DISTRICT SURVEY REPORT
OF
KOKRAJHAR DISTRICT, ASSAM

FOR SAND MINING OR RIVERBED MINING
AND
MINOR MINERALS OTHER THAN SAND MINING OR RIVERBED MINING

Indra-Kuwa, Jornagra

Submitted by:-
Kokrajhar District Level Committee
For
District Survey Report of Kokrajhar District, Assam

Acknowledgment

The office of the Divisional Forest Officer, Haltugaon Division, Kokrajhar is highly grateful to Shri Akash Deep, IAS, Principal Secretary BTC, Kokrajhar cum Chairperson District Survey Report (DSR) Committee, Kokrajhar District and all other Member of the Committee, We are also thankful to all the concerned officers and staff of the office of the Principal Secretary BTC, Kokrajhar for providing all the support needed to complete this District Survey report for Kokrajhar District.

Divisional Forest Officer, Haltugaon Division, Kokrajhar appreciates the contribution of Range Officers, Beat Forest officers, Frontline Staff of forest Department, drivers on duty and local people, who directly or indirectly helped in carrying out the field studies.

This is an in-house prepared Final District Survey Report where in we acknowledge the help of ***CPC Environment Solution Pvt. Ltd. Guwahati, Assam-781012*** (our knowledge Partner) and its staff members who helped in shaping the report.

Divisional Forest Officer
Haltugaon Division, Kokrajhar

Divisional Forest Officer, Haltugaon Division
Kokrajhar, BTC, Assam
Cum
Member Secretary, District Level Committee
For DSR, Kokrajhar District

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FORWARD

In Pursuance to the Gazette Notification, published by Ministry of Environment, Forest, and Climate Change (MoEF&CC), the Government of India, Notification No. S. O. 141(E) Appendix-X, Dated 15/01/2016 and S.O. 3611 (E) New Delhi 25th July 2018 laid procedure for preparation of District Survey Report of Sand mining or river bed mining. The notification and guidelines suggest the preparation of District Survey Report for the better management of the Sand and Gravel extraction. The main purpose of District Survey Report (DSR) is "identification of areas of aggradations or deposition where mining can be allowed; and identification of areas of erosion and proximity to infrastructural structures and installations where mining should be prohibited". This District survey report of Kokrajhar District, BTC, Assam State has been prepared as per the guidelines and notification, for the better management of Sand, Gravel and Boulder Mining.

Monitoring Guidelines for Sand Mining (EMGSM) January 2020, issued by the Ministry of Environment, Forest and Climate Change is prepared in consideration of various orders/directions issued by Hon'ble NGT in matters pertaining to illegal sand mining and also based on the reports submitted by expert committees and investigation teams. This DSR has been prepared in conformity with the SO 141 (E), S O 3611 (E), and other sand mining guidelines published by MOEF&CC from time to time as well as the requirement specified in AMMCR, 2013.

The main objective of the preparation of District Survey Report (as per the Sustainable Sand Mining Guideline) is to ensure the following:

a. Identification of areas of aggradations or deposition where mining can be allowed;

b. Identification of areas of erosion and proximity to infrastructural structures and installations where mining should be prohibited and calculation of annual rate of replenishment and allowing time for replenishment after mining in that area;

c. Identification of mineral wealth in the district;

d. Identification of areas where no mining zone.

Certificate

This is to certify that this District Survey Report for Ordinary Sand/Gravel/Boulder mineral of Kokrajhar district is prepared in accordance with the prescribed procedure and format vide MoEF& CC Notification S.O. 141 (E), dated 15.01.2016, MoEF& CC Notification S.O. 3611(E), dated 25.07.2018. And is in accordance with the Sustainable Sand Mining Guidelines - January 2020 published by MoEF& CC. There is no discrepancy in information across all submitted documents including hard copy and soft copy of the submitted District Survey Report and whenever specific permissions are required, we will approach the concerned authorities i.e. State Level Expert Appraisal Committee (SEAC), Assam / State Level Environment Impact Assessment Authority (SEIAA). The information furnished in the Draft District Survey Report is true and correct to the best of our knowledge /findings.

Divisional Forest Officer
Haltugaon Division, Kokrajhar

Divisional Forest Officer,
Haltugaon Division,
Kokrajhar, BTC, Assam

Draft. 2

Minutes of Meeting of the District Survey Report Committee, Kokrajhar held on 27/02/2025 regarding Review and Finalization of the Draft District Survey Report (DSR) for Kokrajhar District

Date: **27/02/2025**

Time: **12.30 P.M**

Venue: **BTC Secretariat Complex Bodofa Nwgwr, Kokrajhar**

Members Present:

1. Principal Secretary, BTC - Chairman
2. Circle Officer, Kokrajhar - Member
3. Divisional Forest Officer, Haltugaon Division, Kokrajhar - Member Secretary
4. Executive Engineer, Water Resource, Kokrajhar - Member
5. Regional Officer, Pollution Control Board, Assam, Bongaigaon - Member
6. Assistant Geologist, Directorate of Geology and Mining, Assam – Member

Agenda:

Review and finalization of the draft District Survey Report (DSR) for Kokrajhar District prepared with assistance from CPC, Environmental Solutions and decision on submission to SEAC, Assam.

Discussion:

1. **Presentation of Draft DSR:**

   a. The Member Secretary presented the draft District Survey Report (DSR) prepared by the committee with technical assistance from CPC, Environmental Solutions.
   b. The report was thoroughly reviewed by the members of the Committee.

2. **Observation and Feedback:**

   a. The committee thoroughly reviewed the draft District Survey Report (DSR) and noted with satisfaction that the report has incorporated all necessary instructions, guidelines, and recommendations provided during the pre-appraisal meetings held by the SEAC for other District.
   b. It was observed that the draft DSR aligns with the prescribed format and standards, ensuring compliance with regulatory requirements.
   c. Minor suggestions for enhancing the clarity of certain sections were provided, which were acknowledged by the Member Secretary for necessary update before submission.

3. **Decision and Submission to SEAC:**

   a. Considering the urgent need to finalize the DSR, the committee decided to place the draft DSR before the State Expert Appraisal Committee (SEAC), Assam, for appraisal.

Principal Secretary
-CUM-
Chairperson, District Survey Committee,
Kokrajhar, Dist.: Kokrajhar

Resolution:

a. The draft DSR, prepared by the committee with assistance from CPC, Environmental Solutions, was approved by the members for submission to SEAC, Assam.
b. The Member Secretary was instructed by the Chairman to ensure all necessary arrangements for the submission and presentation of the draft DSR before SEAC.

Meeting Adjourned: The meeting concluded with the vote of thanks from the Chair.

Copy for kind information to:

1. Circle Officer, Kokrajhar - Member
2. Divisional Forest Officer, Haltugaon Forest Division, Kokrajhar
3. Executive Engineer, Water Resource, Kokrajhar - Member Secretary
4. Regional Officer, Pollution Control Board, Assam, Bongaigaon - Member
5. Assistant Geologist, Directorate of Geology and Mining, Assam – Member

Principal Secretary
-CUM-
Chairperson, District Survey Committee,
Kokrajhar, Dist.: Kokrajhar

The Officers attended in the Meeting of DSR under Environment & Forest Department, BTC held on 27-02-2025 at 12:30 AM in the Conference Hall of Principal Secretary, BTC Block-B, Kokrajhar to discuss on DSR under Kokrajhar District.

Sl. No.	Name of Officer	Signature
1.	Sri Akash Deep IAS Principal Secretary, BTC	
2.	Sri Sujit Baglary, ACS Secretary, BTC, Kokrajhar	
3	Sri Jayanta Kumar Brahma, AFS DFO-Hallugaon Division, Kokrajhar M. Secy - DSR Committee, Kokrajhar	27-02-2025
4.	Smti Dorodi Devroy, ALRS Circle Officer, Kokrajhar	27/2/25
5.	Nabajyoti Das, ALRS Circle Officer, Sidli	27/2/2025
6.	CPC ENVERMENT SOLUTION PVT LTD	
7.	RAJESH KUMAR BRAHMA, E.E Kokrajhar W.R. Division, Kokrajhar.	27.02.2025
8.	Debojit Barman, AE. PCBA, RLO Bongaigaon.	27/02/25
9.	Panijal Saikia. Asstt. Geologist Dhm, Assam	P Saikia. 27/02/25
10.		
11.		
12.		
13.		
14.		

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PREFACE

The need for a District Survey Report (DSR) has been mandated by the Ministry of Environment, Forest, and Climate Change (MoEF&CC) through Notification No. 125 (Extra ordinary, Part II Section 3, and Sub-section ii), S.O. 141 (E), and dated 15th January 2016. This notification introduced amendments to the EIA Notification 2006, aimed at improving legislative control. As part of these changes, district- level committees were introduced, and the preparation of DSR became a requirement.

Subsequently, Notification No. 3611 (E), dated 25th July 2018, expanded the DSR's scope to include "Minerals Other than Sand" and provided a specific format for its preparation. The DSR's purpose is to identify areas with mineral potential where mining activities can be permitted, as well as to flag areas where mining should be restricted due to proximity to infrastructure, erosion-prone zones, or environmentally sensitive regions.

The preparation of the DSR involves both primary and secondary data collection. Primary data includes site inspections, surveys, and ground truthing, while secondary data comes from authenticated sources and satellite imagery studies. The secondary data covers information such as the district profile, mineralization, and other relevant activities, often compiled from disparate sources.

The main objective of the DSR is to identify areas of aggradation where mining can be allowed, and areas of erosion where mining should be restricted. It also involves the calculation of the annual replenishment rate to maintain ecological balance. Additionally, the DSR includes assessing the development potential of in-situ minor minerals.

Divisional Forest Officer
Haltugaon Division, Kokrajhar

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1. Introduction

1.1 Location and Geographical Area

Kokrajhar is one of the 35(thirty five) districts of Assam with 2.85% of the state population and is the gateway to Northeast India. Both the rail and road network touch this district at Srirampur on the way to the rest of the region. The district is located on the north bank of the mighty Brahmaputra and stretches to the international border with Bhutan.The district lies roughly between 89.46' E to 90.38' E longitudes and 26.19" N to 26.54" N latitudes. The district covers a geographical area of 3,169.22sq. Km.It is bounded on the north by Bhutan and by West Bengal on the west; the district of Dhubri in the south and in the east by Chirang district.

Kokrajhar town is the headquarter of Bodoland Territorial Council, created on 10th February, 2003 comprising of four districts viz. Kokrajhar, Chirang, Baksa, Udalguri on the north bank of Brahmaputra within Assam.

The area chosen for aquifer mapping falls under Survey of India Toposheet No. 78F/14, 78F/15, 78F/16, 78J/1, 78J/2, 78J/3, 78J/4, 78J/6. 78J/7 and 78J/8 bounded by 26° 6' 39.6" and 26° 52' 44.4" N Latitude and 89° 49' 51.6"and 90° 26' 31.2" E Longitude .

1.2 Administrative Units

The district consists of 3 Sub- divisions viz., Kokrajhar Sadar, Gossaigaon and Parbatjhora, 5 Revenue circles, 11 Community Development blocks, 88 VCDC and 2091 revenue villages.

Divisional Forest Officer
Haltugaon Division, Kokrajhar

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Table1.1: Administrative Setup of Kokrajhar district

1.	Area	3,169.22 sq km	
2.	Population	8,86,999 Male : 4,52,965 Female : 4,34,034	
3.	Literacy	66.63% ;Male : 73.44%; Female : 59.54%	
4.	Sub-Divisions	1) Kokrajhar Sadar Sub-Division 2) Gossaigaon Sub-Division 3) Parbatjhora Sub-Division	
5.	Revenue Circle	1) Kokrajhar 2) Dotma 3) Bhowraguri 4) Gossaigaon 5) Bagribari	
6.	Development Blocks	1) Kokrajhar (Titaguri) 2) Dotma 3) Kachugaon 4) Gossaigaon 5) Hatidhura 6) Bilasipara (Part) 7) Chapar-Salkocha (Part) 8) Rupshi (Part) 9) Mahamaya (Part) 10) Golokganj (Part) 11) Debitola (Part)	
7.	Police Station	Kokrajhar	1) Kokrajhar 2) Dotma 3) Fakiragram 4) Serfanguri
		Gossaigaon	1) Kachugaon 2) Gossaigaon
		Parbatjhora	1) Bagribari 2) Kazigaon
8.	Police OP	Out Post	1) Kokrajhar 2) Salakati 3) Garufela 4) Tulsibil 5) Bishmuri 6) Bhowraguri 7) Sapkata 8) Patgaon 9) Tipkai 10)

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			Rupsi	
		BOP	1) Saraibil BOP	
		P.P.	1) Chitihila 2) Grahampur 3) Ultapani 4) Karigaon	
9.	Length International Boundary	88 KMs (Approx)		
10.	Length Inter-State Boundary	68 Kms		
11.	LAC	No	Name	MLA
		28	Gossaigaon	Vacant w. e. f. 26/05/2021
		29	Gossaigaon West (ST)	Shri Rabiram Narzary
		30	Kokrajhar East (ST)	Shri Lawrence Islary
12.	Lok Sabha Constituency	5-Kokrajhar (ST) HPC consists of 28-Gossaigaon, 29-Kokrajhar West (ST), 30-Kokrajhar East (ST), 31-Sidli (ST), 33-Bijni, 40-Sorbhog, 41-Bhabanipur, 58-Tamulpur, 60-Barama (ST) and 63-Chapguri (ST)		
13.	Name of Lok Sabha MP	Shri Naba Kumar Sarania		
14.	Urban Bodies	Kokrajhar Municipal Board		

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		Gossaigaon Municipal Board	
		Fakiragram Municipal Board	
15.	Higher Educational Institutions	Central	Central Institute of Technology, kokrajhar
		State	1. Bodoland University, Kokrajhar 2. Bineswar Brahma Engineering College, Kokrajhar 3. Kokrajhar Government College 4. Science College, Kokrajhar 5. Commerce College, Kokrajhar
16.	Reserved Forest Area	1,719 sq. km. (Approx)	
17.	Important Rivers	1) Champamati 2) Gaurang 3) Tipkai 4) Sankosh 5)Gurufella 6)Hel 7)Gongiya 8)Saralbhaga	
18.	Tea Gardens	1. Daloabari T.E 2. Banglabari T.E 3. Kokrajhar T.E 4) Mornoi T.E	
19	Panchayats	134	
20	Population Density	280 per Sq.Km. as per 2011 Census (P).	
21	Language spoken	Assamese, Bodo, Bangla, Hindi, Santali and other local dialects.	
22	Temperature	Summer average 27.64° C to 31.67° C.	
		Winter average 19.34° to 23.66° C.	

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23	Sex Ratio	958 female per 1000 male as per 2011 Census (P).
24	Average Rainfall	2,400 mm to 3,000 mm per annum.

Source: https://kokrajhar.assam.gov.in/about-us/district-profile March 02, 2023

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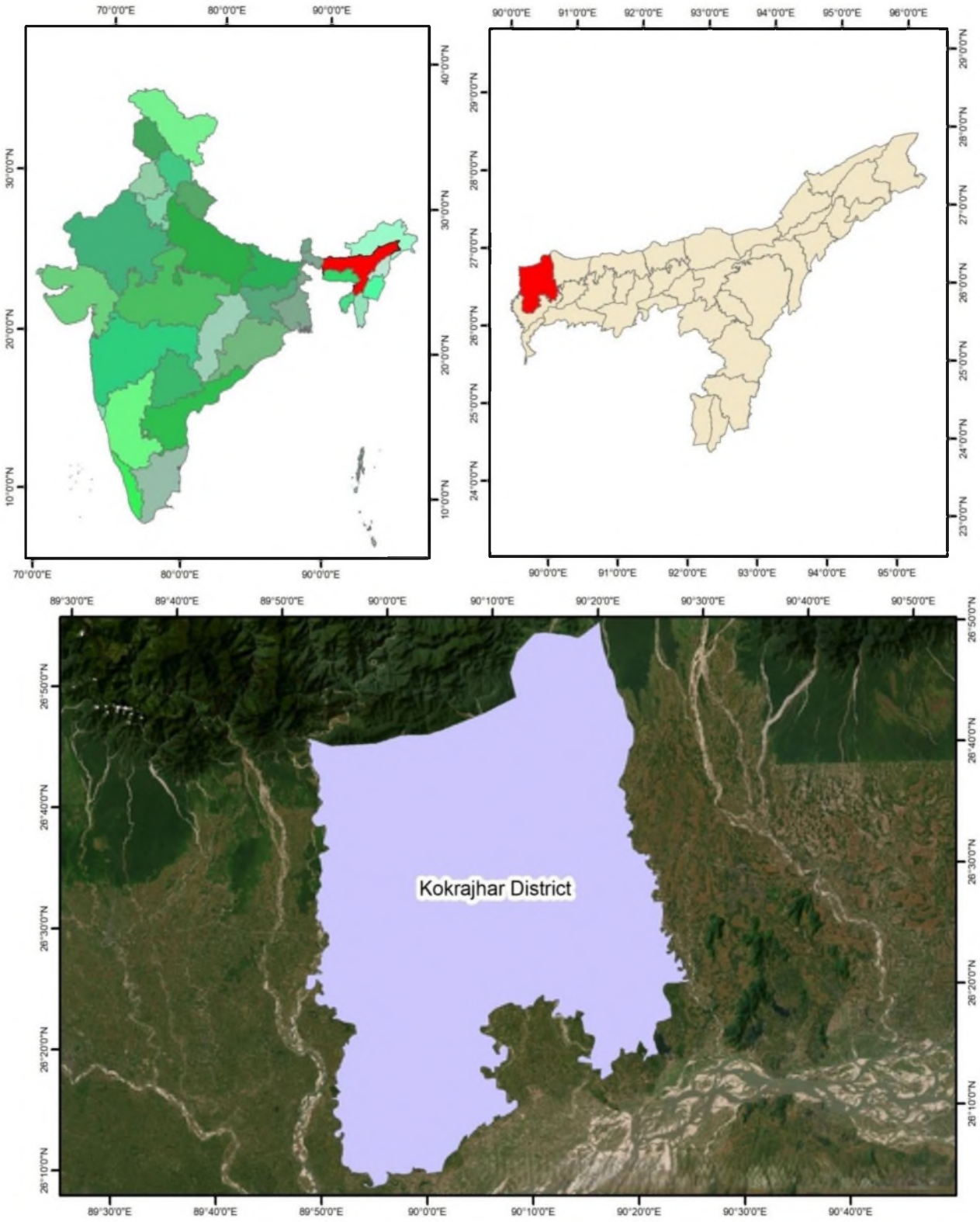

Map 1.1: Location map of Kokrajhar district

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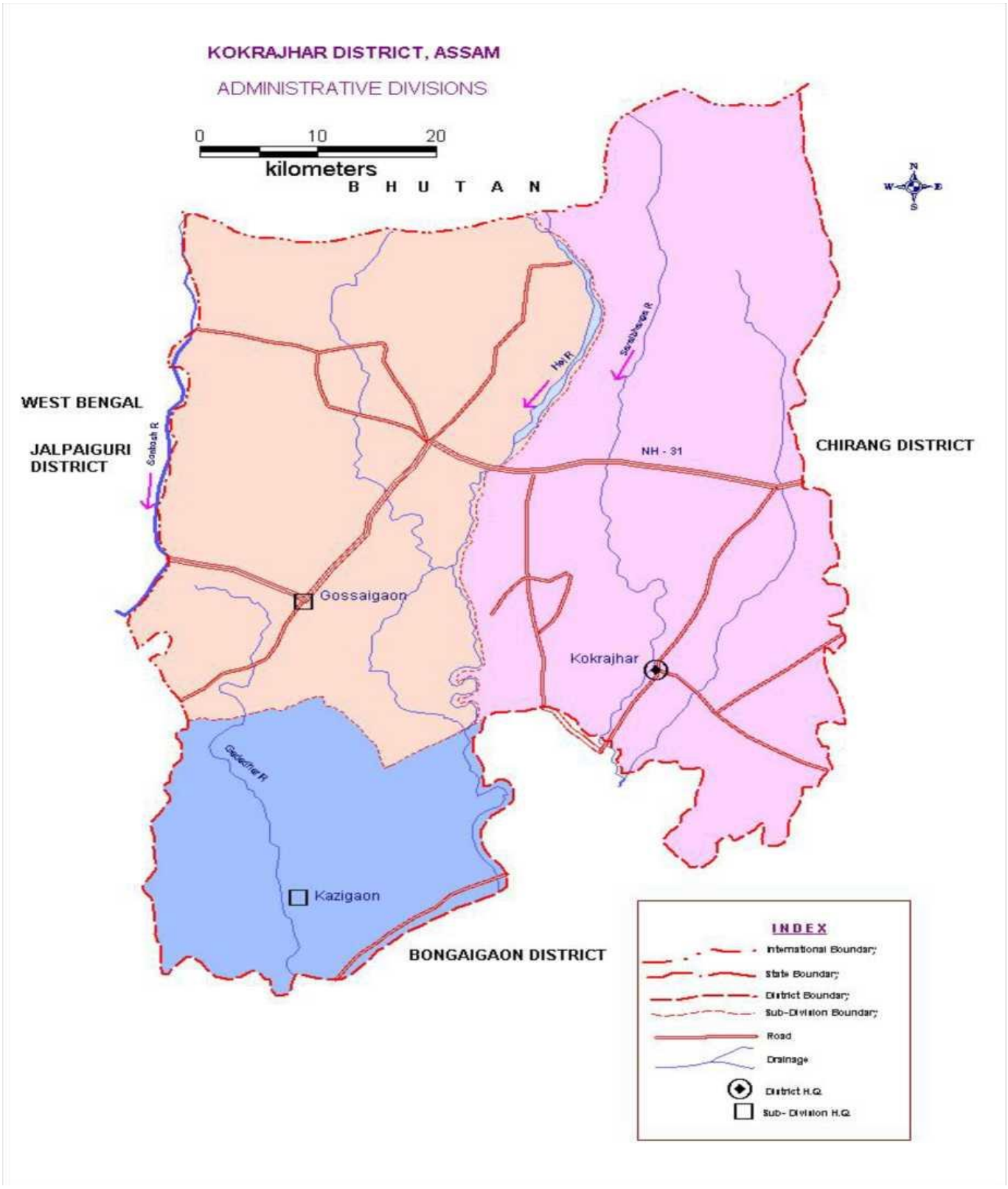

Map 1.2: Administrative map of Kokrajhar District

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1.3 Connectivity

- By Air: The nearest airport to Kokrajhar is Lokpriya Gopinath Bordoloi International Airport in Guwahati, approximately 200 kilometers away. The airport is well-connected with major cities like Delhi, Mumbai, Kolkata, and Bangalore. From the airport, you can hire a taxi or take a bus to Kokrajhar, which takes around 4-5 hours.

  Rupsi Airport (IATA: RUP, ICAO: VERU) is a domestic airport serving the city of Kokrajhar and Dhubri, Assam, India. It is located at Rupsi, 17 km (11 mi) north from the city centre. The airport serves as a way for people of the lower part of Assam to travel to India's major cities and states.

- By Train: Kokrajhar has its own railway station, Kokrajhar Railway Station (KOJ), which is part of the Northeast Frontier Railway. It is well-connected to major cities like Guwahati, Kolkata, New Delhi, and Mumbai. Several express and local trains make regular stops at Kokrajhar, making train travel a convenient option.

  Kokrajhar railway station is a major railway station in Kokrajhar district, Assam.

  The district consists of the following railway stations:
  - Chautara railway station
  - Fakiragram Junction railway station
  - Gossaigaon Hat railway station
  - Kokrajhar railway station
  - Salakati railway station
  - Srirampur Assam railway station

- By Road: Kokrajhar is connected by the National Highway 31C, which makes road travel convenient from nearby cities and states. Regular bus services are available from Guwahati, Siliguri, and other major towns in Assam and neighboring states. You can also hire a taxi or drive down to Kokrajhar, enjoying the scenic beauty of Assam along the way.

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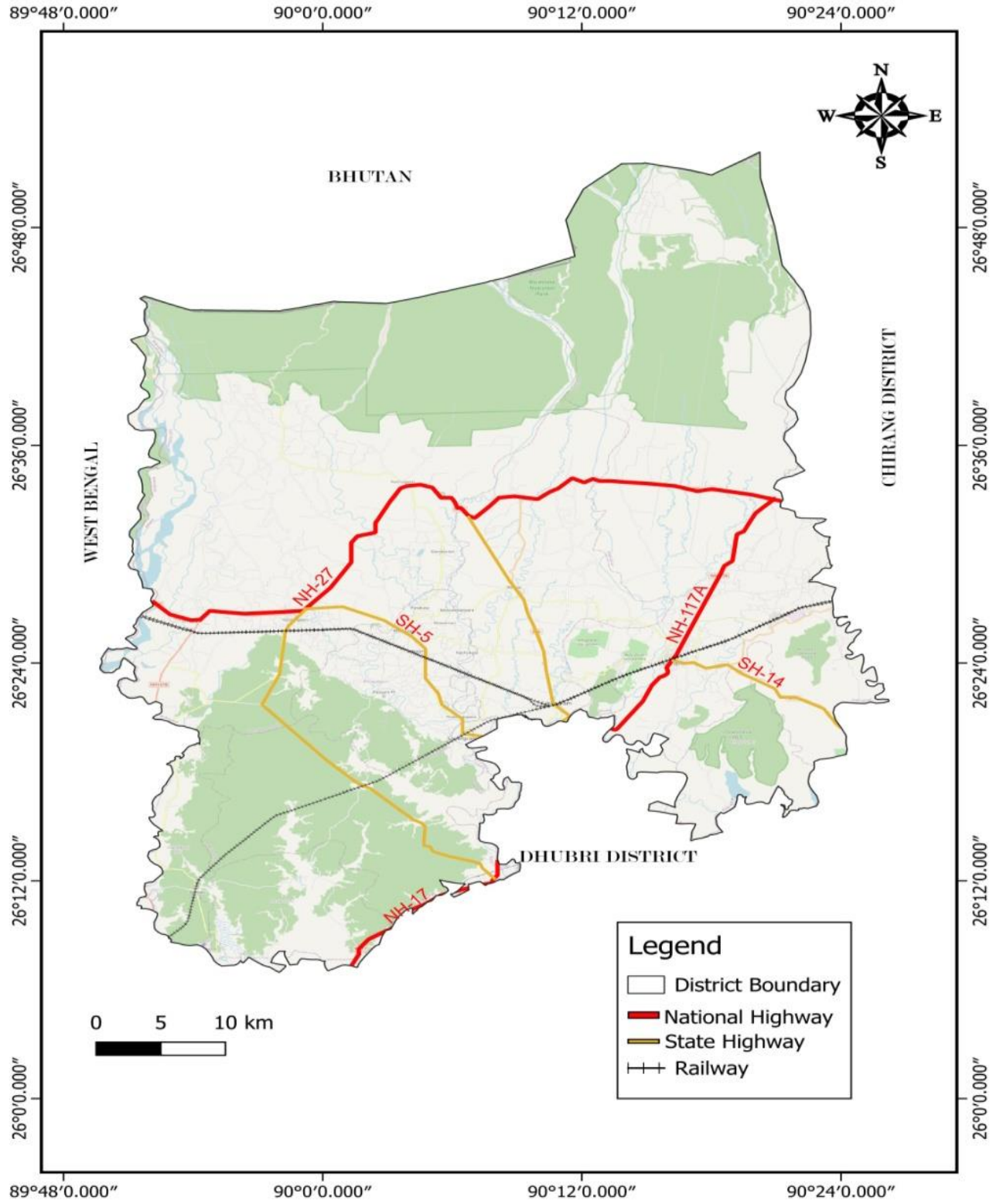

Map 1.3: Road map of Kokrajhar District

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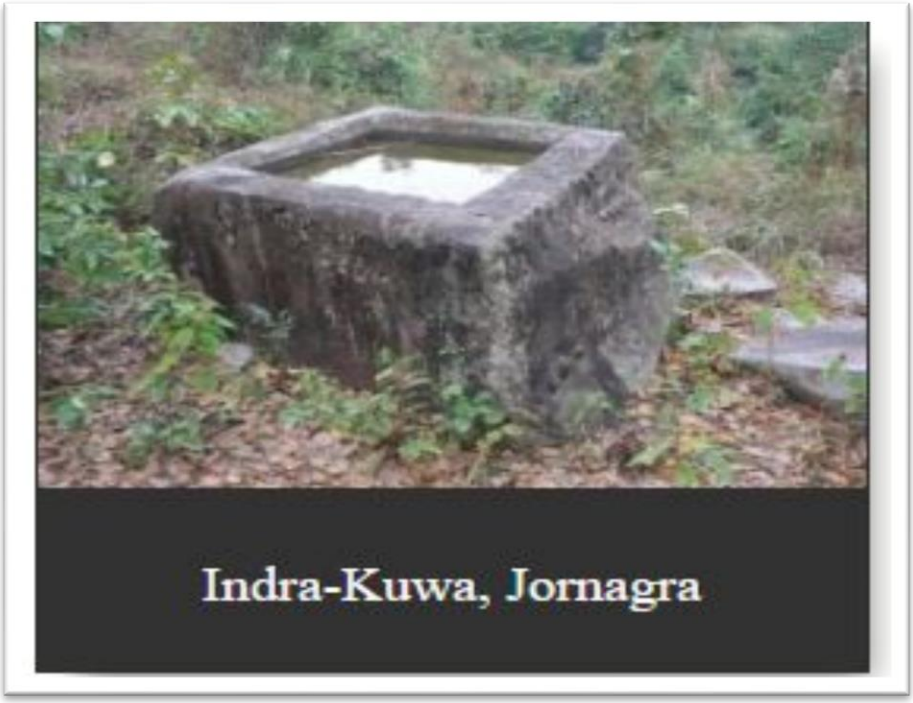
1.4 ASI Monuments of Kokrajhar district

Indra- Kuwa

The site of Indra-Kuwa is located in Jornagra area of Kokrajhar district. It has several stone pieces which have wedge marks and engravings. A stone structure of rectangular shape considered to be a kuwa or well associated with the God Indra is also found at the site.



Mahamaya Snanghat Temple

Mahamaya Snanghat Temple is located on the bank of Tipkai River, a tributary of the Brahmaputra in Khoraghat area of Kokrajhar. This is an important place where thousands of pilgrims visit throughout the year. This temple is located a few kilometres from the main temple known as the Mahamaya Than. The presiding deity of this temple is Goddess Mahamaya. It is believed that the deity Mahamaya used to take bath at the Snan Ghat in ancient times. Due to this reason, the place came to known as Mahamaya Snan Ghat. The Shakti Yagya is one of the most important rituals performed at the Mahamaya Snanghat Temple.

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Anthai Golao Bathou temple

Anthai Golao Bathou is a newly constructed temple in Chandrapara of Kokrahjar district. Local people believe that there was an old temple and there they worship Lord Shiva and Bathou. In the main temple, there are two stone architectural pillar members which they worship along with Shiva Linga.

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Mahamaya Temple

Mahamaya Dham or Mahamaya Temple is located in Bogribari in Kokrajhar. It is an important Shakti Peetha of Assam and considered to be as sacred as the Kamakhya temple in Guwahati. Animal sacrifice is practiced at the time of Durga Puja.

It is located under Parbatjhora sub-division of district Kokrajhar. It is believed that the famous goddess Mahamaya was traditionally worshipped by the local people of Parvatjowar like Kacharies, Koches and Naths. It was also the presiding deity of the Zamindar (landlord) of Parvatjowar. Latter the goddess received wide acceptance and these days, all Hindus of Lower Assam worship mother Mahamaya.

Bodoland Martyrs Cemetery

Bodoland Martyrs' Cemetery is the symbol of those martyrs who made the supreme sacrifice during Bodoland movement. This cemetery is located at Debargaon in Kokrajhar district. There are 1,605 tombs and each tomb is inscribed with the name and address of those martyrs who fought for their freedom. It is spread in an area of 45 bigha.

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Source: https://kokrajharmuseum.org/archaeological-sites/

1.5 Forest (National park/ Sanctuary & respective ESZ)

Chakrashila Wildlife Sanctuary is a wildlife sanctuary falling under Kokrajhar district and some adjacent areas of Dhubri district of Assam, India. It is famous for the golden langur and is the second protected habitat for golden langurs in India.

History

Chakrashila Hill was first declared as reserve forest in 1966 and on 14 July 1994 it was recognized with the status of sanctuary by the Government of Assam. A local environmental activist group, Nature's Beckon played a vital role for this recognition.

Location

The sanctuary covers an area of 45.568 km2 (4556.8 hectares). It is around 6 km from Kokrajhar town, 68 km from Dhubri town and 219 km from Lokpriya Gopinath Bordoloi International Airport, Guwahati. The sanctuary is mainly a hilly tract running north–south and there are two lakes (Dheer Beel and Diplai Beel) on either side, which are integral to the eco-system of the sanctuary.

The lower hilly reaches are covered with sal coppice regeneration while middle and upper reaches are covered with mixed deciduous forests. The sanctuary has some tourist accommodation facility at Choraikhola, Kokrajhar and also provides facilities for bird watching, forest trekking, and wildlife and nature photography.

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Notable animals at the sanctuary

Different kinds of mammals and birds, twenty-three species of reptiles including snakes, lizards and turtles, more than forty species of butterfly are found in this sanctuary. Some species of mammals recorded in this sanctuary are Indian short-tailed mole, Indian flying fox, short nosed fruit bat, Indian false vampire, Indian pipistrelle, rhesus macaque, Chinese pangolin, Asiatic jackal and Bengal fox. Hornbills are also spotted here. It is also a safe haven for a variety of endangered animals.

Birds

A total of 119 species of birds have been recorded in the Chakrashila Wildlife Sanctuary. This number includes three globally threatened species. Some of the species recorded here include black francolin (*Francolinus francolinus*), jungle bush quail (*Perdicula asiatica*), lesser whistling duck, cinnamon bittern, Indian pond heron, cattle egret, purple heron, red-necked falcon, red-headed vulture, greater spotted eagle, and bronze-winged jacana.

The *Chirang Reserve Forest* falls under the Haltugaon Forest Division of the Western Assam Circle Conservancy. The RF lies in between 26° 06' 56.05" N to 26° 54' 1.95" N latitude and 90°12'03.76"E to 90°29'07.02"E longitude covering an area of 592.54 sq kms. The Chirang Reserve forest is located within the Assam- Duars in the western Assam region. It can be considered a plateau, rising gently towards the north where it meets the Bhutan Hills. The elevation reaches as high as 500 m in the north. The plateau merges with the cultivated lands in the south and drains towards the River Brahmaputra. From the north, and for a few kilometers to the south, the tract is composed of rocks and pebbles, and remains waterless for most of the year, representing a typical Bhabar characteristic. The major forest type of the region is characterized by natural regeneration of Bhabar and Terai sal forests. Located adjacent to lower central Bhutan, the RF falls within the Assam Plain Endemic Bird Area and a marginal part of the Eastern Himalaya Endemic Bird area with a significant avian diversity. The Reserve Forest is a part of the Ripu- Chirang elephant corridor and shares its eastern boundary with Manas Tiger Reserve as a potential Mammalian Habitat. Due to its unique geographic location Chirang Reserve Forest is rich in floral diversity and one of the richest reservoirs of wild edible plants. A large number of wild plants are used by various communities of the region since the time unknown.

Ripu and Chirang are two reserve forests with contiguous habitat, in extreme western Assam bordering West Bengal and Bhutan. They are also part of the buffer zone of

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Manas Tiger Reserve. The forests of Ripu and Chirang are contiguous with those of Buxa Tiger Reserve of West Bengal and Phipsoo Wildlife Sanctuary of Bhutan. These forests have the largest known population of the endangered Golden Langur *Trachypithecus geei* in India (Choudhury 2002). Since 1989, a third of these forests have been clear felled and encroached upon due to insurgency related problems. Located in the northern part of Kokrajhar district and nestling in the foothills of the Bhutan Himalaya, Ripu and Chirang have some of the finest examples of bhabar forest with Sal *Shorea robusta* as the dominant species. Further north, the forest is Semievergreen type. These reserve forests are easily accessible from Kokrajhar district headquarters, about 25 km away. The terrain is largely flat or gently sloping from north to south, with some foothills towards the north. The main rivers that flow through this IBA are Sankosh, Saralbhanga, and Champamoti. There is a large wetland called MaachbhandarinsideChirang RF. Besides dense Tropical Semi-evergreen and Tropical Moist Deciduous forests, riverine forests with light woodland and grasslands are also found. Ripu and Chirang are vital habitats that serve as a corridor linking Manas National Park, Assam with Buxa in West Bengal, and also the forests of Bhutan, especially important for Asian Elephants *Elaphas maximus*. These forests are already part of the Chirang- Ripu Elephant Reserve of Assam.

The sites fall in Biome-9 (*Indo-Chinese Tropical Moist Forests*) but many species of Biome-7, Biome-8 and Biome-11 are also seen here such as Rufous-breasted Blue Flycatcher *Ficedula hodgsonii*, Grey-bellied Tesia (*Tesia cyaniventer)*, Bay Woodpecker (*Blythipicus pyrrhotis)*, Maroon Oriole (*Oriolus traillii)*, Grey Treepie(*Dendrocitta formosae)*, Black-winged Cuckoo-shrike (*Coracina melaschistos)*, Short-billed Minivet (*Pericrocotus brevirostris)* and White-throated Bulbul (*Alophoixus flaveolus)*. Lesser Necklaced Laughingthrush (*Garrulax moniligerus)*, Greater or Black-gorgeted Laughingthrush (G. *Pectoralis)*, Rufous-necked Laughingthrush (*G. Ruficollis)*, and Sultan Tit (*Melanochlora sultanea)* are typical Biome-9 species. Twelve globally threatened species are found in these forests. The presence of Bengal Florican is not confirmed, but as it is found in Manas (another IBA), it is likely to occur in the grasslands of Ripu-Chirang. The presence of the Rufous-necked Hornbill (*Aceros nipalensis)* proves that the forest is still pristine, at least in parts. On the Bhutan side, this bird is still not uncommon in undisturbed forests.

OTHER KEY FAUNA: The major attraction of these forests is the Golden Langur. Assamese macaque *Macaca assamensis* and Rhesus macaque (*M. mulatta*)are also found, sometimes together. Six species of large and small cats are reported:

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Tiger (*Panthera tigris)*, Leopard (*P. Pardus)*, Clouded Leopard (*Neofelis nebulosa)*, Marbled Cat (*Pardofelis marmorata)*, Fishing Cat (*Prionailurus viverrina)* and Golden Cat (*Catopuma temminckii)*. The Hispid Hare (*Caprolagus hispidus)* is another rare mammal found chiefly in the grasslands, where Bengal Florican is likely to be found. Ripu-Chirang forests are rich in ungulates. Sambar (*Cervus unicoloro*, Hog Deer (*Axis porcinus)*, Chital (*A. Axis)*, Barking Deer (*Muntiacus muntjak)*, Wild Water Buffalo (*Bubalus arnee (= bubalis))* (occasional) and Gaur (*Bos frontalis)* share the habitat with the Asian Elephant, Asiatic Black Bear *Ursus thibetanus*, and Sloth bear (*Melursus ursinus)*.

Two species of otters *Lutra lutra* and *Lutrogale perspicillata* are recorded in the rivers and streams. Chinese pangolin (*Manis pentadactyla)*, Chinese porcupine (*Hystrix brachyuran)* and Binturong (*Arctictis binturong)* are notable species of this IBA.

The reptile fauna is rich, with Indian Softshell Turtle (*Aspideretes gangeticus)*, Peacock Softshell Turtle (*A. Hurum)*, Indian Rock *Python* (*Python molurus)*, Russell's Viper (*Daboia russelii)*, Common Monitor Lizard (*Varanus bengalensis)*, Water Monitor (*V. Salvator)*, andTucktoo Gecko (*Gekko gecko)*. More than 100 species of butterflies have been recorded.

Source: https://datazone.birdlife.org/site/factsheet/ripu-and-chirang-reserve-forests-iba-india

Raimona National Park is located in the Kokrajhar district of Assam, India. It was declared a national park on June 5, 2021, by the announcement of Assam's Chief Minister Himanta Biswa Sarma on the occasion of World Environment Day at Gandhi Mandap, Guwahati 12. The park is spread across Gossaigaon and Kokrajhar subdivisions of Kokrajhar district of Bodoland Territorial Region. It is a part of a contiguous forest patch with an area of 422 square kilometers (163 square miles) covering the northern part of the notified Ripu Reserve Forest (508.62 square kilometers (196.38 square miles)), which forms the westernmost buffer to Manas Tiger Reserve in the foothills of Eastern Himalaya Biodiversity Hotspot 13. The park is home to a variety of wildlife including tiger, clouded leopard, golden langur, Indian gaur, Asian elephant, spotted deer, wild buffalo, and hornbill.

Declared on June 9th, 2021 as a national park covering a contiguous forest area of 422 km², **Raimona National Park** is the sixth national park of Assam, India. The park is famous for its endemic species golden langur. The golden langur is designated as the mascot of BTR (Bodoland Territorial Region is the 6th Schedule Autonomous Council

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within the State of Assam, India). The park is also inhabitant by various other species such as elephant, Bengal tiger, wild bison, white-spotted deer, clouded leopard and wild buffalo. It has recorded four to five species of hornbills, 170 species of birds, more than 150 species of butterflies, 380 varieties of plants and orchids.

Raimona National Park was originally part of both the Ripu Reserve Forest and the adjacent Chirang Reserve Forest known as Chirang-Ripu Reserve Forest located at the westernmost buffer to Manas National Park & Tiger Reserve in the foothills of the Eastern Himalaya Biodiversity hotspot. Known for its historical elephant habitats with a diverse range of flora and fauna in its vast forests area, the Government of Assam declared Chirang-Ripu Reserve Forest as Chirang-Ripu Elephant Reserve in 2003 covering an area of 2600 km2.

The present Raimona National Park was initially proposed as Ripu-Chirang Wildlife Sanctuary. The park being part of Chirang-Ripu Reserve Forest its adjacent part was also mooted to be within.

The Raimona National Park falls under the DFO, Kacuhgaon Forest Division of CCF & CHD, (Chief Conservator of Forests & Council Head of the Department) BTR, Kokrajhar. The Kacuhgaon Forest Division has 4(four) ranges-

1. Eastern range -Athiabari range

2. Sanfan Range

3. Kochugaon Central range

4. Western range -Raimona Range.

Source::https://rural.tourism.gov.in/

https://naparks.com/raimona-national-park/

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1.6 Need for DSR

In pursuance to the Gazette Notification, Ministry of Environment, Forest, and Climate Change (MoEF&CC), the Government of India Notification No. S.O. 141 (E) Appendix-X, dated 15.01.2016 & S.O. 3611 (E) New Delhi, 25.07.2018 laid procedure for preparation of District Survey Report of sand mining or river bed mining. Apart from other aspects, it categorically mentions that - District Survey Report for sand mining shall be prepared before the auction/ eauction/ grant of the mining lease/ Letter of Intent (LoI) by Mining department or department dealing the mining activity in respective states. District Survey Report is to be prepared in such a way that it not only identifies the mineral-bearing area but also define the mining and no mining zones considering various environmental and social factors. Ministry of Environment, Forests and Climate Change (MoEF&CC) has released guidelines to monitor and check illegal sand mining in the country Sustainable Sand Management Guidelines (SSMG), 2016 focuses on the management of sand mining.

The main objectives of these Guidelines include environmentally sustainable and socially responsible mining; conservation of the river equilibrium and its natural environment by protection and restoration of the ecological system; avoiding pollution of river water; and prevention of depletion of ground water reserves. The Guidelines explain the deleterious impacts of indiscrete mining and provides the guidelines for sustainable sand and gravel mining. It lays down the structure of district survey report and provides recommendations for river bed mining, off-channel or floodplain extraction, extraction methods and reclamation plans. It highlights the impact of marine sand mining on marine biodiversity. It also discusses the legal regime relating to mining of minor minerals. The Guidelines talk about management of mining in cluster and post-flood sand deposits on agricultural field of farmers. It lays down the standard environmental conditions for sand mining and the procedure for monitoring system for sustainable sand mining. Enforcement & Monitoring Guidelines for Sand Mining (EMGSM) January 2020, issued by Ministry of Environment, Forest and Climate Change is prepared in consideration of various orders/ directions issued by Hon'ble NGT in matters pertaining to illegal sand mining and also based on the reports submitted by expert committees and investigation teams. This DSR has been prepared in conformity with the S O 141 (E), S O 3611 (E), and other sand mining guidelines published by MOEF&CC from time to time as well as the requirement specified in AMMCR, 2013.

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1.7 Sand Mining Guidelines

ln order to ensure sustainable and systematic sand mining with monitored protection of the environment, the guidelines laid down in the following documents are followed:

As per the guidelines prescribed in above said documents, special attention has been given to the following aspects:

1. The permanent boundary pillars need to be erected after the identification of an area of aggradations and deposition outside the bank of the river at a safe location for future surveying. The distance between boundary pillars on both sides of the bank shall not be more than '100 meters

2. Proper channelization of rivers is to be carried out so as to avoid the possibility of flooding and to maintain the flow of rivers

3. The mining plan should include the original ground level (OGL), available from the District Survey Report (DSR) and to be recorded at an interval not more than 10 m x 10 m along and across the length of the river. The area of aggradations/ deposition needs to be ascertained by comparing the level difference between the OGL and water level.

4. Riverbed sand mining shall be restricted within the central 3/4th width of the river/ rivulet or 7.5 meters (inward) from river banks but up to 10% of the width of the river. The central 3/4th part of the river need to be identified on a map, out of which the area of deposition/aggradations needs to be identified. The remaining 1/4th area needs to be marked as 'no mining zone

5. The sediment sampling should include the bed material and bed material load before, during and after the extraction period. The above exercise by DSR require four surveys i.e. 1st survey in the month of April, 2nd survey at the time of closing of mines for monsoon, 3rd survey needs to be carried out after monsoon to know the quantum of material deposited/replenished and the 4th survey to be carried out at the end of march to know the quantum of material excavated. The above information will be available in District Survey Report (DSR).

6. The particle size distribution and bulk density of deposited material are required to be assessed by a NABL-recognized laboratory.

7. Depth of mining should be restricted to 3 meters and distance from the bank should be l/4th at the river width and should not be less than 7.5 meters. Alternatively, the distance from the bank should be 3 meters or 10% of the river width, whichever is less

8. Demarcation of the mining area with pillars and geo referencing should be done prior to the stat of the mining operation.

9. A buffer distance/ un-mined block of 50 meters after every block of 1000 meters over which mining is undertaken, shall be maintained.

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10. Sand may be extracted across the entire active channel during the dry season only. No sand mining during the monsoon session, as defined in DSR or IMD for each state.

11. Sand shall not be extracted up to a distance of 1 km from major bridges and highways on both sides, or five (5) times the span of a bridge/public civil structure (including water intake points) on the up-stream side and ten (10) times the span of such bridge on the down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side

12. Sand shall not be allowed to be extracted where erosion may occur, such as, at the concave bank.

13. River mining from outside should not affect rivers. No mining shall be permitted in an area up to a width of 100 meters from the active edge of the embankments or distance prescribed by irrigation department. The mining from area outside river bed shall be permitted subject to a condition that a safety margin of two (2) meters shall be maintained above the groundwater level while undertaking mining operation.

14. Sand shall not be extracted within 200 to 500 meters from any crucial hydraulic structure such as pumping station, water intake.

15. All the sand- carrying vehicles (from source to destination) are to be tracked through GPS or RFID. There should be one entry and exit point for trucks/dumpers. The Project Proponent should carry out effective monitoring of the same. In case of vehicle breakdown, the validity of the transport permit can be extended by State Authority, if so required. In compliance of sand mining guidelines and to adhere to the rule under the Assam Minor Mineral Concession Rules, 2013 there will be provision of installation of weigh- bridge and fitting of GPS in all vehicles carrying minor minerals which are to be treated as violation and breach of agreement. No mining activities shall be allowed without installation of Weigh Bridge by the mineral concession holders and without fitting of GPS in the vehicles by the vehicle owners involved in transportation of minor minerals in future.

The District Survey Report for minor minerals is prepared with an aim to demarcate the areas which are prone to erosion or degradation, along with details of eco sensitive zones and other areas where mining is to be prohibited as per MoEF&CC, 2018 and relevant provisions. When blasting is involved, no mining within a distance of 200 m from the boundary line of any railway line reservoir, tank bund, canal, or other public works and public structures or any public road or building whereas, when no blasting is involved, minimum distance of 50 m is defined (***Honourable NGT Order before Principal Bench in the O.A. NO 85/2018 (WZ) dated 30.09.2020)***.

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Mining Type		Minimum Distance	Locations
A.	When Blasting is not involved	100 m	Residential/Public buildings, Inhabited sites, Protected monuments, Heritage sites, National / State Highway, District roads, Public roads, Railway line/area, Ropeway or Ropeway trestle or station, Bridges, Dams, Reservoirs, River, Canals, or Lakes or Tanks, or any other locations to be considered by States.
B.	When Blasting is involved	200 m **	

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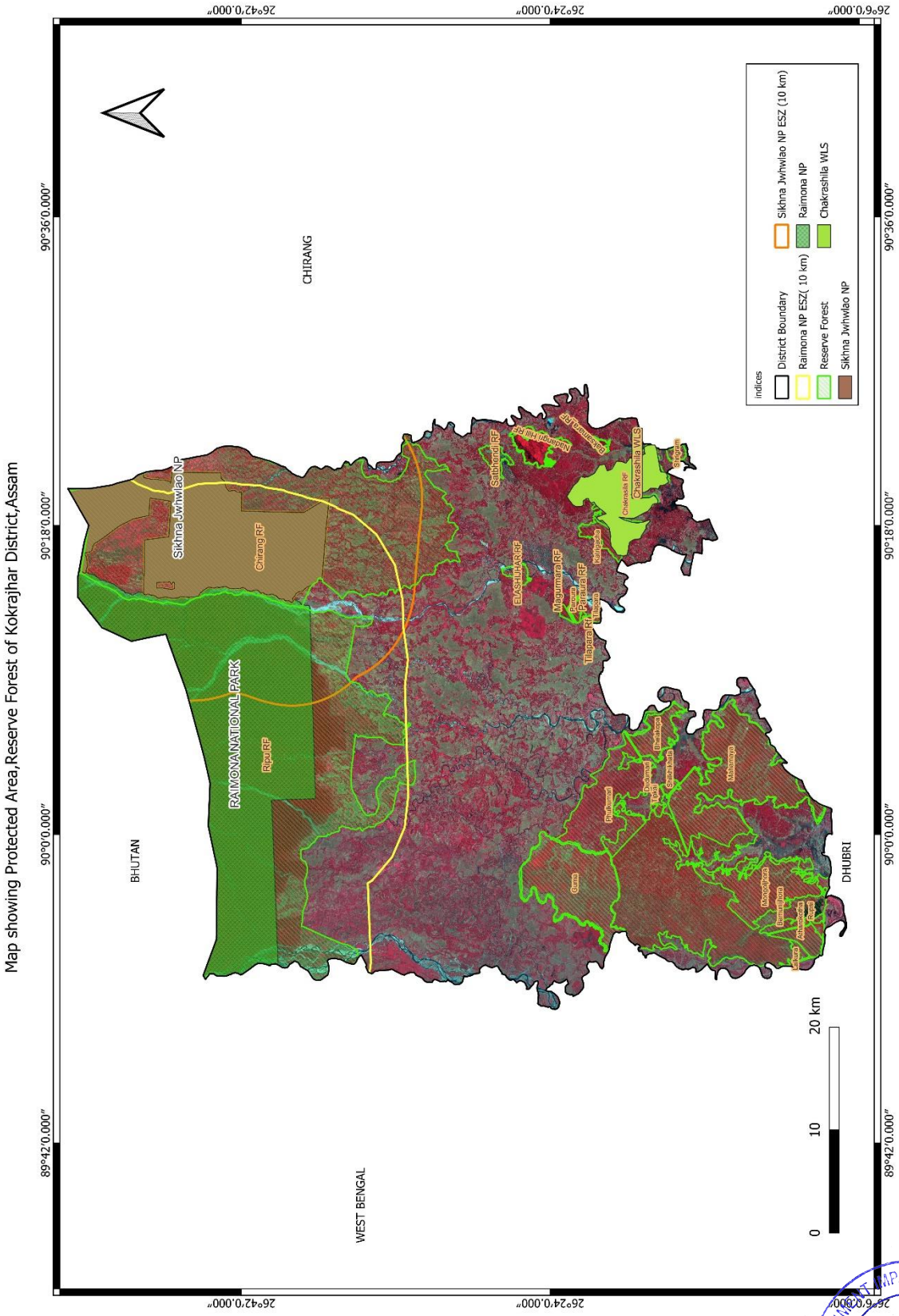
Map 1.4: protected area and reserve forest map of Kokrajhar District



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2. Overview of mining activity in Kokrajhar District

Assam, a resource- rich state in India, is endowed with valuable minerals such as coal, limestone, and various minor minerals like sand, gravel, and boulders. These resources significantly contribute to the state's economy through royalties and employment generation. The state government has adopted a structured approach to regulating and managing the mining sector to balance resource utilization with environmental conservation.

In Kokrajhar district collection of sand, gravel, stone, M- sand, earth etc. fromriver-bed is considered asone of the main minor mineral sources of the district. These materials are primarily utilized for construction purpose.

Table 2.1: Mineral- wise leases in Kokrajhar District

Sl No	*River*	*No. of Lease*	*Minerals*						
			Sand	*Sand & Gravel*	*Stone*	*Sand& Stone*	*Sand Gravel & boulder*	*Sand Gravel & stone*	*Sand Gravel/Clay*
1.	Tipkai River	3	3	0	0	0	0	0	0
2.	Sankosh	21	0	2	8	6	0	5	0
3.	Hel	1	0	0	0	0	0	1	0
4.	Gurufela	1	0	0	0	1	0	0	0
5.	Gongia	3	0	3	0	0	0	0	0
6.	Champabati	1	0	1	0	0	0	0	0
7.	Saralbhanga	3	0	2	0	0	0	0	1
8.	Mangaljhora	1	0	1	0	0	0	0	0
9.	Dholpani	1	0	0	0	0	1	0	0
10.	Gaurang	1	0	0	0	0	0	0	1
11.	Harbhanga	2	0	2	0	0	0	0	0

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3. List of mining leases of Kokrajhar district

3. A) **Table 3.1: Sand Mine Leases**

Sl No	Mine Name	River	Lease Area
1	Jalabila Mahal	Tipkai River	4.53
2	Falakata Mahal	Tipkai River	4.52
3	Joypur Mahal	Tipkai River	4.81

Table 3.2: Sand & Gravel Mine Leases

Sl No	*Mine Name*	*River*	*Lease Area*
1	Panijani Mahal	Harbhanga River	4.90
2	Monglajhora Mahal	Monglajhora Stream	2.16
3	Balanga Sand & Stone Material Mahal	Gongia River	3.12
4	Chitila 2 Sand & Stone Materials Mahal	Gongia River	4.34
5	Sankosh Khoksaguri Sand Gravel Mahal (MPA)	Sankosh River	4.5
6	No.9Harbhanga Sand & Gravel Mahal	Harbhanga River	3.0
7	Jogdwi Sand & Gravel Mahal	Gongia River	3.0
8	Gokulkata Sand Gravel Mahal	Sankosh River	4.50
9	Champa Mahal No. 2	Champamoti River	4.41
10	Saralbhanga Mahal No.- 2 (A)	Saralbhanga River	5.0
11	Saralbhanga River Mahal No. 6	Saralbhanga River	

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Table 3.3: Stone Mine Leases

Sl No	*Mine Name*	*River*	*Lease Area*
1	Sankosh Khoksaguri No.2 Stone Mahal (MPA)	Sankosh River	4.83 ha
2	Sankosh Khoksaguri No.3 Stone Mahal (MPA)	Sankosh River	4.74 ha
3	Sankosh Jaraguri No.2 Stone Mahal (MPA)	Sankosh River	4.65 ha
4	Jaraguri PGR-II Stone Materials Mahal-1	Sankosh River	3.0 ha
5	Khoksaguri No.4 Stone Materials Mahal	Sankosh River	3.0 ha.
6	Khoksaguri No.3 River Stone Materials Mahal	Sankosh Riser	3.0 ha
7	Jaraguri PGR- II Stone Materials Mahal	Sankosh River	3.0 ha
8	Sankosh Surendrapur Ghat Stone Materials Mahal	Sankosh River	4.5 h a

Table 3.4: Sand & Stone Mine Leases

Sl No	*Mine Name*	*River*	*Lease Area*
1	Sankosh Khoksaguri Sand & Stone Materials Mahal	Sankosh River	4.43 ha
2	Gurufela 2 Sand & Stone Materials Mahal	Gurufela River	2.0 ha
3	Jaraguri Sand & Stone Materials Mahal No .2	Sankosh River	3.0 ha
4	Jaraguri PGR- II Sand & Stone Materials Mahal No.2	Sankosh River	3.0 ha
5	Khoksaguri No.III Sand & Stone Materials Mahal No.3	Sankosh River	3.0 ha
6	Jaraguri PGR-II Sand & Stone Materials Mahal No.3	Sankosh River	3.0 ha
7	Jaraguri Sand & Stone Materials Mahal No.1	Sankosh River	4.5 ha

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Table 3.5: Sand, Gravel & Stone Mine Leases

Sl No	*Mine Name*	*River*	*Lease Area*
1	Garumarachar Pt-I Mahal	Sankosh River	4.43 ha
2	Garumarachar Pt-II Mahal	Sankosh River	4.43 ha
3	Simultapu Mahal	Sankosh River	4.9 ha
4	No.4 Hel Sand Gravel & Stone Mahal	Hel River	3.0 ha
5	Sankosh Jaraguri Sand Gravel Mahal (MPA)	Sankosh River	4.5 ha
6	Haldibari Sand Gravel & Stone Mahal	Sankosh River	4.5 ha

Table 3.6: Sand, Gravel & Clay Mine Leases

Sl No	Mine Name	River	Lease Area
1	Saralbhanga Mahal No. 5	Saralbhanga River	5.40 ha
2	Gaurang River Minor Mineral Permit Area No. 1	Gaurang River	4.60 ha

Table 3.6.a: Sand, Gravel & Boulder Mine Leases

Sl No	Mine Name	River	Lease Area
1	Dholpani R.F. Mahal (non-operational)	Dholpani	4.98 ha

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Table 3.7: Table showing **existing** mining permits\contracts areas in the **Parbatjhora** Division of the district

SI No	*River Details*	*Name of the Mines*	*Area (ha)*	*Geolocation*		*Mineral*	*Status*
				Latitude	*Longitude*		
1	Tipkai River	Jalabila Mahal	4.53	26°15'42.59"N 26°15'40.95"N 26°15'16.34"N 26°15'16.43"N	90° 7'28.27"E 90° 7'27.84"E 90° 7'19.75"E 90° 7'17.89"E	Sand	Subjudice case in Hon'ble Gauhati High court
2	Tipkai River	Falakata Mahal	4.52	26°14'25.15"N 26°14'25.05"N 26°14'9.82"N 26°14'9.26"N	90° 7'18.34"E 90° 7'21.15"E 90° 7'25.72"E 90° 7'22.51"E	Sand	Subjudice case in Hon'ble Gauhati High court
3	Tipkai River	Joypur Mahal	4.81	26°13'21.87"N 26°13'34.76"N 26°13'36.45"N 26°13'24.02"N	90° 8'14.77"E 90° 7'58.89"E 90° 8'00.65"E 90° 8'17.09"E	Sand	Subjudice case in Hon'ble Gauhati High court
4	Harbhanga River	Panijani Mahal	4.90	26°21'44.81"N 26°21'44.04"N 26°21'06.70"N 26°21'06.14"N	90° 3'37.82"E 90° 3'39.93"E 90° 3'45.33"E 90° 3'43.87"E	Sand Gravel	Subjudice case in Hon'ble Gauhati High court
5	Sankosh River	Garumarachar Pt-I Mahal	4.43	26°23'55.76"N 26°24'3.15"N 26°24'5.84"N 26°23'58.52"N	89°50'40.71"E 89°50'41.61"E 89°50'47.95"E 89°50'46.03"E	Sand Gravel stone	Subjudice case in Hon'ble Gauhati High court
6	Sankosh River	Garumarachar Pt-II Mahal	4.43	26°24'7.78"N 26°24'16.46"N 26°24'11.60"N 26°24'6.84"N	89°51'10.57"E 89°51'17.19"E 89°51'19.29"E 89°51T5.30"E	Sand, Gravel stone	Subjudice case in Hon'ble Gauhati High court
7	Sankosh River	Simultapu Mahal	4.9	26°26'19.86"N 26°26'20.86"N 26°26'11.27"N 26°26'10.96"N	89°51'36.70"E 89°51'40.71 "E 89°51'44.01E 89°51'36.69"E	Sand, Gravel, stone	Subjudice case in Hon'ble Gauhati High court

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Table 3.8: Table showing **proposed** mining permits\contrcts areas in the **Parbatjhora** Division of the district

SI No	*River Details*	*Name of the Mines*	*Area (ha)*	*Geolocation*		*Mineral*	*Status*
				Latitude	*Longitude*		
1.	Monglajhora Stream	Monglajhora Mahal	2.16	26°12'35.98"N 26°12'34.23"N 26°12'30.02"N 26°12'30.88"N 26°12'36.68"N 26°12'43.54"N 26°12'43.55"N 26°12'35.91'N	89°55'40.09"E 89°55'39.72"E 89°55'23.55"E 89°55'22.92"E 89°55'43.56"E 89°55'51.50"E 89°55'52.01"E 89°55'44.06"E	Sand Gravel	Proposed

Table 3.9: Table showing **potential** mining permits\contracts areas in the **Parbatjhora** Division of the district

SI No	*River Details*	*Name of the Mines*	*Area (ha)*	*Geolocation*		*Mineral*	*Status*
				Latitude	*Longitude*		
1.	Haraputa River (Adelghutu		4.0	26°24'17.88"N 26°24'20.04"N 26°24'25.04"N 26°24'23.80"N	89°51'19.80"E 89°51'18.24"E 89°51'32.76"E 89°51'34.50"E	Sand Gravel	Potential
2.	Haraputa River (Majadabri)		2.0	26°24'25.41"N 26°24'26.26"N 26°24'31.64"N 26°24'30.86"N	89°51'35.55"E 89°51'33.95"E 89°51'50.90"E 89°51'51.18"E	Sand Gravel	Potential
3.	Sankosh River (Majadabri)		2.50	26°24'44.29"N 26°24'44.44"N 26°24'32.64"N 26°24'32.40"N	89°51'29.69"E 89°51'31.32"E 89°51'46.37"E 89°51'45.72"E	Sand Gravel	Potential

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Table 3.10: Table showing existing mining permis\contracts areas under **Kachugaun** Forest Division of Kokrajhar District

Sl. No	*River Details*	*Name of the mines*	*Lease Details*	*Area (Ha)*	*Geolocation*		*Mineral*	*Status*
					Latitude	*Longitude*		
1	Sankosh River	Sankosh Khoksaguri Sand & Stone Materials Mahal	Marjit Basumatary	4.43 Ha	26°30'31.93"N 26°30'28.04"N 26°30'33.45"N 26°30'37.99"N	89°52'21.72"E 89°52'18.06"E 89°52'10.73"E 89°52'14.36"E	Sand Stone	Existing
2	Gongia River	Balanga Sand & Stone Material Mahal	Bisinta Mushahary	3.12 Ha	26°29'51.81"N 26°29'50.36"N 26°29'43.71"N 26°29'42.50"N	90°6'30.12"E 90°6'23.99"E 90°6'23.70"E 90°6'26.72"E	Sand Gravel	Existing
3	Gongia River	Chitila 2 Sand & Stone Materials Mahal	Argeng Narzary	4.34 Ha	26°24'6.35"N 26°24'2.32"N 26°24'5.81"N 26°24'10.62"N	90°06'48.10"E 90°06'36.77"E 90°06'35.23"E 90°06'46.48"E	Sand Gravel	Existing
4	Gurufela River	Gurufela 2 Sand & Stone Materials Mahal	Manash Basumatary	2.0 Ha	26°25'39.04"N 26°25'37.79"N 26°25'26.94"N 26°25'27.00"N	90°3'24.92"E 90°3'24.98"E 90°3'18.34"E 90°3'17.17"E	Sand & Stone	Existing
5	Hel River	No.4 Hel Sand Gravel & Stone Mahal	Bisinta Mushahary	3.0 Ha	26°33'27.81"N 26°33'28.11"N 26°33'20.81"N 26°33'19.95"N	90°07'57.00"E 90°07'51.84"E 90°07'53.08"E 90°07'57.38"E	Sand Gravel Stone	Existing
6	Sankosh River	Sankosh Khoksaguri No.2 Stone Mahal (MPA)	Jandu Construction India Pvt Ltd	4.83 Ha	26°30'50.59"N 26°30'46.75"N 26°30'38.89"N 26°30'42.03"N	89°52'22.29"E 89°52'18.91"E 89°52'27.64"E 89°52'30.75"E	Stone	Existing

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Sl. No	*River Details*	*Name of the mines*	*Lease Details*	*Area (Ha)*	*Geolocation*		*Mineral*	*Status*
					Latitude	*Longitude*		
7	Sankosh Rivet	Sankosh Khoksaguri No.3 Stone Mahal (MPA)	Jandu Construction India Pvt Ltd	4.74 Ha	26°31'01.30"N 26°30'56.87"N 26°30'50.54"N 26°30'54.43"N	89°52'30.14"E 89°52'26.70"E 89°52'34.64"E 89°52'38.05"E	Stone	Existing
8	Sankosh River	Sankosh Khoksaguri Sand Gravel Mahal (MPA)	L&T	4.5 Ha	26°29'51.45"N 26°30'46.52"N 26°29'49.85"N 26°30'55.20"N	89°51'41.10"E 89°51'38.52"E 89°51'30.61"E 89°51'32.89"E	Sand Gravel	Existing
9	Sankosh River	Sankosh Jaraguri Sand Gravel Mahal (MPA)	L&T	4.5 Ha	26°30'13.67"N 26°30'09.06"N 26°30'13.31"N 26°30'17.94"N	89°51'59.13"E 89°51'55.25"E 89°51'47.64"E 89°51'51.45"E	Sand Gravel Stone	Existing
10	Sankosh River	Sankosh Jaraguri No.2 Stone Mahal (MPA)	Bhuven Mukherjee	4.65 Ha.	26°30'9.07"N 26°30'3.89"N 26°29'58.85"N 26°30'3.00"N	89°51'39.73"E 89°51'36.43"E 89°51'44.08"E 89°51'47.46"E	stone	Existing

Table 3.11: Table showing **Proposed** Mining permits\contracts areas under **Kachugaun** Forest Division of Kokrajhar district

SI No	*River Details*	*Name of the mines*	*Lease Details*	*Area (Ha)*	*Geolocation*		*Mineral*	*status*
					Latitude	*Longitude*		
1	Sankosh River	Jaraguri PGR-II Stone Materials Mahal-1	Vivek Mushahary	3.0 Ha	26°28'54.93"N 26°28'55.31"N 26°29'0.99"N 26°29'3.81"N 26°29'4.28"N 26°29'5.76"N	89°51'48 59"E 89°51'42.02"E 89°51'44 76"E 89°51'35.89"E 89°51'45.19"E 89°51'35.69"E	Stone	Proposed
2	Sankosh River	Jaraguri Sand & Stone Materials Mahal No .2	Sanjit Kr Mushahary	3.0 Ha	26°30'15.62"N 26°30'18.05"N 26°30'22.28"N 26°30'20.36"N	89°52'6.74"E 89°52'9.17"E 89°51'59.73"E 89°51'56.56"E	Sand & Stone	Proposed

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SI No	River Details	Name of the mines	Lease Details	Area (Ha)	Geolocation		Mineral	status
					Latitude	Longitude		
3	Sankosh River	Khoksaguri No.4 Stone Materials Mahal	Goldong Basumatary	3.0 Ha	26°31'10.60" N 26°31'10.64" N 26"31'13.79" N 26"31'13.96" N	89°52'50.58"E 89°52'40.12"E 89°52'50.90"E 89°52'40.40"E	Stone	Proposed
4	Harbhanga River	No.9 Harbhanga Sand & Gravel Mahal	Augustin Borgayary	3.0 Ha	26°21'12.58" N 26°21'13.58" N 26"21'27.05"N 26"21'66.66" N	90°3'41.13"E 90°3'43.03"E 90°3'32.38"E 90°3'34.33"E	Sand & Gravel	Proposed
5	Sankosh River	Khoksaguri No.3 River Stone Materials Mahal	Bahaigya Basumatary	3.0 Ha	26°31'13.47" N 26°31'10.17" N 26"31'12.76"N 26"31'9.84" N	89°52'16.44"E 89°52'27.69"E 89°52'16.44"E 89°52'27.47"E	Stone	Proposed
6	Sankosh Riser	Jaraguri PGR- II Stone Materials Mahal	Augustin Borgayary	3.0 Ha	26°29'12.09 "N 26°29'12.72"N 26°29'15.18"N 26°29'15.44"N	89°51'30.80"E 89°51'42.97"E 89°51'30.14"E 89°51'42.51"E	Stone	Proposed
7	Sankosh Riser	Jaraguri PGR- II Sand & Stone Materials Mahal No.2	Bijen Narzary	3.0 Ha	26°29'15.44 "N 26°29'21.83"N 26°29'25.35"N 26°29'25.50"N	89°51'42.51"E 89°51'32.27"E 89°51'41.97"E 89°51'31.89"E	Sand & Stone	Proposed
8	Sankosh Riser	Khoksaguri No.III Sand & Stone Materials Mahal No.3	Soboi Basumatary	3.0 Ha	26°31'0.17" N 26°31'3.01" N 26"29'5.41"N 26"31'8.08" N	89°52'42.86"E 89°52'44.67"E 89°52'34.17"E 89°52'35.94"E	Sand & Stone	Proposed
9	Sankosh Riser	Jaraguri PGR-II Sand & Stone Materials Mahal No.3	Bisinta Mushahary	3.0 Ha	26°29'34.95" N 26°29'37.09"N 26°29'38.37"N 26°29'40.71"N	89°51'39.06"E 89°51'28.98"E 89°51'39.04"E 89°51'29.61"E	Sand & Stone	Proposed
10	Sankosh Riser	Jaraguri Sand & Stone Materials Mahal No.1	Emmanuel Basumatary	4.5 Ha	26°30'20.95"N 26°30'23.16"N 26°30'28.46"N 26°30'26.21"N	89°52'14.27"E 89°52'16.76"E 89°52'6.92"E 89°52'4.10"E	Sand & Stone	Proposed

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Sl No	River Details	Name of the mines	Lease Details	Area (Ha)	Geolocation		Mineral	status
					Latitude	Longitude		
11	Sankosh River	Haldibari Sand Gravel & Stone Mahal	Vivek Mushahary	4.5 Ha	26°37'19.98"N 26°37'19.84"N 26°37'00.78"N 26°36'58.02"N	89°52'08.48"E 89°52'31.65"E 89°52'05.85"E 89°52'32.74"E	Sand Gravel & Stone	Proposed
12	Gongia River	Jogdwi Sand & Gravel Mahal	Suman Brahma	3.0 Ha	26°21'32.78"N 26°21'34.00"N 26°21'42.04"N 26°21'42.34"N	90°6'4.59"E 90°6'0.53"E 90°6'5.93"E 90°6'0.92"E	Sand & Gravel	Proposed
13	Sankosh River	Gokulkata Sand Gravel Mahal	Vivek Mushahary	4.50 Ha	26°28'39.45"N 26°28'40.08"N 26°28'47.90"N 26°28'48.06"N	89°51'53.42"E 89°51'47.23"E 89°51'52.39"E 89°51'45.44"E	Sand Gravel	Proposed
14	Sankosh River	Sankosh Surendrapur Ghat Stone Materials Mahal	Loknath Narzary	4.5 Ha	26°32'12.82"N 26°32'13.03"N 26°32'22.51"N 26°32'23.43"N	89°53'12.81"E 90°53'8.02"E 90°53'15.58"E 90°53'10.26"E	Stone	Proposed

Table 3.12: Table showing existing mining permits\contracts areas under **Haltugaon** Division, Kokrajhar District

Sl No.	River	Type of MCA & Status	Name of mining lease&area	Tenure in Years	Mineral	GPS Location
1	Gaurang Range, Saralbhanga River	Running Mahal	Saralbhanga Mahal No. 5 5.40 ha	wef. 1st June, 2018 to 31st May, 2025	Sand Gravel Earth	26°31'27.32"N 90°12'51.87"E 26°31'18.73" N90°13'06.48"E 26°31'17.12"N 90°13'03.67"E 26°31'24.89"N90°12'46.95"E
2	Nayekgaon Range, Champamoti River	Running Mahal	Champa Mahal No. 2 4.41 ha	wef. 01-04-2024	Sand Gravel	26°25'54.07"N 90°24'44.07"E 26°26'4.43"N 90°24'37.09"E 26°26'2.72"N 90°24'33.79"E 26°25'52.39"N 90°24'39.46"E

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3	Gaurang Range, Saralbhanga River	Running Mahal	Saralbhanga Mahal No.- 2 (A) 5.0 ha	wef. 01-06-2024	Sand Gravel	26°33'39.14"N90°12'27.21"E 26°33'38.67"N 90°12'34.61"E 26°33'48.38"N 90°12'34.61"E 26°33'49.25"N 90°12'30.41"E

Table 3.13: Table showing **proposed mining permits contracts\permits** areas under **Haltugaon** Division, Kokrajhar District

Sl No.	***River***	***Type of MCA & Status***	***Name of mining lease&area***	***Mineral***	***GPS Location***
1	Saralbhanga	Proposed Mining Area	Saralbhanga River Mahal No. 6 4.95 ha	Sand Gravel	26°50’85.92”N 90°22’27.18”E 26°50’88.96”N 90.22’40.40”E 26°50’56.89”N 90°22’48.80”E 26°50’54.02”N 90°22’35.63”E
2	Gaurang	Proposed Mining Area	Gaurang River Minor Mineral Permit Area No. 1 4.60 ha	Clay	26°26'01.71"N 90°15'43.45"E, 26°25'54.18"N 90°15'48.99"E 26°25'51.15"N 90°15'44.01"E, 26°25'59.02"N 90°15'38.55"E

Table 3.13.a: Table showing **non-operational mining permit/contract** areas under **Haltugaon** Division, Kokrajhar District

Sl No.	***River***	***Type of MCA & Status***	***Name of mining lease&area***	***Mineral***	***GPS Location***
3	Ultapani Range, Dholpani River	Proposed Mahal inside of RF Area (Now Under Chikna Jhalawo NP)	Dholpani R.F. Mahal (Still Under Process) 4.98 ha	Sand Gravel boulder	26°51'24.60"N,90°20'23.60"E 26°51'26.30"N,90°20'31.10"E 26°51'19.30"N,90°20'33.80"E 26°51'17.50"N,90°20'25.90"E

Table 3.14: Table showing **potential mining permits\contracts** areas under **Haltugaon Division,** Kokrajhar District

Sl No.	***River***	***Type of MCA & Status***	***Name of mining lease&area***	***Mineral***	***GPS Location***
1	Nayekgaon Range, Tarrang River	Potential Mining Area	Tarang Mahal No. 1	N/A	26°28'58.62"N90°20'49.75"E 26°28'57.56"N90°20'51.38"E 26°28'27.61"N90°20'32.70"E 26°28'26.63"N 90°20'31.26"E

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2	Saralbhanga	Potential Mining Area	Saralbhanga Mahal No.- 2 (B) 4.85 ha	Sand Gravel	26°33'28.95"N 90°12'30.47"E 26°33'28.92"N 90°12'36.95"E 26°33'36.83"N 90°12'34.79"E 26°33'37.59"N 90°12'27.28"E
3	Saralbhanga	Potential Mining Area	Saralbhanga Mahal No.- 4 (A) 4.93 ha	Sand Gravel	26°33'0.67"N 90°12'29.07"E 26°33'1.01"N 90°12'35.79"E 26°33'9.12"N 90°12'35.01"E 26°33'9.08"N 90°12'27.80"E
4	Saralbhanga	Potential Mining Area	Saralbhanga Mahal No.- 4 (B) 4.65 ha	Sand Gravel	26°32'47.01"N 90°12'31.80"E 26°32'46.04"N 90°12'36.48"E 26°32'56.70"N 90°12'36.15"E 26°32'57.03"N 90°12'30.15"E
5	Saralbhanga	Potential Mining Area	Saralbhanga Mahal No.- 4 (C) 4.66 ha	Sand Gravel	26°31'59.54"N 90°12'31.35"E 26°32'1.01"N 90°12'36.49"E 26°32'9.17"N 90°12'34.86"E 26°32'8.20"N 90°12'27.89"E
6	Saralbhanga	Potential Mining Area	Saralbhanga Mahal No.- 4 (D) 4.42 ha	Sand Gravel	26°31'42.41"N 90°12'33.75"E 26°31'42.00"N 90°12'39.15"E 26°31'52.16"N 90°12'39.97"E 26°31'52.33"N 90°12'35.12"E
7	Saralbhanga	Potential Mining Area	Saralbhanga Mahal No.- 7 4.60 ha	Sand Gravel	26°29'29.25"N 90°12'49.40"E26°29'28.85"N 90°12'53.75"E 26°29'40.52"N 90°12'52.03"E 26°29'40.37"N 90°12'46.89"E
8	Saralbhanga	Potential Mining Area	Saralbhanga Mahal No.- 8 4.76 ha	Sand Gravel	26°28'59.01"N 90°13'7.06"E26°28'59.96"N 90°13'11.93"E 26°29'10.19"N 90°13'6.17"E 26°29'9.20"N 90°13'1.22"E
9	Saralbhanga	Potential Mining Area	Saralbhanga Mahal No.- 9 4.93 ha	Sand Gravel	26°27'25.55"N 90°14'38.81"E 26°27'28.48"N 90°14'44.43"E 26°27'36.90"N 90°14'40.76"E 26°27'33.12"N 90°14'35.05"E
10	Bandarchora (Champaboti River) under Nayekgaon Range.	Potential Mining Area	N/A	Sand Gravel	26"25'32.30"N 90'25'28.90"E 26"25'26.00" N 90"25'31.00"E

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Sl No.	*River*	*Type of MCA & Status*	*Name of mining lease&area*	*Mineral*	*GPS Location*
11	Gaurang Range, Saralbhanga River	Potential Mining Area	Saralbhanga Mahal No-2 20.6 ha	Sand Gravel	26°34'26.36"N 90°12'30.63"E 26°34’27.4”N 90°12’36.7”E 26°34’19.2”N 90°12’39.5”E 26°34’17.5” N 90°12’33.9”E 26°33'41.02"N 90°12'29.53"E 26°33'42.96"N 90°12'25.06"E 26°33’49.0”N 90°12’38.6”E 26°33’50.3”N 90°12’31.7”E
12	Gaurang Range, Saralbhanga River	Potential Mining Area	Saralbhanga Mahal No-3 8.12 ha	Sand Gravel boulder	26°37’05.6”N 90°13’15.7”E 26°37’06.4”N 90°13’20.7”E 26°36’49.4”N 90°13’24.2”E 26°36’47.8” N 90°13’18.7”E
13	Gaurang Range, Saralbhanga River	Potential Mining Area	Saralbhanga Mahal No-4 5.16 ha	Sand Gravel	26°33’22.5”N 90°12’25.00”E 26°33’23.4”N 90°12’30.90”E 26°33'12.23"N 90°12'30.75"E 26°33'12.67"N 90°12'25.38"E
14	Nayekgaon Range, Champamoti River	Potential Mining Area	Champa (Bandarchara Mahal) 9.60 ha	Sand Gravel	26°27'3.01"N 90°24'12.16"E 26°27'3.21"N 90°24'2.89"E 26°26'48.32"N 90°24'5.75"E 26°26'49.30"N 90°24'12.14"E

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3. I) Summary of Existing, Proposed, and Potential Mining permits/contracts areas of Kokrajhar District

The Kokrjhar District has a total of 7 running mining leases, 1 proposed mining sites, and 3 potential mining site under Parbotjahara Division, 10 existing mining sites nd 14 proposed mining sites under Kachugaon division and 3 existing mining sites, 2 proposed minng sites, 1 non-operational mining site and 14 potential miing sites under Haltugaon Division distributed across multiple river systems.

The potential mining site represents an opportunity for future resource extraction. , comprehensive environmental impact assessments will be required before approval. As mining activities expand, sustainable extraction methods and regulatory oversight will be crucial in preventing ecological damage, ensuring long-term resource availability and environmental conservation.

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4. Details of revenue generated during last three years

Table4.1: Revenue generation under Parbatjhora Division (In INR)

Year	Mineral	Revenue (Rs)	Total Revenue (Rs)
2021- 22	Sand	28,84,225.00	**63,31,266.00**
	Stone / gravel	20,85,200.00	
	Earth	13,61,841.00	
2022- 23	Sand	11,46,600.00	**65,63,294.00**
	Stone / gravel	23,60,280.00	
	Earth	30,56,414.00	
2023- 24	Sand	7,43,415.00	**1,35,50,482.00**
	Stone / gravel	35,84,620.00	
	Earth	92,22,447.00	

Table4.2: Revenue generation under Kachugaon Division (In INR)

Year	Mineral	Revenue(Rs)	Total Revenue(Rs)
2021-22	Sand	19,01,657.00	**23425153.00**
	Stone / gravel	1,36,08,853.00	
	Sand gravel	44,43,508.00	
	Earth	34,71,135.00	
2022-23	Sand	12,49,142.00	**40368302.00**
	Stone / gravel	2,31,44,220.00	
	Sand gravel	1,62,48,756.00	
	Earth	41,184.00	
2023-24	Sand	5,26,120.00	**72723788.00**
	Stone / gravel	7,14,94,868.00	
	Sand gravel	6,93,800.00	
	Earth	9,000.00	

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Table4.3: Revenue generation under Haltugaon Division (In INR)

Sl No.	Name of Mineral	Value in Rs. (2020-2021)
1	Boulder	837409.80
2	Gravel	1926521.09
3	Ordinary Earth	2859904.38
4	Sand (others)	1351041.24
5	Sand-Gravel	3821690.00
	Total	**10796566.50**
Sl No.	**Name of Mineral**	**Value in Rs. (2021- 2022)**
1	Boulder	565553.22
2	Gravel	2237104.89
3	Ordinary Earth	1341139.96
4	Sand (others)	1184033.92
5	Sand-Gravel	834337.00
	Total	**6162169.00**
Sl No.	**Name of Mineral**	**Value in Rs. (2022- 2023)**
1	Boulder	1384777.54
2	Gravel	1433829.20
3	Ordinary Earth	1450523.00
4	Sand (others)	523663.80
5	Sand-Gravel	1645845.00
	Total	**6438638.54**

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5. Detail of Production in last three years

Table 5.1: Production under **Haltugaon** Division

Sl No.	Name of Mineral	Unit of Quantity	Quantity
1	Boulder	cum	3986.77
2	Gravel	cum	9033.66
3	Ordinary Earth	cum	95426.31
4	Sand (others)	cum	8555.62
5	Sand- Gravel	cum	19144.45
Total			**136146.81**
Sl No.	**Name of Mineral**	**Unit of Quantity**	**Quantity**
1	Boulder	cum	2603.00
2	Gravel	cum	9373.66
3	Ordinary Earth	cum	44402.45
4	Sand (others)	cum	6347.25
5	Sand-Gravel	cum	4171.68
Total			**66898.04**
Sl No.	**Name of Mineral**	**Unit of Quantity**	**Quantity**
1	Boulder	cum	6470.40
2	Gravel	cum	4792.21
3	Ordinary Earth	cum	47884.99
4	Sand (others)	cum	3148.29
5	Sand-Gravel	cum	8031.83
Total			**70327.72**

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Table 5.2: Production under **Parbatjhora** Division

Year	Mineral	Quantity (cum)	Total Quantity (cum)
2021-22	Sand	15790 m^3	**139514.5**
	Stone / gravel	8020 m^3	
	Earth	115704.50m^3	
2022-23	Sand	6574.45 m^3	**96963.45**
	Stone / gravel	89016.20 m^3	
	Earth	1372.80m^3	
2023-24	Sand	4084.7 m^3	**254344.7**
	Stone / gravel	13787 m^3	
	Earth	236473 m^3	

Table 5.3: Production under **Kachugaon** Division

Year	Mineral	Quantity (cum)	Total Quantity (cum)
2021-22	Sand	9055.51 m^3	**195553.71**
	Stone / gravel	53368.05 m^3	
	Sand gravel	17425.65 m^3	
	Earth	115704.50 m^3	
2022-23	Sand	6574.45 m^3	**160684.06**
	Stone / gravel	89016.20 m^3	
	Sand gravel	63720.61 m^3	
	Earth	1372.80 m^3	
2023-24	Sand	3758 m^3	**287809**
	Stone / gravel	280282 m^3	
	Sand gravel	3469 m^3	
	Earth	300 m^3	

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6. Process of Deposition of Sediments in the rivers of the District of Kokrajhar

Many rivers originate from the Himalayan and Siwalik regions which supply water in down streams. The greatest sediment yields are generally associated with rivers draining areas of intensive tectonic activity therefore; Himalayan Rivers cause tremendous erosion and carry large amounts of sediment. 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.

Sediments are formed by disintegration and alteration of pre-existing rocks or by precipitation from solution. Partly particles from volcanism and dust particles of celestial origin also contribute. These sediments are transported to various depositional realms by water, wind or glaciers. Mechanical and chemical processes produce sediments which are lithified as sedimentary rocks by overburden pressure, recrystallisation and cementation. During the process of consolidation from sediments to sedimentary rocks, physical and chemical changes are known as diagenesis or diagenetic changes. This whole process of rock decay, sediment transportation, deposition, precipitation and diagenesis takes place at or near the surface of the earth under normal temperature and pressure conditions contrary to igneous or metamorphic rocks where higher degree of temperature and pressure are involved (Sengupta, 2007).

Weathering:

Weathering is breaking down or wearing down of rocks in situ. Weathering can be biological, chemical or physical.

Processes of weathering:

There are number of different weathering processes. These processes generally start with water percolating down into joints formed by stress release as the rock comes close to the surface, and are most intense at the surface and in the soil profile. Weathering is the breakdown and alteration of bedrock by mechanical and chemical processes that create a regolith (layer of loose material), which is then available for transport away from the site.

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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 move by rolling, sliding, or jumping transport in natural rivers is a complicated phenomenon. Its movement is quite uneven in both the transverse and longitudinal directions, which varies considerably. Some sediment particles roll or slide along the bed intermittently and some others state (hopping or bouncing along the bed).

Sediment transport is the movement of organic and inorganic particles by water. In general, the greater the flow, the more sediment that will be conveyed. Water flow can be strong enough to suspend particles in the water column as they move downstream, or simply push them along the bottom of a water way. Transported sediment may include mineral matter, chemical sand pollutants, and organic material. Another name for sediment transport is sediment load. The total load includes all particles moving as bed load, suspended load, and wash load. Sediment deposition is the process of settling down of suspended particles to the bottom of a body of water. This settling often occurs when water flow slows down or stops, and heavy particles can no longer be supported by the bed turbulence. Sediment deposition can be found anywhere in a water system, from high mountain streams, to rivers, lakes, delta, floodplains.

Sediment deposition can be found anywhere in a water system, from high mountain streams, to rivers, lakes, delta, floodplains.Sediment transport is critical to understanding how rivers work because it is the set of processes that mediates between the flowing water and the channel boundary. Erosion involves removal and transport of sediment (mainly from the boundary) and deposition involves the transport and placement of sediment on the boundary. Erosion and deposition are what form the channel of any alluvial river as well as the flood plain through which it moves. The amount and size of sediment moving through a river channel are determined by three fundamental controls: competence, capacity and sediment supply. Competence refers to the largest size (diameter) of sediment particle or grain that the flow is capable of moving; it is a hydraulic limitation. If a river is sluggish and moving very slowly it simply may not have the power to mobilize and transport sediment of a given size even though such sediment is available to transport. So a river may be competent or incompetent with respect to a given grain size. If it is incompetent it will not transport sediment of the given size. If it is competent it may transport sediment of that size if such sediment is available (that is, the river is not supply-limited). Capacity refers to the maximum amount of sediment of a given size that a stream can transport in traction as

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bed load. Given a supply of sediment, capacity depends on channel gradient, discharge and the caliber of the load (the Presence of fines may increase fluid density and increase capacity; the presence of large particles may obstruct the flow and reduce capacity). Capacity transport only occurs when sediment supply is abundant (non- limiting). Sediment supply refers to the amount and size of sediment available for sediment transport. Capacity transport for a given grain size is only achieved if the supply of that caliber of sediment is not limiting (that is, the maximum amount of sediment in stream is capable of transporting is actually available). Because of these two different potential constraints (hydraulic sand sediment supply) distinction is often made between supply-limited and capacity- limited transport.

Much of the material supplied to a stream is so fine (silt and clay) that provided it can be carried in suspension, almost any flow will transport it. Although there must be an upper limit to the capacity of the stream to transport such fines, it is probably never reached in natural channels and the amount moved is limited in supply. In contrast, transport of coarser material (say, coarser than fine sand) is largely capacity limited.

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

The modes are: 1. Dissolved Load.

2. Suspended Load.
3. Intermittent Suspension (Siltation) Load
4. Wash Load
5. Bed Load

The water that flows along natural dongs and canals are the main source of irrigation for the agricultural fields of the district. The Bhutan hills are also the source of a number of rivers that flow through the district and act as tributaries of the mighty Brahmaputra that flows from east to west far from the southern boundary of Kokrajhar district. The important rivers of the district that flow from north to south are the Champamati, the Gaurang, the Tipkai and the Sankosh. There are other rivulets like the Bhur and the Laopani. All the rivers and rivulets flowing through the district have their origin in the Bhutan hills.

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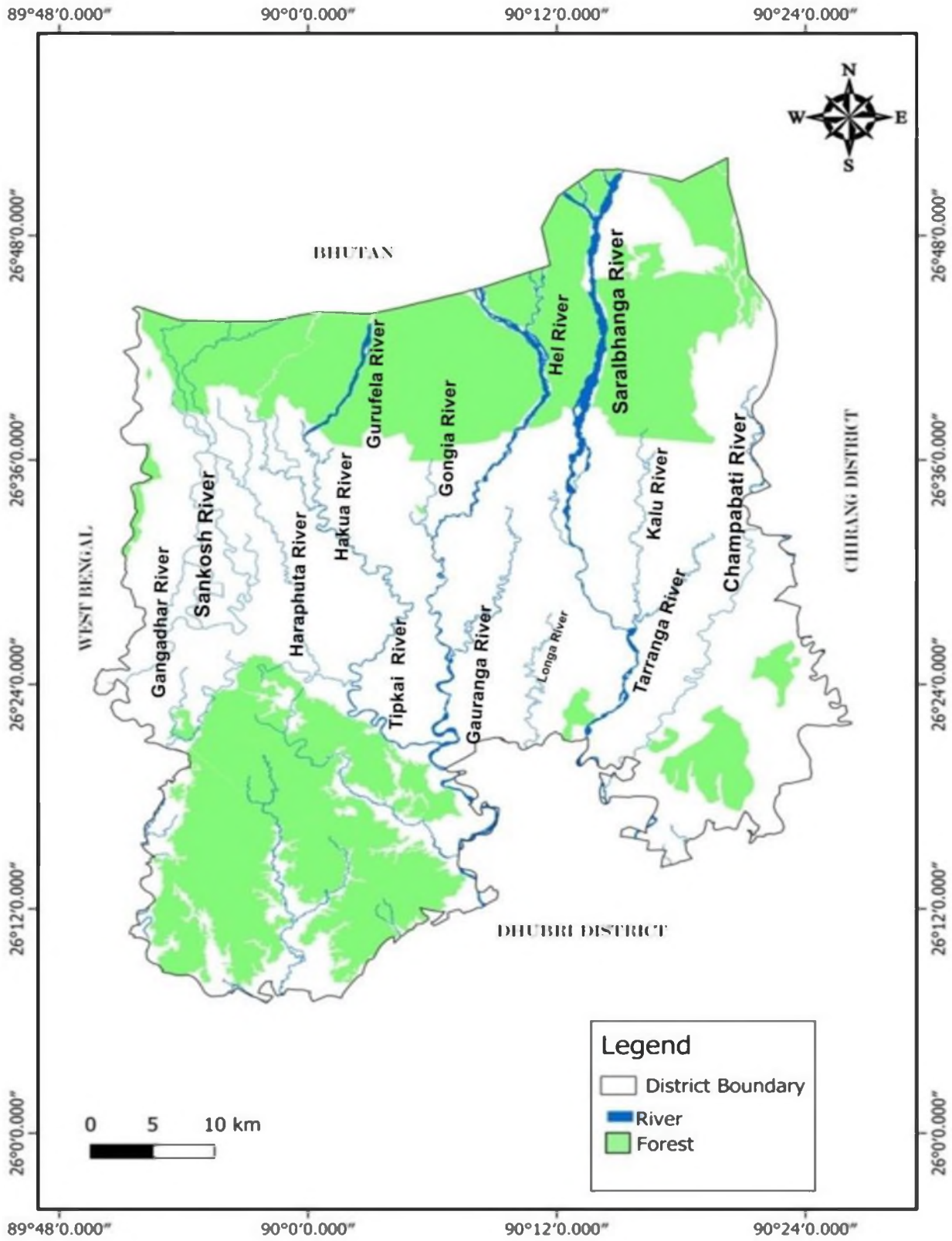

Map 6.1: Drainage map of Kokrajhar district

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7. General Profile of Kokrajhar District

a) General Information

Kokrajhar is the westernmost district of the state sharing the international border with Bhutan in the North and state boundary with West Bengal in the west. The district can be described as the gateway to the northeastern region of India. Agro-climatically the district is the Lower Brahmaputra Valley Zone.

Agro-climatically, the district falls under Lower Brahmaputra Valley Zone of Assam. The climate of the district is humid sub-tropical in nature characterized by warm-humid summer and cool-dry winter.The district has been divided into three Agro Ecological situations (AES). The average annual rainfall of the district is 3463 mm against the state average of 2584.50 mm with 139 normal rainy days.The maximum rainfall occurs during the period from April to August. Heavy rainfall starts from April with the onset of monsoon and continues till September. July month receives highest rainfall in a year.

Kokrajhar was originally a part of undivided Goalpara district. Till 1956, it was merely a small village with a railway station that connected it to the rest of the world. In 1957, a new Civil Sub-division was created after carving out the northern part of Dhubri Subdivision and some parts of Goalpara Subdivision. This new sub-division was called Kokrajhar Sub-division. The area covered by the then Kokrajhar Sub-division consisted of five tracts of the Eastern Dooars, viz., Bijni, Sidli, Chirang, Ripu and Guma with a total area of 4065 square kilometers. On the 1st of July, 1983 the Kokrajhar Subdivision was upgraded into Kokrajhar district with headquarter at Kokrajhar town. There were four police stations in the new district. They were Bijni, Sidli, Kokrajhar and Gossaigaon. The area of the district extended from the Manas River in the east to the Sonkosh on the west.

In 1989, there was further reorganization of the districts in the state of Assam and some new districts were created. Thus, about 40 percent of the total geographical area of Kokrajhar district was carved out for inclusion in the new district of Bongaigaon. The area delimited from Kokrajhar district to Bongaigaon covers the entire Bijni Revenue Circle along with 347.50 square kilometres of SidliCircle. Later on 20 villages of Naikgaon G.P. with a total area 40.22 square km under Chapar Revenue Circle of Dhubri district was transferred to Kokrajhar district. The district now has two revenue sub-divisions-Kokrajhar and Gossaigaon Subdivisions. The river Gongia which is known as Tipkai in the southern part is the natural boundary of two civil sub-divisions. Gossaigaon town is headquarters of Gossaigaon sub-division.

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The country of Bhutan is intricately linked with the district of Kokrajhar in many vital aspects of life of the people living both in the Bhutan hills and the plains of Kokrajhar district. There is hassle-free movement of the people across the international border for the purpose of business and tours. The Bhutanese town of Gelephu is a nice place to visit from Kokrajhar as it is just across the international boundary. There is a fine road leading from the Shyamthaibari point on the National Highway 31(C) to Gelephu. Further on, inside Bhutanese territory, there is the town of Sarphang that also can be visited via Gelephu.

The colourful Bodo community comprises the majority in Kokrajhar district. It also has a sizeable Rajbongshi and Santhal population.

The vegetation of the district is characterized mainly by lush green forest and varieties of flora and fauna. Manas National Park stands out as the glaring example of the bio-diversified feature of the district.

Demography

As per 2011 census, the population of the district is 887142 which is 2 % of the state's population. With a population density of 269 person per square kilometer. The number of males and females in the district are 452,905 and 434,237 respectively forming a sex ratio of 959 female per 1000 male. The decadal population growth (2001-2011) of the district is 5.21 %. The district is demographically dominated by tribal and non-tribal communities namely Bodo, Rava, Koch Rajbangshi, Santhal, Orao, Muslim, Nepali, Bengali etc. There are altogether four towns in the district. Altogether 34.74 percent population in the district belongs to various scheduled tribes, mainly the Bodos.The scheduled caste and scheduled tribes population of the district is 29,570 and 278,665 respectively consisting 3.33 % and 31.41 % of the total population of the district respectively. The total literacy rate of the population in the district stands at 65.27 % lower than the state average of 72.19% but the female literacy rate at 214,085 (58.27%) which is at per with state literacy rate of 58.27%.In terms of religion, altogether 65.6 percent population is constituted by the Hindus, 20.36 percent by the Muslims, 13.72 percent by the Christian and negligible proportion of the total population of the district belongs to other religions.

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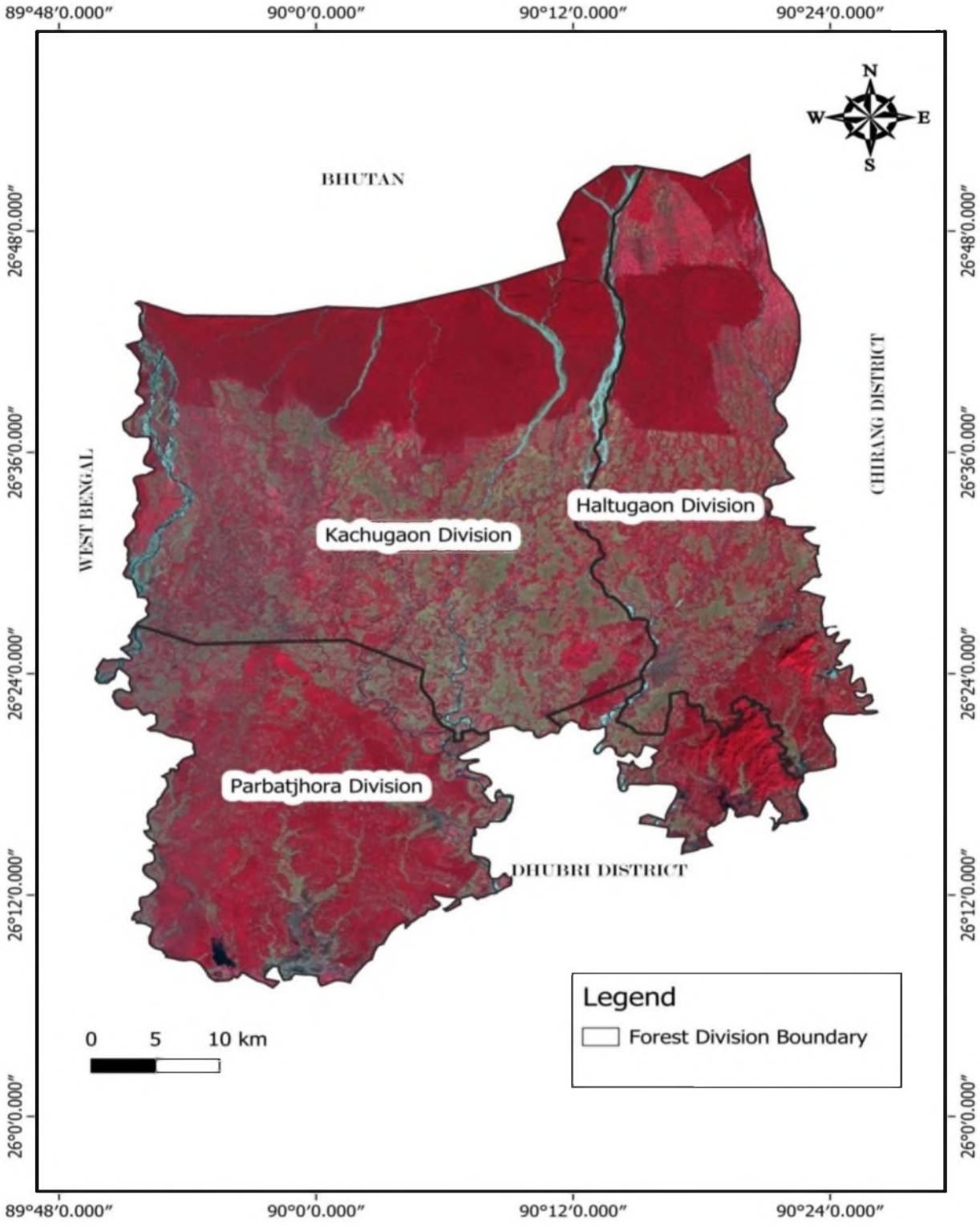

Map 7.1 Forest Division Boundary map

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Biomass and livestock:

Next to Agriculture and Horticulture, Livestock rearing is an important enterprise of the district. Cows, buffaloes, draft animals, goats pigs, poultry/ducks are main commodities of livestock enterprise. Cross breed cows, improved breed buffaloes and upgraded pigs in small numbers are also reared in almost all the blocks of the district. Mostly the local breeds are common.

Animal Husbandry is an important enterprise of the district and rearing of the milch cow is a pre dominant activities followed by poultry &goatry. The total livestock population in the district, as per the livestock survey 2015 is 5,94,834 of which 2,94,599 are small animals 3,00,235 are large animals. Assuming 0.15% as a annual growth rate in the livestock population, the current & future population for 2015 & 2020 has been calculated.

It is observed that Golokganj has the highest number of the livestock population of 200231 whichis 33.66% of the total livestock population of Kokrajhar followed by Mahamaya (113817) and Gossaigaon (106914).

Agro-ecology:

The district had over 50% of its geographical area covered by deep green forest. But the forest coverage has dwindled substantially due to unscrupulous and massive denudation. Most of the terrain in the district is scantily populated and thickly forested. The district is characterized by almost plain topography being flanked by foothills of Bhutan in the upper strip of north and high plain in the middle to lower strip towards the southern side with a gradation from North to South.

The district is very rich in forest trees and has three forest divisions. Sal (*Shorearobusta*), Teak (*Tectona Grandis*), Gomari (*Gamelinaarborea*), Sisoo (*Dalbargiasisoo*), Bamboo (*Bambusa spp.*), Chap *(Maicaliachampaca*), Koroi (*Albizziaprocera*), Simul (*Salmaliamalbaricum*), Neem (*Azadirachtaindica*) etc. are different forest trees that are commonly found in the district. A large number of herbaceous plants found in cultivated fields, roadsides and wasteland. Some of these plants *are Lantana camara, Empereta cylindrical, Mimosa species, Eupatorium odoratum, Cynodondactylon* etc.

b) Climatic condition

Agro-climatically, the district falls under Lower Brahmaputra Valley Zone of

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Assam. The climate of the district is humid sub-tropical in nature characterized by warm-humid summer and cool-dry winter.The district has been divided into three Agro Ecological situations (AES) based on physiography, hydrology, soil, climate and cropping patterns.

The average annual rainfall of the district is 3463 mm against the state average of 2584.50 mm with 139 normal rainy days. The maximum rainfall occurs during the period from April to August. Heavy rainfall starts from April with the onset of monsoon and continues till September. July month receives highest rainfall in a year.

It is observed that Gossaigaon (1478 mm) &Dotoma (1422 mm) receives the maximum annual rainfall as compared to other districts. In Kokrajhar district the mean maximum and minimum temperature varies from 33-38°C and 8-10°C respectively. The district experiences a Sub-tropical and humid climate with heavy rainfall and hot summer. The average humidity remains almost same with variation from 62% in winter to 87% in post monsoon period. The maximum rainfall occurs during the period from April to August. Heavy rainfall starts from April with the onset of monsoon and continues till September. July month receives highest rainfall in a year.

c) Irrigation

The water that flows along natural dongs and canals are the main source of irrigation. Rain water flows down from the hill tracts of Bhutan and along the foothills and reserve forests of the district. The Bhutan hills are also the source of a number of rivers that flow through the district and act as tributaries of the mighty Brahmaputra that flows from east to west far from the southern boundary of Kokrajhar district. The important rivers of the district that flow from north to south are the Champamati, the Gaurang, the Tipkai and the Sonkosh. All the rivers and rivulets flowing through the district have their origin in the Bhutan hills. The water that flows along natural nalas and canals are the main source of irrigation for the agricultural fields. The Bhutan hills are the source of a number of rivers that flow through the district and act as tributaries to the mighty Brahmaputra that flows from east to west. The important rivers of the district that flow from north to south are Champamati, Saralbhanga and the Sonkosh. The River Brahmaputra along with its tributaries like Gangia, Laponi, Saumukha, Lonya etc control the main drainage system of the district. These rivers emerge from the Himalayan foot hills and are perennial in nature and flow in north-south direction.

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They often flow in meandering courses developing ox-bow lakes and a number of lakes or beels formed as a result of change in river courses. The drainage density is very high 5and drainage pattern is more or less parallel. Water logged area in the district is 332 ha and area under still water is 2052 There is about 1, 37,141 ha is under rainfed areas of the district. The percentage of the rainfed areas of the block ranges from 60 % - 90 % in different blocks. The gross area under irrigation is 58931 ha.

d) Agricultural Resources

Agriculture is the main occupation of Kokrajhar district and contributes a major part in the district economy. Rice is the main crop. Agriculture development is the prime consideration for making radical changes in the district through the marginal, small and landless farmers. The average size of the operational landholding in the district is 1.20 ha. Rice is the main crop which covers about 80% of the Gross cropped area. The Gross cropped Area of the district is 191608 ha as against the Net Cropped area of 179955 ha with a cropping intensity of 106.47. There is about 1,37,141 ha is under rainfed areas of the district. The percentage of the rainfed areas of the block varies in different blocks. The gross area under irrigation is 58931ha.

The major crop grown in the district are Ahu Paddy , Sali Paddy , Jute, Mesta during Kharif season and Boro paddy, Toria, Niger, buckwheat, Potato, Pulse during Rabi season. Sali paddy is distributed throughout the district under the rainfed condition. Apart from these, many other varities of crops namely Black gram, Green gram, Sesamum, Tapioca, Chilli, Tobacco, Turmeric, Sweet Potato, Onion, Vegetables etc. are also grown in the district. Under horticultural crops, vegetables like cucurbits, cabbage Cauliflower, Knolkhol, Radish, Brinjal, Tomato etc., fruit tres, namely Banana, Pineapple, Citrus, Jack fruit etc, Chilli Ginger , Turmeric, Black Pepper etc as spices, tuber crops like potato, tapioca, Colocasia etc. and Plantation crops viz. Areca nut, Coconut etc are commonly cultivated in the district.

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8. Land Cover (LC) and Land Use (LU) pattern

The entire district Kokrajhar is located on a flat alluvial plain. It is one of the most fertile zones of the state with luxurious vegetarian growth. Agriculture is the main occupation of the people of district. The land put to different uses in the district may be classified as forest, agriculture, wasteland etc. The total geographical area of the district is 279681 ha and out of which, 38.05 % is cultivable, 0.7% cultivable wasteland, 0.9% current fellow, 54.94% forest, 5.78% Pasture, 9.1 % under non-agricultural use, 1.75 % under miscellaneous plantation. The Net Sown Area of Kokrajhar district is 179955 ha which is 64.34% of the total area of the district. There are 55,908 operational holdings and the average size of land holding is 1.20 ha. The marginal farmers constitute 40.77% of farm families with 17.91% of land under their possession and the small farmer is 33.39% occupying 30.54% of land. 19.52% of farm families represent semi-medium farmers possessing 31.99% of land while medium farmers constitute 6.27% of farm families with 19.07% of land. The large farmer in the district is only less than 1% of total farm families.

The net sown area of the district is 95680ha which accounts for 29 percent of the total geographical area (329600ha) of the district & the land utilization pattern in the district is given in Table 1.6. The gross cropped area of the district is 149534ha with cropping intensity of 156 % percent. Out of the total cropped area, 149534 ha and that is36 percent are cropped more than once. Forest area in the district accounts for 173465 ha i.e. 52.62 % of total Geographic area. Area under non-agricultural uses is 17897 ha. Barren and Uncultivable Land comes to be around 19539 ha. Grazing land of the district is around 12717 ha. Cultivable wasteland is around 3123 ha. Thick vegetation covers are found in the northern and southern part of the district where reserve forests are located in the piedmont area. Built up area and agricultural land are mostly confined in the central part of the district. Bare areas of rock or soil with very sparse to no vegetation for the entire year are found in the flood plain of rivers.

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Table 8.1 Land use-patterns in Kokrajhar district, 2010-2011

SI. No.	Land put to different uses	Area in hectares
1	Total Geographical area	3,12,900
2	Forest area	1,61,195
3	Land not available for cultivation	43,458
a	Land put to non-agricultural uses	23,648
b	Barren and un-cultural land	19,810
4	Other non-cultivated land excluding fallow land	19,448
a	Permanent pastures and other grazing land	15,031
b	Land under misc, trees, groves etc. not included in net area	2,352
c	Cultivable waste land	2,065
5	Fallow land	2,243
a	Fallow other than current fallow	1,450
b	Current fallow	793
6	Net area sown	86,556
7	Total cropped area	1,79,533
8	Area sown more than one	92,977

(Source: StatisticalHandbook,Assam 2012.)

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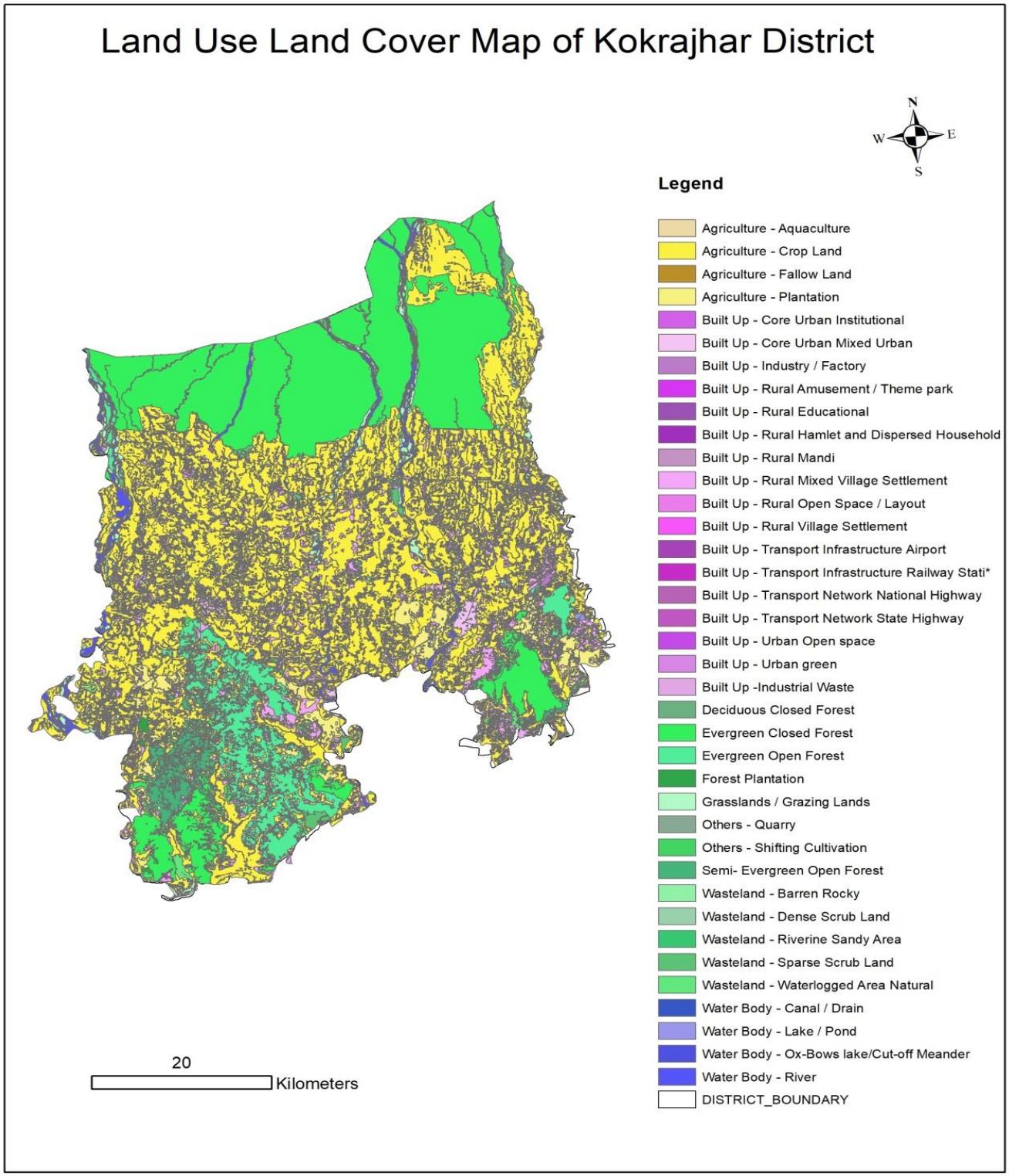

Map8.1: Land use land cover map of Kokrajhar district

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9. Physiography of Kokrajhar District

Physiographically, the district can be divided into two units (1) Northern alluvial region (between 120– 140 m amsl) and (2) the Southern swamps or flood plain of River Brahmaputra. The northern alluvial part forms a flat land with heights of 40-300 m above msl with a gentle slope towards south the river Brahmaputra. A major portion of the district is constituted by vast alluvial area formed by Bramhaputra and its river system. The alluvial plain has southerly slope with flat topography. The alluvial plain can be broadly classified into piedmont plain and Terraced alluvial plain. The former forms the highest terrace of Quaternary landscape characterized by high relief with dense forest and thinly populated. The latter covers the major part of the district occupies a large portion of cultivable land with moderate population.

The regional gradient is from east to west which indicates the general flow direction of the Brahmaputra River. The Brahmaputra River flows from east to west and form the main regional drainage. Its tributaries like Gangia, Laponi, Saumukha, Saralaganga and Lonyaetc originating from Northern Himalayan foothill have a steep slope and shallow braided channels for considerable distances. The elevation of land near the Brahmaputra is 5- 10 m amsl and the flood water in the flood plain area is detained in low depression forming beel and marshy land along the main river course. The area is characterised by two different land forms, viz Inselbergs and alluvial plains. A large portion of the district is more or less plain and constitutes a part of the vast alluvial area formed by the Brahmaputra River. Hilly tracts of slope more than 20% are found in the northern border of the district with Bhutan and in the south eastern part occupied by inselbergs. The inselbergs are Archean inliers in the form of disconnected and isolated hillocks. These hills are pre Cambrian complex and project abruptly amidst a blanket of alluvium. These inselbergs attain a maximum height of 472 m above mean sea level in the east of Bidyapur.

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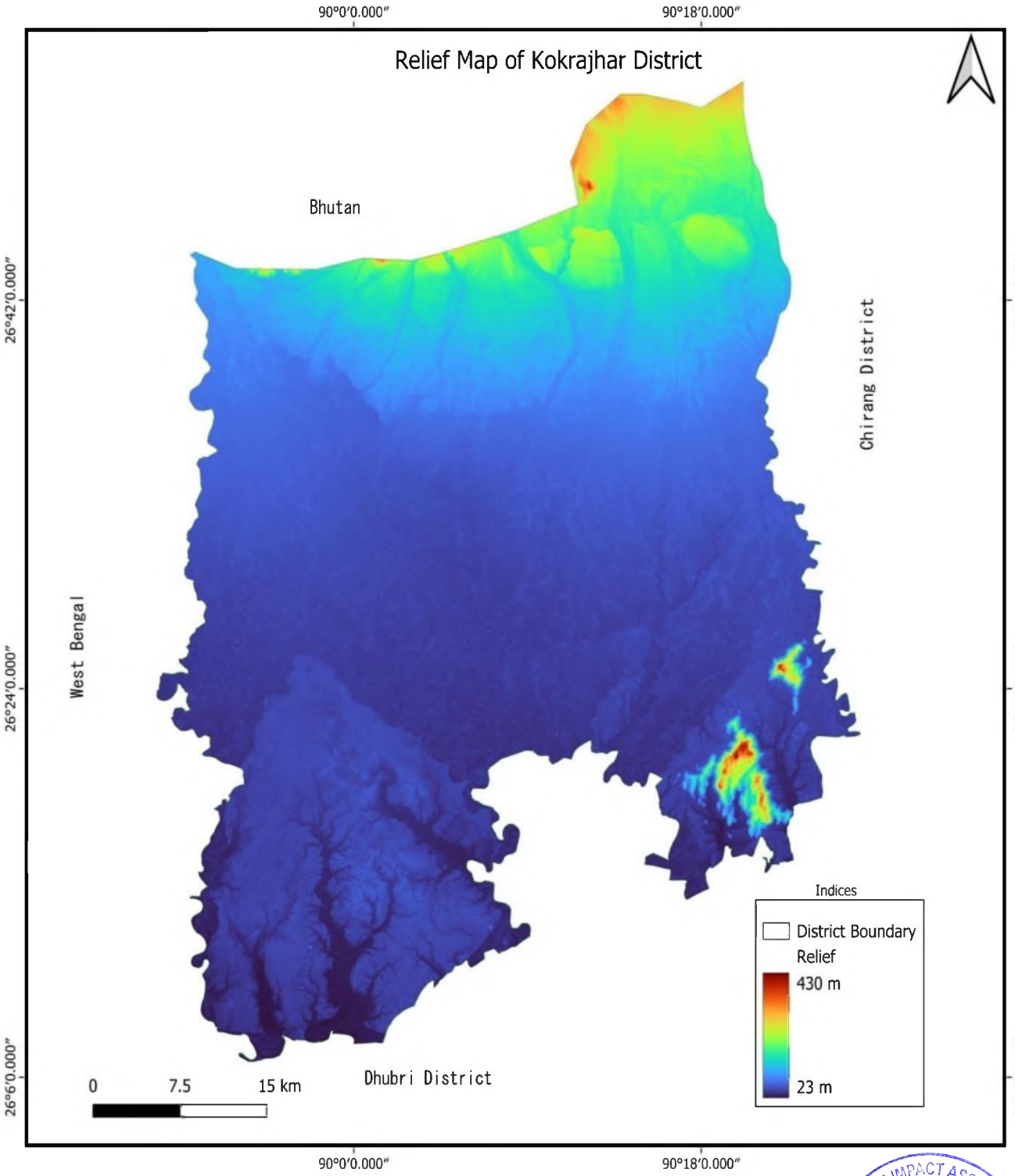

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Map 9.1: Relief map of Kokrajhar district

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10. Rainfall

Kokrajhar District experience Rainfall in abundance for more than six months in a year with occasional shower throughout the rest of the year. The maximum humidity lies from June to October. The south west monsoon season is from June to September and October, November constitute post monsoon season. The actual total rainfall during the year 2011 was 2674.6 mm against the average. Agro-climatically, the district falls under the lower Brahmaputra Valley zone and experiences a humid sub-tropical climate with high rainfall and humidity. The district receives rainfall due to the influence of South West tropical monsoon during the period from April to October with occasional winter showers. The average rainfall in the district varies between 2400-3000 mm annually.

Average humidity: 78%
Max. Temperature: 35-37 ^{o}C
Minimum Temperature: 10-12 ^{o}C

Table 10.1 Average rainfall in Kokrajhardistrict (Source: IMD)

Year/month	*JAN*	*FEB*	*MAR*	*APR*	*MAY*	*JUNE*	*JULY*	*AUG*	*SEP*	*OCT*	*NOV*	*DEC*
	R/F	***R/F***	***R/F***	***R/F***	***R/F***	***R/F***	***R/F***	***R/F***	***R/F***	***R/F***	***R/F***	***R/F***
2018	0	11.5	50.6	300.8	427.5	589.7	698.4	498.7	683.5	61.6	8.4	3.3
2019	0	29.6	55.4	231.2	630.8	528	1611.1	301.5	609.7	106.3	1	2.1
2020	0.3	22.2	45.4	256.5	585.5	1120.7	1290.2	497.9	1202.7	197	0.6	0
2021	16.9	0	75.1	120.6	195	801	612.4	602.9	314.8	322.4	1.8	1.4
2022	4	59	34.1	569	680.6	1543.6	428.5	402	371.8	379	0	0

Climatic condition

Agro-climatically, the district falls under Lower Brahmaputra Valley Zone of Assam. The climate of the district is humid sub-tropical in nature characterized by warm-humid

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summer and cool-dry winter.The district has been divided into three Agro Ecological situations (AES) based on physiography, hydrology, soil, climate and cropping patterns.

The average annual rainfall of the district is 3463 mm against the state average of 2584.50 mm with 139 normal rainy days.

The maximum rainfall occurs during the period from April to August. Heavy rainfall starts from April with the onset of monsoon and continues till September. July month receives highest rainfall in a year. It is observed that Gossaigaon (1478 mm) & Dotoma (1422 mm) receives the maximum annual rainfall as compared to other districts.

In Kokrajhar district the mean maximum and minimum temperature varies from 33-38°C and 8-10°C respectively. The district experiences a Sub-tropical and humid climate with heavy rainfall and hot summer. The average humidity remains almost same with variation from 62% in winter to 87% in post monsoon period.

The maximum rainfall occurs during the period from April to August. Heavy rainfall starts from April with the onset of monsoon and continues till September. July month receives highest rainfall in a year.

The climate of the district is predominantly sub-tropical humid climate with heavy rainfall, hot summer and high humidity. The average temperature ranges from minimum 100C to maximum 350C throughout the year. The air is highly humid throughout the year. It is comparatively less during the months of February to April having 73 to 78 percentages. It is the highest during the period of May of September, when it ranges between 87 to 94 per cent.

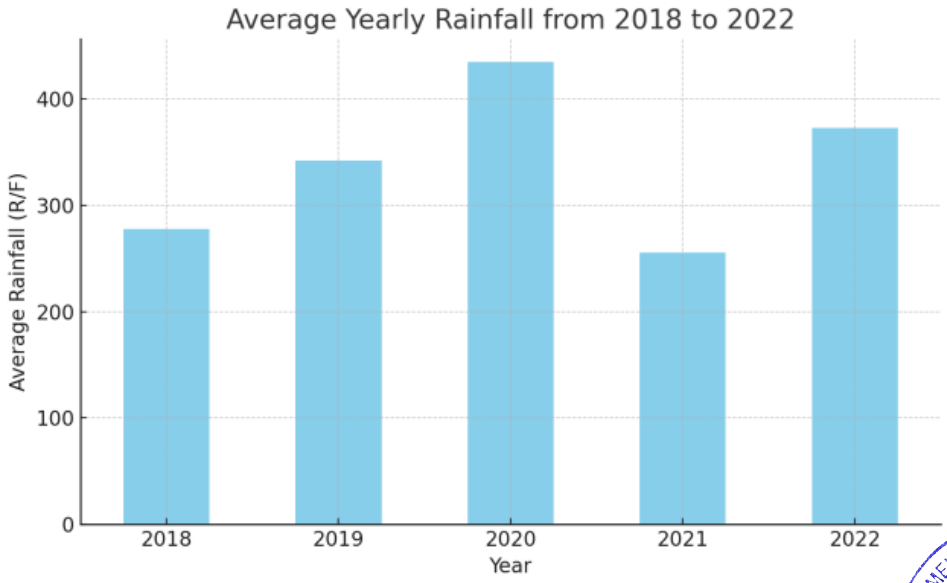

Fig 10.1 Average yearly Rainfall (Source: IMD)

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Fig 10.2 Average Monthly Rainfall (Source:IMD)

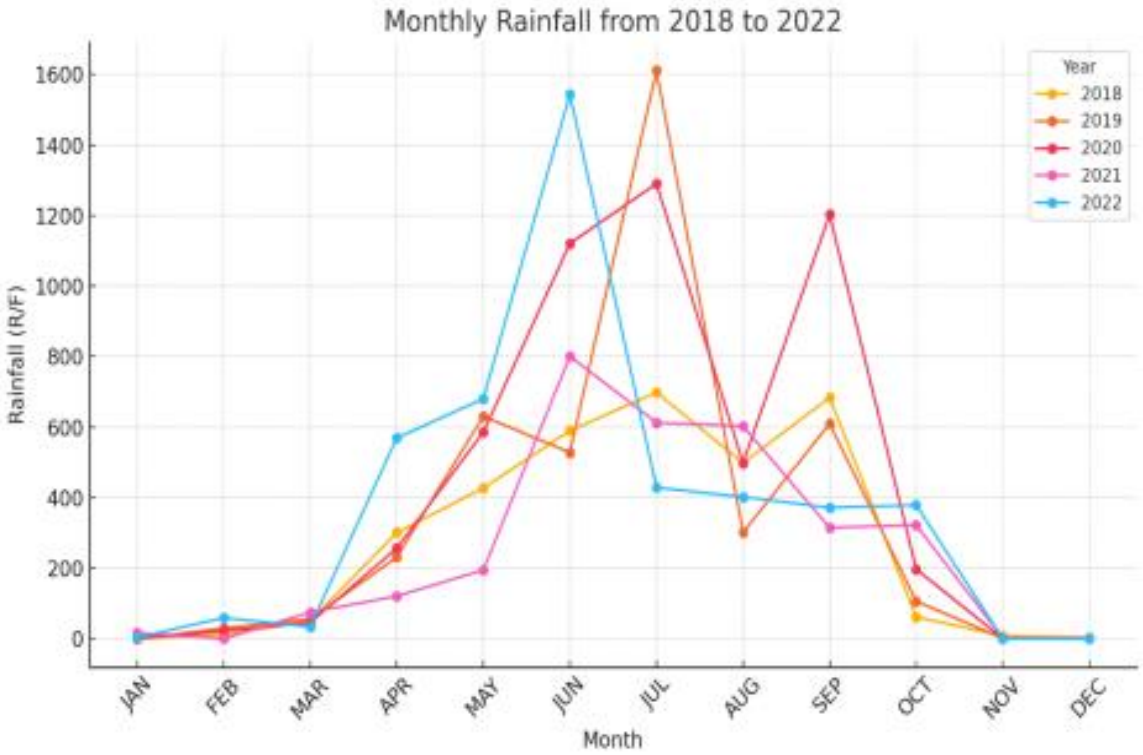

Table 10.2 Occurrence of flood

Hazard Type	Year of Occurrence	No of Affected Villages	No of Affected Household	No of Affected people	No of Human Lives Lost	No of Cattle lost
Flood	2017	373	25857	151060	4	0
	2018	12	274	1598	0	0
	2019	483	43075	217794	0	0
	2020	4	46	242	4	0
	2021	2	25	123	0	0
	2022	442	20259	97442	2	17867
	2023	384	1745	8719	0	645

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11. Geology

(i) Regional Geology:

The Shillong Plateau (approx. 47,614 sq. km) is a Precambrian cratonic block in Northeast India, tectonically separated from the Indian Peninsula. It is bordered by:

- Dauki Fault to the south (dextral strike-slip fault),
- Brahmaputra Lineament to the north,
- Garo-RajmahalGrabenandDhuburi/Madhupur Lineament to the west,
- Belt of Schuppen to the east.

This block is made up of high- to medium-grade Paleoproterozoic basement gneisses and schists, which are classified as the **Basement Gneissic Group (BGG)**. These are overlain by Mesoproterozoicmetasediments and metavolcanics of the **Shillong Group**, intruded by Neoproterozoic acidic intrusives such as:

- Mylliem pluton
- South Khasi pluton
- Umroi granite
- Nongpoh pluton

The plateau is composed mainly of orthogneiss and paragneiss with the following geological units:

- Banded gneiss (bimodal character)
- Migmatite
- Augen gneiss
- Banded Iron Formation (BIF)
- Amphibolites
- Pyroxene granulite
- Calc granulite
- High-grade sillimanite-bearing metapelite with cordierite, corundum, spinel, sapphire.
- Intrusives like lamprophyre, diorite, granodiorite, mafic intrusions, and pegmatite veins.

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Towards the southern boundary of the Shillong Plateau, Cretaceous–Tertiary sedimentary sequences overlay these basement rocks. The plateau also contains an intra-cratonic basin (approx. 2,500 sq. km) with sedimentary cover.

The Assam Basin to the north represents the cratonic margin with three main tectonic phases:

1. Late Cretaceous to Eocene block faulting and development of a southeasterly dipping shelf.
2. Oligocene uplift and erosion, during which basement faults reactivated.
3. Post-Oligocene phases, marked by sedimentation and structural developments.

The Eocene Sylhet Formation is significant for its varied depositional environments:

- The Lakadong Member (lagoonal environment) contains thin sandstone and interbedded shale and coal.
- The upper part of the Lakadong Formation represents calcareous sandstones formed in a shallow water platform.

(A) GNEISSIC COMPLEX:

The rocks of Gneissic Complex are exposed in Assam in the north western extension of the Proterozoic rocks of Meghalaya Plateau. It occupies a large part of the central Assam and few isolated inselbergs jutting out of the Quaternary plains of western Brahmaputra basins. The Gneissic Complex comprises of gneiss, schist, migmatitic granitoid intruded by younger acidic (granite, aplite, pegmatite) and basic (metadolerite, epidiorite, amphibolite) rocks. The granite plutons are often of batholithic dimensions. The predominant rock type of this complex is gneiss, particularly biotite- bearing quartzofeldspathic gneiss.

The rocks of the Gneissic Complex exposed in parts of Goalpara, Kamrup districts and in northern part of North Cachar Hills and Nagaon districts including the isolated inselbergs in the Brahmaputra Basin, mainly consist of biotite, and biotite- hornblende gneisses with bands of granulites and bosses of intrusive granites, pegmatites, quartz veins and minor basic bands. Minor meta- sedimentary bands comprising magnetite- hematite quartzite are associated with the gneiss in some of the isolated outcrops in the vicinity of Chandardinga, Bilasipara and Abhayapuri in the Goalpara district. In Sonaikuchi reserve forest area of Nagaon district, two pyroxene gneisses containing scapolite, saphirine and sillimanite- cordierite have been reported.

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These rocks have undergone regional metamorphism of amphibolite- granulite facies from place to place and have given rise to gneisses and schists on the one hand and the granulites on the other.

(B) SHILLONG GROUP :

Gneissic Complex is unconformably overlain by Shillong Group of rocks of Meso- Palaeo Proterozoic age. These rocks mainly comprise of conglomerate and metasedimentaries like quartzite- phyllite- schist association. The type section of Shillong Group is found in Meghalaya. In Assam the rocks of Shillong Group outcrop along the northern part of North Cachar Hills district and the western and northern part of the Mikir Hills across the Kopili valley. The structural trend of these rocks is NE- SW with dip varying from low to high angles.

Relict primary sedimentary structures like current bedding, ripple marks and graded bedding are often found within the quartzites. These rocks are metamorphosed to a low green-schist facies. Intrusion by granite plutons in Shillong Group exhibits contact metamorphism which is represented by development of andalusite, garnet and staurolite in the contact zones. The strike continuity of the Gneissic Complex and the Shillong Group across the Kopili valley in a roughly collinear trend suggests the continuity of the rocks from the Meghalaya massif are possibly separated by the Kopili graben.

(C) GRANITE PLUTON:

A number of granite bodies, often of batholithic size transect both Gneissic Complex and Shillong Group. In Mikir Hills area, two types of granite occur:

a) Non- porphyritic foliated medium to coarse grained pink granite, occurring in the central part of the batholithic mass, and

b) Porphyritic granite encircling the non- porphyritic granite.

In Mikir Hills, around Siliguri area small bodies of amphibolites and metadolerites are seen within schists and quartzites of Shillong Group. These intrusives also occur within granite around Samchampi and along Luhajuri Bajajuri- Tarapung- Barapung nala sections.

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(D) LOWER GONDWANA GROUP:

The occurrence of Lower Gondwana rocks was first reported from Assam area by Fox (1934) and later by Fermor (1935). These rocks are exposed in Singrimari area along the Meghalaya border in the extreme western corner of Assam. Though Singrimari (Hallydayganj) village is located within the territorial limits of Meghalaya State, these rocks extend over to the State of Assam. Fox (1934) reported plant fossils and pieces of vitrinised coal from these beds, based on which he concluded Gondwana affinity. Acharyya and Ghosh (1968b) grouped the entire sequence into Karharbari Formation (Permian). Banerjee et.al, (1977) based on mega and microflora finds in the fossiliferous carbonaceous shale assigned an age equivalent to lower Barakar. De and Boral (1978) further differ entiated these sediments lithostratigraphically into the Talchir and Karharbari Formations.

(a) Talchir Formation:

The Gondwana succession in the area starts with the boulder conglomerate in the basal part which is well exposed south of Singrimari Township at the road junction leading to Mancachar and Tura. The road cutting exposes shale overluing a layer of conglomerate. This sequence can be further traced towards north in the Boldamiri nala where about 10 m alternating sequence of conglomerate and shale is exposed. The shale is khaki green to dirty greenish, silty and micaceous in nature. The boulder conglomerate is greyish brown to dirty grey with subangular to round clasts within the silty matrix. The clasts are composed of quartz, quartzite, gneisses and pegmatites which vary in size from pebble to large cobbles of 12 to 15 cm diameter. They are unsorted and do not exhibit stratification nor provide any directional palaeocurrent properties.

(b) Karharbari Formation:

The overlying younger sequence is poorly exposed. Best exposures can be studied in the area around of Singrimari Inspection Bunglow (IB). Here thin layers of sandstone and carbonaceous shales with a thick layer of conglomerate capping are exposed. The shale is brownish red to dark grey, highly micaceous and contains well preserved plant impressions. The conglomerate is brownish grey to greenish grey with clasts of vein quartz embedded within a sandy matrix. These clasts show a greater degree of sphericity and roundness and vary in size from small pebble to cobble. Well preserved leaf impressions of *Vertebraria sp.* and *Glossopteris sp.* are within the reddish brown to black micaceous shale which is underlying the coal band.

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(E) ALKALI COMPLEX OF SAMCHAMPI :

Alkaline mafic-ultramafic-carbonatite complex at Samchampi is emplaced within granitic host rock. The rock types include mainly a variety of syenites which cover large part of the area, mafic rocks which include alkaline pyroxenite, shonkinite, biotite pyroxenite, ultramafics (ijolite, melteigite), apatite-hematite-magnetite rock, carbonatite and cherty rocks. A zone of fenitisation encircles the complex. Carbonatite occurs mainly in the northern and eastern peripheral parts of the complex as dykes. At places, they laterally grade into mafics and ultramafic rocks and occasionally contain partly digested xenoliths of syenites and mafic-ultramafic rocks. The central part of the complex is occupied by apatite bearing magnetite-hematite rock. The carbonatites are mainly soviet with minor kasenite.Carbonatite bodies with associated rhyolite flows have been located along Brik nala, south of Matikhola Parbat in Mikir Hills.

(F) SYLHET TRAP :

Patchy occurrences of highly weathered trap rocks presumably belonging to Sylhet suite of Meghalaya have been reported from vicinity of Koilajan, Selvetta and a few other places in Karbi-Anglong district of Assam. The outcrop shows highly weathered and altered chert/olive green trap rocks overlying the gneisses.Sylhet trap are exposed in a narrow 4 km wide and 8 km long strip along the southern margin of Shillong Plateau. In Assam these outcrops are highly weathered. These sporadic outcrops present in the area have small aerial extent and are not possible to plot on the map of attached scale.

(G) JAINTIA GROUP :

The shelf facies sediments (Jaintia Group) of Eocene age are calcareous and abundantly fossiliferous. They differ markedly from the Eocene shales of the geosyncline (Disang Group) facies.

Jaintia Group is classified into three formations– Kopili Formation, Shella Formation and Langpar Formation (exposed in Meghalaya).

Jaintia Group comprising Shella and overlying Kopili Formations is seen around Garampani area of the North Cachar Hills. It also extends north-easterly along the southern and eastern slopes of the Karbi (Mikir) Hills. These rocks are exposed from the vicinity of Selvetta in west through Dilai Parbat in the east and then through Doigrung further north- east. Workable

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seams of coal are present in the Sylhet Sandstone Member at Selvetta, Koilajan and Sylhet Limestone Member in Selvetta, Jarapgaon, Koilajan and Nambar areas.

(a) Shella Formation:

The Shella Formation is well developed with three limestone bands alternating with three interbedded clastic sandstone units. In the basal part of this formation Theria-Cherra Sandstone member has been redesignated as Lower Sylhet Sandstone Member. In Garampani area a single limestone horizon underlain by sandstone represents the base. The limestone designated as Sylhet Limestone Member in Meghalaya is found to be equivalent to Upper Sylhet Limestone Member of the southern scarp of Meghalaya. The underlying unit, Lower Sylhet Sandstone Member in Assam represents the facies variant of the underlying limestone/ sandstone units exposed along the southern scarp of Khasi and Jaintia Hills, Meghalaya.

(b) Kopili Formation:

The Shella Formation is conformably overlain by Kopili Formation, consisting mainly of greyish, usually ferruginous, splintery shales with interbedded sandstone and calcareous marl of variable thickness. The thickness of this formation is about 500 m in the area around Kharungma and exhibits conformable trend similar to that of the underlying Shella Formation.

The rocks of KopiliFormation contain fossils like *Nummulites pengaroensis, Globigerina semi involuta* etc. indicative of Upper Eocene age.

(H) DISANG GROUP :

Disang Group in Assam are represented by monotonous sequence of dark grey, splintery, shale with thin sandstone interbands. The shale is usually limonite coated. The Disang are predominantly arenaceous in the upper part and exhibit vertical as well as lateral facies change to its overlying Barail Group of rocks.

In Assam, Disang Group is exposed along a narrow strip southwest of Haflong-Disang thrust in the central part of North Cachar Hills. This sequence is exposed from Jatinga valley eastward upto the headwaters of Dhansiri. In the upper part, beds of this sequence are cut-off by a thrust along which these rocks are seen to override the younger Tertiaries. Good exposures of these rocks are seen along the railway cutting and stream sections near Mahur where shales contain streaks of soapstone. In North Cachar Hills, they are highly disturbed by overfolding. West of Jatinga valley, Disang rocks extend as narrow strip along the northern boundary of Cachar district.

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In Upper Assam, Disang Group comprises of a thick sequence of alternating splintery shale with thin partings of hard greyish flaggy sandstone and sandy shales. They are generally iron stained, light to dark grey and carry fine streaks of carbonaceous matter. Thin veins of quartz and encrustations of soapstone characterize these shales in south-western part of Patkai Hills. Foraminifera reported from the outcrops south-east of Halflong-Disang thrust suggests the age equivalence to Jaintia (Evans, 1935) Group.

(I) BARAIL GROUP :

Barail Group represents a lithological package belonging to the geosynclinal facies. Rocks of this group are exposed along two different strips, in the south-eastern part of North Cachar Hills, i.e. to the South of Haflong-Disang Thrust and secondly in parts North of the Cachar and Karbi (Mikir) Hills i.e. to the north of Haflong-Disang Thrust in Upper Assam.

The unclassified shelf facies rocks of Barail Group which overlie the Kopili Formation cover a large area with a gross thickness of about 1000 m. Lithologically they consist of fairly coarse sandstone, shale and carbonaceous shale with streaks of minor seams of coal. Outcrops of Barail Group in this part of the area are seen near Mupa, Langling, Latikhali, ChotaLangher along the LumdingBadarpur railway cuttings of North-East Frontier Railway as well as along road section between Haflong and Garampani-Kopili. The geosynclinal facies of Barail Group in Surma valley and North Cachar Hills are subdivided into Laisong, Jenam and Renji Formations.

The Barail Group contains meagre fossil fauna. However, it contains a fairly rich palynofossil assemblage.

(a) Laisong Formation:

It consists of thin-bedded greyish sandstone with interbedded thin sandy shale, rare massive sandstone, carbonaceous shales, and streaks of coal. The assemblage of the Laisong Formation comprises *Cicatricosisporites macrocostatus*, *Polypodiaceae spore Tertiarus*, *Polypodiisporites speciosus*, *P. oligocenicus*, *Palmaepollenites communis*, and *Favitricolporites complex*. The pollen *Tetracolporites paucus*, *Graminidites assaminus*, and *Polyadopollenites* sp. appear for the first time, and *Eyeripollis naharkotensis* is most abundant in the Laisong Formation (Sah, 1974). Based on microfauna and palynofossils, the Laisong Formation has been dated as Auversian-Bartonian.

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(b) Jenam Formation:

Laisong Formation gradationally passes into argillaceous Jenam Formation comprising mainly of shale, sandy shale, and carbonaceous shale with streaks of coal and interbedded hard sandstone. The carbonaceous shales of the Jenam Formation are characterised by the relative increase in the abundance of pteridophytic flora and a decrease in the frequence of angiospermous elements, in particular, *Meyeripollis naharkotensis*. On the basis of microfauna and palyno-fossil the Jenam Formation has been dated as Lattorfian.

(c) Renji Formation:

Renji Formation comprises of hard massive sandstone with rare beds of shale and sandy shale. The Renji Formation is distinguished from the former two by the increased frequency of *Cicatricosisporites macrocostatus* and presence of *Polypodiisporites speciosus* and *P. oligocenicus*. On the basis of microfauna and palyno-fossil the Renji Formation has been dated as Chattian.

In upper Assam, the Barail Group has been classified into 3 formtions- Tikak Parbat Formation, BargolalFormtion and Nagaon Sandstone Formation.

(i) Nagaon Sandstone Formation:

The lowermost Nagaon Sandstone Formation (=Laisong Formation) consists of fine grained, hard, thin bedded, light to darker grey flaggy sandstone with thin partings of greyish splintery shales and thinly bedded sandy shales.

(ii) Bargolai Formation:

The overlying Bargolai Formation is a 900–2500 meter thick sequence comprising of sandstone, clay, clayey sandstone, sandy clay, carbonaceous shale and coal seams. The lower part of the formation is represented by hard sandstone, bluish grey micaceous sandstone with alternating bluish grey clay beds and carbonaceous shales. The top part comprises massive sandstone, overlain by thick alternating assemblage of clay, sandy clay, clayey sandstone, thin ferruginous sandstone and carbonaceous shale with laminae of coaly material and leaf impressions. This formation includes several oil-sand horizons in Upper Assam. It is equivalent to the upper part of Laisong Formation and lower part of Jenam Formation.

(iii) *Tikak Parbat Formation*:

Tikak Parbat Formation which overlies Bargolai Formation comprises of medium to coarse

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grained light coloured quartzose sandstone with interbedded shale, sandy shales, clays, carbonaceous shale with at least five workable coal seams in the basal part. The carbonaceous shales exhibit leaf impressions. This formation is well exposed in Dilli-Jaipur and Makum coalfield areas in Upper Assam. The base of this formation in Makum coalfield area is defined at the base of the 18 meter thick coal seam in the bottam part of the sequence. This is also the thickest recorded coal seam in Assam. A total of five workable coal seams in the basal 160 m of Tikak Parbat Formation in Namdang area have been recorded. The rocks of this formation strike ENE-WSW with 45° southerly dip near Namdang colliery and 15° near Tirap colliery. It is equivalent to the upper part of Jenam Formation and the lower part of Renji Formations in the North Cachar Hills.

(J) SURMA GROUP:

Barail Group is unconformably overlain by Lower Miocene Surma Group, which covers a large area in Surma valley and North Cachar Hills. This group is divided into a lower arenaceous facies (Bhuban Formation) and an upper argillaceous facies (Bokabil Formation). Surma Group as a whole is well exposed as inliers in the southern part of the Surma valley and also occupies a strip in the northern part of the valley. In the North Cachar Hills, the rocks of Surma Group occupy a large tract in the vicinity of Maibong and further northeastward uptoLumding. These rocks further continue northwards and are exposed in the south-eastern part of the Karbi (Mikir) Hills, as a narrow strip over the eastern base of the Karbi Hills. These rocks overlap the older horizons like Kopili, Sylhet limestone and metamorphite. The Bokabil Formation includes soft micaceous sandstone, siltstone, shale and clay with occasional intercalation of limestone and fossil wood. Shale samples collected from south of Khumbaman Parbat yielded a moderate assemblage of pteridophytic spore and some angiospermic pollen, which indicate an age range from Oligocene to Miocene.

Surma Group in Upper Assam is represented by about 30 to 60 m thick estuarine sandstone, shale and conglomerate unconformably overlying the Barails. Elsewhere the group is missing either due to overlap or by lateral passage of Bokabils into overlying Tipam Group which directly rests over the Barails in the Dilli- Jaipore and Makum coalfield areas.

(a) Bhuban Formation:

Bhuban Formation consists of sandstones, sandy shales and conglomerate intervened by shale, sandy shale and lenticular sandstone.

The fossil fauna in Bhuban Formation is extremely rare. Sale (1932) and Sale and Evans (1940) reported occurrence of molluscan fauna *namely Bassilia, Cancellaria, Hipponyx, Isocardia, Scutus,* etc, in Early Miocene in Kanchanpur. Biswas (1961) assigned

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Middle Miocene age on the basis of a few foraminifera exposed in HalflongDulu-Damchar area. Pascoe (1962), however, assigned Chattian age to the Kanchanpur fauna.

(b) Bokabil Formation:

Bokabil Formation consists of shale, sandy shale, siltstone, mudstone and fairly thick lenticular, coarse grained, ferruginous sandstone.

The marine fauna assemblage mainly comprises of lamellibranch, gastropod, cirrpidia, actinozoan & echinoid which assign Lower Miocene (Aquitanian) age to this formation.

(K) TIPAM GROUP :

Tipam Group comprises a lower arenaceous facies Tipam Sandstone Formation and an upper argillaceous facies Girujan Clay Formation.

The rocks of Tipam Group are exposed in many areas in the Surma valley. Upper part of the Tipam sequence at many places is found to be eroded away, prior to the deposition of overlying Dupitila Group. However, Girujan Clay is exposed in the hills between Chargola and Longai valleys and the low hills to the east of Jatinga and Cachar district. Rocks of this group are present also in the Labak-Diksha and Darby-Dwarband areas.

In Assam valley, Tipam Group occupies a 300 km long strip from Langting to Digboi interrupted by small patches of alluvium cover.

(a) Tipam Sandstone Formation:

Tipam Sandstone consists of fairly coarse to gritty false-bedded, ferruginous sandstone interbedded with shale, sandy shale, clay and conglomerate. The sandstone is usually bluish grey to greenish giving a brownish tint on weathering.

(b) Girujan Clay Formation:

The Girujan Clay Formation consists of lacustrine mottled clay, sandy mottled clay, sandy shale and subordinate mottled, coarse to gritty, ferruginous sandstone.

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(L) DUPITILA GROUP :

Tipam Group is unconformably overlain by the Mio Pliocene Dupitila Group consisting of coarse, loose and ferruginous sand, clay, mottled clay, mottled sandstone and poorly consolidated sand with layers and pockets of pebbles. These beds are well exposed at intervals, as patches over Tipam Group in Cachar and Karimganj districts, forming low mounds in valley areas.

A characteristic lithostratigraphic section is exposed in Surma valley where it attains a thickness of 3300 m and is named as Dupitila Formation. It comprises of sandstone, mottled clay, grit and conglomerate, locally with beds of coal, conglomerate and poorly consolidated sand with layers and pockets of pebbles.

In Upper Assam, Dupitila Group is represented by fluviatile Namsang Formation, which consists of coarse, gritty, poorly consolidated sandstone, mottled clay and conglomerate, which at places, is almost entirely composed of pebbles of coal derived from Barail Group. Lignitised fossil wood fragments are abundantly found in this group.

These rocks are devoid of diagnostic fossil fauna and flora; however, fossil wood remains are common but are non-diagnostic. A few indeterminate leaf impressions and reworked Permian Eocene palynofossils are reported.

(M) DIHING GROUP:

Dupitila and Namsang Formations are succeeded by fluvial Pliocene deposit named as Dihing Group consisting of thick pebble beds alternating with coarse, soft sandstone, clay, grit and conglomerate containing half decomposed plant remains. The unconformable relationship between Dihing and underlying Namsang Formation is well exposed along Dihing river section near Jaipur in Upper Assam. Locally, at the base of the group, there are unconsolidated sands with relatively few pebbles (*Dhekiajuli bed in Digboi oil field area*).

In Makum coalfields, this group comprises alternating pebble beds, sandstone and clays. The sandstones are gritty to coarse grained, loose ferruginous and generally greyish in colour. Along Margherita thrust, Tipam Sandstone is seen in juxtaposition with the Dihing beds.

In Surma valley, Dupitila Formation is conformably overlain by a sequence of conglomerate, grit, sandstone and clay corresponding possibly to Dihing Group of Upper Assam. These beds, with steep dip are seen near Bishramkandi and Nagar Tea Garden.

Dihing Group is correlated with the Kimi Formation of Siwalik Group exposed in the foothill of Arunachal Himalayas. Recently, characteristic palynofossils like *Corrugatisporites terminalis, Polygonacidite sfrequens* and *Polyporina globosa* have been reported.

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(N) SIWALIK GROUP :

Middle and Upper Siwalik rocks designated as Subansiri and Kimin formations are exposed in Dhubri district of Assam, along the foot hills of Arunachal Himalaya. The Subansiri Formation is represented in the area by micaceous massive fine to medium grained pale brown sandstone while the Kimin Formation in the area comprises soft, grey sandstone with bands of claystone.

(O) QUATERNARY SEDIMENTS:

Dihing Group is unconformably overlain by Quaternary sequence which in the Upper Assam has been described variously by different workers as "Terrace Deposits", "Unstratified Drifts", "Older or High Level Alluvium" or "Red bank Soil". It consists of indurated, yellow, brown or red clay with sand, gravel and boulder deposits. These deposits do not belong to the typical fluvial Quaternary deposits of the Brahmaputra Basin and are possibly weathered derivatives of the underlying older rocks. These deposits, sometimes without much difference from underlying Dihing, cover large tracts along (i) the northern border of the state, (ii) around Digboi and Margherita, (iii) along the southern border of the state facing the Tirap district of Arunachal Pradesh and Nagaland, (iv) in parts of eastern Cachar in the Surma valley, (v) in isolated inliers around Tezpur and Behali areas in Darrang district, and (vi) along the courses of Dhansiri and Kopili Rivers respectively in Sibsagar and Nagaon districts in Assam.

A major part of the area flanking the Brahmaputra River in Lower and Upper Assam is covered by thick Quaternary fluvial sequence. These Quaternary deposits of the Brahmaputra Basin have been classified under four geomorphic units viz., Kaklung (=Chapar), Sarbhog, Hauli and Barpeta (=Recent) surfaces, each underlain by alluvial formation of the same name, ranging in age from Pleistocene to Recent. Palynological and pedological studies reveal that the Kakulung (Chapar) formation has undergone deep lateritic type of pedogenesis, under a warm humid i.e. tropical to subtropical type climate. The Sarbhog soil is of podozolic type formed under relatively temperate conditions indicating that the time when Sarbhog sediments were deposited, both temperature and humidity had decreased effectively. Thus, these Quaternary deposits record the fluctuations in the climatic regime during the post-glacial times.

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The Older Alluvium (Kaklung/ Chapar formation) is exposed near the hills of the granite (Precambrian) in the southern side and as river terrace close to the Himalayan foothills in the northern side. The Younger Alluvium {Hauli& Recent (*Barpeta*) Formations} is exposed along the present course of Brahmaputra River.

Table 11.1: STRATIGRAPHIC SETUP

Age	***Group Name***	***Formation (Thickness)***	***Lithology***
Holocene	Unclassified	Newer or Low Level Alluvium	Sand, silt and clay
Middle to Upper Pleistocene	Unclassified	Older Alluvium	Sand, clay, pebble, gravel and boulder deposit
----------Unconformity/Tectonic ----------			
Pliocene-Pleistocene	Siwalik Group	Kimin Formation	Sandstone with claystone
		Subansiri	Micaceous sandstone
Pliocene	DihingGroup	Dihing Formation (900m)	Pebble beds, soft sandy clay, clay, conglomerates, grit and sandstone
----------Unconformity ----------			
Mio-Pliocene	DupitilaGroup	DupitilaFormation (SurmaValley:3300m)	Sandstone, mottled clay, grit and conglomerate; locally with beds of coal, conglomerate and poorly consolidated sandstone with layers and pockets of pebbles
	Disang Group		Splintery dark grey shale and thin sandstone
Palaeocene-Eocene	JaintiaGroup	Kopili Formation	Shale, sandstone and marl.
		Shella Formation	Sylhet Limestone (Fossiliferous Limestone) Sylhet sandstone Sandstone, clay and thin coal seam

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		Langpar Formation (exposed in Meghalaya)	Calcareous shale, sandstone-limestone
Unconformity			
Cretaceous	Alkali Complex of Samchampi		Pyroxenite–Serpentinite with abundant development of melilite pyroxene rock, ijolite, syenite and carbonatite
Unconformity			
Cretaceous		Sylhet Trap (exposedinMeghalaya) (600m)	Basalt, alkali basalt, rhyolite, acid tuff
Unconformity			
Permo-carboniferous	Lower Gondwana	KaharbariFormation	Very coarse to coarse grained sandstone with conglomerate lenses, shale, carbonaceous shale and coal
		TalchirFormation	Basaltillite, conglomerate with sandstone bands, siltstone and shale
Unconformity			
Neo- Proterozoic-Early Palaeozoic	Granite Plutons		Porphyritic coarse granite, pegmatite, aplite, quartz vein traversed by epidiorite, dolerite
Intrusive contact			
Palaeo- Meso Proterozoic	Shillong Group	.....	Quartzite, phyllite, quartz–sericite schist, conglomerate
Unconformity			

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Archaean Proterozoic	Gneissic Complex	.....	Complex metamorphic group comprising ortho and para gneisses and schists, migmatites granulites etc. Later intruded byacidic and basic intrusives

(ii) Local Geology

Geologically, the district comprises of rocks of Palaeoproterozoic to Neoproterozoic and recent age. The Palaeoproterozoic to Neoproterozoic rocks represented by the Assam Meghalaya Gneissic Complex (AMGC) occur towards the south-eastern part of the district as isolated hills comprising of hornblende biotite gneiss. The Siwalik Group of rocks of Pliocene- Pleistocene age is exposed in the northern part of the district along the border of Assam and Bhutan and is represented by Subansiri and Kimin Formation. Sandstone with carbonaceous nodules, coal and carbonized woods are the major constituent o Subansiri Fomation. The Kim in Formation comprising of siltstone and clay interbands with streaks of coal and lignite at places. The rocks of Siwalik Group are thrusted over the Quaternary sediments by Himalayan Frontal Thrust (HFT), which also marked the southern extent of the rocks of Siwalik Group. The rocks of Gandhigram Formation of Dihing Group are exposed in the NNW part of the district and comprising of sandstone pebbles in sandy matrix and clay pockets. The Quaternary sediments which occupy a major part of the district have been classified into five morphostratigraphic units, namely Corramore, Chapar, Sorbhog, Hauli and Barpeta formations. Corramore formation occurs towards the NNE part of the district and comprises of unconsolidated to poorly consolidated pebbles and cobbles of gneisses and quartzite embedded in oxidised sand, silt and clay. Chapar formation of Older Alluvium group comprises of oxidised, semi-consolidated, moderately sorted gravel, pebble, sand, silt and clay. Sorbhog formation comprises of reddish-brown clay to yellowish brown silty-clay which is moderately to feebly oxidised. Hauli formation of the Newer Alluvium Group comprises of unoxidised altemate sand, silt, silty clay and clay. The Barpeta-l formation comprises of whitish to greyish sand, silt, pebbles and day whereas the Barpeta-ll formation mostly comprises of unstabilised and unoxidized sand, silt and clay, confined to present day river deposits.

Ground water occurrence is limited in the consolidated formations comprised of inselbergs where movement of groundwater is controlled by the presence of fractures and fissures. However, more than 80% of the district is underlain by unconsolidated litho units, represented by the alluvial deposits which yield good groundwater supply. The land-use

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pattern of the district indicates that, one third of the area is covered by vegetation and rest of the district area is covered agricultural land with sporadic settlements. Geotechnically, the district is divided into three units; the first unit is alluvial fill deposits which comprise of unstabilised, unoxidised to feebly oxidised sand silt, clay. Permeability of this unit is high and thus has poor to fair compressive strength and poor foundation characteristics. The second unitcovers rocks of frontal Himalayas which have low to moderately high compressive strength. The third unit comprising of unclassified gneiss is of medium to high comprehensive strength with low permeability and it is good for the foundation of engineering structure.

Mineral Occurrences: The crystalline rocks occurring as inselbergs are used as building materials and also as road metal by the local people. The sand deposits from river banks, channels and sand units of older alluvium are mainly used as construction materials. The clay beds occurring in the area are used for brick making. Iron ore and REE investigations were carried out in the district; however the investigations did not yield any significant finding.

The area of the district has evolved during the last two million years by alluviation of the foreland depression in between the comparatively younger mountain chain of the Himalayas on the north (in Bhutan) and block mountain chain of the Shillong plateau in the south. The numerous low hills called Inselbergs found scattered near Nandagiri and Kokragaon-Bidyapur are in fact the outlying portions of Shillong plateau and represent the oldest rocks. This metamorphic complex with intrusive granites and pegmatites are surrounded by extensive alluvium.

The geological formation of the district is described below.

a) ***Archean***: These formations mainly comprise biotite-hornblende gneiss, granulites, schist and bosses of intrusive granite and pegmatite. These have steep sloping with very sharp contact with the surrounding unconsolidated formation. These are called inselbergs.

b) ***Quaternary***:

1) *Piedmont plain*: This zone occupies the entire northern part of the area running along the foothills of the Bhutan Himalayas. In immediate vicinity of the hills, boulders and cobbles of quartzite predominate in gravel and sandy matrix, the quantity and size reduce from north to south and the proportion of the sand increases south ward. The thickness of this formation ranges from a few metres to about 30 m.

2) *High level/ older alluvium (Inselberg zone)*: It occurs as a broad platform with 20 to 30

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metres scarp faces surrounded by low alluvium. The sediments have been deposited in between the erosional remnants of the Archean basement. These consist of unconsolidated reddish to brownish sand, coarse grained clay, silt, and irregularly distributed pebble, cobble beds.

3) *Low level/ Newer Alluvium (flood plain):* These are formed by the sediments brought down by the post Himalayan Rivers and the present rivers during their periods of flood. It generally occurs at lower levels flanking the older alluvial formations. The sediments are light grey to light brown in colour, less compact and consist of sands of various grades, clay, silt, and pebbles, gravels. The granular deposits are mainly confined to the stream channels. The thickness of these deposits varies from 50 to 70 m.

The entire Kokrajhar district is occupied by alluvial sediments of Quaternary age. The alluvium comprises unconsolidated sediments of clay, silt, sand, gravel, cobbles and boulders of quartz, feldspars etc. The younger alluvial cover deposited during the period comprises thick beds of clay, sand and gravel. The upper layer of the alluvial formation comprises clayey/sandy soil followed by coarse sand gravel beds at depth. This formation is a very good potential zone for ground water extraction.

Geomorphology

Geomorphologically, the area can be classified into six divisions: active flood plain, younger alluvial plain, older alluvial plain, piedmont alluvial plain, older flood plain and highly dissected structural hills and valleys. The piedmont plain forms the highest terrace of Quaternary landscape characterized by high relief with dense forest and thinly populated. The terraced alluvial plain covers the major part of the district.

The flood plain areas are restricted to flood plain of Major River and its tributaries consisting of unconsolidated material like gravel, sand, silt and clay. Due to seasonal floods the different depositional environment like paleochannel, natural levees, back swamps wetlands and channel bars are common features of flood plain area. These areas are good for ground water development in shallow depth. The major part of the district is occupied by younger and older alluvial plain. The elevation of the younger alluvial plain is slightly higher than the flood plain areas, consisting of gravel, sand, silt and clay. These areas are also good for ground waterdevelopment in shallow depth.

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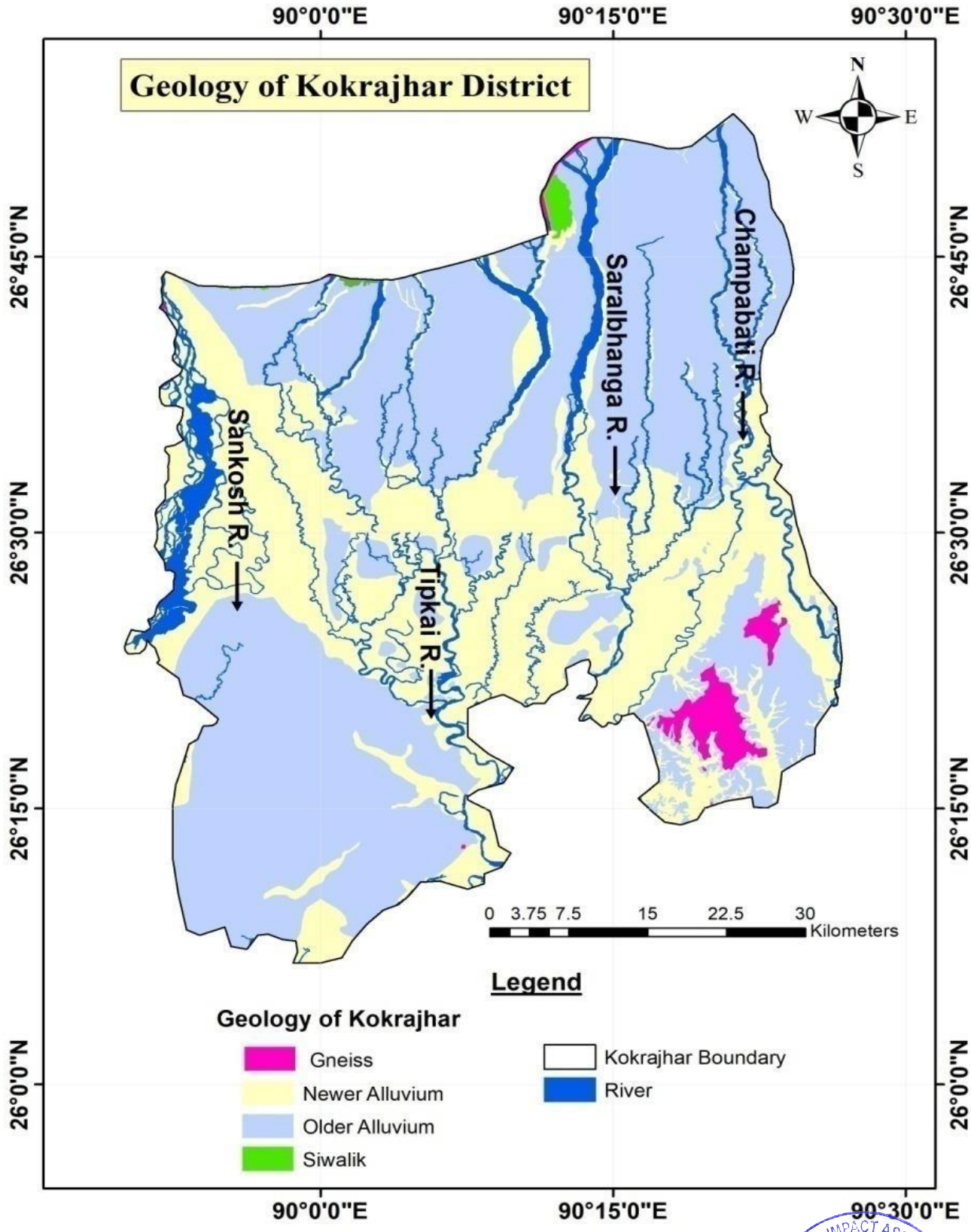

Map 11.1 Geological Map of Kokrajhar district (Source: Geological Survey of India (GSI))

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Soil resources

The soils are predominantly from sandy loam to clay loam with pH ranging from 4.7 to 7.8 i.e. acidic to neutral. The general fertility status of soils of the district is poor with low organic carbon, low available N, P and K status.

The soil condition of District is a heterogeneous one. The soil of the northern part of the district is clayey and loamy whereas middle part is loamy and sandy. The soil of the southern part of the district is composed of sandy soil. The entire area of the district is situated at the foothills of Himalayas. The rivers and tributaries of the district originated from the foothills of the Himalayan Range and are wild in nature and have enormous contribution towards the agrarian economy of the district.

The soil of the district can broadly be classified into two groups. (*I) Deep reddish clayey soil* in forest and hilly area and (2) *alluvial soil of Recent age* occurring along the alluvial plains of the Brahmaputra River. The red clayey alluvial highlands of the district are ideally suited for the teaand sugarcane cultivation. The swampy and very low lands are characterized by deep grey silty soil suitable for jute cultivation. Soils are mainly alluvial in nature composed mixture of sand, clay and silt in varying proportions. The soils in Peidmont Plain have sandy in nature, alkaline to slightly acidic and highly permeable. The soils in flood plains have loamy soil, moderately permeable and are less acidic than piedmont plain soils.

Physiographically, the district is divided into two units – *i) Northern alluvial region ii) Southern swamps or flood plains* of the river Brahmaputra. The northern alluvial part forms a flat land with heights of 40-300 m above MSL with a gentle slope towards south the river Brahmaputra. The regional gradient is from east to west which indicates the general flow direction of the Brahmaputra River. The Brahmaputra River flows from east to west and form the main regional drainage. Its tributaries like Gangia, Laponi, Saumukha, Saralaganga and Lonya etc. originating from 6 Northern Himalayan foothills have a steep slope and shallow braided channels for considerable distances. The elevation of land near the Brahmaputra is 5-10 m amsl and the flood water in the flood plain area is detained in low depression forming beel and marshy land along the main river course.

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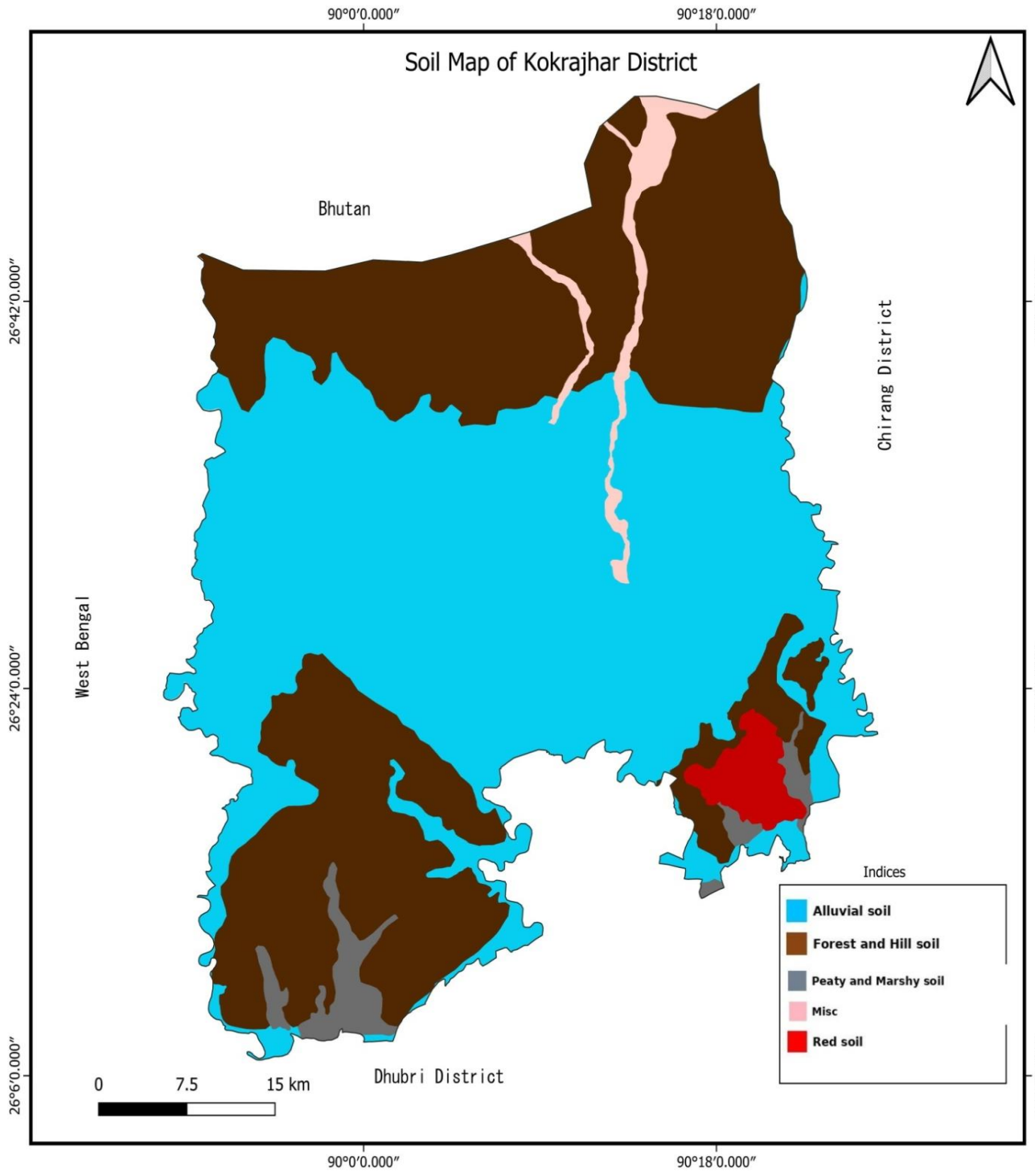

Map 11.2: Soil Map of Kokrajhar district (Source: National Informatics Centre (NIC))

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Mineral Wealth

Kokrajhar district, located in the Bodoland Territorial Region of Assam, possesses a range of mineral resources. The key minerals include coal, natural gas, and limestone. The district also has deposits of iron ore (hematite) along with smaller quantities of other minerals like quartz and fuller's earth.In Kokrajhar district; the minor minerals primarily include sand, gravel, stones and earth. These materials are often used for construction activities such as building roads and infrastructure.

The mineral resources of the district whose categorization and estimation have been done are furnished in this section.

Basically, a mineral resource is a concentration or occurrence of solid materials of economic interest in or on the earth's crust in such form so that its presence forms the basis for future i.e., point of view of commercial viability. Mineral Resources bear a reasonable prospect for eventual economic extraction. Mineral Resources are generally sub-divided into geological or inferred resources, indicated reserve and proved reserve.

A mineral is a pure inorganic substance having a definite chemical composition. However, a small portion of the earth's crust contains organic materials also. But Gold, Mercury, Diamond and Sulphur are comprised of single elements.

Mineral Resources are amongst the most important natural resources that determine a country's industrial and economic growth by supplying raw materials to the economy's primary, secondary and tertiary sectors. So, Mineral Resources bear a cryptic signature for a country's perfect financial growth accelerating fiscal regime.

Minor Minerals include building stones, gravel, ordinary clay and silt, sand, limestone used for lime burning, boulders, kankar, morun, brick earth, bentonite, road metals, slate, marble and other in- situ minerals or rocks like granite and basalt which are used for making household utensils and civil construction purpose only. But when Minor Mineral sand is used for stowing purpose in coal mines, then it is considered as Major minerals. The present investigated area is ornamented by the presence of riverbed sand, flood plain sand, ordinary earth, silt and clay deposits of huge economic interest. In the present area of study, the method of open pit manual mining is followed for extraction of mineable minor mineral deposits.

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11. (a) District wise detail of river or stream and other sand source

i) Table 11.a.1 **:** Drainage system with description of main rivers

S. No.	Name of the river	Area drained (sq. m)	% Area drained in the district
1.	**Tipkai River**	1070000	0.03
2.	**Sankosh**	57260000	1.80
3.	**Hel**	19710000	0.62
4.	**Gurufela**	17490000	0.55
5.	**Gongia**	12910000	0.40
6.	**Champamati**	10037000	0.31
7.	**Saralbhanga**	46290000	1.46
8.	**Gaurang**	4420000	0.14
9.	**Mangaljhora**	193615	0.006
10.	**Dholpani**	1087623	0.034
11.	**Harabhanga**	2594952	0.082

Table 11.a.2**:** Salient features of important rivers and streams:

S. No.	***Name of the river or stream***	***Place of origin***	***Total length in the district (in km)***
1.	Sankosh	Bhutan hills	41.53
2.	Hel	Bhutan hills	33.2
3.	Gurufela	Bhutan hills	71.3
4.	Tipkai	Bhutan hills	4.3
5.	Gaurang	Bhutan hills	12.45
6.	Champaboti	Bhutan hills	32.93
7.	Gongia	Bhutan hills	31.8
8.	Saralbhanga	Bhutan hills	49.6

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Table 11.a.3**:** River-wise no. of mining leases in Kokrajhar district

Sl No	*River*	*No. of Lease*	*Minerals*						
			Sand	*Sand & Gravel*	*Stone*	*Sand& Stone*	*Sand Gravel & boulder*	*Sand Gravel & stone*	*Sand Gravel/Clay*
1.	Tipkai River	3	3	0	0	0	0	0	0
2.	Sankosh	21	0	2	8	6	0	5	0
3.	Hel	1	0	0	0	0	0	1	0
4.	Gurufela	1	0	0	0	1	0	0	0
5.	Gongia	3	0	3	0	0	0	0	0
6.	Champabati	1	0	1	0	0	0	0	0
7.	Saralbhanga	3	0	2	0	0	0	0	1
8.	Mangaljhora	1	0	1	0	0	0	0	0
9.	Dholpani	1	0	0	0	0	1	0	0
10.	Gaurang	1	0	0	0	0	0	0	1
11.	Harbhanga	2	0	2	0	0	0	0	0

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Table 11.2: Total no. of leases in Kokrajhar district (River wise)

Sl No	*River Name*	*No. of Leases*
1.	Tipkai River	4
2.	Sankosh	21
3.	Hel	1
4.	Gurufela	1
5.	Gongia	3
6.	Champamati	1
7.	Saralbhanga	3
8.	Mangaljhora	1
9.	Gaurang	1
10.	Harabhanga	1
11.	Dholpani	1

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(b) District wise availability of sand or gravel or aggregate resources

i) Annual deposition

S. No	River or Stream	Area recommended for mineral concession (in square meter)	Area recommended for mineral concession (in sqm) X depth (m)	Total mineral concession in cum.	Mineable material potential (in cum) (60% of total mineral potential)
1	Tipkai	9.33	93000 x 2	186000	111600
2	Sankosh	84.19	841900 x 2	1683800	1010280
3	Hel	3.0	30000 x 2	60000	36000
4	Gurufela	1.37	13700 x 2	27400	16440
5	Haraputa	6.0	60000 x 2	120000	72000
6	Gongia	9.44	94400 x 2	188800	113280
7	Champamati	14.01	140100 x 2	280200	168120
8	Saralbhanga	87.03	870300 x 2	1740600	1044360
10	Gaurang	4.60	46000 x 2	92000	55200
11	Dholpani	4.98	49800 x 2	99600	59760

Total Mineral resources are calculated by considering 2 m depth & 2.67 Specific Gravity.

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Table 11.3: Annual deposition (Mahal Wise)

Sl. No	*Mining Lease*	*Portions of the river/ stream recommended for mineral concession (in ha)*	*Area recommended for mineral concession (in sq.m) X depth*	*Total mineral concession in cum.*	*Mineable mineral potential (in cum Tonnes) (60% of total mineral potential)*	*Mineable mineral potential (in metric T) (60% of total mineral potential)*	*Minerable mineral potential (in Metric Tonnes)*
1	Falakata Mahal	4.52 ha	45200x2	90400	54240	Sand=54240	Sand=144820
2	Joypur Mahal	4.81 ha	48100x2	96200	57720	Sand= 57720	Sand= 154112
3	Panijani Mahal	4.90 ha	49000x2	98000	58800	Sand- 35280 Gravel-23520	Sand- 94198 Gravel-62798
4	Garumarachar Pt-I Mahal	4.43 ha	44300x2	88600	53160	Sand-26580 Gravel-15948 Stone-10632	Sand-70968 Gravel-42582 Stone-28387
5	Garumarachar Pt-II Mahal	4.43 ha	44300x2	88600	53160	Sand-26580 Gravel-15948 Stone-10632	Sand-70968 Gravel-42582 Stone-28387
6	Simultapu Mahal	3.18 ha	31800x2	63600	38160	Sand-19080 Gravel-11448 Stone-7632	Sand-50944 Gravel-30566 Stone-20377
7	Haraputa River (Adelghutu	4.0 ha	40000x2	80000	48000	Sand- 28800 Gravel-19200	Sand-76896 Gravel-51264
8	Haraputa River (Majadabri)	2.0 ha	20000x2	40000	24000	Sand-14400 Gravel-9600	Sand-38448 Gravel-25632
9	Sankosh River (Majadabri)	2.50 ha	25000x2	50000	30000	Sand-21000 Gravel-9000	Sand-56070 Gravel-24030
10	Sankosh Khoksaguri Sand & Stone Materials Mahal	4.43 Ha	44300x2	88600	53160	Sand-21264 Stone-31896	Sand-56775 Stone-85162
11	Balanga Sand & Stone Material Mahal	3.12Ha	31200x2	62400	37440	Sand-26208 Stone-11232	Sand-69975 Stone-29990
12	Chitila 2 Sand & Stone Materials Mahal	4.34 Ha	43400x2	86800	52080	Sand-31248 Stone-20832	Sand-83432 Stone-55622

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Sl. No	*Mining Lease*	*Portions of the river/ stream recommended for mineral concession (in ha)*	*Area recommended for mineral concession (in sq.m) X depth*	*Total mineral concession in cum.*	*Mineable mineral potential (in cum Tonnes) (60% of total mineral potential)*	*Mineable mineral potential (in metric T) (60% of total mineral potential)*	*Minerable mineral potential (in Metric Tonnes)*
13	Gurufela 2 Sand & Stone Materials Mahal	1.37 Ha	13700x2	27400	16440	Sand-10686 Stone-5754	Sand-28532 Stone-15363
14	No.4 Hel Sand Gravel & Stone Mahal	3.0 Ha	30000x2	60000	36000	Sand-18000 Gravel-10800 Stone-7200	Sand-48060 Gravel-28836 Stone-19224
15	Sankosh Khoksaguri No.2 Stone Mahal (MPA)	4.83 Ha	48300x2	96600	57960	Stone=57960	Stone=154753
16	Sankosh Khoksaguri No.3 Stone Mahal (MPA)	4.74Ha	47400x2	94800	56880	Stone=56880	Stone-151870
17	Sankosh Khoksaguri Sand Gravel Mahal (MPA)	4.5 Ha	45000x2	90000	54000	Sand-32400 Gravel-21600	Sand-86508 Gravel-57672
18	Sankosh Jaraguri Sand Gravel Mahal (MPA)	4.5 Ha	45000x2	90000	54000	Sand-32400 Gravel-21600	Sand-86508 Gravel-57672
19	Sankosh Jaraguri No.2 Stone Mahal (MPA)	4.65 Ha.	46500x2	93000	55800	Stone-55800	Stone-148986
20	Jaraguri PGR-II Stone Materials Mahal-1	3.0 Ha	30000x2	60000	36000	Stone -36000	Stone-96120

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Sl. No	*Mining Lease*	*Portions of the river/ stream recommended for mineral concession (in ha)*	*Area recommended for mineral concession (in sq.m) X depth*	*Total mineral concession in cum.*	*Mineable mineral potential (in cum Tonnes) (60% of total mineral potential)*	*Mineable mineral potential (in metric T) (60% of total mineral potential)*	*Minerable mineral potential (in Metric Tonnes)*
21	Jaraguri Sand & Stone Materials Mahal No .2	3.0 Ha	30000x2	60000	36000	Sand- 21600 Stone- 14400	Sand- 57672 Stone- 38448
22	Khoksaguri No.4 Stone Materials Mahal	3.0Ha	30000x2	60000	36000	Stone- 36000	Stone- 96120
23	No.9 Harbhanga Sand & Gravel Mahal	3.0 Ha	30000x2	60000	36000	Sand- 25200 Gravel- 10800	Sand- 67284 Gravel- 28836
24	Khoksaguri No.3 River Stone Materials Mahal	3.0Ha	30000x2	60000	36000	Stone- 36000	Stone- 96120
25	Jaraguri PGR- II Stone Materials Mahal	3.0Ha	30000x2	60000	36000	Stone- 36000	Stone- 96120
26	Jaraguri PGR- II Sand & Stone Materials Mahal No.2	3.0 Ha	30000x2	60000	36000	Sand- 21600 Stone- 14400	Sand- 57672 Stone- 38448
27	Khoksaguri No.III Sand & Stone Materials Mahal No.3	3.0Ha	30000x2	60000	36000	Sand- 21600 Stone- 14400	Sand- 57672 Stone- 38448

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Sl. No	*Mining Lease*	*Portions of the river/ stream recommended for mineral concession (in ha)*	*Area recommended for mineral concession (in sq.m) X depth*	*Total mineral concession in cum.*	*Mineable mineral potential (in cum Tonnes) (60% of total mineral potential)*	*Mineable mineral potential (in metric T) (60% of total mineral potential)*	*Minerable mineral potential (in Metric Tonnes)*
28	Jaraguri PGR-II Sand & Stone Materials Mahal No.3	3.0Ha	30000x2	60000	36000	Sand- 21600 Stone- 14400	Sand- 57672 Stone- 38448
29	Jaraguri Sand & Stone Materials Mahal No.1	4.5Ha	45000x2	90000	54000	Sand- 40500 Stone- 13500	Sand- 108135 Stone-36045
30	Haldibari Sand Gravel & Stone Mahal	4.5 Ha	45000x2	90000	54000	Sand- 21600 Gravel-16200 Stone-16200	Sand-57672 Gravel-43254 Stone-43254
31	Jogdwi Sand & Gravel Mahal	1.98 Ha	19800x2	39600	23760	Sand- 16632 Gravel-7128	Sand- 44407 Gravel -19032
32	Gokulkata Sand Gravel Mahal	4.50 Ha	45000x2	90000	54000	Sand- 32400 Gravel-16200	Sand- 86508 Gravel -43254
33	Sankosh Surendrapur Ghat Stone Materials Mahal	4.5 Ha	45000x2	90000	54000	Stone=54000	Stone-144180
34	Saralbhanga Mahal No. 5	5.40 ha	54000x2	108000	64800	Sand- 32400 Gravel-19440 Clay-12960	Sand- 86508 Gravel –51905 Clay- 34603
35	Champa Mahal No. 2	4.41 ha	44100x2	88200	52920	Sand- 31752 Gravel-21168	Sand- 84778 Gravel - 56518
36	Saralbhanga Mahal No.- 2 (A)	5.0 ha	50000x2	100000	60000	Sand- 36000 Gravel 24000	Sand-96120 Gravel -64080

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Sl. No	*Mining Lease*	*Portions of the river/ stream recommended for mineral concession (in ha)*	*Area recommended for mineral concession (in sq.m) X depth*	*Total mineral concession in cum.*	*Mineable mineral potential (in cum Tonnes) (60% of total mineral potential)*	*Mineable mineral potential (in metric T) (60% of total mineral potential)*	*Minerable mineral potential (in Metric Tonnes)*
37	Saralbhanga River Mahal No. 6	4.95 ha	49500x2	99000	59400	Sand- 35640 Gravel-23760	Sand- 95159 Gravel-634392
38	Gaurang River Minor Mineral Permit Area No. 1	4.60 ha	46000x2	92000	55200	Clay-55200	Clay –147384
39	Saralbhanga Mahal No.- 2 (B)	4.85 ha	48500x2	97000	58200	Sand- 34920 Gravel -23280	Sand- 93236 Gravel -62158
40	Saralbhanga Mahal No.- 4 (A)	4.93 ha	49300x2	98600	59160	Sand- 35496 Gravel -23664	Sand- 94774 Gravel -63183
41	Saralbhanga Mahal No.- 4 (B)	4.65 ha	46500x2	93000	55800	Sand- 33480 Gravel -22320	Sand- 89392 Gravel - 63183
42	Saralbhanga Mahal No.- 4 (C)	4.66 ha	46600x2	93200	55920	Sand- 39144 Gravel -16776	Sand- 104514 Gravel -44792
43	Saralbhanga Mahal No.- 4 (D)	4.42 ha	44200x2	88400	53040	Sand- 29172 Gravel -23868	Sand- 77889 Gravel -63728
44	Saralbhanga Mahal No.- 7	4.60 ha	46000x2	92000	55200	Sand- 33120 Gravel -22080	Sand- 88430 Gravel -58954
45	Saralbhanga Mahal No.- 8	4.76 ha	47600x2	95200	57120	Sand- 34272 Gravel - 22848	Sand- 91506 Gravel - 61004
46	Saralbhanga Mahal No.- 9	4.93 ha	49300x2	98600	59160	Sand-41412 Gravel-17748	Sand-110570 Gravel- 63182

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Sl. No	*Mining Lease*	*Portions of the river/ stream recommended for mineral concession (in ha)*	*Area recommended for mineral concession (in sq.m) X depth*	*Total mineral concession in cum.*	*Mineable mineral potential (in cum Tonnes) (60% of total mineral potential)*	*Mineable mineral potential (in metric T) (60% of total mineral potential)*	*Minerable mineral potential (in Metric Tonnes)*
47	Saralbhanga Mahal No-2	20.6 ha	206000x2	412000	247200	Sand-148320 Gravel-98880	Sand-3960144 Gravel-264010
48	Saralbhanga Mahal No-3	8.12 ha	81200x2	162400	97440	Sand-48720 Gravel-29232 Boulder-19488	Sand-130082 Gravel-78049 Boulder-52033
49	Saralbhanga Mahal No-4	5.16 ha	51600x2	103200	61920	Sand-37152 Gravel-24768	Sand-99195 Gravel-66130
50	Champa (Bandarchara Mahal)	9.60 ha	96000x2	192000	115200	Sand-69120 Gravel-46080	Sand-184550 Gravel-307584

ii) Mineral potential

Sand(cum)	Gravel (cum)	Stone(cum)	Ordinary Clay(cum)	Boulder (cum)	Total (cum)
1398738	668904	561750	68160	19488	2717040

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Details of Rivers

NO MINING ZONE:

As per the Enforcement and Monitoring Guidelines for Sand Mining (EMGSM) 2020 the restricted zone for mining is a distance from the bank is ¼th of river width and not be less than 7.5 meters. Also there is a no mining zone up to a distance of 1 kilometre (1 km) from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side. No mining zone has been marked for an area up to a width of 100 meters from the active edge of embankments. Also, the concave side of the river is marked as no mining zone, as mining is this area will affect the course of river in future and will erode the river bank.

MAJOR RIVERS UNDER KOKRAJHAR DISTRICT

The Kokrajhar W.R. Division has been established in the year of 1984 which comprises of 2 (two) W.R. Sub- Division viz.

1. Kokrajhar W.R Sub-Division &
2. Gossaigaon W.R. Sub- Division.

This Division deals with the flood and erosion problems in the jurisdiction of entire Kokrajhar District. The major river falls under Kokrajhar W.R. Division are:.

River Champamati: - The River Champamati originates from Bhutan foothills and traversing through the Chirang Reserve forest enters the Kokrajhar District and ultimately outfalls into the river Brahmaputra.

River Tarrang: -The River Tarrang originates from the catchment area of Chirang forest and after meeting with river Gaurang near Kaimari out falls into river Brahmaputra.

River Gaurang: - River Gaurang originates from Bhutan foothills and after traversing through Chirang reserve forest it meets with river Saralbhanga and Samukha near Chandrapara and ultimately outfalls into the river Brahmaputra.

River Saralbhanga: - River Saralbhanga originates from Bhutan foothills and traversing through deep forest it enters into the plan area of Kokrajhar district and meets with river

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Gaurang at Chandamari 2 km upstream of Kokrajhar Town and ultimately outfalls into the River Brahmaputra.

Longa: -The river Longa originates from Bhutan foothills after travelling deep forest it follows through sub plain area of Kokrajhar district and it meets with the river Gangia and falls into river Tipkai which finally out falls into the river Brahmaputra.

Hel: - The River Hel originates from Bhutan foothills, after traveling through deep forest. It coincides with the river Gangia at Durabil and flows as the river Gangia and finally outfalls into the river Brahmaputra, as Joyma and Tipkai.

Gangia: -The River Gangia is flashy type of river of high gradient with high velocity which is originates from foothills of Bhutan and travelling deep forest cultivated and homestead land. The river Gangia meets with the Hel River at 1.5 km downstream of Gangia bridge NH-31 (C), Longa also meets River Gangia near Kachukata village and finally the river coincides with the river Joyma at Asharikandi Kartimari near Sapatgram and outfalls into the river Brahmaputra as river Tipkai.

Guruphella: - After coinciding two rivers namely Jakati and Janali originating from Bhutan foothills the river flows as the river Guruphella travelling through alluvial soil and then the river confluence with river Gangia and finally out falls into the river Brahmaputra.

Sankosh: - The river originates from Bhutan foothills, travelling through deep forest of Bhutan, Kachugaon (Assam) and West Bengal border area finally outfalls into the river Brahmaputra as Gangadhar in Bangladesh via boarder from Golokganj of Dhubri district.

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Tipkai River

Sl No	*Description*	*Area in Ha.*	*Percentage of Total area (In %)*	*Cumulative %*
1	River area	107.00	100	100
2	Area granted for mining	13.86	12.95	12.95
3	No of lease not recommended for future Quarry Lease grant due extracted up to a distance of 1 kilometer (1 km) from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side	0.0	0.0	0.0
4	Area not recommended for future Quarry Lease grant due to 100 m Buffer from any railway line or bridge	0.0	0.0	0.0
5	Area not recommended for future Quarry Lease grant due to 100 m buffer from the outer periphery of the defined limits of any village, habitation, National Highway, State highway and other roads	4.53	4.23	4.23
6	Area not recommended for future Quarry Lease grant due to non-availability of un-mined block 50 meters width after every block of 1,000 meters over which is undertaken or at such distance as may be directed by the competent authority	0.0	0.0	0.0
7	Area not recommended for future Quarry Lease grant due to 100 m Buffer Local Minor Check Dam	0.0	0.0	0.0
8	Area not recommended for future Quarry Lease grant due to 500 m buffer from the irrigation Structure/ Reservoir & Submergence Area	0.0	0.0	0.0

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9	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Canal/ Tank/ Lake	0.0	0.0	0.0
10	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Ropeway or ropeway trestle or station	0.0	0.0	0.0
11	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Heritage site, Protected monuments	0.0	0.0	0.0
12	Area not recommended for future Quarry Lease grant due to Eco-sensitive Zone	0.0	0.0	0.0
13	Applicability of Cluster (Other lease within 500 meter radius	0.0	0.0	0.0

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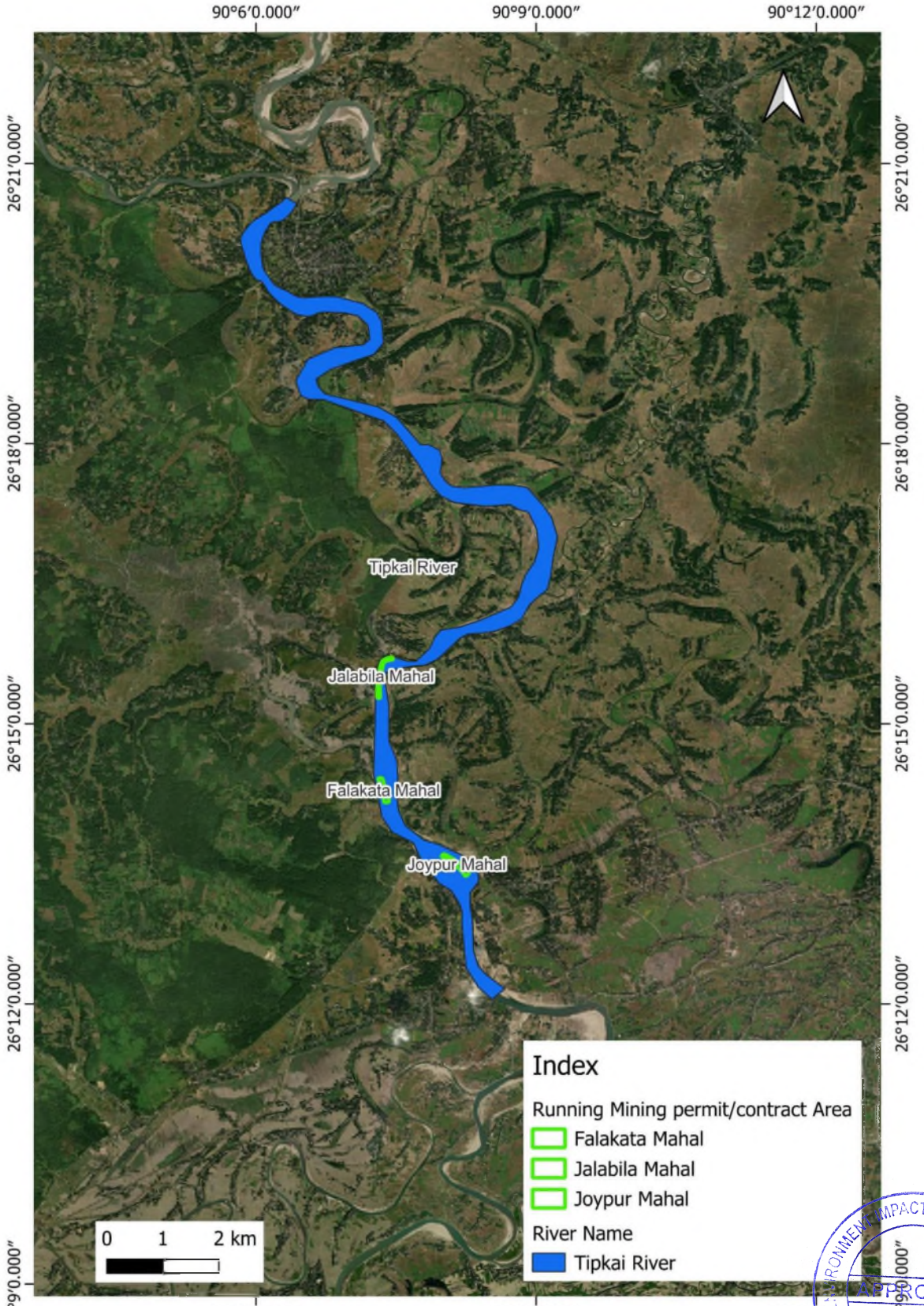

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11.4: Table showing existing/proposed mining permits/contracts areas of Tipkai River under Kokrajhar District

Sl. No	*Name of the mines*	*Area (in ha)*	*Geolocation*		*Mineral Name*	*Existing/ proposed*
1	Jalabila Mahal	4.53	26°15'42.59"N 26°15'40.95"N 26°15'16.34"N 26°15'16.43"N	90° 7'28.27"E 90° 7'27.84"E 90° 7'19.75"E 90° 7'17.89"E	Sand	Subjudice case in Hon'bleGauhati High court
2	Falakata Mahal	4.52	26°14'25.15"N 26°14'25.05"N 26°14'9.82"N 26°14'9.26"N	90° 7'18.34"E 90° 7'21.15"E 90° 7'25.72"E 90° 7'22.51"E	Sand	Subjudice case in Hon'bleGauhati High court
3	Joypur Mahal	4.81	26°13'21.87"N 26°13'34.76"N 26°13'36.45"N 26°13'24.02"N	90° 8'14.77"E 90° 7'58.89"E 90° 8'00.65"E 90° 8'17.09"E	Sand	Subjudice case in Hon'bleGauhati High court

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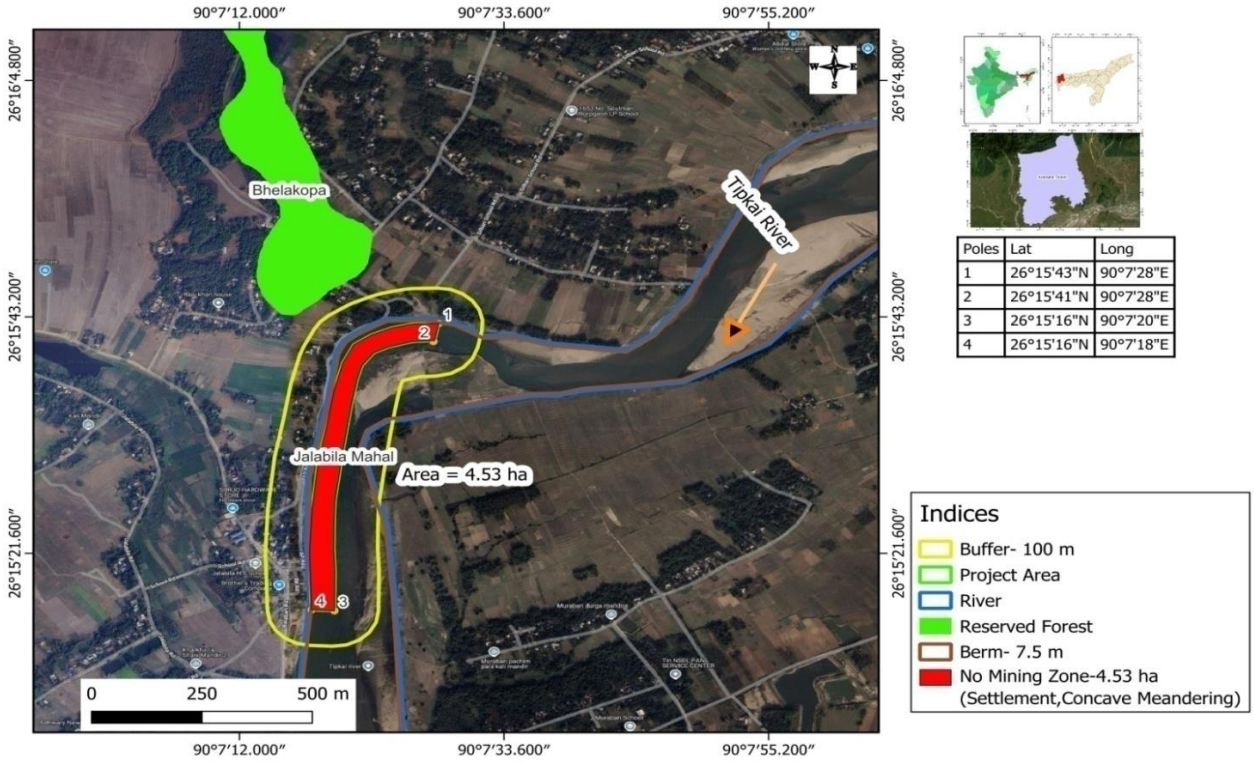
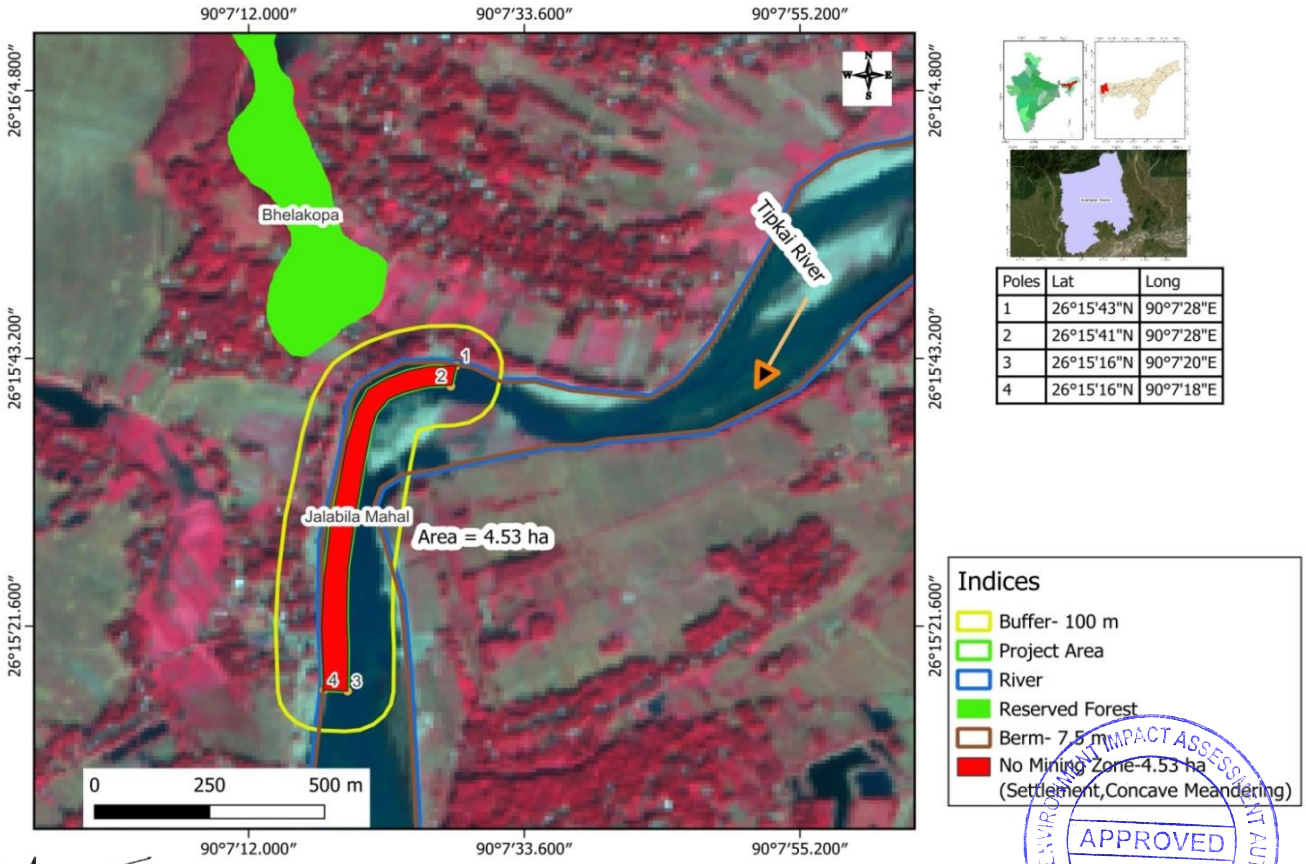
Map 11.3: Buffer map showing Joypur Mahal of Tipkai River



Poles	Lat	Long
1	26°15'43"N	90°7'28"E
2	26°15'41"N	90°7'28"E
3	26°15'16"N	90°7'20"E
4	26°15'16"N	90°7'18"E



Poles	Lat	Long
1	26°15'43"N	90°7'28"E
2	26°15'41"N	90°7'28"E
3	26°15'16"N	90°7'20"E
4	26°15'16"N	90°7'18"E

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Data Source: LISS-IV Resolution: 5.8m

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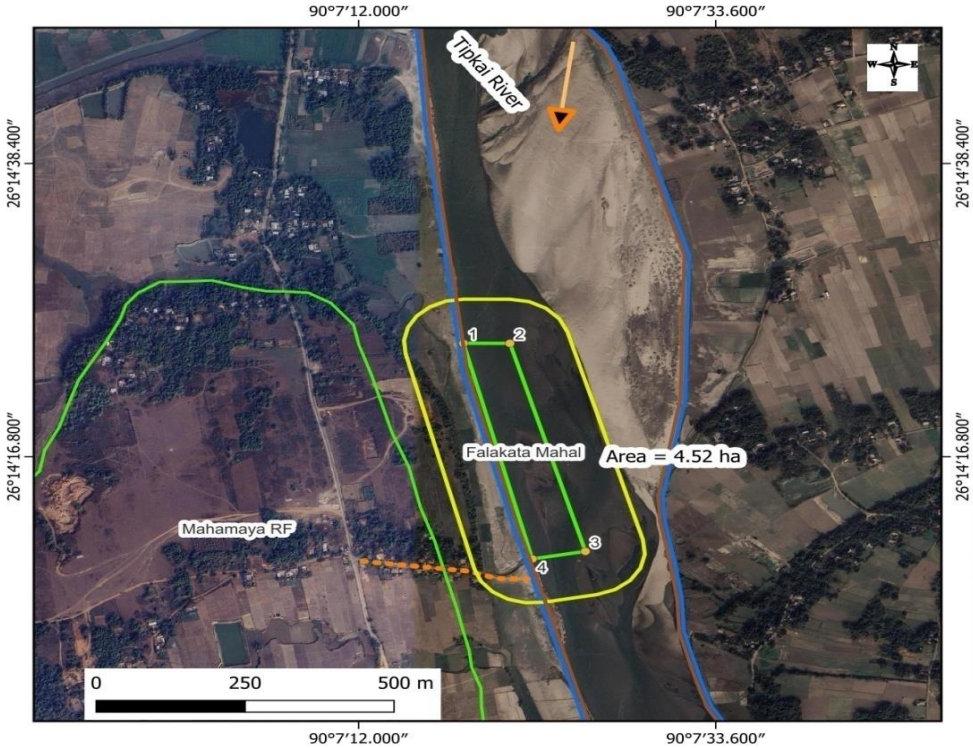
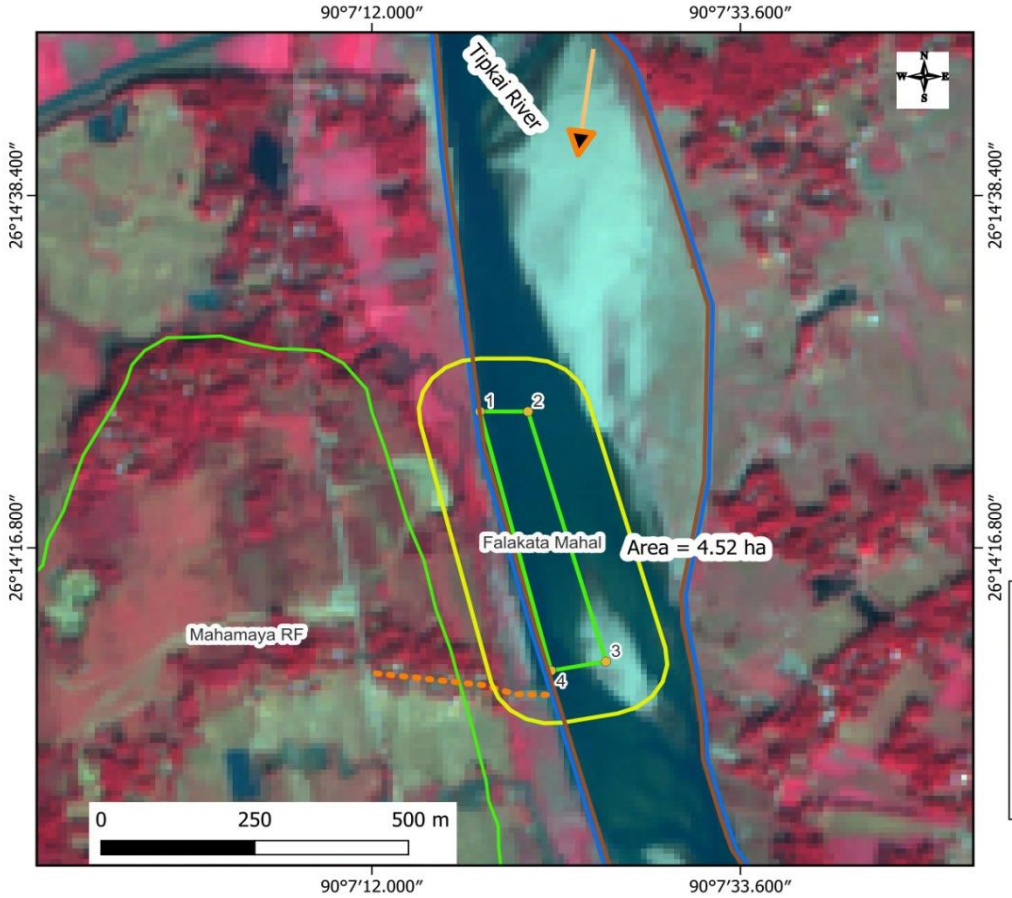
Map 11.4: Buffer map showing Falakata Mahal of Tipkai River



Poles	Lat	Long
1	26°14'25"N	90°7'18"E
2	26°14'25"N	90°7'21"E
3	26°14'10"N	90°7'26"E
4	26°14'9"N	90°7'23"E



Poles	Lat	Long
1	26°14'25"N	90°7'18"E
2	26°14'25"N	90°7'21"E
3	26°14'10"N	90°7'26"E
4	26°14'9"N	90°7'23"E

Data Source: LISS-IV Resolution: 5.8m

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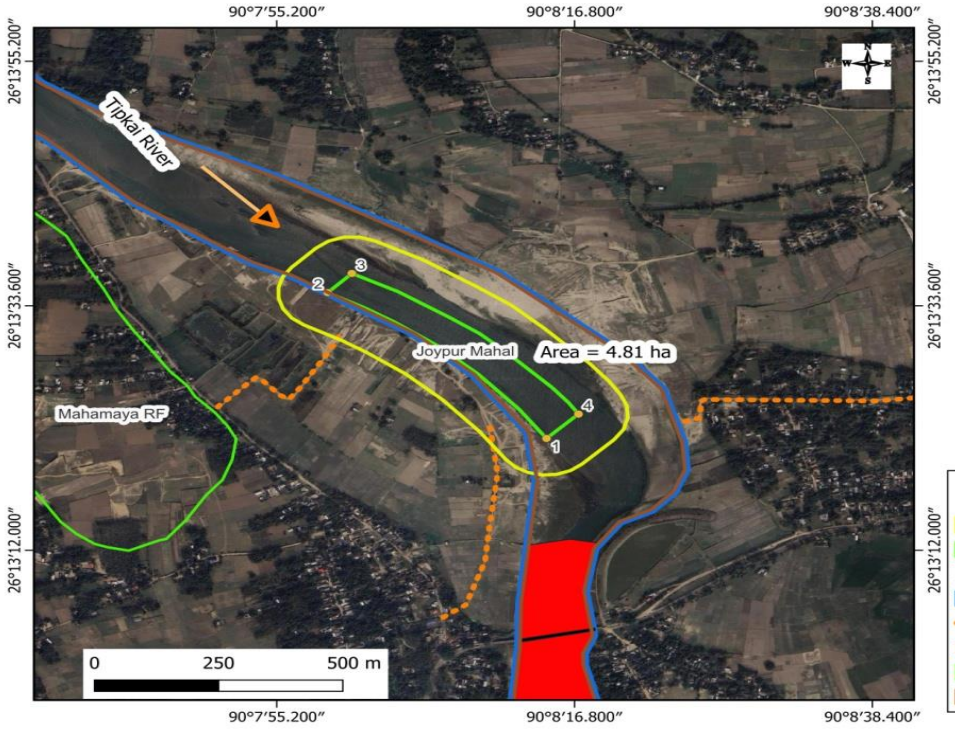
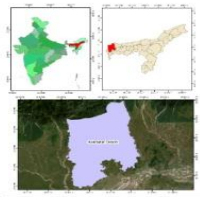
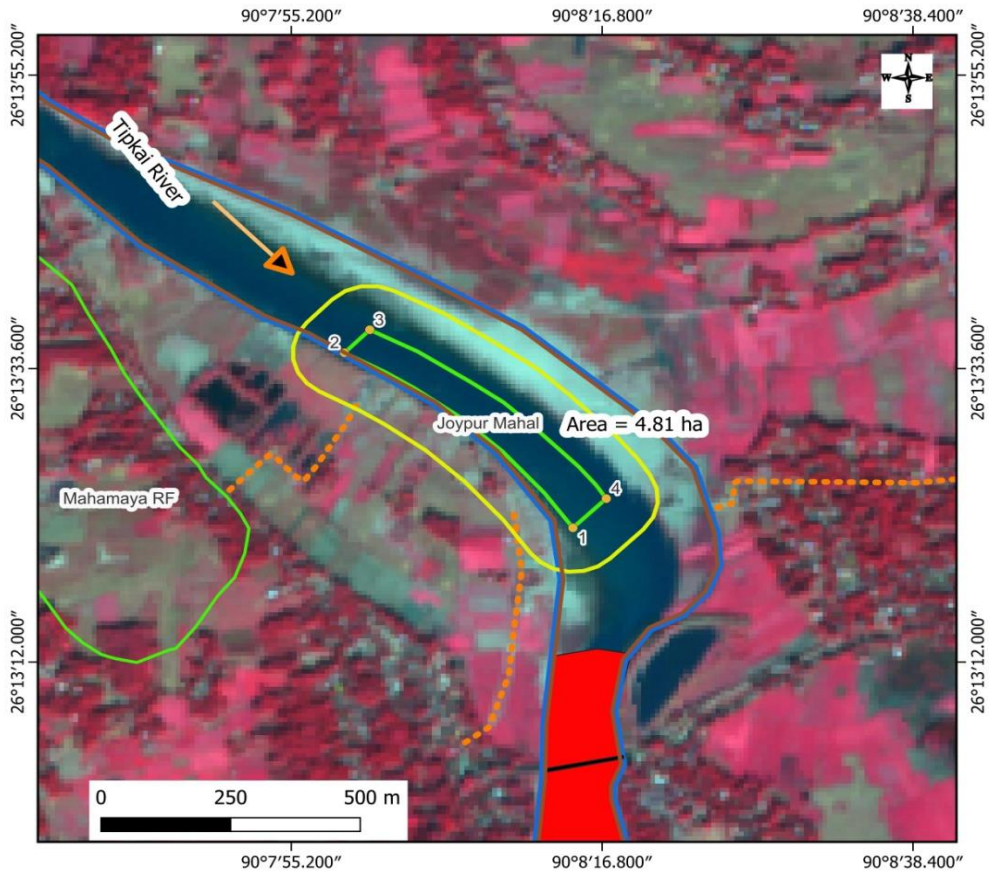
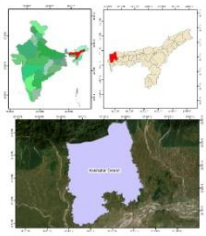
Map 11.5: Buffer map showing Joypur Mahal of Tipkai River





Poles	Lat	Long
1	26°13'22"N	90°8'15"E
2	26°13'35"N	90°7'59"E
3	26°13'36"N	90°8'1"E
4	26°13'24"N	90°8'17"E





Poles	Lat	Long
1	26°13'22"N	90°8'15"E
2	26°13'35"N	90°7'59"E
3	26°13'36"N	90°8'1"E
4	26°13'24"N	90°8'17"E

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Data Source: LISS-IV Resolution: 5.8m

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Ahomgaon, Garchuk, Guwahati- 781035 (Assam)
Ph: 7086020945/ 9435192896/ 9395005840
E-mail: contact@rlnt.in , reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing
Test Report No: 2409126639-3
Sample ID: DFO/PFD/240931/PG

Group: Building Materials

Date of issue of Report: 26-09-2024

TEST REPORT		
1	Name of Client:	The Divisional Forest Officer Parbatjhora Division, Kokrajhar
2	Name of project:	District Survey Report, Kokrajhar District
3	Type of sample:	Sand & Gravel
4	Condition of sample:	Ok
5	Date of sample Received:	15-09-2024
6	Source of Material:	Tipkai River
7	Location:	Joypur Village
8	Test Sample Supplied By:	Customer
9	Test Done at:	"At the Loboratory located in the basement of our premises at the above mentioned address"

Test Method **IS 2386-PartIII-1963 (Reaffirmed 2021)**

1. Name of Test **Bulk Density of Sand & Gravel**
Type of Test **Loose**
Source **Tipkai River**

Date of testing **21-09-2024 to 21-09-2024**
Environmental Conditions during test
Temparature: **27.1°C, Humidity:64%**

TEST RESULTS			
Sample	Weight of Aggregate to fill the Mould In (Kg) (A)	Volume of Mould In (litre) (B)	Bulk Density In (Kg/Litre) [A/B]
1	23.580	15.379	1.53

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E-mail: contact@rlnt.in ; reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing — Group: Building Materials

Test Report No: 2410078455-1
Sample ID: DFO/PFD/240931/PG

Name of Test: **Gradation** — Test Method: IS 2386-Part-I-1963 (Reaffirmed 2021)

Type of Sample: **Sand & Gravel** — *Date of testing:* **10-10-2024 to 12-10-2024**

Source: **Tipkai River** — Environmental Conditions during test

Temparature: **26.9°C, Humidity: 67%**

TEST RESULTS

Is Sieve Size (mm)	Weight Retained (gm)	% Weight Retained (gm)	Cumulative % of Retained	% of Passing
300	0	0.00	0.00	100.00
75	0	0.00	0.00	100.00
20	251	12.55	12.55	87.45
4.75	392	19.6	32.15	67.85
0.075	1352	67.6	99.75	0.25
Pan	5			
Total	2000			

% Boulder = 0.00%
%Gravel= 32.15%
%Sand= 67.6%
%Silt= 0.25%

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Ph: 7086020945/9435192896/9395005840
E-mail: contact@rlnt.in , reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing

Group: Building Materials

Date of issue of Report: 26-09-2024

TEST REPORT		
1	Name of Client:	The Divisional Forest Officer Parbatjhora Division, Kokrajhar
2	Name of project:	District Survey Report, Kokrajhar District
3	Type of sample:	Sand & Gravel
4	Condition of sample:	Ok
5	Date of sample Received:	15-09-2024
6	Source of Material:	Tipkai River
7	Location:	Joypur Village
8	Test Sample Supplied By:	Customer
9	Test Done at:	"At the Loboratory located in the basement of our premises at the above mentioned address"

Test Results : Next Page

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E-mail: contact@rlnt.in ; reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing — Group: Building Materials

Test Report No: 2409126639-2
Sample ID: DFO/PFD/240931/PG

Name of Test: **Specific Gradation** — **Test Method:** IS 2386-Part-I-1963 (Reaffirmed 2021)

Type of Sample: **Sand & Gravel**
Source: **Tipkai River**

Date of testing: 23-09-2024 to 25-09-2024
Environmental Conditions during test
Temparature: **27.6°C, Humidity: 61%**

TEST RESULTS

Sl. No.	Weight of Saturated Surface Dry Sample (gm)	Weight of Pycnometer Containing Sample & filled With Distilled Water (gm)	Weight of Pycnometer Frillied with Water Only (gm)	Waight of Oven Dried Sample (gm)	Specific Gravity [D/A-(b-C)]
	A	B	C	D	
1	525.0	2036.0	1706.5	521.0	2.66

Remarks : Calculations are As per IS : 2386-part-III-1963 Reaffirmed 2021 , Ciause No.2.4.3, No limits Specified, Test Result are Satisfactory.

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Sankosh River

Sl No	*Description*	*Area in Ha.*	*Percentage of Total area (In %)*	*Cumulative %*
1	River area	5726	100	100
2	Area granted for mining	83.41	1.45	1.45
3	No of lease not recommended for future Quarry Lease grant due extracted up to a distance of 1 kilometer (1 km) from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side	0.0	0.0	0.0
4	Area not recommended for future Quarry Lease grant due to 100 m Buffer from any railway line or bridge	1.72	0.03	0.03
5	Area not recommended for future Quarry Lease grant due to 100 m buffer from the outer periphery of the defined limits of any village, habitation, National Highway, State highway and other roads	0.0	0.0	0.0
6	Area not recommended for future Quarry Lease grant due to non-availability of un-mined block 50 meters width after every block of 1,000 meters over which is undertaken or at such distance as may be directed by the competent authority	0.0	0.0	0.0
7	Area not recommended for future Quarry Lease grant due to 100 m Buffer Local Minor Check Dam	0.0	0.0	0.0

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8	Area not recommended for future Quarry Lease grant due to 500 m buffer from the irrigation Structure/ Reservoir & Submergence Area	0.0	0.0	0.0
9	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Canal/ Tank/ Lake	0.0	0.0	0.0
10	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Ropeway or ropeway trestle or station	0.0	0.0	0.0
11	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Heritage site, Protected monuments	0.0	0.0	0.0
12	Area not recommended for future Quarry Lease grant due to Eco-sensitive Zone	0.0	0.0	0.0
13	Applicability of Cluster (Other lease within 500 meter radius	Yes	-	-

No.9 Harbhanga Sand & Gravel Mahalproposed under Kachugaon division overlaps with the existing **Panijani mahal** under Parbatjhora division (have subjudice case in Hon'ble Gauhati High court). Therefore, the proposed No.9 Harbhanga Sand & Gravel Mahal under Kachugaon division has to be withdrawn.

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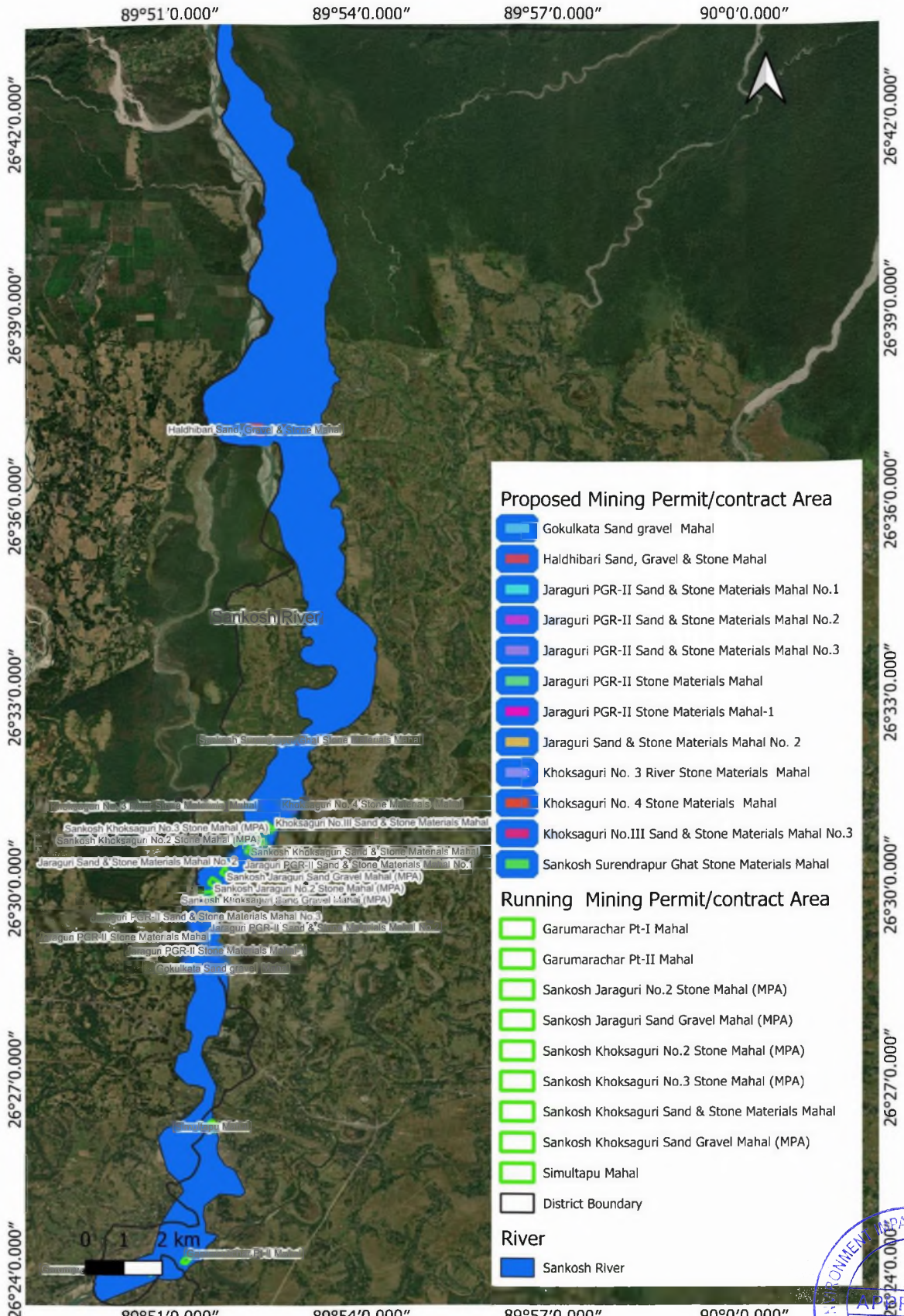

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11.5: Table showing existing/proposed mining permits/contracts areas of Sankosh River under Kokrajhar District

Sl. No	*Name of the mines*	*Area (in ha)*	*Geolocation*		*Mineral Name*	*Existing/ proposed*
1	Garumaracha rPt-I Mahal	4.43	26°23.55.76"N 26°24'3.15"N 26°24'5.84"N 26°23'58.52"N	89°50'40.71"E 89°50'41.61"E 89°50'47.95"E 89°50'46.03"E	Sand Gravel stone	Subjudice case in Hon'bleGauhati High court
2	Garumaracha r Pt-II Mahal	4.43	26°24'7.78"N 26°24'16.46"N 26°24'11.60"N 26°24'6.84"N	89°51'10.57"E 89°51'17.19"E 89°51'19.29"E 89°51T5.30"E	Sand, Gravel stone	Subjudice case in Hon'bleGauhati High court
3	SimultapuMa hal	4.9	26°26'19.86"N 26°26'20.86"N 26°26'11.27"N 26°2610.96"N	89°51'36.70"E 89°51'40.71 "E 89°51'44.01E 89°51'36.69HE	Sand, Gravel, stone	Subjudice case in Hon'bleGauhati High court
4	Sankosh Khoksaguri Sand & Stone Materials Mahal	4.43	26°30'31.93"N 26°30'28.04"N 26°30'33.45"N 26°30'37.99"N	89°52'21.72"E 89°52'18.06"E 89°52'10.73"E 89°52'14.36"E	Stone	Existing
5	SankoshKhoks aguri No.2 Stone Mahal (MPA)	4.83	26°30'50.59"N 26°30'46.75"N 26°30'38.89"N 26°30'42.03"N	89°52'22.29"E 89°52'18.91"E 89°52'27.64"E 89°52'30.75"E	Stone	Existing
6	Sankosh Khoksaguri No.3 Stone Mahal (MPA)	4.74	26°31'01.30"N 26°30'56.87"N 26°30'50.54"N 26°30'54.43"N	89°52'30.14"E 89°52'26.70"E 89°52'34.64"E 89°52'38.05"E	Stone	Existing
7	SankoshKhoks aguri Sand Gravel Mahal (MPA)	4.5	26°29'51.45"N 26°30'46.52"N 26°29'49.85"N 26°30'55.20"N	89°51'41.10"E 89°51'38.52"E 89°51'30.61"E 89°51'32.89"E	Sand Gravel	Existing
8	Sankosh Jaraguri Sand Gravel Mahal (MPA)	4.5	26°30'13.67"N 26°30'09.06"N 26°30'13.31"N 26°30'17.94"N	89°51'59.13"E 89°51'55.25"E 89°51'47.64"E 89°51'51.45"E	Sand Gravel Stone	Existing
9	Sankosh Jaraguri No.2 Stone Mahal	4.65	26°30'9.07"N 26°30'3.89"N 26°29'58.85"N	89°51'39.73"E 89°51'36.43"E 89°51'44.08"E	stone	Existing

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	(MPA)		26°30’3.00”N	89°51’47.46”E		
10	Jaraguri PGR-II Stone Materials Mahal-1	3.0	26°28’54.93”N 26°28’55.31”N 26°29’0.99”N 26°29’3.81”N 26°29’4.28”N 26°29’5.76”N	89°51'48 59"E 89°51'42.02”E 89°51'44 76“E 89°51’35.89”E 89°51’45.19"E 89°51’35.69”E	Stone	Proposed
11	Jaraguri Sand & Stone Materials Mahal No .2	3.0	26°30’15.62”N 26°30’18.05”N 26°30’22.28”N 26°30’20.36”N	89°52'6.74"E 89°52'9.17”E 89°51'59.73“E 89°51’56.56”E	Sand & Stone	Proposed
12	Khoksaguri No.4 Stone Materials Mahal	3.0	26°31’10.60“ N 26°31'10.64“ N 26"31'13.79“ N 26"31’13.96“ N	89°52'50.58”E 89°52'40.12”E 89°52'50.90”E 89°52’40.40”E	Stone	Proposed
13	KhoksaguriNo. 3 River Stone Materials Mahal	3.0	26°31’13.47” N 26°31’10.17” N 26"31’12.76”N 26"31’9.84” N	89°52’16.44”E 89°52’27.69”E 89°52’16.44”E 89°52’27.47”E	Stone	Proposed
14	Jaraguri PGR- II Stone Materials Mahal	3.0	26°29’12.09 ”N 26°29’12.72”N 26°29’15.18”N 26°29’15.44”N	89°51'30.80"E 89°51'42.97”E 89°51'30.14“E 89°51’42.51”E	Stone	Proposed
15	Jaraguri PGR- II Sand & Stone Materials Mahal No.2	3.0	26°29’15.44 ”N 26°29’21.83”N 26°29’25.35”N 26°29’25.50”N	89°51'42.51"E 89°51'32.27”E 89°51'41.97“E 89°51’31.89”E	Sand & Stone	Proposed
16	KhoksaguriNo.I II Sand & Stone Materials Mahal No.3	3.0	26°31’0.17” N 26°31’3.01” N 26"29’5.41”N 26"31’8.08” N	89°52’42.86”E 89°52’44.67”E 89°52’34.17”E 89°52’35.94”E	Sand & Stone	Proposed
17	Jaraguri PGR-II Sand & Stone Materials Mahal No.3	3.0	26°29’34.95 ”N 26°29’37.09”N 26°29’38.37”N 26°29’40.71”N	89°51'39.06"E 89°51'28.98”E 89°51'39.04”E 89°51’29.61”E	Sand & Stone	Proposed

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18	Jaraguri Sand & Stone Materials Mahal No.1	4.5	26°30'20.95"N 26°30'23.16"N 26°30'28.46"N 26°30'26.21"N	89°52'14.27"E 89°52'16.76"E 89°52'6.92"E 89°52'4.10"E	Sand & Stone	Proposed
19	Haldibari Sand Gravel & Stone Mahal	4.5	26°37'19.98"N 26°37'19.84"N 26°37'00.78"N 26°36'58.02"N	89°52'08.48"E 89°52'31.65"E 89°52'05.85"E 89°52'32.74"E	Sand Gravel & Stone	Proposed
20	Gokulkata Sand Gravel Mahal	4.50	26°28'39.45"N 26°28'40.08"N 26°28'47.90"N 26°28'48.06"N	89°51'53.42"E 89°51'47.23"E 89°51'52.39"E 89°51'45.44"E	Sand Gravel	Proposed
21	SankoshSurendrapurGhat Stone Materials Mahal	4.5	26°32'12.82"N 26°32'13.03"N 26°32'22.51"N 26°32'23.43"N	89°53'12.81"E 90°53'8.02"E 90°53'15.58"E 90°53'10.26"E	Stone	Proposed

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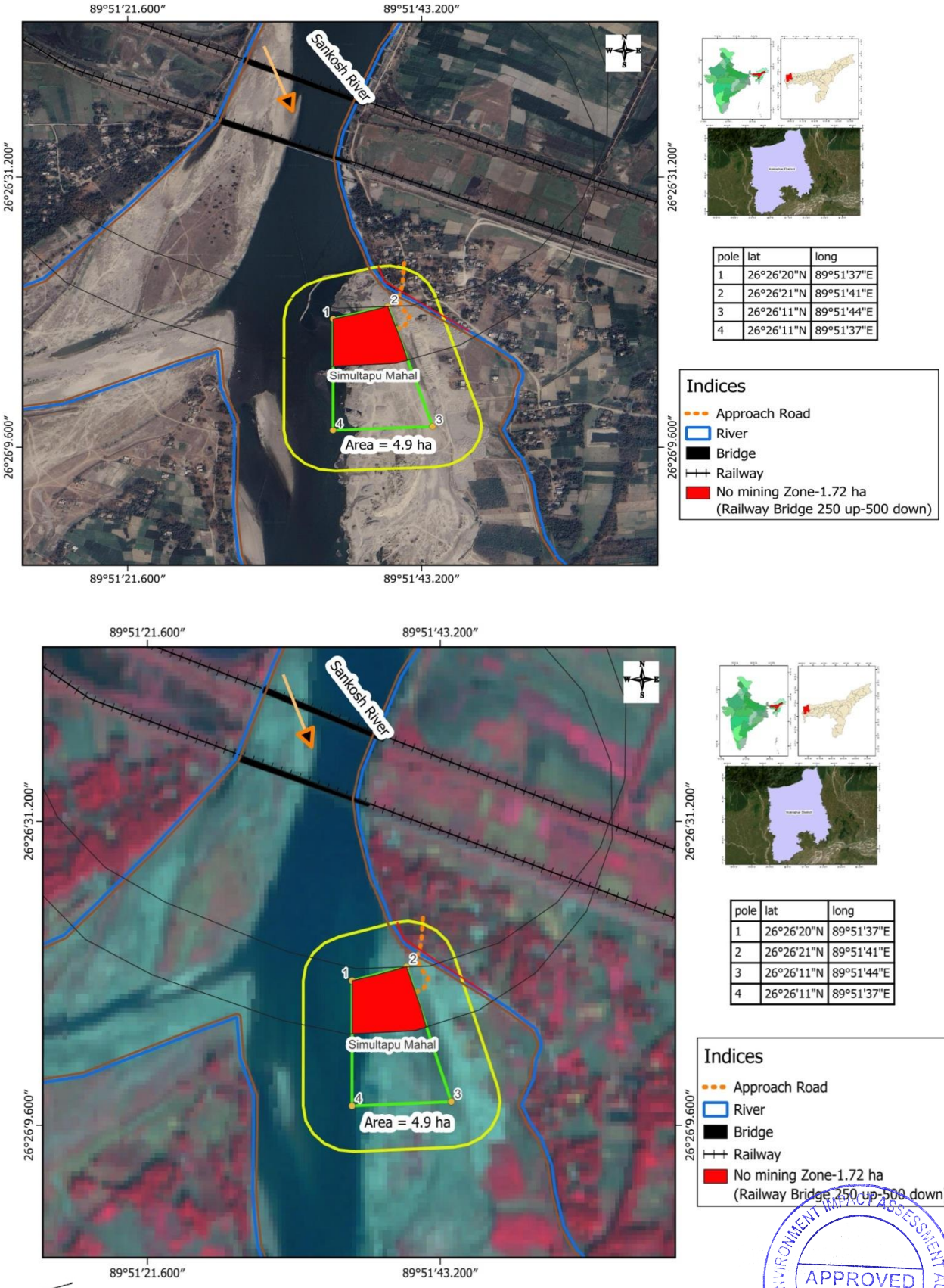
Map 11.6: Buffer map showing Simultapu Mahal of Sankosh River



pole	lat	long
1	26°26'20"N	89°51'37"E
2	26°26'21"N	89°51'41"E
3	26°26'11"N	89°51'44"E
4	26°26'11"N	89°51'37"E

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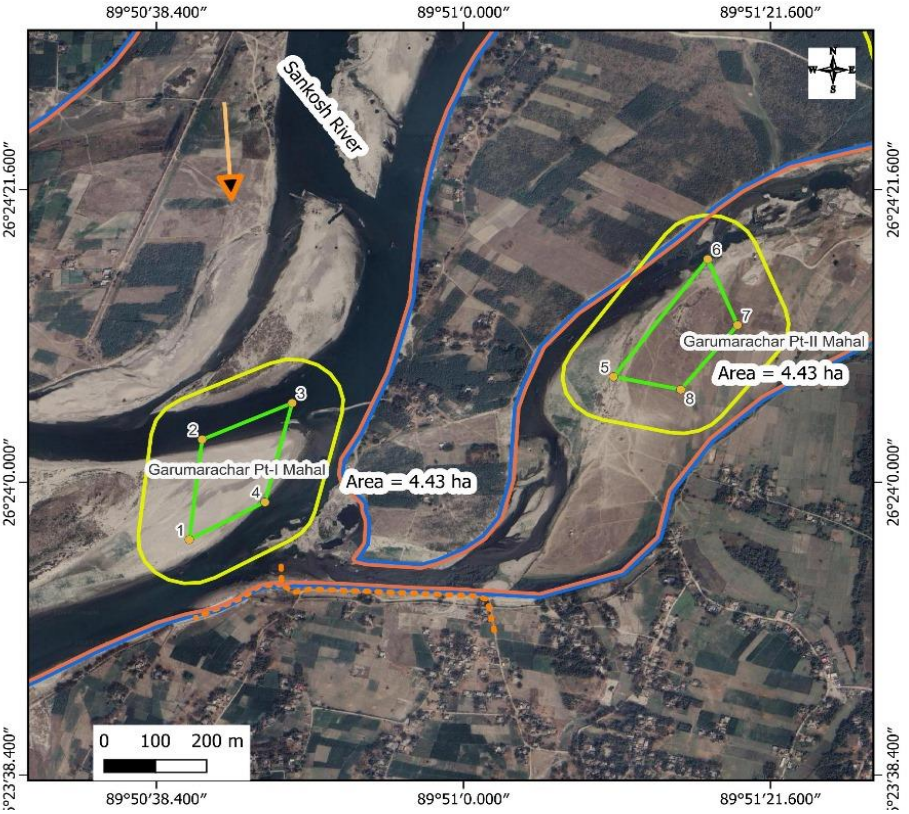
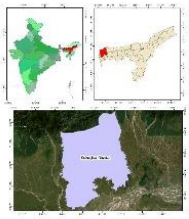
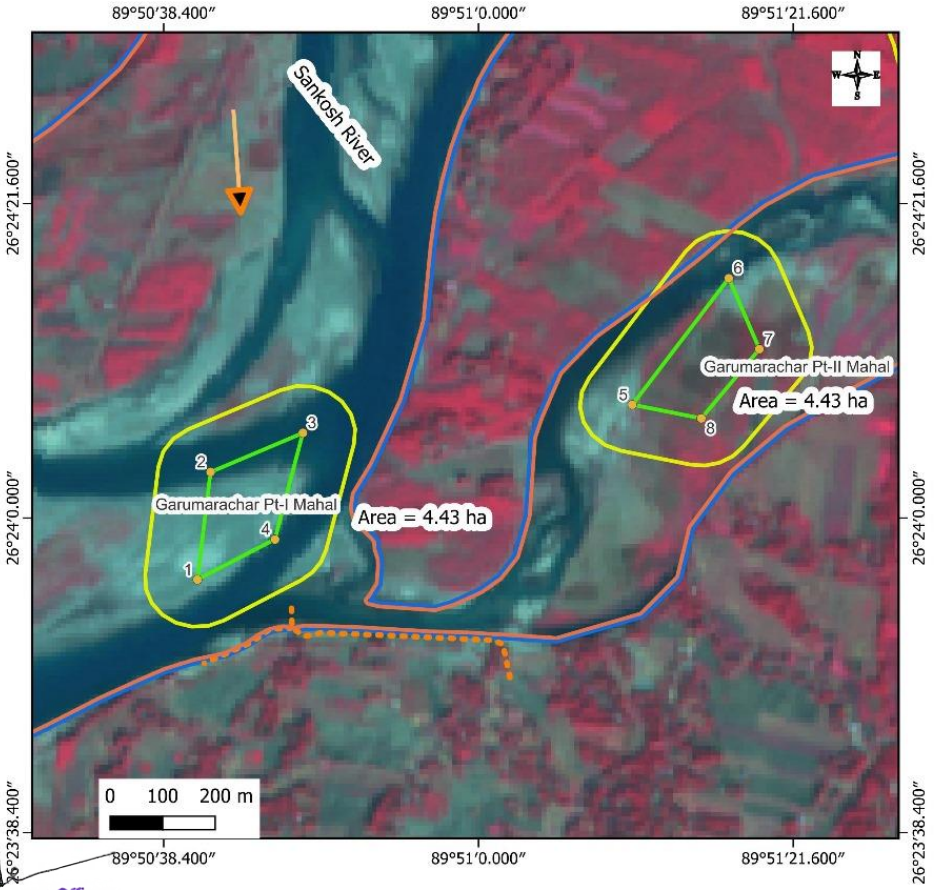
Map 11.7: Buffer map showing Garumarachar Pt-1 Mahal and Garumarachar Pt-2Mahal of Sankosh River

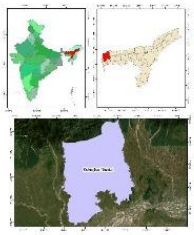




Poles	Lat	Long
1	26°23'56"N	89°50'41"E
2	26°24'3"N	89°50'42"E
3	26°24'6"N	89°50'48"E
4	26°23'59"N	89°50'46"E
5	26°24'8"N	89°51'11"E
6	26°24'16"N	89°51'17"E
7	26°24'12"N	89°51'19"E
8	26°24'7"N	89°51'15"E

Indices
- Buffer- 100 m
- Project Area
- River
- Approach Road
- Berm-7.5 m





Poles	Lat	Long
1	26°23'56"N	89°50'41"E
2	26°24'3"N	89°50'42"E
3	26°24'6"N	89°50'48"E
4	26°23'59"N	89°50'46"E
5	26°24'8"N	89°51'11"E
6	26°24'16"N	89°51'17"E
7	26°24'12"N	89°51'19"E
8	26°24'7"N	89°51'15"E

Indices
- Buffer- 100 m
- Project Area
- River
- Approach Road
- Berm-7.5 m

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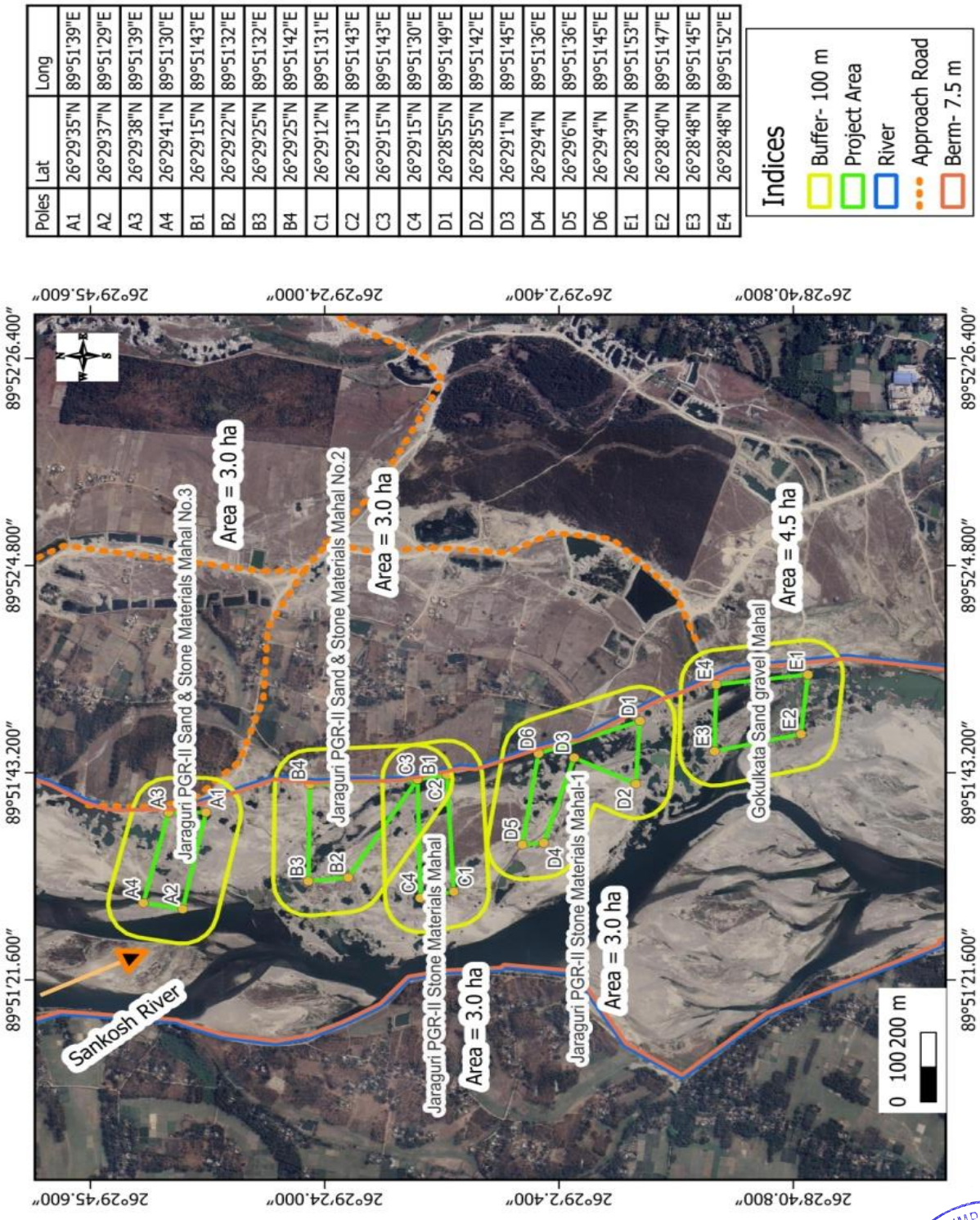
Map 11.8: Buffer map showing Jaraguri PGR-II SSM Mahal, Jaraguri PGR-II SSM Mahal I, II, III and Gokulkata Sand Gravel Mahal of Sankosh River

Poles	Lat	Long
A1	26°29'35"N	89°51'39"E
A2	26°29'37"N	89°51'29"E
A3	26°29'38"N	89°51'39"E
A4	26°29'41"N	89°51'30"E
B1	26°29'15"N	89°51'43"E
B2	26°29'22"N	89°51'32"E
B3	26°29'25"N	89°51'32"E
B4	26°29'25"N	89°51'42"E
C1	26°29'12"N	89°51'31"E
C2	26°29'13"N	89°51'43"E
C3	26°29'15"N	89°51'43"E
C4	26°29'15"N	89°51'30"E
D1	26°28'55"N	89°51'49"E
D2	26°28'55"N	89°51'42"E
D3	26°29'1"N	89°51'45"E
D4	26°29'4"N	89°51'36"E
D5	26°29'6"N	89°51'36"E
D6	26°29'4"N	89°51'45"E
E1	26°28'39"N	89°51'53"E
E2	26°28'40"N	89°51'47"E
E3	26°28'48"N	89°51'45"E
E4	26°28'48"N	89°51'52"E



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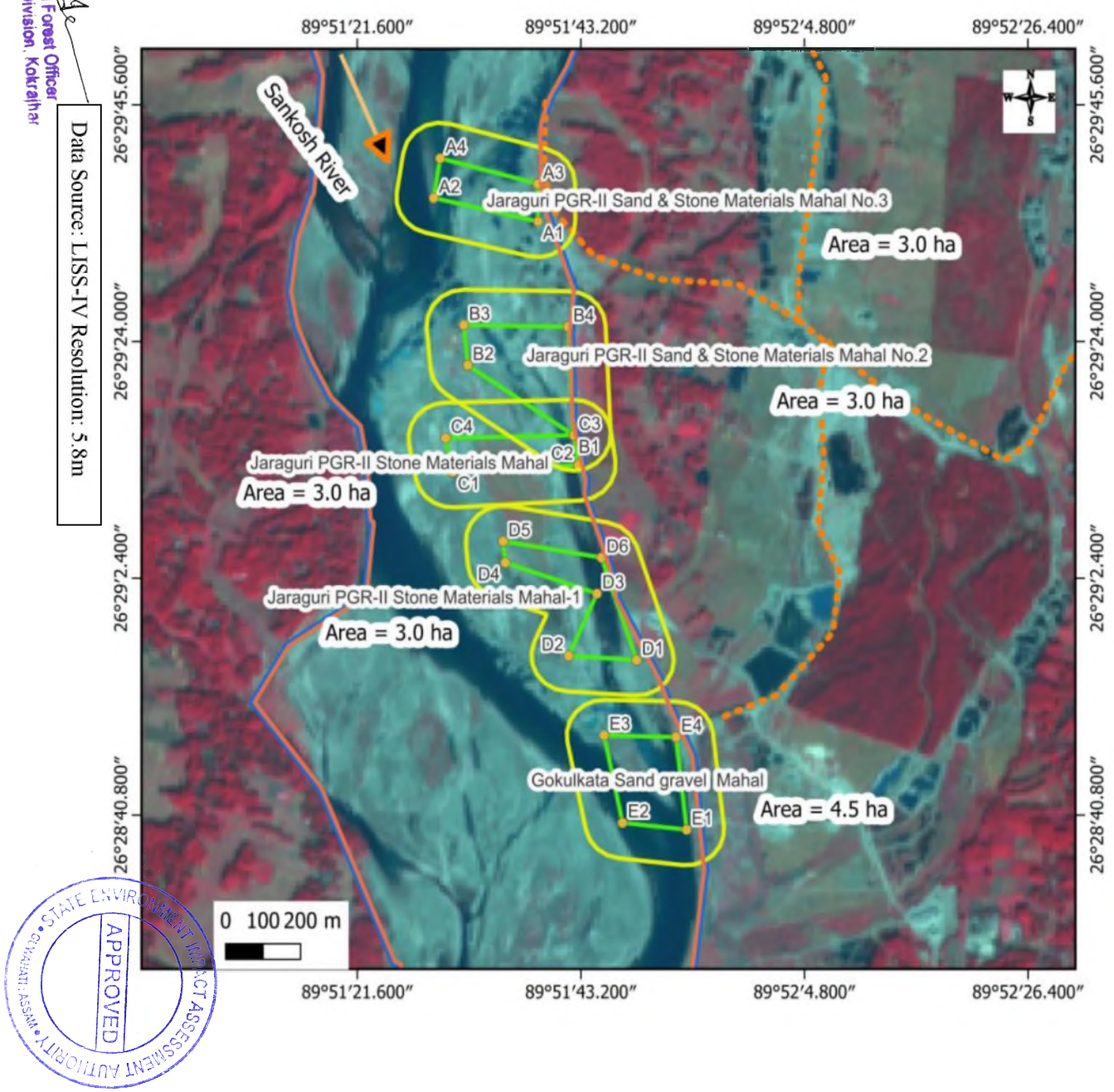

Poles	Lat	Long
A1	26°29'35"N	89°51'39"E
A2	26°29'37"N	89°51'29"E
A3	26°29'38"N	89°51'39"E
A4	26°29'41"N	89°51'30"E
B1	26°29'15"N	89°51'43"E
B2	26°29'22"N	89°51'32"E
B3	26°29'25"N	89°51'32"E
B4	26°29'25"N	89°51'42"E
C1	26°29'12"N	89°51'31"E
C2	26°29'13"N	89°51'43"E
C3	26°29'15"N	89°51'43"E
C4	26°29'15"N	89°51'30"E
D1	26°28'55"N	89°51'49"E
D2	26°28'55"N	89°51'42"E
D3	26°29'1"N	89°51'45"E
D4	26°29'4"N	89°51'36"E
D5	26°29'6"N	89°51'36"E
D6	26°29'4"N	89°51'45"E
E1	26°28'39"N	89°51'53"E
E2	26°28'40"N	89°51'47"E
E3	26°28'48"N	89°51'45"E
E4	26°28'48"N	89°51'52"E

Indices

- Buffer- 100 m
- Project Area
- River
- Approach Road
- Berm- 7.5 m

Data Source: LISS-IV Resolution: 5.8m

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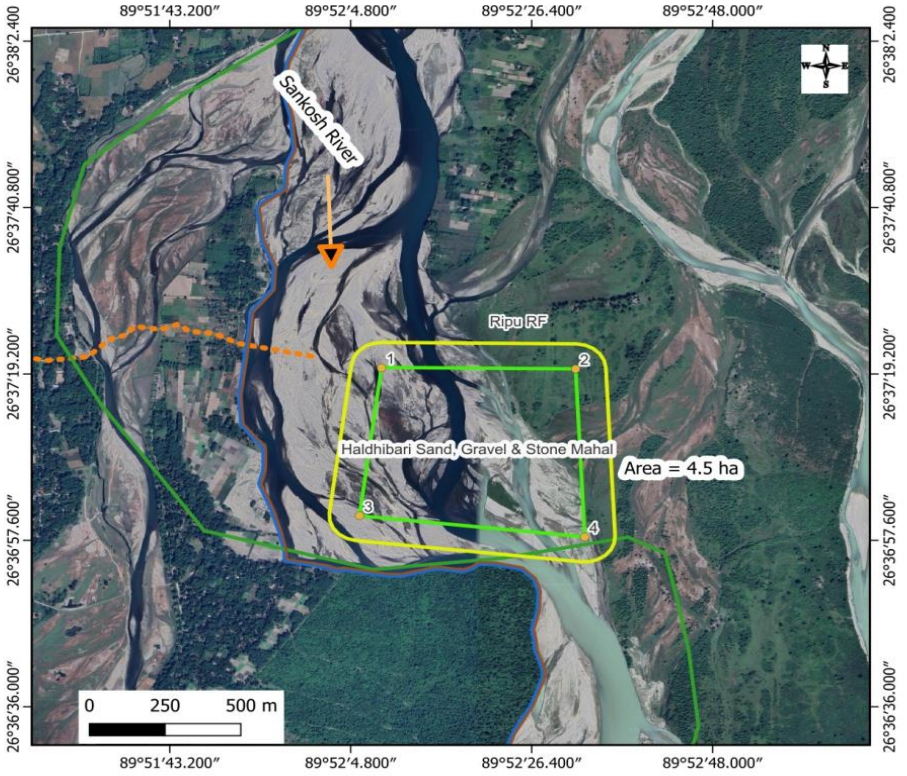
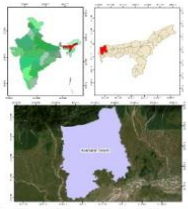
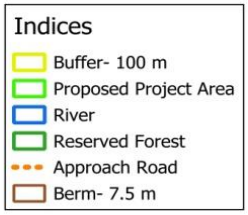
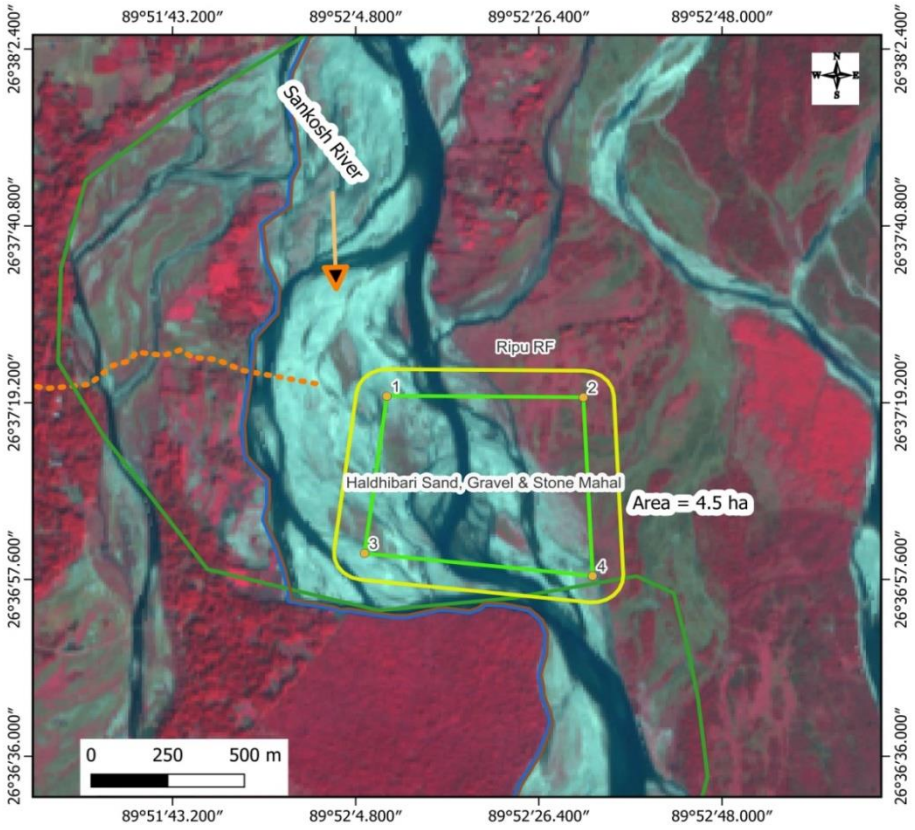
Map 11.9: Buffer map showing Haldhibari Sand, Gravel and Stone Mahal of Sankosh River

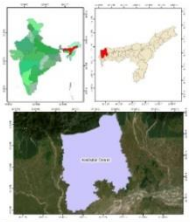




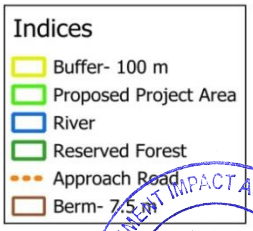
Poles	Lat	Long
1	26°37'20"N	89°52'8"E
2	26°37'20"N	89°52'32"E
3	26°37'1"N	89°52'6"E
4	26°36'58"N	89°52'33"E







Poles	Lat	Long
1	26°37'20"N	89°52'8"E
2	26°37'20"N	89°52'32"E
3	26°37'1"N	89°52'6"E
4	26°36'58"N	89°52'33"E



Data Source: LISS-IV Resolution: 5.8m

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Haltugaon Division, Kokrajhar

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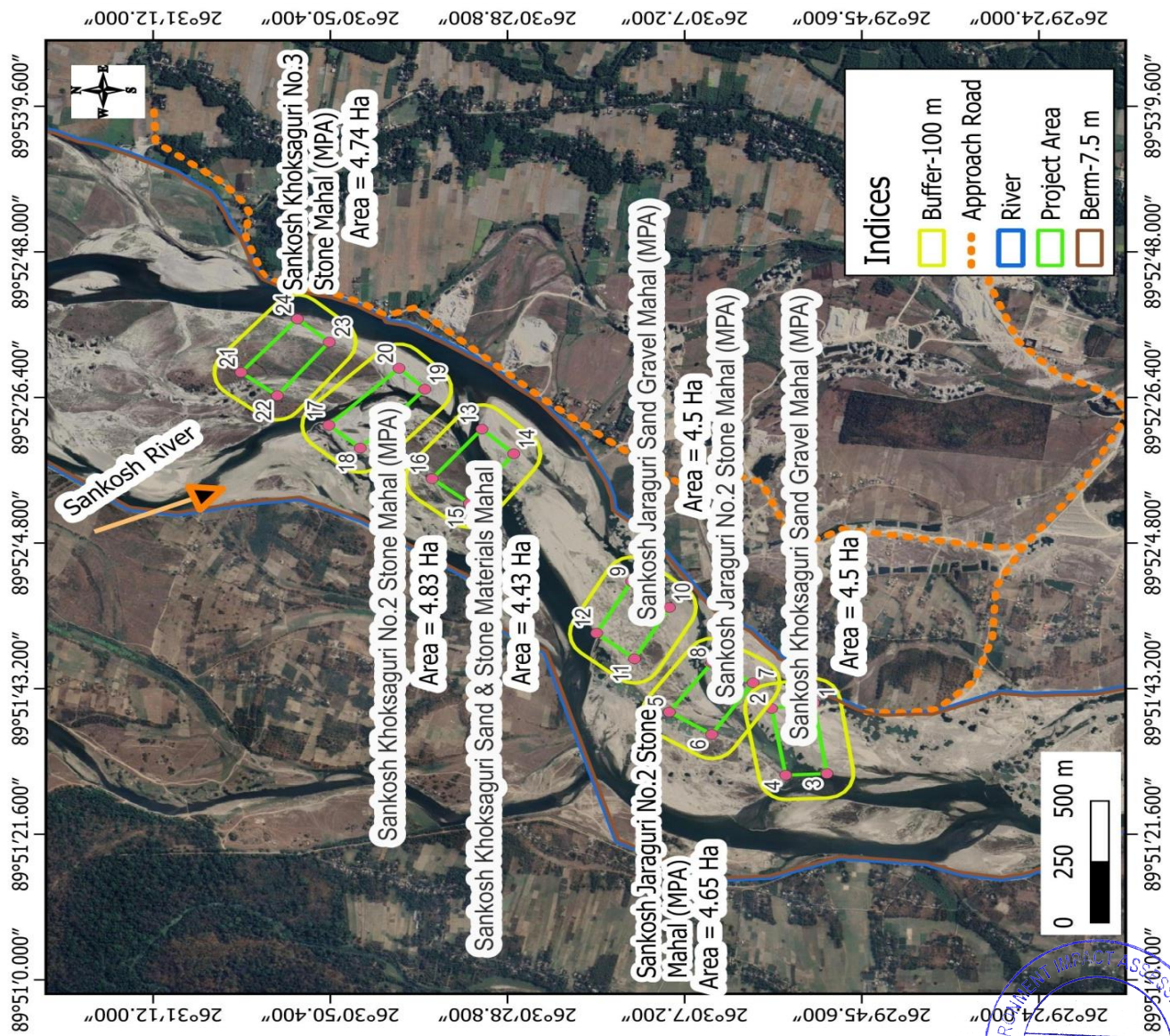
Map 11.10: Buffer map showing Sankosh Khoksaguri No 2 and 3 Stone Mahal (MPA), Sankosh Khoksaguri SSM Mahal, Sankosh Jaraguri SG Mahal (MPA), Sankosh Jaraguri No 2 Stone Mahal (MPA), Sankosh Khoksaguri Sand Gravel Mahal (MPA) of Sankosh River

Poles	Lat	Long
5	26°30'9"N	89°51'40"E
6	26°30'4"N	89°51'36"E
7	26°29'59"N	89°51'44"E
8	26°30'4"N	89°51'47"E
9	26°30'14"N	89°51'59"E
10	26°30'9"N	89°51'55"E
11	26°30'13"N	89°51'48"E
12	26°30'18"N	89°51'51"E
17	26°30'51"N	89°52'22"E
18	26°30'47"N	89°52'19"E
19	26°30'39"N	89°52'28"E
20	26°30'42"N	89°52'31"E
21	26°31'1"N	89°52'30"E
22	26°30'57"N	89°52'27"E
23	26°30'51"N	89°52'35"E
24	26°30'54"N	89°52'38"E
13	26°30'32"N	89°52'22"E
14	26°30'28"N	89°52'18"E
15	26°30'33"N	89°52'11"E
16	26°30'38"N	89°52'14"E
1	26°29'51"N	89°51'41"E
2	26°29'57"N	89°51'40"E
3	26°29'50"N	89°51'31"E
4	26°29'55"N	89°51'30"E



Data Source: LISS-IV Resolution: 5.8m

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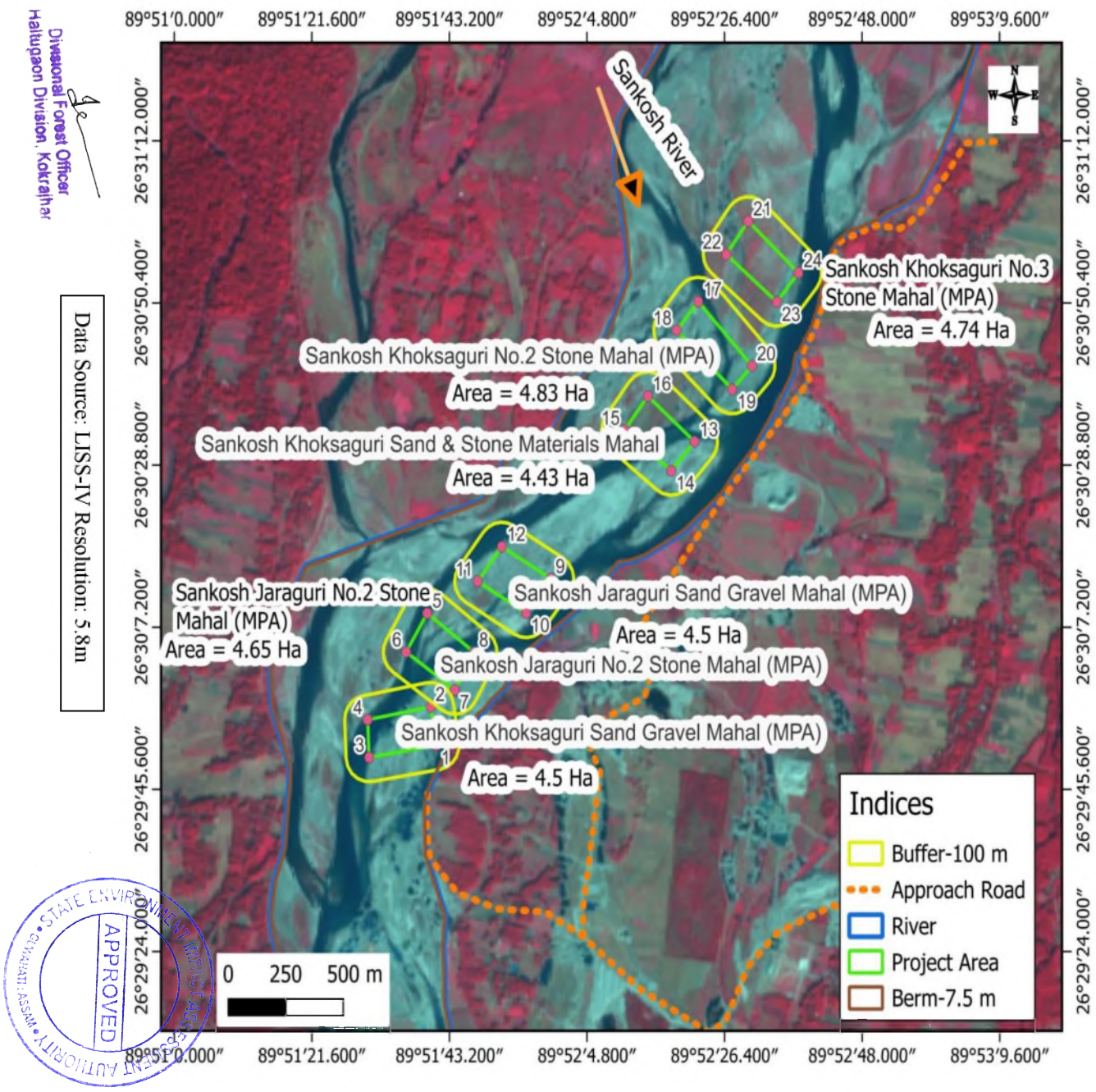

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Data Source: LISS-IV Resolution: 5.8m

Poles	Lat	Long
5	26°30'9"N	89°51'40"E
6	26°30'4"N	89°51'36"E
7	26°29'59"N	89°51'44"E
8	26°30'4"N	89°51'47"E
9	26°30'14"N	89°51'59"E
10	26°30'9"N	89°51'55"E
11	26°30'13"N	89°51'48"E
12	26°30'18"N	89°51'51"E
17	26°30'51"N	89°52'22"E
18	26°30'47"N	89°52'19"E
19	26°30'39"N	89°52'28"E
20	26°30'42"N	89°52'31"E
21	26°31'1"N	89°52'30"E
22	26°30'57"N	89°52'27"E
23	26°30'51"N	89°52'35"E
24	26°30'54"N	89°52'38"E
13	26°30'32"N	89°52'22"E
14	26°30'28"N	89°52'18"E
15	26°30'33"N	89°52'11"E
16	26°30'38"N	89°52'14"E
1	26°29'51"N	89°51'41"E
2	26°29'57"N	89°51'40"E
3	26°29'50"N	89°51'31"E
4	26°29'55"N	89°51'30"E

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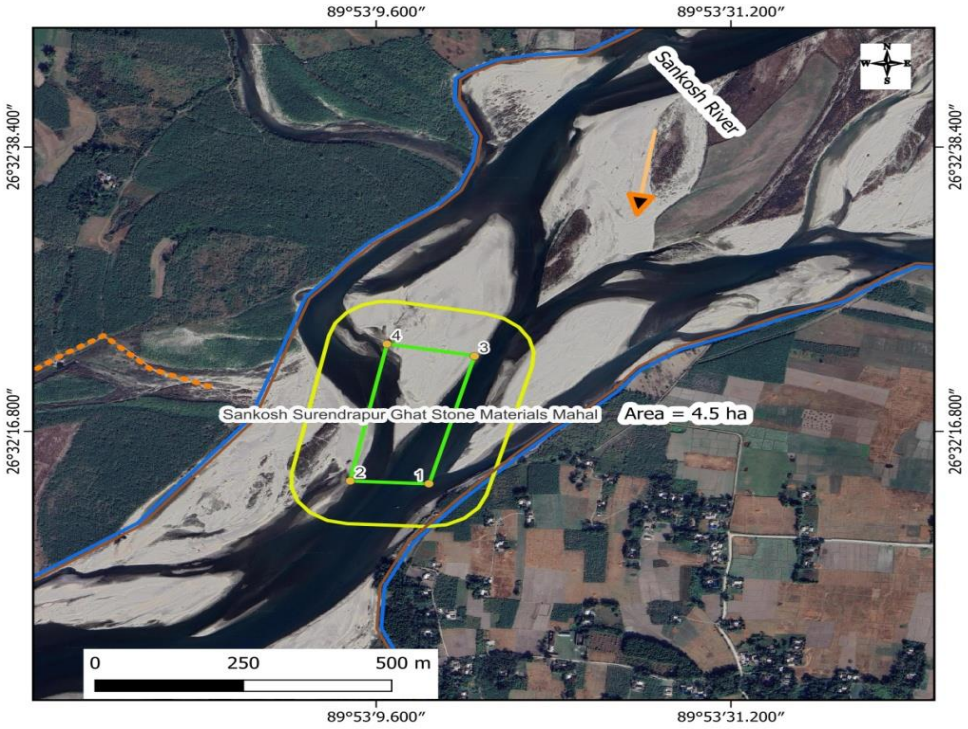
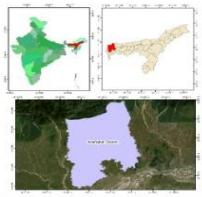
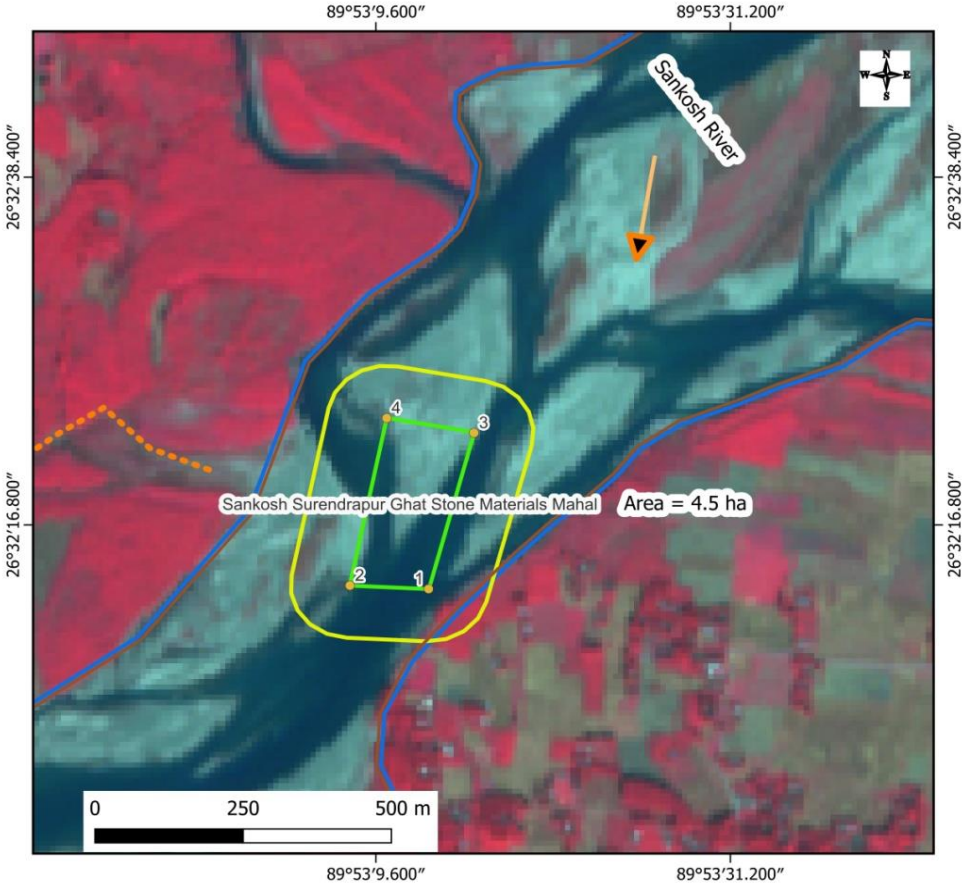
Map 11.11: Buffer map showing Surendrapur Ghat Stone Materials Mahal of Sankosh River

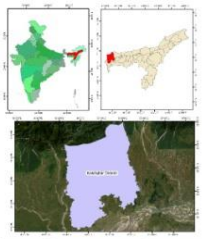




Poles	Lat	Long
1	26°32'13"N	89°53'13"E
2	26°32'13"N	89°53'8"E
3	26°32'23"N	89°53'16"E
4	26°32'23"N	89°53'10"E

Indices
- Buffer- 100 m
- Proposed Project Area
- River
- Approach Road





Poles	Lat	Long
1	26°32'13"N	89°53'13"E
2	26°32'13"N	89°53'8"E
3	26°32'23"N	89°53'16"E
4	26°32'23"N	89°53'10"E

Indices
- Buffer- 100 m
- Proposed Project Area
- River
- Approach Road

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Data Source: LISS-IV Resolution: 5.8m

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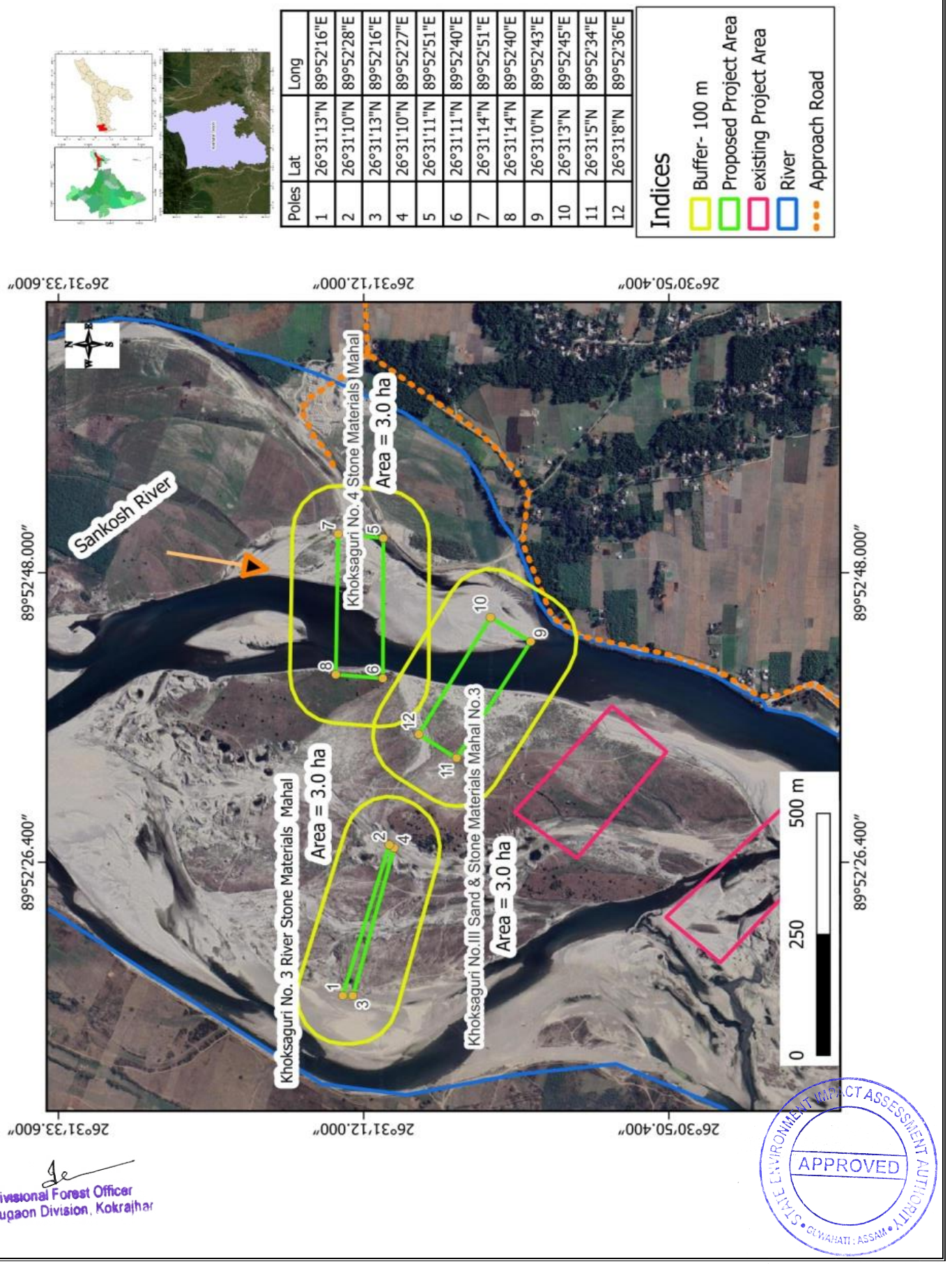
Map 11.12: Buffer map showing Khoksaguri No 3 River Stone Materials Mahal, Khoksaguri No III Sand Stone Materials Mahal No 3 and Khoksaguri No 4 Stone Materials Mahal of Sankosh River



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Haltugaon Division, Kokrajhar

Data Source: LISS-IV Resolution: 5.8m

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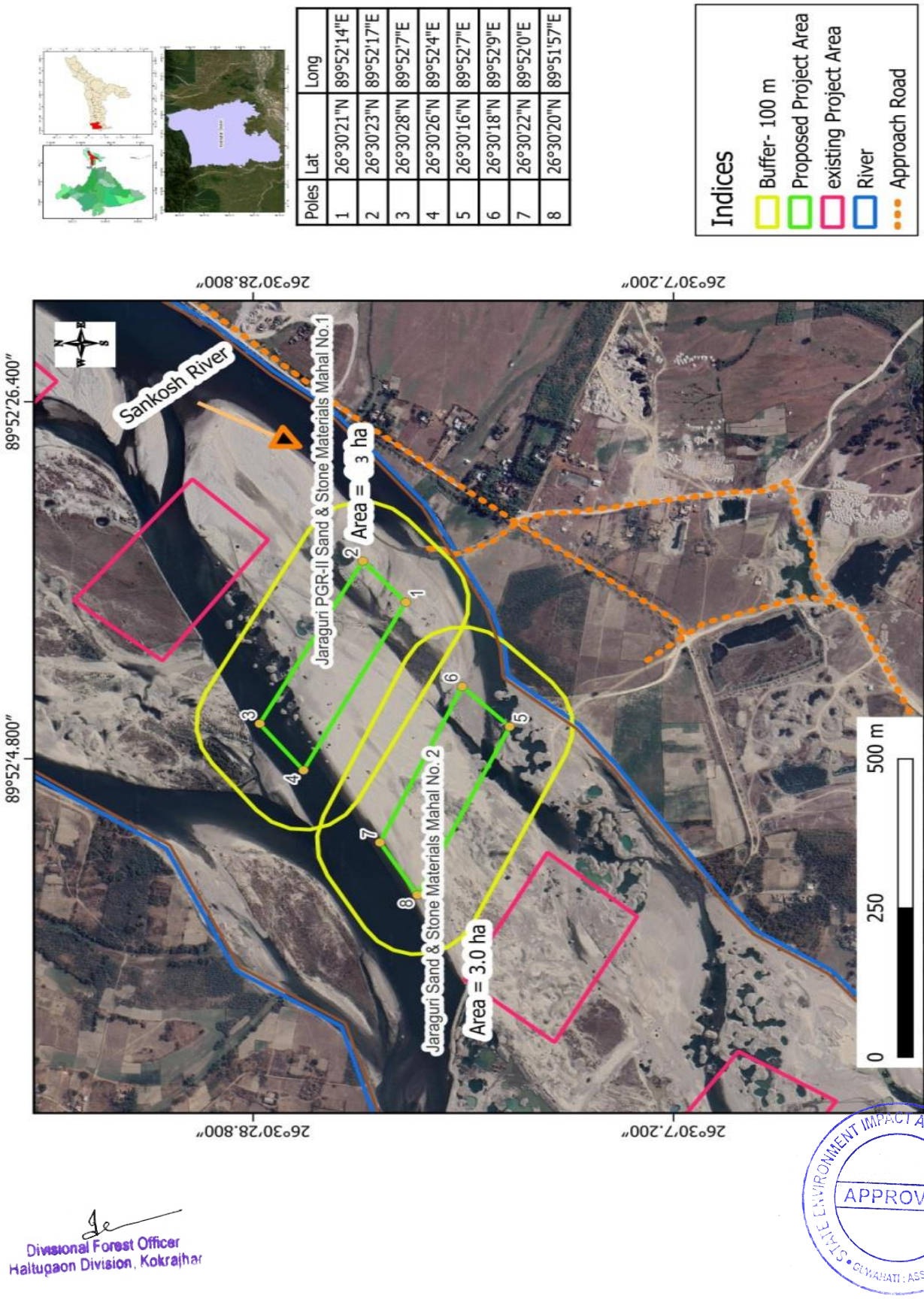
Map 11.13: Buffer map showing Jaraguri PGR-II Sand and Stone Materials Mahal No1 and Jaraguri Sand and stone Materials Mahal no 2 of Sankosh River



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Ph: 7086020945/ 9435192896/ 9395005840
E-mail: contact@rlnt.in , reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing

Group: Building Materials

Date of issue of Report: 28-09-2024

TEST REPORT		
1	Name of Client:	The Divisional Forest Officer Hltugaon Division, Kokrajhar
2	Name of project:	District Survey Report, Kokrajhar District
3	Type of sample:	Sand & Gravel
4	Condition of sample:	Ok
5	Date of sample Received:	15-09-2024
6	Source of Material:	Sankosh River
7	Location:	Jaraguri Village Lat-26.49866, Long-89.86153
8	Test Sample Supplied By:	Customer
9	Test Done at:	"At the Loboratory located in the basement of our premises at the above mentioned address"

Test Results : Next Page

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E-mail: contact@rlnt.in ; reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing — Group: Building Materials

Test Report No: 2409126671-1
Sample ID: DFO/HFD/240931/PG

Name of Test: **Gradation** — **Test Method:** IS 2386-Part-I-1963 (Reaffirmed 2021)

Type of Sample: **Sand & Gravel** — **Date of testing: 12-10-2024 to 14-10-2024**

Source: **Tipkai River** — Environmental Conditions during test

Temparature: **26.9°C, Humidity: 67%**

TEST RESULTS

Is Sieve Size (mm)	Weight Retained (gm)	% Weight Retained (gm)	Cumulative % of Retained	% of Passing
300	0	0.00	0.00	100.00
75	0	0.00	0.00	100.00
20	251	12.55	12.55	87.45
4.75	352	17.6	30.15	69.85
0.075	1392	69.6	99.75	0.25
Pan	5			
Total	2000			

% Boulder = 0.00%
%Gravel= 30.15%
%Sand= 69.6%
%Silt= 0.25%

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E-mail: contact@rint.in ; reliantfoundation2018@gmail.com, Website : www.rint.in

Discipline: Mechanical Testing
Test Report No: 2409126671-3
Sample ID: DFO/HFD/240948/PG

Group: Building Materials

Date of issue of Report: 26-09-2024

TEST REPORT		
1	**Name of Client:**	**The Divisional Forest Officer Hitugaon Division, Kokrajhar**
2	**Name of project:**	**District Survey Report, Kokrajhar District**
3	**Type of sample:**	**Sand & Gravel**
4	**Condition of sample:**	**Ok**
5	**Date of sample Received:**	**17-09-2024**
6	**Source of Material:**	**Sankosh River**
7	**Location:**	**Jaraguri Village** **Lat-26.49866, Long-89.86153**
8	**Test Sample Supplied By:**	**Customer**
9	**Test Done at:**	**"At the Loboratory located in the basement of our premises at the above mentioned address"**

Test Method **IS 2386-PartIII-1963 (Reaffirmed 2021)**

1. Name of Test **Bulk Density of Sand & Gravel**
Type of Test **Loose**
Source **Tipkai River**

Date of testing **23-09-2024 to 23-09-2024**
Environmental Conditions during test
Temparature: **27.1°C, Humidity:64%**

TEST RESULTS			
Sample	Weight of Aggregate to fill the Mould In (Kg) (A)	Volume of Mould In (litre) (B)	Bulk Density In (Kg/Litre) [A/B]
1	22.320	15.152	1.47

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E-mail: contact@rlnt.in , reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing — Group: Building Materials

Test Report No: 2409126671-2
Sample ID: DFO/HFD/240931/PG

Name of Test: **Specific Gradation**

Test Method: IS 2386-Part-I-1963 (Reaffirmed 2021)

Type of Sample: **Sand & Gravel**

Source: **Tipkai River**

Date of testing: 25-09-2024 to 27-09-2024

Environmental Conditions during test

Temparature: **27.6°C, Humidity: 61%**

TEST RESULTS

Sl. No.	Weight of Saturated Surface Dry Sample (gm)	Weight of Pycnometer Containing Sample & filled With Distilled Water (gm)	Weight of Pycnometer Frillied with Water Only (gm)	Waight of Oven Dried Sample (gm)	Specific Gravity [D/A-(b-C)]
	A	B	C	D	
1	570.0	2054.0	1747.5	542.0	2.05

Remarks : Calculations are As per IS : 2386-part-III-1963 Reaffirmed 2021 , Clause No.2.4.3, No limits Specified, Test Result are Satisfactory.

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Gaurang River

Sl No	*Description*	*Area in Ha.*	*Percentage of Total area (In %)*	*Cumulative %*
1	River area	442	100	100
2	Area granted for mining	4.60	1.04	1.04
3	No of lease not recommended for future Quarry Lease grant due extracted up to a distance of 1 kilometer (1 km) from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side	0.0	0.0	0.0
4	Area not recommended for future Quarry Lease grant due to 100 m Buffer from any railway line or bridge	0.0	0.0	0.0
5	Area not recommended for future Quarry Lease grant due to 100 m buffer from the outer periphery of the defined limits of any village, habitation, National Highway, State highway and other roads	0.0	0.0	0.0
6	Area not recommended for future Quarry Lease grant due to non-availability of un-mined block 50 meters width after every block of 1,000 meters over which is undertaken or at such distance as may be directed by the competent authority	0.0	0.0	0.0

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7	Area not recommended for future Quarry Lease grant due to 100 m Buffer Local Minor Check Dam	0.0	0.0	0.0
8	Area not recommended for future Quarry Lease grant due to 500 m buffer from the irrigation Structure/ Reservoir & Submergence Area	0.0	0.0	0.0
9	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Canal/ Tank/ Lake	0.0	0.0	0.0
10	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Ropeway or ropeway trestle or station	0.0	0.0	0.0
11	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Heritage site, Protected monuments	0.0	0.0	0.0
12	Area not recommended for future Quarry Lease grant due to Eco-sensitive Zone	0.0	0.0	0.0
13	Applicability of Cluster (Other lease within 500 meter radius	Yes	-	-

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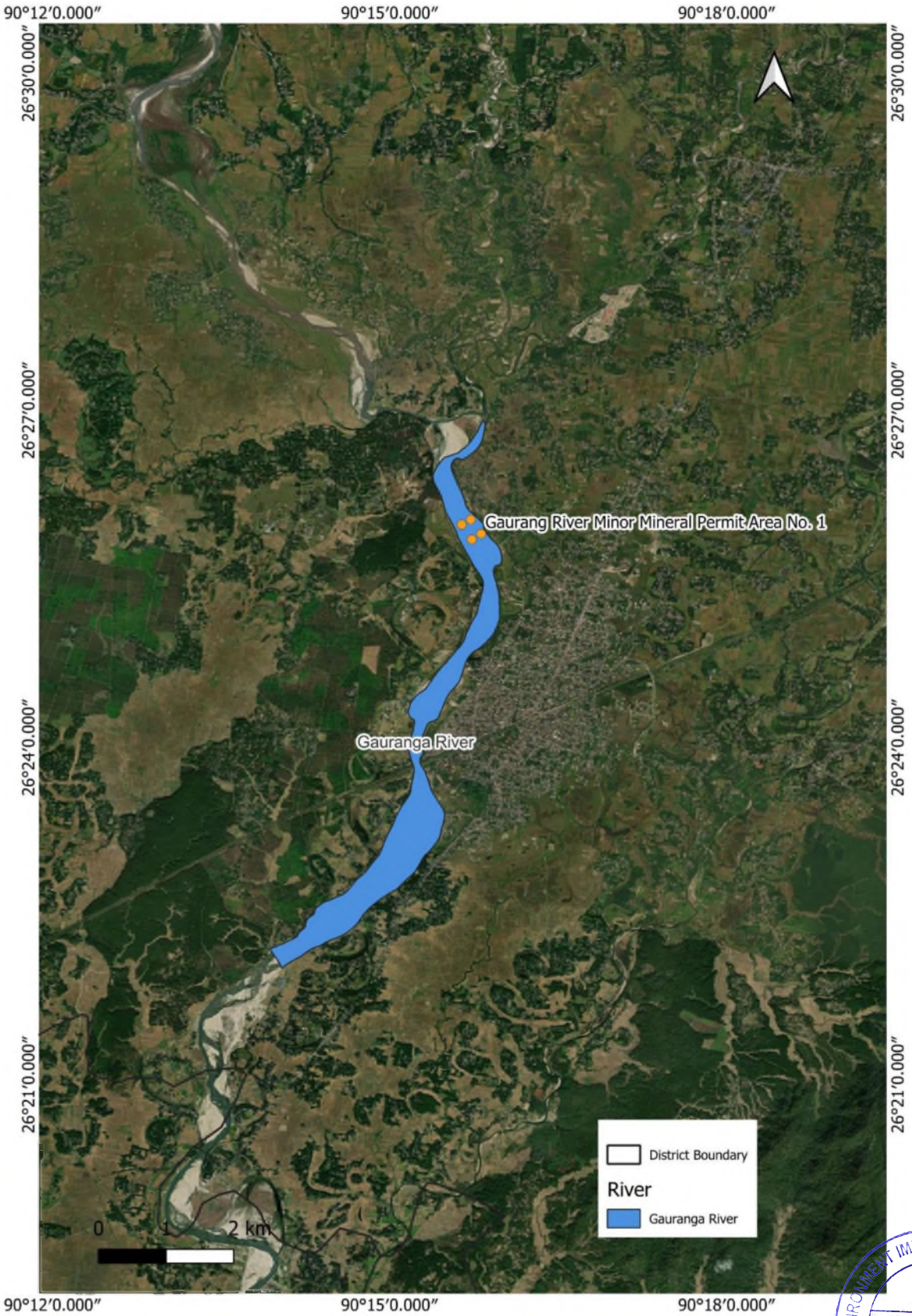

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11.6: Table showing existing/proposed mining permits/contracts areas of Gaurang River under Kokrajhar District

Sl. No	*Name of the mines*	*Area (in ha)*	*Geolocation*		*Mineral Name*	*Existing/ proposed*
1.	Gaurang River Minor Mineral Permit Area No. 1	4.60 ha	26°26'1.71"N 26°25'54.18"N 26°25'51.15"N 26°25'59.02"N	90°15'43.45"E, 90°15'48.99"E 90°15'44.01"E, 90°15'38.55"E	Clay	**Proposed**

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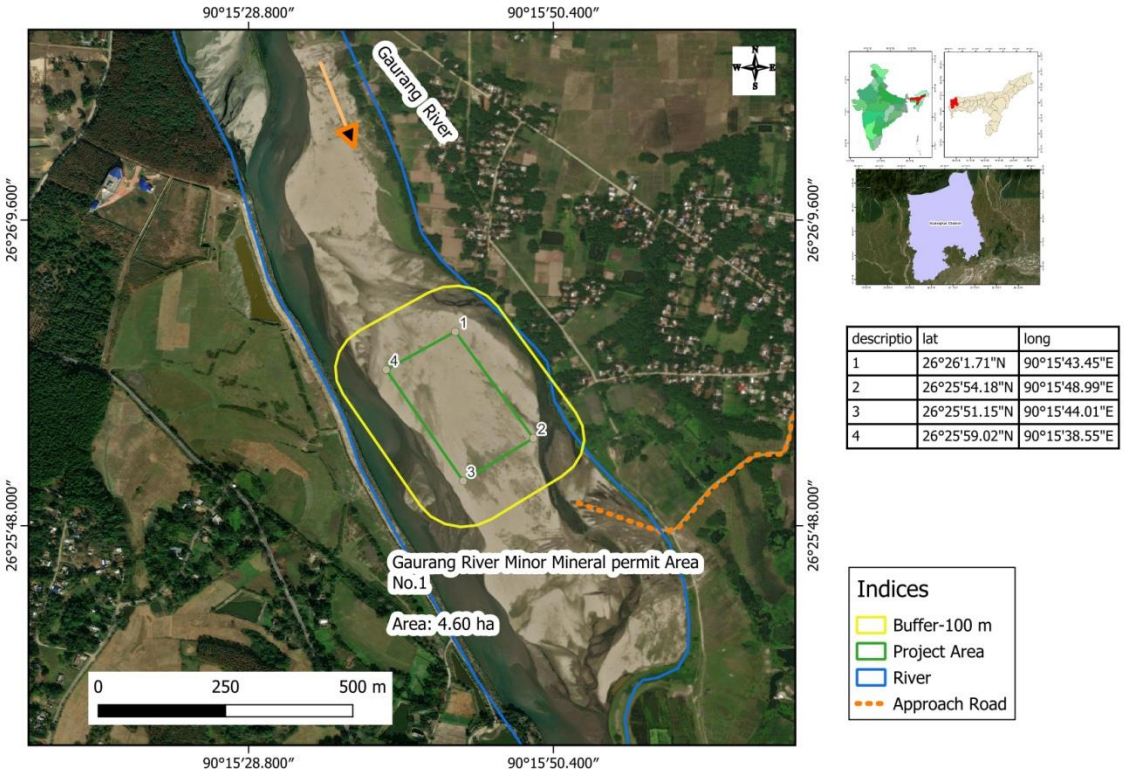
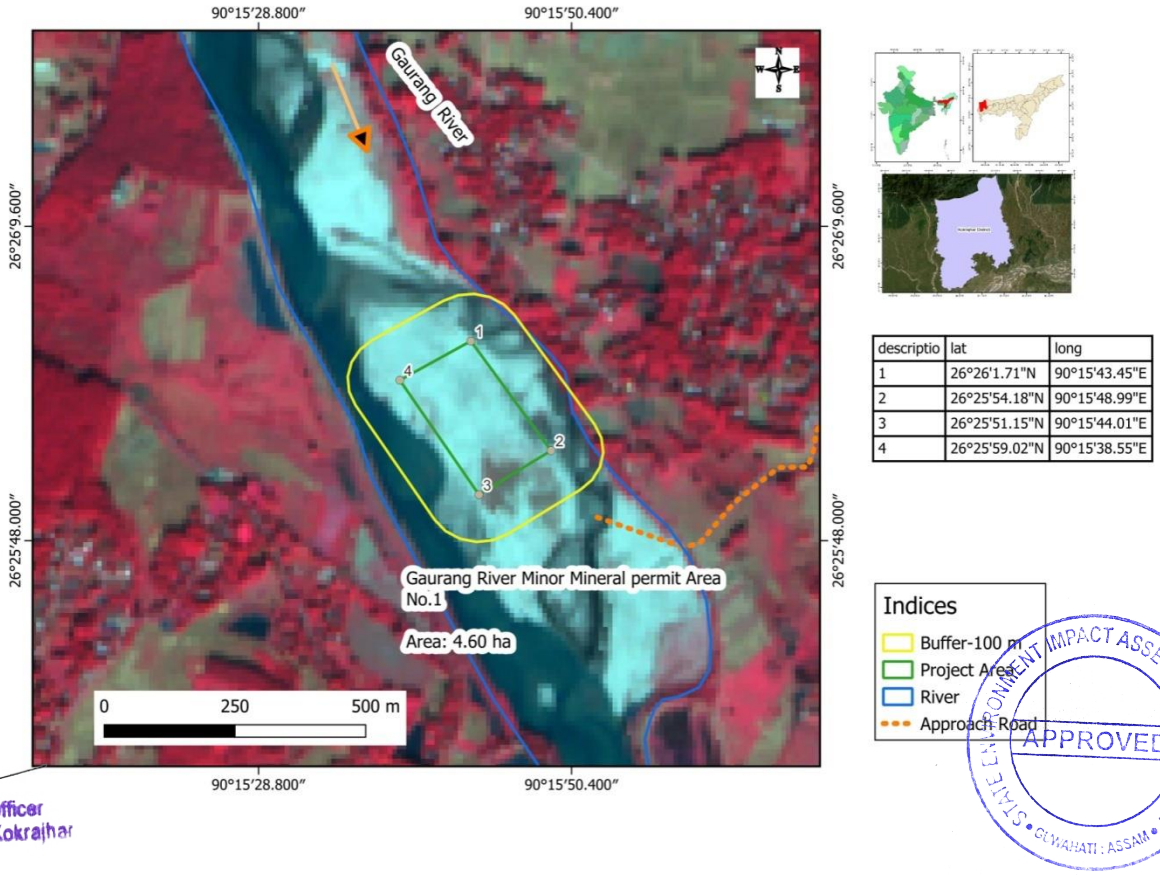
Map 11.14: Buffer map showing Gaurang River Minor Mineral Permit Area No. 1 of Gaurang River



descriptio	lat	long
1	26°26'1.71"N	90°15'43.45"E
2	26°25'54.18"N	90°15'48.99"E
3	26°25'51.15"N	90°15'44.01"E
4	26°25'59.02"N	90°15'38.55"E



descriptio	lat	long
1	26°26'1.71"N	90°15'43.45"E
2	26°25'54.18"N	90°15'48.99"E
3	26°25'51.15"N	90°15'44.01"E
4	26°25'59.02"N	90°15'38.55"E

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E-mail: contact@rint.in ; reliantfoundation2018@gmail.com, Website : www.rint.in

Discipline: Mechanical Testing | Group: Building Materials

Date of issue of Report: 28-09-2024

TEST REPORT		
1	**Name of Client:**	**The Divisional Forest Officer Hitugaon Division, Kokrajhar**
2	**Name of project:**	**District Survey Report, Kokrajhar District**
3	**Type of sample:**	**Clay**
4	**Condition of sample:**	**Ok**
5	**Date of sample Received:**	**15-09-2024**
6	**Source of Material:**	**Gaurang River**
7	**Location:**	**Titagual Village** **Titagual Village** **Lat-26.43313, Long-90.26336**
8	**Test Sample Supplied By:**	**Customer**
9	**Test Done at:**	**"At the Loboratory located in the basement of our premises at the above mentioned address"**

Test Results : Next Page

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Discipline: Mechanical Testing — Group: Building Materials

Test Report No: 2409126685-1
Sample ID: DFO/HFD/240959/PG

Name of Test: **Gradation** — **Test Method:** IS 2386-Part-I-1963 (Reaffirmed 2021)

Type of Sample: **Clay**
Source: **Gaurang River**

Date of testing: 12-10-2024 to 14-10-2024
Environmental Conditions during test
Temparature: **26.9°C, Humidity: 67%**

TEST RESULTS

Is Sieve Size (mm)	Weight Retained (gm)	% Weight Retained (gm)	Cumulative % of Retained	% of Passing
300	0	0.00	0.00	100.00
75	0	0.00	0.00	100.00
20	0	0.00	0.00	100.00
4.75	17	0.85	0.85	99.15
0.075	163	8.15	9.0	91.0
Pan	1820			
Total	2000			

% Boulder = 0.00%
%Gravel= 0.00%
%Sand= 8.15%
%Clay= 91.0%

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E-mail: contact@rlnt.in ; reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing
Test Report No: 2409126685-3
Sample ID: DFO/HFD/240959/PG

Group: Building Materials

Date of issue of Report: **26-09-2024**

TEST REPORT		
1	**Name of Client:**	**The Divisional Forest Officer Hitugaon Division, Kokrajhar**
2	**Name of project:**	**District Survey Report, Kokrajhar District**
3	**Type of sample:**	**Clay**
4	**Condition of sample:**	**Ok**
5	**Date of sample Received:**	**17-09-2024**
6	**Source of Material:**	**Gaurang River**
7	**Location:**	**Titagual Village** **Lat-26.43313, Long-90.26336**
8	**Test Sample Supplied By:**	**Customer**
9	**Test Done at:**	**"At the Loboratory located in the basement of our premises at the above mentioned address"**

Test Method **IS 2386-PartIII-1963 (Reaffirmed 2021)**

1. Name of Test **Bulk Density of Clay**
Type of Test **Loose**
Source **Gaurang River**

Date of testing **23-09-2024 to 23-09-2024**
Environmental Conditions during test
Temparature: **27.1°C, Humidity:64%**

TEST RESULTS			
Sample	Weight of Aggregate to fill the Mould In (Kg) (A)	Volume of Mould In (litre) (B)	Bulk Density In (Kg/Litre) [A/B]
1	20.850	14.025	1.48

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Discipline: Mechanical Testing — Group: Building Materials

Test Report No: 2409126685-2
Sample ID: DFO/HFD/240959/PG

Name of Test: **Specific Gradation** — **Test Method:** IS 2386-Part-I-1963 (Reaffirmed 2021)

Type of Sample: **Clay**
Source: **Gaurang River**

Date of testing: **25-09-2024 to 27-09-2024**
Environmental Conditions during test
Temparature: **27.6°C, Humidity: 61%**

TEST RESULTS

Sl. No.	Weight of Saturated Surface Dry Sample (gm)	Weight of Pycnometer Containing Sample & filled With Distilled Water (gm)	Weight of Pycnometer Frillied with Water Only (gm)	Weight of Oven Dried Sample (gm)	Specific Gravity [D/A-(b-C)]
	A	B	C	D	
1	570.0	2054.0	1747.5	542.0	2.05

Remarks : Calculations are As per IS : 2386-part-III-1963 Reaffirmed 2021 , Clause No.2.4.3, No limits Specified, Test Result are Satisfactory.

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Gongia River

Sl No	*Description*	*Area in Ha.*	*Percentage of Total area (In %)*	*Cumulative %*
1	River area	1291	100	100
2	Area granted for mining	10.46	0.81	0.81
3	No of lease not recommended for future Quarry Lease grant due extracted up to a distance of 1 kilometer (1 km) from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side	0.0	0.0	0.0
4	Area not recommended for future Quarry Lease grant due to 100 m Buffer from any railway line or bridge	0.0	0.0	0.0
5	Area not recommended for future Quarry Lease grant due to 100 m buffer from the outer periphery of the defined limits of any village, habitation, National Highway, State highway and other roads	1.02	0.08	0.08
6	Area not recommended for future Quarry Lease grant due to non-availability of un-mined block 50 meters width after every block of 1,000 meters over which is undertaken or at such distance as may be directed by the competent authority	0.0	0.0	0.0
7	Area not recommended for future Quarry Lease grant due to 100 m Buffer Local Minor Check Dam	0.0	0.0	0.0
8	Area not recommended for future Quarry Lease grant due to 500 m buffer from the irrigation Structure/ Reservoir & Submergence Area	0.0	0.0	0.0

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9	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Canal/ Tank/ Lake	0.0	0.0	0.0
10	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Ropeway or ropeway trestle or station	0.0	0.0	0.0
11	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Heritage site, Protected monuments	0.0	0.0	0.0
12	Area not recommended for future Quarry Lease grant due to Eco-sensitive Zone	0.0	0.0	0.0
13	Applicability of Cluster (Other lease within 500 meter radius	0.0	0.0	0.0

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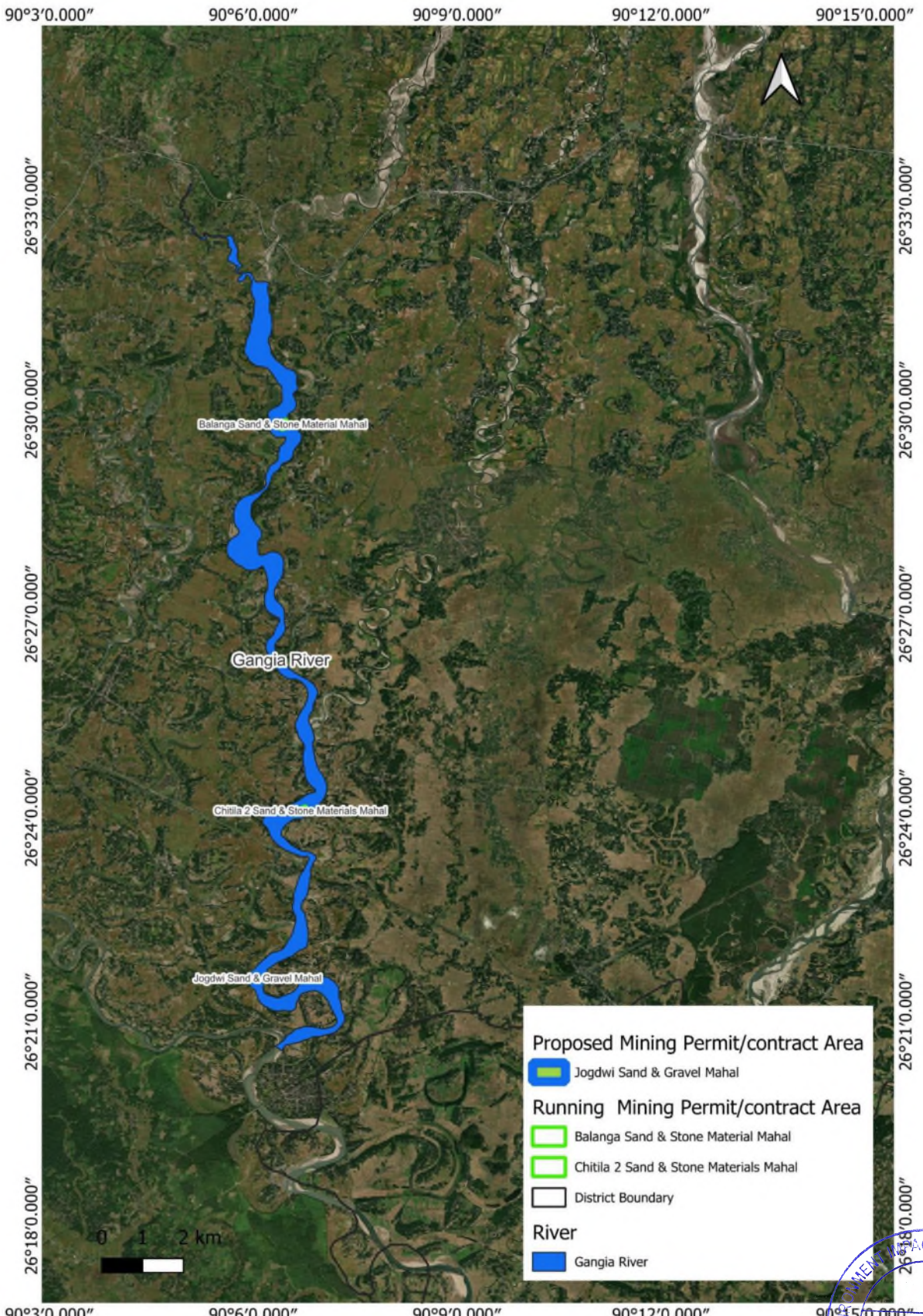

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11.7: Table showing existing/proposed mining permits/contracts areas of Gongia River under Kokrajhar District

Sl. No	*Name of the mines*	*Area (in ha)*	*Geolocation*		*Mineral Name*	*Existing/ proposed*
1.	Balanga Sand & Stone Material Mahal	3.12 Ha	26°29'51.81"N 26°29'50.36"N 26°29'43.71"N 26°29'42.50"N	90°6'30.12"E 90°6'23.99"E 90°6'23.70"E 90°6'26.72"E	Sand Gravel	Existing
2.	Chitila 2 Sand & Stone Materials Mahal	4.34 Ha	26°24'6.35"N 26°24'2.32"N 26°24'5.81"N 26°24'10.62"N	90°06'48.10"E 90°06'36.77"E 90°06'35.23"E 90°06'46.48"E	Gravel Sand	Existing
3.	Jogdwi Sand & Gravel Mahal	3.0 Ha	26°21'32.78"N 26°21'34.00"N 26°21'42.04"N 26°21'42.34"N 26°21'44.19"N	90°6'4.59"E 90°6'0.53"E 90°6'5.93"E 90°6'0.92"E 90°6'9.52"E	Sand Gravel	Proposed

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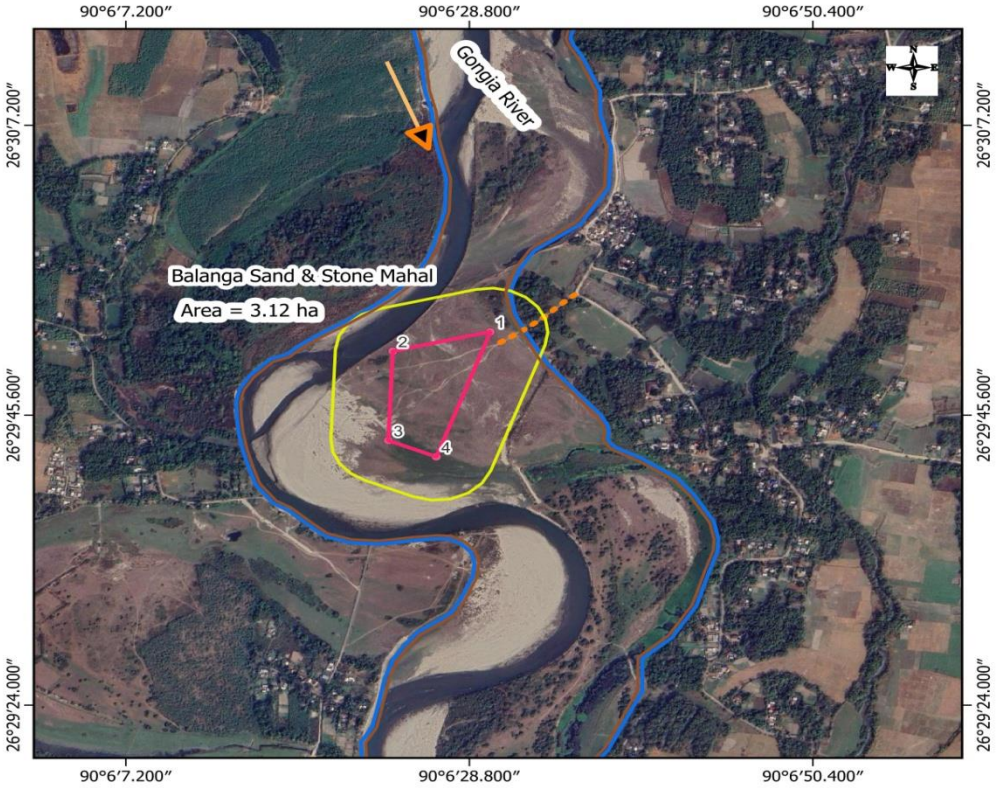
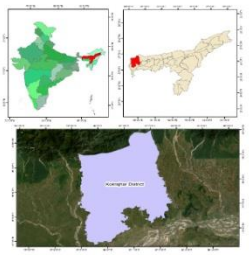
Map 11.15: Buffer map showing Balanga Sand and Stone Mahal of Gongia River





Poles	Lat	Long
1	26°29'52"N	90°6'30"E
2	26°29'50"N	90°6'24"E
3	26°29'44"N	90°6'24"E
4	26°29'43"N	90°6'27"E

Indices
- Buffer-100 m
- Approach Road
- River
- Project Area

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Haltugaon Division, Kokrajhar

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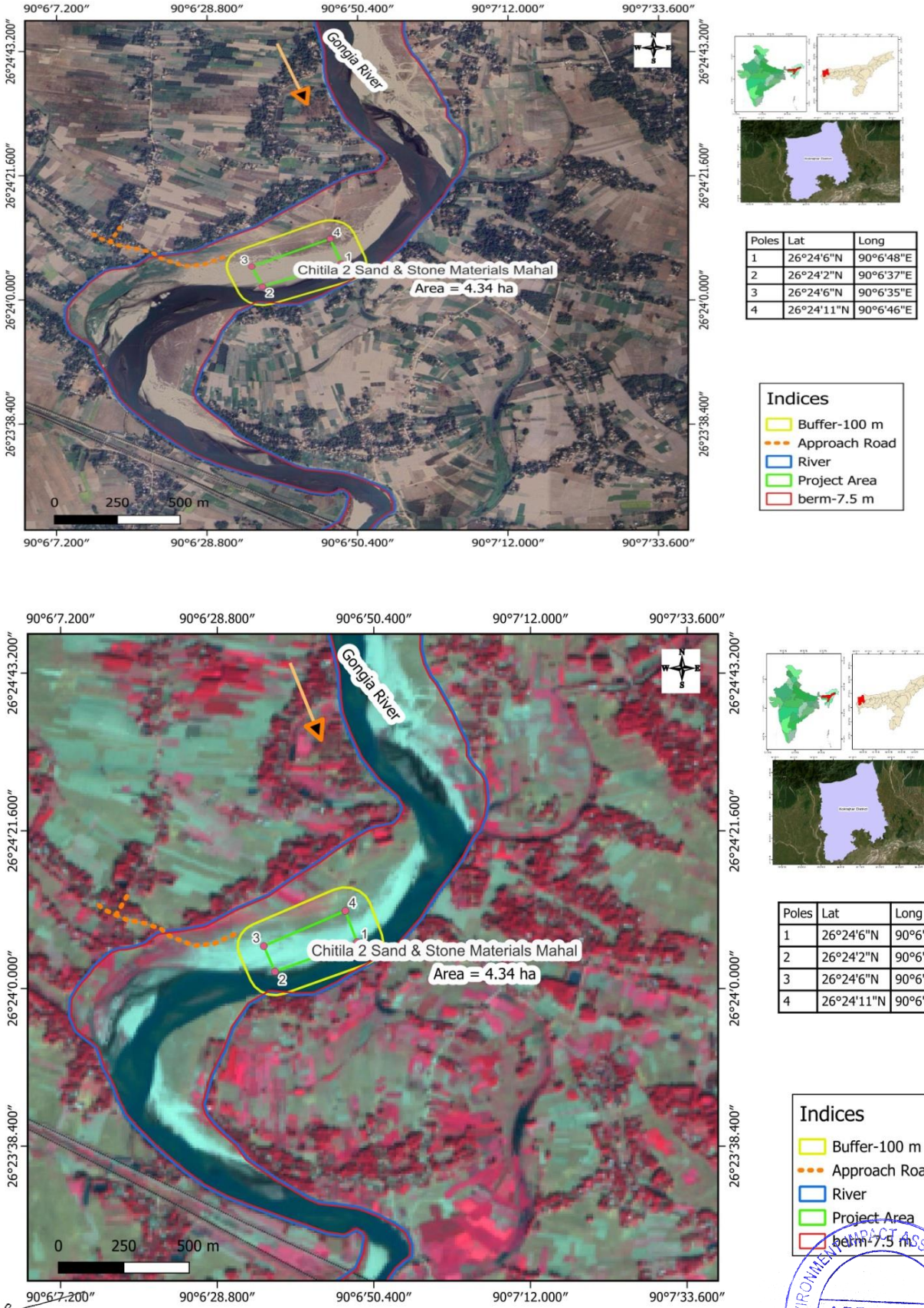
Data Source: LISS-IV Resolution: 5.8m

Map 11.16: Buffer map showing Chitila 2 Sand and Stone Materials Mahal of Gongia River



Poles	Lat	Long
1	26°24'6"N	90°6'48"E
2	26°24'2"N	90°6'37"E
3	26°24'6"N	90°6'35"E
4	26°24'11"N	90°6'46"E

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Data Source: LISS-IV Resolution: 5.8m

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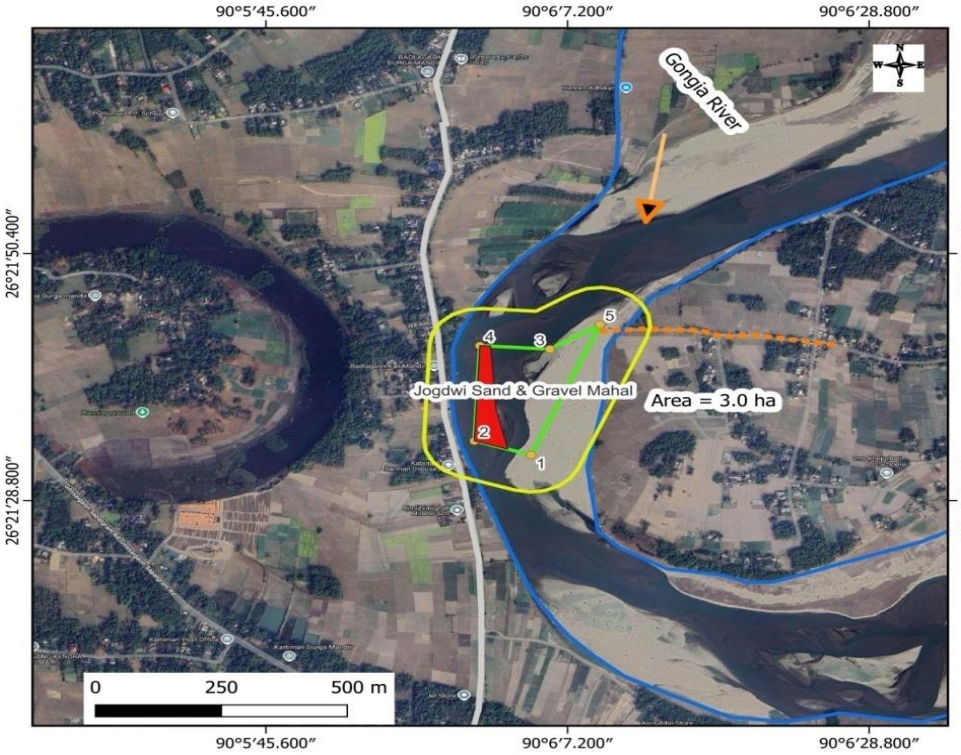
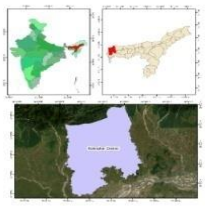
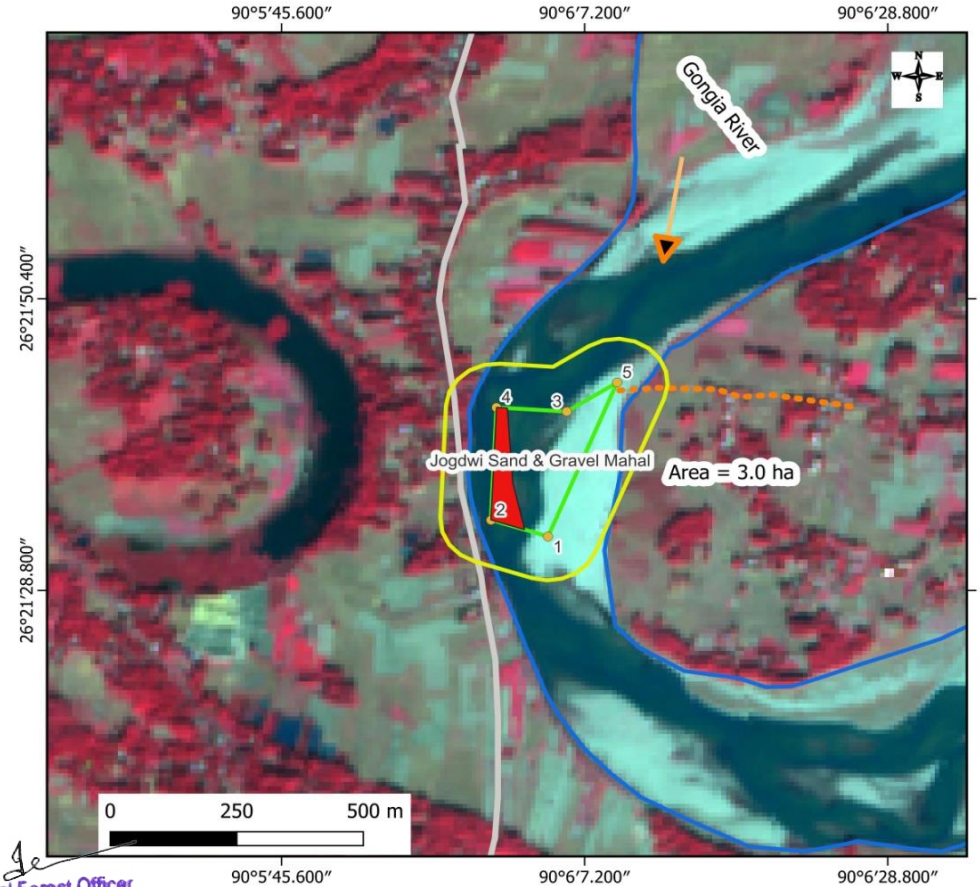
Map 11.17: Buffer map showing Jogdwi Sand and Gravel Mahal of Gongia River

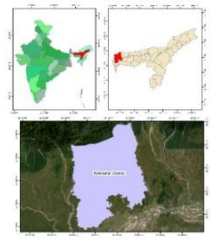




Poles	Lat	Long
1	26°21'33"N	90°6'5"E
2	26°21'34"N	90°6'1"E
3	26°21'42"N	90°6'6"E
4	26°21'42"N	90°6'1"E
5	26°21'44"N	90°6'10"E

Indices
- Buffer- 100 m
- Project Area
- River
- Road
- Approach Road
- No mining Zone- 1.02 ha (Road,Settlement,Mandir)





Poles	Lat	Long
1	26°21'33"N	90°6'5"E
2	26°21'34"N	90°6'1"E
3	26°21'42"N	90°6'6"E
4	26°21'42"N	90°6'1"E
5	26°21'44"N	90°6'10"E

Indices
- Buffer- 100 m
- Project Area
- River
- Road
- Approach Road
- No mining Zone- 1.02 ha (Road,Settlement,Mandir)

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Discipline: Mechanical Testing

Group: Building Materials

Date of issue of Report: 26-09-2024

TEST REPORT		
1	Name of Client:	The Divisional Forest Officer Kachugaon Forest Division, Kokrajhar
2	Name of project:	District Survey Report, Kokrajhar District
3	Type of sample:	Sand & Gravel
4	Condition of sample:	Ok
5	Date of sample Received:	18-09-2024
6	Source of Material:	Gongia River
7	Location:	Chitila Village
8	Test Sample Supplied By:	Customer
9	Test Done at:	"At the Loboratory located in the basement of our premises at the above mentioned address"

Test Results : Next Page

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Discipline: Mechanical Testing — Group: Building Materials

Test Report No: 2409126639-1
Sample ID: DFO/SWD/240932/KG

Name of Test: **Gradation** — **Test Method:** IS 2386-Part-I-1963 (Reaffirmed 2021)

Type of Sample: **Sand & Gravel**
Source: **Gongia River**

Date of testing: 21-09-2024 to 21-09-2024
Environmental Conditions during test
Temparature: **26.9°C, Humidity: 67%**

TEST RESULTS

Is Sieve Size (mm)	Weight Retained (gm)	% Weight Retained (gm)	Cumulative % of Retained	% of Passing
300	0	0.00	0.00	100.00
75	0	0.00	0.00	100.00
20	806	40.30	40.30	59.70
4.75	492	24.60	64.90	35.10
0.075	695	34.75	99.65	0.35
Pan	7			
Total	2000			

% Boulder = 0.00%
%Gravel= 64.90%
%Sand= 34.75%
%Silt= 0.35%

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Discipline: Mechanical Testing
Test Report No: 2409126639-3
Sample ID: DFO/KFD/240932/KG

Group: Building Materials

Date of issue of Report: 26-09-2024

TEST REPORT		
1	Name of Client:	The Divisional Forest Officer Kachugaon Forest Division, Kokrajhar
2	Name of project:	District Survey Report, Kokrajhar District
3	Type of sample:	Sand & Gravel
4	Condition of sample:	Ok
5	Date of sample Received:	15-09-2024
6	Source of Material:	Gongia River
7	Location:	Chitila Village
8	Test Sample Supplied By:	Customer
9	Test Done at:	"At the Loboratory located in the basement of our premises at the above mentioned address"

Test Method **IS 2386-PartIII-1963 (Reaffirmed 2021)**

1. Name of Test **Bulk Density of Sand & Gravel**
Type of Test **Loose**
Source **Gongia River**

Date of testing **21-09-2024 to 21-09-2024**
Environmental Conditions during test
Temparature: **27.1°C, Humidity:64%**

TEST RESULTS			
Sample	Weight of Aggregate to fill the Mould In (Kg) (A)	Volume of Mould In (litre) (B)	Bulk Density In (Kg/Litre) [A/B]
1	23.580	15.379	1.53

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Discipline: Mechanical Testing — Group: Building Materials

Test Report No: 2409126639-2
Sample ID: DFO/SWD/240932/KG

Name of Test: **Specific Gradation** — **Test Method:** IS 2386-Part-I-1963 (Reaffirmed 2021)

Type of Sample: **Sand & Gravel**
Source: **Gongia River**

Date of testing: 23-09-2024 to 25-09-2024
Environmental Conditions during test
Temparature: **27.6°C, Humidity: 61%**

TEST RESULTS

Sl. No.	Weight of Saturated Surface Dry Sample (gm)	Weight of Pycnometer Containing Sample & filled With Distilled Water (gm)	Weight of Pycnometer Frillied with Water Only (gm)	Waight of Oven Dried Sample (gm)	Specific Gravity [D/A-(b-C)]
	A	B	C	D	
1	525.0	2036.0	1706.5	521.0	2.66

Remarks : Calculations are As per IS : 2386-part-III-1963 Reaffirmed 2021 , Ciause No.2.4.3, No limits Specified, Test Result are Satisfactory.

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Gurufela River

Sl No	*Description*	*Area in Ha.*	*Percentage of Total area (In %)*	*Cumulative %*
1	River area	1749.00	100	100
2	Area granted for mining	2.0	0.11	0.11
3	No of lease not recommended for future Quarry Lease grant due extracted up to a distance of 1 kilometer (1 km) from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side	0.0	0.0	0.0
4	Area not recommended for future Quarry Lease grant due to 100 m Buffer from any railway line or bridge	0.0	0.0	0.0
5	Area not recommended for future Quarry Lease grant due to 100 m buffer from the outer periphery of the defined limits of any village, habitation, National Highway, State highway and other roads	0.63	0.03	0.03
6	Area not recommended for future Quarry Lease grant due to non-availability of un-mined block 50 meters width after every block of 1,000 meters over which is undertaken or at such distance as may be directed by the competent authority	0.0	0.0	0.0

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7	Area not recommended for future Quarry Lease grant due to 100 m Buffer Local Minor Check Dam	0.0	0.0	0.0
8	Area not recommended for future Quarry Lease grant due to 500 m buffer from the irrigation Structure/ Reservoir & Submergence Area	0.0	0.0	0.0
9	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Canal/ Tank/ Lake	0.0	0.0	0.0
10	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Ropeway or ropeway trestle or station	0.0	0.0	0.0
11	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Heritage site, Protected monuments	0.0	0.0	0.0
12	Area not recommended for future Quarry Lease grant due to Eco-sensitive Zone	0.0	0.0	0.0
13	Applicability of Cluster (Other lease within 500 meter radius	0.0	0.0	0.0

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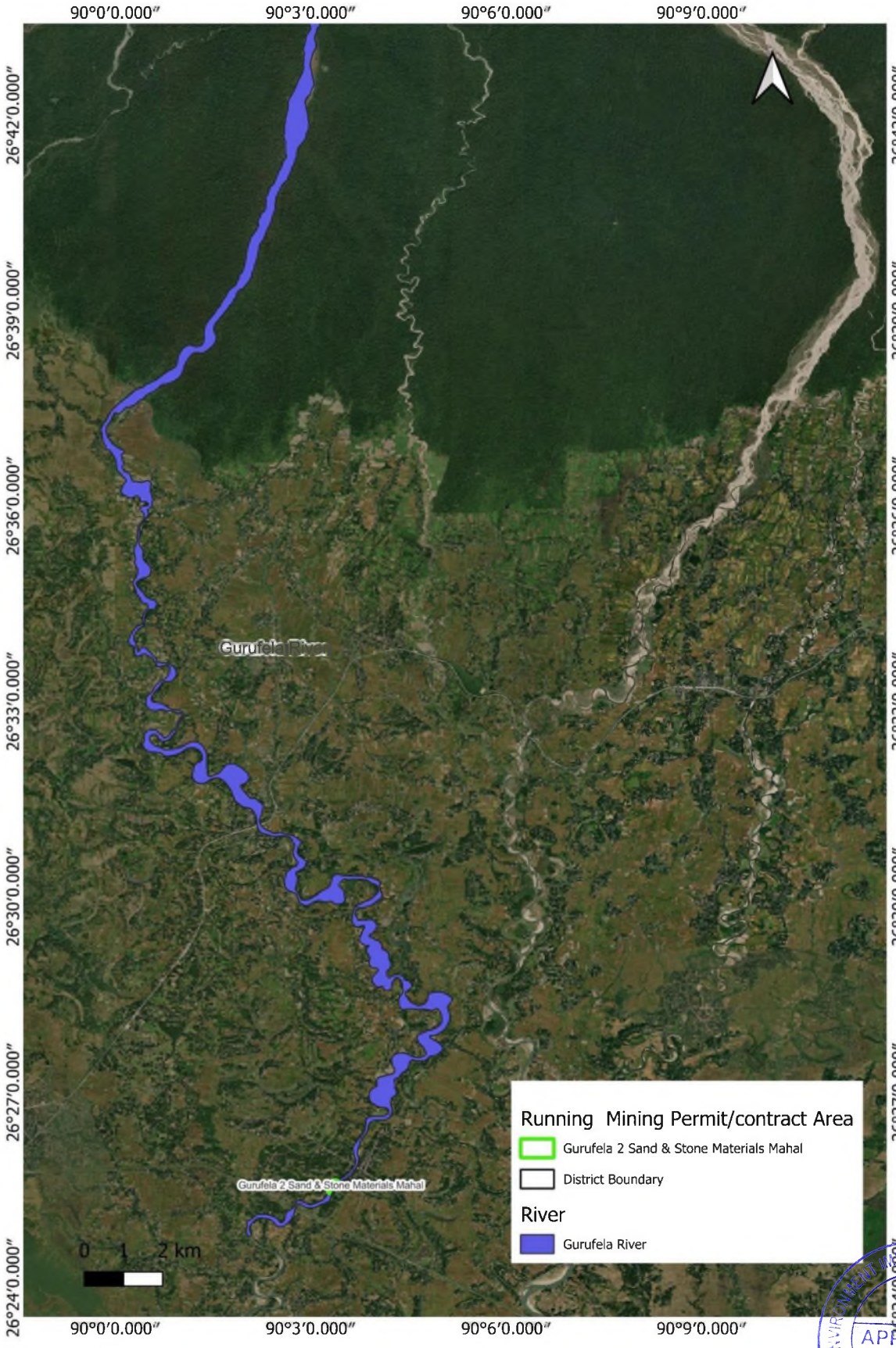

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11.8: Table showing existing/proposed mining permits/contracts areas of Gurufela River under Kokrajhar District

Sl. No	*Name of the mines*	*Area (in ha)*	*Geolocation*		*Mineral Name*	*Existing/ proposed*
1.	Gurufela 2 Sand & Stone Materials Mahal	2.0 Ha	26°25'39.04"N 26°25'37.79"N 26°25'26.94"N 26°25'27.00"N	90°3'24.92"E 90°3'24.98"E 90°3'18.34"E 90°3'17.17"E	Sand & Stone	Existing

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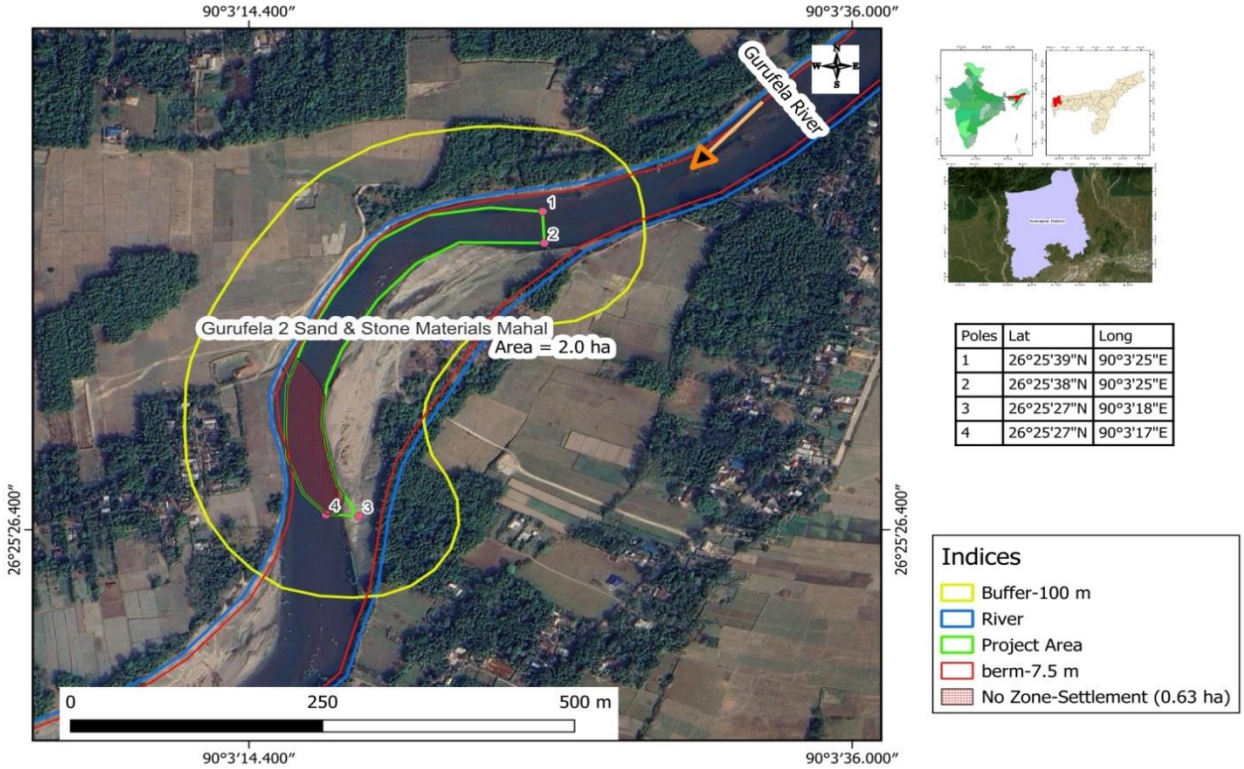
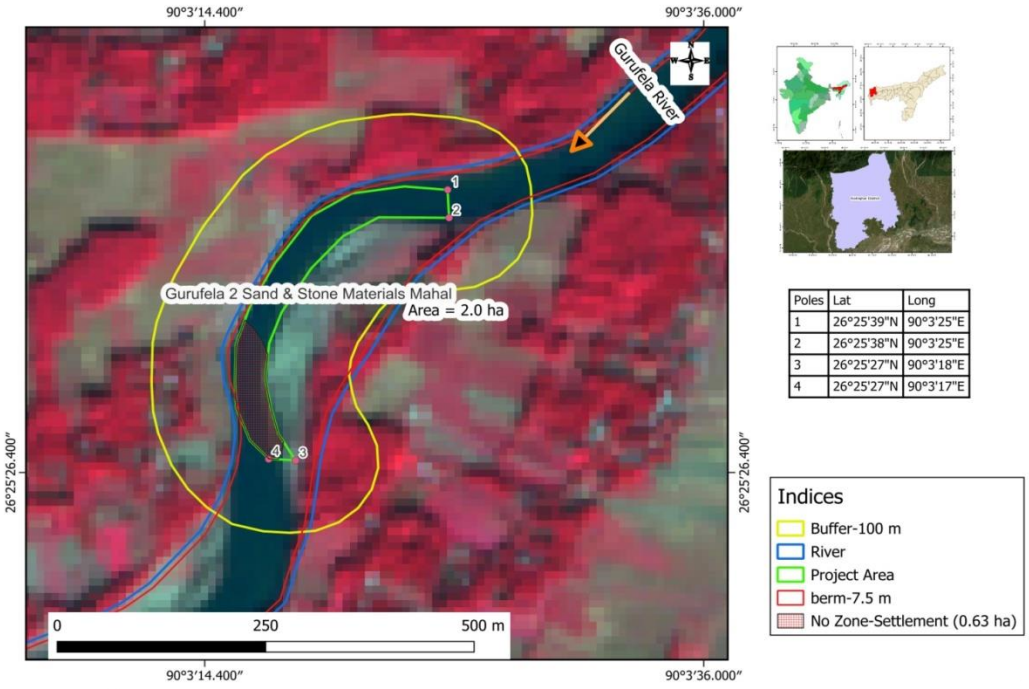
Map 11.18: Buffer map showing Gurufela 2 Sand and stone Materials Mahal of Gurufela River



Poles	Lat	Long
1	26°25'39"N	90°3'25"E
2	26°25'38"N	90°3'25"E
3	26°25'27"N	90°3'18"E
4	26°25'27"N	90°3'17"E



Poles	Lat	Long
1	26°25'39"N	90°3'25"E
2	26°25'38"N	90°3'25"E
3	26°25'27"N	90°3'18"E
4	26°25'27"N	90°3'17"E

Divisional Forest Officer
Haltugaon Division, Kokrajhar

Data Source: LISS-IV Resolution: 5.8m

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Ph: 7086020945/ 9435192896/ 9395005840
E-mail: contact@rlnt.in ; reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing

Group: Building Materials

Date of issue of Report: 28-09-2024

TEST REPORT		
1	Name of Client:	The Divisional Forest Officer Hitugaon Division, Kokrajhar
2	Name of project:	District Survey Report, Kokrajhar District
3	Type of sample:	Sand & Stone
4	Condition of sample:	Ok
5	Date of sample Received:	15-09-2024
6	Source of Material:	Gurufela River
7	Location:	Salbari Village Lat-26.42687, Long-90.05624
8	Test Sample Supplied By:	Customer
9	Test Done at:	"At the Loboratory located in the basement of our premises at the above mentioned address"

Test Results : Next Page

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E-mail: contact@rlnt.in ; reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing — Group: Building Materials

Test Report No: 2409126672-1
Sample ID: DFO/HFD/240931/PG

Name of Test: **Gradation** — **Test Method:** IS 2386-Part-I-1963 (Reaffirmed 2021)

Type of Sample: **Sand & Stone** — **Date of testing: 12-10-2024 to 14-10-2024**

Source: **Gurufela River** — Environmental Conditions during test

Temparature: **26.9°C, Humidity: 67%**

TEST RESULTS

Is Sieve Size (mm)	Weight Retained (gm)	% Weight Retained (gm)	Cumulative % of Retained	% of Passing
300	0	0.00	0.00	100.00
75	0	0.00	0.00	100.00
20	251	12.55	12.55	87.45
4.75	422	21.1	33.65	66.35
0.075	1322	66.1	99.75	0.25
Pan	5			
Total	2000			

% Boulder = 0.00%
%Gravel= 33.65%
%Sand= 66.1%
%Silt= 0.25%

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Discipline: Mechanical Testing
Test Report No: 2409126672-3
Sample ID: DFO/HFD/240948/PG

Group: Building Materials

Date of issue of Report: 26-09-2024

TEST REPORT		
1	**Name of Client:**	**The Divisional Forest Officer Hiltugaon Division, Kokrajhar**
2	**Name of project:**	**District Survey Report, Kokrajhar District**
3	**Type of sample:**	**Sand & Stone**
4	**Condition of sample:**	**Ok**
5	**Date of sample Received:**	**17-09-2024**
6	**Source of Material:**	**Gurufela River**
7	**Location:**	**Salbari Village** **Lat-26.42687, Long-90.05624**
8	**Test Sample Supplied By:**	**Customer**
9	**Test Done at:**	**"At the Loboratory located in the basement of our premises at the above mentioned address"**

Test Method **IS 2386-PartIII-1963 (Reaffirmed 2021)**

1. Name of Test **Bulk Density of Sand & Stone**
Type of Test **Loose**
Source **Gurufela River**

Date of testing **23-09-2024 to 23-09-2024**
Environmental Conditions during test
Temparature: **27.1°C, Humidity:64%**

TEST RESULTS			
Sample	Weight of Aggregate to fill the Mould In (Kg) (A)	Volume of Mould In (litre) (B)	Bulk Density In (Kg/Litre) [A/B]
1	20.850	14.025	1.48

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Discipline: Mechanical Testing — Group: Building Materials

Test Report No: 2409126672-2
Sample ID: DFO/HFD/240931/PG

Name of Test: **Specific Gradation**

Test Method: IS 2386-Part-I-1963 (Reaffirmed 2021)

Type of Sample: **Sand & Stone**
Source: **Gurufela River**

Date of testing: 25-09-2024 to 27-09-2024
Environmental Conditions during test
Temparature: **27.6°C, Humidity: 61%**

TEST RESULTS

Sl. No.	Weight of Saturated Surface Dry Sample (gm)	Weight of Pycnometer Containing Sample & filled With Distilled Water (gm)	Weight of Pycnometer Frillied with Water Only (gm)	Waight of Oven Dried Sample (gm)	Specific Gravity [D/A-(b-C)]
	A	B	C	D	
1	570.0	2054.0	1747.5	542.0	2.05

Remarks : Calculations are As per IS : 2386-part-III-1963 Reaffirmed 2021 , Clause No.2.4.3, No limits Specified, Test Result are Satisfactory.

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Hel River

Sl No	*Description*	*Area in Ha.*	*Percentage of Total area (In %)*	*Cumulative %*
1	River area	1971.00	100	100
2	Area granted for mining	3.0	0.15	0.15
3	No of lease not recommended for future Quarry Lease grant due extracted up to a distance of 1 kilometer (1 km) from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side	0.0	0.0	0.0
4	Area not recommended for future Quarry Lease grant due to 100 m Buffer from any railway line or bridge	0.0	0.0	0.0
5	Area not recommended for future Quarry Lease grant due to 100 m buffer from the outer periphery of the defined limits of any village, habitation, National Highway, State highway and other roads	0.0	0.0	0.0
6	Area not recommended for future Quarry Lease grant due to non-availability of un-mined block 50 meters width after every block of 1,000 meters over which is undertaken or at such distance as may be directed by the competent authority	0.0	0.0	0.0

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7	Area not recommended for future Quarry Lease grant due to 100 m Buffer Local Minor Check Dam	0.0	0.0	0.0
8	Area not recommended for future Quarry Lease grant due to 500 m buffer from the irrigation Structure/ Reservoir & Submergence Area	0.0	0.0	0.0
9	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Canal/ Tank/ Lake	0.0	0.0	0.0
10	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Ropeway or ropeway trestle or station	0.0	0.0	0.0
11	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Heritage site, Protected monuments	0.0	0.0	0.0
12	Area not recommended for future Quarry Lease grant due to Eco-sensitive Zone	0.0	0.0	0.0
13	Applicability of Cluster (Other lease within 500 meter radius	0.0	0.0	0.0

Sand and gravel shall not be extracted up to a distance of 1 kilometre (1 km) from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side (*Enforcement & Monitoring Guidelines for Sand Mining Ministry of Environment, Forest and Climate change January, 2020).***

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11.9: Table showing existing/proposed mining permits/contracts areas of Hel River under Kokrajhar District

Sl. No	*Name of the mines*	*Area (in ha)*	*Geolocation*		*Mineral Name*	*Existing/ proposed*
1.	No.4 Hel Sand Gravel & Stone Mahal	3.0 Ha	26°33'27.81"N 26°33'28.11"N 26°33'20.81"N 26°33'19.95"N	90°07'57.00"E 90°07'51.84"E 90°07'53.08"E 90°07'57.38"E	Sand Gravel Stone	Existing

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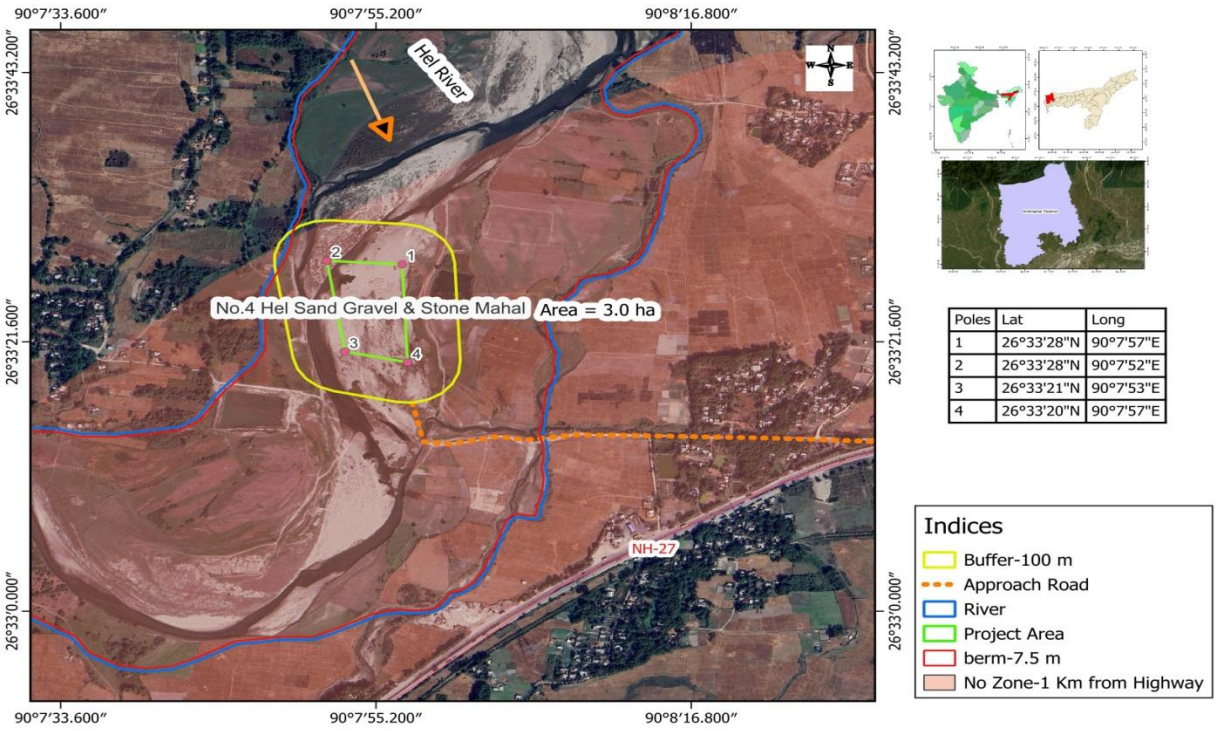
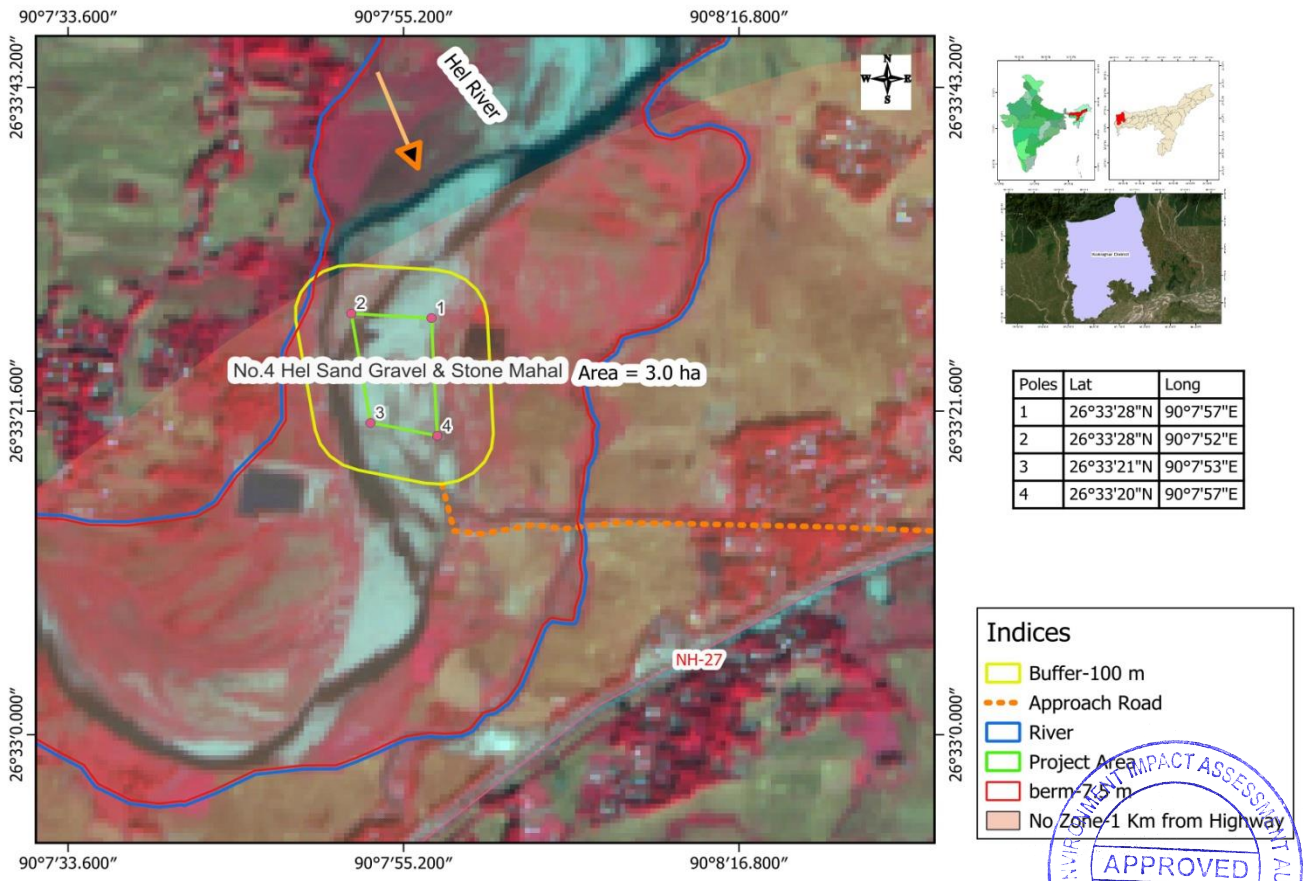
Map 11.19: Buffer map showing No.4 Hel Sand Gravel & Stone Mahal of Hel River



Poles	Lat	Long
1	26°33'28"N	90°7'57"E
2	26°33'28"N	90°7'52"E
3	26°33'21"N	90°7'53"E
4	26°33'20"N	90°7'57"E



Poles	Lat	Long
1	26°33'28"N	90°7'57"E
2	26°33'28"N	90°7'52"E
3	26°33'21"N	90°7'53"E
4	26°33'20"N	90°7'57"E

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Data Source: LISS-IV Resolution: 5.8m

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Discipline: Mechanical Testing

Group: Building Materials

Date of issue of Report: 28-09-2024

TEST REPORT		
1	Name of Client:	The Divisional Forest Officer Hltugaon Division, Kokrajhar
2	Name of project:	District Survey Report, Kokrajhar District
3	Type of sample:	Sand, Gravel & Stone
4	Condition of sample:	Ok
5	Date of sample Received:	15-09-2024
6	Source of Material:	Hel River
7	Location:	Chraideka Village Lat-26.55528, Long-90.13239
8	Test Sample Supplied By:	Customer
9	Test Done at:	"At the Loboratory located in the basement of our premises at the above mentioned address"

Test Results : Next Page

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Discipline: Mechanical Testing — Group: Building Materials

Test Report No: 2409126674-1
Sample ID: DFO/HFD/240931/PG

Name of Test: **Gradation** — **Test Method:** IS 2386-Part-I-1963 (Reaffirmed 2021)

Type of Sample: **Sand, Gravel & Stone** — **Date of testing: 12-10-2024 to 14-10-2024**

Source: **Hel River**

Environmental Conditions during test
Temparature: **26.9°C, Humidity: 67%**

TEST RESULTS

Is Sieve Size (mm)	Weight Retained (gm)	% Weight Retained (gm)	Cumulative % of Retained	% of Passing
300	0	0.00	0.00	100.00
75	385	19.25	19.25	80.75
20	380	19.00	38.25	61.75
4.75	260	13.00	51.25	48.75
0.075	970	48.5	99.75	0.25
Pan	5			
Total	2000			

% Stone = 19.25%
%Gravel= 32.00%
%Sand= 48.5%
%Silt= 0.25%

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E-mail: contact@rlnt.in ; reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing
Test Report No: 2409126674-3
Sample ID: DFO/HFD/240951/PG

Group: Building Materials

Date of issue of Report: 26-09-2024

TEST REPORT		
1	**Name of Client:**	**The Divisional Forest Officer Hitugaon Division, Kokrajhar**
2	**Name of project:**	**District Survey Report, Kokrajhar District**
3	**Type of sample:**	**Sand, Gravel & Stone**
4	**Condition of sample:**	**Ok**
5	**Date of sample Received:**	**17-09-2024**
6	**Source of Material:**	**Hel River**
7	**Location:**	**Chraideka Village Lat-26.55528, Long-90.13239**
8	**Test Sample Supplied By:**	**Customer**
9	**Test Done at:**	**"At the Laboratory located in the basement of our premises at the above mentioned address"**

Test Method **IS 2386-PartIII-1963 (Reaffirmed 2021)**

1. Name of Test **Bulk Density of Sand, Gravel & Stone**
Type of Test **Loose**
Source **Hel River**

Date of testing **23-09-2024 to 23-09-2024n**
Environmental Conditions during test
Temparature: **27.1°C, Humidity:64%**

TEST RESULTS			
Sample	Weight of Aggregate to fill the Mould In (Kg) (A)	Volume of Mould In (litre) (B)	Bulk Density In (Kg/Litre) [A/B]
1	20.850	14.025	1.48

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Discipline: Mechanical Testing — Group: Building Materials

Test Report No: 2409126674-2
Sample ID: DFO/HFD/240931/PG

Name of Test: **Specific Gradation** — **Test Method:** IS 2386-Part-I-1963 (Reaffirmed 2021)

Type of Sample: **Sand, Gravel & Stone**
Source: **Hel River**

Date of testing: 25-09-2024 to 27-09-2024
Environmental Conditions during test
Temparature: **27.6°C, Humidity: 61%**

TEST RESULTS

Sl. No.	Weight of Saturated Surface Dry Sample (gm)	Weight of Pycnometer Containing Sample & filled With Distilled Water (gm)	Weight of Pycnometer Frillied with Water Only (gm)	Weight of Oven Dried Sample (gm)	Specific Gravity [D/A-(b-C)]
	A	B	C	D	
1	570.0	2054.0	1747.5	542.0	2.05

Remarks : Calculations are As per IS : 2386-part-III-1963 Reaffirmed 2021 , Ciause No.2.4.3, No limits Specified, Test Result are Satisfactory.

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Saralbhanga River

Sl No	Description	Area in Ha.	Percentage of Total area (In %)	Cumulative %
1	River area	4629.00	100	100
2	Area granted for mining	15.35	0.33	0.33
3	No of lease not recommended for future Quarry Lease grant due extracted up to a distance of 1 kilometer (1 km) from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side	5.0	0.0	0.0
4	Area not recommended for future Quarry Lease grant due to 100 m Buffer from any railway line or bridge	0.0	0.0	0.0
5	Area not recommended for future Quarry Lease grant due to 100 m buffer from the outer periphery of the defined limits of any village, habitation, National Highway, State highway and other roads	0.0	0.0	0.0
6	Area not recommended for future Quarry Lease grant due to non-availability of un-mined block 50 meters width after every block of 1,000 meters over which is undertaken or at such distance as may be directed by the competent authority	0.0	0.0	0.0

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7	Area not recommended for future Quarry Lease grant due to 100 m Buffer Local Minor Check Dam	0.0	0.0	0.0
8	Area not recommended for future Quarry Lease grant due to 500 m buffer from the irrigation Structure/ Reservoir & Submergence Area	0.0	0.0	0.0
9	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Canal/ Tank/ Lake	0.0	0.0	0.0
10	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Ropeway or ropeway trestle or station	0.0	0.0	0.0
11	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Heritage site, Protected monuments	0.0	0.0	0.0
12	Area not recommended for future Quarry Lease grant due to Eco-sensitive Zone	0.0	0.0	0.0
13	Applicability of Cluster (Other lease within 500 meter radius	0.0	0.0	0.0

Sand and gravel shall not be extracted up to a distance of 1 kilometre (1 km) from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side (*Enforcement & Monitoring Guidelines for Sand Mining Ministry of Environment, Forest and Climate change January, 2020).*

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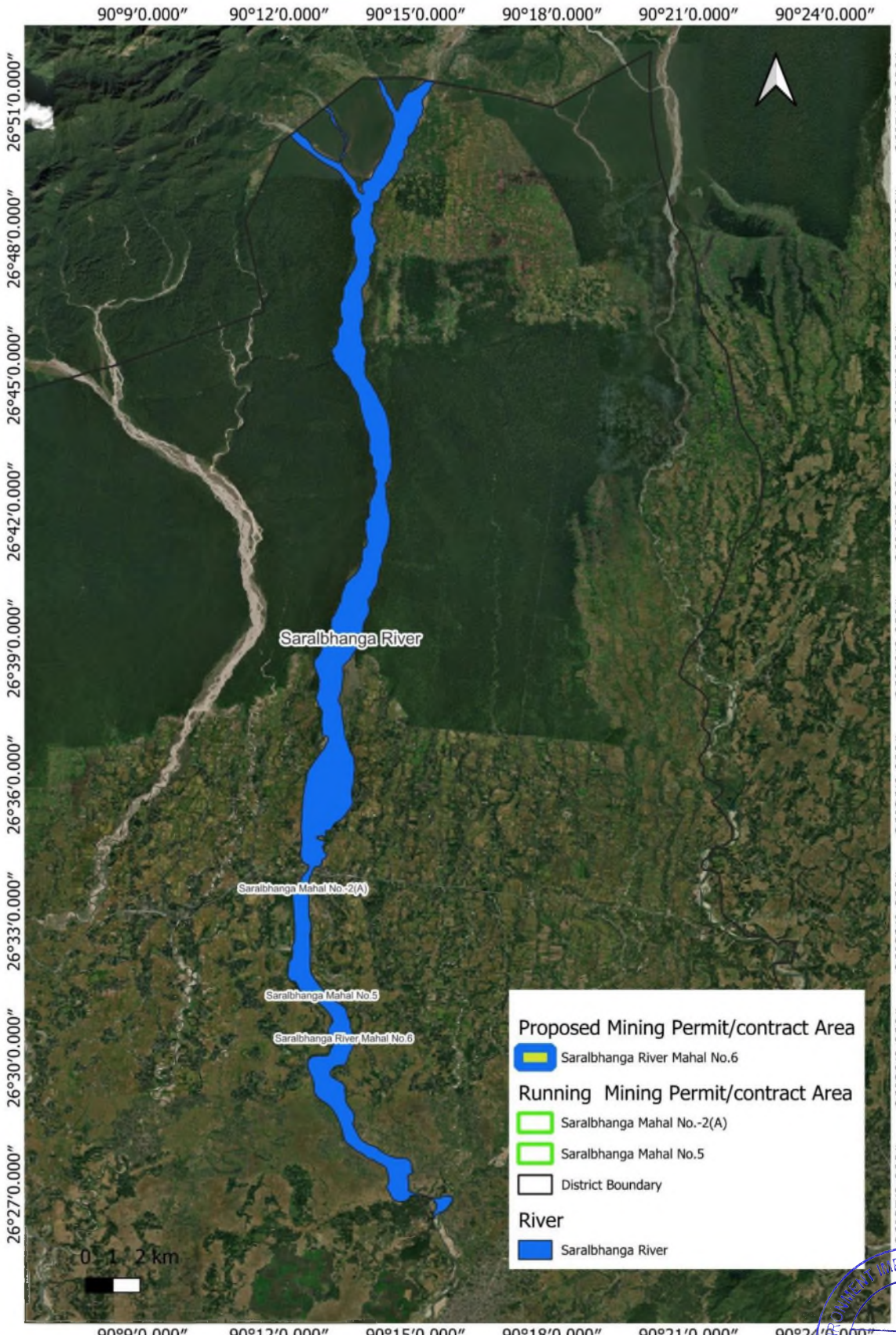

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11.10: Table showing existing/proposed mining permits/contracts areas of Saralbhanga River under Kokrajhar District

Sl. No	*Name of the mines*	*Area (in ha)*	*Geolocation*		*Mineral Name*	*Existing/ proposed*
1.	SaralbhangaMahal No. 5	5.40 ha	26°31'27.32"N 26°31'18.73" N 26°31'17.12"N 26°31'24.89"N	90°12'51.87"E 90°13'06.48"E 90°13'03.67"E 90°12'46.95"E	Sand Gravel & Clay	**Running**
2.	SaralbhangaMahal No.- 2 (A)	5.0 ha	26°33'39.14"N 26°33'38.67"N 26°33'48.38"N 26°33'49.25"N	90°12'27.21"E 90°12'34.61"E 90°12'34.61"E 90°12'30.41"E	Sand Gravel	Running
3.	Saralbhanga River Mahal No. 6	4.95 ha	26°50’85.92”N 26°50’88.96”N 26°50’56.89” 26°50’54.02”N	26°50’54.02”N 90.22’40.40”E 90°22’48.80”E 90°22’35.63”E	Sand Gravel	Proposed

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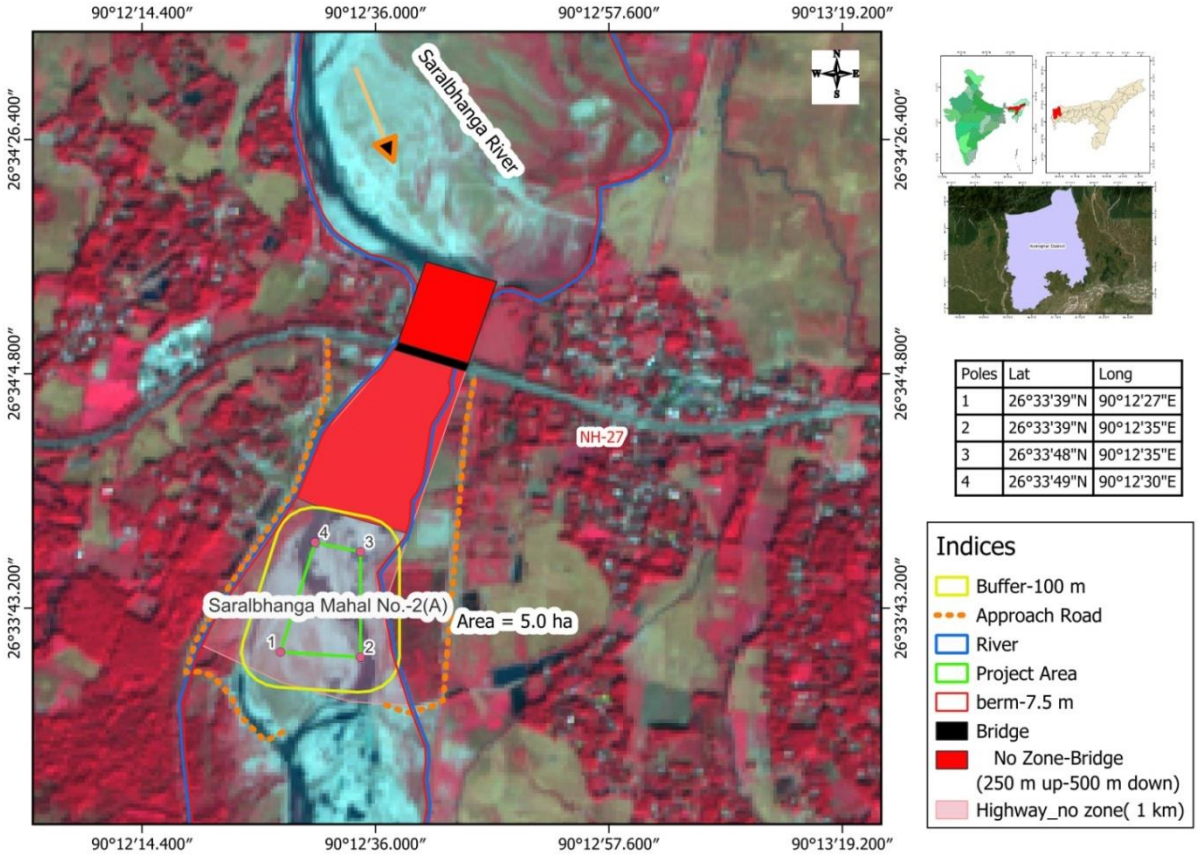
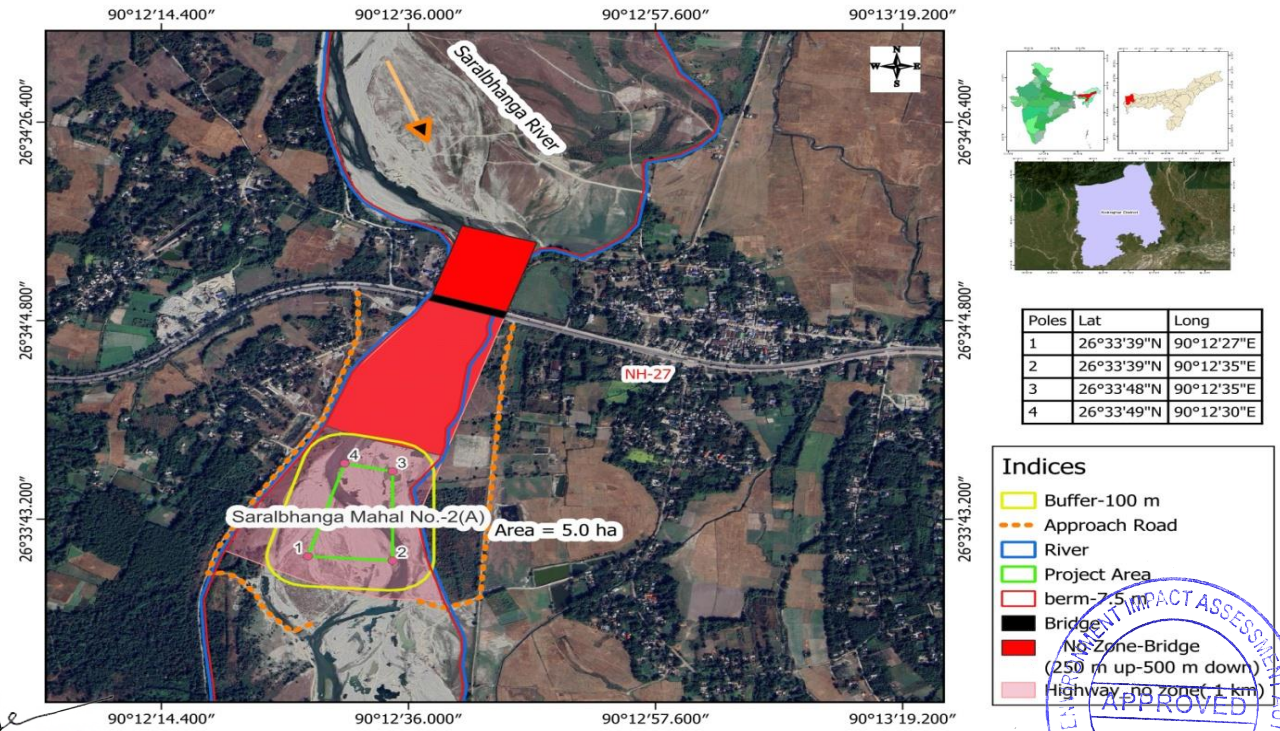
Map 11.20: Buffer map showing Saralbhanga Mahal No-2(A) of Saralbhanga River



Poles	Lat	Long
1	26°33'39"N	90°12'27"E
2	26°33'39"N	90°12'35"E
3	26°33'48"N	90°12'35"E
4	26°33'49"N	90°12'30"E



Poles	Lat	Long
1	26°33'39"N	90°12'27"E
2	26°33'39"N	90°12'35"E
3	26°33'48"N	90°12'35"E
4	26°33'49"N	90°12'30"E

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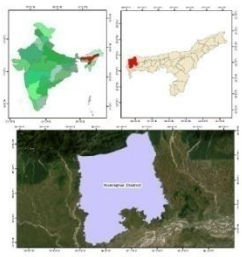
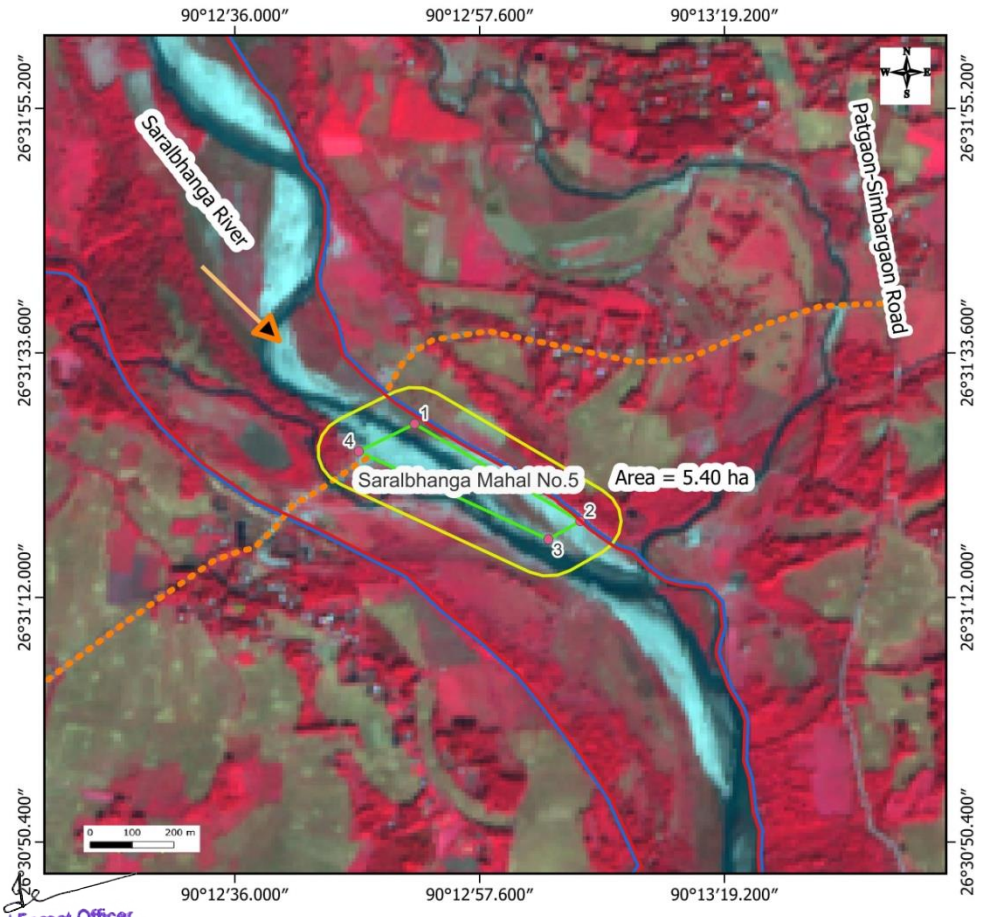
Data Source: LISS-IV Resolution: 5.8m

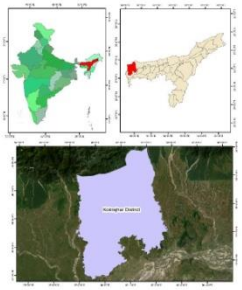
Map 11.21: Buffer map showing Saralbhanga Mahal No-5 of Saralbhanga River



Poles	Lat	Long
1	26°31'27"N	90°12'52"E
2	26°31'19"N	90°13'6"E
3	26°31'17"N	90°13'4"E
4	26°31'25"N	90°12'47"E

Indices
- Buffer-100 m
- Approach Road
- River
- Project Area
- Berm-7.5 m





Poles	Lat	Long
1	26°31'27"N	90°12'52"E
2	26°31'19"N	90°13'6"E
3	26°31'17"N	90°13'4"E
4	26°31'25"N	90°12'47"E

Indices
- Buffer-100 m
- Approach Road
- River
- Project Area
- Berm-7.5 m

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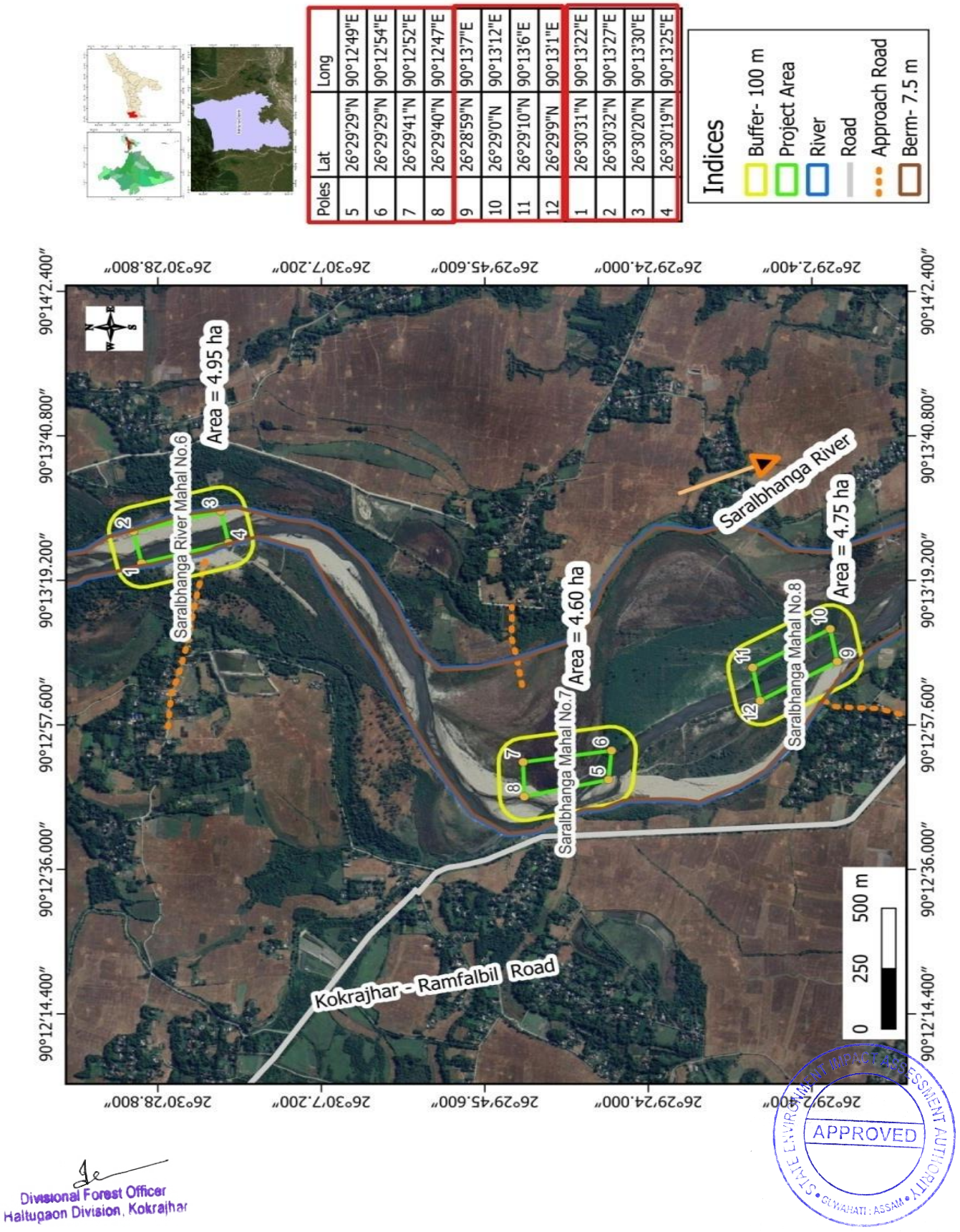
Map 11.22: Buffer map showing Saralbhanga Mahal No-6,No -7 and No -8 of Saralbhanga River



Poles	Lat	Long
5	26°29'29"N	90°12'49"E
6	26°29'29"N	90°12'54"E
7	26°29'41"N	90°12'52"E
8	26°29'40"N	90°12'47"E
9	26°28'59"N	90°13'7"E
10	26°29'0"N	90°13'12"E
11	26°29'10"N	90°13'6"E
12	26°29'9"N	90°13'1"E
1	26°30'31"N	90°13'22"E
2	26°30'32"N	90°13'27"E
3	26°30'20"N	90°13'30"E
4	26°30'19"N	90°13'25"E

Data Source: LISS-IV Resolution: 5.8m

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E-mail: contact@rlnt.in ; reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing
Test Report No: 2409126689-3
Sample ID: DFO/HFD/240965/PG

Group: Building Materials

Date of issue of Report: 28-09-2024

TEST REPORT		
1	**Name of Client:**	**The Divisional Forest Officer Hitugaon Division, Kokrajhar**
2	**Name of project:**	**District Survey Report, Kokrajhar District**
3	**Type of sample:**	**Sand, Gravel, Clay**
4	**Condition of sample:**	**Ok**
5	**Date of sample Received:**	**19-09-2024**
6	**Source of Material:**	**Saralbhanga River**
7	**Location:**	**Padmabil Village** **Lat-26.52337, Long-90.21412**
8	**Test Sample Supplied By:**	**Customer**
9	**Test Done at:**	**"At the Loboratory located in the basement of our premises at the above mentioned address"**

Test Method **IS 2386-PartIII-1963 (Reaffirmed 2021)**

1. Name of Test **Bulk Density of Silt & Clay**
Type of Test **Loose**
Source **Saralbhanga River**

Date of testing **23-09-2024 to 23-09-2024**
Environmental Conditions during test
Temparature: **27.1°C, Humidity:64%**

TEST RESULTS			
Sample	Weight of Aggregate to fill the Mould In (Kg) (A)	Volume of Mould In (litre) (B)	Bulk Density In (Kg/Litre) [A/B]
1	20.850	14.025	1.48

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E-mail: contact@rlnt.in ; reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing — Group: Building Materials

Test Report No: 2409126689-1
Sample ID: DFO/HFD/240965/PG

Name of Test: **Gradation** — **Test Method:** IS 2386-Part-I-1963 (Reaffirmed 2021)

Type of Sample: **Sand, Gravel, Clay** — **Date of testing: 12-10-2024 to 14-10-2024**

Source: **Saralbhanga River**

Environmental Conditions during test
Temparature: **26.9°C, Humidity: 67%**

TEST RESULTS

Is Sieve Size (mm)	Weight Retained (gm)	% Weight Retained (gm)	Cumulative % of Retained	% of Passing
300	0	0.00	0.00	100.00
75	0	0.00	0.00	100.00
20	192	9.6	9.6	90.4
4.75	390	19.5	29.1	70.9
0.075	1012	50.6	79.7	20.3
Pan	406			
Total	2000			

% Boulder = 0.00%
%Gravel= 29.1%
%Sand= 50.6%
%Clay= 20.3%

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Haltugaon Division, Kokrajhar

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Monglajhora River

Sl No	Description	Area in Ha.	Percentage of Total area (In %)	Cumulative %
1	River area	12.2	100	100
2	Area granted for mining	2.16	.0	0
3	No of lease not recommended for future Quarry Lease grant due extracted up to a distance of 1 kilometer (1 km) from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side	0.0	0.0	0.0
4	Area not recommended for future Quarry Lease grant due to 100 m Buffer from any railway line or bridge	0.0	0.0	0.0
5	Area not recommended for future Quarry Lease grant due to 100 m buffer from the outer periphery of the defined limits of any village, habitation, National Highway, State highway and other roads	0.0	0.0	0.0
6	Area not recommended for future Quarry Lease grant due to non-availability of un-mined block 50 meters width after every block of 1,000 meters over which is undertaken or at such distance as may be directed by the competent authority	0.0	0.0	0.0

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7	Area not recommended for future Quarry Lease grant due to 100 m Buffer Local Minor Check Dam	0.0	0.0	0.0
8	Area not recommended for future Quarry Lease grant due to 500 m buffer from the irrigation Structure/ Reservoir & Submergence Area	0.0	0.0	0.0
9	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Canal/ Tank/ Lake	0.0	0.0	0.0
10	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Ropeway or ropeway trestle or station	0.0	0.0	0.0
11	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Heritage site, Protected monuments	0.0	0.0	0.0
12	Area not recommended for future Quarry Lease grant due to Eco-sensitive Zone	0.0	0.0	0.0
13	Applicability of Cluster (Other lease within 500 meter radius	0.0	0.0	0.0
14	Area not recommended due to Berm	2.16	17.7	17.7

The proposed mining lease falls under No- mining zone after taking 7.5m berm from each bank as it is a very small stream. Hence no mining is suggested in the mentioned stream of the district.

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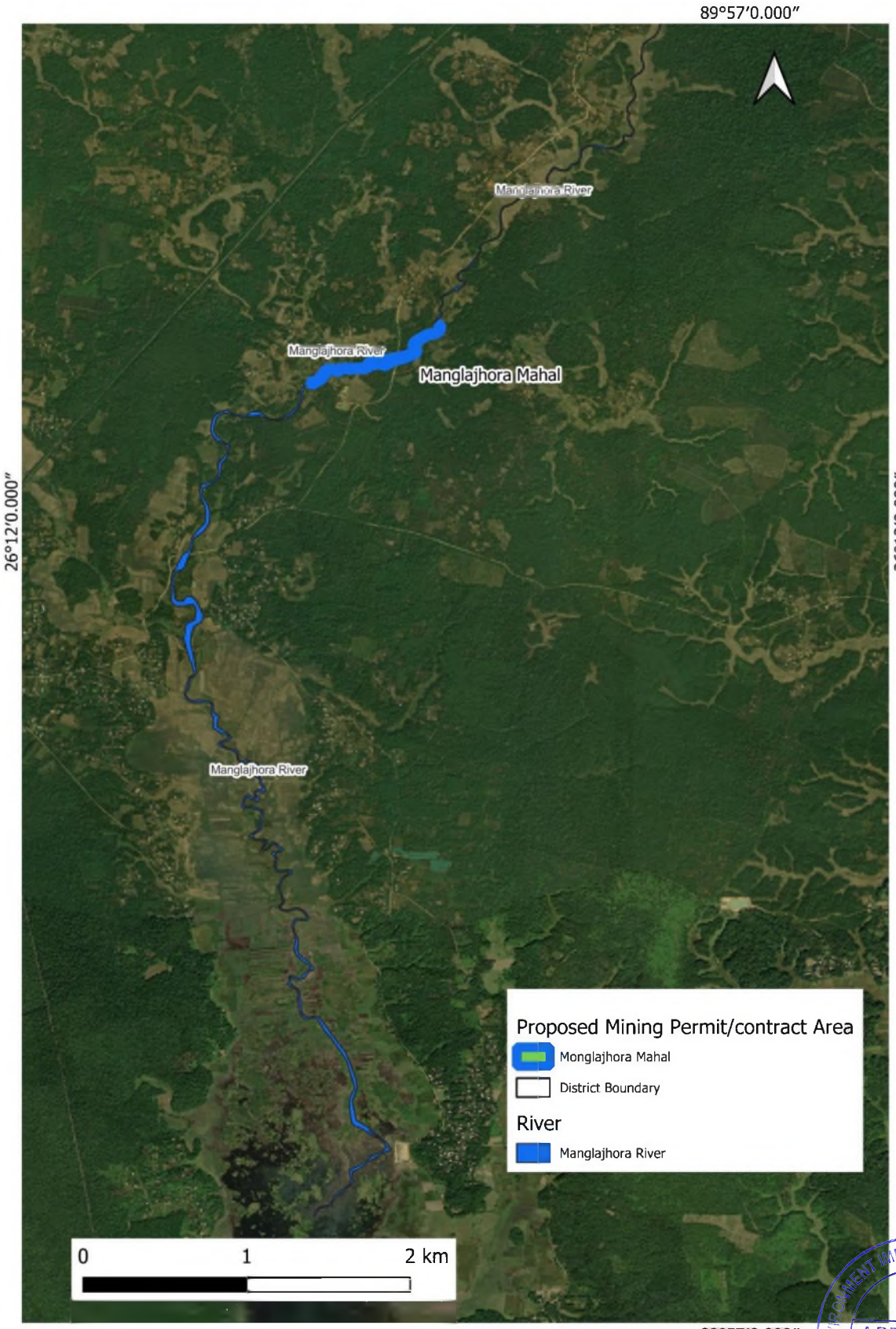

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11.11: Table showing existing/proposed mining permits/contracts areas of Monglajhora River under Kokrajhar District

Sl. No	*Name of the mines*	*Area (in ha)*	*Geolocation*		*Mineral Name*	*Existing/ proposed*
1.	Monglajhora Mahal	2.16	26°12'35.98"N 26°12'34.23"N 26°12'30.02"N 26°12'30.88"N 26°12'36.68"N 26°12'43.54"N 26°12'43.55"N 26°12'35.91'N	89°55'40.09"E 89°55'39.72"E 89°55'23.55"E 89°55'22.92"E 89°55'43.56"E 89°55'51.50"E 89°55'52.01"E 89°55'44.06"E	Sand Gravel	Proposed

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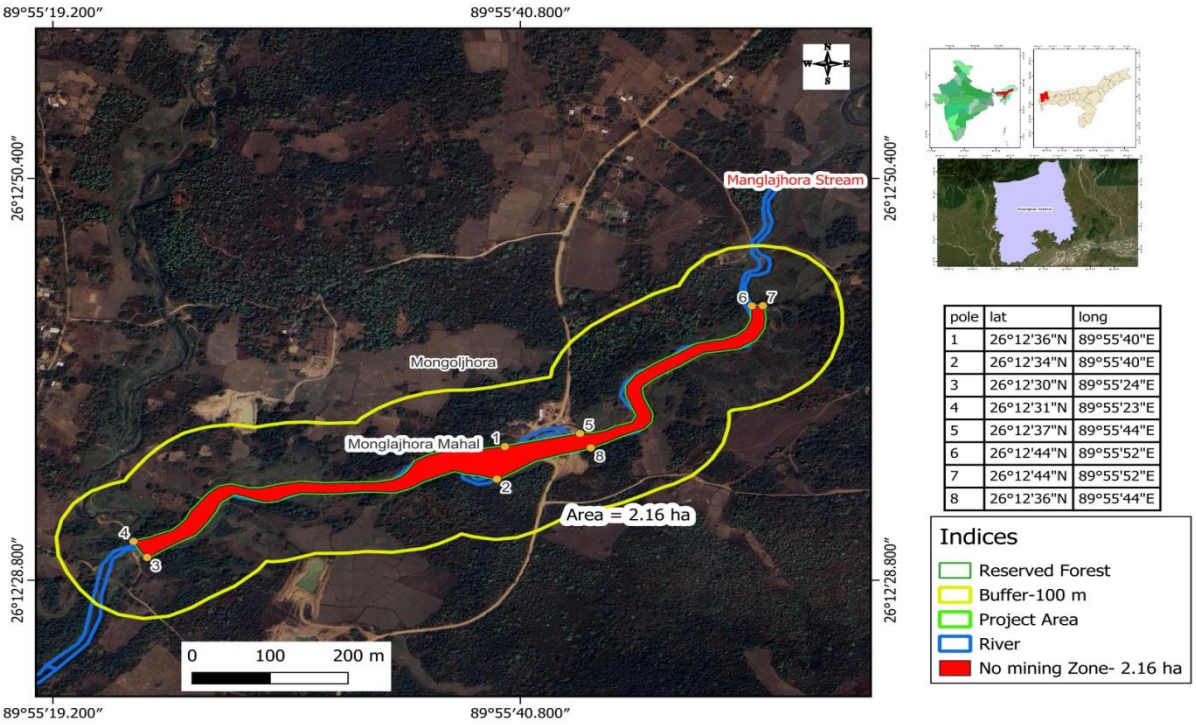
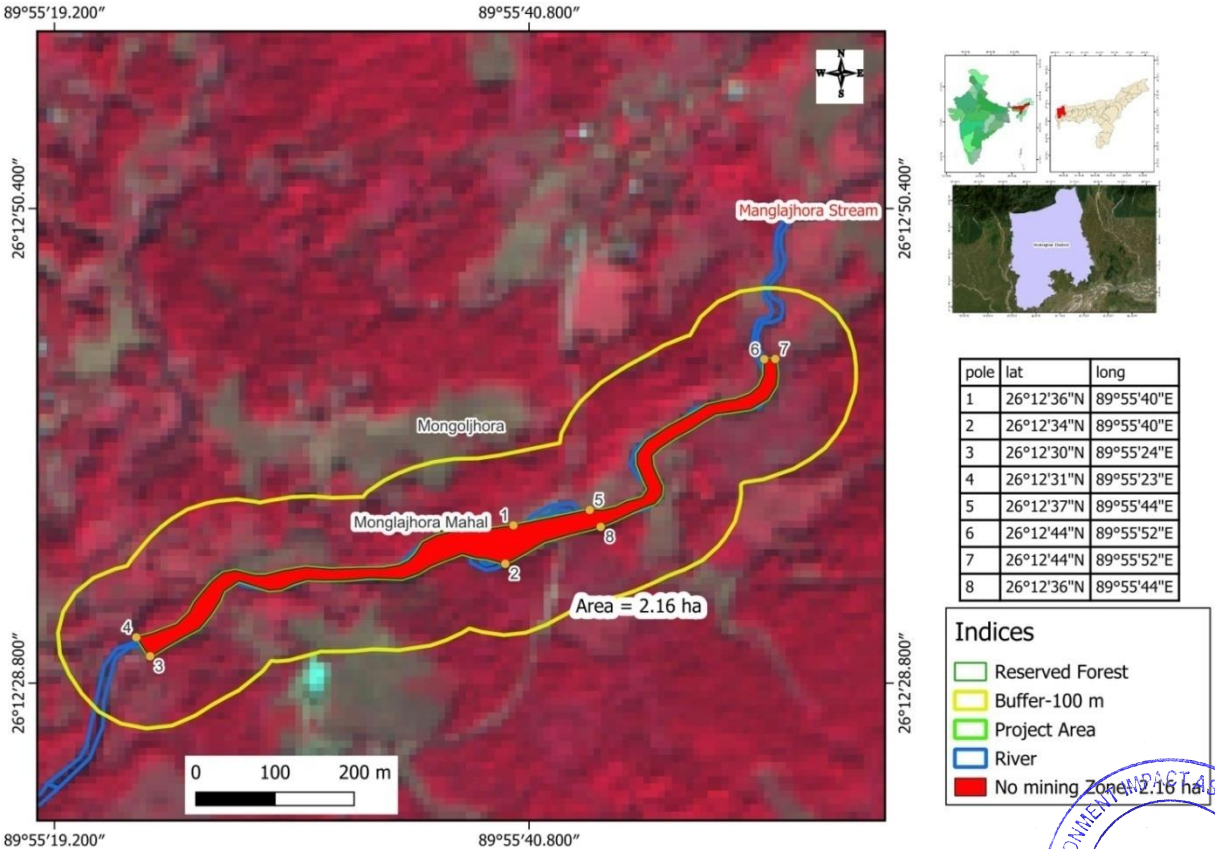
Map 11.23: Buffer map showing Monglajhora Mahal of Monglajhora River



pole	lat	long
1	26°12'36"N	89°55'40"E
2	26°12'34"N	89°55'40"E
3	26°12'30"N	89°55'24"E
4	26°12'31"N	89°55'23"E
5	26°12'37"N	89°55'44"E
6	26°12'44"N	89°55'52"E
7	26°12'44"N	89°55'52"E
8	26°12'36"N	89°55'44"E



pole	lat	long
1	26°12'36"N	89°55'40"E
2	26°12'34"N	89°55'40"E
3	26°12'30"N	89°55'24"E
4	26°12'31"N	89°55'23"E
5	26°12'37"N	89°55'44"E
6	26°12'44"N	89°55'52"E
7	26°12'44"N	89°55'52"E
8	26°12'36"N	89°55'44"E

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Data Source: LISS-IV Resolution: 5.8m

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E-mail: contact@rlnt.in ; reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing

Group: Building Materials

Date of issue of Report: 28-09-2024

TEST REPORT		
1	Name of Client:	The Divisional Forest Officer Hltugaon Division, Kokrajhar
2	Name of project:	District Survey Report, Kokrajhar District
3	Type of sample:	Sand & Gravel
4	Condition of sample:	Ok
5	Date of sample Received:	15-09-2024
6	Source of Material:	Monglajhora River
7	Location:	Gandabil Village Lat-26.21006, Long-89.92827
8	Test Sample Supplied By:	Customer
9	Test Done at:	"At the Loboratory located in the basement of our premises at the above mentioned address"

Test Results : Next Page

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E-mail: contact@rlnt.in ; reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing — Group: Building Materials

Test Report No: 2409126676-1
Sample ID: DFO/HFD/240937/PG

Name of Test: **Gradation** — **Test Method:** IS 2386-Part-I-1963 (Reaffirmed 2021)

Type of Sample: **Sand & Gravel** — **Date of testing: 14-10-2024 to 16-10-2024**

Source: **Monglajhora River** — Environmental Conditions during test

Temparature: **26.9°C, Humidity: 67%**

TEST RESULTS

Is Sieve Size (mm)	Weight Retained (gm)	% Weight Retained (gm)	Cumulative % of Retained	% of Passing
300	0	0.00	0.00	100.00
75	0	0.00	0.00	100.00
20	43	2.15	2.15	97.85
4.75	172	8.6	10.75	89.25
0.075	1780	89.0	99.75	0.25
Pan	5			
Total	2000			

% Boulder = 0.00%
%Gravel= 10.75%
%Sand= 89.0%
%Silt= 0.25%

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E-mail: contact@rlnt.in ; reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing
Test Report No: 2409126676-3
Sample ID: DFO/HFD/240953/PG

Group: Building Materials

Date of issue of Report: 29-09-2024

TEST REPORT		
1	**Name of Client:**	**The Divisional Forest Officer Hitugaon Division, Kokrajhar**
2	**Name of project:**	**District Survey Report, Kokrajhar District**
3	**Type of sample:**	**Sand & Gravel**
4	**Condition of sample:**	**Ok**
5	**Date of sample Received:**	**19-09-2024**
6	**Source of Material:**	**Monglajhora River**
7	**Location:**	**Gandabil Village** **Lat-26.21006, Long-89.92827**
8	**Test Sample Supplied By:**	**Customer**
9	**Test Done at:**	**"At the Loboratory located in the basement of our premises at the above mentioned address"**

Test Method **IS 2386-PartIII-1963 (Reaffirmed 2021)**

1. Name of Test **Bulk Density of Sand & Gravel**
Type of Test **Loose**
Source **Monglajhora River**

Date of testing **25-09-2024 to 25-09-2024**
Environmental Conditions during test
Temparature: **27.1°C, Humidity:64%**

TEST RESULTS			
Sample	Weight of Aggregate to fill the Mould In (Kg) (A)	Volume of Mould In (litre) (B)	Bulk Density In (Kg/Litre) [A/B]
1	22.824	13.096	1.74

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Discipline: Mechanical Testing — Group: Building Materials

Test Report No: 2409126676-2
Sample ID: DFO/HFD/240931/PG

Name of Test: **Specific Gradation**

Test Method: IS 2386-Part-I-1963 (Reaffirmed 2021)

Type of Sample: **Sand & Gravel**

Source: **Monglajhora River**

Date of testing: 25-09-2024 to 27-09-2024

Environmental Conditions during test

Temparature: **27.6°C, Humidity: 61%**

TEST RESULTS

Sl. No.	Weight of Saturated Surface Dry Sample (gm)	Weight of Pycnometer Containing Sample & filled With Distilled Water (gm)	Weight of Pycnometer Frillied with Water Only (gm)	Weight of Oven Dried Sample (gm)	Specific Gravity [D/A-(b-C)]
	A	B	C	D	
1	470.0	2014.0	1747.5	542.0	2.66

Remarks : Calculations are As per IS : 2386-part-III-1963 Reaffirmed 2021 , Ciause No.2.4.3, No limits Specified, Test Result are Satisfactory.

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Champabati River

Sl No	*Description*	*Area in Ha.*	*Percentage of Total area (In %)*	*Cumulative %*
1	River area	1003.7	100	100
2	Area granted for mining	4.41	0.43	0.43
3	No of lease not recommended for future Quarry Lease grant due extracted up to a distance of 1 kilometer (1 km) from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side	0.0	0.0	0.0
4	Area not recommended for future Quarry Lease grant due to 100 m Buffer from any railway line or bridge	0.0	0.0	0.0
5	Area not recommended for future Quarry Lease grant due to 100 m buffer from the outer periphery of the defined limits of any village, habitation, National Highway, State highway and other roads	0.0	0.0	0.0
6	Area not recommended for future Quarry Lease grant due to non-availability of un-mined block 50 meters width after every block of 1,000 meters over which is undertaken or at such distance as may be directed by the competent authority	0.0	0.0	0.0

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7	Area not recommended for future Quarry Lease grant due to 100 m Buffer Local Minor Check Dam	0.0	0.0	0.0
8	Area not recommended for future Quarry Lease grant due to 500 m buffer from the irrigation Structure/ Reservoir & Submergence Area	0.0	0.0	0.0
9	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Canal/ Tank/ Lake	0.0	0.0	0.0
10	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Ropeway or ropeway trestle or station	0.0	0.0	0.0
11	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Heritage site, Protected monuments	0.0	0.0	0.0
12	Area not recommended for future Quarry Lease grant due to Eco-sensitive Zone	0.0	0.0	0.0
13	Applicability of Cluster (Other lease within 500 meter radius	0.0	0.0	0.0

0.15 ha area of the proposed mining lease falls under No- mining zone after taking 7.5m berm from the bank. Hence the remaining area of the lease is suggested for further excavation of minor mineral.

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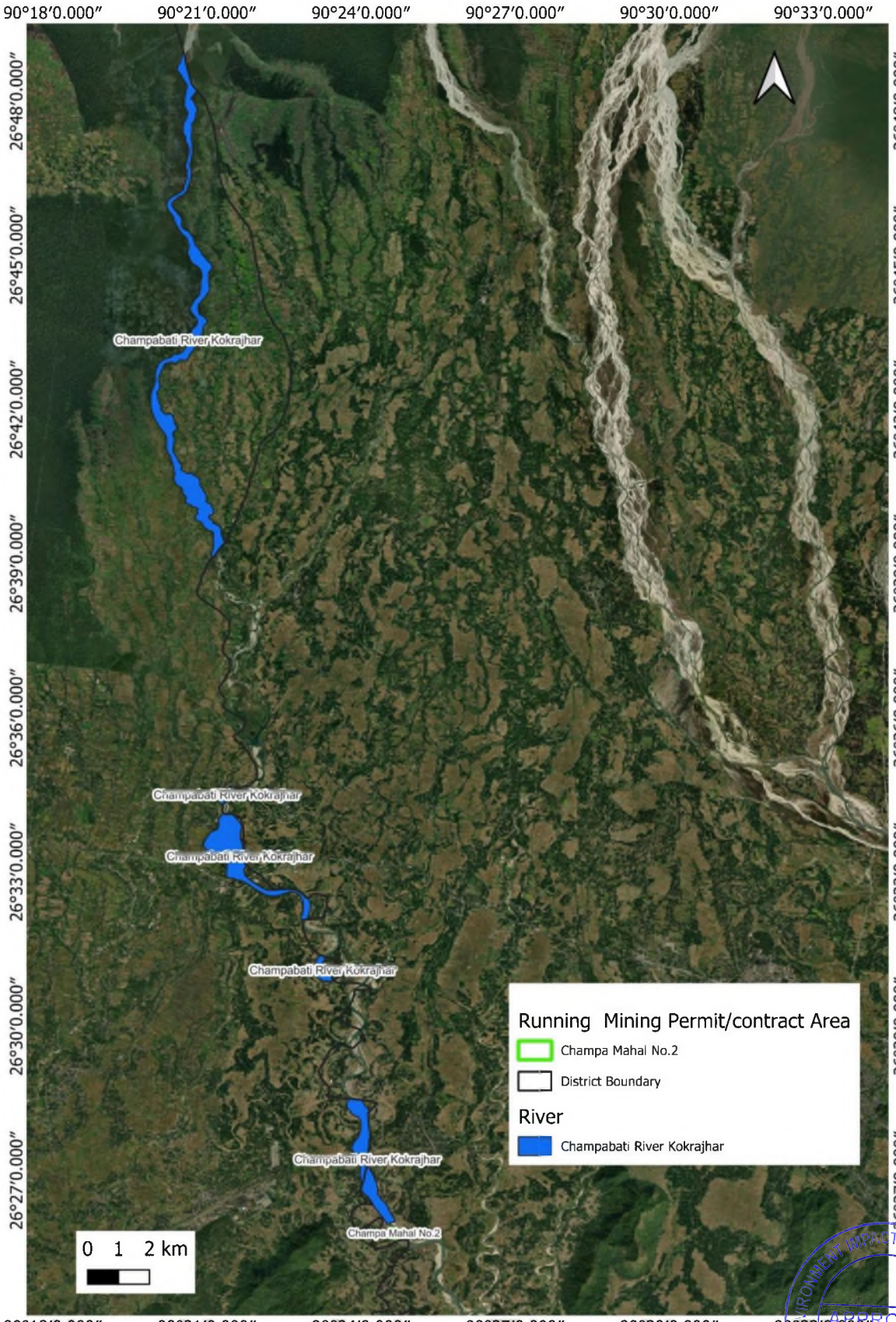

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11.12: Table showing existing/proposed mining permits/contracts areas of Champabati River under Kokrajhar District

Sl. No	*Name of the mines*	*Area (in ha)*	*Geolocation*		*Mineral Name*	*Existing/ proposed*
1.	Champa Mahal No. 2	4.41 ha	26°25'54.07"N 26°26'4.43"N 26°26'2.72"N 26°25'52.39"N	90°24'44.07"E 90°24'37.09"E 90°24'33.79"E 90°24'39.46"E	Sand Gravel	**Running**

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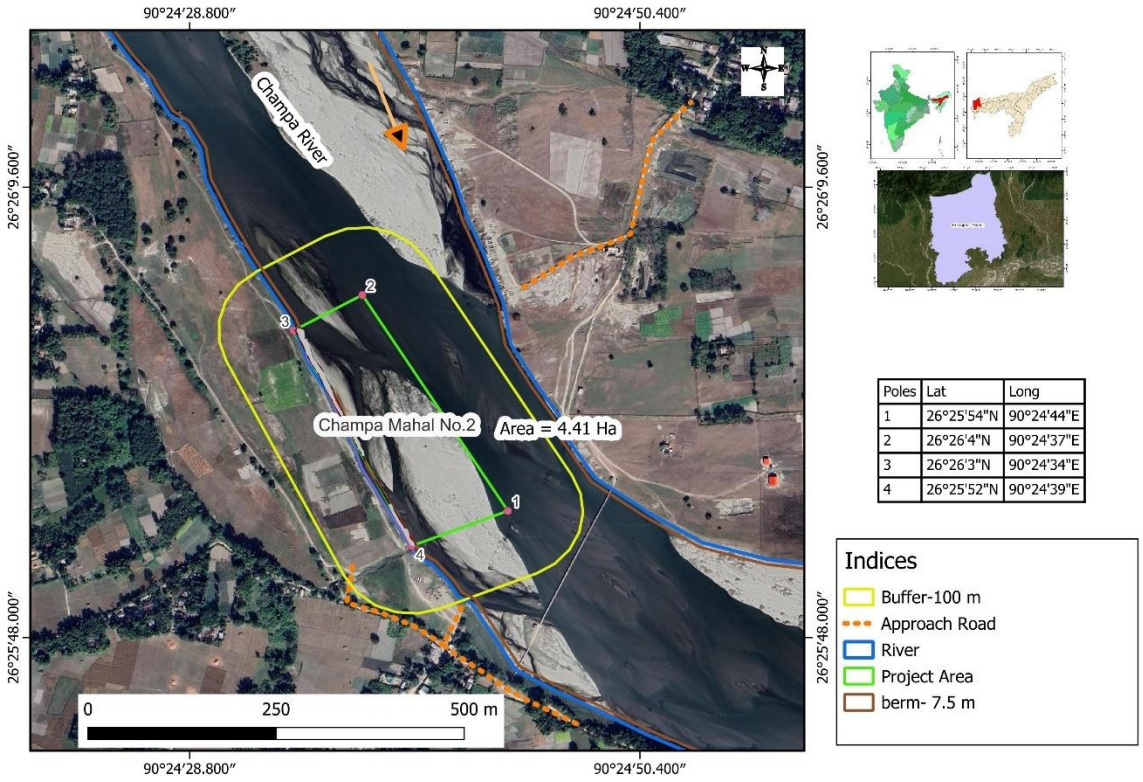
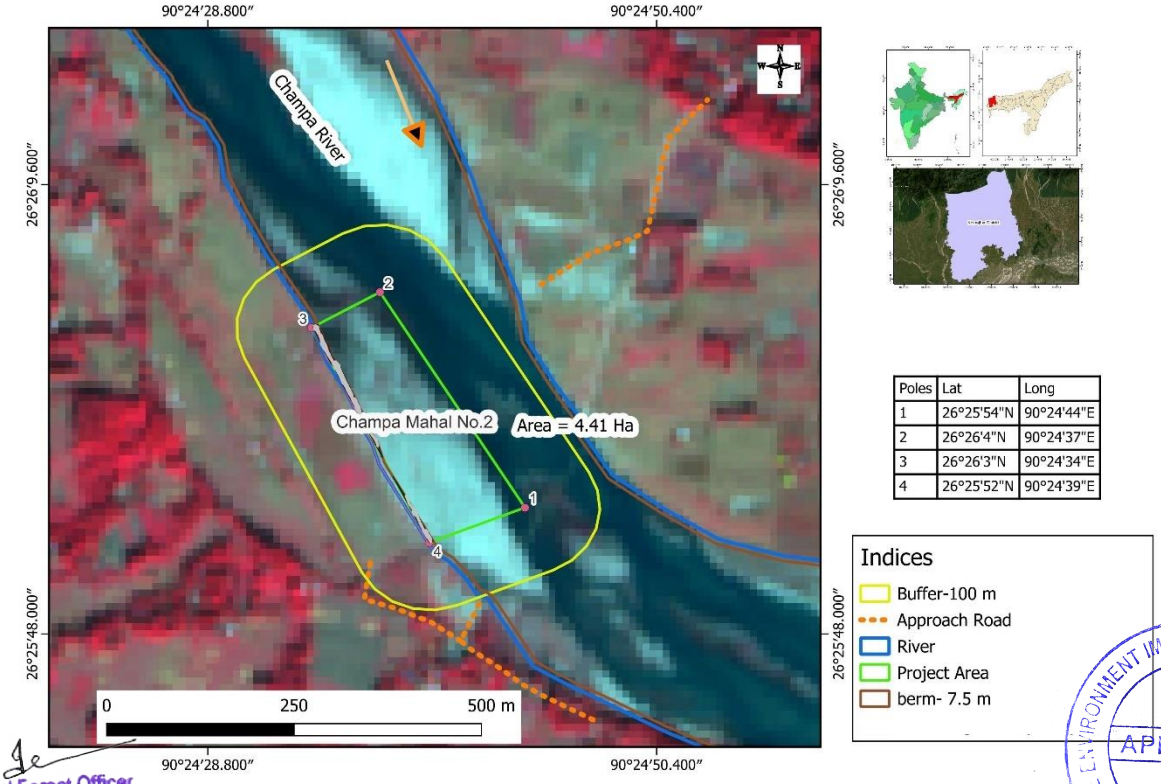
Map 11.24: Buffer map showing Champa Mahal No. 2 of Champabati River



Poles	Lat	Long
1	26°25'54"N	90°24'44"E
2	26°26'4"N	90°24'37"E
3	26°26'3"N	90°24'34"E
4	26°25'52"N	90°24'39"E



Poles	Lat	Long
1	26°25'54"N	90°24'44"E
2	26°26'4"N	90°24'37"E
3	26°26'3"N	90°24'34"E
4	26°25'52"N	90°24'39"E

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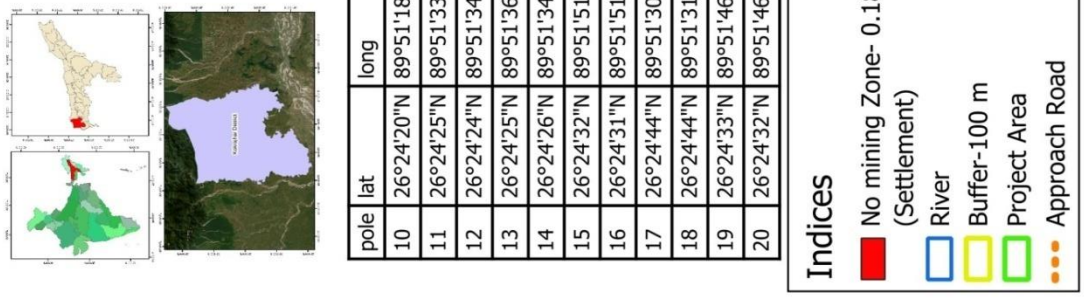
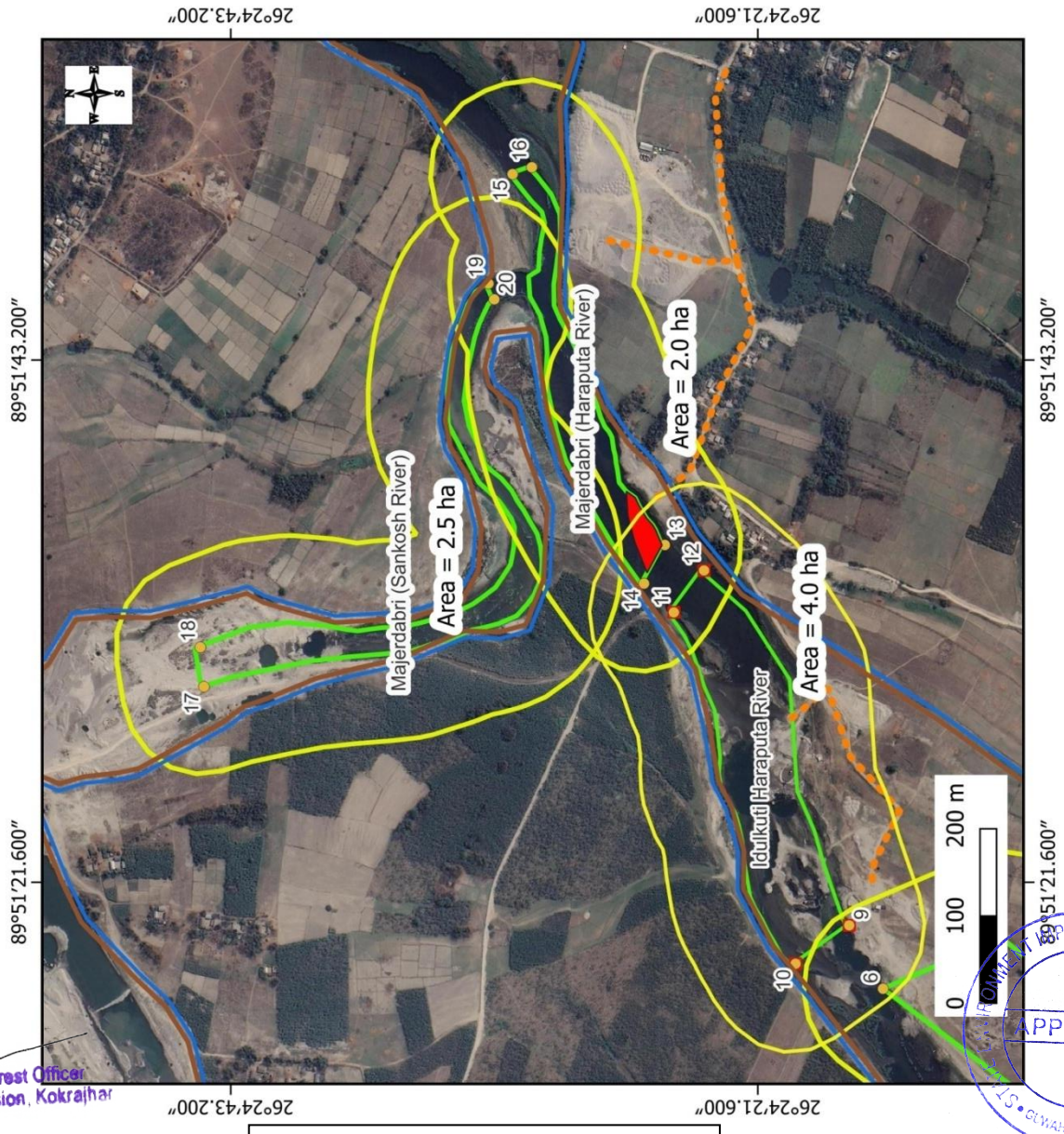
Data Source: LISS-IV Resolution: 5.8m

River wise new Potential sites

Map 11.25: Buffer Map showing new potential sites of Majerdabri (Sankosh River) and Majerdbri (Haraputa River)



pole	lat	long
10	26°24'20"N	89°51'18"E
11	26°24'25"N	89°51'33"E
12	26°24'24"N	89°51'34"E
13	26°24'25"N	89°51'36"E
14	26°24'26"N	89°51'34"E
15	26°24'32"N	89°51'51"E
16	26°24'31"N	89°51'51"E
17	26°24'44"N	89°51'30"E
18	26°24'44"N	89°51'31"E
19	26°24'33"N	89°51'46"E
20	26°24'32"N	89°51'46"E



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Data Source: LISS-IV Resolution: 5.8m

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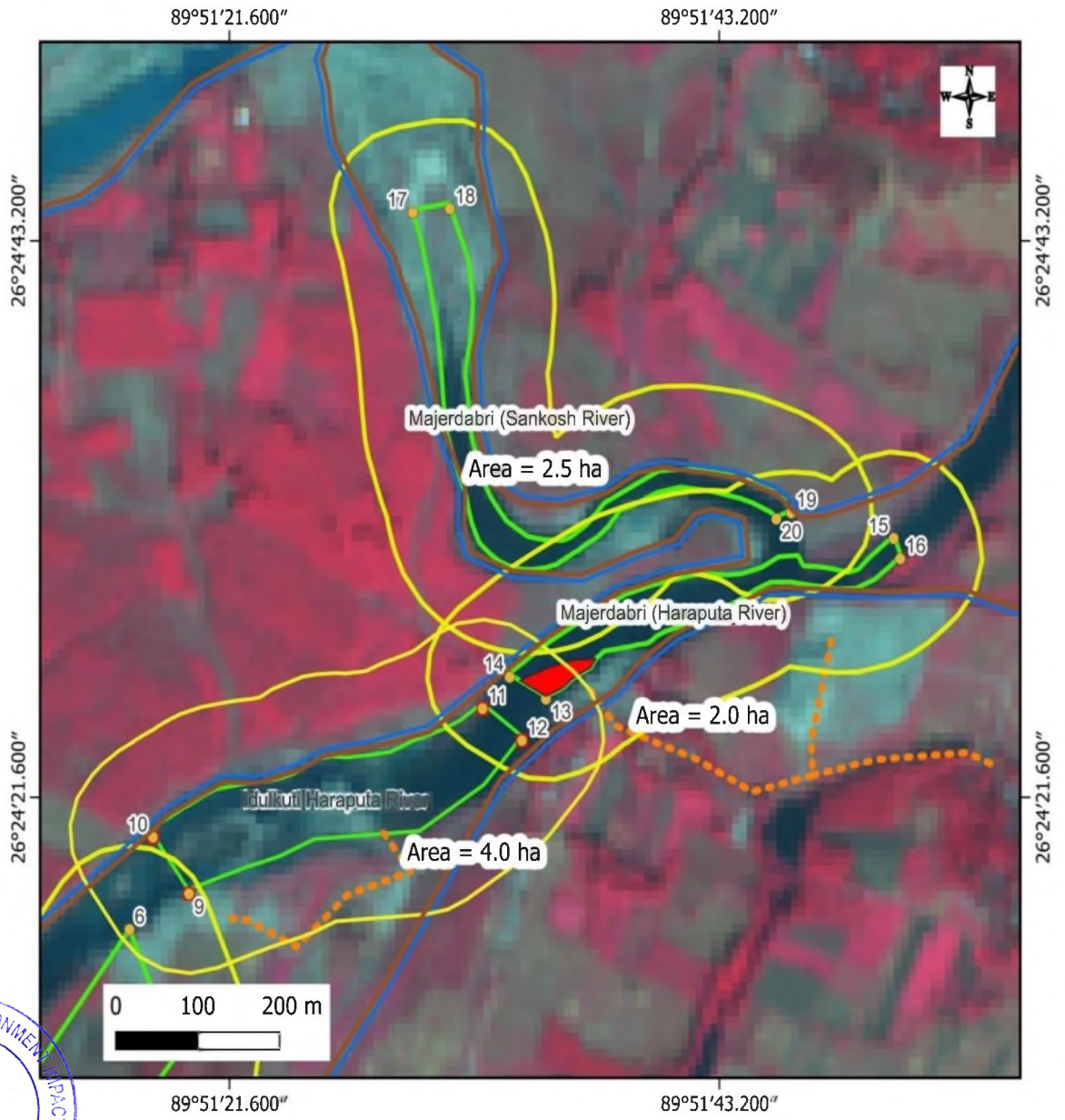
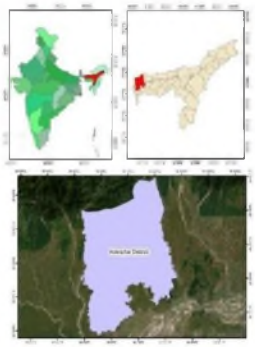
Haltugaon Division, Kokrajhar





pole	lat	long
10	26°24'20"N	89°51'18"E
11	26°24'25"N	89°51'33"E
12	26°24'24"N	89°51'34"E
13	26°24'25"N	89°51'36"E
14	26°24'26"N	89°51'34"E
15	26°24'32"N	89°51'51"E
16	26°24'31"N	89°51'51"E
17	26°24'44"N	89°51'30"E
18	26°24'44"N	89°51'31"E
19	26°24'33"N	89°51'46"E
20	26°24'32"N	89°51'46"E

Indices

- No mining Zone- 0.18 ha (Settlement)
- River
- Buffer-100 m
- Project Area
- Approach Road

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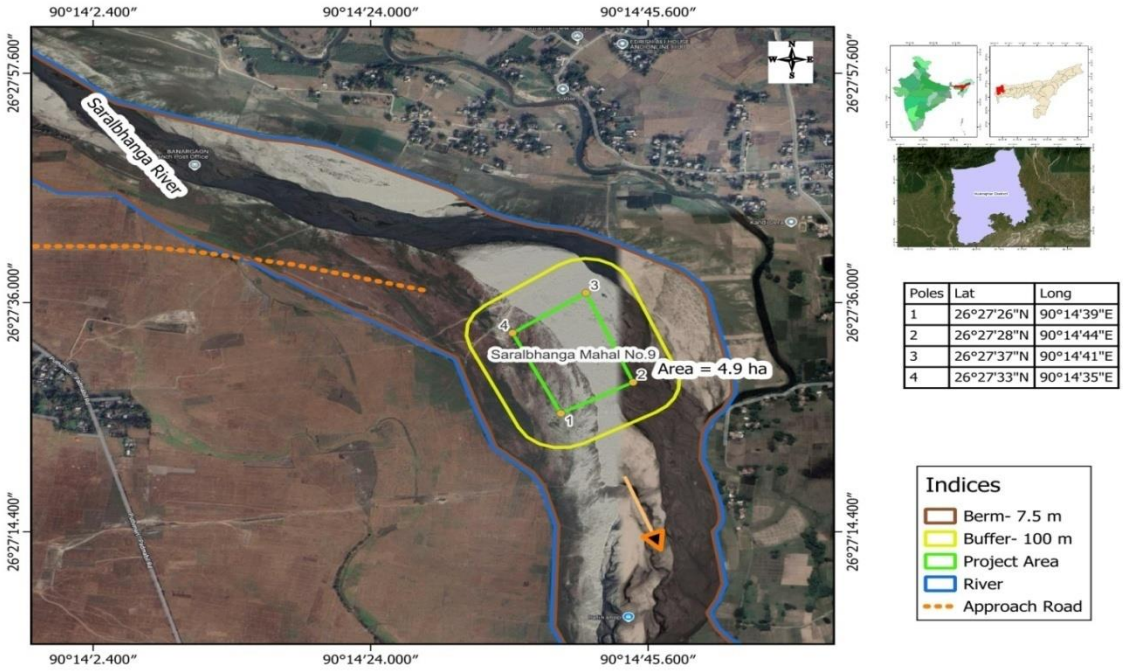
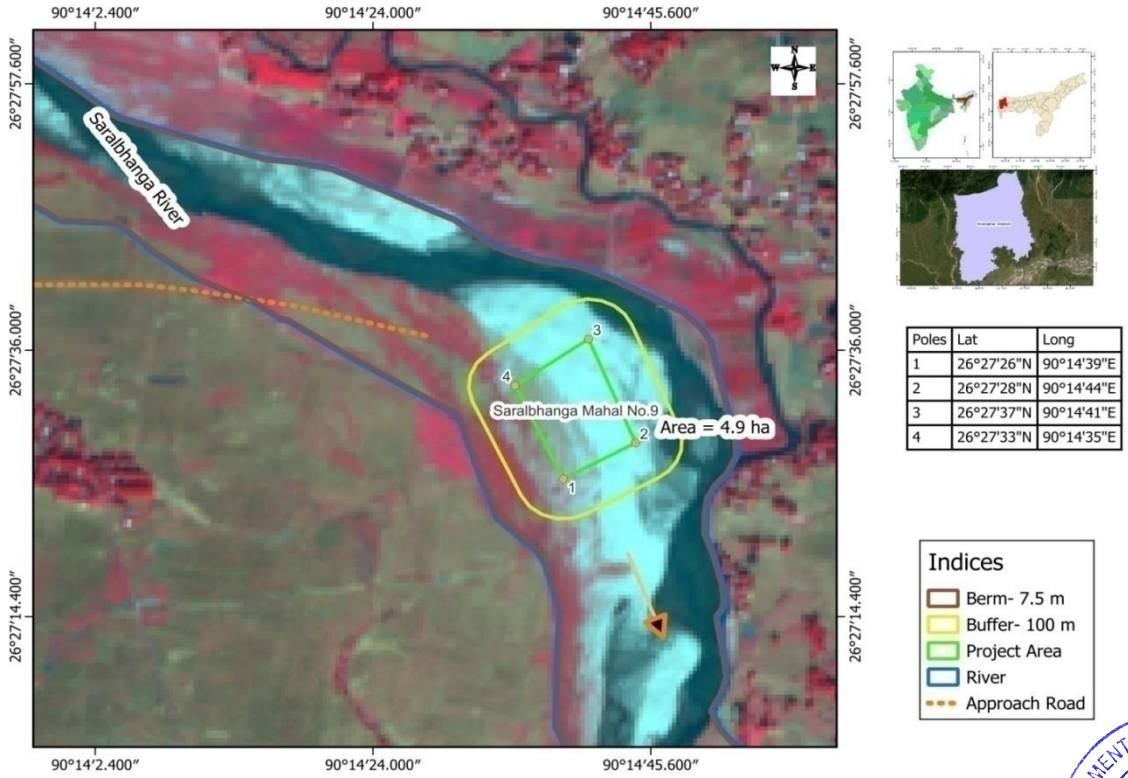
Map 11.26: Buffer Map showing new potential site Saralbhanga Mahal No 9 of Saralbhanga River



Poles	Lat	Long
1	26°27'26"N	90°14'39"E
2	26°27'28"N	90°14'44"E
3	26°27'37"N	90°14'41"E
4	26°27'33"N	90°14'35"E



Poles	Lat	Long
1	26°27'26"N	90°14'39"E
2	26°27'28"N	90°14'44"E
3	26°27'37"N	90°14'41"E
4	26°27'33"N	90°14'35"E

Data Source: LISS-IV Resolution: 5.8m

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Haltugaon Division, Kokrajhar

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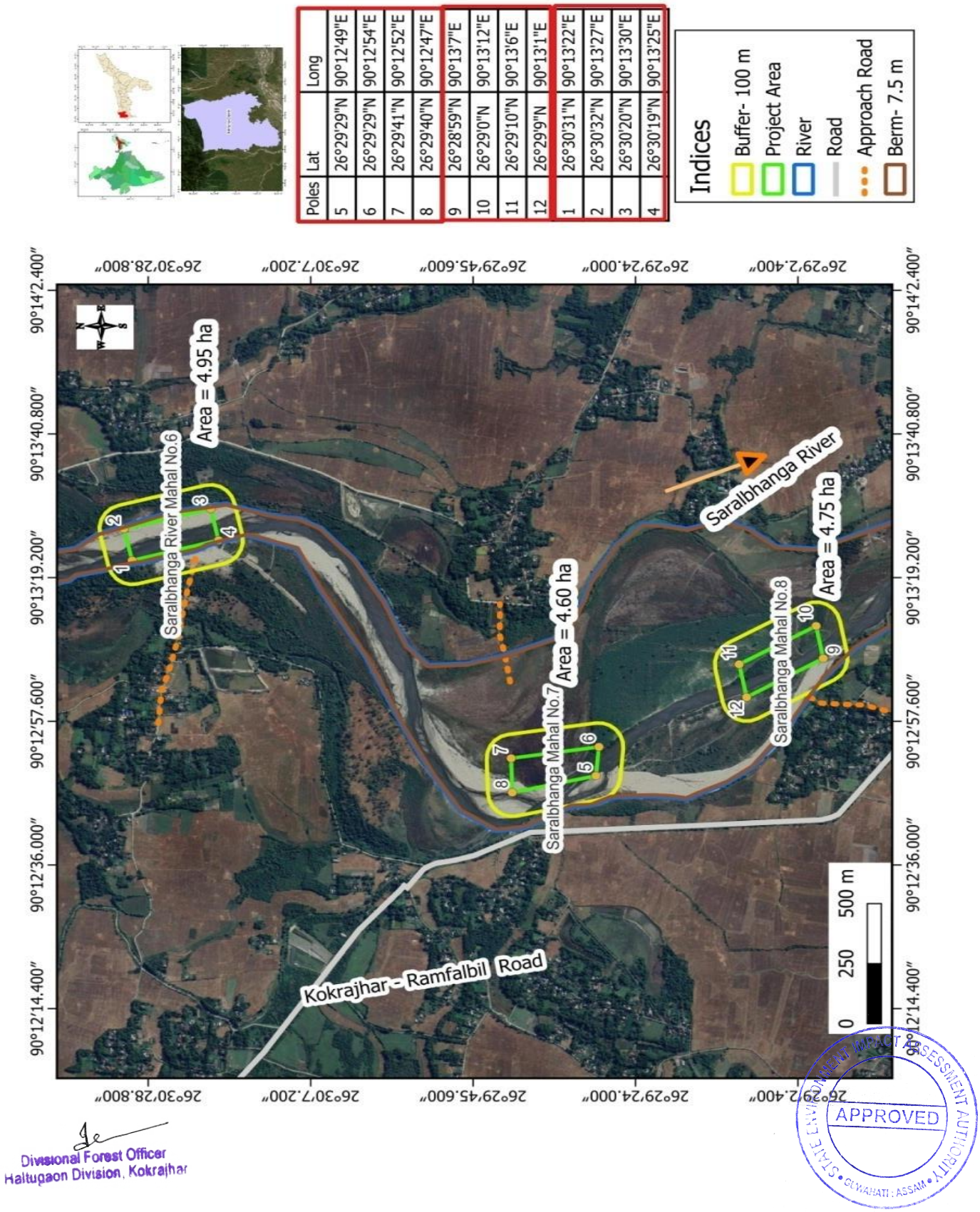
Map 11.27: Buffer Map showing Saralbhanga Mahal No -6, No- 7 and No- 8 of Saralbhanga River



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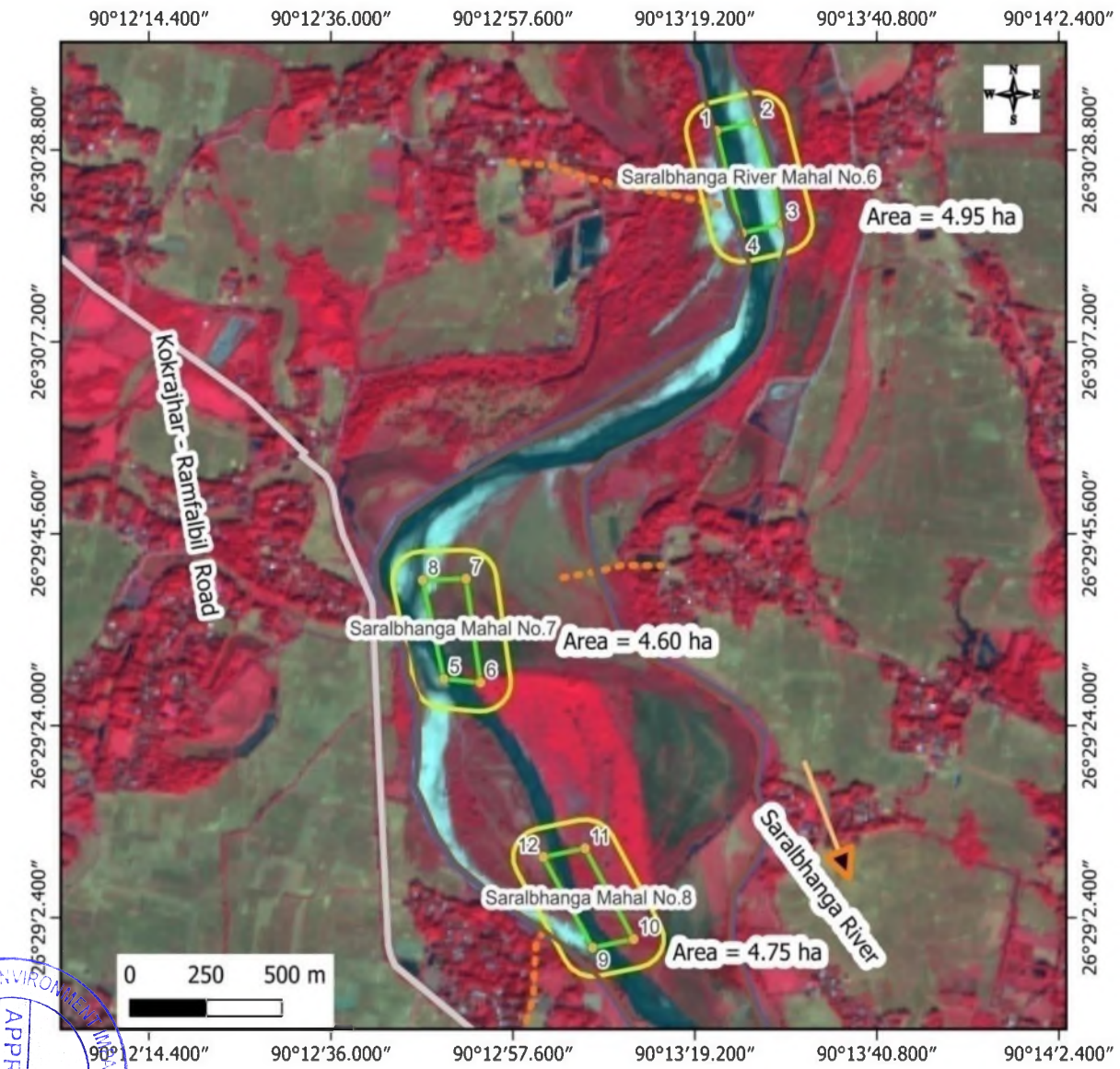

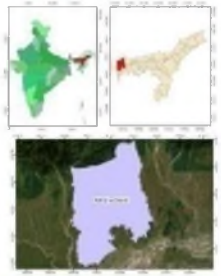

Poles	Lat	Long
5	26°29'29"N	90°12'49"E
6	26°29'29"N	90°12'54"E
7	26°29'41"N	90°12'52"E
8	26°29'40"N	90°12'47"E
9	26°28'59"N	90°13'7"E
10	26°29'0"N	90°13'12"E
11	26°29'10"N	90°13'6"E
12	26°29'9"N	90°13'1"E
1	26°30'31"N	90°13'22"E
2	26°30'32"N	90°13'27"E
3	26°30'20"N	90°13'30"E
4	26°30'19"N	90°13'25"E

Indices
- Buffer- 100 m
- Project Area
- River
- Road
- Approach Road
- Berm- 7.5 m

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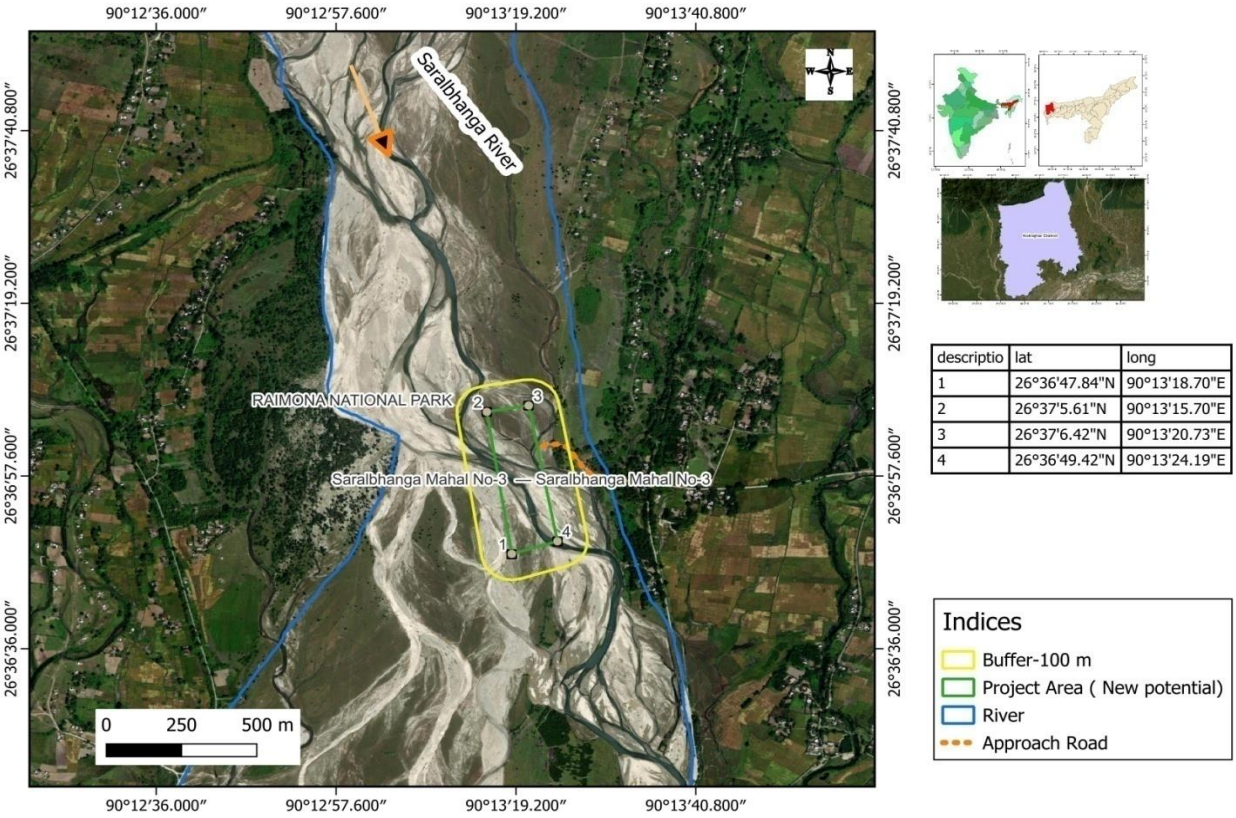
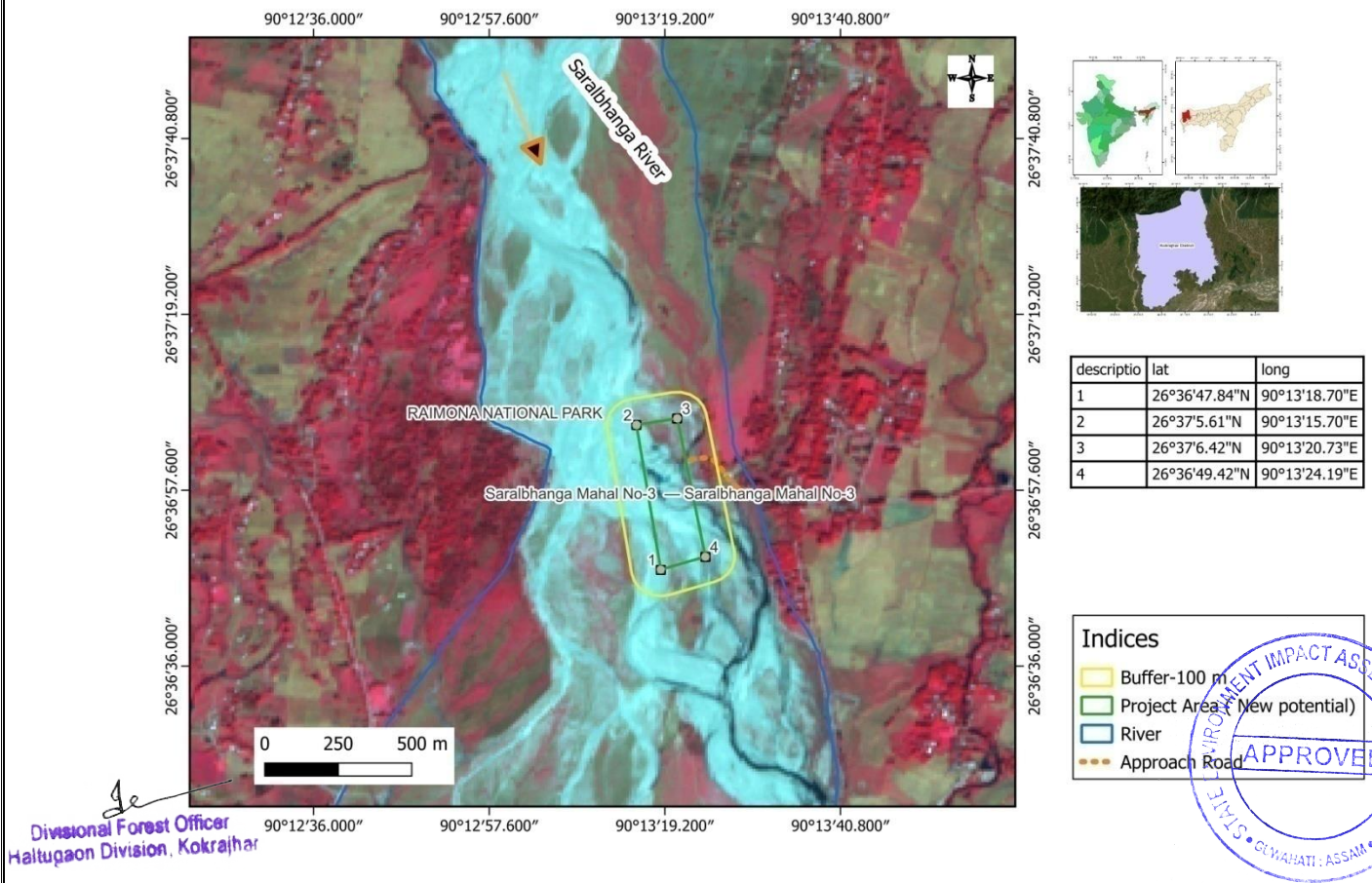
Map 11.28: Buffer Map showing Saralbhanga Mahal 3 of Saralbhanga River



descriptio	lat	long
1	26°36'47.84"N	90°13'18.70"E
2	26°37'5.61"N	90°13'15.70"E
3	26°37'6.42"N	90°13'20.73"E
4	26°36'49.42"N	90°13'24.19"E



descriptio	lat	long
1	26°36'47.84"N	90°13'18.70"E
2	26°37'5.61"N	90°13'15.70"E
3	26°37'6.42"N	90°13'20.73"E
4	26°36'49.42"N	90°13'24.19"E

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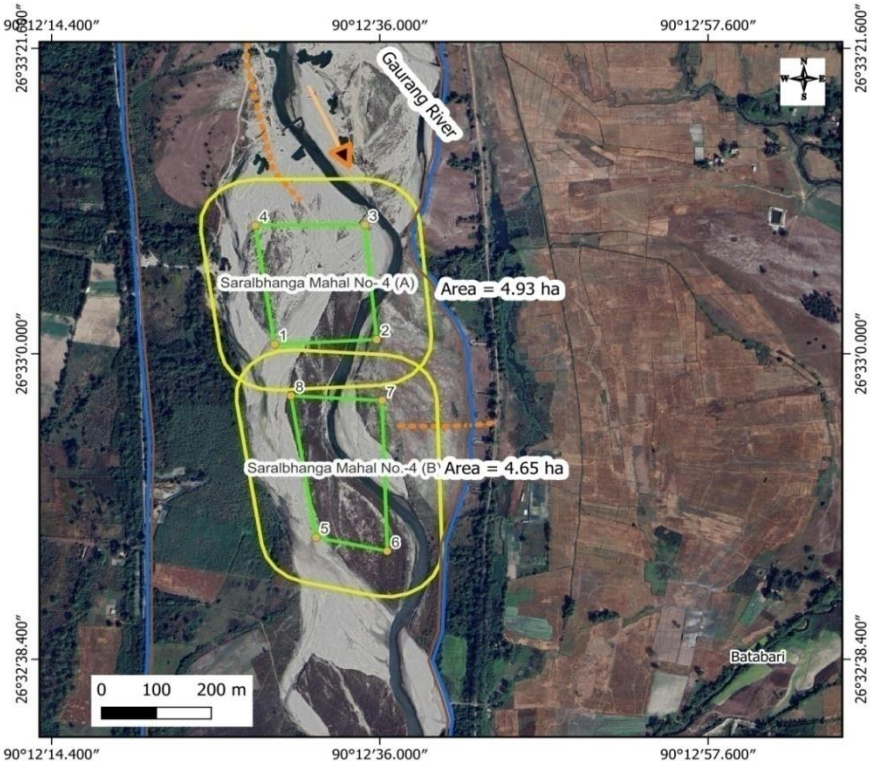
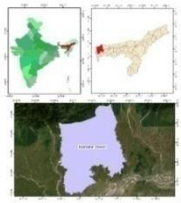
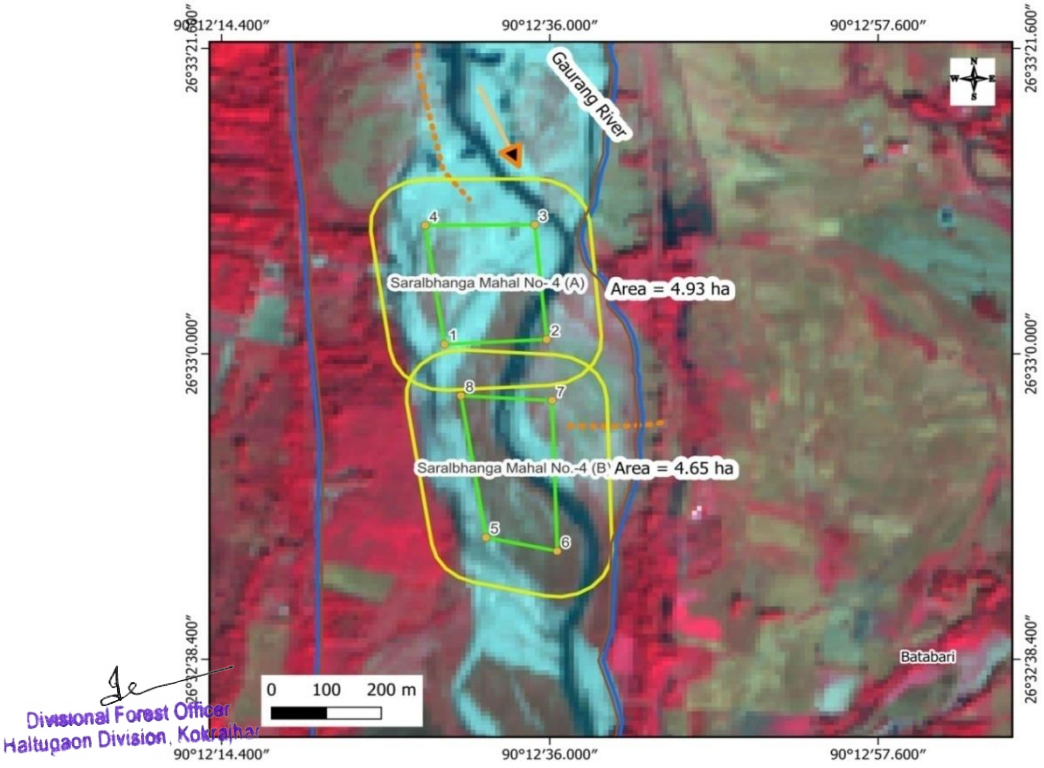
Map 11.29: Buffer Map showing new potential site Saralbhanga Mahal 4(A) and 4(B) of Saralbhanga River

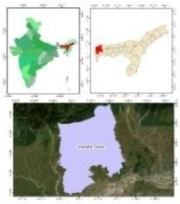




Poles	Lat	Long
1	26°33'1"N	90°12'29"E
2	26°33'1"N	90°12'36"E
3	26°33'9"N	90°12'35"E
4	26°33'9"N	90°12'28"E
5	26°32'47"N	90°12'32"E
6	26°32'46"N	90°12'36"E
7	26°32'57"N	90°12'36"E
8	26°32'57"N	90°12'30"E

Indices
- Buffer- 100 m
- Project Area
- River
- Approach Road
- Berm- 7.5 m





Poles	Lat	Long
1	26°33'1"N	90°12'29"E
2	26°33'1"N	90°12'36"E
3	26°33'9"N	90°12'35"E
4	26°33'9"N	90°12'28"E
5	26°32'47"N	90°12'32"E
6	26°32'46"N	90°12'36"E
7	26°32'57"N	90°12'36"E
8	26°32'57"N	90°12'30"E

Indices
- Buffer- 100 m
- Project Area
- River
- Approach Road
- Berm- 7.5 m

Divisional Forest Officer
Haltugaon Division, Kokrajhar

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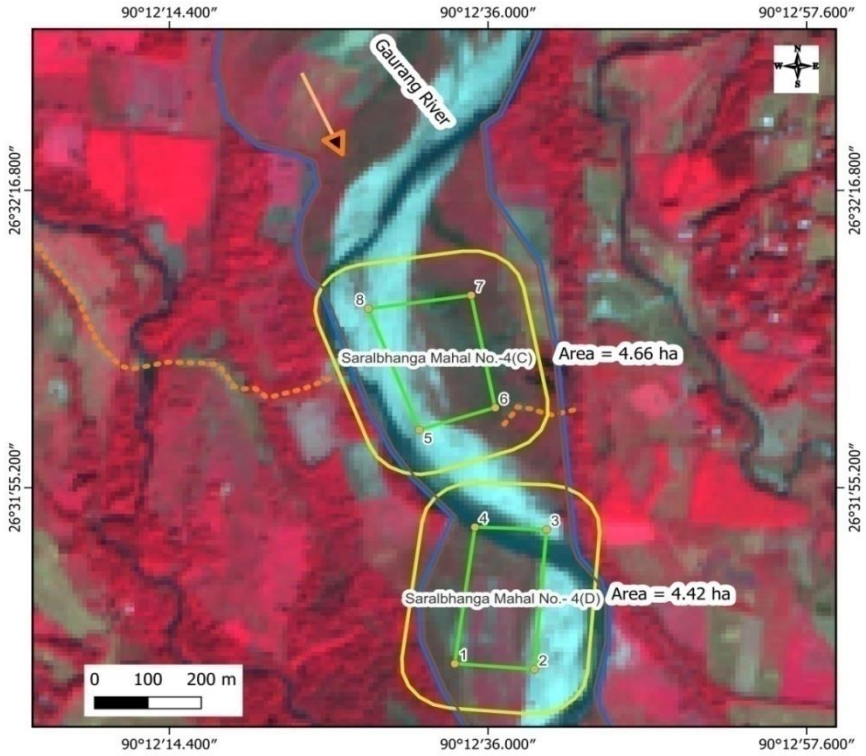
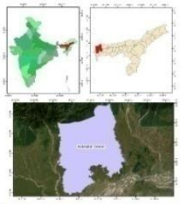
Data Source: LISS-IV Resolution: 5.8m

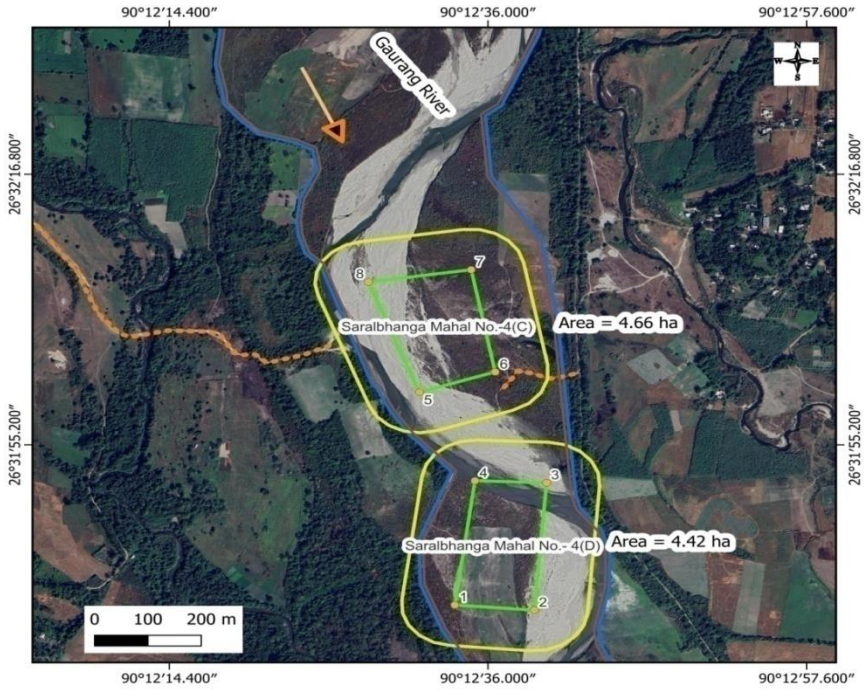
Map 11.30: Buffer Map showing Saralbhanga Mahal 4(C) and 4(D) of Saralbhanga River

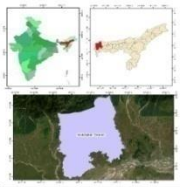




Poles	Lat	Long
1	26°31'42"N	90°12'34"E
2	26°31'42"N	90°12'39"E
3	26°31'52"N	90°12'40"E
4	26°31'52"N	90°12'35"E
5	26°31'59"N	90°12'31"E
6	26°32'1"N	90°12'36"E
7	26°32'9"N	90°12'35"E
8	26°32'8"N	90°12'28"E

Indices
- Buffer- 100 m
- Project Area
- River
- Approach Road
- Berm- 7.5 m





Poles	Lat	Long
1	26°31'42"N	90°12'34"E
2	26°31'42"N	90°12'39"E
3	26°31'52"N	90°12'40"E
4	26°31'52"N	90°12'35"E
5	26°31'59"N	90°12'31"E
6	26°32'1"N	90°12'36"E
7	26°32'9"N	90°12'35"E
8	26°32'8"N	90°12'28"E

Indices
- Buffer- 100 m
- Project Area
- River
- Approach Road
- Berm- 7.5 m

Divisional Forest Officer
Haltugaon Division, Kokrajhar

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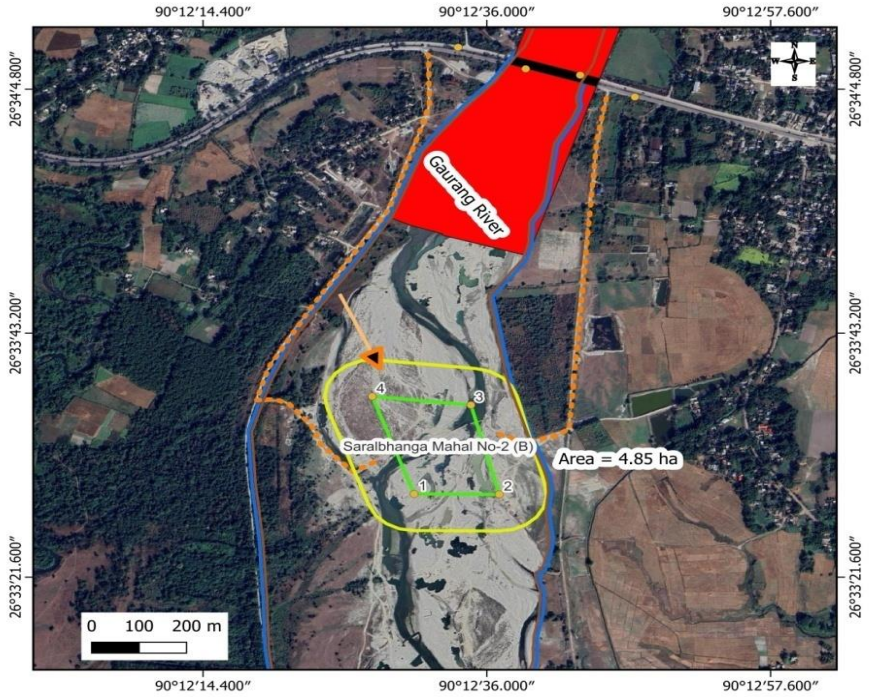
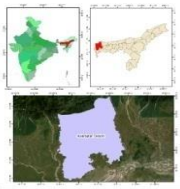
Data Source: LISS-IV Resolution: 5.8m

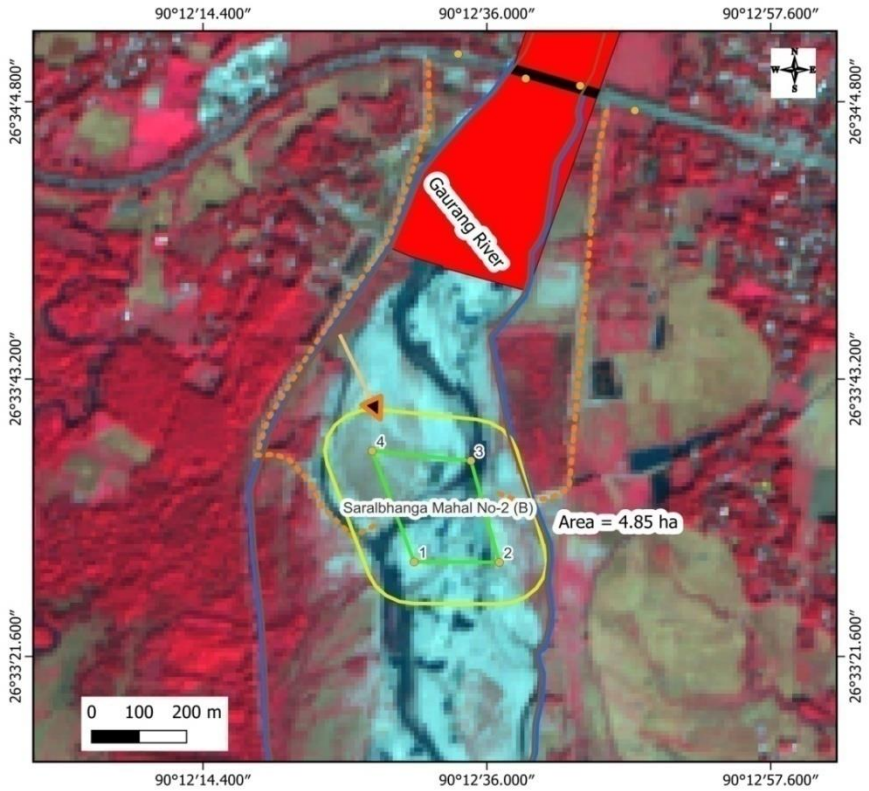
Map 11.31: Buffer Map showing Saralbhanga Mahal No 2(B) of Saralbhanga River

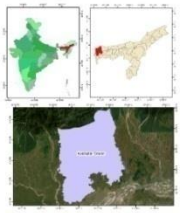




Poles	Lat	Long
1	26°33'29"N	90°12'30"E
2	26°33'29"N	90°12'37"E
3	26°33'37"N	90°12'35"E
4	26°33'38"N	90°12'27"E

Indices
- Buffer- 100 m
- Project Area
- Bridge
- River
- Approach Road
- No Zone-Bridge





Poles	Lat	Long
1	26°33'29"N	90°12'30"E
2	26°33'29"N	90°12'37"E
3	26°33'37"N	90°12'35"E
4	26°33'38"N	90°12'27"E

Indices
- Buffer- 100 m
- Project Area
- Bridge
- River
- Approach Road
- No Zone-Bridge

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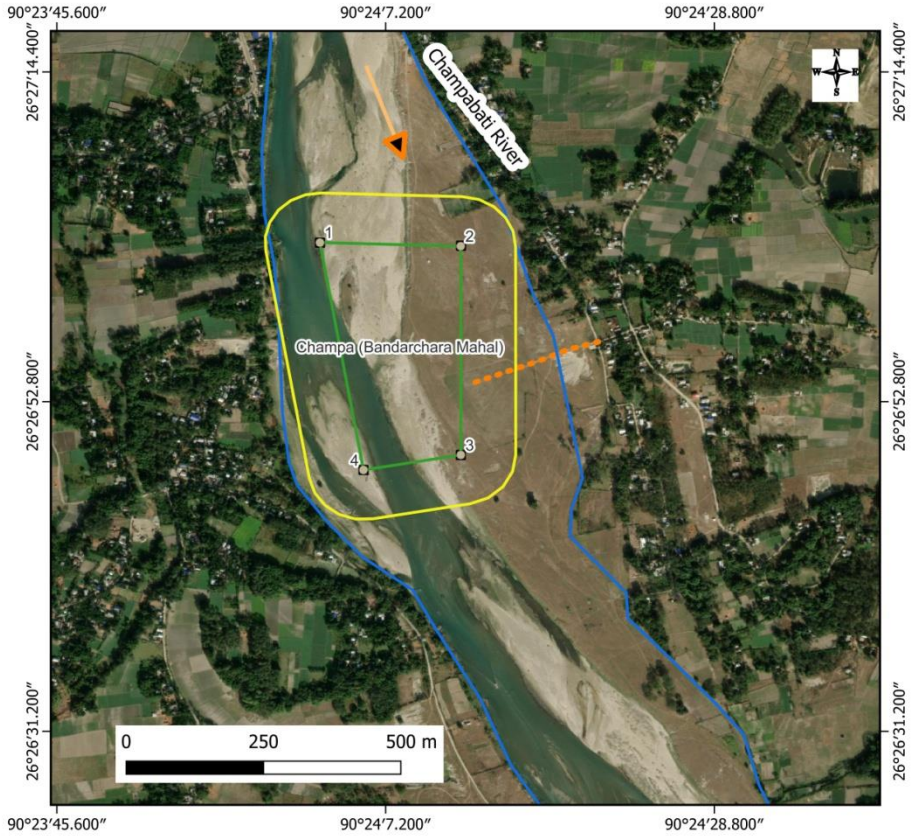
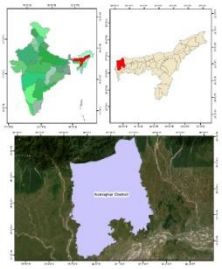
Data Source: LISS-IV Resolution: 5.8m

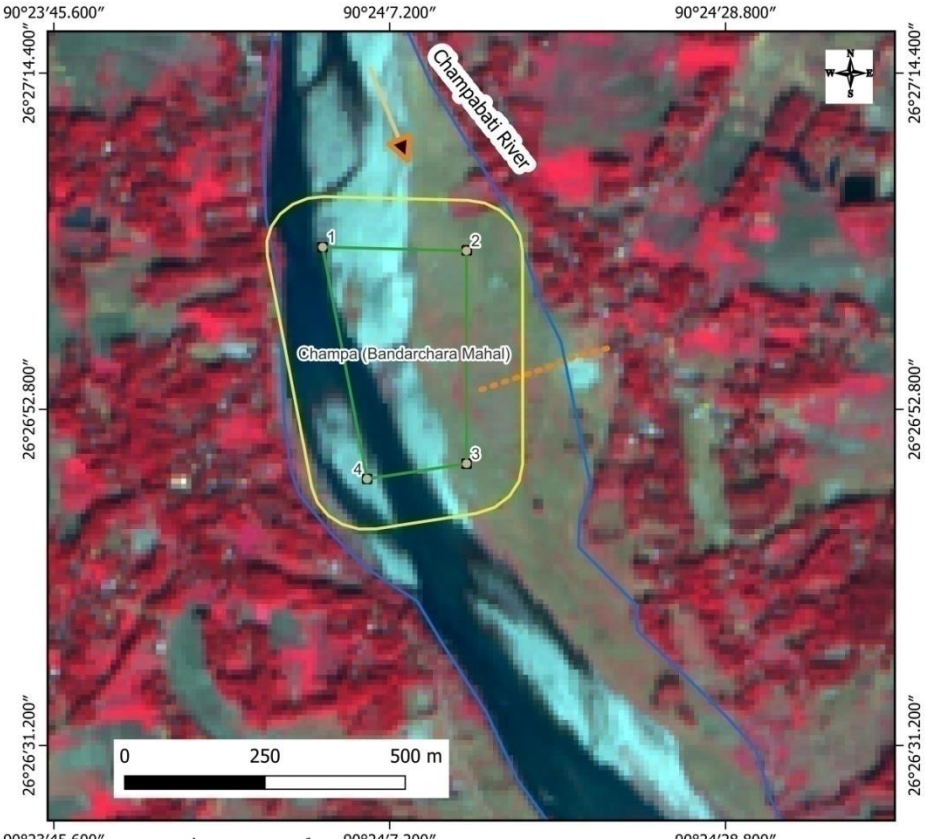
Map 11.32: Buffer Map showing new potential site Champa Bandarchara Mahal of Champabati River

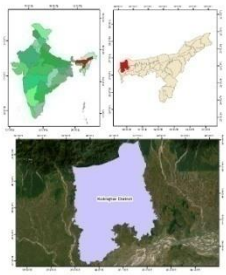




descriptio	lat	long
1	26°27'3.22"N	90°24'2.88"E
2	26°27'2.98"N	90°24'12.14"E
3	26°26'49.31"N	90°24'12.15"E
4	26°26'48.32"N	90°24'5.75"E

Indices
- Buffer-100 m
- Project Area (New potential)
- River
- Approach Road





descriptio	lat	long
1	26°27'3.22"N	90°24'2.88"E
2	26°27'2.98"N	90°24'12.14"E
3	26°26'49.31"N	90°24'12.15"E
4	26°26'48.32"N	90°24'5.75"E

Indices
- Buffer-100 m
- Project Area (New potential)
- River
- Approach Road

Divisional Forest Officer
Haltugaon Division, Kokrajhar

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Reliant House, Sun Polo colony, Dipar Boro Path
Ahomgaon, Garchuk, Guwahati- 781035 (Assam)
Ph: 7086020945/9435192896/9395005840
E-mail: contact@rint.in ; reliantfoundation2018@gmail.com, Website : www.rint.in

Discipline: Mechanical Testing

Group: Building Materials

Date of Issue of Report: 28-09-2024

TEST REPORT		
1	Name of Client:	The Divisional Forest Officer Hitugaon Division, Kokrajhar
2	Name of project:	District Survey Report, Kokrajhar District
3	Type of sample:	Sand & Gravel
4	Condition of sample:	Ok
5	Date of sample Received:	15-09-2024
6	Source of Material:	Champabati River
7	Location:	Nagachara Village Lat-26.63097, Long-90.41180
8	Test Sample Supplied By:	Customer
9	Test Done at:	"At the Loboratory located in the basement of our premises at the above mentioned address"

Test Results : Next Page

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Authorised Signatory

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Haltugaon Division, Kokrajhar

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Ahomgaon, Garchuk, Guwahati- 781035 (Assam)
Ph: 7086020945/ 9435192896/ 9395005840
E-mail: contact@rint.in , reliantfoundation2018@gmail.com, Website : www.rint.in

Discipline: Mechanical Testing — Group: Building Materials

Test Report No: 2409126679-1
Sample ID: DFO/HFD/240937/PG

Name of Test: **Gradation** — **Test Method:** IS 2386-Part-I-1963 (Reaffirmed 2021)

Type of Sample: **Sand & Gravel** — **Date of testing: 14-10-2024 to 16-10-2024**

Source: **Champabati River** — Environmental Conditions during test

Temparature: **26.9°C, Humidity: 67%**

TEST RESULTS

Is Sieve Size (mm)	Weight Retained (gm)	% Weight Retained (gm)	Cumulative % of Retained	% of Passing
300	0	0.00	0.00	100.00
75	0	0.00	0.00	100.00
20	178	12.55	12.55	87.45
4.75	552	17.6	30.15	69.85
0.075	1265	69.6	99.75	0.25
Pan	5			
Total	2000			

% Boulder = 0.00%
%Gravel= 39.05%
%Sand= 60.25%
%Silt= 0.25%

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Divisional Forest Officer
Haltugaon Division, Kokrajhar

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Reliant House, Sun Polo colony, Dipar Boro Path
Ahomgaon, Garchuk, Guwahati- 781035 (Assam)
Ph: 7086020945/ 9435192896/ 9395005840
E-mail: contact@rlnt.in ; reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing
Test Report No: 2409126679-3
Sample ID: DFO/HFD/240958/PG

Group: Building Materials

Date of issue of Report: 29-09-2024

TEST REPORT		
1	**Name of Client:**	**The Divisional Forest Officer Hiltugaon Division, Kokrajhar**
2	**Name of project:**	**District Survey Report, Kokrajhar District**
3	**Type of sample:**	**Sand & Gravel**
4	**Condition of sample:**	**Ok**
5	**Date of sample Received:**	**19-09-2024**
6	**Source of Material:**	**Champabati River**
7	**Location:**	**Nagachara Village** **Lat-26.63097, Long-90.41180**
8	**Test Sample Supplied By:**	**Customer**
9	**Test Done at:**	**"At the Loboratory located in the basement of our premises at the above mentioned address"**

Test Method **IS 2386-PartIII-1963 (Reaffirmed 2021)**

1. Name of Test **Bulk Density of Sand & Gravel**
Type of Test **Loose**
Source **Champabati River**

Date of testing **25-09-2024 to 25-09-2024**
Environmental Conditions during test
Temparature: **27.1°C, Humidity:64%**

TEST RESULTS			
Sample	Weight of Aggregate to fill the Mould In (Kg) (A)	Volume of Mould In (litre) (B)	Bulk Density In (Kg/Litre) [A/B]
1	22.320	15.152	1.47

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Haltugaon Division, Kokrajhar

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Ph: 7086020945/ 9435192896/ 9395005840
E-mail: contact@rlnt.in ; reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing — Group: Building Materials

Test Report No: 2409126679-2
Sample ID: DFO/HFD/240931/PG

Name of Test: **Specific Gradation** — **Test Method:** IS 2386-Part-I-1963 (Reaffirmed 2021)

Type of Sample: **Sand & Gravel**
Source: **Champabati River**

Date of testing: 25-09-2024 to 27-09-2024
Environmental Conditions during test
Temparature: **27.6°C, Humidity: 61%**

TEST RESULTS

Sl. No.	Weight of Saturated Surface Dry Sample (gm)	Weight of Pycnometer Containing Sample & filled With Distilled Water (gm)	Weight of Pycnometer Frillled with Water Only (gm)	Waight of Oven Dried Sample (gm)	Specific Gravity [D/A-(b-C)]
	A	B	C	D	
1	480.0	2014.0	1747.5	542.0	2.53

Remarks : Calculations are As per IS : 2386-part-III-1963 Reaffirmed 2021 , Ciause No.2.4.3, No limits Specified, Test Result are Satisfactory.

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Harbhanga River

Sl No	Description	Area in Ha.	Percentage of Total area (In %)	Cumulative %
1	River area	259.5	100	100
2	Area granted for mining	7.90	0.93	0.93
3	No of lease not recommended for future Quarry Lease grant due extracted up to a distance of 1 kilometer (1 km) from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side	0.0	0.0	0.0
4	Area not recommended for future Quarry Lease grant due to 100 m Buffer from any railway line or bridge	0.0	0.0	0.0
5	Area not recommended for future Quarry Lease grant due to 100 m buffer from the outer periphery of the defined limits of any village, habitation, National Highway, State highway and other roads	0.0	0.0	0.0
6	Area not recommended for future Quarry Lease grant due to non-availability of un-mined block 50 meters width after every block of 1,000 meters over which is undertaken or at such distance as may be directed by the competent authority	0.0	0.0	0.0

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7	Area not recommended for future Quarry Lease grant due to 100 m Buffer Local Minor Check Dam	0.0	0.0	0.0
8	Area not recommended for future Quarry Lease grant due to 500 m buffer from the irrigation Structure/ Reservoir & Submergence Area	0.0	0.0	0.0
9	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Canal/ Tank/ Lake	0.0	0.0	0.0
10	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Ropeway or ropeway trestle or station	0.0	0.0	0.0
11	Area not recommended for future Quarry Lease grant due to 100 m buffer from the Heritage site, Protected monuments	0.0	0.0	0.0
12	Area not recommended for future Quarry Lease grant due to Eco-sensitive Zone	0.0	0.0	0.0
13	Applicability of Cluster (Other lease within 500 meter radius	0.0	0.0	0.0

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11.13: Table showing existing/proposed mining permits/contracts areas of Harbhanga River under Kokrajhar District

Sl. No	*Name of the mines*	*Area (in ha)*	*Geolocation*		*Mineral Name*	*Existing/ proposed*
1	Panijani Mahal	4.90	26°21'44.81"N 26°21'44.04"N 26°21'06.70"N 26°21'06.14"N	90° 3'37.82"E 90° 3'39.93"E 90° 3'45.33"E 90° 3'43.87"E	Sand Gravel	Subjudice case in Hon'bleGauhati High court
2	No.9 Harbhanga Sand & Gravel Mahal	3.0	26°21'12.58" N 26°21'13.58" N 26"21'27.05" N 26"21'66.66" N	90°3'41.13" E 90°3'43.03" E 90°3'32.38" E 90°3'34.33" E	Sand & Gravel	Proposed

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Haltugaon Division, Kokrajhar

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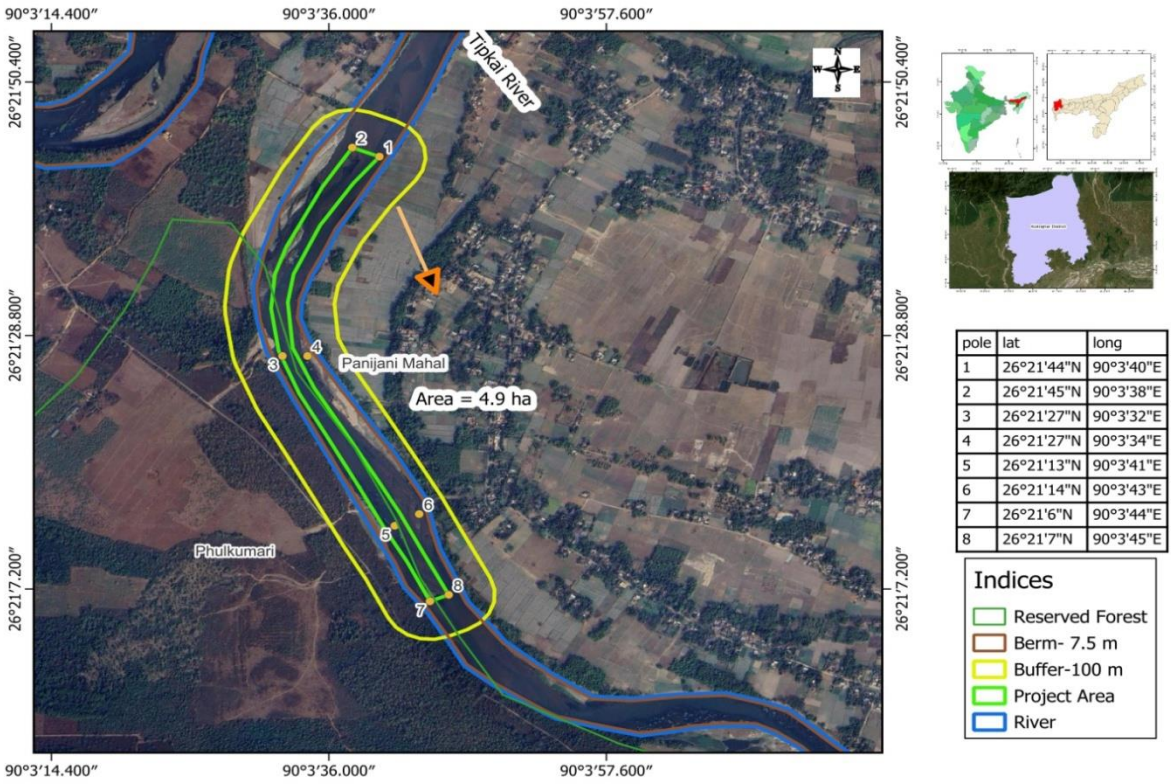
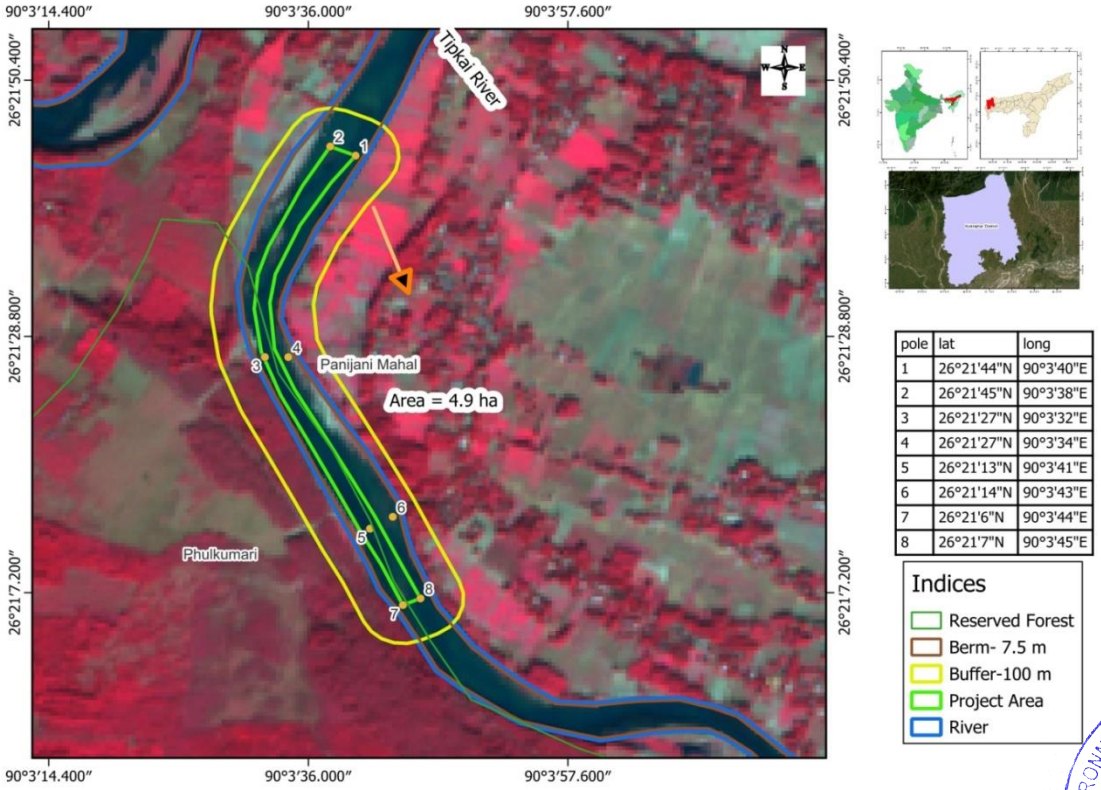
Map 11.33: Buffer map showing Panijani Mahal of Harbhanga River



pole	lat	long
1	26°21'44"N	90°3'40"E
2	26°21'45"N	90°3'38"E
3	26°21'27"N	90°3'32"E
4	26°21'27"N	90°3'34"E
5	26°21'13"N	90°3'41"E
6	26°21'14"N	90°3'43"E
7	26°21'6"N	90°3'44"E
8	26°21'7"N	90°3'45"E



pole	lat	long
1	26°21'44"N	90°3'40"E
2	26°21'45"N	90°3'38"E
3	26°21'27"N	90°3'32"E
4	26°21'27"N	90°3'34"E
5	26°21'13"N	90°3'41"E
6	26°21'14"N	90°3'43"E
7	26°21'6"N	90°3'44"E
8	26°21'7"N	90°3'45"E

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Haltugaon Division, Kokrajhar

Data Source: LISS-IV Resolution: 5.8m

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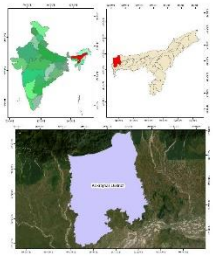
Map 11.34: Buffer map showing No.9 Harbhanga Sand & Gravel Mahal of Harbhanga River

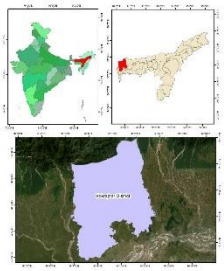


points	lat	long
1	26°21'27.03"N	90°3'32.38"E
2	26°21'12.58"N	90°3'41.14"E
3	26°21'13.59"N	90°3'43.03"E
4	26°21'27.06"N	90°3'34.34"E

Indices
- Buffer-100 m
- Approach Road

Proposed Mining permit_Contract Area
- No. 9 Harbhanga Sand & Gravel Mahal

River Final
- Harbhanga River



points	lat	long
1	26°21'27.03"N	90°3'32.38"E
2	26°21'12.58"N	90°3'41.14"E
3	26°21'13.59"N	90°3'43.03"E
4	26°21'27.06"N	90°3'34.34"E

Indices
- Buffer-100 m
- Approach Road

Proposed Mining permit_Contract Area
- No. 9 Harbhanga Sand & Gravel Mahal

River Final
- Harbhanga River

Divisional Forest Officer
Haltugaon Division, Kokrajhar

Data Source: LISS-IV Resolution: 5.8m

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Ph: 7086020945/9435192896/9395005840
E-mail: contact@rlnt.in ; reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing

Group: Building Materials

Date of issue of Report: 28-09-2024

TEST REPORT		
1	Name of Client:	The Divisional Forest Officer Hitugaon Division, Kokrajhar
2	Name of project:	District Survey Report, Kokrajhar District
3	Type of sample:	Sand & Gravel
4	Condition of sample:	Ok
5	Date of sample Received:	15-09-2024
6	Source of Material:	Harbhanga River
7	Location:	Harbhanga Village Lat-26.35602, Long-90.06051
8	Test Sample Supplied By:	Customer
9	Test Done at:	"At the Loboratory located in the basement of our premises at the above mentioned address"

Test Results : Next Page

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E-mail: contact@rint.in , reliantfoundation2018@gmail.com, Website : www.rint.in

Discipline: Mechanical Testing — Group: Building Materials

Test Report No: 2409126680-1
Sample ID: DFO/HFD/240939/PG

Name of Test: **Gradation** — **Test Method:** IS 2386-Part-I-1963 (Reaffirmed 2021)

Type of Sample: **Sand & Gravel** — **Date of testing: 14-10-2024 to 16-10-2024**

Source: **Harbhanga River** — Environmental Conditions during test

Temparature: **26.9°C, Humidity: 67%**

TEST RESULTS

Is Sieve Size (mm)	Weight Retained (gm)	% Weight Retained (gm)	Cumulative % of Retained	% of Passing
300	0	0.00	0.00	100.00
75	0	0.00	0.00	100.00
20	142	7.1	7.1	92.9
4.75	452	22.6	29.7	70.3
0.075	1401	70.05	99.75	0.25
Pan	5			
Total	2000			

% Boulder = 0.00%
%Gravel= 29.7%
%Sand= 70.05%
%Silt= 0.25%

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E-mail: contact@rlnt.in , reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing
Test Report No: 2409126680-3
Sample ID: DFO/HFD/240959/PG

Group: Building Materials

Date of issue of Report: 29-09-2024

TEST REPORT		
1	**Name of Client:**	**The Divisional Forest Officer Hitugaon Division, Kokrajhar**
2	**Name of project:**	**District Survey Report, Kokrajhar District**
3	**Type of sample:**	**Sand & Gravel**
4	**Condition of sample:**	**Ok**
5	**Date of sample Received:**	**19-09-2024**
6	**Source of Material:**	**Harbhanga River**
7	**Location:**	**Harbhanga Village** **Lat-26.35602, Long-90.06051**
8	**Test Sample Supplied By:**	**Customer**
9	**Test Done at:**	**"At the Loboratory located in the basement of our premises at the above mentioned address"**

Test Method **IS 2386-PartIII-1963 (Reaffirmed 2021)**

1. Name of Test **Bulk Density of Sand & Gravel**
Type of Test **Loose**
Source **Harbhanga River**

Date of testing **25-09-2024 to 25-09-2024**
Environmental Conditions during test
Temparature: **27.1°C, Humidity:64%**

TEST RESULTS			
Sample	Weight of Aggregate to fill the Mould In (Kg) (A)	Volume of Mould In (litre) (B)	Bulk Density In (Kg/Litre) [A/B]
1	22.320	15.152	1.47

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Ph: 7086020945/ 9435192896/ 9395005840
E-mail: contact@rlnt.in ; reliantfoundation2018@gmail.com, Website : www.rlnt.in

Discipline: Mechanical Testing — Group: Building Materials

Test Report No: 2409126680-2
Sample ID: DFO/HFD/240939/PG

Name of Test: **Specific Gradation**

Test Method: IS 2386-Part-I-1963 (Reaffirmed 2021)

Type of Sample: **Sand & Gravel**

Source: **Harbhanga River**

Date of testing: 25-09-2024 to 27-09-2024

Environmental Conditions during test

Temparature: **27.6°C, Humidity: 61%**

TEST RESULTS

Sl. No.	Weight of Saturated Surface Dry Sample (gm)	Weight of Pycnometer Containing Sample & filled With Distilled Water (gm)	Weight of Pycnometer Frillied with Water Only (gm)	Waight of Oven Dried Sample (gm)	Specific Gravity [D/A-(b-C)]
	A	B	C	D	
1	480.0	2014.0	1747.5	542.0	2.53

Remarks : Calculations are As per IS : 2386-part-III-1963 Reaffirmed 2021 , Ciause No.2.4.3, No limits Specified, Test Result are Satisfactory.

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Table 11..14Table showing environmental sensitivity and no mining zones of mining projects of Kokrajhar district

SL NO.	*LEASE NAME*	*STATUS OF LEASE*	*AREA ALLOTED*	*AREA UNDER NO MINING ZONE DUE TO*						*AREA TO BE REDUCED by*	*FORMATION OF CLUSTER*	*COURT CASE IF ANY*
				Habitat/road/railway	Heritage site/monument	Meandering	Bridge	ESZ (1 km fro protected Area	*Bern*			
1	Jalabila Mahal	Court Case	4.53	4.5 Ha	No	Yes	No	No	No	4.5 ha	No	Yes
2	Falakata Mahal	Court Case	4.52	No	No	No	No	No	No	No	No	Yes
3	Joypur Mahal	Court Case	4.81	No	No	No	No	No	No	No	No	Yes
4	PanijaniMahal	Court Case	4.90	No	No	No	No	No	No	No	No	Yes
5	GarumaracharPt-I Mahal	Court Case	4.43	No	No	No	No	No	No	No	No	Yes
6	Garumarachar Pt-II Mahal	Court Case	4.43	No	No	No	No	No	No	No	Yes	Yes
7	Simultapu Mahal	Proposed	4.9	1.72 Ha	No	No	No	No	No	1.72 Ha	No	No
8	Monglajhora Mahal	Proposed	2.16	No	No	No	No	No	2.16	No	No	No
9	Jaraguri PGR-II Stone Materials Mahal-1	Proposed	3.0 Ha		No	No	No	No	No	No	Yes	No
10	Jaraguri Sand & Stone Materials Mahal No .2	Proposed	3.0 Ha	No	No	No	No	No	No	No	yes	No

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SL NO.	LEASE NAME	STATUS OF LEASE	AREA ALLOTED	AREA UNDER NO MINING ZONE DUE TO						AREA TO BE REDUCED by	FORMATION OF CLUSTER	COURT CASE IF ANY
				Habitat/road/railway	Heritage site/monument	Meandering	Bridge	ESZ(1 km fro protected Area	Bern			
11	Khoksaguri No.4 Stone Materials Mahal	Proposed	3.0 Ha	No	No	No	No	No	No	No	Yes	No
12	No.9Harbhanga Sand & Gravel Mahal	Proposed	3.0 Ha	No	No	No	No	No	No	No	No	No
13	Khoksaguri No.3 River Stone Materials Mahal	Proposed	3.0 Ha	No	No	No	No	No	No	No	Yes	No
14	Jaraguri PGR- II Stone Materials Mahal	Proposed	3.0 Ha	No	No	No	No	No	No	No	No	No
15	Jaraguri PGR- II Sand & Stone Materials Mahal No.2	Proposed	3.0 Ha	No	No	No	No	No	No	No	Yes	No
16	Khoksaguri No.III Sand & Stone Materials Mahal No.3	Proposed	3.0 Ha	No	No	No	No	No	No	No	Yes	No
17	Jaraguri PGR-II Sand & Stone Materials Mahal No.3	Proposed	3.0 Ha	No	No	No	No	No	No	No	Yes	No

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SL NO.	LEASE NAME	STATUS OF LEASE	AREA ALLOTED	AREA UNDER NO MINING ZONE DUE TO						AREA TO BE REDUCED by	FORMATION OF CLUSTER	COURT CASE IF ANY
				Habitat/ road /railway	Heritage site/ monument	Meandering	Bridge	ESZ(1 km fro protected Area	Bern			
18	Jaraguri Sand & Stone Materials Mahal No.1	Proposed	4.5 Ha	No	No	No	No	No	No	No	No	No
19	Saralbhanga River Mohal No. 6	Proposed	4.95 ha	No	No	No	No	No	No	No	No	No
20	Gaurang River Minor Mineral Permit Area No. 1	Proposed	4.60 ha	No	No	No	No	No	No	No	No	No
21	Sankosh Khoksaguri Sand & Stone Materials Mahal	Existing	4.43 Ha	No	No	No	No	No	No	No	No	No
22	Balanga Sand & Stone Material Mahal	Existing	3.12 Ha	No	No	No	No	No	No	No	No	No
23	Chitila 2 Sand & Stone Materials Mahal	Existing	4.34 Ha	No	No	No	No	No	No	No	No	No
24	Gurufela 2 Sand & Stone Materials Mahal	Existing	2.0 Ha	0.63 Ha	No	No	No	No	No	0.63 Ha	No	No

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SL NO.	LEASE NAME	STATUS OF LEASE	AREA ALLOTED	AREA UNDER NO MINING ZONE DUE						AREA TO BE REDUCED by	FORMATION OF CLUSTER	COURT CASE IF ANY
				Habitat/road/railway	Heritage site/monument	Meandering	Bridge	ESZ(1 km from protected Area	Bern			
25	No.4 Hel Sand Gravel & Stone Mahal	Existing	3.0 Ha	No	No	No	No	No	No	No	No	No
26	SankoshKhoksaguri No.2 Stone Mahal (MPA)	Existing	4.83 Ha	No	No	No	No	No	No	No	Yes	No
27	Sankosh Khoksaguri No.3 Stone Mahal (MPA)	Existing	4.74 Ha	No	No	No	No	No	No	No	Yes	No
28	SankoshKhoksaguri Sand Gravel Mahal (MPA)	Existing	4.5 Ha	No	No	No	No	No	No	No	Yes	No
29	Sankosh Jaraguri Sand Gravel Mahal (MPA)	Existing	4.5 Ha	No	No	No	No	No	No	No	Yes	No
30	Sankosh Jaraguri No.2 Stone Mahal (MPA)	Existing	4.65 Ha.	No	No	No	No	No	No	No	Yes	No
31	Haldibari Sand Gravel & Stone Mahal	Under process	4.5 Ha	No	No	No	No	No	No	No	No	No

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SL NO.	LEASE NAME	STATUS OF LEASE	AREA ALLOTED	AREA UNDER NO MINING ZONE DUE						AREA TO BE REDUCED by	FORMATION OF CLUSTER	COURT CASE IF ANY
				Habitat / road /railway	Heritage site/ monument	Meandering	Bridge	ESZ(1 km fro protected Area	Bern			
32	Jogdwi Sand & Gravel Mahal	Under process	3.0 Ha	1.02 Ha	No	No	No	No	No	1.02 Ha	No	No
33	Gokulkata Sand Gravel Mahal	Under process	4.50 Ha	No	No	No	No	No	No	No	Yes	No
34	Sankosh SurendrapurGhat Stone Materials Mahal	Under process	4.5 Ha	No	No	No	No	No	No	No	No	No
35	Dholpani R.F. Mohal (Still Under Process)	Under process	4.98 ha	No	No	No	No	Yes	No	No	No	No
36	Saralbhanga Mohal No. 5	Running	5.40 ha	No	No	No	No	No	No	No	No	No
37	Champa Mohal No. 2	Running	4.41 ha	No	No	No	No	No	No	No	No	No
38	Saralbhanga Mohal No.- 2 (A)	Running	5.0 ha	No	No	No	No	No	No	No	Yes	No
39	Haraputa River (Adelghutu) Mahal	Potential	4.0	No	No	No	No	No	No	No	Yes	No
40	Haraputa River (Majadabri)Mahal	Potential	2.0	No	No	No	No	No	No	No	Yes	No

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SL NO.	LEASE NAME	STATUS OF LEASE	AREA ALLOTED	AREA UNDER NO MINING ZONE DUE						AREA TO BE REDUCED by	FORMATION OF CLUSTER	COURT CASE IF ANY
				Habitat / road /railway	Heritage site/ monument	Meandering	Bridge	ESZ(1 km from protected Area	Bern			
41	Sankosh River (Majadabri)Mahal	Potential	2.50	No	No	No	No	No	No	No	Yes	No
42	TarangMohal No. 1	Potential		No	No	No	No	No	No	No	No	No
43	SaralbhangaMohal No.- 2 (B)	Potential	4.85 ha	No	No	No	No	No	No	No	Yes	No
44	Saralbhanga Mohal No.- 4 (A)	Potential	4.93 ha	No	No	No	No	No	No	No	Yes	No
45	Saralbhanga Mohal No.- 4 (B)	Potential	4.65 ha	No	No	No	No	No	No	No	Yes	No
46	Saralbhanga Mohal No.- 4 (C)	Potential	4.66 ha	No	No	No	No	No	No	No	Yes	No
47	Saralbhanga Mohal No.- 4 (D)	Potential	4.42 ha	No	No	No	No	No	No	No	Yes	No
48	Saralbhanga Mohal No.- 7	Potential	4.60 ha	No	No	No	No	No	No	No	No	No
49	SaralbhangaMohal No.- 8	Potential	4.76 ha	No	No	No	No	No	No	No	No	No

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Haltugaon Division, Kokrajhar

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SL NO.	LEASE NAME	STATUS OF LEASE	AREA ALLOTED	AREA UNDER NO MINING ZONE DUE TO						AREA TO BE REDUCED by	FORMATION OF CLUSTER	COURT CASE IF ANY
				Habitat/ road /railway	Heritage site/ monument	Meandering	Bridge	ESZ(1 km fro protected Area)	Bern			
50	SaralbhangaMohal No.- 9	Potential	4.93 ha	No	No	No	No	No	No	No	No	No
51	Bandarchora (Champaboti River) Mahal	Potential		No	No	No	No	No	No	No	No	No
52	SaralbhangaMohal No-2	Potential	20.6 ha	No	No	No	No	No	No	No	No	No
53	SaralbhangaMohal No-3	Potential	8.12 ha	No	No	No	No	No	No	No	No	No
54	SaralbhangaMohal No-4	Potential	5.16 ha	No	No	No	No	No	No	No	No	No
55	Champa (Bandarchara Mohal)	Potential	9.60 ha	No	No	No	No	No	No	No	No	No

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Table 11.15: table showing coordinates of area to be reduced and to be allocatted after reduction

SL NO.	*LEASE NAME*	*AREA ALLOTED (ha)*	*Area to be reduced*	*Area to be allocated after reduction*	*Coordinate of Area to be reduced*		*Coordinate of Area to be allocated after Reduction*	
1	Jalabila Mahal	4.53	4.53 Ha	0	26°15'16.42"N 26°15'16.34"N 26°15'41.04"N 26°15'42.58"N	90°7'17.89"E 90°7'19.75"E 90°7'27.92"E 90°7'28.26"E	NA	NA
2	Simultapu Mahal	4.9	1.72 Ha	3.18 ha	26°26'16.08"N 26°26'16.55"N 26°26'20.86"N 26°26'19.86"N	89°51'36.70"E 89°51'42.17"E 89°51'40.71"E 89°51'36.70"E	26°26'16.08"N 26°26'10.96"N 26°26'11.26"N 26°26'16.55"N	89°51'36.70"E 89°51'36.69"E 89°51'44.01"E 89°51'42.17"E
3	Gurufela 2 Sand & Stone Materials Mahal	2.0	0.63 Ha	1.37 ha	26°25'33.58"N 26°25'27.02"N 26°25'30.72"N	90°3'16.25"E 90°3'17.17"E 90°3'16.99"E	26°25'33.58"N 26°25'30.72"N 26°25'27.02"N 26°25'26.95"N 26°25'37.79"N 26°25'39.04"N	90°3'16.25"E 90°3'16.99"E 90°3'17.17"E 90°3'18.33"E 90°3'24.98"E 90°3'24.92"E
4	Jogdwi Sand & Gravel Mahal	3.0	1.02 Ha	1.98 ha	26°21'42.34"N 26°21'34.02"N 26°21'33.08"N 26°21'42.26"N	90°6'0.92"E 90°6'0.52"E 90°6'3.67"E 90°6'2.31"E	26°21'42.26"N 26°21'42.04"N 26°21'44.19"N 26°21'32.79"N 26°21'33.08"N	90°6'2.31"E 90°6'5.93"E 90°6'9.52"E 90°6'4.60"E 90°6'3.67"E
6	Monglajhora Mahal	2.16	2.16	0	26°12'30.87"N 26°12'29.98"N 26°12'43.53"N 26°12'43.53"N	89°55'22.95"E 89°55'23.54"E 89°55'51.50"E 89°55'52.03"E	NA	NA

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12. Replenishment Study

Replenishment of river bed material takes place when the deposition of the sediments of different sizes carried by the stream. Many factors such as topography, soil type, bedrock type, climate and vegetation cover influence the input, output and transport of sediment and water in a drainage basin (Charlton; 2008). Sediment transport knowledge is important in river restoration, ecosystem protection, navigation, watershed studies and reservoir management. These factors also influence the natural pattern and carrying capacity of water bodies *(Twiddle, 2004)*. Di-siltation (removal of excess sand and stone from river bed) of the river helps to maintain the carrying capacity and provides protection from flooding during monsoon season. However, in the subsequent rainy season grain/particle size distribution analysis of bed load samples must be done to define the size composition of the material in transit.

Catchment area which plays an important role in deciphering the sub-surface and surface hydrogeological conditions. Sedimentation in any river is dependent on sediment yield which depends on erosional factors in the river's catchment area. Annual replenishment is based on the location of the depositional spot in the river bed, meandering of the river, geology, weathering conditions and height of the rainfall in the area. The annual replenishment is determined here by the average of the various heights of deposition per year in a specific location. The sediment load deposition in a river is dependent on the catchment area, weathering index of the various rock types of the catchment area, land-use pattern of the area, rainfall data and grain size distribution of the sediments. Again, the sediment load estimation is not a dependent variable of the district boundary, but it largely depends upon the aerial extents of the catchment areas, which cross the district and state boundaries.

Replenishment study for a river solely depends on estimation of sediment load for any river system and the estimation is a time consuming and should be done over a period. The process in general is very slow and hardly measurable on season-to-season basis except otherwise the effect of flood is induced which is again a cyclic phenomenon.

Usually, replenishment or sediment deposition quantities can be estimated in

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the following ways as given below:

A. Replenishment study based on satellite imagery involves demarcation of sand bars potential for riverbed mining. Both pre and post monsoon images need to be analyzed to established potential sand bars. Volume estimation of sand is done by multiplying Depth and Area of the sand bar. The sand bars are interpreted with the help of satellite imagery. During ground truthing, width and length of each segment is physically measured.

B. Direct field measurement of the existing leases involving estimation of the volume difference of sand during pre and post-monsoon period. With systematic data acquisition, a model has developed for calculation of sediment yield and annual replenishment with variable components.

C. The replenishment estimation based on a theoretical empirical formula with the estimation of bed-load transport comprising of analytical models to calculate the replenishment estimation.

12.1Methodology employed for Replenishment Assessment

This report presents an assessment of sediment replenishment in Kokrajhar District, Assam, by evaluating temporal changes in sediment deposition and erosion. . The analysis uses a combination of geospatial techniques, including satellite imagery from LISS-IV and SRTM-DEM based elevation data. The key objective is to provide an overview of the sediment replenishment process, determine sediment deposition patterns, and evaluate the sustainability of sediment extraction activities.

b. Data Sources and Methodology

12.2.1 Data Sources

1. LIss-IV Imagery (2023-(March-April to September-November): Used for temporal analysis of sediment deposition and erosion across the river and sandbar regions.

2. SRTM based satellite image: Elevation data from SRTM based satellite images were used for comparative analysis to assess elevation changes.

3. ICESat-2 ATL03/ATL08 Data: Altimetry data from ICESat-2 satellite was used to

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update elevation data gaps.

1.2.3 *Methodology*

The methodology for assessing sediment replenishment involved the following detailed steps:

12.3.1. Data Acquisition and Preprocessing

Contour Map Generation: DEMs were created from SRTM based Satellite Data and contours were generated using Qgis software to create 1-meter intervals for the year 2023.Necessary gap filling of elevation data were made by interpolation with ICEsat-2 elevation data.

12.4 Results:

Sl. No	Name of River	Average Difference of contour between Pre and post Monsoon(m)
1	**Tipkai River**	1
2	**Sankosh**	1
3	**Hel**	1
4	**Gurufela**	1
5	**Gongia**	1
6	**Champabati**	1
7	**Saralbhanga**	1
8	**Mangaljhora**	1
9	**Gaurang**	1
10	**Harbhanga**	1

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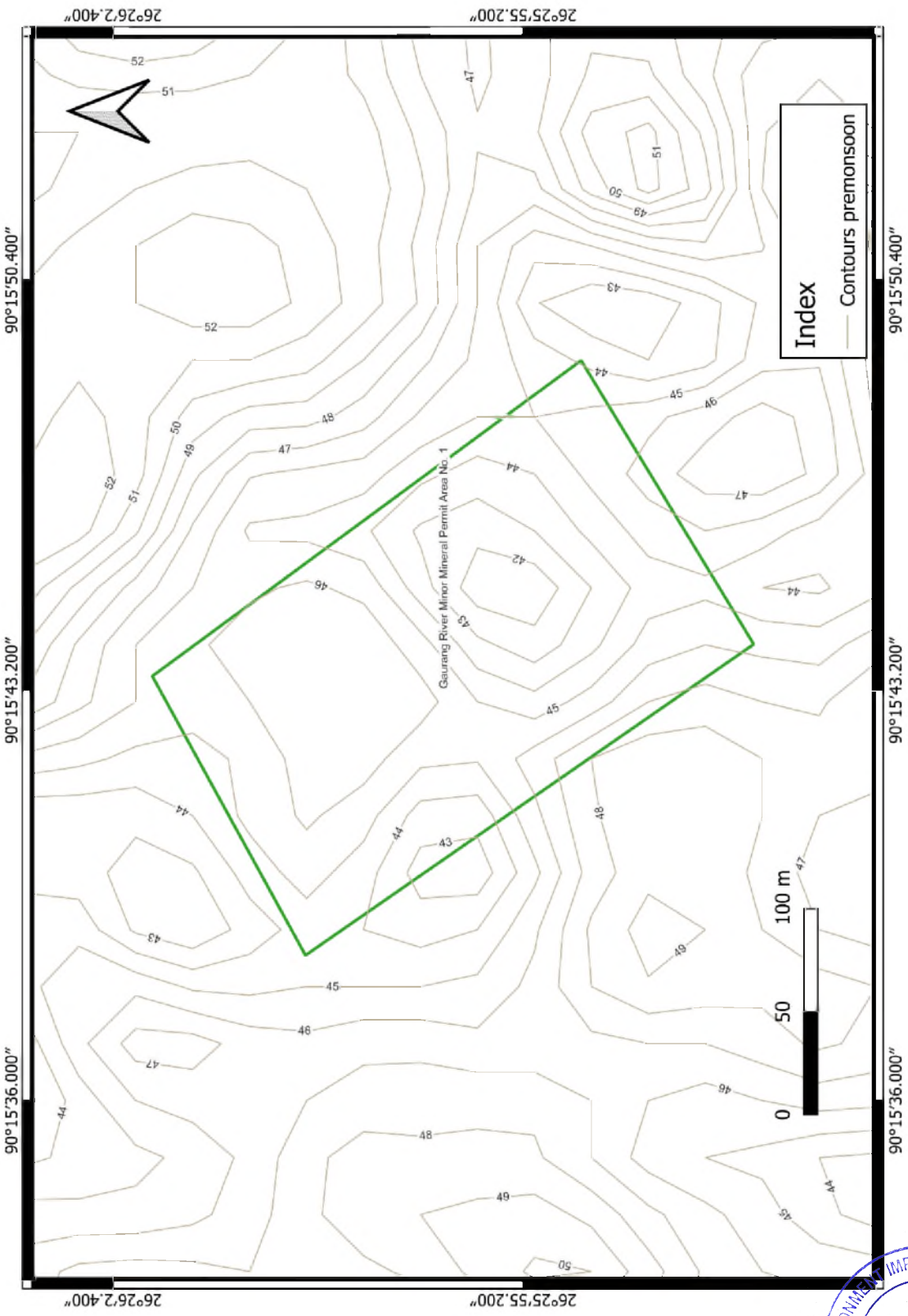

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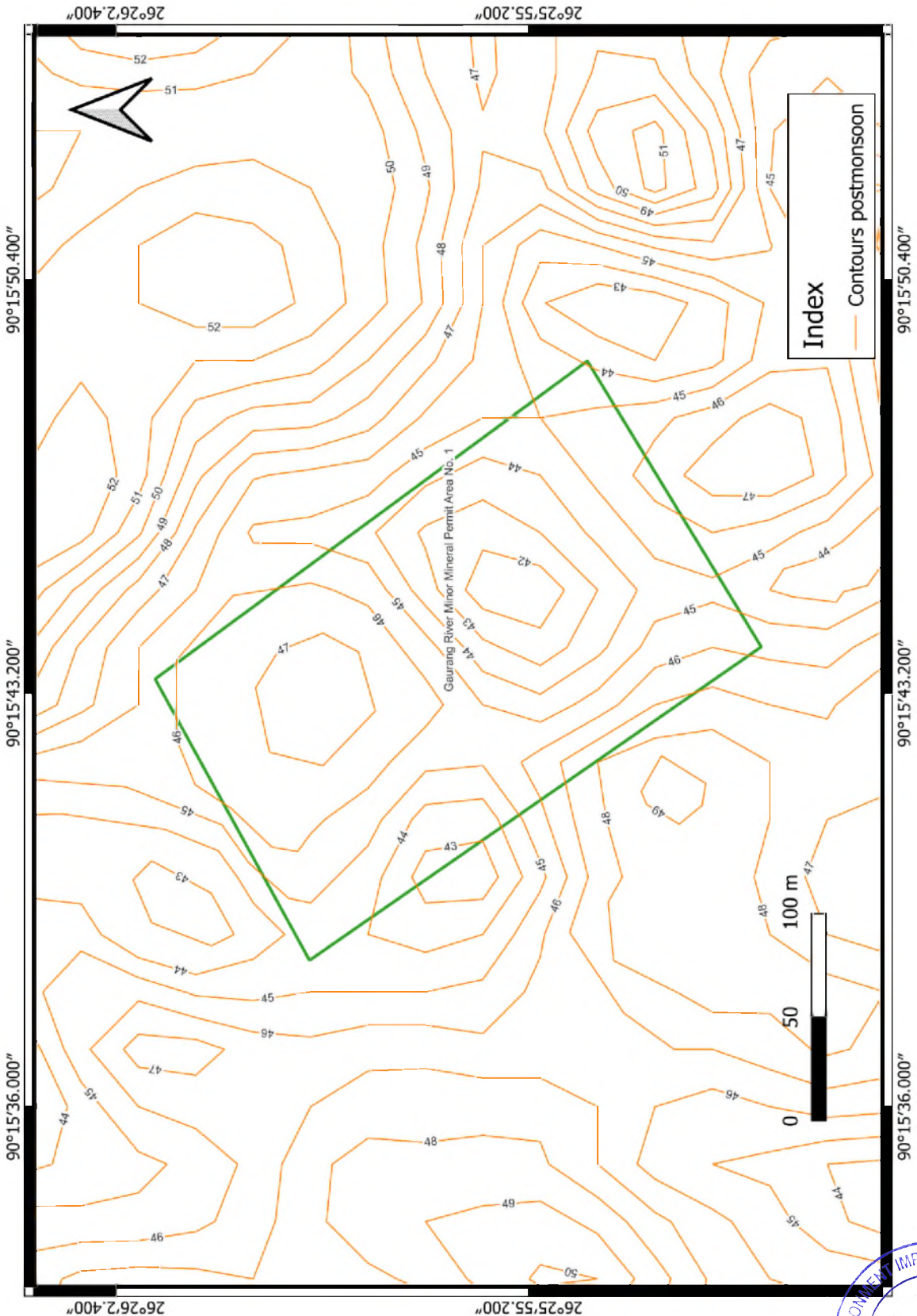

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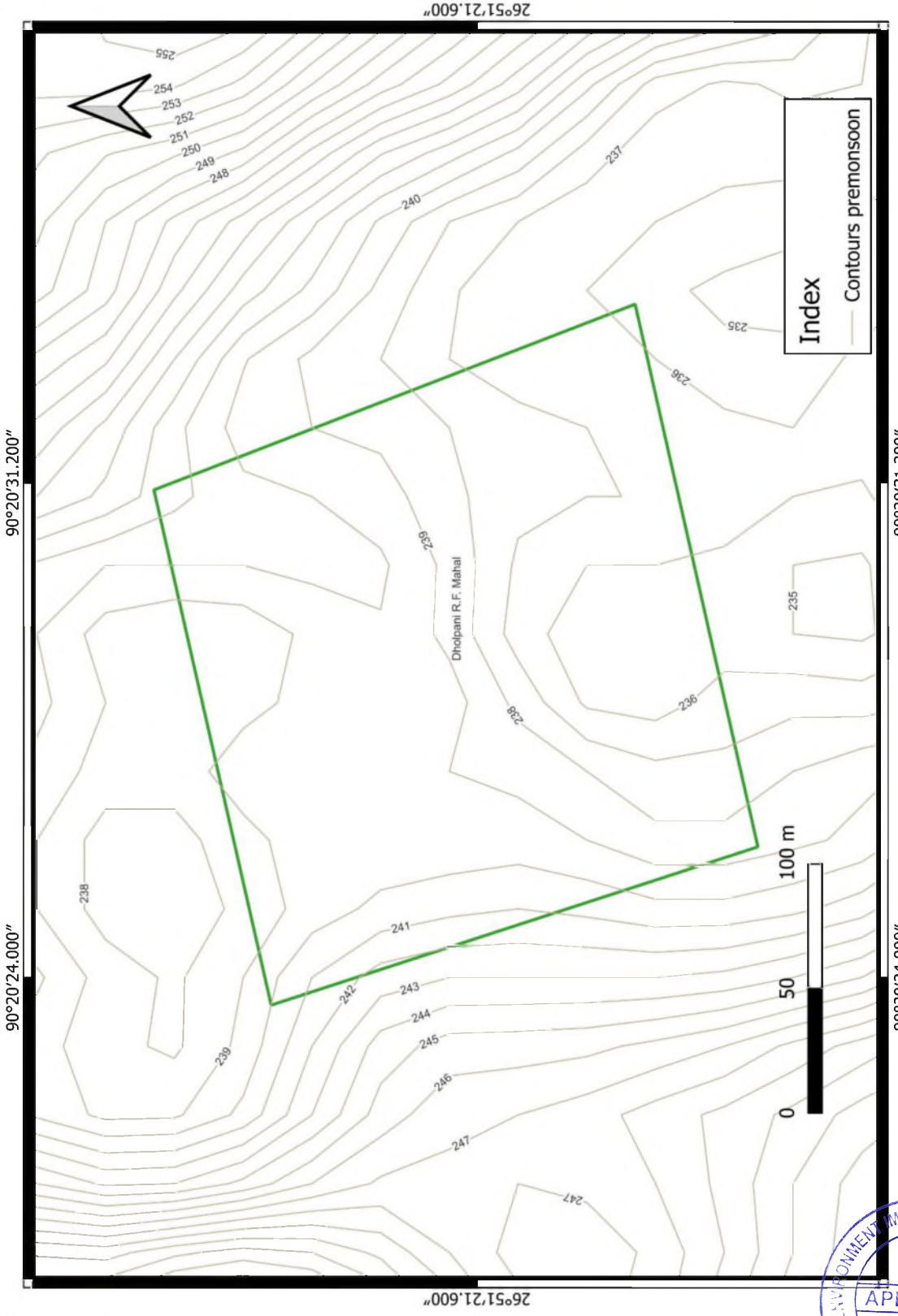

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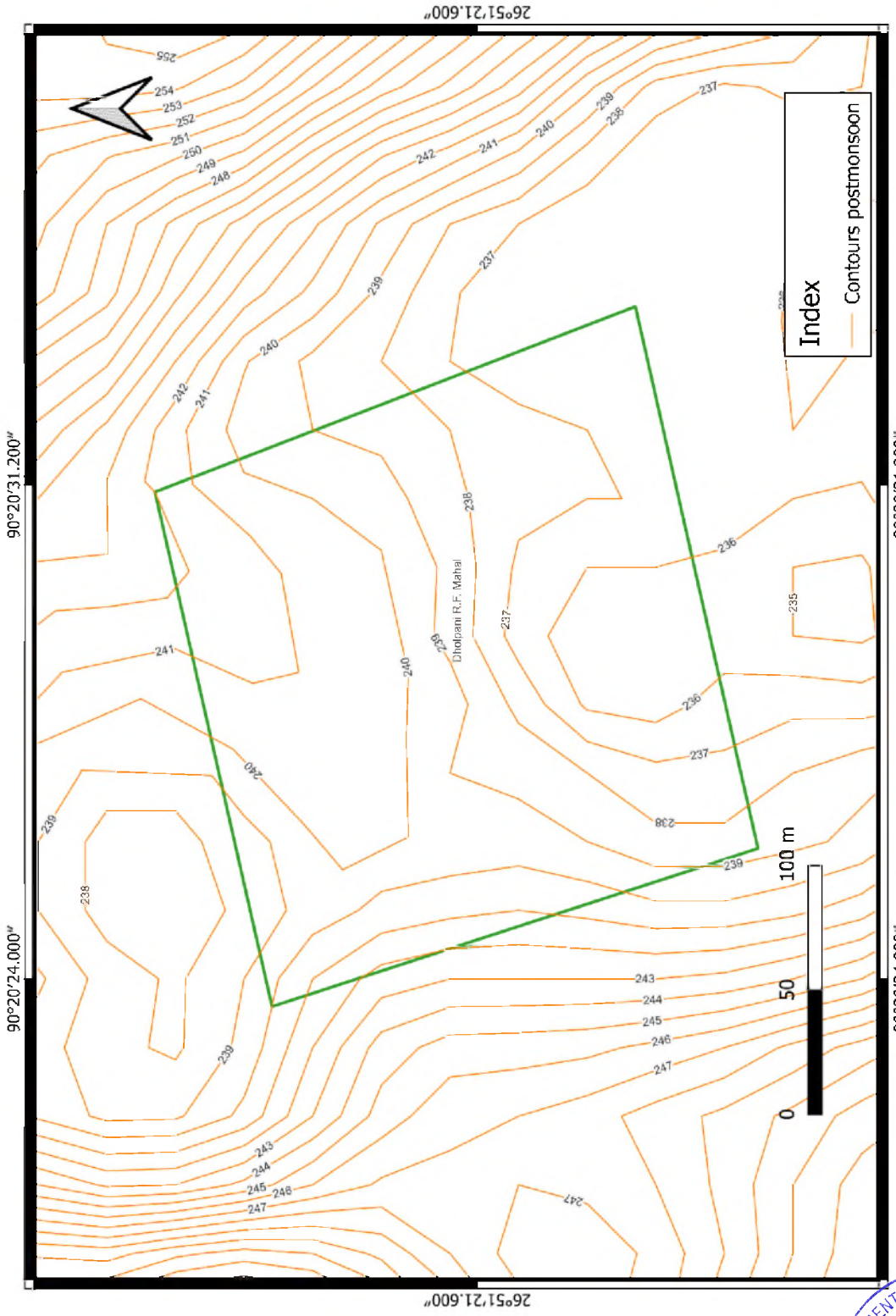

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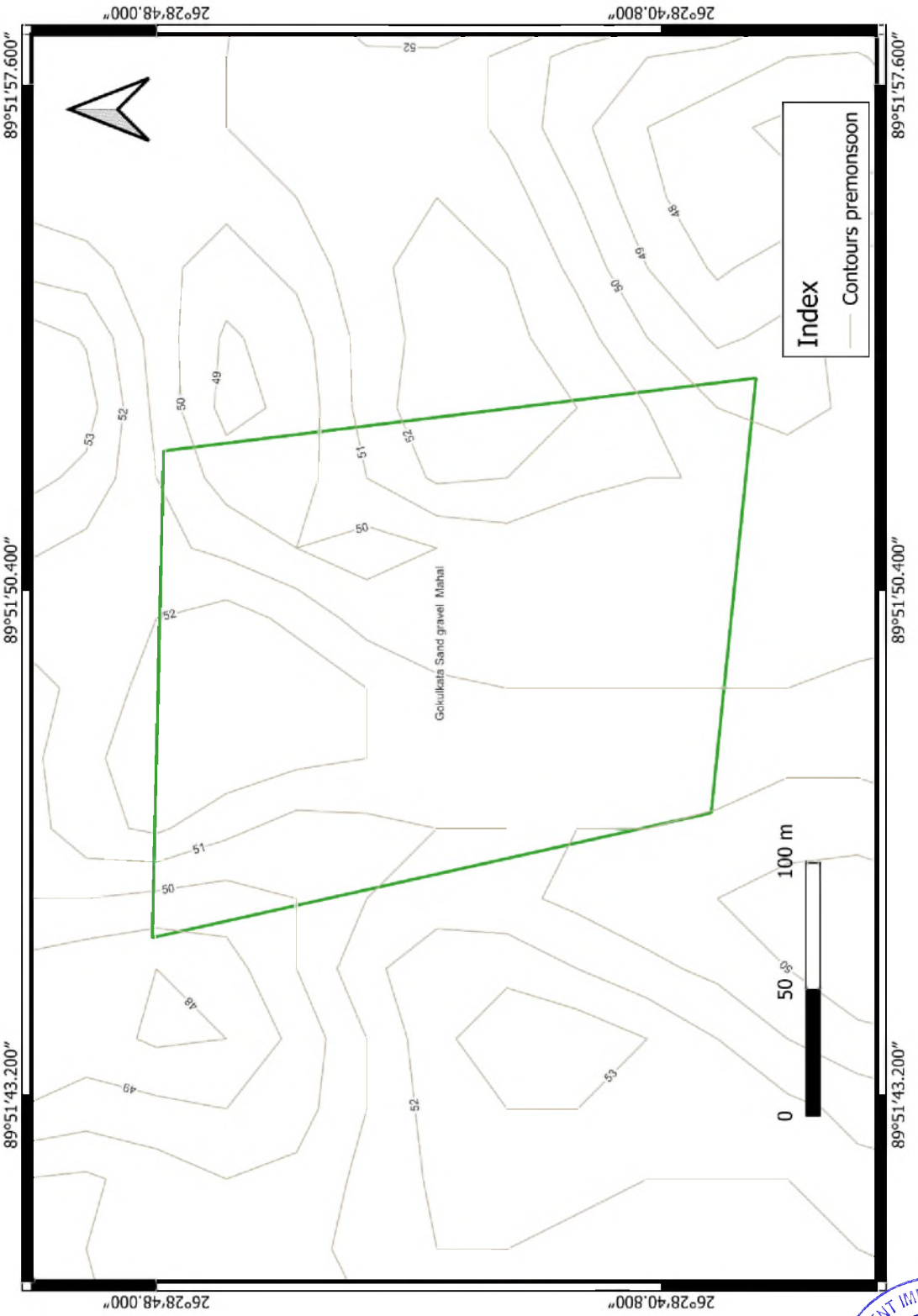

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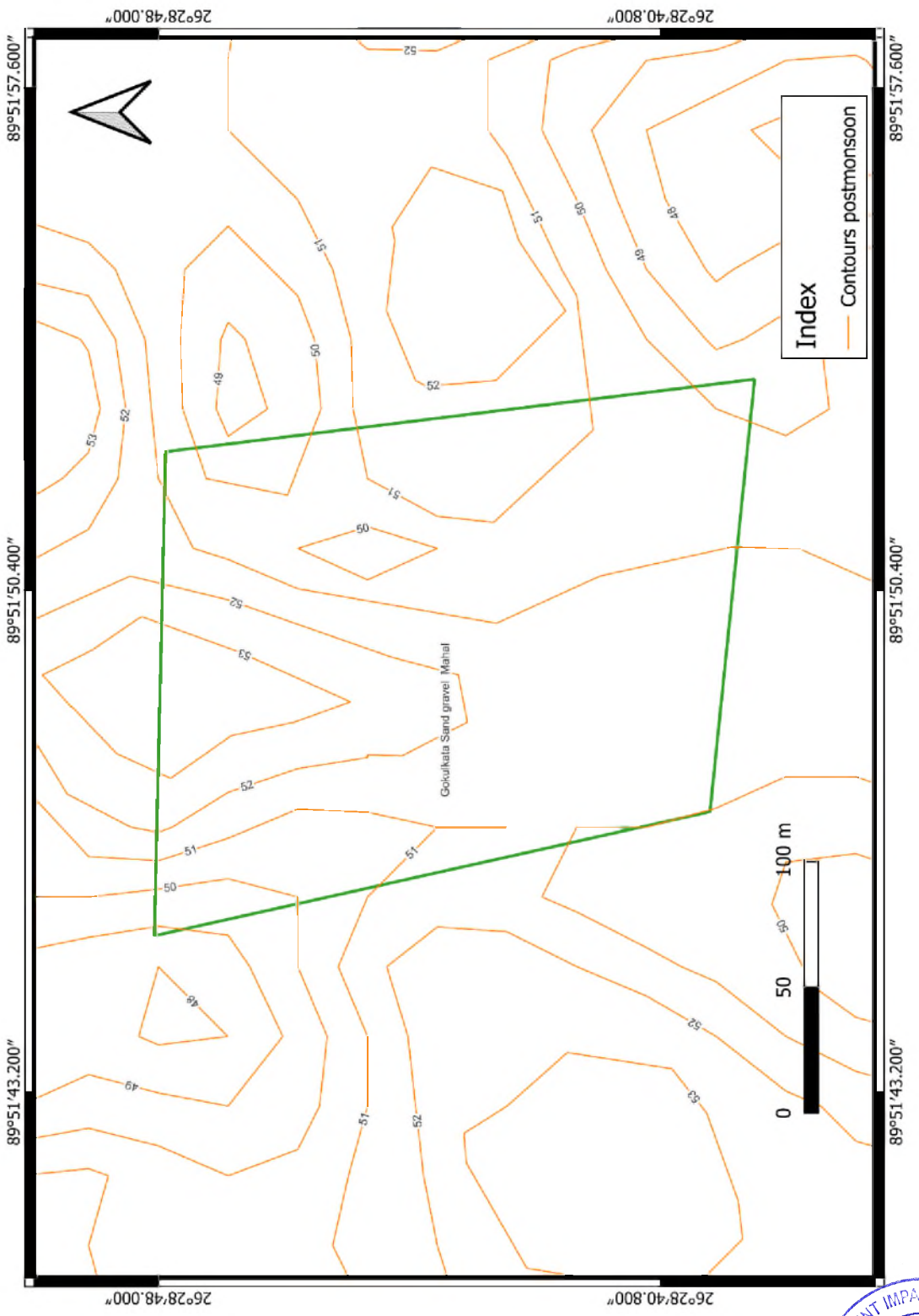

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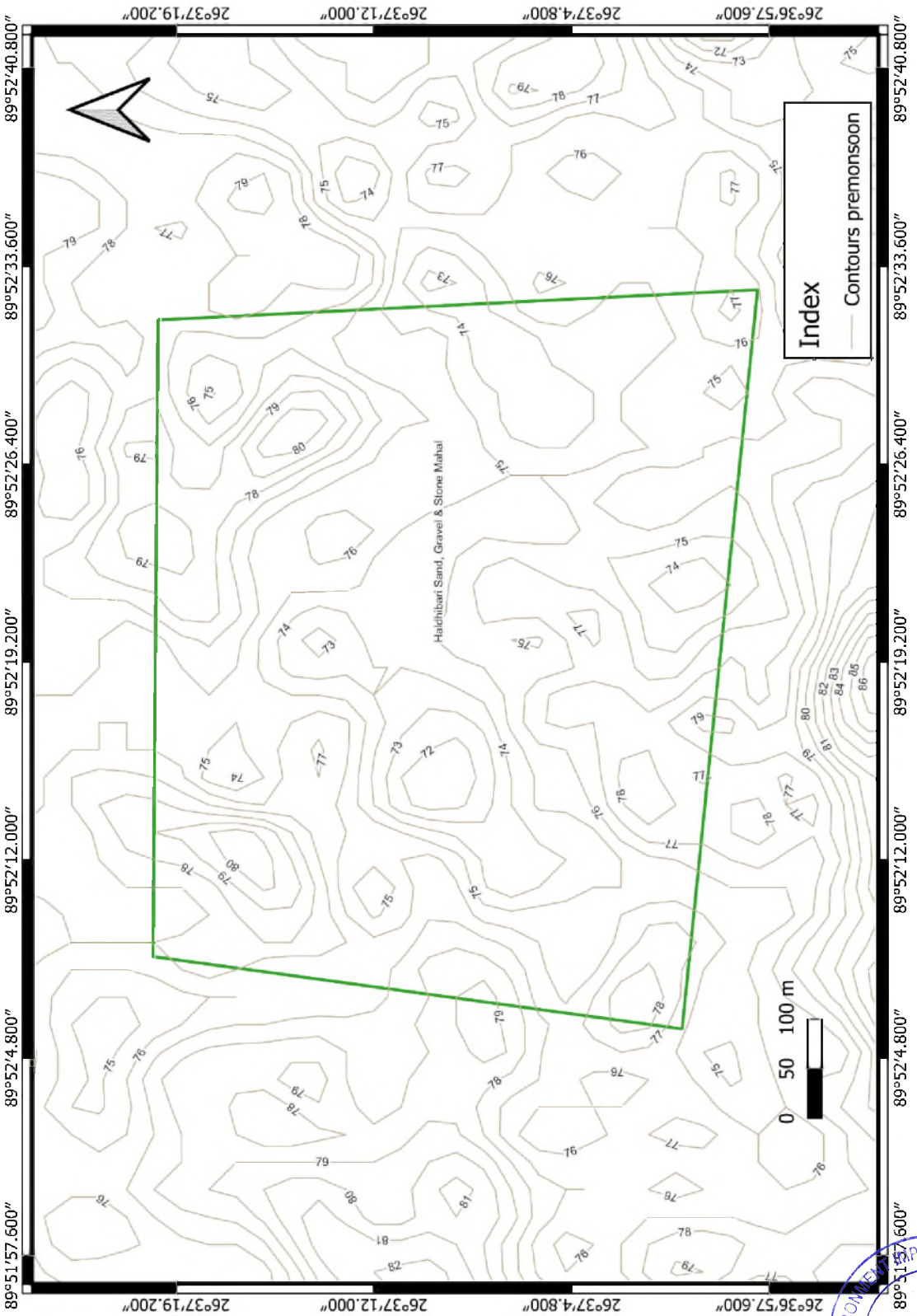

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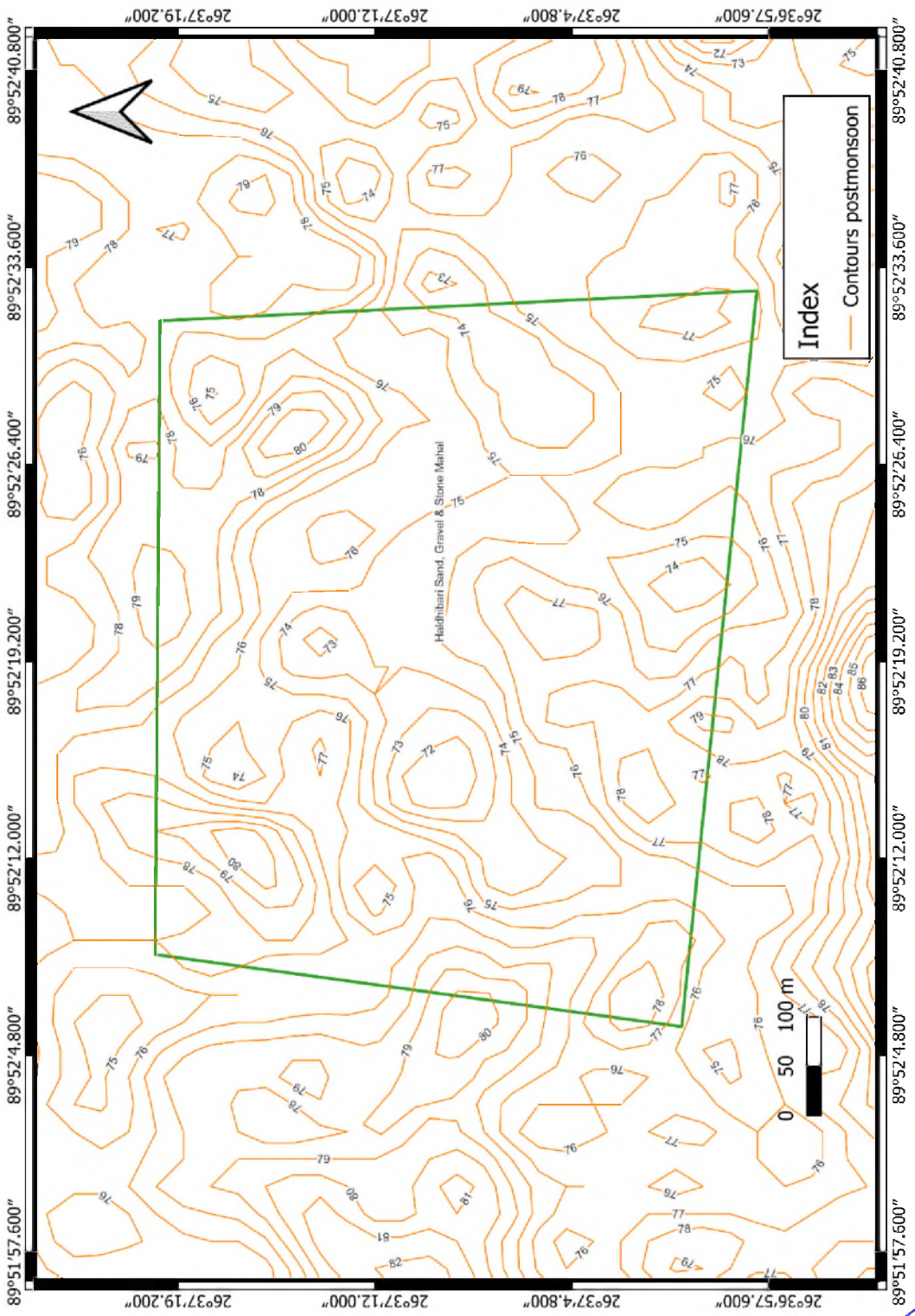

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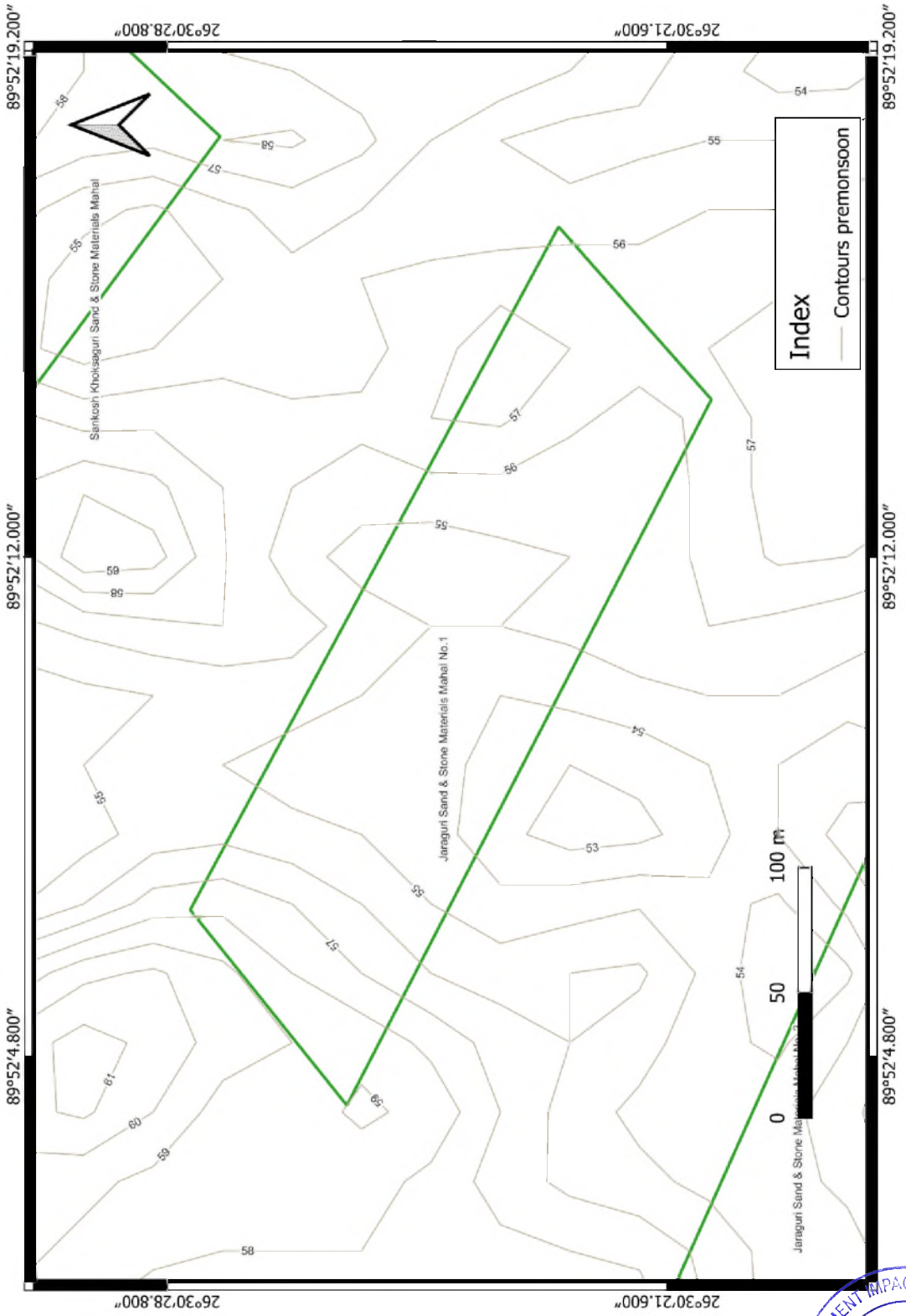

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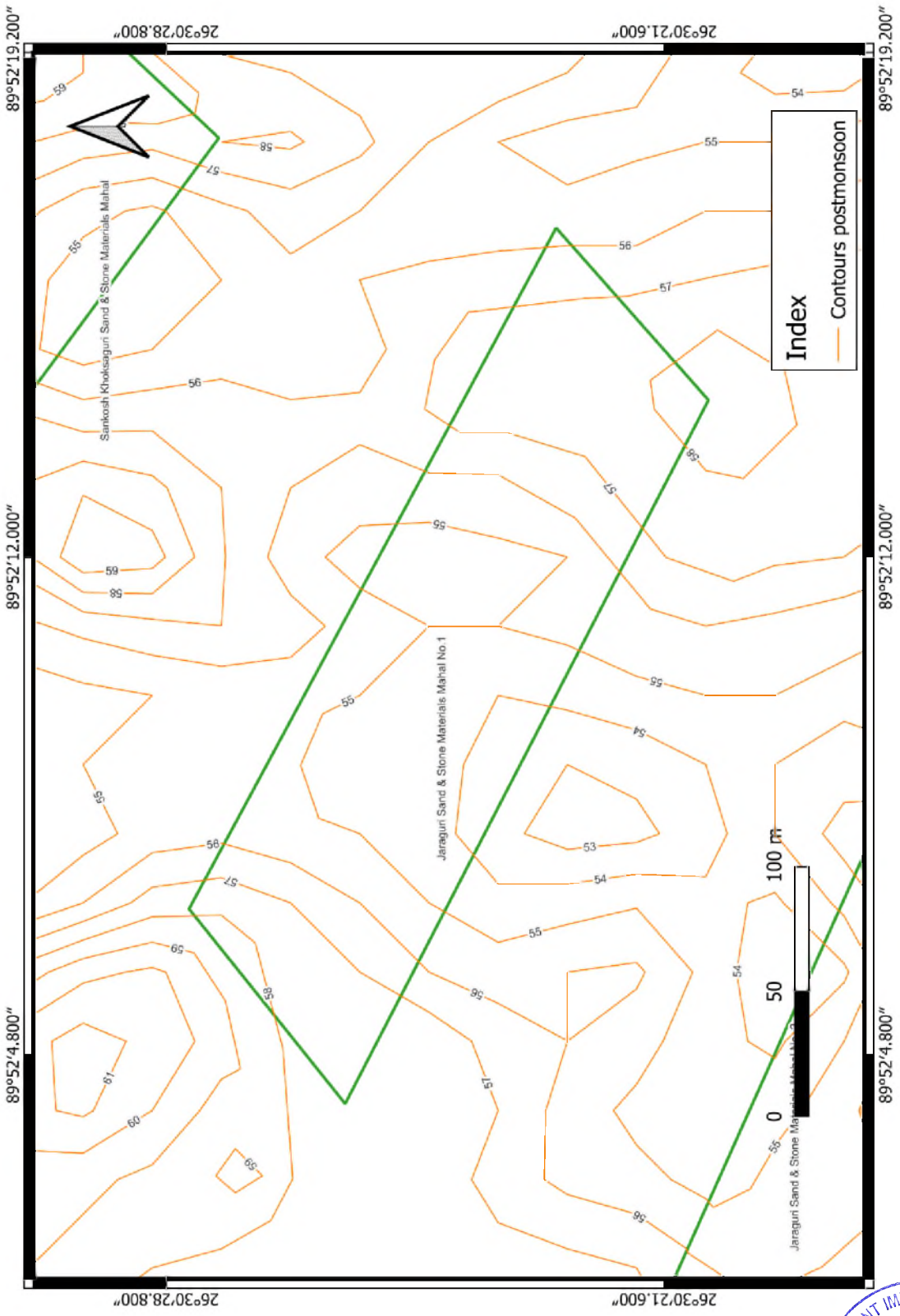

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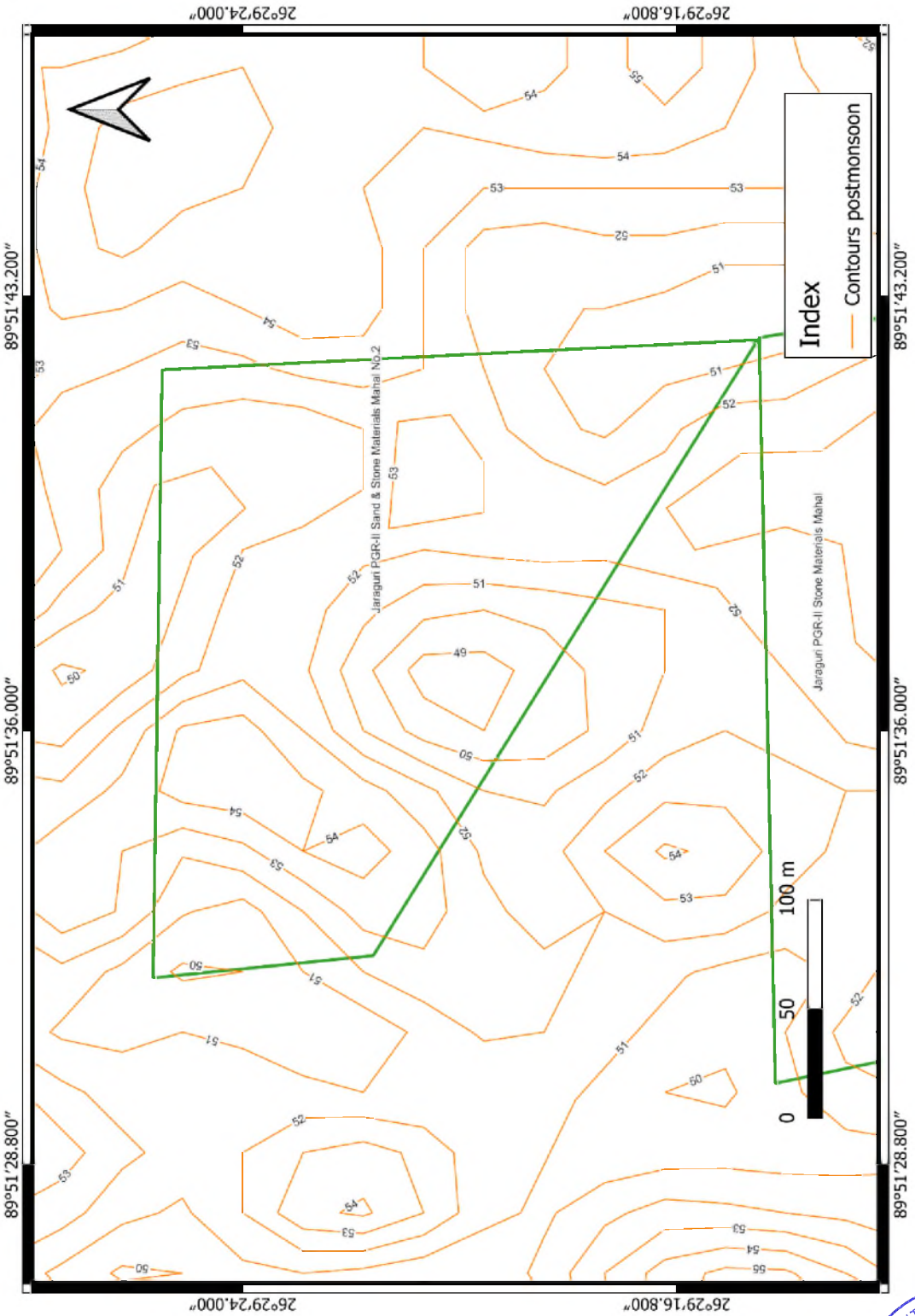

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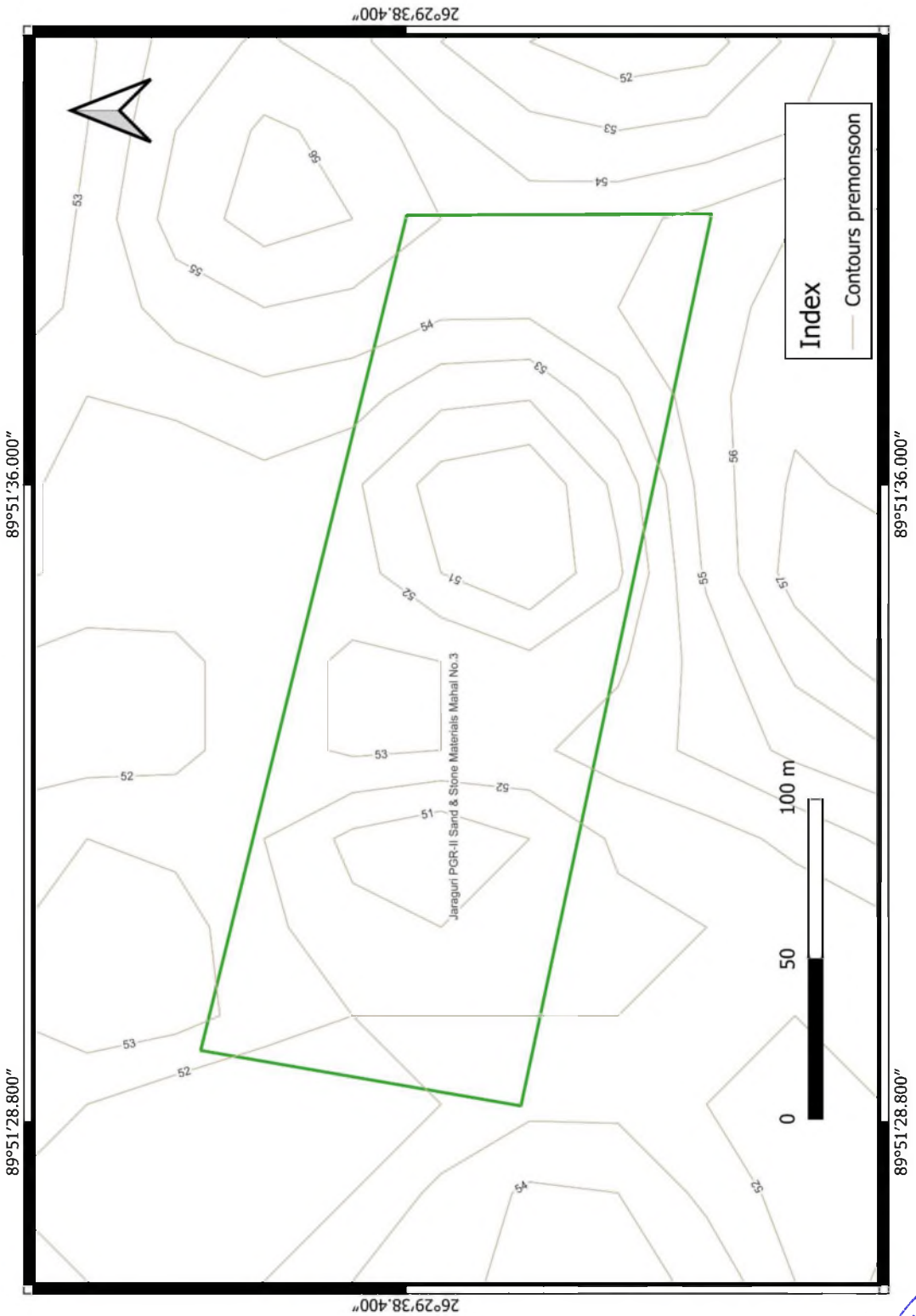

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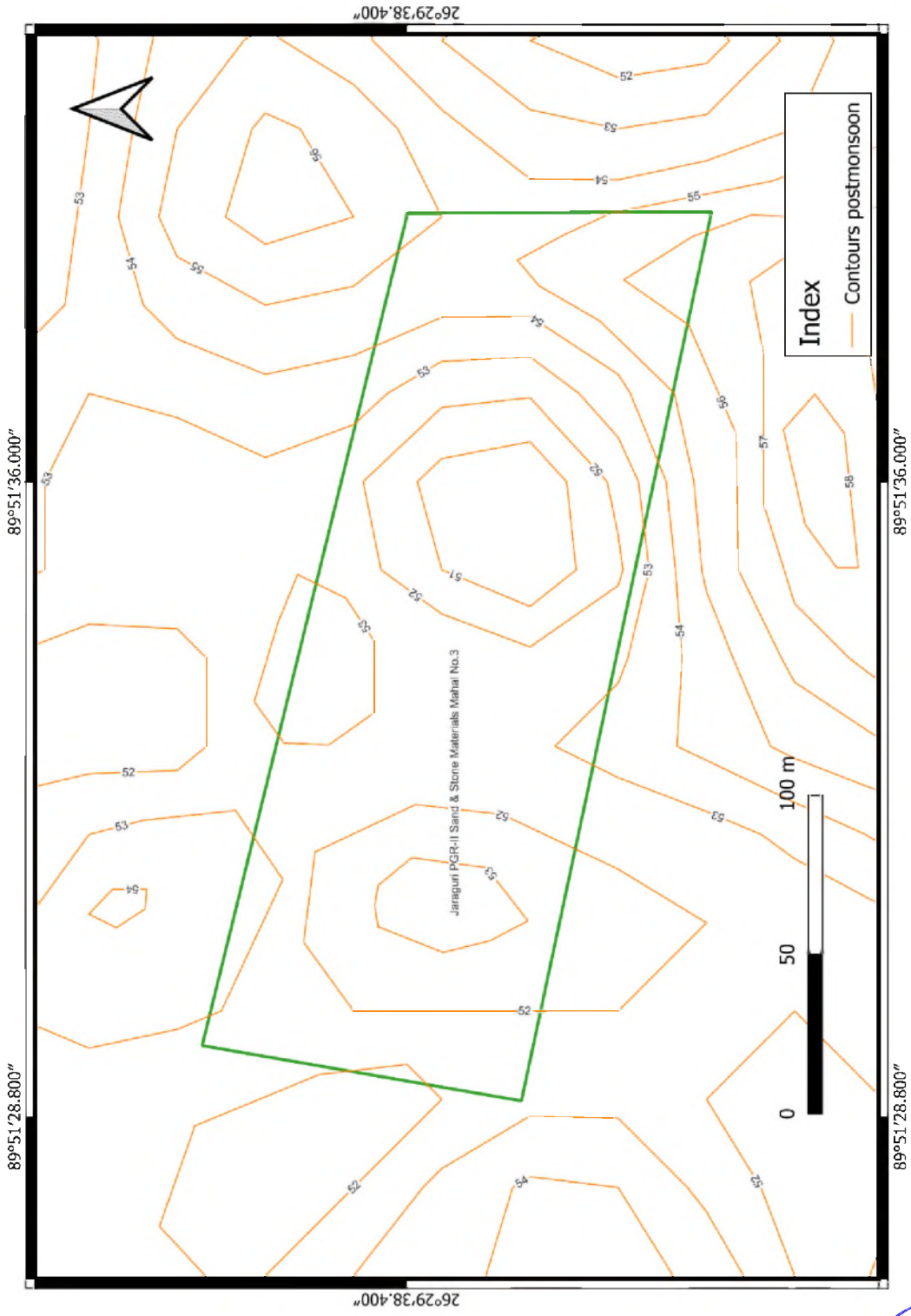

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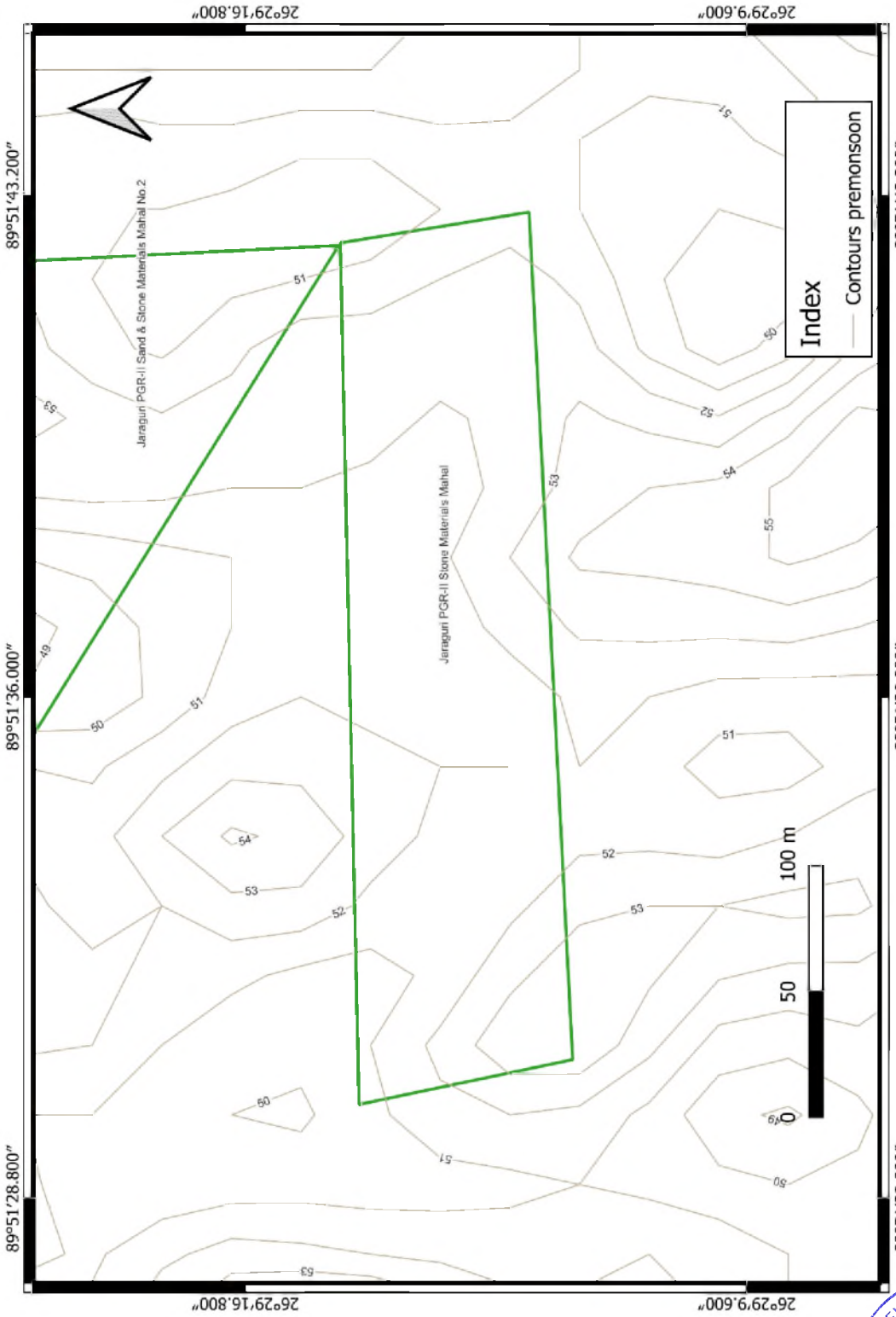

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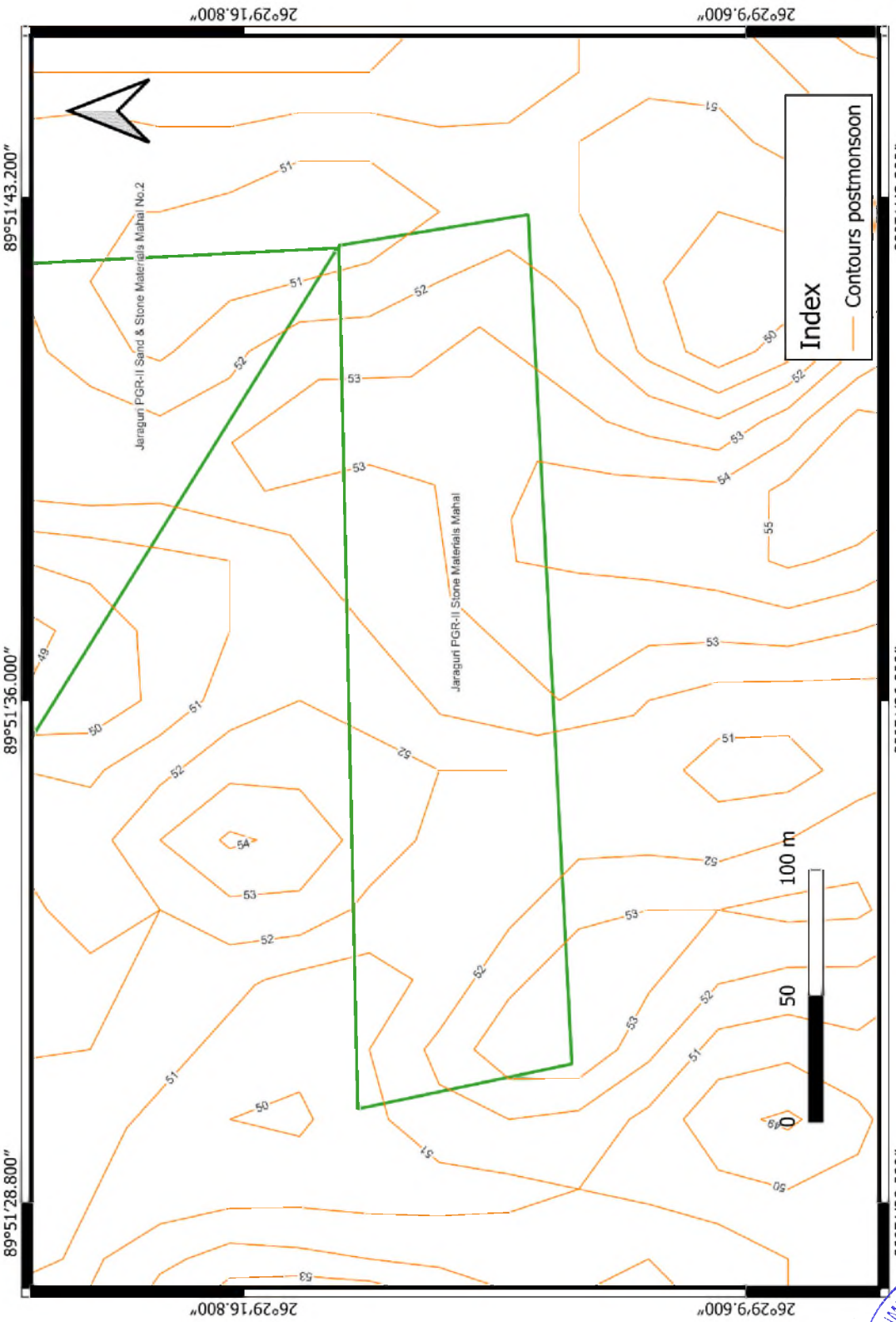

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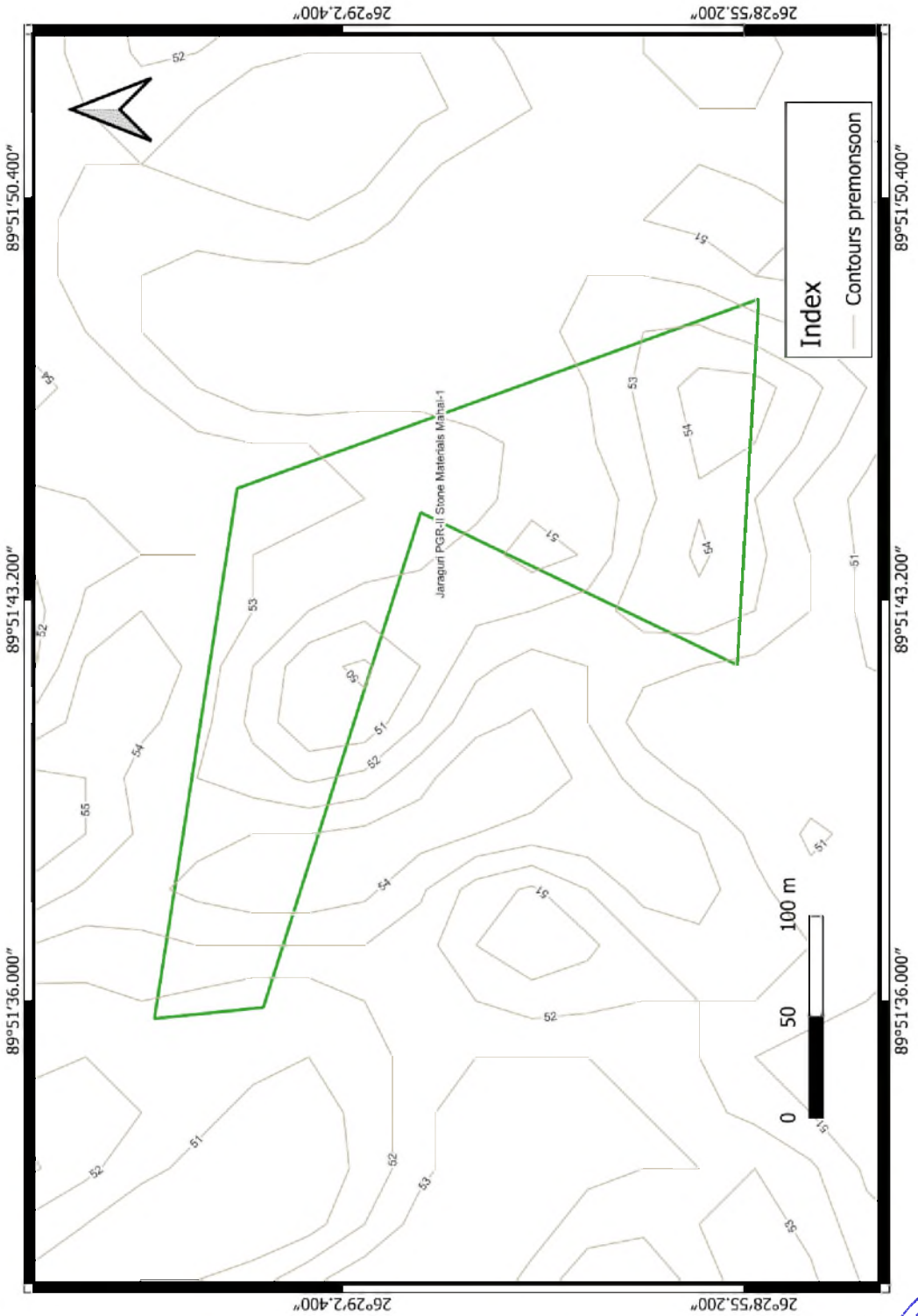

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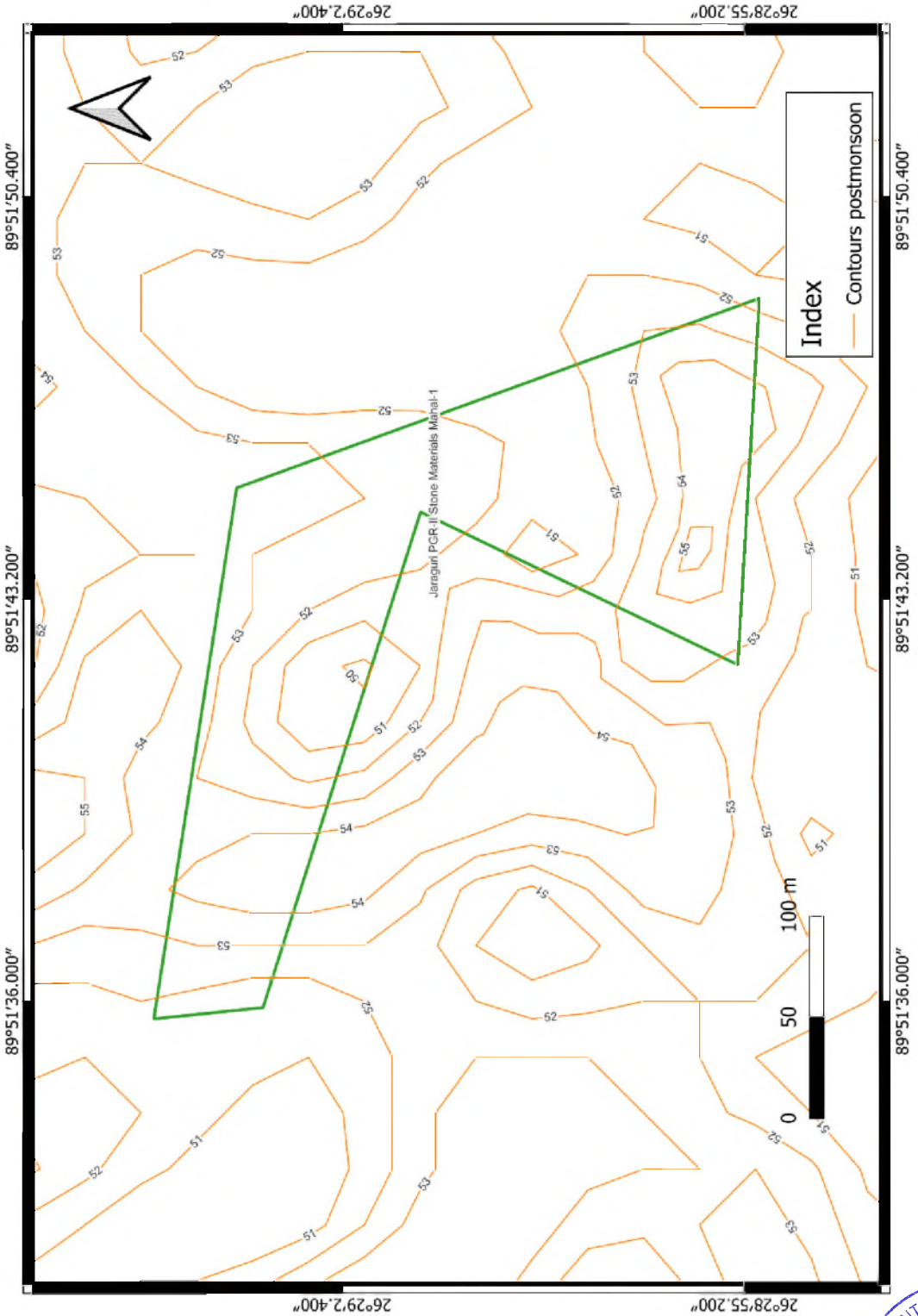

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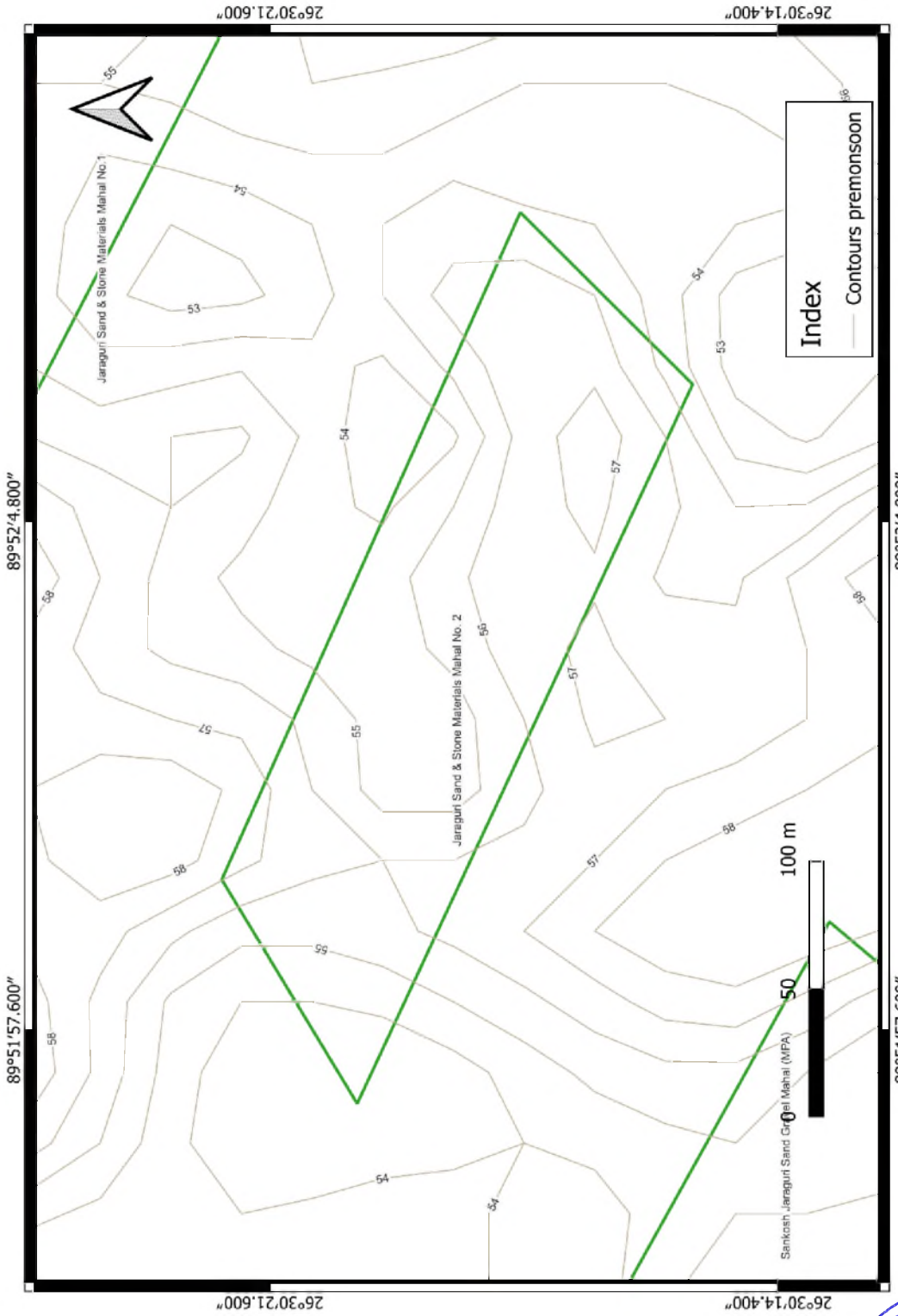

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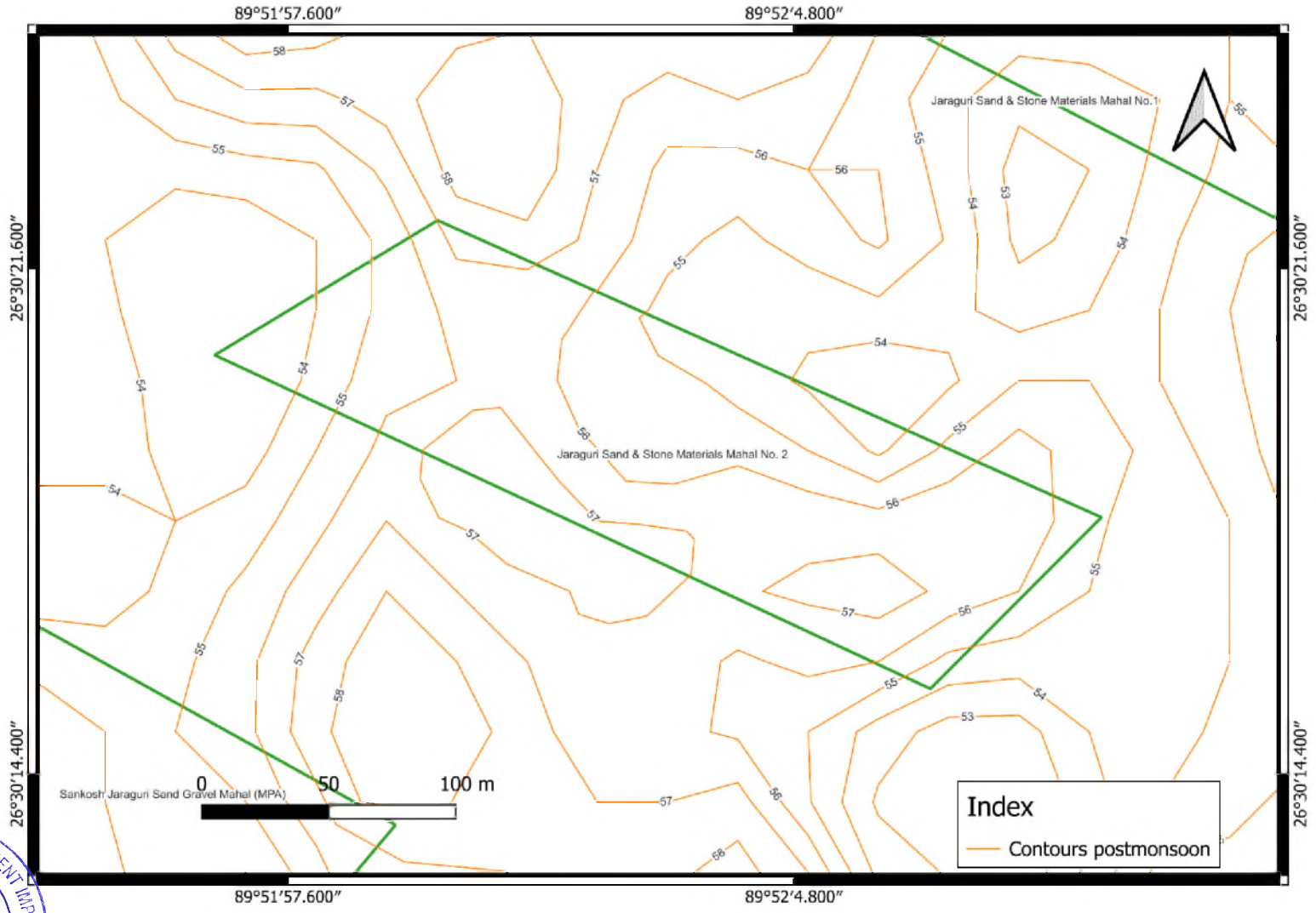

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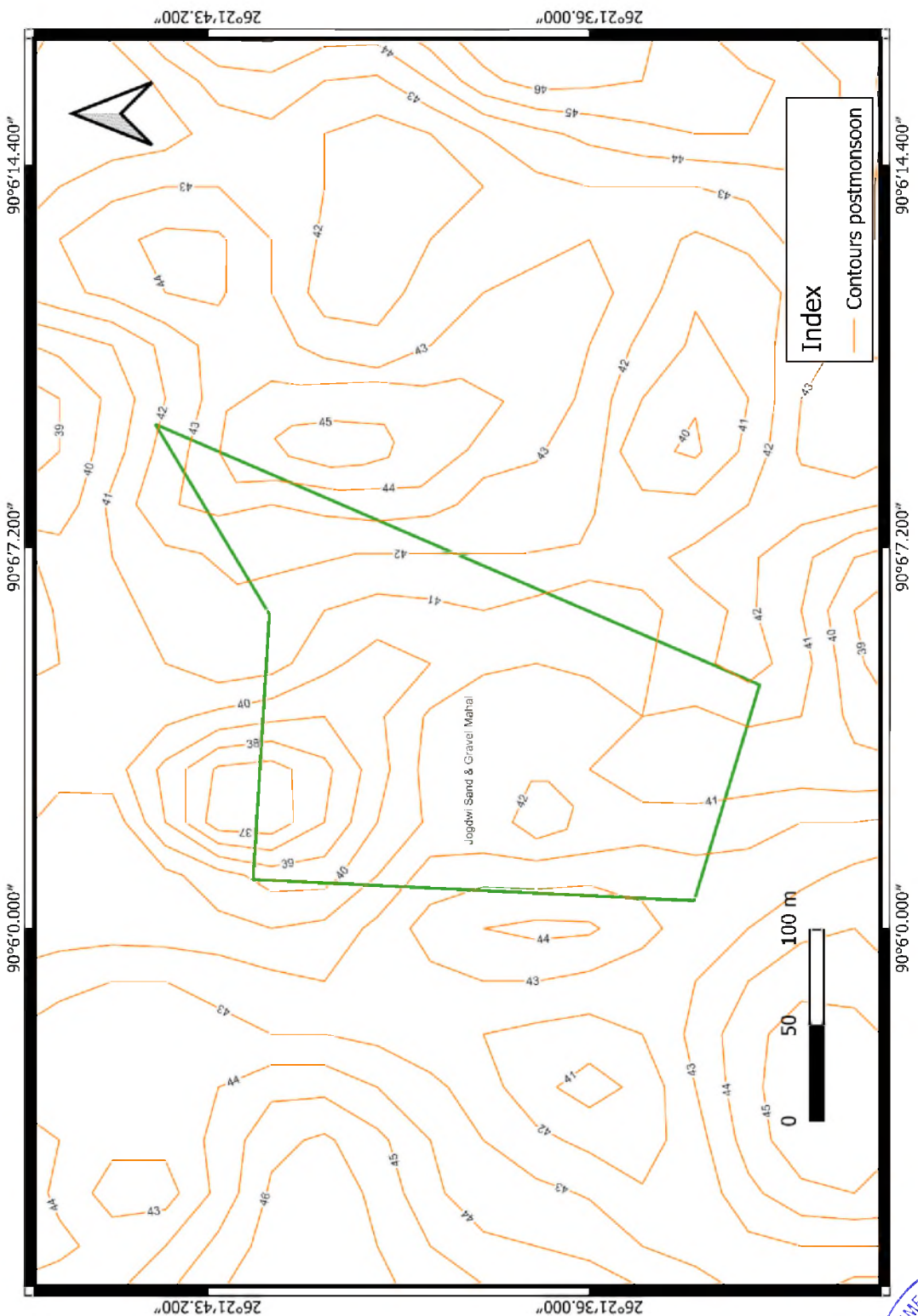

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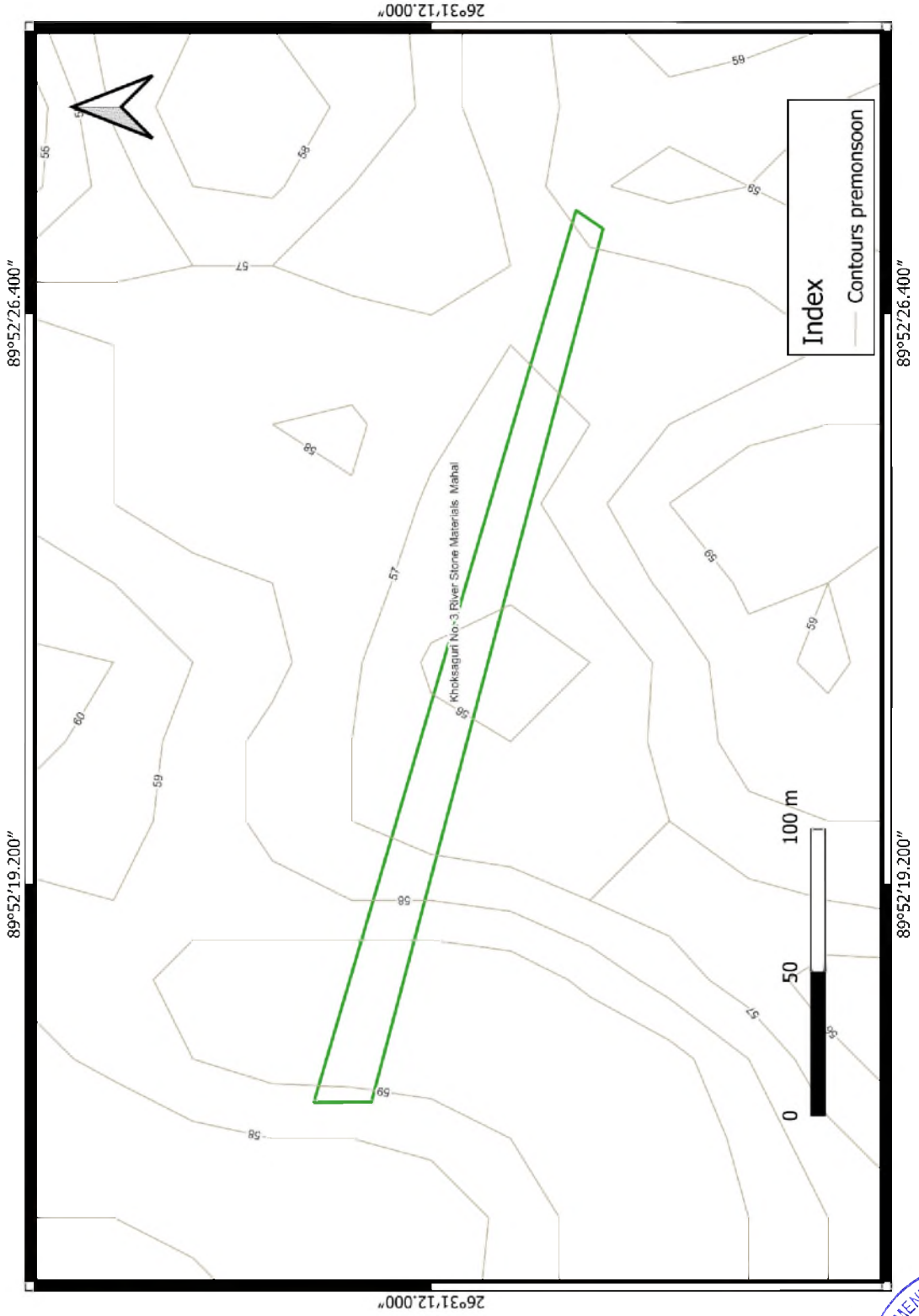

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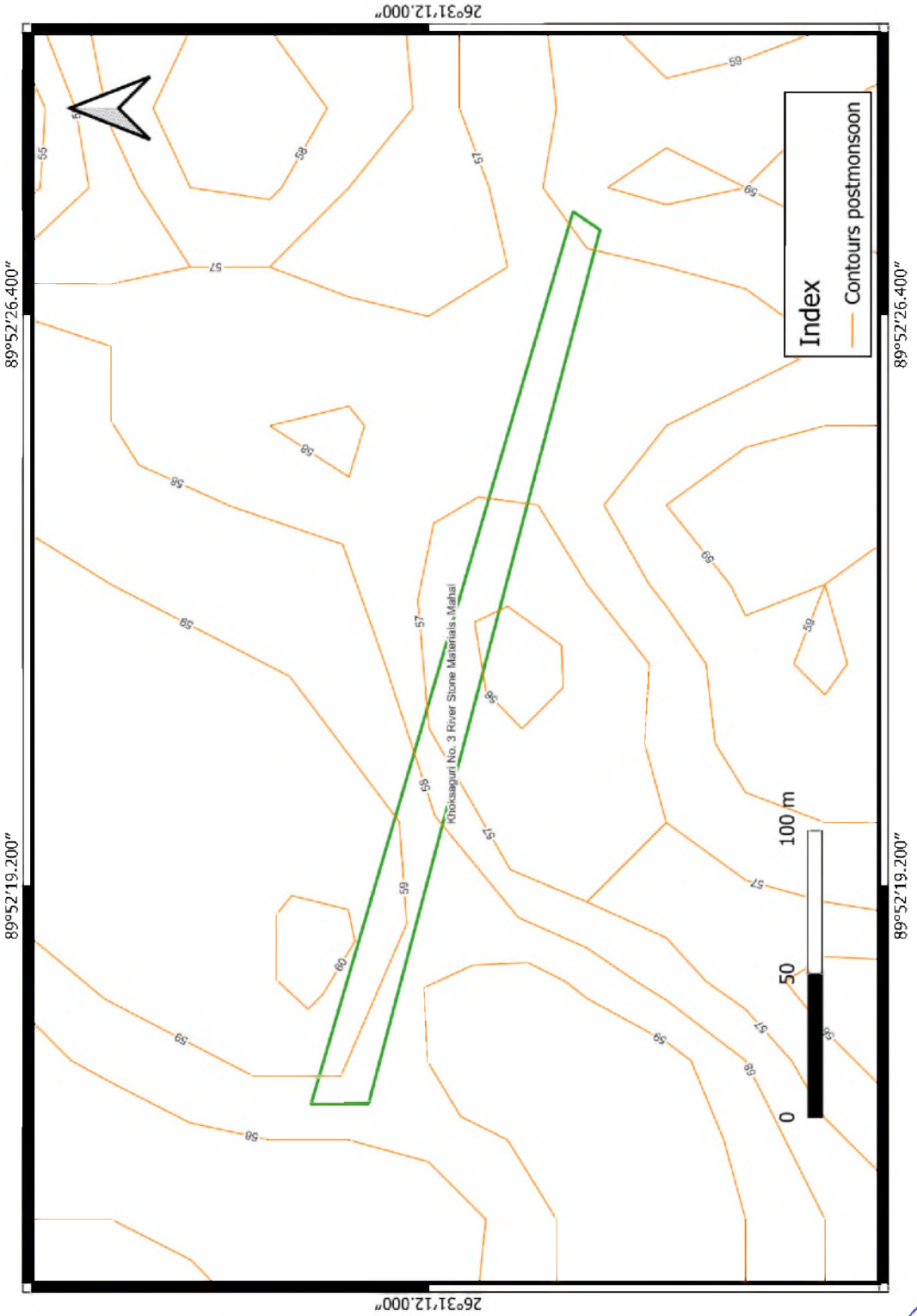

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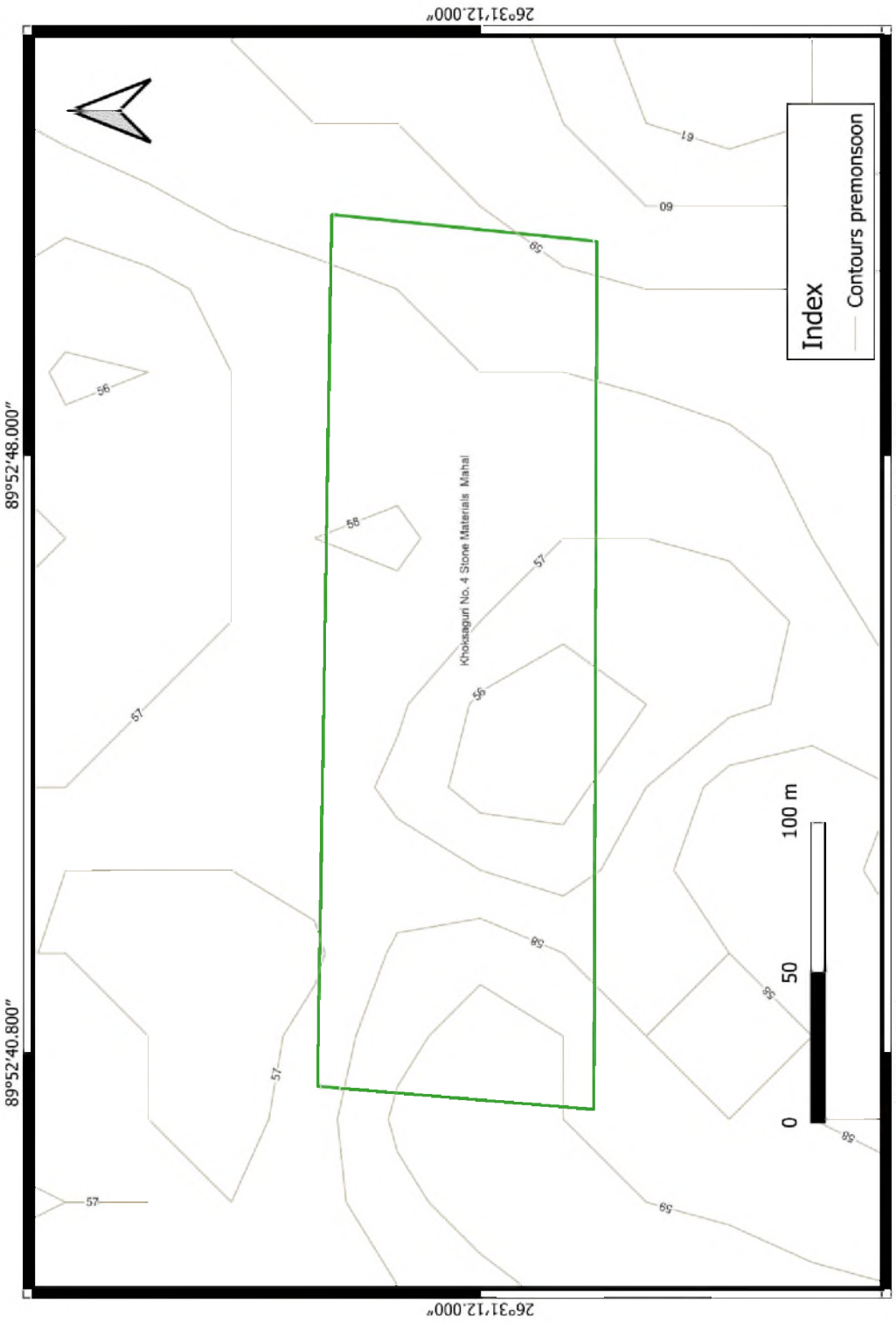

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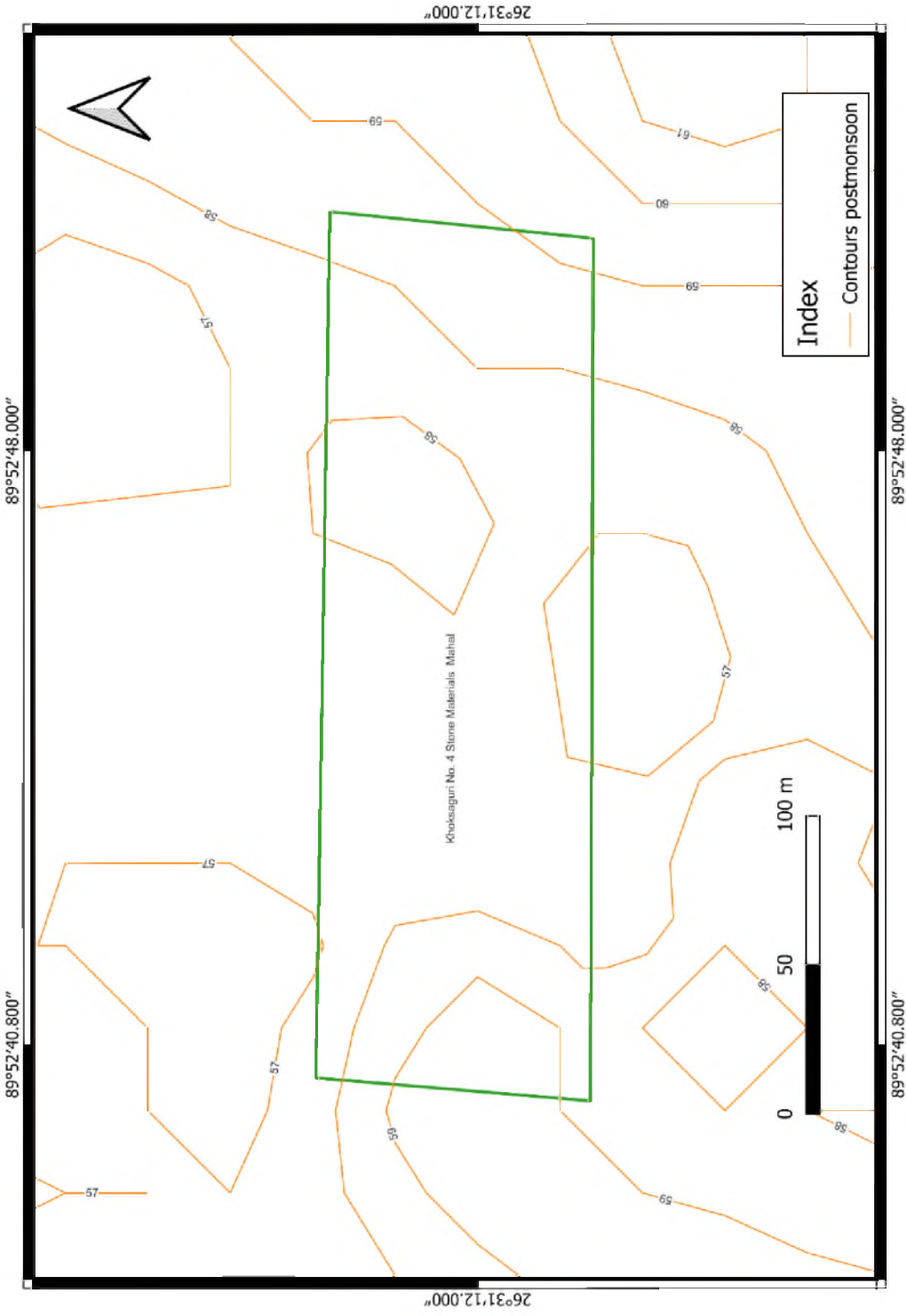

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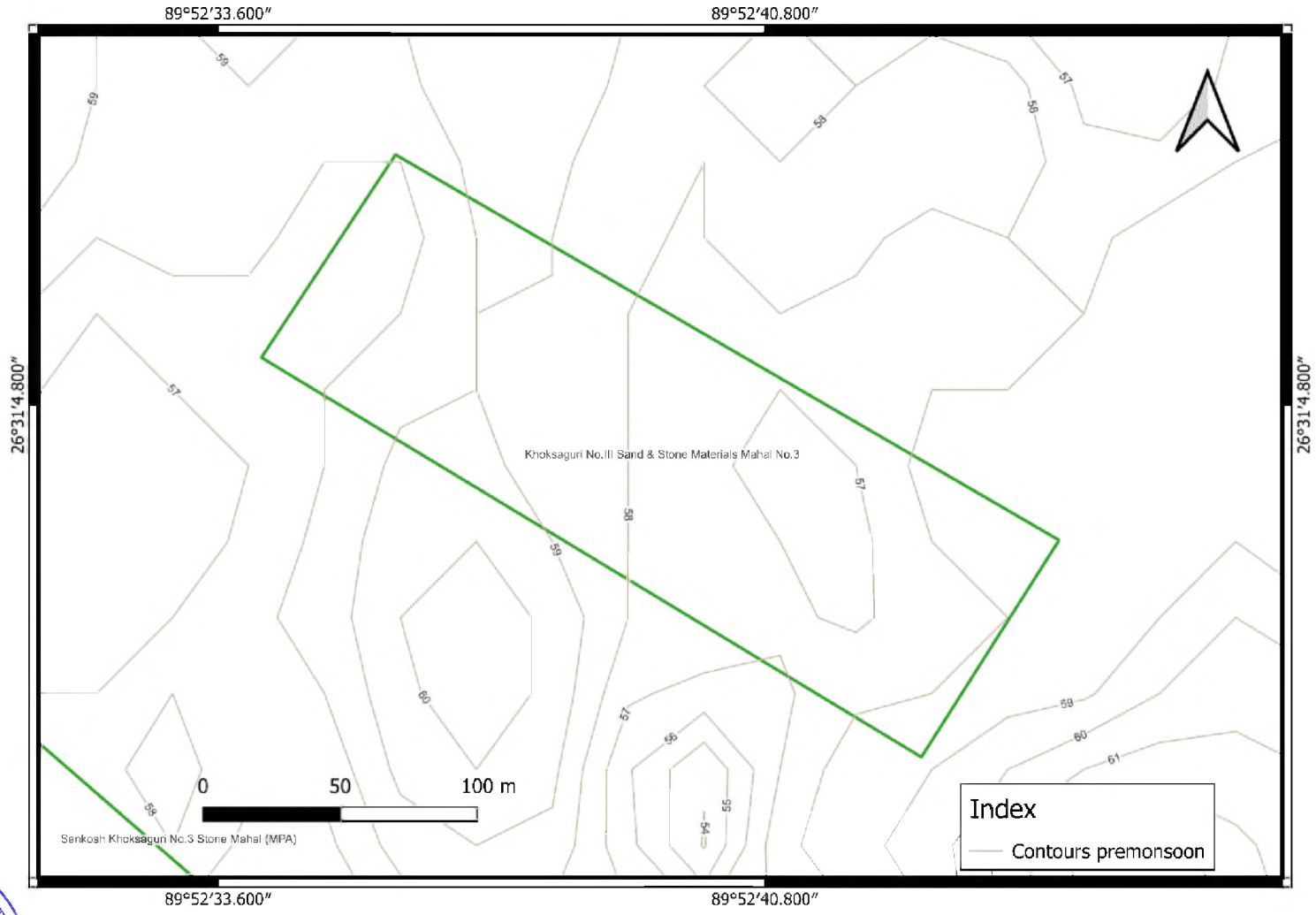

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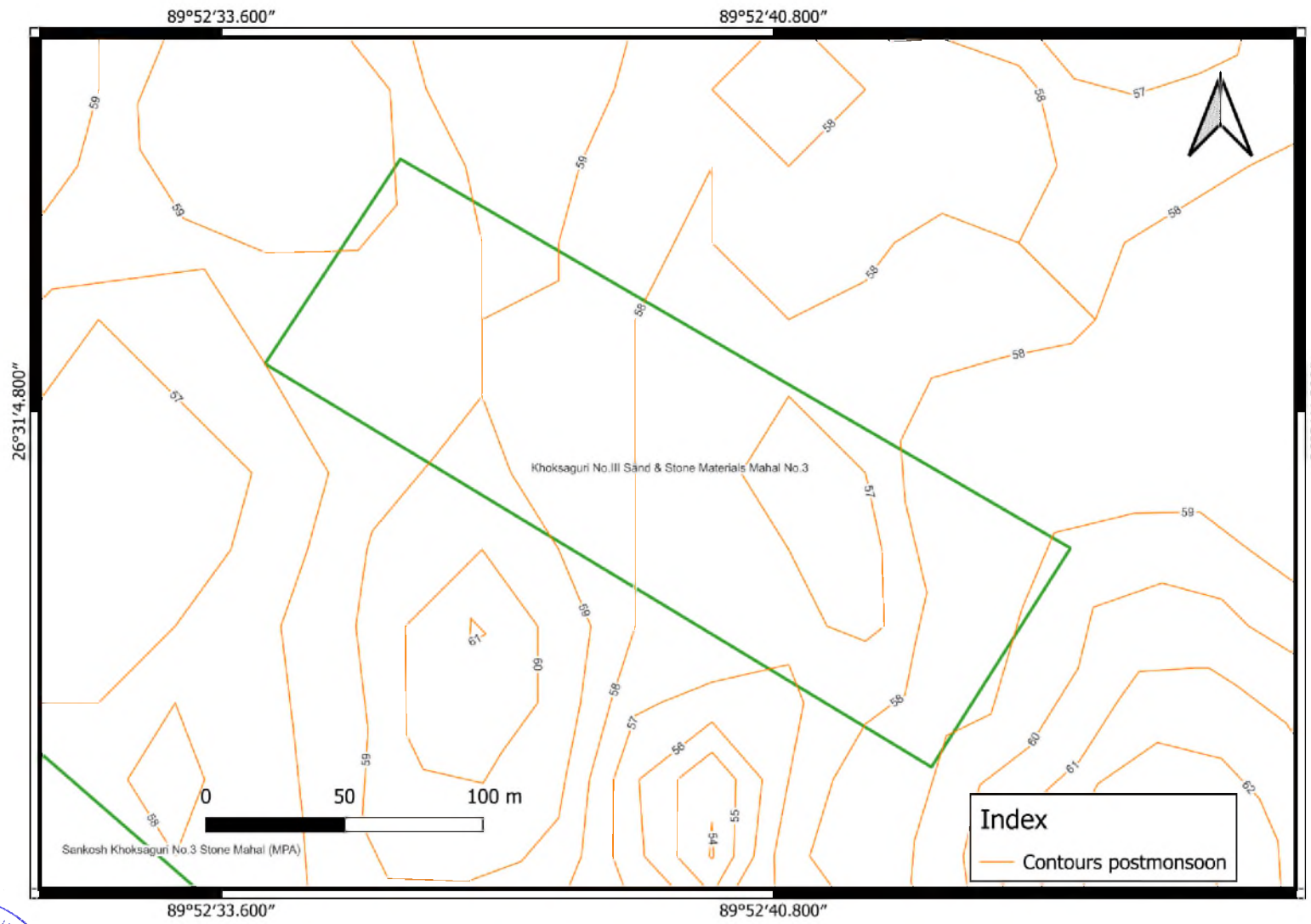

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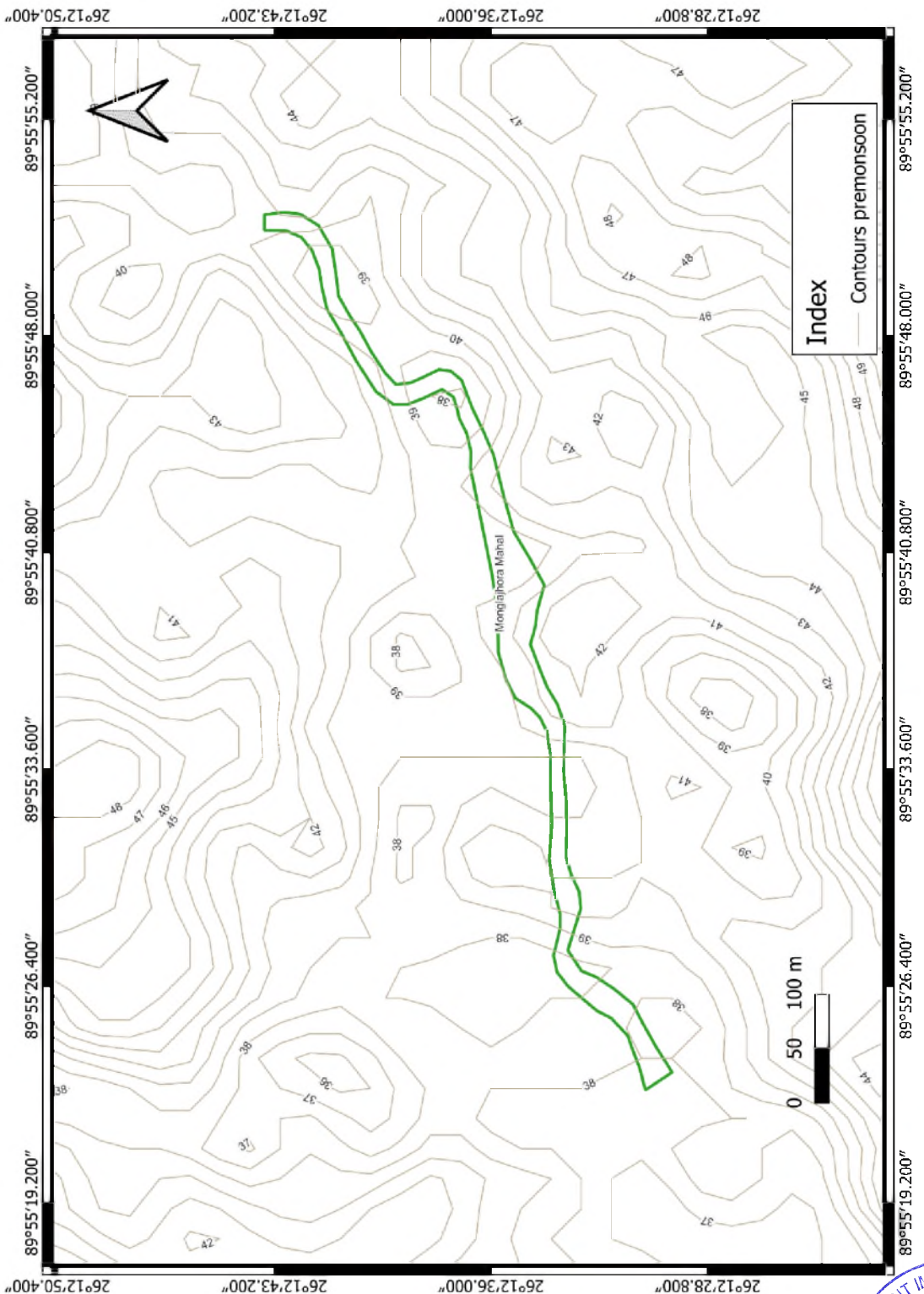

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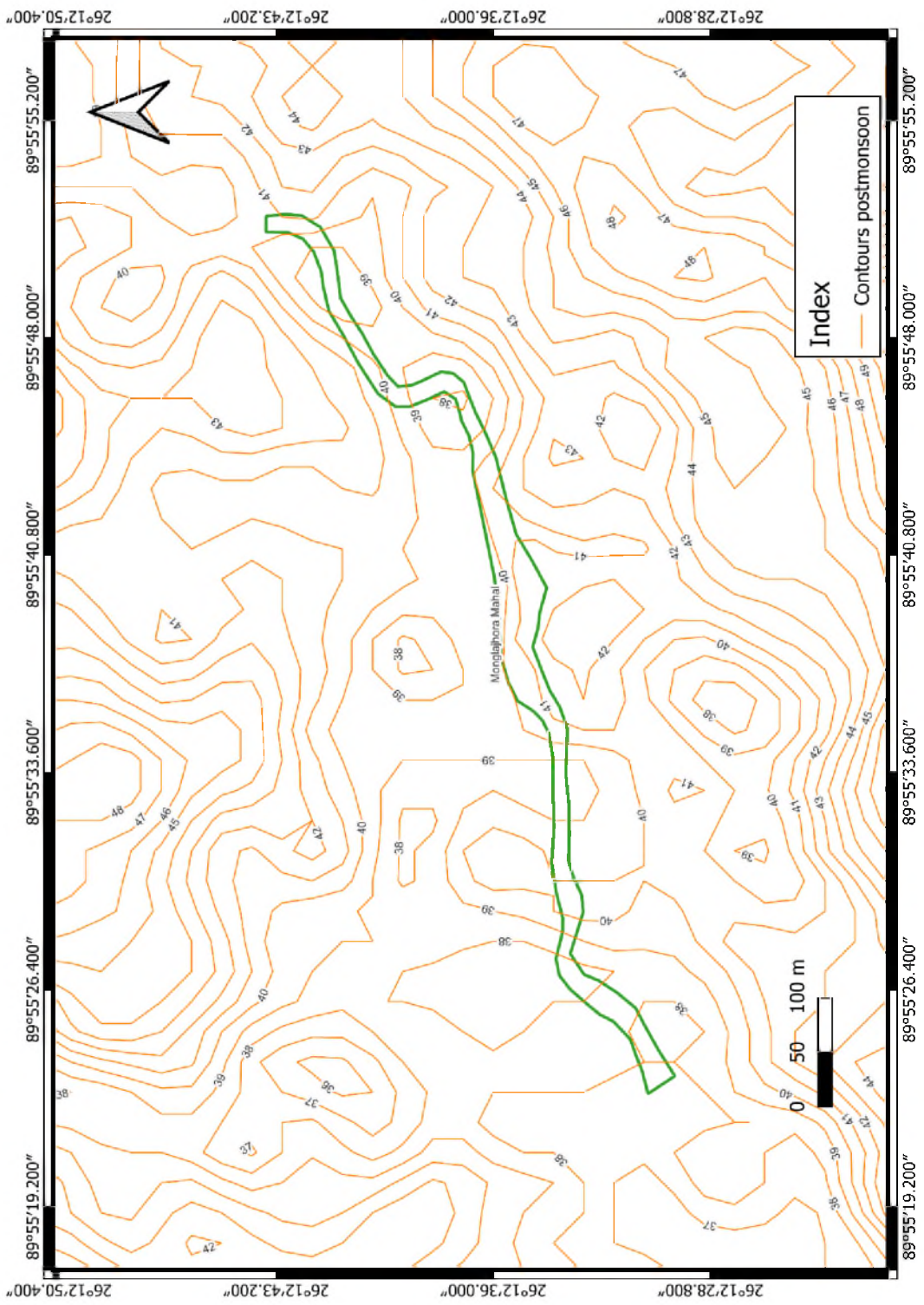

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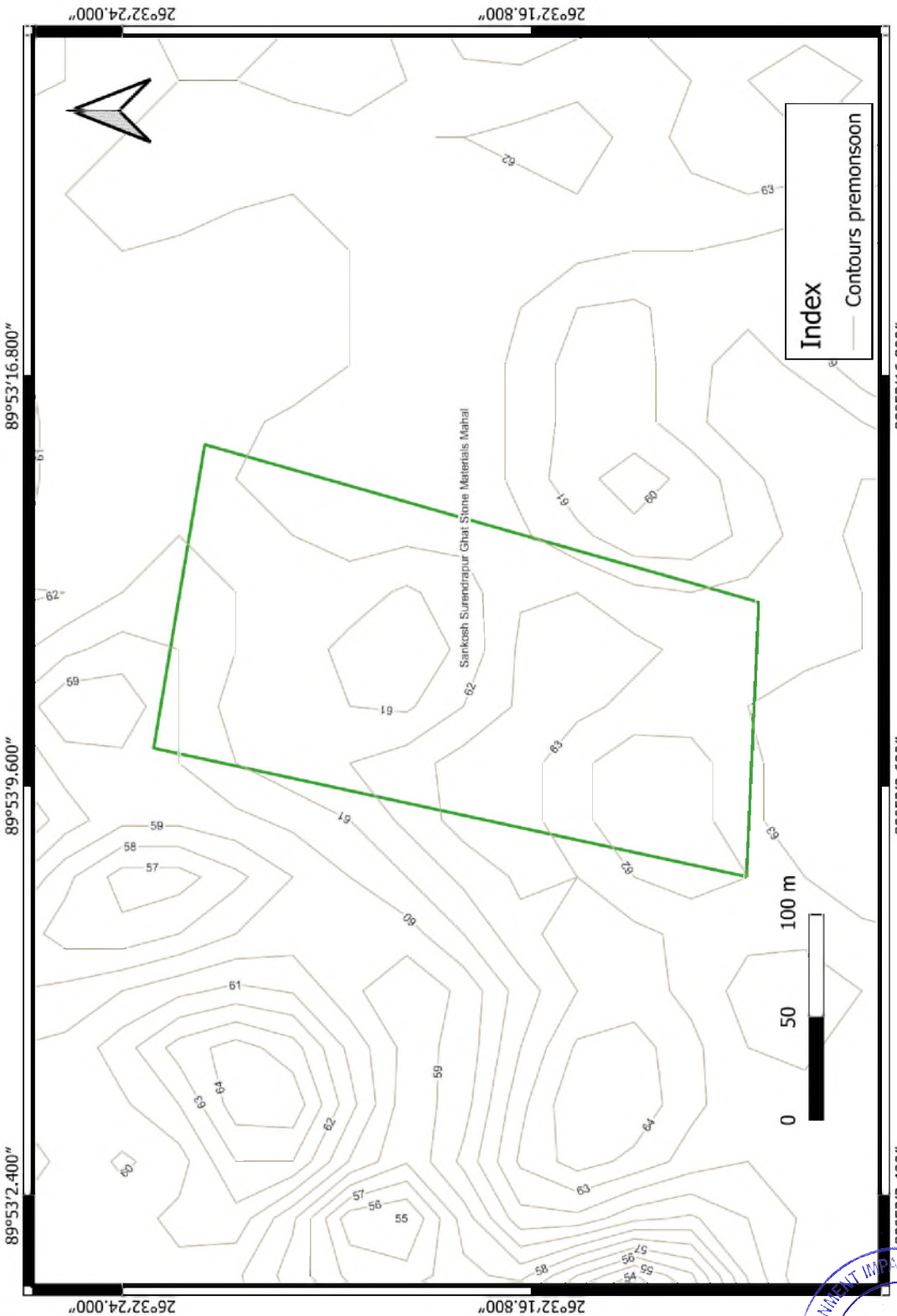

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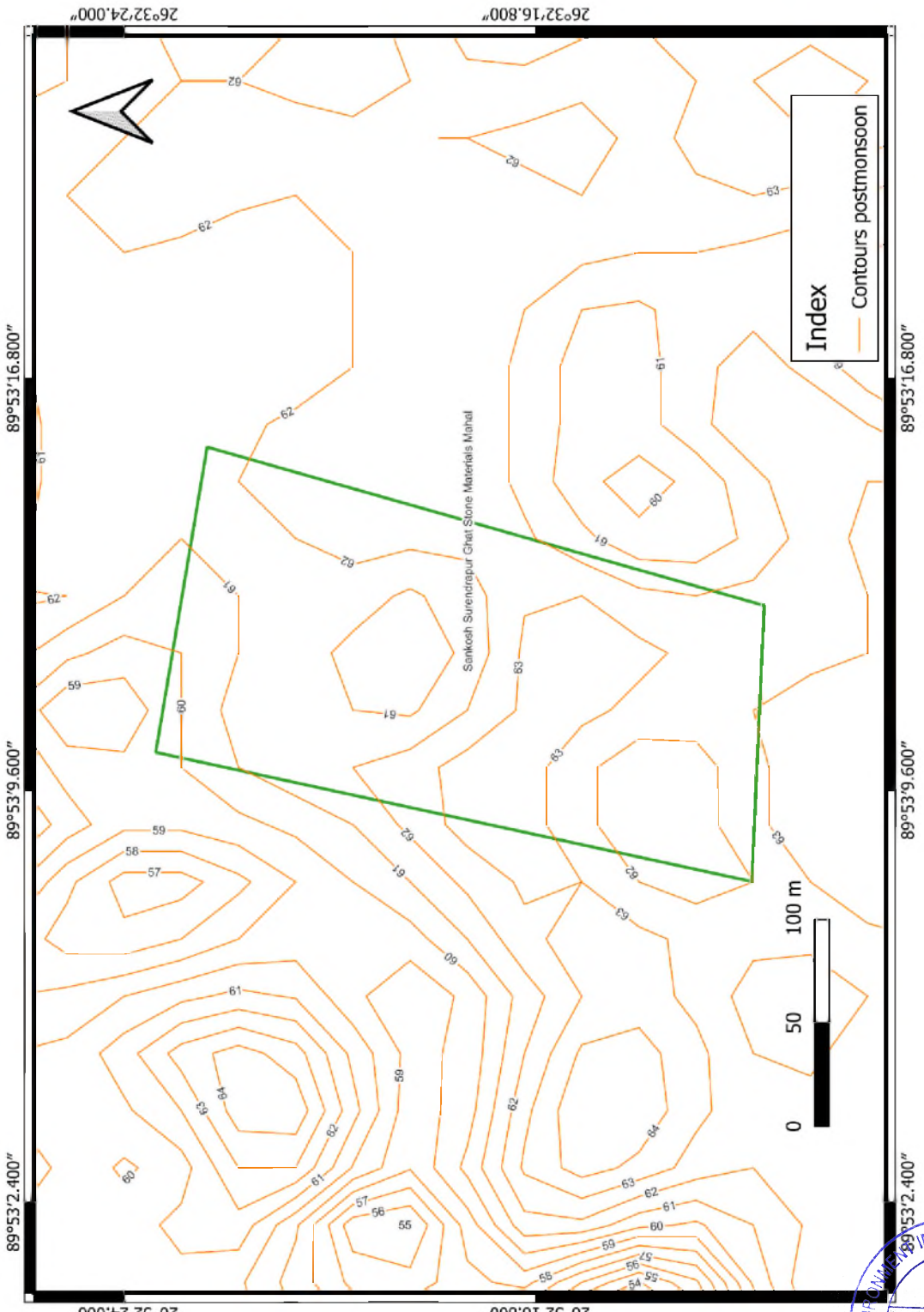

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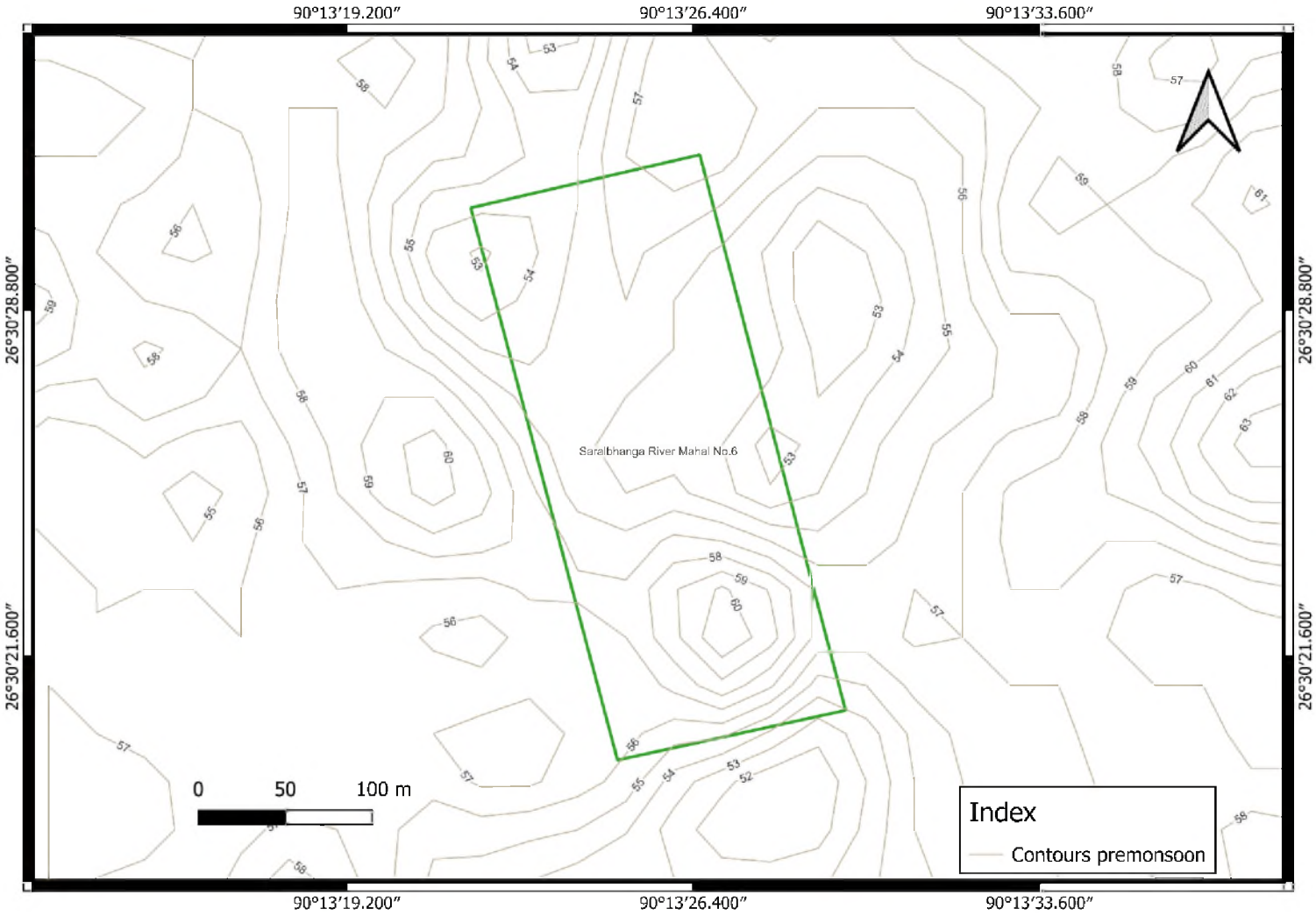

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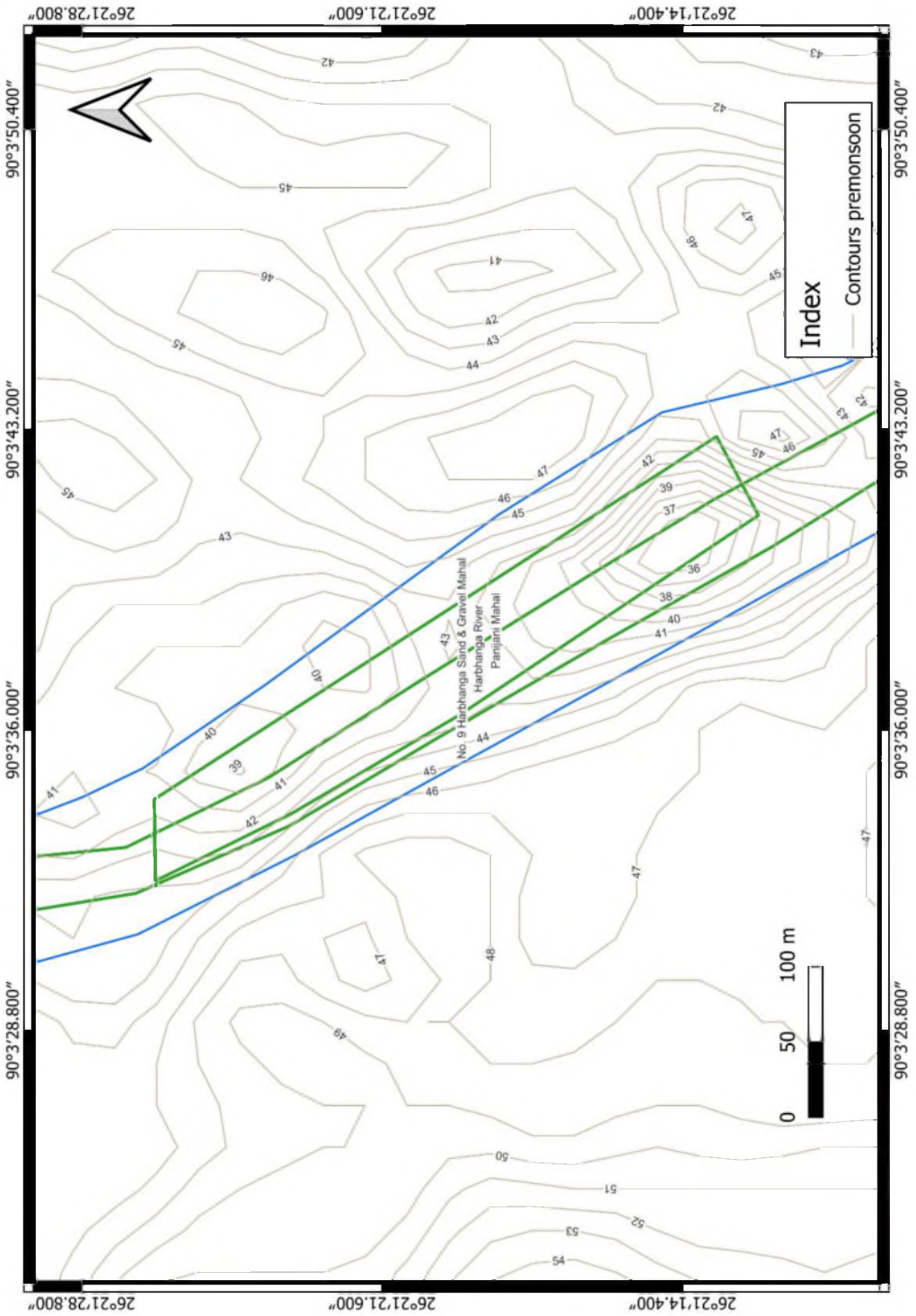

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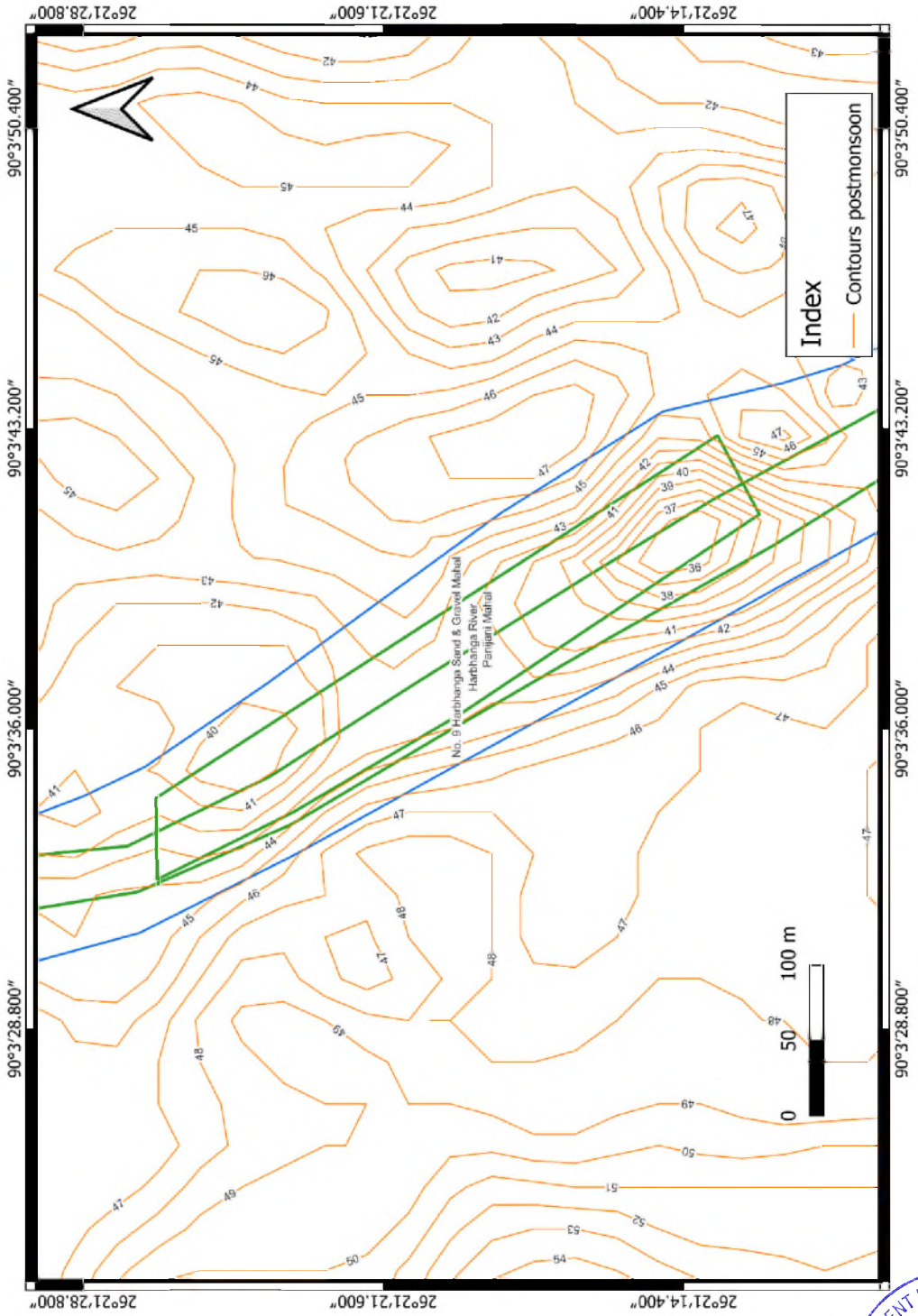

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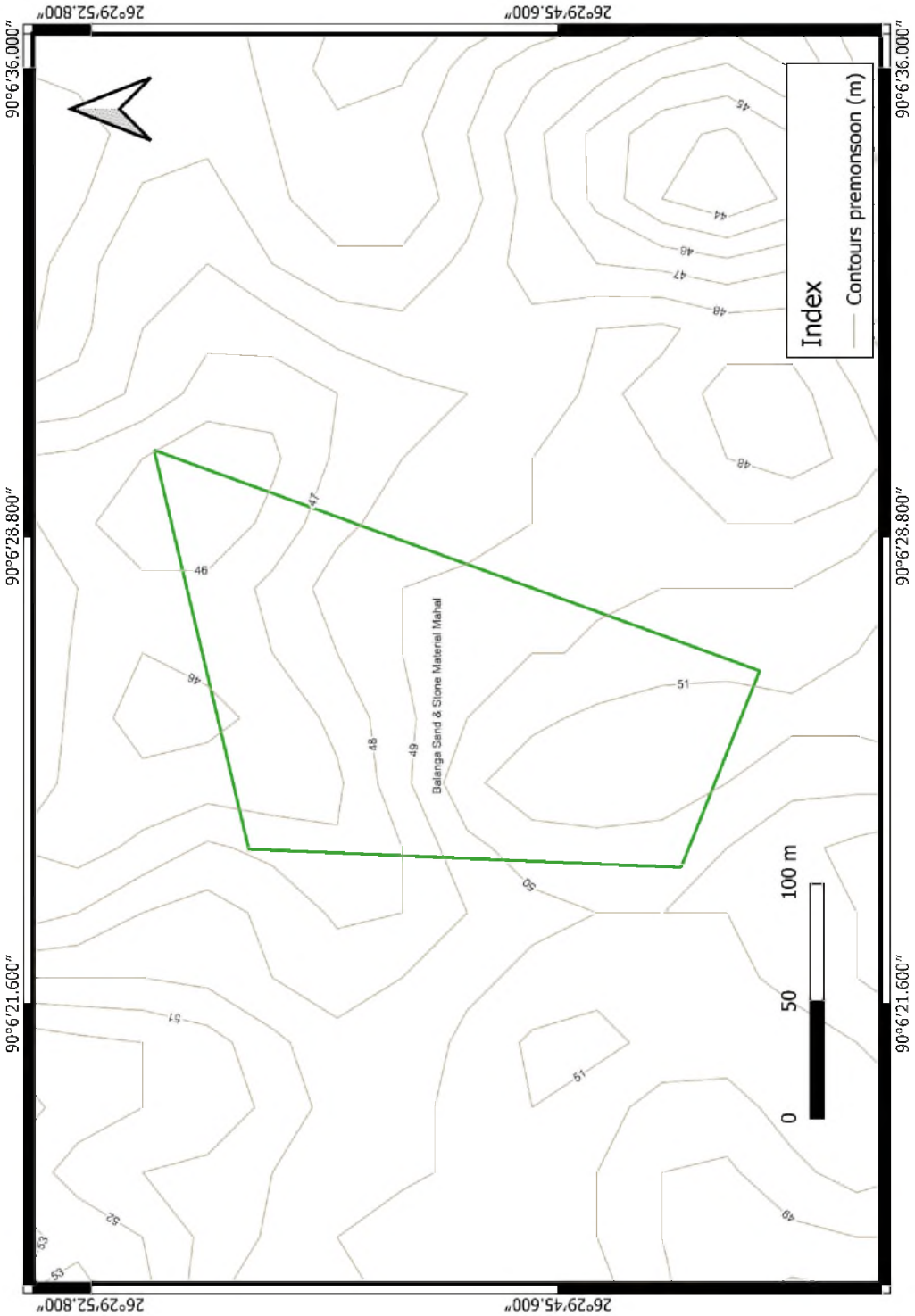

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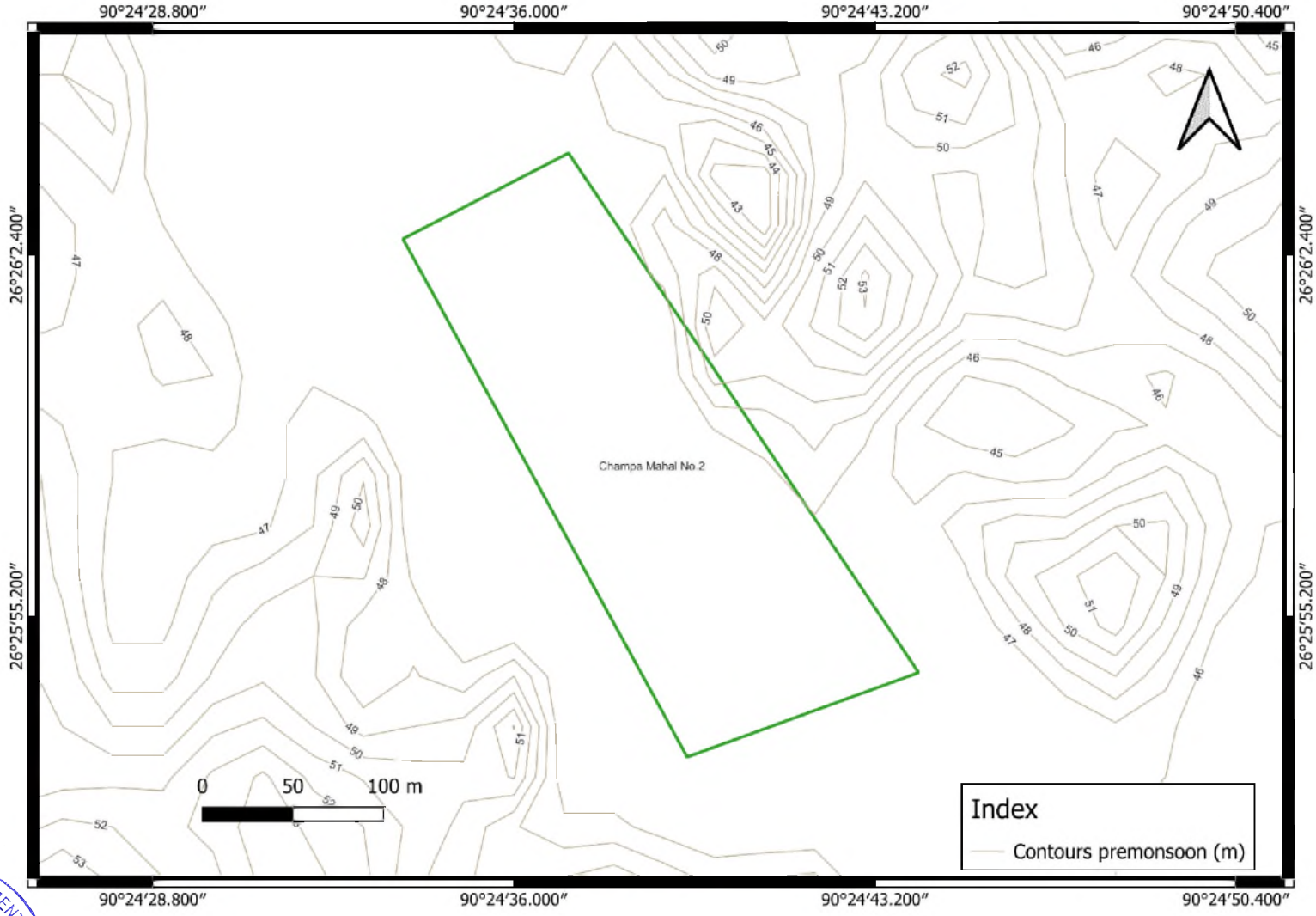

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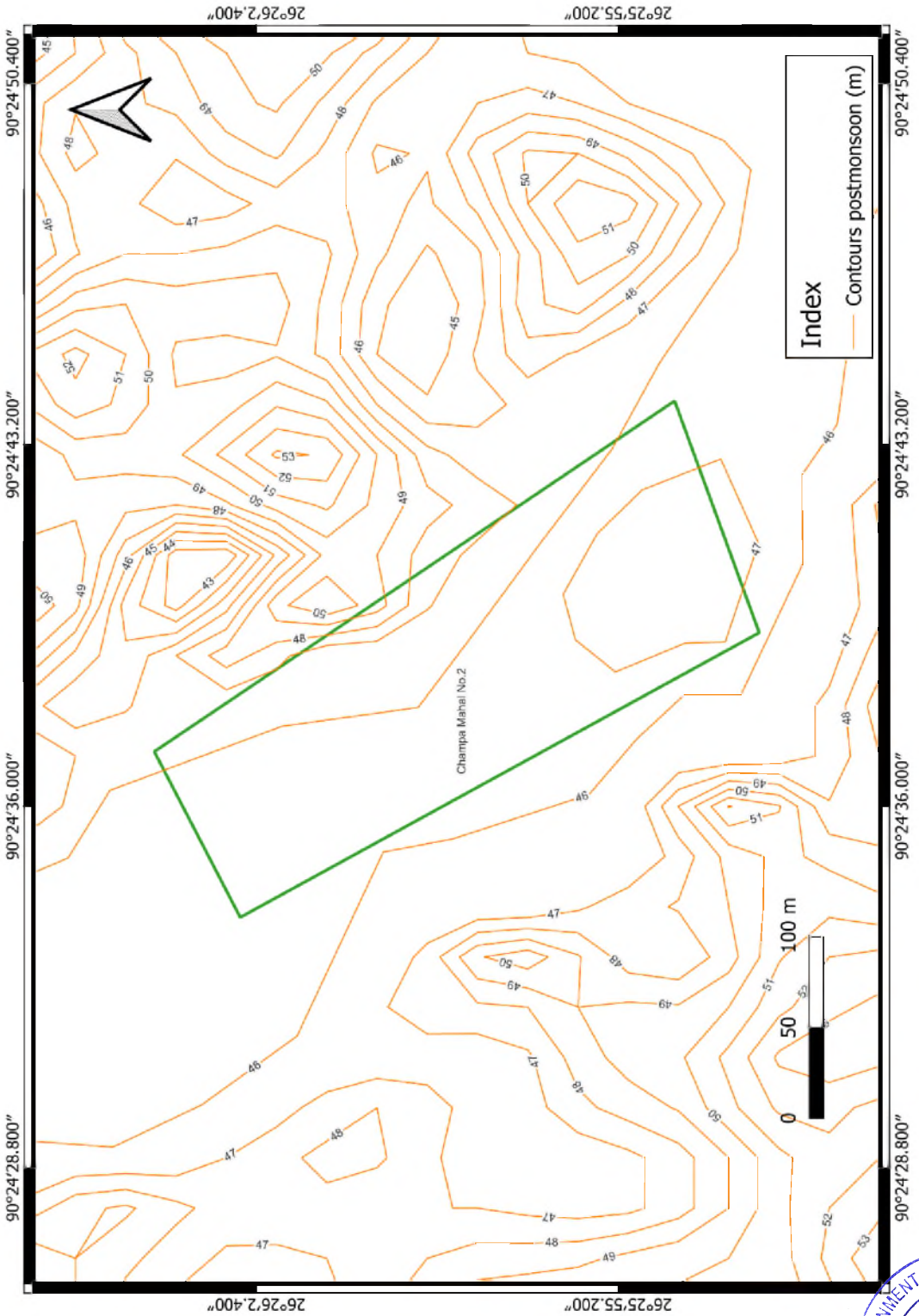

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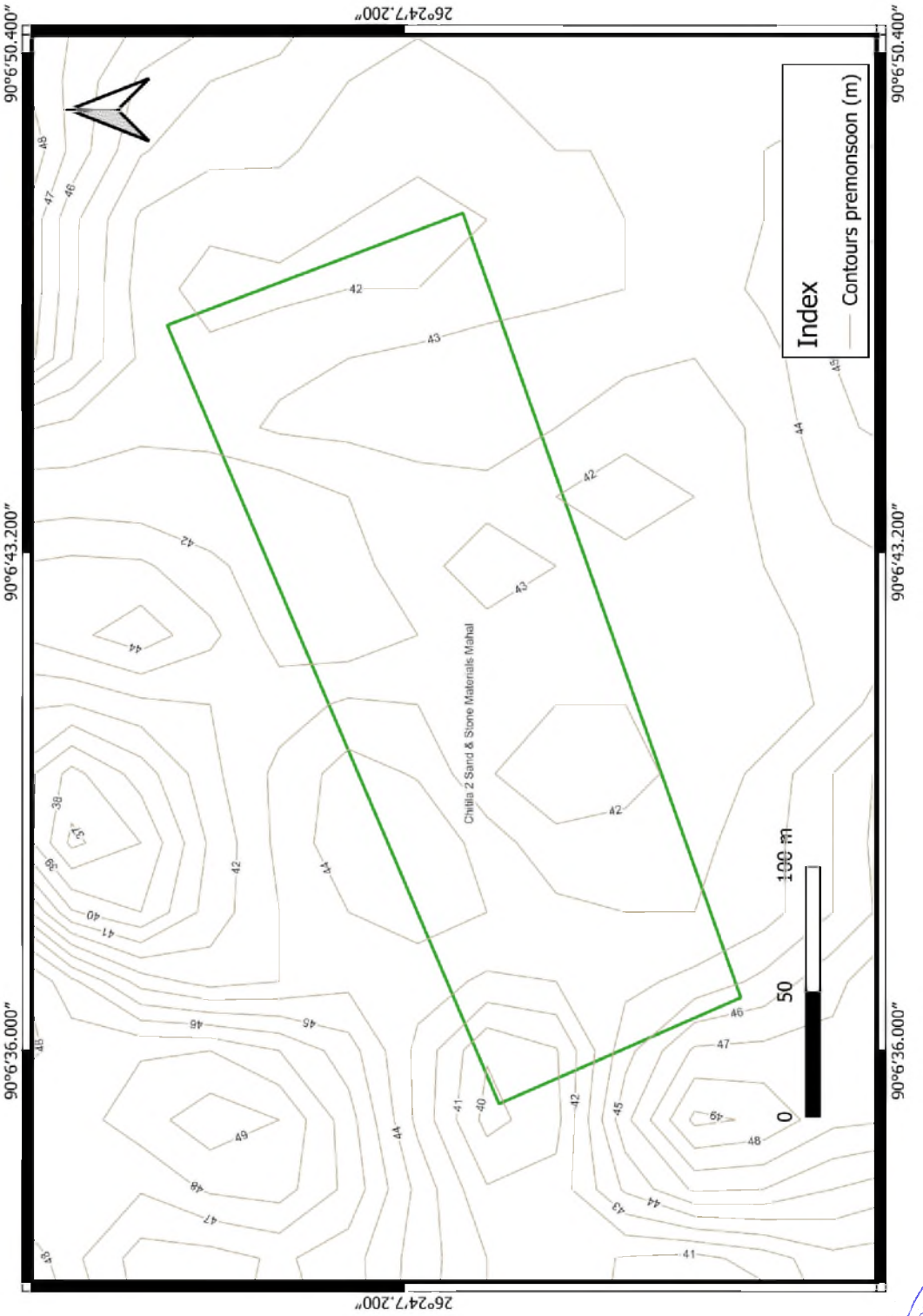

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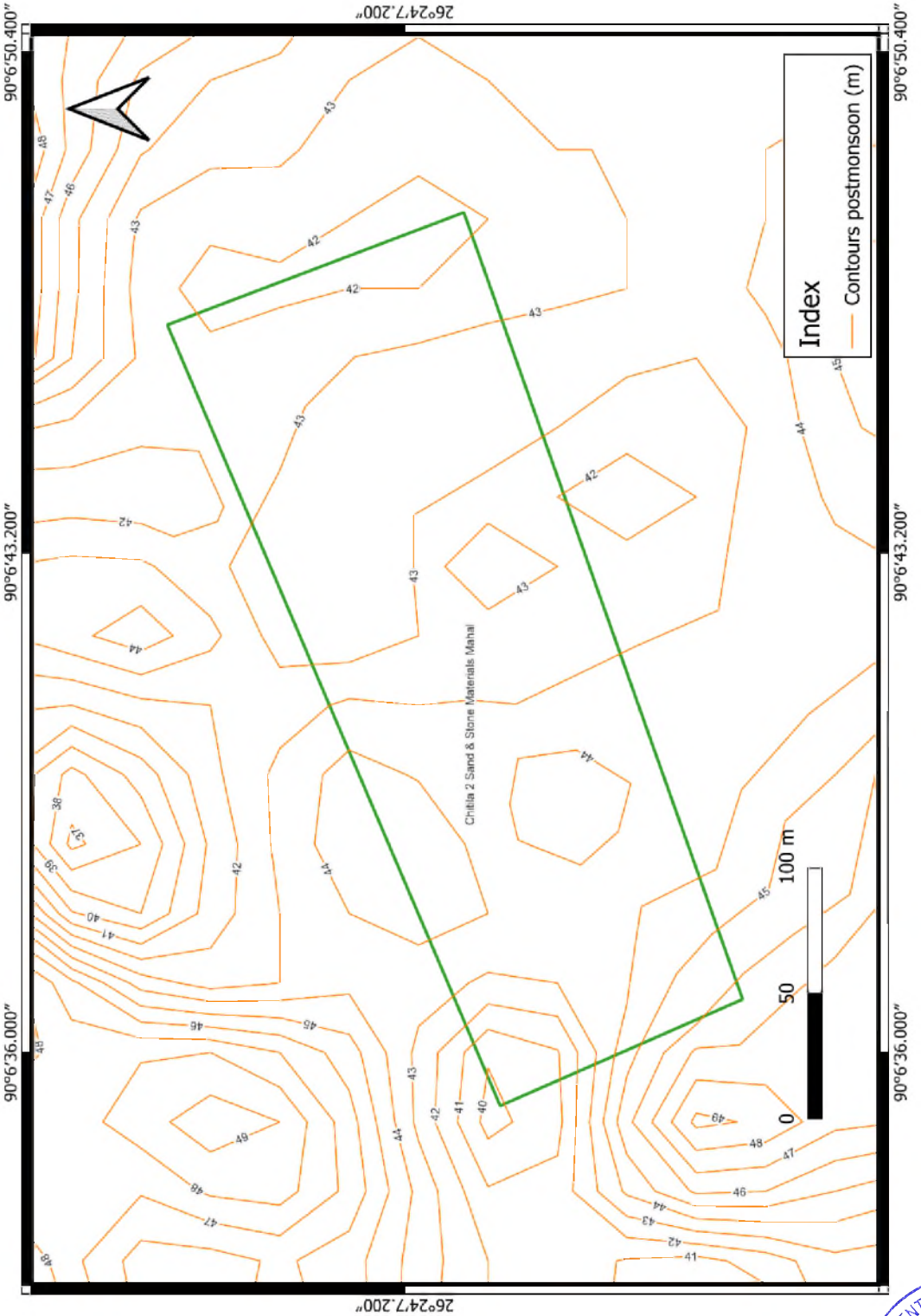

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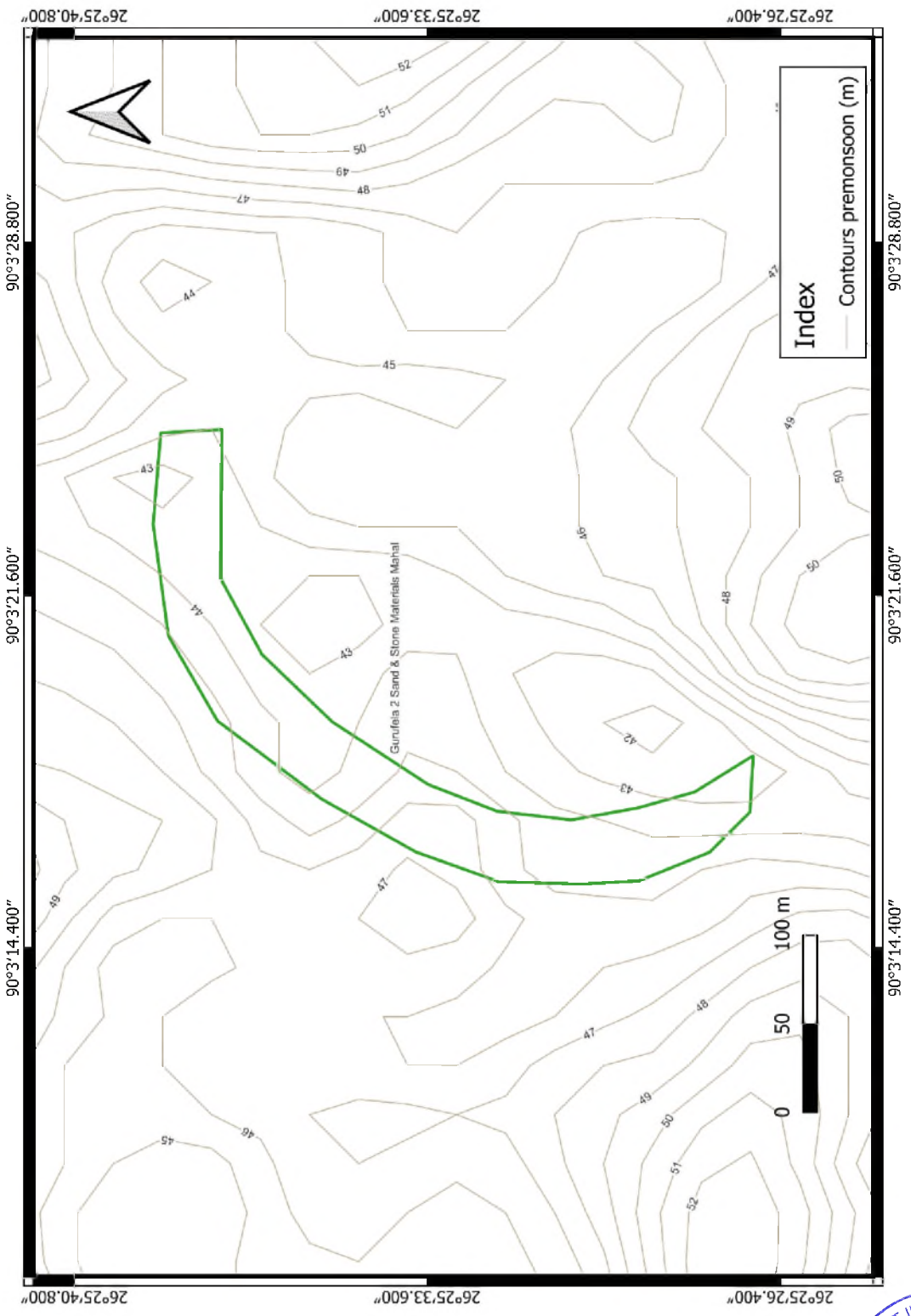

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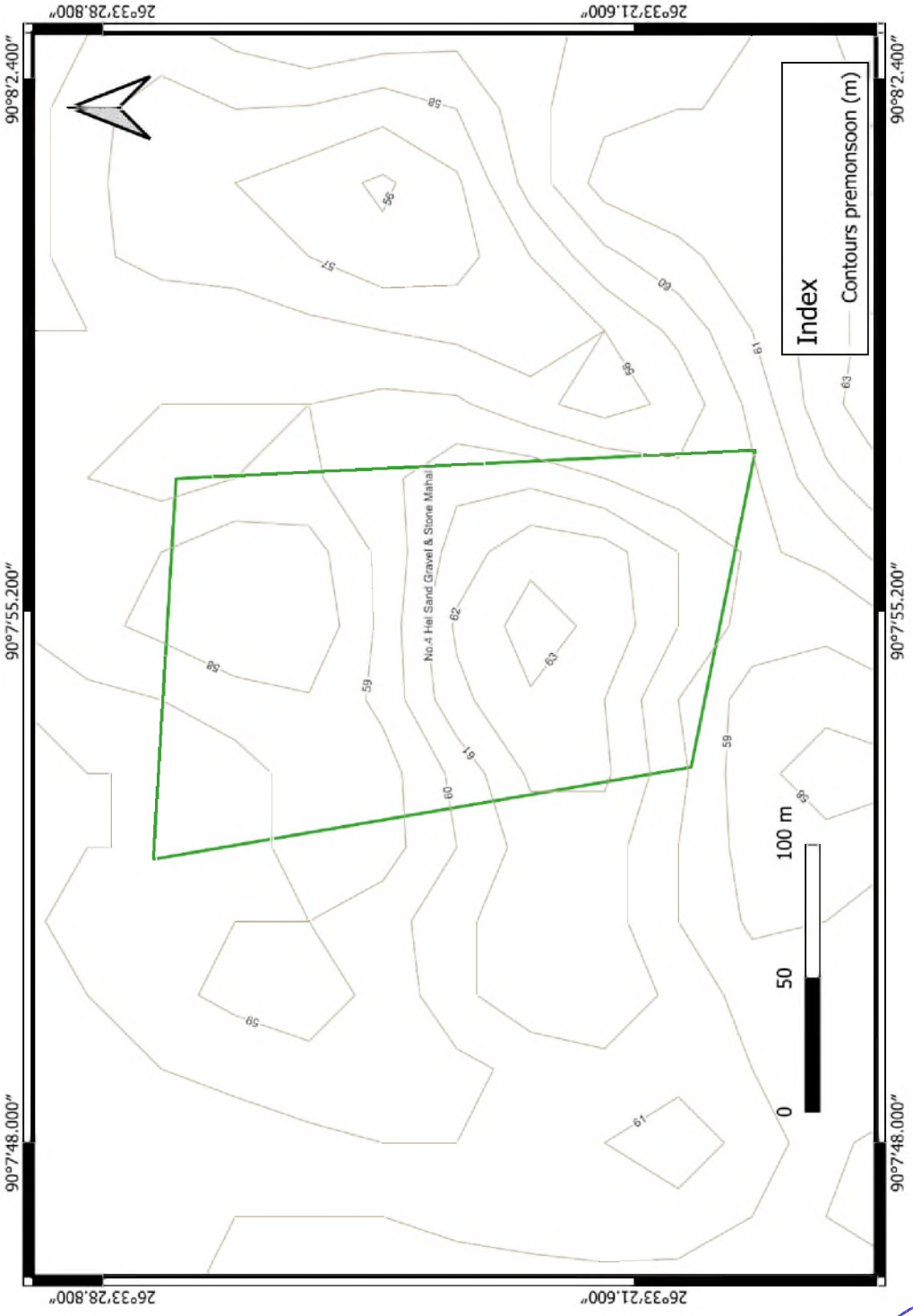

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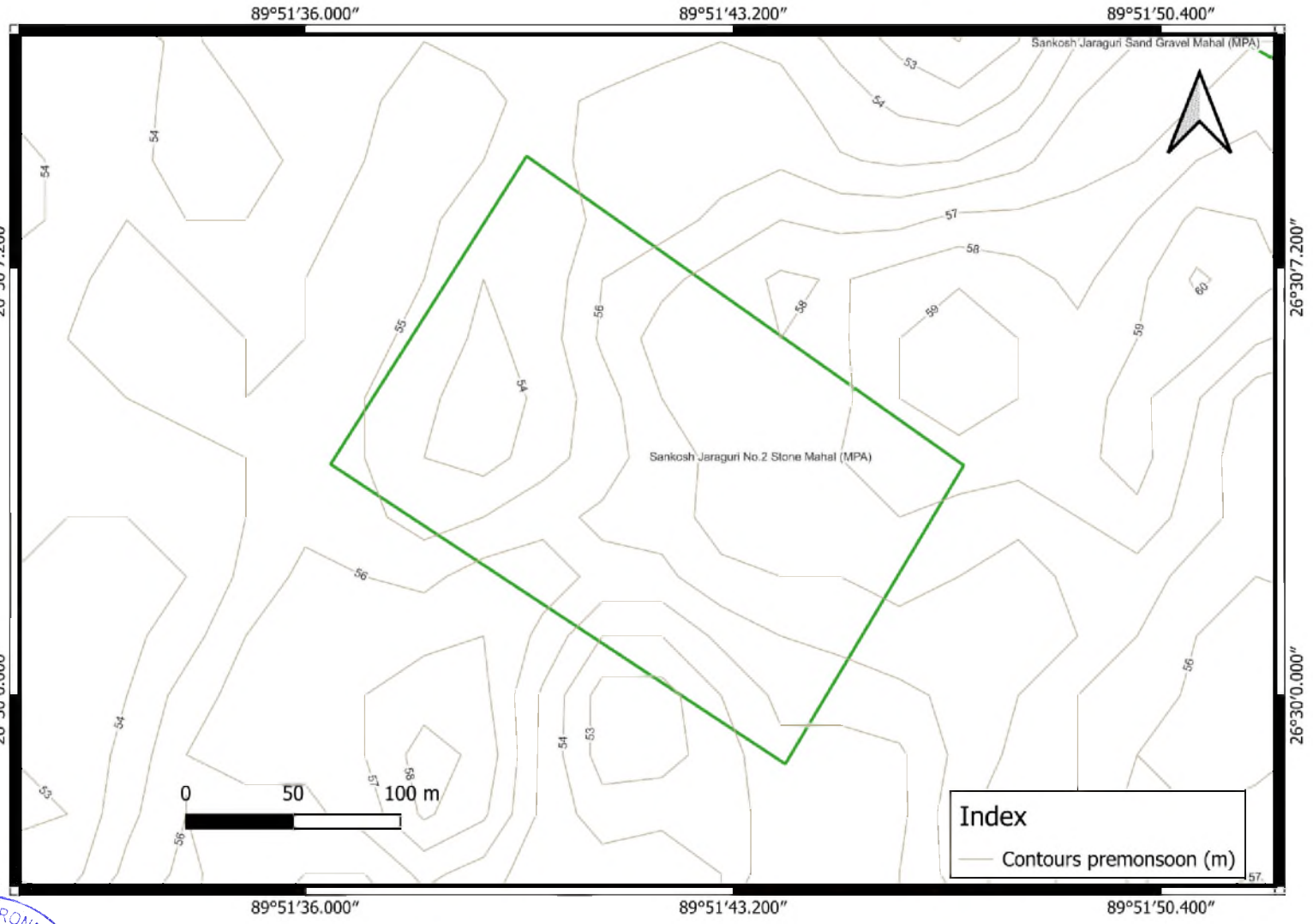

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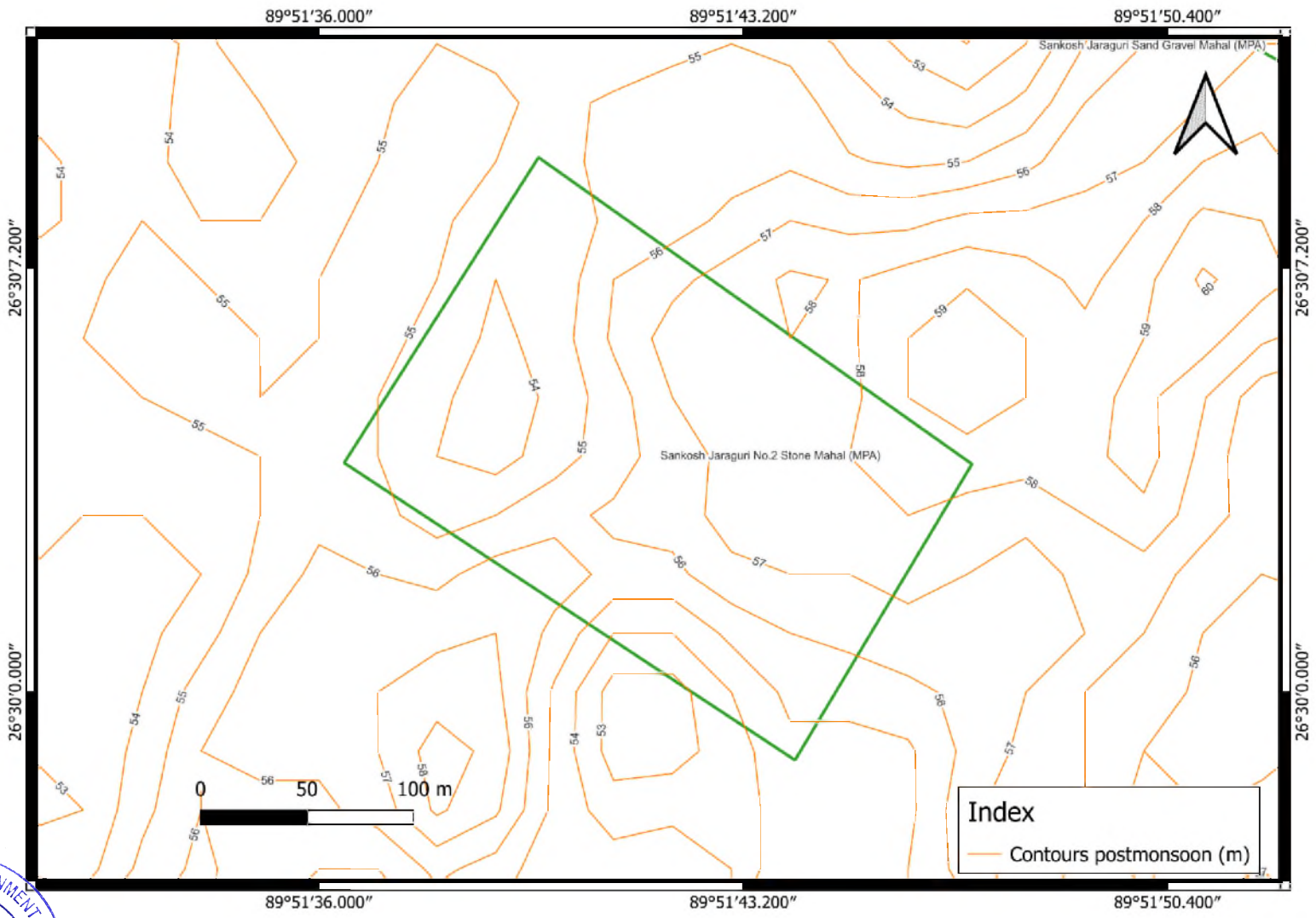

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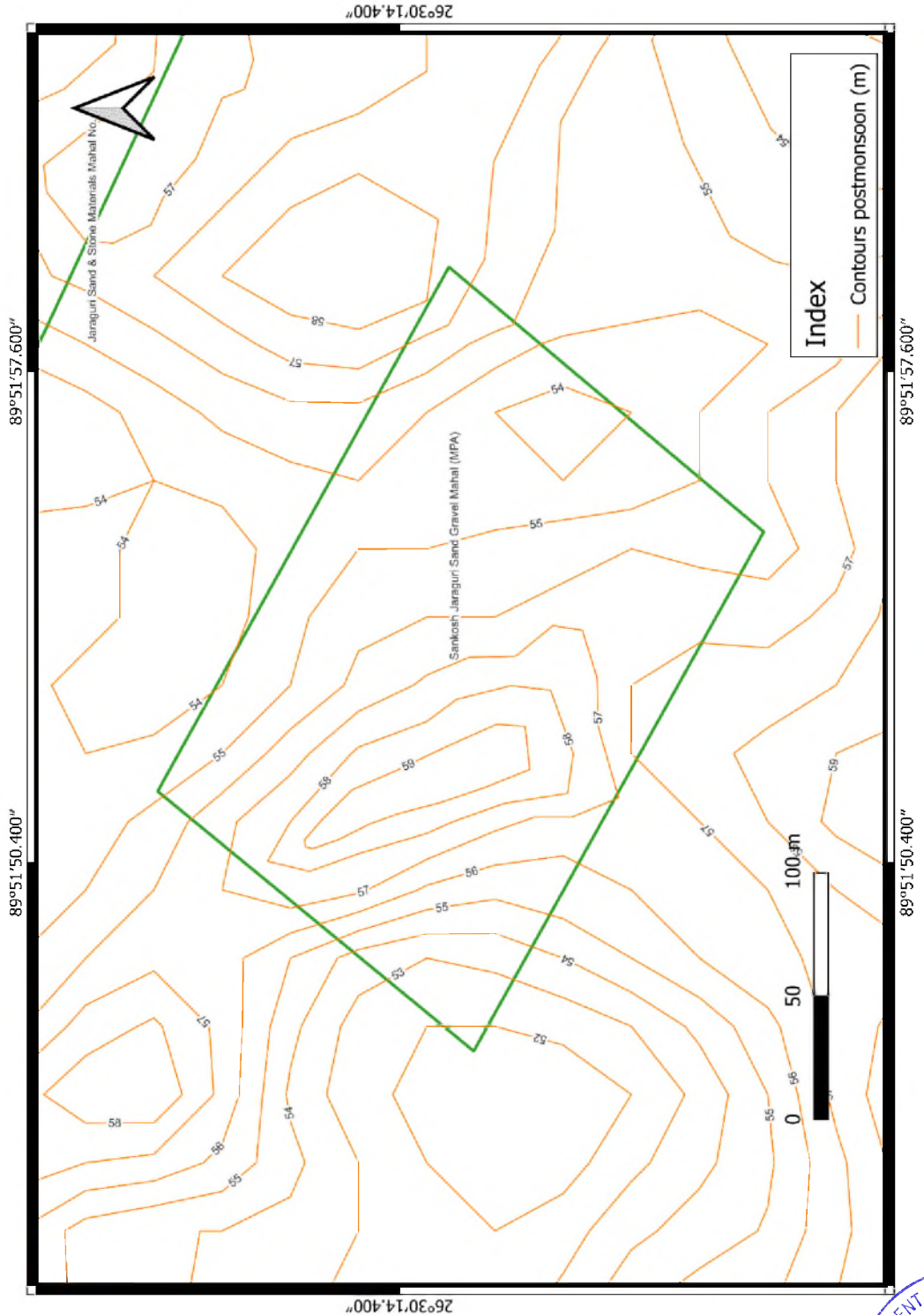

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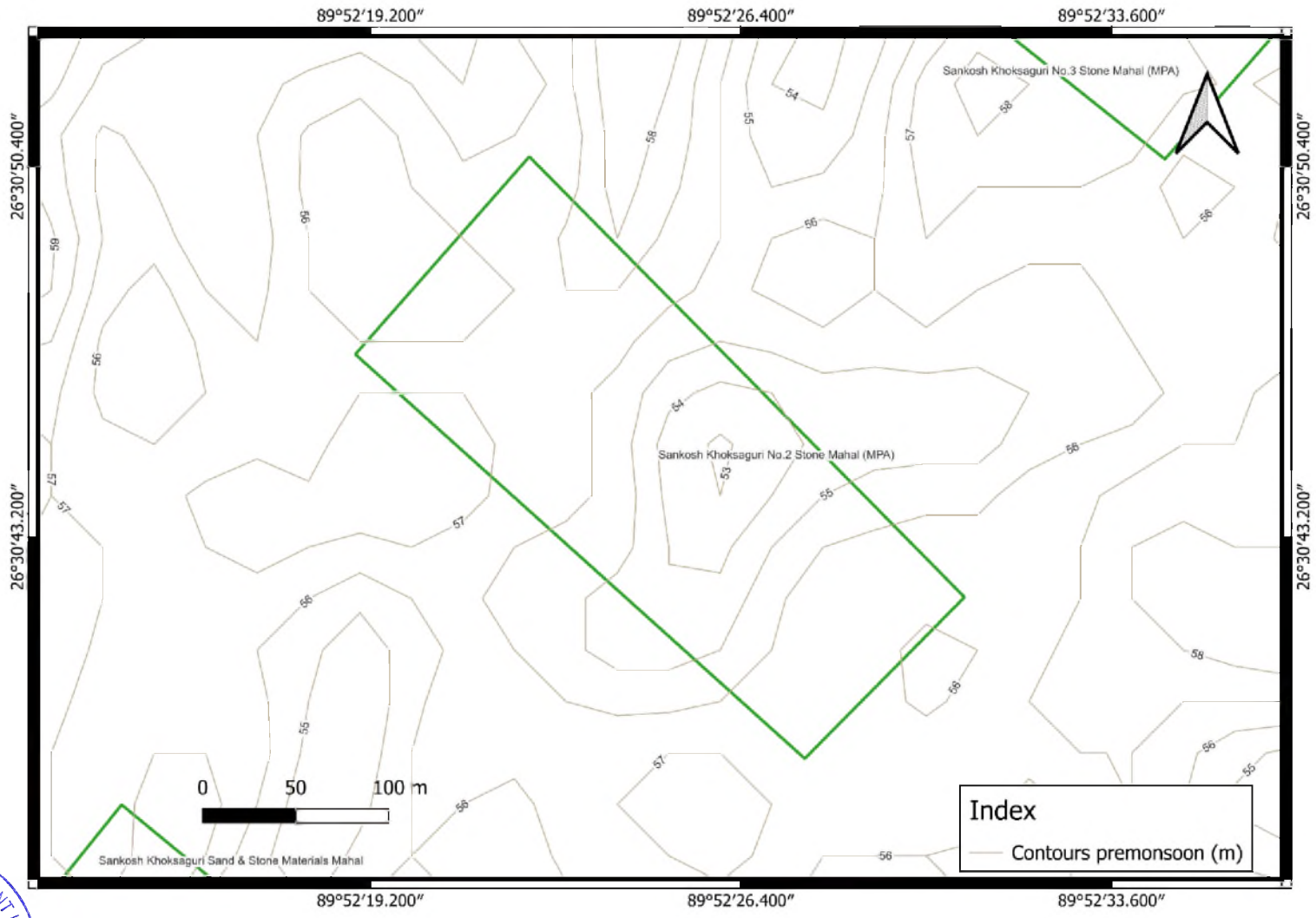

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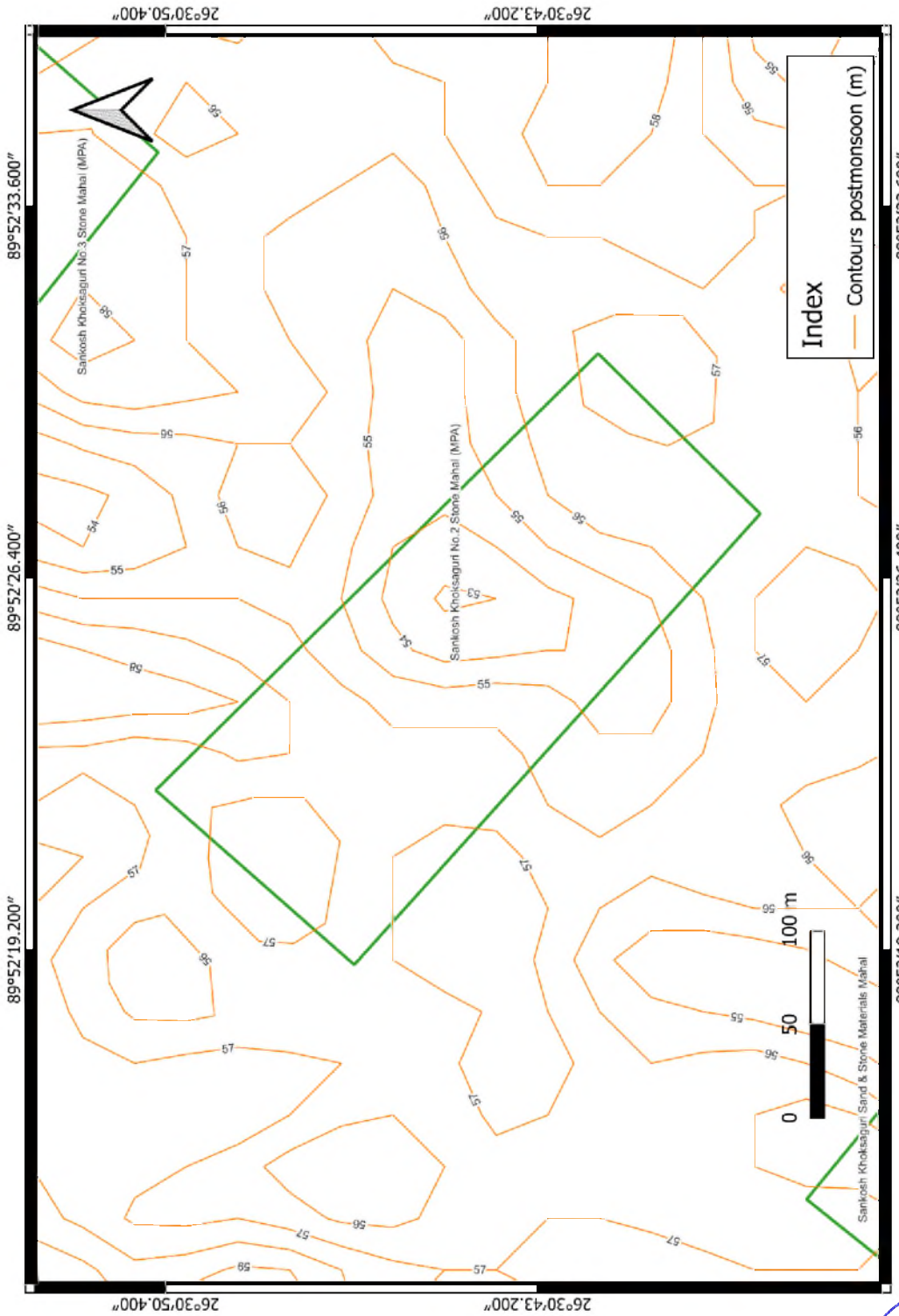

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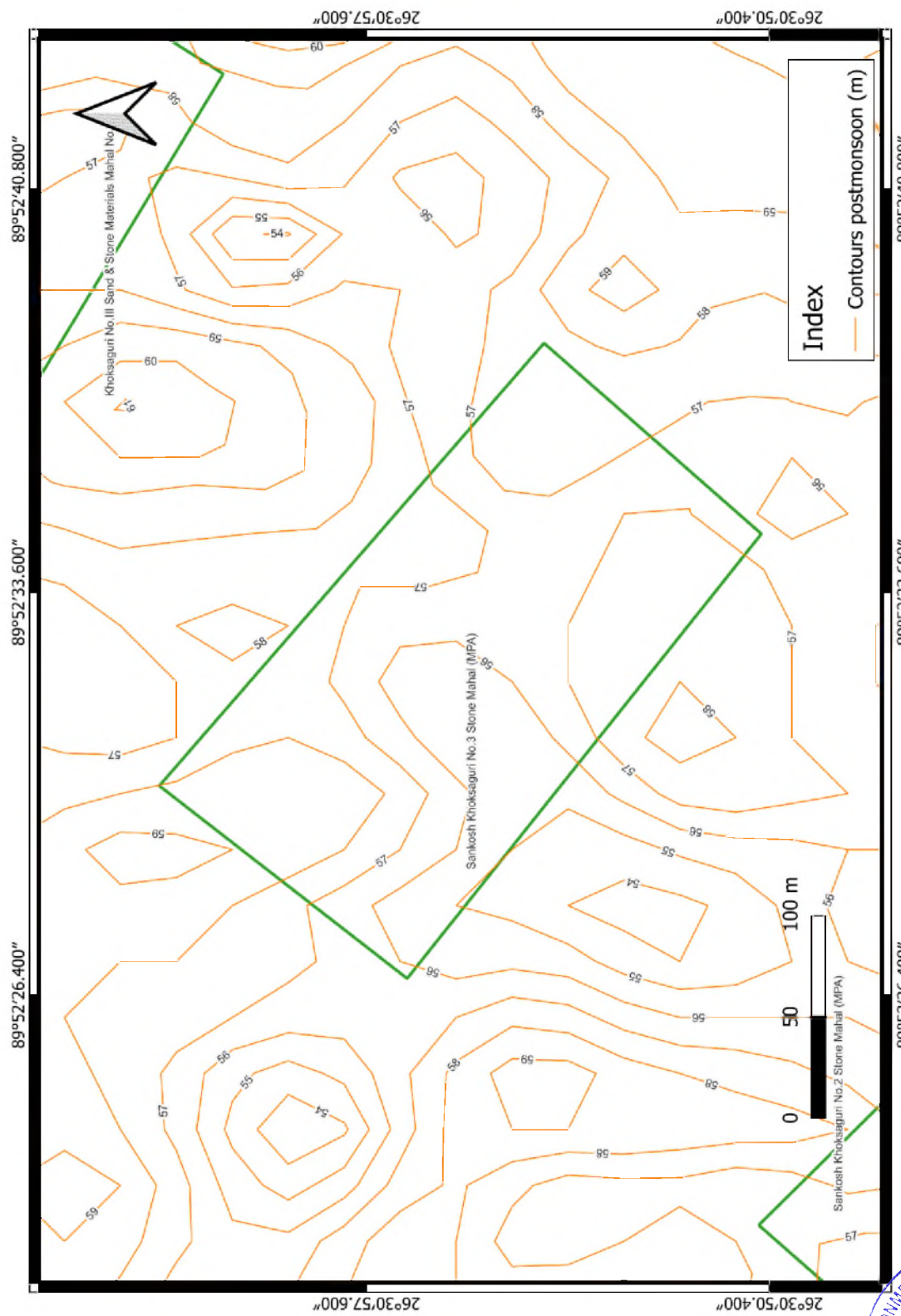

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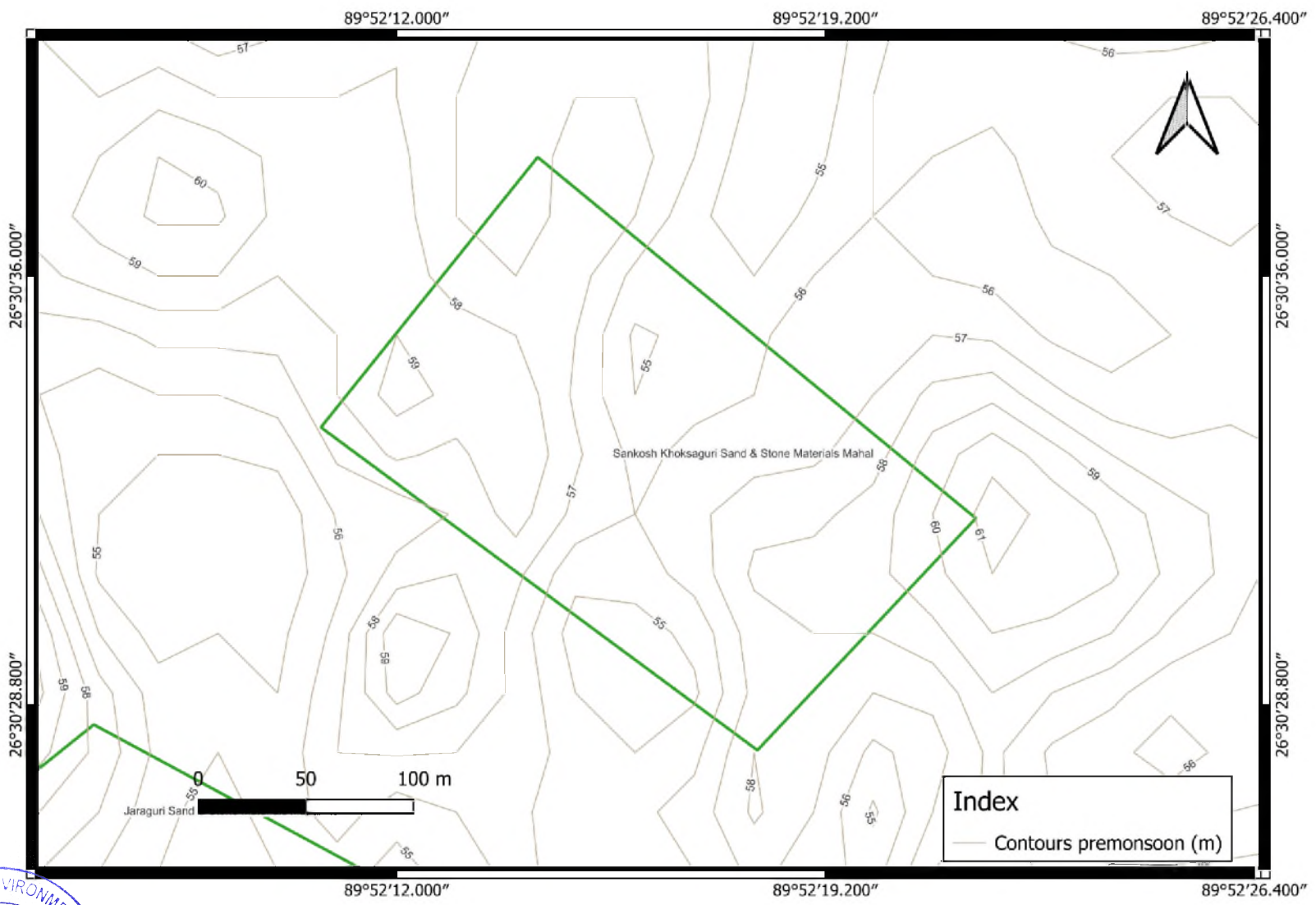

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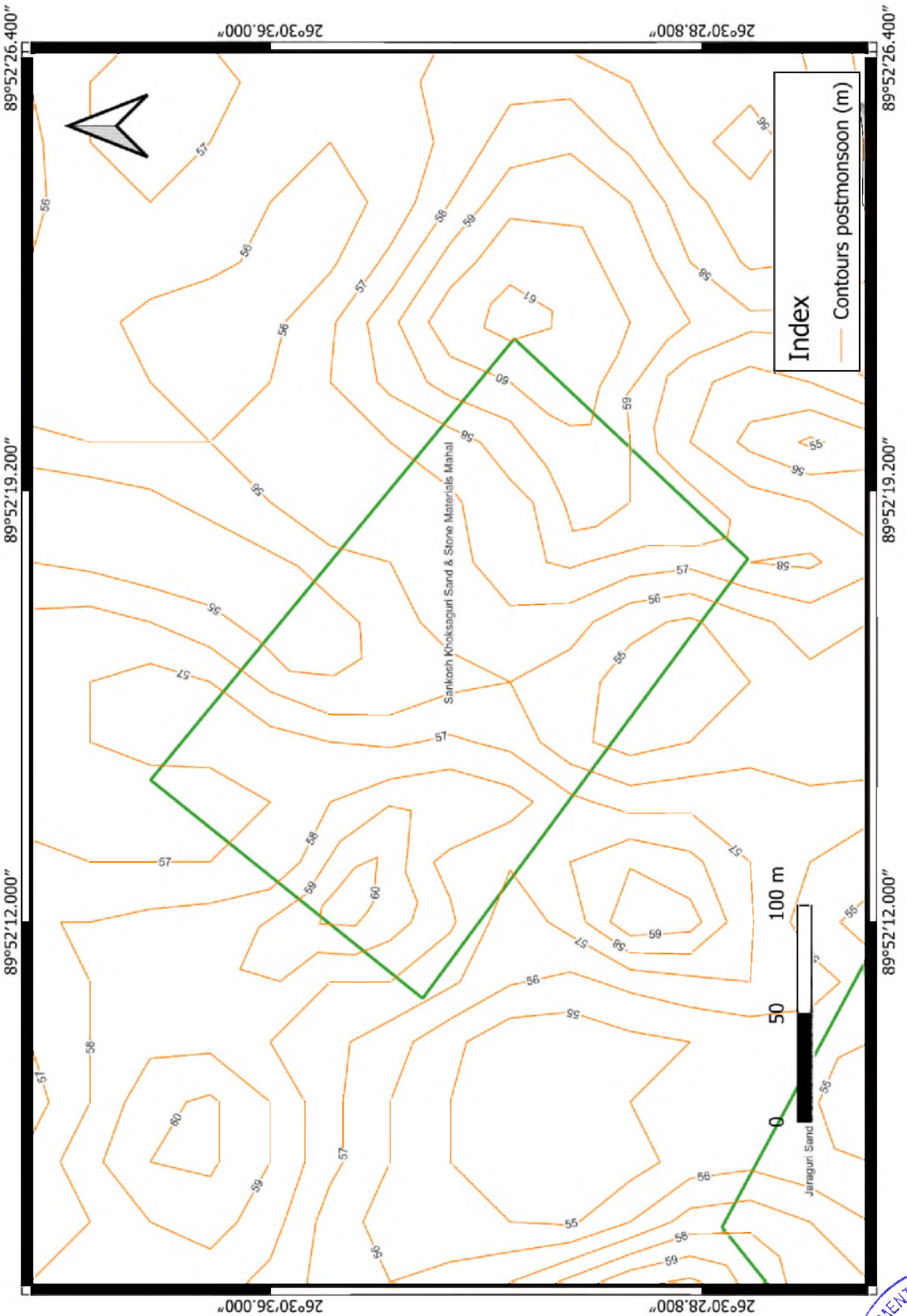

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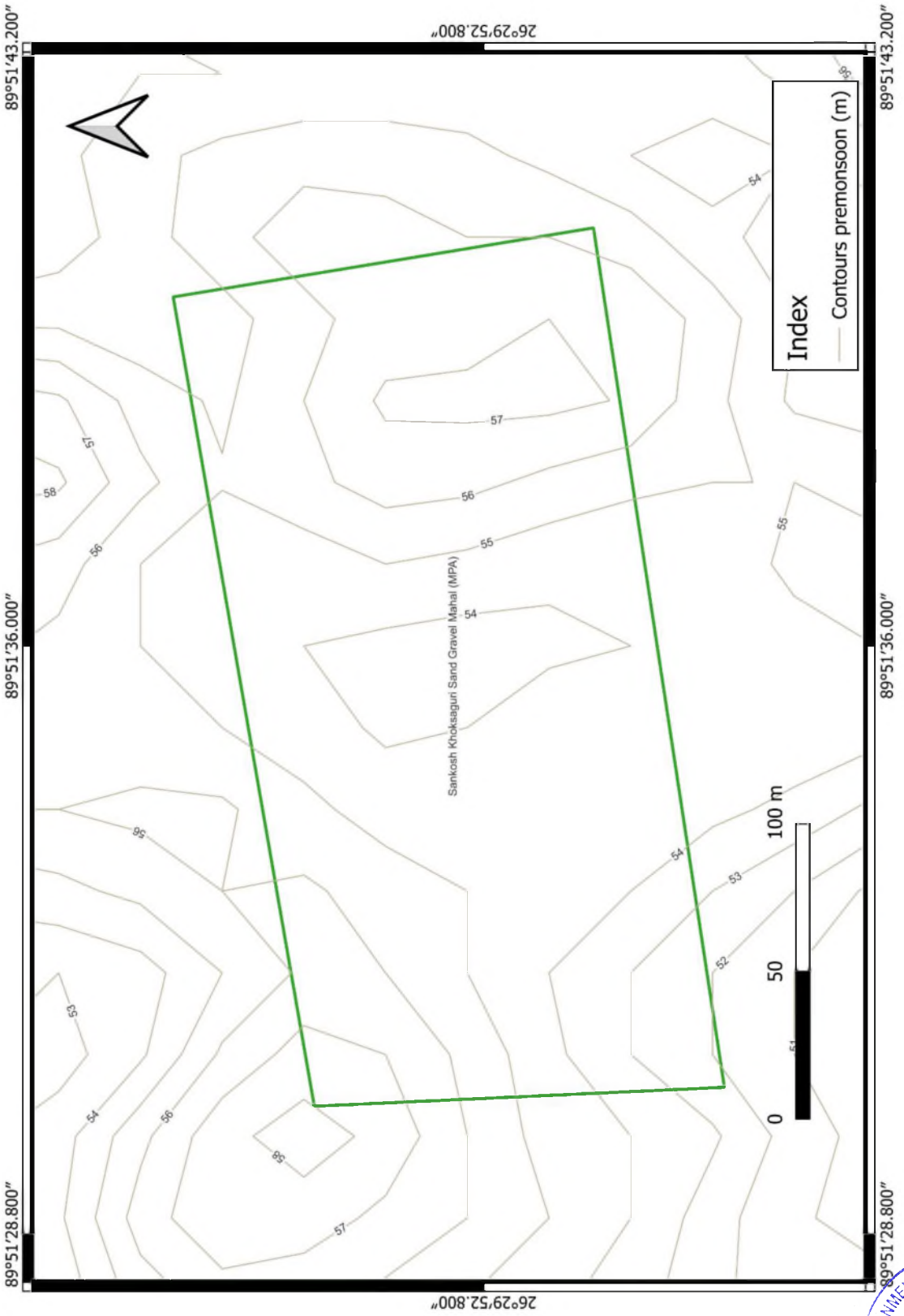

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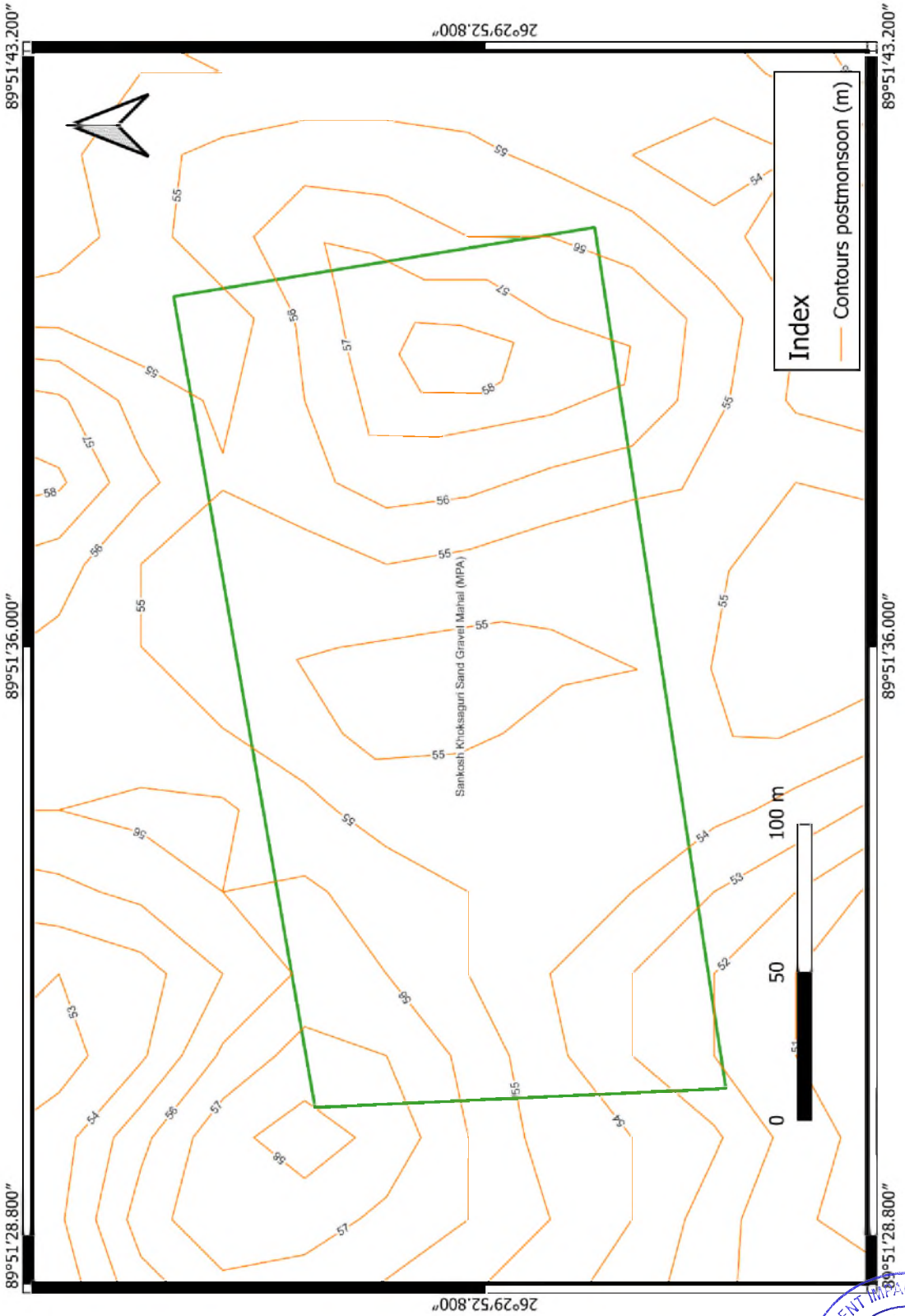

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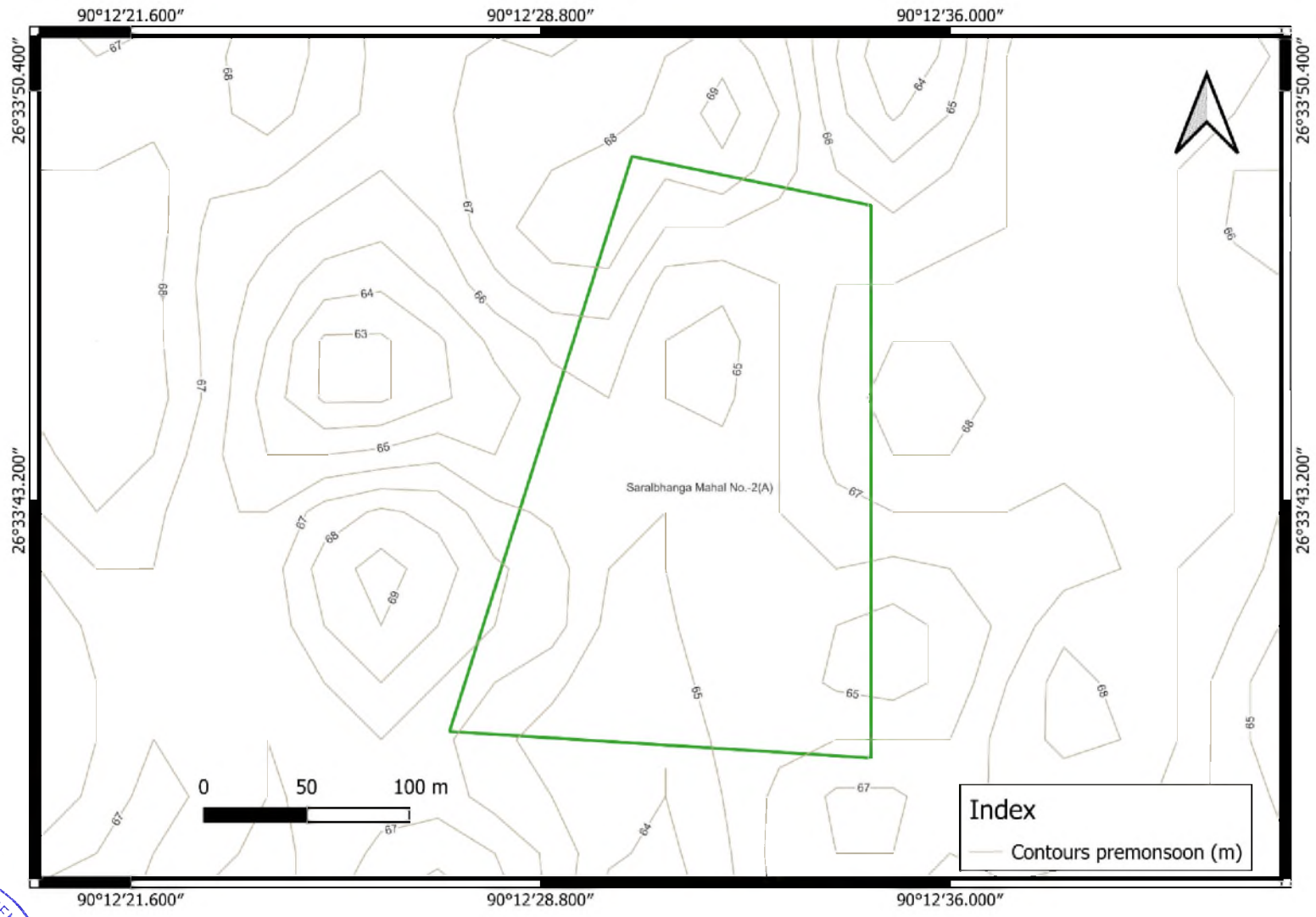

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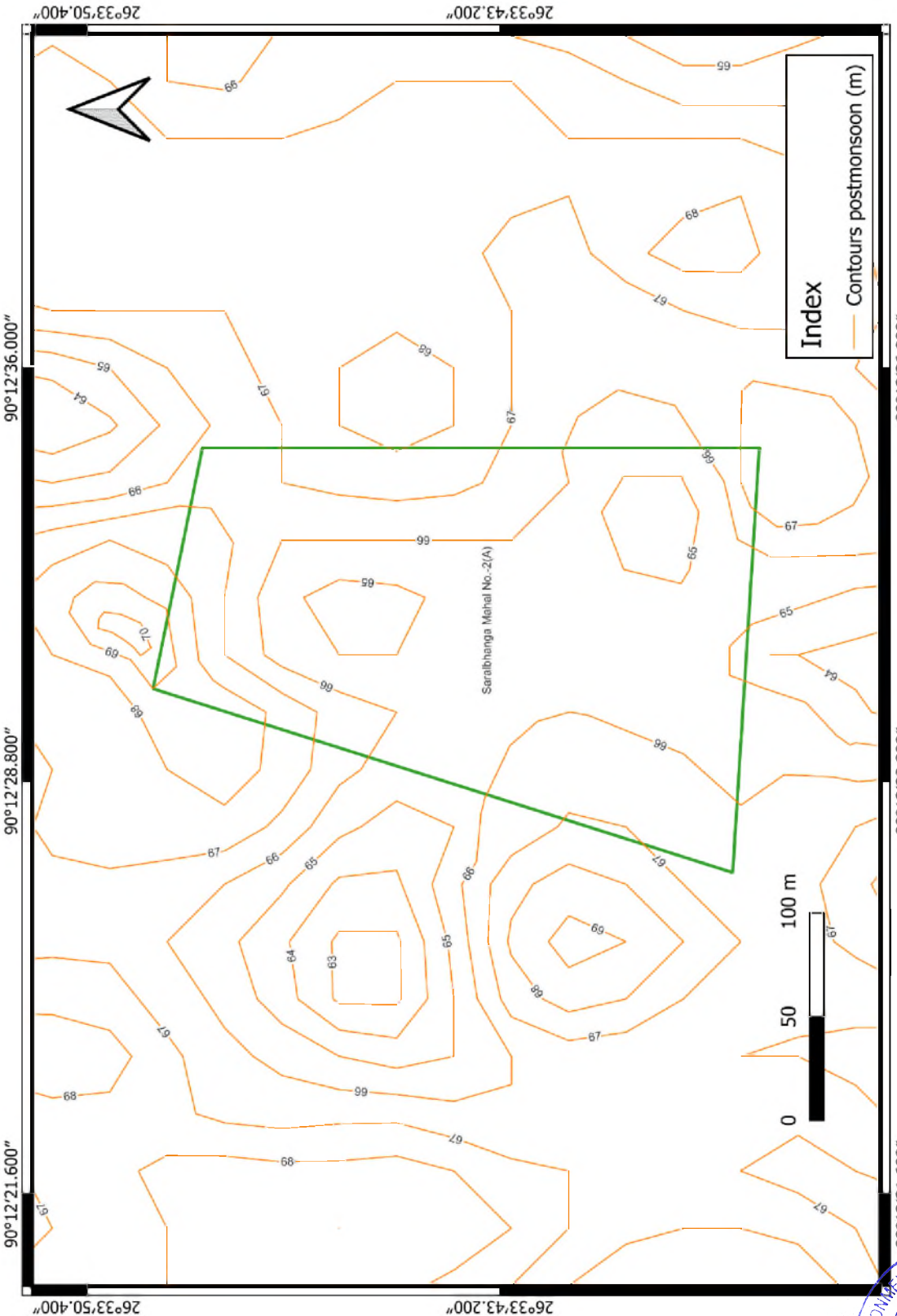

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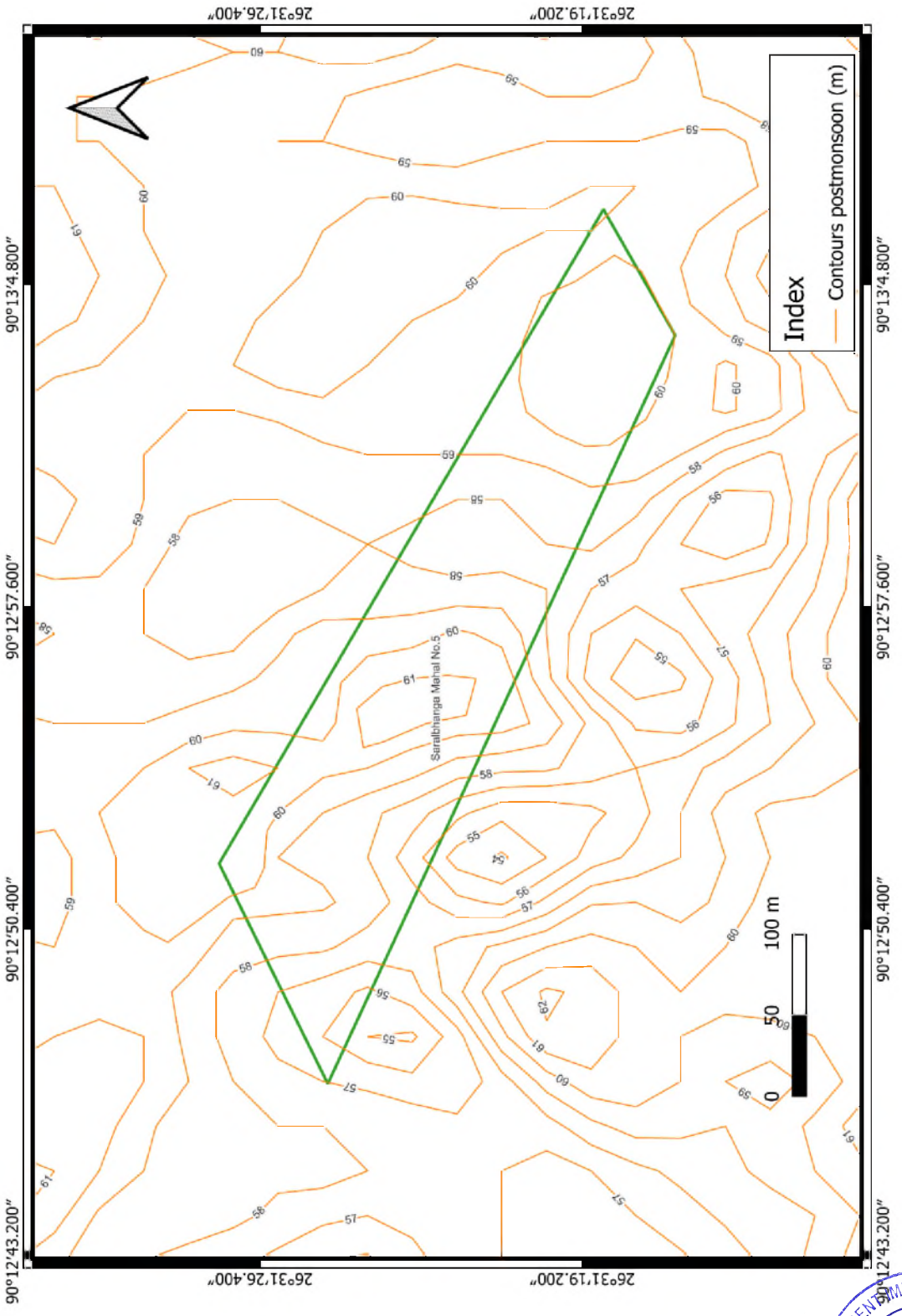

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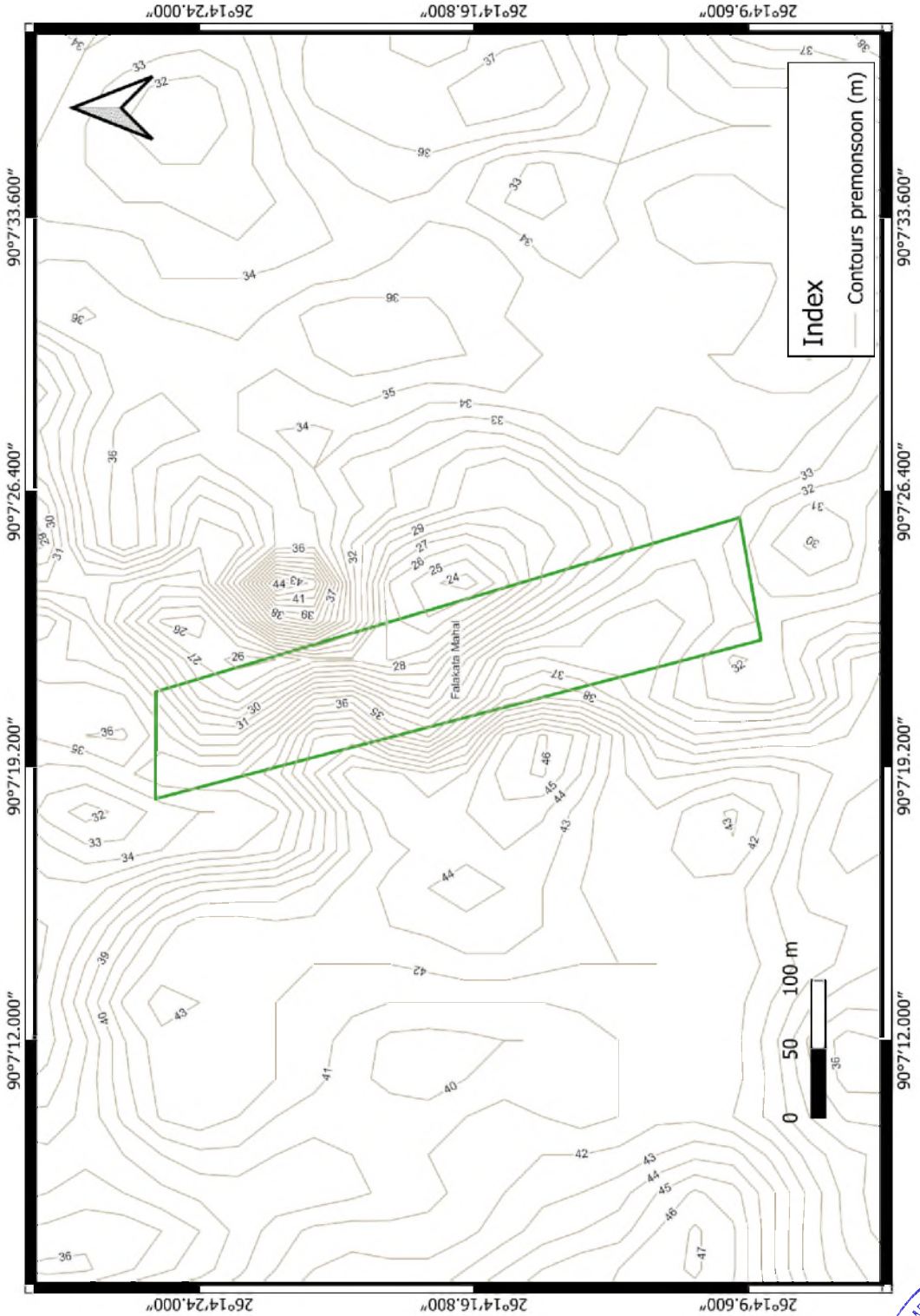

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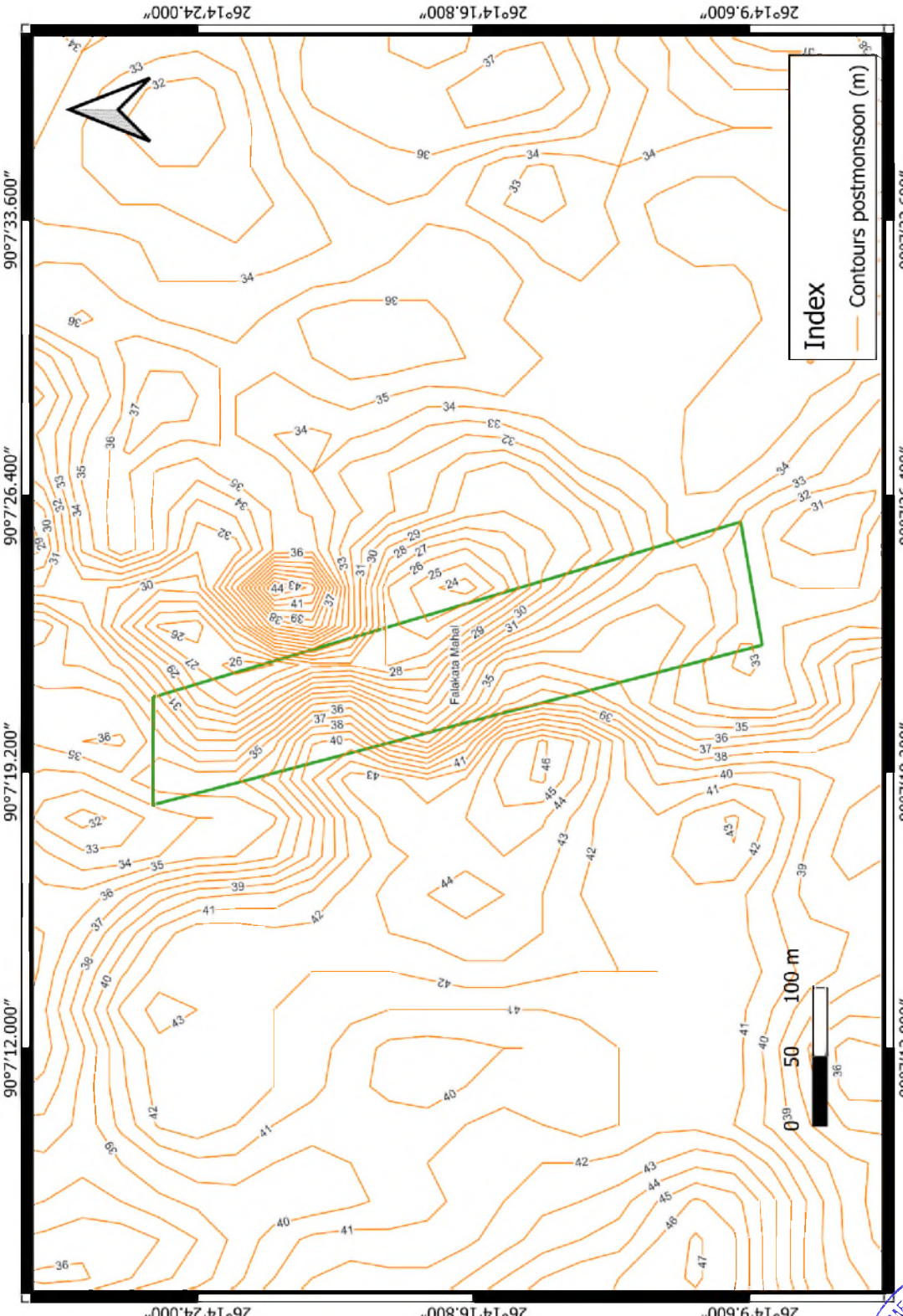

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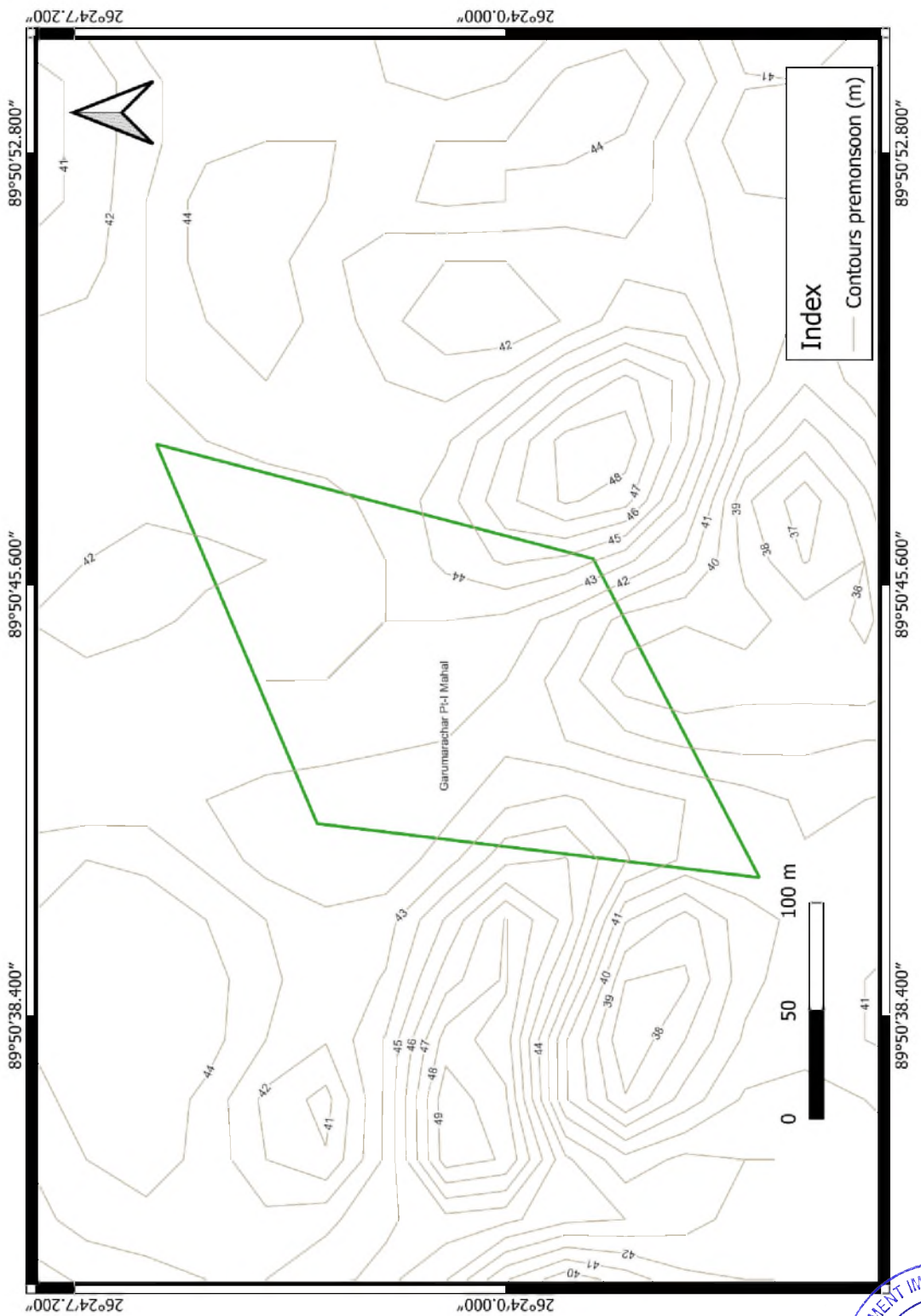

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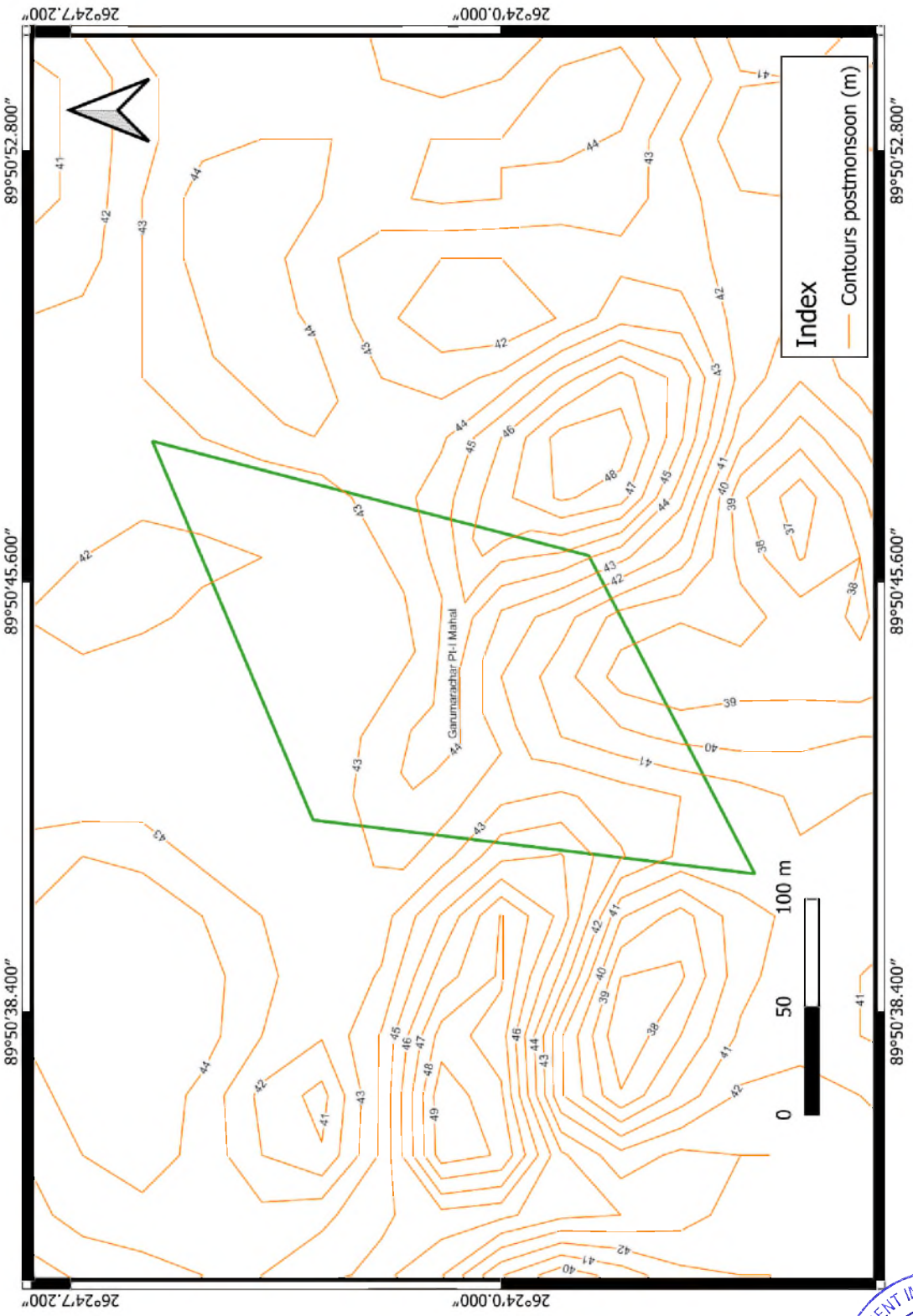

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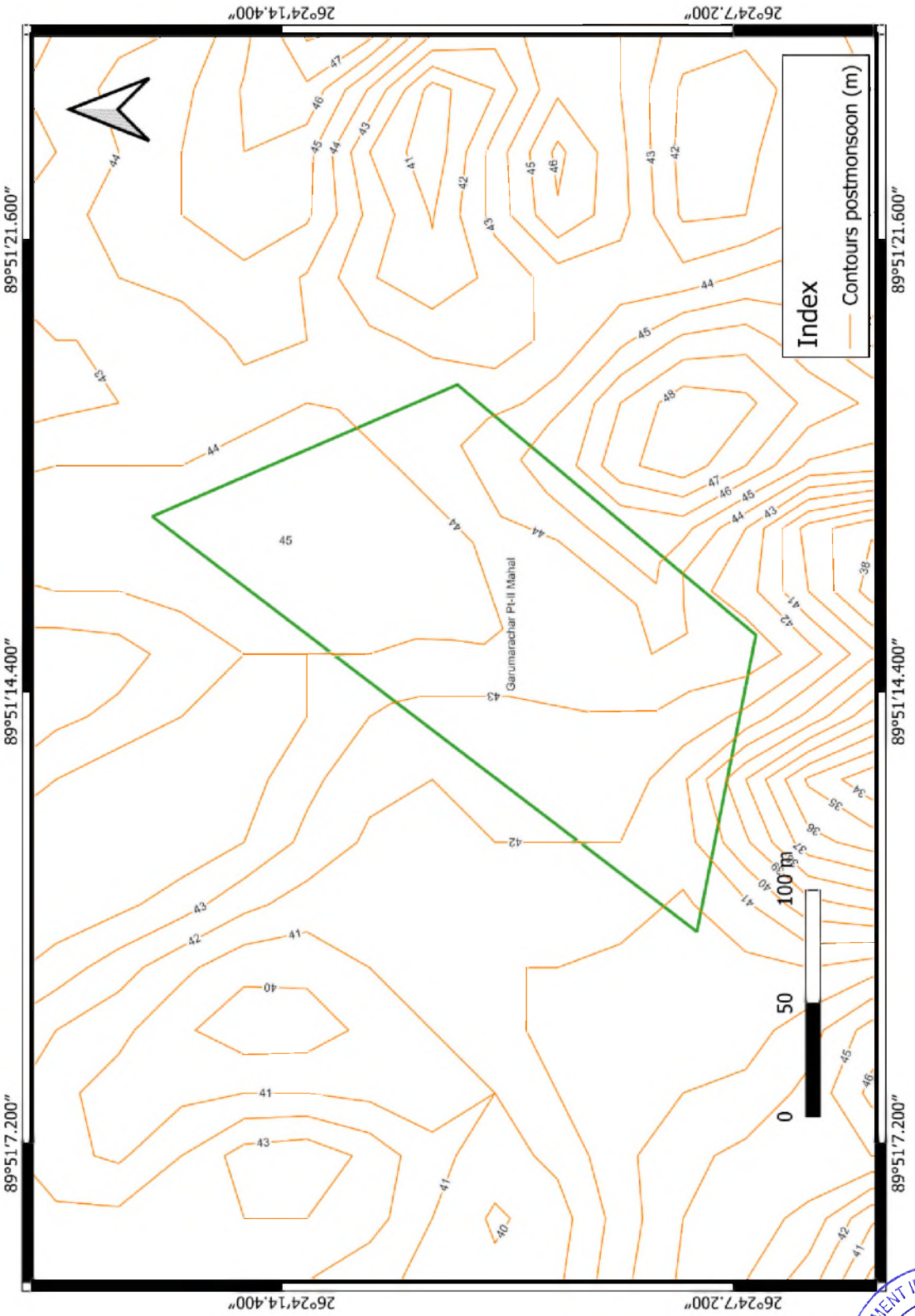

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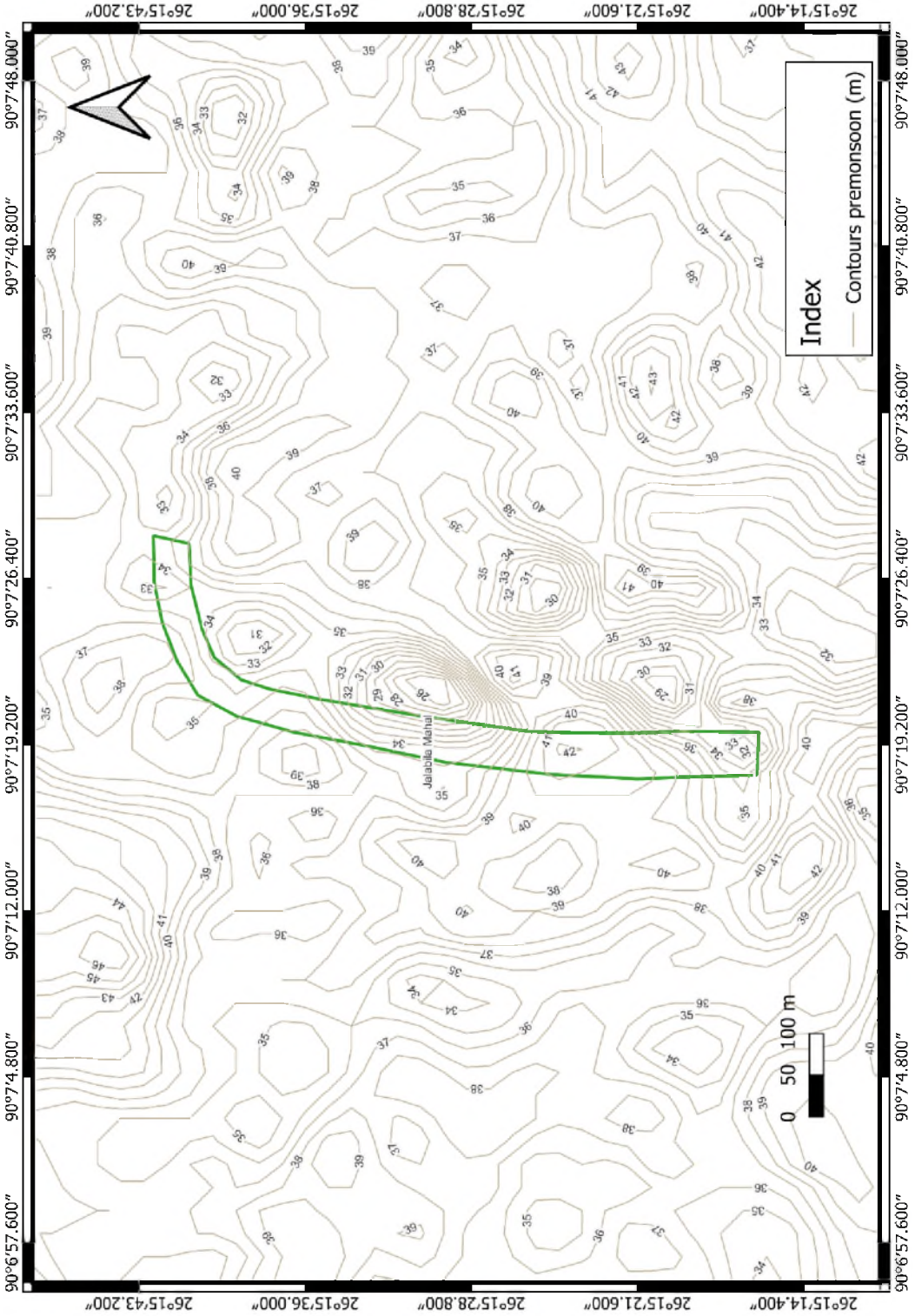

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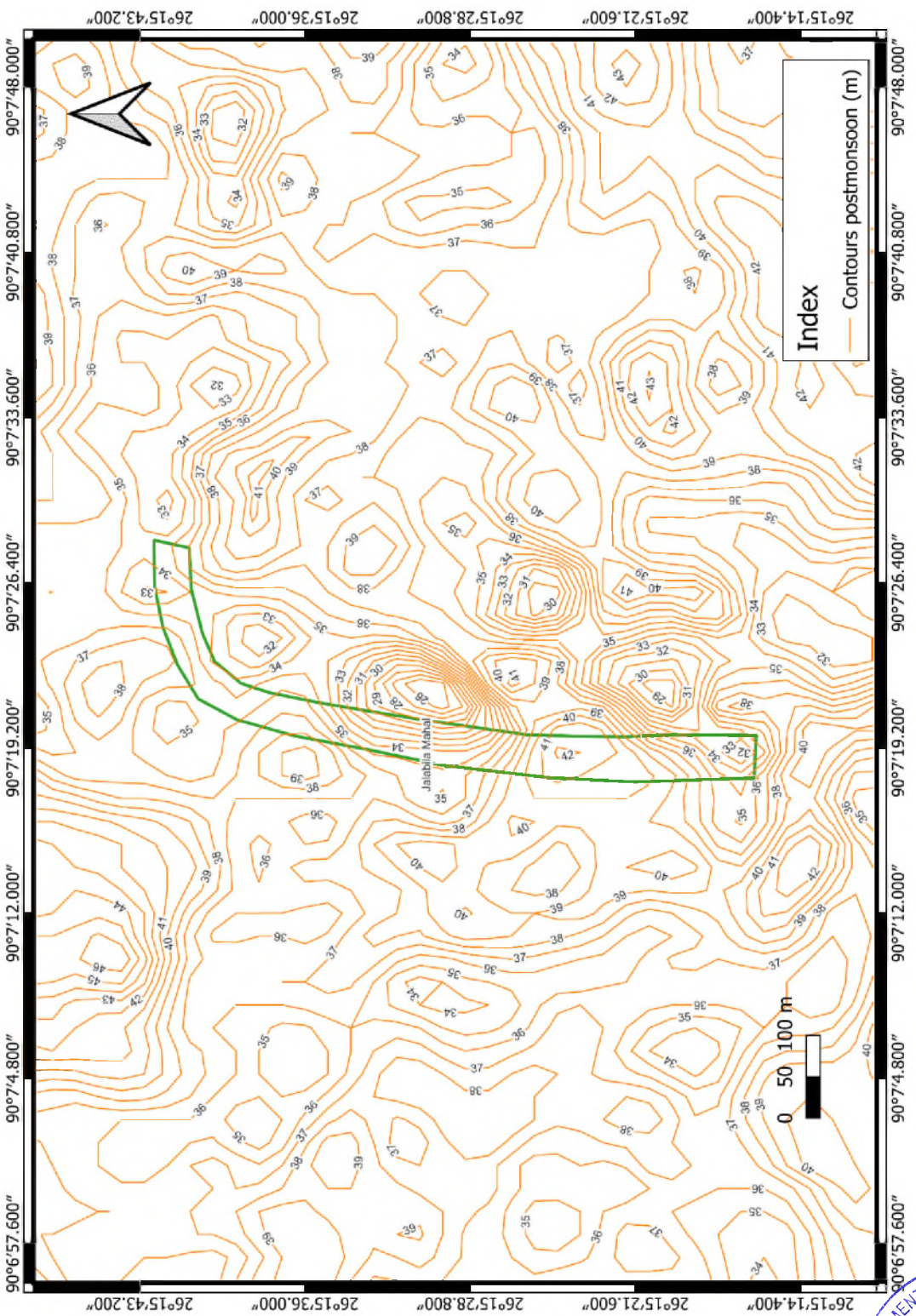

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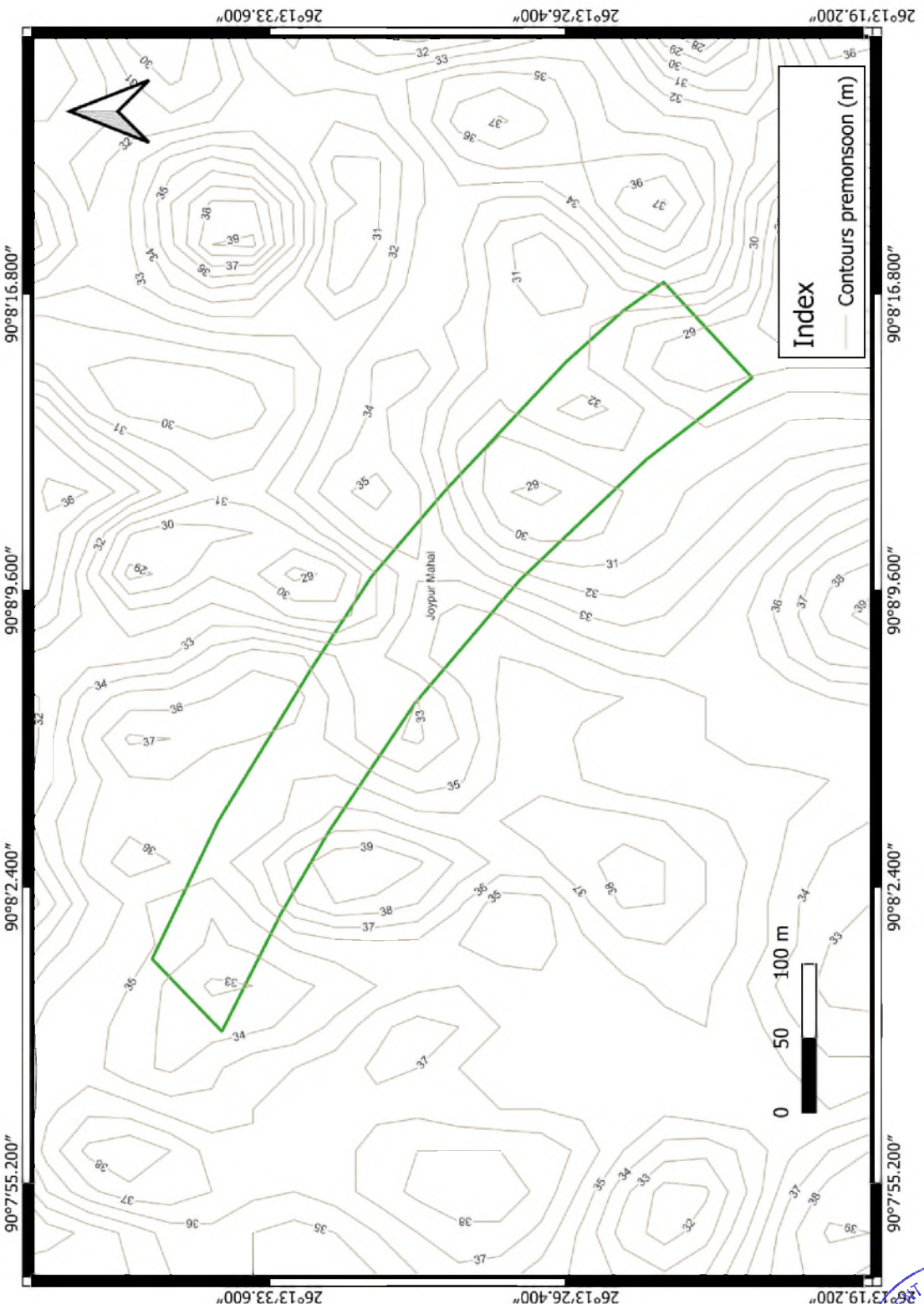

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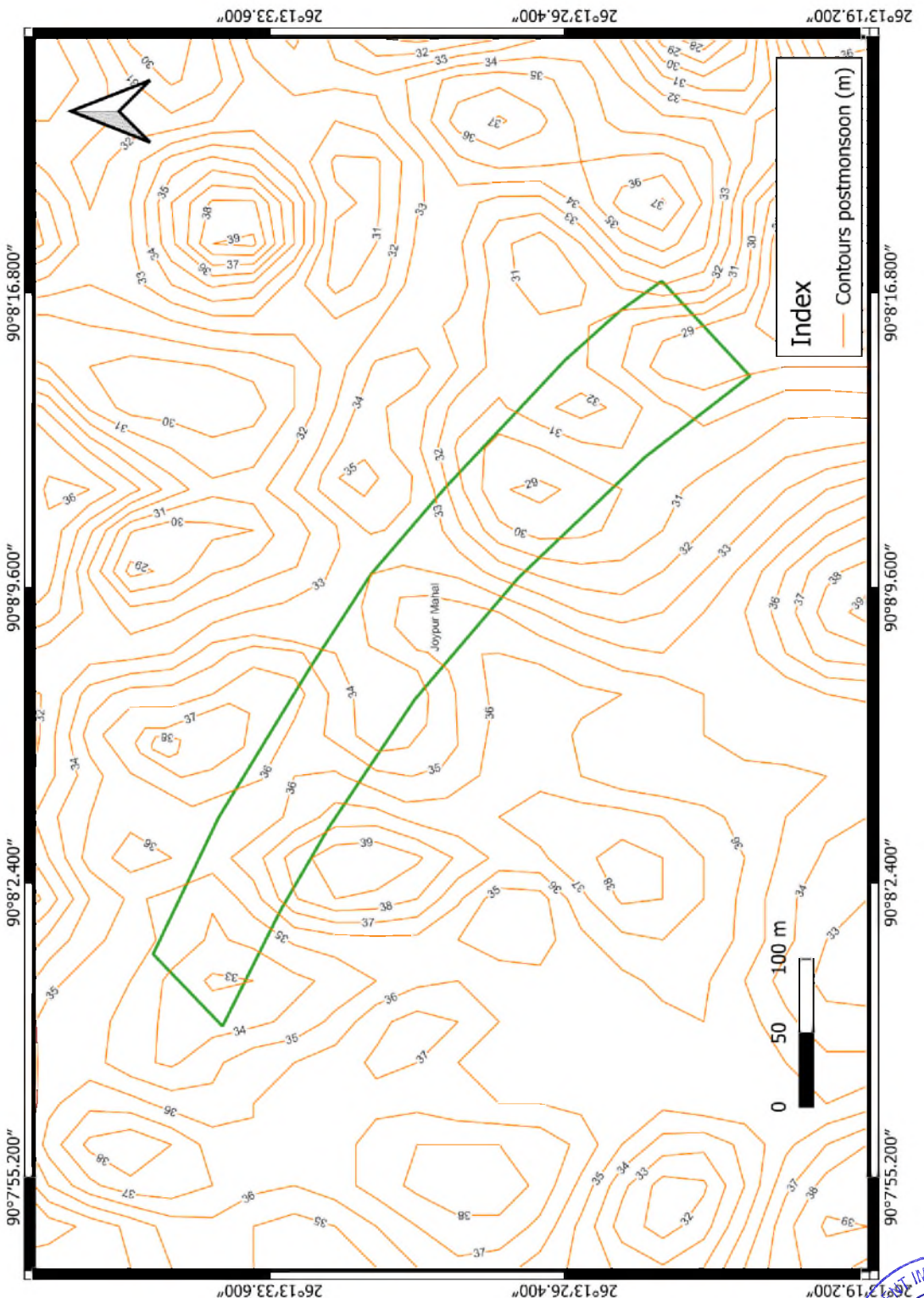

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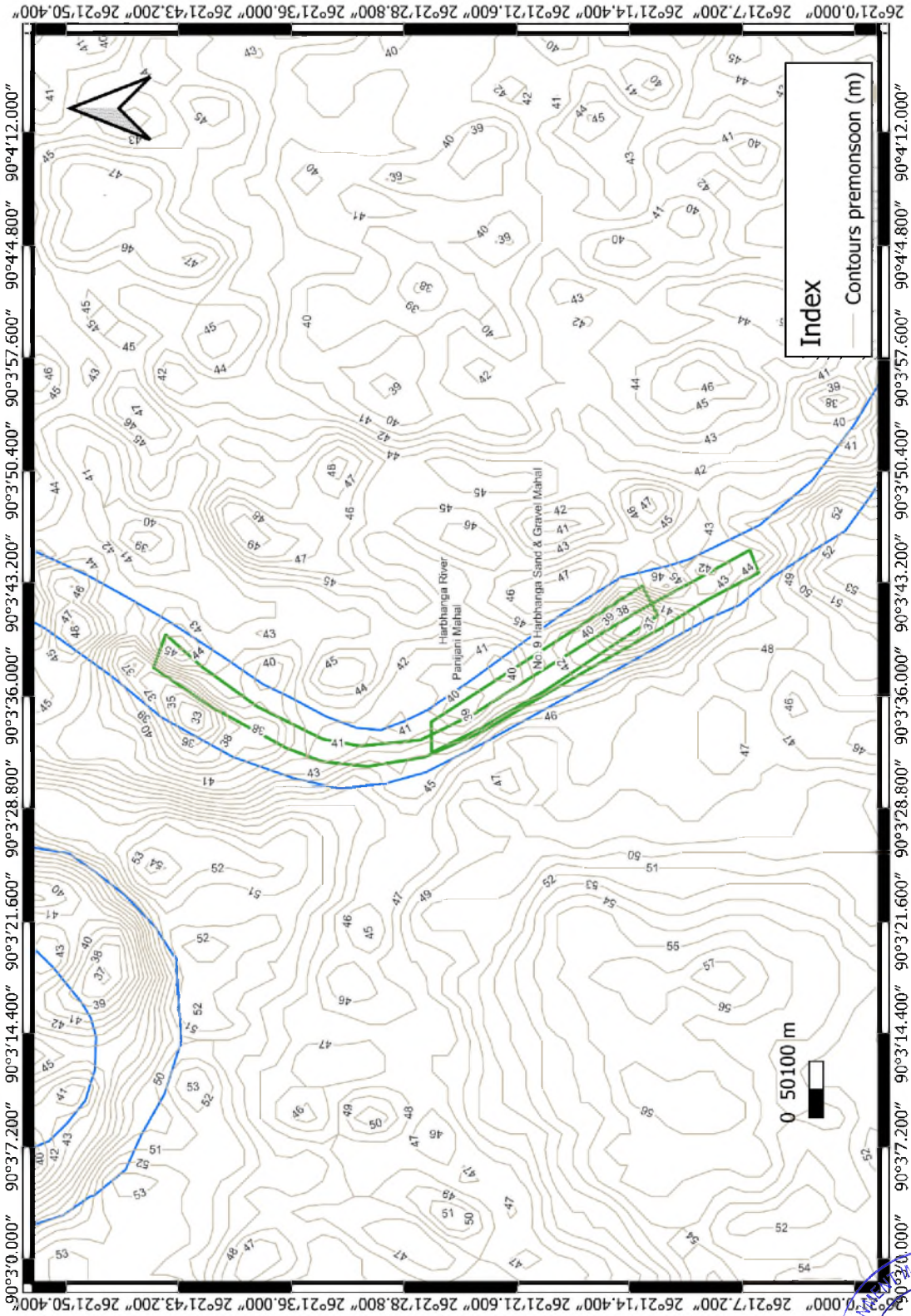

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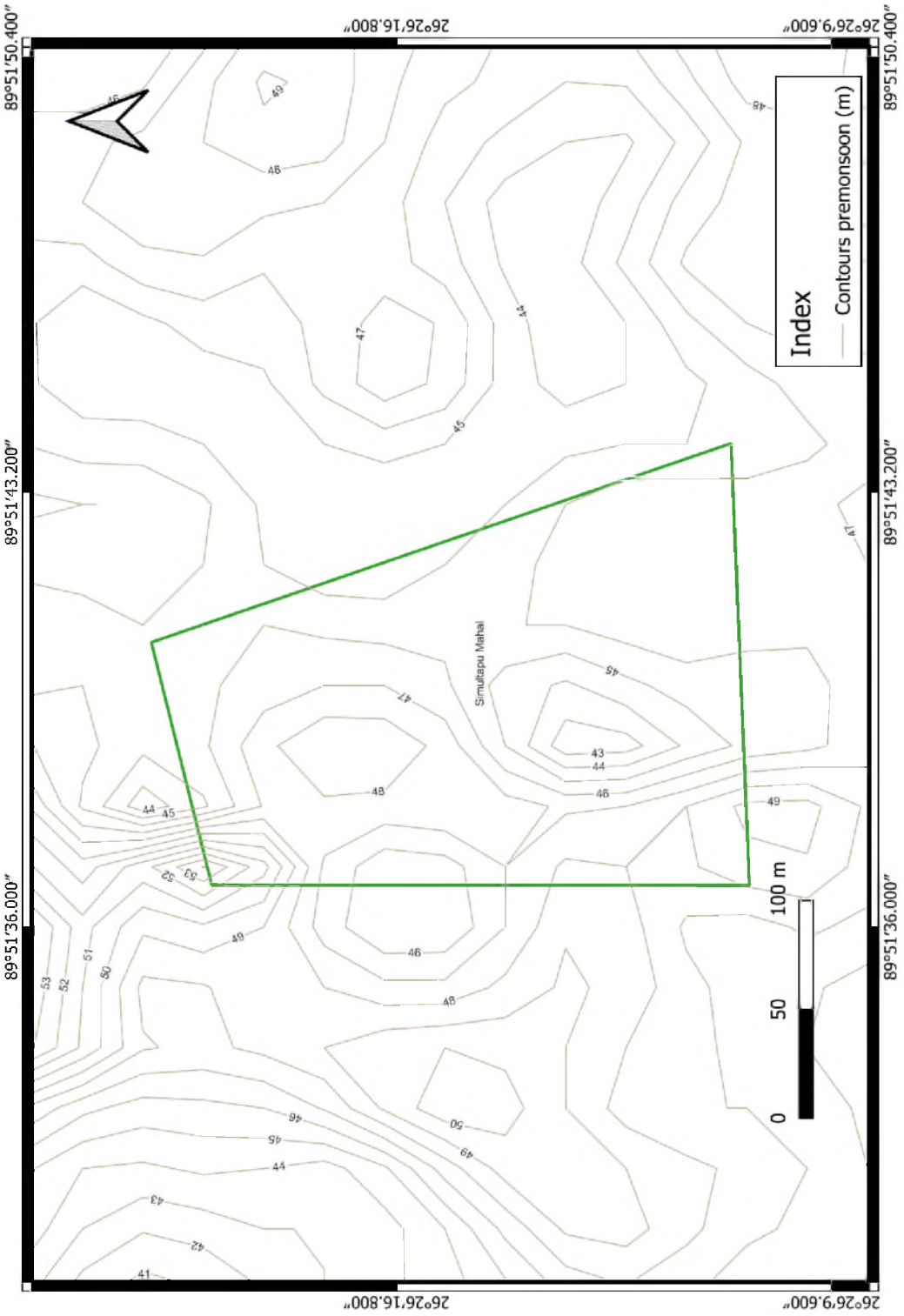

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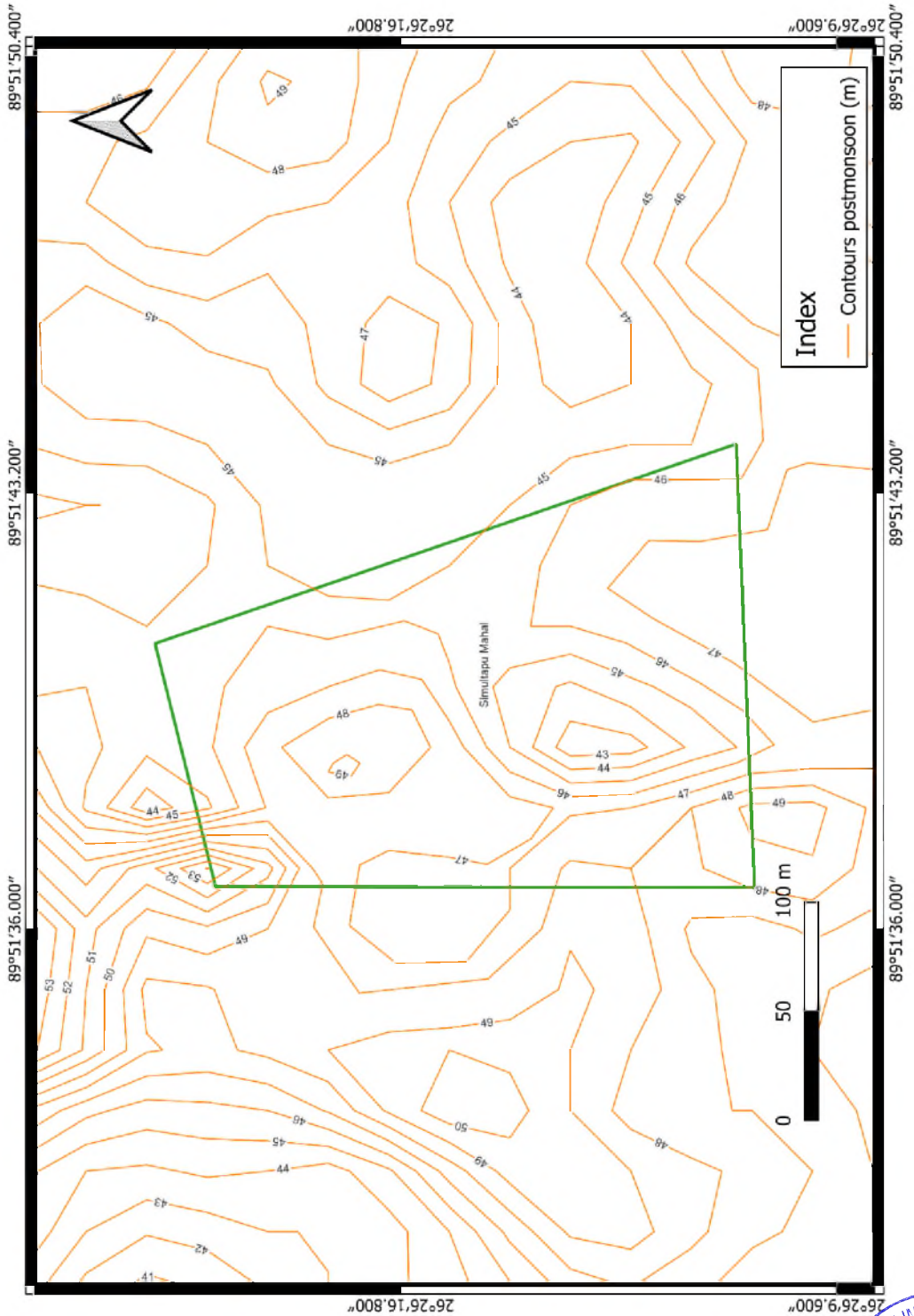

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KEY POINTS FOR SUSTAINABLE REPLENISHMENT IN THE DISTRICT

The Kokrajhar district has sizable Sand gravel & stone reserves in the rivers along with earth. Based on the field investigation and satellite images of landform migration, erosion and redistribution of sand deposits confirms the timely, annual replenishment of sand facilitated by geological setup, gradient of river bed, rainfall pattern and intensity. The average rate of replenishment is 1 m in various rivers of the District.

There is a need for careful monitoring and management of erosion to ensure sustainable sediment extraction. It is recommended that extraction activities focus on areas of significant deposition while implementing erosion control measures in vulnerable sections.

Disclaimer: This study is based on available satellite imagery, remote sensing data. A more comprehensive study of river dynamics is necessary to accurately assess the replenishment capacity of these rivers. These results do not reflect the economic viability of the lease or the proposed areas.

Replenishment Study Based on Surface Area Changes:

This study is based on the comparison of **surface area changes** between pre-monsoon and post-monsoon seasons. While surface area changes provide an initial assessment, the absence of depth data limits the ability to calculate the total volume of replenished sand. The primary objective of this baseline study is to assess the replenishment of sand in the selected mining plots by comparing surface area measurements before and after the monsoon season.

A pre-monsoon and post monsoon study of Google Earth satellite imagery was done to map the surface area covered by sand in the selected mining plots. The survey focused on delineating the boundaries of the sand-covered areas and calculating their surface areas using polygon tools available in Google Earth Pro.

This change in surface area serves as an indicator of whether replenishment (deposition) or erosion has occurred.

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Table showing Sand Surface Area change between Pre-monsoon and Post-Monsoon of selected mahals

Name of the Mahal	Pre monsoon Sand Area	Post Monsoon sand Area	% surface Area Replenished
Champa Mahal No.2			100%
	44140 m²	44140 m²	
Saralbhanga Mahal No.-2(A)			100%
	49974 m²	49974 m²	
Saralbhanga Mahal No.5			100%
	53995 m²	53995 m²	

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Saralbhanga River Mahal No.6			100%
	49478 m²	49478 m²	
Saralbhanga Mahal No- 4 (A)			100%
	49303 m²	49303 m²	
Saralbhanga Mahal No.- 4(D)			100%
	44193 m²	44193 m²	

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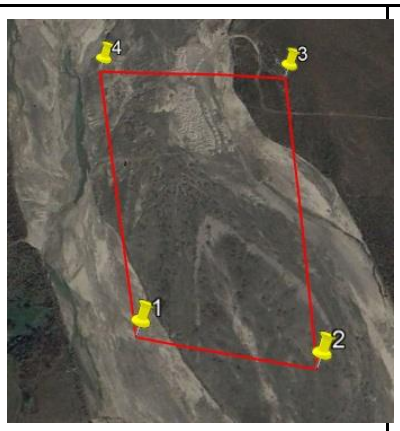
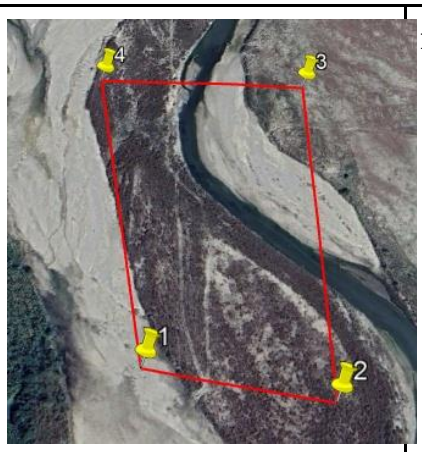
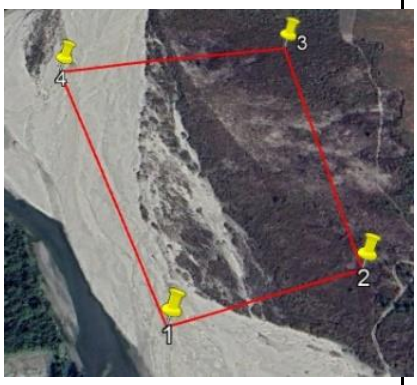
Saralbhanga Mahal No.-4 (B)			100%
	46509 m²	46509 m²	
Saralbhanga Mahal No.-4(C)			100%
	46620 m²	46620 m²	
Saralbhanga Mahal No.7			100%
	45983 m²	45983 m²	

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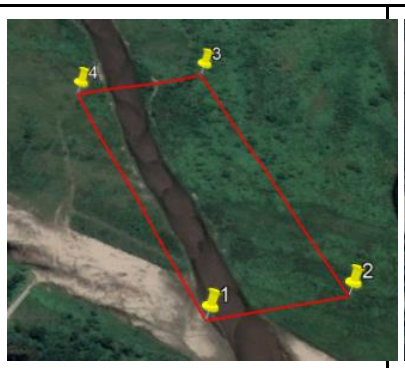
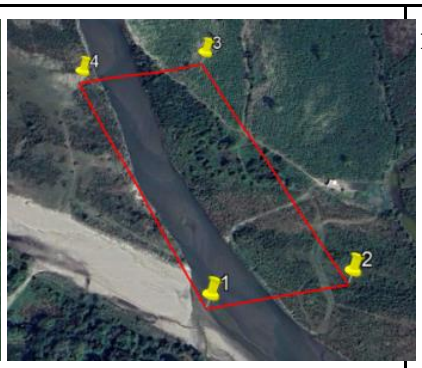
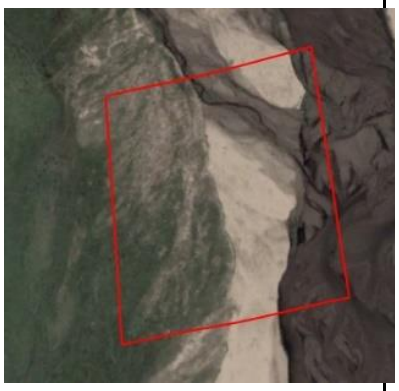
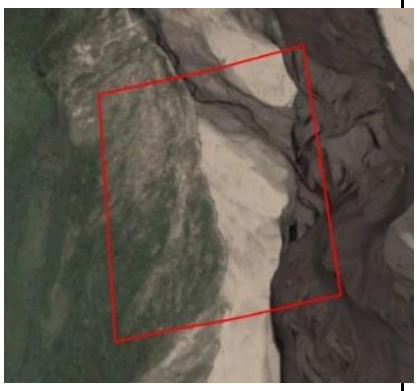
Saralbhanga Mahal No.8			100%
	47586 m²	47586 m²	
Saralbhanga Mahal No.9			100%
	49324 m²	49324 m²	
Saralbhanga Mahal No-2 (B)			100%
	48491 m²	48491 m²	
Balanga Sand & Stone Material Mahal			100%

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	31103 m²	31103 m²	
Chitila 2 Sand & Stone Materials Mahal			100%
	43389 m²	43389 m²	
Gurufela 2 Sand & Stone Materials Mahal			100%
	19977 m²	19977 m²	
No.4 Hel Sand Gravel & Stone Mahal			100%
	30082 m²	30082 m²	

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Sankosh Jaraguri No.2 Stone Mahal (MPA)			100%
	46487 m²	46487 m²	
Sankosh Jaraguri Sand Gravel Mahal (MPA)			100%
	44192 m²	44192 m²	
Sankosh Khoksaguri No.3 Stone Mahal (MPA)			100%
	47439 m²	47439 m²	
Jaraguri PGR-II Sand & Stone Materials Mahal No.2			100%

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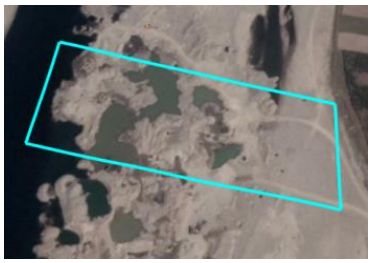
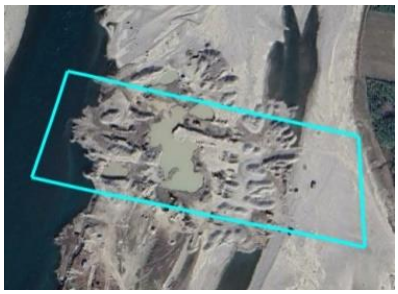
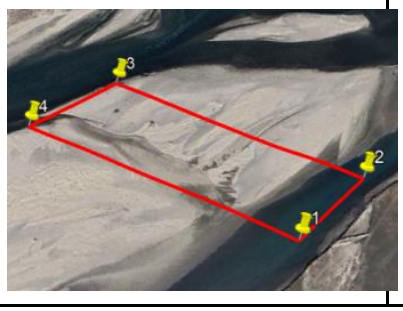
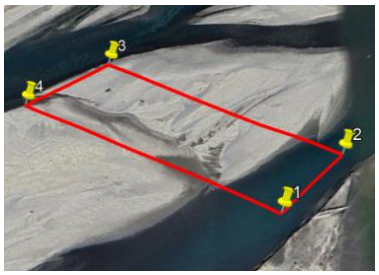
	57424 m²	57424 m²	
Jaraguri PGR-II Sand & Stone Materials Mahal No.3			100%
	30008 m²	30008 m²	
Jaraguri PGR-II Stone Materials Mahal			100%
	30486 m²	30486 m²	
Jaraguri PGR-II Stone Materials Mahal-1			100%
	43626 m²	43626 m²	
Jaraguri Sand & Stone Materials Mahal No. 2			100%

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	28993 m²	28993 m²	
Khoksaguri No. 3 River Stone Materials Mahal			100%
	5363 m²	5363 m²	
Khoksaguri No.III Sand & Stone Materials Mahal No.3			100%
	28453 m²	28453 m²	
No. 9 Harbhanga Sand & Gravel Mahal			100%
	30035 m²	30035 m²	

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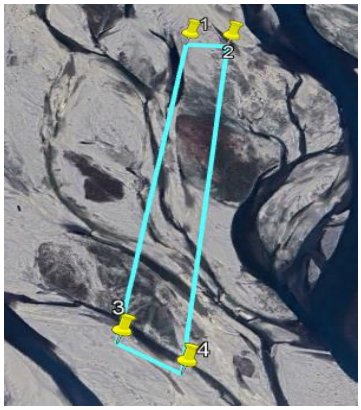
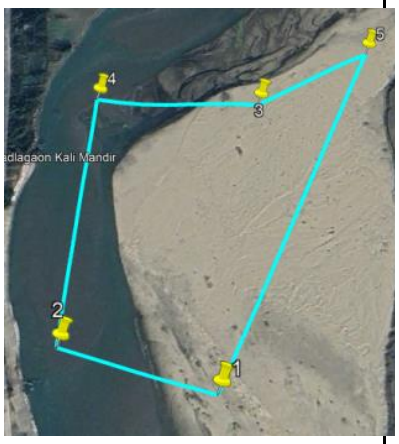
Haldhibari Sand, Gravel & Stone Mahal			100%
	45159 m²	45159 m²	
Jogdwi Sand & Gravel Mahal			100%
	47626 m²	47626 m²	
Adelghutu (Haraputa River)			100%
	40359 m²	40359 m²	

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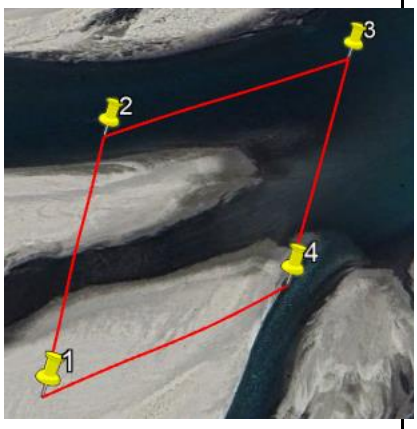
Falakata Mahal			100%
	41273 m²	41273 m²	
Garumarachar Pt-I Mahal			100%
	33286 m²	33286 m²	
Garumarachar Pt-II Mahal			100%
	32784 m²	32784 m²	

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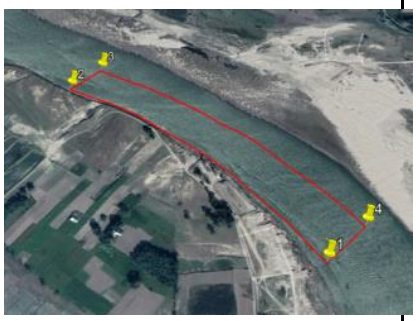
Jalabila Mahal			100%
	45298 m²	45298 m²	
Joypur Mahal			100%
	48051 m²	48051 m²	
Majerdabri (Haraputa River)			100%
	19999 m²	19999 m²	

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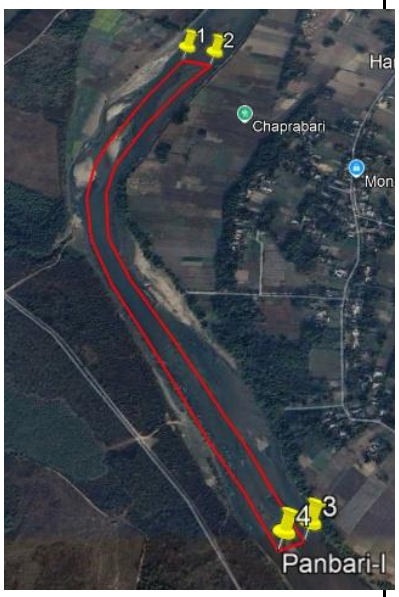
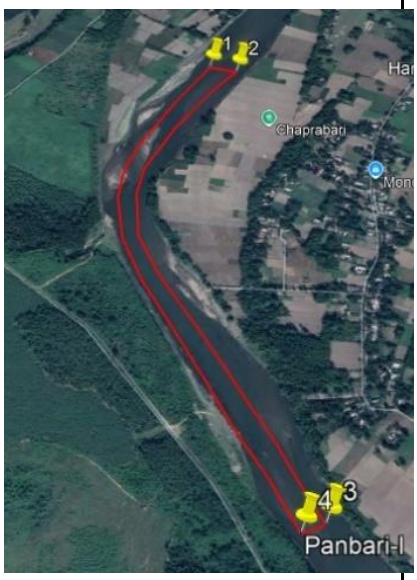
Majerdabri (Sankosh River)			100%
	25045 m²	25045 m²	
Panijani Mahal			100%
	54363 m²	54363 m²	
Simultapu Mahal			100%
	45710 m²	45710 m²	

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Disclaimer: This study is based on available satellite imagery, remote sensing data, and both past and present field investigations. A more comprehensive study of river dynamics is necessary to accurately assess the replenishment capacity of these rivers. These results do not reflect the economic viability of the lease or the proposed areas.

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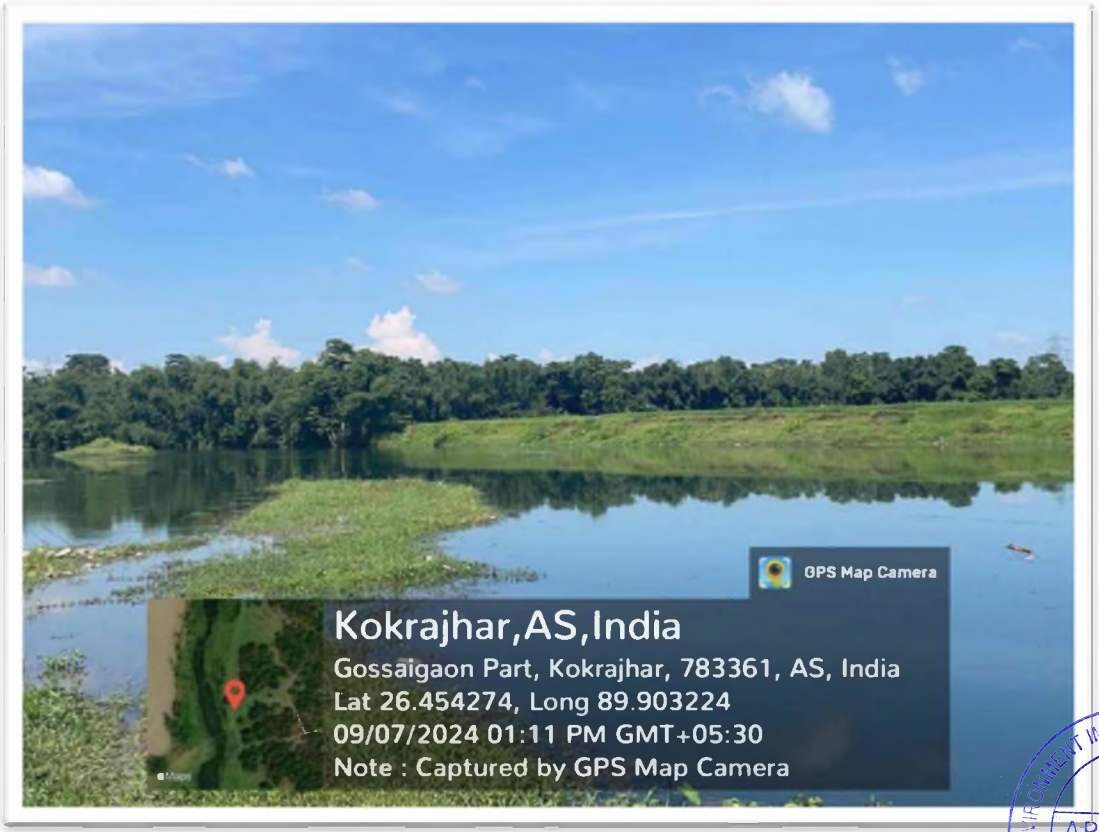

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13. Surface and Groundwater scenario of Kokrajhar district

The area forms a part of the Brahmaputra Basin and falls in Manas Sub- basin. It is drained by River Saralbhanga, Champamati, Sankosh, Gongia, Gaurang, Tarang, Longa rivers etc. These rivers are perennial and flow in north- south direction and almost all emerge from the Himalayan foothills of Bhutan in the north. These rivers meander and give rise to oxbow lakes along their courses. The drainage density is very high and the pattern is more or less parallel. A number of natural small lakes or beels are formed as a result of change of river courses.

Surface water bodies are mainly observed in the flood plain area where southward flowing rivers loses its gradient. Waterlogged and marshy lands are observed. The area covered by the surface water bodies are shown in the following Table:

Table: 13.1: Water bodies in Kokrajhar District

Sl no.	***Water bodies***	***Area in ha***
1	Ponds and tanks	**1900**
2	Paddy field/canal fisheries	**395**
3	Derelict water bodies	**572**
4	Beel fisheries	**2066**
5	River fisheries	**2457**
6	Forest Fisheries	**208**
Total		**7598**

Source: Statistical Handbook Assam, 2021

Unconsolidated alluvial aquifer consists of older and younger alluvium. Younger alluvial aquifer is found towards north and centre part of the district. The older alluvial aquifer is found towards south. Previous studies have revealed the existence of two major granular formations in the district, which are as follows:

a) Shallow aquifer zone extending from 0- 50 m below ground surface where the granular saturated zone thickness range between 27 to 45 metres with an average thickness of 35 metres.

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b) Deep aquifer zone, extending from 50- 140 m below land surface with granular zones occurring between 50- 75m, 80-100 m, 105- 110m, 115- 140 m having a cumulative thickness of 70 m.

Ground water level

To study ground water regime, depth to water level from 64 monitoring stations (Ground Water Monitoring Stations 10, newly established key wells 54) were measured and monitored seasonally in the month of November 2022 and March 2023. Seasonal variation in water level is discussed below. During Pre- Monsoon i.e. on March 2023, only two key wells (about 3.3%) show depth- to- water level of less than 2m bgl, 62.7 % wells i.e. 37 key wells show water level in the range from 2 to 5 mbgl, 30.5% (around 18) key wells have water level in the range of 5 to 10 mbgl and 3.3% (2) key wells have water level more than 10mbgl. Minimum water level of 1.36 mbgl at Raimona FV and maximum water level recorded is 14.41 mbgl at Bagribari. During post- monsoon, i.e., on November 2022, depth to water level data of Kokrajhar district ranges from a minimum of 1.14 m bgl at Raimona to maximum 8.39mbgl at Basbari. 6 % of key wells (4 numbers) show water level less than 2mbgl, 70 % (45) wells record water level of 2 to 5 mbgl and only in 23.43 % (15) key well water level is above 5mbgl. Fluctuation of water level in pre and post monsoon water level, difference ranges from 0.0 to 2.0 m in 87.27% (48 wells) of the key wells, 2.0 to 4.0 m in 10.9% (6) wells and only in one well (Khalasi) water level fluctuation above 4 m is observed in the monitored wells of the district. Minimum fluctuation of 0.04 m and maximum of 4.66 m is recorded in Jamairy and Khalasi respectively.

Ground Water Resources

The net ground water availability estimated in the year 2009 is 1609.70 mcm. The existing gross ground water draft 150.54 mcm and the stages of development are 9% only. Future provision for domestic and Industrial use is 31.43 mcm and for Irrigation use is 1450.93 mcm.

Assessment unit can be categorized into 4 categories as **SAFE, SEMI-CRITICAL, CRITICAL, and OVER-EXPLOITED**. In Kokrajhar district stage of ground water development is 9%, which shows under the SAFE category. As long-term water level trend does not show any major change so the whole district may be considered as SAFE.

Ground Water Quality

The chemical analysis shows that the ground water in general is neutral to alkaline in nature with pH ranging between 7.94 and 8.53. The Electrical Conductivity value (48 -245

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micro mhos at 25°C) is within permissible limit. Calcium content is from 6 to 24 mg/l and well within permissible limit. The alkalinity value governed by anion content of carbonates and bicarbonates is within range of 18 to 146 mg/l. The hardness of groundwater ranging from 20 to 150 ppm indicates that ground water is of soft to moderately hard in nature.

The analysis of ground water samples from deep aquifer indicates its suitability for its domestic & irrigation use. The ground water in general is alkaline as pH of ground water ranges from 7.9 to 8.4. The water is of medium salinity and contains low sodium.

The ground water quality data indicate that in general it is suitable for domestic and irrigation purposes. There is not much appreciable variation in quality of ground water in shallow and deep aquifers. Abundant rainfall and relatively insolvable matter of the aquifer material makes the ground water of the district remarkably fresh in nature.

Status of Ground Water Development

Ground water development in the district is in primary stages.A few deep and shallow tube wells have been constructed. Rural water supply by Public Health Department covers almost entire district. Irrigation wells by ASMIDC, Irrigation department, and Agriculture department have covered a few schemes with constructing of shallow tube wells.

Ground Water Management Strategy

As stated above, the Kokrajhar district as a whole is represented by a mono-aquifer system- alluvial formation with thickness varying from 50 to 250 m. Ground water development in the district is almost in nascent stage. Shallow tube wells down to the depth of 50 m and deep tube well down to the depth of 200 m or more can be constructed in almost all parts of the district with proper hydrogeological investigation, with expected discharge of 3,500 m^3 /day and draw down of 5 - 6 m in the alluvial area.

The area adjacent to the Brahmaputra River is feasible for shallow tube wells with depth range of 30 to 50 m depending on availability of granular zones. Such tube well is expected to yield from 35 to 45 m^3 /hr tapping 15 m of aquifer zone with drawdown of 2.5 to 5 m. 9 Deep tube wells can be constructed in all parts of the district especially on northern parts where water requirement is more. Low cost ground water structures can be constructed to a depth of 50 m and tapping 10-15 m granular zone using standard strainer/slot pipes.

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Ground Water Related Issues and Problems

Almost every year the district gets inundated by floods during monsoon season. The effect of flood and soil erosion is much more in southern part than in the northern part of the Brahmaputra River.

The frequent flood affects the ground water regime of the district with water logging problem along with rising of water table which recedes in post-monsoon period due to porous and monotonous nature of the aquifer.

No ground water quality problem is recorded except, *high iron content* in certain pockets. The problems of arsenic and fluoride have not been reported.

Both shallow tube wells down to the depth of 50 m and deep tube wells down to 250 m are feasible in the district, particularly deep tube wells in northern part and shallow tube wells in southern part near the Brahmaputra River. The shallow tube wells in such cases can yield average 30 m^3/hr while the deep tube wells can yield 100 to 120 m^3/hr. The selection of sites in both the cases may be done after proper investigation.

Low cost ground water development structures in the alluvial part of the district can be constructed to a depth of 50 m tapping 10-15 m saturated granular zones through standard strainers. Ground water is suitable for domestic, industrial and irrigation purposes except in a few localities where iron content is high. Iron Removal Plant should be installed to remove iron from ground water.

The main groundwater issues identified in the area are-low stage of groundwater extraction, vulnerable areas under water logging and flood as well as high iron concentration.

a) Low stage of groundwater extraction

Compared to vast dynamic groundwater resource of Kokrajhar district, groundwater extraction for domestic, irrigation and industrial purposes is low. Vast tract of agricultural land remain fallow after harvesting of paddy only due to lack of irrigation facility. The stage of groundwater extraction is only 5.63 %.

b) Area vulnerable to water logging

Water logged areas are identified by preparing depth-to-water level contour for both pre and post monsoon seasons. The permanently water logged areas are those which are

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water logged both in both the seasons in the range of 0-2 mbgl. Permanently water logged areas are found in Raimona and Ranipur key well area where depth to water level is 0-2 mbgl throughout the year. Water logged areas are found in the alluvial plain and flood plain.

c) Water Quality Issue

In most of the samples of Dug wells and hand pumps/ tubewells, except iron, other chemical parameters are within permissible limit. High concentration of Iron has been reported in few locations in the district. High concentration of Iron in drinking water can cause various health issues like diabetes, hemochromatosis, stomach problems, and nausea. It can also harm skin cells as such water does not rinse off the soap residue from the body, it also gives water an unpleasant metallic taste and stains the pipes, bathroom fixtures etc. Locations from Fukangaon dug well, Nayachara dug well, Baruah Para hand pump and Pokalagi tube well shows iron concentrations more than 1mg/L in pre- monsoon. However, in post- monsoon, the concentration of iron of more than 1mg/L is found only in Nayachara and Pokalagi. It is therefore necessary to filter the iron before any human consumption or domestic use especially in area infested with iron.

Groundwater Management

The groundwater management involves the optimum utilization of sub- surface water based on geological, hydrological, economic, ecological and legal consideration for the welfare and benefit of the society. The main objective of Groundwater management is to utilize the available ground water resources to fulfill human needs and also to boost economy of an area without hampering the interest of future generation. That objective can be achieved by finding out the demand of various sectors and adjusting the demand with available resource.

As per dynamic ground water resources 2021- 2022, the annual extractable groundwater of Kokrajhar district is 142984.44 ham. The current annual groundwater extraction accounts for 8052 ham and the stage of ground water extraction is only 5.63%. The district is having balance net groundwater availability for future irrigation use in the tune of 134895 ham.

If an irrigation plan is made to develop 60% of the balance dynamic ground water resources available, then 80937 ham of groundwater resources is available in the district for future irrigation uses. Hence, there is ample scope for ground water development for irrigation purpose which will help the district in achieving self-reliance on food grain.

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According to Agricultural census, 2015- 2016, the district has a net sown area of 91296 ha and grossed cropped area of 106089 ha with a cropping intensity of 116.20%. The net sown area included field crops as well as horticulture and plantation crops. Cropping intensity is calculated generally from field crops, which are of short duration whereas horticulture (like citrus, banana, pineapple) and plantation crops like spices are long duration crops. According to Agricultural census, 2015- 2016, the land under cultivation during the Kharif season is 63868ha. After growing and harvesting the Kharif crops, the land remains fallow and uncultivated during the Rabi season. The intention of this plan is to utilized and brings this fallow land of 63868ha under assured irrigation during Rabi season which will help to increase the gross cropped area to 12,7736ha and thereby increase the cropping intensity upto 200%. Since the stage of groundwater extraction is only 5.63%, this area of 63868ha can easily be covered by constructing groundwater-based irrigation projects. In rice fallow, pulses, potato, mustard and Rabi vegetables can be grown with the support of irrigation. To use the groundwater for irrigation purpose a cropping plan has been designed for the district by using CROPWAT model developed by FAO. Suitable cropping plan was prepared and the cropping pattern, proposed cropping pattern, targeted increase in cropping intensity was shown in tabular form (Table 6. 1). Crop wise and month wise precipitation deficit has also been estimated using the same software after giving necessary meteorological, soil data and crop plan inputs.

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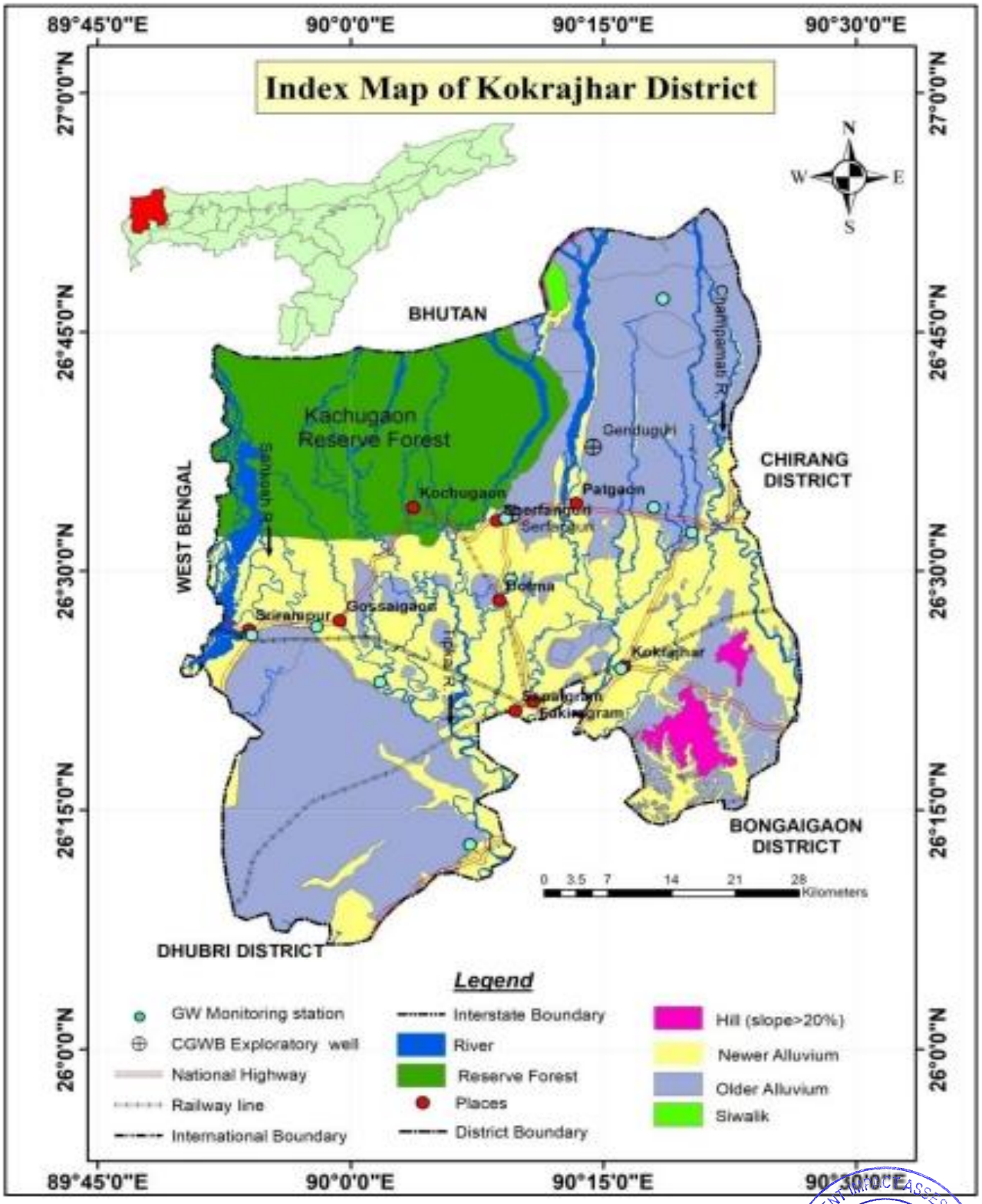
AQUIFER MAPPING IN KOKRAJHAR DISTRICT, ASSAM



Map 13.1: Map showing Aquifers of Kokrajhar District

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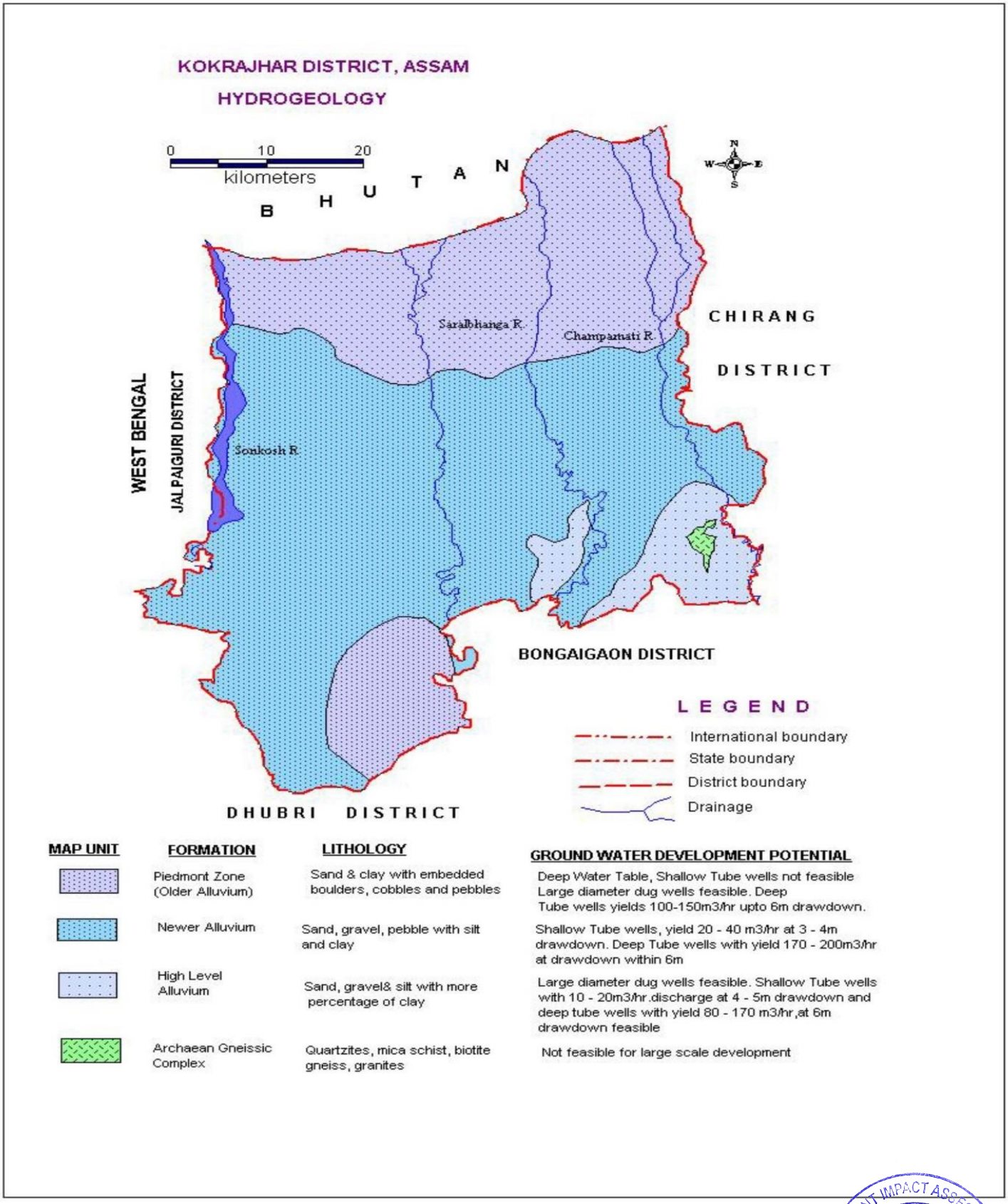

Groundwater Hydrology of the District (Source: CGWB,NE)

Map 13.2: Map showing Groundwater Hydrology of Kokrajhar District

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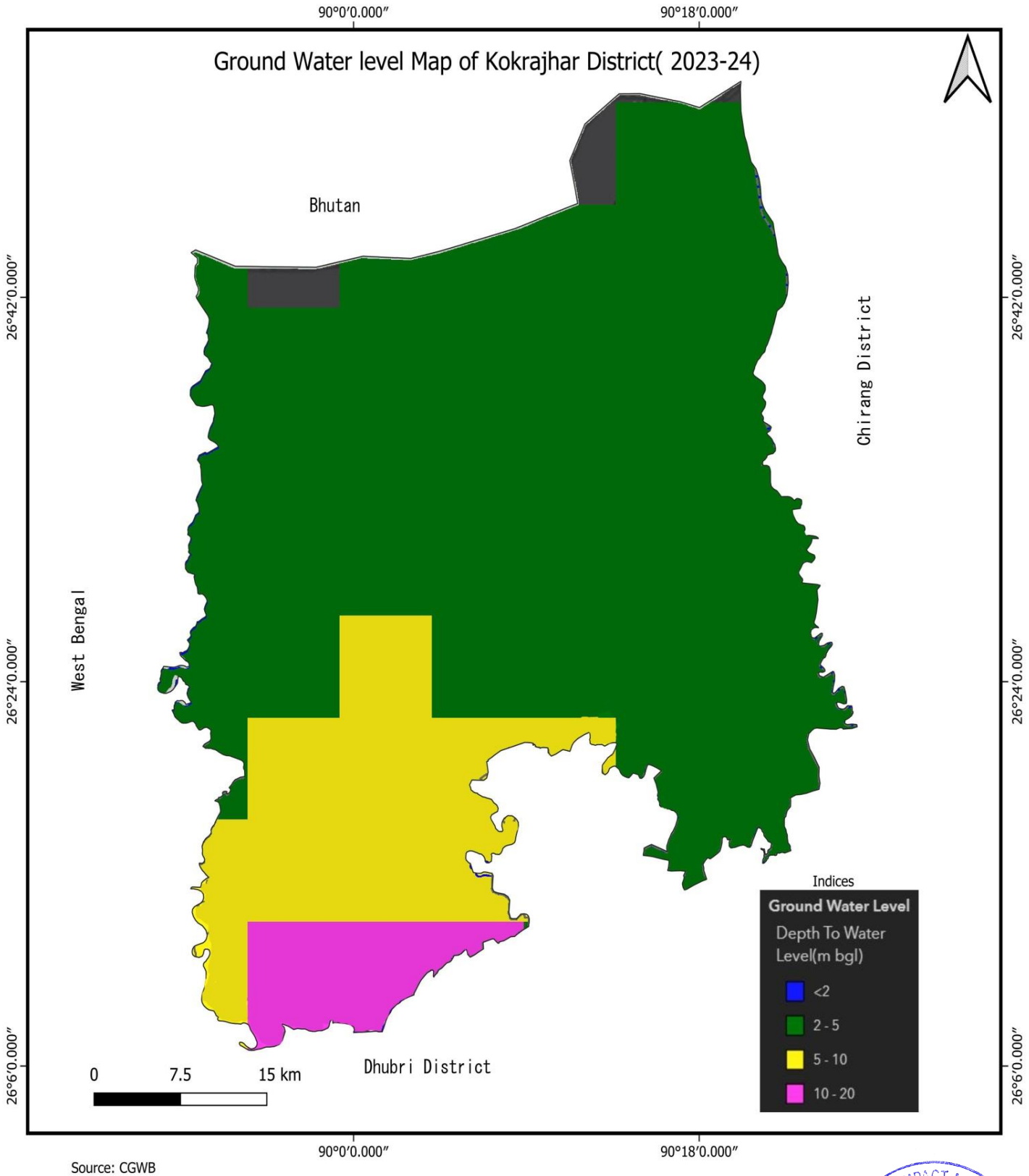

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Map 13.3: Map showing Groundwater Hydrology levels of Kokrajhar District

Agricultural Resources

Agriculture is the main occupation of Kokrajhar district and contributes a major part in the district economy. Rice is the main crop. Agriculture development is the prime consideration for making radical changes in the district through the marginal, small and landless farmers. The average size of the operational landholding in the district is 1.20 Ha. Rice is the main crop which covers about 80% of the Gross cropped area. The Gross cropped Area of the district is 191608 ha as against the Net Cropped area of 179955 Ha with a cropping intensity of 106.47. There is about 1,37,141 ha is under rainfed areas of the district. The percentage of the rainfed areas of the block varies in different blocks. The gross area under irrigation is 58931 ha.

The major crop grown in the district are Ahu Paddy , Sali Paddy , Jute, Mesta during Kharif season and Boro paddy, Toria, Niger, buckwheat, Potato, Pulse during Rabi season. Sali paddy is distributed throughout the district under the rainfed condition. Apart from these, many other varieties of crops namely Black gram, Green gram, Sesame, Tapioca, Chilli, Tobacco, Turmeric, Sweet Potato, Onion, Vegetables etc. are also grown in the district. Under horticultural crops, vegetables like cucurbits, cabbage Cauliflower, Knolkhol, Radish, Brinjal, Tomato etc., fruit tres, namely Banana, Pineapple, Citrus, Jack fruit etc, Chilli Ginger , Turmeric, Black Pepper etc as spices, tuber crops like potato, tapioca, Colocasia etc. and Plantation crops viz. Areca nut, Coconut etc are commonly cultivated in the district.

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14. List of Letter of Intent (LOI) Holders in Kokrajhar District along with its validity

Sl. No.	*Name of the Mineral*	*Name of the Lessee*	*Letter of Intent Grant Order No. & date*	*Area of Mining lease to be allotted*	*Validity of LoI*	*Location of the Mining lease (Latitude & Longitude)*
1	Sand Gravel Earth	Sri Nangla Basumatary	No.B/22/11/Saralbhanga Mahal No.5/2206-09 dtd. 12/06/2018	5.40 ha	wef. 1st June, 2018 to 31st May, 2025	N= 26° 31' 27.32" , E= 90° 12' 51.87" N= 26° 31' 18.73" , E= 90° 13' 06.48" N= 26° 31' 17.12" , E= 90° 13' 03.67" N= 26° 31' 24.89" , E= 90° 12' 46.95"

Present Status of Mining Contract Area which are in Operation / Ended (From- 2022 to 2024)

Annexure - I

Sl No.		Name of MCA	Whether RF/Outside RF	Allotted Area (HA)	Tenure in Years	Type of MM	Qty. Of MM (in CuM, Per Year)	Date of issue of LOI with Letter No.	LOI Issued to	Validity	Remarks
1		Saralbhanga Mahal No. 2	Outside of RF	4.63	wef. 01-03-16 to 28-02-2023	Sand & Gravel	S= 1000 G= 800	No.B/22/11/Saralbhanga Mahal No.2/694-97 dtd. 01/03/2016	Sri Bulbul Brahma	7 Yrs.	Tenure Completed
2		Saralbhanga Mahal No. 3	Outside of RF	9.56	wef. 05-03-16 to 28-02-2023	Sand, Gravel & Boulder	S= 600 G= 800 B= 300	No.B/22/11/Saralbhanga Mahal No.3/808-11 dtd. 05/03/2016	Sri Sukuram Narzary	7 Yrs.	Tenure Completed

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Sl No.		Name of MCA	Whether RF/Outside RF	Allotted Area (HA)	Tenure in Years	Type of MM	Qty. Of MM (in CuM, Per Year)	Date of issue of LOI with Letter No.	LOI Issued to	Validity	Remarks
3		Saralbhanga Mahal No. 4	Outside of RF	4.86	wef. 28-04-16 to 30-04-2023	Sand & Gravel	S= 700 G= 700	No.B/22/11/Saralbhanga Mahal No.4/1458-61 dtd. 28/04/2016	Sri Lwithwma Basumatary	7 Yrs.	Tenure Completed.
4		Saralbhanga Mahal No. 5	Outside of RF	4.24	wef. 16-06-18 to 31-05-2025	Sand, Gravel & Earth	S= 850 G= 500 E= 500	No.B/22/11/Saralbhanga Mahal No.5/2206-09 dtd. 12/06/2018	Sri Nangla Basumatary	7 Yrs.	Running
5		Saralbhanga Mahal No. 2 A	Outside of RF	4.82	F.Y. 2023-24 to 2030-31	Sand & Gravel	S= 1260 G= 1890	No.B/20/11/Saralbhanga Mahal No.2(A)/6219-22 Dated: 15th March, 2024	Sri Hiramba Narzary	7 Yrs.	Running
6		Champa Mahal No.-2	Outside of RF	3.76	F.Y. 2023-24 to 2030-31	Sand & Gravel	S= 1110.75 G= 1666.25	No.B/20/11/Champa Mahal No.2/6215-18 Dated: 15th March, 2024	Sri Bansho Moshahary	7 Yrs.	Running

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15. Total Mineral Reserve available in Kokrajhar District

Mineral exploration is a complex and continuous process that involves conducting surveys, analyzing geological data and assessing the quality and quantity of mineral deposits. As the nature of mineral reserves is often governed by local faults, and other lithological factors, it requires thorough examination and evaluation of geological formations, rock samples, and geophysical surveys.

The district has abundant reserve of *sand, gravel, and stone* along with ordinary clay deposits.

These minerals have attracted significant attention from the mining industry due to their commercial value and various industrial applications.

Sand(cum)	Gravel (cum)	Stone(cum)	Clay (cum)	Boulder (cum)	Total (cum)
1398738	668904	561750	68160	19488	2717040

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16. Quality/Grade of Mineral available in Kokrajhar District

Grade in mineral processing refers to the quality or purity of the mineral or ore. Actually grade refers to the concentration of valuable minerals in ore. Besides the essential chemical composition and crystal structure, the description of a mineral species usually includes its common physical properties like crystal habit, structure, hardness and lustre etc. But here in case of sand/riverbed sand if it fulfills certain conditions (above cut off grade) as regards purity or other physical properties-then it is of high grade mineral.

Basically, grade of a mineral is determined by the effectiveness of a geological process which is the result of the interaction between a mineral forming mechanism and the environment in which it operates. In response to economic fluctuations the working grade of mineral like sand that form in geological complex environments, can often be altered to ensure the continued viability of a mining venture.

All the important decisions in the minor minerals industry, such as feasibility studies, choice of mining and processing (mainly screening) and other related processing methods, selection and planning are made on the basis of or are related to grade estimates.

If the geological controls of grade are fully understood, then it is possible to optimize the selection of the various mining alternatives, leading to the efficient exploitation of desired mineral like sand etc. so after screening of extractable sands from riverbed and flood plain, we may classify the sands as to high grade, moderate grade and of inferior quality or grade.

But in case of M-Sand (produced from boulder, cobble, pebble and granules i.e. all together called gravel deposits) quality or grade of produced sand is determined following the Udden-Wentworth grain size scale for clastic sediments.

Sand

Sand is a mixture of small grains of rock and granular materials which is mainly defined by size. Being finer than gravel and coarser than silt, sand ranges in size from 0.06 mm to 5 mm.

Coarse sand: Sand with particles that are between 2 mm and 4.75 mm in size.

Fine sand: Sand with particles that are between 0.425 mm and 0.075 mm in size. It is mainly made of silicate minerals and silicate rock granular particles. Typically, quartz is the most dominant mineral here as it possesses highly resistant properties to weather. It is also classified according to size:

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Fine Sand: All the sand particles should pass through No. 16 sieve. This is usually used in plastering works.

Moderately Coarse Sand: All the sand particles should pass through No. 8 sieve. This type of sand is generally used for mortar and masonry works.

Coarse Sand: All the particles should pass through No. 4 sieve. This type of sand is suitable for concrete work. The sand available in the district is coarse to fine grained. The sand is used for filling purposes and other construction purposes.

Gravel

Gravel is a loose aggregation of rock fragments. Gravel occurs naturally on Earth as a result of sedimentary and erosive geological processes. It's essential for modern infrastructure for construction purpose and creating good foundations for patios and pathways.

Brick earth

Brick earth is a type of clay that is used to make bricks. The brick earth available in the district is medium to fine grained. The brick earth available in the district is greyish to reddish brown color comprising of various proportions of sand, silt, clay and organic materials. It is suitable for earth filling and manufacture of bricks etc. It has various constituents such as silica, alumina, lime, iron oxide and magnesia. Silica is responsible for preventing cracking, shrinking and warping of bricks. Alumina is accountable for plasticity characteristic of brick earth and lime for preventing shrinkage. Iron oxide gives color, strength and hardness to the bricks.

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17. Use of Mineral

The earth mined in the district is exclusively used in the manufacturing of bricks.

1. **Construction**: Sand, gravel, silt, clay and ordinary earth are key ingredients in concrete, mortar and asphalt.
2. **Industrial**: Used in glass production and abrasives (only silica sand preferable).
3. **Environmental**: The minerals can improve traffic safety by providing grip on icy roads, and it helps in soil conditioning for agriculture.
4. **Decorative**: Sand, gravel and stones are used in candles, aquariums, and for enhancing aesthetic appeal in landscaping.
5. **Flood Protection**: Proper management of sand mining helps maintain river flood discharge capacity, reducing the risk of floods.
6. Ordinary sand never can be used for preparation of glass and ceramics. But main use of sand is entirely confined to civil construction purpose only.

Sand

Sand is a key ingredient in concrete, asphalt, and other building materials for providing strength, mass, and stability to these materials. It's essential for modern infrastructure for construction purpose and creating good foundations for patios and pathways. Sand is used to fill roads, and is often mixed with salt to treat icy and snowy roads. Sand is used to make glass containers for food and drinks. Along with this, is used in sandpaper, computer and TV screens, fiber optics, fiberglass insulation, toothpaste, pigments in paints and sealants, and weather resistant caulking.

Gravel

Gravel is a loose aggregation of rock fragments. Gravel occurs naturally on Earth as a result of sedimentary and erosive geological processes. It's essential for modern infrastructure for construction purpose and creating good foundations for patios and pathways

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18. Demand and Supply of the Mineral in the last three years

Table 18.1 : Production under **Haltugaon** Division

Sl No.	Name of Mineral	Unit of Quantity	Quantity
1	Boulder	cum	3986.77
2	Gravel	cum	9033.66
3	Ordinary Earth	cum	95426.31
4	Sand (others)	cum	8555.62
5	Sand- Gravel	cum	19144.45
Total			1,36,146.81
Sl No.	**Name of Mineral**	**Unit of Quantity**	**Quantity**
1	Boulder	cum	2603.00
2	Gravel	cum	9373.66
3	Ordinary Earth	cum	44402.45
4	Sand (others)	cum	6347.25
5	Sand-Gravel	cum	4171.68
Total			**66,898.04**
Sl No.	**Name of Mineral**	**Unit of Quantity**	**Quantity**
1	Boulder	cum	6470.40
2	Gravel	cum	4792.21
3	Ordinary Earth	cum	47884.99
4	Sand (others)	cum	3148.29
5	Sand-Gravel	cum	8031.83
Total			**70,327.72**

Table 18.2: Production under **Parbatjhora** Division

Year	Mineral	Quantity (cum)	Total Quantity (cum)
2021-22	Sand	15790	**139514.5**
	Stone / gravel	8020	
	Earth	115704.50	
2022-23	Sand	6574.45	**96963.45**

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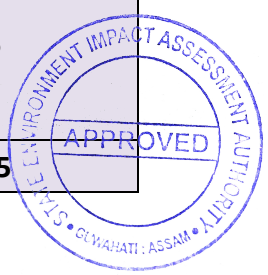

	Stone / gravel	89016.20	
	Earth	1372.80	
2023-24	Sand	4084.7	**254,344.7**
	Stone / gravel	13787	
	Earth	236473	

Table 18.3 : Production under **Kachugaon** Division

Year	Mineral	Quantity (cum)	Total Quantity (cum)
2021-22	Sand	9055.51	**195,553.71**
	Stone / gravel	53368.05	
	Sand gravel	17425.65	
	Earth	115704.50	
2022-23	Sand	6574.45	**160,684.06**
	Stone / gravel	89016.20	
	Sand gravel	63720.61	
	Earth	1372.80	
2023-24	Sand	3758	**287,809.00**
	Stone / gravel	280282	
	Sand gravel	3469	
	Earth	300	

The increasing trend of production shows the increase in the demand for the respective minerals and so in the supply of the same. Even though there is a slight decrease in the production of the minor minerals of the district in the year 2022- 2023, the following year shows overall good increase in the demand and supply of the same.

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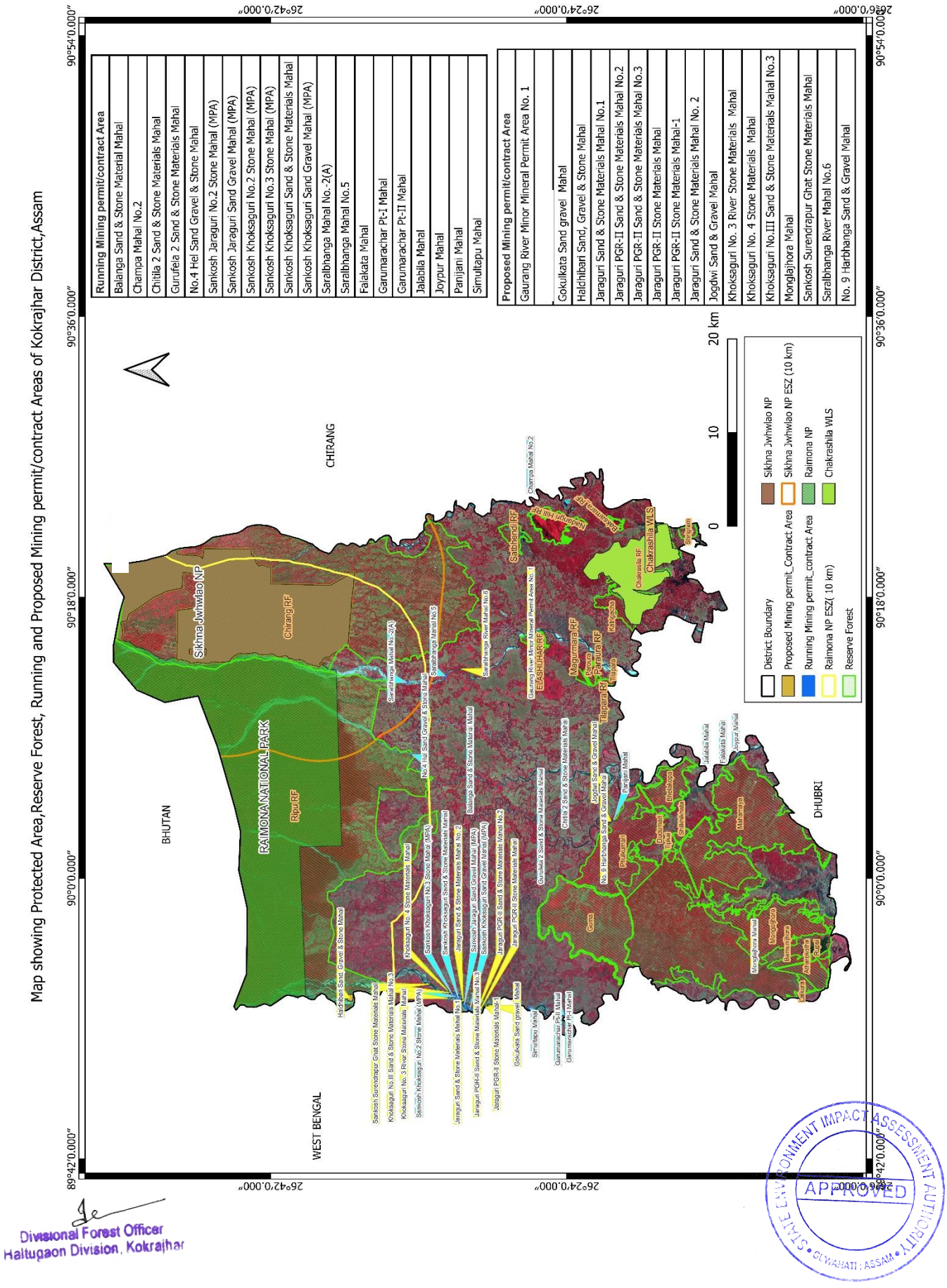
19. Maps showing Mining leases of Kokrajhar district



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20. Details of the area of where there is a cluster of mining leases

A cluster is formed when one mining lease of homogenous mineral is within 500 meters of the other mining lease. In order to reduce the cluster formation mining lease size should be defined in such a way that distance between any two clusters preferably should not be less than 2.5 Km. Mining lease should be defined in such a way that the total area of the mining leases in a cluster should not be more than 10 Ha.

Table 20.1 : Table showing cluster of mining leases

Cluster No	Name
1	1. Gokulkata Sand gravel Mahal 2. Jaraguri PGR-II Sand & Stone Materials Mahal No.1 3. Jaraguri PGR-II Sand & Stone Materials Mahal No.2 4. Jaraguri PGR-II Sand & Stone Materials Mahal No.3 5. Jaraguri PGR-II Stone Materials Mahal 6. Jaraguri PGR-II Stone Materials Mahal 7. Jaraguri PGR-II Stone Materials Mahal 8. Khoksaguri No. 3 River Stone Materials Mahal 9. Khoksaguri No. 4 Stone Materials Mahal 10. KhoksaguriNo.III Sand & Stone Materials Mahal No.3 11. Sankosh Jaraguri No.2 Stone Mahal (MPA) 12. Sankosh Jaraguri Sand Gravel Mahal (MPA) 13. Sankosh Khoksaguri No.2 Stone Mahal (MPA) 14. Sankosh Khoksaguri No.3 Stone Mahal (MPA) 15. Sankosh Khoksaguri Sand & Stone Materials Mahal 16. Sankosh Khoksaguri Sand Gravel Mahal (MPA)
2	1. Saralbhanga Mahal No. 4 (A) 2. Saralbhanga Mahal No. 4 (B)
3	1. Saralbhanga Mahal No. 2 (A) 2. Saralbhanga Mahal No. 2 (B)
4	1. Saralbhanga Mahal No. 4 (C) 2. Saralbhanga Mahal No. 4 (D)
5	1. Majerdari (Sankosh) 2. Majerdari (Haraputa) 3. Idulkuti (Haraputa)
6	1. GarumarachalPt-II Mahal 2. Idulkuti (Haraputa)

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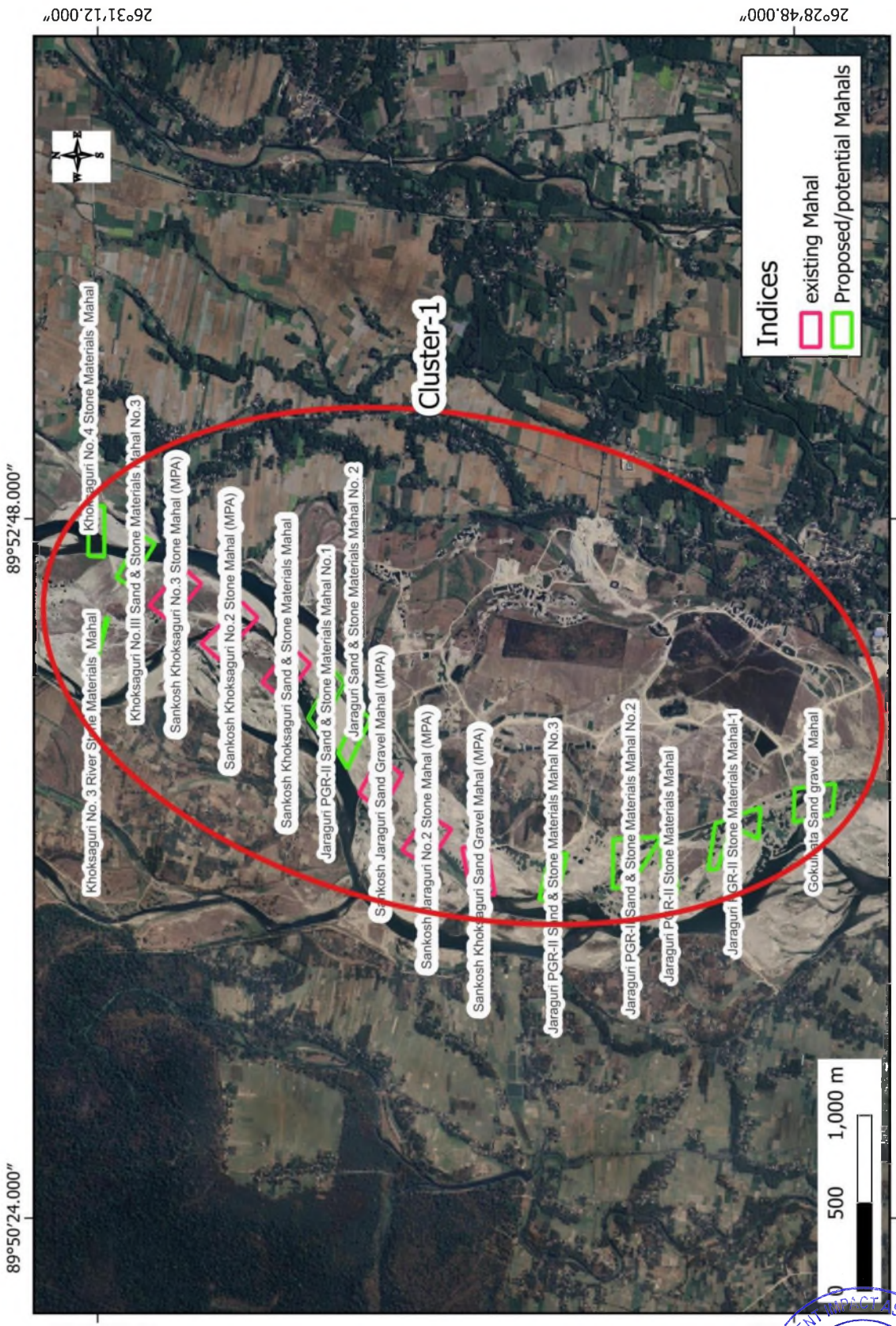

Map 20.1: Map showing areas where cluster 1 is formed

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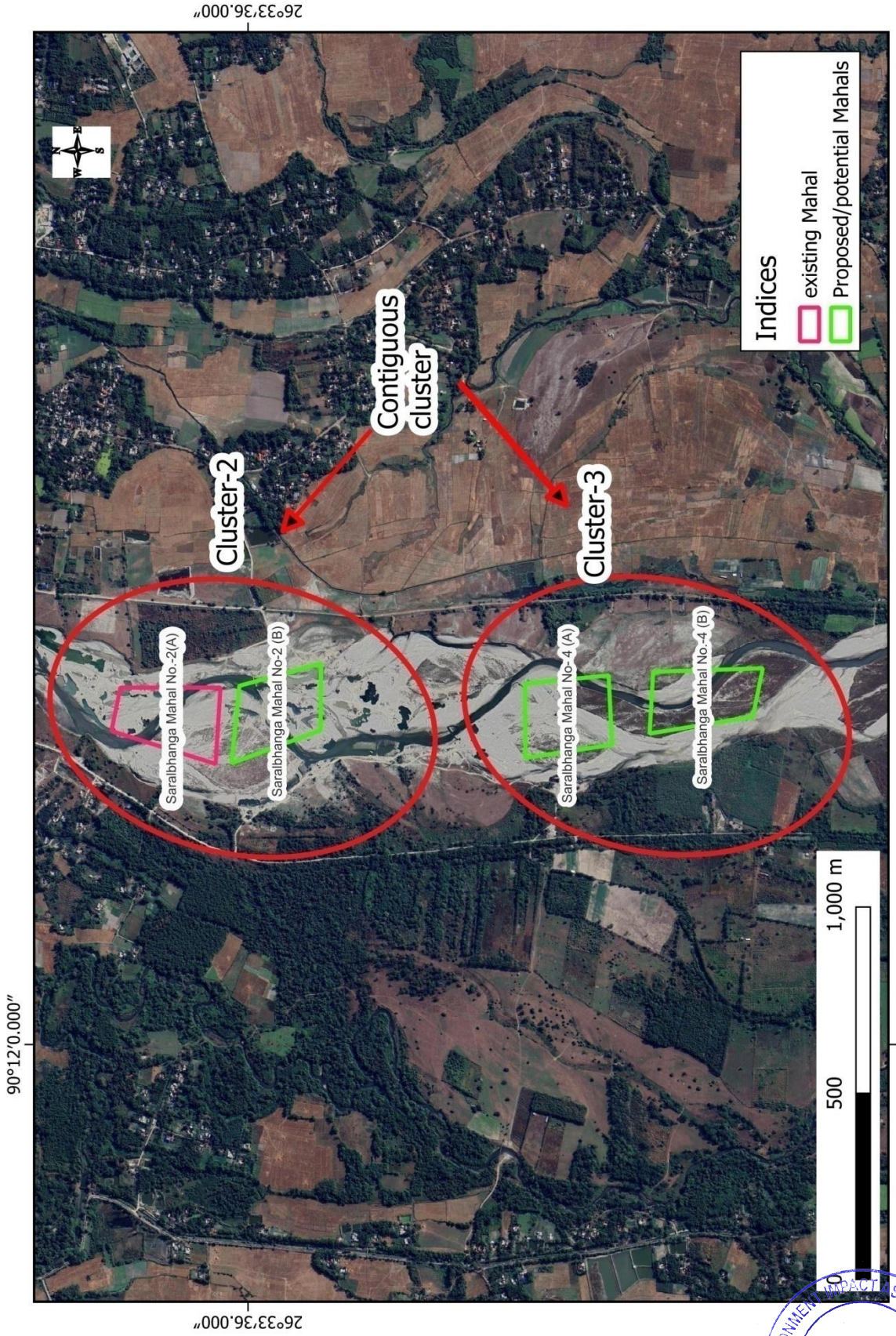

Map 20.2: Map showing areas where cluster 2 and cluster 3 (contagious clusters) are formed

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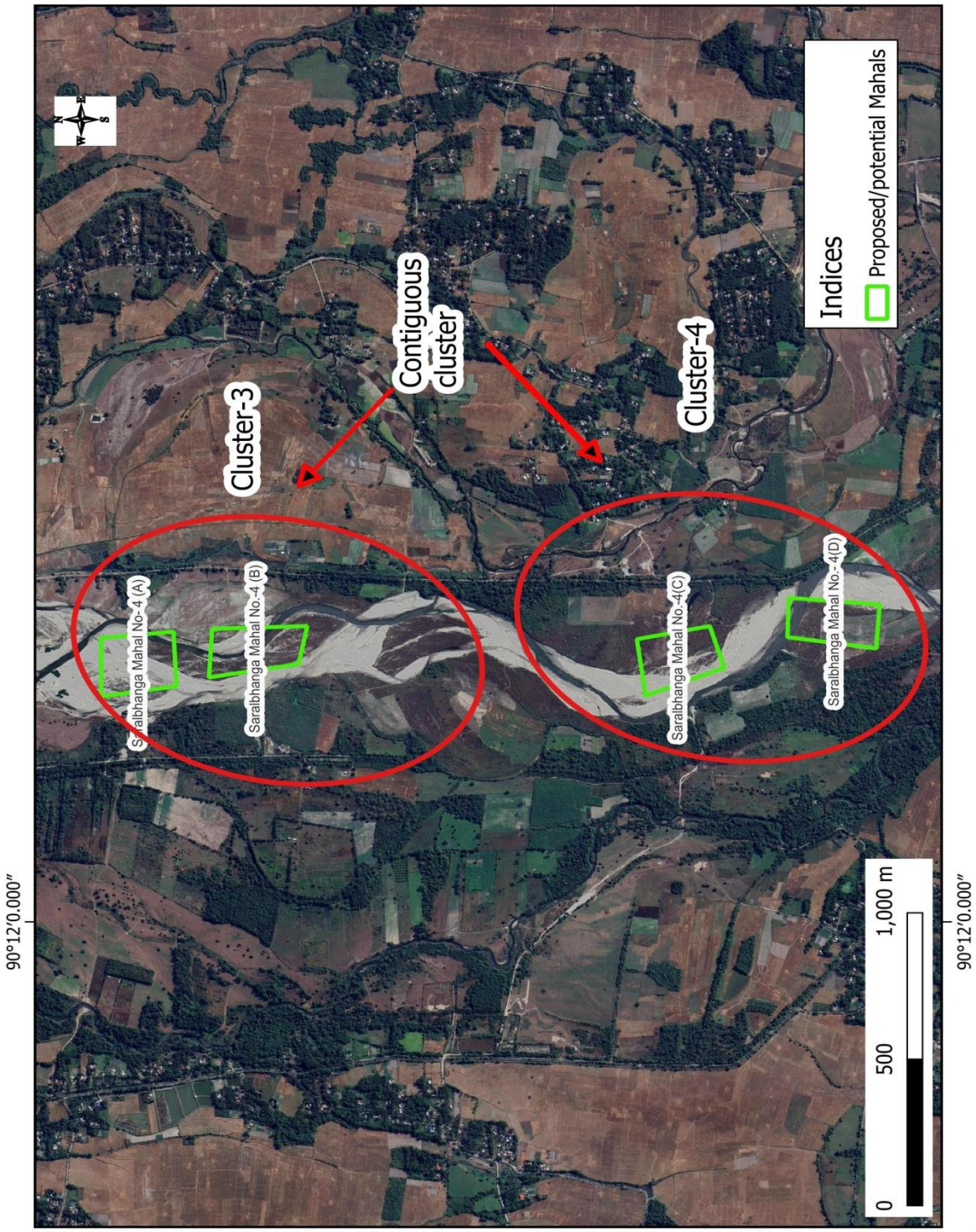

Map 20.3: Map showing areas where cluster 3 and cluster 4 (contagious clusters) are formed

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Map 20.4: Map showing areas where cluster 5 and cluster 6 (contagious clusters) are formed

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21. Details of Eco-Sensitive Area, if any, in Kokrajhar District

For mining lease within 10km of the National Park/ Sanctuary or in Eco-Sensitive Zone of the Protected Area, recommendation of Standing Committee of National Board of Wild Life (NBWL) have to be obtained as per the Hon'ble Supreme Court order in I.A. No. 460 of 2004*(SUSTAINABLE SAND MINING MANAGEMENT GUIDELINES – 2016)*.

Raimona National Park is located in the Kokrajhar district of Assam, India. It was declared a national park on June 5, 2021, by the announcement of Assam's Chief Minister Himanta Biswa Sarma on the occasion of World Environment Day at Gandhi Mandap, Guwahati 12. The park is spread across Gossaigaon and Kokrajhar subdivisions of Kokrajhar district of Bodoland Territorial Region. It is a part of a contiguous forest patch with an area of 422 square kilometers (163 square miles) covering the northern part of the notified Ripu Reserve Forest (508.62 square kilometres (196.38 square miles)), which forms the westernmost buffer to Manas Tiger Reserve in the foothills of Eastern Himalaya Biodiversity Hotspot 13. The park is home to a variety of wildlife including tiger, clouded leopard, golden langur, Indian gaur, Asian elephant, spotted deer, wild buffalo, and hornbill.

Declared officially through an Assam Gazette Notification on June 9th, 2021 as a national park covering a contiguous forest area of 422 km², **Raimona National Park** is the sixth national park of Assam, India. The park is famous for its endemic species golden langur. The golden langur is designated as the mascot of BTR (Bodoland Territorial Region is the 6th Schedule Autonomous Council within the State of Assam, India). The park is also inhabitant by various other species such as elephant, Bengal tiger, wild bison, white-spotted deer, clouded leopard and wild buffalo. It has recorded four to five species of hornbills,170 species of birds, more than 150 species of butterflies, 380 varieties of plants and orchids.

Raimona National Park was originally part of both the Ripu Reserve Forest and the adjacent Chirang Reserve Forest known as Chirang-Ripu Reserve Forest located at the westernmost buffer to Manas National Park & Tiger Reserve in the foothills of the Eastern Himalaya Biodiversity hotspot. Known for its historical elephant habitats with a diverse range of flora and fauna in its vast forests area, the Government of Assam declared Chirang-Ripu Reserve Forest as Chirang-Ripu Elephant Reserve in 2003 covering an area of 2600 km2.

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The present Raimona National Park was initially proposed as Ripu-Chirang Wildlife Sanctuary. The park being part of Chirang-Ripu Reserve Forest its adjacent part was also mooted to be within.

A 10 km- buffer as Eco- Sensitive Zone from the boundary of the Raimona National Park has been considered. The following mining leases fall in the ESZ:

Table 21.1: Table showing details of mining leases that falls in ESZ of Kokrajhar District

Sl no	*Name of the mahals*	*Status*	*Area under ESZ*	*Name of the ESZ*	*Percentage covered*	*Within 1km from protected Area*
1	*No.4 Hel Sand Gravel and Stone Mahal*	*Existing*	*3.0 ha*	Raimona National Park	*100*	*No*
2	*Haldibari Sand, Gravel and Stone Mahal*	*Proposed*	*4.5 ha*	Raimona National Park	*100*	*No*
3	*Saralbhanga Mahal No.2 (A)*	*Existing*	*5.0 ha*	Raimona National Park and Sikhna Jwhwlao National Park	*100*	*No*
4	*Saralbhanga Mahal No.2 (B)*	*Proposed*	*4.85 ha*	Raimona National Park and Sikhna Jwhwlao National Park	*100*	*No*
5	*Saralbhanga Mahal No.4 (A)*	*Proposed*	*4.93 ha*	Raimona National Park	*100*	*No*
6	*SaralbhangaMahal No.4 (B)*	*Proposed*	*4.65 ha*	Raimona National Park	*100*	*No*

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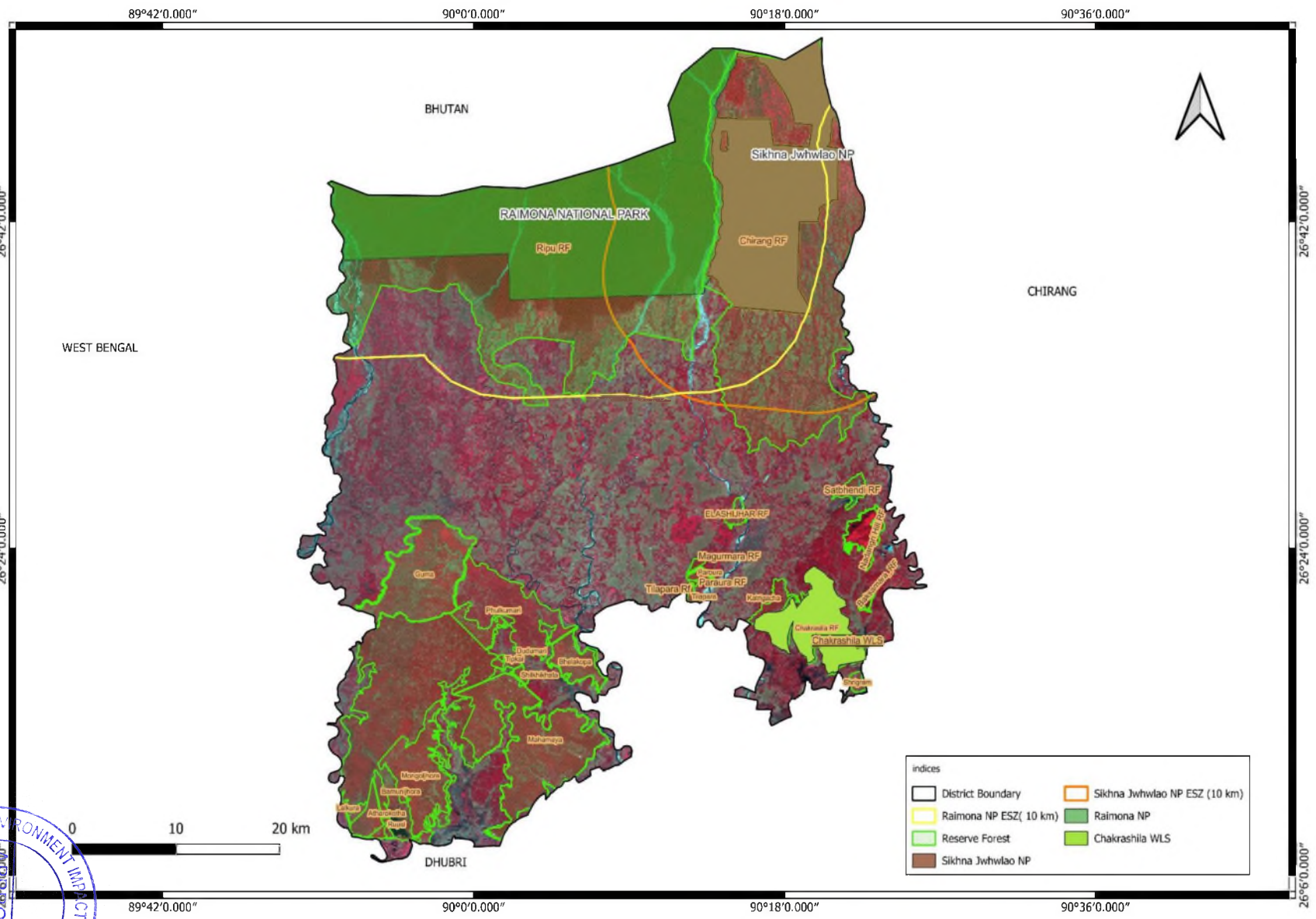
Map showing Protected Area,Reserve Forest of Kokrajhar District,Assam



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22. Impact on the Environment due to mining activity

Impact on Environment due to mining activates varies based on quantum of production rate proposed. The different activates involved before & during mining are narrated below, which helps to assess the impact on environment. Population growth, economic development and environmental degradation are interlinked with each other. The high growth in population speeds-up economic activities resources. Meanwhile, it also deteriorates environment as for the high level of economic development, plenty of natural are exploited. Similarly, mining activities have considerable impacts on environment.

Land degradation is one of the significant impacts arising out of mining and quarrying activity which is mainly in the form of alternation of land structure due to excavation, stacking of top soil and loss of the land due to dumping of mine waste and overburden soil. Stone and sand quarrying causes damage to property, depletion of ground water, loss of fertile top soil, degradation of forest land, adverse effect on the biodiversity and public health.

Mining and quarrying, either open cast or underground, destroys landscape and forest ecosystems. The waste materials that remain after the extraction of usable ores are dumped on the surrounding land, thus causing loss of top soil nutrients and supportive micro flora and vegetation. Air pollution, due to dust from the mines, is a common environmental problem in mines and quarries especially open cast operations. Stone Mining activities are normally associated with different types of pollution is regarded as the most notable one, where particulate matter (dust) are generated and found in the surrounding areas of such activities. Particles with aerodynamic of less than 50 μm (termed Total Suspended Particulate matter, or TSP) can become suspended in the atmosphere, and those with aerodynamic diameters of less than 10 pm termed PM10 (inhalable particles) can be transported over long distances, and enter the human respiratory system.

Noise pollution is associated with many types of equipment used in mining• operations, but blasting is considered the major source. Loud sound disturbed the vegetable nearby the area. It also affects stability of infrastructures, building and homes of people living near to these working sites. In this regard, noise pollution may include noise from vehicle engines, loading and unloading of rock into steel dumpers, chutes, power generation, and other sources. Mining operations impact the environment in several ways, and water pollution is a major concern in such operations. For instance quarry dust can change the chemistry of water resources by dissolving in them, it can also settle in water bodies and cause pollution. Furthermore, these operations disrupt the existing movement of surface water and groundwater; they interrupt

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natural water recharge and can lead to reduced quantity and quality of drinking water for residents and wildlife near or downstream from a quarry site.

The pollution potential of the proposed project, it is possible impacts on the surrounding environment during pre- operational and operational phases and the necessary management actions proposed for control and abatement of pollution are furnished here under.

Impact on the some component of the environment is as below:

Air environment:

Although mining does not cause any direct change in air environment, transportation etc. In stone mining operations, the source of air pollution may cause deterioration of quality due to the fugitive dust emission during blasting, scooping, loading-unloading operations and transportation.

Loading and unloading of mineral would be associated with the fugitive emission in the active area whereas fugitive emission during transportation would affect the areas/villages situated adjacent to road side. Another source of air pollution would be emission from the trucks/tractor/other vehicles to be used of transportation of soil.

Water environment:

As far as impact on surface water is concerned, during mining and transportation, there are chances of contamination of surface water resources (pond, well etc.) with dust or by other means. The labourers working in stone mining come from neighboring districts and colonies in the surrounding areas with inadequate facilities for waste disposal. This, in due course, leads to disposal of various things into surface water bodies which in due course of time results into surface water contamination through misuse/ mismanagement and decomposition of the trash.

Land environment:

There shall be no major impacts of stone mining on land due to rocky terrain having no soil cover generation of top soil shall be nil. Other impacts on land include disposal of packing material, carried by the workers. This packing material would include used sachet/gutka/pan masala pouches. Polythene bags are used by the workers to bring their foods etc.

Noise environment:

As far as noise pollution is concerned, blasting is considered the major source of noise pollution. The machinery used in mining of stone mineral creates sound and vibrates. As well as vehicles used for transport, loading- unloading of mineral etc. put impact on noise environment. Noise level in the working environment should be compared with the standards

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prescribed by Central Pollution Control Board which has been adopted and enforced by the Govt. of India through The Noise Pollution (Regulation and control) Rules, 2000.

Flora and Fauna:

The mining is a destructive activity generated by human being for providing strength and security to his living standard. The mining in the concerned zones provides raw materials in the form of crusher, gravels and stones, etc. for construction of roads, railway line and other infrastructures.

From the last few years the mining rate has increased several times. It results in the loss of biodiversity of both flora and fauna and physiographic features of the concerned region.

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23. Remedial Measures to mitigate the impact of mining on the Environment

Recommendation 1	**Recognize sand as a strategic resource** that delivers critical ecosystem services and underpins the construction of vital infrastructure in expanding towns and cities globally.
Recommendation 2	**Include place-based perspectives for just sand transitions,** ensuring the voices of all impacted people are part of decision-making, agenda-setting and action.
Recommendation 3	**Enable a paradigm shift to a regenerative and circular future.**
Recommendation 4	**Adopt strategic and integrated policy and legal frameworks** horizontally, vertically and intersectionally, in tune with local, national, and regional realities.
Recommendation 5	**Establish ownership and access to sand resources** through mineral rights and consenting.
Recommendation 6	**Map, monitor and report sand resources** for transparent, science-based and data-driven decision-making.
Recommendation 7	**Establish best practices and national standards, and a coherent international framework.**
Recommendation 8	**Promote resource efficiency & circularity** by reducing the use of sand, substituting with viable alternatives and recycling products made of sand when possible.
Recommendation 9	**Source responsibly** by actively and consciously procuring sand in an ethical, sustainable, and socially conscious way.
Recommendation 10	**Restore ecosystems and compensate for remaining losses** by advancing knowledge, mainstreaming the mitigation hierarchy, and promoting nature-based solutions.

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Mitigating the environmental impact of mining involves implementing various remedial measures to minimize negative effects on air, water, soil, flora and fauna, and overall ecosystems. Here are some common remedial measures to mitigate the impact of mining on the environment:

Remedial Measures for Air Pollution:

- All types of machinery and transport vehicles will be properly maintained and pollution checks will be done once in a year to keep the emissions from machinery and vehicles under control.
- Water sprinkling will be done on haul roads to control the emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'Kuccha' road shall be done.
- Water sprinkling at the loading area.
- Tree plantation along the haul roads & approach road will be done. Plantation along the mine boundary shall be done with a tree density of 2000 trees per Hectare as per the norms of MoEF&CC, to control dust & noise.
- Use of personal protective equipment like dust masks.
- Ambient air pollution monitoring will be carried out

Remedial Measures for Noise Pollution:

- Diesel-powered machinery, which is a major source of noise in open-cast mining shall be properly maintained. Attention shall be paid towards rigorous maintenance of the silencer of the diesel engines.
- Protective devices shall be provided for use of persons employed in the vicinity of high-noise areas.
- With the adoption of controlled blasting techniques, the ground vibrations will be minimized
- Plantation around the lease boundary will cut the noise levels.
- Remedial Measures for Land Environment:

Some of the measures followed to minimize the impacts are as follows:

- The mining activities will be restricted within the lease area only.
- The waste material will be utilized for the construction of roads and also will be used by the local people for construction work.

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- The surface runoff from the lease area will be retained within the lease and used for plantation, dust suppression and block cutting. So, there will be no soil erosion from the lease area and its surroundings due to mining activity
- The dump will have an inward slope with catch drains at inward side of the terrace and the catch drain of the individual terrace will be connected to the garland drain outside the periphery of the dump. The retaining wall and garland drain will be constructed around the dumps and the surface runoff water pass through the garland drain and finally settle in a settling pit before being released outside
- **Biodiversity Conservation:** Implement conservation strategies to protect biodiversity, including the preservation of critical habitats, reforestation, and the creation of wildlife corridors.
- **Community Engagement:** Involve local communities in decision-making processes and ensure they benefit from mining activities. This may include providing employment opportunities, supporting local infrastructure, and contributing to community development projects.
- **Closed-Loop Systems:** Design mining operations with closed-loop systems to minimize resource consumption and waste generation. This includes recycling and reusing water, materials, and energy within the mining process
- **Monitoring and Compliance:** Establish regular monitoring programs to assess the environmental impact of mining activities. Ensure strict compliance with environmental regulations and standards.
- **Training and Awareness:** Provide training for mining personnel on environmentally friendly practices and the importance of conservation. Increase public awareness about the environmental impacts of mining and the efforts being made to mitigate them.
- **Post-Closure Planning:** Develop and implement plans for the post-closure phase of mining operations to ensure ongoing environmental monitoring, maintenance, and adaptive management.

By incorporating these remedial measures, mining operations can help minimize their environmental impact and contribute to sustainable resource extraction. It's important to recognize that effective mitigation requires collaboration among industry stakeholders, regulatory bodies, local communities, and environmental experts.

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24. Reclamation of Mined out area

It is necessary to reclaim the land affected by mining for to following reasons

- To put the land into productive use like agriculture, forestry or recreational purposes
- To check soil erosion from dumps leading to the destruction of watersheds and siltation of rivers.
- Accumulation of huge quantities of water in worked-out pits may pose a threat to life and property.
- To combat adverse visual impact.

The afforestation programme is the most important programme to improve the environment and ecological balance of the area. Grasses and bushes that have fibrous roots are at the first instance grown which gives the binding property to the soil. After growing grasses and bushes, other tree species in consultation with the experts will be raised, based on the characteristics of soil, topography and climatic conditions.

The main post-mine land use for the Project will be grazing based on a self-sustaining vegetation community using appropriate pasture grasses and scattered plantings of native tree and shrub species.

For successful reclamation following points are to be considered

- Listing inventory of pre-mining condition.
- Monitoring flexibility of mining programme in the light of efficient land reclamation
- Evaluation of the post-mining requirements of the region and to decide on the needs and desires of the affected ground.
- To make reclamation planning suitable to the techno-economical and socio-political environment.
- To assess the physio-chemical characteristics of overburden.
- Extra cost of preservation, re-handling, spreading and levelling of subsoil and topsoil.
- Knowledge of hydrogeological/geomorphological conditions. Aesthetic and/or historic value of land.

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The fast-growing plantation and re-grassing shall be done on the exhausted/excavated benches as well as in backfilled pits and will be done in consultation with local peoples or Govt. Authorities like the forest department etc. The mining lease shall be fenced properly in the entire periphery of the safety zone. The total mined-out area of the benches shall be dedicated to plantation and re-grassing. The average year-wise proposed bench area for the plantation is as under:

a) The plantation/regressing and its maintenance cost will be borne by the applicant. Also, a green belt will be developed in consultation with the local panchayat and forest departments along approach roads in order to minimize pollution.
b) Based on the characteristics of soil, topography and climatic conditions of the area, plantation of grasses/bushes and other tree species will be done by the applicant
c) Plantation before the onset of the monsoon season will be done progressively until the final closure of the mine
d) Green Belt shall be properly designed in consultation with the forest department. Plantation shall be carried out as per the periodical plantation programmer
e) Fast-growing and evergreen trees, trees with broadleaf resistance to specific pollutants and those that would maintain the regional ecological balance, soil and hydrological conditions shall be favored.
f) Green belt area along the haul roads, buffer zone, dumping sites as well as the excavated benches shall be developed.
g) Besides this, only local labours shall be engaged for watch and ward and plantation activity with proper maintenance.

The plantation/regressing and its maintenance cost will be borne by the applicant. Also, a green belt will be developed in consultation with the local panchayat and forest department along approach roads in order to minimize pollution.

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25. Risk Assessment & Disaster Management Plan

Risk Assessment:

- **Identify Hazards:** Conduct a thorough identification of potential hazards associated with mining activities, considering factors such as geology, equipment, processes, and external influences
- **Risk Analysis:** Assess the likelihood and potential consequences of identified hazards. This involves quantifying risks to prioritize them based on severity and probability
- **Vulnerability Assessment:** Evaluate the vulnerability of critical infrastructure, surrounding communities, and the natural environment to potential risks and hazards
- **Stakeholder Engagement:** Involve relevant stakeholders, including local communities, government agencies, and environmental experts, in the risk assessment process to gather diverse perspectives and local knowledge.
- **Emergency Response Planning:** Develop detailed emergency response plans for various scenarios, considering potential accidents, natural disasters, and other emergencies. Include evacuation routes, emergency shelters, and communication protocols.

Disaster Management Plan:

- **Risk Mitigation Strategies:** Implement risk mitigation strategies to minimize the likelihood and impact of identified hazards. This may involve engineering controls, process modifications, and the use of advanced technologies.
- **Safety Training and Awareness:** Conduct regular safety training for mining personnel, contractors, and local communities. Promote awareness of potential hazards and the importance of adhering to safety protocols. The required personal protective equipment should be provided and used in a manner that protects the individual from injury. A few minor injuries which can be prevented are slip, trip or fall hazards; hazards due to rock falls and collapse of unstable rocks, atmosphere containing toxic or combustible gases; protection from chemical or hazardous material etc.
- **Infrastructure Design:** Design mining infrastructure with safety in mind, incorporating features such as containment systems for hazardous materials, emergency exits, and protective barriers.

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- **Contingency Planning:** Develop contingency plans for various emergency scenarios, outlining specific actions to be taken in the event of accidents, spills, fires, or other critical incidents.
- **Collaboration with Emergency Services:** Coordinate with local emergency services, hospitals, and law enforcement agencies to ensure a seamless response to emergencies. Conduct joint training exercises and drills to improve preparedness.
- **Emergency Equipment and Resources:** Maintain an inventory of emergency equipment, such as first aid supplies, firefighting equipment, and evacuation vehicles. Ensure that resources are strategically located for quick access. A disaster management plan should be prepared for taking care of for any disaster. Other risks which are included in this category are noise, as it occurs and it can lead to permanent disability. There are problems related to road traffic in and out issuers; inappropriate exposure of moving machines; mechanical failure and because of large number of moving trucks and dumpers there is a large quantity of dust present in roadways which affects the operators and can lead to accidents.

By integrating comprehensive risk assessments and disaster management plans into mining projects, companies can enhance the safety of their operations, protect the environment, and contribute to the well-being of surrounding communities. It is essential to work closely with regulatory bodies and local stakeholders throughout the planning and implementation processes.

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26. Details of the Occupational Health issues in Kokrajhar District

The negative impacts of dust pollution due to quarrying activities on health revealed by respondent information were respiratory problem, eye infection, cough, sneezing, allergy , chest pain , headache , accumulation of dust on home , and slow growth of fodder for cattle and goats. The negative effects of dust pollution on crop productivity are reduction of agricultural yield due to deposition of dust on crop and secondly availability of ground water and water contamination. Another problem we noticed through interview was many agricultural labour were faced difficulty to work in dusty environment therefore resulting in reduction of agricultural yield indirectly. Many fruit trees also affected by dust pollution resulting in stunted growth and decreased fruit yields. There are also reductions in appearance of insect pollination like butterflies, bees, moths etc. due to dust pollution.

The persons employed in the mines are exposed to a number of hazards at work which adversely affect their health. Some of the important ones are dust, noise, heat, humidity, vibration etc. In recent times, there has been increasing awareness among the mining industry and workers about occupational diseases. Almost all occupational diseases are known to cause permanent disablement and there is no effective treatment. However, most of occupational diseases can be prevented by adopting proper occupational health measures and engineering control of airborne dust at the workplace.

In order to detect occupational diseases, the health surveillance programme shall be adopted in mines which include:

- Initial Medical Examination of persons to be employed in mines.
- Periodic Medical Examination once every five years. General physical examination, chest radiographs, lung function tests and audiometric
- Classification of chest radiographs of workers as per ILO Classification.
- Medical examination within one year of superannuation

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27. Plantation and Green Belt development in respect of leases already granted in Kokrajhar District

Protect natural or semi- natural environments:

- Improve air quality with in urban areas
- Protect the unique character of rural communities that might otherwise be absorbed by expanding suburbs.
- Plants that grow fast should be preferred
- Preference for high canopy covers plants with local varieties
- Perennial and evergreen plants should be preferred
- Plants having a high Air pollution Tolerance Index (APTI) should be- preferred.

Greenbelt Development & **Plantation Programme**

Plantation should be developed at **2Mx2M spacing**; the rate of survival should be aimed at 80% by regular watering & fencing to keep plants safe from animal grazing. Local species will be planted in consultation with local horticulturist. Diseased plants should be replaced by planting new saplings.

Recommendation for green Belt Development

It is strongly recommended to create greenbelt around the project or incase lease failed the authority should take proper action to stop mining operation or
Revoke mining permission with necessary action.

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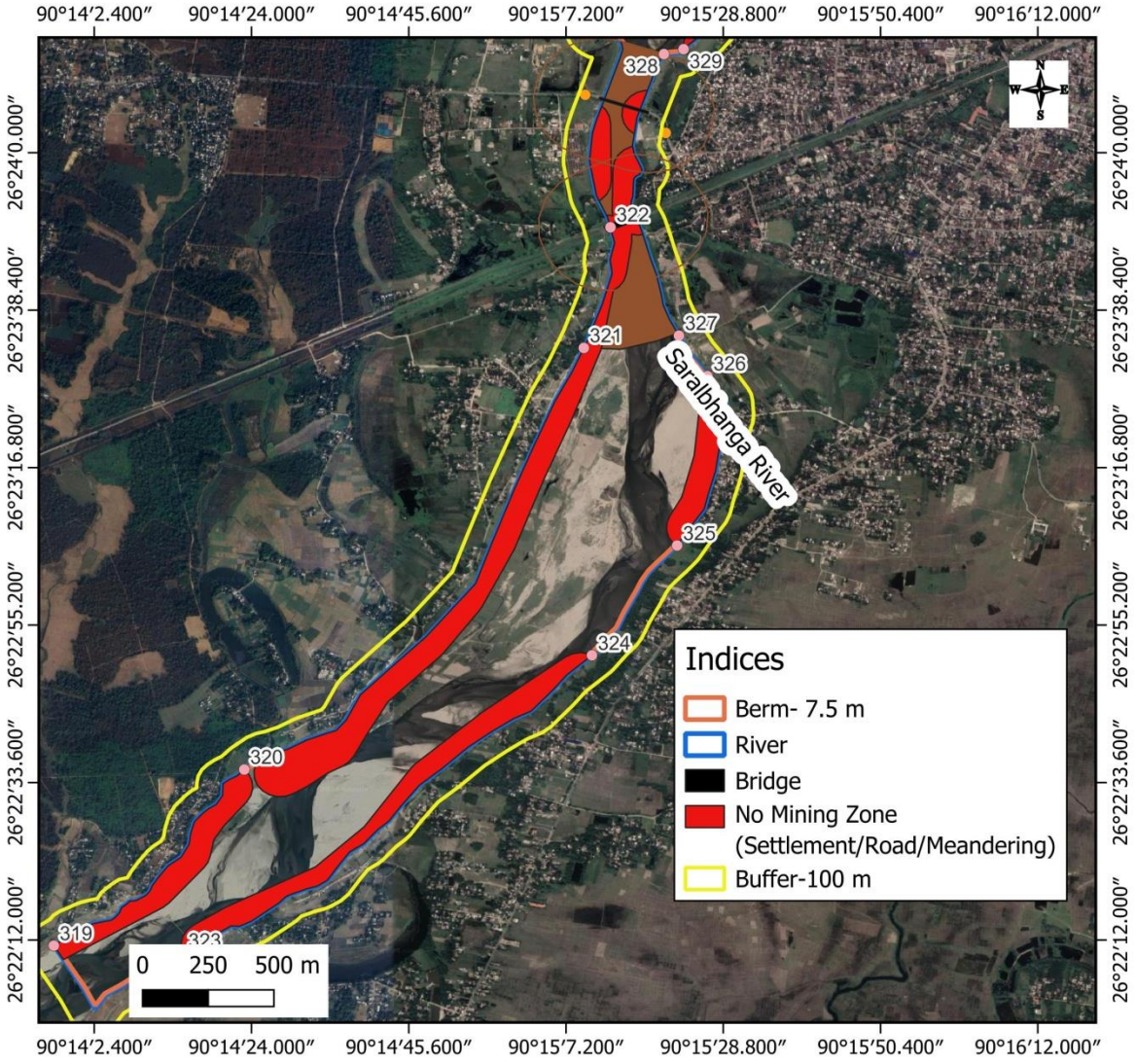
SARALBHANGA RIVER



Points	Lat	Long
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320	26°22'35"N	90°14'23"E
321	26°23'33"N	90°15'10"E
322	26°23'50"N	90°15'13"E
323	26°22'10"N	90°14'15"E
324	26°22'51"N	90°15'11"E
325	26°23'6"N	90°15'22"E
326	26°23'29"N	90°15'27"E
327	26°23'35"N	90°15'23"E
328	26°24'14"N	90°15'21"E
329	26°24'14"N	90°15'23"E

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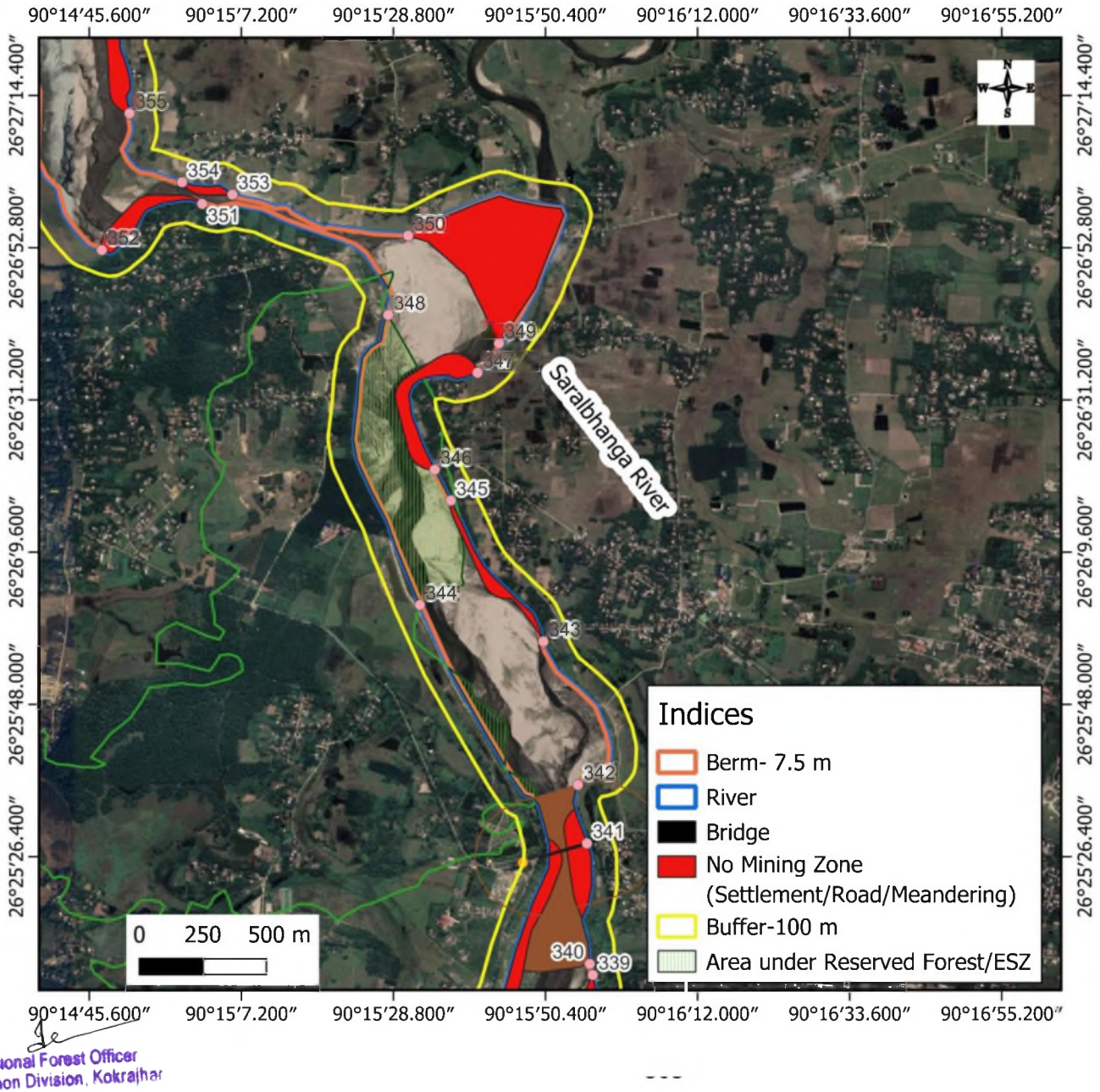

Points	Lat	Long
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340	26°25'11"N	90°15'57"E
341	26°25'28"N	90°15'56"E
342	26°25'37"N	90°15'55"E
343	26°25'57"N	90°15'50"E
344	26°26'2"N	90°15'33"E
345	26°26'17"N	90°15'37"E
346	26°26'21"N	90°15'35"E
347	26°26'35"N	90°15'41"E
348	26°26'43"N	90°15'28"E
349	26°26'39"N	90°15'44"E
350	26°26'55"N	90°15'31"E
351	26°26'59"N	90°15'2"E
352	26°26'52"N	90°14'47"E
353	26°27'0"N	90°15'6"E
354	26°27'2"N	90°14'59"E
355	26°27'12"N	90°14'51"E

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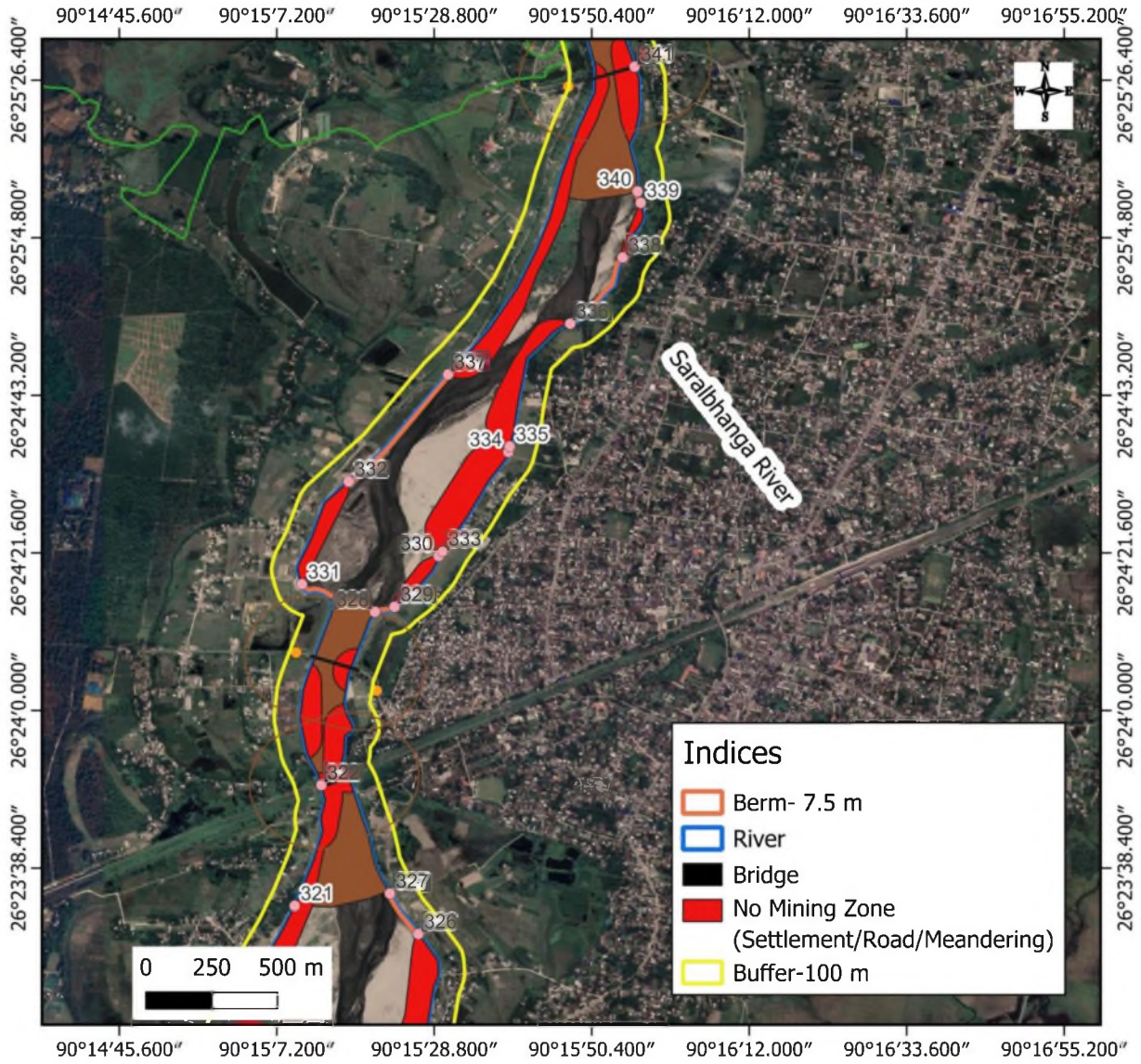

Points	Lat	Long
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322	26°23'50"N	90°15'13"E
326	26°23'29"N	90°15'27"E
327	26°23'35"N	90°15'23"E
328	26°24'14"N	90°15'21"E
329	26°24'14"N	90°15'23"E
330	26°24'21"N	90°15'29"E
331	26°24'17"N	90°15'11"E
332	26°24'31"N	90°15'17"E
333	26°24'22"N	90°15'30"E
334	26°24'35"N	90°15'39"E
335	26°24'36"N	90°15'39"E
336	26°24'53"N	90°15'47"E
337	26°24'46"N	90°15'31"E
338	26°25'2"N	90°15'55"E
339	26°25'10"N	90°15'57"E
340	26°25'11"N	90°15'57"E
341	26°25'28"N	90°15'56"E

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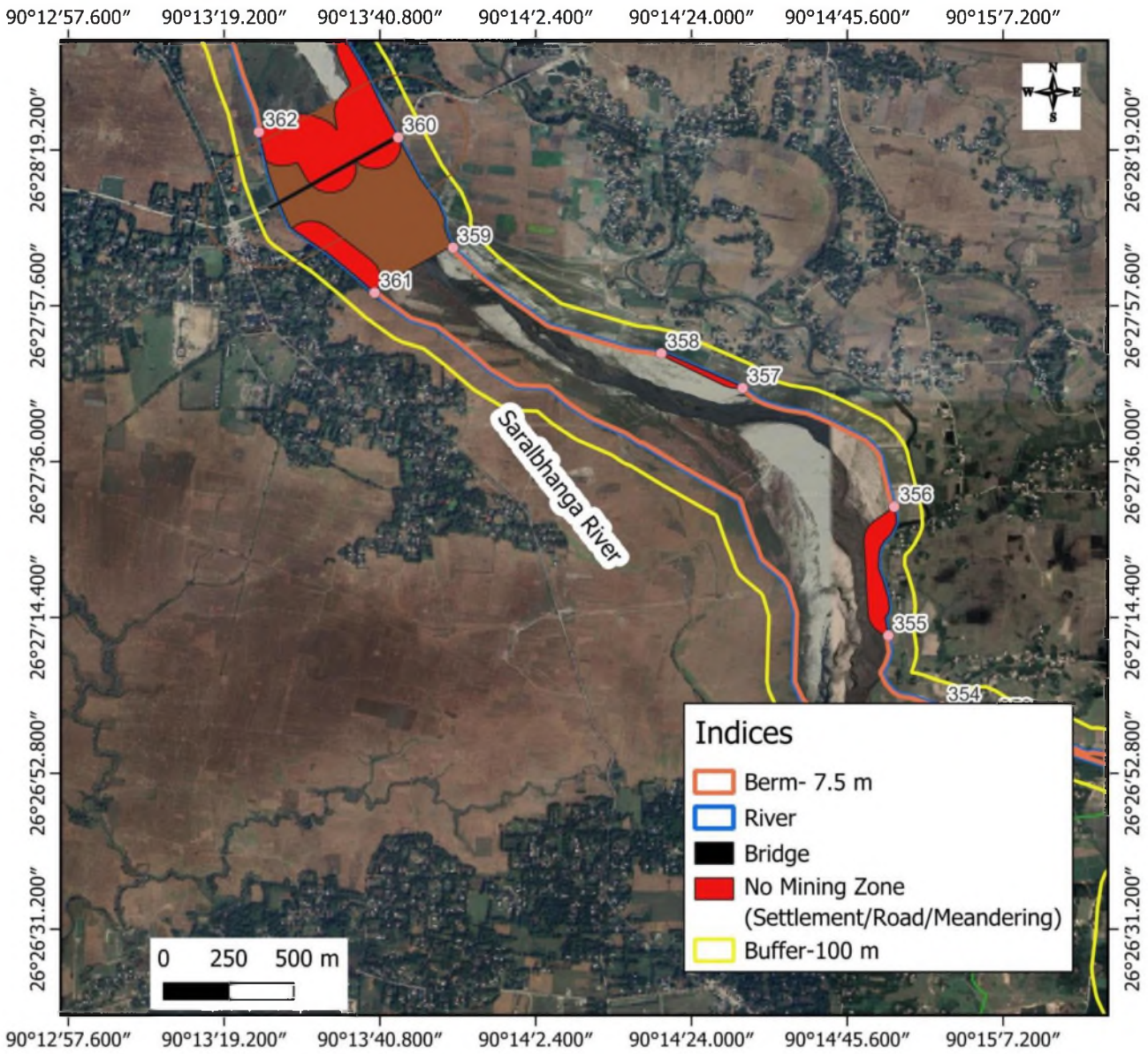

Points	Lat	Long
351	26°26'59"N	90°15'2"E
352	26°26'52"N	90°14'47"E
353	26°27'0"N	90°15'6"E
354	26°27'2"N	90°14'59"E
355	26°27'12"N	90°14'51"E
356	26°27'30"N	90°14'52"E
357	26°27'46"N	90°14'31"E
358	26°27'51"N	90°14'20"E
359	26°28'6"N	90°13'51"E
360	26°28'21"N	90°13'43"E
361	26°27'59"N	90°13'40"E
362	26°28'22"N	90°13'24"E

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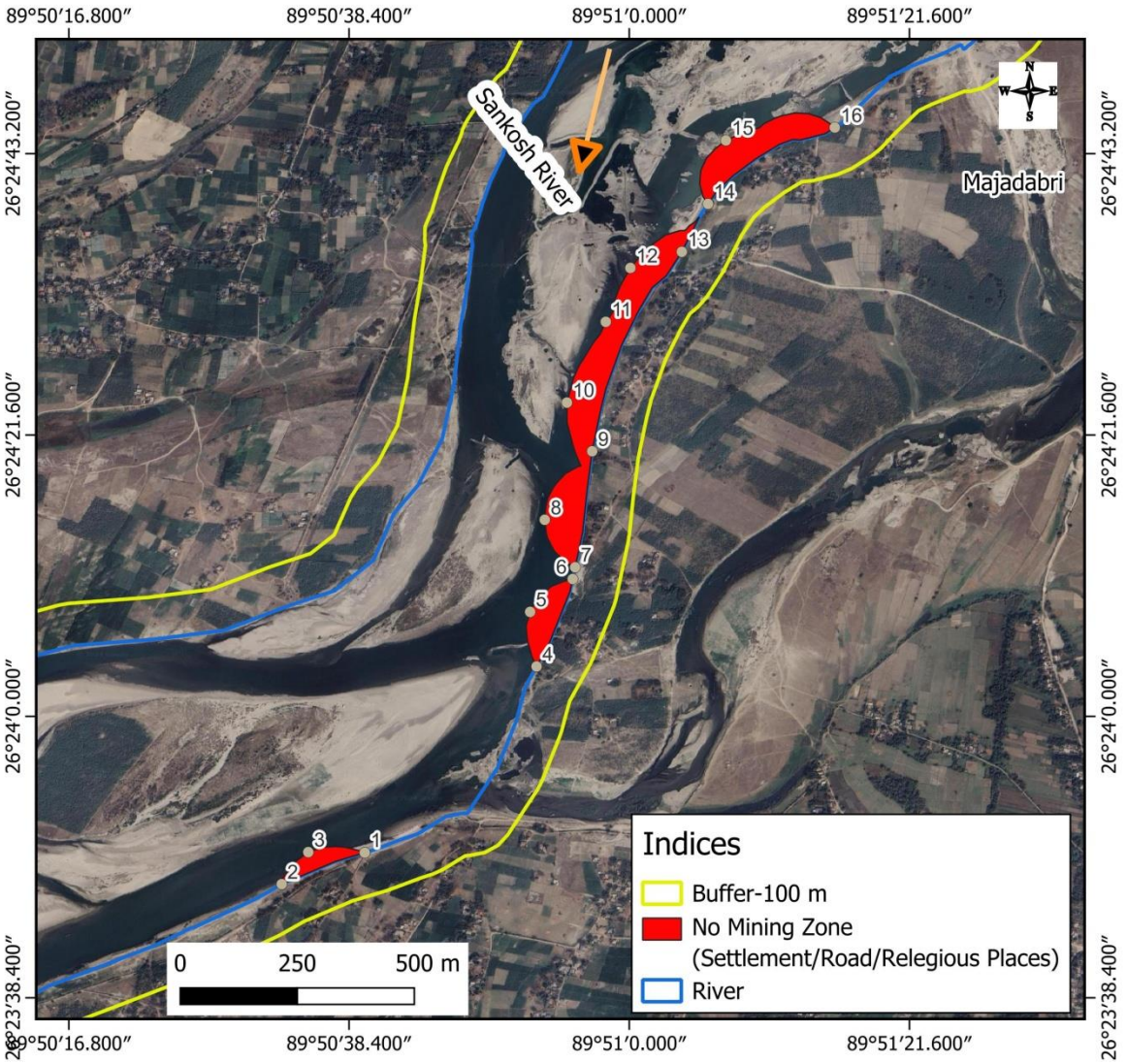
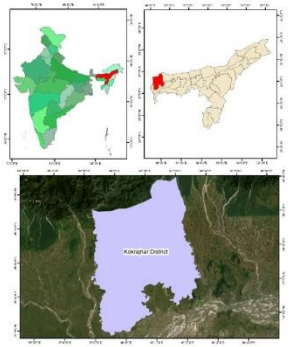
SANKOSH RIVER





poles	lat	long
1	26°23'50"N	89°50'40"E
2	26°23'47"N	89°50'33"E
3	26°23'50"N	89°50'35"E
4	26°24'4"N	89°50'53"E
5	26°24'8"N	89°50'52"E
6	26°24'11"N	89°50'56"E
7	26°24'11"N	89°50'56"E
8	26°24'15"N	89°50'53"E
9	26°24'20"N	89°50'57"E
10	26°24'24"N	89°50'55"E
11	26°24'30"N	89°50'58"E
12	26°24'34"N	89°51'0"E
13	26°24'36"N	89°51'4"E
14	26°24'39"N	89°51'6"E
15	26°24'44"N	89°51'7"E
16	26°24'45"N	89°51'16"E

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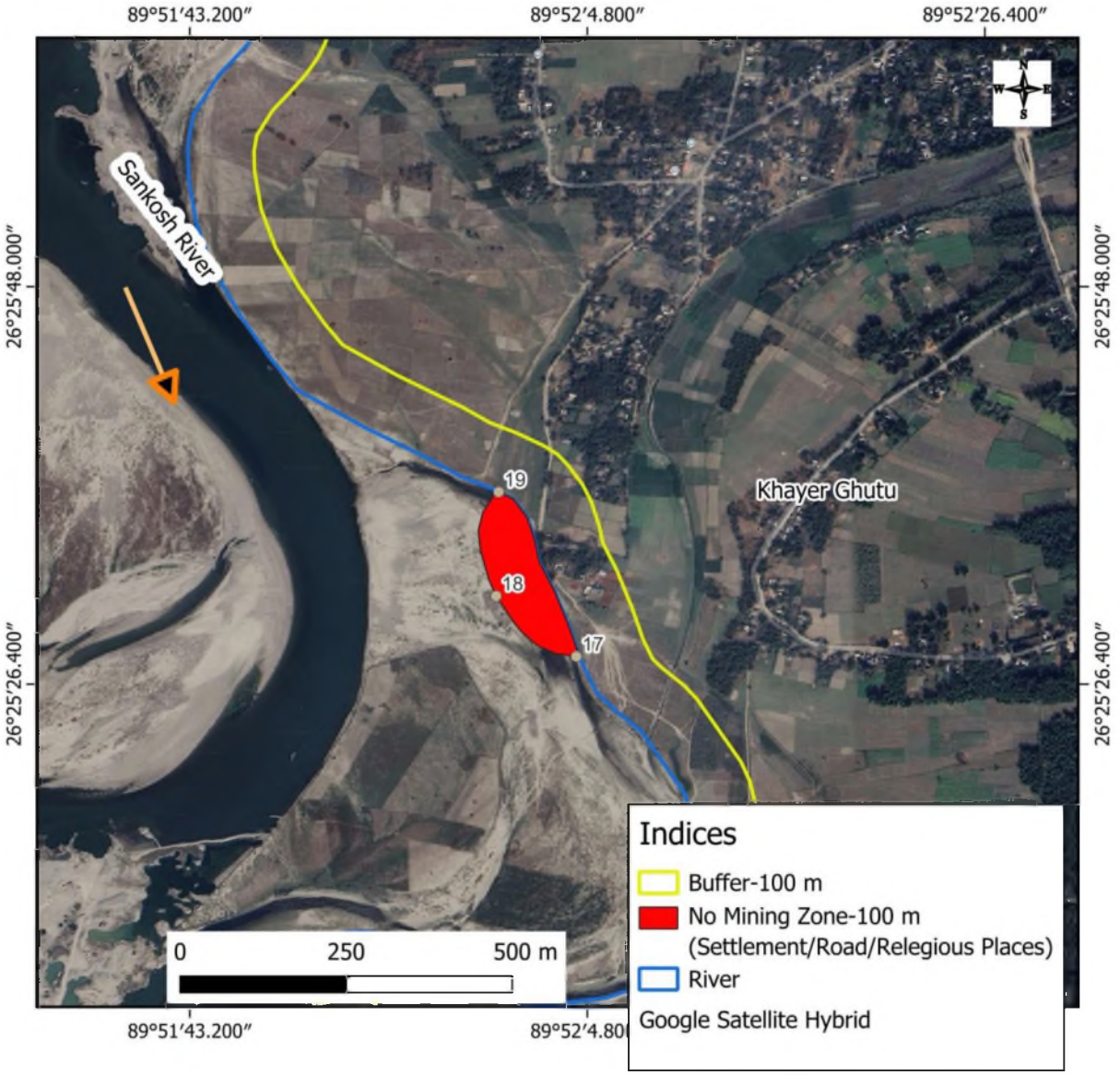

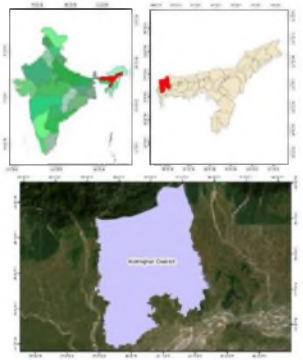

poles	lat	long
17	26°25'28"N	89°52'4"E
18	26°25'31"N	89°52'0"E
19	26°25'37"N	89°52'0"E

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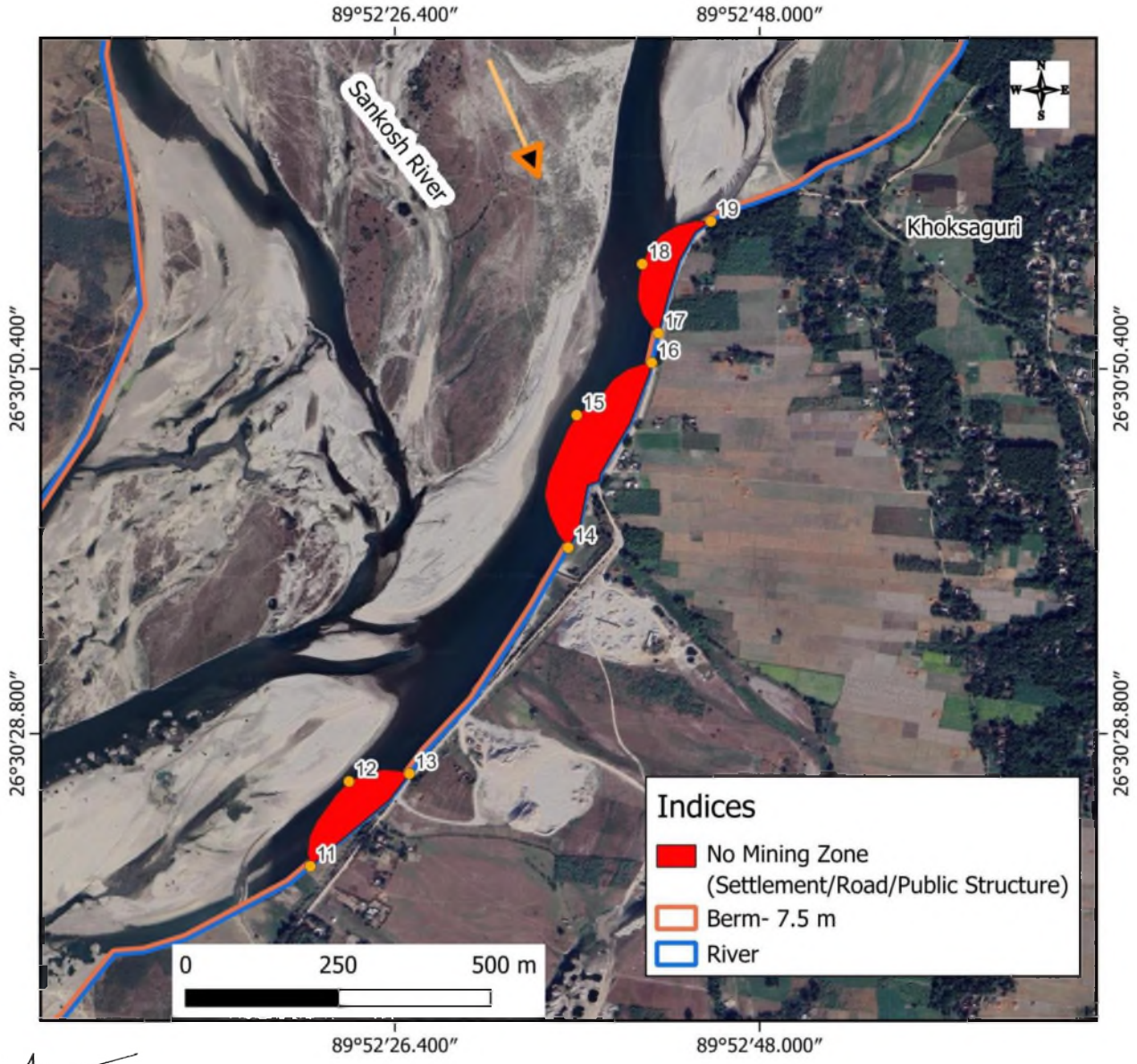

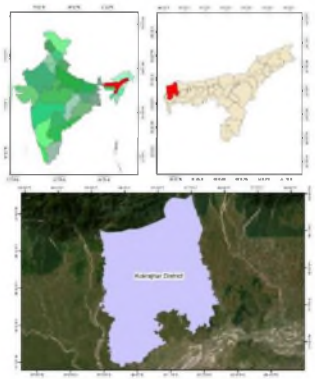

Points	Lat	Long
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12	26°30'26"N	89°52'24"E
13	26°30'26"N	89°52'27"E
14	26°30'40"N	89°52'37"E
15	26°30'48"N	89°52'37"E
16	26°30'51"N	89°52'42"E
17	26°30'53"N	89°52'42"E
18	26°30'57"N	89°52'41"E
19	26°30'59"N	89°52'45"E

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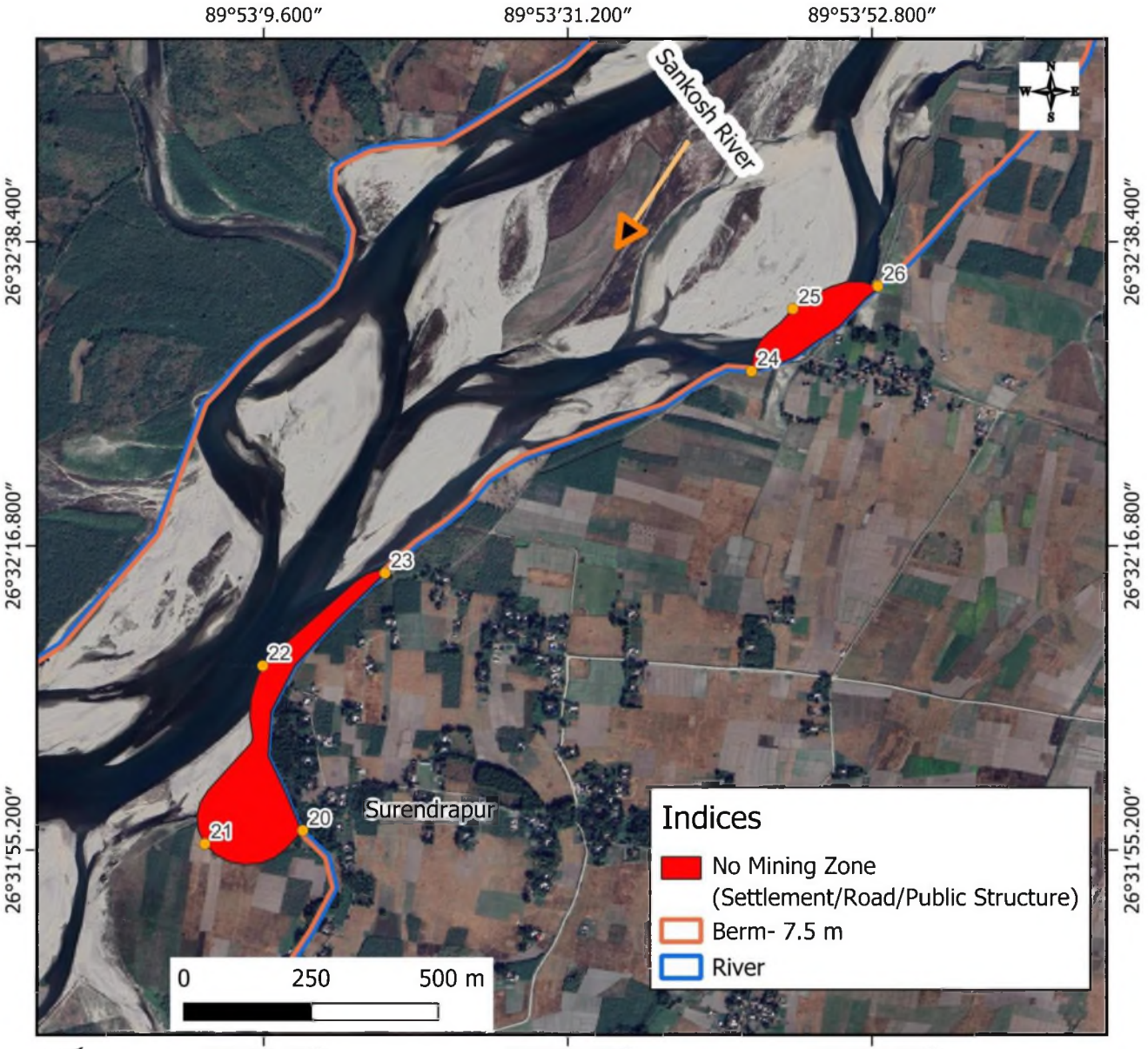

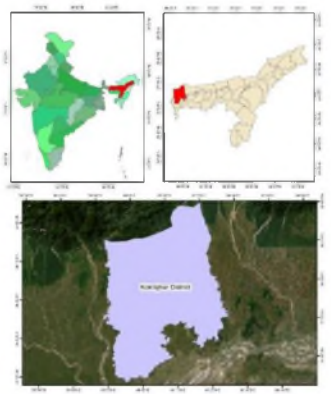

Points	Lat	Long
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22	26°32'8"N	89°53'10"E
23	26°32'15"N	89°53'18"E
24	26°32'29"N	89°53'44"E
25	26°32'34"N	89°53'47"E
26	26°32'35"N	89°53'53"E

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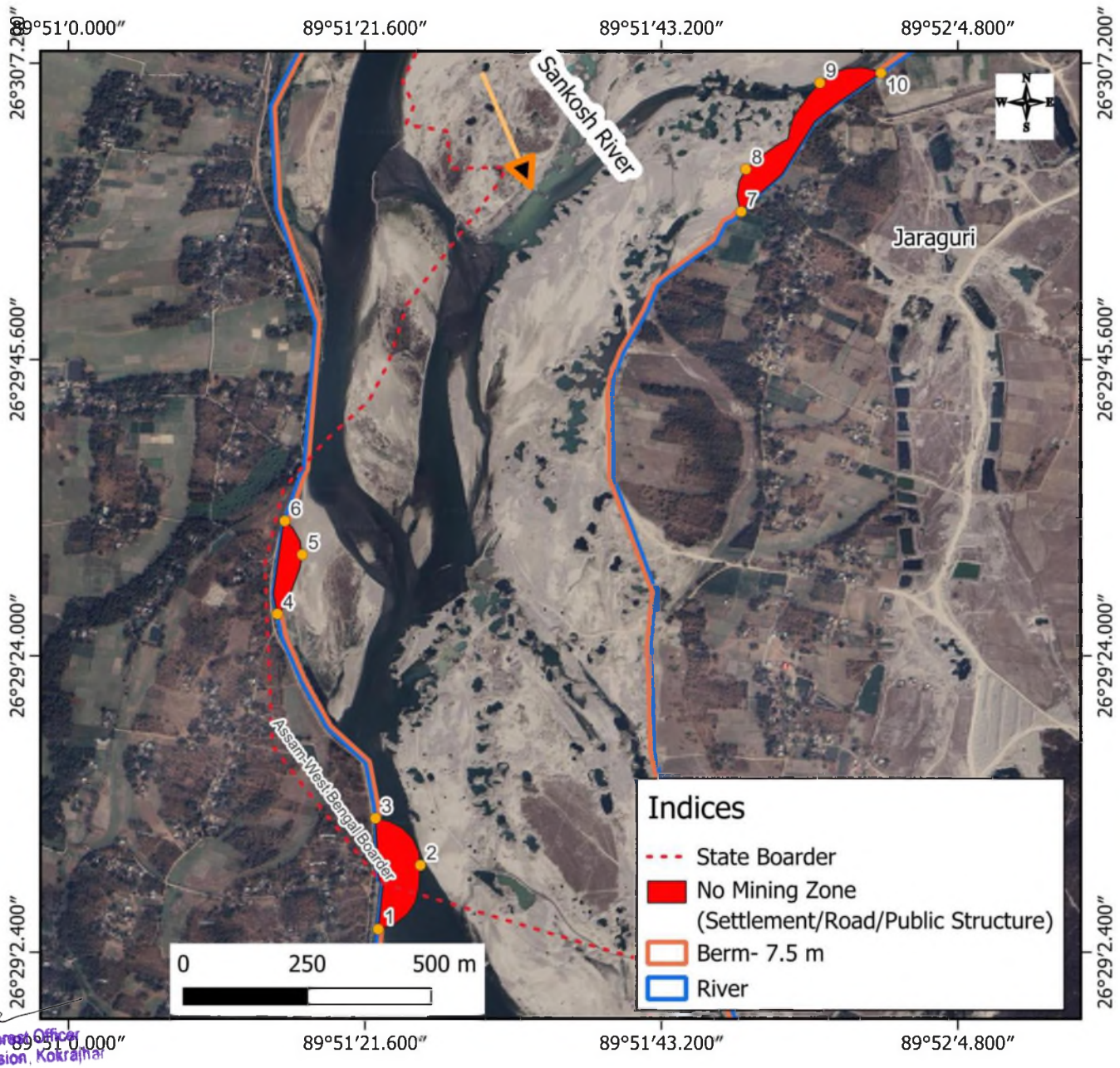

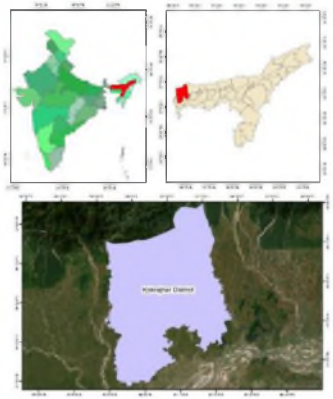

Points	Lat	Long
1	26°29'4"N	89°51'23"E
2	26°29'9"N	89°51'26"E
3	26°29'12"N	89°51'22"E
4	26°29'27"N	89°51'15"E
5	26°29'31"N	89°51'17"E
6	26°29'34"N	89°51'16"E
7	26°29'56"N	89°51'49"E
8	26°29'59"N	89°51'49"E
9	26°30'6"N	89°51'55"E
10	26°30'6"N	89°51'59"E

Divisional Forest Officer
Haltugaon Division, Kokrajhar

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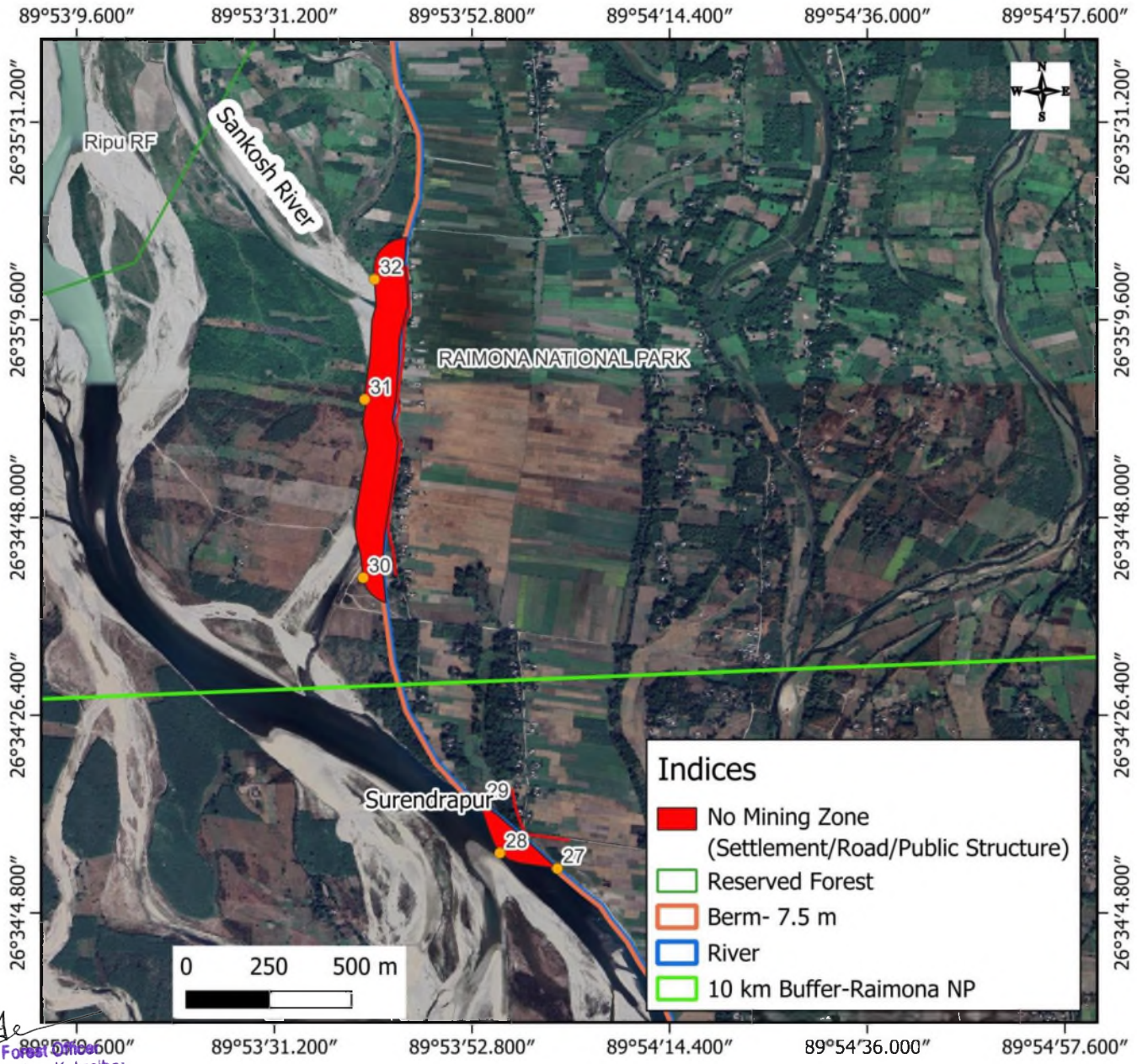

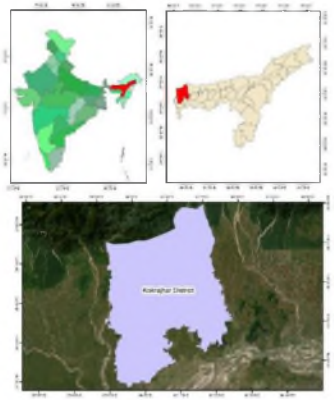

Points	Lat	Long
27	26°34'10"N	89°54'2"E
28	26°34'11"N	89°53'56"E
29	26°34'17"N	89°53'54"E
30	26°34'41"N	89°53'41"E
31	26°35'1"N	89°53'41"E
32	26°35'14"N	89°53'42"E

Divisional Forest Officer
Haltugaon Division, Kokrajhar

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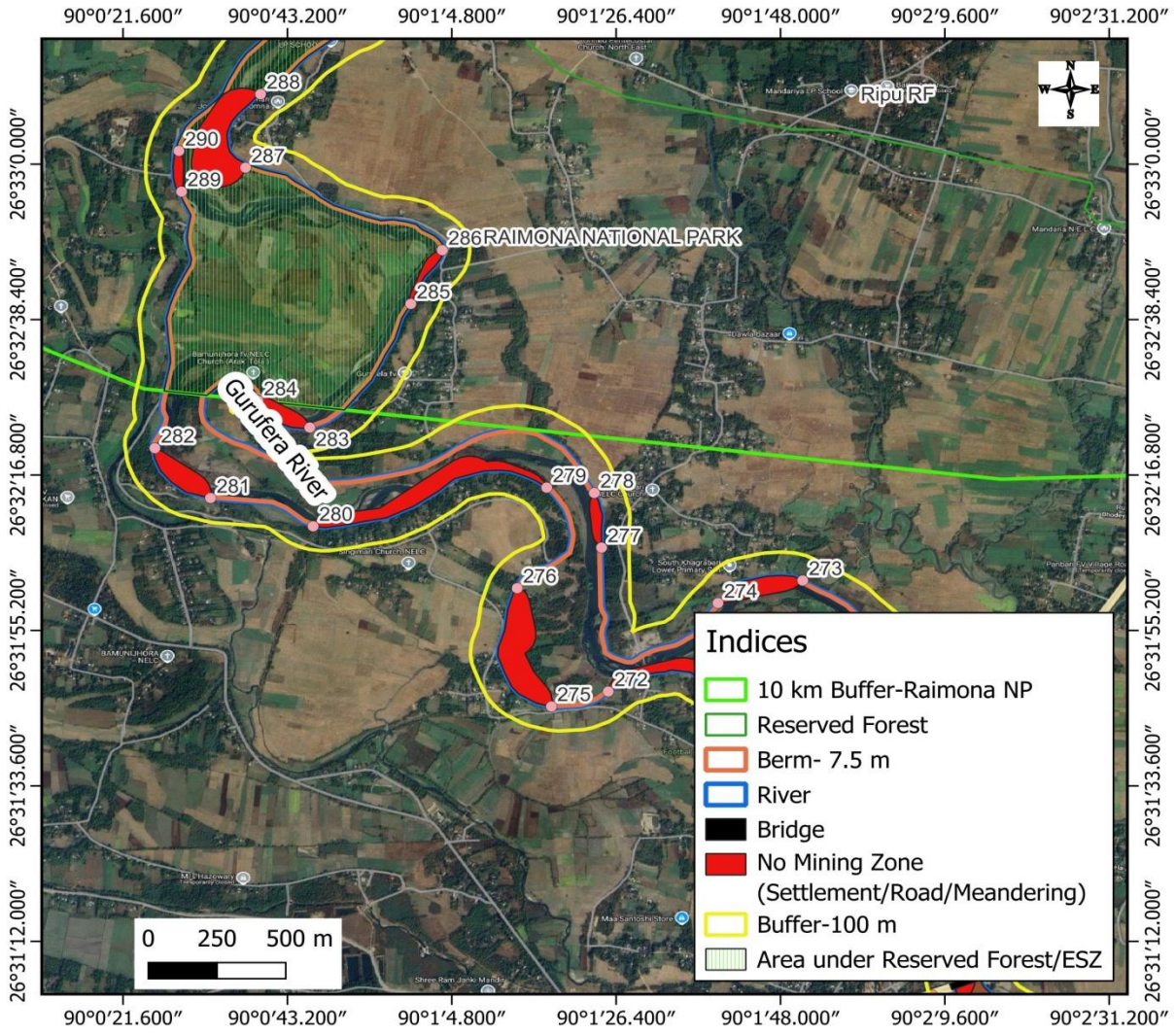
GURUFELA RIVER



Points	Lat	Long
261	26°31'7"N	90°2'14"E
262	26°31'16"N	90°2'15"E
263	26°31'20"N	90°2'16"E
264	26°31'22"N	90°2'0"E
265	26°31'26"N	90°1'53"E
266	26°31'41"N	90°1'45"E
267	26°31'29"N	90°2'11"E
268	26°31'44"N	90°1'58"E
269	26°31'46"N	90°2'1"E
270	26°31'51"N	90°2'3"E
271	26°31'48"N	90°1'39"E
272	26°31'47"N	90°1'25"E
273	26°32'2"N	90°1'51"E
274	26°31'59"N	90°1'40"E
275	26°31'45"N	90°1'18"E
276	26°32'1"N	90°1'13"E
277	26°32'7"N	90°1'24"E
278	26°32'14"N	90°1'24"E
279	26°32'15"N	90°1'17"E
280	26°32'10"N	90°0'47"E
281	26°32'14"N	90°0'33"E
282	26°32'21"N	90°0'26"E
283	26°32'23"N	90°0'46"E
284	26°32'27"N	90°0'39"E
285	26°32'41"N	90°0'59"E
286	26°32'48"N	90°1'4"E
287	26°33'0"N	90°0'38"E
288	26°33'10"N	90°0'40"E
289	26°32'56"N	90°0'29"E
290	26°33'2"N	90°0'29"E

Divisional Forest Officer
Haltugaon Division, Kokrajhar

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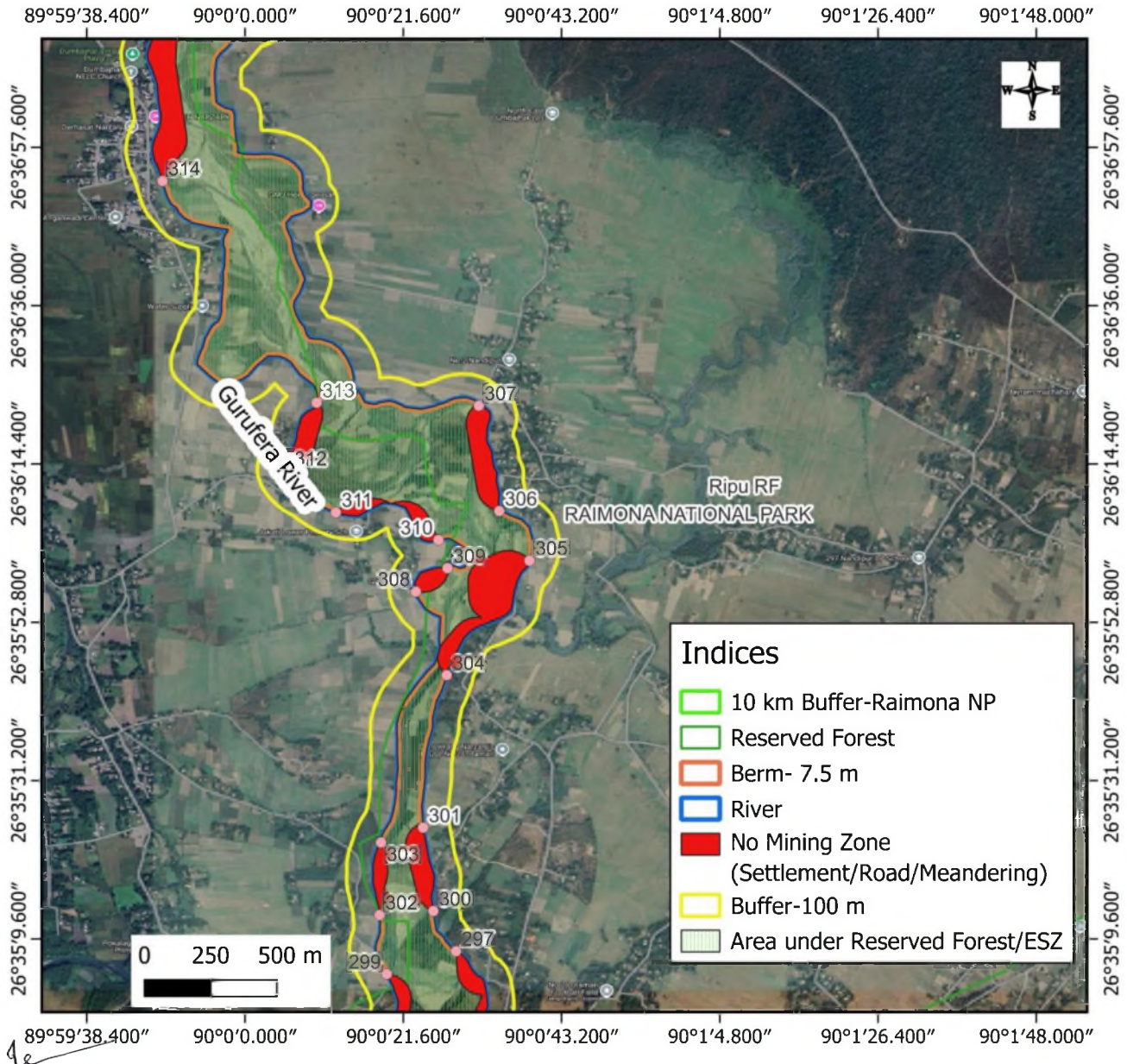

Points	Lat	Long
297	26°35'8"N	90°0'29"E
299	26°35'5"N	90°0'19"E
300	26°35'13"N	90°0'26"E
301	26°35'25"N	90°0'24"E
302	26°35'13"N	90°0'18"E
303	26°35'23"N	90°0'19"E
304	26°35'46"N	90°0'28"E
305	26°36'1"N	90°0'39"E
306	26°36'8"N	90°0'35"E
307	26°36'22"N	90°0'32"E
308	26°35'57"N	90°0'23"E
309	26°36'0"N	90°0'28"E
310	26°36'4"N	90°0'26"E
311	26°36'8"N	90°0'12"E
312	26°36'13"N	90°0'6"E
313	26°36'23"N	90°0'10"E
314	26°36'53"N	89°59'49"E

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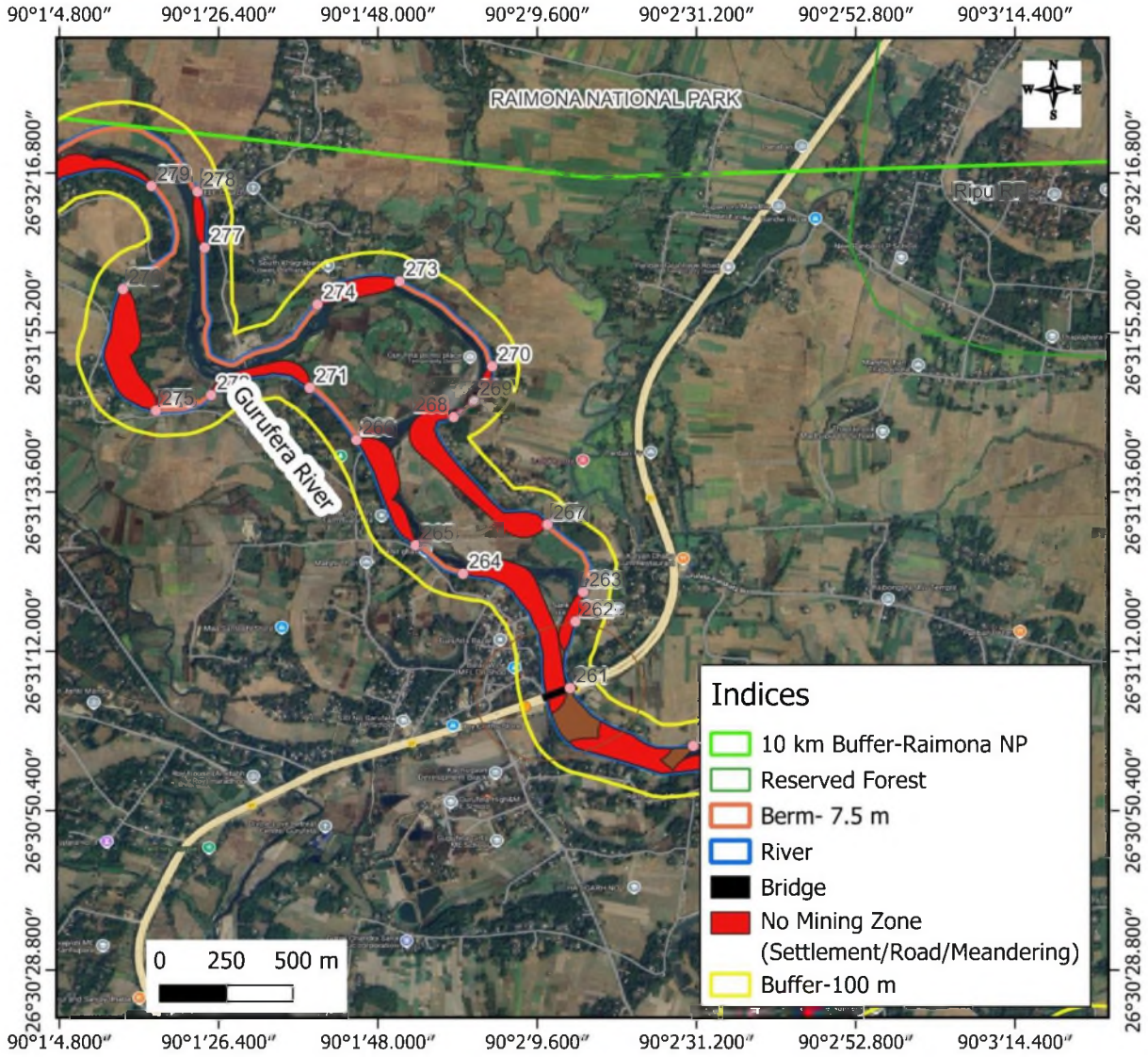
Divisional Forest Officer
Haltugaon Division, Kokrajhar



Points	Lat	Long
254	26°30'24"N	90°2'39"E
255	26°30'28"N	90°2'46"E
257	26°30'32"N	90°2'57"E
258	26°30'47"N	90°2'49"E
259	26°30'48"N	90°2'45"E
260	26°30'59"N	90°2'31"E
261	26°31'7"N	90°2'14"E
262	26°31'16"N	90°2'15"E
263	26°31'20"N	90°2'16"E
264	26°31'22"N	90°2'0"E
265	26°31'26"N	90°1'53"E
266	26°31'41"N	90°1'45"E
267	26°31'29"N	90°2'11"E
268	26°31'44"N	90°1'58"E
269	26°31'46"N	90°2'1"E
270	26°31'51"N	90°2'3"E
271	26°31'48"N	90°1'39"E
272	26°31'47"N	90°1'25"E
273	26°32'2"N	90°1'51"E
274	26°31'59"N	90°1'40"E
275	26°31'45"N	90°1'18"E
276	26°32'1"N	90°1'13"E
277	26°32'7"N	90°1'24"E
278	26°32'14"N	90°1'24"E
279	26°32'15"N	90°1'17"E

Divisional Forest Officer
Haltugaon Division, Kokrajhar

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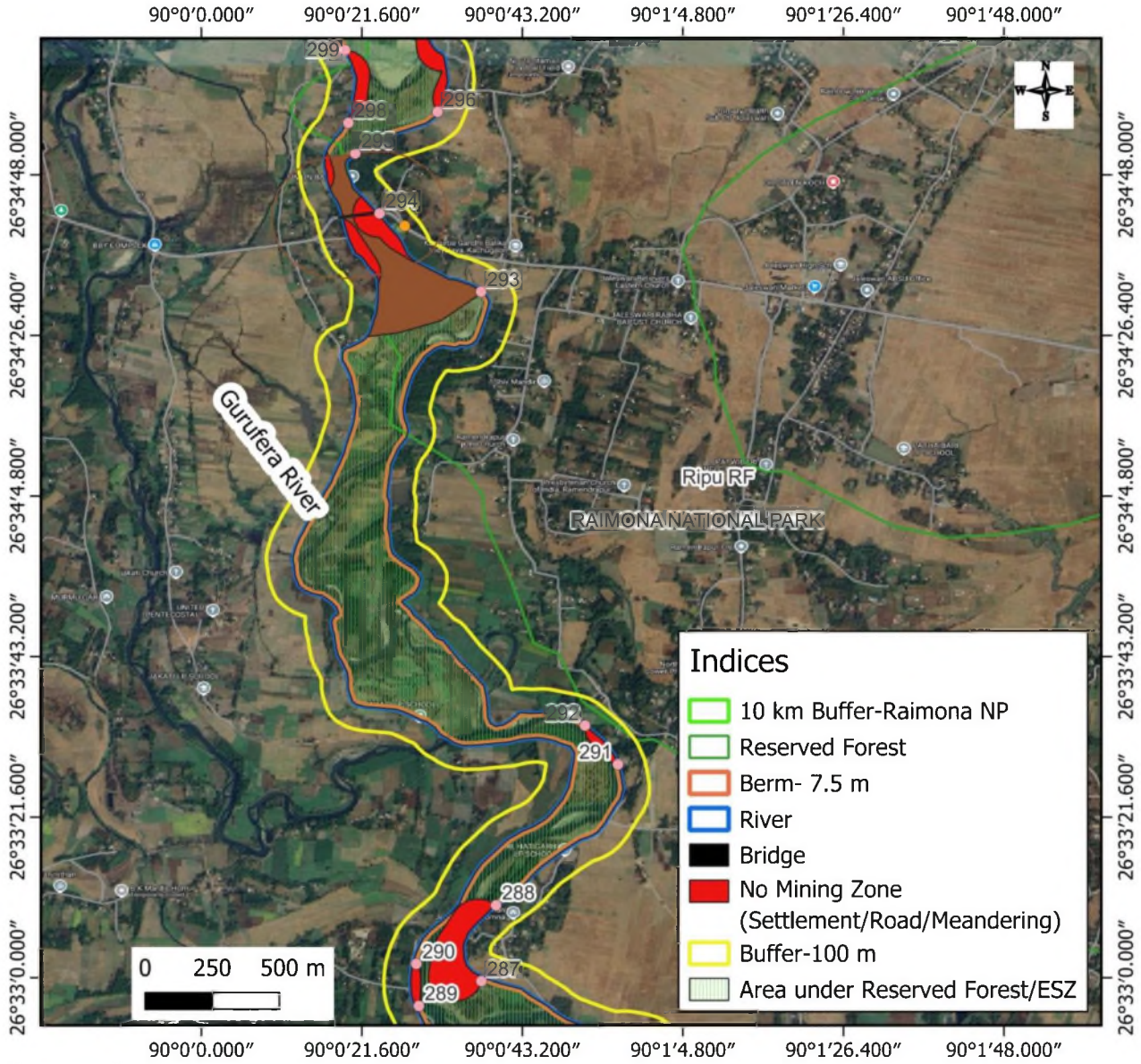

Points	Lat	Long
287	26°33'0"N	90°0'38"E
288	26°33'10"N	90°0'40"E
289	26°32'56"N	90°0'29"E
290	26°33'2"N	90°0'29"E
291	26°33'29"N	90°0'56"E
292	26°33'34"N	90°0'52"E
293	26°34'32"N	90°0'38"E
294	26°34'43"N	90°0'24"E
295	26°34'51"N	90°0'21"E
296	26°34'56"N	90°0'32"E
298	26°34'55"N	90°0'20"E
299	26°35'5"N	90°0'19"E

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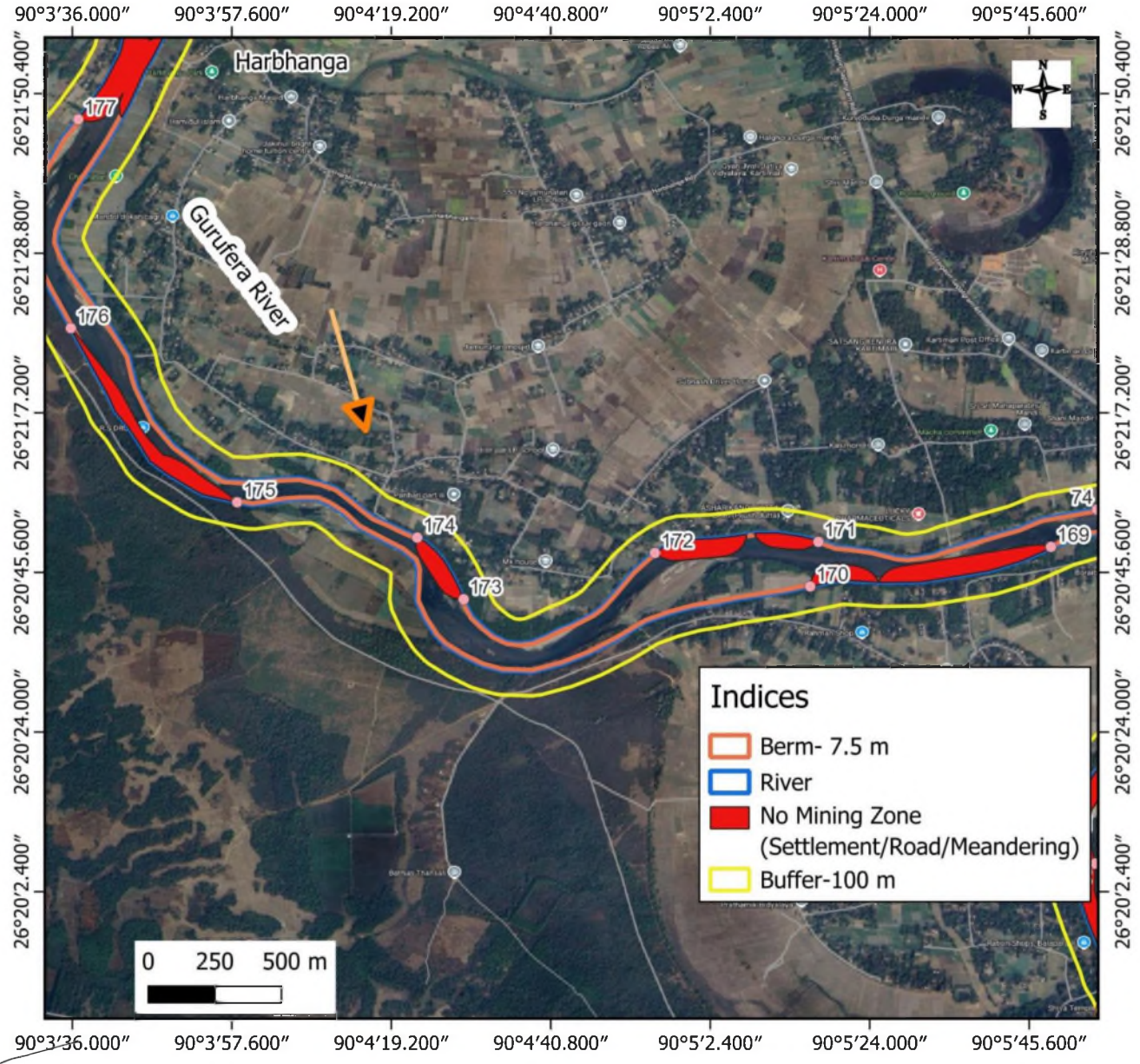
Divisional Forest Officer
Haltugaon Division, Kokrajhar



Points	Lat	Long
61	26°20'10"N	90°5'51"E
62	26°20'6"N	90°5'55"E
74	26°20'54"N	90°5'55"E
169	26°20'49"N	90°5'49"E
170	26°20'44"N	90°5'16"E
171	26°20'50"N	90°5'17"E
172	26°20'48"N	90°4'55"E
173	26°20'42"N	90°4'29"E
174	26°20'50"N	90°4'23"E
175	26°20'55"N	90°3'58"E
176	26°21'19"N	90°3'36"E
177	26°21'47"N	90°3'37"E

Divisional Forest Officer
Haltugaon Division, Kokrajhar

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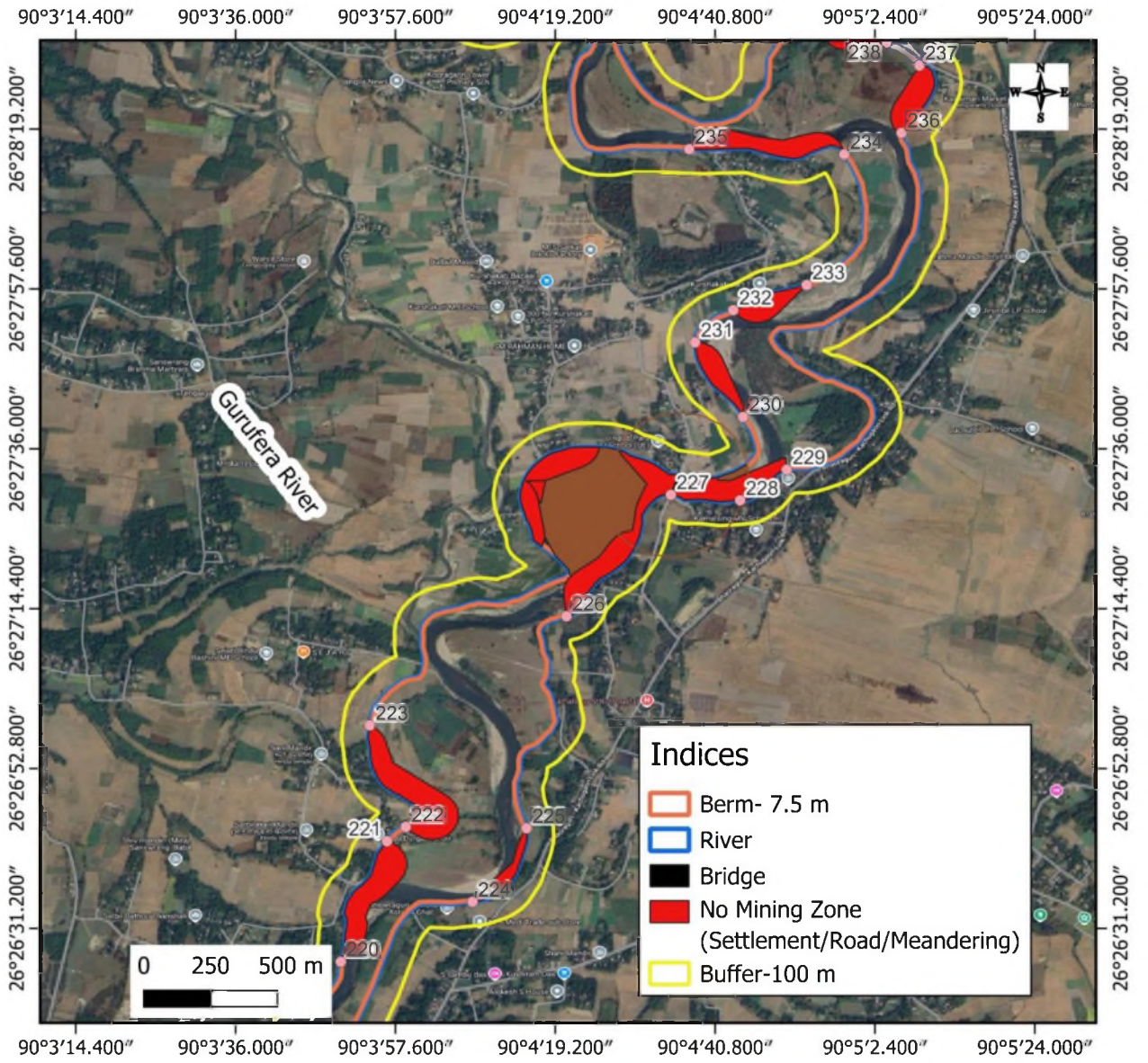

Points	Lat	Long
220	26°26'27"N	90°3'50"E
221	26°26'43"N	90°3'56"E
222	26°26'45"N	90°3'59"E
223	26°26'59"N	90°3'54"E
224	26°26'35"N	90°4'8"E
225	26°26'45"N	90°4'15"E
226	26°27'13"N	90°4'21"E
227	26°27'30"N	90°4'35"E
228	26°27'29"N	90°4'44"E
229	26°27'33"N	90°4'50"E
230	26°27'40"N	90°4'45"E
231	26°27'50"N	90°4'38"E
232	26°27'55"N	90°4'43"E
233	26°27'58"N	90°4'53"E
234	26°28'16"N	90°4'58"E
235	26°28'16"N	90°4'37"E
236	26°28'19"N	90°5'6"E
237	26°28'28"N	90°5'8"E
238	26°28'31"N	90°5'4"E

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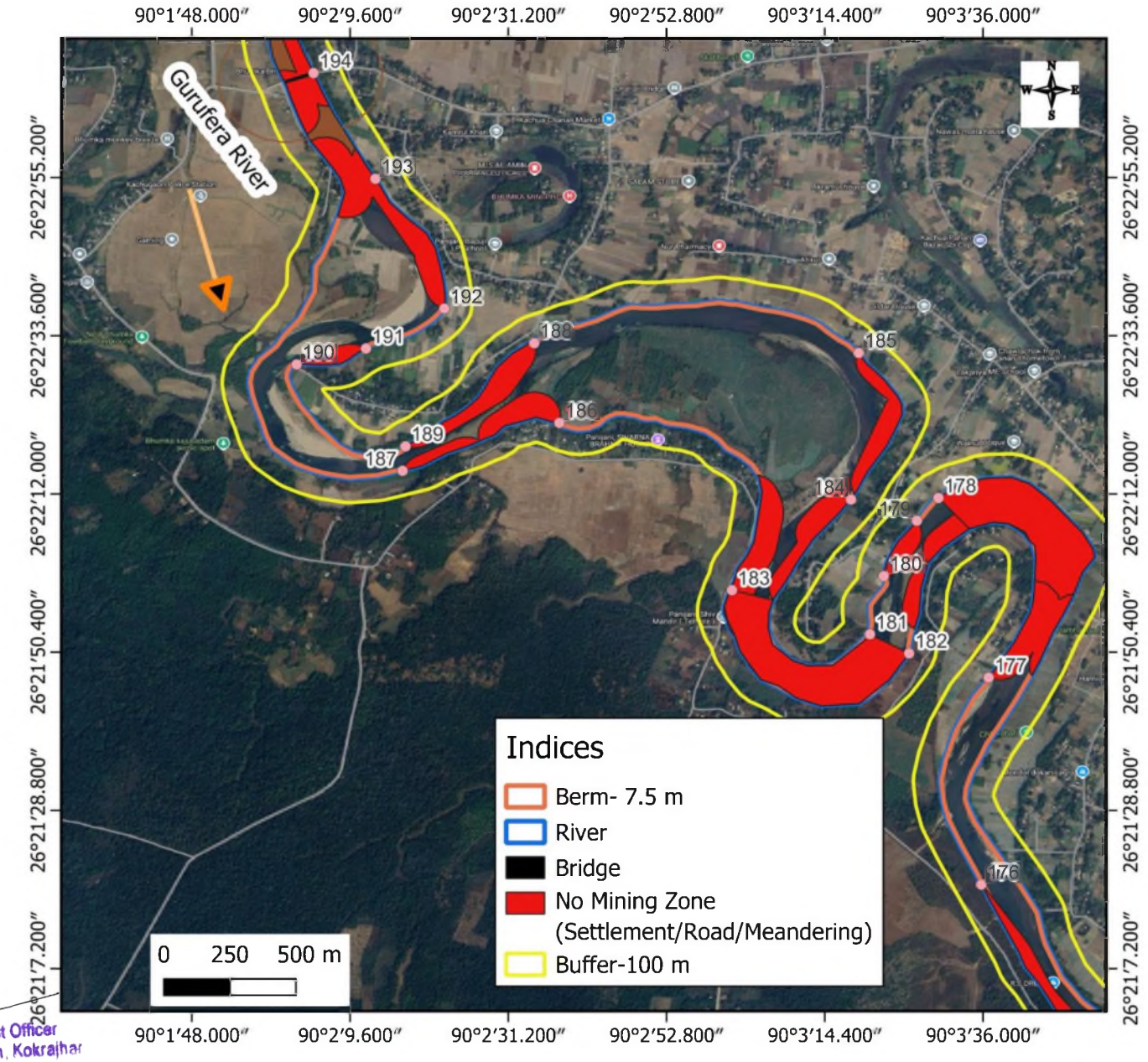
GUWAHATI : ASSAM

Divisional Forest Officer
Haltugaon Division, Kokrajhar



Points	Lat	Long
176	26°21'19"N	90°3'36"E
177	26°21'47"N	90°3'37"E
178	26°22'11"N	90°3'30"E
179	26°22'8"N	90°3'27"E
180	26°22'1"N	90°3'22"E
181	26°21'53"N	90°3'21"E
182	26°21'50"N	90°3'26"E
183	26°21'59"N	90°3'2"E
184	26°22'11"N	90°3'18"E
185	26°22'31"N	90°3'19"E
186	26°22'22"N	90°2'38"E
187	26°22'15"N	90°2'17"E
188	26°22'33"N	90°2'35"E
189	26°22'18"N	90°2'17"E
190	26°22'30"N	90°2'2"E
191	26°22'32"N	90°2'12"E
192	26°22'37"N	90°2'22"E
193	26°22'55"N	90°2'13"E
194	26°23'9"N	90°2'5"E

Divisional Forest Officer
Haltugaon Division, Kokrajhar

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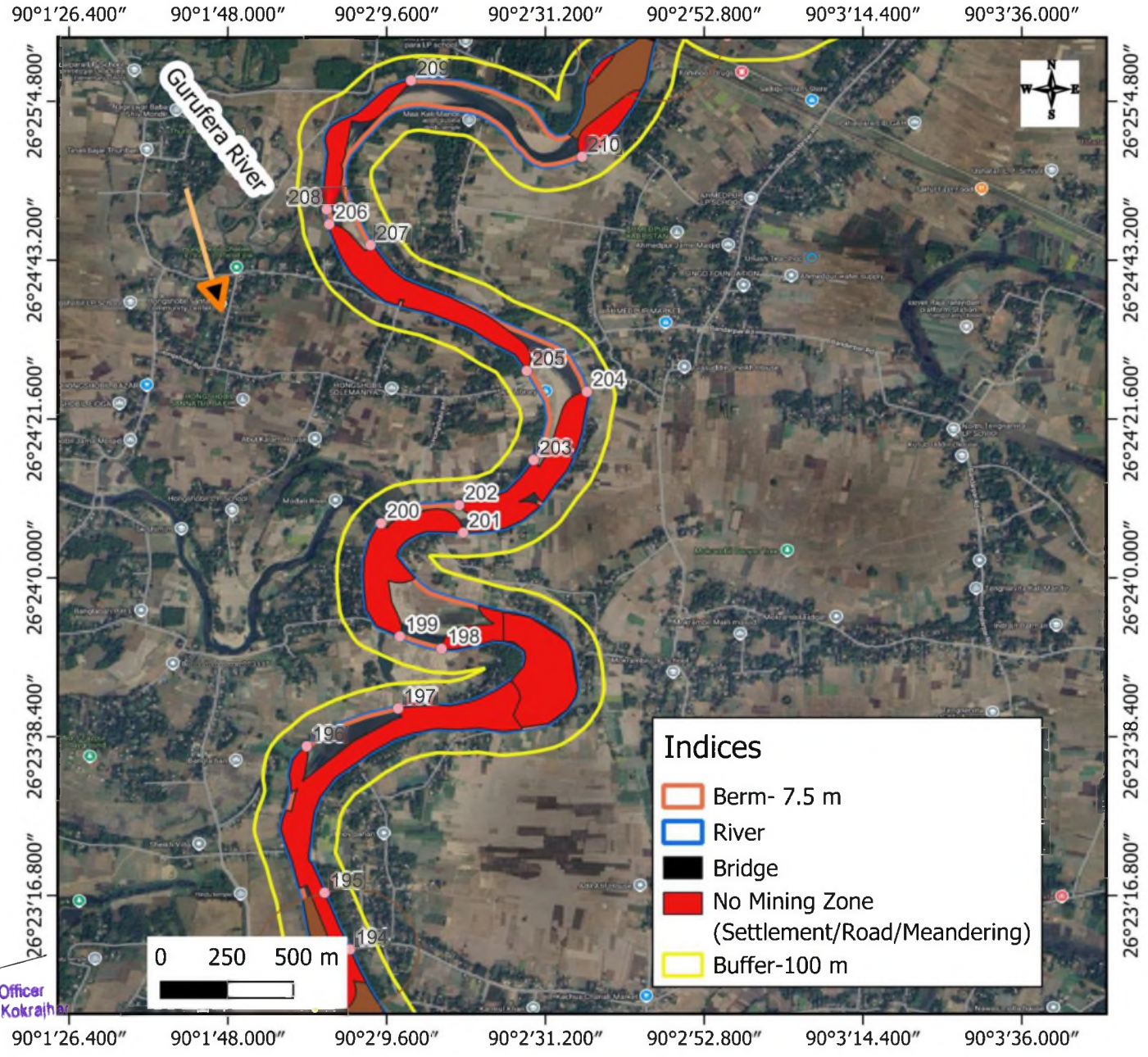

Points	Lat	Long
194	26°23'9"N	90°2'5"E
195	26°23'17"N	90°2'1"E
196	26°23'37"N	90°1'59"E
197	26°23'42"N	90°2'11"E
198	26°23'50"N	90°2'17"E
199	26°23'52"N	90°2'11"E
200	26°24'7"N	90°2'9"E
201	26°24'6"N	90°2'20"E
202	26°24'10"N	90°2'19"E
203	26°24'16"N	90°2'30"E
204	26°24'25"N	90°2'37"E
205	26°24'28"N	90°2'29"E
206	26°24'48"N	90°2'2"E
207	26°24'45"N	90°2'7"E
208	26°24'50"N	90°2'1"E
209	26°25'8"N	90°2'13"E
210	26°24'57"N	90°2'36"E

Divisional Forest Officer
Haltugaon Division, Kokrajhar

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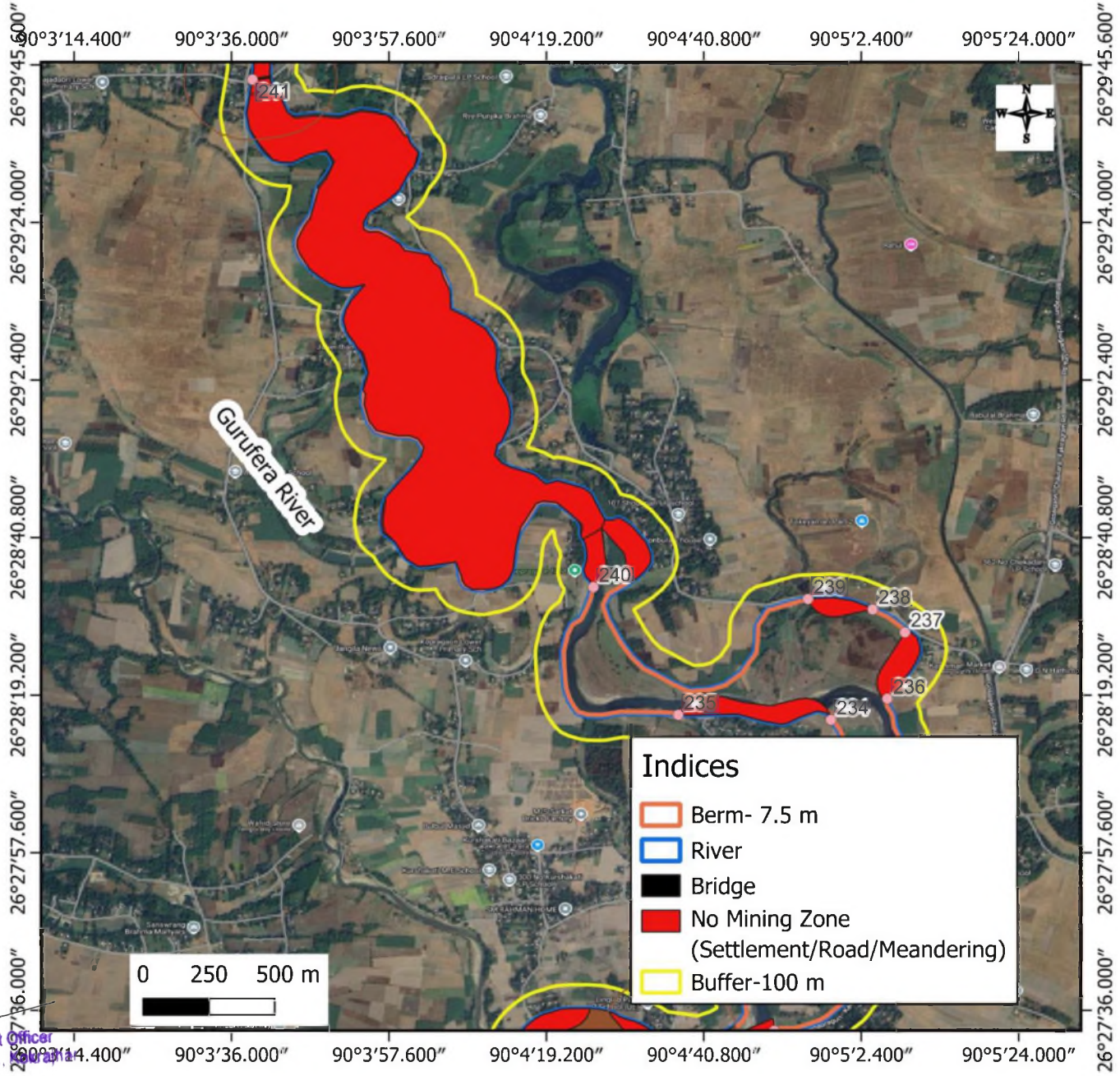

Points	Lat	Long
230	26°27'40"N	90°4'45"E
231	26°27'50"N	90°4'38"E
232	26°27'55"N	90°4'43"E
233	26°27'58"N	90°4'53"E
234	26°28'16"N	90°4'58"E
235	26°28'16"N	90°4'37"E
236	26°28'19"N	90°5'6"E
237	26°28'28"N	90°5'8"E
238	26°28'31"N	90°5'4"E
239	26°28'32"N	90°4'55"E
240	26°28'34"N	90°4'26"E
241	26°29'44"N	90°3'39"E

Divisional Forest Officer
Haltugaon Division, Guwahati

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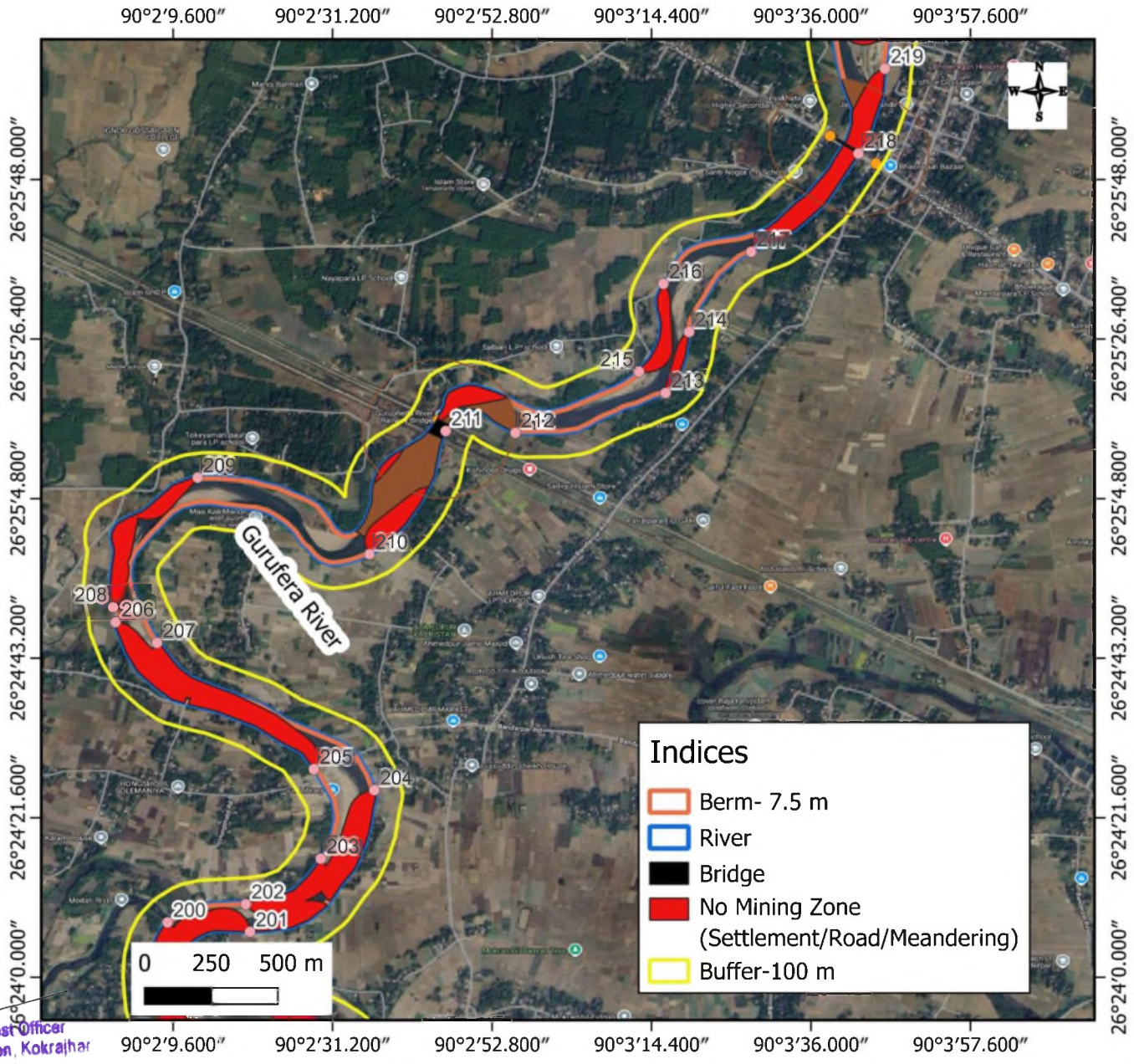

Points	Lat	Long
200	26°24'7"N	90°2'9"E
201	26°24'6"N	90°2'20"E
202	26°24'10"N	90°2'19"E
203	26°24'16"N	90°2'30"E
204	26°24'25"N	90°2'37"E
205	26°24'28"N	90°2'29"E
206	26°24'48"N	90°2'2"E
207	26°24'45"N	90°2'7"E
208	26°24'50"N	90°2'1"E
209	26°25'8"N	90°2'13"E
210	26°24'57"N	90°2'36"E
211	26°25'14"N	90°2'47"E
212	26°25'14"N	90°2'56"E
213	26°25'19"N	90°3'16"E
214	26°25'27"N	90°3'20"E
215	26°25'22"N	90°3'13"E
216	26°25'34"N	90°3'16"E
217	26°25'38"N	90°3'28"E
218	26°25'52"N	90°3'42"E
219	26°26'3"N	90°3'46"E

Divisional Forest Officer
Haltugaon Division, Kokrajhar

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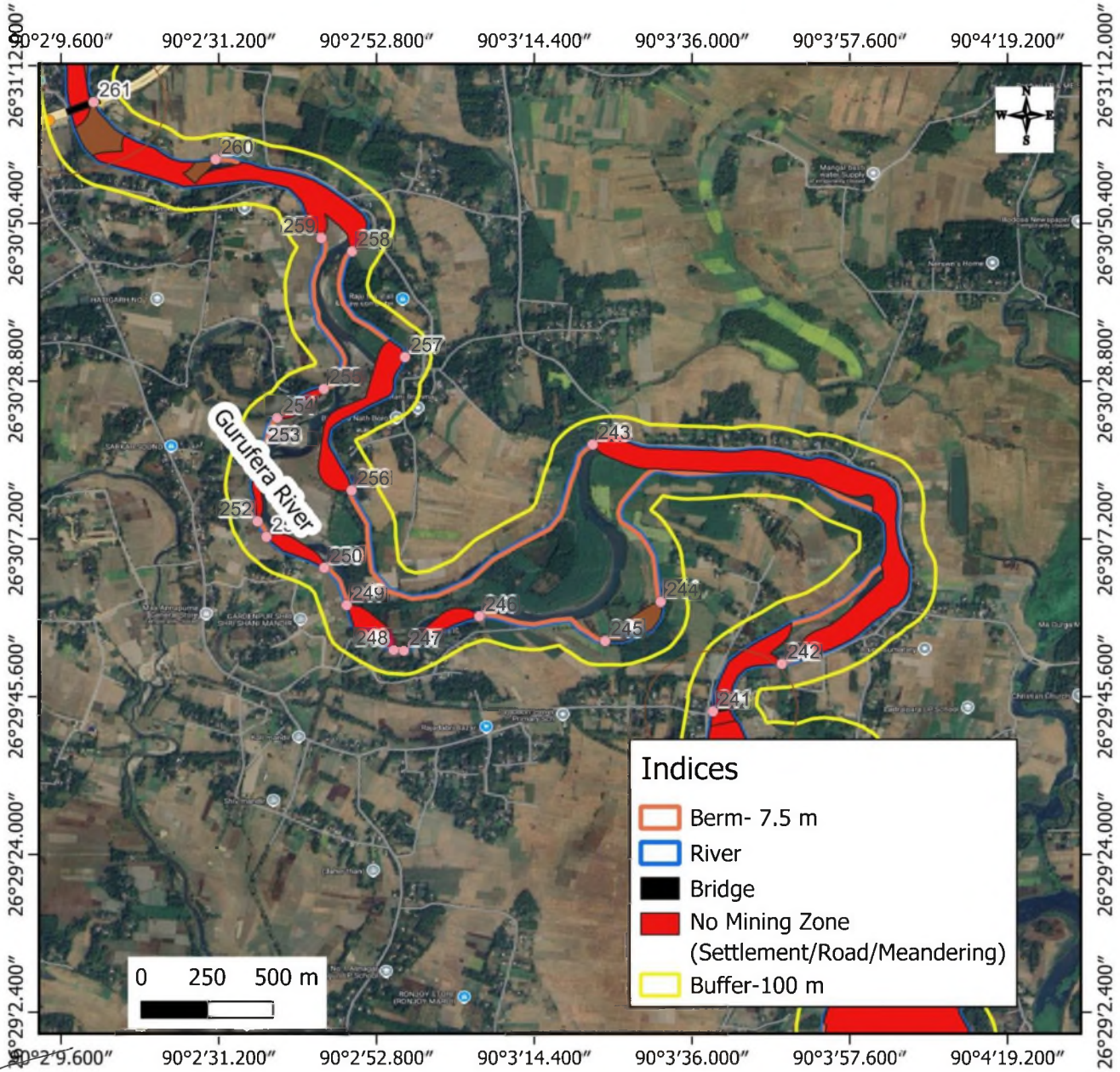

Points	Lat	Long
241	26°29'44"N	90°3'39"E
242	26°29'50"N	90°3'48"E
243	26°30'20"N	90°3'22"E
244	26°29'59"N	90°3'32"E
245	26°29'53"N	90°3'24"E
246	26°29'57"N	90°3'7"E
247	26°29'52"N	90°2'57"E
248	26°29'52"N	90°2'55"E
249	26°29'58"N	90°2'49"E
250	26°30'3"N	90°2'46"E
251	26°30'7"N	90°2'38"E
252	26°30'10"N	90°2'37"E
253	26°30'20"N	90°2'37"E
254	26°30'24"N	90°2'39"E
255	26°30'28"N	90°2'46"E
256	26°30'14"N	90°2'49"E
257	26°30'32"N	90°2'57"E
258	26°30'47"N	90°2'49"E
259	26°30'48"N	90°2'45"E
260	26°30'59"N	90°2'31"E
261	26°31'7"N	90°2'14"E

Divisional Forest Officer
Haltugaon Division, Kokrajhar

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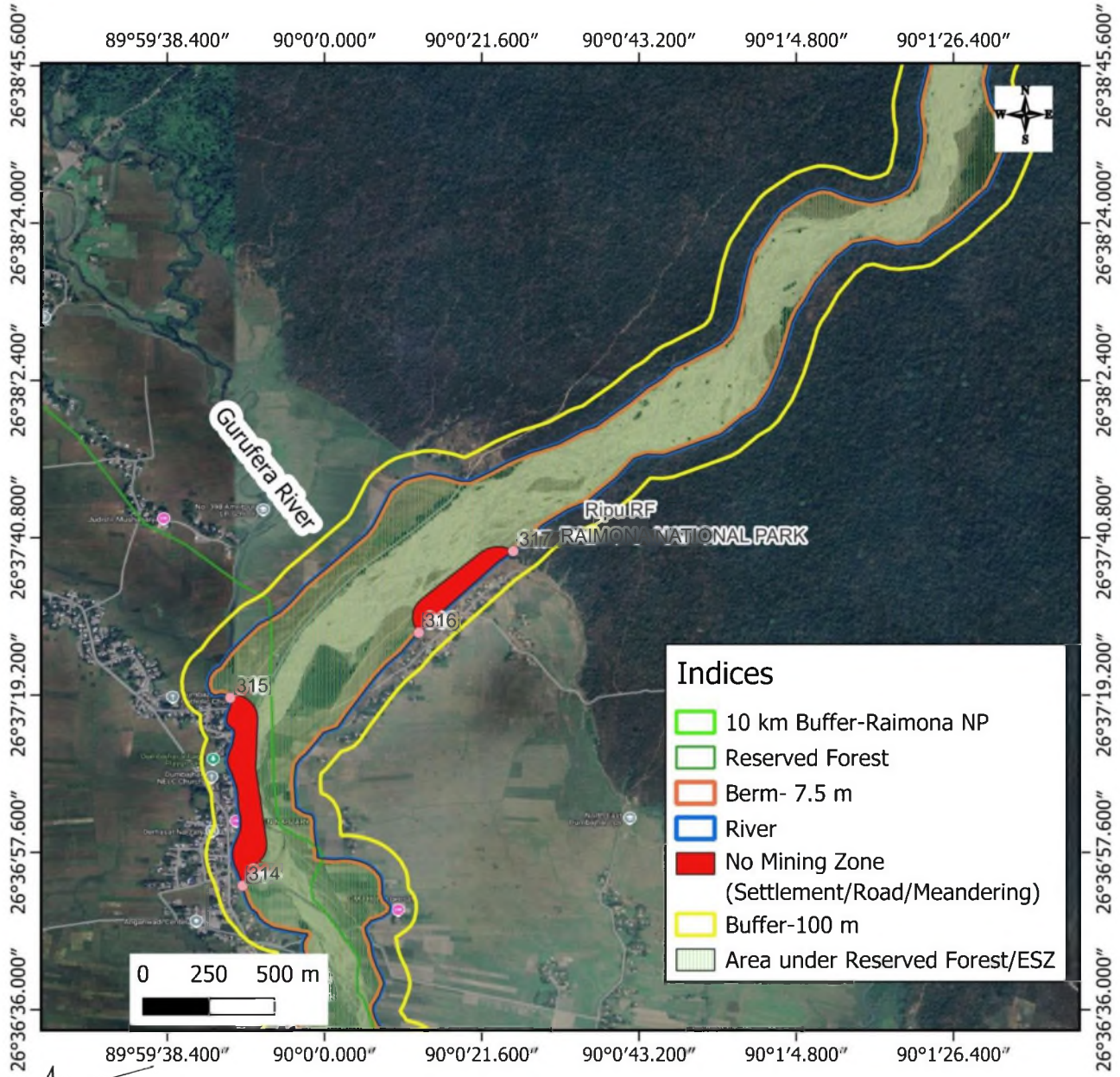

Points	Lat	Long
314	26°36'53"N	89°59'49"E
315	26°37'19"N	89°59'47"E
316	26°37'28"N	90°0'13"E
317	26°37'39"N	90°0'26"E

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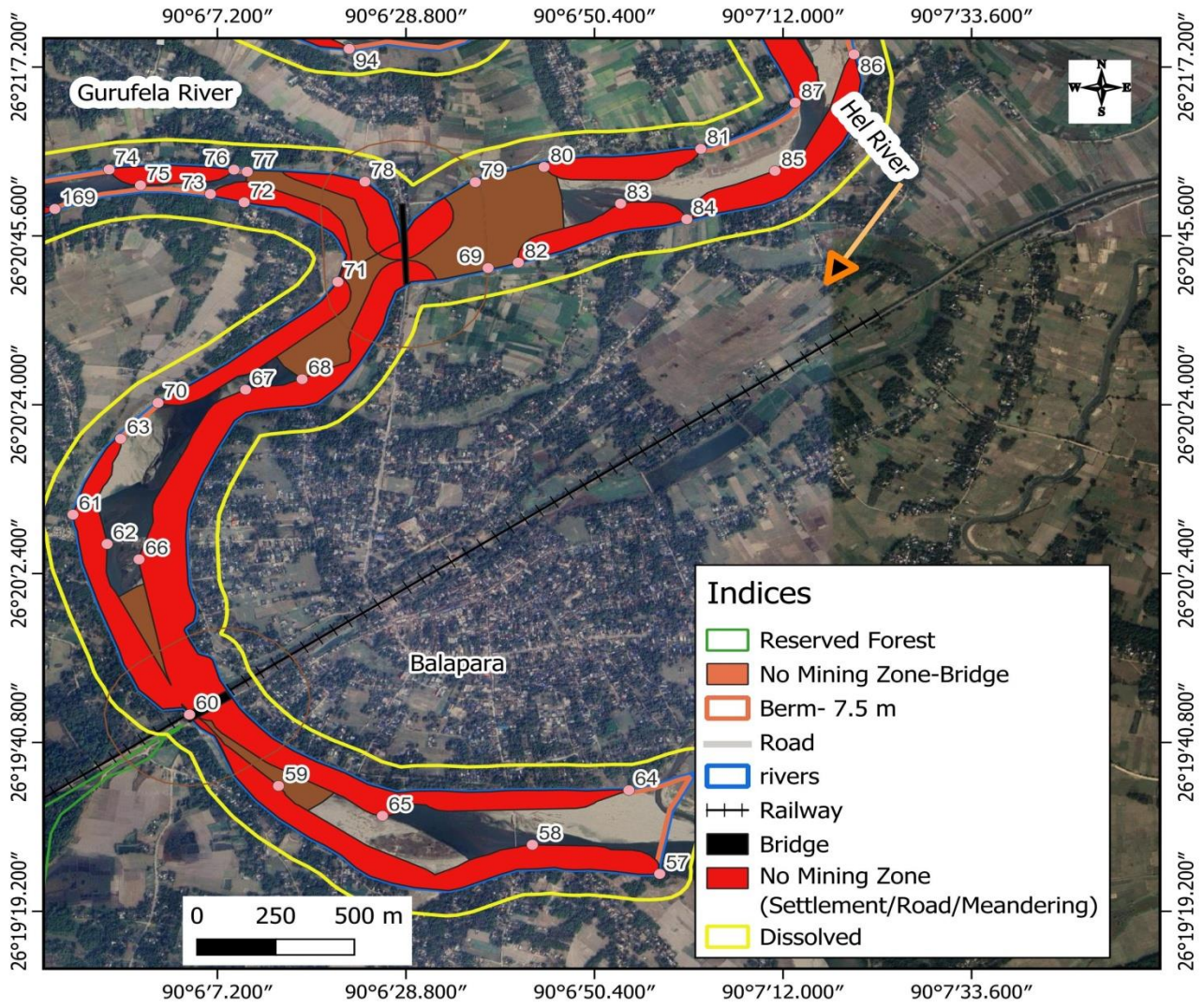
GUWAHATI : ASSAM

Divisional Forest Officer
Haltugaon Division, Kokrajhar

HEL RIVER



Points	Lat	Long
57	26°19'24"N	90°6'58"E
58	26°19'28"N	90°6'43"E
59	26°19'35"N	90°6'14"E
60	26°19'44"N	90°6'4"E
61	26°20'10"N	90°5'51"E
62	26°20'6"N	90°5'55"E
63	26°20'20"N	90°5'56"E
64	26°19'35"N	90°6'54"E
65	26°19'31"N	90°6'26"E
66	26°20'4"N	90°5'58"E
67	26°20'26"N	90°6'10"E
68	26°20'27"N	90°6'17"E
69	26°20'41"N	90°6'38"E
70	26°20'24"N	90°6'0"E
71	26°20'40"N	90°6'21"E
72	26°20'50"N	90°6'10"E
73	26°20'51"N	90°6'6"E
74	26°20'54"N	90°5'55"E
75	26°20'52"N	90°5'58"E
76	26°20'54"N	90°6'9"E
77	26°20'54"N	90°6'11"E
78	26°20'53"N	90°6'24"E
79	26°20'52"N	90°6'37"E
80	26°20'54"N	90°6'45"E
81	26°20'57"N	90°7'3"E
82	26°20'42"N	90°6'42"E
83	26°20'50"N	90°6'53"E
84	26°20'48"N	90°7'1"E
85	26°20'54"N	90°7'11"E
86	26°21'9"N	90°7'20"E

Divisional Forest Officer
Haltugaon Division, Kokrajhar

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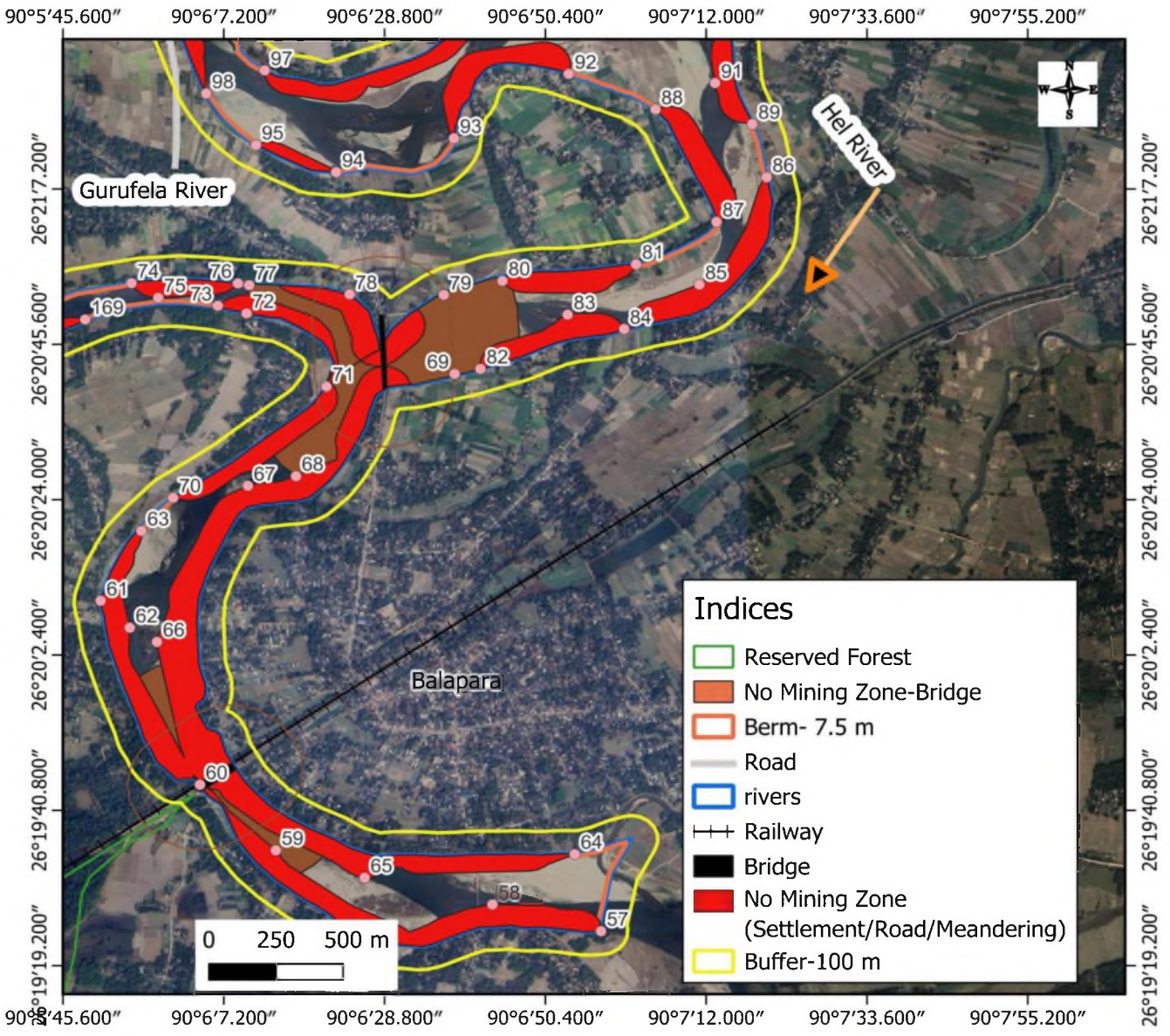

Points	Lat	Long
57	26°19'24"N	90°6'58"E
58	26°19'28"N	90°6'43"E
59	26°19'35"N	90°6'14"E
60	26°19'44"N	90°6'4"E
61	26°20'10"N	90°5'51"E
62	26°20'6"N	90°5'55"E
63	26°20'20"N	90°5'56"E
64	26°19'35"N	90°6'54"E
65	26°19'31"N	90°6'26"E
66	26°20'4"N	90°5'58"E
67	26°20'26"N	90°6'10"E
68	26°20'27"N	90°6'17"E
69	26°20'41"N	90°6'38"E
70	26°20'24"N	90°6'0"E
71	26°20'40"N	90°6'21"E
72	26°20'50"N	90°6'10"E
73	26°20'51"N	90°6'6"E
74	26°20'54"N	90°5'55"E
75	26°20'52"N	90°5'58"E
76	26°20'54"N	90°6'9"E
77	26°20'54"N	90°6'11"E
78	26°20'53"N	90°6'24"E
79	26°20'52"N	90°6'37"E
80	26°20'54"N	90°6'45"E
81	26°20'57"N	90°7'3"E
82	26°20'42"N	90°6'42"E
83	26°20'50"N	90°6'53"E
84	26°20'48"N	90°7'1"E
85	26°20'54"N	90°7'11"E
86	26°21'9"N	90°7'20"E

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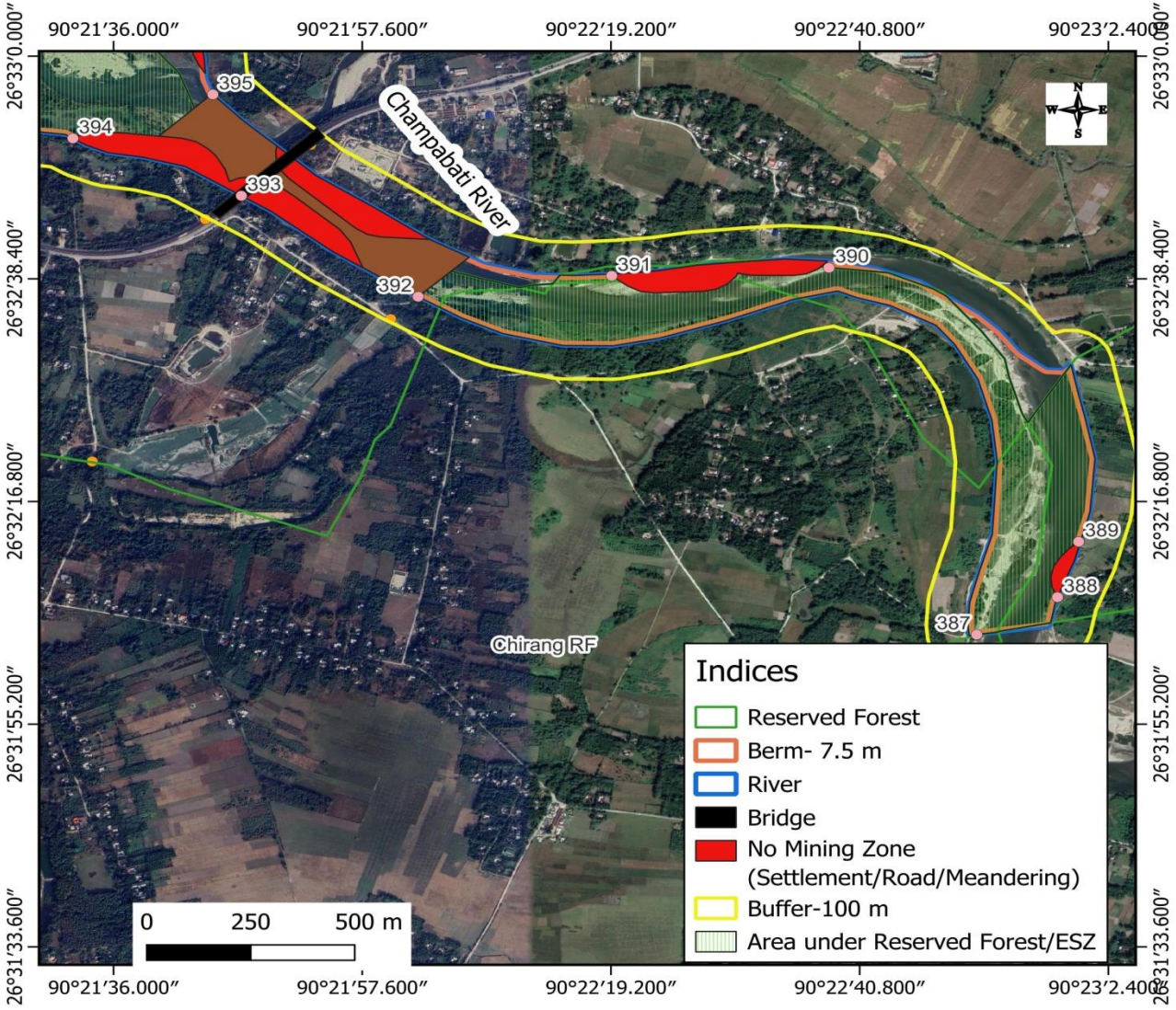
CHAMPABATI RIVER



Points	Lat	Long
387	26°32'4"N	90°22'51"E
388	26°32'8"N	90°22'58"E
389	26°32'13"N	90°23'0"E
390	26°32'39"N	90°22'38"E
391	26°32'39"N	90°22'19"E
392	26°32'37"N	90°22'2"E
393	26°32'46"N	90°21'47"E
394	26°32'52"N	90°21'32"E
395	26°32'56"N	90°21'45"E

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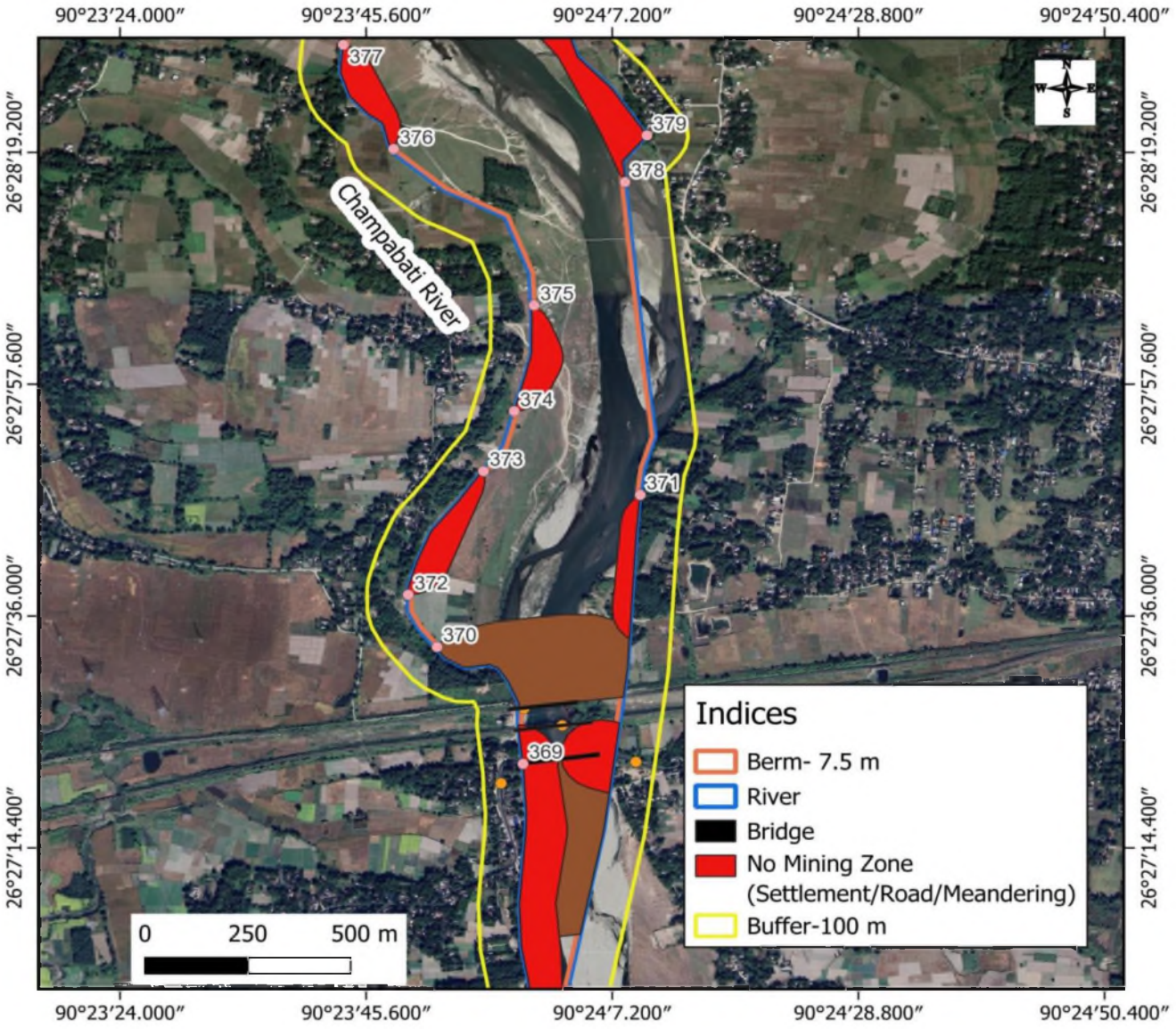

Points	Lat	Long
370	26°27'33"N	90°23'52"E
371	26°27'47"N	90°24'10"E
372	26°27'38"N	90°23'49"E
373	26°27'49"N	90°23'56"E
374	26°27'55"N	90°23'59"E
375	26°28'5"N	90°24'0"E
376	26°28'20"N	90°23'48"E
377	26°28'29"N	90°23'44"E
378	26°28'16"N	90°24'8"E
379	26°28'21"N	90°24'10"E
369	26°27'22"N	90°23'59"E

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Annexure- I (Haltugaon Division)

Details of Boundary Description & GPS Co-ordinates of All Running / Under Process / Newly Proposed / Completed & Potential Mining Area (Minor Mineral Concession Area) under Haltugaon Division, Kokrajhar (FY- 2024-25)

Sl No.	*River*	*Type of MCA & Status*	*Name of Mohal mining contract & area*	*Name of Mohaldar*	*Tenure in Years*	*Qty. Of MM per Yr. (in Cum)*	*Boundary description*	*GPS Location*	*Date of issue of LOI with Letter No.*
1	Jharbari Range, Saralbhanga River	Old Mohal (Stopped Due to Inside of RNP) CLOSED	Ouguri Mohal 9.89 ha	Sri Tamion Brahma	wef. 10-02-21 to 28-02-2027	S= 1000 G= 1000 B= 1000	North = Chirang RF Boundary,	N=26°38'35.3" E=90°13'12.7"	No.B/20/11/Ouguri Mohal/3195-97 Dated: 10th February, 2021
							East = Auguri revenue village,	N=26°38'44.4" E=90°13'13.6"	
							West = Ripu RF &	N=26°38'36.7" E=90°13'28.4"	
							South = upto 1.6 km downstream.	N=26°38'30.8" E=90°13'26.5"	
2	Gaurang Range, Saralbhanga River	Old Mohal (Tenure Completed) CLOSED	Saralbhanga Mohal No-2 20.6 ha	Sri Bul Bul Brahma	wef. 01-03-16 to 28-02-2023	S= 1000 G= 800	North = 100 meter away from NH-31(C) RCC Bridge to 1.25 km upstream along the Saralbhanga River	N=26°34'25.7" E=90°12'28.9" N=26°34'27.4" E=90°12'36.7"	No.B/22/11/Saralbhanga Mohal No.2/694-97 dtd. 01/03/2016
							South = 100 meter away from NH-31(C) RCC Bridge to 1.20 km downstream	N=26°34'19.2" E=90°12'39.5" N=26°34'17.5" E=90°12'33.9"	

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							from the North of the RCC Bridge		
							East = Patgaon Bazar	N=26°33’59.9” E=90°12’34.5”	
								N=26°33’58.5” E=90°12’40.4”	
							West = Bhodeyaguri Rev. Village	N=26°33’49.0” E=90°12’38.6”	
								N=26°33’50.3” E=90°12’31.7”	
3	Gaurang Range, Saralbhanga River	Old Mohal (Tenure Completed) CLOSED	Saralbhanga Mohal No-3 8.12 ha	Sri Sukuram Narzary	wef. 05-03-16 to 28-02-2023	S= 600 G= 800 B= 300	North = 2.0 km South of Auguri Mohal	N=26°37’05.6” E=90°13’15.7”	No.B/22/11/Saralbhanga Mohal No.3/808-11 dtd. 05/03/2016
							South = 1.5 km down and 1.2 km north of Saralbhanga Mohal No-2,	N=26°37’06.4” E=90°30’20.7”	
							East = Bangaljhora revenue Village,	N=26°36’49.4” E=90°13’24.2”	
							West = Sapkata Revenue Village.	N=26°36’47.8” E=90°13’18.7”	
4	Gaurang Range, Saralbhanga River	Old Mohal (Tenure Completed) CLOSED	Saralbhanga Mohal No-4 5.16 ha	Sri Lwithwma Basumatary	wef. 28-04-16 to 30-04-2023	S= 700 G= 700	North = 1 km down from Saralbhanga Mohal No-2,	N=26°33’22.5” E=90°12’25.00”	No.B/22/11/Saralbhanga Mohal No.4/1458-61 dtd. 28/04/2016
							South = 1 km downstream,	N=26°33’23.4” E=90°12’30.90”	
							East = Ulubari Revenue Village,	N=26°33’08.6” E=90°12’21.00”	
							West = Fotaigaon Revenue Village	N=26°33’14.7” E=90°12’19.70”	

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5	Gaurang Range Saralbhanga River	Running Mohal	Saralbhanga Mohal No. 5 5.40 ha	Sri Nangla Basumatary	wef. 1st June, 2018 to 31st May, 2025	S= 850 G= 500 E= 500	North= S/B Mohal No.4	N= 26° 31' 27.32" , E= 90° 12' 51.87"	No.B/22/11/Saralbhanga Mohal No.5/2206-09 dtd. 12/06/2018
							= East Salbari	N= 26° 31' 18.73" , E= 90° 13' 06.48"	
							West= Padmabil	N= 26° 31' 17.12" , E= 90° 13' 03.67"	
							South= S/B River	N= 26° 31' 24.89" , E= 90° 12' 46.95"	
6	Nayekgaon Range, Champamoti River	Old Mohal (Tenure Completed) CLOSED	Champa (Bandarchara Mohal) 9.60 ha	Sri Kiran Basumatary	wef. 28-06-17 to 30-06-2024	S= 3500 G= 2000	North = From 245 m of downstream of Champa River BG Rly Bridge near Bandarchara,	N=26°27’16.5” E=90°23’59.6”	No.B/22/11/Champa (Bandarchara) Mohal/3031-34 dtd. 28/06/2017
							East = Bhutiyapara revenue village,	N=26°27’02.6” E=90°24’08.3”	
							South = upto 1.6 km downstream,	N=26°27’16.9” E=90°24’07.4”	
							West = Bandarchara revenue village	N=26°27’03.7” E=90°23’59.5”	
7	Jharbari Range, Saralbhanga River	(Stopped Due to Inside of RNP) CLOSED	Khalasi R.F. Mohal (Still Under Process)	Sri Rajib Narzary (User Agency)	CLOSED	S =6000 G=1000 B=3000	North= Saralbhanga River Up-Stream	26°39'39.91"N,90°13'35.03"E	N/A
							East= Khalasi FV	26°39'39.40"N,90°13'41.83"E	
							West= Chirang RF	26°39'31.26"N,90°13'41.99"E	
							South= Saralbhanga River Down-Stream,	26°39'31.56"N, 90°13'34.59"E	

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							Ouguri Mohal		
8	Nayekgaon Range, Champamoti River	Running Mohal	Champa Mohal No. 2 4.41 ha	Bansho Mushaharay	wef. 01-04-2024	S-4443 G-6665	North – Champa (Bandarchara) Mohal (Up Stream)	26°25'54.07"N, 90°24'44.07"E	N/A
							East – Bagulamari	26°26'4.43"N, 90°24'37.09"E	
							South – Nayachara Pt.III (Down Stream)	26°26'2.72"N, 90°24'33.79"E	
							West – Nayachara Pt.I	26°25'52.39"N, 90°24'39.46"E	
9	Nayekgaon Range, Tarrang River Gaurang Gaurang	Potential Mining Area Running Mohal Potential Mining Area	Tarang Mohal No. 1 Saralbhanga Mohal No.- 2 (A) 5.0 ha Saralbhanga Mohal No.- 2 (B) 4.85 ha	Potential Mining Area Sri Hiramba Narzary New Proposal	N/A wef. 01-06-2024 N/A	N/A S-5042 G-7563 S-4910 G-7365	North – Uttor Latagaon (Up Stream) East – Chautaki	26°28'58.62"N, 90°20'49.75"E 26°28'57.56"N, 90°20'51.38"E	
							South – Bhumki Pt.II (Down Stream) West – Latagaon	26°28'27.61"N, 90°20'32.70"E 26°28'26.63"N, 90°20'31.26"E	
								1) 26°33'39.14"N 90°12'27.21"E 2) 26°33'38.67"N 90°12'34.61"E 3) 26°33'48.38"N 90°12'34.61"E 4) 26°33'49.25"N 90°12'30.41"E	
								1) 26°33'28.95"N 90°12'30.47"E 2) 26°33'28.92"N	

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								90°12'36.95"E 3) 26°33'36.83"N 90°12'34.79"E 4) 26°33'37.59"N 90°12'27.28"E	
10	Gaurang Gaurang	Potential Mining Area Potential Mining Area	Saralbhanga Mohal No.- 4 (A) 4.93 ha Saralbhanga Mohal No.- 4 (B) 4.65 ha	Potential Mining Area Potential Mining Area	N/A N/A	S-5076 G-7615 S-4714 G-7071			1) 26°33'0.67"N 90°12'29.07"E 2) 26°33'1.01"N 90°12'35.79"E 3) 26°33'9.12"N 90°12'35.01"E 4) 26°33'9.08"N 90°12'27.80"E
									1) 26°32'47.01"N 90°12'31.80"E 2) 26°32'46.04"N 90°12'36.48"E 3) 26°32'56.70"N 90°12'36.15"E 4) 26°32'57.03"N 90°12'30.15"E
11	Gaurang	Potential Mining Area	Saralbhanga Mohal No.- 4 (C) 4.66 ha	Potential Mining Area	N/A	S-6984 G-4656			1) 26°31'59.54"N 90°12'31.35"E 2) 26°32'1.01"N 90°12'36.49"E 3) 26°32'9.17"N 90°12'34.86"E 4) 26°32'8.20"N 90°12'27.89"E

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12	Gaurang	Potential Mining Area	Saralbhanga Mohal No.- 4 (D) 4.42 ha	Potential Mining Area	N/A	S-6695 G-4463		1) 26°31'42.41"N 90°12'33.75"E 2) 26°31'42.00"N 90°12'39.15"E 3) 26°31'52.16"N 90°12'39.97"E 4) 26°31'52.33"N 90°12'35.12"E	
13	Gaurang	Potential Mining Area	Saralbhanga Mohal No.- 7 4.60 ha	Potential Mining Area	N/A	S-6969 G-4646		1) 26°29'29.25"N 90°12'49.40"E 2) 26°29'28.85"N 90°12'53.75"E 3) 26°29'40.52"N 90°12'52.03"E 4) 26°29'40.37"N 90°12'46.89"E	
14	Gaurang	Potential Mining Area	Saralbhanga Mohal No.- 8	Potential Mining Area	N/A	S-7152 G-4768		1) 26°28'59.01"N 90°13'7.06"E 2) 26°28'59.96"N 90°13'11.93"E 3) 26°29'10.19"N 90°13'6.17"E 4) 26°29'9.20"N 90°13'1.22"E	

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15	Gaurang	Potential Mining Area	Saralbhanga Mohal No.- 9	Potential Mining Area	N/A	S-7456 G-4970		N= 26°27'25.55" , E= 90°14'38.81" N= 26°27'28.48", E= 90°14'44.43" N= 26°27'36.90", E= 90°14'40.76" N= 26°27'33.12", E= 90°14'35.05"	
16	Gaurang	Proposed Mining Area	Saralbhanga River Mohal No. 6 4.95 ha	Sri Ceazer Goyary	N/A	S-2080 G-2200	North – Banugaon (Up Stream) East - Beltari West - Puthimari South - Gopalgaon (Down Stream)	1) 26°50'85.92" N 90°22'27.18" E 2) 26°50'88.96" N 90.22'40.40" E 3) 26°50'56.89" N 90°22'48.80" E 4) 26°50'54.02" N 90°22'35.63" E	

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Sl No.	*River*	*Type of MCA & Status*	*Name of mining lease & area*	*Name of Mohaldar*	*Tenure in Years*	*Mineral*	*GPS Location*
1	Jharbari Range, Status of Land : P.P Land	*P.P. Land Mohal* at Bhawraguri under Jharbari Range	*P.P. Land Mohal No. 1* at Bhawraguri under Jharbari Range	Sri Jaysat Narzary	N/A (EC Not Done)	Sand Gravel	1) 26°36'44.43"N 90°13'31.63"E, 2) 26°36'43.37"N 90°13'23.50"E, 3) 26°36'44.51"N 90°13'19.44"E 4) 26°36'43.23"N 90°13'16.96"E 5) 26°36'42.02"N 90°13'17.17"E 6) 26°36'40.87"N 90°13'20.38"E 7) 26°36'39.90"N 90°13'24.39"E 8) 26°36'40.46"N 90°13'25.32"E 9) 26°36'39.57"N 90°13'28.30"E 10) 26°36'40.36"N 90°13'30.20"E 11) 26°36'41.96"N 90°13'30.39"E 12) 26°36'41.84"N 90°13'32.65"E
2	New Mining proposal at Bandarchora (Champaboti River) under Nayekgaon Range.	New Mining proposal/ Potential Area	N/A	N/A	N/A	Sand Gravel	26"25'32.30"N 90'25'28.90"E 26"25'26.00" N 90"25'31.00"E

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	Status of Land : P.P Land	Dag. No. 48 of Patta No. 30 Village: Pachim Patgaon Mouza: Sidli 4th Part	PP Land Mohal at Uttar Patgaon, Kokrajhar under Gaurang Range	Sri Madhab Karki	N/A (EC Not Done)	Sand Gravel	(A) 26°35'18.50"N 90°13'23.71"E (B) 26°35'27.87"N 90°13'33.20"E (C) 26°35'29.85"N 90°13'31.12"E (D) 26°35'20.90"N 90°13'20.58"E
	"Gaurang River Minor Mineral Permit Area No. 1" under Depot Range, Kokrajhar	Proposed Permit Area	(Area = 4.60 HA)	USER AGENCY (Saraighat Engineers PM-JV) Against "Improvement and upgradation of Kokrajhar to Rupsi Airport Phase I [(Kokrajhar Bypass (Ch 0+000 to +9500)]; Package No. NIDA/G1/2021-22/A01_1"	EC Not Done	Soil / Earth	A-26°26'1.71"N 90°15'43.45"E, B- 26°25'54.18"N 90°15'48.99"E C-26°25'51.15"N 90°15'44.01"E, D- 26°25'59.02"N 90°15'38.55"E

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Details list of Stone Crusher Units under Haltugaon Division, Kokrajhar (As on July, 2024)					
Sl. No.	***Name of Stone Crusher Unit***	***Reg. No.***	***Location***	***Name of Proprietor***	***Status***
1	**M/s Amguri Stone Crusher**	Registration No. HD/Stone-Crusher/GR/01 (Year) 2010	Amguri Revenue Village, Kokrajhar Circle, Dag No. 64, Patta No. 77, 4B-0 K-15 Ls	Sri Durgamohan Basumatary, Kokrajhar W/No. 4, BTC	Running
2	**M/s Gaurang Stone Crusher**	Registration No. HD/Stone-Crusher/GR/02 (Year) 2017	Amguri Revenue Village, Kokrajhar Circle, Dag No. 183,184,182 & 191 P.P. No. 164	Mrs. Sewli Mahilari, Vill: Rangalikhata, BTC, Kokrajhar	Running
3	**M/s Champa Stone Crusher**	Registration No. HD/ Stone-Crusher/GR/03 (Year) 2019	Barswangaon, PO- Karigaon, Dist-Kokrajhar, Dag No. 12 of Patta No. 43 // Dag No. 11/189 of Patta No. 42 // Dag No. 11/188 of Patta No. 41	Mrs. Sewli Mahilari, Vill: Rangalikhata, BTC, Kokrajhar	Running

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LOI

Present Status of Mining Contract Area which are in Operation / Ended (From- 2022 to 2024)										
Sl No.	**Name of MCA**	**Whether RF/Outside RF**	**Allotted Area (HA)**	**Tenure in Years**	**Type of MM**	**Qty. Of MM (in CuM, Per Year)**	**Date of issue of LOI with Letter No.**	**LOI Issued to**	**Validity**	**Remarks**
1	Saralbhanga Mohal No. 2	Outside of RF	4.63	wef. 01-03-16 to 28-02-2023	Sand & Gravel	S= 1000 G= 800	No.B/22/11/Saralbhanga Mohal No.2/694-97 dtd. 01/03/2016	Sri Bul Bul Brahma	7 Yrs.	Tenure Completed
2	Saralbhanga Mohal No. 3	Outside of RF	9.56	wef. 05-03-16 to 28-02-2023	Sand, Gravel & Boulder	S= 600 G= 800 B= 300	No.B/22/11/Saralbhanga Mohal No.3/808-11 dtd. 05/03/2016	Sri Sukuram Narzary	7 Yrs.	Tenure Completed
3	Saralbhanga Mohal No. 4	Outside of RF	4.86	wef. 28-04-16 to 30-04-2023	Sand & Gravel	S= 700 G= 700	No.B/22/11/Saralbhanga Mohal No.4/1458-61 dtd. 28/04/2016	Sri Lwithwma Basumatary	7 Yrs.	Tenure Completed.
4	Saralbhanga Mohal No. 5	Outside of RF	4.24	wef. 16-06-18 to 31-	Sand, Gravel & Earth	S= 850 G= 500	No.B/22/11/Saralbhanga Mohal No.5/2206-09	Sri Nangla Basumatary	7 Yrs.	Running

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					05-2025		E= 500	dtd. 12/06/2018			
5		Saralbhanga Mohal No. 2 A	Outside of RF	4.82	F.Y. 2023-24 to 2030-31	Sand & Gravel	S= 1260 G= 1890	No.B/20/11/Saralbhanga Mohal No.2(A)/6219-22 Dated: 15th March, 2024	Sri Hiramba Narzary	7 Yrs.	Running
6		Champa Mohal No.-2	Outside of RF	3.76	F.Y. 2023-24 to 2030-31	Sand & Gravel	S= 1110.75 G= 1666.25	No.B/20/11/Champa Mohal No.2/6215-18 Dated: 15th March, 2024	Sri Bansho Moshahary	7 Yrs.	Running

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ANNEXURE – I (Kachugaon)

a) Rivers

Sl. No.	River Name	Total stretch of River (in Km)	Type of River
1	Sankosh River	39 Kms	perennial
2	Gongia River	27 Kms	-do-
3	Hel river	55 Kms	
4	Gurufela River	29.9 Kms	-do-

b) List of Patta Lands/ Khatedari land

Owner	*Area*	*District*	*Tehsil*	*Village*	*Agricultural Land (Yes/No)*
Md. Munuruddin Sk.	0.45 Ha.	Kokrajhar	Gossaigaon Revenue Circle	No.1 Polashguri	Yes
Sri Bhaigya Basumtary	1.49 Ha.	Kokrajhar	Dotma Revenue Circle	Saraguri	Yes
Md. Kopiluddin Sk.	4.10Ha	Kokrajhar	Gossaigaon Revenue Circle	No. 1 Burichatam	Yes
Jamal Hussain Sk.	0.46 Ha	Kokrajhar	Gossaigaon Revenue Circle	No.2 Burichatam	Yes
Ranendra Brahma	2.90 Ha	Kokrajhar	Gossaigaon Revenue Circle	Joymagaon	Yes

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c) M- Sand plants with location:

SL No.	*Plant Name*	*Owner*	*Tehsil*	*Village*	*Geolocation*		*Quantity (Tonnes /Annum)*
					latitude	Longitude	
1	M/S Basumatary & Son Crusher Unit, Bajugaon	Marjit Basumatary	Gossaigaon	Bajugaon			30000
2	M/S Narzary Stone crusher Unit, Sapkata Part-ll	Rabiram Narzary	-do-	Sapkata Part - II	26.506267 26.50627 26.507195 26.506526	89.913719 89.913692 89.913591 89.913875	12000
3	M/ S Dwhau Enterprise Crusher Unit, Dhauluguri	Dwhau Narzary	-do-	Dhauliguri	26.4723027 26.4743916 26.4733500 26.4724305 26.4724666	89.9959166 89.9972777 89.9959472 89.9952666 89.99644861	12000
4	M/S Sarmanga Washing & Crusher Plant. Patgaon	Swmaoshat Basumatary	-do-	Patagaon	26.568873 26.56443	90.204717 90.204374	50000
5	M/S Manaranjan Brahma Crusher Unit at No.2 Khoksaguri	Manaranjan Brahma	-do-	No 2 Khoksaguri	26.508772	89.884277	50000

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6	M/S Jaraguri Crusher Unit, Khoksaguri (L&T)	V R. Saravana Kumar	-do-	Jaraguri	26.4976250 26.4962555 26.4971805 26.4986666	89.8614166 89.8607000 89.8585027 89.8591361	120000
7	M/S Simplex Infrastructure Limited Crusher. Jaraguri	Bhudev Mukherjee	do-	Jaraguri No.2	26.445025 26.445043	89.900316 89.900539	120000

ANNEXURE - II

a) List of **Proposed Mining Zones** under Kachugaun Forest Division

Sl No	*River Details*	*Name of the mines*	*Lease Details*	*Area (Ha)*	*Geolocation*		*Distance from PA/ BR/ WC (in km)*	*Distance from Forest Area (in km)*	*Mining leases within 500 meters (if yes cluster area)*
					Latitude	*Longitude*			
1	Sankosh River	Jaraguri PGR-II Stone Materials Mahal-1	Vivek Mushahary	3.0 Ha	26°28’54.93”N 26°28’55.31”N 26°29’0.99”N 26°29’3.81”N 26°29’4.28”N 26°29’5.76”N	89°51'48 59"E 89°51'42.02”E 89°51'44 76“E 89°51’35.89”E 89°51’45.19"E 89°51’35.69”E	23.30km	4.24 km	Yes
2	Sankosh River	Jaraguri Sand & Stone Materials Mahal No .2	Sanjit Kr Mushahary	3.0 Ha	26°30’15.62”N 26°30’18.05”N 26°30’22.28”N 26°30’20.36”N	89°52'6.74"E 89°52'9.17”E 89°51'59.73“E 89°51’56.56”E	18.50km	1.79 km	-do-

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3	Sankosh River	Khoksaguri No.4 Stone Materials Mahal	Goldong Basumatary	3.0 Ha	26°31'10.60" N 26°31'10.64" N 26"31'13.79" N 26"31'13.96" N	89°52'50.58"E 89°52'40.12"E 89°52'50.90"E 89°52'40.40"E	16km	10 m	-do-
4	Sankosh River	No.9 Harbhanga Sand & Gravel Mahal	Augustin Borgayary	3.0 Ha	26°21'12.58" N 26°21'13.58" N 26"21'27.05"N 26"21'66.66" N	90°3'41.13"E 90°3'43.03"E 90°3'32.38"E 90°3'34.33"E	Does not fall under pit		do-
5	Sankosh River	Khoksaguri No.3 River Stone Materials Mahal	Bahaigya Basumatary	3.0 Ha	26°31'13.47" N 26°31'10.17" N 26"31'12.76"N 26"31'9.84" N	89°52'16.44"E 89°52'27.69"E 89°52'16.44"E 89°52'27.47"E	17km	56m	do-
6	Sankosh River	Jaraguri PGR- II Stone Materials Mahal	Augustin Borgayary	3.0 Ha	26°29'12.09 "N 26°29'12.72"N 26°29'15.18"N 26°29'15.44"N	89°51'30.80"E 89°51'42.97"E 89°51'30.14"E 89°51'42.51"E	20km	4km	-do-
7	Sankosh River	Jaraguri PGR- II Sand & Stone Materials Mahal No.2	Bijen Narzary	3.0 Ha	26°29'15.44 "N 26°29'21.83"N 26°29'25.35"N 26°29'25.50"N	89°51'42.51"E 89°51'32.27"E 89°51'41.97"E 89°51'31.89"E	19 70km	3.31km	
8	Sankosh River	Khoksaguri No.III Sand & Stone Materials Mahal No.3	Soboi Basumatary	3.0 Ha	26°31'0.17" N 26°31'3.01" N 26"29'5.41"N 26"31'8.08" N	89°52'42.86"E 89°52'44.67"E 89°52'34.17"E 89°52'35.94"E	16.80km	317mtr	
9	Sankosh River	Jaraguri PGR-II Sand & Stone Materials Mahal No.3	Bisinta Mushahary	3.0 Ha	26°29'34.95 "N 26°29'37.09"N 26°29'38.37"N 26°29'40.71"N	89°51'39.06"E 89°51'28.98"E 89°51'39.04"E 89°51'29.61"E	19.3km	2.95km	

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10	Sankosh River	Jaraguri Sand & Stone Materials Mahal No.1	Emmanuel Basumatary	4.5 Ha	26°30’20.95”N 26°30’23.16”N 26°30’28.46”N 26°30’26.21”N	89°52'14.27"E 89°52'16.76”E 89°52'6.92“E 89°52’4.10”E	18km	1.44km	

a) List of **existing mining leases** of the district with location, area, period for each minor mineral

Sl. No	*River Details*	*Name of the mines*	*Lease Details*	*Area (Ha)*	*Geolocation*		*Distance from PA/ BR/WC (In km)*	*Distance from Forest Area (In km)*	*Production as per EC (MT)*	*Mineral to be mined*	*Status*
					Latitude	*Longitude*					
1	Sankosh River	Sankosh Khoksaguri Sand & Stone Materials Mahal	Marjit Basumatary	4.43 Ha	26°30’31.93”N 26°30’28.04”N 26°30’33.45”N 26°30’37.99”N	89°52'21.72”E 89°52'18.06”E 89°52'10.73”E 89°52’14.36”E	17Km	0.90km	Sand & Stone 78570m) for 5 years	Sand-21060m3 Stone-57510m3	Existing

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2	Gongia River	Balanga Sand & Stone Material Mahal	Bisinta Mushahary	3.12 Ha	26°29'51.81"N 26°29'50.36"N 26°29'43.71"N 26°29'42.50"N	90°6'30.12"E 90°6'23.99"E 90°6'23.70"E 90°6'26.72"E	14.6Km	3.38km	Sand & Gravel - 50000m3	Sand & Gravel – 50000m3	Existing
3	Gongia River	Chitila 2 Sand & Stone Materials Mahal	Argeng Narzary	4.34 Ha	26°24'6.35"N 26°24'2.32"N 26°24'5.81"N 26°24'10.62"N	90°06'48.10"E 90°06'36.77"E 90°06'35.23"E 90°06'46.48"E	25Km	13.7km	Sand &Gravel 36000m3	Gravel-7300m3 Sand-28700m3	Existing
4	Gurufela River	Gurufela 2 Sand & Stone Materials Mahal	Manash Basumatary	2.0 Ha	26°25'39.04"N 26°25'37.79"N 26°25'26.94"N 26°25'27.00"N	90°3'24.92"E 90°3'24.98"E 90°3'18.34"E 90°3'17.17"E	22.2Km	10.6Km	Sand & Stone 20000m3	Sand & Stone 20000m3	Existing
5	Hel River	No.4 Hel Sand Gravel & Stone Mahal	Bisinta Mushahary	3.0 Ha	26°33'27.81"N 26°33'28.11"N 26°33'20.81"N 26°33'19.95"N	90°07'57.00"E 90°07'51.84"E 90°07'53.08"E 90°07'57.38"E	8.00Km	0.35Km	Sand & Gravel. 66570m3	Sand 6656m3 Gravel 8876m3 Stone 6656m3	Existing
6	Sankosh River	Sankosh Khoksaguri No.2 Stone Mahal (MPA)	Jandu Construction India Pvt Ltd	4.83 Ha	26°30'50.59"N 26°30'46.75"N 26°30'38.89"N 26°30'42.03"N	89°52'22.29"E 89°52'18.91"E 89°52'27.64"E 89°52'30.75"E	16 Km	0.47km	Stone-100000m3	Stone 100000m3	Existing
7	Sankosh River	Sankosh Khoksaguri No.3 Stone Mahal (MPA)	Jandu Construction India Pvt Ltd	4.74 Ha	26°31'01.30"N 26°30'56.87"N 26°30'50.54"N 26°30'54.43"N	89°52'30.14"E 89°52'26.70"E 89°52'34.64"E 89°52'38.05"E	16.5km	0.20km	Stone - 99176m 3	Stone-99176m3	Existing

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8	Sankosh River	Sankosh Khoksaguri Sand Gravel Mahal (MPA)	L&T	4.5 Ha	26°29'51.45"N 26°30'46.52"N 26°29'49.85"N 26°30'55.20"N	89°51'41.10"E 89°51'38.52"E 89°51'30.61"E 89°51'32.89"E	16.5 Km	0.30Km	Sand & Gravel 99864m3	Sand & Gravel 99864m3	Existing
9	Sankosh River	Sankosh Jaraguri Sand Gravel Mahal (MPA)	L&T	4.5 Ha	26°30'13.67"N 26°30'09.06"N 26°30'13.31"N 26°30'17.94"N	89°51'59.13"E 89°51'55.25"E 89°51'47.64"E 89°51'51.45"E	17.8km	1.4km	Sand Stone & Gravel 1,10,515m3	Sand 55257m3 Gravel 33154m3 Stone 22.103m3	Existing
10	Sankosh River	Sankosh Jaraguri No.2 Stone Mahal (MPA)	Bhuven Mukherjee	4.65 Ha.	26°30'9.07"N 26°30'3.89"N 26°29'58.85"N 26°30'3.00"N	89°51'39.73"E 89°51'36.43"E 89°51'44.08"E 89°51'47.46"E	18.0km	1.70km	96000m3	96000m3	Existing

List of **under process** mining zones of the district with location, area, period for each minor mineral under Kachugaon Forest Division, Gossaigaon

Sl No	***River Details***	***Name of the mines***	***Lease Details***	***Area (Hal***	***Geolocation***		***Distance from PA/ BR/WC (in km)***	***Distance from Forest Area (in km)***	***Production as per EC (MT)***	***Mineral to be mined***	***Existing /Proposed***
					Latitude	***Longitude***					
1	Sankosh River	Haldibari Sand Gravel & Stone Mahal	Vivek Mushahary	4.5 Ha	26°37'19.98"N 26°37'19.84"N 26°37'00.78"N 26°36'58.02"N	89°52'08.48"E 89°52'31.65"E 89°52'05.85"E 89°52'32.74"E	17 km	0.90 km	EC under Process	Sand Gravel & Stone -	Under process

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2	Gongia River	Jogdwi Sand & Gravel Mahal	Suman Brahma	3.0 Ha	26°21’32.78”N 26°21’34.00”N 26°21’42.04”N 26°21’42.34”N 26°21’44.19”N	90°6'4.59”E 90°6'0.53”E 90°6'5.93”E 90°6’0.92”E 90°6’9.52”E	14.6Km	3.38 km	-do-	Sand & Gravel	-do-
3	Sankosh River	Gokulkata Sand Gravel Mahal	Vivek Mushahary	4.50 Ha	26°28’39.45”N 26°28’40.08”N 26°28’47.90”N 26°28’48.06”N	89°51'53.42”E 89°51'47.23”E 89°51'52.39”E 89°51’45.44”E	25Km	13.7 km	-do-	Sand Gravel	-do-
4	Sankosh River	Sankosh Surendrapur Ghat Stone Materials Mahal	Loknarh Narzary	4.5 Ha	26°32’12.82”N 26°32’13.03”N 26°32’22.51”N 26°32’23.43”N	89°53'12.81”E 90°53'8.02”E 90°53'15.58”E 90°53’10.26”E	22.2km	10.6 km	-do-	Stone	-do-

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ANNEXURE-I (Parbatjhora Division)

a) Rivers:

SI No	River Name/ M-Sand plant	Total stretch of River (in Km)	Type of River
1.	Sankosh River	17 Kms	Perennial
2.	Tipkai River	15 Kms	Perennial
3.	Monglajhora Stream	1 Kms	Non -Perennial

c) List of Patta Lands / Khatedari land

Sr. No.	Owner	Area	District	Tehsil	Village	Agricultural Land (Yes / No)
1.	Sri DelowarHussain	2.4163 Ha	Kokrajhar	Gossaigaon	Garumarachar Pt- II	**No**
2.	Sri Alom Sheikh	0.8 Ha	Kokrajhar	Gossaigaon	Garumarachar Pt- II	**No**
3.	Sri RupuramRabha	2.70 Ha	Kokrajhar	Gossaigaon	Majerdabri No.2	**No**
4.	Sri MansingBasumatry	0.64 Ha	Kokrajhar	Kokrajhar	ChotoMalgaonPt-II	**No**
5.	Sri Rezaul Islam	1.82 Ha	Kokrajhar	Gossaigaon	Borogaon	**No**

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Name of Leases	Owner	Area	District	Tehsil	Village	Coordinates	Total Reserve (MT)	Total Mineral to be mined (MT)	Existing/ Proposed
Majerdari Sand, Gravel/ Sand-Gravel and Small Size Stone from Patta Land Mining Permit Area	Sri Rabiram Narzary P.P land	1.4 ha	Kokrajhar	Gossaigaon	Majerdabri No 1	26°25'5.92"N 89°51'34.92"E 26°25'12. 28"N 89°51'37.34"E 26°25'9.92"N 89°51'40.00"E 26°25'4.60"N 89°51'35.73"E	Sand= 2000m^3 Gravel= 2000 m^3 S/Gravel= 2000 m^3 Small size stone = 4000 m^3	Under process for E.C	Proposed

List of Patta Lands/Khatedari Land

Sl No	Name of the Lessee	Address & Contact No. of Lessee	Area of Mining lease (ha)
1	Md. Munuruddin SK.	No. 1 Polashguri, Kokrajhar	0.45 ha
2	Bhaigya Basumatary	Saraguri, Kokrajhar	1.49 ha
3	Md. Kopiluddin Sk.	No.1 Burichatam, Kokrajhar	4.10 Ha
4	Jamal Hussain Sk.	No.1 Burichatam, Kokrajhar	0.46 ha
5	DelowarHussain	GarumaracharPt-II, Kokrajhar	2.4160 Ha
6	Alom Sheikh	GarumaracharPt-II, Kokrajhar	0.8 Ha
7	Rupuram Rabha	Majerdabri No.2	2.70 Ha

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8	Mansing Basumatary	ChotoMalgaonPt-II, Kokrajhar	0.64 Ha
9	Rezaul Islam	Borogaon, Kokrajhar	1.82 Ha
10	Abdus Salam	Silbari, Kokrajhar	1.48 ha

Ordinary earth (Private land) mineral potential zones

Sl. No.	*Name of village of private land*	*Location of potential zones*			
		Administrative block	*Mouza*	*Plot No.*	*GPS co-ordinates*
01	Malgaoni	Kokrajhar	Kokrajhar	PJD/01	P1:26°14'53.81"N 90°17"30.56"E P2:26°14'53.59"N 90'17'31'98"E P3:26°14'52'24"N 90°17.32.00"E P4:26°14'51.11"N 90°17'31.28"E
02	ChotoMalgaonPt-I	Kokrajhar	Kokrajhar	PJD/02	P1:26°15'42.17"N 90°17'52.11"E P2:26°15'46.48"N 90'17'56'31"E P3:26°15'45'11"N 90°17'56.46"E P4:26°15'41.88"N 90°17'53.35"E
03	PaikandaraPt-I	Bagribari	Bagribari	PJD/03	P1:26°11'56.00"N 90°0'43.29"E P2:26°11'59.14"N 90'0'46'43"E P3:26°11'57'35"N 90°0'47.43"E P4:26°11'55.08"N 90°0'45.12"E
04	AtharokothajharPt-III	Bagribari	Bagribari	PJD/04	P1:26°9'19.93"N 89°54'59.76"E P2:26°9'21.10"N 89'54'59'93"E P3:26°9'22'22"N 89°55'1.41"E P4:26°9'21.04"N 89°55'2.97"E P5:26°9'20'92"N 89°55'3.21"E P6:26°9'21.52"N 89°55'5.07"E P7:26°9'23'63"N 89°55'4.58"E P8:26°9'21.56"N 89°55'2.43"E
05	Bethagaon	Kokrajhar	Kokrajhar	PJD/05	P1:26°16'57.18"N 90°18'18.74"E

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					P2:26°16’55.15”N 90’18’5.74”E P3:26°16’54.20”N 90°18’7.01”E P4:26°16’55.94”N 90°18’17.20”E
06	Ramsarobar	Bagribari	Bagribari	PJD/06	P1:26°9’20.56”N 90°2’38.40”E P2:26°9’31.34”N 90’2’41.41”E P3:26°09’30’59”N 90°2’46.84”E P4:26°9’20.80”N 90°2’42.55”E
07	Bhalukjhora	Bagribari	Bagribari	PJD/07	P1:26°11'38.66"N 90°4'3.51"E, P2:26°11'44.42"N 90°4'3.49"E, P3:26°11'44.33"N 90°4'6.11"E, P4:26°11'38.72"N 90° 4'6.56"E
08	BamungaonPt-II	Kokrajhar	Kokrajhar	PJD/08	P1:26°15’50.02”N 90°17’10.01”E P2:26°15’52.37”N 90’17’11.04”E P3:26°05’51’63”N 90°17’13.00”E P4:26°15’49.22”N 90°17’12.24”E
09	DebitolaPt-III	Bagribari	Bagribari	PJD/09	<u>Plot-1</u> P1:26°10'19.92"N 89°59'51.98"E, P2:26°10'22.06"N 89°59'51.99"E, P3:26°10'22.85"N 89°59'42.92"E, P426°10'21.36"N 89°59'42.80"E <u>Plot-2</u> P1:26°10'44.64"N 89°59'49.73"E, P2:26°10'46.94"N 89°59'50.49"E, P3:26°10'49.02"N 89°59'39.62"E, P4:26°10'47.42"N 89°59'40.62"E
10	ChotomalgaonPt-II	Kokrajhar	Kokrajhar	PJD/10	P1:26°15'54.75"N 90°18'16.15"E, P2:26°15'56.94"N 90°18'16.63"E, P3:26°15'59.08"N 90°18'12.92"E,

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					P4:26°15'60.00"N 90°18'15.02"E P5:26°15'56.98"N 90°18'17.90"E, P6:26°15'54.71"N 90°18'18.24"E
11	AtharokothajharPt-II	Bagribari	Bagribari	PJD/11	P1:26°8'14.20"N 89°55'19.90"E, P2:26°8'20.40"N 89°55'18.40"E, P3:26°8'20.40"N 89°55'18.20"E, P4:26°8'14.50"N 89°55'20.70"E
12	BamungaonPt-III	Kokrajhar	Kokrajhar	PJD/12	P1: 26°16'28.13"N 90°17'18.19"E, P2: 26°16'28.04"N 90°17'16.26"E, P3: 26°16'31.56"N 90°17'12.81"E, P4: 26°16'33.57"N 90°17'16.93"E
13	Alurbhui	Kokrajhar	Kokrajhar	PJD/13	P1: 26°16'13.80"N 90°21'51.08"E, P2: 26°16'14.27"N 90°21'48.65"E, P3: 26°16'15.48"N 90°21'49.58"E, P4: 26°16'15.15"N 90°21'51.27"E
14	Malgaon	Kokrajhar	Kokrajhar	PJD/14	P1: 26°14'38.25"N 90°18'5.60"E, P2: 26°14'37.44"N 90°18'2.53"E, P3:26°14'35.69"N 90°18'2.38"E, P4: 26°14'35.19"N 90°18'3.67"E, P5: 26°14'35.62"N 90°18'3.84"E, P6: 26°14'35.41"N 90°18'5.79"E
15	Silpur	Gossaigaon	Gossaigaon	PJD/15	P1: 26°24'06.4"N 89°56'15.6"E, P2: 26°24'05.9"N 89°56'.13.3"E, P3: 26°24'09.7"N 89°56'13.4"E, P4: 26°24'09.2"N 89°56'15.9"E

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16	BamungaonPt-III	Kokrajhar	Kokrajhar	PJD/16	P1: 26°16'26.60"N 90°17'15.30"E, P2: 26°16'25.84"N 90°17'14.17"E, P3: 26°16'30.16"N 90°17'8.17"E, P4: 26°16'31.13"N 90°17'11.24"E, P5: 26°16'28.22"N 90°17'14.56"E
17	Thakurpur (Santal colony)	Gossaigaon	Gossaigaon	PJD/17	P1: 26°21'22.0"N 89°53'16.9"E, P2: 26°21'22.1"N 89°53'.15.9"E, P3: 26°21'18.1"N 89°53'15.8"E, P4: 26°24'09.2"N 89°53'16.5"E
18	TamakubariPt-II	Kokrajhar	Bagribari	PJD/18	**Plot-1** P1: 26°13'48.05"N 90°06'59.29"E P2: 26°13'50.80"N 90°07'7.50"E P3: 26°13'44. 08"N 90°07'0.73"E P4: 26°13'47. 92"N 90°07'8.88"E **Plot-II** P1: 26°13'50.84"N 90°07'7.56"E P2: 26°13'55.93"N 90°07'12.72"E P3: 26°13'50.32"N 90°07'13.43"E P4: 26°13'47.98"N90°07'8.91"E

c) M-Sand plants with location

SI. No.	Plant Name	Owner	District	Tehsil	Village	Geolocation		Quantity (Tonnes/Annum)
						Latitude	Longitude	

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1.	M/s AB Industry (Stone Crusher)	Nobi Hussain	Kokrajhar	Gossaigaon	FailaguriPt-I	26°24'22.71"N 26°24'29.30"N 26°24'28.41"N 26°24'23.21"N	89°51'43.42"E 89°51'47.31"E 89°51'56.75"E 89°5T51.72"E	250000 tone

ANNEXURE - II

a) List of existing mining zones of the district with location, area, period for each minor mineral.

Sl No	***River Details***	***Name of the Mines***	***Lease details***	***Area (ha)***	***Geolocation***		***Distance in (KM) from PA/BR/ WC***	***Distance from Forest Area (in Km)***	***Mineral***	***Existing/ Proposed***
					Latitude	Longitude				
1	Tipkai River	JalabilaMahal		4.53	26°15'42.59"N 26°15'40.95"N 26°15'16.34"N 26°15'16.43"N	90° 7'28.27"E 90° 7'27.84"E 90° 7'19.75"E 90° 7'17.89"E	16.9 KM	0.23 KM	Sand	**Subjudice case in Hon'bleGauhati High court**
2	Tipkai River	FalakataMahal		4.52	26°14'25.15"N 26°14'25.05"N 26°14'9.82"N 26°14'9.26"N	90° 7'18.34"E 90° 7'21.15"E 90° 7'25.72"E 90° 7'22.51"E	18 KM	0.17 KM	Sand	**Subjudice case in Hon'bleGauhati High court**

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3	Tipkai River	JoypurMahal		4.81	26°13'21.87"N 26°13'34.76"N 26°13'36.45"N 26°13'24.02"N	90° 8'14.77"E 90° 7'58.89"E 90° 8'0.65"E 90° 8'17.09"E	19.8 KM	0.62 KM	Sand	**Subjudice case in Hon'bleGauhati High court**
4	Tipkai River	PanijaniMahal		4.90	26°21'44.81"N 26°21'44.04"N 26°21'6.70"N 26°21'6.14"N	90° 3'37.82"E 90° 3'39.93"E 90° 3'45.33"E 90° 3'43.87"E	25 KM	0.34 KM	Sand/ Gravel	**Subjudice case in Hon'bleGauhati High court**
5	Sankosh River	GarumaracharPt-I Mahal		4.43	26°23'55.76"N 26°24'3.15"N 26°24'5.84"N 26°23'58.52"N	89°50'40.71"E 89°50'4l.61"E 89°50'47.95"E 89°50'46.03"E	28 KM	7 KM	Sand,Gravel, Sand/Gravel, stone	**Subjudice case in Hon'bleGauhati High court**
6	Sankosh River	Garumarachar Pt-II Mahal		4.43	26°24'7.78"N 26°24'16.46"N 26°24'11.60"N 26°24'6.84"N	89°51'10.57"E 89°51'17.19"E 89°51'19.29"E 89°51T5.30"E	27.9 KM	6.36 KM	Sand, Gravel, Sand/Gravel, stone	**Subjudice case in Hon'bleGauhati High court**
7	Sankosh River	SimultapuMahal		4.9	26°26'19.86"N 26°26'20.86"N 26°26'H.27"N 26°26T0.96"N	89°51'36.70"E 89°51'40.71"E 89°51'44.0"E 89°51'36.69"E	23.8 KM	7.75 KM	Sand,Gravel, Sand/Gravels tone	**Subjudice case in Hon'bleGauhati High court**

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8.	Monglajhora Stream	MonglajhoraMahal	Sri Prasanta Brahma	2.16	26°12'35.98"N 26°12'34.23"N 26°12'30.02"N 26°12'30.88"N 26°12'36.68"N 26°12'43.54′′N 26°12’43.55"N 26°12'35.9'N	89°55'40.09"E 89°55'39.72"E 89°55'23.55"E 89°55'22.92"E 89°55'43.56"E 89°55'51.50"E 89°55’52.01"E 89°55'44.06"E	40KM	0 KM	Sand / Gravel	Proposed

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Nature of land	*Mineral reserve (apprx.) mentioning grade*	*Location of potential mineralized zones*				*Area within prohibited zone as per rule 3 of AMMCR Rules, 2013*
		Administrative block	*Mouza*	*Plot no.*	*Coordinates*	
Patta land	Sand-500,cum, Gravel-1340 cum, S/Gravel-333.3 cum, Small Size Stone-834cum	Gossaigaon	Gossaigaon	Dag no.77, Patta no.22	26°23’33.90”N 89°49”59.02”E 26°23’37.42”N 89’49’59’88”E 26°23’36’64”N 89°50’04.35“E 26°23’34.38”N 89°50’02.35”E	No
Patta land	Sand-35000 m^3 ,S/Gravel-8000m^3, Small size stone-6000m^3	Gossaigaon	Gossaigaon	Dag No- 96 , Patta No- 28	26°23'31.76"N 89°50'26.70"E 26°23'36.18"N 89°50'27.83"E 26°23'34.30"N 89°50'31.31"E 26°23'32.97"N 89°50'29.28"E	No
Patta land	Sand -3000 m^3, S/Gravel-4000 & Small Size-3000m^3	Gossaigaon	Gossaigaon	Dag No- 93, 95, 96Patta No- 02	26°24'58.73"N 89°51'25.08"E 26°25'7.28"N 89°51'29.78"E 26°25'5.24"N 89°51'33.71"E 26°24'58.09"N 89°51'27.24"E	No
Patta land	Earth- 6996m^3	Kokrajhar	Kokrajhar	Dag No- 179, Patta No- 47	26°15'44.08"N 90°18'2.98"E 26°15'46.74"N 90°18'6.70"E 26°15'45.21"N 90°18'7.52"E 26°15'43.52"N 90°18'4.62"E 26°15'42.34"N 90°18'3.11"E	No
Patta land	Sand/Gravel- 2755.2 m^3	Gossaigaon	Gossaigaon	Dag No-42/39,49/46, 108/93 &Patta No-14,67,102	**Plot-I:** 26°16’4.90”N 90°7’49.74”E 26°16’5.66”N 90°7’50.50”E 26°15’59.63”N 90°7’57.82”E 26°15’59.35”N 90°7’57.34”E **Plot-II** 26°15’52.56”N 90°7’48.22”E 26°15’52.13”N 90°7’50.52”E 26°15’49.14”N 90°7’49.71”E 26°15’49.16”N 90°7’47.04”E	No

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					Plot-III 26°15’46.65”N 90°7’53.75”E 26°15’50.97”N 90°7’57.13”E 26°15’48.67”N 90°7’58.73”E 26°15’46.02”N 90°7’54.48”E	

Sl. No.	***River/stream***	***Location of potential zones***		
		Administrative block	***Mouza***	***Coordinates***
1.	Haraputa River (Adelghutu)	Gossaigaon	Gossaigaon	Pl: 26°24'17.88"N 89°51'19.80"E P2: 26°24'20.04"N 89°51'18.24"E P3: 26°24'25.04"N 89°51'32.76"E P4: 26°24'23.80"N 89°51'34.50"E
2.	Haraputa River (Majadabri)	Gossaigaon	Gossaigaon	Pl: 26°24'25.41"N 89°51'35.55"E P2: 26°24'26.26"N 89°51'33.95"E P3: 26°24'31.64"N 89°51'50.90"E P4: 26°24'30.86"N 89°51'51.18"E
3.	Sankosh River (Majadabri)	Gossaigaon	Gossaigaon	P1: 26°24'44.29"N 89°51'29.69"E P2: 26°24'44.44"N 89°51'31.32"E P3: 26°24'32.64"N 89°51'46.37"E P4: 26°24'32.40"N 89°51'45.72"E

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ANNEXURE - III

Transportation Routes to Mining Site (Running, Proposed, Potential Zones):

Sl. No	Lease name	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Route Map & Location
1.	Jalabila Mahal	**0.1**	**Unpaved**	**Attached**
2.	Falakata Mahal	**0.3**	**Unpaved**	**Attached**
3.	Joypur Mahal	**0.4**	**Unpaved**	**Attached**
4.	Panijani Mahal	**0.1**	**Unpaved**	**Attached**
5.	Garumarachar Pt-I Mahal	**0.5**	**Unpaved**	**Attached**
6.	Garumarachar Pt-II Mahal	**0.7**	**Unpaved**	**Attached**
7.	Simultapu Mahal	**0.1**	**Unpaved**	**Attached**
8.	Monglajhora Mahal	**0.0**	**Unpaved**	**Attached**
9.	Haraputa River (Adelghutu)	**0.4**	**Unpaved**	**Attached**
10.	Haraputa River (Majadabri)	**0.1**	**Unpaved**	**Attached**
11.	Sankosh River (Majadabri)	**0.2**	**Unpaved**	**Attached**
12.	Sankosh Khoksaguri Sand & Stone Materials Mahal	**0.2**	**Unpaved**	**Attached**
13.	Balanga Sand & Stone Material Mahal	**0.2**	**Unpaved**	**Attached**

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14.	Chitila 2 Sand & Stone Materials Mahal	**0.6**	**Unpaved**	**Attached**
15.	Gurufela 2 Sand & Stone Materials Mahal	**0.4**	**Unpaved**	**Attached**
16.	No.4 Hel Sand Gravel & Stone Mahal	**1.1**	**Unpaved**	**Attached**
17.	SankoshKhoksaguri No.2 Stone Mahal (MPA)	**0.2**	**Unpaved**	**Attached**
18.	SankoshKhoksaguri No.3 Stone Mahal (MPA)	**0.2**	**Unpaved**	**Attached**
19.	SankoshKhoksaguri Sand Gravel Mahal (MPA)	**1.2**	**Unpaved**	**Attached**
20.	Sankosh Jaraguri Sand Gravel Mahal (MPA)	**0.3**	**Unpaved**	**Attached**
21.	SankoshJaraguri No.2 Stone Mahal (MPA)	**0.3**	**Unpaved**	**Attached**
22.	Jaraguri PGR-II Stone Materials Mahal-1	**0.2**	**Unpaved**	**Attached**
23.	Jaraguri Sand & Stone Materials Mahal No .2	**0.3**	**Unpaved**	**Attached**
24.	Khoksaguri No.4 Stone Materials Mahal	**0.4**	**Unpaved**	**Attached**
25.	No.9Harbhanga Sand & Gravel Mahal	**0.1**	**Unpaved**	**Attached**
26.	Khoksaguri No.3 River Stone Materials Mahal	**1.0**	**Unpaved**	**Attached**
27.	Jaraguri PGR- II Stone Materials Mahal	**1.0**	**Unpaved**	**Attached**
28.	Jaraguri PGR- II Sand & Stone Materials Mahal No.2	**1.0**	**Unpaved**	**Attached**
29.	KhoksaguriNo.III Sand & Stone Materials Mahal No.3	**0.2**	**Unpaved**	**Attached**
30.	Jaraguri PGR-II Sand & Stone Materials Mahal No.3	**1.1**	**Unpaved**	**Attached**
31.	Jaraguri Sand & Stone Materials Mahal No.1	**1.2**	**Unpaved**	**Attached**

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32.	Haldibari Sand Gravel & Stone Mahal	**0.5**	**Unpaved**	**Attached**
33.	Jogdwi Sand & Gravel Mahal	**0.4**	**Unpaved**	**Attached**
34.	Gokulkata Sand Gravel Mahal	**1.2**	**Unpaved**	**Attached**
35.	Sankosh SurendrapurGhat Stone Materials Mahal	**0.2**	**Unpaved**	**Attached**
36.	Saralbhanga Mahal No. 5	**1.5**	**Unpaved**	**Attached**
37.	Champa Mahal No. 2	**0.1**	**Unpaved**	**Attached**
38.	Saralbhanga Mahal No.- 2 (A)	**1.1**	**Unpaved**	**Attached**
39.	Saralbhanga River Mahal No. 6	**0.4**	**Unpaved**	**Attached**
40.	Gaurang River Minor Mineral Permit Area No. 1	**0.7**	**Unpaved**	**Attached**
41.	TarangMahal No. 1	**0.9**	**Unpaved**	**Attached**
42.	SaralbhangaMahal No.- 2 (B)	**1.4**	**Unpaved**	**Attached**
43.	SaralbhangaMahal No.- 4 (A)	**0.3**	**Unpaved**	**Attached**
44.	SaralbhangaMahal No.- 4 (B)	**0.2**	**Unpaved**	**Attached**
45.	SaralbhangaMahal No.- 4 (C)	**0.2**	**Unpaved**	**Attached**
46.	SaralbhangaMahal No.- 4 (D)	**0.2**	**Unpaved**	**Attached**
47.	SaralbhangaMahal No.- 7	**0.6**	**Unpaved**	**Attached**
48.	SaralbhangaMahal No.- 8	**0.6**	**Unpaved**	**Attached**
49.	SaralbhangaMahal No.- 9	**1.2**	**Unpaved**	**Attached**
50.	**Potential Mining Area Bandarchora (Champaboti River)**	**0.8**	**Unpaved**	**Attached**

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51.	Saralbhanga Mahal No-3	**0.5**	**Unpaved**	**Attached**
52.	Saralbhanga Mahal No-4	**0.3**	**Unpaved**	**Attached**
53.	Champa (Bandarchara Mahal)	**0.2**	**Unpaved**	**Attached**

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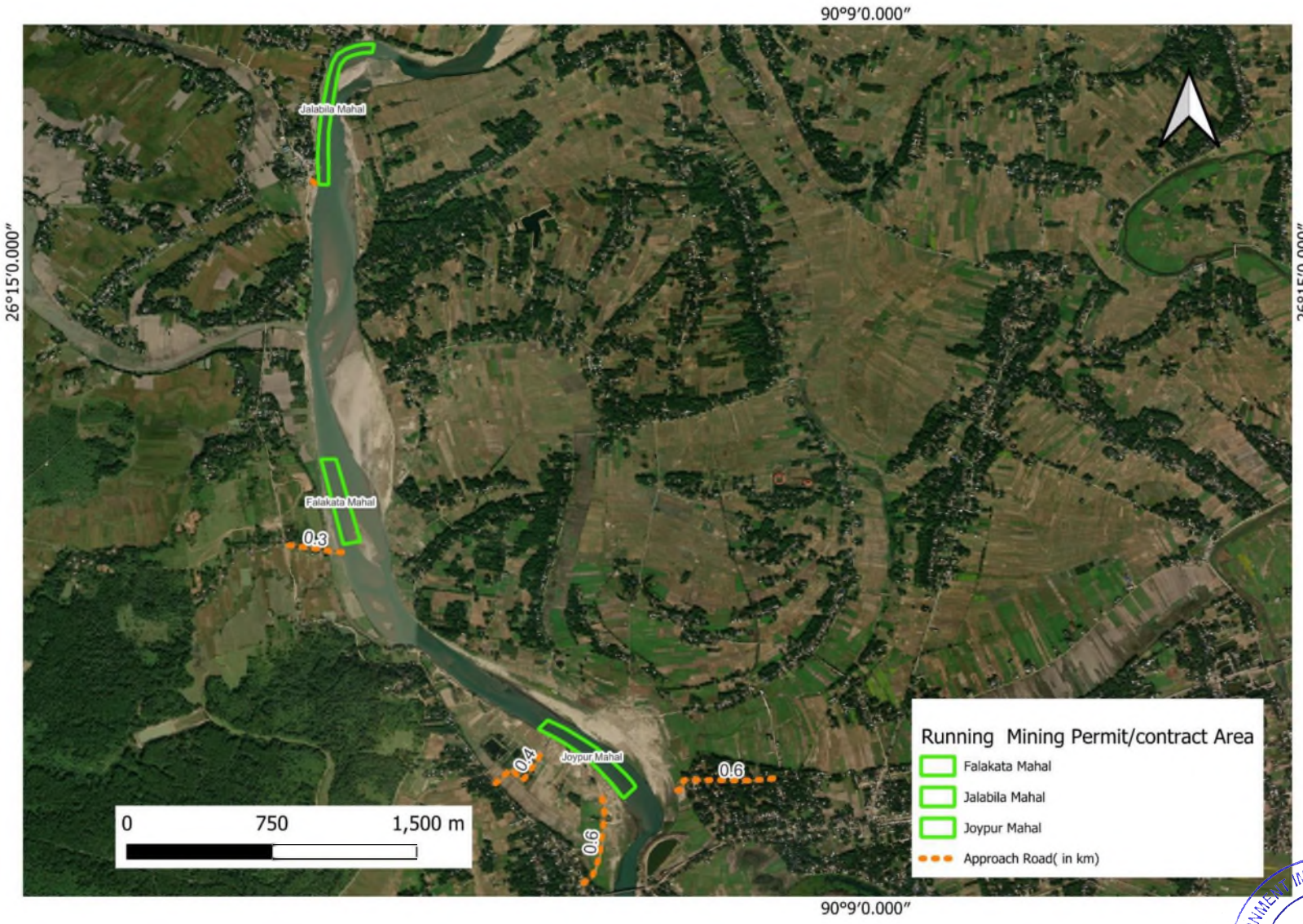

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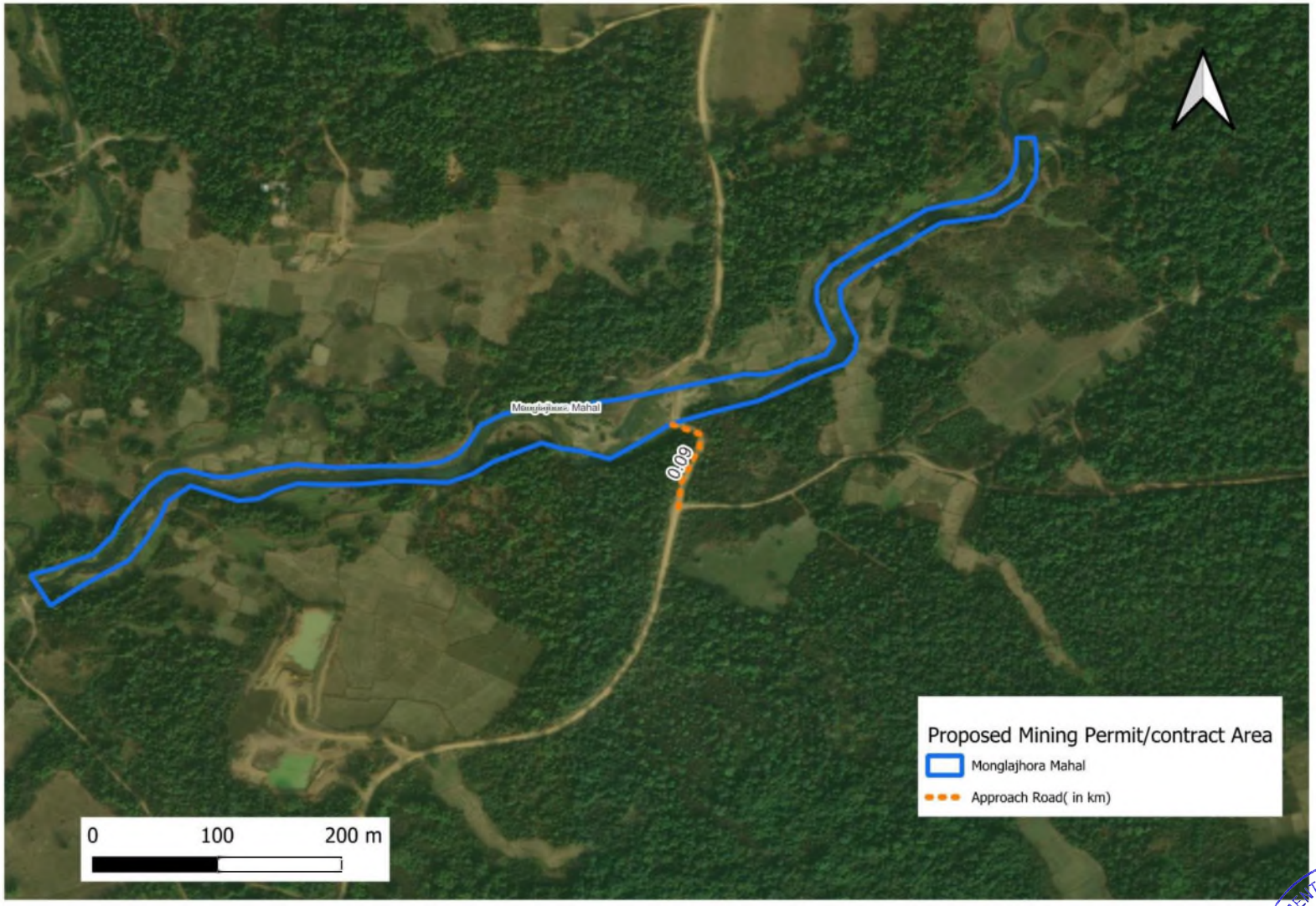

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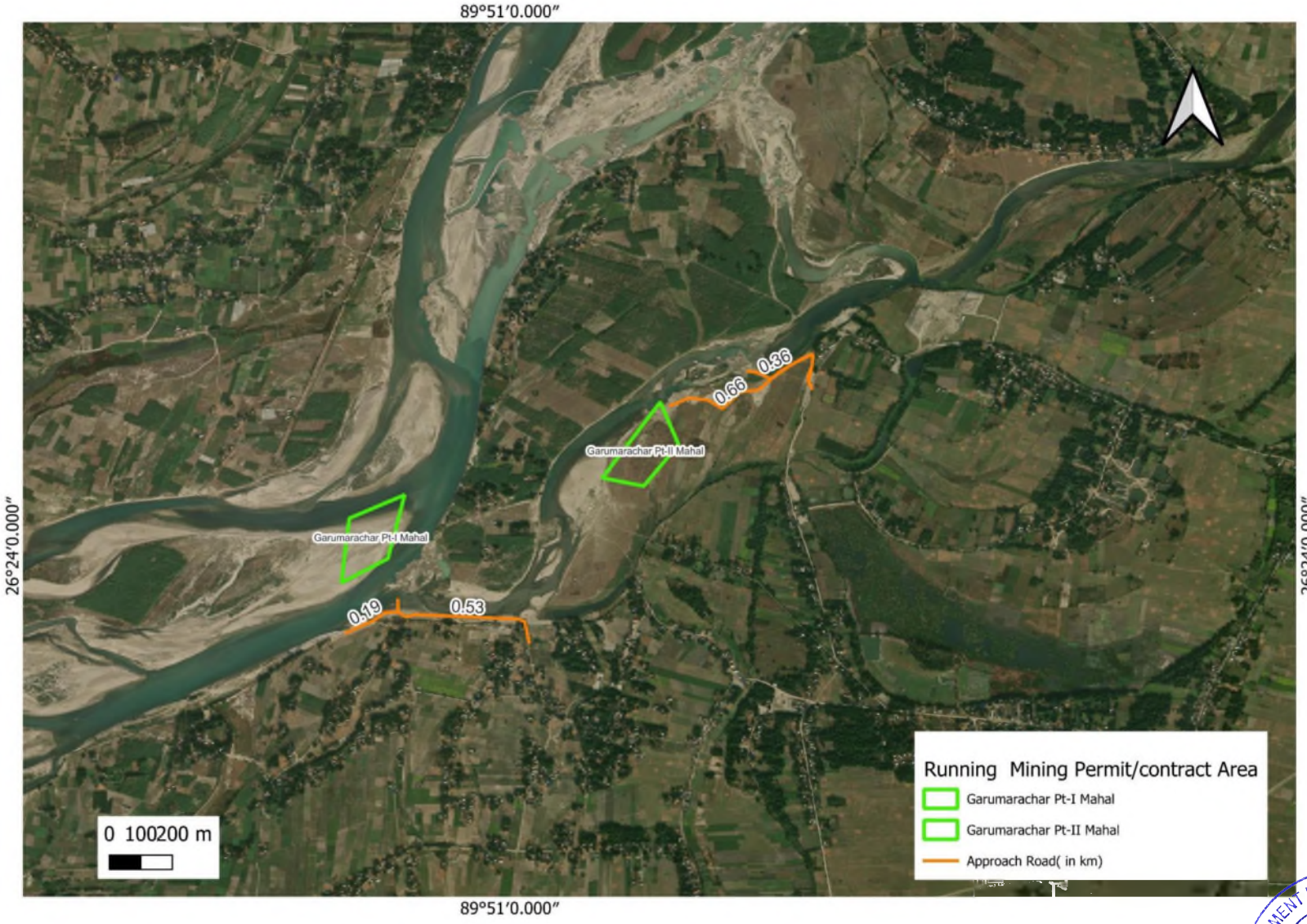

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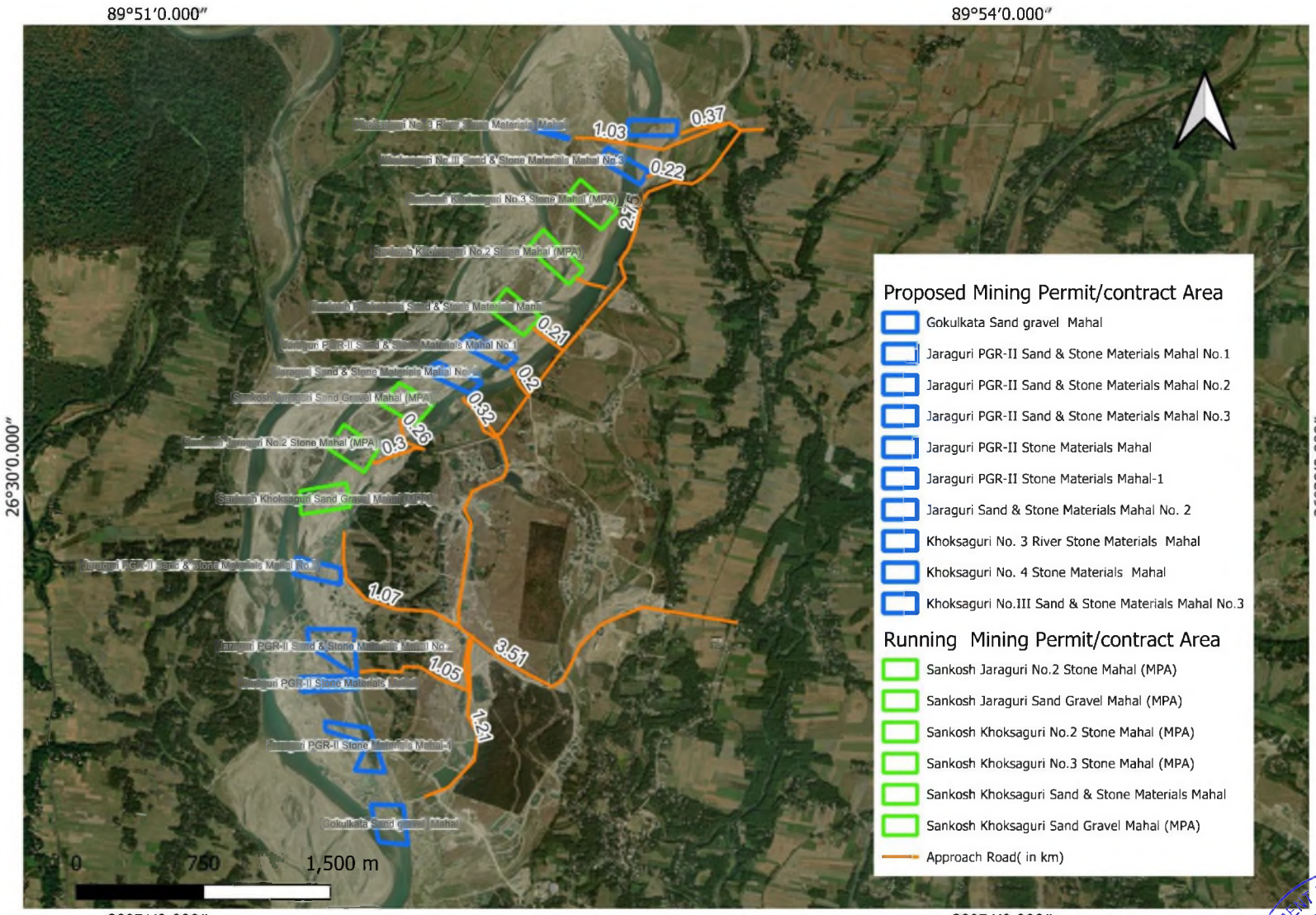

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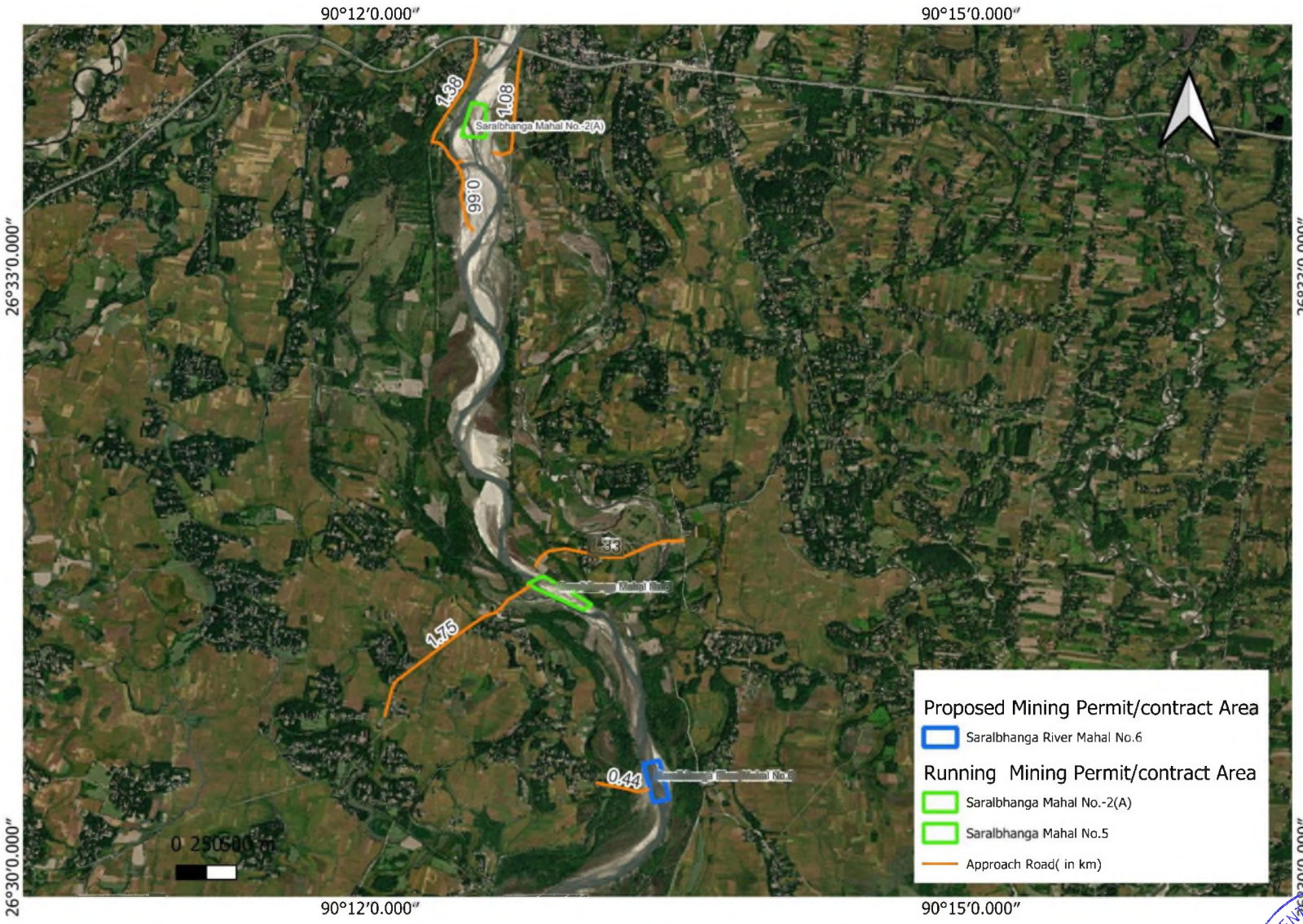

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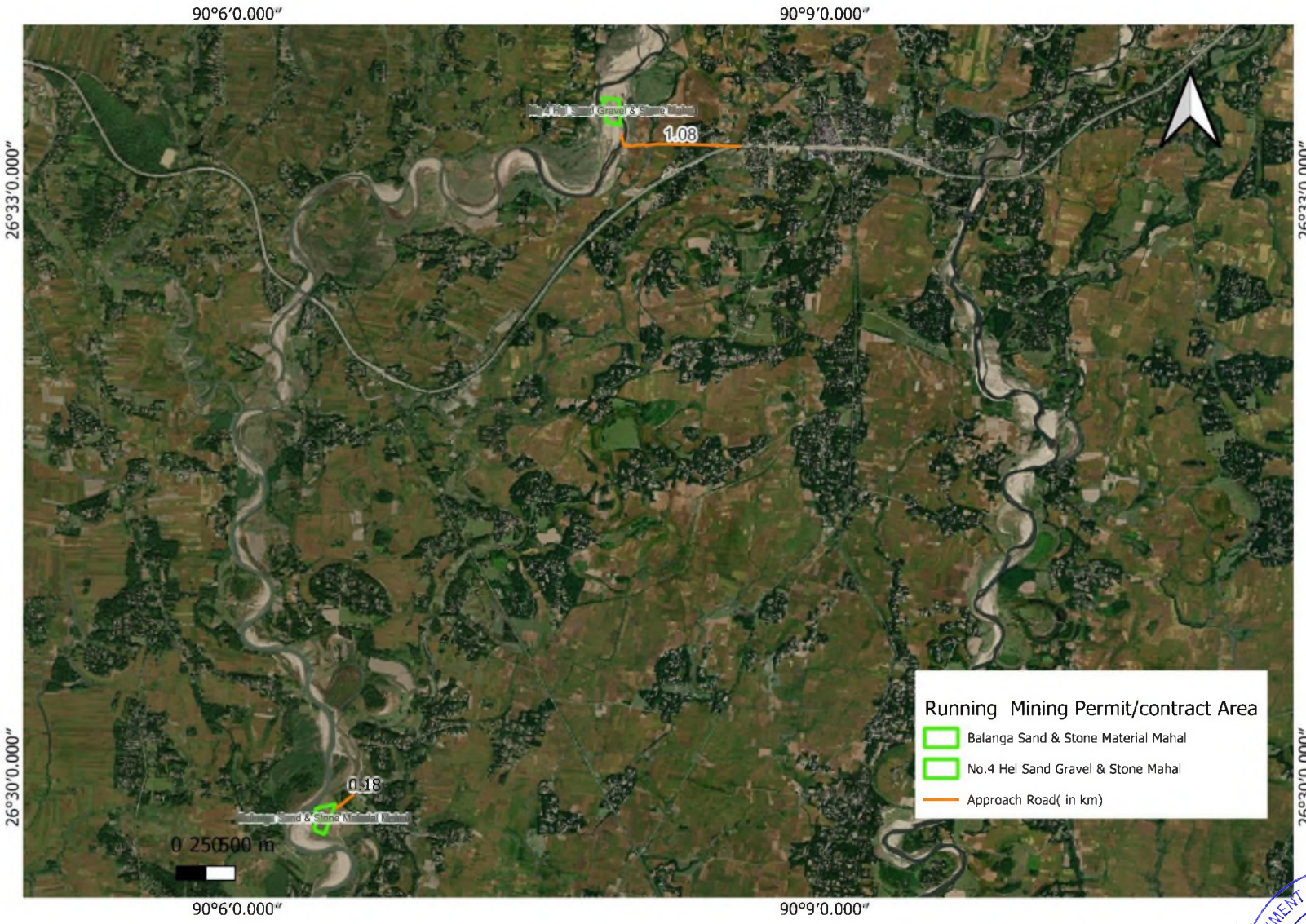

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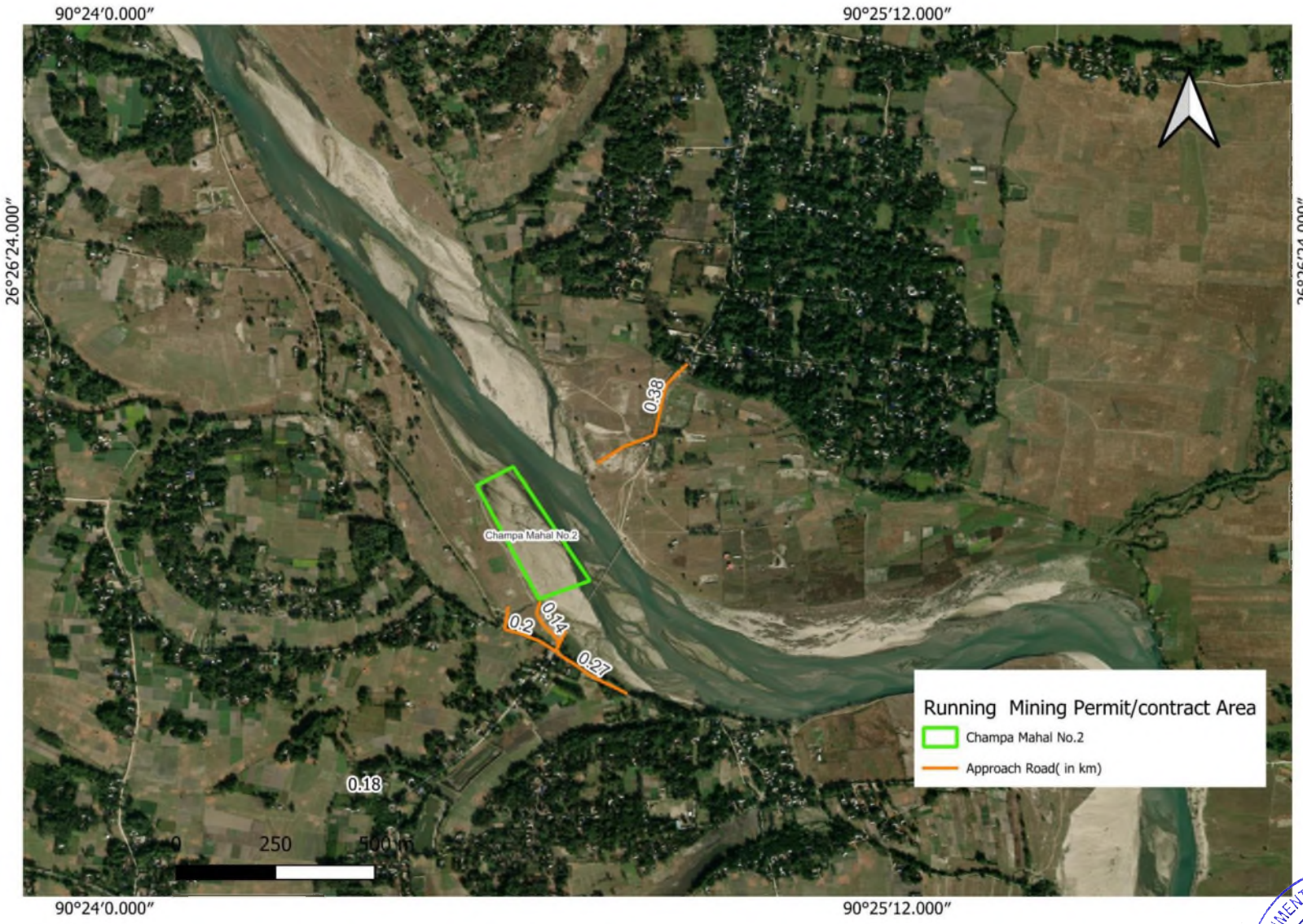

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Issue Date: 02/02/2024 **Valid Until:** 01/02/2026

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

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Signed for and on behalf of NABL

N. Venkateswaran
Chief Executive Officer

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सत्यमेव जयते

SUSTAINABLE SAND MINING MANAGEMENT GUIDELINES 2016

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय

इंदिरा पर्यावरण भवन, जोर बाग रोड, नई दिल्ली–110 003

Ministry of Environment, Forest and Climate Change

Indira Paryavaran Bhavan, Jor Bagh Road, New Delhi - 110 003

www.moef.nic.in

Acknowledgment

The Sustainable Sand Mining Management Guidelines 2016, has been prepared after extensive consultation with the States and stakeholders over a period of last one year. The Guideline assimilates the knowledge and experience of stakeholder. The main objective of the Guidelines is to ensure sustainable sand mining and environment friendly management practices in order to restore and maintain the ecology of river and other sand sources. The team of the officers of Ministry of Environment, Forest and Climate Change who have worked for preparing these Guidelines comprised of following:

1. Shri Manoj Kumar Singh, Joint Secretary
2. Dr. U. Sridharan, Scientist 'F'
3. Dr. R.B. Lal, Scientist 'D'
4. Dr. Sonu Singh, Scientist 'D'

SUSTAINABLE SAND MINING MANAGEMENT GUIDELINES

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प्रकाश जावडेकर
Prakash Javadekar

सत्यमेव जयते

राज्य मंत्री (स्वतंत्र प्रभार)
MINISTER OF STATE (INDEPENDENT CHARGE)
पर्यावरण, वन एवं जलवायु परिवर्तन
ENVIRONMENT, FOREST & CLIMATE CHANGE
भारत सरकार / GOVERNMENT OF INDIA

FOREWORD

Environmental Protection and Sustainable Development have been the cornerstones of the policies and procedures governing the industrial and other developmental activities in India. The Ministry of Environment, Forest and Climate Change has taken several policy initiatives and enacted environmental and pollution control legislations to prevent indiscriminate exploitation of natural resources and to promote integration of environmental concerns in developmental projects. One such initiative is the Notification on Environmental Impact Assessment (EIA) of developmental projects issued on 14th September, 2006 under the provisions of Environment (Protection) Act, 1986, making EIA mandatory for certain categories of developmental projects.

Another land mark decision has been taken with the new notifications dated 15.01.2016 and 20.01.2016 on mining of minor minerals and constitution of District Level Environment Impact Assessment Authority and District Level Environment Appraisal Committee. This will ensure environmentally sustainable mining especially for sand and gravel under close supervision of district authorities. Use of information technology and information technology enabled services for scientific monitoring of mining and transportation of mined out material is another important feature of above notification.

Sand and gravel are one of the most important construction materials. Ensuring their availability is vital for the development of the infrastructure in the country. There are different sources of sand and gravel, the most important among them is the river. As the requirement of these construction materials is on rise, they also are very vital for the health, physical character of the river and the different important functions of the river. The extraction of sand and gravel from the river bodies has to be regulated and done with adoption of required environmental safeguards.

In view of evolving scenario in industry and development sector, My Ministry has prepared a "Sustainable Sand Mining Management Guidelines". The Guidelines *inter-alia* focus on preparation of District Survey Report; Management Plan; Marine Sand Mining and Impact on Marine Biodiversity; Issues and Management of Mining in Cluster; Management of Sand Deposited after Flood on Agricultural Field of Farmers; Mining of Sand from Agricultural Field; Monitoring System for Sustainable Sand Mining using Information Technology System; Creation of District Level Environment Impact Assessment Authority (DEIAA) and District Level Expert Appraisal Committee (DEAC) for granting Environment Clearance for Mining of Minor Minerals; Exemption of certain cases for requirement of Environment Clearance and Standard Environmental Conditions for Sustainable Sand Mining.

The Guidelines will help the Departments of Mines and Geology, State Pollution Control Boards/Committees, Industries, Regulators, Authorities and various Stakeholders to ensure environmentally sustainable mining in the Country.

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भारत सरकार
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Secretary
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PREFACE

Sand is naturally occurring granular material composed of finely divided rock and mineral particles. Sand and gravel together known as aggregate, represent the highest volume of raw material used on earth. The mining of aggregate has been continuing for many years. Now the mining of aggregates has reached a level threatening the environment and ecosystem besides also reaching a level of scarcity that would threaten the economy. It is recommended that sand and aggregate mining, and quarrying should be done only after sound scientific assessment and adopting best practices to limit the impact on the environment.

The main objectives of the Guidelines, inter-alia, includes to ensure that sand and gravel mining is done in environmentally sustainable and socially responsible manner; availability of adequate quantity of aggregate in sustainable manner; improve the effectiveness of monitoring of mining and transportation of mined out material; conservation of the river equilibrium and its natural environment by protection and restoration of the ecological system; avoid aggradation at the *downstream* reach especially those with hydraulic structures such as jetties, water intakes etc.; to ensure the rivers are protected from bank and bed erosion beyond its stable profile; no obstruction to the river flow, water transport and restoring the riparian rights and in-stream habitats; to avoid pollution of river water leading to water quality deterioration; to prevent depletion of ground water reserves due to excessive draining out of ground water; and streamlining the process for grant of environmental clearance (EC) for sustainable mining.

The recommendations for management of sustainable sand extraction are the key objectives of the Guidelines. Emphasis is given to the setting up of monitoring plans that will provide data on profile changes and sediment transport capacity to enable the authorities to evaluate the long-term effect of the mining activities both upstream and downstream of sand extraction sites. Special emphasis is given on monitoring of the mined out material, which is key to the success of environment management plan. So use of IT and IT enabled services for effective monitoring of the quantity of mined out material and transportation along with process reengineering has been made a part of the Guideline. The Guidelines propose delegation of responsibility and authority to the cutting edge level i.e. the District Environment Impact Assessment Authority along with streamlining the process of impact assessment, environment management plan and environment clearance in cluster situation.

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EXECUTIVE SUMMARY

The sand and gravel are one of the most important construction materials. Ensuring their availability is vital for the development of the infrastructure in the country. There are different sources of sand and gravel, the most important among them is the river. As the requirement of these construction materials is on rise, they also are very vital for the health, physical character of the river and the different important functions of the river. The extraction of sand and gravel from the river bodies has to be regulated and done with adoption of required environmental safeguards.

For making available these resources, a mapping of these resources at the district level, identification of appropriate sites for extraction, appraisal of the extraction process, putting in place the required environmental safeguards, and rigorous monitoring of the volume of extracted material is required to ensure sustainability of the entire process.

The district is the unit of administration which is best placed to do the mapping of these resources, adopt the best environmental practices for extraction of these materials and monitor its extraction and movement. The large number of leases which are awarded, the scattered geographical location of the availability of these materials and decentralized requirement and usage of the sand and aggregates also places districts in a unique position to play a vital role in adoption of environmental safeguards needed for sustainable extraction of river sand and gravel.

Recommendations for management of sustainable sand extraction are the key objective of the Guidelines. Emphasis is given to the setting up of monitoring plans that will provide data on profile changes and sediment transport capacity to enable the authorities to evaluate the long-term effect of the mining activities both upstream and downstream of sand extraction sites.

Special emphasis is given on monitoring of the mined out material, which is key to the success of environment management plan. So use of IT and IT enabled services for effective monitoring of the quantity of mined out material and transportation along with process reengineering has been made a part of the Guideliness. The Guidelines proposes delegation of responsibility and authority to the cutting edge level i.e. the District Environment Impact Assessment Authority along with streamlining the process of impact assessment, environment management plan and environment clearance in cluster situation.

Promotion of manufactured sand, artificial sand and alternative technologies in construction materials and processes are also required for reducing the dependence and demand on naturally occurring sand and gravel. Development of slag sand, sand from stone chips and there certification under BIS is an important step in this direction.

INTRODUCTION

Sustainable Development is built on three pillars - environmental, social and economic. Sustainable development cannot be achieved if the environment is protected but poverty is prevalent in a significant part of the population. Similarly, sustainable development cannot be achieved through inappropriate economic growth, if it undermines the environment in which people and businesses exists. These Guideliness support that fundamental concept, promoting environmental protection, limiting negative physiological, hydrological and social impacts under pinning sustainable economic growth.

Sand and gravel have long been used as aggregate for construction of roads and building. Today, the demand for these materials continues to rise. In India, the main sources of sand are river flood plain, coastal sand, paleo channel sand, and sand from agricultural fields.

River sand mining is a common practice as habitation concentrates along the rivers and the mining locations are preferred near the markets or along the transportation route, for reducing the transportation cost. River sand mining can damage private and public properties as well as aquatic habitats. Excessive removal of sand may significantly distort the natural equilibrium of a stream channel.

Removing sediment from the active channel bed in river interrupt the continuity of sediment transport through the river system, disrupting the sediment mass balance in the river downstream and induces channel adjustments (usually incision) extending considerable distances (commonly one kilometer or more) beyond the extraction site.

The magnitude of the impact basically depends on the magnitudes of the extraction relative to bed load sediment supply and transport through the reach. Implementation of the principles and processes outlined in this Guidelines will limit the negative externalities of sand and gravel mining.

NEED FOR POLICY GUIDELINES

Sand is naturally occurring granular material composed of finely divided rock and mineral particles between 150 micron to 4.75 mm in diameter (IS 383-1970). Sand is formed due to weathering of rocks due to mechanical forces. In the process the weathered rocks forms gravel and then sand.

Sand and gravel together known as aggregate, represent the highest volume of raw material used on earth after water. The mining of aggregate has been continuing for many years. Now the mining of aggregates has reached a level threatening the environment and ecosystem besides also reaching a level of scarcity that would threaten the economy. It is recommended that sand & aggregate mining, and quarrying should be done only after sound scientific assessment and adopting best practices to limit the impact on the environment.

It is also felt that the greater use of substitute material (Manufactured Sand, artificial sand etc.) & construction technology, and sustainable use of the resource could drastically reduce adverse impact of mining on the environment.

OBJECTIVE OF THE GUIDELINES

The Guideliness has been based on the following principles:

- Uncontrolled sand mining is not sustainable.
- Compliance with present and future legislation and regulations on the subject is mandatory and not voluntary.
- Each lease holder should be given the opportunity to self-regulate to the extent that it can demonstrate compliance with legislation and regulations.
- Where self- regulation fails to deliver compliance with legislation and regulations, increased formal enforcement and monitoring should be implemented with punitive measures applied in line with the legal framework.
- There is a need to protect the environment and the right of the population to live in clean and safe surroundings, with the need to use natural resources in a way that will make a positive and sustainable contribution to the economy.

The main objectives of the Guidelines

- To ensure that sand and gravel mining is done in environmentally sustainable and socially responsible manner.
- To ensure availability of adequate quantity of aggregate in sustainable manner.
- To improve the effectiveness of monitoring of mining and transportation of mined out material.

- Ensure conservation of the river equilibrium and its natural environment by protection and restoration of the ecological system.
- Avoid aggradation at the downstream reach especially those with hydraulic structures such as jetties, water intakes etc.
- Ensure that the rivers are protected from bank and bed erosion beyond its stable profile.
- No obstruction to the river flow, water transport and restoring the riparian rights and in-stream habitats.
- Avoid pollution of river water leading to water quality deterioration.
- To prevent depletion of ground water reserves due to excessive draining out of ground water.
- To prevent ground water pollution by prohibiting sand mining on fissures where it works as filter prior to ground water recharge.
- To maintain the river equilibrium with the application of sediment transport principles in determining the locations, period and quantity to be extracted.
- Streamlining and simplifying the process for grant of environmental clearance (EC) for sustainable mining.

THE EFFECT OF SAND AND GRAVEL MINING

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 hazardous impact on ecological equilibrium of riverine regime. This may also cause adverse impact on in-stream biota and riparian habitats. This disturbance may also cause changes in channel configuration and flow-paths.

The effects of sand and gravel mining are as follows:

a) 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.

b) In-stream habitat is impacted by increase in river gradient, suspended load, sediment transport and sediment deposition. Excessive sediment deposition for replenishment increases turbidity which prevents penetration of light required for photosynthesis and reduces food availability of aquatic fauna.

c) 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.

d) 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.

e) Degradation may change the morphology of the river bed, which constitutes one aspect of the aquatic habitat.

f) 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.

g) Lowering of the water table can destroy riparian vegetation.

h) 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.

i) 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.

j) The supply of overbank sediments to floodplains is reduced as flood heights decrease.

k) 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.

l) Rapid bed degradation may induce bank collapse and erosion by increasing the heights of banks.

m) Polluting ground water by reducing the thickness of the filter material especially if mining is taking place at top of recharge fissures.

n) 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.

o) 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.

p) Ecological effects on bird nesting, fish migration, angling, etc.

q) Indiscrete mining activities lead to increased concentration of suspended sediment in the river which in turn causes siltation of water resources projects.

r) Un-scientific and unregulated sand and gravel mining leads to the severe health hazards like air quality degradation and dust fog.

s) Direct destruction from heavy equipment operation; discharges from equipment and refueling.

t) Biosecurity and pest risks.

u) Impacts on coastal processes.

The other deleterious impacts of indiscrete mining include

Loss of riparian habitat resulting from direct removal of vegetation along the stream bank to facilitate the use of a dragline or through the process of lowering the water table, bank undercutting, and channel incision. The physical composition and stability of substrates are altered as a result of in-stream mining and most of these physical effects may exacerbate sediment entrainment in the channel.

Furthermore, the process of in-stream mining and gravel washing produces fine sediments under all flow conditions, resulting in a deposition of fine sediment in riffles as well as other habitats at low discharge. Excess sediment is considered the greatest pollutant in waters and constitutes one of the major environmental factors in the degradation of stream fisheries.

However, in-stream mining may contribute additional sediment to downstream reaches due to the disruption of substrate stability. Once sediment enters the stream, it is best to let natural geomorphological and hydrological processes reach a dynamic equilibrium, rather than further exacerbating the situation by additional disturbance.

All other things being equal:

a) Extracting gravel from an excavation that does not penetrate the water table and is located away from an active stream channel should cause little or no change to the natural hydrological processes unless the stream captures the pit during periods of flooding.

b) In-stream extraction of gravel from below the water level of a stream generally causes more changes to the natural hydrologic processes than limiting extraction to a reference point above the water level.

c) In-stream extraction of gravel below the deepest part of the channel (the thalweg) generally causes more changes to the natural hydrological processes than limiting extraction to a reference point above the thalweg.

d) Excavating sand and gravel from a small straight channel with a narrow floodplain generally will have a greater impact on the natural hydrological processes than excavations on a braided channel with a wide floodplain.

e) Extracting sand and gravel from a large river or stream will generally create less impact than extracting the same amount of material from a smaller river or stream.

f) Over-extraction of gravel can destabilise channels and banks, and/or affect the ecologic functioning of rivers particularly if undertaken at the wrong time, or in the wrong place, or in a way that damages the river bed or margins.

GENERAL APPROACH TO SUSTAINABLE SAND AND GRAVEL MINING

Following considerations should be kept in mind for sand / gravel mining:

a) 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.

b) 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.

c) Sand and gravel may be extracted across the entire active channel during the dry season.

d) Abandoned stream channels on terrace and inactive floodplains be preferred rather than active channels and their deltas and flood plains. Stream should not be diverted to form inactive channel.

e) 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.

f) Sand and gravel shall not be allowed to be extracted where erosion may occur, such as at the concave bank.

g) 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.

h) 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 determining the allowable mining depth.

i) Sand and gravel could be extracted from the downstream of the sand bar at river bends. Retaining the upstream one to two thirds of the bar and riparian vegetation is accepted as a method to promote channel stability.

j) 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.

k) Alternatively, off-channel or floodplain extraction is recommended to allow rivers to replenish the quantity taken out during mining.

l) 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.

m) 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.

n) 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.

o) Demarcation of mining area with pillars and geo-referencing should be done prior to start of mining.

THE WORLD SCENARIO

Sand and gravel are mined world-wide and account for the largest volume of solid material extracted globally. Formed by erosive processes over thousands of years, they are now being extracted at a rate far greater than their renewal. Furthermore, the volume being extracted is having a major impact on rivers, deltas and coastal and marine ecosystems, resulting in loss of land through river or coastal erosion, lowering of the water table and decrease in the amount of sediment supply. Despite the colossal quantities of sand and gravel being used, increasing dependence on them and the significant impact that their extraction has on the environment, this issue needs far better attention and awareness.

Globally, between 47 and 59 billion tonnes of material is mined every year of which sand and gravel, known as aggregates, account for both the largest share (from 68% to 85%) and the fastest growth in extraction increase. Although more sand and gravel are mined than any other material, reliable data on their extraction is not available. The absence of global data on aggregates mining makes environmental assessment very difficult and has contributed to the lack of awareness about this issue. One way to estimate the global use of aggregates indirectly is through the production of cement for concrete (concrete is made with cement, water, sand and gravel). The production of cement is reported by 150 countries and it reached 3.7 billion tonnes in 2012 (USGS, 2013a). For each tonne of cement, the building industry needs about six to seven times more tonnes of sand and gravel (USGS, 2013b). Thus, the world's use of aggregates for concrete can be estimated at 25.9 billion tonnes a year for 2012 alone.

Added to this are all the aggregates used in land reclamation, shoreline developments and road embankments (for which the global statistics are unavailable), added to this is the 180 million tonnes of sand used in industry (USGS, 2012). Aggregates also contribute to 90% of asphalt pavements and 80% of concrete roads (Robinson and Brown, 2002). Taking all these estimates into account, a conservative estimate for the world consumption of aggregates exceeds 40 billion tonnes a year.

This large quantity of material cannot be extracted and used without a significant impact on the environment. Extraction has an impact on biodiversity, water turbidity, water table levels and landscape and on climate through carbon dioxide emissions from transportation. There are also socio-economic, cultural and even political consequences. In some extreme cases, the mining of marine aggregates has changed international boundaries, such as through the disappearance of sand islands in Indonesia (New York Times, 2010; Guerin, 2003).

The impacts of sand mining can be mainly categorized as follows:

IMPACTS ON	DESCRIPTION
Biodiversity	Impacts on related ecosystems (for example; fisheries)
Land losses	Both inland and coastal through erosion
Hydrological functions	Change in water flows, flood regulation and marine currents
Water supply	Through lowering of the water table and pollution
Infrastructures	Damage to bridges, river embankments and coastal infrastructures
Climate	Directly through transport emissions
Landscape	Coastal erosion, changes in deltaic structures, quarries, pollution of rivers
Extreme events	Decline of protection against extreme events (flood, drought, storm surge)

World over sand was until recently extracted in land quarries and riverbeds; however, a shift to marine and coastal aggregates mining has occurred due to the decline of inland resources. River and marine aggregates remain the main sources for building and land reclamation. For concrete, in-stream gravel requires less processing and produces high-quality material while marine aggregate needs to be thoroughly washed to remove salt. If the chloride is not removed from marine aggregate, a structure built with it might collapse after few decades due to corrosion of steel reinforced structures. Most sand from deserts cannot be used for concrete and land reclaiming, as the wind erosion process forms round grains that do not bind well.

INDIAN SCENARIO

The data on consumption of sand and aggregate in country is not available with any source. It can be derived indirectly from the usage of cement, construction of roads and stowing of mines. The trend for aggregates extraction can be estimated using cement production as a proxy.

Cement production has multiplied three-fold in the last 20 years from 1.37 billion tonnes of cement in 1994 to 3.7 billion tonnes in 2012 (USGS, 2013a) mainly as a result of rapid economic growth in Asia (UNEP and CSIRO, 2011). Five countries: China (58%), India (6.75%), the United States (2%), Brazil and Turkey - produce 70% of the world's cement (USGS, 2013c). The consumption of cement is expected to reach 324 million tonnes, which equates to use of 2.2 billion tonnes of aggregates. This is in addition to sand and aggregates used in stowing of mines, industry and other allied usage.

In India the main sources of sand are:

(a) River (riverbed and flood plain).

(b) Lakes and reservoirs.

(c) Agricultural fields (Haryana).

(d) Coastal / marine sand.

(e) Palaeo-channels (Bikaner in Rajasthan).

THE PRICE ELASTICITY FOR DEMAND OF SAND

As the price elasticity of demand for sand is inelastic (-0.88), any increase in price in absence of marketable alternative will not have any significant impact on demand. Use of crushed stones or other substitute material should be promoted. The regional context of aggregate resources, market demand, and the environmental impacts of various alternatives must be understood before any site-specific proposal for aggregate extraction can be reviewed.

Evaluation of aggregate supply and demand should be undertaken on the basis of production-consumption regions, encompassing the market for aggregate and all potential sources of aggregate within an economical transport distance. The finite nature of high-quality alluvial gravel resources must be recognized, and high-quality PCC-grade aggregates should be reserved only for the uses demanding this quality material (such as concrete). Alternative sources should be used in less demanding applications (such as road sub-base). Part replacement with fly ash in roads and embankments be promoted in place of sand and aggregates.

The environmental costs of sand mining should be incorporated into the price of the product so that alternative sources that require more processing but have less environmental impact become more attractive.

PROCESS OF SEDIMENT TRANSPORT

The loose boundary (consisting of movable material) of an alluvial channel deforms under the action of flowing water and the deformed bed with its changing roughness (bed forms) interacts with the flow. The resulting movement of the bed material (sediment) in the direction of flow is called sediment transport and a critical bed shear stress must be exceeded to start the particle movement.

Such a critical shear stress is referred as incipient (threshold) motion condition, below which the particles will be at rest and the flow is similar to that on a rigid boundary. Some sediment particles roll or slide along the bed intermittently and some others saltate (hopping or bouncing along the bed). The material transported in one or both of these modes is called 'bed load'.

Finer particles (with low fall velocities) are entrained in suspension by the fluid turbulence and transported along the channel in suspension. This mode of transport is called 'suspended 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'.

Bed load ranges from a few percent of total load in lowland rivers to perhaps 15% in Mountain Rivers to over 60% in some arid catchments. Although a relatively small part of the total sediment load, the arrangement of bed load sediment constitutes the architecture of sand, and gravel-bed channels.

The rate of sediment transport typically increases as a power function of flow; that is, a doubling of flow typically produces more than a doubling in sediment transport and most sediment transport occurs during floods. The environmental impacts from in-stream mining can be avoided, if the annual bed load is calculated and aggregate extraction is restricted to that value or some portion of it. To accurately limit extraction to some portion of bed load, the amount of sediment that passes the in-stream mining site during a given period of time must be calculated.

There is a large amount of uncertainty in the process of calculating annual rates of bed load transport. How much coarse material is moved, how long it remains in motion as also how far it moves depends on the size, shape & packing of the material and the characteristics of the river flow.

Downstream movement commonly occurs as irregular bursts of short-distance movement separated by longer periods, when the particles remain at rest. Because bed load changes from hour-to-hour, day-to-day, and year-to-year, estimating annual bed load rates is a dynamic process involving careful examination.

Constant variations in the flow of the river make the channel floor and riverbanks a dynamic interface, where some materials are being eroded while others are being deposited. The net balance of this activity, on a short- term basis, is referred to as scour or fill.

On a long-term basis, continued scour results in erosion (degradation), while continued fill results in deposition (aggradation).

A general indicator of the stability of a stream relates to the amount of vegetation present. Gravel bars that are vegetated or where the gravel is tightly packed, generally indicate streams, where the gravel supply is in balance. Streams with excessive gravel generally have gravel bars with little or no vegetation, and are surfaced with loosely packed gravel.

SUSTAINABLE SAND AND GRAVEL MINING GUIDELINES

The broad principle on which any sustainable sand mining Guidelines / policy can be based is that river/ natural resources must be utilized for the benefit of the present and future generation, so river resources should be prudently managed and developed. The preparation of District Survery Report is an important initial step.

The Processes under the Guidelines:

(a) Identification of areas of aggradation / deposition where mining can be allowed; and identification of areas of erosion and proximity to infrastructural structures and installations where mining should be prohibited. Use of satellite imagery for identifying areas of sand deposit and quantity be done.

(b) Calculation of annual rate of replenishment and allowing time for replenishment after mining in area.

(c) Identifying ways of scientific and systematic mining.

(d) Identifying measures for protection of environment and ecology.

(e) Determining measures for protection of bank erosion.

(f) A bench mark (BM) with respect to mean sea level (MSL) should be made essential to in-mining channel reaches (MCR). Below which no mining shall be allowed.

(g) Identifying steps for conservation of mineral.

(h) Permanent gauging facilities (for discharge and sediment both) should be made compulsory for the sites having excessive mining in consultation with Central Water Commission or any competent State Agency.

(i) Implementing safeguards for checking illegal and indiscrete mining.

Following the above processes, to begin with it is important to prepare a survey document mapping the status of sand sources in a district. This survey should be conducted and report be prepared for each district. Though it is an acceptable fact that rivers cut across districts and States and every river is an ecosystem in itself. But, keeping in view the fact that the district is the most established unit of administration at which this kind of survey, planning and monitoring can be ensured effectively, it is proposed that every district will prepare this document taking the river stretch in that district as an ecological unit and inventorising other sources of sand in the district.

Besides, the production of aggregate in a particular area is a function of availability of natural resources, the size of the population, the economy of the area and various developmental and infrastructural works being undertaken in the area.

The natural resources must be utilized in environment friendly manner in scientific and systematic way and with the objective of sustainable development the policy on the subject should have provisions for protection of environment & ecology. These factors can be accounted for in a most efficient manner at district level.

The sustainable mining plan needs to be dynamic. A survey should be carried out by the District Environment Impact Assessment Authority (DEIAA) with the assistance of Geology Department, Irrigation Department, Forest Department, Public Works Department, Ground Water Boards, Remote Sensing Department and Mining Department etc. in the district at regular intervals.

The survey shall contain:

1. District wise detail of river or stream and other sand source.
2. District wise availability of sand or gravel or aggregate resources.
3. District wise detail of existing mining leases of sand and aggregates.

Based on this survey document, the action plan shall divide the river/ stream/ other sources of the District into the following categories:

1. River / Stream beds sections / other sources suitable for extraction of sand and aggregates.
2. River / Stream beds sections / other sources prohibited for extraction of sand and aggregates.

The river/ streams/ other sources of sand and aggregate are studied on following parameters:

a) Geomorphological studies

i) Place of origin
ii) Catchment area.
iii) General profile of river stream.
iv) Annual deposition factor.
v) Replenishment.
vi) Total potential of minor mineral in the river bed.

b) Geological studies

i) Lithology of catchment area.
ii) Tectonics and structural behavior of rocks.

c) Climatic Factors

i) Intensity of rainfall.
ii) Climate Zone.
iii) Temperature variation

The following points to be considered while selecting the river / stream for mining besides the above parameters:

i) A stable river is able to constantly transport the flow of sediments produced by watershed such that it's dimensions (width and depth) pattern and vertical profile are maintained without aggrading (building up) or degrading (scouring down).

ii) The amount of boulders, cobbles, pebbles, and sand deposited in river bed equals to the amount delivered to the river from catchment area and from bank erosion minus amount transported downstream each year.

iii) It is compulsive nature of river to meander in their beds and therefore they will have to be provided with adequate corridor for meandering without hindrance. Any attempt to diminish the width of the corridor (floodway) and curb the freedom to meander would prove counterproductive.

iv) Erosion and deposition is law of nature. The river stream has to complete its geomorphological cycles from youth, mature to old age.

v) River capturing is unavoidable.

vi) Fundamentally the lowest point of any stream is fixed by sea level.

This survey document should be prepared in the district based on direct and indirect benefits of mining and identification of the potential threats to the river / stream beds in the district.

Besides, calculating the carrying capacity of the river / stream beds / other sources to find out maximum quantity available to be allowed for removal each year from the sources, it should also provide various measures to regulate sand and aggregate mining in a systemic way.

It has to provide for environmentally safe depth of mining and safeguards of banks by prescribing safe distance from banks. It is required that there should be a Sub-Divisional Committee which should visit each site and make recommendation. The Committee should comprise of Sub-Divisional Magistrate, Officers from Irrigation department, State Pollution Control Board or Committee, Forest department, Geology or mining officer shall visit each site for which environmental clearance has been applied for and make recommendation on suitability of site for mining or prohibition thereof.

THE STRUCTURE OF DISTRICT SURVEY REPORT

The report can have following structure:

1. Introduction
2. Overview of Mining Activity in the District
3 The List of Mining Leases in the District with location, area and period of validity
4. Details of Royalty or Revenue received in last three years
5. Detail of Production of Sand or Bajari or minor mineral in last three years
6. Process of Deposition of Sediments in the rivers of the District
7. General Profile of the District
8. Land Utilization Pattern in the district: Forest, Agriculture, Horticulture, Mining etc.
9. Physiography of the District
10. Rainfall: month-wise
11. Geology and Mineral Wealth

12. Drainage System with description of main rivers.

Sl.No.	NAME OF RIVER	AREA DRAINED (Sq. Km)	% AREA DRAINED

13. Salient Features of Important Rivers and Streams:

Sl.No.	Name of the River / Stream	Total Length in the District (in Km)	Place of origin	Altitude at Origin

14. Methodology Adopted for Calculating of Mineral Potential

The mineral potential is calculated based on field investigation and geology of the catchment area of the river/ streams. As per the policy of the State and location, depth of minable mineral is defined. The area for removal of mineral in a river or stream can be decided depending on geo-morphology

and other factors, it can be 50% to 60% of the area of a particular river/stream, e.g. in Himachal Pradesh mineral constituents like boulders, river born bajari, sand up to a depth of one meter are considered as resource mineral. Other constituents like clay and silt are excluded as waste while calculating the mineral potential of particular river/ stream.

The specific gravity of each mineral constituent is different. While calculating the mineral potential, the average specific gravity is taken as 2.25. The percent of mineral constituent like boulder, river bajari, sand also varies for different river and streams. While calculating the mineral potential the percentage of each mineral constituent is taken as, Boulders 35-40%, Bajari - 30-35%, Sand 25-30% and 5-10% for silt and clay.

The quantum of deposition varies from stream to stream depending upon factors like catchment lithology, discharge, river profile and geomorphology of the river course. There are certain geomorphological features developed in the river beds such as channel bar, point bar etc. where annual deposition is more even two to three meters.

For illustration one example of Yamuna River in Sirmaour district of Himachal Pradesh is given below:

Portion of the River / Stream Recommended for Mineral Concession	Length of area recommended for mineral concession (in kilometer)	Average width of area recommended for mineral concession (in meters)	Area recommended for mineral concession (in square meter)	Mineable mineral potential (in metric tonne) (60% of total mineral potential)
From Downstream of confluence with Tons River to Behral near Haryana and Uttar Pradesh border	31	478	14818000	16803612

Note: Considering the density of river bed material to be **1.89 g/cm^3**

Present Status of Mining

This gives the detail of mining leases already in operation in this stretch, area and production in last three years from these leases is calculated.

Mineral Potential is calculated in following way:

Mineral Potential

Boulder (MT)	Bajari (MT)	Sand (MT)	Total Mineable Mineral Potential (MT)
5601204	6801462	4400946	16803612

Annual Deposition

336072	408088	264057	1008217

Recommendation:

From the above it is clear that about 16803612 metric tonnes of mineral is available up to depth of one meter in the river bed of Yamuna in Sirmour district.
The annual deposition is 1008217 MT.
The average annual production is 80000 MT.
So, 16723612 MT of mineral can be safely removed.

In similar manner it should be calculated for each river and stream in the district and compiled in following format:

Sl.No.	River/ Stream	Portion of the river / stream recommended for mineral concession	Length of the recommended area for mineral concession (in kilometer)	Average width of the recommended area for mineral concession (in meters)	Area recommended for mineral concession (in sq.mtrs.)	Mineable mineral potential (in metric tonne) (60% of total mineral potential)
Total for the District						

About the size of the mining leases for the aggregates it should be borne in mind that a river / stream can be divided into two zones, which in-turn is dynamic i.e. the zone of erosion and

zone of deposition. These zones of deposition and erosion are extended in different patches in the river.

Any mining lease granted in larger tract can cover both the zones, and mining activity in zone of erosion can further aggravate the problem of erosion and as such the mining activity can be allowed only in the zone of the deposition. The mining leases of larger areas in rivers are neither in interest of environment nor in the interest of mineral conservation.

In Himalayan states the rivers and wasteland has been mostly classed as forest land and mining on that requires diversion of forest land and payment of compensatory afforestation and NPV etc. The land in river beds in hilly tracts and many small rivers at any one site seldom exceed 5 hectare, so not allowing sand mining leases less than 5 hectare on river beds further aggravates the situation. So the size of mining lease for river sand mining should be determined by the State as per the local situation.

MANAGEMENT PLAN

1. River Bed Mining Recommendations:

a) Permit Mining Volume Based on Measured Annual Replenishment

In the first year following adoption of the management plan, a volume equal to the estimated annual replenishment could be extracted from the reach of channel. Replenishment (up to the elevation of the selected channel configuration) would need to occur before subsequent extraction could take place. The concept of annual replenishment accounts for the episodic nature of sediment transport. For example, during wet periods with high stream flows, and a high contribution of sediment from hill slopes and tributaries, monitoring data would show that sand and gravel bars are replenished quickly. During drought periods with low stream flow, and little sediment supply or transport, monitoring data would likely show that bars were replenished at a slower rate.

The use of monitoring data is essential in measuring when actual replenishment occurs. The use of the concept of annual replenishment protects long-term channel stability as well as aquatic and riparian habitat by extracting a volume sustainable by watershed processes.

b) Establish an Absolute Elevation below Which No Extraction May Occur (Minimum Enveloped Level or Redline).

The absolute elevation below which no mining could occur or "redline" would be surveyed on a site-specific basis in order to avoid impacts to structures such as bridges and to avoid vegetation impacts associated with down-cutting due to excessive removal of sediment. An extraction site can be determined after setting the deposition level at 1 m above natural channel thalweg elevation, as determined by the survey approved by mine plan approving authority.

c) Limit River Bed Extraction Methods to Bar Skimming

If mining is limited to the downstream end of the bar with a riparian buffer on both the channel and hill slope (or floodplain) side, bar skimming would minimise impacts. Other methods such as excavation of trenches or pools in the low flow channel lower the local base level, and maximise upstream (head cutting and incision) and downstream (widening and braiding) impacts. In addition, direct disturbance of the substrate in the low flow channel should be avoided. Trenching on bars may be beneficial in the future if the river becomes severely aggraded, flat, shallow and braided. Trenching of bars may initially impact a smaller area of riparian habitat than skimming - as a result of excavating deeper rather than shallow skimming of a large area. However, over the

long-term, the upstream and downstream effects of a trench on the bar or in the channel may offset any short-term benefit derived from this method.

d) Extract Sand and Gravel from the Downstream Portion of the Bar:

Retaining the upstream one to two thirds of the bar and riparian vegetation while excavating from the downstream one to two third of the bar is accepted as a method to promote channel stability and protect the narrow width of the low flow channel necessary for aquatic life. Sand and gravel would be re-deposited in the excavated downstream one to two thirds of the bar (or downstream of the widest point of the bar) where an eddy would form during sediment transporting flows. In contrast, if excavation occurs on the entire bar after removing existing riparian vegetation, there is a greater potential for widening and braiding of the low flow channel.

e) Concentrate Activities to Minimise Disturbance:

River bed extraction activities should be concentrated or localised to a few bars rather than spread out over many bars. This localisation of extraction will minimise the area of disturbance of upstream and downstream effects. Skimming decreases habitat and species diversity - these effects should not be expanded over a large portion of the area.

f) Review Cumulative Effects of Sand and Gravel Extraction:

The cumulative impact of all mining proposals should be reviewed on an annual basis to determine if cumulative riverine effects or effects to the estuary are likely.

g) Maintain Flood Capacity:

Flood capacity in the river should be maintained in areas where there are significant flood hazards to existing structures or infrastructure.

h) Establish a Long-term Monitoring Program:

Monitoring of changes in bed elevation and channel morphology, and aquatic and riparian habitat upstream and downstream of the extraction would identify any impacts of sand and gravel extraction to biologic resources. Long-term data collected over a period of decades as sand and gravel extraction occurs will provide data to use in determining trends.

i) Minimise Activities That Release Fine Sediment to the River:

No washing, crushing, screening, stockpiling, or plant operations should occur at or below the streams "average high water elevation," or the dominant discharge. These and similar activities have the potential to release fine sediments into the stream, providing habitat conditions harmful to local fish.

j) Retain Vegetation Buffer at Edge of Water and Against River Bank:

Riparian vegetation performs several functions essential to the proper maintenance of geomorphic and biological processes in rivers. It shields river banks and bars from erosion. Additionally, riparian vegetation, including roots and downed trees, serves as cover for fish, provides food source, works as a filter against sediment inputs, and aids in nutrient cycling. More broadly, the riparian zone is necessary to the integrity of the ecosystem providing habitat for invertebrates, birds and other wildlife.

k) The River Bed mining should only be allowed during the dry season.

No River bed mining should be permitted during rainy season (see Appendix 9).

l) An Annual Status and Trends Report:

This report should review permitted extraction quantities in light of results of the monitoring program, or as improved estimates of replenishment become available. The report should document changes in bed elevation, channel morphology, and aquatic and riparian habitat. The report should also include a record of extraction volumes permitted, and excavation location. Finally, recommendations for reclamation, if needed should be documented.

2. Off-Channel or Floodplain Extraction Recommendations

a) Floodplain Extraction should be set back from the Main Channel

In a dynamic alluvial system, it is not uncommon for meanders to migrate across a floodplain. In areas where sand and gravel occurs on floodplains or terraces, there is a potential for the river channel to migrate toward the pit. If the river erodes through the area left between the excavated pit and the river, there is a potential for "river capture," a situation where the low flow channel is diverted though the pit. In order to avoid river capture, excavation pits should set back from the river to provide a buffer, and should be designed to withstand the 100-year flood (100-year ARI). Adequate buffer widths and reduced pit slope gradients are preferred over engineered structures which require maintenance in perpetuity. Hydraulic, geomorphic, and geotechnical studies should be conducted prior to design and construction of the pit and bund. In addition to river capture, extraction pits create the possibility of stranding fish.

b) The maximum depth of Floodplain Extraction should remain above the Channel Thalweg

Floodplain pits should not be excavated below the elevation of the thalweg in the adjacent channel. This will minimise the impacts of potential river capture by limiting the potential for head cutting and the potential of the pit to trap sediment. A shallow excavation (above the water table) would provide a depression that would fill with

water part of the year, and develop seasonal wetland habitat. An excavation below the water table would provide deep water habitat.

c) Side Slopes of Floodplain Excavation Should Range from 3:1 to 10:1

Side slopes of a floodplain pit should be graded to a slope that ranges from 3:1 to 10:1. This will allow for a range of vegetation from wetland to upland. Steep side slopes excavated in floodplain pits on other systems have not been successfully reclaimed, since it is difficult for vegetation to become stabilised. Terrace pits should be designed with a large percentage of edge habitat with a low gradient which will naturally sustain vegetation at a variety of water levels.

d) Place Stockpiled Topsoil above the 25-year Return Period or ARI Level

Stockpiled topsoil can introduce a large supply of fines to the river during a flood event and degrade fish habitat. Storage above the 25-year flood (25-year ARI) inundation level is sufficient to minimise this risk.

e) Floodplain Pits Should Be Restored to Wetland Habitat or Reclaimed for Agriculture

The key to successful restoration or reclamation is to conserve or import adequate material to re-fill the pit, while ensuring that pit margins are graded to allow for development of significant wetland and emergent vegetation.

f) Establish a Long-term Monitoring Program

A long-term monitoring program should provide data illustrating any impacts to river stability, groundwater, fisheries, and riparian vegetation. The monitoring program should assess the success of any reclamation or restoration attempted.

g) An Annual Status and Trends Report

The status and trends report described previously should include a section on the hydrologic and biologic components of floodplain pit reclamation.

3. Extraction Methods

The important methods of sand and gravel mining operations are as below:

a) **Bar scalping or skimming** is extraction of sand and gravel from the surface of bars. This method generally requires that surface irregularities be smoothed out and that the extracted material be limited to what could be taken above an imaginary line sloping upwards and away from the water from a specified level above the river's water surface at the time of extraction (typically 0.3 - 0.6 m (1-2 ft). Bar scalping is commonly repeated year after year. To maintain the hydraulic control provided to upstream by the Riffle head, the preferred method of bar scalping is now generally to leave the top one-third (approximately) of the bar undisturbed, mining only from the downstream two-

thirds.

b) Dry-Pit Channel Mining

Dry-pit channel mines are pits excavated within the active channel on dry intermittent or ephemeral stream beds. Dry pits are often left with abrupt upstream margins, from which head cuts are likely to propagate upstream.

c) Wet-Pit Channel Mining

Wet-pit mining involves excavation of a pit in the active channel below the surface water in a perennial stream or below the alluvial groundwater table.

d) Bar Excavation

A pit is excavated at the downstream end of the bar as a source of aggregate and as a site to trap sand and gravel. Upon completion, the pit may be connected to the channel at its downstream end to provide side channel habitat.

e) Channel-wide River bed Mining

In rivers with a highly variable flow regime, sand and gravel are commonly extracted across the entire active channel during the dry season. The bed is evened out and uniformly (or nearly so) lowered.

4. Reclamation Plans

Reclamation plans should include:

a) A baseline survey consisting of existing condition cross-section data: Cross-sections must be surveyed between two documented endpoints set back from the top of bank, and elevations should be referenced to bench mark;

b) The proposed mining cross-section data should be plotted over the baseline data to illustrate the vertical extent of the proposed excavation;

c) The cross-section of the replenished bar should be the same as the baseline data. This illustrates that the bar elevation after the bar is replenished will be the same as the bar before extraction;

d) A planimetric map showing the aerial extent of the excavation and extent of the riparian buffers;

e) A planting plan developed by a plant ecologist familiar with the flora of the river for any areas such as roads that need to be restored;

f) A monitoring plan: The appropriate reclamation plans can turn river-bed and floodplain sand and gravel mining operations into something perceived by the public as desirable.

MARINE SAND MINING AND IMPACT ON MARINE BIODIVERSITY

The mining of marine aggregates is increasing significantly. Marine sand mining has had an impact on seabed flora and fauna. Dredging and extraction of aggregates from the benthic (sea bottom) zone destroys organisms, habitats and ecosystems and deeply affects the composition of biodiversity, usually leading to a net decline in faunal biomass and abundance or a shift in species composition. Aggregate particles that are too fine to be used are rejected by dredging boats, releasing vast dust plumes and changing water turbidity, resulting in major changes to aquatic and riparian habitats over large areas.

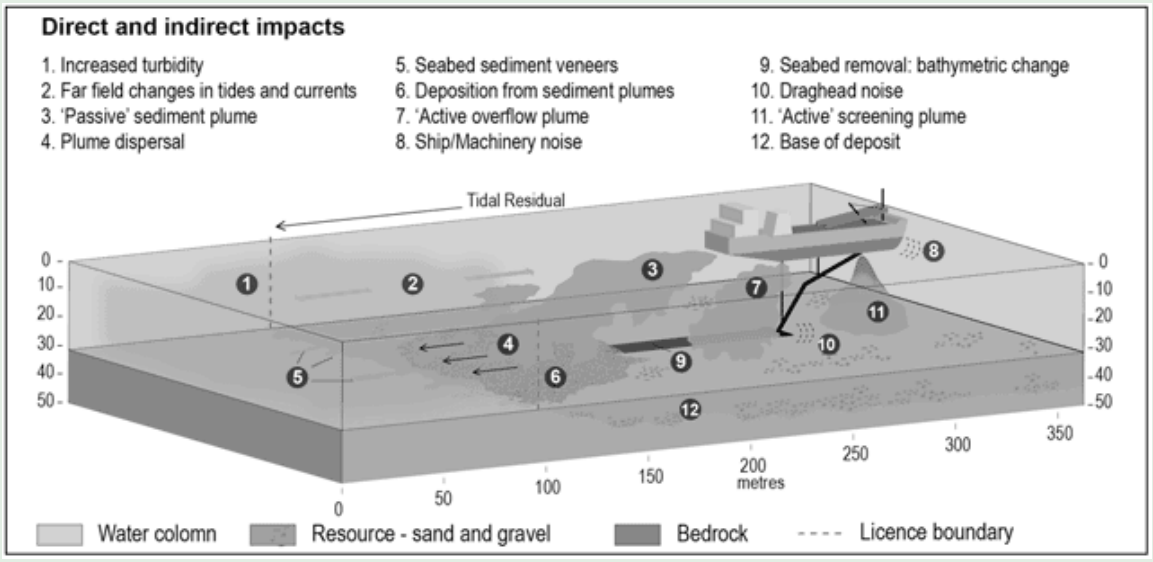

Figure: Direct and indirect consequences of aggregates dredging on the marine environment.

Source: Tillin, H.M., Houghton, A.J., Saunders, J.E., Drabble, R. and Hull, S.C., 2011. Direct and Indirect Impacts of Aggregate Dredging, Marine Aggregate Levy Sustainability Fund (MALSF). Science Monograph Series 1, 1-46.

REDUCING CONSUMPTION OF SAND

Because sand is still very cheap - sand itself is freely accessible; only extraction and transportation costs need to be covered - there is little or no incentive to induce a change in our consumption. Despite the very high value of minerals found in the sand, it is mostly used for concrete or is buried under highways. Recycled building and quarry dust material can be a substitute for sand. Concrete rubble should be recycled to avoid using aggregates, at least for low-quality uses.

Substitutes for sand are available. Quarry dust could be used to replace sand in general concrete structures. The replacement of sand by up to 40% of incinerator ash exhibits higher compressive strength than regular cement mortars. Some desert sand can be used if mixed with other material. There are alternatives for building houses, including wood, straw and recycled material. However, the current building industry is geared toward concrete know-how and equipment.

Training of architects and engineers, new laws and regulations, and positive incentives are needed to initiate a shift for lowering our dependency on sand. Renewable and recycled materials need to be targeted for building houses and roads. Use of Manufactured Sand (M-Sand) also needs to be promoted.

Alternative sources of sand and gravel, which accumulate at the bottom of dams, can also be targeted. Their use would address the problem of these aggregates accumulating which leads to a reduced capacity of dams to store water and could result in the dams' water intakes being blocked. Dams regularly release large amounts of water to flush out aggregates.

The important standard setting bodies in India are taking steps to promote the usage of alternatives to sand and gravel. Bureau of Indian Standards, the National Standards Body of the country, considering the scarcity of sand and coarse aggregates from natural sources, has evolved number of alternatives which are ultimately aimed at conservation of natural resources apart from promoting use of various waste materials without compromising in quality.

These measures include permitting in the Concrete Code (IS 456) as also in the National Building Code of India, the use of slag - a waste from steel industry, fly ash - a waste from thermal power plants, crushed over-burnt bricks and tiles - waste from clay brick and tile industry, in plain cement concrete as an alternative to sand/natural aggregate, subject to fulfilling the requirements of the Code. This Code, further, encourages use of fly ash and ground granulated blast furnace slag as part replacement of ordinary Portland cement in plain as well as reinforced cement concrete.

The Indian Standard on concrete mix design (IS 10262) has been upgraded to include guidance and examples of designing concrete mixes using fly ash and slag. Provisions for compliance for requisite quality of concrete made using fly ash and slag have been duly covered for the manufacturers of ready-mixed concrete in the Indian Standard Code of practice for RMC (IS 4926).

BIS has also formulated an Indian Standard Specification for artificial lightweight aggregates covering manufactured aggregates, such as foamed blast furnace slag, bloated clay aggregate, sintered fly ash aggregate and cinder aggregate (IS 9142).

A series of Indian Standards has also been formulated on various precast concrete products such as solid and hollow concrete blocks, light weight concrete blocks, autoclaved aerated concrete blocks, preformed foam concrete blocks, partial prefabricated concrete flooring and roofing units, concrete pipes, etc, all permitting use of fly ash and slag.

THE REPORT OF THE COMMITTEE HEADED BY SECRETARY, MoEF - 2010

A Committee headed by Secretary, Ministry of Environment and Forest was set up on the subject in 2010. The Committee considered this subject in detail and prepared a report. The important parts of the report are as follows:

Definition of Minor Mineral:

The term 'minor mineral' is defined in clause (e) of Section 3 of MMDR Act, 1957: '3 (e) "minor minerals" means building stones, gravel, ordinary clay, ordinary sand other than sand used for prescribed purposes and any other material which the Central Government may, by Notification in the Gazette of India declare to be a minor mineral;'

The term `ordinary sand' used in clause (e) of Section 3 of the MMDR Act, 1957 has been further clarified in rule 70 of the MCR, 1960 as:

(iv) Purposes of stowing in coal mines,
(v) For manufacture of silvicrete cement,
(vi) Manufacture of sodium silicate and for
(vii) Manufacture of pottery and glass.

Additionally, the Central Government has declared the following minerals as minor minerals:

Sl.No.	Minor Minerals
i)	Boulder
ii)	Shingle
iii)	Chalcedony pebbles used for ball mill purposes only
iv)	Lime shell, kankar and limestone used in kilns for manufacture of lime used as building material
v)	Murrum

Sl.No.	Minor Minerals
vi)	Brick-earth
vii)	Fuller's earth
viii)	Bentonite
ix)	Road metal
x)	Reh-matti

Sl.No.	Minor Minerals
xi)	Slate and shale when used for building material
xii)	Marble
xiii)	Stone used for making household utensils
xiv)	Quartzite and sandstone when used for purposes of building or for making road metal and household utensils
xv)	Saltpetre, and

xvi)	Ordinary earth (Used for filling or leveling purposes in construction or embankments, roads, railways building).

It may thus be observed that minerals have been classified into major and minor minerals based on their end use rather than level of production, level of mechanization, export and import etc. There do exist some minor mineral mines of silica sand and limestone where the scale of mechanization and level of production is much higher than those of industrial mineral mines. Further, in terms of the economic cost and revenue, it has been estimated that the total value of minor minerals constitutes about 10% of the total value of mineral production whereas the value of non- metallic minerals comprises only 3%. It is, therefore, evident that the operations of mines of minor minerals need to be subject to some regulatory parameters as that of mines of major minerals. Further, unlike India there does not exist such system in any other country where minerals are classified as major and minor based on end usage. Thus, there is a need to re-look at the definition of 'minor minerals' per se. It is, therefore, recommended that Ministry of Mines along with Indian Bureau of Mines, in consultation with the State Governments may re-examine the classification of minerals into major and minor categories so that the regulatory aspects and environment mitigation measures are appropriately integrated for ensuring sustainable and scientific mining with least impacts on environment.

Size of the Mine Lease:

Area for grant of mine lease varies from State to State. Maximum area which can be held under one or more mine lease is 2590 ha or 25.90 sq. miles in Jammu and Kashmir. Rajasthan prescribed a minimum limit of 1 ha for a lease. Maximum area prescribed for permit is 50x50 m. In most of the States area of permit is not specified in the rules.

It has recently been observed by Punjab and Haryana High Court in its order dated 15.05.2009 that State Government are apparently granting short term permits by dividing the mining area into small zones in effect to avoids environmental norms. There is, thus a need to bring uniformity in the extent of area to be granted for mine lease so as to ensure that eco- friendly scientific mining practices can be adopted. It is recommended that the minimum size of mine lease should be 5 ha. Further, preparation of comprehensive mine plan for contiguous stretches of mineral deposits by the respective State Governments may also be encouraged. This may suitably be incorporated in the Mineral Concession Rules, 1960 by Ministry of Mines.

Period of Mine Lease:

The period of lease varies from State to State depending on type of concessions, minerals and its end use. The minimum lease period is one year and maximum 30 years. Minerals like granite where huge investments are required, a period of 20 years is generally given with the provisions of renewal. Permits are generally granted for short periods which vary from one month to a maximum one year. In States like Haryana, minor mineral leases are auctioned for a particular time period. Mining is considered to be capital intensive industry and considerable time is lost for developing the mine before it attains the status of fully developed mine. If the tenure of the mine lease is short, it would encourage the lessee to concentrate more on rapid exploitation of mineral without really undertaking adequate measures for reclamation and rehabilitation of mined out area, posing thereby a serious threat to the environment and health of the workers and public at large.

There is thus, a need to bring uniformity in the period of lease. It is recommended that a minimum period of mine lease should be 5 years, so that eco- friendly scientific and sustainable mining practices are adopted. However, under exceptional circumstances arising due to judicial interventions, short term mining leases / contracts could be granted to the State Agencies to meet the situation arising there from.

Cluster of Mine Approach for Small Sized Mines:

Considering the nature of occurrence of minor mineral, economic condition of the lessee and the likely difficulties to be faced by Regulatory Authorities in monitoring the environmental impacts and implementation of necessary mitigation measures, it may be desirable to adopt cluster approach in case of smaller mine leases being operated presently. Further, these clusters need be provided with processing/crusher zones for forward integration and minimizing excessive pressure on road infrastructure. The respective State Governments / Mine Owners Associations may facilitate implementation of Environment Management Plans in such cluster of mines.

Requirement of Mine Plan for Minor Minerals:

At present, most of the State Governments have not made it mandatory for preparation of mining plan in respect of minor minerals. In some States like Rajasthan, eco- friendly mining plans are prepared, which are approved by the State Mining Department. The eco- friendly mining plans so prepared, though conceptually welcome, are observed to be deficient and need to be made comprehensive in a manner as is being done for major minerals. Besides, the aspects of reclamation and rehabilitation of mined out areas, progressive mine closure plan, as in vogue for major minerals could be introduced for minor minerals as well.

It is recommended that provision for preparation and approval of mine plan, as in the case of major minerals may appropriately be provided in the Rules governing the mining of minor minerals by the respective State Governments. These should specifically include the provision for reclamation and rehabilitation of mined out area, progressive mine closure plan and post mine land use.

Creation of Separate Corpus for Reclamation / Rehabilitation of Mines of Minor Minerals:

Mining of minor minerals, in our country, is by and large unorganized sector and is practiced in haphazard and unscientific manner. At times, the size of the leasehold is also too small to address the issue of reclamation and rehabilitation of mined outs areas. It may, therefore, be desirable that before the concept of mine closure plan for minor minerals is adopted, the existing abandoned mines may be reclaimed and rehabilitated with the involvement of the State Government. There is thus, a need to create a separate corpus, which may be utilized for reclamation and rehabilitation of mined out areas. The respective State Governments may work out a suitable mechanism for creation of such corpus on the `polluter pays' principle. An organizational structure may also need to be created for undertaking and monitoring these activities.

Depth of Mining:

Mining of minerals, whether major or minor have a direct bearing on the hydrological regime of the

area. Besides, affecting the availability of water as a resource, it also affects the quality of water through direct run of going into the surface water bodies and infiltration / leaching into groundwater. Further, groundwater withdrawal, dewatering of water from mine pit and diversion of surface water may cause surface and sub- surface hydrologic systems to dry up. An ideal situation would require that quarrying should be restricted to unsaturated zone only above the phreatic water table and should not intersect the groundwater table at any point of time. However, from the point of view of mineral conservation, it may not be desirable to impose blanket ban on mining operation below groundwater table. It is, therefore, recommended that detailed hydro-geological report should be prepared in respect of any mining operation for minor minerals to be undertaken below groundwater table. Based on the findings of the study so undertaken and the comments/ recommendations of Central Ground Water Authority/ State Ground Water Board, a decision regarding restriction on depth of mining for any area should be taken on case to case basis.

Uniform Minor Mineral Concession Rules:

The economic value of the minor minerals excavated in the country is estimated to contribute to about 9% of the total value of the minerals whereas the non- metallic minerals contribute to about 2.8%. Keeping in view the large extent of mining of minor minerals and its significant potential to adversely affect the environment, it is recommended that Model Mineral Concession rules may be framed for minor minerals as well and the minor minerals may be subjected to a simpler regulatory regime, which is, however, similar to major minerals regime.

River Bed Mining:

1. Environment damage being caused by unregulated river bed mining of sand, bajri and boulders is attracting considerable attention including in the courts. The following recommendations are therefore made for the river bed mining.

    (a) In the case of mining leases for riverbed sand mining, specific river stretches should be identified and mining permits/lease should be granted stretch wise, so that the requisite safeguard measures are duly implemented and are effectively monitored by the respective Regulatory Authorities.

    (b) The depth of mining may be restricted to 3m / water level, whichever is less.

    (c) For carrying out mining in proximity to any bridge and / or embankment, appropriate safety zone should be worked out on case to case basis, taking into account the structural parameters, locational aspects, flow rate etc. and no mining should be carried out in the safety zone so worked out.

Conclusion:

Mining of minor minerals, though individually, because of smaller size of mine leases is perceived to have lesser impact as compared to mining of major minerals. However, the activity as a whole is seen to have significant adverse impacts on environment. It is, therefore, necessary that the mining of minor minerals is subjected to simpler but strict regulatory regime and carried out only under an

approved framework of mining plan, which should provide for reclamation and rehabilitation of the mined out areas. Further, while granting mining leases by the respective State Governments "location of any eco-fragile zone (s) within the impact zone of the proposed mining area, the linked Rules/ Notifications governing such zones and the judicial pronouncements, if any, need be duly noted.

The Union Ministry of Mines along with Indian Bureau of Mines and respective State Governments should therefore make necessary provisions in this regard under the Mines and Minerals (Development and Regulation) Act, 1957, Mineral Concession Rules, 1960 and adopt model Guideliness to be followed by all States (emphasis supplied)".

REGIME OF LAW AND ADMINISTRATIVE ORDERS RELATING TO MINING OF MINOR MINERALS

The Entry 54 of List 1 in Schedule VII to the Constitution of India is the entry which empowers the Parliament in respect of 'Regulation of Mines and Minerals Development. Entry 23 of List 2 of the same Schedule, read with Article 246 (3) of the Constitution confers legislative powers on the State Legislature in respect of Regulation of Mines and Mineral Development, but, this power is subject to the provisions of List 1 with respect to the regulation and development under the control of the Union. The Parliament, with the object to amend and consolidate the law relating to the regulation of labour and safety in mines enacted the Mines Act, 1952. Section 2 (JJ) of the Mines Act, 1952 defines "minerals" to mean, all substances which can be obtained from the earth by mining, digging, drilling, dredging, hydraulicing, quarrying or by any other operation and includes mineral oils (which, in turn, include natural gas and petroleum). On 1st June, 1958, the Mines and Minerals (Development and Regulation) Act, 1957 was promulgated. This Act provides, inter alia, for general restrictions on undertaking prospecting and mining operations, the procedure for obtaining prospecting licenses or mining leases in respect of the land in which the minerals vests in the Government, the rule making power for regulating the grant of prospecting licenses and mining leases, special powers of Central Government to undertake prospecting or mining operations in certain cases, and for development of minerals.

The protection of natural environment is one of the fundamental duties of every citizen under Article 51-A of the Constitution of India. Article 48-A of the Constitution, obliged the State to endeavor to protect and improve the environment and to safeguard the forests and wild life of the country. The Environment (Protection) Act and Rules, 1986 were enacted and came into force on 19th November, 1986. The object of this Act is to provide for the protection and improvement of environment and for matters connected therewith. Under provisions of the Act and Rules of 1986, MoEFCC has issued various Notifications regulating the mining of minor minerals, specifically stating the procedures that were required to be complied by persons intending to carry on such mining activity and for the authorities to regulate the same.

Prior to 1994, there was no specific regime in place in relation to mining activity being carried out. The Notification issued by MoEF on 27th January, 1994, in exercise of the powers vested in it under Sub-Rule 3 of Rule 5 of the Rules of 1986 and Sub Section (1) and Clause (v) of Sub-Section (2) of Section 3 of the Act of 1986, prescribed the requirement and procedure for seeking Environmental Clearance for the projects listed in Schedule I. Schedule I of this Notification did not list mining projects of minor minerals. On the contrary, the projects covered under S. No. 20 of Schedule I of this Notification were only "mining projects (major mineral) with leases more than 5 hectares".

It provided for the constitution of Expert Committees and preparation of Environmental Impact Assessment Report which was to be evaluated and assessed by the Impact Assessment Agency. In exercise of its statutory powers afore-indicated, the Central Government on 14th September, 2006,

issued a Notification, i.e., 'Environment Impact Assessment Notification, 2006'. In terms of this Notification, the projects as stated in the Schedule to this Notification required prior Environmental Clearance as per the procedure. The projects have been categorised into two kinds, i.e., Category 'A' and Category 'B' under Clause 2 of the Notification. Projects under Category 'A' were required to take prior Environmental Clearance by MoEFCC. For Category 'B' projects, Environmental Clearance was to be given by State Environment Impact Assessment Authority (SEIAA).

The mining of minerals (both major and minor) were brought under the ambit of the EIA Notification, 2006. The mine lease area of more than equal to 50 ha was Category 'A' and mine lease area less than 50 ha and more than equal to 5 ha was category 'B' project. Mine lease area of less than 5 ha (both major and minor) was kept out of EIA Notification purview.

The Notification of 2006 came to be amended by Notification dated 1st December, 2009. It included the category of non-coal mine and coal mine lease and provided that non-coal mine lease of area more than equal to 5 ha and less than 50 ha will be category 'B' and mine lease area more than equal to 50 ha will be category 'A'. Similarly, mine lease area of more than equal to 5 ha and less than 150 ha for coal mine lease will be category 'B' and mine lease area of coal mine more than 150 ha will be category 'A'. Here again mining lease area of less than 5 ha (both coal and non-coal mine) was kept out of EIA Notification purview.

The Hon'ble Supreme Court, vide its order dated 27.2.2012 in I.A. No.12-13 of 2011 in SLP (C) No.19628-19629 of 2009 titled Deepak Kumar etc. v/s State of Haryana & Ors. has inter alia ordered *"We, in the meanwhile, order that leases of minor mineral including their renewal for an area of less than five hectares be granted by the States/Union Territories only after getting environmental clearance from the MoEF."*

Hon'ble Apex Court in Deepak Kumar's case (supra) extensively examined the environmental concerns, in the context of mining of minor minerals, considering its impact on the environment. The Apex Court observed that Extraction of alluvial material from within or near a streambed has a direct impact on the stream's physical habitat characteristics. These characteristics include bed elevation, substrate composition and stability, in-stream roughness elements, depth, velocity, turbidity, sediment transport, stream discharge and temperature. Altering these habitat characteristics can have deleterious impacts on both in-stream biota and the associated riparian habitat. The demand for sand continues to increase day by day as building and construction of new infrastructures and expansion of existing ones is continuous thereby placing immense pressure on the supply of the sand resource and hence mining activities are going on legally and illegally without any restrictions. Lack of proper planning and sand management cause disturbance of marine ecosystem and also upset the ability of natural marine processes to replenish the sand. Quarrying, mining and removal of sand from in-stream and upstream of several rivers, which may have serious environmental impact on ephemeral, seasonal and perennial rivers and river beds and sand extraction may have an adverse effect on bio-diversity as well. Further it may also lead to bed degradation and sedimentation having a negative effect on the aquatic life.

Apex Court observed that without conducting any study on the possible environmental impact on/

in the river beds and else- where the auction notices have been issued. Hon'ble Apex Court observed that "We are of the considered view that when we are faced with a situation where extraction of alluvial material within or near a river bed has an impact on the rivers physical habitat characteristics, like river stability, flood risk, environmental degradation, loss of habitat, decline in biodiversity, it is not an answer to say that the extraction is in blocks of less than 5 hectares, separated by 1 kilo meter, because their collective impact may be significant, hence the necessity of a proper environmental assessment plan".

In order to ensure compliance of the aforesaid order of the Hon'ble Supreme Court, MoEF issued an OM No.L-11011/47/2011-IA.II(M) dated 18.05.2012 stating inter alia that all mining projects of minor minerals including their renewal, irrespective of the size of the lease would henceforth require prior EC and that the projects of minor minerals with lease area less than 5 ha would be treated as Category "B" as defined in EIA Notification, 2006 and will be considered by the respective State Environment Impact Assessment Authorities (SEIAAs) notified by MoEF and following the procedure prescribed under the EIA Notification, 2006.

On 24th June, 2013, MoEF issued another Office Memorandum stating Guideliness for consideration of proposals for grant of Environmental Clearance under the Notification of 2006 for mining of 'brick earth' and 'ordinary earth' having lease area of less than 5 hectares. Referring to the judgment of the Hon'ble Supreme Court in the case of Deepak Kumar (supra) and its Office Memorandum dated 18th May, 2012, it further considered that the 'brick kiln' manufactures had stated that it was a small scale activity requiring that certain depth should be kept outside the purview of Environmental Clearance. Having considered various aspects, examining the recommendations of the Expert Committee, constituted by MoEF, finally it was directed as follows:

"(a) The activities of borrowing / excavation of 'brick earth' and ordinary earth', upto an area of less than 5 ha, may be categorized under 'B2' Category subject to the following Guideliness in terms of the provisions under '7.I Stage(1)-Screening' of EIA Notification, 2006:

(i) The activity associated with borrowing/excavation of 'brick earth' and 'ordinary earth' for purpose of brick manufacturing, construction of roads, embankments etc. shall not involve blasting.

(ii) The borrowing/excavation activity shall be restricted to a maximum depth of 2 m below general ground level at the site.

(iii) The borrowing/excavation activity shall be restricted to 2 m above the ground water table at the site.

(iv) The borrowing/excavation activity shall not alter the natural drainage pattern of the area.

(v) The borrowed/excavated pit shall be restored by the project proponent for useful purpose(s).

(vi) Appropriate fencing all around the borrowed/excavated pit shall be made to prevent any mishap.

(vii) Measures shall be taken to prevent dust emission by covering of borrowed/excavated earth during transportation.

(viii) Safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to borrowing/excavation of earth.

(ix) Workers / labourers shall be provided with facilities for drinking water and sanitation.

(x) A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.

(xi) A minimum distance of 15 m from any civil structure shall be kept from the periphery of any excavation area.

2. (a) The concerned SEIAA while considering granting environmental clearance for such activity for brick earth / ordinary earth will prescribe the Guideliness as stated at (i) to (xi) above and specify that the clearance so granted shall be liable to be cancelled in case of any violation of above Guideliness.

(b) Notwithstanding what has been stated at (a) above, the following will apply:

(i) No borrowing of earth / excavation of 'brick earth' or 'ordinary earth' shall be permitted in case the area of borrowing/ excavation is within 1 km of boundary of national parks and wild life sanctuaries.

(ii) In case the area of borrowing / excavation is likely to result into a cluster situation i.e. if the periphery of one borrow area is less than 500 m from the periphery of another borrow area and the total borrow area equals or exceeds 5 ha, the activity shall become Category 'B 1' Project under the EIA Notification, 2006. In such a case, mining operations in any of the borrow areas in the cluster will be allowed only if the environmental clearance has been obtained in respect of the cluster. This issues with the approval of the Competent Authority."

These directions which were specific only to 'brick earth' and 'ordinary earth' activities for areas less than 5 hectares, as decided to be categorised as 'B 2' Category projects, subject to the restrictions stated in the memorandum, provided that if the cluster area exceeded 5 hectares, then it would become Category 'B 1' and would not be treated as Category 'B 2' projects. The above Office Memorandum was not dealing with the issues of sand mining or any other minor mineral activity except 'brick earth' and 'ordinary earth'. Further, MoEF has issued an amendment to EIA Notification vide Notification S.O. 2731 (E) dated 9th September 2013 and amended the EIA Notification, 2006 for item 1 (a) as follows:

(1)	(2)	(3)	(4)	(5)
"1(a)	(i) Mining of minerals.	≥ 50 ha of mining lease area in respect of non-coal mine lease	<50 ha of mining lease area in respect of minor minerals mine lease ; and < 50 ha ≥5 ha of mining lease area in respect of other non-coal mine lease.	General Conditions shall apply except for project or activity of less than 5 ha of mining lease area for minor minerals: Provided that the above exception shall not apply for project or activity if the sum total of the mining lease area of the said project or activity and that of existing operating mines and mining projects which were accorded environment clearance and are located within 500 metres from the periphery of such project or activity equals or exceeds 5 ha.
		>150 ha of mining lease area in respect of coal mine lease.	≤ 150 ha ≥ 5 ha of mining lease area in respect of coal mine lease.	(i) Prior environmental clearance is required at the stage of renewal of mine lease for which an application shall be made up to two years prior to the date due for renewal. Further, a period of two years with effect from the 4th April, 2011 is provided for obtaining environmental clearance for all those mine leases, which were operating as

(1)	(2)	(3)	(4)	(5)
				on the 4th April, 2011 with requisite valid environmental clearance and which have fallen due for renewal on or after the 4th November, 2011: Provided that no fresh environmental clearance shall be required for a mining project or activity at the time of renewal of mining lease, which has already obtained environmental clearance under this notification.
	(ii) Slurry pipelines (coal lignite and other ores) passing through national parks or sanctuaries or coral reefs, ecologically sensitive areas.	All projects.		(ii) Mineral prospecting is exempted.

In this Notification a new category of minor mineral was introduced and it was provided that mining lease area of minor mineral less than 50 ha will be category 'B' and will require EC. Accordingly the minor mineral mining projects having less than 5 hectare of lease area are required to be appraised by the SEIAA/SEAC of respective State for granting environment clearance. It was provided that the project or activity of less than 5 ha of mining lease area for minor minerals will be exempt from the General Conditions. Simultaneously the concept of cluster was introduced and it was provided that the exemption of applicability of General Conditions shall not apply for project or activity if the sum total of the mining lease area of the said project or activity and that of existing operating mines and mining projects which were accorded EC and are located within 500 m from the periphery of such project or activity equal or exceeds 5 ha.

The Ministry, on 24th December, 2013, issued another Office Memorandum for consideration of proposals for grant of Environmental Clearance regarding categorisation of Category 'B' projects into Category 'B (1)' and 'B (2)'. Mining of minor minerals had been separately dealt with in this Office Memorandum. This Office Memorandum stated that no river sand mining project with mining lease area of less than 5 hectares may be considered for grant of Environmental Clearance. Such area up to 25 hectares would be categorised as 'B (2)' and such projects were to be considered, subject to the stipulations stated therein. This Office Memorandum stated that no Environmental Clearance would be granted for extraction of minor minerals from any riverbed where the area is less than 5 hectares. Sand mining, in area other than riverbeds, would be permitted, only if the Project Proponent takes Environmental Clearance.

The Ministry vide Notification No. S.O. 1599 (E) dated 25.06.2014 reduced the area of 10 kilo meter to 5 kilo meters for applicability of General Conditions increasing the delegation to States by taking out projects located in 5 to 10 kilo meter of interstate boundary, CEPI, and, PAs from category 'A'.

The anomaly created by the Notification dated 09.09.2013 was corrected vide Notification No. S.O. 2601 (E) dated 7th October 2014, and category of minor mineral was deleted and mining leases were again classed as non-coal mine and coal mine and mining lease area of less than 50 ha was made category 'B' for non-coal mine and mine lease area of less than equal to 150 ha for coal mine was made category 'B'. The mine lease area of less than 5 ha was exempt from the applicability of General Conditions and cluster concept of Notification dated 09.09.2013 was retained.

Notification S.O. 2601 (E) dated 7th October 2014 provides as follows:

(1)	(2)	(3)	(4)	(5)
"1(a)	(i) Mining of minerals.	≥ 50 ha of mining lease area in respect of non-coal mine lease. >150 ha of mining lease area in respect of coal mine lease. Asbestos mining irrespective of mining area.	<50 ha of mining lease area in respect of non-coal mine lease. ≤ 150 ha of mining lease area in respect of coal mine lease.	General Conditions shall apply except for project or activity of less than 5 ha of mining lease area: Provided that the above exception shall not apply for project or activity if the sum total of the mining lease area of the said project or activity and that of existing operating mines and mining projects which were accorded environment clearance and are located within 500 metres from the periphery of such project or activity equals or exceeds 5 ha. Note: (i) Prior environmental clearance is required at the stage of renewal of mine lease for which an application shall be made up to two years prior to the date due for renewal. Provided that no fresh environmental clearance shall be required for a mining project or activity at the time of renewal of mining lease, which has already obtained environmental clearance under this notification. (ii) Mineral prospecting is exempted. "
	(ii) Slurry pipelines (coal lignite and other ores) passing through national parks or sanctuaries or coral reefs, ecologically sensitive areas	All projects.		

The NGT vide order dated 13.01.2015 (O.A. No. 123 of 2014 and M.A. No. 419 of 2014) has declared the Notification dated 09.09.2013 as invalid, inoperative and quashed it. The above order has also quashed the paragraph 4 (b) (i) of O.M. dated 24th June 2013 which provided that "No borrowing of earth / excavation of 'brick earth' or 'ordinary earth' shall be permitted in case the area of borrowing / excavation is within 1 km of boundary of national parks and wild life sanctuary." Though this provision was taken from the observation of Hon'ble Supreme Court in W.P. No. 435 of 2012 (Goa Foundation Vs. Union of India) and order dated 04.08.2006 of Supreme Court in *T.N. Godavarman Thirumulpad v. Union of India & Ors.* Supreme Court has taken a view that 1 km. from the boundaries of National Parks and Sanctuaries would be a safety zone, subject to the orders that may be made in IA No.1000 regarding Jamua Ramgarh Sanctuary and the State will not grant any Temporary Working Permit (TWP) in these safety zones comprising 1 km. from the boundaries of National Parks and Sanctuaries.

Similarly the proviso at paragraph 2 (iii) of O.M. dated 24.12.2013 which says that "No river sand mining project, with mine lease area less than 5 ha, may be considered for granting EC" has been quashed. This condition was taken from the recommendations of the Committee headed by the Secretary, MoEF constituted in 2010. The above proviso were quashed on the ground that as EIA Notification places no such restriction, so same cannot be imposed by an executive order and many hill States find it very difficult to get an area equal to or more than 5 ha. in riverbed. The information made available by the States also makes it clear that majority of the mining leases of sand are of area less than 5 hectares.

THE ISSUES AND MANAGEMENT OF MINING IN CLUSTER

In I.A. No. 12-13 of 2011 in SLP Nos. 729-731 / 2011, 21833 / 2009, 12498-499 / 2010, SLP (C) CC … 16157 / 2011 & CC 18235 / 2011 (Deepak Kumar and Ors. Vs. State of Haryana and Ors. etc.) Hon'ble Supreme Court in its order dated 27.02.2012 on the subject of cluster has quoted the submission of affidavit dated 23.11.2011 of MOEFCC. It says that "The Ministry is of the opinion that where the mining area is homogeneous, physically proximate and on identifiable piece of land of 5 ha. or more, it should not be broken into smaller sizes to circumvent the EIA Notification, 2006 as the EIA Notification, 2006 is not applicable to the mining projects having lease area of less than 5 ha. The Report of Committee on Minor Minerals, under the Chairmanship of Secretary (E&F) with representatives of various state governments as members including the State of Haryana and Rajasthan recommended a minimum lease size of 5 ha for minor minerals for undertaking scientific mining for the purpose of integrating and addressing environmental concerns. Only in cases of isolated discontinued mineral deposits in less than 5 ha, such mining leases may be considered keeping in view the mineral conservation".

The order further quotes that "Cluster of Mine Approach for Small Sized Mines: Considering the nature of occurrence of minor mineral, economic condition of the lessee and the likely difficulties to be faced by Regulatory Authorities in monitoring the environmental impacts and implementation of necessary mitigation measures, it may be desirable to adopt cluster approach in case of smaller mine leases being operated presently. Further these clusters need be provided with processing / crusher zones for forward integration and minimizing excessive pressure on road infrastructure. The respective State Governments / Mine Owners Association may facilitate implementation of Environment Management Plans in such cluster of mines." The order has further quoted the letter dated 1.06.2010 written by the then Minister of Environment, Forest and Climate Change which says on the subject that "A cluster approach to mines should be taken in case of smaller mines leases operating currently". The Hon'ble Court has ordered that "The State of Haryana and various other States have not so far implemented the above recommendations of the MoEF or the Guideliness issued by the Ministry of Mines before issuing auction notices granting short term permits by way of auction of minor mineral boulders gravel, sand etc., in the river beds and elsewhere of less than 5 hectares. We therefore, direct to all the States, Union Territories, MoEF and the Ministry of Mines to give effect to the recommendations made by MoEF in its report of March 2010 and the model Guideliness framed by the Ministry of Mines, within a period of six months from today and submit their compliance reports."

"We in the meanwhile, order that leases of minor mineral including their renewal for an area of less than five hectares be granted by the States/ Union Territories only after getting environmental clearance from the MoEF."

The Ministry vide O.M. No. L-11011/47/2011-IA.II (M) dated 18th May 2012 said that "In order to ensure compliance of the above referred order of the Hon'ble Supreme Court dated 27.02.2012, it has now been decided that all mining projects of minor minerals including their renewal, irrespective of the size of the lease would henceforth require prior environment clearance. Mining projects with lease area up to less than 50 ha including projects of minor mineral with lease area less than 5 ha would be treated as Category 'B' as defined in EIA Notification, 2006 and will be considered by the respective SEIAAs notified by MoEF and following the procedure prescribed under EIA Notification, 2006."

On the issue of cluster, the Notifications No. S.O. 2731 (E) dated 09.09.2013 and Notification No. S.O. No. 2601 (E) of 07.10.2014 were issued.

The above Notifications in Schedule at Item No. 1 (a) in Conditions mentions that "General Conditions shall apply except for projects or activity of less than 5 ha of mining lease area:

Provided that the above exception shall not apply for project or activity if the sum total of the mining lease area of the said project or activity and that of existing operating mines and mining projects which were accorded environment clearance and are located within 500 meters from the periphery of such projects or activity equals or exceeds 5 ha. The Office Memorandum No. J-13012/12/2013-IA-II (1) dated 24.12.2013 is about Guideliness for consideration of proposals for grant of environment clearance under Environment Impact Assessment Notification 2006 and its amendments - regarding categorization of Category 'B' projects/ activities into Category 'B1' & 'B2'.

The above O.M. besides categorizing the Category B into Category B1 & B2 also has directions on mining of brick earth / ordinary earth and river sand mining. These provisions are as follows:

"Mining of minor minerals:

As of now, mining projects of minor minerals with less than 50 hectare of mining lease areas are categorized as Category 'B' as per Notification S.O. 2731 (E) dated 9th September 2013. Also vide O.M. No. L-11011/47/2011-IA-II (M) dated 24.06.2013, Guideliness has been issued regarding categorization of mining projects of brick earth and ordinary earth having lease areas less than 5 hectare as Category 'B2' subject to stipulations stated therein.

In the above backdrop, the projects of mining of minor minerals, categorized as Category 'B' are hereby categorized as 'B2' as per the following:

(i) 'Brick Earth' / 'Ordinary Earth' mining projects having lease area less than 5 ha will be considered for granting EC as per the aforesaid Guideliness issued by MOEF on 24.06.2013.

(ii) 'Brick Earth' / 'Ordinary Earth' mining projects with mining lease area more than equal to 5 ha but less than equal to 25 ha and all other minor , mineral mining projects with mining lease area < 25 ha, except for river sand mining projects will be appraised as Category 'B2' projects.

These projects will be appraised based on the following documents:

(a) Form-1 as per the Appendix-I under the EIA Notification 2006

(b) Pre-feasibility report of the project

(c) Mining plan approved by the authorized agency of the concerned State Government.

Provided in case the mining lease area is likely to result into a cluster situation, i.e. if the periphery of one lease area is less than 500 meter from the periphery of another lease area and the total lease area equals or exceeds 25 ha, the activity shall become Category 'B1' Project under the EIA

Notification, 2006. In such a case, mining operations in any of the mine lease areas in the cluster will be allowed only if the environmental clearance has been obtained in respect of the cluster.

About river sand mining it says that:

(iii) No river sand mining project, with mine lease area less than 5 ha, may be considered for granting EC. The river sand mining projects with lease area more than equal to 5 ha but less than 25 ha will be categorized as 'B2'. In addition to the requirement of documents, as brought out above under sub-para (ii) above for appraisal, such projects will be considered subject to the following stipulations:

(a) The mining activity shall be done manually. The depth of mining shall be restricted to 3 m / water level, whichever is less.

(b) For carrying out mining in proximity to any bridge and / or embankment, appropriate safety zone shall be worked out on case to case basis to the satisfaction of SEAC / SEIAA, taking into account the structural parameters, locational aspects, flow rate etc., and no mining shall be carried out in the safety zone so worked out. No in-stream mining shall be allowed.

(c) The mining plan approved by the authorized agency of the State Government shall inter-alia include study to show that the annual replenishment of sand in the mining lease area is sufficient to sustain mining operations at levels prescribed in the mining plan and that the transport infrastructure is adequate to transport the mines material. In case of transportation by road the transport vehicles will be covered with the tarpaulin to minimize dust/ sand particle emissions.

(d) EC will be valid for mine lease period subject to a ceiling of 5 years.

Provided, in case the mining lease area is likely to result into a cluster situation i.e. if the periphery of one lease area is less than 1 km from the periphery of another lease area and total lease area equals to or exceeds 25 ha., the activity shall become Category 'B1' Projects under EIA Notification, 2006. In such a case, mining operation in any of the mine lease area in the cluster will be allowed only if the environment clearance has been obtained in respect of the cluster.

The NGT order dated 13.01.2015 in O.A. No. 123 of 2014 and M.A. No. 419 of 2014 has following directions on the issue of cluster: "In light of the judgment of the Supreme Court and what has emerged from the various cases that are subject matter of this Judgment, we direct the Ministry of Environment and Forest to formulate a uniform cluster policy in consultation with the States for permitting minor mineral mining activity including its regulatory regime, in accordance with law.

Notification S.O. 1559 (E) dated 25th June 2014 provides that "Any project or activity specified in Category 'B' will be appraised at the Central Level as Category 'A', if located in whole or in part within 5 km. from the boundary of: (i) Protected Areas; (ii) CEPI; (iii) ESA; (iv) Inter-state boundaries or international boundaries ……".

The NGT vide its order dated 13.01.2015 has quashed the Notification dated 9th September 2013, but similar provision on clusters exists in Notification dated 7th October 2014.

The EIA Notification 2006, as amended makes it clear that projects in respect of non-coal mine leases, where the area is more than equal to 50 hectares would require prior Environmental Clearance from MoEFCC, while the projects of area less than 50 hectares would be appraised for prior Environmental Clearance at the level of SEIAA.

The EIA Notification of 2006 in Clause 7 specifies the stages through which projects for grant of Environmental Clearance are required to be passed and processed. The stages include Screening, Scoping, Public Consultation and Appraisal, upon which, the Expert Appraisal Committee makes recommendation to the MoEF/SEIAA. Under 'Screening', this Clause 7 also provides for a further bifurcation of projects falling under category 'B' into 'B 1' and 'B 2'. The relevant part of Clause 7, dealing with this aspect, reads as under: "Stage (1) - Screening (Only for Category 'B' projects and activities): In case of Category 'B' projects or activities, this stage will entail the scrutiny of an application seeking prior environmental clearance made in Form 1 by the concerned State level Expert Appraisal Committee (SEAC) for determining whether or not the project or activity requires further environmental studies for preparation of an Environmental Impact Assessment (EIA) for its appraisal prior to the grant of environmental clearance depending up on the nature and location specificity of the project . The projects requiring an Environmental Impact Assessment report shall be termed Category 'B1' and remaining projects shall be termed Category 'B2' and will not require an Environment Impact Assessment report. For categorization of projects into B1 or B2 except item 8 (b), the Ministry of Environment and Forests shall issue appropriate Guideliness from time to time."

The Ministry on 24th December, 2013, issued Office Memorandum for consideration of proposals for grant of Environmental Clearance regarding categorisation of Category 'B' projects into Category 'B1' and 'B2'. Mining of minor minerals had been separately dealt with in this Office Memorandum. Such area up to 25 hectares would be categorised as 'B 2' and such projects were to be considered, subject to the stipulations stated therein.

The EIA Notification, 2006 does not provide for issuance of Environment Clearance to Cluster of mines. It provides for EC to individual lease holders / project proponents. This position has also been upheld by the Hon'ble Supreme Court in its judgment of Vivek Bansal Vs. State of Haryana that EC should be applied for and granted to the individual lease holder.

There has been rising concerns about adverse impact of mining on small leases (less than 5 hectare) in case the numbers of such leases are large and they are located in close proximity to each other. This leads to the definition of Cluster. To avoid the rigors of environment impact assessment studies, environment management plan and the environment clearance there has been a tendency to break the leases into size which does not attract the provisions of environment impact assessment studies, environment management plan, public consultation and the environment clearance. In Deepak Kumar's case Hon'ble Supreme Court also encountered this situation and in its order dated 27.02.2012 mandated that no mining lease or renewal be done without environment clearance irrespective of size.

It is seen that the categorization of mines into 'B1' and 'B2' category in which Category 'B2' leases are being exempted from the requirement of Environment Impact Assessment, Environment Management Plan, and Public Consultation for grant of EC, in many cases now the mining leases are being given for 25 hectares or less. This defeats the purpose and intent of Hon'ble Supreme Court Judgment which orders environment clearance for all mining leases irrespective of size. The environment clearance without Environment Impact Assessment, Environment Management Plan, and Public Consultation does not serve the purpose of environment clearance which is to ensure environmentally sustainable and socially responsible mining. So if a cluster or individual lease size exceeds 5 hectare, the EIA/ EMP should be completed in the process of grant of prior environment clearance.

The EIA Notification, 2006 and subsequent amendments to that or any O.M. issued by the Ministry do not provide for procedures and Competent Authority for environment clearance for cluster. In a cluster there will mostly be situation where there are a number of different lease holders and as per the settled law the lease holder has to do the working of mine and the lease holder is the one who can apply for and get the environment clearance. The conditions stipulated in the environment clearance have to be complied by the EC holder and any violation of that empowers the authority to cancel the environment clearance or prosecute the EC holder if necessitated by the circumstances.

For cluster there is no mechanism about who will apply for EC, EC will be issued in whose name, and who will be responsible for compliance of EC conditions.

The intent of cluster assessment is to have a holistic knowledge of the impact on environment by different mines operating in close proximity of each other. There are also requirement of mitigative measures which need implementation in concerted manner by different EC holders of that cluster. To ensure that it is important that there should be an integrated Environment Impact Assessment /

Environment Management Plan for the cluster to be presented before the authority appraising the projects and considering the proposals for grant of EC. This integrated EIA/ EMP can be prepared by either the lease holder, group of lease holders, State or the State Agencies. This EIA/ EMP need to be prepared by the accredited consultants / Registered Qualified Persons of the State Governments. The application for EC and grant of EC should be done in the name of individual lease holders in the background of the integrated EIA/EMP report. The Competent Authority (SEIAA/ SEAC / EAC) will entertain individual lease holder's application for grant of EC to individual mining lease projects in that cluster in the name of lease holders. The conditions related to mitigative measures necessitated by the integrated EIA/EMP may run across more than one lease holder or EC holders, that should figure in each EC accordingly and its compliance be ensured by the individual EC holders.

The Hon'ble Supreme Court, NGT, SEAC/EAC and the Project Proponents have raised issue of cluster in mine lease allotment and environment clearance for the same, so following conditions need to be ensured for cluster of mines:

1. To address the concern of adverse impact of minor mineral mining on environment it is proposed that all mining activity including river sand mining (above 5 hectare individual or cluster) will need to prepare Environment Impact Assessment Report and Environment Management Plan before grant of environment clearance. These reports (EIA /EMP) can be prepared by the State or State nominated Agency / the Project Proponent (s).
2. As can be seen from the data provided by the States most of the mining leases for minor minerals are of lease area less than 5 hectare. It is also reported that in hill states getting a stretch in river with area more than 5 hectare is very uncommon. So the size of lease for minor minerals including river sand mining will be determined by the States as per their circumstances.
3. The EIA Notification, 2006 does not provide for cluster EC, it provides for issuance of EC to individual project proponents and the same has also been upheld in the judgment of Hon'ble Supreme Court in Vijay Bansal vs. State of Haryana case. So EC will have to be applied for and issued to the individual project proponent.
4. A cluster shall be formed when the distance between the peripheries of one lease is less than 500 meters from the periphery of other lease in a homogeneous mineral area.
5. The mining of minor minerals is mostly in clusters. The Environment Impact Assessment or Environment Management Plan are required to be prepared for the entire cluster in order to capture all the possible externalities. These reports shall capture carrying capacity of the cluster, transportation and related issues, replenishment and recharge issues, geo-hydrological study of the cluster area. The Environment Impact Assessment or Environment Management Plan shall be prepared by the State or State nominated Agency or group of project proponents

in the Cluster or the project proponent in the cluster.

6. The individual lease holders in cluster can use the same Environment Impact Assessment or Environment Management Plan for application for environmental clearance. The cluster Environment Impact Assessment or Environment Management Plan shall be updated as per need keeping in view any significant change.

7. There shall be one public consultation for entire cluster after which the final Environment Impact Assessment or Environment Management Plan report for the cluster shall be prepared.

8. The details of cluster Environment Impact Assessment or Environment Management Plan shall be reflected in each environmental clearance in that cluster and District Expert Appraisal Committee (DEAC), SEAC, and EAC shall ensure that the mitigative measures emanating from the Environment Impact Assessment or Environment Management Plan study are fully reflected as environmental clearance conditions in the environmental clearance's of individual project proponents in that cluster.

9. As the sand is mostly mined from rivers and majority of the rivers which are important source of sand also form boundary between States, so because of General Conditions most of the sand mining projects become Category 'A' project. So the General Conditions will not apply in case of river sand and gravel mining projects on account of being in 5 kilometer of inter-state boundary.

10. The Committee headed by the District Magistrate or District Collector will be empowered to appraise and grant EC for mining leases up to 5 ha in case of individual lease and up to 25ha in case of cluster for sand mining.

11. In case the mining leases are in cluster (if periphery of one lease is within 500 meters), fowling are the categorization of projects:-

- Category 'B2'Project: Cluster area of mine leases up to 5 ha and to be dealt at DEIAA/ DEAC level
- Category 'B2'Project: Cluster area of Mine leases > 5 ha and < 25 ha with no individual lease > 5 ha and to be dealt at DEIAA/DEAC level
- Category 'B1'Project: Cluster of mine leases of area > 25 hectares with individual lease size < 50ha and to be dealt at SEIAA/SEAC level
- Category 'A' Project: Cluster of any size with any of the individual lease >50ha and to be dealt at MoEFCC/EAC level

The schematic presentation of requirements on Environmental Clearance of Sand Mining including cluster situation is detailed as below:-

Area of Lease (Hectare)	Category of Project	Require-ment of EIA / EMP	Require-ment of Public Hearing	Require-ment of EC	Who can prepare EIA/ EMP	Who will apply for EC	Authority to appraise/ grant EC	Authority to monitor EC compliance
EC Proposal of Sand Mining in cluster situation								
Cluster area of mine leases up to 5 ha	**'B2'**	Form-1M, PFR and Approved Mine Plan	No	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	DEAC/ DEIAA/	DEIAA SEIAA SPCB CPCB MoEFCC Agency nominated by MoEFCC
Cluster area of Mine leases > 5 ha and < 25 ha with no individual lease > 5 ha	**'B2'**	Form-I, PFR and Approved Mine Plan and one EMP for all leases in the Cluster	No	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	DEAC/ DEIAA/	
Cluster of mine leases of area > 25 hectares with individual lease size < 50ha	**'B1'**	Yes	Yes	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	SEAC/ SEIAA	

Cluster of any size with any of the individual lease > 50ha	**'A'**	Yes	Yes	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	EAC/ MoEFCC	

MANAGEMENT OF SAND DEPOSITED AFTER FLOOD ON AGRICULTURAL FIELD OF FARMERS

The Standing Committee on Water Resources on issues, concerning flood management, compensation, and status of ownership of submerged and eroded land in the country including compensation to farmers for loss of their crops destroyed by floods and right to disposal of the sand left in the fields of farmers in its meeting held on 29.04.2015 made observations on this subject.

The Committee observed that pursuant to Hon'ble Supreme Court of India decision in "Deepak Kumar Case" in 2012, regulations were framed by the Ministry of Mines to guide environmental clearance of minor minerals. … The Committee, therefore, desires the Ministry of Water Resources, River Development and Ganga Rejuvenation to work in close coordination with the Ministry of Mines and Environment, Forest and Climate Change to frame regulations / Guideliness in this regard expeditiously.

Mining of Sand

The Committee further observed that due to the floods, the agricultural land of farmer is destroyed and rendered infertile. Further the farmer loses his livelihood as the produce of his land is destroyed by flood and become unsalable. The farmer is also deprived of the right of lifting sand from his land. He is therefore, left helpless and destitute and leave their land in search of job.

The Committee observes that "mining operation" means any operation undertaken for the purpose of winning any mineral. Accordingly, if desilting is undertaken perse with the objective of winning a mineral then only it will be construed as a mining operation. Apparently, if the desilting is undertaken not for winning any mineral, it will not be construed as mining operation and therefore, the farmer can remove the sand from the land without requiring the requisite permits. However, the Committee strongly feels that the farmer be given the right to use and dispose-off the sand accumulated over their land post flood, by incorporating the necessary provisions in the Mines and Mineral (Development and Regulation) Act, 1957".

Removal of sand from the agricultural field by the owner farmer of the land from environment point of view will not be considered as mining operation and its removal and disposal can be allowed without the requirement of environment clearance till it is done only to the extent of reclaiming the agricultural land. The sand deposited after flood only be removed, so no mining / digging below the ground level is allowed. For removing sand in case where private land has gone into the river due to erosion, the requirement of mining lease and environment clearance will continue. This operation

of removal of sand deposited on agricultural field should be done after a mapping of deposition is done by the Land Management Committee of the Gram Panchayat. The sand so deposited post flood can be removed by the farmer owning the land / group of farmers affected by this post flood sand deposition or the Gram Panchayat. Customary rights to remove and dispose off the sand should be given to the farmer affected by deposition of sand on account of sudden flood in his agricultural land.

MINING OF SAND FROM AGRICULTURAL FIELD

This practice is prevalent in Haryana, where the top layer of soil varying between 1 and 2 meters is removed and stacked separately and thereafter the sand deposit which may be 10-15 meter deep is mined. After removing the sand layer up to a maximum depth of 09 meters, the top soil stacked is spread out on the field and the same is brought under the cultivation. Though the level of this land (mined out area) is lowered to the depth of the excavation and in initial years of cultivation the productivity is low, but the productivity of the fields improves with continued cultivation and addition of organic manure in the field. In Haryana some leases are of large area (ranging from 1000 hectare to 2000 hectare) the agricultural fields and river bed both are included in the same lease for mining.

The following recommendations should be kept in mind for mining in such leases:

1. Mining of sand in such mine leases will require environment clearance.
2. The lease should be of sand mining either from the agricultural field or river. In same lease both type of area should not be included.
3. The sand mining from agricultural field is being done in Haryana for a long time and it can be done in a more sustainable manner without adverse impact on agricultural productivity, if proper environmental safeguards are taken.
4. The slope of mining area adjacent to agricultural fields should be proper (preferably 45-60 degree) and adequate gap (minimum 10 feet) be left from adjacent agricultural field to avoid erosion and scouring.

CUSTOMARY RIGHT ON SAND MINING

The native people have their long held customary rights to take silt, sand & soil from their tanks and nearby rivers for their use or community works in the village in almost all the States in some form or the other.

Next to the reserved forests, tanks and rivers are the biggest common properties in India. Most of the village tanks are 'government properties' with some exceptions of privately held tanks. Land revenue department, irrigation department and forest department is given powers to deal with property right' and hence protecting all tanks and rivers preventing damages including encroachments is their responsibility. The local villagers were given 'customary rights' under the Revenue Department Orders, and other laws related to Panchayats and Easements to take sand, soil and earth for agricultural and domestic purposes without seeking any permission from anyone. The States strive to keep these customary rights to use such resources like soil and sand for individuals work and community work in the village intact without requirement of any permit and clearance. These customary rights need to be protected and respected.

DESILTING OF RESERVOIRS / BARRAGES / ANNECUTS / LAKES / CANALS

These structures are generally in possession and maintenance of Irrigation Department / Minor Irrigation Department / PHED of State Governments. The dams and reservoirs can be a significant source of sand. Many such structures are silted and their water holding capacity has gone down considerably. In some instances to compensate for silted capacity raising of height of dam or construction of new structures is proposed which further leads to submergence of new areas of agricultural field and forests. Taking up desilting of such projects can serve dual purpose of increasing the water holding capacity and making available the sand for other usage. In some States the Irrigation Department is permitted to use it for the departmental works free of charge and balance can be disposed of in market after paying the due royalty. A detailed study is required to be carried out to verify economic viability and environmental sustainability before contemplating dredging of storage reservoirs for sand / gravel mining.

The de-silting of reservoir, dredging for upkeep and maintenance of structures, channels and averting natural disasters will not be treated as mining for the purpose of environmental clearance.

The Ministry of Water Resources (MoWR) view on desiltation from flood control point of view is as follows:

A multidisciplinary Committee (Mittal Committee) under the chairmanship of Dr. B.K. Mittal, former Chairman, Central Water Commission was constituted by MoWR, vide letter dated 08.10.2001 to identify cause and extent of siltations in rivers, suggest measures to minimize siltation, examine as to whether desilting is a technically feasible means to minimize magnitude of flood in rivers, suggest appropriate technology/ methods of desilting of rivers, propose a realistic operational programme in a time bound manner and other related aspects. The committee studied in respect of few sites on Ganga, Brahmputra, Godavari, Krishna etc., and inter-alia concluded that:

i) Siltation in river is not pronounced and alarming;

ii) Desilting of rivers for flood control is not an economically viable solution;

iii) Dredging in general has been found to be inadequate and should not be resorted to, particularly in major rivers;

iv) There are, of course, some locations such as tidal rivers, confluence points with narrow constrictions and the like which can be tackled by desilting after thorough examination and techno-economic justification;

v) Selective dredging is suggested depending upon local conditions; and

vi) Desilting of rivers can marginally minimize the magnitude of floods and be effective only for a short period.

Thus, desilting in general is not feasible technically, due to several reasons like non-sustainability, non- availability of vast land required for disposal of dredged material etc. This cannot be viewed in isolation of other approaches to manage floods. Desilting of rivers in vulnerable reaches may be suggested based on model study, if it is found techno-economically viable. For navigation purposes, the river reaches in the water ways path may be dredged to have minimum depth of water.

MINING PLAN

The Environment Clearance shall be given to only those mining leases which have mine plan approved by the Competent Authority designated by the States. Modification of the mining plan during operation will also need approval of the Competent Authority. The Mining Plan shall be prepared by the Recognised Qualified Persons (RQP). The person to be recognized for preparing the mining plan should be a holding a degree of Mining Engineering, Environmental Engineering or a post graduate degree in Geology granted by a University established or incorporated by or under a Central Act or a State Act including any institutions recognized by the UGC or any equivalent qualification granted by any University or institution outside India and have a professional experience of three years of working in a supervisory capacity in the field of mining after obtaining a degree. The States will devise their own mechanism of selection and empanelment of RQPs. A mining plan should be valid for a period of 5 years, which can be renewed further.

EVALUATING THE IMPACT OF SAND MINING

To assess the impact of mining and effect of remedial measures can be assessed through monitoring. This is also required for mid-course corrections. Monitoring will provide data to evaluate the upstream and downstream effects of sand and gravel extraction activities, and long-term changes. A brief report summarizing the annual results of the physical and biological monitoring should document the evolution of the sites over time, and the cumulative effects of sand and gravel extraction. The summary should also recommend any modification of extraction rates needed to minimize impacts of extraction.

Sand Replenishment, Geomorphology and Hydrology:

Physical monitoring requirements of sand and gravel extraction activities should include surveyed channel cross-sections, longitudinal profiles, bed material measurements, geomorphic maps, and discharge and sediment transport measurements. The physical data will illustrate bar replenishment and any changes in channel morphology, bank erosion, or particle size.

In addition to local monitoring for replenishment at specific mining sites, monitoring of the entire reach through the estuary will provide information on the cumulative response of the system to sand and gravel extraction. For example, it is important for downstream bars and the estuary to receive sufficient sand and gravel to maintain estuarine structure and function. Because the elevation of the bed of the channel is variable from year to year, a reach-based approach to monitoring will provide a larger context for site-specific changes. If long-term monitoring data show that there is a reach-scale trend of bed lowering (on bars or in the thalweg), the extraction could be limited.

Cross-sections:

Surveyed channel cross-sections should be located at permanently documented sites upstream, downstream and within the extraction area. Cross-sections intended to show reach- scale changes

should be consistently located over geomorphic features such as at the head of riffles, across the deepest part of pools, or across particular types of channel bars.

Cross-section spacing should be close enough to define the morphology of the river channel. Cross-section data should be surveyed in March or April to evaluate changes that may occur during the flooding season.

Cross-section data should be collected over the reach to the estuary, and locally upstream, downstream, and within each mining site. This long-term monitoring data should be collected and analyzed even if no mining occurs in order to understand and estimate the sand budget of the river reach.

Photo-documentation:

Photographs of the project sites should be taken prior to excavation to document the baseline conditions, and again during each monitoring session. Photos should be taken twice a year. Photos of structures nearby like outfalls / off-takes, intakes, bridges and other structures may also be regularly taken.

Groundwater Level:

Monitoring wells should be established adjacent to each off-channel floodplain excavation to record changes in ground water levels. Measurements should be taken monthly. This should help analyse surface water and ground water interaction along the reach.

Extent and Quality of Riparian Vegetation:

Document the extent and quality of riparian vegetation, including successional status, and any increase in disturbance indicators (non-native plants). The extent of riparian habitat can be determined utilising aerial photos. Habitat quality data, i.e., successional status and species composition, must be determined through field reconnaissance.

Riparian Vegetation Maps:

Develop yearly maps of the sensitive habitat areas and document their aerial extent over time. These maps may be combined with the geomorphic maps. Monitor sites identified as sensitive for disturbance in excess of expected geomorphic trends - i.e., massive bank wasting up or downstream from an active mine site. Monitor sand and gravel mining impacts which may translate up and downstream, causing accelerated erosion of sensitive zones and impacting the ability of new habitat to form due to excessive scour or sedimentation.

This monitoring / documentation should be done by the EC holders and will be regularly checked and assessed by the DEIAA for corrective steps in time. The DEIAA should review the status of monitoring and documentation data of each mining site especially for sand mining once in a year.

MONITORING SYSTEM FOR SUSTAINABLE SAND MINING

The implementation of these Guideliness on Sustainable Sand Mining is not possible till States create a robust mechanism to monitor the mining operation and measure the mined out mineral. The entire exercise of Environment Impact Assessment and Environment Management Plan aims towards making the mining process environmentally sustainable. The Environment Clearance letter indicates the EC capacity that is the quantity of material which can be mined in a year. If this quantity is not measured, and much more mineral than envisaged in the EC is mined out then the entire process of EC is rendered futile. Keeping above objective in mind it is required of the State / State Agencies to create and establish a robust system to monitor and measure the mined out mineral at each lease location and its transportation in State.

The State Governments have tried various methods for monitoring the sand mining in their areas, the main feature of which generally has been through Transport Permits (T.P.). The printing of Transport Permits on security paper, invisible ink mark, fugitive ink background, VOID pantograph and Unique Barcode are some of the tools used by the States. These tools need to be backed by suitable software and dedicated websites with security certifications at different levels.

The system proposed is that States should issue Transport Permit. Bar code on the T.P. when scanned using the system, will generate a unique invoice number. The bidder has to enter destination, distance between plot and destination, vehicle number etc in the system. After scanning, unique bar code number; invoice date & time and validity date & time is sent to the bidder, which need to be written on T.P. Validity of T.P. is calculated based on distance between plot and destination. After validity time is over the T.P. stands invalid. The officers involved in monitoring should be provided with the android application using which the T.P. can be checked anywhere on road. As soon as the bar code on T.P. gets scanned through using android application, all details of T.P. such as plot details, vehicle details, validity time etc. should get fetched from server. This means, if anything is re-written on T.P. and attempt is made to reuse the same, it can be traced immediately. Registering of T.P. on server can be done using website, using android application (smartphone with internet) or even through SMS (smartphone without internet). This implies that TP can be registered on server even if only mobile phone range is available on plot. Various reports can be generated using the system showing daily lifting reports and user performance report. This way the vehicles carrying sand can be tracked from source to destination.

MONITORING SYSTEM FOR SUSTAINABLE SAND MINING

PROCEDURE FOR MONITORING OF SAND MINING OR RIVER BED MINING

1. The security feature of Transport Permit shall be as under:

(a) Printed on Indian Banks' Association (IBA) approved Magnetic Ink Character Recognition (MICR) Code paper.

(b) Unique Barcode.

(c) Unique Quick Response (QR) code.

(d) Fugitive Ink Background.

(e) Invisible Ink Mark.

(f) Void Pantograph.

(g) Watermark.

2. Requirement at Mine Lease Site:

(a) Small Size Plot (Up to 5 hectare): Android Based Smart Phone.

(b) Large Size Plots (More than 5 hectare): CCTV camera, Personal Computer (PC), Internet Connection, Power Back up.

(c) Access control of mine lease site.

(d) Arrangement for weight or approximation of weight of mined out mineral on basis of volume of the trailer of vehicle used.

3. Scanning of Transport Permit or Receipt and Uploading on Server:

(a) Website: Scanning of receipt on mining site can be done through barcode scanner and computer using the software;

(b) Android Application: Scanning on mining site can be done using Android Application using smart phone. It will require internet availability on SIM card;

(c) SMS: Transport Permit or Receipt shall be uploaded on server even by sending SMS through mobile. Once Transport Permit or Receipt get uploaded, an unique invoice code gets generated with its validity period.

4. Proposed working of the system:

The State Mining Department should print the Transport Permit or Receipt with security features enumerated at Paragraph 1 above and issue them to the mine lease holder through the District Collector. Once these Transport Permits or Receipts are issued, they would be uploaded on the server against that mine lease area. Each receipt should be preferably with pre-fixed quantity, so the total quantity gets determined for the receipts issued.

When the Transport Permit or Receipt barcode gets scanned and invoice is generated, that particular barcode gets used and its validity time is recorded on the server. So all the details of transporting of mined out material can be captured on the server and the Transport Permit or Receipt cannot be reused.

5. Checking On Route:

The staff deployed for the purpose of checking of vehicles carrying mined mineral should be in a position to check the validity of Transport Permit or Receipt by scanning them using website, Android Application and SMS.

6. Breakdown of Vehicle:

In case the Vehicle breakdown, the validity of Transport Permit or Receipt shall be extended by sending SMS by driver in specific format to report breakdown of vehicle. The server will register this information and register the breakdown. The State can also establish a call centre, which can register breakdowns of such vehicles and extend the validity period. The subsequent restart of the vehicle also should be similarly reported to the server or call centre.

7. Tracking of Vehicles:

The route of vehicle from source to destination can be tracked through the system using check points, RFID Tags, and GPS tracking.

8. Alerts or Report Generation and Action Review:

The system will enable the authorities to develop periodic report on different parameters like daily lifting report, vehicle log or history, lifting against allocation, and total lifting. The system can be used to generate auto mails or SMS. This will enable the District Collector or District Magistrate to get all the relevant details and shall enable the authority to block the scanning facility of any site found to be indulged in irregularity. Whenever any authority intercepts any vehicle transporting illegal sand, it shall get registered on the server and shall be mandatory for the officer to fill in the report on action taken. Every intercepted vehicle shall be tracked.

The monitoring of mined out mineral, environmental clearance conditions and enforcement of Environment Management Plan will be ensured by the DEIAA, SEIAA and the State Pollution Control Board or Committee. The monitoring arrangements envisaged above shall be put in place. The monitoring of enforcement of environmental clearance conditions shall be done by the Central Pollution Control Board, Ministry of Environment, Forest and Climate Change and the agency nominated by the Ministry for the purpose.

ADMINISTRATIVE STRUCTURE FOR ENVIRONMENT CLEARANCE AND ENSURING COMPLIANCE OF EC CONDITIONS

An no mining in allowed without Envirnomental Clearance. The process of EC involves preparation of EIA/EMP, PER and mine plan.

The EIA/EMP can be prepared by the State Government or any agency of the State, group of project proponents in the cluster or the individual project proponent. The EIA / EMP can be prepared by the accredited consultants or the Registered Qualified Person(s) / agencies selected by the States.

DISTRICT ENVIRONMENT IMPACT ASSESSMENT AUTHORITY

The Central Government has constituted the District Level Environment Impact Assessment Authority (DEIAA), for grant of environmental clearance for Category 'B2' Projects for mining of minor minerals, for all the districts in the country.

For, minor minerals including sand and gravel mining lease of area up to 5 hectare in case of individual lease and up to 25 ha in case of cluster for sand mining, the grant of EC will be done by the District Environment Impact Assessment Authority (DEIAA) headed by the District Magistrate or District Collector. This Authority will be responsible for proper and sustainable management of sand mining in the district. The Authority will be responsible for designating the area / stretch in river suitable for mining in the district and also identifying the area / stretch in river prohibited for sand mining. The Authority will ensure clear demarcation of mining site, its documentation, and ensuring that no mining takes place without EIA / EMP and EC of the mining site.

The Chairperson and official members of the Authority for the districts should hold office during their tenure in the district on said posts and the expert member shall hold office for a period of three years from the date of nomination by the Competent Authority. The Committee shall meet at least once in a month.

The District Environment Impact Assessment Authority (DEIAA) :

The DEIAA will have following composition :

1.	District Magistrate or District Collector of the district	Chairperson
2.	Senior most Divisional Forest Officer in the district	Member
3.	An expert member to be nominated by the Divisional Commissioner or Chief Conservator of the Forest	Member
4.	Sub-Divisional Magistrate or Sub-Divisional Officer of the district head quarter	Member-Secretary

DISTRICT LEVEL EXPERT APPRAISAL COMMITTEE:

The District Level Expert Appraisal Committee (DEAC) will appraise the cases and make recommendations to the District Environment Impact Assessment Authority for environmental clearance. This Committee will also make recommendations / suggestions on the District Survey Report to the DEIAA. The DEAC will have following composition:

1.	Senior most Executive Engineer, Irrigation Department	Chairperson
2.	Senior most Sub-Divisional Officer (Forest)	Member
3.	A representative of Remote Sensing Department or Geology Department or State Ground Water Department to be nominated by the District Magistrate or District Collector	Member
4.	Occupational health expert or Medical Officer to be nominated by the District Magistrate or District Collector	Member
5.	Engineer from Zila Parishad	Member
6.	A representative of State Pollution Control Board or Committee	Member
7.	An expert to be nominated by the Divisional Commissioner or Chief Conservator of Forest	Member
8.	An expert to be nominated by the Divisional Commissioner or Chief Conservator of Forest	Member
9.	An expert to be nominated by the Divisional Commissioner or Chief Conservator of Forest	Member
10.	Senior most Assistant Engineer, Public Works Department	Member
11.	Assistant Director or Deputy Director or District Mines Officer or Geologist in the district in that order	Member- Secretary

The DEAC will meet at least once a month, depending on the work load the frequency of meetings can be decided by the Chairperson of DEAC and Chairperson, DEIAA.

Each proposal for the mining lease under consideration for environmental clearance in the district will be inspected on-site by the Sub-Divisional Level Committee headed by the SDM.

The Sub-Divisional Committee should comprise of following officers:

Sub-Divisional Magistrate	Chairperson
Sub-Divisional Officer, Forest/ Assistant Conservator of Forest/ Forest Range Officer	Member
Representative of State Pollution Control Board	Member
SDO, Irrigation Department	Member
Geologist or Assistant Geologist or Mining Officer / Mining Inspector	Member

The presence of at least three members will be needed for inspection. This Committee shall submit its report within 15 days from the receipt of the proposal.

The monitoring of EC conditions and enforcement of EMP will be ensured by the District Collector and the, State Pollution Control Board. The monitoring of enforcement of EC conditions can also be done by the Central Pollution Control Board, Ministry of Environment, Forest & Climate Change and the agency nominated by the Ministry for the purpose.

Schematic Presentation of Requirements on Environmental Clearance of Sand Mining including cluster situation

Area of Lease (Hectare)	Category of Project	Require-ment of EIA / EMP	Require-ment of Public Hearing	Require-ment of EC	Who can prepare EIA/ EMP	Who will apply for EC	Authority to appraise/ grant EC	Authority to monitor EC compliance
EC Proposal of Sand Mining on the basis of individual mine lease								
0 - 5ha	**'B2'**	Form - 1M, PFR and Approved Mine Plan	No	Yes	Project Proponent	Project Proponent	DEAC/ DEIAA	DEIAA SEIAA SPCB CPCB MoEFCC Agency nominated by MoEFCC

> 5 ha and < 25 ha	**'B2'**	Form-I, PFR and Approved Mine Plan and EMP	No	Yes	Project Proponent	Project Proponent	SEAC / SEIAA	DEIAA SEIAA SPCB CPCB MoEFCC Agency nominated by MoEFCC
≥ 25ha and < 50ha	**'B1'**	Yes	Yes	Yes	Project Proponent	Project Proponent	SEAC / SEIAA	
≥ 50 ha	**'A'**	Yes	Yes	Yes	Project Proponent	Project Proponent	SEAC / SEIAA	
EC Proposal of Sand Mining in cluster situation								
Cluster area of mine leases up to 5 ha	**'B2'**	Form - 1M, PFR and Approved Mine Plan	No	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	DEAC/ DEIAA/	DEIAA SEIAA SPCB CPCB MoEFCC Agency nominated by MoEFCC
Cluster area of Mine leases > 5 ha and < 25 ha with no individual lease > 5 ha	**'B2'**	Form -I, PFR and Approved Mine Plan and one EMP for all leases in the Cluster	No	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	DEAC/ DEIAA/	

Cluster of mine leases of area ≥ 25 hectares with individual lease size < 50ha	**'B1'**	Yes	Yes	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	SEAC/ SEIAA	
Cluster of any size with any of the individual lease ≥ 50ha	**'A'**	Yes	Yes	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	EAC/ MoEFCC	

General Conditions will not apply on account of inter- state boundaries for river sand mining leases.

EXEMPTION OF CERTAIN CASES FROM BEING CONSIDERED AS MINING FOR THE PURPOSE OF REQUIREMNT OF ENVIRONMENTAL CLEARANCE

Keeping in view the purpose, maintenance of infrastructure, abatement of disasters, customary easement and property rights, it is felt that following cases may not be treated as mining for the purpose of requirement of environmental clearance. The following cases shall not require prior environmental clearance, namely:-

1. Extraction of ordinary clay or sand, manually, by the Kumhars (Potter) to prepare earthen pots, lamp, toys, etc. as per their customs.
2. Extraction of ordinary clay or sand, manually, by earthen tile makers who prepare earthen tiles.
3. Removal of sand deposits on agricultural field after flood by farmers.
4. Customary extraction of sand and ordinary earth from sources situated in Gram Panchayat for personal use or community work in village.
5. Community works like de-silting of village ponds or tanks, construction of village roads, ponds, bunds undertaken in Mahatama Gandhi National Rural Employment and Guarantee Schemes, other Government sponsored schemes, and community efforts.
6. Dredging and de-silting of dams, reservoirs, weirs, barrages, river, and canals for the purpose of their maintenance, upkeep and disaster management.
7. Traditional occupational work of sand by Vanjara and Oads in Gujarat vide notification number GU/90(16)/MCR-2189(68)/5-CHH, dated the 14th February, 1990 of the Government of Gujarat.
8. Digging of well for irrigation or drinking water.
9. Digging of foundation for buildings not requiring prior environmental clearance.
10. Excavation of ordinary earth or clay for plugging of any breach caused in canal, nala, drain, water body, etc., to deal with any disaster or flood like situation upon orders of District Collector or District Magistrate.
11. Activities declared by State Government under legislations or rules as non- mining activity with concurrence of the Ministry of Environment, Forest and Climate Change, Government of India.

STANDARD ENVIRONMENTAL CONDITIONS FOR SAND MINING

Impact Category	S.No.	Environmental Conditions
Stakeholder Engagement	1	In the case of private land not owned by the lease holder an affidavit should be obtained regarding consent of the concerned land owner (s) for carrying out the mining operation.
	2	Stakeholder awareness and ability to raise concerns and getting it to be addressed.
	3	Implementation of Action Plan on the issues raised during the Public Hearing. The Proponent shall complete all the tasks as per the Action Plan submitted with the budgetary provisions during the Public Hearing.
	4	Having valid lease and all the permits is very much needed.
	5	To establish a Monitoring Committee including Local Panchayat, to check on traffic due to transportation and submit an annual report on the same.
	6	The directions given by the Hon'ble Supreme Court of India vide order dated 27.02.2012 in Deepak Kumar case [SLP(C) Nos. 19628-19629 of 2009] and order dated 05.08.2013 of the Hon'ble National Green Tribunal in application No. 171/2013 may be strictly followed.
	7	All the provisions made and restrictions imposed as covered in the Minor Mineral Rule, shall be complied with, particularly regarding Environment Management Practices and its fund management and Payment of compensation to the land owners.
Sustainable Mining Practices	8	District level Survey Report should be prepared and area suitable for mining and area prohibited for mining be identified.
	9	The depth of mining in Riverbed shall not exceed one meter or water level whichever is less, provided that where the Joint Inspection Committee certifies about excessive deposit or over accumulation of mineral in certain reaches requiring channelization, it can go up to 3 meters on defined reaches of the River.
	10	No River sand mining be allowed in rainy season.
	11	To submit annual replenishment report certified by an authorized agency. In case the replenishment is lower than the approved rate of production,

		then the mining activity / production levels shall be decreased / stopped accordingly till the replenishment is completed.
	12	Ultimate working depth shall be up to 3.0 m from Riverbed level and not less than one meter from the water level of the River channel whichever is reached earlier. In hilly terrain this depth be preferably restricted to one meter.
	13	In River flood plain mining a buffer of 3 meter to be left from the River bank for mining.
	14	In mining from agricultural field a buffer of 3 meter to be left from the adjacent field.
	15	Mining shall be done in layers of 1 meter depth to avoid ponding effect and after first layer is excavated, the process will be repeated for the next layers.
	16	To maintain safety and stability of Riverbanks i.e. 3 meter or 10% of the width of the River whichever is more will be left intact as no mining zone.
	17	No stream should be diverted for the purpose of sand mining. No natural water course and/ or water resources are obstructed due to mining operations.
	18	No blasting shall be resorted to in River mining and without permission at any other place.
	19	Depending upon the location, thickness of sand, deposition, agricultural land/Riverbed, the method of mining may be manual, semi-mechanized or mechanized; however, manual method of mining shall be preferred over any other method.
Identification and Preparation of Mining Site	20	Mining should be done only in area / stretch identified in the District Level Survey Report suitable for mining and so certified by the Sub-Divisional Level Committee after site visit.
	21	Mining should begin only after pucca pillar marking the boundary of lease area is erected at the cost of the lease holder after certification by the mining official and its geo coordinates are made available to the District Level Committee.
	22	The top soil in case of surface land mining shall be stored temporarily in an earmarked site and concurrently used for land reclamation.

Monitoring the Mining of Mineral and its Transportation	23	The EC holder shall keep a correct account of quantity of mineral mined out, dispatched from the mine, mode of transport, registration number of vehicle, person in-charge of vehicle and mine plan. This should be produced before officers of Central Government and State for inspection.
	24	For each mining lease site the access should be controlled in a way that vehicles carrying mineral from that area are tracked and accounted for.
	25	The State / District Level Environment Committee should use technology like Bar Coding, Information and Communications Technology (ICT), Web based and ICT enabled services, mobile SMS App etc. to account for weight of mineral being taken out of the lease area and the number of trucks moving out with the mineral.
	26	There should be regular monitoring of the mining activities in the State to ensure effective compliance of stipulated EC conditions and of the provisions under the Minor Mineral Concessions Rules framed by the State Government.
Noise Management	27	Noise arising out of mining and processing shall be abated and controlled at source to keep within permissible limit.
	28	Restricted working hours. Sand mining operation has to be carried out between 6 am to 7 pm.
Air Pollution and Dust Management	29	The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly.
	30	Air Pollution due to dust, exhaust emission or fumes during mining and processing phase should be controlled and kept in permissible limits specified under environmental laws.
	31	The mineral transportation shall be carried out through covered trucks only and the vehicles carrying the mineral shall not be overloaded. Wheel washing facility should be installed and used.
Management of Visual Impact	32	The mining operations are to be done in a systematic manner so that the operations shall create a major visual impact on the site.
Bio-Diversity Protection	33	Restoration of flora affected by mining should be done immediately. Twice the number of trees destroyed by mining to be planted preferably of indigenous species. Each EC holder should plant and maintain for lease period at least 5 trees per hectare in area near lease.
	34	No mining lease shall be granted in the forest area without forest clearance in accordance with the provisions of the Forest Conservation Act, 1980 and the rules made thereunder.

	35	Protection of turtle and bird habitats shall be ensured.
	36	No felling of tree near quarry is allowed. For mining lease within 10km of the National Park / Sanctuary or in Eco-Sensitive Zone of the Protected Area, recommendation of Standing Committee of National Board of Wild Life (NBWL) have to be obtained as per the Hon'ble Supreme Court order in I.A. No. 460 of 2004.
	37	Spring sources should not be affected due to mining activities. Necessary Protection measures are to be incorporated.
Management of Instability and Erosion	38	Removal, stacking and utilization of top soil in mining are should be ensured. Where top soil cannot be used concurrently, it shall be stored separately for future use keeping in view that the bacterial organism should not die and should be spread nearby area.
	39	The EC should stipulate conditions for adequate steps to check soil erosion and control debris flow etc. by constructing engineering structures
	40	Use of oversize material to control erosion and movement of sediments
	41	No overhangs shall be allowed to be formed due to mining and mining shall not be allowed in area where subsidence of rocks is likely to occur due to steep angle of slope.
	42	No extraction of stone / boulder / sand in landslide prone areas.
	43	Controlled clearance of riparian vegetation to be undertaken
Waste Management	44	Site clearance and tidiness is very much needed to have less visual impact of mining.
	45	Dumping of waste shall be done in earmarked places as approved in Mining Plan.
	46	Rubbish burial shall not be done in the Rivers.
Pollution Prevention	47	The EC holder shall take all possible precautions for the protection of environment and control of pollution.
	48	Effluent discharge should be kept to the minimum and it should meet the standards prescribed.
Protection of Infrastructure	49	Mining shall not be undertaken in a mining lease located in 200-500 meter of bridge, 200 meter upstream and downstream of water supply / irrigation scheme, 100 meters from the edge of National Highway and railway line, 50 meters from a reservoir, canal or building, 25 meter from the edge of State Highway and 10 meters from the edge of other

		roads except on special exemption by the Sub-Divisional level Joint Inspection Committee.
	50	For carrying out mining in proximity to any bridge or embankment, appropriate safety zone (not less than 200 meters) should be worked out on case to case basis, taking into account the structural parameters, location aspects and flow rate, and no mining should be carried out in the safety zone so worked out.
	51	Mining activities shall not be done for mine lease where mining can cause danger to site of flood protection works, places of cultural, religious, historical, and archeological importance.
Enhancement Road Safety	52	Vehicles used for transportation of sand are to be permitted only with **of** fitness and PUC Certificates.
	53	Junction at takeoff point of approach road with main road be properly developed with proper width and geometry required for safe movement of traffic by concession holder at his own cost.
	54	Project Proponent shall ensure that the road may not be damaged due to transportation of the mineral; and transport of minerals will be as per IRC Guideliness with respect to complying with traffic congestion and density.
	55	No stacking allowed on road side along National Highways.
Closure and Reclamation of Mined Out Area	56	The Project Proponent shall undertake phased restoration, reclamation and rehabilitation of land affected by mining and completes this work before abandonment of mine.
	57	Restoration, reclamation and rehabilitation in cluster should be done systematically and jointly by each EC holder in that cluster. This should be appropriately reflected as EC condition in each EC in cluster.
	58	Site specific plan with eco-restoration should be in place and implemented.
Health and Safety	59	Health and safety of workers should be taken care of.
	60	Transport of mineral will not be done through villages / habitations.
	61	The Project Proponent shall make arrangement for drinking water, first aid facility (along with species specific anti-venom provisioning) in case of emergency for the workers.

	62	Project Proponent shall implement the Disaster Management Plan if the mine lease area is located in Seismic Zone-IV. Project Proponent shall appoint a Committee to have a check over any disaster to warn workers well before for the safety of the workers. Emergency helpline number will be displayed at all levels.
	63	Project Proponent shall appoint an Occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the Project and records maintained; also, Occupational health check-ups for workers having some ailments like BP, diabetes, habitual smokers, etc. shall be undertaken once in six months and necessary remedial/preventive measures taken accordingly. Recommendations of National Institute for Labour for ensuring good occupational environment for mine workers would also be adopted.
Monitoring the Impact of Mining	64	The Project Proponent shall report monitoring data on replenishment, traffic management, levels of production, River Bank erosion and maintenance of Road etc.
Mineral Conservation	65	Use of alternate material such as M-sand in place of natural River sand shall be encouraged in order to reduce stress on natural eco-system.

APPENDIX: TABLE - 1

REVENUE FROM SAND MINING IN STATES / UTs

(Rs. in crores)

Sl.No.	STATE / U.T	2012 - 2013	2013 - 2014	2014 - 2015
01	Andaman & Nicobar	0.073	0	0
02	Arunachal Pradesh	7	8	5
03	National Capital Territory of Delhi	0	0	
04	Himachal Pradesh	0.70	0.35	0.07
05	Jharkhand	4.25	3.04	0.07
06	Karnataka	23.74	15.33	25.99
07	Madhya Pradesh	184.93	179.41	172.53
08	Meghalaya	14.50	15.88	15.50 (as forest royalty from govt. contractors)
09	Mizoram	0.018	0.0475	0.0861
10	Puducherry	0.80	0.20	0.03
11	Rajasthan	173.36	252.06	134
12	Tamil Nadu	188.50	117.73	109.10
13	Uttar Pradesh	97.27	166.45	168.38

* States/UTs not mentioned have not provided the data.

APPENDIX: TABLE - 2

NUMBER OF MINING LEASES IN STATE

Sl.No.	STATE / U.T	In stream	Flood Plain	Sea Shore	Agricul-tural field	River	Total
01	Andaman & Nicobar						Nil
02	Andhra Pradesh						Nil
03	Haryana	5	12		7		31
04	Jammu & Kashmir					650	650
05	Jharkhand	10				387	397
06	Lakshadweep					1090	1090
07	Manipur						NIL
08	Meghalaya						NIL
09	Odisha						NIL
10	Punjab	2 + 80 Temporary Working Permit				73	155
11	Sikkim		85				85
12	Tripura	21	244		5		270

* States/UTs not mentioned have not provided the data.

APPENDIX: TABLE - 3

AVERAGE SIZE OF SAND MINING LEASES IN STATE / UT: 2014-15

(In Hectare)

Sl.No.	STATE / U.T	AVERAGE SIZE	SMALLEST MINING LEASE AREA	LARGEST MINING LEASE AREA
01	Andaman & Nicobar	NOT APPLICABLE		
02	Arunachal Pradesh	ONLY MINING PERMITS		
03	Himachal Pradesh	1.20	0.25	4.09
04	Jharkhand	0.25	0.13	87.38
05	Karnataka	5	5	19.42
06	Madhya Pradesh	8.52	0.30	306.98
07	Meghalaya	Mostly < 1.5 ha.		
08	Mizoram	NA		
09	Puducherry	NA		
10	Rajasthan	2 5 in Bikaner	24.82 2 in Bikaner	1901.89 5 in Bikaner
11	Tamil Nadu	29 leases < 10 ha.	14 leases of 10 - 15 ha.	42 leases > 15 ha.
12	Uttar Pradesh	25	5	200

* States/UTs not mentioned have not provided the data.

APPENDIX: TABLE - 4

AVERAGE PERIOD OF SAND MINING LEASES IN STATE / UT

(In Hectare)

Sl.No.	STATE / U.T	AVERAGE MINING LEASE PERIOD (YEARS)
01	Andaman & Nicobar	Not Applicable
02	Arunachal Pradesh	Only mining permit is given
03	Himachal Pradesh	5
04	Jharkhand	3
05	Karnataka	2
06	Madhya Pradesh	5 to 10
07	Meghalaya	No lease in operation currently
08	Mizoram	No mining lease in operation currently
09	Puducherry	One year permit
10	Rajasthan	5 20-30 years in Bikaner
11	Tamil Nadu	3
12	Uttar Pradesh	3

* States/UTs not mentioned have not provided the data.

APPENDIX: TABLE - 5

COMMON METHOD AND PRACTICE OF SAND MINING IN STATE / UT

Sl.No.	STATE / U.T	COMMON METHOD AND PRACTICE OF SAND MINING
01	Andaman & Nicobar	1. The Apex Court in its order dated 7.5.2002 in I.A. No. 502 in WP (C) No. 202 of 1995, had directed that extraction of sand be phased out @ minimum 20% per year on reducing balance basis to bring the sand mining to a level of 33% of the present level of mining within a maximum period of five years. 2. Since the level of extraction of sand in the territory in the year 2001-02 i.e. the base year, was 68909 cubic meter, the quantity of extractable sand is fixed at 22581 cubic meter. 3. The quantity of sea sand so allowed by MoEF is extracted from the identified and approved sites having such deposits on the sea beaches (identified accreting area) with adequate environmental safeguards so as to prevent any damage to the sensitive coastal eco-system including corals, turtle/ bird nesting sites and the protected areas. 4. The allotment of sea sand is made to the individuals by the Sand Allotment Committee constituted by the Lieutenant Governor under the Chairmanship of Chief Secretary who also heads the A&N CZMA. The quantum of sea sand allotted is fixed by the Committee on the basis of availability of sea sand and the number of applicants (local) applied for their bonafide use.
02	Arunachal Pradesh	1. Mining of sand restricted to foothills only that too for a very short period. Grant of mining lease is kept in abeyance, short term mining permits are issued to various Central and State agencies for carrying out developmental works under the strict supervision of the departmental officers.

* States/UTs not mentioned have not provided the data.

Sl.No.	STATE / U.T	COMMON METHOD AND PRACTICE OF SAND MINING
03	Himachal Pradesh	Manual. The mining lease areas are sanctioned on the river bed if the area is approved in survey document. The mining activities are allowed strictly in accordance with the approved working cum Environment Management Plan and after the environment clearance.
04	Jharkhand	Manual
05	Karnataka	Manual
06	Madhya Pradesh	Manual
07	Meghalaya	Hill quarrying in private areas
08	Mizoram	Extraction of sand limited mainly for domestic purpose in the state. The produce extracted illegally is seized as per the Mizoram Forest Act, 1955. Mining is only limited to river banks and riverbeds with improvised equipments like spade, shovel, small canoes, etc.
09	Puducherry	Manual
10	Rajasthan	In Rajasthan sand is available in seasonal streams and rivers except Chambal which is perennial but mining is banned because of Chambal Crocodile Sanctuary. Mining is done up to 3 meters and is open cast. It is filled in trucks either manually or semi mechanized method. In Bikaner no river exists and mining for sand is being done from palaeo-channel. In this palaeo-channel the sand deposit occurs at the depth of 5 meter to 20 meter below ground level with an over burden of 5 to 20 meters. The mining here is done open cast benching method, where overlying blown sand, gravel, pebble etc. is removed, the sand is further sieved, graded and washed upto 12 to 18 mesh size.
11	Tamil Nadu	Manual mining is carried out in certain quarries. In most of the sand quarries two poclains are used by the PWD.
12	Uttar Pradesh	Manual and Semi-mechanised

* States/UTs not mentioned have not provided the data.

APPENDIX: TABLE - 6

SUGGESTIONS / RECOMMENDATIONS FROM STATES / UTs FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
01	Andaman & Nicobar	The quantum of extractable sand fixed at 22581 cubic meter should be enhanced. This limit has been fixed by the orders of Hon'ble Supreme Court subject to study by National Institute of Oceanography.
02	Arunachal Pradesh	1. For environmentally sustainable sand mining a strict and comprehensive sand mining policy need to be framed.
		2. River sand is becoming a scarce commodity and hence exploring alternative to it has become imminent. Manufactured sand is a good alternative both for fine as well as coarse sand used in concrete.
		3. Sand mining should be restricted to surface collection only without the use of heavy machinery.
		4. Due to turbulent and inaccessible nature of rivers flowing in the hilly terrains of the state, deposition of the sand in the river bed is very negligible and except for few quarries in the foothills and plains, most of the notified quarries are boulders and mining of sand is very negligible.
		5. In view of environment related issues the grant of mining lease for river bed minor mineral viz. sand, gravel, shingle, aggregate, boulder are kept in abeyance and extraction of these minerals is regulated only by grant of mining permits, that too not exceeding 3000 cubic meter in one permit.
		6. For scientific mining of sand and other minor minerals Guideliness has been prepared and accordingly Geo-Technical Committee has been constituted under the chairmanship of ADC/SDO in the district level to determine the quantity of quarriable mineral that can be safely removed and also to give technical clearance for notification of quarries of smaller size, preferably within one hectare.
03	Chhattisgarh	1. While attempting to prepare a model Guidelines / policy for the country, the differences that exist in different states may be taken into account. It may be tried to take all stakeholders along.

* States/UTs not mentioned have not provided the data.

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
		2. To ease the process of EC granting, SEIAA may have benches across the State with each bench having a SEAC under it. Time bound clearance with ease of access and grant.
		3. Sand mining with use of machinery should be allowed.
		4. Road construction material like murram should be exempted from EC considering their local / pocket occurrences and impossibility of obtaining EC.
		5. Considering the traffic issue at urban areas and to reduce intermediaries like storage point dealers, night mining with adequate lighting should be allowed.
		6. To make the availability of sand from local rivulet / streams the river bank to in-stream mine area distance should be reduced from 10 meter to 3 meters.
04	NCT of Delhi	1. Location of sand mining should be identified by a committee comprising of revenue deptt., Irrigation Deptt., CGWB, SPCB, Forest Department and mining department. Mining area should distinctly be marked at site, before allowing mining.
		2. Depth of mining should be restricted to 3 mtrs or water level, whichever is less and that to from aggradation areas. The side slope of excavation should be less than 3:1.
		3. Requirement of sand and gravel should be reduced by utilization of construction and demolition waste. It requires not only legislative support but also awareness campaign among the society.
		4. Guidelines should be distinctly clear and easy to understand covring do's and don't during mining operation.
		5. Sufficient safe distance should be left between mining site and adjoining engineering structures like embankment, spurs, bed bars, bridges, reservoir and regulator etc.
		6. Security amount should be sufficient enough to compel the agency to carry out rehabilitation, corrective measures and to ensure strict compliance of conditions of lease. S.D. should be released after inspection of committee and recording of certificate that agency complied with the lease conditions.
		7. Mining may be carried out by state agency instead of private agaencies.

* States/UTs not mentioned have not provided the data.

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
05	Himachal Pradesh	1. Working cum Environment Management Plan has been made mandatory. The mining activities are allowed after submission of environment clearance.
		2. In compliance of order of Hon'ble Supreme Court dated 27.02.2012 in Deepak Kumar case, the Himachal Pradesh has repealed its rules called the Himachal Pradesh Minor Mineral (Concession) and Mineral (Prevention of illegal mining, transportation and Storage) Rule, 2015 in accordance to the recommendation of the Ministry of Environment & Forest and rules circulated by the Ministry of Mines. Hence the State of Himachal Pradesh has complied with the above directions of the Hon'ble Apex Court,
		3. Therefore the condition of applicability of Environment Clearance on the area less than 5 hectare shall be exempted.
		4. Further keeping in view, the peculiar topography, geography and socio-economic fabric of the State, the condition for the minimum size of the lease should be exempted as the rivers are in youth stage forming different land forms, land holdings are less, population is thin and scattered and the demand of minor mineral is limited, which could be met out locally by exploiting local resources on the small scale.
06	Jammu & Kashmir	1. Uniform Guidelines be framed for sand mining and river bed mining as they cannot be segregated.
		2. Identification of sand belts be made in consultation with CGWB and while framing Guideliness CGWB may be taken on board.
		3. Sand mining leases less than 5 hectare be exempted from EC and comprehensive policy may be made for hilly states for easing the process of grant of lease.
07	Jharkhand	1. Machine should not be used in sand mining. Only manual mining should be done.
		2. The depth of mining shall be restricted to 3 meter / water level whichever is less.
		3. No mining should be carried out in proximity of any bridge / embankment.
		4. In-stream mining should not be allowed.
		5. Mining should be done in accordance with an approved mining plan.

* States/UTs not mentioned have not provided the data.

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
		6. EC should be valid for settlement period subject to ceiling of five years.
08	Karnataka	1. Undertaking sand mining activity through a Government agency to be governed by District Level Sand Monitoring Committee headed by Deputy Commissioner.
		2. The area should be properly surveyed and mapped with the help of GPS to assign geo coordinates and accordingly erect boundary pillars so as to avoid illegal and unscientific mining.
		3. Depth of sand available may be indicated in a contour map using suitable drilled holes to ensure sand mining do not exceed one meter depth.
		4. Once thickness is established sand mining may be permitted to one meter depth where the thickness of sand is more than three meter deep. If the thickness of sand is less than three meter, sand mining shall not be permitted.
		5. Sufficient spacing shall be ensured from one block to another block and sufficient time gap shall be provided for replenishment before undertaking mining activity in the same block.
		6. Mining activity shall be restricted to only non-monsoon season and in the area that is exposed.
		7. No in-stream mining shall be permitted.
		8. No stream should be diverted for the purpose of sand mining. No natural water course and/ or water resources are obstructed due to mining operations.
		9. Site specific plan with eco-restoration should be in place.
		10. Sand mining shall be undertaken only by manual method without use of earth moving equipment such as JCB etc. Use of mechanized boats for sucking sand from in-stream area shall be strictly prohibited.
		11. Appropriate safety zones shall be maintained in proximity to any bridge / and / or embankment and other permanent structures. No sand mining shall be undertaken in such safety / buffer zones. Guideliness issued by the Ministry of Mines in this regard shall also be adhered to.
		12. The quarrying activity shall not intersect subterranean water level and ground water table.

* States/UTs not mentioned have not provided the data.

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
		13. The top soil in case of surface land mining shall be stored temporarily in an earmarked site and concurrently used for land reclamation.
		14. Use of alternate material such as M-sand in place of natural river sand shall be encouraged in order to reduce stress on natural eco-system.
09	Madhya Pradesh	1. Geographical location of the state should be taken care of.
		2. Keep provision for extraction of sand from forest areas.
		3. Expedite the EC process.
		4. In inter-state boundary leases sand mining EC be giver by the SEIAA.
		5. Clear Guidelines for B-1, B2 be issued.
		6. Simplify cluster cases.
		7. Exempt mining leases of less than 5 hectare from EC.
10	Meghalaya	1. No sand mining within 3 kilometer from Protected area and Reserved Forest area.
		2. Advance royalty etc for entire quantity of mineral be realized in full.
		3. Only loose boulder and sand are allowed to be removed from the mid river stream leaving 15 meter on either side untouched.
		4. No collection of sand is allowed on 15 meter of either side of structures like bridge, culvert etc.
		5. No blasting allowed.
		6. No extraction of stone / boulder / sand in landslide prone areas.
		7. No stacking allowed on road side along national highways.
		8. No felling of tree near quarry is allowed.
		9. No transportation of forest produce (sand from forest area) is allowed after sunset.
		10. Export fee realized if sand is sent outside the state.
		11. Stone crusher cannot be installed without permission of DFO.
		12. Tree should be planted at quarry after completion of mining.
		13. Violation of above conditions will result in cancellation of permit and forfeiture of advance royalty already paid.
11	Mizoram	1. Extraction of sand from the forest may be permitted strictly as per mining plan approved by the Competent Authority and after getting necessary clearance under various acts related to the forest and environment.

* States/UTs not mentioned have not provided the data.

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
12	Odisha	1. EC may be exempted for leases less than 5 hectare.
		2. EC should not be required for earth mining.
		3. Minor minerals even close to inter-state borders should be allowed to be cleared by the SEIAA.
		4. In case a river is forming boundary of states and mechanized mining of sand is causing tension in states it should be resolved at the national level.
13	Puducherry	1. Environment Clearance is issued by SEIAA, Puducherry strictly under the provisions of the EIA Notification, 2006 and subsequent amendments.
14	Rajasthan	1. The bajari mined out from river bed is filled back by the river itself during the next rainy season. So, nature itself reclaims the mined out area every year. The formation of bajari is a natural process in the river and it is also essential to remove bajari from the river bed to avoid silting. If the sand deposited in the river bed is not removed, it may cause change of river course and may also results in flood plains will be developed.
		2. Price control system adopted in Rajasthan. Sand is a essential commodity.
		3. The depth of mining should be restricted to 3 meters or above water table.
		4. Machinery having boom height more than 3 meter shall not be allowed in extraction of bajari.
		5. Size of mining leases be allowed below 5 hectare.
		6. In streams with low deposit of sand and if use is mostly local no mechanized mining should be allowed and EC should not be required.
		7. In larger deposits there should be semi-mechanised mining with EC.
		8. The sand (river and stream) in different categories, with their availability, use and size of the deposit. **Category A:** Small deposits in river and stream where thickness of sand bed is very less and sand is used locally in villages and towns only and no mechanical mining is done, in such areas restriction of obtaining Environment Clearance can be relaxed for manual mining.

* States/UTs not mentioned have not provided the data.

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
		Category B: Large deposits, where in rivers and streams having thickness of sand bed is medium to large, sand mining, shall be allowed with semi mechanized manner after obtaining Environment Clearance. **Bikaner District:** Bikaner district is a desert terrain where ground water table is very deep. Bajari is excavated above water table and it does not affect the water table. In addition to this boulder, gravel and waste generated due to bajari mining is used in reclamation of pits. Hence environment is not adversely affected due to bajari mining.
15	Sikkim	1. Forest department is the nodal department for sand and stone extraction from the riverbed.
		2. Use of machines is prohibited.
		3. Quarrying sites are allotted to village youth cooperatives.
		4. For bigger companies quarry sites in forest area are allotted after FC.
		5. State Government has considerations for allotment of quarries for Border Road Organization and MoD.
		6. GoI can monitor mining in states through GIS.
16	Tamil Nadu	1. Excess sand deposits identified in the flood plains and in-stream areas only to be mined in order to safeguard and maintain ground water table.
		2. Sand mining operation has to be carried out between 6 am to 7 pm.
		3. Mining operation should be carried out in a systematic manner without affecting environment and ecology of the area.
17	Uttar Pradesh	1. Depth of mining cannot be more than 3 meter or water table whichever is less.
		2. Mining can be done in slices forming benches where bench height cannot be more than 1 meter and bench width cannot be less than 10 meter.
		3. A width of not less than 50 meter or 10% width of river can be restricted for mining activities from river bank. A condition can be imposed that mining will be done from river activities from river bank.
		4. SEIAA should be decentralized to expedite EC process. It can be decentralized to district or zonal level.

* States/UTs not mentioned have not provided the data.

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
		5. Make EC conditions practical.
		6. Requirement of mining plan in river bed mining be done away with.
		7. There should not be requirement of EC for short term permit.
		8. The quantity of sand should not be fixed in EC as it leads to loss in revenue and illegal mining.
		9. Semi-mechanised form of sand mining be allowed.
		10. Sand mining to be exempted from EC as it takes 6-8 months and environment department do not have requisite work force to enforce EC conditions. A Guidelines for environmentally sustainable sand mining be framed and it can be complied by imposing it in the lease condition.
18	Uttarakhand	1. Area less than 5 hectare be exempted from EC.
		2. Use of machine be allowed for scientific mining and reducing the cost of production.
		3. RBM deposition in the lease should not be fixed for the entire lease period. RBM in lease area be assessed after rains every year.
		4. 70% of leases in state not operating for want of EC and these vacant lots are source of illegal mining.

* States/UTs not mentioned have not provided the data.

APPENDIX: TABLE - 7

BEST PRACTICE OF SAND MINING ADOPTED IN DISTRICT / STATE / UT

Sl.No.	STATE / U.T	DESCRIPTION OF BEST PRACTICES
01	Andaman & Nicobar	Institute of Ocean Management has been entrusted the task of identification of sand accreting sites.
02	Arunachal Pradesh	Mining of sand is restricted to foothills only that too for a very short period.
03	National Capital Territory of Delhi	In Delhi sand mining lease is granted by Revenue department. NOC from I&FC Deptt. Were issued with condition of limitation of depth, area of mining, operation timing limitation and limited period of NOC. Compliance of laid down conditions and monitoring is ensured by collector.
04	Himachal Pradesh	1. The mining activities on river beds are allowed strictly as per the provisions of river / stream bed mining policy as under.
		2. No river / stream bed mining shall be allowed without the recommendation of the Sub Divisional Level Committee constituted under the Chairmanship of Sub Divisional Magistrate having XEN PWD, Irrigation and Public Health, SPCB, DFO and Mining Officer as its member.
		3. Nor river / stream bed mining shall be allowed within 75 meter from the periphery of soil conservation works, nursery plantations, check dams or within the distance as recommended by the Sub-Divisional Committee whichever is more.
		4. No river / stream bed mining shall be allowed within 1/10th of its span or 5 meters from the banks or as specified by the Sub-Divisional Level Committee, whichever is more.
		5. Nor river / stream bed mining shall be allowed within 200 meters upstream and downstream of water supply scheme or as specified by the Committee whichever is more.
		6. Nor river / stream bed mining shall be allowed within 200 meters upstream and 200 to 500 meters downstream of bridges depending upon the site specific conditions.

* States/UTs not mentioned have not provided the data.

Sl.No.	STATE / U.T	DESCRIPTION OF BEST PRACTICES
		7. No approach road from PWD road shall be allowed to lease area unless lessee / contractor obtains written permission from XEN, PWD for making road leading to all intake places from the PWD road. 8. No boulders/ cobbles/ hand broken road ballast shall be allowed to be transported outside the State from river/stream beds. 9. No digging for more than 3 feet shall be allowed in river/ stream beds. 10. No blasting shall be allowed in river/stream beds.
05	Madhya Pradesh	1. In some districts the Cooperative Societies of Labour are doing the sand collection, loading and unloading work.
06	Tamil Nadu	Permission has been granted in favour of PWD for quarrying sand in the river Poramboke lands in 16 districts in the state of Tamil Nadu. Sand mining is being carried out by the PWD in the entire State.
07	Uttar Pradesh	U.P. Minor Mineral Concession Rules, 1963.

* States/UTs not mentioned have not provided the data.

APPENDIX: TABLE - 8

STATUS OF PROMULGATION OF RULE ON SAND MINING IN THE STATE / UT

Sl.No.	STATE / U.T	NAME OF RULE WITH YEAR OF PROMULGATION
01	Andaman & Nicobar	Indian Forest Act, 1927 as sand has been included as forest produce.
02	Arunachal Pradesh	APMMCR 2002 and made effective from 1.01.2003
03	Himachal Pradesh	1. River/Stream bed Mining Policy-2004.
		2. Himachal Pradesh Minor Mineral Policy-2013.
		3. Himachal Pradesh Minor Mineral (Concession) and Mineral (Prevention of illegal mining, transportation and storage) Rule, 2015.
04	Jharkhand	Rule 12 of Jharkhand Minor Mineral Concession (Amendment) Rule 2014.
05	Karnataka	Karnataka Sand Policy was brought out in the year 2011 and as such amendment to the Karnataka Minor Mineral Concession Rule 1994 were made in the year 2011 and a separate chapter IV B for sand mining was introduced under Rule 31-R. Further, as per the Hon'ble Supreme Court orders sated 27.02.2012 in SLP No. 19628-19629 between Deepak Kumar and State of Haryana and others and as per the model Guideliness issued by the Government of India for Environmental Management of Mining of Minor Minerals, amendment to the Karnataka Minor Mineral Concessions Rule 1994 were brought out on 16.12.2013 incorporating a new chapter II A applicable to all minor minerals on Systematic, Scientific Mining and Protection of Environment, wherein Quarrying Plan, Environmental Management Plan and Environment Clearance was made mandatory. Amendments to Rule 31- R were also made wherein the Government, PWD Department was entrusted with sand mining, storage and transportation, under the District Sand Monitoring Committee and Taluk Sand Monitoring Committee.
06	Madhya Pradesh	Rules have been framed as per the orders of Hon'ble Supreme Court for sand mining under M.P. Minor Mineral Rules 1996 and Sand Mining Policy 2015 is also formulated in the State.

* States/UTs not mentioned have not provided the data.

Sl.No.	STATE / U.T	NAME OF RULE WITH YEAR OF PROMULGATION
07	Meghalaya	No rules notified by the state on sand mining
08	Mizoram	Mizoram Forest Act, 1955, which came into force on 1.01.1956.
09	Puducherry	Puducherry Minor Minerals (Concession) Rules, 1977.
10	Rajasthan	RMMCR, 1986 Notification dated 2.11.2012: 1. First proviso of Rule 8(2) and first proviso of 17 (1) - Renewal of Bajari Mining Leases is not allowed. 2. Rule 16 (3) - Mining Leases of Bajari to be granted for 5 years. 3. Rule 18 (18) - Part surrender of lease area of Bajari not allowed. Notification dated 3.4.2013 - (First proviso Rule 7 (1)- Mining leases of Bajari to be granted only by way of tender or auction. Notification dated 12.07.2013 - (First proviso Rule 11 (2)) - Maximum area limit of 10 sq. km. not applicable for Bajari Mining Leases. Bikaner District: Chapter II of RMMCR, 1986 (last amended 12.07.2013).
11	Sikkim	Sikkim Forest (Allotment of Areas for Quarrying of Sand and Stone), 2006.
12	Tamil Nadu	1. As per G.O. Ms. No. 95 Industries (MMCI) Department dated 1.10.2003, a new Rule 38 A has been introduced in the Tamil Nadu Minor Mineral Concession Rules, 1959. Accordingly quarrying and sale of sand is being carried out by PWD in the state of Tamil Nadu since October 2003. 2. As per G.O. Ms. No. 158 Industries (MMIC) Department dated 25.08.2008, a new Rule 38 B has been introduced in the Tamil Nadu Minor Mineral Concession Rules, 1959. Accordingly transportation of sand outside the state not to be made. To regulate storage and transportation of sand a new Rule 38 C B has been introduced in the Tamil Nadu Minor Mineral Concession Rules, 1959 vide G.O. No. 32 Industries (MMIC) Department dated 11.02.2011.

* States/UTs not mentioned have not provided the data.

APPENDIX: TABLE -9

NORMAL DATES OF ONSET AND WITHDRAWAL OF SOUTH-WEST MONSOON

The India Meteorological Department, Nagpur, vide letter No. NAGPUR RMC /CS-312, dated 18th January,2016 has provided the period of Rainy Season viz. Normal dates of Onset and Withdrawal of Southwest Monsoon over India as state-wise and union territory- wise which are as below:-

States	Normal date of Onset of SW-Monsoon	Normal date of Withdrawal of SW-Monsoon
Andhra Pradesh	1st June	15th October
Arunachal Pradesh	5th June	15th October
Assam	5th June	15th October
Bihar	10th June	15th October
Chhattisgarh	10th June	15th October
Goa	5th June	15th October
Gujarat	15th June	15th September
Haryana	1st July	15th September
Himachal Pradesh	1st July	15th September
Jammu & Kashmir	1st July	15th September
Jharkhand	10th June	15th October
Karnataka	5th June	15th October
Kerala	1st June	15th October
Madhya Pradesh	15th June	1st October
Maharashtra	10th June	1st October
Manipur	1st June	15th October
Meghalaya	1st June	15th October
Mizoram	1st June	15th October
Nagaland	5th June	15th October
Odisha (Orissa)	5th June	15th October
Punjab	1st July	15th September
Rajasthan	1st July	1st September
Sikkim	5th June	15th October
Tamil Nadu	1st June	15th October
Telangana	5th June	15th October
Tripura	1st June	15th October

States	Normal date of Onset of SW-Monsoon	Normal date of Withdrawal of SW-Monsoon
Uttar Pradesh	15th June	1st October
Uttarakhand	15th June	1st October
West Bengal	10th June	15th October
Union territory	**Normal date of Onset of SW-Monsoon**	**Normal date of Withdrawal of SW-Monsoon**
Andaman and Nicobar Islands	20th May	15th October
Dadra and Nagar Haveli	10th June	1st October
Daman and Diu	10th June	1st October
Lakshadweep	1st June	15th October
Delhi	1st July	15th September
Puducherry	1st June	15th October

Note: The District Environment Impact Assessment Authority (DEIAA) in consultation with District Expert Appraisal Committee (DEAC) can make necessary changes as per local meteorological variations in this period of rainy season with respect to prohibition of River Sand Mining in the District.

ENSURING SUSTAINABLE SAND MINING FOR SUSTAINABLE DEVELOPMENT

A Major Initiative of Ministry of Environment, Forest and Climate Change for ensuring Environmentally Sustainable Sand Mining and Prevention of illegal Sand Mining.

{Notification No: SO No. 141 (E) dated 15.01.2016 and S.O. No. 190 (E) dated 20.01.2016 available at www.envfor.nic.in}

- Use of Satellite imagery to decide the site suitable for mining and quantity of sand which can be mined.
- Transit permit with tamper proof security features and tracking of mined out mineral.
- Monitoring of mined out mineral to prevent mining in excess of environmental clearance capacity.

- Delegation of power to grant environmental clearance for sand mining to an authority headed by District Magistrate.

- Intergration of power with District Authorities to grant environmental clearance and prevent illegal mining.

Note : Any information of mining without environmental clearance or against the norms prescribed in these notifications be reported at e-mail id: sandmining-moef@gov.in

Enforcement & Monitoring Guidelines for Sand Mining

Ministry of Environment, Forest and Climate change

January, 2020

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1.0 INTRODUCTION

The Ministry of Environment Forest & Climate Change formulated the Sustainable Sand Management Guidelines 2016 which focuses on the Management of Sand Mining in the Country. But in the recent past, it has been observed that apart from management and systematic mining practices there is an urgent need to have a guideline for effective enforcement of regulatory provision and their monitoring.

Section 23 C of MMDR, Act 1957 empowered the State Government to make rules for preventing illegal mining, transportation and storage of minerals. But in the recent past, it has been observed that there was large number of illegal mining cases in the Country and in some cases, many of the officers lost their lives while executing their duties for curbing illegal mining incidence. The illegal and uncontrolled illegal mining leads to loss of revenue to the State and degradation of the environment.

India is developing at a faster pace and much technological advancement has already been taken place in the surveillance and remote monitoring in the field of mining. Thus, it is prudent to utilize the technological advancement for the effective monitoring of the mining activities particularly sand mining in the country.

Use of latest remote surveillance and IT services helps in effective monitoring of the sand mining activity in-country and also assist the government in controlling the illegal mining activity in the country. Thus, there is a need for an effective policy for monitoring of sand mining in the Country which can be enforced on the ground. These guidelines focus on the effective monitoring of the sand mining since from the identification of sand mineral sources to its dispatch and end-use by consumers and the general public. Further, the effective monitoring and enforcement require efforts from not only Government agencies but also by consumers and the general public.

It is the responsibility of every citizen of India to protect the environment and effective monitoring can only be possible when all the stakeholders viz. Central Government, State Government, Leaseholders/Mine Owners, Distributors, Dealers, Transporters and Consumers (bulk & retail) will contribute towards sustainable mining, and comply with all the statutory provisions. It is felt necessary to identify the minimum requirements across all geographical region to have a uniform protocol for monitoring and enforcement of regulatory provision prescribed for sustainable sand and gravel mining.

This document will serve as a guideline for collection of critical information for enforcement of the regulatory provision(s) and also highlights the essential infrastructural requirements necessary for effective monitoring for Sustainable Sand Mining.

The document is prepared in consideration of various orders/directions issued by Hon'ble NGT in matters pertaining to illegal sand mining and also based on the reports submitted by expert committees and investigation teams.

Further, this document is supplemental to the existing "Sustainable Sand Mining Management Guideline-2016" (SSMG-2016), and these two guidelines viz. "Enforcement & Monitoring Guidelines for Sand Mining" (EMGSM-2020) and SSMG-2016 shall be read and implemented in sync with each other. In case, any ambiguity or variation between the provision of both these document arises, the provision made in "Enforcement & Monitoring Guidelines for Sand Mining-2020 "shall prevail.

2.0 NEED FOR POLICY GUIDELINES

The Ministry of Environment, Forest & Climate Change (MoEF&CC) published Environmental Impact Assessment Notification 1994 which is only applicable for the Major Minerals more than 5 ha. In order to cover the minor minerals also into the preview of EIA, the MoEF&CC issued EIA Notification 2006 for Major & Minor Mineral more than 5 Ha. The Hon'ble Supreme Court in its Judgment dated the 27th February 2012 in I.A. No.12- 13 of 2011 in Special Leave Petition (C) No.19628-19629 of 2009, in the matter of Deepak Kumar etc. Vs. State of Haryana and Others etc. made prior environment clearance mandatory for mining of minor minerals irrespective of the area of mining lease. In order to comply with the judgment of Hon'ble Supreme Court, the Ministry issued S.O.141 (E) dated 15.01.2016. Further, MoEF&CC published Sustainable Sand Mining Management Guidelines 2016 for scientific and sustainable sand mining in the Country. The recommendations for the management of sustainable sand extraction are the key objective of the Guidelines. Special emphasis is given on monitoring of the mined out material, which is key to the success of the environmental management plan. Use of IT and IT-enabled services for effective monitoring of the quantity of mined out material and transportation along with process re-engineering has been made a part of the Guidelines. Guidelines support the fundamental concept, promote environmental protection, limit negative physiological, hydrogeological and social impacts underpinning sustainable economic growth.

The Hon'ble NGT in its order dated 04.09.2018 in O.A. 173/2018 in the matter of Sudarsan Das vs. State of West Bengal & Ors. Inter-alia observed that "***There can be no two views that an effective institutional monitoring mechanism is required not only at the stage when Environmental Clearance is granted but also at subsequent stages". "The guidelines focus on the preparation of District Survey Report and the Management Plan" … We are of the view that all the safeguards which are suggested***

in sustainable sand mining guidelines as well as notification dated 15.01.2016 ought to be scrupulously followed."...It is a known fact that in spite of the above-suggested guidelines being in existence, on the ground level, illegal mining is still going on. The existing mechanism has not been successful and effective in remedying the situation." ..." Since there is an utter failure in the current monitoring mechanism followed by the State Boards, SEIAAs and DEIAAs, it is required to be revised for effective monitoring of sand and gravel mining and a dedicated monitoring mechanism be set up."

The Hon'ble NGT in its order dated 04.09.2018 in O.A. 173/2018 in the matter of Sudarsan Das vs. State of West Bengal & Ors. directed that ***MoEF&CC has issued directions from time to time under Section 3 and 5 of the Environment (Protection) Act, 1986. The MoEF&CC needs to revise its directions keeping in mind the following:***

- *Mining Surveillance System discussed in para 23 above be finalized in consultation with ISRO Hyderabad.*
- *Safeguards suggested in Sustainable Sand Mining Guidelines published by the MoEF&CC in the year 2016.*
- *Suggestions in the High Power Committee Report.*
- *The requirement of demarcation of boundaries being published in respect of different leases in the public domain.*
- *Need to issue SOP laying down mechanism to evaluate loss to the ecology and to recover the cost of restoration of such damage from the legal or illegal miners. Such evaluation must include the cost of mining material as well as the cost of ecological restoration and the net present value of future ecosystem services forgone.*
- *Need to set up a dedicated institutional mechanism for effective monitoring of sand and gravel mining which may also take care of mining done without any Environmental Clearance as well as mining done in violation of Environmental Clearance conditions.*

- *The Mining Department may make a provision for keeping apart at least 25% of the value of mined material for the restoration of the area affected by the mining and also for compensating the inhabitants affected by the mining.*

- *One of the conditions of every lease of mine or minerals would be that there will be independent environmental audit at least once in a year by reputed third party entity and report of such audit be placed in the public domain.*

- *In the course of such an environmental audit, a three-member committee of the local inhabitants will also be associated. Composition of three members committee may preferably include ex-servicemen, a former teacher and former civil servant. The Committee will be nominated by the District Magistrate.*

The Hon'ble NGT in its order dated 05.09.2018 in O.A. 44/2016 in the matter of Mushtakeem Vs. MoEF & CC & Ors. Inter-alia observed the following:

"Para 20. In Original Application No. 481/2016, the allegation is that there is the connivance of the District Administration with the miners and mining is going in violation of conditions of Environmental Clearance. According to the applicant, an effective mechanism is required to be evolved so that illegal mining does not place."

"Para 22. We proceed to consider the main question proposed for the consideration stated earlier hereinabove as to ***how to ensure the protection of the environment by checking illegal mining."***

"Para 23. We have dealt with the identical issue relating to the illegal sand mining in the border districts in the State of West Bengal and Odisha in the order dated 04th September 2018 in Sudarsan Das Vs. State of West Bengal & Ors., Original Application No. 173 of 2018. We have directed the MoEF&CC to revise the guidelines on the subject for an effective mechanism for sand mining, relevant portions of which are reproduced below: -..."

The Hon'ble NGT in its order dated 10.09.2018 in O.A. 304/2015 in the matter of Jai Singh & Anr.Vs. Union of India Ors. inter-alia observed the following:

"Para 6. After disposal of the above matters, a disturbing event widely reported in media which took place on 07th September 2018 has been brought to our notice. ***A Deputy Ranger who tried to stop illegal mining was killed by mining mafia at Morena in the State of M.P.***

"Para 7. The above disturbing event may also be kept in mind by the MoEF, while considering the issuance of revised guidelines in light of the judgment dated 05th September 2018 (Supra)."

The Hon'ble NGT in its order dated 05.04.2019 in O.A. 360/2015 in the matter of National Green Tribunal Bar Association & Anr.Vs. Union of India & Ors. inter-alia observed the following:

"*The 2016 Guidelines need revision in the light of the report of High Powered Committee in September 2016, failure of Monitoring mechanism followed by State Boards, SEIIAs, DEIAAs and MSS system developed by Ministry of Mines & IBM with the assistance of BISAG and MAITY and other observations quoted in paras 12 to 15 above.*

50. As noted earlier in paras 17, 23, 27, 31 and 35, States of West Bengal, Odisha, Gujarat, Karnataka, Maharashtra, Punjab, Haryana and Uttar

Pradesh are required to follow SSMG, 2016 as may be revised by MoEF&CC and even other States where illegal sand mining is taking place.

The States may review the monitoring mechanism in terms of several directions of the Tribunal and guidelines of MoEF&CC.

The international conservation concern regarding natural wealth is a universal demand. Article 51(a) subsection (G) of the constitution requires every citizen of India to protect and improve the natural environment including forest, lakes, rivers, wildlife and to have compassion for the living creature.

The Hon'ble Supreme Court in the case of M.C. Mehta Vs. Kamal Nath (1997) 1 SCC 388 held that under Article of Indian Constitution incorporates the "Public Trust Doctrine" and as such extents to the protection of all-natural resources which includes the protection of flora and fauna.

The Hon'ble Supreme Court in the case of Vellore Citizens Welfare Forum Vs. Union of India & Ors (1996) held that the precautionary principle is part of the Environmental Law in India. It further stated that onus of proof is on the actor of the developer/industrialize to show that its actions are environmentally benign."

3.0 OBJECTIVE OF GUIDLINES

- 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.
- Use of IT-enabled services & latest technologies for surveillance of the sand mining at each step.
- Reduction in demand & supply gaps.
- Setting up the procedure for replenishment study of Sand.
- Post Environmental Clearance Monitoring.
- Procedure for Environmental Audit.
- To control the instance of illegal mining.

4.0 REQUIREMENTS FOR MONITORING & ENFOCEMENT

Sustainable Sand Mining Management Guidelines (SSMMG) 2016 and past experience suggest that the source of sand in India are through

a) River (riverbed and flood plain),
b) Lakes and reservoirs,
c) Agricultural fields,
d) Coastal / marine sand,
e) Palaeo-channels and
f) Manufactured Sand (M-Sand).

The SSMMG-2016 highlights the identification of the sand mining sources, replenishment of the River Bed Material (Sand, Boulder, Gravel, Cobble etc.), preparation of Districts Survey Report, and Standard Environmental Conditions suitable for sand mining projects.

The necessary requirements to comply with the direction of Hon'ble NGT and to facilitate effective monitoring and enforcement of regulatory provision for sand mining in the country are as follows:

i) Identification of sand mining sources, its quantification and feasibility for mining considering various environmental (proximity of protected area, wetlands, creeks, forest etc.) and other factors such as important structures, places of archaeological importance, habitation, prohibited area etc.

ii) The mining lease auctioned by State government as per their Minor Mineral Concession Rules are granted of Letter of Intent (LoI), but it has been observed that many of the sites are not suitable w.r.t environmental aspects. In most of the cases, the unplanned grant of mining lease leads to formation of cluster and/or contiguous cluster

of small mining leases which sometimes is difficult to regulate and monitor. In order to address such issues, more emphasis is required on the preparation of District Survey Report and its format for reporting,

iii) Mining Plan is an important document to assist the mine owner to operate the mine in a scientific manner. States have their own format for preparation of mining plan and it is observed that recording of the initial level of mining lease at shorter interval say 25m X 25 m grid interval is not present.

iv) There is no practice for regular replenishment study to ascertain the rate of depositing, plan and section needs to be prepared based on the restrictions provided in letter of intent and provisions of Sustainable Sand Mining Management Guidelines 2016.

v) Environmental Clearance is a process wherein the regulatory authorities after considering the potential environment impact of mining clearance is granted with a set of specific & standard conditions to carry out mining operations, but often it is observed that letter of intent is granted for a location which has less potential for mining and not feasible for environment-friendly mining. This leads to an unnecessary financial burden on the mine owners and litigations. Thus, LoI should be preferably granted for those locations which have the least possibility of an impact on the environment and nearby habitation.

vi) It is the responsibility of the mine owner to obtain all the statutory clearance and comply with the conditions stipulated in the clearance letter. Mining should be carried out within the mining lease area as per

approved mining plan or mining plan concurred by other regulatory authorities.

vii) Mining operation also involves transportation of mineral from the mining area to end-user and its necessary that movement of the mineral needs to be monitored.

The State Government already have power under section 23c of MMDR, Act 1957 to make rules for preventing illegal mining, transportation and storage of minerals. However, there are instances of illegal mining which shows that there is a need for strengthening the system of mineral dispatch and its monitoring. This document provides good practices already under implementation by various states for regulating the mineral sale, dispatch, storage, transportation and use.

viii) 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. This document provides the procedure to be followed for conducting replenishment study.

ix) Even after all the regulatory procedure and policy being in place, there are instances where illegal mining is taking place. There is a need for regular surveillance of the sand mining reaches. The monitoring agencies can monitor the sites remotely by using Unmanned Artificial Vehicles (UAVs)/Drone which is now a viable option. The drone can also be used for reserves estimation, quantity estimation, land use monitoring. This document highlights possible use of IT/Satellite/Drone technology for effective monitoring of sand mining.

4.1 Identification of possible sand mining sources and preparation of District Survey Report (DSR)

4.1.1 Preparation of District Survey Report.

"Sustainable Sand Mining Guidelines, 2016" issued by MoEF&CC requires preparation of District Survey Report (DSR), which is an important initial step before grant of mining lease/LoI. The guidelines emphasize detailed procedure to be followed for the purpose of identification of areas of aggradation/ deposition where mining can be allowed and identification of areas of erosion and proximity to infrastructural structures and installation where mining should be prohibited. Calculation of annual rate of replenishment, allowing time for replenishment after mining, identification of ways of scientific and systematic mining; identifying measures for protection of environment and ecology and determining measures for protection of bank erosion, benchmark (BM) with respect to mean Sea Level (MSL) should be made essential in mining channel reaches (MCR) below which no mining shall be allowed.

The Hon'ble NGT in its Judgment dated 08.12.2017 in the matter of Anjani Kumar vs State of Uttar Pradesh & Ors. inter-alia mentioned the following regarding sand mining in the Uttar Pradesh.

> *"It states that the main object of preparation of District Survey Report is to ensure identification of areas of aggradation/deposition where mining can be allowed and identification of areas of erosion and proximity to infrastructural structures and installation where mining should be prohibited and calculation of annual rate of replenishment and allowing time for replenishment after mining area. Thus, the environmental protection requires a strictly regulated mining in terms of area, quantity as well as most importantly replenishment thereof."*

"The data collection and declared for preparation of DSR shall take precedence over other data and would form the foundation for providing mining lease in terms of Appendix- x to the Notification dated 15th January 2016 must be prepared by the statutory authority stated therein i.e. DEIAA prior to awarding of permits for carrying on mining activity in any part of the State of UP."

The Hon'ble High Court of Jharkhand at Ranchi in its orders dated the 11th April 2018 and 19th June 2018 in W.P. (PIL) No. 1806 of 2015, in the matter of Court on its Own Motion Versus the State of Jharkhand & Others with W.P. (PIL) No. 290 of 2013, in the matter of Hemant Kumar Shilkarwar Versus the State of Jharkhand & Others, has inter-alia directed the preparation of District Survey Report for minor minerals other than Sand and Bajri or delegation of the powers for preparation of format of District Survey Report of minor minerals other than sand and Bajri to the State Government and/or District Environment Impact Assessment Authority and District Expert Appraisal Committee. To comply with the direction of Hon'ble High Court the Ministry has issued S.O. 3611(E) dated 25.07.2018, wherein, the procedure of preparation of DSR is mentioned. But it is felt that still there is other information that needs to be reported in DSR to make it a comprehensive DSR.

Therefore, preparation of District Survey Report is a very important step and sustainable sand mining in any part of the country will depends on the quality of District Survey Report.

Considering the importance of district survey report, the Ministry of Environment Forest and climate change, after consultation with experts dealing with mining-related matters, formulated the following guidelines for the preparation of comprehensive District Survey Report for sand mining.

a) District Survey Report for sand mining shall be prepared before the auction/e-auction/grant of the mining lease/Letter of Intent (LoI) by Mining department or department dealing the mining activity in respective states.

b) The first step is to develop the inventory of the River Bed Material and Other sand sources in the District. In order to make the inventory of River Bed Material, a detailed survey of the district needs to be carried out, to identify the source of River Bed Material and alternative source of sand (M-Sand). The source will include rivers, de-siltation of reservoir/dams, Patta lands/Khatedari Land, M-sand etc.

The revenue department of Kerala already conducted river mapping and sand auditing of around 20 rivers of Kerala which is a good example wherein the profile of rivers was created at regular intervals and aggradation/deposition was identified along with water level. In the same study, benchmarks were also created at a prominent location at regular interval for future surveying. Such study helps the mining departments to identify the source of sand.

Thus, it is proposed that for preparation of district survey report, the auditing of rivers needs to be carried out. There is already a provision under MMDR Act 2015 for National Mineral Exploration Trust (MET) wherein a 2% of royalty amount to be deposited in the trust. This fund is used for mineral exploration in the country. The Sand Auditing is also a sort of identification of mineral and State Government may request Central Govt. for proving funds for river auditing. The Central Govt. (Ministry of Mines) may also explore the possibilities for providing the funds for river auditing. The other option is that State Govt. may conduct such studies by its own fund and the same may be recovered from the leaseholders to whom the mining lease will be allocated.

c) District Survey Report is to be prepared in such a way that it not only identifies the mineral-bearing area but also define the mining and no mining zones considering various environmental and social factors.

d) Identification of the source of Sand & M-Sand. The sources may be from Rivers, Lakes, Ponds, Dams, De-silting locations, Patta land/Khtedari lands. The details in case of Rivers such as [name, length of river, type (Perennial or Non-Perennial), Villages, Tehsil, District], in case of Lakes, Ponds, Dams, De-silting locations [Name, owned/maintained by (State Govt./PSU), area, Villages, Tehsil, District] in case of Patta land/Khtedari lands [Owner Name, Sy No, Area, Agricultural/Non-Agricultural, Villages, Tehsil, District], in case of M-Sand Plant [Owner Name, Sy No, Area, Quantity/Annum, Villages, Tehsil, District], needs to be recorded as per format given in **Annexure-I.**

e) Defining the sources of Sand/M-Sand in the district is the next step for identification of the potential area of deposition/aggradation wherein mining lease could be granted. Detailed survey needs to be carried out for quantification of minerals. The purpose of mining in the river bed is for channelization of rivers so as to avoid the possibility of flooding and to maintain the flow of the rivers. For this, the entire river stretch needs to be surveyed and original ground level (OGL) 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. Once the area of aggradation/deposition are identified, then the quantity of River Bed Material available needs to be calculated. The next step is channelization of the river bed and for this central ¾th part of the river, width needs to be identified on a map. Out of the ¾th part area, where there is a deposition/aggradation of the material needs to be identified. The remaining ¼th area needs to be kept as no mining zone for the

protection of banks. The specific gravity of the material also needs to be ascertained by analyzing the sample from a NABL accredited lab. Thus, the quantity of material available in metric ton needs to be calculated for mining and no mining zone.

Note: As physical survey with conventional method is time-consuming, use of unmanned aerial vehicle (UAV) may be explored to carry out the survey and finalizing the original ground level and for developing a 3D model of the area.

f) The permanent boundary pillars need to be erected after identification of an area of aggradation and deposition outside the bank of the river at a safe location for future surveying. The distance between boundary pillars on each side of the bank shall not be more than 100 meters.

g) Identifying the mining and no mining zone shall follow with defining the area of sensitivity by ascertaining the distance of the mining area from the protected area, forest, bridges, important structures, habitation etc. and based on the sensitivity the area needs to be defined in sensitive and non-sensitive area.

h) Demand and supply of the Riverbed Material through market survey needs to be carried out. In addition to this future demand for the next 5 years also needs to be considered.

i) It is suggested that as far as possible the sensitive areas should be avoided for mining, unless local safety condition arises. Such deviation shall be temporary & shall not be a permanent feature.

j) The final area selected for the mining should be then divided into mining lease as per the requirement of State Government. It is suggested the mining lease area should be so selected as to cover the entire deposition area. Dividing a large area of deposition/aggradation into smaller

mining leases should be avoided as it leads to loss of mineral and indirectly promote illegal mining.

k) Cluster situation shall be examined. A cluster is formed when one mining lease of homogenous mineral is within 500 meters of the other mining lease. In order to reduce the cluster formation mining lease size should be defined in such a way that distance between any two clusters preferably should not be less than 2.5 Km. Mining lease should be defined in such a way that the total area of the mining leases in a cluster should not be more than 10 Ha.

l) The number of a contiguous cluster needs to be ascertained. Contiguous cluster is formed when one cluster is at a distance of 2.5 Km from the other cluster.

m) The mining outside the riverbed on Patta land/Khatedari land be granted when there is possibility of replenishment of material. In case, there is no replenishment then mining lease shall only be granted when there is no riverbed mining possibility within 5 KM of the Patta land/Khatedari land. For government projects, mining could be allowed on Patta land/Khatedari land but the mining should only be done by the Government agency and material should not be used for sale in the open market. Cluster situation as mentioned in para k above is also applicable for the mining in Patta land/Khatedari land.

n) The State Government should define the transportation route from the mining lease considering the maximum production from the mines as at this stage the size of mining leases, their location, the quantity of mineral that can be mined safely etc. is available with the State Government. It is suggested that the transportation route should be selected in such a way that the movement of trucks/tippers/tractors from the villages having habitation should be avoided. The transportation route so

selected should be verified by the State Government for its carrying capacity.

o) Potential site for mining having its impact on the forest, protected area, habitation, bridges etc, shall be avoided. For this, a sub-divisional committee may be formed which after the site visit shall decide its suitability for mining. The list of mining lease after the recommendation of the Committee needs to be defined in the following format given in as **Annexure-II**. The Sub-Divisional Committee after the site visit shall make a recommendation on the site for its suitability of mining and also records the reason for selecting the mining lease in the Patta land. The details regarding cluster and contiguous cluster needs to be provided as in **Annexure-III**. The details of the transportation need to be provided as in **Annexure IV.**

p) **Public consultation-**The Comments of the various stakeholders may be sought on the list of mining lease to be auctioned. The State Government shall give an advertisement in the local and national newspaper for seeking comments of the general public on the list of mining lease included in the DSR. The DSR should be placed in the public domain for at least one month from the date of publication of the advertisement for obtaining comments of the general public. The comments so received shall be placed before the sub-divisional committee for active consideration. The final list of sand mining areas [leases to be granted on riverbed & Patta land/Khatedari land, de-siltation location (ponds/lakes/dams), M-Sand Plants (alternate source of sand)] after the public hearing needs to be defined in the final DSR in the format as per **Annexure-V.** The details regarding cluster and contiguous cluster needs to be provided in **Annexure-VI**. The details of the transportation need to be provided in **Annexure-VII.**

4.2 Grant of Letter of Intent to those mining leases which are falling in potential mining zone

The State Government shall issue letter of intent as per procedure laid down in their Minor Mineral Concession Rules with due consideration of final district survey report. The State Government shall ensure that all the letter of intent shall have complete details of the mining lease including geo-coordinate of the corner points, the involvement of forest land, distance from the forest land, distance from the protected area, distance from other sites of archaeological importance, details of the cluster situation etc. The demarcation of the boundaries of LoI/Lease area shall be placed in public domain along with LoI/lease deed details.

The LOI should not be granted for mining area falling on both riverbed and outside riverbed. Therefore, in the same lease, both types of area should not be included.

The authority responsible for grant of lease for sand mining shall ensure that annual audit of the sand mining process, production and compliance of the imposed conditions by regulatory authority (Environmental clearance or mine plan) shall be one of the essential condition of the lease agreement. The annual audit report shall be submitted to the district administration, which shall be put in public domain through the district website. Any deviation observed shall be appropriately and in-accordance with applicable law shall be dealt by the concerned authority and corrective measures shall also be taken to restoration of ecological/environmental damage, if observed.

4.3 Mining Plan

The preparation of Mining Plan is also very important. The mining plan should include the original ground level recorded at an interval not more than 10M x 10M along & across the length of the river. In addition to this-levels, outside the mining lease and bank of the river up to meters needs to be recorded. In the mining plan, there should be 3 plates for each year production & development planning (pre-monsoon, monsoon and post-monsoon). The time period of monsoon should be defined in the DSR. At the time of review of the mining plan, the details of the replenishment study conducted for all the years needs to be included in the mining plan. The Mining Plan should include the certificate from PCCF on forest land, distance from the protected area, past production details for mining leases seeking expansion.

Following considerations shall be kept in mind for sand/gravel mining while approving mining plan

a) Parts of the river reach that experience deposition or aggradation shall be identified. The Leaseholder/ Environmental Clearance holder may be allowed to extract the sand and gravel deposit in these locations to manage aggradation problem.

b) 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.

c) Sand and gravel may be extracted across the entire active channel during the dry season.

d) Abandoned stream channels on the terrace and inactive floodplains be preferred rather than active channels and their deltas and flood plains. The stream should not be diverted to form the inactive channel.

e) 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.

f) Sand and gravel shall not be allowed to be extracted where erosion may occur, such as at the concave bank.

g) Segments of the braided river system should be used preferably falling within the lateral migration area of the river regime that enhances the feasibility of sediment replenishment.

h) Sand and gravel shall not be extracted up to a distance of 1 kilometre (1 km) from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side.

i) The sediment sampling should include the bed material and bed material load before, during and after the 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 determining the allowable mining depth.

j) Sand and gravel could be extracted from the downstream of the sand bar at river bends. Retaining the upstream one to two-thirds of the bar and riparian vegetation is accepted as a method to promote channel stability.

k) The flood discharge capacity of the river could be maintained in areas where there is a 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.

l) 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 groundwater recharge. Mining in such areas should be preferred in locations selected away from the channel bank stretches.

m) Mining depth should be restricted to 3 meters and distance from the bank should be ¼th or river width and should not be less than 7.5 meters.

n) The borrow area should preferably be located on the riverside of the proposed embankment because they get silted in the 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 the case of the higher embankment, the distance should not be less than 50 m. In order to obviate the development of flow parallels to the embankment, crossbars of width eight times the depth of borrow pits spaced 50 to 60 meter center-to-center should be left in the borrow pits.

o) Demarcation of mining area with pillars and geo-referencing should be done prior to the start of mining.

p) A buffer distance /un-mined block of 50 meters after every block of 1000 meters over which mining is undertaken or at such distance as may be the directed/prescribed by the regulatory authority shall be maintained.

q) A buffer distance /unmined block of 50 meters after every block of 1000 meters over which mining is undertaken or at such distance as may be the directed/prescribed by the regulatory authority shall be maintained.

r) River bed sand mining shall be restricted within the central 3/4th width of the river/rivulet or 7.5 meters (inward) from river banks but up to 10% of the width of the river, as the case may be and decided by regulatory authority while granting environmental clearance in consultation with irrigation department. Regulating authority while regulating the zone of river bed mining shall ensure that the objective to minimize the effects of riverbank erosion and consequential channel migration are achieved to the extent possible. In general, the area for removal of minerals shall not exceed 60% of the mine lease area, and any deviation or relaxation in this regard shall be adequately supported by the scientific report.

s) Mining Plan for the mining leases(non-government) on agricultural fields/Patta land shall only be approved if there is a possibility of replenishment of the mineral or when there is no riverbed mining possibility within 5 KM of the Patta land/Khatedari land. For government projects mining could be allowed on Patta land/Khatedari land but the mining should only be done by the Government agency and material should not be used for sale in the open market.

The minerals reserve for river bed area is calculated on the basis of maximum depth of 3 meters and margins, width and other dimensions as mentioned in para (s) above. The area multiplied by depth gives the volume and volume multiplied with bulk density gives the quantity in Metric Ton. In case of river bed, mineable material per hectare area available for actual mining shall not exceed the maximum quantity of 60,000 MT per annum.

4.4 Obtaining Environmental & Other Statutory Clearance

The LOI Holder/Lease Holder to obtain Environmental and Other Statutory Clearances from the concerned authorities as per provision of applicable laws.

4.5 Baseline date before Commencement of Mining Operations

Baseline data in respect of the initial level of mining lease in the interval not more than 25 X 25 meters shall be collected for record by leaseholder. The level of river bed upstream and downstream up to 100 meters also needs to be recorded. The area outside the mining lease/river bank (if lease boundary coincides with mining lease) up to 100 meters from both the banks/mining lease needs to surveyed for initial level.

4.6 Additional measures where project proponent is selected by a bidding

In those states where sand plots are auctioned to the highest bidder, the following is suggested:

It has been observed that bidders try to form a cartel and bids are received for certain plots where legal mining is done, and bids for certain other plots don't elicit any response. Sand from these un-

auctioned plots is then excavated using the same machinery deployed for the excavation of adjacent plot which might have been auctioned off. It is not easily possible for the field machinery to prevent such illegal activities. This may be prevented by having plot of larger size. plots are large in size as possible are identified for auction. Care may be taken to ensure that no continuous stretch of plot in the river bed is divided for auction. A continuous stretch of plot shall be preferred for auction, and the attempt may not be made to auction it off in pieces.

5.0 REPLENISHMENT STUDY

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.

5.1 Generic Structure of Replenishment Study

Initially replenishment study requires four surveys. The first survey needs to be carried out in the month of April for recording the level of mining lease before the monsoon. The second survey is at the time of closing of mines for monsoon season. This survey will provide the quantity of the material excavated before the offset of monsoon. The third survey needs to be carried out after the monsoon to know the quantum of material deposited/replenished in the mining lease. The fourth survey at the end of March to know the quantity of material excavated during the financial year. For the subsequent years, there will be a requirement of only three surveys. The results of year-wise surveys help the state government to establish the replenishment rate of the river. Based on the replenishment rate future auction may be planned.

The replenishment period may vary on nature of the channel and season of deposition arising due to variation in the flow. Such period and season may vary on the geographical and precipitation characteristic of the region and requires to be defined by the local agencies preferable with the help of the Central Water Commission and Indian Meteorological Department. The excavation will, therefore, be limited to estimated replenishment estimated with consideration of other regulatory provisions.

5.2 Methodology for Replenishment Study

The replenishment estimation is based on a theoretical empirical formula with the estimation of bedload transport comprising of analytical models to calculate the replenishment estimation. The iso-pluvial maps of IMD can be used for estimation of rainfall. Catchment yield is computed using different standard empirical formulas relevant to the geographical and channel attributes. eg. Strange's Monsoon runoff curves for runoff coefficient). Peak flood discharge for the study area can be calculated by using Dickens, Jarvis and Rational formula at 25, 50 and 100 years return period. The estimation of bed load transport using Ackers and White Equation or similar can be made. A simulation model is used with basic data generated from the field in the pre-study and post-study period (preferably pre-monsoon and post-monsoon) to estimate the volume of replenished material. The particle size distribution and bulk density of the deposited material are required to be assessed from a NABL recognized laboratory. Considering the bulk density and the volume, the estimation of replenishment in weight will be calculated after considering safeguards and stability of the slopes and riverine regime. Some of the common methods used for field data acquisition for replenishment study

5.2.1. Physical survey of the field by the conventional method

i. The conventional survey technical using DGPS and other survey tools are used to define the topography, contours and offsets of the lease area. The survey should clearly depict the important attributes of the stretch of the river and its nearby important civil and other feature of importance. Such information will provide the eligible spatial area for mining. The contour and the elevation benchmarks will provide the baseline data for assessing the pre and post-study period scenario.

ii. Physical benchmarks are to be fixed at appropriate intervals (preferable 1 in 30 m) and the Reduced Level (RL) shall be validated from a nearby standard RL. These RL should be engraved on a steel plate (Bench Plate) and shall be fixed and placed at locations which are free from any damages and are available in pre and post-study period. The bench plates shall be available for use during the mining period as reference for all mining activity. Reference pillar may also be used in place of Bench Plates with visible and readable demarcation on the ground as common reference points to control the topographic survey and mining activity.

iii Baseline data on elevation status for a grid of 10 m x 10 m is preferred to have accuracy in the assessment. It is expected that two consecutive cross-sections in longitudinal and lateral direction should not be more than 10-meter distance apart, however, the regulatory authority may fix these intervals depending on the geographical and site-specific conditions, only and after providing the scientific reason for such deviation.

iv The changes observed in the elevation in per and post scenario at each node should be depicted in graphical forms with an appropriate scale to estimate the area of deposition and erosion. These graphical

presentations should depict the active channel regime and the flow bed elevation with other important features required to be considered for estimation of the mining area. The area of deposition and erosion shall be calculated for each cross-section after giving due regard to the stability and safety of active channel banks, and other features of importance. The elevation level shall be in reference to the nearest bench-plates established for the purpose.

v The levels (MSL & RL) of the corner point of each grid should be identifiable and safety barriers (Non-Mining) demarcated as restricted in consensus with Mineral Concession Rules of respective State, and the provision mentioned in this Sustainable Sand Mining Management Guidelines.

vi A clear identification is required to be highlighted between grids under mineable and grids under the non-mineable area. These baseline data (pre and post) be subjected to stimulation with the help of data mine software to derive at the replenishment area and corresponding volume and estimated weight.

vii The database should be structured in a tabulated form clearly depicting the nomenclature of the section lines, latitude and longitude of the starting point, chain-age and respective levels of all the points taken on that section line.

viii Net area shall be derived after the summation of the area of deposition minus area of erosion for each cross-section. The volume will be estimated by multiplying the distance between two cross-sections with the average of net area of these two consecutive cross-sections.

ix One sample per 900 square meters (30 m x 30 m) shall be preferred sample density for assessment of bulk density for estimation of deposition rate. Care should be taken that the sample for assessment

of bulk density is taken from the deposition zone and not from erosion. However, depending on the site condition, river morphology and geographical condition, sample density may be adjusted. Reason for such deviation shall be appropriately highlighted in the report with supporting scientific data.

5.2.2. Use of UAV/Drone and other image data processing techniques

With the development in image data processing tools and its accuracy acceptability, Drone/UAV fitted with the advance camera are used for survey purposes. Such technology has promising potential in the survey of sand mining zones due to its fast and reliable output deliveries. The survey is conducted using a set of instruments and compatible software to utilized the properly referenced data for depicting the topography of the study area. Instrument calibration and software compatibility and its validation with the ground data are an essential requirement for using this technique.

The details of the instruments their limitation and software used shall be demonstrated in the form of the accuracy assessment report, through a chapter in the replenishment study report. Other details to be incorporated in the report with regard to the study using such imaginary techniques shall highlight the followings:

a) **Flight Planning:** - The lease co-ordinates and the flight plan devised to capture the front and side overlap percentages for in each flight in reference to global coordinates (Kml or SHP file) system. The software used for the purpose and its details along with limitations with basic analytical assumptions.

b) **Block file generation:** - This operation concerns the selection of the sensor model and the definition of block properties, the addition of

imagery to the block file, marking of GCPs, generation of tie points and refining of the model.

c) **Interior orientation:** - The interior orientation of the stereo pair rational polynomial coefficients (RPC) used, which should be bundled with the scenes. RPCs are coefficient, which is used by photogrammetric software to represent the ground to-image viewing geometry.

d) **Exterior orientation:** For exterior orientation, ground control points shall be used, which are collected from the DGPS survey.

e) **Aero Triangulation:** - A critical phase in photogrammetric mapping is to rectify the satellite imagery at an appropriate tract on the surface of the earth. This is accomplished by collecting horizontal and vertical data [GCP's] to ascertain the spatial location of a number of features that are visible and measurable on the aerial images – this process is often called control bridging, which refers to passing horizontal and vertical information from one aerial image to the next.

f) **Ortho Generation:** - After running the above steps; the software shall automatically generate orthorectified imagery.

g) **DTM extraction:** For extraction of DTM, Generated point cloud data classified manually to extract bare earth.

5.2.3 Accuracy Assessment of Aerial Data:

To check the accuracy of DTM generated by Aerial data, few points are selected and compared with on-site by using DGPS instrument for the ground-truthing purpose. It is preferred to do ground-truthing at minimum 5 locations spread evenly across the lease area. The readings from the DGPS instrument are then compared with the Drone data for accuracy assessment

purpose. A comparative chart will be prepared in comparison of Data related to ground-truthing (by DGPS) and from Drone. Such accuracy assessment report shall a chapter of the replenishment study.

5.2.4 Replenishment study shall have the details of

- List of instruments
- List of software
- Establishment of Benchmark by putting No. of pillar points and various Ground Control Points (GCP) at the site.
- Ground Control Points (GCP) Collection: - Various GCPs were observed by using DGPS for Permanent Benchmarks and for control points.
- The summary of the elevation data from each section's profile based on the post-monsoon the survey should have mentioned in the table form.
- The detail of post-monsoon survey data in the tabular form shall be
- The detailed comparison of both pre-monsoon and post-monsoon elevation data shall be attached
- Cross-sectional depiction of deposition and erosion for each section in pre and post-deposition season shall be given supported by relevant field study data and plan.

6.0 ENFORCEMENT

6.1 Mining Operation:

The mining operations should be strictly carried out in accordance with the approved mining plan and after complying with all the conditions stipulated in Environmental & Other Statutory Clearance. Mine owner shall follow the operational procedure (for sale, dispatch, storage, reserve reconciliation and transportation) as may be defined by the concerned state government in its monitoring guidelines. Mine owner should comply with the recommendation and suggestion made by the High Power Committee as applicable.

6.2 Post Environment Clearnace Monitoring:

It's the responsibility of the EC Holder to comply with the Environmental Clearance conditions and upload the six-monthly EC compliance report on the website of the Ministry. For the category, 'A' mines (>100 Ha individual & cluster) Regional Office of the MoEF&CC are entrusted to carry out EC Monitoring and for the Category 'B' Mines by SEIAA. The monitoring shall be carried out as per the procedure/schedule suggested by MoEF&CC from time to time. MOEF&CC vide its notification S.O. 637(E) dated 28.02.2014 has delegated the power to State/Union Territory Environmental Impact Assessment Authority to issue show cause notice to project proponent in case of violation of Conditions of Environmental Clearance issued by the said authority and to issue direction for keeping the said EC in abeyance or withdrawing it. Thus, for category 'B' (0 to 100 Ha) projects SEIAAs are responsible for EC monitoring.

6.3 Environment Audit:

The Hon'ble NGT in its order dated 04.09.2018 in O.A. 173/2018 in the matter of Sudarsan Das vs. State of West Bengal & Ors. Inter-alia directed

that "*One of the conditions of every lease of mine or minerals would be that there will be independent environmental audit at least once in a year by reputed third party entity and report of such audit be placed in the public domain. In the course of such an environmental audit, a three-member committee of the local inhabitants will also be associated. Composition of three member's committee may preferably include ex-servicemen, a former teacher and former civil servant. The Committee will be nominated by the District Magistrate.*

The gazette notification on environmental audit has been issued by the Ministry of Environment and Forests on March 13, 1992 (amended vide notification GSR 386 (E) dated April 22, 1993). This notification applies to every person carrying on an industry, operation or process requiring consent to operate under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) or under section 21 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981), or both, or authorization under the Hazardous Waste (Management and Handling) Rules, 1989, issued under the Environment (Protection) Act, 1986 (29 of 1986). The notification requires that an Environmental Statement for the financial year ending the 31st March be submitted to the concerned State Pollution Control Board, on or before the 30th September of the same year.

It is suggested that NABET Accredited consultant may be engaged for Environment Audit and during the course of the audit, a three-member committee nominated by District Magistrate shall be associated.

6.4 Monitoring of Sale & Purchase of Sand:

6.4.1 In order to curb illegal mining it is very necessary that the general public is aware of the legal source of sand and RBM suppliers. The Ministry of Mines issued ***Sand Mining Framework 2018*** wherein it has proposed two mechanisms for the online sale of sand depending on whether there is a free market for sand in the State or the prices are regulated by the Government.

Para 1.2.12.2 Under the market model

In the case of the market model, all the lessees/ certified dealers in the State should register themselves on the online portal/ mobile app. For registering, the lessee/ certified dealer will have to enter the details of its concession/ stockyard, location, the quantity of sand expected on a weekly basis, as per the approved mining plan. Once registered, the online portal/ app will display the name of the reach/ stockyard and sand could be booked by the consumer from those leases/ stockyards and prices up to the delivery level. Further, the lessee/ certified dealer needs to regularly update the sand available in the reach/ stockyard, and they can decide the price at which they want to sell their sand. Anyone who wishes to purchase sand in the State will have the following options for buying:

1. *Mobile app*
2. *Online portal*
3. *Customer care/ telephone call*
4. *Licensed traders*

The consumer needs to register on the portal and log in using his/her credentials (Aadhar card based only). After logging in, the portal will display the entire list of reaches/ stockyards along with the quantity of sand available in those reaches/ stockyards and the quality and price of

sand. The consumer can filter/ sort the reaches/ stockyards based on such parameters as location, quality and price, and book from the lease/ stockyard he/she wishes to. The consumer should also have the option to purchase the sand by ordering at customer care. Also, stockyards should be made around all the major consumption hubs in the State based on their estimated demand.

Para 1.2.12.3 Controlled market prices

In case the prices are regulated by the State Government, the only difference from the previous model is that the price of sand at the river reach/ stockyard shall be uniform across the State/ district based on the quality and transportation lead. A consumer after logging in may choose the reach/ stockyard from which he/she wishes to purchase the sand. The payment for booking the sand in both the cases should be made on the portal/ app so that proper accounting of the sale of sand can be maintained by the Government. Also, stockyards should be made around all the major consumption hubs in the State based on their estimated demand.

It is suggested that the State Government should develop an online portal for sale and purchase of Sand & RBM. In addition to this State Government shall decide on the model viz. *Under market model or Controlled market prices or both* to be adopted for their respective States. The State Government shall accordingly modify their Minor Mineral Concession Rules within 6 months of publication of these guidelines. It is suggested that the controlled price model is more effective in controlling illegal sand mining. Because if the State Government is the only agency to provide the sand in the State, then price and supply of sand can be controlled more effectively. There will be no confusion in the consumers about legality of the purchase as the only source of sand provider is the State Government through its network of registered stockiest, retailers and transporters. The consumers

can fill the online request, pay the amount, select the transporter and give its feedback after the receipt of the sand. The transportation can also be controlled as the tippers used for transportation is registered tippers with GPS facility, the transportation route is well defined for easy monitoring, control over overloading of tippers, control over spillage of mineral etc. The State Govt. shall also make provision for penalizing the persons/agency buying the sand and RBM from the illegal sources.

6.4.2 The Ministry of Mines in its Sand Mining Framework also mentioned the following different level of monitoring:

Para 1.2.13.1 Level 1- Reach/ Stockyard level monitoring

For monitoring of the active reaches:

a. *Quantity of sand to be extracted from the reach should be based on the quantity of sand assessed in the reach by the Joint Inspection Team.*

b. *The lease boundary should be demarcated with geo-coordinates or geo-fenced to ensure that sand extraction is going on only within the permitted area.*

c. *De-casting from river beds should be monitored on a regular basis to keep a track of excavated quantity.*

d. *After every two years, a mandatory audit of the quantity extracted and quantity permitted along with the replenishment rate.*

e. *Mandatory e-pass/ e-permit should be made available at reach level for transportation of any sand by any GPS enabled vehicle with the provision of entering the vehicle number of the sand carrying vehicle and expected delivery address and customer name/ mobile number. Also, provision should be made available for stockyards/ stockiest of sand. In the case of*

nomination based (controlled pricing) business model, the margin of private stockist should be capped over a fixed percentage of notified prices.

f. At the stockyard, the stock supervisor should verify the authenticity of online payment receipt before issuing the transit pass. The loading of sand should be monitored electronically and all transporting vehicles should pass through an electronically monitored weighbridge. g. Real-time data capture for transportation

Para 1.2.13.2 Level 2 - Transportation monitoring

To make transportation monitoring effective and useful, all the sand carrying vehicles (tractors/ trucks) should be registered with the department and GPS equipment should be installed in all the sand carrying vehicles. Weighbridges with CCTV should be installed at all the stockyards, active reaches to ascertain the exact quantity of sand being transported in the vehicle. Check posts with CCTV cameras should be established near all major consumption centres to check if all the transporting vehicles are carrying a valid transport permit. The transport permit generated should contain the security features mentioned under section 5.11 so that one permit cannot be re-used by generating photocopies of the permit.

Para 1.2.13.3 Level 3 - End consumer monitoring/ bulk consumer

For end consumer monitoring, a customer grievance redressal center should be established to enquire about the grievances faced by the sand consumers. The telephone number of the call center should be advertised so that it reaches the general public through which anyone in the State can register his/her complain related to the sand, be it in terms of price or any other grievance. Additionally, profiles of customers should be analyzed such as the delivery of sand at the same address, usage pattern and its comparison with the estimated usage, as mentioned in purpose, etc. Further, surprise checking

should be conducted by the district level committee staff as per instructions of the monitoring agency.

Para 1.2.13.4 Level 4 - Indirect monitoring

Indirect monitoring can be done by determining sand consumption through the quantum of cement sales in the State, as the sale of cement is quite organized and data is easily available at the State level and district levels for the same. From district-wise cement consumption, the further trend of sand consumption can be derived. Any anomalies in the sand consumption/demand can be analyzed further.

Note: *The above monitoring mechanism is just a suggestion and the States may visit Andhra Pradesh and Telangana to study the monitoring mechanism in greater detail.*

It is suggested that State Government may consult with concern department of State of Telangana and Tamil Nadu to have better understanding on their experience and knowledge in adopting best sand mining enforcement provisions and monitoring practices and frame their own regulatory regime and monitoring framework. The framework of monitoring should essential include online sale & purchase of River Bed Material/ Auction of leases, Sand from rivers and other sources, online monitoring of excavation, storage and transportation of mineral for control of illegal mining.

The respective State Governments shall develop the online Sale & Purchase System after defining the model viz. Under market model or Controlled market prices model. The level of monitoring needs to be defined and guidelines need to be finalized by the respective State Governments as per their requirement with due consideration of suggestive guideline in this document. These all measure will help in curbing illegal mining.

7.0 Recommendations of High Power Committee:

A high power committee (HPC) was constituted by Hon'ble National Green Tribunal to assess the status of illegal mining the stretch of River Yamuna, under the chairmanship of Secretary, Ministry of Environment Forest & Climate Change. The committee after exhaustive field survey and interaction with stakeholders and having surprise visits submitted a comprehensive report on river sand mining along with certain recommendations on enforcement requirements and monitoring essentials. The same is provided in the following section for consideration of monitoring / regulatory authority to adopt applicable provisions in their monitoring framework and also to ensure that the infrastructural requirements recommended by the HPC are put in use at all locations including the lease area.

7.1 Recommendations of High Power Committee (HPC)

The following recommendation of the High Power Committee shall be considered while framing the monitoring mechanism by the State Government.

i. Project Proponent must ensure that following security features are included in the Transport Permission/Permits (TP) so that duplicate/fraudulent/forged TPs for transport, not accounted for in the IT-based system, is not possible.:

(a) Printed on Indian Bank Association (IBA) approved
(b) Magnetic Ink Character Recognition Code (MICR) paper;
(c) Unique Barcode;
(d) Unique Quick Response Code (QR);
(e) Fugitive Ink Background;
(f) Invisible Ink Mark;
(g) Void Pantograph;
(h) Watermark.

ii. Project Proponent must ensure that CCTV camera, Personal Computer (PC) or laptop, Internet Connection, Power Back up, access control of mine lease site; and arrangement for weight or approximation of weight of mined out mineral on basis of volume of the trailer of vehicle used at mine lease site are available.

iii. The PP has to enter the destination, distance between plot and destination, vehicle number etc in the system. After scanning, unique bar code number, invoice date time and validity date-time are generated by the software which gets printed individually on each TP Validity of TP is calculated based on the distance between plot and destination. After validity time is over the TP stands invalid.

iv. The officers involved in monitoring should be provided with mobile application and/or bar code scanners using which the TP can be checked anywhere on road. As soon as the bar or QR code on TP gets scanned through using the mobile application and/or scanner or vehicle number is entered into the application or sent by SMS to a predefined number, all details of TP such as plot details, vehicle details, validity time, etc. should be fetched from the server. This means if anything is re-written on TP and attempt is made to reuse the same, it can be traced immediately. Various reports can be generated using the system showing daily lifting reports and user performance report. This way the vehicles carrying sand can be tracked from source to destination.

v. The facility to fetch details using mobile app, website and SMS may be made available to the general public as well. However, they shall not be allowed to stop the vehicles to check the transportation. The only option that they should have is to check vehicle numbers of the passing vehicle in the mobile app or SMS for the validity of the pass. The only result that should be available to them should be if the vehicle carrying sand has a

valid permit at the relevant point of time or not. If the citizen finds that the vehicle doesn't have such a permit, as ascertained from mobile app or website or SMS, he should alert local authorities, who shall then take further action as per the law.

vi. In case, the vehicle break-down, the validity of Transport Permit or Receipt shall be extended by sending SMS by the driver in specific format to report the breakdown of the vehicle. The server will register this information and register the breakdown. The State can also establish a call center, which can register breakdowns of such vehicles and extend the validity period. The subsequent restart of the vehicle also should be similarly reported to the server/call center.

vii. The route of the vehicle from source to destination shall be tracked through the system using checkpoints, Radio-frequency identification (RFID) tags, and Global Positioning System (GPS) tracking.

viii. The system shall enable the Authorities to develop a periodic report on different parameters like daily lifting report, vehicle log/ history, lifting against allocation, and total lifting. The system can be used to generate auto mails/SMS. This will enable the District Collector / Magistrate and other authorities to get all the relevant details and will enable the authority to block the scanning facility of any site found to be indulged in irregularity. Whenever any authority intercepts any vehicle transporting illegal sand, it shall get registered on the server and shall be mandatory for the officer to fill in the report on action taken. Every intercepted vehicle should be tracked.

ix. It is necessary to prevent any truck/vehicle from transporting sand out of the identified plot bypassing the strong IT enabled system. Therefore, at each of the sand plot, the following additional measures should be taken.

(a) There shall be one entry and exit point provided for trucks/vehicles. The said entry point should have facilities as mentioned above. In case, it is necessary to have more than one entry/exit points, all such points shall have checkpoints with facilities as mentioned above. All other possible ways of entry/exit should be closed using barriers like compound, trench, etc. All provisions shall be made to not make it possible for any vehicle to enter or exit without entry into the computerized system.

(b) All such points should have 24X7 CCTV coverage, the footage of which should be made available online to the district administration. In cases, where sufficient internet bandwidth is not available, it may be deposited with the district administration on a weekly basis. If possible, the entry/exit points should have boom barriers which will record the vehicles entering and exiting the plot.

8.0 GENERAL APPROACH TO SUSTAINABLE SAND MINING

8.1 Pre-requisite for starting sand mining operation

i) All district to prepare a comprehensive mining plan for the district as per the provision of District Survey Report. These reports shall be put on the website of District Administration. No mining shall be allowed in the area which has not been identified in the comprehensive mining plan of the District.

ii) Replenishment study should be conducted on regular basis.

iii) All potential rivers mining zone/area shall be identified and put for auction with proper geo-tagged details by the auctioning authority concerned.

iv) The latitude and longitude of each mining lease shall be clearly mentioned in Letter of Intent issued to the potential mine lease. Such information shall be provided on the website of the district administration.

v) The provision of these guidelines shall be considered while identifying the potential stretches /locations and boundaries of the leases for the minable area.

vi) The LoI holder shall seek Environmental Clearance as per the provision of EIA Notification, and the regulatory authority shall ensure that the provision suggested in "Sustainable Sand Mining & Management 2016" and in this documents, as applicable are part of the clearance conditions.

vii) There shall be no river bed mining operation allowed in monsoon

period. The period as defined by IMD Nagpur for each state shall be adhered with.

viii) The monitoring infrastructures including weighbridge and adequate fencing of the lease area, CCTV, Transport permits, etc, as suggested in this document shall be ensured in order to reduce unrecorded dispatch.

ix) Regular monitoring of mined minerals and its transportation and storage shall be ensured and all information shall be captured at centralized database so that easy tracking of illegal material can be done.

x) Annual audit of each mining lease shall be carried out wherein three independent member of repute, nominated by District administration shall also participate.

8.2 Mining of Sand from Agricultural Fields

This practice is prevalent in Haryana; to ensure that mining from outside doesn't affect rivers, no mining is permitted in an area up to a width of 100 meters from the active edge of embankments or distance prescribed by Irrigation department whichever is critical. The top layer of soil varying between 1 and 2 meters is removed and stacked separately and thereafter the sand deposit which maybe 10-15 meter deep is mined. After removing the sand layer up to a maximum depth of 09 meters or the maximum mineable minerals, as permitted by competent authority. The topsoil stacked is spread out on the field and the same is brought under the cultivation. Though the level of this land (mined out area) is lowered to the depth of the excavation and in initial years of cultivation the productivity is low, but the productivity of the fields improves with continued cultivation and addition of organic manure in the field. In Haryana, some leases are of large area

(ranging from 1000 hectare to 2000 hectare) and agricultural fields and river bed both are included in the same lease for mining.

The following recommendations should be kept in mind for mining in such leases:

1. Mining of sand in such mine leases will require environment clearance.
2. The lease should be of sand mining either from the agricultural field or river. In the same lease, both types of area should not be included.
3. The sand mining from the agricultural field is being done in Haryana for a long time and it can be done in a more sustainable manner without adverse impact on agricultural productivity if proper environmental safeguards are taken.
4. The slope of mining area adjacent to agricultural fields should be proper (preferably 45 degree) and adequate gap (minimum 10 feet) be left from adjacent agricultural field to avoid erosion and scouring.

The provision for sand mining in agricultural field may be permitted, whenever replenishment of sand occurs due to natural phenomena.

Permission may also be granted by competent authority (District administration) for excavation of sand/Soil from agricultural fields, after due diligence of this prevailing condition in order to avoid any unacceptable impact on the environment and nearby livelihood from agriculture provided such objective of such excavation mining of Soil/Sand in limited increase the productivity of sand agricultural field.

9.0 MONITORING MECHANISM

9.1 Illegal Mining

The Hon'ble Supreme Court in its Judgment dated 2.08.2017 in W.P 114 of 2014 in the matter of Common Cause Vs Union of India & Ors, inter-alia passed the following:

Para 128. *The simple reason for not accepting this interpretation is that Rule 2(ii-a) of the MCR was inserted by a notification dated 26th July 2012 while we are concerned with an earlier period. That apart, as mentioned above, the holder of a mining lease is required to adhere to the terms of the mining scheme, the mining plan and the mining lease as well as the statutes such as the EPA, the FCA, the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981. If any mining operation is conducted in violation of any of these requirements, then that mining operation is illegal or unlawful. Any extraction of a mineral through an illegal or unlawful mining operation would become illegally or unlawfully extracted mineral."*

In view of above Judgement, any mining activities which are not governed under the provision of Environment (Protection) Act, 1985, The Water (Prevention & Control of Pollution Act, 1974, The Air (Prevention & Control of Pollution) Act, 1981, Forest Conservation Act-1980, Wildlife Protection Act - 1972, shall be considered as illegal mining within the provision of section 21(5) of Mines and Minerals (Development & Regulation) Act, 1957 (MMDR Act) and the concerned authority shall take necessary action within the provision of MMDR Act.

As per the provision of 23(C) of MMDR Act, the State Government is empowered to make rules for preventing illegal mining, and transportation

& storage of Illegal minerals. All such mining which qualifies under illegal, shall be dealt with in the provision of MMDR Act by the concern authorities.

State Pollution Control Board (SPCB) is the nodal authority in the State for dealing with cases related to pollution or environment management coming under the purview of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981 and the Environment Protection Act 1986. SPCB shall initiate appropriate action under the provision of these acts for non-compliance of violation of the provisions.

9.2 Environmental Damage due to illegal mining

The environmental damages incurred or resulting due to illegal mining shall be assessed by a committee constituted by District Administration having expertise from relevant fields, and also having independent representation of locals and State Pollution Control Board. Guidelines for assessment of ecological damages prescribed by the State Government or Concerned Pollution Control Boards or any other authority shall be applicable and compensation as fixed shall be paid by the project proponent, in light of Hon'ble National Green Tribunal orders.

9.3 Monitoring of Mining near Inter-district or inter-state boundary

There are situations where bifurcated river becomes district boundaries or state boundaries in such situation it is difficult to assess the mining potential, or to have close monitoring and enforcement of the regulatory provision. Such challenges have been identified and dealt with in SSMG-2016. However, in the absence of any standardized procedure, the monitoring has not been effectively practiced. This has been highlighted by the High Power Committee constituted by NGT in the matter pertaining to illegal mining.

The districts/state sharing the boundary shall constitute the combined task force for monitoring of mined materials, mining activity and also should actively participate in the preparation of DSR by providing appropriate inputs. In such cases, the draft DSR so prepared shall be put up for public consultation in both the districts through respective district administration website.

The task force shall meet every quarter to reconcile the data collected during the period and identify any gap/ lapses based on the outcome of such meeting. The respective district shall take action/ corrective measures. Effort shall be made for real-time data sharing between both the district.

The task –force shall include essentially the representative of respective districts from the mining department, transport department, regional office of SPCB concerned and a reputed citizen nominated by district administration. The Taskforce shall be headed by officer not less than ADM rank and quarterly outcome shall be submitted to District administration.

In addition to the above, there is a need for strict surveillance, particularly at night. The State of Gujarat has already initiated a program called '*Trinetra*' for night surveillance by using night-vision drones to control illegal mining incidents. This program is giving satisfactory results. Such type of system may also be developed by each State within a reasonable time.

A typical standard operating procedure for assessing illegal mining by the committee constituted shall, but not limited to, include the steps given in the following table. However, the process of assessing can be modified based on site-specific conditions and any deviation shall be recorded in the report with proper justification.

Suggestive standard Practice for assessing illegal mining

Step 1	The assessment team should collect the information and documents prescribed in the Pre-Requisite section.
Step 2	The assessment team should verify the applicability/validity of statutes under EPA-1986, Air and Water Act, MMDR 1957, State Mines and Mineral Rules, etc.
Step 3	Field visit should be conducted for identification of mining lease area (in hectare) and boundary pillar constructed to indicate the same.
Step 4	With the help of GPS instrument, the team should assess the area where any extraction or mining have been carried out on the day of visit and calculate the mined-out area in a hectare.
Step 5	If available, the team may avail the use of latest satellite images for calculating the total mined out area.
Step 6	The team should verify the Ground / Surface Level (in meter above MSL) of at least 04 highest points in or around the area where mining has been done. The Ground/surface level will then be computed based on averaging of 04 highest points verified by the team.
Step 7	With the help of Depth Measurement kit or any depth measuring instruments, the depth should be measured for at least 04 points in the mined-out area. For computing, the depth, averaging of the value obtained at 04 points should be done.
Step 8	Verification of compliance conditions of Environmental Clearance and Consent to operate, mining methodology under Mining Plan
Step 9	Identification of vulnerable impacts observed on the field and non-compliance of conditions of Environmental Clearance and Consent to Operate.

Step 10	Field Survey for identification, monitoring and verification of ecological species based on the information available and documents mentioned in the Pre-requisite section.
Step 11	Preparation of inventory of machinery used/observed on the field (optional)
Step 12	Preparation of inventory of hydraulic structures observed on the field (optional)
Step 13	Water sampling for assessment of water quality including physical and biological parameters. (optional)
Step 14	Reconciliation collation of data/information and compilation to maintain violation.
Step 15	Identification of restoration plan and computation of cost of the restoration plan.

9.4 Monitoring Mechanism

A uniform monitoring mechanism is required to assess the regulatory provision in quantitative terms, with robust institutional and legal framework. Based on past experience and suggestions available, the following requirements are suggested for defining a mechanism for monitoring of mining activities which will help in identification of mining which is operating either illegally or are violating the regulatory provisions. Some suggestion will facilitate direct or indirect information to help in such an assessment.

1. All precaution shall be taken to ensure that the water stream flows unhindered and process of Natural river meandering doesn't get affected due to mining activity.

2. River mining from outside shall not affect rivers, no mining shall be permitted in an area up to a width of 100 meters from the active edge of embankments or distance prescribed by the Irrigation department.

3. The mining from the area outside river bed shall be permitted subject to the condition that a safety margin of two meters (2 m) shall be maintained above the groundwater table while undertaking mining and no mining operation shall be permissible below this level unless specific permission is obtained from the Competent Authority. Further, the mining should not exceed nine-meter (9 m) at any point in time.

4. Survey shall be carried out for identifying the stretches having habitation of freshwater turtles or turtle nesting zones. Similarly, stretches shall be identified for other species of significant importance to the river eco-system. Such stretch with adequate buffer distance shall be declared as no-mining zone and no mining shall be permitted. The regulatory authority as defined for granting Environmental Clearance, while considering the application of issuance of ToR and/or EC for the adjacent block (to non-mining zone) of mining shall take due precaution and impose requisite conditions to safeguard the interest of such species of importance.

5. District administration shall provide detailed information on its website about the sand mines in its district for public information, with an objective to extend all information in public domain so that the citizens are aware of the mining activities and can also report to the district administration on any deviation observed. Appropriate feedback and its redressal mechanism shall also be made operational. The details shall include, but not limited to, lease area, geo-coordinates of lease area and mineable area, transport routes, permitted capacity, regulatory conditions for operation including mining, environmental and social commitments etc.

6. A website needs to be maintain to track the movement of centralised sand mining and a Centralised server system should be made to manage the data related to sand mining across India.

7. The mineral concession holders shall maintain electronic weighbridges at the appropriate location identified by the district mining officer, in order to ensure that all mined minerals from that particular mine are accounted for before the material is dispatched from the mine. The weighing bridge shall have the provision of CCTV camera and all dispatch from the mine shall be accounted for.

8. The mineral movement shall be monitored and controlled through the use of transit permit with security features like printing on IBA approved MICR papers, Unique bar/QR, fugitive ink background, invisible ink mark, void pantographs and watermarks papers or through use of RFID tagged transit permits and IT /IT-enabled services. Such monitoring system shall be created and made operationalised by State Mining department and district level mining officer shall be responsible for ensuring that all legal and operational mines are connected and providing the requisite information on the system. Regular check and associated report shall be submitted to DLTF and uploaded on the website.

9. State Government shall constitute a District Level Task Force (DLTF) under the Chairmanship of Deputy Commissioner/District Magistrate/Collector with Superintendents of Police and other related senior functionaries (District Forest Officer, District transport officer, Regional officer- SPCBs, Senior Officer of Irrigation Department, District Mining Officer) with one/two independent member nominated by the Commissioner concerned. The independent member shall be retired government officials/teacher or ex-serviceman or ex-judiciary member.

The DLTF shall keep regular watch over the mining activities and movement of minerals in the district. The DLTF shall have its regular meeting, preferably every month to reconcile the information from the mining activity, and other observations made during the month and take appropriate corrective and remedial action, which may include a recommendation for revoking mining lease or environmental clearance. The DLTF may constitute an independent committee of the expert to assess the environmental or ecological damage caused due to illegal mining and recommend recovery of environmental compensation from the miner's concern. The recommendation may also include action under the provision of E(P) Act, 1986.

10. The area not identified for mining due to restriction or otherwise are also to be monitored on a regular basis by the DLTF. Any observations of mining activity from the restricted area shall be reported and corrective measures shall be initiated on an urgent basis by the DLTF.

11. The dispatch routes shall be defined in the Environmental Clearance and shall be avoided through densely habituated area and the increase in the number of vehicle movement on the road shall be in agreement with the IRC guidelines / carrying capacity of the road. The alternate and dedicated route shall be explored and preferred for movement of mining to avoid inconvenience to the local habitat. The mining production capacity, by volume/weight, shall be governed by total permissible dispatch calculated based on the carrying capacity of dispatch link roads and accordingly, the production should be regulated.

12. The movement of minerals shall be reconciled with the data collected from the mines and various Naka/check posts. Other measures may also include a general survey of the potential mineable area in the district

which has not been leased/auctioned or permitted for mining due to regulatory or other reasons.

13. The location and number of check post requirement shall be reviewed by DLTF on a regular basis so that appropriate changes in location/number could be made as per the requirement. Such review shall be carried out on a regular basis for the district on inter-state boundary or district providing multiple passages between two districts of different states.

14. The district administration shall compile the information from their district of the permitted and legal mined out minerals and other details and share such information and intelligence with the officials of the adjoining district (Inter or/and Intra State) for reconciliation. The information shall include the area of operation, permissible quantity, mined out minerals (production) the permitted route etc., and other observations, especially where the mine lease boundary is congruent with the district boundary. Such coordination meeting shall be held on a quarterly basis, alternatively in two district headquarters or any other site in two districts decided mutually by the District Magistrate.

15. The mining department shall include submission of an annual environmental audit report as one of the conditions in the mining lease agreement. The annual audit for each river bed mining lease shall be carried out and the audit report shall be uploaded on the website of district administration. The audit shall be carried out by an independent team of 3 members nominated by District Collector/Magistrate/Commissioner comprising of Ex-Serviceman, Ex-Government officials of repute, Professor or Person having experience of mining/environment. The guidelines and method of the audit shall reflect adequately the monitor-able parameters and output and reflect

the compliance status with respect to the conditions imposed by the regulatory authorities including conditions of Environmental clearance.

16. The in-situ and ex-situ environmental mitigative measures stipulated as EMP, CER, CSR and other environmental and safety conditions in mines including the welfare of labours shall properly reflect in the audit report.

9.5 Suggestive additional requirements are

i. The requirement at the Mine Lease Site:

a. Small Size Plot (Up to 5 hectares): Android Based Smart Phone.
b. Large Size Plots (More than 5 hectares): CCTV camera, Personal Computer (PC), Internet Connection, Power Back up.
c. Access control of mine lease site.
d. Arrangement for weight or approximation of the weight of mined out mineral on the basis of the volume of the trailer of vehicle used.

ii. Scanning of Transport Permit or Receipt and Uploading on Server:

a. Website: Scanning of receipt on mining site can be done through barcode scanner and computer using the software;

b. Android Application: Scanning on mining site can be done using Android Application using a smartphone. It will require internet availability on SIM card;

c. SMS: Transport Permit or Receipt shall be uploaded on the server even by sending SMS through mobile. Once Transport Permit or Receipt get uploaded, a unique invoice code gets generated with its validity period.

iii. Proposed working of the system:

The State Mining Department should print the Transport Permit or Receipt with security features and issue them to the mining leaseholder through the District Collector. Once these Transport Permits or Receipts are issued, they would be uploaded on the server against that mine lease area. Each receipt should be preferable with pre-fixed quantity, so the total quantity gets determined for the receipts issued. When the

Transport Permit or Receipt barcode gets scanned and invoice is generated, that particular barcode gets used and its validity time is recorded on the server. So all the details of transporting of mined out material can be captured on the server and the Transport Permit or Receipt cannot be reused.

iv. Checking On Route:

The staff deployed for the purpose of checking of vehicles carrying mined mineral should be in a position to check the validity of Transport Permit or Receipt by scanning them using the website, Android Application and SMS.

v. Breakdown of Vehicle:

In case the vehicle break-down, the validity of Transport Permit or Receipt shall be extended by sending SMS by the driver in specific format to report the breakdown of the vehicle. The server will register this information and register the breakdown. The State can also establish a call center, which can register breakdowns of such vehicles and extend the validity period. The subsequent restart of the vehicle also should be similarly reported to the server or call center.

vi. Tracking of Vehicles:

The route of the vehicle from source to destination can be tracked through the system using checkpoints, RFID Tags, and GPS tracking.

vii. Alerts or Report Generation and Action Review:

The system will enable the authorities to develop a periodic report on different parameters like daily lifting report, vehicle log or history, lifting against allocation, and total lifting. The system can be used to generate auto mails or SMS. This will enable the District Collector or District Magistrate to get all the relevant details and shall enable the authority to block the scanning facility of any site found to be indulged in irregularity. Whenever any authority intercepts any vehicle transporting illegal sand, it shall get registered on the server and shall be mandatory for the officer to fill in the report on action taken. Every intercepted vehicle shall be tracked.

The monitoring of mined out mineral, environmental clearance conditions and enforcement of Environment Management Plan will be ensured by the regulatory authority and the State Pollution Control Board or Committee. The monitoring arrangements envisaged above shall be put in place. The monitoring of enforcement of environmental clearance conditions shall be done by the Central Pollution Control Board, Ministry of Environment, Forest and Climate Change and the agency nominated by the Ministry for the purpose.

Some of the State has followed the SSMMG-2016 and has also improvised or customized on the provisions given therein, and are successfully in operation. Salient provision adopted at different stages of sand mining in the state of Tamil Nadu is given as **Annexure VIII.**

9.6 Actions against illegal excavation and transport

Solapur district administration in Maharashtra had adopted a multi-pronged strategy to penalize the persons involved in illegal excavation and transport which resulted in a significant increase in revenue earned by the state. Following rules and procedures as mentioned in these guidelines will add to the costs of PP. Those involved in illegal activities are not required to bear these costs and this will make their supply in the market cheaper (though illegal). This will put the players running their business by following rules and procedures laid down by the government to disadvantage as far as the selling price is considered. Therefore, it is necessary to come down heavily on those involved in illegal excavation/transport, so that there is no incentive for players to abide by the rules.

The following action may be taken to achieve this deterrence against illegal business:

1. The action should be taken under all legal options available simultaneously. Thus, after identifying the case of illegal excavation, storage and/or transport of minor minerals (including sand), fine should be levied as per the land revenue laws/code(s) of the state. In addition, FIR should be lodged in the police station under relevant sections of law including sec 379 IPC. In addition, action under the Motor Vehicle Act, 1989 and relevant rules should initiate to cancel/suspend the driving license of the driver and permit of the vehicle. Further, action should be initiated under provisions in the Income Tax Act, 1961 for unaccounted income and under the Central Goods and Services Act, 2017 for non-payment of GST. (Earlier this was done under the state act pertaining to Value Added Tax/Sales Tax). Habitual offenders should also be taken up under local state laws for externment and/or preventive action. It is clarified that as per law, it is possible to take all actions under various laws

simultaneously for one offence. What is prohibited in law is an action under the same law for the same act more than once.

2. The action should be taken against all persons responsible. Often, there is a tendency to penalize only the drivers of the vehicles. The mafia of illegal mining and transport is much bigger and drivers are only one part of the system. It is necessary to identify all those involved in the offence. It is usually not possible to reach the place of excavation without creating a motorable pathway up to the same through land which may be private land. Such role of such landowners needs to be looked into for each offence and proceeded against simultaneously. Further, the role of vehicle owners needs to be probed. Role of the person who allowed his land to be used for illegal excavation and storage should also be examined. Lastly, the person who purchases such sand should also be probed. The legal proceedings stated above needs to be initiated against all of these together. An attempt should be made to fix the financial responsibility in joint and several ways so that recovery is easier.

3. There may be discretion available in law about the extent of the penalty to be levied. If such discretion is very wide, then it is advisable that guidelines may be laid down to reduce such discretion in law for levying penalties. For example, in Maharashtra, Land Revenue Code, fine of any amount of penalty up to thrice the value of the sand can be levied. Solapur district administration had instructed Tahsildars and SDMs not to use discretion and levy the fine of three times the value. Availability of discretion makes junior level functionaries susceptible to pressures and it may also lead to corrupt practices.

4. It is emphasized that actions, as stated above, are most important to ensure that the IT-based system works. If these exemplary actions are not taken against everyone, it shall create a strong disincentive to those

involved in legal excavation and transportation. For IT-based (or any other) legal system to work, it is necessary to ensure that illegal system stops working altogether.

Annexure-I

Details of Sand/M-Sand Sources

a) Rivers:

River Name/M-Sand Plant	Total Stretch of River (in KM)	Type of River (Perennial or Non-Perennial)

b) De-Siltation Location: (Lakes/Ponds/Dams etc.)

Name of Reservoir/Dams	Maintain/Controlled by State Govt./PSU etc.	Location	District	Tehsil	Village	Size(Ha)

c) Patta Lands/Khatedari Land:

Owner	Sy. No	Area (Ha)	District	Tehsil	Village	Agricultural Land (Yes/No)

d) M-Sand Plants:

Plant Name	Owner	District	Tehsil	Village	Geo-location	Quantity Tonnes/Annum

Note: For inclusion of M-Sand Plant/Patta Land in DSR the plant/landowners need to submit the request to the Mining Department with complete details. Inclusion in DSR does not give them the right to operate the M-Sand Plant/Sand Mining lease.

Annexure-II

List of Potential Mining Leases (existing & proposed)

Rivers

River Details	Lease Details	Area (in Ha)	Distance (in KM) from PA/BR/WC/	Distance from Forest Area (in KM)	Mining leases within 500 meters (if yes cluster area)	Total excavation in Tonnes /Annum considering digging depth max as 3 meters	Mineral to be mined (Sand/ Bajri/ RBM etc.)	Existing / Proposed

Patta Lands/Khatedari Land: (existing & proposed)

Owner	Sy. No	Area	District	Tehsil	Village	Total Reserve (MT)	Total Mineral to be mined (MT)	Existing /Proposed

De-Siltation Location: (Lakes/Ponds/Dams etc.) (Existing & proposed)

Name of Reservoir /Dams	Maintain /Controlled by State Govt./PSU etc.	Location	District	Tehsil	Village	Size (Ha)	Quantity MT / Year	Existing /Proposed

M-Sand Plants :(existing & proposed)

Plant Name	Owner	District	Tehsil	Village	Geo-location	Quantity Tonnes/Annum	Existing/Proposed

Annexure-III

Cluster & Contiguous Cluster details

Clusters:

River Name	Cluster No.	Lease No	Location (Riverbed / Patta Land)	Village	Area (in Ha)	Total Excavation (Ton)	Total Mineral Excavation (Ton)

Contiguous Clusters:

River Name	Contiguous Cluster No.	Cluster No	Number of leases in the cluster	Location (Riverbed / Patta Land)	Distance between clusters	Village	Area of Cluster (Ha)	Total Mineral Excavation (Ton)

Annexure-IV

Transportation Routes for individual leases and leases in Cluster

Lease No	Transportation Route No	Number of tippers /day of lease	Number of tippers /day of all the lease on route	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Recommendation for road (Black Topped/ unpaved)	The road will be Constructed by Govt/ Lease Owner	Route Map & Location

Cluster No	Transportation Route No	Number of tippers /day of cluster	Number of tippers /day of all the clusters on route	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Recommendation for road(Black Topped/ unpaved)	The road will be Constructed by Govt/Lease Owner	Route Map & Location

Annexure-V

Final List of Potential Mining Leases (existing & proposed)

Rivers

River Details	Lease Details	Area (in Ha)	Distance (in KM) from PA/BR/WC/	Distance from Forest Area (in KM)	Mining leases within 500 meters (if yes cluster area)	Total excavation in (MT/Yr) (Mine depth max as 3 m)	Mineral to be mined (Sand/Bajri/RBM etc.)	Existing /Proposed

Patta Lands/Khatedari Land: (existing & proposed)

Owner	Sy. No	Area	District	Tehsil	Village	Total Reserve (MT)	Total Mineral to be mined (MT)	Existing /Proposed

De-Siltation Location: (Lakes/Ponds/Dams etc.) (Existing & proposed)

Name of Reservoir/ Dams	Maintain/ Controlled by State Govt./PSU etc.	Location	Distt.	Tehsil	Village	Size(Ha)	Quantity MT/Year	Existing/ Proposed

M-Sand Plants :(existing & proposed)

Plant Name	Owner	District	Tehsil	Village	Geo-location	Quantity MT/Annum	Existing/Proposed

Annexure-VI

Final List of Cluster & Contiguous Cluster

Clusters:

River Name	Cluster No.	Lease No	Location (Riverbed / Patta Land)	Village	Area (in Ha)	Total Excavation (Ton)	Total Mineral Excavation (Ton)

Contiguous Clusters:

River Name	Contiguous Cluster No.	Cluster No	Number of leases in the cluster	Location (Riverbed /Patta Land)	Distance between clusters	Village	Area of Cluster (in Ha)	Total Mineral Excavation (Ton)

Annexure-VII

Final Transportation Routes for individual leases and leases in Cluster

Lease No	Transportation Route No	Number of tippers /day of lease	Number of tippers /day of all the lease on route	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Recommendation for road(Black Topped/ unpaved)	The road will be Constructed by Govt/Lease Owner	Route Map & Location

Cluster No	Transportation Route No	Number of tippers /day of cluster	Number of tippers /day of all the clusters on route	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Recommendation for road(Black Topped/ unpaved)	The road will be Constructed by Govt/Lease Owner	Route Map & Location

Annexure VIII

Salient provision for sand mining in the state of Tamil Nadu

STEPS TO BE FOLLOWED BEFORE EXECUTION:

- The state as a policy should endeavor to have single authority/agency responsible for all river sand mining in the state with an objective to ease the gap in demand and supply and accordingly, take necessary measures including planning, monitoring of mined material and its transport, and to curb illegal mining and sale of materials.

- The prospective site for sand quarry may be identified based on the availability of adequate sand deposits along the river beds, which hinders the free flow of water and results in flooding during monsoon seasons. Emphasis may be given to such quarry sites which is more viable for replenishment.

- A detailed study may be conducted by engaging expert from reputed Institutions to identify prospective sand reaches, assessment of the impact of sand quarrying on the Ground Water Table and water availability, conduct bore log details and study the social and environmental aspects. The generic requirement for replenishment study is to be followed.

- Once the site is identified for prospective sand quarry site based on the detailed replenishment study, the concerned department shall submit the proposal with the geo-tagged boundary of the proposed mining Precise Area Proposal to the District Collector for approval.

- A joint inspection may be carried out by the RDO/Sub-Collector, Assistant/Deputy Director,

- Executive Engineer, TWAD Board and the PWD officials to consider the various factors before giving consent to the proposal.

- The RDO concerned along with Revenue officials may verify the revenue records of the proposed sand quarrying area and give the NOC.

- The AD/DD Mines may verify the presence of permanent structures such as tower line, bridge, monuments if any, in the vicinity of the proposed mining site as per Tamil Nadu Minor Mineral Concession Rules,1959 (As per Rule 36 " there shall be no quarrying of sand in any river bed or adjoining area or any other area which is located within 500 meter radial distance from the location of any bridge, water supply system, infiltration well or pumping installation of any of the local bodies or Central or State Government Department or the Tamil Nadu Water Supply and Drainage Board head works or any area identified for locating water supply schemes by any of the above mentioned Government Department or other bodies" and " The distance of 50 meter shall be measured in the case of railway, reservoir or canal horizontally from the outer toe of the bank or the outer edge of the cutting, as the case may be …. "). Also, the availability of minerals may be cross verified with the available DSR.

- The TWAD officials may verify the drinking water schemes located nearby the proposed quarry site and the minimum distance required as per statutory norms.

- Based on the feasibility report of the joint inspection by the Revenue, Tamil Nadu Water Supply and Drainage Board and Mining officials/experts, the District Collector may give consent for the Precise Area proposal.

- After getting Precise Area approval, a detailed Mining Plan and sketch shall be prepared by the Executive Engineer, PWD using the services of a NABET accredited consultant who holds the pivotal role in the preparation of mining plan. Due responsibility will be expected on the concerned consultant in the mining plan preparation taking care of adhering to all mining rules, existing as on date. The mining plan shall contain the details of quantity to be excavated, the period of mining, method of excavation, deployment of required machinery, Environment Management Plan (EMP), proposed number of laborers to be deployed and Conceptual Mining Plan, as per Rule 41 of TNMMC Rules 1959. It is also the duty of the consultant to give the safe distance of 50 m or twice the bank height from the toe of the riverbank, whichever is higher and fixing the Geo coordinates for boundaries using DGPS instruments.

- The concerned Executive Engineer, PWD shall submit the Mining Plan prepared by the NABET accredited consultant to the concerned Assistant/Deputy Director, Department of Geology and Mines for approval, as per Rule 42 of TNMMC 1959. After scrutiny, the Assistant/Deputy Director, Department of Geology will present the Mining plan before the State Level Environment Impact Assessment Authority (SEIAA) for granting Environmental Clearance.

- The Executive Engineer, PWD shall prepare Form I and Pre-feasibility report with the help of the consultant and submit to SEIAA for an area less than 50 Ha. or to the Ministry of Environment and Forest and Climate Change (MoEF&CC) for the area more than 50 Ha.

- The State Expert Appraisal Committee (SEAC) under SEIAA, consisting of experts from renowned fields such as Mines, Environment, Sociology etc. shall conduct a site inspection of the proposed sand quarry site and after intense scrutiny, may recommend the proposal to SEIAA for approval.

- SEIAA shall grant Environmental Clearance for the sand quarry proposal after analyzing all the statutory provisions and based on the recommendation of the SEAC.

- The Environmental Clearance shall be informed to the public with basic details through advertisement in at least two widely circulated local newspapers with at least one in the vernacular language of the locality, within 7 days of the receipt of the clearance.

- On receipt of the Environmental Clearance, the Executive Engineer, PWD shall apply for Consent to Establish (CTE), from the Tamil Nadu Pollution Control Board as per the Air and Water Act, to enter upon the sand quarry site and commence the preliminary works such as construction of temporary sheds, bio-toilets, formation of biodegradable road using sugar cane leaves etc., drilling of bore wells etc. as per the statutory requirements. After all the preliminary works are completed, the Executive Engineer, PWD shall apply for the Consent to Operate (CTO) from the Tamil Nadu Pollution Control Board. Earmarking boundary of the identified land site through the concrete posts along with red flags need to be established.

- On receipt of the CTO, the Executive Engineer, PWD shall request the consent of the District Collector to commence the quarries. The District Collector shall request the Taluk Level Task Force comprising of Tahsildar, Inspector of Police, Officials from the Departments of Geology and Mining, Transport and Forest, Assistant Engineer, PWD and the Village Administrative Officer concerned, to verify the compliance of all preconditions mentioned in the Environmental Clearance and grant necessary permission to start the functioning of new sand quarries.

II. STEPS TO BE FOLLOWED DURING EXECUTION:

- Before the commencement of mining operations, the depth of sand quarrying needs to be measured accurately using Advanced technology and new gadgets like Total Stations, Global Positioning System (GPS) instruments etc. The Total Station and GPS instruments also need to be calibrated before measurement. Both the traditional and modern techniques may be infused in the right blend to get an accurate measure of the depth. A clear contour map (0.25m interval) of the levels within 2Km (one Km U/s and one Km D/s) needs to be prepared and submitted to both the Project Director, Sand Quarrying Operations and all the Monitoring Committee members. The depth of sand quarrying shall be restricted to 1 m from the theoretical/design bed level.

- The mining area must be demarcated at a minimum distance of at least 50 m away from the river embankment on either side. The boundaries of the quarries may be fixed with reference to the existing survey marks from the survey fields adjacent to the river. Sand quarrying lease area shall be demarcated on the ground with pucca stone or concrete pillars to show the present natural bed level and the depth of mining allowed.

- Modern techniques such as drone survey may be adopted to assess the depth and quantity of the mined area. Boundary pillars shall be erected at an interval of 50 m each on all four sides of the sand quarry site with red flags on every pillar and also in site pillars. The levels of shoal height, river bed height and depth to be excavated up to one meter downwards shall be marked in the pillars to avoid any deviation from the approved depth of excavation.

- It shall be ensured that no sand quarrying of any type is undertaken with 50m of the distance mentioned in the proposal (whichever is higher)

from both the banks of the river to control and avoid erosion of river banks.

- Temporary access roads or Katcha roads shall be formed between the banks of the river and the mining area with locally available bio-degradable materials such as sugarcane waste (bagasse), hay, etc.

- Proper entry and exit point for the movement of loading vehicles in and out of the sand quarry site shall be carefully located taking into consideration the habitations/settlements in the area.

- To monitor the groundwater level during sand quarrying operations, a network of existing wells may be established around the sand quarrying area and new piezometers must be installed at all sand quarry sites. Monitoring of Ground Water Quality in the vicinity (one Km radius from the sand quarrying site) shall be carried out once in two months.

- Periodic Monitoring (at least four times in a year – pre-monsoon, Monsoon, Post monsoon and winter) once in each season shall be carried out by PWD and the data thus collected may be sent regularly to SEIAA/TNPCB. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out, which includes immediate stopping of mining.

- Similar to the Baseline studies for data on water, soil and air etc., that is being done before the sand quarrying operations, the air and water quality may be checked periodically by Tamil Nadu Pollution Control Board to ensure that no pollution is caused due to Sand Quarrying Operations. 10. Safety gadgets such as earplugs, goggles, respiratory

devices, luminescent vests etc. may be provided to the workers at the sand quarry site.

- First aid kit with all essentials shall be kept ready at all quarry/depot site, in case of any emergency.

- To prevent air pollution due to the dust during sand quarrying operations and safeguard the persons in the sand quarry and depot site, constant water sprinkling on the pathways and dust prone areas may be done. The sand loaded vehicles are to be covered with a tarpaulin before moving out of the quarries/depots.

- Suitable depots shall be located in the vicinity of the sand quarry site to facilitate the sale of sand. While selecting the site for depots, it must be ensured that the site is within 25 km from the sand quarry site and has an area of around 10-15 Acres with parking facilities and proper entry and exit for smooth movement of the vehicles. The depot site shall preferably be a Government poramboke land, foreshore area of tank bund etc., near an NH/SH/MDR/ODR. In the absence of any Government land in the vicinity, private Patta land may be leased out and rent fixed as per the approved Government rates applicable therein.

- Permission must be obtained from the Electricity Board for power supply to operate the CCTV cameras at sand quarry site and depots.

- Minimum of two CCTV cameras, one each at the entry and exit point and one PTZ camera may be installed at all quarries/depots to monitor illegality if any taking place in the sand quarry/depot.

- To ensure uninterrupted seamless live streaming of videos from the surveillance cameras, a high-speed Internet Lease Line connection may

be made available at all quarries/depots. Arrangements may also be made for online monitoring of the sand quarrying, Centre for Assessing Real-Time Sand Mining (CARS) that could be located at the office of the Project Director in Chennai.

- The live streaming of the videos shall be monitored at a Centralised control room and the data shall be stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the grievance of the public.

- Drop gates shall be installed at the entry and exit points of all quarries/depots.

- Display boards shall be erected in local vernacular language at sand quarry/depot site, in the nearest village by which sand transportation will be carried and at the entrance of the village road from the main road.

- The concerned authority of PWD shall call for e-tender to select the contractors for loading/raising of sand at the quarry site, transporting contractors to transport sand from the quarry site to depots and loading/maintenance contractors at depots.

- Sand shall be loaded in the quarries in the PWD tendered GPS fitted vehicles and online transmit permit shall be issued by the competent authorities in PWD to the transporting vehicles to transport sand from the quarry to depots.

- On the arrival of the sand shunting vehicles from quarry to the depot, an online authentication shall be done to confirm the arrival of the

appropriate quantity of sand mentioned in the transport permit into the depot.

- The loading of sand from the depots shall be carried out by booking through the online portal "www.tnsand.in" as done presently. Online transit passes will also be issued to the loaded vehicles which could be verified by using an Android app "TNsand Investigator".

- During operation of the quarries, the PWD officers shall ensure that at no point in time, the depth of quarry exceeds 1 m depth from the river bed level and quarrying is done in a uniform manner over the entire mining area to avoid overexploitation and formation of pits at fixed places.

- Proper registers may be maintained at the entry and exit points of the sand quarry/depot sites and a Loading Register may be made available during inspection. An Inspection Register and a Complaint Register may be made available at the sand quarry/depot site.

- The functioning time of quarries/depots shall be from 7.00 AM to 6.00 PM. No sand transporting vehicles to be parked inside the quarry/depot site during night time.

- A copy of the approved mining plan may be kept at the quarry site for ready reference.

- Photographs and sketch showing the pit dimensions, depth etc. may be recorded every week and maintained in the sand quarry. The Executive Engineer, PWD may inspect each sand quarry on a weekly basis and ensure that mining activities are taking place within the approved boundaries/depth.

- The sand quarrying activity shall be stopped if the entire quantity is quarried even before the expiry of the sand quarry lease period and the same shall be mentioned by the PWD authorities.

- The Taluk Level Taskforce shall inspect the quarries every fortnight, as per G.O. (Ms) No. 135 of Industries Department, dated 13.11.2009 and record the status of the compliance in the registers maintained at the sand quarry site.

- The Taluk Level Task Force has to submit its inspection report to the District Level Task Force chaired by the District Collector. The District Level Task Force has to be convened every month to discuss cases of illegal quarrying. An Environmentalist from reputed State / Central Institution and a legal expert on environmental matters may be part of the District Level Task Force. The District Level Task Force shall also dispose of the petitions on illegal sand quarrying after due enquiry and scrutiny, and pass orders within a period of two months from the date of receipt of the complaint. If any person is aggrieved with the orders passed by the District Level Task Force, an appeal may be preferred before the Appellate Forum.

- The District Collector shall take necessary steps to strengthen the existing District and Taluk Level Committees and act on the complaints received, if any, on illegal sand quarrying and take strict remedial measures to rectify the same in a time-bound manner. The District Level Task Force may send its monthly report to the Appellate Forum formed as per G.O. (Ms) No. 27 of Industries Dept. dated 17.02.2015.

- The Appellate Forum shall hear the appeals filed against the orders passed by the District Level Task Force. The Appellate Forum comprises

of the Secretaries to Government from Industries Department, Public Works Department, Revenue Department, Environment and Forests Department, Commissioner of Geology and Mining and an Expert from a reputed Government Institution.

- The Appellate Forum may convene once in 2 months to deliberate on the reports from the District Level Task Force and shall dispose of the appeals made by the petitioners aggrieved with the orders passed by the District Level Task Force.

- Periodical Capacity building and sensitization of PWD officials on the environmental and legal aspects of sand quarrying may be made mandatory. Continuous training and awareness programs shall be scheduled and conducted by IIT/Anna University for the PWD staff to keep themselves aware of the best practices in this field. It may be ensured that the enforcement officials from the Departments of Revenue, Police, Geology and Mining and Transport in the districts where quarries are situated are given adequate training and capacity building on their duties and responsibilities with respect to inspection of sand quarries and sand transporting vehicles at specified time intervals.

- No blasting shall be carried out any point in time.

- It is the obligation of the Public Works Department to run the quarry in an environmentally friendly and ecologically sustainable manner.

- The Hon'ble High Court-appointed Monitoring Committee shall inspect the sand quarries periodically and submit a report to the Hon'ble High Court.

- The PWD should explore/take necessary steps to introduce Mining Surveillance System (MSS) in line with MSS evolved by the Indian Bureau of Mines and Bhaskaracharya Institute for Space Applications and Geo-informatics (BISAG).

III. STEPS TO BE FOLLOWED AFTER EXECUTION:

- A Judicious mine closure plan may be formulated once the quarry is closed after exhaustion of the quantity of sand.

- Reclamation works may be factored into the contract agreement and strict monitoring by the PWD officials may be initiated to scrupulously follow up the mine closure plan.

- It may be ensured that the total quantity of sand permitted in the EC shall not be exceeded in any case.

- After the exhaustion of the quantity of sand, the sheds constructed at the quarry site may be removed. All the roads and pathways may be levelled so that there is no obstruction for the normal flow in the river.

- All the records/registers may be carefully maintained by the PWD for future reference.

INTERIM PROGRESS REPORT
(Submitted by CPCB)
In
NGT O.A. 67 of 2022 in order dated 17.3.2023
(As on 17.7.2023)

Hon'ble NGT vide its order dated 17.3.2023 & 2.5.2023 in OA 67 of 2022 in the matter of Ram Dass Vs State of Rajasthan directed under Para 9 & 10 as:

9. *Accordingly, we direct CPCB to constitute a Committee of five experts to suggest ways and means, if any, by which sustenance of brick kilns activities may be viable. It will be open to CPCB to nominate in-house or other Experts. The CPCB may also explore viability of PNG as replacement of coal and other best practices in terms of fuel used, at other places. It will be open to the brick kilns owners/associations to give any other suggestions or alternatives for consideration by CPCB in spirit of collaboration with a view to find a solution. The CPCB may constitute an expert Committee within three weeks which may give its report within six weeks thereafter. Further report may be furnished in the matter before the next date by e-mail at* ***ngtczbbho-mp@gov.in*** *preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF."*

10. *The Committee referred above must include in the report the month wise data of SAAQMS with respect to PM concentration for the year 2021-2022, district wise with regard to PM 2.5 and PM 10 in addition to the report on i) Impact of brick kilns operation on loss/degradation of top soil, ii) study involving Carrying Capacity Assessment of brick kilns with adequate samples in terms of number of brick kilns and days for which monitoring be conducted, iii) Evaluation of the performance of brick kilns against the background concentration and carrying capacity of the area and iv) Impact on Brick Kilns operation on ambient air in categorized different districts of State of Rajasthan."*

Copy of the order is enclosed as **Annexure-I.**

In compliance of the order, Central Pollution Control Board has constituted a committee of 05 members vide order dated 18.4.2023 & 24.4.2023 (revised office order). The copy of the order is enclosed as **Annexure-II.** Following were the 05 committee members with 01 special invitee from CPCB, Delhi:

1. Dr K V George, Chief Scientist & Head, APC Division, NEERI, Nagpur
2. Prof Sudhir Kumar, HAG, Environmental Engg, MNIT, Jaipur
3. Dr. Neeraj Jain, Principal Scientist, CBRI, Roorkee
4. Sh Sunil Kumar Meena, Sc-D, CPCB, Regional Directorate, Bhopal
5. Sh Vikram Singh Parihar, Chief Scientific Officer, RSPCB, Jaipur

   Sh Vinay Prabhakar, Sc-C, IPC-IV, CPCB, New Delhi -Special invitee

The committee held its 02 meetings on 26.4.2023 & 17.5.2023 and had detailed discussion on various points related to brick kilns viable operation, carrying capacity, impact on air quality and soil fertility & others plan to execute the work. Copy of the minutes of meetings are enclosed as **Annexure-III.**

In compliance of the order following work has been executed so far:

1. **Suggestions from brick kiln associations on the viable operation of brick kilns**

   CPCB vide its letter dated 9th June 2023 seek the suggestions from the representatives of different brick kiln associations of Sikar, Alwar, Bikaner, Sriganganagar, Bharatpur, Jaipur of Rajasthan state. Suggestions were sought on the use of PNG or any alternative fuel, difficulties in conversion of kilns from FCBTK to Zig-zag technology, use of ash in brick manufacturing and operation of kilns for fixed durations. Copy of the letters are enclosed as **Annexure-IV.** The representation received from 5 associations representatives of Bharatpur, Jaipur, Sriganganagar districts are enclosed as **Annexure-V.**

S. No.	Issues on which suggestions were sought	Brief on the representations of brick kiln associations
1.	Use of PNG in brick manufacturing	Following are the few major issues raised due to which use of PNG is not viable in the Rajasthan state: ➢ Non-availability of PNG in Bikaner division ➢ Costly equipments in range of 3 to 15 Cr ➢ Establishment of brick kilns in far-far places of the villages/districts ➢ PNG based brick manufacturing plants operation is different then the conventional FCBTK where fire is moved whereas in PNG brick moves and fire stays at one point.
2.	Alternative fuel of coal & its feasibility (environmental & financial)	Currently the brick kilns run on the agrofuel viz. residue of Mustard, cotton, mehndi, Gwar crops. And the fuel is easily available in nearby areas. This gives financial support to

		farmers too. If the kilns start operating on coal or other fuel then this near-by available agro residue will be burnt in fields and will cause air pollution.
3.	Difficulties in conversion of kilns from FCBTK to Zig-Zag	The difficulties arising in conversion of kilns to zig-zag: ➢ The cost of conversion will be high from 30-55 lakhs. ➢ No or less number of skilled labors available for zig-zag type operation ➢ No bank loan & govt. subsidy provided on the conversion ➢ No training provided on zig-zag operation ➢ Imposition of GST on brick from 1% to 6% and ➢ Imposition of GST on the royalty since 2017-18. **Suggested solutions:** ➢ Provide training on the zig-zag operation ➢ Bank financial support & 35% subsidy on the conversion ➢ Increase timeline of conversion by up to 7 years.
4.	Use of ash in brick manufacturing	➢ 6% to 16% crop residue can be used with soil as internal fuel that will save the soil quantity as well as improve the quality. ➢ As submitted, in Bikaner division, it is practices that 40% Balu sand is mixed for making bricks. That's why no further requirement of mixing ash is required.
5.	Viability of business if operation of bricks made for fixed period	➢ The business may be made viable by fixing the operational period of brick production during January to June or

		February to June; this will improve the air quality during winter season, conserve the soil, by this availability of bricks can be ensured for whole year & others.

The recommendations for effective & viable operations of brick kilns stated by the expert committee constituted in NGT matter OA 31 of 2021 (CZ) vide order dated 3.6.2021 in the matter of Vijay Singh Vs State of Rajasthan & Ors related to Rajakhera area of Dholpur districts of Rajasthan are as below:

- **General Recommendations**

The particulate matter emissions from brick kiln stacks are primarily due to incomplete combustion of coal or biomass fuels, leading to formation of black colored soot particles, which form majority of the particulate matter in the stack emissions. Coal contains about 15-35% volatile matter, which is lower chain of hydrocarbons. This volatile matter gets released within seconds of firing the coal in the kiln. For combustion of this volatile matter, both primary air (from below the coal) and secondary air (above the coal) are required in appropriate proportion and quantity. If the air is not provided for combustion, part of this released volatile matter does not get burned or gets only partially burnt, which gives release to unburnt hydrocarbons (HC) and Carbon monoxide (CO). The unburnt hydrocarbons, once cooled to about below 600°C, get condensed and form soot particles. This is an irreversible reaction and soot once formed, cannot be combusted. If the soot formation could be prevented or substantially reduced, the particulate matter emissions from brick kilns can be substantially reduced. Reduction in soot formation also means reduction in coal consumption.

The conversion from FCBTK to zig-zag technology helps in improving the combustion by providing better mixing of fuel and air and longer high temperature zone to burn off the volatile matter resulting in the reduction of particulate matter emissions. The results from various previous monitoring

studies show significant reduction in particulate matter emissions in stack gases in zig-zag kilns as compared to FCBTK.

In this regard, specific opinion/suggestion with a road map regarding sustenance operation of brick kilns to make viable in Rajakhera block are as under:

(A) IMMEDIATE MEASURES (0-1 years for implementation)

1. As an immediate measure to reduce emission of particulate matter from stack, path length of flue gases may be increased so that most of SPM may settle due to action of gravity. As it will also bring down the temperature of the flue gases, an induced fan will need to be installed before stack. Path length may be increased by zig-zag setting of the bricks in FCBTK or by diverting the flue gases to a long nala (channel/path) before entering into the stack. This nala will be connected to stack at the other end.
2. It is observed that pollution level during rainy season is almost negligible and keeping this in mind, brick kilns may be allowed to operate during rainy season (July to September) also if they have proper shed arrangements and willing to do so. Shed will also be helpful in reducing the fugitive dust emissions and fuel requirement. Shed will also reduce heat losses which will increase the thermal efficiency of the kiln.
3. Rajasthan State Pollution Control Board must fix the length and width of the kiln. It will restrict the enormously high production of bricks (more than 50,000 bricks per day) as in practice by most of the Brick kiln operators. This will results in lower emission load and improvement in carrying capacity.
4. Brick kilns manufacturers association may be asked to conduct innovative studies to meet the emission norms for the present FCBTK type brick kilns by adopting fueling firing mechanism, modifying the path length of flue gas flow, installing appropriate pollution control system (like wet scrubber system) before the flue gas exit the chimney. This may be tried for different types of fuels being used in the kilns.

(B) SHORT TERM MEASURES (within 3 years)

The above immediate measures can effectively control the SPM level up to 20%, however, these are not the adequate/permanent methods to control the emission of finer particulate matter (PM_{10} and $PM_{2.5}$) which are escaped from stack due to high temperature of flue gas. Therefore, following short term measures are recommended and must be implemented (within 3 years) for further reduction in the stack emissions.

1. Conversion of FCBTK kilns to zig-zag kilns.
2. Installation of a proper air pollution control device like wet scrubber for control of PM_{10}, $PM_{2.5}$ and greenhouse gases emission due to burning of coal is suggested. Wet scrubber is the most trusted, proven, efficient and sustainable technology for control of particulate matter and scrubbing of greenhouse gases. This device can be helpful to reduce SPM below 50 mg/Nm^3.

Suitability of Wet Scrubber Technology

During firing of green bricks in zig-zag fired induced draft brick kilns a significant concentration of moisture is carried away by the flue gas. Since the temperature of flue gases in the stack of kilns is generally between 50-100^oC, which result in condensation of moisture in flue gases and at times it is required to be drained from the bottom of the ID fan which otherwise affects performance of the fan efficiency besides corrosion of fan. The flue gas also contains SO_2 due to sulphur in coal. In view of this, the wet scrubber would be the suitable option as air pollution control device which can simultaneously remove particulate matter and gaseous pollutant like SO_2.

It is also brought out that the chimney in induced draft brick kiln is either installed in the central island or along the outer trench wall of the kiln i.e. outside the kiln. Whereas the installation of air pollution control device would be easy with the chimney outside the kiln, installation of APCD in the central island is expected to pose several problems and would require an innovative design solution. The water used for scrubbing of gases would be required to be neutralized using alkaline material, which can further be recirculated or

can be used in preparing clay mix for brick moulding. However, before its adoption at wider scale, the basic design parameters are required to be confirmed/checked and suitability of the system be assessed by demonstrating at two or three locations.

(C) MID-TERM MEASURES (3-10 years)

Following mid-term measures are recommended for further improvement in the brick industry using high draught technology for implementation in next 3-10 years depending on the need, infrastructure availability and expenditure involved:

1. The use of internal fuel is recommended which is a well proven technology to control particulate matter and gaseous emissions from brick kiln. It can reduce or exempt the use of external fuel demand for firing of bricks. Materials like agricultural residues, fly ash, rice husk, mustard husk, cow dung, reject coal, coconut fiber or any other non-hazardous material can be used as internal fuel. Use of Agro-residue as internal fuel can also reduce clay consumption by 30-40% and reduce gaseous emission. Agriculture residue as an internal fuel can be recommended after a proper scientific and technical study. Although use of coal as an internal fuel is a well-established technology in other countries. However, in India, it is in a very primitive stage and requires detailed study. Use of internal fuel in zig-zag kilns especially when APCDs are in place, should be promoted. Further, use of internal fuel is not possible in all regions because the characteristics of brick earth is different in all over the country and having mixing problems due to low bonding capacity of the brick earth. The other main constraints in implementation of this technology are mechanized and electricity powered extruders, pug mills, power connection, huge investment etc.
2. Agriculture residue can be used in zig-zag brick kilns as external fuel only after converting to briquettes for the reduction in particulate matter and gaseous emissions from flue gas. Although its use depends on the availability of materials and briquettes making plant nearby.

3. Manufacturing of Resource Efficient Bricks (REBs) products such as perforated bricks, hollow bricks and blocks. These products save fuel up to 30 % resulting reduction in pollutants emission up to 30 %. REBs also reduce clay up to 50 % for their manufacturing apart from saving of other resources during use as walling unit in buildings. Although this is possible only after mechanization of brick kiln. Bureau of Energy Efficiency (BEE) is supporting REBs technology and launching a special "E3" mark to promote the manufacturing and marketing of the REBs.
4. Use of auto coal/fuel feeding system to standardize the firing practice at optimum level.
5. The introduction of mechanization process for the molding of clay bricks is suggested. This proves largely beneficial especially in the case of mixing internal fuel with clay as the manual mixing of internal fuel is hazardous for the health of the workers who are involved in the process.
6. Use of fly as (minimum 25%) in clay brick should be made mandatory to save soil and fuel.

(D) LONG TERM MEASURES (After 10 years)

After 10 years, based on need to shift/upgrade on to the new technology like tunnel kin, Hoffman kiln or any other new technology based on cheaper fuel like solar power or natural gas (PNG/CNG), long term measures can be implemented to reduce emission of particulate matter to negligible level. Although there are many environmental advantages of shifting to new technology like gas based kiln/tunnel kiln, but the implementation of these measures depends on the availability of infrastructure and willing of brick kilns for huge investment for change of technology which is not possible in today's scenario. After 10 years, there may be possibility of availability of cheaper fuel and infrastructures required for adopting gas based technology. The major constraints in use of natural gas in existing zig-zag kiln are as under:

1. All the kilns will have to modify either to Hoffman Kiln or a Tunnel kiln. Both these technologies are comparatively less efficient than the existing kilns.

2. **Viability of PNG:**

- The combustible mixture of natural gas and air does not ignite if the mixture is leaner than 5% and richer than 15% of the fuel-air ratio required for ignition. This narrow inflammability range makes PNG one of the safest fuel. *(Source: GAIL India, Ltd).* However, bricks kilns require it in very large volume. Expert man power is required to handle it and work has to be carried out according to strict schedules and parameters. To keep such high level of disciple, looks very difficult in bricks kilns.

- The pricing of PNG is another issue. To make a comparison, the coal, having GCV of about 6000 Kcal/kg, is available at a price of about 11000 per MT whereas, currently the PNG (GCV 11500kcal/kg) cost at Agra for industrial use is Rs. 45/SCM (rate effective from 7.4.2021), it will mean an increased cost of burning.

  Brick kiln operator need to make modifications in plant & arrange for internal pipeline from downstream of meter till the gas consumption points which requires addition expenditure. This shall increase the cost of manufacturing.
- The technology to use PNG in brick kilns is not available indigenously and has to be imported. Even the equipment with the required safety devices has to be imported.

(E) MEASURES TO CONTROL FUGITIVE DUST EMISSION

Fugitive dust is generated from various processes during brick manufacturing and having bigger particle size which cannot travel beyond a distance of more than 100 meters. The major fugitive dust emission takes place from following steps during brick manufacturing:

i. Clay Excavation, Transportation, and Stacking at the Kiln site
ii. Preparation of Clay by adding internal fuel and water
iii. Manual Moulding of Green bricks
iv. Loading in the Brick Kiln

v. Covering Bricks with Ash in Kiln Rooftop
vi. Fuel Handling (Coal/Agriculture Waste)
vii. Firing of Bricks in High Draught Kiln
viii. Removal of Ash from Kiln Rooftop
ix. Unloading of Fired Bricks
x. Stacking and Delivery of bricks

Following measures are recommended to control the fugitive dust emission from a brick kiln:

1. Coal should preferably be stored under shed with proper ventilation on a pucca platform. Crushing of coal should be done in enclosed equipment/ area to avoid process emissions. The coal size should be between powders to ¾ inch i.e. properly graded coal. This would help in uniform brick quality as the powdered coal ignites immediately on feeding thereby releasing heat to the top layer of brick setting.
2. To control dust emissions due to airborne ash from the top of brick settings, the top ash layer in the preheating zone should be kept covered with sheet.
3. The clay should be prepared at a Centralized location with the use of Backhoe-Loader(JCB) and Mechanized Clay mixing machine which can help in the reduction of dust emissions at clay mixing places.
4. An iron shed should be installed over the kiln which will reduce the fugitive emission from the kiln and also reduce the coal consumption. This will further helpful in reducing the pollution due to burning of coal and protection of the kiln during rains. Provision of shed over kiln would save at least 20-30 tons of coal every first cycle. Providing shed over the kiln would also improve the ambience of the area and provide shed to the workers working in the kiln.
5. Pavement of approach road within the premises of brick kilns. Water should be sprinkled frequently over roads around brick kiln and over the ash layer before its removal and transfer.

6. A wall of at least 3.0 meters height to be constructed on the sides where land is not available for green belt development to prevent fugitive emissions. Multi-layer green belt to be developed along the periphery of brick kiln.

As per the MoEFCC notification 22.2.2022 following is to be compliant by the brick kilns:

1. All new brick kilns shall be allowed only with zig-zag technology or vertical shaft or use of Piped Natural Gas as fuel in brick making and shall comply to these standards as stipulated in this notification.
2. The existing brick kilns which are not following zig-zag technology or vertical shaft or use Piped Natural Gas as fuel in brick making shall be converted to zig-zag technology or vertical shaft or use Piped Natural Gas as fuel in brick making within a period of

(a) **one year** in case of kilns located within ten kilometre radius of **non-attainment cities** as defined by Central Pollution Control Board

(b) **two years** for other areas. Further, in cases where Central Pollution Control Board/State Pollution Control Boards/Pollution Control Committees has separately laid down timelines for conversion, such orders shall prevail.

3. All brick kilns shall use only approved fuel such as Piped Natural Gas, coal, fire wood and/or agricultural residues. Use of pet coke, tyres, plastic, hazardous waste shall not be allowed in brick kilns.
4. Brick kilns shall construct permanent facility (port hole and platform) as per the norms or design laid down by the Central Pollution Control Board for monitoring of emissions.

In Rajasthan, CPCB has defined 05 cities i.e. Jaipur, Jodhpur, Kota, Udaipur, Alwar as non-attainment cities. The brick kilns situated within ten kilometre radius of non-attainment cities shall be converted to zig-zag technology or vertical shaft or use Piped Natural Gas as fuel in brick making within a period of ONE year.

Brick kilns in Rajasthan

As per the brick kiln survey reports received on 6.6.2023 from RSPCB there are total 2037 brick kilns established in 24 districts of the Rajasthan. Out of these 263 are of Zig-Zag type & rest 1730 are operating on FCBTK. Status of remaining 3 & 41 brick kilns of Alwar & Bharatpur were reported as closed in

survey and their type of operation is not provided. There are 07 districts viz. Sriganganagar, Bhilwara, Hanumangarh, Bharatpur, Alwar, Dholpur & Jhunjhunu having more than 100 brick kilns. The NCR region's kilns of Alwar & Bharatpur districts operated during March to June for 4 months; whereas in other districts the operation period is of 5 to 8months i.e. October to June. Majorly mustard residue, biomass is the fuel used by the BKs. In 1000 bricks 300Kgs fuel is used and on an average daily 12-13 thousands bricks are produced that requires 3 Tons of fuel. The details are as tabulated below:

S. No.	**District**	**Total Brick kiln**	**Zig Zag**	**FCBTK**
1	Alwar	149	146	0
2	Balotra	2	0	2
3	Banswara	7	2	5
4	Dungarpur	5	0	5
5	Bhilwara	280	0	280
6	Bundi	4	2	2
7	Chittorgarh	12	0	12
8	Jhalawar	1	0	1
9	Ajmer	24	0	24
10	Tonk	13	1	12
11	Churu	36	0	36
12	Rajsamand	11	0	11
13	Sikar	91	0	91
14	Sawai Madhopur	23	0	23
15	Udaipur	5	0	5
16	Bhiwadi	4	4	0
17	Dholpur	135	1	134
18	Sriganganagar	420	5	415
19	Hanumangarh	274	7	267
20	Jaisalmer	8	1	7
21	Jhunjhunu	110	0	110
22	Jaipur North	183	2	181
23	Bharatpur	153	88	24
24	Bikaner	87	4	83

The outcome of the survey reveals that a large number of brick kilns are operational with FCBTK system in Rajasthan.

ii) Impact of brick kilns operation on loss/degradation of top soil

To study the impact of brick kilns operation on loss/degradation of top soil, the methodology adopted in NGT O.A. 1088 of 2018 Dinesh Chahal & UOI was used in this study. To assess the loss of top soil due to brick kiln activity, soil samples (from upper 15 cm layer) were collected by the CPCB team from the land where top soils had been removed for brick manufacturing. For assessing loss of soil fertility due to brick manufacturing, samples of top soil (from upper 15 cm layer) were collected from the same land where soils were not yet removed from brick manufacturing. In places of brick kiln activity where such un-dugged soils could not be clearly identified visually, surface soils were collected from nearest agricultural lands for comparison.

Total 16 soil samples were collected during in 9th June to 10th June 2023 from 03 districts viz. Sriganganagar, Churu & Ajmer from agricultural land & mined out area to assess the soil quality for total 10 parameters viz. pH, EC, Organic Carbon, N, P, K, Fe, Mn, Zn & Cu. The samples were sent to ICAR-Indian Institute of Soil Science, Bhopal institute for required analysis. The analysis will complete by the end of July 2023. Copy of the details are enclosed as **Annexure-VI.** The analysis report is pending.

iii) **Study involving Carrying Capacity Assessment of brick kilns with adequate samples in terms of number of brick kilns and days for which monitoring be conducted & Evaluation of the performance of brick kilns against the background concentration and carrying capacity of the area**

Study No. 1. Rajakhera, Dholpur district (Year 2019 & 2020)

The field survey revealed that out of 103 brick kilns established within 11kms radial distance from Rajakhera block, only one brick kiln is utilizing Zig-Zag technology and rest all are of Fixed Chimney Bull's Trench Kiln (FCBTK) technology. The major fuel used is Husk (Agro-residue). A huge number of brick kilns i.e. **57** out of 103 are running without Consent to Operate.

Estimation of daily pollution load from single brick kiln

Source emission monitoring was not performed as the brick kilns of Rajakhera block were non-operational due to ongoing rainy season; Considering this, the source emission monitoring data of FCBTK based kilns operating on coal & husk at Aligarh (Uttar Pradesh) was considered. This monitoring was carried out by CPCB in June 2021. Based on this data, daily pollution load from single brick kiln was estimated. The calculated PM emission load with 17% O_2 correction for single brick kiln is **0.705 Tons/day.**

The detailed information is given as below:

Sr. No.	Parameter	Value
1.	Type of Fuel Used	Coal + Husk
2.	Monitored at Port Hole Height , m	3.0
3.	Internal diameter of Stack, m	3.0
4.	Flue Gas Velocity, m/s	3.0
5.	Ambient Temp., K	311
6.	Flue Gas Temp., K	350
7.	Actual PM Concentration, mg/Nm^3	273
8.	Corrected PM Concentration at 17% O_2, mg/Nm^3	420
9.	Normalized Flow Volume at 25°C, (Nm^3/day)	16,77,818
10.	Actual PM Emission Load, kg/day	458
11.	Corrected PM Emission Load at 17% O_2, kg/day	**705**

Estimation of Existing Pollution Load w.r.t $PM_{2.5}$

For the estimation of the pollution load w.r.t. $PM_{2.5}$; total area in which brick kilns are operational, mixing height of the area and $PM_{2.5}$ concentration for the particular months were considered. For $PM_{2.5}$ data, Aerosol Optical Density (AOD) data was considered.

- Total area **(a)** : **380 km^2** (All the 103 brick kilns operational in the radial distance of 11 kms from the centre of Rajakhera village)

- Average atmospheric mixing height during a particular month in km **(b)** : As there is meteorological station nearby district-wise meteorological information available online for2015 at https://urbanemissions.info/blog-

pieces/india-meterology-bydistrict/ was considered for monthly mixing height. The mixing height was considered same for 2019 & 2020 due to unavailability of the yearly meteorological data. The meteorological data is as tabulated below:

Month	**% Frequency of Mixing height in different ranges**					**Weighted mixing height in KMs**
	<100	**100-500**	**500-1000**	**1000-2000**	**>2000**	
Considered Average height, m	**50**	**300**	**750**	**1500**	**2000**	
Jan	66.12	15.45	13.17	5.24	0	0.257
Feb	63.69	13.095	9.52	12.5	1.19	0.354
Mar	58.198	11.69	8.1989	17.6075	4.3	0.476
Apr	55	10.13	4.166	9.72	20.97	0.654
May	51.47	11.55	3.22	4.3	29.43	0.738
Jun	36.94	17.638	5.13	10	30.27	0.865
Jul	20.43	31.45	12.5	25.67	9.94	0.782
Aug	32.25	30.24	12.7	24.59	0.134	0.574
Sep	55.55	12.777	4.86	17.91	8.88	0.549
Oct	63.3	9.94	3.897	17.069	5.779	0.462
Nov	68.75	11.66	8.33	9.86	1.38	0.307
Dec	68.41	15.32	13.84	2.419	0	0.220
Source:https://urbanemissions.info/blog-pieces/india-meterology-bydistrict/						

- Total volume of Air in the area of concern during a particular month in KM^3 **(C)** : **a x b**
- Average $PM_{2.5}$ concentration for a particular month in kg/km^3 **(d):**

For understanding the ratio of AOD data to CAAQMS data, $PM_{2.5}$ values of 06 cities for the year 2019 were analysed for the ratio of CAAQMS to AOD. The ratio is tabulated below:

S.NO.	City	CAAQMS/AOD ratio of 2019
1.	Jhind	1.08
2.	Bhiwani	1.12
3.	Agra	0.96
4.	Muzaffarnagar	1.07
5.	Sonipat	0.994
6.	Bulandsahar	0.998

As the average ratio is **nearly 1** and in the case of unavailability of the ambient air quality data of the Rajakhera village; AOD data was considered for the calculation.

The AOD derived $PM_{2.5}$ values for the year 2019 & 2020 are as tabulated below:

Month	**$PM_{2.5}$ Values ($\mu g/m^3$)**	
	2019	**2020**
January	154	152
February	95	122
March	60	54
April	61	51
May	64	62
June	53	44
July	43	33
August	39	27
September	39	59
October	80	114
November	126	165
December	150	214

Therefore, Total estimated pollution load of $PM_{2.5}$ **(X) = c x d**

Month	**$PM_{2.5}$ Pollution load (MT/Month)**	
	2019	**2020**
January	15	15
February	13	16
March	11	10
April	15	13
May	18	18
June	17	14

July	13	10
August	8	6
September	8	12
October	14	20
November	15	19
December	13	18

Estimation of total assimilative capacity w.r.t. PM_{10}

Total volume of Air in the district during a particular month in km^3 **(c)**

Particulate Matter (PM_{10}) concentration in ambient air as per NAAQ standard, 2009: 100µg/m^3 i.e. **100 Kg/Km^3** (Ref. Air Quality Index/NAAQ Standards)

Therefore, total assimilative capacity w.r.t. PM_{10} in ambient air of the area during a particular month (**y**): **C x 100 = y** Kgs

2019 & 2020	
Month	**Total Assimilative Capacity in MT**
January	10
February	13
March	18
April	25
May	28
June	33
July	30
August	22
September	21
October	18
November	12
December	8

Estimation of total supportive capacity based on PM_{10}

Total Supportive Capacity **(z)** = Total Assimilative Capacity **(y)** (-) Total Estimated Load (PM_{10}) **(x)**

As for the estimation of the pollution load, Aerosol Optical Density (AOD) data of $PM_{2.5}$ was considered. The $PM_{2.5}$ values have been extrapolated to PM_{10}. The month-wise ratio of PM_{10} to $PM_{2.5}$ for the year 2019 & 2020 was calculated based on the nearest manual Ambient Air Quality Monitoring station i.e. Agra city (35 kms from Rajakhera village). The monitoring data for April & May 2020 were not available due to non-operation of manual station during COVID restriction. For these 02 months, average annual ratio was considered which is 1.57.

The estimated total supportive capacity for the year 2019 is

2019					
Month	**Pollution load in MT $PM_{2.5}$**	**Monthly factor of $PM_{10}/PM_{2.5}$**	**Pollution load in MT w.r.t. PM_{10} (x)**	**Total Assimilative capacity in MT w.r.t. PM_{10} (y)**	**Total Supportive capacity in MT w.r.t. PM_{10} (z)**
January	15	1.4	21	10	-11
February	13	1.34	17.42	13	-4.42
March	11	1.93	21.23	18	-3.23
April	15	2.63	39.45	25	-14.45
May	18	2.63	47.34	28	-19.34
June	17	2.86	48.62	33	-15.62
July	13	1.68	21.84	30	8.16
August	8	1.28	10.24	22	11.76
September	8	1.32	10.56	21	10.44
October	14	1.37	19.18	18	-1.18
November	15	1.18	17.7	12	-5.7
December	13	1.2	15.6	8	-7.6

The estimated total supportive capacity for the year 2020 is

2020					
Month	**Pollution load in MT $PM_{2.5}$**	**Monthly factor of $PM_{10}/PM_{2.5}$**	**Pollution load in MT w.r.t. PM_{10} (x)**	**Total Assimilative capacity in MT w.r.t. PM_{10} (y)**	**Total Supportive capacity in MT w.r.t. PM_{10} (z)**
January	15	1.23	18.45	10	-8.45
February	16	1.46	23.36	13	-10.36
March	10	1.62	16.2	18	1.8
April	13	1.57	20.41	25	4.59
May	18	1.57	28.26	28	-0.26
June	14	2.56	35.84	33	-2.84
July	10	1.81	18.1	30	11.9
August	6	1.24	7.44	22	14.56
September	12	1.59	19.08	21	1.92
October	20	1.65	33	18	-15
November	19	1.3	24.7	12	-12.7
December	18	1.26	22.68	8	-14.68

The above analysis indicates that some supportive capacity may be available during the monsoon months, i.e. July, August & September.

Assessment of restriction of brick kiln operation w.r.t. total Supportive capacity available

Based on the above estimation of pollution load, total assimilative & supportive capacity of the Rajakhera block, decision on restriction of brick kiln operation may be planned to sustain the supportive capacity available. For this the factor of pollution load i.e. 0.705 Tons/day/brick kiln (Corrected PM emission load at 17% O_2) has been considered.

The year-wise assessment for restriction of brick kiln operation w.r.t. supportive carrying capacity is as tabulated below:

2019		Particulates contribution of single brick kiln in Tons/day	No. of brick kilns operation needs to be restricted w.r.t. the supportive capacity available
Month	**Supportive capacity available in MT w.r.t. PM_{10}**		
January	-11	**0.705**	-16
February	-4.42		- 6
March	-3.23		- 5
April	-14.45		- 20
May	-19.34		**- 27**
June	-15.62		- 22
July	8.16		+12
August	11.76		+17
September	10.44		+15
October	-1.18		- 2
November	-5.7		- 8
December	-7.6		- 11

2020		Particulates contribution of single brick kiln in Tons/day	No. of brick kilns operation needs to be restricted w.r.t. the supportive capacity available
Month	**Supportive capacity available in MT w.r.t. PM_{10}**		
January	-8.45	**0.705**	-12
February	-10.36		-15
March	1.8		+3
April	4.59		+7
May	-0.26		0
June	-2.84		-4
July	11.9		+17

August	14.56		+21
September	1.92		+3
October	-15		**-21**
November	-12.7		-18
December	-14.68		-21

NOTE:

i. *The numerical value with (-) symbol indicates the number of brick kilns whose operation needs to be restricted.*
ii. *The numerical value with (+) symbol indicates the number of brick kilns that can be allowed other then the operational ones.*

Study no. 2 Sriganganagar district, Rajasthan (Year 2021-22)

In compliance of the Hon'ble NGT order dated 10.11.2021 in NGT O.A. 262/2020 (PB) in the matter of Hakam Singh Vs State of Rajasthan & Ors; detailed study of ambient air quality, source emission monitoring and carrying capacity assessment was carried out. The details are as below:

- **Site visit and monitoring**

To ascertain the contribution of the brick kiln operation and other activities viz. mining, transportation etc in ambient pollutants viz. PM_{10}, $PM_{2.5;}$ the committee opined to carryout Ambient Air Quality (AAQ) monitoring in the upwind and downwind direction of brick kilns during their operational and non-operational period.

- **Ambient Air Quality monitoring:**

The Ambient Air Quality monitoring was carried out by Rajasthan State Pollution Control Board, Bikaner during 15th to 19th Dec 2021 (operational period) & during 26th January to 2nd February 2022 (non-operational period) in brick kiln area of Suratgarh & Anupgarh tehsils of Sriganganagar district.

Monitoring locations during operational period (15th to 19th Dec 2021)

1. Brick Kiln Units, near Gurudwara 7 Chak, Suratgarh (Upwind)
2. Brick Kiln Units, near 6 Chak, Suratgarh (Downwind)
3. Brick Kiln Units. Near 87 GB A, Anupgarh (Upwind)
4. Brick Kiln Units, Near 87 CB B, Anupgarh (Downwind)

S. No.	Location	Date of monitoring	24 hourly concentration of the pollutants in $\mu g/m^3$		Remarks
			PM_{10}	$PM_{2.5}$	
1.	Brick Kiln Units, near Gurudwara 7 Chak, Suratgarh (Upwind)	15.12.2021	206	169	About 70% brick kilns were operational. (About 200 brick kilns out of consented 286)
2.	Point no. 1 of the Brick Kiln Units, near 6 Chak, Suratgarh (Downwind)	15.12.2021	217	170	
3.	Brick Kiln Units. Near 87 GB A, Anupgarh (Upwind)	18.12.2021	173	137	
4.	Brick Kiln Units, Near 87 GB B, Anupgarh (Downwind)	18.12.2021	194	138	

It is quite evident that $PM_{2.5}$ is equal in both downwind as well as upwind. There is negligible increment in $PM_{2.5}$ concentration i.e. 1 $\mu g/m^3$ in downwind. This contribution of major $PM_{2.5}$ may be due to other sources like vehicles movements etc. To assess contribution of crop residue based FCBTK brick kilns in particulate matters viz. PM_{10} & $PM_{2.5}$, it was opined to carry out particle size analysis of the particulate matter in flue gas. CSIR-Advanced Materials & Processes Research Institute (AMPRI) was asked to analyze few samples for the particle size analysis. The samples were submitted on 10.3.2022 for the analysis. The analysis work is in progress. On receipt of the report; results with interpretation shall be incorporated.

AAQ Monitoring during non-operational period (23rd January to 2nd February 2022)

The brick kilns stopped their operations from the mid of January, 2022 due to the rainfall during 4th to 8th January 2022 and 19th to 22nd January that resulted in re-preparation of green bricks as all prepared bricks ready for firing were wet and became muddy. The heavy rainfall was observed on 5th January 2022 i.e. 24.8 mm/day. The meteorological data from 1.1.2022 to 26.1.2022 available on India Meteorological Department (IMD) website are as tabulated below:

S.NO.	Date	Ambient Temp (°C)	Rainfall (mm/day)	Wind Direction (Degree)	Wind Speed (m/s)
1.	1.1.2022	12	0.0	162	0.14
2.	2.1.2022	13	0.0	228	0.33
3.	3.1.2022	15	0.0	188	0.37
4.	4.1.2022	14	**0.1**	92	0.57
5.	5.1.2022	13	**24.8**	179	0.67
6.	6.1.2022	13	**5.4**	190	0.33
7.	7.1.2022	13	**9.1**	216	0.42
8.	8.1.2022	11	**2.6**	231	0.31
9.	9.1.2022	11	0.0	244	0.30
10.	10.1.2022	10	0.0	175	0.41
11.	11.1.2022	10	0.0	201	0.40
12.	12.1.2022	11	0.0	183	0.28
13.	13.1.2022	09	0.0	80	0.43
14.	14.1.2022	10	0.0	164	0.32
15.	15.1.2022	9	0.0	136	0.37
16.	16.1.2022	9	0.0	110	0.45
17.	17.1.2022	10	0.0	82	0.36
18.	18.1.2022	12	0.0	214	0.31
19.	19.1.2022	13	**0.9**	85	0.55
20.	20.1.2022	11	**0.3**	118	0.56
21.	21.1.2022	12	**0.7**	64	0.83
22.	22.1.2022	12	**0.6**	161	0.41
23.	23.1.2022	12	0.0	120	2.63
24.	24.1.2022	12	0.0	125	0.60
25.	25.1.2022	13	0.0	180	0.84
26.	26.1.2022	11	0.0	224	0.25

The rainfall was not observed after 23rd January 2022 and as per the committee opinion, this was the right time to assess the ambient air quality during the non-operational period of brick kilns. The monitoring locations and observed pollutants concentration during 27th Jan to 2nd Feb 2022 at Srivijaynagar are as tabulated below:

S. No.	Location	Date of monitoring	24 hourly concentration of the pollutants in µg/m³		Remarks (field observation)
			PM_{10}	$PM_{2.5}$	
1.	Near Chugh bricks, vill. 36GB, Anupgarh road,	27.01.2022	134	76	Kilns were non-operative in whole district.
		29.01.2022	127	80	
		31.01.2022	136	84	
		02.02.2022	143	94	

	Srivijaynagar (Upwind)				Weather was clear except on 1st Feb, 2022 (Fog in morning was observed)
2.	Near house of Sh Sukha Singh, Vill. 36 GB, Anupgarh rd, Srivijaynagar (Downwind)	27.01.2022	115	77	
		29.01.2022	114	79	
		31.01.2022	163	121	
		02.02.2022	121	103	

The PM_{10} & $PM_{2.5}$ during the non-operational period of the brick kilns reveals that the average concentration of PM_{10} & $PM_{2.5}$ ranges from 128µg/m^3 to 135µg/m^3 and 83.5 µg/m^3 to 95µg/m^3 respectively in upwind and downwind. The higher concentration of pollutant may be due to lifting of fine particles of crustal sand (being non-cohesive), vehicle movement, agricultural activities and other domestic activities.

- **Source emission monitoring**

Central Pollution Control Board (CPCB), Regional Directorate, Bhopal vide its letter dated 17.12.2021 constituted the monitoring team for conducting source emission monitoring of 286 brick kilns units having valid consent to operate from Rajasthan State Pollution Control Board. RSPCB also constituted 05 teams to inspect and monitor brick kilns with CPCB. The emission monitoring was scheduled from 3rd January 2022 to 23rd January 2022.

It is pertinent to mention that the monitoring of 286 brick kilns was suspended in between from 8th January 2022 due to the spread of ***'Omicron' COVID*** *variant in the monitoring team and the field conditions were also not feasible due to continuous rainfall as there was no electric earthing provision available on the kiln stack and the brick kilns were planning to shut their operation due to rainfall. Further the source emission monitoring shall be scheduled on normalization of the COVID situation and full load operation of the kilns; probably from last week of March 2022.*

However, 19 kilns were monitored on 6th to 7th January 2022 during this adverse situation.

The list of brick kilns monitored is as tabulated below with monitored Particulate Matters (PM) concentration in mg/NM^3.

S.NO.	**Name of the brick Kiln**	**Monitored conc. of PM in mg/NM^3**
1.	M/s Jai Bharat Brick Industries, Suratgarh	665
2.	M/s Bagri Brick Products, Suratgarh	231
3.	M/s Bagri Bricks, Suratgarh	190
4.	M/s Maheshwari Brick Kiln Company, Suratgarh	279

5.	M/s Bagri Brick Kiln Company, Suratgarh	203
6.	M/s Bagri Bricks Kiln Industries, Suratgarh	410
7.	M/s Deepika Bricks Suppliers, Suratgarh	239
8.	M/s Bagri Kilns, Suratgarh	593
9.	M/s Bagri Int Udhyog, Suratgarh	661
10.	M/s Kothari Bricks Suppliers, Suratgarh	206
11.	M/s Bajrang Kiln Company, Suratgarh	421
12.	M/s Gumber Int Udhyog, Suratgarh	295
13.	M/s Bahlim Kiln Co, Suratgarh	621
14.	M/s Sharma Kiln Industries, Suratgarh	209
15.	M/s Sharma Int Udhyog, Suratgarh	460
16.	M/s Santosh Bricks Manufacturer, Suratgarh	210
17.	M/s Ram Shree Int Udhyog, Suratgarh	170
18.	M/s Tiger Int Udhyog, Suratgarh	655
19.	M/s Vinayak Brick Industries, Suratgarh	191

All the monitored 19 brick kilns were meeting the consented emission standard of 750mg/NM^3.

NOTE: *Emission monitoring of the 19 brick kilns, where concentration varied from 170mg/Nm^3 to 665 mg/Nm^3 in the crop-residue based FCBTK kilns reveals that the variation may be due to the monitoring at non-isokinetic velocity or due to improper feeding of fuel during the monitoring period.* Source emission monitoring at constant velocity in such non-continuous process of firing & non-firing where flue gas velocity varies significantly, is not advisable to get the appropriate emission concentration. *It was opined that to verify the compliance, proper methodology needs to be developed by CPCB along with SPCBs.*

During discussion with brick kiln representatives, following was brought into the knowledge:

The brick kilns established in 10 Tehsils of Sriganganagar district are mostly based on Fixed Chimney Bull's Trench Kiln (FCBTK) technology and uses mustard husk as fuel due to its sufficient availability in this area. The average fuel consumption is 300 kgs/1000 bricks. The fuel cost varied from Rs. 300-400/quintal based on the availability. On a 21-ghodi brick kiln i.e. arranging 21 bricks of 9 inches each in one row. Each row has 2100-2200 bricks. One row gets completed in about 3-4 hrs heating, i.e. 6 rows in a day operation. By this the average production is 12000-13000 bricks daily. These bricks cool down in about 8 days and removed after 8th day. One firing to non-firing period has average 30 mins gap. On an average 60 kgs fuel is used during each firing period i.e. 2kgs/min; about 3000kgs/day.

Estimation of the carrying capacity of the area

To estimate the carrying capacity of the Sriganganagar district w.r.t. brick kilns operation, methodology earlier adopted in **Hon'ble NGT (PB) Original Application No. 1016/2019 in the matter of Utkarsh Panwar Vs CPCB & Ors** was considered here too.

Estimation of Existing Pollution Load w.r.t $PM_{2.5}$

In Sriganganagar district all the 10 tehsils i.e. Srivijaynagar, Anupgarh, Gharsana, Sriganganagar, Suratgarh, Sadulsahar, Rawla, Srikaranpur, Padampur & Raisinghnagar have brick kiln manufacturing units.

- Total area **(a)** : **10930 km^2** (Total area of the district as per the Rajasthan Govt. district website *https://sriganganagar.rajasthan.gov.in*/)

- Average atmospheric mixing height during a particular month in km **(b)** : The Mixing height of Rajasthan is as per the "Atlas of Hourly Mixing Height and Assimilative Capacity of Atmosphere in India", published in 2008 by India Meteorological Department, New Delhi. The Hourly mixing height is as tabulated below:

Mixing height of Rajasthan as per the "Atlas of Hourly Mixing Height and Assimilative Capacity of Atmosphere in India", published in 2008 by India Meteorological Department, New Delhi										
Day time (hour of the day)	**Month & Season**		March		**Month & Season**		**Month & Season**		**Month & Season**	
	Dec-Feb				April-June		July-Sept		Oct-Nov	
	winter		Intermediate month of winter & summer		Summer		Monsoon		Post Mansoon	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
7	20	40	60	75	100	110	70	85	40	60
8	30	60	85	105	140	150	110	145	80	140
9	80	110	165	205	250	300	275	340	300	380
10	180	220	365	410	550	600	525	590	500	580
11	370	420	635	735	900	1050	850	975	800	900
12	580	680	1015	1140	1450	1600	1265	1420	1080	1240
13	720	900	1210	1460	1700	2020	1540	1800	1380	1580
14	900	1020	1450	1660	2000	2300	1775	2040	1550	1780
15	950	1100	1525	1775	2100	2450	1850	2205	1600	1960
16	950	1120	1500	1760	2050	2400	1800	2150	1550	1900
17	900	940	1400	1660	1900	2380	1600	2015	1300	1650

18	600	700	1150	1450	1700	2200	1270	1610	840	1020
19	370	440	785	920	1200	1400	825	990	450	580
Average Mixing height (m)	512	596	873	1027	1234	1458	1058	1259	882	1059

The monthly available maximum mixing height in KMs is as tabulated below:

Month wise maximum mixing height in KMs	
Month	Mixing Height in KMs
January	0.596
February	0.596
March	1.027
April	1.458
May	1.458
June	1.458
July	1.259
August	1.259
September	1.259
October	1.059
November	1.059
December	0.596

- Total volume of Air in the district boundary in KM^3**(C)** : **a x b**

- Average $PM_{2.5}$ concentration for a particular month in kg/km^3 **(d):**

M/s Suratgarh Thermal Power Plant, Suratgarh (Sriganganagar) GPS location 29.163621,74.024601 CAAQMS (Switch Yard) data of Year 2021			
Month	**PM10**	**PM2.5**	**Ratio of PM10/PM2.5**
Jan 2021	146	124	1.2
Feb 2021	124	100	1.4
Mar 2021	133	75	1.8
Apr 2021	140	80	1.9
May 2021	124	67	1.9
June 2021	197	101	1.9
July 2021	120	82	1.6
Aug 2021	96	50	1.9
Sep 2021	36	32	1.3
Oct 2021	85	48	1.8
Nov 2021	202	147	1.5
Dec 2021	160	121	1.4

Therefore, total estimated pollution load (in MT) of $PM_{2.5}$**(x) = c x d**

Month	**Total volume of Air in the District during a particular month in KM3 (C)**	**24 hourly Concentration of $PM_{2.5}$ in µg/m³ (kg/km³) (D)**	**PM2.5 pollution load in MT/day during 2021 ($X_{PM2.5}$) = C x D**
January	6514	124	805
February	6514	100	653
March	11225	75	845
April	15936	80	1275
May	15936	67	1075
June	15936	101	1609
July	13761	82	1131
August	13761	50	686
September	13761	32	437
October	11575	48	553
November	11575	147	1701
December	6514	121	790

Estimation of physical assimilative capacity w.r.t. PM_{10}

Total volume of Air in the district Sriganganagar in a particular month in KM^3**(c)**

Particulate Matter (PM_{10}) concentration in ambient air as per NAAQ standard: 100µg/m³ i.e. **100 Kg/Km³** (Ref. Air Quality Index/NAAQ Standards, 2009)

Therefore, daily Assimilative capacity w.r.t. PM_{10} in ambient air of the area during a particular month (**y**): **c x 100 = y** Kgs

Month	Total volume of Air in the **Sriganganagar** District during a particular month in KM3 **(C)**	24 hourly Concentration of PM10 in µg/m³ (kg/km³) as per NAAQS,2009 **(D)**	Average Daily Permissible PM_{10} pollution load in MT/day during 2021 **(Y_{PM10}) = C x D**
January	6514	100	651
February	6514	100	651
March	11225	100	1123
April	15936	100	1594
May	15936	100	1594
June	15936	100	1594
July	13761	100	1376
August	13761	100	1376
September	13761	100	1376

October	11575	100	1157
November	11575	100	1157
December	6514	100	651

Estimation of physical supportive capacity based on PM_{10}

The formula for assessing the supportive capacity is based on the physical boundaries (Box-model) that works on assumptions of steady-state conditions; i.e. it is supposed that the emissions, wind speed and characteristics of air available for dilution will not vary over time and that pollutants emitted to the atmosphere are uniformly mixed in a volume. Considering this, it is better to call it physical supportive capacity.

Physical Supportive Capacity **(z)** = Assimilative Capacity **(y)** - Total Estimated Load (PM_{10}) **(X_{PM10})**

Month	Existing PM2.5 Pollution load (MT/day) during 2021 **($X_{PM2.5}$)**	Ratio of $PM_{10}/PM_{2.5}$	Existing PM10 Pollution load (MT/day) during 2021 **(X_{PM10})**	PM10 Emission Load (MT/day) [Permissible capacity] **(Y_{PM10})**	Available PM10 Emission Load (MT/day) [Available Physical capacity] **(Z) = (Y_{PM10}-X_{PM10})**
January	805	1.2	954	651	(-)302
February	653	1.4	892	651	(-)241
March	845	1.8	1562	1123	(-)439
April	1275	1.9	2362	1594	(-)768
May	1075	1.9	2022	1594	(-)428
June	1609	1.9	3089	1594	(-)1496
July	1131	1.6	1760	1376	(-)384
August	686	1.9	1306	1376	(+)70
September	437	1.3	563	1376	(+)813
October	553	1.8	1008	1157	(+)150
November	1701	1.5	2527	1157	(-)1369
December	790	1.4	1109	651	(-)458

NOTE:

1. *The numerical value with (-) symbol indicates that area has no available physical supportive capacity.*
2. *The numerical value with (+) symbol indicates that area has available physical supportive capacity.*

{The methodology earlier adopted in Hon'ble NGT (PB) Original Application No. 1016/2019 in the matter of Utkarsh Panwar Vs CPCB & Ors was considered for estimating the carrying capacity}

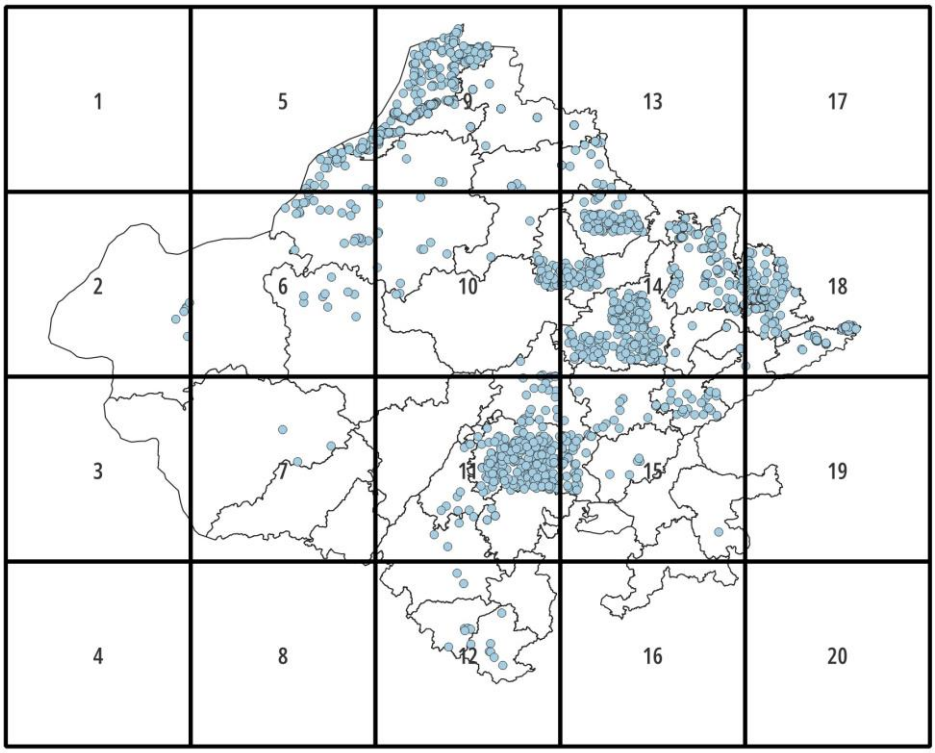
- It is pertinent to mention here that in the months (March to June) when dispersion is found significantly well, in those months also the physical supportive capacity is not available; this may be due to lifting of fine particles of crustal sand (being non-cohesive), vehicle movement, agricultural activities and other domestic activities. For rationalizing the supportive carrying capacity this factor needs to be incorporated to bring a holistic view on the available carrying capacity.

Cumulative & individual impact of brick kilns on Ambient Air quality:

An expert committee report was submitted in NGT O.A. 31 of 2021 (CZ) in order dated 3.6.2021 (Vijay Singh Vs State of Rajasthan & Ors) regarding the brick kilns operation in Rajakhera village of Dholpur (Rajasthan). There were 103 brick kilns established within 11kms radial distance from Rajakhera block, only one brick kiln is based on Zig-Zag technology and rest all are of Fixed Chimney Bull's Trench Kiln (FCBTK) technology. The major fuel used is Husk (Agro-residue). The committee carried out the sensitivity analysis with available data. The dominant wind speed taken was 0.50-2.10 m/s. 24 hourly predicted PM concentrations levels in Rajakhera Village under 2 emission and 4 meteorological scenarios (as observed in isopleths). Further, for better understanding predicted PM levels (minimum, maximum and average values) at discrete receptor points of Rajakhera village are included. Depending upon the predominant wind direction, the brick kilns in the upwind direction of the village will have more impact on the air quality of the village. Maximum impact is predicted under the worst meteorological condition (wind from N-W direction) to be 24 µg/m3 for actual emission scenario and 36 µg/m3 for combustion corrected emission scenario. Further, impact of a single brick kiln is predicted under the similar situation/scenario. It is predicted that 24 hourly PM concentration from single brick would be about 2.32 µg/m3 and 3.62 µg/m3 for actual and corrected PM emissions scenario at a distance of 500 m from the brick kiln. Similar kind of analysis for Sriganganagar district may help in understanding the cumulative and individual impact of brick kilns and accordingly mitigation measure may be taken.

iv) Impact on Brick Kilns operation on ambient air in categorized different districts of State of Rajasthan

The brick kiln distribution in Rajasthan as per the survey report of RSPCB is as shown below in 20 grids of 200x200KM^2 area. The major spread is in North-East and South-East.



SENSITIVITY ANALYSIS

CPCB has carried out sensitivity analysis for the prediction of Cumulative Impact of all the Existing Brick Kilns with the committee constituted in NGT matter OA 31 of 2021 (CZ) vide order dated 3.6.2021 in the matter of Vijay Singh Vs State of Rajasthan & Ors related to Rajakhera area of Dholpur districts of Rajasthan. The details outcome are as below:

The committee made an effort to predict the cumulative impact of all the 103 brick Kilns in Rajakhera Block on the Air Quality of Rajakhera Village

1.0 Introduction

Cumulative impact of all the 103 brick kilns presently operating in the Rajakhera Block has been predicted using widely accepted air quality model (AERMOD) under certain critical meteorological conditions (represented by uni-directional flow with low wind) and with assumption that all the brick

kilns are of same capacity and similar amount of emissions are released from all the stacks. The air quality model requires inputs with respect to stack details with flue gas characteristic, and meteorological data (like wind speed, wind direction, relative humidity, ambient temperature etc.) which predicts the resultant air quality in the region/places (receptor) of interest. The details of model input data with respect to emission sources, meteorological data and predicted resultant air quality in the Rajakhera village is given in the following sections.

2.0 Details of Brick Kilns and Meteorology

2.1 Distribution of Brick Kilns in the Rajakhera Block

At present, there are total 103 brick kilns in the Rajakhera Block. Distribution of all the brick kilns is depicted in **Fig. 1**. These kilns are further divided in three clusters as C1, C2 & C3 based on their location in different directions with respect to Rajakhera village. Cluster C1 (North-West Sector) has most number of brick kilns 62, whereas Cluster C2 (West-South West Sector) has 21 and Cluster C3 has 20 brick kilns. These kilns are located within about 11 km radius from the center of Rajakhera village.

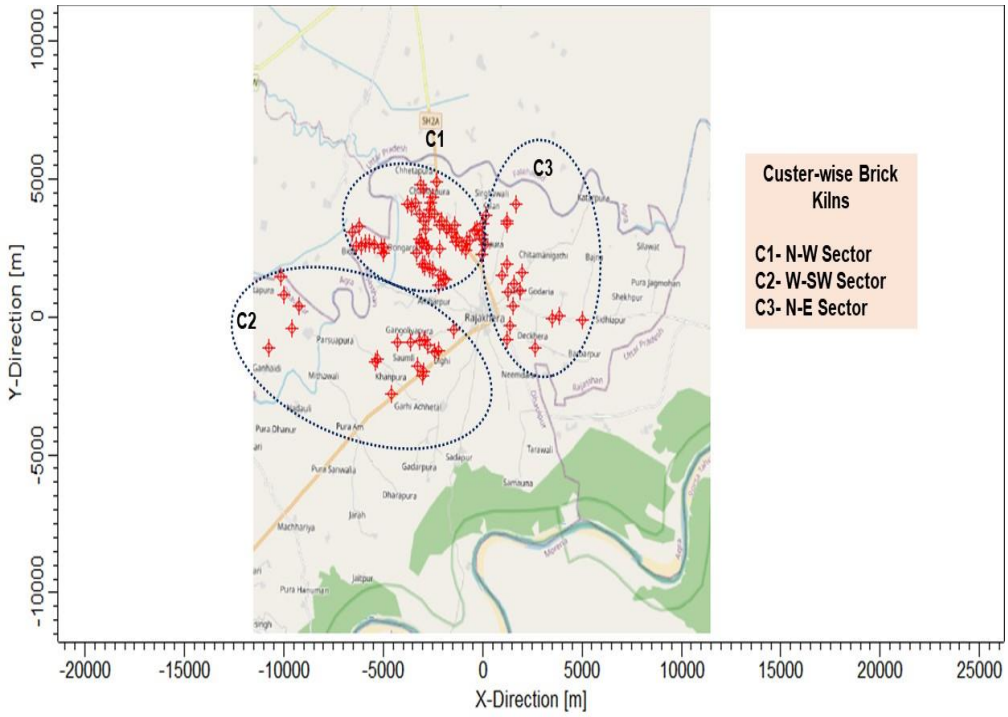


Fig. 1: Distribution of 103 Brick Kilns in the Rajakhera Block, Dholpur District

2.2 Stack and Likely Emission details of Brick Kilns

At present all the brick kilns are non-operational. In the absence of actual field data of the brick kilns in the Rajakhera Block, stack emission data of similar type of brick kilns (FCBTK) located in Aligarh district has been considered. Aligarh is aerially about 110 km from Rajakhera village. Stack monitoring in the brick kilns was done during June 2021 by the team of CPCB. Stack monitoring data of 8 brick kilns is considered and average values are used for the present analysis. Stack monitoring was done at an average height of about 3 meters from the ground, where portholes are provided in the brick kiln stack. The flue gas exit velocity observed at that level has been calculated at the top of the stack by following the standard procedure. Details of stack and flue gas characteristics considered in the air quality modeling are given in **Table 1.** Two emission scenarios are considered taking actual PM concentration and PM level corrected to 17% O_2 levels.

Table 1: Details of Stack and Flue Gas Characteristics used as Model Input Parameters (based on Actual Data Monitored for 8 Brick Kilns at Aligarh)

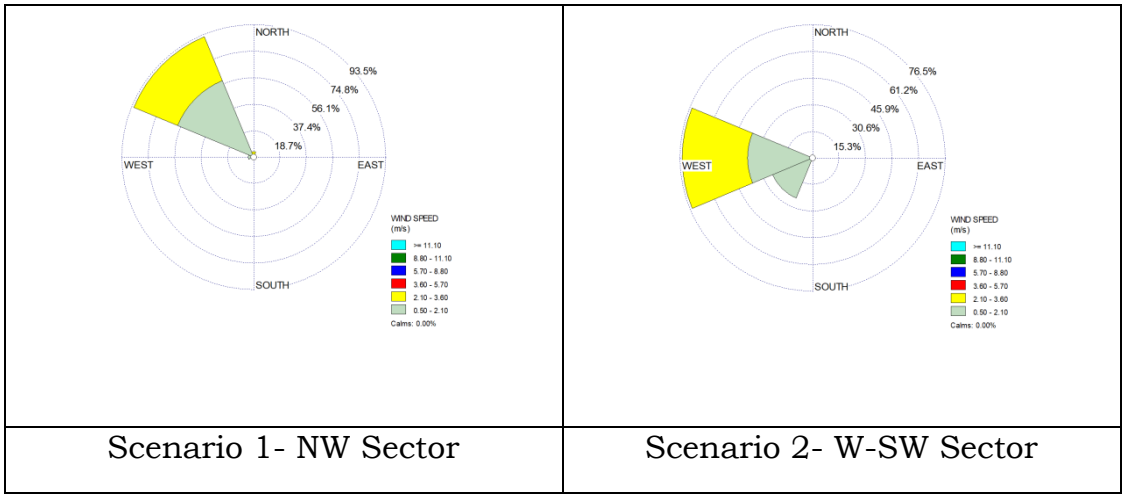
Sr. No.	Parameter	Value
	Type of Fuel Used	Coal + Husk
A.	**Monitored at Port Hole Height (3.0 m)**	
1.	Diameter of Stack, m	3.0
2.	Flue Gas Velocity, m/s	3.0
3.	Flue Gas Temp., K	350
4.	Actual PM Concentration, mg/Nm^3	273
5.	Corrected PM Concentration at 17% O_2, mg/Nm^3	420
6.	Normalized Flow Volume at 25°C, (Nm^3/day)	16,77,818
B.	**Calculated/Expected at the Stack Top (30.0 m) and used in Modeling Exercise**	
1.	Top Diameter (m)	1.0
2.	Exit Flue Gas Velocity (m/s) (corresponding to top diameter)	27.0
3.	Exit Flue Gas Temperature (K)	350
4.	Stack Height, (m)	30
5.	Actual PM Emission Load, kg/day	458
6.	Corrected PM Emission Load at 17% O_2,	705

	kg/day	
7.	Actual PM Emission Rate, g/s	5.30
8.	Corrected PM Emission Rate at 17% O_2, g/s	8.16
9.	Daily Operational Schedule	24 hrs Continuous
10.	Total Number of Brick Kilns in Rajakhera block	103

2.3 Meteorological Data

Region specific meteorological data was not available for Rajakhera Block/ Dholpur district, therefore, hourly surface meteorological data collected from the continuous ambient air quality monitoring station (CAAQMS) located at Sanjay Palace, Agra has been used. Agra is about 35 km from Rajakhera village. As most of brick kiln are expected to operate from November-December onwards, typical meteorological data for the month of December is considered. The meteorological pre-processor, AERMET has been setup and run for one day. The meteorological parameters used in the AERMET are wind speed, wind direction, relative humidity, ambient temperature, solar radiation, atmospheric pressure and precipitation. In addition to that, upper air estimator, an in-built feature of AERMOD, is used to estimate the upper air profile of meteorological parameters.

To present the worst case scenario (uni-direction wind flow with low wind speed), the collected meteorological data has been assumed into three uni-directional directions and one with the wind direction spread equally in all the 8 directions. Wind rose for 4 meteorological scenarios are shown in **Fig. 2**. The uni-directions are selected with a view to consider brick kilns in the upwind direction of Rajakhera village.



Scenario 1- NW Sector	Scenario 2- W-SW Sector

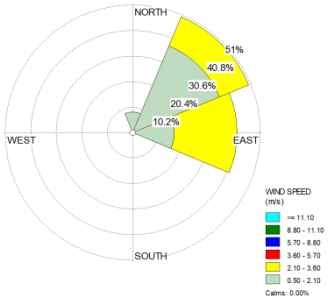
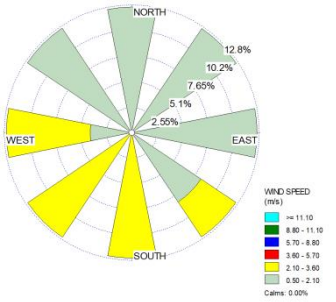
Dominant Wind Speed- 0.50-2.10 m/s	Dominant Wind Speed- 0.50-2.10 m/s
	
Scenario 3- N-E Sector	Scenario 4- All Directions
Dominant Wind Speed- 0.50-2.10 m/s	Dominant Wind Speed- 0.50-2.10 m/s

Fig. 2: Assumed Unidirectional Wind-rose under Different Meteorological Scenarios (Applicable for all 103 Brick Kilns)

3.0 Prediction of Impact due to 103 Brick Kiln Emissions on Rajakhera Village

3.1 Modelling Domain keeping Rajakhera Village as Receptor

Air quality modelling has been carried out to predict the likely impact of all the 103 brick kilns operation on the ambient air quality of Rajakhera village. The receptor grid is defined for an area of 11 km x 11 km with Rajakhera village as Centre and grid cell size of 0.5 km x 0.5 km, as shown in **Fig. 3**. Total 2025 receptor points are defined to capture the impact of emission from brick kiln stacks.

Further, 17 discrete receptor points are chosen within 2 km x 2 km region and in all the directions of the Rajakhera village area to predict the PM pollutant concentrations emitted from the brick kiln stacks. The discrete receptor locations are shown in **Figs. 4.**

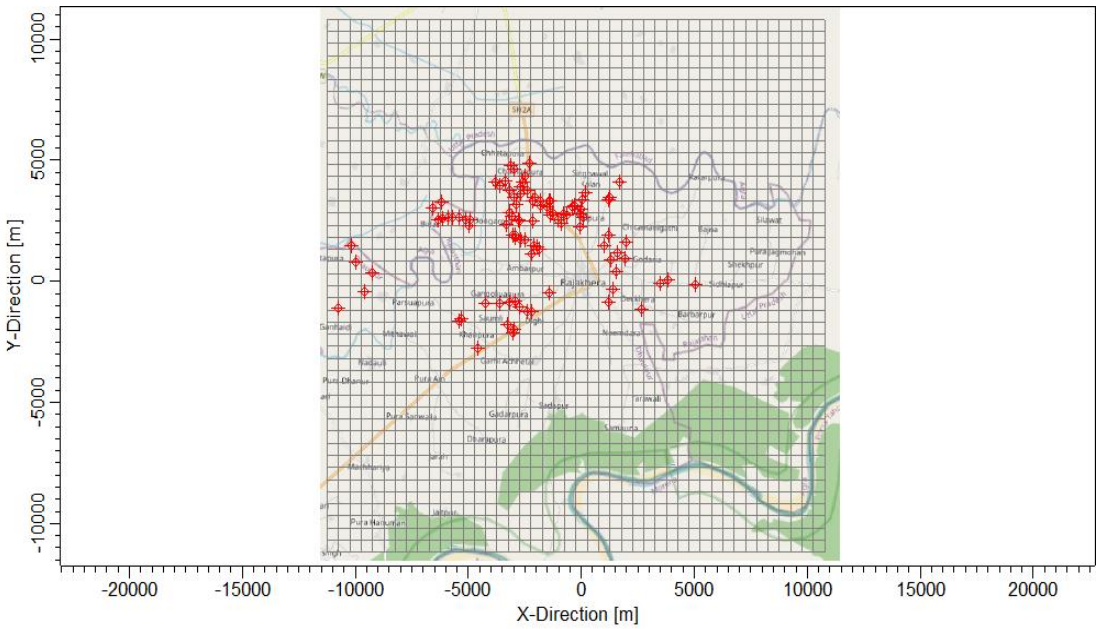


Fig. 3: Receptor Grid Points within 11 km x 11 km area keeping Rajakhera Village as the centre

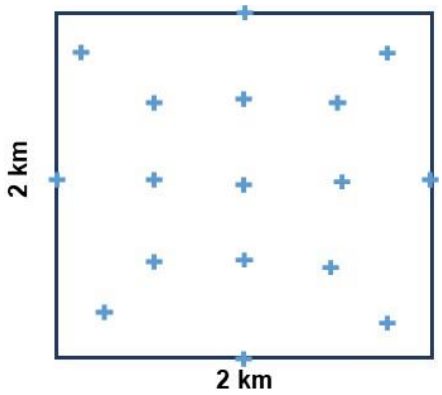


Fig. 4: Discrete Receptor Points for Rajakhera Village

(8 directions with 500 m interval + Centre)

3.2 Air Quality Modelling

Air quality model, AERMOD is used to predict the pollutant concentration emitted from multiple stacks as described in previous sections. The model is setup and run using input data of sources, emissions and meteorology. The model is setup keeping Rajakhera village as centre of modelling domain (11 km x 11 km) using actual UTM coordinate system which is converted to local coordinates for better understanding. Individual stacks are defined in the model and grouped altogether to predict the cumulative impact at Receptor Points under different meteorological and emission scenarios.

The cumulative impact of all the 103 brick kilns has been predicted under 4 meteorological scenarios (3 uni-directions and multiple directions) for 2 emission scenarios (actual and corrected PM emissions). The air quality modelling results are presented in the following sub-sections.

3.2.1 Cumulative Impact of 103 Brick Kilns for Actual PM Emission Scenario (458 kg/day)

24-hourly predicted PM Concentration Isopleths for actual PM emission scenario (458 kg/d or 5.30 g/s) considering different wind flow conditions is presented through **Figs. 5-8**, respectively for N-W sector, W-SW sector, N-E sector and multiple directions.

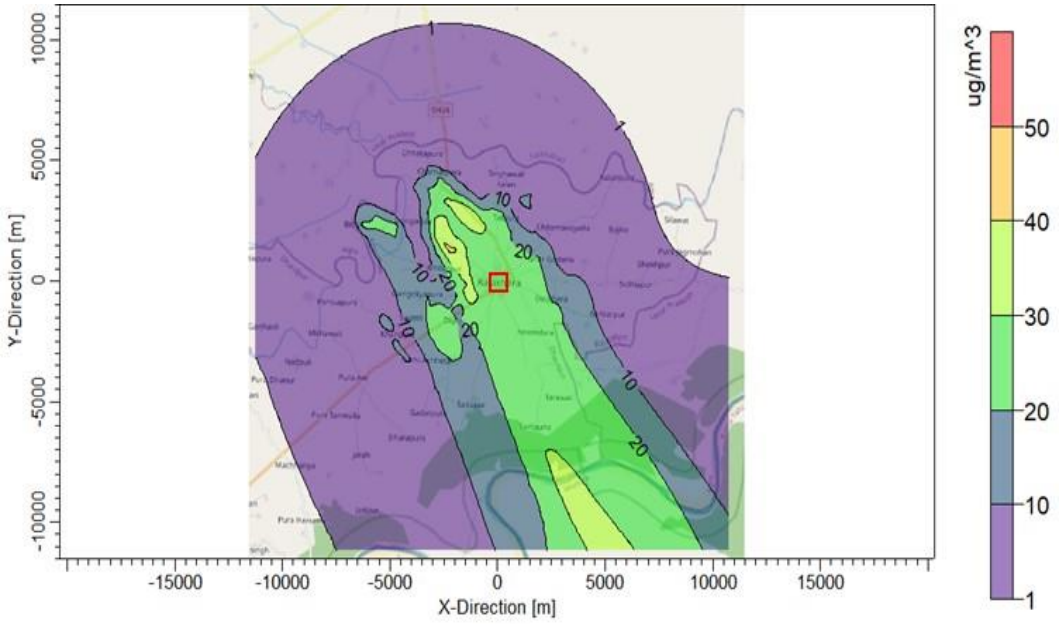


Fig. 5: Predicted PM Concentrations from All Brick Kilns (103) with Dominant Wind in North-West Sector in the Study Area

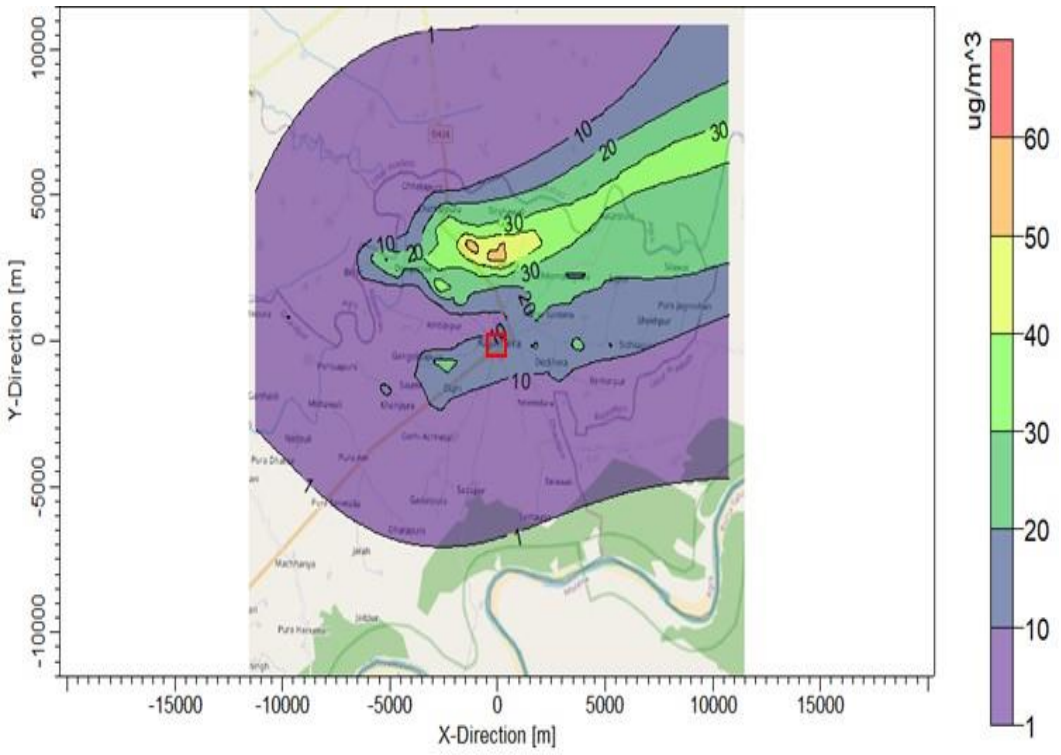


Fig. 6: Predicted PM Concentrations from All Brick Kilns (103) with Dominant Wind in West-South West Sector in the Study Area

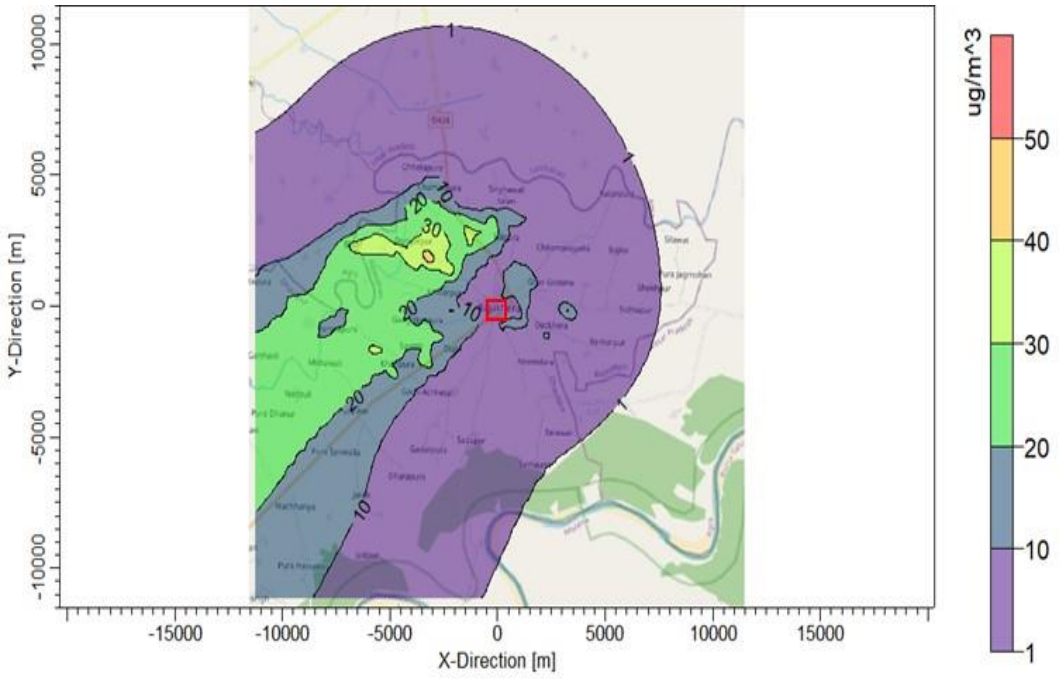


Fig. 7: Predicted PM Concentrations from All Brick Kilns (103) with Dominant Wind in North-East Sector in the Study Area

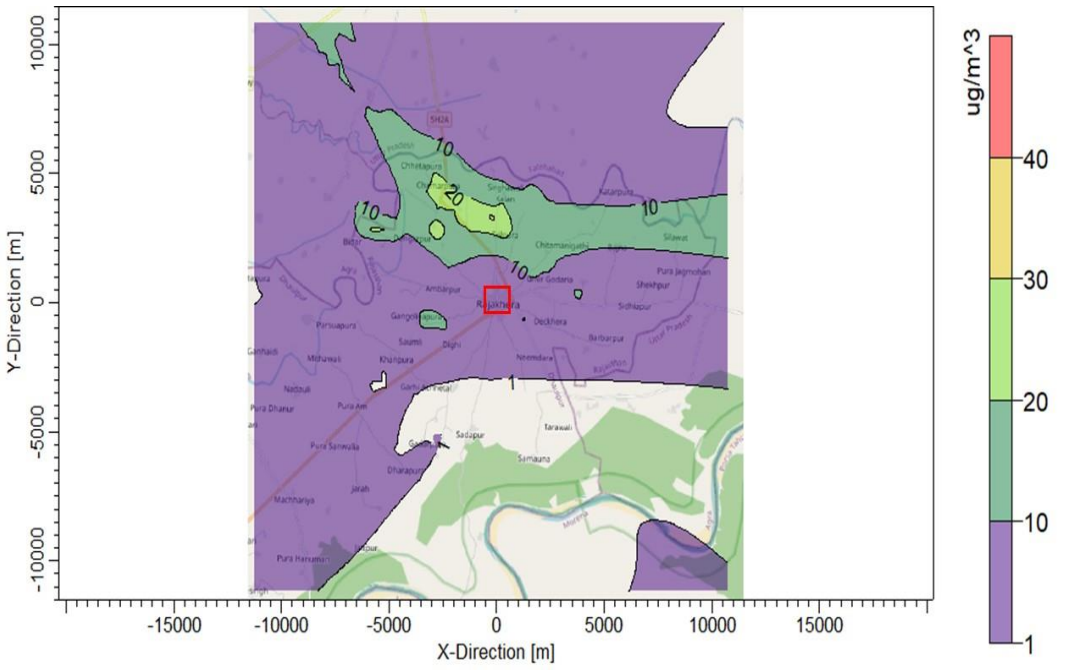


Fig. 8: Predicted PM Concentrations from All Brick Kilns (103) with Wind equally distributed in All Directions in the Study Area

3.2.2 Cumulative Impact of 103 Brick Kilns for Corrected PM Emission Scenario (705 kg/d)

Similarly, 24-hourly predicted PM concentration isopleths for corrected PM emission scenario (705 kg/d or 8.16 g/s) considering different wind flow conditions is presented through **Figs. 9-12**, respectively for N-W sector, W-SW sector, N-E sector and multiple directions.

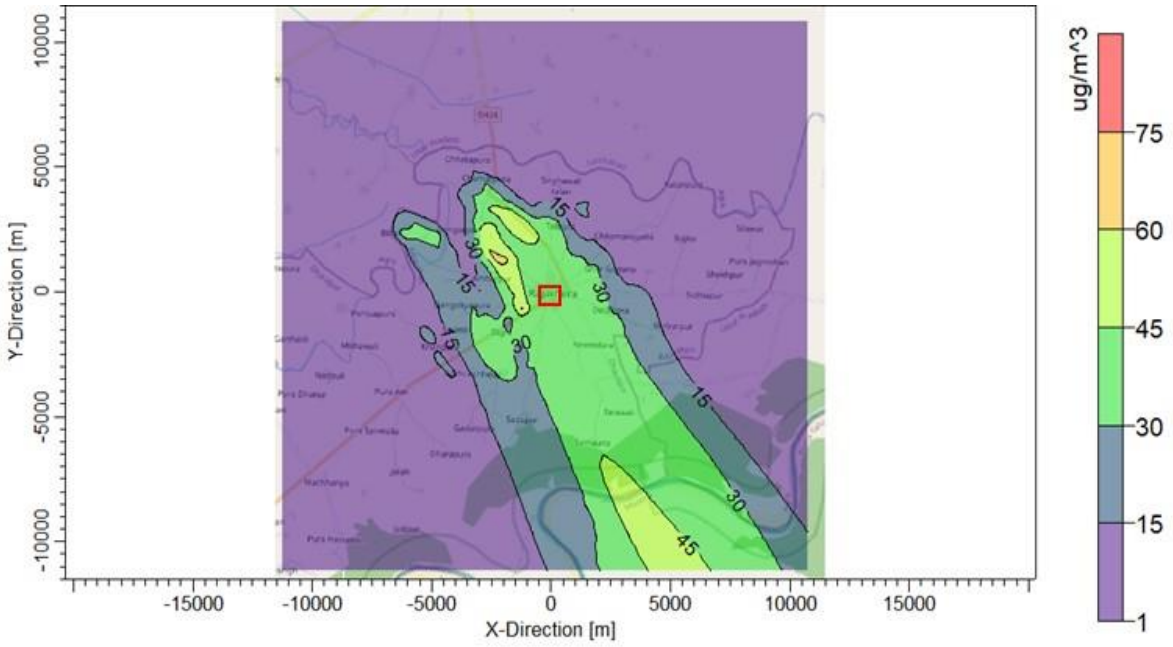


Fig. 9: Predicted PM Concentrations from All Brick Kilns (103) with Dominant Wind in North-West Sector in the Study Area

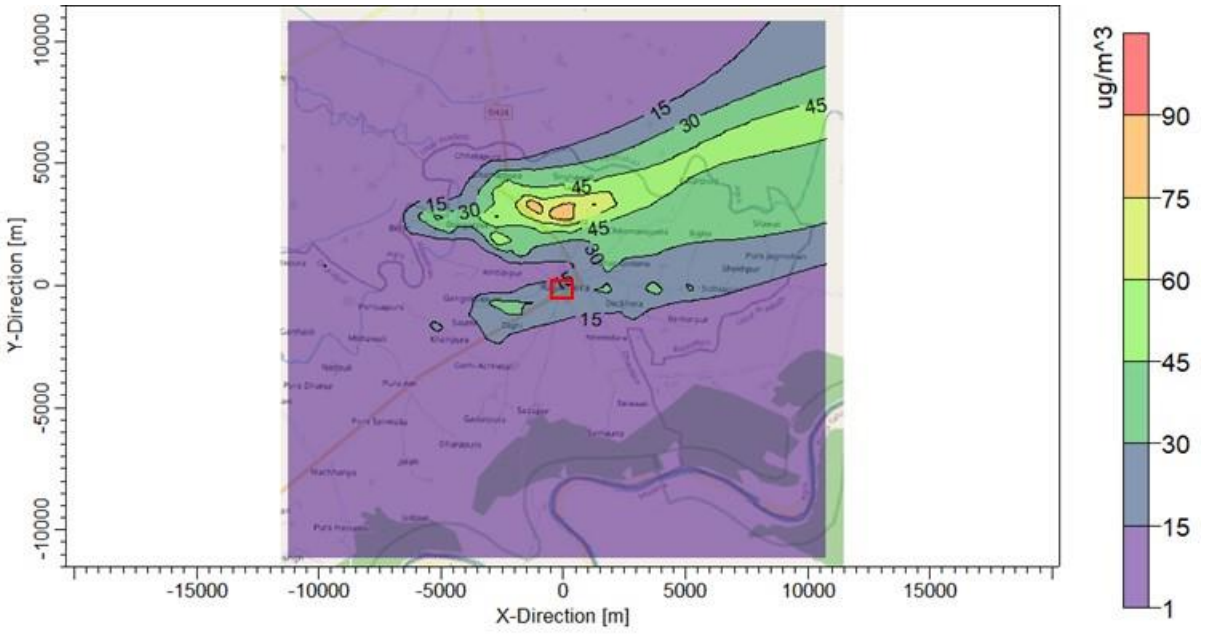


Fig. 10: Predicted PM Concentrations from All Brick Kilns (103) with Dominant Wind in West-South West Sector in the Study Area

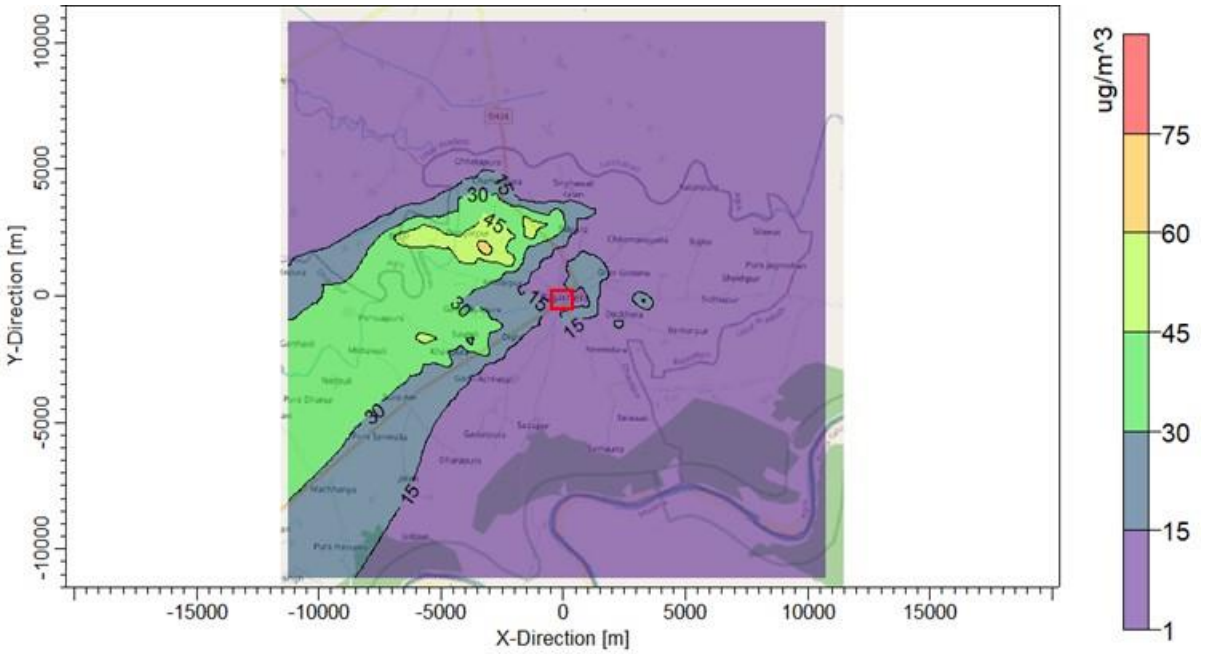


Fig. 11: Predicted PM Concentrations from All Brick Kilns (103) with Dominant Wind in North-East Sector in the Study Area

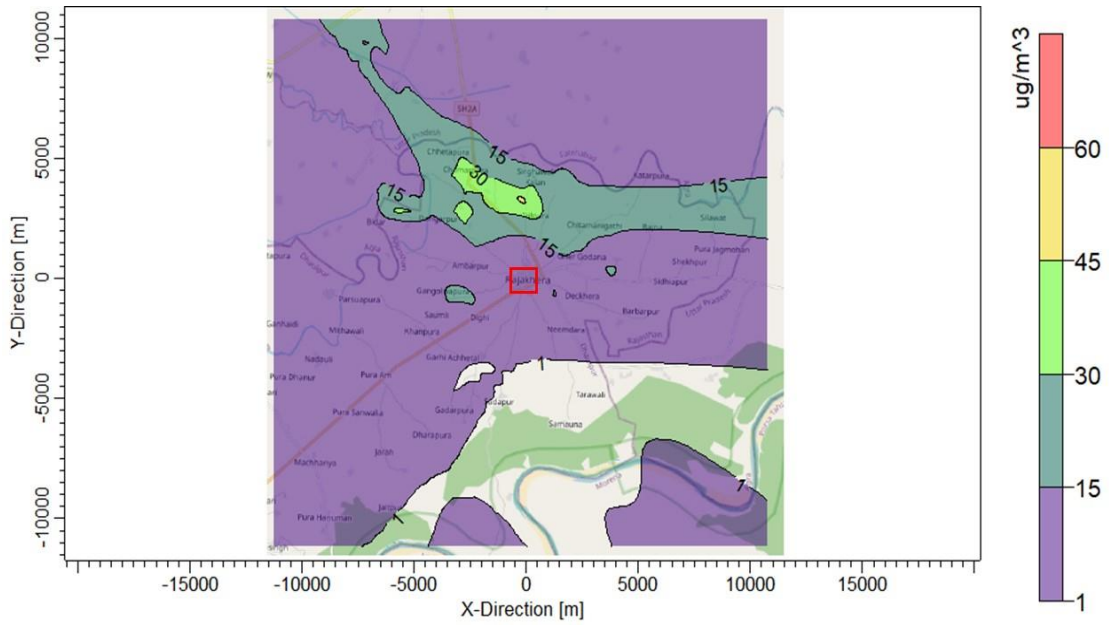


Fig. 12: Predicted PM Concentrations from All Brick Kilns (103) with Wind equally distributed in All Directions in the Study Area

3.3 Predicted PM Concentration Levels at Rajakhera Village

3.3.1 Cumulative Impact of 103 Brick Kilns

24 hourly predicted PM concentrations levels in Rajakhera Village under 2 emission and 4 meteorological scenarios (as observed in isopleths) are summarized in **Table 2**. Further, for better understanding predicted PM levels (minimum, maximum and average values) at discrete receptor points of Rajakhera village are included.

Depending upon the predominant wind direction, the brick kilns in the upwind direction of the village will have more impact on the air quality of the village. *Maximum impact is predicted under the worst meteorological condition (wind from N-W direction) to be 24 µg/m³ for actual emission scenario and 36 µg/m³ for combustion corrected emission scenario.*

Table 2: Predicted 24 hourly PM Concentrations Levels in Rajakhera Village for Different Emission and Met Scenario

Sr. No.	PM Emissions / Meteorological Scenario	No. of Brick Kilns likely to impact	PM Conc. Range based on Isopleths (µg/m³)	PM Conc. (µg/m³)		
				Min.	Max.	Avg.
1.	**Actual Emission Scenario (458 kg/d or 5.30 g/s)**					
a.	North-West (N-W) Sector	62	20-30	23	24	**24**
b.	West-South West (W-SW) Sector	21	10-20	9	18	**13**
c.	North-East (N-E) Sector	20	1-10	9	10	**9**
d.	All Directions	103	1-10	3	5	**4**
2.	**Corrected Emission Scenario (705 kg/d or 8.16 g/s)**					
a.	North-West (N-W) Sector	62	30-45	35	37	**36**
b.	West-South West (W-SW) Sector	21	15-30	13	28	**20**
c.	North-East (N-E) Sector	20	1-15	14	16	**15**
d.	All Directions	103	1-15	5	8	**6**

3.3.2 Impact of Single Brick Kiln

Further, impact of a single brick kiln is predicted under the similar situation/scenario. It is predicted that 24 hourly PM concentration from single brick would be about 2.32 µg/m³ and 3.62 µg/m³ for actual and corrected PM emissions scenario at a distance of 500 m from the brick kiln. The predicted PM levels at different distances are summarized in **Table 3**.

Table 3: Predicted 24 hourly PM Concentration from Single Brick Kiln at different Downwind Distances

Distance in Downwind Direction	PM Concentrations (µg/m³)			
	Actual Emission Scenario (458 kg/d or 5.30 g/s)		Corrected Emission Scenario (705 kg/d or 8.16 g/s)	
	N-W Sector Wind Flow	All Directions Wind Flow	N-W Sector Wind Flow	All Directions Wind Flow
500 m	**2.32**	0.01	**3.62**	0.02

1 km	1.28	001	3.18	002
1.5 km	0.99	0.01	2.10	0.02
2 km	**0.84**	**0.01**	**1.37**	**0.01**
2.5 km	0.59	0.01	1.13	0.01
3 km	0.47	0.01	1.06	0.01
5 km	0.40	0.00	0.66	0.01
10 km	0.36	0.00	0.56	0.00

Limitation: *In the absence of actual stack emission data for the brick kilns and meteorological data of the Rajakhera Block, similar/corresponding data for the nearby brick kilns in Aligarh region and met data of Agra has been used in the air quality modelling. Therefore, the air quality prediction results should be treated as indicative values. It is recommended that this exercise need to be updated for the brick kilns of Rajakhera block adopting "Guidelines on Methodologies for Source Emission Monitoring" published by CPCB and actual meteorological data for the Rajakhera region.*

Based on the supportive capacity estimation and the sensitivity analysis outcomes; regulatory authority may take decision on the month-wise restriction on the operation of the brick kilns situated on the upwind direction i.e. North, North-West considering the distance from the Rajakhera village.

V) SAAQMS data with respect to PM concentration for year 2021-22

The Ambient air quality data for FY 2021-22 of 10 CAAQMS stations reveals that in the particular months when Air quality is not as per NAAQS, 2009, due to no supportive carrying capacity the brick kiln operation needs to be restricted. The details are as tabulated below:

Cities	**No. of Months (FY 21-22) in which average AAQ was exceeding PM10 standard of 100µ/m3**	**Name of the months**
Alwar	3	Nov 21 to Jan 2022
Ajmer	6	April 2021, Nov 21 to March 2022
Bhiwadi	11	April 21 to Aug 21, Oct 21 to March 2022
Udaipur	6	April 2021, Nov 21 to March 2022
Jaipur	9	April 21 to June 21, Oct 21 to March 2022
Kota	6	April 2021, Nov 21 to March 2022
Jodhpur	11	April 21 to Aug 21, Oct 21 to March 2022
Pali	7	April-May 21 & Nov 21 to March 22

Monthly Ambient Air Quality monitored at 10 CAAQMS stations established in Rajasthan

City	Parameters	Monthly Concentration (microgram/m3)	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22
Alwar	PM10	Minimum	54	31	38	44	46	46	48	81	73	52	59	61
		Maximum	117	240	132	176	115	88	99	191	154	176	124	132
		Average	84	66	71	82	76	62	75	124	107	108	89	99
	PM2.5	Minimum	23	15	18	20	23	22	24	37	39	27	25	24
		Maximum	54	98	46	144	49	33	62	107	91	81	59	53
		Average	43	32	31	35	30	27	38	69	58	57	38	38
Ajmer	PM10	Minimum	65	39	50	41	31	46	38	54	45	35	60	72
		Maximum	281	161	218	109	145	101	145	257	177	203	225	186
		Average	113	84	79	71	79	63	98	115	109	103	109	115
	PM2.5	Minimum	24	22	23	24	23	22	26	27	28	25	34	29
		Maximum	165	70	71	46	54	50	75	144	114	89	110	103
		Average	53	41	35	36	38	31	53	58	56	57	59	55
Bhiwadi	PM10	Minimum	143	65	74	69	47	54	83	222	158	69	86	146
		Maximum	440	503	495	244	259	180	369	814	443	326	350	331
		Average	310	178	195	127	136	86	225	381	282	205	199	252
	PM2.5	Minimum	71	38	39	30	25	26	33	106	63	39	37	70
		Maximum	211	242	205	98	127	96	195	440	218	203	186	165
		Average	149	89	94	56	59	43	103	194	137	111	104	119
Udaipur	PM10	Minimum	73	42	44	26	61	33	38	61	83	61	95	79
		Maximum	159	228	143	155	134	110	140	276	204	232	206	182
		Average	107	99	76	81	95	67	99	158	148	150	141	138
	PM2.5	Minimum	36	18	23	18	32	17	23	40	44	23	43	38

		Maximum	62	78	59	58	60	43	68	186	121	113	86	84
		Average	49	41	36	36	42	32	48	87	79	75	58	64
Jaipur-1 (Psy. Center)	PM10	Minimum	53	16	62	30	25	22	29	91	86	47	63	71
		Maximum	203	149	264	113	114	74	182	258	190	192	260	181
		Average	127	87	106	74	73	40	103	168	128	106	113	127
	PM2.5	Minimum	33	8	36	16	15	8	17	50	56	22	28	30
		Maximum	103	71	75	57	52	47	123	190	117	141	92	116
		Average	61	39	47	37	34	22	51	111	85	64	51	61
Jaipur-2 Science Park	PM10	Minimum	61	29	64	31	51	34	44	93	122	71	59	78
		Maximum	236	181	267	117	141	76	164	300	262	281	382	210
		Average	132	103	117	72	86	51	107	173	183	167	156	139
	PM2.5	Minimum	27	13	31	17	23	13	17	53	45	29	27	34
		Maximum	86	72	100	52	59	34	78	184	98	113	132	93
		Average	52	42	46	32	35	23	49	94	70	68	63	63
Jaipur-3 Police Commissionerate	PM10	Minimum	58	23	69	42	39	32	61	145	105	71	72	88
		Maximum	278	435	289	131	140	119	261	355	233	329	309	223
		Average	139	112	114	79	83	68	153	218	161	167	153	156
	PM2.5	Minimum	34	12	35	18	19	19	33	64	49	34	33	34
		Maximum	124	195	80	53	55	54	123	236	129	183	106	116
		Average	76	54	49	37	38	32	77	100	85	88	69	74
Kota	PM10	Minimum	92	39	56	36	40	36	41	93	70	55	87	64
		Maximum	466	158	116	124	104	74	147	345	213	172	208	176
		Average	145	89	74	63	62	50	89	170	138	114	138	134
	PM2.5	Minimum	48	15	23	14	21	19	24	54	48	35	43	38
		Maximum	138	82	71	50	48	47	86	257	131	136	96	84
		Average	67	47	39	28	35	27	50	121	99	80	69	66
Jodhpur	PM10	Minimum	107	45	90	66	88	56	75	100	117	65	111	109
		Maximum	677	344	320	193	161	99	259	322	352	306	281	241
		Average	228	152	130	114	118	76	144	222	180	172	176	173

	PM2.5	Minimum	52	20	44	30	40	27	38	58	58	31	60	60
		Maximum	205	132	100	86	78	51	129	210	192	164	127	112
		Average	91	63	60	53	58	40	71	108	89	81	85	84
Pali	PM10	Minimum	128	38	60	51	42	51	51	64	52	66	72	73
		Maximum	1203	178	178	141	117	96	124	192	141	174	165	175
		Average	212	123	97	81	76	68	92	117	102	104	114	118
	PM2.5	Minimum	58	18	34	25	25	24	29	32	37	31	43	40
		Maximum	311	76	100	59	53	47	66	119	101	89	95	88
		Average	82	51	55	40	37	35	45	69	62	59	62	64

The studies pending as per the Hon'ble NGT order:

1. Analysis report of the soil quality
2. Impact of brick kilns on the air quality grid-wise/district-wise. Performance evaluation of brick kilns w.r.t the background concentration and carrying capacity of the area.

Recommendations:

1. A large number of brick kilns are still operating on FCBTK. Conversion of brick kiln as per the notification dated 22.2.2022 is to be implemented by the brick kilns owners to reduce the air pollution.
2. Based on the earlier carrying capacity study of Rajakhera block, Dholpur & Sriganganagar district, the regulation on the brick kiln operation may be imposed for the month in which negative supportive carrying capacity prevails. The Air Quality data of 10 CAAQMS stations for year 2021-22 reveals that the negative supportive capacity prevails from 3 months to 11 months in cities like Alwar, Ajmer, Bhiwadi, Udaipur, Jodhpur, Jaipur, Kota, Pali.
3. RSPCB shall initiate action against the violators operating the kiln near by the non-attainment cities without converting to zig-zag.

17/7/23

(Sunil Kumar Meena)
Sc-D
CPCB, Bhopal

Item No. 3

BEFORE THE NATIONAL GREEN TRIBUNAL
CENTRAL ZONE BENCH, BHOPAL
(Through Video Conferencing)

Original Application No. 67/2023 (CZ)

Ram Dass Applicant(s)

Versus

State of Rajasthan & Ors Respondent(s)

Date of Hearing: **17.03.2023**

CORAM: HON'BLE MR. JUSTICE SHEO KUMAR SINGH, JUDICIAL MEMBER
HON'BLE DR. ARUN KUMAR VERMA, EXPERT MEMBER

For Applicant(s): Mr. Harendar Neel, Adv.

For Respondent(s): Mr. Dharamvir Sharma, Adv
Mr. Yadvendra Yadav, Adv
Mr. Rohit Sharma, Adv

ORDER

1. The main question involved in this application is extending applicability of Graded Response Action Plan (GRAP), applicable to Fixed Chimney Bull Trench Kilns (FCBTK) to other coal fired brick kilns, including those using zig-zag technology in the State of Rajasthan to maintain the air quality with regard to carrying capacity for improving effectiveness of safeguards and the regulatory measures to minimise the impact of air pollution by operation of brick kilns and to enforce the prescribed norms in absence of carrying capacity of the environment to sustain such activity.

2. In India, air quality standards are measured in terms of the Air Quality Index (hereinafter "AQI"). The AQI was launched in India on 17-10-2014 by the Ministry of Environment and Forests. According to the press release of the Press information Bureau of the same date, it

consists of a comprehensive set of parameters to monitor and asses the air quality. The AQI considers eight pollutants (PM10, PM2.5, NO2, SO2, CO, O3, NH3, and Pb), and based on the levels of these pollutants six categories of AQI ranging from "Good" to "Severe" have been prescribed. The index also suggests the health effects of the pollution category wise.

3. The adverse effects of these extreme levels of air pollution spare no one — the young, the old, the infirm and even the future generations. A study of the data of the Global Health Depository of the World Health Organization reveals that India has the world's highest death rate from chronic respiratory diseases and that about 1.5 million people in India die annually due to indoor and outdoor pollution. The Kolkata-based Chittaranjan National Cancer Institute (CNCI), in a study commissioned and handed over to the Central Pollution Control Board, found that key indicators of respiratory health, lung function to palpitation, vision to blood pressure, of children in Delhi, between four and 17 years of age, were worse off than their counterparts elsewhere. It also found that more than 40% of the school children suffer from lung damage (Landmark Study Lies Buried, 2-4-2015, The Indian Express). We note with apprehension that there are nascent studies suggesting that pollution can lower children's IQ, hurt their test scores and increase the risks of autism, epilepsy, diabetes and even adult-onset diseases like multiple sclerosis (Holding Your Breath in India, 29-5- 2015, The New York Times).

4. When we refer to these extreme effects, we are not merely referring to the inconvenience caused to people, but to abject deprivation of a range of constitutionally embedded

rights that the residents ought to have enjoyed. Needless to state, the grim situation of air quality adversely affected the right to education, work, health and ultimately, the right to life of the citizens, and this Tribunal is constitutionally bound to address their grave concerns. (***M.C. Mehta v. Union of India [M.C. Mehta v. Union of India, (1998) 6 SCC 60] , [M.C. Mehta v. Union of India, (1998) 9 SCC 589] , M.C. Mehta v. Union of India [M.C. Mehta v. Union of India, (1998) 8 SCC 648] and M.C. Mehta v. Union of India [M.C. Mehta v. Union of India, (1998) 8 SCC 206***]).”

5. In the present matter reply has been submitted by R-1, 3 and 5, but to further proceed following assessment is required to be filed by the competent authority for proper consideration:

   (i) Adoption of standard operating practices for Zig-Zag kilns operations.

   (ii) Preventing/reducing air pollution generation at source by change of brick kilns technology and/or shift to cleaner gaseous fuels Tunnel Kiln Technology.

   (iii) Use of PNG/CNG.

   (iv) Air Pollution Control Devices (End-of-the Pipe Technologies).

   (v) Applied research/pilot testing for improvement in brick manufacturing process.

6. The contention of the applicant is that in severe air quality condition, coal fired brick kilns cannot be allowed to operate. There is a need of the time to switch over to the PNG. There must be inter-se distance of atleast 500 meters to maintain the air quality in the location of brick kilns, further when brick kilns start they should not be allowed to start simultaneously, but their firing should be staggered to avoid adverse impact on the environment.

7. Categories of air quality and its adverse health effect can be noticed from following tables extracted from the judgment of the Hon'ble Supreme Court in *Arjun Gopal & Ors. v. UOI & Ors.* *2017 (1) SCC, 412:*

Table 1

AQI	***Associated Health Impacts***
Good (0-50)	***Minimal impact.***
Satisfactory(51-100)	***May cause minor breathing discomfort to sensitive people.***
Moderatelypolluted (101-200)	***May cause breathing discomfort to people with lung disease such as asthma,and discomfort to people with heart disease, children and older adults.***
Poor (201-300)	***May cause breathing discomfort to people on prolonged exposure, and discomfort to people with heart disease.***
Very Poor(301-400)	***May cause respiratory illness to the people on prolonged exposure. Effectmay be more pronounced in people with lung and heart diseases.***
Severe May(401-500)	***May cause respiratory impact even on healthy people, and serious health impacts on people with lung/heart disease. The health impacts may beexperienced even during light physical activity.***

Table 2

AQI Category, Pollutants and Health Breakpoints								
AQI category (Range)	***PM10 24-hr***	***PM2.5 24-hr***	***NO2 24-hr***	***O3 8-hr***	***CO 8-hr (mg/m^3)***	***SO2 24-hr***	***NH3 24-hr***	***Pb 24-hr***
Good (0-50)	***0-50***	***0-30***	***0-40***	***0-50***	***0-1.0***	***0-40***	***0-200***	***0-0.5***
Satisfactory (51-100)	***51-100***	***31-60***	***41-80***	***51-100***	***1.1-2.0***	***41-80***	***201-400***	***0.5-1.0***
Moderately polluted (101-200)	***101-250***	***61-90***	***81-180***	***101-168***	***2.1-10***	***81-380***	***401-800***	***1.1-2.0***
Poor (201-300)	***251-350***	***91-120***	***181-280***	***169-208***	***10-17***	***381-800***	***801-1200***	***2.1-3.0***
Very poor (301-400)	***351-430***	***121-250***	***281-400***	***209-748****	***17-34***	***801-1600***	***1200-1800***	***3.1-3.5***
Severe (401-500)	***430+***	***250+***	***400+***	***748+****	***34+***	***1600+***	***1800+***	***3.5+***

8. We are conscious that brick kilns may be necessary. Our object is not to stop any legitimate business activity but to

enforce the right to breathe fresh air which is right to life. The source apportionment studies, show that brick kilns contribute 5-7% or upto 8% PM. Air pollution Control devices to be installed by the polluting sources including the brick kilns need to comply not only the consent standards but are also the Ambient Air Quality norms and available assimilative capacity of the region. If the right to fresh air is not enforced, the consequences of brick kilns beyond carrying capacity of the air quality in the area are disastrous in terms of deaths and air borne diseases. This will be contrary to the mandate of the Constitution and the environmental law, particularly the principle of 'Sustainable Development'. It is well established that deteriorated ambient air quality in terms of PM10 and PM2.5 affects respiratory system particularly, the lungs which may make individuals more vulnerable to get other related fatal diseases.

9. Accordingly, we direct CPCB to constitute a Committee of five experts to suggest ways and means, if any, by which sustenance of brick kilns activities may be viable. It will be open to CPCB to nominate in-house or other Experts. The CPCB may also explore viability of PNG as replacement of coal and other best practices in terms of fuel used, at other places. It will be open to the brick kilns owners/associations to give any other suggestions or alternatives for consideration by CPCB in spirit of collaboration with a view to find a solution. The CPCB may constitute an expert Committee within three weeks which may give its report within six weeks thereafter. Further report may be furnished in the matter before the next date by e-mail at ***ngtczbbho-mp@gov.in*** preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF."

10. The Committee referred above must include in the report the month wise data of SAAQMS with respect to PM concentration for the year 2021-2022, district wise with regard to PM 2.5 and PM 10 in addition to the report on i) Impact of brick kilns operation on loss/degradation of top soil, ii) study involving Carrying Capacity Assessment of brick kilns with adequate samples in terms of number of brick kilns and days for which monitoring be conducted, iii) Evaluation of the performance of brick kilns against the background concentration and carrying capacity of the area and iv) Impact on Brick Kilns operation on ambient air in categorized different districts of State of Rajasthan."

11. The question is not merely of an individual brick kiln not emitting pollution or the extent of contribution of the brick kilns taken separately, but of the capacity of the area being already air polluted and unable to take the load of pollution. When there is no carrying capacity in the area for further air pollution, we find it difficult to permit operation of the closed brick kilns to uphold the 'Sustainable Development' principle. When even without operation of the brick kilns the air quality is not within the norms, the impact of operation of the brick kilns cannot be ignored. Thus, we find it difficult to accept the submission that the individual brick kilns maintaining the prescribed standards for discharge of emissions are entitled to operate or that they be allowed to operate on the ground that pollution caused by the brick kilns is less than other pollution from other sources irrespective of carrying capacity of the area. The fact remains that brick kilns add to the air pollution and thereby affect right of citizens to breathe fresh air.

12. The main reason for air pollution by brick kilns is use of coal etc. as fuel. The pollution can be minimized if the fuel which is currently used is considered to be replaced by cleaner fuels like PNG by appropriate modification in design not adding to the PM load.

13. Report of the CPCB on the above analysis may be filed before the next date of hearing.

List it on 02nd May, 2023

Sheo Kumar Singh, JM

Dr. Arun Kumar Verma, EM

17th March, 2023
O.A No. 67/2022 (CZ)
PU

क्षेत्रीय निदेशालय (मध्य), भोपाल
Regional Directorate (Central), Bhopal
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Ministry of Environment, Forests & Climate Change, Government of India)

RD/BPL/OA67_2022(CZ)/2023-24/01 Date: 18.4.2023

OFFICE ORDER

Subject: Constitution of 05-member committee in compliance of Hon'ble NGT order dated 17.3.2023 in O.A. No. 67 of 2022 (CZ); Ram Dass Vs State of Rajasthan & Ors; - reg.

The Hon'ble NGT (CZ) vide its order dated 17.3.2023, in the matter of O.A. No. 67 of 2022 (CZ); Ram Dass Vs State of Rajasthan & Ors, directed under Para 9 & 10 as:

"9. Accordingly, we direct CPCB to constitute a committee of fiveexperts to suggest ways and means, if any, by whichsustenance of brick kilns activities may be viable. It will beopen to CPCB to nominate in-house or other Experts. TheCPCB may also explore viability of PNG as replacement of coaland other best practices in terms of fuel used, at other places.It will be open to the brick kilns owners/associations to giveany other suggestions or alternatives for consideration byCPCB in spirit of collaboration with a view to find a solution.The CPCB may constitute an expert Committee within threeweeks which may give its report within six weeks thereafter.Further report may be furnished in the matter before the nextdate by e-mail at ***ngtczbbho-mp@gov.in*** *preferably in the form ofsearchable PDF/ OCR Support PDF and not in the form ofImage PDF."*

In compliance of the above, a 5 members committee comprising of the following members is hereby constituted:

1. Dr K V George, Chief Scientist & Head, APC division, NEERI, Nagpur
2. Prof Sudhir Kumar, HAG, Environmental Engg, MNIT, Jaipur
3. Sh Sunil Kumar Meena, Sc-D, CPCB, Regional Directorate, Bhopal – **Nodal Officer**
4. Sh Vinay Prabhakar, Sc-C, IPC-IV, CPCB, New Delhi
5. Sh Vikram Singh Parihar, Chief Scientific Officer, RSPCB, Jaipur

Terms of Reference (TOR) of the Committee:

1. *Suggest ways and means, if any, by which sustenance of brick kilns activities may be viable&explore viability of PNG as replacement of coal and other best practices in terms of fuel usedat other places.*
2. *Receive suggestions from the brick kilns owners/associations.*
3. *Prepare report on below by including the month wise data of SAAQMS with respect to PM concentration for the year 2021-2022, district wise with regard to $PM_{2.5}$ and PM_{10}:*

   i) Impact of brick kilns operation on loss/degradation of topsoil,
   ii) Study involving Carrying CapacityAssessment of brick kilns with adequate samples in terms of number of brick kilns and days for which monitoring be conducted,

iii) Evaluation of the performance of brick kilns against the background concentration and carrying capacity of the area and

iv) Impact on Brick Kilns operation on ambient air in categorized different districts of State of Rajasthan."

4. The committee shall finalise the report within the stipulated time frame.

(Sunil Kumar Meena)
Sc-D & Nodal Officer

To

1. Committee members: *for the compliance of the Hon'ble NGT order, please.*

Copy to:

1. MS, RSPCB, Rajasthan
2. AD & DH, IPC-V, CPCB, Delhi
3. DH-Law, CPCB, Delhi

for *kind information, please.*

(Sunil Kumar Meena)
Nodal Officer

क्षेत्रीय निदेशालय (मध्य), भोपाल
Regional Directorate (Central), Bhopal
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Ministry of Environment, Forests & Climate Change, Government of India)

File No.: RD/BPL/OA67_2022(CZ)/2023-24/09 - 12 Date: 24.04.2023

REVISED OFFICE ORDER

Subject: Constitution of 05-member committee in compliance of Hon'ble NGT order dated 17.03.2023in O.A. No. 67 of 2022 (CZ); Ram Dass Vs State of Rajasthan & Ors - reg.

The Hon'ble NGT (CZ) vide its order dated 17.03.2023, in the matter of O.A. No. 67 of 2022 (CZ); Ram Dass Vs State of Rajasthan & Ors, directed under Para 9 as:

"9. *Accordingly, we direct CPCB to constitute a committee of five experts to suggest ways and means, if any, by which sustenance of brick kilns activities may be viable. It will be open to CPCB to nominate in-house or other Experts. The CPCB may also explore viability of PNG as replacement of coal and other best practices in terms of fuel used, at other places. It will be open to the brick kilns owners/associations to give any other suggestions or alternatives for consideration by CPCB in spirit of collaboration with a view to find a solution. The CPCB may constitute an expert Committee within three weeks which may give its report within six weeks thereafter. Further report may be furnished in the matter before the next date by e-mail at ngtczbbho-mp@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF."*

In compliance of the above, a 5 members* committee comprising of the following members is hereby constituted:

1. Dr K V George, Chief Scientist & Head, APC Division, NEERI, Nagpur
2. Prof Sudhir Kumar, HAG, Environmental Engg, MNIT, Jaipur
3. Dr. Neeraj Jain, Principal Scientist, CBRI, Roorkee
4. Sh Sunil Kumar Meena, Sc-D, CPCB, Regional Directorate, Bhopal- **Nodal Officer**
5. Sh Vikram Singh Parihar, Chief Scientific Officer, RSPCB, Jaipur

*Sh Vinay Prabhakar, Sc-C, IPC-IV, CPCB, New Delhi -shall extend his support as Special invitee

Terms of Reference (TOR) of the Committee:

1. Suggest ways and means, if any, by which sustenance of brick kilns activities may be viable & explore viability of PNG as replacement of coal and other best practices in terms of fuel used at other places.
2. Receive suggestions from the brick kilns owners/associations.
3. Prepare report on below by including the month wise data of SAAOMS with respect to PM concentration for the year 2021-2022, district wise with regard to $PM_{2.5}$ and PM_{10}:

i) Impact of brick kilns operation on loss/degradation of top-soil,
ii) Study involving Carrying Capacity Assessment of brick kilns with adequate samples in terms of number of brick kilns and days for which monitoring be conducted,
iii) Evaluation of the performance of brick kilns against the background concentration and carrying capacity of the area and
iv) Impact on Brick Kilns operation on ambient air in categorized different districts of State of Rajasthan."

4. The committee shall finalise the report within the stipulated time frame.

(P. Jagan)
Regional Director

To,

The Committee Members: for the compliance of the Hon'ble NGT order, please.

Copy to:

1. MS, RSPCB, Rajasthan
2. Scientist-F & DH, IPC-V, CPCB, Delhi
3. DH-Law, CPCB, Delhi

} for kind information, please

Regional Director

Minutes of meeting of 1st virtual meeting held on 26.4.2023 in compliance of Hon'ble NGT O.A. 67 of 2023 (CZ) order dated 17.3.2023

In compliance of Hon'ble NGT order dated 17.3.2023 in O.A. 67 of 2023 in the matter of Ram Dass Vs State of Rajasthan & Ors, Central Pollution Control Board, constituted a 5 member committee and the 1st meeting of the committee held virtually on 26.4.2023. Following committee members were present during the meeting:

1. Dr K V George, Chief Scientist & Head, APC Division, NEERI, Nagpur
2. Prof Sudhir Kumar, HAG, Environmental Engg, MNIT, Jaipur
3. Sh Sunil Kumar Meena, Sc-D, CPCB, RD, Bhopal- **Nodal Officer**
4. Dr. Neeraj Jain, Principal Scientist, CBRI, Roorkee
5. Sh Vikram Singh Parihar, Chief Scientific Officer, RSPCB, Jaipur

Sh Vinay Prabhakar, Sc-C, IPC-IV, CPCB, New Delhi joined the committee as special invitee.

Nodal officer, Sh Meena welcomed all the members and provided a brief introduction about this matter along with other matters related to brick kilns operation viz. O.A. 31 of 2021 (Brick kilns of Dholpur district), O.A. 262 of 2020 (brick kilns of Sriganganagar districts) etc. Further point-wise preliminary discussion held on availability of the PNG & other fuel, conversion of kilns from FCBTK to Zig Zag, available ambient air quality network in Rajasthan etc.

Dr George, Chief Scientist, NEERI suggested that dispersion modelling is one of the tool which can be suitably used to assess the area under impact & the ground level concentration. He also emphasised to have physical meeting with brick owners/association after receiving their submission in writing to understand the field issues and their concern. He also explained the importance of Weather research & Forecasting model in deriving important information for assessment of carrying capacity etc.

Prof Sudhir Kumar, MNIT suggested to take 10-20% samples of brick kilns for carrying capacity assessment; as being practised in social surveys & others. Further, he emphasised on the importance of source apportionment studies, to identify the contribution of specific pollution source. Monitoring plays a vital & important role in such assessment too.

Dr. Neeraj Jain, Principal Scientist, CBRI discussed on the type of brick kilns and applicable norms. He discussed on stack monitoring procedures and drawbacks of conical chimney in calculating the emission load. He also added that emission load of approx.1000 kg/day from brick kilns determined in earlier studies is not correct. He further pointed out that in earlier studies for calculation of carrying capacity to determine the number

of brick kilns which may be allowed for operation in a particular month in a particular district, it was assumed that the entire load on CAAQMS is due to brick kilns only ignoring the emissions from other sources.

Sh Vikram Parihar, CSO, RSPCB informed that carrying capacity study was recently awarded by brick kiln owner/association to National Institute of Technology, Jaipur for studying the brick kilns and carrying capacity. It was also informed that a study on brick kilns operational in NCR has also completed.

Sh Vinay Prabhakar, Sc-C, CPCB, Delhi informed that earlier in one of the NGT matter, the impact of brick kilns on soil degradation was studied and a study on brick kiln is also completed by IIT Kanpur too.

After the detailed discussion following information were sought from the concern for bringing them in discussion and planning of the field visit etc.:

1. Information required from RSPCB
    i. Name of the districts of Rajasthan having brick kilns in clusters
    ii. Name & address (Mobile & email ID) of the brick kiln associations of the districts where brick kilns are in clusters
    iii. Name & contact details (communication address, GPS location, mobile no. & email ID) of the highly pollution industries situated in these districts where CAAQMS is installed
    iv. Details of CAAQMS (GPS location, installation month year, data availability started since etc.) installed in these districts by RSPCB & other agency
    v. Study report of NCR region w.r.t. brick kilns.
    vi. Detailed survey report of brick kilns (in excel format) covering following:
        1. Name of the owner
        2. Name of the Brick Kiln
        3. Address
        4. Tehsil
        5. District
        6. Mobile No.
        7. E mail
        8. GPS location (latitude & longitude) in Degree Decimal
        9. Commissioning Year
        10. Present Operation Start Date
        11. Consented Quantity (thousand/day)
        12. Actual Quantity (thousand/day)
        13. Type (FCBTK/Zig Zag/others)
        14. Operational as Zig Zag since (DD-MM-YYYY)
        15. Brick Kiln Size in meter (L x W x H)
        16. Number of Labours
        17. Distance from Main Road (in meter)
        18. CTO Valid upto
        19. Mine Area (in Hectare)
        20. Mine Dept permission validity

21. Capacity of Mine (T/Annum) - Granted
22. Capacity of Mine (T/Annum) - Actual
23. Water Source
24. Quantity of daily water use (litres)
25. Days of operation in a year
26. Operational months name
27. Stack Height
28. Height of Porthole from Miyana
29. Platform provided (Yes/ No)
30. Fuel used (Tudi/ Sarso/Gobar/coal/other)
31. Daily Fuel Consumption
32. No. Of firing Mouth
33. Interval of Firing (Minutes)
34. Brick Weight (in Kgs) - WET
35. Brick Weight (in Kgs) - DRY

(**Action by:** RSPCB by 5.5.2023 for S.No. i to v; & by 10.5.2023 for S.No. vi)

2. Information required from CPCB:
   i. Study report on impact on soil by brick kilns
   ii. Study report of IIT Kanpur on brick kiln

(**Action by**: Sh Vinay Prabhakar, Sc-C by 2.5.2023)

i. Committee report submitted in NGT in O.A. 262/2020 & O.A. 31/2021 related to brick kilns of Sriganganagar & Dholpur respectively.
ii. Providing CAAQMS & OCEMS emission data of Suratgarh thermal Power Plant to Dr George for assessment.

(**Action by:** Sh Sunil Kumar Meena, Sc-D by 2.5.2023)

All the information shall be shared by concern with Sh Sunil Kumar Meena, Sc-D on sunil.cpcb@gov.in positively within timeline.

The meeting ended with thanks to all the committee members.

SUNIL KUMAR MEENA
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Date: 2023.05.09 12:01:22 +05'30'

(Sunil Kumar Meena)
Sc-D & Nodal Officer
CPCB, RD, Bhopal
Dated: 28.4.2023

Minutes of meeting of the 2nd virtual meeting held on 17.5.2023 in compliance of Hon'ble NGT O.A. 67 of 2023 (CZ) order dated 17.3.2023

The 5 members committee constituted by CPCB in compliance of Hon'ble NGT order dated 17.3.2023 in O.A. 67 of 2023 in the matter of Ram Dass Vs State of Rajasthan & Ors, hold its 2nd meeting on 17.5.2023 through virtual mode. Following committee members were present during the meeting:

1. Dr K V George, Chief Scientist & Head, APC Division, NEERI, Nagpur
2. Prof Sudhir Kumar, HAG, Environmental Engg, MNIT, Jaipur
3. Sh Sunil Kumar Meena, Sc-D, CPCB, RD, Bhopal- **Nodal Officer**
4. Dr. Neeraj Jain, Principal Scientist, CBRI, Roorkee

Sh Vinay Prabhakar, Sc-C, IPC-IV, CPCB, New Delhi joined the committee as special invitee. Committee member Sh Vikram Singh Parihar, Chief Scientific Officer, RSPCB, Jaipur was unable to attend the meeting due to ongoing laboratory audit.

Nodal officer welcomed all the members and briefed about the status of information as required under 1st meetings minutes. As per the information furnished by RSPCB, there are 10 CAAQMS stations in 8 districts i.e. Ajmer, Alwar, Bhiwadi, Jaipur, Jodhpur, Kota, Pali & Udaipur are operational since long; whereas there are 35 new CAAQMS stations, out of which 33 stations started operation from Nov 2022. Station at Dungarpur & Jalore are yet to get operational.

CAAQMS		**NAMP (Manual stations)**	
Old **(10)**	New **(35)** (Start operating from Nov 2022)	Old **(39)**	New **(18)** (since 2022-233)
Jaipur-03 Ajmer, Alwar, Bhiwadi, Kota, Udaipur, Pali, Jodhpur – **01 each**	(Jaipur-03, Kota-02, Jodhpur-04) Banswara, Bharatpur, Bhilwara, Bikaner, Bundi, Chittorgarh, Churu, Dausa, Dholpur, Dungarpur, Hanumangarh, Jaisalmer, Jalore, Jhalawar, Jhunjhunu, Karauli, Nagaur, Pratapgarh, Rajsamand, Sawai Madhopur, Sikar, Sirohi, Sriganganagar, Tonk – **01 at each district**	Chittorgarh-03, Udaipur-03, Kota-6, Jodhpur-9, Jaipur-9, Bhiwadi-3, Alwar-3, Bharatpur-3	Bikaner, Sikar, Pali, Bhilwara, Kishangarh, Balotra **– 03 at Each district**

It was also informed that, the Aerosol Optical Density (AOD) data for PM2.5 of selected 19 locations covering locations of CAAQMS, manual stations and brick kiln areas were sought from IIT Delhi vide letter dated 14.6.2023 and same were received on 16.6.2023. These AOD data will help in knowing the co-relation in satellite data to field stations values.

The brick kiln survey reports received on 6.6.2023 from RSPCB was also discussed. As per the survey report, there are total 2037 brick kilns established in 24 districts of the Rajasthan. Out of these 263 are of Zig-Zag type & rest 1730 are operating on FCBTK. There are 07 districts viz. Sriganganagar, Bhilwara, Hanumangarh, Bharatpur, Alwar, Dholpur & Jhunjhunu having more than 100 brick kilns. The NCR region's kilns of Alwar & Bharatpur districts operated during March to June for 4 months; whereas in other districts the operation period is of 5 to 8months i.e. October to June. Majorly mustard residue, biomass is the fuel used by the BKs. In 1000 bricks 300Kgs fuel is used and on an average daily 12-13 thousands bricks are produced that requires 3Tons of fuel. The following details were shared with committee.

S. No.	**District**	**Total BK**	**Zig Zag**	**FCBTK**
1.	Alwar	149	146	0
2.	Balotra	2	0	2
3.	Banswara	7	2	5
4.	Dungarpur	5	0	5
5.	Bhilwara	280	0	280
6.	Bundi	4	2	2
7.	Chittorgarh	12	0	12
8.	Jhalawar	1	0	1
9.	Ajmer	24	0	24
10.	Tonk	13	1	12
11.	Churu	36	0	36
12.	Rajsamand	11	0	11
13.	Sikar	91	0	91
14.	Sawai Madhopur	23	0	23
15.	Udaipur	5	0	5
16.	Bhiwadi	4	4	0
17.	Dholpur	135	1	134
18.	Sriganganagar	420	5	415
19.	Hanumangarh	274	7	267
20.	Jaisalmer	8	1	7
21.	Jhunjhunu	110	0	110
22.	Jaipur North	84	0	84
	Jaipur South	99	2	97
23.	Bharatpur	153	88	24
24.	Bikaner	87	4	83
SUM TOTAL		**2037**	**263**	**1730**

Out of total 2037 kilns, geo-coordinates of 1418 kilns were reported in survey report. The .KML file of the district-wise brick kilns was shared too.

Further, Sh Meena informed that for obtaining the opinions of the brick kiln associations on the kilns viability, conversion to zig-zag, change in fuel written communications were made with 11 associations of 6 districts on 9th June 2023.

It was informed to the committee members that 08 soil samples were collected during 9th to 10th June 2023 from 03 districts viz. Sriganganagar, Churu & Ajmer from agricultural land & mined out area to assess the soil quality for total 10 parameters *viz.* pH, EC, Organic Carbon, N, P, K, Fe, Mn, Zn & Cu. The samples will be analysed by ICAR-Indian Institute of Soil Science, Bhopal.

Discussion on the assessment of impact on AQ by the kilns was also made with the members in light of the earlier studies related to NCR, Dholpur & Sriganganagar area were discussed. It was informed by Dr George, NEERI that the dispersion modelling is an important tool to bring out the impact on AQ by any particular activity as box model has its own limitation related to atomospheric changes. The study carried out for the brick kilns of Dholpur are part of such modelling. It was requested to Dr George to exercise the dispersion modelling and box model calculation from particular area so that same shall be incorporated in report.

Discussion on the adequate nos. of samples in terms of brick kilns and days for which monitoring be conducted for carrying capacity assessment was made and it was requested to committee member Dr Sudhir, NIT, Jaipur & Dr George to provide comments and a note with statistical importance.

Followed by the above discussions, below are the action to be taken by respective members:

1. Provide the AAQ monthly data of all the new & old CAAQMS & Manual stations for year 2021-22 & 2022-23 **(Action By : Sh Vikram Singh Parihar, RSPCB on or before 23.6.2023)**
2. Provide the brick kilns location GIS coordinate in Degree Decimal for the districts for which still no information received **(Action by: : Sh Vikram Singh Parihar, RSPCB by 25.6.2023)**
3. Prepare the brief on brick kilns associations representation, AOD data & AQ data (provided by RSPCB). **(Action By: Sunil Kumar Meena, CPCB by 26.6.2023)**
4. Share the details of survey & .KML file, report on NCR, Dholpur & Sriganganagar with Dr George.**(Action By: Sh Sunil Kumar Meena, CPCB by 21.6.2023)**
5. Based on the available information viz. survey report, .KML, reports of NCR, Dholpur, Sriganganagar and any other reports of Dr George own & others shall be used for carrying out evaluation of the performance of brick kilns against the background concentration and carrying

capacity of the area and impact of brick kilns operation on AQ district-wise. **(Action By: Dr K V George, NEERI)**

6. Provide comments & a note on the adequate nos. of samples in terms of brick kilns and days for which monitoring be conducted for carrying capacity assessment
   (Action By: Dr K V George, NEERI & Dr Sudhir Kumar, MNIT & Sh Vinay Prabhakar, CPCB by 26.6.2023)
7. Provide a detailed note on the best practices adopted by brick kilns of other states in terms of fuel used, pollution reduction etc. and also provide note on the ways & means by which sustenance of brick kilns activities may be viable in Rajasthan state. **(Action By: Dr. Neeraj Jain, CBRI by 26.6.2023)**

The next meeting shall be tentatively on 30.6.2023.

Please ensure to share all the information with Sh Sunil Kumar Meena, Sc-D on sunil.cpcb@gov.in positively within timeline.

The meeting ended with thanks to all the committee members.

SUNIL KUMAR MEENA
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Date: 2023.06.21 12:14:46 +05'30'

(Sunil Kumar Meena)
Sc-D & Nodal Officer
CPCB, RD, Bhopal
Dated: 21.6.2023

क्षेत्रीय निदेशालय (मध्य), भोपाल
Regional Directorate (Central), Bhopal
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Ministry of Environment, Forests & Climate Change, Government of India)

फा. नं. क्षे.नि.भो. / एन.जी.टी.प्रकरण / 67 / 2023 / 444-455 दिनांक: 09 जून, 2023

प्रति,

विषय: ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने बाबत।
संदर्भ: माननीय एनजीटी के प्रकरण क्रमांक: 67 / 2023 के आदेश दिनांक 17 / 03 / 2023

महोदय,

उपरोक्त विषयांतर्गत निवेदन है कि राजस्थान के अनेक जिलों में ईंट भट्टे स्थापित हैं जिनके उचित संचालन न होने की स्थिति में पर्यावरण प्रदूषण की समस्या रहती है। इसी संदर्भ में माननीय एनजीटी के समक्ष उपरोक्त संदर्भित प्रकरण परिचालित है, जिसके माध्यम से यह आदेशित किया गया है कि ईंट भट्टों के संचालक तथा उनके एसोसिएशन से ईंट भट्टों का किस तरह पर्यावरण अनुकूल संचालन किया जा सकता है इस बाबत् सुझाव उपलब्ध कराये जायें।

जैसा कि विदित है कि ईंट भट्टों के संचालन से प्रमुख रूप से वायु प्रदूषण की समस्या उत्पन्न होती है जिसके प्रमुख कारण FCBTK पद्धति से ईंट निर्माण, कोयला, सरसों की तुड़ी व लकड़ी के टुकड़ों का अनियंत्रित उपयोग तथा इनका पूर्ण दहन दक्षता से उपयोग न होना प्रमुख है। समग्र रूप से इसमें ईंधन का अधिक उपयोग होता है तथा निकटवर्ती क्षेत्र में मृदा उर्वरता भी प्रभावित होने की संभावना रहती है।

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय द्वारा जारी अधिसूचना दिनांक 22 / 02 / 2022 के अनुसार सभी पुराने ईंट भट्टों को जिग–जेग पद्धति / वर्टिकल शॉफ्ट / पीएनजी ईंधन से ईंटों का उत्पादन हेतु आगामी 02 वर्षों में परिवर्तित करना है।

उपरोक्त के संदर्भ में आपसे निवेदन है कि ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने का कष्ट करें ताकि इन्हें संकलित कर माननीय एनजीटी के समक्ष प्रस्तुत किया जा सके। प्रमुख रूप से निम्न बिंदुओं पर सुझाव प्रदान करने का अनुरोध है:–

1. ईंट भट्टों के संचालन में पीएनजी के उपयोग को किस तरह प्रोत्साहित किया जाये व इसके कार्यान्वयन संबंधी आ रही प्रमुख समस्यायें।
2. ईंट भट्टों के संचालन में कोयले के अलावा क्या विकल्प हो सकते हैं तथा उनके उपयोग की व्यवहारिकता (प्रदूषण एवं वित्तीय) कैसे हो?
3. ईंट भट्टों को FCBTK पद्धति से जिग–जेग पद्धति में परिवर्तित करने में आ रही व्यवहारिक कठिनाईयां व उनके निदान के उपाय।
4. मृदा संरक्षण के मद्देनजर क्या राखड़ या अन्य कोई वस्तु का उपयोग आंशिक रूप से ईंट बनाने में किया जा सकता है? यदि हां तो ईंट वजन के हिसाब से कितनी मात्रा राखड़ इस्तेमाल की जा सकती है?
5. क्या ईंट भट्टों का संचालन सीमित अवधि के लिए किया जा सकता है? यदि हां तो इनके व्यापार पर पड़ने वाले सकारात्मक एवं नकारात्मक प्रभाव से अवगत करायें।

उपरोक्त बिंदुओं के अलावा अन्य कोई विकल्प जो ईंट भट्टों से होने वाले पर्यावरणीय प्रदूषण को कम करने व स्थानीय संसाधनों की मदद से सम्पन्न हो सकें उन्हें भी इस कार्यालय को अवगत कराये जाने का अनुरोध है। इस संदर्भ में आप इस कार्यालय के अधिकारी श्री सुनील कुमार मीणा, वैज्ञानिक–घ (मोबाईल–9617007250, ईमेल–sunil.cpcb@gov.in) से सम्पर्क कर सकते हैं तथा अनुरोध है कि उपरोक्तानुसार सुझाव दिनांक 20.06.2023 तक निम्नलिखित कार्यालयीन पते व ई–मेल पर प्रेषित करने का कष्ट करें, जिससे कि सुझावों को संकलित कर माननीय एन.जी.टी. को प्रतिवेदन के साथ प्रस्तुत किया जा सके :–

केन्द्रीय प्रदूषण नियंत्रण बोर्ड,
क्षेत्रीय निदेशालय (मध्य)
परिवेश भवन, ई–5, अरेरा कालोनी,
भोपाल–462016, म.प्र.

भवदीय,

जगन
(पी. जगन)
क्षेत्रीय निदेशक

क्षेत्रीय निदेशालय (मध्य), भोपाल
Regional Directorate (Central), Bhopal
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Ministry of Environment, Forests & Climate Change, Government of India)

फा. नं. क्षे.नि.भो./एन.जी.टी.प्रकरण/67/2023/448 दिनांकः 09 जून, 2023

प्रति,

Chairman
Ent Bhatta Shangh
Mahatma Sukhanand ITI Campus
Kumer nadwai road, Nadwai, Bhratpur,
Rajasthan 321602

विषयः ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने बाबत।
संदर्भः माननीय एनजीटी के प्रकरण कमांकः 67/2023 के आदेश दिनांक 17/03/2023

महोदय,

उपरोक्त विषयांतर्गत निवेदन है कि राजस्थान के अनेक जिलों में ईंट भट्टे स्थापित हैं जिनके उचित संचालन न होने की स्थिति में पर्यावरण प्रदूषण की समस्या रहती है। इसी संदर्भ में माननीय एनजीटी के समक्ष उपरोक्त संदर्भित प्रकरण परिचालित है, जिसके माध्यम से यह आदेशित किया गया है कि ईंट भट्टों के संचालक तथा उनके एसोसिएशन से ईंट भट्टों का किस तरह पर्यावरण अनुकूल संचालन किया जा सकता है इस बाबत् सुझाव उपलब्ध कराये जायें।

जैसा कि विदित है कि ईंट भट्टों के संचालन से प्रमुख रूप से वायु प्रदूषण की समस्या उत्पन्न होती है जिसके प्रमुख कारण FCBTK पद्धति से ईंट निर्माण, कोयला, सरसों की तुड़ी व लकड़ी के टुकड़ों का अनियंत्रित उपयोग तथा इनका पूर्ण दहन दक्षता से उपयोग न होना प्रमुख है। समग्र रूप से इसमें ईंधन का अधिक उपयोग होता है तथा निकटवर्ती क्षेत्र में मृदा उर्वरता भी प्रभावित होने की संभावना रहती है।

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय द्वारा जारी अधिसूचना दिनांक 22/02/2022 के अनुसार सभी पुराने ईंट भट्टों को जिग–जेग पद्धति/वर्टिकल शॉफ्ट/पीएनजी ईंधन से ईंटों का उत्पादन हेतु आगामी 02 वर्षों में परिवर्तित करना है।

उपरोक्त के संदर्भ में आपसे निवेदन है कि ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने का कष्ट करें ताकि इन्हें संकलित कर माननीय एनजीटी के समक्ष प्रस्तुत किया जा सके। प्रमुख रूप से निम्न बिंदुओं पर सुझाव प्रदान करने का अनुरोध है:–

1. ईंट भट्टों के संचालन में पीएनजी के उपयोग को किस तरह प्रोत्साहित किया जाये व इसके कार्यान्वयन संबंधी आ रही प्रमुख समस्यायें।
2. ईंट भट्टों के संचालन में कोयले के अलावा क्या विकल्प हो सकते हैं तथा उनके उपयोग की व्यवहारिकता (प्रदूषण एवं वित्तीय) कैसे हो?
3. ईंट भट्टों को FCBTK पद्धति से जिग–जेग पद्धति में परिवर्तित करने मे आ रही व्यवहारिक कठिनाईयां व उनके निदान के उपाय।
4. मृदा संरक्षण के मद्देनजर क्या राखड़ या अन्य कोई वस्तु का उपयोग आंशिक रूप से ईंट बनाने में किया जा सकता है? यदि हां तो ईंट वजन के हिसाब से कितनी मात्रा राखड़ इस्तेमाल की जा सकती है?
5. क्या ईंट भट्टों का संचालन सीमित अवधि के लिए किया जा सकता है? यदि हां तो इनके व्यापार पर पड़ने वाले सकारात्मक एवं नकारात्मक प्रभाव से अवगत करायें।

उपरोक्त बिंदुओं के अलावा अन्य कोई विकल्प जो ईंट भट्टों से होने वाले पर्यावरणीय प्रदूषण को कम करने व स्थानीय संसाधनों की मदद से सम्पन्न हो सकें उन्हें भी इस कार्यालय को अवगत कराये जाने का अनुरोध है। इस संदर्भ में आप इस कार्यालय के अधिकारी श्री सुनील कुमार मीणा, वैज्ञानिक–घ (मोबाईल–9617007250, ईमेल–sunil.cpcb@gov.in) से सम्पर्क कर सकते हैं तथा अनुरोध है कि उपरोक्तानुसार सुझाव दिनांक 20.06.2023 तक निम्नलिखित कार्यालयीन पते व ई–मेल पर प्रेषित करने का कष्ट करें, जिससे कि सुझावों को संकलित कर माननीय एन.जी.टी. को प्रतिवेदन के साथ प्रस्तुत किया जा सके :–

केन्द्रीय प्रदूषण नियंत्रण बोर्ड,
क्षेत्रीय निदेशालय (मध्य)
परिवेश भवन, ई–5, अरेरा कालोनी,
भोपाल–462016, म.प्र.

भवदीय,

(पी. जगन)
क्षेत्रीय निदेशक

क्षेत्रीय निदेशालय (मध्य), भोपाल
Regional Directorate (Central), Bhopal
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Ministry of Environment, Forests & Climate Change, Government of India)

फा. नं. क्षे.नि.भो. / एन.जी.टी.प्रकरण / 67 / 2023 / 447 दिनांकः 09 जून, 2023

प्रति,

Chairman
Sikar Jila Ent Udhyog Association
Shyam Bricks Udyog, Tanka Stand,
Khandela Mode, Khandela,
District Sikar, Rajasthan

विषयः ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने बाबत।
संदर्भः माननीय एनजीटी के प्रकरण कमांकः 67 / 2023 के आदेश दिनांक 17 / 03 / 2023

महोदय,

उपरोक्त विषयांतर्गत निवेदन है कि राजस्थान के अनेक जिलों में ईंट भट्टे स्थापित हैं जिनके उचित संचालन न होने की स्थिति में पर्यावरण प्रदूषण की समस्या रहती है। इसी संदर्भ में माननीय एनजीटी के समक्ष उपरोक्त संदर्भित प्रकरण परिचालित है, जिसके माध्यम से यह आदेशित किया गया है कि ईंट भट्टों के संचालक तथा उनके एसोसिएशन से ईंट भट्टों का किस तरह पर्यावरण अनुकूल संचालन किया जा सकता है इस बाबत् सुझाव उपलब्ध कराये जायें।

जैसा कि विदित है कि ईंट भट्टों के संचालन से प्रमुख रूप से वायु प्रदूषण की समस्या उत्पन्न होती है जिसके प्रमुख कारण FCBTK पद्धति से ईंट निर्माण, कोयला, सरसों की तुड़ी व लकड़ी के टुकड़ों का अनियंत्रित उपयोग तथा इनका पूर्ण दहन दक्षता से उपयोग न होना प्रमुख है। समग्र रूप से इसमें ईंधन का अधिक उपयोग होता है तथा निकटवर्ती क्षेत्र में मृदा उर्वरता भी प्रभावित होने की संभावना रहती है।

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय द्वारा जारी अधिसूचना दिनांक 22 / 02 / 2022 के अनुसार सभी पुराने ईंट भट्टों को जिग–जेग पद्धति / वर्टिकल शॉफ्ट / पीएनजी ईंधन से ईंटों का उत्पादन हेतु आगामी 02 वर्षों में परिवर्तित करना है।

उपरोक्त के संदर्भ में आपसे निवेदन है कि ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने का कष्ट करें ताकि इन्हें संकलित कर माननीय एनजीटी के समक्ष प्रस्तुत किया जा सके। प्रमुख रूप से निम्न बिंदुओं पर सुझाव प्रदान करने का अनुरोध है:–

1. ईंट भट्टों के संचालन में पीएनजी के उपयोग को किस तरह प्रोत्साहित किया जाये व इसके कार्यान्वयन संबंधी आ रही प्रमुख समस्यायें।
2. ईंट भट्टों के संचालन में कोयले के अलावा क्या विकल्प हो सकते हैं तथा उनके उपयोग की व्यवहारिकता (प्रदूषण एवं वित्तीय) कैसे हो?
3. ईंट भट्टों को FCBTK पद्धति से जिग–जेग पद्धति में परिवर्तित करने में आ रही व्यवहारिक कठिनाईयां व उनके निदान के उपाय।
4. मृदा संरक्षण के मद्देनजर क्या राखड़ या अन्य कोई वस्तु का उपयोग आंशिक रूप से ईंट बनाने में किया जा सकता है? यदि हां तो ईंट वजन के हिसाब से कितनी मात्रा राखड़ इस्तेमाल की जा सकती है?
5. क्या ईंट भट्टों का संचालन सीमित अवधि के लिए किया जा सकता है? यदि हां तो इनके व्यापार पर पड़ने वाले सकारात्मक एवं नकारात्मक प्रभाव से अवगत करायें।

उपरोक्त बिंदुओं के अलावा अन्य कोई विकल्प जो ईंट भट्टों से होने वाले पर्यावरणीय प्रदूषण को कम करने व स्थानीय संसाधनों की मदद से सम्पन्न हो सकें उन्हें भी इस कार्यालय को अवगत कराये जाने का अनुरोध है। इस संदर्भ में आप इस कार्यालय के अधिकारी श्री सुनील कुमार मीणा, वैज्ञानिक–घ (मोबाईल–9617007250, ईमेल–sunil.cpcb@gov.in) से सम्पर्क कर सकते हैं तथा अनुरोध है कि उपरोक्तानुसार सुझाव दिनांक 20.06.2023 तक निम्नलिखित कार्यालयीन पते व ई–मेल पर प्रेषित करने का कष्ट करें, जिससे कि सुझावों को संकलित कर माननीय एन.जी.टी. को प्रतिवेदन के साथ प्रस्तुत किया जा सके :–

केन्द्रीय प्रदूषण नियंत्रण बोर्ड,
क्षेत्रीय निदेशालय (मध्य)
परिवेश भवन, ई–5, अरेरा कालोनी,
भोपाल–462016, म.प्र.

भवदीय,

(पी. जगन)
क्षेत्रीय निदेशक

क्षेत्रीय निदेशालय (मध्य), भोपाल
Regional Directorate (Central), Bhopal
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Ministry of Environment, Forests & Climate Change, Government of India)

फा. नं. क्षे.नि.भो./एन.जी.टी.प्रकरण/67/2023/455 दिनांक: 09 जून, 2023

प्रति,

Sh Anil Agarwal
Alwar District Brick Manufacturer association
C/o Shubham Colour House, Shop No.2, 43,
Vijay Commercial Complex, Scheme No. 2,
Alwar, Rajasthan 301001

विषय: ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने बाबत।
संदर्भ: माननीय एनजीटी के प्रकरण क्रमांक: 67/2023 के आदेश दिनांक 17/03/2023

महोदय,

उपरोक्त विषयांतर्गत निवेदन है कि राजस्थान के अनेक जिलों में ईंट भट्टे स्थापित हैं जिनके उचित संचालन न होने की स्थिति में पर्यावरण प्रदूषण की समस्या रहती है। इसी संदर्भ में माननीय एनजीटी के समक्ष उपरोक्त संदर्भित प्रकरण परिचालित है, जिसके माध्यम से यह आदेशित किया गया है कि ईंट भट्टों के संचालक तथा उनके एसोसिएशन से ईंट भट्टों का किस तरह पर्यावरण अनुकूल संचालन किया जा सकता है इस बाबत् सुझाव उपलब्ध कराये जायें।

जैसा कि विदित है कि ईंट भट्टों के संचालन से प्रमुख रूप से वायु प्रदूषण की समस्या उत्पन्न होती है जिसके प्रमुख कारण FCBTK पद्धति से ईंट निर्माण, कोयला, सरसों की तुड़ी व लकड़ी के टुकड़ों का अनियंत्रित उपयोग तथा इनका पूर्ण दहन दक्षता से उपयोग न होना प्रमुख है। समग्र रूप से इसमें ईंधन का अधिक उपयोग होता है तथा निकटवर्ती क्षेत्र में मृदा उर्वरता भी प्रभावित होने की संभावना रहती है।

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय द्वारा जारी अधिसूचना दिनांक 22/02/2022 के अनुसार सभी पुराने ईंट भट्टों को जिग–जेग पद्धति/वर्टिकल शॉफ्ट/पीएनजी ईंधन से ईंटों का उत्पादन हेतु आगामी 02 वर्षों में परिवर्तित करना है।

उपरोक्त के संदर्भ में आपसे निवेदन है कि ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने का कष्ट करें ताकि इन्हें संकलित कर माननीय एनजीटी के समक्ष प्रस्तुत किया जा सके। प्रमुख रूप से निम्न बिंदुओं पर सुझाव प्रदान करने का अनुरोध है:–

1. ईंट भट्टों के संचालन में पीएनजी के उपयोग को किस तरह प्रोत्साहित किया जाये व इसके कार्यान्वयन संबंधी आ रही प्रमुख समस्यायें।
2. ईंट भट्टों के संचालन में कोयले के अलावा क्या विकल्प हो सकते हैं तथा उनके उपयोग की व्यवहारिकता (प्रदूषण एवं वित्तीय) कैसे हो?
3. ईंट भट्टों को FCBTK पद्धति से जिग–जेग पद्धति में परिवर्तित करने में आ रही व्यवहारिक कठिनाईयां व उनके निदान के उपाय।
4. मृदा संरक्षण के मद्देनजर क्या राखड़ या अन्य कोई वस्तु का उपयोग आंशिक रूप से ईंट बनाने में किया जा सकता है? यदि हां तो ईंट वजन के हिसाब से कितनी मात्रा राखड़ इस्तेमाल की जा सकती है?
5. क्या ईंट भट्टों का संचालन सीमित अवधि के लिए किया जा सकता है? यदि हां तो इनके व्यापार पर पड़ने वाले सकारात्मक एवं नकारात्मक प्रभाव से अवगत करायें।

उपरोक्त बिंदुओं के अलावा अन्य कोई विकल्प जो ईंट भट्टों से होने वाले पर्यावरणीय प्रदूषण को कम करने व स्थानीय संसाधनों की मदद से सम्पन्न हो सकें उन्हें भी इस कार्यालय को अवगत कराये जाने का अनुरोध है। इस संदर्भ में आप इस कार्यालय के अधिकारी श्री सुनील कुमार मीणा, वैज्ञानिक–घ (मोबाईल–9617007250, ईमेल–sunil.cpcb@gov.in) से सम्पर्क कर सकते हैं तथा अनुरोध है कि उपरोक्तानुसार सुझाव दिनांक 20.06.2023 तक निम्नलिखित कार्यालयीन पते व ई–मेल पर प्रेषित करने का कष्ट करें, जिससे कि सुझावों को संकलित कर माननीय एन.जी.टी. को प्रतिवेदन के साथ प्रस्तुत किया जा सके :–

केन्द्रीय प्रदूषण नियंत्रण बोर्ड,
क्षेत्रीय निदेशालय (मध्य)
परिवेश भवन, ई–5, अरेरा कालोनी,
भोपाल–462016, म.प्र.

भवदीय,

(पी. जगन)
क्षेत्रीय निदेशक

क्षेत्रीय निदेशालय (मध्य), भोपाल
Regional Directorate (Central), Bhopal
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Ministry of Environment, Forests & Climate Change, Government of India)

फा. नं. क्षे.नि.भो./एन.जी.टी.प्रकरण/67/2023/449 दिनांक: 09 जून, 2023

प्रति,

Sh Bhupender Suthar
1526 homeland City 2nd
SriGanganagar
Rajasthan

विषय: ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने बाबत।
संदर्भ: माननीय एनजीटी के प्रकरण कमांक: 67/2023 के आदेश दिनांक 17/03/2023

महोदय,

उपरोक्त विषयांतर्गत निवेदन है कि राजस्थान के अनेक जिलों में ईंट भट्टे स्थापित हैं जिनके उचित संचालन न होने की स्थिति में पर्यावरण प्रदूषण की समस्या रहती है। इसी संदर्भ में माननीय एनजीटी के समक्ष उपरोक्त संदर्भित प्रकरण परिचालित है, जिसके माध्यम से यह आदेशित किया गया है कि ईंट भट्टों के संचालक तथा उनके एसोसिएशन से ईंट भट्टों का किस तरह पर्यावरण अनुकूल संचालन किया जा सकता है इस बाबत् सुझाव उपलब्ध कराये जायें।

जैसा कि विदित है कि ईंट भट्टों के संचालन से प्रमुख रूप से वायु प्रदूषण की समस्या उत्पन्न होती है जिसके प्रमुख कारण FCBTK पद्धति से ईंट निर्माण, कोयला, सरसों की तुड़ी व लकड़ी के टुकड़ों का अनियंत्रित उपयोग तथा इनका पूर्ण दहन दक्षता से उपयोग न होना प्रमुख है। समग्र रूप से इसमें ईंधन का अधिक उपयोग होता है तथा निकटवर्ती क्षेत्र में मृदा उर्वरता भी प्रभावित होने की संभावना रहती है।

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय द्वारा जारी अधिसूचना दिनांक 22/02/2022 के अनुसार सभी पुराने ईंट भट्टों को जिग–जेग पद्धति/वर्टिकल शॉफ्ट/पीएनजी ईंधन से ईंटों का उत्पादन हेतु आगामी 02 वर्षों में परिवर्तित करना है।

उपरोक्त के संदर्भ में आपसे निवेदन है कि ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने का कष्ट करें ताकि इन्हें संकलित कर माननीय एनजीटी के समक्ष प्रस्तुत किया जा सके। प्रमुख रूप से निम्न बिंदुओं पर सुझाव प्रदान करने का अनुरोध है:–

1. ईंट भट्टों के संचालन में पीएनजी के उपयोग को किस तरह प्रोत्साहित किया जाये व इसके कार्यान्वयन संबंधी आ रही प्रमुख समस्यायें।
2. ईंट भट्टों के संचालन में कोयले के अलावा क्या विकल्प हो सकते हैं तथा उनके उपयोग की व्यवहारिकता (प्रदूषण एवं वित्तीय) कैसे हो?
3. ईंट भट्टों को FCBTK पद्धति से जिग–जेग पद्धति में परिवर्तित करने में आ रही व्यवहारिक कठिनाईयां व उनके निदान के उपाय।
4. मृदा संरक्षण के मद्देनजर क्या राखड़ या अन्य कोई वस्तु का उपयोग आंशिक रूप से ईंट बनाने में किया जा सकता है? यदि हां तो ईंट वजन के हिसाब से कितनी मात्रा राखड़ इस्तेमाल की जा सकती है?
5. क्या ईंट भट्टों का संचालन सीमित अवधि के लिए किया जा सकता है? यदि हां तो इनके व्यापार पर पड़ने वाले सकारात्मक एवं नकारात्मक प्रभाव से अवगत करायें।

उपरोक्त बिंदुओं के अलावा अन्य कोई विकल्प जो ईंट भट्टों से होने वाले पर्यावरणीय प्रदूषण को कम करने व स्थानीय संसाधनों की मदद से सम्पन्न हो सकें उन्हें भी इस कार्यालय को अवगत कराये जाने का अनुरोध है। इस संदर्भ में आप इस कार्यालय के अधिकारी श्री सुनील कुमार मीणा, वैज्ञानिक–घ (मोबाईल–9617007250, ईमेल–sunil.cpcb@gov.in) से सम्पर्क कर सकते हैं तथा अनुरोध है कि उपरोक्तानुसार सुझाव दिनांक 20.06.2023 तक निम्नलिखित कार्यालयीन पते व ई–मेल पर प्रेषित करने का कष्ट करें, जिससे कि सुझावों को संकलित कर माननीय एन.जी.टी. को प्रतिवेदन के साथ प्रस्तुत किया जा सके :–

केन्द्रीय प्रदूषण नियंत्रण बोर्ड,
क्षेत्रीय निदेशालय (मध्य)
परिवेश भवन, ई–5, अरेरा कालोनी,
भोपाल–462016, म.प्र.

भवदीय,

(पी. जगनी)
क्षेत्रीय निदेशक

क्षेत्रीय निदेशालय (मध्य), भोपाल
Regional Directorate (Central), Bhopal
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Ministry of Environment, Forests & Climate Change, Government of India)

फा. नं. क्षे.नि.भो./एन.जी.टी.प्रकरण/67/2023/445 दिनांकः 09 जून, 2023

प्रति,

Sh Chandra Singh
Kolayat Int Bhatta Sangh
Near Hanuman Mandir, Chungi Chouki,
Kolayat, Tehsil-Kolayat, Dist-Bikaner
334023

विषयः ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने बाबत।
संदर्भः माननीय एनजीटी के प्रकरण क्रमांकः 67/2023 के आदेश दिनांक 17/03/2023

महोदय,

उपरोक्त विषयांतर्गत निवेदन है कि राजस्थान के अनेक जिलों में ईंट भट्टे स्थापित हैं जिनके उचित संचालन न होने की स्थिति में पर्यावरण प्रदूषण की समस्या रहती है। इसी संदर्भ में माननीय एनजीटी के समक्ष उपरोक्त संदर्भित प्रकरण परिचालित है, जिसके माध्यम से यह आदेशित किया गया है कि ईंट भट्टों के संचालक तथा उनके एसोसिएशन से ईंट भट्टों का किस तरह पर्यावरण अनुकूल संचालन किया जा सकता है इस बाबत् सुझाव उपलब्ध कराये जायें।

जैसा कि विदित है कि ईंट भट्टों के संचालन से प्रमुख रूप से वायु प्रदूषण की समस्या उत्पन्न होती है जिसके प्रमुख कारण FCBTK पद्धति से ईंट निर्माण, कोयला, सरसों की तुड़ी व लकड़ी के टुकड़ों का अनियंत्रित उपयोग तथा इनका पूर्ण दहन दक्षता से उपयोग न होना प्रमुख है। समग्र रूप से इसमें ईंधन का अधिक उपयोग होता है तथा निकटवर्ती क्षेत्र में मृदा उर्वरता भी प्रभावित होने की संभावना रहती है।

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय द्वारा जारी अधिसूचना दिनांक 22/02/2022 के अनुसार सभी पुराने ईंट भट्टों को जिग–जेग पद्धति/वर्टिकल शॉफ्ट/पीएनजी ईंधन से ईंटों का उत्पादन हेतु आगामी 02 वर्षों में परिवर्तित करना है।

उपरोक्त के संदर्भ में आपसे निवेदन है कि ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने का कष्ट करें ताकि इन्हें संकलित कर माननीय एनजीटी के समक्ष प्रस्तुत किया जा सके। प्रमुख रूप से निम्न बिंदुओं पर सुझाव प्रदान करने का अनुरोध है:–

1. ईंट भट्टों के संचालन में पीएनजी के उपयोग को किस तरह प्रोत्साहित किया जाये व इसके कार्यान्वयन संबंधी आ रही प्रमुख समस्यायें।
2. ईंट भट्टों के संचालन में कोयले के अलावा क्या विकल्प हो सकते हैं तथा उनके उपयोग की व्यवहारिकता (प्रदूषण एवं वित्तीय) कैसे हो?
3. ईंट भट्टों को FCBTK पद्धति से जिग–जेग पद्धति में परिवर्तित करने में आ रही व्यवहारिक कठिनाईयां व उनके निदान के उपाय।
4. मृदा संरक्षण के मद्देनजर क्या राखड़ या अन्य कोई वस्तु का उपयोग आंशिक रूप से ईंट बनाने में किया जा सकता है? यदि हां तो ईंट वजन के हिसाब से कितनी मात्रा राखड़ इस्तेमाल की जा सकती है?
5. क्या ईंट भट्टों का संचालन सीमित अवधि के लिए किया जा सकता है? यदि हां तो इनके व्यापार पर पड़ने वाले सकारात्मक एवं नकारात्मक प्रभाव से अवगत करायें।

उपरोक्त बिंदुओं के अलावा अन्य कोई विकल्प जो ईंट भट्टों से होने वाले पर्यावरणीय प्रदूषण को कम करने व स्थानीय संसाधनों की मदद से सम्पन्न हो सकें उन्हें भी इस कार्यालय को अवगत कराये जाने का अनुरोध है। इस संदर्भ में आप इस कार्यालय के अधिकारी श्री सुनील कुमार मीणा, वैज्ञानिक–घ (मोबाईल–9617007250, ईमेल–sunil.cpcb@gov.in) से सम्पर्क कर सकते हैं तथा अनुरोध है कि उपरोक्तानुसार सुझाव दिनांक 20.06.2023 तक निम्नलिखित कार्यालयीन पते व ई–मेल पर प्रेषित करने का कष्ट करें, जिससे कि सुझावों को संकलित कर माननीय एन.जी.टी. को प्रतिवेदन के साथ प्रस्तुत किया जा सके :–

केन्द्रीय प्रदूषण नियंत्रण बोर्ड,
क्षेत्रीय निदेशालय (मध्य)
परिवेश भवन, ई–5, अरेरा कालोनी,
भोपाल–462016, म.प्र.

भवदीय,

(पी. जगन)
क्षेत्रीय निदेशक

क्षेत्रीय निदेशालय (मध्य), भोपाल
Regional Directorate (Central), Bhopal
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Ministry of Environment, Forests & Climate Change, Government of India)

फा. नं. क्षे.नि.भो. / एन.जी.टी.प्रकरण / 67 / 2023 / 444-455 दिनांक: 09 जून, 2023

प्रति,

Sh Dharmendra Chhabra, President
Int Bhatta Association
Sriganganagar, Near Gandhi Park, Sri Vijaynagar,
Dist Sriganga Nagar 335704

विषयः ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने बाबत।
संदर्भः माननीय एनजीटी के प्रकरण क्रमांकः 67 / 2023 के आदेश दिनांक 17 / 03 / 2023

महोदय,

उपरोक्त विषयांतर्गत निवेदन है कि राजस्थान के अनेक जिलों में ईंट भट्टे स्थापित हैं जिनके उचित संचालन न होने की स्थिति में पर्यावरण प्रदूषण की समस्या रहती है। इसी संदर्भ में माननीय एनजीटी के समक्ष उपरोक्त संदर्भित प्रकरण परिचालित है, जिसके माध्यम से यह आदेशित किया गया है कि ईंट भट्टों के संचालक तथा उनके एसोसिएशन से ईंट भट्टों का किस तरह पर्यावरण अनुकूल संचालन किया जा सकता है इस बाबत् सुझाव उपलब्ध कराये जायें।

जैसा कि विदित है कि ईंट भट्टों के संचालन से प्रमुख रूप से वायु प्रदूषण की समस्या उत्पन्न होती है जिसके प्रमुख कारण FCBTK पद्धति से ईंट निर्माण, कोयला, सरसों की तुड़ी व लकड़ी के टुकड़ों का अनियंत्रित उपयोग तथा इनका पूर्ण दहन दक्षता से उपयोग न होना प्रमुख है। समग्र रूप से इसमें ईंधन का अधिक उपयोग होता है तथा निकटवर्ती क्षेत्र में मृदा उर्वरता भी प्रभावित होने की संभावना रहती है।

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय द्वारा जारी अधिसूचना दिनांक 22 / 02 / 2022 के अनुसार सभी पुराने ईंट भट्टों को जिग–जेग पद्धति / वर्टिकल शॉफ्ट / पीएनजी ईंधन से ईंटों का उत्पादन हेतु आगामी 02 वर्षों में परिवर्तित करना है।

उपरोक्त के संदर्भ में आपसे निवेदन है कि ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने का कष्ट करें ताकि इन्हें संकलित कर माननीय एनजीटी के समक्ष प्रस्तुत किया जा सके। प्रमुख रूप से निम्न बिंदुओं पर सुझाव प्रदान करने का अनुरोध है:–

1. ईंट भट्टों के संचालन में पीएनजी के उपयोग को किस तरह प्रोत्साहित किया जाये व इसके कार्यान्वयन संबंधी आ रही प्रमुख समस्यायें।
2. ईंट भट्टों के संचालन में कोयले के अलावा क्या विकल्प हो सकते हैं तथा उनके उपयोग की व्यवहारिकता (प्रदूषण एवं वित्तीय) कैसे हो?
3. ईंट भट्टों को FCBTK पद्धति से जिग–जेग पद्धति में परिवर्तित करने में आ रही व्यवहारिक कठिनाईयां व उनके निदान के उपाय।
4. मृदा संरक्षण के मद्देनजर क्या राखड़ या अन्य कोई वस्तु का उपयोग आंशिक रूप से ईंट बनाने में किया जा सकता है? यदि हां तो ईंट वजन के हिसाब से कितनी मात्रा राखड़ इस्तेमाल की जा सकती है?
5. क्या ईंट भट्टों का संचालन सीमित अवधि के लिए किया जा सकता है? यदि हां तो इनके व्यापार पर पड़ने वाले सकारात्मक एवं नकारात्मक प्रभाव से अवगत करायें।

उपरोक्त बिंदुओं के अलावा अन्य कोई विकल्प जो ईंट भट्टों से होने वाले पर्यावरणीय प्रदूषण को कम करने व स्थानीय संसाधनों की मदद से सम्पन्न हो सकें उन्हें भी इस कार्यालय को अवगत कराये जाने का अनुरोध है। इस संदर्भ में आप इस कार्यालय के अधिकारी श्री सुनील कुमार मीणा, वैज्ञानिक–घ (मोबाईल–9617007250, ईमेल–sunil.cpcb@gov.in) से सम्पर्क कर सकते हैं तथा अनुरोध है कि उपरोक्तानुसार सुझाव दिनांक 20.06.2023 तक निम्नलिखित कार्यालयीन पते व ई–मेल पर प्रेषित करने का कष्ट करें, जिससे कि सुझावों को संकलित कर माननीय एन.जी.टी. को प्रतिवेदन के साथ प्रस्तुत किया जा सके :–

केन्द्रीय प्रदूषण नियंत्रण बोर्ड,
क्षेत्रीय निदेशालय (मध्य)
परिवेश भवन, ई–5, अरेरा कालोनी,
भोपाल–462016, म.प्र.

भवदीय,

जगन
(पी. जगन)
क्षेत्रीय निदेशक

क्षेत्रीय निदेशालय (मध्य), भोपाल
Regional Directorate (Central), Bhopal
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Ministry of Environment, Forests & Climate Change, Government of India)

फा. नं. क्षे.नि.भो./एन.जी.टी.प्रकरण/67/2023/454 दिनांकः 09 जून, 2023

प्रति,

Sh Dharmendra Chabra
Sriganganagar Int Bhatta Association
Chak 68/2, Anoopgarh, Shriganganagar-335701

विषयः ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने बाबत।
संदर्भः माननीय एनजीटी के प्रकरण क्रमांकः 67/2023 के आदेश दिनांक 17/03/2023

महोदय,

उपरोक्त विषयांतर्गत निवेदन है कि राजस्थान के अनेक जिलों में ईंट भट्टे स्थापित हैं जिनके उचित संचालन न होने की स्थिति में पर्यावरण प्रदूषण की समस्या रहती है। इसी संदर्भ में माननीय एनजीटी के समक्ष उपरोक्त संदर्भित प्रकरण परिचालित है, जिसके माध्यम से यह आदेशित किया गया है कि ईंट भट्टों के संचालक तथा उनके एसोसिएशन से ईंट भट्टों का किस तरह पर्यावरण अनुकूल संचालन किया जा सकता है इस बाबत् सुझाव उपलब्ध कराये जायें।

जैसा कि विदित है कि ईंट भट्टों के संचालन से प्रमुख रूप से वायु प्रदूषण की समस्या उत्पन्न होती है जिसके प्रमुख कारण FCBTK पद्धति से ईंट निर्माण, कोयला, सरसों की तुड़ी व लकड़ी के टुकड़ों का अनियंत्रित उपयोग तथा इनका पूर्ण दहन दक्षता से उपयोग न होना प्रमुख है। समग्र रूप से इसमें ईंधन का अधिक उपयोग होता है तथा निकटवर्ती क्षेत्र में मृदा उर्वरता भी प्रभावित होने की संभावना रहती है।

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय द्वारा जारी अधिसूचना दिनांक 22/02/2022 के अनुसार सभी पुराने ईंट भट्टों को जिग–जेग पद्धति/वर्टिकल शॉफ्ट/पीएनजी ईंधन से ईंटों का उत्पादन हेतु आगामी 02 वर्षों में परिवर्तित करना है।

उपरोक्त के संदर्भ में आपसे निवेदन है कि ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने का कष्ट करें ताकि इन्हें संकलित कर माननीय एनजीटी के समक्ष प्रस्तुत किया जा सके। प्रमुख रूप से निम्न बिंदुओं पर सुझाव प्रदान करने का अनुरोध है:–

1. ईंट भट्टों के संचालन में पीएनजी के उपयोग को किस तरह प्रोत्साहित किया जाये व इसके कार्यान्वयन संबंधी आ रही प्रमुख समस्यायें।
2. ईंट भट्टों के संचालन में कोयले के अलावा क्या विकल्प हो सकते हैं तथा उनके उपयोग की व्यवहारिकता (प्रदूषण एवं वित्तीय) कैसे हो?
3. ईंट भट्टों को FCBTK पद्धति से जिग–जेग पद्धति में परिवर्तित करने में आ रही व्यवहारिक कठिनाईयां व उनके निदान के उपाय।
4. मृदा संरक्षण के मद्देनजर क्या राखड़ या अन्य कोई वस्तु का उपयोग आंशिक रूप से ईंट बनाने में किया जा सकता है? यदि हां तो ईंट वजन के हिसाब से कितनी मात्रा राखड़ इस्तेमाल की जा सकती है?
5. क्या ईंट भट्टों का संचालन सीमित अवधि के लिए किया जा सकता है? यदि हां तो इनके व्यापार पर पड़ने वाले सकारात्मक एवं नकारात्मक प्रभाव से अवगत करायें।

उपरोक्त बिंदुओं के अलावा अन्य कोई विकल्प जो ईंट भट्टों से होने वाले पर्यावरणीय प्रदूषण को कम करने व स्थानीय संसाधनों की मदद से सम्पन्न हो सकें उन्हें भी इस कार्यालय को अवगत कराये जाने का अनुरोध है। इस संदर्भ में आप इस कार्यालय के अधिकारी श्री सुनील कुमार मीणा, वैज्ञानिक–घ (मोबाईल–9617007250, ईमेल–sunil.cpcb@gov.in) से सम्पर्क कर सकते हैं तथा अनुरोध है कि उपरोक्तानुसार सुझाव दिनांक 20.06.2023 तक निम्नलिखित कार्यालयीन पते व ई–मेल पर प्रेषित करने का कष्ट करें, जिससे कि सुझावों को संकलित कर माननीय एन.जी.टी. को प्रतिवेदन के साथ प्रस्तुत किया जा सके :–

केन्द्रीय प्रदूषण नियंत्रण बोर्ड,
क्षेत्रीय निदेशालय (मध्य)
परिवेश भवन, ई–5, अरेरा कालोनी,
भोपाल–462016, म.प्र.

भवदीय,

(पी. जगन)
क्षेत्रीय निदेशक

क्षेत्रीय निदेशालय (मध्य), भोपाल
Regional Directorate (Central), Bhopal
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Ministry of Environment, Forests & Climate Change, Government of India)

फा. नं. क्षे.नि.भो./एन.जी.टी.प्रकरण/67/2023/452 दिनांकः 09 जून, 2023

प्रति,

Sh Gokaran Garg
Eit Association, Padmpur
Dist Sriganganagar
Rajasthan

विषयः ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने बाबत।
संदर्भः माननीय एनजीटी के प्रकरण क्रमांकः 67/2023 के आदेश दिनांक 17/03/2023

महोदय,

उपरोक्त विषयांतर्गत निवेदन है कि राजस्थान के अनेक जिलों में ईंट भट्टे स्थापित हैं जिनके उचित संचालन न होने की स्थिति में पर्यावरण प्रदूषण की समस्या रहती है। इसी संदर्भ में माननीय एनजीटी के समक्ष उपरोक्त संदर्भित प्रकरण परिचालित है, जिसके माध्यम से यह आदेशित किया गया है कि ईंट भट्टों के संचालक तथा उनके एसोसिएशन से ईंट भट्टों का किस तरह पर्यावरण अनुकूल संचालन किया जा सकता है इस बाबत् सुझाव उपलब्ध कराये जायें।

जैसा कि विदित है कि ईंट भट्टों के संचालन से प्रमुख रूप से वायु प्रदूषण की समस्या उत्पन्न होती है जिसके प्रमुख कारण FCBTK पद्धति से ईंट निर्माण, कोयला, सरसों की तुड़ी व लकड़ी के टुकड़ों का अनियंत्रित उपयोग तथा इनका पूर्ण दहन दक्षता से उपयोग न होना प्रमुख है। समग्र रूप से इसमें ईंधन का अधिक उपयोग होता है तथा निकटवर्ती क्षेत्र में मृदा उर्वरता भी प्रभावित होने की संभावना रहती है।

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय द्वारा जारी अधिसूचना दिनांक 22/02/2022 के अनुसार सभी पुराने ईंट भट्टों को जिग–जेग पद्धति/वर्टिकल शॉफ्ट/पीएनजी ईंधन से ईंटों का उत्पादन हेतु आगामी 02 वर्षों में परिवर्तित करना है।

उपरोक्त के संदर्भ में आपसे निवेदन है कि ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने का कष्ट करें ताकि इन्हें संकलित कर माननीय एनजीटी के समक्ष प्रस्तुत किया जा सके। प्रमुख रूप से निम्न बिंदुओं पर सुझाव प्रदान करने का अनुरोध है:–

1. ईंट भट्टों के संचालन में पीएनजी के उपयोग को किस तरह प्रोत्साहित किया जाये व इसके कार्यान्वयन संबंधी आ रही प्रमुख समस्यायें।
2. ईंट भट्टों के संचालन में कोयले के अलावा क्या विकल्प हो सकते हैं तथा उनके उपयोग की व्यवहारिकता (प्रदूषण एवं वित्तीय) कैसे हो?
3. ईंट भट्टों को FCBTK पद्धति से जिग–जेग पद्धति में परिवर्तित करने में आ रही व्यवहारिक कठिनाईयां व उनके निदान के उपाय।
4. मृदा संरक्षण के मद्देनजर क्या राखड़ या अन्य कोई वस्तु का उपयोग आंशिक रूप से ईंट बनाने में किया जा सकता है? यदि हां तो ईंट वजन के हिसाब से कितनी मात्रा राखड़ इस्तेमाल की जा सकती है?
5. क्या ईंट भट्टों का संचालन सीमित अवधि के लिए किया जा सकता है? यदि हां तो इनके व्यापार पर पड़ने वाले सकारात्मक एवं नकारात्मक प्रभाव से अवगत करायें।

उपरोक्त बिंदुओं के अलावा अन्य कोई विकल्प जो ईंट भट्टों से होने वाले पर्यावरणीय प्रदूषण को कम करने व स्थानीय संसाधनों की मदद से सम्पन्न हो सकें उन्हें भी इस कार्यालय को अवगत कराये जाने का अनुरोध है। इस संदर्भ में आप इस कार्यालय के अधिकारी श्री सुनील कुमार मीणा, वैज्ञानिक–घ (मोबाईल–9617007250, ईमेल–sunil.cpcb@gov.in) से सम्पर्क कर सकते हैं तथा अनुरोध है कि उपरोक्तानुसार सुझाव दिनांक 20.06.2023 तक निम्नलिखित कार्यालयीन पते व ई–मेल पर प्रेषित करने का कष्ट करें, जिससे कि सुझावों को संकलित कर माननीय एन.जी.टी. को प्रतिवेदन के साथ प्रस्तुत किया जा सके :–

केन्द्रीय प्रदूषण नियंत्रण बोर्ड,
क्षेत्रीय निदेशालय (मध्य)
परिवेश भवन, ई–5, अरेरा कालोनी,
भोपाल–462016, म.प्र.

भवदीय,

(पी. जगन)
क्षेत्रीय निदेशक

क्षेत्रीय निदेशालय (मध्य), भोपाल
Regional Directorate (Central), Bhopal
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Ministry of Environment, Forests & Climate Change, Government of India)

फा. नं. क्षे.नि.भो. / एन.जी.टी.प्रकरण / 67 / 2023 / 444-455 दिनांक: 09 जून, 2023

प्रति,

Sh Jagdish Jakhar
Dhan mandi
New mandi Gharsana
Dist Sriganganagar
Rajasthan

विषय: ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने बाबत।
संदर्भ: माननीय एनजीटी के प्रकरण क्रमांक: 67 / 2023 के आदेश दिनांक 17 / 03 / 2023

महोदय,

उपरोक्त विषयांतर्गत निवेदन है कि राजस्थान के अनेक जिलों में ईंट भट्टे स्थापित हैं जिनके उचित संचालन न होने की स्थिति में पर्यावरण प्रदूषण की समस्या रहती है। इसी संदर्भ में माननीय एनजीटी के समक्ष उपरोक्त संदर्भित प्रकरण परिचालित है, जिसके माध्यम से यह आदेशित किया गया है कि ईंट भट्टों के संचालक तथा उनके एसोसिएशन से ईंट भट्टों का किस तरह पर्यावरण अनुकूल संचालन किया जा सकता है इस बाबत् सुझाव उपलब्ध कराये जायें।

जैसा कि विदित है कि ईंट भट्टों के संचालन से प्रमुख रूप से वायु प्रदूषण की समस्या उत्पन्न होती है जिसके प्रमुख कारण FCBTK पद्धति से ईंट निर्माण, कोयला, सरसों की तुड़ी व लकड़ी के टुकड़ों का अनियंत्रित उपयोग तथा इनका पूर्ण दहन दक्षता से उपयोग न होना प्रमुख है। समग्र रूप से इसमें ईंधन का अधिक उपयोग होता है तथा निकटवर्ती क्षेत्र में मृदा उर्वरता भी प्रभावित होने की संभावना रहती है।

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय द्वारा जारी अधिसूचना दिनांक 22 / 02 / 2022 के अनुसार सभी पुराने ईंट भट्टों को जिग–जेग पद्धति / वर्टिकल शॉफ्ट / पीएनजी ईंधन से ईंटों का उत्पादन हेतु आगामी 02 वर्षों में परिवर्तित करना है।

उपरोक्त के संदर्भ में आपसे निवेदन है कि ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने का कष्ट करें ताकि इन्हें संकलित कर माननीय एनजीटी के समक्ष प्रस्तुत किया जा सके। प्रमुख रूप से निम्न बिंदुओं पर सुझाव प्रदान करने का अनुरोध है:–

1. ईंट भट्टों के संचालन में पीएनजी के उपयोग को किस तरह प्रोत्साहित किया जाये व इसके कार्यान्वयन संबंधी आ रही प्रमुख समस्यायें।
2. ईंट भट्टों के संचालन में कोयले के अलावा क्या विकल्प हो सकते हैं तथा उनके उपयोग की व्यवहारिकता (प्रदूषण एवं वित्तीय) कैसे हो?
3. ईंट भट्टों को FCBTK पद्धति से जिग–जेग पद्धति में परिवर्तित करने में आ रही व्यवहारिक कठिनाईयां व उनके निदान के उपाय।
4. मृदा संरक्षण के मद्देनजर क्या राखड़ या अन्य कोई वस्तु का उपयोग आंशिक रूप से ईंट बनाने में किया जा सकता है? यदि हां तो ईंट वजन के हिसाब से कितनी मात्रा राखड़ इस्तेमाल की जा सकती है?
5. क्या ईंट भट्टों का संचालन सीमित अवधि के लिए किया जा सकता है? यदि हां तो इनके व्यापार पर पड़ने वाले सकारात्मक एवं नकारात्मक प्रभाव से अवगत करायें।

उपरोक्त बिंदुओं के अलावा अन्य कोई विकल्प जो ईंट भट्टों से होने वाले पर्यावरणीय प्रदूषण को कम करने व स्थानीय संसाधनों की मदद से सम्पन्न हो सकें उन्हें भी इस कार्यालय को अवगत कराये जाने का अनुरोध है। इस संदर्भ में आप इस कार्यालय के अधिकारी श्री सुनील कुमार मीणा, वैज्ञानिक–घ (मोबाईल–9617007250, ईमेल–sunil.cpcb@gov.in) से सम्पर्क कर सकते हैं तथा अनुरोध है कि उपरोक्तानुसार सुझाव दिनांक 20.06.2023 तक निम्नलिखित कार्यालयीन पते व ई–मेल पर प्रेषित करने का कष्ट करें, जिससे कि सुझावों को संकलित कर माननीय एन.जी.टी. को प्रतिवेदन के साथ प्रस्तुत किया जा सके :–

केन्द्रीय प्रदूषण नियंत्रण बोर्ड,
क्षेत्रीय निदेशालय (मध्य)
परिवेश भवन, ई–5, अरेरा कालोनी,
भोपाल–462016, म.प्र.

भवदीय,

जगन
(पी. जगन)
क्षेत्रीय निदेशक

क्षेत्रीय निदेशालय (मध्य), भोपाल
Regional Directorate (Central), Bhopal
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Ministry of Environment, Forests & Climate Change, Government of India)

फा. नं. क्षे.नि.भो./एन.जी.टी.प्रकरण/67/2023/446 दिनांकः 09 जून, 2023

प्रति,

Sh Jiya Ram Poonia
Khajuwala Int Bhatta Sangh
Chak 22 KYD, Tehsil-Khajuwala, Dist-Bikaner 334023

विषयः ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने बाबत।
संदर्भः माननीय एनजीटी के प्रकरण कमांकः 67/2023 के आदेश दिनांक 17/03/2023

महोदय,

उपरोक्त विषयांतर्गत निवेदन है कि राजस्थान के अनेक जिलों में ईंट भट्टे स्थापित हैं जिनके उचित संचालन न होने की स्थिति में पर्यावरण प्रदूषण की समस्या रहती है। इसी संदर्भ में माननीय एनजीटी के समक्ष उपरोक्त संदर्भित प्रकरण परिचालित है, जिसके माध्यम से यह आदेशित किया गया है कि ईंट भट्टों के संचालक तथा उनके एसोसिएशन से ईंट भट्टों का किस तरह पर्यावरण अनुकूल संचालन किया जा सकता है इस बाबत् सुझाव उपलब्ध कराये जायें।

जैसा कि विदित है कि ईंट भट्टों के संचालन से प्रमुख रूप से वायु प्रदूषण की समस्या उत्पन्न होती है जिसके प्रमुख कारण FCBTK पद्धति से ईंट निर्माण, कोयला, सरसों की तुड़ी व लकड़ी के टुकड़ों का अनियंत्रित उपयोग तथा इनका पूर्ण दहन दक्षता से उपयोग न होना प्रमुख है। समग्र रूप से इसमें ईंधन का अधिक उपयोग होता है तथा निकटवर्ती क्षेत्र में मृदा उर्वरता भी प्रभावित होने की संभावना रहती है।

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय द्वारा जारी अधिसूचना दिनांक 22/02/2022 के अनुसार सभी पुराने ईंट भट्टों को जिग–जेग पद्धति/वर्टिकल शॉफ्ट/पीएनजी ईंधन से ईंटों का उत्पादन हेतु आगामी 02 वर्षों में परिवर्तित करना है।

उपरोक्त के संदर्भ में आपसे निवेदन है कि ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने का कष्ट करें ताकि इन्हें संकलित कर माननीय एनजीटी के समक्ष प्रस्तुत किया जा सके। प्रमुख रूप से निम्न बिंदुओं पर सुझाव प्रदान करने का अनुरोध है:–

1. ईंट भट्टों के संचालन में पीएनजी के उपयोग को किस तरह प्रोत्साहित किया जाये व इसके कार्यान्वयन संबंधी आ रही प्रमुख समस्यायें।
2. ईंट भट्टों के संचालन में कोयले के अलावा क्या विकल्प हो सकते हैं तथा उनके उपयोग की व्यवहारिकता (प्रदूषण एवं वित्तीय) कैसे हो?
3. ईंट भट्टों को FCBTK पद्धति से जिग–जेग पद्धति में परिवर्तित करने में आ रही व्यवहारिक कठिनाईयां व उनके निदान के उपाय।
4. मृदा संरक्षण के मद्देनजर क्या राखड़ या अन्य कोई वस्तु का उपयोग आंशिक रूप से ईंट बनाने में किया जा सकता है? यदि हां तो ईंट वजन के हिसाब से कितनी मात्रा राखड़ इस्तेमाल की जा सकती है?
5. क्या ईंट भट्टों का संचालन सीमित अवधि के लिए किया जा सकता है? यदि हां तो इनके व्यापार पर पड़ने वाले सकारात्मक एवं नकारात्मक प्रभाव से अवगत करायें।

उपरोक्त बिंदुओं के अलावा अन्य कोई विकल्प जो ईंट भट्टों से होने वाले पर्यावरणीय प्रदूषण को कम करने व स्थानीय संसाधनों की मदद से सम्पन्न हो सकें उन्हें भी इस कार्यालय को अवगत कराये जाने का अनुरोध है। इस संदर्भ में आप इस कार्यालय के अधिकारी श्री सुनील कुमार मीणा, वैज्ञानिक–घ (मोबाईल–9617007250, ईमेल–sunil.cpcb@gov.in) से सम्पर्क कर सकते हैं तथा अनुरोध है कि उपरोक्तानुसार सुझाव दिनांक 20.06.2023 तक निम्नलिखित कार्यालयीन पते व ई–मेल पर प्रेषित करने का कष्ट करें, जिससे कि सुझावों को संकलित कर माननीय एन.जी.टी. को प्रतिवेदन के साथ प्रस्तुत किया जा सके :–

केन्द्रीय प्रदूषण नियंत्रण बोर्ड,
क्षेत्रीय निदेशालय (मध्य)
परिवेश भवन, ई–5, अरेरा कालोनी,
भोपाल–462016, म.प्र.

भवदीय,

(पी. जगन)
क्षेत्रीय निदेशक

क्षेत्रीय निदेशालय (मध्य), भोपाल
Regional Directorate (Central), Bhopal
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Ministry of Environment, Forests & Climate Change, Government of India)

फा. नं. क्षे.नि.भो./एन.जी.टी.प्रकरण/67/2023/450 दिनांकः 09 जून, 2023

प्रति,

Sh Pawan Baghla
Baghla int udhyog bhagwansar
Suratgarh
Dist Sriganganagar
Rajasthan

विषयः ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने बाबत।
संदर्भः माननीय एनजीटी के प्रकरण क्रमांकः 67/2023 के आदेश दिनांक 17/03/2023

महोदय,

उपरोक्त विषयांतर्गत निवेदन है कि राजस्थान के अनेक जिलों में ईंट भट्टे स्थापित हैं जिनके उचित संचालन न होने की स्थिति में पर्यावरण प्रदूषण की समस्या रहती है। इसी संदर्भ में माननीय एनजीटी के समक्ष उपरोक्त संदर्भित प्रकरण परिचालित है, जिसके माध्यम से यह आदेशित किया गया है कि ईंट भट्टों के संचालक तथा उनके एसोसिएशन से ईंट भट्टों का किस तरह पर्यावरण अनुकूल संचालन किया जा सकता है इस बाबत् सुझाव उपलब्ध कराये जायें।

जैसा कि विदित है कि ईंट भट्टों के संचालन से प्रमुख रूप से वायु प्रदूषण की समस्या उत्पन्न होती है जिसके प्रमुख कारण FCBTK पद्धति से ईंट निर्माण, कोयला, सरसों की तुड़ी व लकड़ी के टुकड़ों का अनियंत्रित उपयोग तथा इनका पूर्ण दहन दक्षता से उपयोग न होना प्रमुख है। समग्र रूप से इसमें ईंधन का अधिक उपयोग होता है तथा निकटवर्ती क्षेत्र में मृदा उर्वरता भी प्रभावित होने की संभावना रहती है।

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय द्वारा जारी अधिसूचना दिनांक 22/02/2022 के अनुसार सभी पुराने ईंट भट्टों को जिग–जेग पद्धति/वर्टिकल शॉफ्ट/पीएनजी ईंधन से ईंटों का उत्पादन हेतु आगामी 02 वर्षों में परिवर्तित करना है।

उपरोक्त के संदर्भ में आपसे निवेदन है कि ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने का कष्ट करें ताकि इन्हें संकलित कर माननीय एनजीटी के समक्ष प्रस्तुत किया जा सके। प्रमुख रूप से निम्न बिंदुओं पर सुझाव प्रदान करने का अनुरोध है:–

1. ईंट भट्टों के संचालन में पीएनजी के उपयोग को किस तरह प्रोत्साहित किया जाये व इसके कार्यान्वयन संबंधी आ रही प्रमुख समस्यायें।
2. ईंट भट्टों के संचालन में कोयले के अलावा क्या विकल्प हो सकते हैं तथा उनके उपयोग की व्यवहारिकता (प्रदूषण एवं वित्तीय) कैसे हो?
3. ईंट भट्टों को FCBTK पद्धति से जिग–जेग पद्धति में परिवर्तित करने में आ रही व्यवहारिक कठिनाईयां व उनके निदान के उपाय।
4. मृदा संरक्षण के मद्देनजर क्या राखड़ या अन्य कोई वस्तु का उपयोग आंशिक रूप से ईंट बनाने में किया जा सकता है? यदि हां तो ईंट वजन के हिसाब से कितनी मात्रा राखड़ इस्तेमाल की जा सकती है?
5. क्या ईंट भट्टों का संचालन सीमित अवधि के लिए किया जा सकता है? यदि हां तो इनके व्यापार पर पड़ने वाले सकारात्मक एवं नकारात्मक प्रभाव से अवगत करायें।

उपरोक्त बिंदुओं के अलावा अन्य कोई विकल्प जो ईंट भट्टों से होने वाले पर्यावरणीय प्रदूषण को कम करने व स्थानीय संसाधनों की मदद से सम्पन्न हो सकें उन्हें भी इस कार्यालय को अवगत कराये जाने का अनुरोध है। इस संदर्भ में आप इस कार्यालय के अधिकारी श्री सुनील कुमार मीणा, वैज्ञानिक–घ (मोबाईल–9617007250, ईमेल–sunil.cpcb@gov.in) से सम्पर्क कर सकते हैं तथा अनुरोध है कि उपरोक्तानुसार सुझाव दिनांक 20.06.2023 तक निम्नलिखित कार्यालयीन पते व ई–मेल पर प्रेषित करने का कष्ट करें, जिससे कि सुझावों को संकलित कर माननीय एन.जी.टी. को प्रतिवेदन के साथ प्रस्तुत किया जा सके :–

केन्द्रीय प्रदूषण नियंत्रण बोर्ड,
क्षेत्रीय निदेशालय (मध्य)
परिवेश भवन, ई–5, अरेरा कालोनी,
भोपाल–462016, म.प्र.

भवदीय,

(पी. जगन)
क्षेत्रीय निदेशक

क्षेत्रीय निदेशालय (मध्य), भोपाल
Regional Directorate (Central), Bhopal
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Ministry of Environment, Forests & Climate Change, Government of India)

फा. नं. क्षे.नि.भो./एन.जी.टी.प्रकरण/67/2023/451 दिनांकः 09 जून, 2023

प्रति,

Sh Parbhu Dayal middha
Sri Vijay nagar
Dist Sriganganagar
Rajasthan

विषयः ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने बाबत।
संदर्भः माननीय एनजीटी के प्रकरण कमांकः 67/2023 के आदेश दिनांक 17/03/2023

महोदय,

उपरोक्त विषयांतर्गत निवेदन है कि राजस्थान के अनेक जिलों में ईंट भट्टे स्थापित हैं जिनके उचित संचालन न होने की स्थिति में पर्यावरण प्रदूषण की समस्या रहती है। इसी संदर्भ में माननीय एनजीटी के समक्ष उपरोक्त संदर्भित प्रकरण परिचालित है, जिसके माध्यम से यह आदेशित किया गया है कि ईंट भट्टों के संचालक तथा उनके एसोसिएशन से ईंट भट्टों का किस तरह पर्यावरण अनुकूल संचालन किया जा सकता है इस बाबत् सुझाव उपलब्ध कराये जायें।

जैसा कि विदित है कि ईंट भट्टों के संचालन से प्रमुख रूप से वायु प्रदूषण की समस्या उत्पन्न होती है जिसके प्रमुख कारण FCBTK पद्धति से ईंट निर्माण, कोयला, सरसों की तुड़ी व लकड़ी के टुकड़ों का अनियंत्रित उपयोग तथा इनका पूर्ण दहन दक्षता से उपयोग न होना प्रमुख है। समग्र रूप से इसमें ईंधन का अधिक उपयोग होता है तथा निकटवर्ती क्षेत्र में मृदा उर्वरता भी प्रभावित होने की संभावना रहती है।

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय द्वारा जारी अधिसूचना दिनांक 22/02/2022 के अनुसार सभी पुराने ईंट भट्टों को जिग–जेग पद्धति/वर्टिकल शॉफ्ट/पीएनजी ईंधन से ईंटों का उत्पादन हेतु आगामी 02 वर्षों में परिवर्तित करना है।

उपरोक्त के संदर्भ में आपसे निवेदन है कि ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने का कष्ट करें ताकि इन्हें संकलित कर माननीय एनजीटी के समक्ष प्रस्तुत किया जा सके। प्रमुख रूप से निम्न बिंदुओं पर सुझाव प्रदान करने का अनुरोध है:–

1. ईंट भट्टों के संचालन में पीएनजी के उपयोग को किस तरह प्रोत्साहित किया जाये व इसके कार्यान्वयन संबंधी आ रही प्रमुख समस्यायें।
2. ईंट भट्टों के संचालन में कोयले के अलावा क्या विकल्प हो सकते हैं तथा उनके उपयोग की व्यवहारिकता (प्रदूषण एवं वित्तीय) कैसे हो?
3. ईंट भट्टों को FCBTK पद्धति से जिग–जेग पद्धति में परिवर्तित करने में आ रही व्यवहारिक कठिनाईयां व उनके निदान के उपाय।
4. मृदा संरक्षण के मद्देनजर क्या राखड़ या अन्य कोई वस्तु का उपयोग आंशिक रूप से ईंट बनाने में किया जा सकता है? यदि हां तो ईंट वजन के हिसाब से कितनी मात्रा राखड़ इस्तेमाल की जा सकती है?
5. क्या ईंट भट्टों का संचालन सीमित अवधि के लिए किया जा सकता है? यदि हां तो इनके व्यापार पर पड़ने वाले सकारात्मक एवं नकारात्मक प्रभाव से अवगत करायें।

उपरोक्त बिंदुओं के अलावा अन्य कोई विकल्प जो ईंट भट्टों से होने वाले पर्यावरणीय प्रदूषण को कम करने व स्थानीय संसाधनों की मदद से सम्पन्न हो सकें उन्हें भी इस कार्यालय को अवगत कराये जाने का अनुरोध है। इस संदर्भ में आप इस कार्यालय के अधिकारी श्री सुनील कुमार मीणा, वैज्ञानिक–घ (मोबाईल–9617007250, ईमेल–sunil.cpcb@gov.in) से सम्पर्क कर सकते हैं तथा अनुरोध है कि उपरोक्तानुसार सुझाव दिनांक 20.06.2023 तक निम्नलिखित कार्यालयीन पते व ई–मेल पर प्रेषित करने का कष्ट करें, जिससे कि सुझावों को संकलित कर माननीय एन.जी.टी. को प्रतिवेदन के साथ प्रस्तुत किया जा सके :–

केन्द्रीय प्रदूषण नियंत्रण बोर्ड,
क्षेत्रीय निदेशालय (मध्य)
परिवेश भवन, ई–5, अरेरा कालोनी,
भोपाल–462016, म.प्र.

भवदीय,

(पी. जगन)
क्षेत्रीय निदेशक

क्षेत्रीय निदेशालय (मध्य), भोपाल
Regional Directorate (Central), Bhopal
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Ministry of Environment, Forests & Climate Change, Government of India)

फा. नं. क्षे.नि.भो./एन.जी.टी.प्रकरण/67/2023/444 दिनांकः 09 जून, 2023

प्रति,

Sh Sanjay Kumawat
Chimney Ent Bhatta Association Bhilwara
UIT market Shop no. 9 Ajmer Chauhara,
Bhilwara 311001

विषयः ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने बाबत।
संदर्भः माननीय एनजीटी के प्रकरण कमांकः 67/2023 के आदेश दिनांक 17/03/2023

महोदय,

उपरोक्त विषयांतर्गत निवेदन है कि राजस्थान के अनेक जिलों में ईंट भट्टे स्थापित हैं जिनके उचित संचालन न होने की स्थिति में पर्यावरण प्रदूषण की समस्या रहती है। इसी संदर्भ में माननीय एनजीटी के समक्ष उपरोक्त संदर्भित प्रकरण परिचालित है, जिसके माध्यम से यह आदेशित किया गया है कि ईंट भट्टों के संचालक तथा उनके एसोसिएशन से ईंट भट्टों का किस तरह पर्यावरण अनुकूल संचालन किया जा सकता है इस बाबत् सुझाव उपलब्ध कराये जायें।

जैसा कि विदित है कि ईंट भट्टों के संचालन से प्रमुख रूप से वायु प्रदूषण की समस्या उत्पन्न होती है जिसके प्रमुख कारण FCBTK पद्धति से ईंट निर्माण, कोयला, सरसों की तुड़ी व लकड़ी के टुकड़ों का अनियंत्रित उपयोग तथा इनका पूर्ण दहन दक्षता से उपयोग न होना प्रमुख है। समग्र रूप से इसमें ईंधन का अधिक उपयोग होता है तथा निकटवर्ती क्षेत्र में मृदा उर्वरता भी प्रभावित होने की संभावना रहती है।

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय द्वारा जारी अधिसूचना दिनांक 22/02/2022 के अनुसार सभी पुराने ईंट भट्टों को जिग–जेग पद्धति/वर्टिकल शॉफ्ट/पीएनजी ईंधन से ईंटों का उत्पादन हेतु आगामी 02 वर्षों में परिवर्तित करना है।

उपरोक्त के संदर्भ में आपसे निवेदन है कि ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करने का कष्ट करें ताकि इन्हें संकलित कर माननीय एनजीटी के समक्ष प्रस्तुत किया जा सके। प्रमुख रूप से निम्न बिंदुओं पर सुझाव प्रदान करने का अनुरोध है:–

1. ईंट भट्टों के संचालन में पीएनजी के उपयोग को किस तरह प्रोत्साहित किया जाये व इसके कार्यान्वयन संबंधी आ रही प्रमुख समस्यायें।
2. ईंट भट्टों के संचालन में कोयले के अलावा क्या विकल्प हो सकते हैं तथा उनके उपयोग की व्यवहारिकता (प्रदूषण एवं वित्तीय) कैसे हो?
3. ईंट भट्टों को FCBTK पद्धति से जिग–जेग पद्धति में परिवर्तित करने मे आ रही व्यवहारिक कठिनाईयां व उनके निदान के उपाय।
4. मृदा संरक्षण के मद्देनजर क्या राखड़ या अन्य कोई वस्तु का उपयोग आंशिक रूप से ईंट बनाने में किया जा सकता है? यदि हां तो ईंट वजन के हिसाब से कितनी मात्रा राखड़ इस्तेमाल की जा सकती है?
5. क्या ईंट भट्टों का संचालन सीमित अवधि के लिए किया जा सकता है? यदि हां तो इनके व्यापार पर पड़ने वाले सकारात्मक एवं नकारात्मक प्रभाव से अवगत करायें।

उपरोक्त बिंदुओं के अलावा अन्य कोई विकल्प जो ईंट भट्टों से होने वाले पर्यावरणीय प्रदूषण को कम करने व स्थानीय संसाधनों की मदद से सम्पन्न हो सकें उन्हें भी इस कार्यालय को अवगत कराये जाने का अनुरोध है। इस संदर्भ में आप इस कार्यालय के अधिकारी श्री सुनील कुमार मीणा, वैज्ञानिक–घ (मोबाईल–9617007250, ईमेल–sunil.cpcb@gov.in) से सम्पर्क कर सकते हैं तथा अनुरोध है कि उपरोक्तानुसार सुझाव दिनांक 20.06.2023 तक निम्नलिखित कार्यालयीन पते व ई–मेल पर प्रेषित करने का कष्ट करें, जिससे कि सुझावों को संकलित कर माननीय एन.जी.टी. को प्रतिवेदन के साथ प्रस्तुत किया जा सके :–

केन्द्रीय प्रदूषण नियंत्रण बोर्ड,
क्षेत्रीय निदेशालय (मध्य)
परिवेश भवन, ई–5, अरेरा कालोनी,
भोपाल–462016, म.प्र.

भवदीय,

(पी. जगन)
क्षेत्रीय निदेशक

卐
राजस्थान ईन्ट निर्माता संघ
आगरा रोड़, जयपुर (राजस्थान)
ALL RAJASTHAN BRICK MANUFACTURERS ASSOCIATION
(Federation of Brick Kiln Associations)

सेवा में,

श्रीमान पी. जगन जी,
क्षेत्रीय निदेशक
केंद्रीय प्रदूषण नियंत्रण बोर्ड
क्षेत्रीय निदेशालय मध्य
परिवेश भवन ई - 5 अरेरा कॉलोनी
भोपाल मध्य प्रदेश

संदर्भ : माननीय एनजीटी के प्रकरण क्रमांक 67/2023 के आदेश दिनांक 17/03/2023 विषय ईट भट्टा के पर्यावरण अनुकूल संचालन हेतु विकल्प व सुझाव,

महोदय राजस्थान ईंट निर्माता संघ राजस्थान के 2000 ईट भट्टों का प्रतिनिधित्व करने वाला राजस्थान राज्य का एकमात्र संघ है। व माननीय न्यायालय एनजीटी के प्रकरण 67/2023 व आदेश दिनांक 17/03/2023 के क्रम में ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु निम्न सुझाव आपके समक्ष प्रस्तुत करता है -

ईट भट्टा के संचालन में PNG गैस के उपयोग के संदर्भ मैं -

महोदय ईंट भट्टा उद्योग ग्रामीण, लघु व कुटीर उद्योग जो गांव में ही संचालित होते हैं, पूरे भारतवर्ष में ईट भट्टों में पीएनजी गैस का उपयोग अज्ञात है व पीएनजी गैस आधारित तकनीक बहुत महंगी व बिल्कुल अलग है। महोदय राष्ट्रीय राजधानी क्षेत्र एनसीआर में माननीय न्यायालय एनजीटी दिल्ली में OA 1016/2019 उत्कर्ष पवार बनाम केंद्रीय प्रदूषण नियंत्रण बोर्ड में इस विषय को बहुत विस्तार से जांचा गया है व विभिन्न एक्सपर्ट की राय ली है जहां सभी एक्सपर्ट की राय यही है कि अभी के समय में ईंट भट्टों में png गैस को ईंधन के रूप में लागू करना अनुकूल नहीं है, महोदय पूरे देश में विनर बर्गर इंडिया, कर्नाटक ने ही करीब 400 करोड़ की लागत से अपने ईट भट्टे को पीएनजी गैस पर परिवर्तित किया है उसके बाद भी उनका SPM लेवल 150 mg/Nm3 है जबकि एनसीआर के जिगजैग ईंट भट्टों का कृषि अवशिष्ट ईधन सरसों की तुरी के साथ SPM लेवल 120 mg/Nm3 तक आया है, इसी कारण माननीय सर्वोच्च न्यायालय ने सिविल अपील डायरी नंबर 18213/20201 मैं एनसीआर क्षेत्र में जिगजैग ईंट भट्टो को संचालन की अनुमति प्रदान की है।

पता : महात्मा सुखानंद ITI कॉलेज केम्पस, कुम्हेर नदबई रोड, नदबई, भरतपुर राजस्थान
Email : narendrataliyan@ gmail.com

महोदय वायु गुणवत्ता प्रबंधन आयोग, दिल्ली ने भी एनसीआर क्षेत्र में कोयले को ईंधन के रूप में बंद करके स्वच्छ ईंधन की श्रेणी में पीएनजी के साथ-साथ कृषि अवशिष्ट को शामिल किया है।

1- महोदय पीएनजी गैस के कार्य में मुख्य कठिनाई मुख्यतः बहुत महंगी तकनीक लगभग **400** करोड रुपए की लागत है जबकि ईट भट्टा उद्योग ग्रामीण, लघु उद्योग है और किसी भी ईंट भट्टा संचालक के लिए इतनी महंगी तकनीक संभव नहीं है।

2- महोदय पीएनजी गैस का उपयोग वर्तमान ईंट भट्टो में नहीं किया जा सकता क्योंकि जहां वर्तमान ईट भट्टों में केवल आग को आगे बढ़ाया जाता है वही पीएनजी गैस आधारित तकनीक में आग एक ही जगह रहती है वह कच्ची ईंटों को आगे बढ़ाया जाता है। इसके लिए पूरी तरह से नया व अलग प्लांट स्थापित करना होगा।

3- महोदय राजस्थान राज्य में ईट भट्टे दूरदराज ग्रामीण इलाकों में संचालित हैं वहां पीएनजी गैस की उपलब्धता नहीं है, इस कारण भी **png** गैस का उपयोग ईंट भट्टो मैं नही किया जा सकता है।

4- आम ईधन की तुलना मे **png** गैस महंगी होने के कारण ईंट की कीमत बहुत बढ़ जाती है जिससे ग्रामीण व अन्य लोग इतनी बढ़ी कीमत पर मिट्टी की ईट को नहीं खरीद सकते है।

5- महोदय केंद्रीय प्रदूषण नियंत्रण बोर्ड द्वारा पीएनजी गैस आधारित ईट भट्टे की जांच व जिगजैग तकनीक पर आधारित कृषि अवशिष्ट ईंधन के रूप में उपयोग करने वाले ईंट भट्टो की जांच में **SPM Level** में कोई ज्यादा कमी नहीं आई है व पर्यावरण पर ईंधन के रूप में **png** गैस को इस्तेमाल करने से कोई अनुकूल प्रभाव नहीं पड़ा है।

<u>ईट भट्टों के संचालन में कोयले के अलावा अन्य विकल्प के संदर्भ मैं -</u>

महोदय जिगजैग तकनीक में ईंधन के रूप में कोयले के अलावा कृषि अपशिष्ट जैसे सरसों की तुरी, धान की तुरी, मूंगफली का छिलका, मेहंदी की लकड़ी, कपास की लकड़ी, ग्वार की तुरी आदि सबसे अच्छा इंधन है।

महोदय सीपीसीबी दिल्ली ने एनसीआर क्षेत्र में बहुत सारे जिगजैग भट्टा कोयला ईधन के साथ व जिगजैग ईंट भट्ठे कृषि अवशिष्ट के साथ मॉनिटरिंग की है जिनकी रिपोर्ट में जिगजैग ईंट भट्टा कोयला ईंधन की तुलना में कृषि अपशिष्ट ईधन के साथ बहुत कम प्रदूषण करता है इसके साथ-साथ महोदय ईंट भट्टो में कोयला उपयोग होकर वातावरण को प्रदूषित करता है वहीं दूसरी तरफ किसान इस कृषि अवशिष्ट को खेतों में जलाते हैं जिससे

वातावरण दुगना प्रदूषित होता है यदि ईट भट्टों में कृषि अपशिष्ट को बढ़ावा दिया जाए तो एक और तो किसान की आमदनी बढ़ेगी व किसान कृषि अवशिष्ट को खेतों में नहीं जलाएंगे व ईंट भट्टो मैं बेहतर ठंग से जलाई होकर प्रदूषण मैं कमी आयेगी।

महोदय यह कृषि अपशिष्ट ग्रामीण क्षेत्रों में ही ईंट भट्टों के आसपास ही उपलब्ध है जिससे कोयले की आपूर्ति करने वाले बाहर से आने वाले राजस्थान राज्य में लाखों ट्रक भी नहीं आएंगे और इन लाखों ट्रकों से होने वाला प्रदूषण भी कम होगा महोदय भरतपुर व अलवर जिले में **2018** से ही सभी जिगजैग ईंट भट्ठे कृषि अवशेष से ही संचालित है।

ईंट भट्टो को fcbtk पद्धति से जिगजैग पद्धति में परिवर्तित करने में आ रही कठिनाइयों और उनके निदान -

महोदय **fcbtk** तकनीक के ईंट भट्टो को जिगजैग तकनीक में परिवर्तित करने में एक ईंट भट्टे संचालक की लगभग **40** से **50** लाख रूपये की लागत आती है व इस लागत पर ना तो सरकार से कोई अनुदान है, ना ही कोई बैंक लोन उपलब्ध करवाता है इस कारण हर भट्टे स्वामी के सामने यह मुख्य समस्या है।

दूसरा कारण सीपीसीबी या आरपीसीबी द्वारा जिगजैग भट्ठे के संचालन स्टैंडर्ड ऑपरेटिंग प्रोसीजर **(SOP)** जैसे जिगजैग भराई व जिगजैग भट्ठे की जलाई के संबंध में कोई भी कार्यशाला आयोजित नहीं कराई गई है जिससे भट्टे वालों को इसके संचालन की व्यवहारिक जानकारी का अभाव है इसी कारण राजस्थान में अभी तक जिगजैग ईंट भट्ठे पर कार्य करने वाले कुशल कारीगरों का अभाव भी एक समस्या है यदि हर जिले में स्टैंडर्ड ऑपरेटिंग प्रोसीजर **(SOP)** की कार्यशाला आयोजित की जाए और सरकार से अनुदान या बैंक से लोन की व्यवस्था हो जाए तो **fcbtk** पद्धति से जिगजैग पद्धति में परिवर्तन करने में किसी को कोई समस्या नहीं होगी ।

मृदा संरक्षण के मद्देनजर -

महोदय ईट भट्टों का **top soil** पर कोई हानिकारक प्रभाव नहीं होता है। महोदय राजस्थान व अन्य राज्यों की मिट्टी में बहुत अंतर है राजस्थान के अधिकांश भागों में **Top Soil** उपजाऊ नहीं है बल्कि राजस्थान की मिट्टी मैं रेत की मात्रा बहुत अधिक है सिंचाई के पर्याप्त साधन ना होने व वर्षा की कमी के कारण अधिकतर भूमि बंजर व क्षारीय है।

राजस्थान में ईट भट्टे वाले अधिकतर इन बंजर व क्षारीय मिट्टी का ही प्रयोग ईट बनाने में करते हैं इसके साथ-साथ वर्षा का पानी संचय करने के लिए किसान अपने खेतों में जो जलाशय बनवाते हैं उस मिट्टी का प्रयोग भी

ईंट भट्टो पर होता है। इसलिए राजस्थान में ईंट भट्टो का मिट्टी की **top soil** पर कोई गहरा या हानिकारक प्रभाव नहीं है फिर भी यदि ईंट में इंटरनल फ्यूल के रूप में **6 %** से **16 %** तक खराब गला हुआ कृषि अपशिष्ट मिलाने से एक तरफ मिट्टी की बचत होगी वहीं ईंट की क्वालिटी भी अच्छी बनेगी व ईधन की स्पेसिफिक एनर्जी कंजप्शन में भी कमी आएगी इसके कारण प्रदूषण में भी कमी होगी ।

ईट भट्टों का संचालन सीमित अवधि के संदर्भ में -

महोदय ईट भट्टा उद्योग एक सीजनल उद्योग है। राजस्थान राज्य के **2** जिले जो राष्ट्रीय राजधानी क्षेत्र में सम्मिलित हैं भरतपुर व अलवर को छोड़कर लगभग सभी जिलों में **1700** ईंट भट्टे मानसून समाप्ति के बाद अक्टूबर से लेकर जून तक संचालित होते हैं।

महोदय आज राज्य के लगभग सभी जिलों में सर्दियों में प्रदूषण का स्तर बहुत बढ़ जाता है जिससे आम आदमी के जनजीवन पर बहुत बुरा प्रभाव पड़ता है।

महोदय सर्दियों में ही दीवाली, नववर्ष जैसे त्यौहार आते हैं जो प्रदूषण को और बढ़ा देते हैं वह इन्हीं महीनों में एक साथ राज्य के लगभग **1700** ईंट भट्ठे भी संचालित होते हैं, महोदय सर्दियों में बढ़ते प्रदूषण की रोकथाम व आम नागरिक के स्वास्थ्य के हित में पर्यावरण व औद्योगिक विकास को संतुलित करने की बहुत आवश्यकता है।

अतः महोदय राजस्थान राज्य में संचालित सभी ईट भट्टों का संचालन सीमित अवधि 1 फरवरी से 30 जून तक सीमित किया जाना चाहिए इससे राज्य के ईट भट्टों व ईंट की आपूर्ति पर कोई नकारात्मक प्रभाव नहीं पड़ेगा ।

राजस्थान ईंट निर्माता संघ की तरफ से राज्य के पर्यावरण हेतु यदि राज्य के सभी ईट भट्टों का संचालन सीमित अवधि 1 फरवरी से 30 जून किया जाता है तो हमें इस निर्णय पर कोई आपत्ति नहीं होगी व हम इस निर्णय को पूर्ण रूप से स्वीकार करेंगे।

अतः महोदय पर्यावरण एवं वन मंत्रालय, भारत सरकार द्वारा देश के ईंट भट्टो के लिए जारी अधिसूचना दिनांक **22/02/2022** के अनुसार राज्य में सभी ईंट भट्टो को जिगजैग तकनीक पर संचालन की अनुमति प्रदान की जाए साथ ही ज्यादा से ज्यादा कृषि अपशिष्ट का ईंधन के रूप में उपयोग किया जाए व राज्य के सभी ईंट भट्टो के संचालन अवधि को सीमित कर **1** फरवरी से **30** जून किया जाए एवम राज्य के सभी जिलों में जिगजैग तकनीक के कुशल संचालन के लिए कार्यशाला आयोजित की जाएं।

पता : महात्मा सुखानंद ITI कॉलेज केम्पस, कुम्हेर नदबई रोड, नदबई, भरतपुर राजस्थान
Email : narendrataliyan@ gmail.com

卐
राजस्थान ईन्ट निर्माता संघ
आगरा रोड़, जयपुर (राजस्थान)
ALL RAJASTHAN BRICK MANUFACTURERS ASSOCIATION
(Federation of Brick Kiln Associations)

महोदय कृपया राजस्थान राज्य के ईंट भट्टो के कुशल संचालन के लिए हमारे निम्न सुझाव माननीय न्यायालय **ngt** मै के समक्ष प्रकरण **67/2023** मैं प्रस्तुत करने की कृपा करें।

आपके अति आभारी होंगे।

धन्यवाद

भवदीय

दिनांक : **24/06/2023**

नरेंद्र तालान
प्रदेश महासचिव
राजस्थान ईंट निर्माता संघ, जयपुर

पता : महात्मा सुखानंद ITI कॉलेज केम्पस, कुम्हेर नदबई रोड, नदबई, भरतपुर राजस्थान
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घड़साना ईन्ट भट्ठा एसोशिएशन

नई मण्डी घड़साना,335711 जिला श्री गंगानगर (राज.)

क्रमांक

दिनांक 20.06.2023

सेवा में,

श्रीमान् सुनील कुमार जी मीणा.
वैज्ञानिक (घ) केन्द्रिय प्रदूषण नियंत्रण बोर्ड,
क्षेत्रीय निदेशालय, भोपाल।

संदर्भ : आपका पत्रांक 67/2023/453 दिनांक 09 जून 2023 के संदर्भ में।

विषय : ईन्ट भट्ठा के पर्यावरण अनुकुल संचालन हेतु विकल्प एवं सुझाव उपलब्ध करवाने बाबत।

महोदय,

आपके उपरोक्त विषयानुसार बिन्दुवार विकल्प व सुझाव निम्नलिखित है :–

1 श्रीमानजी ईन्ट भट्ठो के संचालन में पी.एन.जी. का उपयोग संभव प्रतीत नहीं होता है क्यों कि हमारे क्षेत्र की भोगोलिक स्थिति के अनुसार (रेगिस्तान) यहां पर तेज आधीं–तुफान की स्थिति बनी रहती है जिस कारण बिजली के लम्बे कट लगने के कारण हमारे क्षेत्र में पी.एन.जी. ईन्ट भट्ठों का संचालन संभव नहीं है तथा पी.एन.जी. का उपयोग आर्थिक रूप से भी काफी मंहगा होता है। जोकि हमारे लघु उद्योग के लिए वहन करना संभव नहीं है।

2 श्रीमानजी कोयला भारत व सम्पूर्ण विश्व में सीमित मात्रा में उपलब्ध है। इसका दोहन व प्रयोग एक निर्धारित मात्रा व आवश्यक कार्यों में करना ही उचित है हमारा उद्योग कोयला के स्थान पर कृषि अपशिष्ट पर चल रहा है। इसका एक कारण कोयला की हमारे क्षेत्र में अनुउपलब्धता भी है। कृषि अपशिष्ट रबी व खरीफ की फसलों में हर छ–छ माह बाद उपलब्ध होते रहते है इसलिए हमारे उद्योग में कोयले से संचालन नहीं होता है बल्कि कृषि अपशिष्ट ही प्रयोग में लिये जाते है।

हमारे क्षेत्र के ईन्ट भट्ठों में ईन्धन के रूप में प्रयोग की जाने वाले कृषि अपशिष्ट सरसों की एग्रोवेस्ट (गुणा) को पशु चारा के रूप में प्रयोग नहीं किया जाता है क्यों कि पशुधन इसे नहीं खाता है। पहले इस अपशिष्ट को किसान अपने खेतों में (पंजाब/ हरियाण में पराली की तरह) जला देते थे परन्तु जब से कोयले के स्थान पर इस एग्रोवेस्ट का ईन्धन के रूप में निर्धारित मानकों के अनुसार प्रयोग किया जाने लगा जिसका किसानो को भी आर्थिक लाभ हुआ व अपशिष्ट के जलने को होने वाले मृदा व वायु प्रदुषण पर पूर्णतया अंकुश लगा।

हमारे ग्रामीण क्षेत्र के हर घर में एलपीजी. गैस कनैक्शन आ जाने के कारण नरमें कपास की लकडी को घरों में जलाने का उपयोग बन्द हो गया है जिससे किसानो ने इस लकडी को अपने खेतों में जलाना आरम्भ कर दिया था परन्तु ईन्ट भट्ठा उद्योग में इस लकडी को खरीद कर छोटे–छोटे टुकडों में बदल कर ईन्धन के रूप में प्रयोग लिया जाने लगा। जिससे किसानों को आर्थिक लाभ हुआ व जो कृषि अपशिष्ट खेतों में उपजाऊ भूमि पर एक माह में जलकर मृदा व वायु प्रदुषण करता उसी लकडी को ईन्ट भट्ठा उद्योग ने निर्धारित मानकों के अनुसार लम्बें समय तक जलाने में प्रयोग लिया गया जिससे यह क्षेत्र दिल्ली की तरह गैस चैम्बर बनने से बच गया।

लगातार.....2

98287-85750, 99834-61967, 96723-59501

घड़साना ईन्ट भट्ठा एसोशिएशन

नई मण्डी घड़साना,335711 जिला श्री गंगानगर (राज.)

क्रमांक

दिनांक 20.6.2023

श्रीमानजी यदि इन दोनो कृषि अपशिष्टों को हमारा ईन्ट भट्ठा उद्योग द्वारा किसानों से सीधा खरीद कर प्रयोग नहीं करता तो मजबूरन किसान इसे उपजाऊ भूमि पर जलाते जिससे मृदा की उर्वरक क्षमता समाप्त होती और हमारा यह क्षेत्र गैस चैम्बर में बदल जाता।

इस कृषि अपशिष्ट से संचालित ईन्ट भट्ठों का सीपीसीबी द्वारा आपकी देख–रेख में एक वर्ष पूर्व निरिक्षण किया गया था जिसमें प्रदुषण के मानक बहुत ही कम पाये गये थे।

3. ईन्ट भट्ठों को FCBTK से जिकजैक में परिवर्तित करने में सबसे बडी कठिनाई हमारे क्षेत्र में कुशल कारीगर एवं मजदूर उपलब्ध नहीं होना है। श्रीमानजी, पर्यावरण वन एवं जलवायु परिवर्तन मन्त्रालय द्वारा जो समय दिया गया था वो समय भी अत्यधिक कम है। इस समयावधि में ईन्ट भट्ठों के बेलदारों व जलाई स्टाफ को प्रशिक्षण भी नहीं दिया जा सकता है। इसके अलावा ईन्ट भट्ठा उद्योग पर जी.एस.टी. की दरों में अप्रत्याशित वृद्वि (1% से 6%) हुई है व रायल्टी पर भी जी.एस.टी. का भार वित्तिय वर्ष 2017-18 से डाला जा रहा है। जिस कारण क्षेत्र के उद्योगों की वित्तिय स्थिति अच्छी नहीं है। भट्ठों को जिकजैक में परिवर्तित करने पर होने वाला खर्च लगभग 35 से 40 लाख रूपये का वित्तिय भार ईन्ट भट्ठा उद्योग वहन करने की स्थिति में नहीं है अतः श्रीमान जी से हमारा यह सुझाव है कि FCBTK से जिकजैक में परिवर्तन की समय सीमा को 7 वर्ष के लिए बढा दिया जावे।

4. मृदा सरंक्षण का एक मात्र उपाय ईन्ट भट्ठों को संचालन सीमित अवधि के लिए किया जाना ही है एवं ईन्ट भट्ठों का संचालन कृषि अपशिष्ट (एग्रोवेस्ट) से करने पर राखड की मात्रा न के बराबर होती है। ईन्ट भट्ठा उद्योग अपनी राखड को बाहर नहीं फैकता बल्कि इस राखड़ का प्रयोग कच्ची ईन्टों को ढकने में कर लिया जाता है।

5. ईन्ट भट्ठों के संचालन की अवधि को सीमित करना पर्यावरण सरंक्षण एवं मृदा संरक्षण के लिए उपयुक्त हैं जिस प्रकार एनसीआर क्षेत्र में माननीय एनजीटी द्वारा ईन्ट भट्ठों के संचालन की समय सीमा निर्धारित की है उसी प्रकार इस क्षेत्र में 01 जनवरी से 30 जून की अवधि निर्धारित की जा सकती है। इस समय सीमा का व्यापार पर कोई नकारात्मक प्रभाव नहीं पडेगा।

भवदीय

(जगदीश जाखड़)
संरक्षक
ईन्ट भट्ठा एसोशिएशन
घड़साना -9672359501

ईन्ट भट्टा संगठन

तहसील श्रीविजयनगर, जिला श्रीगंगानगर।

प्रभुदयाल मिढढा (अध्यक्ष)
98287-09002, 94140-87719

क्रमांकः-

दिनांकः-20-06-2023

श्रीमान् सुनील कुमार मीणा

वैज्ञानिक घ
केन्द्रीय प्रदुषण नियंत्रण बोर्ड
भोपाल
श्रीमान् जी,

आपका पत्र क्रमांक फा. नं. क्षे.नि.भो./एन.जी.टी. प्रकरण/67/2023/451 दिनांक 09, जून 2023 प्राप्त हुआ। जिसमें आपके द्वारा एन.जी.टी. के प्रकरण क्रमांक 67/2023 के आदेश दिनांक 17.03.2023 ईन्ट भट्टो के पर्यावरण अनुकूल संचालन हेतुं विकल्प एवं सुझाव उपलब्ध कराने के लिये चाहा गया है।

श्रीमान् जी आपके प्रश्नों का बिन्दुवार निम्नानुसार सुझाव देना चाहूंगा।

1. ईन्ट भट्टो के संचालन में PNG का प्रयोग व्यवहारिक नही है। बीकानेर संभाग में PNG की उपलब्धता नहीं है तथा इसके प्रयोग के लगने वाले उपकरणों की लागत 15 करोड के लगभग होगी जो कि सूक्ष्म लघु उद्योग यूनिट के लिये स्वपनदृष्टा होगी।

2. FCBTK ईन्ट भट्टो में कोयले की आवश्यकता नही होती तथा ये ईन्ट भट्टे स्थानीय कृषि अपशिष्ट (सरसों का तुडा व कपास की छिटियां) से चलाये जाते है जिसमें प्रदूषण नगण्य होता है। Report CPCB

3. (a) FCBTK ईन्ट भट्टो को जिगजैग में बदलने के लिये 30-40 लाख रूपये की लागत आयेगी।
   निदानः- बैंको से वित्तिय सहायता एवं 35 प्रतिशत सबसीडी।

22/6/2023

(b) जिगजैग को भट्टो को बनाने चलाने के लिए स्किल्ड लेबर की जरूरत होगी जो एक साथ हजारो भट्टो के लिये संभव नही होगी।
निदानः-समय सीमा 7 वर्ष तक बढ़ाई जावे तथा चरणबद्ध तरीके से FCBTK को ज़िगजैग में परिवर्तित करने का प्लान करवाया जावे।

4. मृदा संरक्षण के लिए बीकानेर संभाग पूर्व से ही कार्यरत है जो कि मिट्टी के 40 प्रतिशत तक बालू रेत (Tibba Sand) का मिश्रण कर ईन्ट बनाई जाती थी इसमे राखड का मिश्रण करने की आवश्यकता नही है। समय अवधि 6 माह करने से भी मृदा का संरक्षण होगा।

5. ईन्ट भट्टो का संचालन सिमित अवधि 1 जनवरी से 30 जून तक किया जाना उचित है। सकारात्मक प्रभावः-
1. सर्दी से पूर्व ही प्रदूषण का नियंत्रण हो जायेगा।
2. समय सीमा तय होने से मृदा का संरक्षण होगा तथा कम मिट्टी की आवश्यकता होगी।
3. एक तय समय में ईन्ट भट्टे चलने से पर्याप्त मजदुरी लेवर को मिलेगी।
4. ईन्टो की उपलब्धता स्टॉक के रूप में भट्टो पर सारा वर्ष उपलब्ध रहेगी।
नकारात्मक :- समय सीमा तय होने से कोई नकारात्मक प्रभाव नही होगा।

6. एक अतिरिक्त सुझाव यह भी देना चाहूंगा कि भविष्य में नए ईन्ट भट्टो की स्थापना को भी रोकना ही उचित रहेगा।
मेरे द्वारा सुझाव श्रीमान् जी की सेवा में बिना किसी व्यक्तिगत स्वार्थ जनहित और पर्यावरण संरक्षण के लिए दिए है।

सादर प्रणाम

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क्र.सं. दिनांक .....

सेवा में,

श्रीमान पी. जगन जी,
क्षेत्रीय निदेशक
केंद्रीय प्रदूषण नियंत्रण बोर्ड
क्षेत्रीय निदेशालय मध्य
परिवेश भवन ई - 5 अरेरा कॉलोनी
भोपाल मध्य प्रदेश

संदर्भ : माननीय एनजीटी के प्रकरण क्रमांक 67/2023 के आदेश दिनांक 17/03/2023 विषय ईट भट्टा के पर्यावरण अनुकूल संचालन हेतु विकल्प व सुझाव,

महोदय ईट भट्टा संघ भरतपुर जो कि जिला भरतपुर राजस्थान के 110 नवीन तकनीक जिगजैग पर संचालित ईट भट्टों का प्रतिनिधित्व करता है। माननीय न्यायालय एनजीटी के प्रकरण 67/2023 व आदेश दिनांक 17/03/2023 के क्रम में ईंट भट्टों के पर्यावरण अनुकूल संचालन हेतु निम्न सुझाव आपके समक्ष प्रस्तुत करता है -

ईट भट्टा के संचालन में PNG गैस के उपयोग के संदर्भ मैं -

महोदय ईंट भट्टा उद्योग ग्रामीण, लघु व कुटीर उद्योग जो गांव में ही संचालित होते हैं, पूरे भारतवर्ष में ईट भट्टों में पीएनजी गैस का उपयोग अज्ञात है व पीएनजी गैस आधारित तकनीक बहुत महंगी व बिल्कुल अलग है। महोदय राष्ट्रीय राजधानी क्षेत्र एनसीआर में माननीय न्यायालय एनजीटी दिल्ली में OA 1016/2019 उत्कर्ष पवार बनाम केंद्रीय प्रदूषण नियंत्रण बोर्ड में इस विषय को बहुत विस्तार से जांचा गया है व विभिन्न एक्सपर्ट की राय ली है जहां सभी एक्सपर्ट की राय यही है कि अभी के समय में ईंट भट्टों में png गैस को ईंधन के रूप में लागू करना अनुकूल नहीं है, महोदय पूरे देश में विनर बर्गर इंडिया, कर्नाटक ने ही करीब 400 करोड़ की लागत से अपने ईट भट्टे को पीएनजी गैस पर परिवर्तित किया है उसके बाद भी उनका SPM लेवल 150 mg/Nm3 है जबकि

पता : महात्मा सुखानंद ITI कॉलेज केम्पस, कुम्हेर नदबई रोड, नदबई, भरतपुर राजस्थान
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क्र.सं. दिनांक .....

एनसीआर के जिगजैग ईंट भट्टों का कृषि अवशिष्ट ईधन सरसों की तुरी के साथ **SPM** लेवल **120 mg/Nm3** तक आया है, इसी कारण माननीय सर्वोच्च न्यायालय ने सिविल अपील डायरी नंबर **18213/20201** मैं एनसीआर क्षेत्र में जिगजैग ईंट भट्टो को संचालन की अनुमति प्रदान की है।

महोदय वायु गुणवत्ता प्रबंधन आयोग, दिल्ली ने भी एनसीआर क्षेत्र में कोयले को ईंधन के रूप में बंद करके स्वच्छ ईंधन की श्रेणी में पीएनजी के साथ-साथ कृषि अवशिष्ट को शामिल किया है।

1- महोदय पीएनजी गैस के कार्य में मुख्य कठिनाई मुख्यतः बहुत महंगी तकनीक लगभग **400** करोड रुपए की लागत है जबकि ईट भट्टा उद्योग ग्रामीण, लघु उद्योग है और किसी भी ईंट भट्टा संचालक के लिए इतनी महंगी तकनीक संभव नहीं है।

2- महोदय पीएनजी गैस का उपयोग वर्तमान ईंट भट्टो में नहीं किया जा सकता क्योंकि जहां वर्तमान ईट भट्टों में केवल आग को आगे बढ़ाया जाता है वही पीएनजी गैस आधारित तकनीक में आग एक ही जगह रहती है वह कच्ची ईंटों को आगे बढ़ाया जाता है। इसके लिए पूरी तरह से नया व अलग प्लांट स्थापित करना होगा।

3- महोदय राजस्थान राज्य में ईट भट्टे दूरदराज ग्रामीण इलाकों में संचालित हैं वहां पीएनजी गैस की उपलब्धता नहीं है, इस कारण भी **png** गैस का उपयोग ईंट भट्टो मैं नही किया जा सकता है।

4- आम ईधन की तुलना मे **png** गैस महंगी होने के कारण ईंट की कीमत बहुत बढ़ जाती है जिससे ग्रामीण व अन्य लोग इतनी बढ़ी कीमत पर मिट्टी की ईट को नहीं खरीद सकते है।

5- महोदय केंद्रीय प्रदूषण नियंत्रण बोर्ड द्वारा पीएनजी गैस आधारित ईट भट्टे की जांच व जिगजैग तकनीक पर आधारित कृषि अवशिष्ट ईंधन के रूप में उपयोग करने वाले ईंट भट्टो की जांच में **SPM Level** में कोई ज्यादा कमी नहीं आई है व पर्यावरण पर ईंधन के रूप में **png** गैस को इस्तेमाल करने से कोई अनुकूल प्रभाव नहीं पड़ा है।

पता : महात्मा सुखानंद ITI कॉलेज केम्पस, कुम्हेर नदबई रोड, नदबई, भरतपुर राजस्थान

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ईंट भट्टों के संचालन में कोयले के अलावा अन्य विकल्प के संदर्भ मैं -

महोदय जिगजैग तकनीक में ईंधन के रूप में कोयले के अलावा कृषि अपशिष्ट जैसे सरसों की तुरी, धान की तुरी, मूंगफली का छिलका, मेहंदी की लकड़ी, कपास की लकड़ी, ग्वार की तुरी आदि सबसे अच्छा इंधन है।

महोदय सीपीसीबी दिल्ली ने एनसीआर क्षेत्र में बहुत सारे जिगजैग भट्टा कोयला ईधन के साथ व जिगजैग ईंट भट्ठे कृषि अवशिष्ट के साथ मॉनिटरिंग की है जिनकी रिपोर्ट में जिगजैग ईंट भट्टा कोयला ईंधन की तुलना में कृषि अपशिष्ट ईधन के साथ बहुत कम प्रदूषण करता है इसके साथ-साथ महोदय ईंट भट्टो में कोयला उपयोग होकर वातावरण को प्रदूषित करता है वहीं दूसरी तरफ किसान इस कृषि अवशिष्ट को खेतों में जलाते हैं जिससे वातावरण दुगना प्रदूषित होता है यदि ईट भट्टों में कृषि अपशिष्ट को बढ़ावा दिया जाए तो एक और तो किसान की आमदनी बढ़ेगी व किसान कृषि अवशिष्ट को खेतों में नहीं जलाएंगे व ईंट भट्टो मैं बेहतर ठंग से जलाई होकर प्रदूषण मैं कमी आयेगी।

महोदय यह कृषि अपशिष्ट ग्रामीण क्षेत्रों में ही ईंट भट्टों के आसपास ही उपलब्ध है जिससे कोयले की आपूर्ति करने वाले बाहर से आने वाले राजस्थान राज्य में लाखों ट्रक भी नहीं आएंगे और इन लाखों ट्रकों से होने वाला प्रदूषण भी कम होगा महोदय भरतपुर में 2018 से ही सभी जिगजैग ईंट भट्ठे कृषि अवशेष से ही संचालित है।

ईंट भट्टो को fcbtk पद्धति से जिगजैग पद्धति में परिवर्तित करने में आ रही कठिनाइयों और उनके निदान -

महोदय fcbtk तकनीक के ईंट भट्टो को जिगजैग तकनीक में परिवर्तित करने में एक ईंट भट्टे संचालक की लगभग 40 से 50 लाख रूपये की लागत आती है व इस लागत पर ना तो सरकार से कोई अनुदान है, ना ही कोई बैंक लोन उपलब्ध करवाता है इस कारण हर भट्टे स्वामी के सामने यह मुख्य समस्या है।

दूसरा कारण सीपीसीबी या आरपीसीबी द्वारा जिगजैग भट्ठे के संचालन स्टैंडर्ड ऑपरेटिंग प्रोसीजर (SOP) जैसे जिगजैग भराई व जिगजैग भट्ठे की जलाई के संबंध में कोई भी कार्यशाला आयोजित नहीं कराई गई है जिससे भट्टे वालों को इसके संचालन की व्यवहारिक जानकारी का अभाव है इसी कारण राजस्थान में अभी तक जिगजैग ईंट भट्ठे पर कार्य करने वाले कुशल कारीगरों का अभाव भी एक समस्या है यदि हर जिले में स्टैंडर्ड ऑपरेटिंग प्रोसीजर (SOP) की कार्यशाला आयोजित की जाए और सरकार से अनुदान या बैंक से लोन की व्यवस्था हो

पता : महात्मा सुखानंद ITI कॉलेज केम्पस, कुम्हेर नदबई रोड, नदबई, भरतपुर राजस्थान

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जाए तो **fcbtk** पद्धति से जिगजैग पद्धति में परिवर्तन करने में किसी को कोई समस्या नहीं होगी ।

मृदा संरक्षण के मद्देनजर -

महोदय ईट भट्टों का **top soil** पर कोई हानिकारक प्रभाव नहीं होता है। महोदय राजस्थान व अन्य राज्यों की मिट्टी में बहुत अंतर है राजस्थान के अधिकांश भागों में **Top Soil** उपजाऊ नहीं है बल्कि राजस्थान की मिट्टी मैं रेत की मात्रा बहुत अधिक है सिंचाई के पर्याप्त साधन ना होने व वर्षा की कमी के कारण अधिकतर भूमि बंजर व क्षारीय है।

राजस्थान में ईट भट्टे वाले अधिकतर इन बंजर व क्षारीय मिट्टी का ही प्रयोग ईट बनाने में करते हैं इसके साथ-साथ वर्षा का पानी संचय करने के लिए किसान अपने खेतों में जो जलाशय बनवाते हैं उस मिट्टी का प्रयोग भी ईंट भट्टो पर होता है। इसलिए राजस्थान में ईंट भट्टो का मिट्टी की **top soil** पर कोई गहरा या हानिकारक प्रभाव नहीं है फिर भी यदि ईंट में इंटरनल फ्यूल के रूप में **6 %** से **16 %** तक खराब गला हुआ कृषि अपशिष्ट मिलाने से एक तरफ मिट्टी की बचत होगी वहीं ईट की क्वालिटी भी अच्छी बनेगी व ईधन की स्पेसिफिक एनर्जी कंजप्शन में भी कमी आएगी इसके कारण प्रदूषण में भी कमी होगी ।

ईट भट्टों का संचालन सीमित अवधि के संदर्भ में -

महोदय ईट भट्टा उद्योग एक सीजनल उद्योग है। राजस्थान राज्य के **2** जिले जो राष्ट्रीय राजधानी क्षेत्र में सम्मिलित हैं भरतपुर व अलवर को छोड़कर लगभग सभी जिलों में **1700** ईंट भट्टे मानसून समाप्ति के बाद अक्टूबर से लेकर जून तक संचालित होते हैं।

महोदय आज राज्य के लगभग सभी जिलों में सर्दियों में प्रदूषण का स्तर बहुत बढ़ जाता है जिससे आम आदमी के जनजीवन पर बहुत बुरा प्रभाव पड़ता है।

महोदय सर्दियों में ही दीवाली, नववर्ष जैसे त्यौहार आते हैं जो प्रदूषण को और बढ़ा देते हैं वह इन्हीं महीनों में एक साथ राज्य के लगभग **1700** ईंट भट्ठे भी संचालित होते हैं, महोदय सर्दियों में बढ़ते प्रदूषण की रोकथाम व आम नागरिक के स्वास्थ्य के हित में पर्यावरण व औद्योगिक विकास को संतुलित करने की बहुत आवश्यकता है।

पता : महात्मा सुखानंद ITI कॉलेज केम्पस, कुम्हेर नदबई रोड, नदबई, भरतपुर राजस्थान
Email : narendrataliyan@ gmail.com

ईट भट्टा संघ भरतपुर (राज.)

कुम्हेर नदबई रोड, नदबई (भरतपुर)–321602

अध्यक्ष
नरेन्द्र तालान
मो. 8630336866

कोषाध्यक्ष
सतीश जिंदल
मो. 9664376499

सचिव
नरेश शर्मा
मो. 9982490211

क्र.सं. दिनांक .....

अतः महोदय राजस्थान राज्य में संचालित सभी ईट भट्टों का संचालन सीमित अवधि 1 फरवरी से 30 जून तक सीमित किया जाना चाहिए इससे राज्य के ईट भट्टों व ईंट की आपूर्ति पर कोई नकारात्मक प्रभाव नहीं पड़ेगा ।

ईट भट्टा संघ भरतपुर की तरफ से राज्य के पर्यावरण हेतु यदि राज्य के सभी ईट भट्टों का संचालन सीमित अवधि 1 फरवरी से 30 जून किया जाता है तो हमें इस निर्णय पर कोई आपत्ति नहीं होगी व हम इस निर्णय को पूर्ण रूप से स्वीकार करेंगे।

अतः महोदय पर्यावरण एवं वन मंत्रालय, भारत सरकार द्वारा देश के ईंट भट्टो के लिए जारी अधिसूचना दिनांक **22/02/2022** के अनुसार राज्य में सभी ईंट भट्टो को जिगजैग तकनीक पर संचालन की अनुमति प्रदान की जाए साथ ही ज्यादा से ज्यादा कृषि अपशिष्ट का ईंधन के रूप में उपयोग किया जाए व राज्य के सभी ईंट भट्टो के संचालन अवधि को सीमित कर **1** फरवरी से **30** जून किया जाए एवम राज्य के सभी जिलों में जिगजैग तकनीक के कुशल संचालन के लिए कार्यशाला आयोजित की जाएं।

महोदय कृपया राजस्थान राज्य के ईंट भट्टो के कुशल संचालन के लिए हमारे निम्न सुझाव माननीय न्यायालय **ngt** मै

के समक्ष प्रकरण **67/2023** मैं प्रस्तुत करने की कृपा करें।

आपके अति आभारी होंगे।

धन्यवाद

भवदीय

दिनांक : **24/06/2023**

नरेंद्र तालान
अध्यक्ष
ईट भट्टा संघ भरतपुर

पता : महात्मा सुखानंद ITI कॉलेज केम्पस, कुम्हेर नदबई रोड, नदबई, भरतपुर राजस्थान
Email : narendrataliyan@ gmail.com

Email **Sunil Kr Meena**

Re: Suggestion on brick kilns viable operation reg.

From : yesbhupender@gmail.com Fri, Jun 16, 2023 02:37 PM
Subject : Re: Suggestion on brick kilns viable operation reg.
To : Sunil Kr Meena <sunil.cpcb@gov.in>

श्रीमान सुनील कुमार मीणा

वैज्ञानिक घ
केंद्रीय प्रदुषण नियंत्रण बोर्ड
भोपाल
श्रीमान जी
आपका मेल प्राप्त हुआ । जिसमे आपके द्वारा 22.02.2022 की अधिसूचना के सन्दर्भ में ईंट भट्टो के लिए सुझाव चाहे गए हैं ।
श्रीमान जी आपके प्रश्नों का बिंदुवार निम्नानुसार सुझाव देना चाहूंगा ।

1. ईंट भट्टो के संचालन में पीएमजी का उपयोग बीकानेर संभाग में इसकी प्रचुर मात्रा में उपलब्धता न होने के कारण यह संभव नहीं है ।
द्वितीय इसके उपयोग में आने वाले यंत्रों का मूल्य इतना ज्यादा है की प्रति ईंट भट्टा पर 3 करोड़ की अतिरिक्त लागत आएगी । ईंट भट्टा जो की मात्र 50 से 60 लाख की पूंजी से चलने वाला लघु उद्योग है इसलिए इसके संचालकों द्वारा ये स्थापित कर पाना भी संभव नहीं होगा।

2. ईंट भट्टो में कोयले के विकल्प के रूप में राजस्थान में खासकर श्रीगंगानगर एवम हनुमानगढ़ जिले में सरसों की फसल के अपशिष्ट और कपास की फसल के अपशिष्ट का प्रयोग किया जाता है जो की एक तरफ तो ईंट भट्टो में प्रदुषण की मात्रा को कम करता है (केंद्रीय प्रदुषण नियंत्रण बोर्ड की रिपोर्ट के आधार पर) वही दूसरी तरफ किसानों द्वारा खेत के पराली की तरह जलाना नही पड़ता जिस से प्रदूषण की मात्रा कम करने में सहायता मिलती हैं।
किसानों द्वारा कृषि अपशिष्ट पदार्थों के बेचने से लगभग राजस्थान में 1500 करोड़ की अतिरिक्त आय प्राप्त होती हैं।
वही इसके एवज में कोयला आयात करने पर देश की विदेशी मुद्रा भंडार को काफी हानि होती हैं।

3. चूंकि ईंट भट्ठे एफसीबीटीके पद्धति से चलने पर भी आपके विभाग द्वारा जांच किए गए तो वर्तमान में भी इनका प्रदूषण मानक स्तर जो की एनजीटी द्वारा जिग जेग ईंट भट्टो के लिए निर्धारित किया गया है उस से भी काफी कम पाया गया था। इसलिए जिग जेग तकनीक को अपनाने की आवश्यकता केवल प्रदूषण कम करने के लिए नहीं होगी।
दूसरा इस तकनीक में प्रति ईंट भट्टा 50 से 55 लाख का अतिरिक्त लागत आएगी जो इस लघु उद्योग द्वारा वहन करना संभव नहीं है। और चूंकि अभी तक इस तकनीक की कुशल लेबर भी प्रचुर मात्रा में उपलब्ध नहीं हैं ।इसलिए इस तकनीक को लागू करने की अनिवार्यता को समाप्त किया जाना ही उचित रहेगा ।

4. मृदा संरक्षण के लिए भी श्रीगंगानगर एवम हनुमानगढ़ जिले में मिट्टी में आधी मात्रा में बालू रेत को मिलाया जाता है जो की मिट्टी के संरक्षण का कार्य करती हैं। चूंकि राख की दोनो जिलों में कोई उपलब्धता नही है इसलिए इसका उपयोग व्यवहारिक नही है।

5.ईंट भट्टो का संचालन सीमित समयावधि में किया जाना पर्यावरण संरक्षण एवं ईट भट्टा मालिको दोनो के हित में बहुत अच्छा सुझाव है । इसका कोई नकारात्मक प्रभाव नहीं पड़ेगा।
इसका सकारात्मक परिणाम यह होगा कि अगर जनवरी से जून तक ईंट भट्टो के संचालन की बाध्यता आपके द्वारा और माननीय एनजीटी कोर्ट द्वारा की जाए तो सर्दी में पंजाब से पराली के जलाने पर होने वाले प्रदूषण का असर इन

जिलों में काफी देखने को मिलता है उस समय भट्टो को बंद ही रखा जाना उचित रहेगा।

6 एक अतिरिक्त सुझाव यह भी देना चाहूंगा कि भविष्य में नए ईंट भट्टो की स्थापना को भी रोकना ही उचित रहेगा ।
मेरे द्वारा सुझाव श्रीमान जी की सेवा में बिना किसी व्यक्तिगत स्वार्थ जनहित और पर्यावरण संरक्षण के लिए दिए हैं ।
सादर प्रणाम
भूपेंद्र सुथार
ईंट भट्टा संगठन श्रीगंगानगर
राजस्थान
9414077016
yesbhupender@gmail.com

On Wed, 14 Jun, 2023, 6:09 pm Sunil Kr Meena, <sunil.cpcb@gov.in> wrote:

> Sir,
> Please provide your valuable suggestions on the viable operation of brick kilns.
>
> --
> Regards
>
> Sunil Kumar Meena, Scientist-D
> Central Pollution Control Board
> Regional Directorate, Bhopal
> MadhyaPradesh

क्षेत्रीय निदेशालय (मध्य), भोपाल
Regional Directorate (Central), Bhopal
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Ministry of Environment, Forests & Climate Change, Government of India)

File No.: RD/BPL/OA67_2022(CZ)/2023-24/ 22 **Date: 19.06.2023**

To,
Shri (Dr) J K Saha
Principal Scientist & Head
Division of Environmental Soil Science
Indian Institute of Soil Science
Bhopal

Kind Attn: Dr M. Vassanda Coumar, Scientist, ESS division

Subject: Analysis of soil samples- reg.
Ref. Hon'ble NGT order dated 17.03.2023 in O.A. No. 67 of 2022 (CZ); Ram Dass Vs State of Rajasthan & Ors

Sir,

The Hon'ble NGT (CZ) vide its order dated 17.03.2023, in the matter of O.A. No. 67 of 2022 (CZ); Ram Dass Vs State of Rajasthan & Ors, directed to the committee for submitting report on "***Impact of brick kilns operation on loss/degradation of top soil.***"

In this regard, CPCB has collected total 16 soil samples (agricultural land & mined area) from Rajasthan (Sriganganagar, Churu, Ajmer districts) during 9th to 10th June 2023as per the sampling protocol followed by your good self in another NGT matter i.e. O.A. 1088 of 2018 Dinesh Chahal Vs UOI. The details of the samples are attached. The samples are to be analyzed for total 10 parameters *viz.* pH, EC, Organic Carbon, N, P, K, Fe, Mn, Zn & Cu.

You are kindly request to please direct concern to analyses the 16 samples for required 10 parameters for each. It is also requested to kindly give your expert opinion/view/comments on the quality of top soil based on the analysis report too so that the results can be incorporated in the final report that is to be submitted to Hon'ble NGT by 10th July 2023.

Encl. As above.

(P. Jagan)
Regional Director

DETAILS OF SAMPLES

Req. No. :

SOLID

S.No.	Date & Time of Sampling	Field Code No.	Registration/ Lab Code No.	Sampling Location /Source	Type of Sample	Parameters to be Analysed	Remarks if any
1.	09.06.2023	01		Shri Dinesh Vishnoi Vill - Jaitsar 10GB Dt - विजयनगर Dist - Shriganganagar	रवेल मिट्टी		Lati - 29.316572 Longi - 73.618991
2.	09.06.2023	02		Vishnoi Int Bhatta Vill - Jaitsar 10GB Tah - Shri Vijay Nagar Distt. Shreeganganagar	माईन मिट्टी		29.316423 73.618423
3.	09.06.2023	03		श्री Navneet Balani Vill - 33 GB श्री Vijay Nagar Tah - Shri Vijay Nagar Distt - Shri Ganganagar	रवेल मिट्टी		29.239222 73.497494
4.	09.06.2023	04		M/S A-1 Brick Kiln Vill - 33 GB Shri Vijay Nagar Distt - Shri Ganganagar	माईन मिट्टी		29.239682 73.498334
5.	09.06.2023	05		Shri Bagla ji chak - 1 SGM Vill - Bhagwansar Tah - Suratgarh Distt - Shriganganagar	रवेल मिट्टी		29.373775 73.860924
6.	09.06.2023	06		Bagla Int Udhyog chak - 1 SGM Vill - Bhagwansar Tah - Suratgarh Dist - Shriganganagar	माईन मिट्टी		29.373564 73.860216
7.	09.06.2023	07		Shri Shyamji Ka Khet 1 SGM Vill - Suratgarh Dist Shri Ganganagar	रवेल मिट्टी		29.505807 73.874694
8.	09.06.2023	08		Jay Shri Shyam Int Udhyog 1S-SGM Suratgarh Dist - Shri Ganganagar	माईन मिट्टी		29.505581 73.874883

Regional Directorate (Central)

CENTRAL POLLUTION CONTROL BOARD

(Ministry of Environment, Forest & Climate Change, Govt. of India)
Bhopal-462016

FORM-III

Requisition Slip No. : 022 CB/RDBPL/

REQUISITION SLIP FOR ANALYSIS OF SOLID SAMPLES

1. Name of the Project : माननीय N.G.T. न्यायालय द्वारा निर्देशित
2. Name of the Project Co-ordinator : श्री सुनिल कुमार मीना वैज्ञानिक "ख"
3. Place of Monitoring : सूरतगढ़, श्री विजयनगर, श्रीगंगानगर, चुरू, अजमेर क्षेत्र
4. Field Observations : –
5. Date & Time of Monitoring : दिनांक 09.06.2023 से 11.06.2023
6. Sample Collected By : रामेश्वर बान्देवार एवं सुनिल कोलनदकर
7. Number of Samples :

Soil	Sludge	Hazardous Substance		
✓				

for (signature)
Project Co-ordinator

Loboratory Head

Details	Sample Receiving Centre	Laboratory
Date of Receipt of Samples	12.06.2023	
Sample Handed over By	रामेश्वर बान्देवार	
Sample Received By	जगजीवन राम	
Remarks		

(PTO)

DETAILS OF SAMPLES

Req. No. :

SOLID

S.No.	Date & Time of Sampling	Field Code No.	Registration/ Lab Code No.	Sampling Location /Source	Type of Sample	Parameters to be Analysed	Remarks if any
1.	09.06.2023	09		SM Brick वाले का खेत 2HH Second NH62 Vill- Netwala Dist- Shriganganagar	खेत मिट्टी		29.835994 73.876863
2.	09.06.2023	10		SM Brick Supplier 2HH Second NH62 Vill- Netwala Dist- Shriganganagar	माईन मिट्टी		29.835348 73.874785
3.	09.06.2023	11		Shri Punia Ji Ka Khet Vill- Ganeshgarh Dist- Shriganganagar	खेत मिट्टी		29.740304 74.874262
4.	09.06.2023	12		M/s Punia Int Udhyog Vill- Ganeshgarh Dist- Shri Ganganagar	माईन मिट्टी		29.739474 73.873868
5.	10.06.2023	13		Shri Shyam Sundar Ji Kania Ji Ka Khet Vill- Ladasar Teh- Ratangarh Dist- Churu	खेत मिट्टी		28.136243 74.617746
6.	10.06.2023	14		BBC Int Udhyog Vill- Ladasar Teh- Ratangarh Dist- Churu	माईन मिट्टी		28.136411 74.617459
7.	10.06.2023	15		Shri Abdul Rahim Ji Ka Khet Vill- Gegal (Ind. Area) Teh- Kishangarh Dist- Ajmer	खेत मिट्टी		26.53029 74.758342
8.	10.06.2023	16		Maa Vaishno devi Int Udhyog Vill- Gegal Teh- Parasnagar Dist- Ajmer	माईन मिट्टी		26.534605 74.764204

Regional Directorate (Central)

CENTRAL POLLUTION CONTROL BOARD

(Ministry of Environment, Forest & Climate Change, Govt. of India)
Bhopal-462016

FORM-III

Requisition Slip No. : 023 CB/RDBPL/

REQUISITION SLIP FOR ANALYSIS OF SOLID SAMPLES

1. Name of the Project : सार्वजनिक क्षेत्र उपक्रम द्वारा निर्देशित कार्य

2. Name of the Project Co-ordinator : श्री सुनिल कुमार वर्मा, एस ई सेक्शन 'ए'

3. Place of Monitoring : सुरतगढ़, श्री विजयनगर, श्री गंगानगर, पुरु, अबोहर, धौला

4. Field Observations : .....

5. Date & Time of Monitoring : दिनांक 09.06.2023 से 11.06.2023

6. Sample Collected By : रामेश्वर चन्देवर एवं सुनिल लोकरकर

7. Number of Samples :

Soil	Sludge	Hazardous Substance		
✓				

For [signature]
Project Co-ordinator

Loboratory Head

Details	Sample Receiving Centre	Laboratory
Date of Receipt of Samples	12.06.2023	
Sample Handed over By	रामेश्वर चन्देवार	
Sample Received By	जगजीवन	
Remarks		

(PTO)

পঞ্জীভুক্ত নম্বৰ - ৭৬৮ /৯৭

Registered No.-768/7

অসম ৰাজপত্ৰ

THE ASSAM GAZETTE

অসাধাৰণ

EXTRAORDINARY

প্ৰাপ্ত কৰ্ত্তৃত্বৰ দ্বাৰা প্ৰকাশিত

PUBLISHED BY THE AUTHORITY

নং 100 দিশপুৰ, শনিবাৰ, 16 মাৰ্চ, 2013, 25 ফাগুন, 1934 (শক)

No.100 Dispur, Saturday, 16th March, 2013, 25th Phalguna, 1934 (S.E.)

GOVERNMENT OF ASSAM

ORDERS BY THE GOVERNOR

POWER (E), MINES AND MINERALS DEPARTMENT

NOTIFICATION

The 16th March, 2013

No. PEM 83/2009/pt -1/627.– In exercise of the powers conferred by sub-section (1) of section 15 and section 23C of the Mines and Minerals (Development and Regulation) Act, 1957 (67 of 1957), the Governor of Assam hereby makes the following rules for regulating the grant of various forms of mineral concessions and for prevention of illegal mining, namely:-

Part – I (General)

Chapter – 1

Preliminary

Short title and commencement

1. (1) These rules may be called the Assam Minor Mineral Concession Rules, 2013.

(2) They shall come into force on the date of their publication in the Official Gazette

Definitions

2. (1) In these rules, unless the context otherwise requires –

(a) **"Act"** means the Mines and Minerals (Development and Regulation) Act, 1957 (Central Act 67 of 1957);

(b) **"boundary pillar"** means cemented pillar of size sixty centimetre x sixty centimetre with one metre height and fifty centimeter foundation with the yellow paint and marked lease/ contract number and pillar number along with Global Positioning System (in short GPS) readings in black paint;

(c) **"carrier"** means any mode of transport or facility by which mineral or its products are transported either in raw or processed form from the place of raising or from one place to another and includes any mechanized device, person, animal or cart;

(d) **"competitive bid"** means an amount offered by the participant in the open auction or tender process under these rules;

(e) **"competent authority"** means the Director of Geology and Mining, Assam in respect of minor minerals as listed in Schedule 'X' or the Principal Chief Conservator of Forests and Head of Forest Force, Assam in respect of minor minerals as listed in Schedule 'Y' or any other authority specified by any Government Notification for exercise of such powers and carrying out of such functions as specified in these rules;

(f) **"contractor"** means a person holding a mining contract under these rules;

(g) **"contract money"** means the amount to be paid by the contractor(s) of minor minerals for raising the mineral(s) from the area granted on contract;

(h) **"dead rent"** means the minimum amount payable in a year by the person granted a mining lease under these rules irrespective of the fact as to whether or not he operates/ could operate the area fully or partly;

(i) **"Department"** means the Department of Mines and Minerals, Assam in respect of minerals under Schedule – 'X' and the Department of Environment and Forest in respect of minerals under Schedule – 'Y';

(j) **"Director"** means the Director of Geology and Mining, Assam;

(k) **"form"** means a form appended to these rules;

(l) **"fund"** means the Mines and Mineral Development, Restoration and Rehabilitation Fund created and established under these rules;

(m) **"Government"** means the Government of Assam;

(n) **"lessee"** means a person holding a valid grant of lease for raising the minerals from the area granted on lease and would include the plural thereof;

(o) **"letter of intent" (LoI)** means a 'Letter of Intent' issued to the successful bidder on acceptance of the bid for grant of a mining lease or contract or permit or a mineral concession under these rules;

(p) **"licensee"** means holder of a prospecting license granted under these rules wherein a licensee is required to pay fixed annual license fee exclusive of royalty;

(q) **"mineral concession"** means a mining lease or a mining contract or permit in respect of minor mineral and includes quarrying permits and any other mineral concession, permitting the mining of minor mineral in accordance with the provisions of these rules;

(r) **"mining contract"** means a mining contract given on behalf of the Government to carry, win, work and carry away any minor mineral(s) specified therein through a competitive bidding process;

(s) **"mining dues"** means and includes any of the dues on account of royalty, dead rent, contract money, amount payable towards the Mines and Mineral Development, Restoration and Rehabilitation Fund, interest on delayed payments or any fee or any other sum in respect of a mineral concession granted under these rules;

(t) **"mining lease"** means a lease granted under these rules to mine, search, undertake excavation for winning of mineral and to carry away any minor mineral(s) specified therein;

(u) **"mining operations"** means any operation carried out for the purpose of winning any mineral except mineral oils;

(v) **"mining plan"** means a plan prepared by a recognized qualified person (RQP) on behalf of mineral concession holder of minor mineral and includes progressive and final mine closure plans;

(w) **"mineral product"** means minerals in any processed form, bricks, dressed stone, rock aggregates, chips, ballast, stone dust, and/ or any product to be prepared from minerals without involving any chemical changes;

(x) **"mineral transit pass"** means a document issued by the competent authority to the lessee/ contractor/ permit holder for lawful dispatch and transportation of any mineral(s) raised;

(y) **"mining permit"** means a mineral concession, other than a lease granted for a specified quantity of minor minerals to be extracted/ collected within a specified period not exceeding two years in specified cases on payment of advance royalty;

(z) **"processing"** means all physical processes such as pulverizing and/ or grinding and/ or powdering or washing of minerals in such a way that no chemical change takes place by that process and includes cutting and polishing process of slate, granite blocks or marble blocks or blocks of any other types of rocks;

(aa) **"producer"** means any person carrying on the business of extracting/ producing/ collecting minerals or mineral aggregates in raw or processed form including the licensee of a registered metal mineral unit, as the case may be, in accordance with the provisions of the Act or rules made there under;

(bb) **"rules"** means the rules made under the Mines and Minerals (Development and Regulation) Act, 1957 (67 of 1957);

(cc) **"Schedule"** means a Schedule appended to these rules;

(dd) **"scheme of mining"** means a scheme prepared by a recognized qualified person (RQP) on behalf of mineral concession holder for systematic and scientific mining of minor mineral;

(ee) **"scientific mining"** means and refers to mining operations consistent with the approved mining plan/ scheme of mining, clearances/ permissions granted by the authority;

(ff) **"un-authorised mining"** means any mining operation undertaken without any valid mineral concession granted under these rules;

(gg) **"unscientific mining"** means and refers to the manner of undertaking mining operations not consistent with the mining plan/scheme of mining approved, clearances/permissions granted by the authority.

(2) **All other words and expressions used** in these rules, and not defined herein but defined in the Act, shall have the same meanings respectively assigned to them in the Act.

Power to grant mining lease or mining contact or any other concession or license or transit pass or permit etc.

3. A mining lease or a mining contract or permit or any other concession or license or transit pass or permit or license or control or regulation of mining or other actions under these rules, etc. shall be granted/ taken by:-

(a) The Director in respect of minor minerals for industrial and specific uses as specified in Schedule 'X';

(b) The Principal Chief Conservator of Forests and Head of Forest Force, Assam or any officer authorized by the Government by notification in this behalf in respect of minor minerals for uses other than in industry as specified in Schedule 'Y';

Relaxations in certain cases

4. (1) No royalty or permit fee shall be charged or transit permit required for, –

(i) extraction of ordinary clay or ordinary sand by hereditary artisans for use in manufacturing of earthen pots/ artifacts on a cottage industry basis;

(ii) mining, transportation or storage of clay or sand by hereditary artisans or a co-operative society of artisans for making pots or earthen images, etc. by traditional means but not by the process of manufacture in kilns or by way of any mechanical device;

(iii) levelling of any agricultural fields by a landowner within his own land.

(2) No royalty shall be charged for removal of any ordinary earth by a person from his own land for meeting personal land-fill requirements either in another agricultural field or for meeting his personal bonafide requirements.

(3) The relaxations granted under this rule shall not be available for excavation of mineral in any area where use of explosive is inevitable, whether being mined by a concession holder or not.

Provided that the aforesaid relaxation do not afford immunity from any action which might be taken under the provisions of any existing rules or Acts of the State or the Central Government for unauthorized removal of minor mineral from any Government land by private persons, without the permission of the competent authority or the State Government or any officer authorized by it in this behalf.

Quarrying of minor minerals by Government Departments/ Agencies/ Contractors engaged by Government Departments or Agencies

5. (1) An application for the grant of mining permit for quarrying of any minor mineral by the notified Departments of State or Central Government or any of their agencies for any work/project, shall be made by an officer authorised by the concerned Department to the competent authority.

(2) The contractors engaged for the works/projects of the Government Departments/Agencies shall be granted mining permit for the required quantity as specified in the detailed project report for execution of the works/projects on making an application under sub-rule (1) above.

(3) The Department or the agency or the contractor granted a permit under sub-rule (1) above, shall be liable to pay royalty/ dead rent/ fee etc. in advance as notified by the Government and shall abide by the terms and conditions of such grant and other laws as applicable to the lessee or any other concession holder(s) unless specifically relaxed.

Chapter – 2

General Restrictions

Mining operations under a mineral concession.

6. No person shall undertake any prospecting or mining operation activity in respect of any mineral(s) in any part of the State, except under and in accordance with the terms and conditions of a permit or a prospecting licence or a mining lease or a mining contract or a permit, or a concession in any other form, as the case may be, granted:

Provided that nothing in this sub-rule shall apply to any prospecting operations undertaken by the Geological Survey of India, the Indian Bureau of Mines, the Atomic Minerals Directorate for Exploration and Research of the Central Government, the Directorate of Geology and Mining, Assam or the Mineral Exploration Corporation Limited.

Restrictions on grant of mining lease/ contract/ permit.

7. (1) No mining lease/ contract/ permit shall be granted in respect of any land within a distance of;-

(i) fifty metres from the outer periphery of the defined limits of any village habitation, National Highway, State Highway and other roads where such excavation does not require use of explosives;

(ii) two hundred fifty metres from the outer periphery of the defined limits of any village habitation, National Highway, State Highway and other roads where use of explosives is required;

(iii) five hundred metres from major structures like R.C.C Bridges, Guide bund etc.:

Provided that the Government may relax the above distance parameters, wherever required in the interest of workings, mineral conservation or for any unforeseen reasons subject to such conditions as may be imposed under the said relaxation.

(2) No mining lease/ contract/ permit or other mineral concession shall be granted in respect of any such minor mineral or in respect of any specific or general area which the government may notify.

Part – II

Grant of Mineral Concessions

Chapter – 3

Grant of a Mining Lease

Grant of a Mining Lease through competitive bidding.

8. (1) No mining lease shall be granted by the competent authority unless it is satisfied that there is evidence to show that the area for which grant of mining lease is considered has been prospected earlier for minor minerals or the existence of minor minerals therein has been established otherwise.

(2) Any minor mineral deposits, where the competent authority decides such areas to be operated under a lease, may be granted on mining lease; subject to rule 5, for a period ordinarily not less than 10 years but not exceeding 20 years following a competitive bid process as provided under Chapter 6 of these rules:

Provided that the competent authority may, wherever it deems necessary, pre-qualify the bidders, with the pre-qualification criteria determined upfront, by inviting expressions of interest through a public notice, and limit the bidding process among such pre-qualified bidders.

(3) In case the competent authority accepts the bid, the payment of earnest money, initial bid security, security and advance instalment shall be made in accordance with the provisions contained in Chapter 6 of these rules.

(4) The highest bid received shall become the 'annual dead rent' amount payable by the lessee. The rate of annual dead rent initially determined on the basis of competitive bids/ auctions shall be increased @ 25% on completion of each block of three years.

Explanation: If the initially determined amount of annual dead rent is Rs.100/-, it shall be increased to Rs.125/- with the commencement of the fourth year and to Rs.156.25 with the commencement of the 7th year and so on and so forth for the next each block of three years.

(5) A lease deed shall be executed by the successful bidder with the competent authority in the prescribed Form ML-1, appended hereto, within the period as prescribed under rule 17 of these rules.

(6) The lessee shall pay royalty in advance in respect of each of the minor minerals extracted or removed or consumed by him or by his agent, manager, employee etc. The royalty shall be payable at the rates prescribed in the First Schedule appended to these rules.

Register of applications and Mining Lease.

9. (1) A register of applications for grant or renewal of mining leases shall be maintained in Form ML-2.

(2) A register of mining leases granted under these rules shall be maintained in Form 'ML-3'.

Inspection of Register

10. The register of applications for grant of mining leases and the register of grant of mining leases shall be open to inspection by any person on payment of a fee of Rs.100/- on any working day.

Compact area and minimum area of lease in case of isolated deposits.

11. The area for any mining lease should be compact and contiguous as far as possible. However, no mining lease shall be granted for an area of less than one hectare in case of isolated and small deposits.

Transfer of a mining lease or contract.

12. (1) The lessee or contractor shall not assign, sublet, mortgage, or in any other manner transfer the lease or contract or any right, title or interest therein, to any person without prior approval of the competent authority.

(2) When a lease is granted following the system of pre-qualification of lessees, the competent authority may specify a lock-in period within which no transfer of such lease shall be permissible. A lessee may, however, in such cases be permitted to induct other partners/ share holders to the extent of forty nine percent of the total shareholding of the original grantee.

(3) Any application for transfer of a mining lease or contract shall be accompanied with a non-refundable fee of Rs.10,000/- per hectare, subject to a minimum of Rs.2,00,000/-. The said application shall be signed by the lessee himself in the case of an individual, each of the partners in case of a partnership firm and by the person authorised by a special resolution of the Board of Directors, in the case of a company.

(4) No consent to the transfer of mining lease or contract shall be accorded unless the applicant has paid all the outstanding mining dues in respect of the lease or contract and the transferee has accepted all the terms and conditions and the liabilities enjoined upon the transferor in respect of such mining lease or contract.

(5) The transferor shall make the original or certified copies of all plans of abandoned workings in the area available to the transferee.

(6) The transferor-lessee or contractor shall not charge or accept from the transferee any premium in addition to the sum spent by him in obtaining the lease or contract and for conducting all or any of the operations in or over the lease granted to him.

(7) The transferee shall be required to furnish an undertaking that he has filed up-to-date income tax returns, paid income tax assessed on him or on the basis of self-assessment as provided in the Income Tax Act, 1961.

(8) Subject to submission of the transfer application, complete in all respects, the competent authority may allow the transfer of such lease or contract and prescribe such additional conditions, as it may deem appropriate.

(9) The competent authority may refuse to allow such transfer, wherever deemed appropriate, for reasons to be recorded in writing, after giving an opportunity of representation to the applicant.

(10) Where the competent authority gives its consent for transfer of such lease or contract on an application for transfer of mining lease under sub-rule (2), a transfer lease deed shall be executed within ninety days of the date of the consent in Form ML-4 failing which, the consent shall be deemed to have lapsed, unless the period is extended on the request of the lessee made prior to the expiry of such period of ninety days.

(11) Where it comes to the notice of the competent authority that any lessee or contractor has violated the conditions prescribed in sub-rule (1) above, it may terminate such lease by an order in writing at any time. However, no such order shall be passed without giving a reasonable opportunity of show cause to the lessee or the contractor for stating his case.

Renewal of lease

13. (1) A mining lease, originally granted under rule 9, may be renewed only once over and above the original lease period, for such period as considered appropriate but not exceeding ten years on expiry of the original lease period, subject to strict compliance of the terms and conditions of the grant, lease agreement and other approvals or permission for mining granted by Central or State agencies.

(2) The lessee shall submit application for renewal of mining lease twenty four months before the date of expiry of lease period in the prescribed Form ML-5 to the competent authority giving complete details of the mineral excavated, royalty paid, mineral reserves available, details of explorations undertaken, if any, along with the details of the areas reclaimed or restored, the sites of overburden, restoration works undertaken etc. The details regarding compliance of other statutory requirements such as environmental clearance, safety provisions as per Mines Act, 1952 and the rules and regulations framed thereunder etc. shall also be provided.

(3) No application for renewal of a mining lease shall be considered in a case where the lessee has been found to be indulging in any violation of the conditions of original lease grant or has been penalised or held accountable for such violations.

(4) Every application for renewal of a mining lease shall be accompanied with a non-refundable fee of Rs.1,000/- per hectare or part thereof, subject to a minimum of Rs.1,00,000/-. Besides, the application shall be accompanied with the following supporting documents:-

(i) a valid clearance certificate for payment of mining dues on all accounts, such as royalty or dead rent or contract money or the Fund, and the surface rent payable to the landowners under the Act or the rules made thereunder, in respect of the original mining lease or any other mineral concession held by him in the State from the competent authority;

(ii) in case of a firm or a company or association of persons, a valid clearance certificate shall be submitted in respect of the firm, company or association of persons as well as the other firms in which partners in the applicant firm are partners or directors:

Provided that the grant of a clearance certificate shall not discharge the holder(s) of such certificate from the liability to pay the mining dues which may subsequently be found to be payable by such applicant under the Act or rules made thereunder.

(iii) where any injunction has been granted by a court of law or any other authority, staying the recovery of any such outstanding mining dues or income tax, non-payment thereof shall not be treated as a disqualification for the purpose of renewing the said mining lease;

(iv) a declaration stating that the applicant has filed up-to-date income-tax returns, paid the income-tax assessed on him, or on the basis of self-assessment, as provided in the Income Tax Act, 1961 on the project.

(5) The competent authority shall issue notice within thirty days from the date of receipt of application to make up the deficiencies in the application, if any, or for furnishing any additional information as may be required by the competent authority, requiring the applicant(s) to supply the requisite information within a period of thirty days from the date of issue of such notice. In case the said information is not furnished within such specified period, the application shall be decided on the basis of information already submitted along with application.

(6) The renewal of a lease shall be considered only in cases where the lease has been granted after the commencement of these rules.

Acknowledgement of application.

14. The receipt of an application of renewal of a mining lease under rule 14, if delivered personally, shall be acknowledged forthwith in Form ML-6 and if the application is received by post, the same shall be acknowledged within seven days of the receipt thereof.

15. (1) An application for renewal of a mining lease shall be decided by the competent authority within a period of six months of the receipt of complete application in all respects keeping in view the following parameters:-

(i) the lessee has complied with all the terms and conditions of the original lease grant and other permissions for undertaking mining operations;

(ii) the mining operations under the original lease grant have been carried out in a scientific manner;

(iii) The mined out area has been restored/ reclaimed/ rehabilitated as per the progressive mine closure plan;

(iv) the lessee has not defaulted in submission of all details with regard to the production, payment of mining dues in time and has not been found wanting in taking adequate measures for the labour safety;

(v) the lessee has not been penalised for non-compliance of the environmental safeguards, or for any other reason, including suspension of the mining operations, for whatsoever reasons, during the original lease period;

(vi) substantial investment has been made by the lessee in the development of mine, plant and machinery with a long term perspective and optimal benefit of the same could not have been derived during the original lease period; and

(vii) such other matters as may be considered necessary.

(2) The competent authority may reduce the area of mining lease at the time of renewal for reasons to be recorded in writing:

Provided that the reduction in the area of the mining lease shall not result in any prorated reduction in the dead rent.

(3) Where the competent authority accords its approval to the renewal of a mining lease, the annual dead rent shall be increased by an amount of twenty five percent over the amount of dead rent payable in the last year of the original lease grant. Further, future increase in such dead rent, on the expiry of each block of three years, shall be regulated on the same terms and conditions as applicable in the case of any mining lease granted on the first occasion;

Provided that in case the lessee makes an application for surrender of part area of the lease, it shall not result in any prorated reduction of the dead rent and the rate of dead rent payable and applicable for the entire area at the time of such application shall remain intact.

Surrender of a mining lease

16. (1) The Government may accept the request of a lease holder for surrender of a lease or part thereof in cases where it is established that it has not been found feasible to operate the mining lease grant, for whatsoever reasons, subject to the condition that the lessee,-

(i) has been regular in furnishing the production returns as required in terms of the lease agreement;

(ii) has been taking the requisite steps for the progressive mine closure plan as per the conditions of the lease grant;

(iii) is not in default of payment of any mining dues on account of any mineral concession as on the date of making such application and undertakes to pay all such dues till the date of expiry of the notice period either in advance or by way of adjustment of the security or both.

(2) In case the lessee makes an application for surrender of part area of the lease, it shall not result in any prorated reduction of the dead rent and the rate of dead rent payable and applicable for the entire area at the time of such application shall remain intact.

Execution of mining lease Agreement.

17. (1) Where a mining lease is granted or renewed, the lease deed shall be executed in Form ML-1 within a period of ninety days of the date of order of grant or renewal of the mining lease and duly registered.

(2) If the lease deed is not executed within the aforesaid period, the order sanctioning the mining lease shall be deemed to have been revoked and the 'advance dead rent' and 'security amount' deposited at the time of auction shall stand forfeited:

Provided that where the competent authority is satisfied that the LoI holder/ lessee is not responsible for the delay in the execution of the lease deed, the competent authority may, for reasons to be recorded in writing, permit the execution of the lease deed beyond a period of ninety days but not exceeding one hundred twenty days of the expiry of the aforesaid period.

(3) The LoI holder/ lessee shall also furnish a solvent surety for a sum equal to the annual bid amount for execution of the agreement. In case the surety offered by the lessee during the subsistence of the mining lease is not found solvent, the lessee shall offer another solvent surety and a supplementary deed to this effect shall be executed.

Chapter – 4

Grant of Mining Contracts

Grant of mining contracts by competitive bidding.

18. (1) The minor mineral deposits, where the competent authority decides to grant the mineral concession in respect of such area in the form of a contract, may be granted on mining contract, subject to rule 5, for a specified annual quantity (or part(s) thereof) of minor mineral for period ordinarily not less than seven years but not exceeding ten years following a competitive bidding process as prescribed under chapter 6 of these rules.

(2) No bid shall be regarded as successful unless accepted by the competent authority. The amount of the successful bid shall become the annual contract money payable by the contractor. The annual contract money determined at the time of initial grant shall be increased at the rate of twenty five percent on completion of each block of three years.

(3) The mining contract deed shall be executed by the successful bidder with the competent authority in the prescribed Form MC-1.

(4) Other terms and conditions of the contract shall be in accordance with provisions as contained in chapter 7.

Renewal of mining contract.

19. (1) The contractor shall submit an application to the competent authority for renewal of the mining contract eighteen months prior to the date of expiry of contract period in the prescribed Form MC-2, containing complete details of the mineral excavated, royalty paid, mineral reserves available, details of explorations undertaken, if any, along with the details of the areas reclaimed/ restored, the sites of overburden, restoration works undertaken etc. The details regarding compliance of other statutory requirements such as environmental clearance, safety provisions as per Mines Act, 1952 and the rules and regulations framed thereunder etc. shall also be provided.

(2) No application for renewal of a mining contract shall be considered in a case where the contractor has been found to be indulging in any violation of the conditions of original contract grant or the conditions accompanying the environmental clearances, and penalised or held accountable for any such violations.

(3) Every application for renewal of a mining contract shall be accompanied with a non-refundable fee of Rs.1,000/- per hectare or part thereof, subject to a minimum of Rs.1,00,000/- along with the following supporting documents:-

(i) a valid clearance certificate regarding payment of mining dues on all accounts (such as royalty or dead rent or contract money or Fund and surface rent payable to the landowners under the Act or the rules made thereunder) in

respect of the original contract or any other mineral concession held by him in the State;

(ii) in case of a firm or a company or association of persons, a valid clearance certificate shall have to be submitted in respect of the firm, company or association of persons as well as the other firm in which the partners in the applicant firm are partners or directors:

Provided that the grant of a clearance certificate shall not discharge the holder(s) of such certificate from the liability to pay the mining dues which may subsequently be found to be payable by such applicant under the Act or rules made thereunder.

(iii) where any injunction has been granted by a court of law or any other authority, staying the recovery of any such outstanding dues, non-payment thereof shall not be treated as a disqualification for the purpose of renewal of the said mining contract;

(iv) a self-declaration stating that the applicant has filed up-to-date income-tax returns, paid the income-tax assessed on him or on self-assessment as provided in the Income Tax Act, 1961 on the project.

(4) The competent authority shall communicate the discrepancies in the application, if any, or requirement of any additional information within thirty days from the date of receipt of application, requiring the applicant(s) to make up the deficiencies and/ or provide such additional information within a period of thirty days from the date of issue of such notice. In case the required information is not submitted within such specified period, the application shall be decided on the basis of information already submitted.

(5) No renewal shall be granted for the mining contracts exempted under section 3 of the Mines Act, 1952.

(6) The renewal of a contract shall be considered only in cases where the contract has been granted after the commencement of these rules.

(7) A contract for minor minerals granted under rule 18 may be renewed only once by the competent authority for a period not exceeding five years, after having satisfied itself that the contractor has undertaken mining operations strictly in accordance with the terms and conditions of grant, contract agreement and other approvals/ permissions for mining granted by Central/ State agencies.

Decision on the application for renewal of Mining Contract.

20. (1) The application for renewal of a mining contract shall be decided on satisfaction of the competent authority with regard to the following:-

(i) The contractor has complied with all the terms and conditions of the contract agreement and other permissions for undertaking mining operations;

(ii) The mining operations under the original contract grant have been carried out in a scientific manner;

(iii) The mined out area has been restored/ reclaimed/ rehabilitated as per the progressive mine closure plan;

(iv) The contractor has not been in default of submission of any returns with regard to the production, payment of contract money in time and has not been found wanting in taking adequate measures for the labour safety;

(v) The contractor has not been penalised in any manner, including suspension of the mining contract, for whatsoever reasons, during the original contract period;

(vi) Substantial investment has been made by the contractor in the development of mine and plant and machinery with a long term perspective and optimal benefit of the same could not have been derived during the original contract period; and

(vii) Such other matters as may be considered.

(2) The competent authority may reduce the area of contract at the time of renewal for reasons to be recorded in writing.

(3) Where the competent authority accords its approval to the renewal of a contract, the annual contract amount shall be increased by an amount of 25% over the amount of contract money payable in the last year of the original contract grant. Further, future increase in such contract amount, on the expiry of each block of three years, shall be regulated on the same terms and conditions as applicable in the case of any contract granted on the first occasion.

Surrender of a mining contract.

21. The Government may accept the contractor's request for surrender of a contract or part thereof in cases where it is established that it has not been found feasible to operate the contract grant for whatsoever reasons subject to the condition that the contractor, -

(i) has been regular in furnishing the production returns as required in terms of the contract agreement;

(ii) has been taking the requisite steps for the progressive mine closure plan as per the conditions of the contract grant;

(iii) is not in default of payment of any dues of the Government as on the date of making such application and undertakes to pay all such dues till the date of expiry of the notice period either in cash in advance or by way of adjustment of the security or both.

Provided that in case the contractor makes an application for surrender of part of the contract area, it shall not result in any prorated reduction of the contract money and the rate of contract amount payable and applicable for the entire area at the time of making such application shall remain intact.

Execution of Contract Agreement within ninety days.

22. (1) Where a mining contract is granted or renewed, the agreement deed shall be executed in Form 'MC-I' within a period of 90 days of the date of order of grant/ renewal of the contract and shall be duly registered;

(2) If the contract agreement is not executed within the aforesaid period, the order sanctioning the contract shall be deemed to have been revoked and the 'advance contract money' and the 'security amount' deposited at the time of auction shall be forfeited to the Government:

Provided that where the competent authority is satisfied that the LoI holder/ contractor is not responsible for the delay in the execution of the contract agreement, the competent authority may, for the reasons to be recorded in writing, permit the execution of the contract agreement deed beyond a period of 90 days but not exceeding 120 days of the expiry of the aforesaid period.

(3) The LoI holder/contractor shall also furnish a solvent surety for a sum equal to the amount of the annual bid for execution of the agreement. In case the surety offered by the contractor(s) during the subsistence of the contract is not found solvent, the contractor(s) shall offer another solvent surety and a supplementary deed to this effect shall be executed.

(4) In case the contractor is not able to remove the whole or any part of the mineral for which he obtained the contract within the permissible time for any reasons, whatsoever, within the validity of the contract he shall not be entitled to claim the refund of contract amount or any part thereof.

Chapter – 5

Grant of Mining or Quarrying Permits

Grant of Mining/ quarrying Permits

23. (1) Subject to rule 5, mining or quarrying may be granted by the competent authority in respect of any area not covered under any mineral concession already granted under these rules in the following cases:-

(i) mining in respect of areas ordinarily less than five hectares for a specified annual quantity [or part(s) thereof] of minor mineral;

(ii) removal of salt petre;

(iii) excavation of Brick Earth by the Brick Kiln Owners;

(iv) extraction of ordinary clay/ earth;

(v) permits for specific Government works under emergency conditions.

(2) All mining/ quarrying permits in respect of sub clauses (i) and (ii) mentioned under sub-rule (1) shall be granted following a competitive bid process, unless specifically decided otherwise by the Government in any specific case.

(3) The mining/ quarrying permits in respect of (iii) to (v) above shall be granted on the basis of application submitted under rules 26, 27 and 28 respectively.

(4) A mining permit under these rules may be granted for a period as considered appropriate by the competent authority, but not exceeding two years, on such terms and conditions as may be stipulated therein.

(5) The competent authority, may refuse the application to grant permits in respect of sub-clauses (ii) and (iv) mentioned under sub-rule (1) of this rule for reasons to be recorded in writing.

Grant of permits for mining over area less than five hectares.

24. (1) Subject to sub-rule (2) of rule 23, permits for mining of minor minerals may be granted by the competent authority for extraction of minor minerals in respect of area ordinarily less than five hectares.

(2) Permits under this rule shall be granted only in cases where the competent authority decides such areas to be operated for short periods under special circumstances and with adequate environmental safeguards, precautions and applicable clearances.

(3) In case more than one individual/ agency shows interest in taking the permit, it shall be granted in favour of the individual/ agency offering the highest bid.

(4) In case of permit granted under this rule, the permit holder shall execute an agreement in Form MPS-1 with the competent authority within a period of ninety days from the date of grant and shall be duly registered.

(5) The permit holder shall submit monthly production returns in Form MMP-1.

Grant of permits for removal of saltpetre.

25. (1) Subject to sub-rule (2) of rule 23, the permit for excavation of saltpetre, a minor mineral, may be granted along with suitable restrictions regarding the depth of excavation which shall generally not exceed 12 inches.

(2) In case more than one individual/agency shows interest in taking the permit it shall be granted in favour of the individual/agency offering the highest bid.

(3) In case of permit granted under this rule, the permit holder shall execute an agreement in Form MPS-2 with the competent authority within a period of ninety days from the date of such grant and shall be duly registered.

(4) The permit holder shall submit monthly production returns in Form MMP-1.

Permits for excavation of Brick Earth by the Brick Kiln Owners.

26. (1) A permit for excavation of brick earth may be granted by the competent authority in favour of the Brick Kiln Owner only for the purposes of manufacturing of bricks.

(2) The initial permit shall be granted for a period that co-terminates with the close of the next financial year so that the further renewal thereof is allowed on bi-annual basis.

(3) The excavation of brick earth under this permit shall not be permissible beyond a depth of nine feet measured from the natural ground level of the area.

(4) The application for lifting of brick earth shall be made to the competent authority in form PIM-1 along with the following supporting documents:-

(i) The particulars/details of the land from where he proposes to extract/ remove the brick earth;

(ii) Lay out Plan of the area from where brick earth is to be removed;

(iii) Written consent of the land owner(s) along with certified copy of the agreement signed between the landowner and the applicant after mutual settlement of compensation between the parties;

(iv) A copy of the partnership deed or Articles of Memorandum in case the applicant is a partnership firm or a company, as the case may be.

(5) The existing brick kiln owner shall apply ninety days before the expiry of permit already held by him for fresh grant in cases where the extraction of brick earth has reached the maximum permissible level in respect of area of the permit already held;

In case the excavation of the brick earth is to be carried out in the same area earlier held on permit, the brick kiln owner shall apply for renewal of the permit ninety days before the expiry of permit already held.

(6) The royalty on account of excavation of brick earth shall be charged as per rates prescribed in the First Schedule appended to these rules. The payment in these cases shall be made in advance for the complete financial year or part thereof.

(7) An application for renewal of permit/ fresh grant under this rule shall be submitted within the period prescribed above along with the payment towards applicable royalty for the ensuing year and a surety for the remaining period of the permit.

(8) A permit for excavation of brick earth shall be granted in form PIM-2.

Permits for extraction of ordinary clay/ earth.

27. (1) Save in the cases covered under sub-rule (2) of rule 26, the competent authority may grant permit for lifting of ordinary earth from an area not already granted on any mineral concession to the landowner or the person having consent of the landowner on submission of an application.

(2) The permit for extraction of ordinary earth shall be granted only up to a maximum depth of nine feet measured from the natural ground level of said area.

(3) The permit for extraction of ordinary earth/ clay in respect of any land of which the ownership or management vests in a Gram Panchayat shall be granted only if a resolution is passed to that effect by the Gram Panchayat and approval of the concerned Deputy Commissioner is obtained by the applicant or the Gram Panchayat.

(4) The royalty shall be charged on lump-sum basis on the basis of quantity/ volume of the earth for which the permit is applied/ granted as per

rates prescribed in the First Schedule. The payment of royalty in these cases shall be made in advance for the complete financial year or part thereof.

(5) An application for grant of permit shall be submitted in model form PIM-3. The application shall be submitted along with following documents:-

(i) The particulars/details of the land from where he proposes to extract/ remove the brick earth;

(ii) Lay out Plan of the area from where earth is to be removed;

(iii) Written consent of the land owner(s) or a certified copy of the agreement signed between the landowner and the applicant after mutual settlement of compensation between the parties;

(iv) A copy of the partnership deed or Articles of Memorandum in case the applicant is a partnership firm or a company, as the case may be.

(6) A permit for excavation of ordinary earth shall be granted on model form PIM-4.

Permits for specific emergency situations.

28. The competent authority may, on a requisition from the Deputy Commissioner of the District concerned, grant permit for extraction of minor minerals from any area including the areas where mineral concession have been granted to such Government Department or any other Government Agency requiring mineral for execution of works relating to emergent flood protection works or any other natural calamity or other pressing circumstances for safety of human and cattle life under emergency conditions:

Provided that the Government may decide the terms and conditions of grant of such permits under emergency situations in advance or ex-post-facto.

Application fee for permits

29. The permits, other than those given through competitive bidding process, may be granted on application made to the competent authority on Forms submitted along with non-refundable application fee of Rs.500/-:

Provided that a Government Department/ Agency seeking a permit under Rule - 29 shall be exempted from payment of the application fee.

Conditions on which the Permit for mining/ quarrying shall be granted.

30. (1) Any mining operations in the case of mining of brick earth or ordinary clay or alluvial deposits below a depth of 1.5 meters shall necessarily require formation of benches for safe mining. The benches would be formed in a manner that the width of the bench is not lesser than the height of the bench.

(2) Any quarrying permit granted under these rules shall contain information with regard to the following:—

(i) manner, mode and place of payment of rent, royalties, permit money, Rehabilitation and Restoration Fund amount and interest on delayed payments or any other dues as admissible under these rules;

(ii) particulars of the receipt heads of the Government to which the payments are to be credited;

(iii) rent, compensation of damage to the landowners for the land covered by the permit;

(iv) felling of trees, pumping of ground water;

(v) restriction of surface operations in any area prohibited by any authority;

(vi) entering and working in any forest area;

(vii) reporting all accidents, use of explosives;

(viii) indemnity to the Government against claim of third parties;

(ix) mineral to be stacked, measured and dispatched;

(x) applicability of the provisions of all other statutes/ rules framed by the Central and State Governments;

(xi) reclamation or restoration of the mining areas and security thereof;

(xii) development and conservation of minerals and environment and ecology of the area;

(xiii) extent of the area or land from where the minor mineral shall be extracted;

(xiv) period within which the minor mineral shall be extracted and removed and delivery of possession of land on the expiry of such period or on removal of the quantity of the minor mineral for which the permit is valid/ granted;

(xv) release of security by the authority issuing permit after having satisfied that the permit holder has fulfilled all the conditions of the permit satisfactorily;

(xvi) any other condition, as may be found expedient by the competent authority to grant the permit, may be imposed in the interest of scientific mining, mineral conservation and mineral development.

(3) In case the permit holder is not able to remove the whole or any part of the mineral for which he obtained the permit within the permissible time for any reasons, whatsoever, he shall not be entitled to claim the refund of permit amount/ royalty or any part thereof.

(4) The permit holders for the brick kilns shall furnish a solvent surety within fifteen days of the issue of the permit by submitting an undertaking of such surety that he would be responsible for deposit of all dues in case the permit holder fails to deposit the same.

Forfeiture of property left after cancellation of the permit.

31. In case of breach of any of the conditions of the grant of permit, the competent authority may cancel the permit by passing orders after giving thirty days notice to the permit holder and for reasons to be recorded in writing. On cancellation of the permit, unless specifically ordered otherwise, the quarried mineral lying on the land from which the same was extracted shall be allowed to be removed by the permit holder within a period of seven days after which any residual mineral will become the absolute property of the Government.

Chapter – 6

Procedure for inviting competitive bids/ auctions and payments

Mode of Grant of mining lease or contract or permit.

32. (1) Save in the cases specifically mentioned under these rules and where such mineral concessions may be granted on application, all mining leases/ contracts/ permits shall be granted through a transparent process of inviting competitive bids/ open auction.

(2) The competent authority may, in the interest of mineral conservation and scientific mining, pre-qualify the potential bidders, based on an objective assessment criteria determined upfront, by inviting Expressions of Interest through general public notice and restrict the bids among the pre-qualified bidders.

Determination of reserve price for inviting bids/ auction.

33. (1) The competent authority shall upfront determine the reserve price in each case where the mineral concessions are granted through competitive bidding/ open auction, as the case may be.

(2) State's priorities with regard to the observance of principles of sustainable development, inter-generational equities and conservation of minerals, scientific mining, availability of construction material at economic rates for developmental works and the State Revenues shall remain the over-arching principles in fixing the reserve prices.

(3) The reserve price may be fixed keeping in view the past trends, availability of mineral reserves in the area, the potential, access and proximity to the markets. However, any aberrations in the auctions held earlier and the bids received of exceptionally lower or higher amount, due to whatsoever reasons, may be ignored.

(4) In-case of no bid/ offer is received against a reserve price fixed for an area on two successive occasions, the competent authority may revise the reserve price downwards at appropriate level.

Public notice for inviting expressions of interest/ bids/ open auctions.

34. (1) A public notice of 21 days shall be published for inviting bids or conduct of open auctions for the grant of mineral leases/ contracts/ permits, as the case may be.

(2) In addition to the publication of notice in writing, competitive bids/open auction under sub-rule (1) above, the gist of such notice, along with the schedule for inviting bids/holding open auctions, shall also be published in one daily newspaper having good circulation in the area.

(3) A copy each of the said public notice shall also be sent to the Deputy Commissioner and others as decided by the competent authority for giving wide publicity in the area.

Earnest money

35. (1) The intending bidder shall deposit the earnest money, equal to ten percent of the reserve price and rounded by an amount of Rs.10,000/-, in each case before commencement of open auction or deposited with the bid, as the case may be.

(2) In case of competitive bids invited through sealed tenders, the earnest money shall accompany the bid offers in the form of a Demand Draft drawn in favour of the competent authority.

(3) In the case of open auctions, the earnest money deposited by all bidders, save in the cases where the earnest money has been ordered to be forfeited by the Presiding Officer on grounds of any misconduct during the auction proceedings, shall be refunded immediately upon completion of the auction proceedings.

(4) In case the highest bidder fails to deposit 10% of the annual bid amount towards the 'Initial bid security', his earnest money shall be forfeited and such bidder shall not be eligible to participate in any such auctions/ competitive bids in respect of the same area or any other area in the State for a period of five years.

(5) No person, who is a defaulter of any mining dues in respect of any mineral concession granted in the past or any other current mineral concession shall be eligible to participate in the auction or bid process. In case he is found to be in such arrears at any stage, his bid shall be revoked with forfeiture of the amount deposited by him. In case any of the partners of a Partnership Firm or a Director of a company participating in the bid/ auction process are found to be defaulters, the bidder firm/ company would be held ineligible and attract similar action:

Provided that where any injunction has been granted by a court of law or any other competent authority staying the recovery of any such amount, the non-payment thereof shall not be treated as a disqualification for the purpose of participation in the auction.

Powers of the Presiding Officer.

36. (1) The presiding officer shall conduct the auction in a peaceful manner and may direct any bidder to leave the auction premises in the event of a disorderly conduct by or on behalf of any bidder. In cases of extreme misconduct or misbehaviour, the presiding officer may order the forfeiture of earnest money deposited by such bidder and recommend his debarring from participation in any future auctions.

(2) The presiding officer shall send his recommendations through proper channel to the officer competent to accept tender.

Payments of the bid amount.

37. (1) No bid shall be regarded as 'successful' unless accepted by the officer competent to accept bid/ tender in accordance with the provisions of The Delegation of Financial Powers Rules, 1999 of the State.

(2) The highest bidder shall be required to deposit an amount equal to 25% of the annual dead rent/ contract money as the 'Security' along with an additional amount equal to one month's dead rent/ contract money in advance.

(3) The process for completion of the various stages of payment as specified under sub-rule (2) above shall be as follows:-

(i) On completion of the bid process i.e. the fall of the hammer or the opening of the sealed bids, as the case may be, the highest bidder shall deposit an amount equal to 10% of the annual bid amount as 'Initial Bid Security' before expiry of the period allowed.

(ii) The amount deposited towards the 'initial bid security' would be adjusted as part of the Bid Security on acceptance of the bid by the competent authority and a Letter of Intent (LoI) will be issued in favour of the successful bidder.

(iii) The letter of intent holder shall deposit the balance amount of Bid Security i.e. equal to 15% of the annual bid amount before expiry of the period allowed.

(iv) The amount of security already deposited towards the initial bid security shall be duly adjusted to make up the twenty five percent of the bid amount towards the bid Security.

(v) Wherever a LoI holder fails to deposit the balance fifteen percent amount towards security as prescribed under sub-rule (3) (iii) above, and/or fails to execute the agreement after the issue of letter of intent, the same shall be deemed to have been revoked and the ten percent amount deposited by him towards 'initial bid security' shall stand forfeited. In addition, the letter of intent holder/ defaulter shall be liable to deposit the unpaid balance of fifteen percent to make up twenty five percent of the bid amount as bid security.

(vi) Where the LoI holder fails to deposit the unpaid fifteen percent amount on demand, such amount with interest shall be recoverable as arrears of land revenue and such bidder shall be debarred from participation in any subsequent bids for a period of five years.

(vii) No interest, whatsoever, shall be payable on the security amount deposited.

(viii) On enhancement of the dead rent/ contract money with expiry of every three years period, the lessee/ contractor shall deposit the balance amount of security so as to upscale the security amount equal to 25% of the revised annual dead rent/ contract money as applicable for one year with respect to the next block of three years.

Chapter – 7

General conditions for grant of any mineral concession

Conditions of the mining lease/ contract.

38. (1) The lessee/ contractor shall deposit the annual dead rent (in case of lease) or contract money, as the case may be, in respect of the minor minerals in four quarterly instalments in advance on the 1st of April, 1st of June, 1st of September and 1st of December of the year.

(2) The advance amount paid on account of one instalment along with the fifteen percent amount of the bid security shall be required to be deposited/ adjusted in a manner that the subsequent instalments are payable for a full quarter/ year, as the case may be.

(3) In case of a mining lease, where the amount of royalty payable in respect of a month exceeds the amount of dead rent deposited in advance, the lessee shall deposit such amount of royalty on the mineral extracted and dispatched or consumed by the 7th day of the following month after adjusting the amount of advance dead rent already deposited.

(4) In cases where the lessee has paid the amount of royalty or dead rent during a part of the year, which is equal to or more than the annual dead rent payable for the year, he shall not be required to deposit the advance dead rent for the remaining period of the said year and the royalty for the balance part of the year shall be deposited by the 7th day of the following month.

(5) Where the lessee/ contractor is operating the area, he shall also deposit/ pay an additional amount equal to ten percent of the due dead rent /royalty/ contract money along with instalments towards the "Mines and Minerals Development, Restoration and Rehabilitation Fund".

(6) In case of any default in payment of the instalments of dead rent/ contract money/ royalty/ contribution to the 'Mines and Minerals Development, Restoration and Rehabilitation Fund' on the due date(s), the amount would be payable along with interest at the following rates:-

Serial Number	Period of delay	Rate of Interest applicable
(i)	If paid within a period of 7 days from the due date:	A grace period of up to 7 days is allowed without any interest;
(ii)	If paid after 7 days but up to 30 days of the due date:	15% on the amount of default for the period of default including the grace period;
(iii)	If paid after 30 days but within 60 days of the due date:	18% on the amount of default for the period of default including the grace period;
(iv)	Delay beyond 60 days of the due date	Termination of the lease/ contract and the entire outstanding amount would be recoverable along with interest calculated at the rate of twenty one percent for the entire period of default.

(7) Any default in payment of the due instalments of dead rent, royalty, contract money, contribution to the Fund beyond a period of seven days from the due date would entail:-

(i) issue of a notice requiring the mineral concession holder to clear the default immediately and stating that in case the due

amount is not paid within a period of thirty days of the due date, his mining operations would be suspended;

(i) If the concession holder fails to deposit the due amount within a period of thirty days of the due date along with interest applicable thereon, the competent authority shall direct the concession holder to suspend his mining operations and stop any despatch of mineral from the concession area till such time the default is cleared;

(ii) The order of suspension issued under (ii) above shall, inter alia, include a show cause notice for termination of the lease or contract or permit along with forfeiture of security in the event of continuation of default for a period of thirty days from the date of order of suspension. The concession holder shall also be liable to pay the dues for such suspension period;

(iii) The competent authority may revoke the suspension of mining operations in case the concession holder deposits atleast fifty percent of the due amount with an undertaking to pay the balance amount within a period of three months along with interest, concurrent with the instalments payable during this period;

(iv) The order of suspension of mining operations and the ban on despatch of mineral from the area would remain in force throughout such default period;

(v) The competent authority may terminate the mineral concession, with or without forfeiture of the whole of the security deposit or part thereof, as deemed appropriate, in such cases without any further opportunity.

(8) The mineral concession holder shall erect boundary pillars around the mining area at his own expense as per his plan of mining and shall at all times maintain and keep the same in good condition. Each of the boundary pillars shall also be numbered along with the GPS readings duly marked thereon. The plan annexed to the concession agreement shall clearly indicate the location of pillars along with their GPS readings.

(9) The mineral concession holder shall, at all times, carry out the mining operations subject to the following restrictions:-

(i) maintain a distance of fifty meters from the outer periphery of the defined limits of any village habitation, National Highway, State Highway and other roads where such excavation does not require use of explosives, unless specifically relaxed and permitted by the competent authority;

(ii) maintain a distance of two hundred fifty meters from the outer periphery of the defined limits of any village habitation, National Highway, State Highway and other roads where use of explosives is required, unless specifically relaxed and permitted by the authority or any specific dispensation is obtained from the Director, Mines Safety;

(iii) mining operations in the river-beds shall be undertaken in accordance with the conditions prescribed under rule 39.

(10) The lessee/contractor shall at all times keep and maintain correct and true accounts of -

(i) the quantity and other particulars of all minerals obtained from the mines;

(ii) the number of persons employed in his mining operations;

(iii) an up-to-date complete plan and sections of the mine;

and shall allow any officer authorised by the Central or the State Government or competent authority in that behalf to examine at any time any accounts and records maintained by him, and shall furnish to the Central or the State Government or the competent authority with such information and returns, as it may require.

(11) Where the continuance of mining operations in any area, in the opinion of the State Government, is likely to endanger the safety of any national or State highway, road, bridge, drainage, reservoir, tank, canal or other public works, or public or private building, or any other public interest or in the interest of environment/ecology of the area, the Government may suspend the operations in the entire concession area or part thereof with immediate effect by communicating the reasons thereof in writing. The Government may, wherever so warranted, terminate such mining lease/ contract over entire area or part thereof after giving sixty days notice to the concession holder in this behalf and the grant of such mineral concession shall stand terminated from the date specified in the said notice.

(12) A mineral concession holder shall not stock any mineral outside the concession area granted on mining lease/ contract/ permit. The total mineral excavated and stacked by the concession holder within the area granted on mining lease/ contract/ permit shall not exceed two times of the average monthly production as per approved mining plan at any point of time.

(13) In cases where access to and from any other mineral concession area granted under these rules is required to be provided through the land/ area of the lessee/ contractor, he shall allow the existing and future lessee/

contractor/ or any other mineral concession holder a reasonable access to pass through such land/ area which is comprised in or adjoins or is reached through the land held by such mineral concession holder.

(14) The mineral concession holder shall ensure unhindered access to any officer, authorised by the State or Central Government or competent authority, to enter upon any building, excavation or land comprised in the concession area for the purpose of inspecting the mines. If the mineral concession holder creates any hindrance in peaceful inspection of the mines, the competent authority may take recourse to extreme measure of cancellation of the mineral concession and forfeit the security deposit in whole or part thereof.

(15) A mineral concession holder shall,-

(i) submit by the 7th day of every month, a return in Form "MMP-1" containing the total quantity of minor mineral raised and dispatched from the area and other details prescribed in the said form during the preceding calendar month and its value, to the competent authority; and

(ii) also furnish by the 30th April of every year, a statement containing information in Form 'MMP-2' regarding the quantity and value of minor mineral extracted, dispatched, stacked during the previous financial year, average number of regular labourers employed (men and women separately), number of accidents (if any), compensation paid and number of days worked and such other details as prescribed in the form to the competent authority.

(16) The mineral concession holder shall at all times maintain and, if required, strengthen any railway line, bridge, national highway, reservoir, tank, canals, road any other public works or buildings in proper condition to the satisfaction of the Railway Administration or the competent authority or any officer authorised by him and shall ensure that no risk is caused to any such structure as a result of his mining operations.

(17) The mineral concession holder shall report the discovery of any such minor mineral which is not specified in the concession to the competent authority or an officer authorised by him without any delay and shall not dispose off the same.

(18) In case the mineral concession holder incidentally extracts any major mineral, in the process of extracting minor minerals granted through the mineral concession, which is not forming part of the concession, the same shall be the property of the Government and the mineral concession holder shall stack and store the same separately and maintain its proper record in accordance with the directions given by the competent authority.

The competent authority shall lay down a procedure for the disposal of the major mineral so detected, excavated and stacked.

(19) In case, it is detected that the mineral concession holder has disposed of the incidentally extracted major mineral in whole or part thereof or failed to maintain the record of the stored mineral in terms of sub-rule (18) above, he shall be liable to penalties as specified in sub section (1), (4) and (5) of section 21 of the Act, and also termination of mining lease/contract.

(20) In case the mineral concession holder does not commence mining operations within a period of one hundred and eighty days counted from the date of commencement of the mineral concession, notwithstanding the payment of dead rent/ contract money by him, the mineral concession shall be liable to be terminated unless specifically permitted by the competent authority on application for reasons to be recorded in writing.

(21) The mineral concession holder shall immediately inform in writing in Form 'MSE-1: (a) the working in the mines extend below the superjacent ground, or (b) the depth of any open cast excavation reaches six meters (measured from its highest to the lowest point); or (c) the number of persons employed on any day is more than 50, or (d) any explosives are used, to the following:—

(i) The Director General of Mines Safety, Government of India, Dhanbad;

(ii) The Director, Mines Safety, Government of India, Guwahati;

(iii) The Competent Authority;

(iv) The District Magistrate of the District concerned.

(22) The competent authority will make arrangements for the survey and demarcation of the area granted under the concession at the expense of the mineral concession holder. The mineral concession holder shall have to bear actual expenses of the staff deputed for the work, which shall include prorated salary of the staff, travelling allowance and daily allowance of the staff deployed and instrument usage charges which shall be equal to ten percent of the staff charges.

(23) A safety margin of two meters shall be maintained above the ground water table while undertaking mining and no mining operations shall be permissible below this level unless a specific permission is obtained from the competent authority in this behalf.

(24) A mineral concession may contain and provide for such additional conditions as the competent authority may deem necessary with regard to but not limited to the following:-

(i) payment of dead rent, royalty, contract money, Mines and Mineral Development, Rehabilitation and Restoration Fund, and the interest payable on delayed payments or any other dues;

(ii) particulars of the receipt heads of the Government to which the payments are to be credited;

(iii) payment of rent for use of the surface area and compensation for damage to the landowner in respect of land covered under the lease/contact;

(iv) restriction of surface operations in any area prohibited by any authority;

(v) notice by the mineral concession holder for surface occupation;

(vi) facilities to be given by the mineral concession holder to another mineral concession holder for working of minor mineral(s) in the area or the adjacent area or for work of State or Central Government Departments or their Agencies.

(vii) entering and working in any forest area;

(viii) reclamation/ restoration and securing of the pits, shaft and other areas affected by mining;

(ix) reporting of accidents and use of explosives;

(x) indemnity to the Government against any third party claims;

(xi) mineral to be stacked, measured and dispatched;

(xii) applicability of the provisions of all other statutes/ rules framed by the Central and the State Governments;

(xiii) maintenance of sanitary conditions in the mining area;

(xiv) development and conservation of the minerals, and environment and ecology of the area;

(xv) forfeiture of property left after termination/ expiry of the mineral concession;

(xvi) delivery of possession of lands and mines on surrender, expiration or premature termination of the mineral concession;

(xvii) powers to take possession of plant, machinery, premises and mines in the event of war or emergency; and

(xviii) termination of a mineral concession for non-compliance of terms and conditions of the grant and agreement;

(xix) any other special conditions may be imposed in the interest of scientific mining, mineral conservation and mineral development, as may be found expedient by the competent authority.

(25) Boundaries of the area covered by a mining lease/ contract/permit shall run vertically downwards below the surface towards the centre of the earth.

Special conditions for river-bed

39. Following conditions shall be applicable for excavation of minor mineral(s) from river beds in order to ensure safety of river-beds, structures and the adjoining areas:

(i) No mining would be permissible in a river-bed up to a distance of five times of the span of a bridge on up-stream side and ten times the span of such bridge on down-stream side, subject to a minimum of 250 metres on the up-stream side and 500 metres on the down-stream side;

(ii) There shall be maintained an un-mined block of 50 meters width after every block of 1000 meters over which mining is undertaken or at such distance as may be directed by the competent authority;

(iii) The maximum depth of mining in the river-bed shall not exceed three metres measured from the un-mined bed level at any point of time with proper bench formation;

(iv) Mining shall be restricted within the central 3/4th width of the river/ rivulet;

(v) No mining shall be permissible in an area up to a width specified by the competent authority from the active edges of embankments;

(vi) Any other conditions as may be required by the competent authority in public interest.

Powers to issue directions.

40. (1) The competent authority may, in the interest of systematic development of mineral deposits, conservation of minerals, scientific mining, sustainable development and protection of the environment, issue directions to the owner, agent, mining engineer, geologist or manager of a mine.

(2) Every direction issued under sub-rule (1) shall be complied within such period as may be specified, not being a period of less than one week:

Provided that where there is difficulty in giving effect to any such direction, the owner, agent, mining engineer, geologist or manager of the mine, as the case may be, may apply for modification or rescinding of such direction and the competent authority may either modify or rescind the direction or confirm the same.

Consequences of any non-compliance or violation of the terms and conditions of the grant of a mineral concession.

41. (1) In case the mineral concession holder fails to (a) undertake mining in a scientific and systematic manner, or (b) undertakes mining in violation of environmental safeguards, or (c) fails to deposit the due amount of dead rent, royalty, contract money or any other amount due to the Government under these rules, or (d) fails to comply with any of the terms and conditions of grant of the mineral concession agreement or other conditions imposed by any other State/ Central agency at the time of granting permission/ approval for undertaking mining activity, or (e) fails to comply with any other directions issued during the subsistence of the mineral concession, the competent authority shall have the right to suspend the mining operations or prematurely terminate the lease/ contract along with forfeiture of part or full amount of security after following the prescribed procedure;

(2) As a measure of recovery of any outstanding amount towards mining dues from a defaulting mineral concession holder, the competent authority shall be competent to enter upon the said premises and detain all or any of the mineral or moveable property therein till the concession holder makes the payment of outstanding amount. If the concession holder fails to make the payment within a period of ten days, such officer may order disposal and sale of the detained material and such property to the extent it covers the recovery of the outstanding dues and all costs and expenses incurred on this account.

(3) Where a mineral concession is prematurely terminated for breach of any of the conditions subject to which the mineral concession is granted, the competent authority may also order forfeiture of the quarried material lying in the concession area and on passing of such an order, such mineral shall become the absolute property of the State.

Rights of the lessee/ contractor.

42. Subject to the conditions mentioned under rules 39 and 40, the mineral concession holder shall have the right to use the land in respect of which the mineral concession has been granted for following activities,

(i) working of the mines;

(ii) sink pits and shafts and construct roads;

(iii) erect plant and machinery;

(iv) use water;

(v) use land for stacking purpose;

(vi) install fuel-pumps or stations or diesel or petrol for self-use with the permission of the authority;

(vii) construct magazine for explosives and storage sheds for explosive related substances with permission from the licensing authority;

(viii) store over-burden/ waste material in areas identified for the purpose; and

(ix) request for diversion of public roads, overhead electric lines passing through the concession area from the concerned authorities at his expense to ensure scientific mining.

Special rights of the Government

43. (1) The Government shall have the right of pre-emption of the minor mineral and all products thereof lying over the area granted on a mineral concession or elsewhere under the control of the mineral concession holder at all times during the term of any mineral concession. Upon issue of an order by the Government in writing to this effect, the mineral concession holder shall deliver all minor mineral or products thereof to the Government at rates worked out on the basis of average billing of mineral for the last one month at the pit head in such quantities and in such manner as may be specified in the order exercising the said right.

(2) The Government may terminate/ cancel the mineral concession in the State of a National Emergency or War without giving any notice for such termination.

(3) The Government may terminate or cancel the mineral concession, by giving three calendar months prior notice in writing, in the event the minor mineral under the concession is required for establishing an industry beneficial to the general public.

Chapter – 8

Payment of rent and compensation to the landowner and determination thereof

Mining over land in the ownership of third parties.

44. (1) Where a mineral concession is granted under these rules over any land in respect of which minor mineral rights vest in the State Government, the rights of the landowner shall be subordinate to that of the State Government for extraction of the mineral, access to the quarry/mine, stacking of minerals and other subsidiary purposes. The landowner is entitled to a fair rent and compensation for such use or they and under damage or injury caused to such land.

(2) A mineral concession holder, who is granted the mineral concession under these rules, is entitled to use the land/ area for extraction of mineral in respect of which the said concession is granted. The mineral concession holder shall be liable to pay (a) the annual rent in respect of the land blocked under the concession but not being operated, and (b) annual compensation in respect of the area used for actual mining operations.

(3) In case the landowner is allowed to use part of the area granted under the mineral concession for his normal operations for which it was being used prior to the grant of mineral concession, concurrent with the concession grant, no rent shall be payable in respect of such portion of land which is not being used for actual mining operations for such portion as it remains available to the landowner for his normal use. In cases where the mineral concession holder blocks the entire concession area as a result of which the landowner is not able to use such land or part thereof for his normal operations, the rent shall be payable in respect of the entire blocked area.

Mutual settlement of rent and compensation for the land used for mining

45. The amount of annual rent and the compensation shall be settled mutually between the landowner and the mineral concession holder.

Determination of fair market rent, if not mutually settled between the parties.

46. (1) Where no agreement is reached by way of mutual settlement between the landowner and the mineral concession holder regarding the rate of rent, the mineral concession holder shall offer to pay rent equal to the amount of Annuity, as applicable from time to time, as payable in cases of land acquisition.

(2) Where the land owner is not agreeable for a mutual settlement under rule 46 and is also not satisfied with the rent offered to be paid under sub-rule (1) above, the landowner or the concession holder may apply to the competent authority to make a reference to the District Collector for determination of the fair rent payable in respect of such land.

(3) Where either of the parties prefer a reference to the District Collector under sub-rule (2) above, the competent authority shall forward the reference to the District Collector for determination of the fair market rent in respect of such land. The competent authority shall also require the mineral concession holder to deposit the rent for one year as prescribed under sub-rule (1) above as a tentative compensation with the Collector. Upon so doing, the mineral concession holder shall be entitled to commence mining operations over the said land area.

(4) Upon a reference from the competent authority, the District Collector may call upon the parties to furnish the details of their claims and counter claims, inter alia, containing information on the parameters prescribed under sub-rule (5) of this rule and afford an opportunity of hearing to the parties.

(5) (a) Pursuant to the hearing granted to the parties to the reference, the District Collector shall determine the fair market rent of the land keeping in view the following:-

(i) nature/ character of the land;

(ii) use to which such land was being put immediately before the grant of mineral concession;

(iii) annual net income that the landowner was able to derive/ earn from such land use;

(iv) normal increase in the income level that would have taken place in such net income during the intervening period;

(v) amount so worked out shall be added an amount equal to thirty percent in lieu of compulsory use of the land;

(b) While determining the fair market rent, the collector shall also decide the rate at which such rent would be increased on year-to-year basis during the currency of the mineral concession.

(6) Notwithstanding the parameters prescribed for determining the fair market rent under sub-rule (5) above, Collector shall not determine the rent at a rate lesser than the amount of annuity payable in case of land acquisition.

(7) The District Collector shall order parties and the mineral concession holder to pay such rent to the landowner from time to time, as determined by him.

(8) Any appeal against the order of the District Collector shall lie with the Government.

Determination of Compensation

47. (1) In addition to the rent settled between the parties under rule 45 or determined and payable under rule 46, the landowner would also be entitled to payment of a fair and reasonable compensation for any damage caused to such land in respect of the area under actual mining operations.

(2) In cases where the amount of compensation is not mutually settled between the parties under rule 45, the tentative amount of compensation shall be equal to 10% of the annual contract money, dead rent/ royalty actually paid by the mineral concession holder to the Government, less the amount of rent settled or determined.

(3) Where the landowner or the mineral concession holder is not agreeable to accept the amount of compensation prescribed under sub-rule (2) above, either of them may seek a reference through competent authority to the District Collector for determination of fair and reasonable compensation with reference to the damage or injury caused to such land. Pending a decision by the District Collector on such reference by either of the parties, the mineral concession holder shall deposit the tentative compensation amount for one year with the District Collector in accordance with sub-rule (2) above, whereafter the concession holder shall be entitled to operate the area.

(4) Upon a reference from the competent authority, the District Collector shall proceed to determine the fair compensation amount on account of any damage likely to be caused to such land on account of the mining operations. The Collector shall invite claims and counter claims and afford an opportunity of hearing to the parties before determining the compensation amount.

(5) (a) The Collector shall determine the fair compensation for the damage or injury caused to such land keeping in view the following:-

(i) nature or character of the land;

(ii) economic activity for which such land was being used immediately before the grant of mineral concession;

(iii) nature and extent of damage caused and as to whether such land is fully or partially reclaimable after closure of the mining operations or the damage is irreversible;

(iv) economic activity for which such land can be used after mine closure, with or without any investment, and the kind of returns it is capable of yielding after such restoration.

(v) extent of efforts and expenditure proposed to be made by the mineral concession holder for restoration or

reclamation or rehabilitation of the land as per the mine closure plan for its eventual use by the landowner;

(b) While determining the compensation amount, the Collector shall keep in view the total rent and the estimated compensation amount payable to the landowner throughout the concession period. In case the sum total of the rent and the compensation amount assessed is more than the prevailing market value of land, the mineral concession holder may be given an option to buy the land at such rates subject to the landowner agreeing to the same. Alternatively, the Collector may determine the compensation amount keeping in view that the landowner would continue to retain the ownership of land after the closure of mining operations.

(c) In case the mineral concession holder and the landowner(s) are able to settle the compensation mutually in respect of a portion of the land required for actual mining operations, compensation for such portion of the land shall not be a subject for settlement. However, the amount of compensation already settled in respect of part of the operating area shall be kept in view while settling the compensation for the disputed area.

(6) Notwithstanding the determination of compensation on the considerations stated under sub-rule (5) above, the annual rent and the compensation amount put together shall not be less than 10% of the amount of contract money/ dead rent/ royalty actually paid by the mineral concession holder to the government with reference to such portion of land in accordance with sub-rule (2) above.

(7) The compensation amount determined by the District Collector shall be final and binding on the parties and the mineral concession holder shall be liable to pay such compensation amount to the landowner annually during the currency of the mineral concession.

(8) An appeal against the order of the Collector shall lie with the Government.

Part-III

Scientific and Systematic Mining and Environmental Safeguards

Chapter – 9

Mining operations to be undertaken as per the Mining Plan

Mining Plan.

48. Any mining operations under a mineral concession granted under these rules shall be undertaken by the mineral concession holder in accordance with a duly approved 'Mining Plan':

Provided that the State Government may exempt certain specified nature of mining activities from the requirements of preparation of a mining plan.

Registration of a 'Recognised Qualified Person" (RQP).

49. (1) No person shall be registered as a 'Recognised Qualified Person' for the purposes of rule 50 (1) by the Director, unless he possesses,-

(i) a degree in Mining Engineering or a post-graduate degree in Geology granted by a university established or incorporated by or under an Act of Parliament or any institution recognised by the University Grants Commission established under section 4 of the University Grants Commission Act, 1956 (3 of 1956) or any qualification equivalent thereto; and

(ii) professional experience of five years of working in a supervisory capacity in the field of mining or mineral administration after obtaining a degree or qualification required under clause (1) (i) above.

(2) Any person possessing the qualifications and experience as prescribed under sub-rule (1) above, may apply to the Director, or an officer authorised by him, for registration as a RQP along with a fee of Rs. 1,000/- (Rs. one thousand only). The Director may, after making such enquiry as deemed appropriate, grant or refuse to grant recognition and where recognition is refused, the Director shall record the reasons therefore in writing and communicate the same to the applicant.

(3) The applicant recognised under sub-rule (2) above shall be so registered for a period of ten years and his registration may be further renewed on application and deposit of the fee as applicable at such time for a further period not exceeding ten years at any one time.

(4) The registration of a person as 'Recognised Qualified Person' may be revoked at any time in the case of any misconduct on the part of such person after giving him a notice and opportunity of hearing. Similarly, the

Director may refuse to renew recognition for reasons to be recorded in writing after giving him an opportunity of hearing.

Preparation of a Mining Plan by a Recognised Qualified Person.

50. (1) A mining plan shall be prepared by a Recognised Qualified Person (RQP), recognised in this behalf by the Director or an officer authorised by him, or by a person recognized by the Central Government or an officer authorized by the Central Government in this behalf under the provisions of rule 22 B of the Mineral Concession Rules, 1960.

(2) The Director shall specify all such persons who are so recognised by him under sub-rule (1) above and keep such a list of persons published and updated on the website of the department.

Officer authorised for approval/ modification of the Mining Plan/ Scheme of mining.

51. The Director may authorise any of his officers to approve or modify the Mining plan/ Scheme of mining for mining of Minor Mineral in the State subject to such officer fulfilling the following qualifications:-

(i) a degree in mining engineering or post-graduate degree in geology from a university established or incorporated by or under a Central Act, a Provincial Act or a State Act, including any institution recognized by the University Grant Commission established under section 4 of the University Grants Commission Act, 1956 (3 of 1956), or any equivalent qualification granted by any university or institution outside in India; and

(ii) possesses professional experience of 8 years in case of a Mining Engineer in the field of mining and 12 years in case of a Geologist in the field of mining/ geological survey, after obtaining the basic academic qualification.

Requirements of a Mining Plan

52. (1) Every mineral concession holder shall prepare a Mining Plan along with the Mine Closure Plan (Progressive and Final) and shall not commence mining operations in any area except in accordance with such Mining Plan duly approved by an officer authorized by the Director in this behalf. The plan shall also contain the conceptual plan of the mining area and take into consideration the following aspects:-

(i) Level of Production;

(ii) Level of Mechanisation;

(iii) Type of Machinery used;

(iv) Quantity of diesel/ energy fuel consumption;

(v) Number of trees uprooted due to proposed mining operations.

(2) Where the mining operations have already been undertaken under an existing mineral concession before the commencement of these rules, the holder of such mineral concession shall also submit a Mining Plan along with Mine Closure Plan within a period of ninety days from the commencement of these rules for approval by the authorized officer.

(3) Every mining plan or scheme of mining submitted for approval under these rules shall be accompanied with a non-refundable fee of Rs. 5,000 for every square kilometre or part thereof in respect of the mining area covered under the mining plan.

(4) Every mining plan shall contain all plans, sections serially numbered or suitably indexed. The tracings or copies of such plans and sections duly certified for its correctness by the owner, agent, mining engineer or manager or geologist, by the mining engineer/ geologist appointed by the concession holder, shall be kept at the site office of the minor mineral mine/ concession area.

(5) A mining plan shall incorporate the following as a minimum:-

(i) the plan of the area under concession delineated on a map with boundaries duly marked along with the positions of boundary pillars with GPS readings;

(ii) the plan of the area under concession showing the nature and extent of the mineral body/ spot or spots where the mining operations are proposed to be undertaken;

(iii) the plan of the area showing natural water courses, limits of reserves and other forest areas and density of trees, if any, assessment of impact of mining activity on forest, land surface and environment including air and water pollution i.e. the environment management plan;

(iv) details of the geology and lithology of the area including the estimated mineral reserves of the area;

(v) extent of manual mining or mining with the use of machinery and mechanical devices;

(vi) tentative scheme of mining and annual programme and plan for excavation/ production from year-to-year for a period of five years as part of the Mining Plan;

(vii) proposed method of mining/ development of mines, use of explosives and blasting operations, if any, stacking and disposal of minerals, mine-drainage pattern, handling of the overburden, location of electronic weigh bridges, and mineral processing, if any;

(viii) progressive and final mine closure plan;

(ix) details of scheme of restoration/ rehabilitation of the area through afforestation, land reclamation, use of pollution control devices and such other measures as may be directed by the State Government from time to time.

(6) In addition to the requirements stipulated under sub-rule (4) above, every mining plan shall delineate the approach in respect of environmental safeguards and restoration and rehabilitation measures of the area with regard to the following, among others:-

(i) precautions for the protection of environment and control of pollution while undertaking mining operations in the area granted on contract lease/ contract;

(ii) control of air pollution due to dust, exhaust emissions or fumes during mining or processing operations for minor mineral and related activities and containing the same within permissible limits specified under any environmental laws for the time being in force;

(iii) precautions to prevent or reduce the discharge of toxic and objectionable liquid effluents from minor mineral quarry, workshop or processing plant within the permissible limits. No such toxic affluent shall be discharged in any water body or in the sub-soil through a bore-hole;

(iv) abatement of and control over the noise arising out of mining and processing operations for minor minerals so as to keep the same within the permissible limits;

(v) prevention and containment of any damage to the flora of the area held under concession and the nearby area, scheme of undertaking plantation to compensate for any unavoidable damage and maintenance of the same during the subsistence of the concession period;

(vi) removal and stacking of any top soil or over-burden or waste rock and nonsaleable minor mineral excavated/ generated during the mining operations and utilisation of the same for restoration and rehabilitation of the area;

(vii) plan for phased restoration, reclamation and rehabilitation of land affected by mining operations.

(7) The mining plan, once approved, shall be valid for the mineral concession period, unless revised and modified and got approved during the concession period.

(8) The owner, agent, mining engineer or manager of every mine shall review the mining plan after every five years and shall submit scheme of mining for the next five years of the concession period for approval.

Modification in the mining Plan or Scheme and other conditions.

53. (1) Where any modification of the approved mining plan is required during the subsistence of the mineral concession, the concession holder shall get any such modification approved.

(2) The competent authority may, wherever needed, require the mineral concession holder to make such modifications in the mining plan referred to above or impose such conditions, as he may consider necessary by an order in writing if such modification or imposition of condition are considered necessary,-

(a) in the light of the experience of operation of mines;

(b) in view of the change in the technological development; and

(c) in the light of any change in legal provisions or orders of any Court.

(3) A mineral concession holder, desirous of seeking modifications in the approved mining plan as are considered expedient in the interest of safe and scientific mining, conservation of minerals, or for the protection of environment, shall apply to the Director, setting forth the intended modifications and also explaining the reasons for the same.

(4) The Director shall approve the mining plan or such modified mining plan or scheme of mining with or without any modification, as deemed appropriate, within a period of forty-five days from the date of receipt or submission of such application for approval of mining plan or modified mining plan or scheme of mining, as the case may be.

(5) Where no decision is conveyed within the aforesaid period of forty-five days, the mining plan or modified mining plan or scheme of mining, as the case may be, shall be deemed to have been provisionally approved, till such time a final decision in the matter is communicated.

(6) The mineral concession holder shall furnish financial assurance amounting to Rs.15,000/- per hectare of the area granted under the mineral concession and put to use for mining and allied activities subject to a minimum of one lakh rupees in the form and manner as defined.

Chapter – 10

Regulation and control of mining operations

Mining to be undertaken in a scientific and systematic manner.

54. (1) The mining operations shall be undertaken in a scientific and systematic manner *i.e.* mining operations consistent with the approved Mining Plan/ scheme of mining, clearances/ permissions granted by the concerned authorities.

(2) Any un-scientific operation or contravention of the terms of grant or permission (excepting the conditions relating to payment of Government dues) to operate by the mineral concession holder shall amount to violation or breach of the grant.

Non-compliance with or violation of the terms and conditions of the mineral concessions

55. (1) A mineral concession holder shall be held to be in 'default' of compliance of the conditions of grant of mineral concession in cases where the non-compliance is rectifiable *suo moto* or upon a notice within the period indicated in such notice. Some of the instances of major violations on the part of the mineral concession holder may be in the following areas:-

(i) Undertaking mining operations in an unsafe and unscientific manner *i.e.* without bench formation, non-erection or maintenance of boundary pillars, lack of labour safety measures, and the regulations pertaining to the use of explosives;

(ii) Non-installation of the electronic weigh bridges or, the weigh bridges, if installed, are found to be not calibrated properly to ensure correct weighment;

(iii) Non-adherence to the rules with regard to the limits prescribed for stocking of minerals and failure to furnish the prescribed returns in this behalf;

(iv) Dispatch of mineral from the concession area without a valid mineral transit pass;

(v) Non-submission of the prescribed reports and returns as per the time frame prescribed.

(2) Wherever non-compliance of terms and conditions of the mineral concession or violation thereof is observed, it shall cause a notice to be served upon the mineral concession holder to rectify the default and take corrective measures within such period as may be specified in such notice.

Breach of terms and conditions and the consequences

56. (1) Any failure on the part of the mineral concession holder to rectify any default or take corrective measures under rule 55 above within the period specified, or such violation being irreversible and non-rectifiable, or recurrence of defaults takes place, the same shall amount to a 'breach' of the terms and conditions of grant of the mineral concession.

(2) Wherever a mineral concession holder is observed to be in 'breach' of the conditions of grant, the competent authority shall be competent to take any or all of the following actions:-

(i) suspension of the mining operations and dispatch of mineral from the concession area, withholding the inventory of stocks, duly assessed at the time of suspension of operation, till such time the suspension order is revoked. The period of suspension may continue up to a period of three months or till such time the breach condition is rectified, whichever is earlier;

(ii) temporary seizure of the stocks of the mineral excavated in raw or processed form till such time the stocks are reconciled with the records and established to have been accepted from legal sources;

(iii) termination of the concession with forfeiture of the security in whole or in part and also forfeiture of the mineral lying in the area and its disposal by the competent authority; and

(iv) debarring the individuals/ firms/ companies for grant of a fresh mineral concession in the State for a period of up to 5 years.

Procedure for dealing with 'Breach' conditions and the penalties.

57. (1) A breach of any of the conditions of grant of a mineral concession or violation of any of the conditions relating to permission or clearance to undertake mining by any authority shall be dealt as under:-

(i) the competent authority shall, upon inspection by himself or any officer or on reporting of any violation amounting to breach by any other authority, issue a notice to the mineral concession holder to show cause within the period specified therein as to why the mineral concession be not prematurely terminated along with forfeiture of the amount of security, in full or part thereof, and forfeiture of the mineral already excavated while undertaking said operations;

(ii) on receipt and examination of the reply of the mineral concession holder, the competent authority may, on his satisfaction that the breach was either not entirely due to fault on the part of the concession holder or was beyond his

control or the same had actually not been committed, settle the notice with such caution as deemed appropriate with or without any further directions;

(iii) where the mineral concession holder admits to the breach having been committed on his part and promises to remedy the breach conditions in his reply and requests for grant of time, and the competent authority is satisfied with such promise, he may grant time as deemed proper for implementation of the remedial measures with or without a surety;

(iv) in case the competent authority ***prima facie*** forms an opinion on examination of the reply of the mineral concession holder that the breach is of a recurring or continuing nature, he may order suspension of the mining operations with immediate effect along with a ban on dispatch of the mineral from the site or any other related activity in the mine;

(v) In case the competent authority is not satisfied with the reply submitted by the mineral concession holder, the competent authority may terminate the mineral concession with or without forfeiture of the security amount in whole or part thereof along with forfeiture of the mineral already excavated while undertaking said operations. However, no such order shall be passed without affording an opportunity of show cause and representation to the mineral concession holder.

(2) Wherever an order is passed under clause (v) of sub-rule (1) above against a mineral concession holder, he or the partnership firm in which he may be a partner, or the company in which he may be a Director, may be debarred for the grant of a fresh mineral concession for a period of five years from the date of passing such order.

Chapter – 11

Mines and Mineral Development, Restoration and Rehabilitation Fund

Establishment of the Mines and Mineral Development, Restoration and Rehabilitation Fund.

58. A fund known as the 'Mines and Mineral Development, Restoration and Rehabilitation Fund' shall be established under 'Public Account' in the State of Assam under the administrative control of the Department to which rehabilitation charges payable under clause (i) of sub section (1A) of section 15 of the Act shall be credited in order to meet the following objectives:-

(i) funding of the restoration or reclamation or rehabilitation works in the sites affected by mining operations;

(ii) provision of common facilities for the benefit of community in and around areas where mining activities are undertaken;

(iii) development of infrastructure facilities for orderly growth of the mining operations and allied activities *e.g.* roads, water supply *etc.*;

(iv) funding of the studies commissioned or activities related to the mining sector *e.g.* survey, exploration and prospecting of minerals, procurement of equipment and machinery required to support such activities;

(v) education, awareness and training of the mineral concession holders and the officers through field visits and exposure to the best mining practices;

(vi) funding of expenditure incurred on implementation of any scheme of incentives that the State Government may frame for recognition and awards for scientific mining undertaken with highest regard to mineral conservation, rehabilitation measures along with environmental safeguards and other measures;

(vii) Any other objects which the Government may consider expedient to support in the overall interest of the mining sector.

Contributions to the Fund

59. (1) An amount equal to ten percent of the dead rent or royalty or contract money paid to the State shall be charged from the mineral concession holder in the nature of 'other charges' for restoration and rehabilitation works and credited to the Fund in addition to the amount payable to the Government on account of such dead rent or royalty or contract money.

(2) The said contribution shall be remitted by the mineral concession holder in instalments along with the instalments of dead rent or royalty or contract money, as the case may be. Such amount shall be reconciled at the close of the financial year and any differential of the amount due shall be adjusted or paid on reconciliation.

(3) The Department shall maintain complete account of receipts to the Fund and the expenditure there from and shall invest the progressive accumulated corpus in a manner so as to earn secure returns therefrom.

Expenditure out of the Fund.

60. The amount available in the Fund shall be utilised strictly for fulfilment of the objectives for which the Fund is being set up and on the terms and conditions as may be stipulated by the Committee constituted under rule 62.

Restoration and Rehabilitation works to remain the first charge on the Fund.

61. (1) The expenditure on restoration and rehabilitation of the mining sites shall remain the first charge on the fund.

(2) Every mineral concession holder, before undertaking the restoration and rehabilitation works as part of his progressive mine closure plan, shall get his estimates of expenditure on such works duly approved from the Director or an officer authorised by him and submit the utilisation certificate duly certified by a registered Chartered Accountant. The mineral concession holder shall be entitled to get the expended amount re-imbursed out of the Fund to the extent of actual expenditure subject to such re-imbursement being limited to the amount contributed by him. Any expenditure incurred over and above this limit shall have to be borne by the mineral concession holder from his own account.

Explanatory Note : Notwithstanding the expenditure incurred by a mineral concession holder on the measures taken for the progressive mine closure plan, the occasion for undertaking the complete restoration and rehabilitation works in respect of any mining area arises only when a mine reaches the closure stage. It is likely that the mining operations would have been undertaken by multiple concession holders before reaching the stage of closure of a mine. As such, it becomes imperative that the comprehensive measures for restoration and rehabilitation of a mining site are taken up only upon closure of such mine. The responsibility for execution of such plan shall rest with the mineral concession holder operating such area at the time of its closure. Since the contribution to the fund is also made by each of the lessees/ contractors who have operated the area during the intervening period, the financial burden of restoration and rehabilitation measures shall not be borne by the last contractor/ lessee alone.

(3) A mineral concession holder operating the mine at the time of its final closure shall be responsible for execution of the restoration and rehabilitation works as per the final mine closure plan. He shall prepare and submit the estimates for implementation of the final restoration and rehabilitation plan to the Director, for approval of the estimates.

(4) The Director, shall approve such estimates, with or without any modifications, and reimburse the expenditure actually incurred on the site by the implementation agency in a phased manner out of the Fund. The amount so re-imbursed shall not exceed the total amount received from the mineral concession holders in respect of that site less the expenditure already incurred earlier.

(5) The Director may require the mineral concession holder to engage an independent agency for implementation of the restoration and

rehabilitation works and evolve a system of monitoring the deliverables through an independent agency.

Sanction of expenditure from the Fund

62. (1) Any or all proposals for expenditure from out of the Fund shall be approved by a committee of officers headed by the Secretary of the Department and consisting of representatives from the Departments of Mines and Minerals, Finance, Environment and Forests, Health, Education, Panchayat and Rural Development and Social Welfare.

(2) The mode and method of collection, remittance, and utilisation of these 'other charges' shall be notified separately by the Government.

Part IV

Miscellaneous

Chapter – 12

Illegal or un-authorised Mining and consequences

Illegal or unauthorised Mining

63. Any person undertaking any mining operations without a valid mineral concession granted under the Act and the rules framed thereunder in any area shall be deemed to be indulging in illegal or unauthorised mining and shall be dealt in accordance with the provisions contained in this chapter.

Consequences of illegal or unauthorised mining

64. Any act of illegal or unauthorised mining shall be liable to the following:-

(i) for a first time violation, the said mineral shall be liable to be seized along with the impounding of all such tools, equipment, vehicles or any other things used for such unauthorised operation, which may be released only upon realisation of the payment of price of the mineral and the applicable royalty for the mineral extracted and, in addition, a fine which shall not be less than Ten Thousand rupees;

(ii) for a second time violation, the said mineral shall be liable to be seized along with the impounding of all such tools, equipment, vehicles or any other things used for such unauthorised operation for a minimum period of seven days, which may be released only upon realisation of the payment of price of the mineral and the applicable royalty for the mineral extracted and, in addition, a fine which shall not be less than fifteen thousand rupees;

(iii) wherever a person is found to be indulging in such offence for the third time or more, the officer concerned shall register an FIR and handover all such tools, equipment, vehicles or any other things used for such unauthorised operation to the Police. Any such offence shall entail (a) confiscation of all such tools, equipment, vehicles or any other thing used for such unauthorised operation for a period of minimum thirty days or more, and (b) pecuniary penalty and punishment for the offence as provided under Section 21 of the Mines and Minerals (Development and Regulation) Act, 1957.

Offences by companies.

65. (1) If the person committing an offence under these rules is a company registered under the Companies Act, every person, who at the time when the offence was committed, was in-charge and was responsible to the company for the conduct of the business of the company, shall be deemed to be guilty

of the offence and shall be liable to be proceeded against and punished accordingly :

Provided that nothing contained in this sub-rule shall render any such person liable to any punishment if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

(2) Where an offence under these rules has been committed with the consent or connivance of any director, manager, secretary or other authorised representative of the company, such director, manager, secretary or other authorised representative shall be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

Chapter – 13
Delegation, Review and Appeals

Delegation.

66. The Government may delegate any powers under these rules, save in the cases of appeals and subject to such restrictions as it may deem appropriate to the competent authority, by an executive order. Similarly, the competent authority, may delegate any of his powers under these rules, save in the case of appeals, and subject to such restrictions as he may deem appropriate, to any of his subordinate officer(s) by an executive order.

Review.

67. The Director/ Principal Chief Conservator of Forests and Head of Forest Force, Assam may, either on an application from an aggrieved party or on his own motion, review the orders passed by him under these rules in any matter.

Appeals.

68. (1) Unless otherwise provided, an appeal against an order passed by any Sub-ordinate Officer shall lie with the Director/ Principal Chief Conservator of Forests and Head of Forest Force, Assam as the case may be.

(2) An appeal against the order passed by the Director/ Principal Chief Conservator of Forests and Head of Forest Force, Assam shall lie before the Government in the Power (E), Mines and Minerals Department in respect of minerals under Schedule – 'X' and the Environment and Forest Department in respect of minerals under Schedule – 'Y.

(3) No order under these rules shall be passed by the competent authority against any person unless he has been issued a show cause and given a reasonable opportunity to make a representation.

Time allowed for appeals or review

69. (1) Any application for review under rule 67 and an appeal under rule 68 (1) can be preferred within a period of sixty days of the passing of the impugned order. A delay up to thirty days beyond the permissible appeal

period may be condoned by the Director/Principal Chief Conservator of Forests and Head of Forest Force, if found justified.

(2) A second appeal against the orders of the Director/Principal Chief Conservator of Forests and Head of Forest Force, under rule 68 (2) can be filed within a period of 45 days of the passing of the impugned order. A delay for up to thirty days beyond the permissible period may be condoned by the Government, if found justified.

Fee for review or appeal

70. (1) Every application for review or appeal shall be accompanied with the fee as prescribed in the Second Schedule appended to these rules.

(2) No application for review or appeal shall be entertained in matters where the applicant is in default of any Government dues, on whatsoever account, unless he deposits at least twenty five percent of such dues before filing such application and the proof for such payment is enclosed with the application or memorandum of appeal.

Chapter – 14
Miscellaneous

Power to rectify inadvertent mistakes.

71. (1) The competent authority may at any time, within six months, from the date of the order passed under these rules, on its own motion rectify any mistake or error apparent on the face of the record, and may within the like period rectify any such mistake or error which has been brought to its notice by an applicant for the grant of the minor mineral(s) concession.

(2) No such rectification under sub-rule (1) above, as has or purports to have a prejudicial effect on another applicant for the grant of the mining lease, shall be made unless the competent authority has given such applicant(s) notice of its intention so to do, and has allowed him/ them a reasonable opportunity to make a representation thereon.

Recovery of Government dues as arrears of land revenue.

72. Any rent, royalty, fee, contract money or other sum due to the Government or penalty imposed under these rules or under the terms and conditions of the mining lease or contract or permit and remaining unpaid, shall constitute a first charge on the assets of a mineral concession holder or the surety furnished under these rules and shall be recoverable as arrears of Land Revenue.

Unauthorized Working.

73. (1) No person shall undertake any mining operations in any area, except under and in accordance with the terms and conditions of a mineral concession granted under these rules.

(2) Notwithstanding any other punitive measures for any violations provided under the rules, any contravention of sub rule (1) shall be subject to the provisions contained in Section 21 of the Act.

Offences cognizable only on written complaint

74. No court shall take cognizance of any offence punishable under these rules except upon a complaint in writing made by the competent authority within three months of the date on which said offence is alleged to have been committed.

Relaxation in special cases

75. The Government may, for reasons to be recorded in writing, relax any provision of these rules in cases where any mineral concession is granted to any Government Department or to a statutory authority set up by the State or Central Government, or a company or a corporation wholly owned or controlled by the State or Central Government.

Commencement of the grant of a mineral concession

76. A mineral concession granted under these rules, in whatever form, shall commence from the date of execution of the agreement or from such date as specified therein.

Concession registration of Lease Deeds/ Contract Agreements

77. All lease deeds or contract agreements effective for a period of 11 months or more shall be duly registered with the Registrar. All expenditure on registration of the lease deed or contract agreement shall be borne by the concession holder.

Applicability of other Statutes.

78. Grant of any mineral concession or other permissions under these rules shall not absolve the holder from the applicability of other statutes.

Repeal and savings

79. (1) The Assam Minor Mineral Concessions Rule, 1994 as amended from time to time, in their application to the State of Assam are hereby repealed.

(2) Notwithstanding such repeal, anything done or any action taken or proceedings commenced under the 'Assam Minor Mineral Concessions Rule, 1994' as amended from time to time shall be deemed to have been done, taken or commenced under these rules :

Provided that wherever the terms and conditions of any mineral concession, granted before the commencement of these rules, are inconsistent with or repugnant to these rules, the same shall be deemed to have been modified in accordance with these rules from the date of notification thereof.

FORM ML – 1

[see rule 8(5) and 17(1)]

Model form for execution of Mining Lease Deed

This indenture made on this _____ day of _____, 201_ between the Governor of Assam acting through _____ (hereinafter referred to as the "State Government") which expression shall where the context so admits, include the successors and assigns) of the one part; and

Where the lessee is an individual :-

_____ (Name and address of the person) (hereinafter referred to as the "Lessee" which expression shall where the context so admits, includes his heirs, executors, administrator, representatives and permitted assigns)

Where the lessee is more than one individual :-

_____ (Name and address of persons) (hereinafter referred to as the "Lessee" which expression shall where the context so admits include their respective heirs, executors, administrators, representatives and permitted assigns)

Where the lessee is registered firm :-

_____ (Name and address of all the partners or members, where the lessee is a firm or society) all carrying on business in partnership under the firm name and style of _____ (name of the firm and address) registered under Indian Partnership Act, 1932 and having their registered office at _____ (hereinafter referred to as the "Lessee" which expression shall where the context so admits include all partner of the said firm, their representatives, heirs, executors, administrators and permitted assigns).

Where the lessee is a registered company :-

_____ (Name of the company) a company registered under _____(Act under which company incorporated) and having its registered office at _____ (address) (hereinafter referred to as the "Lessee" which expression shall where the context so admits, include its successors and permitted assigns) of the other part.

(Where lease is granted through competitive bid process under rule 8 or renewed under rule 13)

Whereas the lessee has offered the highest bid of Rs. _____ (in words Rupees_____) in the bid/auction held on _____ for obtaining a mining lease for _____ (name of minor minerals) in respect of the lands hereinafter described in clause 2 and such bid had been accepted by the officer authorized in this behalf and the lessee has deposited with the Government, a sum of Rs. _____ (Rupees _____) as initial bid security (10% of the annual bid amount) and Shri _____, S/o Shri _____, resident of _____ District _____ (referred to as the 'surety' which expression shall where the context so admits, include his heirs, executors, administrators, representatives) has been offered as solvent surety for the aforesaid amount, and whereas the lessee is in possession of a Income Tax Clearance Certificate.

Now, therefore, this deed witnesses and the parties hereby agree as follows :

Liberties and privileges to be exercised and enjoyed by the Lessee(s) :

The following liberties, powers and privileges may be exercised and enjoyed by the lessee subject to the other provisions.

1. In consideration of the rents and royalties, covenants and agreements hereinafter contained and on the part of the Lessee to be paid, observed and performs, the Government hereby grants and demises unto the lessee all those mines/beds/veins/seams of_____ (hereinafter referred to as the said minor minerals), situated, lying and being in or under the lands which are referred to in clause (2) together with the liberties, powers and privileges to be executed or enjoyed in connection herewith which are hereinafter mentioned in Part-I subject to the restrictions and conditions as to exercise and enjoyment of such liberties, powers and privileges which are hereinafter mentioned in Part-II and subject to other provisions of this lease.

2. The area of the said lands is as follows :

All the tract of land situated at village _____ in _____ Sub-Division _____ District bearing _____ Dag No. and _____ Patta No. containing an area of _____ or thereabouts delineated on the plan hereto annexed and boundary as follows :

On the North by _____;
On the South by _____;
On the East by _____;
On the West by _____:
And (hereinafter referred to as the 'said lands' or the 'leased area').

3. The lessee shall hold the premises hereby granted from the _____ day _____ for the term of _____ years thence next ensuing.

Part – I

Liberties and privileges to be exercised and enjoyed by the Lessee(s)

The following liberties and privileges may be exercised and enjoyed by the lessee subject to the other provisions :

1. To enter upon land and search for win, work, etc. :

Liberty at all times during the term hereby demised to enter upon the said lands and to search for mineral, bore, dig, drill for win, work, dress, process, convert, carry away and dispose of the said minor mineral(s).

2. To sink, drive and make pit, shafts and inclines, etc :

Liberty for or in connection with any of the purposes mentioned in this clause to sink, drive, make, maintain and use in the said land and pits, shafts, inclines, drifts, levels, waterways, airways and other works and to use, maintain, deepen or extend any existing works of the like nature in the said lands.

3. To bring and use machinery, equipment :

Liberty for or in connection with any of the purposes mentioned in this clause to erect, construct, maintain and use on or under the said lands any engine, machinery, plan, dressing floors, furnaces, coke, ovens, brick kilns, workshop, store houses, bunglows, godowns, shed and other buildings and other works and convenience of the like nature on or under the said lands.

4. To use water from streams, etc.:

Liberty for or in connection with any of the purposes mentioned in this clause but subject to the rights of any existing or future lessees and with the written permission of the Collector concerned to appropriate and use water from any streams, water course, springs, or other source in or upon the said lands and to divert, step up or dam any such stream or water course, cultivated land, village buildings or watering places for livestock of a reasonable supply of water as before accustomed nor in any way to foul or pollute any streams or springs :

Provided that the lessee shall not interfere with navigation in any navigable stream nor shall divert such stream without the previous written permission of the Government.

5. To fell undergrowth and utilize timber and trees, etc.:

Liberty for or in connection with any of the purposes mentioned in this lease deed, to clear undergrowth and brush wood. Lessee shall not fell any trees or timber standing or found on the said lands without obtaining prior permission in writing from the Forest Department. In case such permission is granted, he shall pay in advance, the price of the trees/timber to be felled to the said officer at the rates, fixed by him.

6. To get building and roads material, etc. :

Liberty for or in connection with any of the purposes, mentioned in this lease deed, to quarry and get stones, gravel and other building and road materials and ordinary clay and to use and employ the same and to manufacture such clay into bricks or tiles and to use such bricks, tiles but not to sell any such materials, bricks, tiles.

7. To use land for stacking purpose :

Liberty to enter upon and use a sufficient part of the surface of the said lands for the purpose of stocking, storing or depositing therein any produce of the mines including over burden or waste material and works carried on ad tools, equipment and other materials needed for mining operations.

8. To install fuel pumps or stations for diesel or petrol for self use :

Liberty to use a sufficient part of the land for installing fuel pumps or stations for diesel or petrol for self use or consumption required for mining operations in the lease area, subject to permission of the authority.

9. To construct magazine for explosive and storage sheds :

Liberty to construct magazine for storage of explosive and storage sheds for explosive related substances with permission from licensing authority.

10. Liberty to seek permission for diversion of public roads, overhead electric lines :

Liberty and power to request to the competent authority for diversion of public road, overhead electric lines passing through the concession area at the expenses of the lessee to ensure scientific and systematic mining.

Part – II

Restrictions as to the exercise of the liberties by the lessee

The liberties and privileges granted under Part – I are subject to the following restrictions and subject to other provisions of this lease :

1. No mining operations within the limit of public works, etc. :

The lessee shall not carry on, or allow to be carried on any mining operations :-

(i) within a distance of 50 meters from the outer periphery of the defined limits of any village, habitation, National Highway, State Highway and other roads, where such excavation does not require use of explosives, unless specifically relaxed and permitted by the competent authority; or

(ii) within a distance of 250 meters from the outer periphery of the defined limits of any village, habitation, National Highway, State Highway and other roads, where use of explosives is required, unless specifically relaxed and permitted by the competent authority or any specific dispensation is obtained from the Director, Mines Safety; or

(iii) within a distance of 500 metres from major structures like R.C.C Bridges, Guide bund etc.; or

(iv) within a distance of 75 meters from any railway line or bridge except under and in accordance with the written permission of the railway administration concerned. The Railway Administration or the Government may in granting such permission, impose such conditions as it may deem fit.

Explanation : For the purpose of this clause the expression Railway Administration shall have the same meaning as it is defined by sub-section (4) of section 3 of the Indian Railway Act, 1890.

Provided that where the continuance of any mining operations in any area, in the opinion of the Government is likely to endanger the safety of any National or State Highway, rod, bridge, drainage, reservoir, tank, canal or other public works, or public or private buildings or in the public interest or in the interest of environment/ecology of the area, the Government may determine the lease after giving 60 days notice to the lessee in this behalf and the lease shall stand terminated on the date mentioned in this notice.

2. Working in sand Zones:

That the lessee in respect of sand zones, shall restrict the quarrying operations to maximum four villages of the zone at any point of time during the subsistence of the lease. The lessee shall have a right to change the site any time during the subsistence of the lease on settlement of compensation with the land owners of new site of the zone from where he intends to extract sand but ceiling of maximum four villages shall be adhered to strictly and such change of site shall be intimated to the competent authority.

3. Special conditions for river bed mining :

In case of river bed mining/excavation of minor mineral(s), in order to ensure safety of river-beds, structures and the adjoining areas, the following special conditions shall be abide by the lessee :

(a) No mining would be permissible in a river-bed up to a distance of five times of the span of a bridge on up-stream side and ten times the span of such bridge on down-stream side, subject to a minimum of 250 metres on the up-stream side and 500 metres on the down-stream side;

(b) There shall be maintain an un-mined block of 50 metres width after every block of 1,000 metres over which mining is undertaken or at such distance as may be directed by the competent authority;

(c) The maximum depth of mining in the river bed shall not exceed three metres measured from the un-mined bed level at any point of time with proper bench formation.

(d) Mining shall be restricted within the central 3/4th width of the river/rivulet;

(e) No mining shall be permissible in an area up to a width specified by the competent authority from the active edges of embankments;

(f) Any other condition(s) as may be required by the competent authority in public interest.

4. Notice for surface operation in land not already in use :

Before using for surface operations any land which has not already been used for such operation, the lessee shall give notice in advance to the Collector of the District, the competent authority and the officer-in-Charge _____ in writing along

with copy of permission to undertake mining specifying the situation and the extend of the land proposed to be so used and the purpose for which the same is required and the said land shall not be so used, if objection is issued by the Collector.

5. Not to use the land for other purposes :

The lessee shall not cultivate or use the land for any other purpose other than those specified in the lease deed.

6. Disposal of mineral(s) only on issuance of Mineral Transit Pass:

The holder of mining lease shall not sell/dispose off any mineral or mineral products from the concession area without a Mineral Transit Pass.

7. Stacking of mineral(s) inside lease hold area :

The lessee shall not stock the mineral(s) excavated inside the lease hold area at the designated site more than twice the quantity of the average monthly production as per approved mining plan/scheme.

8. Stacking of mineral(s) outside lease hold area :

The lessee shall not stock any minor mineral(s) granted under the lease, outside the lease hold area.

9. Stacking and storage of incidentally extracted major minerals :

In case lessee, while extracting minor mineral(s) given on lease, incidentally extracts any major mineral not given on lease, the same shall be the property of the Government and lessee shall be under an obligation to stack and store it and maintain its proper record in accordance with the direction of the competent authority, who shall also be competent to prescribe the procedure for its disposal.

10. Penalties in case of non-compliance of clause (9) :

In case it is detected that lessee has disposed off incidentally extracted major mineral referred to in sub-rule (18) of rule 38 in whole or part thereof or failed to maintain the record of stored mineral, he shall be liable to penalties as specified in sub-section (1), (4) and (5) of section 21 of the Mines and Minerals (Development and Regulation) Act, 1957 and also premature determination of mining lease in terms of sub-rule (19) of rule 39 of the said rules.

11. Restrictions of mining operations above Ground Water Table :

A safety margin of two metres shall be maintained above the ground water table while undertaking mining and no mining operations shall be permissible below this level unless a specific permission is obtained from the competent authority in this behalf.

12. Restrictions of surface operations :

No mining operations shall be undertaken in any area prohibited by any authority or by the orders of any Court.

13. No mining operations without requisite clearance :

The lessee shall not undertake any mining operations in the area granted on mining lease without obtaining requisite clearance from the competent authority as required for undertaking mining operations.

Part – III
Covenants of the Lessee

The lessee/ lessees hereby covenant(s) with the Government as follows:-

1. Rate of Royalty :

The lessee shall pay royalty on the quantity of the said minor mineral dispatched from the leased area at the rates as per First Schedule of the Assam Minor Mineral Concession Rules, 2012 and as may be revised by the State Government from time to time.

2. Surface rent:

The lessee shall pay Surface rent for the surface area occupied by him as per rule 44.

3. Dead rent:

The lessee shall pay for every year dead rent at the rate as fixed by the Government from time to time.

Where the mining lease is granted by competitive bid/auction under rule 8:- The highest bid received in the open bid/auction at the rate of ..... per annum shall become the 'annual dead rent' amount payable by the lessee. The rate of annual dead rent initially determined on the basis of competitive bids/ auctions shall be increased @ 25% on completion of each block of three years.

Explanation: If the initially determined amount of annual dead rent is Rs.100/, it shall be increased to Rs.125/- with the commencement of the fourth year and to Rs.156.25 with the commencement of the 7th year and so on and so forth for the next each block of three years :

Provided further that if the lease permits the working of more than one minor mineral in the same area, the Government may charge separate dead rent in respect of each minor mineral :

Provided that the mining of one minor mineral does not involve the working of another minor mineral :

Provided further that the lessee/lessees shall be liable to pay the dead rent or royalty in respect of each mineral, whichever be higher but not both:

Provided further that lessee/ lessees shall deposit the dead rent at the rates as revised and notified from time to time by the State Government.

4. Security deposit :

25% of the annual bid amount/ rate of dead rent. The security amount to be deposited as per following :-

(i) 10% as initial bid security at the time of auction
(ii) 15% of the annual bid amount before commencement of mining operations or before the expiry of period allowed, which shall not be more than 12 months, whichever is earlier :

Provided on enhancement of the dead rent after expiry of every three year period of lease the lessee shall deposit the balance amount of security so as to upscale the security amount equal to 25% of the revised annual dead rent as applicable for one year with respect to next block of three years

5. Mode of payment of dead rent/ royalty and surface rent :

(a) In case of mining lease granted under rule 8, the lessee shall deposit one advance instalment of dead rent before commencement of mining operations or before the expiry of period allowed, which shall not be more than 12 months, whichever is earlier, along with 15% of the balance security amount as per clause 4(a) above.

(b) The lessee during the subsistence of the lease, pay in advance to the Government the instalments of the dead rent in respect of the said land given to him/ them on mining lease in four quarterly instalments on the 1st of April, 1st of June, 1st of September and 1st of December of the year.

Note: The amount of one advance instalment deposited at the time of commencement of the mining operations or within time allowed for the same shall be adjusted in a manner that the subsequent instalments are payable for a full calendar month/quarter/year, as the case may be.

(c) The lessee shall be liable to pay the amount of royalty on the mineral excavated and dispatched at the rate specified in the first schedule or dead rent, whichever is more and not both.

(d) Where the amount of royalty payable in respect of a month exceeds the amount of dead rent deposited in advance, the lessee shall deposit such amount of royalty on the mineral extracted and dispatched or consumed by the 7th day of the following month after adjusting the amount of advance dead rent already deposited.

(e) In cases where the lessee has paid the amount of royalty or dead rent during a part of the year, which is equal to or more than the annual dead rent payable for the year, he shall not be required to deposit the advance dead rent for the remaining period of the said year and the royalty for the balance part of the year shall be deposited by the 7th day of the following month.

6. Amount to be deposited on account of Mines and Minerals Development Restoration and Rehabilitation Fund :

Where the lessee is operating the area, he shall also deposit/ pay an additional amount, equal to 10% of the due dead rent or royalty, whichever is more along with amount of instalments on account of dead rent or royalty, towards the 'Mines and Minerals Development Restoration and Rehabilitation Fund' separately established under these rules.

7. Interest on delayed payments :

In case of any default in payment of the instalments of dead rent/contract money/ contribution to the Mines and Minerals Development (Restoration and Rehabilitation) Fund on the due date(s), the amount would be payable along with interest at the following rates :

Sr. No.	Period of delay	Rate of Interest applicable
(i)	If paid within a period of 7 days from the due date	A grace period of up to 7 days is allowed without any interest;
(ii)	If paid after 7 days but up to 30 days of the due date	15% on the amount of default for the period of default including the grace period;
(iii)	If paid after 30 days but within 60 days of the due date	18% on the amount of default for the period of default including the grace period;
(iv)	Delay beyond 60 days of the due date	It would amount to a 'breach', invite action for termination of the lease/ contract and the entire outstanding amount would be recoverable along with interest calculated @ 21% for the entire period of default.

8. Working of newly discovered minerals :

If any minor mineral, not specified in the lease, is discovered in the leased area, the lessee shall report the discovery without delay to the competent authority and shall not win or dispose of such minor mineral without obtaining a lease therefor. If he fails to apply for such a lease within six months from the discovery of the minor mineral, the competent authority may give the lease in respect of such mineral, to any other person :

Provided that the grant of such permit may be refused for reasons to be recorded in writing:

9. To commence mining operations within 180 days and carry them on properly :

Unless the competent authority for sufficient cause allows otherwise, the lessee shall commence mining operations 180 days from the date of execution of the lease and shall thereafter conduct such operations in a proper, skilful and workman like manner.

Explanation :– For the purpose of this clause, mining operations shall include the erection of machinery laying of a tramway or construction of a road in connection with the working of the mine.

10. To erect and maintain boundary pillars etc. :

The lessee shall at his own expenses, erect and at all times maintain and keep in good repairs boundary marks and pillars according to the plan annexed to the lease. Each of the pillars should be numbered and every pillar shall have GPS reading.

11. Accounts :

The lessee shall keep correct accounts showing the quantity and other particulars of all minerals obtained from the mines and the number of persons employed therein and a complete plan of the mine and shall allow any officer authorised by the Assam Government or the Central Government in that behalf to examine at any time any accounts and records maintained by him, and shall furnish to the Assam Government or competent authority or the Central Government or the competent authority with such information and returns as it may require.

12. To allow facilities to other lessees etc. :

In addition to the concession holders under Rule – 5 of the Assam Minor Mineral Concession Rules, 2012, the lessee shall allow existing and future licensees or lease holders/contractors of any land which is comprised in or adjoins or is reached by the land, held by the lessee, reasonable facilities for access thereto.

13. To allow entry to officers :

The lessee shall allow any officer authorised by the Assam Government and the Central Government or competent authority to enter upon any building, excavation or land comprised in the lease for the purpose of inspecting the mines.

14. Returns :

The lessee shall :–

(a) submit a return in form 'MMP1' by the 7th of every month to the competent authority and also to other officer(s) specified giving the total quantity of minor

mineral(s) raised and dispatched from the leased area in the preceding calendar month and its value ;

(b) also furnish a statement giving information in Form 'MMP2' by the 15th April every year to the competent authority and to other Officer(s), specified regarding quantity and value of minor mineral(s) obtained during last financial year, average number of regular labourers employed (men and women separately) number of accidents, compensation paid and number of days worked separately.

15. To strengthen and support the mines :

The lessee shall strengthen and support to the satisfaction of the Railway Administration or the State Government, as the case may be any part of the mine which in its opinion requires such, strengthening or support for the safety of any railway, bridge, national highway, reservoirs, canal, road or any other public work or building.

16. Notice for use of explosives, etc. :

The lessee shall immediately give notice in writing in Form 'IMSE1' to the following:

1. The Controller General, Indian Bureau of Mines, Government of India, Nagpur;
2. The Director General of Mines Safety, Government of India, Dhanbad;
3. The Director, Mines Safety, Government of India, Guwahati;
4. The Regional Controller of Mines, Indian Bureau of Mines, Kolkata;
5. The competent authority;
6. The District Magistrate of the District concerned; and
7. The Officer-in-charge as soon as :
   (a) The working in the mines extend below superjacent ground; or
   (b) The depth of any open cast excavation measured from its highest to the lowest point reaches six metres; or
   (c) The number of persons employed on any day is more than 50;

   or

   (d) Any explosives are used.

17. Maintenance of Sanitary conditions :

The Lessee shall maintain sanitary conditions in the area held by him under the lease.

18. To pay compensation for damage and indemnify the Government :

The lessee shall make and pay such reasonable satisfaction and compensation for all damage, injury or disturbance which may be done by him in exercise of the powers granted by the lease and shall indemnify the Government against all claims which may be made by third parties in respect of such damage, injury or disturbance.

19. Application of all Acts, Rules and Regulations to this lease :

The lessee shall abide by the provisions of Mines Act, 1952, and the rules framed there under and also the provisions of other labour laws both Central and State as are applicable to the workmen engaged in the mines and quarries relating to the provisions of drinking water, rest shelters, dwelling houses, latrines and first-aid and medical facilities in particular and other safety and welfare provisions in general, to the satisfaction of the competent authorities under the aforesaid Acts, Rules and Regulations and also to the satisfaction of the District Magistrate concerned. In case of non compliance of any of the provisions of the enactments as aforesaid, competent authority may terminate the mining lease by giving one month's notice with forfeiture of security deposited :

Provided that the lessee shall carry out mining operations in accordance with all other provisions as applicable for undertaking mining including the provisions of Forest (Conservation) Act, 1980 and Environment (Protection) Act, 1986 and the rules made thereunder.

20. To report accident :

The lessee shall without delay report to the Deputy Commissioner of the district concerned and the competent authority or any other officer authorised by him, any accident which may occur at or in the leased area.

21. Delivery of possession of land and mines on the surrender or sooner determination of the lease :

At the end or sooner determination or surrender of the lease the Lessee shall deliver up the said lands and all mines (if any dug there) in a proper and workable state, save in respect of any working as to which the Government might have sanctioned abandonment.

22. To provide electronic weighing machine :

The lessee shall provide and at all times keep at or near the pit-head at which the said mineral shall be brought to bank a properly constructed and efficient electronic weighing machine and shall weigh or caused to be weighed thereon all the said minor minerals from time to time brought to bank, sold, exported and converted products, and shall at the close of each day cause the total weights, ascertained by such means of the said minor minerals, ores, products, raised, sold, exported and converted during the previous twenty four hours to be entered in the aforesaid books of accounts. The lessee shall permit the Government at all times during the said term to employ any persons to be present at the weighing of the said minor minerals, as aforesaid and to keep accounts thereof and to check the accounts kept by the lessee. The lessee shall give 15 days previous notice in writing to the Officer-in-Charge _____ of every such measuring or weighing in order that he or some officer on his behalf may be present thereat.

23. To secure pits shafts not fill them up :

The lessee shall well and properly secure pits and shafts and will not without permission in writing, wilfully close, fill up or close any mine or shaft.

24. Not to enter upon or to commence operations in the Forest land :

The lessee shall not enter upon or commence any mining operations in any forest land comprised in the leased area except after obtaining permission in writing of the Forest Department, Assam.

25. To respect water rights and not injure adjoining property :

The lessee shall not injure or cause to deteriorate any source of water, power or water-supply and shall not in any other way render any spring or stream or water unfit to be used or to do anything to injure adjoining land, villages or houses.

26. Stocks lying at the end of the lease :

(a) The lessee on expiry of the lease period (successful completion of the lease) shall remove already extracted all of the mineral from the premises of the quarry within a period of seven days. In case any quantity of the already extracted mineral, in the said land is left undisposed off and is not removed within seven days from the date of expiry of the period of lease the same shall be deemed to be the property of the Government who may dispose it off in any manner it may like without paying anything thereof to the lessee.

(b) The lessee on the termination or sooner determination of the lease shall not remove extracted mineral from the premises of the leased areas. All extracted minerals in the said lands left over un-disposed after the termination or determination of lease shall be deemed to be property of the Government and competent authority, may dispose it off in any manner it may like without paying anything thereof to the lessee.

27. Payment of taxes :

The lessee shall duly and regularly pay to the appropriate authority all taxes, cesses and local dues in respect of the leased area, said minor minerals or the working of the mines.

28. Payment of additional amount for reclamation/ restoration :

The lessee shall also deposit/pay additional amount equal to 10% of the amount of royalty/dead rent along with the payment of royalty or dead rent, whichever is more, by the 7th of every month, to ensure the compliance of the Reclamation and Restoration works. This additional amount shall be refunded after satisfactory Reclamation/ Restoration of the area after mining in accordance with the Mine Closure Plan :

Provided that in case the lessee fails to reclaim/ restore the area as per mining plan to the satisfactions of the State Government, the amount deposited shall be forfeited and used for the restoration of the area :

Provided further that in case no rehabilitation position of the mine comes during the tenure of the mining lease, the amount so deposited shall be kept by the State Government in the mining area development fund for future use as and when the mine reaches to a stage requiring restoration and rehabilitation.

29. Assign sublet or transfer of the lease :

The lessee shall not assign, sublet or transfer the lease to any person without obtaining prior permission in writing from the competent authority.

30. Fencing of working place :

If a working place is found to be unsafe all persons shall be withdrawn by the lessee immediately from the dangerous area and all access to such working place except for the purpose of removing the danger or saving life shall be prevented by securely fencing the full width of all entrances to the place, at his own cost.

31. Fencing of excavation after termination or sooner determination of the lease :

The lessee on termination or sooner determination of the lease, shall at his own cost, suitably fence the excavations for safety as competent authority.

32. Felling of trees:

The lessee shall not fell or cut any tree, standing on the land wherein the quarry is located without obtaining prior permission in writing from the Forest Department, Assam and paying its price as fixed.

33. Security deposit shall carry no interest:

The security deposited by the lessee shall not carry any interest.

34. State Government not responsible for loss to lessee:

The Government shall not be responsible for any kind of loss to the lessee.

Part-IV

Rights of the State Government

1. Suspension or termination of the lease :

The competent authority shall have the right to suspend or prematurely terminate the lease.

(a) If the dead rent or royalty or surface rent or any other amount due to the Government are not paid;

(b) if any of the terms and conditions of the lease deed or conditions of grant or permission to undertake mining by any other statutory authority or competent authority is violated;

(c) if any of the provisions of these rules and other laws both Central and State as are applicable to mines and minerals, are not complied with :

Provided that no orders of suspension or termination of the lease shall be passed by the competent authority without giving reasonable opportunity to show cause and following the procedure prescribed in the Assam Minor Mineral Concession Rules, 2012.

Provided further that the competent authority may also at any time after issuance of the notice for default on account of non payment of dues, enter upon the said premises and detrain all or any of the mineral(s) or movable property therein and may carry away, detain or order the sale of the property so detrained, or so much of it as will suffice for the satisfaction of the rent or royalty or both dues and all costs and expenses occasioned by the non-payment thereof and shall give proper receipt of the articles carried away.

2. Determination of lease in public interest :

The Government may by giving 'six months' prior notice in writing determine the lease if the Government consider that the minor mineral under the lease is required for establishing an Industry beneficial to the public :

Provided that in the State of National Emergency or War, the lease may be determined without giving such notice.

3. Right of pre-emption :

The government shall from time to time and at all times during the terms of lease have the right (to be exercised by notice in writing to the lessee) of pre-emption of the said mineral(s) and all products thereof lying in or upon the said lands hereby demised or elsewhere under the control of the lessee and the lessee shall deliver all minerals or products thereof to the Government at current market rates in such quantities and in the manner at the place specified in the notice exercising the said right.

4. Penalty for not allowing entry to officers:

If the lessee or his transferee or assignee does not allow any entry or inspection under clause (13) of part-III, the competent authority may cancel the lease and forfeit in whole or in part the security deposit paid by the lessee.

5. Settlement of Rent and Compensation Payable to third parties thereof :

In case the occupier(s) or owner(s) of the said land refuses his/ their consent to the exercise of the rights and powers reserved to the Government and demised to the lessee under these presents, the lessee shall report the matter to the competent authority who

shall request the Collector of the District concerned to direct the occupier(s) or owner(s) to allow the lessee to enter the said lands and to carry out such operations as may be necessary for working the mine, on payment in advance of such rent or compensation to the occupier or owner by the lessee, as may be fixed by the Collector as per the provisions of rules 46 and 47 of the rules.

6. Suspension of mining operations :

The competent authority may order to suspend the mining operations after serving a notice to the lessee, in case, the following violations are noticed:—

(a) unsafe and unscientific mining;
(b) non operations of weighbridge;
(c) non providing of safety appliances to the workers;
(d) non payment of compensation to the surface owners;
(e) non submissions of monthly returns;

In case of violations of the aforesaid conditions and also any other terms and conditions of the agreement deed and the provisions of the rules, the competent authority may give a notice to the lessee to remedy the violations within a period of 15 days from the date of issue of the notice. In case, the violations pointed out through notice, are not remedied within the stipulated period of 15 days, the competent authority may after affording an opportunity of being heard to the lessee, order the suspension of the mining operations till such time, the defaults/ defects are removed by the lessee within the time frame (within a maximum period of six months) granted by the competent authority. During the period of suspension of mining operations, the lessee will be allowed only to undertake rectification work for removal of the defects and shall not dispose of the mineral. During the suspension period, the lessee shall be under the obligation to deposit the amount of the dead rent on the due dates.

On satisfactory removal of the defects, the competent authority may revoke the suspension orders with or without any modification. Non removal of the defects/ defaults during the suspension period and within the time allowed by the competent authority, shall lead to premature termination of lease.

Part-V

General

1. Cancellation:

The lease shall be liable to be cancelled by the competent authority if the lessee cease to work the mine for a continued period of six months without obtaining written sanction.

2. Notices :

Every notice by these presents required to be given to the lessee shall be given in writing to such person resident on the said lands as the lessee may appoint for the

purpose of receiving such notices and if there shall have been no such appointment then every such notice shall be sent to the lessee by registered post addressed to the lessee at the address recorded in this lease or at such other address in India as the lessee may from time to time in writing to the competent authority designate for the receipt of notices and every such service shall be deemed to be proper and valid service upon the lessee and shall not be questioned or challenged by him.

3. Recovery of government dues as arrears of land revenue:

Without prejudice to any other mode of recovery authorised by any provision of this lease or by any law, all amounts, falling due hereunder against the lessee may be recovered as arrears of land revenue under the law in force for such recovery.

4. Forfeiture of property left more than three months after expiry or determination of lease :

The lessee should remove his property lying on the said lands within three months after the expiry or sooner determination of the lease or after the date from which any surrender by the lessee of the said lands under relevant rules of the Assam Minor Mineral Concession Rules, 2012 becomes effective, as the case may be, the property left after the aforesaid period shall become the property of the Government and may be sold or disposed of in such manner as the competent authority shall deem fit without liability to pay any compensation therefore, to the lessee.

5. Security and forfeiture thereof :

a. the competent authority may forfeit the whole or any part of the amount deposited as 'Security' under this lease, in case the lessee commits a breach(s) of any covenants to be performed by the lessee under this lease.

b. Whenever the said security deposit or any part thereof or any further sum hereafter deposited with the competent authority in replenishment thereof is forfeited under sub clause (a) or applied by the competent authority under this lease (which the Government is hereby authorised to do) the lessee shall immediately deposit with the inappropriate part thereof to bring the amount in deposit with the Government up to the requisite amount of security at that point of time of lease.

c. The rights conferred to the Government by clause (a) shall be without prejudice to the rights conferred on the State Government by any other provision of this lease or by any law.

d. On such date as the competent authority may elect within twelve calendar months after the determination of this lease or any renewal thereof, the amount of security deposit paid in respect of this lease and then remaining in deposit with the Government and not required to be applied to any of the purposes mentioned in this lease shall be refunded to the lessee. No interest shall run on the security deposit.

6. Survey and demarcation of the area :

When a mining lease is granted arrangement shall be made, if necessary, at the expense of the lessee, for the survey and demarcation of the area granted under the lease. The lessee shall have to bear actual expenses of the staff deputed for the work. Actual expenses will include travelling allowances, daily allowances and salary of staff plus 10 percent as instrument charges.

7. Surrender of a mining lease by the lessee :

The Government may accept the request of a lease holder for surrender of a lease or part thereof in cases where it is established that it has not been found feasible to operate the lease grant for whatsoever reasons subject to the condition that the lessee :

(i) has been regular in furnishing the production returns as required in terms of the lease agreement;

(i) has been taking the requisite steps for the progressive mine closure plan as per the conditions of the lease grant;

(iv) is not in default of payment of any dues of the Government as on the date of making such application and undertakes to pay all such dues till the date of expiry of the notice period either in cash in advance or by way of adjustment of the security or both:

Provided that in case the lessee makes an application for surrender of part area of the lease, it shall not result in any prorated reduction of the dead rent and the rate of dead rent payable and applicable for the entire area at the time of such application shall remain intact.

8. Penalty for repeated breaches :

In case of repeated breaches of covenants and agreements by the lessee for which notice has been given by the competent authority in accordance with Sub-rule (1) of Rule 55 and/ or sub rule(1) of rule 56 of the Assam Minor Mineral Concession Rules, 2012 on earlier occasions, the competent authority without giving any further notice, may impose such penalty not exceeding twice the amount of annual dead rent specified in clause 3 of part-III of this form.

9. Obtaining sales tax number :

The lessee shall get himself registered with the commercial Taxes Department of Assam State and shall obtain the Sales Tax Number.

10. Overriding effect :

Unless otherwise specifically provided, it is agreed that this deed shall be governed by the provisions of the Mines and Minerals (Development and Regulation) Act, 1957 (67 of 1957) and the rules made thereunder. The provisions of the Act and the rules shall prevail over the terms and conditions of the agreement.

IN WITNESS WHEREOF: – These presents have been executed in the manner hereunder appearing the day and year first above written.

Signature of the Lessee

For and on behalf of the Government of Assam.

Witness :–

1._____ 1._____

2._____ 2._____

Signature of surety

Witness

1. _____

2. _____

FORM ML-2

{See rule 9(1)}

(Register of application for grant/ renewal of Mining Lease)

1	Serial Number
2	Date of application for grant or renewal of mining lease
3	Date on which application was received by the Receiving Officer
4	Name of applicant with full address
5	Situation of the land applied for *viz* village and district with details
6	Estimated area of the land
7	Particulars of minerals which the applicant intends to mine
8	Amount of application fee paid
9	Final disposal of application together with number and date of the order
10	Remarks
11	Signatures of the Officer

FORM ML-3

{See rule 9 (2)}

(Mining Lease Register)

1	Serial number	
2	(a) Date of application (b) Date of receipt of the application	
3	Name and address of the applicant	
4	Situation and boundaries of the land	
5	The mineral granted under mining lease	
6	The total area	
7	Number and date of grant of the lease	
8	Period for which granted	
9	Date of execution of the lease deed	
10	Number, date and period of renewal	
11	Amount of security deposited	
12	Particulars of disposal or refund of security deposit	
13	Date of assignment of transfer of the lease, if any and fee paid thereof and the names of the parties thereto	
14	Date of expiry or relinquishment or cancellation	
15	Date from which the area is available for re-grant	
16	Signature of the Officer-In-charge	

FORM ML-4

{See rule 12 (10)}

(Model Form for transfer of Mining Lease/Mining Contract)

The indenture made this ..... day of ..... 20 ..... between ..... (Name of the person with address and occupation) (hereinafter referred to as the 'transferor' which expression shall where the context so admits be deemed to include his heirs, executors, administrators, representatives and permitted assigns). or

Where the transferors are more than one individuals ..... (Name of the persons with address and occupations) and ..... (Name of the persons with address and occupations) (hereinafter referred to as the 'transferor' which expression shall where the context so admits be deemed to include their heirs, executors, administrators, representatives and their permitted assigns). or

Where the transferor is a registered firm ..... (Name of the persons with address of all the partners) all carrying on business in partnership under the firm name and style of ..... (Name of the firm) registered under the Indian Partnership Act, 1932 (9 of 1932) and having their registered office at ..... (Address) (hereinafter referred to as the 'transferor' which expression shall where the context so admits shall be deemed to include all the said partners, their respective heirs, executors, legal representatives and their permitted assigns). or

Where the transferor is a registered company ..... (Name of company) a company registered under the Companies Act 1956 and having its registered office at ..... (Address) (hereinafter referred to as the 'transferor' which expression shall where the context so admits be deemed to include its successors and permitted assigns) of the first part.

Where the transferee is an individual ..... (Name of the person with address and occupation) (hereinafter referred to as the 'transferee' which expression shall where the context so admits be deemed to include his heirs, executors, administrators, representatives and permitted assigns). or

Where the transferees are more than one individuals ..... (Name of the persons with address and occupations) and ..... (Name of the persons with address and occupations) (hereinafter referred to as the 'transferee' which expression shall where the context so admits be deemed to include their heirs, executors, administrators, representatives and their permitted assigns). or

Where the transferee is a registered firm ..... (Name of the persons with address of all the partners) all carrying on business in partnership under the firm name and style of ..... (Name of the firm) registered under the Indian Partnership Act, 1932 (9 of 1932) and having their registered office at ..... (Address) (hereinafter referred

to as the 'transferee' which expression shall where the context so admits shall be deemed to include all the said partners, their respective heirs, executors, legal representatives and their permitted assigns).

Where the transferee is a registered company ..... (Name of company) a company registered under the Companies Act 1956 and having its registered office at ..... (Address) (hereinafter referred to as the 'transferee' which expression shall where the context so admits be deemed to include its successors and permitted assigns) of the second part.

Where the Governor of Assam (hereinafter referred to as the 'Government' which expression shall where the context so admits be deemed to include successors and assigns) of the third part.

Whereas by virtue of an indenture of lease dated the ..... (dated) (hereinafter referred to as lease) the original whereof is attached hereto and marked 'A' entered into between the Government (therein called the lessor) and the transferor (therein called the lessee/contractor) is entitled to search for, win and work the mines and minerals in respect of ..... (Name of minerals) in the land described in Schedule thereto and also in Schedule annexed thereto for the term and subject to the payment of rents and royalties and observance and performance of the lessee's/contractor's covenant and conditions in the said deed of lease/contract reserved and contained including a covenant not to assign the lease/contract or any interest there under without the previous sanction of the Government.

Whereas the transferor is now desirous of transferring and assigning the lease/contract to the transferee and the Government has, at the request of the transferor, granted permission to the transferor *vide* order No..... dated ..... to such a transfer and assignment of the lease/contract upon the conditions of the transferees entering into an agreement is and containing the terms and conditions hereinafter set forth.

Now this Deed Witnesseth as follows:

2. The transferee hereby covenants with the Government that from and after the transfer and assignment of the lease/contract, the transferee shall be bound by, and be liable to perform, observe and conform and be subject to all the provisions of all the covenants, stipulations and conditions contained in said hereinbefore recited lease in the same manner in all respects as if the lease/contract had been granted to the transferee as the lessee/contractor there under and he had originally executed it such.

3. It is further hereby agreed and declared by the transferor of the one part and transferee of the other part that:-

   (i) the transferor and transferee declare that they have ensured that the mineral rights over the area for which the mining lease/contract is being transferred, vest in the Government;

(ii) the transferor hereby declares that he has not assigned subject, mortgaged or any other manner, transferred the mining lease/contract now being transferred and that no other person has any right, title or interest where under in the present mining lease/contract being transferred;

(iii) the transferor further declares that he has not entered into or made any agreement, contract or understanding whereby he has been or is being directly or indirectly financed to a substantial extent by or under which the transferor's operation or understandings were or are being substantially controlled by any person or body of persons other than the transferor;

(v) the transferee hereby declares that he has accepted all the conditions and liabilities which the transferor was having in respect of such mining lease/contract;

(vi) the transferee further declares that he is financially capable of and will directly undertake mining operations;

(vii) the transferee further declares that he has filed an affidavit stating that he has filed up to date income tax returns, paid the income tax accessed as provided in the Income Tax Act, 1961 (43 of 1961);

(viii) the transferor has supplied to the transferee the original or certified copies of all the plans of abandoned workings in the area and in a belt 65 metres width surrounding it;

(ix) the transferee hereby further declares that as a consequence of this transfer, the total area held by him under mineral concession are not in contravention of the provisions of the Rules;

(x) the transferor has paid all the rents, royalties, and other dues towards Government till the date, in respect of this lease.

In witness whereof the parties hereto have signed on the date and year first above written.

Signature of the transferor

For and on behalf of the Governor of Assam

Witness:–

1._____ 1._____

2._____ 2._____

Signature of Transferee

Witness:-

1. _____

2. _____

FORM ML-5

{See rule 13(2)}

(Application for renewal of Mining lease)

Received at_____(Place) at _____(Hours) on the _____day of _____.

From

_____
_____
_____

To

The_____
_____
_____

Dated the _____ 20

I. I/ we hereby apply for renewal of a mining lease for _____ (name of minor mineral(s) for a term of _____ years over _____hectares of land in the area specified in the Schedule.

II. A sum of Rs. ..... on account of application fee payable under rule 13 of the Assam Minor Mineral Concession Rules, 2012, deposited in the Government Treasury and the receipted Challan thereof/ Demand Bank Draft No. ---------- dated ---------- is enclosed.

III. The required particulars are given below :—

PARTICULARS

1	Name of applicant individual/firm/company or society.	
2	Nationality of the individual or place of registration or incorporation of firm, company or society.	
3	Profession or nature of business of individual or firm or company and place of business.	
4	Address of the individual/ firm/company or society.	
5	Name of Minor Mineral which the applicant intents to mine.	
6	Period for which the original lease was granted.	

7	Manner in which the Minor Mineral(s) is to be utilized : (a) for manufacture (b) for sale (c) any other purpose In case of manufacture, the industries in connection with which it is required should be specified.	
8	A description illustrated by a map or plan (in triplicate) showing as accurate as possible the situation, boundaries and area of land in respect of which the lease is required and where the area is un-surveyed the location of the area should be shown by some permanent physical features *i.e.* road, tanks etc.	
9	A statement showing all the areas within jurisdiction of the Government :— (i) already held by me/us in my/our name/names (and jointly with others) under quarrying leases specifying the names of minor minerals. (ii) already applied for but not yet granted, and (iii) applied for simultaneously or being applied for in the State. **Note:** No application will be held to be complete for the purpose of priority unless it furnishes the particular required by paragraphs i), ii) and iii) and is properly signed and stamped.	
10	Period for which renewal of mining lease is required	
11	Whether renewal is applied for the whole or part of the lease held	
12	In case the renewal applied for is only for part of the lease held :- a. The area applied for renewal. b. Description of the area applied for renewal. c. Map (in triplicate) of the lease held with area applied for renewal clearly marked on it (copy of map attached).	
13	Means by which the minor mineral is to be raised *i.e.* by hand, labour or mechanical or electric power	
14	Year-wise quantity of the mineral(s) excavated along with royalty paid in each year since grant of lease. (attached no due certificate of concerned Officer-In-charge.	
15	Mineral reserves available	
16	Details of explorations undertaken, if any	

17	Details of the mined out areas restored/ reclaimed/ rehabilitated as per progressive mine closure plan	
18	Details of the sites of overburden restored	
19	Details of the compliance of:- (i) Environmental Clearance; (ii) Mining plan/ scheme of mining; (iii) Safety provisions as per the Mines Act, 1952 and the rules and regulations framed thereunder; and (iv) other relevant laws and terms and conditions applicable on Mines and Minerals	
20	Details of defaults, if any, in submission of production returns, payment of royalty/dead rent and found wanting in taking adequate measures for labour safety.	
21	Details of investment made in development of mine, plant and machinery with a long term perspective and optimal benefit of the same could not have derived during the original period of lease	
22	Any other particulars which the applicant wishes to furnish.	
Schedule giving description of the area applied for		
1	Name of village, Sub-Division and District	
2	In the case of forest land, the name of the range and Division	
3	Dag and Patta Numbers and area of each field or part thereof	
3.1	Patta No. a) b)	Area a) b) ....
3.2	Full description of the area applied for with regard to its natural features :-	
3.3	Felling series and working circle, if any	
3.4	District	

(Signature of applicant)

Place _____

Date _____

N.B. — If the application is signed by an authorised agent of the applicant, power of attorney should be attached.

This is not necessary if whole village or a well defined portion thereof is applied for or if the area lies in Government Forest. If all the numbers cannot be entered in this form they should be continued on a separate sheet attached to it and signed. Where a portion of a Patta number only is required the approximate area of such portion will suffice.

FORM ML-6

(See rule 14)

(Acknowledgement of Application for renewal of Mining Lease)

Government of Assam

No. Dated

Received the application with the following enclosures for a mining lease in respect of minor mineral of Shri/M/s---------- at ---- --- AM/PM on ---------- for about ----------hectares of land village ---------- - sub-division ----------district---------- for mining of ---------- (Name of the minor mineral):

Signature and Designation of
The Receiving Officer.

Place.

Dated.

Enclosures:

FORM MC-1

{See rule 18 (3) and 22(1)}

(Model Form for execution of mining contract)

This indenture made on this _____ day of _____ 20 between the Governor of Assam acting through _____ (hereinafter referred to as the "State Government" which expression shall where the context so admits, include the successors and assigns) of the one part; and

Where the Contractor is an individual:- _____ (Name and address of the person) (hereinafter referred to as the "Contractor" which expression shall where the context so admits, includes his heirs, executors, administrator, representatives and permitted assigns)

Where the Contractor is more than one individual:- _____ (Name and address of persons)(hereinafter referred to as the "Contractor" which expression shall where the context so admits include their respective heirs, executors, administrators, representatives and permitted assigns)

Where the Contractor is registered firm:- _____ (Name and address of all the partners or members, where the "Contractor" are a firm or society) all carrying on business in partnership under the firm name and style of _____(name of the firm and address) registered under Indian Partnership Act 1932 and having their registered office at ..... (hereinafter referred to as the "Contractor" which expression shall where the context so admits include all partner of the said firm, their representatives, heirs, executors/Administrators and permitted assigns).

Where the Contractor is a registered company:- _____ (Name of the company) a company registered under _____ (Act under which company incorporated) and having its registered office at _____ (address) (hereinafter referred to as the "Contractor" which expression shall where the context so admits, include its successors and permitted assigns) of the other part.

Whereas the "Contractor" has offered the highest bid of Rs._____(in words Rupees_____) in the bid/auction held on _____ for obtaining a mining contract for _____ cu.m. (in words _____cubic metres (name of minor minerals) in respect of the lands hereinafter described in clause 2 and such bid had been accepted by the officer authorized in this behalf and the contractor has deposited with the Government, a sum of Rs_____ (Rupees_____) as initial bid security **(10% of the annual bid amount)** and Shri_____S/o Shri_____ _____ resident of _____ _____ District _____ (referred to as the 'surety' which expression shall where the context so admits, include his heirs, executors, administrators, representatives) has been offered as solvent surety for the aforesaid

amount, and whereas the contractor is in possession of a Income Tax Clearance Certificate.

Now, therefore, this deed witnesses and the parties hereby agree as follows: —

Liberties and privileges to be exercised and enjoyed by the Contractor.

The following liberties, powers and privileges may be exercised and enjoyed by the contractor subject to the other provisions of contract :—

(1) In consideration of the contract money, covenants and agreements hereinafter contained and on the part of the Contractor to be paid, observed and performed the Government hereby grants and demises unto the contractor all those mines/beds/veins/seams of _____ (hereinafter referred to as the said minor minerals,) situated, lying and being in or under the lands which are referred to in clause (b) together with the liberties, powers and privileges to be executed or enjoyed in connection herewith which are hereinafter mentioned in Part-I subject to the restrictions and conditions as to exercise and enjoyment of such liberties, and privileges which are hereinafter mentioned in Part- II and subject to other provisions of this contract.

(2) All the tract of land situated at village _____ _____ in Sub-Division_____ District _____ bearing Dag and Patta Nos. _____containing an area of _____ or thereabouts delineated on the plan hereto annexed and bounded as follows:

On the North by _____;
On the South by _____;
On the East by _____;
On the West by _____;

and (hereinafter referred to as the 'said lands' or the 'Contracted area')

(3) The contractor shall hold the premises hereby granted and demised from the_____ ____ day _____ for the term of _____ years thence next ensuing.

Part-I

Liberties and privileges to be exercised and enjoyed by the Contractor

The following liberties and privileges may be exercised and enjoyed by the contractor subject to the other provision of contract: –

i. **To enter upon land and search for win, work :**

Liberty at all times during the term hereby demised to enter upon the said lands and to search for mineral, bore, dig, drill for win, work, dress, process, convert, carry away and dispose of the said minor mineral(s).

ii. **To sink, drive and make pit, shafts and inclines :**

Liberty to sink, drive, make, maintain and use in the said land and pits, shafts, inclines, drifts, levels, waterways, airways and other works and to use, maintain, deepen or extend any existing works of the like nature in the said lands.

iii. **To bring and use machinery, equipment:**

Liberty to erect, construct, maintain and use on or under the said lands any engine, machinery, plan, dressing floors, furnaces, coke ovens, brick kilns, workshop, store houses, bungalows, godowns, shed and other buildings and other works and conveniences of the like nature on or under the said lands.

iv. **To use water from streams :**

Liberty but subject to the rights of any existing or future contractor and with the written permission of the Collector concerned to appropriate and use water from any streams, water course, springs or other source in or upon the said lands and to divert, step up or dam any such stream or water-course and collect or impound any such water and to make, construct and maintain any water course, cultivated land, village buildings or watering places for livestock of a reasonable supply of water as before accustomed nor in any way to foul or pollute any streams or springs : provided that the contractor/contractors shall not interfere with navigation in any navigable stream nor shall divert such stream without the previous written permission of the Government.

v. **To fell undergrowth and utilise timber and trees :**

Liberty to clear undergrowth and brush wood. Contractor shall not fell any trees or timber standing or found on the said lands without obtaining prior permission in writing from the Forest Department. In case such permission is granted, he shall pay in advance, the price of the trees/timber to be felled to the said Officer at the rates, fixed by him.

vi. **To get building and roads material :**

Liberty to quarry and get stones, gravel and other building and road materials and ordinary clay and to use and employ the same and to manufacture such clay into bricks or tiles and to use such bricks, tiles but not to sell any such material, bricks, tiles.

vii. **To use land for stacking purpose :**

Liberty to use a sufficient part of the surface of the said lands for the purpose of stocking, storing or depositing therein any produce of the mines including over burden/waste material and works carried on and tools, equipment and other materials needed for mining operations.

viii. To install fuel pumps or stations for Diesel or Petrol for self use:

Liberty to use a sufficient part of the land for installing fuel pumps or stations for diesel or petrol for self use /consumption required for mining operations in the contract area, subject to permission of the authority.

ix. To construct magazine for explosive and storage sheds:

Liberty to construct magazine for storage of explosive and storage sheds for explosive related substances with permission from licensing authority.

x. Liberty to seek permission for diversion of public roads, overhead electric lines:

Liberty to request to the competent authority for diversion of public road over head electric lines passing through the concession area at the expenses of lessee to ensure scientific and systematic mining.

Part-II

Restrictions as to the Exercise of the Liberties by the contractor

The liberties and privileges granted under Part– I are subject to the following restrictions and subject to other provisions of this contract : –

1. No mining operations within the limit of public works:

The contractor shall not carry on, or allow to be carried on any mining operations:-

(i) within a distance of 50 metres from the outer periphery of the defined limits of any village *habitation,* National Highway, State Highway and other roads where such excavation does not require use of explosives, unless specifically relaxed and permitted by the competent authority; or

(ii) within a distance of 250 metres from the outer periphery of the defined limits of any village *habitation,* National Highway, State Highway and other roads where use of explosives is required, unless specifically relaxed and permitted by the competent authority or any specific dispensation is obtained from the Director, Mines Safety; or

(iii) within a distance of 500 metres from major structures like R.C.C Bridges, Guide bund etc.; or

(iv) within a distance of 75 metres from any railway line or bridge except under and in accordance with the written permission of the railway administration concerned. The Railway Administration or the Government may in granting such permission, impose such conditions as it may deem fit.

Explanation : – For the purpose of this clause the expression Railway Administration shall have the same meanings as it is defined by sub section (4) of section 3 of the Indian Railway Act, 1890:

Provided that where the continuance of any mining operations in any area, in the opinion of the Government is likely to endanger the safety of any National or State Highway, road, bridge, drainage, reservoir, tank, canal or other public works, or public or private buildings or in the public interest or in the interest of environment/ ecology of the area, the Government may determine the contract after giving 60 days notice to the contractor in this behalf and the contract shall stand terminated on the date mentioned in the notice.

2. Working in Sand Zones:

That the contractor in respect of sand zones, shall restrict the quarrying operations to maximum four villages of the zone at any point of time during the subsistence of the contract. The contractor shall have a right to change the site at any time during the subsistence of the contract on settlement of compensation with the land owners of new site of the zone from where he intend to extract sand but ceiling of maximum four villages shall be adhered to strictly and such change of site shall be intimated to the competent authority.

3. Special conditions for river bed mining:

In case of river bed mining / excavation of minor mineral(s) , in order to ensure safety of riverbeds, structures and the adjoining areas, the following special conditions shall be abide by the contractor:-

(a) no mining would be permissible in a river-bed up to a distance of five times of the span of a bridge on up-stream side and ten times the span of such bridge on down-stream side, subject to a minimum of 250 metres on the up-stream side and 500 metres on the downstream side;

(b) there shall be maintained an un-mined block of 50 metres width after every block of 1000 metres over which mining is undertaken or at such distance as may be directed by the competent authority;

(c) the maximum depth of mining in the river-bed shall not exceed three metres measured from the un-mined bed level at any point in time with proper bench formation;

(d) mining shall be restricted within the central 3/4th width of the river/rivulet.

(e) no mining shall be permissible in an area up to a width specified by the competent authority from the active edges of embankments;

(f) any other condition(s), as may be required by the competent authority in public interest.

4. Notice for surface operation in land not already in use :

Before using for surface operations any land which has not already been used for such operation, the contractor shall give notice in advance to the Collector of the district, the competent authority and the Officer–in-Charge_____ in writing along with copy of permission to undertake mining specifying the situation and the extend of the land proposed to be so used and the purpose for which the same is required and the said land shall not be so used, if objection is issued by the Collector.

5. Not to use the land for other purposes:

The contractor shall not cultivate or use the land for any other purpose other than those specified in the contract-deed

6. Disposal of mineral(s) only on issuance of Mineral Transit Pass:

The holder of mining contract shall not sell/dispose off any mineral or mineral products from the concession area without a Mineral Transit Pass.

7. Stacking of mineral(s) inside contract hold area:

The contractor shall not stock the mineral(s) excavated inside the contract hold area at the designated site more than twice the quantity of the average monthly production as per approved mining plan/ scheme.

8. Stacking of mineral(s) outside contract hold area:

The contractor shall not stock any minor mineral(s) granted under the contract, outside the contract hold area.

9. Stacking and storage of incidentally extracted major minerals:

In case contractor, while extracting minor mineral given on contract, incidentally extracts any major mineral not given on contract, the same shall be the property of the Government and contractor shall be under an obligation to stack and store it and maintain its proper record in accordance with the direction of the competent authority who shall also be competent to prescribe the procedure for its disposal.

10. Penalties in case of non-compliance of clause (9) :

In case it is detected that contractor has disposed off incidentally extracted major mineral referred to in clause 9 above or in sub rule (18) of rule 38, in whole or part there of or failed to maintain the record of stored mineral, he shall be liable to penalties under the Act and also premature determination of mining contract in terms of sub rule (19) of Rule 39 of the said rules.

11. Restrictions of mining operations above Ground Water Table :

A safety margin of two metres shall be maintained above the ground water table while undertaking mining and no mining operations shall be permissible below this

level unless a specific permission is obtained from the competent authority in this behalf.

12. Restrictions of surface operations:

No mining operations shall be undertaken in any area prohibited by any authority or by the orders of any Court.

13. No mining operations without requisite clearance:

The contractor shall not undertake any mining operations in the area granted on mining contract without obtaining requisite clearance from the competent authority as required for undertaking mining operations.

Part – III

Covenants of the contract

The contractor hereby covenant with the Government as follows:-

1. Surface rent:

The contractor shall pay for the surface area occupied by him, surface rent at the rate of Rs. ..... (Rupees .....) per annum.

2. Security deposit :

In case of mining contract granted through competitive bid/auction under rule 18:

25% of the annual bid amount / rate of contract money. The security amount to be deposited as per following :-

(i) 10% as initial bid security at the time of auction; and
(ii) 15% of the annual bid amount before commencement of mining operations :

Provided on enhancement of the contract money after expiry of every three year period of contract the contractor shall deposit the balance amount of security so as to up-scale the security amount equal to 25% of the revised annual contract money as applicable for one year with respect to next block of three years

3. Mode of payment of contract money and surface rent :

(a) The contractor shall deposit one advance instalment of contract money before commencement of mining operations or before the expiry of period allowed along with 15% of the balance security amount as per clause 2 above.

(b) The contractor, during the subsistence of the contract, shall pay in advance to the Government the instalments of the contract money in respect of the said land given

to him on mining contract in four quarterly instalments on the 1st of April, 1st of June, 1st of September and 1st of December of the year.

Note: The amount of one advance instalment deposited at the time of commencement of the mining operations or within time allowed for the same shall be adjusted in a manner that the subsequent instalments are payable for a full calendar month/quarter/year, as the case may be.

4. **Amount to be deposited on account of Fund**

Where the contractor is operating the area, he shall also pay an additional amount, equal to 10% of the due contract money along with amount of instalments on account of dead rent or royalty, towards the Fund.

5. **Interest on delayed payments.**

In case of any default in payment of the instalments of contract money/ contribution to the Fund on the due date(s), the amount would be payable along with interest at the following rates:

Serial Number	Period of delay	Rate of Interest applicable
(i)	If paid within a period of 7 days from the due date	A grace period of up to 7 days is allowed without any interest
(ii)	If paid after 7 days but up to 30 days of the due date	15% on the amount of default for the period of default including the grace period;
(iii)	If paid after 30 days but within 60 days of the due date	18% on the amount of default for the period of default including the grace period;
(iv)	Delay beyond 60 days of the due date	It would amount to a 'breach', invite action for termination of the contract and the entire outstanding amount would be recoverable along with interest calculated @ 21% for the entire period of default

6. **Working of newly discovered minerals :**

If any minor mineral, not specified in the contract, is discovered in the contracted area, the contractor shall report the discovery without delay to the competent authority and shall not win or dispose of such minor mineral without obtaining a separate mineral concession therefor. If he fails to apply for such a mineral concession within 6 months from the discovery of the minor mineral, the competent authority may give the mineral concession in respect of such mineral, to any other person :

Provided that the grant of such permit may be refused for reasons to be recorded in writing.

7. **To commence mining operations within 180 days and carry them on properly :**

Unless the competent authority for sufficient cause allows otherwise, the contractor shall commence mining operations 180 days from the date of execution of the contract

and shall thereafter conduct such operations in a proper, skilful and workman like manner.

Explanation:– For the purpose of this clause, mining operations shall include the erection of machinery laying of a tramway or construction of a road in connection with the working of the mine.

8. To erect and maintain boundary pillars :

The contractor shall at his own expenses, erect and at all times maintain and keep in good repairs boundary marks and pillars according to the plan annexed to the contract. Each of the pillars should be numbered and every pillar shall have GPS reading.

9. Accounts:

The contractor shall keep correct accounts showing the quantity and other particulars of all minerals obtained from the mines and the number of persons employed therein and a complete plan of the mine and shall allow any officer authorised by the Government or the Central Government or the competent authority in that behalf to examine at any time any accounts and records maintained by him, and shall furnish to the Government or the Central Government or the competent authority with such information and returns as it may require.

10. To allow facilities to other lessees etc. :

In addition to the concession holders under Rule – 5 of the Assam Minor Mineral Concession Rules, 2012, the lessee shall allow existing and future contractor of any land which is comprised in or adjoins or is reached by the land, held by the lessee, reasonable facilities for access thereto.

11. To allow entry to officers :

The contractor shall allow any officer authorised by the Government or the Central Government or the competent authority to enter upon any building, excavation or land comprised in the contract for the purpose of inspecting the mines.

12. Returns : –The contractor shall :—

(a) submit a return in form 'MMP1' by the 7th of every month to the competent authority and also to other officer (s) giving the total quantity of minor mineral(s) raised and dispatched from the contracted area in the preceding calendar month and its value ;

(b) also furnish a statement giving information in Form 'MMP2' by the 15th April every year to the competent authority and to other Officer(s), regarding quantity and value of minor mineral obtained during last financial year, average number of regular labourers employed (men and women separately) number of accidents, compensation paid and number of days worked separately.

13. To strengthen and support the mines:

The contractor shall strengthen and support to the satisfaction of the Railway Administration or the State Government, as the case may be any part of the mine which in its opinion requires such, strengthening or support for the safety of any railway, bridge, national highway, reservoirs, canal, road or any other public work or building.

14. Notice for use of explosives, etc :

The contractor shall immediately give notice in writing in Form 'MSE-1' to the following:

1. The Controller General, Indian Bureau of Mines, Government of India, Nagpur;
2. The Director General of Mines Safety, Govt. of India, Dhanbad;
3. The Director, Mines Safety, Govt. of India, Guwahati;
4. The Regional Controller of Mines, Indian Bureau of Mines, Kolkata;
5. The competent authority;
6. The District Magistrate of the District concerned; and
7. The office-in-charge as soon as:
   (a) The working in the mines extends below superjacent ground;
   or
   (b) The depth of any open cast excavation measured from its highest to the lowest point reaches six metres; or
   (c) The number of persons employed on any day is more than 50;
   or
   (d) Any explosives are used.

15. Maintenance of Sanitary conditions:

The Contractor shall maintain sanitary conditions in the area held by him under the contract.

16. To pay compensation for damage and indemnify the Government:

The contractor shall make and pay such reasonable satisfaction and compensation for all damage, injury or disturbance which may be done by him in exercise of the powers granted by the contract and shall indemnify the Government against all claims which may be made by third parties in respect of such damage, injury or disturbance.

17. Application of all Acts, Rules and Regulations to this contract :

The contractor shall abide by the provisions of Mines Act, 1952 and the rules and regulations framed there under and also the provisions of other labour laws both Central and State as are applicable to the workmen engaged in the mines and quarries relating to the provisions of drinking water, rest shelters, dwelling houses, latrines and first-aid and medical facilities in particular and other safety and welfare provisions in general, to the satisfaction of the competent authorities under the aforesaid Acts, Rules and Regulations and also to the satisfaction of the District Magistrate concerned. In case of non compliance of any of the provisions of the enactments as aforesaid, the competent

authority may terminate the mining contract by giving one month's notice with forfeiture of security deposited or :

Provided that the contractor shall carry out mining operations in accordance with all other provisions as applicable for undertaking mining including the provisions of Forest (Conservation) Act, 1980 and Environment (Protection) Act, 1986 and the rules made there under.

18. To report accident :

The contractor shall without delay report to the Deputy Commissioner of the district concerned and the competent authority or any other office authorised by him, any accident which may occur at or in the contract area.

19. Delivery of possession of land and mines on the surrender or sooner determination of the contract :

At the end or sooner determination or surrender of the contract, the contractor shall deliver up the said lands and all mines (if any dug there) in a proper and workable State, save in respect of any working as to which the Government might have sanctioned abandonment.

20. To provide electronic weighing machine :

The contractor shall provide and at all times keep at or near the pit-head at which the said mineral shall be brought to bank a properly constructed and efficient weighing machine and shall weigh or caused to be weighed thereon all the said minor minerals from time to time brought to bank, sold, exported and converted products, and shall at the close of each day cause the total weights, ascertained by such means of the said minor minerals, ores, products, raised, sold, exported and converted during the previous twenty four hours to be entered in the aforesaid books of accounts. The contractor shall permit the Government at all times during the said term to employ any persons to be present at the weighing of the said minor minerals, as aforesaid and to keep accounts thereof and to check the accounts kept by him. The contractor shall give 15 days previous notice in writing to the Officer-in-Charge_____ of every such measuring or weighing in order that he or some officer on his behalf may be present thereat.

21. To secure pits shafts not fill them up :

The contractor shall well and properly secure pits and shafts and will not without permission in writing, will fully close, fill up or close any mine or shaft.

22. Not to enter upon or to commence operations in the reserved or protected Forest:

The contractor shall not enter upon or commence any mining operations in any forest land comprised in the contracted area except after previously obtaining permission in writing of the Forest Department, Assam.

23. To respect water rights and not injure adjoining property :

The contractor shall not injure or cause to deteriorate any source of water, power or water supply and shall not in any other way render any spring or stream or water unfit to be used or to do anything to injure adjoining land, villages or houses.

24. Stocks lying at the end of the contract: –

(a) The contractor on expiry of the contract period (successful completion of the contract) shall remove already extracted all of the mineral from the premises of the quarry within a period of seven days. In case any quantity of the already extracted mineral, in the said land is left undisposed off and is not removed within seven days from the date of expiry of the period of contract the same shall be deemed to be the property of the Government and competent authority may dispose it off in any manner it may like without paying anything thereof to the contractor.

(b) The contractor on the termination or sooner determination of the contract shall not remove extracted mineral from the premises of the contracted areas. All extracted minerals in the said lands left over un-disposed after the termination or determination of contract shall be deemed to be property of the Government and competent authority may dispose it off in any manner it may like without paying anything thereof to the contractor.

25. Payment of taxes:

The contractor shall duly and regularly pay to the appropriate authority all taxes, cesses and local dues in respect of the contracted area, said minor minerals or the working of the mines.

26. Payment of additional amount for reclamation/ restoration:

The contractor shall also deposit / pay additional amount equal to 10% of the amount of contract money by the 7th of every month, to ensure the compliance of the Reclamation and Restoration works. This additional amount shall be refunded after satisfactory Reclamation/ Restoration of the area after mining in accordance with the Mine Closure Plan :

Provided that in case the contractor fails to reclaim/ restore the area as per mining plan to the satisfactions of the Government, the amount deposited shall be forfeited and used for the restoration of the area.

Provided further that in case no rehabilitation position of the mine comes during the tenure of the mining contract, the amount so deposited shall be kept by the Government in the mining area development fund for future use as and when the mine reaches to a stage requiring restoration and rehabilitation.

27. Assign sublet or transfers of the contract:

The contractor shall not assign, sublet or transfer the contract to any person without obtaining prior permission in writing from the competent authority.

28. Fencing of working place:

If a working place is found to be unsafe all persons shall be withdrawn by the contractor immediately from the dangerous area and all access to such working place except for the purpose of removing the danger or saving life shall be prevented by securely fencing the full width of all entrances to the place, at his own cost.

29. Fencing of excavation after termination or sooner determination of the contract:

The contractor on termination or sooner determination of the contract shall at his own cost, suitably fence the excavations for safety as instructed by the competent authority.

30. Felling of trees:

The contractor shall not fell or cut any tree, standing on the land wherein the quarry is located without obtaining prior permission in writing from the Forest Department, Assam and paying its price as fixed.

31. Security deposit shall carry no interest:

The security deposited by the contractor shall not carry any interest.

32. Government not responsible for loss to contractor:

The Government shall not be responsible for any kind of loss to the contractor.

Part-IV

Rights of the State Government

1. Suspension or termination of the contract:

The competent authority shall have the right to prematurely terminate the contract

(a) If the contract money or surface rent or any other amount due to the Government are not paid;
(b) if any of the terms and conditions of the contract agreement or conditions of grant or permission to undertake mining by any other statutory authority/Competent authority is violated;
(c) if any of the provisions of these rules and other laws both Central and State as are applicable to mines and minerals, are not complied with:

Provided that no orders of suspension/termination of the contract shall be passed by the competent authority without giving reasonable opportunity to show cause and following the procedure prescribed in the Rules :

Provided that in case of default in payment of Government dues such as contract money/ surface rent or any other dues payable under these presents, the contract may be terminated by the competent authority without affording hearing to the contractor after serving upon a notice to make good the payment within thirty days :

Provided further that the competent authority may also at any time after issuance of the notice for default on account of non payment of dues, enter upon the said premises and detain all or any of the mineral or movable property therein and may carry away, detain or order the sale of the property so detained, or so much of it as will suffice for the satisfaction of the contract money or rent or royalty or both dues and all costs and expenses occasioned by the non-payment thereof.

2. Determination of contract in public interest:

The Government may by giving six months' prior notice in writing determine the contract if the Government consider that the minor mineral under the contract is required for establishing an Industry beneficial to the public:

Provided that in the State of National Emergency or war, the contract may be determined without giving such notice.

3. Right of pre-emption :

The Government shall from time to time and at all times during the terms of contract have the right (to be exercised by notice in writing to the contractor) of pre-emption of the said mineral(s) and all products thereof lying in or upon the said lands hereby demised or elsewhere under the control of the contractor and the contractor shall deliver all minerals or products thereof to the Government at current market rates in such quantities and in the manner at the place specified in the notice exercising the said right.

4. Penalty for not allowing entry to officers :

If the contractor or his transferee or assignee does not allow any entry or inspection under clause 11 of part-III, the competent authority may cancel the contract and forfeit in whole or in part the security deposit paid by the contractor.

5. Compensation and acquisition of land of third parties thereof :

In case the occupier(s) or owner(s) of the said land refuses his/ their consent to the exercise of the rights and powers reserved to the Government and demised to the contractor under these presents, the contractor shall report the matter to the competent authority who shall request the Collector of the district concerned to direct the occupier(s) or owner(s) to allow the contractor to enter the said lands and to carry out such operations as may be necessary for working the mine, on payment in advance of such compensation to the occupier or owner by the contractor, as may be fixed by the Collector under the rules.

6. Suspension of mining operations:

The Director may order to suspend the mining operations after serving a notice to the contractor, in case, the following violations are noticed:-

(a) unsafe and unscientific mining;
(b) non operations of weighbridge;
(c) non providing of safety appliances to the workers;
(d) non payment of compensation to the surface owners;
(e) non submissions of monthly returns;

In case of violations of the aforesaid conditions and also any other terms and conditions of the agreement deed and the provisions of the rules, the competent authority may give a notice to the contractor to remedy the violations within a period of 15 days from the date of issue of the notice. In case, the violations pointed out through notice, are not remedied within the stipulated period of 15 days, the competent authority may after affording an opportunity of being heard to the contractor, order the suspension of the mining operations till such time, the defaults/ defects are removed by the lessee within the time frame granted by the competent authority. During the period of suspension of mining operations, the contractor will be allowed only to undertake rectification work for removal of the defects and shall not dispose off the mineral. During the suspension period, the contractor shall be under the obligation to deposit the amount of the contract money etc. on the due dates.

On satisfactory removal of the defects, the competent authority may revoke the suspension orders with or without any modification. Non removal of the defects/ defaults during the suspension period and within the time allowed by the competent authority, shall lead to premature termination of contract.

Part-V
General

1. Cancellation:

The contract shall be liable to be cancelled by the competent authority if the contractor cease to work the mine for a continued period of 180 days without obtaining written sanction.

2. Notices :

Every notice by these presents required to be given to the contractor shall be given in writing to such person resident on the said lands as the contractor may appoint for the purpose of receiving such notices and if there shall have been no such appointment then every such notice shall be sent to the contractor by registered post addressed to the contractor at the address recorded in this contract or at such other address in India as the contractor may from time to time in writing to the competent authority designate for the receipt of notices and every such service shall be deemed to be proper and valid service upon the contractor sand shall not be questioned or challenged by him.

3. Recovery of Government dues as arrears of land revenue:

Without prejudice to any other mode of recovery authorised by any provision of this contract or by any law, all amounts, falling due hereunder against the contractor may be recovered as arrears of land revenue under the law in force for such recovery.

4. **Forfeiture of property left more than three months after expiry or determination of contract :**

The contractor should remove his property lying on the said lands within three months after the expiry or sooner determination of the contract or after the date from which any surrender by the contractor of the said lands becomes effective, as the case may be, the property left after the aforesaid period shall become the property of the Government and may be sold or disposed of in such manner as the competent authority shall deem fit without liability to pay any compensation therefore, to the contractor.

5. **Security and forfeiture thereof :**

(a) the competent authority may forfeit the whole or any part of the amount deposited as security under this contract, in case the contractor commits a breach of any covenants to be performed by the contractor under the contract.

(b) Whenever the said security deposit or any part thereof or any further sum hereafter deposited with the Government in replenishment thereof is forfeited under sub clause (a) or applied by the competent authority under the contract (which the competent authority is hereby authorised to do) the contractor shall immediately deposit the deficient amount thereof ,to bring the amount in deposit with the Government up to the requisite amount of security at that point of time of contract.

(c) The rights conferred to the Director by clause (a) shall be without prejudice to the rights conferred on the Government by any other provision of this contract or by any law.

(d) On such date as the competent authority may decide within twelve calendar months after the determination of this contract or refusal of any renewal thereof, the amount of security deposit paid in respect of this contract in case is the same is otherwise not forfeited or is not required to be detained for any other purposes mentioned in this contract shall be refunded to the contractor. No interest shall run on the security deposit.

6. **Survey and demarcation of the area :**

When a mining contract is granted, arrangement shall be made, if necessary, at the expense of the contractor, for the survey and demarcation of the area granted under the contract. The contractor shall have to bear actual expenses of the staff deputed for the work. Actual expenses will include travelling allowances, daily allowances and salary of staff plus 10 percent as instrument charges.

7. **Surrender of a mining contract by the contractor :**

The Government may accept the request of the contractor for surrender of a contract or part thereof in cases where it is established that it has not been found feasible to operate the contract grant for whatsoever reasons subject to the condition that the contractor :

(i) has been regular in furnishing the production returns as required in terms of the contract agreement;

(ii) has been taking the requisite steps for the progressive mine closure plan as per the conditions of the contract grant;

(iii) is not in default of payment of any dues of the Government as on the date of making such application and undertakes to pay all such dues till the date of expiry of the notice period either in cash in advance or by way of adjustment of the security or both :

Provided that in case the contractor makes an application for surrender of part area of the contract, it shall not result in any prorated reduction of the contract money and the rate of contract money payable and applicable for the entire area at the time of such application shall remain intact.

8. Penalty for repeated breaches:

In case of repeated breaches of covenants and agreements by the contractor for which notice has been given by the competent authority in accordance with sub-rule (1) of rule 55 and /or sub rule(1) of rule 56 on earlier occasions, the competent authority without giving any further notice, may impose such penalty not exceeding twice the amount of security deposited.

9. Obtaining Sale Tax number:

The contractor shall get himself registered with the Taxation Department of Assam and shall obtain the Sales Tax number.

10. Overriding effect:

Unless otherwise specifically provided, it is agreed that this deed shall be governed by the provisions of the Mines and Minerals (Development and Regulation) Act, 1957 (67 of 1957) and the rules made thereunder. The provisions of the Act and the rules shall prevail over the terms and conditions of the agreement.

Signature of the Contractor For and on behalf of the Governor of Assam

Witness :-

1._____ 1._____

2._____ 2._____

Signature of surety

Witness

1. _____

2. _____

FORM MC-2

{See rule 19(1)}

(Application for renewal of Mining Contract)

Received at_____(Place) at _____(Hours) on the _____ day of _____.

From

_____

_____

To

The_____

_____

Dated the _____ 20

1. I hereby apply for renewal of a mining contract for_____ _____ (name of minor mineral(s) for a term of _____ years over _____hectares of land in the area specified in the Schedule.

2. A sum of Rs ..... on account of application fee payable under rule 20, deposited in the Government Treasury and the receipted Challan thereof /Demand Bank Draft No. ---------- dated ---------- is enclosed.

3. The required particulars are given below:-

PARTICULARS

(i)	Name of applicant individual/firm/Company or Society	
(ii)	Nationality of the individual or place of registration or incorporation of firm, company or society	
(iii)	Profession or nature of business of individual or firm or company and place of business	
(iv)	Address of the individual/ firm/company or society	
(v)	Name of Minor Mineral which the applicant intents to mine	
(vi)	Period for which the original contract was granted	

(vii)	Manner in which the Minor Mineral(s) raised is to be utilized : (a) For manufacture (b) for sale (c) any other purpose In case of manufacture, the industries in connection with which it is required should be specified.	
(viii)	A description illustrated by a map or plan (in triplicate) showing as accurate as possible the situation, boundaries and area of land in respect of which the renewal of contract is required and where the area is un-surveyed the location of the area should be shown by some permanent physical features i.e. road, tanks etc	
(ix)	A statement showing all the areas within jurisdiction of the Government :- (i) already held by me/us in my/our name/names (and jointly with others) under quarrying leases specifying the names of minor minerals. (ii) already applied for but not yet granted, and (iii) applied for simultaneously or being applied for in the State. **Note:** No application will be held to be complete for the purpose of priority unless it furnishes the particular required by paragraphs i), ii) and iii) and is properly signed and stamped	
(x)	Period and quantity for which renewal of mining contract is required.	
(xi)	Whether renewal is applied for the whole or part of the contract held.	
(xii)	In case the renewal applied for is only for part of the contract held :- (a) the area and quantity applied for renewal (b) description of the area applied for renewal. (c) Map (in triplicate) of the contract held with area applied for renewal clearly marked on it (copy of map attached)	
(xiii)	Means by which the minor mineral is to be raised i.e. by hand, labour or mechanical or electric power.	
(xiv)	Year-wise quantity of the mineral(s) excavated along with contract money paid in each year since grant of contract (attached no due certificate of concerned officer in charge.	
(xv)	Mineral reserves available.	
(xvi)	Details of explorations undertaken, if any	
(xvii)	Details of the mined out areas restored/ reclaimed/ rehabilitated as per progressive mine closure plan.	

(xviii)	Details of the sites of overburden restored	
(xix)	Details of the compliance of:- (i) Environmental Clearance; (ii) Mining plan/ scheme of mining; (iii) Safety provisions as per the Mines Act, 1952 and the rules and regulations framed thereunder; and (iv) other relevant laws and terms and conditions applicable on Mines and Minerals	
(xx)	Details of defaults, if any, in submission of production returns, payment of contract money and found wanting in taking adequate measures for labour safety.	
(xxi)	Details of investment made in development of mine, plant and machinery with a long term perspective and optimal benefit of the same could not have derived during the original period of contract.	
(xxii)	Any other particulars which the applicant wishes to furnish.	
(xxiii)	Schedule giving description of the area applied for	
a.	Name of village	
b.	In the case of forest land the name of the Range and Division	
c.	Dag and Patta Number and area of each field or part thereof	
	Dag and Patta no. a) b) - -	Area a) b) - -
d.	Full description of the area applied for with regard to its natural features :-	
e.	Felling series and working circle, if any	
f.	District	

(Signature of applicant)

Place _____

Date _____

N.B. If the application is signed by an authorised agent of the applicant, power of attorney should be attached.

FORM MPS-1

{see rule 24(4)}

Model Form for execution of permit granted for area less than five hectares

This indenture made on this _____ day of _____ 20__between the Governor of Assam acting through _____ (hereinafter referred to as the "State Government") which expression shall where the context so admits, include the successors and assigns) of the one part; and

Where the permit holder is an individual:

_____ (Name and address of the person)(hereinafter referred to as the "permit holder" which expression shall where the context so admits, includes his heirs, executors, administrator, representatives and permitted assigns;

Where the permit holder is more than one individual:

_____ (Name and address of persons) (hereinafter referred to as the "permit holder" which expression shall where the context so admits include their respective heirs, executors, administrators, representatives and permitted assigns)

Where the permit holder is registered firm:

_____ (Name and address of all the partners or members, where the "permit holder" are a firm or society) all carrying on business in partnership under the firm name and style of _____(name of the firm and address) registered under Indian partnership Act, 1932 and having their registered office at ..... (hereinafter referred to as the "permit holder" which expression shall where the context so admits include all partner of the said firm, their representatives, heirs, executors/Administrators and permitted assigns;

When the permit holder is a registered company:

_____ (Name of the company) a company registered under _____ (Act under which company incorporated) and having its registered office at _____ (address) (hereinafter referred to as the "permit holder" which expression shall where the context so admits, include its successors and permitted assigns) of the other part.

Whereas the "permit holder" has offered the highest bid of Rs _____(in words Rupees_____) in the bid/auction held on _____ for obtaining a mining contract for _____cu.m. (in words _____ cubic metres) _____ (name of minor minerals) in respect of the lands hereinafter described in clause 2 and such bid had been accepted by the officer authorized in this behalf and the Permit holder has deposited with the Government, a sum of Rs _____ (Rupees _____) as initial bid security (10% of the

annual bid amount) and Shri _____ S/o Shri _____ resident of _____ District _____ (referred to as the 'surety' which expression shall where the context so admits, include his heirs, executors, administrators, representatives) has been offered as solvent surety for the aforesaid amount, and whereas the permit holder is in possession of a Income Tax Clearance Certificate.

Now, therefore, this deed witnesses and the parties hereby agree as follows:-

(1) In consideration of the permit money, covenants and agreements hereinafter contained and on the part of the permit holder to be paid, observed and performed the Government hereby grants and demises unto the permit holder all those mines/beds/veins/seams of _____ (hereinafter referred to as the said minor minerals)situated, lying and being in or under the lands which are referred to in clause 2 together with the liberties and privileges to be executed or enjoyed in connection herewith which are hereinafter mentioned in Part-I subject to the restrictions and conditions as to exercise and enjoyment of such liberties and privileges which are hereinafter mentioned in Part-II and subject to other provisions of this permit.

(2) All the tract of land situated at village _____ in Sub-Division _____ District _____ bearing Dag and Patta Numbers _____ containing an area of _____ or thereabouts delineated on the plan hereto annexed and bounded as follows:

on the North by _____;
on the South by _____;
on the East by _____;
on the West by _____;

and (hereinafter referred to as the 'said lands' or the 'permit area')

(3) The permit holder shall hold the premises hereby granted and demised from the _____ day _____ for the term of _____ years thence next ensuing.

Part-I
Liberties and privileges

The following liberties and privileges may be exercised and enjoyed by the permit holder subject to the other provision of permit: –

1. **To enter upon land and search for win, work** :–
Liberty at all times during the term hereby demised to enter upon the said lands and to search for mineral, bore, dig, drill for win, work, dress, process, convert, carry away and dispose of the said minor mineral(s).

2. **To sink, drive and make pit, shafts and inclines :**

Liberty to sink, drive, make, maintain and use in the said land and pits, shafts, inclines, drifts, levels, waterways, airways and other works and to use, maintain, deepen or extend any existing works of the like nature in the said lands.

3. **To bring and use machinery, equipment:**

Liberty to erect, construct, maintain and use on or under the said lands any engine, machinery, plan, dressing floors, furnaces, coke ovens, brick kilns, workshop, store houses, bungalows, godowns, shed and other buildings and other works and conveniences of the like nature on or under the said lands.

4. **To use water from streams :**

Liberty but subject to the rights of any existing or future Permit holder and with the written permission of the Collector concerned to appropriate and use water from any streams, water course, springs or other source in or upon the said lands and to divert, step up or dam any such stream or water-course and collect or impound any such water and to make, construct and maintain any water course, cultivated land, village buildings or watering places for livestock of a reasonable supply of water as before accustomed nor in any way to foul or pollute any streams or springs :

Provided that the Permit holder shall not interfere with navigation in any navigable stream nor shall divert such stream with out the previous written permission of the Government.

5. **To fell undergrowth and utilise timber and trees :**

Liberty to clear undergrowth and brush wood. Permit holder shall not fell any trees or timber standing or found on the said lands without obtaining prior permission in writing from the Forest Department. In case such permission is granted, he shall pay in advance, the price of the trees or timber to be felled to the said Officer at the rates, fixed by him.

6. **To get building and roads material :**

Liberty to quarry and get stones, gravel and other building and road materials and ordinary clay and to use and employ the same and to manufacture such clay into bricks or tiles and to use such bricks, tiles but not to sell any such material, bricks, tiles.

7. **To use land for stacking purpose :**

Liberty to use a sufficient part of the surface of the said lands for the purpose of stocking, storing or depositing therein any produce of the mines including over burden or waste material and works carried on and tools, equipment and other materials needed for mining operations.

8. To install fuel pumps or stations for Diesel or Petrol for self use :

Liberty to use a sufficient part of the land for installing fuel pumps or stations for diesel or petrol for self use or consumption required for mining operations in the permit area, subject to permission of the authority.

9. To construct magazine for explosive and storage sheds :

Liberty to construct magazine for storage of explosive and storage sheds for explosive related substances with permission from the competent authority, in this behalf.

10. Liberty to seek permission for diversion of public roads, overhead electric lines :

Liberty to request to the competent authority for diversion of public road over head electric lines passing through the concession area at the expenses of permit holder to ensure scientific and systematic mining.

Part-II

Restrictions

The liberties, powers and privileges granted under Part– I are subject to the following restrictions and subject to other provisions of this permit : –

1. No mining operations within the limit of public works:

The permit holder shall not carry on, or allow to be carried on any mining operations:-

(i) within a distance of fifty metres from the outer periphery of the defined limits of any village habitation, National Highway, State Highway and other roads where such excavation does not require use of explosives, unless specifically relaxed and permitted by the competent authority; or

(ii) within a distance of two hundred fifty metres from the outer periphery of the defined limits of any village habitation, National Highway, State Highway and other roads where use of explosives is required, unless specifically relaxed and permitted by the competent authority or any specific dispensation is obtained from the Director, Mines Safety; or

(iii) within a distance of 500 metres from major structures like R.C.C Bridges, Guide bund etc.; or

(iv) within a distance of seventy metres from any railway line or bridge except under and in accordance with the written permission of the railway administration concerned. The Railway Administration or the Government may in granting such permission, impose such conditions, as it may deem fit.

Explanation : – For the purpose of this clause, the expression 'Railway Administration' shall have the same meanings as it is defined by sub section (4) of section 3 of the Indian Railway Act, 1890 ( ) :

Provided that where the continuance of any mining operations in any area, in the opinion of the Government is likely to endanger the safety of any National or State Highway, road, bridge, drainage, reservoir, tank, canal or other public works, or public or private buildings or in the public interest or in the interest of environment or ecology of the area, the Government may determine the permit after giving sixty days notice to the permit holder in this behalf and the permit shall stand terminated on the date mentioned in the notice :

Provided further that in the State of National Emergency or war, the permit may be determined without giving such notice.

2. Working in sand zones:

That the Permit holder in respect of sand zones, shall restrict the quarrying operations to maximum four villages of the zone at any point of time during the subsistence of the permit. The Permit holder shall have a right to change the site at any time during the subsistence of the permit on settlement of compensation with the land owners of new site of the zone from where he intend to extract sand but ceiling of maximum four villages shall be adhered to strictly and such change of site shall be intimated to the competent authority.

3. Special conditions for river bed mining:

In case of river bed mining or excavation of minor mineral(s) , in order to ensure safety of river-beds, structures and the adjoining areas, the following special conditions shall be abide by the permit holder :-

(a) no mining would be permissible in a river-bed up to a distance of five times of the span of a bridge on up-stream side and ten times the span of such bridge on down-stream side, subject to a minimum of 250 metres on the up-stream side and 500 metres on the downstream side;
(b) there shall be maintained an un-mined block of 50 metres width after every block of 1000 metres over which mining is undertaken or at such distance as may be directed by the competent authority;
(c) the maximum depth of mining in the river-bed shall not exceed three metres measured from the un-mined bed level at any point in time with proper bench formation;
(d) mining shall be restricted within the central 3/4th width of the river/rivulet.
(e) no mining shall be permissible in an area up to a width specified by the competent authority from the active edges of embankments;
(f) any other condition(s), as may be required by the competent authority in public interest.

4. Notice for surface operation in land not already in use :

Before using for surface operations any land which has not already been used for such operation, the permit holder shall give notice in advance to the Collector of the district, the Director and the Officer-in-Charge_____ in writing along with copy of permission to undertake mining specifying the situation and the extend of the land

proposed to be so used and the purpose for which the same is required and the said land shall not be so used, if objection is issued by the Collector.

5. **Not to use the land for other purposes :**

The permit holder shall not cultivate or use the land for any other purpose other than those specified in the permit agreement.

6. **Disposal of mineral(s) only on issuance of mineral transit pass:**

The holder of mining permit shall not sell or dispose off any mineral or mineral products from the concession area without a mineral transit pass.

7. **Stacking of mineral(s) inside permit hold area:**

The permit holder shall not stock the mineral(s) excavated inside the permit hold area at the designated site more than twice the quantity of the average monthly production as per approved mining plan or scheme.

8. **Stacking of mineral(s) outside permit hold area:**

The Permit holder shall not stock any minor mineral(s) granted under the permit, outside the permit hold area.

9. **Stacking and storage of incidentally extracted major minerals:**

In case Permit holder, while extracting minor mineral given on permit, incidentally extracts any major mineral not given on permit, the same shall be the property of the Government and Permit holder shall be under an obligation to stack and store it and maintain its proper record in accordance with the direction of the competent authority who shall also be competent to prescribe the procedure for its disposal and in case it is detected that permit holder has disposed off incidentally extracted major mineral in this clause or in the rule, in whole or part there of or failed to maintain the record of stored mineral, he shall be liable to penalties under the Act and also premature determination of mining permit in terms of the rules.

10. **Restrictions of mining operations above ground water table :**

A safety margin of two metres shall be maintained above the ground water table while undertaking mining and no mining operations shall be permissible below this level unless a specific permission is obtained from the competent authority in this behalf.

11. **Restrictions of surface operations:**

No mining operations shall be undertaken in any area prohibited by any authority or by the orders of any Court.

12. **No mining operations without requisite clearance:**

The Permit holder shall not undertake any mining operations in the area granted on mining permit without obtaining requisite clearance from the competent authority as required for undertaking mining operations.

Part – III

Covenants of the permit

The permit holder hereby covenant with the Government as follows :-

1. **Surface rent:**

The permit holder shall pay for the surface area occupied by him, surface rent at the rate of Rs. ---------- (Rupees .....) only.

2. **Security deposit:**

The permit holder shall deposit twenty five percent of the annual bid amount or rate of permit money as Security. The security amount shall be deposited as per following:-

(i) ten percent as initial bid security at the time of auction; and
(ii) fifteen percent of the annual bid amount before commencement of mining operations or before the expiry of period allowed;

3. **Mode of payment of permit money and surface rent**

(a) The permit holder shall deposit one advance instalment of permit money before commencement of mining operations or before the expiry of period allowed along with fifteen percent of the balance security amount as per clause 2 above.
(b) The permit holder, during the subsistence of the permit, shall pay in advance to the Government the instalments of the permit money in respect of the said land given to him on mining permit in four quarterly instalment on the 1st of April, 1st of June, 1st of September and 1st of December.

Note : The amount of one advance instalment deposited at the time of commencement of the mining operations or within time allowed for the same shall be adjusted in a manner that the subsequent instalments are payable for a full calendar month or quarter or year, as the case may be.

4. **Amount to be deposited on account of Fund**

Where the Permit holder is operating the area, he shall also pay an additional amount, equal to 10% of the due permit money along with amount of instalments on account of dead rent or royalty, towards the Fund.

5. **Interest on delayed payments :**

In case of any default in payment of the instalments of permit money/ contribution to the Fund on the due date(s), the amount would be payable along with interest at the following rates:

Serial Number	Period of delay	Rate of Interest applicable
(i)	If paid within a period of 7 days from the due date	A grace period of up to 7 days is allowed without any interest
(ii)	If paid after 7 days but up to 30 days of the due date	15% on the amount of default for the period of default including the grace period;
(iii)	If paid after 30 days but within 60 days of the due date	18% on the amount of default for the period of default including the grace period;
(iv)	Delay beyond 60 days of the due date	It would amount to a 'breach', invite action for termination of the contract and the entire outstanding amount would be recoverable along with interest calculated @ 21% for the entire period of default.

6. Working of newly discovered minerals:

If any minor mineral not specified in the permit, is discovered in the permit area, the Permit holder shall report the discovery without delay to the competent authority and shall not win or dispose of such minor mineral without obtaining a separate mineral concession/lease for such mineral. If he fails to apply for such a mineral concession within six months from the discovery of the minor mineral, the competent authority may give the mineral concession in respect of such mineral, to any other person :

Provided that the grant of such permit may be refused for reasons to be recorded in writing.

7. To commence mining operations within one hundred eighty days and carry them on properly :

Unless the competent authority for sufficient cause otherwise, the permit holder shall commence mining operations one hundred eighty days from the date of execution of the permit and shall thereafter conduct such operations in a proper, skilful and workman like manner.

Explanation :– For the purpose of this clause, mining operations shall include the erection of machinery laying of a tramway or construction of a road in connection with the working of the mine.

8. To erect and maintain boundary pillars :

The permit holder shall at his own expenses, erect and at all times maintain and keep in good repairs boundary marks and pillars according to the plan annexed to the permit. Each of the pillars should be numbered and every pillar shall have GPS reading.

9. Accounts :

The permit holder shall keep correct accounts showing the quantity and other particulars of all minerals obtained from the mines and the number of persons employed therein and a complete plan of the mine and shall allow any officer authorised by the Government or the Central Government or the competent authority in that behalf to examine at any time any accounts and records maintained by him, and shall furnish to the Government or the Central Government of the competent authority with such information and returns as it may require.

10. To allow facilities to other concession holders :

The permit holder shall allow existing and future concession holders of any land which is comprised in or adjoins or is reached by the land, held by the lessee, reasonable facilities for access thereto.

11. To allow entry to officers :

The permit holder shall allow any officer authorised by the Government or the Central Government or the competent authority to enter upon any building, excavation or land comprised in the permit area for the purpose of inspecting the mines.

12. Returns :

The permit holder shall : -

(a) submit a return in form 'MMP1' by the 7th of every month to the competent authority and also to other officer (s) specified giving the total quantity of minor mineral(s) raised and dispatched from the permit area in the preceding calendar month and its value ;

(b) also furnish a statement giving information in Form 'MMP2' by the 15th April every year to the competent authority and to other Officer(s) regarding quantity and value of minor mineral obtained during last financial year, average number of regular labourers employed (men and women separately) number of accidents, compensation paid and number of days worked separately.

13. To strengthen and support the mines:

The permit holder shall strengthen and support to the satisfaction of the Railway Administration or the State Government, as the case may be any part of the mine which in its opinion requires such, strengthening or support for the safety of any railway, bridge, national highway, reservoirs, canal, road or any other public work or building.

14. Notice for use of explosives, etc:

The permit holder shall immediately inform in writing in Form MSE1 in case of (a) working in the mines extends below superjacent ground; or (b) depth of any open cast excavation measured from its highest to the lowest point reaches six metres; or(c)

number of persons employed on any day is more than 50; or (d) any explosives are used, to the following;

(i) The Controller General, Indian Bureau of mines, Government of India, Nagpur;
(ii) The Director General of Mines Safety, Government of India, Dhanbad;
(iii) The Director, Mines Safety, Government of India, Guwahati;
(iv) The Regional Controller of Mines, Indian Bureau of Mines, Kolkata;
(v) The competent authority;
(vi) The District Magistrate of the District concerned; and
(vii) The Officer-in-Charge.

15. Maintenance of sanitary conditions :

The permit holder shall maintain sanitary conditions in the area held by him under the permit.

16. To pay compensation for damage and indemnify the Government :

The permit holder shall make and pay such reasonable satisfaction and compensation for all damage, injury or disturbance which may be done by him in exercise of the powers granted by the lease and shall indemnify the Government against all claims which may be made by third parties in respect of such damage, injury or disturbance.

17. Application of all Acts, Rules and Regulations to this permit :

The Permit holder shall abide by the provisions of Mines Act, 1952 and the rules and regulations framed thereunder and also the provisions of other labour laws both Central and State as are applicable to the workmen engaged in the mines and quarries relating to the provisions of drinking water, rest shelters, dwelling houses, latrines and first-aid and medical facilities in particular and other safety and welfare provisions in general, to the satisfaction of the competent authorities under the aforesaid Acts, Rules and Regulations and also to the satisfaction of the District Magistrate concerned. In case of non compliance of any of the provisions of the enactments as aforesaid, the competent authority may terminate the mining lease by giving one month's notice with forfeiture of security deposited:

Provided that the permit holder shall carry out mining operations in accordance with all other provisions as applicable for undertaking mining including the provisions of Forest (Conservation) Act, 1980 and Environment (Protection) Act, 1986 and the rules made there under.

18. To report accident :

The permit holder shall without delay report to the Deputy Commissioner of the district concerned and the competent authority or any other officer authorised by him, any accident which may occur at or in the permit area.

19. Delivery of possession of land and mines on the surrender or sooner determination of the permit :

At the end or sooner determination or surrender of the permit, the permit holder shall deliver up the said lands and all mines (if any dug there) in a proper and workable state, save in respect of any working as to which the Government might have sanctioned abandonment.

20. To secure pits/shafts and not fill them up :

The permit holder shall well and properly secure pits and shafts and will not without permission in writing, wilfully close, fill up or close any mine or shaft.

21. Not to enter upon or to commence operations in the reserved or protected forest:

The permit holder shall not enter upon or commence any mining operations in any forest land comprised in the leased area except after previously obtaining permission in writing of the Forest Department.

22. To respect water rights and not injure adjoining property :

The permit holder shall not injure or cause to deteriorate any source of water, power or water supply and shall not in any other way render any spring or stream or water unfit to be used or to do anything to injure adjoining land, villages or houses.

23. Stocks lying at the end of the permit :

(a) The permit holder on expiry of the permit period (successful completion of the permit) shall remove already extracted the entire mineral from the premises of the quarry within a period of seven days. In case any quantity of the already extracted mineral, in the said land is left undisposed off and is not removed within seven days from the date of expiry of the period of permit the same shall be deemed to be the property of the Government and competent authority may dispose it off in any manner it may like without paying anything thereof to the Permit holder.

(b) The permit holder on the termination or sooner determination of the permit shall not remove extracted mineral from the premises of the permit areas. All extracted minerals in the said lands left over un-disposed after the termination or determination of lease shall be deemed to be property of the Government and competent authority may dispose it off in any manner it may like without paying anything thereof to the Permit holder.

24. Payment of taxes:

The permit holder shall duly and regularly pay to the appropriate authority all taxes, cesses and local dues in respect of the permit area, said minor minerals or the working of the mines.

25. Payment of additional amount for reclamation/ restoration:

The Permit holder shall also pay additional amount equal to 10% of the amount of permit money by the 7th of every month to ensure the compliance of the Reclamation and Restoration works. This additional amount shall be refunded after satisfactory reclamation or restoration of the area after mining in accordance with the mine closure plan :

Provided that in case the Permit holder fails to reclaim or restore the area as per mining plan to the satisfactions of the Government, the amount deposited in the joint account shall be forfeited and used for the restoration of the area:

Provided further that in case no rehabilitation position of the mine comes during the tenure of the mining permit, the amount so deposited shall be kept by the Government in the mining area development fund for future use as and when the mine reaches to a stage requiring restoration and rehabilitation.

26. Assign sublet or transfer of the permit area :

The permit holder shall not assign, sublet or transfer the permit area to any person without obtaining prior permission in writing from the competent authority.

27. Fencing of working place :

If a working place is found to be unsafe, all persons shall be withdrawn by the permit holder immediately from the dangerous area and all access to such working place except for the purpose of removing the danger or saving life shall be prevented by securely fencing the full width of all entrances to the place, at his own cost.

28. Fencing of excavation after termination or sooner determination of the permit :

The permit holder on termination or sooner determination of the permit, shall at his own cost, suitably fence the excavations for safety as instructed by the competent authority.

29. Felling of trees :

The permit holder shall not fell or cut any tree, standing on the land wherein the quarry is located without obtaining prior permission in writing from the Forest Department and paying its price as fixed.

30. Security deposit shall carry no interest :

The security deposited by the permit holder shall not carry any interest. It shall be refunded to the permit holder within three months from the date of expiry or sooner determination of the permit in case the same is otherwise not forfeited or is not required to be detained for any other purpose.

31. Government not responsible for loss to Permit holder :

The Government shall not be responsible for any kind of loss to the Permit holder.

Part-IV

Rights of the State Government

1. The Suspension or Termination of the permit:– The competent authority shall have the right to suspend or prematurely terminate the permit

   (a) If the permit money or royalty or surface rent or any other amount due to the Government are not paid,

   (b) if any of the terms and conditions of the permit agreement or conditions of grant or permission to undertake mining by any other statutory authority/Competent authority is violated;

   (c) if any of the provisions of these rules and other laws both Central and State as are applicable to mines and minerals, are not complied with :

   Provided that no orders of suspension or termination of the permit shall be passed by the competent authority without giving reasonable opportunity to show cause and following the procedure prescribed in the Rules :

   Provided further that in case of default in payment of Government dues such as permit money, royalty, dead rent or any other dues payable under these presents, the permit may be terminated by the competent authority without affording hearing to the permit after serving upon a notice to make good the payment within thirty days :

   Provided further that the competent authority may also at any time after issuance of the notice for default on account of non payment of dues, enter upon the said premises and detrain all or any of the mineral or movable property therein and may carry away, detain or order the sale of the property so detrained, or so much of it as will suffice for the satisfaction of the permit money or rent or royalty or both dues and all costs and expenses occasioned by the non-payment thereof.

2. **Determination of permit area in public interest:**

   The Government may by giving six months' prior notice in writing determine the permit if the Government consider that the minor mineral under the permit is required for establishing an Industry beneficial to the public:

   Provided that in the State of national emergency or war, the permit may be determined without giving such notice.

3. **Right of pre-emption :**

   The Government shall from time to time and at all times during the terms of permit have the right (to be exercised by notice in writing to the permit holder) of pre-emption of the said mineral(s) and all products thereof lying in or upon the said lands hereby

demised or elsewhere under the control of the permit holder and the permit holder shall deliver all minerals or products thereof to the Government at current market rates in such quantities and in the manner at the place specified in the notice exercising the said right.

4. **Penalty for not allowing entry to officers :**

If the permit holder or his transferee or assignee does not allow any entry or inspection under clause 11 of part-III, the competent authority may cancel the permit and forfeit in whole or in part the security deposit paid by the permit holder.

5. **Compensation and acquisition of land of third parties thereof :**

In case the occupier(s) or owner(s) of the said land refuses his consent to the exercise of the rights and powers reserved to the Government and demised to the permit holder under these presents, the permit holder shall report the matter to the competent authority who shall request the Collector of the district concerned to direct the occupier(s) or owner(s) to allow the permit holder to enter the said lands and to carry out such operations, as may be necessary for working the mine, on payment in advance of such compensation to the occupier or owner by the permit holder, as may be fixed by the Collector concerned under the rules.

6. **Suspension of mining operations:**

The Director may order to suspend the mining operations after serving a notice to the permit holder, in case, the following violations are noticed:-

(a) unsafe and unscientific mining; or
(b) non providing of safety appliances to the workers; or
(c) non payment of compensation to the surface owners; or
(d) non submissions of monthly returns;

In case of violations of the aforesaid conditions and also any other terms and conditions of the agreement deed and the provisions of the rules, the competent authority may give a notice to the permit holder to remedy the violations within a period of fifteen days from the date of issue of the notice. In case, the violations pointed out through notice, are not remedied within the stipulated period of fifteen days, the competent authority may after affording an opportunity of being heard to the Permit holder, order the suspension of the mining operations till such time, the defaults/ defects are removed by the Permit holder within the time frame granted by the competent authority. During the period of suspension of mining operations, the permit holder will be allowed only to undertake rectification work for removal of the defects and shall not dispose off the mineral. During the suspension period, the Permit holder shall be under the obligation to deposit the amount of the Govt. dues on the due dates.

On satisfactory removal of the defects, the competent authority may revoke the suspension orders with or without any modification. Non removal of the defects or defaults during the suspension period and within the time allowed by the competent authority, shall lead to premature termination of permit.

Part-V

General

1. **Cancellation**:

The Permit holder shall be liable to be cancelled by the competent authority if the permit holder cease to work the mine for a continued period of one hundred eighty days without obtaining written sanction.

2. **Notices :**

Every notice by these presents required to be given to the permit holder shall be given in writing to such person resident on the said lands as the permit holder may appoint for the purpose of receiving such notices and if there shall have been no such appointment then every such notice shall be sent to the permit holder by registered post addressed to the permit holder at the address recorded in this permit or at such other address in India as the permit holder may from time to time in writing to the competent authority designate for the receipt of notices and every such service shall be deemed to be proper and valid service upon the Permit holder sand shall not be questioned or challenged by him.

3. **Recovery of Government dues as arrears of land revenue:**

Without prejudice to any other mode of recovery authorised by any provision of this permit or by any law, all amounts, falling due hereunder against the Permit holder may be recovered as arrears of land revenue under the law in force for such recovery.

4. **Forfeiture of property left more than three months after expiry or determination of permit:**

The permit holder shall remove his property lying on the said lands within three months after the expiry or sooner determination of the permit. The property left after the aforesaid period of three months shall become the property of the Government and may be sold or disposed of in such manner, as the competent authority shall deem fit, without liability to pay any compensation therefore, to the permit holder.

5. **Security and forfeiture thereof :**

(a) the competent authority may forfeit the whole or any part of the amount deposited as security under this permit, in case the permit holder commits a breach of any covenants to be performed by the permit holder under the permit.

(b) Whenever the said security deposit or any part thereof or any further sum hereafter deposited with the Government in replenishment thereof is forfeited under sub-clause (a) or applied by the competent authority under the permit (which the competent authority is hereby authorised to do) the permit holder shall immediately deposit with the inappropriate part thereof to bring the amount in deposit with the Government up to the requisite amount of security at that point of time of permit.

(c) The rights conferred to the competent authority by clause (a) shall be without prejudice to the rights conferred on the Government by any other provision of this permit or by any law.

(d) On such date, as the competent authority may decide, within twelve calendar months after the determination of this permit or refusal of any renewal thereof, the amount of security deposit paid in respect of this permit and then remaining in deposit with the Government and not required to be applied to any of the purposes mentioned in this permit shall be refunded to the permit holder. No interest shall run on the security deposit.

6. Survey and demarcation of the area :

When a mining permit is granted, arrangement shall be made, if necessary, at the expense of the permit holder, for the survey and demarcation of the area granted under the permit. The permit holder shall have to bear actual expenses of the staff deputed for the work. Actual expenses will include travelling allowances, daily allowances and salary of staff plus ten percent as instrument charges.

7. Surrender of a mining permit by the Permit holder :

The Government may accept the request of the permit holder for surrender of a permit or part thereof in cases where it is established that it has not been found feasible to operate the permit grant for whatsoever reasons subject to the condition that the permit holder :

(i) has been regular in furnishing the production returns as required in terms of the permit agreement;

(ii) has been taking the requisite steps for the progressive mine closure plan as per the conditions of the permit grant;

(iii) is not in default of payment of any dues of the Government as on the date of making such application and undertakes to pay all such dues till the date of expiry of the notice period either in cash in advance or by way of adjustment of the security or both :

Provided that in case the permit holder makes an application for surrender of part area of the permit, it shall not result in any prorated reduction of the permit money and the rate of permit money payable and applicable for the entire area at the time of such application shall remain intact.

8. Penalty for repeated breaches :

In case of repeated breaches of covenants and agreements by the permit holder for which notice has been given by the competent authority in accordance with sub-rule (1) of rule 55 and/ or clause (i) of sub rule (1) of rule 56 on earlier occasions, the Director

without giving any further notice, may impose such penalty not exceeding twice the amount of annual permit money.

9. Obtaining Sale Tax number :

The Permit holder shall get himself registered with the Taxation Department of Assam and shall obtain the Sales Tax number.

10. Overriding effect :

Unless otherwise specifically provided, it is agreed that this deed shall be governed by the provisions of the Mines and Minerals (Development and Regulation) Act, 1957 (67 of 1957) and the rules made thereunder. The provisions of the Act and the rules shall prevail over the terms and conditions of the agreement.

Signature of the Permit holder For and on behalf of the Governor of Assam.

Witness :-

1._____

1._____

2._____

2._____

Signature of surety

Witness

1. _____

2. _____

FORM MPS-2

(See rule 25(3))

(Model form for execution deed for permit of Saltpeter)

This indenture made this _____day of _____ _____20_____ between the Governor of Assam acting through_____ (hereinafter called the "Government" which expression shall where the context so admits be deemed to include his successors in office and assigns of the first part, and Shri _____ _____ son of Shri _____ resident of _____ district _____ _____ (hereinafter referred to as "Permit holder" which expression shall, where the context so admits include his heirs, executors, administrators, representatives and permitted assigns) of the second part and Shri _____ _____ son of Shri _____ resident of _____ district _____ (hereinafter referred to as "the surety", which expression shall, where the context so admits, include his heirs, executors, administrators, representatives and permitted assigns) of the third part;

And whereas the permit holder has offered the highest bid for the permit of _____ _____cu.m. (in words _____cubic metre_____ (name of the quarry) (hereinafter referred to as the "said lands") in Sub-Divisions _____ district _____ and whereas the permit holder has paid Rs. _____ (Rupees_____) only First instalment/ permit money in full for the first year_____ and Rs. _____ (Rupees_____) only as security (equal to 25% of the bid amount) for the due fulfilment of the terms and covenants hereinafter mentioned and the Government has agreed to grant him the aforesaid permit.

Now these presents witnesses as follows :

1. **Amount and mode of payment of permit money :**

The permit holder shall during the subsistence of the permit pay in advance to the Government, the following permit money in respect of the said lands given to him on permit for the period from _____to _____on the dates mentioned below.

Serial Number	Value of Annual permit money	Periodicity of payment
1	2	3
(i)	Up to Rs. 10.00 lakhs.	Rs. ..... (Full amount of permit money in lump-sum to be deposited at the time of auction along with the security amount.)
(ii)	Above Rs. 10.00 lakhs	Rs. ..... (In two instalments, one at the time of auction and another by 15th of May of the year to which the permit pertains)

2. Amount to be deposited on account of Mines and Mineral Development, Restoration and Rehabilitation Fund (hereinafter referred to as "Fund")

Where the permit holder is operating the area, he shall also pay an additional amount, equal to ten percent of the due permit money, whichever is more alongwith amount of instalments on account of dead rent or royalty, towards the Fund.

3. Interest on delayed payments :

In case of any default in payment of the instalments of permit money or contribution to the Fund on the due date(s), the amount would be payable alongwith interest at the following rates:

Serial Number	Period of delay	Rate of Interest applicable
(i)	If paid within a period of 7 days from the due date	A grace period of up to 7 days is allowed without any interest;
(ii)	If paid after 7 days but up to 30 days of the due date	15% on the amount of default for the period of default including the grace period;
(iii)	If paid after 30 days but within 60 days of the due date	18% on the amount of default for the period of default including the grace period;
(iv)	Delay beyond 60 days of the due date	Termination of the lease/ contract and the entire outstanding amount would be recoverable along with interest calculated @ 21% for the entire period of default.

4. No quarrying operations in certain areas :

No quarrying operations or working shall be carried on or permitted to be carried on by the permit holder in or under the said lands or to any point within a distance of ten metres from any railway line, bridge, National Highway, reservoir, tank, canal or other public road or buildings etc:

Provided that where the continuance of any mining operations in any area, in the opinion of the competent authority is likely to endanger the safety of any National or State Highway, road, bridge, drainage, reservoir, tank, canal, other public works, or other public or private buildings, the competent authority may terminate the permit after giving one month's notice to the Permit holder in this behalf. The permit shall stand terminated on the date mentioned in the notice. In such an event the Permit holder shall be refunded the permit money proportionate to the unexpired portion of the permit paid by him in advance if any.

5. To allow entry to Central Government and State Government Officers for inspection :

The permit holder shall at all reasonable times allow the competent authority and any other officer authorised by the Central Government or by the State Government in that behalf to inspect the said lands and the buildings and plant erected thereon and the permit holder shall assist such person in conducting the inspection and afford them all

information they may reasonably require and shall conform to and observe all orders which the Central or the State Government or the competent authority, as a result of such inspection or otherwise may from time to time pass.

6. Assign, sublet or transfer of the permit :

The permit holder shall not assign, sublet or transfer the permit to any person without obtaining prior permission in writing from the competent authority.

7. To pay compensation for damage and indemnify the Government:

The Permit holder shall make and pay such reasonable satisfaction and compensation for all damage, injury or disturbance which may be done by him in exercise of the powers granted by the permit and shall indemnify the Government against all claims which may be made by third parties in respect of such damage, injury or disturbance.

8. Not to carry on surface operation in prohibited areas :

The permit holder shall not carry on surface operation in any area prohibited by any authority, without obtaining prior permission in writing from the concerned authority.

9. Not to enter and work in reserved and protected forest areas :

The permit holder shall not enter and work in any forest land without obtaining prior permission in writing from the Forest Department.

10. Application of all Acts, rules and regulations to this permit :

The permit holder shall abide by the provisions of Mines Act, 1952 (35 of 1952), and the rules and regulations framed thereunder and also the provisions of other labour laws both Central and State as are applicable to the workmen engaged in the mines and quarries relating to the provisions of drinking water, rest shelters, dwelling houses, latrines and first-aid and medical facilities in particular and other safety and welfare provisions in general, to the satisfaction of the authorities under the aforesaid Acts, rules and regulations and also to the satisfaction of the District Magistrate concerned. In case of non compliance of any of the provisions of the enactments as aforesaid, the competent authority may terminate the permit by giving one month's notice with forfeiture of security deposited :

Provided that the Permit holder shall carry out mining operations in accordance with all other provisions as applicable for undertaking mining including the provisions of Forest (Conservation) Act, 1980 and Environment (Protection) Act, 1986 and the rules made there under.

11. Disposal of mineral(s) only on issuance of Mineral Transit Pass:

The holder of mining permit shall not sell or dispose off any mineral or mineral products from the concession area without a Mineral Transit Pass.

12. Security deposit shall carry no interest:

The security deposited by the permit holder shall not carry any interest. It shall be refunded to the permit holder within three months from the date of expiry or sooner determination of the permit in case the same is not forfeited or required to be detained for any other purposes under this deed.

13. Penalty for default :

In case of default in the due observance of the terms and conditions of the permit or in payment of the permit money on the due date, the permit may be terminated by the competent authority by giving one month's notice. In such an event, the competent authority shall be at liberty to forfeit the security deposited and also the instalment, paid in advance, if any the permit holder shall deliver the possession of the quarry to the Officer-in-Charge, concerned within seven days of the receipt of the order of termination of permit.

14. Termination of permit by Government in public interest :

The permit may be terminated by the Government if considered by it to be in public interest, by giving one month's notice:

Provided that in the State of National emergency or War, the permit may be terminated without giving such notice.

15. Recovery of permit money as arrears of land revenue :

Any sum due from the permit holder on account of permit money in respect of the permit shall be recoverable from him as arrears of land revenue.

16. To submit reports :

The permit holder shall furnish such reports and returns relating to output, labourers employed and other matters, as the competent authority may prescribe from time to time.

17. Returns :

The permit holder shall submit a monthly return in form 'MMP1' by the 10th day of each month to the competent authority and to the Officer-in-Charge concerned giving the total quantity of minor mineral(s) raised and dispatched from the specific area out of the area under permit in the preceding calendar month, and its value and such other information relating to the permit as may be called for by the competent authority.

18. State Government not responsible for loss to permit holder :

The Government shall not be responsible for any kind of loss to the Permit holder for any reason what-so-ever.

19. Notices :

Every notice by these presents required to be given to the permit holder shall be given in writing to such person, resident on the said lands as the Permit holder may appoint for the purpose of receiving of such notice and if there shall have been no such appointment then every such notice shall be sent to the Permit holder at the address recorded in this deed or at such other address in India, the Permit holder may, from time to time, in writing to the officer authorised by the competent authority for the receipt of notices and every such service shall be deemed to be proper and valid service upon the Permit holder and shall not be questioned by him.

20. Compensation and acquisition of land of third parties thereof :

In case the occupier(s) or owner(s) of the said land refuses his/ their consent to the exercise of the rights and powers reserved to the Government and demised to the Permit holder under these presents, the Permit holder shall report the matter to the competent authority who shall request the Collector of the district concerned to direct the occupier(s) or owner(s) to allow the Permit holder to enter the said lands and to carry out such operations as may be necessary for working the mine, on payment in advance of such compensation to the occupier or owner by the Permit holder, as may be fixed by the Collector concerned under the rules.

21. Suspension of mining operations :

The competent authority may order to suspend the mining operations after serving a notice to the permit holder, in case of the following;

(a) unsafe and unscientific mining;
(b) non providing of safety appliances to the workers;
(c) non payment of compensation to the surface owners;
(d) non submissions of monthly returns;

In case of violations of the aforesaid conditions and also any other terms and conditions of the agreement deed and the provisions of the rules, the competent authority may give a notice to the permit holder to remedy the violations within a period of fifteen days from the date of issue of the notice. In case, the violations pointed out through notice, are not remedied within the stipulated period of fifteen days, the competent authority may after affording an opportunity of being heard to the permit holder, order the suspension of the mining operations till such time, the defaults/ defects are removed by the Permit holder within the time frame granted by the competent authority. During the period of suspension of mining operations, the Permit holder will be allowed only to undertake rectification work for removal of the defects and shall not dispose off the mineral. During the suspension period, the permit holder shall be under the obligation to deposit the amount of the dead rent etc. on the due dates.

On satisfactory removal of the defects, the competent authority may revoke the suspension orders with or without any modification. Non removal of the defects or

defaults during the suspension period and within the time allowed by the competent authority, shall lead to premature termination of permit holder.

22. Stocks lying at the end of the permit :

(a) The permit holder on expiry of the permit period (successful completion of the permit) shall remove already extracted all of the mineral from the premises of the quarry within a period of seven days. In case any quantity of the already extracted mineral, in the said land is left undisposed off and is not removed within seven days from the date of expiry of the period of permit the same shall be deemed to be the property of the Government which will be disposed by the competent authority in any manner, without paying anything thereof to the permit holder.

(b) The permit holder on the termination or sooner determination of the permit shall not remove extracted mineral from the premises of the permit areas. All extracted minerals in the said lands left over un-disposed after the termination or determination of permit lease shall be deemed to be property of the Government which will be disposed off by the competent authority in any manner without paying anything thereof to the permit holder.

23. Recovery of Government dues as arrears of land revenue:

This indenture further witnesseth that in further pursuance of the agreement and covenants referred to above, the permit holder and the surety further covenant that if the permit holder shall make default in the payment of the permit money under these presents including any interest thereon, on the date or dates on which the same shall be or become payable then the whole of the outstanding permit money and interest shall be payable by the Permit holder and the surety jointly and severally. The Government shall be at liberty to recover the same from the permit holder or the surety irrespective of the fact whether Government shall have pursued all or any of its remedies against the Permit holder.

24. Permit holder shall get himself registered with the Taxation Department of Assam and shall obtain the Sales Tax number.

25. Overriding effect:

Unless otherwise specifically provided, it is agreed that this deed shall be governed by the provisions of the Mines and Minerals (Development and Regulation) Act, 1957 (67 of 1957) and the rules made thereunder. The provisions of the Act and the rules shall prevail over the terms and conditions of the agreement.

IN WITNESS WHEREOF these presents have been executed in the manner hereunder appearing the day and year above written.

Signature of the Permit holder.

In the presence of :

1. _____

Address_____

2. _____

Address_____

For and on behalf of the Governor of Assam.

In the presence of :

1. _____

Address_____

2. _____

Address_____

Signature of the surety

in the presence of :–

1. **Name** _____

   Address_____

2. **Name** _____

   Address_____

FORM PIM – 1

(See rule 26(4))

Application for the grant of permit for excavation of Brick Earth by the Brick Kiln Owners

To

.....

.....

Dear Sir,

Undersigned intends to install a brick Kiln or is the owner of .... (Name and address of the Brick Kiln), and for manufacturing of the bricks requires the minor mineral namely "Brick Earth". The application fee of Rs. 500/- (non- refundable) in the form of bank draft/treasury challan bearing number..... dated ....., is enclosed.

2. The details of the area for which permission is being sought, is given as under :-

(a) location of Brick Kiln(village/ sub-division/district)
(b) category of the Brick Kiln
(c) extent of the land from which brick earth is to be excavated (Dag No., Patta No. etc.)
(d) lay out plan of the area applied for permit
(e) existing status of the land as compared to general ground level of the area
(f) quantity of brick kiln required to be removed
(g) advance amount of Permit fee/royalty
(h) security (refundable).

3. Applicant further submits that;

(i) royalty at the rates prescribed under First Schedule to the Assam Minor Mineral Concession Rules, 2012 shall be paid for the brick earth to be removed from the area under permit.
(ii) area is free from Plantation or is not forest land.
(iii) digging of the earth at the site is otherwise not prohibited by any court of law or any authority.
(iv) brick earth will be used only for manufacturing of the bricks.
(v) he will abide by all relevant provisions for excavation of earth.
(vi) a compensation has been settled with land owner mutually and a copy of the agreement signed between the applicant and the landowner qua mutual settlement of the compensation is attached(in case land is owned by the applicant himself, the proof thereof).
(vii) in case of renewal of permit copy of last permit, alongwith proof of payment towards applicable permit money or royalty.

Dated :

Encls: As above. (Name and address of the applicant).

FORM PIM – 2

(See Rule 26(8)

Standard form for quarrying permits for brick earth

Whereas Shri/Messers _____ owner(s) of Brick Kiln falling in category _____ has/ have applied for quarrying permit for removal of the "Brick Earth", for a period of two years from the land measuring _____ bigha/ acres/hectares bearing Dag, Patta numbers _____ in the revenue estate of _____ _____ Sub-division _____ District _____under rule 26 of the Assam Minor Mineral Concession Rules, 2012. The applicant has paid requisite application fee of Rs. _____ and has/have also paid security amounting to Rs. _____ (25% of the annual royalty amount). (Further the applicant has also deposited the permit fee of _____ for _____ category of Brick Kiln.)

The permission is hereby granted for removal of brick earth and manufacture of bricks from the aforesaid area during the period from ..... to ..... (upto 31st March, ...) subject to the conditions given below :-

1. The holder of the permits shall keep the Government indemnified from third party claim relating to the extraction of brick earth from the land for which quarrying permit is given.

2. The holder of the permit shall excavate the brick earth in such a manner that the same shall not disturb or damage any road, public ways, buildings, premises of public grounds.

3. The holder of the permit shall not use the brick earth excavated from the land granted on permit for any other purpose than that of manufacturing of bricks. In case the brick earth is to be transported up to brick kiln from the site of the excavation, the permit holder transports the same only by issuing a Mineral Transit Pass.

4. That the holder of the permit shall not fell any tree standing on the land without obtaining prior permission in writing from the competent authority in the Forest Department. In case such permission has been granted, he shall abide by the terms and conditions stipulated in such permission.

5. The permit holder shall not carry on surface operations in any area prohibited by any authority, without obtaining prior permission in writing from the concerned authority.

6. The permit holder shall not enter and work in any Forest without obtaining prior written permission of the Forest Department.

7. The permit holder shall report immediately all accidents to the Deputy Commissioner and the competent authority concerned.

8. The depth of the pit below surface shall not exceed nine feet.

9. The annual amount of royalty shall be paid in advance by 1st April of every year.

In case the annual royalty is not paid on the date specified above, the permit holder shall be liable to pay interest as per following :-

Serial Number	Period of delay	Rate of Interest applicable
(i)	If paid within a period of 7 days from the due date	A grace period of up to 7 days is allowed without any interest
(ii)	If paid after 7 days but up to 30 days of the due date	15% on the amount of default for the period of default including the grace period;
(iii)	If paid after 30 days but within 60 days of the due date	18% on the amount of default for the period of default including the grace period;
(iv)	Delay beyond 60 days of the due date	Termination of the permit and the entire outstanding amount would be recoverable along with interest calculated @ 21% for the entire period of default.

10. The brick Kiln owner shall be liable to make payment of lump-sum royalty for the whole of the year notwithstanding the operation of the Kiln for any part of the year.

11. In case of any default in due observance of the terms and conditions of this permit or in payment of the instalment on due date, the permit may be cancelled by the competent authority by giving one month's notice. Any sum due from the permit holder on account of royalty and interest thereon shall be recovered from him/ them as an arrear of land Revenue.

Signature _____

Designation _____

FORM PIM – 3

[See rule 27(5)]

Application for the grant of permit for extraction of ordinary clay/earth

To

.....

.....

Dear Sir,

The applicant is the owner of land or is having the written consent of the land owner of the land measuring ..... bigha/ ha ..... (details of Dag, Patta numbers) in village ..... Sub-division ..... District ..... and have to remove the ordinary clay/earth for levelling the land or selling the same for commercial purpose. As a result of levelling of land or excavation, ordinary clay/earth excavated is to be disposed off, for which permission is solicited. The applicant further state that :-

2. The details of the area for which permission is being sought, is given as under:-

(a) location of the area

(b) purpose

(c) total area to be excavated/levelled

(d) extent of the area [length, breadth and depth]

(e) quantity of the ordinary clay to be removed and disposed off

(f) existing status of the land as compared to general ground level of the area

(g) advance royalty

(h) security (refundable)

Dated :

Encls: As above. (Name and address of the applicant).

(i) Proof of ownership of land/consent of the land owner.

Form PIM- 4

(See rule 27(6))

Standard form for excavation of ordinary clay or earth

Whereas Sh./ Messers _____ has applied for the grant of a permit under Rule 27 of the Assam Minor Mineral Concession Rules, 2012, for excavation of _____ tonnes/ cubic meter/ quintals of _____ ordinary clay/earth, a minor minerals for excavation/removal from _____ (details of area). The applicant has/have paid royalty in advance amounting to _____ _____ and Rs._____on account of Mines and Mineral Development, Rehabilitation and Restoration Fund (10% of the amount of royalty) and Rs. _____ on account of security (50% of the amount of royalty).

The permission is hereby granted for disposal of the mineral _____ (name of minor minerals) tonnes/ cubic meter/ quintals excavated/removed from the aforesaid area for the period from ---------- to ---------- subject to following conditions:-

1. The holder of the permits shall keep the Government indemnified from third party claim relating to the extraction of ordinary clay/earth from the land for which quarrying permit is given.

2. The holder of the permit shall excavate the ordinary clay/earth in such a manner that the same shall not disturb or damage any Road, Public ways, buildings, premises of public grounds.

3. That the holder of the permit shall not fell any tree standing on the land without obtaining prior permission in writing from the competent authority in the Forest Department. In case such permission has been granted, he shall abide by the terms and conditions stipulated in such permission.

4. The permit holder shall not carry on surface operations in any area prohibited by any authority, without obtaining prior permission in writing from the concerned authority.

5. The permit holder shall not enter and work in any forest land without obtaining prior written permission of the Forest Department.

6. The permit holder shall report immediately all accidents to the Deputy Commissioner and the competent authority concerned.

7. The depth of the pit below surface shall not exceed nine feet and in case where sand deposits are found, the depth of the pit below surface shall not exceed three feet.

8. The permit holder shall not excavate any other mineral than that of ordinary clay/earth found in the area. Any breach in this regard will entail immediate suspension of the workings and followed by termination of permit along with forfeiture of security amount, after affording opportunity of show cause. In case any mineral is illegally disposed off, the Officer-in-Charge shall also recover amount of penalty in accordance with the provisions of Mines and Mineral (Development and Regulation) Act 1957 and Rules framed thereunder.

9. The permit holder shall ensure that any mining operations below a depth of 1.5 metres shall necessarily be undertaken by formation of benches for safe mining. The benches would be formed in a manner that the width of the bench is not lesser than the height of the bench or as permitted by the Director, Mines Safety, Government of India.

10. The permit holder shall transport/dispose of the ordinary clay/earth from the site of the excavation, only by issuing a Mineral Transit Pass.

11. The permit holder shall restore and rehabilitate the area of excavation with in fifteen days from the date of expiry of the permit and shall submit compliance report to the Officer-in-Charge.

12. In case of any default in due observance of the terms and conditions of this permit or in payment of the instalment on due date, the permit may be cancelled by the competent authority by giving one month notice where the remaining period of permit is more than sixty days. In other cases the period of permit is less than sixty days, notice of ten days shall be given before taking decision on cancellation of permit.

13. The amount of security deposit shall entail no interest. The security amount shall be refunded within a period of three months in case the same is not forfeited or required to be detained for any other purpose under this permit.

14. Any sum due from the permit holder shall be recovered from him as an arrear of land Revenue.

The permission shall be valid up to _____.

Signatures _____

Designation _____

FORM MMP – 1

[See rule 24, 25 and 38(15)(i)]

Monthly return for the Month of _____(to be furnished by the mining lessee/contractor/permit holder

1.	Name of the Mine		3.	Name and address of lessee	
2.	Location of the Mine (a) Village (b) District (c) State		4.	Name of Minor Mineral(s) for which lease has been granted	

Name of mineral(s)	Closing stock brought forward from the previous month (Tonne/ Cu.M.)	Production during the month (Tonne/ Cu.M.)	Dispatched during the month (in Tonne/Cu.M.)				Closing stock (Tonne / Cu.M.)
5.	6.	7.	8.				9.
			By Truck	By Railway	By other means of transport	Total	

Average daily No. of labourer or employees				Wages paid			
10				11			
Male	Female	Adolescent	Total	Male	Female	Adolescent	Total
6A	6B	6C	6D	7A	7B	7C	7D

Signature of the lessee/contractor/
Permit holder or his authorized agent.

Dated : _____

N.B. : (1) Please furnish on the reverse of this form reasons for rise or fall in production, dispatches and labour employed, etc. as compared with the previous month.

(2) Please send this report to :

(a) The competent authority;

(b) The Officer-in-Charge concerned by the 10th of the month following the month under report.

FORM MMP – 2

[See rule 38(15)(ii)]

Annual return to be furnished by the mining lessee/contractor

Annual Statement of Minor Minerals obtained, labourer employed, etc. for the Financial Year ending _____20___.

Name of the lessee _____

Area of the lease _____

Village _____

Sub-Division _____

District _____

Name of the minor mineral	Output	Value	Average number of persons employed daily		
1	2	3	4		
			Male	Female	Total

Average No. of days worked	No. of accidents	Compensation paid (in Rs.)	No. of days worked	Remarks
5	6	7	8	9

Signature of the lessee/contractor/
Permit holder or his authorized agent.

Dated : _____

N.B. : This return is to be submitted by the 15th of April of each year for the preceding financial year, i.e. from First of April to 31st March to the :

(a) The competent authority.

(b) The Officer-in-Charge concerned.

FORM MSE – 1

[See rule 38(21)]

Notice for explosive, etc. by the lessee

1.	Name of mine	
2.	Name of minor mineral(s) excavated	
3.	Situation of mine (village, Police Station, Sub-Division, District	
4.	The date when works were first started.	
5.	Name and postal address of present owner(s)	
6.	Name and postal address of agency, if any	
7.	Name and postal address of Manager, if any	
	Age	
	Qualification	
	Experience in mining	
8.	Whether workings are likely to be extended below; superjacent ground.	
9.	Maximum depth of open cast excavation measured from its lowest point	
	Date when depth first exceeded six metres.	
10.	Nature, amount and kind of explosives used, if any.	
11.	Date when explosives were first used.	
12.	Date(s) on which the number of persons employed on any day exceeded 50.	

Signature of Owner/Agent/Manager

Dated: _____

To be sent to :

1. The Controller General, Indian Bureau of Mines, Government of India, Nagpur;
2. The Director General of Mines Safety, Government of India, Dhanbad;
3. The Director, Mines Safety, Government of India, Guwahati;
4. The Regional Controller of Mines, Indian Bureau of Mines, Kolkata;
5. The Competent Authority;
6. The District Magistrate of the concerned District and
7. The Officer-in-Charge concerned.

LIST OF MINOR MINERALS

(As defined under S.3(e) of MMDR Act, 1957 and further declared as such from time to time under the Act)

1. Building stones,
2. Gravel,
3. Ordinary clay,
4. Ordinary sand other than sand used for prescribed purposes.

Mineral Concession Rules, 1960: Rule 70: Sand not to be treated as minor mineral when used for certain purposes. Sand shall not be treated as minor mineral when used for any of the following purposes :

(i) purposes of refractory and manufacture of ceramic;
(ii) metallurgical purposes;
(iii) optical purposes;
(iv) purposes of stowing in coal mines;
(v) for manufacture of silvicrete cement;
(vi) for manufacture of Sodium silicate;
(vii) for manufacture of pottery and glass.

5. Boulder,
6. Shingle,
7. Chalcedony or impure quartz pebbles used for ball mill purposes or filling for bore wells or for decorative purposes in buildings,

8. Limeshell,
9. Kankar and
10. Limestone,

when used in kilns for manufacture of lime used as building material

11. Murram,
12. Brick-earth,
13. Fuller's earth,
14. Bentonite,
15. Road metal,
16. Reh-matti,
17. Slate and
18. Shale
19. Marble,

when used for building material

20. Stones used for making household utensils,
21. Quartzite and sandstone, when used for purposes of building or for making road metal and house hold utensils,
22. Salt-petre,

SCHEDULE – 'X'

[Under Rule 3 (1)]

Minor minerals for industrial and specific uses :

(1) Building stone including Granite :	When mined for the purpose of manufacture of polished tiles, slabs and other decorative and architectural purposes Or When mined in large-scale for export of the stone in the form of cubes, slabs, boulder or gravel and for construction of dams, dykes, bridges, etc.
(2) Marble	
(3) Fuller's earth	
(4) Bentonite	
(5) Lime Shell	When used in kilns for manufacturing of lime used as building materials
(6) Kankar	
(7) Lime stone of any grade	
(8) Brick earth	When used in mechanized brick plants
(9) Quartzite and Sand Stone	When used in cement manufacturing or any other manufacturing industry.
(10) Ordinary clay	When used in cement manufacturing or in any industry other than Cottage Industry
(11) Shale	

SCHEDULE 'Y'

[Under Rule 3 (2)]

Minor minerals for uses other than in Industry :-

(1) Gravel	When used in construction of roads and buildings other than mined in large scale for export and for construction of dams, dykes, bridges, etc.
(2) Ordinary clay	Other than used in cement manufacturing or in any industry except cottage industry
(3) Ordinary Sand	Other than sand used for prescribed purposes.

Mineral Concession Rule 1960 :- Rule 70 :- Sand not to be treated as minor mineral when used for certain purposes sand shall not be treated as minor mineral when used for any of the following purposes :

(i) Purpose of refractory and manufacture of ceramic,
(ii) Optical purposes,
(iii) Metallurgical purposes,
(iv) Purposes of stowing in coal mines,
(v) For manufacture of silvicrete cement,
(vi) For manufacture of Sodium silicate,
(vii) For manufacture of pottery and glass.

(4) Boulder	When used in construction of roads and buildings other than mines in large scale for export and for construction of dams, dykes and bridges, etc.
(5) Shingle	
(6) Chalecedony or impure quartz pebbles	When used for ball mill purposes for filing for bore wells or for decorative purposes in buildings
(7) Murram	Other than brick-earth used in mechanized brick plants
(8) Brick-earth	

(9) Road metal	
(10) Reh matti	
(11) Slate and Shale	When used as building material and other than used in cement or other industry except Cottage Industry.
(12) Stones	When used for making household utensils.
(13) Quartzite and Sandstone	When used for purposes of building or for making road metal and household utensils other than used in cement manufacturing or in any other manufacturing industry.
(14) Salt-petre	
(15) Ordinary Earth	

First Schedule

Rates of royalty

(see rule 8(6), 26(6) and 27(4)

Sl.No	Name of Minor Mineral		Rate of Royalty (in Rs.)	
1	Building Stone (excluding Granite)		100.00	Cu. M
2	Gravel		100.00	Cu. M
3	Ordinary Clay		15.00	Cu. M
4	Ordinary sand other than sand used for prescribed purposes.		70.00	Cu. M
5	Boulder		100.00	Cu. M
6	Shingle		75.00	Cu. M
7	Chalcedony or Impure quartz pebbles		90.00	Cu. M
8	Lime Shell	when used in kilns for manufacture of lime used as building materials.		
9	Kankar		80.00	Cu. M
10	Lime Stone			
11	Murram		-	
12	Brick Earth		15.00	Cu. M
13	Fuller's Earth		20.00	Cu. M
14	Bentonitc		30.00	Cu. M
15	Road metal		-	
16	Rchmatti		-	
17	Slate		-	
18	Shale		-	
19	Marbale		-	
20	Stone used for making household utensils		-	
21	Quartzite and Sandstone		80.00	Cu. M
22	Salt petre		-	
23	Granite		70.00	Cu. M
24	Ordinary Earth		-	

Second Schedule

Fee for review and appeal

[See rule 71(1)]

An appeal before Controlling Officer against the orders of Subordinate Officer	Rs. 2,000/-
An application before the Director/Principal Chief Conservator of Forests and Head of Forest Force for review of orders passed by him	Rs. 2,000/-
An appeal before the Government against the orders of Director/Principal Chief Conservator of Forests and Head of Forest Force	Rs. 3,000/-

R. T. JINDAL,

Principal Secretary to the Government of Assam,
Power (E), Mines and Minerals Department,
Dispur, Guwahati – 6.

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पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय

अधिसूचना

नई दिल्ली, 25 जुलाई, 2018

का.आ. 3611(अ).—भारत सरकार के तत्कालीन पर्यावरण और वन मंत्रालय की अधिसूचना सं. का.आ. 1533(अ) तारीख 14 सितंबर, 2006, भारत के राजपत्र, असाधारण, भाग II, खंड 3, उपखंड (ii) में (जिसे इसमें इसके पश्चात् उक्त अधिसूचना कहा गया है) प्रकाशित की गई थी, जिसके द्वारा पूर्व पर्यावरण निकासी के संबंध में निदेश जारी किए गए हैं ;

और पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय में उक्त अधिसूचना को का.आ. 141(अ) तारीख 15 जनवरी, 2016 द्वारा संशोधित किया है, जिसमें गौण खनिजों के लिए जिला सर्वेक्षण रिपोर्ट तैयार करने की प्रक्रिया को विहित किया गया है ;

और रांची स्थित माननीय झारखंड उच्च न्यायालय ने 2015 की रिट याचिका (पीआईएल) संख्या 1806, स्वप्रेरणा बनाम झारखंड राज्य एवं अन्य के मामले में रिट याचिका (पीआईएल) सं. 2013 की 290, हेमंत कुमार शिल्कारवर बनाम झारखंड राज्य एवं अन्य के मामले में, अन्य बातों के साथ, तारीख 11 अप्रैल, 2018 और 19 जून, 2018 के आदेश में बालू और रेत से भिन्न गौण खनिजों के लिए जिला सर्वेक्षण रिपोर्ट तैयार करने या बालू और रेत से भिन्न गौण खनिजों की जिला सर्वेक्षण रिपोर्ट तैयार करने के लिए शक्तियों का प्रत्यायोजन करने के लिए राज्य सरकार और/या जिला पर्यावरण संघात निर्धारण प्राधिकरण और जिला विशेषज्ञ मूल्यांकन समिति को निदेश दिया है ;

और केंद्रीय सरकार लोक हित में पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उपनियम (3) के खंड (क) के अधीन सूचना देने की अपेक्षा से अभिमुक्ति प्रदान करती है ;

और केंद्रीय सरकार, पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उपनियम (4) के साथ पठित पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3 की उपधारा (1) और उपधारा (2) के खंड (v) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए भारत सरकार के तत्कालीन पर्यावरण और वन मंत्रालय की अधिसूचना सं. का.आ. 1533(अ) तारीख 14 सितंबर, 2006 में निम्नलिखित और संशोधन करती है, अर्थात् :--

उक्त अधिसूचना में परिशिष्ट 10 के स्थान पर निम्नलिखित रखा जाएगा, अर्थात् :--

"परिशिष्ट 10

[पैरा 7 (iii) (क) देखें]

1. बालू खनन या नदी तल खनन के लिए जिला सर्वेक्षण रिपोर्ट तैयार करने के लिए प्रक्रिया

जिला सर्वेक्षण रिपोर्ट तैयार करने का मुख्य उद्देश्य (भरणीय बालू खनन के लिए मार्गदर्शक सिद्धांतों के अनुसार) निम्नलिखित को सुनिश्चित करना है :--

उच्चयन या जमाव के क्षेत्रों की पहचान, जहां खनन को अनुज्ञात किया जा सकता है ; और भूक्षयण के क्षेत्रों की पहचान तथा अवसंरचना ढांचों और प्रतिष्ठापनों से निकटतता जहां खनन को प्रतिषिद्ध किया जाना चाहिए और भराई की वार्षिक दर की गणना तथा उस क्षेत्र में खनन के पश्चात् भराई के लिए समय को अनुज्ञात करना ।

रिपोर्ट के निम्नलिखित संघटक होंगे :

(1) प्रस्तावना ;

(2) जिले में खनन कार्यकलापों का विहंगावलोकन ;

(3) अवस्थिति क्षेत्र और वैधता की अवधि सहित जिले में खनन पट्टों की सूची ;

(4) पिछले तीन वर्ष में प्राप्त स्वामिस्व या राजस्व के ब्यौरे ;

(5) पिछले तीन वर्ष के दौरान बालू या रेत या गौण खनिज के उत्पादन के ब्यौरे ;

(6) जिले की नदियों में तलछट के जमा होने की प्रक्रिया ;

(7) जिले का साधारण प्रोफाइल ;

(8) जिले में भू उपयोग का पैटर्न : वन, कृषि, उद्यान कृषि, खनन आदि ;

(9) जिले की भूगर्भीय स्थिति ;

(10) मासवार वर्षा ;

(11) भूगर्भ और खनीज संपदा ।

पूर्वोक्त के अतिरिक्त रिपोर्ट में निम्नलिखित अंतर्विष्ट होंगे :

(क) जिलावार नदी या धारा और अन्य रेत के स्रोत के ब्यौरे ;

(ख) जिलावार रेत या कंकड़ या समग्र संसाधनों की उपलब्धता ;

(ग) जिलावार विद्यमान रेत के खनन पट्टों के ब्यौरे और समग्र ।

जिला पर्यावरण संघात निर्धारण प्राधिकरण द्वारा भूविज्ञान विभाग या सिंचाई विभाग या वन विभाग या लोक निर्माण विभाग या भू-जल बोर्ड या सुदूर संवेदन विभाग या खनन विभाग आदि की सहायता से जिले में सर्वेक्षण किया जाएगा ।

मुख्य नदियों के विवरण सहित निकासी प्रणाली

क्रम सं.	नदी का नाम	निष्कासन क्षेत्र (वर्ग किलोमीटर)	जिले में प्रतिशत निष्कासित क्षेत्र
(1)			
(2)			

महत्वपूर्ण नदियों और धाराओं की मुख्य विशेषताएं :

क्रम सं.	नदी या धारा का नाम	जिले में कुल लंबाई (किलोमीटर में)	उद्भव का स्थान	उद्भव के स्थान पर ऊंचाई
(1)				
(2)				

खनिज छूट के लिए सिफारिश किया गया नदी या धारा का भाग	खनिज छूट के लिए सिफारिश किए गए क्षेत्र की लंबाई (किलोमीटर में)	खनिज छूट के लिए सिफारिश किए गए क्षेत्र की औसत चौड़ाई (मीटर में)	खनिज छूट के लिए सिफारिश किया गया क्षेत्र (वर्ग मीटर में)	खनन योग्य खनिज क्षमता (मीट्रिक टन में) (कुल खनिज क्षमता का 60 प्रतिशत)

खनिज क्षमता

बोल्डर (मीट्रिक टन)	रेत (मीट्रिक टन)	बालू (मीट्रिक टन)	कुल खनन योग्य खनिज क्षमता (मीट्रिक टन)

वार्षिक जमाव

क्रम सं.	नदी या धारा	खनिज छूट के लिए सिफारिश किया गया नदी या धारा का भाग	खनिज छूट के लिए सिफारिश किए गए क्षेत्र की लंबाई (किलोमीटर में)	खनिज छूट के लिए सिफारिश किए गए क्षेत्र की औसत चौड़ाई (मीटर में)	खनिज छूट के लिए सिफारिश किया गया क्षेत्र (वर्ग मीटर में)	खनन योग्य खनिज क्षमता (मीट्रिक टन में) (कुल खनिज क्षमता का 60 प्रतिशत)
(1)						
(2)						
जिले के लिए योग						

उप प्रभागीय समिति, जो (i) उप प्रभागीय मजिस्ट्रेट (ii) निम्नलिखित विभागों के अधिकारियों (क) सिंचाई विभाग (ख) राज्य प्रदूषण नियंत्रण बोर्ड या समिति (ग) वन विभाग (घ) भू-विज्ञान या खनन अधिकारी से मिलकर बनेगी, खनन के लिए उपयुक्तता या खनन को प्रतिषिद्ध करने के लिए प्रत्येक स्थान का, जिसके लिए पर्यावरण निकासी का आवेदन किया गया है, भ्रमण करेगी।

खनन क्षमता की संगणना करने के लिए अंगीकृत विधि :

खनन क्षमता की संगणना स्थान की जांच और नदी या धारा के आवाह क्षेत्र के भू-विज्ञान के आधार पर की जाएगी। स्थल स्थिति और अवस्थिति, खनन योग्य खनिजों को परिभाषित किया जाएगा। किसी नदी या धारा में खनिजों के खनन का विनिश्चय भू-आकृति विज्ञान और अन्य कारकों के आधार पर किया जा सकता है, यह किसी विशिष्ट नदी या धारा के क्षेत्र का 50 से 60 प्रतिशत हो सकता है। उदाहरणार्थ कुछ पहाड़ी राज्यों में खनिज संघटक, जैसे बोल्डर, नदी से उत्पन्न रेत, बालू को एक मीटर तक संसाधन खनिज माना जाता है। अन्य संघटक जैसे क्ले और तलछट को किसी विशिष्ट नदी या धारा की खनिज क्षमता की संगणना करते समय अपशिष्ट माना जाता है।

जिला सर्वेक्षण रिपोर्ट जिले में तैयार की जाएगी और उसके प्रारूप को पब्लिक डोमेन में कलेक्टर के कार्यालय में

उसकी एक प्रति रखकर रखा जाएगा तथा उसे 21 दिन के लिए जिले की वेबसाइट पर भी पोस्ट किया जाएगा । प्राप्त टिप्पणियों पर विचार किया जाएगा तथा यदि सही पाया जाता है तो जिला पर्यावरण संघात निर्धारण प्राधिकरण द्वारा छह मास के भीतर तैयार की जाने वाली अंतिम रिपोर्ट में उसे सम्मिलित किया जाएगा ।

जिला सर्वेक्षण रिपोर्ट पर्यावरण निकासी, रिपोर्टों और मूल्यांकन परियोजनाओं को तैयार करने का आधार बनेगी । रिपोर्ट को प्रत्येक पांच वर्ष में एक बार अद्यतन किया जाएगा ।

II. बालू खनन या नदी तल खनन से भिन्न गौण खनिजों के लिए जिला सर्वेक्षण रिपोर्ट तैयार करने की प्रक्रिया

जिला सर्वेक्षण रिपोर्ट को जिले में प्रत्येक गौण खनिज के लिए पृथक् रूप से तैयार किया जाएगा और उसके ड्राफ्ट को पब्लिक डोमेन में कलेक्टर के कार्यालय में उसकी एक प्रति रखकर रखा जाएगा तथा उसे 21 दिन के लिए जिले की वेबसाइट पर भी पोस्ट किया जाएगा । प्राप्त टिप्पणियों पर विचार किया जाएगा तथा यदि सही पाया जाता है तो जिला पर्यावरण संघात निर्धारण प्राधिकरण द्वारा छह मास के भीतर तैयार की जाने वाली अंतिम रिपोर्ट में उसे सम्मिलित किया जाएगा ।

बालू खनन या नदी तल खनन से भिन्न गौण खनिजों के लिए जिला सर्वेक्षण रिपोर्ट नीचे वर्णित संघटकों के अनुसार होगी :--

बालू खनन या नदी तल खनन से भिन्न गौण खनिजों के लिए जिला सर्वेक्षण रिपोर्ट तैयार करने का प्रारूप

(1) प्रस्तावना ;

(2) जिले में खनन कार्यकलापों का विहंगावलोकन ;

(3) जिले का साधारण प्रोफाइल ;

(4) जिले की भूगर्भीय स्थिति ;

(5) सिंचाई निष्कासन पैटर्न ;

(6) जिले में भू उपयोग का पैटर्न : वन, कृषि, उद्यान कृषि, खनन आदि ;

(7) जिले में सतह जल और भूमिगत जल का परिदृश्य ;

(8) जिले में वर्षा वृत्ति और जलवायु स्थिति ;

(9) निम्नलिखित प्रारूप के अनुसार जिले में खनन पट्टों के ब्यौरे :--

क्रम सं.	खनिज का नाम	पट्टेदार का नाम	पट्टेदार का नाम और संपर्क संख्या	खनन पट्टा अनुदान आदेश संख्या एवं तारीख	खनन पट्टे का क्षेत्र (हेक्टेयर में)	खनन पट्टे की अवधि (प्रारंभिक)		खनन पट्टे की अवधि (पहला/दूसरा ..... नवीकरण)	
						से	तक	से	तक
1	2	3	4	5	6	7	8	9	10

खनन प्रचालन के प्रारंभ होने की तारीख	प्रास्थिति (कार्यशील/गैर-कार्यशील पारेषण आदि के लिए स्थायी रूप से कार्यशील)	कैप्टिव/गैर-कैप्टिव	पर्यावरणीय निकासी अभिप्राप्त (हां/नहीं) यदि हां तो पर्यावरण निकासी अनुदत्त करने की तारीख सहित पत्र संख्या	खनन पट्टे की अवस्थिति (अक्षांश एवं देशांतर)	खनन की विधि (खुली/भूमिगत)
11	12	13	14	15	16

(10) पिछले तीन वर्ष के दौरान प्राप्त स्वामिस्व या राजस्व

(11) पिछले तीन वर्ष के दौरान उत्पादन किए गए गौण खनिज के ब्यौरे

(12) जिले का खनिज मानचित्र

(13) निम्नलिखित प्ररूप के अनुसार जिले में आशय पत्र के धारकों की उसकी वैधता सहित सूची :--

क्रम सं.	खनिज का नाम	पट्टेदार का नाम	आशय पत्र धारक का पता एवं संपर्क संख्या	आशय पत्र आदेश की संख्या एवं तारीख	आबंटित किए जाने वाले खनन पट्टे का क्षेत्र	आशय पत्र की वैधता	उपयोग (कैप्टिव/ गैर-कैप्टिव)	खनन पट्टे की अवस्थिति (अक्षांश एवं देशांतर)
1	2	3	4	5	6	7	8	9

(14) जिले में उपलब्ध कुल खनिज भंडार ;

(15) जिले में उपलब्ध खनिज की क्वालिटी / ग्रेड ;

(16) खनिज का उपयोग ;

(17) पिछले तीन वर्षों के दौरान खनिज की मांग और पूर्ति ;

(18) जिले के मानचित्र पर चिह्नांकित खनिज पट्टे ;

(19) उस क्षेत्र के ब्यौरे, जहां खनिज पट्टों का समूह है, अर्थात् खनिज पट्टों की संख्या, अवस्थिति (अक्षांश और देशांतर) ;

(20) जिले में पारिस्थितिकी संवेदनशील क्षेत्र, यदि कोई हो ;

(21) पर्यावरण (वायु, जल, ध्वनि, मृदा, वनस्पति और प्राणी, भू-उपयोग, कृषि, वन आदि) पर खनन कार्यकलाप का संघात ;

(22) पर्यावरण पर खनन संघात को कम करने के लिए उपचारात्मक उपाय ;

(23) खनन किए गए क्षेत्र को पुन: प्राप्त करना (जिले में नियमों और विनियम, प्रस्तावित पुन: प्राप्ति योजना के अनुसार) सर्वोत्तम व्यवहार को पहले ही कार्यान्वित किया गया है ;

(24) जोखिम निर्धारण एवं आपदा प्रबंधन योजना ;

(25) जिले में व्यवसायिक सुरक्षा मुद्दों के ब्यौरे (सिलिकोसिस एवं तपेदिक के रोगियों के पिछले पांच वर्ष के डाटा को प्रस्तुत करने की आवश्यकता है) ;

(26) जिले में पहले ही अनुदत्त पट्टों के संबंध में पौधा रोपण और हरित पट्टी विकास ;

(27) कोई अन्य सूचना ।

जिला पर्यावरण संघात निर्धारण प्राधिकरण (डीईआईएए) जिले में गौण खनिज की किस्म की प्रकृति के आधार पर संबंधित राज्य सरकार के खनिज और भू-विज्ञान विभाग के परामर्श से जिला सर्वेक्षण रिपोर्ट में अतिरिक्त मानकों को सम्मिलित कर सकेगी ।

जिला सर्वेक्षण रिपोर्ट पर्यावरणीय निकासी, रिपोर्टों को तैयार करने और परियोजनाओं के मूल्यांकन के लिए आधार होगी । रिपोर्ट को प्रत्येक पांच वर्ष में एक बार अद्यतन किया जाएगा ।"।

[फा. सं. एल-11011/26/2018-आईए-II(एम)]

ज्ञानेश भारती, संयुक्त सचिव

टिप्पण : मूल अधिसूचना भारत के राजपत्र, असाधारण, भाग II, खंड 3, उप-खंड (ii) में सं. का.आ. 1533(अ) तारीख 14 सितंबर 2006 द्वारा प्रकाशित की गई थी और तत्पश्चात् उसे निम्नानुसार संशोधित किया गया :--

1. का. आ. 1949 (अ), तारीख 13 नवंबर, 2006;
2. का. आ. 1737 (अ), तारीख 11 अक्तूबर , 2007;
3. का. आ. 3067 (अ), तारीख 1 दिसंबर, 2009;
4. का. आ. 695 (अ), तारीख 4 अप्रैल, 2011;
5. का. आ. 156 (अ), तारीख 25 जनवरी, 2012;
6. का. आ. 2896 (अ), तारीख 13 दिसंबर, 2012;
7. का. आ. 674 (अ), तारीख 13 मार्च, 2013;
8. का. आ. 2204 (अ), तारीख 19 जुलाई 2013;
9. का. आ. 2555 (अ), तारीख 21 अगस्त, 2013 ;
10. का. आ. 2559 (अ), तारीख 22 अगस्त, 2013;
11. का. आ. 2731 (अ), तारीख 9 सितंबर, 2013;
12. का. आ. 562 (अ), तारीख 26 फरवरी, 2014;
13. का. आ. 637 (अ), तारीख 28 फरवरी, 2014;
14. का. आ. 1599 (अ), तारीख 25 जून, 2014;
15. का. आ. 2601 (अ), तारीख 7 अक्तूबर, 2014;
16. का. आ. 2600 (अ), तारीख 9 अक्टूबर, 2014;
17. का. आ. 3252 (अ), तारीख 22 दिसंबर, 2014;
18. का. आ. 382 (अ), तारीख 3 फरवरी, 2015;
19. का. आ. 811 (अ), तारीख 23 मार्च, 2015;
20. का. आ. 996 (अ), तारीख 10 अप्रैल, 2015;
21. का. आ. 1142 (अ), तारीख 17 अप्रैल, 2015;
22. का. आ. 1141 (अ), तारीख 2 9 अप्रैल, 2015;
23. का. आ. 1834 (अ), तारीख 6 जुलाई, 2015;
24. का. आ. 2571 (अ), तारीख 31 अगस्त, 2015;
25. का. आ. 2572 (अ), तारीख 14 सितंबर, 2015;
26. का. आ. 141 (अ), तारीख 15 जनवरी, 2016;
27. का. आ. 648 (अ), तारीख 3 मार्च, 2016;
28. का. आ. 2269 (अ) तारीख 1 जुलाई, 2016;
29. का. आ. 2944 (अ), तारीख 14 सितंबर, 2016;
30. का. आ. 3518 (अ) तारीख 23 नवंबर 2016;
31. का. आ. 3999 दिसंबर (अ) तारीख 9 दिसंबर, 2016; और
32. का. आ. 4241 (अ) तारीख 30 दिसंबर, 2016

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 25th July, 2018

S.O. 3611(E).—Whereas by notification of the Government of India in the erstwhile Ministry of Environment and Forest issued *vide* number S.O. 1533(E), dated the 14th September, 2006 published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (ii) (hereinafter referred to as the said notification) directions have been given regarding the prior environmental clearance;

And whereas, the Ministry of Environment, Forest and Climate Change has amended the said Notification *vide* S.O. 141 (E) dated 15th January, 2016 wherein the procedure for preparation of District Survey Report for minor mineral has been prescribed;

And whereas, the Hon'ble High Court of Jharkhand at Ranchi in its orders dated the 11th April, 2018 and 19th June, 2018 in W.P. (PIL) No. 1806 of 2015, in the matter of Court on its Own Motion Versus the State of Jharkhand & Others with W.P. (PIL) No. 290 of 2013, in the matter of Hemant Kumar Shilkarwar Versus the State of Jharkhand & Others, has *inter-alia* directed the preparation of District Survey Report for minor minerals other than Sand and Bajri or delegation of the powers for preparation of format of District Survey Report of minor minerals other than sand and bajri to the State Government and/or District Environment Impact Assessment Authority and District Expert Appraisal Committee;

And whereas, the Central Government hereby in the public interest dispense with the requirement of notice under clause (a) of sub-rule (3) of rule 5 of the Environment Protection Rules, 1986,

Now, therefore in exercise of the powers conferred by sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (4) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby makes the following further amendments to the notification of the Government of India, in the erstwhile Ministry of Environment and Forests *vide* number S.O. 1533(E), dated the 14th September, 2006, namely: –

In the said notification, for Appendix X, the following shall be substituted, namely: -

"APPENDIX - X

[See paragraph 7 (iii) (a)]

I. PROCEDURE FOR PREPARATION OF DISTRICT SURVEY REPORT FOR SAND MINING OR RIVER BED MINING

The main objective of the preparation of District Survey Report (as per the Sustainable Sand Mining Guideline) is to ensure the following: -

Identification of areas of aggradations or deposition where mining can be allowed; and identification of areas of erosion and proximity to infrastructural structures and installations where mining should be prohibited and calculation of annual rate of replenishment and allowing time for replenishment after mining in that area.

The report shall have the following structure:

(1) Introduction;

(2) overview of Mining Activity in the District;

(3) the List of Mining Leases in the District with location, area and period of validity;

(4) details of Royalty or Revenue received in last three years;

(5) detail of Production of Sand or Bajri or minor mineral in last three years;

(6) process of Deposition of Sediments in the rivers of the District;

(7) general Profile of the District;

(8) land Utilization Pattern in the district: Forest, Agriculture, Horticulture, Mining etc.;

(9) physiography of the District;

(10) rainfall: month-wise;

(11) geology and Mineral Wealth.

In addition to the above, the report shall contain the following:

(a) District wise detail of river or stream and other sand source;

(b) District wise availability of sand or gravel or aggregate resources;

(c) District wise detail of existing mining leases of sand and aggregates.

A survey shall be carried out by the District Environment Impact Assessment Authority with the assistance of Geology Department or Irrigation Department or Forest Department or Public Works Department or Ground Water Boards or Remote Sensing Department or Mining Department etc. in the district.

Drainage system with description of main rivers

S. No.	Name of the River	Area drained (Sq. Km)	% Area drained in the District
(1)			
(2)			

Salient Features of Important Rivers and Streams:

S. No.	Name of the River or Stream	Total Length in the District (in Km)	Place of origin	Altitude at Origin
(1)				
(2)				

Portion of the River or Stream Recommended for Mineral Concession	Length of area recommended for mineral concession (in kilometer)	Average width of area recommended for mineral concession (in meters)	Area recommended for mineral concession (in square meter)	Mineable mineral potential (in metric tonne) (60% of total mineral potential)

Mineral Potential

Boulder (MT)	Bajari (MT)	Sand (MT)	Total Mineable Mineral Potential (MT)

Annual Deposition

S. No.	River or Stream	Portion of the river or stream recommended for mineral concession	Length of area recommended for mineral concession (in kilometer)	Average width of area recommended for mineral concession (in meters)	Area recommended for mineral concession (in square meter)	Mineable mineral potential (in metric tonne) (60% of total mineral potential)
(1)						
(2)						
Total for the District						

A Sub-Divisional Committee comprising of (i) Sub-Divisional Magistrate, (ii) Officers from (a) Irrigation department, (b) State Pollution Control Board or Committee, (c) Forest department, (d) Geology or mining officer shall visit each site for which environmental clearance has been applied for and make recommendation on suitability of site for mining or prohibition thereof.

Methodology adopted for calculation of Mineral Potential:

The mineral potential is calculated based on field investigation and geology of the catchment area of the river or streams. As per the site conditions and location, depth of minable mineral is defined. The area for removal of the mineral in a river or stream can be decided depending on geo-morphology and other factors, it can be 50 % to 60 % of the area of a particular river or stream. For Example, in some hill States mineral constituents like boulders, river born Bajri, sand up to a depth of one meter are considered as resource mineral. Other constituents like clay and silt are excluded as waste while calculating the mineral potential of particular river or stream.

The District Survey Report shall be prepared in the district and its draft shall be placed in the public domain by keeping its copy in Collectorate and posting it on the district's website for twenty-one days. The comments received shall be considered and if found correct, shall be incorporated in the final Report to be finalised within six months by the District Environment Impact Assessment Authority.

The District Survey Report shall form the basis for application for environmental clearance, preparation of reports and appraisal of projects. The Report shall be updated once every five years.

II. PROCEDURE FOR PREPARATION OF DISTRICT SURVEY REPORT OF MINOR MINERALS OTHER THAN SAND MINING OR RIVER BED MINING

The District Survey Report shall be prepared for each minor mineral in the district separately and its draft shall be placed in the public domain by keeping its copy in Collectorate and posting it on district's website for twenty-one days. The comments received shall be considered and if found fit, shall be incorporated in the final Report to be finalised within six months by the DEIAA.

The District Survey Report for minor minerals other than sand mining or River bed mining shall be as per structure mentioned below: -

FORMAT FOR PREPARATION OF DISTRICT SURVEY REPORT FOR MINOR MINERALS OTHER THAN SAND MINING OR RIVER BED MINING

(1) Introduction;

(2) overview of Mining Activity in the District;

(3) general Profile of the District;

(4) geology of the District;

(5) drainage of Irrigation pattern;

(6) land Utilisation Pattern in the District: Forest, Agricultural, Horticultural, Mining etc.;

(7) surface Water and Ground Water scenario of the district;

(8) rainfall of the district and climatic condition;

(9) details of the mining leases in the District as per the following format: -

Sl. No.	Name of the Mineral	Name of the Lessee	Address & Contact No. of Lessee	Mining lease Grant Order No. & date	Area of Mining lease (ha)	Period of Mining lease (Initial)		Period of Mining lease (1st/2nd…renewal)	
						From	To	Form	To
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

Date of commencement of Mining Operation	Status (Working/Non-Working/Temp. Working for dispatch etc.)	Captive/ Non-Captive	Obtained Environmental Clearance (Yes/No), If Yes Letter No with date of grant of EC.	Location of the Mining lease (Latitude & Longitude)	Method of Mining (Opencast/Underground)
11	**12**	**13**	**14**	**15**	**16**

(10) details of Royalty or Revenue received in last three years;

(11) details of Production of Minor Mineral in last three years;

(12) mineral Map of the District;

(13) list of Letter of Intent (LOI) Holders in the District along with its validity as per the following format :-

(14) total Mineral Reserve available in the District;

Sl. No.	Name of the Mineral	Name of the Lessee	Address & Contact No. of Letter of Intent Holder	Letter of Intent Grant Order No. & date	Area of Mining lease to be allotted	Validity of LoI	Use (Captive/ Non-Captive)	Location of the Mining lease (Latitude & Longitude)
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**

(15) quality /Grade of Mineral available in the District;

(16) use of Mineral;

(17) demand and Supply of the Mineral in the last three years;

(18) mining leases marked on the map of the district;

(19) details of the area of where there is a cluster of mining leases viz. number of mining leases, location (latitude and longitude);

(20) details of Eco-Sensitive Area, if any, in the District;

(21) impact on the Environment (Air, Water, Noise, Soil, Flora & Fauna, land use, agriculture, forest etc.) due to mining activity;

(22) remedial Measures to mitigate the impact of mining on the Environment;

(23) reclamation of Mined out area (best practice already implemented in the district, requirement as per rules and regulation, proposed reclamation plan);

(24) risk Assessment & Disaster Management Plan;

(25) details of the Occupational Health issues in the District. (Last five-year data of number of patients of Silicosis & Tuberculosis is also needs to be submitted);

(26) plantation and Green Belt development in respect of leases already granted in the District;

(27) any other information.

The District Environment Impact Assessment Authority (DEIAA) based on the nature and type of minor mineral in the District may include the additional parameters in the District Survey Report in consultation with the Department of Mines and Geology of the concerned State Government.

The District Survey Report shall form the basis for application for environmental clearance, preparation of reports and appraisal of projects. The Report shall be updated once every five years";

[F.No. L-11011/26/2018-IA-II (M)]

GYANESH BHARTI, Jt. Secy.

Note : The principal notification was published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (ii) *vide* number S.O. 1533 (E), dated the 14th September, 2006 and subsequently amended by :-

1. S.O. 1949 (E), dated the 13th November, 2006;
2. S.O. 1737 (E), dated the 11th October, 2007;
3. S.O. 3067 (E), dated the 1st December, 2009;
4. S.O. 695 (E), dated the 4th April, 2011;
5. S.O. 156 (E), dated the 25th January, 2012;
6. S.O. 2896 (E), dated the 13th December, 2012;
7. S.O. 674 (E), dated the 13th March, 2013;
8. S.O. 2204 (E), dated the 19th July 2013;
9. S.O. 2555 (E), dated the 21st August, 2013;
10. S.O. 2559 (E), dated the 22nd August, 2013;
11. S.O. 2731 (E), dated the 9th September, 2013;
12. S.O. 562 (E), dated the 26th February, 2014;
13. S.O. 637 (E), dated the 28th February, 2014;
14. S.O. 1599 (E), dated the 25th June, 2014;
15. S.O. 2601 (E), dated the 7th October, 2014;
16. S.O. 2600 (E), dated the 9th October, 2014;
17. S.O. 3252 (E), dated the 22nd December, 2014;
18. S.O. 382 (E), dated the 3rd February, 2015;
19. S.O. 811 (E), dated the 23rd March, 2015;
20. S.O. 996 (E), dated the 10th April, 2015;

21. S.O. 1142 (E), dated the 17th April, 2015;

22. S.O. 1141 (E), dated the 29th April, 2015;

23. S.O. 1834 (E), dated the 6th July, 2015;

24. S.O. 2571 (E), dated the 31st August, 2015;

25. S.O. 2572 (E), dated the 14th September, 2015;

26. S.O.141 (E), dated the 15th January, 2016;

27. S.O.648 (E), dated the 3rd March, 2016;

28. S.O. 2269 (E) dated the 1st July, 2016;

29. S.O. 2944 (E) dated the 14th September, 2016;

30. S.O. 3518 (E) dated the 23rd November 2016;

31. S.O. 3999 (E) dated the 9th December, 2016; and

32. S.O. 4241 (E) dated the 30th December, 2016.

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पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय
अधिसूचना

नई दिल्ली, 15 जनवरी, 2016

का. आ. 141(अ).—एक प्ररूप अधिसूचना, पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उपनियम (3) की अपेक्षानुसार अधिसूचना, सं. का.आ. 1533 (अ) तारीख 14 सितम्बर, 2006 में कतिपय और संशोधन करने के लिए सं. का.आ. 2588 (अ) तारीख 22 सितम्बर, 2014 द्वारा प्रकाशित की गई थी, उन सभी व्यक्तियों से जिनके उससे प्रभावित होने की संभावना है उक्त अधिसूचना के राजपत्र की प्रतियां जनता को उपलब्ध होने की तारीख से साठ दिन की अवधि के भीतर आक्षेप और सुझाव आमंत्रित किए गए थे;

और उक्त राजपत्र की प्रतियां जनता को 22 सितम्बर, 2015 को उपलब्ध करा दी गई थीं ;

और केन्द्रीय सरकार द्वारा पूर्वोक्त वर्णित प्रारूप अधिसूचना पर प्राप्त सुझावों या आक्षेपों पर सम्यक्त: विचार किया गया है ;

और दीपक कुमार आदि बनाम हरियाणा राज्य और अन्य आदि के मामले में माननीय उच्चतम न्यायालय के 2009 की विशेष अनुमति याचिका (सि) सं. 19628-19629 तारीख 27 फरवरी, 2012 में आई.ए.सं. 12-13, के आदेश के अनुसरण में खनन पट्टे के क्षेत्र पर विचार किए बिना लघु खनिजों के खनन के लिए पूर्व पर्यावरणीय अनापत्ति अब आज्ञापक हो गई है ;

और माननीय उच्चतम न्यायालय के पूर्वोक्त आदेश के अनुसरण में ऐसे मामले जिनके लिए पूर्व पर्यावरणीय अनापत्ति अभिप्राप्त करना अपेक्षित हो गया है, सारवान रूप से बढ़ गए है ;

और माननीय राष्ट्रीय हरित अधिकरण ने बालू खनन के मामले में 13 जनवरी, 2015 के अपने आदेश द्वारा समूह में लघु खननों के खनन पट्टे की पर्यावरणीय अनापत्ति के लिए नीति बनाने का निदेश दिया है ;

और राज्य सरकारों ने लघु खनिजों के खनन के लिए पर्यावरणीय अनापत्ति की प्रक्रिया को सुव्यवस्थित बनाने के लिए अभ्यावेदन दिए है ;

और पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय ने राज्य सरकारों के साथ परामर्श से भरणीय बालू खनन के लिए मार्गदर्शक सिद्धांत तैयार किए है जिसमें क्लस्टर के लिए पर्यावरणीय निकासी के उपबंधों, जिला

पर्यावरण संघात निर्धारण प्राधिकरण के ब्यौरे दिए गए है और सूचना प्रौद्योगिकी और सूचना प्रौद्योगिकी समर्थित सेवाओं का स्त्रोत से गंतव्य तक खनन की गई सामग्रियों को ट्रेक करने में समर्थ होने में उपयोग करने का वर्णन किया गया है ;

अतः, अब, केन्द्रीय सरकार पर्यावरण संरक्षण नियम, 1986 के नियम 5 के उपनियम (3) के खंड (घ) के साथ पठित पर्यावरण (संरक्षण) अधिनियम, 1986 की धारा 3 की उपधारा (2) के खंड (**v**) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए उक्त अधिसूचना में निम्नलिखित संशोधन करती है, अर्थात् **:-**

उक्त अधिसूचना में,-

(क) पैरा 2 में, **"**उक्त अनुसूची में**"** शब्दों के पश्चात् निम्नलिखित शब्द अंतःस्थापित किए जाएंगे, अर्थात् **:-**

"और जिला स्तर पर उक्त अनुसूची में लघु खनिजों के खनन के लिए 'ख2' प्रवर्ग के अधीन आने वाले मामलों के लिए जिला पर्यावरण संघात निर्धारण प्राधिकरण (डीईआईएए)";

(ख) पैरा 3 के पश्चात् निम्नलिखित पैरा अंतःस्थापित किया जाएगा, अर्थात् **:-**

"3क. जिला स्तरीय पर्यावरण संघात निर्धारण प्राधिकरण **:-**

(1) केन्द्रीय सरकार द्वारा पर्यावरण (संरक्षण) अधिनियम, 1986 की धारा 3 की उपधारा (3) के अधीन जिला स्तरीय पर्यावरण संघात निर्धारण प्राधिकरण (जिसे इसमें इसके पश्चात् डीईआईएए कहा गया है) का गठन किया जाएगा जो चार सदस्यों के मिलकर बनेगा जिसके अंतर्गत अध्यक्ष और सदस्य सचिव है ।

(2) जिला मजिस्ट्रेट या जिला कलक्टर डीईआईएए का अध्यक्ष होगा ।

(3) राज्य के संबंधित जिला मुख्यालय का उप प्रभागीय मजिस्ट्रेट या उप प्रभागीय अधिकारी डीईआईएए का सदस्य सचिव होगा ।

(4) डीईआईएए के अन्य दो सदस्य सबसे ज्येष्ठ प्रभागीय वन अधिकारी और एक विशेषज्ञ होंगे । विशेषज्ञ को, यथास्थिति, प्रभाग के प्रभागीय आयुक्त या मुख्य वन परिरक्षक द्वारा नामनिर्दिष्ट किया जाएगा । पात्रता मानदंड को पूरा करने वाले विशेषज्ञ की पदावधि और अर्हताएं इस अधिसूचना के परिशिष्ट 7 में दी गई है ।

(5) डीईआईएए के ऐसे सदस्य जो संबंधित राज्य सरकार या संघ राज्य क्षेत्र प्रशासन के सेवारत अधिकारी है सिवाय विशेषज्ञ सदस्य के पदेन सदस्य होंगे ।

(6) जिला स्तरीय विशेषज्ञ निर्धारण समिति जिसे इसमें इसके पश्चात् डीईएसी कहा गया है ग्यारह सदस्यों से मिलकर बनेगी जिसके अंतर्गत एक अध्यक्ष और एक सदस्य सचिव है ।

(7) संबंधित राज्य सरकार के जिले या संघ राज्यक्षेत्र प्रशासन में सबसे ज्येष्ठ कार्यपालक इंजीनियर, सिंचाई विभाग डीईएसी का अध्यक्ष होगा ।

(8) खनन और भूविज्ञान विभाग में सहायक निदेशक या उप निदेशक या जिले का भूविज्ञानी डीईएसी का उस क्रम में सदस्य सचिव होगा ।

(9) राज्य प्रदूषण नियंत्रण बोर्ड या समिति का प्रतिनिधि, जिले में सबसे ज्येष्ठ उप प्रभागीय अधिकारी (वन) सुदूर संवेदन विभाग या भूविज्ञान विभाग या राज्य भूजल विभाग का प्रतिनिधि, एक व्यवसायिक स्वास्थ्य विशेषज्ञ या चिकित्सा अधिकारी को जिला मजिस्ट्रेट या जिला कलक्टर द्वारा नामनिर्दिष्ट किया जाएगा, जिला परिषद् से इंजीनियर और, यथास्थिति, प्रभागीय आयुक्त या मुख्य वन परिरक्षक द्वारा नामनिर्दिष्ट किए जाने वाले तीन विशेषज्ञ सदस्य डीईएसी के अन्य सदस्य होंगे । पात्रता मानदंड को पूरा करने वाले विशेषज्ञ की पदावधि और अर्हताएं इस अधिसूचना के परिशिष्ट 7 में दी गई है ।

(10) डीईएसी के ऐसे सदस्य जो संबंधित राज्य सरकार या संघ राज्यक्षेत्र प्रशासन के सेवारत अधिकारी है सिवाय विशेषज्ञ सदस्य के पदेन सदस्य होंगे ।

(11) जिला मजिस्ट्रेट या जिला कलक्टर किसी अभिकरण को डीईआईएए के सचिवालय के रूप में कार्य करने के लिए अधिसूचित करेंगे और डीईएसी उनको कानूनी कृत्यों के लिए सभी वित्तीय और लोजिस्टक सहायता प्रदान करेगी ।

(12) डीईआईएए और डीईएसी समय-समय पर यथासंशोधित इस अधिसूचना में विनिर्दिष्ट प्रक्रिया का अनुसरण करेंगे और शक्तियों का प्रयोग करेंगे ।

(13) डीईएसी सामूहिक उत्तरदायित्व के सिद्धांत पर कार्य करेगी और अध्यक्ष प्रत्येक दशा में एक मत पर पहुंचने का प्रयास करेगा और यदि सहमति नहीं होती है तो बहुमत का मत अभिभावी होगा ।" ;

(ग) पैरा 4 में उप पैरा (iii) के पश्चात् निम्नलिखित उप पैरा अंत:स्थापित किया जाएगा, अर्थात् :-

"(iv) 'ख2' प्रवर्ग की पांच हेक्टेयर से कम या उसके बराबर लघु खनिज के खनन से संबंधित परियोजनाओं के लिए डीईआईएए से पूर्व पर्यावरणीय अनापत्ति अपेक्षित होगी । डीईआईएए अपने विनिश्चय को इस अधिसूचना के लिए यथागठित डीईएसी की सिफारिशों पर आधारित करेगी ।" ;

(घ) पैरा 5 के स्थान पर निम्नलिखित पैरा रखा जाएगा, अर्थात् :-

"**5. स्क्रीनिंग, स्कोपिंग और निर्धारण समितियां** :-

केन्द्रीय सरकार में वहीं विशेषज्ञ निर्धारण समितियां (ईएसी) राज्य या संघ राज्य स्तर पर एसईएसी और जिला स्तर पर डीईएसी प्रवर्ग 'क', 'ख1', 'ख2', प्रवर्ग की परियोजनाओं या कार्यकलापों की स्क्रीनिंग, स्कोपिंग और निर्धारण तथा क्रमशः पांच हेक्टेयर से कम या उसके बराबर लघु खनिजों के खनन पट्टे की 'ख2' प्रवर्ग की परियोजनाओं की स्क्रीनिंग, स्कोपिंग और निर्धारण करेगी । ईएसी, एसईएसी और डीईएसी प्रत्येक मास कम से कम एक बार बैठक करेंगी ।

(क) ईएसी की संरचना परिशिष्ट 6 में दिए अनुसार होगी । राज्य या संघ राज्य स्तर पर एसईएसी का गठन केन्द्रीय सरकार द्वारा संबंधित राज्य सरकार या संघ राज्यक्षेत्र प्रशासन के परामर्श से उसी प्रकार किया जाएगा । जिला स्तर पर डीईएसी का गठन केन्द्रीय सरकार द्वारा पैरा 3क में दी गई संरचना के अनुसार किया जाएगा ।

(ख) केन्द्रीय सरकार संबंधित राज्य सरकारों या संघ राज्यक्षेत्र प्रशासनों की पूर्व सहमति से प्रशासनिक सुविधा और लागत के कारणों से एक से अधिक राज्य या संघ राज्यक्षेत्र के लिए एक एसईएसी का गठन कर सकेगी ।

(ग) ईएसी और एसईएसी का प्रत्येक तीन वर्ष के पश्चात् पुनर्गठन किया जाएगा ।

(घ) संबंधित ईएसी, एसईएसी और डीईएसी के प्राधिकृत सदस्य उस परियोजना या कार्यकलाप से संबंधित स्थल का जिसके लिए स्क्रीनिंग या स्कोपिंग या निर्धारण के प्रयोजनों के लिए पर्यावरणीय निकासी की ईप्सा की गई है । परियोजना प्रस्तावक जो निरीक्षण के लिए आवश्यक सुविधाएं उपलब्ध कराएगा, को कम से कम सात दिन की पूर्व सूचना देकर निरीक्षण कर सकेंगे ।

(ङ) ईएसी, एसईएसी और डीईएसी सामूहिक उत्तरदायित्व के सिद्धांत पर कार्य करेंगे । अध्यक्ष प्रत्येक दशा में एक मत पर पहुंचने का प्रयास करेगा और यदि सहमति नहीं होती है तो बहुमत का मत अभिभावी होगा । " ;

(ङ) पैरा 6 के स्थान पर निम्नलिखित पैरा रखा जाएगा, अर्थात् :-

"**(6)** पूर्व पर्यावरणीय अनापत्ति (ईसी) के लिए आवेदन :-

कोई संनिर्माण कार्यकलाप करने या भूमि को तैयार करने या परियोजना प्रस्तावक द्वारा स्थल पर खनन करने से पूर्व सभी मामलों में पूर्व पर्यावरणीय अनापत्ति की ईप्सा करने वाला आवेदन परियोजना प्रस्तावक द्वारा परियोजना के लिए प्रस्तावित स्थल (स्थलों) की पहचान या कार्यकलापों जिनसे आवेदन संबंधित है की पहचान करने के पश्चात् इसके साथ उपाबद्ध प्ररूप 1 और अनुपूरक प्ररूप 1क, यदि लागू हों, जैसा परिशिष्ट 2 में दिया गया है, में किया जाएगा और प्रवर्ग 'ख2' परियोजनाओं के अधीन पांच हेक्टेयर तक लघु खनिजों के खनन के लिए प्ररूप1ड में किया जाएगा । परियोजना प्रस्तावक आवेदन के साथ पूर्व साध्यता परियोजना रिपोर्ट की एक प्रति प्ररूप 1, प्ररूप 1क और प्ररूप1ड के साथ प्रस्तुत करेगा ; और संनिर्माण परियोजनाओं या कार्यकलापों की दशाओं (अनुसूची की मद 8) अवधारणा योजना की एक प्रति पूर्व साध्यता रिपोर्ट के स्थान पर प्रस्तुत की जाएगी ।" ;

(च) पैरा 7 में,-

(i) उप पैरा (i) में शीर्ष "I प्रक्रम (1)-स्क्रीनिंग : " , विद्यमान उप पैरा को उप पैरा "(क)" के रूप में पुनः अक्षरांकित किया जाएगा और इस प्रकार अक्षरांकित उप पैरा के पश्चात् निम्नलिखित उप पैरा अंत:स्थापित किया जाएगा, अर्थात् :-

"(ख) परिशिष्ट 9 में यथाविनिर्दिष्ट मामलों को पूर्व पर्यावरणीय अनापत्ति से छूट प्रदान की जाएगी ।" ;

(ii) उप पैरा 7**(ii)** के पश्चात् निम्नलिखित उप पैरा अंतःस्थापित किया जाएगा, अर्थात् **:-**

"7 (iii) **बालू खनन या नदी तट खनन और अन्य लघु खनिजों के खनन के लिए जिला सर्वेक्षण रिपोर्ट तैयार करना** :

(क) खनन या नदी तट खनन और अन्य लघु खनिजों के खनन के लिए जिला सर्वेक्षण रिपोर्ट तैयार करने की विहित प्रक्रिया परिशिष्ट 10 में दी गई है ।

(ख) लघु खनिजों के खनन जिसके अंतर्गत समूह अवस्थिति भी है, के लिए पर्यावरणीय अनापत्ति की विहित प्रक्रिया परिशिष्ट 11 में दी गई है ।" ;

(छ) पैरा 8 में,-

(i) "ईएसी या एसईएसी" अक्षरों और शब्द के स्थान पर "ईएसी या एसईएसी या डीईएसी" शब्द और अक्षर रखे जाएंगे ;

(ii) "विशेषज्ञ मूल्यांकन समिति या राज्य स्तरीय विशेषज्ञ मूल्यांकन समिति" शब्द जहां-जहां वे आते है, के स्थान पर "विशेषज्ञ मूल्यांकन समिति या राज्य स्तरीय विशेषज्ञ मूल्यांकन समिति या जिला स्तरीय विशेषज्ञ मूल्यांकन समिति" शब्द रखे जाएंगे ;

(ज) पैरा 9 में, उप पैरा (i) में, -

"विशेषज्ञ मूल्यांकन समिति या राज्य स्तरीय विशेषज्ञ मूल्यांकन समिति" शब्द जहां-जहां वे आते है, के स्थान पर "विशेषज्ञ मूल्यांकन समिति या राज्य स्तरीय विशेषज्ञ मूल्यांकन समिति या जिला स्तरीय विशेषज्ञ मूल्यांकन समिति" शब्द रखे जाएंगे ;

(झ) पैरा 10 में, उप पैरा (iii) के पश्चात् निम्नलिखित उप पैरा अंतःस्थापित किया जाएगा, अर्थात् **:-**

"**(iv)** बालू खनन या नदी तट खनन और मानीटरी की विहित प्रक्रिया परिशिष्ट 12 में दी गई है । ";

(ञ) पैरा 11 में,-

"विशेषज्ञ मूल्यांकन समिति या राज्य स्तरीय विशेषज्ञ मूल्यांकन समिति" शब्द जहां-जहां वे आते है, के स्थान पर "विशेषज्ञ मूल्यांकन समिति या राज्य स्तरीय विशेषज्ञ मूल्यांकन समिति या जिला स्तरीय विशेषज्ञ मूल्यांकन समिति" शब्द रखे जाएंगे ;

(ट) अनुसूची में,-

(i) मद 1(क) और उससे संबंधित प्रविष्टियों के स्थान पर निम्नलिखित मद और प्रविष्टियां रखी जाएगी, अर्थात् **:-**

(1)	(2)	(3)	(4)	(5)
"1(क)	(i) खनिजों का खनन	गैर कोयला खनन पट्टे के संबंध में ≥50 खनन पट्टा क्षेत्र कोयला खनन पट्टे के संबंध में >150 खनन पट्टा क्षेत्र खनन क्षेत्र तक विचार किए बिना अज़बेस्टो	गैर कोयला खनन पट्टे के संबंध में <50 खनन पट्टा क्षेत्र कोयला खनन पट्टे के संबंध में ≤150 खनन पट्टा क्षेत्र	सिवाय निम्नलिखित के साधारण शर्तें लागू होंगी: (i) प्रवर्ग 'ख2' लघु खनिजों के खनन (25 हेक्टेयर खनन पट्टा क्षेत्र तक) के लिए परियोजना या कार्यकलाप ; (ii) अंतरराज्यीय सीमा के लेखें नदी

		का खनन		तट खनन परियोजनाएं । **टिप्पण :** (1) खनिज के पूर्वेक्षण को छूट दी गई है । "; (2) लघु खनिजों जिसके अंतर्गत समूह अवस्थिति है, के खनन के लिए पर्यावरणीय अनापत्ति की विहित प्रक्रिया परिशिष्ट 11 में दी गई है । "; (3) ऐसे खनन पट्टे जिन्होंने पर्यावरण निकासी, पर्यावरण संघात निर्धारण अधिसूचना, 1994 और पर्यावरण संघात निर्धारण अधिसूचना, 2006 के अधीन अभिप्राप्त की है, के लिए नई पर्यावरणीय अनापत्ति नवीकरण के दौरान प्राप्त करने की अपेक्षा नहीं होगी परंतु यह कि परियोजना के पास विधिमान्य और विद्यमान पर्यावरणीय अनापत्ति हो ।
	(ii) पिच्छल पाइप लाईनें (कोयला लिगनाइट और अन्य अयस्क) जो राष्ट्रीय उद्यानों या अभ्यारण्यों या कोरल रीफ, पारिस्थितिकी संवेदी क्षेत्रों से गुजरती है ।	सभी परियोजनाएं ।		

(ठ) परिशिष्ट 6 के पश्चात् निम्नलिखित परिशिष्ट अंत:स्थापित किए जाएंगे, अर्थात् :-

"**परिशिष्ट 7**"

(पैरा 3क देखें)

डीईआईएए और डीईएसी में विशेषज्ञों की अर्हताएं और निबंधन

1. अर्हता : व्यक्ति के पास कम से कम (**i**) संबंधित विषय में पांच वर्ष का औपचारिक विश्वविद्यालय प्रशिक्षण होना चाहिए जिसकी परिणीति एम.ए. या एम.एस.सी. डिग्री के रूप में हों या (**ii**) इंजीनियरी**/**प्रौद्योगिकी**/**अभिन्यास विषय की दशा में उस क्षेत्र में विहित व्यवहारिक प्रशिक्षण के साथ चार वर्ष का औपचारिक प्रशिक्षण पाठ्यक्रम जिसकी परिणीति बी.टेक.**/**बी.ई.**/**बी.आर्क. डिग्री के रूप में या (**iii**) अन्य व्यवसायिक डिग्री (अर्थात् एम.बी.ए. आदि) जिसमें कुल पांच वर्ष का औपचारिक विश्वविद्यालय प्रशिक्षण और विहित व्यवहारिक प्रशिक्षण अंतर्वलित हों या (**iv**) विहित शिक्षुता/आर्टिकल शिप और संबंधित व्यवसायिक संगमों द्वारा संचालित परीक्षा उत्तीर्ण (अर्थात् चार्टर्ड एकाउंटेंसी) या (**v**) विश्वविद्यालय डिग्री के पश्चात् विश्वविद्यालय या सेवा अकादमी (अर्थात् एम.बी.ए.**/** एम.पी.ए.) आदि के पश्चात् दो वर्ष का औपचारिक प्रशिक्षण । व्यष्टिक व्यवसायियों का चयन करते समय उनके द्वारा अपने संबंधित क्षेत्रों में अर्जित अनुभव का ध्यान रखा जाएगा ।

2. विशेषज्ञ : पूर्वोक्त पात्रता मानदंड को पूरा करने वाला व्यवसायी जिसके पास संबंधित क्षेत्र में कम से कम दस वर्ष का अनुभव हो या कम से कम पांच वर्ष के सुसंगत अनुभव के साथ संबंधित क्षेत्र में उन्नत डिग्री (अर्थात् पी.एच.डी.)।

3. आयु : सत्तर वर्ष से कम । तथापि किसी दिए गए क्षेत्र में विशेषज्ञों की अनुपलब्धता या कमी की दशा में अधिकतम आयु को पचहत्तर वर्ष तक अनुज्ञात किया जा सकेगा ।

4. क्षेत्र : खनन, भूविज्ञान, जल विज्ञान, सुदूर संवेदन पर्यावरण क्वालिटी, पर्यावरण संघात निर्धारण प्रक्रिया, जोखिम निर्धारण, जीव विज्ञान, समुद्र विज्ञान, वाणिकी और वन्य जीवन, पर्यावरण अर्थशास्त्र, जैव विभिन्नता और नदी पारिस्थितिकी ।

5. पदावधि : विशेषज्ञ सदस्यों की अधिकतम पदावधि दो पदावधियों में तीन वर्ष होगी ।

6. विशेषज्ञ सदस्य को उसकी पदावधि की समाप्ति से पूर्व बिना कारण और उचित जांच के नहीं हटाया जाएगा ।

परिशिष्ट 8
(पैरा 6 देखें)
प्ररूप 1ड

पांच हेक्टेयर से कम और उसके बराबर प्रवर्ग 'ख2' के अधीन लघु खनिजों के खनन के लिए आवेदन

(I) मूल सूचना

(i) खनन पट्टा स्थल का नाम :

(ii) अवस्थिति/स्थल (जीपीएस समन्वयक):

(iii) खनन पट्टे का आकार (हेक्टेयर):

(iv) खनन पट्टे की क्षमता (टीपीए):

(v) खनन पट्टे की कालावधि :

(vi) परियोजना की अनुमानित लागत:

(vii) संपर्क सूचना:

पर्यावरण संवेदनशीलता

क्रम सं.	क्षेत्र	किलोमीटर में दूरी **/** ब्यौरे
1.	निकटतम रेल या संबंधित नदी, उप नदी, नाले आदि के ऊपर पुल से परियोजना की दूरी	

2.	अवसंरचना प्रसुविधा से दूरी रेलवे लाईन राष्ट्रीय राजमार्ग राज्य राजमार्ग प्रमुख जिला सड़क कोई अन्य सड़क वैद्युत पारेषण लाईन खंभा या टावर नहर या चैक बांध या जलाशय या झील या तालाब पेयजल पंप हाउस के लिए अन्तर्ग्रहण सिंचाई नहर पंपों के लिए अन्तर्ग्रहण	
3.	अंतरराष्ट्रीय अभिसमयों, राष्ट्रीय या स्थानीय विधान के अधीन अपनी पारस्थितिकी, भूदृश्य, सांस्कृतिक या अन्य संबंधित मूल्य के लिए संरक्षित क्षेत्र	
4.	ऐसे क्षेत्र जो पारिस्थितिकी कारणों से महत्वपूर्ण या संवेदनशील हैं—आर्द्रभूमि, जलमार्ग या अन्य जल निकाय, तटीय क्षेत्र, जीव मंडल, पर्वत, वन	
5.	प्राणी या वनस्पति प्रजातियों के उनके प्रजनन, घोंसलों, चराई, आराम के लिए सर्दियों में, प्रवास के लिए इस्तेमाल किए जाने वाले संरक्षित, महत्वपूर्ण या संवेदनशील क्षेत्र	
6.	अंतर्देशीय, तटीय, समुद्री या भूगर्भीय जल	
7.	राज्य, राष्ट्रीय सीमाएं	
8.	पब्लिक द्वारा मनोरंजन या अन्य पर्यटन, धार्मिक स्थलों तक पहुंच के लिए उपयोग किए जाने वाले मार्ग या सुविधाएं	
9.	रक्षा संस्थापन	
10.	गहन जनसंख्या या निर्मित क्षेत्र, निकटतम मानव पर्यावास से दूरी	
11.	मानव निर्मित संवेदनशील भू-उपयोग के अधिभोग में क्षेत्र (अस्पताल, स्कूल, पूजास्थल, सामुदायिक सुविधाएं)	
12.	ऐसे क्षेत्र जिनमें महत्वपूर्ण उच्च क्वालिटी या दुर्लभ स्त्रोत विद्यमान है (भूजल स्त्रोत, भू-स्त्रोत, वानिकी, कृषि, मछली उद्योग, पर्यटन, खनिज)	
13.	ऐसे क्षेत्र जिनमें पहले से ही प्रदूषण या पर्यावरण नुकसान हुआ है (ऐसे क्षेत्र जहां विद्यमान विधि पर्यावरणीय मानकों से परे कार्य किया गया है)	
14.	ऐसे क्षेत्र जो प्राकृतिक संकटों के प्रति अति संवेदनशील हैं जिससे परियोजना द्वारा पर्यावरणीय समस्याएं उपस्थित हो सकती हैं (भूकंप, अवतलन, भूस्खलन, अवक्षयन, बाढ़ या अत्यधिक या प्रतिकूल जलवायु परिवर्तन)	
15.	क्या प्रस्तावित खनन स्थल के लिए भूजल रिचार्ज के लिए विदर/ दरार के पास अवस्थित है	
16.	क्या प्रस्ताव में निम्नलिखित विनियमों या अधिनियमों के अधीन अनुमोदन या निकासी अंतर्वलित है, अर्थात्:— (क) वन (परिरक्षण) अधिनियम, 1980;	

	(ख) वन्यजीव (संरक्षण) अधिनियम, 1972; (ग) तटीय विनियमन जोन अधिसूचना, 2011. यदि हां, तो उनके ब्यौरे और परिस्थिति दी जानी है ।	
17.	अंतर्वलित वन भूमि (हेक्टेयर)	
18.	क्या परियोजना और/या भूमि जिसमें परियोजना स्थापित किए जाने के लिए प्रस्तावित है, के विरुद्ध कोई मुकद्दमेबाजी लंबित है ? (क) न्यायालय का नाम (ख) वाद संख्या (ग) न्यायालय के आदेश या निदेश, यदि कोई हों और उनकी प्रस्तावित परियोजना के लिए संगतता ।	

(नाम और पते के साथ परियोजना

प्रस्तावक के हस्ताक्षर)

परिशिष्ट 9

[पैरा 7 (i)(ख) देखें]

कतिपय मामलों में पर्यावरणीय अनापत्ति की अपेक्षा से छूट

निम्नलिखित मामलों को पूर्व पर्यावरणीय अनापत्ति की अपेक्षा नहीं होगी, अर्थात् :—

1. साधारण मिट्टी या बालू की कुम्हारों द्वारा मिट्टी के घड़े, लैंप, खिलौने आदि बनाने के लिए उनकी प्रथाओं के अनुसार निकासी ।

2. मिट्टी की टाइलें बनाने वालों द्वारा जो मिट्टी की टाइलें बनाते हैं, के लिए साधारण मिट्टी या बालू की निकासी ।

3. किसानों द्वारा बाढ़ के पश्चात् कृषि भूमि से बालू के जमाव को हटाना ।

4. ग्राम पंचायत में अवस्थित स्त्रोतों से बालू और साधारण मिट्टी को वैयक्तिक उपयोग या ग्राम में सामुदायिक कार्य के लिए प्रथा के अनुसार खनन ।

5. सामुदायिक कार्य जैसे ग्रामीण तालाबों या टैंकों से गाद हटाना, महात्मा गांधी राष्ट्रीय ग्रामीण रोजगार और गांरटी स्कीमों, अन्य सरकारी प्रायोजित स्कीमों तथा सामुदायिक प्रयासों द्वारा ग्रामीण सड़कों, तालाबों, बांधों का संनिर्माण ।

6. बांधों, मेड़ों, बैराजों, नदी और नहरों की उनके अनुरक्षण तथा आपदा प्रबंधन के प्रयोजन के लिए तलमार्जन और गाद निकालना ।

7. गुजरात में गुजरात सरकार की तारीख 14 फरवरी, 1990 की अधिसूचना सं.जीयू/90(16)/एमसीआर-2189 (68)/5-सीएचएच द्वारा बंजारा और ओड़ द्वारा बालू के पारंपरिक उपजीविका कार्य ।

8. सिंचाई या पेयजल के लिए कुंओं की खुदाई ।

9. ऐसे भवनों की नींव के लिए खुदाई जिनके लिए पूर्व पर्यावरणीय अनापत्ति अपेक्षित नहीं है ।

10. जिला कलक्टर या जिला मजिस्ट्रेट के आदेश पर किसी नहर, नाला, ड्रेन, जल निकाय आदि में होने वाली दरार को भरने के लिए साधारण मिट्टी या बालू का उत्खनन ताकि किसी आपदा या बाढ़ जैसी स्थिति से निपटा जा सके ।

11. ऐसे कार्यकलाप जिन्हें राज्य सरकार द्वारा विधान या नियमों के अधीन पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय, भारत सरकारी की सहमति से गैर खननकारी कार्यकलाप घोषित किया है ।

परिशिष्ट - 10

[पैरा 7 (iii) (क) देखें]

जिला सर्वेक्षण रिपोर्ट तैयार करने के लिए प्रक्रिया

जिला सर्वेक्षण रिपोर्ट तैयार करने का मुख्य उद्देश्य निम्नलिखित का सुनिश्चचय करना है :

भूमिवृद्धि या जमाव के क्षेत्रों की पहचान जहां खनन को अनुज्ञात किया जा सकता है ; और अपक्षरण के क्षेत्रों की पहचान तथा उसकी अवसंरचना, ढांचों और संस्थापनों से निकटता जहां खनन को प्रतिषिद्ध किया जाना चाहिए तथा फिर से भराव की वार्षिक दर की संगणना तथा क्षेत्र में खनन के पश्चात् भराव के लिए अनुज्ञात समय।

रिपोर्ट का निम्नलिखित ढांचा होगा :

1. प्राक्कथन
2. जिले में खनन कार्यकलापों पर विहंगम दृष्टि
3. अवस्थिति, क्षेत्र और विधिमान्यता का कालावधि के साथ जिले में खनन पट्टों की सूची
4. पिछले तीन वर्षों के दौरान प्राप्त स्वामिस्व या राजस्व के ब्यौरे
5. पिछले तीन वर्षों के दौरान बालू या बजरी के उत्पादन के ब्यौरे
6. जिले की नदियों में तलछटों के जमाव की प्रक्रिया
7. जिले का सामान्य प्रोफाइल
8. जिले में भूमि के उपयोग का पैटर्न : वन, कृषि, उद्यान कृषि, खनन आदि
9. जिले की भू-भौगोलिकी
10. वर्षा : मास-वार
11. जियोलोजी और खनिज संपदा

उपरोक्त के अतिरिक्त, रिपोर्ट में निम्नलिखित अंतर्विष्ट होगा :

(क) नदी या धाराओं का जिलावार ब्यौरा और बालू के अन्य स्त्रोत।

(ख) जिलावार बालू या पत्थरों की उपलब्धता या समग्र संसाधन।

(ग) जिलावार बालू के विद्यमान खनन पट्टों के ब्यौरे तथा समग्र।

डीईआईएए द्वारा जिले में जियोलोजी विभाग या सिंचाई विभाग या वन विभाग या लोक निर्माण विभाग या भूजल बोर्ड या सुदूर संवेदन विभाग या खनन विभाग आदि की सहायता से एक सर्वेक्षण किया जाएगा।

मुख्य नदियों के विवरण सहित निकासी प्रणाली

क्रम सं.	नदी का नाम	निकासी क्षेत्र (वर्ग कि.मी.)	जिले में निकासी किया गया % क्षेत्र

महत्वपूर्ण नदियों और धाराओं की मुख्य विशेषताएं :

क्रम सं.	नदी या धारा का नाम	जिले में कुल दूरी (कि.मी. में)	उद्गम का स्थान	उद्गम पर ऊंचाई

खनिज छूट के लिए सिफारिश किया गया नदी या धारा का भाग	खनिज छूट के लिए सिफारिश किए गए क्षेत्र की लंबाई (कि.मी. में)	खनिज छूट के लिए सिफारिश किए गए क्षेत्र की औसत चौड़ाई (मीटर में)	खनिज छूट के लिए सिफारिश किया गया क्षेत्र (वर्ग मीटर में)	खनन योग्य खनिज संभावना (मीट्रिक टन में) (कुल खनिज संभावना का **60%**)

खनिज संभावना

बोल्डर (एमटी)	बजरी (एमटी)	बालू (एमटी)	कुल खनन योग्य खनिज संभावना (एमटी)

वार्षिक जमाव

क्रम सं.	नदी या धारा	खनिज छूट के लिए सिफारिश किया गया नदी या धारा का भाग	खनिज छूट के लिए सिफारिश किए गए क्षेत्र की लंबाई (कि.मी. में)	खनिज छूट के लिए सिफारिश किए गए क्षेत्र की औसत चौड़ाई (मीटर में)	खनिज छूट के लिए सिफारिश किया गया क्षेत्र (वर्ग मीटर में)	खनन योग्य खनिज संभावना (मीट्रिक टन में) (कुल खनिज संभावना का **60%**)
जिले के लिए योग						

उप प्रभागीय मजिस्ट्रेट सिंचाई विभाग से अधिकारियों, राज्य प्रदूषण नियंत्रण बोर्ड या समिति, वन विभाग जियोलोजी या खनन अधिकारी से मिलकर बनने वाली उप प्रभागीय समिति ऐसे प्रत्येक स्थल का भ्रमण करेगी जिसके लिए पर्यावरणीय अनापत्ति के लिए आवेदन किया गया है और खनन के लिए या खनन का प्रतिषेद्ध करने के लिए स्थल की उपयोगिता पर सिफारिश करेगी ।

खनिज संभावना की संगणना के लिए अंगीकृत विधि :

खनिज संभावना की संगणना क्षेत्र की जांच और नदी या धाराओं के आवाह क्षेत्र की जियोलोजी के आधार पर की जाती है । स्थल की स्थिति और अवस्थिति के अनुसार खनन योग्य खनिजों की गहराई को परिभाषित किया जाता है । किसी नदी या धारा में खनिजों को हटाने के क्षेत्र का विनिश्चय जियो-मोर्फोलोजी और अन्य कारकों पर निर्भर करता है । यह किसी विशिष्ट नदी या धारा में क्षेत्र का पचास प्रतिशत से साठ प्रतिशत तक हो सकता है । उदाहरण के लिए कुछ पहाड़ी राज्यों में खनिज संघटक जैसे बोल्डर, नदी से बजरी, बालू को एक मीटर की गहराई तक स्त्रोत खनिज माना जा सकता है । अन्य संघटक जैसे क्ले और गाद को किसी विशिष्ट नदी या धारा की खनिज संभावना की संगणना करते समय अपशिष्ट के रूप में अपवर्जित किया जाता है ।

जिले में प्रत्येक लघु खनिज के लिए जिला सर्वेक्षण रिपोर्ट पृथक् रूप से तैयार की जाएगी और इसके प्रारूप को कोलेक्टोरेट में इसकी प्रति को रखते हुए पब्लिक डोमेन में रखा जाएगा तथा इसे जिले की वेबसाइट पर इक्कीस दिन के लिए पोस्ट किया जाएगा । प्राप्त की गई टिप्पणियों पर विचार किया जाएगा और उपयुक्त पाए जाने पर उन्हें डीईआईएए द्वारा छः मास के भीतर अंतिम रूप दी जाने वाली अंतिम रिपोर्ट में शामिल किया जाएगा ।

जिला सर्वेक्षण रिपोर्ट पर्यावरणीय अनापत्ति रिपोर्टों को तैयार करने और परियोजनाओं के मूल्यांकन के लिए आवेदन का आधार होगी । रिपोर्ट को प्रत्येक पांच वर्ष में अद्यतन किया जाएगा ।

परिशिष्ट - 11

[पैरा 7 (iii) (ख) देखें]

समूह सहित लघु खनिजों के खनन के लिए पर्यावरणीय अनापत्ति की प्रक्रिया

समूह अवस्थिति सहित लघु खनिजों के खनन के लिए पर्यावरणीय अनापत्ति के लिए निम्नलिखित नीति का अनुसरण किया जाएगा :-

(1). राज्यों (वर्णीय बालू खनन मार्गदर्शक सिद्धांत) द्वारा उपलब्ध कराया गया डाटा उपदर्शित करता है कि लघु खनिजों के लिए अधिकांश खनन पट्टे पांच हेक्टेयर से कम पट्टा क्षेत्र के लिए है । यह भी रिपोर्ट किया गया है कि पहाड़ी राज्यों में पांच हेक्टेयर से अधिक नदी के भाग को प्राप्त करना बहुत असामान्य है । इसलिए लघु खनिजों के लिए पट्टे का आकार जिसके अंतर्गत नदी बालू खनन है, का अवधारण राज्यों द्वारा उनकी परिस्थितियों के आधार पर किया जाएगा ।

(2). लघु खनिजों का अधिकाशतः खनन समूहों में है । पर्यावरण संघात निर्धारण या पर्यावरण प्रबंधन योजना को समस्त समूह के लिए तैयार करने की आवश्यकता है ताकि सभी संभावित बाह्यताओं को लिया जा सके । इन रिपोर्टों में समूह की वहन क्षमता, परिवहन और संबंधित मुद्दे पुनः भराव और रिचार्ज मुद्दों, समूह क्षेत्र का भूजलीय अध्ययन शामिल होगा । पर्यावरणीय संघात निर्धारण या पर्यावरणीय प्रबंधन योजना को राज्य या राज्य द्वारा नामनिर्दिष्ट अभिकरण या परियोजना प्रस्तावकों द्वारा समूह में या समूह के समर्थकों द्वारा तैयार किया जाएगा ।

(3). संपूर्ण समूह के लिए एक लोक परामर्श होगा जिसके पश्चात् समूह के लिए अंतिम अंतिम पर्यावरण संघात निर्धारण या पर्यावरण प्रबंधन योजना रिपोर्ट तैयार की जाएगी ।

(4). पर्यावरण अनापत्ति के लिए आवेदन किया जाएगा और उसे व्यष्टिक परियोजना प्रस्तावक को जारी किया जाएगा । समूह में व्यष्टिक पट्टा धारक उसी पर्यावरण संघात निर्धारण या पर्यावरण प्रबंधन योजना का पर्यावरणीय अनापत्ति के लिए आवेदन करने में उपयोग कर सकते है । समूह पर्यावरण संघात निर्धारण या पर्यावरण प्रबंधन योजना को आवश्यकता के अनुसार महत्वपूर्ण परिवर्तनों को ध्यान में रखते हुए अद्यतन किया जाएगा ।

(5). पर्यावरण संघात निर्धारण या पर्यावरण प्रबंधन योजना को उस समूह में प्रत्येक पर्यावरण अनापत्ति में उपदर्शित किया जाएगा और डीईएसी, एसईएसी और ईएसी यह सुनिश्चित करेंगे कि पर्यावरण संघात निर्धारण या पर्यावरण प्रबंधन योजना से न्यूनीकरण उपाय अध्ययन को व्यष्टिक परियोजना प्रस्तावकों की उस समूह में पर्यावरणीय अनापत्ति में उपदर्शित किया जाए ।

(6). किसी समूह का तब निर्माण किया जाएगा जब किसी पट्टे की सीमाओं के बीच दूरी किसी अन्य पट्टे की सीमा से किसी एक समान खनिज क्षेत्र में 500 मीटर से कम हो ।

(7). प्ररूप 1ड, पूर्व साध्यता रिपोर्ट और लघु खनिजों के खनन के लिए प्रवर्ग 'ख2' परियोजना प्रवर्ग के लिए खनन योजना को रजिस्ट्रीकृत अर्हित व्यक्ति या भारत की क्वालिटी परिषद् के प्रत्ययित सलाहकारों, राष्ट्रीय शिक्षा और प्रशिक्षण प्रत्यय बोर्ड द्वारा तैयार किया जाएगा । प्रवर्ग 'क' और प्रवर्ग 'ख1' परियोजनाओं के लिए पर्यावरण संघात निर्धारण या पर्यावरण प्रबंधन योजना को भारत की क्वालिटी परिषद् के प्रत्ययित सलाहकारों, राष्ट्रीय शिक्षा और प्रशिक्षण प्रत्यय बोर्ड द्वारा तैयार किया जाएगा ।

(8). एसईआईएए के पास डीईआईएए पर पर्यवेक्षणीय आधिकारिता होगी और डीईआईएए के विनिश्चयों की एसईआईएए द्वारा किसी विद्यमान विधि के उपबंधों पर प्रतिकूल प्रभाव डाले बिना समीक्षा की जाएगी ।

लघु खनिजों जिसके अंतर्गत समूह स्थिति है की पर्यावरणीय निकासी के लिए अपेक्षाओं का स्कीमटाइज्ड प्रस्तुतीकरण

पट्टे का क्षेत्र (हेक्टेयर)	परियोजना का प्रवर्ग	ईआईए / ईएमपी की अपेक्षा	लोक सुनवाई की अपेक्षा	ईसी की अपेक्षा	जो ईआईए / ईएमपी तैयार कर सकता है	ईसी के लिए कौन आवेदन करेगा	ईसी का मूल्यांकन/ अनुदत्त करने के लिए प्राधिकारी	ईसी की अनुपालना की मानीटरी करने के लिए प्राधिकारी
व्यष्टिक खनन पट्टे के आधार पर बालू खनन और अन्य लघु खनिजों के खनन के लिए ईसी प्रस्ताव								
0 – 5ha	**'ख2'**	प्ररूप – 1एम, पीएफआर और अनुमोदित खनन योजना	नहीं	हां	परियोजना प्रस्तावक	परियोजना प्रस्तावक	डीईएसी/ डीईआईएए	डीईआईएए एसआईएए एसपीसीबी सीपीसीबी एमओईएफसीसी एमओईएफएफ द्वारा नामनिर्देशित अभिकरण
> 5 ha और < 25 ha	**'ख2'**	प्ररूप –I, पीएफआर और अनुमोदित खनन योजना तथा ईएमपी	नहीं	हां	परियोजना प्रस्तावक	परियोजना प्रस्तावक	सीईएसी / एसआईएए	
≥ 25ha और < 50ha	**'ख1'**	हां	हां	हां	परियोजना प्रस्तावक	परियोजना प्रस्तावक	सीईएसी/ सीआईएए	
≥ 50 ha	**'क'**	हां	हां	हां	परियोजना प्रस्तावक	परियोजना प्रस्तावक	ईएसी/ एमओईएफसीसी	
समूह स्थिति में बालू, खनन और अन्य लघु खनिज खनन के लिए ईसी प्रस्ताव								
5 ha तक खनन पट्टे का समूह क्षेत्र	**'ख2'**	प्ररूप –I, पीएफआर और अनुमोदित खनन योजना तथा ईएमपी	नहीं	हां	राज्य, राज्य अभिकरण, परियोजना प्रस्तावकों का समूह, परियोजना प्रस्तावक	परियोजना प्रस्तावक	डीईएसी/ डीईआईएए/	एमओईएफसीसी द्वारा नामनिर्दिष्टडीईआईएए एसईआईए एसपीसीबी सीपीसीबी अभिकरण
> 5 ha तक खनन पट्टे का	**'ख2'**	प्ररूप –I, पीएफआर और	नहीं	हां	राज्य, राज्य अभिकरण, परियोजना	परियोजना प्रस्तावक	डीईएसी/ डीईआईएए/	

समूह क्षेत्र और < 25 ha बिना किसी व्यष्टिक पट्टे के > 5 ha		अनुमोदित खनन योजना तथा समूह में सभी पट्टों के लिए एक ईएमपी			प्रस्तावकों का समूह, परियोजना प्रस्तावक			
व्यष्टिक पट्टा आकार < 50ha हेक्टेयर के साथ ≥ 25 से खनन पट्टे का समूह	**'ख1'**	हां	हां	हां	राज्य, राज्य अभिकरण , परियोजना प्रस्तावकों का समूह, परियोजना प्रस्तावक	परियोजना प्रस्तावक	सीईएसी/ एसईआईए	
≥ 50ha से किसी व्यष्टिक पट्टे के आकार का कोई समूह	**'क'**	हां	हां	हां	राज्य, राज्य अभिकरण, परियोजना प्रस्तावकों का समूह, परियोजना प्रस्तावक	परियोजना प्रस्तावक	ईएसी/ एमओईएफसीसी	

परिशिष्ट - XII

[पैरा 10 (iv) देखें]

बालू खनन या नदी तट खनन की मानीटरी की प्रक्रिया

1. परिवहन अनुज्ञा पत्र के सुरक्षा अभिलक्षण नीचे दिए अनुसार है :

(क) भारतीय बैंक संगम द्वारा अनुमोदित चुंबकीय स्याही अक्षर पहचान (एमआईसीआर) कोड पेपर पर मुद्रित

(ख) विशिष्ट बारकोड

(ग) विशिष्ट त्वरित प्रतिक्रिया (क्यूआर) कोड

(घ) फ्यूजिटिव इंक पृष्ठभूमि

(ङ) अदृश्य इंक चिन्ह

(च) वाय्ड पॅंटओग्रॅंफ

(छ) वॉटरमार्क

2. खनन पट्टा स्थल पर अपेक्षा :

(क) छोटे आकार का प्लाट (5 हेक्टेयर तक): एंडरायड आधारित स्मार्ट फोन

(ख) बड़े आकार के प्लाट (5 हेक्टेयर से अधिक): सीसीटीवी कैमरा, पर्सनल कंप्यूटर (पीसी), इंटरनेट कनेक्शन, पावर बैकअप

(ग) खनन पट्टा स्थल का पहुंच नियंत्रण

(घ) इस्तेमाल किए गए वाहन के ट्रेलर के आयतन के आधार पर खनन किए गए खनिज के भार को तोलने के लिए प्रबंध या अनुमानित भार ।

3. परिवहन अनुज्ञापत्र या रसीद की स्कैनिंग और उसे सर्वर पर अपलोड करना :

(क) वेबसाईट: खनन स्थल पर रसीद की स्कैनिंग, बारकोड स्कैनर और कंप्यूटर के माध्यम से सोफ्टवेयर का इस्तेमाल करके की जा सकती है ;

(ख) एंडरायड अनुप्रयोग : खनन स्थल पर स्कैनिंग, स्मार्ट फोन का उपयोग करके एंडरायड अनुप्रयोग द्वारा की जा सकती है । इसके लिए सिमकार्ड पर इंटरनेट की उपलब्धता की अपेक्षा होगी ;

(ग) एसएमएस : सर्वर पर परिवहन अनुज्ञापत्रों या रसीद को मोबाइल फोन के माध्यम से एसएमएस भेजकर अपलोड किया जाएगा । एक बार परिवहन अनुज्ञापत्र या रसीद को अपलोड करने पर अपनी विधिमान्यता की अवधि के साथ एक विशिष्ट बीजक कोड सृजित हो जाता है ।

4. प्रणाली का प्रस्तावित कार्यकरण :

राज्य खनन विभाग को परिवहन अनुज्ञापत्र या रसीद को ऊपर पैरा 1 में उपदर्शित सुरक्षा अभिलक्षणों के साथ मुद्रित करना चाहिए और उन्हें जिला कलक्टर के माध्यम से पट्टा धारक को जारी किया जाएगा । एक बार इन परिवहन अनुज्ञापत्रों या रसीदों को जारी करने के पश्चात् उन्हें खनन पट्टा क्षेत्र के विरुद्ध सर्वर पर अपलोड किया जाएगा । प्रत्येक रसीद अधिमानतः पूर्व नियत मात्रा के साथ होनी चाहिए ताकि जारी की गई रसीदों के लिए कुल मात्रा का अवधारण किया जा सके ।

जब परिवहन अनुज्ञापत्र या रसीद का बारकोड स्कैन हो जाता है और बीजक का सृजन कर दिया जाता है जिससे विशिष्ट बारकोड का इस्तेमाल होता है और उसकी विधिमान्यता के समय को सर्वर पर अभिलिखित कर दिया जाता है । ताकि खनन की गई सामग्री के परिवहन के सभी ब्यौरों को सर्वर पर रखा जा सकें और परिवहन अनुज्ञापत्र या रसीद का पुनः इस्तेमाल नहीं किया जा सके ।

5. मार्ग पर जांच :

खनन किए गए खनिजों को ले जाने वाले यानों की जांच करने के प्रयोजन के लिए तैनात कर्मचारिवृंद को परिवहन अनुज्ञापत्र या रसीद की वेबसाइट, एंडरायड अनुप्रयोग और एसएमएस का उपयोग करके उन्हें स्कैन करने की स्थिति में होना चाहिए ।

6. यानों का खराब हो जाना :

यान के खराब होने की दशा में परिवहन अनुज्ञापत्र या रसीद की विधिमान्यता का चालक द्वारा यान के खराब हो जाने की रिपोर्ट करने के लिए विशिष्ट फोरमेट में एसएमएस भेजकर विस्तार किया जाएगा । सर्वर इस सूचना को रजिस्टर करेगा और खराब होने को रजिस्टर करेगा । राज्य एक काल सेंटर की भी स्थापना कर

सकता है जो ऐसे यानों के खराब होने को रजिस्टर कर सकता है तथा वैधता की अवधि का विस्तार कर सकता है। यान के पश्चात्वर्ती ठीक होने की भी इसी प्रकार सर्वर या काल सेंटर में रिपोर्ट की जानी चाहिए।

7. यानों की ट्रैकिंग :

यान के स्त्रोत से गंतव्य तक के मार्ग को जांच बिंदुओं, आरएफआईडी टैगों और जीपीएस ट्रैकिंग के माध्यम से ट्रैक किया जा सकता हैं।

8. चौकसी या रिपोर्ट सृजन और कार्रवाई समीक्षा :

प्रणाली दैनिक उठाई रिपोर्ट, यान लोग या इतिहास, आबंटन के विरुद्ध उठाई और कुल उठाई जैसे विभिन्न पैरामीटरों पर प्राधिकारियों को आवधिक रिपोर्ट विकसित करने में समर्थ करेगी। प्रणाली का उपयोग आटोमेल या एसएमएस सृजित करने के लिए किया जा सकता है। इससे जिला कलक्टर या जिला मजिस्ट्रेट सभी सुसंगत ब्यौरे प्राप्त करने में समर्थ होंगे और इससे प्राधिकारी किसी अनियमितता में लिप्त पाए गए किसी स्थल से स्कैनिंग सुविधा को रोकने में समर्थ होंगे। जब भी कोई प्राधिकारी अवैध बालू का परिवहन करने वाले किसी यान को अंतर्रुद्ध करता है तो वह सर्वर पर रजिस्ट्रीकृत हो जाएगा और अधिकारी के लिए की गई कार्रवाई पर रिपोर्ट करना आज्ञापक होगा। प्रत्येक अंतरर्रुद्ध किए गए यान को ट्रैक किया जाएगा।

खनन किए गए खनिज, पर्यावरणीय अनापत्त शर्तों और पर्यावरण प्रबंधन योजना के प्रवर्तन की मानीटरी का डीईआईएए, एसईआईएए और राज्य प्रदूषण नियंत्रण बोर्ड या समिति द्वारा सुनिश्चिय किया जाएगा। ऊपर परकल्पित मानीटरी इंतजामों को तीन मास से पूर्व लागू किया जाएगा। पर्यावरणीय अनापत्ति शर्तों के प्रवर्तन की मानीटरी केन्द्रीय प्रदूषण नियंत्रण बोर्ड, पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय तथा इस प्रयोजन के लिए मंत्रालय द्वारा नामनिर्दिष्ट अभिकरण द्वारा किया जाएगा।"।

[सं. जेड-11013/98/2014-आईए-II (एम)]

मनोज कुमार सिंह, संयुक्त सचिव

टिप्पण : मूल नियम भारत के राजपत्र, असाधारण, भाग II, खंड 3, उपखंड (ii) में का.आ. सं. 1533 (अ), तारीख 14 सितंबर, 2006 द्वारा प्रकाशित किए गए थे और उनका पश्चात्वर्ती संशोधन निम्नलिखित संख्याओं द्वारा किया गया :-

1. का.आ. 1737(अ) तारीख 11 अक्टूबर 2007;

2. का.आ. 3067(अ) तारीख 1 दिसंबर 2009;

3. का.आ. 695(अ) तारीख 4 अप्रैल 2011;

4. का.आ. 2896(अ) तारीख 13 दिसम्बर 2012;

5. का.आ. 674(अ) तारीख 13 मार्च 2013;

6. का.आ. 2204(अ) तारीख 19 जुलाई 2013;

7. का.आ. 2555(अ) तारीख 21 अगस्त 2013;

8. का.आ. 2559(अ) तारीख 22 अगस्त 2013;

9. का.आ. 2731(अ) तारीख 9 सितंबर 2013;

10 का.आ. 562(अ) तारीख 26 फ़रवरी 2014;

11. का.आ. 637(अ) तारीख 28 फ़रवरी 2014;

12. का.आ. 1599(अ) तारीख 25 जून 2014;

13. का.आ. 2601(अ) तारीख 7 अक्टूबर 2014;

14. का.आ. 2600(अ) तारीख 9 अक्टूबर 2014

15. का.आ. 3252(अ) तारीख 22 दिसम्बर 2014;

16. का.आ. 382(अ) तारीख 3 फरवरी, 2015;

17. का.आ. 811(अ) तारीख 23 मार्च, 2015;

18. का.आ. 996(अ) तारीख 10 अप्रैल 2015;

19. का.आ. 1142(अ) तारीख 17 अप्रैल 2015;

20. का.आ. 1141(अ) तारीख 29 अप्रैल 2015;

21. का.आ. 1834(अ) तारीख 6 जुलाई 2015;

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 15th January, 2016

S.O. 141(E).—Whereas in exercise of the powers conferred by sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986), a draft notification for making certain amendments in the Environment Impact Assessment Notification, 2006, issued *vide* number S.O. 1533(E), dated the 14th September 2006, was published under sub-rule (3) of rule (5) of the Environment (Protection) Rules, 1986, vide number S.O. 2588(E), dated 22nd September, 2015, inviting objections and suggestions from all persons likely to be affected thereby, within a period of sixty days from the date of publication on which copies of Gazette containing the said notification were available to the public;

And whereas, copies of said notification were made available to the public on 22nd September 2015;

And whereas, all objections and suggestions received in response to the above mentioned draft notification have been duly considered by the Central Government;

And whereas, in pursuance to the order of Hon'ble Supreme Court dated the 27th February, 2012 in I.A. No.12-13 of 2011 in Special Leave Petition (C) No.19628-19629 of 2009, in the matter of Deepak Kumar etc. Vs. State of Haryana and Others etc., prior environmental clearance has now become mandatory for mining of minor minerals irrespective of the area of mining lease;

And whereas, as a result of the above said Order of Hon'ble Supreme Court, the number of cases which are now required to obtain prior environmental clearance has increased substantially;

And whereas, the Hon'ble National Green Tribunal, *vide* its order dated the 13th January, 2015 in the matter regarding sand mining has directed for making a policy on environmental clearance for mining leases in cluster for minor minerals;

And whereas, the State Governments have represented for streamlining the process of environmental clearance for mining of minor mineral;

And whereas, the Ministry of Environment, Forest and Climate Change in consultation with State Governments has prepared Guidelines on Sustainable Sand Mining detailing the provisions on environmental clearance for cluster, creation of District Environment Impact Assessment Authority and proper monitoring of sand mining using information technology and information technology enabled services to track the mined out material from source to destination;

Now, therefore, in exercise of the powers conferred by sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 read with clause (d) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby makes the following amendments in the said notification, namely:-

In the said notification,-

(a) in paragraph 2, after the words "in the said Schedule", the following words shall be inserted, namely:-

"and at District level, the District Environment Impact Assessment Authority (DEIAA) for matters falling under Category 'B2' for mining of minor minerals in the said Schedule";

(b) after paragraph 3, the following paragraph shall be inserted, namely:-

"3 A. District Level Environment Impact Assessment Authority:-

(1) A District Level Environment Impact Assessment Authority hereinafter referred to as the DEIAA shall be constituted by the Central Government under sub-section (3) of section 3 of the Environment (Protection) Act, 1986 comprising of four members including a Chairperson and a Member-Secretary.

(2) The District Magistrate or District Collector shall be the Chairperson of the DEIAA.

(3) The Sub-Divisional Magistrate or Sub-Divisional Officer of the district head quarter of the concerned district of the State shall be the Member-Secretary of the DEIAA.

(4) The other two members of the DEIAA shall be the senior most Divisional Forest Officer and one expert. The expert shall be nominated by the Divisional Commissioner of the Division or Chief Conservator of Forest, as the case may be. The term and qualifications of the expert fulfilling the eligibility criteria are given in Appendix VII to this notification.

(5) The members of the DEIAA who are serving officers of the concerned State Government or the Union territory Administration shall be *ex-officio* members except the expert member.

(6) The District Level Expert Appraisal Committee hereinafter referred to as the DEAC shall comprise of eleven members, including a Chairman and a Member-Secretary.

(7) The senior most Executive Engineer, Irrigation Department in the district of respective State Governments or Union territory Administration shall be the Chairperson of the DEAC.

(8) The Assistant Director or Deputy Director of the Department of Mines and Geology or District Mines Officer or Geologist of the district shall be the Member-Secretary of the DEAC in that order.

(9) A representative of the State Pollution Control Board or Committee, senior most Sub-Divisional Officer (Forest) in the district, representative of Remote Sensing Department or Geology Department or State Ground Water Department, one occupational health expert or Medical Officer to be nominated by the District Magistrate or District Collector, Engineer from Zila Parishad, and three expert members to be nominated by the Divisional Commissioner or Chief Conservator of Forest, as the case may be, shall be the other members of the DEAC. The term and qualifications of the experts fulfilling the eligibility criteria are given in Appendix VII to this notification.

(10) The members of the DEAC who are serving officers of the concerned State Government or the Union territory Administration shall be *ex-officio* members except the expert members.

(11) The District Magistrate or District Collector shall notify an agency to act as Secretariat for the DEIAA and the DEAC and shall provide all financial and logistic support for their statutory functions.

(12) The DEIAA and DEAC shall exercise the powers and follow the procedure as specified in the said notification, as amended from time to time.

(13) The DEAC shall function on the principle of collective responsibility and the Chairman shall endeavor to reach a consensus in each case and if consensus cannot be reached, the view of the majority shall prevail. ";

(c) in paragraph 4, after sub-paragraph (iii), the following sub-paragraph shall be inserted, namely:-

"(iv) The 'B2' Category projects pertaining to mining of minor mineral of lease area less than or equal to five hectare shall require prior environmental clearance from DEIAA. The DEIAA shall base its decision on the recommendations of DEAC, as constituted for this notification." ;

(d) for paragraph 5, the following paragraph shall be substituted, namely:-

"5. Screening, Scoping and Appraisal Committees:-

The same Expert Appraisal Committees (EACs) at the Central Government, SEACs at the State or Union territory level and DEAC at the district level shall screen, scope and appraise projects or activity in category 'A', 'B1 and B2' and 'B2' projects for mining of minor minerals of lease area less than and equal to five hectare respectively. EAC, SEACs and DEACs shall meet at least once every month.

(a) The composition of the EAC shall be as given in Appendix VI. The SEAC at the State or the Union territory level shall be constituted by the Central Government in consultation with the concerned State Government or the Union

territory Administration with identical composition. DEAC at the district level shall be constituted by the Central Government as per the composition given in paragraph 3 A.

(b) The Central Government may with the prior concurrence of the concerned State Governments or the Union territory Administration constitute one SEAC for more than one State or Union territory for reasons of administrative convenience and cost.

(c) The EAC and SEAC shall be reconstituted after every three years.

(d) The authorised members of the EAC, SEACs and DEACs concerned, may inspect any site connected with the project or activity in respect of which the prior environmental clearance is sought for the purpose of screening or scoping or appraisal with prior notice of at least seven days to the project proponent who shall provide necessary facilities for the inspection.

(e) The EAC, SEACs and DEACs shall function on the principle of collective responsibility. The Chairperson shall endeavor to reach a consensus in each case and if consensus cannot be reached the view of the majority shall prevail.";

(e) for paragraph 6, the following paragraph shall be substituted, namely:-

"6. Application for Prior Environmental Clearance (EC):-

An application seeking prior environmental clearance in all cases shall be made by the project proponent in the prescribed Form 1 annexed herewith and Supplementary Form 1A, if applicable, as given in Appendix II after the identification of prospective site (s) for the project and/or activities to which the application relates; and in Form 1M for mining of minor minerals up to five hectare under Category 'B2' projects, as given in Appendix VIII, before commencing any construction activity, or preparation of land, or mining at the site by the project proponent. The project proponent shall furnish along with the application, a copy of the pre-feasibility project report, in addition to Form 1, Form 1A, and Form 1M; and in case of construction projects or activities (item 8 of the Schedule), a copy of the conceptual plan shall be provided instead of pre-feasibility report.";

(f) in paragraph 7,-

(i) in sub-paragraph (i), under the heading "I. Stage (1)- Screening:", the existing sub-paragraph shall be lettered as sub-paragraph "(A)" and after sub-paragraph as so lettered, the following sub-paragraph shall be inserted, namely:-

"(B) The cases as specified in Appendix IX shall be exempted from prior environmental clearance." ;

(ii) after sub-paragraph 7 (ii), the following sub-paragraph shall be inserted, namely:-

"7 (iii) Preparation of District Survey Report for Sand Mining or River Bed Mining and Mining of other Minor Minerals:

(a) The prescribed procedure for preparation of District Survey Report for sand mining or river bed mining and mining of other minor minerals is given in Appendix X.

(b) The prescribed procedure for environmental clearance for mining of minor minerals including cluster situation is given in Appendix XI.";

(g) in paragraph 8,-

(i) for the letters and word "EAC or SEAC", the words and letters "EAC or SEAC or DEAC" shall be substituted;

(ii) for the words "Expert Appraisal Committee or State Level Expert Appraisal Committee" wherever they occur, the words "Expert Appraisal Committee or State Level Expert Appraisal Committee or District Level Expert Appraisal Committee" shall be substituted;

(h) in paragraph 9, in sub-paragraph (i),-

for the words "Expert Appraisal Committee or State Level Expert Appraisal Committee", the words "Expert Appraisal Committee or State Level Expert Appraisal Committee or District Level Expert Appraisal Committee" shall be substituted;

(i) in paragraph 10, after sub-paragraph (iii), the following sub-paragraph shall be inserted, namely:-

"(iv) The prescribed procedure for sand mining or river bed mining and monitoring is given in Appendix XII.";

(j) in paragraph 11, -

for the words "Expert Appraisal Committee or State Level Expert Appraisal Committee", the words "Expert Appraisal Committee or State Level Expert Appraisal Committee or District Level Expert Appraisal Committee" shall be substituted;

(k) in the Schedule,-

(i) for item 1 (a) and the entries relating thereto, the following item and entries shall be substituted, namely:-

(1)	(2)	(3)	(4)	(5)
"1(a)	(i) Mining of minerals	≥50 ha of mining lease area in respect of non-coal mine lease >150 ha of mining lease area in respect of coal mine lease Asbestos mining	<50 ha of mining lease area in respect of non-coal mine lease ≤150 ha of mining lease area in respect of coal mine lease	General Conditions shall apply except: (i) for project or activity of mining of minor minerals of Category 'B2' (up to 25 ha of mining lease area); (ii) River bed mining projects on account of inter-state boundary.

		irrespective of mining area		**Note:** (1) Mineral prospecting is exempted. ''; (2) The prescribed procedure for environmental clearance for mining of minor minerals including cluster situation is given in Appendix XI."; (3) The mining leases which have obtained environmental clearance under Environment Impact Assessment Notification, 1994 and Environment Impact Assessment Notification, 2006 shall not require fresh environmental clearance during renewal provided the project has valid and subsisting environmental clearance.
	(ii) Slurry pipelines (coal lignite and other ores) passing through national parks or sanctuaries or coral reefs, ecologically sensitive areas.	All projects.		

(l) after Appendix VI, the following appendices shall be inserted, namely:-

"APPENDIX VII

(See paragraph 3 A)

Qualifications and terms for the Experts in DEIAA and DEAC

1. **Qualification:** The person should have at least (i) 5 years of formal University training in the concerned discipline leading to a MA or M Sc Degree or (ii) in case of Engineering/ Technology/ Architectural discipline, 4 years formal training course together with prescribed practical training in the field leading to a B. Tech/ B.E./ B. Arch. Degree, or (iii) Other professional degree (e.g. MBA etc.) involving a total of 5 years of formal University training and prescribed practical training, or (iv) Prescribed apprenticeship/ article ship and pass examinations conducted by the concerned professional associations (e.g. Chartered Accountancy) or (v) a University degree, followed by two years of formal training in a University or Service Academy (e.g. MBA/MPA etc.). In selecting the individual professionals, experience gained by them in their respective fields will be taken note of.
2. **Expert:** A professional fulfilling the above eligibility criteria with at least 10 years of relevant experience in the field or with an advanced degree (e.g. Ph. D) in a concerned field with at least 5 years of relevant experience.
3. **Age:** Below 70 years. However, in the event of non-availability of paucity of experts in a given field, the maximum age of a member may be allowed up to 75 years.
4. **Fields:** Experts in Mining, Geology, Hydrology, Remote Sensing, Environment Quality, Environment Impact Assessment Process, Risk Assessment, Life Sciences, Marine Sciences, Forestry and Wildlife, Environmental Economics, Bio-diversity, and River Ecology.

5. **Tenure:** The maximum tenure of expert members shall be for two terms of three years each.

6. The Expert Members may not be removed prior to expiry of the tenure without cause and proper enquiry.

APPENDIX VIII
(See paragraph 6)
FORM 1 M
APPLICATION FOR MINING OF MINOR MINERALS UNDER CATEGORY 'B2' FOR LESS THAN AND EQUAL TO FIVE HECTARE

(II) Basic Information

(viii) Name of the Mining Lease site:
(ix) Location / site (GPS Co-ordinates):
(x) Size of the Mining Lease (Hectare):
(xi) Capacity of Mining Lease (TPA):
(xii) Period of Mining Lease:
(xiii) Expected cost of the Project:
(xiv) Contact Information:

Environmental Sensitivity

Sl. No.	Areas	Distance in kilometer / Details
1.	Distance of project site from nearest rail or road bridge over the concerned River, Rivulet, Nallah etc.	
2.	Distance from infrastructural facilities Railway line National Highway State Highway Major District Road Any Other Road Electric transmission line pole or tower Canal or check dam or reservoirs or lake or ponds In-take for drinking water pump house Intake for Irrigation canal pumps	
3.	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	
4.	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	
5.	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	
6.	Inland, coastal, marine or underground waters	
7.	State, National boundaries	
8.	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	
9.	Defence installations	
10.	Densely populated or built-up area, distance from nearest human habitation	
11.	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	
12.	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	
13.	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	
14.	Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions)	

15.	Is proposed mining site located over or near fissure / fracture for ground water recharge	
16.	Whether the proposal involves approval or clearance under the following Regulations or Acts, namely:- (a) The Forest (Conservation) Act, 1980; (b) The Wildlife (Protection) Act, 1972; (c) The Coastal Regulation Zone Notification, 2011. If yes, details of the same and their status to be given.	
17.	Forest land involved (hectares)	
18.	Whether there is any litigation pending against the project and/or land in which the project is propose to be set up? (a) Name of the Court (b) Case No. (c) Orders or directions of the Court, if any, and its relevance with the proposed project.	

(Signature of Project Proponent
Along with name and address)

APPENDIX – IX
[See paragraph 7(i) (B)]
EXEMPTION OF CERTAIN CASES FROM REQUIREMENT OF ENVIRONMENTAL CLEARANCE

The following cases shall not require prior environmental clearance, namely:-

1. Extraction of ordinary clay or sand, manually, by the Kumhars (Potter) to prepare earthen pots, lamp, toys, etc. as per their customs.
2. Extraction of ordinary clay or sand, manually, by earthen tile makers who prepare earthen tiles.
3. Removal of sand deposits on agricultural field after flood by farmers.
4. Customary extraction of sand and ordinary earth from sources situated in Gram Panchayat for personal use or community work in village.
5. Community works like de-silting of village ponds or tanks, construction of village roads, ponds, bunds undertaken in Mahatama Gandhi National Rural Employment and Guarantee Schemes, other Government sponsored schemes, and community efforts.
6. Dredging and de-silting of dams, reservoirs, weirs, barrages, river, and canals for the purpose of their maintenance, upkeep and disaster management.
7. Traditional occupational work of sand by Vanjara and Oads in Gujarat *vide* notification number GU/90(16)/ MCR-2189(68)/5-CHH, dated the 14th February, 1990 of the Government of Gujarat.
8. Digging of well for irrigation or drinking water.
9. Digging of foundation for buildings not requiring prior environmental clearance.
10. Excavation of ordinary earth or clay for plugging of any breach caused in canal, nala, drain, water body, etc., to deal with any disaster or flood like situation upon orders of District Collector or District Magistrate.
11. Activities declared by State Government under legislations or rules as non-mining activity with concurrence of the Ministry of Environment, Forest and Climate Change, Government of India.

APPENDIX - X
[See paragraph 7 (iii) (a)]
PROCEDURE FOR PREPARATION OF DISTRICT SURVEY REPORT

The main objective of the preparation of District Survey Report (as per the Sustainable Sand Mining Guideline) is to ensure the following:

Identification of areas of aggradations or deposition where mining can be allowed; and identification of areas of erosion and proximity to infrastructural structures and installations where mining should be prohibited and calculation of annual rate of replenishment and allowing time for replenishment after mining in that area.

The report shall have the following structure:

1. Introduction
2. Overview of Mining Activity in the District
3 The List of Mining Leases in the District with location, area and period of validity
4. Details of Royalty or Revenue received in last three years
5. Detail of Production of Sand or Bajari or minor mineral in last three years
6. Process of Deposition of Sediments in the rivers of the District
7. General Profile of the District
8. Land Utilization Pattern in the district: Forest, Agriculture, Horticulture, Mining etc.

9. Physiography of the District
10. Rainfall: month-wise
11. Geology and Mineral Wealth

In addition to the above, the report shall contain the following:

(a) District wise detail of river or stream and other sand source.
(b) District wise availability of sand or gravel or aggregate resources.
(c) District wise detail of existing mining leases of sand and aggregates.

A survey shall be carried out by the DEIAA with the assistance of Geology Department or Irrigation Department or Forest Department or Public Works Department or Ground Water Boards or Remote Sensing Department or Mining Department etc. in the district.

Drainage system with description of main rivers

S. No.	Name of the River	Area drained (Sq. Km)	% Area drained in the District

Salient Features of Important Rivers and Streams:

S. No.	Name of the River or Stream	Total Length in the District (in Km)	Place of origin	Altitude at Origin

Portion of the River or Stream Recommended for Mineral Concession	Length of area recommended for mineral concession (in kilometer)	Average width of area recommended for mineral concession (in meters)	Area recommended for mineral concession (in square meter)	Mineable mineral potential (in metric tonne) (60% of total mineral potential)

Mineral Potential

Boulder (MT)	Bajari (MT)	Sand (MT)	Total Mineable Mineral Potential (MT)

Annual Deposition

S. No.	River or Stream	Portion of the river or stream recommended for mineral concession	Length of area recommended for mineral concession (in kilometer)	Average width of area recommended for mineral concession (in meters)	Area recommended for mineral concession (in square meter)	Mineable mineral potential (in metric tonne) (60% of total mineral potential)
Total for the District						

A Sub-Divisional Committee comprising of Sub-Divisional Magistrate, Officers from Irrigation department, State Pollution Control Board or Committee, Forest department, Geology or mining officer shall visit each site for which environmental clearance has been applied for and make recommendation on suitability of site for mining or prohibition thereof.

Methodology adopted for calculation of Mineral Potential:

The mineral potential is calculated based on field investigation and geology of the catchment area of the river or streams. As per the site conditions and location, depth of minable mineral is defined. The area for removal of the mineral in a river or stream can be decided depending on geo-morphology and other factors, it can be 50 % to 60 % of the area of a particular river or stream. For example in some hill States mineral constituents like boulders, river born Bajri, sand up

to a depth of one meter are considered as resource mineral. Other constituents like clay and silt are excluded as waste while calculating the mineral potential of particular river or stream.

The District Survey Report shall be prepared for each minor mineral in the district separately and its draft shall be placed in the public domain by keeping its copy in Collectorate and posting it on district's website for twenty one days. The comments received shall be considered and if found fit, shall be incorporated in the final Report to be finalised within six months by the DEIAA.

The District Survey Report shall form the basis for application for environmental clearance, preparation of reports and appraisal of projects. The Report shall be updated once every five years.

APPENDIX - XI

[See paragraph 7 (iii) (b)]

PROCEDURE FOR ENVIRONMENTAL CLEARANCE FOR MINING OF MINOR MINERALS INCLUDING CLUSTER

The following policy shall be followed for environmental clearance of mining of minor minerals including cluster situation:-

(1). The data provided by the States (Sustainable Sand Mining Guidelines) shows that most of the mining leases for minor minerals are of lease area less than 5 hectare. It is also reported that in hill States getting a stretch in river with area more than 5 hectare is very uncommon. So the size of lease for minor minerals including river sand mining will be determined by the States as per their circumstances.

(2). The mining of minor minerals is mostly in clusters. The Environment Impact Assessment or Environment Management Plan are required to be prepared for the entire cluster in order to capture all the possible externalities. These reports shall capture carrying capacity of the cluster, transportation and related issues, replenishment and recharge issues, geo-hydrological study of the cluster area. The Environment Impact Assessment or Environment Management Plan shall be prepared by the State or State nominated Agency or group of project proponents in the Cluster or the project proponent in the cluster.

(3). There shall be one public consultation for entire cluster after which the final Environment Impact Assessment or Environment Management Plan report for the cluster shall be prepared.

(4). Environmental clearance shall be applied for and issued to the individual project proponent. The individual lease holders in cluster can use the same Environment Impact Assessment or Environment Management Plan for application for environmental clearance. The cluster Environment Impact Assessment or Environment Management Plan shall be updated as per need keeping in view any significant change.

(5). The details of cluster Environment Impact Assessment or Environment Management Plan shall be reflected in each environmental clearance in that cluster and DEAC, SEAC, and EAC shall ensure that the mitigative measures emanating from the Environment Impact Assessment or Environment Management Plan study are fully reflected as environmental clearance conditions in the environmental clearance's of individual project proponents in that cluster.

(6). A cluster shall be formed when the distance between the peripheries of one lease is less than 500 meters from the periphery of other lease in a homogeneous mineral area.

(7). Form 1M, Pre-Feasibility Report and mine plan for Category 'B2' projects for mining of minor minerals shall be prepared by the Registered Qualified Person or Accredited Consultants of Quality Council of India, National Accreditation Board for Education and Training. The Environment Impact Assessment or Environment Management Plan for Category 'A' and Category 'B1' projects shall be prepared by the accredited consultants of Quality Council of India, National Accreditation Board for Education and Training.

(8). The SEIAAs shall have supervisory jurisdiction over the DEIAAs and decisions of DEIAA shall be reviewed by the SEIAA without prejudice to any provisions under any existing law.

Schematic Presentation of Requirements on Environmental Clearance of Minor Minerals including cluster situation

Area of Lease (Hectare)	Category of Project	Require-ment of EIA / EMP	Require-ment of Public Hearing	Require-ment of EC	Who can prepare EIA/ EMP	Who will apply for EC	Authority to appraise/ grant EC	Authority to monitor EC compliance
EC Proposal of Sand Mining and other Minor Mineral Mining on the basis of individual mine lease								
0 – 5ha	**'B2'**	Form –1M, PFR and Approved Mine Plan	No	Yes	Project Proponent	Project Proponent	DEAC/ DEIAA	DEIAA SEIAA SPCB CPCB MoEFCC Agency

> 5 ha and < 25 ha	**'B2'**	Form –I, PFR and Approved Mine Plan and EMP	No	Yes	Project Proponent	Project Proponent	SEAC / SEIAA	nominated by MoEFCC
≥ 25ha and < 50ha	**'B1'**	Yes	Yes	Yes	Project Proponent	Project Proponent	SEAC/ SEIAA	
≥ 50 ha	**'A'**	Yes	Yes	Yes	Project Proponent	Project Proponent	EAC/ MoEFCC	
EC Proposal of Sand Mining and other Minor Mineral Mining in cluster situation								
Cluster area of mine leases up to 5 ha	**'B2'**	Form –1M, PFR and Approved Mine Plan	No	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	DEAC/ DEIAA/	DEIAA SEIAA SPCB CPCB MoEFCC Agency nominated by MoEFCC
Cluster area of Mine leases > 5 ha and < 25 ha with no individual lease > 5 ha	**'B2'**	Form –I, PFR and Approved Mine Plan and one EMP for all leases in the Cluster	No	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	DEAC/ DEIAA/	
Cluster of mine leases of area ≥ 25 hectares with individual lease size < 50ha	**'B1'**	Yes	Yes	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	SEAC/ SEIAA	
Cluster of any size with any of the individual lease ≥ 50ha	**'A'**	Yes	Yes	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	EAC/ MoEFCC	

APPENDIX - XII

[See paragraph 10 (iv)]

PROCEDURE FOR MONITORING OF SAND MINING OR RIVER BED MINING

1. The security feature of Transport Permit shall be as under:

   (a) Printed on Indian Banks' Association (IBA) approved Magnetic Ink Character Recognition (MICR) Code paper.

   (b) Unique Barcode.

   (c) Unique Quick Response (QR) code.

   (d) Fugitive Ink Background.

   (e) Invisible Ink Mark.

   (f) Void Pantograph.

   (g) Watermark.

2. Requirement at Mine Lease Site:

   (a) Small Size Plot (Up to 5 hectare): Android Based Smart Phone.

(b) Large Size Plots (More than 5 hectare): CCTV camera, Personal Computer (PC), Internet Connection, Power Back up.

(c) Access control of mine lease site.

(d) Arrangement for weight or approximation of weight of mined out mineral on basis of volume of the trailer of vehicle used.

3. Scanning of Transport Permit or Receipt and Uploading on Server:

(a) Website: Scanning of receipt on mining site can be done through barcode scanner and computer using the software;

(b) Android Application: Scanning on mining site can be done using Android Application using smart phone. It will require internet availability on SIM card;

(c) SMS: Transport Permit or Receipt shall be uploaded on server even by sending SMS through mobile. Once Transport Permit or Receipt get uploaded, an unique invoice code gets generated with its validity period.

4. Proposed working of the system:

The State Mining Department should print the Transport Permit or Receipt with security features enumerated at Paragraph 1 above and issue them to the mine lease holder through the District Collector. Once these Transport Permits or Receipts are issued, they would be uploaded on the server against that mine lease area. Each receipt should be preferably with pre-fixed quantity, so the total quantity gets determined for the receipts issued.

When the Transport Permit or Receipt barcode gets scanned and invoice is generated, that particular barcode gets used and its validity time is recorded on the server. So all the details of transporting of mined out material can be captured on the server and the Transport Permit or Receipt cannot be reused.

5. Checking On Route:

The staff deployed for the purpose of checking of vehicles carrying mined mineral should be in a position to check the validity of Transport Permit or Receipt by scanning them using website, Android Application and SMS.

6. Breakdown of Vehicle:

In case the Vehicle breakdown, the validity of Transport Permit or Receipt shall be extended by sending SMS by driver in specific format to report breakdown of vehicle. The server will register this information and register the breakdown. The State can also establish a call centre, which can register breakdowns of such vehicles and extend the validity period. The subsequent restart of the vehicle also should be similarly reported to the server or call centre.

7. Tracking of Vehicles:

The route of vehicle from source to destination can be tracked through the system using check points, RFID Tags, and GPS tracking.

8. Alerts or Report Generation and Action Review:

The system will enable the authorities to develop periodic report on different parameters like daily lifting report, vehicle log or history, lifting against allocation, and total lifting. The system can be used to generate auto mails or SMS. This will enable the District Collector or District Magistrate to get all the relevant details and shall enable the authority to block the scanning facility of any site found to be indulged in irregularity. Whenever any authority intercepts any vehicle transporting illegal sand, it shall get registered on the server and shall be mandatory for the officer to fill in the report on action taken. Every intercepted vehicle shall be tracked.

The monitoring of mined out mineral, environmental clearance conditions and enforcement of Environment Management Plan will be ensured by the DEIAA, SEIAA and the State Pollution Control Board or Committee. The monitoring arrangements envisaged above shall be put in place not later than three months. The monitoring of enforcement of environmental clearance conditions shall be done by the Central Pollution Control Board, Ministry of Environment, Forest and Climate Change and the agency nominated by the Ministry for the purpose.".

[No. Z-11013/98/2014-IA-II (M)]

MANOJ KUMAR SINGH, Jt. Secy.

Note: The principal rules were published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (ii) *vide* number S.O. 1533 (E), dated the 14th September, 2006 and subsequently amended *vide* the following numbers :-

1. S.O. 1737 (E) dated the 11th October, 2007;
2. S.O. 3067 (E) dated the 1st December, 2009;
3. S.O. 695 (E) dated the 4th April, 2011;
4. S.O. 2896 (E) dated the 13th December, 2012;
5. S.O. 674 (E) dated the 13th March, 2013;
6. S.O. 2204 (E) dated the 19th July 2013;
7. S.O. 2555 (E) dated the 21st August, 2013;
8. S.O. 2559 (E) dated the 22nd August, 2013;
9. S.O. 2731 (E) dated the 9th September, 2013;
10. S.O. 562 (E) dated the 26th February, 2014;
11. S.O. 637 (E) dated the 28th February, 2014;
12. S.O. 1599 (E) dated the 25th June, 2014;
13. S.O. 2601 (E) dated the 7th October, 2014;
14. S.O. 2600 (E) dated the 9th October, 2014
15. S.O. 3252 (E) dated the 22nd December, 2014;
16. S.O. 382 (E) dated the 3rd. February, 2015;
17. S.O. 811 (E) dated the 23rd March, 2015;
18. S.O. 996 (E) dated the 10th April, 2015;
19. S.O. 1142 (E) dated the 17th April, 2015;
20. S.O. 1141 (E) dated the 29th April, 2015;
21. S.O. 1834 (E) dated the 6th July, 2015.

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Mechanism for assessment and recovery of compensation due to illegal Sand Mining..

Government of Maharashtra
Environment & Climate change Department
Government Resolution No. NGT-2021/C.R. 07/TC-3
New Administrative Building, 15 floor,
Hutatma Rajguru Chowk,
Madam Kama Marg,
Mantralaya, Mumbai- 400 032
Date : - 01/12/2021.

Reference : -

Hon'ble National Green Tribunal Order dated 26.02.2021 in O.A. No. 360/2015 and Ors. in the matter of National Green Tribunal Bar Association Vs. Virendra Singh (State of Gujarat) & Others Central Pollution Control Board letter No. CPCB/IPC-II/NGT-OA (360/2015)/2021/2046 dated 11/06/2021

Introduction:-

Sand mining operations, although necessary, also result in ecological stress to the riverine ecosystem. To ensure that this stress is to be kept at a minimum, sand mining needs to be effectively regulated. Unregulated sand mining has been a challenge to the regulatory authorities.

The Hon'ble National Green Tribunal, in its recent judgment has identified destruction of riverine vegetation, riverbank, agriculture field erosion, pollution of water sources, damage to the ecosystem, deepening of water table, impact on animal breeding sites, negative impact on revenue and economics by reduction in tourism, agriculture production etc. as threat to the riverine ecosystem.

In the light of directions passed in the various judgments of the Hon'ble Supreme Court, and Hon'ble National Green Tribunal, the MoEF&CC issued Sustainable Sand Mining and Management Guidelines, 2016(SSMG-2016) under the provisions of the Environment (Protection) Act, 1986 on 15.01.2016.

Further in the light of the September 2016 report of the High-powered committee (constituted by the Tribunal), headed by the Secretary, MoEF&CC, the MoEF&CC issued Enforcement and Monitoring Guidelines for Sand Mining (EMGSM-2020) on 27.01.2020.

The Hon'ble National Green Tribunal (NGT) (Principal Bench), New Delhi reviewed the issue of illegal sand mining in the country, its impacts on various attributes on environment and passed an order with methodology to be adopted for ecological restoration due to illegal sand mining.

Accordingly, Hon'ble NGT passed an order in O.A no 306/2015 vide dated 26.02.2021, mentioning that ...

"..in the light of discussion in para 12 above, having regard to the totality of the situation, ***we accept the report of the CPCB and direct that the scale of compensation calculated with reference to approach II be adopted by all the States/UT's****.."*

CPCB vide letter no CPCB/IPC_II/NGT-OA(360/2015)/ 2021/2046, dated 11th June 2021 issued directions under section 5 of the Environment (Protection) Act, 1986 regarding development of mechanism for assessment and recovery of compensation as per Hon'ble NGT order dated 26.02.2021 in O.A no 360/2015 mentioning that State to evolve an appropriate Mechanism for assessment and recovery of compensation in all districts of the state and for utilization of the recovered compensation for restoration of environment by preparing an appropriate action plan.

The Hon'ble National Green Tribunal in their order dated 26th February 2021 also directed that, *"the States/UT's to strictly follow the SSGM-2016 read with EMGSM-2020 reinforced by mechanism for preparation of District Survey Reports, Environmental management Plans, replenishment studies, mine closure plansgrant of EC etc."*

In accordance with the directions issued by the Hon'ble National Green tribunal, Central Pollution Control Board regarding illegal sand mining the Government of Maharashtra was in process of formulation of Mechanism for assessment and recovery of compensation due to illegal Sand Mining. In view of the above Government has decided to issue the Government Resolution in this regard as follows.

Effective control on illegal Sand Mining :-

2.1. Environment Clearance (EC):

a) The environment clearance (EC) is a process through which SEIAA grants the permission, to any particular area for any particular quantity of sand to be excavated as per EIA notification 2006, as amended from time to time.

b) **The District Collector shall ensure compliance of SSGM-2016 read with EMGSM-2020 guidelines before approving the District Survey Report. (para 13(iii) of the order of the Hon'ble National Green Tribunal dated 26.02.2021 in the matter OA No.360/2015)**

c) Upon due submission made by the District Collector on the Parivesh portal of MoEF&CC, the proposal for granting environment clearance is first heard by State Expert Appraisal Committee (SEAC-1) whereupon if found in accordance with the various guidelines SEAC-1 recommends the proposal to the State Environment Impact Assessment Authority (SEIAA).

d) SEIAA, grants EC to the said proposal, if found in order, subject to strict observance of a set of stipulations so as to ensure that the ecological stress to the riverine ecosystem is kept at a minimum.

2.2. Duties of District Collector:

a) Some of the important stipulations which are to be ensured by District Collector personally are:

   i. To ensure that central 3/4th part of river on map where there is a deposition of sand and remaining 1/4th area needs to be kept as no mining zone for the protection of the bank.

   ii. To ensure that no mining activity is carried out below the depth as approved by the Competent Authority.

   iii. To ensure that, the distance of mining activity area from the river bank shall be 1/4th of the river bed width and should not be less than 7.5 meters.

   iv. To ensure that, sand shall not be extracted up to a distance of 1 km from bridges and highways on both sides, or five times (5x) of the

span (x) of bridge, public civil structure (including water intake point) on upstream side and ten times (10x) the span of such bridge on downstream side, subjected to a minimum of 250 meters on the upstream and 500 meters on the downstream side.

v. To ensure that sand mining shall be carried out by manual method only. No mechanical/electrical/power driven devices shall be used for sand mining purpose.

vi. To ensure no stream is diverted due to proposed sand mining activity.

vii. To ensure that, no heavy vehicles like truck, dumper etc. should ply in the river bed.

viii. To ensure that, there is no damage to any fauna and its nesting close to the sand mining if any.

ix. The sand transportation shall be carried out through the covered vehicles only and the vehicles carrying the mineral shall not be overloaded.

b) In order to ensure strict compliance with the aforesaid and other conditions specified in the EC,the District Collector to develop a robust mechanism including use modern technological means such as Light Detection and Ranging (LiDAR / LADAR) etc.for monitoring systems.

2.3 Procedure to report illegal sand mining and study of ecological damage and restoration:

a) A District Level Task Force (DLTF) Committee shall be Constituted under the Chairmanship of District Collector with Superintendents of Police ,District Forest Officer, District transport officer, Regional officer- MPCB, Senior Officer of Irrigation Department, District Mining Officer with one/two independent member nominated by the Collector concerned. The independent member shall be retired government official /teacher or ex-serviceman or ex-judiciary member as specified by Hon'ble NGT.

b) The DLTF shall keep regular watch over the mining activities and movement of minerals in the District. The DLTF shall have its regular monthly meeting to reconcile the information from the mining activity,

and other observations made during the month and take appropriate corrective and remedial action, which may include a recommendation for revoking mining lease or Environmental Clearance. The recommendation may also include action under the Environment Protection Act, 1986 as specified by Hon'ble NGT.

c) In case of observance of illegal sand mining or violations of the EC conditions, the District Collector shall initiate following actions immediately:
   i. The District Collector shall ensure that the site is immediately closed.
   ii. The sand mining lease shall be immediately suspended by the District Administration.
   iii. Hon'ble NGT expects District Collectors to initiate appropriate legal actions against the defaulter under Environment Protection Act, 1986 and other applicable acts and rules.
   iv. The compensation for ecological damage and restoration shall be calculated as per methodology prescribed in 2.8 and to ensure that the same is deposited in the separate account of environment department.

d) After taking appropriate actions as per (iii) above, the District Level Committee constituted under Chairmanship of District Collector, shall forward the report to the State Government (as per Annexure 1).

e) Upon receipt of the report from the District Collector, the State Government shall forward the same report to the expert organisation for estimation ofthe ecological damage and formulation of appropriate restoration plan.

f) The expenses of expert organisation for estimating ecological damages and formulation of appropriate restoration plan shall be borne by concerned District Administration.

g) The expert organisation shall submit the detailed report on ecological/ environmental damages and restoration plan along with budgetary estimates to the State Government with a copy to District Collector. The

expert organisation shall submit their report within 60 days to the Environment Department in the State Government.

h) The Principal Secretary, Environment and Climate Change, shall release the same amount to District Collector for carrying out ecological restoration, as per recommendations of the expert organisation.

i) The District Collector shall comply with the recommendations and submit compliance report to the Principal Secretary, Environment and Climate Change, on monthly basis.

j) The District Collector shall submit a monthly report on or before 7th day of each month in the proforma attached as Annexure 1.

2.4. Illegal Sand Mining Compensation (reference para 25 of the Hon'ble NGT Order dated 26.02.2021):

a) It is proposed to appoint a reputed Government organisation like NEERI etc., for defining activities contributing to ecological restoration and preparation of appropriate ecological restoration plan.

b) The compensation shall be deposited in a separate bank account and utilised for restoration of environment by preparing appropriate action plan under the guidance of Environment Secretary with the assistance of individuals/ institutions.

c) As specified in the NGT order, these compensation funds shall be reserved for the purpose of ecological/ environmental restoration in the identified affected area only.

2.5. Awareness on adverse impacts of illegal sand mining:

a) The District Administration shall educate public including minors on the adverse impacts of illegal sand mining through media such as local cable network, national television, radio and national newspaper, daily news, etc.

2.6. Review of the Enforcement Mechanism (reference para 28, sub para 2 of Hon'ble NGT Order dated 26.02.2021):

a) Enforcement mechanism shall be reviewed by the Chief Secretary once in three Months.
b) Periodic inspection should be conducted by a five-members Committee, headed and coordinated by the SEIAA comprising Central Pollution Control Board (CPCB), Maharashtra State Pollution Control Board (MPCB) and two expert members of SEAC dealing with the subject.
c) Such inspections must be conducted at least thrice for each lease i.e. after expiry of 25% the lease period, then after 50% of the period and finally six months before expiry of the lease period for midway correction and assessment of damage, if any.
d) The inspection reports be acted upon and placed on website of the SEIAA
e) State should publish their annual reports on the subject and such annual reports may be furnished to MoEF&CC by 30th April every year giving status till 31st March of the respective year.

2.7. Methodology for Quantification of fine (calculation of compensation Amount):

With focus on ecological restoration, the fine for incidents involving illegal sand mining needs to represent the costs to be incurred to restore the ecological damage caused due to the illegal sand mining activity. Hon'ble NGT has defined following approach for estimating the amount of fine/ compensation to be collected by District Collector:

a) In case of calculating the Ecological cost, a simplified Net Present Value (NPV) shall be computed.
b) In the context of the assessment of ecological damages arising from sand mining, the NPV is thus considered to be the present value of the current and future stream of net costs of such activity.
c) The rationale lies in recognising that there may be negative externalities or ecological damages that result from excessive mining which manifests

itself in a loss of the ecosystem services of rivers, and creates a loss of well-being for both current and future generations.

d) The extent of damage and the scope for restoration will vary from site to site and will depend on a variety of biophysical and man-made characteristics.

3. This Government resolution of Maharashtra Government is available at the websitewww.maharashtra.gov.in. Reference no. for this is 202112021716324204. This order has been signed digitally.

By order and in the name of the Governor of Maharashtra.

Manisha Patankar Mhaiskar

Digitally signed by Manisha Patankar Mhaiskar
DN: c=IN, o=Government Of Maharashtra, ou=Environment And Climate Change Department, postalCode=400032, st=Maharashtra, 2.5.4.20=fef2886076676dbebee07d0f1af7414b764ea7e53ecaa48a423e4054ca267ca6, cn=Manisha Patankar Mhaiskar
Date: 2021.12.02 17:18:41 +05'30'

(Manisha Patankar – Mahaiskar)
Principal Secretary & Member Secretary SEIAA
Department of Environment and Climate Change
Government of Maharashtra

Copy To :-

1. Principal Secretary to Hon'ble Governor of Maharashtra.
2. Principal Secretary to Hon'ble Chief Minister, Government of Maharashtra.
3. Hon'ble Principal Secretary, Ministry of Environment, Forest & Climate Change, New Delhi.
4. Secretary to Hon'ble Deputy Chief Minister, Government of Maharashtra.
5. Hon'ble All Divisional Commissioners, State of Maharashtra
6. Hon'ble Member Secretary, Central Pollution Control Board.
7. Hon'ble Member Secretary, Maharashtra Pollution Control Board.
8. Hon'ble All Collectors, State of Maharashtra
9. Private Secretary to Hon'ble Minister, Environment and Climate Change Department, Government of Maharashtra.
10. Private Secretary to Hon'ble Minister of State, Environment and Climate Change Department, Government of Maharashtra.
11. Secretary to all Hon'ble Ministers / Hon'ble Ministers of State
12. PA to Chief Secretary, Government of Maharashtra.
13. P.A. to Principal Secretary, Environment and Climate Change Department, Government of Maharashtra.
14. The Environment & Climate Change Department (T.C.3) Select File.

Annexure - 1

Monthly Report on Sand Mining

1) Name of the District _____
2) This is to certify that there is no illegal sand mining in the month of _____.☐(please tick if applicable)

3) There are illegal cases of mining found in the month of _____.☐ (please tick if applicable).

Sr. No.	Lease holder name	Detailed Lease area address	Geographical demarcation of lease area (Latitude/ Longitude)	Whether EC granted for lease area. If yes, please mention EC Number	Quantity of sand mining granted as per EC (in Brass/ month)	Quantity of sand extracted during the month	Any deviation in sand quantity extraction against approved in EC	Compen sation value (NPV) of Illegal Sand Mining charged (in Rupees)	Whether compens ation fund is deposited in the bank account (Yes/ No)

If yes, please attach detailed report including panchnama copy.

_____ _____

Signature of District Mining Officer **Signature of District Collector**

Annexure - 2

Approach for calculating NPV at present as specified by Hon'ble NGT

- Calculation of Direct Compensation based on the market value of extraction, adjusted for ecological damages
- Calculation of NPV

Step 1 - Direct Compensation based on the market value of extraction, adjusted for ecological damages				
Permitted Quantity (in MT or m3)	**Total Extraction (in MT or m3)**	**Excess Extraction (in MT or m3)**	**Exceedance in Extraction** **EF=(100*Z/X)%	**Compensation Charge (in Rs.)** [Exceedance Factor (EF), Risk Factor (RF), Deterrence Factor (DF)]
X	Y	Z=Y-X	Z/X	**D * (1+RF+DF)** Where D = Z x Market Value of the material per MT or m3 RF = 0.25, 0.50, 0.75, 1.00 DF = 0.3 if Z/X = 0.11 to 0.40, DF = 0.6 if Z/X = 0.41 to 0.70, DF = 1 if Z/X >= 0.71

Step 2

NPV = PV-D

Where,

PV = $\sum_{t=1}^{5}[(D + RT)/(1 + r)^t]$

Market Value of Illegally Mined Material (D) =Z * Market value of illegal extraction

Annual Value of Foregone Ecological Value: D*RF = D+RT

RF is the risk factor

i is discount rate which ranges from 8-5%

Since NPV is calculated for 5 years, time period =5 years

Risk Level	**RF Value**	**Criteria for determining Risk Level**
Risk Level Mild	RF=0.25	EF lies between 1-12%
Risk Level Moderate	RF=0.5	EF lies between 13-25%
Risk Level Significant	RF=0.75	EF lies between 26-50%
Risk Level Severe	RF=1	EF lies between 51-100%

Note –

- For eco-sensitive zones and polluted stretches of the river, the risk level will be severe translating to RF=1.
- If EF lies between 1-12%, the Exceedance factor shall be consider as 12% for further calculation of NPV.

Discount Rate (i)	**Criteria for determining Discount Rate**
i=5	RF = 1
i=6	RF = 0.75
i=7	RF = 0.5
i=8	RF = 0.25

Department of Environment and Climate Change will conduct a masterclass to explain the methodology to estimate the compensation amount.

Example showing the NPV approach –

Permitted Quantity (in MT or m3) **X**	Total Extraction (in MT or m3) **Y**	Excess Extraction (in MT or m3) **Z=Y-X**	Exceedance in Extraction **EF=(100*Z/X)%**	Risk Factor **RF**	Market Value of illegal extraction **D=Z * Market Value of the material per MT or m3**	D+RT **D*RF**	Discount Rate **i**
25,000 m3	50,000 m3	25,000 m3	100%	1	10,000,000	10,000,000	5%

- D = 25000 x 400 = 10,000,000/Value of the material as Rs. 400/- per m3
- D+RT=D*RF = 10,000,000 X 1 = 10,000,000
- RF Calculation – Risk Level Severe as EF=100%, RF=1
- i = 5 since RF = 1
- r=0.05
- t = 5
- PV = $\sum$ $[\frac{10,000,000}{(1+0.05)^1} + \frac{10,000,000}{(1+0.05)^2} + \frac{10,000,000}{(1+0.05)^3} + \frac{10,000,000}{(1+0.05)^4} + \frac{10,000,000}{(1+0.05)^5}]$

  =Rs. 9,523,809+ Rs. 9,070,295+ Rs. 8,643,042+Rs. 8,227,067+ Rs. 7,836,990

  = Rs. 43,301,203
- NPV=PV-D= Rs. 43,301,203 – Rs. 10,000,000 = **Rs. 33,301,203**

……

No. L-11011/47/2011-IA.II(M)
Government of India
Ministry of Environment & Forests

Paryavaran Bhawan,
C.G.O. Complex, Lodhi Road,
New Delhi-110003.

Dated: 24th June, 2013

OFFICE MEMORANDUM

Subject: Guidelines for consideration of proposals for grant of environmental clearance under EIA Notification, 2006 for mining of 'brick earth' and 'ordinary earth' having lease area less than 5 ha – regarding categorization as Category 'B2'

The Hon'ble Supreme Court, vide its order dated 27.02.2012 in I.A.No.12-13 of 2011 in SLP (C) No.19628-19629 of 2009 titled Deepak Kumar etc. Vs. State of Haryana & Ors. has inter alia ordered that leases of minor mineral including their renewal for an area less than 5 ha be granted by the State / Union Territory only after getting environment clearance (EC) from the Ministry of Environment & Forests (MoEF). In order to ensure compliance of the aforesaid order of the Hon'ble Supreme Court, MoEF issued an OM No.L-11011/47/2011-IA.II(M) dated 18.05.2012 stating inter alia that all mining projects of minor minerals including their renewal, irrespective of the size of the lease would henceforth require prior EC and that the projects of minor minerals with lease area less than 5 ha would be treated as Category "B" as defined in EIA Notification, 2006 and will be considered by the respective State Environment Impact Assessment Authorities (SEIAAs) notified by MoEF and following the procedure prescribed under the EIA Notification, 2006.

2. MoEF has received a number of representations conveying problems being faced by the brick kiln manufacturers in obtaining EC for 'brick earth' mined by them for making bricks and by the developers of road projects in respect of mining of 'ordinary earth' used for road construction. The brick kiln manufacturers have requested that as the digging of 'brick earth' for making bricks is a small scale actiivity requiring digging only upto a certain depth, the activity may be kept outside the purview of EC. The project proponents developing roads have represented that the 'ordinary earth' required for road construction is generally taken from the farmers / individuals along the road alignment from their borrows. It would be impractical to ask the farmers / individuals to obtain EC for such digging. In a nutshell, the arguments being put forth are that while digging of 'brick earth' for brick making and 'ordinary earth' for road making do not have serious environmental implications, the provisioning for EC for such operations is impeding these development activities because of practical problems in obtaining EC.

3. MoEF vide OM No.F.No.J-11013/12/2013-IA-II(I) dated 30.01.13 has constituted an Expert Committee, under the Chairmanship of Director, NEERI, Nagpur, to categorize Category "B" projects / activities into Category "B1" and "B2" under EIA Notification, 2006 and review classification of projects / activities into "A" and "B" and General conditions as contained in the aforesaid Notification. The issues raised by brick kiln manufacturers regarding 'brick earth' and road developers in respect of 'ordinary earth' were referred by MoEF to this Expert Committee to give their recommendations. The Committee deliberated upon these issues and has since given its recommendations in the matter.

4. The recommendations of the Committee have been examined by MoEF and the following has been decided:

(a) The activities of borrowing / excavation of 'brick earth' and 'ordinary earth', upto an area less than 5 ha, may be categorized under 'B2' Category subject to the following guidelines in terms of the provisions under '7.I Stage(1)-Screening' of EIA Notification, 2006:

(i) The activity associated with borrowing/excavation of 'brick earth' and 'ordinary earth' for purpose of brick manufacturing, construction of roads, embankments etc. shall not involve blasting.
(ii) The borrowing/excavation activity shall be restricted to a maximum depth of 2 m below general ground level at the site.
(iii) The borrowing/excavation activity shall be restricted to 2 m above the ground water table at the site.
(iv) The borrowing/excavation activity shall not alter the natural drainage pattern of the area.
(v) The borrowed/excavated pit shall be restored by the project proponent for useful purpose(s).
(vi) Appropriate fencing all around the borrowed/excavated pit shall be made to prevent any mishap.
(vii) Measures shall be taken to prevent dust emission by covering of borrowed/excavated earth during transportation.
(viii) Safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to borrowing/excavation of earth.
(ix) Workers / labourers shall be provided with facilities for drinking water and sanitation.
(x) A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth depth of proposed excavation.

(xi) A minimum distance of 15 m from any civil structure shall be kept from the periphery of any excavation area.

(xii) The concerned SEIAA while considering granting environmental clearance for such activity for brick earth / ordinary earth will prescribe the guidelines as stated at (i) to (xi) above and specify that the clearance so granted shall be liable to be cancelled in case of any violation of above guidelines.

(b) Notwithstanding what has been stated at (a) above, the following will apply:-

(i) No borrowing of earth / excavation of 'brick earth' or 'ordinary earth' shall be permitted in case the area of borrowing/ excavation is within 1 km of boundary of national parks and wild life sanctuaries.

(ii) In case the area of borrowing / excavation is likely to result into a cluster situation i.e. if the periphery of one borrow area is less than 500 m from the periphery of another borrow area and the total borrow area equals or exceeds 5 ha, the activity shall become Category 'B1' Project under the EIA Notification, 2006. In such a case, mining operations in any of the borrow areas in the cluster will be allowed only if the environmental clearance has been obtained in respect of the cluster.

This issues with the approval of the Competent Authority.

(Dr. Saroj)
Director
Telefax : 24364067

To

1. All the Officers of IA Division
2. Chairpersons/Member Secretaries of all the SEIAAs/SEACs
3. Chairman, CPCB
4. Chairpersons / Member Secretaries of all the SPCBs/UTPCCs

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