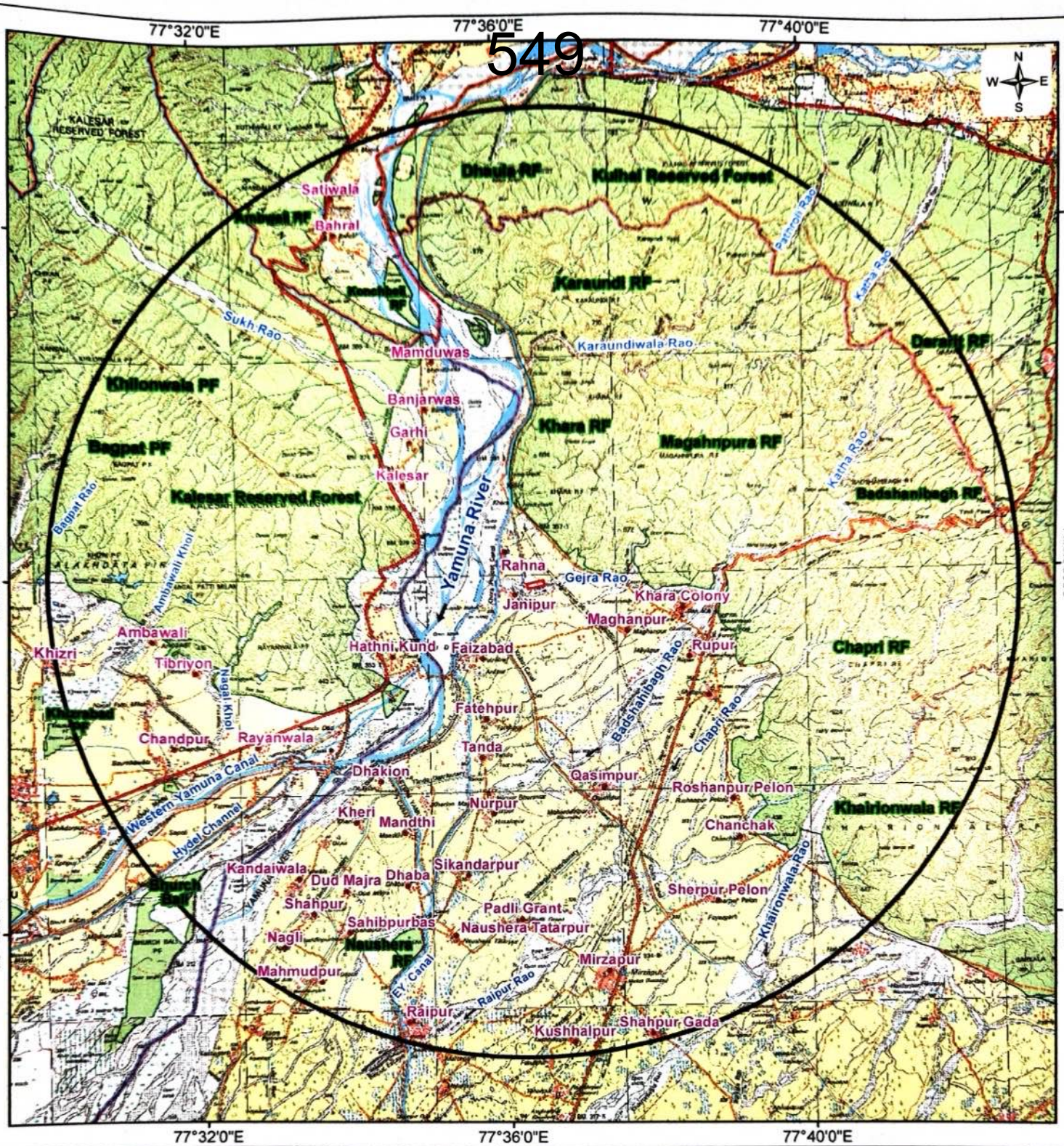
Village: Rehna, Gata No./Khand No.: 03, Lot No-03, Area: 8.05ha

Sub Divisional Committee Saharanpur

Drafted By:	Checked By:	Approved By:

Date				
Revision				

Path: E:\Projects\Mapping\Mining\UP\Sand\Saharanpur\SHP\Drainage _ Study Area Map\Rahana\G03_Yamuna.mxd



Key Map of Uttar Pradesh



Scale: Not to Scale
Source: http://www.trackthemissingchild.gov.in/trackchild/state_map/uttar_pradesh_map.png

Legend

- Village/Town
- Project Site
- 10km Buffer

Source:

1. Sol Toposheet No. 53F/7, 53F/8, 53F/11 & 53F/12
2. Project Layout Plan, RBM
3. Google Satellite Imagery, 2021

Software Used:

1. ArcGIS 10.1
2. AutoCAD 2012
3. Erdas Imagine 10

RF:- 1:80,000

Graphic Scale:

0 800 1,600 3,200 4,800 6,400 m

Figure 0.00: Drainage and Study Area Map

Project:
R.B.M. Mining Project
Tehsil: Behat, District: Saharanpur, Uttar Pradesh

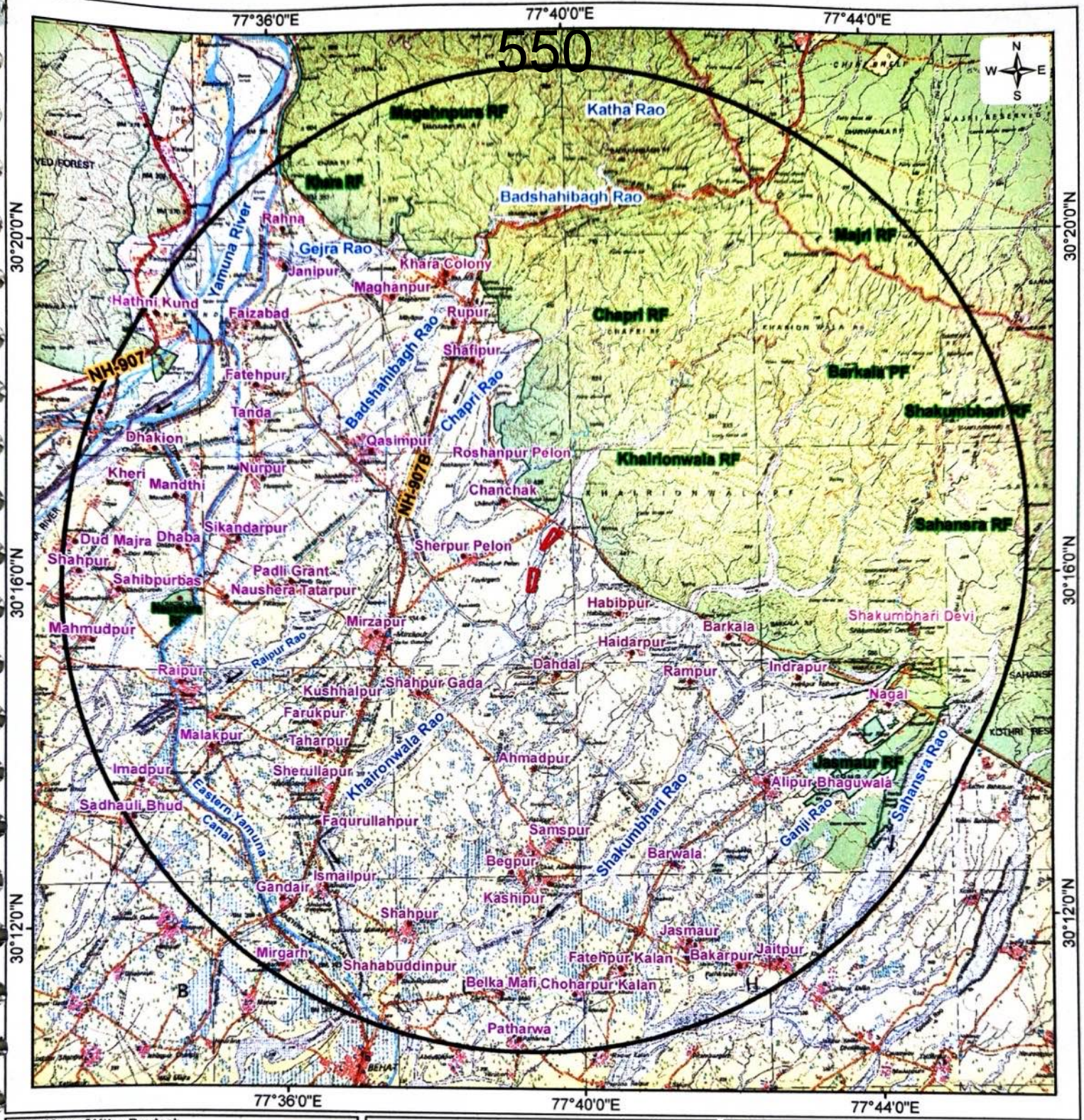
Village: Rehna, Gata No./Khand No.: 179/2, Area: 3.750ha

Sub Divisional Committee Saharanpur

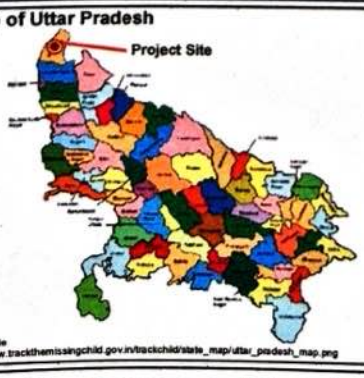
Drafted By:	Checked By:	Approved By:

Date			
Revision			

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Key Map of Uttar Pradesh



Legend

- Village/Town
- Project Site
- 10km Buffer

Source:

1. Sol Toposheet No. 53F/11, 53F/12, 53F/15 & 53F/16
2. Project Layout Plan, RBM
3. Google Satellite Imagery, 2021

Software Used:

1. ArcGIS 10.1
2. AutoCAD 2012
3. Erdas Imagine 10

RF:- 1:80,000

Graphic Scale:

0 800 1,600 3,200 4,800 6,400 m

Figure 0.00: Drainage and Study Area Map

Project:
R.B.M. Mining Project
Tehsil: Behat, District: Saharanpur, Uttar Pradesh

Village: Sherpur Pelon, Gata No./Khand No.: 403, 404/1, 405, 406/1, 416/2, 421/1, 422/2, 423/2, 424/2, 429 & 431 Area: 6.475ha

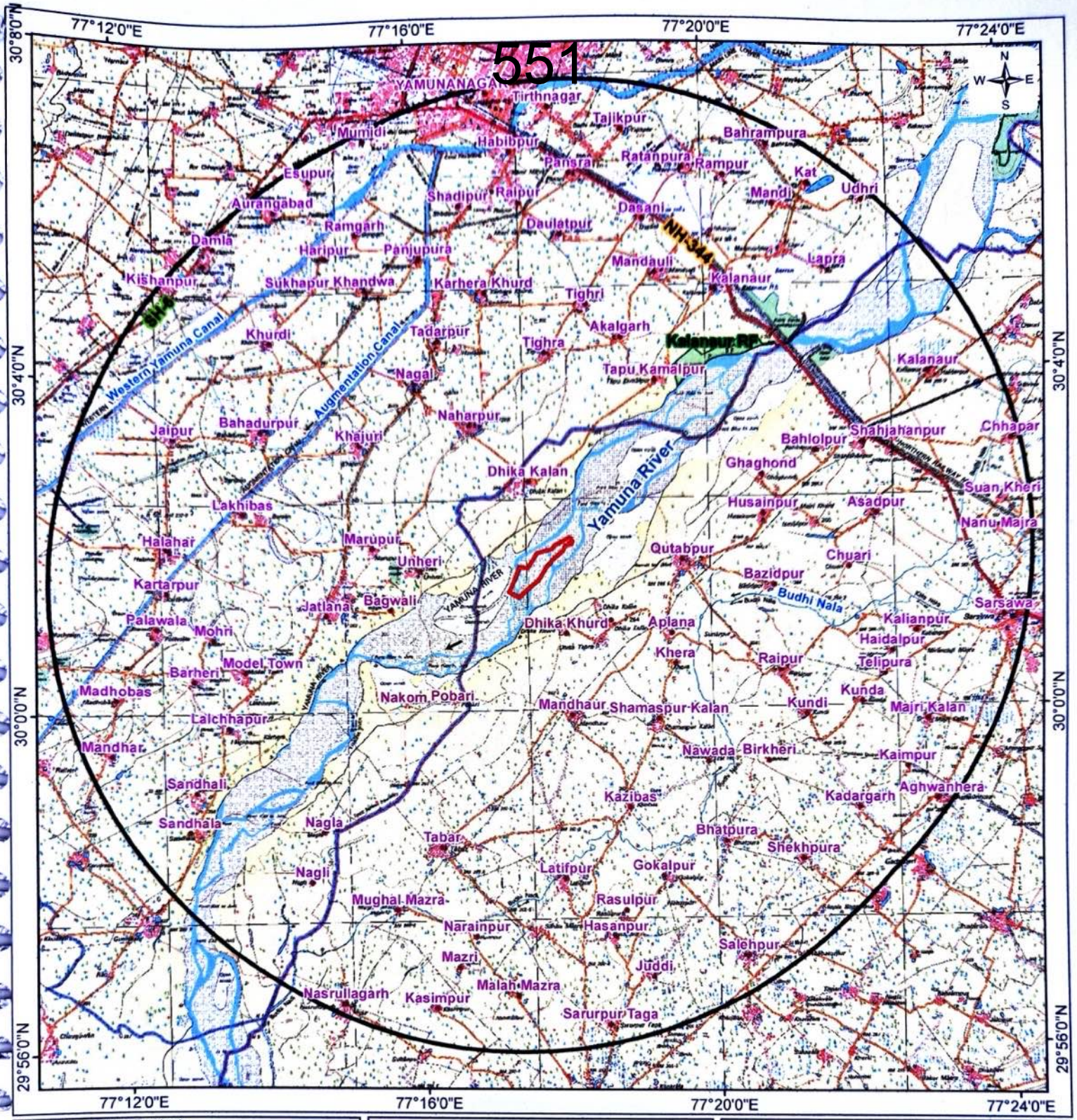
Village: Sherpur Pelon, Gata No./Khand No.: 378/2 & 379/2, Area: 7.00ha

Sub Divisional Committee Saharanpur

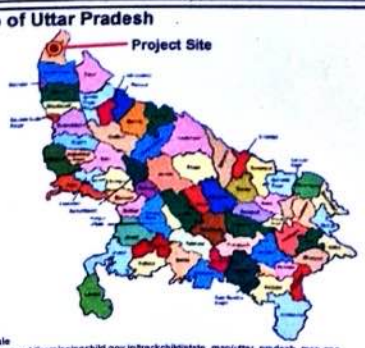
Drafted By:	Checked By:	Approved By:

Date				
Revision				

Path: B:\Projects \Mapping\Mining\UP\Sand\Saharanpur\SHP\Drainage _ Study Area Map\Sherpur_Pelon_2Mines_Layout.mxd



Key Map of Uttar Pradesh



Scale: Not to Scale
Source: http://www.trackthemissingchild.gov.in/trackchild/state_map/uttar_pradesh_map.png

Legend

- Village/Town
- Project Site
- 10km Buffer

Source:
1. Sol Toposheet No. 53F/4, 53F/8, 53G/1 & 53G/5
2. Project Layout Plan, RBM
3. Google Satellite Imagery, 2021

Software Used:
1. ArcGIS 10.1
2. AutoCAD 2012
3. Erdas Imagine 10

RF:- 1:80,000

Graphic Scale:

0 800 1,600 3,200 4,800 6,400 m

Figure 0.00: Drainage and Study Area Map

Project:
R.B.M. Mining Project
Tehsil: Nukur, District: Saharanpur, Uttar Pradesh

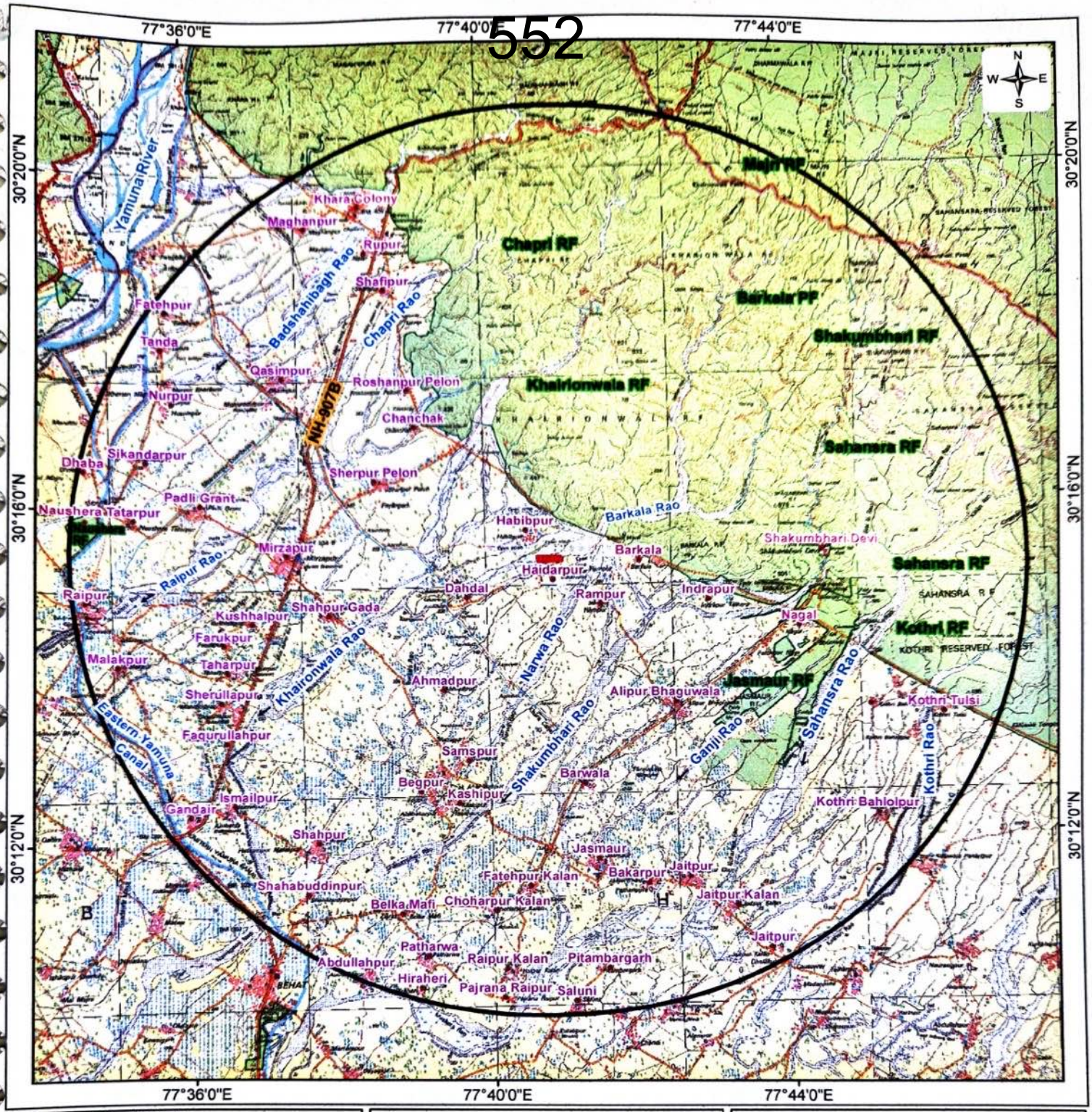
Village: Dhikkan Kalan, Gata No./Khand No.: 839, 841 to 856, 858, 859, 860, 861, 863, 864,865, 866, 867, 871, 872, 888, 889, 406, 407, Area: 52.63ha

Sub Divisional Committee Saharanpur

Drafted By:	Checked By:	Approved By:

Date				
Revision				

Path: E:\Projects R\Mapping\Mining\UP\Sand\Saharanpur\SHP\Drainage _ Study Area Map\Dhikkan_Kalan_52.63.mxd



Key Map of Uttar Pradesh



Scale: Not to Scale
Source: http://www.trackthemissingchild.gov.in/trackchild/state_map/uttar_pradesh_map.png

Legend

- Village/Town
- Project Site Haidarpur
- 10km Buffer

Source:

1. Sol Toposheet No. 53F/11, 53F/12, 53F/15 & 53F/16
2. Project Layout Plan, RBM
3. Google Satellite Imagery, 2021

Software Used:

1. ArcGIS 10.1
2. AutoCAD 2012
3. Erdas Imagine 10

RF:- 1:50,000

Graphic Scale: 0 800 1,600 3,200 4,800 6,400 m

Figure 0.00: Drainage and Study Area Map

Project:
R.B.M. Mining Project
Tehsil: Behat, District: Saharanpur, Uttar Pradesh

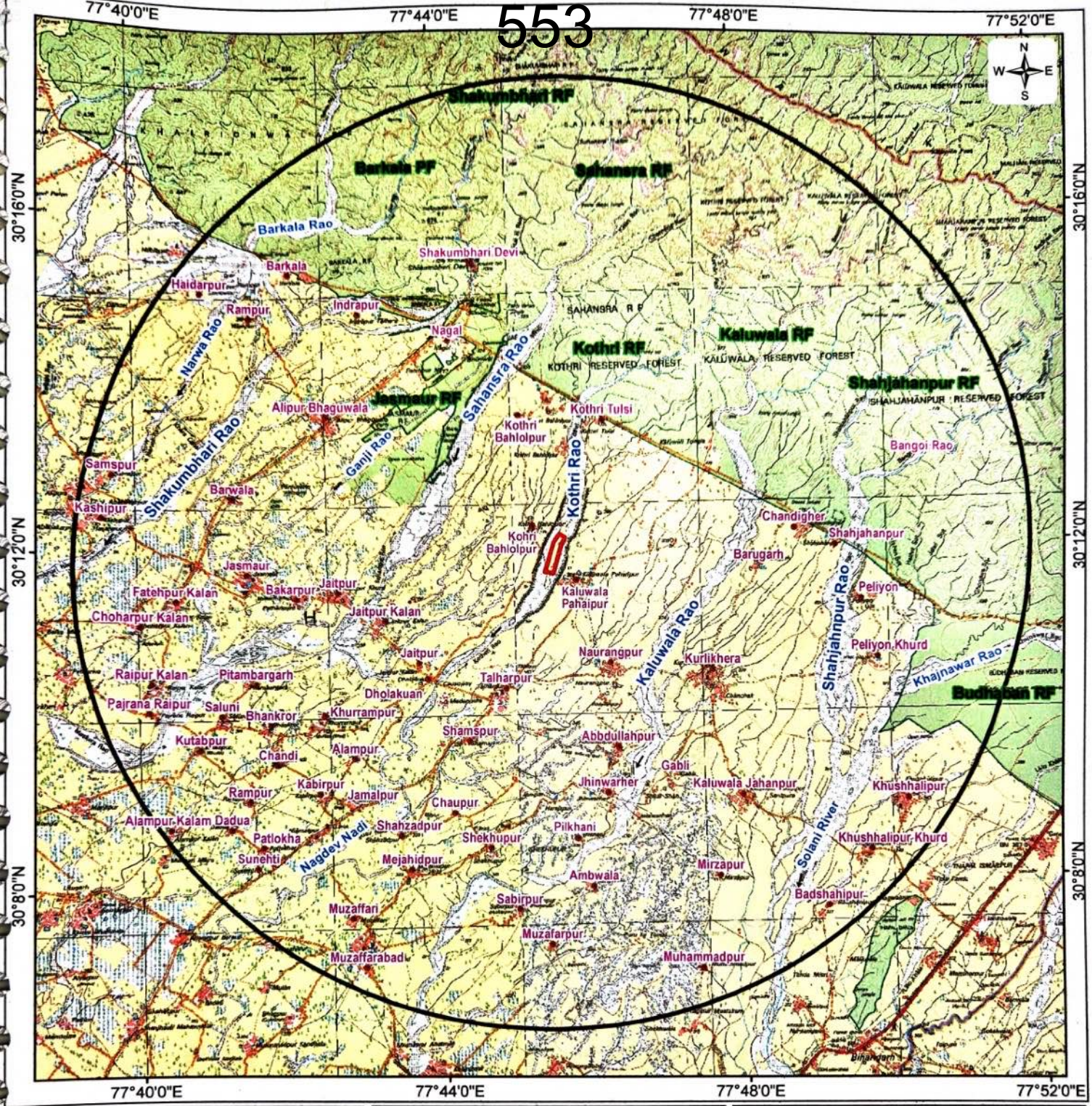
Village: Haidarpur Hindwala, Gata No./Khand No.: 8/1, 19 & 22, Area: 4.20ha

Sub Divisional Committee Saharanpur

Drafted By:	Checked By:	Approved By:

Date				
Revision				

Path: E:\Projects\Mapping\Mining\UP\Sand\Saharanpur\SHP\Drainage _ Study Area Map\Haidarpur8_Barkala_Rao.mxd



Key Map of Uttar Pradesh



Scale: Not to Scale
Source: http://www.trackthemissingchild.gov.in/trackchild/state_map/uttar_pradesh_map.png

Legend

- Village/Town
- Project Sie
- 10km Buffer

Source:

1. Sol Toposheet No. 53F/11, 53F/12, 53F/15 & 53F/16
2. Project Layout Plan, RBM
3. Google Satellite Imagery, 2021

Software Used:

1. ArcGIS 10.1
2. AutoCAD 2012
3. Erdas Imagine 10

RF:- 1:80,000

Graphic Scale:

0 800 1,600 3,200 4,800 6,400 m

Figure 0.00: Drainage and Study Area Map

Project:
R.B.M. Mining Project
Tehsil: Behat, District: Saharanpur, Uttar Pradesh

Village: Kaluwala Pahadipur, Gata No./Khand No.:119/1, 120/1, 192/1, 193/1, 125/4,
Area: 14.90ha

Sub Divisional Committee Saharanpur

Drafted By:	Checked By:	Approved By:

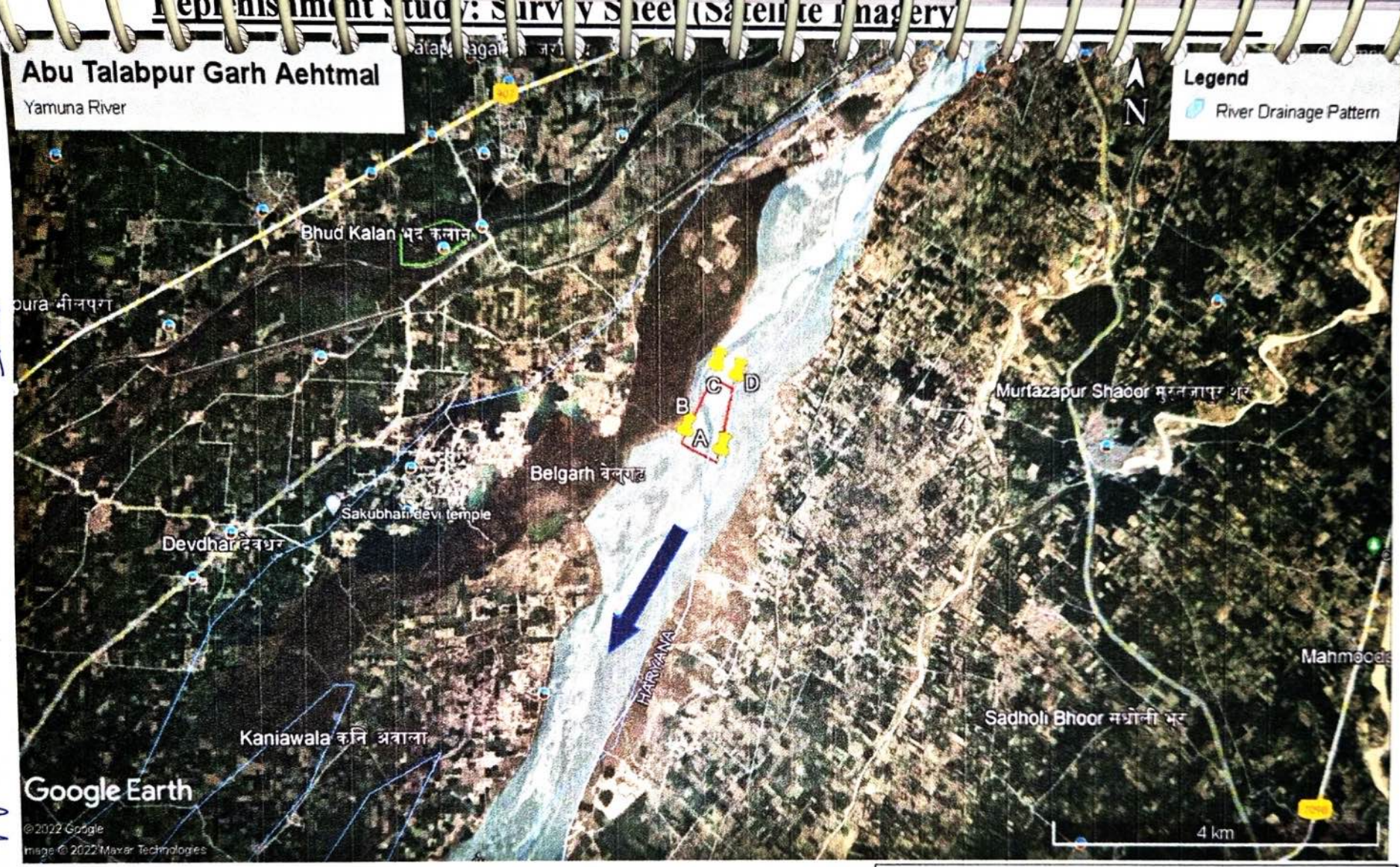
Date				
Revision				

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Replenishment Study Survey Sheet superimposed on Satellite Imaginary showing

—

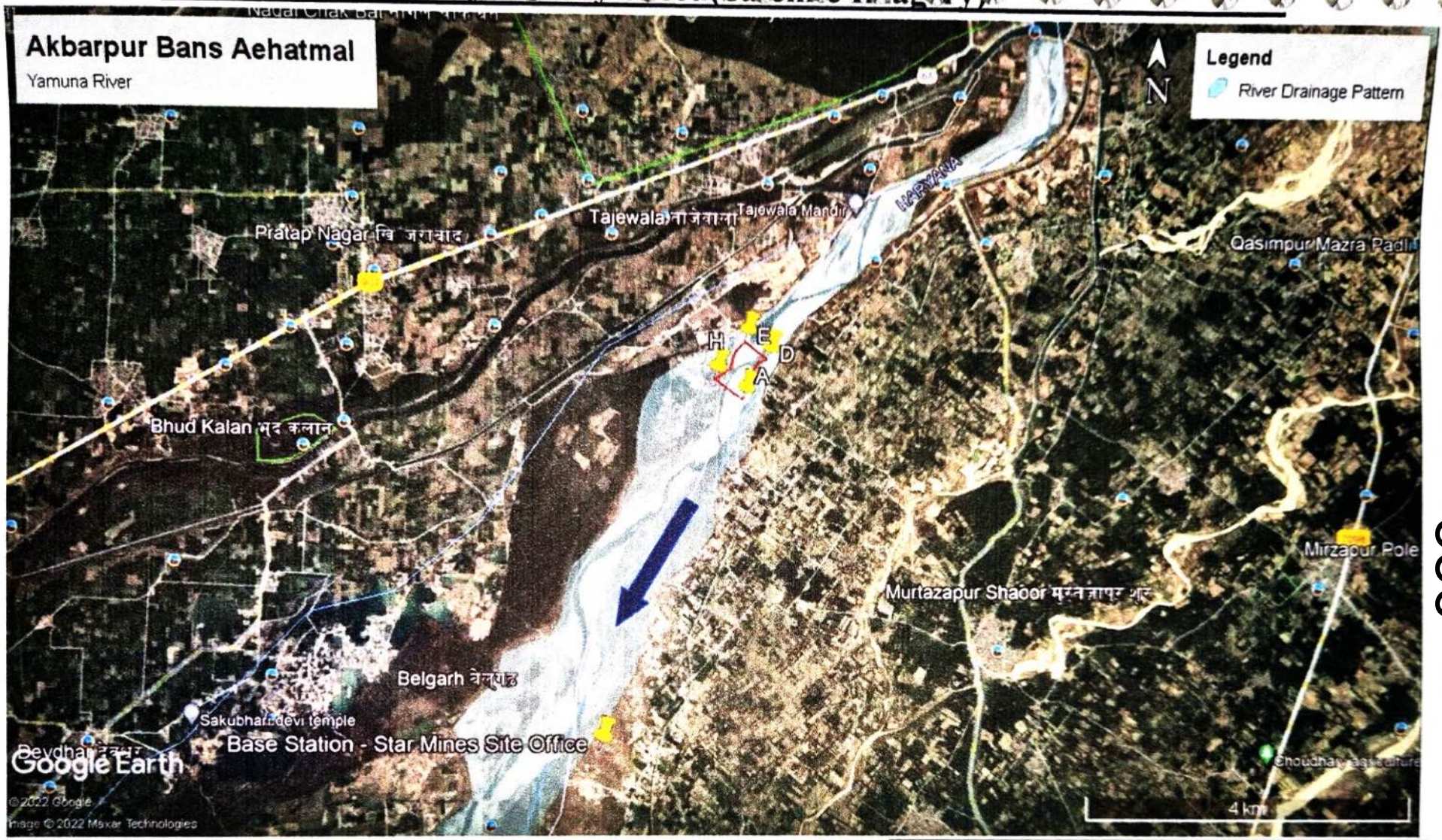
Lease Area, Boundary Pillar Coordinates and Basic Drainage Pattern of River with Flow Direction



Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (37.00 ha)		
A	30°14'41.78"N	77°31'38.30"E
B	30°14'49.46"N	77°31'21.34"E
C	30°14'56.20"N	77°31'36.25"E
D	30°14'51.96"N	77°31'46.05"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	37.00 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Abu Talabpur Garh	Behat	Saharanpur
Survey By:		
Verified By:		



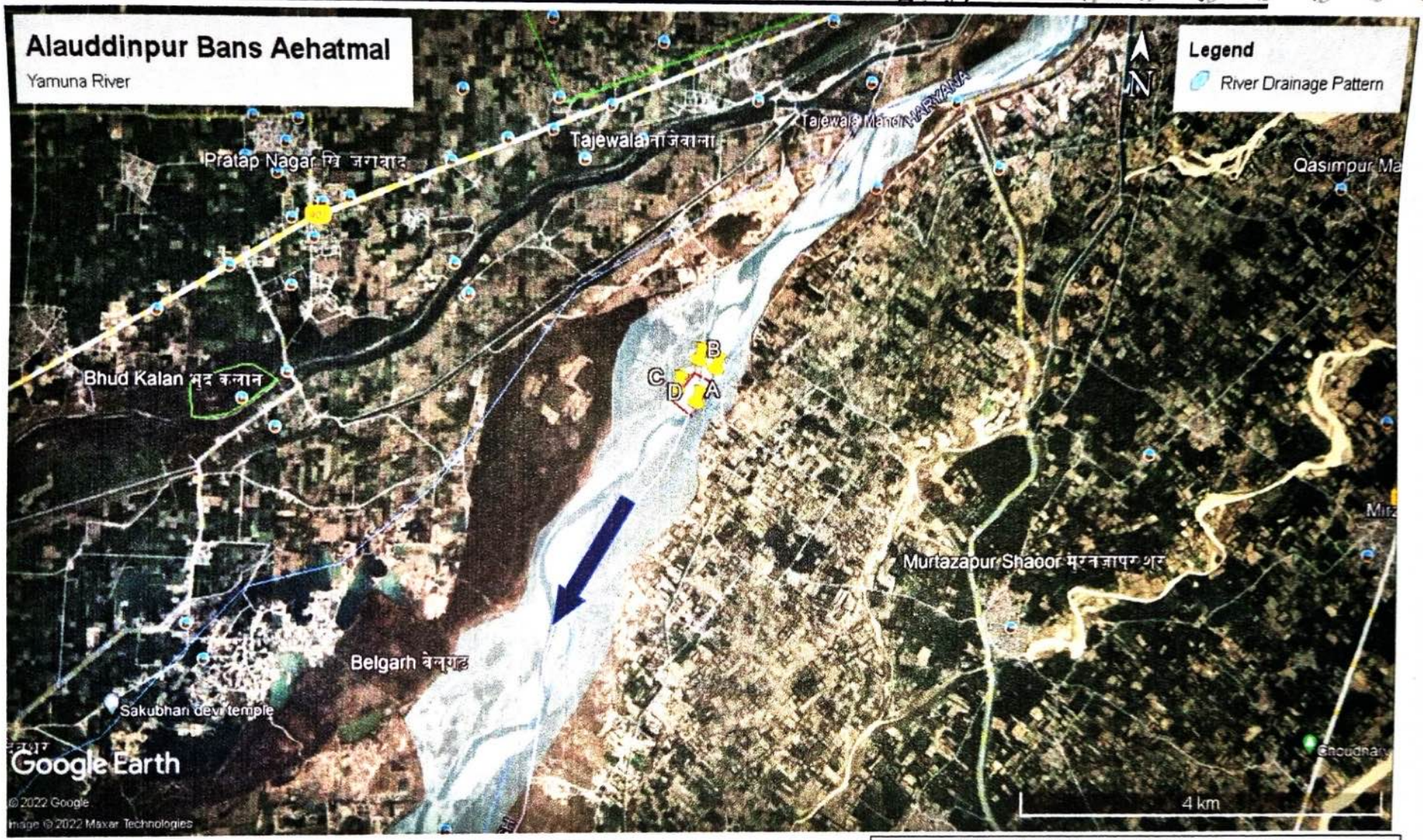
Pillars	Latitude (N)	Longitude (E)
Mining Lease Area (17.90 ha)		
A	30°16'27.80"N	77°32'46.96"E
B	30°16'34.01"N	77°32'47.53"E
C	30°16'42.58"N	77°32'53.94"E
D	30°16'43.84"N	77°32'58.19"E
E	30°16'50.96"N	77°32'47.76"E
F	30°16'46.69"N	77°32'43.28"E
G	30°16'39.98"N	77°32'41.04"E
H	30°16'36.08"N	77°32'33.91"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	17.90 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Akbarpur Bans Aehatmal	Behat	Saharanpur
Survey By:-		
Verified By:-		

कार्यालय जिलाधिकारी सहारनपुर (उत्तर प्रदेश)

Replenishment Study : Survey Sheet (Satellite Imagery)

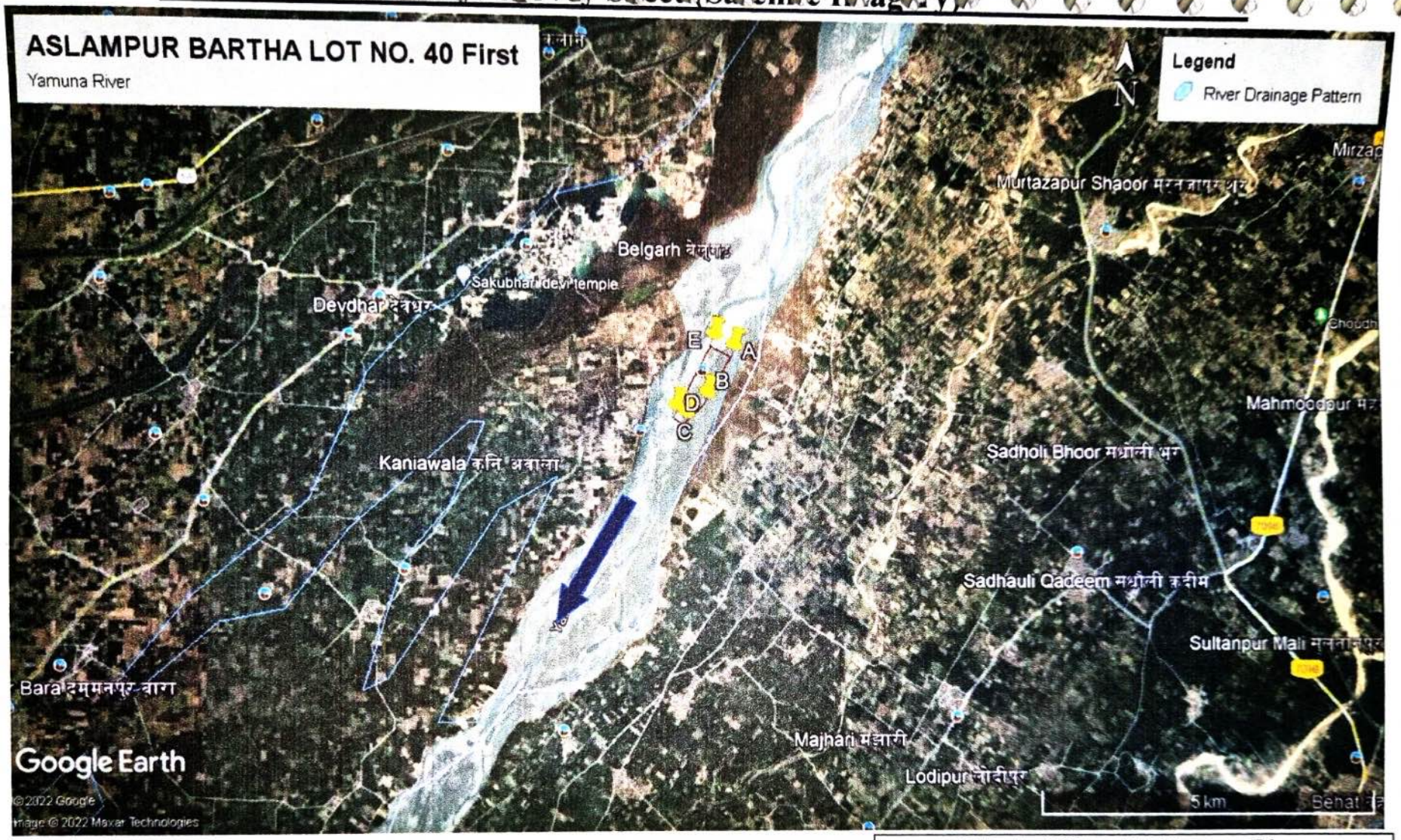


Pillars	Latitude (N)	Longitude (E)
Mining Lease Area (9.58 ha)		
A	30°16'14.92"N	77°32'39.76"E
B	30°16'17.99"N	77°32'32.74"E
C	30°16'08.09"N	77°32'23.84"E
D	30°16'02.92"N	77°32'31.72"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	9.58 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Alauddinpur Bans Aehatmal	Behat	Saharanpur
Survey By:-		
Verified By:-		

Replenishment Study: Survey Sheet/Satellite Imagery

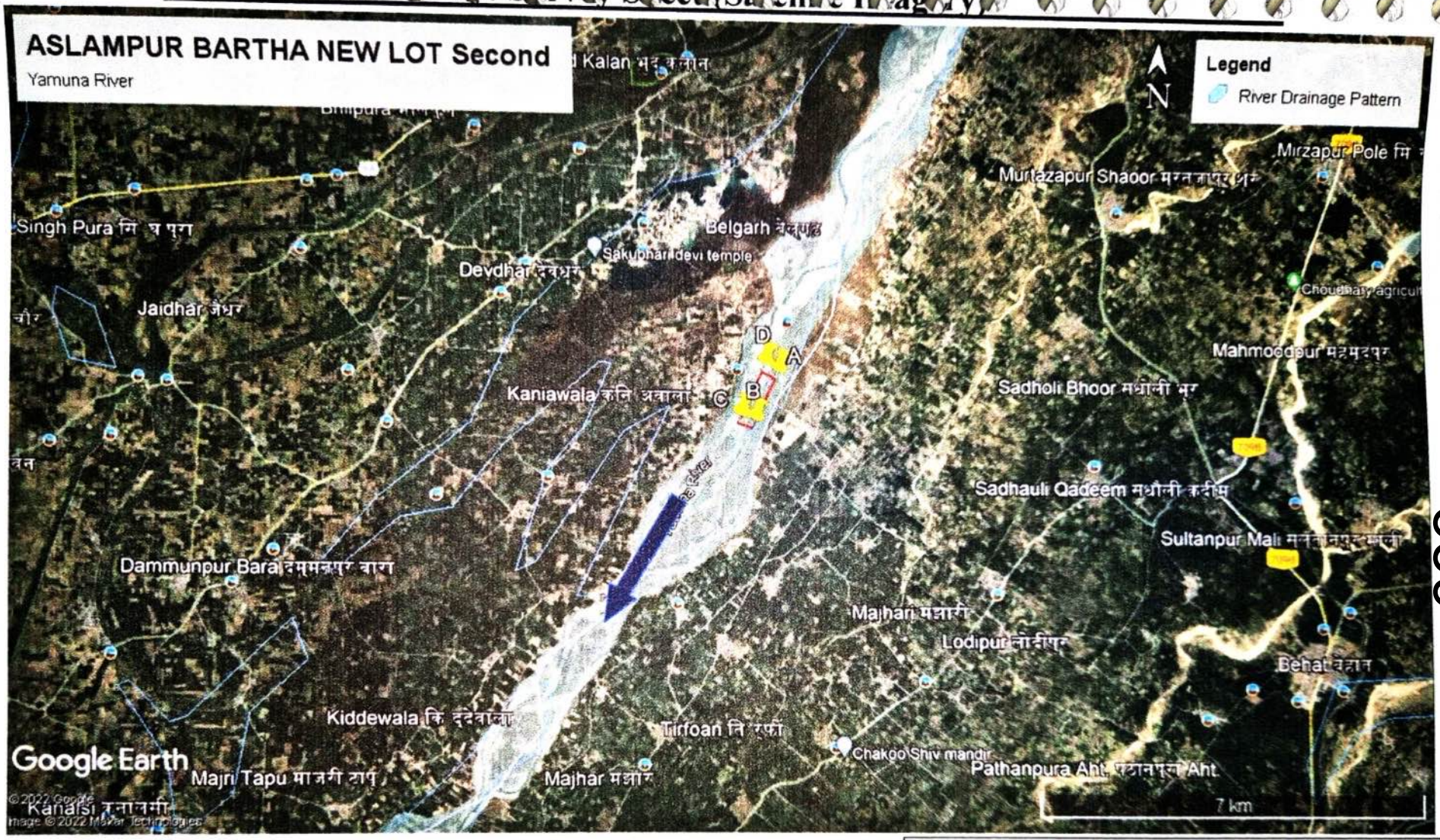


Pillars	Latitude (N)	Longitude (E)
Mining Lease Area (36.60 ha)		
A	30°13'45.87"N	77°31'09.07"E
B	30°13'23.05"N	77°31'53.85"E
C	30°13'13.45"N	77°31'42.33"E
D	30°13'16.67"N	77°31'36.60"E
E	30°13'50.98"N	77°31'57.80"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	36.60 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Aslampur Bartha Lot No. 40 First	Behat	Saharanpur
Survey By:-		
Verified By:-		

558

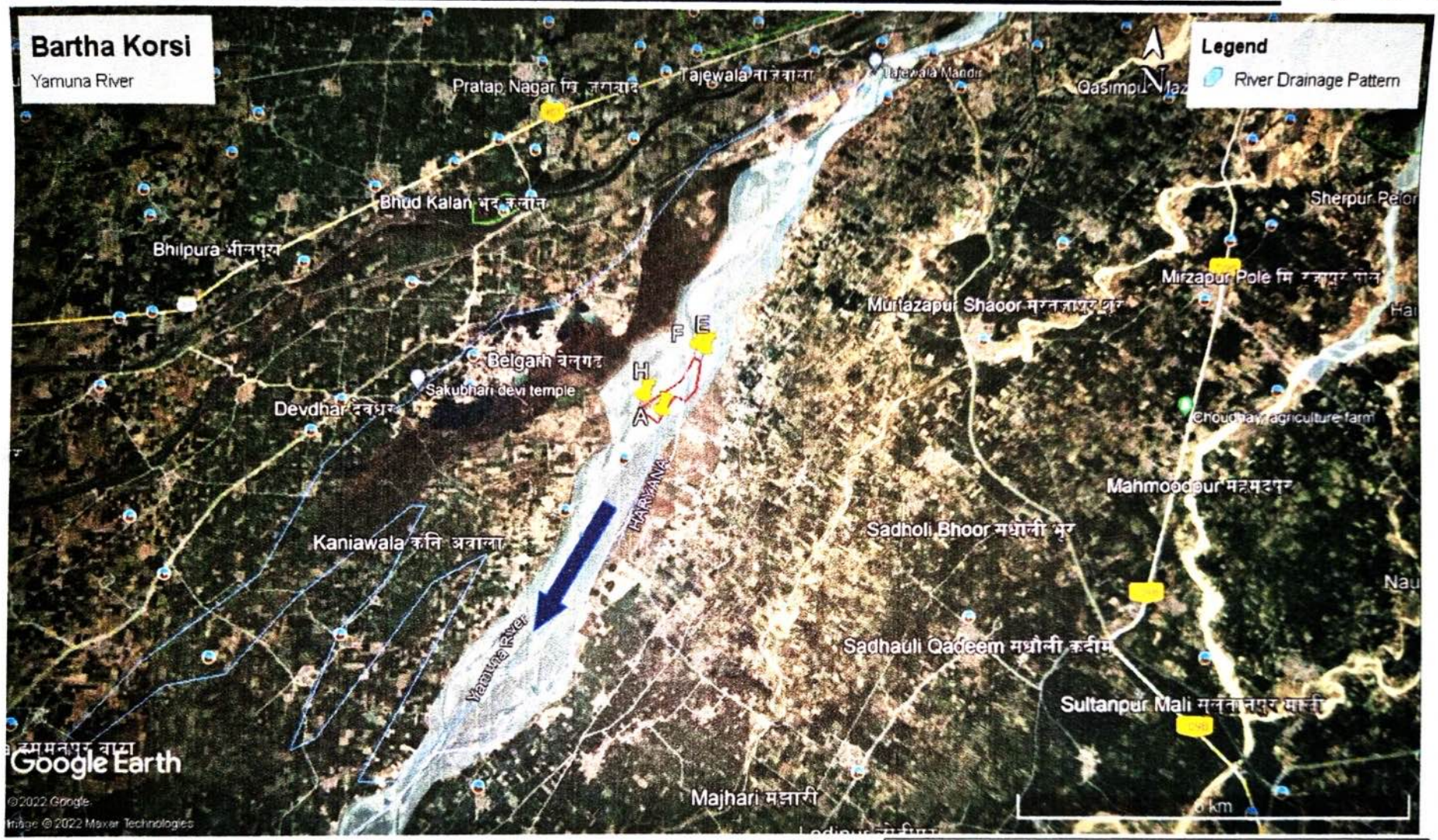


Pillars	Latitude (N)	Longitude (E)
Mining Lease Area (28.16 ha)		
A	30°13'04.93"N	77°30'44.59"E
B	30°12'35.50"N	77°30'28.50"E
C	30°12'38.19"N	77°30'18.84"E
D	30°13'09.39"N	77°30'35.57"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	28.16 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Aslampur Bartha New Lot Second	Behat	Saharanpur
Survey By:-		
Verified By:-		

559

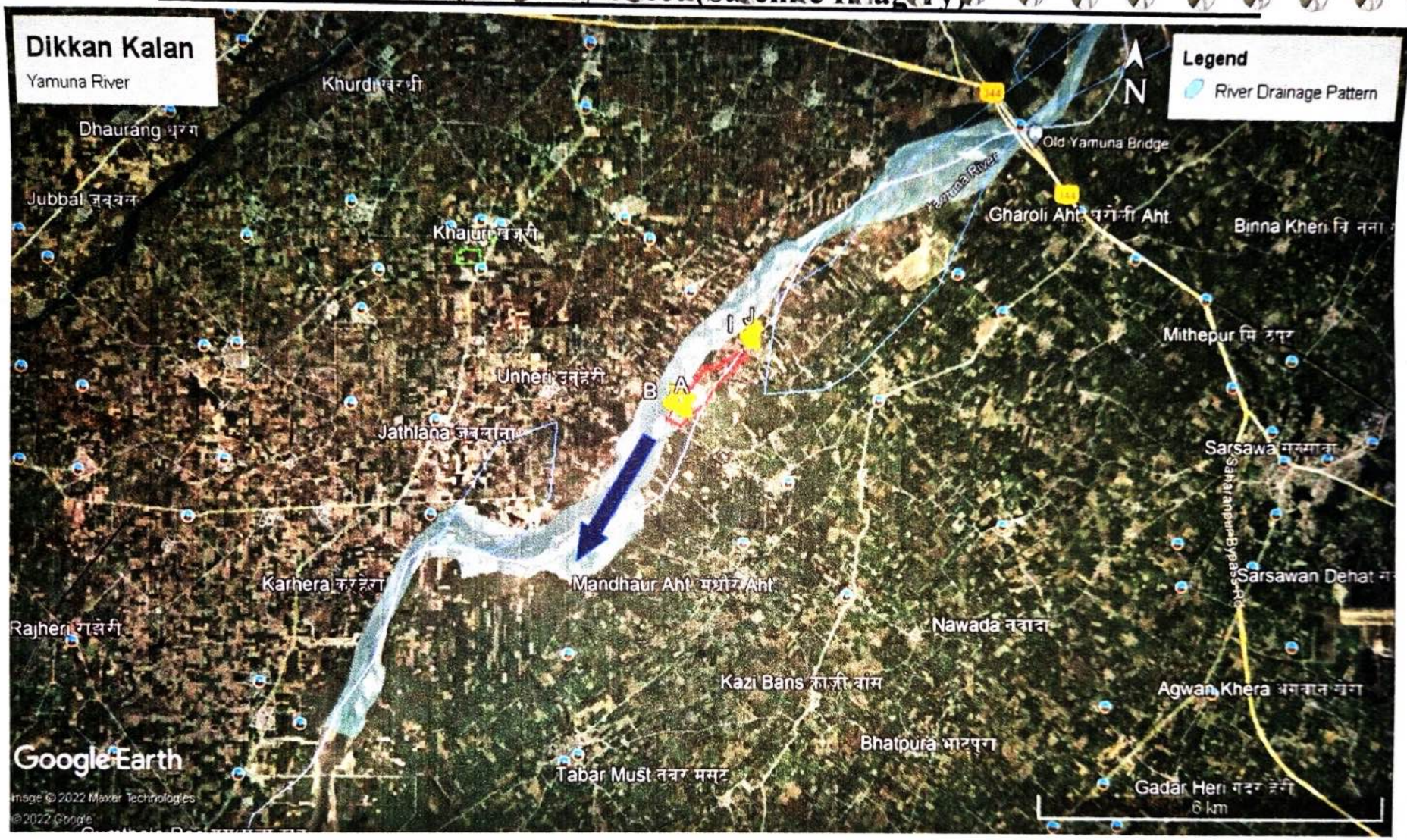


Pillars	Latitude (N)	Longitude (E)
Mining Lease Area (36.00 ha)		
A	30° 14' 00.94" N	77° 31' 13.91" E
B	30° 14' 16.50" N	77° 31' 24.43" E
C	30° 14' 13.69" N	77° 31' 31.19" E
D	30° 14' 19.59" N	77° 31' 37.85" E
E	30° 14' 37.10" N	77° 31' 40.80" E
F	30° 14' 39.19" N	77° 31' 36.25" E
G	30° 14' 26.08" N	77° 31' 29.05"E
H	30° 14' 09.19" N	77° 31' 02.18" E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	36.0 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Bartha Korsi	Behat	Saharanpur
Survey By:-		
Verified By:-		

560



LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

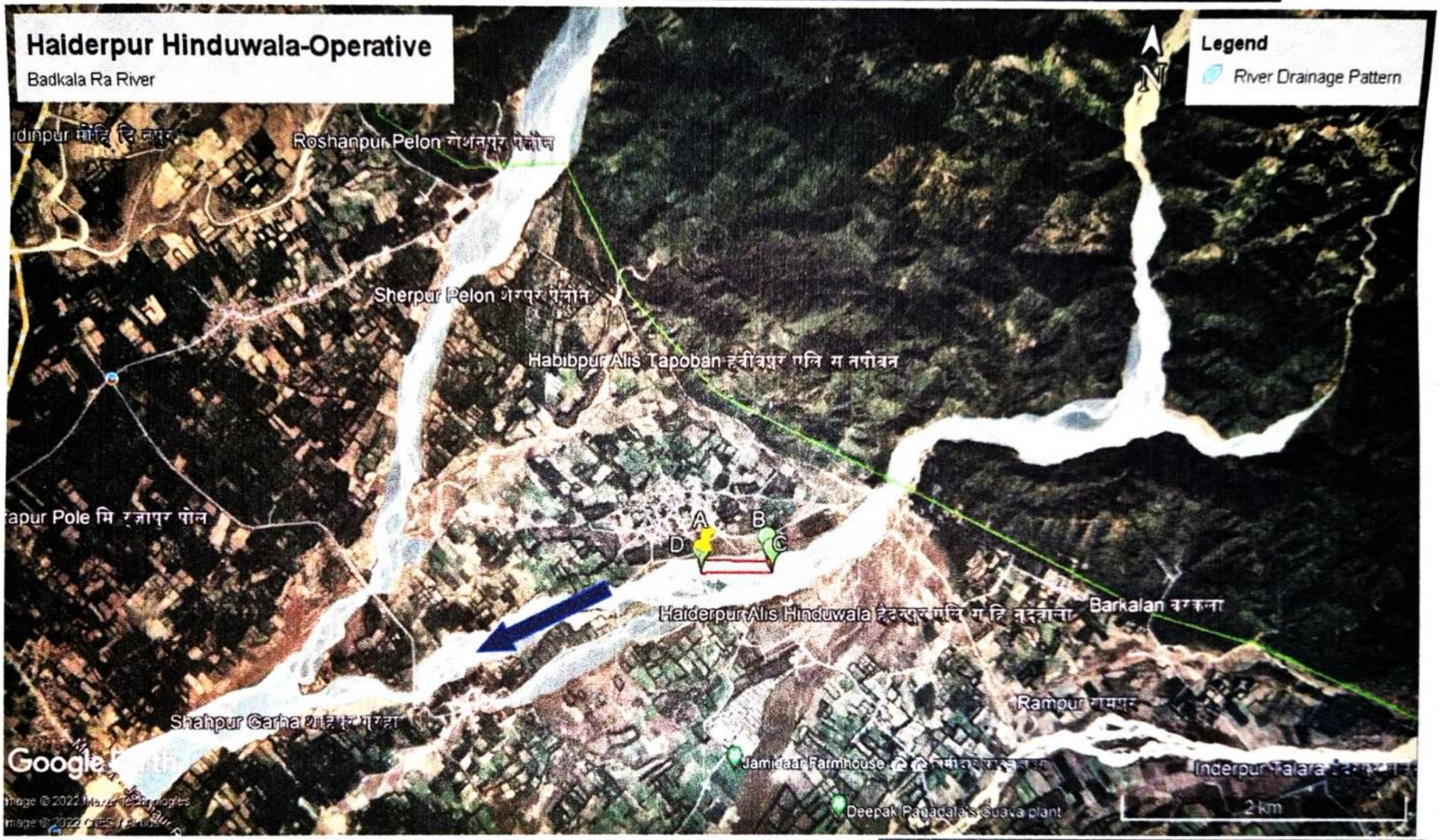
Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	52.63 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Dikkan Kalan	Nukur	Saharanpur
Survey By:-		
Verified By:-		

कार्यालय जिलाधिकारी सहारनपुर (उत्तर प्रदेश)

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Pillars	Latitude (N)	Longitude (E)
Mining Lease Area (52.63 ha)		
A	30° 1'20.61"N	77°17'23.68"E
B	30° 1'24.58"N	77°17'15.45"E
C	30° 1'32.77"N	77°17'19.87"E
D	30° 1'42.25"N	77°17'24.49"E
E	30° 1'41.34"N	77°17'31.04"E
F	30° 1'52.02"N	77°17'39.09"E
G	30° 1'54.80"N	77°17'51.61"E
H	30° 1'56.88"N	77°17'52.96"E
I	30° 2'2.71"N	77°18'5.82"E
J	30° 1'59.86"N	77°18'8.25"E
K	30° 1'57.85"N	77°18'7.25"E
L	30° 1'58.76"N	77°18'5.82"E
M	30° 1'57.46"N	77°18'4.89"E
N	30° 1'57.00"N	77°18'1.96"E
O	30° 1'53.50"N	77°18'0.53"E
P	30° 1'47.64"N	77°17'52.52"E
Q	30° 1'42.10"N	77°17'46.53"E
R	30° 1'32.38"N	77°17'39.44"E
S	30° 1'27.11"N	77°17'31.55"E

562



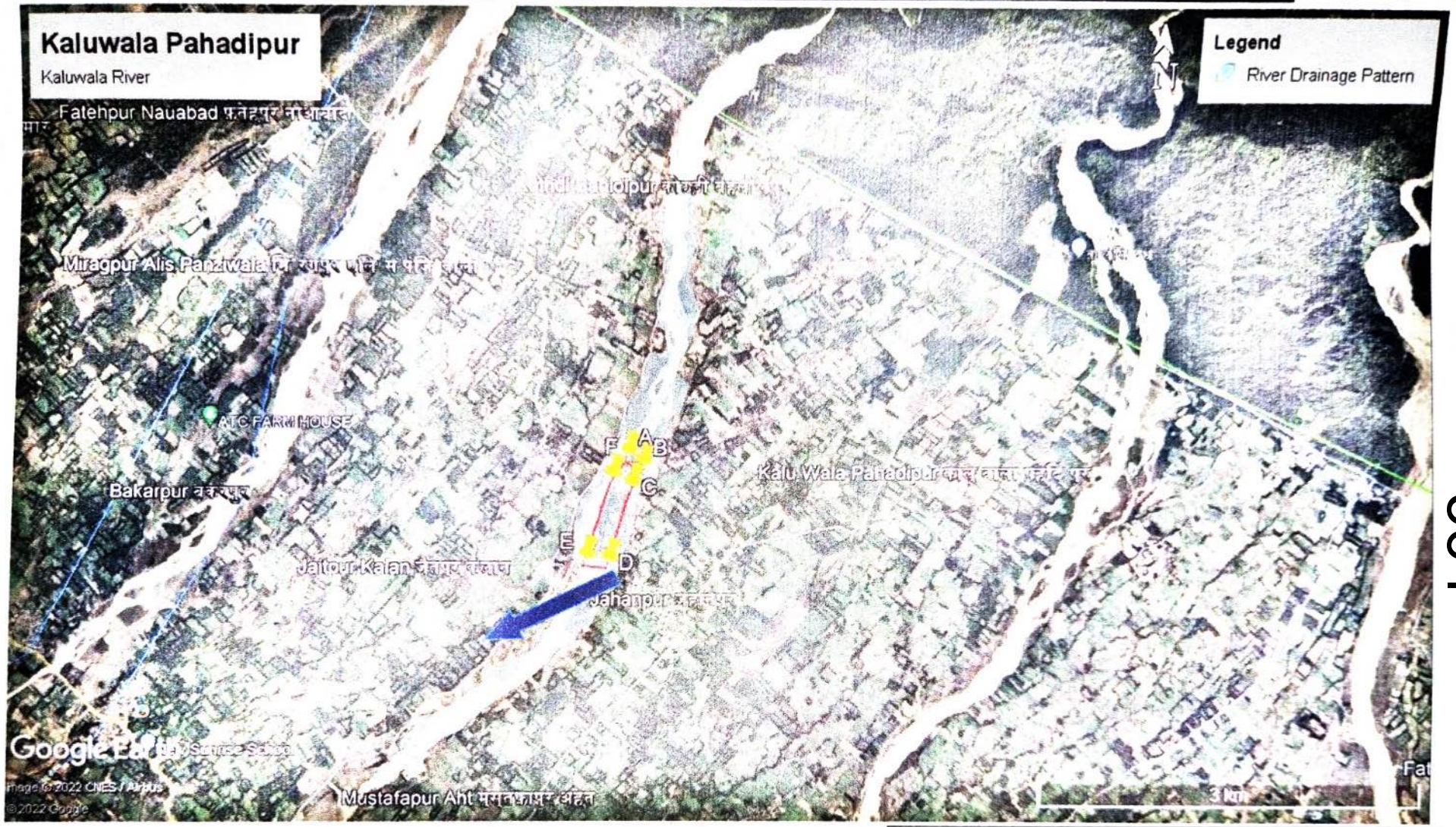
Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (4.20 ha)		
A	30° 15' 20.64" N	77° 40' 42.10" E
B	30° 15' 20.54" N	77° 41' 00.42" E
C	30° 15' 17.98" N	77° 41' 01.84" E
D	30° 15' 17.71" N	77° 40' 42.89" E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Badkala Ra River		
Survey	Physical, Drone and DGPS	
Survey Area	4.20 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Haiderpur Hinduwala	Behat	Saharanpur
Survey By:		
Verified By:		

563

Replenishment Study: Survey Sheet (Satellite Imagery)



Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (14.90 ha)		
A	30°12'08.76"N	77°45'37.77"E
B	30°12'06.03"N	77°45'42.25"E
C	30°12'00.52"N	77°45'38.93"E
D	30°11'40.91"N	77°45'32.39"E
E	30°11'41.72"N	77°45'25.51"E
F	30°12'02.80"N	77°45'33.06"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Kaluwala River		
Survey	Physical, Drone and DGPS	
Survey Area	14.90 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Kaluwala Pahadipur	Behat	Saharanpur
Survey By:		
Verified By:		

कार्यालय जिलाधिकारी सहारनपुर

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Depicting Mining Lease Area: Survey Sheet / Satellite Imagery

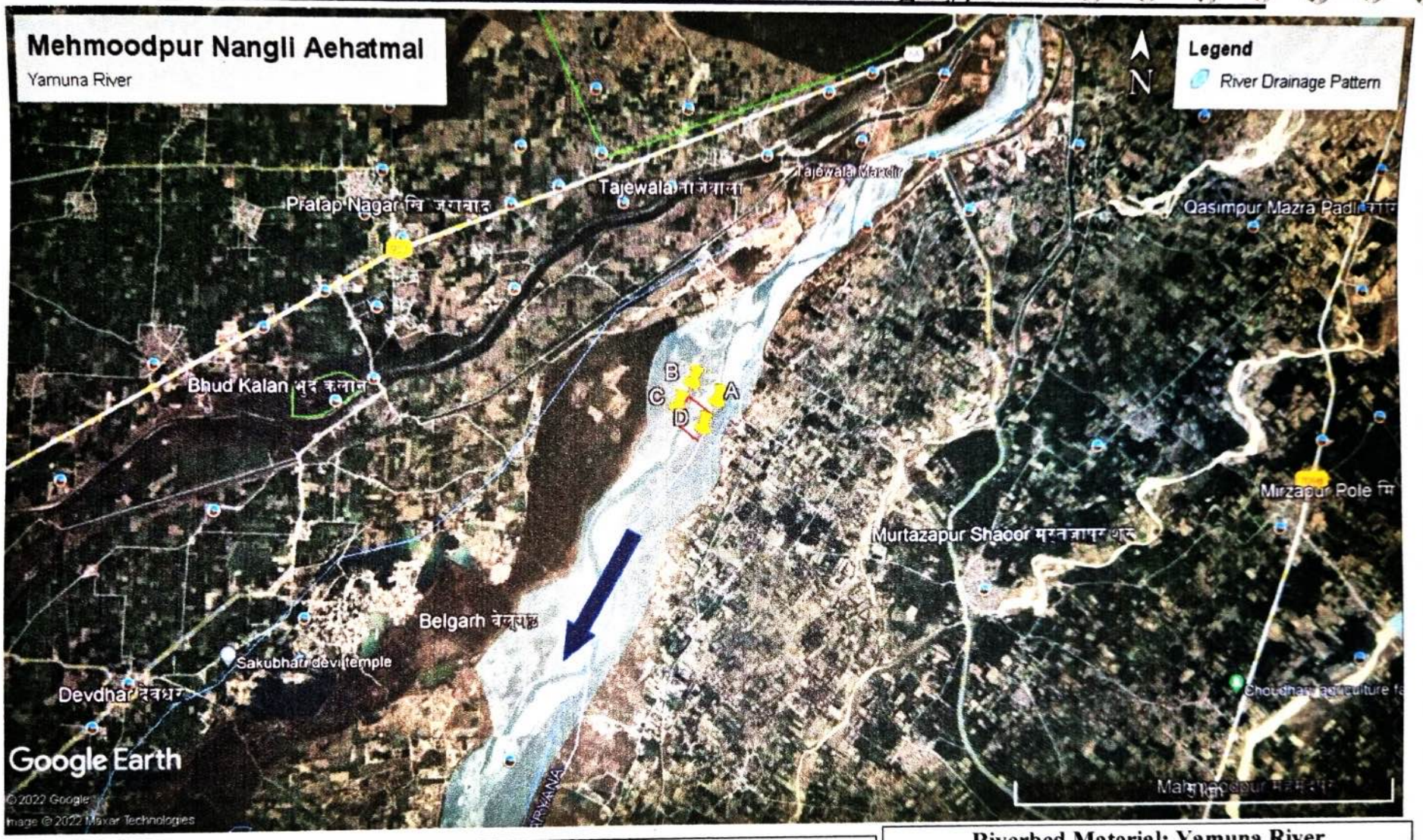


Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (3.10 ha)		
A	30° 19' 21.41" N	77° 38' 26.35" E
B	30° 19' 17.62" N	77° 38' 30.56" E
C	30° 19' 13.68" N	77° 38' 25.07" E
D	30° 19' 17.44" N	77° 38' 20.78" E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Badshahibagh Rao River		
Survey	Physical, Drone and DGPS	
Survey Area	3.10 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Mayapur Rooppur	Behat	Saharanpur
Survey By:		
Verified By:		

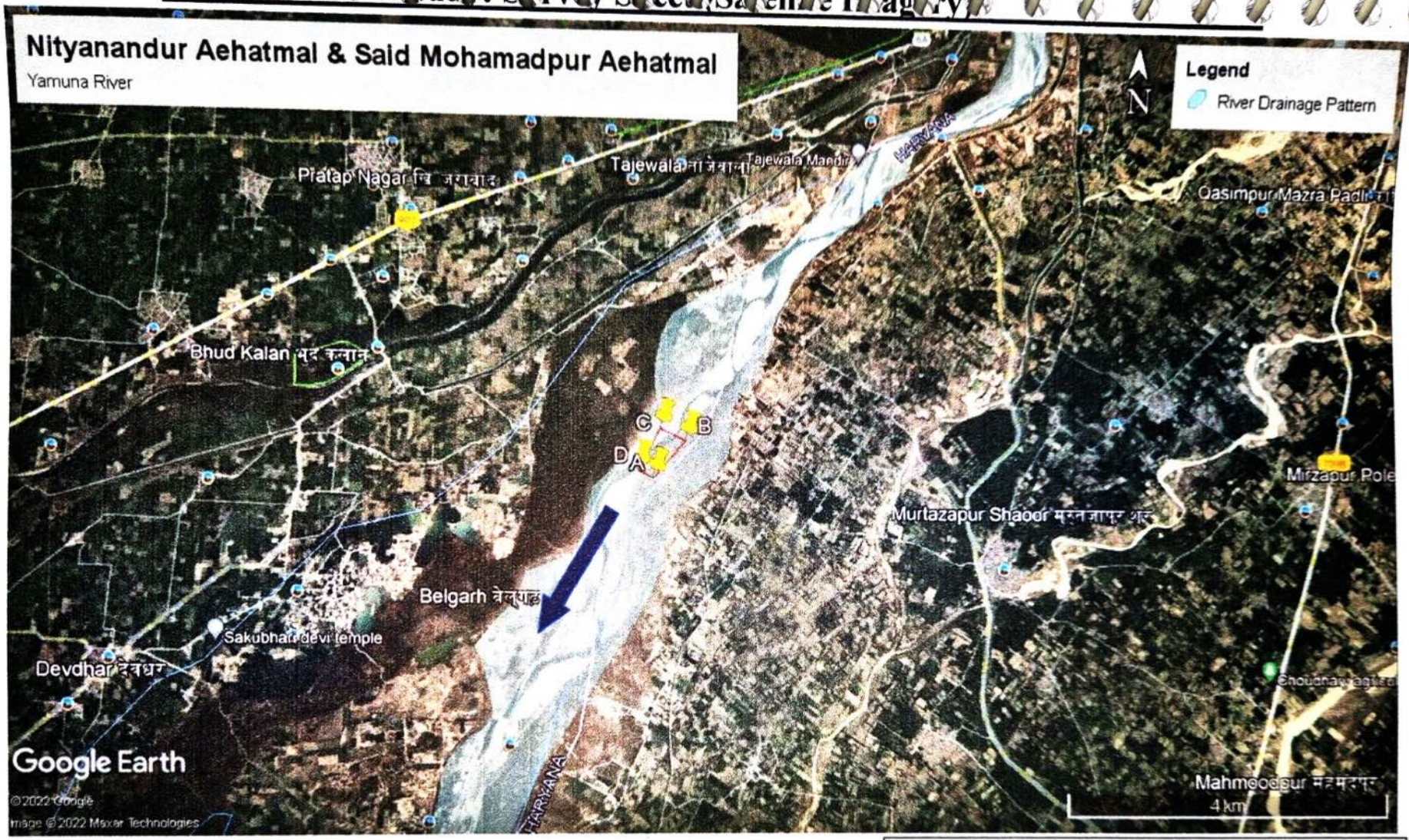
565



Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (15.70 ha)		
A	30°16'02.98"N	77°32'30.74"E
B	30°16'10.84"N	77°32'18.84"E
C	30°16'00.40"N	77°32'11.56"E
D	30°15'51.70"N	77°32'23.64"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	15.70 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Mehmoodpur Nangli Aehatmal	Behat	Saharanpur
Survey By:		
Verified By:		

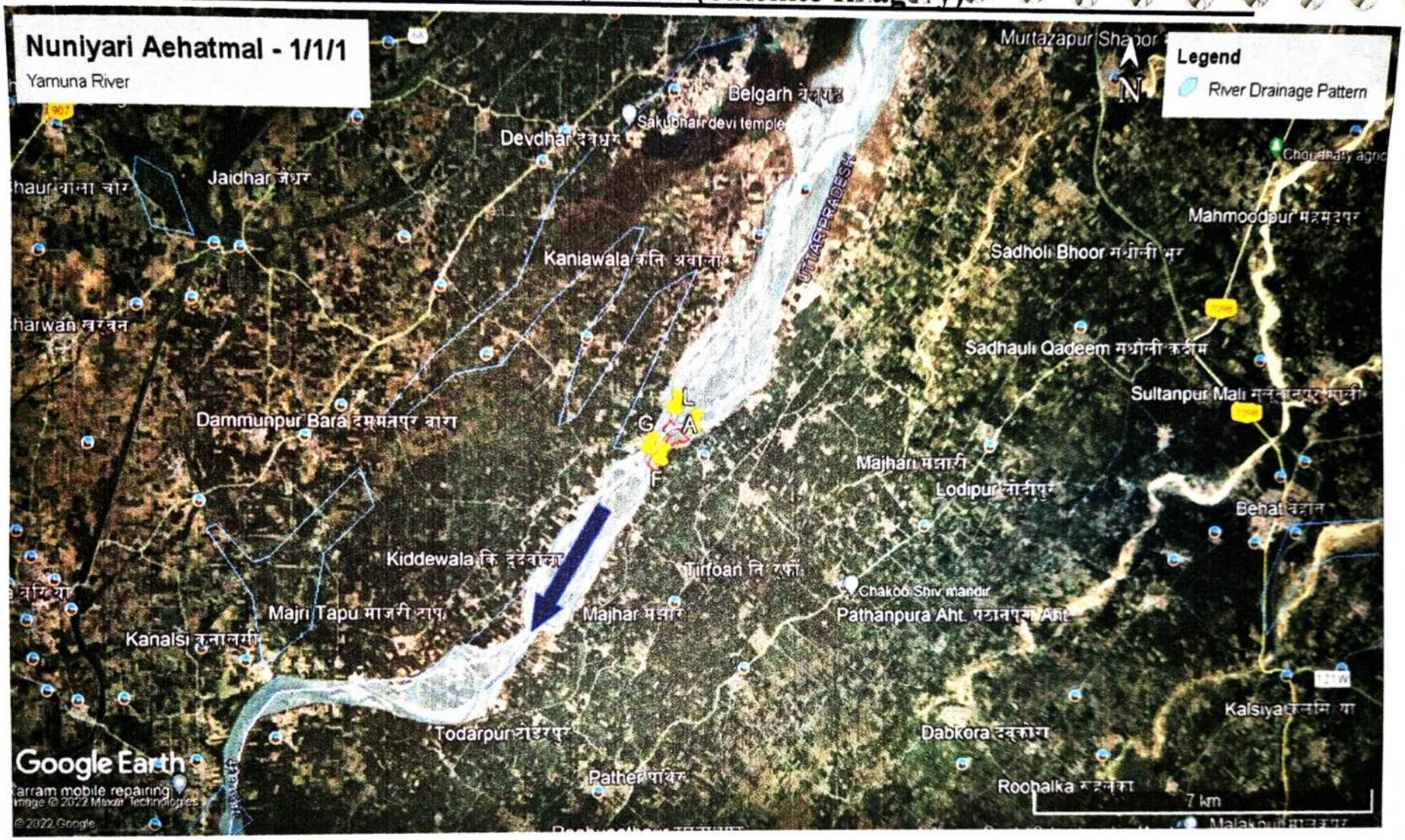


Pillars	Latitude (N)	Longitude (E)
Mining Lease Area (17.70 ha)		
A	30°15'25.77"N	77°31'57.79"E
B	30°15'41.32"N	77°32'12.89"E
C	30°15'46.16"N	77°32'00.64"E
D	30°15'28.87"N	77°31'50.13"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	17.70 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Nityanandur Aehatmal & Said Mohamadpur Aehatmal; Behat; Saharanpur.		
Survey By:-		
Verified By:-		

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LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

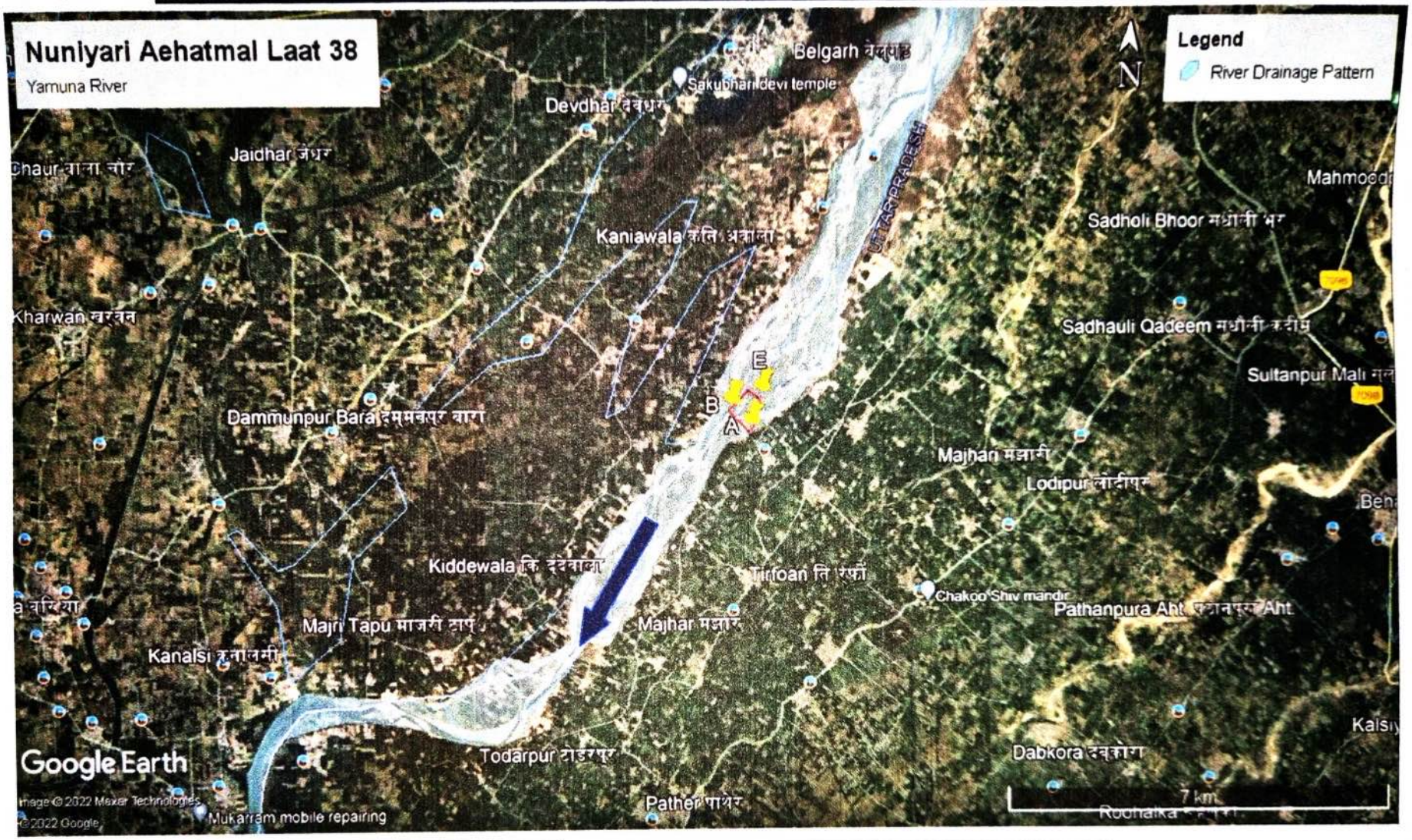
Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	19.00 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Nuniyari Aehatmal	Behat	Saharanpur
Survey By:-		
Verified By:-		

कार्यालय जिलाधिकारी (खनन) सहारनपुर

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Pillars	Latitude (N)	Longitude (E)
Mining Lease Area (23.20 ha)		
A	30°11'00.50"N	77°29'25.19"E
B	30°10'59.39"N	77°29'23.26"E
C	30°10'58.86"N	77°29'15.55"E
D	30°10'55.77"N	77°29'10.53"E
E	30°10'46.29"N	77°29'04.02"E
F	30°10'39.87"N	77°29'00.42"E
G	30°10'46.96"N	77°29'51.89"E
H	30°10'51.56"N	77°29'56.86"E
I	30°10'49.46"N	77°29'58.83"E
J	30°11'02.30"N	77°29'11.12"E
K	30°11'07.26"N	77°29'05.46"E
L	30°11'12.52"N	77°29'11.64"E

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LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	24.29 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Nuniyari Aehatmal	Behat	Saharanpur
Survey By:-		
Verified By:-		

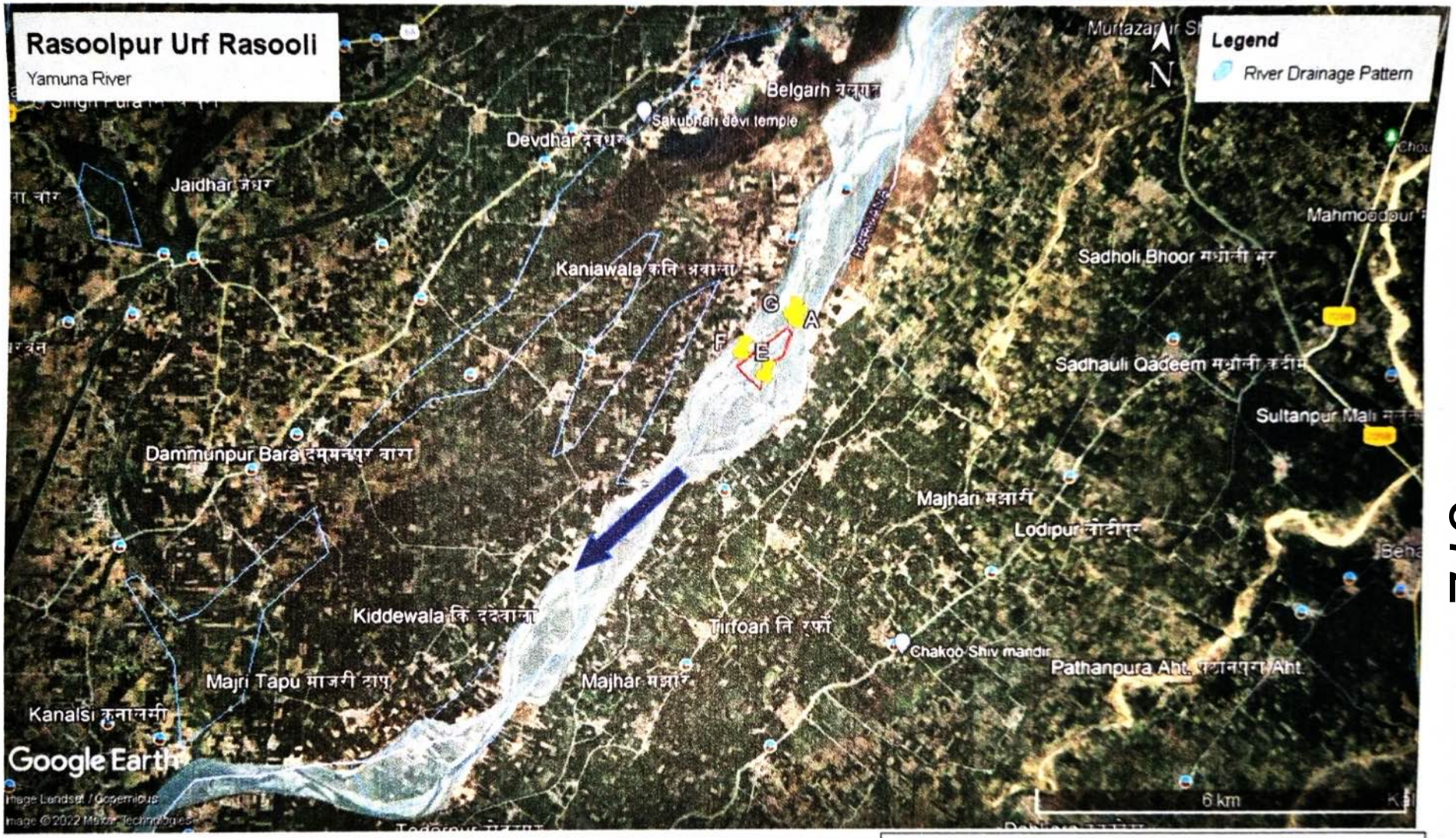
कार्यालय जिलाधिकारी (खनन) सहारनपुर (उत्तर प्रदेश)

570

Pillars	Latitude (N)	Longitude (E)
Mining Lease Area (24.29 ha)		
A	30°11'00.90" N	77°29"25.83"E
B	30°11'12.98" N	77°29"12.21" E
C	30°11'24.95" N	77°29"26.28" E
D	30°11'21.79" N	77°29"29.68" E
E	30°11'20.39" N	77°29"33.03" E
F	30°11'18.64" N	77°29"33.83" E
G	30°11'17.01" N	77°29"34.70" E
H	30°11'14.93" N	77°29"32.91" E
I	30°11'09.54" N	77°29"31.35" E
J	30°11'03.46" N	77°29"29.55" E

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Replacement Study: Survey Sheet (Satellite Imagery)



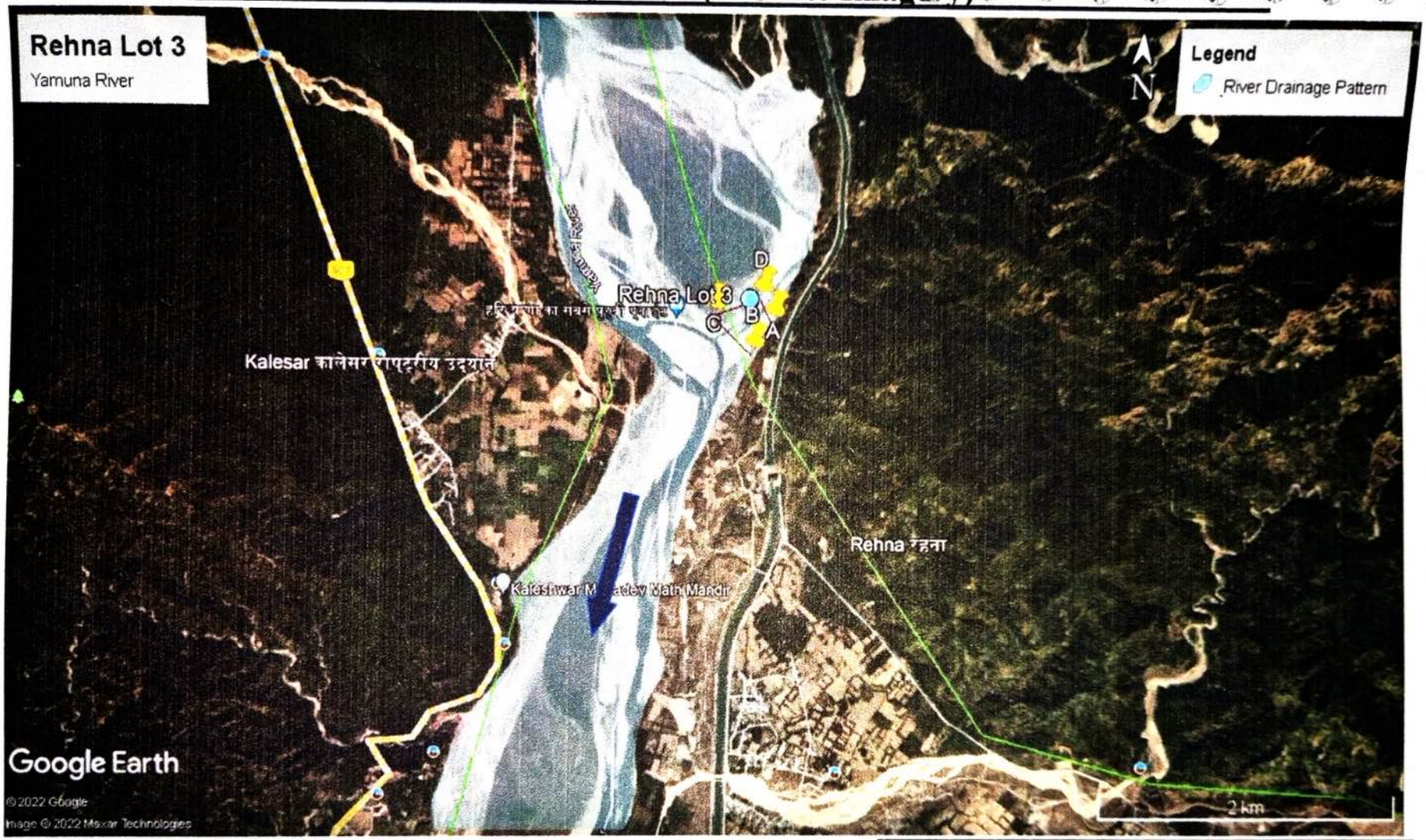
Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (34.00 ha)		
A	30°12'17.09"N	77°30'18.81"E
B	30°12'16.42"N	77°30'17.32"E
C	30°12'05.34"N	77°30'13.17"E
D	30°11'59.82"N	77°30'01.24"E
E	30°11'46.33"N	77°29'58.50"E
F	30°11'59.32"N	77°29'43.47"E
G	30°12'21.10"N	77°30'16.04"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	34.00 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Rasoolpur Urf Rasooli	Behat	Saharanpur
Survey By:		
Verified By:		

572

Replenishment Study: Survey Sheet (Satellite Imagery)

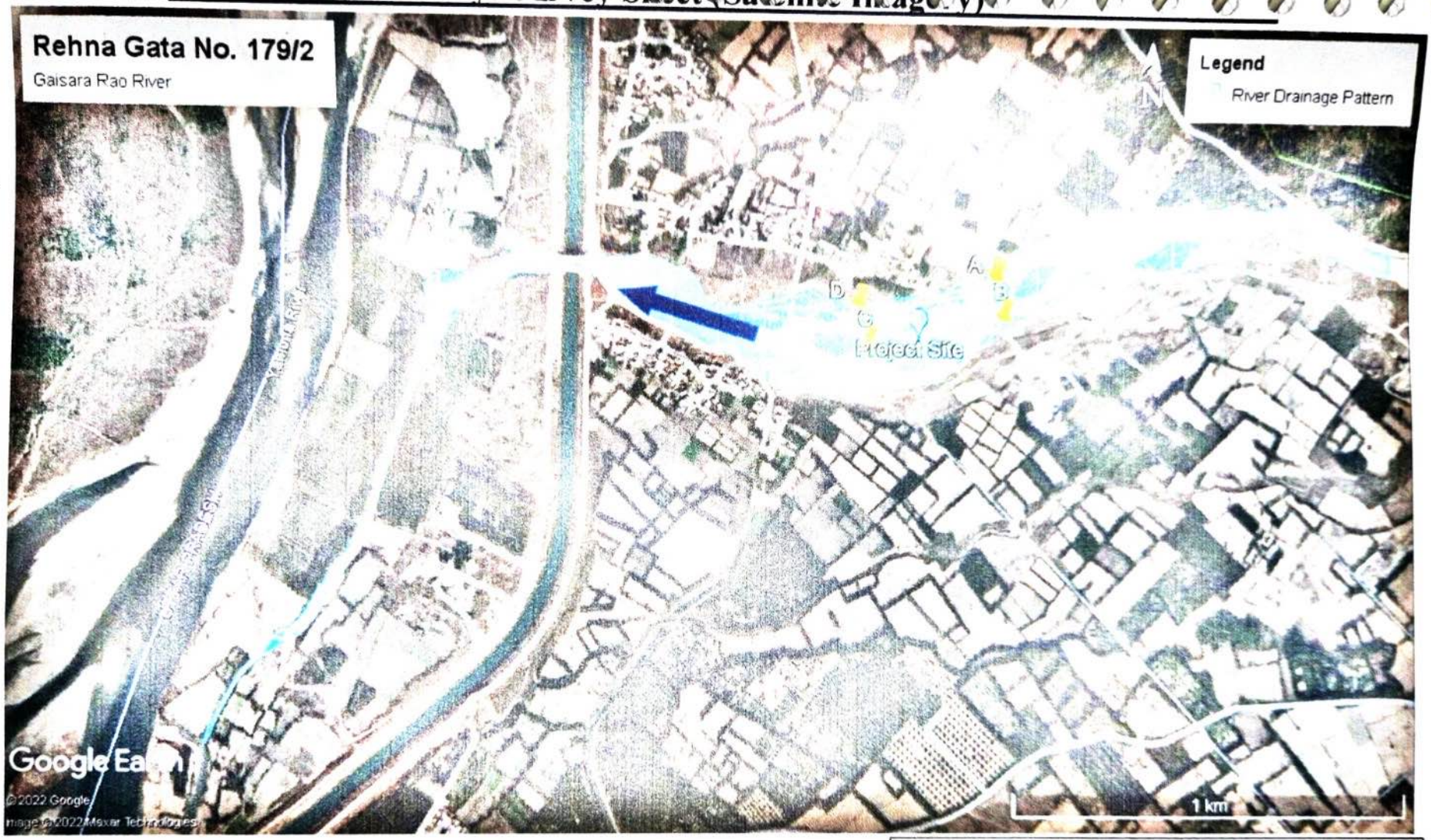


Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (8.05 ha)		
A	30° 21' 36.45" N	77° 36' 05.61" E
B	30° 21' 29.62" N	77° 36' 00.26" E
C	30° 21' 37.95" N	77° 35' 50.38" E
D	30° 21' 41.71" N	77° 36' 02.50" E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	8.05 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Rehna	Behat	Saharanpur
Survey By:		
Verified By:		

Replenishment Study: Survey Sheet (Satellite Imagery)

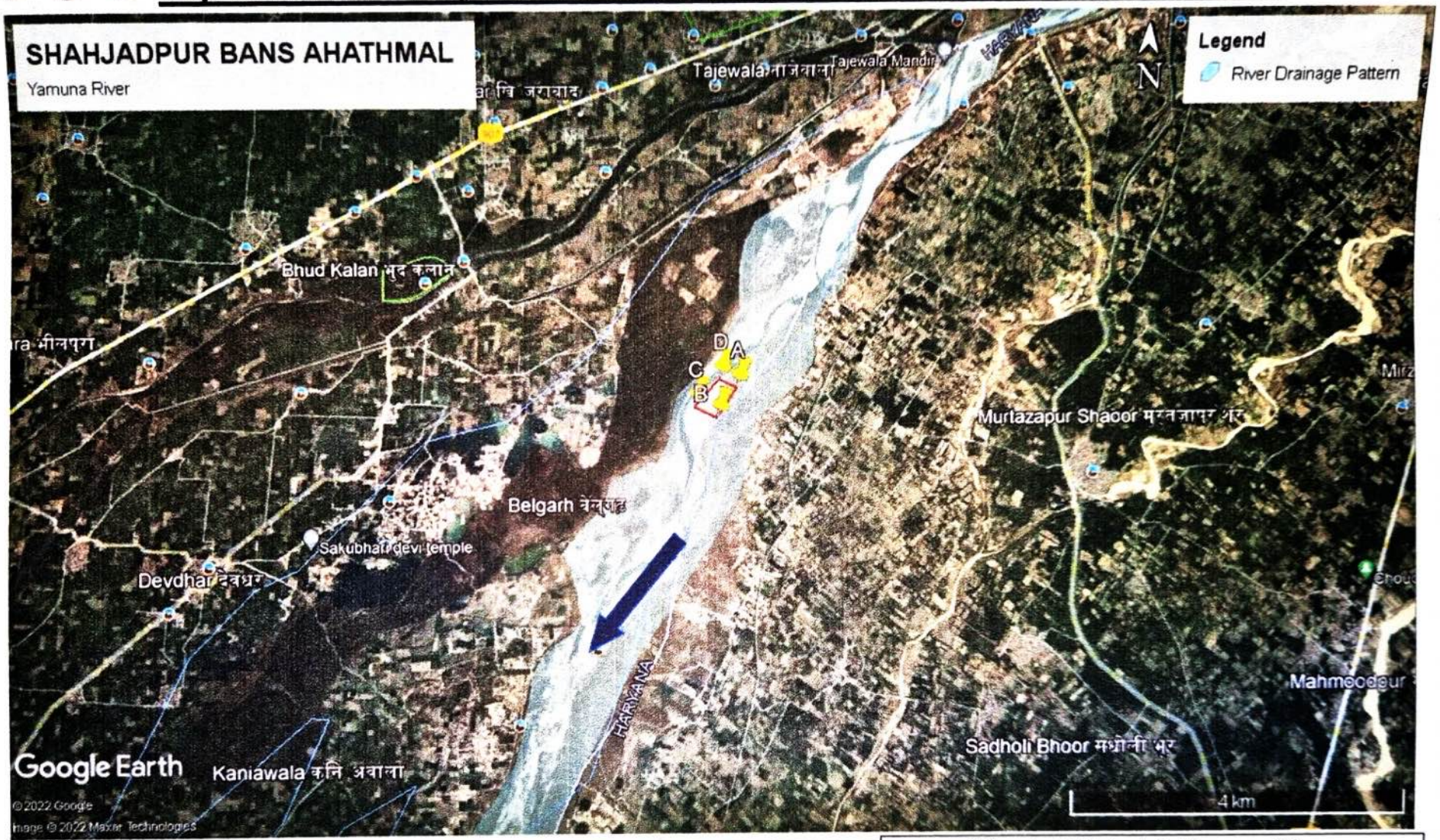


Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (3.75 ha)		
A	30° 19' 56.61" N	77° 36' 32.69" E
B	30° 19' 54.45" N	77° 36' 35.03" E
C	30° 19' 47.72" N	77° 36' 20.40" E
D	30° 19' 49.81" N	77° 36' 18.31" E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Gaisara Rao River		
Survey	Physical, Drone and DGPS	
Survey Area	3.75 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Rehna	Behat	Saharanpur
Survey By:		
Verified By:		

574

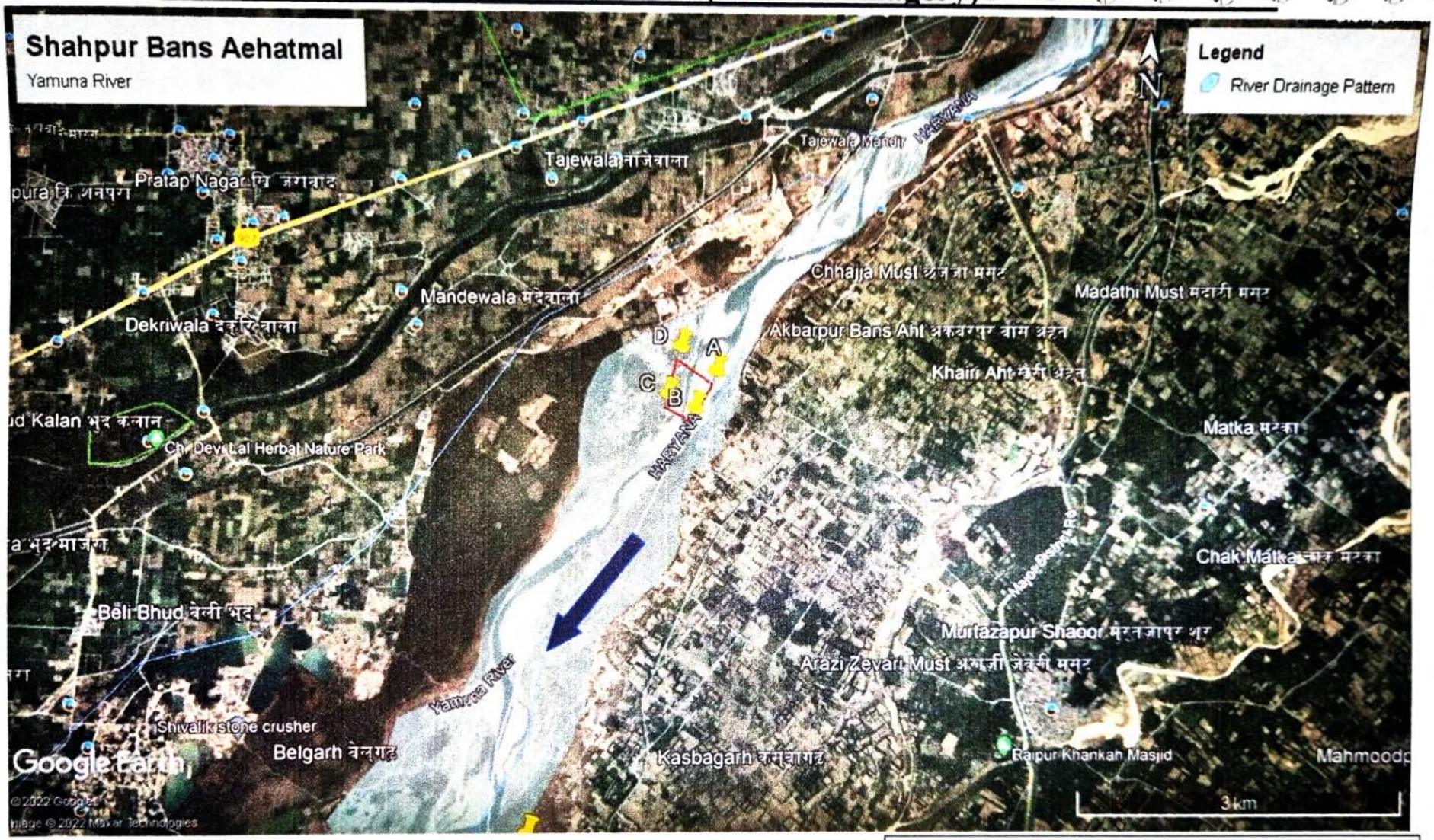


Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (13.0 ha)		
A	30°15'24.84"N	77°31'57.01"E
B	30°15'12.32"N	77°31'47.88"E
C	30°15'16.91"N	77°31'36.94"E
D	30°15'28.43"N	77°31'48.83"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	13.0 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Shahjadpur Bans Ahathmal	Behat	Saharanpur
Survey By:		
Verified By:		

Replenishment Study: Survey Sheet (Satellite Image)



Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (15.60 ha)		
A	30°16'27.75"N	77°32'46.14"E
B	30°16'16.01"N	77°32'38.50"E
C	30°16'20.43"N	77°32'28.70"E
D	30°16'35.53"N	77°32'33.20"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	15.60 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Shahpur Bans Aehatmal	Behat	Saharanpur
Survey By:		
Verified By:		



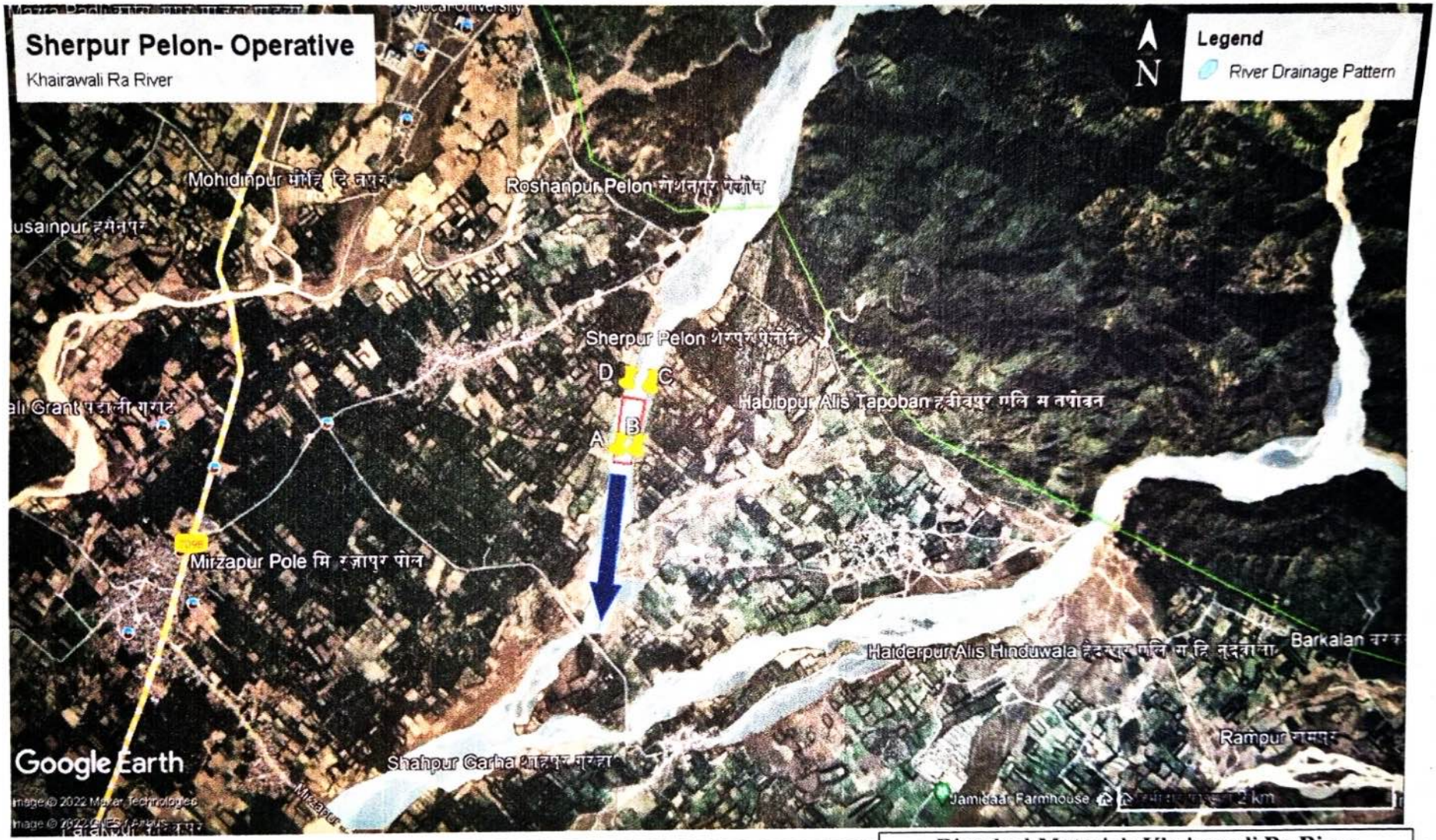
Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (6.475 ha) Gata No. 403, 404/1, 405, 406/1, 416/2, 421/1, 422/2, 423/2, 424/2, 429 & 431		
A	30°16'35.16"N	77°39'44.44"E
B	30°16'32.34"N	77°39'51.41"E
C	30°16'21.11"N	77°39'36.26"E
D	30°16'22.11"N	77°39'34.41"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Khairawali Ra River		
Survey	Physical, Drone and DGPS	
Survey Area	6.475 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Sherpur Pelon	Behat	Saharanpur
Survey By:		
Verified By:		

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Replenishment Study Survey Sheet (Satellite Imagery)



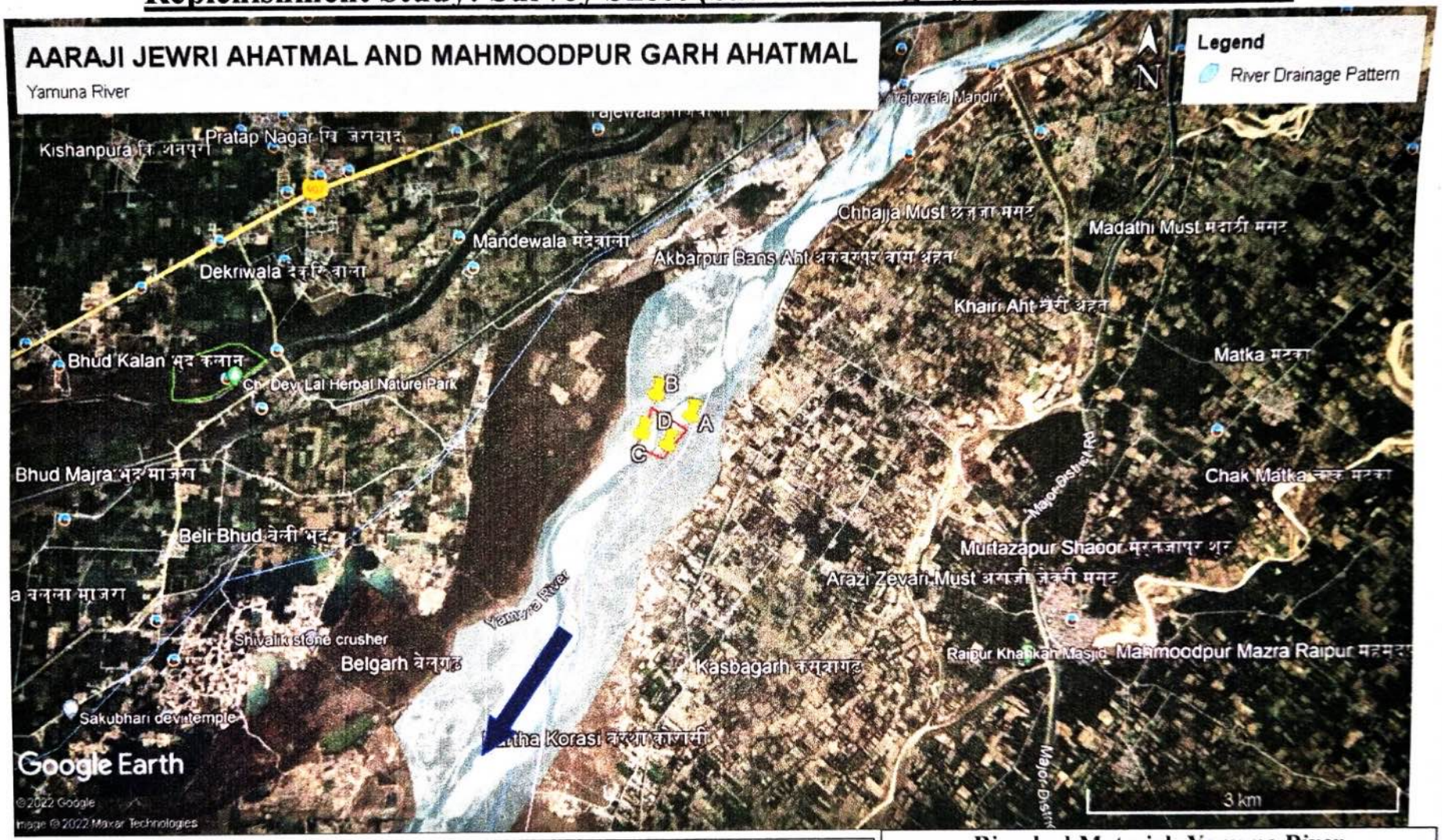
Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (7.00 ha) Gata No. 378/2 & 379/2		
A	30° 15' 52.04" N	77° 39' 22.56" E
B	30° 15' 51.84" N	77° 39' 27.43" E
C	30° 16' 06.24" N	77° 39' 31.26" E
D	30° 16' 07.18" N	77° 39' 25.07" E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Khairawali Ra River		
Survey	Physical, Drone and DGPS	
Survey Area	7.00 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Sherpur Pelon	Behat	Saharanpur
Survey By:		
Verified By:		

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Replenishment Study: Survey Sheet (Satellite Imagery)



Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (13.80 ha)		
A	30°15'51.33"N	77°32'21.84"E
B	30°15'58.45"N	77°32'08.63"E
C	30°15'45.65"N	77°32'03.15"E
D	30°15'41.84"N	77°32'13.01"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	13.80 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Aaraji Jewri Ahatmal And Mahmoodpur Garh Ahatmal; Behat ; Saharanpur		
Survey By:		
Verified By:		

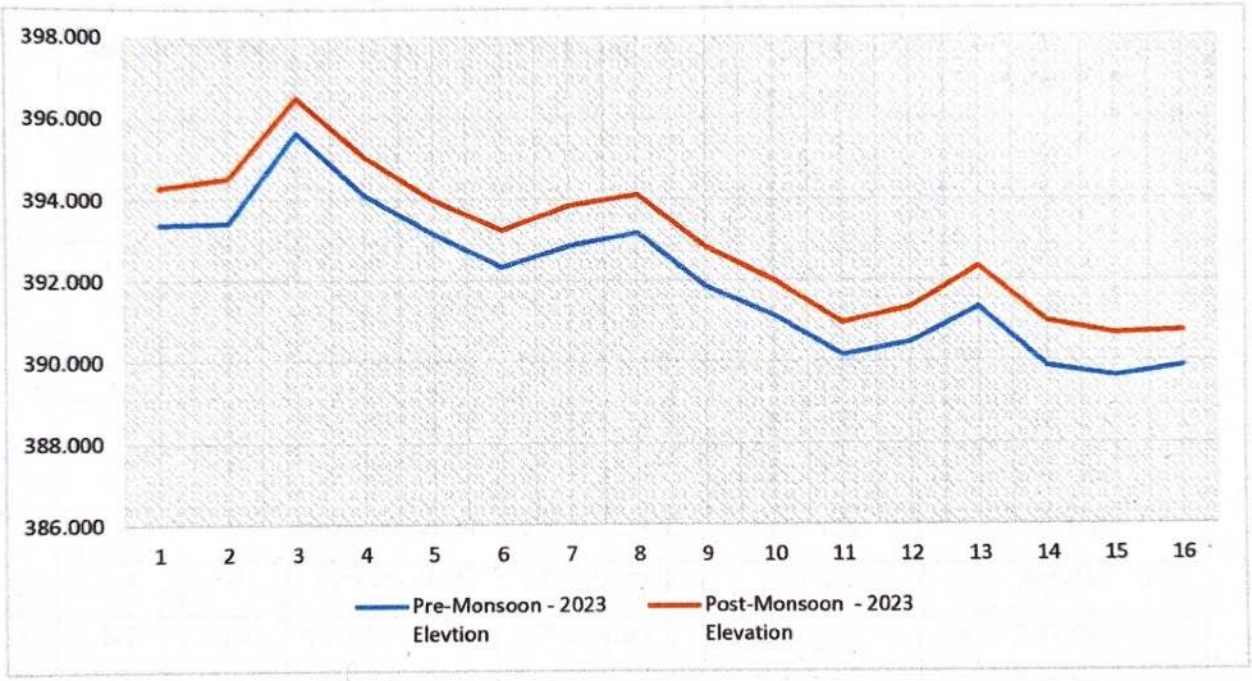
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LEASE WISE DGPS SURVEY RECORDS

- **Ground Control Points (GCP) Record Sheet in tabular format**
- **Mapping / Elevation Section of Ground Control Points (GCP)**

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
1	Behat	R.B.M.	Badshahibagh Rao	Mayapur Rooppur	Gata No. 14/1	3.100

Cross Section	Sl.No	Lat.	Long.	Pre-Monsoon - 2023 Elevation	Post-Monsoon - 2023 Elevation
1-1	1	30°19'20.38"N	77°38'26.16"E	393.382	394.294
1-1	2	30°19'19.45"N	77°38'27.07"E	393.414	394.519
1-1	3	30°19'18.40"N	77°38'28.27"E	395.654	396.508
1-1	4	30°19'17.34"N	77°38'29.43"E	394.098	395.050
2-2	5	30°19'16.58"N	77°38'28.32"E	393.173	394.006
2-2	6	30°19'17.48"N	77°38'27.08"E	392.345	393.250
2-2	7	30°19'18.65"N	77°38'25.70"E	392.872	393.856
2-2	8	30°19'19.55"N	77°38'24.90"E	393.190	394.123
3-3	9	30°19'18.83"N	77°38'24.11"E	391.876	392.844
3-3	10	30°19'18.04"N	77°38'25.22"E	391.145	392.010
3-3	11	30°19'16.90"N	77°38'26.20"E	390.168	390.967
3-3	12	30°19'15.59"N	77°38'27.21"E	390.483	391.337
4-4	13	30°19'14.63"N	77°38'25.62"E	391.339	392.337
4-4	14	30°19'15.78"N	77°38'24.18"E	389.887	390.989
4-4	15	30°19'16.69"N	77°38'23.24"E	389.645	390.695
4-4	16	30°19'17.65"N	77°38'22.23"E	389.884	390.758


398.000
396.000
394.000
392.000
390.000
388.000
386.000
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Pre-Monsoon - 2023 Elevtion
Post-Monsoon - 2023 Elevation

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
2	Behat	R.B.M.	Yamuna	Bartha Korsi	Gata No. - 1	36.000

Section	Sl. No	Lat.	Long.	Pre Monsoon 2023 Elevation	Post Monsoon 2023 Elevation
1-1	1	30°14'1.39"N	77°31'13.73"E	292.522	294.850
1-1	2	30°14'2.47"N	77°31'12.26"E	291.827	294.882
1-1	3	30°14'3.55"N	77°31'10.78"E	292.921	295.446
1-1	4	30°14'4.64"N	77°31'9.30"E	293.126	295.685
1-1	5	30°14'5.74"N	77°31'7.82"E	295.881	296.966
1-1	6	30°14'6.82"N	77°31'6.34"E	294.162	294.788
1-1	7	30°14'7.91"N	77°31'4.86"E	292.722	294.863
1-1	8	30°14'9.01"N	77°31'3.38"E	293.984	295.865
1-1	9	30°14'9.68"N	77°31'2.47"E	293.845	294.952
2-2	10	30°14'10.63"N	77°31'4.09"E	294.725	295.508
2-2	11	30°14'9.97"N	77°31'4.98"E	295.625	295.991
2-2	12	30°14'8.88"N	77°31'6.46"E	292.711	294.498
2-2	13	30°14'7.83"N	77°31'7.91"E	291.522	294.468
2-2	14	30°14'6.74"N	77°31'9.40"E	294.112	295.972
2-2	15	30°14'5.62"N	77°31'10.90"E	296.105	297.896
2-2	16	30°14'4.57"N	77°31'12.38"E	295.718	297.484
2-2	17	30°14'3.44"N	77°31'13.86"E	293.722	298.689
3-3	18	30°14'4.53"N	77°31'15.44"E	294.984	298.658
3-3	19	30°14'5.57"N	77°31'13.95"E	295.945	297.594
3-3	20	30°14'6.63"N	77°31'12.46"E	295.132	295.884
3-3	21	30°14'7.72"N	77°31'10.98"E	295.828	297.488
3-3	22	30°14'8.84"N	77°31'9.46"E	294.135	297.776

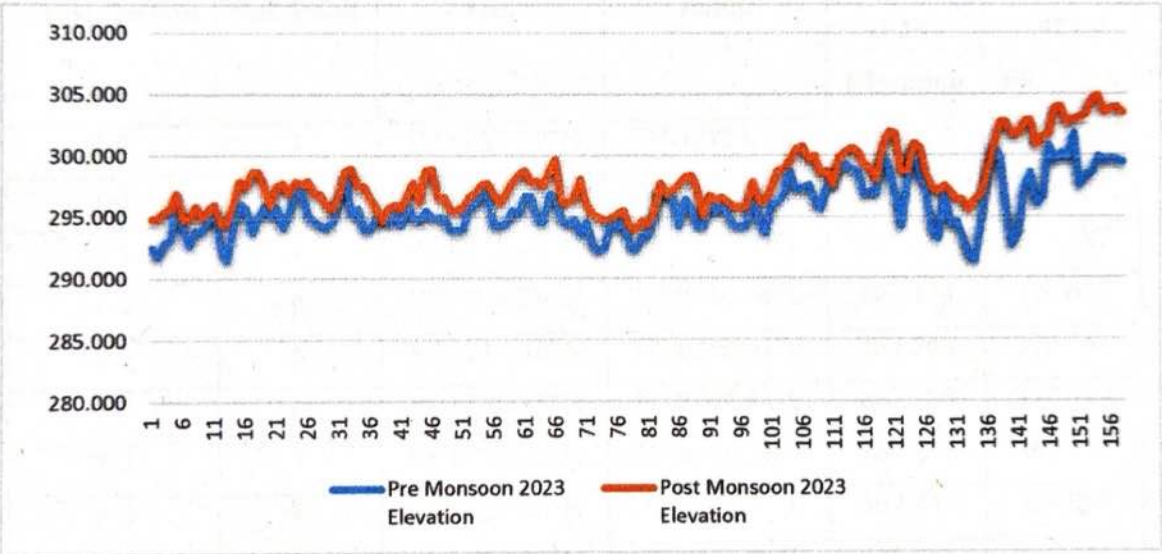
3-3	23	30°14'9.89"N	77°31'7.98"E	295.448	296.967
3-3	24	30°14'10.94"N	77°31'6.57"E	297.166	297.909
3-3	25	77°31'6.57"E	77°31'5.69"E	297.108	297.647
4-4	26	30°14'12.50"N	77°31'7.29"E	295.106	297.982
4-4	27	30°14'11.91"N	77°31'8.13"E	294.708	296.966
4-4	28	30°14'10.88"N	77°31'9.53"E	294.306	296.896
4-4	29	30°14'9.87"N	77°31'10.95"E	294.135	295.998
4-4	30	30°14'8.75"N	77°31'12.46"E	294.666	295.658
4-4	31	30°14'7.70"N	77°31'13.95"E	296.708	296.844
4-4	32	30°14'6.63"N	77°31'15.48"E	298.514	298.772
4-4	33	30°14'5.53"N	77°31'17.01"E	295.147	298.958
5-5	34	30°14'7.64"N	77°31'17.06"E	295.736	297.642
5-5	35	30°14'8.74"N	77°31'15.55"E	293.965	297.568
5-5	36	30°14'9.79"N	77°31'14.04"E	293.955	296.665
5-5	37	30°14'10.87"N	77°31'12.50"E	294.948	295.758
5-5	38	30°14'11.87"N	77°31'11.14"E	294.828	294.658
5-5	39	30°14'12.87"N	77°31'9.72"E	294.548	295.741
5-5	40	30°14'13.46"N	77°31'8.90"E	295.248	295.995
6-6	41	30°14'14.42"N	77°31'10.49"E	294.368	295.633
6-6	42	77°31'10.49"E	77°31'11.30"E	295.958	296.705
6-6	43	30°14'12.85"N	77°31'12.72"E	294.948	297.835
6-6	44	30°14'11.91"N	77°31'14.08"E	294.682	296.214
6-6	45	30°14'10.85"N	77°31'15.62"E	295.538	298.811
6-6	46	30°14'9.79"N	77°31'17.09"E	294.947	298.935
6-6	47	30°14'8.68"N	77°31'18.64"E	294.966	296.568
7-7	48	30°14'10.61"N	77°31'18.88"E	294.974	296.658
7-7	49	30°14'11.65"N	77°31'17.37"E	293.923	295.547
7-7	50	30°14'12.76"N	77°31'15.79"E	293.947	295.568
7-7	51	30°14'13.76"N	77°31'14.35"E	293.966	295.785
7-7	52	30°14'14.83"N	77°31'12.88"E	295.822	296.654
7-7	53	30°14'15.36"N	77°31'12.11"E	295.974	296.958
8-8	54	30°14'16.31"N	77°31'13.72"E	296.966	297.655

8-8	55	30°14'15.79"N	77°31'14.48"E	296.858	297.799
8-8	56	30°14'14.72"N	77°31'16.00"E	294.264	296.855
8-8	57	30°14'13.75"N	77°31'17.38"E	294.367	296.125
8-8	58	30°14'12.69"N	77°31'18.90"E	294.449	296.863
8-8	59	30°14'11.67"N	77°31'20.41"E	295.588	297.866
9-9	60	30°14'12.71"N	77°31'21.92"E	295.225	298.458
9-9	61	30°14'13.70"N	77°31'20.47"E	296.747	298.792
9-9	62	30°14'14.74"N	77°31'18.97"E	296.698	297.856
9-9	63	30°14'15.68"N	77°31'17.60"E	294.848	297.948
9-9	64	30°14'16.72"N	77°31'16.10"E	294.552	297.542
9-9	65	30°14'17.26"N	77°31'15.33"E	296.894	298.814
10-10	66	30°14'18.21"N	77°31'16.94"E	296.647	299.692
10-10	67	30°14'17.69"N	77°31'17.71"E	294.766	296.124
10-10	68	30°14'16.67"N	77°31'19.22"E	294.438	296.245
10-10	69	30°14'15.75"N	77°31'20.61"E	294.858	296.515
10-10	70	30°14'14.81"N	77°31'22.04"E	293.568	298.135
11-11	71	30°14'15.79"N	77°31'23.56"E	294.608	296.108
11-11	72	30°14'16.69"N	77°31'22.18"E	292.774	295.254
11-11	73	30°14'17.66"N	77°31'20.78"E	292.199	295.008
11-11	74	30°14'18.63"N	77°31'19.31"E	292.478	294.766
11-11	75	30°14'19.18"N	77°31'18.56"E	294.899	294.864
12-12	76	30°14'20.11"N	77°31'20.20"E	294.005	295.242
12-12	77	30°14'19.59"N	77°31'20.92"E	294.688	295.555
12-12	78	30°14'18.59"N	77°31'22.46"E	292.647	294.208
12-12	79	30°14'17.53"N	77°31'24.00"E	292.338	294.006
12-12	80	30°14'16.52"N	77°31'25.55"E	293.384	294.652
12-12	81	30°14'15.46"N	77°31'27.08"E	293.377	294.366
13-13	82	30°14'14.37"N	77°31'31.83"E	294.844	295.384
13-13	83	30°14'15.39"N	77°31'30.25"E	297.517	297.771
13-13	84	30°14'16.45"N	77°31'28.69"E	296.847	296.875
13-13	85	30°14'17.47"N	77°31'27.16"E	296.548	297.168
13-13	86	30°14'18.50"N	77°31'25.62"E	294.266	297.633

13-13	87	30°14'19.54"N	77°31'24.07"E	296.458	298.288
13-13	88	30°14'20.55"N	77°31'22.51"E	295.708	298.382
13-13	89	30°14'21.07"N	77°31'21.78"E	294.244	297.406
14-14	90	30°14'22.03"N	77°31'23.41"E	294.208	295.080
14-14	91	30°14'21.55"N	77°31'24.12"E	296.355	296.793
14-14	92	30°14'20.51"N	77°31'25.66"E	295.378	296.356
14-14	93	30°14'19.50"N	77°31'27.19"E	296.225	296.605
14-14	94	30°14'18.47"N	77°31'28.69"E	295.108	296.255
14-14	95	30°14'17.42"N	77°31'30.28"E	294.238	295.798
14-14	96	30°14'16.35"N	77°31'31.84"E	294.284	295.859
14-14	97	30°14'15.49"N	77°31'33.15"E	294.206	295.809
15-15	98	30°14'17.33"N	77°31'33.44"E	297.158	297.892
15-15	99	30°14'18.40"N	77°31'31.86"E	294.744	296.257
15-15	100	30°14'19.40"N	77°31'30.39"E	293.617	296.372
15-15	101	30°14'20.44"N	77°31'28.79"E	296.068	297.299
15-15	102	30°14'21.49"N	77°31'27.25"E	296.192	298.764
15-15	103	30°14'22.48"N	77°31'25.69"E	296.856	298.896
15-15	104	30°14'22.96"N	77°31'25.01"E	298.747	299.531
16-16	105	30°14'23.94"N	77°31'26.62"E	297.265	300.585
16-16	106	30°14'23.47"N	77°31'27.33"E	297.358	300.744
16-16	107	30°14'22.45"N	77°31'28.86"E	297.665	299.682
16-16	108	30°14'21.41"N	77°31'30.41"E	296.475	299.980
16-16	109	30°14'20.39"N	77°31'31.94"E	295.661	298.556
16-16	110	30°14'19.36"N	77°31'33.43"E	297.685	298.732
16-16	111	30°14'18.35"N	77°31'34.98"E	297.472	297.628
17-17	112	30°14'19.32"N	77°31'36.60"E	299.166	299.861
17-17	113	30°14'20.38"N	77°31'35.04"E	299.299	300.366
17-17	114	30°14'21.39"N	77°31'33.52"E	298.908	300.628
17-17	115	30°14'22.38"N	77°31'32.06"E	298.677	300.282
17-17	116	30°14'23.44"N	77°31'30.50"E	296.820	299.344
17-17	117	30°14'24.47"N	77°31'28.95"E	297.068	299.001
17-17	118	30°14'24.89"N	77°31'28.24"E	296.899	298.060

18-18	119	30°14'25.89"N	77°31'29.91"E	300.214	300.688
18-18	120	30°14'24.87"N	77°31'31.47"E	298.908	301.958
18-18	121	30°14'23.82"N	77°31'33.04"E	296.906	301.806
18-18	122	30°14'22.78"N	77°31'34.58"E	294.204	298.746
18-18	123	30°14'21.73"N	77°31'36.14"E	298.116	298.755
18-18	124	30°14'20.71"N	77°31'37.68"E	300.874	300.993
19-19	125	30°14'22.37"N	77°31'37.96"E	298.455	300.668
19-19	126	30°14'23.34"N	77°31'36.64"E	297.462	298.628
19-19	127	30°14'24.40"N	77°31'35.15"E	293.941	297.417
19-19	128	30°14'25.44"N	77°31'33.60"E	293.234	297.006
19-19	129	30°14'26.41"N	77°31'32.16"E	296.948	297.582
19-19	130	30°14'27.44"N	77°31'30.79"E	294.385	296.998
20-20	131	30°14'28.95"N	77°31'31.66"E	294.655	296.437
20-20	132	30°14'27.97"N	77°31'33.08"E	293.299	296.385
20-20	133	30°14'26.95"N	77°31'34.54"E	291.855	295.566
20-20	134	30°14'25.88"N	77°31'36.06"E	291.416	296.448
20-20	135	30°14'24.82"N	77°31'37.56"E	294.777	296.765
21-21	136	30°14'26.32"N	77°31'38.48"E	298.006	298.772
21-21	137	30°14'27.37"N	77°31'36.98"E	300.873	300.769
21-21	138	30°14'28.45"N	77°31'35.44"E	299.927	302.741
21-21	139	30°14'29.47"N	77°31'33.99"E	295.968	302.728
21-21	140	30°14'30.48"N	77°31'32.52"E	292.648	301.733
22-22	141	30°14'32.01"N	77°31'33.40"E	293.733	301.744
22-22	142	30°14'30.98"N	77°31'34.88"E	297.447	302.808
22-22	143	30°14'29.99"N	77°31'36.38"E	298.653	302.885
22-22	144	30°14'28.85"N	77°31'37.93"E	296.066	300.855
23-23	145	30°14'30.34"N	77°31'38.81"E	296.582	301.566
23-23	146	30°14'31.44"N	77°31'37.28"E	300.841	301.709
23-23	147	30°14'32.49"N	77°31'35.78"E	299.628	303.933
23-23	148	30°14'33.51"N	77°31'34.28"E	300.252	303.988
24-24	149	30°14'35.03"N	77°31'35.17"E	299.766	302.708
24-24	150	30°14'33.98"N	77°31'36.69"E	301.808	302.933

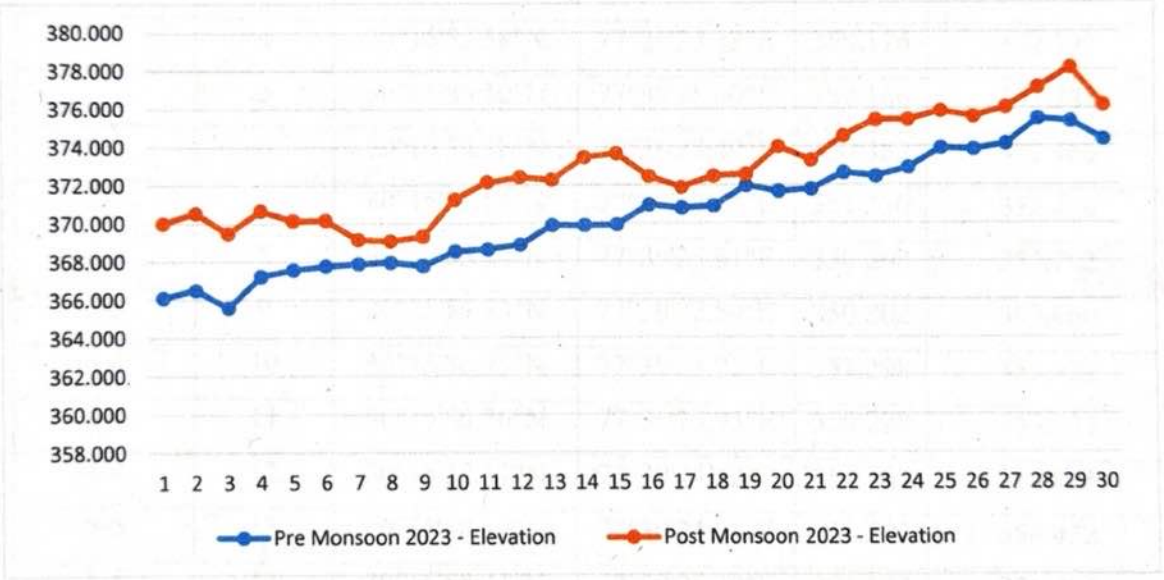
24-24	151	30°14'32.96"N	77°31'38.18"E	297.566	303.114
24-24	152	30°14'31.85"N	77°31'39.75"E	298.444	303.376
25-25	153	30°14'34.43"N	77°31'39.09"E	298.598	304.655
25-25	154	30°14'35.48"N	77°31'37.57"E	299.966	304.892
25-25	155	30°14'36.54"N	77°31'36.03"E	299.568	303.553
26-26	156	30°14'38.05"N	77°31'36.89"E	299.789	303.847
26-26	157	30°14'36.99"N	77°31'38.49"E	299.668	303.953
26-26	158	30°14'35.91"N	77°31'40.02"E	299.468	303.476



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
3	Behat	R.B.M.	Badkala Ra	Haidarpur Hindwala	Khand No / Gata No. - 8/1 , 19 & 22	4.200

Cross Section	Ref. Point	Lat.	Long.	Pre Monsoon 2023 - Elevation	Post Monsoon 2023 - Elevation
1-1	1	30°15'20.17"N	77°40'42.82"E	366.122	370.005
1-1	2	30°15'19.28"N	77°40'43.06"E	366.532	370.554
1-1	3	30°15'18.26"N	77°40'43.32"E	365.582	369.487
2-2	4	30°15'18.29"N	77°40'45.06"E	367.234	370.665
2-2	5	30°15'19.30"N	77°40'45.01"E	367.566	370.151
2-2	6	30°15'20.35"N	77°40'44.83"E	367.765	370.167
3-3	7	30°15'20.32"N	77°40'46.72"E	367.872	369.157
3-3	8	30°15'19.35"N	77°40'46.73"E	367.944	369.068
3-3	9	30°15'18.30"N	77°40'46.74"E	367.765	369.312
4-4	10	30°15'18.32"N	77°40'48.28"E	368.522	371.259
4-4	11	30°15'19.30"N	77°40'48.29"E	368.645	372.154
4-4	12	30°15'20.35"N	77°40'48.26"E	368.877	372.425
5-5	13	30°15'20.32"N	77°40'50.23"E	369.902	372.282
5-5	14	30°15'19.32"N	77°40'50.20"E	369.891	373.455
5-5	15	30°15'18.34"N	77°40'50.28"E	369.922	373.656
6-6	16	30°15'18.34"N	77°40'52.50"E	370.956	372.456
6-6	17	30°15'19.37"N	77°40'52.53"E	370.788	371.888
6-6	18	30°15'20.32"N	77°40'52.51"E	370.890	372.467
7-7	19	30°15'20.31"N	77°40'54.36"E	371.952	372.555

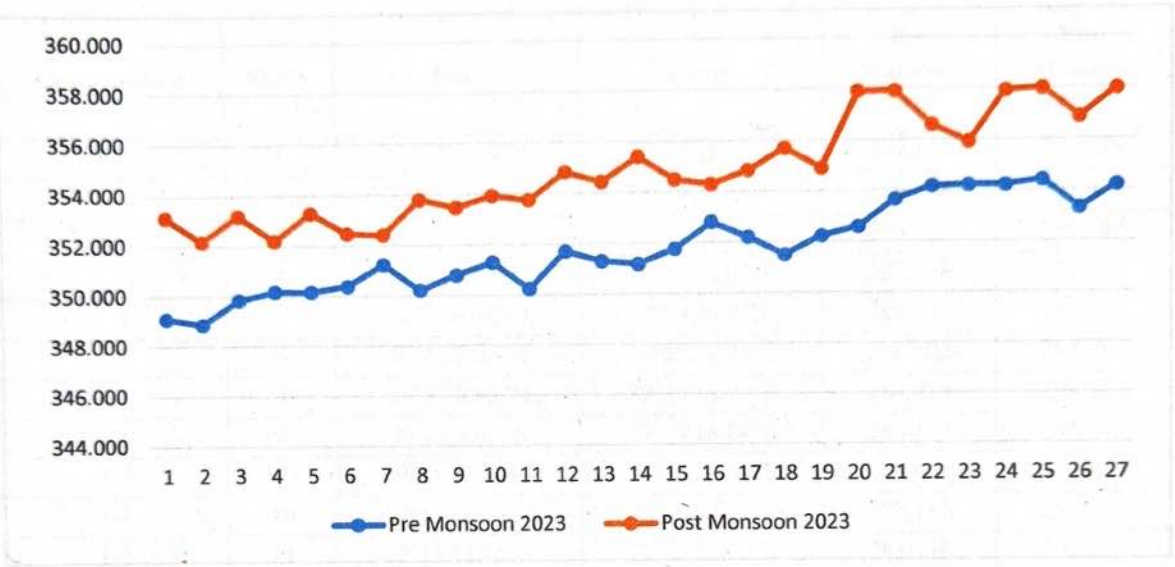
7-7	20	30°15'19.14"N	77°40'54.42"E	371.647	373.989
7-7	21	30°15'18.17"N	77°40'54.38"E	371.772	373.289
8-8	22	30°15'18.36"N	77°40'56.30"E	372.631	374.547
8-8	23	30°15'19.38"N	77°40'56.26"E	372.451	375.386
8-8	24	30°15'20.31"N	77°40'56.24"E	372.892	375.394
9-9	25	30°15'20.22"N	77°40'57.84"E	373.908	375.842
9-9	26	30°15'19.26"N	77°40'57.97"E	373.846	375.557
9-9	27	30°15'18.41"N	77°40'58.03"E	374.133	376.020
10-10	28	30°15'18.42"N	77°41'0.14"E	375.444	377.088
10-10	29	30°15'19.34"N	77°41'0.13"E	375.304	378.110
10-10	30	30°15'20.20"N	77°40'59.96"E	374.356	376.158



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
4	Behat	R.B.M.	Khurwali Ra	Sherpur Pelon	Gata No. - 378/2 & 379/2	7.000

Cross Section	Ref. Point	Lat.	Long.	Pre Monsoon 2023	Post Monsoon 2023
1-1	1	30°15'52.54"N	77°39'23.28"E	349.098	353.121
1-1	2	30°15'52.42"N	77°39'24.88"E	348.862	352.166
1-1	3	30°15'52.35"N	77°39'26.74"E	349.844	353.192
2-2	4	30°15'53.58"N	77°39'27.13"E	350.176	352.192
2-2	5	30°15'53.80"N	77°39'25.40"E	350.166	353.288
2-2	6	30°15'54.18"N	77°39'23.49"E	350.382	352.466
3-3	7	30°15'55.51"N	77°39'23.68"E	351.230	352.410
3-3	8	30°15'55.22"N	77°39'25.61"E	350.208	353.792
3-3	9	30°15'54.83"N	77°39'27.59"E	350.802	353.466
4-4	10	30°15'56.25"N	77°39'27.92"E	351.298	353.922
4-4	11	30°15'56.76"N	77°39'25.93"E	350.228	353.733
4-4	12	30°15'57.17"N	77°39'24.12"E	351.709	354.823
5-5	13	30°15'58.74"N	77°39'24.28"E	351.302	354.432
5-5	14	30°15'58.41"N	77°39'26.30"E	351.177	355.402
5-5	15	30°15'58.05"N	77°39'28.36"E	351.771	354.492
6-6	16	30°15'59.44"N	77°39'28.78"E	352.802	354.305
6-6	17	30°15'59.85"N	77°39'26.66"E	352.203	354.824
6-6	18	30°16'0.17"N	77°39'24.66"E	351.501	355.682
7-7	19	30°16'1.97"N	77°39'24.80"E	352.236	354.890
7-7	20	30°16'1.49"N	77°39'26.86"E	352.588	357.902
7-7	21	30°16'1.43"N	77°39'29.36"E	353.656	357.904
8-8	22	30°16'2.96"N	77°39'28.97"E	354.166	356.582

8-8	23	30°16'3.24"N	77°39'27.39"E	354.204	355.891
8-8	24	30°16'3.71"N	77°39'25.23"E	354.209	357.908
9-9	25	30°16'5.22"N	77°39'25.54"E	354.402	357.992
9-9	26	30°16'4.79"N	77°39'27.71"E	353.294	356.863
9-9	27	30°16'4.34"N	77°39'29.78"E	354.193	357.970

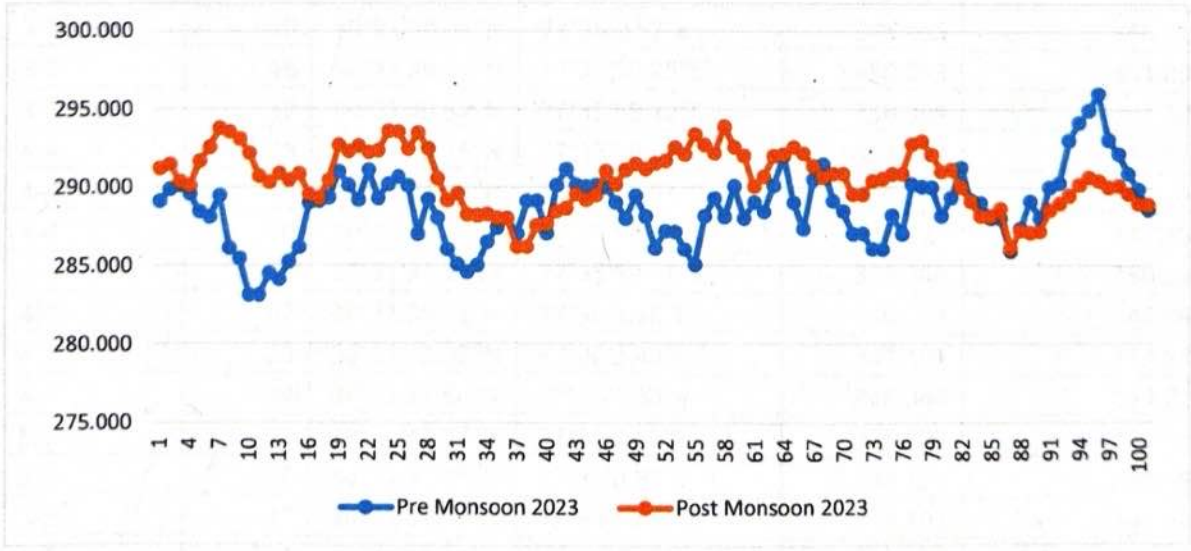


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
5	Behat	R.B.M.	Yamuna	Nuniyari Aehatmal	Gata No. - 1/1/1 Laat 38	24.290

Cross Section	Sl.No	Lat.	Long.	Pre Monsoon 2023	Post Monsoon 2023
1-1	1	30°11'1.66"N	77°29'25.53"E	289.110	291.231
1-1	2	30°11'2.63"N	77°29'24.46"E	289.884	291.478
1-1	3	30°11'3.73"N	77°29'23.32"E	290.112	290.407
1-1	4	30°11'4.95"N	77°29'22.02"E	289.568	290.111
1-1	5	30°11'6.36"N	77°29'20.73"E	288.444	291.658
1-1	6	30°11'7.32"N	77°29'19.44"E	288.102	292.555
1-1	7	30°11'8.60"N	77°29'18.09"E	289.478	293.784
1-1	8	30°11'9.60"N	77°29'16.84"E	286.124	293.545
1-1	9	30°11'10.94"N	77°29'15.32"E	285.452	293.117
1-1	10	30°11'11.83"N	77°29'14.40"E	283.117	292.184
1-1	11	30°11'12.75"N	77°29'13.23"E	283.116	290.695
2-2	12	30°11'13.80"N	77°29'14.38"E	284.487	290.333
2-2	13	30°11'12.89"N	77°29'15.35"E	284.108	290.879
2-2	14	30°11'11.73"N	77°29'16.53"E	285.222	290.487
2-2	15	30°11'10.55"N	77°29'18.05"E	286.164	290.854
2-2	16	30°11'9.54"N	77°29'19.41"E	289.001	289.554
2-2	17	30°11'8.40"N	77°29'20.55"E	289.109	289.332
2-2	18	30°11'7.01"N	77°29'22.04"E	289.356	290.454
2-2	19	30°11'5.81"N	77°29'23.42"E	291.007	292.695
2-2	20	30°11'4.75"N	77°29'24.83"E	290.136	292.302
2-2	21	30°11'3.55"N	77°29'25.96"E	289.196	292.635
2-2	22	30°11'2.35"N	77°29'27.10"E	291.107	292.258
3-3	23	30°11'3.53"N	77°29'28.73"E	289.293	292.353
3-3	24	30°11'4.57"N	77°29'27.51"E	290.197	293.567
3-3	25	30°11'5.58"N	77°29'26.29"E	290.669	293.542
3-3	26	30°11'6.95"N	77°29'24.85"E	290.087	292.458
3-3	27	30°11'7.89"N	77°29'23.43"E	287.004	293.474
3-3	28	30°11'9.22"N	77°29'22.11"E	289.207	292.468
3-3	29	30°11'10.29"N	77°29'20.84"E	288.033	290.555
3-3	30	30°11'11.71"N	77°29'19.42"E	286.012	289.142
3-3	31	30°11'12.86"N	77°29'17.80"E	285.065	289.602
3-3	32	30°11'13.98"N	77°29'16.64"E	284.580	288.252

3-3	33	30°11'14.73"N	77°29'15.73"E	285.011	288.188
4-4	34	30°11'15.98"N	77°29'16.67"E	286.508	288.260
4-4	35	30°11'14.91"N	77°29'17.94"E	287.420	288.032
4-4	36	30°11'14.04"N	77°29'19.00"E	288.012	287.989
4-4	37	30°11'12.80"N	77°29'20.52"E	287.017	286.180
4-4	38	30°11'11.54"N	77°29'21.80"E	289.101	286.176
4-4	39	30°11'10.55"N	77°29'23.12"E	289.109	287.557
4-4	40	30°11'9.16"N	77°29'24.65"E	287.035	287.669
4-4	41	30°11'8.07"N	77°29'26.06"E	290.117	288.458
4-4	42	30°11'6.95"N	77°29'27.39"E	291.133	288.658
4-4	43	30°11'5.80"N	77°29'28.64"E	290.145	289.545
4-4	44	30°11'5.09"N	77°29'29.60"E	290.039	289.172
5-5	45	30°11'7.05"N	77°29'30.19"E	290.111	289.485
5-5	46	30°11'8.04"N	77°29'29.07"E	290.002	290.999
5-5	47	30°11'9.33"N	77°29'27.62"E	289.004	290.168
5-5	48	30°11'10.56"N	77°29'25.82"E	287.994	291.111
5-5	49	30°11'11.63"N	77°29'24.30"E	289.454	291.475
5-5	50	30°11'12.93"N	77°29'23.03"E	288.117	291.165
5-5	51	30°11'14.07"N	77°29'21.70"E	286.080	291.529
5-5	52	30°11'15.39"N	77°29'20.27"E	287.181	291.666
5-5	53	30°11'16.11"N	77°29'19.21"E	287.145	292.531
5-5	54	30°11'16.99"N	77°29'17.96"E	286.010	292.098
6-6	55	30°11'18.47"N	77°29'19.59"E	285.041	293.383
6-6	56	30°11'17.63"N	77°29'20.71"E	288.142	292.690
6-6	57	30°11'16.48"N	77°29'22.02"E	289.289	292.189
6-6	58	30°11'15.37"N	77°29'23.17"E	288.100	293.870
6-6	59	30°11'14.29"N	77°29'24.21"E	290.077	292.548
6-6	60	30°11'13.40"N	77°29'25.79"E	288.011	292.004
6-6	61	30°11'12.46"N	77°29'27.22"E	289.031	290.054
6-6	62	30°11'10.99"N	77°29'28.61"E	288.444	290.687
6-6	63	30°11'10.11"N	77°29'29.90"E	290.118	291.986
7-7	64	30°11'11.06"N	77°29'31.36"E	292.032	292.111
7-7	65	30°11'11.97"N	77°29'30.27"E	289.002	292.549
7-7	66	30°11'13.29"N	77°29'28.78"E	287.337	292.159
7-7	67	30°11'14.22"N	77°29'27.54"E	290.489	291.357
7-7	68	30°11'15.36"N	77°29'26.20"E	291.487	290.645
7-7	69	30°11'16.53"N	77°29'24.54"E	289.112	290.851
7-7	70	30°11'17.89"N	77°29'23.18"E	288.485	290.862
7-7	71	30°11'18.95"N	77°29'21.90"E	287.017	289.557
7-7	72	30°11'19.72"N	77°29'20.95"E	287.031	289.552
8-8	73	30°11'21.02"N	77°29'22.36"E	286.047	290.421
8-8	74	30°11'20.04"N	77°29'23.59"E	286.035	290.563
8-8	75	30°11'19.12"N	77°29'24.53"E	288.201	290.844
8-8	76	30°11'18.16"N	77°29'25.91"E	287.019	290.865
8-8	77	30°11'16.84"N	77°29'27.52"E	290.198	292.755

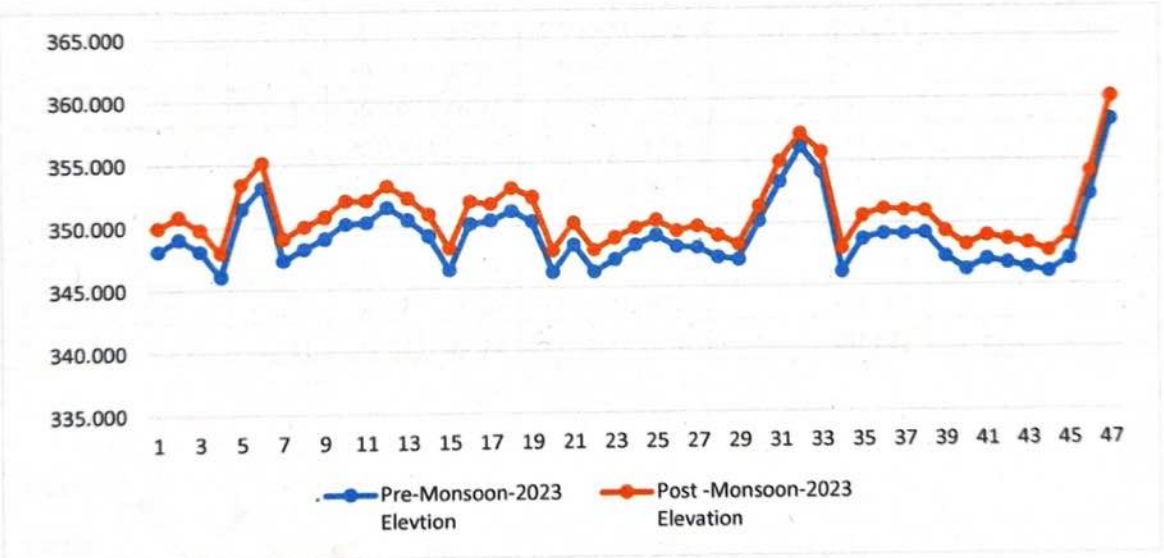
8-8	78	30°11'15.64"N	77°29'28.96"E	290.027	292.950
8-8	79	30°11'14.64"N	77°29'30.17"E	290.001	292.101
8-8	80	30°11'13.44"N	77°29'31.78"E	288.159	291.008
9-9	81	30°11'15.28"N	77°29'32.06"E	289.357	291.141
9-9	82	30°11'16.59"N	77°29'30.84"E	291.258	290.008
9-9	83	30°11'17.88"N	77°29'29.22"E	289.147	289.087
9-9	84	30°11'18.86"N	77°29'27.64"E	289.008	288.164
9-9	85	30°11'19.86"N	77°29'26.37"E	288.026	288.174
9-9	86	30°11'20.97"N	77°29'24.89"E	288.007	288.658
9-9	87	30°11'22.12"N	77°29'23.71"E	285.912	286.113
10-10	88	30°11'23.32"N	77°29'25.06"E	287.369	287.227
10-10	89	30°11'22.24"N	77°29'25.86"E	289.116	287.101
10-10	90	30°11'21.04"N	77°29'27.45"E	288.012	287.182
10-10	91	30°11'19.99"N	77°29'28.70"E	289.998	288.557
10-10	92	30°11'19.20"N	77°29'29.79"E	290.268	288.964
10-10	93	30°11'17.96"N	77°29'31.33"E	293.019	289.481
10-10	94	30°11'16.79"N	77°29'32.60"E	294.157	290.184
11-11	95	30°11'17.45"N	77°29'33.97"E	294.945	290.664
11-11	96	30°11'18.89"N	77°29'33.05"E	296.015	290.438
11-11	97	30°11'20.16"N	77°29'31.97"E	293.058	290.009
11-11	98	30°11'20.80"N	77°29'30.31"E	292.165	290.115
11-11	99	30°11'22.01"N	77°29'28.85"E	290.908	289.612
11-11	100	30°11'23.28"N	77°29'27.17"E	289.887	288.961
11-11	101	30°11'24.28"N	77°29'26.23"E	288.608	288.918



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
6	Behat	R.B.M.	Yamuna	Rehna	Khand No. / Gata no. - 03, Lot No - 03	8.050

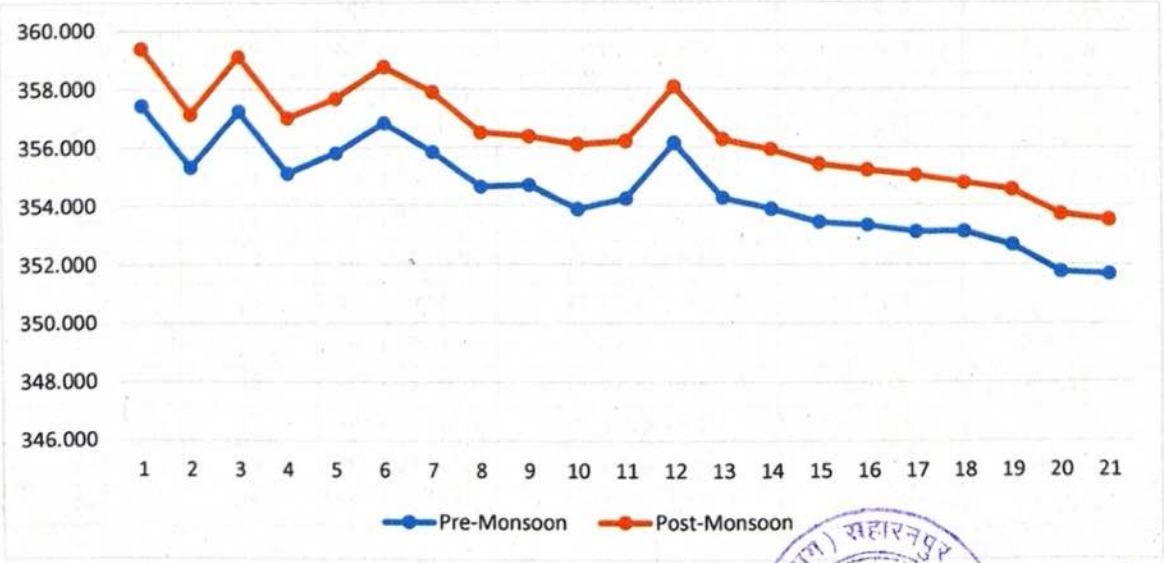
Cross Section	Sl.No	Lat.	Long.	Pre-Monsoon-2023 Elevtion	Post -Monsoon-2023 Elevation
1-1	1	30°21'36.29"N	77°36'5.48"E	348.133	350.013
1-1	2	30°21'37.76"N	77°36'4.62"E	349.100	350.860
1-1	3	30°21'39.20"N	77°36'3.73"E	348.123	349.848
1-1	4	30°21'40.65"N	77°36'2.86"E	346.101	347.991
1-1	5	30°21'41.68"N	77°36'2.29"E	351.476	353.436
2-2	6	30°21'40.97"N	77°36'0.08"E	353.202	355.172
2-2	7	30°21'40.03"N	77°36'1.12"E	347.332	349.082
2-2	8	30°21'38.73"N	77°36'2.31"E	348.241	350.021
2-2	9	30°21'37.65"N	77°36'3.46"E	349.066	350.796
2-2	10	30°21'36.45"N	77°36'4.74"E	350.208	352.058
2-2	11	30°21'35.93"N	77°36'5.21"E	350.311	352.046
3-3	12	30°21'34.57"N	77°36'4.12"E	351.489	353.225
3-3	13	30°21'35.70"N	77°36'3.01"E	350.488	352.216
3-3	14	30°21'36.95"N	77°36'1.72"E	349.210	350.932
3-3	15	30°21'38.08"N	77°36'0.52"E	346.455	348.210
3-3	16	30°21'39.27"N	77°35'59.25"E	350.133	351.899
3-3	17	30°21'40.32"N	77°35'58.12"E	350.399	351.723
4-4	18	30°21'39.75"N	77°35'56.31"E	351.122	352.976
4-4	19	30°21'38.65"N	77°35'57.51"E	350.301	352.259
4-4	20	30°21'37.44"N	77°35'58.74"E	346.222	347.957
4-4	21	30°21'36.27"N	77°35'59.95"E	348.388	350.144
4-4	22	30°21'35.11"N	77°36'1.18"E	346.231	347.962
4-4	23	30°21'33.92"N	77°36'2.49"E	347.192	348.936
4-4	24	30°21'33.58"N	77°36'3.38"E	348.344	349.729
5-5	25	30°21'32.07"N	77°36'2.17"E	349.103	350.328
5-5	26	30°21'33.27"N	77°36'0.87"E	348.192	349.446
5-5	27	30°21'34.51"N	77°35'59.55"E	348.102	349.826
5-5	28	30°21'35.64"N	77°35'58.32"E	347.308	349.074
5-5	29	30°21'36.80"N	77°35'57.03"E	347.122	348.336
5-5	30	30°21'38.00"N	77°35'55.71"E	350.188	351.356

5-5	31	30°21'39.15"N	77°35'54.48"E	353.292	354.950
6-6	32	30°21'38.58"N	77°35'52.65"E	356.124	357.152
6-6	33	30°21'37.34"N	77°35'53.96"E	354.102	355.686
6-6	34	30°21'36.19"N	77°35'55.27"E	346.103	348.002
6-6	35	30°21'34.96"N	77°35'56.62"E	348.708	350.572
6-6	36	30°21'33.79"N	77°35'57.90"E	349.144	351.108
6-6	37	30°21'32.58"N	77°35'59.32"E	349.124	350.979
6-6	38	30°21'31.38"N	77°36'0.53"E	349.192	350.939
6-6	39	30°21'30.80"N	77°36'1.16"E	347.302	349.298
7-7	40	30°21'29.58"N	77°36'0.22"E	346.222	348.210
7-7	41	30°21'30.73"N	77°35'58.92"E	347.022	348.950
7-7	42	30°21'31.93"N	77°35'57.56"E	346.733	348.618
7-7	43	30°21'33.13"N	77°35'56.25"E	346.347	348.311
7-7	44	30°21'34.29"N	77°35'54.87"E	346.022	347.680
7-7	45	30°21'35.54"N	77°35'53.58"E	347.039	349.005
7-7	46	30°21'36.75"N	77°35'52.26"E	352.211	354.055
7-7	47	30°21'37.96"N	77°35'50.83"E	358.166	360.000



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
7	Behat	R.B.M.	Gaisara Rao	Rahena	Gata No. 179/2	3.750

Cross Section	Sl.No	Lat.	Long.	Pre-Monsoon	Post-Monsoon
1-1	1	30°19'55.66"N	77°36'32.17"E	357.433	359.385
1-1	2	30°19'54.29"N	77°36'32.46"E	355.318	357.142
1-1	3	30°19'52.92"N	77°36'32.76"E	357.231	359.097
2-2	4	30°19'52.60"N	77°36'30.90"E	355.100	356.999
2-2	5	30°19'53.97"N	77°36'30.62"E	355.788	357.660
2-2	6	30°19'55.34"N	77°36'30.35"E	356.822	358.750
3-3	7	30°19'55.01"N	77°36'28.53"E	355.834	357.892
3-3	8	30°19'53.65"N	77°36'28.79"E	354.645	356.500
3-3	9	30°19'52.27"N	77°36'29.07"E	354.699	356.363
4-4	10	30°19'51.96"N	77°36'27.24"E	353.871	356.089
4-4	11	30°19'53.34"N	77°36'26.96"E	354.236	356.200
4-4	12	30°19'54.70"N	77°36'26.68"E	356.138	358.071
5-5	13	30°19'54.39"N	77°36'24.82"E	354.274	356.272
5-5	14	30°19'53.02"N	77°36'25.10"E	353.898	355.934
5-5	15	30°19'51.66"N	77°36'25.37"E	353.449	355.423
6-6	16	30°19'51.35"N	77°36'23.55"E	353.344	355.229
6-6	17	30°19'52.69"N	77°36'23.28"E	353.122	355.050
6-6	18	30°19'54.07"N	77°36'22.98"E	353.129	354.797
7-7	19	30°19'53.74"N	77°36'21.13"E	352.674	354.559
7-7	20	30°19'52.38"N	77°36'21.44"E	351.760	353.728
7-7	21	30°19'51.05"N	77°36'21.72"E	351.688	353.538



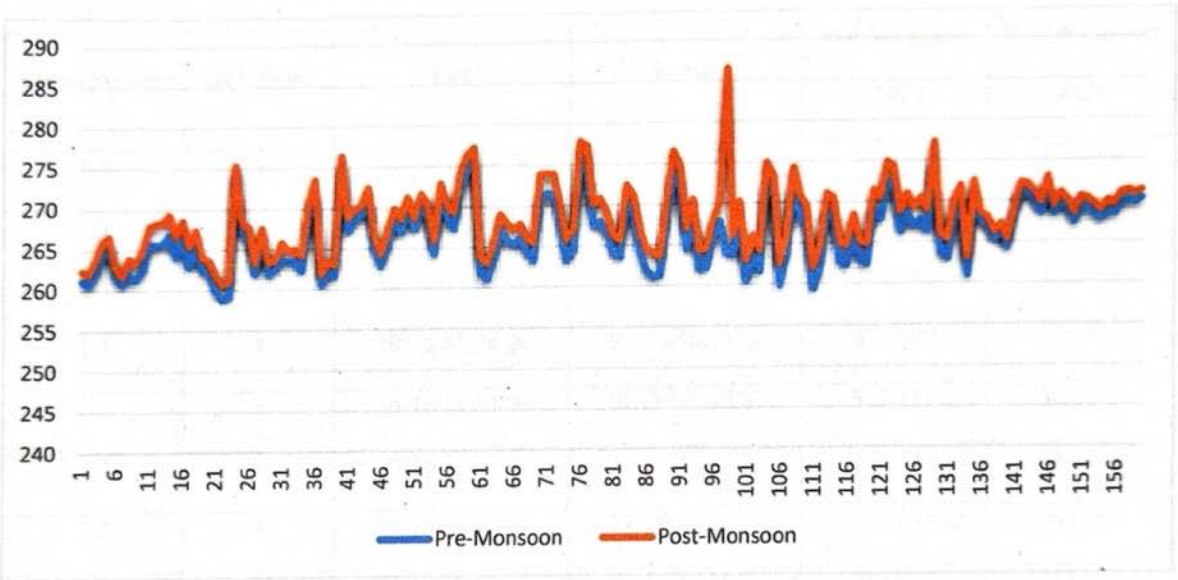
Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
8	Nukur	Sand	Yamuna	Dhikkan Kalan	Gata No. - 839, 841 to 856, 858, 859, 860, 861,863,864,865,866,867, 871, 872, 888, 889, 406 , 407	52.630

Cross Section	Ref. Point	Lat.	Long.	Pre-Monsoon	Post-Monsoon
1-1	1	30° 1'22.85"N	77°17'23.37"E	261.133	262.391
1-1	2	30° 1'23.84"N	77°17'21.30"E	260.591	261.949
1-1	3	30° 1'24.91"N	77°17'18.92"E	261.929	263.587
1-1	4	30° 1'25.69"N	77°17'16.86"E	264.629	265.987
2-2	5	30° 1'27.34"N	77°17'17.57"E	264.989	266.647
2-2	6	30° 1'26.79"N	77°17'19.74"E	261.689	262.838
2-2	7	30° 1'26.03"N	77°17'21.90"E	260.701	261.709
2-2	8	30° 1'25.14"N	77°17'24.02"E	261.984	263.942
2-2	9	30° 1'24.38"N	77°17'25.78"E	261.273	263.271
3-3	10	30° 1'24.36"N	77°17'27.99"E	262.497	264.745
3-3	11	30° 1'26.29"N	77°17'27.02"E	265.608	267.846
3-3	12	30° 1'27.23"N	77°17'25.43"E	265.57	268.228
3-3	13	30° 1'28.23"N	77°17'23.17"E	265.636	268.294
3-3	14	30° 1'28.99"N	77°17'21.02"E	266.84	269.298
3-3	15	30° 1'29.64"N	77°17'18.88"E	264.044	266.702
4-4	16	30° 1'31.61"N	77°17'19.93"E	266.211	268.547
4-4	17	30° 1'30.92"N	77°17'21.69"E	262.925	265.473
4-4	18	30° 1'30.30"N	77°17'23.64"E	265.067	267.396
4-4	19	30° 1'29.44"N	77°17'25.55"E	262.421	264.003
4-4	20	30° 1'28.69"N	77°17'27.66"E	262.422	263.705
4-4	21	30° 1'27.78"N	77°17'29.43"E	259.972	261.900
4-4	22	30° 1'27.11"N	77°17'31.29"E	258.816	260.771
5-5	23	30° 1'28.46"N	77°17'32.82"E	259.089	260.974
5-5	24	30° 1'29.66"N	77°17'30.88"E	274.357	275.362
5-5	25	30° 1'30.48"N	77°17'29.16"E	267.224	268.232
5-5	26	30° 1'31.50"N	77°17'27.29"E	266.35	267.685
5-5	27	30° 1'32.58"N	77°17'25.18"E	261.975	263.311
5-5	28	30° 1'33.16"N	77°17'23.15"E	266.429	267.574
5-5	29	30° 1'33.91"N	77°17'21.22"E	261.892	263.287

6-6	30	30° 1'35.90"N	77°17'22.10"E	262.549	263.607
6-6	31	30° 1'35.18"N	77°17'23.89"E	263.784	265.782
6-6	32	30° 1'34.54"N	77°17'25.78"E	263.495	264.832
6-6	33	30° 1'33.77"N	77°17'27.58"E	263.578	264.915
6-6	34	30° 1'32.90"N	77°17'29.29"E	262.375	264.223
6-6	35	30° 1'31.88"N	77°17'31.07"E	268.843	270.501
6-6	36	30° 1'31.18"N	77°17'32.87"E	271.665	273.512
6-6	37	30° 1'30.13"N	77°17'34.69"E	260.578	261.906
7-7	38	30° 1'30.97"N	77°17'36.38"E	262.204	263.462
7-7	39	30° 1'32.22"N	77°17'35.22"E	261.608	262.976
7-7	40	30° 1'33.19"N	77°17'33.51"E	275.12	276.367
7-7	41	30° 1'34.05"N	77°17'31.73"E	267.183	268.841
7-7	42	30° 1'35.06"N	77°17'30.11"E	268.464	269.822
7-7	43	30° 1'36.01"N	77°17'28.40"E	269.11	270.228
7-7	44	30° 1'36.79"N	77°17'26.43"E	270.786	272.484
7-7	45	30° 1'37.49"N	77°17'24.58"E	264.899	266.583
7-7	46	30° 1'38.13"N	77°17'22.84"E	262.856	264.341
8-8	47	30° 1'39.92"N	77°17'23.64"E	265.332	266.979
8-8	48	30° 1'39.38"N	77°17'25.60"E	268.379	269.864
8-8	49	30° 1'38.81"N	77°17'27.46"E	266.91	268.568
8-8	50	30° 1'37.95"N	77°17'29.22"E	269.68	271.228
8-8	51	30° 1'37.09"N	77°17'30.96"E	267.306	268.690
8-8	52	30° 1'36.15"N	77°17'32.70"E	270.024	271.682
8-8	53	30° 1'35.21"N	77°17'34.43"E	268.842	270.499
8-8	54	30° 1'34.26"N	77°17'36.15"E	264.244	265.912
8-8	55	30° 1'33.20"N	77°17'37.72"E	271.468	272.940
8-8	56	30° 1'32.29"N	77°17'39.22"E	268.611	270.082
9-9	57	30° 1'33.99"N	77°17'40.42"E	267.369	269.354
9-9	58	30° 1'35.08"N	77°17'38.90"E	272.401	274.383
9-9	59	30° 1'36.32"N	77°17'37.28"E	274.435	276.430
9-9	60	30° 1'37.33"N	77°17'35.50"E	275.819	277.239
9-9	61	30° 1'38.05"N	77°17'33.74"E	261.909	263.905
9-9	62	30° 1'39.02"N	77°17'32.00"E	261.03	262.977
9-9	63	30° 1'39.91"N	77°17'30.14"E	263.33	265.288
9-9	64	30° 1'40.71"N	77°17'28.18"E	267.114	268.998
9-9	65	30° 1'41.41"N	77°17'26.37"E	265.808	267.776
9-9	66	30° 1'41.88"N	77°17'24.51"E	265.215	267.162
10-10	67	30° 1'41.59"N	77°17'31.65"E	266.1	267.758
10-10	68	30° 1'40.60"N	77°17'33.40"E	264.435	266.083
10-10	69	30° 1'39.81"N	77°17'35.07"E	263.179	265.507
10-10	70	30° 1'38.99"N	77°17'36.98"E	270.833	273.814
10-10	71	30° 1'38.03"N	77°17'38.82"E	271.548	273.873
10-10	72	30° 1'36.89"N	77°17'40.16"E	271.332	273.790
10-10	73	30° 1'35.89"N	77°17'41.75"E	267.812	270.170
11-11	74	30° 1'37.58"N	77°17'42.90"E	263.211	265.869

11-11	75	30° 1'38.76"N	77°17'41.62"E	264.392	267.056
11-11	76	30° 1'39.92"N	77°17'39.89"E	275.391	277.849
11-11	77	30° 1'41.13"N	77°17'38.02"E	274.339	277.297
11-11	78	30° 1'42.16"N	77°17'35.41"E	267.481	270.128
11-11	79	30° 1'43.42"N	77°17'33.32"E	267.965	270.813
12-12	80	30° 1'45.32"N	77°17'34.46"E	266.658	269.280
12-12	81	30° 1'44.26"N	77°17'36.11"E	264.086	266.321
12-12	82	30° 1'43.32"N	77°17'37.81"E	263.559	265.684
12-12	83	30° 1'42.39"N	77°17'39.71"E	270.177	272.432
12-12	84	30° 1'41.31"N	77°17'41.63"E	268.707	271.182
12-12	85	30° 1'40.18"N	77°17'43.25"E	264.323	266.981
12-12	86	30° 1'39.37"N	77°17'44.48"E	261.904	264.562
13-13	87	30° 1'40.97"N	77°17'45.61"E	261.129	264.124
13-13	88	30° 1'42.04"N	77°17'44.13"E	261.276	263.634
13-13	89	30° 1'43.23"N	77°17'42.58"E	267.765	270.223
13-13	90	30° 1'44.22"N	77°17'40.95"E	273.641	276.498
13-13	91	30° 1'45.19"N	77°17'39.20"E	272.154	274.612
13-13	92	30° 1'46.14"N	77°17'37.48"E	264.48	267.064
13-13	93	30° 1'47.22"N	77°17'35.80"E	267.898	270.556
14-14	94	30° 1'48.79"N	77°17'37.05"E	262.005	264.363
14-14	95	30° 1'47.94"N	77°17'38.68"E	262.144	264.509
14-14	96	30° 1'46.92"N	77°17'40.38"E	266.035	268.180
14-14	97	30° 1'45.95"N	77°17'42.23"E	267.816	270.141
14-14	98	30° 1'44.89"N	77°17'44.10"E	263.929	286.475
14-14	99	30° 1'43.75"N	77°17'45.74"E	263.68	266.135
14-14	100	30° 1'43.42"N	77°17'47.98"E	267.536	270.194
15-15	101	30° 1'45.31"N	77°17'47.54"E	260.431	262.959
15-15	102	30° 1'46.46"N	77°17'45.84"E	263.478	266.077
15-15	103	30° 1'47.58"N	77°17'44.14"E	261.61	264.278
15-15	104	30° 1'48.59"N	77°17'42.07"E	272.503	274.936
15-15	105	30° 1'49.55"N	77°17'40.30"E	270.782	273.253
15-15	106	30° 1'50.73"N	77°17'38.65"E	259.873	262.531
16-16	107	30° 1'52.00"N	77°17'40.07"E	263.364	265.853
16-16	108	30° 1'51.33"N	77°17'41.83"E	271.6682	274.326
16-16	109	30° 1'50.39"N	77°17'43.54"E	268.247	270.905
16-16	110	30° 1'49.47"N	77°17'45.55"E	267.188	269.546
16-16	111	30° 1'48.14"N	77°17'47.22"E	259.406	262.064
16-16	112	30° 1'47.16"N	77°17'49.10"E	262.111	264.769
16-16	113	30° 1'46.16"N	77°17'50.81"E	268.707	271.165
17-17	114	30° 1'47.66"N	77°17'52.27"E	268.208	270.573
17-17	115	30° 1'48.49"N	77°17'50.36"E	262.604	265.092
17-17	116	30° 1'49.72"N	77°17'48.89"E	262.338	264.784
17-17	117	30° 1'50.67"N	77°17'47.43"E	265.831	268.489
17-17	118	30° 1'51.63"N	77°17'45.79"E	262.868	265.233
17-17	119	30° 1'52.63"N	77°17'44.21"E	262.431	264.897

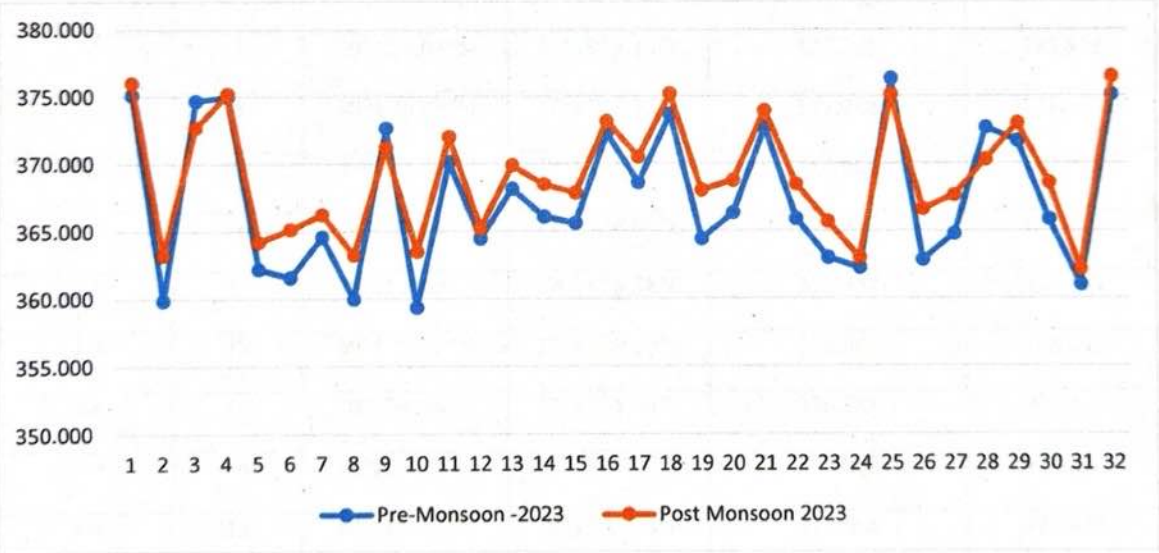
18-18	120	30° 1'53.45"N	77°17'46.74"E	268.938	271.506
18-18	121	30° 1'52.56"N	77°17'48.13"E	267.847	270.505
18-18	122	30° 1'51.65"N	77°17'49.56"E	272.42	274.895
18-18	123	30° 1'50.67"N	77°17'51.19"E	272.0243	274.391
18-18	124	30° 1'49.87"N	77°17'52.65"E	266.342	268.799
18-18	125	30° 1'49.01"N	77°17'54.27"E	268.684	271.044
19-19	126	30° 1'50.34"N	77°17'55.95"E	266.935	269.323
19-19	127	30° 1'51.43"N	77°17'54.29"E	267.891	270.363
19-19	128	30° 1'52.29"N	77°17'52.95"E	266.366	269.024
19-19	129	30° 1'52.96"N	77°17'51.66"E	274.608	277.264
19-19	130	30° 1'54.18"N	77°17'50.14"E	263.934	266.205
20-20	131	30° 1'54.89"N	77°17'51.93"E	262.98	265.364
20-20	132	30° 1'54.24"N	77°17'53.41"E	267.665	270.123
20-20	133	30° 1'53.40"N	77°17'54.80"E	269.932	271.986
20-20	134	30° 1'52.52"N	77°17'56.29"E	261.067	263.132
20-20	135	30° 1'51.65"N	77°17'57.83"E	270.423	272.467
21-21	136	30° 1'52.96"N	77°17'59.61"E	267.566	268.601
21-21	137	30° 1'53.80"N	77°17'58.20"E	267.087	268.121
21-21	138	30° 1'54.71"N	77°17'56.73"E	265.269	266.283
21-21	139	30° 1'55.60"N	77°17'55.51"E	266.252	267.287
21-21	140	30° 1'56.44"N	77°17'54.01"E	264.3053	265.339
22-22	141	30° 1'57.42"N	77°17'55.40"E	268.084	269.164
22-22	142	30° 1'56.84"N	77°17'57.04"E	271.153	272.293
22-22	143	30° 1'55.96"N	77°17'58.62"E	270.986	272.136
22-22	144	30° 1'55.04"N	77°18'0.35"E	270.02	271.200
23-23	145	30° 1'56.64"N	77°18'1.23"E	268.534	269.814
23-23	146	30° 1'57.69"N	77°17'59.99"E	271.619	272.999
23-23	147	30° 1'58.60"N	77°17'58.08"E	268.443	269.483
24-24	148	30° 1'59.70"N	77°17'59.99"E	270.012	271.062
24-24	149	30° 1'58.80"N	77°18'1.50"E	268.955	270.055
24-24	150	30° 1'57.79"N	77°18'2.77"E	267.448	268.528
25-25	151	30° 1'58.37"N	77°18'4.85"E	269.214	270.564
25-25	152	30° 1'59.22"N	77°18'3.90"E	269.027	270.267
25-25	153	30° 2'0.37"N	77°18'2.68"E	268.236	269.586
26-26	154	30° 2'1.31"N	77°18'3.98"E	267.773	268.920
26-26	155	30° 2'0.30"N	77°18'5.18"E	268.661	270.018
26-26	156	30° 1'59.40"N	77°18'6.20"E	268.418	269.543
26-26	157	30° 1'58.49"N	77°18'7.40"E	269.75	271.075
27-27	158	30° 2'0.33"N	77°18'7.69"E	269.919	271.254
27-27	159	30° 2'1.44"N	77°18'6.70"E	269.76	270.907
27-27	160	30° 2'2.48"N	77°18'5.67"E	270.215	271.273


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Pre-Monsoon
Post-Monsoon

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
9	Behat	R.B.M.	Khurwali Ra	Sherpur Pelon	403 , 404/1 , 405 , 406/1 , 416/2 , 421/1 , 422/2 , 423/2 , 424/2 , 429 and 431	6.475

Cross Section	Ref. Point	Lat.	Long.	Pre-Monsoon -2023	Post Monsoon 2023
1-1	1	30°16'34.34"N	77°39'44.70"E	375.124	376.009
1-1	2	30°16'33.75"N	77°39'46.29"E	359.852	363.231
1-1	3	30°16'33.05"N	77°39'48.42"E	374.682	372.665
1-1	4	30°16'32.24"N	77°39'50.15"E	374.992	375.185
2-2	5	30°16'31.30"N	77°39'48.97"E	362.177	364.185
2-2	6	30°16'32.06"N	77°39'47.41"E	361.554	365.124
2-2	7	30°16'33.00"N	77°39'45.72"E	364.558	366.239
2-2	8	30°16'33.59"N	77°39'44.15"E	359.958	363.221
3-3	9	30°16'32.38"N	77°39'43.09"E	372.641	371.226
3-3	10	30°16'31.59"N	77°39'44.74"E	359.334	363.445
3-3	11	30°16'30.92"N	77°39'46.34"E	370.128	371.992
3-3	12	30°16'30.11"N	77°39'47.62"E	364.458	365.224
4-4	13	30°16'29.00"N	77°39'46.19"E	368.127	369.856
4-4	14	30°16'29.80"N	77°39'44.95"E	366.052	368.456
4-4	15	30°16'30.60"N	77°39'43.58"E	365.556	367.822
4-4	16	30°16'31.40"N	77°39'41.99"E	372.224	373.129
5-5	17	30°16'29.83"N	77°39'40.81"E	368.564	370.487
5-5	18	30°16'28.82"N	77°39'42.80"E	373.663	375.182
5-5	19	30°16'27.72"N	77°39'44.55"E	364.411	368.002
6-6	20	30°16'26.73"N	77°39'43.12"E	366.328	368.743

6-6	21	30°16'27.79"N	77°39'41.76"E	372.688	373.923
6-6	22	30°16'28.76"N	77°39'39.99"E	365.884	368.451
7-7	23	30°16'27.32"N	77°39'38.87"E	362.995	365.668
7-7	24	30°16'26.47"N	77°39'40.60"E	362.249	362.992
7-7	25	30°16'25.79"N	77°39'41.91"E	376.317	375.116
8-8	26	30°16'24.63"N	77°39'40.19"E	362.855	366.602
8-8	27	30°16'25.36"N	77°39'39.15"E	364.774	367.653
8-8	28	30°16'26.15"N	77°39'37.80"E	372.665	370.287
9-9	29	30°16'24.31"N	77°39'36.68"E	371.658	372.990
9-9	30	30°16'23.44"N	77°39'38.60"E	365.852	368.566
10-10	31	30°16'22.02"N	77°39'36.90"E	361.008	362.112
10-10	32	30°16'22.82"N	77°39'35.47"E	375.118	376.454

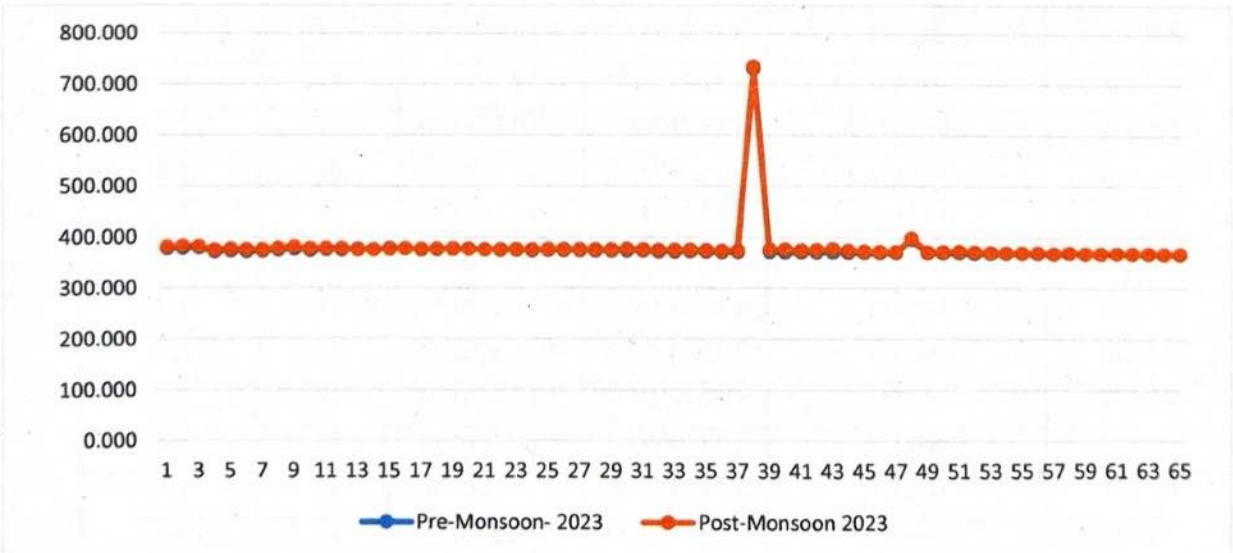


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
10	Behat	R.B.M.	Kaluwala	Kaluwala Pahadipur	119/1 , 120/1 , 192/1 , 193/1 , 125/4	14.900

Cross Section	Sl.No	Lat.	Long.	Pre-Monsoon- 2023	Post-Monsoon 2023
1-1	1	30°12'8.17"N	77°45'37.79"E	378.366	381.046
1-1	2	30°12'7.26"N	77°45'39.14"E	378.995	382.945
1-1	3	30°12'6.38"N	77°45'40.54"E	379.558	382.218
1-1	4	30°12'5.50"N	77°45'41.89"E	372.146	375.086
2-2	5	30°12'4.10"N	77°45'40.90"E	374.228	377.108
2-2	6	30°12'5.03"N	77°45'39.50"E	371.876	375.536
2-2	7	30°12'5.93"N	77°45'38.10"E	373.228	375.638
2-2	8	30°12'6.84"N	77°45'36.78"E	375.088	378.028
3-3	9	30°12'5.41"N	77°45'35.62"E	377.068	380.948
3-3	10	30°12'4.54"N	77°45'36.99"E	374.669	377.319
3-3	11	30°12'3.66"N	77°45'38.38"E	376.558	378.358
3-3	12	30°12'2.76"N	77°45'39.82"E	375.982	378.042
4-4	13	30°12'1.36"N	77°45'38.74"E	376.281	376.043
4-4	14	30°12'2.27"N	77°45'37.25"E	375.882	375.494
4-4	15	30°12'3.13"N	77°45'35.84"E	377.668	377.010
4-4	16	30°12'3.96"N	77°45'34.48"E	377.582	377.710
5-5	17	30°12'2.61"N	77°45'33.43"E	376.008	376.136
5-5	18	30°12'1.79"N	77°45'34.76"E	376.385	376.680
5-5	19	30°12'0.94"N	77°45'36.19"E	376.965	377.349
5-5	20	30°12'0.04"N	77°45'37.69"E	376.668	376.896
6-6	21	30°11'58.60"N	77°45'36.64"E	375.938	375.942

6-6	22	30°11'59.56"N	77°45'35.10"E	375.282	375.940
6-6	23	30°12'0.38"N	77°45'33.63"E	375.482	376.366
7-7	24	30°11'59.07"N	77°45'32.55"E	374.226	375.606
7-7	25	30°11'58.18"N	77°45'34.00"E	374.966	376.646
7-7	26	30°11'57.24"N	77°45'35.56"E	374.658	376.638
7-7	27	30°11'56.37"N	77°45'36.92"E	374.546	376.186
8-8	28	30°11'55.03"N	77°45'35.88"E	373.664	375.724
8-8	29	30°11'55.87"N	77°45'34.50"E	373.881	375.961
8-8	30	30°11'56.85"N	77°45'32.93"E	373.984	376.974
8-8	31	30°11'57.74"N	77°45'31.48"E	373.658	376.018
9-9	32	30°11'55.50"N	77°45'31.84"E	372.148	374.288
9-9	33	30°11'54.54"N	77°45'33.46"E	372.358	374.908
9-9	34	30°11'53.69"N	77°45'34.89"E	372.482	375.362
9-9	35	30°11'52.87"N	77°45'36.28"E	372.006	374.476
10-10	36	30°11'51.53"N	77°45'35.31"E	371.092	373.582
10-10	37	30°11'52.35"N	77°45'33.90"E	371.265	374.035
10-10	38	30°11'53.22"N	77°45'32.43"E	731.369	734.279
10-10	39	30°11'54.19"N	77°45'30.79"E	371.541	376.391
11-11	40	30°11'52.85"N	77°45'29.72"E	370.482	376.342
11-11	41	30°11'51.85"N	77°45'31.37"E	370.658	374.538
11-11	42	30°11'50.97"N	77°45'32.85"E	370.421	375.341
11-11	43	30°11'50.11"N	77°45'34.23"E	370.755	376.745
12-12	44	30°11'47.85"N	77°45'34.63"E	369.774	373.654
12-12	45	30°11'48.73"N	77°45'33.20"E	369.658	372.738
12-12	46	30°11'49.60"N	77°45'31.81"E	369.485	372.375
12-12	47	30°11'50.47"N	77°45'30.31"E	369.666	371.746
13-13	48	30°11'49.12"N	77°45'29.27"E	396.180	397.840
13-13	49	30°11'48.23"N	77°45'30.78"E	369.871	371.751
13-13	50	30°11'47.39"N	77°45'32.19"E	369.741	372.071

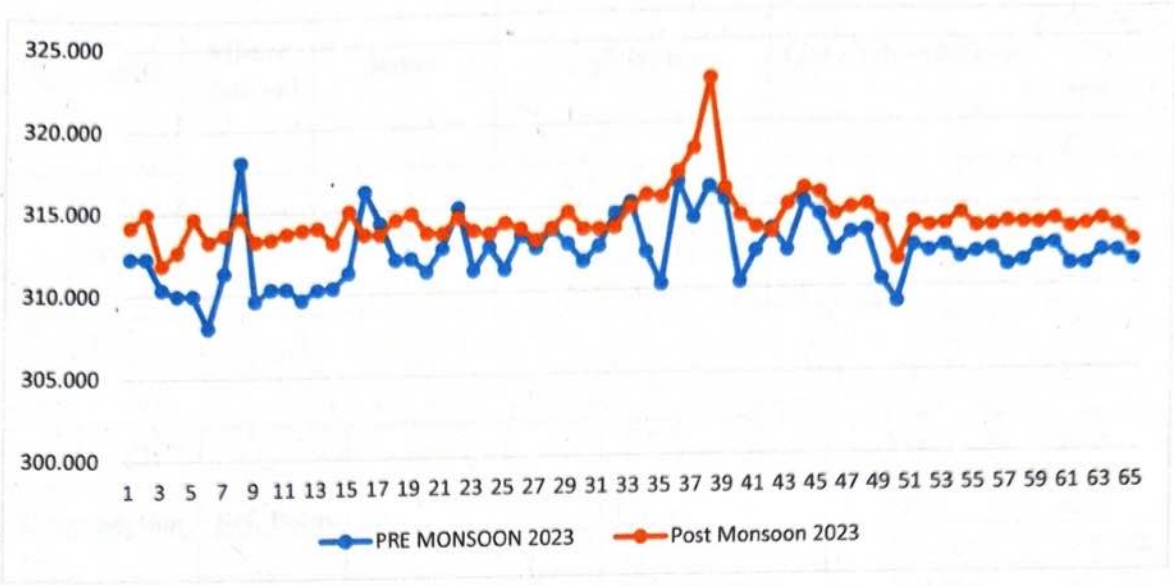
13-13	51	30°11'46.51"N	77°45'33.67"E	369.694	372.774
14-14	52	30°11'45.14"N	77°45'32.65"E	368.469	371.349
14-14	53	30°11'46.02"N	77°45'31.15"E	368.595	370.475
14-14	54	30°11'46.85"N	77°45'29.75"E	368.476	369.526
14-14	55	30°11'47.76"N	77°45'28.20"E	368.664	369.704
15-15	56	30°11'45.47"N	77°45'28.70"E	368.409	369.469
15-15	57	30°11'44.64"N	77°45'30.10"E	367.109	368.189
15-15	58	30°11'43.74"N	77°45'31.62"E	368.993	369.983
15-15	59	30°11'42.90"N	77°45'32.99"E	367.382	368.062
16-16	60	30°11'41.54"N	77°45'32.00"E	367.388	368.046
16-16	61	30°11'42.39"N	77°45'30.58"E	367.665	368.106
16-16	62	30°11'43.31"N	77°45'29.08"E	367.583	367.841
16-16	63	30°11'44.13"N	77°45'27.68"E	367.599	367.967
17-17	64	30°11'42.69"N	77°45'26.59"E	366.881	367.302
17-17	65	30°11'41.88"N	77°45'28.01"E	366.794	367.452



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
11	Behat	R.B.M.	Yamuna	Akbarpur Bans Aehatmal	1	17.900

Cross Section	Ref. Point	Lat.	Long.	PRE MONSOON 2023	Post Monsoon 2023
1-1	1	30°16'29.02"N	77°32'45.75"E	312.263	314.162
1-1	2	30°16'29.95"N	77°32'44.21"E	312.247	314.952
1-1	3	30°16'31.03"N	77°32'42.74"E	310.377	311.856
1-1	4	30°16'31.96"N	77°32'41.18"E	310.009	312.644
1-1	5	30°16'32.92"N	77°32'39.64"E	310.015	314.658
1-1	6	30°16'33.91"N	77°32'38.08"E	308.066	313.252
1-1	7	30°16'34.89"N	77°32'36.58"E	311.355	313.672
1-1	8	30°16'35.84"N	77°32'35.04"E	318.060	314.666
2-2	9	30°16'36.77"N	77°32'36.56"E	309.674	313.265
2-2	10	30°16'35.85"N	77°32'38.12"E	310.342	313.360
2-2	11	30°16'35.00"N	77°32'39.66"E	310.357	313.692
2-2	12	30°16'34.06"N	77°32'41.16"E	309.688	313.871
2-2	13	30°16'33.05"N	77°32'42.75"E	310.282	313.998
2-2	14	30°16'32.07"N	77°32'44.34"E	310.366	313.095
2-2	15	30°16'31.03"N	77°32'45.96"E	311.292	314.966
3-3	16	30°16'32.58"N	77°32'46.73"E	316.164	313.567
3-3	17	30°16'33.56"N	77°32'45.21"E	314.238	313.544
3-3	18	30°16'34.61"N	77°32'43.67"E	312.006	314.394
3-3	19	30°16'35.47"N	77°32'42.03"E	312.072	314.741
3-3	20	30°16'36.53"N	77°32'40.53"E	311.281	313.584
3-3	21	30°16'37.74"N	77°32'38.69"E	312.633	313.544
4-4	22	30°16'38.76"N	77°32'40.23"E	315.066	314.483
4-4	23	30°16'37.83"N	77°32'41.88"E	311.291	313.668
4-4	24	30°16'36.87"N	77°32'43.60"E	312.682	313.481
4-4	25	30°16'35.92"N	77°32'45.36"E	311.332	314.099
4-4	26	30°16'34.92"N	77°32'47.02"E	313.314	313.739
5-5	27	30°16'36.49"N	77°32'48.48"E	312.582	313.068
5-5	28	30°16'37.42"N	77°32'46.61"E	313.682	313.765

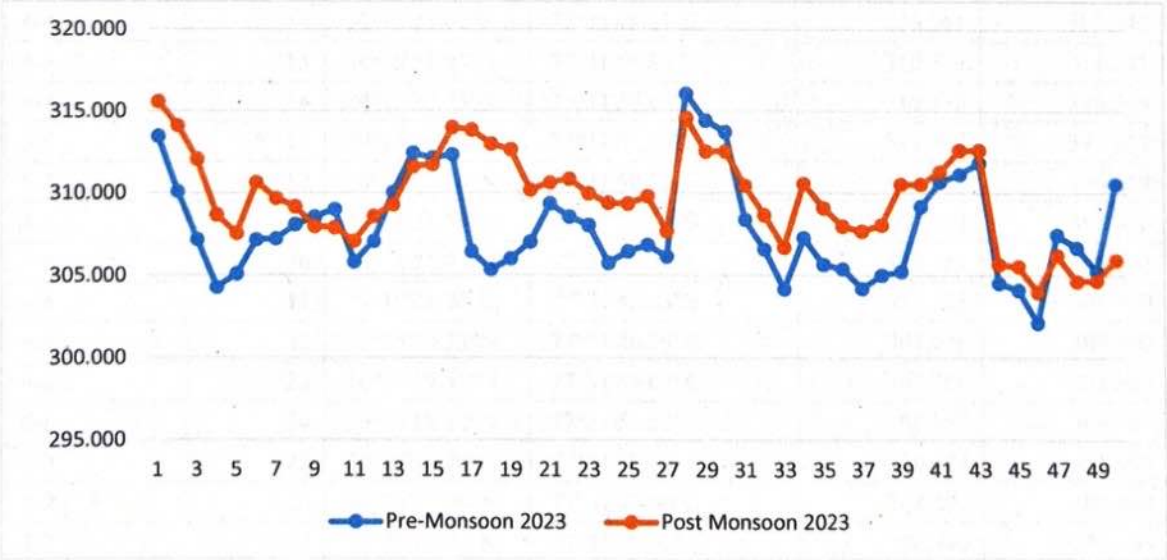
5-5	29	30°16'38.26"N	77°32'44.82"E	312.827	314.692
5-5	30	30°16'39.22"N	77°32'43.47"E	311.744	313.695
5-5	31	30°16'40.21"N	77°32'41.72"E	312.658	313.665
6-6	32	30°16'41.95"N	77°32'42.62"E	314.582	313.739
6-6	33	30°16'40.89"N	77°32'44.53"E	315.221	314.941
6-6	34	30°16'39.86"N	77°32'46.23"E	312.276	315.680
6-6	35	30°16'38.99"N	77°32'47.96"E	310.324	315.542
6-6	36	30°16'38.23"N	77°32'49.75"E	316.421	316.988
7-7	37	30°16'40.06"N	77°32'50.59"E	314.265	318.408
7-7	38	30°16'40.93"N	77°32'48.88"E	316.109	322.618
7-7	39	30°16'41.86"N	77°32'47.14"E	315.336	315.999
7-7	40	30°16'42.84"N	77°32'45.24"E	310.360	314.368
7-7	41	30°16'43.88"N	77°32'43.31"E	312.244	313.654
8-8	42	30°16'45.92"N	77°32'43.88"E	313.562	313.373
8-8	43	30°16'44.76"N	77°32'46.02"E	312.238	314.995
8-8	44	30°16'43.61"N	77°32'47.83"E	315.147	315.962
8-8	45	30°16'42.52"N	77°32'49.70"E	314.367	315.665
8-8	46	30°16'41.53"N	77°32'51.66"E	312.264	314.376
9-9	47	30°16'42.73"N	77°32'54.20"E	313.282	314.744
9-9	48	30°16'43.47"N	77°32'52.44"E	313.406	314.935
9-9	49	30°16'44.59"N	77°32'50.82"E	310.445	313.963
9-9	50	30°16'45.59"N	77°32'48.99"E	309.106	311.648
9-9	51	30°16'46.55"N	77°32'47.28"E	312.482	313.855
9-9	52	30°16'47.62"N	77°32'45.10"E	312.106	313.628
10-10	53	30°16'49.03"N	77°32'46.71"E	312.471	313.728
10-10	54	30°16'47.83"N	77°32'48.54"E	311.753	314.364
10-10	55	30°16'46.64"N	77°32'50.26"E	312.036	313.582
10-10	56	30°16'45.47"N	77°32'51.89"E	312.224	313.658
10-10	57	30°16'44.40"N	77°32'53.39"E	311.236	313.833
10-10	58	30°16'43.32"N	77°32'54.87"E	311.472	313.774
11-11	59	30°16'44.03"N	77°32'57.12"E	312.331	313.755
11-11	60	30°16'45.08"N	77°32'55.63"E	312.528	313.993
11-11	61	30°16'46.08"N	77°32'54.16"E	311.256	313.481
11-11	62	30°16'47.16"N	77°32'52.55"E	311.282	313.658
11-11	63	30°16'48.26"N	77°32'50.81"E	312.084	313.982
11-11	64	30°16'48.26"N	77°32'50.81"E	312.008	313.583
11-11	65	30°16'50.55"N	77°32'48.17"E	311.477	312.665


325.000
320.000
315.000
310.000
305.000
300.000
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59 61 63 65
PRE MONSOON 2023
Post Monsoon 2023

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
12	Behat	R.B.M.	Yamuna	Arazi Jevadi Ahatmal and Masoodpur Garh Aehatmal	1 and 1	13.800

Cross Section	Ref. Point	Lat.	Long.	Pre-Monsoon 2023	Post Monsoon 2023
1-1	1	30°15'50.69"N	77°32'20.15"E	313.466	315.588
1-1	2	30°15'51.87"N	77°32'17.96"E	310.088	314.108
1-1	3	30°15'52.91"N	77°32'15.82"E	307.188	312.090
1-1	4	30°15'53.71"N	77°32'14.21"E	304.266	308.665
1-1	5	30°15'54.83"N	77°32'12.39"E	305.083	307.553
1-1	6	30°15'55.83"N	77°32'10.43"E	307.172	310.665
1-1	7	30°15'56.46"N	77°32'8.75"E	307.218	309.672
2-2	8	30°15'54.87"N	77°32'7.72"E	308.065	309.173
2-2	9	30°15'54.20"N	77°32'9.51"E	308.540	307.982
2-2	10	30°15'53.23"N	77°32'11.75"E	309.003	307.894
2-2	11	30°15'52.41"N	77°32'13.51"E	305.833	307.096
2-2	12	30°15'51.54"N	77°32'15.02"E	307.066	308.578
2-2	13	30°15'50.75"N	77°32'17.13"E	310.036	309.282
2-2	14	30°15'49.64"N	77°32'19.25"E	312.456	311.638
3-3	15	30°15'48.44"N	77°32'18.27"E	312.138	311.744
3-3	16	30°15'49.41"N	77°32'16.06"E	312.362	313.992
3-3	17	30°15'50.26"N	77°32'14.45"E	306.456	313.847
3-3	18	30°15'50.90"N	77°32'12.75"E	305.348	312.993
3-3	19	30°15'51.59"N	77°32'10.95"E	306.006	312.658
3-3	20	30°15'52.60"N	77°32'8.66"E	307.036	310.166
3-3	21	30°15'53.00"N	77°32'6.96"E	309.327	310.638
4-4	22	30°15'51.46"N	77°32'6.25"E	308.542	310.866
4-4	23	30°15'50.79"N	77°32'7.87"E	308.033	309.964
4-4	24	30°15'50.08"N	77°32'9.99"E	305.751	309.365
4-4	25	30°15'49.25"N	77°32'11.91"E	306.455	309.329
4-4	26	30°15'48.68"N	77°32'13.64"E	306.836	309.796
4-4	27	30°15'47.94"N	77°32'15.16"E	306.143	307.673
4-4	28	30°15'47.11"N	77°32'17.28"E	316.065	314.582
5-5	29	30°15'45.90"N	77°32'16.09"E	314.417	312.536
5-5	30	30°15'46.64"N	77°32'14.20"E	313.708	312.545

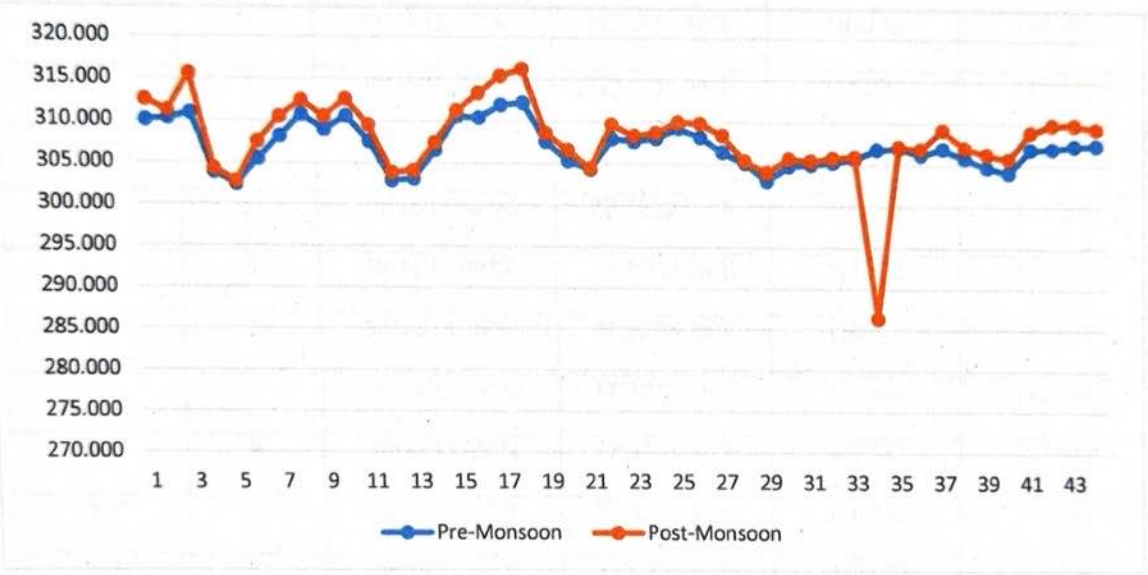
5-5	31	30°15'47.14"N	77°32'12.76"E	308.365	310.458
5-5	32	30°15'47.75"N	77°32'11.07"E	306.582	308.663
5-5	33	30°15'48.43"N	77°32'9.34"E	304.142	306.692
5-5	34	30°15'48.93"N	77°32'7.71"E	307.272	310.592
5-5	35	30°15'49.84"N	77°32'5.79"E	305.658	309.095
6-6	36	30°15'48.31"N	77°32'5.26"E	305.388	307.988
6-6	37	30°15'47.38"N	77°32'7.14"E	304.182	307.684
6-6	38	30°15'46.81"N	77°32'8.76"E	305.004	308.072
6-6	39	30°15'46.34"N	77°32'10.10"E	305.236	310.559
6-6	40	30°15'45.22"N	77°32'13.14"E	309.183	310.561
6-6	41	30°15'44.62"N	77°32'14.77"E	310.688	311.335
7-7	42	30°15'42.97"N	77°32'13.10"E	311.174	312.637
7-7	43	30°15'43.74"N	77°32'11.98"E	311.855	312.639
7-7	44	30°15'45.06"N	77°32'9.20"E	304.522	305.666
7-7	45	30°15'45.50"N	77°32'7.73"E	304.093	305.556
7-7	46	30°15'46.39"N	77°32'6.10"E	302.096	303.982
7-7	47	30°15'47.06"N	77°32'4.49"E	307.459	306.222
8-8	48	30°15'45.55"N	77°32'4.65"E	306.695	304.637
8-8	49	30°15'44.39"N	77°32'7.37"E	305.256	304.674
8-8	50	30°15'43.27"N	77°32'10.50"E	310.581	305.956



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
13	Behat	R.B.M.	Yamuna	Shehjadpur Bans Aehatmal	1	13.000

Cross Section	Ref. Point	Lat.	Long.	Pre-Monsoon	Post-Monsoon
1-1	1	30°15'24.53"N	77°31'55.65"E	310.053	312.494
1-1	2	30°15'25.44"N	77°31'53.87"E	310.271	311.196
1-1	3	30°15'26.27"N	77°31'52.03"E	310.937	315.595
1-1	4	30°15'27.50"N	77°31'49.92"E	303.868	304.320
2-2	5	30°15'26.82"N	77°31'48.99"E	302.421	302.756
2-2	6	30°15'25.58"N	77°31'50.27"E	305.492	307.506
2-2	7	30°15'24.55"N	77°31'52.53"E	308.169	310.494
2-2	8	30°15'23.73"N	77°31'54.76"E	310.752	312.466
3-3	9	30°15'22.23"N	77°31'53.84"E	308.971	310.522
3-3	10	30°15'23.39"N	77°31'51.64"E	310.582	312.614
3-3	11	30°15'24.36"N	77°31'49.46"E	307.605	309.504
3-3	12	30°15'25.50"N	77°31'47.57"E	302.887	303.841
4-4	13	30°15'24.30"N	77°31'46.04"E	303.096	304.091
4-4	14	30°15'23.07"N	77°31'48.25"E	306.561	307.442
4-4	15	30°15'21.93"N	77°31'50.83"E	310.574	311.241
4-4	16	30°15'20.73"N	77°31'53.06"E	310.438	313.363
5-5	17	30°15'19.42"N	77°31'52.14"E	311.965	315.417
5-5	18	30°15'20.56"N	77°31'50.12"E	312.245	316.259
5-5	19	30°15'21.59"N	77°31'47.50"E	307.637	308.655
5-5	20	30°15'22.98"N	77°31'45.08"E	305.302	306.600
6-6	21	30°15'21.90"N	77°31'43.83"E	304.323	304.470
6-6	22	30°15'20.33"N	77°31'46.29"E	307.976	309.690
6-6	23	30°15'19.41"N	77°31'49.03"E	307.708	308.366
6-6	24	30°15'18.14"N	77°31'51.28"E	308.057	308.720
7-7	25	30°15'16.70"N	77°31'50.29"E	309.274	309.998
7-7	26	30°15'17.66"N	77°31'48.10"E	308.202	309.864
7-7	27	30°15'18.95"N	77°31'45.72"E	306.440	308.454
7-7	28	30°15'19.84"N	77°31'43.73"E	305.132	305.416
7-7	29	30°15'20.95"N	77°31'41.67"E	303.026	303.984
8-8	30	30°15'19.84"N	77°31'40.64"E	304.778	305.679
8-8	31	30°15'18.67"N	77°31'42.66"E	304.975	305.427
8-8	32	30°15'17.78"N	77°31'44.94"E	305.246	305.793

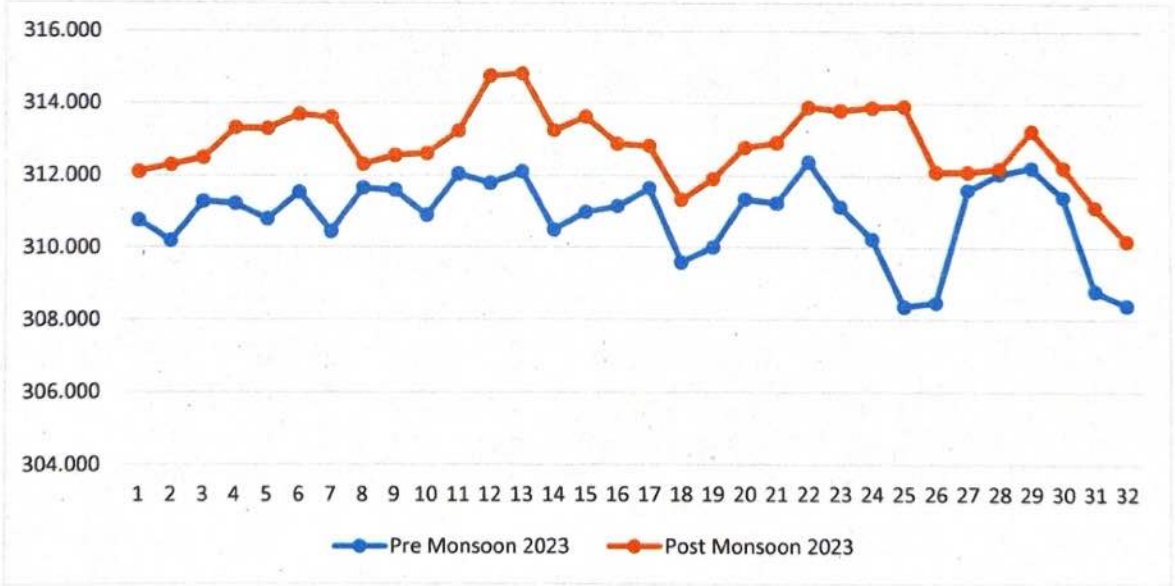
8-8	33	30°15'16.40"N	77°31'47.32"E	305.711	305.945
8-8	34	30°15'15.33"N	77°31'49.66"E	306.815	286.415
9-9	35	30°15'14.23"N	77°31'48.77"E	307.015	307.139
9-9	36	30°15'15.32"N	77°31'46.53"E	306.213	306.897
9-9	37	30°15'16.67"N	77°31'44.22"E	306.945	309.159
9-9	38	30°15'17.81"N	77°31'41.94"E	305.809	307.063
9-9	39	30°15'18.95"N	77°31'39.73"E	304.772	306.296
10-10	40	30°15'17.71"N	77°31'38.49"E	304.067	305.729
10-10	41	30°15'16.70"N	77°31'40.66"E	306.930	308.944
10-10	42	30°15'15.47"N	77°31'43.47"E	307.034	309.881
10-10	43	30°15'14.18"N	77°31'45.61"E	307.361	309.908
10-10	44	30°15'13.32"N	77°31'47.88"E	307.425	309.383



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
14	Behat	R.B.M.	Yamuna	Alauddinpur Bans Aehatmal	1/1	9.580

Cross Section	Ref. Point	Lat.	Long.	Pre Monsoon 2023	Post Monsoon 2023
1-1	1	30°16'14.66"N	77°32'38.47"E	310.752	312.102
1-1	2	30°16'15.32"N	77°32'36.96"E	310.188	312.292
1-1	3	30°16'16.37"N	77°32'35.03"E	311.277	312.490
1-1	4	30°16'17.03"N	77°32'33.17"E	311.213	313.311
2-2	5	30°16'15.68"N	77°32'32.07"E	310.781	313.288
2-2	6	30°16'15.09"N	77°32'33.98"E	311.522	313.682
2-2	7	30°16'14.26"N	77°32'35.89"E	310.444	313.601
2-2	8	30°16'13.45"N	77°32'37.56"E	311.644	312.301
3-3	9	30°16'12.08"N	77°32'36.59"E	311.582	312.544
3-3	10	30°16'12.97"N	77°32'34.85"E	310.892	312.601
3-3	11	30°16'13.89"N	77°32'33.07"E	312.032	313.220
3-3	12	30°16'14.70"N	77°32'31.31"E	311.778	314.756
4-4	13	30°16'13.62"N	77°32'30.25"E	312.101	314.821
4-4	14	30°16'12.81"N	77°32'32.20"E	310.492	313.236
4-4	15	30°16'11.85"N	77°32'33.82"E	310.981	313.621
4-4	16	30°16'10.91"N	77°32'35.64"E	311.133	312.866
5-5	17	30°16'9.32"N	77°32'34.45"E	311.644	312.810
5-5	18	30°16'10.31"N	77°32'32.62"E	309.592	311.322
5-5	19	30°16'11.42"N	77°32'31.10"E	310.010	311.899
5-5	20	30°16'12.58"N	77°32'29.38"E	311.339	312.772
6-6	21	30°16'11.16"N	77°32'28.31"E	311.232	312.899

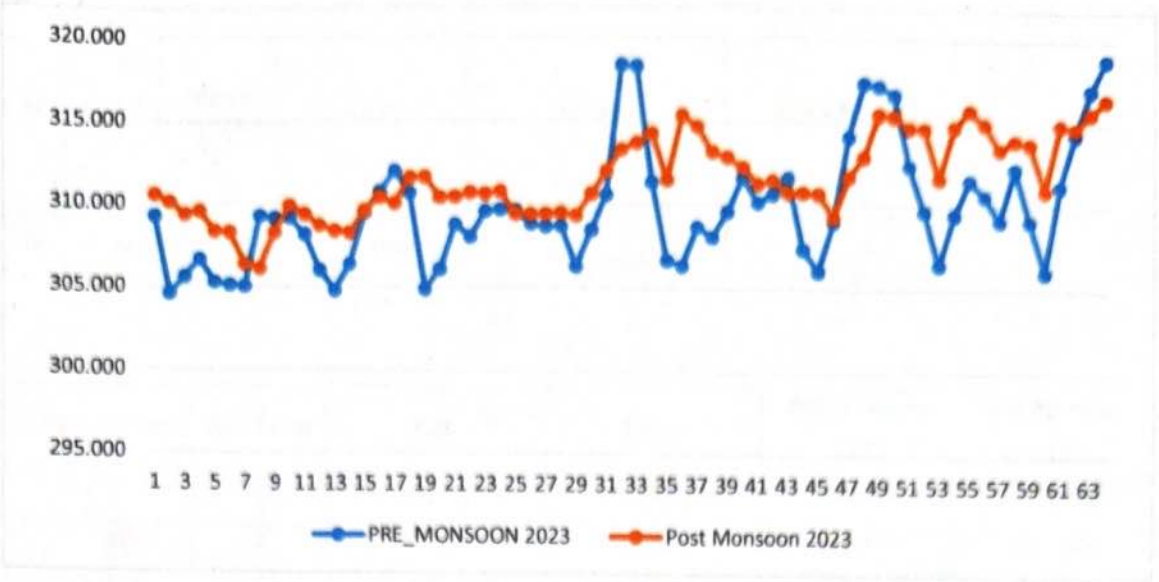
6-6	22	30°16'9.97"N	77°32'30.13"E	312.377	313.901
6-6	23	30°16'9.03"N	77°32'31.86"E	311.127	313.804
6-6	24	30°16'7.96"N	77°32'33.75"E	310.238	313.892
7-7	25	30°16'5.97"N	77°32'32.68"E	308.371	313.922
7-7	26	30°16'7.16"N	77°32'31.08"E	308.481	312.102
7-7	27	30°16'8.26"N	77°32'29.39"E	311.599	312.104
7-7	28	30°16'9.68"N	77°32'27.25"E	312.044	312.201
8-8	29	30°16'8.37"N	77°32'25.93"E	312.223	313.241
8-8	30	30°16'6.98"N	77°32'28.34"E	311.402	312.233
8-8	31	30°16'5.71"N	77°32'30.11"E	308.801	311.122
8-8	32	30°16'4.62"N	77°32'31.59"E	308.399	310.188



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
15	Behat	R.B.M.	Yamuna	Mehmoodpur Nangli Aehatmal	1	15.700

Cross Section	Ref. Point	Lat.	Long.	PRE_MONSOON 2023	Post Monsoon 2023
1-1	1	30°16'2.81"N	77°32'30.11"E	309.255	310.558
1-1	2	30°16'3.71"N	77°32'28.50"E	304.596	310.108
1-1	3	30°16'4.75"N	77°32'26.89"E	305.584	309.372
1-1	4	30°16'5.78"N	77°32'25.29"E	306.655	309.558
1-1	5	30°16'6.76"N	77°32'23.74"E	305.272	308.365
1-1	6	30°16'7.83"N	77°32'22.12"E	305.109	308.296
1-1	7	30°16'8.81"N	77°32'20.51"E	305.028	306.372
1-1	8	30°16'9.67"N	77°32'19.00"E	309.255	306.108
2-2	9	30°16'8.28"N	77°32'17.87"E	309.120	308.279
2-2	10	30°16'7.39"N	77°32'19.43"E	309.156	309.872
2-2	11	30°16'6.45"N	77°32'21.12"E	308.155	309.366
2-2	12	30°16'5.43"N	77°32'22.95"E	306.006	308.684
2-2	13	30°16'4.19"N	77°32'24.75"E	304.785	308.366
2-2	14	30°16'3.10"N	77°32'26.36"E	306.364	308.261
2-2	15	30°16'2.13"N	77°32'28.02"E	309.488	309.566
2-2	16	30°16'1.19"N	77°32'29.49"E	310.725	310.364
3-3	17	30°15'59.73"N	77°32'28.53"E	311.955	310.009
3-3	18	30°16'0.75"N	77°32'27.05"E	310.639	311.558
3-3	19	30°16'1.74"N	77°32'25.54"E	304.856	311.599
3-3	20	30°16'2.69"N	77°32'23.95"E	306.065	310.374
3-3	21	30°16'3.60"N	77°32'22.35"E	308.743	310.395
3-3	22	30°16'4.70"N	77°32'20.72"E	308.006	310.665
3-3	23	30°16'5.92"N	77°32'18.86"E	309.552	310.596
3-3	24	30°16'6.95"N	77°32'16.98"E	309.658	310.744
4-4	25	30°16'5.51"N	77°32'15.86"E	309.581	309.408

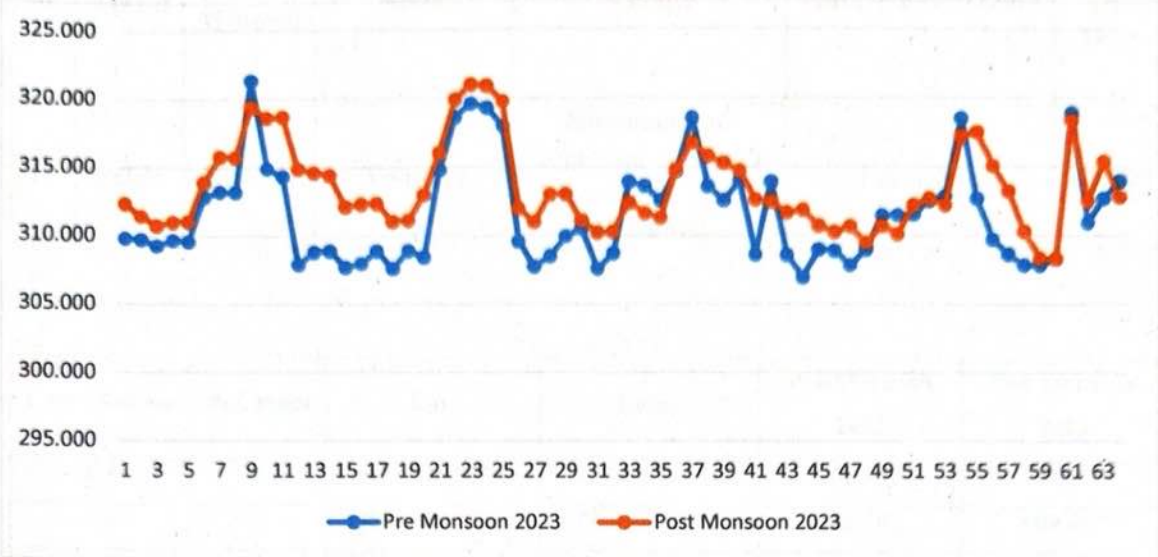
4-4	26	30°16'4.34"N	77°32'17.71"E	308.801	309.394
4-4	27	30°16'3.28"N	77°32'19.42"E	308.655	309.399
4-4	28	30°16'2.11"N	77°32'21.16"E	308.695	309.472
4-4	29	30°16'1.11"N	77°32'22.70"E	306.293	309.336
4-4	30	30°15'59.93"N	77°32'24.27"E	308.485	310.651
4-4	31	30°15'58.85"N	77°32'25.82"E	310.585	311.988
4-4	32	30°15'57.95"N	77°32'27.44"E	318.366	313.299
5-5	33	30°15'56.55"N	77°32'26.40"E	318.295	313.685
5-5	34	30°15'57.58"N	77°32'24.86"E	311.355	314.299
5-5	35	30°15'58.69"N	77°32'23.38"E	306.675	311.482
5-5	36	30°15'59.78"N	77°32'21.72"E	306.355	315.365
5-5	37	30°16'0.99"N	77°32'20.06"E	308.693	314.698
5-5	38	30°16'1.97"N	77°32'18.40"E	308.066	313.172
5-5	39	30°16'3.16"N	77°32'16.86"E	309.596	312.852
5-5	40	30°16'4.28"N	77°32'15.08"E	311.655	312.272
6-6	41	30°16'2.72"N	77°32'13.94"E	310.142	311.277
6-6	42	30°16'1.75"N	77°32'15.69"E	310.655	311.486
6-6	43	30°16'0.72"N	77°32'17.23"E	311.655	310.746
6-6	44	30°15'59.68"N	77°32'18.95"E	307.361	310.769
6-6	45	30°15'58.69"N	77°32'20.69"E	306.066	310.685
6-6	46	30°15'57.70"N	77°32'22.49"E	309.008	309.284
6-6	47	30°15'56.37"N	77°32'24.15"E	314.129	311.699
6-6	48	30°15'55.16"N	77°32'25.63"E	317.358	312.912
7-7	49	30°15'53.78"N	77°32'24.66"E	317.166	315.488
7-7	50	30°15'55.11"N	77°32'23.26"E	316.658	315.372
7-7	51	30°15'56.10"N	77°32'21.78"E	312.385	314.691
7-7	52	30°15'57.24"N	77°32'20.15"E	309.661	314.658
7-7	53	30°15'58.22"N	77°32'18.49"E	306.458	311.658
7-7	54	30°15'59.38"N	77°32'16.74"E	309.488	314.780
7-7	55	30°16'0.30"N	77°32'15.02"E	311.555	315.788
7-7	56	30°16'1.64"N	77°32'13.13"E	310.633	314.966
8-8	57	30°16'0.06"N	77°32'11.98"E	309.144	313.482
8-8	58	30°15'58.75"N	77°32'14.05"E	312.283	313.983
8-8	59	30°15'57.61"N	77°32'15.77"E	309.138	313.799
8-8	60	30°15'56.47"N	77°32'17.43"E	306.066	310.982
8-8	61	30°15'55.38"N	77°32'19.09"E	311.279	314.958
8-8	62	30°15'54.20"N	77°32'20.78"E	314.351	314.748
8-8	63	30°15'53.07"N	77°32'22.32"E	317.058	315.656
8-8	64	30°15'51.96"N	77°32'23.60"E	318.824	316.444


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PRE_MONSOON 2023
Post Monsoon 2023

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
16	Behat	R.B.M.	Yamuna	Shahpur Bans Achatmal	1/1	15.600

Cross Section	Ref. Point	Lat.	Long.	Pre Monsoon 2023	Post Monsoon 2023
1-1	1	30°16'27.69"N	77°32'45.53"E	309.788	312.288
1-1	2	30°16'28.59"N	77°32'43.93"E	309.692	311.385
1-1	3	30°16'29.65"N	77°32'42.20"E	309.232	310.695
1-1	4	30°16'30.50"N	77°32'40.57"E	309.644	310.954
1-1	5	30°16'31.46"N	77°32'38.97"E	309.544	310.995
1-1	6	30°16'32.39"N	77°32'37.38"E	312.792	313.854
1-1	7	30°16'33.42"N	77°32'35.69"E	313.168	315.744
1-1	8	30°16'34.42"N	77°32'33.99"E	313.152	315.692
2-2	9	30°16'32.73"N	77°32'33.27"E	321.342	319.376
2-2	10	30°16'31.71"N	77°32'34.83"E	314.896	318.584
2-2	11	30°16'30.88"N	77°32'36.55"E	314.305	318.666
2-2	12	30°16'29.96"N	77°32'38.07"E	307.888	314.845
2-2	13	30°16'28.97"N	77°32'39.74"E	308.792	314.584
2-2	14	30°16'27.84"N	77°32'41.33"E	308.874	314.385
2-2	15	30°16'27.06"N	77°32'43.07"E	307.682	312.085
2-2	16	30°16'26.16"N	77°32'44.63"E	307.941	312.281
3-3	17	30°16'24.58"N	77°32'43.45"E	308.855	312.328
3-3	18	30°16'25.39"N	77°32'41.89"E	307.572	311.009
3-3	19	30°16'26.32"N	77°32'40.16"E	308.882	311.088
3-3	20	30°16'27.43"N	77°32'38.53"E	308.388	312.958
3-3	21	30°16'28.54"N	77°32'36.52"E	314.766	315.985
3-3	22	30°16'29.85"N	77°32'34.38"E	318.595	319.885
3-3	23	30°16'30.94"N	77°32'32.58"E	319.571	320.956
4-4	24	30°16'29.36"N	77°32'32.00"E	319.265	320.854
4-4	25	30°16'28.36"N	77°32'33.70"E	317.968	319.755
4-4	26	30°16'27.27"N	77°32'35.49"E	309.558	311.963
4-4	27	30°16'26.16"N	77°32'37.25"E	307.728	310.971
4-4	28	30°16'25.09"N	77°32'39.08"E	308.463	312.968
4-4	29	30°16'24.02"N	77°32'40.92"E	309.932	312.988

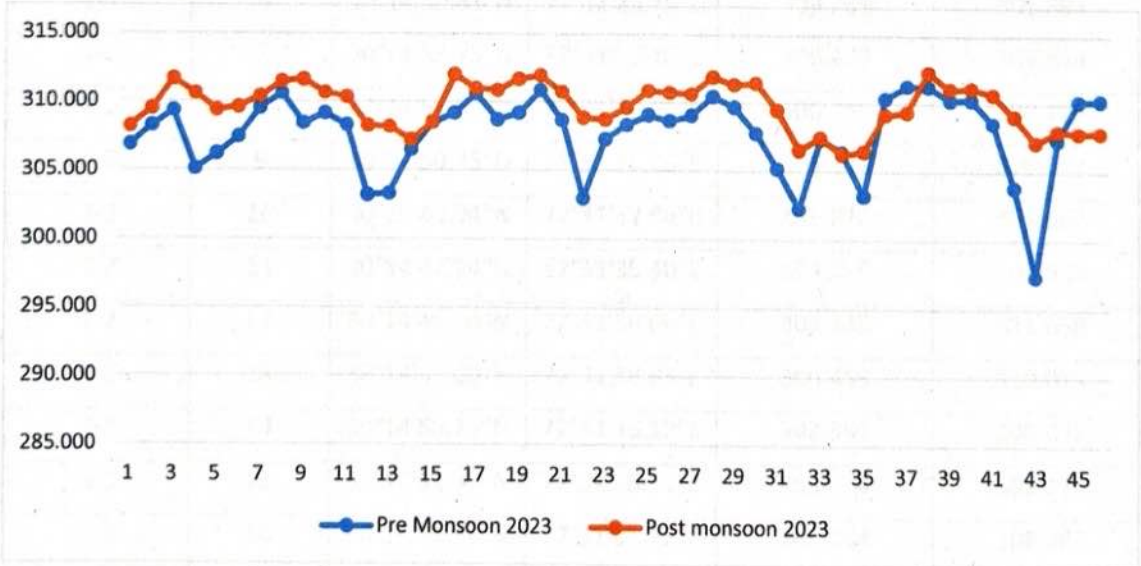
4-4	30	30°16'23.08"N	77°32'42.65"E	310.501	311.085
5-5	31	30°16'21.80"N	77°32'41.65"E	307.555	310.185
5-5	32	30°16'22.87"N	77°32'39.93"E	308.669	310.255
5-5	33	30°16'23.75"N	77°32'38.13"E	313.869	312.366
5-5	34	30°16'24.79"N	77°32'36.39"E	313.582	311.584
5-5	35	30°16'25.64"N	77°32'34.86"E	312.541	311.274
5-5	36	30°16'26.58"N	77°32'33.17"E	314.666	314.754
5-5	37	30°16'27.73"N	77°32'31.69"E	318.514	316.741
6-6	38	30°16'26.08"N	77°32'31.02"E	313.566	315.765
6-6	39	30°16'25.05"N	77°32'32.85"E	312.552	315.239
6-6	40	30°16'23.99"N	77°32'34.40"E	313.968	314.698
6-6	41	30°16'22.99"N	77°32'35.97"E	308.583	312.583
6-6	42	30°16'22.07"N	77°32'37.63"E	313.884	312.452
6-6	43	30°16'20.97"N	77°32'39.15"E	308.565	311.658
6-6	44	30°16'20.00"N	77°32'40.81"E	306.946	311.843
7-7	45	30°16'18.46"N	77°32'39.84"E	308.964	310.704
7-7	46	30°16'19.44"N	77°32'38.23"E	308.885	310.235
7-7	47	30°16'20.50"N	77°32'36.81"E	307.828	310.658
7-7	48	30°16'21.41"N	77°32'35.17"E	308.958	309.458
7-7	49	30°16'22.72"N	77°32'33.30"E	311.448	310.685
7-7	50	30°16'23.76"N	77°32'31.80"E	311.466	310.080
7-7	51	30°16'24.69"N	77°32'30.34"E	311.498	312.172
8-8	52	30°16'23.13"N	77°32'29.88"E	312.508	312.672
8-8	53	30°16'22.33"N	77°32'31.25"E	312.866	312.171
8-8	54	30°16'21.46"N	77°32'32.81"E	318.481	317.182
8-8	55	30°16'20.25"N	77°32'34.43"E	312.655	317.458
8-8	56	30°16'19.19"N	77°32'36.36"E	309.695	315.006
8-8	57	30°16'18.04"N	77°32'37.92"E	308.599	313.172
8-8	58	30°16'16.97"N	77°32'38.86"E	307.808	310.245
9-9	59	30°16'16.84"N	77°32'37.06"E	307.785	308.318
9-9	60	30°16'17.69"N	77°32'35.35"E	308.255	308.284
9-9	61	30°16'18.60"N	77°32'33.43"E	318.861	318.352
9-9	62	30°16'19.81"N	77°32'31.68"E	310.894	312.450
9-9	63	30°16'20.51"N	77°32'30.42"E	312.658	315.325
9-9	64	30°16'21.41"N	77°32'29.30"E	313.908	312.755


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Pre Monsoon 2023
Post Monsoon 2023

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
17	Behat	R.B.M.	Yamuna	Nityanandpur Aehatmal and Said-mohamadpur Aehatmal	1 and 1ma	17.700

Cross Section	Ref. Point	Lat.	Long.	Pre Monsoon 2023	Post monsoon 2023
1-1	1	30°15'26.82"N	77°31'57.60"E	306.847	308.192
1-1	2	30°15'27.65"N	77°31'55.69"E	308.262	309.482
1-1	3	30°15'28.45"N	77°31'54.03"E	309.336	311.658
1-1	4	30°15'29.51"N	77°31'51.85"E	305.088	310.584
2-2	5	30°15'31.22"N	77°31'53.04"E	306.188	309.376
2-2	6	30°15'30.36"N	77°31'54.92"E	307.414	309.592
2-2	7	30°15'29.58"N	77°31'56.74"E	309.555	310.372
2-2	8	30°15'28.64"N	77°31'58.52"E	310.599	311.476
3-3	9	30°15'30.03"N	77°32'0.13"E	308.424	311.612
3-3	10	30°15'31.07"N	77°31'58.30"E	309.168	310.666
3-3	11	30°15'31.99"N	77°31'56.55"E	308.299	310.341
3-3	12	30°15'32.94"N	77°31'54.46"E	303.208	308.255
4-4	13	30°15'34.74"N	77°31'55.28"E	303.318	308.185
4-4	14	30°15'33.88"N	77°31'57.14"E	306.508	307.205
4-4	15	30°15'33.08"N	77°31'58.97"E	308.492	308.542
4-4	16	30°15'32.17"N	77°32'0.74"E	309.177	311.984
4-4	17	30°15'31.26"N	77°32'2.60"E	310.606	310.988
5-5	18	30°15'32.67"N	77°32'3.83"E	308.710	310.862
5-5	19	30°15'33.74"N	77°32'2.07"E	309.204	311.682
5-5	20	30°15'34.67"N	77°32'0.40"E	310.852	311.941
5-5	21	30°15'35.66"N	77°31'58.60"E	308.669	310.744
5-5	22	30°15'36.63"N	77°31'56.64"E	302.980	308.855
6-6	23	30°15'38.31"N	77°31'57.31"E	307.282	308.755
6-6	24	30°15'37.39"N	77°31'59.68"E	308.355	309.632
6-6	25	30°15'36.43"N	77°32'1.81"E	309.085	310.864
6-6	26	30°15'35.34"N	77°32'3.87"E	308.654	310.714
6-6	27	30°15'34.29"N	77°32'5.66"E	309.065	310.638

7-7	28	30°15'35.95"N	77°32'7.04"E	310.455	311.882
7-7	29	30°15'37.23"N	77°32'5.26"E	309.682	311.327
7-7	30	30°15'38.40"N	77°32'3.06"E	307.785	311.458
7-7	31	30°15'39.31"N	77°32'1.23"E	305.199	309.466
7-7	32	30°15'40.20"N	77°31'59.02"E	302.285	306.582
8-8	33	30°15'42.07"N	77°31'59.38"E	307.366	307.457
8-8	34	30°15'41.42"N	77°32'1.35"E	306.423	306.272
8-8	35	30°15'40.46"N	77°32'3.62"E	303.258	306.492
8-8	36	30°15'39.39"N	77°32'5.54"E	310.371	309.180
8-8	37	30°15'38.43"N	77°32'7.39"E	311.288	309.366
8-8	38	30°15'37.47"N	77°32'9.04"E	311.244	312.287
9-9	39	30°15'39.20"N	77°32'10.61"E	310.255	311.085
9-9	40	30°15'40.15"N	77°32'8.93"E	310.272	311.140
9-9	41	30°15'41.15"N	77°32'7.10"E	308.566	310.685
9-9	42	30°15'42.31"N	77°32'4.78"E	303.877	309.088
9-9	43	30°15'43.08"N	77°32'2.85"E	297.366	307.166
9-9	44	30°15'44.21"N	77°32'0.92"E	307.348	307.985
10-10	45	30°15'42.23"N	77°32'9.55"E	310.188	307.855
10-10	46	30°15'41.00"N	77°32'11.95"E	310.244	307.876

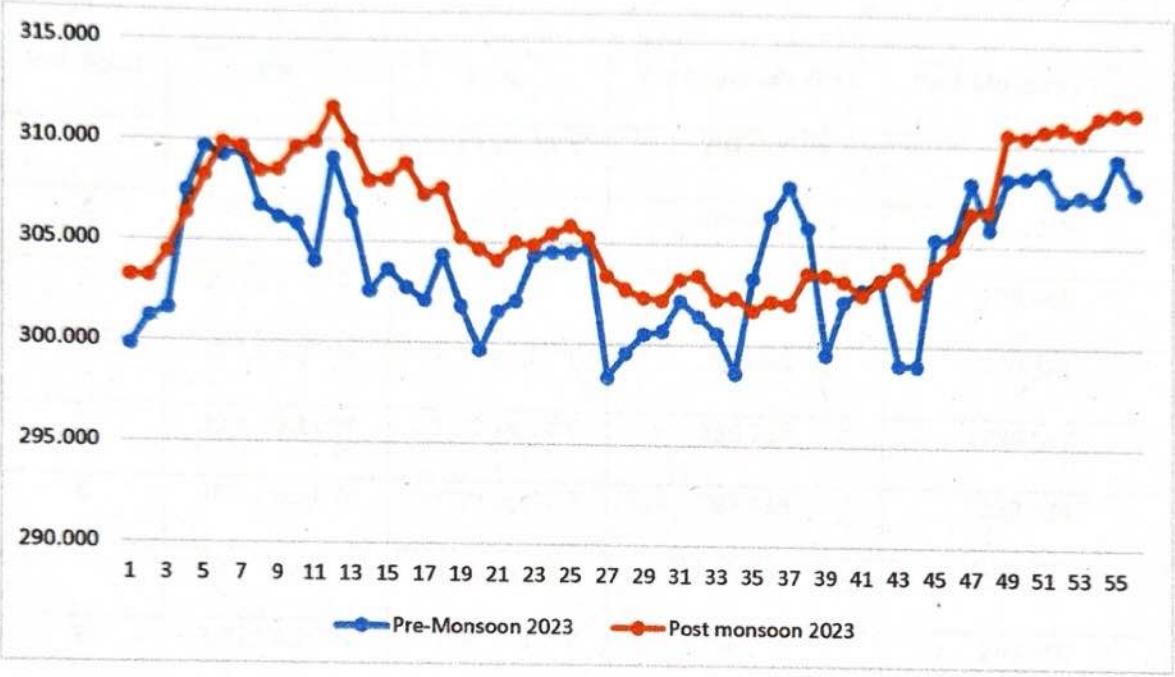


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
18	Behat	R.B.M.	Yamuna	Abutalibpur Garh Aehatmal	1	37.000

Cross Section	Ref. Point	Lat.	Long.	Pre-Monsoon 2023	Post monsoon 2023
1-1	1	30°14'44.37"N	77°31'37.14"E	299.844	303.255
1-1	2	30°14'45.33"N	77°31'34.98"E	301.229	303.241
1-1	3	30°14'46.45"N	77°31'32.64"E	301.647	304.478
1-1	4	30°14'47.77"N	77°31'29.70"E	307.501	306.385
1-1	5	30°14'49.19"N	77°31'26.83"E	309.658	308.266
1-1	6	30°14'50.81"N	77°31'23.75"E	309.239	309.884
2-2	7	30°14'53.23"N	77°31'25.10"E	309.472	309.658
2-2	8	30°14'51.69"N	77°31'27.64"E	306.766	308.475
2-2	9	30°14'50.48"N	77°31'30.39"E	306.207	308.544
2-2	10	30°14'48.94"N	77°31'32.96"E	305.876	309.667
2-2	11	30°14'47.94"N	77°31'35.40"E	304.025	309.958
2-2	12	30°14'46.80"N	77°31'38.06"E	309.125	311.658
3-3	13	30°14'49.00"N	77°31'38.83"E	306.459	310.014
3-3	14	30°14'50.29"N	77°31'36.17"E	302.561	308.028
3-3	15	30°14'51.37"N	77°31'33.71"E	303.634	308.117
3-3	16	30°14'52.67"N	77°31'31.12"E	302.754	308.887
3-3	17	30°14'54.16"N	77°31'28.44"E	302.108	307.355
3-3	18	30°14'55.64"N	77°31'26.20"E	304.336	307.664
4-4	19	30°14'57.49"N	77°31'27.32"E	301.833	305.241
4-4	20	30°14'56.60"N	77°31'29.44"E	299.667	304.668

4-4	21	30°14'55.57"N	77°31'31.96"E	301.582	304.108
4-4	22	30°14'54.17"N	77°31'34.62"E	302.137	304.998
4-4	23	30°14'52.91"N	77°31'37.14"E	304.368	304.887
4-4	24	30°14'52.10"N	77°31'39.53"E	304.568	305.471
5-5	25	30°14'54.79"N	77°31'40.19"E	304.554	305.847
5-5	26	30°14'56.01"N	77°31'38.01"E	304.772	305.258
5-5	27	30°14'57.16"N	77°31'35.70"E	298.381	303.385
5-5	28	30°14'58.84"N	77°31'33.11"E	299.581	302.741
5-5	29	30°15'0.05"N	77°31'31.11"E	300.541	302.345
5-5	30	30°15'1.59"N	77°31'28.68"E	300.684	302.225
6-6	31	30°15'3.88"N	77°31'30.17"E	302.184	303.266
6-6	32	30°15'2.75"N	77°31'32.53"E	301.453	303.445
6-6	33	30°15'1.33"N	77°31'34.99"E	300.628	302.288
6-6	34	30°14'59.98"N	77°31'37.02"E	298.647	302.365
6-6	35	30°14'58.92"N	77°31'39.37"E	303.335	301.742
6-6	36	30°14'57.66"N	77°31'41.97"E	306.452	302.224
7-7	37	30°15'0.46"N	77°31'42.60"E	307.875	302.085
7-7	38	30°15'1.76"N	77°31'40.20"E	305.897	303.604
7-7	39	30°15'2.87"N	77°31'37.88"E	299.587	303.508
7-7	40	30°15'4.25"N	77°31'35.60"E	302.228	303.237
7-7	41	30°15'5.36"N	77°31'33.73"E	302.766	302.552
7-7	42	30°15'6.84"N	77°31'31.67"E	303.289	303.255
8-8	43	30°15'9.26"N	77°31'32.88"E	299.084	303.891
8-8	44	30°15'7.90"N	77°31'35.33"E	299.079	302.668
8-8	45	30°15'6.61"N	77°31'37.57"E	305.360	303.982
8-8	46	30°15'5.44"N	77°31'40.20"E	305.388	304.885
8-8	47	30°15'4.26"N	77°31'42.69"E	308.138	306.676
9-9	48	30°15'6.91"N	77°31'43.57"E	305.892	306.765
9-9	49	30°15'8.09"N	77°31'41.20"E	308.378	310.582
9-9	50	30°15'9.30"N	77°31'38.84"E	308.483	310.471
9-9	51	30°15'10.66"N	77°31'36.82"E	308.741	310.789
9-9	52	30°15'12.10"N	77°31'34.50"E	307.324	310.958
10-10	53	30°15'14.40"N	77°31'35.82"E	307.559	310.665

10-10	54	30°15'13.23"N	77°31'38.31"E	307.344	311.476
10-10	55	30°15'12.17"N	77°31'40.85"E	309.408	311.652
10-10	56	30°15'10.89"N	77°31'43.79"E	307.785	311.664



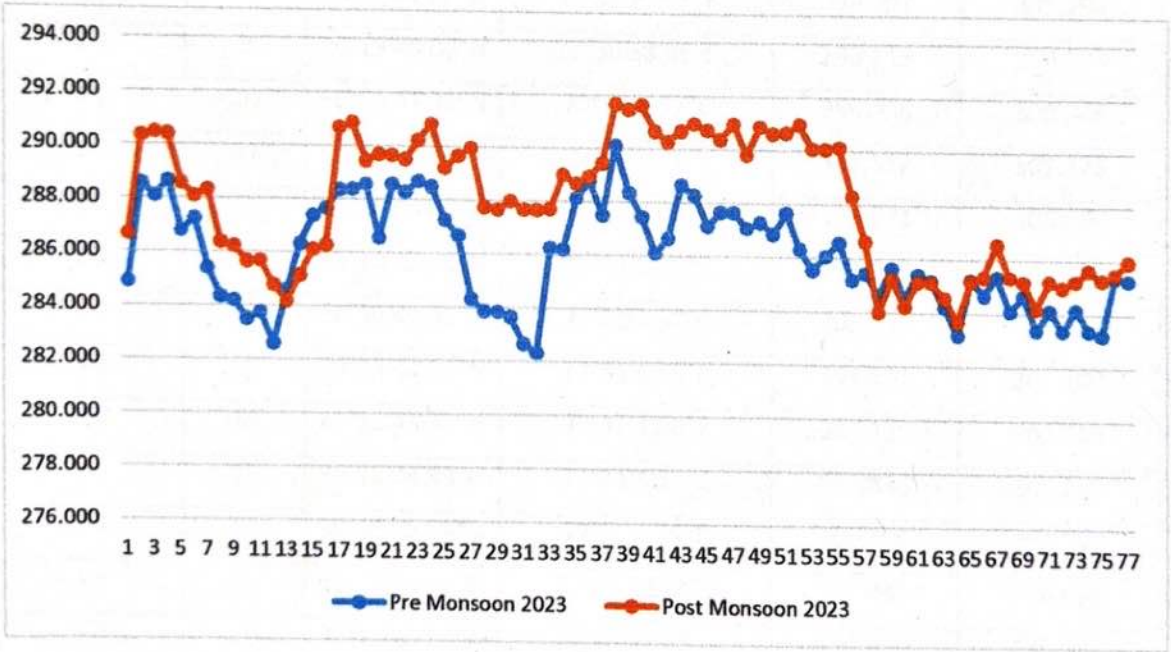
Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
19	Behat	R.B.M.	Yamuna	Nuniyari Athmal – Khand Second	1/1/1	19.000

Ref. Point	Lat.	Long.	Pre Monsoon 2023	Post Monsoon 2023
1	30°11'0.53"N	77°29'23.73"E	284.885	286.658
2	30°11'1.62"N	77°29'22.30"E	288.542	290.335
3	30°11'2.75"N	77°29'20.96"E	288.085	290.465
4	30°11'3.95"N	77°29'19.57"E	288.654	290.382
5	30°11'5.11"N	77°29'18.19"E	286.788	288.547
6	30°11'6.27"N	77°29'16.81"E	287.246	288.084
7	30°11'7.46"N	77°29'15.40"E	285.399	288.328
8	30°11'8.75"N	77°29'14.07"E	284.338	286.366
9	30°11'9.92"N	77°29'12.84"E	284.199	286.234
10	30°11'11.19"N	77°29'11.39"E	283.499	285.658
11	30°11'9.94"N	77°29'10.01"E	283.757	285.688
12	30°11'8.73"N	77°29'11.37"E	282.608	284.774
13	30°11'7.49"N	77°29'12.77"E	284.585	284.182
14	30°11'6.41"N	77°29'14.15"E	286.325	285.136
15	30°11'5.23"N	77°29'15.55"E	287.385	286.112
16	30°11'4.02"N	77°29'16.98"E	287.658	286.282
17	30°11'2.85"N	77°29'18.35"E	288.355	290.682
18	30°11'1.66"N	77°29'19.78"E	288.388	290.854
19	30°11'0.59"N	77°29'21.14"E	288.554	289.458

20	30°10'59.51"N	77°29'22.72"E	286.568	289.688
21	30°10'59.48"N	77°29'20.29"E	288.582	289.658
22	30°11'0.60"N	77°29'18.84"E	288.299	289.508
23	30°11'1.80"N	77°29'17.47"E	288.699	290.231
24	30°11'2.96"N	77°29'15.97"E	288.487	290.841
25	30°11'4.24"N	77°29'14.45"E	287.265	289.206
26	30°11'5.43"N	77°29'13.01"E	286.680	289.658
27	30°11'6.51"N	77°29'11.42"E	284.325	289.958
28	30°11'7.67"N	77°29'9.74"E	283.856	287.755
29	30°11'8.87"N	77°29'8.28"E	283.847	287.658
30	30°11'7.66"N	77°29'6.69"E	283.658	287.984
31	30°11'6.51"N	77°29'8.18"E	282.658	287.684
32	30°11'5.18"N	77°29'9.55"E	282.332	287.666
33	30°11'4.04"N	77°29'11.26"E	286.271	287.704
34	30°11'2.97"N	77°29'12.84"E	286.208	288.983
35	30°11'1.69"N	77°29'14.46"E	288.144	288.685
36	30°11'0.74"N	77°29'15.85"E	288.772	288.955
37	30°10'59.72"N	77°29'17.54"E	287.496	289.455
38	30°10'59.36"N	77°29'15.20"E	290.108	291.658
39	30°11'0.52"N	77°29'13.42"E	288.355	291.471
40	30°11'1.75"N	77°29'11.65"E	287.465	291.638
41	30°11'0.41"N	77°29'10.16"E	286.105	290.658
42	30°10'59.11"N	77°29'11.71"E	286.658	290.284
43	30°10'57.93"N	77°29'13.59"E	288.658	290.685
44	30°10'56.94"N	77°29'11.96"E	288.291	290.968

45	30°10'58.15"N	77°29'10.52"E	287.142	290.733
46	30°10'59.27"N	77°29'8.80"E	287.658	290.382
47	30°10'57.87"N	77°29'7.53"E	287.658	290.966
48	30°10'56.90"N	77°29'9.11"E	287.085	289.823
49	30°10'55.91"N	77°29'10.70"E	287.294	290.865
50	30°10'54.37"N	77°29'9.27"E	286.874	290.622
51	30°10'55.39"N	77°29'7.79"E	287.658	290.658
52	30°10'56.58"N	77°29'6.12"E	286.342	290.985
53	30°10'55.17"N	77°29'4.77"E	285.555	290.085
54	30°10'54.10"N	77°29'6.33"E	286.085	290.066
55	30°10'52.93"N	77°29'8.10"E	286.582	290.133
56	30°10'51.35"N	77°29'7.05"E	285.192	288.322
57	30°10'52.44"N	77°29'5.40"E	285.456	286.652
58	30°10'53.75"N	77°29'3.74"E	284.658	284.008
59	30°10'52.40"N	77°29'2.35"E	285.642	285.258
60	30°10'51.15"N	77°29'4.05"E	284.544	284.235
61	30°10'49.83"N	77°29'5.87"E	285.433	285.166
62	30°10'48.27"N	77°29'4.76"E	285.208	285.152
63	30°10'49.35"N	77°29'3.17"E	284.207	284.568
64	30°10'51.06"N	77°29'1.18"E	283.182	283.685
65	30°10'49.51"N	77°28'59.72"E	285.241	285.195
66	30°10'48.22"N	77°29'1.52"E	284.685	285.358
67	30°10'46.74"N	77°29'3.39"E	285.355	286.584
68	30°10'45.14"N	77°29'2.52"E	284.095	285.344
69	30°10'46.59"N	77°29'0.61"E	284.658	285.188

70	30°10'47.88"N	77°28'59.09"E	283.405	284.198
71	30°10'49.29"N	77°28'57.33"E	284.128	285.193
72	30°10'50.52"N	77°28'55.60"E	283.366	284.992
73	30°10'49.06"N	77°28'54.44"E	284.165	285.235
74	30°10'47.87"N	77°28'56.03"E	283.371	285.656
75	30°10'46.62"N	77°28'57.64"E	283.217	285.273
76	30°10'45.36"N	77°28'59.34"E	285.382	285.485
77	30°10'43.92"N	77°29'1.20"E	285.263	285.956



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
20	Behat	R.B.M.	Yamuna	Aslampur Bartha – First	1/1 M	36.600

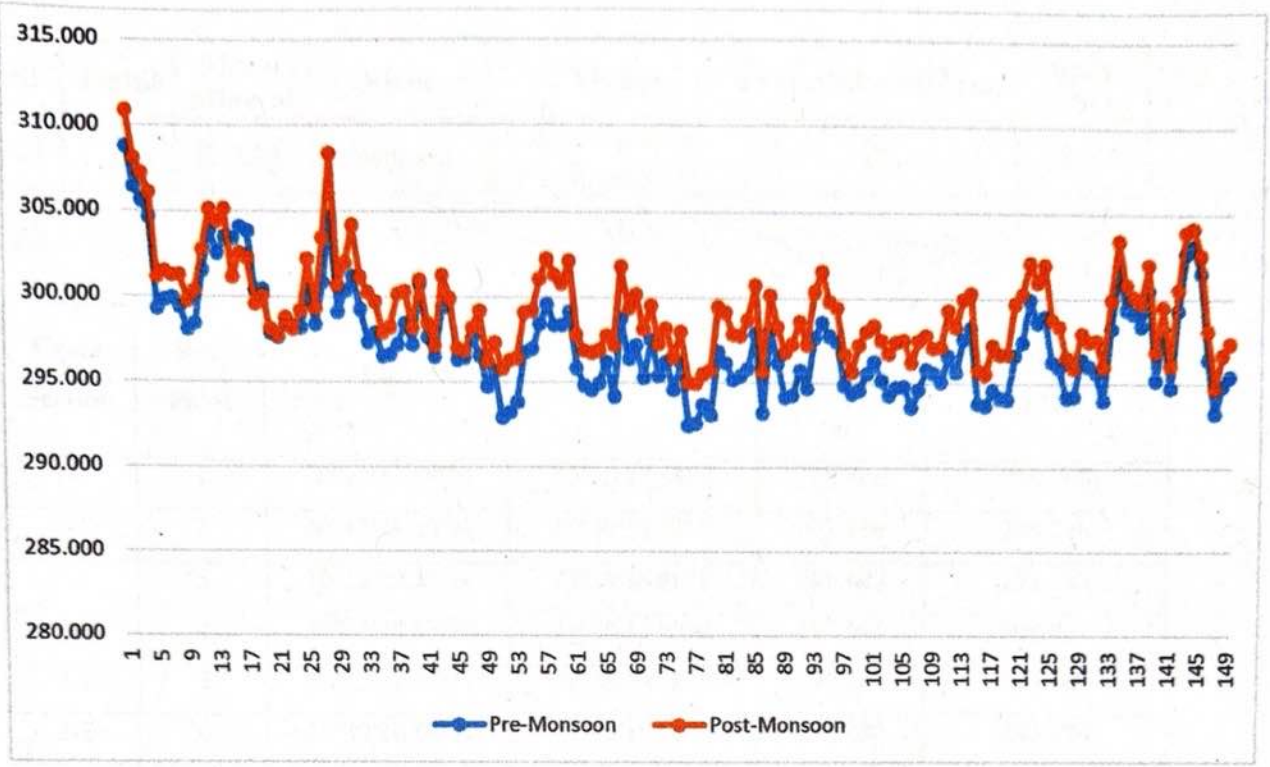
Cross Section	Sl.No	Lat.	Long.	Pre-Monsoon	Post-Monsoon
1-1	1	30°13'45.78"N	77°31'8.43"E	308.811	310.896
1-1	2	30°13'46.53"N	77°31'6.68"E	306.453	308.121
1-1	3	30°13'47.28"N	77°31'4.95"E	305.662	307.228
1-1	4	30°13'48.05"N	77°31'3.21"E	304.656	306.103
1-1	5	30°13'48.81"N	77°31'1.49"E	299.291	301.180
1-1	6	30°13'49.55"N	77°30'59.76"E	299.820	301.504
1-1	7	30°13'50.29"N	77°30'58.01"E	299.972	301.256
2-2	8	30°13'48.85"N	77°30'57.13"E	299.399	301.293
2-2	9	30°13'48.08"N	77°30'58.85"E	298.118	299.776
2-2	10	30°13'47.35"N	77°31'0.57"E	298.456	300.348
2-2	11	30°13'46.56"N	77°31'2.31"E	301.572	302.775
2-2	12	30°13'45.81"N	77°31'4.03"E	303.871	305.155
2-2	13	30°13'45.06"N	77°31'5.79"E	302.562	304.416
2-2	14	30°13'44.31"N	77°31'7.50"E	303.541	305.139
3-3	15	30°13'42.81"N	77°31'6.56"E	303.451	301.169
3-3	16	30°13'43.55"N	77°31'4.84"E	304.120	302.569
3-3	17	30°13'44.33"N	77°31'3.12"E	303.856	302.288
3-3	18	30°13'45.08"N	77°31'1.39"E	300.405	299.597
3-3	19	30°13'45.86"N	77°30'59.64"E	300.442	300.092
3-3	20	30°13'46.60"N	77°30'57.95"E	297.890	298.144
3-3	21	30°13'47.36"N	77°30'56.20"E	297.672	297.757
4-4	22	30°13'45.88"N	77°30'55.27"E	298.431	298.789
4-4	23	30°13'45.10"N	77°30'57.01"E	298.234	298.149
4-4	24	30°13'44.36"N	77°30'58.71"E	298.231	299.229
4-4	25	30°13'43.59"N	77°31'0.46"E	300.374	302.228
4-4	26	30°13'42.84"N	77°31'2.19"E	298.421	299.349

4-4	27	30°13'42.08"N	77°31'3.93"E	300.890	303.458
4-4	28	30°13'41.32"N	77°31'5.64"E	304.688	308.370
5-5	29	30°13'39.82"N	77°31'4.73"E	299.133	300.715
5-5	30	30°13'40.52"N	77°31'2.97"E	300.341	302.010
5-5	31	30°13'41.33"N	77°31'1.27"E	301.201	304.185
5-5	32	30°13'42.08"N	77°30'59.55"E	299.317	301.171
5-5	33	30°13'42.87"N	77°30'57.78"E	297.388	300.273
5-5	34	30°13'43.63"N	77°30'56.11"E	297.891	299.745
5-5	35	30°13'44.39"N	77°30'54.35"E	296.543	297.919
6-6	36	30°13'42.93"N	77°30'53.44"E	296.671	298.253
6-6	37	30°13'42.16"N	77°30'55.17"E	297.208	300.190
6-6	38	30°13'41.40"N	77°30'56.88"E	298.479	300.343
6-6	39	30°13'40.62"N	77°30'58.65"E	297.210	298.208
6-6	40	30°13'39.88"N	77°31'0.35"E	300.782	301.017
6-6	41	30°13'39.11"N	77°31'2.10"E	297.665	298.512
6-6	42	30°13'38.35"N	77°31'3.81"E	296.501	297.159
7-7	43	30°13'36.87"N	77°31'2.88"E	299.409	301.278
7-7	44	30°13'37.62"N	77°31'1.18"E	299.899	299.957
7-7	45	30°13'38.41"N	77°30'59.46"E	296.349	297.007
7-7	46	30°13'39.16"N	77°30'57.74"E	296.459	296.844
7-7	47	30°13'39.92"N	77°30'55.96"E	297.653	298.219
7-7	48	30°13'40.71"N	77°30'54.27"E	296.581	299.225
7-7	49	30°13'41.45"N	77°30'52.52"E	294.784	296.262
8-8	50	30°13'39.96"N	77°30'51.60"E	295.679	297.364
8-8	51	30°13'39.19"N	77°30'53.33"E	292.933	295.818
8-8	52	30°13'38.42"N	77°30'55.02"E	293.244	296.302
8-8	53	30°13'37.64"N	77°30'56.80"E	293.854	296.438
8-8	54	30°13'36.87"N	77°30'58.51"E	296.788	299.116
8-8	55	30°13'36.11"N	77°31'0.24"E	296.988	299.235
8-8	56	30°13'35.38"N	77°31'1.97"E	298.444	301.098
9-9	57	30°13'33.88"N	77°31'1.04"E	299.595	302.260
9-9	58	30°13'34.62"N	77°30'59.32"E	298.388	301.346
9-9	59	30°13'35.42"N	77°30'57.64"E	298.402	300.854

9-9	60	30°13'36.17"N	77°30'55.89"E	299.192	302.150
9-9	61	30°13'36.96"N	77°30'54.13"E	295.871	297.829
9-9	62	30°13'37.71"N	77°30'52.43"E	294.851	296.909
9-9	63	30°13'38.48"N	77°30'50.68"E	294.561	296.799
10-10	64	30°13'36.99"N	77°30'49.75"E	294.981	296.939
10-10	65	30°13'36.22"N	77°30'51.49"E	296.232	297.780
10-10	66	30°13'35.45"N	77°30'53.20"E	294.238	297.223
10-10	67	30°13'34.67"N	77°30'54.94"E	298.779	301.837
10-10	68	30°13'33.90"N	77°30'56.67"E	296.431	299.389
10-10	69	30°13'33.11"N	77°30'58.38"E	297.240	300.217
10-10	70	30°13'32.35"N	77°31'0.09"E	295.321	298.165
11-11	71	30°13'30.86"N	77°30'59.07"E	297.548	299.533
11-11	72	30°13'31.60"N	77°30'57.45"E	295.428	297.310
11-11	73	30°13'32.40"N	77°30'55.73"E	296.266	298.213
11-11	74	30°13'33.17"N	77°30'54.01"E	294.599	296.546
11-11	75	30°13'33.97"N	77°30'52.28"E	296.233	298.021
11-11	76	30°13'34.73"N	77°30'50.58"E	292.512	295.059
11-11	77	30°13'35.54"N	77°30'48.84"E	292.633	294.991
12-12	78	30°13'34.02"N	77°30'47.89"E	293.722	295.546
12-12	79	30°13'33.23"N	77°30'49.65"E	293.122	295.780
12-12	80	30°13'32.45"N	77°30'51.34"E	296.881	299.465
12-12	81	30°13'31.65"N	77°30'53.08"E	296.201	299.185
12-12	82	30°13'30.89"N	77°30'54.80"E	295.208	297.866
12-12	83	30°13'30.11"N	77°30'56.52"E	295.443	297.801
12-12	84	30°13'29.39"N	77°30'58.10"E	295.882	298.729
13-13	85	30°13'27.95"N	77°30'57.13"E	297.921	300.775
13-13	86	30°13'28.63"N	77°30'55.61"E	293.233	295.691
13-13	87	30°13'29.39"N	77°30'53.88"E	298.181	300.189
13-13	88	30°13'30.19"N	77°30'52.17"E	296.175	298.343
13-13	89	30°13'30.97"N	77°30'50.43"E	294.169	296.827
13-13	90	30°13'31.76"N	77°30'48.71"E	294.312	297.310
13-13	91	30°13'32.53"N	77°30'46.98"E	295.796	298.643
14-14	92	30°13'31.05"N	77°30'46.07"E	294.708	297.292

14-14	93	30°13'30.27"N	77°30'47.79"E	297.711	300.369
14-14	94	30°13'29.50"N	77°30'49.51"E	298.601	301.559
14-14	95	30°13'28.70"N	77°30'51.26"E	297.788	299.802
14-14	96	30°13'27.93"N	77°30'52.97"E	297.456	299.451
14-14	97	30°13'27.15"N	77°30'54.69"E	294.894	296.751
14-14	98	30°13'26.50"N	77°30'56.16"E	294.412	295.697
15-15	99	30°13'25.81"N	77°30'53.83"E	294.611	297.269
15-15	100	30°13'26.44"N	77°30'52.04"E	295.599	298.070
15-15	101	77°30'52.04"E	77°30'50.33"E	296.289	298.436
15-15	102	30°13'28.01"N	77°30'48.59"E	295.192	297.556
15-15	103	30°13'28.77"N	77°30'46.85"E	294.329	296.787
15-15	104	30°13'29.56"N	77°30'45.13"E	294.801	297.455
16-16	105	30°13'28.07"N	77°30'44.21"E	294.833	297.573
16-16	106	30°13'27.27"N	77°30'45.94"E	293.601	296.258
16-16	107	30°13'26.52"N	77°30'47.65"E	294.642	297.526
16-16	108	30°13'25.73"N	77°30'49.42"E	295.858	297.848
16-16	109	30°13'24.96"N	77°30'51.13"E	295.635	297.106
16-16	110	30°13'24.17"N	77°30'52.85"E	295.142	297.177
17-17	111	30°13'22.70"N	77°30'51.97"E	296.658	299.315
17-17	112	30°13'23.49"N	77°30'50.24"E	295.691	298.348
17-17	113	30°13'24.23"N	77°30'48.49"E	297.643	299.967
17-17	114	30°13'25.03"N	77°30'46.74"E	298.281	300.311
17-17	115	30°13'25.81"N	77°30'45.01"E	293.823	295.805
17-17	116	30°13'26.56"N	77°30'43.27"E	293.702	295.586
18-18	117	30°13'25.09"N	77°30'42.35"E	294.608	297.266
18-18	118	30°13'24.29"N	77°30'44.10"E	294.192	296.745
18-18	119	30°13'23.50"N	77°30'45.81"E	294.102	296.749
18-18	120	30°13'22.74"N	77°30'47.58"E	296.699	299.694
18-18	121	30°13'21.94"N	77°30'49.28"E	297.434	300.288
18-18	122	30°13'21.17"N	77°30'51.00"E	299.929	302.076
19-19	123	30°13'20.45"N	77°30'48.36"E	298.635	300.960
19-19	124	30°13'21.23"N	77°30'46.64"E	298.981	301.979
19-19	125	30°13'22.03"N	77°30'44.88"E	296.293	298.768

19-19	126	30°13'22.80"N	77°30'43.14"E	295.934	298.405
19-19	127	30°13'23.56"N	77°30'41.43"E	294.231	296.556
20-20	128	30°13'22.10"N	77°30'40.50"E	294.288	295.946
20-20	129	30°13'21.35"N	77°30'42.26"E	296.421	297.968
20-20	130	30°13'20.54"N	77°30'43.97"E	296.056	297.514
20-20	131	30°13'19.77"N	77°30'45.73"E	295.659	297.554
20-20	132	30°13'19.00"N	77°30'47.46"E	294.023	296.018
21-21	133	30°13'17.49"N	77°30'46.53"E	298.272	299.930
21-21	134	30°13'18.26"N	77°30'44.81"E	301.892	303.416
21-21	135	30°13'19.04"N	77°30'43.04"E	299.401	300.848
21-21	136	30°13'19.83"N	77°30'41.30"E	299.121	300.146
21-21	137	30°13'20.61"N	77°30'39.59"E	298.422	299.780
22-22	138	30°13'19.10"N	77°30'38.65"E	300.472	302.041
22-22	139	30°13'18.36"N	77°30'40.38"E	295.230	296.888
22-22	140	30°13'17.57"N	77°30'42.11"E	298.282	299.540
22-22	141	30°13'16.75"N	77°30'43.88"E	294.756	296.081
23-23	142	30°13'15.28"N	77°30'42.96"E	299.334	300.558
23-23	143	30°13'16.06"N	77°30'41.20"E	302.689	303.927
23-23	144	30°13'16.84"N	77°30'39.46"E	303.129	304.181
23-23	145	30°13'17.61"N	77°30'37.71"E	301.534	302.600
24-24	146	30°13'16.93"N	77°30'37.32"E	296.453	298.111
24-24	147	30°13'16.06"N	77°30'38.97"E	293.247	294.732
24-24	148	30°13'15.16"N	77°30'40.63"E	294.857	296.707
24-24	149	30°13'14.28"N	77°30'42.33"E	295.423	297.381


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Pre-Monsoon
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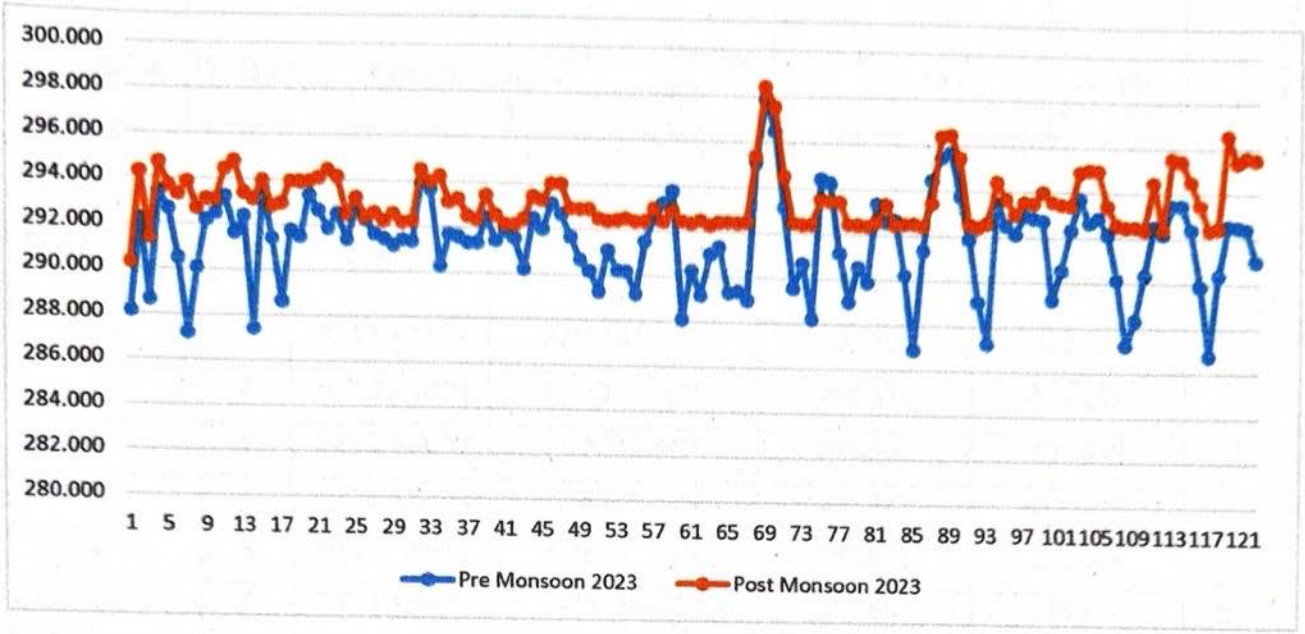
Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
21	Behat	R.B.M.	Yamuna	Rasoolpur Urf Rasooli	1/1	34.000

Cross Section	Ref. Point	Lat.	Long.	Pre Monsoon 2023	Post Monsoon 2023
1-1	1	30°12'17.38"N	77°30'17.68"E	288.126	290.268
1-1	2	30°12'18.66"N	77°30'16.77"E	292.188	294.286
1-1	3	30°12'20.17"N	77°30'15.80"E	288.642	291.382
2-2	4	30°12'18.66"N	77°30'13.62"E	293.395	294.702
2-2	5	30°12'17.42"N	77°30'14.76"E	292.647	293.697
2-2	6	30°12'16.04"N	77°30'16.30"E	290.482	293.320
3-3	7	30°12'14.20"N	77°30'15.87"E	287.188	293.853
3-3	8	30°12'15.34"N	77°30'14.74"E	290.102	292.692
3-3	9	30°12'16.52"N	77°30'13.39"E	292.188	293.104
3-3	10	30°12'17.76"N	77°30'12.01"E	292.498	293.115
4-4	11	30°12'16.29"N	77°30'10.11"E	293.234	294.456
4-4	12	30°12'15.15"N	77°30'11.42"E	291.646	294.796
4-4	13	30°12'13.80"N	77°30'12.91"E	292.388	293.419
4-4	14	30°12'12.64"N	77°30'14.50"E	287.411	293.136
5-5	15	30°12'10.22"N	77°30'14.03"E	293.599	293.942
5-5	16	30°12'10.83"N	77°30'13.17"E	291.423	292.823
5-5	17	30°12'11.77"N	77°30'12.12"E	288.644	292.974
5-5	18	30°12'12.94"N	77°30'10.98"E	291.776	293.925
5-5	19	30°12'13.87"N	77°30'10.30"E	291.498	293.912
5-5	20	30°12'15.48"N	77°30'8.90"E	293.345	293.951
6-6	21	30°12'14.03"N	77°30'7.27"E	292.677	294.112
6-6	22	30°12'12.92"N	77°30'8.38"E	291.892	294.471
6-6	23	30°12'11.58"N	77°30'9.74"E	292.533	294.172
6-6	24	30°12'9.94"N	77°30'11.32"E	291.401	292.534
6-6	25	30°12'8.76"N	77°30'12.39"E	292.733	293.254

6-6	26	30°12'7.80"N	77°30'13.21"E	292.288	292.411
7-7	27	30°12'5.80"N	77°30'11.96"E	291.664	292.589
7-7	28	30°12'7.16"N	77°30'10.99"E	291.465	292.244
7-7	29	30°12'8.28"N	77°30'10.03"E	291.201	292.571
7-7	30	30°12'9.41"N	77°30'8.84"E	291.425	292.197
7-7	31	30°12'11.02"N	77°30'7.50"E	291.374	292.265
7-7	32	30°12'12.99"N	77°30'5.92"E	293.921	294.521
8-8	33	30°12'12.03"N	77°30'3.51"E	293.673	293.998
8-8	34	30°12'11.08"N	77°30'4.32"E	290.311	294.247
8-8	35	30°12'9.77"N	77°30'5.45"E	291.701	293.121
8-8	36	30°12'8.52"N	77°30'6.56"E	291.586	293.264
8-8	37	30°12'7.19"N	77°30'8.04"E	291.344	292.512
8-8	38	30°12'6.12"N	77°30'9.34"E	291.344	292.362
8-8	39	30°12'4.72"N	77°30'10.75"E	292.457	293.456
9-9	40	30°12'3.93"N	77°30'9.19"E	291.456	292.562
9-9	41	30°12'5.18"N	77°30'7.99"E	291.893	292.174
9-9	42	30°12'6.67"N	77°30'6.54"E	291.566	292.173
9-9	43	30°12'8.25"N	77°30'4.69"E	290.222	292.419
9-9	44	30°12'9.42"N	77°30'3.70"E	292.445	293.418
9-9	45	30°12'11.25"N	77°30'2.05"E	292.001	293.267
10-10	46	30°12'10.01"N	77°30'0.65"E	293.122	293.993
10-10	47	30°12'8.58"N	77°30'1.88"E	292.663	293.995
10-10	48	30°12'7.34"N	77°30'3.02"E	291.659	292.929
10-10	49	30°12'5.71"N	77°30'4.57"E	290.677	292.904
10-10	50	30°12'4.28"N	77°30'5.94"E	290.188	292.918
10-10	51	30°12'2.92"N	77°30'6.80"E	289.261	292.501
11-11	52	30°12'2.17"N	77°30'5.31"E	291.110	292.398
11-11	53	30°12'3.60"N	77°30'4.06"E	290.231	292.436
11-11	54	30°12'5.03"N	77°30'2.96"E	290.192	292.528
11-11	55	30°12'6.56"N	77°30'1.34"E	289.199	292.399
11-11	56	30°12'7.95"N	77°30'0.19"E	291.546	292.412
11-11	57	30°12'9.21"N	77°29'59.24"E	292.557	292.991
12-12	58	30°12'8.16"N	77°29'57.41"E	293.231	292.429
12-12	59	30°12'6.71"N	77°29'58.72"E	293.789	292.923
12-12	60	30°12'5.41"N	77°30'0.06"E	288.124	292.456

12-12	61	30°12'4.08"N	77°30'1.38"E	290.282	292.374
12-12	62	30°12'2.76"N	77°30'2.49"E	289.199	292.496
12-12	63	30°12'1.50"N	77°30'3.81"E	291.006	292.298
13-13	64	30°12'0.85"N	77°30'2.02"E	291.341	292.438
13-13	65	30°12'2.10"N	77°30'0.92"E	289.312	292.451
13-13	66	30°12'3.27"N	77°29'59.90"E	289.388	292.414
13-13	67	30°12'4.68"N	77°29'58.38"E	289.001	292.476
13-13	68	30°12'6.01"N	77°29'57.38"E	295.129	295.381
13-13	69	30°12'7.18"N	77°29'56.21"E	297.888	298.413
14-14	70	30°12'5.58"N	77°29'54.01"E	296.499	297.542
14-14	71	30°12'4.53"N	77°29'55.29"E	293.144	294.522
14-14	72	30°12'3.47"N	77°29'56.62"E	289.566	292.484
14-14	73	30°12'2.10"N	77°29'58.35"E	290.677	292.394
14-14	74	30°12'0.76"N	77°29'59.82"E	288.226	292.421
14-14	75	30°11'59.94"N	77°30'0.77"E	294.411	293.518
15-15	76	30°11'57.93"N	77°29'59.85"E	294.244	293.429
15-15	77	30°11'59.34"N	77°29'58.25"E	291.163	293.431
15-15	78	30°12'0.87"N	77°29'56.71"E	289.008	292.456
15-15	79	30°12'2.38"N	77°29'55.21"E	290.548	292.437
15-15	80	30°12'3.76"N	77°29'54.18"E	289.892	292.384
15-15	81	30°12'4.97"N	77°29'52.99"E	293.372	292.562
16-16	82	30°12'3.78"N	77°29'51.01"E	292.567	293.347
16-16	83	30°12'2.41"N	77°29'52.53"E	292.657	292.474
16-16	84	30°12'1.06"N	77°29'53.88"E	290.236	292.496
16-16	85	30°11'59.73"N	77°29'55.41"E	286.922	292.528
16-16	86	30°11'58.54"N	77°29'56.88"E	291.345	292.394
16-16	87	30°11'57.20"N	77°29'58.61"E	294.451	293.442
16-16	88	30°11'56.29"N	77°29'59.94"E	295.451	296.383
17-17	89	30°11'53.99"N	77°29'59.39"E	295.672	296.459
17-17	90	30°11'55.30"N	77°29'57.62"E	293.773	295.449
17-17	91	30°11'56.84"N	77°29'55.79"E	291.893	292.535
17-17	92	30°11'58.34"N	77°29'53.88"E	289.100	292.419
17-17	93	30°11'59.58"N	77°29'52.43"E	287.233	292.583
17-17	94	30°12'0.76"N	77°29'51.11"E	293.487	294.409
17-17	95	30°12'2.68"N	77°29'49.50"E	292.503	293.667

18-18	96	30°12'1.30"N	77°29'47.74"E	292.122	292.993
18-18	97	30°12'0.16"N	77°29'49.17"E	292.962	293.549
18-18	98	30°11'58.49"N	77°29'50.70"E	292.834	293.502
18-18	99	30°11'57.14"N	77°29'52.14"E	292.732	293.993
18-18	100	30°11'55.84"N	77°29'53.42"E	289.234	293.573
18-18	101	30°11'54.26"N	77°29'55.69"E	290.556	293.449
18-18	102	30°11'53.14"N	77°29'57.21"E	292.334	293.396
18-18	103	30°11'52.05"N	77°29'58.90"E	293.711	294.904
19-19	104	30°11'50.47"N	77°29'58.89"E	292.661	294.991
19-19	105	30°11'51.11"N	77°29'57.78"E	292.882	294.971
19-19	106	30°11'52.42"N	77°29'56.07"E	292.144	293.423
19-19	107	30°11'53.70"N	77°29'54.44"E	290.172	292.578
19-19	108	30°11'55.37"N	77°29'52.57"E	287.231	292.489
19-19	109	30°11'56.36"N	77°29'51.27"E	288.364	292.491
19-19	110	30°11'57.55"N	77°29'49.88"E	290.372	292.389
19-19	111	30°11'58.85"N	77°29'48.39"E	292.508	294.453
19-19	112	30°12'0.20"N	77°29'46.56"E	292.188	292.397
20-20	113	30°11'59.36"N	77°29'44.87"E	293.490	295.531
20-20	114	30°11'57.88"N	77°29'46.76"E	293.466	295.406
20-20	115	30°11'56.21"N	77°29'48.25"E	292.398	294.519
20-20	116	30°11'54.97"N	77°29'49.70"E	289.892	293.482
20-20	117	30°11'53.79"N	77°29'50.84"E	286.788	292.389
20-20	118	30°11'52.15"N	77°29'52.77"E	290.367	292.468
20-20	119	30°11'50.94"N	77°29'54.25"E	292.561	296.578
20-20	120	30°11'49.53"N	77°29'56.25"E	292.520	295.382
20-20	121	30°11'48.32"N	77°29'57.36"E	292.433	295.578
20-20	122	30°11'47.25"N	77°29'58.14"E	291.012	295.512


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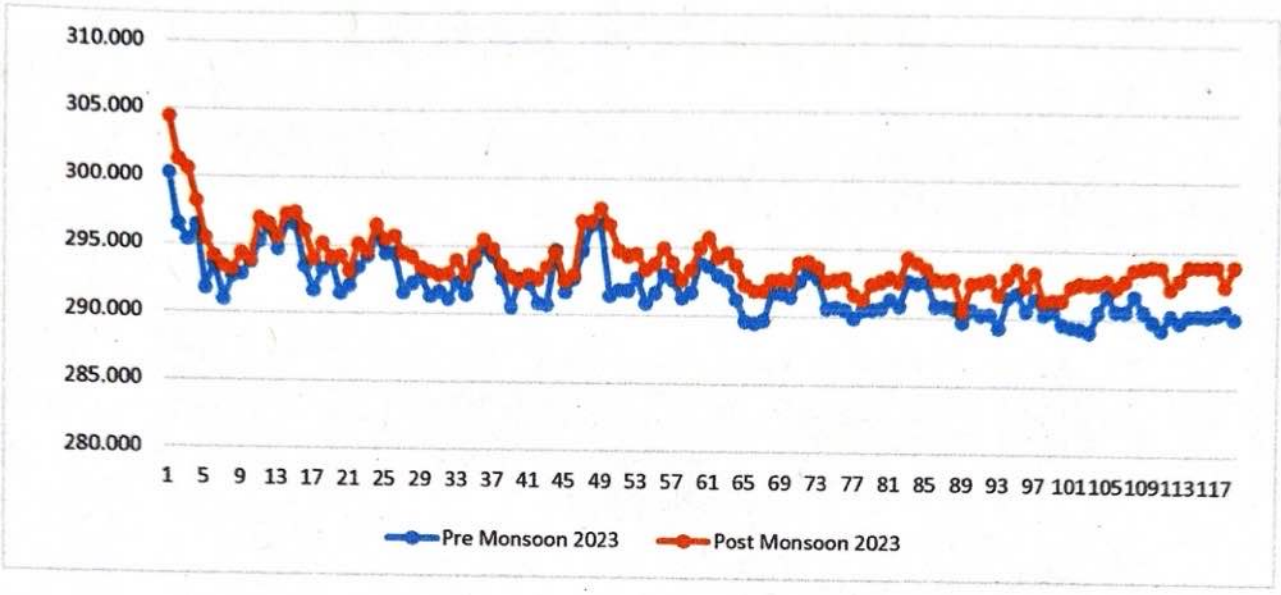
Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
22	Behat	R.B.M.	Yamuna	Aslampur Bartha – Second	1/1 M	28.160

Cross Section	Sl.No	Lat.	Long.	Pre Monsoon 2023	Post Monsoon 2023
1-1	1	30°13'4.33"N	77°30'43.84"E	300.256	304.422
1-1	2	30°13'5.18"N	77°30'42.16"E	296.525	301.258
1-1	3	30°13'6.00"N	77°30'40.47"E	295.368	300.658
1-1	4	30°13'6.82"N	77°30'38.81"E	296.472	298.199
1-1	5	30°13'7.66"N	77°30'37.13"E	291.825	295.508
1-1	6	30°13'8.50"N	77°30'35.43"E	293.658	294.174
2-2	7	30°13'6.98"N	77°30'34.61"E	290.992	293.462
2-2	8	30°13'6.15"N	77°30'36.30"E	292.708	293.182
2-2	9	30°13'5.31"N	77°30'37.98"E	292.885	294.405
2-2	10	30°13'4.47"N	77°30'39.64"E	293.775	293.960
2-2	11	30°13'3.63"N	77°30'41.33"E	295.308	296.962
2-2	12	30°13'2.80"N	77°30'43.02"E	296.342	296.618
3-3	13	30°13'1.21"N	77°30'42.15"E	294.717	295.642
3-3	14	30°13'2.05"N	77°30'40.46"E	296.658	297.291
3-3	15	30°13'2.90"N	77°30'38.80"E	296.609	297.442
3-3	16	30°13'3.75"N	77°30'37.13"E	293.458	296.162
3-3	17	30°13'4.59"N	77°30'35.45"E	291.708	294.006
3-3	18	30°13'5.43"N	77°30'33.76"E	293.247	295.178
4-4	19	30°13'3.94"N	77°30'32.96"E	293.805	294.133
4-4	20	30°13'3.11"N	77°30'34.64"E	291.495	294.272
4-4	21	30°13'2.26"N	77°30'36.33"E	292.108	293.132
4-4	22	30°13'1.39"N	77°30'37.96"E	293.408	295.141
4-4	23	30°13'0.51"N	77°30'39.64"E	294.255	294.591
4-4	24	30°12'59.69"N	77°30'41.31"E	295.655	296.515
5-5	25	30°12'58.20"N	77°30'40.48"E	294.471	295.494

5-5	26	30°12'59.05"N	77°30'38.83"E	294.458	295.754
5-5	27	30°12'59.89"N	77°30'37.13"E	291.588	294.451
5-5	28	30°13'0.75"N	77°30'35.49"E	292.266	294.190
5-5	29	30°13'1.60"N	77°30'33.81"E	292.744	293.462
5-5	30	30°13'2.44"N	77°30'32.15"E	291.333	293.152
6-6	31	30°13'0.94"N	77°30'31.32"E	291.652	292.885
6-6	32	30°13'0.07"N	77°30'32.99"E	291.109	292.981
6-6	33	30°12'59.25"N	77°30'34.68"E	292.335	293.991
6-6	34	30°12'58.39"N	77°30'36.32"E	291.452	292.922
6-6	35	30°12'57.54"N	77°30'37.99"E	293.884	294.365
6-6	36	30°12'56.67"N	77°30'39.68"E	294.852	295.511
7-7	37	30°12'55.15"N	77°30'38.82"E	294.351	294.810
7-7	38	30°12'56.00"N	77°30'37.15"E	292.658	293.622
7-7	39	30°12'56.85"N	77°30'35.46"E	290.552	292.811
7-7	40	30°12'57.68"N	77°30'33.82"E	292.638	292.410
7-7	41	30°12'58.52"N	77°30'32.15"E	292.331	292.911
7-7	42	30°12'59.38"N	77°30'30.48"E	290.858	292.651
8-8	43	30°12'57.87"N	77°30'29.64"E	290.741	293.511
8-8	44	30°12'56.98"N	77°30'31.30"E	294.755	294.652
8-8	45	30°12'56.16"N	77°30'32.96"E	291.705	292.511
8-8	46	30°12'55.31"N	77°30'34.63"E	292.708	292.951
8-8	47	30°12'54.45"N	77°30'36.33"E	294.788	296.894
8-8	48	30°12'53.61"N	77°30'37.95"E	296.652	296.911
9-9	49	30°12'52.08"N	77°30'37.16"E	296.662	297.841
9-9	50	30°12'52.90"N	77°30'35.46"E	291.458	296.655
9-9	51	30°12'53.74"N	77°30'33.79"E	291.885	294.741
9-9	52	30°12'54.63"N	77°30'32.15"E	291.866	294.411
9-9	53	30°12'55.48"N	77°30'30.48"E	292.741	294.541
9-9	54	30°12'56.31"N	77°30'28.79"E	290.925	293.411
10-10	55	30°12'54.82"N	77°30'27.97"E	291.652	293.811
10-10	56	30°12'53.96"N	77°30'29.64"E	292.998	294.989
10-10	57	30°12'53.10"N	77°30'31.32"E	292.658	293.922
10-10	58	30°12'52.26"N	77°30'32.96"E	291.335	292.622

10-10	59	30°12'51.41"N	77°30'34.64"E	291.746	293.411
10-10	60	30°12'50.54"N	77°30'36.32"E	293.885	294.998
11-11	61	30°12'49.03"N	30°12'49.03"N	293.665	295.741
11-11	62	30°12'49.90"N	77°30'33.81"E	292.985	294.335
11-11	63	30°12'50.72"N	77°30'32.13"E	292.638	294.652
11-11	64	30°12'51.58"N	77°30'30.48"E	291.255	293.784
11-11	65	30°12'52.42"N	77°30'28.81"E	289.661	292.323
11-11	66	30°12'53.25"N	77°30'27.12"E	289.506	291.881
12-12	67	30°12'51.74"N	77°30'26.31"E	289.719	291.922
12-12	68	30°12'50.90"N	77°30'27.97"E	291.699	292.668
12-12	69	30°12'50.06"N	77°30'29.62"E	291.758	292.741
12-12	70	30°12'49.19"N	77°30'31.27"E	291.455	292.623
12-12	71	30°12'48.36"N	77°30'32.97"E	292.638	293.991
12-12	72	30°12'47.47"N	77°30'34.66"E	293.266	294.081
13-13	73	30°12'45.97"N	77°30'33.81"E	292.857	293.658
13-13	74	30°12'46.83"N	77°30'32.15"E	290.662	292.632
13-13	75	30°12'47.67"N	77°30'30.46"E	290.734	292.741
13-13	76	30°12'48.51"N	77°30'28.82"E	290.568	292.851
13-13	77	30°12'49.36"N	77°30'27.16"E	289.958	291.662
13-13	78	30°12'50.24"N	77°30'25.48"E	290.554	291.336
14-14	79	30°12'48.58"N	77°30'24.59"E	290.581	292.451
14-14	80	30°12'47.76"N	77°30'26.28"E	290.688	292.659
14-14	81	30°12'46.94"N	77°30'27.96"E	291.366	292.921
14-14	82	30°12'46.12"N	77°30'29.62"E	290.882	292.662
14-14	83	30°12'45.30"N	77°30'31.30"E	292.708	294.411
14-14	84	30°12'44.45"N	77°30'32.99"E	292.554	294.058
15-15	85	30°12'42.96"N	77°30'32.14"E	292.665	293.622
15-15	86	30°12'43.74"N	77°30'30.48"E	290.885	292.854
15-15	87	30°12'44.59"N	77°30'28.79"E	290.900	292.741
15-15	88	30°12'45.39"N	77°30'27.13"E	290.771	292.852
15-15	89	30°12'46.25"N	77°30'25.45"E	289.708	290.584
15-15	90	30°12'47.06"N	77°30'23.76"E	290.667	292.525
16-16	91	30°12'45.59"N	77°30'22.93"E	290.284	292.625

16-16	92	30°12'44.76"N	77°30'24.63"E	290.357	292.844
16-16	93	30°12'43.94"N	77°30'26.33"E	289.337	291.744
16-16	94	30°12'43.08"N	77°30'27.98"E	291.558	292.962
16-16	95	30°12'42.19"N	77°30'29.67"E	291.885	293.665
16-16	96	30°12'41.36"N	77°30'31.33"E	290.657	292.352
17-17	97	30°12'39.92"N	77°30'30.50"E	291.471	293.366
17-17	98	30°12'40.74"N	77°30'28.82"E	290.338	291.332
17-17	99	30°12'41.58"N	77°30'27.15"E	290.628	291.398
17-17	100	30°12'42.39"N	77°30'25.50"E	289.665	291.384
17-17	101	30°12'43.23"N	77°30'23.80"E	289.451	292.366
17-17	102	30°12'44.06"N	77°30'22.12"E	289.329	292.659
18-18	103	30°12'42.49"N	77°30'21.25"E	289.106	292.584
18-18	104	30°12'41.67"N	77°30'22.94"E	290.558	292.628
18-18	105	30°12'40.84"N	77°30'24.63"E	291.776	292.854
18-18	106	30°12'40.03"N	77°30'26.30"E	290.658	292.365
18-18	107	30°12'39.21"N	77°30'27.98"E	290.628	292.847
18-18	108	30°12'38.37"N	77°30'29.66"E	291.766	293.655
19-19	109	30°12'36.81"N	77°30'28.82"E	290.590	293.751
19-19	110	30°12'37.65"N	77°30'27.13"E	289.881	293.929
19-19	111	30°12'38.49"N	77°30'25.44"E	289.284	293.847
19-19	112	30°12'39.31"N	77°30'23.78"E	290.334	292.285
19-19	113	30°12'40.14"N	77°30'22.11"E	289.839	292.953
20-20	114	30°12'40.98"N	77°30'20.42"E	290.358	293.928
20-20	115	30°12'39.46"N	77°30'19.59"E	290.384	293.937
20-20	116	30°12'38.61"N	77°30'21.28"E	290.318	293.947
20-20	117	30°12'37.78"N	77°30'22.96"E	290.451	293.995
20-20	118	30°12'36.98"N	77°30'24.62"E	290.742	292.510
20-20	119	30°12'36.15"N	77°30'26.31"E	290.152	293.958


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1 5 9 13 17 21 25 29 33 37 41 45 49 53 57 61 65 69 73 77 81 85 89 93 97 101 105 109 113 117
Pre Monsoon 2023
Post Monsoon 2023

Lease Profile's

Pre-Monsoon

and

Post-Monsoon 2023

Source:- Sentential-2 L2A Satellite

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
1	Behat	R.B.M.	Badshahibagh Rao	Mayapur Rooppur	Gata No. 14/1	3.100

Pre-Monsoon (8-June-2023)



Post-Monsoon (26-Oct-2023)

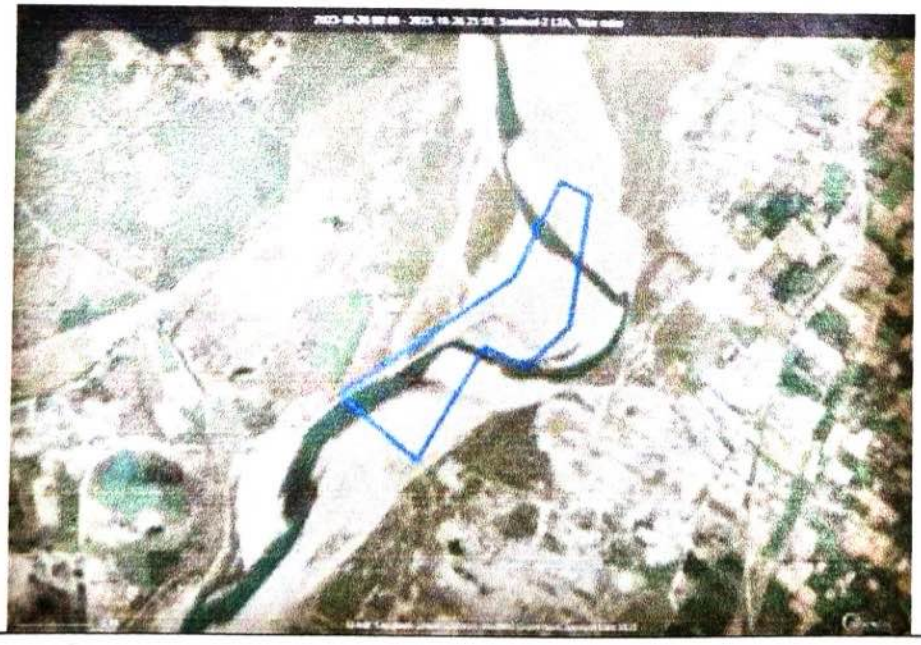


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
2	Behat	R.B.M.	Yamuna	Bartha Korsi	Gata No. - 1	36.000

Pre-Monsoon (8-June-2023)



Post-Monsoon (26-Oct-2023)



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
3	Behat	R.B.M.	Badkala Ra	Haidarpur Hindwala	Khand No / Gata No. - 8/1 , 19 & 22	4.200

Pre-Monsoon (8-June-2023)



Post-Monsoon (26-Oct-2023)

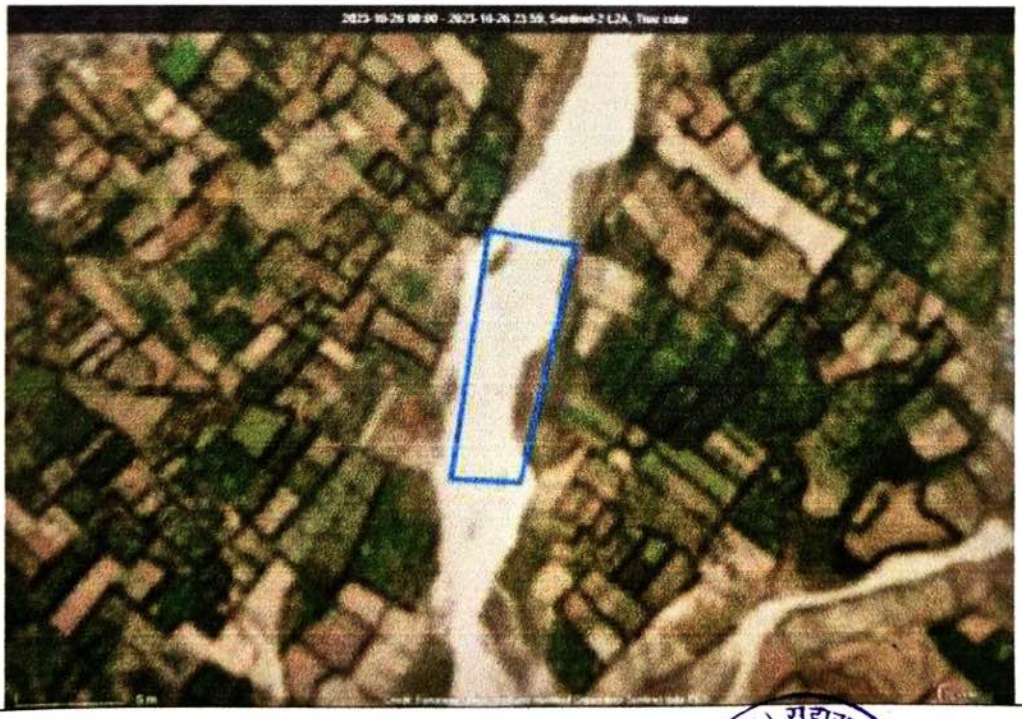


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
4	Behat	R.B.M.	Khurwali Ra	Sherpur Pelon	Gata No. - 378/2 & 379/2	7.000

Pre-Monsoon (8-June-2023)



Post-Monsoon (26-Oct-2023)

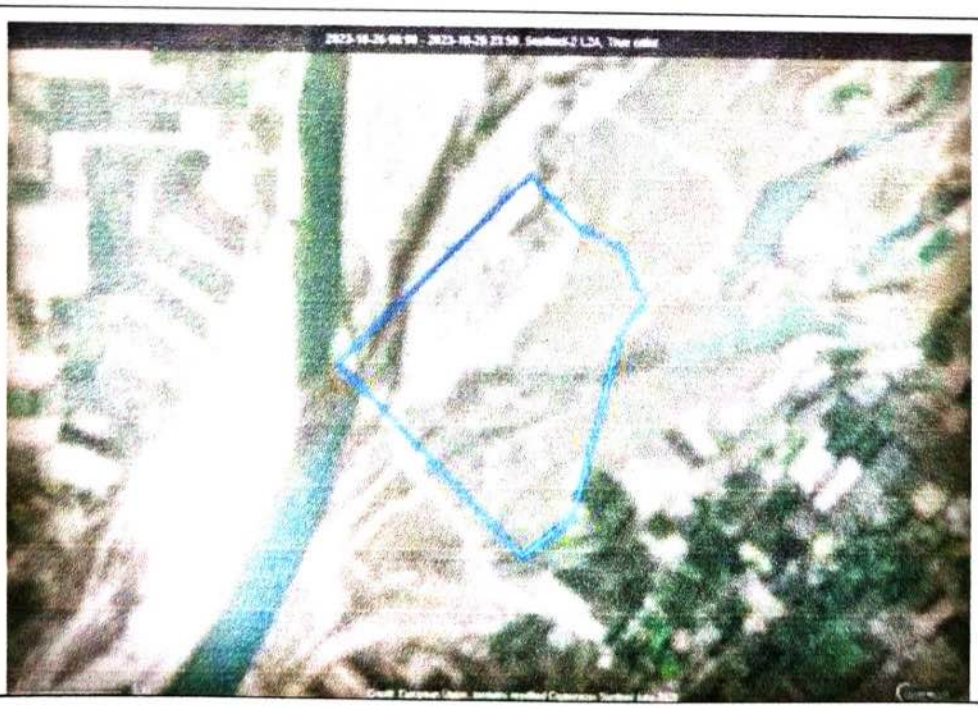


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
5	Behat	R.B.M.	Yamuna	Nuniyari Aehatmal	Gata No. - 1/1/1 Laat 38	24.290

Pre-Monsoon (8-June-2023)



Post-Monsoon (26-Oct-2023)



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
6	Behat	R.B.M.	Yamuna	Rehna	Khand No. / Gata no. - 03, Lot No - 03	8.050

Pre-Monsoon (8-June-2023)



Post-Monsoon (26-Oct-2023)

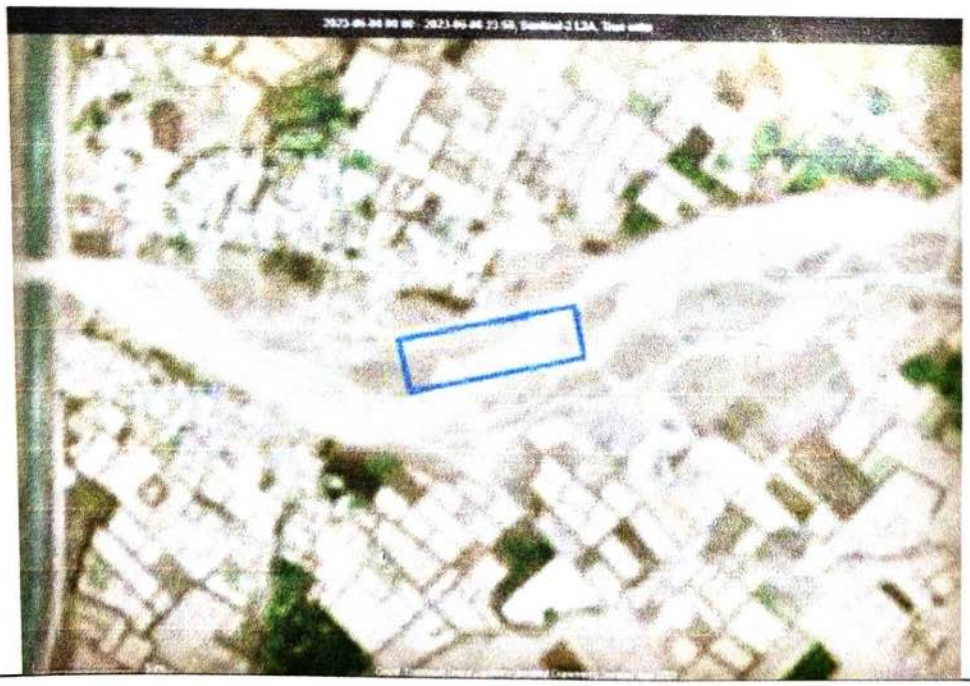


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
7	Behat	R.B.M.	Gaisara Rao	Rahena	Gata No. 179/2	3.750

Pre-Monsoon (8-June-2023)

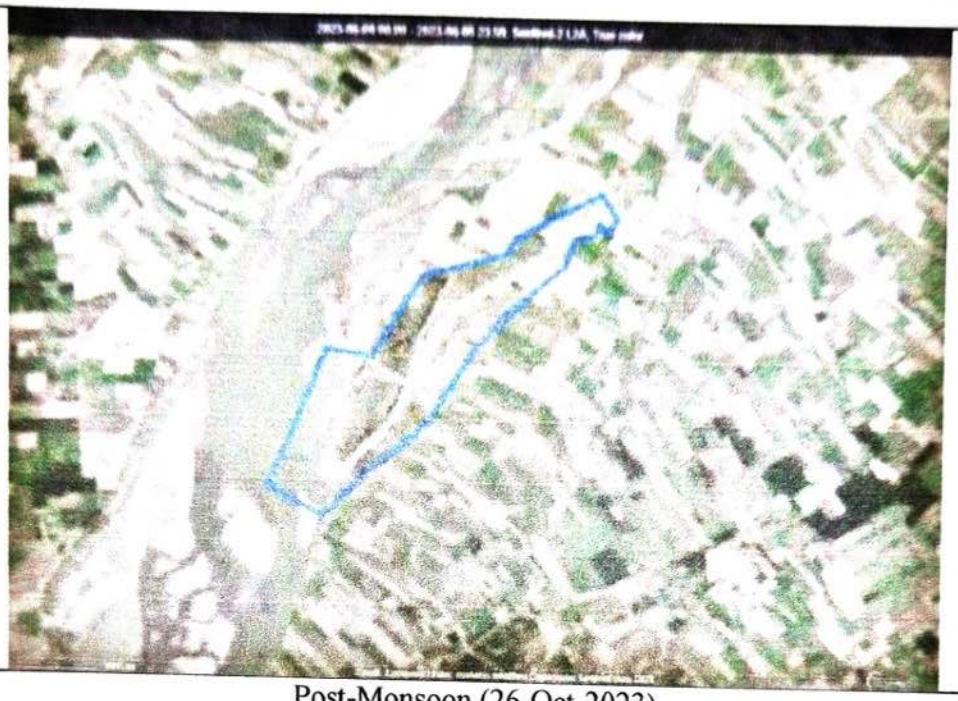


Post-Monsoon (26-Oct-2023)



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
8	Nukur	Sand	Yamuna	Dhikkan Kalan	Gata No. - 839, 841 to 856, 858, 859, 860, 861,863,864,865,866,867, 871, 872, 888, 889, 406 , 407	52.630

Pre-Monsoon (8-June-2023)



Post-Monsoon (26-Oct-2023)



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
9	Behat	R.B.M.	Khurwali Ra	Sherpur Pelon	403 , 404/1 , 405 , 406/1 , 416/2 , 421/1 , 422/2 , 423/2 , 424/2 , 429 and 431	6.475

Pre-Monsoon (8-June-2023)



Post-Monsoon (26-Oct-2023)

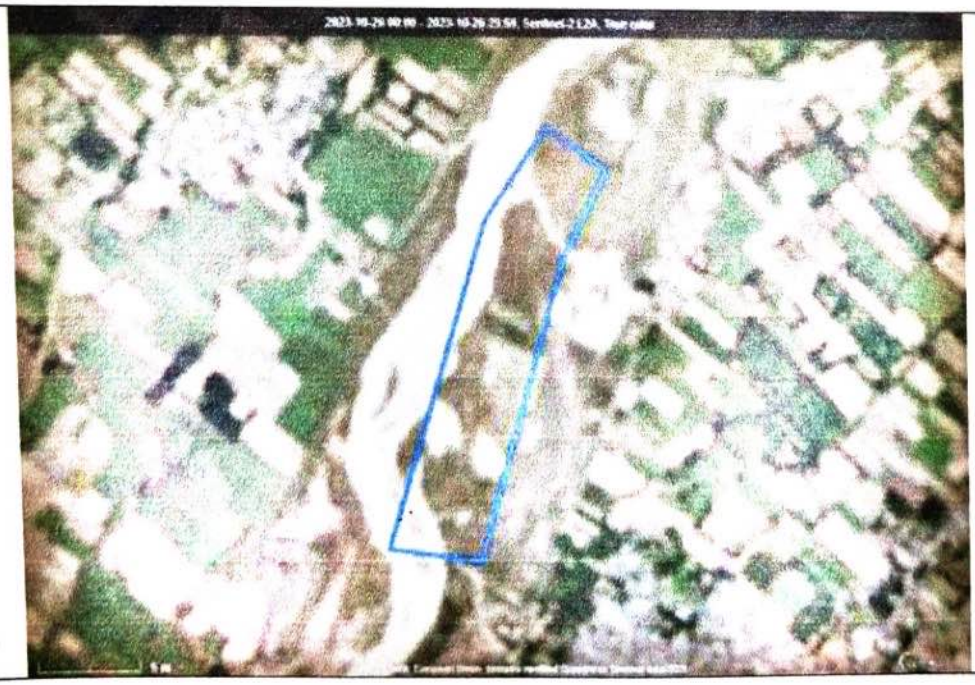


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
10	Behat	R.B.M.	Kaluwala	Kaluwala Pahadipur	119/1 , 120/1 , 192/1 , 193/1 , 125/4	14.900

Pre-Monsoon (8-June-2023)



Post-Monsoon (26-Oct-2023)



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
11	Behat	R.B.M.	Yamuna	Akbarpur Bans Achatmal	1	17.900

Pre-Monsoon (8-June-2023)



Post-Monsoon (26-Oct-2023)

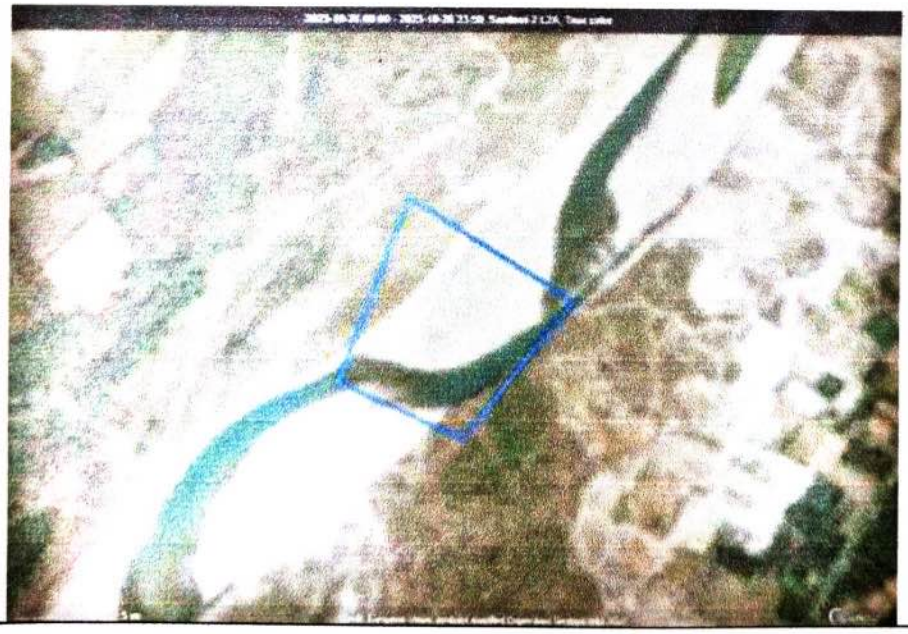


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
12	Behat	R.B.M.	Yamuna	Arazi Jevadi Ahatmal and Masoodpur Garh Aehatmal	1 and 1	13.800

Pre-Monsoon (8-June-2023)



Post-Monsoon (26-Oct-2023)



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
13	Behat	R.B.M.	Yamuna	Shehjadpur Bans Aehatmal	1	13.000

Pre-Monsoon (8-June-2023)



Post-Monsoon (26-Oct-2023)



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
14	Behat	R.B.M.	Yamuna	Alauddinpur Bans Aehatmal	1/1	9.580

Pre-Monsoon (8-June-2023)



Post-Monsoon (26-Oct-2023)



जिलाधिकारी (खनन अनुभाग)

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
15	Behat	R.B.M.	Yamuna	Mehmoodpur Nangli Aehatmal	1	15.700

Pre-Monsoon (8-June-2023)



Post-Monsoon (26-Oct-2023)



जिलाधिकारी (खनन अनु.)

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
16	Behat	R.B.M.	Yamuna	Shahpur Bans Aehatmal	1/1	15.600

Pre-Monsoon (8-June-2023)



Post-Monsoon (26-Oct-2023)



जिलाधिकारी (खनन अनुभाग)

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
17	Behat	R.B.M.	Yamuna	Nityanandpur Aehatmal and Said-mohamadpur Aehatmal	1 and 1ma	17.700

Pre-Monsoon (8-June-2023)

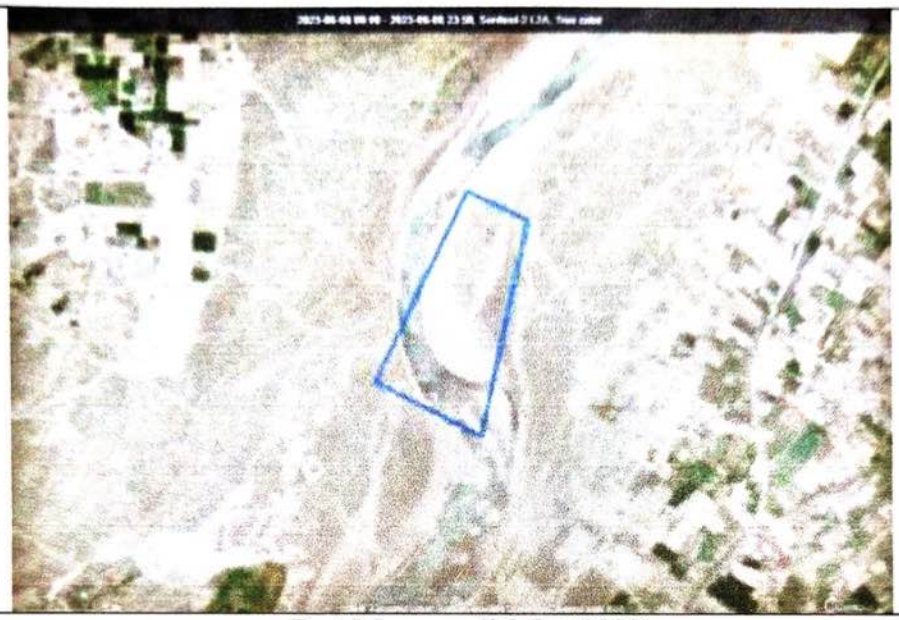


Post-Monsoon (26-Oct-2023)



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
18	Behat	R.B.M.	Yamuna	Abutalibpur Garh Aehatmal	1	37.000

Pre-Monsoon (8-June-2023)



Post-Monsoon (26-Oct-2023)



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
19	Behat	R.B.M.	Yamuna	Nuniyari Athmal – Khand Second	1/1/1	19.000

Pre-Monsoon (8-June-2023)



Post-Monsoon (26-Oct-2023)

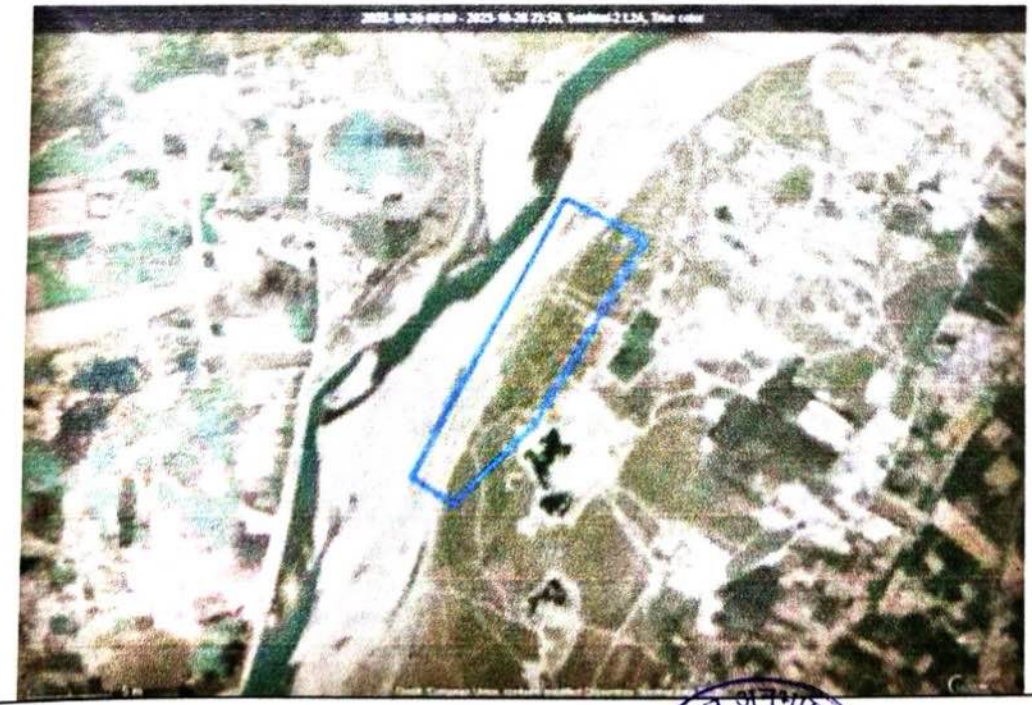


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
20	Behat	R.B.M.	Yamuna	Aslampur Bartha – First	1/1 M	36.600

Pre-Monsoon (8-June-2023)



Post-Monsoon (26-Oct-2023)

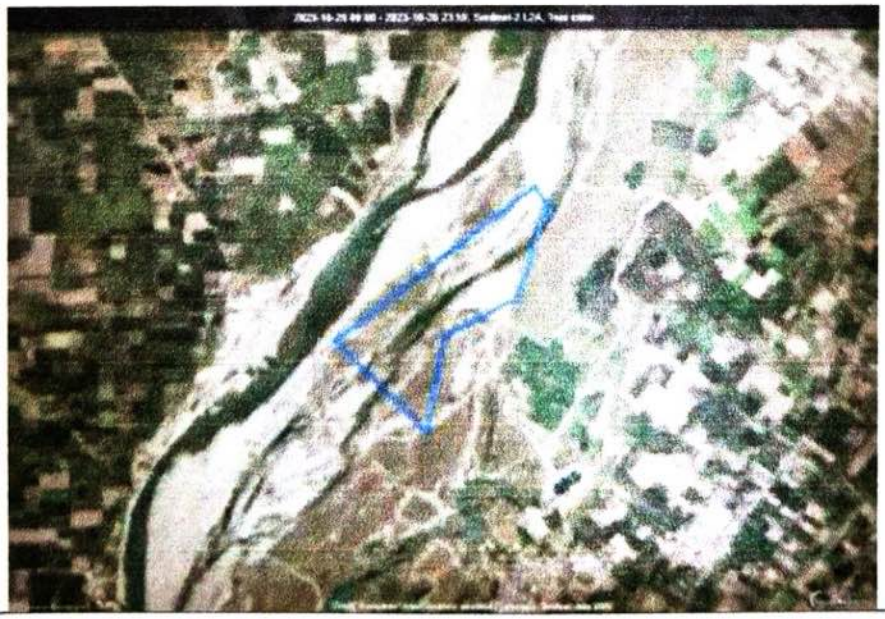


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
21	Behat	R.B.M.	Yamuna	Rasoolpur Urf Rasooli	1/1	34.000

Pre-Monsoon (8-June-2023)

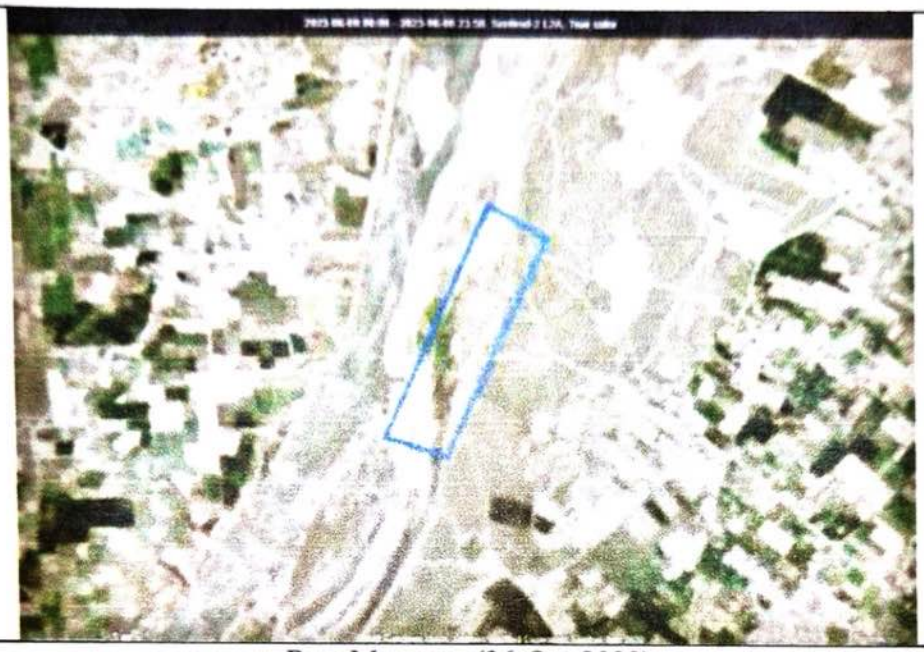


Post-Monsoon (26-Oct-2023)

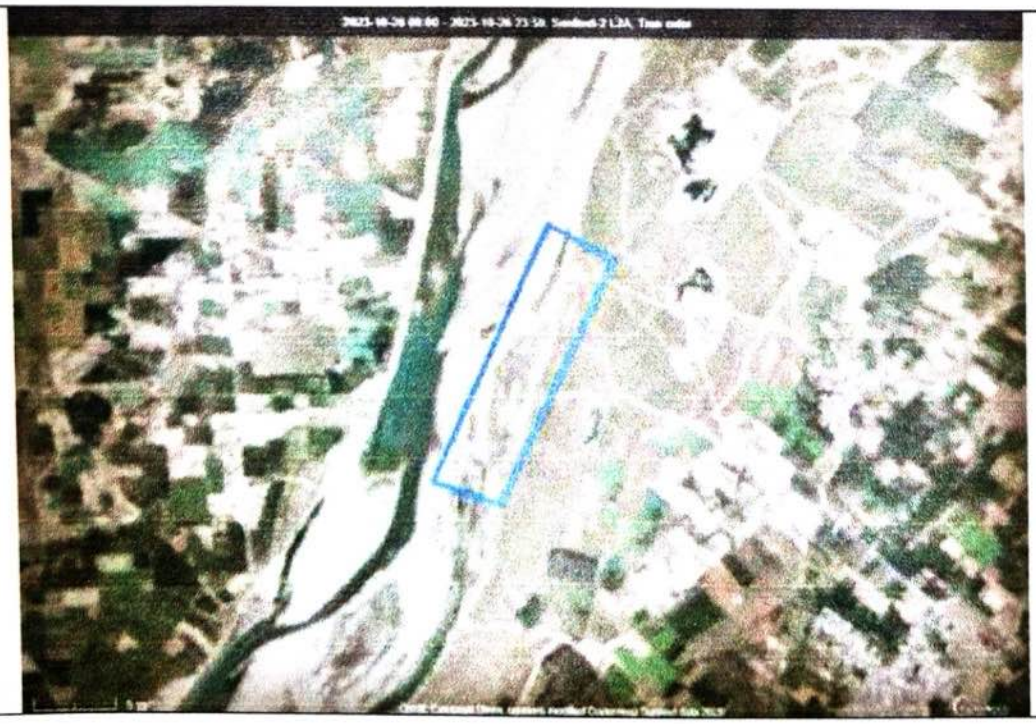


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
22	Behat	R.B.M.	Yamuna	Aslampur Bartha Second	1/1 M	28.160

Pre-Monsoon (8-June-2023)



Post-Monsoon (26-Oct-2023)



Annexure-R-1

SUB-DIVISIONAL COMMITTEE, DISTRICT – SAHARANPUR

Line of Action for conducting Replenishment Study (Year-2024)in conformity to directions provided in Chapter 05 of Enforcement & Monitoring Guidelines for Sand Mining -2020 issued by MoEF&CC.

➢ **Timelines for Pre and Post Monsoon Replenishment Study - 2024**

Sl.No.	Details of Works	Approx. No. of Work Days in Pre-monsoon	Approx. No. of Work Days in Post-monsoon
1	Geotagging , Physical Survey and D.G.P.S Survey for Mineral Reserve estimation of various leases and baseline data collection for ground elevations.	12 days	15 days
2	Interpretation and Analysis of Geotagged data , Physical Survey data and D.G.P.S Survey data in software server /software processing tools for preparation of output records.	10 days	12 days
3	Preparation of Ground Control Point Record / Field Survey Report on the basis of survey data and software processed data.	7 days	8 days
TOTAL Work Days		**29 days**	**35 days**

Mines Inspector
Saharanpur (Member)

Mines Officer
Saharanpur (Member)

Executive Engineer
Irrigation Construction Division
Saharanpur (Member)

Regional Officer
U.P. Pollution Control Board.
Saharanpur (Member)

SDO Forest/DFO
Saharanpur (Member)

SDM Nakur
Saharanpur (Member)

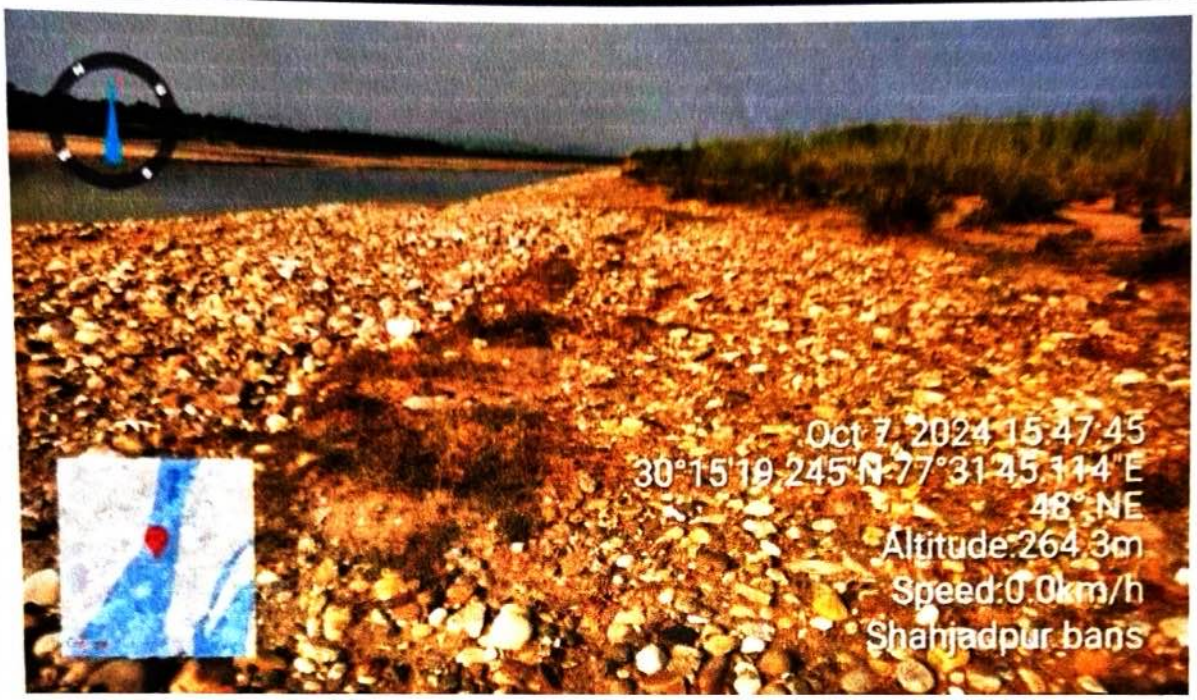
DFO
SHIVALIK (Member)

SDM Behat
Saharanpur (Member)

Geologist/Regional Officer
Geology And Mining Dept
Ghaziabad/Saharanpur

Additional District Magistrate
(F&R)
Saharanpur (Chairman)

Pre & Post-Monsoon Replenishment Study
With
Reserve Estimation Report of
R.B.M. / Sand Mining Leases - District Saharanpur
Study Period –2024



Mines Inspector
Saharanpur (Member)

Mines Officer
Saharanpur (Member)

Executive Engineer
Irrigation Construction Division
Saharanpur (Member)

Regional Officer
U.P. Pollution Control Board
Saharanpur (Member)

SDO Forest /DFO
Saharanpur (Member)

SDM Nakur
Saharanpur (Member)

DFO
SHIVALIK (Member)

SDM Behat
Saharanpur (Member)

Geologist/ Regional Officer
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Department
Ghaziabad/Saharanpur

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(F&R)
Saharanpur (Chairman)

Prepared by- Sub-Divisional Committee – District Saharanpur
Formed vide. D.M. Office Order dated 05/01/2023 , ref. no. 1617/ खo अनु०/ जिला०सर्वे रिप०/2021

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1 - Background & Introduction

Background

- A replenishment study, particularly in the context of sand mining, aims to assess the rate at which sand is naturally replenished in a river or stream, ensuring that extraction doesn't exceed the river's capacity to naturally replenish itself, thereby preventing ecological damage.
- The Chapter-5 of the Enforcement & Monitoring Guidelines for Sand Mining (EMGSM-2020) issue by MoEF&CC provides generic structure and mechanism for conducting Replenishment Studies.
- The replenishment study in district Saharanpur was earlier conducted in Year-2022 and Year-2023 by Sub-Divisional Committee. Final reports were prepared in compliance the provisions of Sustainable Sand Management Guidelines – 2016 and its latest guidelines EM Guidelines for Sand Mining – 2020.
- Important details related to sediment transport and composition, purpose of study, methodology , district profile , ground water scenario, regional geology of district, mineral resources, rainfall & climate , description of study area rivers, analysis of particle size distribution, gradient analysis , list of software / manpower and equipment's, inventory of leases were incorporated in the Report of Year-2022.
- In total Twenty-Two (22) leases measuring 422.635 ha. were surveyed and studied in various River Channels.

- The findings of Replenishment Studies of year 2023 is summarized as under:-

Sl.	Teshil	River	Village	Gata / Khand	Area (in Ha.)	Pre Monsoon Reserve - 2023 (A) - cum	Post Monsoon Replenishment - 2023 (B) - cum	Total Resource in - 2023 (A+B) - cum	Annual Production proposed in DSR out of Total Resource - cum
1	Behat	Badshahibagh Rao	Mayapur Rooppur	Gata No. 14/1	3.100	99980	29039	129019	69750
2	Behat	Yamuna	Bartha Korsi	Gata No. - 1	36.000	174518	802800	977318	756000
3	Behat	Badkala Ra	Haidarpur Hindwala	Khand No / Gata No. - 8/1 , 19 & 22	4.200	64708	100004	164712	94500
4	Behat	Khurwali Ra	Sherpur Pelon	Gata No. - 378/2 & 379/2	7.000	218677	202300	420977	197500
5	Behat	Yamuna	Nuniyari Aehatmal	Gata No. - 1/1/1 Laat 38	24.290	950600	456773	1407373	437247
6	Behat	Yamuna	Rehna	Khand No. / Gata no. - 03, Lot No - 03	8.050	266780	139265	406045	138462
7	Behat	Gaisara Rao	Rahena	Gata No. 179/2	3.750	119102	71813	190915	67500
8	Nukur	Yamuna	Dhikkan Kalan	Gata No. - 839, 841 to 856, 858, 859, 860, 861,863,864,865, 866,867, 871, 872, 888, 889, 406 , 407	52.630	158700	1089441	1248141	947368
9	Behat	Khurwali Ra	Sherpur Pelon	403 , 404/1 , 405 , 406/1 , 416/2 , 421/1 , 422/2 , 423/2 , 424/2 , 429 and 431	6.475	296450	104895	401345	77700
10	Behat	Kaluwala	Kaluwala Pahadipur	119/1 , 120/1 , 192/1 , 193/1 , 125/4	14.900	489972	299490	789462	178800
11	Behat	Yamuna	Akbarpur Bans Aehatmal	1	17.900	734092	345470	1079562	322200
12	Behat	Yamuna	Arazi Jevadi Ahatmal and Masoodpur Garh Aehatmal	1 and 1	13.800	532096	251160	783256	248400
13	Behat	Yamuna	Shehjadpur Bans Aehatmal	1	13.000	572455	129740	702195	234000
14	Behat	Yamuna	Alauddinpur Bans Aehatmal	1/1	9.580	480653	189684	670337	172440
15	Behat	Yamuna	Mehmoodpur Nangli Aehatmal	1	15.700	709400	284170	993570	282600

जिलाधिकारी (खनन अनुभाग) सहारनपुर

Sl.	Teshil	River	Village	Gata / Khand	Area (in Ha.)	Pre Monsoon Reserve - 2023 (A) - cum	Post Monsoon Replenishment - 2023 (B) - cum	Total Resource in Lease - 2023 (A+B) - cum	Annual Production proposed in DSR out of Total Resource - cum
16	Behat	Yamuna	Shahpur Bans Achatmal	1/1	15.600	495866	291876	787742	280800
17	Behat	Yamuna	Nityanandpur Achatmal and Said-mohamadpur Achatmal	1 and 1ma	17.700	921500	350460	1271960	318600
18	Behat	Yamuna	Abutalibpur Garh Achatmal	1	37.000	2201550	713360	2914910	666000
19	Behat	Yamuna	Nuniyari Athmal – Khand Second	1/1/1	19.000	745000	375250	1120250	342000
20	Behat	Yamuna	Aslampur Bartha – First	1/1 M	36.600	1665200	688080	2353280	658800
21	Behat	Yamuna	Rasoolpur Urf Rasooli	1/1	34.000	1262100	631380	1893480	612000
22	Behat	Yamuna	Aslampur Bartha – Second	1/1 M	28.160	951900	520960	1472860	506880

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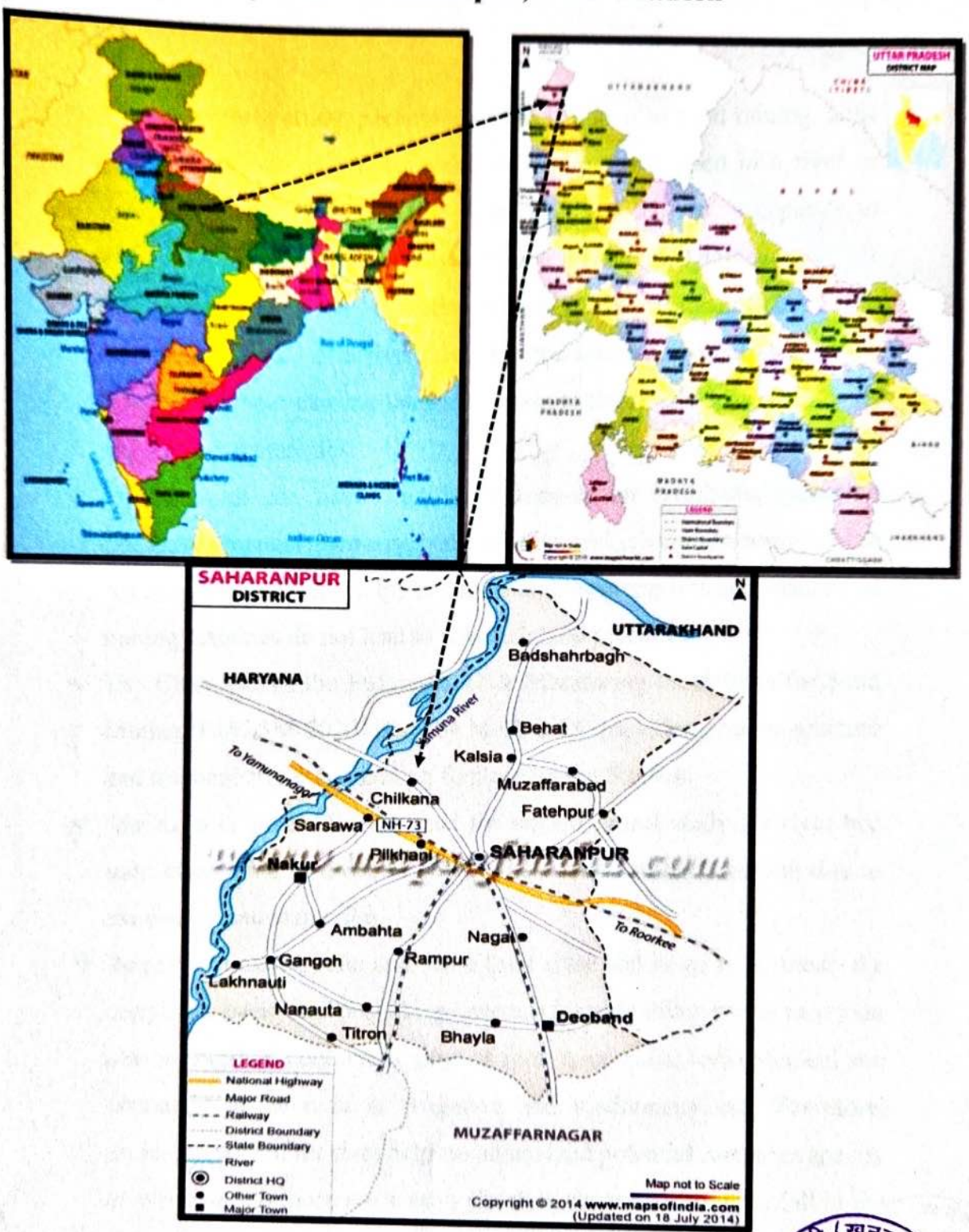
Introduction of Replenishment Study Report – Year-2024

- The current studies are report has been prepared by taking the methodology, references and baseline date of Report published in Year-2022 and 2023.
- On the basis of same, fresh field investigation and D.G.P.S based survey were conducted in pre & post monsoon period of year 2024 in 22 leases and results are reported on the basis of collected baseline data.
- Out of total 22 leases, three (03) leases were operational which attained production and mineral dispatch in this period. Rest 19 leases were closed/vacant which replenished in past year as well as this year.
- Final interpretation on leases, replenished quantity, mineral reserves estimation with conclusion and recommendation has been reported in this replenishment study report.

➢ **Comparison actual Total available Resource, D.S.R. planned production and Actual production done by lease holders from 1-Oct-2023 till 30-June-2024.**

Sl.	Teshil	River	Village	Gata / Khand	Area (in Ha.)	Total Resource in – 2023 post-monsoon (A+B) - cum	Annual Production proposed in DSR out of Total Resource - cum	Actual production done on Period of 1-Oct-2023 till 30-June-2024 - cum
2	Behat	Yamuna	Bartha Korsi	Gata No. - 1	36.000	977318	756000	754962
3	Behat	Badkala Ra	Haidarpur Hindwala	Khand No / Gata No. - 8/1 , 19 & 22	4.200	164712	94500	95500
8	Nukur	Yamuna	Dhikkan Kalan	Gata No. - 839, 841 to 856, 858, 859, 860, 861,863,864,865,866,867, 871, 872, 888, 889, 406 , 407	52.630	1248141	947368	542947

Study Area - Saharanpur, Uttar Pradesh



2 - Objective of Study

- A replenishment study, particularly in the context of sand mining, aims to assess the rate at which sand is naturally replenished in a river or stream, ensuring that extraction doesn't exceed the river's capacity to naturally replenish itself, thereby preventing ecological damage.
- The primary goal of a replenishment study is to determine the "sustainable yield" of a river, meaning the amount of sand that can be extracted without causing long-term harm to the river's ecosystem or its physical characteristics.
- Sand mining can have significant impacts on riverbeds, including changes in channel geometry, bed elevation, and substratum composition. A replenishment study helps to understand these impacts and ensure that mining activities do not lead to unsustainable practices.
- The Chapter-5 of the Enforcement & Monitoring Guidelines for Sand Mining (EMGSM-2020) issue by MoEF&CC provides generic structure and mechanism for conducting Replenishment Studies.
- The main emphasis for the need for replenishment study for river bed sand is required in order to nullify the adverse impacts arising due to excessing sand extraction.
- Removal of excess sand and stone from river bed helps to maintain the carrying capacity and provides protection from flooding during monsoon season. Further, continuous flow of river is essential for ecological and economic needs such as irrigation and biodiversity etc. Therefore, drainage study of the river helps to understand potential carrying capacity of water during monsoon season which is generated from rainfall in the watershed and quantity of di-siltation of rivers under mining affected areas.

- In line with same, Replenishment study was carried out for Sand/R.B.M. leases of District Saharanpur. Quantification and estimation of river bed material (RBM) was accomplished by following three scientific approaches as envisaged in Sustainable Sand Management Guidelines – 2016 (SSMG-2016) and its contemporary guidelines Enforcement & Monitoring Guidelines for Sand Mining (EMSM-2020) issued by MoEF&CC in January-2020.
- Mining areas were geo-tagged and surveyed for analysis of study of the availability/potential of sand and gravel. Estimation of deposition and safe limit for extraction/ removal of deposited river bed material (RBM) available in the various rivers/streams were done by analysing elevation profiles and pit profiles at regular intervals with the help of D.G.P.S. based Survey.
- The pre and post monsoon data were collected and analysed and co-related and final results with river wise recommendation has been recommended in the report.

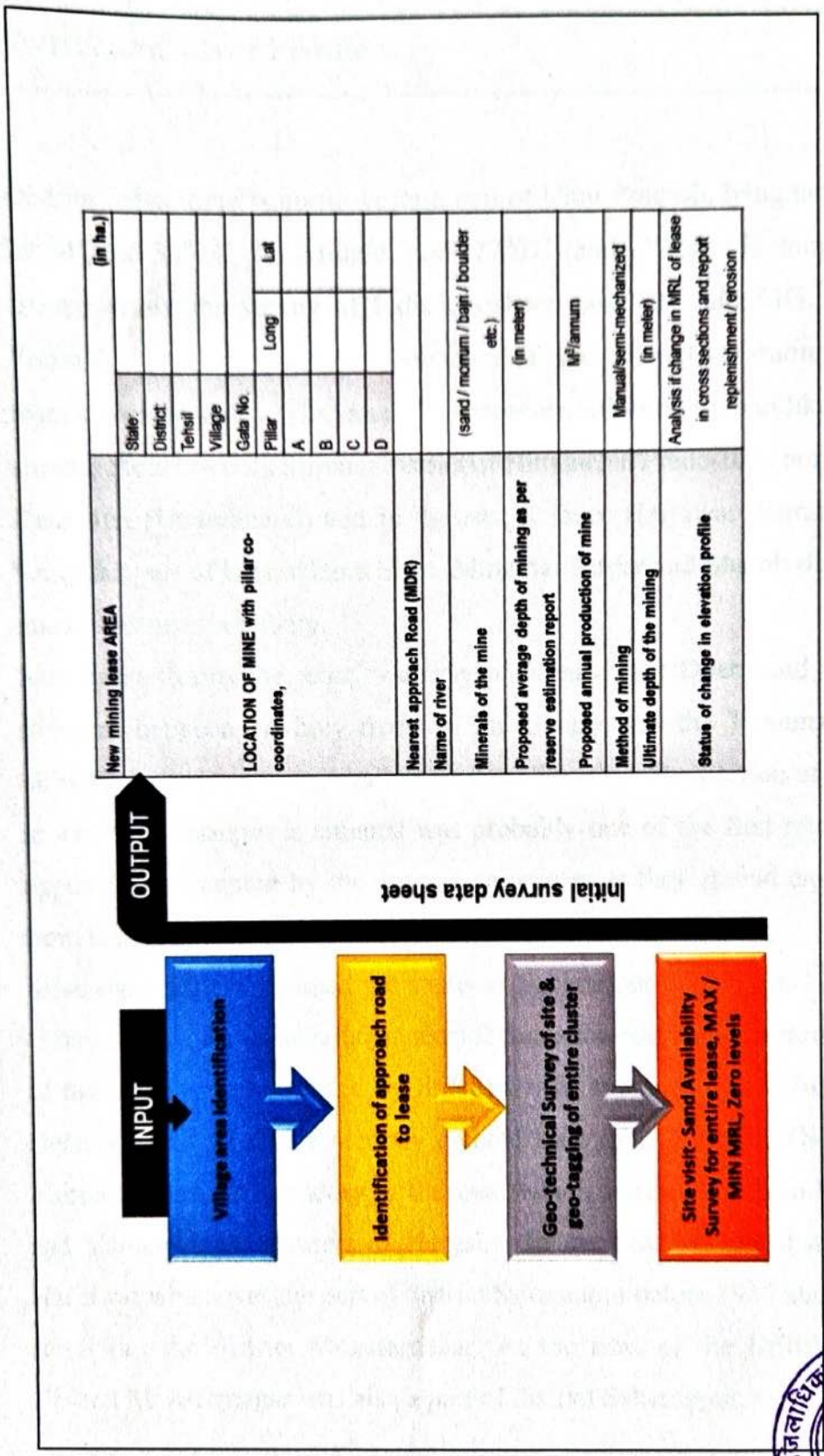
3 - Methodology

- **For Resource estimation in pre-monsoon period.**
  - ❖ The main aim of the survey work and measurements is to carry out the collection of baseline data in pre-monsoon period which will be repeated in post-monsoon period to assess the quantum of replenishment.
  - ❖ For river R.B.M. reserve estimation the river was surveyed at the ground and the corner coordinates were determined with the help of D.G.P.S. so that the lease area boundaries are obtained.
  - ❖ Deposits 1 meter above the river water level was considered as existing resource deposits in pre-monsoon period. For this base flow level of river was determined.
  - ❖ Physical survey of lease and collection of information related to existing reserves and by conducting pit profiles are regular intervals with the help of JCB Machine and digging equipment's such as Auger, spade, hand shovel, hammer, measuring tape etc. were done.
  - ❖ The factors considered for Reserve Estimation were Bed Thickness, Area, Water Levels, Grading of mineral with wentworth scale.
  - ❖ For estimating reserves, geological modelling on the basis of data collected from field were done in Geological and Mining software. For geomodelling and resource estimation AutoCad and Microsoft Excel were used.

Illustrative Phenomena of offsetting all elevated contours upto one meter above the water level to calculate the Net available reserves of the mining lease in Pre-Monsoon Period
Layer
MrL
Deposit in Layer (cum)
Layer-1
303-302
1,00,000
Layer-2
302-300
1,40,000
Layer-3
300-299
80,000
Net Reserve
→
3,20,000
Layer-1
Layer-2
Layer-3
1 Meter above the water level
303 MRL
302 MRL
301 MRL
300 MRL
299 MRL
298 MRL
297 MRL - RIVER

- **Methodology of Replenishment Study in pre and post monsoon periods**

  - ❖ The main aim of the survey work and measurements was to carry out the collection of baseline data in pre-monsoon period which was repeated in post-monsoon period to assess the quantum of replenishment.
  - ❖ The leases were divided in a grid of regular intervals for point specific D.G.P.S. survey. A number of Ground Control Points in each corner of grid were established on each site. The D.G.P.S. survey observations were taken at regular grid intervals in longitudinal direction and in perpendicular across direction depending on the geological conditions of leases. The number of sections along and across the river depend on the length and width of lease, its dimension as well as ground conditions.
  - ❖ The studies were done on the basis of individual mines approach. Study plans were prepared for all the leases and each lease was surveyed with DGPS and elevation records in regular intervals were recorded. Inventory of the recorded "Elevation Index" of leases were prepared in pre and post monsoon period.
  - ❖ Changes in the elevation in pre and post monsoon period in each interval (called Ground Control Point- GCP) was tabulated. Area of deposition for each cross section was calculated and summation deposition at each GCP was done to report the overall thickness observed in the post-monsoon period.
  - ❖ The methodology followed is in conformity to the Enforcement & Monitoring Guidelines for Sand Mining – 2020 issued by MoEF in January-2020 which envisages that Regular Replenishment study needs to be carried out to keep a balance between deposition and extraction.
  - ❖ Specific emphasis has been given to the norms provided in the Section-5 of Enforcement & Monitoring Guidelines for Sand Mining – 2020 which provides procedure to be followed for conducting replenishment study.


INPUT
Village area identification
Identification of approach road to lease
Geo-technical Survey of site & geo-tagging of entire cluster
Site visit- Sand Availability Survey for entire lease, MAX / MIN MRL, Zero levels
OUTPUT
Initial survey data sheet
New mining lease AREA (in ha.)
State:
District:
Tehsil
Village
Gata No.
LOCATION OF MINE with pillar co-coordinates,
Pillar
Long
Lat
A
B
C
D
Nearest approach Road (MDR)
Name of river
Minerals of the mine
(sand / morrum / bajri / boulder etc.)
Proposed average depth of mining as per reserve estimation report
(in meter)
Proposed annual production of mine
M³/annum
Method of mining
Manual/semi-mechanized
Ultimate depth of the mining
(in meter)
Status of change in elevation profile
Analysis if change in MRL of lease in cross sections and report replenishment / erosion

4 - District and River Profile

- District Saharanpur is north-western part of Uttar Pradesh, lying between $29^0$34' and $30^0$24' N latitude and $77^0$07' and $77^0$58' E longitude falling within the survey of India toposheet nos. 53F and 53G. River Yamuna marks the western boundary of the district separating U.P. from adjoining state of Haryana. The extreme north-western part like beak structure touches with Sirmaur district of Himanchal Pradesh. In north lies Dehradun (Uttarakhand) and in the east it faces Haridwar district also being the part of Uttarakhand State. Muzaffar Nagar and Shamli districts marks southern boundary.
- Saharanpur forms the most northerly position of the Doab land which stretches between the holy rivers of the Ganges and the Yamuna, The Shivalik hills rise above it on the northern frontier. The portion of Doab in which Saharanpur is situated was probably one of the first region of upper India occupied by the Aryans colonisers as they spread eastward from the Punjab.
- Saharanpur district attained the status as Saharanpur division in 1997 of Uttar Pardesh. As regards its physical features the north and the north east of the district is surrounded by Shivalik hills and separates it from the Dehradun district in the recently created state of Uttranchal. The river Yamuna forms its boundary in the west which separates it from Karnal and Yamunanagar districts of Haryana. In the East lies the district of Haridwar which was the part of district Saharanpur before 1989 and in the south lies the district Muzafarnagar. At the time of the British Rule District Muzafarnagar was also a part of district Saharanpur.

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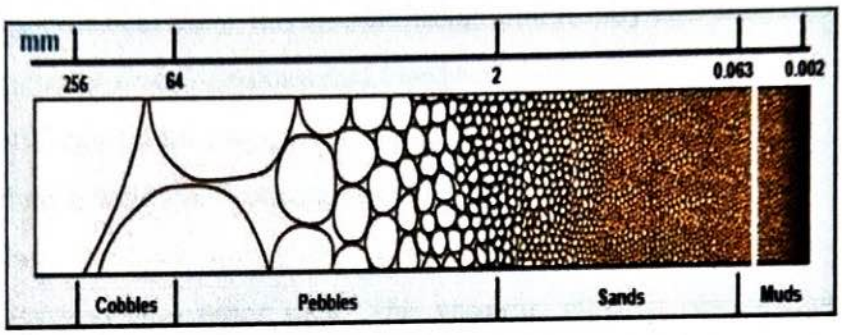
- The district presents many varieties of features and differs in general appearance than any other portion of the Doab and Gangetic plain as a whole. It is true that most of the area belongs to the upland Bangar which stretches in a continuous line up to Allahabad i.e. Junction of the two great rivers and on the either side is the broad and low lying valley full of swamps and back waters with wide open grass plains and Tamarisk jungle but in the north, There are the steep hills of Shivalik chain which appear in a far more marked form in Saharanpur than any other district of Uttar Pardesh while below the hills are to be seen in a modified form the prevailing characteristics of the Bhabar and Tarai region.
- The main characteristics of the district can be divided into four parts.
    - Shivalik Hill Tract
    - The Bhabar Land
    - Bangar Land
    - Khadar Land (Yamuna, Hindon)

- Yamuna is the important river of the district. Apart from this Solani, Hindon, Ratmau, Nagdev have also played an important role in the physical reconstruction of the district. All the rivers of the district submerge either in Yamuna or in the Ganges.

5 - Sediment Composition

District Saharanpur can be divided into three physiographic divisions, the **structural hills**, the upper physiographic divisions, the structural hills, the upper piedmont plains or **the Bhabar**, and **the Terai** or the lower piedmont plains.

Structural Hills:



The entire northern part of the district is formed structural hills named Siwaliks. In this area the relief is high with steep and sharp hill slopes. The rugged topography of the area affords well for high run off. In the area the upper and middle Siwaliks are encountered but the lower Siwaliks are missing. Lithologically the Siwaliks here are composed of sand stones, conglomerates, sand, clays and silts. There are several major and minor faults.

The Bhabar:

The second units lying just below the foothills of Siwalik locally called as Bhabhar, is characterized by boulders, pebbles, cobbles etc. with relatively dry terrains fringing. The Siwalik foot hills with gradient around 5 m/km. which is much higher than the southern plains.

Geologically the term Bhabhar is used to deposits formed along the foothill zone by coalescence of series of alluvial and talus cones, composed of heterogeneous materials ranging in texture from boulder, gravel to sand and silt. These Bhabhars in Saharanpur district are known as 'Dhar' covering

mostly the 'Muzaffarabad' and 'SadauliQuadim' blocks.

Tarai:

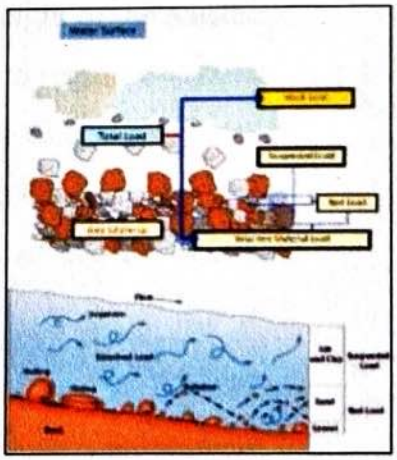
Just south of Bhabar zone lies the 'Tarai' or the plains of piedmont plain. The plains sloping gradually by southward have around 1.5m/km. gradient. Lithologically, the area is characterized by coarse sand & gravel.

These plains are further divided into lower piedmont plains the older alluvial plains and the younger alluvial plains. The lower piedmont plains show flat to undulating plains with gradient towards southwest.

The older alluvial plains also show flat to undulating topography characterized by sediments brought by rivers Yamuna and Ganga.

The younger alluvial plains lie along river Yamuna exhibiting gently sloping and slightly undulating terrains. It comprises younger unconsolidated alluvial material of varying lithology consisting of fluvial land formed as paleo-channels, meanness scar and point bars. The younger alluvial plains also consist of sand bars flood plains and ravines along river Yamuna.

SEDIMENT TRANSPORT



Sediment transport is the movement of solid particles (sediment), typically due to a combination of gravity acting on the sediment, and/or the movement of the fluid in which the sediment is entrained. Sediment transport occurs in natural systems where the particles are clastic rocks (sand, gravel, boulders, etc.), mud or clay; the fluid is air, or water, and the force of gravity acts to move the particles along the sloping surface on which they are resting. Sediment transport due to fluid motion occurs in rivers, oceans, lakes, seas, and other bodies of water due to currents and tides. Sediment transport due only to gravity can occur on sloping surfaces in general, including hill- slopes, scarps, cliffs, and the continental shelf-continental slope boundary.

TYPES OF SEDIMENT LOAD

- **Bed-load:** That portion of the sediment load that is transported along the bed by sliding, rolling or hopping. The bed-load moves at velocities slower than the flow and spends most of its time on or near the stream bed. The mechanisms of grain motion are as follows:
- **Traction (rolling and sliding):** Important factors: frictional drag and lift forces exerted by the flow and slope.
- **Saltation (hopping):** Grains are temporarily suspended by fluid vortices or by ballistic impact and then released Grain movement may be continuous or intermittent depending on the flow regime.

Suspended load: They area particulate sediment that is carried in the body of the flow and moves at the same velocity as the flow. A small particle (e.g. clay and fine silt), with a large relative surface area, is held in suspension more easily because of the electrostatic attraction between the unsatisfied charges on grain's surface and the water molecules. This force, tending to keep the particle in the flow, is large compared to the weight of the particle. The Hjulstrom curve shows that a much higher velocity is required to entrain clay and fine silt than coarse sand. However, once the fine sediment is in suspension, a much lower velocity is required to maintain it in suspension.The quantity and quality of the load is defined in terms of competence and capacity.

Dissolved load: material that is chemically carried in the water. The factors that govern the percentage of dissolved and suspended load include:

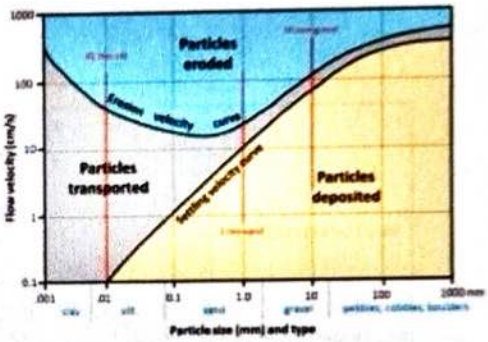
- Climate: temperature, precipitation, vegetation
- Vegetation: type and amount
- Activity by man: mining, construction, clear cutting, etc.

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- Rock solubility: e.g. hard water in carbonate terranes
- Erodibility of materials in the drainage basin
- Relief and slope (affects PE of flow)

Wash Load: Sometimes finer particles from upland catchment (sizes which are not present in the bed material),called wash load,are also transported in suspension. The combined bed material and wash load is called Total load.

TRANSPORT RATE



When the velocity of water flowing over a bed of non- cohesive sediment flow overcomes the resistance offered by the grain due to its mass, cohesion and other forces. Properties like shape and position of centre of gravity of the grain play important roles in determining the degree of resistance offered. A diagram complied by Hjulstrom (1935) revealed the relationship between critical erosion velocity and grain size. The field above the curve indicates the condition suitable for entrainment of grains.

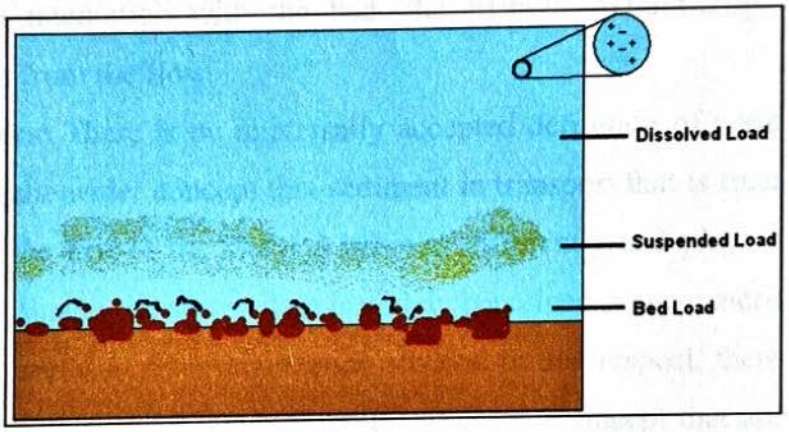
Formulas to calculate sediment transport rate exist for sediment moving in several different parts of the flow. These formulas are often segregated into bed load, suspended load, and wash load. They may sometimes also be segregated into bed material load and wash load.

DEFINING BED LOAD

Bed load moves by rolling, sliding, and hopping (or saltating) over the bed, and moves at a small fraction of the fluid flow velocity. Bed load is generally thought to constitute 5 -10% of the total sediment load in a stream, making it less important in terms of mass balance. However, the bed material load (the bed load plus the portion of the suspended load which comprises materi

derived from the bed) is often dominated by bed load, especially in gravel - bed rivers. This bed material load is the only part of the sediment load that actively interacts with the bed. As the bed load is an important component of that, it plays a major role

in controlling the morphology of the channel. Bed load transport rates are usually expressed as being related to excess dimensionless shear stress raised to some power. Excess dimensionless shear stress is a non –dimensional measure of bed shear stress about the threshold for motion.



Dissolved load is not sediment. It is composed of disassociated ions moving along with the flow. It may, however, constitute a significant proportion (often several percent, but occasionally greater than half) of the total amount of material being transported by the stream.

DEFINING WASHLOAD

The distinction between bed-material-load and wash-load components of the total load adopted here is that wash load is not found in appreciable quantities in the bed of channel. However, the precise definition of what constitutes an appreciable quantity un clear, meaning that the threshold grain size separating bed- material load and wash load may be defined in several ways. Wash load is the grain size of which 10 percent of the bed mixture is finer. This basically different behaviour of the fine and the coarse particles in the same channel has led the author and collaborators to assume that the fine particles

in the flows till behave like material called Wash load in the concrete channel whereas the coarse particle act like the sediment in a strictly alluvial channel.

Composition: The composition of wash load is distinct because it is almost entirely made up of grains that are only found in small quantities in the bed. Wash load grains tend to be very small (mostly clays & silts but some fine sands) and therefore have a small settling velocity, being kept in suspension by the flow turbulence.

Velocity: Wash load is carried within the water column as part of the flow, and therefore moves with the mean flow velocity of main stream. Because there is little or no interaction with the bed, the particles extract only negligible momentum from the flow.

Wash Load Dynamics: There is no universally accepted definition of wash load, yet despite this, the wider concept that sediment in transport that is finer than that making up the bed of the channel behaves differently and plays a different role in the sediment transfer system is widely perceived to have merit and has often proven useful in river engineering studies. In this respect, there are three tenants within the wash load and bed-material load concept that are relevant from a practical regional sediment management perspective. It follows that changes in the quantity of wash load in transport (due to the addition or removal of washload sources) will seldom trigger significant morphological responses and marked changes to the stability of the channel. Conversely, imbalances in the bed-material load will usually drive local morphological response through channel scour (where transport capacity exceeds supply) or fill (where supply exceeds transport capacity). Second, the quantity of wash load carried by a stream is limited not by the streams's sediment transport capacity, but by the available supply. It follows that it is only the bed-material load that most sediment transport equations can calculate on the basis of the transport capacity indicated by the local flow hydraulics. Wash-load

transport cannot be predicted this way, but can only be estimated on the basis of comprehensive, quantitative assessment of wash-load sediment sources. Third, the movement of wash load is relatively rapid compared to that of the bed-material load. In a sand-bed channel, where the wash load is composed of fine sands, silts and clays that are fairly evenly distributed throughout the water column, wash load may move through the channel.

6 - Inventory of R.B.M./Sand Leases in District Saharanpur

Sl. .No	Tehsil	River	Village	Gata No. / Khand No.	Area (ha.)	Pillar	Latitude	Longitude
1	Behat	Badshahibagh Rao	Mayapur Rooppur	Gata No. 14/1	3.100	A	30° 19' 21.41" N	77° 38' 26.35" E
						B	30° 19' 17.62" N	77° 38' 30.56" E
						C	30° 19' 13.68" N	77° 38' 25.07" E
						D	30° 19' 17.44" N	77° 38' 20.78" E
2	Behat	Yamuna	Bartha Korsi	Gata No. - 1	36.000	A	30° 14' 00.94" N	77° 31' 13.91" E
						B	30° 14' 16.50" N	77° 31' 24.43" E
						C	30° 14' 13.69" N	77° 31' 31.19" E
						D	30° 14' 19.59" N	77° 31' 37.85" E
						E	30° 14' 37.10" N	77° 31' 40.80" E
						F	30° 14' 39.19" N	77° 31' 36.25" E
						G	30° 14' 26.08" N	77° 31' 29.05" E
						H	30° 14' 09.19" N	77° 31' 02.18"E
3	Behat	Badkala Ra	Haidarpur Hindwala	Khand No / Gata No. - 8/1 , 19 & 22	4.200	A	30° 15' 20.64" N	77° 40' 42.10" E
						B	30° 15' 20.54" N	77° 41' 00.42" E
						C	30° 15' 17.98" N	77° 41' 01.84" E
						D	30° 15' 17.71" N	77° 40' 42.89" E
4	Behat	Khurwali Ra	Sherpur Pelon	Gata No. - 378/2 & 379/2	7.000	A	30° 15' 52.04" N	77° 39' 22.56" E
						B	30° 15' 51.84" N	77° 39' 27.43" E
						C	30° 16' 06.24" N	77° 39' 31.26" E
						D	30° 16' 07.18" N	77° 39' 25.07" E
5	Behat	Yamuna	Nuniyari Aehatmal	Gata No. - 1/1/1 Laat 38	24.290	A	30°11'00.90" N	77°29"25.83"E
						B	30°11'12.98" N	77°29"12.21" E
						C	30°11'24.95" N	77°29"26.28" E
						D	30°11'21.79" N	77°29"29.68" E
						E	30°11'20.39" N	77°29"33.03" E
						F	30°11'18.64" N	77°29"33.83" E
						G	30°11'17.01" N	77°29"34.70" E
						H	30°11'14.93" N	77°29"32.91" E
						I	30°11'09.54" N	[illegible]
						J	30°11'03.46" N	[illegible]

Sl. .No	Tehsil	River	Village	Gata No. / Khand No.	Area (ha.)	Pillar	Latitude	Longitude
6	Behat	Yamuna	**Rehna**	Khand No. / Gata no. - 03, Lot No - 03	8.050	A	30° 21' 36.45" N	77° 36' 05.61" E
						B	30° 21' 29.62" N	77° 36' 00.26" E
						C	30° 21' 37.95" N	77° 35' 50.38" E
						D	30° 21' 41.71" N	77° 36' 02.50" E
7	Behat	Gaisara Rao	**Rahena**	Gata No. 179/2	3.750	A	30° 19' 56.17" N	77° 36' 33.21" E
						B	30° 19' 52.90" N	77° 36' 33.93" E
						C	30° 19' 50.54" N	77° 36' 20.87" E
						D	30° 19' 53.90" N	77° 36' 20.01" E
8	Nukur	Yamuna	**Dhikkan Kalan**	Gata No. - 839, 841 to 856, 858, 859, 860, 861, 863,864,865 ,866,867, 871, 872, 888, 889, 406 , 407	52.63	A	30° 1'20.61"N	77°17'23.68"E
						B	30° 1'24.58"N	77°17'15.45"E
						C	30° 1'32.77"N	77°17'19.87"E
						D	30° 1'42.25"N	77°17'24.49"E
						E	30° 1'41.34"N	77°17'31.04"E
						F	30° 1'52.02"N	77°17'39.09"E
						G	30° 1'54.80"N	77°17'51.61"E
						H	30° 1'56.88"N	77°17'52.96"E
						I	30° 2'2.71"N	77°18'5.82"E
						J	30° 1'59.86"N	77°18'8.25"E
						K	30° 1'57.85"N	77°18'7.25"E
						L	30° 1'58.76"N	77°18'5.82"E
						M	30° 1'57.46"N	77°18'4.89"E
						N	30° 1'57.00"N	77°18'1.96"E
						O	30° 1'53.50"N	77°18'0.53"E
						P	30° 1'47.64"N	77°17'52.52"E
						Q	30° 1'42.10"N	77°17'46.53"E
						R	30° 1'32.38"N	77°17'39.44"E
						S	30° 1'27.11"N	77°17'31.55"E
9	Behat	Khairawali Ra	**Sherpur Pelon**	403 , 404/1 , 405 , 406/1 , 416/2 , 421/1 , 422/2 , 423/2 , 424/2 , 429 and 431	6.475	A	30°16'35.16"N	77°39'44.44"E
						B	30°16'32.34"N	77°39'51.41"E
						C	30°16'21.11"N	77°39'36.26"E
						D	30°16'22.11"N	77°39'34.41"E

Sl. .No	Tehsil	River	Village	Gata No. / Khand No.	Area (ha.)	Pillar	Latitude	Longitude
10	Behat	Kaluwala	Kaluwala Pahadipur	119/1 , 120/1 , 192/1 , 193/1 , 125/4	14.900	A	30°12'08.76"N	77°45'37.77"E
						B	30°12'06.03"N	77°45'42.25"E
						C	30°12'00.52"N	77°45'38.93"E
						D	30°11'40.91"N	77°45'32.39"E
						E	30°11'41.72"N	77°45'25.51"E
						F	30°12'02.80"N	77°45'33.06"E
11	Behat	Yamuna	Akbarpur Bans Aehatmal	1	17.900	A	30°16'27.80"N	77°32'46.96"E
						B	30°16'34.01"N	77°32'47.53"E
						C	30°16'42.58"N	77°32'53.94"E
						D	30°16'43.84"N	77°32'58.19"E
						E	30°16'50.96"N	77°32'47.76"E
						F	30°16'46.69"N	77°32'43.28"E
						G	30°16'39.98"N	77°32'41.04"E
						H	30°16'36.08"N	77°32'33.91"E
12	Behat	Yamuna	Arazi Jevadi Ahatmal and Masoodpur Garh Aehatmal	1 and 1	13.800	A	30°15'51.33"N	77°32'21.84"E
						B	30°15'58.45"N	77°32'08.63"E
						C	30°15'45.65"N	77°32'03.15"E
						D	30°15'41.84"N	77°32'13.01"E
13	Behat	Yamuna	Shehjadpur Bans Aehatmal	1	13.000	A	30°15'24.84"N	77°31'57.01"E
						B	30°15'12.32"N	77°31'47.88"E
						C	30°15'16.91"N	77°31'36.94"E
						D	30°15'28.43"N	77°31'48.83"E
14	Behat	Yamuna	Alauddinpur Bans Aehatmal	1/1	9.580	A	30°16'14.92"N	77°32'39.76"E
						B	30°16'17.99"N	77°32'32.74"E
						C	30°16'08.09"N	77°32'23.84"E
						D	30°16'02.92"N	77°32'31.72"E
15	Behat	Yamuna	Mehmoodpur Nangli Aehatmal	1	15.700	A	30°16'02.98"N	77°32'30.74"E
						B	30°16'10.84"N	77°32'18.84"E
						C	30°16'00.40"N	77°32'11.56"E
						D	30°15'51.70"N	77°32'23.64"E

Sl. .No	Tehsil	River	Village	Gata No. / Khand No.	Area (ha.)	Pillar	Latitude	Longitude
16	Behat	Yamuna	Shahpur Bans Aehatmal	1/1	15.600	A	30°16'27.75"N	77°32'46.14"E
						B	30°16'16.01"N	77°32'38.50"E
						C	30°16'20.43"N	77°32'28.70"E
						D	30°16'35.53"N	77°32'33.20"E
17	Behat	Yamuna	Nityanandpur Aehatmal and Said-mohamadpur Aehatmal	1 and 1ma	17.700	A	30°15'25.77"N	77°31'57.79"E
						B	30°15'41.32"N	77°32'12.89"E
						C	30°15'46.16"N	77°32'00.64"E
						D	30°15'28.87"N	77°31'50.13"E
18	Behat	Yamuna	Abutalibpur Garh Aehatmal	1	37.000	A	30°14'41.78"N	77°31'38.30"E
						B	30°14'49.46"N	77°31'21.34"E
						C	30°15'16.20"N	77°31'36.25"E
						D	30°15'11.96"N	77°31'46.05"E
19	Behat	Yamuna	Nuniyari Athmal – Khand Second	1/1/1	19.000	A	30°11'6.47"N	77°29'18.52"E
						B	30°11'4.27"N	77°29'16.54"E
						C	30°10'59.70"N	77°29'14.05"E
						D	30°10'55.77"N	77°29'10.53"E
						E	30°10'46.29"N	77°29'4.02"E
						F	30°10'39.87"N	77°29'0.42"E
						G	30°10'46.96"N	77°28'51.89"E
						H	30°10'51.56"N	77°28'56.26"E
						I	30°10'49.46"N	77°28'58.83"E
						J	30°11'2.30"N	77°29'11.12"E
						K	30°11'7.26"N	77°29'5.46"E
						L	30°11'12.52"N	77°29'11.64"E
20	Behat	Yamuna	Aslampur Bartha – First	1/1M	36.600	A	30°13'45.87"N	77°31'09.07"E
						B	30°13'23.05"N	77°30'53.85"E
						C	30°13'13.45"N	77°30'42.33"E
						D	30°13'16.67"N	77°30'36.60"E
						E	30°13'50.98"N	77°30'57.80"E
21	Behat	Yamuna	Rasoolpur Urf Rasooli	1/1	34.000	A	30°12'17.09"N	77°30'18.81"E
						B	30°12'16.42"N	77°30'17.32"E
						C	30°12'05.34"N	77°30'13.17"E
						D	30°11'59.82"N	77°30'01.24"E
						E	30°11'46.33"N	77°29'58.50"E
						F	30°11'59.32"N	77°29'43.47"E
						G	30°12'21.10"N	[illegible]

Sl. No	Tehsil	River	Village	Gata No. / Khand No.	Area (ha.)	Pillar	Latitude	Longitude
	Behat	Yamuna	Aslampur Bartha – Second	1/1M	28.160	A	30°13'04.93"N	77°30'44.59"E
						B	30°12'35.50"N	77°30'28.50"E
						C	30°12'38.19"N	77°30'18.84"E
						D	30°13'09.39"N	77°30'35.57"E

जिलाधिकारी (खनन अनुभाग) सहारनपुर

7 - The concept of Natural Resource Accounting with Monitoring Mechanism

The Sub-Divisional committee in past studies of year 2022 went through following references while conducting Replenishment Study of the leases prior recommending the promulgation of the concept of Natural Resource Accounting with Monitoring Mechanism: -

Sl. No	Reference	Details
1	Section-3 of the Enforcement & Monitoring Guidelines for Sand Mining-2020	The Section deals with the Objective of Guidelines wherein Identification and Quantification of Mineral Resource and its optimal utilization, To regulate the Sand & Gravel Mining in the Country since its identification to its final end-use by the consumers and the general public, Reduction in demand & supply gaps. To control the instance of illegal mining and other factors has been recommended.
2	Uttar Pradesh Sand Mining Policy – 2017 and subsequent G.O.'s	The said policies and G.O.'s deals with the identification and allotment of long term lease for a period of 5 (five) years on e-auction basis.
3	Section-9 of the Enforcement & Monitoring	The Section deals with the Monitoring Mechanism by referring the provisions of 23(C) of MMDR Act empowering State

	Guidelines for Sand Mining-2020	Government to make rules to prevent illegal mining and transportation (9.1) , standard practice for assessing illegal mining and Monitoring Mechanism (9.4)
4	EAC meeting Minutes Dated 24 & 25 – October – 2016 (non-coal mining)	Wherein the EAC opined the issues related to replenishment study for perennial and non-perennial rivers.
5	Sand Mining Framework 2018 issued by Ministry of Mines	Registration of lease holder, stock holders and transporters in portal, assessment of quantity by joint inspection team, geo-fencing, monitoring the de-casting of river beds, e-permits, transportation monitoring using CCTV/Drone.

The Sub-Divisional Committee opined and suggests following: -

1. Time to time identification of lease with mineral potential is required to canalize river.
2. Time to time identification of lease with mineral potential is required to address the market needs and demand/supply gaps.
3. Time to time identification of lease with mineral potential and its timely auction is required; as there are larger chances of illegal mining in vacant lease areas.
4. Time to time identification of lease with mineral potential is required to generate employment, state royalties to enable development.

5. However, there has to be balance between exploitation and conservation of mineral resources and the same has to be closely monitored.
6. The exploitation / conservation monitoring to promote and regulate sustainable mining can be achieved by a check-n-balance model.
7. The studies has shown that leases in its existing form are mineral rich and surface removal is required for occurrence of new replenishment and river channelization.
8. The Sub-Divisional Committee suggests the concept of Natural Resource Accounting with Monitoring Mechanism.

Concept of Natural Resource Accounting with Monitoring Mechanism:-

1. The concept shall work in the simple but effective principals of accounting methods wherein the existing mineral potential shall be treated as opening balance and replenished quantity shall be treated as a income.
2. The addition of existing mineral potential and replenished quantity shall be treated a Total Mineral Balance available on the lease.
3. A life of mine (in years) shall be derived by dividing Total Mineral Balance with the sanctioned annual production.
4. The Total Mineral Balance will then be reduced by subtracting the actual mineral dispatches and revised life of mine (in years) shall be derived on yearly basis.
5. If the life of mine (in years) at any juncture of point shall be observed to be less than 3 (three) months , a red alert shall be raised and the Monitoring Mechanism shall be implemented as per the recommended clause ***"Project Proponent shall decrease / stop the mining in case replenishment is lower than the approved rate of production till the replenishment is completed"***

8 - Lease wise analysis of Year 2024 Replenishment Study Results with Recommendation

Sl.	Teshil	River	Village	Gata/ Khand	Area (in Ha.)	Pre-Monsoon Reserve - 2024 (A) - cum	Post Monsoon Replenishment - 2024 (B) - cum	Total Resource in Lease - 2024 (A+B) - cum	Annual Production proposed in DSR out of Total Resource - cum
1	Behat	Badshahibagh Rao	Mayapur Rooppur	Gata No. 14/1	3.100	129190	29884	159074	69750
2	Behat	Yamuna	Bartha Korsi	Gata No. - 1	36.000	222583	817200	1039783	756000
3	Behat	Badkala Ra	Haidarpur Hindwala	Khand No / Gata No. - 8/1 , 19 & 22	4.200	70255	68292	138547	94500
4	Behat	Khurwali Ra	Sherpur Pelon	Gata No. - 378/2 & 379/2	7.000	420910	107100	528010	197500
5	Behat	Yamuna	Nuniyari Aehatmal	Gata No. - 1/1/1 Laat 38	24.290	1407390	408558	1815948	437247
6	Behat	Yamuna	Rehna	Khand No. / Gata no. - 03, Lot No - 03	8.050	406100	121555	527655	138462
7	Behat	Gaisara Rao	Rahena	Gata No. 179/2	3.750	190877	50850	241727	67500
8	Nukur	Yamuna	Dhikkan Kalan	Gata No. - 839, 841 to 856, 858, 859, 860, 861,863,864,865,866,867, 871, 872, 888, 889, 406 , 407	52.630	705163	973655	1678818	947368
9	Behat	Khurwali Ra	Sherpur Pelon	403 , 404/1 , 405 , 406/1 , 416/2 , 421/1 , 422/2 , 423/2 , 424/2 , 429 and 431	6.475	401290	58275	459565	77700
10	Behat	Kaluwala	Kaluwala Pahadipur	119/1 , 120/1 , 192/1 , 193/1 , 125/4	14.900	789388	171350	960738	178800
11	Behat	Yamuna	Akbarpur Bans Aehatmal	1	17.900	1079510	286400	1365910	322200
12	Behat	Yamuna	Arazi Jevadi Ahatmal and Masoodpur Garh Aehatmal	1 and 1	13.800	783200	230460	1013660	248400
13	Behat	Yamuna	Shehjadpur Bans Aehatmal	1	13.000	702180	216840	919020	234000
14	Behat	Yamuna	Alauddinpur Bans Achatmal	1/1	9.580	670350	161902	832252	172440
15	Behat	Yamuna	Mehmood pur Nangli Aehatmal	1	15.700	993545	265330	1258875	282600
16	Behat	Yamuna	Shahpur Bans Aehatmal	1/1	15.600	787766	270660	1058426	380800

Sl.	Teshil	River	Village	Gata/ Khand	Area (in Ha.)	Pre-Monsoon Reserve - 2024 (A) - cum	Post Monsoon Replenishment - 2024 (B) - cum	Total Resource in Lease - 2024 (A+B) - cum	Annual Production proposed in DSR out of Total Resource - cum
17	Behat	Yamuna	Nityanandpur Achatmal and Said-mohamadpur Achatmal	1 and 1ma	17.700	1271990	279660	1551650	318600
18	Behat	Yamuna	Abutalibpur Garh Achatmal	1	37.000	2914855	457320	3372175	666000
19	Behat	Yamuna	Nuniyari Athmal – Khand Second	1/1/1	19.000	1120200	324900	1445100	342000
20	Behat	Yamuna	Aslampur Bartha – First	1/1 M	36.600	2353270	552660	2905930	658800
21	Behat	Yamuna	Rasoolpur Urf Rasooli	1/1	34.000	1893430	499460	2392890	612000
22	Behat	Yamuna	Aslampur Bartha – Second	1/1 M	28.160	1472880	368896	1841776	506880

IMPORTANT NOTE:-

- **Total Quantity available in each lease in year 2024 is result of pre-monsoon existing reserves and post monsoon replenishment.**
- **Pre-monsoon existing reserves in 14 leases are higher in quantity as they have not been operated in past many years and are getting replenished every years. It is again recommended that deposits from these lease needs to be timely removed to ensure river channelization and river diversion.** ***(mainly Sl. No. 9 to Sl. No.22)***
- **However, after applying the principals of SSMG-2016 and EMGSM-2020 Guidelines, only a sustainable volume of less than 60% of total resource has been proposed for annual production. Hence the balance resource and quantity due to forthcoming replenishments in coming years will be used in phased to ensure sustainable productions and mineral conservation to ensure demand supply gaps.**

9 - Conclusion & Recommendation of Sub-Divisional Committee

Conclusion:-

- In year-2024, Pre & Post-monsoon study of total Twenty-Two (22) leases in district Saharanpur where done as per the methodology elaborated in the Report.
- The Study was done to report the quantity of new mineral arriving / depleting after monsoon after interpreting the pre and post-monsoon baseline data collection of elevation profiles through D.G.P.S. at regular intervals.
- Since the district is located in foothills of Himalaya's and Downstream of Hatnikund Barrage the rate of replenishment in all the leases is substantial due to supportive gradient levels and discharges of mineral from Barrage in monsoon.
- The results of such year wise surveys will help the state government to establish the replenishment rate of the river based on which future action may be planned.
- Pit profiles up-to the depth of 3 meters in each lease were done to estimate the quantity of reserve and analyse sustainable mining to be recommended for grant/operations of leases. No water intersection was observed.

Recommendation on River Yamuna -

- Out of 22 leases, 16 leases admeasuring 383.21 ha. are located in river Yamuna which is a perennial river.
- It was observed that 12 out of 16 leases in river Yamuna are non-operational since past 5-6 years which are currently over replenished. The elevation levels of such leases above the water level are much high.

as a result of which the replenishment has now started in its adjourning areas. It is recommended that removal of existing deposits in such leases should be done in a timely manner so as to maintain the natural river course. In such manner time-to-time surface removal of excessive deposits will enable to maintain the geometry of river and invite proper replenishment in coming times.

- The timely operations of such lease is also recommended to control the illegal mining (if any) in the vacant areas which are having existing substantial deposits.
- It is recommended that keeping in the view the concept of Natural Resource Accounting method and long term operations of leases in a sustainable manner, the mining in lease areas of river Yamuna can be permitted upto a depth of 3 meters from mineral deposit surface and one meter above the water level of river channel whichever reaches out earlier.
- However, on aspect of environment protection, mineral conservation and long term sustainable operations of lease, it is also recommended that out of the total available net reserve ; not more that 60% of the mineral potential volume available upto a depth of 3 meters should be recommended for annual production at one point of time.

Recommendation on other Five Rivers

- The remaining 6 leases admeasuring 39.425 ha. are located in five rivers namely Badkala Ra , Badshahibagh Rao , Gaisara Rao Kaluwala and Khurwali Ra.
- The study results show that all these five rivers are non- perennial in nature. All the five rivers experienced adequate water flow in current monsoon period.

- The committee observed that these five rivers do not replenish annually as they are non–perennial in nature.
- Hence the study of annual replenishment in such rivers has to be more specific and nature based due to non-periodic rainfall. With the pit profiles conducted while physical survey, study results, elevation profiles , river geometry and stake holding with local villagers it was observed that these rivers in the recent past of 5-10 years got over replenished due to sudden one time occurrence of huge rainfall due to which substantial quantum's of RBM has come from the from the upstream and eventually got deposited in the leases.
- The present levels of deposits show that it can be utilised over a spread of next years, however the operations of these mines is to be critically evaluated while recommending annual production. This is due to the fact that after operations of mines if they are not replenished property the leases may turn into permanent depressions leading to change in natural channel geometry.
- It is recommended that keeping in the view the concept of Natural Resource Accounting method and long term operations of leases in a sustainable manner, the mining in identified lease areas can be permitted upto a depth of 3 meters from mineral deposit surface and one meter above the water level of river channel whichever reaches out earlier, as there are substantial existing reserves, due to sudden one-time occurrence explained above.
- However, on aspect of environment protection, mineral conservation and long term sustainable operations of lease, it is also recommended that out of the total available net reserve; not more that 40% of the mineral potential volume available upto a depth of 3 meters should be recommended for annual production at one point of time.

10 - Environmental Observations and Enforcement Monitoring recommendation

1. The Sub-Divisional committee shall periodically monitor the results of replenishment study, levels of mineral production, erosion levels and erosion points.
2. Management and maintenance plans of erosion levels and erosion points shall be prepared and implemented on the basis of observations made.
3. Mining shall only be permitted upto a depth of 3 meters or 1 meter above the water level whichever is reached earlier.
4. The results of scientific replenishment study shall be co-related with production levels and a mineral resource accounting systems will be implemented.
5. The monitoring and evaluation of such results shall be done once in three months by Sub-Divisional Committee.
6. The minable production and permissible depth of mining will be evaluated further on the basis of trend analysis in years to come and recommendations, as so, shall be made.
7. The mineral resource accounting system model is proposed to be implemented to keep the checks and balances on minerals deposits.

11 - Annexures

- Study Area Maps in SIO Toposheet
- Survey Maps in Satellite Images with Geo-coordinates and River Flow
- Ground Control Records of Leases
- Lease wise Index of profile Sections

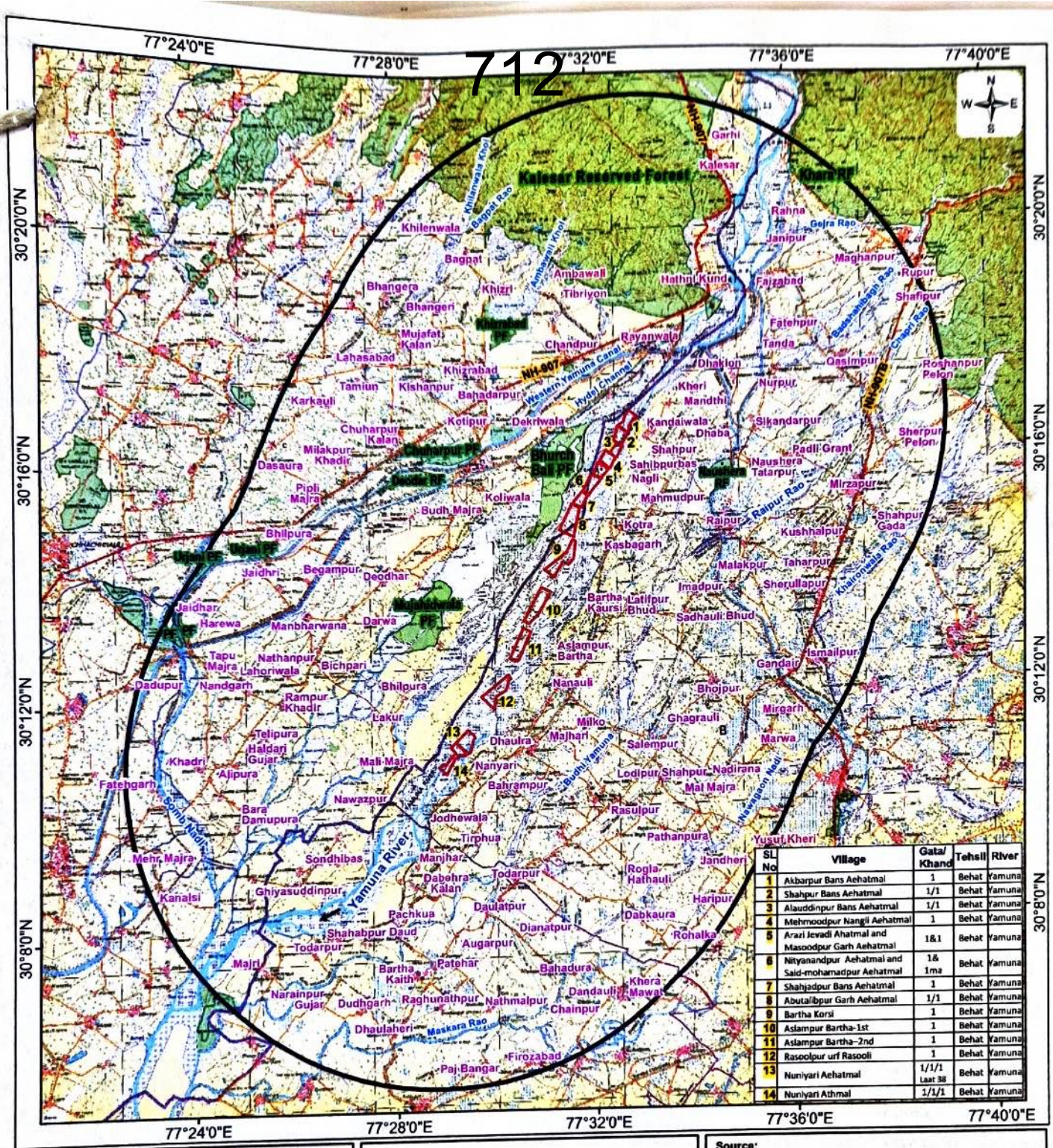
Lease wise

Study Area Maps

Site on S.O.I.

Toposheet Covering

5 Km Catchment Area



Sl. No	Village	Gata/ Khand	Tehsil	River
1	Akbarpur Bans Aehatmal	1	Behat	Yamuna
2	Shahpur Bans Aehatmal	1/1	Behat	Yamuna
3	Alauddinpur Bans Aehatmal	1/1	Behat	Yamuna
4	Mehmoodpur Nangli Aehatmal	1	Behat	Yamuna
5	Arazi Jevadi Ahatmal and Masoodpur Garh Aehatmal	1&1	Behat	Yamuna
6	Nityanandpur Aehatmal and Said-moharnadpur Aehatmal	1& 1ma	Behat	Yamuna
7	Shahjadpur Bans Aehatmal	1	Behat	Yamuna
8	Abutalibpur Garh Aehatmal	1/1	Behat	Yamuna
9	Bartha Korsi	1	Behat	Yamuna
10	Aslampur Bartha-1st	1	Behat	Yamuna
11	Aslampur Bartha-2nd	1	Behat	Yamuna
12	Rasoolpur urf Rasooli	1	Behat	Yamuna
13	Nuniyari Aehatmal	1/1/1 Laat 38	Behat	Yamuna
14	Nuniyari Athmal	1/1/1	Behat	Yamuna

Key Map of Uttar Pradesh



Scale: Not to Scale
Source: http://www.trackthemissingchild.gov.in/trackchild/state_map/uttar_pradesh_map.png

Legend

- Village/Town
- Project Site
- 10km Buffer

Source:

1. Sol Toposheet No. 53F/7, 53F/8, 53F/11 & 53F/12
2. Project Layout Plan, RBM
3. Google Satellite Imagery, 2021

Software Used:

1. ArcGIS 10.1
2. AutoCAD 2012
3. Erdas Imagine 10

RF:- 1:115,000

Graphic Scale:

0 1,150 2,300 4,600 6,900 9,200 m

Figure 0.00: Drainage and Study Area Map

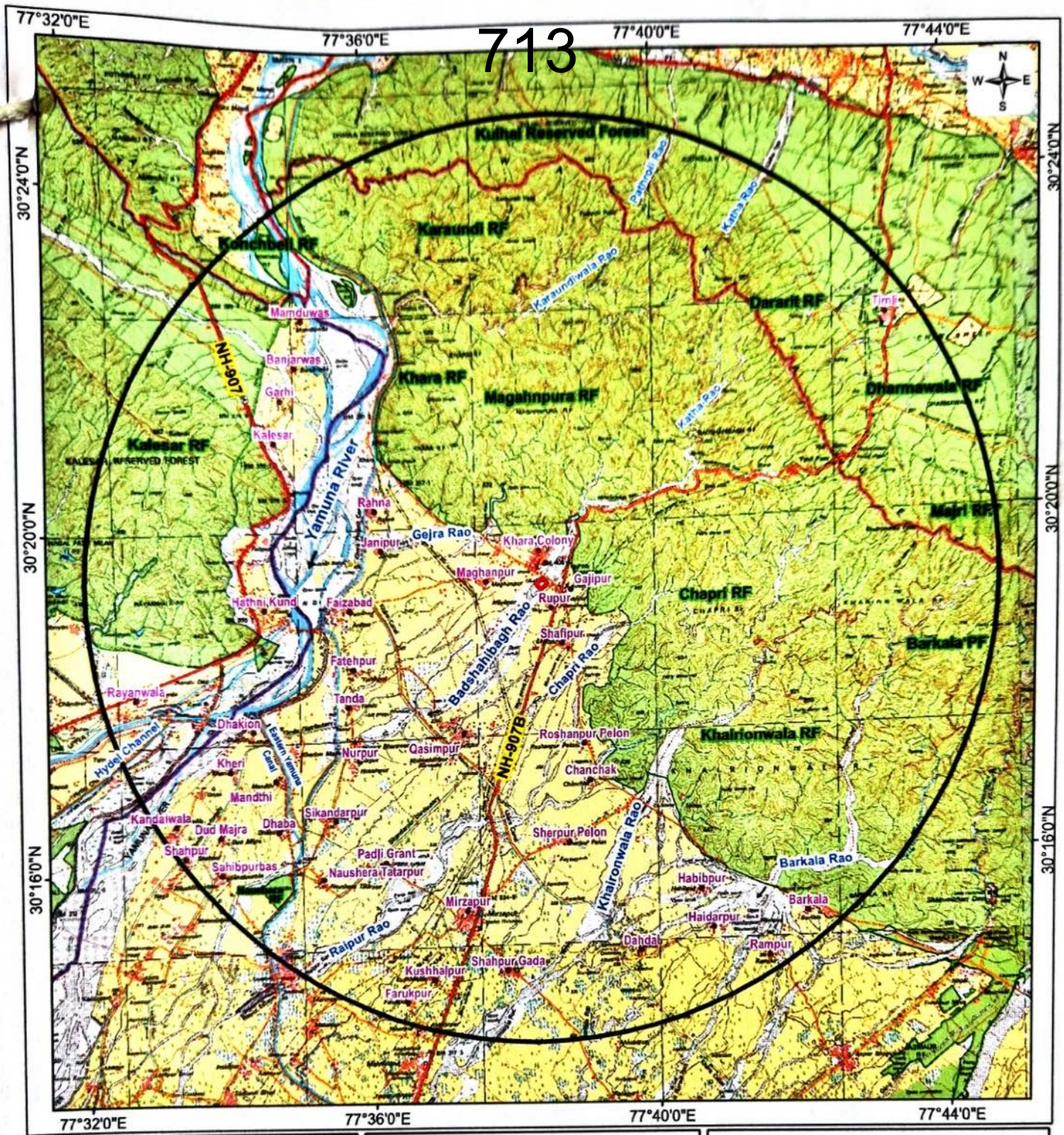
Project:
R.B.M. Mining Project
Tehsil: Behat, District: Saharanpur, Uttar Pradesh

Sub Divisional Committee Saharanpur

Drafted By:	Checked By:	Approved By:

Date			
Revision			

Path: E:\Projects\Mapping\Mining\UP\Sand\Saharanpur\SHP\Drainage _ Study Area\Map\Drainage_Study Area Map Akbarpur_Nunyari-14Mines Layout.mxd



Key Map of Uttar Pradesh



Scale: Not to Scale
Source: http://www.trackthemissingchild.gov.in/trackchild/state_map/uttar_pradesh_map.png

Legend

- Village/Town
- Project Site
- 10km Buffer

Source:

1. Sol Toposheet No. 53F/11, 53F/12, 53F/15 & 53F/16
2. Project Layout Plan, RBM
3. Google Satellite Imagery, 2021

Software Used:

1. ArcGIS 10.1
2. AutoCAD 2012
3. Erdas Imagine 10

RF:- 1:80,000

Graphic Scale:

0 800 1,600 3,200 4,800 6,400 m

Figure 0.00: Drainage and Study Area Map

Project:
R.B.M. Mining Project
Tehsil: Behat, District: Saharanpur, Uttar Pradesh

Village: Mayapur Rooppur, Gata No./Khand No.: 14/1, Area: 3.10ha

Sub Divisional Committee Saharanpur

Drafted By:	Checked By:	Approved By:

Date			
Revision			

Path: E:\Projects Mapping\Mining\UP\Saharanpur\SIA\Drainage_Study Area Map\Mayapur Rupur-Badshahibagh Rao.mxd



Key Map of Uttar Pradesh



Scale: Not to Scale
Source: http://www.trackthemissingchild.gov.in/trackchild/state_map/uttar_pradesh_map.png

Legend

- Village/Town
- Project Site
- 10km Buffer

Source:

1. Sol Toposheet No. 53F/7 & 53F/11
2. Project Layout Plan, RBM
3. Google Satellite Imagery, 2021

Software Used:

1. ArcGIS 10.1
2. AutoCAD 2012
3. Erdas Imagine 10

RF:- 1:80,000

Graphic Scale: 0 — 800 — 1,600 — 3,200 — 4,800 — 6,400 m

Figure 0.00: Drainage and Study Area Map

Project:
R.B.M. Mining Project
Tehsil: Behat, District: Saharanpur, Uttar Pradesh

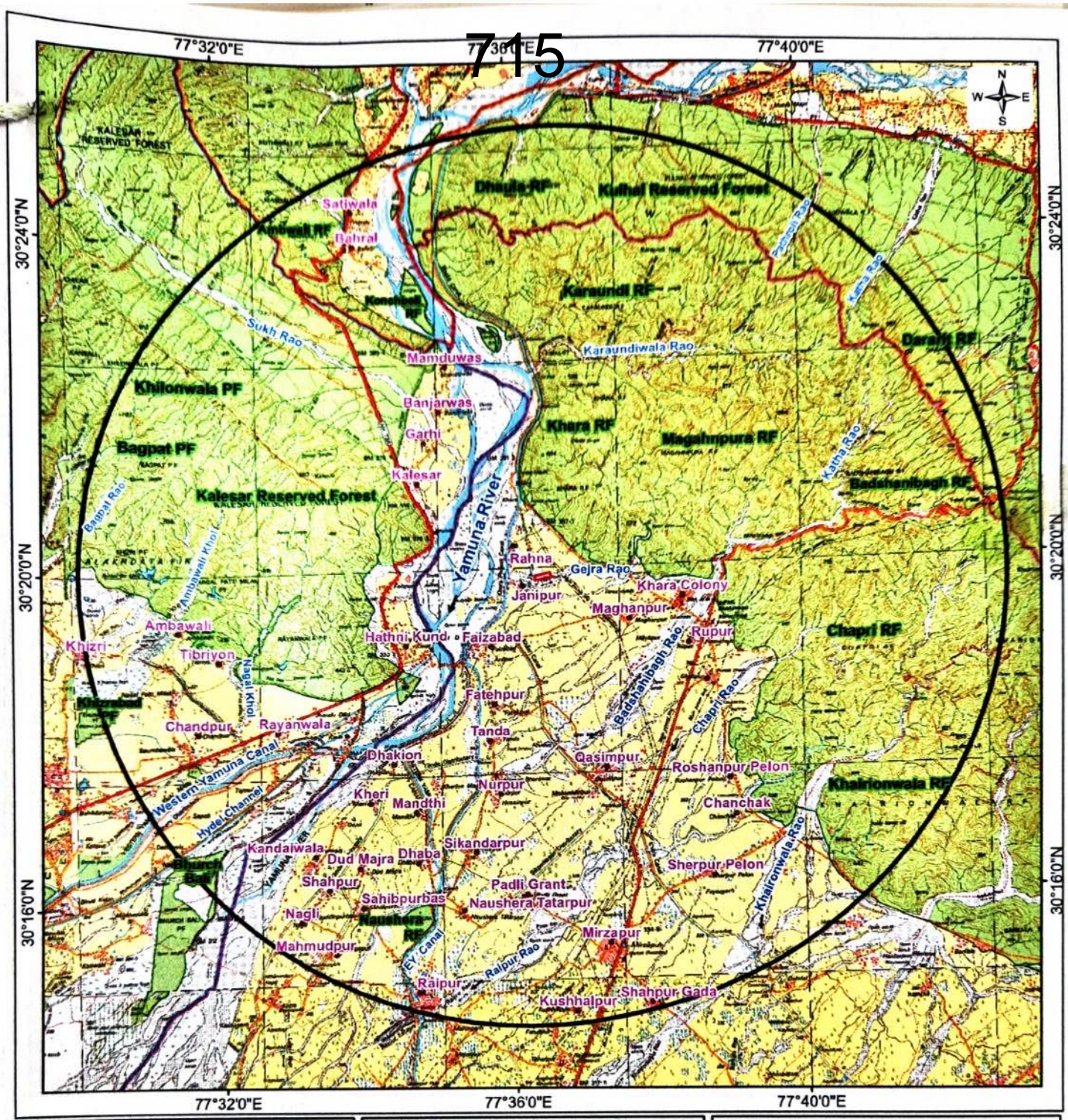
Village: Rehna, Gata No./Khand No.: 03, Lot No-03, Area: 8.05ha

Sub Divisional Committee Saharanpur

Drafted By:	Checked By:	Approved By:

Date				
Revision				

Path: E:\Projects\Mapping\Mining\UP\Sanwli\Saharanpur\SHP\Drainage _ Study Area Map\Rahanwli.GIS_Yamuna.mxd



Key Map of Uttar Pradesh



Scale: Not to Scale
Source: http://www.trackthemissingchild.gov.in/trackchild/state_map/uttar_pradesh_map.png

Legend

- Village/Town
- Project Site
- 10km Buffer

Source:

1. Sol Toposheet No. 53F/7, 53F/8, 53F/11 & 53F/12
2. Project Layout Plan, RBM
3. Google Satellite Imagery, 2021

Software Used:

1. ArcGIS 10.1
2. AutoCAD 2012
3. Erdas Imagine 10

RF:- 1:80,000

Graphic Scale:

0 800 1,600 3,200 4,800 6,400 m

Figure 0.00: Drainage and Study Area Map

Project:
R.B.M. Mining Project
Tehsil: Behat, District: Saharanpur, Uttar Pradesh

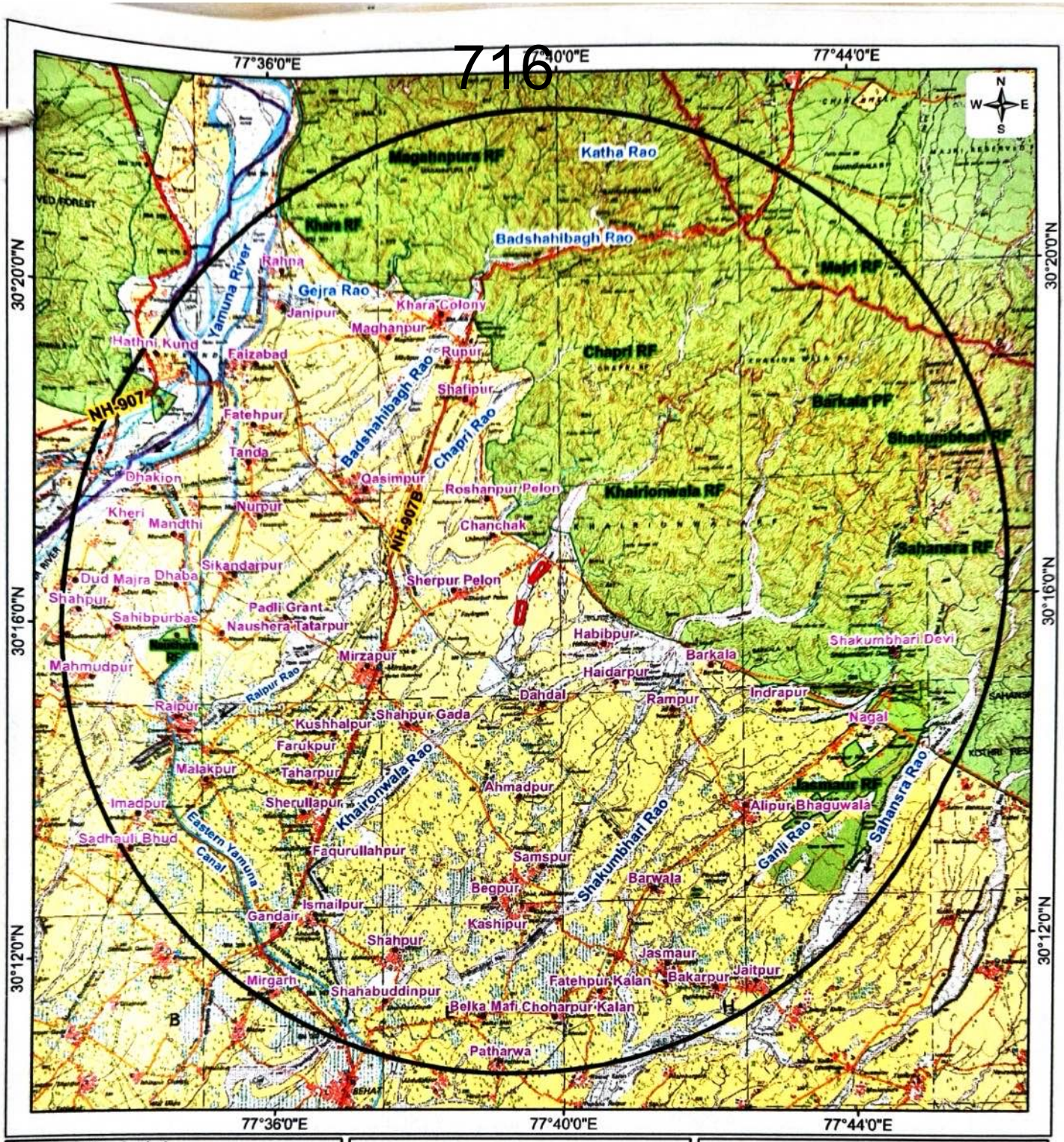
Village: Rehna, Gata No./Khand No.: 179/2, Area: 3.750ha

Sub Divisional Committee Saharanpur

Drafted By:	Checked By:	Approved By:

Date			
Revision			

Path: E:\Projects\Mapping\Minerals\PSand\Saharanpur\SHP\Drainage _ Study Area Map\Rahena-179-2.mxd



Key Map of Uttar Pradesh



Scale: Not to Scale
Source: http://www.trackthemaps.blogchild.com/trackchildstate_map/uttar_pradesh_map.png

Legend

- Village/Town
- Project Site
- 10km Buffer

Source:

1. Sol Toposheet No. 53F/11, 53F/12, 53F/15 & 53F/16
2. Project Layout Plan, RBM
3. Google Satellite Imagery, 2021

Software Used:

1. ArcGIS 10.1
2. AutoCAD 2012
3. Erdas Imagine 10

RF:- 1:80,000

Graphic Scale: 0 800 1,600 6,400 m

Figure 0.00: Drainage and Study Area Map

Project:
R.B.M. Mining Project
Tehsil: Behat, District: Saharanpur, Uttar Pradesh

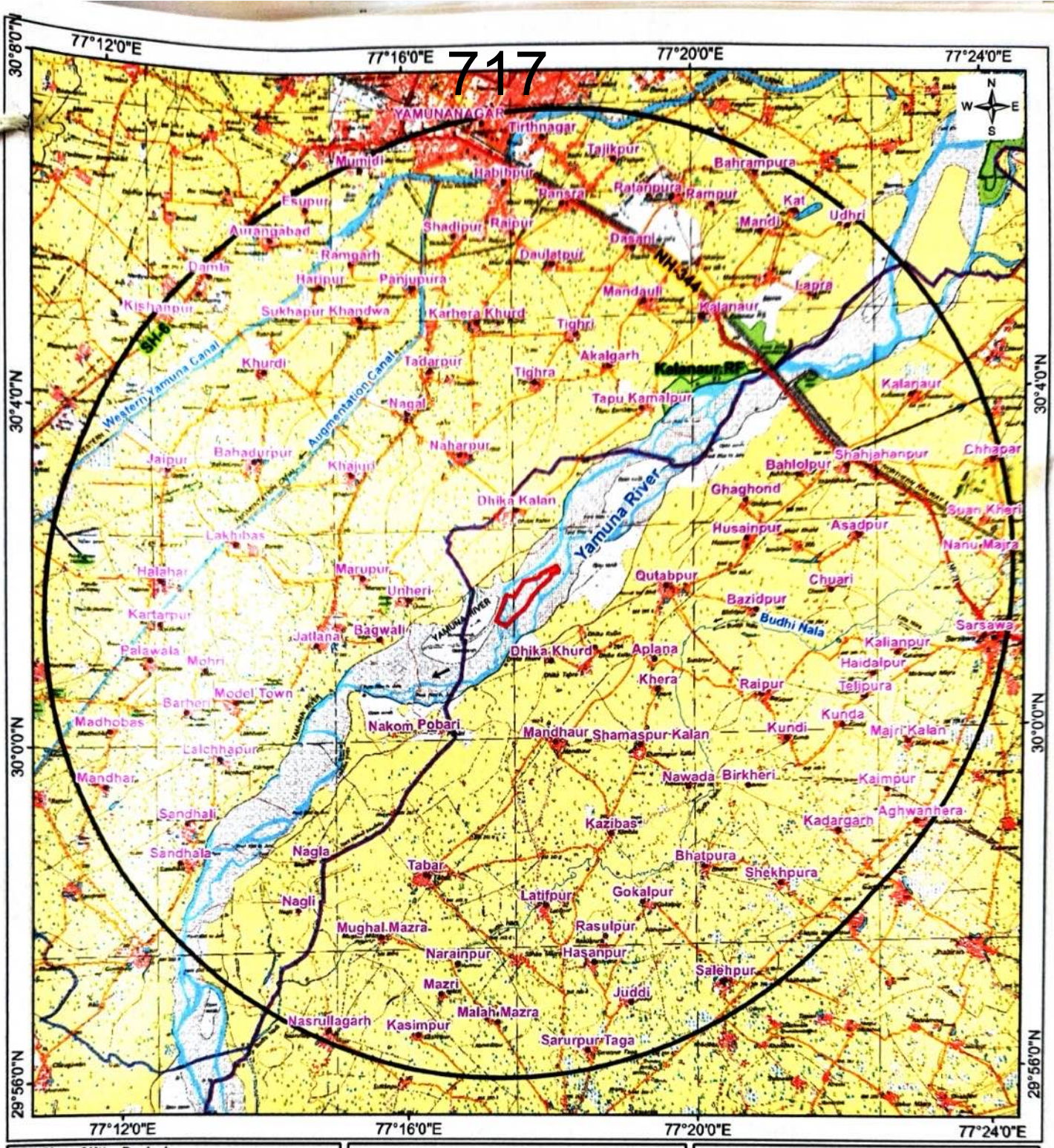
Village: Sherpur Pelon, Gata No./Khand No.: 403, 404/1, 405, 406/1, 416/2, 421/1, 422/2, 423/2, 424/2, 429 & 431 Area: 6.475ha
Village: Sherpur Pelon, Gata No./Khand No.: 378/2 & 379/2, Area: 7.00ha

Sub Divisional Committee Saharanpur

Drafted By:	Checked By:	Approved By:

Date			
Revision			

Path: E:\Projects Mapping\Mining\UP\Sand\Saharanpur\SHP\Drainage _ Study Area Map\Sherpur_Pelon_2Miles_Layout.mxd



Key Map of Uttar Pradesh



Scale: Not to Scale
Source: http://www.trackthemissinggirl.gov.in/track-child/state_map/uttar_pradesh_map.png

Legend

- Village/Town
- Project Site
- 10km Buffer

Source:
1. Sol Toposheet No. 53F/4, 53F/8, 53G/1 & 53G/5
2. Project Layout Plan, RBM
3. Google Satellite Imagery, 2021

Software Used:
1. ArcGIS 10.1
2. AutoCAD 2012
3. Erdas Imagine 10

RF:- 1:80,000

Graphic Scale:

0 800 1,600 3,200 4,800 6,400 m

Figure 0.00: Drainage and Study Area Map

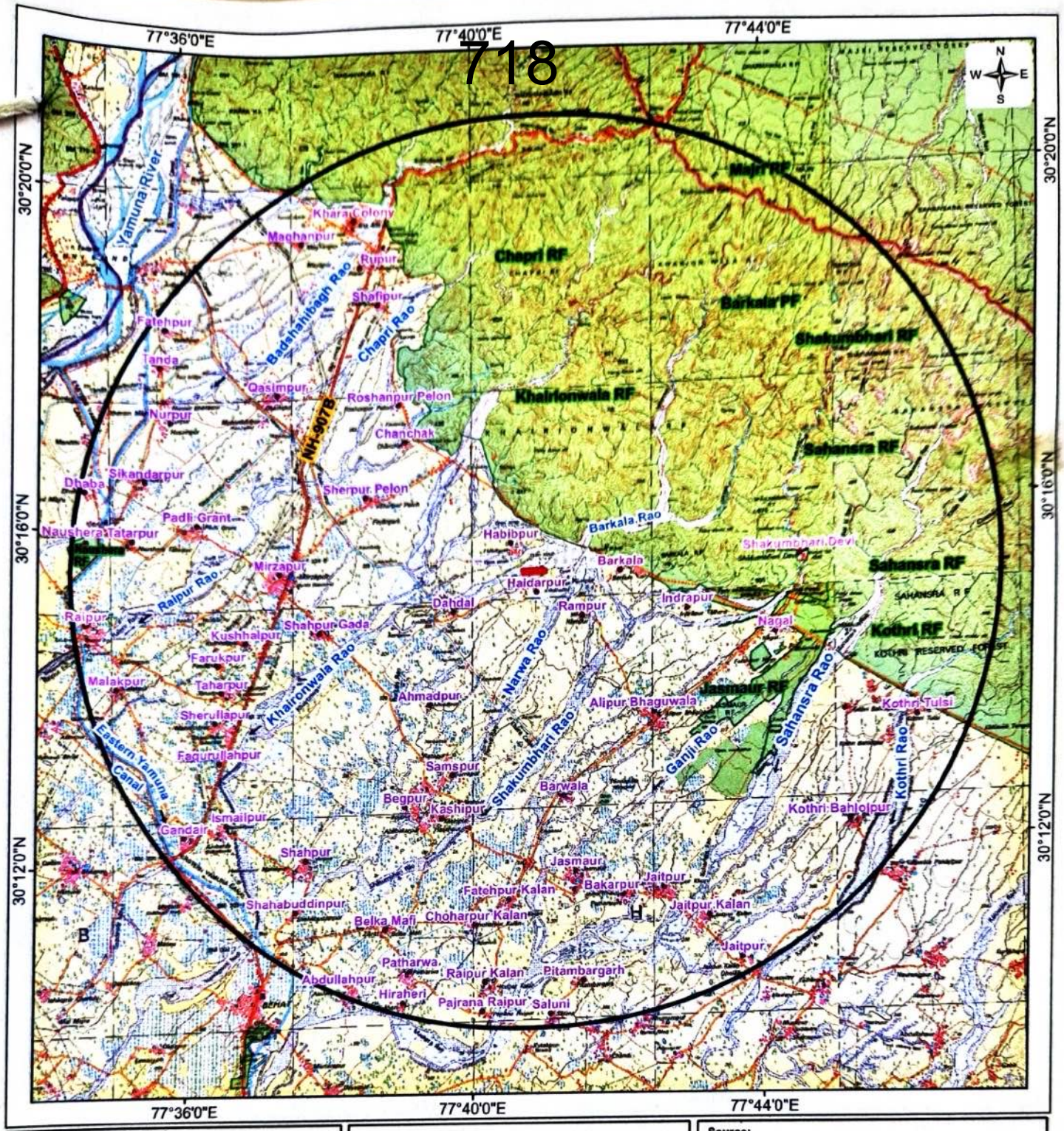
Project:
R.B.M. Mining Project
Tehsil: Nukur, District: Saharanpur, Uttar Pradesh

Village: Dhikkan Kalan, Gata No./Khand No.: 839, 841 to 856, 858, 859, 860, 861, 863, 864,865, 866, 867, 871, 872, 888, 889, 406, 407, Area: 52.63ha

Sub Divisional Committee Saharanpur

Drafted By:	Checked By:	Approved By:
Date		
Revision		

Path: E:\Projects\Mapping\Mining\UP\Distt\Saharanpur\SHP\Dhikkan_ Study Area Map\Dhikkan_Kalan_52-63.mxd



Key Map of Uttar Pradesh



Scale: Not to Scale
Source: http://www.tractthemissingchild.gov.in/trackchild/state_map/uttar_pradesh_map.png

Legend

- Village/Town
- Project Site Haidarpur
- 10km Buffer

Source:

1. Sol Toposheet No. 53F/11, 53F/12, 53F/15 & 53F/16
2. Project Layout Plan, RBM
3. Google Satellite Imagery, 2021

Software Used:

1. ArcGIS 10.1
2. AutoCAD 2012
3. Erdas Imagine 10

RF:- 1:80,000

Graphic Scale:

0 800 1,600 3,200 4,800 6,400 m

Figure 0.00: Drainage and Study Area Map

Project:
R.B.M. Mining Project
Tehsil: Behat, District: Saharanpur, Uttar Pradesh

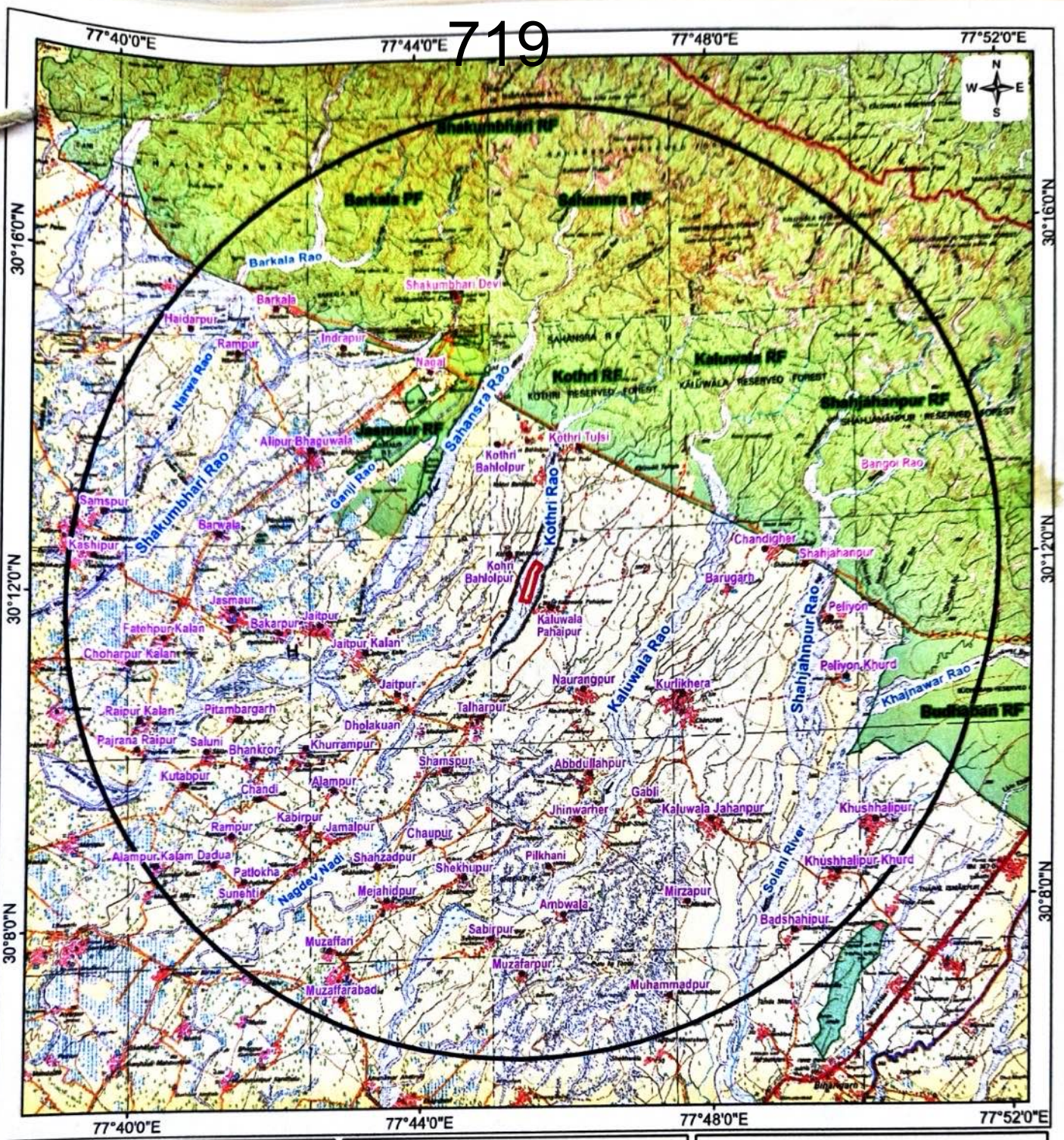
Village: Haidarpur Hindwala, Gata No./Khand No.: 8/1, 19 & 22, Area: 4.20ha

Sub Divisional Committee Saharanpur

Drafted By:	Checked By:	Approved By:

Date				
Revision				

Path: E:\Projects\Mapping\Mining\UP\Sand\Saharanpur\SHP\Drainage _Study Area Map\Haidarpur8_Barkala_Rao.mxd



Key Map of Uttar Pradesh



Scale: Not to Scale
Source: http://www.trackthemissingchild.gov.in/trackchild/state_map/uttar_pradesh_map.png

Legend

- Village/Town
- Project Sie
- 10km Buffer

Source:

1. Sol Toposheet No. 53F/11, 53F/12, 53F/15 & 53F/16
2. Project Layout Plan, RBM
3. Google Satellite Imagery, 2021

Software Used:

1. ArcGIS 10.1
2. AutoCAD 2012
3. Erdas Imagine 10

RF:- 1:80,000

Graphic Scale:

0 800 1,600 3,200 4,800 6,400 m

Figure 0.00: Drainage and Study Area Map

Project:
R.B.M. Mining Project
Tehsil: Behat, District: Saharanpur, Uttar Pradesh

Village: Kaluwala Pahadipur, Gata No./Khand No.:119/1, 120/1, 192/1, 193/1, 125/4,
Area: 14.90ha

Sub Divisional Committee Saharanpur

Drafted By:	Checked By:	Approved By:

Date			
Revision			

Path: E:\Projects\Mapping\Mining\UP\Sand\Saharanpur\SHP\Drainage _ Study Area Map\Kaluwala Pahadipur-Kothri Rao.mxd

Replenishment Study Survey

Sheet superimposed on

Satellite Imaginary showing

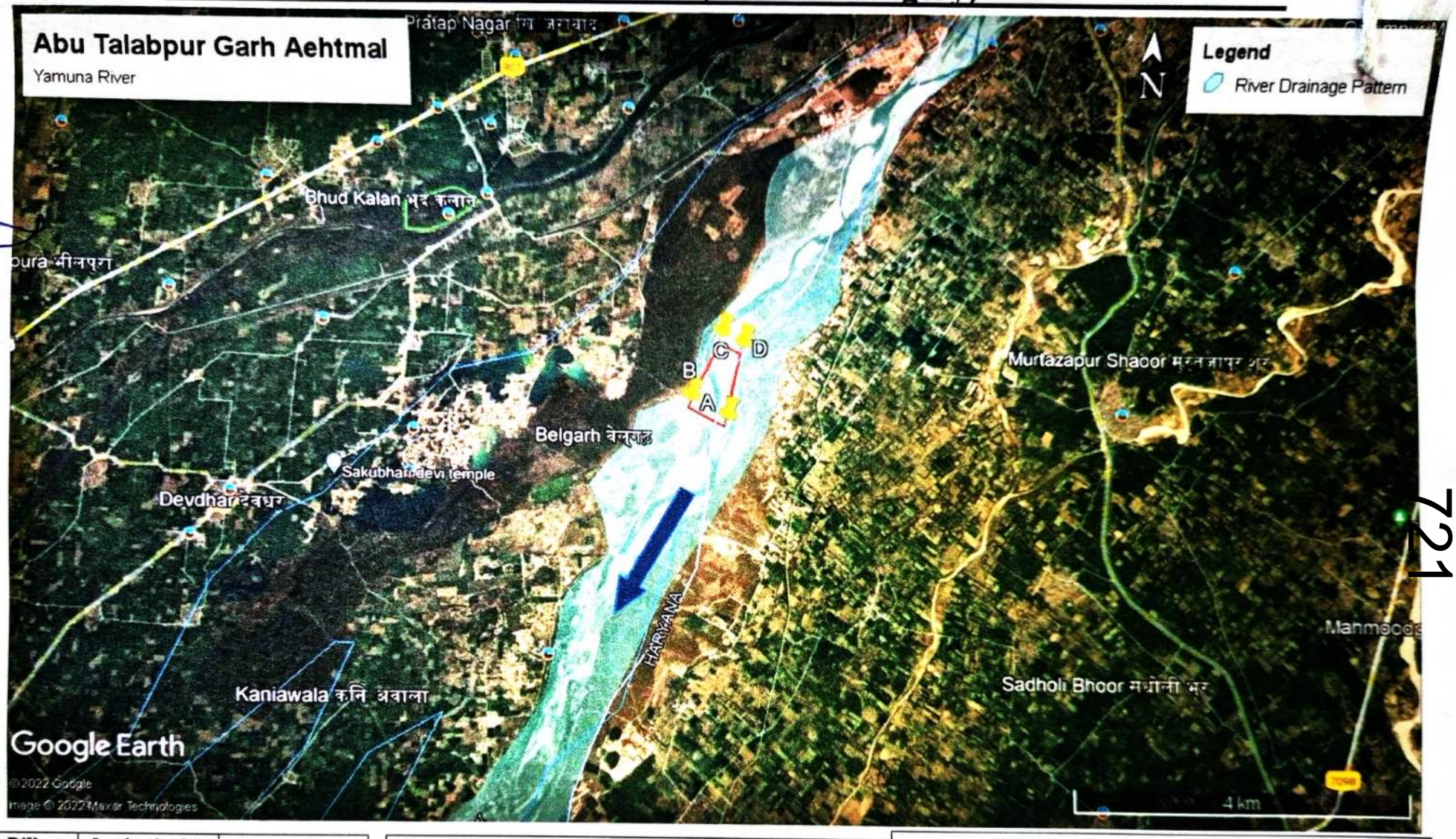
–

Lease Area, Boundary Pillar

Coordinates and Basic Drainage

Pattern of River with Flow Direction

Replenishment Study: Survey Sheet (Satellite Imagery)

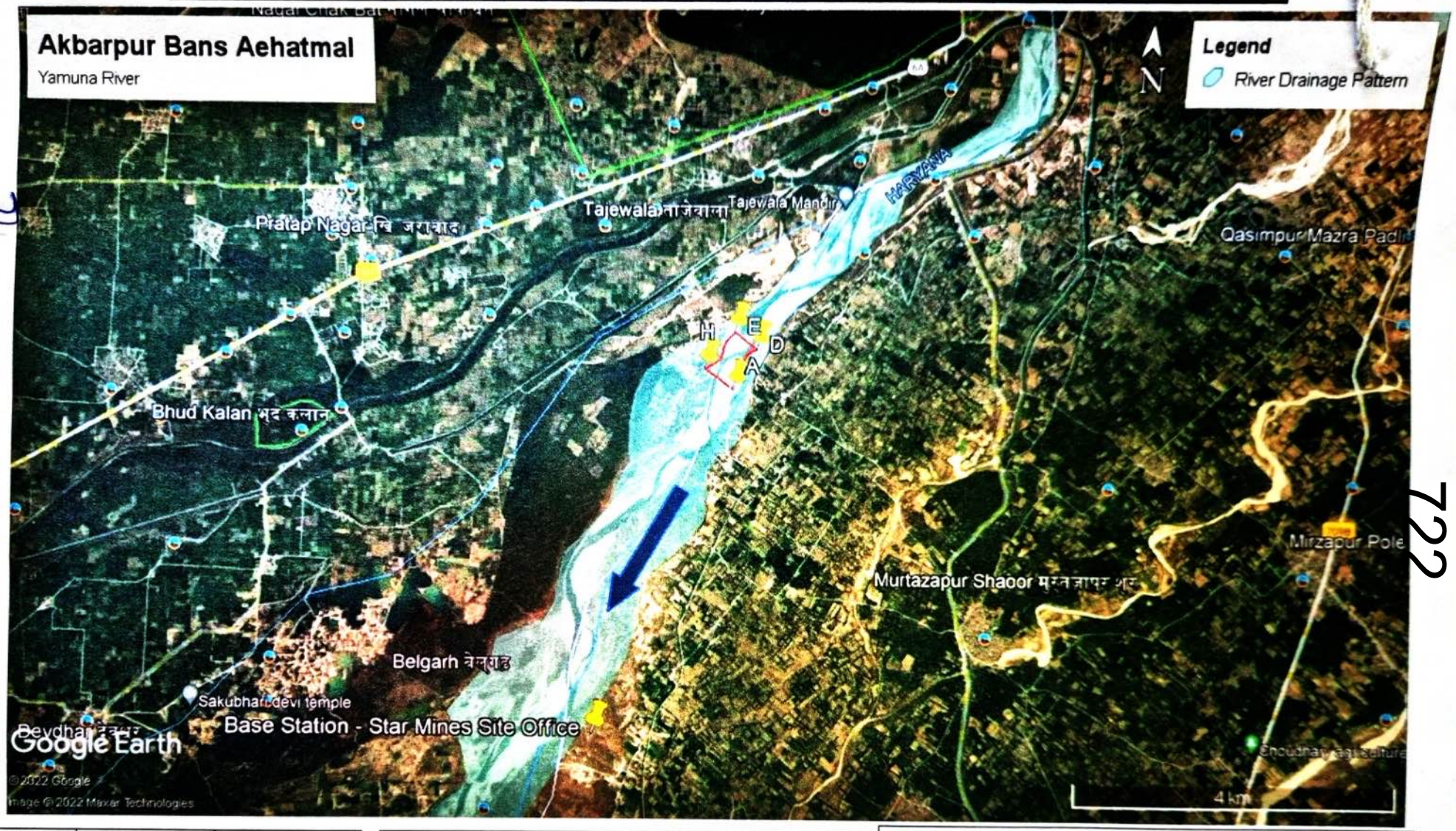


Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (37.00 ha)		
A	30°14'41.78"N	77°31'38.30"E
B	30°14'49.46"N	77°31'21.34"E
C	30°14'16.20"N	77°31'36.25"E
D	30°14'11.96"N	77°31'46.05"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	37.00 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Abu Talabpur Garh	Behat	Saharanpur
Survey By:		
Verified By:		

Replenishment Study: Survey Sheet (Satellite Imagery)

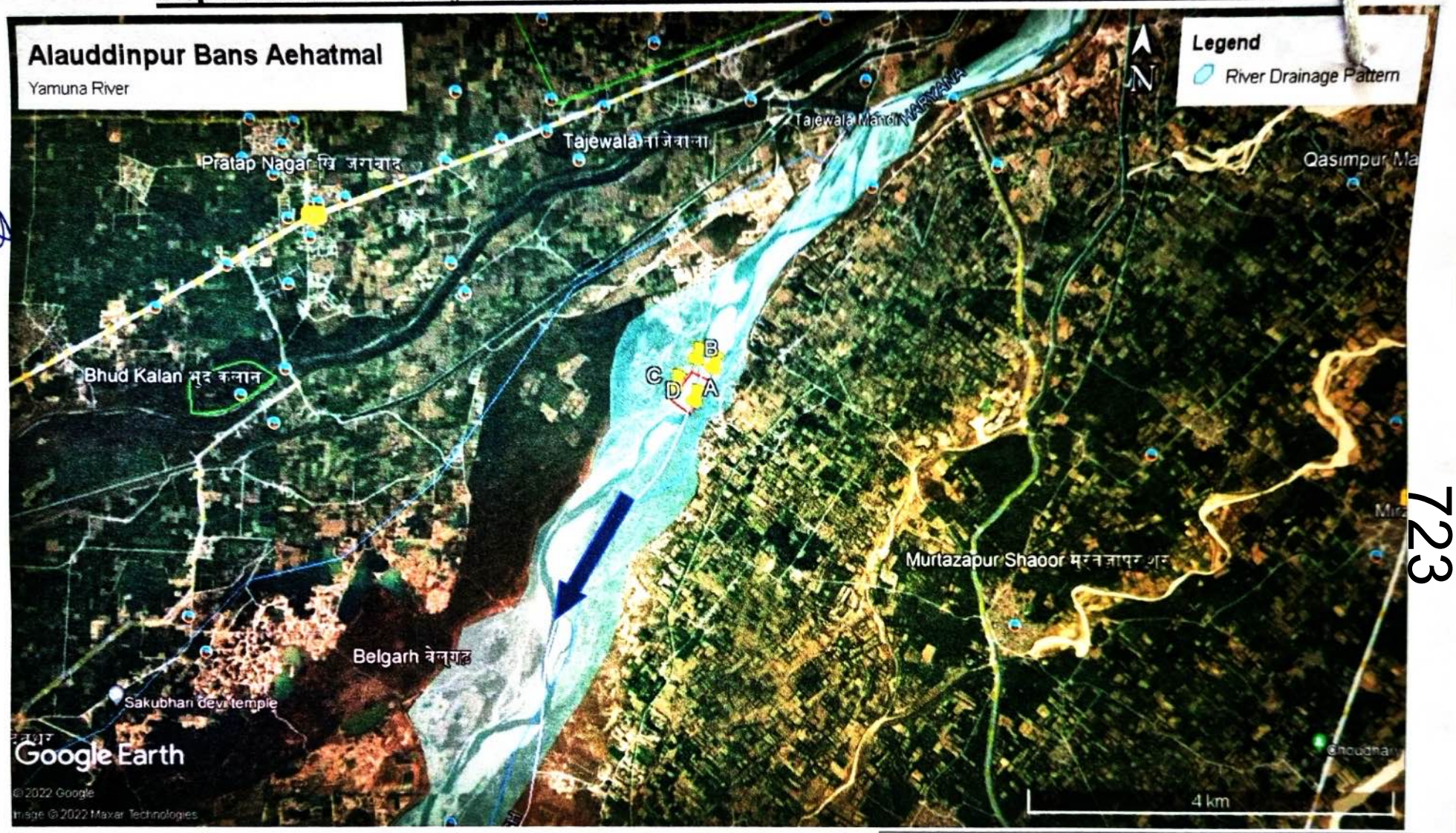


Pillars	Latitude (N)	Longitude (E)
Mining Lease Area (17.90 ha)		
A	30°16'27.80"N	77°32'46.96"E
B	30°16'34.01"N	77°32'47.53"E
C	30°16'42.58"N	77°32'53.94"E
D	30°16'43.84"N	77°32'58.19"E
E	30°16'50.96"N	77°32'47.76"E
F	30°16'46.69"N	77°32'43.28"E
G	30°16'39.98"N	77°32'41.04"E
H	30°16'36.08"N	77°32'33.91"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	17.90 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Akbarpur Bans Aehatmal	Behat	Saharanpur
Survey By:-		
Verified By:-		

Replenishment Study: Survey Sheet (Satellite Imagery)



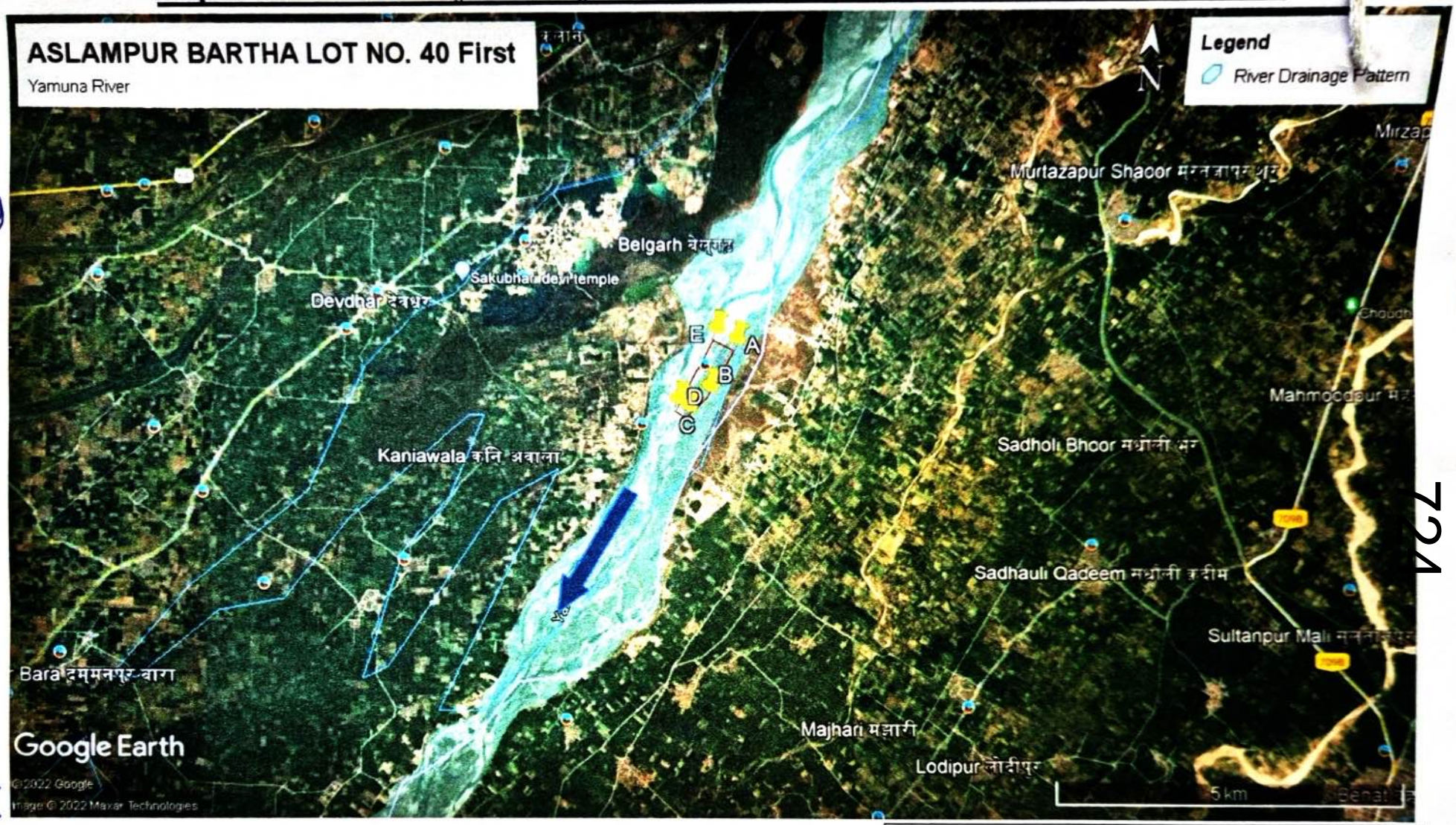
Pillars	Latitude (N)	Longitude (E)
Mining Lease Area (9.58 ha)		
A	30°16'14.92"N	77°32'39.76"E
B	30°16'17.99"N	77°32'32.74"E
C	30°16'08.09"N	77°32'23.84"E
D	30°16'02.92"N	77°32'31.72"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	9.58 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Alauddinpur Bans Aehatmal	Behat	Saharanpur
Survey By:-		
Verified By:-		

723

Replenishment Study: Survey Sheet (Satellite Imagery)

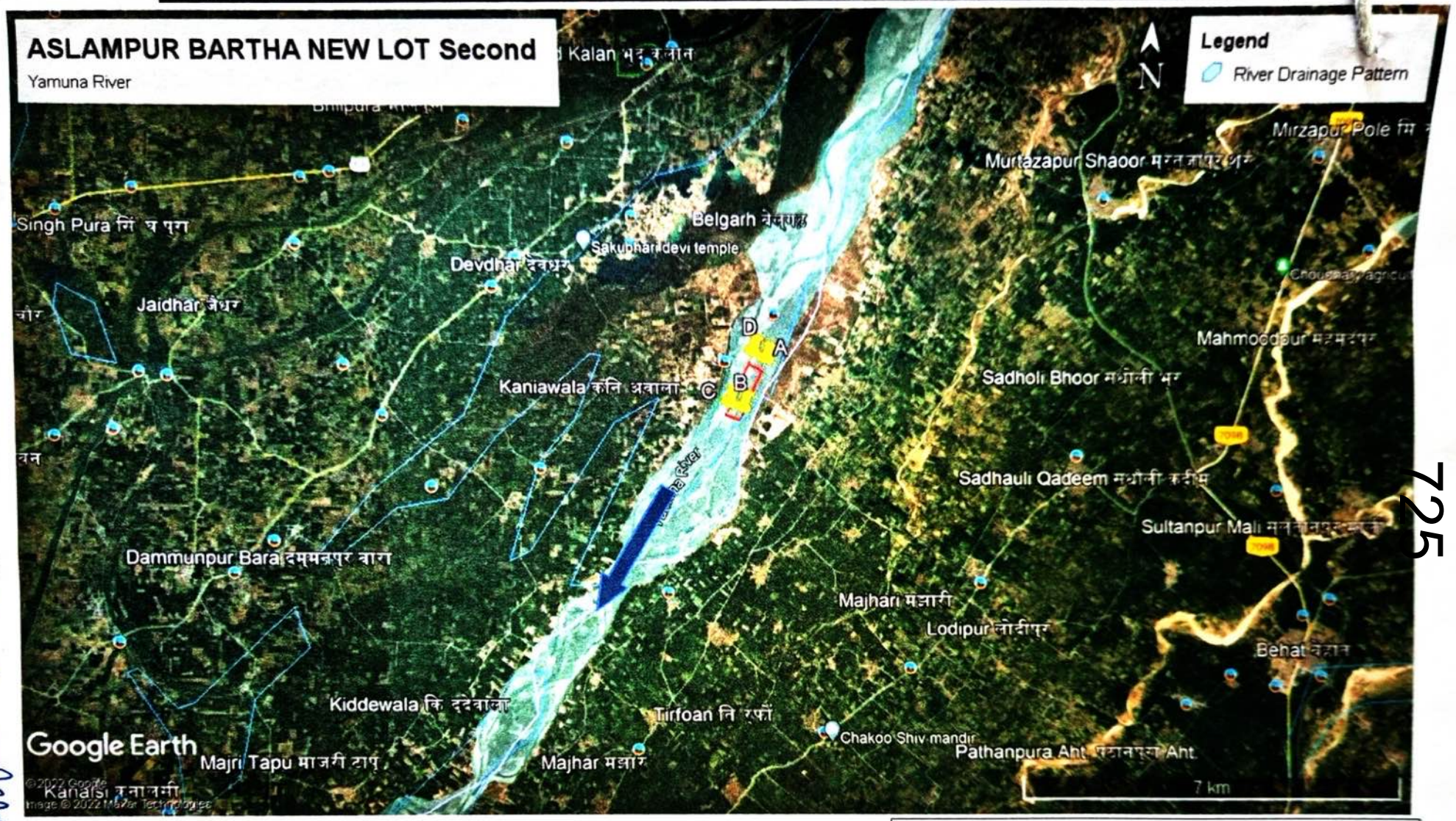


Pillars	Latitude (N)	Longitude (E)
Mining Lease Area (36.60 ha)		
A	30°13'45.87"N	77°31'09.07"E
B	30°13'23.05"N	77°31'53.85"E
C	30°13'13.45"N	77°31'42.33"E
D	30°13'16.67"N	77°31'36.60"E
E	30°13'50.98"N	77°31'57.80"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	36.60 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Aslampur Bartha Lot No. 40 First	Behat	Saharanpur
Survey By:-		
Verified By:-		

Replenishment Study: Survey Sheet (Satellite Imagery)

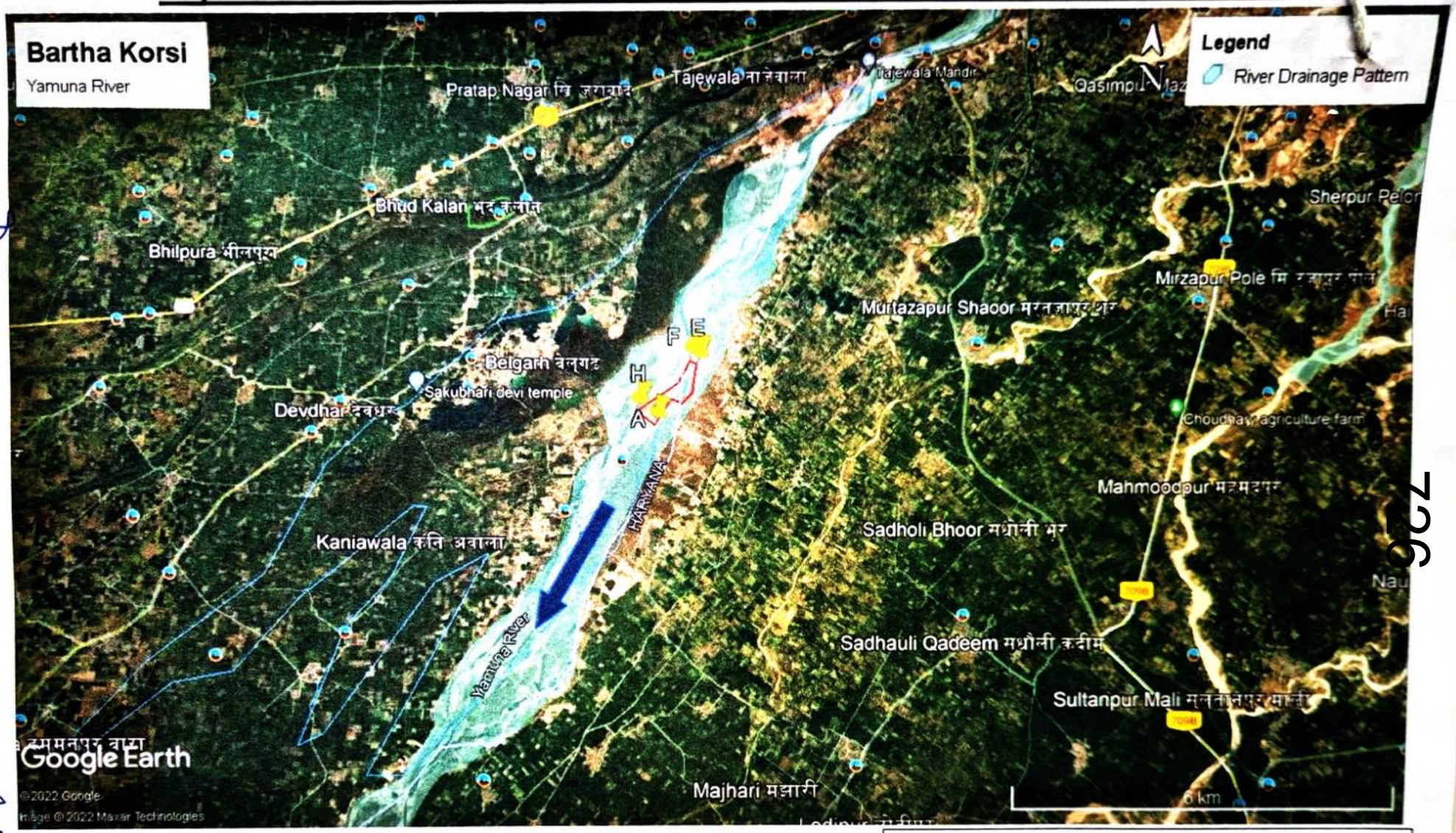


Pillars	Latitude (N)	Longitude (E)
Mining Lease Area (28.16 ha)		
A	30°13'04.93"N	77°30'44.59"E
B	30°12'35.50"N	77°30'28.50"E
C	30°12'38.19"N	77°30'18.84"E
D	30°13'09.39"N	77°30'35.57"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	28.16 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Aslampur Bartha New Lot Second	Behat	Saharanpur
Survey By:-		
Verified By:-		

Replenishment Study: Survey Sheet (Satellite Imagery)



Pillars	Latitude (N)	Longitude (E)
Mining Lease Area (36.00 ha)		
A	30° 14' 00.94" N	77° 31' 13.91" E
	30° 14' 16.50" N	77° 31' 24.43" E
	30° 14' 13.69" N	77° 31' 31.19" E
	30° 14' 19.59" N	77° 31' 37.85" E
	30° 14' 37.10" N	77° 31' 40.80" E
	30° 14' 39.19" N	77° 31' 36.25" E
	30° 14' 26.08" N	77° 31' 29.05"E
H	30° 14' 09.19" N	77° 31' 02.18" E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	36.0 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Bartha Korsi	Behat	Saharanpur
Survey By:-		
Verified By:-		

Replenishment Study: Survey Sheet (Satellite Imagery)



LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	52.63 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Dikkan Kalan	Nukur	Saharanpur
Survey By:-		
Verified By:-		

कार्यालय जिलाधिकारी सहारनपुर

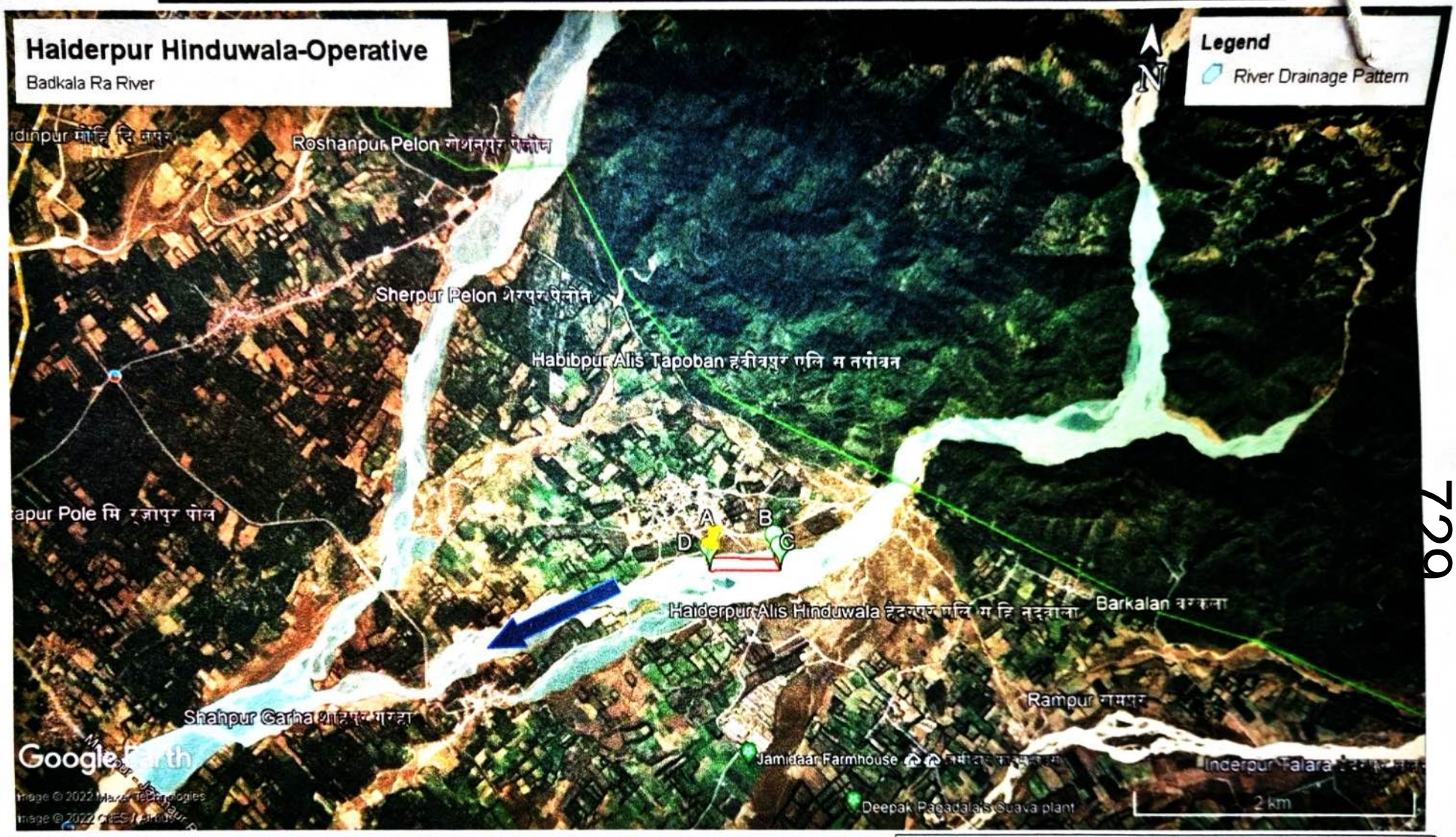
727

Pillars	Latitude (N)	Longitude (E)
Mining Lease Area (52.63 ha)		
A	30° 1'20.61"N	77°17'23.68"E
B	30° 1'24.58"N	77°17'15.45"E
C	30° 1'32.77"N	77°17'19.87"E
D	30° 1'42.25"N	77°17'24.49"E
E	30° 1'41.34"N	77°17'31.04"E
F	30° 1'52.02"N	77°17'39.09"E
G	30° 1'54.80"N	77°17'51.61"E
H	30° 1'56.88"N	77°17'52.96"E
I	30° 2'2.71"N	77°18'5.82"E
J	30° 1'59.86"N	77°18'8.25"E
K	30° 1'57.85"N	77°18'7.25"E
L	30° 1'58.76"N	77°18'5.82"E
M	30° 1'57.46"N	77°18'4.89"E
N	30° 1'57.00"N	77°18'1.96"E
O	30° 1'53.50"N	77°18'0.53"E
P	30° 1'47.64"N	77°17'52.52"E
Q	30° 1'42.10"N	77°17'46.53"E
R	30° 1'32.38"N	77°17'39.44"E
S	30° 1'27.11"N	77°17'31.55"E

कार्यालय जिलाधिकारी

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Replenishment Study: Survey Sheet (Satellite Imagery)

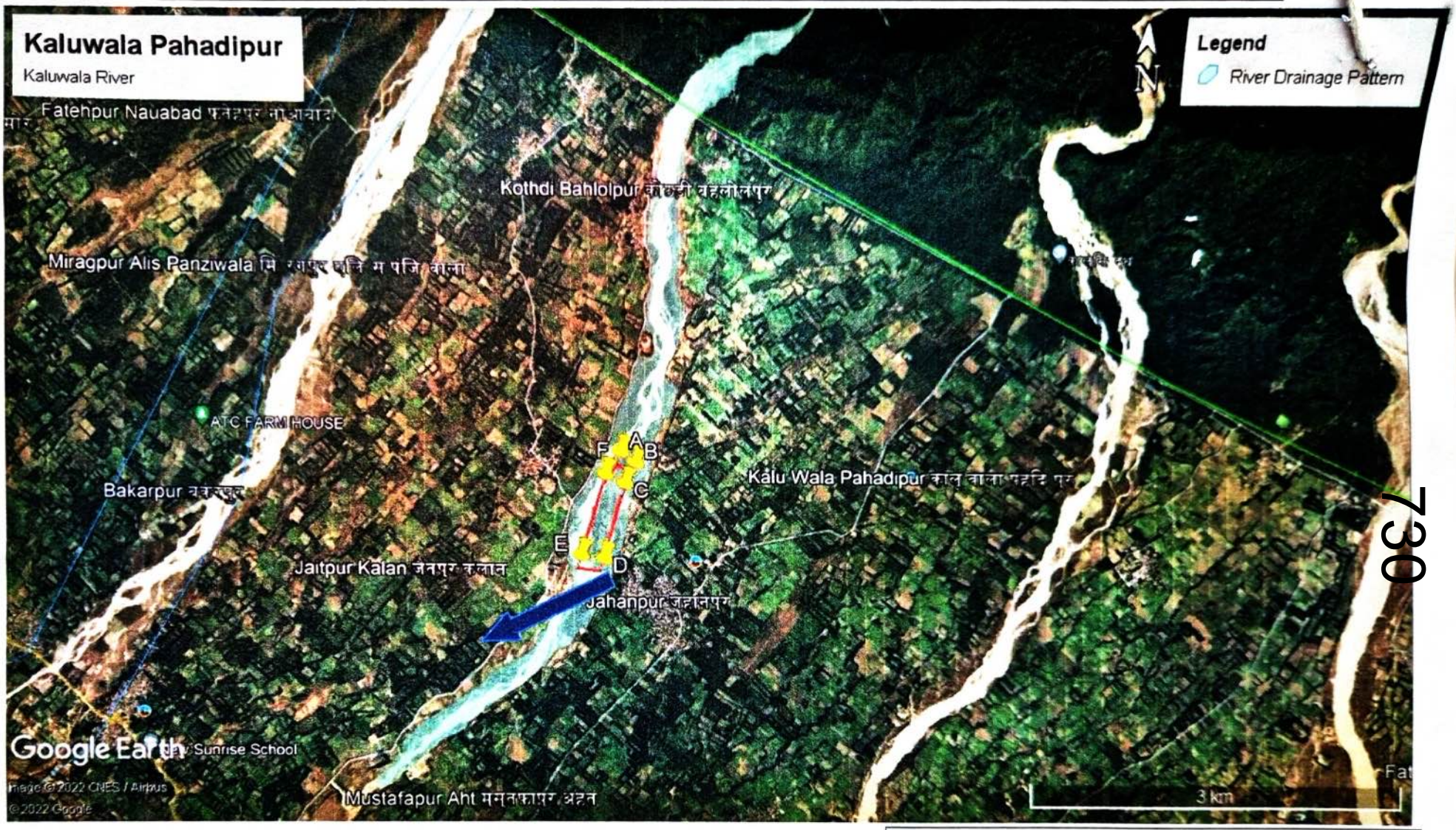


Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (4.20 ha)		
A	30° 15' 20.64" N	77° 40' 42.10" E
B	30° 15' 20.54" N	77° 41' 00.42" E
C	30° 15' 07.98" N	77° 41' 01.84" E
D	30° 15' 07.71" N	77° 40' 42.89" E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Badkala Ra River		
Survey	Physical, Drone and DGPS	
Survey Area	4.20 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Haiderpur Hinduwala	Behat	Saharanpur
Survey By:		
Verified By:		

Replenishment Study: Survey Sheet (Satellite Imagery)



Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (14.90 ha)		
A	30°12'08.76"N	77°45'37.77"E
B	30°12'06.03"N	77°45'42.25"E
C	30°12'00.52"N	77°45'38.93"E
D	30°11'40.91"N	77°45'32.39"E
E	30°11'41.72"N	77°45'25.51"E
F	30°12'02.80"N	77°45'33.06"E

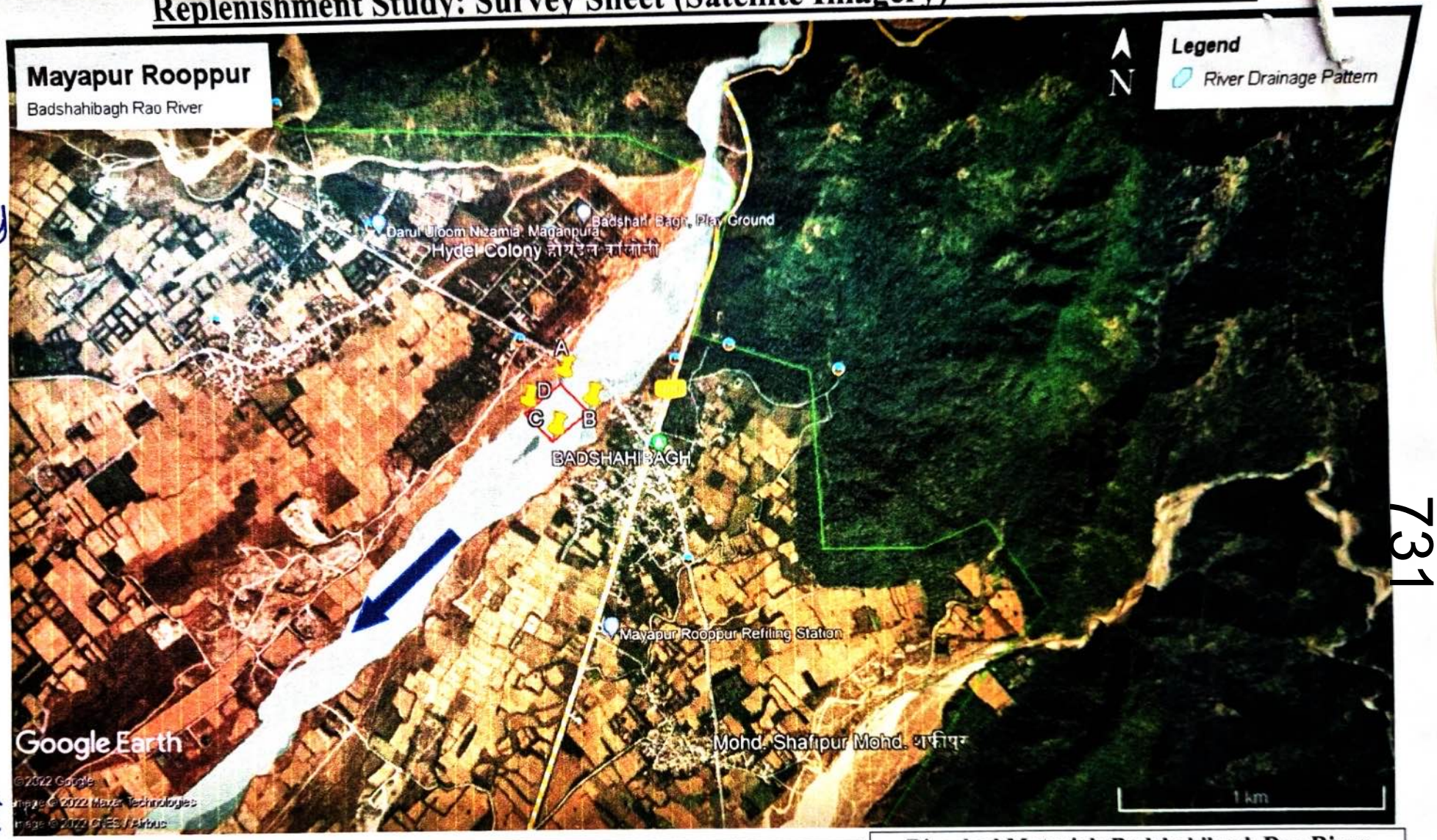
LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Kaluwala River		
Survey	Physical, Drone and DGPS	
Survey Area	14.90 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Kaluwala Pahadipur	Behat	Saharanpur
Survey By:		
Verified By:		

कार्यालय जिलाधिकारी

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Replenishment Study: Survey Sheet (Satellite Imagery)



Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (3.10 ha)		
A	30° 19' 21.41" N	77° 38' 26.35" E
B	30° 19' 17.62" N	77° 38' 30.56" E
C	30° 19' 13.68" N	77° 38' 25.07" E
D	30° 19' 17.44" N	77° 38' 20.78" E

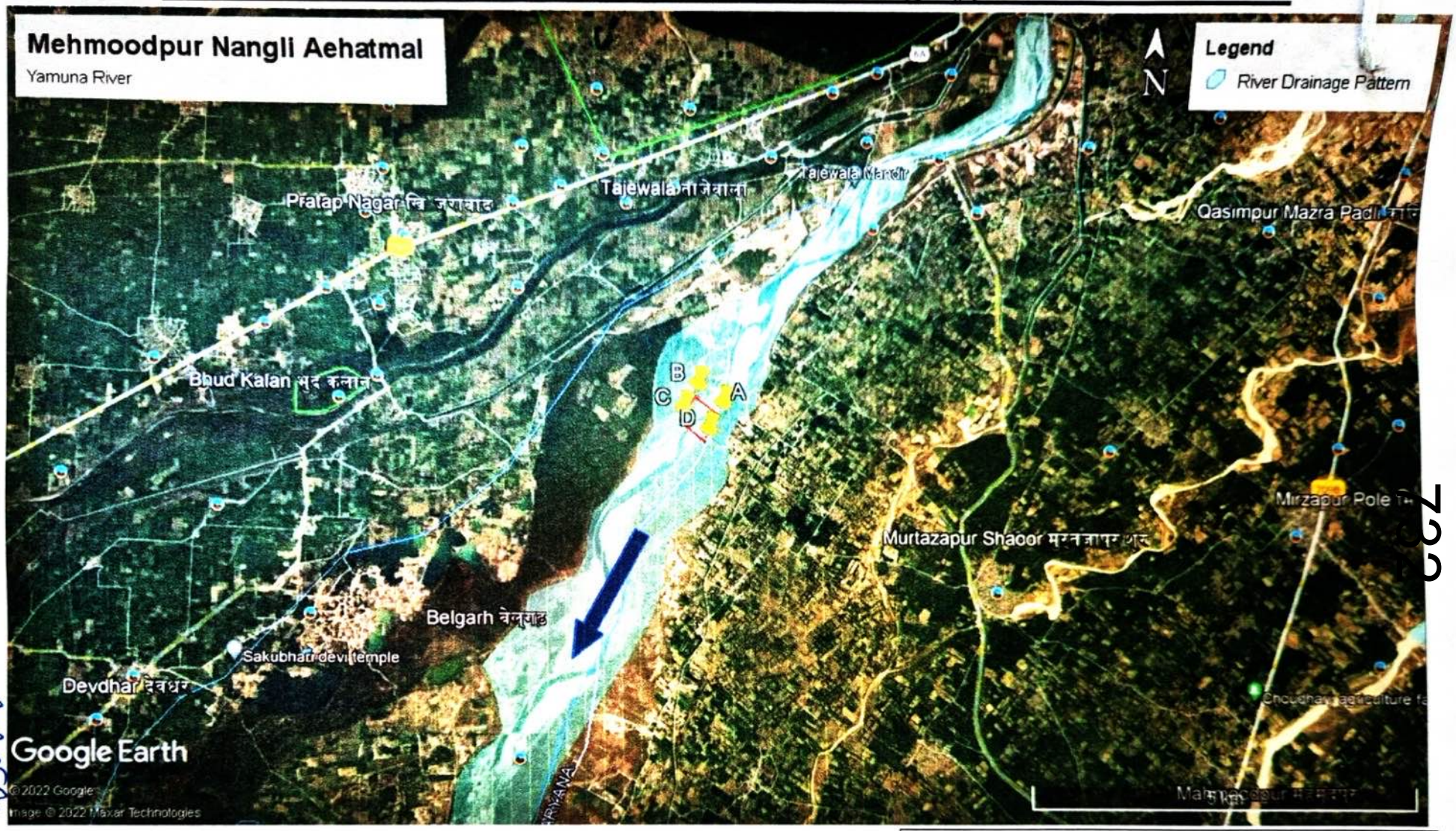
LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Badshahibagh Rao River		
Survey	Physical, Drone and DGPS	
Survey Area	3.10 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Mayapur Rooppur	Behat	Saharanpur
Survey By:		
Verified By:		

कार्यालय जिलाधिकारी सहारनपुर

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Replenishment Study: Survey Sheet (Satellite Imagery)

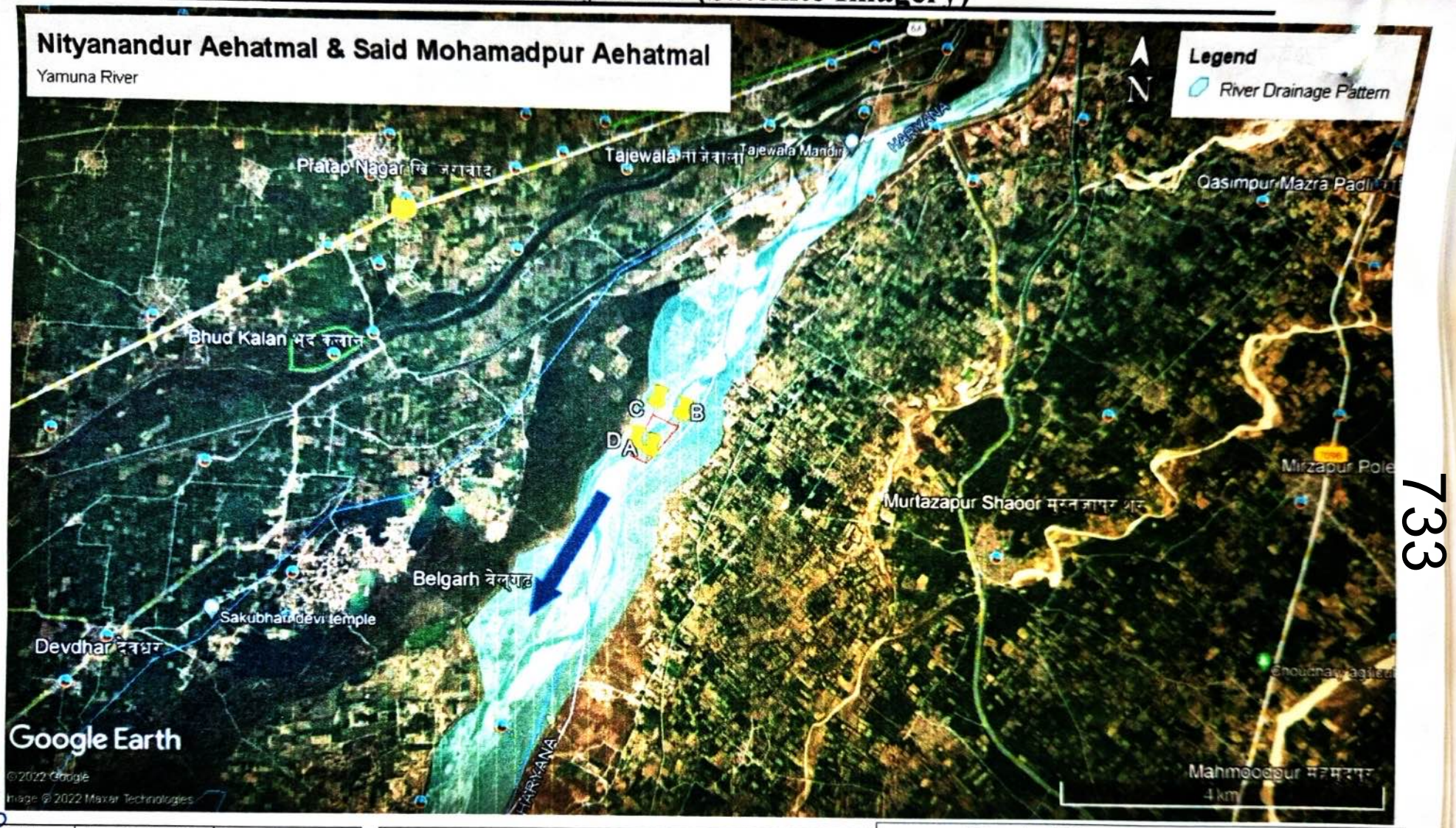


Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (15.70 ha)		
A	30°16'02.98"N	77°32'30.74"E
B	30°16'10.84"N	77°32'18.84"E
C	30°16'00.40"N	77°32'11.56"E
D	30°15'51.70"N	77°32'23.64"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	15.70 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Mehmoodpur Nangli Aehatmal	Behat	Saharanpur
Survey By:		
Verified By:		

Replenishment Study: Survey Sheet (Satellite Imagery)



Pillars	Latitude (N)	Longitude (E)
Mining Lease Area (17.70 ha)		
A	30°15'25.77"N	77°31'57.79"E
B	30°15'41.32"N	77°32'12.89"E
C	30°15'46.16"N	77°32'00.64"E
D	30°15'28.87"N	77°31'50.13"E

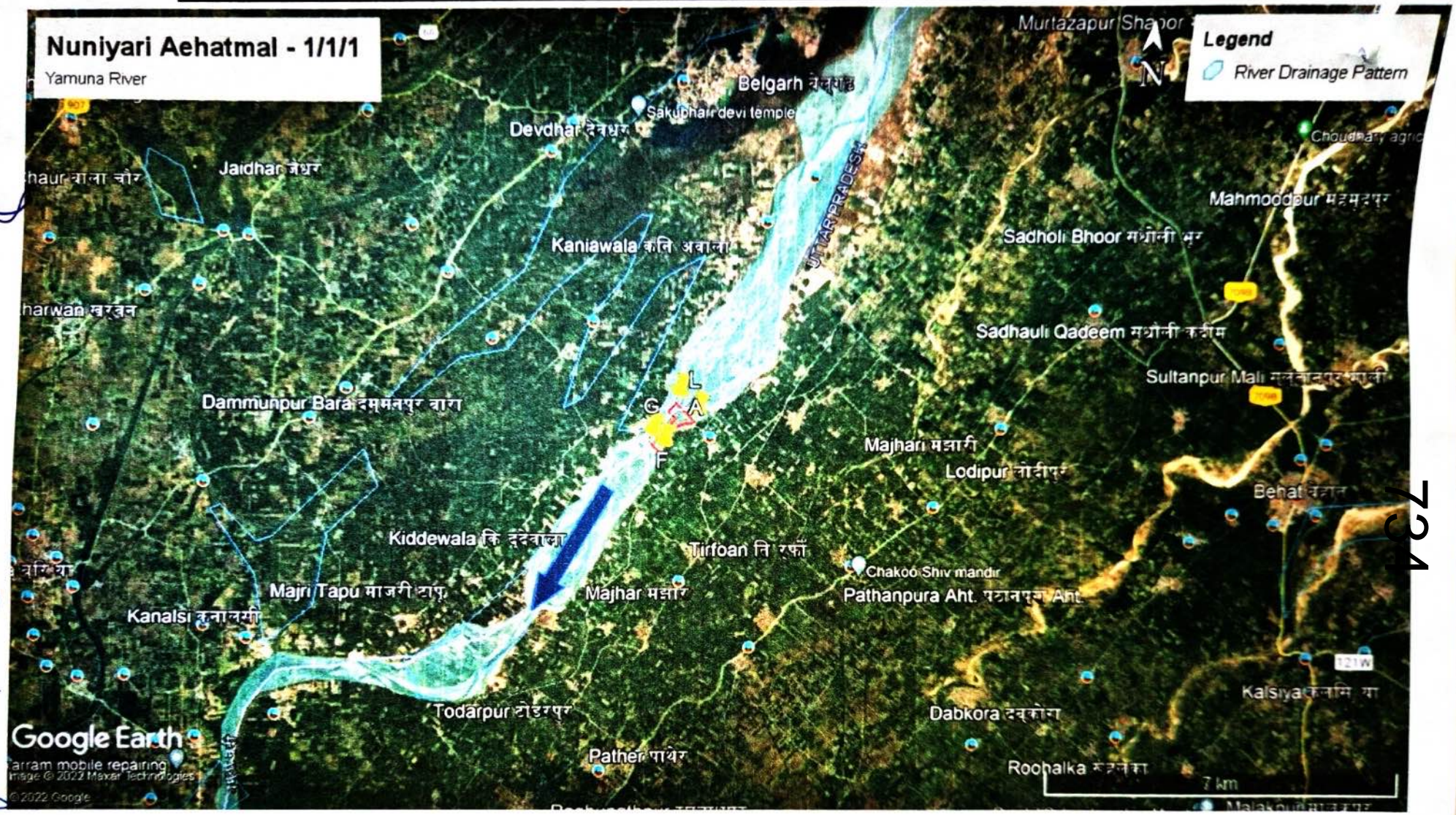
LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	17.70 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Nityanandur Aehatmal & Said Mohamadpur Aehatmal; Behat; Saharanpur.		
Survey By:-		
Verified By:-		

कार्यालय जिलाधिकारी सहारनपुर

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Replenishment Study: Survey Sheet (Satellite Imagery)



LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
		Drainage Pattern of River
		Boundary Pillars
		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	19.00 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Nuniyari Aehatmal	Behat	Saharanpur
Survey By:-		
Verified By:-		

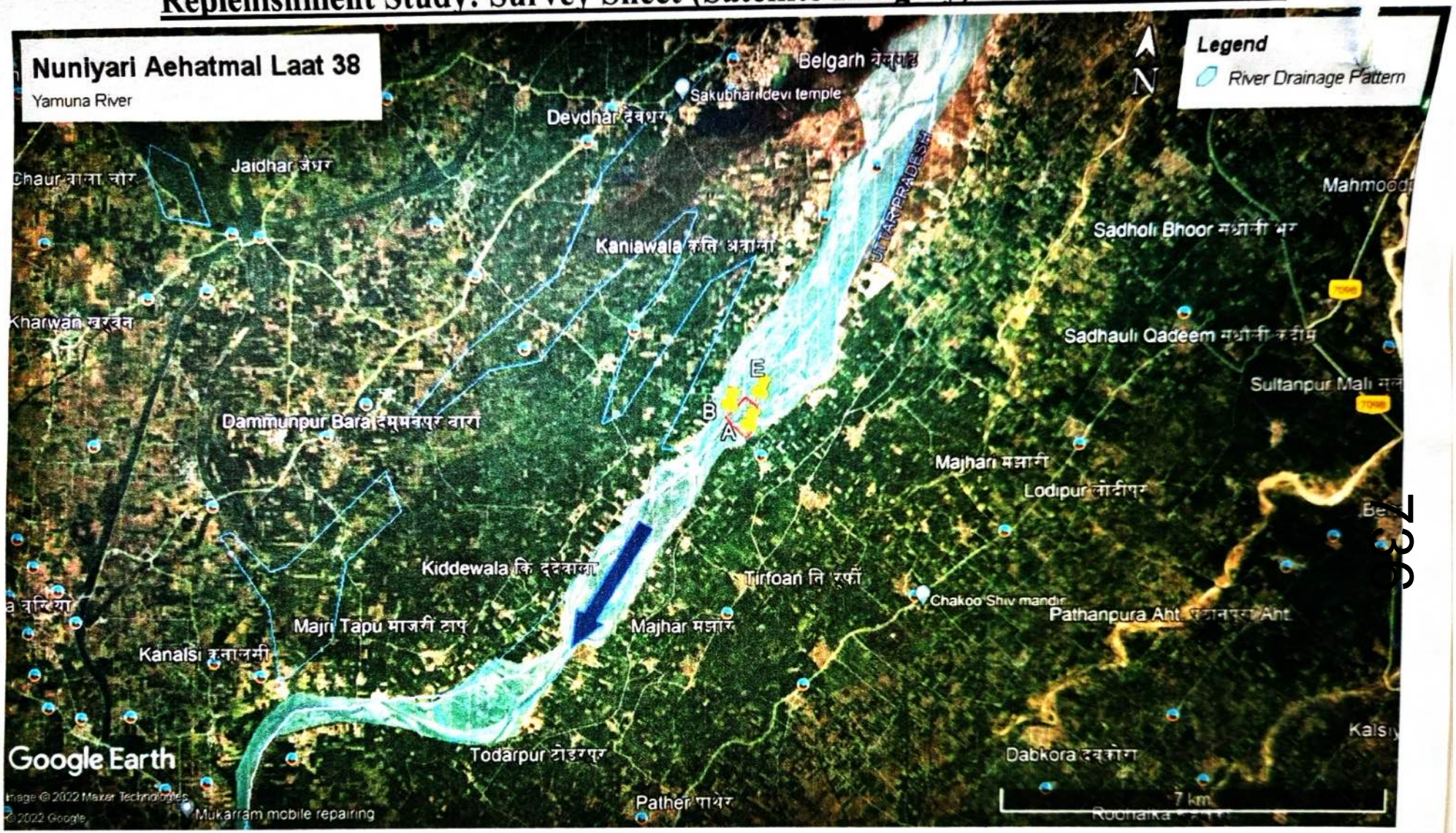
कार्यालय जिलाधिकारी सहारनपुर (उत्तर प्रदेश)

Pillars	Latitude (N)	Longitude (E)
Mining Lease Area (23.20 ha)		
A	30°11'00.50"N	77°29'25.19"E
B	30°10'59.39"N	77°29'23.26"E
C	30°10'58.86"N	77°29'15.55"E
D	30°10'55.77"N	77°29'10.53"E
E	30°10'46.29"N	77°29'04.02"E
F	30°10'39.87"N	77°29'00.42"E
G	30°10'46.96"N	77°29'51.89"E
H	30°10'51.56"N	77°29'56.86"E
I	30°10'49.46"N	77°29'58.83"E
J	30°11'02.30"N	77°29'11.12"E
K	30°11'07.26"N	77°29'05.46"E
L	30°11'12.52"N	77°29'11.64"E

कार्यालय जिलाधिकारी (खनन अनुभाग) अम्बाला

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Replenishment Study: Survey Sheet (Satellite Imagery)



LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
		Drainage Pattern of River
		Boundary Pillars
		River Flow Direction
		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	24.29 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Nuniyari Aehatmal	Behat	Saharanpur
Survey By:-		
Verified By:-		

Pillars	Latitude (N)	Longitude (E)
Mining Lease Area (24.29 ha)		
A	30°11'00.90" N	77°29"25.83"E
B	30°11'12.98" N	77°29"12.21" E
C	30°11'24.95" N	77°29"26.28" E
D	30°11'21.79" N	77°29"29.68" E
E	30°11'20.39" N	77°29"33.03" E
F	30°11'18.64" N	77°29"33.83" E
G	30°11'17.01" N	77°29"34.70" E
H	30°11'14.93" N	77°29"32.91" E
I	30°11'09.54" N	77°29"31.35" E
J	30°11'03.46" N	77°29"29.55" E

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Replenishment Study: Survey Sheet (Satellite Imagery)



Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (34.00 ha)		
A	30°12'17.09"N	77°30'18.81"E
B	30°12'16.42"N	77°30'17.32"E
C	30°12'05.34"N	77°30'13.17"E
D	30°11'59.82"N	77°30'01.24"E
E	30°11'46.33"N	77°29'58.50"E
F	30°11'59.32"N	77°29'43.47"E
G	30°12'21.10"N	77°30'16.04"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	34.00 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Rasoolpur Urf Rasooli	Behat	Saharanpur
Survey By:		
Verified By:		

कार्यालय जिलाधिकारी सहारनपुर

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Replenishment Study: Survey Sheet (Satellite Imagery)



Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (8.05 ha)		
A	30° 21' 36.45" N	77° 36' 05.61" E
B	30° 21' 29.62" N	77° 36' 00.26" E
C	30° 21' 37.95" N	77° 35' 50.38" E
D	30° 21' 41.71" N	77° 36' 02.50" E

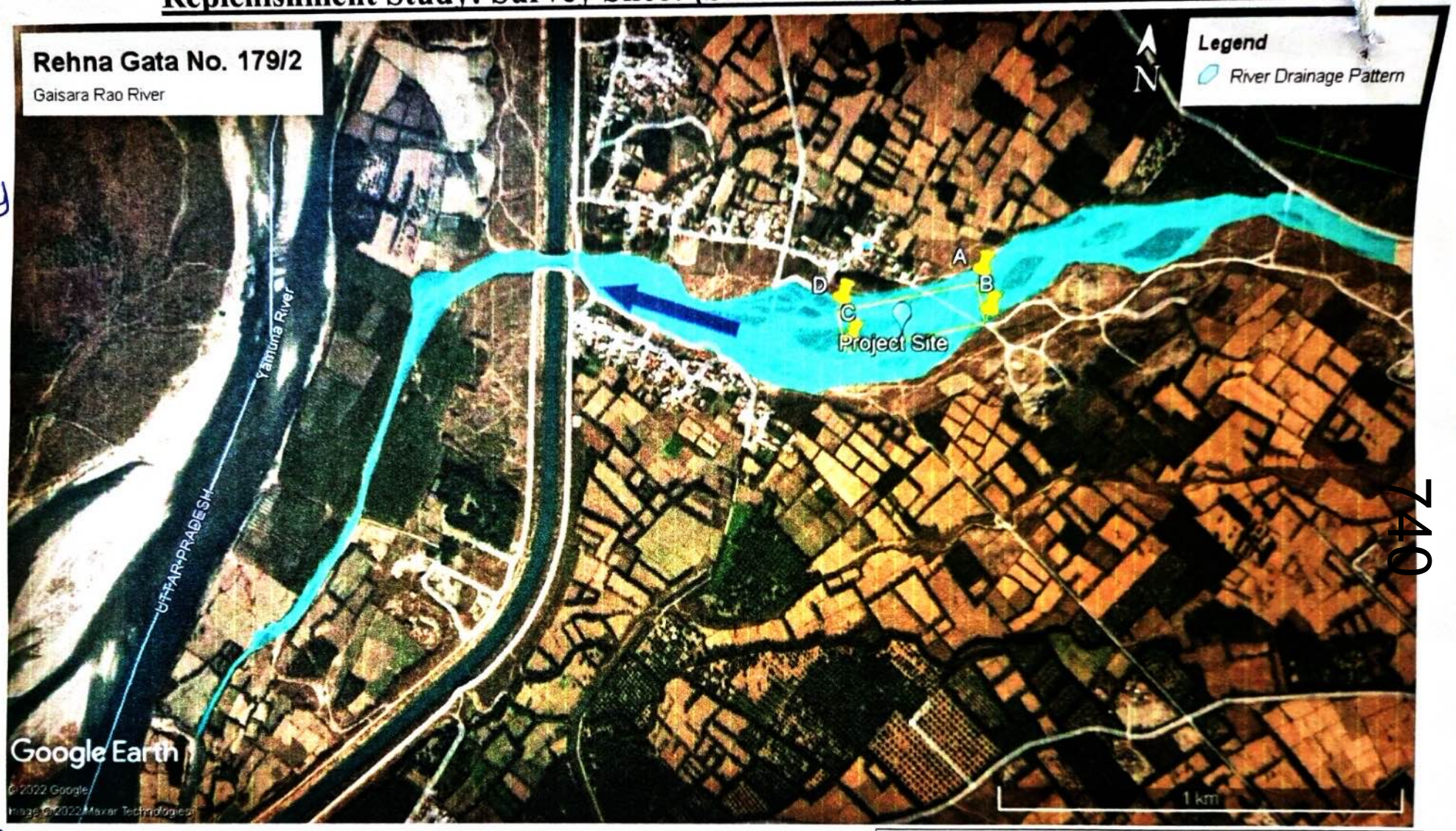
LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	8.05 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Rehna	Behat	Saharanpur
Survey By:		
Verified By:		

कार्यालय जिलाधिकारी

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Replenishment Study: Survey Sheet (Satellite Imagery)

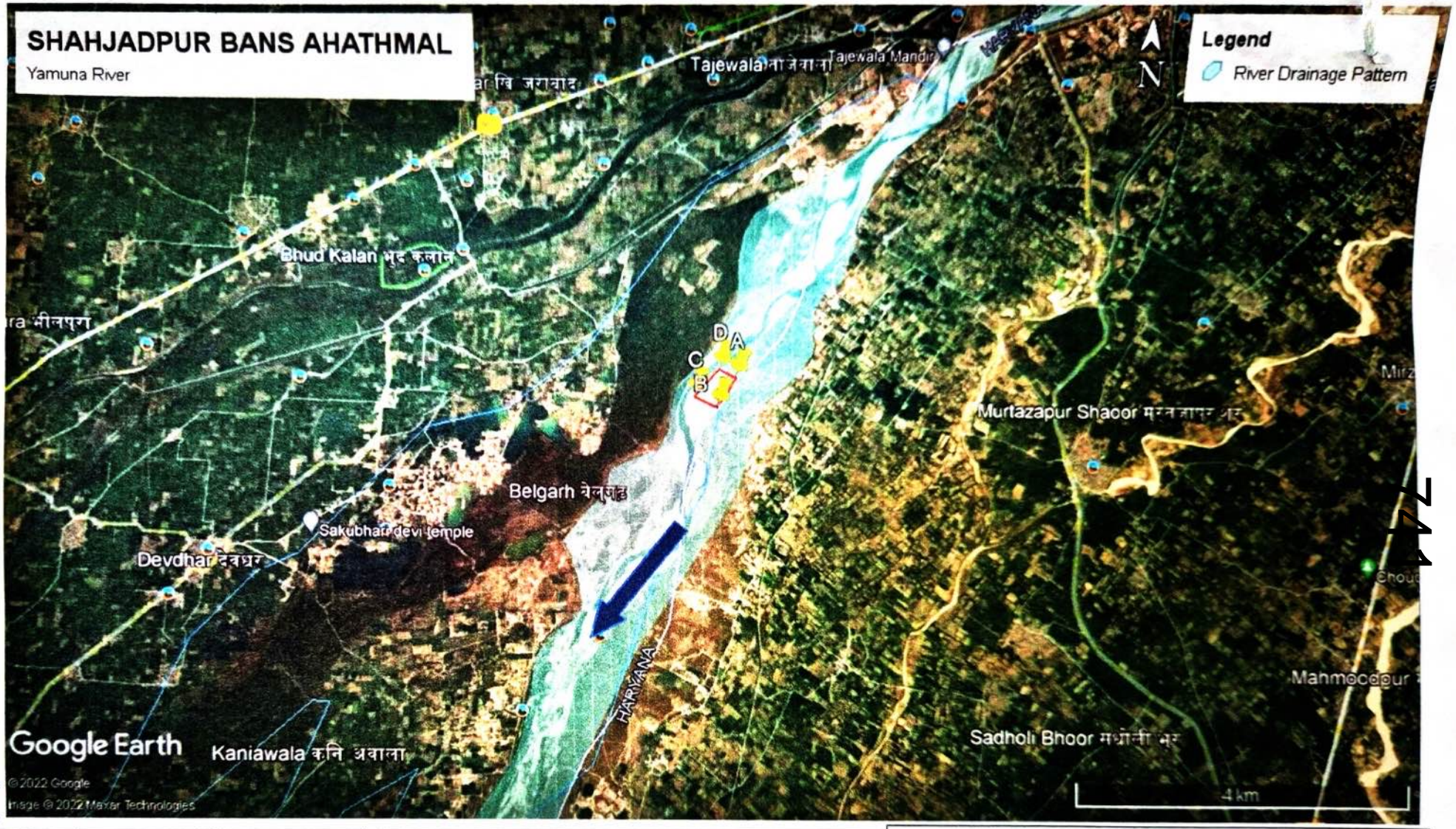


Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (3.75 ha)		
	30° 19' 56.61" N	77° 36' 32.69" E
	30° 19' 54.45" N	77° 36' 35.03" E
	30° 19' 47.72" N	77° 36' 20.40" E
	30° 19' 49.81" N	77° 36' 18.31" E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Gaisara Rao River		
Survey	Physical, Drone and DGPS	
Survey Area	3.75 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Rehna	Behat	Saharanpur
Survey By:		
Verified By:		

Replenishment Study: Survey Sheet (Satellite Imagery)

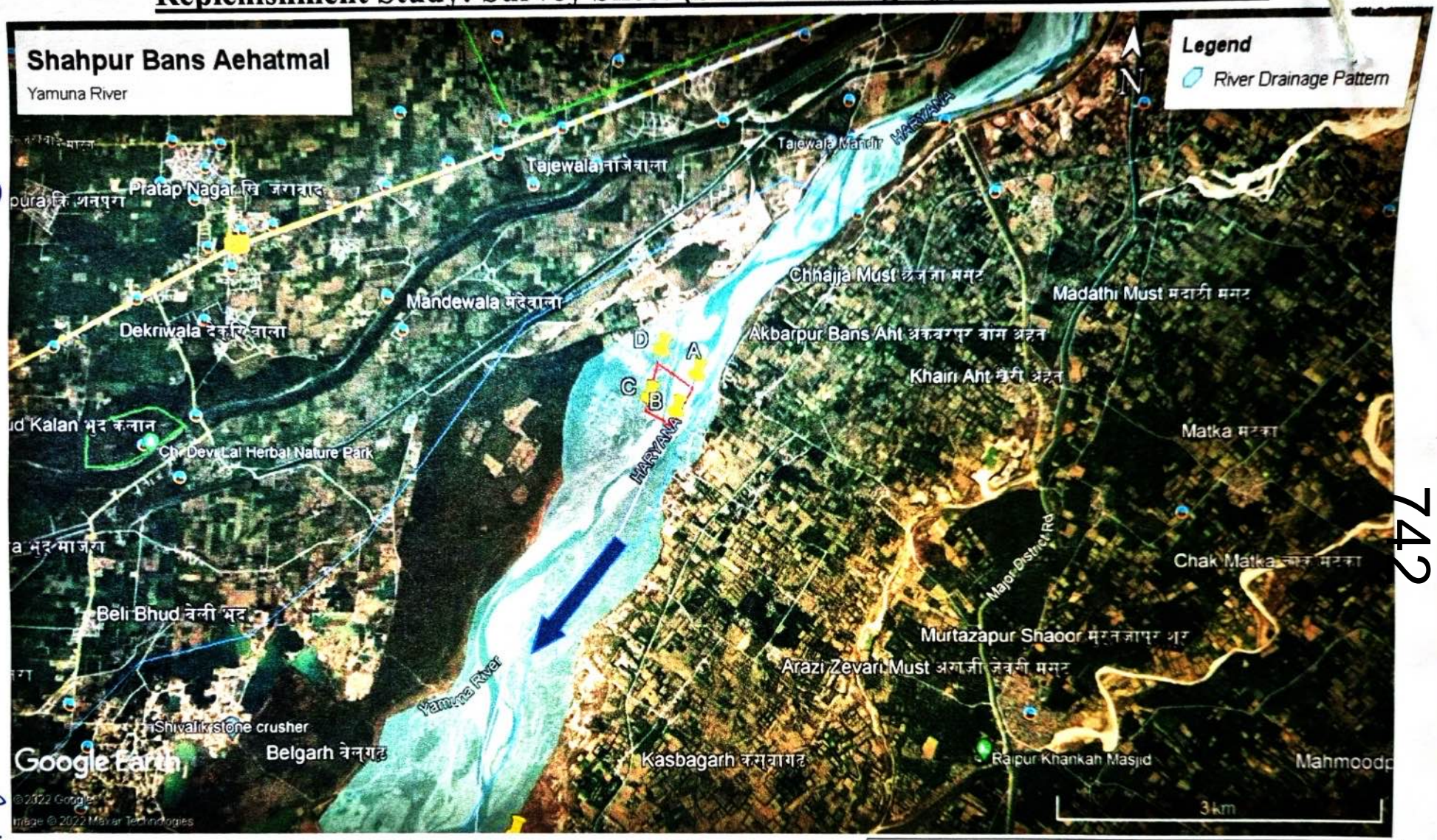


Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (13.0 ha)		
A	30°15'24.84"N	77°31'57.01"E
B	30°15'12.32"N	77°31'47.88"E
C	30°15'16.91"N	77°31'36.94"E
D	30°15'28.43"N	77°31'48.83"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	13.0 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Shahjadpur Bans Ahathmal	Behat	Saharanpur
Survey By:		
Verified By:		

Replenishment Study: Survey Sheet (Satellite Imagery)



Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (15.60 ha)		
A	30°16'27.75"N	77°32'46.14"E
B	30°16'16.01"N	77°32'38.50"E
C	30°16'20.43"N	77°32'28.70"E
D	30°16'35.53"N	77°32'33.20"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	15.60 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Shahpur Bans Aehatmal	Behat	Saharanpur
Survey By:		
Verified By:		

कार्यालय जिलाधिकारी सहारनपुर

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Replenishment Study: Survey Sheet (Satellite Imagery)



Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (6.475 ha) Khata No. 403, 404/1, 405, 406/1, 416/2, 421/1, 422/2, 423/2, 424/2, 429 & 431		
A	30°16'35.16"N	77°39'44.44"E
B	30°16'32.34"N	77°39'51.41"E
C	30°16'21.11"N	77°39'36.26"E
D	30°16'22.11"N	77°39'34.41"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Khairawali Ra River		
Survey	Physical, Drone and DGPS	
Survey Area	6.475 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Sherpur Pelon	Behat	Saharanpur
Survey By:		
Verified By:		

कार्यालय जिलाधिकारी सहारनपुर

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Replenishment Study: Survey Sheet (Satellite Imagery)

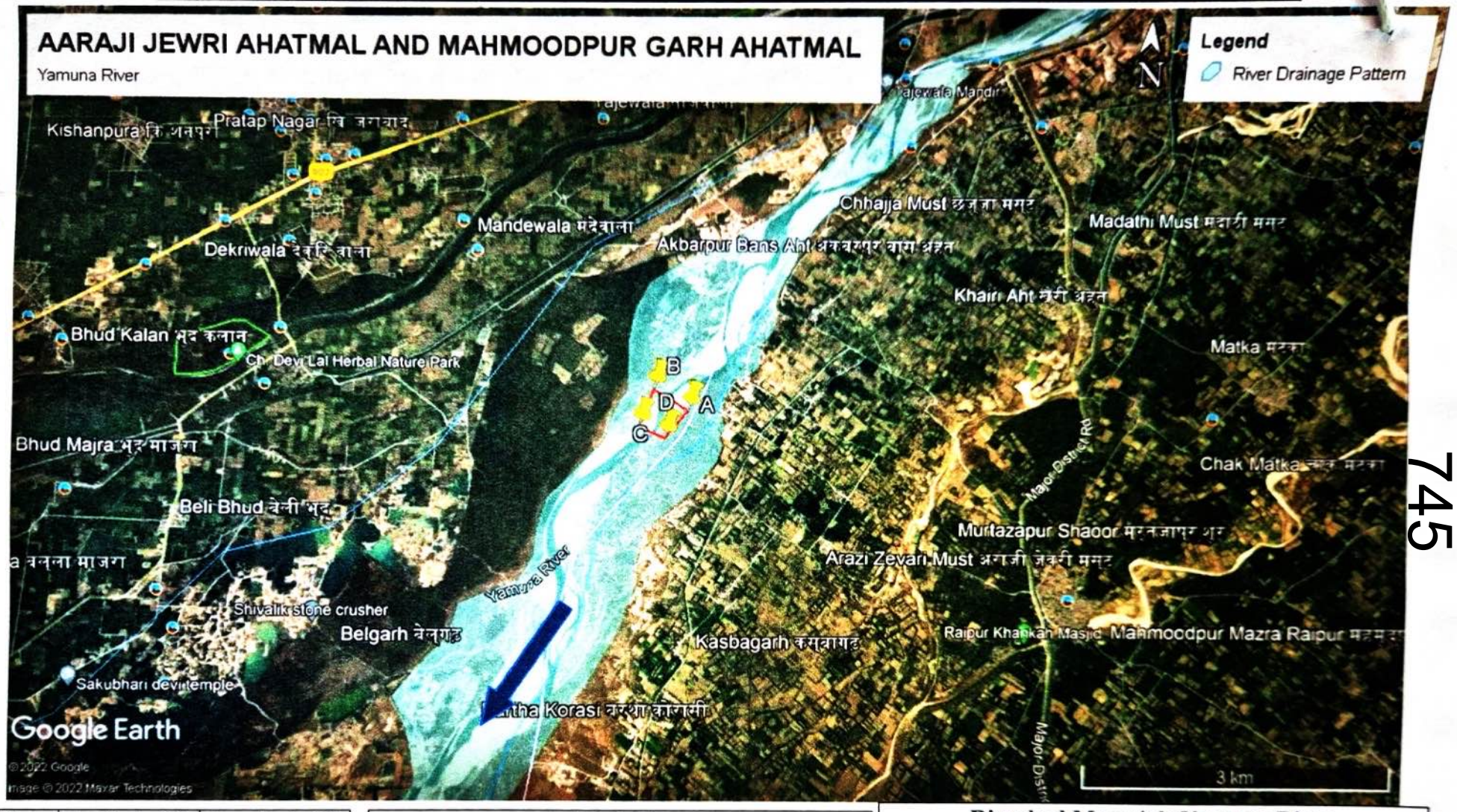


Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (7.00 ha) Gata No. 378/2 & 379/2		
	30° 15' 52.04" N	77° 39' 22.56" E
	30° 15' 51.84" N	77° 39' 27.43" E
	30° 16' 06.24" N	77° 39' 31.26" E
	30° 16' 07.18" N	77° 39' 25.07" E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Khairawali Ra River		
Survey	Physical, Drone and DGPS	
Survey Area	7.00 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Sherpur Pelon	Behat	Saharanpur
Survey By:		
Verified By:		

Replenishment Study: Survey Sheet (Satellite Imagery)



Pillars	Latitude (N)	Longitude (E)
Sanctioned Mining Lease Area (13.80 ha)		
A	30°15'51.33"N	77°32'21.84"E
B	30°15'58.45"N	77°32'08.63"E
C	30°15'45.65"N	77°32'03.15"E
D	30°15'41.84"N	77°32'13.01"E

LEGEND		
Sl. No.	Symbol	Description
1		Mine Lease Area
2		Drainage Pattern of River
3		Boundary Pillars
4		River Flow Direction
5		Map Scale

Riverbed Material: Yamuna River		
Survey	Physical, Drone and DGPS	
Survey Area	13.80 ha (Upto 3.0 m depth)	
Date of Survey		
Village	Tehsil	District
Aaraji Jewri Ahatmal And Mahmoodpur Garh Ahatmal; Behat ; Saharanpur		
Survey By:		
Verified By:		

कार्यालय जिलाधिकारी (खनन अनुभाग) सहारनपुर

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LEASE WISE 2024 D.G.P.S.

SURVEY RECORDS

- **D.G.P.S. Ground Control Points (GCP)**

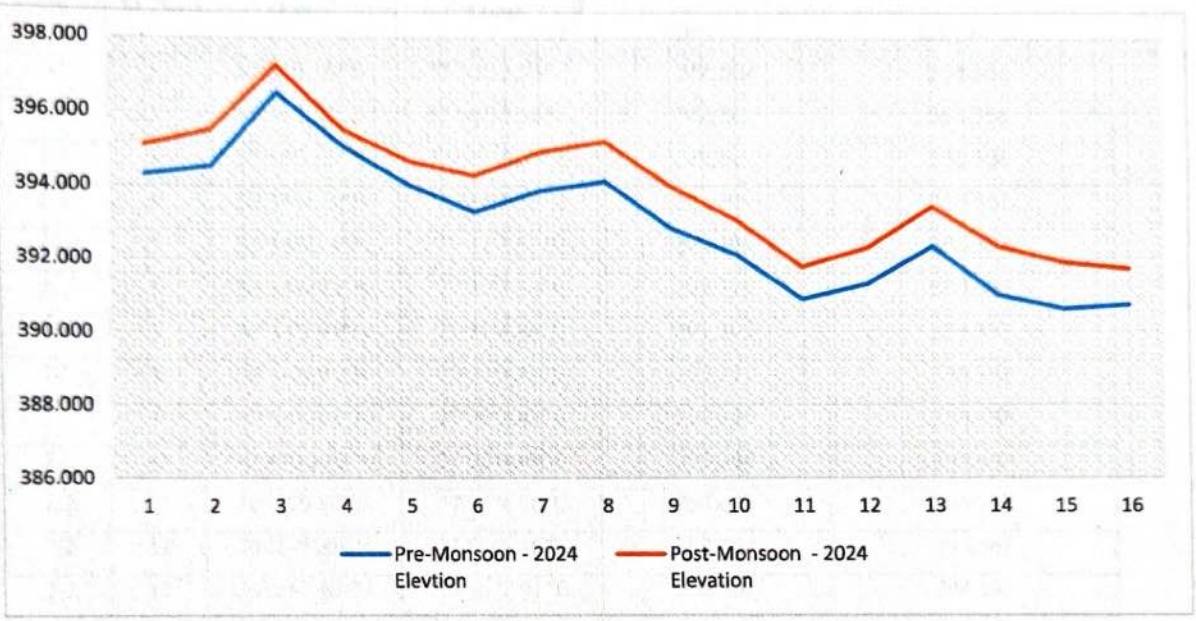
Record Sheet in tabular format

- **Mapping / Elevation Section of D.G.P.S.**

Ground Control Points (GCP)

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
1	Behat	R.B.M.	Badshahibagh Rao	Mayapur Rooppur	Gata No. 14/1	3.100

Cross Section	Sl.No	Lat.	Long.	Pre-Monsoon - 2024 Elevation	Post-Monsoon - 2024 Elevation
1-1	1	30°19'20.38"N	77°38'26.16"E	394.290	395.112
1-1	2	30°19'19.45"N	77°38'27.07"E	394.512	395.510
1-1	3	30°19'18.40"N	77°38'28.27"E	396.501	397.255
1-1	4	30°19'17.34"N	77°38'29.43"E	395.052	395.500
2-2	5	30°19'16.58"N	77°38'28.32"E	394.001	394.654
2-2	6	30°19'17.48"N	77°38'27.08"E	393.266	394.261
2-2	7	30°19'18.65"N	77°38'25.70"E	393.844	394.894
2-2	8	30°19'19.55"N	77°38'24.90"E	394.108	395.188
3-3	9	30°19'18.83"N	77°38'24.11"E	392.822	393.969
3-3	10	30°19'18.04"N	77°38'25.22"E	392.088	393.054
3-3	11	30°19'16.90"N	77°38'26.20"E	390.884	391.766
3-3	12	30°19'15.59"N	77°38'27.21"E	391.310	392.276
4-4	13	30°19'14.63"N	77°38'25.62"E	392.320	393.410
4-4	14	30°19'15.78"N	77°38'24.18"E	390.992	392.327
4-4	15	30°19'16.69"N	77°38'23.24"E	390.608	391.874
4-4	16	30°19'17.65"N	77°38'22.23"E	390.722	391.688


398.000
396.000
394.000
392.000
390.000
388.000
386.000
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16
Pre-Monsoon - 2024 Elevtion
Post-Monsoon - 2024 Elevation

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
2	Behat	R.B.M.	Yamuna	Bartha Korsi	Gata No. - 1	36.000

Section	Sl. No	Lat.	Long.	Pre Monsoon 2024 Elevation	Post Monsoon 2024 Elevation
1-1	1	30°14'1.39"N	77°31'13.73"E	292.760	294.668
1-1	2	30°14'2.47"N	77°31'12.26"E	292.782	294.756
1-1	3	30°14'3.55"N	77°31'10.78"E	293.366	295.596
1-1	4	30°14'4.64"N	77°31'9.30"E	293.505	295.741
1-1	5	30°14'5.74"N	77°31'7.82"E	294.708	296.852
1-1	6	30°14'6.82"N	77°31'6.34"E	292.329	294.694
1-1	7	30°14'7.91"N	77°31'4.86"E	292.505	294.893
1-1	8	30°14'9.01"N	77°31'3.38"E	293.717	295.788
1-1	9	30°14'9.68"N	77°31'2.47"E	292.886	294.894
2-2	10	30°14'10.63"N	77°31'4.09"E	293.350	295.650
2-2	11	30°14'9.97"N	77°31'4.98"E	293.625	295.762
2-2	12	30°14'8.88"N	77°31'6.46"E	292.354	294.566
2-2	13	30°14'7.83"N	77°31'7.91"E	292.302	294.595
2-2	14	30°14'6.74"N	77°31'9.40"E	293.804	295.972
2-2	15	30°14'5.62"N	77°31'10.90"E	296.698	297.741
2-2	16	30°14'4.57"N	77°31'12.38"E	295.275	297.562
2-2	17	30°14'3.44"N	77°31'13.86"E	296.390	298.755
3-3	18	30°14'4.53"N	77°31'15.44"E	296.600	298.928
3-3	19	30°14'5.57"N	77°31'13.95"E	295.257	297.182
3-3	20	30°14'6.63"N	77°31'12.46"E	293.778	295.417
3-3	21	30°14'7.72"N	77°31'10.98"E	295.260	297.691
3-3	22	30°14'8.84"N	77°31'9.46"E	295.439	297.556
3-3	23	30°14'9.89"N	77°31'7.98"E	294.568	296.922
3-3	24	30°14'10.94"N	77°31'6.57"E	295.740	297.884
3-3	25	77°31'6.57"E	77°31'5.69"E	295.581	297.889
4-4	26	30°14'12.50"N	77°31'7.29"E	295.497	297.714
4-4	27	30°14'11.91"N	77°31'8.13"E	294.622	296.625
4-4	28	30°14'10.88"N	77°31'9.53"E	294.497	296.913
4-4	29	30°14'9.87"N	77°31'10.95"E	293.343	295.482

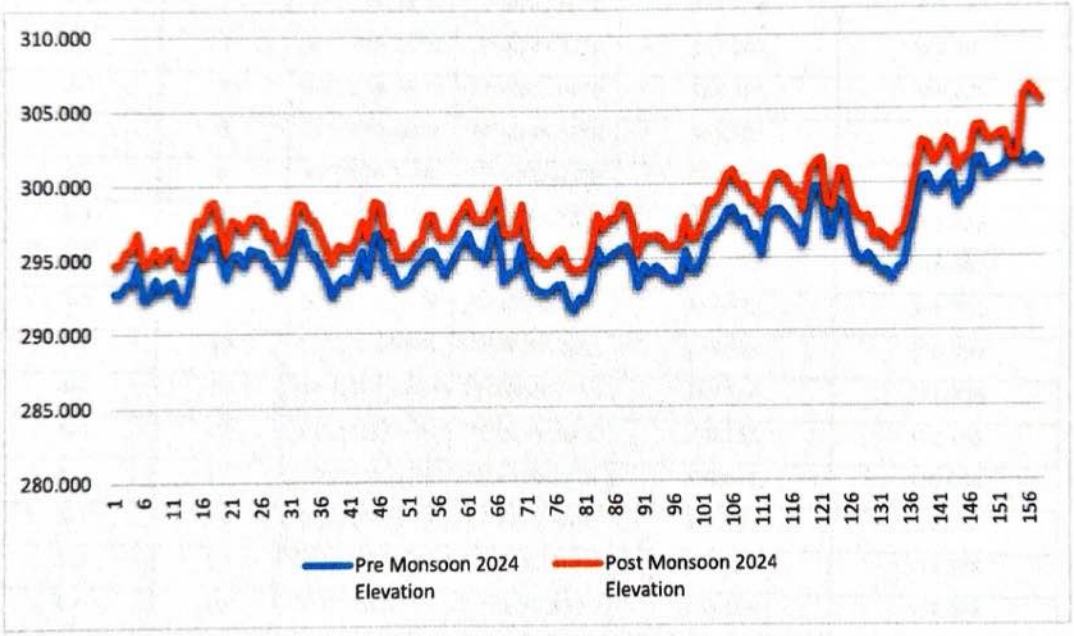
4-4	30	30°14'8.75"N	77°31'12.46"E	293.647	295.714
4-4	31	30°14'7.70"N	77°31'13.95"E	294.811	296.718
4-4	32	30°14'6.63"N	77°31'15.48"E	296.728	298.828
4-4	33	30°14'5.53"N	77°31'17.01"E	296.944	298.728
5-5	34	30°14'7.64"N	77°31'17.06"E	295.575	297.766
5-5	35	30°14'8.74"N	77°31'15.55"E	295.380	297.668
5-5	36	30°14'9.79"N	77°31'14.04"E	294.500	296.714
5-5	37	30°14'10.87"N	77°31'12.50"E	293.622	295.661
5-5	38	30°14'11.87"N	77°31'11.14"E	292.520	294.782
5-5	39	30°14'12.87"N	77°31'9.72"E	293.394	295.996
5-5	40	30°14'13.46"N	77°31'8.90"E	293.829	295.855
6-6	41	30°14'14.42"N	77°31'10.49"E	293.468	295.704
6-6	42	77°31'10.49"E	77°31'11.30"E	294.537	296.441
6-6	43	30°14'12.85"N	77°31'12.72"E	295.586	297.632
6-6	44	30°14'11.91"N	77°31'14.08"E	293.906	296.482
6-6	45	30°14'10.85"N	77°31'15.62"E	296.668	298.952
6-6	46	30°14'9.79"N	77°31'17.09"E	296.769	298.775
6-6	47	30°14'8.68"N	77°31'18.64"E	294.403	296.656
7-7	48	30°14'10.61"N	77°31'18.88"E	294.511	296.882
7-7	49	30°14'11.65"N	77°31'17.37"E	293.359	295.242
7-7	50	30°14'12.76"N	77°31'15.79"E	293.424	295.272
7-7	51	30°14'13.76"N	77°31'14.35"E	293.730	295.352
7-7	52	30°14'14.83"N	77°31'12.88"E	294.492	296.102
7-7	53	30°14'15.36"N	77°31'12.11"E	294.860	296.285
8-8	54	30°14'16.31"N	77°31'13.72"E	295.500	297.992
8-8	55	30°14'15.79"N	77°31'14.48"E	295.551	297.991
8-8	56	30°14'14.72"N	77°31'16.00"E	294.851	296.667
8-8	57	30°14'13.75"N	77°31'17.38"E	293.943	296.456
8-8	58	30°14'12.69"N	77°31'18.90"E	294.697	296.658
8-8	59	30°14'11.67"N	77°31'20.41"E	295.501	297.714
9-9	60	30°14'12.71"N	77°31'21.92"E	296.124	298.328
9-9	61	30°14'13.70"N	77°31'20.47"E	296.748	298.955
9-9	62	30°14'14.74"N	77°31'18.97"E	295.517	297.652
9-9	63	30°14'15.68"N	77°31'17.60"E	295.500	297.672
9-9	64	30°14'16.72"N	77°31'16.10"E	294.843	297.682
9-9	65	30°14'17.26"N	77°31'15.33"E	296.808	298.652
10-10	66	30°14'18.21"N	77°31'16.94"E	297.358	299.697
10-10	67	30°14'17.69"N	77°31'17.71"E	293.460	296.741
10-10	68	30°14'16.67"N	77°31'19.22"E	293.977	296.692

10-10	69	30°14'15.75"N	77°31'20.61"E	294.179	296.782
10-10	70	30°14'14.81"N	77°31'22.04"E	295.992	298.666
11-11	71	30°14'15.79"N	77°31'23.56"E	293.942	296.272
11-11	72	30°14'16.69"N	77°31'22.18"E	293.072	295.382
11-11	73	30°14'17.66"N	77°31'20.78"E	292.800	295.166
11-11	74	30°14'18.63"N	77°31'19.31"E	292.668	294.582
11-11	75	30°14'19.18"N	77°31'18.56"E	292.660	294.733
12-12	76	30°14'20.11"N	77°31'20.20"E	293.176	295.301
12-12	77	30°14'19.59"N	77°31'20.92"E	293.267	295.652
12-12	78	30°14'18.59"N	77°31'22.46"E	292.042	294.542
12-12	79	30°14'17.53"N	77°31'24.00"E	291.448	294.177
12-12	80	30°14'16.52"N	77°31'25.55"E	292.318	294.222
12-12	81	30°14'15.46"N	77°31'27.08"E	292.202	294.446
13-13	82	30°14'14.37"N	77°31'31.83"E	293.190	295.362
13-13	83	30°14'15.39"N	77°31'30.25"E	295.633	297.952
13-13	84	30°14'16.45"N	77°31'28.69"E	294.741	296.992
13-13	85	30°14'17.47"N	77°31'27.16"E	295.035	297.668
13-13	86	30°14'18.50"N	77°31'25.62"E	295.378	297.642
13-13	87	30°14'19.54"N	77°31'24.07"E	295.624	298.646
13-13	88	30°14'20.55"N	77°31'22.51"E	295.800	298.572
13-13	89	30°14'21.07"N	77°31'21.78"E	294.918	297.481
14-14	90	30°14'22.03"N	77°31'23.41"E	292.992	295.358
14-14	91	30°14'21.55"N	77°31'24.12"E	294.535	296.561
14-14	92	30°14'20.51"N	77°31'25.66"E	293.994	296.444
14-14	93	30°14'19.50"N	77°31'27.19"E	294.471	296.571
14-14	94	30°14'18.47"N	77°31'28.69"E	294.107	296.392
14-14	95	30°14'17.42"N	77°31'30.28"E	293.542	295.722
14-14	96	30°14'16.35"N	77°31'31.84"E	293.621	295.844
14-14	97	30°14'15.49"N	77°31'33.15"E	293.461	295.876
15-15	98	30°14'17.33"N	77°31'33.44"E	295.496	297.806
15-15	99	30°14'18.40"N	77°31'31.86"E	294.191	296.366
15-15	100	30°14'19.40"N	77°31'30.39"E	294.089	296.461
15-15	101	30°14'20.44"N	77°31'28.79"E	295.055	297.472
15-15	102	30°14'21.49"N	77°31'27.25"E	296.499	298.891
15-15	103	30°14'22.48"N	77°31'25.69"E	296.682	298.822
15-15	104	30°14'22.96"N	77°31'25.01"E	297.277	299.466
16-16	105	30°14'23.94"N	77°31'26.62"E	298.219	300.664
16-16	106	30°14'23.47"N	77°31'27.33"E	298.402	300.941
16-16	107	30°14'22.45"N	77°31'28.86"E	297.513	299.966

जिलाधिकारी (खनन अनुभाग) रुद्रप्रयाग

16-16	108	30°14'21.41"N	77°31'30.41"E	297.669	299.981
16-16	109	30°14'20.39"N	77°31'31.94"E	296.490	298.867
16-16	110	30°14'19.36"N	77°31'33.43"E	296.594	298.881
16-16	111	30°14'18.35"N	77°31'34.98"E	295.234	297.982
17-17	112	30°14'19.32"N	77°31'36.60"E	297.714	299.572
17-17	113	30°14'20.38"N	77°31'35.04"E	298.200	300.625
17-17	114	30°14'21.39"N	77°31'33.52"E	298.287	300.682
17-17	115	30°14'22.38"N	77°31'32.06"E	297.827	300.382
17-17	116	30°14'23.44"N	77°31'30.50"E	297.222	299.471
17-17	117	30°14'24.47"N	77°31'28.95"E	296.835	299.551
17-17	118	30°14'24.89"N	77°31'28.24"E	295.916	298.228
18-18	119	30°14'25.89"N	77°31'29.91"E	298.546	300.746
18-18	120	30°14'24.87"N	77°31'31.47"E	299.820	301.418
18-18	121	30°14'23.82"N	77°31'33.04"E	299.669	301.733
18-18	122	30°14'22.78"N	77°31'34.58"E	296.618	298.639
18-18	123	30°14'21.73"N	77°31'36.14"E	296.486	298.428
18-18	124	30°14'20.71"N	77°31'37.68"E	298.894	300.972
19-19	125	30°14'22.37"N	77°31'37.96"E	298.429	300.883
19-19	126	30°14'23.34"N	77°31'36.64"E	296.344	298.994
19-19	127	30°14'24.40"N	77°31'35.15"E	295.152	297.938
19-19	128	30°14'25.44"N	77°31'33.60"E	294.758	297.658
19-19	129	30°14'26.41"N	77°31'32.16"E	295.235	297.811
19-19	130	30°14'27.44"N	77°31'30.79"E	294.632	296.381
20-20	131	30°14'28.95"N	77°31'31.66"E	294.089	296.682
20-20	132	30°14'27.97"N	77°31'33.08"E	294.117	296.284
20-20	133	30°14'26.95"N	77°31'34.54"E	293.500	295.633
20-20	134	30°14'25.88"N	77°31'36.06"E	294.266	296.611
20-20	135	30°14'24.82"N	77°31'37.56"E	294.577	296.844
21-21	136	30°14'26.32"N	77°31'38.48"E	296.606	298.551
21-21	137	30°14'27.37"N	77°31'36.98"E	298.525	300.992
21-21	138	30°14'28.45"N	77°31'35.44"E	300.359	302.881
21-21	139	30°14'29.47"N	77°31'33.99"E	300.520	302.668
21-21	140	30°14'30.48"N	77°31'32.52"E	299.516	301.448
22-22	141	30°14'32.01"N	77°31'33.40"E	299.430	301.993
22-22	142	30°14'30.98"N	77°31'34.88"E	300.242	302.995
22-22	143	30°14'29.99"N	77°31'36.38"E	300.597	302.711
22-22	144	30°14'28.85"N	77°31'37.93"E	298.541	300.998
23-23	145	30°14'30.34"N	77°31'38.81"E	299.500	301.716
23-23	146	30°14'31.44"N	77°31'37.28"E	299.391	301.839

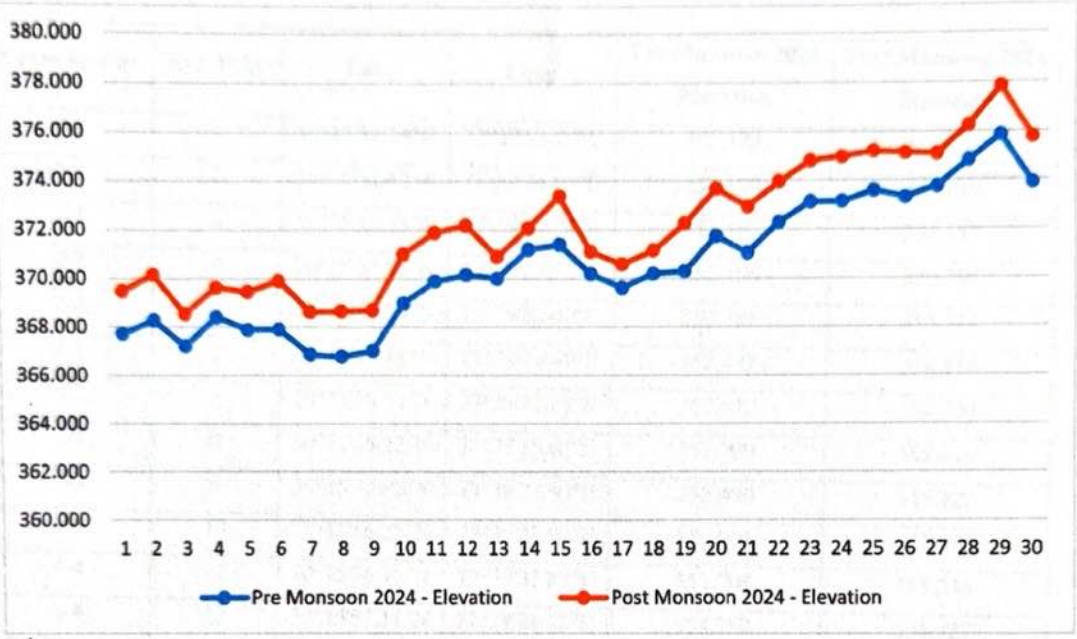
23-23	147	30°14'32.49"N	77°31'35.78"E	301.617	303.806
23-23	148	30°14'33.51"N	77°31'34.28"E	301.739	303.905
24-24	149	30°14'35.03"N	77°31'35.17"E	300.460	302.955
24-24	150	30°14'33.98"N	77°31'36.69"E	300.715	302.907
24-24	151	30°14'32.96"N	77°31'38.18"E	300.886	303.338
24-24	152	30°14'31.85"N	77°31'39.75"E	301.142	303.428
25-25	153	30°14'34.43"N	77°31'39.09"E	302.438	301.776
25-25	154	30°14'35.48"N	77°31'37.57"E	302.646	301.775
25-25	155	30°14'36.54"N	77°31'36.03"E	301.289	305.869
26-26	156	30°14'38.05"N	77°31'36.89"E	301.481	306.521
26-26	157	30°14'36.99"N	77°31'38.49"E	301.769	306.099
26-26	158	30°14'35.91"N	77°31'40.02"E	301.310	305.490



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
3	Behat	R.B.M.	Badkala Ra	Haidarpur Hindwala	Khand No / Gata No. - 8/1 , 19 & 22	4.200

Cross Section	Ref. Point	Lat.	Long.	Pre Monsoon 2024 - Elevation	Post Monsoon 2024 - Elevation
1-1	1	30°15'20.17"N	77°40'42.82"E	367.725	369.483
1-1	2	30°15'19.28"N	77°40'43.06"E	368.274	370.161
1-1	3	30°15'18.26"N	77°40'43.32"E	367.207	368.541
2-2	4	30°15'18.29"N	77°40'45.06"E	368.405	369.628
2-2	5	30°15'19.30"N	77°40'45.01"E	367.891	369.447
2-2	6	30°15'20.35"N	77°40'44.83"E	367.907	369.905
3-3	7	30°15'20.32"N	77°40'46.72"E	366.867	368.633
3-3	8	30°15'19.35"N	77°40'46.73"E	366.778	368.662
3-3	9	30°15'18.30"N	77°40'46.74"E	367.022	368.701
4-4	10	30°15'18.32"N	77°40'48.28"E	368.989	370.999
4-4	11	30°15'19.30"N	77°40'48.29"E	369.884	371.886
4-4	12	30°15'20.35"N	77°40'48.26"E	370.155	372.185
5-5	13	30°15'20.32"N	77°40'50.23"E	370.012	370.904
5-5	14	30°15'19.32"N	77°40'50.20"E	371.185	372.066
5-5	15	30°15'18.34"N	77°40'50.28"E	371.386	373.378
6-6	16	30°15'18.34"N	77°40'52.50"E	370.186	371.098
6-6	17	30°15'19.37"N	77°40'52.53"E	369.618	370.590
6-6	18	30°15'20.32"N	77°40'52.51"E	370.197	371.148
7-7	19	30°15'20.31"N	77°40'54.36"E	370.299	372.243
7-7	20	30°15'19.14"N	77°40'54.42"E	371.729	373.667
7-7	21	30°15'18.17"N	77°40'54.38"E	371.029	372.930
8-8	22	30°15'18.36"N	77°40'56.30"E	372.287	373.945
8-8	23	30°15'19.38"N	77°40'56.26"E	373.126	374.808
8-8	24	30°15'20.31"N	77°40'56.24"E	373.134	374.962
9-9	25	30°15'20.22"N	77°40'57.84"E	373.582	375.189
9-9	26	30°15'19.26"N	77°40'57.97"E	373.297	375.119

9-9	27	30°15'18.41"N	77°40'58.03"E	373.740	375.082
10-10	28	30°15'18.42"N	77°41'0.14"E	374.808	376.254
10-10	29	30°15'19.34"N	77°41'0.13"E	375.830	377.821
10-10	30	30°15'20.20"N	77°40'59.96"E	373.878	375.759

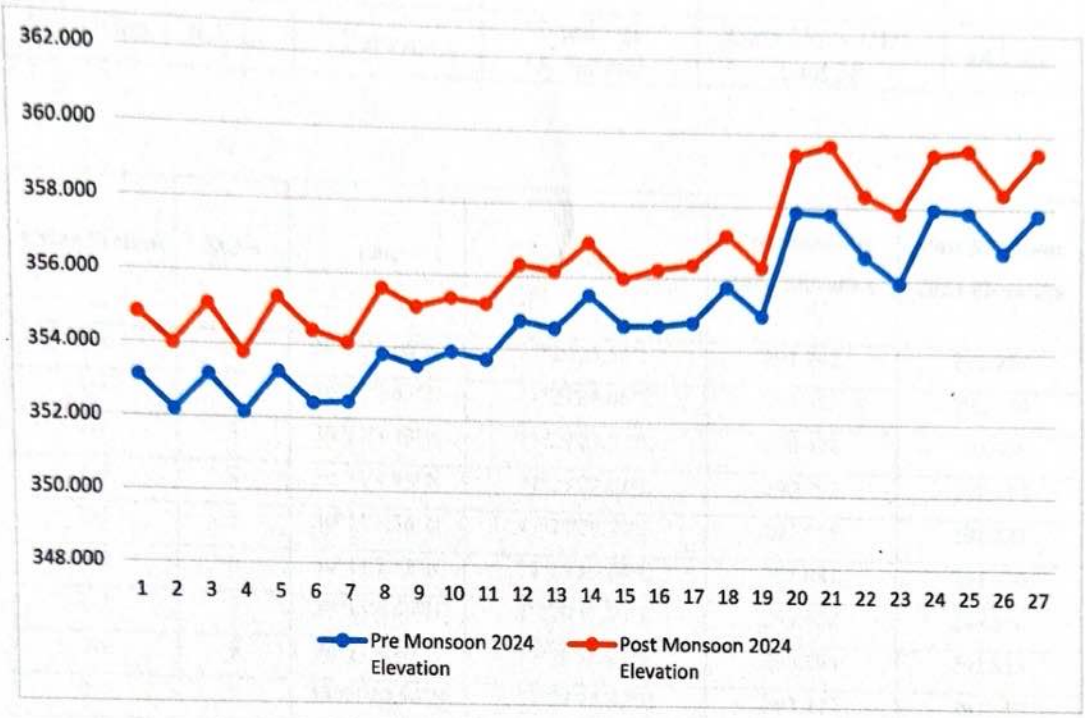


जिलाधिकारी (खनन अनुभाग) रायगढ़

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
4	Behat	R.B.M.	Khurwali Ra	Sherpur Pelon	Gata No. - 378/2 & 379/2	7.000

Cross Section	Ref. Point	Lat.	Long.	Pre Monsoon 2024 Elevation	Post Monsoon 2024 Elevation
1-1	1	30°15'52.54"N	77°39'23.28"E	353.128	354.848
1-1	2	30°15'52.42"N	77°39'24.88"E	352.199	354.019
1-1	3	30°15'52.35"N	77°39'26.74"E	353.182	355.117
2-2	4	30°15'53.58"N	77°39'27.13"E	352.156	353.784
2-2	5	30°15'53.80"N	77°39'25.40"E	353.281	355.321
2-2	6	30°15'54.18"N	77°39'23.49"E	352.422	354.414
3-3	7	30°15'55.51"N	77°39'23.68"E	352.472	354.100
3-3	8	30°15'55.22"N	77°39'25.61"E	353.799	355.616
3-3	9	30°15'54.83"N	77°39'27.59"E	353.490	355.122
4-4	10	30°15'56.25"N	77°39'27.92"E	353.901	355.372
4-4	11	30°15'56.76"N	77°39'25.93"E	353.708	355.236
4-4	12	30°15'57.17"N	77°39'24.12"E	354.789	356.327
5-5	13	30°15'58.74"N	77°39'24.28"E	354.593	356.159
5-5	14	30°15'58.41"N	77°39'26.30"E	355.506	356.947
5-5	15	30°15'58.05"N	77°39'28.36"E	354.667	355.975
6-6	16	30°15'59.44"N	77°39'28.78"E	354.670	356.233
6-6	17	30°15'59.85"N	77°39'26.66"E	354.782	356.374
6-6	18	30°16'0.17"N	77°39'24.66"E	355.772	357.189
7-7	19	30°16'1.97"N	77°39'24.80"E	354.988	356.326
7-7	20	30°16'1.49"N	77°39'26.86"E	357.858	359.424
7-7	21	30°16'1.43"N	77°39'29.36"E	357.804	359.676
8-8	22	30°16'2.96"N	77°39'28.97"E	356.647	358.329
8-8	23	30°16'3.24"N	77°39'27.39"E	355.933	357.860
8-8	24	30°16'3.71"N	77°39'25.23"E	357.972	359.443
9-9	25	30°16'5.22"N	77°39'25.54"E	357.882	359.564
9-9	26	30°16'4.79"N	77°39'27.71"E	356.801	358.382
9-9	27	30°16'4.34"N	77°39'29.78"E	357.825	359.489

जिलाधिकारी (खनन अनुभाग) बहराइच


362.000
360.000
358.000
356.000
354.000
352.000
350.000
348.000
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
Pre Monsoon 2024 Elevation
Post Monsoon 2024 Elevation

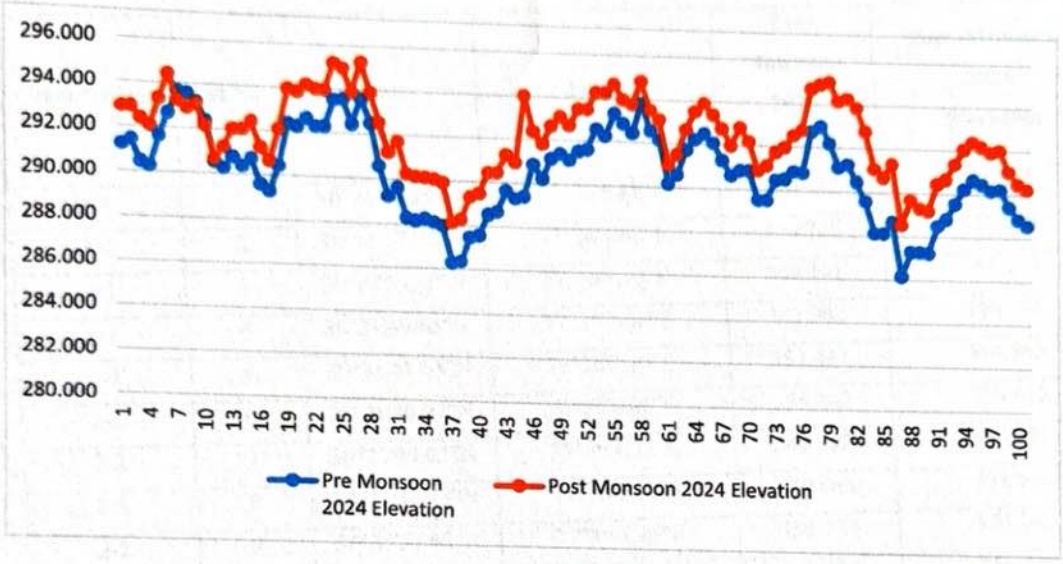
Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
5	Behat	R.B.M.	Yamuna	Nuniyari Achatmal	Gata No. - 1/1/1 Laat 38	24.290

Cross Section	Sl.No	Lat.	Long.	Pre Monsoon 2024 Elevation	Post Monsoon 2024 Elevation
1-1	1	30°11'1.66"N	77°29'25.53"E	291.242	292.921
1-1	2	30°11'2.63"N	77°29'24.46"E	291.455	292.944
1-1	3	30°11'3.73"N	77°29'23.32"E	290.478	292.406
1-1	4	30°11'4.95"N	77°29'22.02"E	290.292	292.114
1-1	5	30°11'6.36"N	77°29'20.73"E	291.655	293.323
1-1	6	30°11'7.32"N	77°29'19.44"E	292.681	294.439
1-1	7	30°11'8.60"N	77°29'18.09"E	293.652	293.270
1-1	8	30°11'9.60"N	77°29'16.84"E	293.594	292.913
1-1	9	30°11'10.94"N	77°29'15.32"E	293.227	293.117
1-1	10	30°11'11.83"N	77°29'14.40"E	292.386	292.184
1-1	11	30°11'12.75"N	77°29'13.23"E	290.554	290.682
2-2	12	30°11'13.80"N	77°29'14.38"E	290.294	291.222
2-2	13	30°11'12.89"N	77°29'15.35"E	290.793	292.075
2-2	14	30°11'11.73"N	77°29'16.53"E	290.387	292.067
2-2	15	30°11'10.55"N	77°29'18.05"E	290.741	292.425
2-2	16	30°11'9.54"N	77°29'19.41"E	289.595	291.250
2-2	17	30°11'8.40"N	77°29'20.55"E	289.291	290.673
2-2	18	30°11'7.01"N	77°29'22.04"E	290.452	292.136
2-2	19	30°11'5.81"N	77°29'23.42"E	292.381	293.963
2-2	20	30°11'4.75"N	77°29'24.83"E	292.289	293.843
2-2	21	30°11'3.55"N	77°29'25.96"E	292.641	294.179
2-2	22	30°11'2.35"N	77°29'27.10"E	292.292	293.985
3-3	23	30°11'3.53"N	77°29'28.73"E	292.314	293.958
3-3	24	30°11'4.57"N	77°29'27.51"E	293.538	295.199
3-3	25	30°11'5.58"N	77°29'26.29"E	293.577	294.961
3-3	26	30°11'6.95"N	77°29'24.85"E	292.444	293.883
3-3	27	30°11'7.89"N	77°29'23.43"E	293.593	295.26
3-3	28	30°11'9.22"N	77°29'22.11"E	292.508	293.90
3-3	29	30°11'10.29"N	77°29'20.84"E	290.593	292.55

3-3	30	30°11'11.71"N	77°29'19.42"E	289.238	291.226
3-3	31	30°11'12.86"N	77°29'17.80"E	289.645	291.727
3-3	32	30°11'13.98"N	77°29'16.64"E	288.282	290.288
3-3	33	30°11'14.73"N	77°29'15.73"E	288.167	290.164
4-4	34	30°11'15.98"N	77°29'16.67"E	288.249	290.134
4-4	35	30°11'14.91"N	77°29'17.94"E	288.128	290.094
4-4	36	30°11'14.04"N	77°29'19.00"E	287.988	289.932
4-4	37	30°11'12.80"N	77°29'20.52"E	286.291	288.116
4-4	38	30°11'11.54"N	77°29'21.80"E	286.362	288.290
4-4	39	30°11'10.55"N	77°29'23.12"E	287.476	289.326
4-4	40	30°11'9.16"N	77°29'24.65"E	287.559	289.500
4-4	41	30°11'8.07"N	77°29'26.06"E	288.544	290.464
4-4	42	30°11'6.95"N	77°29'27.39"E	288.661	290.475
4-4	43	30°11'5.80"N	77°29'28.64"E	289.642	291.296
4-4	44	30°11'5.09"N	77°29'29.60"E	289.299	290.962
5-5	45	30°11'7.05"N	77°29'30.19"E	289.408	294.033
5-5	46	30°11'8.04"N	77°29'29.07"E	290.896	292.416
5-5	47	30°11'9.33"N	77°29'27.62"E	290.241	291.834
5-5	48	30°11'10.56"N	77°29'25.82"E	291.189	292.681
5-5	49	30°11'11.63"N	77°29'24.30"E	291.405	293.097
5-5	50	30°11'12.93"N	77°29'23.03"E	291.147	292.735
5-5	51	30°11'14.07"N	77°29'21.70"E	291.558	293.491
5-5	52	30°11'15.39"N	77°29'20.27"E	291.638	293.467
5-5	53	30°11'16.11"N	77°29'19.21"E	292.594	294.255
5-5	54	30°11'16.99"N	77°29'17.96"E	292.280	294.262
6-6	55	30°11'18.47"N	77°29'19.59"E	293.314	294.648
6-6	56	30°11'17.63"N	77°29'20.71"E	292.871	293.965
6-6	57	30°11'16.48"N	77°29'22.02"E	292.449	293.774
6-6	58	30°11'15.37"N	77°29'23.17"E	293.822	294.817
6-6	59	30°11'14.29"N	77°29'24.21"E	292.592	293.520
6-6	60	30°11'13.40"N	77°29'25.79"E	292.173	293.106
6-6	61	30°11'12.46"N	77°29'27.22"E	290.182	291.038
6-6	62	30°11'10.99"N	77°29'28.61"E	290.608	291.536
6-6	63	30°11'10.11"N	77°29'29.90"E	291.749	292.683
7-7	64	30°11'11.06"N	77°29'31.36"E	292.228	293.512
7-7	65	30°11'11.97"N	77°29'30.27"E	292.506	293.890
7-7	66	30°11'13.29"N	77°29'28.78"E	292.104	293.[illegible]
7-7	67	30°11'14.22"N	77°29'27.54"E	291.317	292.[illegible]
7-7	68	30°11'15.36"N	77°29'26.20"E	290.622	291.[illegible]

7-7	69	30°11'16.53"N	77°29'24.54"E	290.869	292.851
7-7	70	30°11'17.89"N	77°29'23.18"E	290.871	292.205
7-7	71	30°11'18.95"N	77°29'21.90"E	289.538	290.901
7-7	72	30°11'19.72"N	77°29'20.95"E	289.549	291.131
8-8	73	30°11'21.02"N	77°29'22.36"E	290.450	291.744
8-8	74	30°11'20.04"N	77°29'23.59"E	290.522	291.978
8-8	75	30°11'19.12"N	77°29'24.53"E	290.881	292.563
8-8	76	30°11'18.16"N	77°29'25.91"E	290.828	292.813
8-8	77	30°11'16.84"N	77°29'27.52"E	292.741	294.699
8-8	78	30°11'15.64"N	77°29'28.96"E	292.990	294.918
8-8	79	30°11'14.64"N	77°29'30.17"E	292.208	295.036
8-8	80	30°11'13.44"N	77°29'31.78"E	291.117	294.158
9-9	81	30°11'15.28"N	77°29'32.06"E	291.280	294.288
9-9	82	30°11'16.59"N	77°29'30.84"E	290.478	293.869
9-9	83	30°11'17.88"N	77°29'29.22"E	289.587	292.815
9-9	84	30°11'18.86"N	77°29'27.64"E	288.122	291.080
9-9	85	30°11'19.86"N	77°29'26.37"E	288.138	290.696
9-9	86	30°11'20.97"N	77°29'24.89"E	288.666	291.330
9-9	87	30°11'22.12"N	77°29'23.71"E	286.161	288.543
10-10	88	30°11'23.32"N	77°29'25.06"E	287.298	289.679
10-10	89	30°11'22.24"N	77°29'25.86"E	287.306	289.304
10-10	90	30°11'21.04"N	77°29'27.45"E	287.242	289.194
10-10	91	30°11'19.99"N	77°29'28.70"E	288.517	290.445
10-10	92	30°11'19.20"N	77°29'29.79"E	288.838	290.675
10-10	93	30°11'17.96"N	77°29'31.33"E	289.539	291.391
10-10	94	30°11'16.79"N	77°29'32.60"E	290.218	292.055
11-11	95	30°11'17.45"N	77°29'33.97"E	290.638	292.400
11-11	96	30°11'18.89"N	77°29'33.05"E	290.463	292.185
11-11	97	30°11'20.16"N	77°29'31.97"E	290.182	291.947
11-11	98	30°11'20.80"N	77°29'30.31"E	290.225	292.041
11-11	99	30°11'22.01"N	77°29'28.85"E	289.416	291.069
11-11	100	30°11'23.28"N	77°29'27.17"E	288.841	290.485
11-11	101	30°11'24.28"N	77°29'26.23"E	288.558	290.246

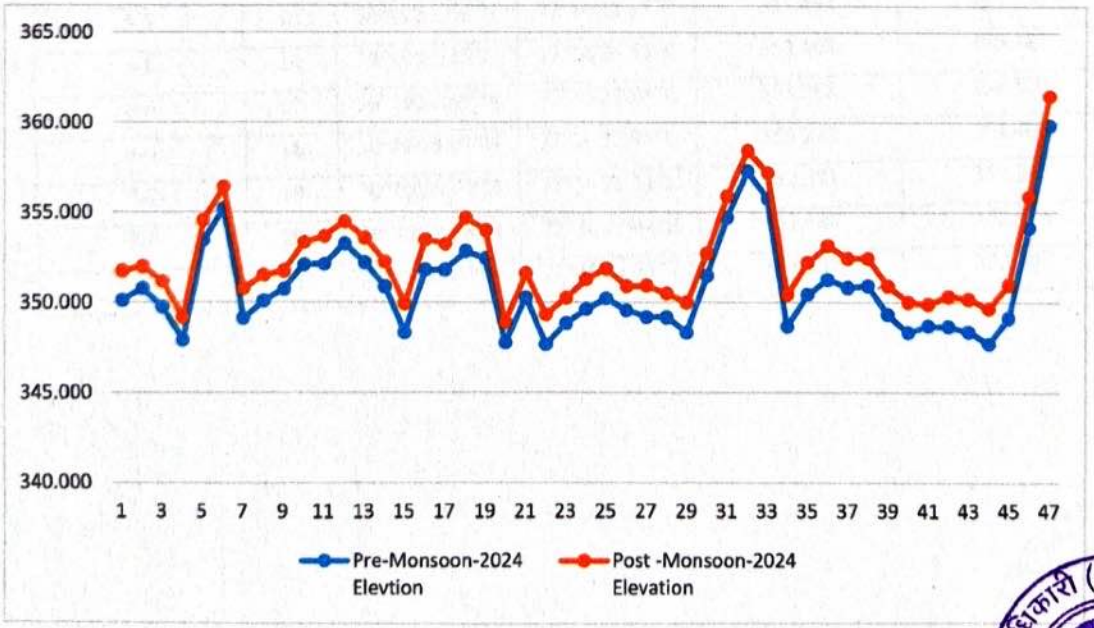
जिलाधिकारी (खनन अनुभाग) चित्रकूट


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Pre Monsoon 2024 Elevation
Post Monsoon 2024 Elevation

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
6	Behat	R.B.M.	Yamuna	Rehna	Khand No. / Gata no. - 03, Lot No - 03	8.050

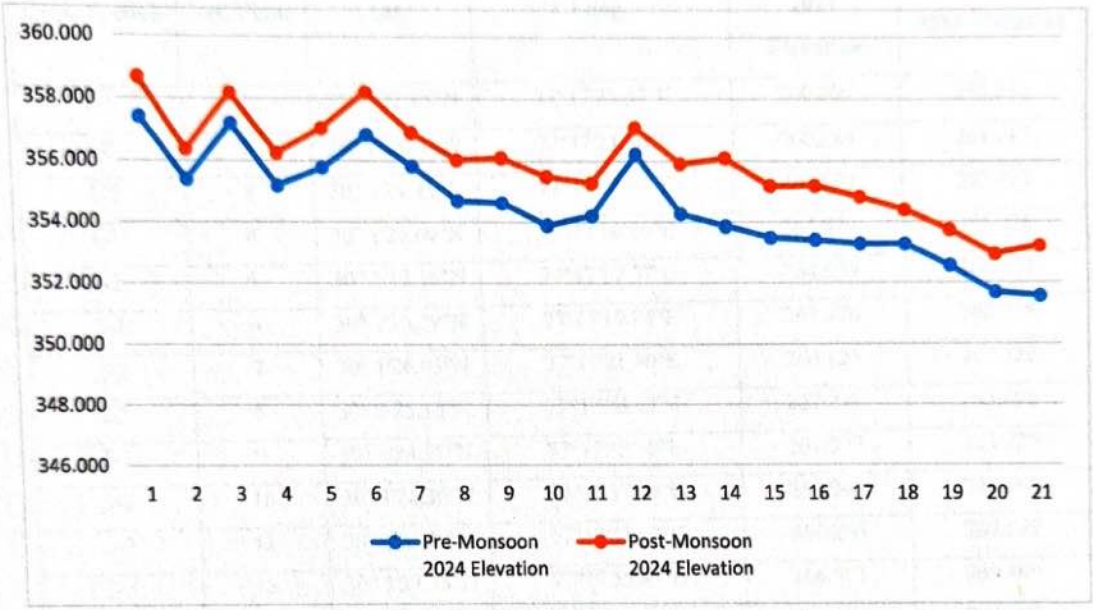
Cross Section	Sl.No	Lat.	Long.	Pre-Monsoon-2024 Elevtion	Post -Monsoon-2024 Elevation
1-1	1	30°21'36.29"N	77°36'5.48"E	350.125	351.747
1-1	2	30°21'37.76"N	77°36'4.62"E	350.765	351.990
1-1	3	30°21'39.20"N	77°36'3.73"E	349.741	351.183
1-1	4	30°21'40.65"N	77°36'2.86"E	347.902	349.171
1-1	5	30°21'41.68"N	77°36'2.29"E	353.422	354.563
2-2	6	30°21'40.97"N	77°36'0.08"E	355.202	356.416
2-2	7	30°21'40.03"N	77°36'1.12"E	349.122	350.784
2-2	8	30°21'38.73"N	77°36'2.31"E	350.088	351.502
2-2	9	30°21'37.65"N	77°36'3.46"E	350.733	351.747
2-2	10	30°21'36.45"N	77°36'4.74"E	352.104	353.328
2-2	11	30°21'35.93"N	77°36'5.21"E	352.106	353.678
3-3	12	30°21'34.57"N	77°36'4.12"E	353.244	354.482
3-3	13	30°21'35.70"N	77°36'3.01"E	352.211	353.578
3-3	14	30°21'36.95"N	77°36'1.72"E	350.856	352.284
3-3	15	30°21'38.08"N	77°36'0.52"E	348.341	349.937
3-3	16	30°21'39.27"N	77°35'59.25"E	351.795	353.477
3-3	17	30°21'40.32"N	77°35'58.12"E	351.799	353.242
4-4	18	30°21'39.75"N	77°35'56.31"E	352.831	354.687
4-4	19	30°21'38.65"N	77°35'57.51"E	352.428	354.010
4-4	20	30°21'37.44"N	77°35'58.74"E	347.757	348.931
4-4	21	30°21'36.27"N	77°35'59.95"E	350.276	351.614
4-4	22	30°21'35.11"N	77°36'1.18"E	347.682	349.350
4-4	23	30°21'33.92"N	77°36'2.49"E	348.822	350.263
4-4	24	30°21'33.58"N	77°36'3.38"E	349.628	351.296
5-5	25	30°21'32.07"N	77°36'2.17"E	350.228	351.889
5-5	26	30°21'33.27"N	77°36'0.87"E	349.551	350.892
5-5	27	30°21'34.51"N	77°35'59.55"E	349.192	350.944

5-5	28	30°21'35.64"N	77°35'58.32"E	349.174	350.511
5-5	29	30°21'36.80"N	77°35'57.03"E	348.335	350.003
5-5	30	30°21'38.00"N	77°35'55.71"E	351.492	352.719
5-5	31	30°21'39.15"N	77°35'54.48"E	354.714	355.906
6-6	32	30°21'38.58"N	77°35'52.65"E	357.288	358.434
6-6	33	30°21'37.34"N	77°35'53.96"E	355.771	357.211
6-6	34	30°21'36.19"N	77°35'55.27"E	348.662	350.430
6-6	35	30°21'34.96"N	77°35'56.62"E	350.441	352.220
6-6	36	30°21'33.79"N	77°35'57.90"E	351.277	353.162
6-6	37	30°21'32.58"N	77°35'59.32"E	350.820	352.451
6-6	38	30°21'31.38"N	77°36'0.53"E	350.922	352.459
6-6	39	30°21'30.80"N	77°36'1.16"E	349.336	350.932
7-7	40	30°21'29.58"N	77°36'0.22"E	348.331	350.012
7-7	41	30°21'30.73"N	77°35'58.92"E	348.690	349.907
7-7	42	30°21'31.93"N	77°35'57.56"E	348.655	350.339
7-7	43	30°21'33.13"N	77°35'56.25"E	348.382	350.196
7-7	44	30°21'34.29"N	77°35'54.87"E	347.714	349.685
7-7	45	30°21'35.54"N	77°35'53.58"E	349.138	350.995
7-7	46	30°21'36.75"N	77°35'52.26"E	354.155	355.888
7-7	47	30°21'37.96"N	77°35'50.83"E	359.850	361.495



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
7	Behat	R.B.M.	Gaisara Rao	Rahena	Gata No. 179/2	3.750

Cross Section	Sl.No	Lat.	Long.	Pre-Monsoon 2024 Elevation	Post-Monsoon 2024 Elevation
1-1	1	30°19'55.66"N	77°36'32.17"E	357.412	358.694
1-1	2	30°19'54.29"N	77°36'32.46"E	355.382	356.363
1-1	3	30°19'52.92"N	77°36'32.76"E	357.208	358.200
2-2	4	30°19'52.60"N	77°36'30.90"E	355.188	356.246
2-2	5	30°19'53.97"N	77°36'30.62"E	355.766	357.051
2-2	6	30°19'55.34"N	77°36'30.35"E	356.831	358.213
3-3	7	30°19'55.01"N	77°36'28.53"E	355.822	356.906
3-3	8	30°19'53.65"N	77°36'28.79"E	354.698	356.033
3-3	9	30°19'52.27"N	77°36'29.07"E	354.632	356.101
4-4	10	30°19'51.96"N	77°36'27.24"E	353.895	355.489
4-4	11	30°19'53.34"N	77°36'26.96"E	354.208	355.274
4-4	12	30°19'54.70"N	77°36'26.68"E	356.212	357.084
5-5	13	30°19'54.39"N	77°36'24.82"E	354.266	355.910
5-5	14	30°19'53.02"N	77°36'25.10"E	353.864	356.088
5-5	15	30°19'51.66"N	77°36'25.37"E	353.492	355.173
6-6	16	30°19'51.35"N	77°36'23.55"E	353.408	355.182
6-6	17	30°19'52.69"N	77°36'23.28"E	353.288	354.829
6-6	18	30°19'54.07"N	77°36'22.98"E	353.272	354.400
7-7	19	30°19'53.74"N	77°36'21.13"E	352.571	353.746
7-7	20	30°19'52.38"N	77°36'21.44"E	351.683	352.935
7-7	21	30°19'51.05"N	77°36'21.72"E	351.552	353.207


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Pre-Monsoon 2024 Elevation
Post-Monsoon 2024 Elevation

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (In Ha.)
8	Nukur	Sand	Yamuna	Dhikkan Kalan	Gata No. - 839, 841 to 856, 858, 859, 860, 861,863,864,865,866,867, 871, 872, 888, 889, 406 , 407	52.630

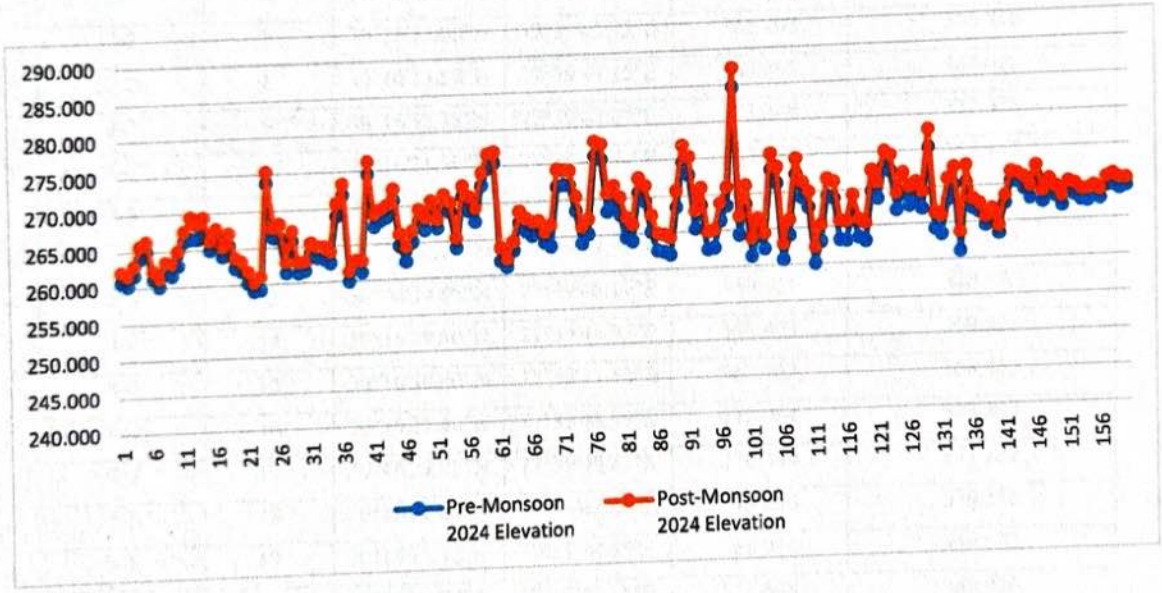
Cross Section	Ref. Point	Lat.	Long.	Pre-Monsoon 2024 Elevation	Post-Monsoon 2024 Elevation
1-1	1	30° 1'22.85"N	77°17'23.37"E	260.807	262.215
1-1	2	30° 1'23.84"N	77°17'21.30"E	260.284	261.617
1-1	3	30° 1'24.91"N	77°17'18.92"E	261.695	262.977
1-1	4	30° 1'25.69"N	77°17'16.86"E	264.079	265.726
2-2	5	30° 1'27.34"N	77°17'17.57"E	264.989	266.313
2-2	6	30° 1'26.79"N	77°17'19.74"E	261.176	262.258
2-2	7	30° 1'26.03"N	77°17'21.90"E	260.125	261.229
2-2	8	30° 1'25.14"N	77°17'24.02"E	262.278	263.406
2-2	9	30° 1'24.38"N	77°17'25.78"E	261.577	263.229
3-3	10	30° 1'24.36"N	77°17'27.99"E	262.946	264.898
3-3	11	30° 1'26.29"N	77°17'27.02"E	266.256	267.589
3-3	12	30° 1'27.23"N	77°17'25.43"E	266.521	269.449
3-3	13	30° 1'28.23"N	77°17'23.17"E	266.504	268.492
3-3	14	30° 1'28.99"N	77°17'21.02"E	267.400	269.366
3-3	15	30° 1'29.64"N	77°17'18.88"E	264.900	266.181
4-4	16	30° 1'31.61"N	77°17'19.93"E	266.612	267.859
4-4	17	30° 1'30.92"N	77°17'21.69"E	263.970	265.305
4-4	18	30° 1'30.30"N	77°17'23.64"E	265.462	267.120
4-4	19	30° 1'29.44"N	77°17'25.55"E	262.321	263.762
4-4	20	30° 1'28.69"N	77°17'27.66"E	261.882	263.213
4-4	21	30° 1'27.78"N	77°17'29.43"E	260.211	261.836
4-4	22	30° 1'27.11"N	77°17'31.29"E	259.082	260.254
5-5	23	30° 1'28.46"N	77°17'32.82"E	259.274	261.036
5-5	24	30° 1'29.66"N	77°17'30.88"E	273.854	275.382
5-5	25	30° 1'30.48"N	77°17'29.16"E	266.335	267.669
5-5	26	30° 1'31.50"N	77°17'27.29"E	266.229	268.170
5-5	27	30° 1'32.58"N	77°17'25.18"E	261.465	262.908
5-5	28	30° 1'33.16"N	77°17'23.15"E	265.776	267.084
5-5	29	30° 1'33.91"N	77°17'21.22"E	261.333	262.828

6-6	30	30° 1'35.90"N	77°17'22.10"E	261.662	262.886
6-6	31	30° 1'35.18"N	77°17'23.89"E	264.137	265.471
6-6	32	30° 1'34.54"N	77°17'25.78"E	263.327	264.911
6-6	33	30° 1'33.77"N	77°17'27.58"E	263.238	264.804
6-6	34	30° 1'32.90"N	77°17'29.29"E	262.617	264.168
6-6	35	30° 1'31.88"N	77°17'31.07"E	268.971	270.653
6-6	36	30° 1'31.18"N	77°17'32.87"E	271.869	273.386
6-6	37	30° 1'30.13"N	77°17'34.69"E	259.953	261.334
7-7	38	30° 1'30.97"N	77°17'36.38"E	261.759	262.765
7-7	39	30° 1'32.22"N	77°17'35.22"E	261.121	262.749
7-7	40	30° 1'33.19"N	77°17'33.51"E	274.558	276.305
7-7	41	30° 1'34.05"N	77°17'31.73"E	267.301	268.962
7-7	42	30° 1'35.06"N	77°17'30.11"E	268.128	269.661
7-7	43	30° 1'36.01"N	77°17'28.40"E	268.574	270.196
7-7	44	30° 1'36.79"N	77°17'26.43"E	270.880	272.481
7-7	45	30° 1'37.49"N	77°17'24.58"E	264.630	266.224
7-7	46	30° 1'38.13"N	77°17'22.84"E	262.436	264.391
8-8	47	30° 1'39.92"N	77°17'23.64"E	265.026	266.618
8-8	48	30° 1'39.38"N	77°17'25.60"E	267.899	269.487
8-8	49	30° 1'38.81"N	77°17'27.46"E	266.628	268.294
8-8	50	30° 1'37.95"N	77°17'29.22"E	269.264	270.645
8-8	51	30° 1'37.09"N	77°17'30.96"E	266.826	268.008
8-8	52	30° 1'36.15"N	77°17'32.70"E	269.739	271.401
8-8	53	30° 1'35.21"N	77°17'34.43"E	268.998	270.279
8-8	54	30° 1'34.26"N	77°17'36.15"E	264.022	265.363
8-8	55	30° 1'33.20"N	77°17'37.72"E	271.086	272.533
8-8	56	30° 1'32.29"N	77°17'39.22"E	268.984	270.950
9-9	57	30° 1'33.99"N	77°17'40.42"E	267.509	269.334
9-9	58	30° 1'35.08"N	77°17'38.90"E	272.439	274.186
9-9	59	30° 1'36.32"N	77°17'37.28"E	274.777	276.743
9-9	60	30° 1'37.33"N	77°17'35.50"E	275.505	277.007
9-9	61	30° 1'38.05"N	77°17'33.74"E	261.962	263.773
9-9	62	30° 1'39.02"N	77°17'32.00"E	261.112	262.224
9-9	63	30° 1'39.91"N	77°17'30.14"E	263.343	264.571
9-9	64	30° 1'40.71"N	77°17'28.18"E	267.136	268.680
9-9	65	30° 1'41.41"N	77°17'26.37"E	266.023	267.684
9-9	66	30° 1'41.88"N	77°17'24.51"E	265.296	267.177
10-10	67	30° 1'41.59"N	77°17'31.65"E	265.790	267.3[illegible]
10-10	68	30° 1'40.60"N	77°17'33.40"E	264.365	265.[illegible]6

10-10	69	30° 1'39.81"N	77°17'35.07"E	263.746	266.673
10-10	70	30° 1'38.99"N	77°17'36.98"E	271.920	274.244
10-10	71	30° 1'38.03"N	77°17'38.82"E	272.112	274.120
10-10	72	30° 1'36.89"N	77°17'40.16"E	272.028	274.042
10-10	73	30° 1'35.89"N	77°17'41.75"E	268.408	270.522
11-11	74	30° 1'37.58"N	77°17'42.90"E	263.993	266.221
11-11	75	30° 1'38.76"N	77°17'41.62"E	265.213	267.301
11-11	76	30° 1'39.92"N	77°17'39.89"E	275.955	277.961
11-11	77	30° 1'41.13"N	77°17'38.02"E	275.422	277.541
11-11	78	30° 1'42.16"N	77°17'35.41"E	268.172	270.700
11-11	79	30° 1'43.42"N	77°17'33.32"E	269.116	271.780
12-12	80	30° 1'45.32"N	77°17'34.46"E	267.713	270.156
12-12	81	30° 1'44.26"N	77°17'36.11"E	264.553	267.275
12-12	82	30° 1'43.32"N	77°17'37.81"E	264.027	266.255
12-12	83	30° 1'42.39"N	77°17'39.71"E	270.667	272.671
12-12	84	30° 1'41.31"N	77°17'41.63"E	269.417	271.598
12-12	85	30° 1'40.18"N	77°17'43.25"E	265.212	267.437
12-12	86	30° 1'39.37"N	77°17'44.48"E	262.576	264.958
13-13	87	30° 1'40.97"N	77°17'45.61"E	262.360	264.756
13-13	88	30° 1'42.04"N	77°17'44.13"E	261.986	264.318
13-13	89	30° 1'43.23"N	77°17'42.58"E	268.458	270.759
13-13	90	30° 1'44.22"N	77°17'40.95"E	274.622	276.966
13-13	91	30° 1'45.19"N	77°17'39.20"E	272.848	275.350
13-13	92	30° 1'46.14"N	77°17'37.48"E	265.375	267.813
13-13	93	30° 1'47.22"N	77°17'35.80"E	268.580	271.027
14-14	94	30° 1'48.79"N	77°17'37.05"E	262.469	264.912
14-14	95	30° 1'47.94"N	77°17'38.68"E	262.715	265.160
14-14	96	30° 1'46.92"N	77°17'40.38"E	266.382	268.822
14-14	97	30° 1'45.95"N	77°17'42.23"E	268.342	271.002
14-14	98	30° 1'44.89"N	77°17'44.10"E	284.711	287.373
14-14	99	30° 1'43.75"N	77°17'45.74"E	264.366	266.907
14-14	100	30° 1'43.42"N	77°17'47.98"E	268.546	271.139
15-15	101	30° 1'45.31"N	77°17'47.54"E	261.392	263.833
15-15	102	30° 1'46.46"N	77°17'45.84"E	264.428	266.516
15-15	103	30° 1'47.58"N	77°17'44.14"E	262.318	264.417
15-15	104	30° 1'48.59"N	77°17'42.07"E	273.175	275.389
15-15	105	30° 1'49.55"N	77°17'40.30"E	271.269	273.506
15-15	106	30° 1'50.73"N	77°17'38.65"E	260.715	262.890
16-16	107	30° 1'52.00"N	77°17'40.07"E	264.067	266.173

16-16	108	30° 1'51.33"N	77°17'41.83"E	272.450	274.594
16-16	109	30° 1'50.39"N	77°17'43.54"E	269.141	271.307
16-16	110	30° 1'49.47"N	77°17'45.55"E	267.780	269.968
16-16	111	30° 1'48.14"N	77°17'47.22"E	260.097	262.286
16-16	112	30° 1'47.16"N	77°17'49.10"E	263.083	265.374
16-16	113	30° 1'46.16"N	77°17'50.81"E	269.300	271.688
17-17	114	30° 1'47.66"N	77°17'52.27"E	268.884	271.240
17-17	115	30° 1'48.49"N	77°17'50.36"E	263.165	265.816
17-17	116	30° 1'49.72"N	77°17'48.89"E	263.100	265.686
17-17	117	30° 1'50.67"N	77°17'47.43"E	266.700	269.294
17-17	118	30° 1'51.63"N	77°17'45.79"E	263.439	265.939
17-17	119	30° 1'52.63"N	77°17'44.21"E	262.924	265.372
18-18	120	30° 1'53.45"N	77°17'46.74"E	269.712	272.596
18-18	121	30° 1'52.56"N	77°17'48.13"E	268.664	270.888
18-18	122	30° 1'51.65"N	77°17'49.56"E	273.134	275.137
18-18	123	30° 1'50.67"N	77°17'51.19"E	272.392	274.593
18-18	124	30° 1'49.87"N	77°17'52.65"E	267.016	269.362
18-18	125	30° 1'49.01"N	77°17'54.27"E	269.283	272.081
19-19	126	30° 1'50.34"N	77°17'55.95"E	267.544	270.155
19-19	127	30° 1'51.43"N	77°17'54.29"E	268.569	270.793
19-19	128	30° 1'52.29"N	77°17'52.95"E	267.040	269.367
19-19	129	30° 1'52.96"N	77°17'51.66"E	275.403	277.959
19-19	130	30° 1'54.18"N	77°17'50.14"E	264.218	266.451
20-20	131	30° 1'54.89"N	77°17'51.93"E	263.488	266.042
20-20	132	30° 1'54.24"N	77°17'53.41"E	268.147	271.069
20-20	133	30° 1'53.40"N	77°17'54.80"E	270.200	272.624
20-20	134	30° 1'52.52"N	77°17'56.29"E	261.145	263.713
20-20	135	30° 1'51.65"N	77°17'57.83"E	270.521	272.802
21-21	136	30° 1'52.96"N	77°17'59.61"E	266.837	268.162
21-21	137	30° 1'53.80"N	77°17'58.20"E	266.325	267.543
21-21	138	30° 1'54.71"N	77°17'56.73"E	264.489	265.666
21-21	139	30° 1'55.60"N	77°17'55.51"E	265.526	266.747
21-21	140	30° 1'56.44"N	77°17'54.01"E	263.360	264.366
22-22	141	30° 1'57.42"N	77°17'55.40"E	267.400	268.494
22-22	142	30° 1'56.84"N	77°17'57.04"E	270.499	271.740
22-22	143	30° 1'55.96"N	77°17'58.62"E	270.342	271.480
22-22	144	30° 1'55.04"N	77°18'0.35"E	269.402	270.950
23-23	145	30° 1'56.64"N	77°18'1.23"E	268.050	269.715
23-23	146	30° 1'57.69"N	77°17'59.99"E	271.058	272.475

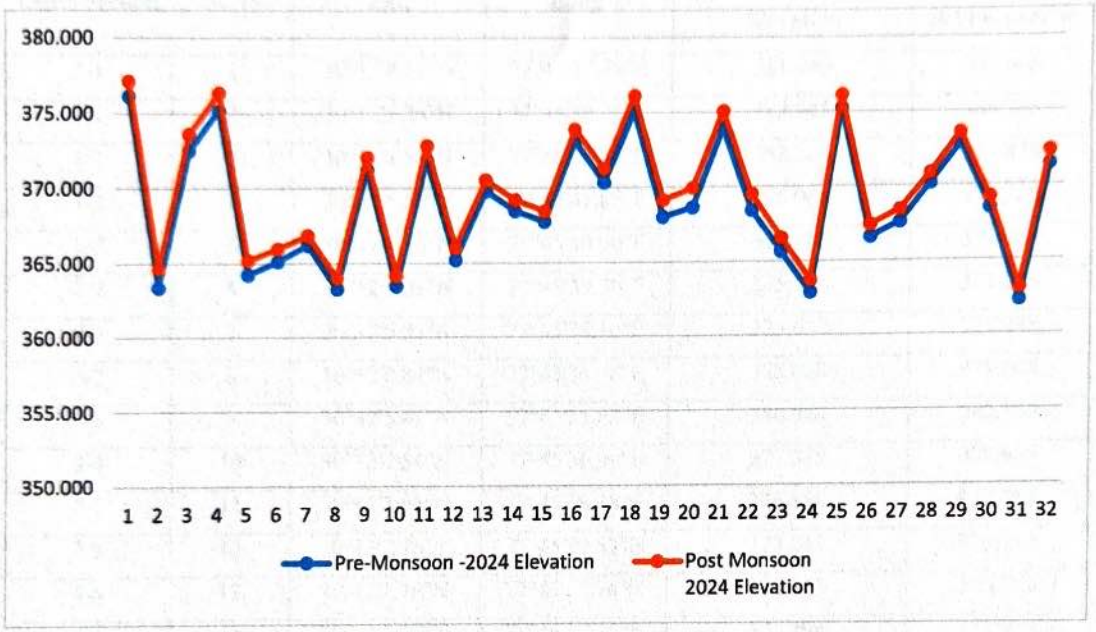
23-23	147	30° 1'58.60"N	77°17'58.08"E	267.507	268.929
24-24	148	30° 1'59.70"N	77°17'59.99"E	269.276	270.575
24-24	149	30° 1'58.80"N	77°18'1.50"E	268.212	269.544
24-24	150	30° 1'57.79"N	77°18'2.77"E	266.880	268.219
25-25	151	30° 1'58.37"N	77°18'4.85"E	268.699	270.191
25-25	152	30° 1'59.22"N	77°18'3.90"E	268.313	269.871
25-25	153	30° 2'0.37"N	77°18'2.68"E	267.608	269.079
26-26	154	30° 2'1.31"N	77°18'3.98"E	267.422	269.050
26-26	155	30° 2'0.30"N	77°18'5.18"E	268.031	269.516
26-26	156	30° 1'59.40"N	77°18'6.20"E	267.675	268.916
26-26	157	30° 1'58.49"N	77°18'7.40"E	269.427	270.589
27-27	158	30° 2'0.33"N	77°18'7.69"E	269.490	270.975
27-27	159	30° 2'1.44"N	77°18'6.70"E	268.966	270.348
27-27	160	30° 2'2.48"N	77°18'5.67"E	269.292	270.360



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
9	Behat	R.B.M.	Khurwali Ra	Sherpur Pelon	403 , 404/1 , 405 , 406/1 , 416/2 , 421/1 , 422/2 , 423/2 , 424/2 , 429 and 431	6.475

Cross Section	Ref. Point	Lat.	Long.	Pre-Monsoon -2024 Elevation	Post Monsoon 2024 Elevation
1-1	1	30°16'34.34"N	77°39'44.70"E	376.158	377.141
1-1	2	30°16'33.75"N	77°39'46.29"E	363.389	364.635
1-1	3	30°16'33.05"N	77°39'48.42"E	372.554	373.638
1-1	4	30°16'32.24"N	77°39'50.15"E	375.190	376.364
2-2	5	30°16'31.30"N	77°39'48.97"E	364.236	365.191
2-2	6	30°16'32.06"N	77°39'47.41"E	365.122	365.963
2-2	7	30°16'33.00"N	77°39'45.72"E	366.202	366.850
2-2	8	30°16'33.59"N	77°39'44.15"E	363.265	364.013
3-3	9	30°16'32.38"N	77°39'43.09"E	371.248	372.076
3-3	10	30°16'31.59"N	77°39'44.74"E	363.452	364.145
3-3	11	30°16'30.92"N	77°39'46.34"E	371.909	372.835
3-3	12	30°16'30.11"N	77°39'47.62"E	365.210	366.032
4-4	13	30°16'29.00"N	77°39'46.19"E	369.811	370.555
4-4	14	30°16'29.80"N	77°39'44.95"E	368.493	369.221
4-4	15	30°16'30.60"N	77°39'43.58"E	367.763	368.453
4-4	16	30°16'31.40"N	77°39'41.99"E	373.084	373.897
5-5	17	30°16'29.83"N	77°39'40.81"E	370.344	371.282
5-5	18	30°16'28.82"N	77°39'42.80"E	375.056	376.116
5-5	19	30°16'27.72"N	77°39'44.55"E	368.014	369.142
6-6	20	30°16'26.73"N	77°39'43.12"E	368.648	369.936
6-6	21	30°16'27.79"N	77°39'41.76"E	373.928	375.075
6-6	22	30°16'28.76"N	77°39'39.99"E	368.411	369.515
7-7	23	30°16'27.32"N	77°39'38.87"E	365.655	366.577
7-7	24	30°16'26.47"N	77°39'40.60"E	362.911	363.740
7-7	25	30°16'25.79"N	77°39'41.91"E	375.256	376.119
8-8	26	30°16'24.63"N	77°39'40.19"E	366.581	367.403
8-8	27	30°16'25.36"N	77°39'39.15"E	367.566	368.410
8-8	28	30°16'26.15"N	77°39'37.80"E	370.138	370.846

9-9	29	30°16'24.31"N	77°39'36.68"E	372.833	373.569
9-9	30	30°16'23.44"N	77°39'38.60"E	368.491	369.232
10-10	31	30°16'22.02"N	77°39'36.90"E	362.272	363.094
10-10	32	30°16'22.82"N	77°39'35.47"E	371.411	372.339

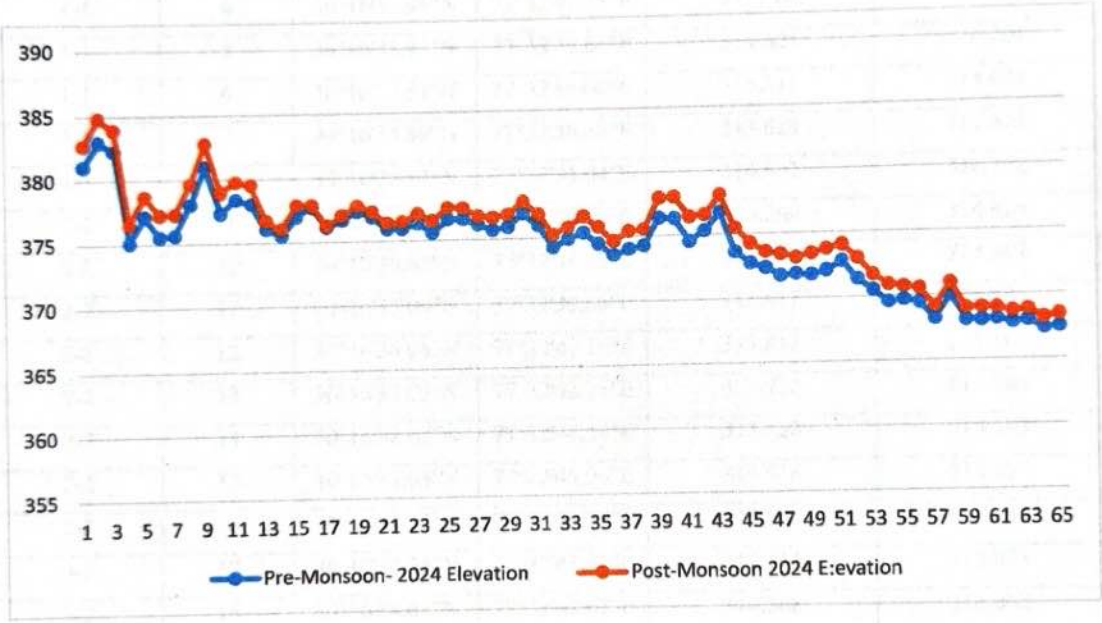


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
10	Behat	R.B.M.	Kaluwala	Kaluwala Pahadipur	119/1 , 120/1 , 192/1 , 193/1 , 125/4	14.900

Cross Section	Sl.No	Lat.	Long.	Pre-Monsoon- 2024 Elevation	Post-Monsoon 2024 E:evation
1-1	1	30°12'8.17"N	77°45'37.79"E	381.046	382.666
1-1	2	30°12'7.26"N	77°45'39.14"E	382.945	384.775
1-1	3	30°12'6.38"N	77°45'40.54"E	382.218	383.878
1-1	4	30°12'5.50"N	77°45'41.89"E	375.086	376.526
2-2	5	30°12'4.10"N	77°45'40.90"E	377.108	378.688
2-2	6	30°12'5.03"N	77°45'39.50"E	375.536	377.236
2-2	7	30°12'5.93"N	77°45'38.10"E	375.638	377.298
2-2	8	30°12'6.84"N	77°45'36.78"E	378.028	379.608
3-3	9	30°12'5.41"N	77°45'35.62"E	380.948	382.768
3-3	10	30°12'4.54"N	77°45'36.99"E	377.319	378.959
3-3	11	30°12'3.66"N	77°45'38.38"E	378.358	379.768
3-3	12	30°12'2.76"N	77°45'39.82"E	378.042	379.512
4-4	13	30°12'1.36"N	77°45'38.74"E	376.043	376.701
4-4	14	30°12'2.27"N	77°45'37.25"E	375.494	376.048
4-4	15	30°12'3.13"N	77°45'35.84"E	377.010	377.895
4-4	16	30°12'3.96"N	77°45'34.48"E	377.710	377.936
5-5	17	30°12'2.61"N	77°45'33.43"E	376.136	376.268
5-5	18	30°12'1.79"N	77°45'34.76"E	376.680	377.044
5-5	19	30°12'0.94"N	77°45'36.19"E	377.349	377.790
5-5	20	30°12'0.04"N	77°45'37.69"E	376.896	377.287
6-6	21	30°11'58.60"N	77°45'36.64"E	375.942	376.403
6-6	22	30°11'59.56"N	77°45'35.10"E	375.940	376.498
6-6	23	30°12'0.38"N	77°45'33.63"E	376.366	377.060
7-7	24	30°11'59.07"N	77°45'32.55"E	375.606	376.556
7-7	25	30°11'58.18"N	77°45'34.00"E	376.646	377.554
7-7	26	30°11'57.24"N	77°45'35.56"E	376.638	377.488
7-7	27	30°11'56.37"N	77°45'36.92"E	376.186	376.824
8-8	28	30°11'55.03"N	77°45'35.88"E	375.724	376.715
8-8	29	30°11'55.87"N	77°45'34.50"E	375.961	376.923
8-8	30	30°11'56.85"N	77°45'32.93"E	376.974	377.915

8-8	31	30°11'57.74"N	77°45'31.48"E	376.018	376.874
9-9	32	30°11'55.50"N	77°45'31.84"E	374.288	375.282
9-9	33	30°11'54.54"N	77°45'33.46"E	374.908	375.831
9-9	34	30°11'53.69"N	77°45'34.89"E	375.362	376.646
9-9	35	30°11'52.87"N	77°45'36.28"E	374.476	375.812
10-10	36	30°11'51.53"N	77°45'35.31"E	373.582	374.667
10-10	37	30°11'52.35"N	77°45'33.90"E	374.035	375.427
10-10	38	30°11'53.22"N	77°45'32.43"E	374.279	375.545
10-10	39	30°11'54.19"N	77°45'30.79"E	376.391	377.949
11-11	40	30°11'52.85"N	77°45'29.72"E	376.342	378.041
11-11	41	30°11'51.85"N	77°45'31.37"E	374.538	376.466
11-11	42	30°11'50.97"N	77°45'32.85"E	375.341	376.591
11-11	43	30°11'50.11"N	77°45'34.23"E	376.745	378.113
12-12	44	30°11'47.85"N	77°45'34.63"E	373.654	375.507
12-12	45	30°11'48.73"N	77°45'33.20"E	372.738	374.312
12-12	46	30°11'49.60"N	77°45'31.81"E	372.375	373.625
12-12	47	30°11'50.47"N	77°45'30.31"E	371.746	373.410
13-13	48	30°11'49.12"N	77°45'29.27"E	371.840	373.124
13-13	49	30°11'48.23"N	77°45'30.78"E	371.751	373.416
13-13	50	30°11'47.39"N	77°45'32.19"E	372.071	373.762
13-13	51	30°11'46.51"N	77°45'33.67"E	372.774	374.054
14-14	52	30°11'45.14"N	77°45'32.65"E	371.349	372.990
14-14	53	30°11'46.02"N	77°45'31.15"E	370.475	371.703
14-14	54	30°11'46.85"N	77°45'29.75"E	369.526	370.891
14-14	55	30°11'47.76"N	77°45'28.20"E	369.704	370.712
15-15	56	30°11'45.47"N	77°45'28.70"E	369.469	370.559
15-15	57	30°11'44.64"N	77°45'30.10"E	368.189	369.156
15-15	58	30°11'43.74"N	77°45'31.62"E	369.983	370.938
15-15	59	30°11'42.90"N	77°45'32.99"E	368.062	368.970
16-16	60	30°11'41.54"N	77°45'32.00"E	368.046	368.984
16-16	61	30°11'42.39"N	77°45'30.58"E	368.106	368.961
16-16	62	30°11'43.31"N	77°45'29.08"E	367.841	368.666
16-16	63	30°11'44.13"N	77°45'27.68"E	367.967	368.779
17-17	64	30°11'42.69"N	77°45'26.59"E	367.302	368.138
17-17	65	30°11'41.88"N	77°45'28.01"E	367.452	368.374

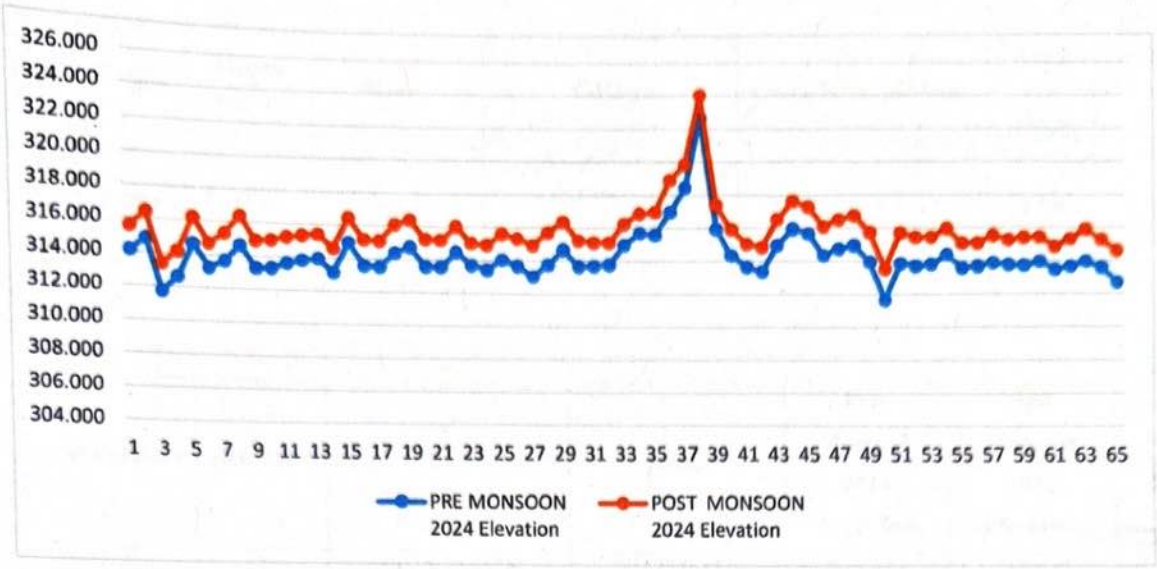
सहायक जिलाधिकारी (खनन अनुभाग) सहारनपुर


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1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59 61 63 65
Pre-Monsoon- 2024 Elevation
Post-Monsoon 2024 E:evation

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
11	Behat	R.B.M.	Yamuna	Akbarpur Bans Aehatmal	1	17.900

Cross Section	Ref. Point	Lat.	Long.	PRE MONSOON 2024 Elevation	POST MONSOON 2024 Elevation
1-1	1	30°16'29.02"N	77°32'45.75"E	314.118	315.568
1-1	2	30°16'29.95"N	77°32'44.21"E	314.855	316.445
1-1	3	30°16'31.03"N	77°32'42.74"E	311.722	313.382
1-1	4	30°16'31.96"N	77°32'41.18"E	312.608	314.128
1-1	5	30°16'32.92"N	77°32'39.64"E	314.621	316.201
1-1	6	30°16'33.91"N	77°32'38.08"E	313.211	314.691
1-1	7	30°16'34.89"N	77°32'36.58"E	313.628	315.318
1-1	8	30°16'35.84"N	77°32'35.04"E	314.602	316.372
2-2	9	30°16'36.77"N	77°32'36.56"E	313.260	314.920
2-2	10	30°16'35.85"N	77°32'38.12"E	313.298	314.987
2-2	11	30°16'35.00"N	77°32'39.66"E	313.611	315.193
2-2	12	30°16'34.06"N	77°32'41.16"E	313.815	315.307
2-2	13	30°16'33.05"N	77°32'42.75"E	313.923	315.405
2-2	14	30°16'32.07"N	77°32'44.34"E	313.128	314.583
2-2	15	30°16'31.03"N	77°32'45.96"E	314.938	316.437
3-3	16	30°16'32.58"N	77°32'46.73"E	313.548	315.130
3-3	17	30°16'33.56"N	77°32'45.21"E	313.514	315.078
3-3	18	30°16'34.61"N	77°32'43.67"E	314.368	316.062
3-3	19	30°16'35.47"N	77°32'42.03"E	314.725	316.363
3-3	20	30°16'36.53"N	77°32'40.53"E	313.574	315.218
3-3	21	30°16'37.74"N	77°32'38.69"E	313.541	315.163
4-4	22	30°16'38.76"N	77°32'40.23"E	314.459	316.017
4-4	23	30°16'37.83"N	77°32'41.88"E	313.666	315.010
4-4	24	30°16'36.87"N	77°32'43.60"E	313.428	314.902
4-4	25	30°16'35.92"N	77°32'45.36"E	314.008	315.584
4-4	26	30°16'34.92"N	77°32'47.02"E	313.633	315.311
5-5	27	30°16'36.49"N	77°32'48.48"E	313.014	314.907
5-5	28	30°16'37.42"N	77°32'46.61"E	313.722	315.703
5-5	29	30°16'38.26"N	77°32'44.82"E	314.648	316.342
5-5	30	30°16'39.22"N	77°32'43.47"E	313.638	315.226

5-5	31	30°16'40.21"N	77°32'41.72"E	313.665	315.106
6-6	32	30°16'41.95"N	77°32'42.62"E	313.758	315.096
6-6	33	30°16'40.89"N	77°32'44.53"E	314.952	316.234
6-6	34	30°16'39.86"N	77°32'46.23"E	315.670	316.869
6-6	35	30°16'38.99"N	77°32'47.96"E	315.566	316.950
6-6	36	30°16'38.23"N	77°32'49.75"E	316.960	318.900
7-7	37	30°16'40.06"N	77°32'50.59"E	318.428	319.827
7-7	38	30°16'40.93"N	77°32'48.88"E	322.637	324.025
7-7	39	30°16'41.86"N	77°32'47.14"E	315.922	317.381
7-7	40	30°16'42.84"N	77°32'45.24"E	314.314	315.911
7-7	41	30°16'43.88"N	77°32'43.31"E	313.628	315.036
8-8	42	30°16'45.92"N	77°32'43.88"E	313.349	314.837
8-8	43	30°16'44.76"N	77°32'46.02"E	314.955	316.521
8-8	44	30°16'43.61"N	77°32'47.83"E	315.934	317.611
8-8	45	30°16'42.52"N	77°32'49.70"E	315.638	317.280
8-8	46	30°16'41.53"N	77°32'51.66"E	314.339	316.080
9-9	47	30°16'42.73"N	77°32'54.20"E	314.717	316.505
9-9	48	30°16'43.47"N	77°32'52.44"E	314.919	316.718
9-9	49	30°16'44.59"N	77°32'50.82"E	313.924	315.729
9-9	50	30°16'45.59"N	77°32'48.99"E	311.622	313.513
9-9	51	30°16'46.55"N	77°32'47.28"E	313.838	315.694
9-9	52	30°16'47.62"N	77°32'45.10"E	313.668	315.406
10-10	53	30°16'49.03"N	77°32'46.71"E	313.776	315.420
10-10	54	30°16'47.83"N	77°32'48.54"E	314.347	315.938
10-10	55	30°16'46.64"N	77°32'50.26"E	313.565	315.062
10-10	56	30°16'45.47"N	77°32'51.89"E	313.628	315.066
10-10	57	30°16'44.40"N	77°32'53.39"E	313.877	315.505
10-10	58	30°16'43.32"N	77°32'54.87"E	313.740	315.268
11-11	59	30°16'44.03"N	77°32'57.12"E	313.703	315.387
11-11	60	30°16'45.08"N	77°32'55.63"E	313.922	315.406
11-11	61	30°16'46.08"N	77°32'54.16"E	313.456	314.839
11-11	62	30°16'47.16"N	77°32'52.55"E	313.611	315.292
11-11	63	30°16'48.26"N	77°32'50.81"E	313.934	315.875
11-11	64	30°16'48.26"N	77°32'50.81"E	313.539	315.233
11-11	65	30°16'50.55"N	77°32'48.17"E	312.668	314.590



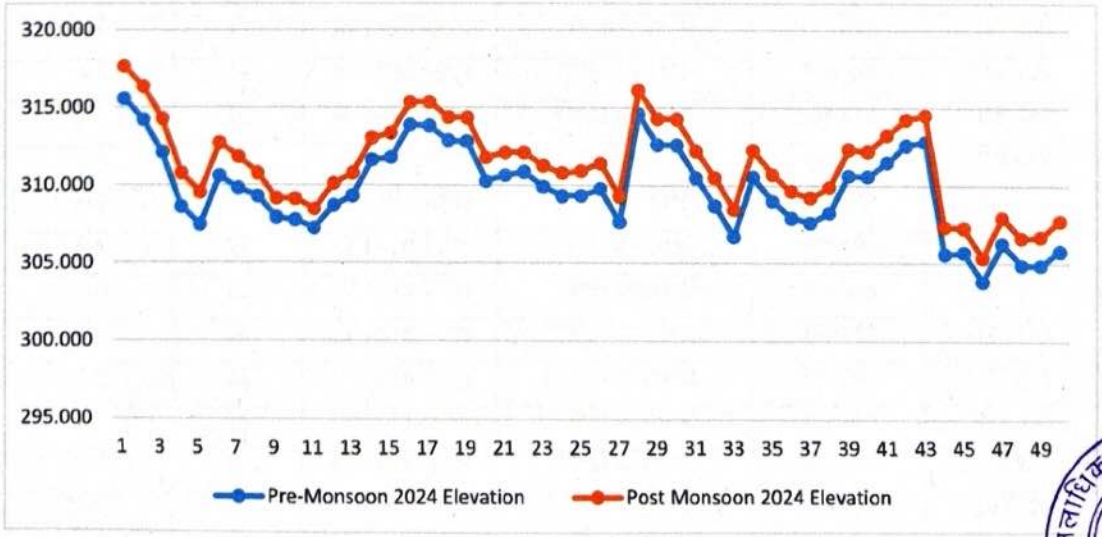
सहायक जिलाधिकारी (खनन अनुभाग) सवाईमाधोपुर

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
12	Behat	R.B.M.	Yamuna	Arazi Jevadi Ahatmal and Masoodpur Garh Aehatmal	1 and 1	13.800

Cross Section	Ref. Point	Lat.	Long.	Pre-Monsoon 2024 Elevation	Post Monsoon 2024 Elevation
1-1	1	30°15'50.69"N	77°32'20.15"E	315.562	317.642
1-1	2	30°15'51.87"N	77°32'17.96"E	314.215	316.360
1-1	3	30°15'52.91"N	77°32'15.82"E	312.088	314.256
1-1	4	30°15'53.71"N	77°32'14.21"E	308.595	310.777
1-1	5	30°15'54.83"N	77°32'12.39"E	307.443	309.535
1-1	6	30°15'55.83"N	77°32'10.43"E	310.576	312.723
1-1	7	30°15'56.46"N	77°32'8.75"E	309.782	311.820
2-2	8	30°15'54.87"N	77°32'7.72"E	309.273	310.765
2-2	9	30°15'54.20"N	77°32'9.51"E	307.897	309.155
2-2	10	30°15'53.23"N	77°32'11.75"E	307.741	309.107
2-2	11	30°15'52.41"N	77°32'13.51"E	307.215	308.456
2-2	12	30°15'51.54"N	77°32'15.02"E	308.681	310.114
2-2	13	30°15'50.75"N	77°32'17.13"E	309.299	310.768
2-2	14	30°15'49.64"N	77°32'19.25"E	311.606	313.034
3-3	15	30°15'48.44"N	77°32'18.27"E	311.772	313.364
3-3	16	30°15'49.41"N	77°32'16.06"E	313.868	315.367
3-3	17	30°15'50.26"N	77°32'14.45"E	313.820	315.351
3-3	18	30°15'50.90"N	77°32'12.75"E	312.873	314.381
3-3	19	30°15'51.59"N	77°32'10.95"E	312.788	314.332
3-3	20	30°15'52.60"N	77°32'8.66"E	310.256	311.789
3-3	21	30°15'53.00"N	77°32'6.96"E	310.633	312.110
4-4	22	30°15'51.46"N	77°32'6.25"E	310.855	312.121
4-4	23	30°15'50.79"N	77°32'7.87"E	309.908	311.277
4-4	24	30°15'50.08"N	77°32'9.99"E	309.304	310.782
4-4	25	30°15'49.25"N	77°32'11.91"E	309.322	310.906
4-4	26	30°15'48.68"N	77°32'13.64"E	309.744	311.413
4-4	27	30°15'47.94"N	77°32'15.16"E	307.612	309.294

सहायक कलेक्टर (खनन अनुभाग) सहारनपुर

4-4	28	30°15'47.11"N	77°32'17.28"E	314.564	316.105
5-5	29	30°15'45.90"N	77°32'16.09"E	312.595	314.290
5-5	30	30°15'46.64"N	77°32'14.20"E	312.578	314.259
5-5	31	30°15'47.14"N	77°32'12.76"E	310.489	312.233
5-5	32	30°15'47.75"N	77°32'11.07"E	308.683	310.505
5-5	33	30°15'48.43"N	77°32'9.34"E	306.684	308.453
5-5	34	30°15'48.93"N	77°32'7.71"E	310.541	312.282
5-5	35	30°15'49.84"N	77°32'5.79"E	309.006	310.714
6-6	36	30°15'48.31"N	77°32'5.26"E	307.904	309.637
6-6	37	30°15'47.38"N	77°32'7.14"E	307.592	309.216
6-6	38	30°15'46.81"N	77°32'8.76"E	308.241	309.878
6-6	39	30°15'46.34"N	77°32'10.10"E	310.649	312.333
6-6	40	30°15'45.22"N	77°32'13.14"E	310.576	312.214
6-6	41	30°15'44.62"N	77°32'14.77"E	311.482	313.241
7-7	42	30°15'42.97"N	77°32'13.10"E	312.590	314.249
7-7	43	30°15'43.74"N	77°32'11.98"E	312.783	314.520
7-7	44	30°15'45.06"N	77°32'9.20"E	305.593	307.359
7-7	45	30°15'45.50"N	77°32'7.73"E	305.685	307.284
7-7	46	30°15'46.39"N	77°32'6.10"E	303.829	305.373
7-7	47	30°15'47.06"N	77°32'4.49"E	306.256	307.942
8-8	48	30°15'45.55"N	77°32'4.65"E	304.889	306.630
8-8	49	30°15'44.39"N	77°32'7.37"E	304.884	306.712
8-8	50	30°15'43.27"N	77°32'10.50"E	305.808	307.760

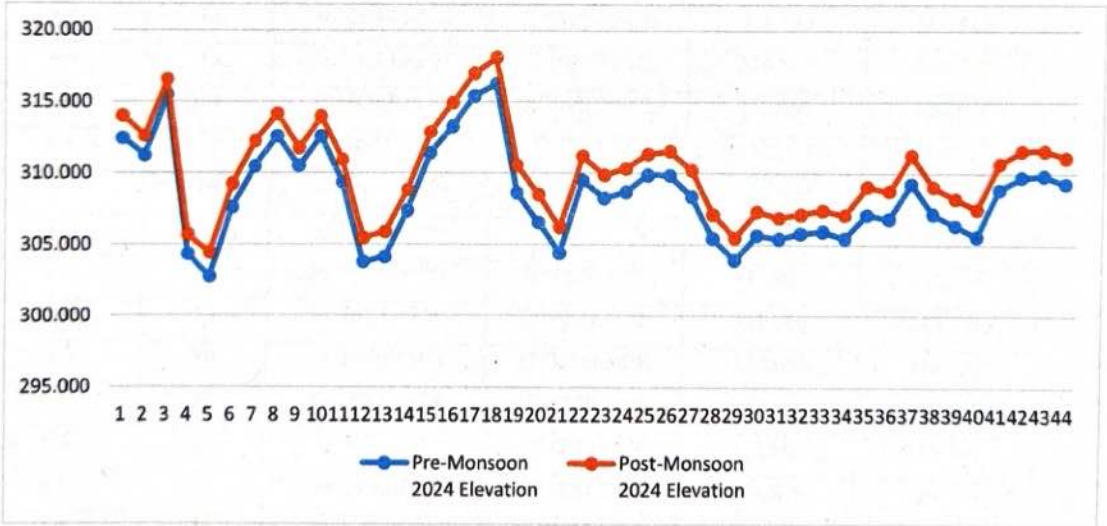


जिलाधिकारी (खनन अनुभाग) चित्रकूट

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
13	Behat	R.B.M.	Yamuna	Shehjadpur Bans Aehatmal	1	13.000

Cross Section	Ref. Point	Lat.	Long.	Pre-Monsoon 2024 Elevation	Post-Monsoon 2024 Elevation
1-1	1	30°15'24.53"N	77°31'55.65"E	312.444	314.026
1-1	2	30°15'25.44"N	77°31'53.87"E	311.255	312.613
1-1	3	30°15'26.27"N	77°31'52.03"E	315.508	316.590
1-1	4	30°15'27.50"N	77°31'49.92"E	304.312	305.694
2-2	5	30°15'26.82"N	77°31'48.99"E	302.749	304.434
2-2	6	30°15'25.58"N	77°31'50.27"E	307.588	309.250
2-2	7	30°15'24.55"N	77°31'52.53"E	310.462	312.236
2-2	8	30°15'23.73"N	77°31'54.76"E	312.595	314.177
3-3	9	30°15'22.23"N	77°31'53.84"E	310.492	311.763
3-3	10	30°15'23.39"N	77°31'51.64"E	312.582	313.970
3-3	11	30°15'24.36"N	77°31'49.46"E	309.372	310.953
3-3	12	30°15'25.50"N	77°31'47.57"E	303.744	305.438
4-4	13	30°15'24.30"N	77°31'46.04"E	304.122	305.877
4-4	14	30°15'23.07"N	77°31'48.25"E	307.366	308.848
4-4	15	30°15'21.93"N	77°31'50.83"E	311.391	312.864
4-4	16	30°15'20.73"N	77°31'53.06"E	313.255	314.937
5-5	17	30°15'19.42"N	77°31'52.14"E	315.407	317.000
5-5	18	30°15'20.56"N	77°31'50.12"E	316.266	318.113
5-5	19	30°15'21.59"N	77°31'47.50"E	308.614	310.542
5-5	20	30°15'22.98"N	77°31'45.08"E	306.532	308.487
6-6	21	30°15'21.90"N	77°31'43.83"E	304.377	306.200
6-6	22	30°15'20.33"N	77°31'46.29"E	309.498	311.206
6-6	23	30°15'19.41"N	77°31'49.03"E	308.238	309.870
6-6	24	30°15'18.14"N	77°31'51.28"E	308.682	310.323
7-7	25	30°15'16.70"N	77°31'50.29"E	309.872	311.331
7-7	26	30°15'17.66"N	77°31'48.10"E	309.855	311.546
7-7	27	30°15'18.95"N	77°31'45.72"E	308.369	310.223
7-7	28	30°15'19.84"N	77°31'43.73"E	305.428	307.120
7-7	29	30°15'20.95"N	77°31'41.67"E	303.908	305.490

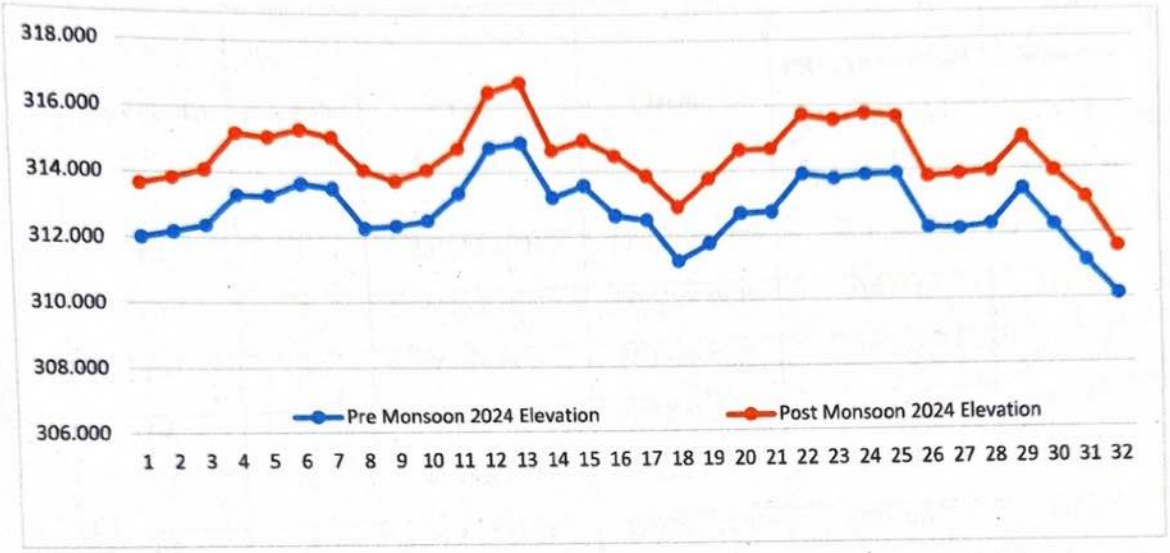
8-8	30	30°15'19.84"N	77°31'40.64"E	305.652	307.336
8-8	31	30°15'18.67"N	77°31'42.66"E	305.417	306.890
8-8	32	30°15'17.78"N	77°31'44.94"E	305.784	307.139
8-8	33	30°15'16.40"N	77°31'47.32"E	305.938	307.417
8-8	34	30°15'15.33"N	77°31'49.66"E	305.458	307.095
9-9	35	30°15'14.23"N	77°31'48.77"E	307.121	309.073
9-9	36	30°15'15.32"N	77°31'46.53"E	306.822	308.777
9-9	37	30°15'16.67"N	77°31'44.22"E	309.292	311.279
9-9	38	30°15'17.81"N	77°31'41.94"E	307.173	309.081
9-9	39	30°15'18.95"N	77°31'39.73"E	306.359	308.273
10-10	40	30°15'17.71"N	77°31'38.49"E	305.588	307.511
10-10	41	30°15'16.70"N	77°31'40.66"E	308.874	310.712
10-10	42	30°15'15.47"N	77°31'43.47"E	309.741	311.600
10-10	43	30°15'14.18"N	77°31'45.61"E	309.866	311.635
10-10	44	30°15'13.32"N	77°31'47.88"E	309.299	311.151



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
14	Behat	R.B.M.	Yamuna	Alauddinpur Bans Aehatmal	1/1	9.580

Cross Section	Ref. Point	Lat.	Long.	Pre Monsoon 2024 Elevation	Post Monsoon 2024 Elevation
1-1	1	30°16'14.66"N	77°32'38.47"E	312.009	313.650
1-1	2	30°16'15.32"N	77°32'36.96"E	312.188	313.836
1-1	3	30°16'16.37"N	77°32'35.03"E	312.369	314.083
1-1	4	30°16'17.03"N	77°32'33.17"E	313.299	315.191
2-2	5	30°16'15.68"N	77°32'32.07"E	313.272	315.071
2-2	6	30°16'15.09"N	77°32'33.98"E	313.644	315.299
2-2	7	30°16'14.26"N	77°32'35.89"E	313.508	315.066
2-2	8	30°16'13.45"N	77°32'37.56"E	312.282	314.057
3-3	9	30°16'12.08"N	77°32'36.59"E	312.344	313.726
3-3	10	30°16'12.97"N	77°32'34.85"E	312.508	314.066
3-3	11	30°16'13.89"N	77°32'33.07"E	313.341	314.723
3-3	12	30°16'14.70"N	77°32'31.31"E	314.744	316.442
4-4	13	30°16'13.62"N	77°32'30.25"E	314.892	316.745
4-4	14	30°16'12.81"N	77°32'32.20"E	313.208	314.656
4-4	15	30°16'11.85"N	77°32'33.82"E	313.577	314.971
4-4	16	30°16'10.91"N	77°32'35.64"E	312.642	314.489
5-5	17	30°16'9.32"N	77°32'34.45"E	312.510	313.860
5-5	18	30°16'10.31"N	77°32'32.62"E	311.227	312.895
5-5	19	30°16'11.42"N	77°32'31.10"E	311.766	313.748
5-5	20	30°16'12.58"N	77°32'29.38"E	312.692	314.633
6-6	21	30°16'11.16"N	77°32'28.31"E	312.718	314.656
6-6	22	30°16'9.97"N	77°32'30.13"E	313.882	315.704
6-6	23	30°16'9.03"N	77°32'31.86"E	313.738	315.546
6-6	24	30°16'7.96"N	77°32'33.75"E	313.856	315.730
7-7	25	30°16'5.97"N	77°32'32.68"E	313.892	315.630
7-7	26	30°16'7.16"N	77°32'31.08"E	312.208	313.792
7-7	27	30°16'8.26"N	77°32'29.39"E	312.177	313.868
7-7	28	30°16'9.68"N	77°32'27.25"E	312.312	313.956
8-8	29	30°16'8.37"N	77°32'25.93"E	313.382	314.966
8-8	30	30°16'6.98"N	77°32'28.34"E	312.269	313.936

8-8	31	30°16'5.71"N	77°32'30.11"E	311.144	313.102
8-8	32	30°16'4.62"N	77°32'31.59"E	310.108	311.590



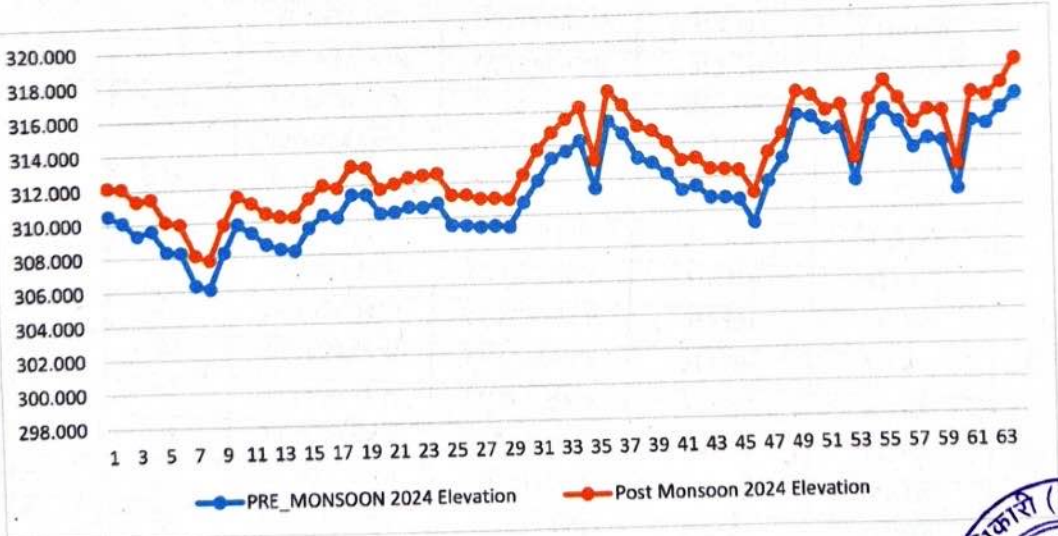
जिलाधिकारी (खनन अनुभाग) शाहजहाँपुर

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
15	Behat	R.B.M.	Yamuna	Mehmoodpur Nangli Achatmal	1	15.700

Cross Section	Ref. Point	Lat.	Long.	PRE_MONSOON 2024 Elevation	Post Monsoon 2024 Elevation
1-1	1	30°16'2.81"N	77°32'30.11"E	310.508	312.182
1-1	2	30°16'3.71"N	77°32'28.50"E	310.111	312.093
1-1	3	30°16'4.75"N	77°32'26.89"E	309.322	311.316
1-1	4	30°16'5.78"N	77°32'25.29"E	309.566	311.459
1-1	5	30°16'6.76"N	77°32'23.74"E	308.341	310.103
1-1	6	30°16'7.83"N	77°32'22.12"E	308.265	309.947
1-1	7	30°16'8.81"N	77°32'20.51"E	306.337	308.091
1-1	8	30°16'9.67"N	77°32'19.00"E	306.102	307.793
2-2	9	30°16'8.28"N	77°32'17.87"E	308.232	309.876
2-2	10	30°16'7.39"N	77°32'19.43"E	309.866	311.534
2-2	11	30°16'6.45"N	77°32'21.12"E	309.341	311.085
2-2	12	30°16'5.43"N	77°32'22.95"E	308.635	310.491
2-2	13	30°16'4.19"N	77°32'24.75"E	308.375	310.274
2-2	14	30°16'3.10"N	77°32'26.36"E	308.245	310.227
2-2	15	30°16'2.13"N	77°32'28.02"E	309.533	311.295
2-2	16	30°16'1.19"N	77°32'29.49"E	310.308	312.046
3-3	17	30°15'59.73"N	77°32'28.53"E	310.102	311.851
3-3	18	30°16'0.75"N	77°32'27.05"E	311.432	313.100
3-3	19	30°16'1.74"N	77°32'25.54"E	311.413	313.005
3-3	20	30°16'2.69"N	77°32'23.95"E	310.278	311.720

3-3	21	30°16'3.60"N	77°32'22.35"E	310.368	312.037
3-3	22	30°16'4.70"N	77°32'20.72"E	310.622	312.363
3-3	23	30°16'5.92"N	77°32'18.86"E	310.577	312.459
3-3	24	30°16'6.95"N	77°32'16.98"E	310.796	312.537
4-4	25	30°16'5.51"N	77°32'15.86"E	309.512	311.268
4-4	26	30°16'4.34"N	77°32'17.71"E	309.472	311.271
4-4	27	30°16'3.28"N	77°32'19.42"E	309.363	311.028
4-4	28	30°16'2.11"N	77°32'21.16"E	309.409	311.037
4-4	29	30°16'1.11"N	77°32'22.70"E	309.327	310.935
4-4	30	30°15'59.93"N	77°32'24.27"E	310.696	312.351
4-4	31	30°15'58.85"N	77°32'25.82"E	311.958	313.747
4-4	32	30°15'57.95"N	77°32'27.44"E	313.264	314.772
5-5	33	30°15'56.55"N	77°32'26.40"E	313.631	315.515
5-5	34	30°15'57.58"N	77°32'24.86"E	314.223	316.214
5-5	35	30°15'58.69"N	77°32'23.38"E	311.441	313.122
5-5	36	30°15'59.78"N	77°32'21.72"E	315.359	317.108
5-5	37	30°16'0.99"N	77°32'20.06"E	314.606	316.298
5-5	38	30°16'1.97"N	77°32'18.40"E	313.182	315.023
5-5	39	30°16'3.16"N	77°32'16.86"E	312.841	314.769
5-5	40	30°16'4.28"N	77°32'15.08"E	312.214	314.061
6-6	41	30°16'2.72"N	77°32'13.94"E	311.238	313.014
6-6	42	30°16'1.75"N	77°32'15.69"E	311.458	313.113
6-6	43	30°16'0.72"N	77°32'17.23"E	310.776	312.459
6-6	44	30°15'59.68"N	77°32'18.95"E	310.749	312.433
6-6	45	30°15'58.69"N	77°32'20.69"E	310.631	312.367
6-6	46	30°15'57.70"N	77°32'22.49"E	309.248	311.019
6-6	47	30°15'56.37"N	77°32'24.15"E	311.652	313.360
6-6	48	30°15'55.16"N	77°32'25.63"E	312.991	314.473
7-7	49	30°15'53.78"N	77°32'24.66"E	315.470	316.853

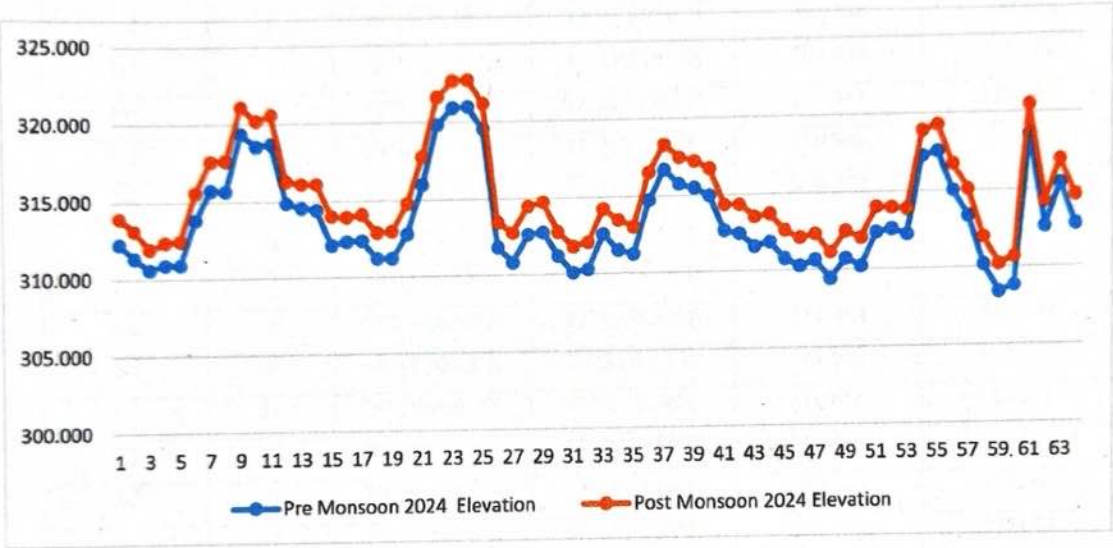
7-7	50	30°15'55.11"N	77°32'23.26"E	315.351	316.632
7-7	51	30°15'56.10"N	77°32'21.78"E	314.634	315.726
7-7	52	30°15'57.24"N	77°32'20.15"E	314.649	316.031
7-7	53	30°15'58.22"N	77°32'18.49"E	311.612	312.959
7-7	54	30°15'59.38"N	77°32'16.74"E	314.708	316.290
7-7	55	30°16'0.30"N	77°32'15.02"E	315.711	317.375
7-7	56	30°16'1.64"N	77°32'13.13"E	314.977	316.326
8-8	57	30°16'0.06"N	77°32'11.98"E	313.433	314.904
8-8	58	30°15'58.75"N	77°32'14.05"E	313.958	315.639
8-8	59	30°15'57.61"N	77°32'15.77"E	313.768	315.559
8-8	60	30°15'56.47"N	77°32'17.43"E	310.959	312.442
8-8	61	30°15'55.38"N	77°32'19.09"E	314.916	316.600
8-8	62	30°15'54.20"N	77°32'20.78"E	314.739	316.408
8-8	63	30°15'53.07"N	77°32'22.32"E	315.644	317.117
8-8	64	30°15'51.96"N	77°32'23.60"E	316.456	318.444



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
16	Behat	R.B.M.	Yamuna	Shahpur Bans Aehatmal	1/1	15.600

Cross Section	Ref. Point	Lat.	Long.	Pre Monsoon 2024 Elevation	Post Monsoon 2024 Elevation
1-1	1	30°16'27.69"N	77°32'45.53"E	312.260	313.955
1-1	2	30°16'28.59"N	77°32'43.93"E	311.342	313.125
1-1	3	30°16'29.65"N	77°32'42.20"E	310.621	311.955
1-1	4	30°16'30.50"N	77°32'40.57"E	310.908	312.366
1-1	5	30°16'31.46"N	77°32'38.97"E	310.905	312.471
1-1	6	30°16'32.39"N	77°32'37.38"E	313.820	315.602
1-1	7	30°16'33.42"N	77°32'35.69"E	315.722	317.603
1-1	8	30°16'34.42"N	77°32'33.99"E	315.661	317.653
2-2	9	30°16'32.73"N	77°32'33.27"E	319.348	321.100
2-2	10	30°16'31.71"N	77°32'34.83"E	318.541	320.196
2-2	11	30°16'30.88"N	77°32'36.55"E	318.692	320.574
2-2	12	30°16'29.96"N	77°32'38.07"E	314.833	316.266
2-2	13	30°16'28.97"N	77°32'39.74"E	314.547	316.088
2-2	14	30°16'27.84"N	77°32'41.33"E	314.392	316.069
2-2	15	30°16'27.06"N	77°32'43.07"E	312.108	313.964
2-2	16	30°16'26.16"N	77°32'44.63"E	312.332	313.924
3-3	17	30°16'24.58"N	77°32'43.45"E	312.394	314.085
3-3	18	30°16'25.39"N	77°32'41.89"E	311.224	312.888
3-3	19	30°16'26.32"N	77°32'40.16"E	311.226	312.981
3-3	20	30°16'27.43"N	77°32'38.53"E	312.756	314.747
3-3	21	30°16'28.54"N	77°32'36.52"E	315.951	317.785
3-3	22	30°16'29.85"N	77°32'34.38"E	319.806	321.614
3-3	23	30°16'30.94"N	77°32'32.58"E	320.892	322.630
4-4	24	30°16'29.36"N	77°32'32.00"E	320.955	322.696
4-4	25	30°16'28.36"N	77°32'33.70"E	319.514	321.153
4-4	26	30°16'27.27"N	77°32'35.49"E	311.825	313.469
4-4	27	30°16'26.16"N	77°32'37.25"E	310.822	312.746
4-4	28	30°16'25.09"N	77°32'39.08"E	312.628	314.469
4-4	29	30°16'24.02"N	77°32'40.92"E	312.755	314.707
4-4	30	30°16'23.08"N	77°32'42.65"E	311.221	312.770
5-5	31	30°16'21.80"N	77°32'41.65"E	310.122	311.810

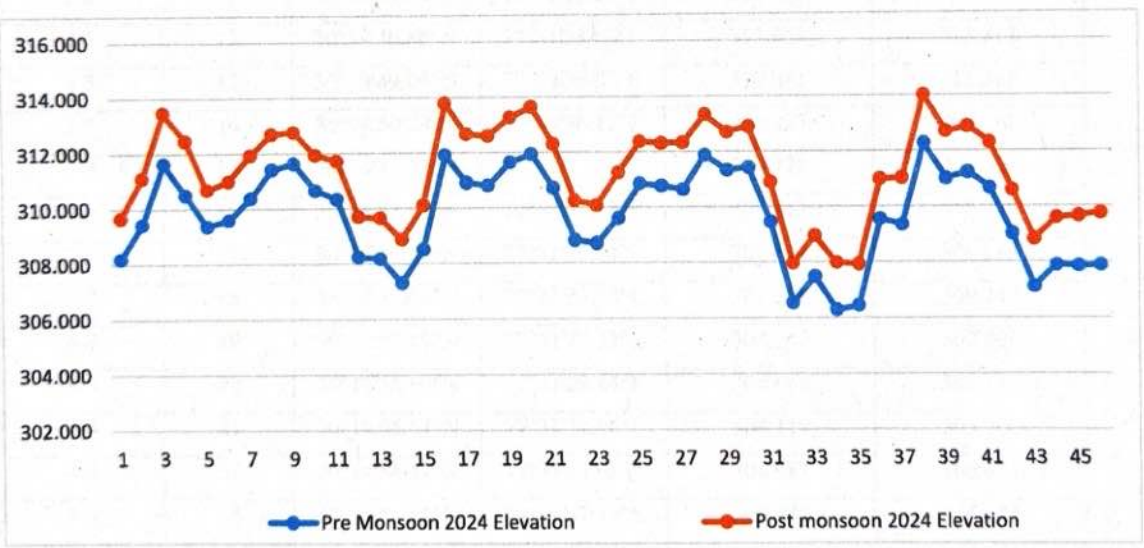
5-5	32	30°16'22.87"N	77°32'39.93"E	310.334	312.106
5-5	33	30°16'23.75"N	77°32'38.13"E	312.581	314.222
5-5	34	30°16'24.79"N	77°32'36.39"E	311.537	313.492
5-5	35	30°16'25.64"N	77°32'34.86"E	311.266	313.032
5-5	36	30°16'26.58"N	77°32'33.17"E	314.702	316.530
5-5	37	30°16'27.73"N	77°32'31.69"E	316.663	318.304
6-6	38	30°16'26.08"N	77°32'31.02"E	315.741	317.485
6-6	39	30°16'25.05"N	77°32'32.85"E	315.489	317.222
6-6	40	30°16'23.99"N	77°32'34.40"E	314.953	316.717
6-6	41	30°16'22.99"N	77°32'35.97"E	312.671	314.353
6-6	42	30°16'22.07"N	77°32'37.63"E	312.455	314.354
6-6	43	30°16'20.97"N	77°32'39.15"E	311.622	313.525
6-6	44	30°16'20.00"N	77°32'40.81"E	311.893	313.711
7-7	45	30°16'18.46"N	77°32'39.84"E	310.796	312.618
7-7	46	30°16'19.44"N	77°32'38.23"E	310.274	312.115
7-7	47	30°16'20.50"N	77°32'36.81"E	310.665	312.349
7-7	48	30°16'21.41"N	77°32'35.17"E	309.441	311.140
7-7	49	30°16'22.72"N	77°32'33.30"E	310.733	312.492
7-7	50	30°16'23.76"N	77°32'31.80"E	310.224	312.052
7-7	51	30°16'24.69"N	77°32'30.34"E	312.384	314.025
8-8	52	30°16'23.13"N	77°32'29.88"E	312.573	313.967
8-8	53	30°16'22.33"N	77°32'31.25"E	312.224	313.877
8-8	54	30°16'21.46"N	77°32'32.81"E	317.266	318.910
8-8	55	30°16'20.25"N	77°32'34.43"E	317.551	319.276
8-8	56	30°16'19.19"N	77°32'36.36"E	315.008	316.728
8-8	57	30°16'18.04"N	77°32'37.92"E	313.327	315.060
8-8	58	30°16'16.97"N	77°32'38.86"E	310.175	311.966
9-9	59	30°16'16.84"N	77°32'37.06"E	308.417	310.225
9-9	60	30°16'17.69"N	77°32'35.35"E	308.821	310.654
9-9	61	30°16'18.60"N	77°32'33.43"E	318.555	320.483
9-9	62	30°16'19.81"N	77°32'31.68"E	312.592	314.236
9-9	63	30°16'20.51"N	77°32'30.42"E	315.382	316.936
9-9	64	30°16'21.41"N	77°32'29.30"E	312.722	314.606


325.000
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Pre Monsoon 2024 Elevation
Post Monsoon 2024 Elevation

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
17	Behat	R.B.M.	Yamuna	Nityanandpur Aehatmal and Said-mohamadpur Aehatmal	1 and 1ma	17.700

Cross Section	Ref. Point	Lat.	Long.	Pre Monsoon 2024 Elevation	Post monsoon 2024 Elevation
1-1	1	30°15'26.82"N	77°31'57.60"E	308.188	309.668
1-1	2	30°15'27.65"N	77°31'55.69"E	309.428	311.108
1-1	3	30°15'28.45"N	77°31'54.03"E	311.641	313.481
1-1	4	30°15'29.51"N	77°31'51.85"E	310.508	312.478
2-2	5	30°15'31.22"N	77°31'53.04"E	309.367	310.697
2-2	6	30°15'30.36"N	77°31'54.92"E	309.588	311.008
2-2	7	30°15'29.58"N	77°31'56.74"E	310.367	311.947
2-2	8	30°15'28.64"N	77°31'58.52"E	311.414	312.694
3-3	9	30°15'30.03"N	77°32'0.13"E	311.632	312.772
3-3	10	30°15'31.07"N	77°31'58.30"E	310.658	311.948
3-3	11	30°15'31.99"N	77°31'56.55"E	310.338	311.718
3-3	12	30°15'32.94"N	77°31'54.46"E	308.241	309.701
4-4	13	30°15'34.74"N	77°31'55.28"E	308.174	309.664
4-4	14	30°15'33.88"N	77°31'57.14"E	307.306	308.876
4-4	15	30°15'33.08"N	77°31'58.97"E	308.510	310.120
4-4	16	30°15'32.17"N	77°32'0.74"E	311.912	313.792
4-4	17	30°15'31.26"N	77°32'2.60"E	310.918	312.678
5-5	18	30°15'32.67"N	77°32'3.83"E	310.809	312.609
5-5	19	30°15'33.74"N	77°32'2.07"E	311.644	313.274
5-5	20	30°15'34.67"N	77°32'0.40"E	311.931	313.641
5-5	21	30°15'35.66"N	77°31'58.60"E	310.722	312.302
5-5	22	30°15'36.63"N	77°31'56.64"E	308.821	310.251
6-6	23	30°15'38.31"N	77°31'57.31"E	308.708	310.088
6-6	24	30°15'37.39"N	77°31'59.68"E	309.611	311.251
6-6	25	30°15'36.43"N	77°32'1.81"E	310.855	312.375
6-6	26	30°15'35.34"N	77°32'3.87"E	310.766	312.316
6-6	27	30°15'34.29"N	77°32'5.66"E	310.638	312.328
7-7	28	30°15'35.95"N	77°32'7.04"E	311.875	313.345
7-7	29	30°15'37.23"N	77°32'5.26"E	311.317	312.707

7-7	30	30°15'38.40"N	77°32'3.06"E	311.419	312.899
7-7	31	30°15'39.31"N	77°32'1.23"E	309.455	310.895
7-7	32	30°15'40.20"N	77°31'59.02"E	306.538	307.968
8-8	33	30°15'42.07"N	77°31'59.38"E	307.479	308.949
8-8	34	30°15'41.42"N	77°32'1.35"E	306.288	307.978
8-8	35	30°15'40.46"N	77°32'3.62"E	306.446	307.926
8-8	36	30°15'39.39"N	77°32'5.54"E	309.550	310.990
8-8	37	30°15'38.43"N	77°32'7.39"E	309.344	311.034
8-8	38	30°15'37.47"N	77°32'9.04"E	312.269	314.019
9-9	39	30°15'39.20"N	77°32'10.61"E	311.006	312.696
9-9	40	30°15'40.15"N	77°32'8.93"E	311.215	312.875
9-9	41	30°15'41.15"N	77°32'7.10"E	310.655	312.295
9-9	42	30°15'42.31"N	77°32'4.78"E	309.003	310.593
9-9	43	30°15'43.08"N	77°32'2.85"E	307.115	308.825
9-9	44	30°15'44.21"N	77°32'0.92"E	307.879	309.588
10-10	45	30°15'42.23"N	77°32'9.55"E	307.841	309.646
10-10	46	30°15'41.00"N	77°32'11.95"E	307.868	309.760

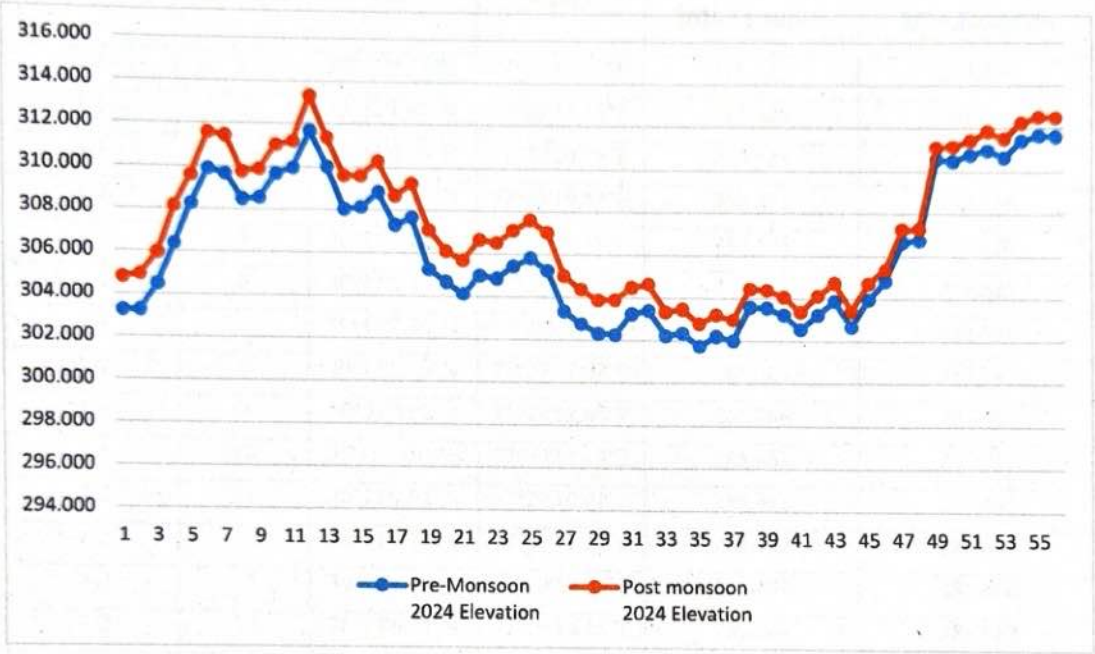


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
18	Behat	R.B.M.	Yamuna	Abutalibpur Garh Aehatmal	1	37.000

Cross Section	Ref. Point	Lat.	Long.	Pre-Monsoon 2024 Elevation	Post monsoon 2024 Elevation
1-1	1	30°14'44.37"N	77°31'37.14"E	303.239	304.787
1-1	2	30°14'45.33"N	77°31'34.98"E	303.247	304.916
1-1	3	30°14'46.45"N	77°31'32.64"E	304.479	305.961
1-1	4	30°14'47.77"N	77°31'29.70"E	306.383	308.152
1-1	5	30°14'49.19"N	77°31'26.83"E	308.261	309.603
1-1	6	30°14'50.81"N	77°31'23.75"E	309.887	311.581
2-2	7	30°14'53.23"N	77°31'25.10"E	309.653	311.444
2-2	8	30°14'51.69"N	77°31'27.64"E	308.479	309.745
2-2	9	30°14'50.48"N	77°31'30.39"E	308.543	309.887
2-2	10	30°14'48.94"N	77°31'32.96"E	309.665	311.014
2-2	11	30°14'47.94"N	77°31'35.40"E	309.952	311.199
2-2	12	30°14'46.80"N	77°31'38.06"E	311.659	313.312
3-3	13	30°14'49.00"N	77°31'38.83"E	310.011	311.368
3-3	14	30°14'50.29"N	77°31'36.17"E	308.027	309.596
3-3	15	30°14'51.37"N	77°31'33.71"E	308.128	309.585
3-3	16	30°14'52.67"N	77°31'31.12"E	308.833	310.279
3-3	17	30°14'54.16"N	77°31'28.44"E	307.314	308.683
3-3	18	30°14'55.64"N	77°31'26.20"E	307.658	309.240
4-4	19	30°14'57.49"N	77°31'27.32"E	305.252	307.099
4-4	20	30°14'56.60"N	77°31'29.44"E	304.669	306.118
4-4	21	30°14'55.57"N	77°31'31.96"E	304.119	305.700
4-4	22	30°14'54.17"N	77°31'34.62"E	304.987	306.671
4-4	23	30°14'52.91"N	77°31'37.14"E	304.846	306.523
4-4	24	30°14'52.10"N	77°31'39.53"E	305.452	307.111
5-5	25	30°14'54.79"N	77°31'40.19"E	305.837	307.591
5-5	26	30°14'56.01"N	77°31'38.01"E	305.239	307.031
5-5	27	30°14'57.16"N	77°31'35.70"E	303.349	305.010
5-5	28	30°14'58.84"N	77°31'33.11"E	302.766	304.394
5-5	29	30°15'0.05"N	77°31'31.11"E	302.319	303.877

5-5	30	30°15'1.59"N	77°31'28.68"E	302.258	303.905
6-6	31	30°15'3.88"N	77°31'30.17"E	303.251	304.495
6-6	32	30°15'2.75"N	77°31'32.53"E	303.418	304.657
6-6	33	30°15'1.33"N	77°31'34.99"E	302.233	303.361
6-6	34	30°14'59.98"N	77°31'37.02"E	302.359	303.488
6-6	35	30°14'58.92"N	77°31'39.37"E	301.747	302.805
6-6	36	30°14'57.66"N	77°31'41.97"E	302.222	303.220
7-7	37	30°15'0.46"N	77°31'42.60"E	302.006	302.988
7-7	38	30°15'1.76"N	77°31'40.20"E	303.599	304.455
7-7	39	30°15'2.87"N	77°31'37.88"E	303.557	304.400
7-7	40	30°15'4.25"N	77°31'35.60"E	303.239	304.082
7-7	41	30°15'5.36"N	77°31'33.73"E	302.546	303.385
7-7	42	30°15'6.84"N	77°31'31.67"E	303.241	304.138
8-8	43	30°15'9.26"N	77°31'32.88"E	303.877	304.743
8-8	44	30°15'7.90"N	77°31'35.33"E	302.669	303.423
8-8	45	30°15'6.61"N	77°31'37.57"E	303.958	304.716
8-8	46	30°15'5.44"N	77°31'40.20"E	304.846	305.374
8-8	47	30°15'4.26"N	77°31'42.69"E	306.661	307.260
9-9	48	30°15'6.91"N	77°31'43.57"E	306.747	307.294
9-9	49	30°15'8.09"N	77°31'41.20"E	310.538	311.085
9-9	50	30°15'9.30"N	77°31'38.84"E	310.452	311.133
9-9	51	30°15'10.66"N	77°31'36.82"E	310.746	311.423
9-9	52	30°15'12.10"N	77°31'34.50"E	310.964	311.848
10-10	53	30°15'14.40"N	77°31'35.82"E	310.618	311.515
10-10	54	30°15'13.23"N	77°31'38.31"E	311.411	312.249
10-10	55	30°15'12.17"N	77°31'40.85"E	311.666	312.513
10-10	56	30°15'10.89"N	77°31'43.79"E	311.619	312.508

जिलाधिकारी (खनन अनुभाग) सहारनपुर



जिलाधिकारी (खनन अनुभाग) सतना

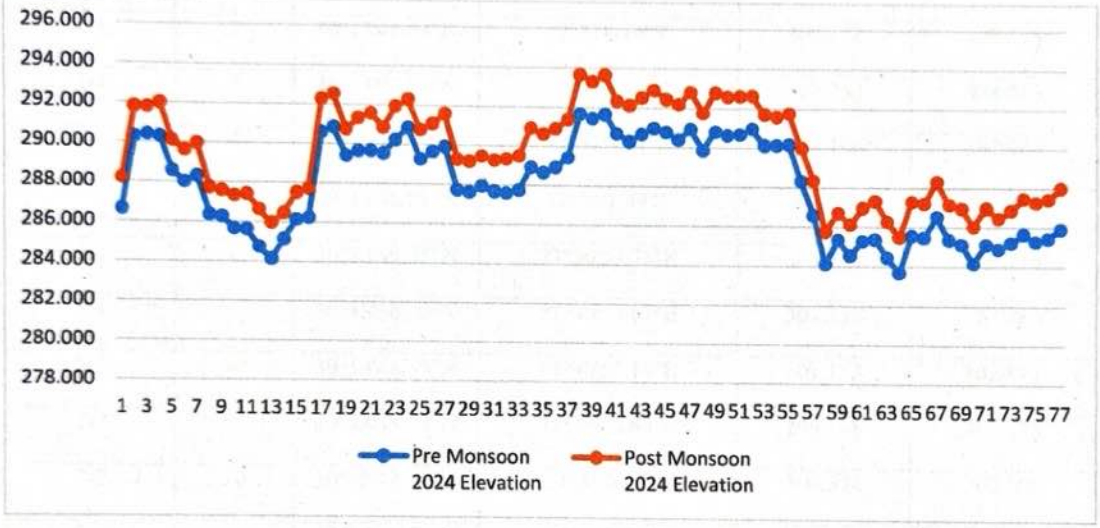
Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
19	Behat	R.B.M.	Yamuna	Nuniyari Athmal – Khand Second	1/1/1	19.000

Cross Section	Ref. Point	Lat.	Long.	Pre Monsoon 2024 Elevation	Post Monsoon 2024 Elevation
1-1	1	30°11'0.53"N	77°29'23.73"E	286.644	288.226
1-1	2	30°11'1.62"N	77°29'22.30"E	290.305	291.813
1-1	3	30°11'2.75"N	77°29'20.96"E	290.421	291.801
1-1	4	30°11'3.95"N	77°29'19.57"E	290.322	292.006
1-1	5	30°11'5.11"N	77°29'18.19"E	288.592	290.120
1-1	6	30°11'6.27"N	77°29'16.81"E	288.033	289.625
1-1	7	30°11'7.46"N	77°29'15.40"E	288.311	289.978
1-1	8	30°11'8.75"N	77°29'14.07"E	286.363	287.747
1-1	9	30°11'9.92"N	77°29'12.84"E	286.268	287.606
1-1	10	30°11'11.19"N	77°29'11.39"E	285.667	287.348
2-2	11	30°11'9.94"N	77°29'10.01"E	285.641	287.433
2-2	12	30°11'8.73"N	77°29'11.37"E	284.752	286.647
2-2	13	30°11'7.49"N	77°29'12.77"E	284.138	285.966
2-2	14	30°11'6.41"N	77°29'14.15"E	285.144	286.482
2-2	15	30°11'5.23"N	77°29'15.55"E	286.136	287.530
2-2	16	30°11'4.02"N	77°29'16.98"E	286.244	287.726
2-2	17	30°11'2.85"N	77°29'18.35"E	290.611	292.292
2-2	18	30°11'1.66"N	77°29'19.78"E	290.874	292.556
2-2	19	30°11'0.59"N	77°29'21.14"E	289.422	290.760
2-2	20	30°10'59.51"N	77°29'22.72"E	289.664	291.348
3-3	21	30°10'59.48"N	77°29'20.29"E	289.692	291.591
3-3	22	30°11'0.60"N	77°29'18.84"E	289.554	290.885
3-3	23	30°11'1.80"N	77°29'17.47"E	290.256	291.953
3-3	24	30°11'2.96"N	77°29'15.97"E	290.871	292.309
3-3	25	30°11'4.24"N	77°29'14.45"E	289.285	290.777
3-3	26	30°11'5.43"N	77°29'13.01"E	289.664	291.102
3-3	27	30°11'6.51"N	77°29'11.42"E	289.928	291.599
3-3	28	30°11'7.67"N	77°29'9.74"E	287.734	289.314
3-3	29	30°11'8.87"N	77°29'8.28"E	287.645	289.211
4-4	30	30°11'7.66"N	77°29'6.69"E	287.956	289.462
4-4	31	30°11'6.51"N	77°29'8.18"E	287.695	289.278

सहायक निदेशक (खनन अनुभाग) सहारनपुर

4-4	32	30°11'5.18"N	77°29'9.55"E	287.602	289.355
4-4	33	30°11'4.04"N	77°29'11.26"E	287.755	289.511
4-4	34	30°11'2.97"N	77°29'12.84"E	288.941	290.923
4-4	35	30°11'1.69"N	77°29'14.46"E	288.673	290.639
4-4	36	30°11'0.74"N	77°29'15.85"E	288.939	290.911
4-4	37	30°10'59.72"N	77°29'17.54"E	289.444	291.377
5-5	38	30°10'59.36"N	77°29'15.20"E	291.677	293.671
5-5	39	30°11'0.52"N	77°29'13.42"E	291.449	293.317
5-5	40	30°11'1.75"N	77°29'11.65"E	291.658	293.652
6-6	41	30°11'0.41"N	77°29'10.16"E	290.673	292.340
6-6	42	30°10'59.11"N	77°29'11.71"E	290.291	292.119
6-6	43	30°10'57.93"N	77°29'13.59"E	290.667	292.514
7-7	44	30°10'56.94"N	77°29'11.96"E	290.977	292.918
7-7	45	30°10'58.15"N	77°29'10.52"E	290.783	292.441
7-7	46	30°10'59.27"N	77°29'8.80"E	290.392	292.198
8-8	47	30°10'57.87"N	77°29'7.53"E	290.928	292.810
8-8	48	30°10'56.90"N	77°29'9.11"E	289.869	291.760
8-8	49	30°10'55.91"N	77°29'10.70"E	290.806	292.788
9-9	50	30°10'54.37"N	77°29'9.27"E	290.631	292.586
9-9	51	30°10'55.39"N	77°29'7.79"E	290.679	292.617
9-9	52	30°10'56.58"N	77°29'6.12"E	290.971	292.642
10-10	53	30°10'55.17"N	77°29'4.77"E	290.128	291.709
10-10	54	30°10'54.10"N	77°29'6.33"E	290.133	291.581
10-10	55	30°10'52.93"N	77°29'8.10"E	290.162	291.752
11-11	56	30°10'51.35"N	77°29'7.05"E	288.344	290.013
11-11	57	30°10'52.44"N	77°29'5.40"E	286.593	288.365
11-11	58	30°10'53.75"N	77°29'3.74"E	284.117	285.784
12-12	59	30°10'52.40"N	77°29'2.35"E	285.352	286.733
12-12	60	30°10'51.15"N	77°29'4.05"E	284.558	286.142
12-12	61	30°10'49.83"N	77°29'5.87"E	285.299	286.986
13-13	62	30°10'48.27"N	77°29'4.76"E	285.382	287.337
13-13	63	30°10'49.35"N	77°29'3.17"E	284.471	286.304
13-13	64	30°10'51.06"N	77°29'1.18"E	283.685	285.513
14-14	65	30°10'49.51"N	77°28'59.72"E	285.568	287.311
14-14	66	30°10'48.22"N	77°29'1.52"E	285.473	287.228
14-14	67	30°10'46.74"N	77°29'3.39"E	286.531	288.319
15-15	68	30°10'45.14"N	77°29'2.52"E	285.369	287.16
15-15	69	30°10'46.59"N	77°29'0.61"E	285.141	286.9
15-15	70	30°10'47.88"N	77°28'59.09"E	284.168	286.06

15-15	71	30°10'49.29"N	77°28'57.33"E	285.128	286.994
15-15	72	30°10'50.52"N	77°28'55.60"E	284.909	286.463
16-16	73	30°10'49.06"N	77°28'54.44"E	285.216	286.885
16-16	74	30°10'47.87"N	77°28'56.03"E	285.667	287.465
16-16	75	30°10'46.62"N	77°28'57.64"E	285.293	287.286
16-16	76	30°10'45.36"N	77°28'59.34"E	285.448	287.439
16-16	77	30°10'43.92"N	77°29'1.20"E	285.928	288.008



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
20	Behat	R.B.M.	Yamuna	Aslampur Bartha – First	1/1 M	36.600

Cross Section	Sl.No	Lat.	Long.	Pre-Monsoon 2024 Elevation	Post-Monsoon 2024 Elevation
1-1	1	30°13'45.78"N	77°31'8.43"E	310.872	312.352
1-1	2	30°13'46.53"N	77°31'6.68"E	308.158	309.598
1-1	3	30°13'47.28"N	77°31'4.95"E	307.233	308.853
1-1	4	30°13'48.05"N	77°31'3.21"E	306.196	307.966
1-1	5	30°13'48.81"N	77°31'1.49"E	301.193	302.783
1-1	6	30°13'49.55"N	77°30'59.76"E	301.524	303.116
1-1	7	30°13'50.29"N	77°30'58.01"E	301.155	302.785
2-2	8	30°13'48.85"N	77°30'57.13"E	301.152	302.812
2-2	9	30°13'48.08"N	77°30'58.85"E	299.788	301.528
2-2	10	30°13'47.35"N	77°31'0.57"E	300.314	302.007
2-2	11	30°13'46.56"N	77°31'2.31"E	302.738	304.393
2-2	12	30°13'45.81"N	77°31'4.03"E	305.148	306.876
2-2	13	30°13'45.06"N	77°31'5.79"E	304.466	306.048
2-2	14	30°13'44.31"N	77°31'7.50"E	305.149	306.617
3-3	15	30°13'42.81"N	77°31'6.56"E	301.172	302.516
3-3	16	30°13'43.55"N	77°31'4.84"E	302.598	303.980
3-3	17	30°13'44.33"N	77°31'3.12"E	302.301	303.670
3-3	18	30°13'45.08"N	77°31'1.39"E	299.561	300.842
3-3	19	30°13'45.86"N	77°30'59.64"E	300.143	301.398
3-3	20	30°13'46.60"N	77°30'57.95"E	298.156	299.3[illegible]
3-3	21	30°13'47.36"N	77°30'56.20"E	297.722	298.969

4-4	22	30°13'45.88"N	77°30'55.27"E	298.747	300.129
4-4	23	30°13'45.10"N	77°30'57.01"E	298.155	299.521
4-4	24	30°13'44.36"N	77°30'58.71"E	299.285	300.613
4-4	25	30°13'43.59"N	77°31'0.46"E	302.267	303.659
4-4	26	30°13'42.84"N	77°31'2.19"E	299.328	300.675
4-4	27	30°13'42.08"N	77°31'3.93"E	303.376	304.743
4-4	28	30°13'41.32"N	77°31'5.64"E	308.392	309.758
5-5	29	30°13'39.82"N	77°31'4.73"E	300.708	302.166
5-5	30	30°13'40.52"N	77°31'2.97"E	302.114	303.555
5-5	31	30°13'41.33"N	77°31'1.27"E	304.114	305.636
5-5	32	30°13'42.08"N	77°30'59.55"E	301.122	302.526
5-5	33	30°13'42.87"N	77°30'57.78"E	300.217	301.850
5-5	34	30°13'43.63"N	77°30'56.11"E	299.742	301.390
5-5	35	30°13'44.39"N	77°30'54.35"E	297.905	299.664
6-6	36	30°13'42.93"N	77°30'53.44"E	298.261	299.883
6-6	37	30°13'42.16"N	77°30'55.17"E	300.189	301.741
6-6	38	30°13'41.40"N	77°30'56.88"E	300.349	301.930
6-6	39	30°13'40.62"N	77°30'58.65"E	298.194	299.832
6-6	40	30°13'39.88"N	77°31'0.35"E	301.114	302.535
6-6	41	30°13'39.11"N	77°31'2.10"E	298.542	299.939
6-6	42	30°13'38.35"N	77°31'3.81"E	297.149	298.817
7-7	43	30°13'36.87"N	77°31'2.88"E	301.255	302.590
7-7	44	30°13'37.62"N	77°31'1.18"E	299.917	301.261
7-7	45	30°13'38.41"N	77°30'59.46"E	297.284	298.578
7-7	46	30°13'39.16"N	77°30'57.74"E	296.808	298.147
7-7	47	30°13'39.92"N	77°30'55.96"E	298.245	299.727
7-7	48	30°13'40.71"N	77°30'54.27"E	299.204	300.649
7-7	49	30°13'41.45"N	77°30'52.52"E	296.219	297.558
8-8	50	30°13'39.96"N	77°30'51.60"E	297.355	298.909

जिलाधिकारी (खनन अनुभाग) मथुरा

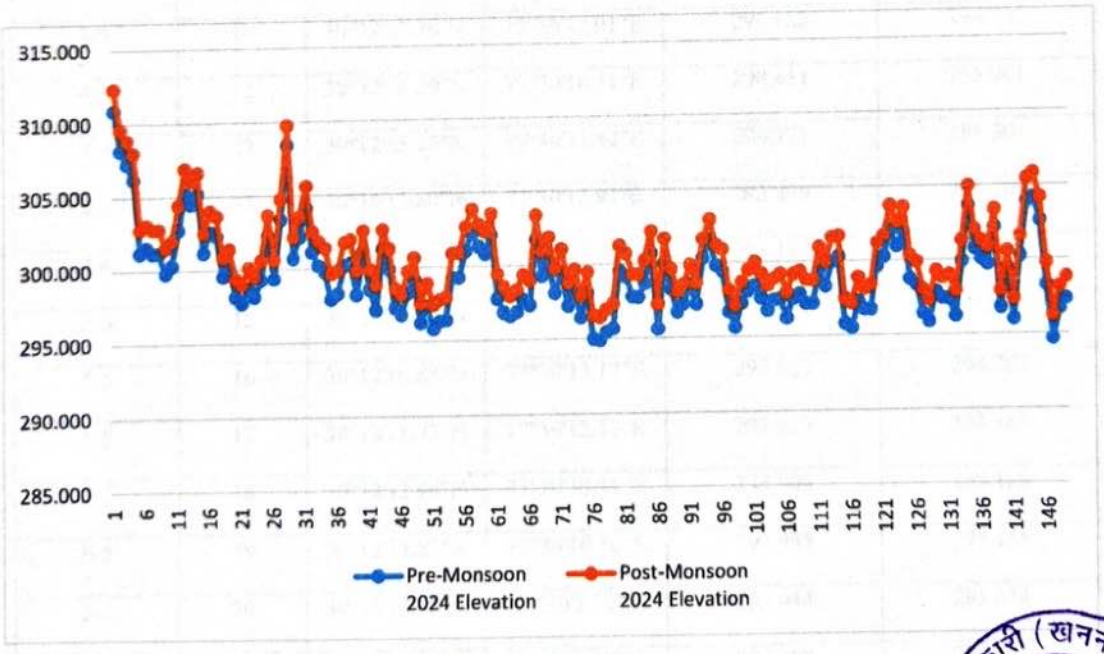
8-8	51	30°13'39.19"N	77°30'53.33"E	295.804	297.471
8-8	52	30°13'38.42"N	77°30'55.02"E	296.325	297.791
8-8	53	30°13'37.64"N	77°30'56.80"E	296.416	297.944
8-8	54	30°13'36.87"N	77°30'58.51"E	299.255	300.882
8-8	55	30°13'36.11"N	77°31'0.24"E	299.264	300.916
8-8	56	30°13'35.38"N	77°31'1.97"E	301.006	302.700
9-9	57	30°13'33.88"N	77°31'1.04"E	302.241	303.840
9-9	58	30°13'34.62"N	77°30'59.32"E	301.322	302.860
9-9	59	30°13'35.42"N	77°30'57.64"E	300.829	302.316
9-9	60	30°13'36.17"N	77°30'55.89"E	302.104	303.542
9-9	61	30°13'36.96"N	77°30'54.13"E	297.794	299.483
9-9	62	30°13'37.71"N	77°30'52.43"E	296.855	298.597
9-9	63	30°13'38.48"N	77°30'50.68"E	296.644	297.982
10-10	64	30°13'36.99"N	77°30'49.75"E	296.875	298.357
10-10	65	30°13'36.22"N	77°30'51.49"E	297.694	299.388
10-10	66	30°13'35.45"N	77°30'53.20"E	297.334	298.989
10-10	67	30°13'34.67"N	77°30'54.94"E	301.753	303.394
10-10	68	30°13'33.90"N	77°30'56.67"E	299.281	300.948
10-10	69	30°13'33.11"N	77°30'58.38"E	300.206	301.898
10-10	70	30°13'32.35"N	77°31'0.09"E	298.104	299.771
11-11	71	30°13'30.86"N	77°30'59.07"E	299.459	301.043
11-11	72	30°13'31.60"N	77°30'57.45"E	297.228	298.779
11-11	73	30°13'32.40"N	77°30'55.73"E	298.209	299.686
11-11	74	30°13'33.17"N	77°30'54.01"E	296.444	297.913
11-11	75	30°13'33.97"N	77°30'52.28"E	298.062	299.504
11-11	76	30°13'34.73"N	77°30'50.58"E	295.003	296.596
11-11	77	30°13'35.54"N	77°30'48.84"E	294.893	296.474
12-12	78	30°13'34.02"N	77°30'47.89"E	295.447	296.983
12-12	79	30°13'33.23"N	77°30'49.65"E	295.668	297.360

12-12	80	30°13'32.45"N	77°30'51.34"E	299.563	301.240
12-12	81	30°13'31.65"N	77°30'53.08"E	299.144	300.703
12-12	82	30°13'30.89"N	77°30'54.80"E	297.809	299.317
12-12	83	30°13'30.11"N	77°30'56.52"E	297.744	299.278
12-12	84	30°13'29.39"N	77°30'58.10"E	298.661	300.258
13-13	85	30°13'27.95"N	77°30'57.13"E	300.692	302.201
13-13	86	30°13'28.63"N	77°30'55.61"E	295.608	297.292
13-13	87	30°13'29.39"N	77°30'53.88"E	300.006	301.678
13-13	88	30°13'30.19"N	77°30'52.17"E	298.264	299.645
13-13	89	30°13'30.97"N	77°30'50.43"E	296.743	298.109
13-13	90	30°13'31.76"N	77°30'48.71"E	297.249	298.577
13-13	91	30°13'32.53"N	77°30'46.98"E	298.558	299.888
14-14	92	30°13'31.05"N	77°30'46.07"E	297.255	298.654
14-14	93	30°13'30.27"N	77°30'47.79"E	300.322	301.647
14-14	94	30°13'29.50"N	77°30'49.51"E	301.541	302.925
14-14	95	30°13'28.70"N	77°30'51.26"E	299.819	301.184
14-14	96	30°13'27.93"N	77°30'52.97"E	299.464	300.892
14-14	97	30°13'27.15"N	77°30'54.69"E	296.703	298.172
14-14	98	30°13'26.50"N	77°30'56.16"E	295.638	297.130
15-15	99	30°13'25.81"N	77°30'53.83"E	297.249	298.707
15-15	100	30°13'26.44"N	77°30'52.04"E	298.064	299.502
15-15	101	77°30'52.04"E	77°30'50.33"E	298.422	300.004
15-15	102	30°13'28.01"N	77°30'48.59"E	297.599	299.266
15-15	103	30°13'28.77"N	77°30'46.85"E	296.757	298.416
15-15	104	30°13'29.56"N	77°30'45.13"E	297.438	298.909
16-16	105	30°13'28.07"N	77°30'44.21"E	297.525	299.224
16-16	106	30°13'27.27"N	77°30'45.94"E	296.222	297.947
16-16	107	30°13'26.52"N	77°30'47.65"E	297.539	299.207
16-16	108	30°13'25.73"N	77°30'49.42"E	297.819	299.376

जिलाधिकारी (खनन अनुभाग) चित्रकूट धाम

16-16	109	30°13'24.96"N	77°30'51.13"E	297.183	298.776
16-16	110	30°13'24.17"N	77°30'52.85"E	297.166	298.765
17-17	111	30°13'22.70"N	77°30'51.97"E	299.372	300.956
17-17	112	30°13'23.49"N	77°30'50.24"E	298.324	300.015
17-17	113	30°13'24.23"N	77°30'48.49"E	299.962	301.636
17-17	114	30°13'25.03"N	77°30'46.74"E	300.309	301.701
17-17	115	30°13'25.81"N	77°30'45.01"E	295.818	297.462
17-17	116	30°13'26.56"N	77°30'43.27"E	295.533	297.174
18-18	117	30°13'25.09"N	77°30'42.35"E	297.267	298.919
18-18	118	30°13'24.29"N	77°30'44.10"E	296.762	298.156
18-18	119	30°13'23.50"N	77°30'45.81"E	296.759	298.453
18-18	120	30°13'22.74"N	77°30'47.58"E	299.643	301.201
18-18	121	30°13'21.94"N	77°30'49.28"E	300.274	301.720
18-18	122	30°13'21.17"N	77°30'51.00"E	302.009	303.676
19-19	123	30°13'20.45"N	77°30'48.36"E	300.951	302.589
19-19	124	30°13'21.23"N	77°30'46.64"E	301.947	303.586
19-19	125	30°13'22.03"N	77°30'44.88"E	298.769	300.358
19-19	126	30°13'22.80"N	77°30'43.14"E	298.349	299.912
19-19	127	30°13'23.56"N	77°30'41.43"E	296.447	298.038
20-20	128	30°13'22.10"N	77°30'40.50"E	295.893	297.375
20-20	129	30°13'21.35"N	77°30'42.26"E	297.888	299.296
20-20	130	30°13'20.54"N	77°30'43.97"E	297.443	298.835
20-20	131	30°13'19.77"N	77°30'45.73"E	297.415	299.012
20-20	132	30°13'19.00"N	77°30'47.46"E	296.264	297.932
21-21	133	30°13'17.49"N	77°30'46.53"E	299.904	301.315
21-21	134	30°13'18.26"N	77°30'44.81"E	303.615	304.951
21-21	135	30°13'19.04"N	77°30'43.04"E	300.719	302.018
21-21	136	30°13'19.83"N	77°30'41.30"E	300.048	301.266
21-21	137	30°13'20.61"N	77°30'39.59"E	299.692	300.840

22-22	138	30°13'19.10"N	77°30'38.65"E	302.173	303.339
22-22	139	30°13'18.36"N	77°30'40.38"E	296.774	297.917
22-22	140	30°13'17.57"N	77°30'42.11"E	299.409	300.564
22-22	141	30°13'16.75"N	77°30'43.88"E	296.003	297.372
23-23	142	30°13'15.28"N	77°30'42.96"E	300.228	301.583
23-23	143	30°13'16.06"N	77°30'41.20"E	303.841	305.423
23-23	144	30°13'16.84"N	77°30'39.46"E	304.129	305.798
23-23	145	30°13'17.61"N	77°30'37.71"E	302.588	304.136
24-24	146	30°13'16.93"N	77°30'37.32"E	298.258	299.750
24-24	147	30°13'16.06"N	77°30'38.97"E	294.652	296.251
24-24	148	30°13'15.16"N	77°30'40.63"E	296.667	298.159
24-24	149	30°13'14.28"N	77°30'42.33"E	297.314	298.796



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
21	Behat	R.B.M.	Yamuna	Rasoolpur Urf Rasooli	1/1	34.000

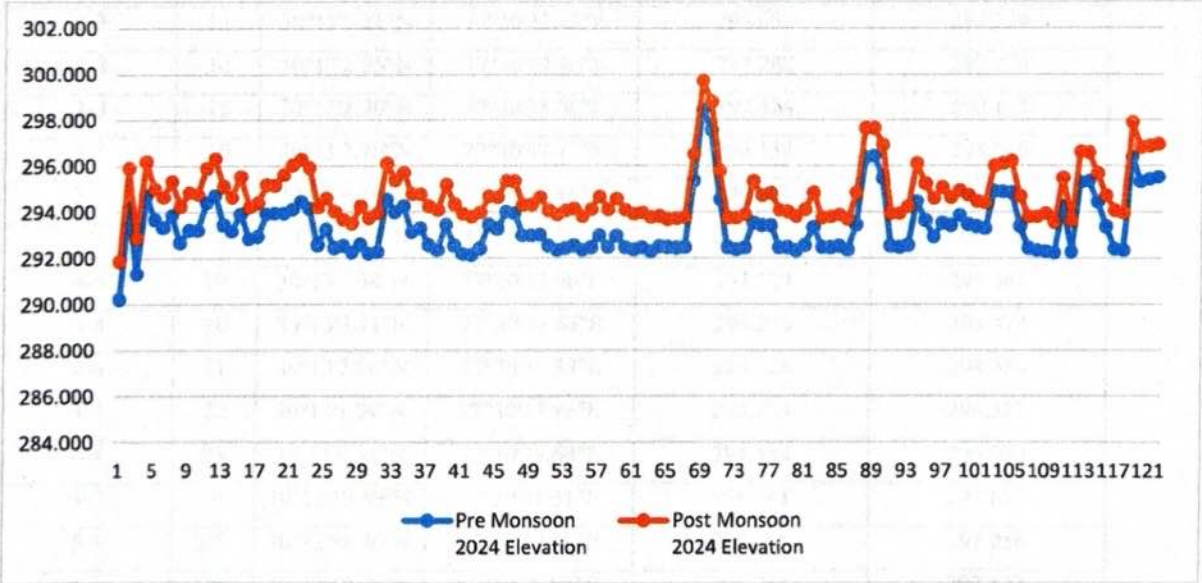
Cross Section	Ref. Point	Lat.	Long.	Pre Monsoon 2024 Elevation	Post Monsoon 2024 Elevation
1-1	1	30°12'17.38"N	77°30'17.68"E	290.216	291.871
1-1	2	30°12'18.66"N	77°30'16.77"E	294.228	295.908
1-1	3	30°12'20.17"N	77°30'15.80"E	291.311	292.891
2-2	4	30°12'18.66"N	77°30'13.62"E	294.714	296.204
2-2	5	30°12'17.42"N	77°30'14.76"E	293.668	295.008
2-2	6	30°12'16.04"N	77°30'16.30"E	293.321	294.651
3-3	7	30°12'14.20"N	77°30'15.87"E	293.847	295.337
3-3	8	30°12'15.34"N	77°30'14.74"E	292.669	294.249
3-3	9	30°12'16.52"N	77°30'13.39"E	293.199	294.859
3-3	10	30°12'17.76"N	77°30'12.01"E	293.182	294.752
4-4	11	30°12'16.29"N	77°30'10.11"E	294.411	295.901
4-4	12	30°12'15.15"N	77°30'11.42"E	294.721	296.301
4-4	13	30°12'13.80"N	77°30'12.91"E	293.439	295.109
4-4	14	30°12'12.64"N	77°30'14.50"E	293.149	294.639
5-5	15	30°12'10.22"N	77°30'14.03"E	293.909	295.549
5-5	16	30°12'10.83"N	77°30'13.17"E	292.822	294.202
5-5	17	30°12'11.77"N	77°30'12.12"E	292.927	294.385
5-5	18	30°12'12.94"N	77°30'10.98"E	293.908	295.188
5-5	19	30°12'13.87"N	77°30'10.30"E	293.935	295.155
5-5	20	30°12'15.48"N	77°30'8.90"E	293.944	295.614
6-6	21	30°12'14.03"N	77°30'7.27"E	294.108	296.038
6-6	22	30°12'12.92"N	77°30'8.38"E	294.437	296.287
6-6	23	30°12'11.58"N	77°30'9.74"E	294.139	295.909

6-6	24	30°12'9.94"N	77°30'11.32"E	292.549	294.209
6-6	25	30°12'8.76"N	77°30'12.39"E	293.231	294.594
6-6	26	30°12'7.80"N	77°30'13.21"E	292.428	294.020
7-7	27	30°12'5.80"N	77°30'11.96"E	292.517	293.664
7-7	28	30°12'7.16"N	77°30'10.99"E	292.239	293.495
7-7	29	30°12'8.28"N	77°30'10.03"E	292.566	294.234
7-7	30	30°12'9.41"N	77°30'8.84"E	292.167	293.725
7-7	31	30°12'11.02"N	77°30'7.50"E	292.254	293.923
7-7	32	30°12'12.99"N	77°30'5.92"E	294.539	296.121
8-8	33	30°12'12.03"N	77°30'3.51"E	293.984	295.378
8-8	34	30°12'11.08"N	77°30'4.32"E	294.228	295.700
8-8	35	30°12'9.77"N	77°30'5.45"E	293.109	294.776
8-8	36	30°12'8.52"N	77°30'6.56"E	293.266	294.756
8-8	37	30°12'7.19"N	77°30'8.04"E	292.542	294.234
8-8	38	30°12'6.12"N	77°30'9.34"E	292.331	294.083
8-8	39	30°12'4.72"N	77°30'10.75"E	293.422	295.181
9-9	40	30°12'3.93"N	77°30'9.19"E	292.511	294.320
9-9	41	30°12'5.18"N	77°30'7.99"E	292.160	293.904
9-9	42	30°12'6.67"N	77°30'6.54"E	292.121	293.789
9-9	43	30°12'8.25"N	77°30'4.69"E	292.404	293.955
9-9	44	30°12'9.42"N	77°30'3.70"E	293.438	294.666
9-9	45	30°12'11.25"N	77°30'2.05"E	293.256	294.624
10-10	46	30°12'10.01"N	77°30'0.65"E	293.991	295.335
10-10	47	30°12'8.58"N	77°30'1.88"E	293.933	295.328
10-10	48	30°12'7.34"N	77°30'3.02"E	292.968	294.282
10-10	49	30°12'5.71"N	77°30'4.57"E	292.958	294.325
10-10	50	30°12'4.28"N	77°30'5.94"E	292.982	294.629
10-10	51	30°12'2.92"N	77°30'6.80"E	292.514	294.052
11-11	52	30°12'2.17"N	77°30'5.31"E	292.338	293.882

11-11	53	30°12'3.60"N	77°30'4.06"E	292.416	294.049
11-11	54	30°12'5.03"N	77°30'2.96"E	292.527	294.119
11-11	55	30°12'6.56"N	77°30'1.34"E	292.339	293.787
11-11	56	30°12'7.95"N	77°30'0.19"E	292.444	294.112
11-11	57	30°12'9.21"N	77°29'59.24"E	292.967	294.659
12-12	58	30°12'8.16"N	77°29'57.41"E	292.464	294.108
12-12	59	30°12'6.71"N	77°29'58.72"E	292.952	294.560
12-12	60	30°12'5.41"N	77°30'0.06"E	292.441	294.064
12-12	61	30°12'4.08"N	77°30'1.38"E	292.365	293.906
12-12	62	30°12'2.76"N	77°30'2.49"E	292.439	293.969
12-12	63	30°12'1.50"N	77°30'3.81"E	292.274	293.765
13-13	64	30°12'0.85"N	77°30'2.02"E	292.486	293.808
13-13	65	30°12'2.10"N	77°30'0.92"E	292.449	293.677
13-13	66	30°12'3.27"N	77°29'59.90"E	292.428	293.709
13-13	67	30°12'4.68"N	77°29'58.38"E	292.464	293.758
13-13	68	30°12'6.01"N	77°29'57.38"E	295.359	296.507
13-13	69	30°12'7.18"N	77°29'56.21"E	298.448	299.714
14-14	70	30°12'5.58"N	77°29'54.01"E	297.551	298.790
14-14	71	30°12'4.53"N	77°29'55.29"E	294.537	295.781
14-14	72	30°12'3.47"N	77°29'56.62"E	292.447	293.756
14-14	73	30°12'2.10"N	77°29'58.35"E	292.366	293.732
14-14	74	30°12'0.76"N	77°29'59.82"E	292.439	293.877
14-14	75	30°11'59.94"N	77°30'0.77"E	293.526	295.346
15-15	76	30°11'57.93"N	77°29'59.85"E	293.404	294.698
15-15	77	30°11'59.34"N	77°29'58.25"E	293.412	294.811
15-15	78	30°12'0.87"N	77°29'56.71"E	292.437	294.084
15-15	79	30°12'2.38"N	77°29'55.21"E	292.458	294.002
15-15	80	30°12'3.76"N	77°29'54.18"E	292.311	293.814
15-15	81	30°12'4.97"N	77°29'52.99"E	292.558	294.105

16-16	82	30°12'3.78"N	77°29'51.01"E	293.334	294.826
16-16	83	30°12'2.41"N	77°29'52.53"E	292.466	293.755
16-16	84	30°12'1.06"N	77°29'53.88"E	292.449	293.793
16-16	85	30°11'59.73"N	77°29'55.41"E	292.519	293.883
16-16	86	30°11'58.54"N	77°29'56.88"E	292.369	293.697
16-16	87	30°11'57.20"N	77°29'58.61"E	293.442	294.835
16-16	88	30°11'56.29"N	77°29'59.94"E	296.355	297.644
17-17	89	30°11'53.99"N	77°29'59.39"E	296.440	297.648
17-17	90	30°11'55.30"N	77°29'57.62"E	295.469	296.924
17-17	91	30°11'56.84"N	77°29'55.79"E	292.528	293.927
17-17	92	30°11'58.34"N	77°29'53.88"E	292.464	293.935
17-17	93	30°11'59.58"N	77°29'52.43"E	292.549	294.233
17-17	94	30°12'0.76"N	77°29'51.11"E	294.466	296.122
17-17	95	30°12'2.68"N	77°29'49.50"E	293.637	295.227
18-18	96	30°12'1.30"N	77°29'47.74"E	292.928	294.589
18-18	97	30°12'0.16"N	77°29'49.17"E	293.517	295.069
18-18	98	30°11'58.49"N	77°29'50.70"E	293.415	294.643
18-18	99	30°11'57.14"N	77°29'52.14"E	293.856	294.929
18-18	100	30°11'55.84"N	77°29'53.42"E	293.455	294.744
18-18	101	30°11'54.26"N	77°29'55.69"E	293.372	294.476
18-18	102	30°11'53.14"N	77°29'57.21"E	293.288	294.407
18-18	103	30°11'52.05"N	77°29'58.90"E	294.892	296.015
19-19	104	30°11'50.47"N	77°29'58.89"E	294.888	296.116
19-19	105	30°11'51.11"N	77°29'57.78"E	294.834	296.218
19-19	106	30°11'52.42"N	77°29'56.07"E	293.396	294.691
19-19	107	30°11'53.70"N	77°29'54.44"E	292.430	293.796
19-19	108	30°11'55.37"N	77°29'52.57"E	292.339	293.794
19-19	109	30°11'56.36"N	77°29'51.27"E	292.273	293.937
19-19	110	30°11'57.55"N	77°29'49.88"E	292.224	293.562

19-19	111	30°11'58.85"N	77°29'48.39"E	294.221	295.479
19-19	112	30°12'0.20"N	77°29'46.56"E	292.257	293.621
20-20	113	30°11'59.36"N	77°29'44.87"E	295.292	296.631
20-20	114	30°11'57.88"N	77°29'46.76"E	295.353	296.577
20-20	115	30°11'56.21"N	77°29'48.25"E	294.441	295.670
20-20	116	30°11'54.97"N	77°29'49.70"E	293.359	294.723
20-20	117	30°11'53.79"N	77°29'50.84"E	292.392	294.057
20-20	118	30°11'52.15"N	77°29'52.77"E	292.324	293.952
20-20	119	30°11'50.94"N	77°29'54.25"E	296.366	297.894
20-20	120	30°11'49.53"N	77°29'56.25"E	295.309	296.812
20-20	121	30°11'48.32"N	77°29'57.36"E	295.429	296.862
20-20	122	30°11'47.25"N	77°29'58.14"E	295.504	296.945



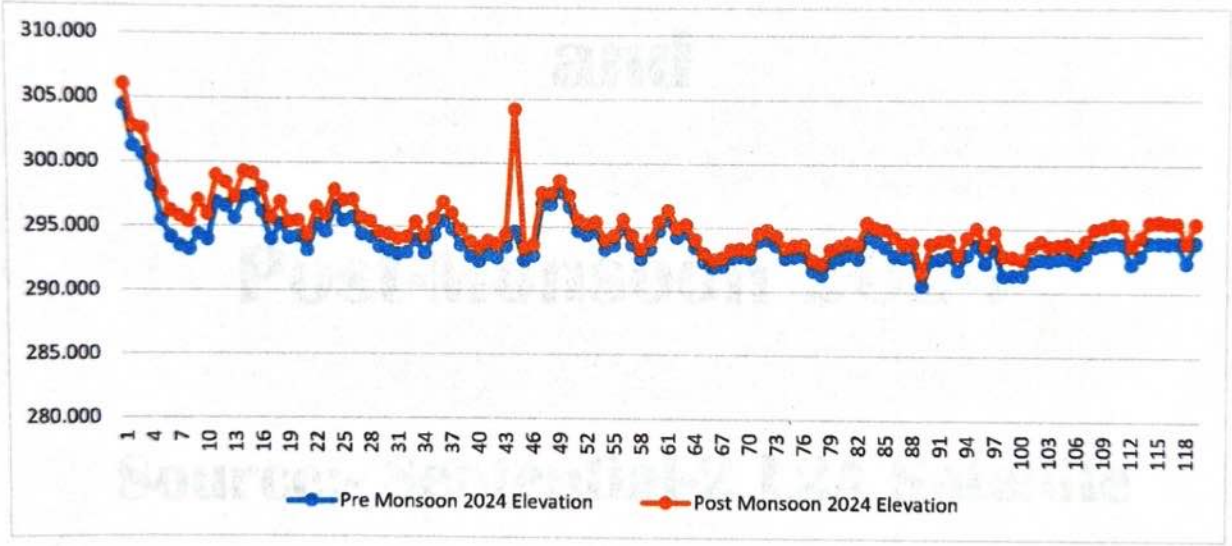
Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
22	Behat	R.B.M.	Yamuna	Aslampur Bartha – Second	1/1 M	28.160

Cross Section	Sl.No	Lat.	Long.	Pre Monsoon 2024 Elevation	Post Monsoon 2024 Elevation
1-1	1	30°13'4.33"N	77°30'43.84"E	304.415	306.062
1-1	2	30°13'5.18"N	77°30'42.16"E	301.244	302.798
1-1	3	30°13'6.00"N	77°30'40.47"E	300.609	302.591
1-1	4	30°13'6.82"N	77°30'38.81"E	298.162	300.156
1-1	5	30°13'7.66"N	77°30'37.13"E	295.511	297.569
1-1	6	30°13'8.50"N	77°30'35.43"E	294.162	296.210
2-2	7	30°13'6.98"N	77°30'34.61"E	293.461	295.799
2-2	8	30°13'6.15"N	77°30'36.30"E	293.188	295.380
2-2	9	30°13'5.31"N	77°30'37.98"E	294.404	297.072
2-2	10	30°13'4.47"N	77°30'39.64"E	293.956	295.954
2-2	11	30°13'3.63"N	77°30'41.33"E	296.916	298.982
2-2	12	30°13'2.80"N	77°30'43.02"E	296.611	298.456
3-3	13	30°13'1.21"N	77°30'42.15"E	295.632	297.330
3-3	14	30°13'2.05"N	77°30'40.46"E	297.282	299.274
3-3	15	30°13'2.90"N	77°30'38.80"E	297.424	299.111
3-3	16	30°13'3.75"N	77°30'37.13"E	296.138	298.030
3-3	17	30°13'4.59"N	77°30'35.45"E	294.001	295.699
3-3	18	30°13'5.43"N	77°30'33.76"E	295.174	296.928
4-4	19	30°13'3.94"N	77°30'32.96"E	294.129	295.387
4-4	20	30°13'3.11"N	77°30'34.64"E	294.236	295.474
4-4	21	30°13'2.26"N	77°30'36.33"E	293.128	294.356
4-4	22	30°13'1.39"N	77°30'37.96"E	295.133	296.527
4-4	23	30°13'0.51"N	77°30'39.64"E	294.584	295.930
4-4	24	30°12'59.69"N	77°30'41.31"E	296.511	297.877
5-5	25	30°12'58.20"N	77°30'40.48"E	295.466	297.056
5-5	26	30°12'59.05"N	77°30'38.83"E	295.764	297.123
5-5	27	30°12'59.89"N	77°30'37.13"E	294.428	295.675
5-5	28	30°13'0.75"N	77°30'35.49"E	294.179	295.422
5-5	29	30°13'1.60"N	77°30'33.81"E	293.449	294.596
5-5	30	30°13'2.44"N	77°30'32.15"E	293.142	294.427
6-6	31	30°13'0.94"N	77°30'31.32"E	292.854	294.103

6-6	32	30°13'0.07"N	77°30'32.99"E	292.972	294.208
6-6	33	30°12'59.25"N	77°30'34.68"E	293.984	295.361
6-6	34	30°12'58.39"N	77°30'36.32"E	292.915	294.270
6-6	35	30°12'57.54"N	77°30'37.99"E	294.341	295.690
6-6	36	30°12'56.67"N	77°30'39.68"E	295.468	296.925
7-7	37	30°12'55.15"N	77°30'38.82"E	294.759	296.083
7-7	38	30°12'56.00"N	77°30'37.15"E	293.576	294.785
7-7	39	30°12'56.85"N	77°30'35.46"E	292.744	293.888
7-7	40	30°12'57.68"N	77°30'33.82"E	292.338	293.446
7-7	41	30°12'58.52"N	77°30'32.15"E	292.833	293.937
7-7	42	30°12'59.38"N	77°30'30.48"E	292.581	293.690
8-8	43	30°12'57.87"N	77°30'29.64"E	293.423	294.411
8-8	44	30°12'56.98"N	77°30'31.30"E	294.647	304.197
8-8	45	30°12'56.16"N	77°30'32.96"E	292.367	293.329
8-8	46	30°12'55.31"N	77°30'34.63"E	292.761	293.620
8-8	47	30°12'54.45"N	77°30'36.33"E	296.784	297.670
8-8	48	30°12'53.61"N	77°30'37.95"E	296.792	297.633
9-9	49	30°12'52.08"N	77°30'37.16"E	297.766	298.651
9-9	50	30°12'52.90"N	77°30'35.46"E	296.655	297.482
9-9	51	30°12'53.74"N	77°30'33.79"E	294.722	295.591
9-9	52	30°12'54.63"N	77°30'32.15"E	294.372	295.246
9-9	53	30°12'55.48"N	77°30'30.48"E	294.652	295.415
9-9	54	30°12'56.31"N	77°30'28.79"E	293.271	294.012
10-10	55	30°12'54.82"N	77°30'27.97"E	293.596	294.351
10-10	56	30°12'53.96"N	77°30'29.64"E	294.884	295.623
10-10	57	30°12'53.10"N	77°30'31.32"E	293.667	294.395
10-10	58	30°12'52.26"N	77°30'32.96"E	292.523	293.278
10-10	59	30°12'51.41"N	77°30'34.64"E	293.291	294.024
10-10	60	30°12'50.54"N	77°30'36.32"E	294.766	295.485
11-11	61	30°12'49.03"N	30°12'49.03"N	295.641	296.360
11-11	62	30°12'49.90"N	77°30'33.81"E	294.238	294.995
11-11	63	30°12'50.72"N	77°30'32.13"E	294.596	295.251
11-11	64	30°12'51.58"N	77°30'30.48"E	293.458	294.086
11-11	65	30°12'52.42"N	77°30'28.81"E	292.342	292.983
11-11	66	30°12'53.25"N	77°30'27.12"E	291.869	292.492
12-12	67	30°12'51.74"N	77°30'26.31"E	291.983	292.677
12-12	68	30°12'50.90"N	77°30'27.97"E	292.646	293.293
12-12	69	30°12'50.06"N	77°30'29.62"E	292.734	293.377
12-12	70	30°12'49.19"N	77°30'31.27"E	292.633	293.277

12-12	71	30°12'48.36"N	77°30'32.97"E	293.937	294.565
12-12	72	30°12'47.47"N	77°30'34.66"E	294.077	294.832
13-13	73	30°12'45.97"N	77°30'33.81"E	293.639	294.388
13-13	74	30°12'46.83"N	77°30'32.15"E	292.633	293.432
13-13	75	30°12'47.67"N	77°30'30.46"E	292.749	293.605
13-13	76	30°12'48.51"N	77°30'28.82"E	292.847	293.656
13-13	77	30°12'49.36"N	77°30'27.16"E	291.655	292.473
13-13	78	30°12'50.24"N	77°30'25.48"E	291.329	292.223
14-14	79	30°12'48.58"N	77°30'24.59"E	292.421	293.329
14-14	80	30°12'47.76"N	77°30'26.28"E	292.650	293.641
14-14	81	30°12'46.94"N	77°30'27.96"E	292.917	293.869
14-14	82	30°12'46.12"N	77°30'29.62"E	292.649	293.739
14-14	83	30°12'45.30"N	77°30'31.30"E	294.347	295.407
14-14	84	30°12'44.45"N	77°30'32.99"E	294.009	295.029
15-15	85	30°12'42.96"N	77°30'32.14"E	293.519	294.909
15-15	86	30°12'43.74"N	77°30'30.48"E	292.839	294.319
15-15	87	30°12'44.59"N	77°30'28.79"E	292.735	293.775
15-15	88	30°12'45.39"N	77°30'27.13"E	292.856	293.866
15-15	89	30°12'46.25"N	77°30'25.45"E	290.544	291.548
15-15	90	30°12'47.06"N	77°30'23.76"E	292.519	293.804
16-16	91	30°12'45.59"N	77°30'22.93"E	292.642	294.036
16-16	92	30°12'44.76"N	77°30'24.63"E	292.899	294.148
16-16	93	30°12'43.94"N	77°30'26.33"E	291.727	292.982
16-16	94	30°12'43.08"N	77°30'27.98"E	292.943	294.335
16-16	95	30°12'42.19"N	77°30'29.67"E	293.667	295.011
16-16	96	30°12'41.36"N	77°30'31.33"E	292.352	293.701
17-17	97	30°12'39.92"N	77°30'30.50"E	293.341	294.797
17-17	98	30°12'40.74"N	77°30'28.82"E	291.323	292.877
17-17	99	30°12'41.58"N	77°30'27.15"E	291.381	292.809
17-17	100	30°12'42.39"N	77°30'25.50"E	291.373	292.609
17-17	101	30°12'43.23"N	77°30'23.80"E	292.361	293.589
17-17	102	30°12'44.06"N	77°30'22.12"E	292.649	294.040
18-18	103	30°12'42.49"N	77°30'21.25"E	292.557	293.645
18-18	104	30°12'41.67"N	77°30'22.94"E	292.659	293.755
18-18	105	30°12'40.84"N	77°30'24.63"E	292.728	293.854
18-18	106	30°12'40.03"N	77°30'26.30"E	292.337	293.45
18-18	107	30°12'39.21"N	77°30'27.98"E	292.842	294.07
18-18	108	30°12'38.37"N	77°30'29.66"E	293.654	295.00
19-19	109	30°12'36.81"N	77°30'28.82"E	293.773	295.121

19-19	110	30°12'37.65"N	77°30'27.13"E	293.929	295.384
19-19	111	30°12'38.49"N	77°30'25.44"E	293.841	295.338
19-19	112	30°12'39.31"N	77°30'23.78"E	292.267	293.694
19-19	113	30°12'40.14"N	77°30'22.11"E	292.945	294.384
20-20	114	30°12'40.98"N	77°30'20.42"E	293.941	295.518
20-20	115	30°12'39.46"N	77°30'19.59"E	293.929	295.612
20-20	116	30°12'38.61"N	77°30'21.28"E	293.921	295.470
20-20	117	30°12'37.78"N	77°30'22.96"E	293.944	295.486
20-20	118	30°12'36.98"N	77°30'24.62"E	292.382	293.930
20-20	119	30°12'36.15"N	77°30'26.31"E	293.967	295.433



Lease Profile's

Pre-Monsoon

and

Post-Monsoon 2024

Source:- Sentential-2 L2A Satellite

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
1	Behat	R.B.M.	Badshahibagh Rao	Mayapur Rooppur	Gata No. 14/1	3.100

Pre-Monsoon (12-June-2024)

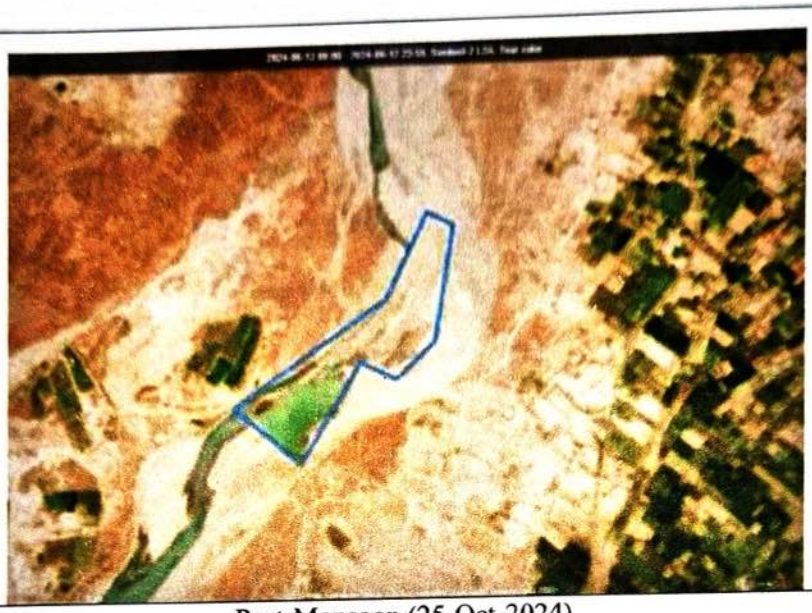


Post-Monsoon (25-Oct-2024)

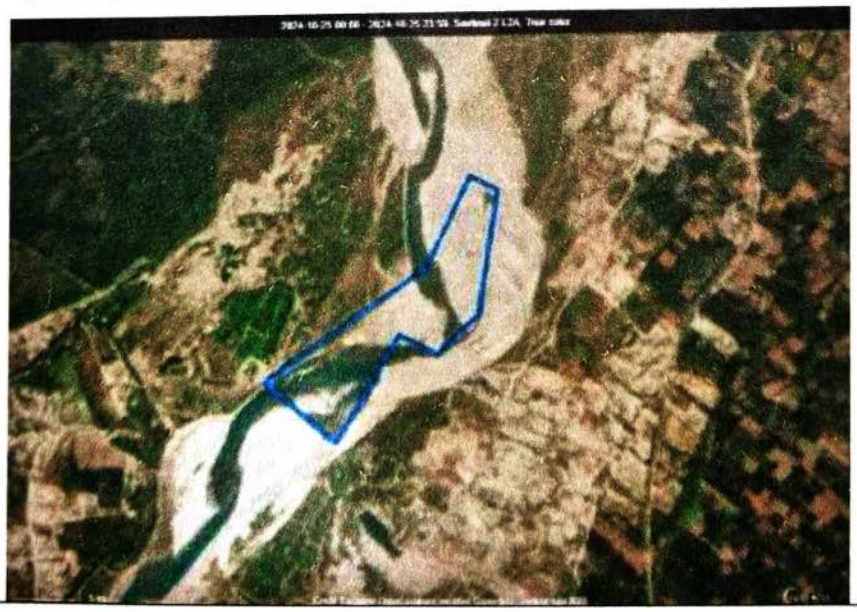


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
2	Behat	R.B.M.	Yamuna	Bartha Korsi	Gata No. - 1	36.000

Pre-Monsoon (12-June-2024)



Post-Monsoon (25-Oct-2024)



जिलाधिकारी (खनन अनु.)

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
3	Behat	R.B.M.	Badkala Ra	Haidarpur Hindwala	Khand No / Gata No. - 8/1 , 19 & 22	4.200

Pre-Monsoon (12-June-2024)



Post-Monsoon (25-Oct-2024)

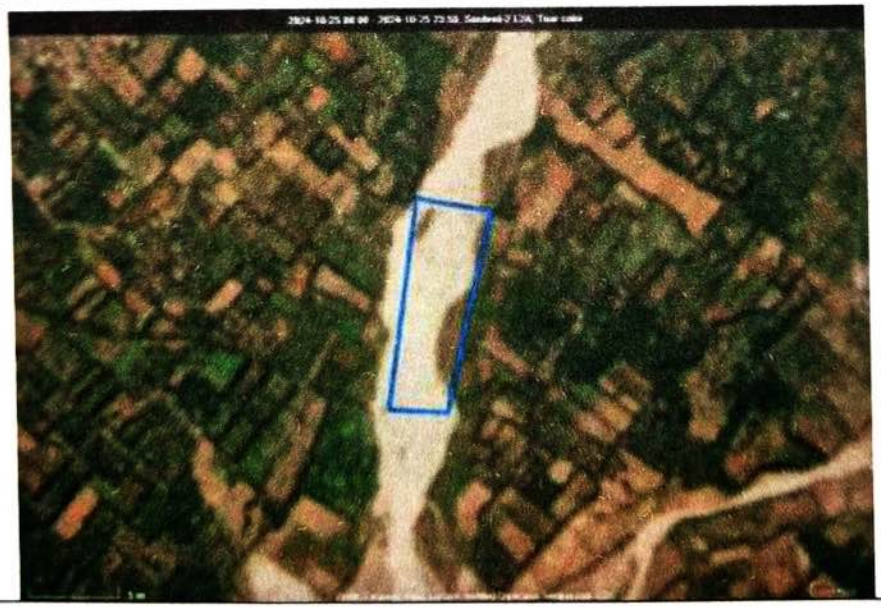


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
4	Behat	R.B.M.	Khurwali Ra	Sherpur Pelon	Gata No. - 378/2 & 379/2	7.000

Pre-Monsoon (12-June-2024)



Post-Monsoon (25-Oct-2024)

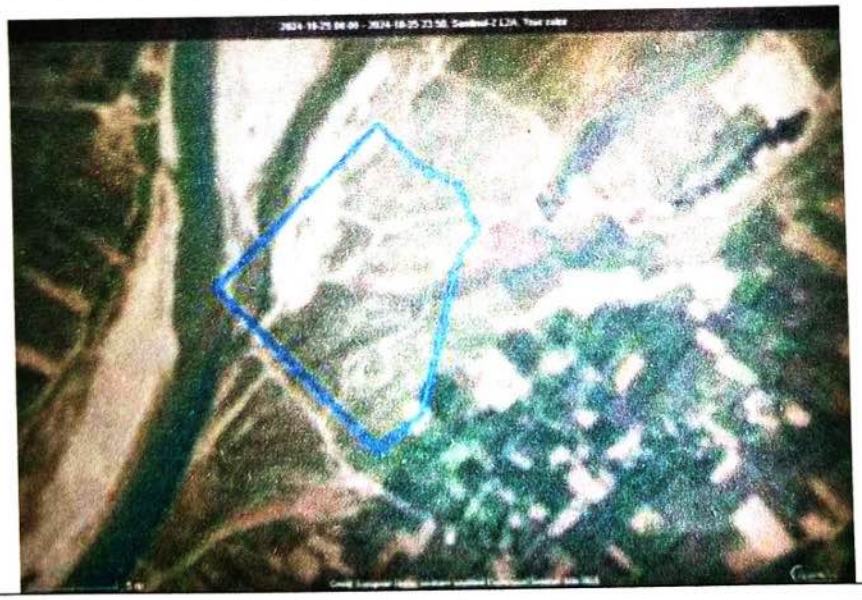


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
5	Behat	R.B.M.	Yamuna	Nuniyari Aehatmal	Gata No. - 1/1/1 Laat 38	24.290

Pre-Monsoon (12-June-2024)



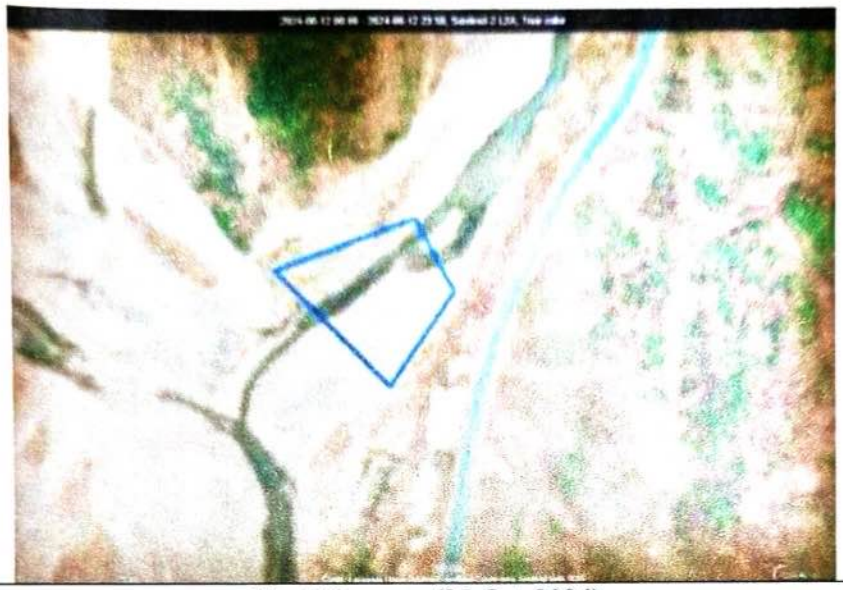
Post-Monsoon (25-Oct-2024)



जिलाधिकारी (खनन अनुभाग) सहारनपुर

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
6	Behat	R.B.M.	Yamuna	Rehna	Khand No. / Gata no. - 03, Lot No - 03	8.050

Pre-Monsoon (12-June-2024)



Post-Monsoon (25-Oct-2024)

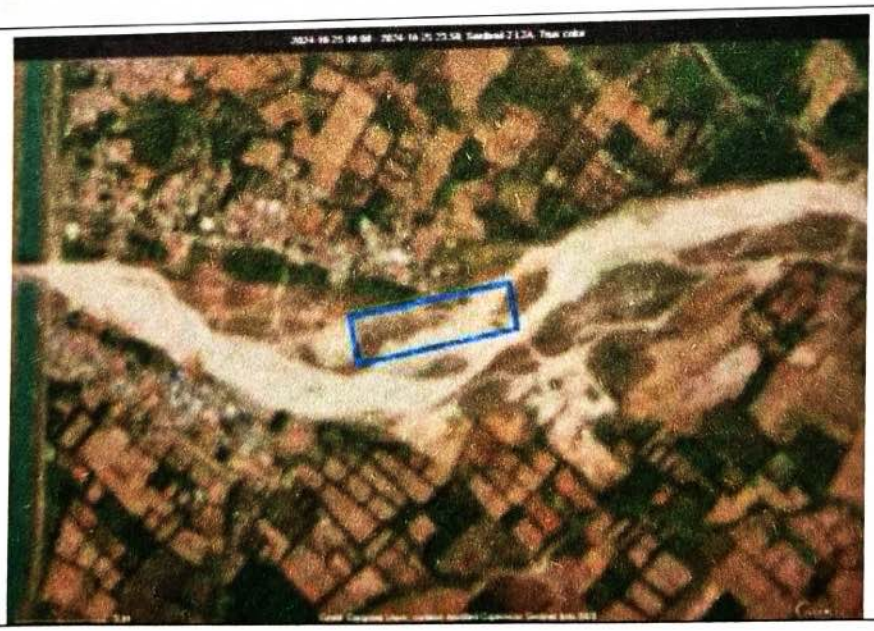


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
7	Behat	R.B.M.	Gaisara Rao	Rahena	Gata No. 179/2	3.750

Pre-Monsoon (12-June-2024)

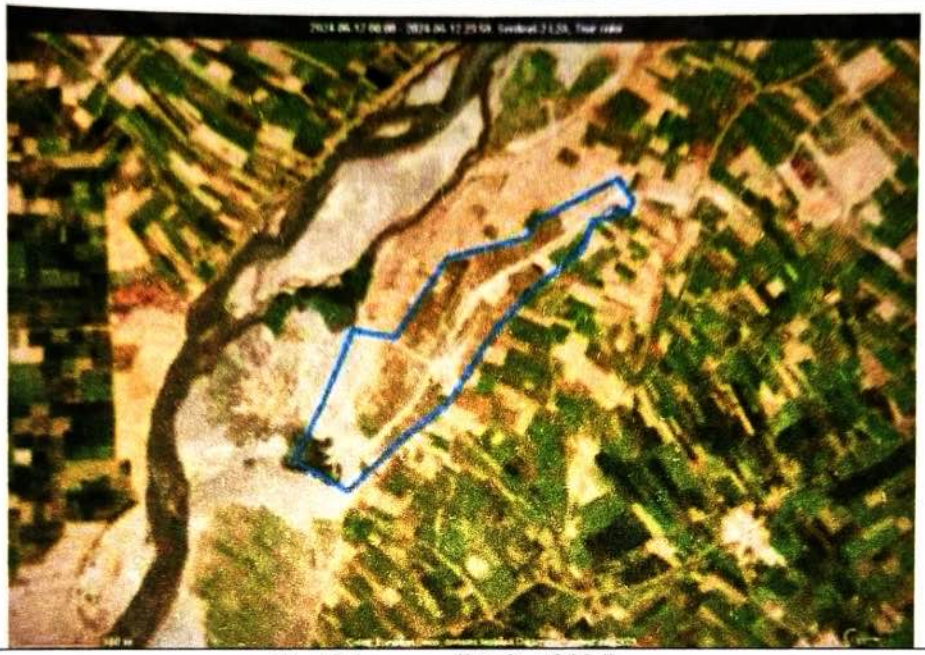


Post-Monsoon (25-Oct-2024)

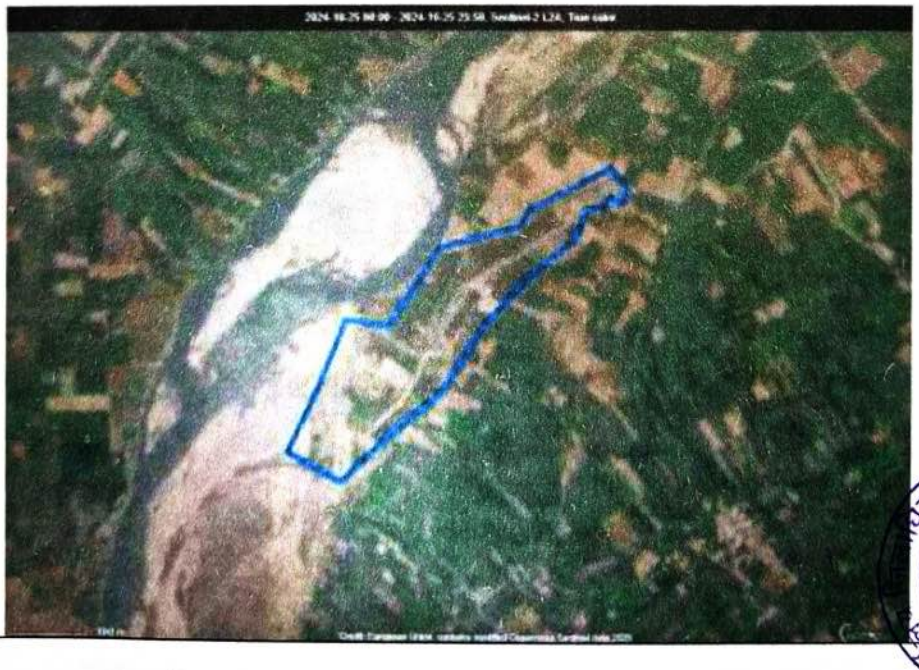


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
8	Nukur	Sand	Yamuna	Dhikkan Kalan	Gata No. - 839, 841 to 856, 858, 859, 860, 861,863,864,865,866,867, 871, 872, 888, 889, 406 , 407	52.630

Pre-Monsoon (12-June-2024)



Post-Monsoon (25-Oct-2024)

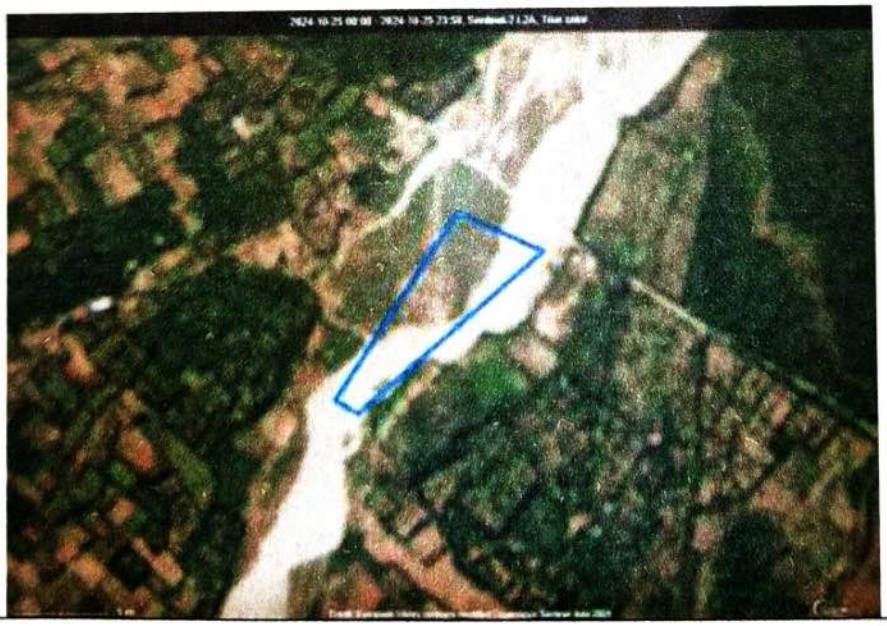


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
9	Behat	R.B.M.	Khurwali Ra	Sherpur Pelon	403 , 404/1 , 405 , 406/1 , 416/2 , 421/1 , 422/2 , 423/2 , 424/2 , 429 and 431	6.475

Pre-Monsoon (12-June-2024)



Post-Monsoon (25-Oct-2024)



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
10	Behat	R.B.M.	Kaluwala	Kaluwala Pahadipur	119/1 , 120/1 , 192/1 , 193/1 , 125/4	14.900

Pre-Monsoon (12-June-2024)



Post-Monsoon (25-Oct-2024)



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
11	Behat	R.B.M.	Yamuna	Akbarpur Bans Aehatmal	1	17.900

Pre-Monsoon (12-June-2024)



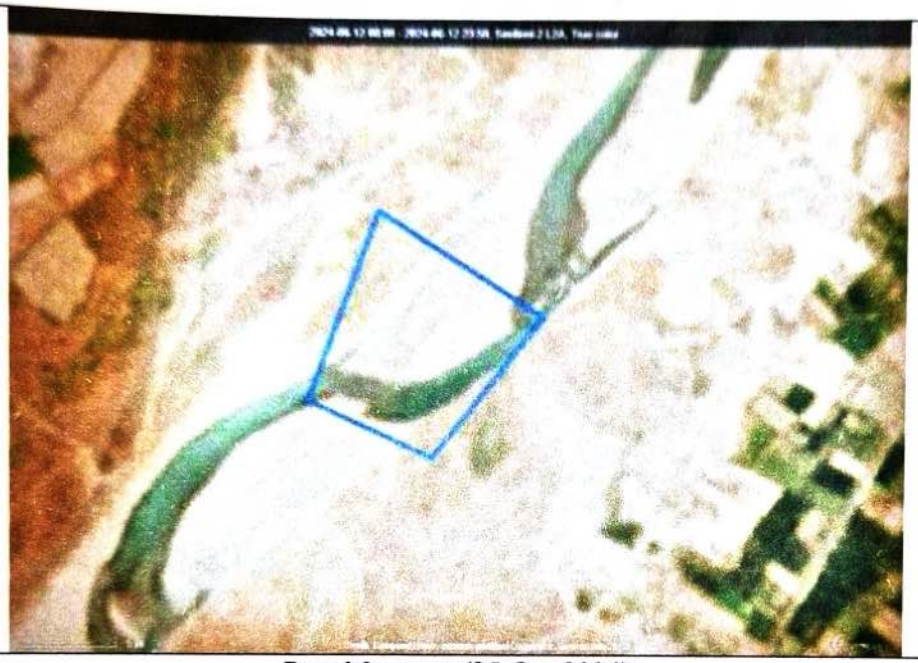
Post-Monsoon (25-Oct-2024)



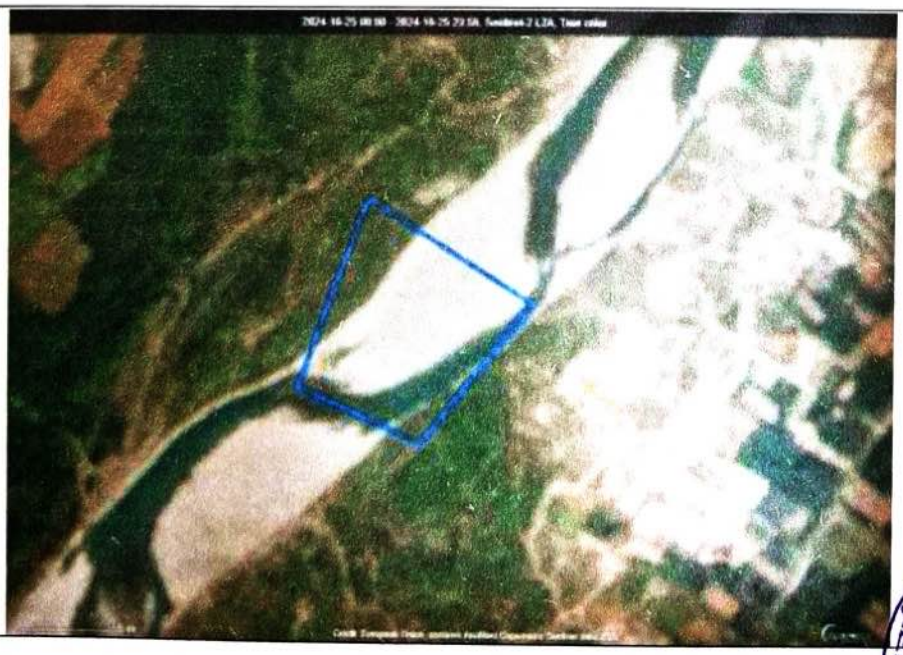
जिलाधिकारी (खनन अनुभाग) सहारनपुर

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
12	Behat	R.B.M.	Yamuna	Arazi Jevadi Ahatmal and Masoodpur Garh Aehatmal	1 and 1	13.800

Pre-Monsoon (12-June-2024)



Post-Monsoon (25-Oct-2024)

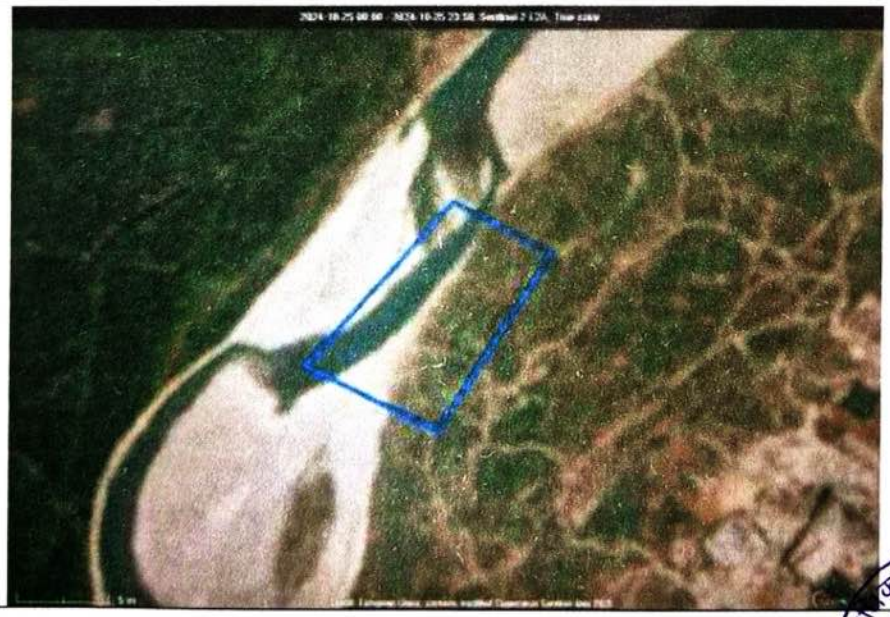


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
13	Behat	R.B.M.	Yamuna	Shehjadpur Bans Aehatmal	1	13.000

Pre-Monsoon (12-June-2024)



Post-Monsoon (25-Oct-2024)



Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
14	Behat	R.B.M.	Yamuna	Alauddinpur Bans Achatmal	1/1	9.580

Pre-Monsoon (12-June-2024)



Post-Monsoon (25-Oct-2024)



सहायक जिलाधिकारी (खनन अनुभाग) शाहजहांपुर

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
15	Behat	R.B.M.	Yamuna	Mehmoodpur Nangli Aehatmal	1	15.700

Pre-Monsoon (12-June-2024)



Post-Monsoon (25-Oct-2024)



जिलाधिकारी (खनन अनुभाग) शाहजहांपुर

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
16	Behat	R.B.M.	Yamuna	Shahpur Bans Aehatmal	1/1	15.600

Pre-Monsoon (12-June-2024)



Post-Monsoon (25-Oct-2024)

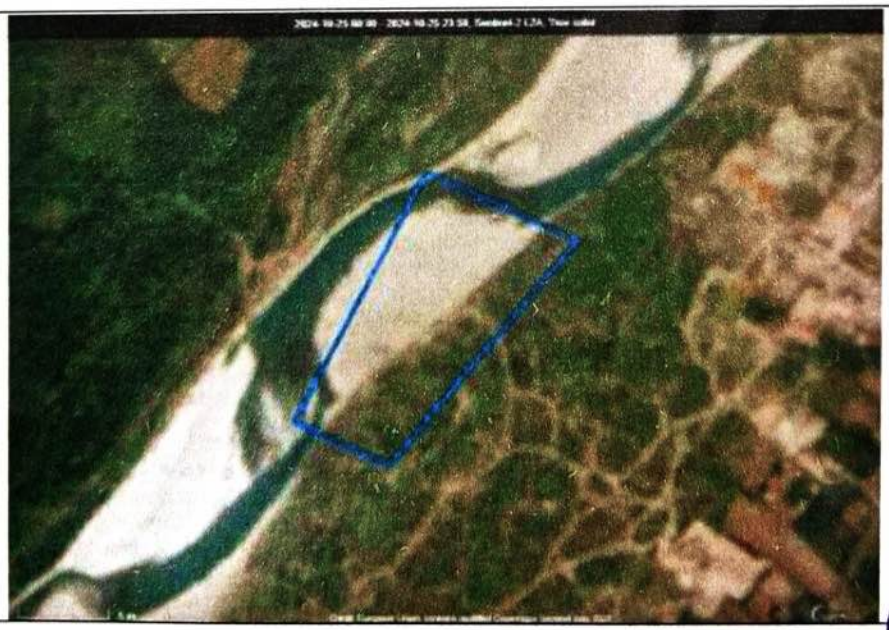


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
17	Behat	R.B.M.	Yamuna	Nityanandpur Aehatmal and Said-mohamadpur Aehatmal	1 and 1ma	17.700

Pre-Monsoon (12-June-2024)



Post-Monsoon (25-Oct-2024)

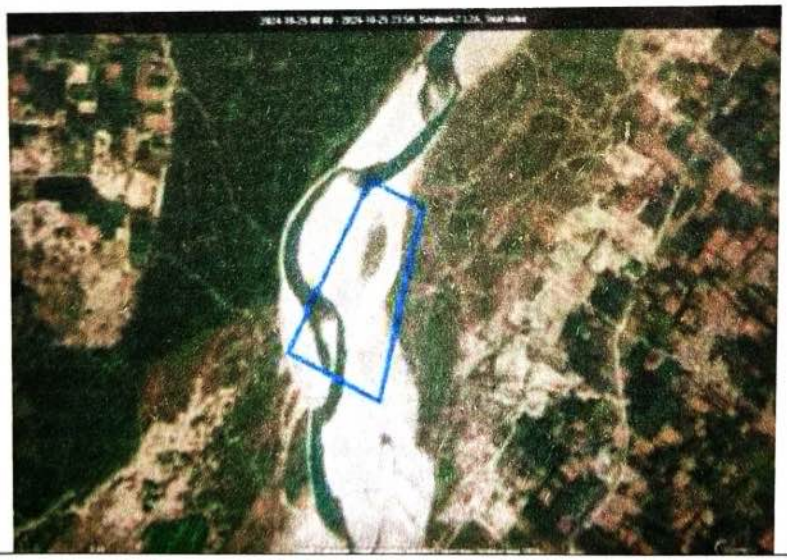


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
18	Behat	R.B.M.	Yamuna	Abutalibpur Garh Aehatmal	1	37.000

Pre-Monsoon (12-June-2024)



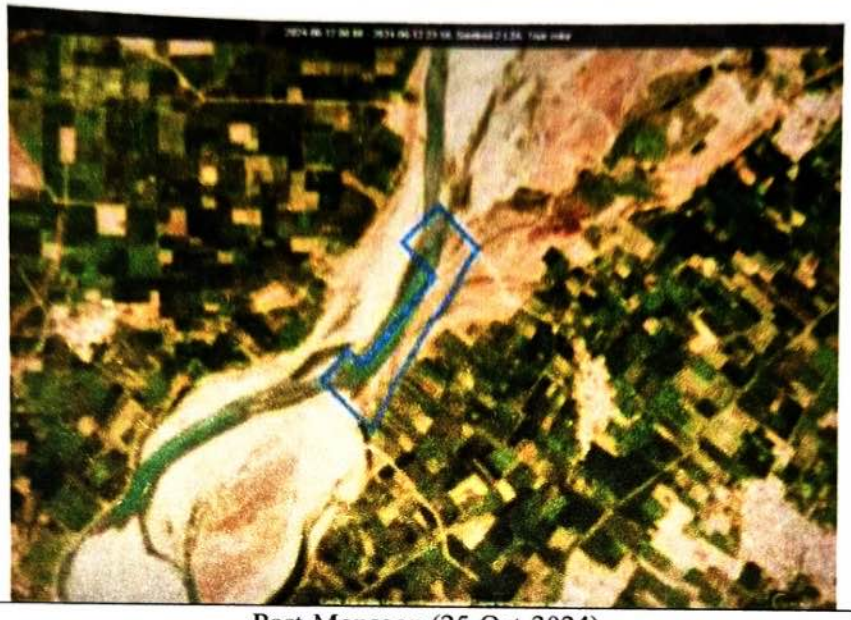
Post-Monsoon (25-Oct-2024)



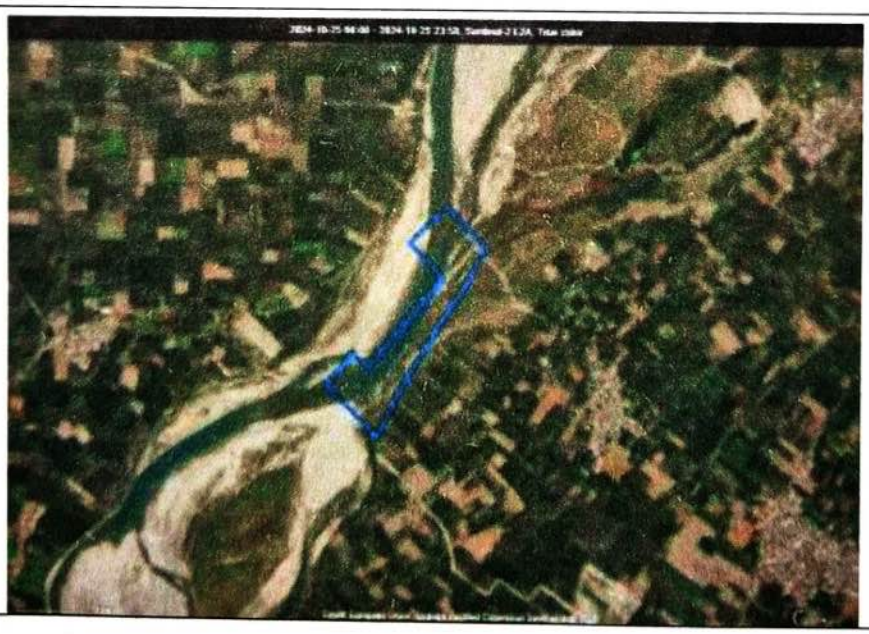
जिलाधिकारी (खनन अनुभाग) सहारनपुर

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
19	Behat	R.B.M.	Yamuna	Nuniyari Athmal – Khand Second	1/1/1	19.000

Pre-Monsoon (12-June-2024)

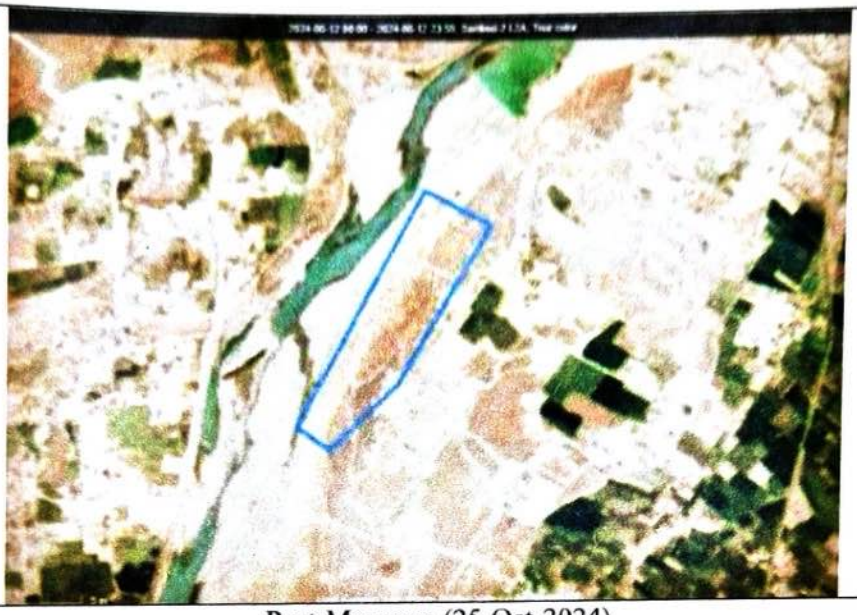


Post-Monsoon (25-Oct-2024)

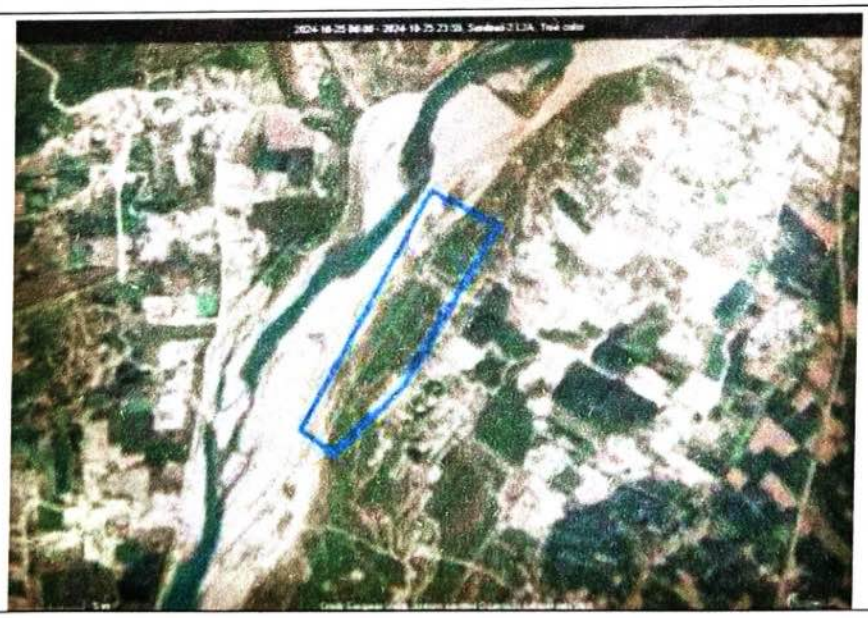


Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
20	Behat	R.B.M.	Yamuna	Aslampur Bartha – First	1/1 M	36.600

Pre-Monsoon (12-June-2024)



Post-Monsoon (25-Oct-2024)



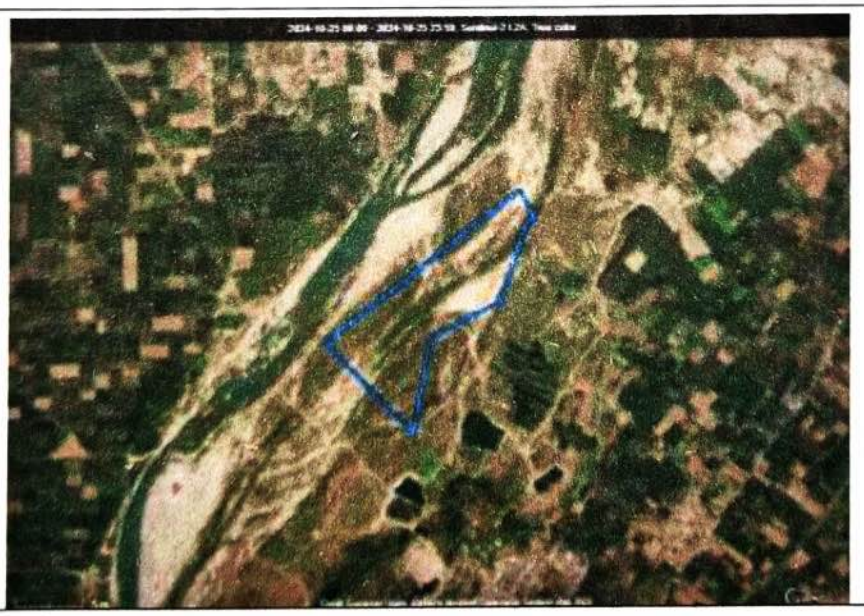
जिलाधिकारी (खनन अनुभाग)

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
21	Behat	R.B.M.	Yamuna	Rasoolpur Urf Rasooli	1/1	34.000

Pre-Monsoon (12-June-2024)



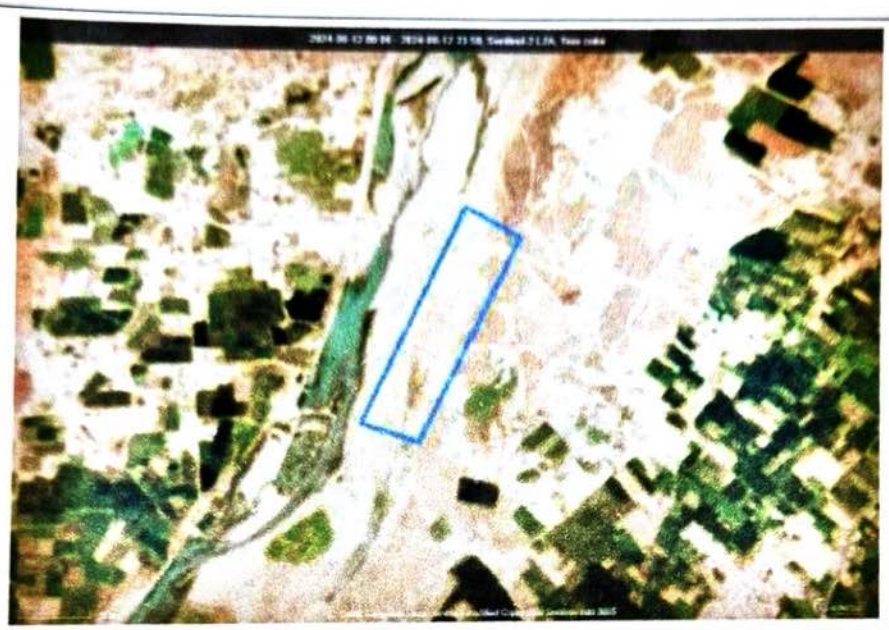
Post-Monsoon (25-Oct-2024)



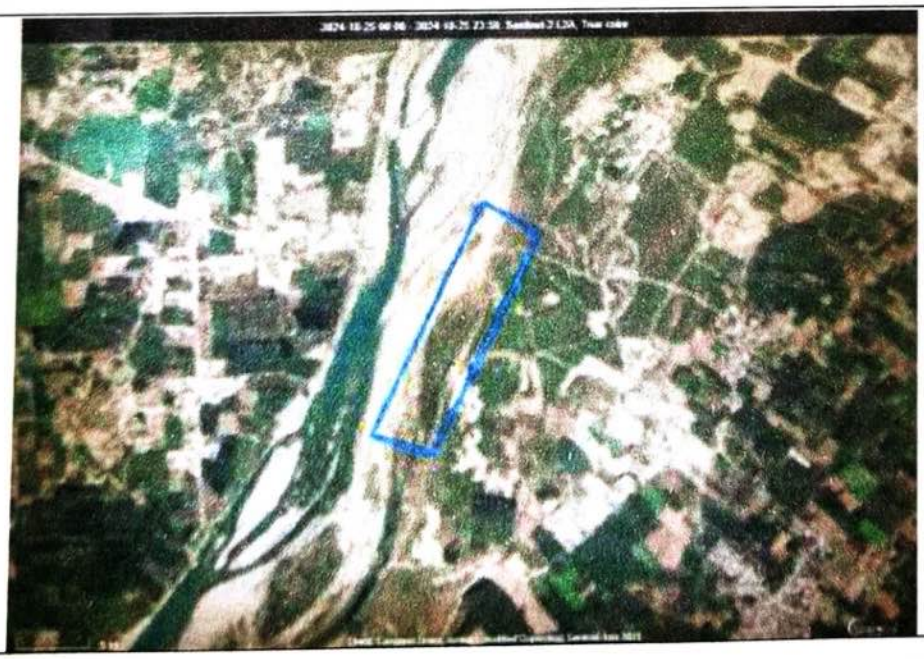
जिलाधिकारी (खनन अनुभाग)

Sl.	Teshil	Minor Mineral	River	Village	Gata/Khand/Zone	Area (in Ha.)
22	Behat	R.B.M.	Yamuna	Aslampur Bartha – Second	1/1 M	28.160

Pre-Monsoon (12-June-2024)



Post-Monsoon (25-Oct-2024)



जिलाधिकारी (खनन अनुभाग) सहारनपुर