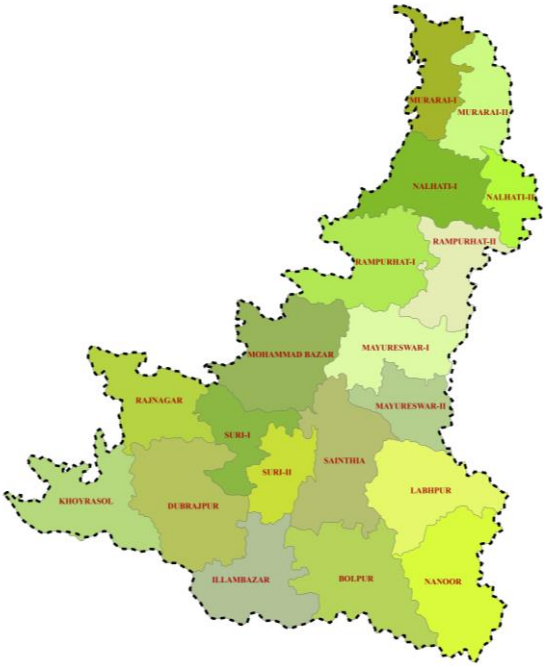
DISTRICT SURVEY REPORT
OF
BIRBHUM DISTRICT

(For mining of minor minerals)
As per Notification No.S.O.141 (E) New Delhi Dated 15th of January 2016, S.O.3611 (E) New Delhi Dated 25th of July 2018 and Enforcement & Monitoring Guidelines for Sand Mining (EMGSM) January 2020, Issued by Ministry of Environment, Forest and Climate Change (MoEF&CC)



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No. 1333 MD

Kolkata, 6th January, 2022.

TO WHOM IT MAY CONCERN

This is to certify that DSRs of concerned districts of West Bengal have been duly validated by respective district authorities and their suggestions/inputs, if any, have been duly incorporated in the DSRs. The DSRs have been finally scrutinised and accepted by the scrutiny committee of DMM, WB and the same have been forwarded to the Dept. of Industry, Commerce and Enterprises along with respective scrutiny reports for onward transmission to SEAC for necessary action.

Director of Mines and Minerals

Govt. of West Bengal

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Abbreviations

% DEP – Departures

° C – Degree Centigrade

BGL – Below Ground Level

CD - Community Development

Cft- Cubic Feet

CGWB - Central Ground water Board

CRIS - Customized Rainfall Information System

Cum - Cubic meter

DGMS - Directorate General of Mines Safety

DGPS - Differential Global Positioning system.

DL&LRO - District Land & Land Reform officer

DSR - District Survey Report

EC – Environmental Clearance

EIA- Environment Impact Assessment

EMGSM - Enforcement and Monitoring Guideline for Sand Mining

ENVIS - Environmental Information System

ft – Feet

GIS - Geographical Information System

GMEC - Global Management and Engineering Consultant

GSI - Geological Survey of India

Ha – Hectare

hr - Hour

IMD – Indian Meteorological Department

ISRO - The Indian Space Research Organization

KM - Kilometer

LISS - Linear Imaging Self-Scanning Sensor

LOI - Letter of Intent

LULC - Land Use Land Cover

m^2 - Square meter

MBT - Main Boundary Thrust

MCT - Main Central Thrust

MFT - Main Frontal Thrust

Mcum – Million Cubic Meters

MMDR - Mines & Minerals (Development and Regulation) Act

MMR - Metalliferous Mines Regulation

MOEF & CC - Ministry of Environment, forest & Climate Change

Mph- miles per hour

M-Sand - Mineral Sand

MSME - Micro, Small & Medium Enterprises

Mt - Metric Ton

MT – Million Tons

NGT - National Green Tribunal

NH – National Highway

NIC - National Informatics Centre

OC - Officer In Charge

OGL - Original Ground level

PSU - Public Sector Unit

R/F – Rain Fall

SSMG - Sustainable Sand Mining Guidelines

WBMDTCL- West Bengal Mineral Development and Trading Corporation Limited

The WBMMCR, 2016 – The West Bengal Minor Mineral Concession Rules, 2016

Definitions

Riverbed: A riverbed is the area between two banks of river where sediment deposited. During the normal flow period, river water is contained in and flows along the riverbed. However, during a flood, the river overflows the riverbed and flows onto the floodplain.

Sandbars: The sandbar is the ridge of sand or coarse sediment that is built over a period of time.

Pre monsoon Sandbars: Sandbars which are identified from satellite imagery of pre monsoon period.

Post monsoon Sandbars: Sandbars which are identified from satellite imagery of post monsoon period.

Restricted Area: Sandbars or part of sandbars which are falling within restricted area. As per the Enforcement & 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.

Potential Zone: Sandbars which are falling within the central 3/4th part of the riverbed and which are not falling within the restricted area.

Potential Block: Each individual sand bars of potential zone is Potential Block.

River bed occurrence: River bed occurrence means sand, stone, boulder, pebbles, gravel accumulated in the river bed by natural phenomenon.

Replenishment: Quantum of sand deposited in a mined out void during monsoon period.

Aggradations: Aggradation (or alluviation) is the term used in geology for the increase in land elevation, typically in a river system, due to the deposition of sediment. Aggradation occurs in areas in which the supply of sediment is greater than the amount of material that the system is able to transport.

Act: It means the Mines and Minerals (Development and Regulation) Act, 1957(67 of 1957), as subsequently amended.

Mineral: It means minor minerals as defined in clause (e) of section 3 of the Act.

Sand: A natural resource, is a minor mineral as defined under S 3(e) of the Mines and Minerals (Development and Regulation) Act, 1957 (" MMDR Act").

Lease: It means a mining lease granted under West Bengal Minor Mineral Concession Rules, 2016.

Mining: Excavation of mineral by manual method or using machineries.

EXECUTIVE SUMMARY

Birbhum district is located in the western part of the state and bounded on the north and west by Santhal Paraganas, on the east by the districts of Murshidabad and Burdwan and on the south by Burdwan, from which it is separated by the Ajay River. Birbhum district of West Bengal is having total population of around 3502404 distributed over 19 C.D. Blocks. The district covers and area of around 4545 sq. km.

Geologically the district comprises many rock formations. Crystalline metamorphic rocks of Archaean to Proterozoic age dominated in the south-western part of the district. Eastern part of the district has been formed by sediments of Gondwana period and also formed by laterite and the alluvium deposit. The Gondwana is overlain by Rajmahal trap (basalt) occuring in the northern and north-western part of the district.

The drainage system of the district is mainly controlled by rivers like the Mayurakshi and the Ajay, the latter of which marks the southern boundary, while the Mayurakshi runs through Birbhum from West to East. Other important rivers of the district include the Bakreshwar, Brahmani, the Bansloi and Dwaraka. These rivers are found to be good source of construction sand which fed the requirements of the state. The district is generating considerable revenue from mining riverbed sand deposits.

The district has good prospect of major mineral resources. Mining of coal is generating considerable amount of revenue for the district. China clay deposits are holding the next potential resources in terms of revenue generation. The Dimension Stone of pink variety (Pink Granite) occurs in Dubrajpur area and the Black in Aligarh area also hold good potential. Basalt (Rajmahal trap), laterite deposits are other important minor mineral deposits of Birbhum district.

The district is generating considerable revenue from mining of minor minerals such as riverbed sand deposits, stone quarry and china clay deposits. Total revenue generated in the district of Birbhum from these minor minerals during between 2017 and 2020 is Rs. 28.77 crores.

Potential minor mineral blocks of sand have been identified based on satellite imagery study along with ground truthing and are listed in this District Survey Report. Restriction zones are defined as per the EMGSM guidelines 2020. In Birbhum district, total 32.09 Mcum potential river bed sand deposits have been estimated and a total 42 in-situ minor mineral potential blocks identified.

1 Preface

The need for District Survey Report (DSR) have been necessitated by Ministry of Environment, Forest and Climate Change (MoEF&CC) vide Notification No. 125 (Extraordinary, Part II Section 3, Sub-section ii), S.O. 141 (E), dated 15th January 2016. The notification was addressed to bring certain amendments with respect to the EIA notification 2006 and in order to have a better control over the legislation. District level committee's have been introduced in the system. As a part of this notification, preparation of District Survey Reports has been introduced. Subsequently, MOEF& CC has published Notification No. 3611 (E), dt. 25thJuly, 2018 regarding inclusion of the "Minerals Other than Sand" and format for preparation of the DSR has been specified. Enforcement & Monitoring Guidelines for Sand Mining (EMGSM) January 2020, Issued by MoEF& CC 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 time to time as well as the requirement specified in West Bengal Minor Mineral Concession Rule, 2016.

The purpose of DSR is to identify the mineral potential areas where mining can be allowed; and also to distinguish areas where mining will not be allowed due to proximity to infrastructural structures and installations, areas of erosion, areas of environmental sensitivities etc. The DSR would also help to estimate the annual rate of replenishment wherever applicable.

Preparation of this DSR involved both primary and secondary data generation. The primary data generation involved the site inspection, survey, ground truthing etc. while secondary data has been acquired through various authenticated sources and satellite imagery studies. The secondary data related to district profile, local geology, mineralization and other activities are available in rather a piecemeal fashion.

The district survey report of Birbhum district also describes the general geographical profile of the district, distribution of natural resources, livelihood, climatic condition, inventory of minor minerals and revenue generation.

2 Introduction

The District Survey Report of Birbhum District has been prepared as per the guide line of Ministry of Environment, Forests and Climate Change (MoEF& CC), Government of India vide Notification S.O.-1533(E) dated 14th Sept, 2006 and subsequent MoEF& CC Notification S.O. 141(E) dated 15th Jan, 2016. This report shall guide systematic and scientific utilization of natural resources, so that present and future generation may be benefitted at large. Further, MoEF& CC published a notification S.O. 3611(E) Dated 25th July, 2018 and recommended the format for District Survey Report.

The main objective of 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 and calculation of annual rate of replenishment and allowing time for replenishment after mining in that area. The DSR would also help to calculate the annual rate of replenishment wherever applicable and allow time for replenishment. Besides sand mining, the DSR also include the potential development scope of in-situ minor minerals.

The objectives of the District Survey Report are as follows:

1. To identify and quantify minor mineral resources for its optimal utilization.
2. To regulate sand and gravel mining, identification of site-specific end-use consumers and reduction in demand and supply gaps.
3. To facilitate use information technology (IT) for surveillance of the sand mining at each step.
4. To enable environmental clearance for cluster of sand and gravel mines.
5. To restrict illegal mining.
6. To reduce occurrences of flood in the area.
7. To maintain the aquatic habitats.
8. To protect ground water in the area by limiting extraction of material in riverbeds to an elevation above the base flow.
9. To maintain data records viz. details of mineral resource, potential area, lease, approved mining plan, co-ordinates of lease hold areas, and revenue generation.
10. To design a scientific mining plan and estimate ultimate pit limit.
11. To frame a comprehensive guideline for mining of sand and other minor minerals.

The District Survey Report (DSR) comprises secondary data on geology, mineral resources, climate, topography, land form, forest, rivers, soil, agriculture, road, transportation, irrigation etc. of the district collected from various published and un-published literatures and reports as well as various websites. Data on lease and mining activities in the district, revenue etc. have been collected from the DL&LRO office of the district and from West Bengal Mineral Development Corporation Limited.

2.1 Statutory Framework

Ministry of Environment, Forest and Climate Change (MoEF& CC) has published several notifications time to time to formulate and implement the District Survey Report (DSR) for every district. Statutory Framework and its legal aspect with respect to DSR is tabulated in Table 2.1.

Table 2.1: Statutory Framework and guidelines on DSR with time scale

Year	Particulars
1994	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.
2006	In order to cover the minor minerals also into the purview of EIA, the MoEF & CC has issued EIA Notification SO 1533 (E), dated 14th September 2006, made mandatory to obtain environmental clearance for both Major & Minor Mineral more than 5 Ha.
2012	Further, Hon'ble Supreme Court wide order 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., ordered that "leases of minor minerals including their renewal for an area of less than five hectares be granted by the States/Union Territories only after getting environmental clearance from MoEF"; and Hon'ble National Green Tribunal, 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.
2016	The MoEF&CC in compliance of above Hon'ble Supreme Court's and NGT'S order has prepared "Sustainable Sand Mining Guidelines (SSMG), 2016" in consultation with State governments, detailing the provisions on environmental clearance (EC) for cluster, creation of District Environment Impact Assessment Authority, preparation of District survey report and proper monitoring of minor mineral. There by issued Notification dated 15.01.2016 for making certain amendments in the EIA Notification, 2006, and made mandatory to obtain EC for all minor minerals. Provisions have been made for the preparation of District survey report (DSR) for River bed mining and other minor minerals.
2016	West Bengal Minor Minerals Concession Rules,2016 amended the Mines and Minerals (Development and Regulation) Act, 1957 (Act 67 of 1957), to make the rules regulating the grant of mining licenses, prospecting license-cum-mining leases and mining leases in respect of minor minerals by auction process. The rule also incorporates EIA

	2016 also includes SSMG 2016 for minor mineral mining.
2018	MoEF& CC published a notification S.O. 3611(E) Dated 25th July, 2018 and recommended the format for District Survey Report .The notification stated about the objective of DSR i.e. "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".
2020	Enforcement & Monitoring Guidelines for Sand Mining (EMGSM) 2020 has been published modifying Sustainable sand Mining Guidelines, 2016 by MoEF& CC for effective enforcement of regulatory provisions and their monitoring. The EMGSM 2020 directed the states to carry out river audits, put detailed survey reports of all mining areas online and in the public domain, conduct replenishment studies of river beds, constantly monitor mining with drones, aerial surveys, ground surveys and set up dedicated task forces at district levels. The guidelines also push for online sales and purchase of sand and other riverbed materials to make the process transparent. They propose night surveillance of mining activity through night-vision drones.

Important statutory Guidelines for sand or gravel mining:

- **The West Bengal Minor Minerals Concession Rules (WBMMCR), 2016**

1) (a) No person shall undertake mining operation in any area prohibited by the 'State Government in the public interest by notification in the *Official Gazette*.

Provided that nothing in the sub-rule shall affect any mining operation undertaken in any area in accordance with the terms and conditions of a mining lease or mineral concession already granted.

(b) No person shall transport or store or cause to be transported or stored any mineral otherwise than in accordance with the provisions of these rules and the West Bengal Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules, 2002.

(2) No minor mineral coming out in course of digging of wells or excavation of tanks shall be disposed of by the person digging or excavating without informing the District Authority as well as the Executive Officer of the *Panchayat Samiti* or the Executive Officer of the Municipality concerned, as the case may be, about such occurrence.

Provided that disposal of such minor mineral may be allowed on pre-payment of prices of such minor mineral at the prevailing market rate as determined on the basis of the rates published by the Public Works Department / concerned department of the State Government for the concerned area from time to time.

(3) No mining of river bed occurrences shall be allowed within 300 meters, upstream and downstream, measured from the centre line of any bridge, regulator or similar hydraulic structure and from the end point of bank protection works.

(4) No river bed mining shall be allowed beneath 3 meters of the river bed or ground water Ievel, whichever is less.

(5) No mining operation in case of river bed occurrence shall be done within a distance of three (3) kilometers of a barrage axis or dam on a river unless otherwise permitted by the concerned Executive Engineer or Revenue Officer or authorized officer and such distance shall be reckoned across an imaginary line parallel to the 'barrage, or dam axis, as the case maybe.

(6) No extraction of river bed occurrence shall 'be allowed beyond the central one third of the river bed, or keeping a distance of 100 meter from the existing bank line whichever is less, unless otherwise permitted by the concerned Executive Engineer or Revenue Officer.

(7) No extraction of minerals other than river bed occurrence shall be allowed within fifty (50) meters from any road, public structure, embankment, railway line, bridge canal, road and other public works or buildings.

(8) No mining lease shall be granted without proof of existence of mineral contents in the area for which the application for a mining lease has been made in accordance with such parameters as may be prescribed by the Government from time to time.

N.B- The aforesaid application for mining lease shall succeed the competitive bidding for mining lease for a specified mineral(s).

- **Sustainable Sand Mining Management Guidelines (SSMMG), 2016by MoEF& CC.**

  The sustainable sand Mining Management Guidelines 2016 has been prepared after extensive consultation with the States and Stakeholders over a period of one year. The main objective of the Guideline 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.

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 flood plains 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.

h) 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.

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.

i) Alternatively, off-channel or floodplain extraction is recommended to allow rivers to replenish the quantity taken out during mining.

j) 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.

k) Mining depth should be restricted to 3 meter and distance from the bank should be 3 meter or 10 percent of the river width whichever less.

The borrow area should preferably be located on the river side of the proposed embankment, because they get silted up in course of time. For low embankment less than 6 m in height, borrow area should not be selected within 25 m from the toe/heel of the embankment. In case of higher embankment the distance should not be less than 50 m. In order to obviate development of flow parallel to embankment, cross bars of width eight times the depth of borrow pits spaced 50 to 60 meters centre-to-centre should be left in the borrow pits.

l) Demarcation of mining area with pillars and geo-referencing should be done prior to start of mining.

- **Enforcement & Monitoring Guidelines for sand Mining, 2020 (MoEF& CC)**

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.

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 1kilometre (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 riverbed 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 riverbed, mineable material per hectare area available for actual mining shall not exceed the maximum quantity of 60,000 MT per annum.

Demand and Utilisation of Sand

Sand is a multi-purpose topographical material. It is known as one of the three fundamental ingredients in concrete. The composition of sand is diverse. Mostly sand is made of silica which is a common element. It can also come from another source of minerals like quartz, limestone, or gypsum.

From beds to flood plains to coastlines- we can find the sand at almost everywhere. The robustness of sand has played a significant role in everyday life. We use sand practically every other day.

Sand extraction from river beds and brick earth mining for making raw bricks are the main mining activities in the district. With a spurt in construction of real estate sectors and various govt. sponsored projects, the demand for both sand and bricks has increased manifold. The extraction of sand is carried out either manually or through semi- mechanized system. The depth of mining for both river bed sand and brick earth is restricted due to statutory provision in the regulations pertaining to conservation and development of minor minerals.

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.

In the real world, there are a lot of situations where we can find uses of sand. Followings are the common sand uses.

1. While bunging metal, we can mix sand with clay binder for frameworks used in the foundries.
2. Sand can be used for cleaning up oil leak or any spill by dredging sand on that spill. The material will form clumps by soaking up, and we can quickly clean the mess.
3. Sand can be used as a road base which is a protective layer underneath all roads
4. Industrial sand is used to make glass, as foundry sand and as abrasive sand.
5. One creative usage of sand is serving as a candle holder. We can try putting some sand before pouring tea light or any candle in a glass. It holds the candle still and refrain the candle from rolling by giving it an excellent decoration.
6. Adds texture and aesthetic appeal to space.
7. Sand is mostly pure to handle, promptly available and economically wise.
8. We use sand in aquariums, fabricating artificial fringing reefs, and in human-made beaches
9. Sandy soils are ideal for growing crops, fruits and vegetables like watermelon, peaches, peanuts, etc.
10. Sand can light a path by filling mason jars with sand and tea light which is another inexpensive way to make a walkway glow.
11. Sand helps to improve resistance (and thus traffic safety) in icy or snowy conditions.
12. We need sand in the beaches where tides, storms or any form of preconceived changes to the shoreline crumble the first sand.
13. Sand containing silica is used for making glass in the automobile and food industry- even household products for the kitchen.
14. Sand is a strong strand which is used for plaster, mortar, concrete, and asphalt.
15. The usual bricks formulated of clay only are way weaker and lesser in weight than blocks made of clay mixed with sand.

2.2 Methodology of DSR Preparation

The steps followed during the preparation of District Survey Report are given in Figure 2.1. The individual steps are discussed in following paragraphs.

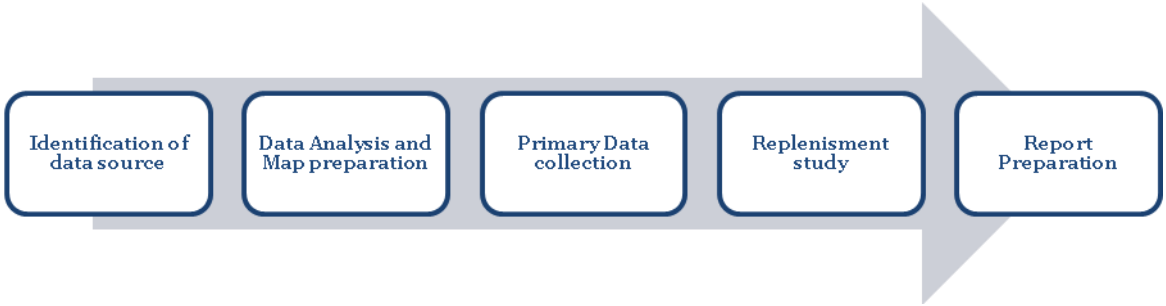


Figure 2.2.1: Steps followed in preparation of DSR

Data source Identification: District Survey Report has been prepared based on the primary data base and secondary data base collected and collated from different sources. It is very critical to identify authentic data sources before compiling the data set. The secondary data sources which are used in this DSR are mostly taken from public domain and or from the published report in reputed journals. Information related to district profile has been taken from District Census Report,2011 and District Statistical Handbook published by the Govt. of West Bengal. Potential mineral resources of the district have been described based on the published report of Geological Survey of India (GSI) or any other govt. agencies like MECL etc. List of mining lease, name of lease holder, lease/block area, resource in already allotted mining lease, revenue from minor mineral sector etc. have been collected from the concern DL & LRO offices of the district. Satellite images have been used for map preparation related to physiography and land use/land cover of the district.

Data Analysis and Map preparation: Dataset which are captured during the report preparation, are subjected to detail analysis work. District Survey Report involves the analytical implication of the captured dataset to prepare relevant maps.

Methodology adopted for preparation of relevant maps is explained below.

Land Use and Land Cover Map: Land Use and Land Cover classification is a complex process and requires consideration of many factors. The major steps of image classification include determination of a suitable classification system via Visual Image Interpretation, selection of training samples, Satellite image (FCC-False Color Composite) pre-processing, selection of suitable classification approaches, post classification processing, and accuracy assessment.

Here LISS-III satellite imagery has been taken for supervised classification as supervised classification can be much more accurate than unsupervised classification, but depends heavily on the training sites, the skill of the individual processing the image, and the spectral distinctness of the classes in broader scale.

According to the Visual Image Interpretation (Tone, Pattern, Texture, Shape, Color etc.) training set of the pixel has been taken. Pictorial descriptions of Land Use classification are explained in Figure 2.2.

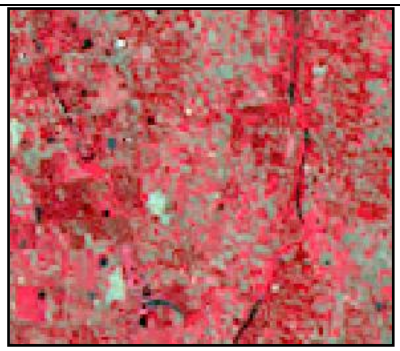
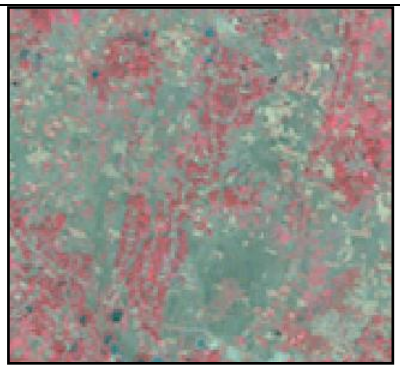
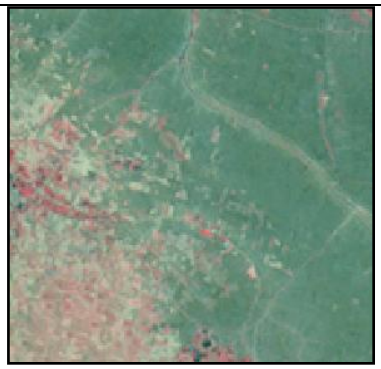
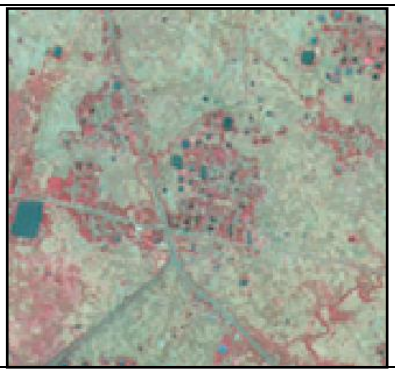
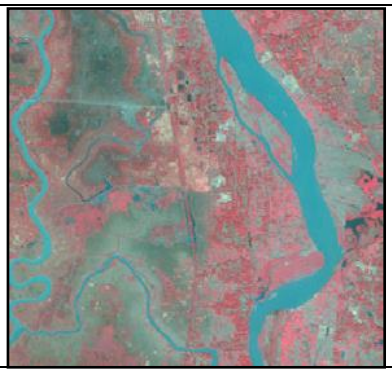
	
Agricultural Land - Based on their Geometrical shape, Red and Pink color tone, Agricultural Land has been identified.	**Vegetation Covered Area** - Area with continuous Red color tone, Vegetation Covered Area has been classified.
	
Agricultural Fallow Land - Based on their Geometrical shape, Yellowish green color tone, Agricultural Fallow Land has been identified.	**Badland Topography**- Area with Non geometrical shape and Yellowish green color tone has been identified as Bad Land Topography.
	
Settlement – Area with some geometrical shape in a Linear Pattern including Light Cyan Color has been recognized as Settlement Area.	**Water Bodies –** Area with Blue color has been classified as Water Bodies.

Figure 2.2.2: Pictorial description of Land Use Classification methods

Geomorphological Map: The major step of preparing Geomorphological Map is identifying features like – Alluvial Fan, Alluvial Plain, Hilly Region etc. from Satellite Imagery

(FCC-False Colour Composite) via Visual Image Interpretation and then digitisation has been taken into the consideration to prepare map including all the Geomorphological features according to their location. Pictorial descriptions of Geomorphological unit's classification are explained in Figure 2.3.

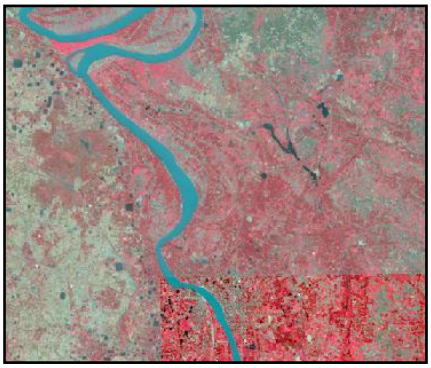
	
Flood plain-Flood plain is a generally flat area of land next to a river or stream. It stretches from the banks of the river to the outer edges of the valley. For Birbhum District, Whole region has been classified as Flood Plain Area.	**OX-BOW Lake-** An ox-bow lake starts out as a curve, or meander, in a river. This "U" shaped body of water identified as Ox-Box Lake from Satellite Imagery.

Figure 2.2.3: Pictorial description of Geomorphological Units Classification methods

Physiographical Map: The major step of preparing Physiographical Map is generating contour at a specific interval to show the elevation of the area using Cartosat DEM.

Block Map/Transportation Map/Drainage Map:

- Raw Data collected from **National Informatics Centre (NIC Website) during Sept 2020.**
- Data has been geo-referenced using GIS software.
- Digitization of block boundary, district boundary, state boundary, international boundary, and district headquarter, sub–district headquarter, places, road, railway, river, nala etc.
- Road name, River name, Railway name has been filled in attribute table of the Layers
- Final layout has been prepared by giving scale, legend, north arrow, etc.

Earthquake Map:

- Raw data collected from **Ministry of Earth Science.**
- Data has been geo-referenced using GIS software.
- Digitization of Earthquake zone and superimposed it over Block Boundary.
- Zone name has been filled in attribute table of the Layers
- Final layout has been prepared by giving scale, legend, north arrow, etc.

Soil Map:

- Raw data collected from **National Bureau of Soil Survey and Land Use Planning during Sept 2020.**
- Data has been geo-referenced using GIS software.
- Digitization of Soil classification zone and superimposed it over District Boundary.
- Soil classification has been filled in attribute table of the Layers.
- Final layout has been prepared by giving scale, legend, north arrow, etc.

Wildlife Sanctuary and National Park location Map:

- Raw data obtained from **ENVIS Centre on Wildlife & Protected Areas during August 2020.**
- Data has been geo-referenced using GIS software.
- Digitization of Wildlife Sanctuary and National Park and superimposed it over Block Boundary.
- Wildlife Sanctuary & National Park name has been filled in attribute table of the Layers

Final layout has been prepared by giving scale, legend, north arrow, etc.

Primary Data Collection: To prepare DSR, primary data has been collected and field work has also been carried out for the district. Field study involves assessment of the mineral resources of the district by means of pitting / trenching in specific interval. This provides clear picture of mineral matters characterization and their distribution over the area.

Replenishment study: One of the principal causes of environmental impacts of river bed mining is the removal of more sediment than the system can replenish. Therefore, there is a need for replenishment study for riverbed sand in order to nullify the adverse impacts arising due to excess sand extraction. The annual rate of replenishment carried out on every river of the district to have proper assessment of the potential sand reserve.

Four times physical survey has been carried out by GPS/DGPS/ Total Station to define the topography, contours and offsets of the riverbed. The surveys clearly depict the important attributes of the stretch of the river and its nearby important civil and other feature of importance. This information will provide the eligible spatial area for mining.

Report Preparation: The district survey report portrays general profile, geomorphology, land use pattern and geology of the district. The report then describes the availability and distribution of riverbed sands and other minor minerals in the district. Apart from delineation the potential mining blocks, the report also includes inventorization of the minerals, recent trends of production of minor minerals and revenue generation there from. Annual replenishment of the riverbed sand has been estimated using field observation, satellite imagery and empirical formula. The road network connecting arterial road to potential mining blocks has been identified. Potential environmental impacts of mining of these minerals, their mitigation measures along with risk assessment and disaster management plan have also been discussed. Finally the reclamation strategy for already mined out areas is also chalked out.

3 General Profile of the district

a) General Information

Birbhum district is located in the western part of the state. It lies between 23° 32′ 30″ and 24° 35′ 0″ north latitude and 88° 1′ 40″ and 87° 5′ 25″ east longitude. Birbhum is bounded on the north and west by Santhal Paraganas, on the east by the districts of Murshidabad and Burdwan and on the south by Burdwan, from which it is separated by the Ajay River. The district extends over an area of 4545 Sq. Kms (Figure 3.1) (https://birbhum.gov.in/geography/).

Geographically, this area lies at the northeastern end of the Chota Nagpur Plateau, as it slopes down and merges with the alluvial plains of the Ganges. In the district there is only hilly area of natural rock formation situated near Dubrajpur town called Mama Bhagne Pahar (Hill). The western portion of the district is historically known as Vajjabhumi or Bajrabhum. It is an undulating upland that is generally barren. The comparatively more fertile eastern portion, constituting the northeastern Rarh region, merges with the Gangetic plain. Vajjabhumi is included in the Rarh region, and the rest of Rarh is called Sumha to differentiate it from Vajjabhumi (https://en.wikipedia.org/wiki/Birbhum_district).

Administratively, district Birbhum is comprised of three Sub-divisions namely, (1) Rampurhat (2) Suri Sadar and (3) Bolpur. Each Sub-division is again consisting of a number of Community Development Blocks (C.D. Blocks). There are 19 C.D. Blocks in the district distributed among the Subdivisions. The Rampurhat Sub-division includes 8 C.D. Blocks namely (i) Nalhati-I (ii) Nalhati-II (iii) Murarai-I (iv) Murarai-II (v) Mayureswar-I (vi) Mayureswar-II (vii) Rampurhat-I and (viii) Rampurhat-II. There are 7 C.D. Blocks falling in Suri Sadar Sub-division. These are (i) Mohammad Bazar, (ii) Sainthia, (iii) Dubrajpur, (iv) Rajnagar, (v) Suri-I (vi) Suri-II and (vii) Khoyrasol while the C.D. Blocks under Bolpur Sub-division are (i) Bolpur-Sriniketan (ii) Labpur (iii) Nanoor and (iv) Illambazar (Table 3.1 and Figure 3.2). Suri is the district headquarters (Census, 2011).

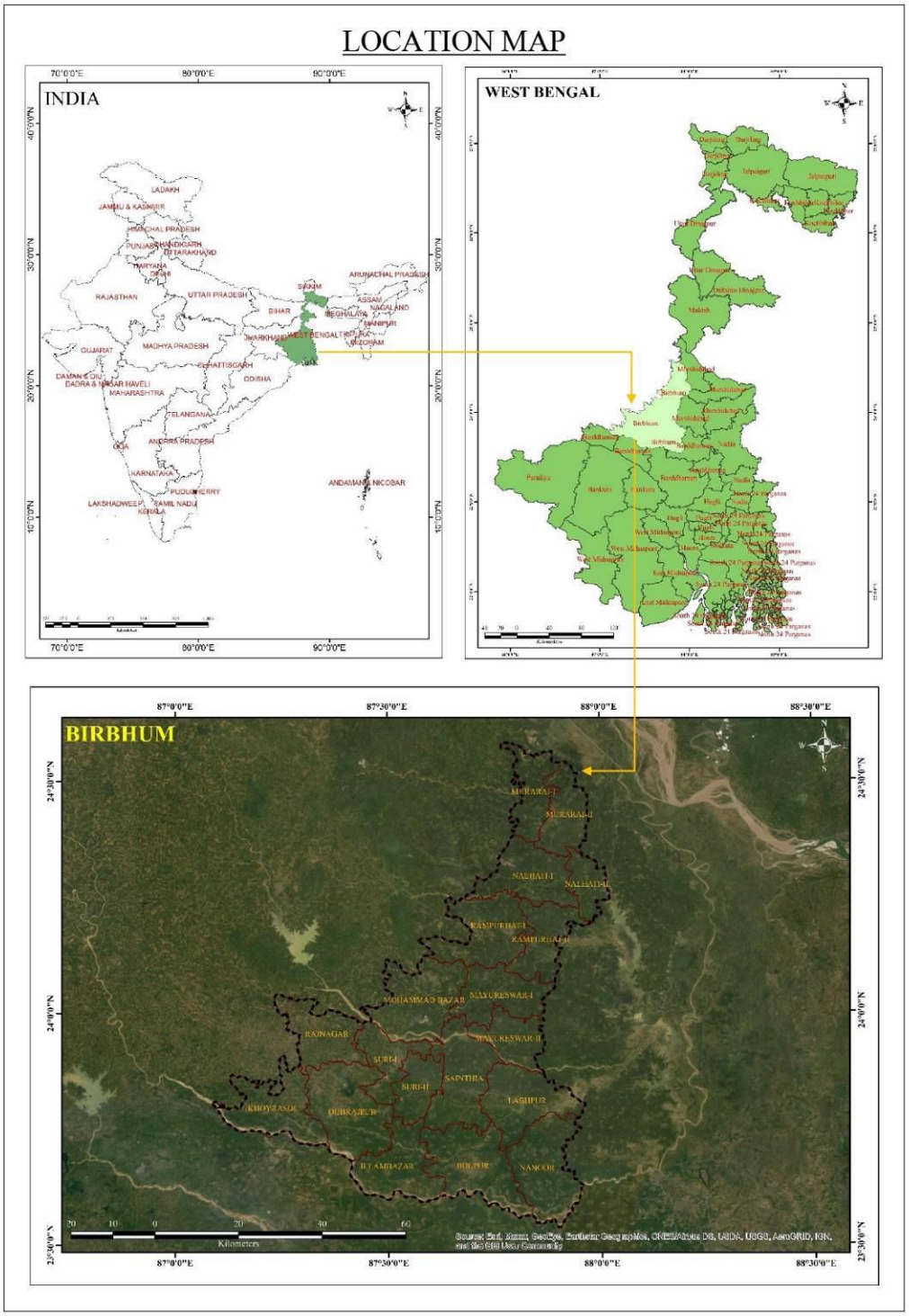


Figure 3.1: Location Map of Birbhum
(Source: National Informatics Centre and ESRI Base Map)

Table 3.1: Block distribution of Birbhum District

Sub- Div.	CD Block / M.C. / Muni.	Panchayet			Mouza / Ward	Area (Sq. Km) Block/M Wise
		Samity	Gram	Gram Sansad		
Suri Sadar	Sainthia	1	12	119	230	304.39
	Sainthia (M)				16	16.00
	Dubrajpur	1	10	104	226	344.88
	Dubrajpur (M)				16	16.83
	Rajnagar	1	5	41	99	221.47
	Khoyrasole	1	10	83	170	272.19
	Suri I	1	7	60	114	154.65
	Suri (M)				19	9.47
	Suri II	1	6	52	95	135.81
	Md. Bazar	1	12	86	158	315.64
Rampurhat	Mayureswar I	1	9	88	114	221.31
	Mayureswar II	1	7	64	131	158.36
	Rampurhat I	1	9	98	119	221
	Rampurhat II	1	9	95	95	184.22
	Rampurhat M				17	
	Nalhati I	1	9	92	99	398.14
	Nalhati II	1	6	49	48	106.29
	Nalhati M				16	
	Murarai I	1	7	74	85	172.25
	Murarai II	1	9	87	72	184.42
Bolpur	Labpur	1	11	113	179	269.98
	Nanoor	1	11	120	137	311.83
	Bolpur-Sriniketan	1	9	99		334.58
	Bolpur (M)				18	10.73
	Illambazar	1	9	86	160	251.54
GRANT TOTAL:		**19**	**167**	**1610**	**2433**	

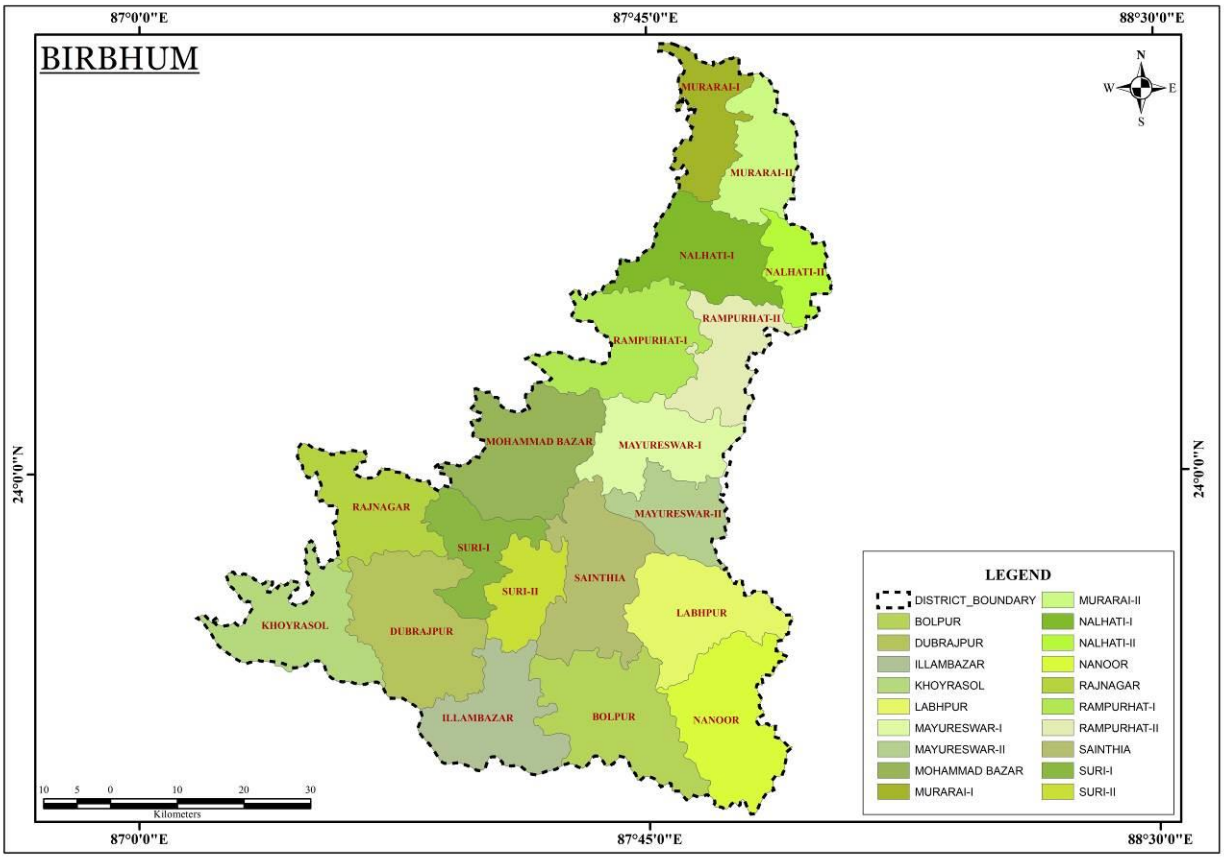


Figure 3.2: Block divisional map of Birbhum
(Source: National Informatics Centre)

b) Climate Condition

District Birbhum belongs to humid tropical monsoon climatic region. According to District Meteorological Department, there are very minor variation of temperature, rainfall and relative humidity in all over the district viz. north to south and west to east.

The district Birbhum experiences an extreme climate with high range of temperature. The climate of the district is characterized by oppressive heat and high humidity in summer with average daily maximum temperature of 30°C. Winter is generally dry and cold with average winter temperature around 18° C. The average annual temperature in the district is 25.9 °C. The year may be divided into four seasons. The cold season is from about the middle of November to the end of February. The period from March to May is the summer season. The south west monsoon season commences about the beginning of June and lasts till the end of September. October and the first half of November may be termed as post monsoon season. (https://www.imdpune.gov.in/library/public/Climate%20of%20WestBengal.pdf)

c) Rainfall

The average annual rainfall in the district is 1321.5mm. The variations in the annual rainfall within the district and from year to year are not large. The rainfall during the monsoon season – June to September – constitutes 74 percent of the annual rainfall; July and August are the rainiest months. The district receives a mean annual rainfall varying from 904.4 mm. to 1522.1 mm. (https://hydro.imd.gov.in/hydrometweb/(S(c31xot2fu1lahs45tplr2vuh))/DistrictRaifall.aspx)

The information on annual rainfall for the five years from 2017 to 2021 for the district Birbhum is given in Table 3.2. Average rainfall of the district explained graphically in Figure 3.3.

Table 3.2: Annual rainfall (in milimeter) recorded in Birbhum District

YEAR	2017	2018	2019	2020	2021	Average
JAN	4.6	0	0.1	22	0	5.34
FEB	0	0.5	27.6	0.8	0	5.78
MAR	4.8	0.8	20	41.5	9.4	15.3
APR	28	51.5	54.5	62	25.3	44.26
MAY	160.8	62.6	139.9	194.9	208.9	153.42
JUN	156.6	138.3	72.2	278.6	309.6	191.06
JUL	487.1	258.3	242.3	362.1	302.7	330.5
AUG	238.6	159.7	191.1	304.7	247.4	228.3
SEPT	166.5	170	255.1	206.9	211.3	201.96
OCT	214.5	37.4	196	37.3	154.5	127.94
NOV	2.5	0	0.5	0	45.6	9.72
DEC	4.7	25.3	1.9	0	7.4	7.86
Total	**1468.7**	**904.4**	**1201.2**	**1510.8**	**1522.1**	**1321.44**

Source: Website of Indian Meteorological Department, Govt. of India

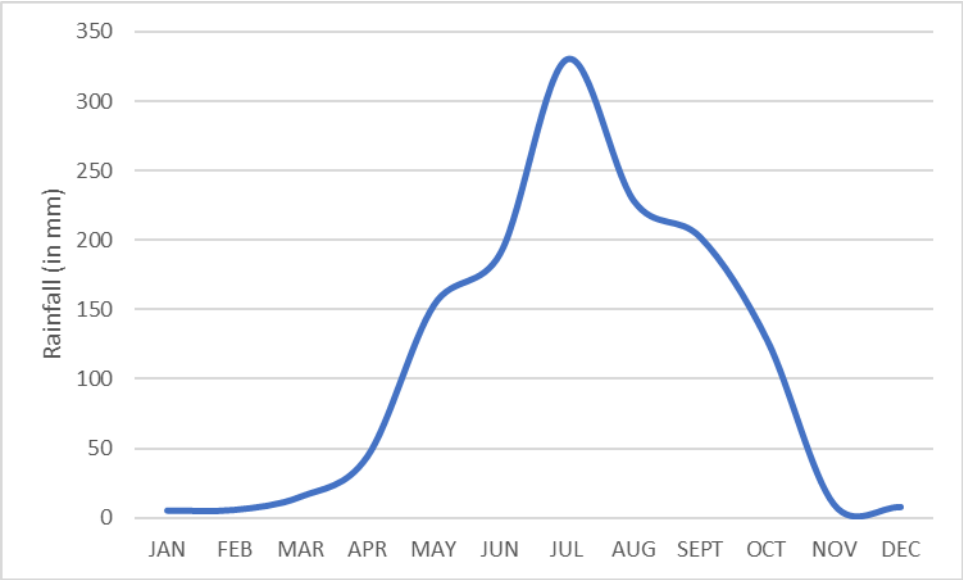


Figure 3.3: Graphical representation of Birbhum District rainfall

- **Temperature:**

Temperature along with other meteorological conditions of the district is more or less uniform. The cold season commences by about the middle of November when the temperature begins to decrease. January is the coldest month with the mean daily maximum and minimum temperature at 12 ºC and 24ºC respectively. By about the end of February the temperature begins to increase and May is found as the hottest month, the mean maximum daily temperature is 30 ºC and the mean minimum daily temperature is 26 ºC. (https://en.climate-data.org/asia/india/west-bengal/bolpur-767407/).

The average maximum and minimum temperature recorded in Birbhum is given in Table 3.3.

Table 3.3: Monthly mean temperature (in °C) distribution of Birbhum District

Parameters	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Average Temperature (°C)	18.3	22	26.8	30.3	30.5	29.7	28.3	28.1	27.7	26.4	23.2	19.6
Minimum Temperature (°C)	12.3	15.6	20.1	24.6	26.2	26.7	25.9	25.7	25	22.7	18.2	14.1
Maximum (°C)	24.3	28.3	33.4	36.7	35.8	33.9	31.8	31.6	31.3	30.6	28.4	25.1

- **Relative Humidity, Wind speed & Wind direction**

Humidity is observed as high throughout the year, but in the summer months, March and April, the relative humidity is comparatively low, begins some 65 to 70 percent in the mornings and 35 to 40 percent in the afternoons. From May the humidity increases. Skies are moderately to heavily cloudy in May. In the south-west monsoon season; the cloudiness increases and skies are mostly heavily clouded or overcast. From October the cloudiness decreases and in the next six months skies are clear or lightly clouded. Winds are generally light or moderate, with a slight increase in force in the summer seasons.

d) Topography & Terrain

Physiographically this district is a part of ancient "Radh Bhumi" of Bengal. It is characterized by undulating barren land associated with red, lateritic and older alluvial soil of Achaean-Middle Proterozoic and Pleistocene period. Its topography is very much similar to the Radh areas of Bankura and Paschim Medinipur districts. The western portion is the district is basically the extension of Chhotanagpur plateau to the south and south-east. The land surface of the entire area of the district is broken by a succession of undulations.

At the Rampurhat subdivision, hills are the extensions of the low Rajmahal hills of basaltic formation. The south of the Labhpur and Bolpur, the land is totally flat. The general gradient is from north-west to south-east. The general slope of this district is from north-west to south-east. The major rivers flowing through the districts have originated from the Rajmahal highlands which have gradually merge into the broad alluvial plain of the Gangetic delta in the south and south-east. (Figure 3.4) (Census, 2011).

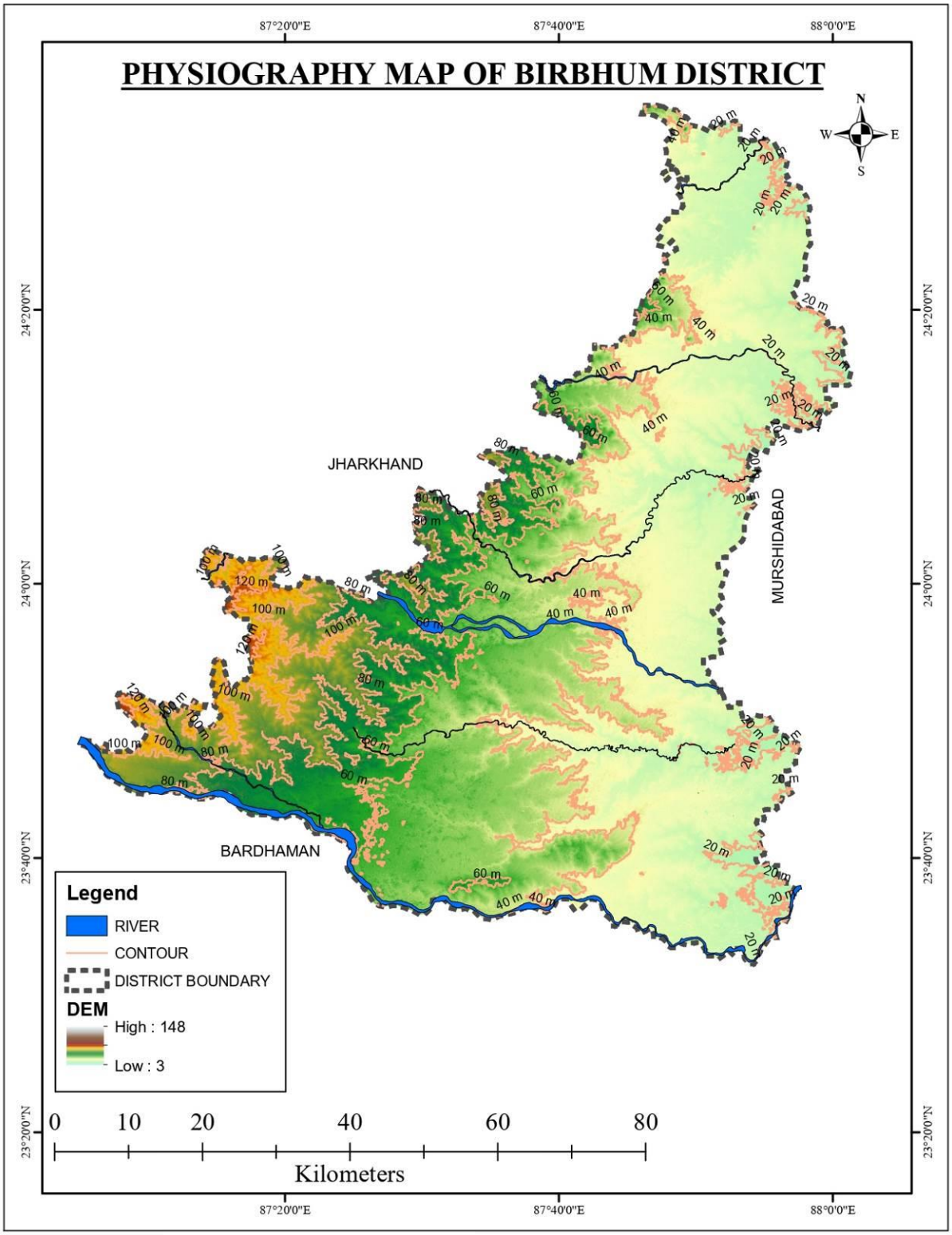


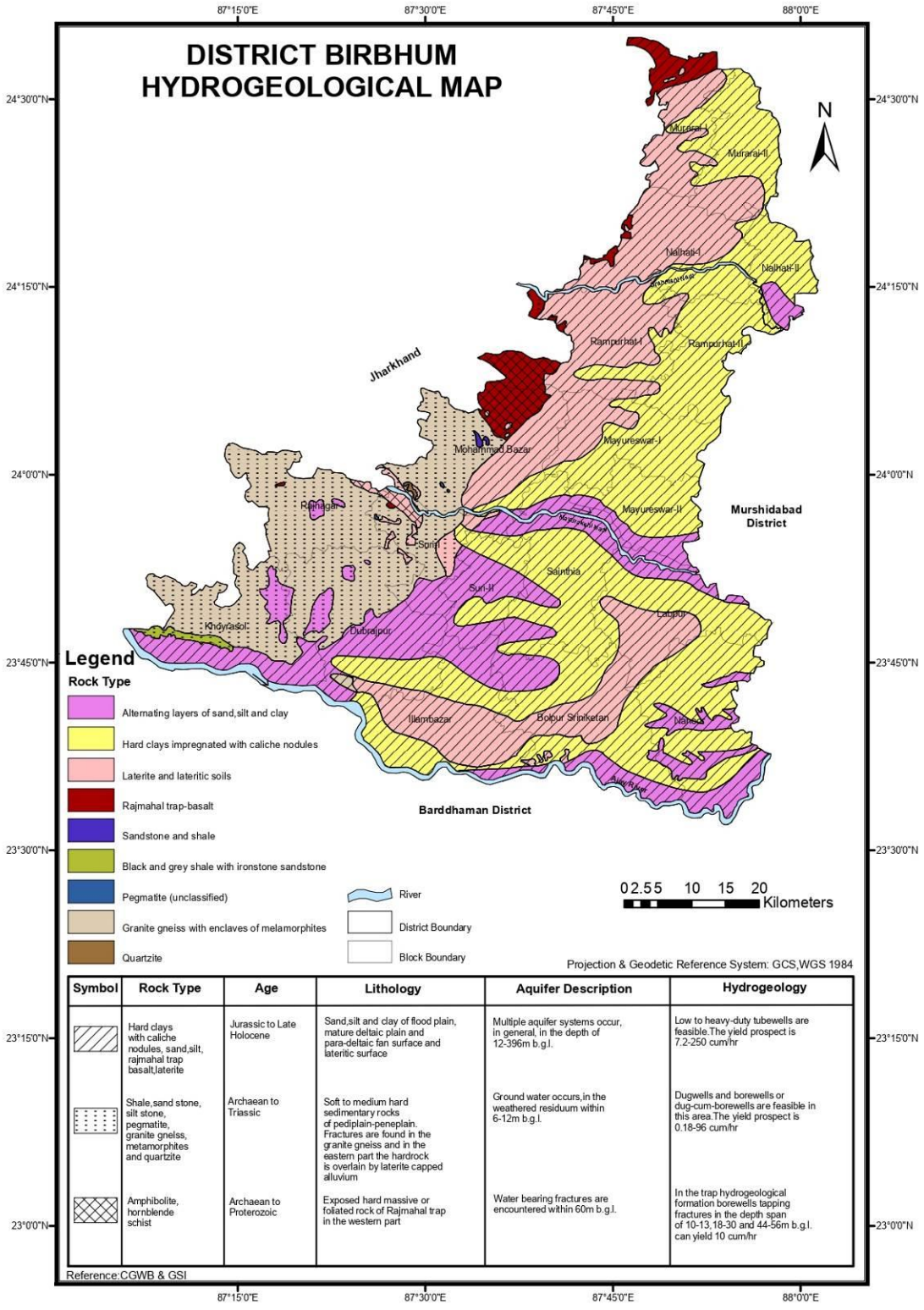
Figure 3.4: Physiographic map of Birbhum District

(Source: Cartosat-1, Bhuvan India)

e) Water Course & Hydrology

Hydrological condition at a particular point is guided by topography, geology, and rainfall of the region. Central Ground Water Board (CGWB) has carried out detail hydrogeological investigation of the district. Figure 3.5 represents hydrogeological map showing the hydrogeological scenario of the district.

As per the CGWB report, the district Birbhum displays diversified hydrogeological characters. Based on geology and mode of occurrence of groundwater the underline area of the district has been divided into three sectors (i) eastern sector covered by Sand, silt and clay of flood plain, mature deltaic plain and para-deltaic fan surface and lateritic surface of Jurassic to Late Holocene. (ii) South-Western sector covered by Soft to medium hard sedimentary rocks of pediplain-peneplain. Fractures are found in the granite gneiss and in the eastern part the hardrock is overlain by laterite capped alluvium of Archaean to Triassic and (iii) North-Western sector covered by massive or foliated rock of Rajmahal trap. Groundwater occurs in the district both unconfined condition and confined condition. Multiple aquifer systems occur in the eastern sector, in general, in the depth of 12-396m bgl. Ground water occurs in the weathered residuum within 6-12m bgl. at the south-western sector. Water bearing fractures are encountered within 60m bgl in trap area of Birbhum. (http://wbwridd.gov.in/swid/mapimages/BIRBHUM.pdf).



Symbol	Rock Type	Age	Lithology	Aquifer Description	Hydrogeology
	Hard clays with caliche nodules, sand,silt, rajmahal trap basalt,laterite	Jurassic to Late Holocene	Sand,silt and clay of flood plain, mature deltaic plain and para-deltaic fan surface and lateritic surface	Multiple aquifer systems occur, in general, in the depth of 12-396m b.g.l.	Low to heavy-duty tubewells are feasible.The yield prospect is 7.2-250 cum/hr
	Shale,sand stone, silt stone, pegmatite, granite gnelss, metamorphites and quartzite	Archaean to Triassic	Soft to medium hard sedimentary rocks of pediplain-peneplain. Fractures are found in the granite gneiss and in the eastern part the hardrock is overlain by laterite capped alluvium	Ground water occurs,in the weathered residuum within 6-12m b.g.l.	Dugwells and borewells or dug-cum-borewells are feasible in this area.The yield prospect is 0.18-96 cum/hr
	Amphibolite, hornblende schist	Archaean to Proterozoic	Exposed hard massive or foliated rock of Rajmahal trap in the western part	Water bearing fractures are encountered within 60m b.g.l.	In the trap hydrogeological formation borewells tapping fractures in the depth span of 10-13,18-30 and 44-56m b.g.l. can yield 10 cum/hr

Figure 3.5: Hydrogeological map of Birbhum district

f) Ground Water Development

In Birbhum district, groundwater occurs in both confined and water-table conditions with resultant flow direction from west to east. Groundwater under water table condition occurs in both alluvium and hard rock terrains whereas a confined condition occurs under the deep alluvium aquifer where the confined aquifer's piezometric head vary 3–4 m bgl (meter below ground level) on an average. The deeper tube well in the east generally has higher yield in comparison to the western zones with shallower tube wells. Recent alluviums of quaternary age group bearing porous formations are fairly thick and are spreading over an area of 210 km2 (4.5%) of the total area in the southern and south-eastern part have very large yield prospects of about 200 m3 /h. older alluvium and older alluvium with laterites, etc. belonging to upper tertiary to lower quaternary age group accounts for approximately 48 and 29% respectively. Older alluviums are associated with moderate yield prospects of about 70–180 m3 /h where very limited yield prospects of below 50 m3 /h are observed in older alluvium with laterites, etc. types of aquifers. Basalt with Intertrapean Clay of Mesozoic–Palaeozoic age occurs at the western end and Gneiss and associated rocks of Archean age have very restricted groundwater yield of below 10 m3 /day as groundwater are restricted to weathered residuum only along with fracture zones having secondary porosity (**Thaka et al 2017**).

Central Groundwater Board (CGWB) has carried out hydrogeological investigation in the Birbhum district. The present report incorporates data published by CGWB. Water level data has been collected from both dug-wells and tube-wells. Figure 3.6 represents water level fluctuation graph of a monitor station located at Bolpur, Birbhum. Depth to water level in dug wells measured by CGWB varied from 5.3m to 8.24m bgl during pre-monsoon period with an average depth of 6.6m. During post-monsoon period, water level varies from 3.3m to 6.95m bgl with an average of 5.1m in the year 2011 to 2021. (https://indiawris.gov.in/wris/#/groundWater%20(CGWB%20website%20for%20Ground%20water%20data)

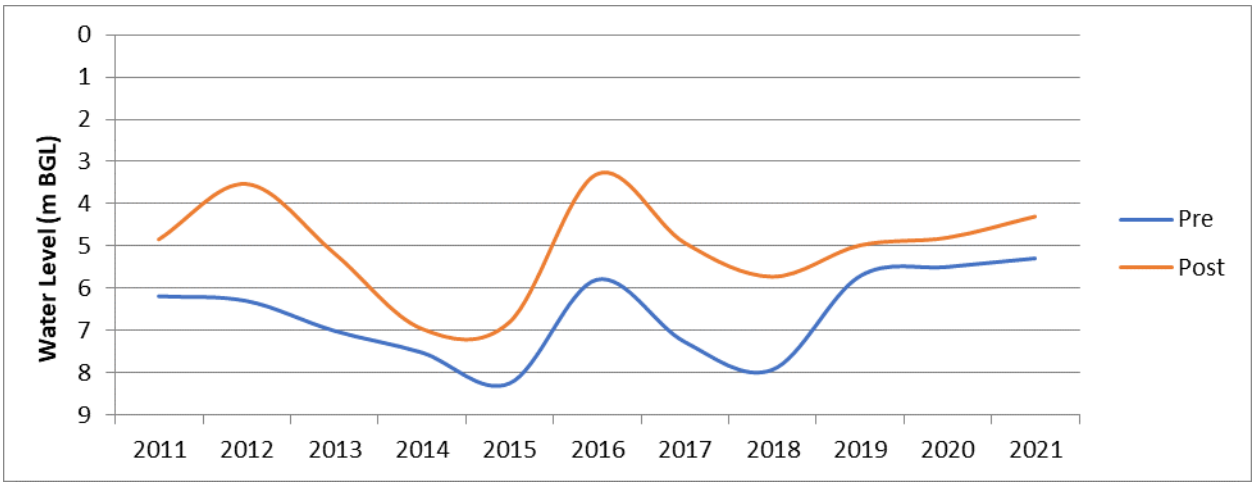
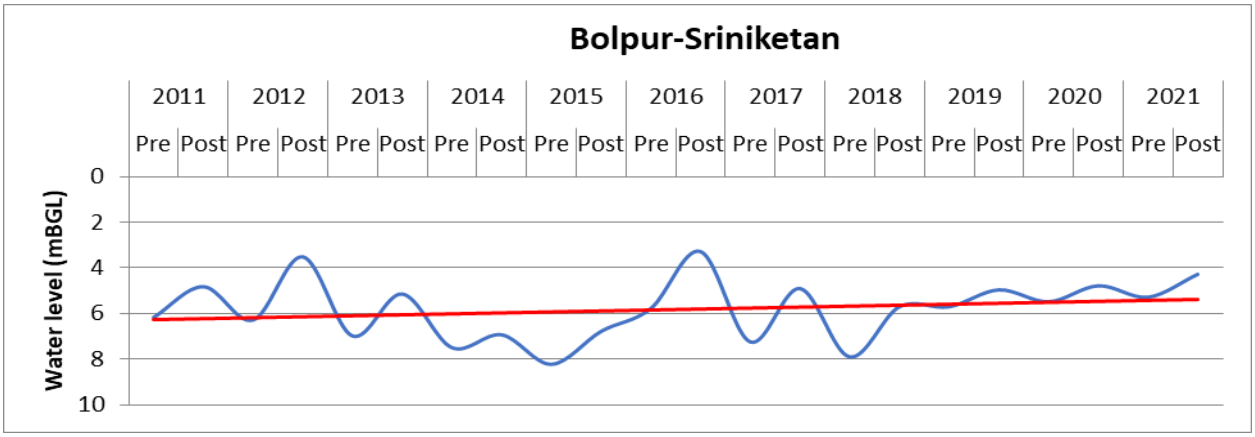
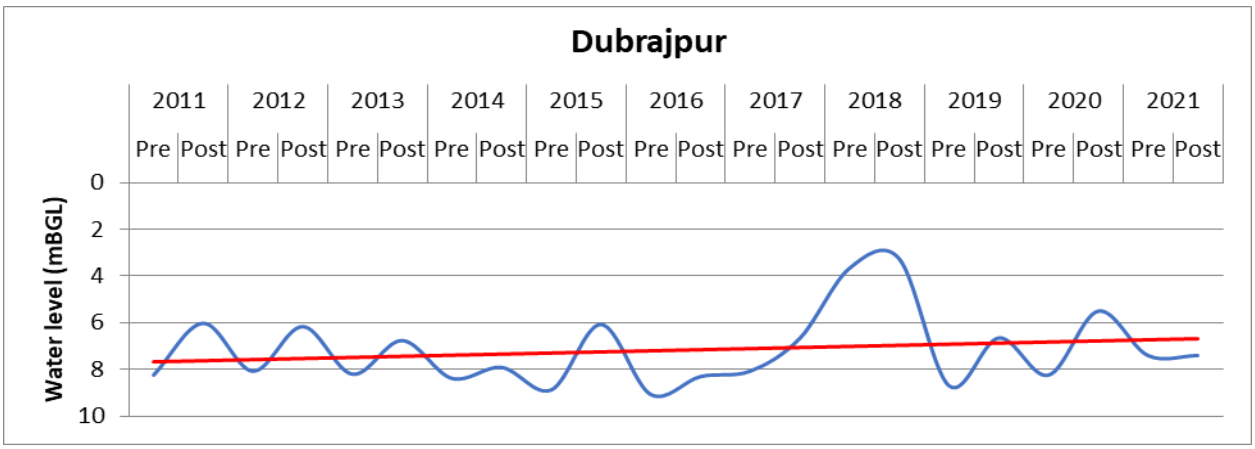


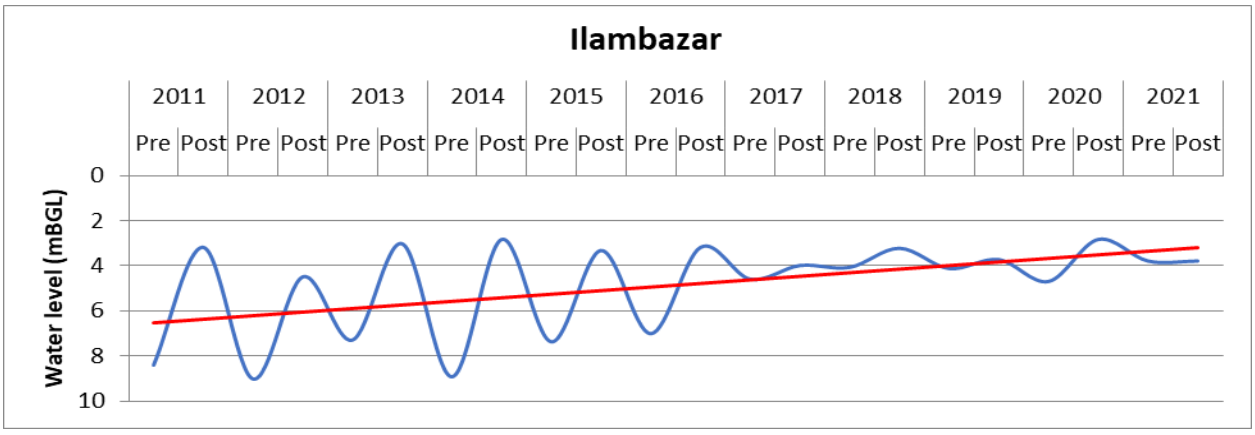
Figure 3.6: Graphical representation of pre-monsoon and post-monsoon water level data of Bolpur, Birbhum

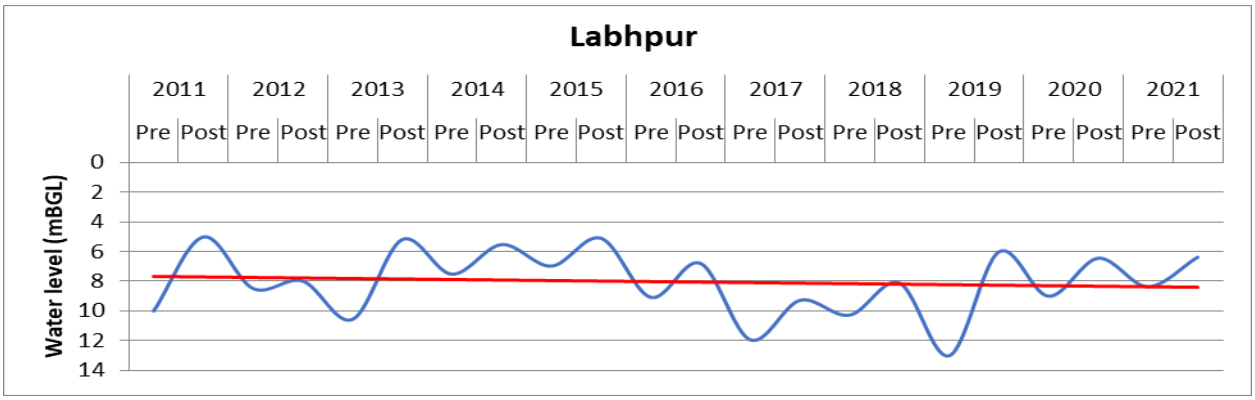
Over all stage of ground water development is 34% in the Birbhum district which implies safe stage (CGWB, 2017). Ground water resources estimation of 2013 (calculated using GEC 1997 Methodology) have been considered in case of Birbhum, West Bengal. However, the groundwater development status is not uniform throughout the district.

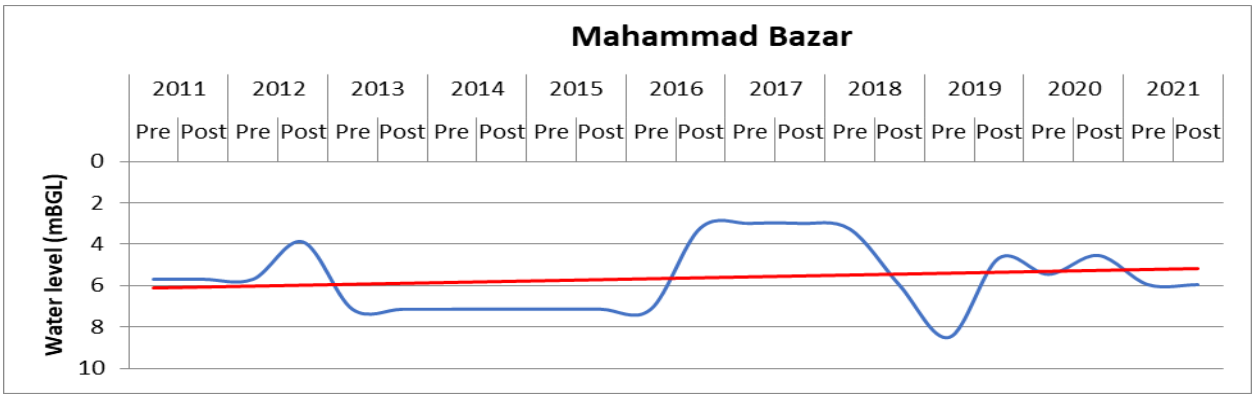
Hydrographs showing variation in water level observed in between 2011 to 2021 in the district is given in Figure 3.7.

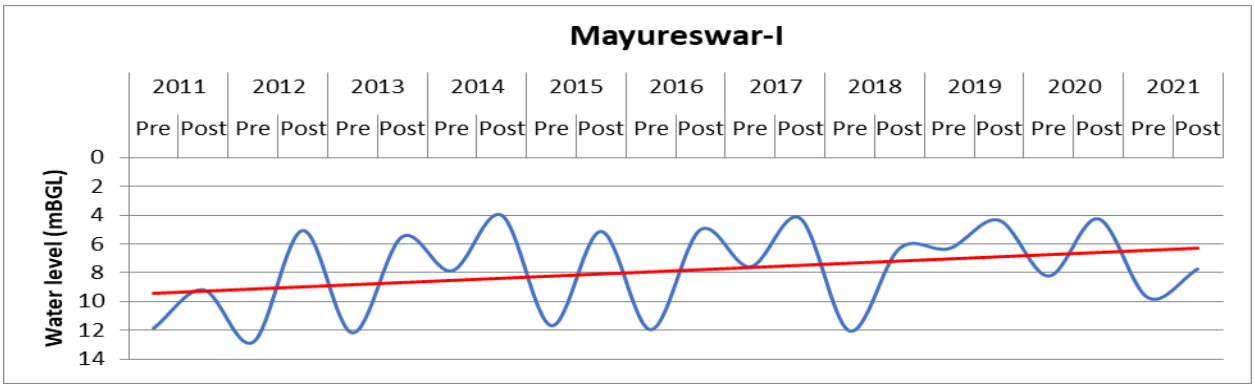


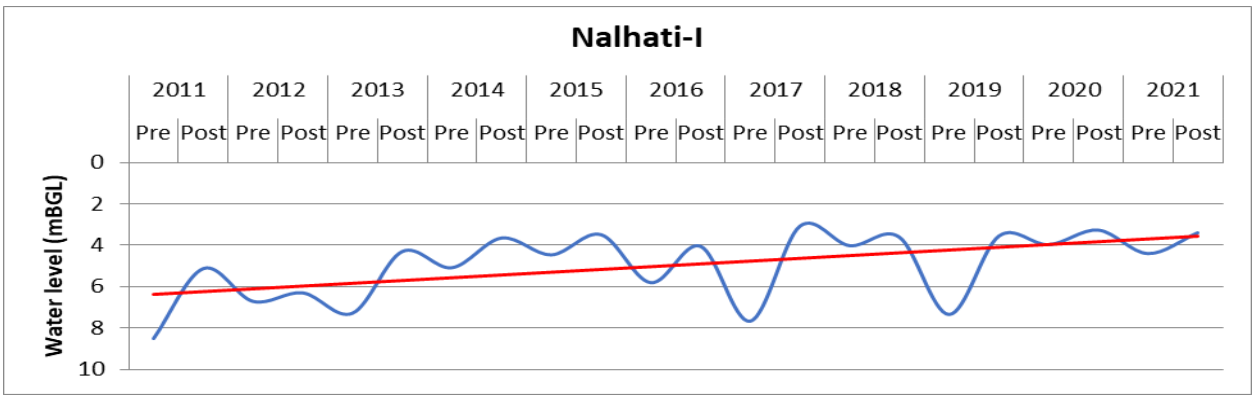





Labhpur
2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021
Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post
Water level (mBGL)
0 2 4 6 8 10 12 14


Mahammad Bazar
2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021
Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post
Water level (mBGL)
0 2 4 6 8 10


Mayureswar-I
2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021
Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post
Water level (mBGL)
0 2 4 6 8 10 12 14


Nalhati-I
2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021
Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post Pre Post
Water level (mBGL)
0 2 4 6 8 10

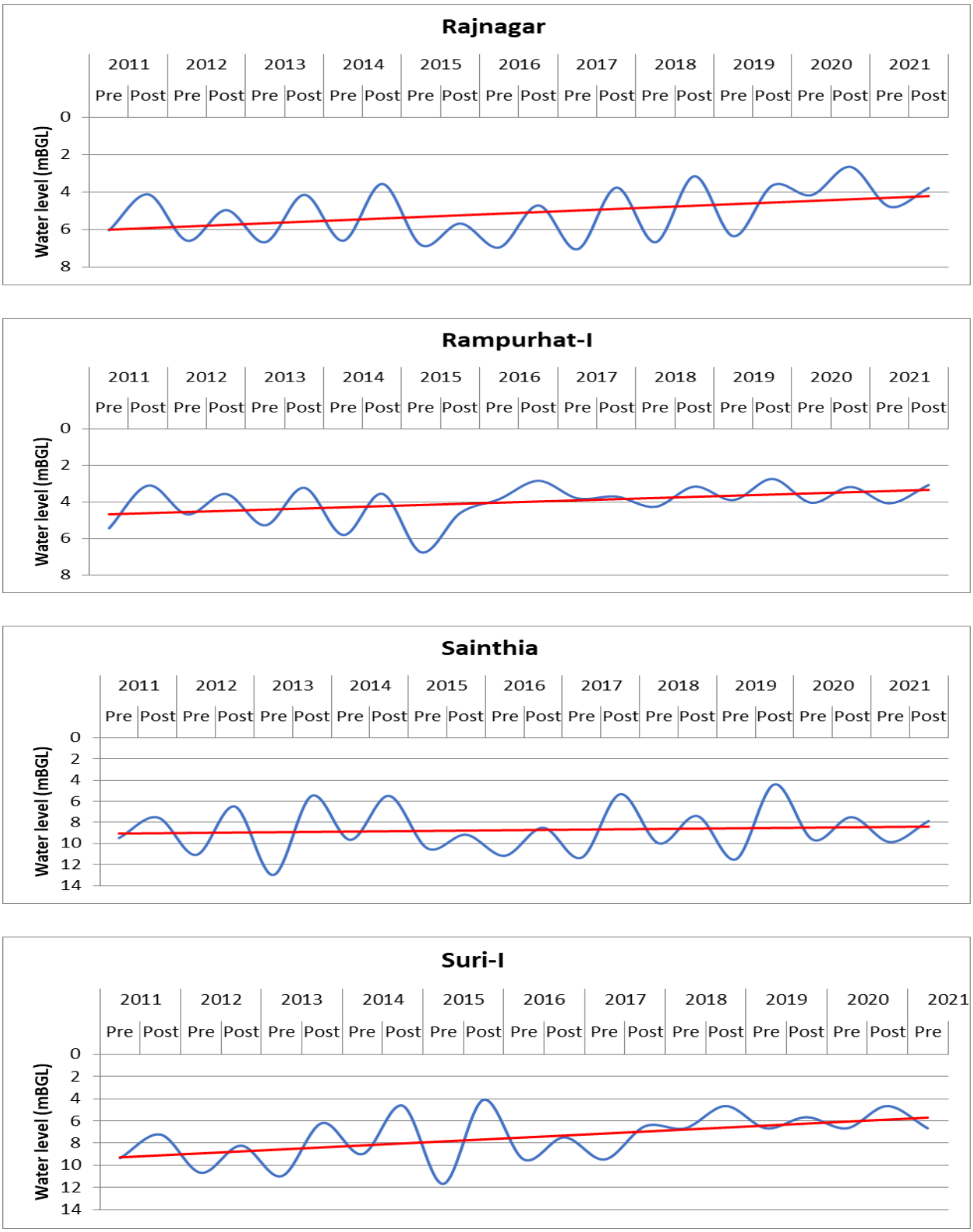


Figure 3.7: Block wise Hydrograph showing variation of water level during 2011 to 2021

g) Drainage System

The district is well drained by a number of rivers and rivulets running in nearly every case from west to east with a slight southerly inclination. Only two are rivers of any magnitude, viz., the Mayurakshi and the Ajay, the latter of which marks the southern boundary, while the Mayurakshi runs through Birbhum from West to East. Both rivers are of considerable size when they enter the district, their width varying according to the configuration of the country.

The Ajay first touches the district at its south-west corner, and follows a winding course in an easterly direction, till it enters Burdwan at the extreme south-eastern angle of Birbhum, eventually falling into Bhagirathi near Katwa. The Mayurakshi enters Birbhum from the Santhal Paraganas near the village of Haripur and flows through the center of the district from west to east, passing two miles north of Suri and forming the southern boundary of the Rampurhat Sub-division. It leaves the district a little east of Gunutia and joins Dwarka which itself is a tributary of the Bhagirathi.

Between the Mayurakshi and Ajay there are a few large streams coming from beyond the western boundary, of which the Hingla is the most important. It enters the District from the Santhal Paraganas some eight miles north of Ajay, flows through Dubrajpur thana, and gradually approaches that river, unites with it at Chapla, after a course in Birbhum of about 25 km. Another river is the Bakreshwar, which rises at hot spring of same name near Tantipara, some ten km west of Suri, and after following a zigzag course eastward, and receiving one by one the waters of almost all the rivulets, joins the Mayuraksh a few km beyond the eastern boundary of the district. Other important rivers of the district include the Brahmani, the Bansloi and Dwaraka (Census, 2011).

Drainage map of Birbhum district is furnished as Figure 3.8 and in Plate 1A.

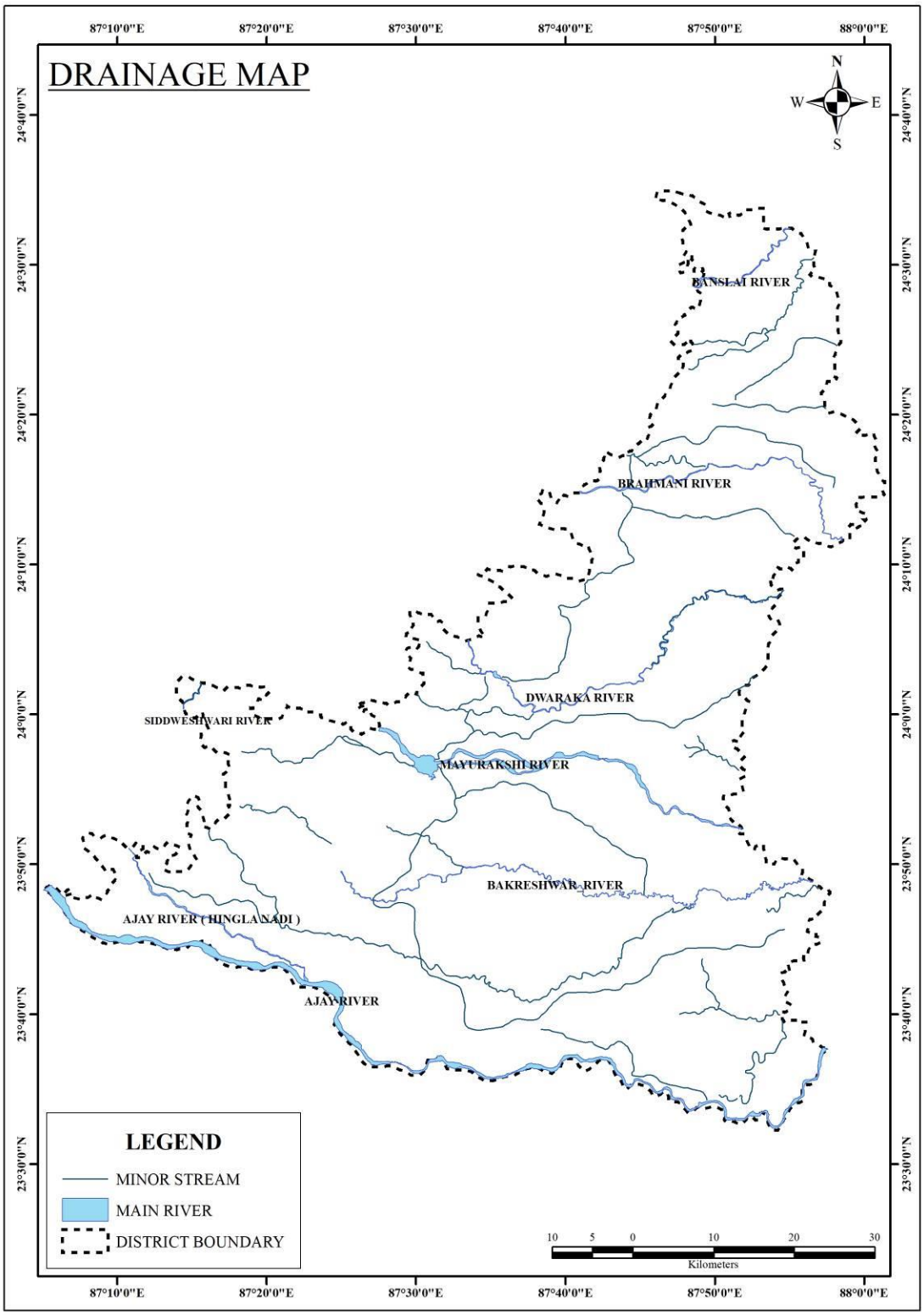


Figure 3.8: Drainage map of Birbhum District

(Source: National Informatics Centre)

h) Demography

According to the 2011 census Birbhum district has a population of 3,502,404. The district has a population density of 771 inhabitants per square kilometre. Its population growth rate over the decade 2001-2011 was 16.15%. Birbhum has a sex ratio of 956 females for every 1000 males and a literacy rate of 70.9%. Scheduled Castes and Scheduled Tribes made up 29.50% and 6.92% of the population respectively. Other than those speaking the local dialect of Bengali, there are tribal Santhals and ten other tribal communities in Birbhum with some presence, amongst whom Koda, Mahali and Oraons are more common (https://en.wikipedia.org/wiki/Birbhum_district).

Table 3.4 shows the district demographic profile based on Census 2011. Block-wise literacy rate of the population is described as the percentage of literates. Figures 3.9 and 3.10 representing population distribution of the district and block-wise literacy rate respectively.

Table 3.4: Demographic distribution of Birbhum District

Sub-Division / C.D.Block / M	Total Population			Literacy Rate
	Total	Male	Female	
Murarai I	190,802	97,510	93,292	37.032
Murarai II	222,033	112,987	109,046	37.244
Nalhati I	204,818	105,070	99,748	52.666
Nalhati II	127,785	65,120	62,665	50.184
Rampurhat I	188,435	95,977	92,458	51.711
Rampurhat II	187,823	96,532	91,291	52.943
Mayureswar I	159,782	81,465	78,317	55.247
Mayureswar II	127,661	65,373	62,288	53.162
Mohammad Bazar	164,570	83,590	80,980	45.395
Rajnagar	77,979	39,805	38,174	49.006
Suri I	111,377	56,852	54,525	52.655
Suri II	87,405	44,921	42,484	53.314
Sainthia	195,349	100,141	95,208	55.002
Labpur	201,901	103,777	98,124	52.59
Nanoor	218,654	112,185	106,469	51.885
Bolpur Sriniketan	202,553	102,722	99,831	51.203
Illambazar	168,709	86,688	82,021	52.243
Dubrajpur	181,437	92,956	88,481	47.064
Khoyrasol	153,248	79,118	74,130	51.453

(Source: Census, 2011)

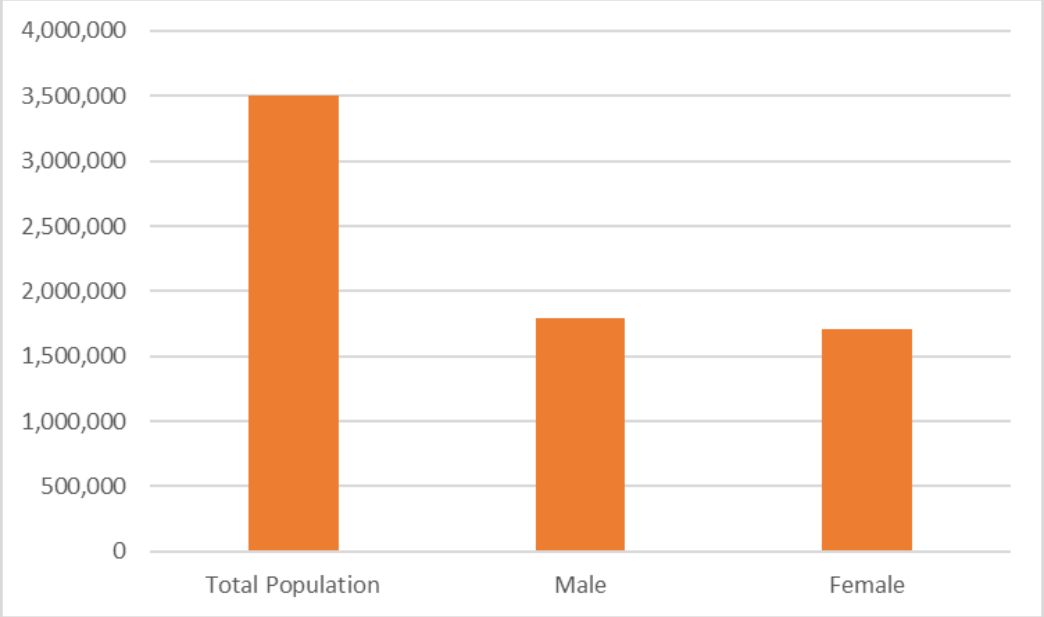


Figure 3.9: Population distribution of the district

(Source: Census, 2011)

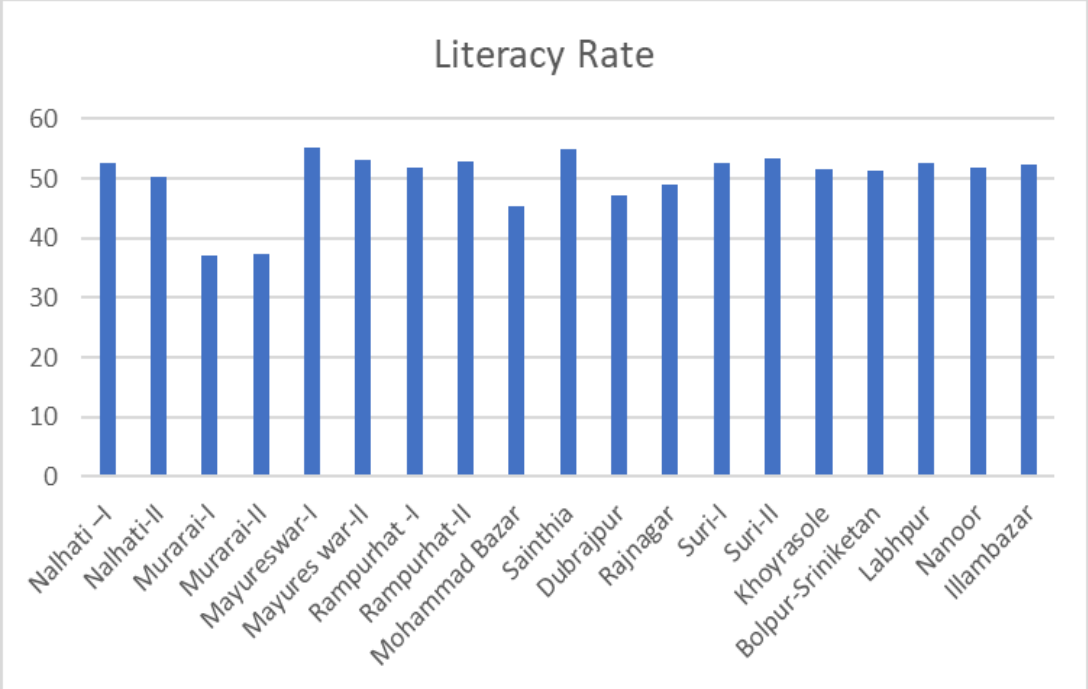


Figure 3.10: Block-wise Literacy rate of the district

(Source: Census, 2011)

i) Cropping pattern

The economy of the district is primarily based on agriculture. Cultivation constitutes the main source of livelihood for the people in the district. The area of the district lies under 3 Agro-climatic Zones of the State namely (1) Gangetic Alluvial Zone, (2) Vindhyan Alluvial Zone, (3) Undulating Red and Laterite Zone.

Gangetic Alluvial Zone: The alluvial soil is very deep, medium fine to medium texture, neutral to mildly alkaline in PH, calcareousness is significant in large section, base saturation moderately high, N, P status medium-to-medium low and K status is medium to high, external drainage medium to slow and internal drainage is moderate.

Vindhyan Alluvial Zone: Soil in general is deep in nature, texturally medium fine, mostly acidic in soil reaction and PH increasing with depth, external drainage medium, and internally moderate well-drained, ground water deeply placed, low in bases organic matter and phosphate (P), medium in potash (K).

Undulating Red and Laterite Zone: The region is primarily undulating with mounds and valleys and exhibiting different grades of laterisation process in soil formation.

Soil is normally well drained, susceptible to soil erosion due to rapid external drainage or runoff, soil reaction ranges from acidic in ridge and near neutral in valleys, base saturation, and organic carbon content, phosphate matter and potash are significantly low at ridge but increases down the slope especially at valley

Agriculture of the region is mostly rain dependent. Ground water is not easily and economically harvestable. Prevalence of moisture stress on standing Kharif crops during the late monsoon period is very common.

The major cropping pattern of the district is Aman/ AusPaddy/Wheat/ Vegetable / Oilseeds/ Pulses/ Boro Paddy. (https://birbhum.gov.in/agriculture/)

j) Land Form and Seismicity

The district is broadly having two types of landforms, is high in the western side near Rajmahal Hills and plain in the eastern side near the rivers. The uplands in the west accounts for around 15% of the total area are sloping, very often devoid of vegetation and prone to runoff and erosion.

The seismic hazard map of India was updated in 2000 (Figure 3.11) by the Bureau of Indian Standards (BIS). There are no major changes in the zones in West Bengal with the

exception of the merging of Zones I and II of the 1984 BIS map. Western sections of the northern districts of Jalpaiguri and Coochbehar lie in Zone V. The remaining parts of these two districts, along with the districts of Darjeeling, Uttar Dinajpur, Dakshin Dinajpur, Maldah, 24 North Parganas and 24 South Parganas lie in Zone IV. The rest of the state along with the city of Kolkata lies in Zone III.

The district falls under the Seismic Zone III, indicating the district under Moderate Damage Risk Zone.

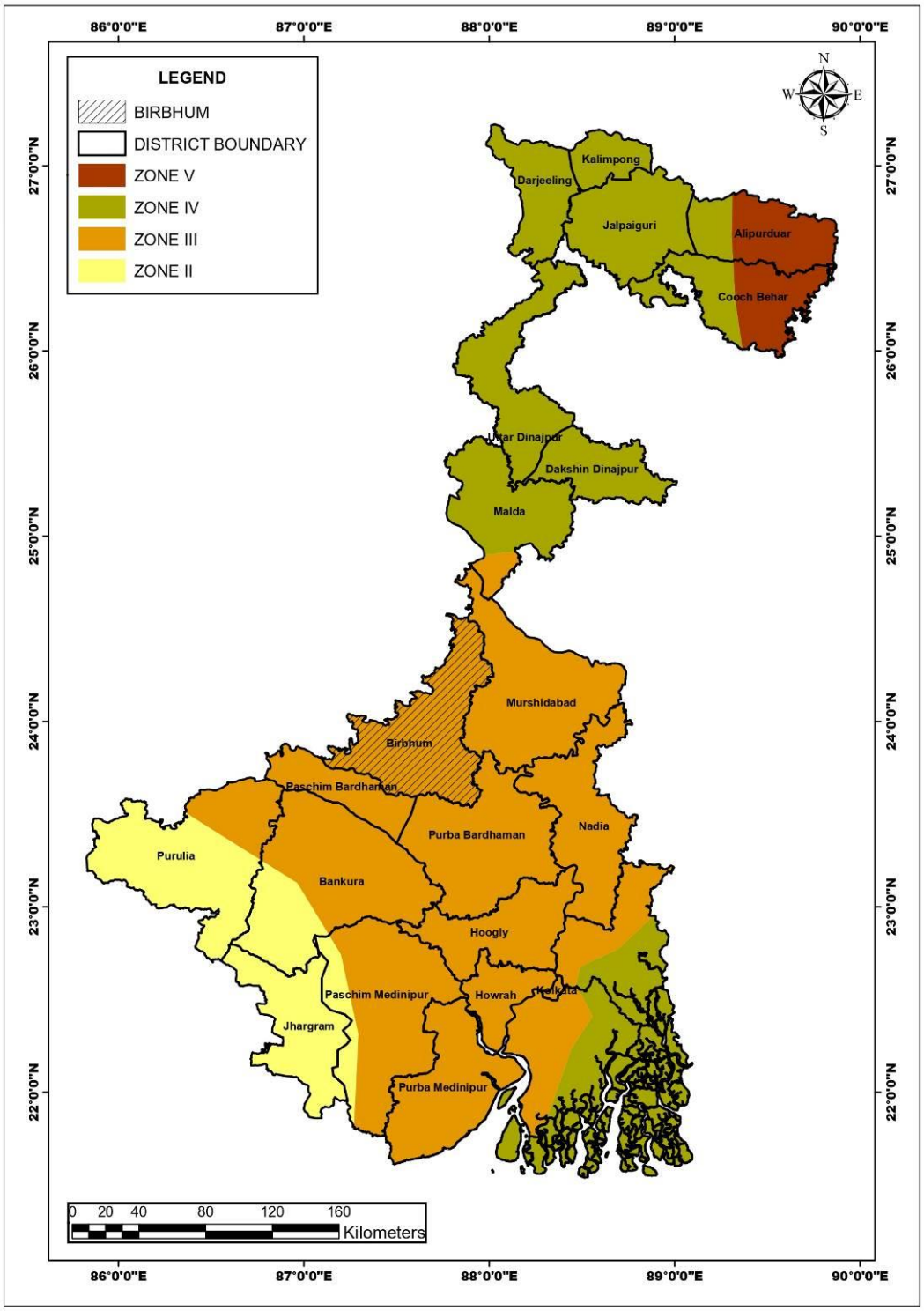


Figure 3.11: Earthquake zonation map of West Bengal highlighting the Birbhum district position

(Source: https://pib.gov.in/PressReleasePage.aspx?PRID=1740656)

k) Flora

Birbhum district is not so rich in forest resources. Total forest area has been estimated nearly 15926.58 hectares which covers only 3.5 per cent of the total district area. There are mainly three types of forest areas in the district namely (i) Reserved Forest (ii) Protected Forest and (iii) Unclassified Forest area. Most of the Reserved Forests and Protected Forests are located along the undulated high lands of the western part of the district while rest of the area is characterized by Unclassified Forests of open mixed jungles and scrubs. The important forests of the district are Masra Reserved Forest in Rampurhat-I C.D. Block, the Kalai Pahari Protected Forest, Maubelia Reserved Forest, Chandpur Protected Forest in Mohammad Bazar C.D. Block, Bansbuni Protected Forest in Rajnagar C.D. Block and Chaupahari Protected Forest in Illambazar C.D. Block.

All these forest areas are dominated by Sal (Shorea Robusta) trees while the Unclassified Forests belong to Northern Tropical Dry deciduous type. The major trees found in these forests are Teak (Tectona Grandis), Pipal (Ficus Religiosa), Siris (Albizzia Lebbeck), Mahua (Bassia Latifolia), Neem (Azadirachta Indica), Babul (Acacia Arabica), Bamboo (Bambusha Tulda) etc. These are the main source of non-timber forest products to the people of the district.

Besides these tree types, certain medicinal plants including Neem (Azadirachta Indica), Kumbhi (Careya Arborea Roxb), Najani (Croton Bonplandianum), Bat (Ficus Benghalensis Linn), Gurmar (Gymnea Sylvestre), Arjun (Terminalia Cuneala Roth) and Akanda (Calotropis Gigantea) etc,. are also found in plenty in the district. (Census, 2011).

l) Fauna

The carnivora of the district consists of leopard, bear, wolf and other smaller species. The ungualata are represented by wild pigs. Leopards are not numerous, but are found in some jungles. Bears are very rare, but sometimes they migrate from the neighbouring hills in the Santhal Parganas (now in Jharkhand). Wolves are sometimes found in small patches of jungle. Wild pigs are found in isolated tracts, especially along river banks and in jungles traversed by watercourses. Besides the above, the long tail apes called hanuman, otter, hare, fox and jackal are common.

The game birds of the district chiefly consist of patridge, green pigeon and various water-fowls. The grey patridge is plentiful, and green pigeons may usually be seen on the highest branches of pipal trees when they are bearing fruit. Among the water-fowls the comb and Brahmani ducks are found in abundance. Geese are cold weather visitors, coming in large flocks to feed on the rice crops. Snipes are found in great numbers in the swampy places and in the beds of rivers, and are most common in the east of the district.

Different variety of fishes like rui, katla and sometimes hilsa are found in the major rivers of the district. Tanks, which are numerous in the district, are stocked with rui, katla, mrigel, magur, koi and other small fishes. (Census, 2011).

Location of Wild Life Sanctuary and National Parks are shown in the Map of West Bengal (Figure 3.12). As per the map of ENVIS Centre on Wildlife and Protected Areas, Ballavpur Wild Life Sanctuary is situated within the Birbhum district. There are no other restricted area for mining of river bed in the district.

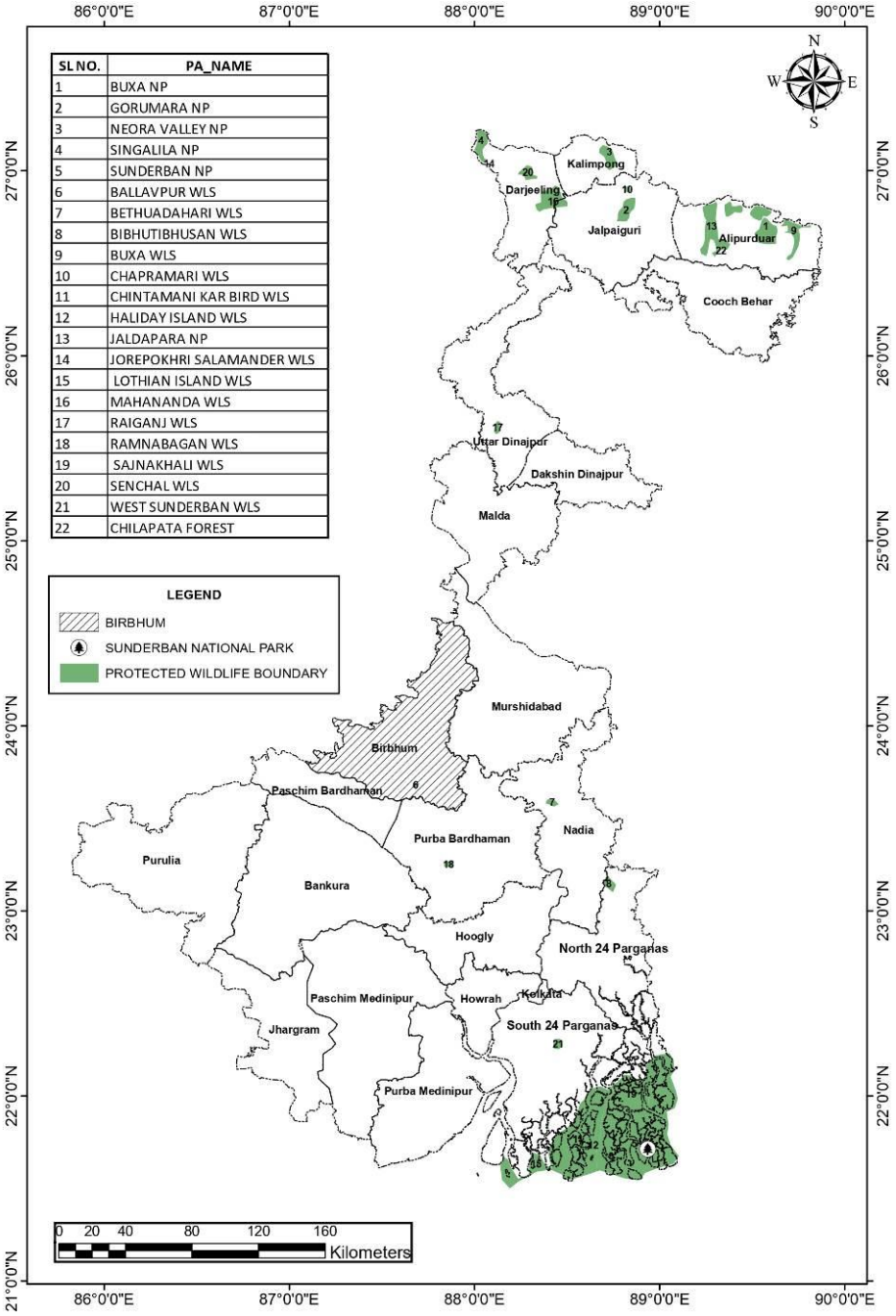


Figure 3.12: District location with respect to Wild Life Sanctuary of West Bengal
(Source: http://wiienvis.nic.in/)

4 Physiography of the district

4.1 General Landforms

Birbhum district, comprises two distinct regions. To the west lies an undulating, generally barren upland, part of the eastern fringe of the Chhotanagpur plateau, rising to 3,000 feet (900 metres); to the east is a densely populated alluvial plain of the vast delta region of the Ganges (Ganga) and Brahmaputra rivers.

The greater portion of the district consists of a rolling country covered by laterite and alluvium. Often the district called as "the land of red soil", for its topography and its cultural heritage which is somewhat different from the other districts in West Bengal. The western part of Birbhum is a bushy region, a part of the Chhotanagpur Plateau comprises of Metamorphic or gneissose rocks. This region gradually merges with the fertile recent alluvial farmlands in the east. Strong massive rocks of hornblendic varieties stretch across the region in tolerably continuous lines, the general strike being nearly east and west.

4.2 Soil and rock pattern

The district is characterized by undulating barren land associated with red, lateritic & older alluvial soil of Archaean – Middle Proterozoic and Pleistocene period. The old alluvium is found along with the layer of clay, gravel, sand, with medium inorganic matter, phosphate and medium or high-level potash.

The soil of Birbhum containing mostly ferruginous concretion is a reddish, loose and friable lateritic low fertility soil locally known as 'kankara'. However, the flood plains of Ajay, Bakreshwar, Mayurakshi and Brahmani rivers are rich in fluvial deposits of soft alluvial soil and favorable for cultivation. The district has been divided into four sub-micro regions viz. 1) Nalhati Plain 2) Brahmani-Mayurakshi Basin 3) Suri-Bolpur Plain and 4) Bakreswar Upland.

The soil of the Nalhati Plain has lateritic soils mixed with recent alluvium. Brahmani - Mayurakshi Basin has red sandy and red loamy soils of the older alluvium. The soils are loose and friable. In Suri – Bolpur Plain the soil varies from red sandy, red loamy and older alluvium in the south-western to brown & recent alluvium in the central and south-eastern part of the region. The soil of Bakreswar Upland is generally laterite mixed with alluvium (Census, 2011).

Figure 4.1 is showing soil pattern of the Birbhum district and its characteristics are furnished as Table 4.1.

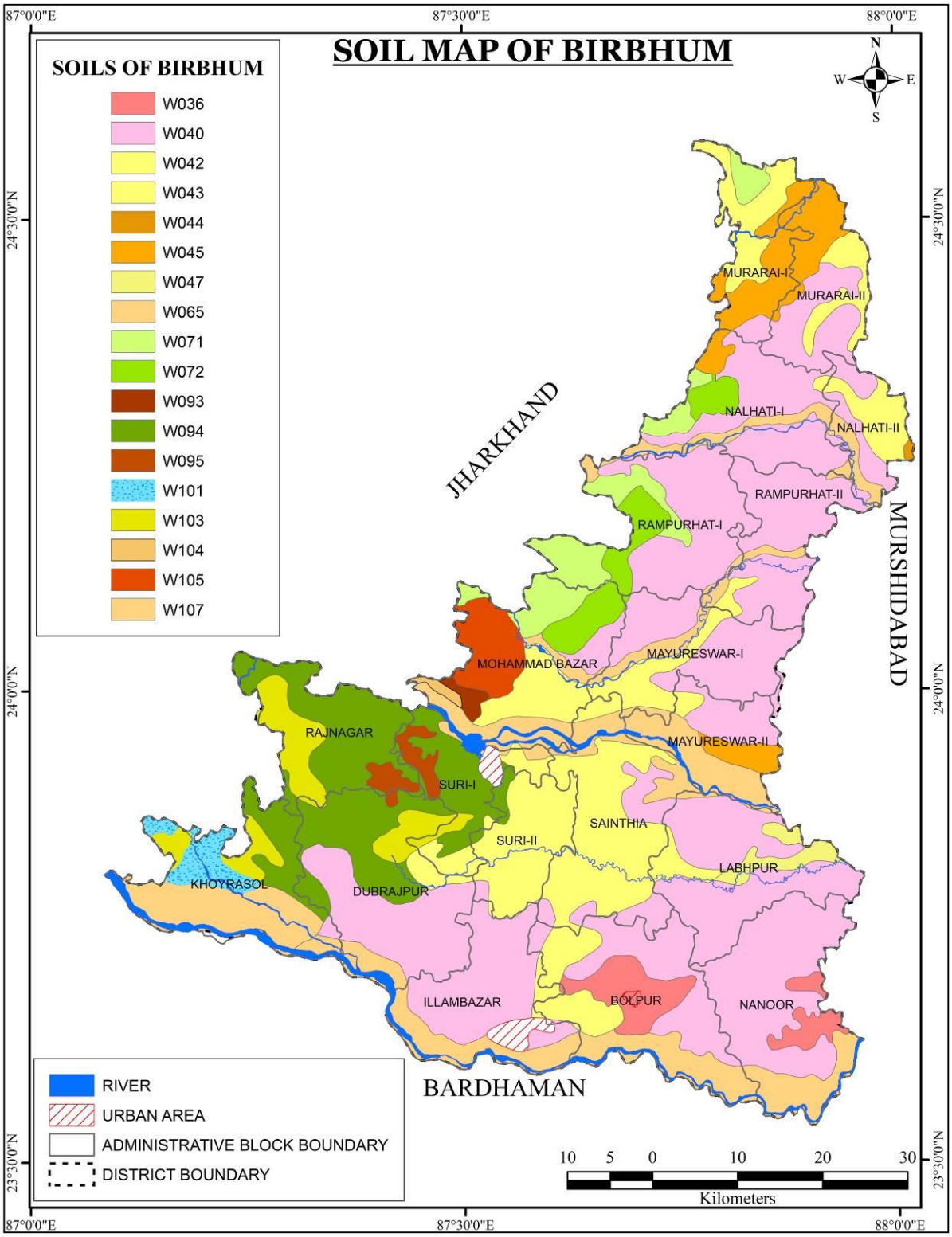


Figure 4.1: Soil Map of Birbhum District
(Source: https://esdac.jrc.ec.europa.eu/content/west-bengal-soils-sheet-2)

Table 4.1: Soil characteristics of the Birbhum district

MAP SYMBOL	DESCRIPTION	TAXONOMIC NAME
W036	Very deep, poorly drained, fine cracking soils occurring on level to nearly level low lying alluvial plains with clayey surface associated with very deep, imperfectly drained, fine soils	Fine, Vertic Ochraqualfs Fine, Typic Ustochrepts
W040	Very deep, poorly drained, fine cracking soils occurring on level to nearly level low lying alluvial plains with loamy surface associated with very deep, poorly drained, fine soils	Fine, Vertic Ochraqualfs Fine, Aeric Haplaquepts
W042	Very deep, poorly drained, fine soils occurring on level to nearly level low lying alluvial plains with clayey surface associated with very deep, imperfectly drained, fine cracking soils	Fine, Aeric Haplaquepts Fine, Vertic Ochraqualfs
W043	Very deep, poorly drained, fine soils occurring on very gently sloping low lying alluvial plain with loamy surface associated with very deep, poorly drained, fine creacking soils	Fine, Typic Ochraqualfs Fine, Vertic Ochraqualfs
W044	Very deep, poorly drained, fine cracking soils occurring on level to nearly level low lying alluvial plain with clayey surface and moderate flooding associated with very deep, poorly drained, fine soils	Fine, Vertic Haplaquepts Fine, Aeric Haplaquepts
W045	Very deep, poorly drained, fine cracking soils occurring on level to nearly level low lying alluvial plain with clayey surface and moderate flooding associated with very deep, poorly drained, fine soils	Fine, Vertic Haplaquepts Fine, Aeric Ochraqualfs
W047	Very deep, poorly drained, fine soils occurring on level to nearly level low lying alluvial plain with clayey surface and severely flooding associated with very deep, moderately well drained, fine loamy soils	Very Fine, Aeric Haplaquepts Fine loamy, Typic Ustochrepts
W065	Very deep, moderately well drained, fine loamy soils occurring on very gently sloping flood plain with loamy surface, moderate erosion and moderate flooding associated with very deep, well drained, sandy soils	Fine loamy, Typic Ustifluvents Typic Ustifluvents
W071	Very deep, well drained, fine soil occurring on gently sloping upland with loamy surface and subject to moderate erosion associated with very deep, imperfectly drained, fine loamy soils	Fine loamy, Typic Haplaquepts Fine loamy, Aeric Haplaquepts
W072	Very deep, moderately well drained, fine soil occurring on very gently sloping upland with loamy surface and moderate erosion associated with very deep, poorly drained, fine soils	Fine, Typic Haplaquepts Fine, Aeric Haplaquepts
W093	Shallow, somewhat excessively drained , gravelly loamy soils occurring on gently sloping subdued ridges with gravelly loamy surface and severe erosion associated with very shallow excessively drained gravelly loamy soils	Loamy, Lithic Ustochrepts Loamy, Lithic Ustorthentsts
W094	Deep, well drained , loamy soils occurring on very gently slopping to undulating plain with loamy surface and moderate erosion associated with deep, moderately well drained, loamy soils	Fine Loamy, Typic Haplustalfs Fine Loamy Typic Ustochrepts
W095	Shallow, moderately well drained, coarse loamy soils occurring on gently sloping to undulating plain with gravelly loamy surface and moderate erosion associated with shallow moderately well drained, gravelly loamy soils	Loamy, Lithic Ustochrepts Fine Lithic, Haplustalfs
W101	Very deep, imperfectly drained, fine loamy soils occurring on very gently sloping to undulating plain with loamy surface and moderate erosion associated with shallow, somewhat excessively drained coarse loamy soils	Fine Loamy,Typic Ustochrepts Loamy, Lithic Ustorthentsts

MAP SYMBOL	DESCRIPTION	TAXONOMIC NAME
W103	Very deep, well drained, fine loamy soils occurring on very gently sloping to undulating platue with loamy surface and moderate erosion associated with very deep, moderately well drained, fine soils	Fine loamy, Rhodic Paleustalfs
		Fine. Typic Rhodustalfs
W104	Very deep, imperfectly drained, fine soils occurring on gently sloping to undulating platue with loamy surface and severe erosion associated with very deep, imperfectly drained, fine soils	Fine, Typic Paleustalfs
		Fine, Typic Haplustalfs
W105	Shalow, well drained, gravelly loamy soils occurring on very gently sloping to undulating platue with gravelly loamy surface and moderate erosion associated with rock outcrops	Loamy, Lithic Ustorthentsts
		Rock outcrops
W107	Very deep, well drained, coarse loamy soils occurring on very gently sloping valleys on undulating platue with loamy surface and moderate erosion associated with very deep, moderately well drained, fine loamy soils	Coarse loamy Typic Ustifluvents
		Fine Loamy,Typic Ustochrepts

4.3 Different geomorphologic units

Topographically the district has been divided into four sub-micro regions viz (Census, 2011).

i) Nalhati Plain – The region extends on the northern portion of the district covering Murarai-I, Murarai-II, and part of Nalhati-I, and Nalhati-II C.D. Blocks. It is characterised by some ridges and at places they are as high as hills along the western boundary with state of Jharkhand. The ridges are the extension of Rajmahal hills. The maximum heights are from 70 to 80 metres. The larger portion of the region is plain area. The general slope is towards north and north-east as evident by the flow of the rivers. The region is drained by the two prominent rivers viz. the Pagla and the Basoli.

ii) Brahmani-Mayurakshi Basin – The region lies between the Brahmani River on the north and the Mayurakshi river on the south covering the C.D. Blocks of Rampurhat-I, Rampurhat-II, Mohammad Bazar, Mayureswar-I and Mayureswar-II. It is characterized by uneven surface configuration. The region is sloping from west to east. But the Dwarka River takes a north-easterly bend and the Mayurakshi south-easterly direction in the Mohammad Bazar and Mayureswar areas. The land sinks into undulations on the south of the Mayurakshi River. However, some plain areas are found further eastward. The land between the Dwarka and the Mayurakshi rivers and to the extreme south-east of the C.D. Block Mayureswar-II become flat and are found full of large water bodies.

iii) Suri-Bolpur Plain – The region covers the interfluves of Mayurakshi and Ajay Rivers in the south-eastern part of the district comprising the C.D. Blocks of Dubrajpur, Sainthia, Labpur, Nanoor, Bolpur-Sriniketan, Illambazar, and part of Suri-I and Suri-II. It exhibits the upland topography sloping from north-west to south-east. The Sal and Bakreshwar rivers drain the region from north-west to south-east. The right bank of the Sal River displays severe erosion and resulting into badland topography. In the south-east, the upland ridges slope gradually and the valley portions become shallow and form the broad alluvial plains of the Gangetic delta. The

Ajay River, that demarcates the southern boundary of the district, dominates the landscape with its shallow and sandy beds. There lies the cultivated land with tanks and other water bodies mainly to the north of the Sal River. The lateritic formation, locally termed 'Khoai' is a characteristic landscape of this region.

iv) Bakreswar Upland – The region extends over the western portions of the district and covers the C.D. Blocks of Khoyrasol, Rajnagar, parts of Duprajpur, Suri-I and Mohammad Bazar. This portion is the heavily dissected plateau of Santhal Parganas projecting south and south-westward. On the west the highlands are located on the hard impervious crystalline rocks. The undulations rise into high ridges near the western boundary capped by laterite and separated by wide valleys. In the region the elevation of the ridges is ranging from 78 to 110 metres above the mean sea level. The region is. drained by the rivers like Dwarka, Mayurakshi, Bakreswar, Ajay, Sal and Hingla flowing towards the east and south-east.

Figure 4.2 shows the geomorphological variation of Birbhum district.

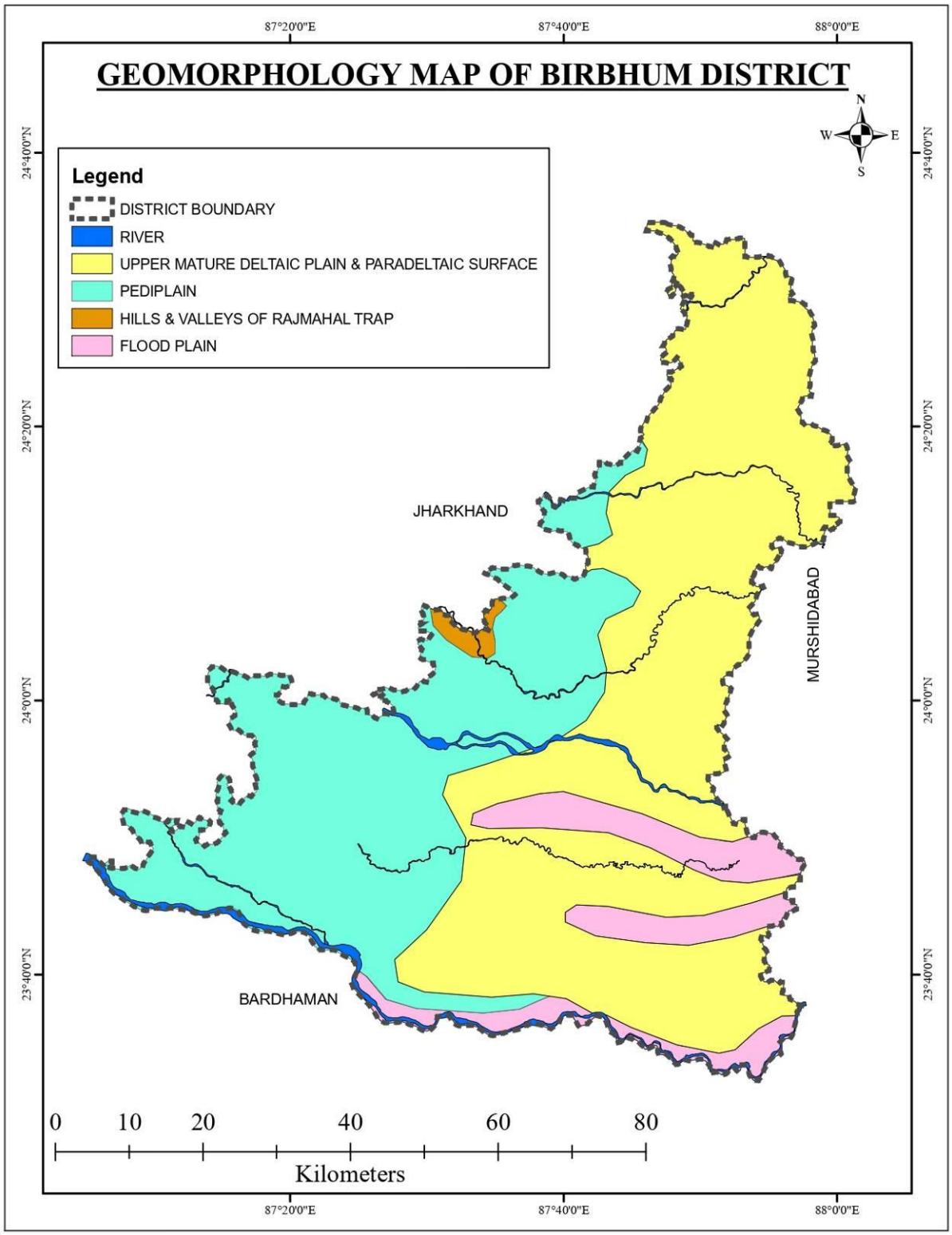


Figure 4.2: Geomorphological map of Birbhum District

(Source: Resourcesat-1&2 – Liss-3, Bhuvan India)

5 Land use pattern of the district

Birbhum is the land of red soils. The district is having varied physiographic features. Land is high in the western side near Rajmahal Hills and plain in the eastern side near the rivers. The total reporting area of land is 451,120 hectares according to Census (2011), Government of West Bengal. Out of the total area, 319,960 hectares of land is under Net-sown area, 15,850 hectares of land is under forest and 7,330 hectares of land is under current fallow. Area under Non-agricultural use is noted gradually increasing since 2006-07 and has reached 1,01,190 hectares in 2010-11.

Table 5.1 gives land utilization status of Birbhum district. Figure 5.1 is the pie diagram representing broad land use pattern of the district.

Table 5.1: Classification of Land Utilisation Statistics in the district

(In thousand hectares)

Year	2006-07	2007-08	2008-09	2009-10	2010-11
Reporting Area (In Thousand Hectares)	451.12	451.12	451.12	451.12	451.12
Forest Area	15.85	15.85	15.85	15.85	15.85
Area under Non-agricultural use	94.57	96.81	98.16	98.35	101.19
Barren & unculturable land	0.3	0.28	0.52	0.48	0.28
Permanent pastures & other grazing land	0.25	0.18	0.3	0.23	0.17
Land under Misc. tree groves not included in Net area sown	1.03	0.86	0.84	0.85	0.82
Culturable waste land	3.09	3.88	4	3.6	2.82
Fallow land other than Current fallow	4.11	2.37	3.95	3.17	2.7
Current fallow	14.25	12.35	7.42	6.36	7.33
Net area sown	317.67	318.54	320.08	322.23	319.96

(Source: Census, 2011)

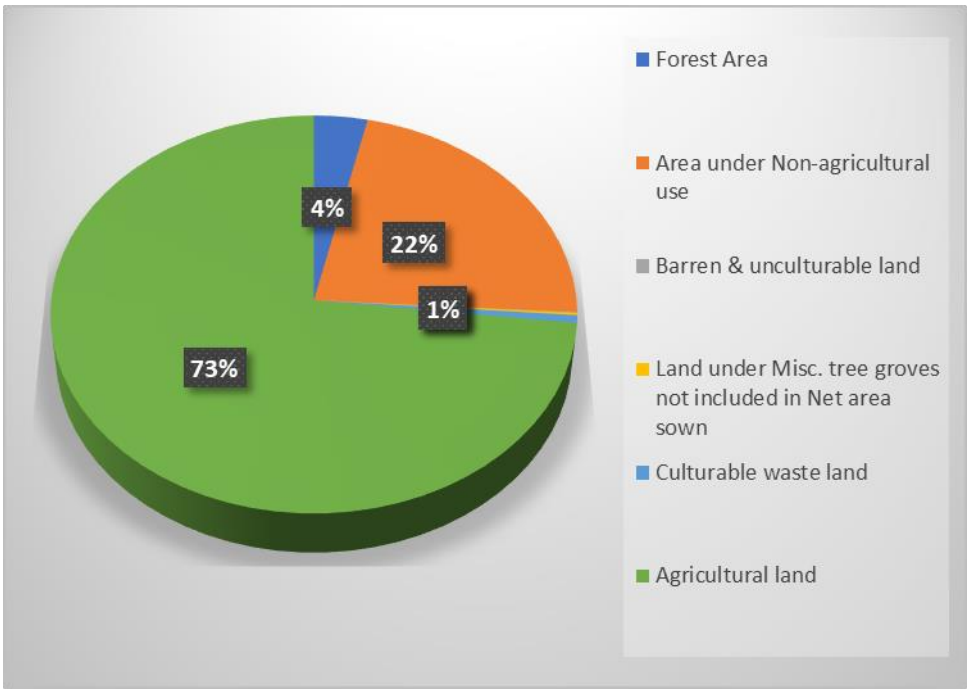


Figure 5.1: Land use pattern of Birbhum District

Table 5.2: Distribution of Villages according to Agricultural Land Use, 2011

Name of C.D. Block	Total area (in Hectares)	Percentage of cultivable area to total area	Percentage of irrigated area to total cultivable area
Murarai-I	15210.08	66.08	43.67
Murarai-II	18079.75	83.67	70.65
Nalhati-I	23262.75	72.79	61.29
Nalhati-II	10915.47	91.52	79.98
Rampurhat-I	28600.54	72.29	60.95
Rampurhat-II	17706.91	86.38	86.37
Mayureswar-I	21775.90	81.44	93.09
Mayureswar-II	15228.33	79.14	81.02
Mohammad Bazar	29887.35	60.84	50.60
Rajnagar	20204.15	20.92	23.49
Suri-I	14555.51	72.81	37.54
Suri-II	12923.32	77.31	89.07
Sainthia	29282.30	66.95	87.31
Labpur	25218.47	87.56	72.55
Nanoor	30595.50	78.54	84.50
Bolpur Sriniketan	31687.66	83.34	90.33
Illambazar	25662.59	77.75	58.93
Dubrajpur	31154.96	70.34	35.00
Khoyrasol	23339.13	77.19	8.15
	425290.67	**73.56**	**66.10**

Table 5.2 shows the distribution of agricultural land, both irrigated and non-irrigated land in different blocks of Birbhum district. In the district around 73% land area is available for cultivation. Irrigation is considered as an important factor for cultivation. As per the Census 2011 dataset, 66.1% of the cultivable land is under irrigation. The proportions of cultivable area in Rajnagar block with respect to its total area is lowest. Khoyrasol block has less than 10% of irrigated area.

Figure 5.2 is the Land Use Land Cover map of the district.

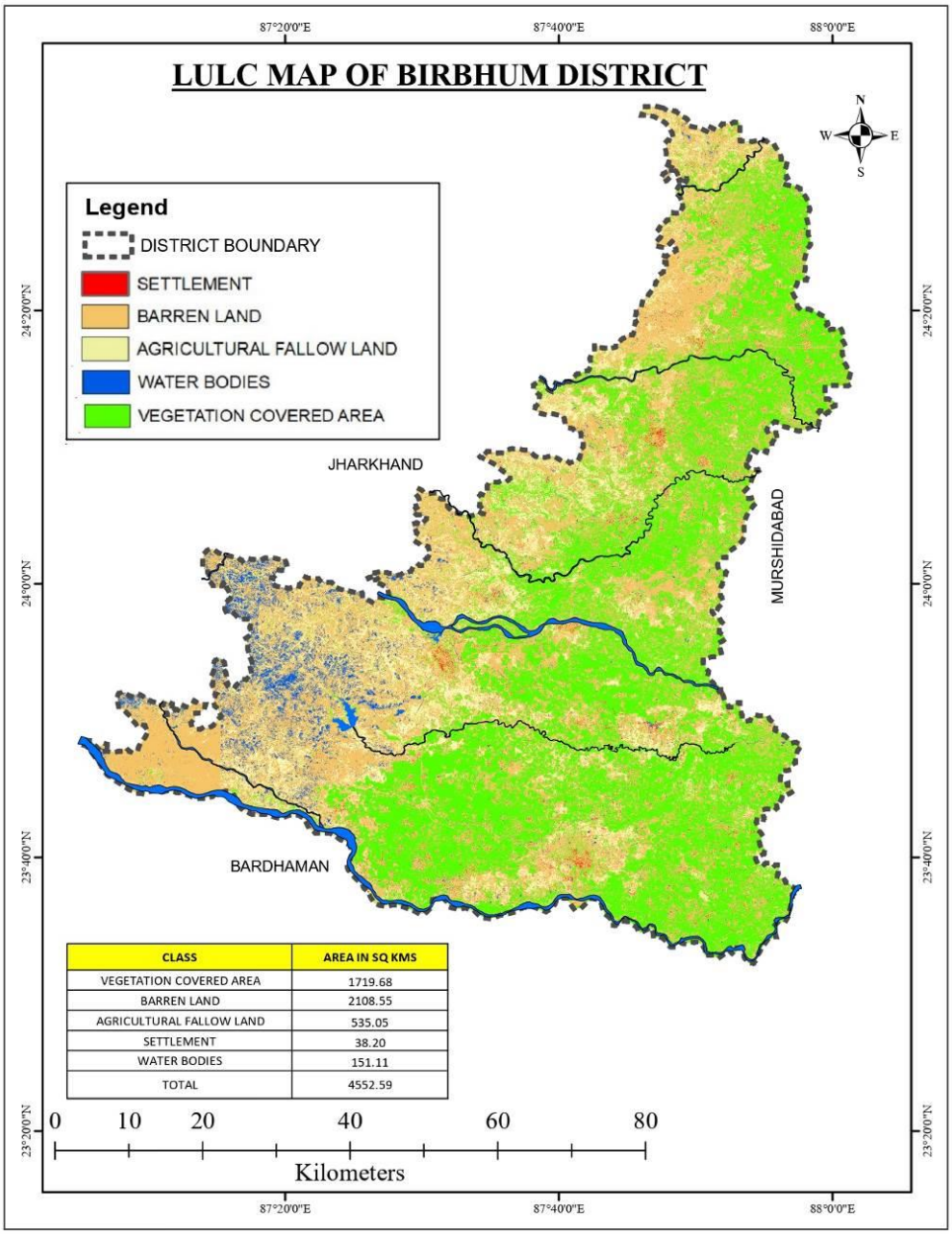


Figure 5.2: Land Use Land Cover map of Birbhum District
(Source: Resourcesat-1&2 – Liss-3, Bhuvan India)

5.1 Forest -detail of the district

Birbhum district is not so rich in forest resources. Total forest area has been estimated nearly 15926.58 hectares which covers only 3.5 per cent of the total district area. There are mainly three types of forest areas in the district namely (i) Reserved Forest (ii) Protected Forest and (iii) Unclassified Forest area.

Most of the Reserved Forests and Protected Forests are located along the undulated high lands of the western part of the district while rest of the area is characterized by Unclassified Forests of open mixed jungles and scrubs.

The important forests of the district are Masra Reserved Forest in Rampurhat-I C.D. Block, the Kalai Pahari Protected Forest, Maubelia Reserved Forest, Chandpur Protected Forest in Mohammad Bazar C.D. Block, Bansbuni Protected Forest in Rajnagar C.D. Block and Chaupahari Protected Forest in Illambazar C.D. Block (Census, 2011).

5.2 Agriculture and Irrigation

The economic condition of Birbhum district is dominated by agriculture. The land of Birbhum is divided into 13 classes, viz. (1) do, (2) suna, (3) Sali, (4) ola or olan, (5) jedanga or danga, (6) pat-jami or mulberry land, (7) jangal bhumi, (8) paner baraj, (9) ghas, (10) sarbera, (11) bastu, (12) salghor and (13) patit. Out of these 13 classes of land, mainly the first three classes of land are most fit for rice cultivation. Do land has a rich soil, on which aus or aman rice is generally grown, besides gram, masuri, peas, wheat, linseed, khesari, til, sugarcane and occasionally cotton. Suna lands differ from do lands in having a smaller amount of moisture and in being unsuitable for the cultivation of sugarcane. Other crops that grow on do lands also grow on suna lands, but the quantity of produce is smaller and the cost of cultivation greater. Sali land consists of moist muddy land which will bear three crops in the year, viz., a crop of aman rice, a crop of khesari, and a crop of kashta til. There is double to triple cropping system of Paddy cultivation in the district. The area under Paddy in 2010-11 is 249.0 thousand hectares of land.

Major source of irrigation in this district is the rivers and the streams. Mayurakshi and Hijli are the major irrigation projects of the district. Apart from that, the other rivers like, Ajoy, Brahmani, Kuskurni, Dwaraka, Hingla and Kopai are also helpful for irrigation of the district. Out of total cultivable land, 192.47 thousand hectares is under irrigation by different sources. There are 6583 Shallow Tubewells and 8392 Deep Tubewells including 51 high capacity, 2687 middle capacity and 5654 low capacities Deep Tubewells and 108 river lift irrigations for watering the field under crop in the district. (Census, 2011).

5.3 Horticulture

The major horticultural vegetable crops found in the district are potatoes, brinjals, tomatoes, cabbages, cauliflowers, pumpkins, and ladies finger, and other crops like paddy,

wheat, and oilseed and the major horticultural fruit crops grown in the district are banana, mango, papaya, guava, citrus etc.

The floriculture of the district consists of various types of orchids, decorative plants, temperate and tropical flowers, etc. Flowers like Tuberose, Marigold, Rose and seasonal flowers are main of Birbhum district. In this district the most popular flower is marigold.

5.4 Mining

The district is rich in mineral products. There is a large source of coal in this area. Apart from the river beds of Ajay and Mayurakshi are also rich source of very good quality quartzite grained sand. Here excavation of sand on commercial basis has become prime source of construction material and that too fetches good revenue to the Government.

The sizeable China clay deposits occur in two clusters: (a) Mahammad Bazer-Masra area, NE Siuri and (ii) Pirijpur-Bhurkuna area, SSW of Suri, Birbhum. The total estimated reserve of China clay in the district is 141.47 mt. inclusive of all grades.

The Dimension Stone of pink variety (Pink Granite) occurs in Dubrajpur area with resource of 0.283 million cu.m. and the Black variety (basic granulite with shades of brown and green) in Aligarh area with the resource of 75000 cu.m. Basalt (Rajmahal trap), laterite and river sand are widely used as building and road materials. Calcium concretions (Ghootings) in older alluvial plains are locally used to produce lime in lime-kilns. Semi-precious stones, viz. agate, chalcedony, amethyst and rock crystals occur in amygdaloidal basalt in Rajmahal trap area.

6 Geology

The district is mainly divisible geologically into two units (Figure 6.1). dissected plateau composed of granitic gneiss of Archean age is present in the western portion of the district. Eastern part of the district has been formed by sediments of Gondwana period and also formed by laterite and the alluvium deposit.

Geologically, this district comprises many rock formations. The south-western part of the district is occupied by the crystalline metamorphic rocks of Archaean to Proterozoic age. These include amphibolite, hornblende schist, gabbro, granite gneiss and unclassified pegmatites and form the basement of the area. The Gondwana Supergroup overlying this basement is represented by thick piles of pelitic and psammitic sedimentary rocks containing coal seams belonging to Barakar, Barren Measure, Raniganj and Dubrajpur Formations ranging from Permian to Jurassic in age. The Gondwana is overlain by Rajmahal trap (basalt) occuring in the northern and north-western part of the district. The rest of the area in north and central part is occupied by laterite and lateritic soil. Hard clay impregnated with caliche nodules of Rampurhat formation occupy the area in north-east and east and is overlain by alternating layers of sand, silt and clays of Kandi formation of Quaternary age. The diverse litho-units along with geological formations and age are presented Table 6.1.

Table 6.1: Geological succession of Birbhum

AGE	FORMATION	LITHOLOGY
Recent Quaternary/ Tertiary	Alluvium Undifferentiate Surficial deposits	Loose soil, silt & clay Laterites, lateritic soil, lateritic gravel with petrified wood & china clay.
	Unconformity	
Middle Jurassic to lower Cretaceous	Rajmahal Traps and Intertrappeans	Flows of basalt and intertrappeans Sediments (Sand stone, Shale etc.)
	Unconformity	
Lower Jurassic (UpperTriassic)	Dubrajpur	Conglomerates, coarse to medium grained sand stone, grey siltstone, mottled shale & thin coal bands.
	Unconformity	
Lower Permian Upper carboniferous to lower Permian (Permo-carboniferous)	Barakar Talchir	Coarse to medium grained sandstone, carbonaceous sandstone with grey shale, fire clay, carbonaceous shale and coal seam. Greenish sandstone, siltstone, tillite, olive green shale.

AGE	FORMATION	LITHOLOGY
	Unconformity	
Precambrian	Metamorphics	Granites and granitoids, gneiss, pegmatite, quartz veins and metabasic dykes

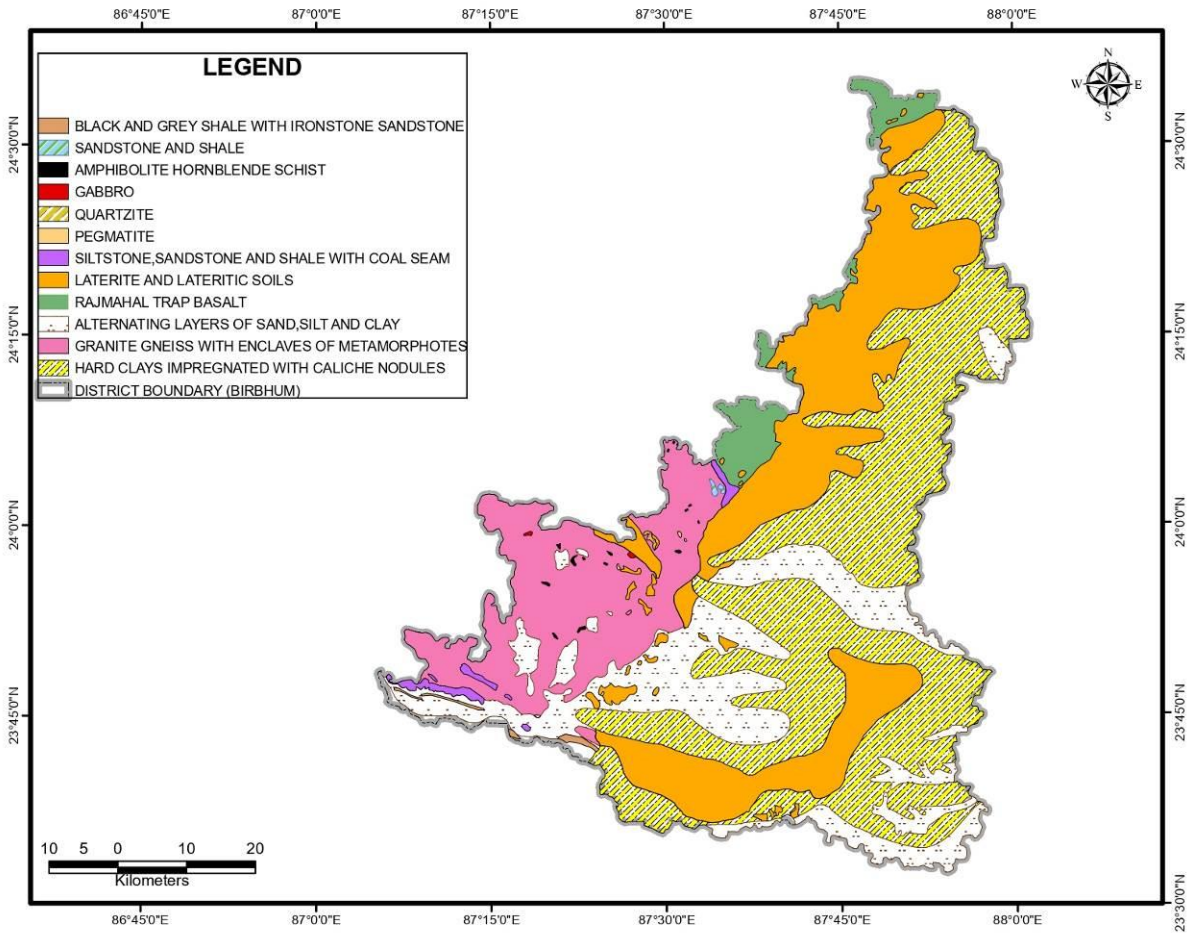


Figure 6.1: Geological map of Birbhum district
(Source: GSI, 2001)

7 Mineral wealth

7.1 Overview of mineral resources:

The district contains several important mineral deposits, primarily consists of China Clay, Fire clay, coal, laterite, basalt etc.

China Clay mining carried out at Mohammad Bazar and also in Rampurhat Block-I of Birbhum. Basalt quarrying of Rampurhat Block-I has started around the beginning of 1960s. Nalhati Block-I contains basalt quarry. Rajmahal Traps consisting mainly medium to fine grained basalts having vesicular and amygdaloidal structure in the northern and western part basically within intertrappean sediments. In the eastern part of the district, recent alluvium mainly composed of sand and clay occur as patches.

7.2 Details of Resources:

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

7.2.1. Sand and other riverbed minerals:

I. Drainage

The district is drained by a number of perennial rivers viz. Brahmani River, Dwaraka River, Mayurakshi River, Bakraswar River, Hingla River, Bansloi River, and Ajay River. These rivers have originated from the Chhotanagpur plateau of Jharkhand State. Following the general slope of the district these rivers flow towards east. All these rivers are assisted by small streams and rivulets which have their local origin within the district. These tributary streams are mainly ephemeral in nature but contribute sufficient water to the main rivers during rainy season causing overflow of the banks and inundate the surrounding areas.

River Ajay: River Ajay rises in the Chhohtanagpur hills of Jharkhand, touches the south-west corner of the district and follows a winding course in an easterly direction, separating the adjoining district of Barddhaman district in the south. The river takes a north-easterly bend at the extreme south-eastern angle of Birbhum and enters Barddhaman district and falls into the Bhagirathi River near Katwa. The river receives Kunur Nala from the right bank. The river confluence with the Hingla at Dubrajpur C.D. Block. Then the river turns south easterly till it receives Fumuni Nala as a tributary from the right at an altitude of 184 feet just below Joydeb Kenduli. In Bolpur-Sriniketan and Nanoor C.D. Blocks a Kana Nala and a Kandar Khal with an intricate network form part of the Ajay River basin in the district.

River Mayurakshi: The Mayurakshi enters Birbhum district from the Santhal Parganas (now in Jharkhand) and flows through the center of the district from west to east, passing nearly two miles north of Suri and forming the southern boundary of Rampurhat Sub-

division. This river drains the C.D. Blocks of Mayureswar-II, Sainthia, Suri-I, Suri-II and Mohammad Bazar. It leaves the district at Mayureswar-II C.D. Block and flowing through Murshidabad district joins the Dwaraka River, which itself is a tributary of the Bhagirathi River. Manikarnika River, joining from the left, forms an important tributary of Mayurakshi river. The Tilpara Barrage, near the district Head Quarters Suri, on Mayurakshi River has immense importance in flood control and irrigation of the district.

River Hingla: The Hingla enters Birbhum district from the Santhal Parganas and gradually approaches the river Ajay. The river unites with the river Ajay at Chapla in Dubrajpur C.D. Block.

Rivers Bakreshwar: The Bakreshwar river has its source near Shankarpur village of Rajnagar C.D. Block. Flowing in a meandering course eastward the river joins Kopai river at Patharghata of Labpur C.D. Block and flows further east through Murshidabad district taking the name Koiya river.

Brahmani River: The Brahmani River originating in Jharkhand State enters the district of Birbhum at Narayanpur village of Rampurhat-I C.D. Block and almost bisects the Rampurhat Sub-division. Flowing in an easterly direction the river takes a sharp bend towards south at Kaytha of Nalhati-I C.D. Block and falls into the Dwaraka in the Murshidabad district.

River Dwaraka: The Dwaraka is a narrow ephemeral stream of considerable length. Originating from the Ramgarh hills of the Chhotanagpur plateau the river describes the district boundary of Birbhum flowing south-east. In its south-easterly course the Dwaraka receives numerous small tributaries of which mention might be made of Bamini Nala and Kuila Nala. In its north-easterly course the Dwaraka receives many tributaries on its right bank. The Gharmora and the Chila Nalas combine and the united stream falls into the Dwaraka. In its easterly course also, the Dwaraka receives a few tributaries from the south. The Dwaraka unites with the Brahmani and goes into Murshidabad district.

Bansloi River, tributary of Bhagirathi River, originates on Bans Hill in Sahebganj District, Jharkhand and flows eastward and enters Birbhum district of West Bengal. The river then meanders through Mursidabad district and finally merges with Bhagirathi River.

a) Drainage System with description of main rivers

Table 7.1: Drainage system with description of main rivers

Sl.No.	Name of the River	Area drained (Sq.km)	% Area drained in the district
1	Mayurakshi	24.6	0.01%
2	Ajay	49.2	0.01%
3	Bansloi	1.9	0.001%
4	Brahmani	3.7	0.001%

Sl.No.	Name of the River	Area drained (Sq.km)	% Area drained in the district
5	Dwaraka	3.9	0.001%
6	Bakreswar	3.42	0.001%

b) Salient Features of important rivers and streams

Table.7.2: Salient Features of important rivers and streams

S.No.	Name of the River or Stream	Total Length in District (in Km)	Place of origin	Altitude at Origin
1	Mayurakshi	1	Trikut hill, Jharkhand	262.13
2	Ajay	112	South-west of Deoghar in Jharkhand	300
3	Bansloi	3	Near Bans Hill (Jari), Sahebganj district of Jharkhand	155.75
4	Brahmani	4	Santhal Parganas, Jharkhand	155.75
5	Dwaraka	5	Santhal Parganas, Jharkhand	231.65
6	Bakreswar	6	Shankarpur village, Birbhum	95

II. Annual deposition of riverbed minerals

Annual deposition of riverbed minerals is dependent on various factors which are explained below.

A) Geomorphological studies

Geomorphological characteristic of a river is foremost factor for annual deposition of sedimentary load. The study includes following parameter:

i) Place of Origin

Details of origin of rivers of Birbhum District are furnished in Table 7.3.

Table 7.3: Place of Origin of important rivers and streams

S.No.	Name of the River or Stream	Place of origin
1	Mayurakshi	Trikut hill, Jharkhand

S.No.	Name of the River or Stream	Place of origin
2	Ajay	South-west of Deoghar in Jharkhand
3	Bansloi	Near Bans Hill (Jari), Sahebganj district of Jharkhand
4	Brahmani	Santhal Parganas, Jharkhand
5	Dwaraka	Santhal Parganas, Jharkhand
6	Bakreswar	Shankarpur village, Birbhum

ii) Catchment Area

The Birbhum district is mainly drained by the Ajay River, Mayurakshi River, Brahmani River, Dwaraka River, Bakraswar River, Hingla River, and Bansloi River and its tributary rivers which are forming the main catchment area.

iii) General profile of river stream

River profile has been studied along the cross-section lines which was chosen based on the drastic variation of the river widths, proximity of the operating sand 'ghats' and the position of the sand bars.

Relative disposition of rivers in Birbhum district along with the distribution of the section lines are shown in Figure 7.1. River profile section and cross section views are presented in Figures 7.2 and 7.3.

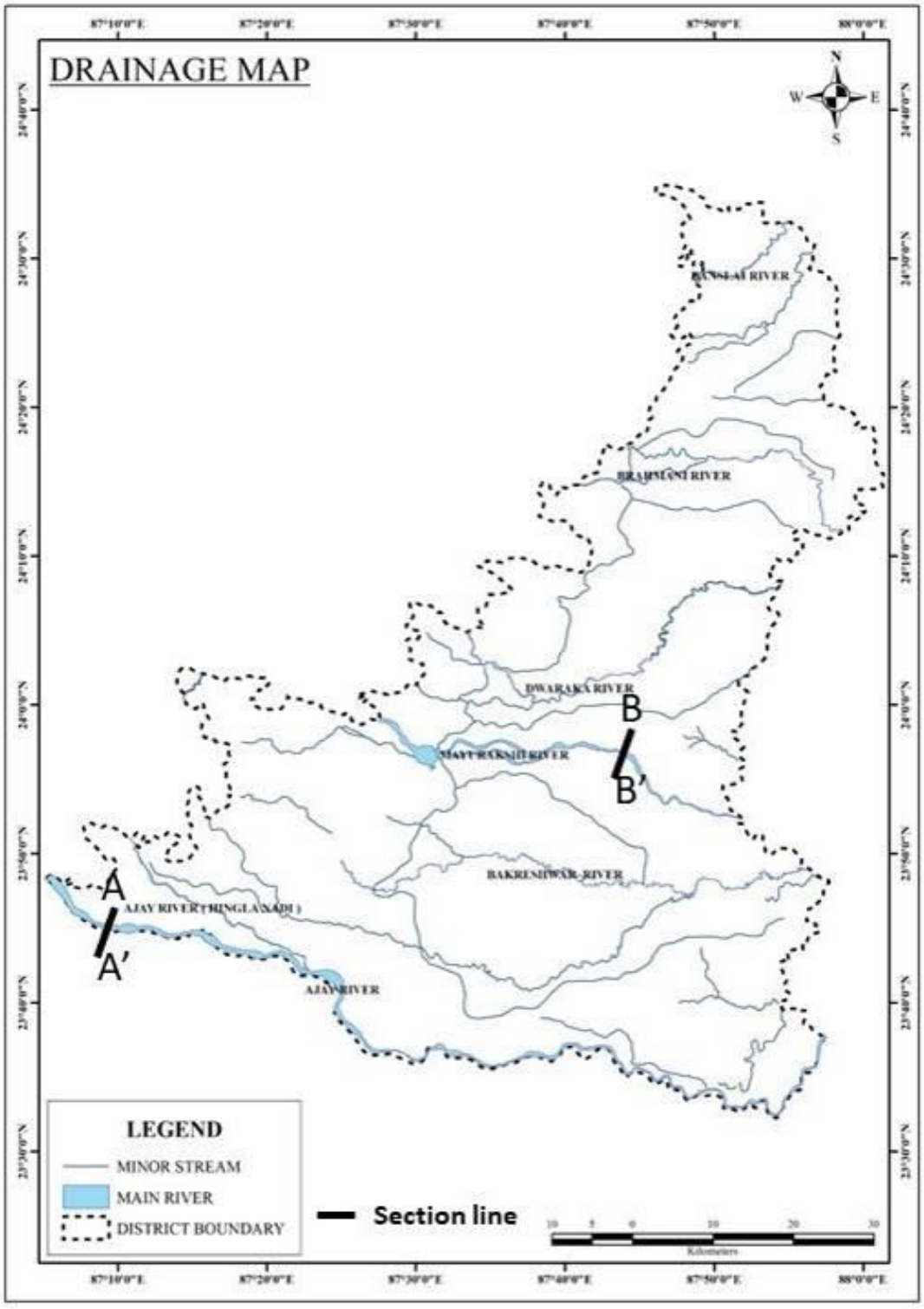


Figure 7.1: Map showing the major rivers along which profile section drawn

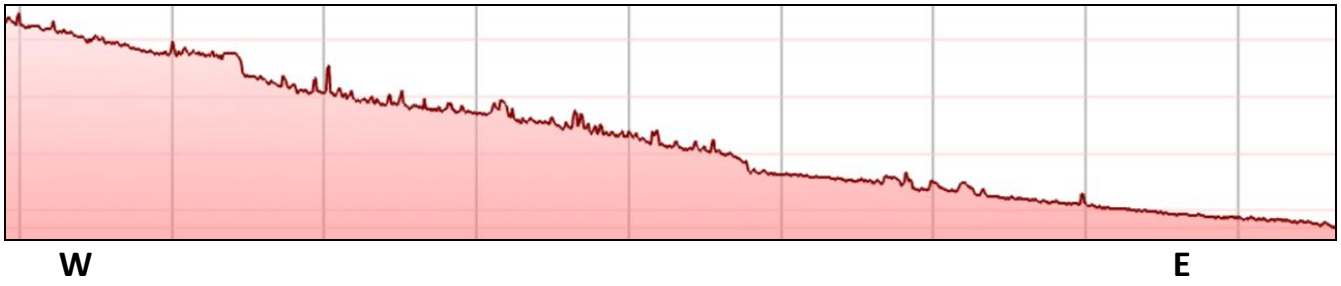


Figure 7.2A: Profile section of Ajay River

Figure 7.2B: Profile section of Mayurakshi River

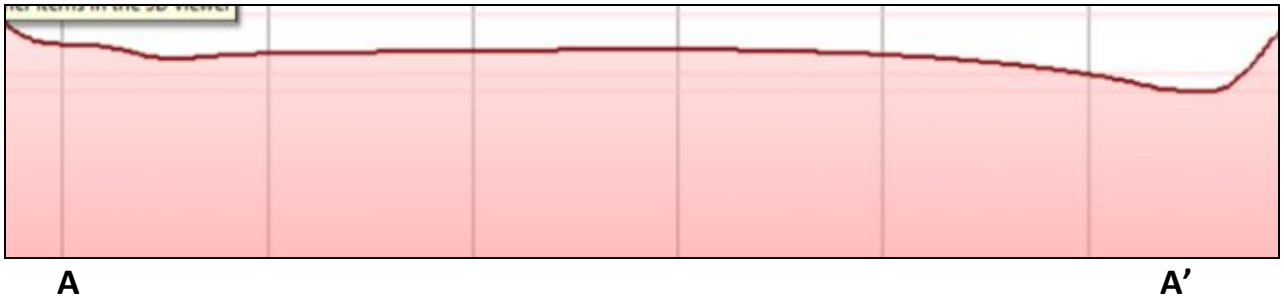


Figure 7.3A: Cross section view of Ajay River

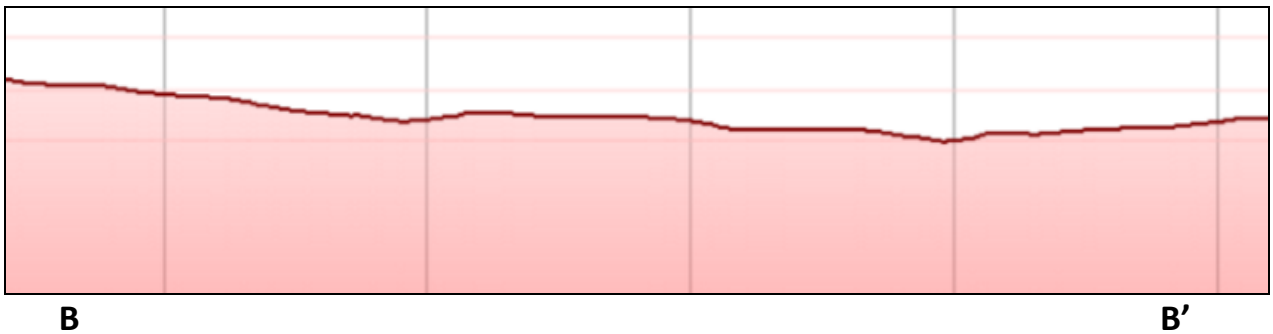


Figure 7.3B: Cross section view of Mayurakshi River

iv) Annual deposition factor

Annual deposition of riverbed materials depends on various factors, such as process of deposition, mode of sediment transport, sediment transport rate, and sediment yield of the river.

1. Process of deposition

Deposition is the processes where material being transported by a river is deposited. Deposition occurs when the forces responsible for sediment transportation are no longer sufficient to overcome the forces of gravity and friction, creating a resistance to motion; this is known as the null-point hypothesis. This can be when a river enters a shallow area or towards its mouth where it meets another body of water.

The principle underlying the null point theory is due to the gravitational force; finer sediments remain in the water column for longer durations allowing transportation outside the surf zone to deposit under calmer conditions. The gravitational effect or settling velocity determines the location of deposition for finer sediments, whereas a grain's internal angle of friction determines the deposition of larger grains on a shore profile.

Deposition of non-cohesive sediments: Large-grain sediments are transported by either bedload or suspended load. In case of bedload, when there is insufficient bed shear stress and fluid turbulence is insufficient to keep the sediment moving, the grains looses horizontal movement and rapidly come to rest. In case of suspended load the grains travel longer distance vertically through the fluid before coming to rest.

Deposition of cohesive sediments: The cohesion of sediment occurs with the small grain sizes associated with silts and clays, or particles smaller than 4Φ or 62.5 μm. If these fine particles remain dispersed in the water column, Stokes law applies to the settling velocity of the individual grains. The face of a clay platelet has a slight negative charge where as the edge has a slight positive charge. When two platelets come into close proximity with each other the face of one particle and the edge of the other are electrostatically attracted, and then have a higher combined mass which leads to quicker deposition through a higher fall velocity.

2. Mode of sediment transport in rivers

Sediment transport in rivers provides a dynamic linkage between flow and channel form. Mainly there are three processes by which sediment load is transported and these are (i) rolling or traction, in which the particle moves along a sedimentary bed but is too heavy to be lifted from it; (ii) saltation; and (iii) suspension, in which particles remain permanently above the bed, sustained there by the turbulent flow of the water.

Another name for sediment transport is sediment load. The total load includes all particles moving as bedload, suspended load, and wash load.

Bed load: Bedload is the portion of sediment transport that rolls, slides or bounces along the bottom of a waterway. This sediment is not truly suspended, as it sustains intermittent contact with the streambed, and the movement is neither uniform nor continuous. Bedload occurs when the force of the water flow is strong enough to overcome the weight and cohesion of the sediment. While the particles are pushed along, they typically do not move as fast as the water around them, as the flow rate is not great enough to fully suspend them. Bedload transport can occur during low flows (smaller particles) or at high flows (for larger particles). Approximately 5-20% of total sediment transport is bedload. In situations where the flow rate is strong enough, some of the smaller bedload particles can be pushed up into the water column and become suspended.

Suspended load: While there is often overlap, the suspended load and suspended sediment are not the same thing. Suspended sediment are any particles found in the water column, whether the water is flowing or not. The suspended load, on the other hand, is the amount of sediment carried downstream within the water column by the water flow. Suspended loads require moving water, as the water flow creates small upward currents (turbulence) that keep the particles above the bed. The size of the particles that can be carried as suspended load is dependent on the flow rate. Larger particles are more likely to fall through the upward currents to the bottom, unless the flow rate increases, increasing the turbulence at the streambed. In addition, suspended sediment will not necessarily remain suspended if the flow rate slows.

Wash load: The wash load is a subset of the suspended load. This load is composed of the finest suspended sediment (typically less than 0.00195 mm in diameter). The wash load is differentiated from the suspended load because it will not settle to the bottom of a waterway during a low or no flow period. Instead, these particles remain in permanent suspension as they are small enough to bounce off water molecules and stay afloat. However, during flow periods, the wash load and suspended load are indistinguishable.

3. Sediment Transport Rate

The rate at which sediment is moved past a cross section of the flow is called either the sediment transport rate or the sediment discharge. It is related to the sediment load, but it‘s different, just because different fractions of the sediment load are transported at different rates. It can be measured in mass per unit time, or in weight per unit time, or in volume per unit time. The sediment transport rate is commonly denoted by Qs.

4. Estimation of Sedimentation

There are two approaches to obtaining values describing sediment loads in streams. One is based on direct measurement of the quantities of interest, and the other on relations developed between hydraulic parameters and sediment transport potential.

The total bed material load is equal to the sum of the bedload and the bed material part of the suspended load; in terms of volume transport per unit width, qt = qb + qs. Here wash load, i.e. that part of the suspended load that is too fine to be contained in measurable quantities in the river bed, is excluded from qs.

There are number of equations to compute the total sediment load. Most of these equations have some theoretical and empirical bases.

In 1973, Ackers and White developed a general theory for sediment transport which was calibrated against the flume-transport data then available. Their functions have been widely accepted as one of the best available procedures for estimating the total bed load over the full width of the flow section.

Dendy Bolton formula is often used to calculate the sedimentation yield. But use of these equations to predict sediment yield for a specific location would be unwise because of the wide variability caused by local factors not considered in the equations development. However, they may provide a quick, rough approximation of mean sediment yields on a regional basis. Computed sediment yields normally would be low for highly erosive areas and high for well stabilized drainage basins with high plant density because the equations are derived from average values. The equations express the general relationships between sediment yield, runoff, and drainage area.

5. Sediment Yield

The water that reaches a stream and its tributaries carries sediment eroded from the entire area drained by it. The total amount of erosional debris exported from such a drainage basin is its sediment load or sediment discharge and the sediment yield is the sediment discharge divided by the total drainage area of the river upstream of the cross section at which the sediment discharge is measured or estimated. Sediment yield is generally expressed as a volume or weight per unit area of drainage basin—e.g., as tons per square kilometre. Further, sediment yield is usually measured during a period of years, and the results are thus expressed as an annual average.

v) Replenishment Study (As per EMGSM guidelines, 2020):

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 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 analysed 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. Ground truthing has been done for 100% of the total identified sand bars. During ground truthing, width and length of each segment were physically measured. It has also been observed that in few cases, sand bars have attained more than 3 meters height from the average top level of the river beds. Considerations of sand resources have been restricted within 3 meters from the average top surface of the river bed.

B. Direct field measurement of the existing leases involving estimation of the volume diference 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.

A. Replenishment estimation based on satellite imagery study

Sedimentation in any river is dependent on sediment yield which depends on soil erosion in river's catchment area. Catchment yield is computed using Strange's Monsoon runoff tables for runoff coefficient against rainfall return period. Peak flood discharge is calculated by using Dickens, Jarvis and Rational formula at 25, 50 and 100 years return period. The estimation of bed load transport is done using Ackers and White Equation.

Methodology Adopted: To delineate replenishment percentage in the river bed of the district, below mentioned steps have been followed.

- **Field data collation:**

Field data collations were done during June 2020 for pre monsoon period and during December 2020 for post monsoon period for the river ghats on continuous basis. Figure 7.4 shows the site view of Ajay River. However, the non-operational areas were covered through traverses. In both the cases, relative elevation levels were captured through GPS/DGPS/ Electronic Total Station. Thickness of the sand bars was measured through sectional profiles. In few instances, sieve analysis of the sands was carried out to assess their particle size distribution.

Figure 7.4: Site View of River Ajay

- **Selection of Study profiles:**

Study profiles are selected based on the occurrence of the sand bars in the channel profiles. Aerial extents of each of the profiles are mapped from satellite imagery.

- **Data Compilation:**

Following data were compiled for generation of the annual replenishment report:

  - Elevation levels of the different sand ghats and sand bars as measured at site.
  - Extent of the sand bars are measured from the pre monsoon satellite imagery.
  - Sand production data of the district.

- **Assessment of sediment load in the river:**

Assessment of sediment load in a river is subjective to study of the whole catchment area, weathering index of the various rock types which acts as a source of sediments in the specific river bed, rainfall data over a period not less than 20 years, and finally the detail monitoring of the river bed upliftment with time axis. Again, the sediment load estimation is not a dependent variable of the district boundary, but it largely depends upon the aerial extent of the catchment areas, which crosses the district and state boundaries.

- **Estimation of annual sand deposition:**

The major sand producing rivers of Birbhum district are Ajay River, Mayurakshi River, Brahmani River, Dwaraka River, Bakreswar River, Hingla River, and Bansloi River. Planning has been done for systematic sand mining in the rivers.

While calculation of the areas of sand bar, a classification system has been adopted with three categories of land identified within the channel areas which is as follows:

a. The untapped sand bars.
b. The sand bars worked in the pre-monsoon period.
c. Main channel course within the channel.

A summary of sediment load comparison between pre- and post-monsoon periods for different rivers Birbhum district is given in Table 7.4 and details of each sand bars along with their sand resources in pre monsoon and post monsoon period are provided in Annexure-2. Maps showing distribution of sand bars on rivers of the Birbhum district during pre- and post-monsoon periods are depicted in Plate-2A and 2B respectively.

Table 7.4: Sediment Load comparison between Pre- and Post-monsoon periods for different rivers

River Name	Pre-Monsoon no of ghats	Post-Monsoon no of ghats	Pre-Monsoon Sediment Load (Mcum)	Post Monsoon Sediment Load (Mcum)	Difference (Mcum)	Difference (%)
Ajay	109	86	45.24	52.51	7.27	16
Ajay Hingla	46	42	2.33	1.97	-0.36	-16
Siddweshwari	9	6	0.85	0.92	0.07	8
Bakreswar	11	11	0.16	0.12	-0.04	-23
Banslai	28	22	1.49	1.68	0.19	13
Dwaraka	42	23	1.05	1.06	0.01	1
Mayurakshi	37	16	5.98	9.78	3.80	63
Brahmani	53	28	1.23	1.29	0.06	5
Total	335	234	**58.34**	**69.34**	**11.00**	**19**

Thus, in Birbhum district, about 11.00 million cum of sand has been found as an incremental volume increase when compared between pre- and post-monsoon sand reserve data. Percentage difference is about 119% which is replenishment and aggradation rate for the year.

Long-term satellite imagery study has also been carried out for sand producing rivers of Birbhum district to analyse the changes in river course. A representative map, showing long-term erosion-accretion areas on both the banks of Ajay River, Birbhum has been prepared and furnished in Plate No. 5. Map shows changes in river channel through erosion and accretion of river bank and in the process the river shows narrowing of width of the river course by almost 210m from 2001 to 2021.

B. Replenishment estimation based on field investigation

The study was carried out on existing mining leases. In order to assess the annual replenishment rate, an approach of direct measurement methodology has been adopted. The depth and area of the mining leases are measured through DGPS/Total station just before the closure of the mines in pre-monsoon period and the same areas are resurveyed in the post-monsoon period. The differences between the depths of the surveyed areas are accounted for the volumetric measurement of the replenished sand.

Table 7.5 represents field measurement of replenishment rate estimated for major rivers.

Table 7.5: Replenishment rate of the district

Location	River Name	Area	Surface RL	Thickness	Volume	After mining floor RL	Surface RL after Replenishment	Thickness Replenished	Volume Replenished	Difference in RL	Replenishment Rate
		m2	m	m	Mcum	m	m	m	Mcum	m	%
Kalidaha	Mayurakshi	44200	64	2.95	0.130	61.05	63.95	2.90	0.128	0.05	98.2%
Nadighasbera	Mayurakshi	46300	57	2.90	0.134	54.10	56.94	2.84	0.132	0.06	98.0%
Ramnagar	Mayurakshi	11100	25	2.90	0.032	22.10	24.93	2.83	0.031	0.07	97.6%
Khudrapur	Ajay	26400	51	3.00	0.079	48.00	50.91	2.91	0.077	0.09	97.0%
Udaipur	Ajay	21400	38	2.90	0.062	35.10	37.93	2.83	0.061	0.07	97.5%
Hussenpur	Ajay	27400	16	2.90	0.079	13.10	15.94	2.84	0.078	0.06	97.9%
Bajitpur	Dwarka	19700	45	2.80	0.055	42.20	44.91	2.71	0.053	0.09	96.9%
Narayanpur	Brahmani	21100	48	2.78	0.059	45.22	47.90	2.68	0.057	0.10	96.5%

Based on field investigation, the average replenishment rate for the year 2020 is about 96.88%.

C. Replenishment estimation based on a empirical formula:

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.

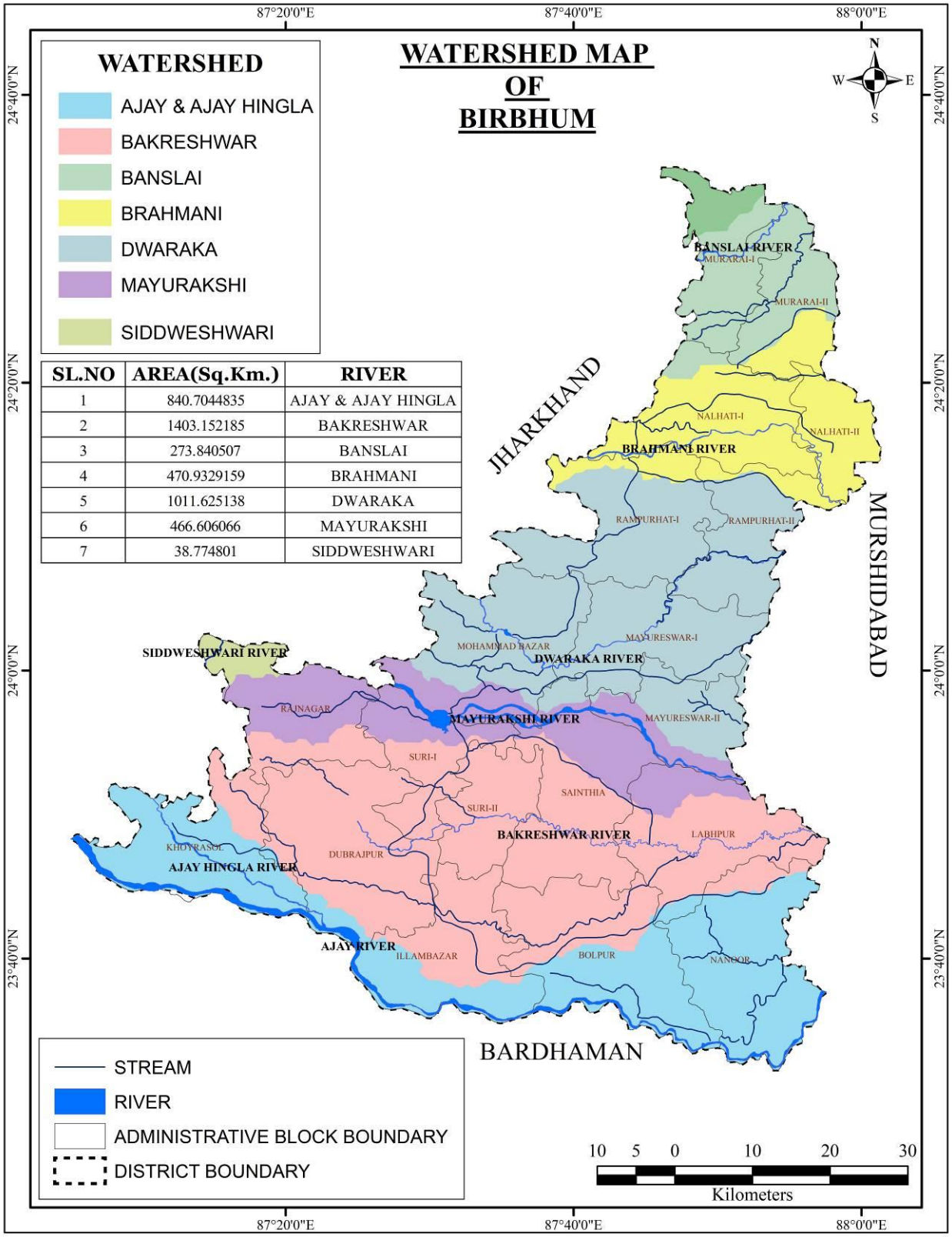
Sediment load deposition in a river is dependent on catchment area, weathering index of the various rock types of the catchment area, land-use pattern of the area, rainfall data and grain size distribution of the sediments. Again, the sediment load estimation is not a dependent variable of the district boundary, but it largely depends upon the aerial extents of the catchment areas, which crosses the district and state boundaries.

i. Methodology of the 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. Sedimentation in riverbed depends on catchment yield, peak flood discharge due to rainfall, bed load transport rates and sediment yield characteristic of the river. Some of the common methods used for replenishment study are explained below.

a. Catchment Yield Calculation:

The total quantity of surface water that can be expected in a given period from a stream at the outlet of its catchment is known as yield of the catchment in that period. The annual yield from a catchment is the end product of various processes such as precipitation, infiltration and evapotranspiration operating on the catchment.



SL.NO	AREA(Sq.Km.)	RIVER
1	840.7044835	AJAY & AJAY HINGLA
2	1403.152185	BAKRESHWAR
3	273.840507	BANSLAI
4	470.9329159	BRAHMANI
5	1011.625138	DWARAKA
6	466.606066	MAYURAKSHI
7	38.774801	SIDDWESHWARI

Figure 7.5: Watershed map of Birbhum district

Catchment Yield can be estimated using following formula:

Catchment Yield (m^3) =Catchment area (m^2) × Runoff coefficient (%) × Rainfall (m)

The runoff generated from the watershed is analyzed using Strange's Table to get the reliable yield results. Runoff from a catchment is dependent upon annual rainfall as well as catchment characteristics such as soil types and the type of groundcover / land usage. Remote sensing was used for demarcation of catchment area relevant to the drainage system. Runoff coefficient of the catchment has been established based on Strange's Table.

Strange (1892) studied the available rainfall and runoff and obtained yield ratios as functions of indicators representing catchment characleris1ics (Subramanya, 2008). Catchments are classified as good, average and bad according to the relative magnitudes of yield of sediment. For example, catchment with good forest cover and having soils of high permeability would be classified as bad, while catchment having soils of low permeability and having little or no vegetal cover is termed good. Based on the study Strange established runoff coefficient table as given in Table 7.6.

Table 7.6: Runoff coefficient of the catchment based on Strange's table

Total monsoon rainfall (mm)	Runoff coefficient (%)			Total monsoon rainfall (mm)	Runoff coefficient (%)		
	Good catchment	Average catchment	Bad catchment		Good catchment	Average catchment	Bad catchment
25.4	0.1	0.1	0.1	787.4	27.4	20.5	13.7
50.8	0.2	0.2	0.1	812.8	28.5	21.3	14.2
76.2	0.4	0.3	0.2	838.2	29.6	22.2	14.8
101.6	0.7	0.5	0.3	863.6	30.8	23.1	15.4
127	1	0.7	0.5	889	31.9	23.9	15.9
152.4	1.5	1.1	0.7	914.4	33	24.7	16.5
177.8	2.1	1.5	1	939.8	34.1	25.5	17
203.2	2.8	2.1	1.4	965.2	35.3	26.4	17.6
228.6	3.5	2.6	1.7	990.6	36.4	27.3	18.2
254	4.3	3.2	2.1	1016	37.5	28.1	18.7
279.4	5.2	3.9	2.6	1041.4	38.6	28.9	19.3
304.8	6.2	4.6	3.1	1066.8	39.8	29.8	19.9
330.2	7.2	5.4	3.6	1092.2	40.9	30.6	20.4
355.6	8.3	6.2	4.1	1117.6	42	31.5	21
381	9.4	7	4.7	1143	43.1	32.3	21.5
406.4	10.5	7.8	5.2	1168.4	44.3	33.2	22.1
431.8	11.6	8.7	5.8	1193.8	45.4	34	22.7
457.2	12.8	9.6	6.4	1219.2	46.5	34.8	23.2
482.6	13.9	10.4	6.9	1244.6	47.6	35.7	23.8
508	15	11.3	7.5	1270	48.8	36.6	24.4
533.4	16.1	12	8	1295.4	49.9	37.4	24.9

Total monsoon rainfall (mm)	Runoff coefficient (%)			Total monsoon rainfall (mm)	Runoff coefficient (%)		
	Good catchment	Average catchment	Bad catchment		Good catchment	Average catchment	Bad catchment
558.8	17.3	12.9	8.6	1320.8	51	38.2	25.5
584.2	18.4	13.8	9.2	1346.2	52.1	39	26
609.6	19.5	14.6	9.7	1371.6	53.3	39.9	26.6
635	20.6	15.4	10.3	1397	54.4	40.8	27.2
660.4	21.8	16.3	10.9	1422.4	55.5	41.6	27.7
685.8	22.9	17.1	11.4	1447.8	56.6	42.4	28.3
711.2	24	18	12	1473.2	57.8	43.3	28.9
736.6	25.1	18.8	12.5	1498.6	58.9	44.4	29.4
762	26.3	19.7	13.1	1524	60	45	30

Rainfalls return period for 25, 50 and 100 years calculated as below:

As per Weibull's Formula (Subramanya, 2008)**,**

Return period/Recurrence interval = (n+1)/m

Where: n number of years on record;

m is the rank of observed occurrences when arranged in descending order.

b. Peak Flood Discharge Calculation:

The term "peak discharge" stands for the highest concentration of runoff from the basin area. The accurate estimation of flood discharge remains one of the major challenges as it depends upon physical characteristic of the catchment area and the flood intensity, duration and distribution pattern. There have been many different approaches for determining the peak runoff from an area. As a result, many different models (equations) for peak discharge estimation have been developed. Formulas used for Peak Discharge calculation areas below:

As per Dicken's formula (Subramanya, 2008)**,**

$$Q = CA^{3/4}$$

Where: Q is Maximum flood discharge (m^3/sec) in a river

A is Area of catchment in Sq. Km

C is Constant whose value varies widely between 2.8 to 5.6 for catchments in plains and 14 to 28 for catchments in hills

As per Jarvis formula (Subramanya, 2008)**,**

$$Q = CA^{1/2}$$

Where: Q is Maximum flood discharge (m^3/sec) in a river

A is Area of catchment in Sq. Km

C is Constant whose value varies between 1.77 as minimum and 177 as maximum. Limiting or 100 percent chance floods are given by the value of C of 177

As per Rational formula ((Subramanya, 2008)**,**

Q = CIA

Where: Q is Maximum flood discharge (m^3/sec) in a river

A is Area of catchment in Sq. Km

C is Runoff coefficient which depends on the characteristics of the catchment area. It is a ratio of runoff: rainfall

I is Intensity of rainfall (in m/sec)

c. Bed Load Transport Calculation:

The most important problems in river engineering are to predict bed load transport rates in torrential floods flowing from mountainous streams. Three modes of transport namely; rolling, sliding and saltation may occur simultaneously in bed load transport. The different modes of transportation are closely related and it is difficult, if not impossible, to separate them completely. There are number of equations to compute the total sediment load. Most of these equations have some theoretical and empirical bases.

Ackers and White Equation:

Ackers and White (1973) used dimensional analysis based on flow power concept and their proposed formula is as follows.

$$C_t = C_s G_s \left(d_{50}/h\right) \left(V/U_*\right)^{n'} \left[\left(F_{gr}/A_1\right) - 1\right]^{m}$$

The dimensionless particle d_{gr} is calculated by:

$$d_{gr} = d_{50} \left(g(G_s-1)/v^2\right)^{1/3}$$

The particle mobility factor F_{gr} is calculated by:

$$F_{gr} = \left(U \times n'/(G_s-1) g\, d_{50}\right)^{1/2} \times \left(V/(5.66 \log(10h/d_{50}))\right)^{1-n'}$$

Where,

A_1 = Critical particle mobility factor
C_s = Concentration coefficient in the sediment transport function
C_t = Total sediment concentration
d_{50} = Median grainsize
d_{gr} = Dimensionless particle diameter
F_{gr} = Particle mobility parameter
g = Acceleration of gravity
D_s, S_g = Specific gravity
h = Water depth
m = Exponent in the sediment transport function
n' = Manning roughness coefficient
U_* = Shear velocity
V = Mean flow velocity
ν = Kinematic viscosity

Meyer – Peter's equation (Source: Hydrologic Engineering Center):

Meyer-Peter's equation (Ponce, 1989) is based on experimental work carried out at the Federal Institute of Technology, Zurich. Mayer-Peter gave a dimensionless equation based on

rational laws. Mayer- Peter equation gave an empirical formula of bed load transport rates in flumes and natural rivers. The simplified Meyer-Peter's equation is given below:

$$g_b = 0.417[\tau_0 (\eta'/\eta)^{1.5} - \tau c]^{1.5}$$

Where,
gb = Rate of bed load transport (by weight) in N per m width of channel per second.

η' = Manning's coefficient pertaining to grain size on an unrippled bed and Strickler formula i.e. η' = (1/24) x d1/6 where d is the median size (d_{50}) of the bed sediment in m.

η = The actual observed value of the rugosity coefficient on rippled channels. Its value is generally taken as 0.020 for discharges of more than 11cumecs, and 0.0225 for lower discharges.

τc = Critical shear stress required to move the grain in N/m2 and given by equation τc = 0.687da, where da is mean or average size of the sediment in mm. This arithmetic average size is usually found to vary between d_{50} and d_{60}.

τ0= Unit tractive force produced by flowing water i.e. γwRS. Truly speaking, its value should be taken as the unit tractive force produced by the flowing water on bed = 0.97γwRS. R is the hydraulic mean depth of the channel (depth of flow for wider channel) and S is the bed slope.

d. Sediment Yield Estimation:

Sedimentation occurs as the velocity decreases along with its ability to carry sediment. Coarse sediments deposit first, then interfere with the channel conveyance, and may cause additional river meanders and distributaries. The area of the flowing water expands, the depth decreases, the velocity is reduced, and eventually even fine sediments begin to deposit. As a result, deltas may be formed in the upper portion of reservoirs. The deposited material may later be moved to deeper portions of the reservoir by hydraulic processes within the water body.

There are many sediment transport equations which are suitable for use in the prediction of the rate of replenishment of river. Some of the famous sediment transport equations are:

1. Dendy – Bolton Equation
2. Yang Equations
3. Engelund-Hansen Equation
4. Modified Universal Soil Loss Equation (MUSLE) developed by Williams and Berndt (1977)

Dendy – Bolton Equation:
Dendy – Bolton formula (Dendy and Bolton 1976) is often used to calculate the sedimentation yield because:-

- The formula uses catchment area and mean annual runoff as key determinants.
- It does not differentiate in basin wide smaller streams and their characteristics.

- Dendy and Bolton equation calculates all types of sediment yield i.e. sheet and rill erosion sediments, gully erosion sediments, channel bed and bank erosion sediments and mass movement etc.

Dendy-Bolton determined the combined influence of runoff and drainage area on sediment yield to compute the sediment yield. They developed two equations i.e. for run off less than 2 inch and for run off more than 2 inch, which are given below:

For run off less than 2 inch:

$(Q<2in)\ S=1289\times (Q)^{0.46}\times [1.43-0.26\ \text{Log}\ (A)]$

For run off more than 2 inches:

$(Q > 2\ in):\ S= 1958\times (e^{-0.055\times Q}) \times [1.43-0.26\ \text{Log}\ (A)]$
Where: S = Sediment yield (tons/sq miles/yr)

Q = Mean Annual runoff (inch)

A = Net drainage are in sq mile

Dendy-Bolton formula is often used to calculate the sediment yield. But use of these equations to predict sediment yield for a specific location would be unwise because of the wide variability caused by local factors not considered in the equations development. However, they may provide a quick, rough approximation of mean sediment yields on a regional basis for preliminary watershed planning. Computed sediment yields normally would be low for highly erosive areas and high for well stabilized drainage basins with high vegetation density because the equations are derived from average values. The equations express the general relationships between sediment yield, runoff, and drainage area. Many variables influence sediment yield from a drainage basin. They include climate, drainage area, soils, geology, topography, vegetation and land use. The effect of any of these variables may vary greatly from one geographic location to another, and the relative importance of controlling factors often varies within a given land resource area. Studies revealed that sediment yield per unit area generally decreases as drainage area increases. As drainage area increases, average land slope usually decreases; and there is less probability of an intense rainstorm over the entire basin. Both phenomena tend to decrease sediment yield per unit area.

Modified Universal Soil Loss Equation (MUSLE):

Modified universal soil loss equation (MUSLE) for estimation of sediment yield is also widely used. MUSLE is a modification of the Universal Soil Loss Equation (USLE). USLE is an estimate of sheet and rill soil movement down a uniform slope using rainfall energy as the erosive force acting on the soil (Wischmeier and Smith 1978). Depending on soil characteristics (texture, structure, organic matter, and permeability) some soils erode easily while others are inherently more resistant to the erosive action of rainfall.

MUSLE is similar to USLE except for the energy component. USLE depends strictly upon rainfall as the source of erosive energy. MUSLE uses storm-based runoff volumes and runoff peak flows to simulate erosion and sediment yield (Williams 1995). The use of runoff variables rather than rainfall erosivity as the driving force enables MUSLE to estimate sediment yields for individual storm events. The generalized formula of MUSLE is as below:

$$Y=11.8\times (Q \times qP).56 \times K \times Ls \times C \times P$$

Where,
Y = sediment yield of stream (t/yr/km2),
Q = average annual runoff (m3),
K = soil erodibility factor,
qP = Highest discharge recorded (m3/s),
Ls = gradient/slope length,
C = cover management factor,
P = erosion control practice

ii. Estimation of Replenishment:

Birbhum district is mainly drained by the Ajay River, Mayurakshi River, Brahmani River, Dwaraka River, Bakreswar River, Hingla River, and Bansloi River. These rivers and its tributary rivers are forming the main catchment area.

For replenishment study, following assumption/calculation are taken in to consideration:

- Catchment area (Watershed area) against each river has been calculated based on remote sensing data.
- Rainfall runoff coefficient as per Strange's table for the catchment area is consider 45%, as the rainfall in the district is more than 1512mm and the characteristic of the catchment of the district is average in nature.
- Peak flood discharge of the river of the district calculated based on Dicken's formula which is more applicable to north Indian and central Indian catchment. Here Dicken constant C is taken as 12 in present study as per published literature by Saha (2002).
- Bed load transport has not been computed in the regional aspect of the district, as the values are highly dependent on local factors such as particle mobility factor, roughness coefficient, Shear velocity, Mean flow velocity, Kinematic viscosity etc.
- Sedimentation yield calculated as per Dendy and Bolton formula as the equations express the general relationships between sediment yield, runoff, and drainage area.
- Computed sediment yields by Dendy Bolton formula normally would be low for highly erosive areas and high for well stabilized drainage basins with high plant density because the equations are derived from average values.
- Dendy and Boltan formula also says that actual sediment yield from individual drainage basin may vary 10-fold or even 100-fold from computed yields. Since the district river basins comprise sedimentary rocks with good average rainfall therefore the estimated replenishment is considered as 50-fold of computed results sediment yield.

The data estimated for each river in the district are given in Table 7.7.

Table 7.7: Replenishment parameter estimated for each river in the district

Estimation parameter	Ajay	Bakreswar	Mayurakshi	Dwaraka	Brahmani
Catchment Area (m^2)	840700000	1403200000	466600000	1011600000	470900000
Annual Rainfall (m) (in 2020)	1.51	1.51	1.51	1.51	1.51
Strange Runoff coefficient (%)	45%	45%	45%	45%	45%
Annual Run-off (m) (in 2020)	0.3322	0.3322	0.3322	0.3322	0.3322
Catchment Yield (m^3)	571255650	953474400	317054700	687382200	319976550
Peak Flood Discharge (m^3/sec)	59246408.90	87000335.63	38096913.94	68067196.18	38359926.28
Flow depth d (m)	0.8	0.5	0.6	0.3	0.3
Channel width b (m)	450	120	150	90	180
Mean velocity v (m/s)	0.1	0.03	0.05	0.04	0.04
Channel slope S_o (m/m)	0.011	0.007	0.009	0.006	0.005
Sediment Yield (Tons/year)	17063.59	26787.15	10280.83	19980.16	10362.83
Estimated Annual Replenishment (in million m3)	0.31954	0.50163	0.19252	0.37416	0.19406

Sedimentation rate of a river is dependent on the annual rainfall of the district. Sedimentation rate for the period 2016-2020 of each river is presented in Table 7.8 and Figure 7.6.

Table 7.8: Year-wise sedimentation rate (tons/km^2/yr) for last 5 years of each river

Year	Ajay	Bakreswar	Mayurakshi	Dwaraka	Brahmani	Annual Rainfall (mm)
2017	22.23	20.53	24.15	21.63	24.1	**1468.7**
2018	75.49	69.66	81.95	73.46	81.85	**904.4**
2019	39.71	36.65	43.11	38.65	43.06	**1201.2**
2020	20.3	18.73	22.03	19.75	22.01	**1510.8**
2021	19.82	18.29	21.51	19.29	21.49	**1522.1**

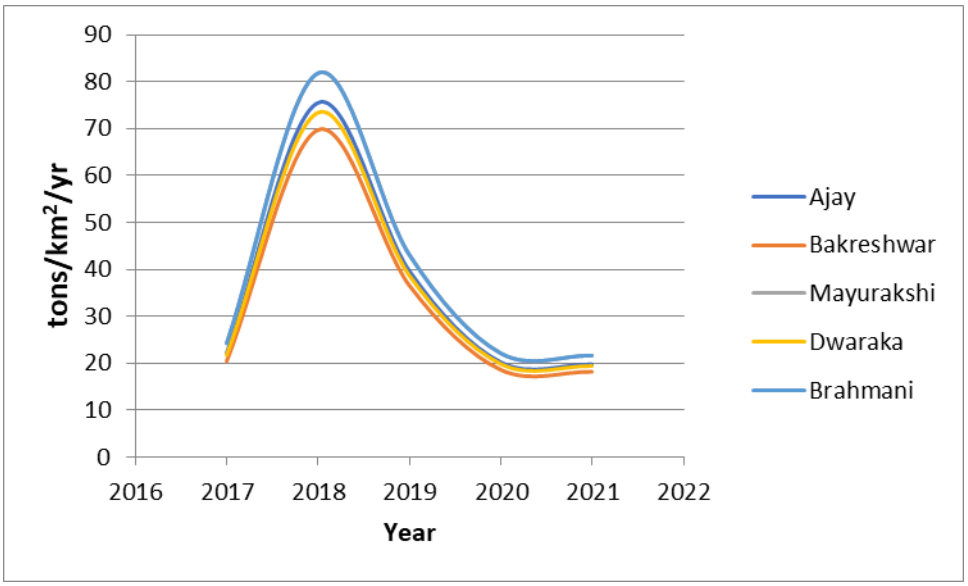


Figure 7.6: Graphical representation of year-wise sedimentation rate

The estimation of sedimentation rate based on empirical formula need critical analysis of different factors related to the LULC property of the catchment area, slope geometry, sediment erosion factor of catchment litho-type. This will help to assess replenishment rate more precisely.

Replenishment studies based on empirical formula for existing mining leases have also been conducted and are given in Table 7.9.

Table 7.9: River wise replenishment rate estimation based on empirical formula

Location	River Name	Lease Area	Surface RL Before mining	Mine out Thickness	Mine out Volume	Annual Rainfall-2020	Estimated Replenished Volume as per Dandy-Bolton	Replenishment Rate
		m2	m	m	Mcum	m	cum	%
Kalidaha	Mayurakshi	44200	64	2.95	0.130	1.51	0.095	73.0%
Nadighasbera	Mayurakshi	46300	57	2.90	0.134		0.099	74.0%
Ramnagar	Mayurakshi	11100	25	2.90	0.032		0.024	76.0%
Khudrapur	Ajay	26400	51	3.00	0.079		0.062	78.0%
Udaipur	Ajay	21400	38	2.90	0.062		0.048	77.5%
Hussenpur	Ajay	27400	16	2.90	0.079		0.060	76.0%
Bajitpur	Dwarka	19700	45	2.80	0.055		0.042	75.8%
Narayanpur	Brahmani	21100	48	2.78	0.059		0.044	75.0%

Illustration of Replenishment Estimation is given in Table 7.10.

Table 7.10: Illustration of replenishment rate calculation based on 3 methods

Based on Satellite imageries		Based on field investigation		Based on empirical formula	
Particulars	Estimation	Particulars	Estimation	Particulars	Estimation
		River Name	Ajay	River Name	Ajay
River	Ajay	Location	Khudrapur	Location	Khudrapur
Total Pre-monsoon Sand Bar Area	21522421 (sq.m)	Mining Area	26400 (Sq.m)	Lease Area	26400 (Sq.m)
Average Pre monsoon Thickness	2.8 (m)	Pre monsoon RL	51 (m)	Surface RL Before mining	51 (m)
Total Volume	45.24 (Mcum)	Sand Thickness	3.00 (m)	Mine out Thickness	3.00 (m)
Total Post-monsoon Sand Bar Area	20363478 (sq.m)	Volume excavated (Cum)	79200 (Cum)	Mine out Volume (Cum)	79200 (Cum)
Average Post-monsoon Thickness	3 (m)	Post monsoon RL	50.91 (m)	Drainage area for lease block	0.05 (Sq.km)
Total Volume	52.51 (Mcum)	Thickness	2.91 (m)	Monsoon Rainfall-2020	1.51 (m)
Total Pre and Post monsoon Volume Difference	7.27 (Mcum)	Volume deposited (Cum)	76824 (Cum)	Estimated Volume as per Dendy- Bolton ($S = 1280\ Q^{0.46}[1.43 - 0.26 \log(A)]$) Where, Q is runoff, A is drainage area)	61776 (Cum)
Replenishment and Aggradation %	116%	Replenishment Rate	97.00%	Replenishment Rate	78%

Replenishment studies have been carried out in the district based on three different methodologies as illustrated in Table 7.10. Table 7.11 explained comparison of the outcome of these three methodologies adopted for the district.

Table 7.11: Comparison of replenishment study

Replenishment Study Method	Mayurakshi	Ajay	Dwaraka	Brahmani
Estimated Annual Replenishment based on Satellite imageries **(*)**	163%	116%	101%	105%
Estimated Annual Replenishment based on field investigation	97.93%	97.47%	96.90%	96.50%

Replenishment Study Method	Mayurakshi	Ajay	Dwaraka	Brahmani
Estimated Annual Replenishment based on empirical formula	74.33%	77.17%	75.80%	75.00%

(*)Replenishment study based on satellite imagery involves estimation of replenish volume along with aggradation volume.

vi) Total potential of minor mineral in the river bed

The major sand producing rivers of the Birbhum district are Ajay River, Mayurakshi River, Brahmani River, Dwaraka River, Bakreswar River, Hingla River and Bansloi River. The total mineable potential sand resources are 32.09 Mcum.

B. Geological studies

i) Lithology of the catchment area

The major portion of the district consists of a rolling country covered by laterite and alluvium. While metamorphic or gneissose rocks are found in the extreme west, in the east there is a wide plain of recent alluvium. Strong massive rocks of hornblendic varieties stretch across the region in tolerably continuous lines, the general strike being nearly east and west.

The most characteristic geological feature of the district is the area of laterite and associated rocks of sand and gravel. At some places one finds hard beds of laterite. At other places it is decomposed and reorganized. Locally, the ferruginous rock is called kankar.

ii) Tectonics and structural behavior of rocks

Birbhum district is characterized by undulating terrain with many hills and ridges along the northwestern boundary of the district and having a gradual descent from the Chhatonagpur Plateau. Rarh Plain rises gradually in undulating surface but abruptly in hilly tract towards west extending between western hilly tract and eastern alluvial plains. Northeastern part of the district is mainly a plain area shaped by the river system flowing from north-west to south-east and covers the north-eastern part of the district.

C. Climate Factors

i) Intensity of rainfall

The average annual rainfall in the district is 1321.5mm. The variations in the annual rainfall within the district and from year to year are not large. The rainfall during the monsoon season – June to September – constitutes 74 percent of the annual rainfall; July and August are the rainiest months. The district receives a mean annual rainfall varying from 904.4 to 1522.1 mm.

ii) Climate zone

Birbhum district belongs to humid tropical monsoon climatic region. According to District Meteorological Department, there is very minor variation of temperature, rainfall and relative humidity in the district.

The climate of this district is characterized by an oppressive hot summer, high humidity nearly all the year round and a well distributed rainfall in the south west monsoon season. The year may be divided into four seasons. The cold season is from about the middle of November to the end of February. The period from March to May is the summer season. The south west monsoon season commences about the beginning of June and lasts till the end of September. October and the first half of November may be termed as post-monsoon season.

iii) Temperature variation

Temperature along with other meteorological conditions of the district is more or less uniform. The cold season commences by about the middle of November when the temperature begins to decrease. January is the coldest month with the mean daily maximum and minimum temperature at 24°C and 12°C respectively. By about the end of February the temperature begins to increase and April is s the hottest month, the mean maximum daily temperature is 36 °C and the mean minimum daily temperature is 30 °C.

Annual Deposition:

Annual deposition of riverbed minerals has been calculated on post-monsoon sand volume. The pre-monsoon sand volume of the river is the depleted resources and is replenished by the monsoon rainfall. For the purpose of estimating mineable mineral potential, the thickness of the sand bar considered extractable based on base flow level is given in Table 7.12.

Table 7.12: River wise thickness of sand bar considered mineable

River Name	Considered Mining Thickness (m)
Ajay	2.5-3
Hingla	2.5
Siddweshwari	2.5
Bakreswar	2.5
Bansoil	2.5
Dwaraka	2.5-3
Mayurakshi	2.5-3
Brahmani	2.5

Based on geomorphology, geology, climate and mineable thickness of sand bar the annual deposition of riverbed minerals has been estimated. Sand bar area recommended for mineral concession in the table is calculated as per the Enforcement and Monitoring Guidelines for Sand Mining (EMGSM) 2020. As per guidelines, mining depth restricted to 3 meters depth and distance from the bank is ¼th of river width and not less than 7.5 meters. Also, mining is prohibited 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. The annual minable mineral potential is given in Table 7.13.

Table 7.13: Annual mineable mineral potential

Sl. No.	River or Stream	Portion of the river stream recommended for mineral concession	Length of area recommended for mineral concession (in meter)	Average width of area recommended for mineral concession (in meters)	Area recommended for mineral concession (in Sqm)	Mineable mineral potential (in Mcum) (60% of total mineral potential
1	Ajay	33%	91596.207	486.2702	16117061.402	25.46
2	Ajay Hingla	14%	13393.323	158.243	526278.6727	0.79
3	Siddweshwari	37%	3,106.866	119.203	198,696.367	0.30
4	Bakreswar	1%	723.398	123.848	29,878.500	0.04
5	Banslai	21%	8264.1524	144.445	408287.1566	0.61
6	Dwaraka	5%	4,963.748	107.962	216,040.461	0.34
7	Mayurakshi	11%	12,728.301	623.349	2,629,542.376	4.02
8	Brahmani	10%	12,327.705	81.676	358,480.308	0.54

III. Riverbed Mineral Potential
Process of disposition etc:

Sand: Huge quantities of quality sands are found to occur in part of rivers. Smaller patches are also available locally in the other smaller rivers as well. Table 7.14 summarizes the potential riverbed mineral deposits of the district.

Table 7.14: Resources of Potential Riverbed Mineral

Boulder (Mcum)	Pebbles/Gravel (Mcum)	Sand/White sand (Mcum)	Total Mineable, Mineral Potential (Mcum)
-	-	32.10	32.10

Based on satellite imagery study and field investigation, potential zones for riverbed deposits for each river of the district have been identified and the details of the zones are provided in Table 7.15.

Table 7.15: Potential Zone of Riverbed Mineral

Sl.No	Rivers or Streams	Location of potential zones				Area within prohibited zone as per rule 3 of WBMMC Rules, 2016 (in sq.m)
		Administrative Block	Zone	Co-ordinates		
				Latitude	Longitude	
1	Ajay	KHOYRASOL	AJ_ZONE_1	23° 48' 29.744" N	87° 5' 20.959" E	1125434.762
				23° 45' 0.553" N	87° 9' 36.338" E	
		KHOYRASOL	AJ_ZONE_2	23° 45' 2.925" N	87° 10' 13.280" E	654373.5977
				23° 44' 49.775" N	87° 15' 15.563" E	

Sl.No	Rivers or Streams	Location of potential zones				Area within prohibited zone as per rule 3 of WBMMC Rules, 2016 (in sq.m)
		Administrative Block	Zone	Co-ordinates		
				Latitude	Longitude	
		KHOYRASOL	AJ_ZONE_3	23° 43' 40.741" N	87° 17' 13.940" E	330857.9717
				23° 42' 52.305" N	87° 21' 37.272" E	
		DUBRAJPUR	AJ_ZONE_4	23° 42' 27.744" N	87° 22' 4.115" E	609890
				23° 40' 56.917" N	87° 24' 59.046" E	
		ILLAMBAZAR	AJ_ZONE_5	23° 40' 56.105" N	87° 24' 59.286" E	104654.3965
				23° 38' 47.120" N	87° 25' 3.982" E	
		ILLAMBAZAR	AJ_ZONE_6	23° 38' 6.527" N	87° 25' 51.514" E	0
				23° 37' 40.647" N	87° 26' 16.537" E	
		ILLAMBAZAR	AJ_ZONE_7	23° 36' 50.096" N	87° 26' 57.700" E	57866.33008
				23° 36' 47.566" N	87° 28' 18.944" E	
		ILLAMBAZAR	AJ_ZONE_8	23° 36' 19.339" N	87° 29' 36.714" E	51461.39844
				23° 36' 15.227" N	87° 30' 25.501" E	
		ILLAMBAZAR	AJ_ZONE_9	23° 36' 40.919" N	87° 32' 7.791" E	178052.1787
				23° 35' 45.783" N	87° 35' 15.391" E	
		BOLPUR	AJ_ZONE_10	23° 36' 19.132" N	87° 37' 12.807" E	262368.9868
				23° 36' 57.329" N	87° 41' 51.975" E	
		BOLPUR	AJ_ZONE_11	23° 36' 59.983" N	87° 42' 37.942" E	59700.61224
				23° 35' 16.079" N	87° 44' 24.653" E	
		BOLPUR	AJ_ZONE_12	23° 34' 54.392" N	87° 45' 54.206" E	51244.76712
				23° 35' 34.964" N	87° 44' 37.965" E	
		BOLPUR	AJ_ZONE_13	23° 34' 47.896" N	87° 46' 10.894" E	178807.0452
				23° 34' 9.787" N	87° 50' 9.623" E	
		NANOOR	AJ_ZONE_14	23° 34' 9.479" N	87° 50' 10.207" E	253298.1982
				23° 32' 30.206" N	87° 54' 2.906" E	
		NANOOR	AJ_ZONE_15	23° 33' 2.401" N	87° 54' 35.695" E	91740.448
				23° 34' 23.059" N	87° 55' 34.263" E	
		NANOOR	AJ_ZONE_16	23° 35' 31.365" N	87° 56' 1.555" E	90503.22168
				23° 37' 44.271" N	87° 57' 24.304" E	
2	Ajay Hingla	KHOYRASOL	AH_ZONE_1	23° 51' 5.464" N	87° 10' 48.719" E	3545.773956
				23° 50' 38.777" N	87° 11' 9.703" E	
		KHOYRASOL	AH_ZONE_2	23° 48' 54.024" N	87° 12' 0.965" E	12241.7
				23° 48' 31.006" N	87° 12' 15.301" E	
		KHOYRASOL	AH_ZONE_3	23° 48' 0.653" N	87° 12' 33.053" E	10758.06006
				23° 47' 20.065" N	87° 13' 52.246" E	
		KHOYRASOL	AH_ZONE_4	23° 45' 47.913" N	87° 17' 11.204" E	6304.098206
				23° 45' 10.402" N	87° 17' 48.193" E	
		KHOYRASOL	AH_ZONE_5	23° 44' 32.005" N	87° 19' 14.768" E	21658.62192
				23° 43' 34.233" N	87° 21' 24.851" E	
		DUBRAJPUR	AH_ZONE_6	23° 43' 17.560" N	87° 21' 38.775" E	8907.969971

Sl.No	Rivers or Streams	Location of potential zones				Area within prohibited zone as per rule 3 of WBMMC Rules, 2016 (in sq.m)
		Administrative Block	Zone	Co-ordinates		
				Latitude	Longitude	
				23° 43' 6.559" N	87° 22' 28.919" E	
		DUBRAJPUR	AH_ZONE_7	23° 42' 43.287" N	87° 22' 31.913" E	1549.184998
				23° 42' 13.453" N	87° 22' 37.815" E	
3	Siddweshwari	RAJNAGAR	SW_ZONE_1	24° 0' 24.034" N	87° 14' 25.965" E	15227.01
				24° 0' 59.141" N	87° 14' 50.238" E	
		RAJNAGAR	SW_ZONE_2	24° 1' 25.061" N	87° 15' 7.734" E	5024.799927
				24° 1' 22.932" N	87° 15' 22.480" E	
		RAJNAGAR	SW_ZONE_3	24° 1' 27.230" N	87° 15' 28.261" E	16663.59961
				24° 2' 7.091" N	87° 15' 33.029" E	
4	Bakreswar	SURI-II	BK_ZONE_1	23° 49' 39.908" N	87° 36' 24.633" E	2431.32
				23° 49' 35.709" N	87° 36' 31.047" E	
		SAINTHIA	BK_ZONE_2	23° 49' 59.266" N	87° 37' 9.303" E	0
				23° 49' 53.327" N	87° 37' 19.800" E	
5	Banslai	MURARAI-I	BS_ZONE_1	24° 28' 33.689" N	87° 48' 35.373" E	25426.03931
				24° 29' 6.589" N	87° 49' 16.589" E	
		MURARAI-I	BS_ZONE_2	24° 29' 6.787" N	87° 49' 53.975" E	15692.02979
				24° 28' 46.921" N	87° 50' 42.029" E	
		MURARAI-I	BS_ZONE_3	24° 29' 6.406" N	87° 51' 50.715" E	9518.929932
				24° 29' 22.462" N	87° 52' 10.855" E	
		MURARAI-II	BS_ZONE_4	24° 29' 22.505" N	87° 52' 11.175" E	4486.845024
				24° 29' 31.990" N	87° 52' 29.548" E	
		MURARAI-II	BS_ZONE_5	24° 30' 36.433" N	87° 53' 32.372" E	5028.84
				24° 30' 46.847" N	87° 53' 40.265" E	
		MURARAI-I	BS_ZONE_6	24° 31' 20.611" N	87° 54' 16.661" E	271.36
				24° 31' 36.023" N	87° 54' 20.928" E	
		MURARAI-II	BS_ZONE_7	24° 31' 35.267" N	87° 54' 20.997" E	8746.160156
				24° 31' 50.414" N	87° 54' 49.533" E	
		MURARAI-II	BS_ZONE_8	24° 32' 8.894" N	87° 54' 40.020" E	11625.01965
				24° 32' 23.507" N	87° 54' 53.412" E	
6	Dwaraka	MOHAMMAD BAZAR	BM_ZONE_1	24° 16' 5.993" N	87° 48' 34.963" E	32639.81946
				24° 16' 42.528" N	87° 49' 38.764" E	
		MOHAMMAD BAZAR	BM_ZONE_2	24° 16' 30.540" N	87° 50' 34.376" E	12461.02002
				24° 16' 22.315" N	87° 52' 17.509" E	
		MAYURESWAR-I	BM_ZONE_3	24° 16' 40.557" N	87° 52' 55.505" E	90.9907
				24° 17' 2.169" N	87° 54' 10.590" E	
		RAMPURHAT-II	BM_ZONE_4	24° 17' 0.082" N	87° 55' 2.127" E	2984.960083
				24° 16' 47.651" N	87° 55' 14.857" E	
		MOHAMMAD BAZAR	BM_ZONE_5	24° 15' 32.653" N	87° 56' 43.440" E	218239.1526
				24° 15' 29.551" N	87° 56' 26.227" E	

Sl.No	Rivers or Streams	Location of potential zones				Area within prohibited zone as per rule 3 of WBMMC Rules, 2016 (in sq.m)
		Administrative Block	Zone	Co-ordinates		
				Latitude	Longitude	
		SAINTHIA	BM_ZONE_6	24° 14' 43.178" N	87° 56' 54.747" E	41837.69922
				24° 14' 3.615" N	87° 57' 4.315" E	
		MAYURESWAR-II	BM_ZONE_7	24° 13' 27.556" N	87° 57' 6.149" E	32605.90039
				24° 12' 38.250" N	87° 57' 16.686" E	
7	Mayurakshi	MAYURESWAR-II	MY_ZONE_1	23° 57' 30.244" N	87° 32' 54.877" E	11529.7002
				23° 56' 43.505" N	87° 37' 20.845" E	
		NALHATI-I	MY_ZONE_2	23° 56' 52.986" N	87° 37' 23.649" E	21416.4707
				23° 56' 17.981" N	87° 38' 17.344" E	
		NALHATI-I	MY_ZONE_3	23° 54' 36.835" N	87° 45' 35.105" E	29516.95972
				23° 53' 33.341" N	87° 46' 28.509" E	
		NALHATI-I	MY_ZONE_4	23° 53' 1.857" N	87° 48' 59.099" E	28278.41659
				23° 52' 57.004" N	87° 49' 18.121" E	
8	Brahmani	NALHATI-I	DR_ZONE_1	24° 4' 57.245" N	87° 33' 28.133" E	2720.880005
				24° 3' 42.549" N	87° 33' 46.202" E	
		NALHATI-II	DR_ZONE_2	24° 1' 20.196" N	87° 36' 31.653" E	635.319
				24° 0' 43.510" N	87° 36' 58.567" E	
		NALHATI-II	DR_ZONE_3	24° 0' 45.348" N	87° 39' 47.929" E	4908.718994
				24° 0' 45.757" N	87° 39' 59.972" E	
		NALHATI-II	DR_ZONE_4	24° 5' 39.415" N	87° 47' 12.797" E	4486.91095
				24° 5' 54.877" N	87° 47' 8.069" E	

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 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.

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. A representative map of no mining zone shown on River Siddweshwari of Birbhum district is given in Figure 7.7. Table 7.16 summarized the area of no mining zones demarcated for each river of the district.

Table 7.16: No mining zone in the district

RIVER NAME	BLOCK NAME	ZONE	RESTRICTED AREA (SQ MTS)
AJAY RIVER	KHOYRASOL	AJ_ZONE_1	1125434.762
		AJ_ZONE_2	654373.5977
		AJ_ZONE_3	330857.9717
	DUBRAJPUR	AJ_ZONE_4	609890
	ILLAMBAZAR	AJ_ZONE_5	104654.3965
		AJ_ZONE_6	0
		AJ_ZONE_7	57866.33008
		AJ_ZONE_8	51461.39844
		AJ_ZONE_9	178052.1787
	BOLPUR	AJ_ZONE_10	262368.9868
		AJ_ZONE_11	59700.61224
		AJ_ZONE_12	51244.76712
		AJ_ZONE_13	178807.0452
	NANOOR	AJ_ZONE_14	253298.1982
		AJ_ZONE_15	91740.448
		AJ_ZONE_16	90503.22168
AJAY HINGLA RIVER	KHOYRASOL	AH_ZONE_1	3545.773956
		AH_ZONE_2	12241.7
		AH_ZONE_3	10758.06006
		AH_ZONE_4	6304.098206
		AH_ZONE_5	21658.62192
	DUBRAJPUR	AH_ZONE_6	8907.969971
		AH_ZONE_7	1549.184998
SIDDWESHWARI RIVER	RAJNAGAR	SW_ZONE_1	15227.01
		SW_ZONE_2	5024.799927
		SW_ZONE_3	16663.59961

RIVER NAME	BLOCK NAME	ZONE	RESTRICTED AREA (SQ MTS)
BAKRESWAR RIVER	SURI-II	BK_ZONE_1	2431.32
	SAINTHIA	BK_ZONE_2	0
BANSLAI RIVER	MURARAI-I	BS_ZONE_1	25426.03931
		BS_ZONE_2	15692.02979
		BS_ZONE_3	9518.929932
	MURARAI-II	BS_ZONE_4	4486.845024
		BS_ZONE_5	5028.84
	MURARAI-I	BS_ZONE_6	271.36
	MURARAI-II	BS_ZONE_7	8746.160156
		BS_ZONE_8	11625.01965
DWARAKA RIVER	MOHAMMAD BAZAR	DR_ZONE_1	32639.81946
		DR_ZONE_2	12461.02002
	MAYURESWAR-I	DR_ZONE_3	90.9907
	RAMPURHAT-II	DR_ZONE_4	2984.960083
MAYURAKSHI RIVER	MOHAMMAD BAZAR	MY_ZONE_1	218239.1526
	SAINTHIA	MY_ZONE_2	41837.69922
	MAYURESWAR-II	MY_ZONE_3	32605.90039
		MY_ZONE_4	11529.7002
BRAHMANI RIVER	NALHATI-I	BM_ZONE_1	21416.4707
		BM_ZONE_2	29516.95972
		BM_ZONE_3	28278.41659
		BM_ZONE_4	2720.880005
	NALHATI-II	BM_ZONE_5	635.319
		BM_ZONE_6	4908.718994
		BM_ZONE_7	4486.91095

Wildlife hotspots in Birbhum district are considered as no mining zones. Details are as follows:

- Ballavpur Wildlife Sanctuary (co-ordinates:22°10'46.90"N; 86°43'44.86"E): Ballabhpur Wildlife Sanctuary (popular as Deer Park) was established in 1977. This wooded area is located near Bolpur Santiniketan in Bolpur subdivision of Birbhum District in the

Indian state of West Bengal. This Wildlife Sanctuary is home to three large water bodies (Jheel) which hosts migratory as well as resident birds in plenty.

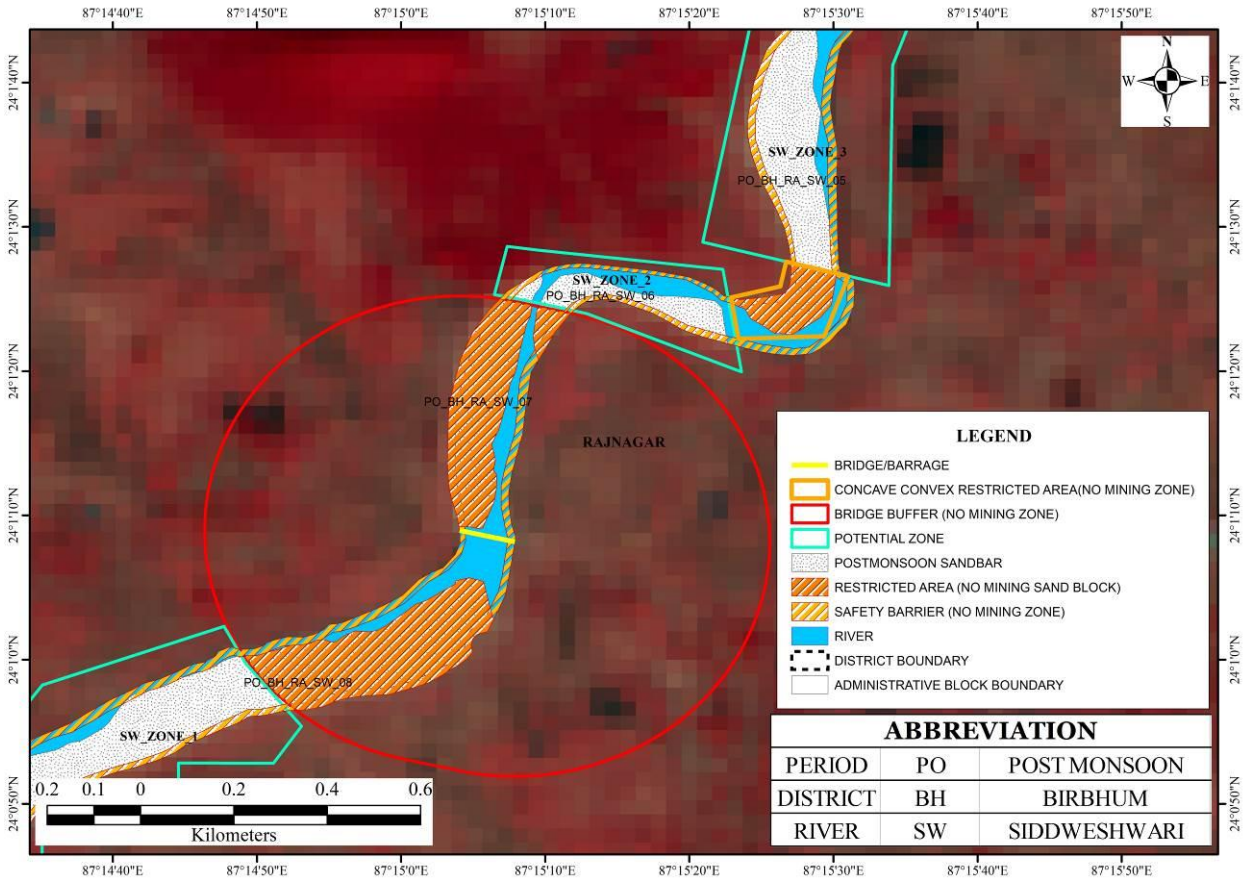


Figure 7.7: A representative map showing no-mining zone demarcated on Siddweshwari River

B) In-situ Minerals:

I. Mineral Reserve

The district contains several important mineral resources (Figure 7.8). Coal is an important mineral resource of the district located in (i) the productive Raniganj Coalfield extends into the south-western corner of the district and (ii) the the Birbhum Coalfield beneath the Rajmahal trap in the northern part; the estimated total reserve is 3613.83 mt. (indicated and inferred). The sizeable China clay deposits occur in two clusters: (a) Mahammad Bazer-Masra area, NE Siuri and (ii) Pirijpur-Bhurkuna area, SSW of Suri. The total estimated reserve of China clay in the district is 141.47 m.t. inclusive of all grades. The Dimension Stone of pink variety (Pink Granite) occurs in Dubrajpur area with resource of 0.283 Mcum. and the Black variety (basic granulite with shades of brown and green) in Aligarh area with the resource of 75000 cum. Basalt (Rajmahal trap), laterite and river sand are widely used as building and road materials. Calcium concretions (Ghootings) in older alluvial plains are locally used to produce lime in lime-kilns. Semi-precious stones, viz. agate, chalcedony, amethyst and rock crystals occur in amygdaloidal basalt in Rajmahal trap area (GSI, 2001).

Mineral resources of the district are explained below.

Clay minerals mainly cover four sectors of Birbhum district which are as follows:

- **Chaknurai sector**: This sector is delineated to the east (Dhatelpara, Baghajor) and south of Chaknurai (bounded by Baragachia and Baramasia), 8 km. west of Rampurhat. Clay is exposed innallah beds, mound scarps, road cuttings, well section and in the abandoned/ existing quarries. In the exposure the clay is bedded and jointed.
- **Makhdumnagar Sector**: Clay beds are reported from Salak, Makhdumnagar and Shaikherdeh areas in this sector.The clay in this sector is plastic and varies in color from yellow to cream at the top, followed by creamy white and white with brown, yellow and violet stains, forming bands at places. The clay is bedded and hard when dry and finegrained.
- **Dewanganj-Katpaheri Sector**: Yellow and white clay is known to occur near Chanda and greyfireclay at Harinsingha near Katpahari.
- **Mohammad Bazar Sector**: Occurrences of white clayhave been reported since long from the area comprising Mohammad Bazar, Kharia and Kumarpur. This sector, however, has the largest deposit of white china-clay in Birbhum district.

Coal: The large potentiality of this coal field has already been established by the coal wing of GSI.

- In Dhobbanpur Sector, GSI completed 2 boreholes for coal exploration study purpose in which the first borehole encountered five Barakar coal seams (0.70 m to

4.70 m thick) with a cumulative thickness of 11.65m at depths ranging from 440.75 m to 512.45 m and the second borehole intersected Tertiary claystone & fine-grained sandstone followed downwards by Rajmahal & Barakar Formation. In Gazipur area, GSI conducted two boreholes intersected 10 Barakar coal seams ranging in thickness from 0.50 m to 2.50 m (cumulative thickness 10.30 m) in depth range from 479.95 m to 615.65 m. The third borehole recorded 235.15 m of Tertiaries & 180.70 m of Rajmahal Trap (Ref. Indian Minerals Yearbook 2011 (Part II), 50th Edition, Coal & Lignite (Advance Release), October 2012).

- Birbhum Coalfield, mainly named as Deucha-Pachami- Dewanganj-Harinsinga coal block, is the second largest coal block in the world due to its coal reserve amount, situated in Deucha and Panchamati area under Mohamadbazar community Development Block of Birbhum district, West Bengal, India.

Morrum: Morrum of Birbhum district has been formed from N-S trending lateritic hard crust on the Rajmahal Trap Basalts, Archean granite-gneiss, Lower Gondwana sediments, Palaeogene gravels and older deltaic alluvium under different tectono-climatic condition of north-western marginal part of Bengal Basin. In Birbhum, morrums are generally of Kankar & lateritic loamy nature. The main rivers of Birbhum district, Ajay and Mayurakshi are the chief carriers of ferruginous coarse sediments that form an upland lateritic terrain.

II. Mineral Potential

Potential minor mineral occurrences have been demarcated in this district survey report. This DSR encompasses the presence of different types of in-situ minor minerals such as quartzite, feldspar, granite, Black stone laterite, China Clay and fireclay.

The greater part of the district consists of a rolling country composed of laterite and alluvium. To the east there is a wide plain of recent alluvium while gneisses and schist of Archaean age are found in the extreme west, which form the eastern boundary of Chhotonagpur gneissic complex. China clay and fire clay are the most potential mineral deposits of the district which are occur associated with the Archaean and also associated with tertiaries. Quartzite terrain of the district could provide additional resources for road metals and building stones.

Intrusive rocks such as porphyritic granite, gabbro and dolerite are found as concordant and discordant intrusions within Chhotonagpur gneissic complex. Good quality of Granite deposits for mining as decorative stone has been identified in Birbhum district, most attractive variety is Pink Porphyry. The coal fields of the district are characterized by intrusive of dolerite dykes, almost contemporaneous with the Rajrmahal basalt. These again form potential zone for dimension stone of the district.

The lists of identified potential zones with respect to in-situ minor minerals are furnished in Table 7.17.

Table 7.17: In-situ Minerals Occurrences

Sr. No	Name of the Mineral (Zone-Code)	Area of mineralized zone (sq.m)	Depth of mineralization	Whether virgin or partially excavated	Nature of land (whether free for mining/ forest / agriculture)	Administrative block	Co-ordinate		Area within prohibited zone as per Rule 3 of 7 WBMNC Rules 16	Infrastructure available near the mineralized zone
1	BH_MB_BS_ZONE_01 (Black Stone)	115.92	50m	Partially excavated	Partially explored	MOHAMMAD BAZAR	24° 7' 8.766" N	87° 35' 12.874" E	No	AVAILABLE
							24° 7' 20.222" N	87° 36' 2.136" E		
							24° 6' 53.669" N	87° 36' 8.581" E		
							24° 6' 44.186" N	87° 35' 18.347" E		
2	BH_RA_BS_ZONE_02 (Black Stone)	4.47	50m	Virgin	Forest	RAJNAGAR	23° 57' 58.939" N	87° 17' 24.905" E	No	AVAILABLE
							23° 58' 1.497" N	87° 17' 37.157" E		
							23° 57' 57.469" N	87° 17' 38.047" E		
							23° 57' 54.963" N	87° 17' 25.627" E		
3	BH_MB_BS_ZONE_03 (Black Stone)	530.93	50m	Partially excavated	Partially explored	MOHAMMAD BAZAR	24° 3' 47.320" N	87° 35' 20.856" E	No	AVAILABLE
							24° 4' 59.577" N	87° 35' 22.760" E		
							24° 4' 58.043" N	87° 36' 46.654" E		
							24° 3' 46.390" N	87° 36' 46.851" E		
4	BH_MB_BS_ZONE_04 (Black Stone)	1.80	50m	Partially excavated	Partially explored	MOHAMMAD BAZAR	24° 5' 48.744" N	87° 37' 48.321" E	No	AVAILABLE
							24° 5' 50.759" N	87° 37' 55.032" E		
							24° 5' 47.979" N	87° 37' 56.353" E		
							24° 5' 46.138" N	87° 37' 49.246" E		
5	BH_N1_BS_ZONE_05 (Black Stone)	2.70	50m	Virgin	Agricultural/ Forest	NALHATI-1	24° 16' 12.726" N	87° 43' 44.502" E	No	AVAILABLE
							24° 16' 13.433" N	87° 43' 53.177" E		
							24° 16' 10.049" N	87° 43' 53.862" E		
							24° 16' 9.111" N	87° 43' 45.045" E		
6	BH_M1_BS_ZONE_06 (Black Stone)	15.35	50m	Virgin	Agricultural	MURARI-1	24° 32' 31.979" N	87° 49' 29.018" E	No	AVAILABLE
							24° 32' 31.895" N	87° 49' 44.403" E		
							24° 32' 28.523" N	87° 49' 44.418" E		
							24° 32' 21.305" N	87° 49' 42.979" E		
							24° 32' 21.587" N	87° 49' 29.214" E		
							24° 32' 23.602" N	87° 49' 25.653" E		
							24° 32' 26.800" N	87° 49' 26.088" E		
7	BH_MB_BS_ZONE_07 (Black Stone)	102.40	50m	Partially excavated	Partially explored	MOHAMMAD BAZAR	24° 5' 1.668" N	87° 37' 13.345" E	No	AVAILABLE
							24° 5' 1.499" N	87° 37' 54.692" E		
							24° 4' 33.322" N	87° 37' 55.257" E		
							24° 4' 33.604" N	87° 37' 12.742" E		
8	BH_MB_BS_ZONE_08 (Black Stone)	340.84	50m	Partially excavated	Partially explored	MOHAMMAD BAZAR	24° 6' 44.241" N	87° 35' 57.885" E	No	AVAILABLE
							24° 6' 43.948" N	87° 36' 59.674" E		
							24° 6' 27.437" N	87° 37' 13.926" E		
							24° 5' 51.327" N	87° 37' 14.667" E		
							24° 5' 51.045" N	87° 35' 57.507" E		
9	BH_M1_BS_ZONE_09 (Black Stone)	58.36	50m	Partially excavated	Partially explored	MURARI-1	24° 33' 9.243" N	87° 49' 20.524" E	No	AVAILABLE
							24° 33' 8.733" N	87° 49' 0.375" E		

Sr. No	Name of the Mineral (Zone-Code)	Area of mineral ized zone (sq.m)	Depth of mineral ization	Whether virgin or partially excavated	Nature of land (whether free for mining/ forest / agriculture)	Administrative block	Co-ordinate		Area within prohibited zone as per Rule 3 of 7 WBMNC Rules 16	Infrastructure available near the mineralized zone
							24° 33' 42.492" N	87° 48' 59.578" E		
							24° 33' 43.832" N	87° 49' 18.831" E		
10	BH_MB_BS_ZONE_10	37.84	50m	Partially excavated	Partially explored	MOHAMMAD BAZAR	24° 3' 18.784" N	87° 36' 23.248" E	NO	AVAILABLE
							24° 3' 7.638" N	87° 36' 39.677" E		
							24° 2' 49.773" N	87° 36' 29.512" E		
							24° 3' 0.656" N	87° 36' 11.169" E		
11	BH_R1_BS_ZONE_11	111.14	50m	Virgin	Agricultural	RAMPURHAT-1	24° 7' 53.230" N	87° 38' 37.325" E	NO	AVAILABLE
							24° 7' 52.504" N	87° 39' 18.641" E		
							24° 7' 21.467" N	87° 39' 18.258" E		
							24° 7' 22.538" N	87° 38' 36.646" E		
12	BH_MB_BS_ZONE_12	61.52	50m	Virgin	Agricultural	RAMPURHAT-1	24° 6' 21.891" N	87° 38' 55.626" E	NO	AVAILABLE
							24° 6' 21.832" N	87° 39' 25.542" E		
							24° 5' 57.850" N	87° 39' 25.188" E		
							24° 5' 57.973" N	87° 38' 55.940" E		
13	BH_MB_BS_ZONE_13	42.75	50m	Virgin	Agricultural	MOHAMMAD BAZAR	24° 5' 24.550" N	87° 35' 31.467" E	NO	AVAILABLE
							24° 5' 23.967" N	87° 35' 57.254" E		
							24° 5' 4.699" N	87° 35' 56.789" E		
							24° 5' 5.487" N	87° 35' 31.230" E		
14	BH_MB_BS_ZONE_14	237.65	50m	Partially excavated	Partially explored	MOHAMMAD BAZAR	24° 5' 58.061" N	87° 34' 35.709" E	NO	AVAILABLE
							24° 5' 57.408" N	87° 35' 10.232" E		
							24° 5' 41.709" N	87° 35' 9.927" E		
							24° 5' 40.889" N	87° 35' 27.377" E		
							24° 5' 5.940" N	87° 35' 27.334" E		
							24° 4' 58.738" N	87° 35' 21.598" E		
							24° 4' 59.314" N	87° 34' 35.447" E		
15	BH_MB_BS_ZONE_15	126.99	50m	Partially excavated	Partially explored	MOHAMMAD BAZAR	24° 5' 41.913" N	87° 37' 11.343" E	No	AVAILABLE
							24° 5' 41.833" N	87° 37' 56.174" E		
							24° 5' 9.655" N	87° 37' 56.778" E		
							24° 5' 9.090" N	87° 37' 11.857" E		
16	BH_S1_CC_ZONE_01 (China Clay)	14.60	20m	Virgin	Agricultural	SURI-1	23° 52' 17.399" N	87° 30' 56.179" E	No	AVAILABLE
							23° 52' 18.381" N	87° 31' 11.002" E		
							23° 52' 7.641" N	87° 31' 11.857" E		
							23° 52' 5.626" N	87° 30' 57.087" E		
17	BH_DJ_CC_ZONE_02 (China Clay)	11.80	20m	Virgin	Agricultural	DUBRAJPUR	23° 48' 44.583" N	87° 23' 23.370" E	No	AVAILABLE
							23° 48' 46.225" N	87° 23' 37.589" E		
							23° 48' 36.716" N	87° 23' 38.355" E		
							23° 48' 35.290" N	87° 23' 23.950" E		
18	BH_RA_CC_ZONE_03 (China Clay)	8.64	20m	Virgin	Agricultural/ Forest	RAJNAGAR	23° 58' 51.741" N	87° 22' 7.031" E	No	AVAILABLE
							23° 58' 55.117" N	87° 22' 16.311" E		

Sr. No	Name of the Mineral (Zone-Code)	Area of mineral ized zone (sq.m)	Depth of mineral ization	Whether virgin or partially excavated	Nature of land (whether free for mining/ forest / agriculture)	Administrative block	Co-ordinate		Area within prohibited zone as per Rule 3 of 7 WBMNC Rules 16	Infrastructure available near the mineralized zone
							23° 58' 45.815" N	87° 22' 20.591" E		
							23° 58' 42.654" N	87° 22' 11.266" E		
19	BH_MB_CC_ZONE_04 (China Clay)	7.21	20m	Virgin	Agricultural	MOHAMMAD BAZAR	24° 4' 53.746" N	87° 31' 6.391" E	No	AVAILABLE
							24° 4' 54.264" N	87° 31' 18.528" E		
							24° 4' 47.295" N	87° 31' 18.640" E		
							24° 4' 47.121" N	87° 31' 6.365" E		
20	BH_R1_CC_ZONE_05 (China Clay)	2.82	20m	Virgin	Agricultural	RAMPURHAT-1	24° 8' 30.290" N	87° 37' 59.119" E	No	AVAILABLE
							24° 8' 30.328" N	87° 38' 5.517" E		
							24° 8' 25.208" N	87° 38' 5.656" E		
							24° 8' 25.343" N	87° 37' 59.142" E		
21	BH_R1_CC_ZONE_06 (China Clay)	2.34	20m	Virgin	Agricultural	RAMPURHAT-1	24° 12' 54.233" N	87° 41' 49.420" E	No	NO
							24° 12' 56.032" N	87° 41' 55.738" E		
							24° 12' 52.281" N	87° 41' 57.570" E		
							24° 12' 50.548" N	87° 41' 51.041" E		
22	BH_S2_CC_ZONE_07 (China Clay)	0.77	20m	Virgin	Agricultural	SURI-2	23° 52' 20.742" N	87° 33' 12.579" E	No	AVAILABLE
							23° 52' 20.900" N	87° 33' 16.359" E		
							23° 52' 18.490" N	87° 33' 16.574" E		
							23° 52' 18.521" N	87° 33' 12.757" E		
23	BH_KR_CC_ZONE_08	12.78	20m	Partially excavated	Partially explored	KHOYRASOL	23° 48' 39.694" N	87° 9' 29.802" E	No	AVAILABLE
							23° 48' 46.964" N	87° 9' 38.087" E		
							23° 48' 38.728" N	87° 9' 48.269" E		
							23° 48' 30.994" N	87° 9' 39.376" E		
24	BH_MB_CC_ZONE_09	52.78	20m	Virgin	Agricultural	MOHAMMAD BAZAR	23° 58' 36.605" N	87° 34' 24.813" E	No	AVAILABLE
							23° 58' 36.708" N	87° 34' 52.508" E		
							23° 58' 14.563" N	87° 34' 52.746" E		
							23° 58' 14.718" N	87° 34' 25.278" E		
25	BH_MB_CC_ZONE_10	28.49	20m	Virgin	Agricultural	MOHAMMAD BAZAR	23° 58' 52.785" N	87° 34' 23.180" E	No	AVAILABLE
							23° 58' 55.553" N	87° 34' 30.636" E		
							23° 58' 52.206" N	87° 34' 40.078" E		
							23° 58' 50.427" N	87° 34' 44.096" E		
							23° 58' 53.481" N	87° 34' 55.580" E		
							23° 58' 51.785" N	87° 35' 0.394" E		
							23° 58' 49.508" N	87° 34' 59.494" E		
							23° 58' 46.782" N	87° 34' 52.366" E		
							23° 58' 40.230" N	87° 34' 44.753" E		
							23° 58' 38.398" N	87° 34' 40.157" E		
							23° 58' 40.448" N	87° 34' 32.489" E		
							23° 58' 49.332" N	87° 34' 26.442" E		
26	BH_DJ_CC_ZONE	67.40	20m	Partially	Partially explored	DUBRAJPUR	23° 47' 21.039" N	87° 27' 45.823" E	No	AVAILABLE

Sr. No	Name of the Mineral (Zone-Code)	Area of mineral ized zone (sq.m)	Depth of mineral ization	Whether virgin or partially excavated	Nature of land (whether free for mining/ forest / agriculture)	Administrative block	Co-ordinate		Area within prohibited zone as per Rule 3 of 7 WBMNC Rules 16	Infrastructure available near the mineralized zone
	_11			excavated			23° 47' 34.219" N	87° 28' 11.687" E		
							23° 47' 34.152" N	87° 28' 33.677" E		
							23° 47' 28.017" N	87° 28' 36.497" E		
							23° 47' 22.380" N	87° 28' 28.922" E		
							23° 47' 10.499" N	87° 28' 7.967" E		
							23° 47' 7.454" N	87° 27' 54.451" E		
27	BH_MB_CC_ZONE_12	140.25	20m	Virgin	Agricultural	MOHAMMAD BAZAR	23° 59' 25.070" N	87° 35' 5.406" E	No	AVAILABLE
							24° 0' 3.279" N	87° 35' 6.909" E		
							24° 0' 2.361" N	87° 35' 49.513" E		
							23° 59' 24.072" N	87° 35' 47.095" E		
28	BH_MB_CC_ZONE_13	41.84	20m	Virgin	Agricultural	MOHAMMAD BAZAR	23° 59' 13.274" N	87° 35' 21.383" E	No	AVAILABLE
							23° 59' 11.759" N	87° 35' 25.983" E		
							23° 59' 17.296" N	87° 35' 35.783" E		
							23° 59' 17.542" N	87° 35' 38.875" E		
							23° 59' 16.478" N	87° 35' 47.185" E		
							23° 58' 54.304" N	87° 35' 41.408" E		
							23° 58' 56.475" N	87° 35' 27.336" E		
							23° 59' 1.048" N	87° 35' 19.417" E		
							23° 59' 4.876" N	87° 35' 17.150" E		
							23° 59' 12.048" N	87° 35' 17.894" E		
29	BH_R1_CC_ZONE_14	70.53	20m	Virgin	Agricultural	RAMPURHAT-1	24° 10' 0.590" N	87° 41' 58.128" E	No	AVAILABLE
							24° 10' 17.307" N	87° 42' 1.780" E		
							24° 10' 10.727" N	87° 42' 49.760" E		
							24° 9' 54.720" N	87° 42' 47.078" E		
30	BH_R1_CC_ZONE_15	47.28	20m	Virgin	Agricultural	RAMPURHAT-1	24° 9' 46.577" N	87° 42' 40.318" E	No	AVAILABLE
							24° 9' 45.353" N	87° 43' 12.289" E		
							24° 9' 29.462" N	87° 42' 39.473" E		
							24° 9' 28.494" N	87° 43' 11.533" E		
31	BH_R1_CC_ZONE_16	79.86	20m	Virgin	Agricultural	RAMPURHAT-1	24° 10' 40.827" N	87° 44' 25.206" E	No	AVAILABLE
							24° 10' 11.445" N	87° 44' 28.375" E		
							24° 10' 11.092" N	87° 44' 1.002" E		
							24° 10' 25.683" N	87° 44' 2.170" E		
							24° 10' 41.159" N	87° 43' 38.859" E		
32	BH_R1_CC_ZONE_17	26.24	20m	Virgin	Agricultural	RAMPURHAT-1	24° 7' 45.348" N	87° 39' 57.984" E	No	AVAILABLE
							24° 7' 45.169" N	87° 40' 15.306" E		
							24° 7' 27.570" N	87° 40' 14.933" E		
							24° 7' 28.058" N	87° 39' 57.613" E		
33	BH_MB_FC_ZONE_01 (Fire Clay)	169.64	20m	Partially excavated	Partially explored	MOHAMMAD BAZAR	24° 4' 54.097" N	87° 38' 2.508" E	No	AVAILABLE
							24° 4' 54.262" N	87° 38' 55.498" E		

Sr. No	Name of the Mineral (Zone-Code)	Area of mineral ized zone (sq.m)	Depth of mineral ization	Whether virgin or partially excavated	Nature of land (whether free for mining/ forest / agriculture)	Administrative block	Co-ordinate		Area within prohibited zone as per Rule 3 of 7 WBMNC Rules 16	Infrastructure available near the mineralized zone
							24° 4' 16.585" N	87° 38' 54.886" E		
							24° 4' 18.357" N	87° 38' 1.489" E		
34	BH_KR_FC_ZONE_02 (Fire Clay)	0.54	20m	Virgin	Agricultural	KHOYRASOL	23° 46' 1.073" N	87° 18' 47.290" E	No	AVAILABLE
							23° 46' 1.217" N	87° 18' 50.691" E		
							23° 45' 59.378" N	87° 18' 50.827" E		
							23° 45' 59.342" N	87° 18' 47.321" E		
35	BH_KR_FC_ZONE_03 (Fire Clay)	2.94	20m	Virgin	Agricultural	KHOYRASOL	23° 45' 33.572" N	87° 10' 9.793" E	No	AVAILABLE
							23° 45' 26.066" N	87° 10' 9.433" E		
							23° 45' 26.244" N	87° 10' 3.801" E		
							23° 45' 33.447" N	87° 10' 6.261" E		
36	BH_R1_FC_ZONE_04 (Fire Clay)	52.81	20m	Partially excavated	Partially explored	RAMPURHAT-1	24° 11' 28.714" N	87° 43' 26.351" E	No	AVAILABLE
							24° 11' 19.551" N	87° 43' 26.967" E		
							24° 11' 17.220" N	87° 42' 52.255" E		
							24° 11' 34.856" N	87° 42' 51.978" E		
							24° 11' 37.340" N	87° 43' 25.668" E		
37	BH_MB_FC_CC_ZONE_01 (China and Fire Clay)	121.26	20m	Partially excavated	Partially explored	MOHAMMAD BAZAR	24° 1' 9.650" N	87° 37' 5.049" E	No	AVAILABLE
							24° 1' 47.924" N	87° 37' 15.803" E		
							24° 1' 37.767" N	87° 37' 53.922" E		
							24° 1' 3.956" N	87° 37' 38.654" E		
38	BH_R1_FC_CC_ZONE_02 (China and Fire Clay)	8.71	20m	Virgin	Agricultural	RAMPURHAT-1	24° 11' 57.688" N	87° 44' 42.272" E	No	AVAILABLE
							24° 11' 56.442" N	87° 44' 48.933" E		
							24° 11' 42.649" N	87° 44' 46.039" E		
							24° 11' 43.329" N	87° 44' 38.869" E		
39	BH_MB_FC_CC_ZONE_03 (China and Fire Clay)	6.60	20m	Virgin	Agricultural	MOHAMMAD BAZAR	23° 58' 50.992" N	87° 36' 38.474" E	No	AVAILABLE
							23° 58' 52.662" N	87° 36' 52.939" E		
							23° 58' 47.393" N	87° 36' 53.461" E		
							23° 58' 45.851" N	87° 36' 39.100" E		
40	BH_MB_FC_CC_ZONE_04 (China and Fire Clay)	1.19	20m	Virgin	Agricultural	MOHAMMAD BAZAR	23° 58' 49.580" N	87° 33' 40.375" E	No	AVAILABLE
							23° 58' 50.043" N	87° 33' 45.508" E		
							23° 58' 47.393" N	87° 33' 45.571" E		
							23° 58' 46.913" N	87° 33' 40.419" E		
41	BH_S2_FC_CC_ZONE_05 (China and Fire Clay)	15.54	20m	Virgin	Agricultural	SURI-2	23° 46' 47.065" N	87° 34' 33.322" E	No	AVAILABLE
							23° 46' 41.886" N	87° 34' 46.986" E		
							23° 46' 31.238" N	87° 34' 41.778" E		
							23° 46' 36.661" N	87° 34' 27.219" E		
42	BH_MB_QTZ_ZONE_01 (vein Quartz)	54.48	25m	Virgin	Agricultural	MOHAMMAD BAZAR	24° 2' 41.571" N	87° 31' 18.548" E	No	AVAILABLE
							24° 3' 2.065" N	87° 31' 27.924" E		
							24° 2' 59.024" N	87° 31' 56.522" E		
							24° 2' 37.619" N	87° 31' 51.881" E		

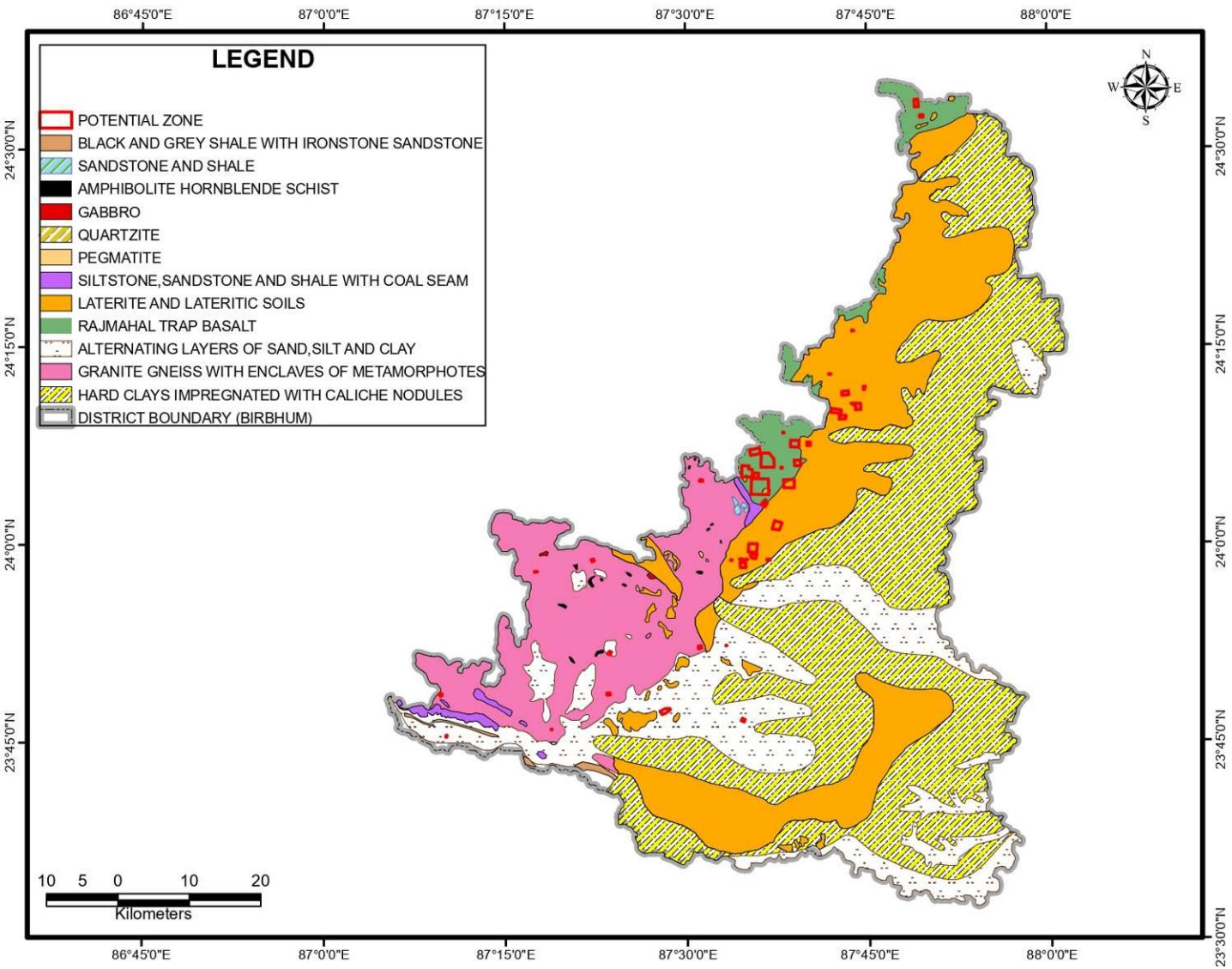


Figure 7.8: In-situ mineral occurrences shown on geological map of Birbhum district (Source: GSI, 2001)

7.3 Mineral development prospect of the district with respect to Minor Mineral

The district has good prospect of major mineral resources. Mining of coal is generating considerable amount of revenue for the district. China clay deposits are holding the next potential resources in terms of revenue generation. However, mining of sand from the river-beds of Ajay and Mayurakshi is also an important source of revenue generation.

7.4 Exploration requirement of the district

In this district the sand industry might be very much useful. Therefore, there is a need more scientific sand mining procedure. So, the scope of sand exploration in this district is very high. District also has considerable in-situ minor mineral deposits; however, extent of these deposits is need to be established in detailed. Therefore, it is highly recommended to conduct detailed exploration (G2 level) to establish mineral resources of the district.

8 Overview of mining activity in the district

8.1 General overview

In Birbhum district mining activity is mainly associated with coal, quartzite and china clay deposits. Collection of sand from river-bed is one of the main minor mineral sources of the district. These materials are primarily utilized for construction purpose.

8.2 List of existing mining leases of the districts

Details of List of existing mining leases of the districts are furnished in Table 8.1.

Table 8.1: Details of Sand mining leases of the districts

ID	Block	Mouza	JL No	River	Road	Plot No	Area in Hectares	Latitude	Longitude	Bidder Name	Date of Issuance of Environmental Clearance (E.C.)	Date of Execution of Lease Deed	Lease Agreement Start Date (date of effect)	Lease Agreement Expiry Date	Quantum of Sand Extraction permissible as per Mining Plan (tonnes)	Reasons for non-execution of lease deed
1779/SB 2021	MD. BAZAR	Kalidaha	96	Mayurakshi	Kachha Road	292P	4.42	23° 57' 44.02''N	87° 29' 7.00''E	Madan Mohan Mondal	1/5/2017	9/7/2017	9/7/2017	6-Sep-22	167260.94	
850/SB2021	SURI-1	Bhandirban	202	Mayurakshi	Kachha Road	1513P	2.84	23° 58' 31.15''N	87° 28' 37.60''E	Sunil Das	2/9/2018	3/16/2018	3/16/2018	15-Mar-23	67705.024	
409/SB2021	SURI-1	Dhanyagram	206	Mayurakshi	Kachha Road	574 P	2.05	23° 57' 17.03''N	87° 29' 36.87''E	Bharat Super Construction	9/29/2018	3/5/2019	3/5/2019	4-Mar-24	47260.94	
851/SB2021	SURI-1	Bhandirban	202	Mayurakshi	Kachha Road	279P, 254P, 293P	2.7	23° 58' 42.17''N	87° 28' 20.79''E	Sunil Das					0	EC Awaiting
1610/SB 2021	MD. BAZAR	Nijuri	94	Mayurakshi	Kachha Road	780P	2.23	23° 58' 30.56''N	87° 28' 47.60''E	Kalomoni Baski	6/4/2018	6/14/2018	6/18/2018	17-Jun-23	51636.953	
433/SB2021	SURI-1	Khatangadihi	203	Mayurakshi	Kachha Road	001 P	4.71	23° 58' 10.90''N	87° 28' 50.50''E	Surendra Kumar Kochar	3/27/2018	6/15/2018	6/15/2018	14-Jun-23	109345.219	
823/SB2021	SAINTHIA	Raihat	24	Mayurakshi	Kachha Road	349P, 403P	4.87	23° 56' 48.18''N	87° 38' 47.87''E	Mahammad Humayun Kabir	3/6/2017	8/11/2017	8/11/2017	10-Aug-22	200810.373	
1597/SB 2021	ILAMBAZAR	Khudrapur	75	Ajay	Kachha Road	2364P	2.64	23° 36' 47.76''N	87° 27' 36.04''E	Arijit Sen	9/29/2018	6/21/2019	6/21/2019	20-Jun-24	68719.611	
1940/SB 2021	DUBRAJPUR	Bodhgram	208	Ajay	Kachha Road	2952P, 2953P	3.42	23° 41' 20.00''N	87° 24' 56.20''E	Rabi Singh	9/22/2017	8/13/2020	8/13/2020	12-Aug-25	84894.652	
595/SB2021	ILAMBAZAR	Etapur	125	Ajay	Kachha Road	1353 P, 1342 P	1.11	23° 36' 8.11''N	87° 34' 7.20''E	Firdous Ahamed	12/1/2017	1/15/2018	1/15/2018	14-Jan-23	20129.66	
609/SB2021	MAYURESWAR-2	Napara	122	Mayurakshi	Kachha Road	804 P, 792 P	1.7	23° 53' 43.46''N	87° 46' 26.91''E	Sk Hasnujjaman	4/5/2017	8/10/2017	8/16/2017	15-Aug-22	66126.418	
853/SB2021	MAYURESWAR-1	Ratgara	07	Dwarka	Kachha Road	1207 P	1.09	24° 0' 41.75''N	87° 40' 10.68''E	P Mukherjee and Co	4/5/2017	9/21/2017	9/21/2017	20-Sep-22	32090.762	
854/SB2021	MAYURESWAR-1	Ratgara	07	Dwarka	Kachha Road	1207 P	1.7	24° 0' 45.98''N	87° 39' 59.19''E	P Mukherjee and Co					0	EC Awaiting

ID	Block	Mouza	JL No	River	Road	Plot No	Area in Hectares	Latitude	Longitude	Bidder Name	Date of Issuance of Environmental Clearance (E.C.)	Date of Execution of Lease Deed	Lease Agreement Start Date (date of effect)	Lease Agreement Expiry Date	Quantum of Sand Extraction permissible as per Mining Plan (tonnes)	Reasons for non-execution of lease deed
855/SB2021	MAYURESWAR-2	Ramnagar	243	Mayurakshi	Kachha Road	814 P	1.11	23° 52' 26.28''N	87° 51' 39.49''E	Ainal Haque	2/9/2017	11/14/2017	11/14/2017	13-Nov-22	24311.183	
857/SB2021	SAINTHIA	Uttar Bamnigram	101	Mayurakshi	Kachha Road	2690 P, 2688 P	4.01	23° 56' 41.46''N	87° 43' 45.67''E	Abhishek Mondal	8/21/2017	2/7/2018	2/7/2018	6-Feb-23	47552.674	
611/SB2021	KHOYRASOL	Ratanpur	143	Ajay	Kachha Road	664 P, 669 P	2.28	23° 43' 39.91''N	87° 17' 23.89''E	Sekh Indadul	8/21/2017	10/24/2017	10/24/2017	23-Oct-22	53387.358	
614/SB2021	SURI-1	Khatangadihi	203	Mayurakshi	Kachha Road	001 P	4.91	23° 58' 22.94''N	87° 28' 41.21''E	Mihir Chandra Saha	6/27/2017	8/10/2017	8/10/2017	9-Aug-22	123695.3	
621/SB2021	RAJNAGAR	Rahida	6	Siddeswari	Kachha Road	84 P	0.81	24° 1' 26.19''N	87° 15' 28.94''E	Mihir Chandra Saha	9/29/2018	7/1/2019	7/1/2019	30-Jun-24	14878.444	
624/SB2021	NANOOR	Husenpur	131	Ajay	Kachha Road	2057 P, 1697 P	2.38	23° 34' 16.54''N	87° 55' 27.33''E	Mahammad Humayun Kabir	12/1/2017	12/11/2017	12/11/2017	10-Dec-22	55429.498	
1771/SB2021	MD. BAZAR	Chatarma	134	Mayurakshi	Kachha Road	206P	4.01	23° 57' 17.66''N	87° 33' 46.02''E	Madan Mohan Mondal	1/5/2017	3/31/2017	3/31/2017	30-Mar-22	158022.69	
700/SB2021	NANOOR	Gomra	100	Ajay	Kachha Road	1697 P, 1766 P, 1767P, 1768 P	1.85	23° 37' 4.80''N	87° 57' 3.56''E ,	Mahi Enterprise	3/6/2017	4/21/2017	4/21/2017	20-Apr-22	64181.524	
682/SB2021	NANOOR	Kurgram	119	Ajay	Metal/Black top/Pitch/Pucca Road	1129 P, 1130 P	1.79	23° 33' 1.46''N	87° 51' 27.30''E	Matribhumi Developers	12/1/2017	12/13/2017	12/13/2017	12-Dec-22	36175.041	
1914/SB2021	DUBRAJPUR	Debipur	127	Ajay	No Approach Road	559P, 561P, 576P	3.3	23° 42' 50.40''N	87° 21' 52.70''E	MS National Traders Proprietor Parwez Alam Siddiqui	9/22/2017	10/24/2017	10/24/2017	23-Oct-22	79351.702	
758/SB2021	LABPUR	Dwarka	136	Mayurakshi	Kachha Road	8001 to 8005,8012,	4.65	23° 52' 51.60''N	87° 49' 5.26''E	Miraj Sekh	2/10/2017	7/31/2017	8/2/2017	1-Aug-22	187628.849	

ID	Block	Mouza	JL No	River	Road	Plot No	Area in Hectares	Latitude	Longitude	Bidder Name	Date of Issuance of Environmental Clearance (E.C.)	Date of Execution of Lease Deed	Lease Agreement Start Date (date of effect)	Lease Agreement Expiry Date	Quantum of Sand Extraction permissible as per Mining Plan (tonnes)	Reasons for non-execution of lease deed
						11348,11629,11854,11900										
808/SB2021	SAINTHIA	Amua	12	Mayurakshi	Kachha Road	1701 P	4.02	23° 57' 19.21''N	87° 40' 30.06''E	Mahammad Humayun Kabir	5/5/2017	8/21/2017	8/21/2017	20-Aug-22	53095.624	
917/SB2021	MD. BAZAR	Nadighasbera	141	Mayurakshi	Metal/Black top/Pitch/Pucca Road	001 P	3.35	23° 57' 26.55''N	87° 34' 56.64''E	Debabrata Mondal	3/6/2017	4/19/2017	4/19/2017	18-Apr-22	129821.718	
924/SB2021	MD. BAZAR	Nadighasbera	141	Mayurakshi	Metal/Black top/Pitch/Pucca Road	04P	4.63	23° 57' 30.75''N	87° 35' 11.74''E	MS Sainthia Sand Udyog	4/26/2018	5/11/2018	5/16/2018	15-May-23	95980.551	
936/SB2021	DUBRAJPUR	Loba	155	Ajay	Kachha Road	2484P, 2475P, 2476P	2.77	23° 42' 3.82''N	87° 22' 58.37''E	MS Sainthia Sand Udyog	3/27/2018	5/11/2018	5/16/2018	15-May-23	66807.131	
970/SB2021	SAINTHIA	Bidyapur	23	Mayurakshi	Kachha Road	74P, 75P	3.77	23° 56' 55.74''N	87° 37' 17.93''E	Naba Kumar Mondal	4/5/2017	8/3/2017	8/3/2017	2-Aug-22	138573.744	
973/SB2021	SAINTHIA	Laliapur	14	Mayurakshi	Kachha Road	573P, 576P	3.76	23° 57' 21.47''N	87° 39' 35.40''E	Naba Kumar Mondal	3/6/2017	8/3/2017	8/3/2017	2-Aug-22	153160.454	
975/SB2021	SAINTHIA	Bidyapur	23	Mayurakshi	Kachha Road	74P, 75P	2.65	23° 56' 48.74''N	87° 37' 29.59''E	Naba Kumar Mondal	4/5/2017	6/14/2017	6/14/2017	13-Jun-22	102106.969	
980/SB2021	NALHATI-1	Madhabpur	27	Brahmani	Kachha Road	578P	3.5	24° 15' 0.25''N	87° 41' 52.24''E	Chakraborty Construction	5/5/2017	8/4/2017	8/4/2017	3-Aug-22	75267.423	
981/SB2021	SAINTHIA	Uttar Bamnigram	101	Mayurakshi	Kachha Road	2689 P	3.23	23° 56' 45.28''N	87° 43' 18.53''E	Kamal Kanti Dey	5/5/2017	2/26/2018	2/26/2018	25-Feb-23	57179.903	
984/SB2021	MD. BAZAR	Girajpur	97	Mayurakshi	Kachha Road	1321P, 1322P	4.94	23° 57' 27.76''N	87° 29' 25.31''E	Kamal Kanti Dey	6/4/2018	11/16/2018	11/16/2018	15-Nov-23	111442.464	

ID	Block	Mouza	JL No	River	Road	Plot No	Area in Hectares	Latitude	Longitude	Bidder Name	Date of Issuance of Environmental Clearance (E.C.)	Date of Execution of Lease Deed	Lease Agreement Start Date (date of effect)	Lease Agreement Expiry Date	Quantum of Sand Extraction permissible as per Mining Plan (tonnes)	Reasons for non-execution of lease deed
993/SB2021	DUBRAJPUR	Bodhgram	208	Ajay	Kachha Road	2952P, 2953P	3.91	23° 41' 35.56''N	87° 24' 48.68''E	Nasiruddin Molla	9/29/2018	2/10/2020	2/10/2020	9-Feb-25	108265.802	
1000/SB2021	RAMPURHAT-1	Narayanpur	3	Brahmani	Metal/Black top/Pitch/Pucca Road	1675P	2.11	24° 14' 54.65''N	87° 40' 30.91''E	Nasiruddin Molla	3/27/2018	4/17/2018	4/17/2018	16-Apr-23	32674.23	
1013/SB2021	SURI-1	Bhandirban	202	Mayurakshi	Kachha Road	279P	1.84	23° 58' 49.77''N	87° 28' 3.51''E	Nasiruddin Molla	6/4/2018	11/19/2018	11/19/2018	18-Nov-23	42301.459	
1007/SB2021	NALHATI-1	Madhabpur	27	Brahmani	Metal/Black top/Pitch/Pucca Road	1135P	1.38	24° 14' 45.36''N	87° 41' 15.97''E	Nasiruddin Molla	9/29/2018	11/21/2019	11/21/2019	20-Nov-24	24797.407	
1024/SB2021	SURI-1	Raipur	199	Mayurakshi	Kachha Road	001P, 1202P	4.02	23° 58' 56.97''N	87° 27' 30.35''E	Reliance Stone Product	2/9/2017	2/15/2019	2/21/2019	20-Feb-24	152188.006	
1026/SB2021	SURI-1	Raipur	199	Mayurakshi	Kachha Road	1202P	3.7	23° 58' 58.18''N	87° 27' 49.80''E	Reliance Stone Product	2/9/2017	7/6/2017	7/7/2017	6-Jul-22	148784.441	
1882/SB2021	SAINTHIA	Uttar Bamnigram	101	Mayurakshi	No Approach Road	2689 P	4.2	23° 54' 50.06''N	87° 43' 7.04''E	Gangadhar Mondal	2/9/2017	4/19/2017	4/19/2017	18-Apr-22	171150.729	
1611/SB2021	MD. BAZAR	Tangshuli	93	Mayurakshi	Kachha Road	1924P	1.53	23° 58' 38.26''N	87° 28' 38.49''E	Kalomoni Baski	6/4/2018	6/14/2018	6/18/2018	17-Jun-23	33257.699	
1785/SB2021	SURI-1	Durgapur	14	Mayurakshi	Kachha Road	1700P	0.96	23° 56' 40.85''N	87° 34' 14.01''E	Success Niriyat Pvt Ltd	4/26/2018	2/7/2020	2/11/2020	10-Feb-25	18670.989	
1599/SB2021	SAINTHIA	Ghasbera	27	Mayurakshi	Kachha Road	203P, 206P, 207P, 208P	4.17	23° 56' 31.18''N	87° 36' 15.59''E	Arijit Sen	2/9/2017	5/25/2017	5/29/2017	28-May-22	160628.849	
1593/SB2021	MD. BAZAR	Tangshuli	93	Mayurakshi	Kachha Road	1924P	2.95	23° 58' 40.93''N	87° 28' 40.76''E	Arijit Sen	2/9/2018	6/1/2018	6/4/2018	3-Jun-23	71766.613	
1883/SB2021	MAYURESWAR-2	Akulpur	79	Mayurakshi	Kachha Road	1811P	4	23° 57' 7.48''N	87° 42' 17.59''E	Gangadhar Mondal					0	EC Awaiting

ID	Block	Mouza	JL No	River	Road	Plot No	Area in Hectares	Latitude	Longitude	Bidder Name	Date of Issuance of Environmental Clearance (E.C.)	Date of Execution of Lease Deed	Lease Agreement Start Date (date of effect)	Lease Agreement Expiry Date	Quantum of Sand Extraction permissible as per Mining Plan (tonnes)	Reasons for non-execution of lease deed
1892/SB 2021	ILAMBAZAR	Etapur	125	Ajay	Kachha Road	1353P, 1342P	2	23° 35' 58.74''N	87° 34' 21.33''E	Debnath Enterprise	2/9/2018	7/11/2019	7/11/2019	10-Jul-24	45802.269	
1613/SB 2021	SURI-1	Kenduli	198	Mayurakshi	Kachha Road	1/2050P	2.63	23° 59' 10.84''N	87° 27' 5.34''E	Kalomoni Baski	6/4/2018	6/14/2018	6/18/2018	17-Jun-23	58055.105	
1893/SB 2021	ILAMBAZAR	Khayerbuni	123	Ajay	Kachha Road	1274P	1.53	23° 36' 42.19''N	87° 32' 9.52''E	Smt Panchami Debnath	4/26/2018	6/13/2018	6/13/2018	12-Jun-23	34132.901	
1616/SB 2021	MD. BAZAR	Mallickpur	30	Dwarka	Kachha Road	305P, 306P	0.68	24° 0' 21.10''N	87° 38' 33.81''E	Shankar Ghosh	3/27/2018	4/19/2018	4/19/2018	18-Apr-23	11961.102	
1617/SB 2021	SAINTHIA	Raihat	24	Mayurakshi	Kachha Road	363P, 404P	4.63	23° 56' 45.34''N	87° 38' 33.42''E	Vivekanand Jha	2/9/2017	4/19/2017	4/19/2017	18-Apr-22	190599.676	
1619/SB 2021	MAYURESWAR-1	Bajitpur	8	Dwarka	Kachha Road	2704P	1.74	24° 0' 28.98''N	87° 39' 3.29''E	MS Pal Wine	12/1/2017	2/13/2019	2/13/2019	12-Feb-24	26839.546	
1620/SB 2021	SURI-1	Dhanyagram	206	Mayurakshi	Kachha Road	1P	4.59	23° 57' 30.82''N	87° 29' 10.31''E	Swastik Traders	9/29/2018	12/11/2019	12/11/2019	10-Dec-24	114651.54	
1621/SB 2021	MD. BAZAR	Mallickpur	30	Dwarka	Kachha Road	352P	1.02	24° 0' 9.20''N	87° 38' 54.60''E	Swastik Traders					0	EC Awaiting
1622/SB 2021	KHOYRASOL	Nalgara	105	Ajay	Kachha Road	2054P	2.34	23° 45' 6.07''N	87° 12' 11.89''E	Prasant Traders	9/22/2017	6/25/2018	6/25/2018	24-Jun-23	52220.421	
1623/SB 2021	MD. BAZAR	Tangshuli	93	Mayurakshi	Kachha Road	1924P	2.88	23° 58' 54.28''N	87° 28' 17.08''E	Sankar Singh	3/6/2017	5/22/2017	5/22/2017	21-May-22	109400.324	
1624/SB 2021	MD. BAZAR	Latapakur	91	Mayurakshi	Kachha Road	1010P	2.44	23° 59' 1.25''N	87° 27' 48.64''E	Anand Kumar Singh	3/6/2017	2/15/2019	2/15/2019	14-Feb-24	88322.528	
1614/SB 2021	MD. BAZAR	Latapakur	91	Mayurakshi	Kachha Road	1010P	0.73	23° 59' 0.31''N	87° 27' 41.91''E	Santosh Kumar Mondal	1/5/2017	4/19/2017	4/19/2017	18-Apr-22	23153.971	
1625/SB 2021	MD. BAZAR	Bamundihi	92	Mayurakshi	Kachha Road	774P	2.71	23° 58' 58.98''N	87° 28' 1.54''E	Anand Kumar Singh	3/6/2017	6/25/2018	6/25/2018	24-Jun-23	109303.079	
1627/SB 2021	SURI-1	Dhanyagram	206	Mayurakshi	Kachha Road	1P	4.63	23° 57' 36.39''N	87° 29' 9.94''E	Rakesh Kumar Jha					0	EC Awaiting
1628/SB 2021	SURI-1	Bhandirban	202	Mayurakshi	Kachha Road	254P, 279P	2.28	23° 58' 35.55''N	87° 28' 32.31''E	Baskinath Traders	9/22/2017	10/30/2017	10/30/2017	29-Oct-22	50244.733	
1765/SB	MD.	Kaniyara	119	Mayurakshi	Kachha	001P	4.61	23° 57'	87° 33'	Madan	1/5/2017	7/5/201	7/5/201	4-Jul-	194489.4	

ID	Block	Mouza	JL No	River	Road	Plot No	Area in Hectares	Latitude	Longitude	Bidder Name	Date of Issuance of Environmental Clearance (E.C.)	Date of Execution of Lease Deed	Lease Agreement Start Date (date of effect)	Lease Agreement Expiry Date	Quantum of Sand Extraction permissible as per Mining Plan (tonnes)	Reasons for non-execution of lease deed
2021	BAZAR				Road			31.29''N	17.51''E	Mohan Mondal		7	7	22	65	
1770/SB 2021	MD. BAZAR	Doborda	135	Mayurakshi	Kachha Road	001P	3.93	23° 57' 21.32''N	87° 33' 32.65''E	Madan Mohan Mondal	1/5/2017	5/14/2019	5/14/2019	13-May-24	191085.9	
1773/SB 2021	MD. BAZAR	Nijuri	94	Mayurakshi	Kachha Road	780P	2.76	23° 58' 4.75''N	87° 29' 0.75''E	Madan Mohan Mondal	1/5/2017	11/22/2017	11/22/2017	21-Nov-22	103079.417	
1780/SB 2021	MD. BAZAR	Nadighasbera	141	Mayurakshi	Kachha Road	01P	4.84	23° 57' 19.58''N	87° 34' 45.71''E	Madan Mohan Mondal	1/5/2017	3/27/2017	3/28/2017	27-Mar-22	198865.478	
1782/SB 2021	MD. BAZAR	Simuliya	138	Mayurakshi	Kachha Road	442P, 443P, 488P	2.04	23° 56' 48.10''N	87° 34' 49.30''E	Madan Mohan Mondal					0	EC Awaiting
1783/SB 2021	MD. BAZAR	Simuliya	138	Mayurakshi	Kachha Road	452P, 443P	4.65	23° 56' 54.00''N	87° 34' 58.20''E	Madan Mohan Mondal					0	EC Awaiting
1786/SB 2021	BOLPUR	Udaipur	111	Ajay	Kachha Road	139P	2.14	23° 37' 12.69''N	87° 39' 56.71''E	Success Niriyat Pvt Ltd	5/5/2017	11/9/2017	11/9/2017	8-Nov-22	73905.997	
1787/SB 2021	MD. BAZAR	Doborda	135	Mayurakshi	Kachha Road	673P	1.63	23° 56' 45.30''N	87° 33' 33.60''E	Adyama Tradelink PvtLtd	2/9/2017	9/1/2017	9/1/2017	31-Aug-22	54457.05	
1790/SB 2021	ILAMBAZAR	Ushahar	126	Ajay	Kachha Road	949P, 950P	2.8	23° 35' 47.84''N	87° 35' 4.17''E	Adyama Tradelink PvtLtd	4/5/2017	11/9/2017	11/9/2017	8-Nov-22	110372.771	
1777/SB 2021	MD. BAZAR	Kalidaha Khairapara	95	Mayurakshi	Kachha Road	693P	1.27	23° 57' 17.76''N	87° 29' 2.69''E	Madan Mohan Mondal	1/5/2017	10/26/2017	10/26/2017	25-Oct-22	43273.906	
1774/SB 2021	MD. BAZAR	Kalidaha Khairapara	95	Mayurakshi	Kachha Road	693P	3.24	23° 57' 53.38''N	87° 29' 5.80''E	Madan Mohan Mondal	1/5/2017	10/26/2017	10/26/2017	25-Oct-22	123987.034	
1776/SB 2021	MD. BAZAR	Kalidaha Khairapara	95	Mayurakshi	Kachha Road	693P	2.77	23° 57' 51.22''N	87° 29' 2.85''E	Madan Mohan Mondal	1/5/2017	10/26/2017	10/26/2017	25-Oct-22	105909.238	
1807/SB 2021	SAINTHIA	Raihat	24	Mayurakshi	Kachha Road	350P, 363P	4.23	23° 56' 40.09''N	87° 38' 24.47''E	MS Ambey Niwas Pvt	2/9/2017	8/24/2017	8/24/2017	23-Aug-22	171150.729	

ID	Block	Mouza	JL No	River	Road	Plot No	Area in Hectares	Latitude	Longitude	Bidder Name	Date of Issuance of Environmental Clearance (E.C.)	Date of Execution of Lease Deed	Lease Agreement Start Date (date of effect)	Lease Agreement Expiry Date	Quantum of Sand Extraction permissible as per Mining Plan (tonnes)	Reasons for non-execution of lease deed
										Ltd Director Premi Arora So Ram Kumar Arora						
1808/SB 2021	NANOOR	Gangnara	101	Ajay	Kachha Road	50P, 428P, 429P, 430P, 432P, 433P, 729P, 740P, 781P, 785P, 787P	3.6	23° 36' 41.59''N	87° 57' 0.30''E	Abhishek Arora	5/5/2017	8/8/2017	8/8/2017	7-Aug-22	81102.107	
1810/SB 2021	MAYURESWAR-1	Sekhpur	5	Dwarka	Kachha Road	5850	2.35	23° 56' 40.09''N	87° 38' 24.47''E	Premi Arora	12/1/2017	12/12/2017	12/12/2017	11-Dec-22	37341.977	
1817/SB 2021	SURI-2	Behira	60	Adi Ganga / Tolly's Nullah	Metal/Black top/Pitch/ Pucca Road	1488P	0.79	23° 49' 39.60''N	87° 36' 28.10''E	Samrat Construction	4/5/2017	8/11/2017	8/11/2017	10-Aug-22	15072.934	
1800/SB 2021	SAINTHIA	Kultore	25	Mayurakshi	Kachha Road	1141P, 1114P	2.5	23° 56' 28.72''N	87° 37' 54.61''E	MS Ambey Niwas Pvt Ltd	2/9/2017	8/24/2017	8/24/2017	23-Aug-22	94813.614	
1823/SB 2021	SURI-1	Ajaypur	12	Mayurakshi	No Approach Road	992/1203P	1.61	23° 56' 43.19''N	87° 33' 16.52''E	Ujjal Sha	2/9/2017	3/30/2017	4/3/2017	2-Apr-22	55429.498	
1828/SB 2021	MAYURESWAR-1	Bajitpur	8	Dwarka	Kachha Road	2704P	1.97	24° 0' 28.85''N	87° 39' 2.56''E	Bulu Khan	3/27/2018	4/19/2018	4/19/2018	18-Apr-23	32674.23	
1830/SB 2021	NANOOR	Hussenpur	131	Ajay	Kachha Road	2053P	2.74	23° 35' 22.52''N	87° 55' 58.86''E	Radhapada Ghosh	9/22/2017	1/2/2018	1/4/2018	1-Jan-23	106580.227	
1831/SB 2021	ILAMBAZAR	Tikarbeta	62	Ajay	Kachha Road	2406P	2.97	23° 38' 27.71''N	87° 25' 23.08''E	Sk Samsuddin	2/27/2018	5/15/2018	5/15/2018	14-May-23	72058.347	
1826/SB 2021	ILAMBAZAR	Etapur	125	Ajay	Kachha Road	1353P, 1342P	1.47	23° 35' 55.58''N	87° 34' 27.35''E	Debnath Enterprise	12/1/2017	12/8/2017	12/8/2017	7-Dec-22	32090.762	
1942/SB 2021	ILAMBAZAR	Dakshin Ekdala	60	Ajay	Kachha Road	693P, 696P,	4.32	23° 39' 41.81''N	87° 24' 35.86''E	Packhorse Traders Pvt	9/29/2017	6/11/2019	6/11/2019	10-Jun-23	168038.898	

ID	Block	Mouza	JL No	River	Road	Plot No	Area in Hectares	Latitude	Longitude	Bidder Name	Date of Issuance of Environmental Clearance (E.C.)	Date of Execution of Lease Deed	Lease Agreement Start Date (date of effect)	Lease Agreement Expiry Date	Quantum of Sand Extraction permissible as per Mining Plan (tonnes)	Reasons for non-execution of lease deed
						698P, 699P				Ltd						
1943/SB 2021	DUBRAJ PUR	Kota	158	Ajay	Kachha Road	3322P	3.58	23° 41' 44.50''N	87° 24' 33.80''E	Laltu Dutta	2/9/2018	3/14/2018	3/14/2018	13-Mar-23	88687.196	
1885/SB 2021	SAINTHIA	Ikra	164	Adi Ganga / Tolly's Nullah	Kachha Road	1059P, 1085P	0.63	23° 49' 21.29''N	87° 38' 31.62''E	Asit Baran Dey	9/29/2018	1/28/2019	1/28/2019	27-Jan-24	7876.823	
1886/SB 2021	MAYURESWAR-2	Akulpur	79	Mayurakshi	Kachha Road	1811P	3.6	23° 57' 12.59''N	87° 42' 16.02''E	Nabin Chandra Mondal	4/26/2018	1/21/2019	1/21/2019	20-Jan-24	69432.739	
1888/SB 2021	DUBRAJ PUR	Palashdanga	154	Ajay	Kachha Road	2917P	4.59	23° 42' 14.95''N	87° 22' 22.58''E	Koilash Mahato	6/4/2018	2/25/2019	2/25/2019	24-Feb-24	128038.898	
1889/SB 2021	DUBRAJ PUR	Palashdanga	154	Ajay	Kachha Road	2874P, 2873P, 2904P	2.97	23° 42' 4.52''N	87° 22' 51.02''E	Koilash Mahato	4/26/2018	6/13/2018	6/13/2018	12-Jun-23	72350.081	
1891/SB 2021	ILAMBAZAR	Nelegara	124	Ajay	Kachha Road	864P, 751P	1.48	23° 36' 42.08''N	87° 32' 47.03''E	Smt Mamata Mahato	4/26/2018	4/16/2019	4/16/2019	15-Apr-24	27423.015	
1890/SB 2021	ILAMBAZAR	Khudrapur	75	Ajay	Kachha Road	2364P	3.02	23° 36' 49.54''N	87° 28' 7.46''E	Uttam Debnath	4/26/2018	6/13/2018	6/13/2018	12-Jun-23	70307.942	
1902/SB 2021	NANOOR	Sundarpur	116	Ajay	Kachha Road	001P	0.68	23° 33' 4.67''N	87° 50' 47.77''E	Sk Asraful	9/29/2018	3/5/2019	3/5/2019	4-Mar-24	12317.666	
765/SB2021	LABPUR	Beley	08	Mayurakshi	Kachha Road	731P	0.83	23° 53' 21.56''N	87° 46' 44.34''E	Abdul Ahad	7/13/2017	2/26/2018	2/26/2018	25-Feb-23	9918.963	
1596/SB 2021	SAINTHIA	Kultore	25	Mayurakshi	Kachha Road	1141P	1.53	23° 56' 21.06''N	87° 38' 9.85''E	Arijit Sen	2/9/2017	9/25/2017	9/25/2017	24-Sep-22	106969.206	
1939/SB 2021	KHOYRASOL	Chapla	168	Ajay	Kachha Road	251/790P, 350/387P, 350/684P	2.9	23° 43' 13.17''N	87° 20' 14.74''E	Ravindra Singh	8/21/2017	11/2/2017	11/2/2017	1-Nov-22	67098.865	
407/SB2021	MD. BAZAR	Nadighasbera	141	Mayurakshi	Kachha Road	001 P	4.39	23° 57' 12.59''N	87° 34' 18.20''E	Goutam Mondal	1/5/2017	3/8/2018	3/13/2018	12-Mar-23	176012.966	
444/SB2021	MD. BAZAR	Nadighasbera	141	Mayurakshi	Metal/Black top/Pitch/Pucca Road	001 P	4.4	23° 57' 7.62''N	87° 34' 15.87''E	Paramvir Mishra	4/26/2018	6/15/2018	6/15/2018	14-Jun-23	121886.548	
484/SB2021	MD. BAZAR	Nadighasbera	141	Mayurakshi	Metal/Black	001 P	4.47	23° 57' 9.11''N	87° 34' 3.84''E	Paramvir Mishra	4/26/2018	11/27/2018	11/27/2018	26-Nov-23	122294.976	

ID	Block	Mouza	JL No	River	Road	Plot No	Area in Hectares	Latitude	Longitude	Bidder Name	Date of Issuance of Environmental Clearance (E.C.)	Date of Execution of Lease Deed	Lease Agreement Start Date (date of effect)	Lease Agreement Expiry Date	Quantum of Sand Extraction permissible as per Mining Plan (tonnes)	Reasons for non-execution of lease deed
					top/Pitch/ Pucca Road											
490/SB2021	MD. BAZAR	Nadighasbera	141	Mayurakshi	Kachha Road	001 P	3.76	23° 57' 16.45''N	87° 34' 48.22''E	Goutam Mondal	1/5/2017	4/7/2017	4/24/2017	23-Apr-22	140518.639	
713/SB2021	NANOOR	Gomra	100	Ajay	Kachha Road	872P,873P, 874P,875P, 876P,877P, 819P,820P, 822P	2.05	23° 37' 36.03''N	87° 57' 12.08''E	Mahi Enterprise	7/13/2017	11/14/2017	11/14/2017	13-Nov-22	47844.408	
722/SB2021	NANOOR	Gomra	100	Ajay	Kachha Road	1510P, 1768P	3.99	23° 37' 26.62''N	87° 57' 9.75''E	Mahi Enterprise					0	EC Awaiting
793/SB2021	KHOYRASOL	Sira	104	Ajay	Kachha Road	2779 P	3.31	23° 45' 5.69''N	87° 11' 33.66''E	Mihir Chandra Saha	9/29/2018	1/22/2019	1/22/2019	21-Jan-24	79935.17	
813/SB2021	SAINTHIA	Khorad	108	Mayurakshi	Kachha Road	817P, 816P	2.58	23° 54' 31.57''N	87° 45' 33.45''E	Mahammad Humayun Kabir	3/6/2017	8/18/2017	8/18/2017	17-Aug-22	97730.956	
848/SB2021	DUBRAJPUR	Kota	158	Ajay	Kachha Road	3322 P	3.01	23° 41' 40.62''N	87° 24' 42.96''E	Arm Merchandise Pvt Ltd	2/9/2018	4/23/2018	4/23/2018	22-Apr-23	73225.284	
856/SB2021	NANOOR	Husenpur	131	Ajay	Kachha Road	2823 P, 1697 P	2.58	23° 34' 19.56''N	87° 55' 32.46''E	Mahammad Humayun Kabir					0	EC Awaiting
931/SB2021	DUBRAJPUR	Loba	155	Ajay	Kachha Road	2484P, 2475P, 2471P	3.18	23° 42' 3.21''N	87° 23' 13.34''E	MS Sainthia Sand Udyog	3/27/2018	5/11/2018	5/16/2018	15-May-23	77893.031	
945/SB2021	DUBRAJPUR	Loba	155	Ajay	Kachha Road	2484P, 2475P	2.34	23° 42' 2.79''N	87° 23' 8.08''E	MS Sainthia Sand Udyog	3/27/2018	5/11/2018	5/16/2018	15-May-23	55429.498	
959/SB2021	SURI-1	Dhanyagram	206	Mayurakshi	Kachha Road	58P, 574P	2.27	23° 57' 21.76''N	87° 29' 31.53''E	MS Sainthia Sand Udyog	3/27/2018	11/18/2018	11/20/2018	19-Nov-23	53095.624	
965/SB2021	MD. BAZAR	Nadighasbera	141	Mayurakshi	Kachha Road	004 P	3.18	23° 57' 28.48''N	87° 36' 16.41''E	Kishore Mondal	4/5/2017	8/3/2017	8/3/2017	2-Feb-22	122528.363	
988/SB2021	SAINTHIA	Raihat	24	Mayurakshi	Kachha Road	348P, 349P	4.71	23° 56' 48.27''N	87° 38' 47.88''E	Kamal Kanti Dey	3/6/2017	2/26/2018	2/26/2018	25-Feb-23	189627.229	
1022/SB	SURI-1	Raipur	199	Mayurakshi	Kachha	001P,	2.65	23° 59'	87° 27'	Reliance	2/9/2017	8/17/20	8/21/20	20-	102593.1	

ID	Block	Mouza	JL No	River	Road	Plot No	Area in Hectares	Latitude	Longitude	Bidder Name	Date of Issuance of Environmental Clearance (E.C.)	Date of Execution of Lease Deed	Lease Agreement Start Date (date of effect)	Lease Agreement Expiry Date	Quantum of Sand Extraction permissible as per Mining Plan (tonnes)	Reasons for non-execution of lease deed
2021					Road	1202P		0.11''N	25.09''E	Stone Product		17	17	Aug-22	93	
1595/SB 2021	SAINTHIA	Kultore	25	Mayurakshi	Kachha Road	1141P, 1114P	3.64	23° 56' 24.96''N	87° 37' 58.32''E	Arijit Sen	2/9/2017	10/12/2017	10/16/2017	15-Oct-22	146353.323	
1612/SB 2021	MD. BAZAR	Nijuri	94	Mayurakshi	Kachha Road	780P	4.14	23° 58' 21.14''N	87° 28' 49.24''E	Kalomoni Baski	6/4/2016	6/14/2018	6/18/2018	17-Jun-23	100648.298	
1615/SB 2021	MD. BAZAR	Latapakur	91	Mayurakshi	Kachha Road	1010P	3.05	23° 59' 5.51''N	87° 27' 40.67''E	Shankar Ghosh	5/5/2017	2/13/2020	2/13/2020	12-Feb-25	72641.815	
1618/SB 2021	MAYURESWAR-1	Bajitpur	8	Dwarka	Kachha Road	721P, 722P, 725P	2.47	24° 0' 47.38''N	87° 39' 52.97''E	MS Mishra Wine	3/6/2017	4/26/2017	4/26/2017	25-Apr-22	96272.285	
1626/SB 2021	MD. BAZAR	Tangshuli	93	Mayurakshi	Kachha Road	1924P	2.36	23° 58' 44.10''N	87° 28' 29.70''E	Anand Kumar Singh					0	EC Awaiting
1629/SB 2021	SAINTHIA	Uttar Bamnigram	101	Mayurakshi	Kachha Road	2690P	4.66	23° 56' 45.23''N	87° 43' 33.19''E	Santanu Ghosh	6/27/2017	11/27/2017	11/27/2017	26-Nov-22	82852.512	
1772/SB 2021	MD. BAZAR	Kalidaha	96	Mayurakshi	Kachha Road	292P	1.7	23° 57' 45.81''N	87° 29' 10.56''E	Madan Mohan Mondal	1/5/2017	9/7/2017	9/7/2017	6-Sep-22	59752.026	
1778/SB 2021	MD. BAZAR	Kalidaha	96	Mayurakshi	Kachha Road	292P	3.14	23° 57' 45.81''N	87° 29' 10.56''E	Madan Mohan Mondal	1/5/2017	6/29/2017	6/29/2017	28-Jun-22	36748.784	
1781/SB 2021	MD. BAZAR	Simuliya	138	Mayurakshi	Kachha Road	442P, 443P	4.79	23° 56' 48.44''N	87° 34' 34.75''E	Madan Mohan Mondal	1/5/2017	7/21/2017	7/21/2017	20-Jul-22	201043.76	
1784/SB 2021	MAYURESWAR-2	Malancha	242	Mayurakshi	Kachha Road	644P	1.45	23° 52' 33.20''N	87° 51' 1.04''E	Falcon Abasan Pvt Ltd	4/5/2017	4/24/2018	4/24/2018	23-Apr-23	46191.248	
1792/SB 2021	MAYURESWAR-2	Bara Akulpur	78	Mayurakshi	Kachha Road	1035P	2.13	23° 57' 13.72''N	87° 42' 1.96''E	Pawan Arora	4/5/2017	8/17/2017	8/17/2017	16-Aug-22	80713.128	
1884/SB 2021	SAINTHIA	Bolsunda	98	Mayurakshi	Kachha Road	1892P	3.29	23° 57' 5.40''N	87° 43' 6.32''E	Ashoke Dutta	2/9/2017	7/10/2017	7/10/2017	9-Jul-22	133225.284	
1887/SB 2021	SAINTHIA	Bolsunda	98	Mayurakshi	Kachha Road	1892 P	4.56	23° 57' 6.44''N	87° 42' 58.43''E	Azad Ali	4/5/2017	8/16/2017	8/16/2017	15-Aug-22	190599.676	
1921/SB 2021	DUBRAJPUR	Palashdanga	154	Ajay	Kachha Road	2917P	3.85	23° 42' 22.80''N	87° 22' 3.40''E	MS National Traders	3/6/2017	4/18/2017	4/19/2017	18-Apr-22	155591.572	

ID	Block	Mouza	JL No	River	Road	Plot No	Area in Hectares	Latitude	Longitude	Bidder Name	Date of Issuance of Environmental Clearance (E.C.)	Date of Execution of Lease Deed	Lease Agreement Start Date (date of effect)	Lease Agreement Expiry Date	Quantum of Sand Extraction permissible as per Mining Plan (tonnes)	Reasons for non-execution of lease deed
										Proprietor Parwez Alam Siddiqui						
1938/SB 2021	SURI-1	Bhandirban	202	Mayurakshi	Kachha Road	279P, 290P	2.81	23° 58' 52.29''N	87° 28' 7.59''E	MS Bargabhima Construction Company	12/1/2017	12/20/2017	12/20/2017	19-Dec-22	67390.6	
1941/SB 2021	DUBRAJPUR	Loba	155	Ajay	Kachha Road	2474P, 2420/2581P, 2485P, 2480P, 2473P	3.36	23° 42' 2.40''N	87° 23' 36.10''E	Packhorse Traders Pvt Ltd	2/9/2018	3/14/2018	3/14/2018	13-Feb-23	81685.575	
1944/SB 2021	ILAMBAZAR	Gangapur	94	Ajay	Kachha Road	1584P, 1578P, 1577P	2.07	23° 37' 5.24''N	87° 31' 1.03''E	Laltu Dutta	3/27/2018	5/16/2018	5/16/2018	15-May-23	46677.472	

The district generated revenue from other in-situ minor minerals and is given in Table 8.2.

Table 8.2: List of existing mining leases of the district (other than sand)

SL NO	NAME OF MINERAL	NAME OF THE LESSEE	TOTAL AREA	LOCATION AND AREA OF MINING LEASE			
				Administrative Block	Mouza	Plot No.	Jl No.
1	Black Stone	Atanu Roy (Partner) and Others	2.809 Ha	Md. Bazar	Nischintapur	58(Po, 59, 61(P), 68(P), 69(P), 70, 71, 86(P),	37
2	Black Stone	West Bengal Mineral Development and Treding Co	178.93 Acre	Md. Bazar	Hatgachha and Jethia		1
3	Black Stone	M/S United Stone Co.	4.04 Ha	Murarai-I	Barua Gopalpur		1
4	Black Stone	West Bengal Mineral Development and Treding Co	108.53 Ac	Md. Bazar	Hatgachha		1
5	Black Stone	West Bengal Mineral Development and Treding Co	200.319 Ha	Md. Bazar	Hatgachha, Chanda and Pachami		Hatgachha JL-1, Chanda JL-2 and Pachami JL-3
6	Black Stone	M/S Kamal Stone Quarry	4.74 Ha	Md. Bazar	Dewanganj	58, 62, 63, 73	36
7	Black Stone	West Bengal Mineral Development and Treding Co	57.76 Ac	Md. Bazar	Jethia		1
8	Black Stone	West Bengal Mineral Development and Treding Co	28.74	Md. Bazar	Hatgachha		1
9	Black Stone	West Bengal Mineral Development and Treding Co	50.755	Md. Bazar	Hatgachha		1
10	Black Stone	West Bengal Mineral Development and Treding Co	23.32	Md. Bazar	Chanda		
11	Black Stone	West Bengal Mineral Development and Treding Co		Md. Bazar	Dholkota		Block reserved for MDTC
12	Fire Clay	Birbhum Kaoline and Allied Industries Pvt Ltd	13.973 Ha	Rampurhat	Mondala and Bhatina	17, 97, 115-120, 122- 124, 128 and 1199-1209	16 and 19
13	China Clay and Fire Clay	West Bengal Mineral Development and Treding Co	72.18 Ha	Md. Bazar	Mokdamnagar and Tentulaberia		
14	China Clay and Fire Clay	M/S Ghosh and Chowdhury	50 Ha	Md. Bazar	Mobalia		7

8.3 Detail of production of sand and other minerals during last four years

Last 4 years production of minor mineral of Birbhum District is furnished in Table 8.3.

Table 8.3: Details of production of sand as per mine plan in Birbhum district

Sl. No.	Year	Name of mineral	Total Production (inCft.)	Total Production in cum
1	2017-2018	Sand	32358884.00	916292.9
2	2018-2019	Sand	60285815.00	1707088
3	2019-2020	Sand	52010055.00	1472747
4	2020-2021	Sand	50665259.00	1434667

Conversion factor: 1cum=35.315 cft
(Source: Directorate of Mines and Minerals, West Bengal)

9 Details of revenue generated from mineral sector during last three years

Revenue generated for last 3 years in Birbhum District is furnished in Table 9.1.

Table 9.1: District revenue generation from mineral sector (In cr.)

Year	Sand	Stones	China Clay/ Fire clay
2017-18	25167308.00	522792.00	7619487.00
2018-19	114529538.00	17977168.00	6187743.00
2019-20	96686571.00	14100718.00	4929367.00
Total	236383417.00	32600678.00	18736597.00

(Source: Directorate of Mines and Minerals, West Bengal)

10 Transport

Major road like the National Highway No. 114 runs from the center of the district (Figure 10.1). National Highway 114 passes through the district connecting Suri, the district Head Quarters, with Asansol, Dubrajpur, Mallarpur, Rampurhat, Nalhati and Murshidabad. The Panagarh-Moregram Expressway linking Grand Trunk Road (NH 2) with NH 5 cuts across the district. State Highways (SH) like SH-5, SH-6, SH-7, SH-11, SH-13 and SH-14 also joins different parts of the district and nearby district town. Road network connects Suri to Durgapur, Siliguri, Barddhaman, Asansol, Kolkata, Maldah, Berhampore, Nabadwip, Krishnanagar, and other important towns of the state as well as the towns like Dumka and Deoghar of neighbouring State of Jharkhand.

The Sahebganj loop line of the Eastern Railway passes through the middle of the district. Bolpur and Rampurhat are the two important railway stations on the Sahebganj loop line of the Eastern Railway. From Sainthia, there is a branch of broad-gauge railway line of Andal-Sainthia that joins the main line at Andal. Suri town, the district Head Quarters, is situated on this branch line. There is also a Nalhati-Azimganj branch line passing through the district. Besides this, the Ahmadpur-Katwa narrow gauge plays an important role in connecting remote villages to the urban centers.

Birbhum district does not have any airport. The nearest airport is Kazi Nazrul Airport located 90km from the district headquarter. The N.S.C. Bose International Airport at Dumdum is located at 245km away Birbhum.

Existing sand mining area of the district are connected with the state highways by blacktop or village/link roads. However, there is a scope for development of infrastructural structure. Mining of riverbed sand in the potential areas can generate considerable revenue and can be utilized for development of road network and infrastructure of the district.

A transportation map demarcating approach road to the potential sand blocks from the nearest National Highway/ Sate Highway has been prepared and presented in Figure 10.2.

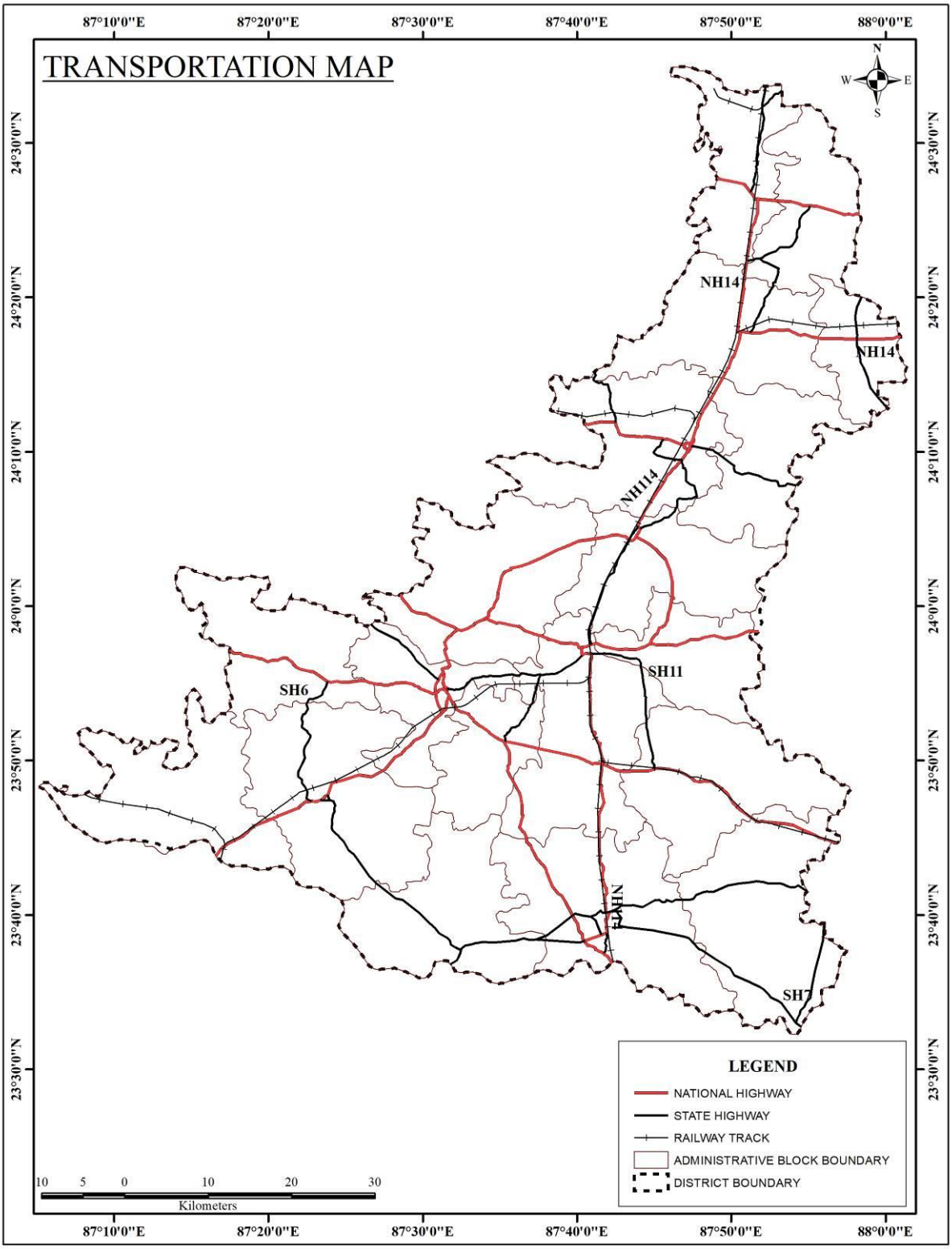


Figure 10.1: Transportation map of Birbhum District
(Source: National Informatics Centre)

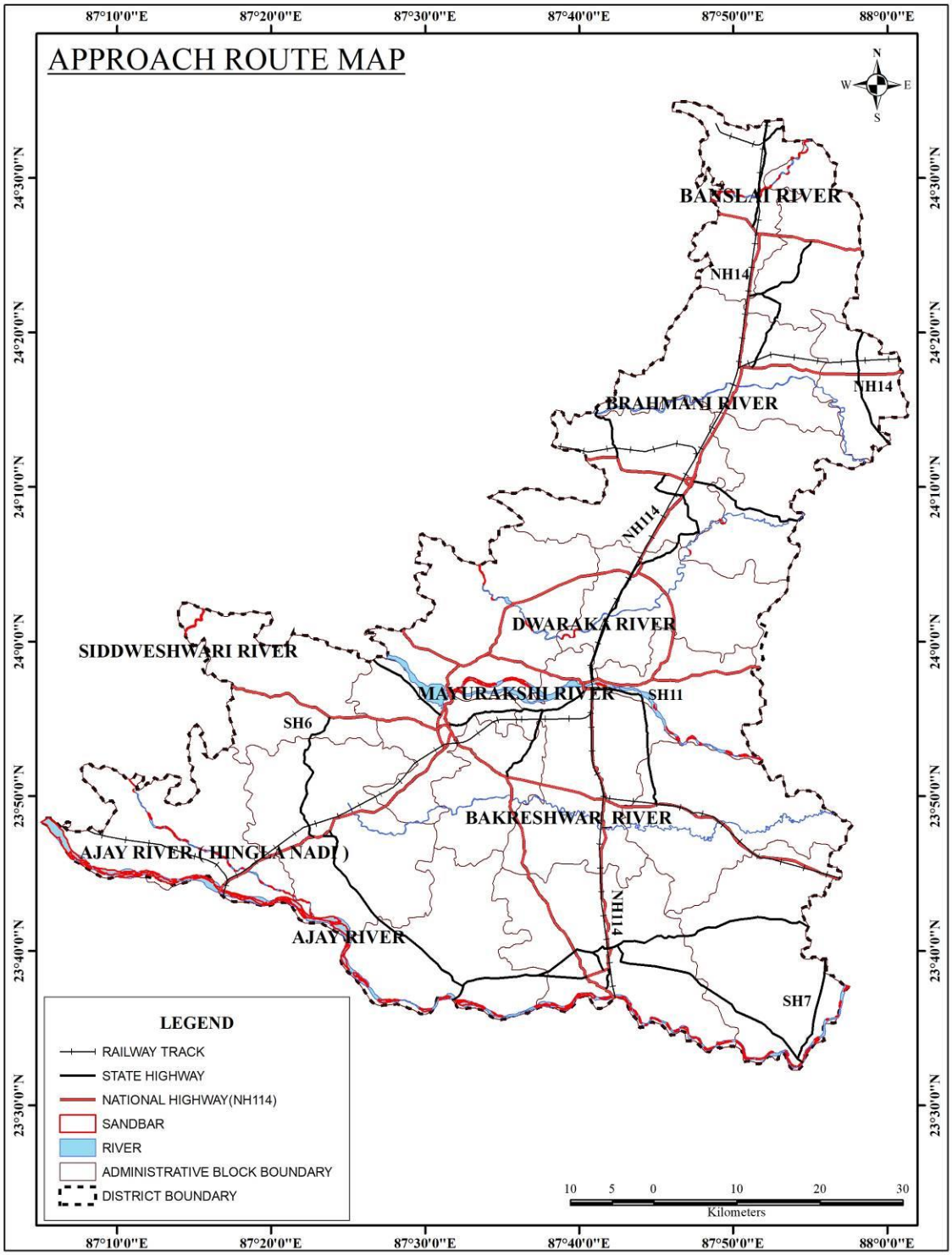


Figure 10.2: Map showing approach road to potential sand bars

(Source: National Informatics Centre)

11 Remedial measure to mitigate the impact of mining

11.1Environmental Sensitivity

Birbhum district represents a unique geo-environmental setup. As human population increases, forests are being depleted for the extension of agricultural lands, introduction of new settlements, roadways etc.

Due to unprecedented growth of population during the last few decades, nature has started reacting sharply to the accumulated human guilt. Soil erosion and its conservation play an important role.

The land use practices play the most important role in determining the stability factors in respect of landslide hazards. Stone quarrying from the slope is another way of human intervention that causes occasional slope failure.

11.2 Sand mining Impact

Another serious environmental problem around the globe in recent years is of sand and gravel mining. Sand mining is a process of extraction of sand from an open pit, river bed, sea beaches, ocean floor, river banks, deltas and island dunes. The extracted sand could be utilized for various types of manufacturing, such as concrete used in the construction of building and other structures. The sand can also be used as an abrasive. The demand for sand will increase with population growth and urbanization. The high demand of sand has led to unsustainable sand mining process resulting in illegal mining.

Although most jurisdictions have legal limit on the location and volume of sand that can be mined, illegal sand extraction is taking place in many parts of the country due to rapid urbanization and industrialization.

Removal or extraction of too much sand from rivers leads to erosion of river banks. Deltas can recede due to sand mining. These destructive effects of sand mining ultimately result in loss of fertile land and property. It also destabilizes the ground and causes failure of engineering structures.

In-stream mining directly alters the channel geometry and bed elevation. Removing sediment from the channel disrupts the pre-existing balance between sediment supply and transporting capacity, typically inducing incision upstream and downstream of the extraction site. The resultant incision alters the frequency of floodplain inundation along the river courses, lowers valley floor water table and frequently leads to destruction of bridges and channelization structures.

Sand Mining in beaches disturbs the ecosystem of different fauna of the beaches. The sand mining from natural barriers, made up of sand, causes flooding of the natural habitat. The sand mining activity destroys the aesthetic beauty of beaches and river bank and makes the ecosystem unstable. If there are popular tourist destination, tourism potential of such areas will decline.

It can be concluded that there has been little in depth research on the environmental, social and political effects of land use practices and calls for urgent attention by the competent authority.

11.3 Remedial measure

11.3.1 Sustainable Mining Practices:

- The depth of mining in riverbed shall not exceed 3 meter or base flow 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 above 3 meters.
- 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.
- 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.
- No blasting shall be resorted to in river mining and without permission at any other place.

11.3.2 Monitoring the Mining of Mineral and its Transportation:

- 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.
- 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.

11.3.3 Noise Management:

- Noise arising out of mining and processing shall be abated and controlled at source to keep within permissible limit.
- Restricted sand mining operation has to be carried out between 6 am and 7 pm.

11.3.4 Air Pollution and Dust Management:

- The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly.

- 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.
- 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.

11.3.5 Bio-Diversity Protection:

- Restoration of flora affected by mining should be done immediately. Five times the number of trees destroyed by mining to be planted preferably of indigenous species. Each EC holder shall have to undertake plantation of trees over at least 20% of the total area of lease in the same plot or plots utilised for such working.
- 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 there under.
- Protection of natural home of any wild animal shall have to be ensured.
- 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) has to be obtained as per the Hon'ble Supreme Court order in I.A. No. 460 of 2004.
- Spring sources should not be affected due to mining activities. Necessary protection measures are to be incorporated.

11.3.6 Management of Instability and Erosion:

- Removal, stacking and utilization of top soil should be ensured during mining. 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.
- The EC should stipulate conditions for adequate steps to check soil erosion and control debris flow etc. by constructing engineering structures
- Use of oversize material to control erosion and movement of sediments
- 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.
- No extraction of stone / boulder / sand in landslide prone areas.
- Controlled clearance of riparian vegetation to be undertaken.

11.3.7 Waste Management:

- Site clearance and tidiness is very much needed to have less visual impact of mining.

- Dumping of waste shall be done in earmarked places as approved in Mining Plan.
- Rubbish burial shall not be done in the rivers.

11.3.8 Pollution Prevention:

- Take all possible precautions for the protection of environment and control of pollution.
- Effluent discharge should be kept to the minimum and it should meet the standards prescribed.

11.3.9 Protection of Infrastructure:

- 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.
- For carrying out mining in proximity to any bridge or embankment, appropriate safety zone 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.

Mining shall not be undertaken in a mining lease located in 300-500 meter of bridge, 300 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.

12 Suggested reclamation plan for already mined out areas

As per statute all mines/quarries are to be properly reclaimed before final closure of the mine. Reclamation plans should include:

a) A baseline survey of river cross section. The study of cross section is basis for delineating channel form. Cross-sections must be surveyed between two monumented endpoints set on the river banks, and elevations should be referenced based on benchmark set in the area;

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) Each EC holder shall have to undertake plantation of trees over at least 20% of the total area of the plot or plots of land as subject to such working in accordance with a plan approved by the concerned Divisional Forest Officer holding jurisdiction, provided further the competent authority l.e, The Divisional Forest Officer may fix up norms for plantation of trees in a particular area regarding choice of species, spacing, nos of trees and maintenance etc.

f) A monitoring plan has to establish.

13 Risk assessment and disaster management plan

Risk analysis is the systematic study of risks encountered during various stages of mining operation. Risk analysis seek to identify the risks involved in mining operations, to understand how and when they arise, and estimate the impact (financial or otherwise) of adverse outcomes. The sand mining operation in the district is mainly done manually.

13.1 Identification of risk due to river sand mining

There is no land degradation due to mining activities as mining is done only on river bed dry surface. There will be no OB or waste generation as the sand is exposed in the river bed and is completely saleable. There will be neither any stacking of soil nor creation of OB dumps. The mining activity will be carried out up to a maximum depth of 3m below the surface level. So, there is no chance of slope failure, bench failure in the mines. However, there are some identified risks in the mining activity which are as follows:

1. Accident during sand loading and transportation
2. Inundation/ Flooding
3. Quick Sand Condition

13.2 Mitigation measures

13.2.1 Measures to prevent accidents during loading and transportation:

- During the loading, trucks should be brought to a lower level so that the loading operation suits the ergonomic condition of the workers.
- The workers will be provided with gloves and safety shoes during loading.
- Opening of the side covers of the truck should be done carefully and with warning to prevent injury to the loaders.
- Mining operations will be done during daylight only.
- The truck will be covered with tarpaulin and maintained to prevent any spillage.
- To avoid danger while reversing the trackless vehicles especially at the embankment and tipping points, all areas for reversing of lorries should be made man free as far as possible.
- All transportation within the main working will be carried out directly under the supervision and control of the management.
- Overloading should not be permitted and the maximum permissible speed limit should be ensured.
- There will be regular maintenance of the trucks and the drivers will have valid driving license.

13.2.2Measures to prevent incidents during Inundation/ Flooding:

To minimize the risk of flooding/ inundation following measures should be under taken:

- Mining will be completely closed during the monsoon months.
- Proper weather information particularly on rain should be kept during the operational period of mines so that precautionary measures will be undertaken.

13.2.3 Measures for mitigation to quick sand condition:

- Quick sand zone and deep water zone will be clearly demarcated and all the mine workers will be made aware of the location.
- Mining will be done strictly as per the approved mining plan.

13.3 Disaster management plan

As the depth of mining will be maximum of 3m below the surface level considering local condition, the risk related to mining activity is much less. The mining operation will be carried out under the supervision of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS. All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955 and other laws applicable to mine will strictly be complied. During heavy rainfall and during the monsoon season the mining activities will be closed. Proper coordination with Irrigation Department should be maintained so that at the time of releasing water, if any, from the dam suitable warning/information is given in advance. Special attention and requisite precautions shall be taken while working in areas of geological weakness like existence of slip, fault etc. The mining site will be supplied with first aid facilities and the entire mines worker will have access to that.

14 Conclusions and Recommendations

The District Survey Report has been prepared in conformity with the S O 141 (E), S O 3611 (E) and other sand mining guidelines published by MoEF&CC time to time as well as the requirement specified in WBMMCR, 2016.

Potential areas of economic mineralization and mineral deposition have been identified and list is furnished in the report. Estimation of annual sand deposition by replenishment study has been incorporated in the report.

The district survey report has been prepared by utilizing both primary and secondary data. The primary data generation involved the satellite imagery study, site inspection, survey, ground truthing etc. while secondary data has been acquired through various authenticated sources and satellite imagery studies.

Geologically, this district comprises many rock formations. The south-western part of the district is occupied by the crystalline metamorphic rocks of Archaean to Proterozoic age. The Gondwana Supergroup overlying this basement is represented by thick piles of pelitic and psamitic sedimentary rocks containing coal seams belonging to Barakar, Barren Measure, Raniganj and Dubrajpur Formations. Rajmahal trap (basalt) occurring in the northern and north-western part of the district. The rest of the area in north and central part is occupied by laterite and lateritic soil. Hard clay impregnated with caliche nodules of Rampurhat formation occupy the area in north-east and east and is overlain by alternating layers of sand, silt and clays of Kandi formation of Quaternary age.

The district is characterized by humid tropical monsoon climate. The average annual rainfall in the district is 1321.5mm (2017-2021). The maximum area of the district falls under the Seismic Zone III indicating the district is moderate damage risk zone.

The district contains several important mineral deposits. The most important one is coal followed by china clay and fire clay. The Dimension Stone of pink variety (Pink Granite) occurs in Dubrajpur area and the Black in Aligarh area also hold good potential. Basalt (Rajmahal trap), laterite deposits are other important minor mineral deposits of Birbhum district. The district is generating considerable revenue from mining of minor minerals such as riverbed sand deposits, stone quarry and china clay deposits. Total revenue generated in the district of Birbhum from these minor minerals during between 2017 and 2020 is Rs. 28.77 crores.

The district has an upside potential for development of riverbed sand. The occurrence has been reported by Directorate of Mines and Minerals, Government of West Bengal and others in previous instances. It requires further systematic and scientific approach to quantify the resource along with their grade assessment. The Birbhum district is mainly drained by the Ajay River, Mayurakshi River, Brahmani River, Dwaraka River, Bakreswar River, Hingla River, and Bansloi River and its tributary rivers. This report also recommends undertaking detail

exploration (G2 level) program to assess the mineral occurrences in the major rivers of the district and should have a proper development and production plan for the specified minerals.

14.1. Conclusion

I. The river beds of the district are enriched with sand which is highly potential for mining.

II. The replenishment study has been carried out during the preparation of this DSR. Both field-based surveys coupled with satellite imagery study and empirical study were carried out to determine the rate of replenishment in each river of the district.

III. The determined values of various methods as adopted for replenishment study gives a comparable value and in all cases the values are found to be much more as compared to the capping limit (60%) as suggested in the Enforcement & Monitoring Guidelines for Sand Mining (EMGSM) January 2020, Issued by Ministry of Environment, Forest and Climate Change (MoEF&CC) 2020.

IV. Field base study shows variation of replenishment from 96.5 to 98.2% in the district and for theoretical replenishment study based on mining lease shows variation from 73% to 78% with an average of 75.66% of replenishment rate in the district.

V. The total potential river bed deposit for the district comes to about 32.09 Mcum.

VI. In the district a total 42 in-situ minor mineral potential block have been identified.

14.2. Recommendation:

1. The mining lease distribution for the district must be carried out by involving a district level committee constituted with inter-disciplinary members of various departments including irrigation and waterways, DL&LRO, forest, biodiversity, wetland management, SWID or any other relevant department which the district authority may find suitable to include.
2. While recommending for Mining Leases, the District Level Committee should ensure the protection of Biodiversity Zones as recorded by relevant Government Agenesis from time to time.
3. During finalization of mining leases for the district, strict adherence of Supreme Court orders No 1501 dated 03/06/2022 should be followed.
4. Efforts should be given to restrict distribution of mining leases along the confluence zone of the rivers where rich aquatic habitats are reported.
5. Since the state of West Bengal has royalty system in volumetric measurement, specific gravity for sand and gravel has not been determined during this study. However, during the finalization of mining lease if it is found necessary such test may be initiated by the state government on case-to-case basis.
6. It is recommended to have a periodical review along with primary data collection during pre- and post-monsoon periods to record the seasonal variance of the sedimentation rate on annual basis and update replenishment rate of the district.

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PLATE 1

DRAINAGE MAP OF THE DISTRICT

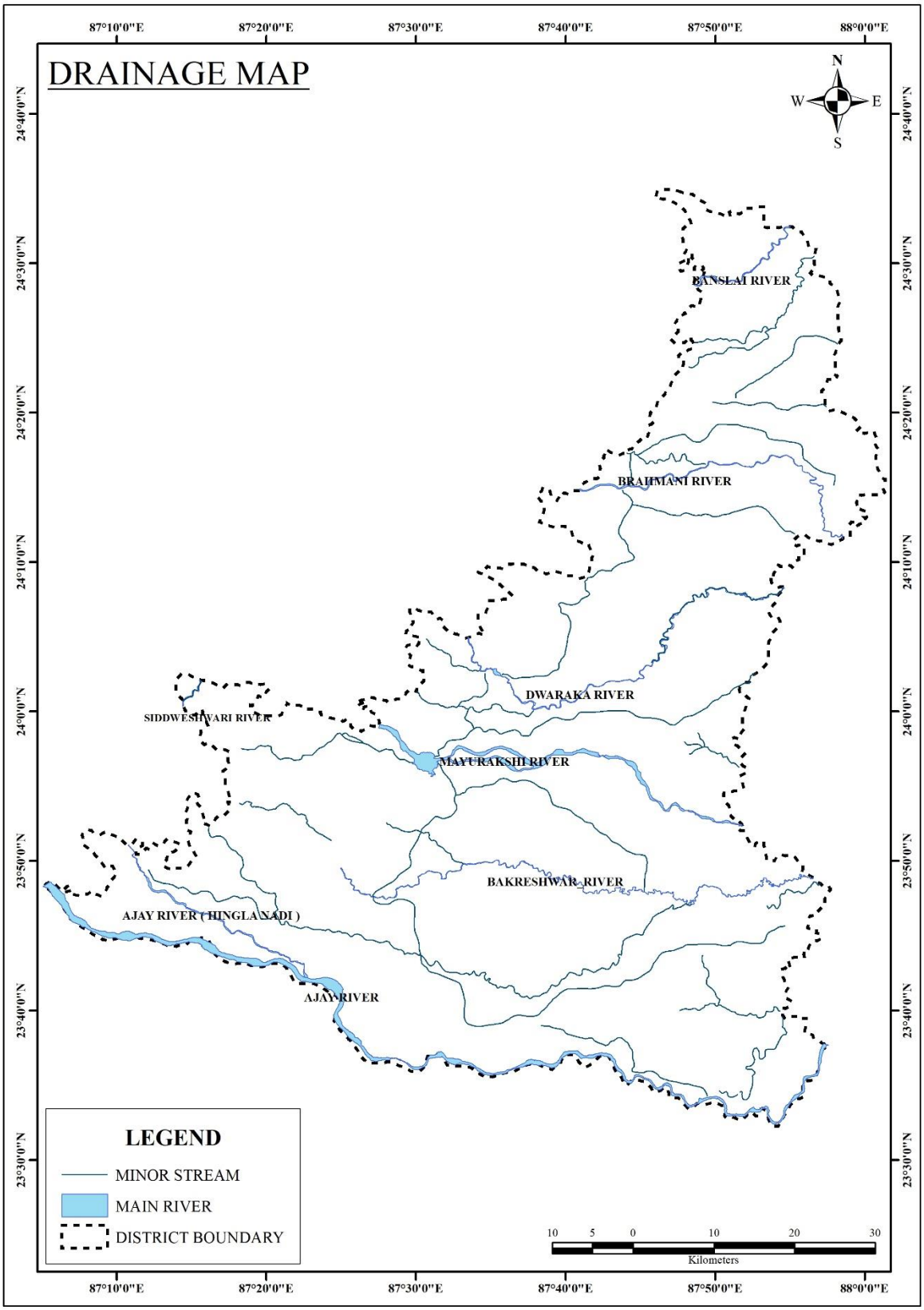
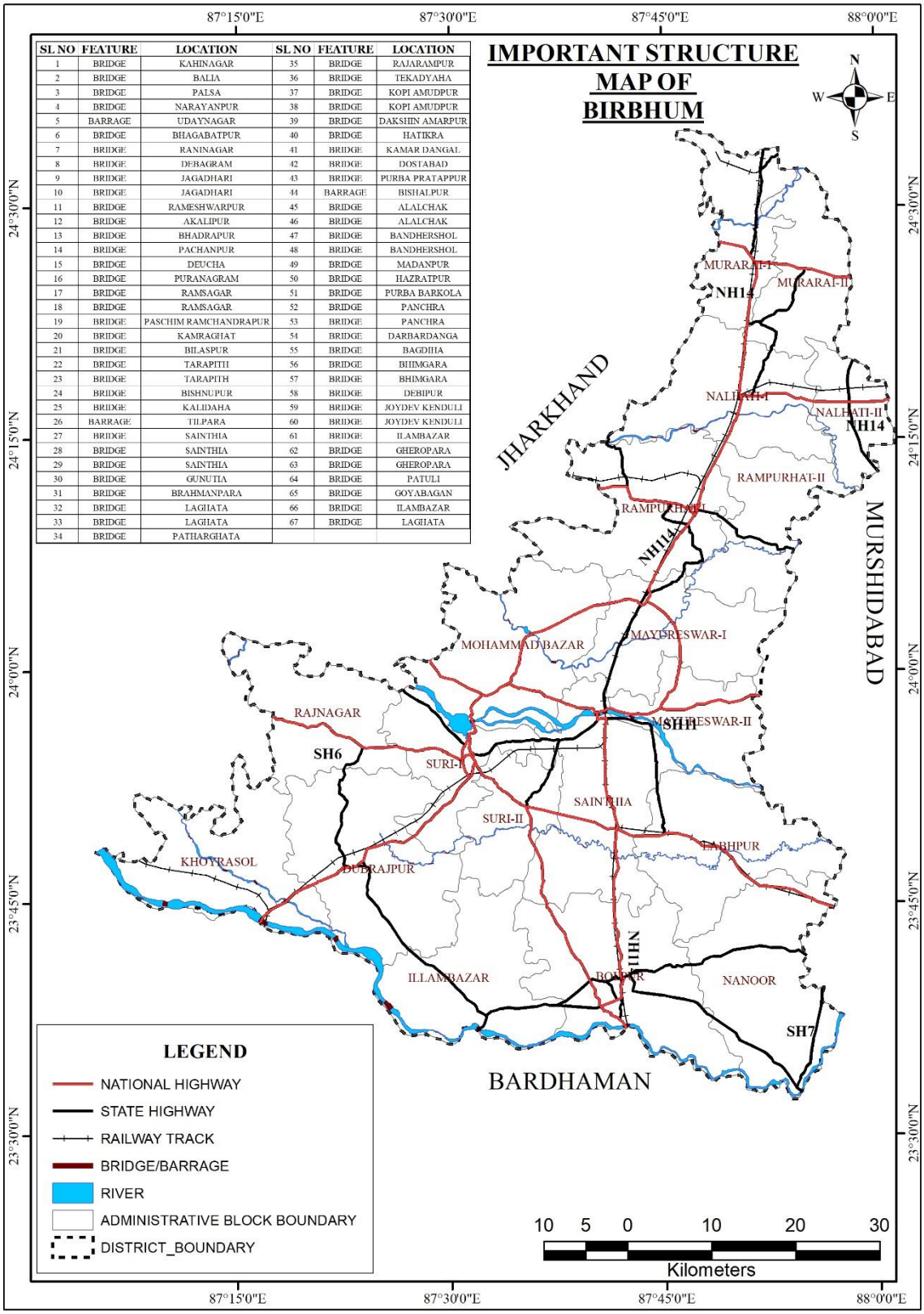


Plate 1A: Drainage Map of the District *(Source: National Informatics Centre -NIC Website, Sept 2020)*



SL NO	FEATURE	LOCATION	SL NO	FEATURE	LOCATION
1	BRIDGE	KAHINAGAR	35	BRIDGE	RAJARAMPUR
2	BRIDGE	BALIA	36	BRIDGE	TEKADYAHA
3	BRIDGE	PALSA	37	BRIDGE	KOPI AMUDPUR
4	BRIDGE	NARAYANPUR	38	BRIDGE	KOPI AMUDPUR
5	BARRAGE	UDAYNAGAR	39	BRIDGE	DAKSHIN AMARPUR
6	BRIDGE	BHAGABATPUR	40	BRIDGE	HATIKRA
7	BRIDGE	RANINAGAR	41	BRIDGE	KAMAR DANGAL
8	BRIDGE	DEBAGRAM	42	BRIDGE	DOSTABAD
9	BRIDGE	JAGADHARI	43	BRIDGE	PURBA PRATAPPUR
10	BRIDGE	JAGADHARI	44	BARRAGE	BISHALPUR
11	BRIDGE	RAMESHWARPUR	45	BRIDGE	ALALCHAK
12	BRIDGE	AKALIPUR	46	BRIDGE	ALALCHAK
13	BRIDGE	BHADRAPUR	47	BRIDGE	BANDHERSHOL
14	BRIDGE	PACHANPUR	48	BRIDGE	BANDHERSHOL
15	BRIDGE	DEUCHA	49	BRIDGE	MADANPUR
16	BRIDGE	PURANAGRAM	50	BRIDGE	HAZRATPUR
17	BRIDGE	RAMSAGAR	51	BRIDGE	PURBA BARKOLA
18	BRIDGE	RAMSAGAR	52	BRIDGE	PANCHRA
19	BRIDGE	PASCHIM RAMCHANDRAPUR	53	BRIDGE	PANCHRA
20	BRIDGE	KAMRAGHAT	54	BRIDGE	DARBARDANGA
21	BRIDGE	BILASPUR	55	BRIDGE	BAGDIHA
22	BRIDGE	TARAPITH	56	BRIDGE	BIHMGARA
23	BRIDGE	TARAPITH	57	BRIDGE	BHIMGARA
24	BRIDGE	BISHNUPUR	58	BRIDGE	DEBIPUR
25	BRIDGE	KALIDAHA	59	BRIDGE	JOYDEV KENDULI
26	BARRAGE	TILPARA	60	BRIDGE	JOYDEV KENDULI
27	BRIDGE	SAINTHIA	61	BRIDGE	ILAMBAZAR
28	BRIDGE	SAINTHIA	62	BRIDGE	GHEROPARA
29	BRIDGE	SAINTHIA	63	BRIDGE	GHEROPARA
30	BRIDGE	GUNUTIA	64	BRIDGE	PATULI
31	BRIDGE	BRAHMANPARA	65	BRIDGE	GOYABAGAN
32	BRIDGE	LAGHATA	66	BRIDGE	ILAMBAZAR
33	BRIDGE	LAGHATA	67	BRIDGE	LAGHATA
34	BRIDGE	PATHARGHATA			

Plate No 1B: Location Map of dams, barrages, bridge showing on drainage system of the district *(Source: National Informatics Centre -NIC Website, Sept 2020)*

ANNEXURE 2A

DISTRIBUTION MAP OF SAND BARS ON RIVERS DURING PRE-MONSOON PERIOD OF BIRBHUM DISTRICT

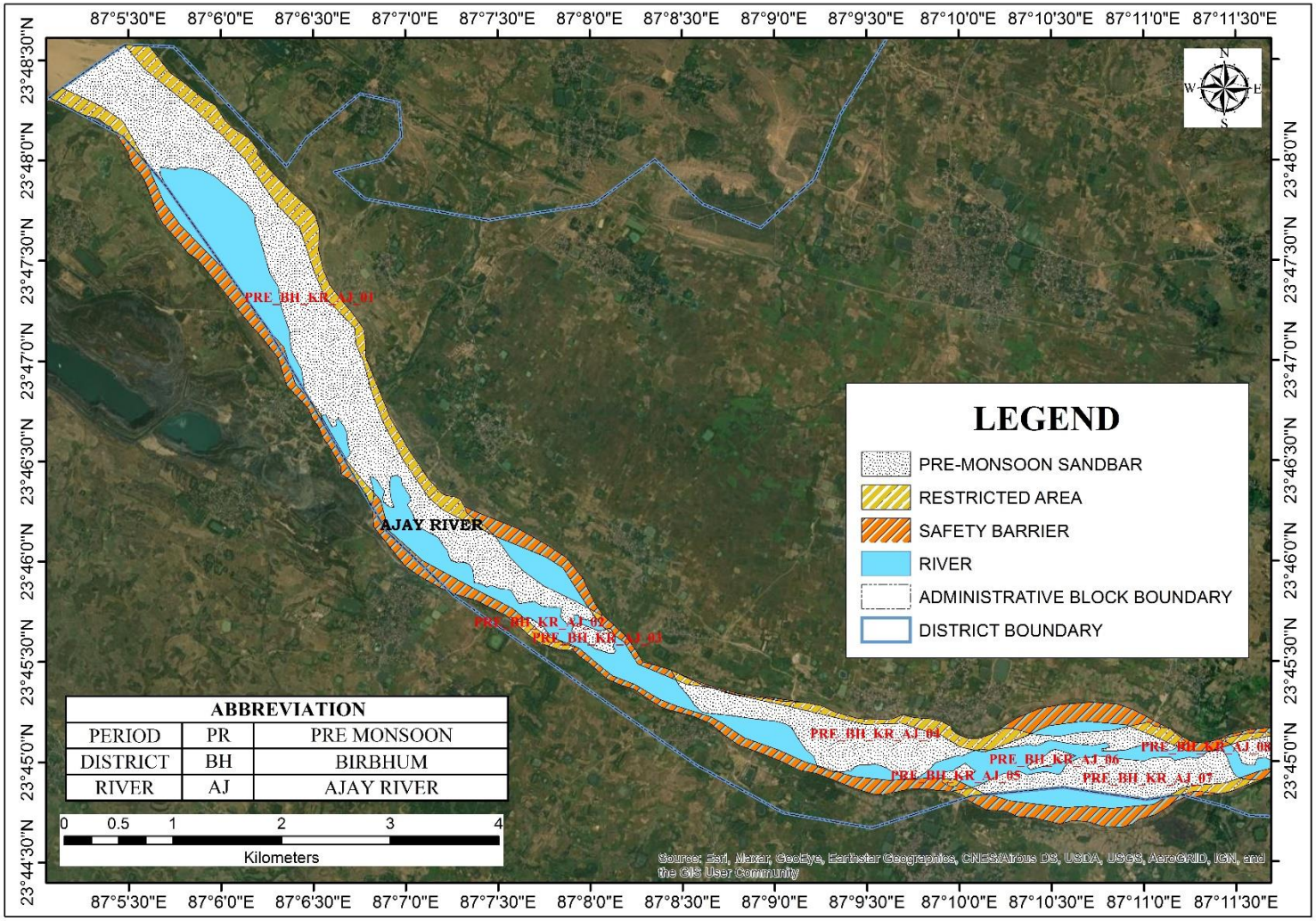


Plate 2A1: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

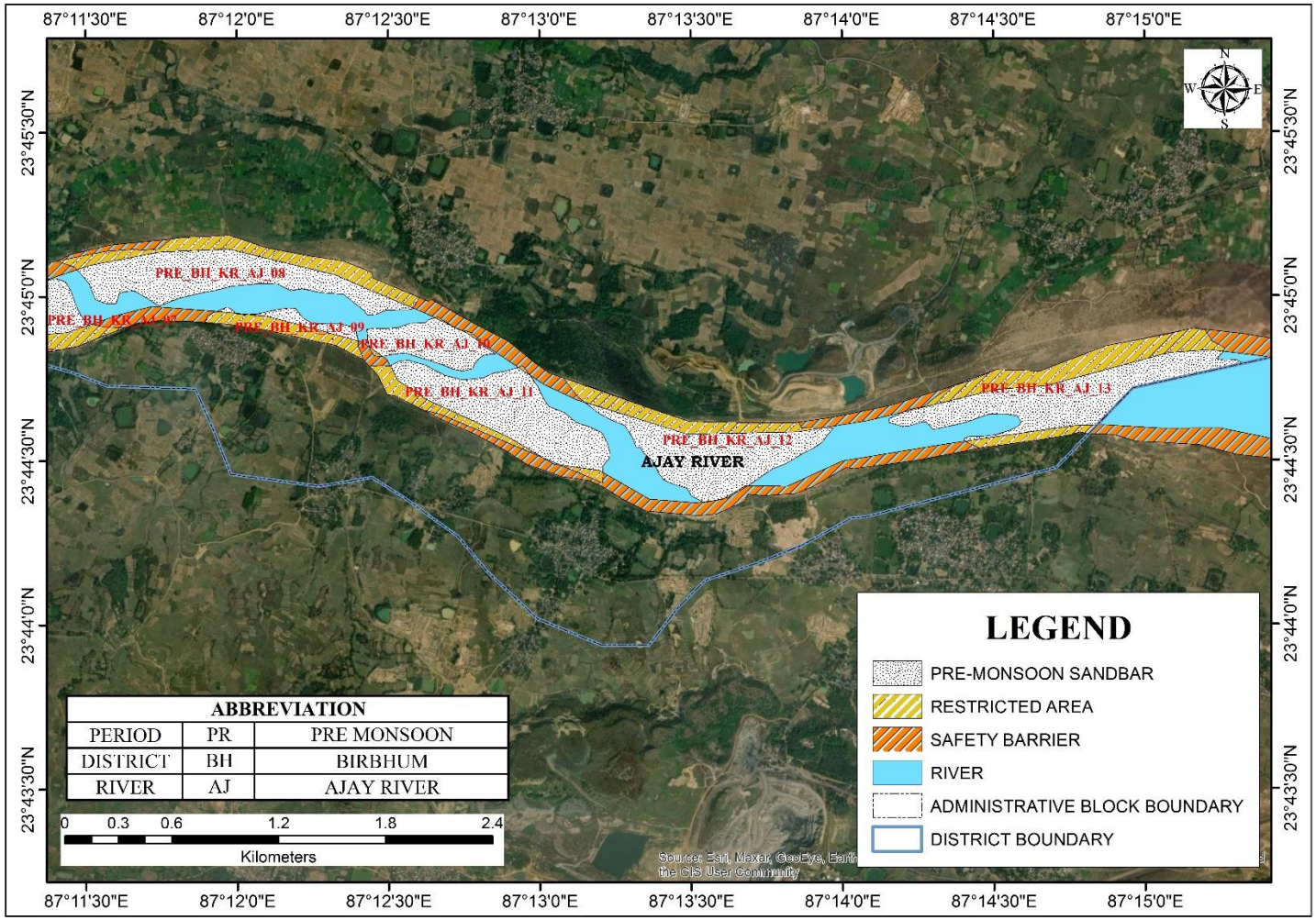


Plate 2A2: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

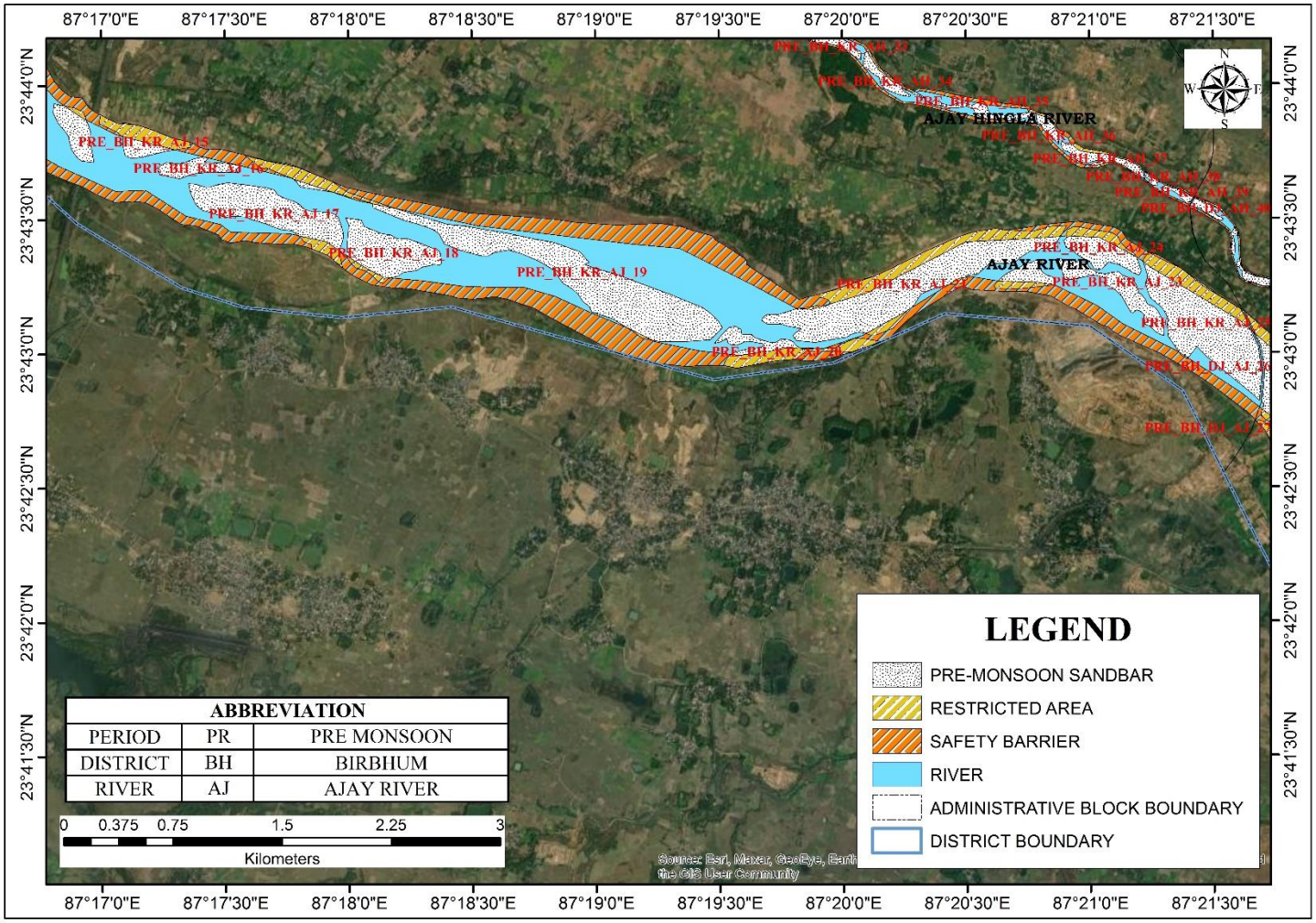


Plate 2A3: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

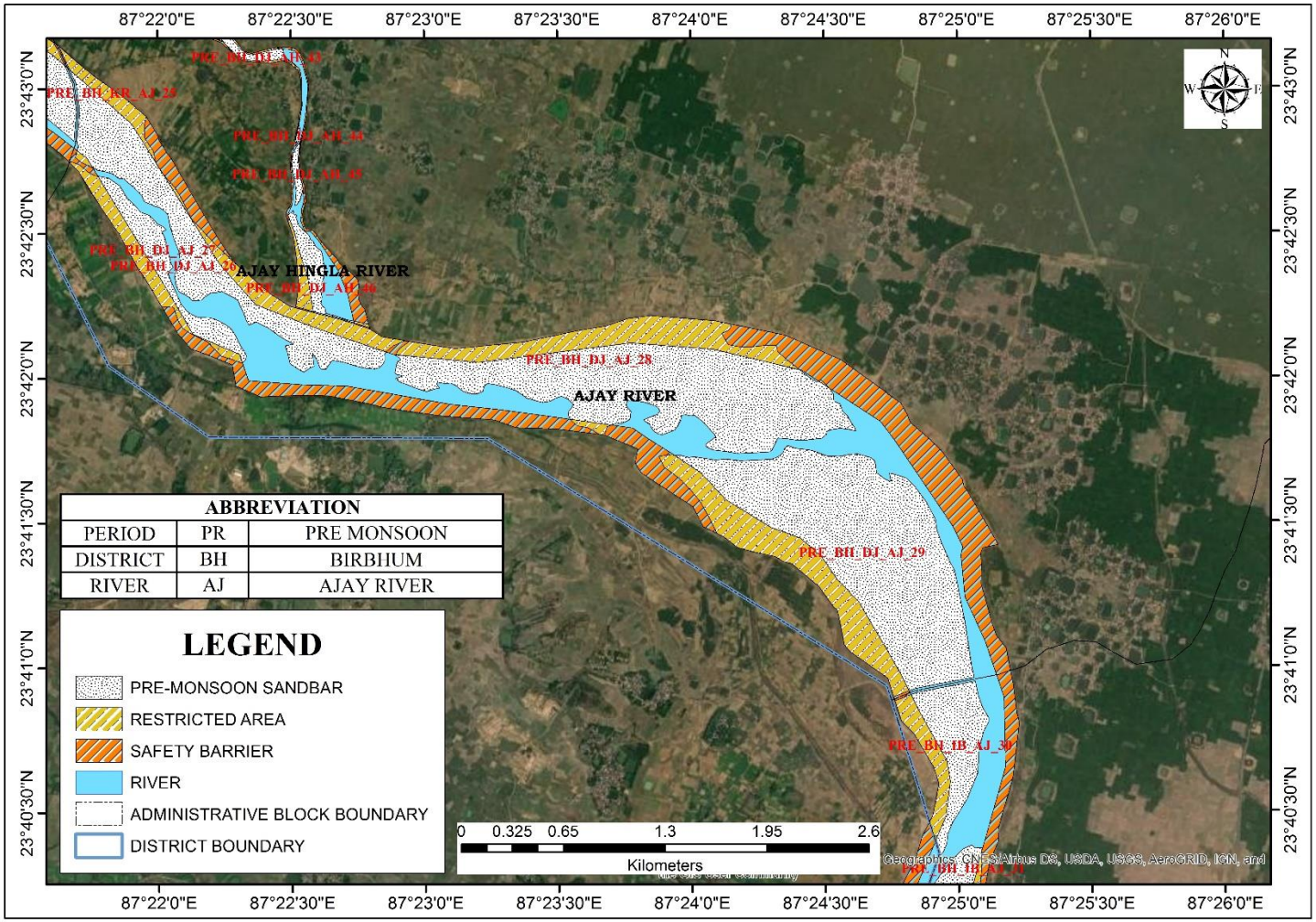


Plate 2A4: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

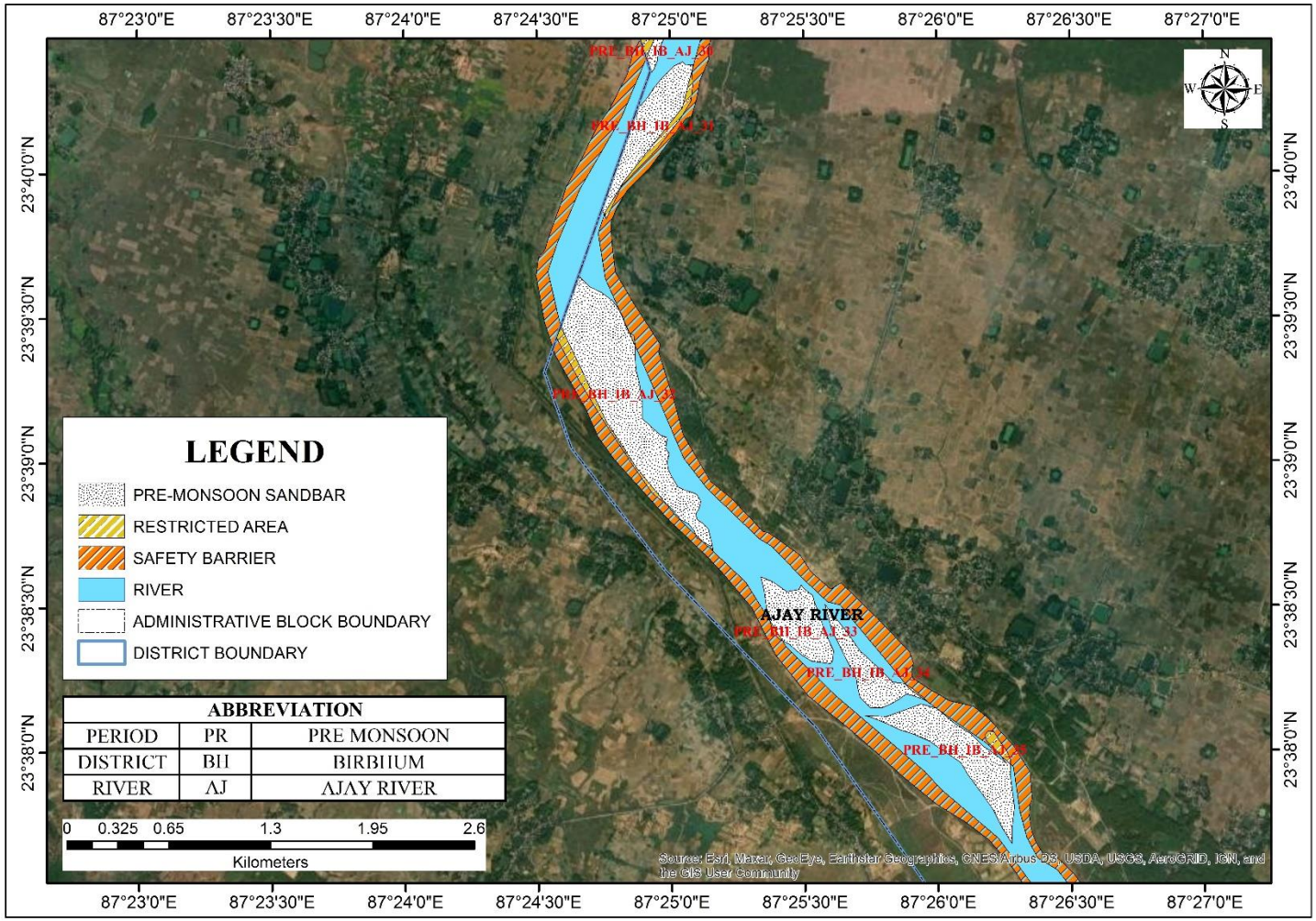


Plate 2A5: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

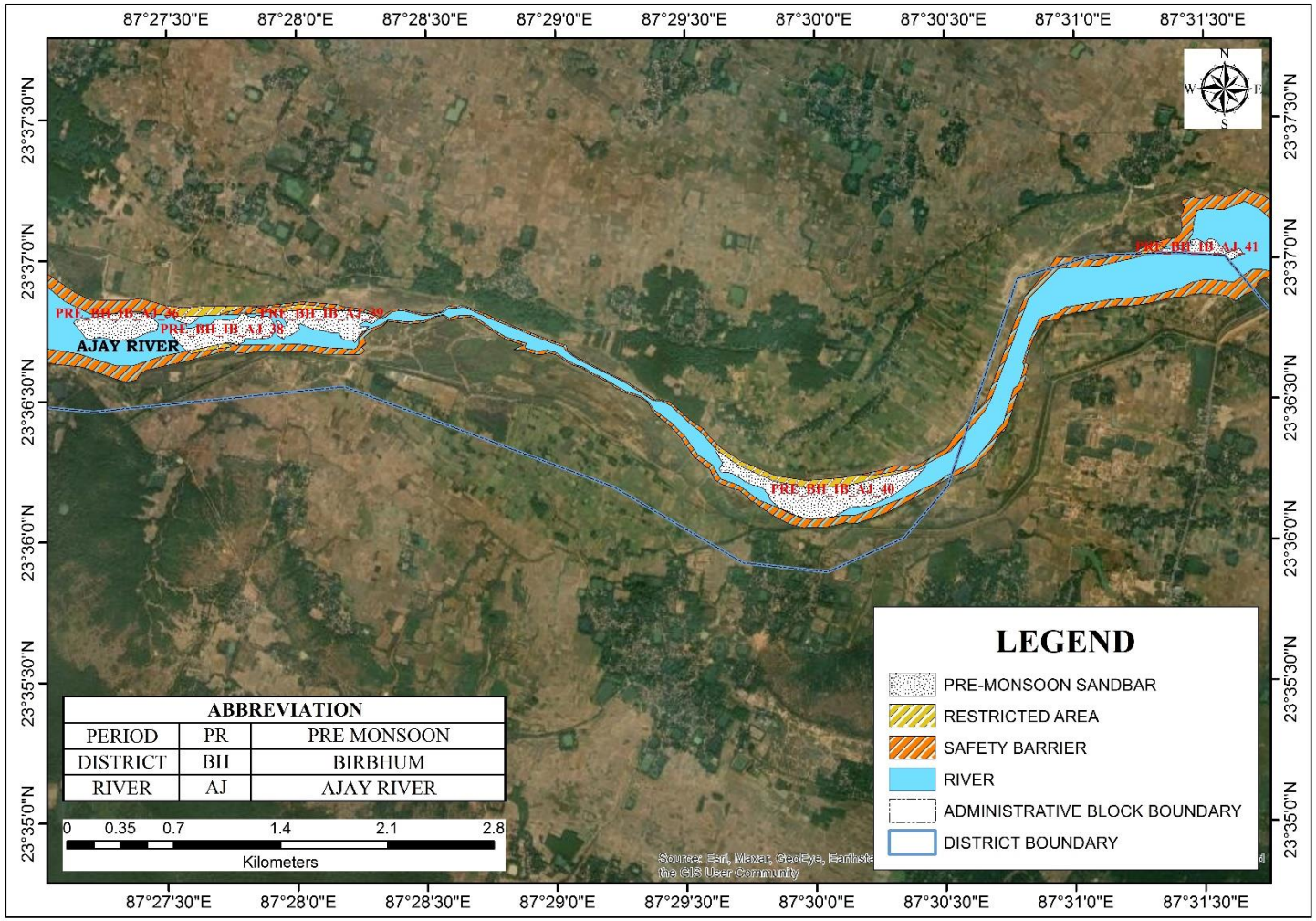


Plate 2A6: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

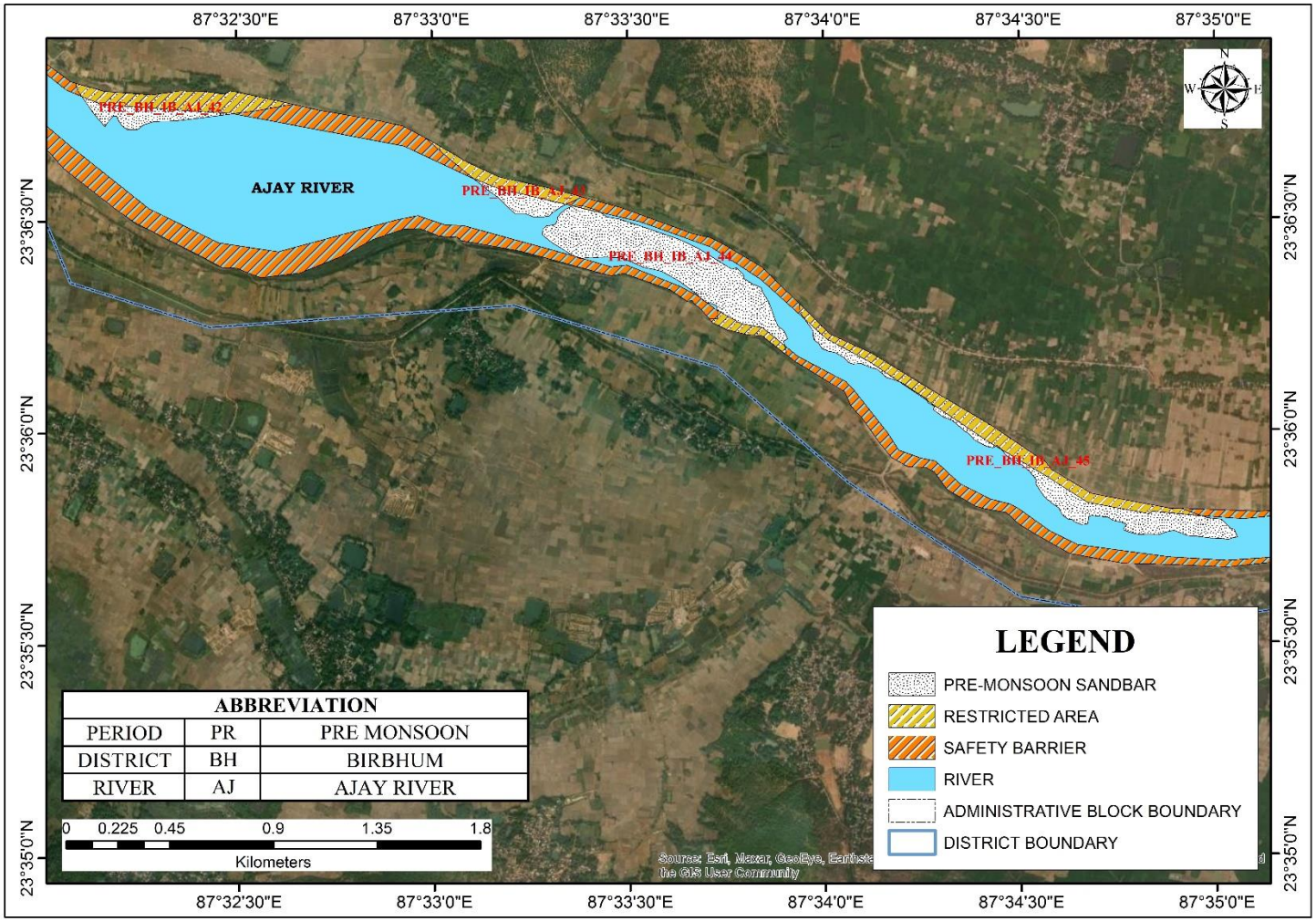


Plate 2A7: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

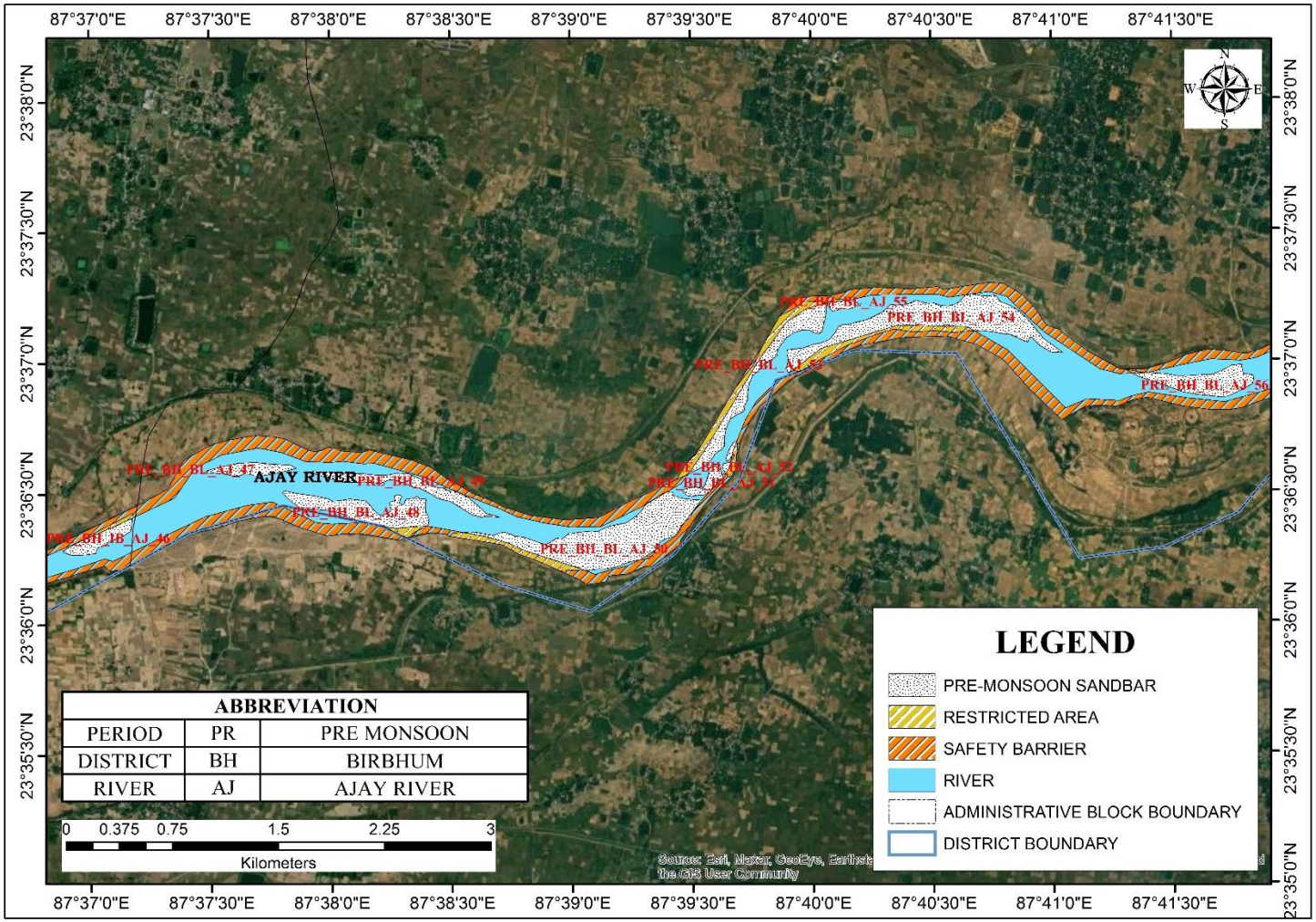


Plate 2A8: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

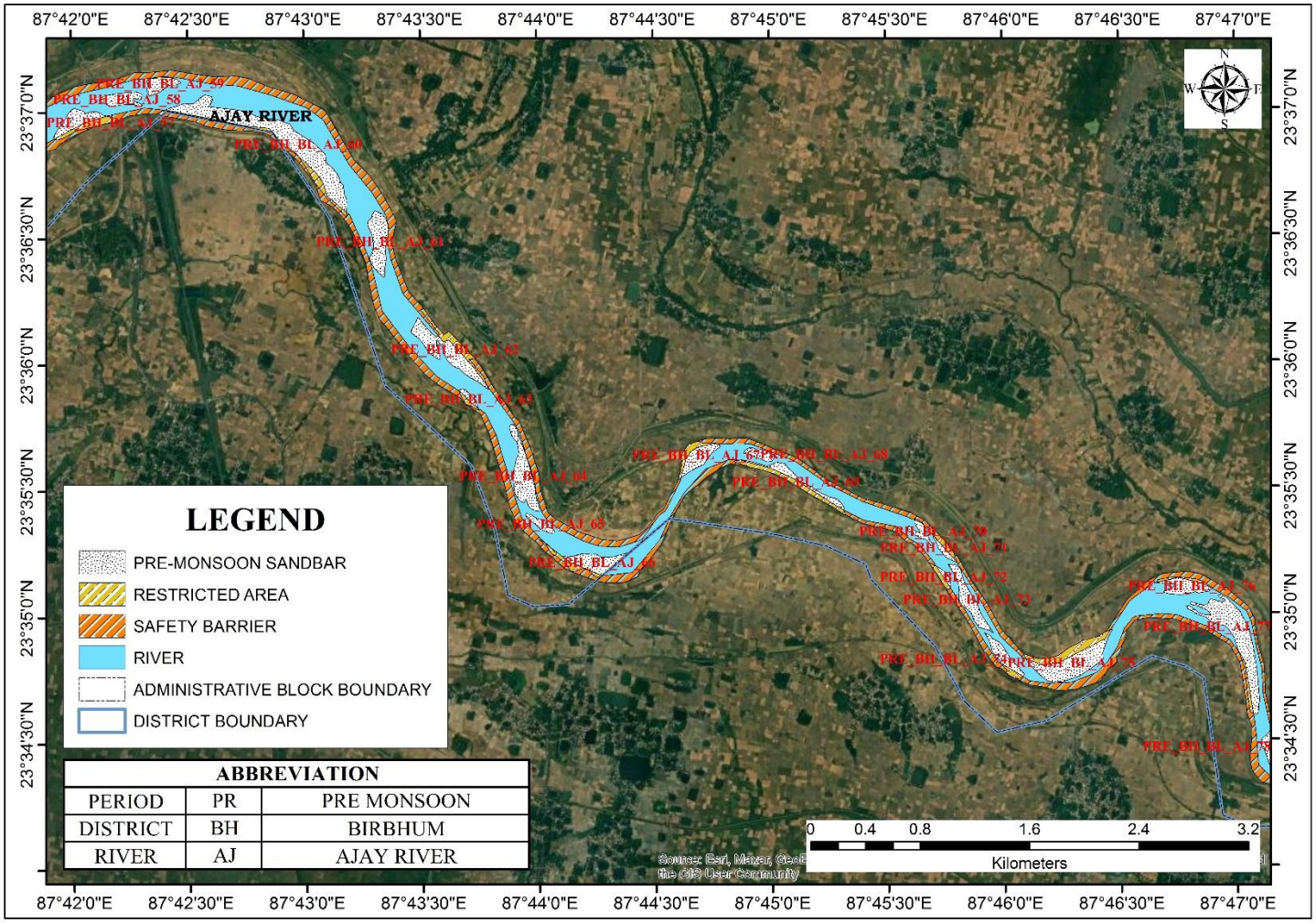


Plate 2A9: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

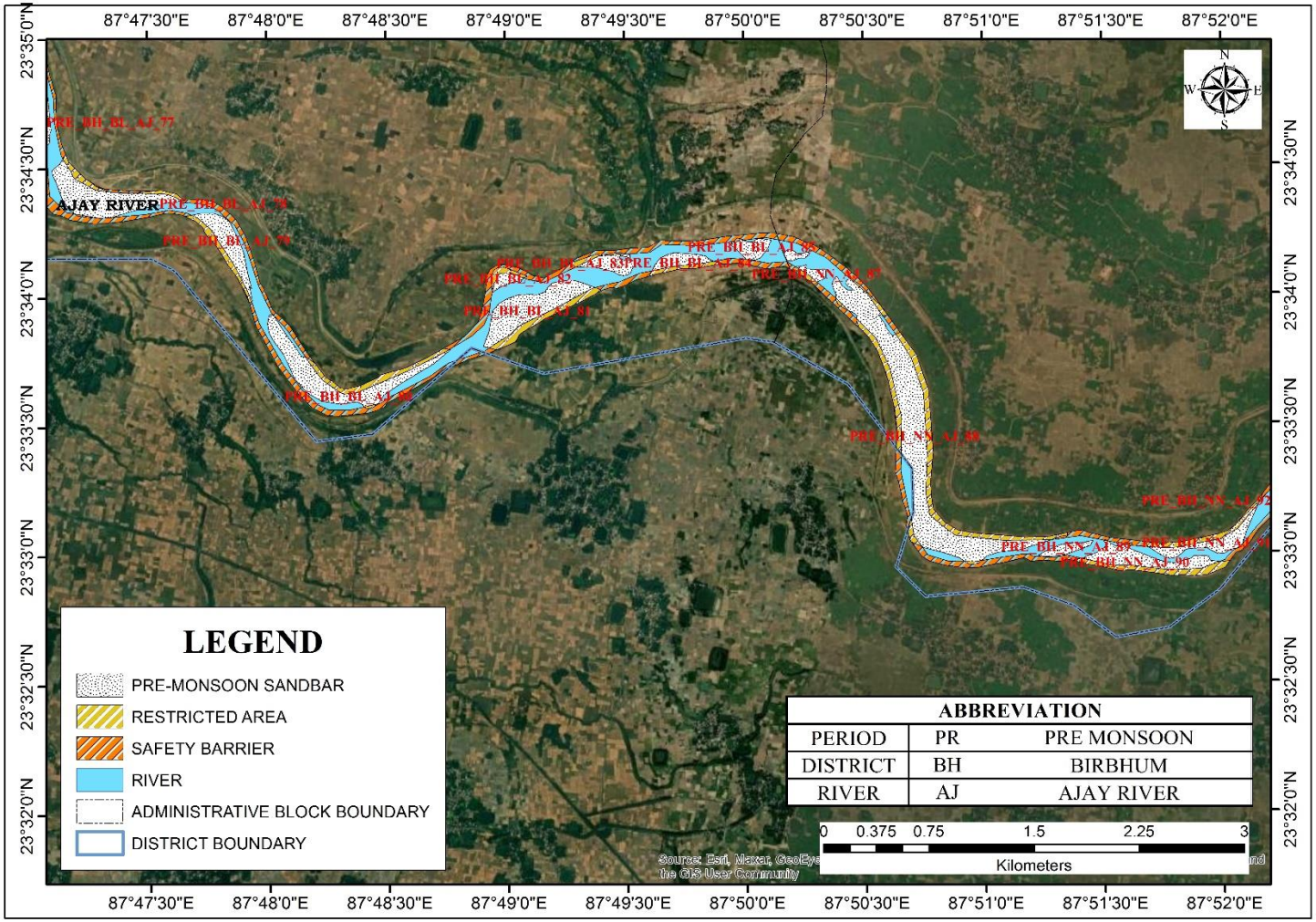


Plate 2A10: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

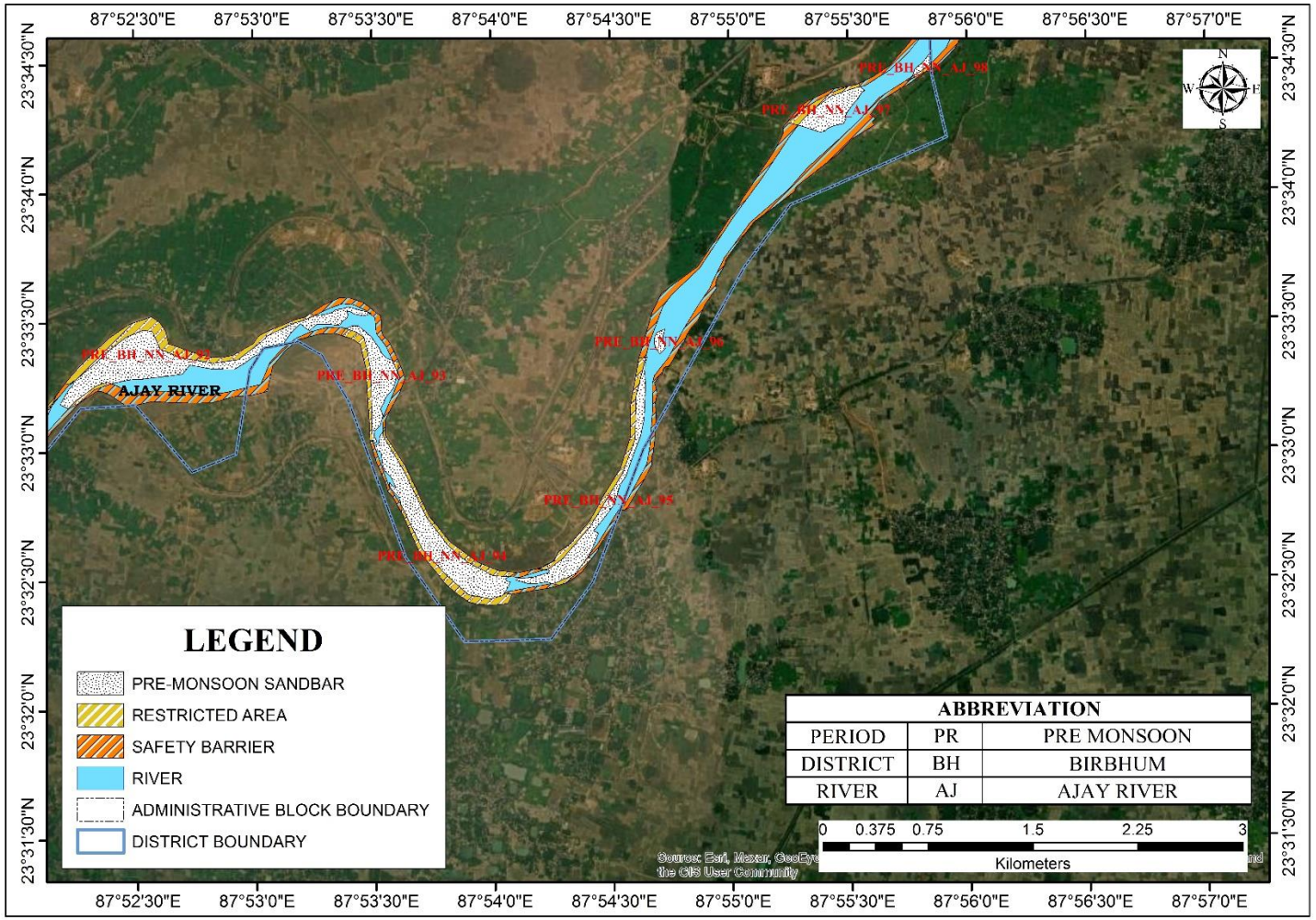


Plate 2A11: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

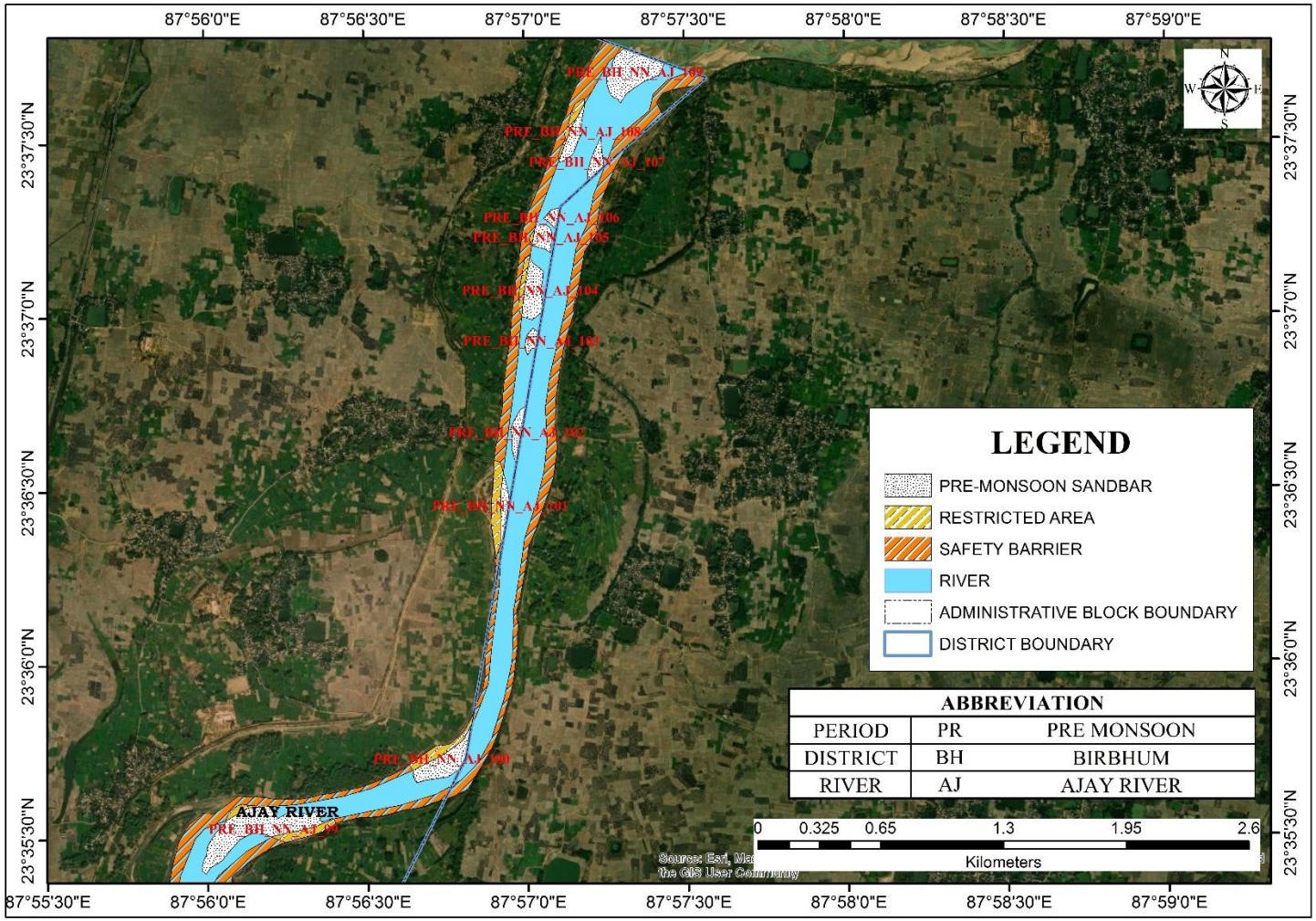


Plate 2A12: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

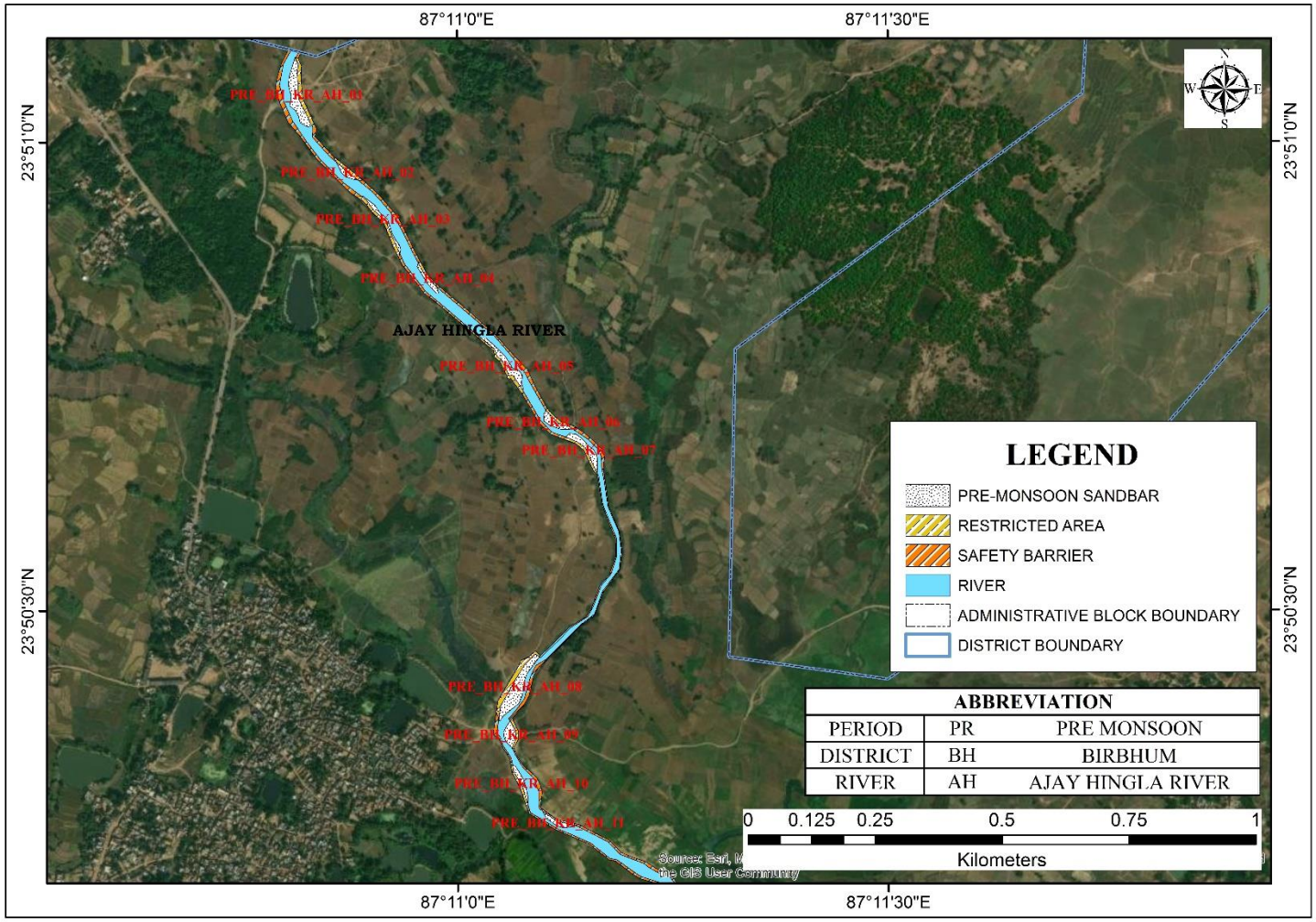


Plate 2A13: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

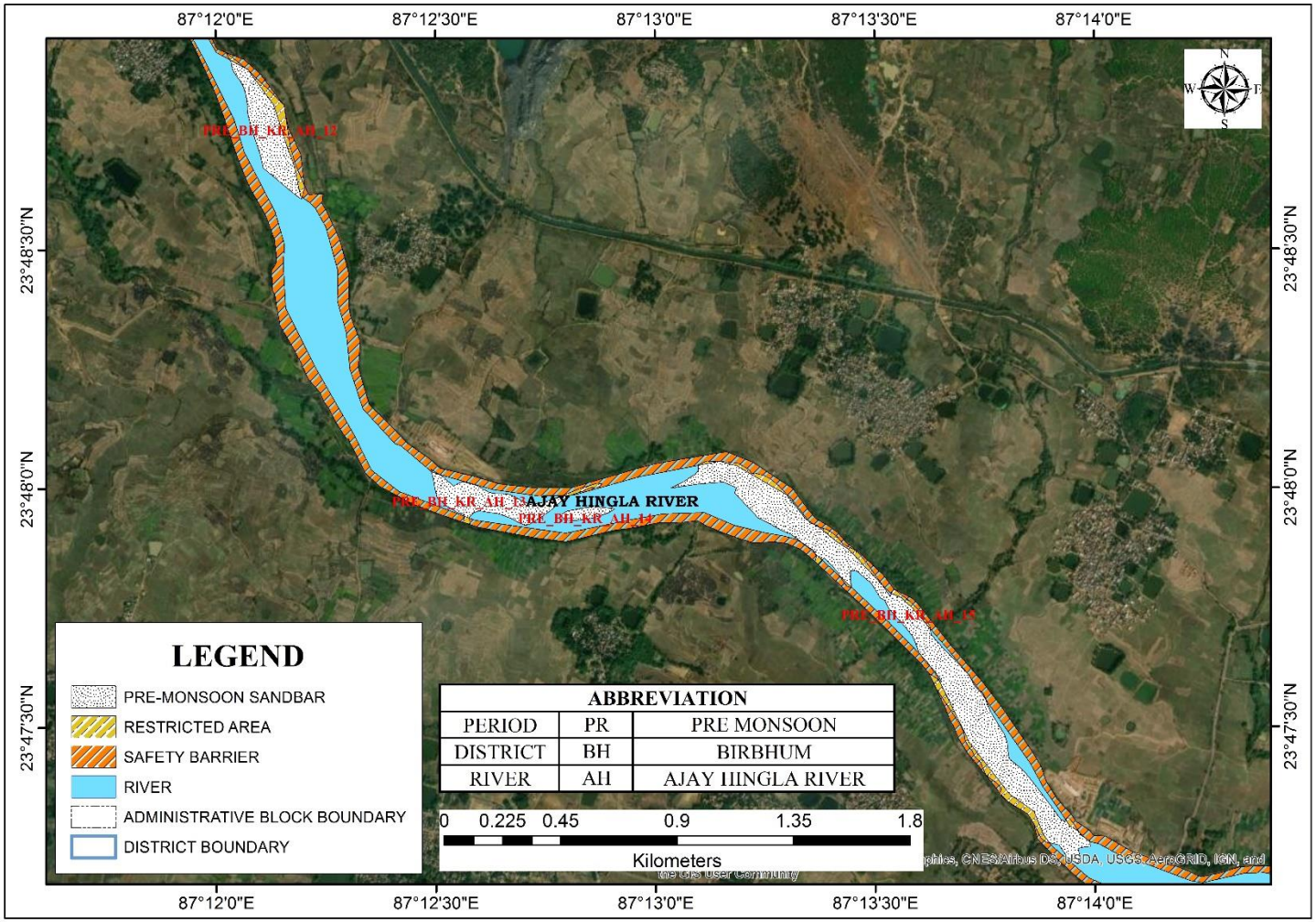


Plate 2A14: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

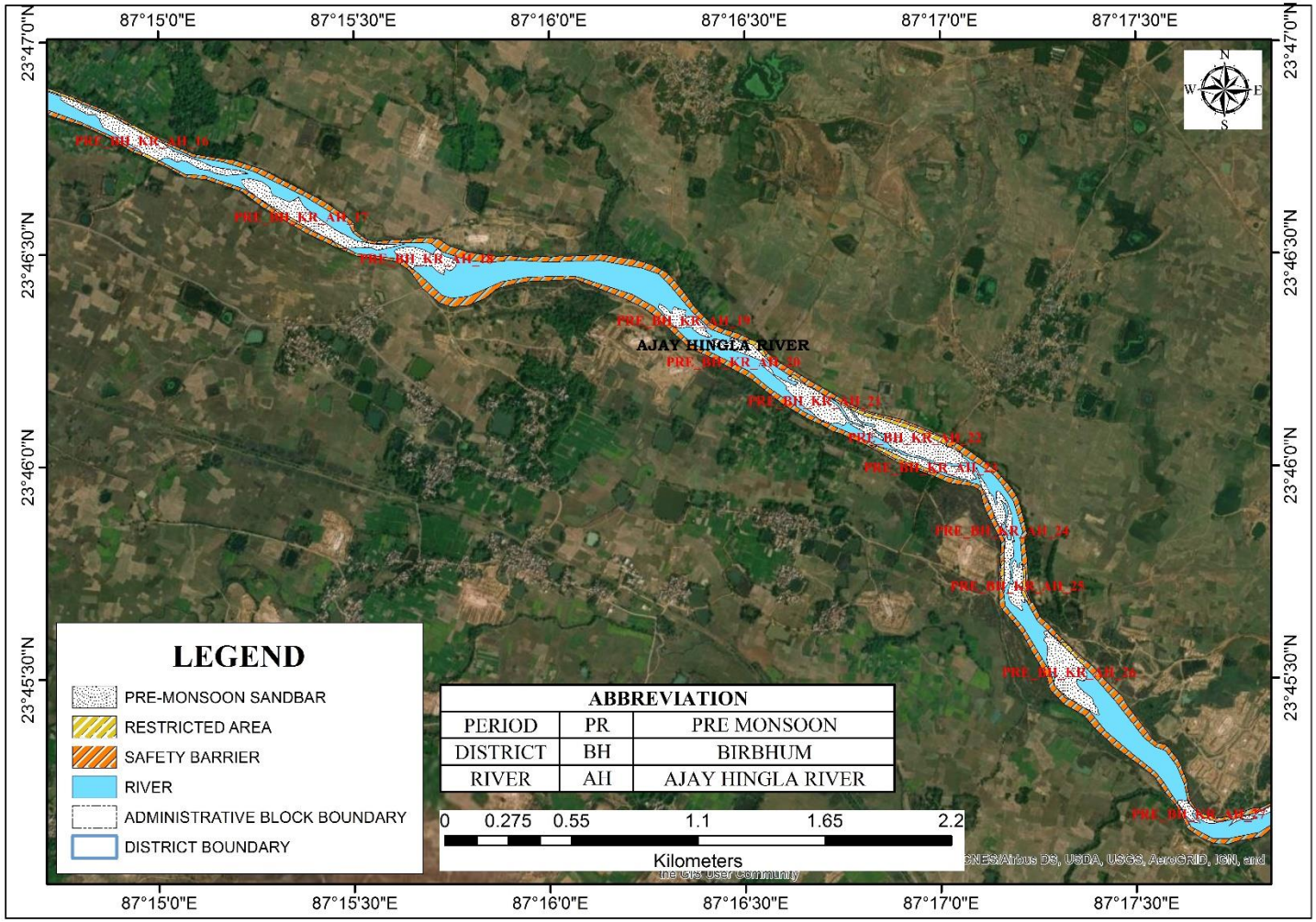


Plate 2A15: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

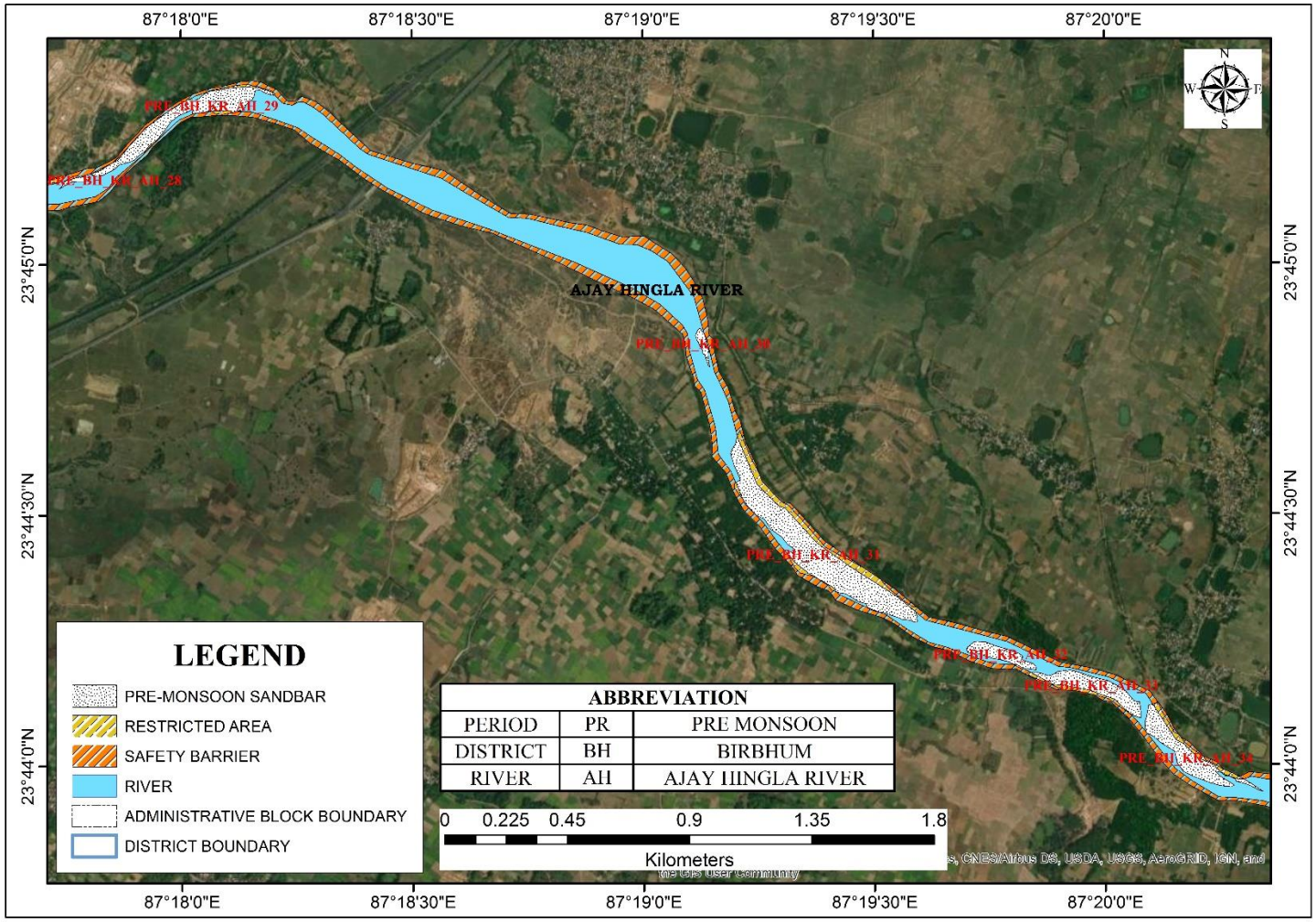


Plate 2A16: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

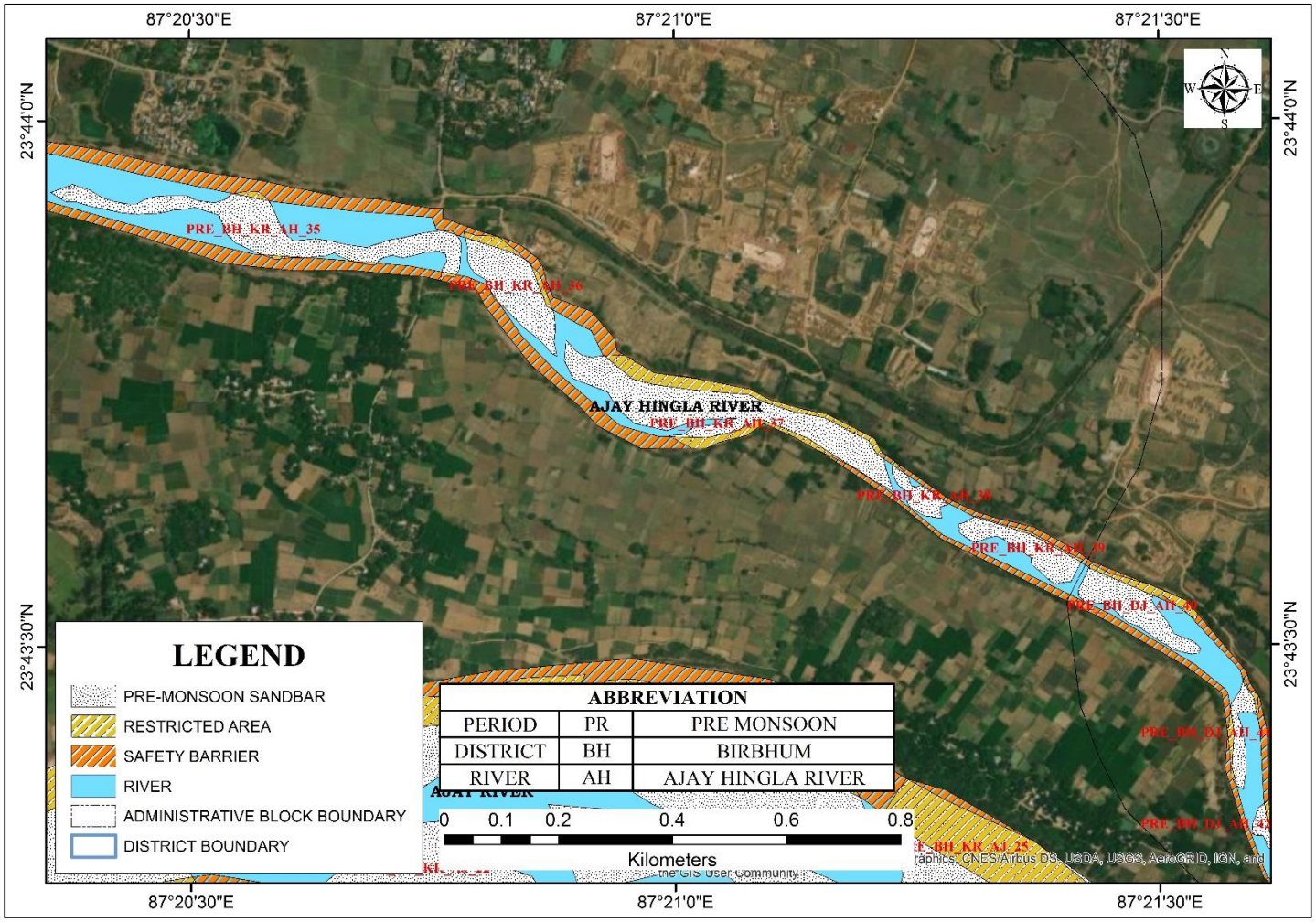


Plate 2A17: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

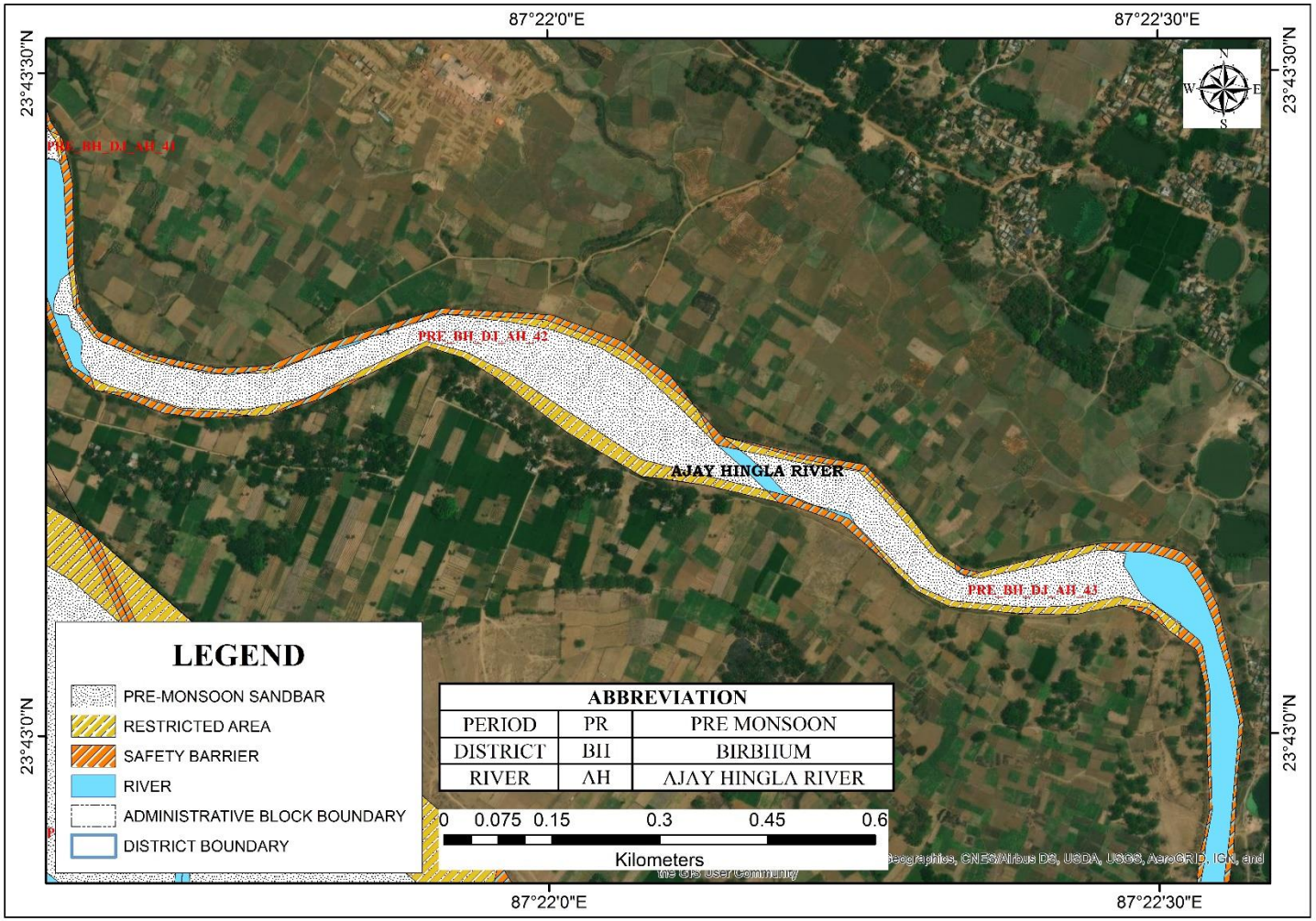


Plate 2A18: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

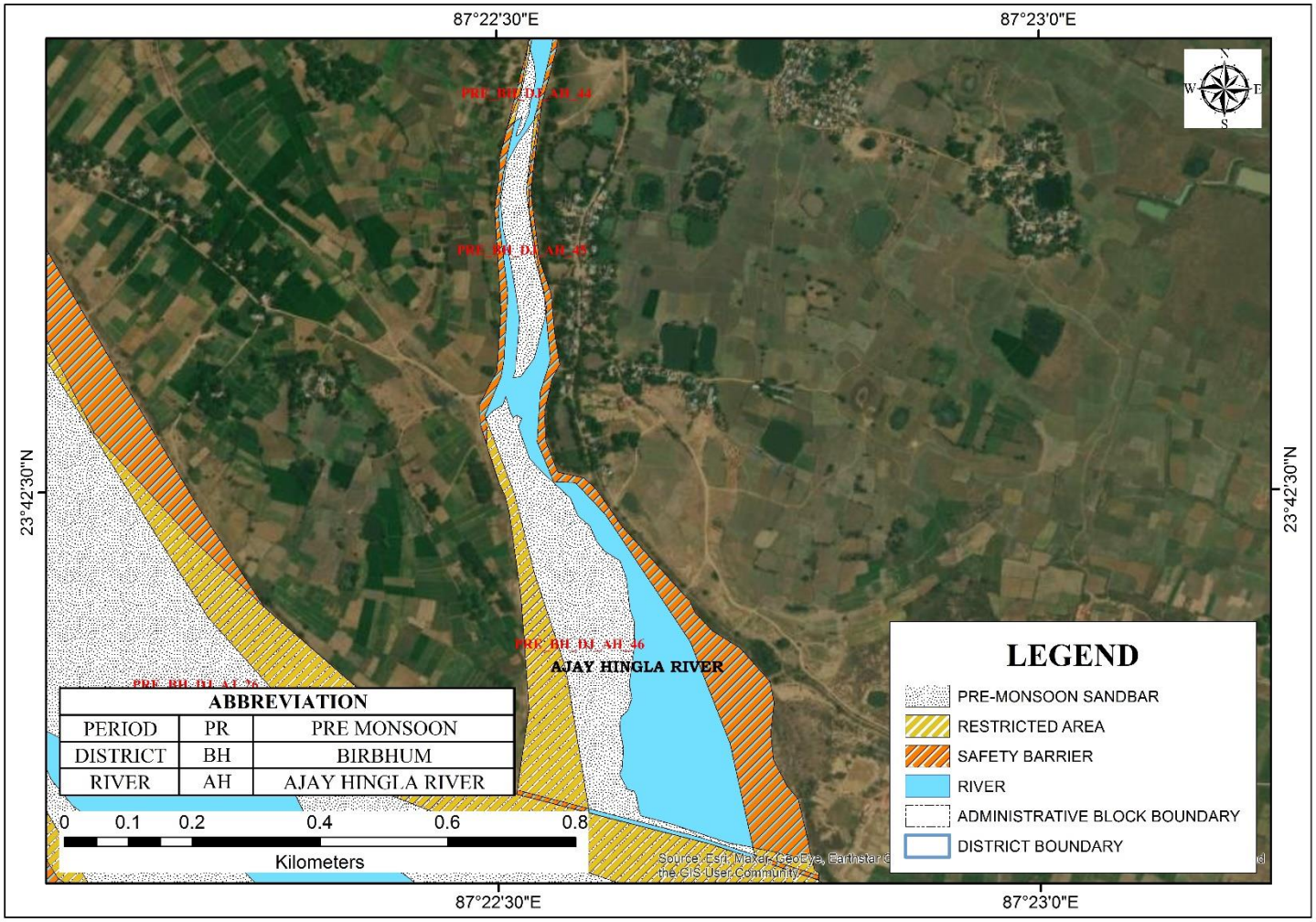


Plate 2A19: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

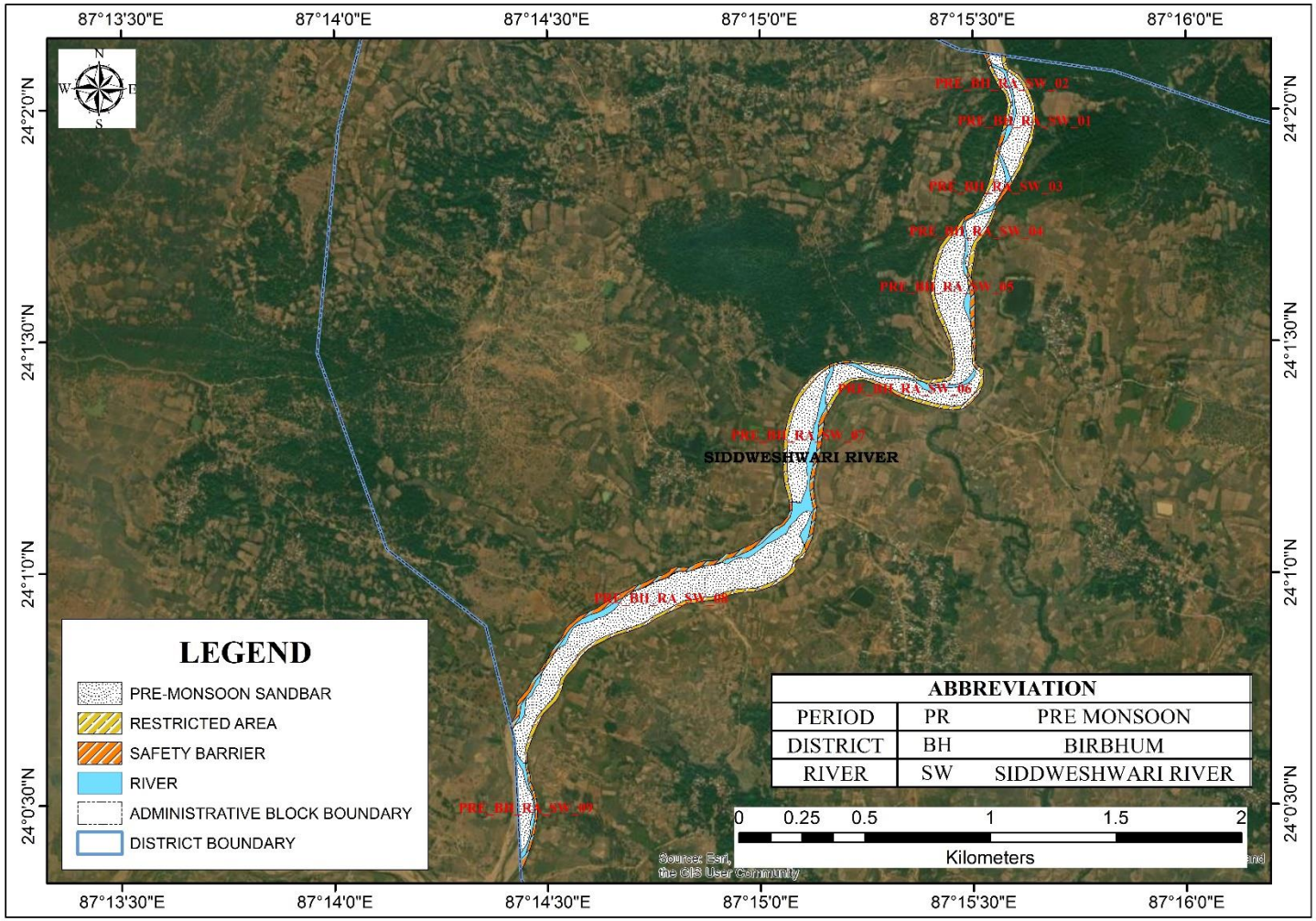


Plate 2A20: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

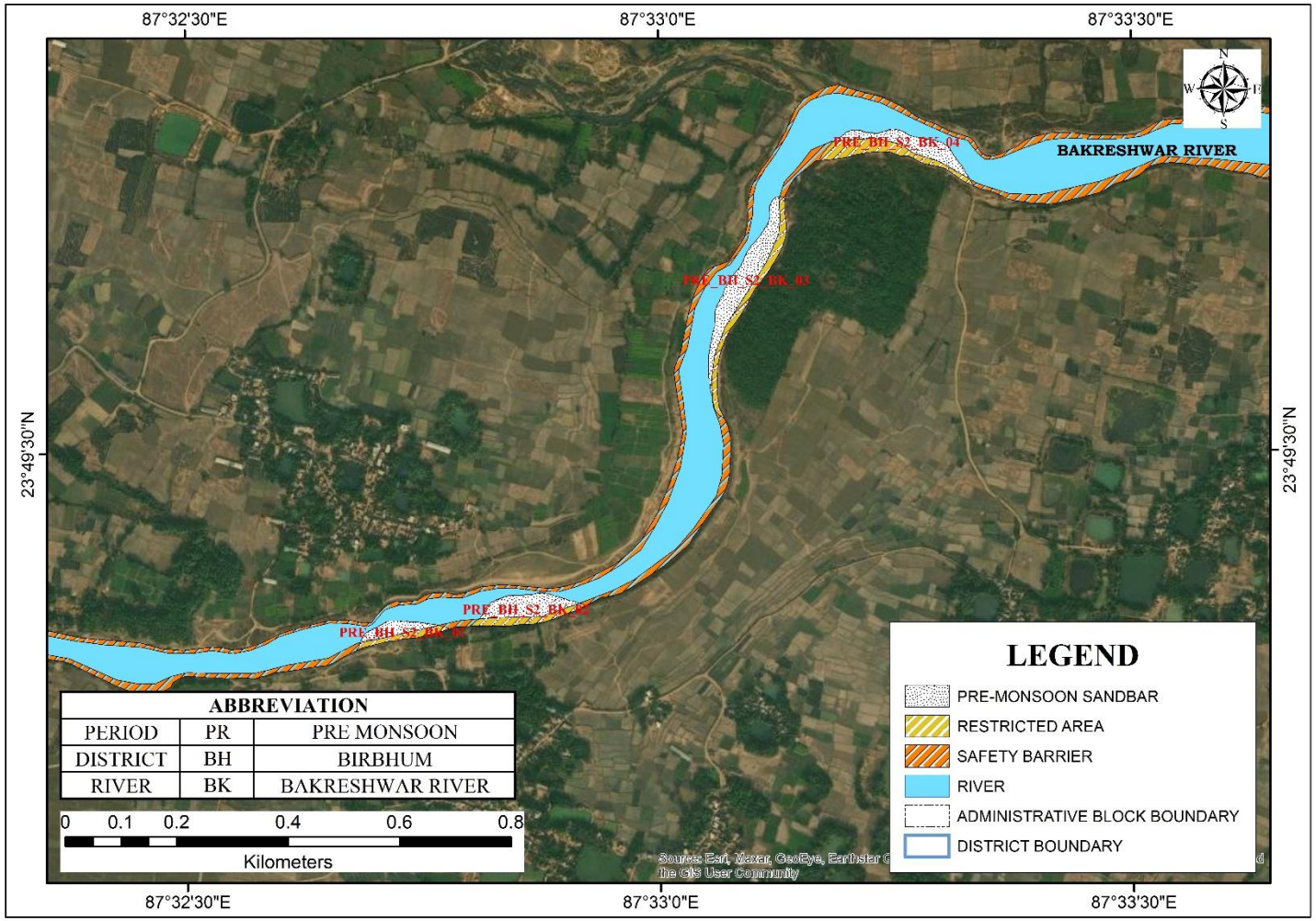


Plate 2A21: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

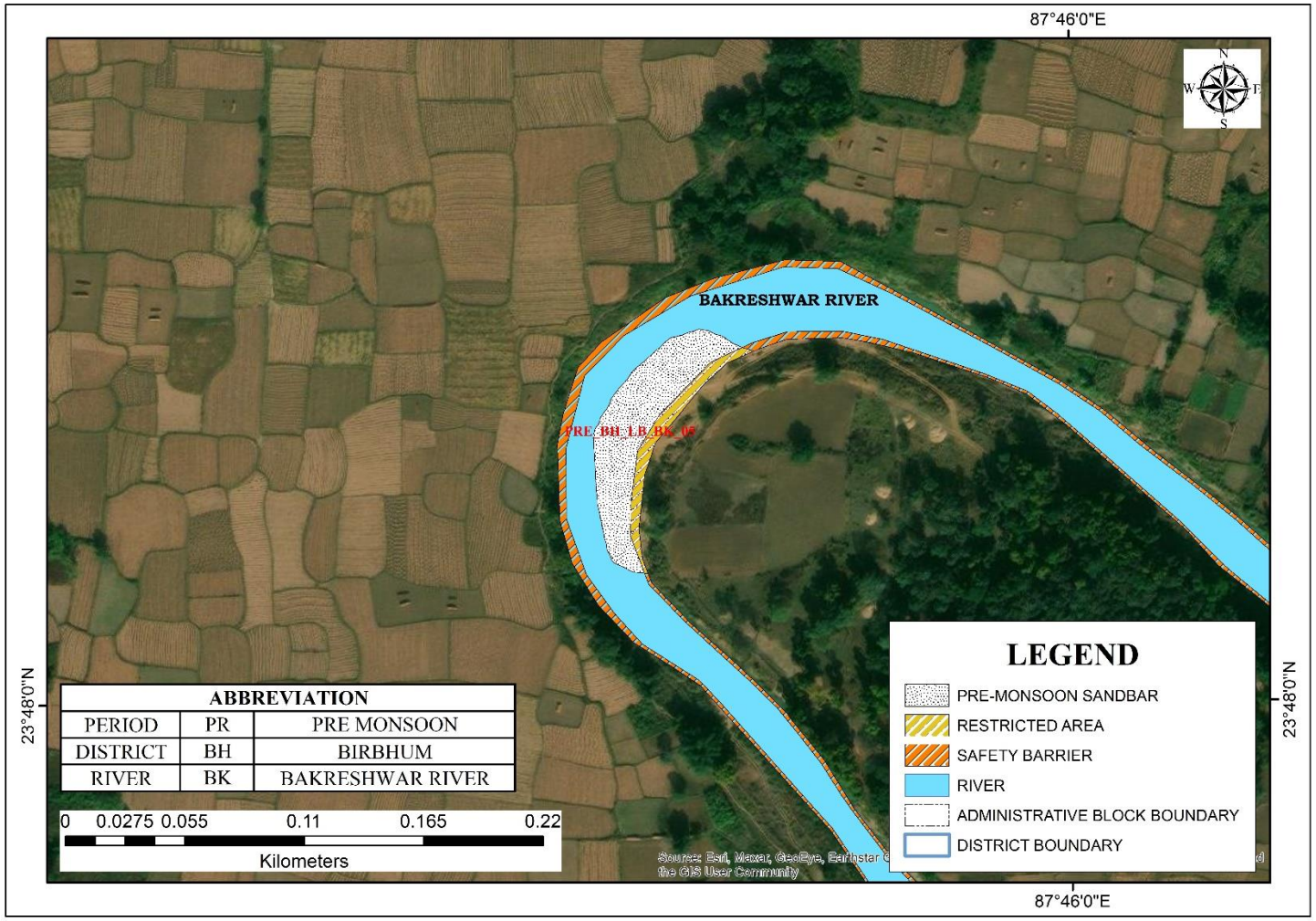


Plate 2A22: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

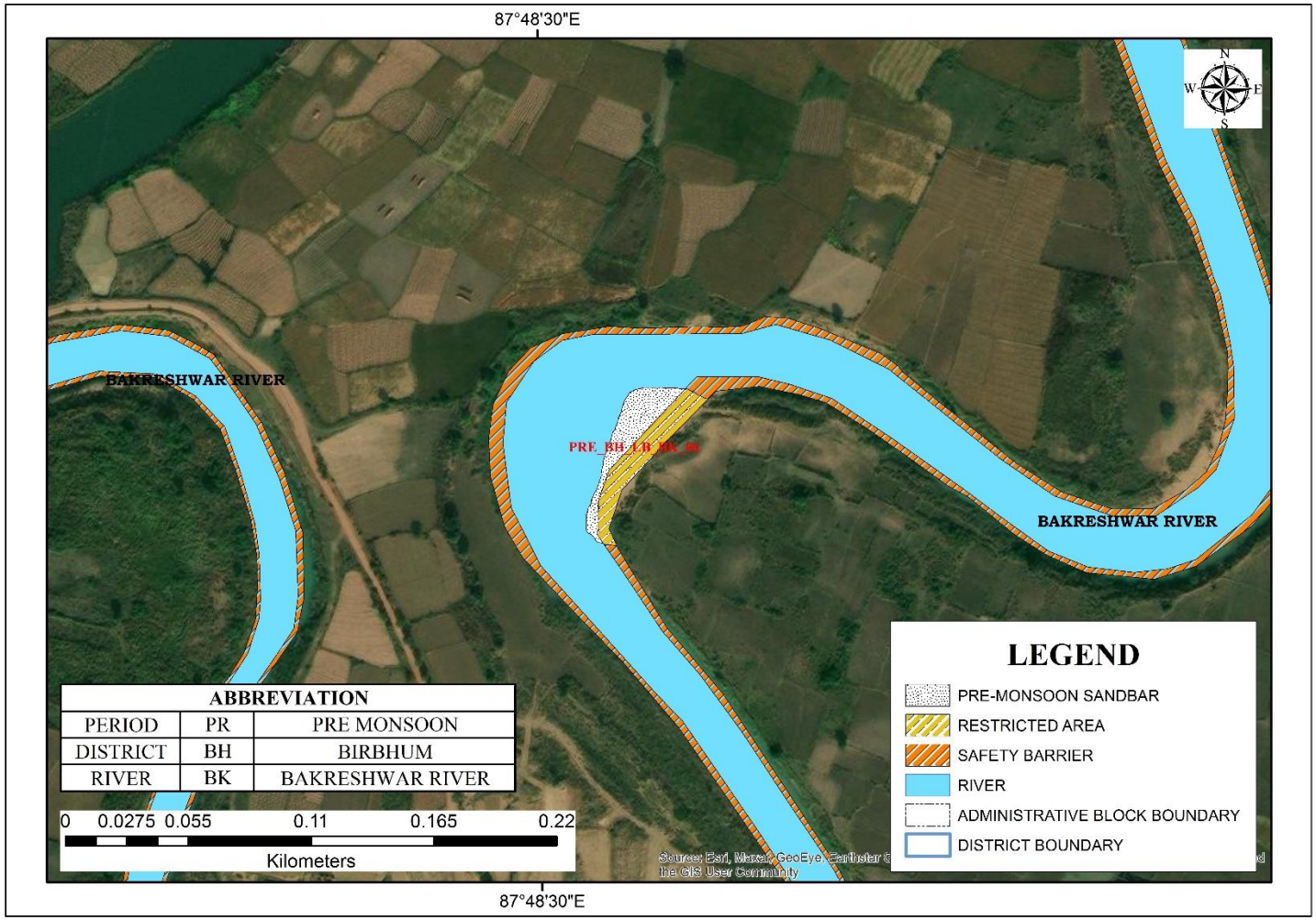


Plate 2A23: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

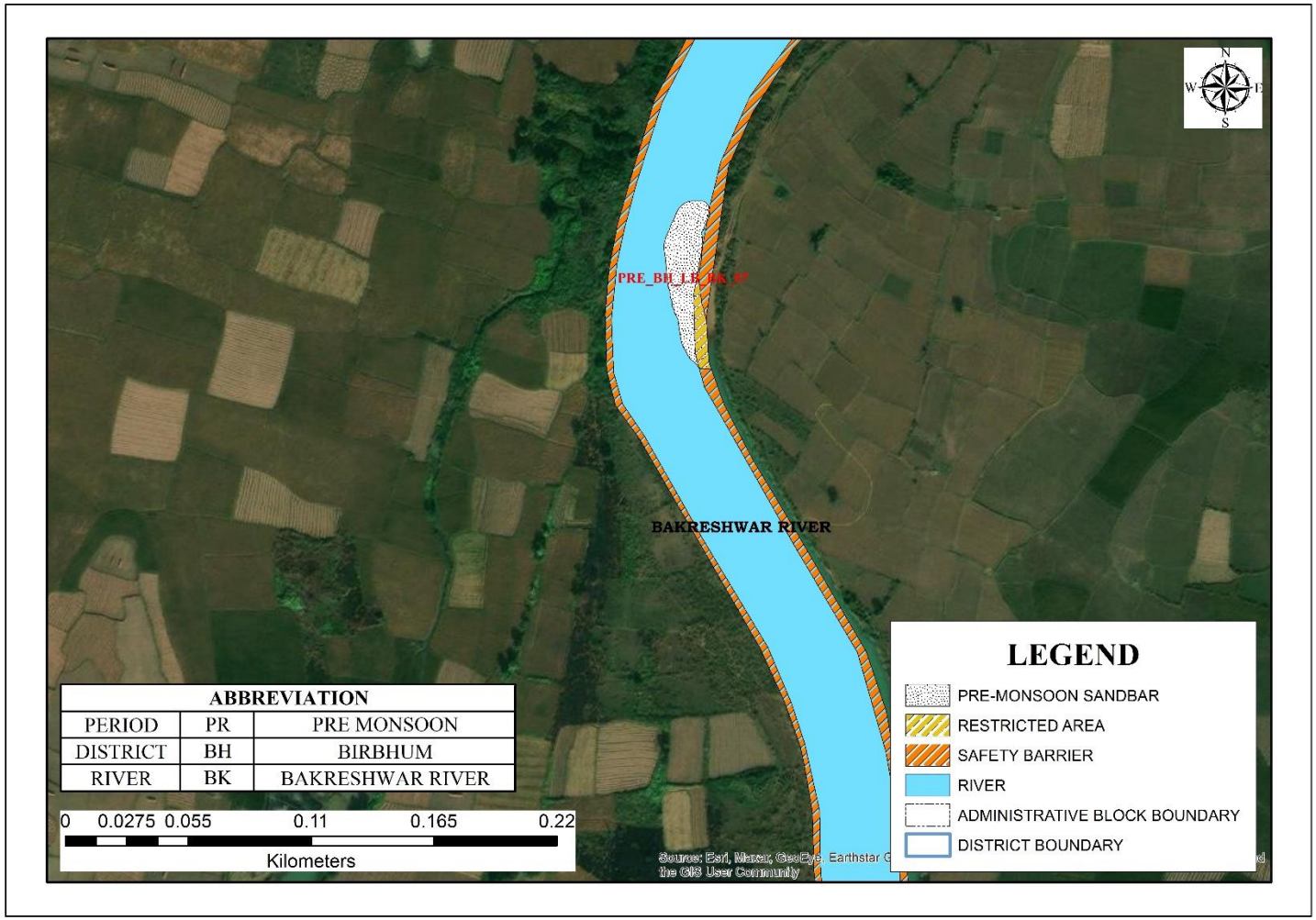


Plate 2A24: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

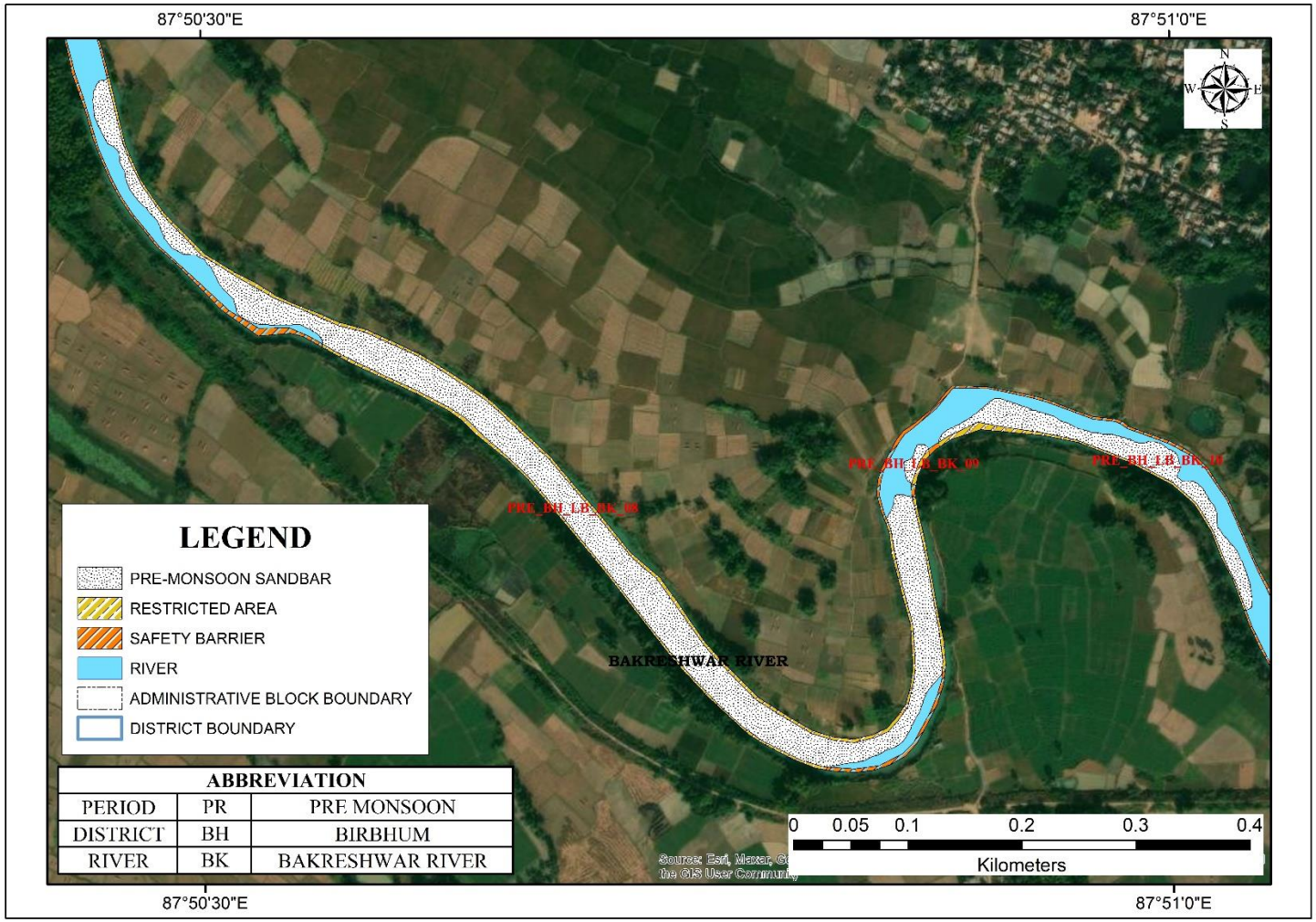


Plate 2A25: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

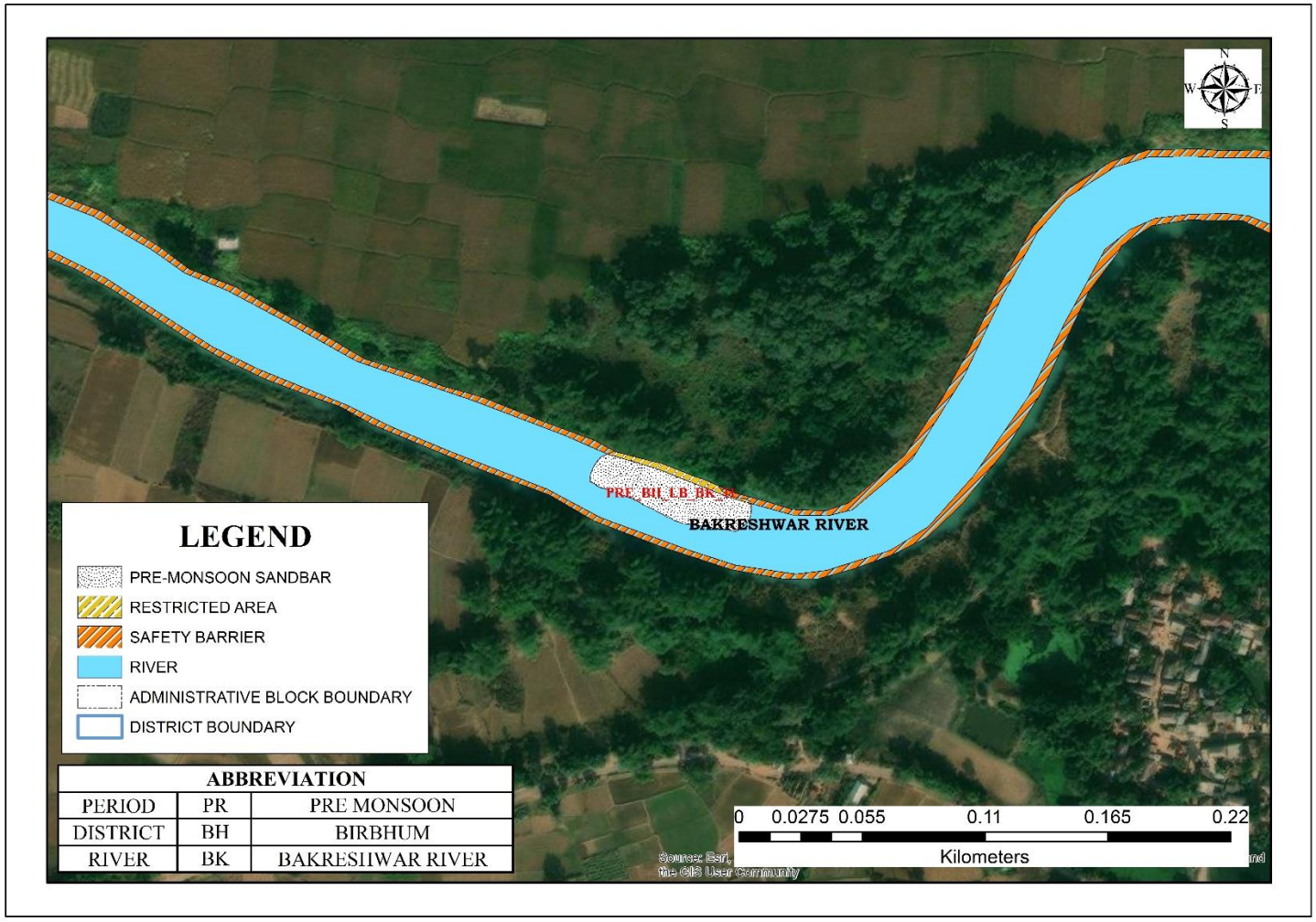


Plate 2A26: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

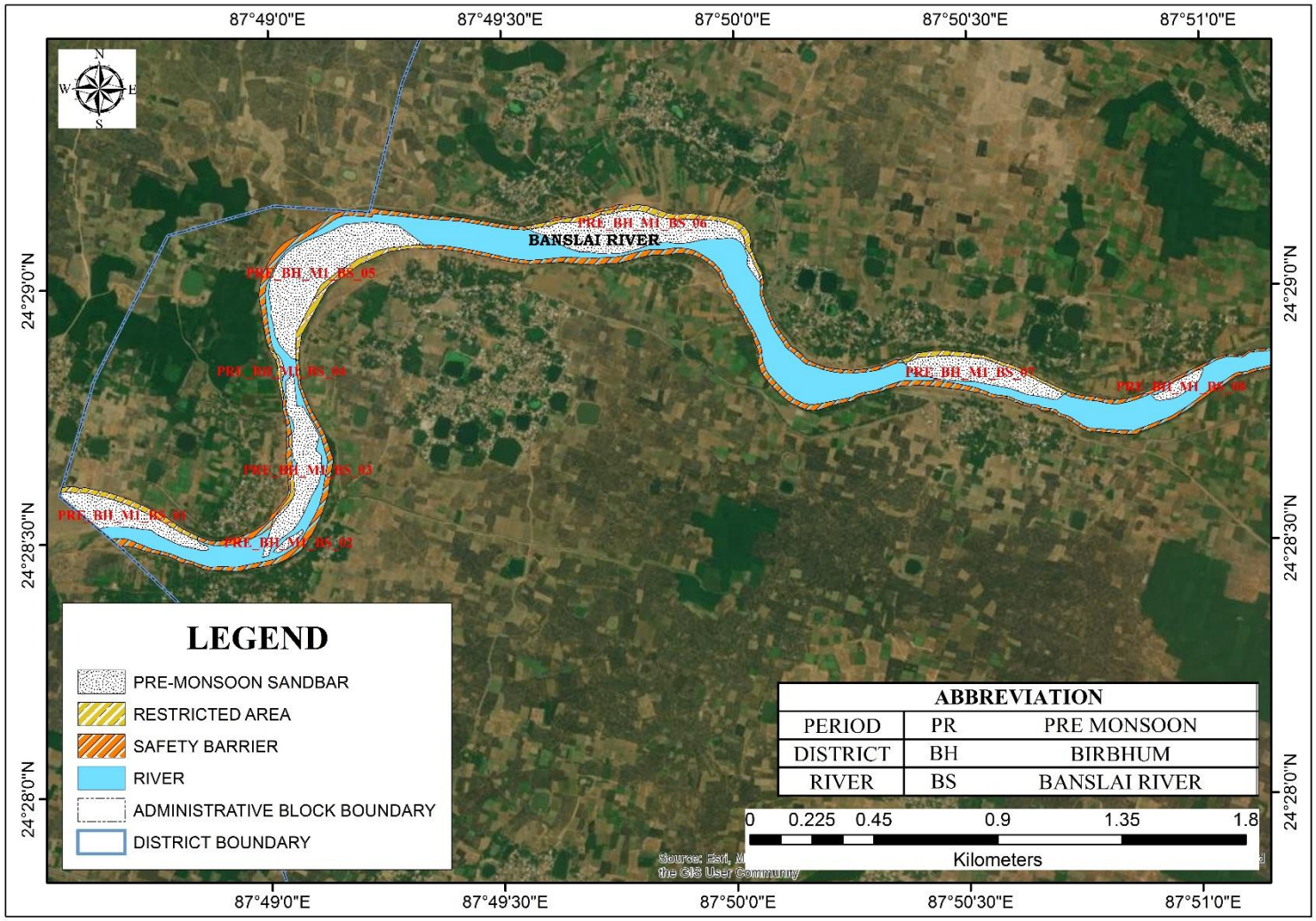


Plate 2A27: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

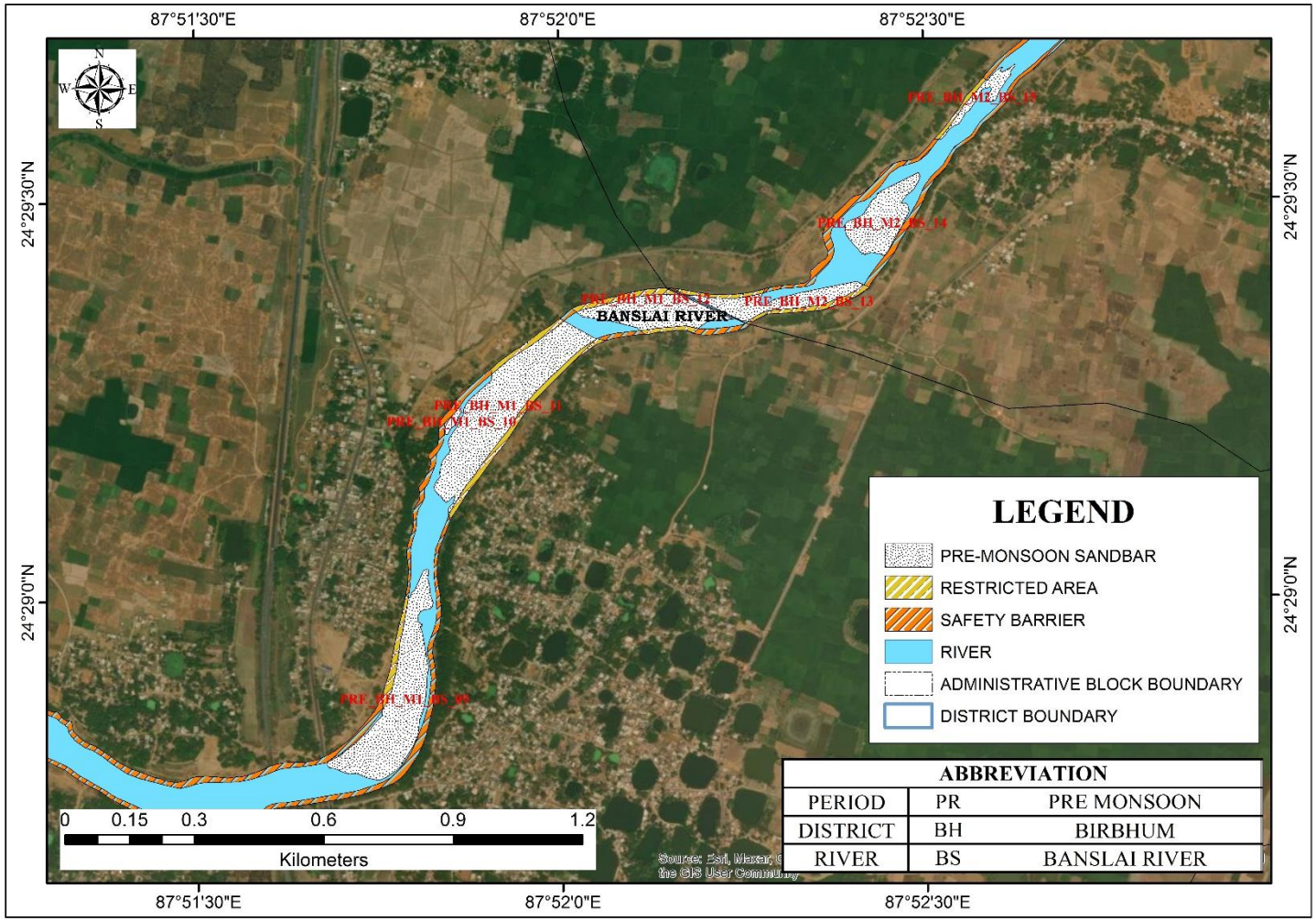


Plate 2A28: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

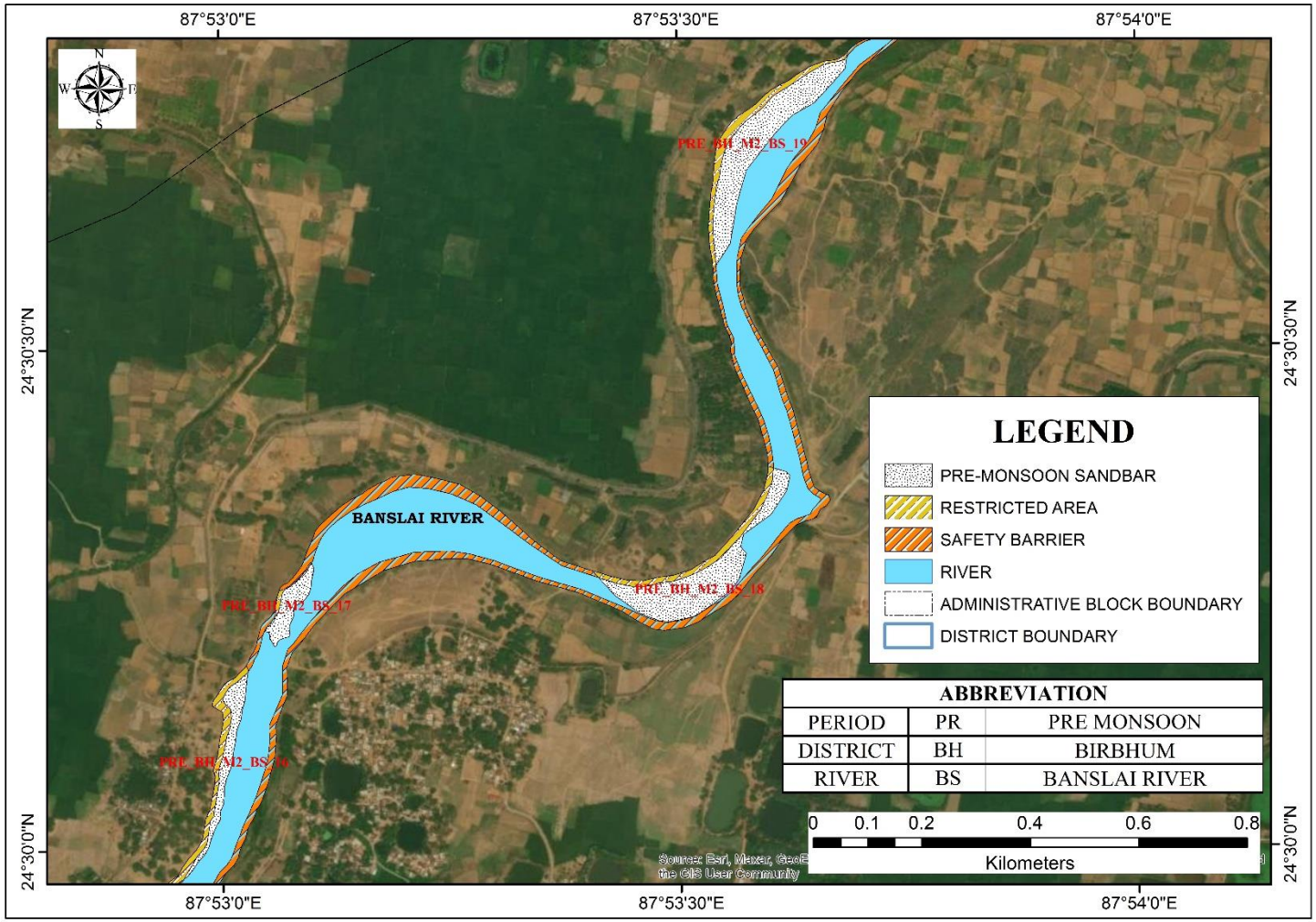


Plate 2A29: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

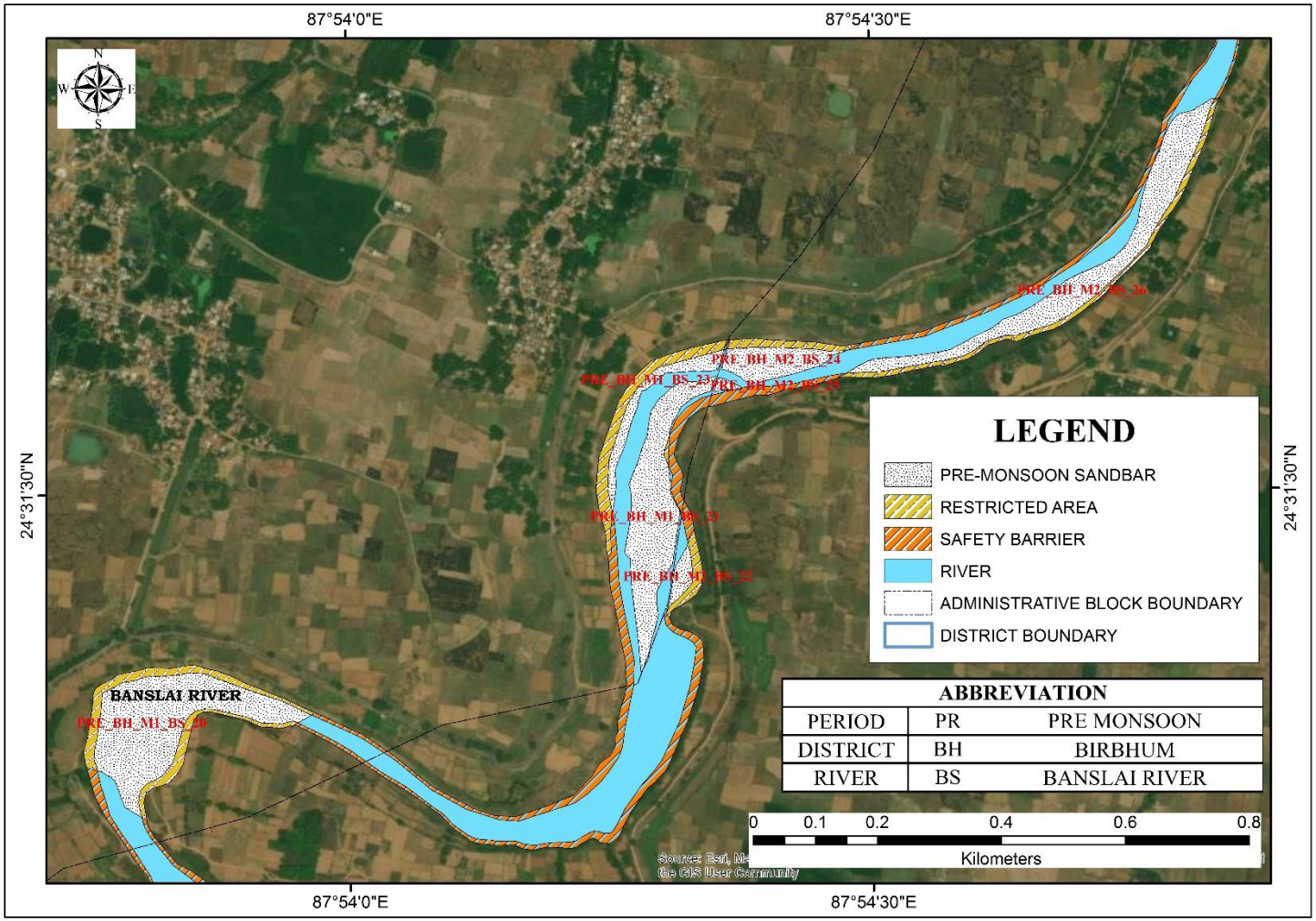


Plate 2A30: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

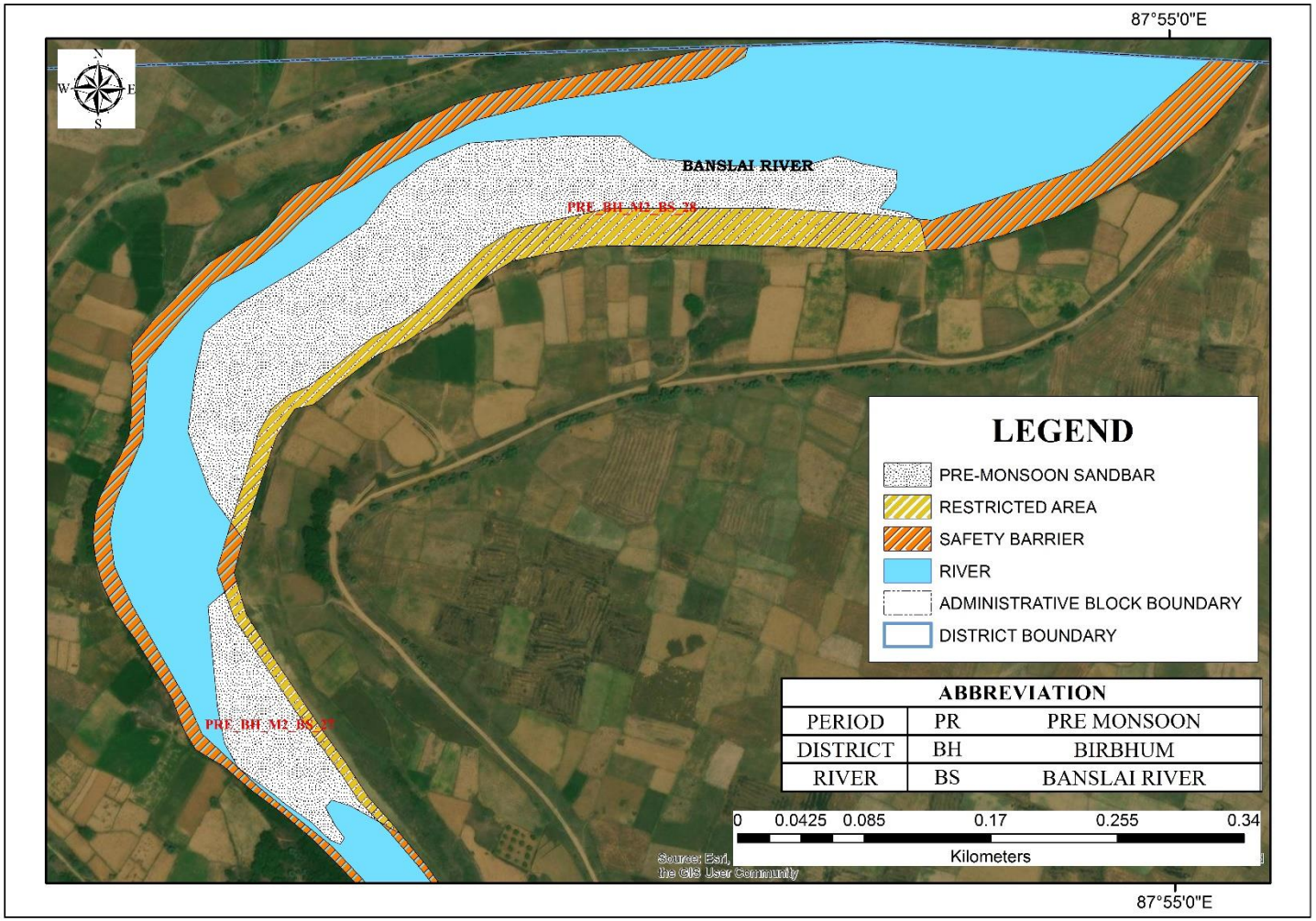


Plate 2A31: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

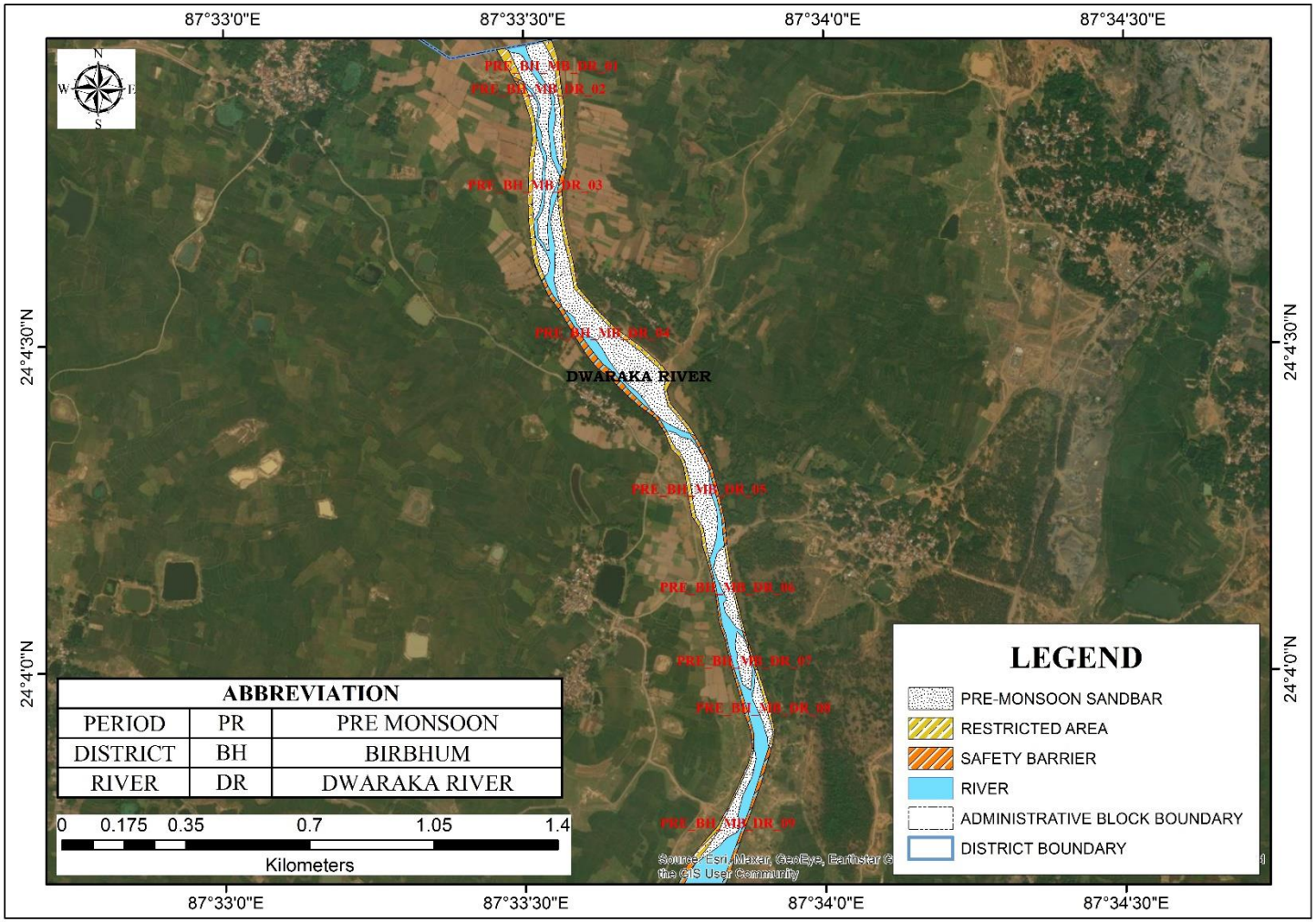


Plate 2A32: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

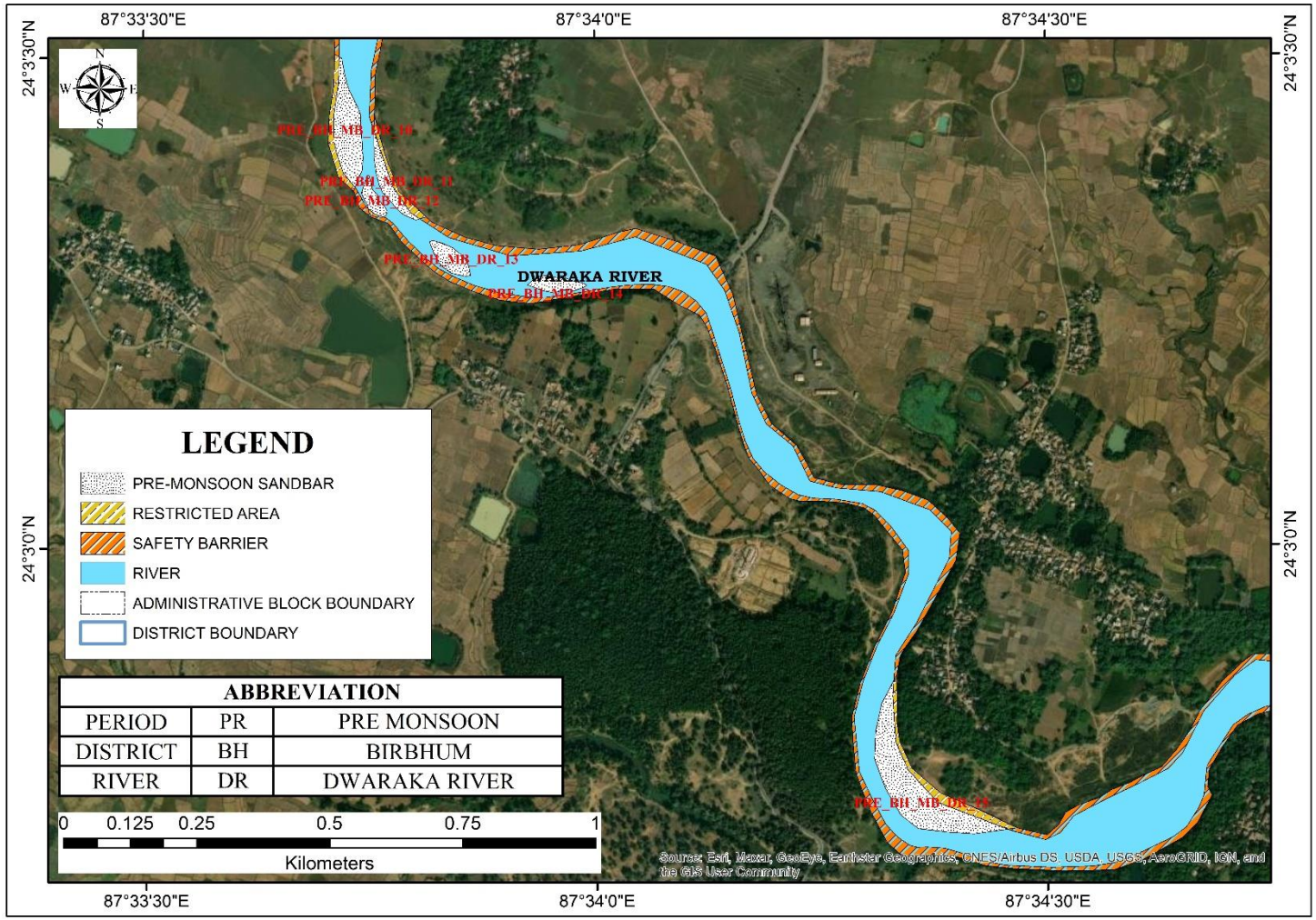


Plate 2A33: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

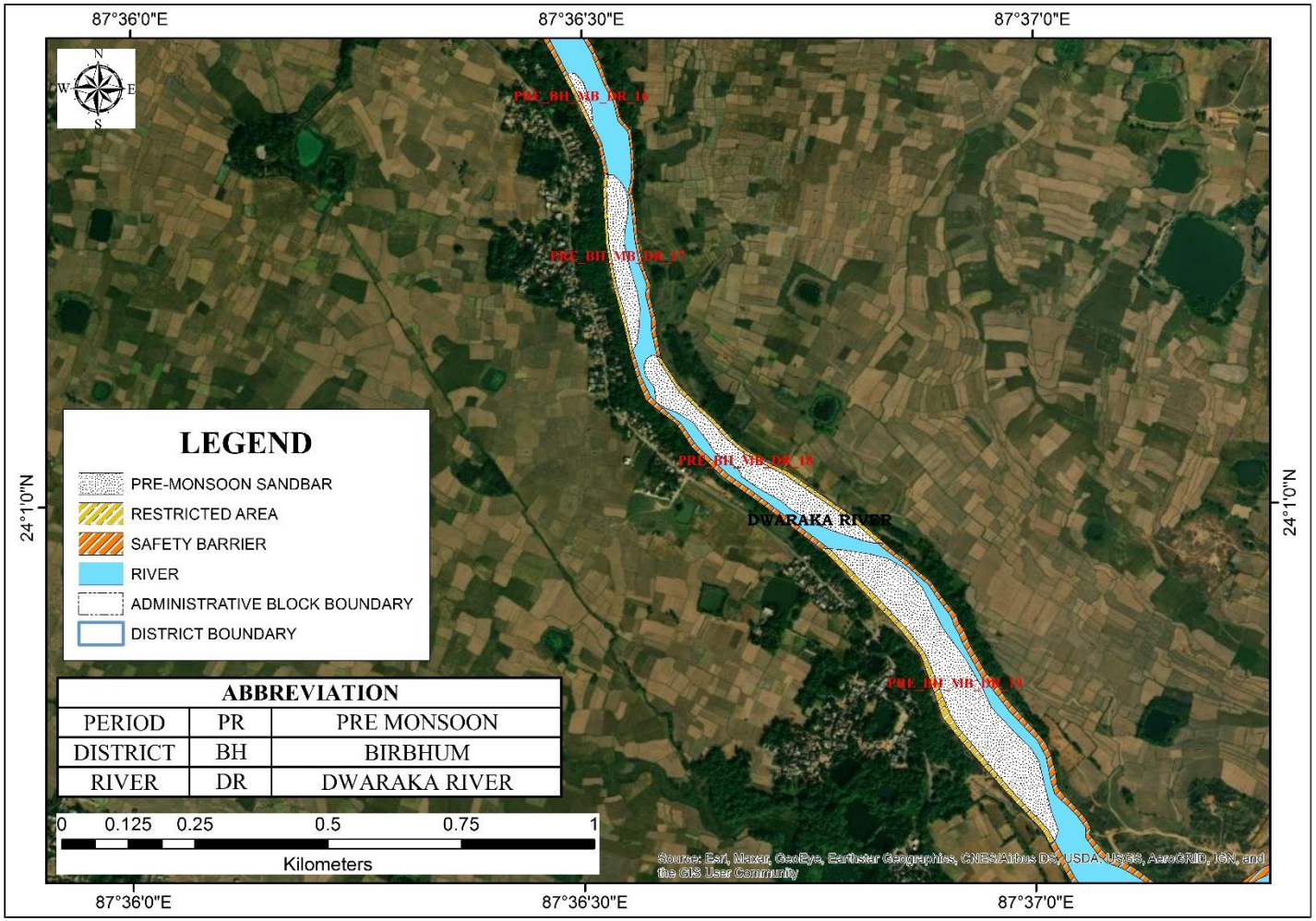


Plate 2A34: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

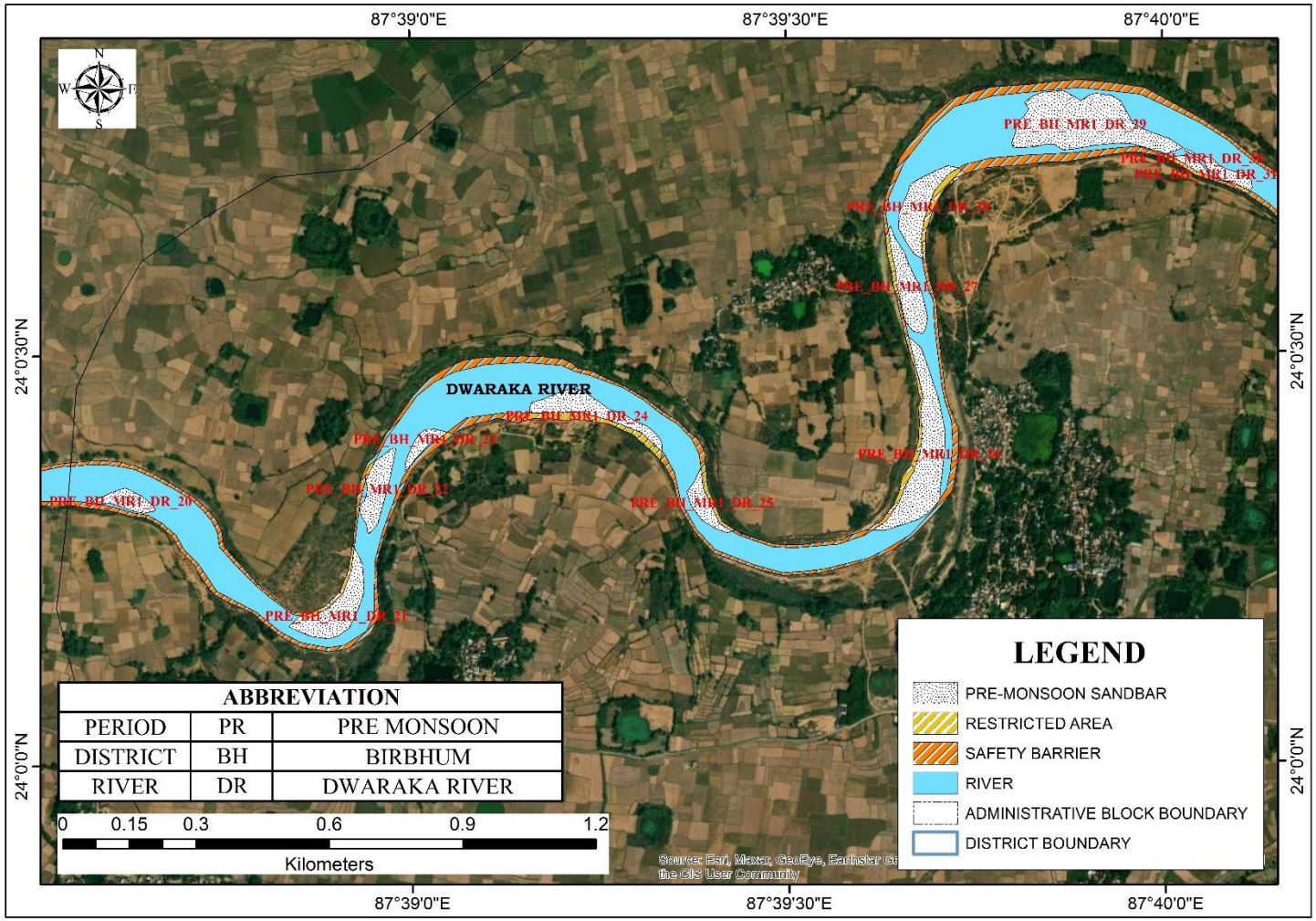


Plate 2A35: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

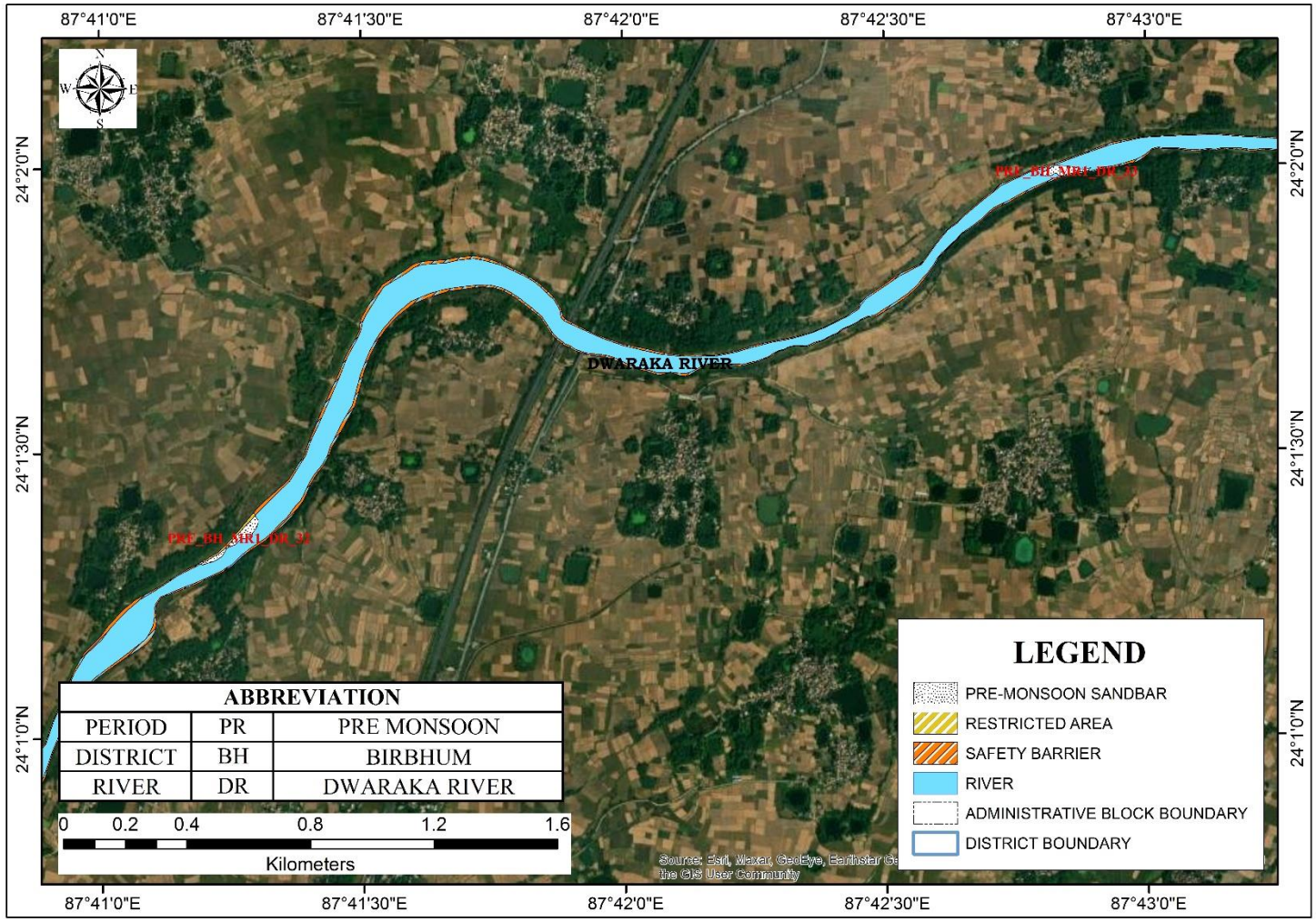


Plate 2A36: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

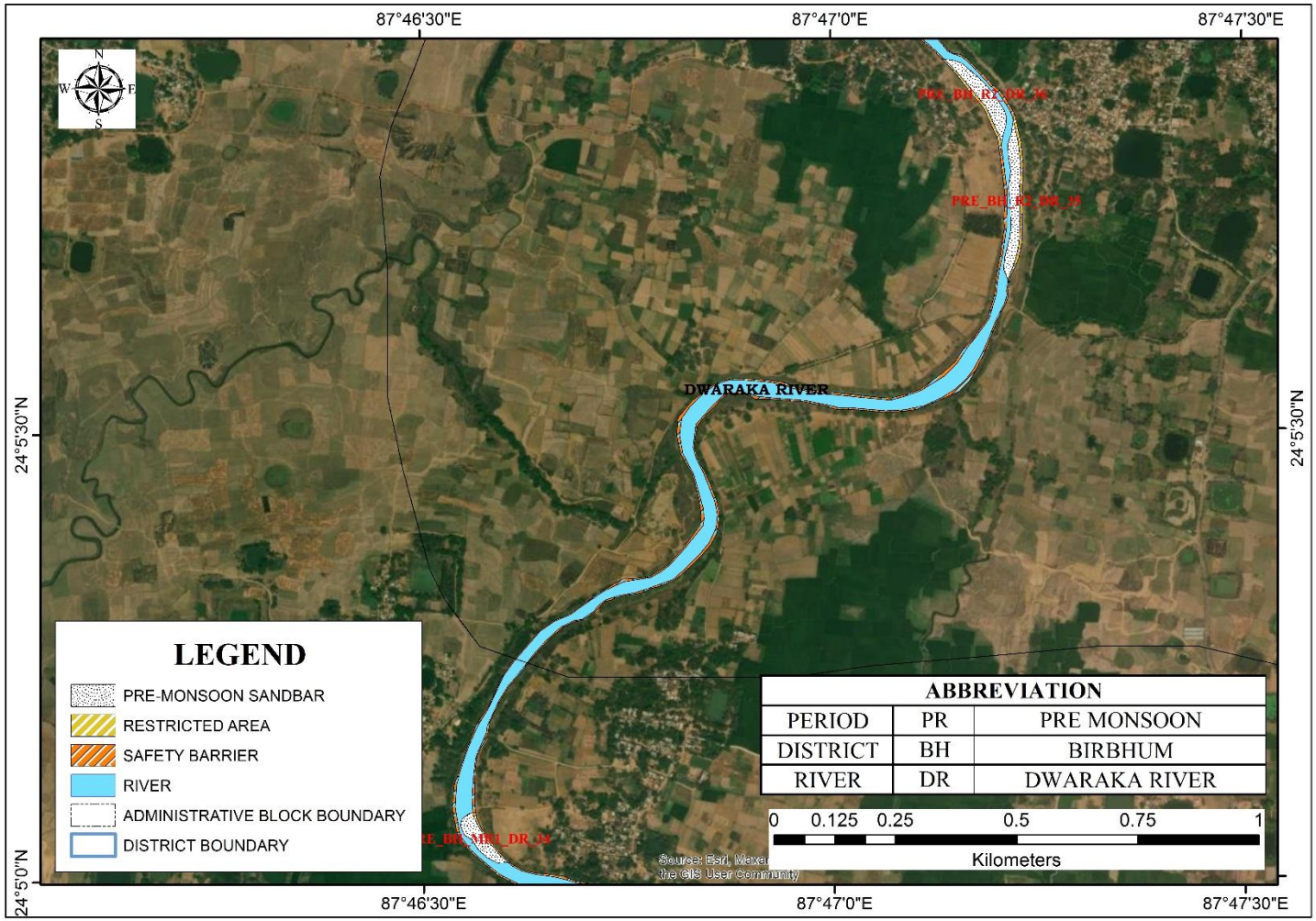


Plate 2A37: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

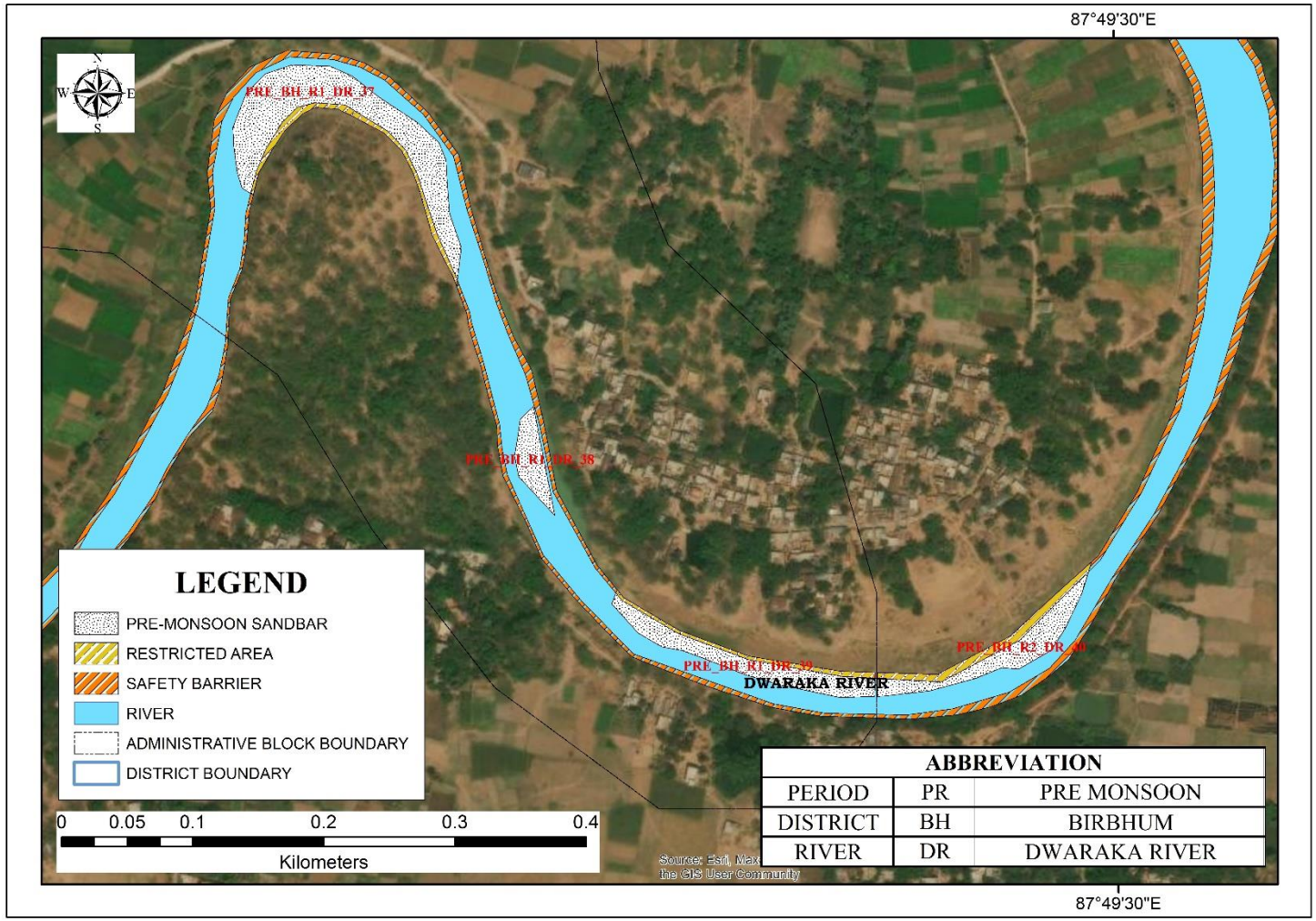


Plate 2A38: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

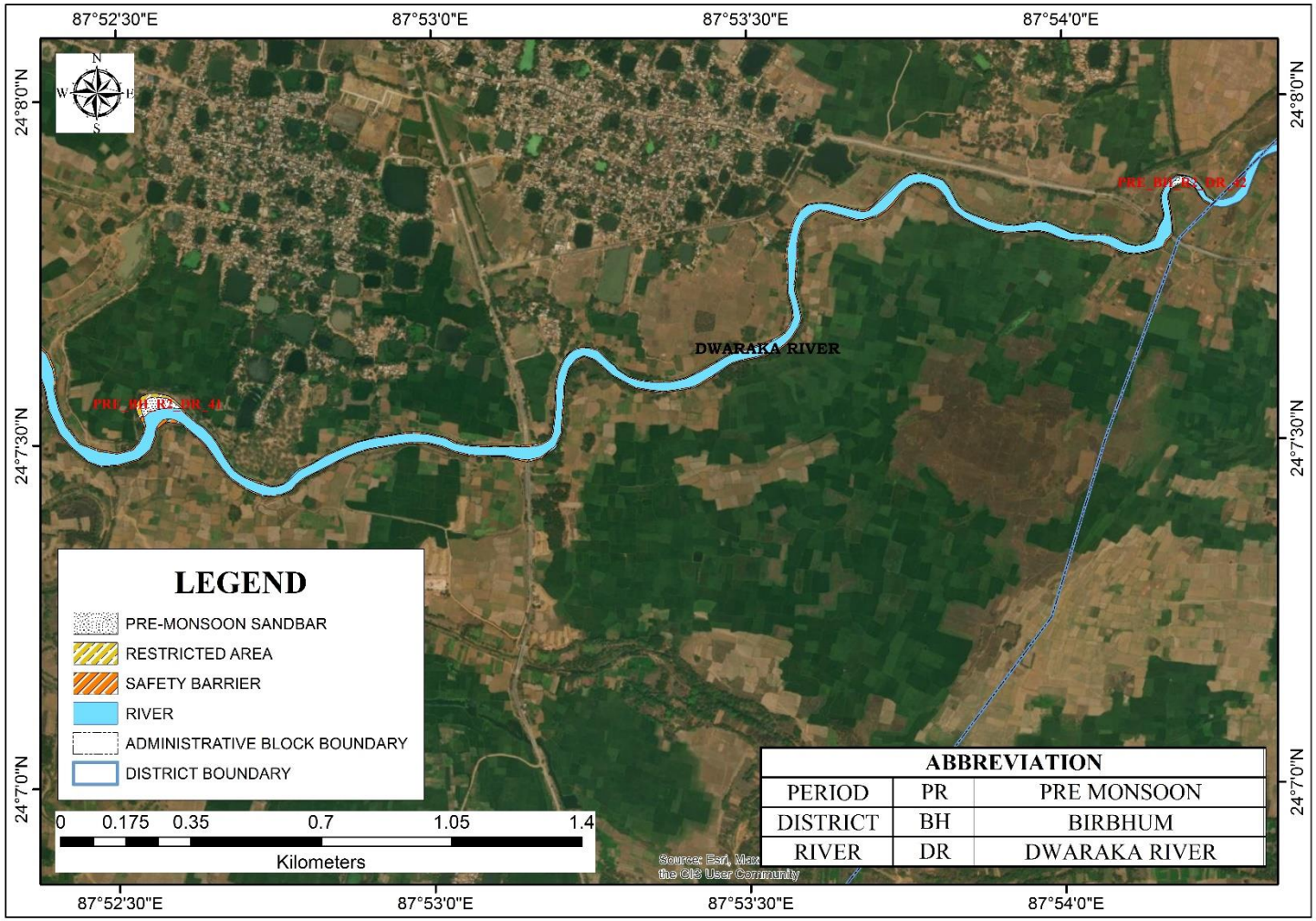


Plate 2A39: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

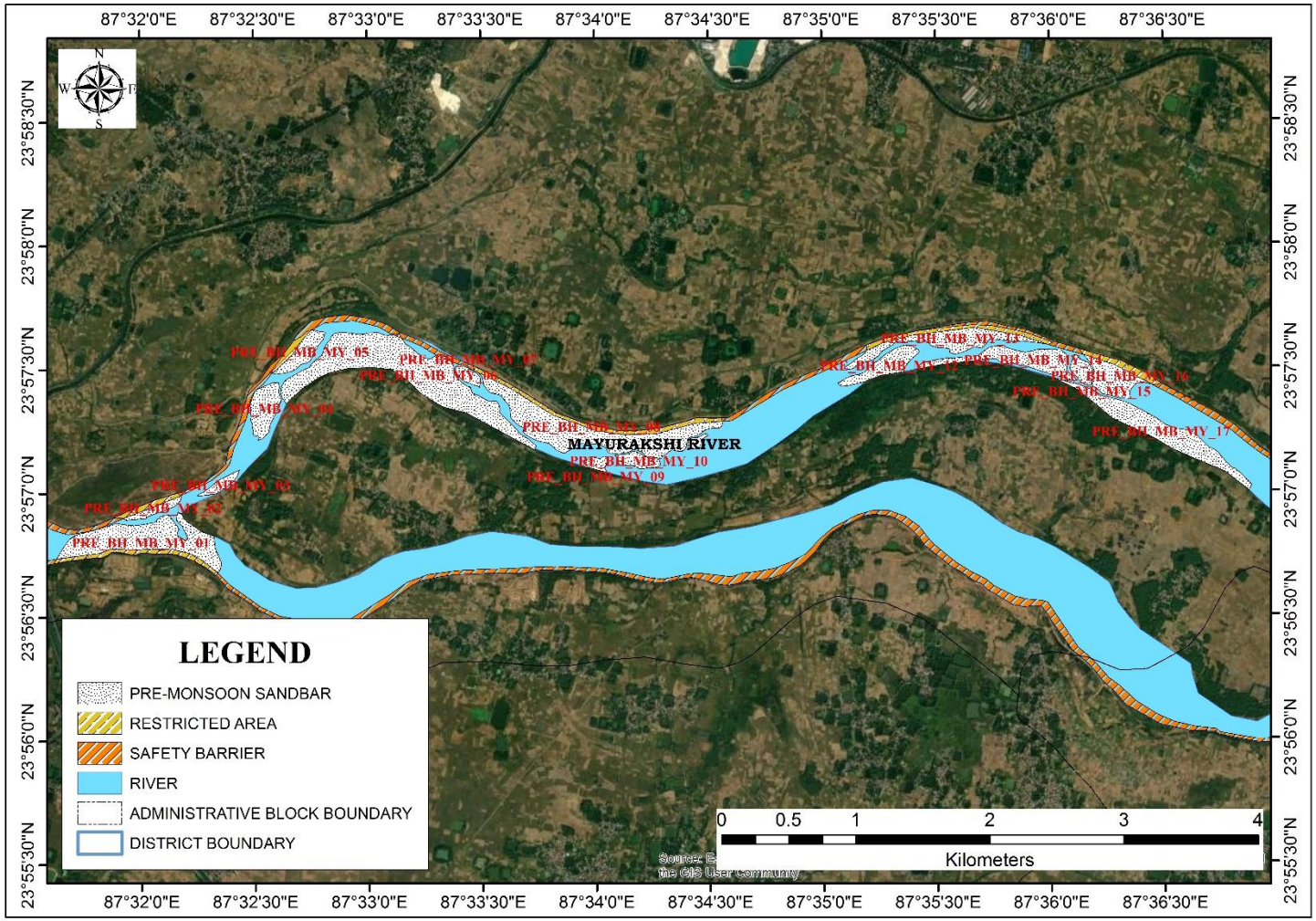


Plate 2A40: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

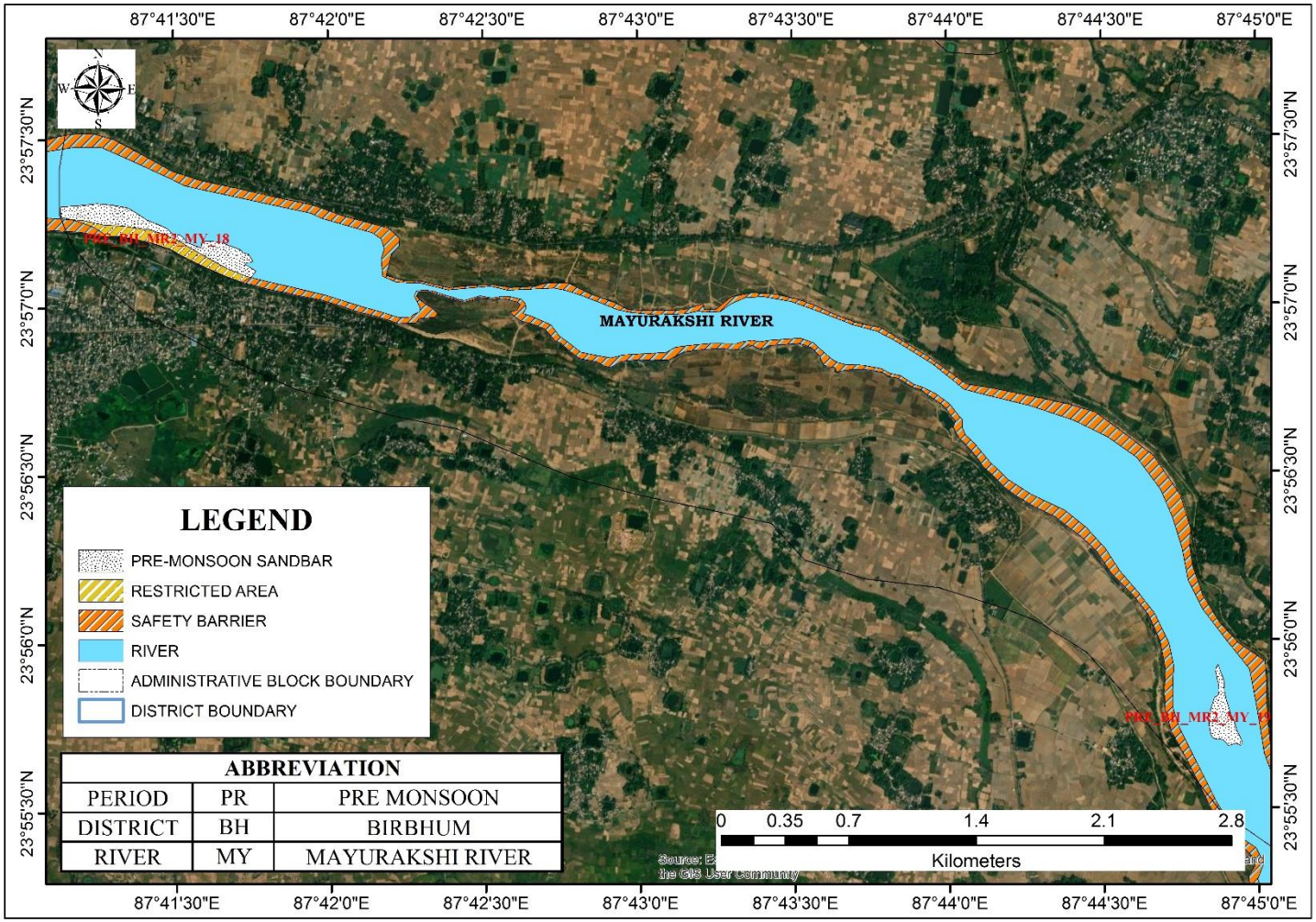


Plate 2A41: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

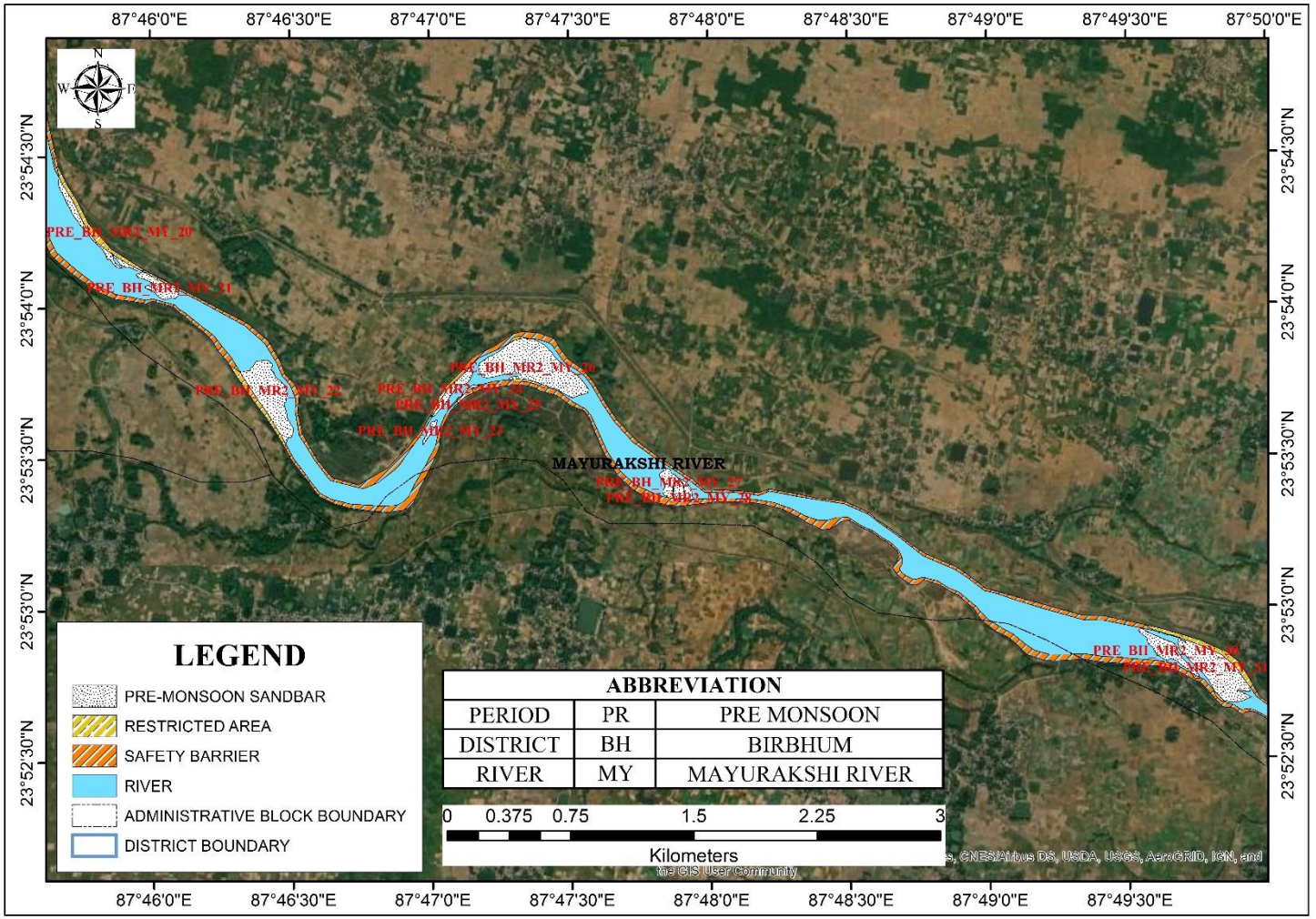


Plate 2A42: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

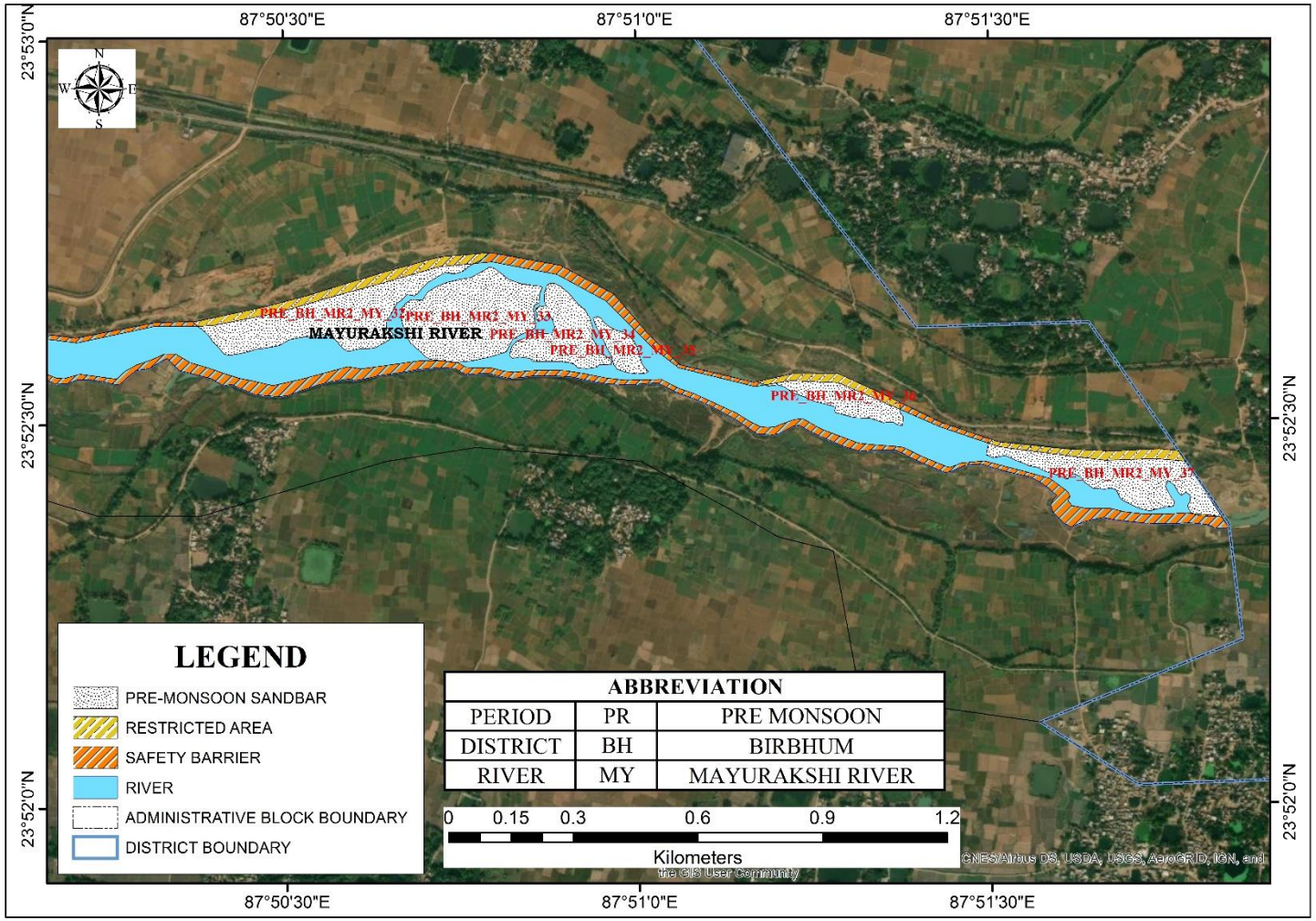


Plate 2A43: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

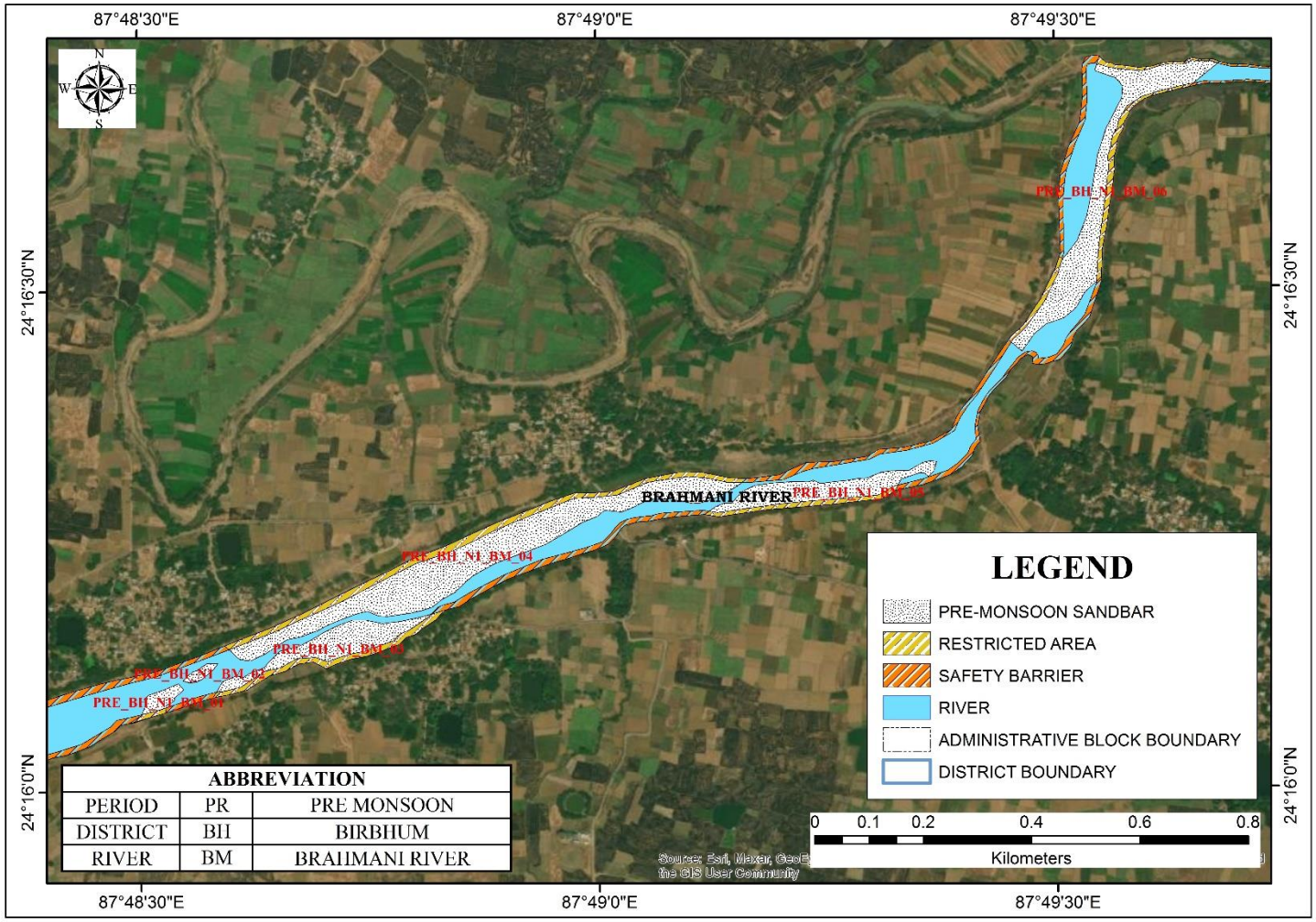


Plate 2A44: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

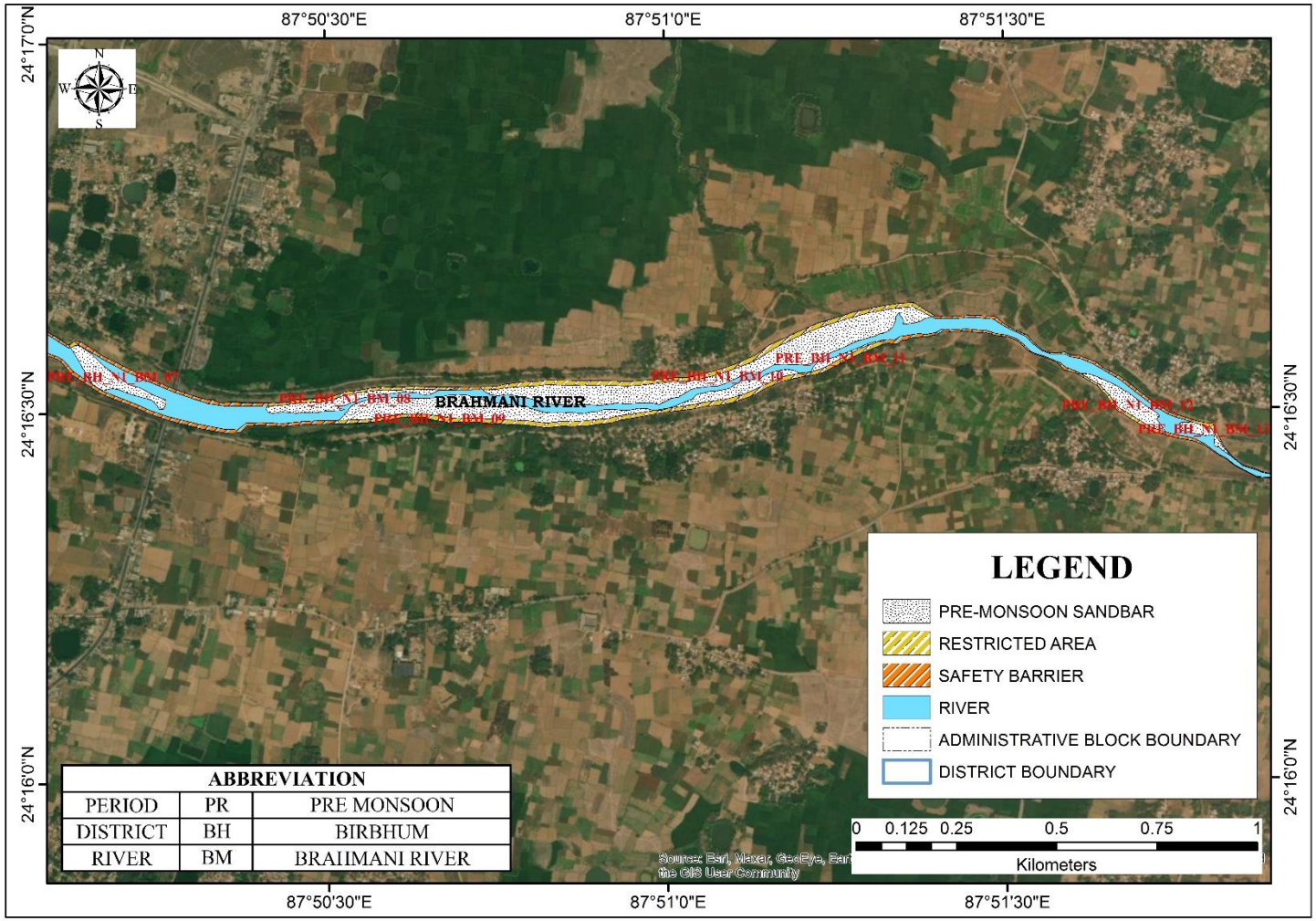


Plate 2A45: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

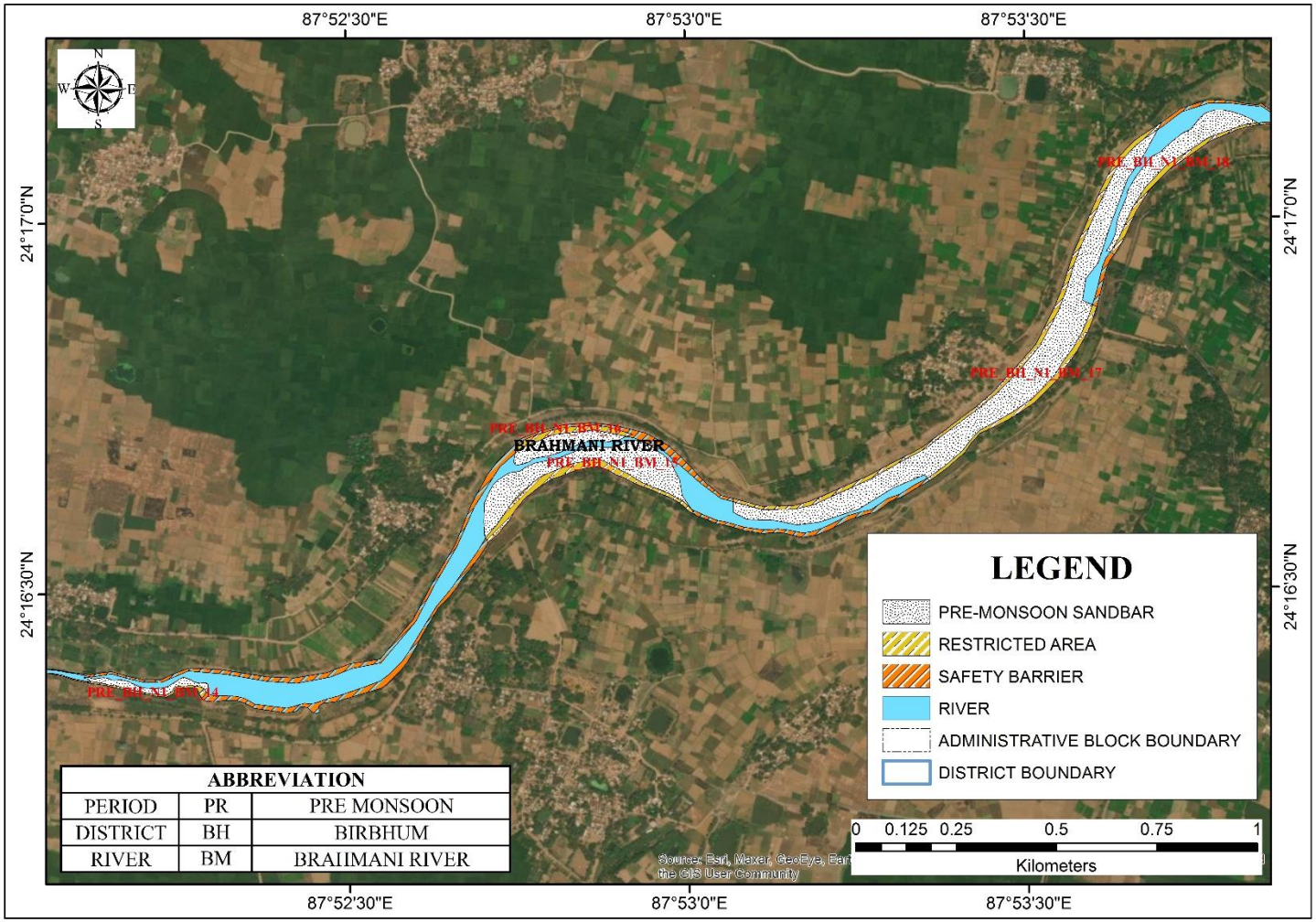


Plate 2A46: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

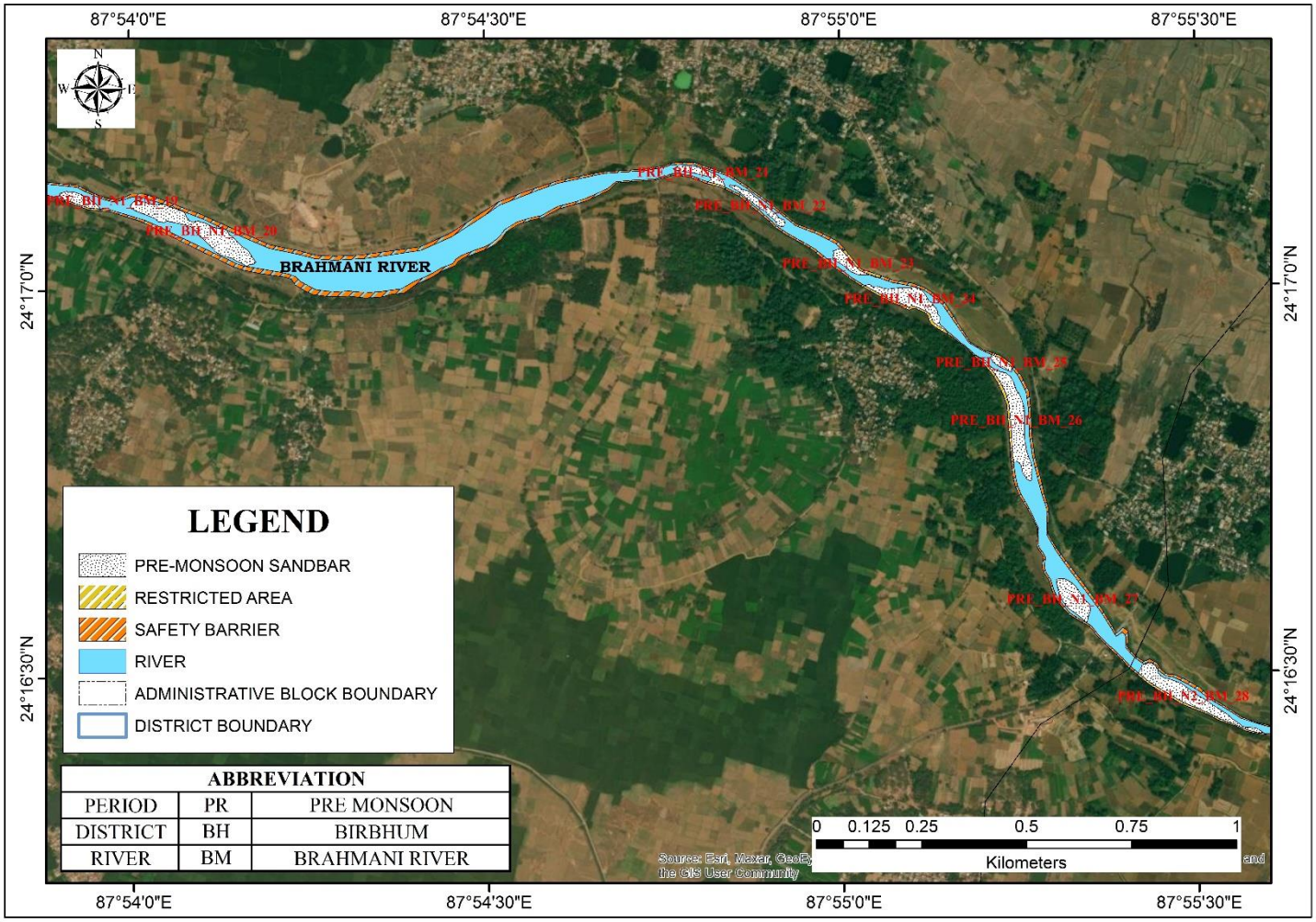


Plate 2A47: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

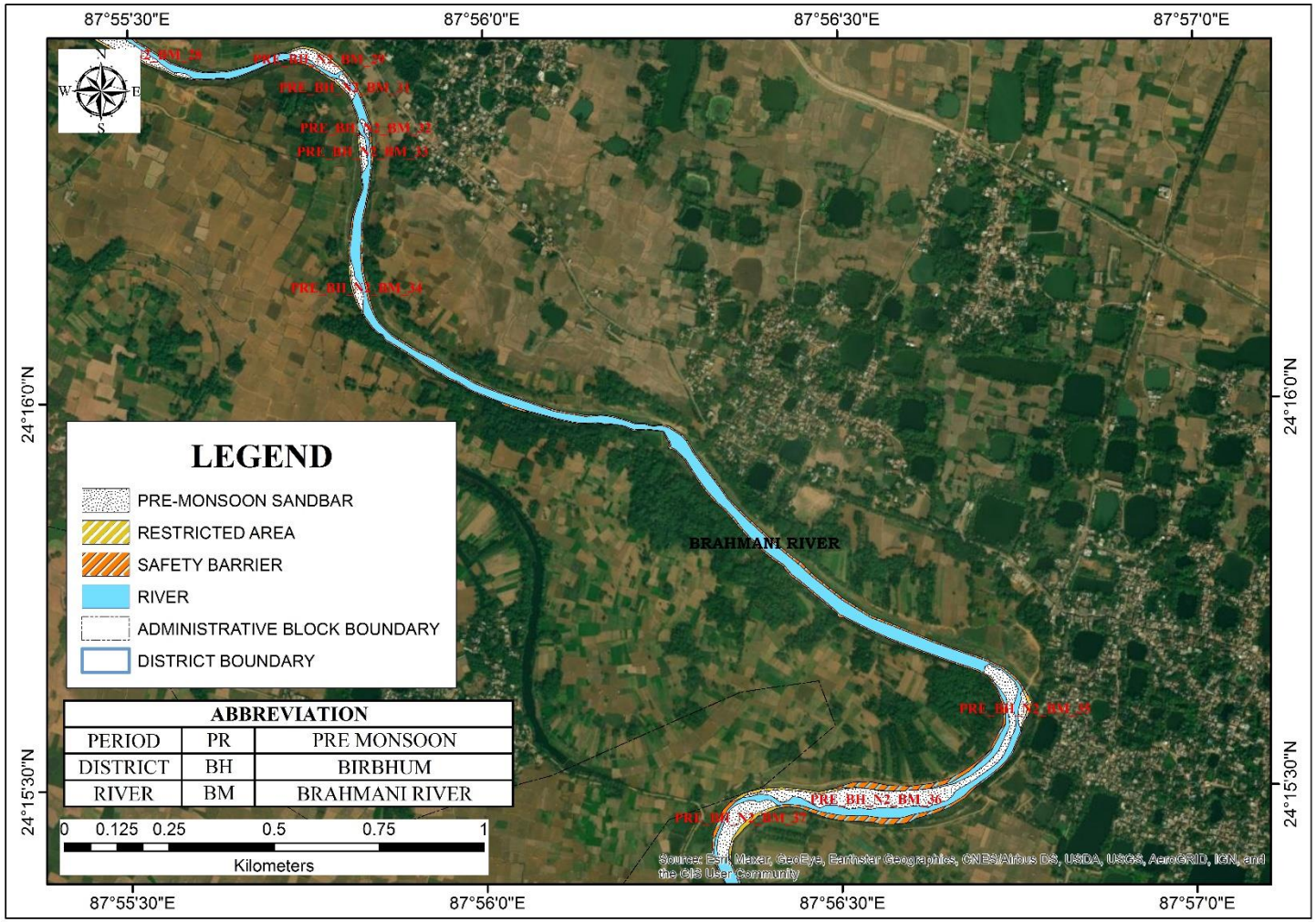


Plate 2A48: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

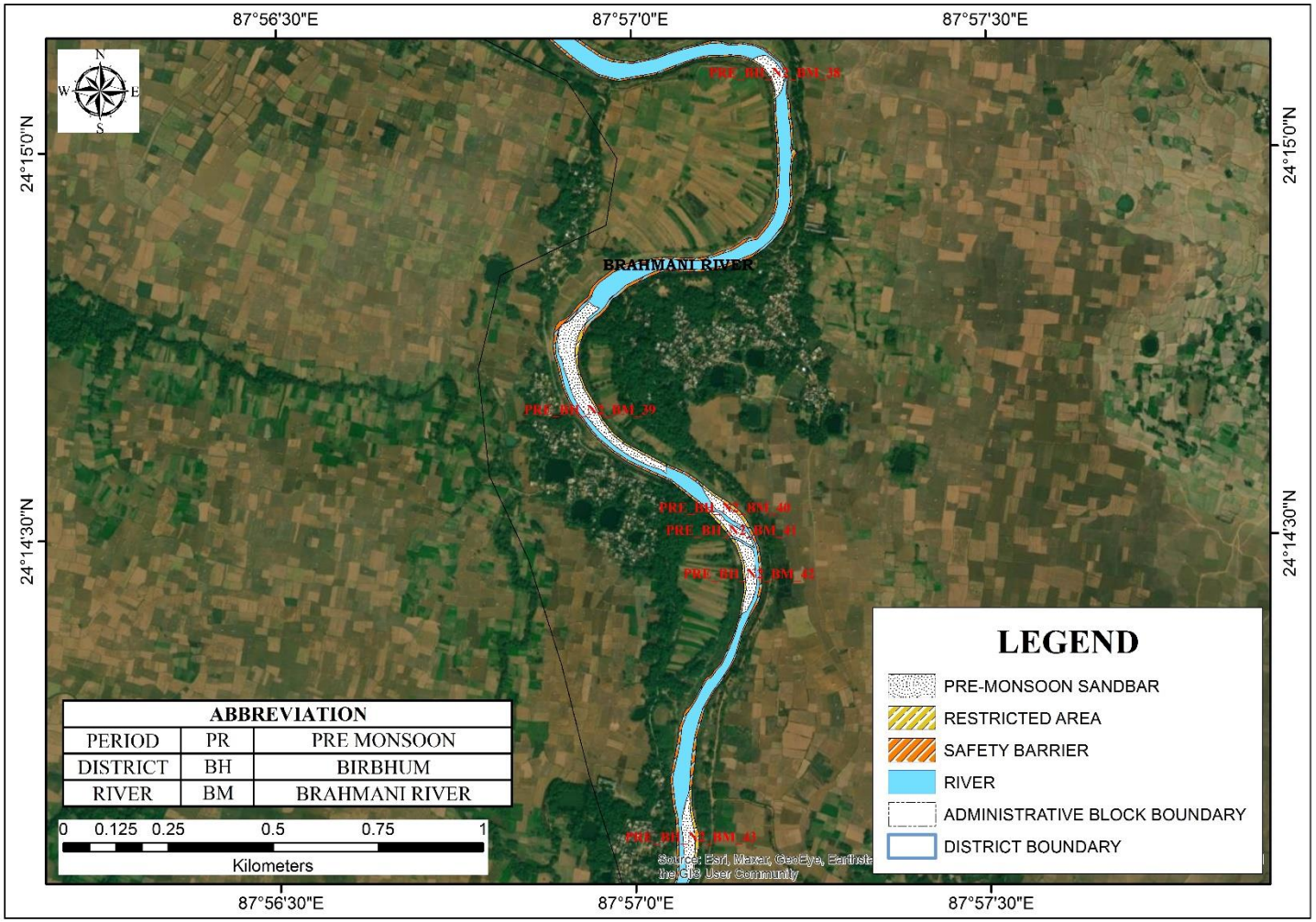


Plate 2A49: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

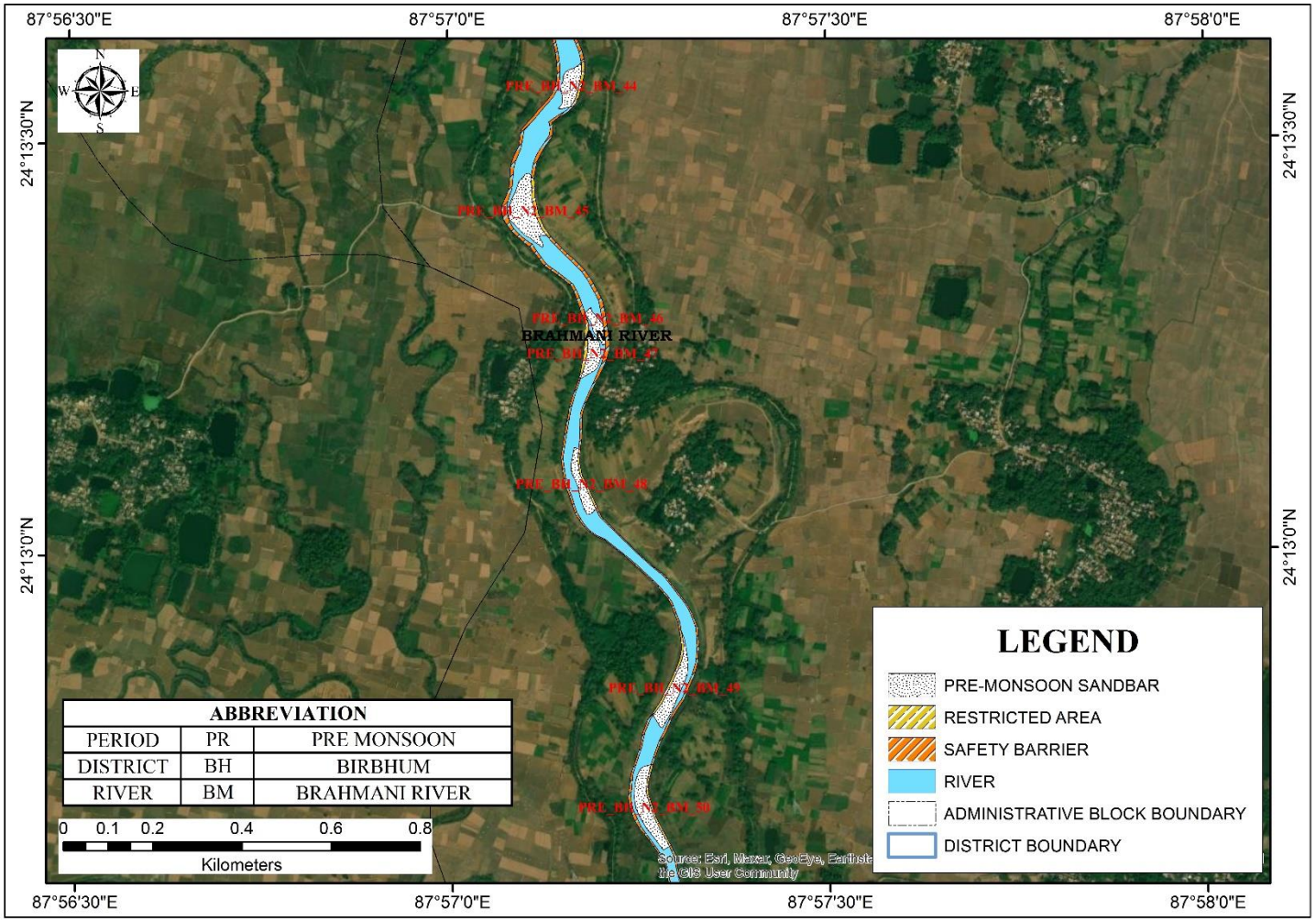


Plate 2A50: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

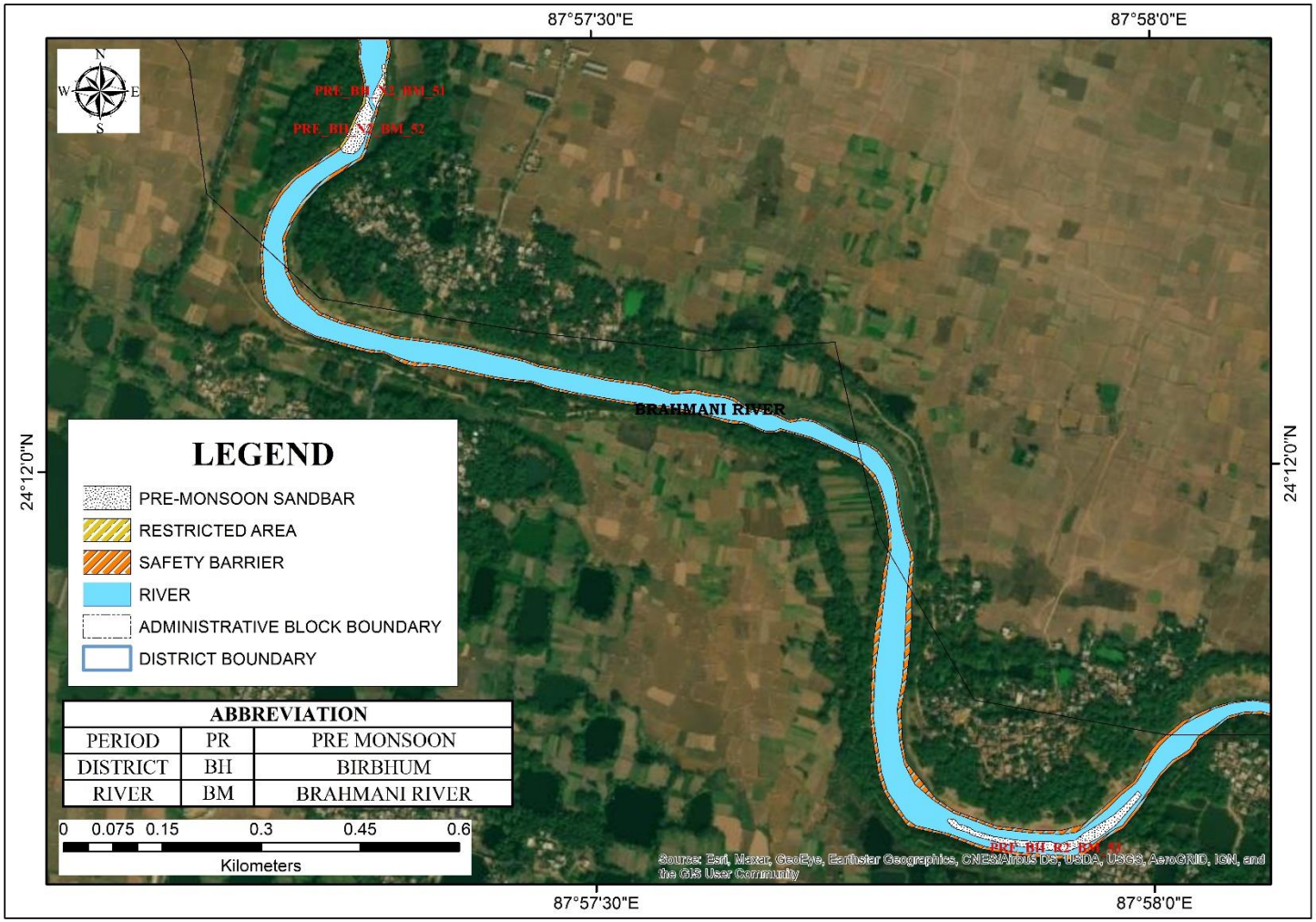


Plate 2A51: Distribution Map of Sand Bars on Rivers During Pre-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

ANNEXURE 2B

DISTRIBUTION MAP OF SAND BARS ON RIVERS DURING POST-MONSOON PERIOD OF BIRBHUM DISTRICT

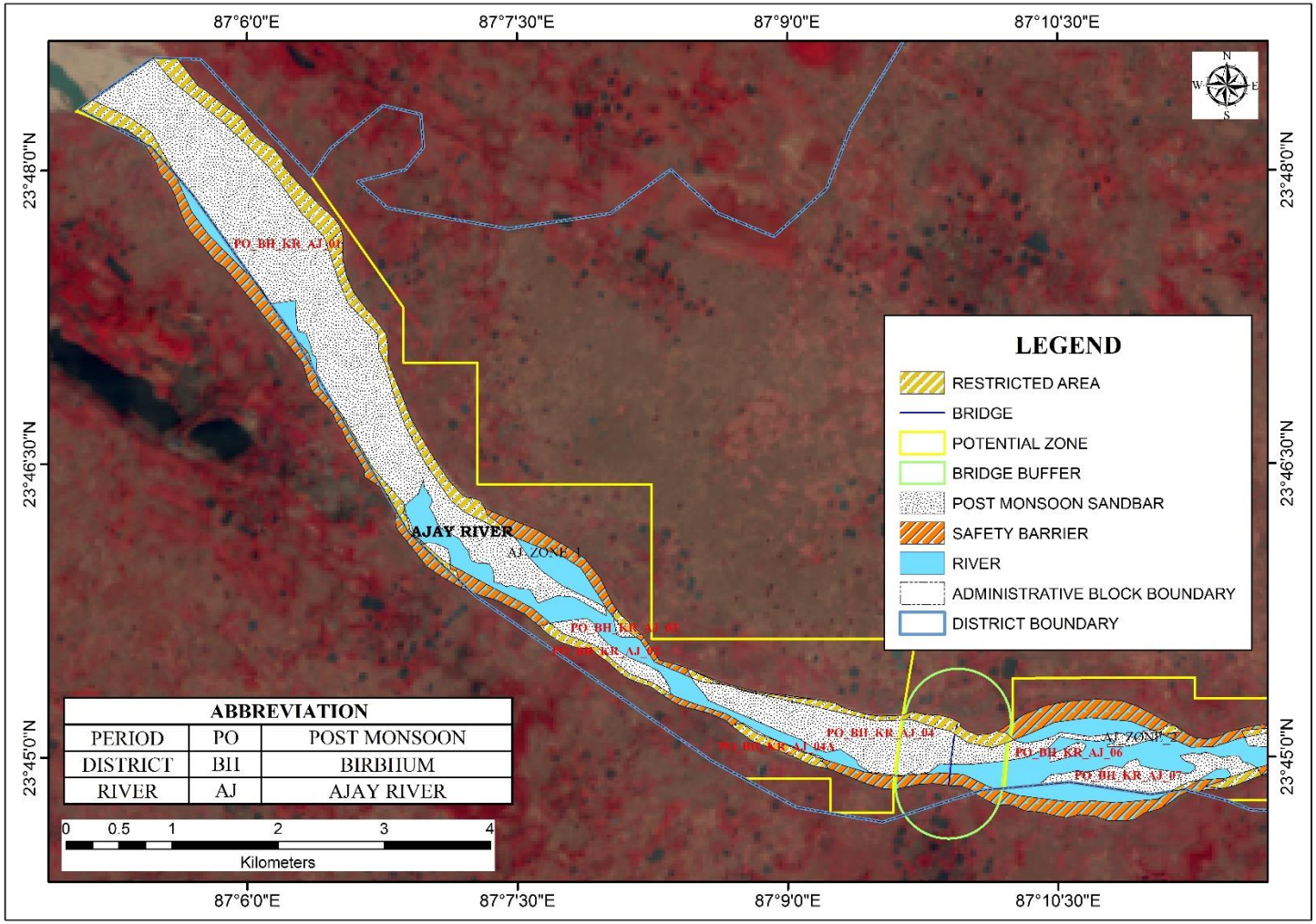


Plate 2B1: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

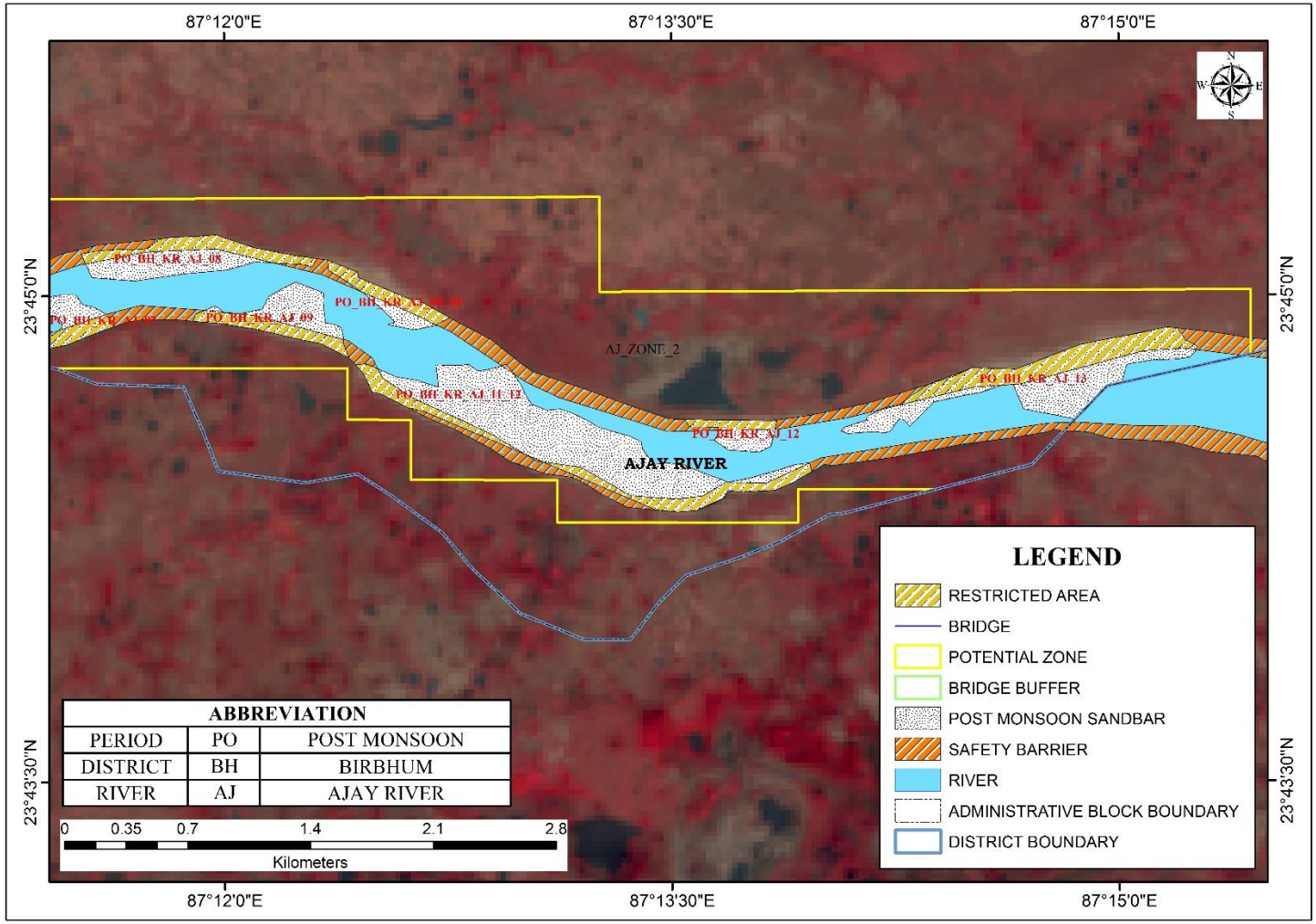


Plate 2B2: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

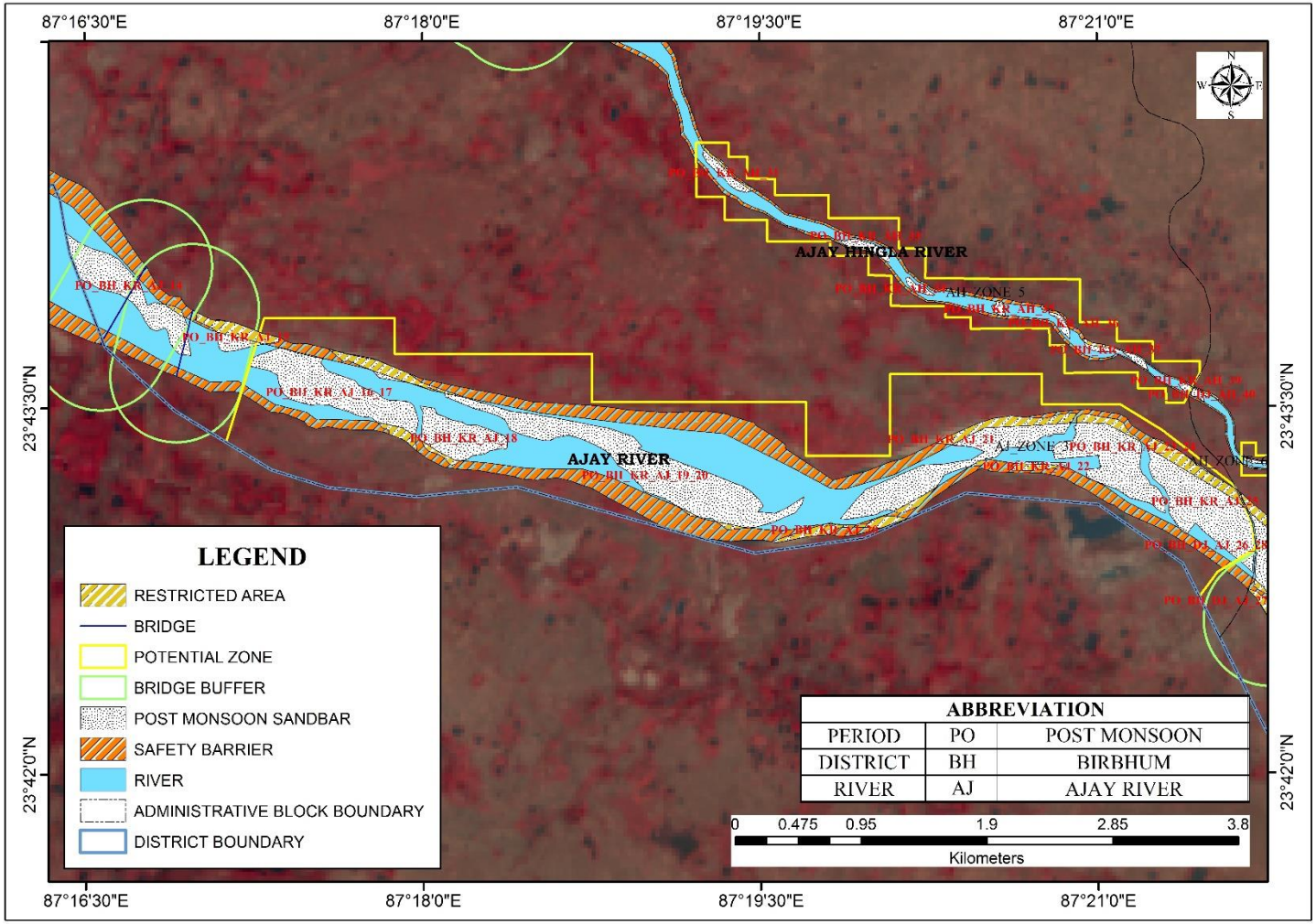


Plate 2B3: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

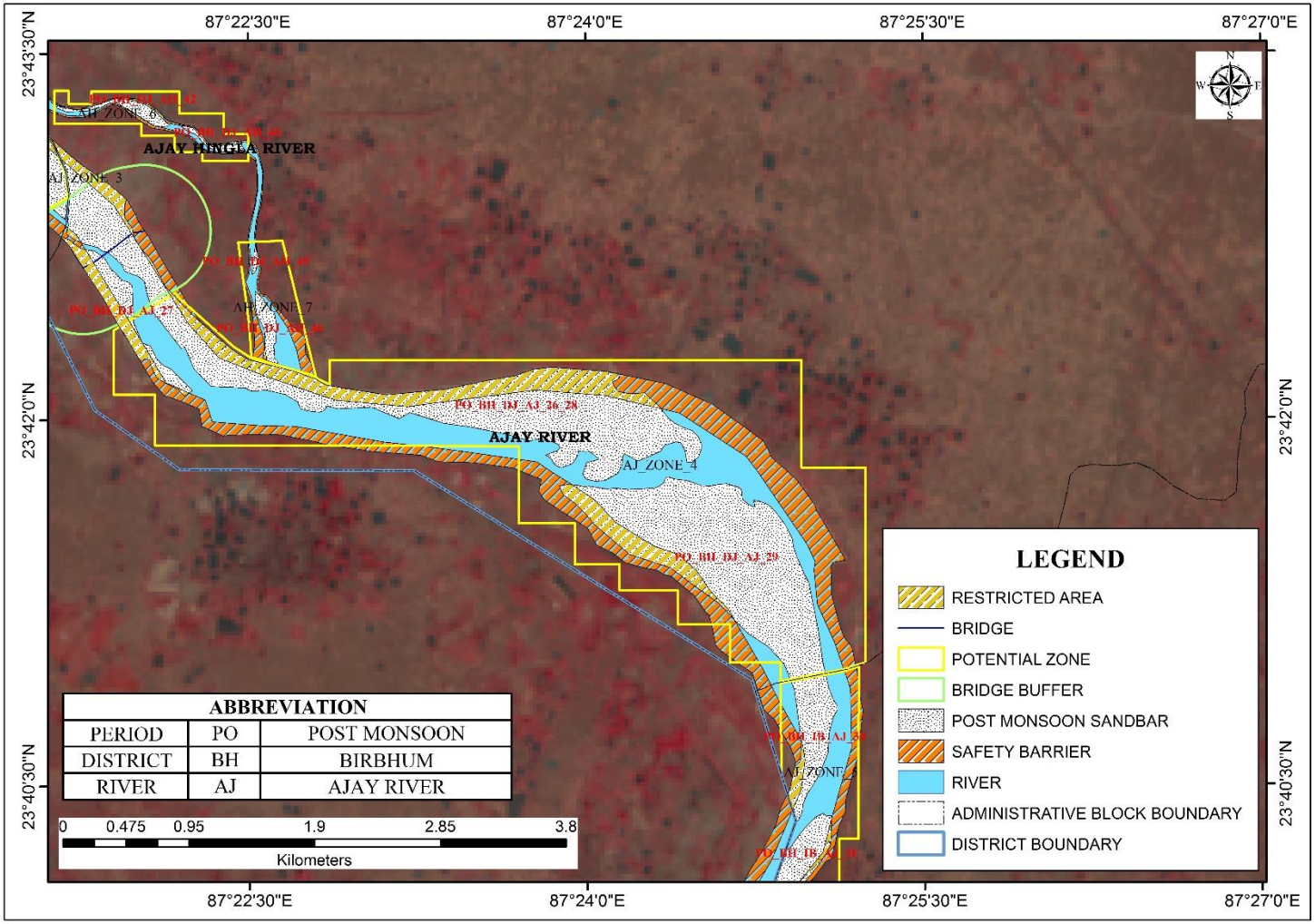


Plate 2B4: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

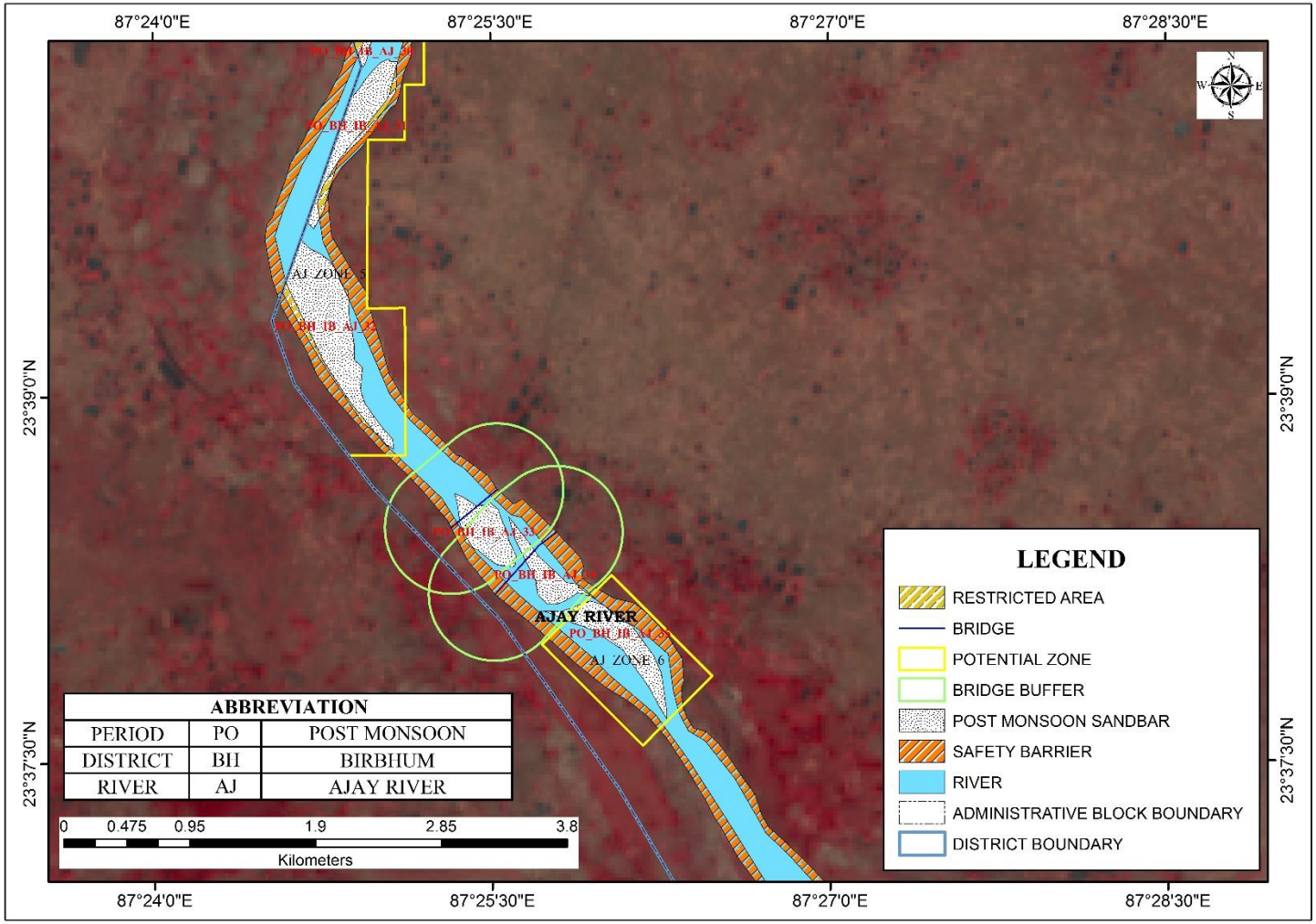


Plate 2B5: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

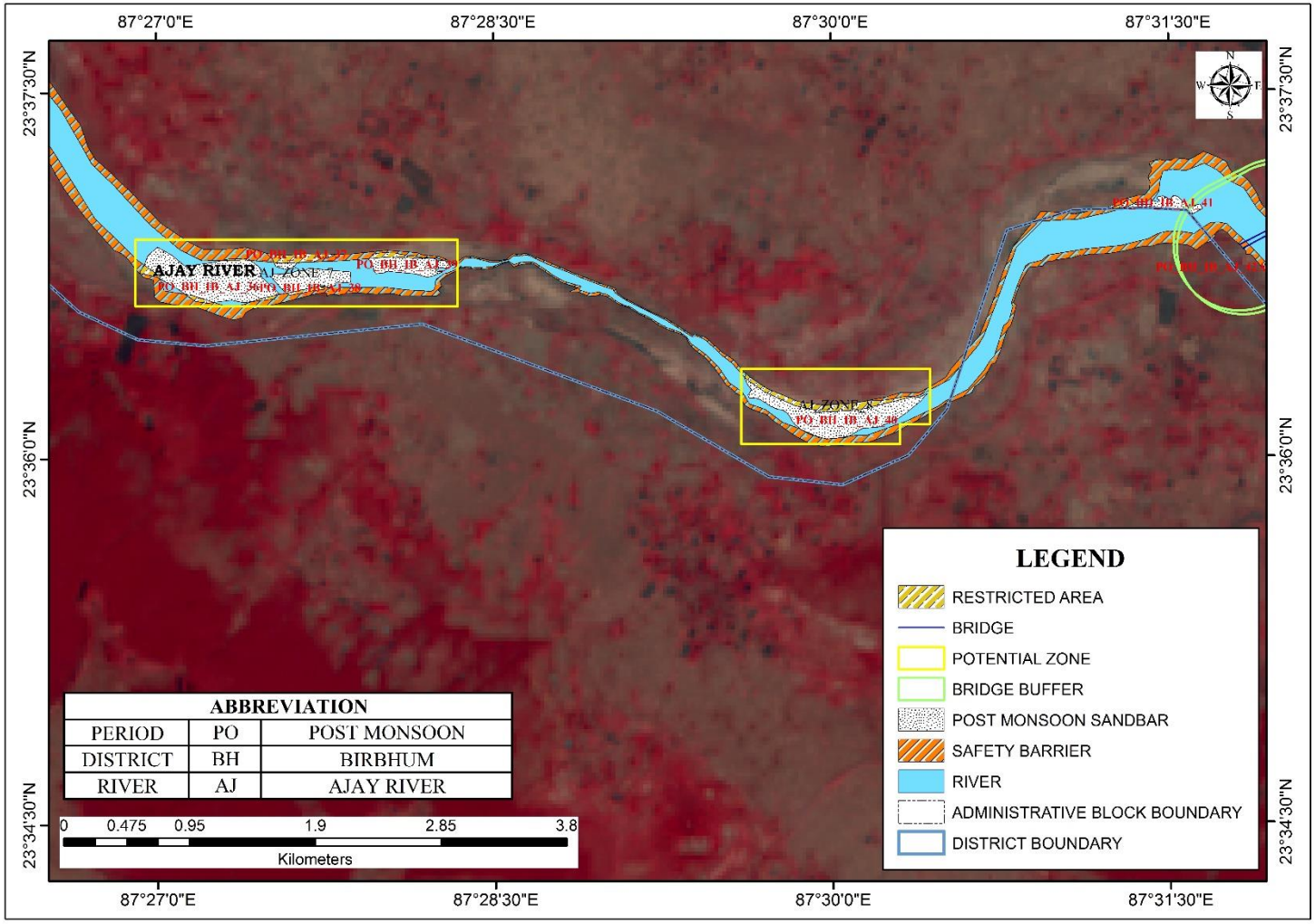


Plate 2B6: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

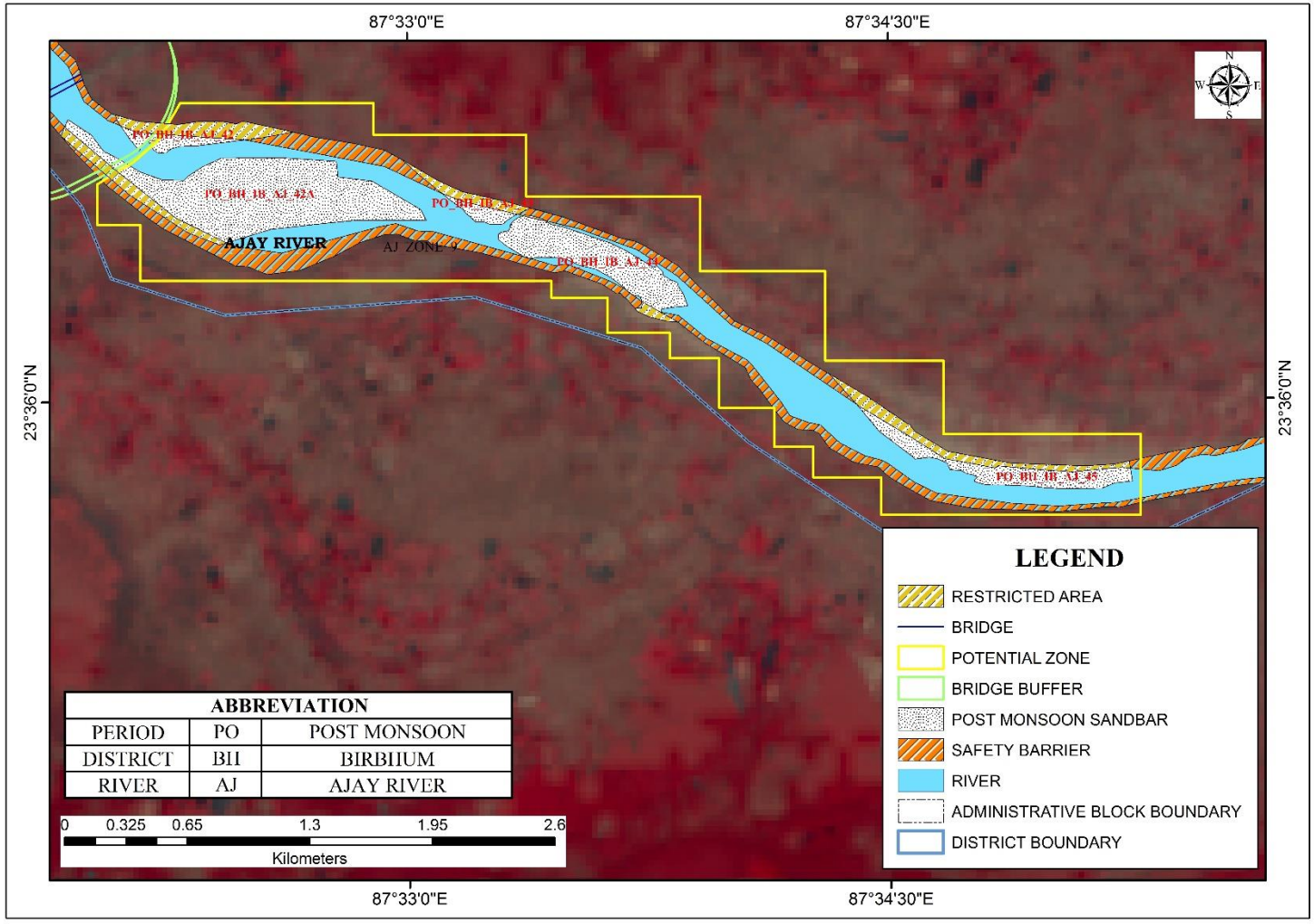


Plate 2B7: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

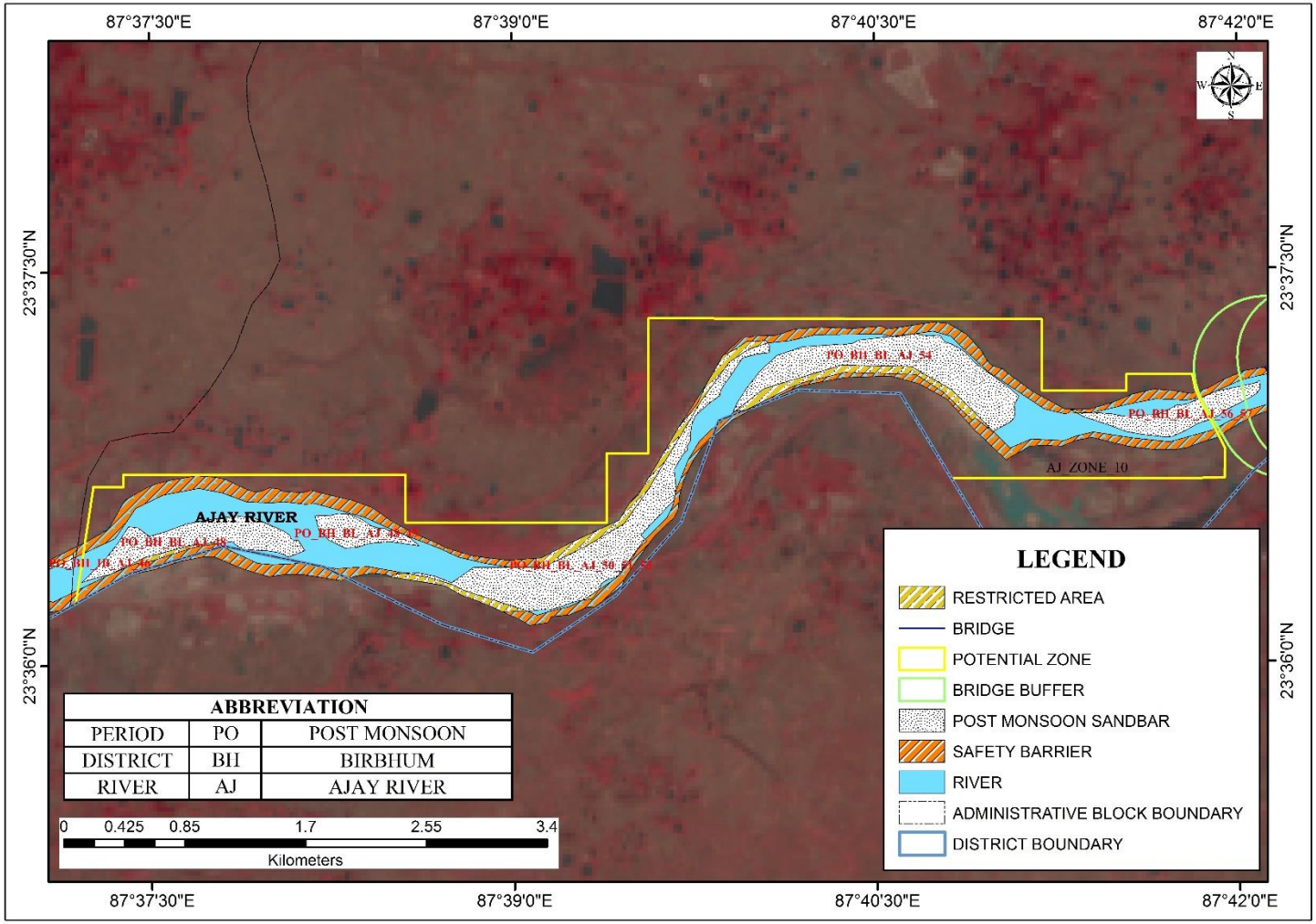


Plate 2B8: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

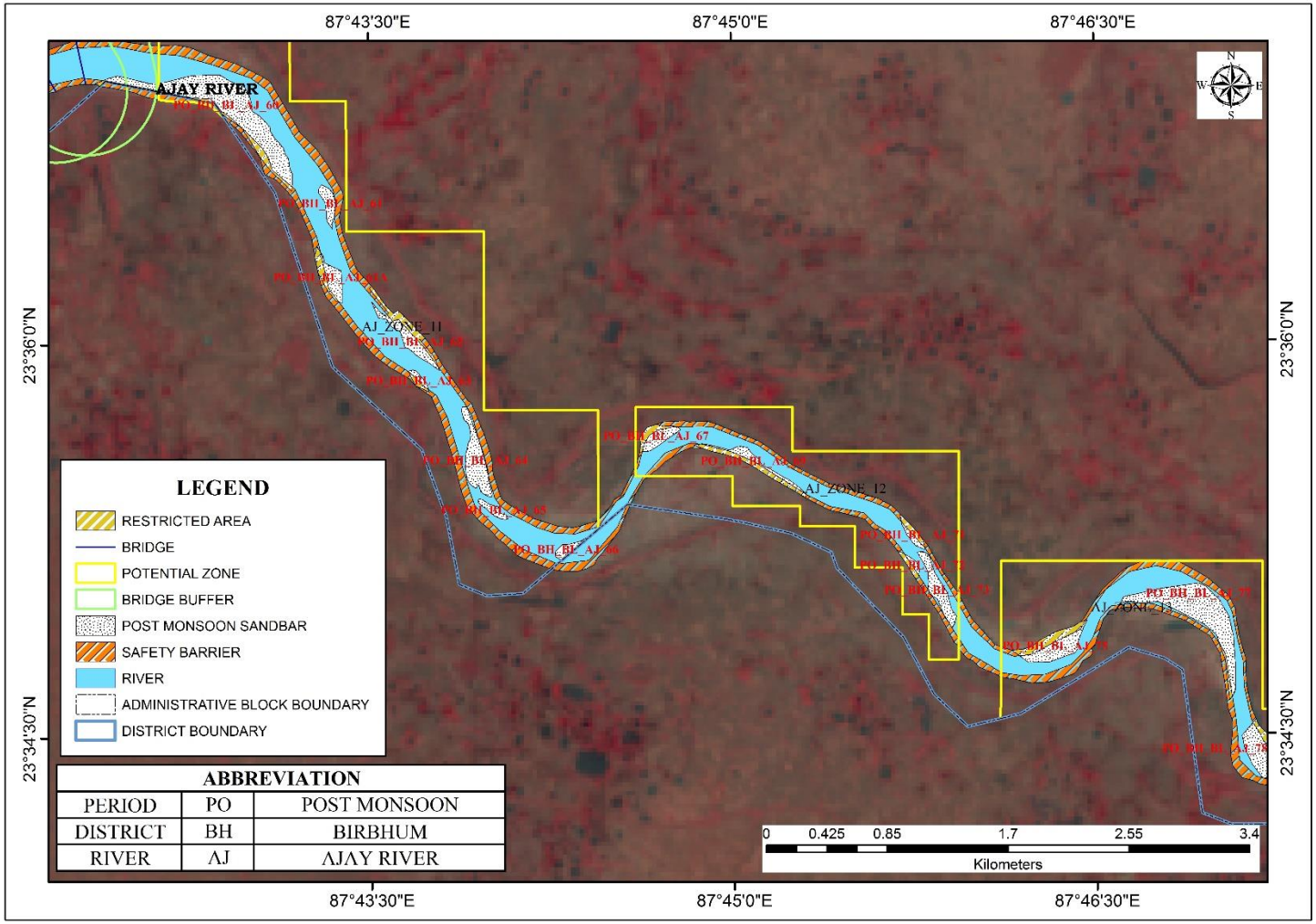


Plate 2B9: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

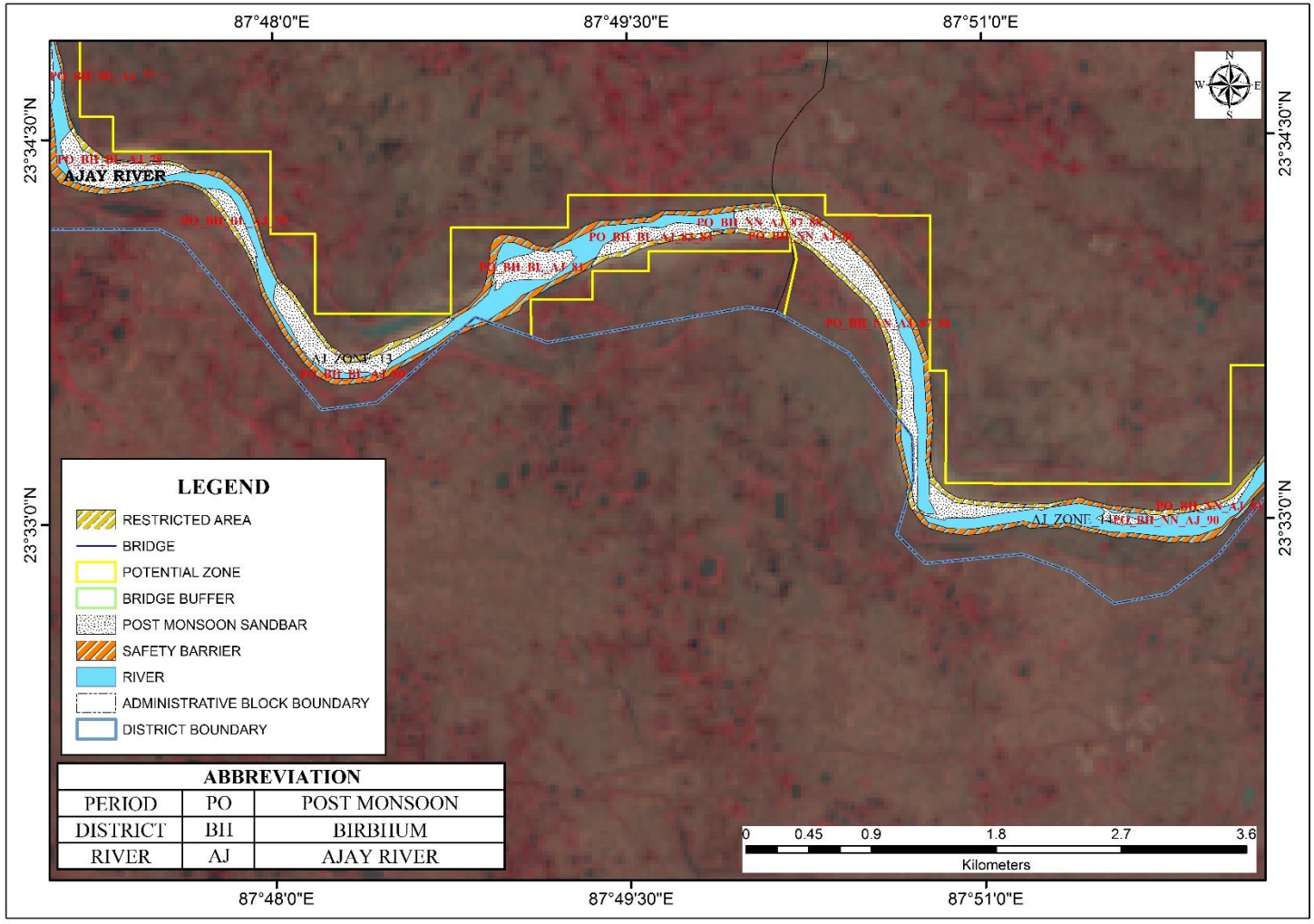


Plate 2B10: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

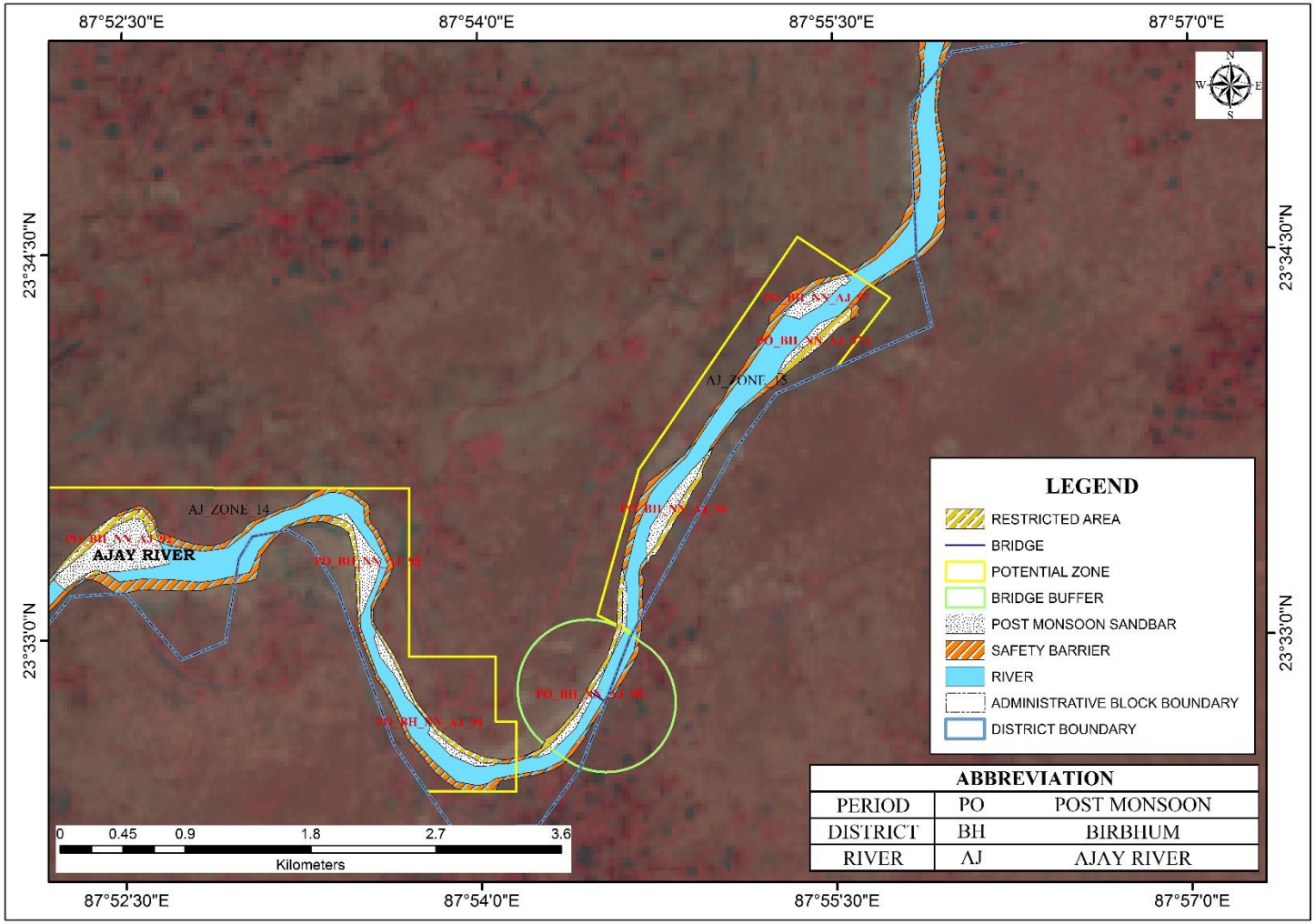


Plate 2B11: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

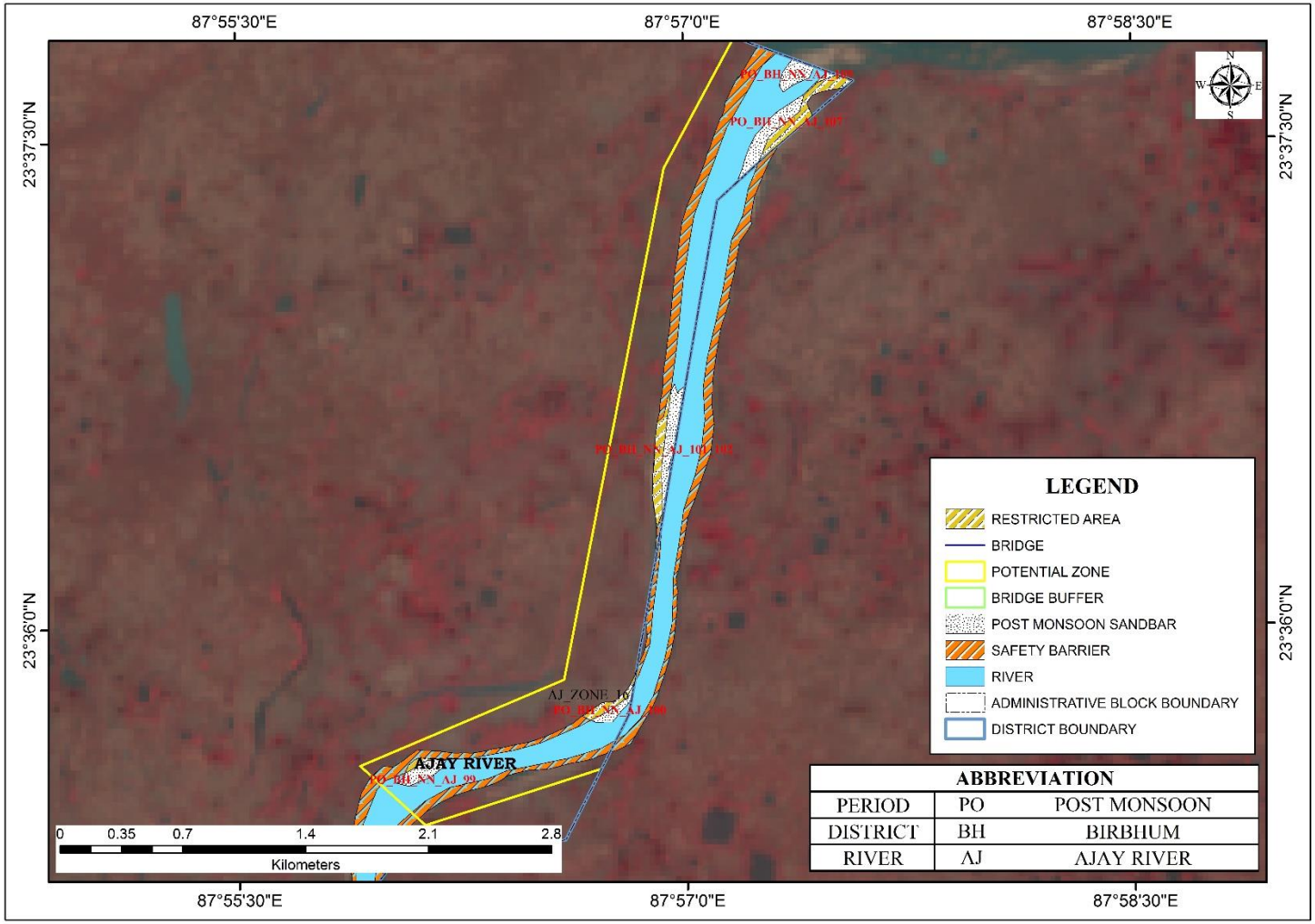


Plate 2B12: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

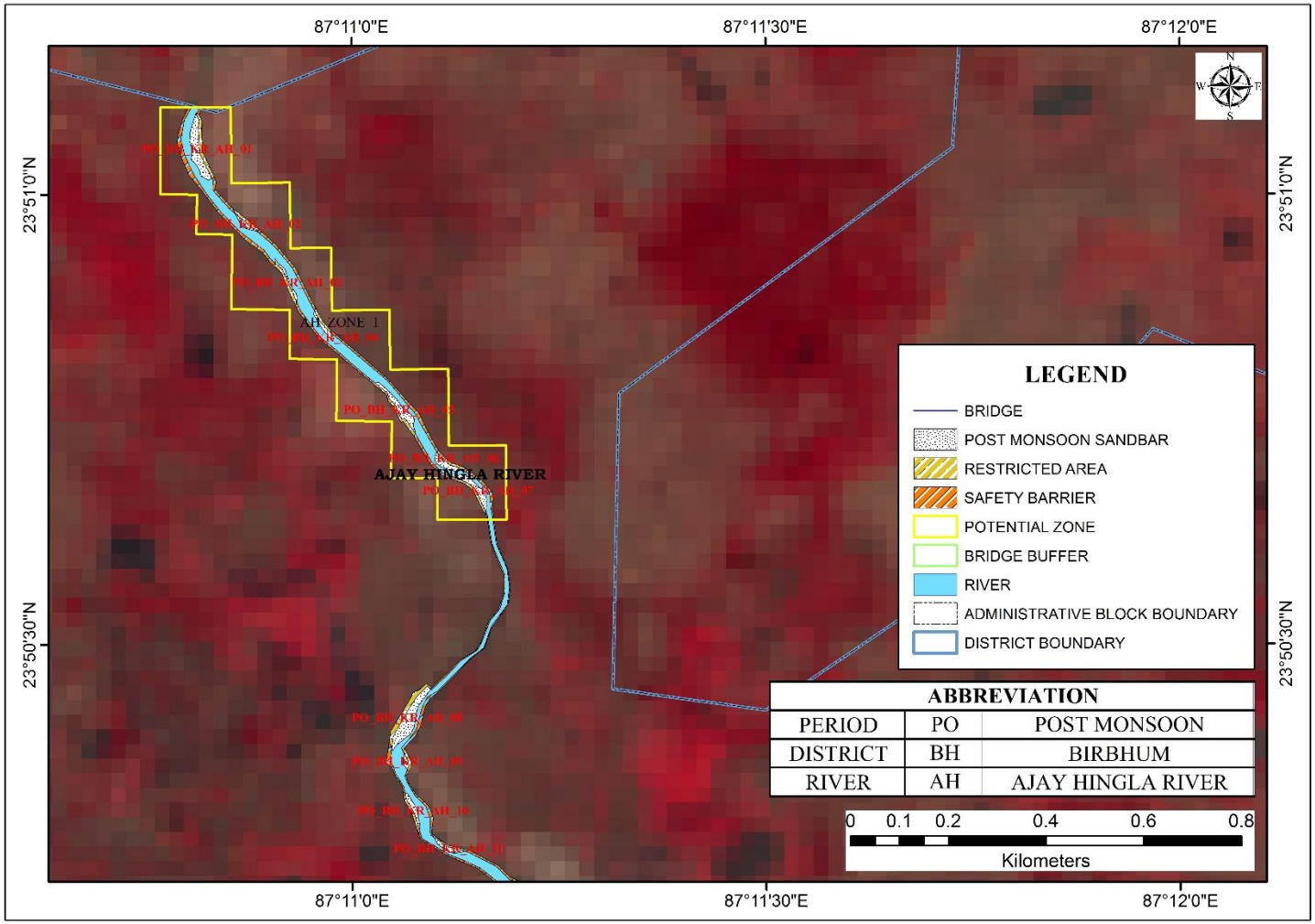


Plate 2B13: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

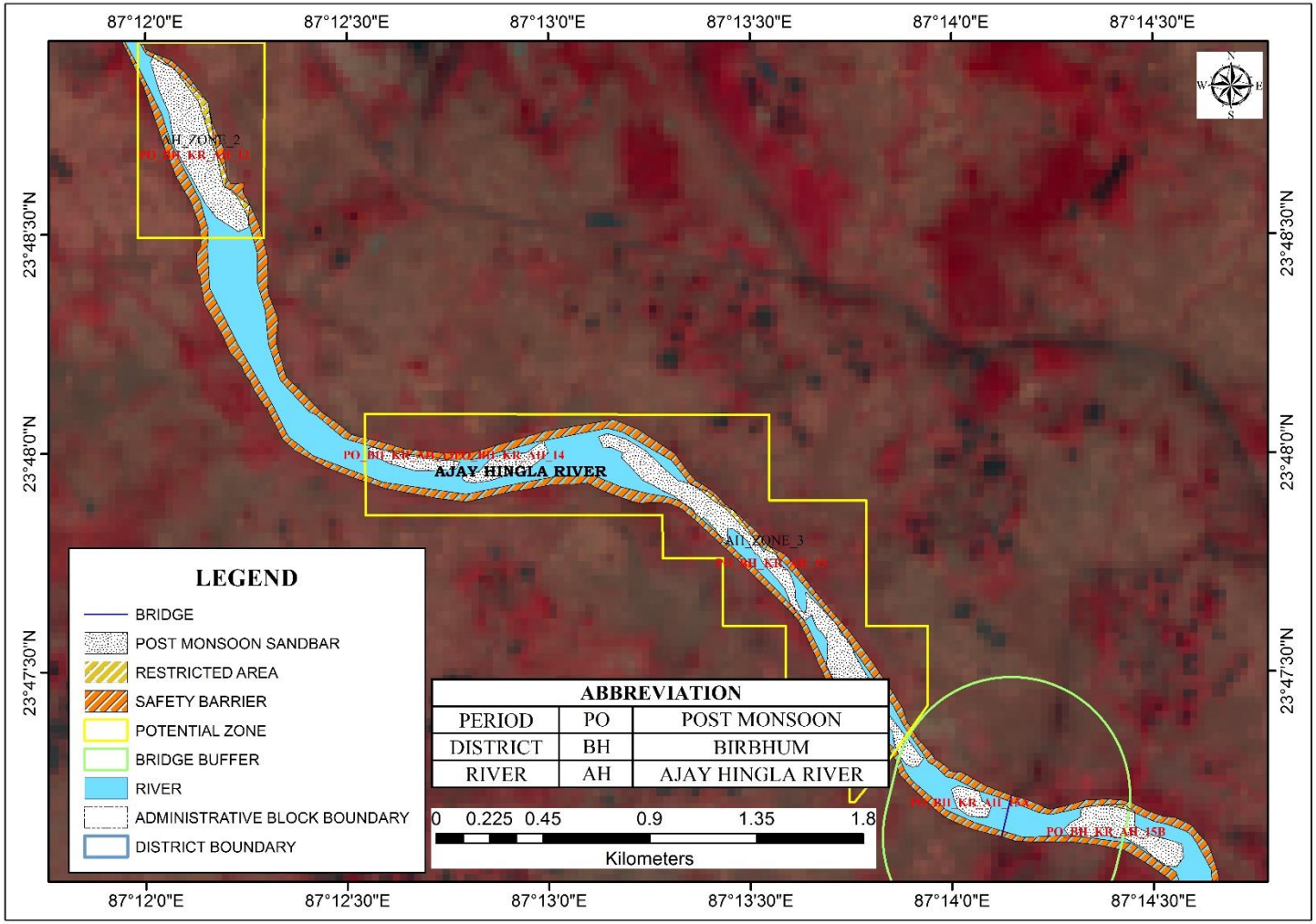


Plate 2B14: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

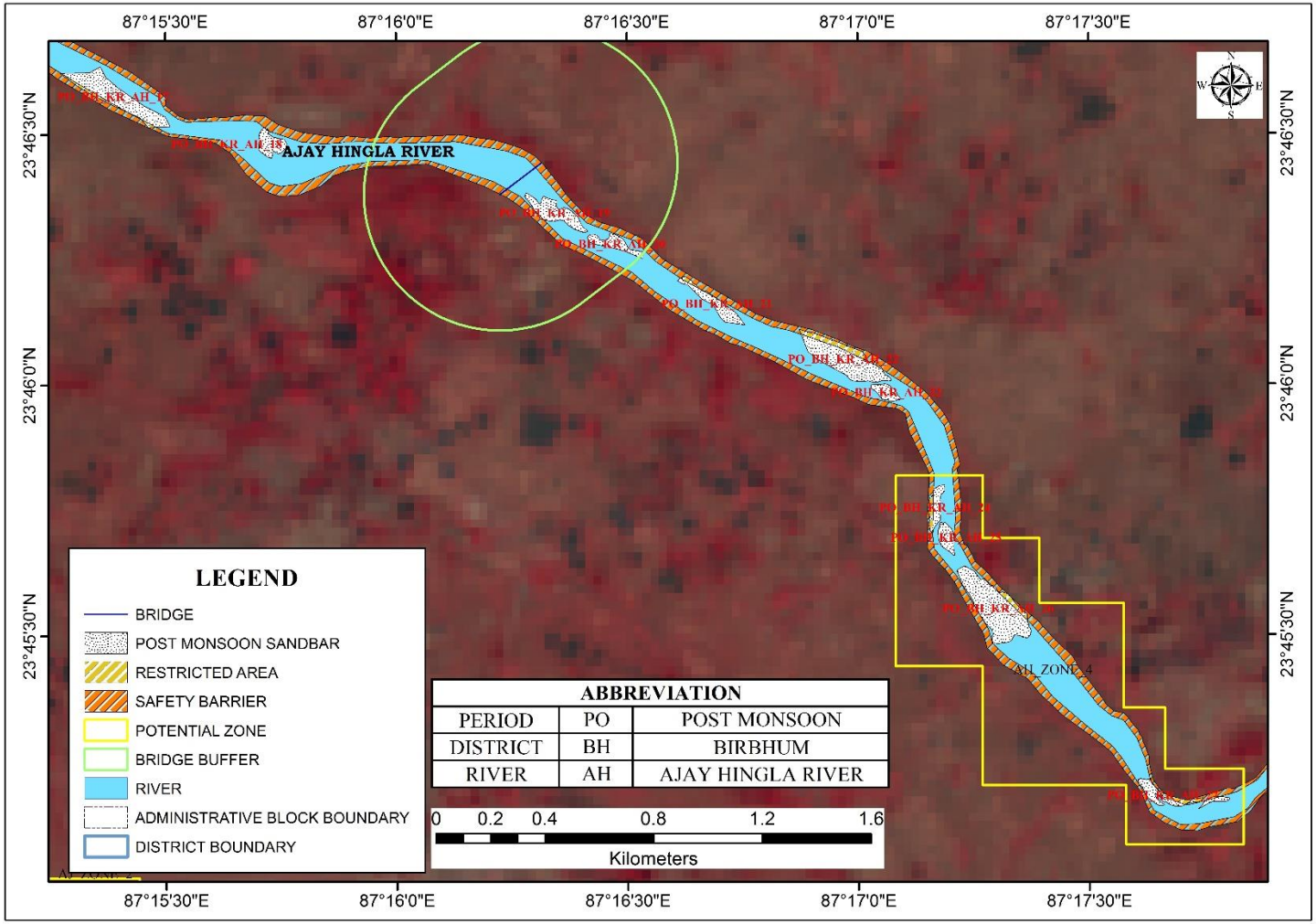


Plate 2B15: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

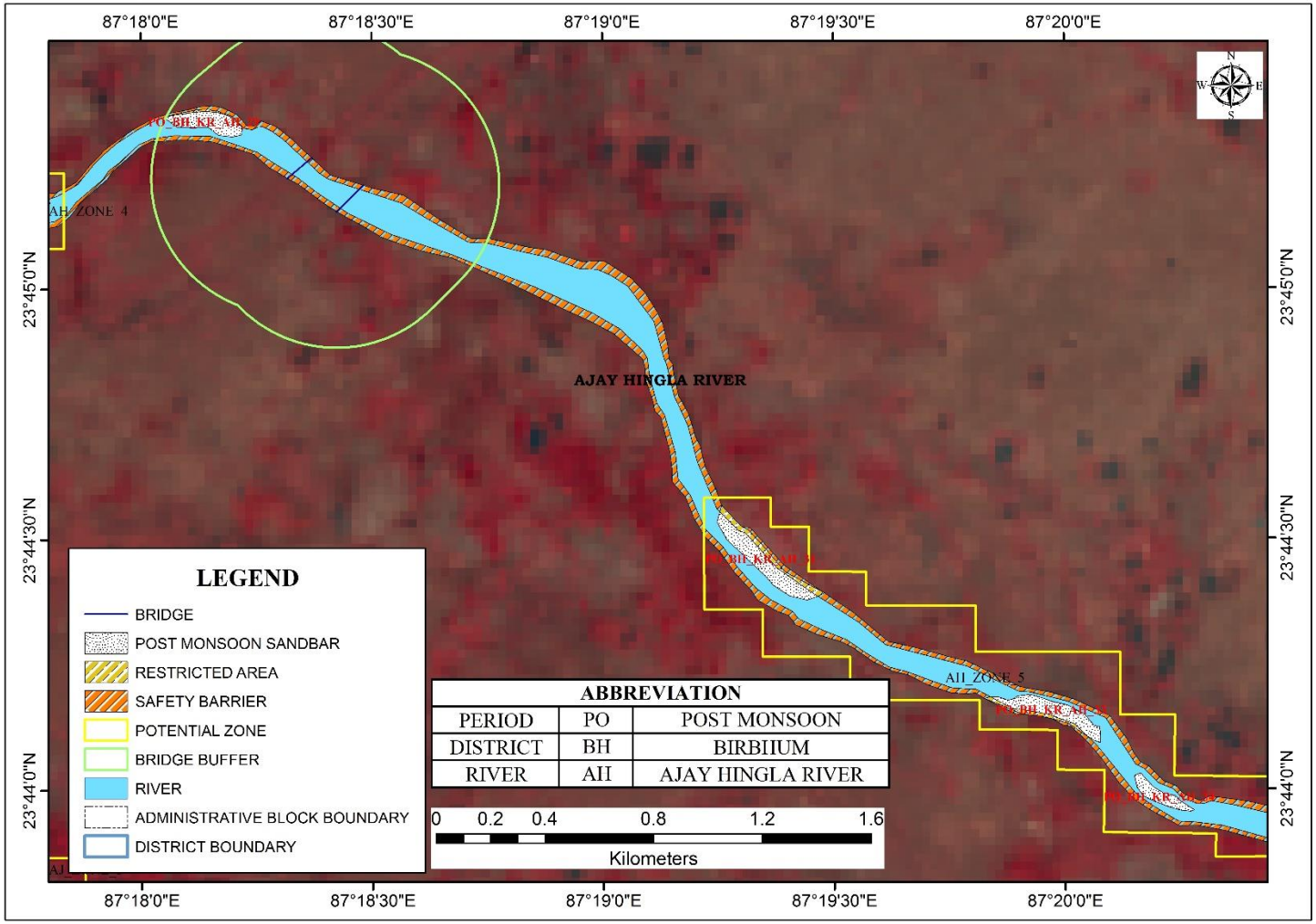


Plate 2B16: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

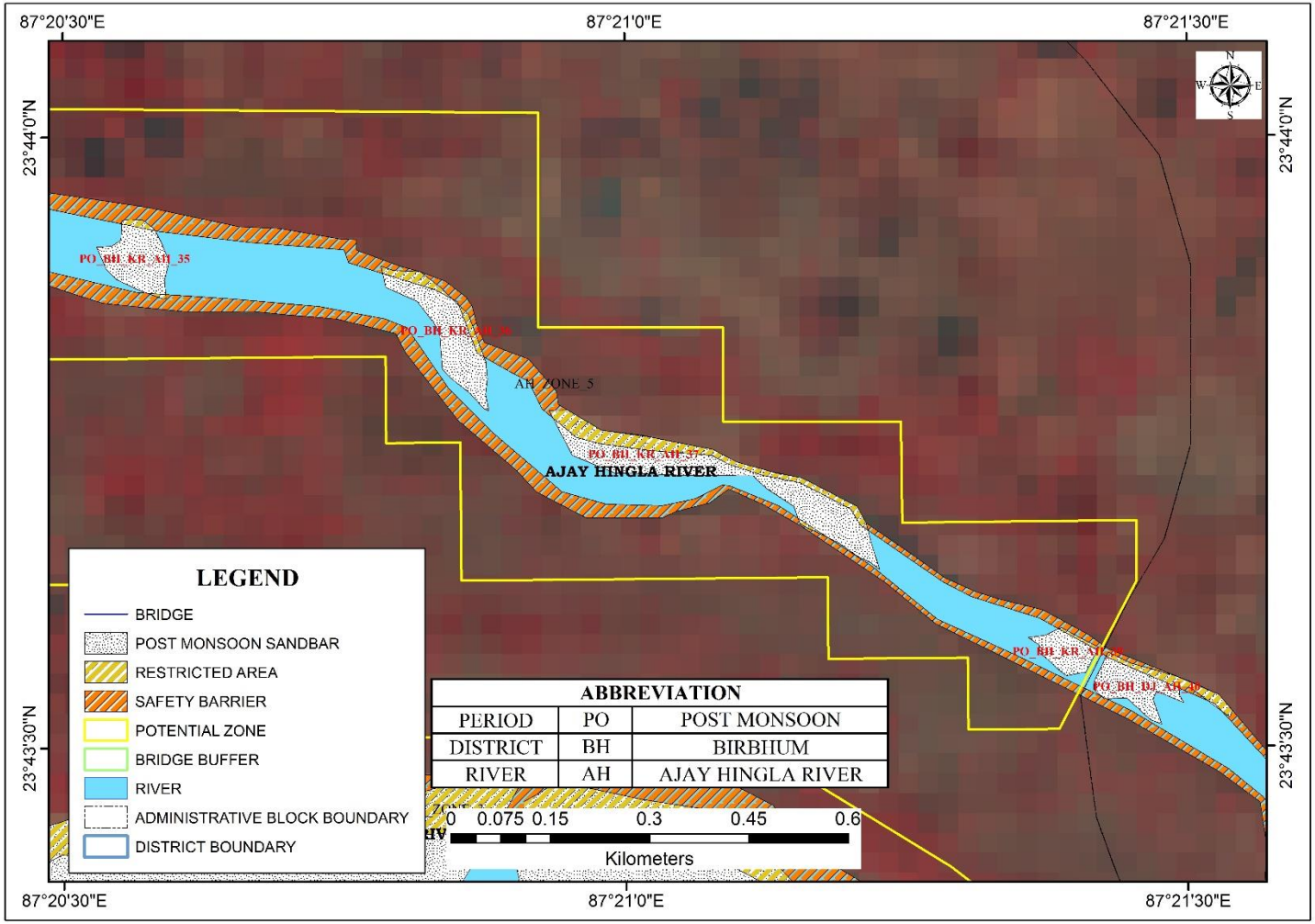


Plate 2B17: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

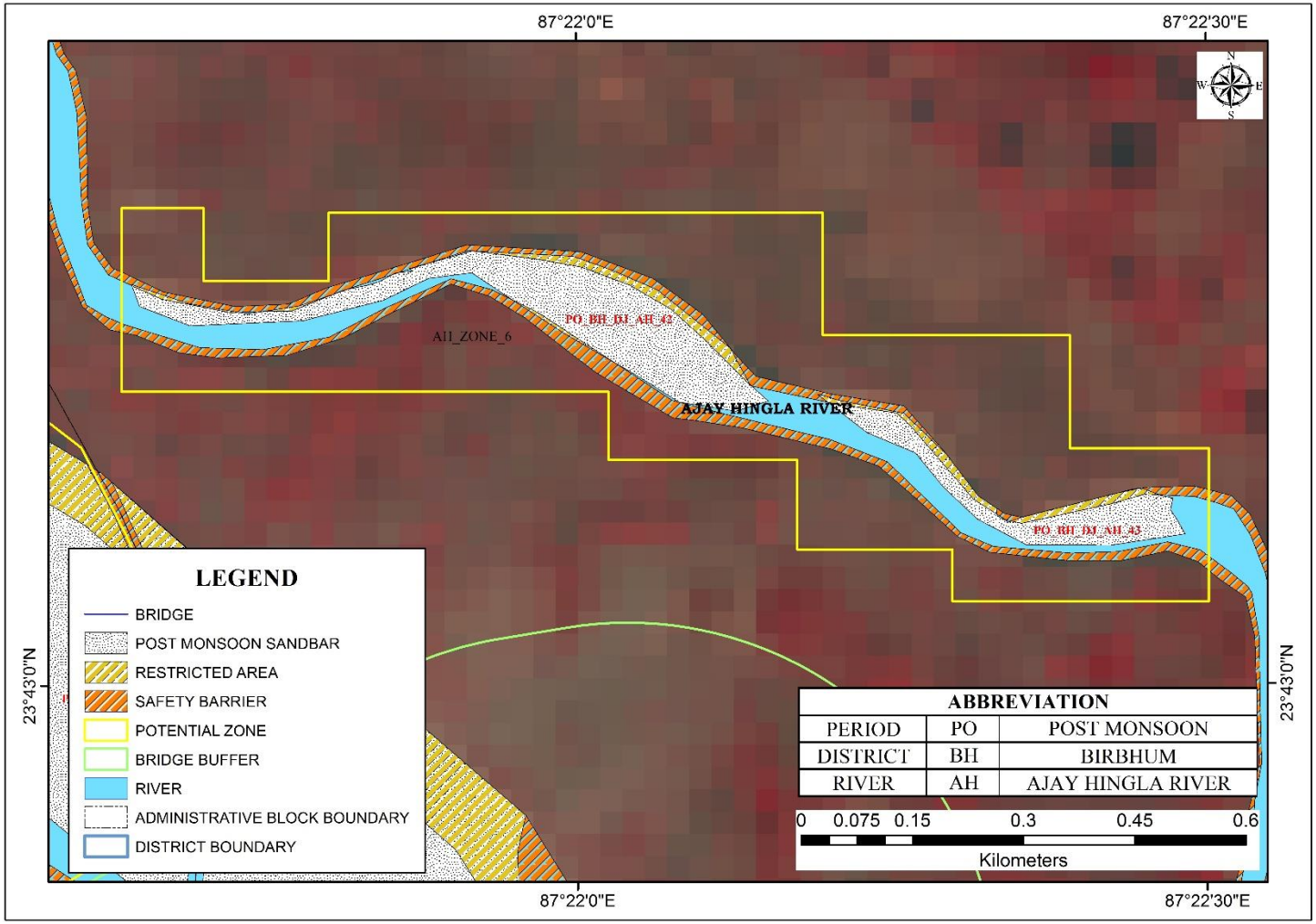


Plate 2B18: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

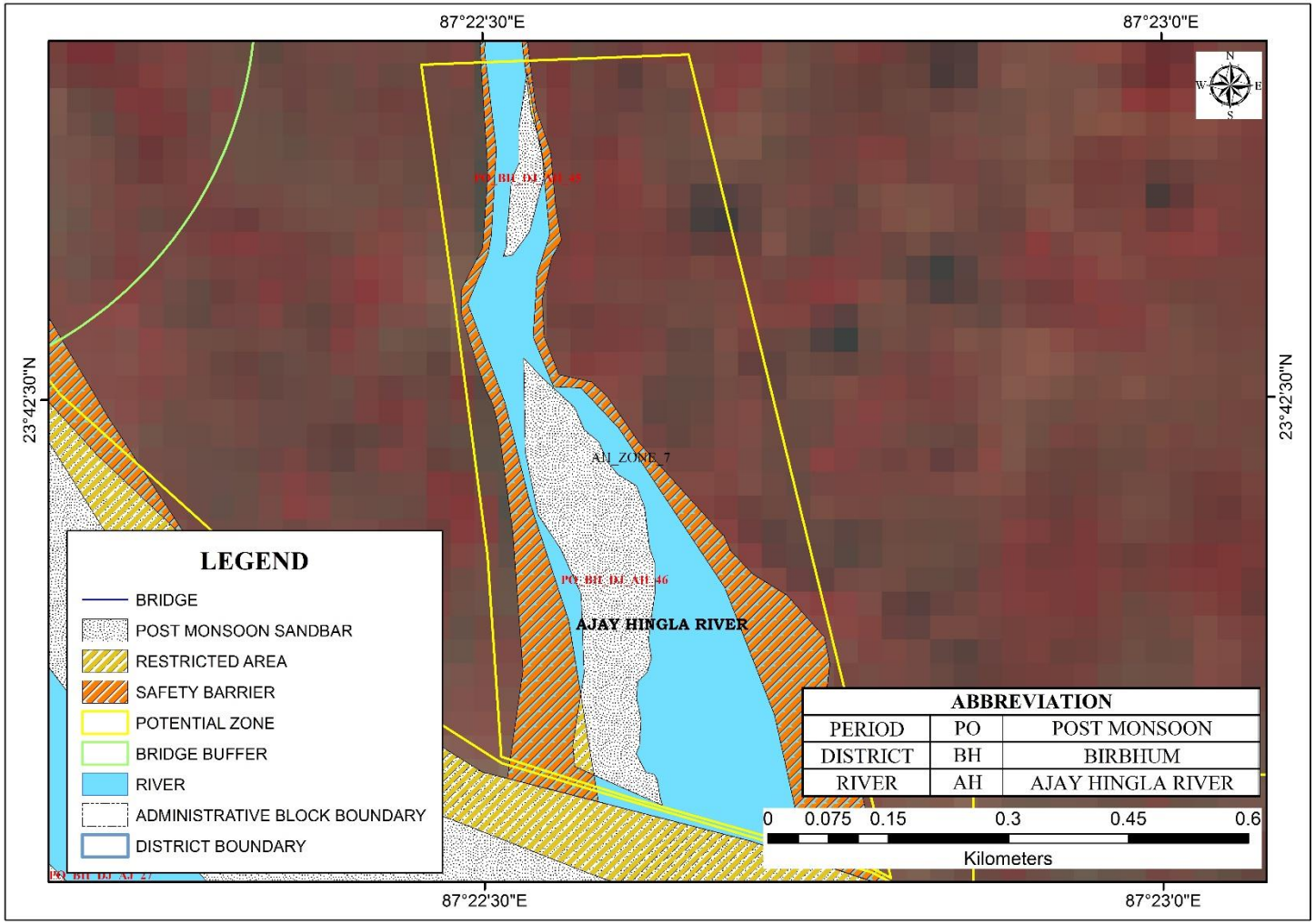


Plate 2B19: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

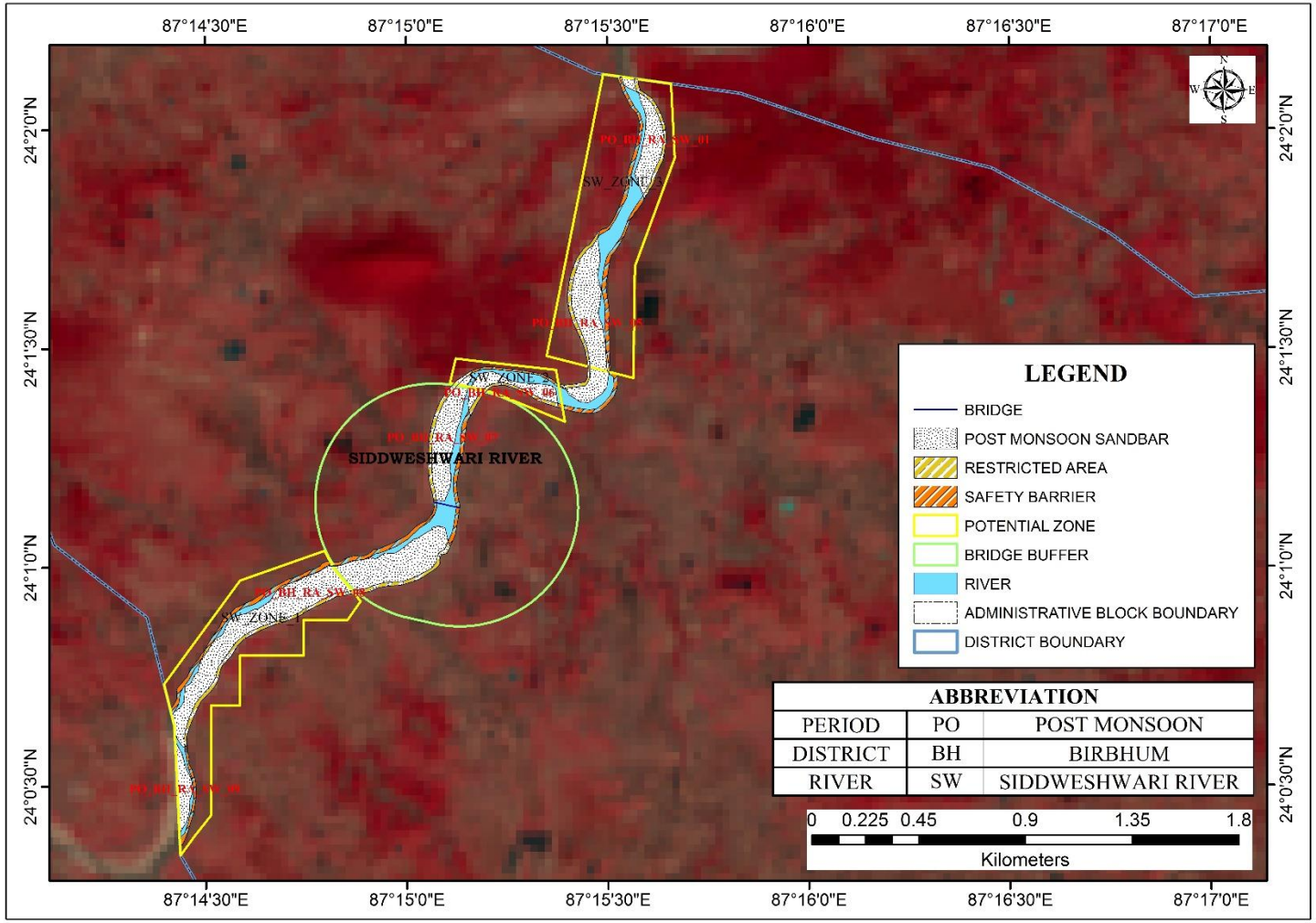


Plate 2B20: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

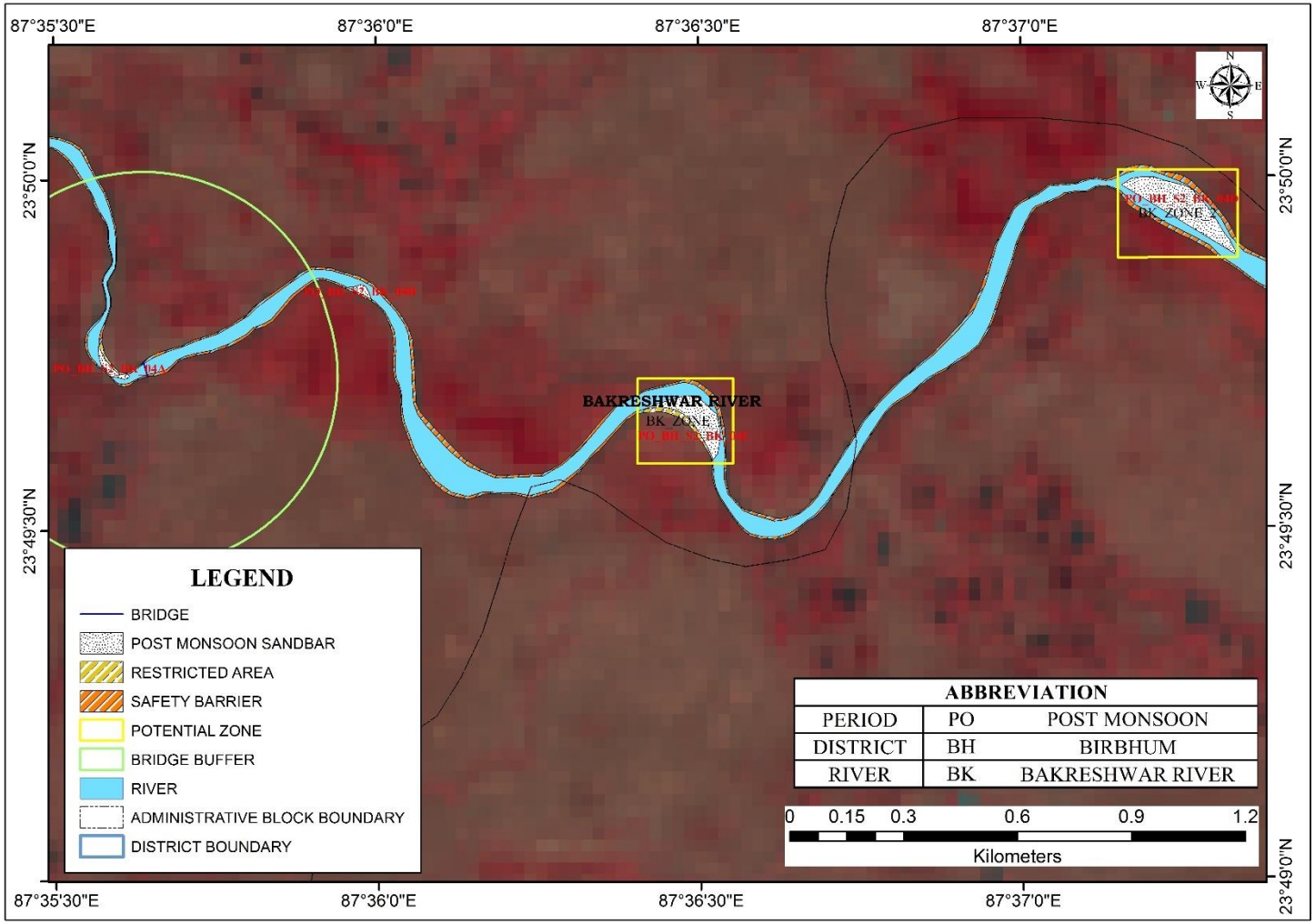


Plate 2B21: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

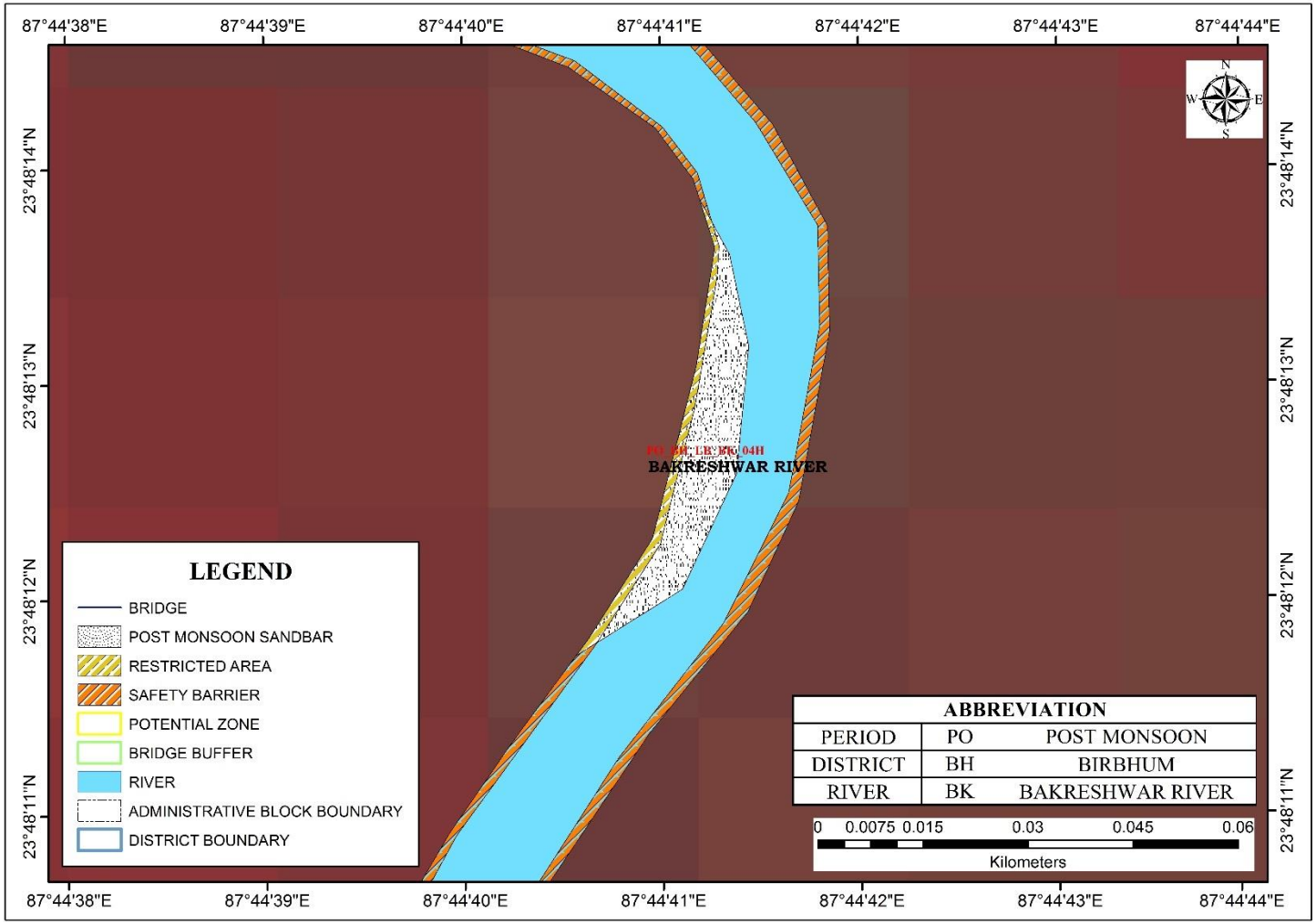


Plate 2B22: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

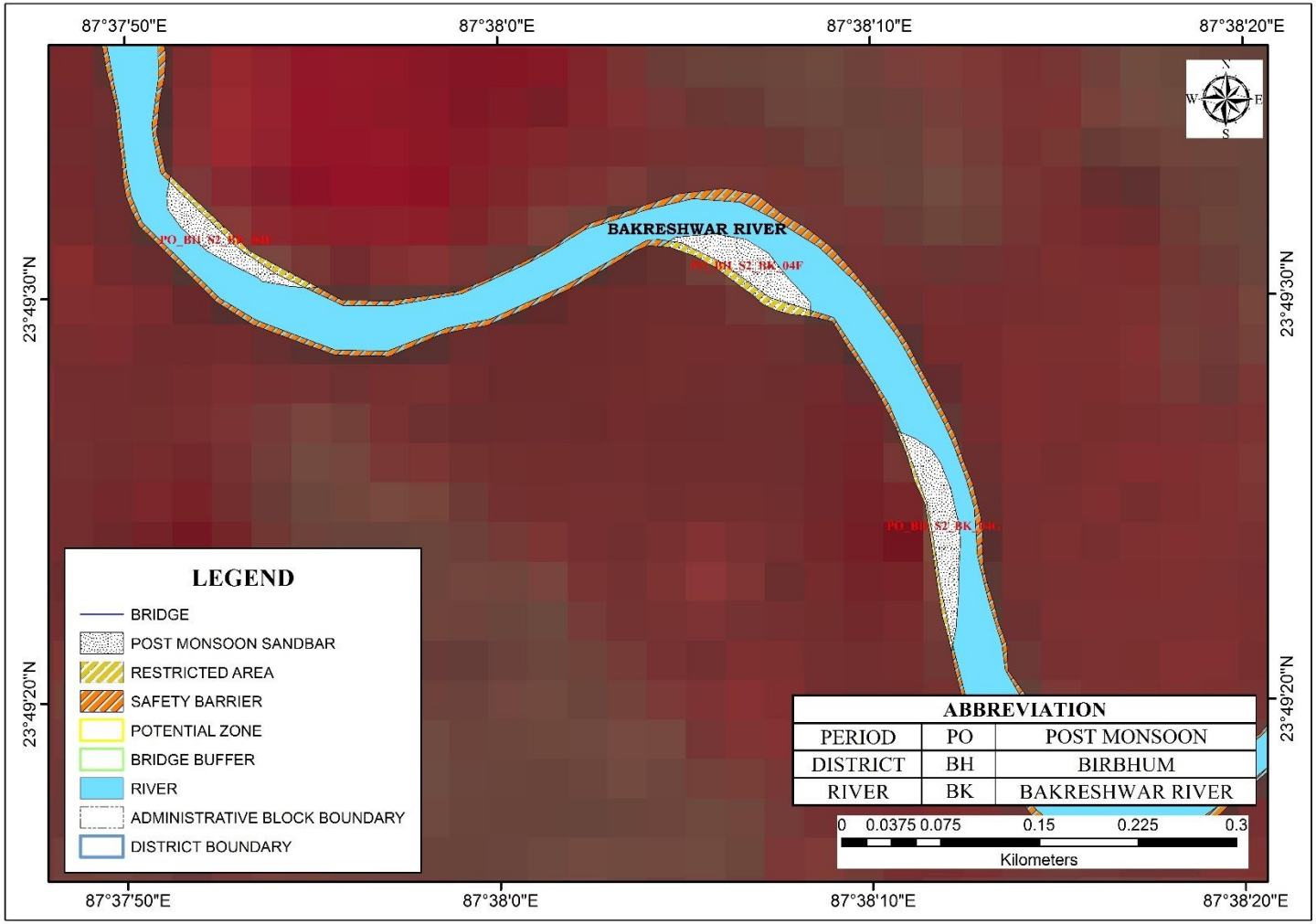


Plate 2B23: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

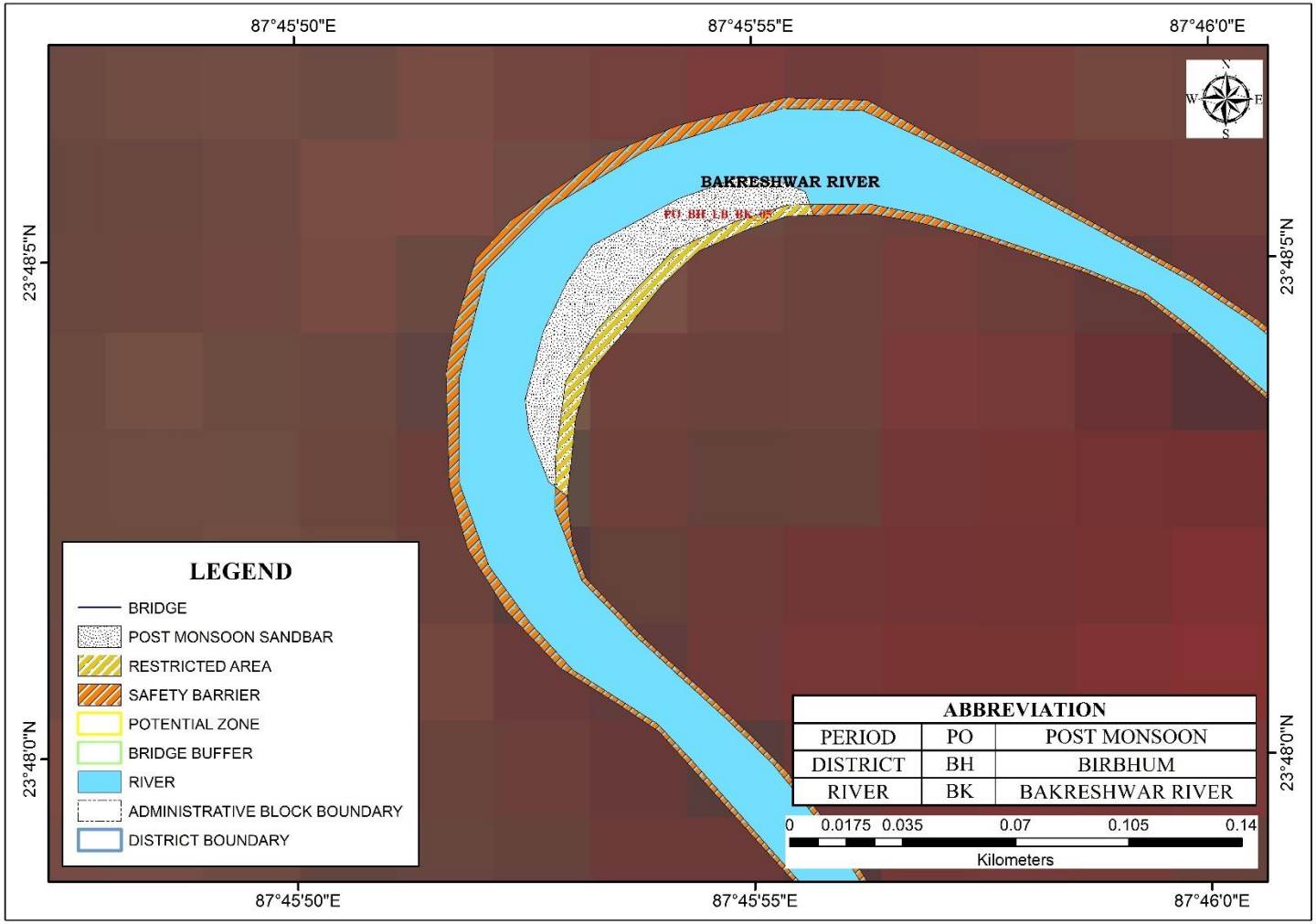


Plate 2B24: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

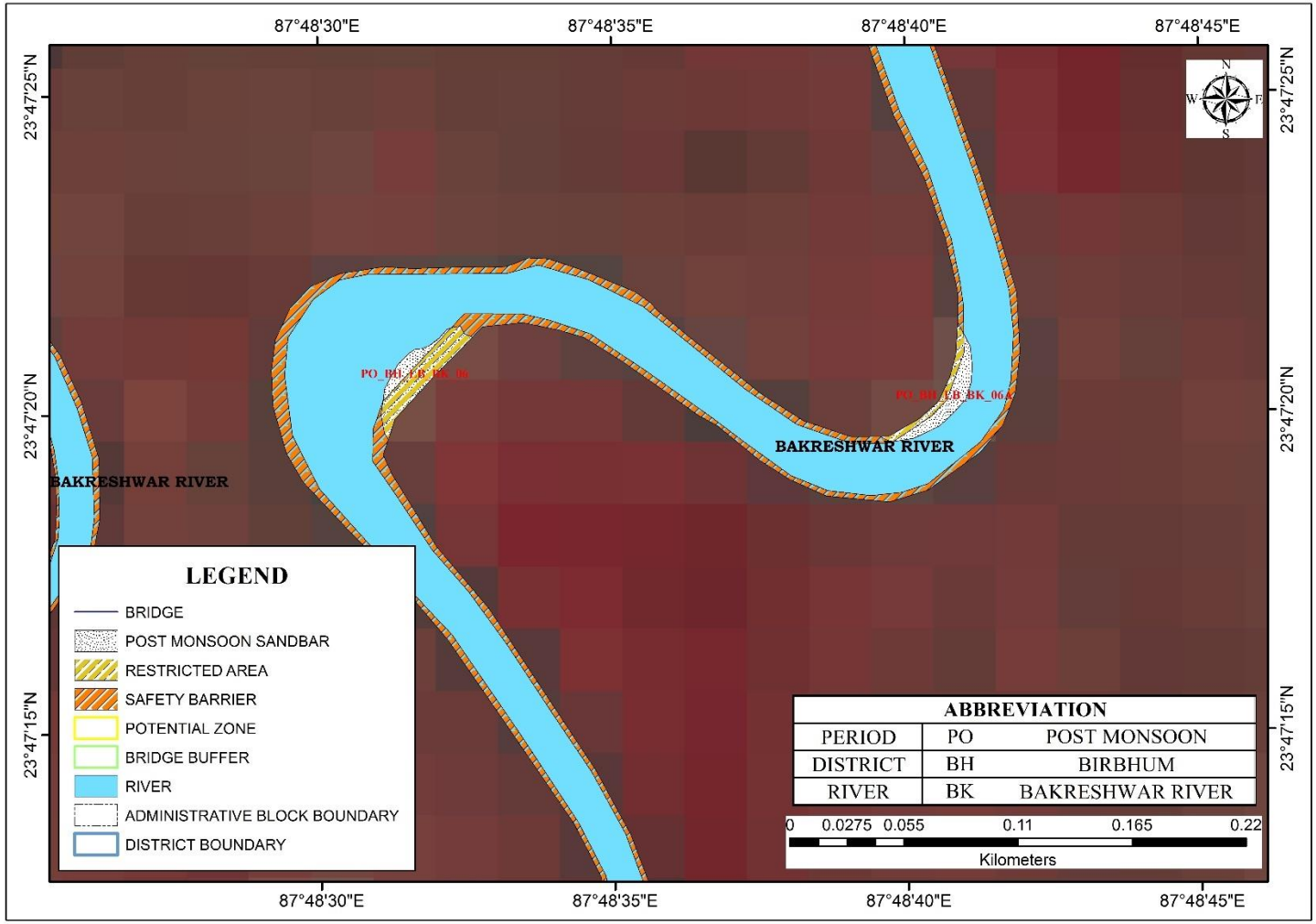


Plate 2B25: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

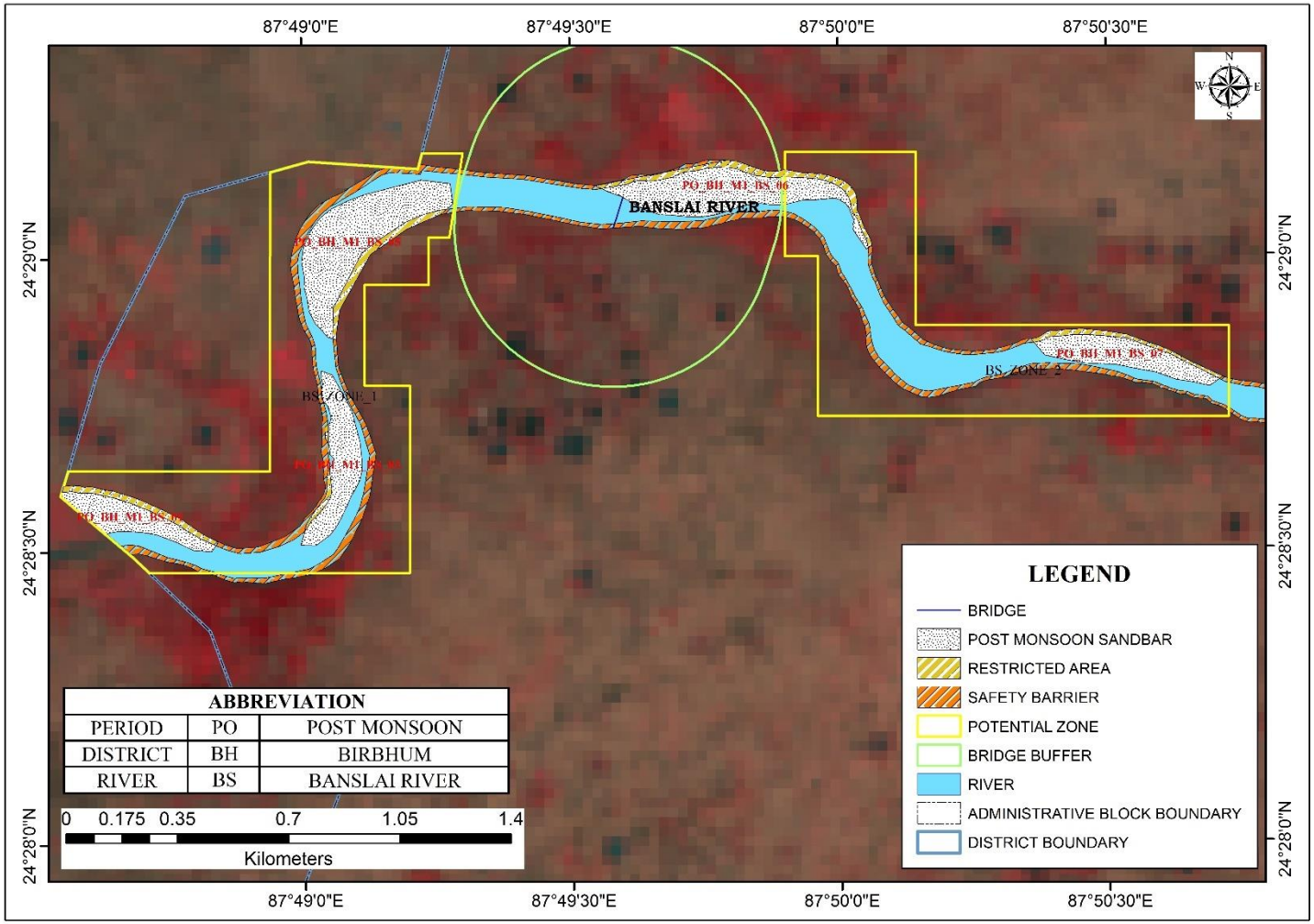


Plate 2B26: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

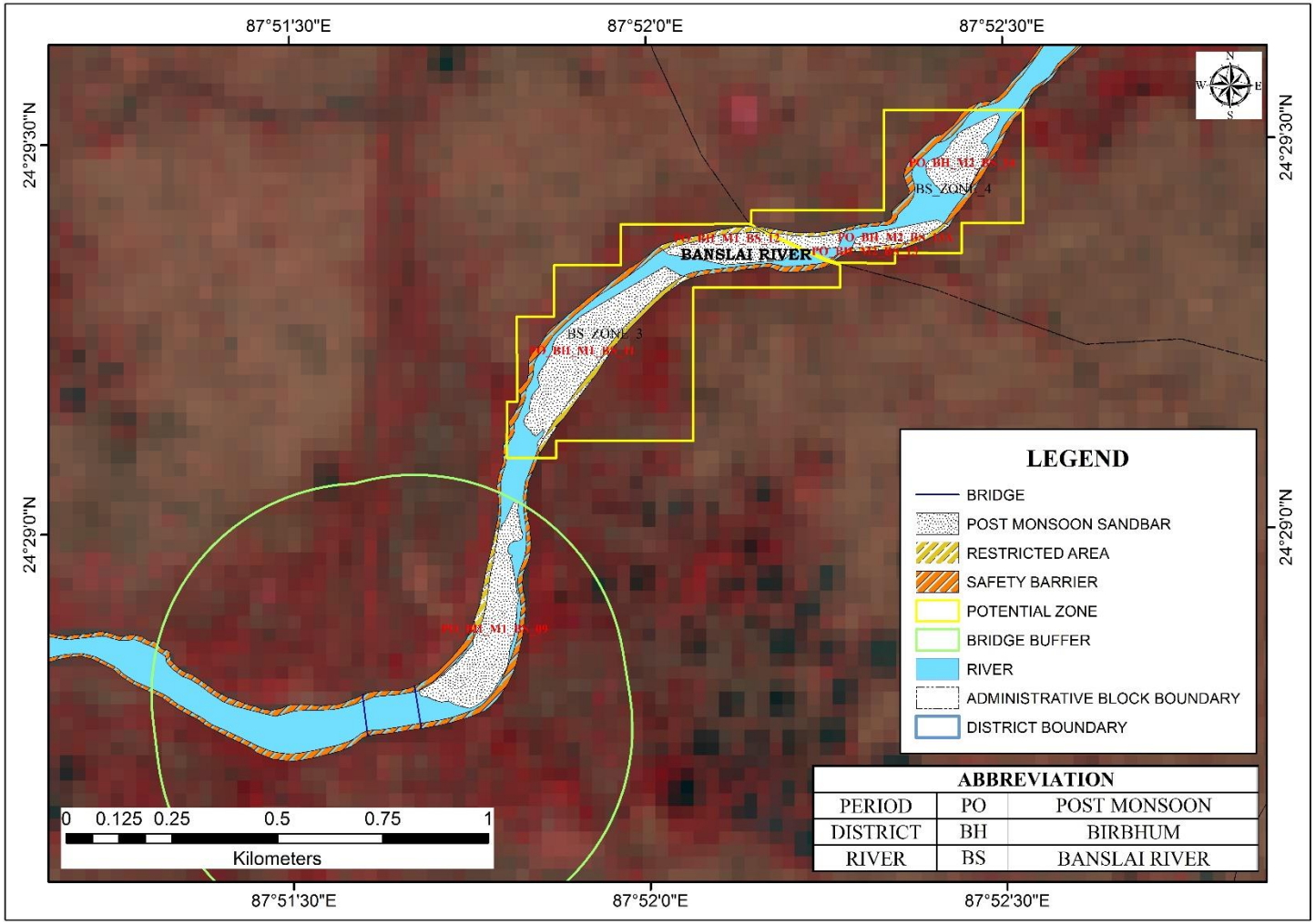


Plate 2B27: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

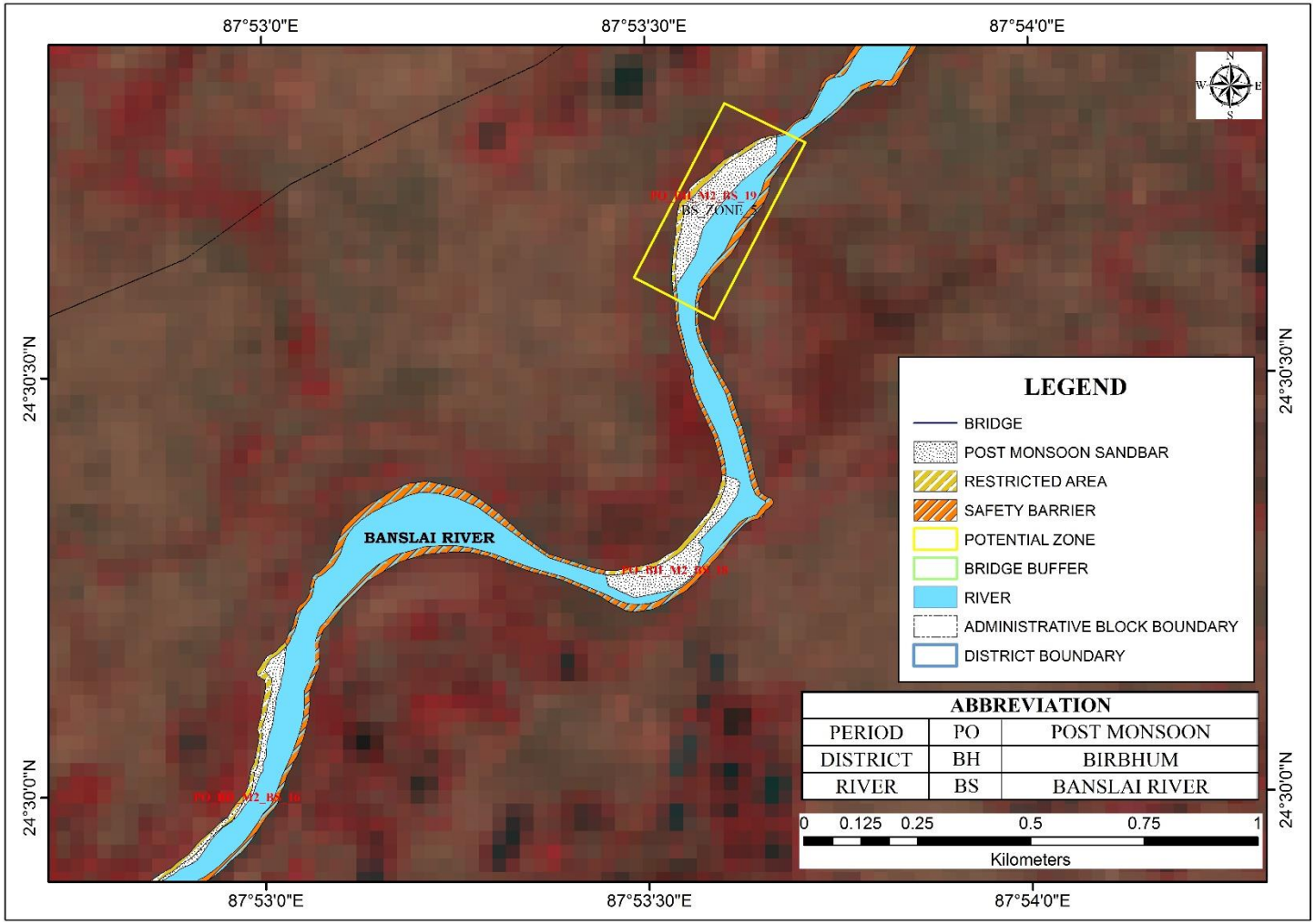


Plate 2B28: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

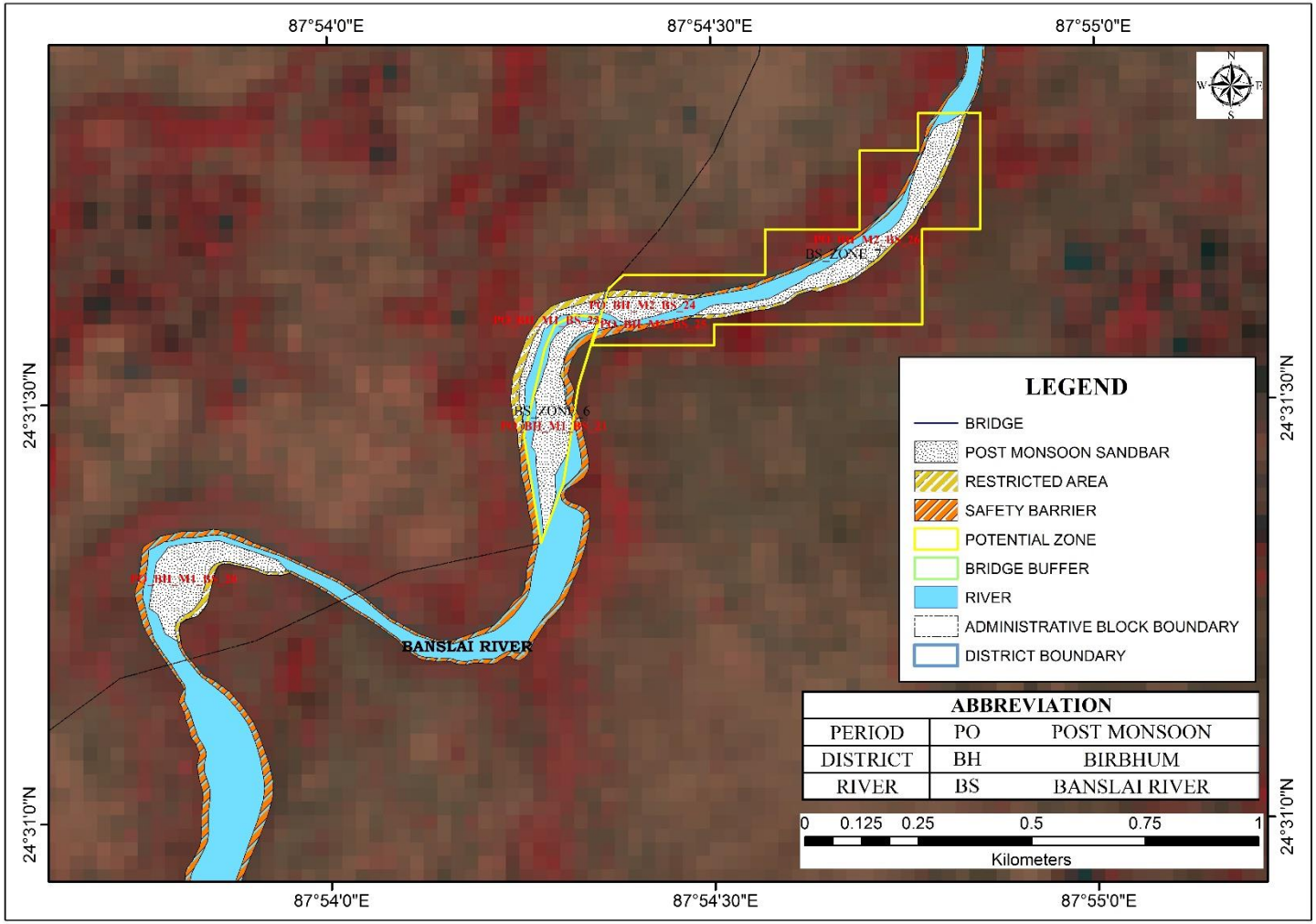


Plate 2B29: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

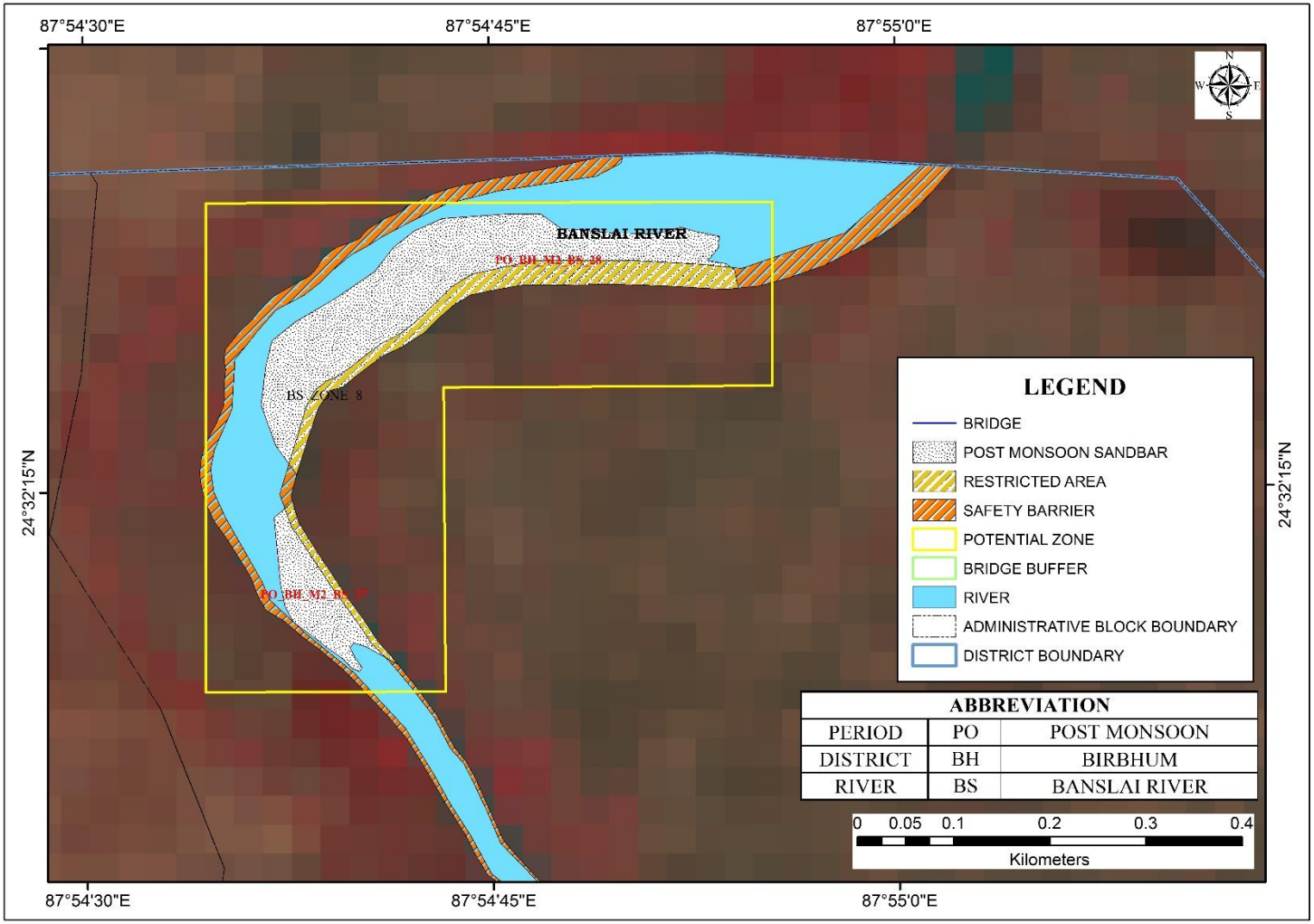


Plate 2B30: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

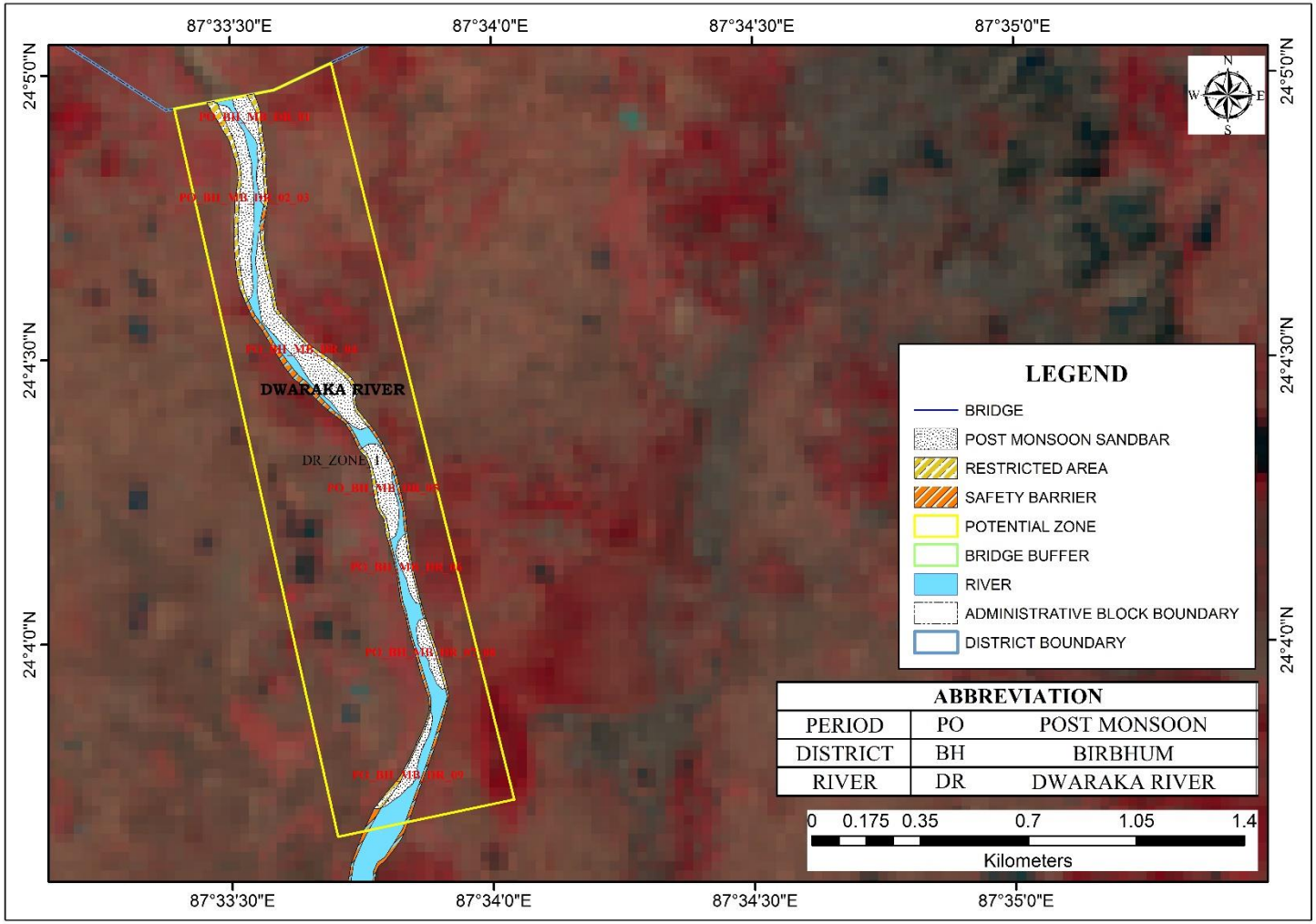


Plate 2B31: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

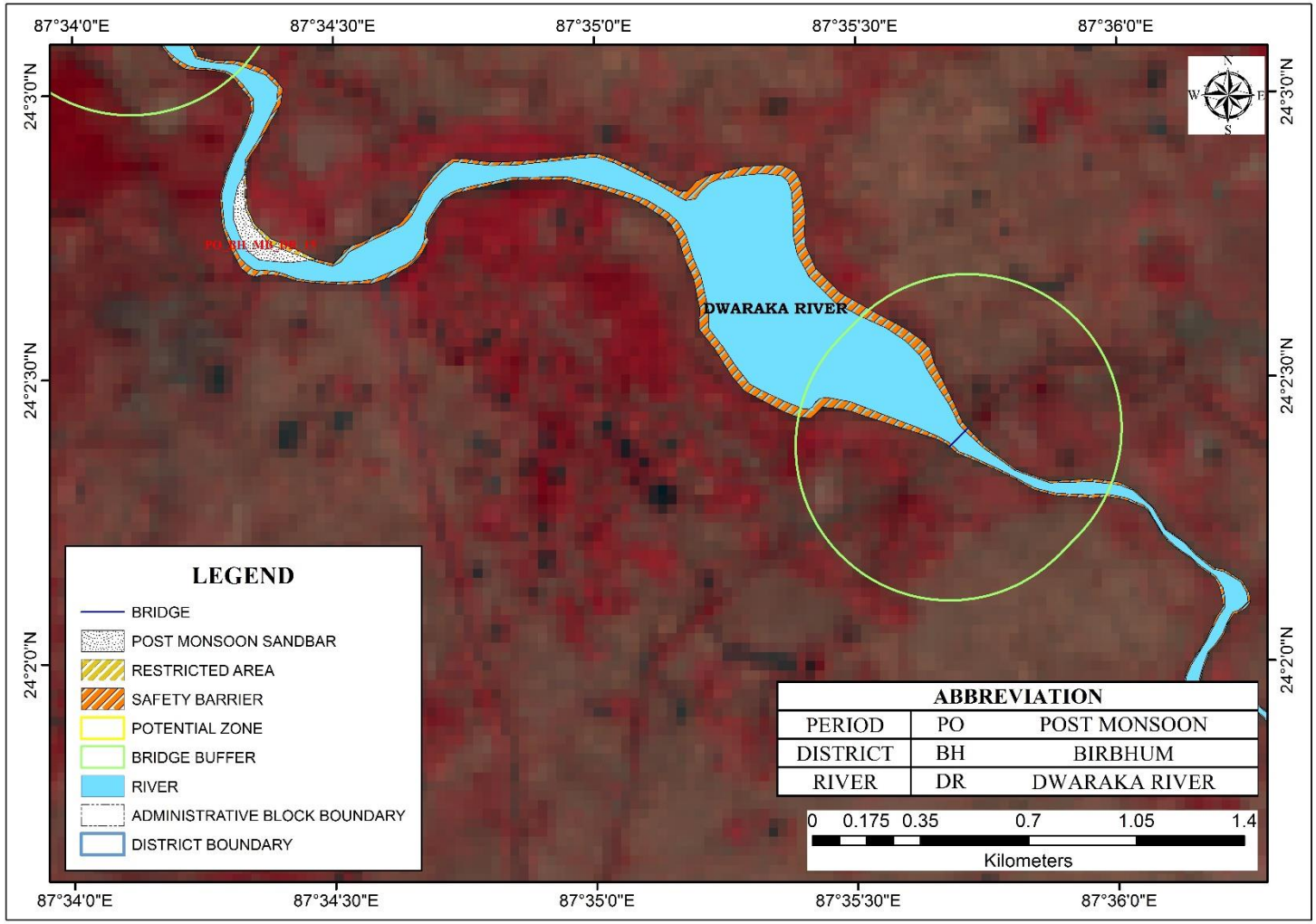


Plate 2B32: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

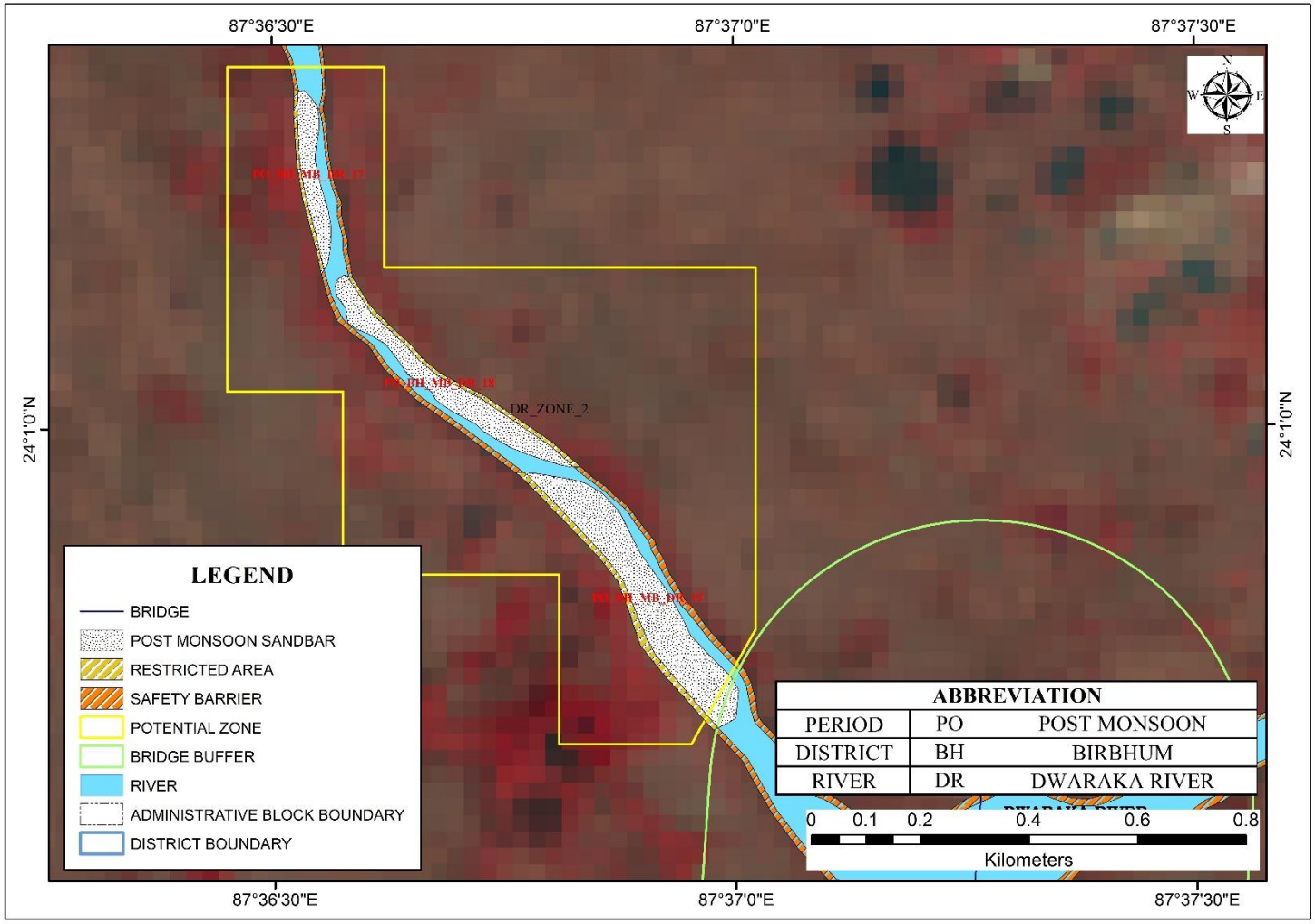


Plate 2B33: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

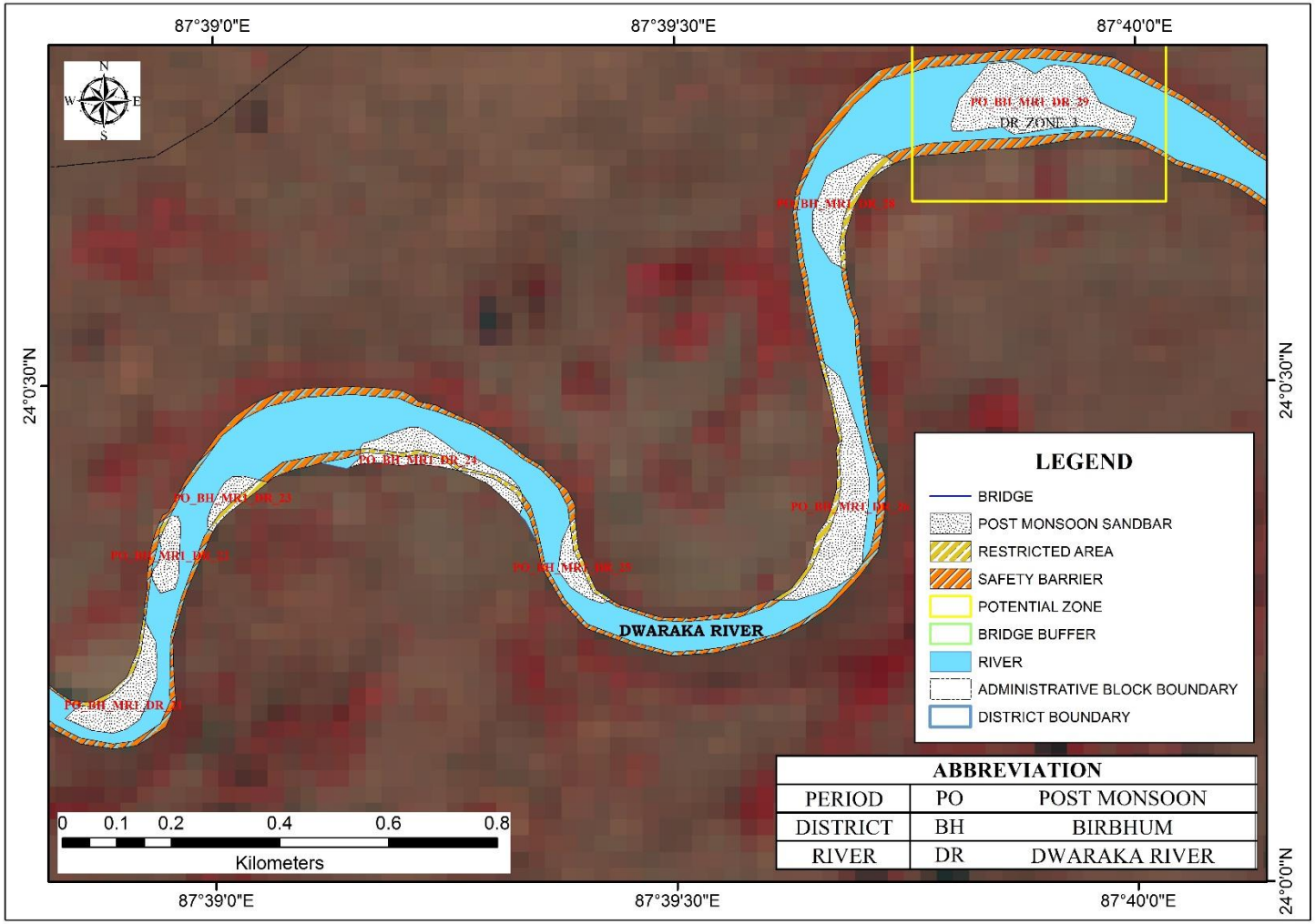


Plate 2B34: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

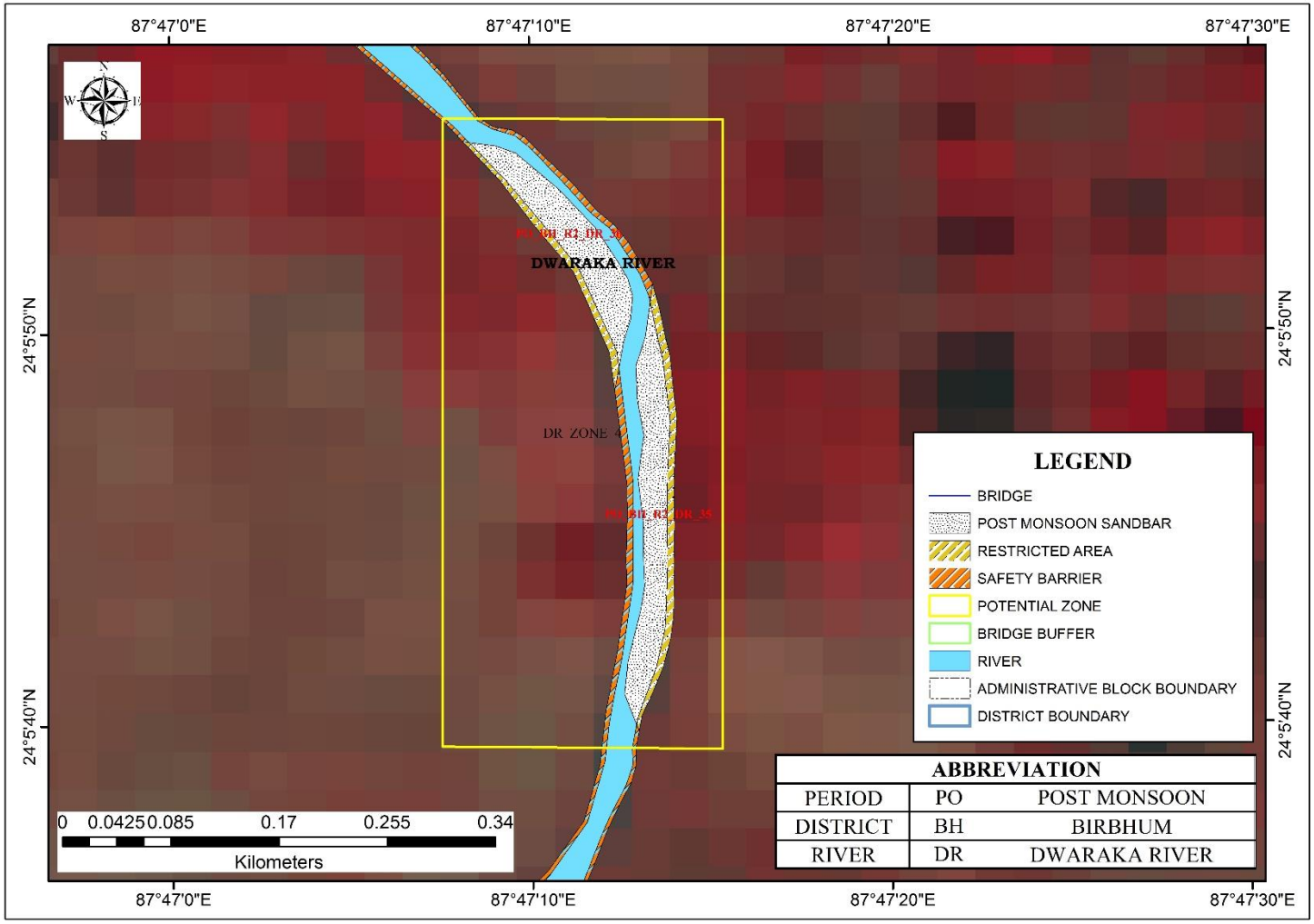


Plate 2B35: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

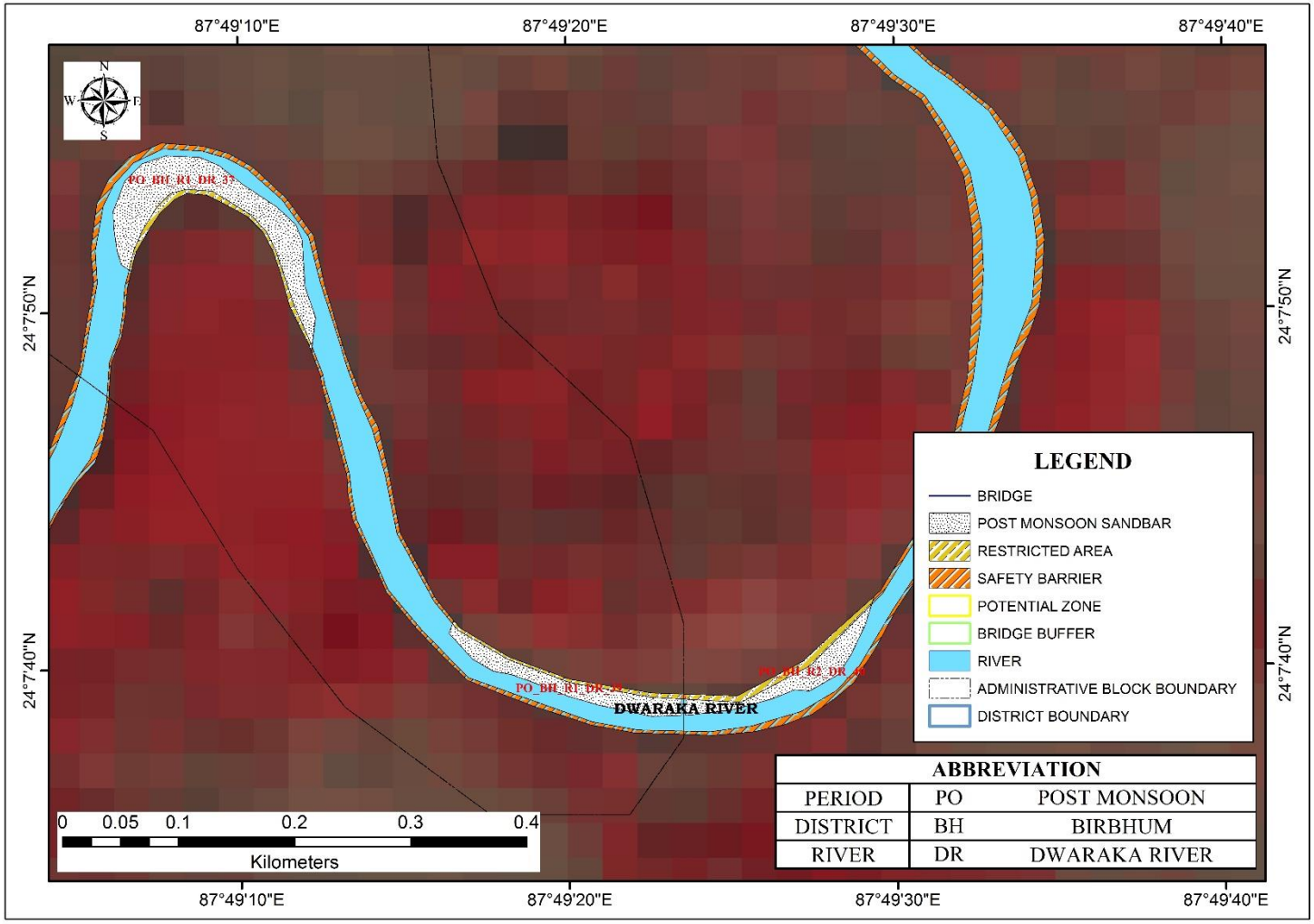


Plate 2B36: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

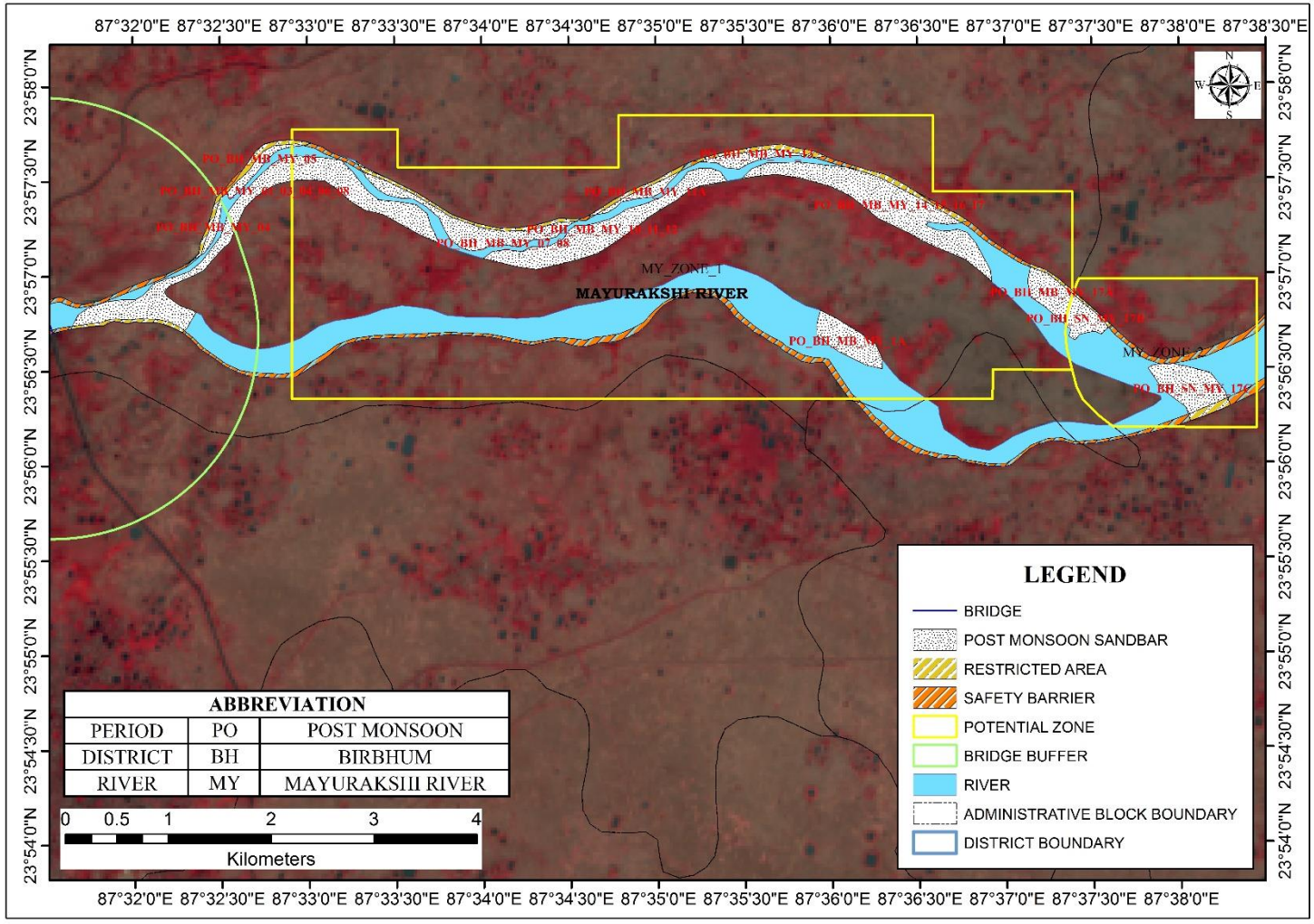


Plate 2B37: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

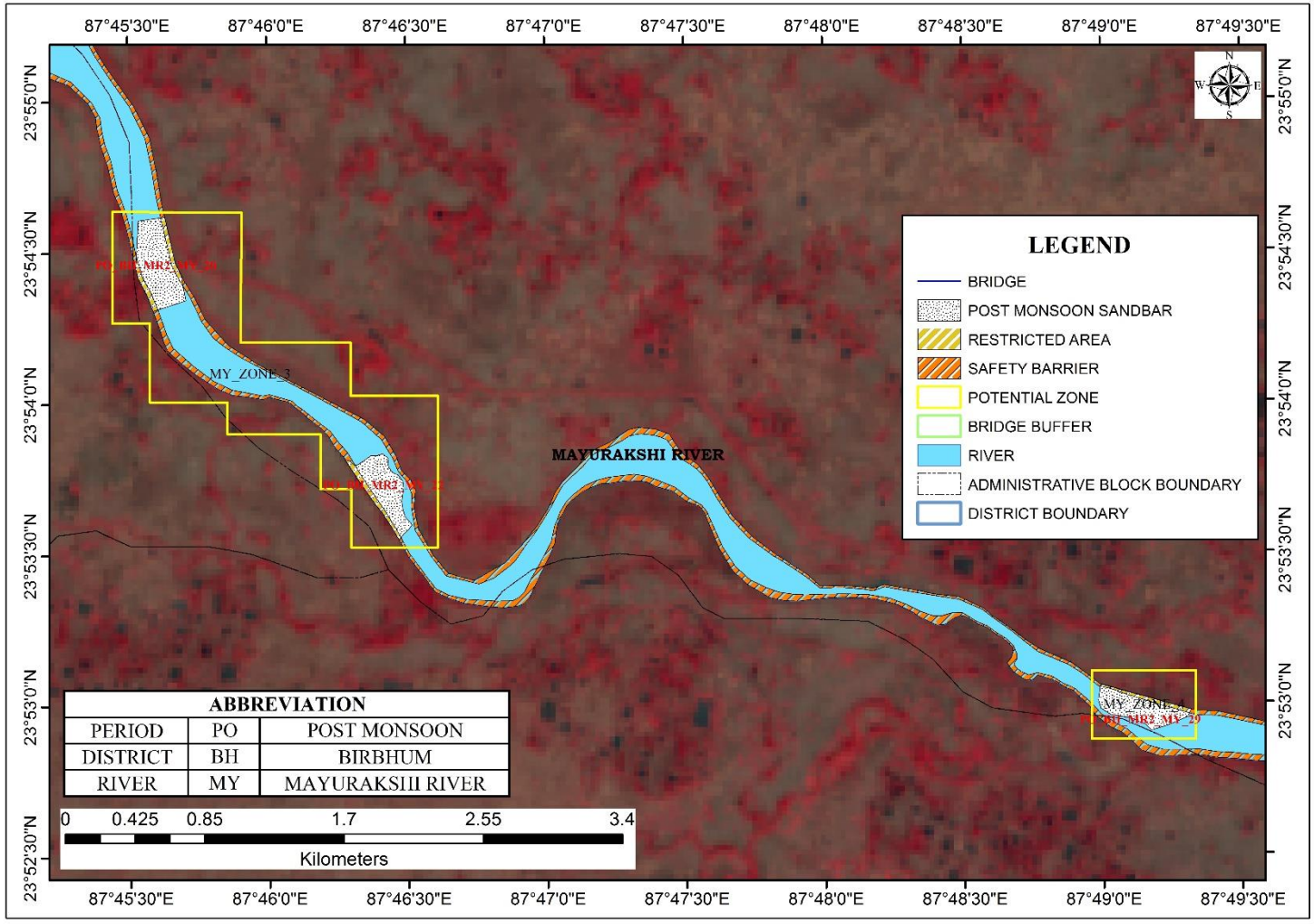


Plate 2B38: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

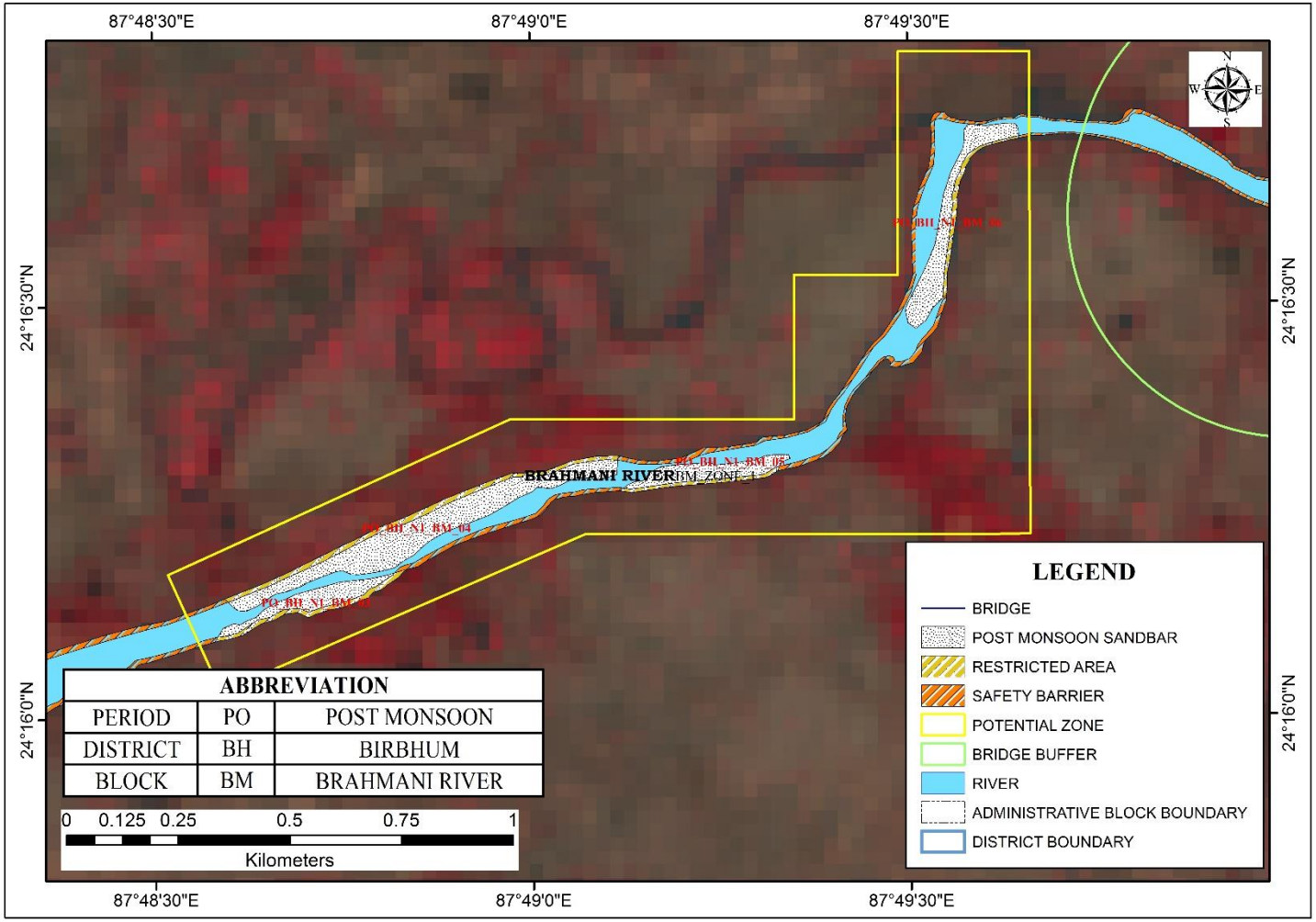


Plate 2B39: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

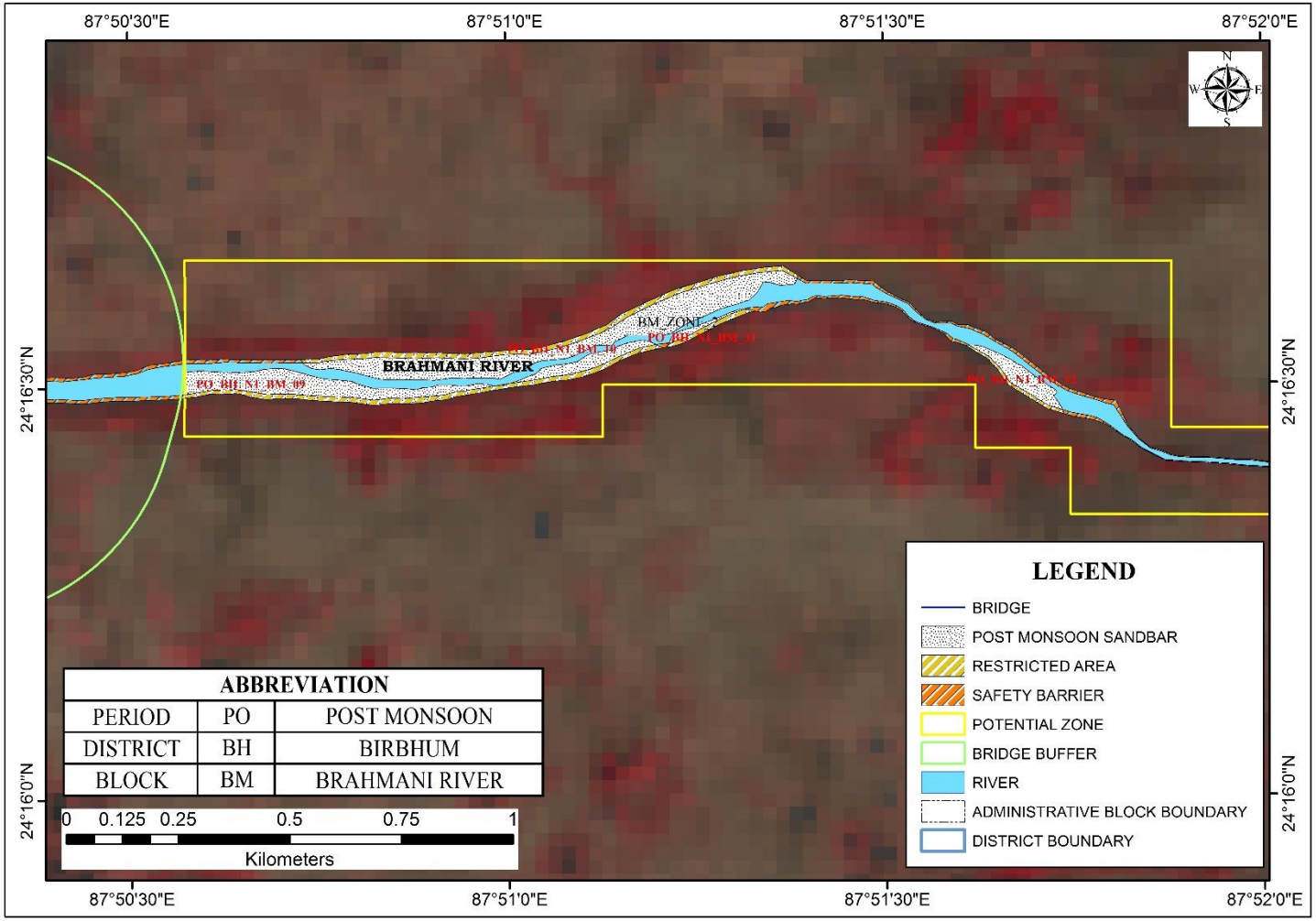


Plate 2B40: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

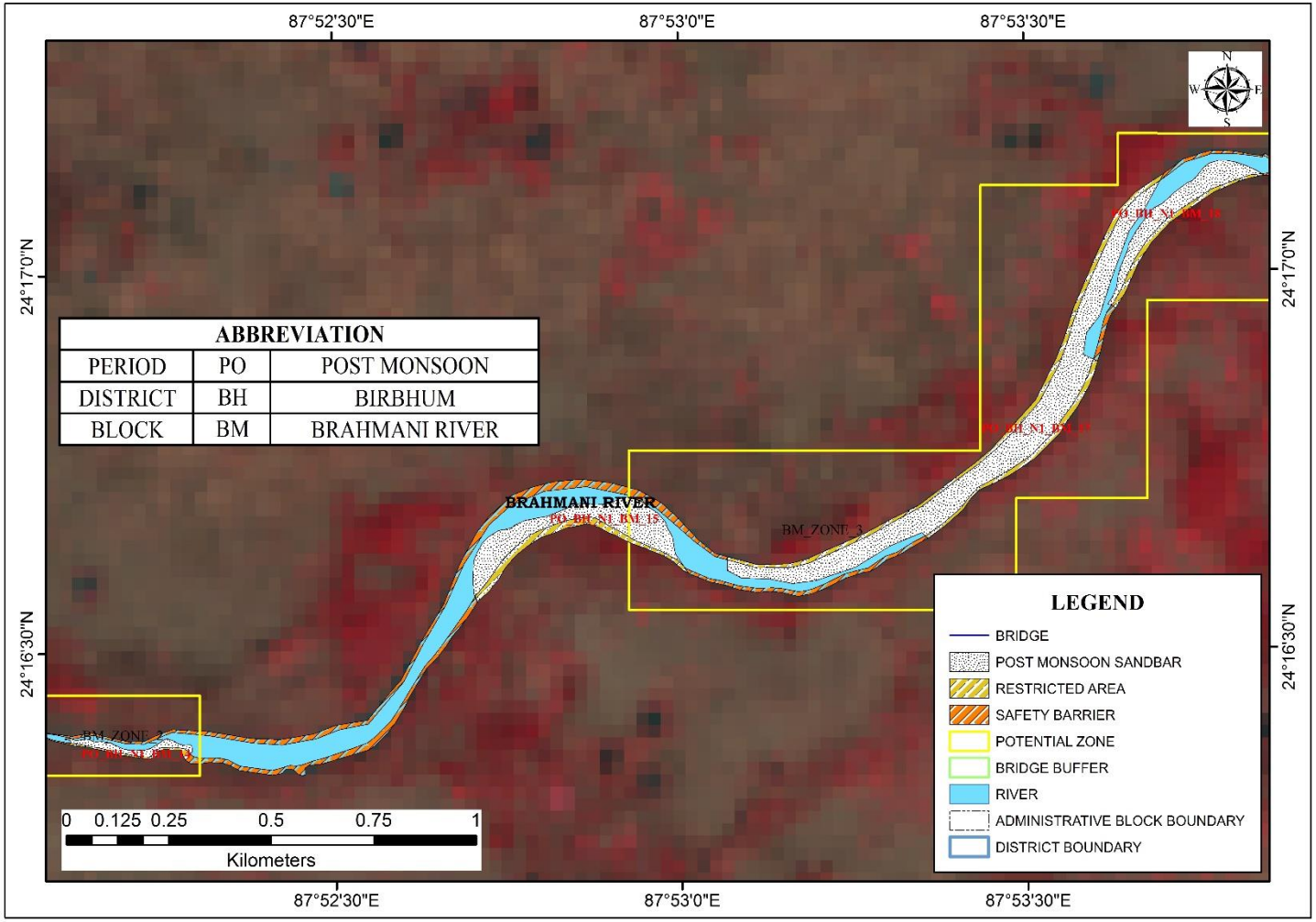


Plate 2B41: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

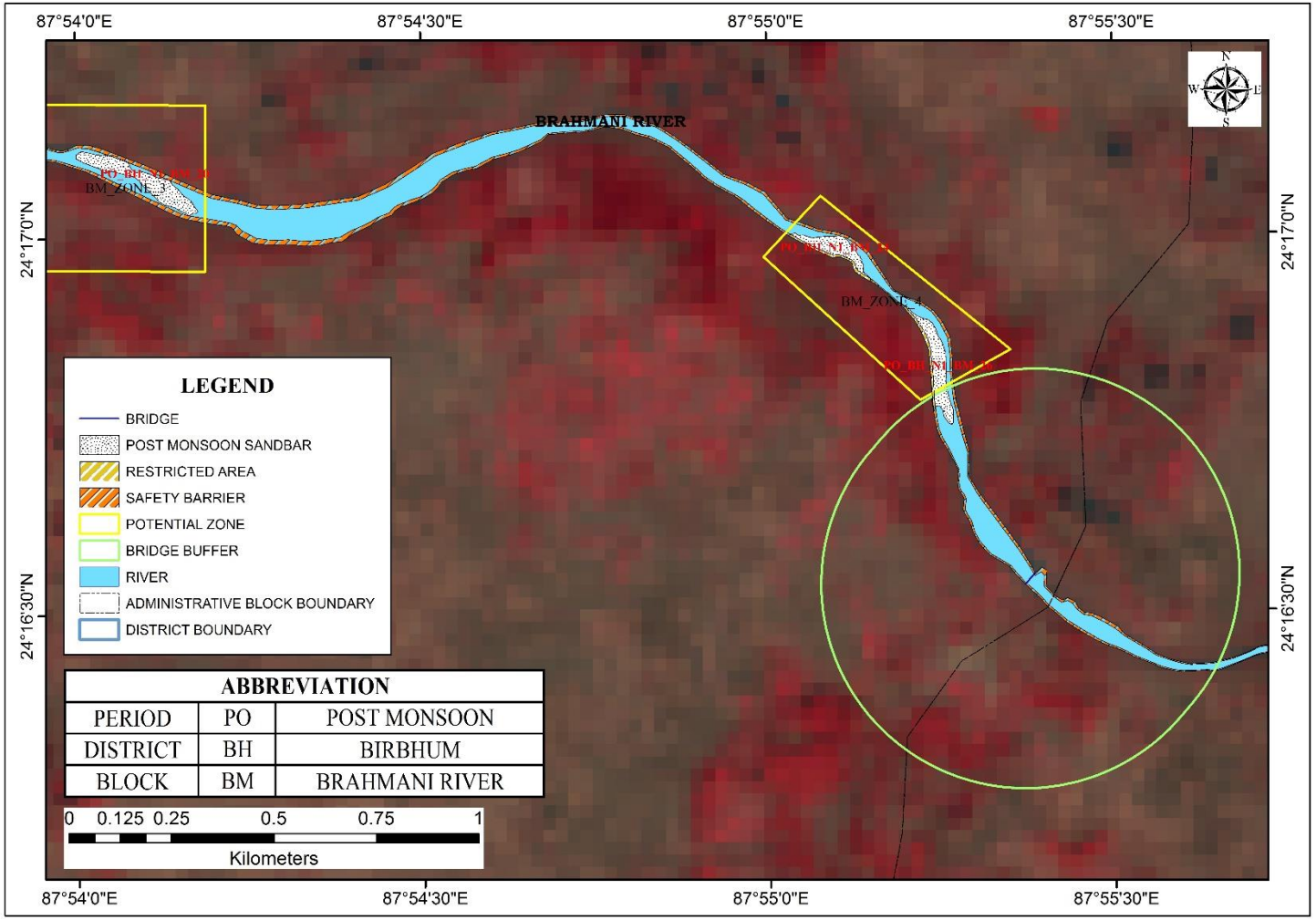


Plate 2B42: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

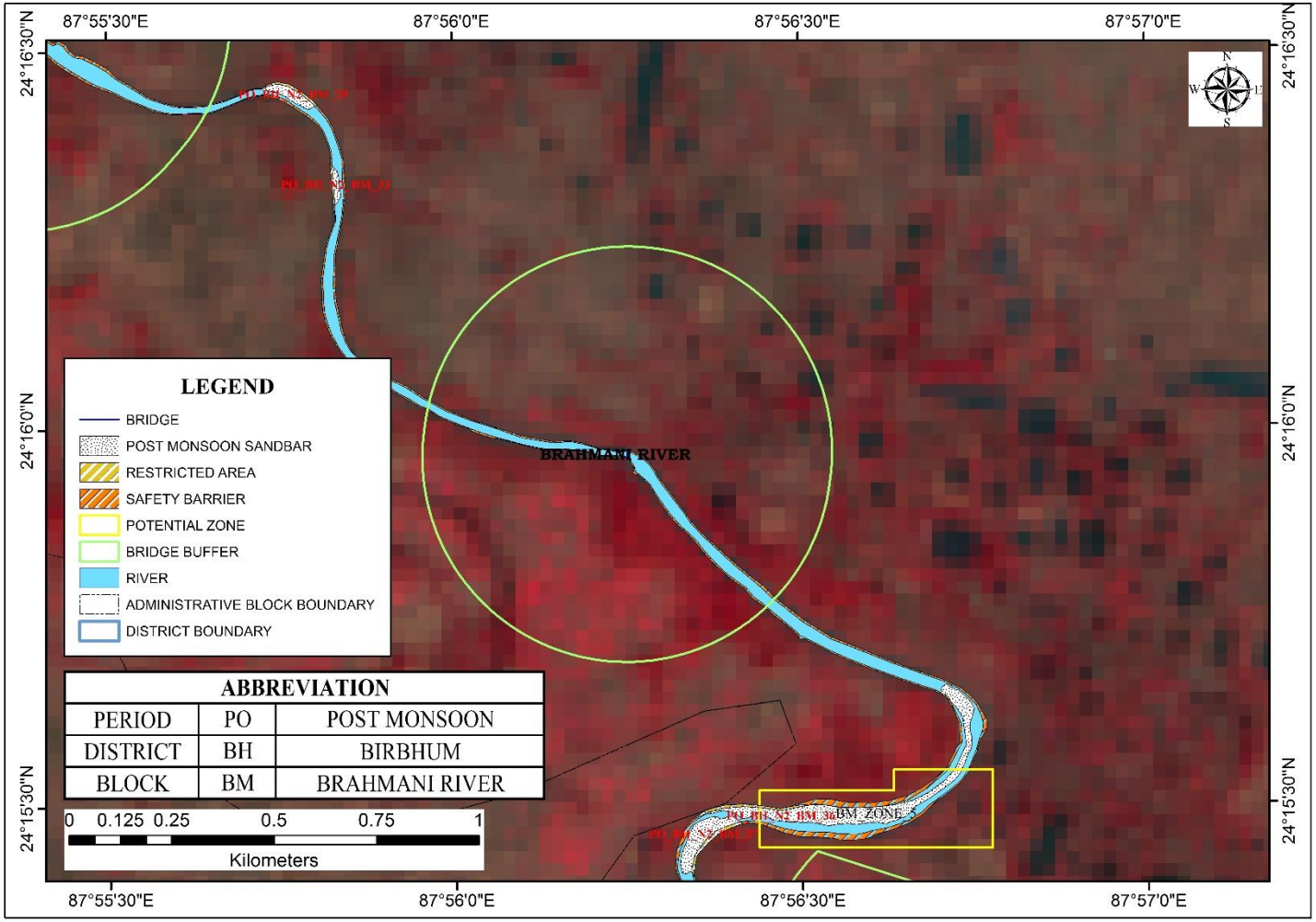


Plate 2B43: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

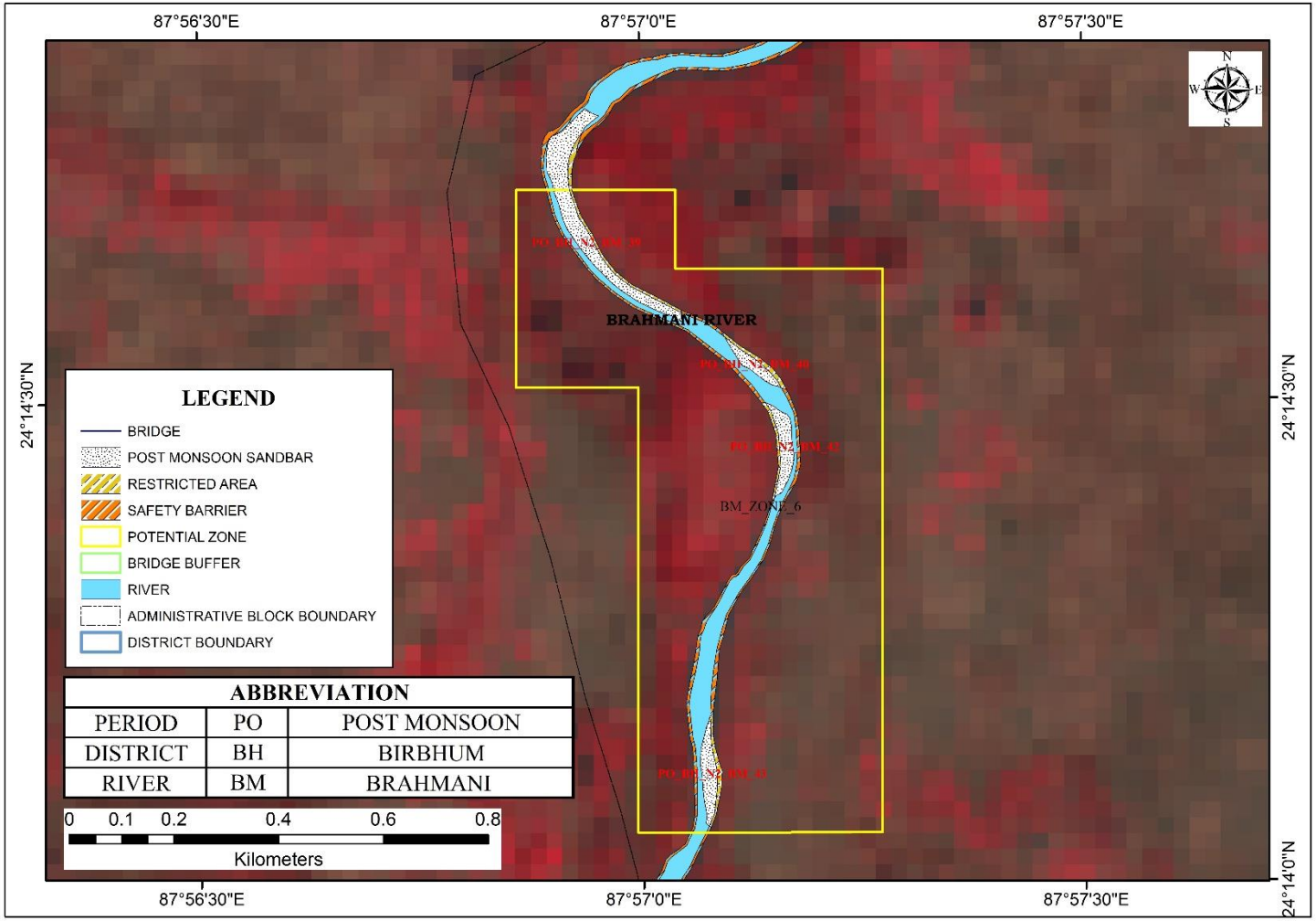


Plate 2B44: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

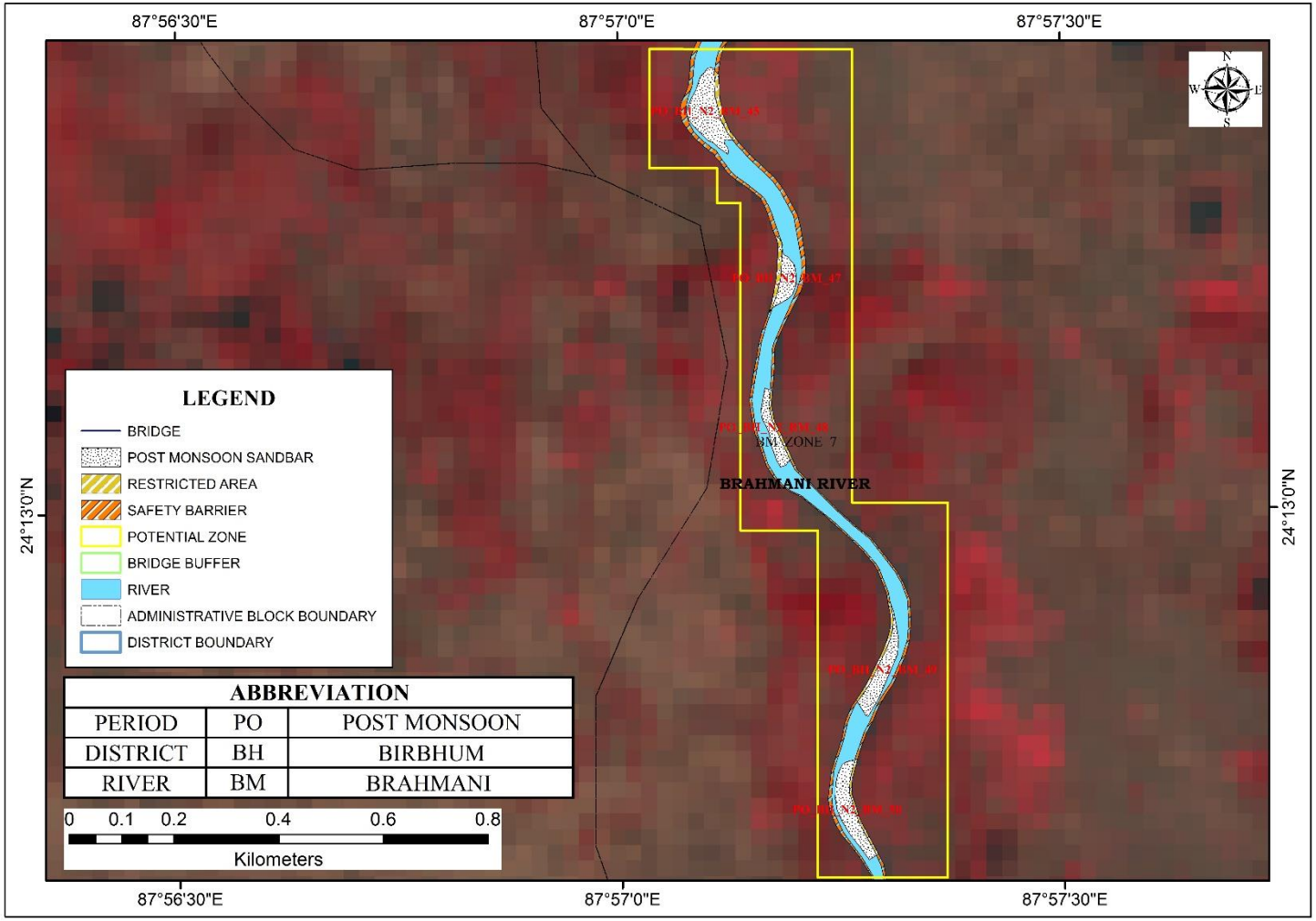


Plate 2B45: Distribution Map of Sand Bars on Rivers During Post-Monsoon Period of Birbhum District *(Source: ISRO RESOURCE Sat 2 LISS III Sensor, 2020)*

PLATE 3

WATERSHED MAP OF THE DISTRICT

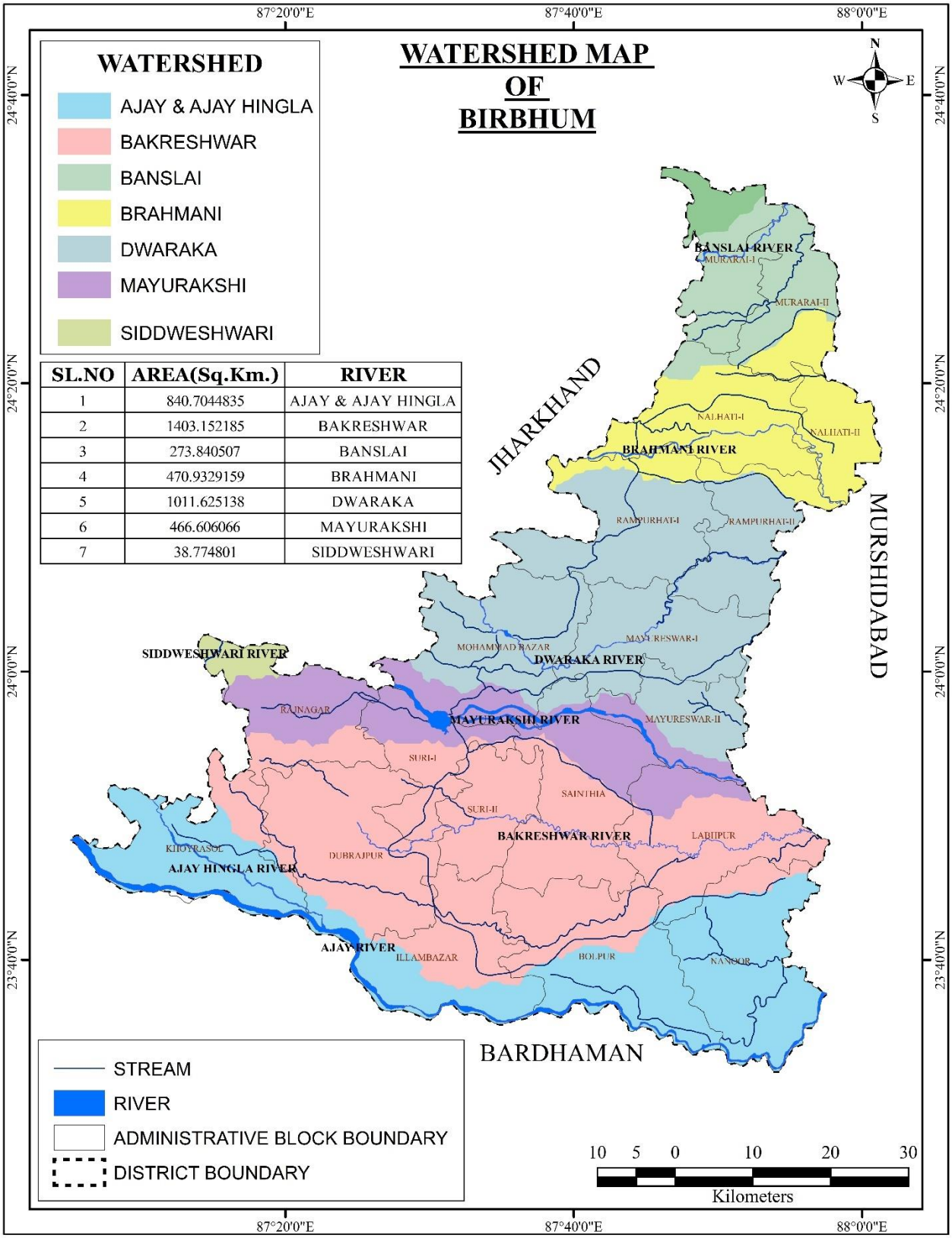
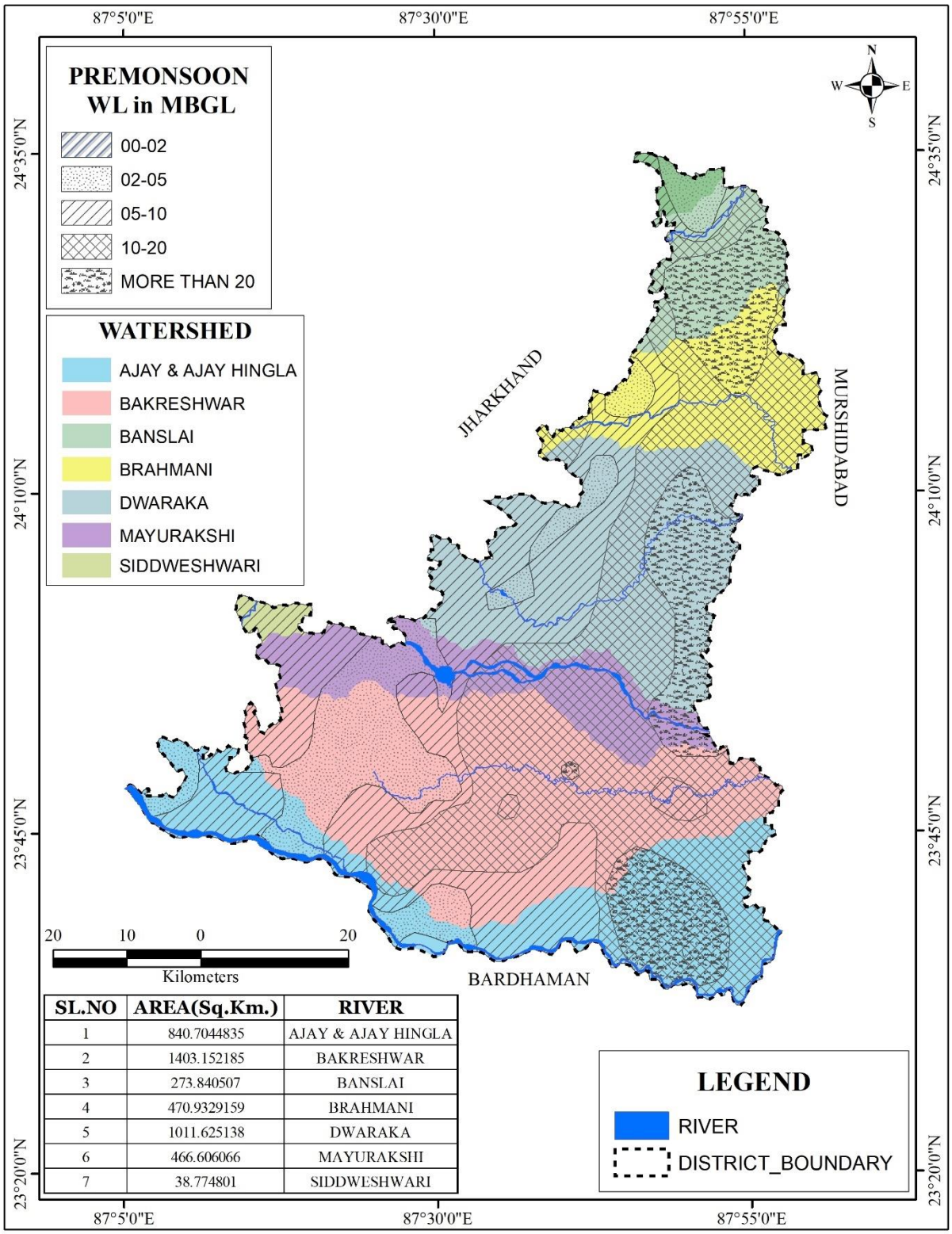
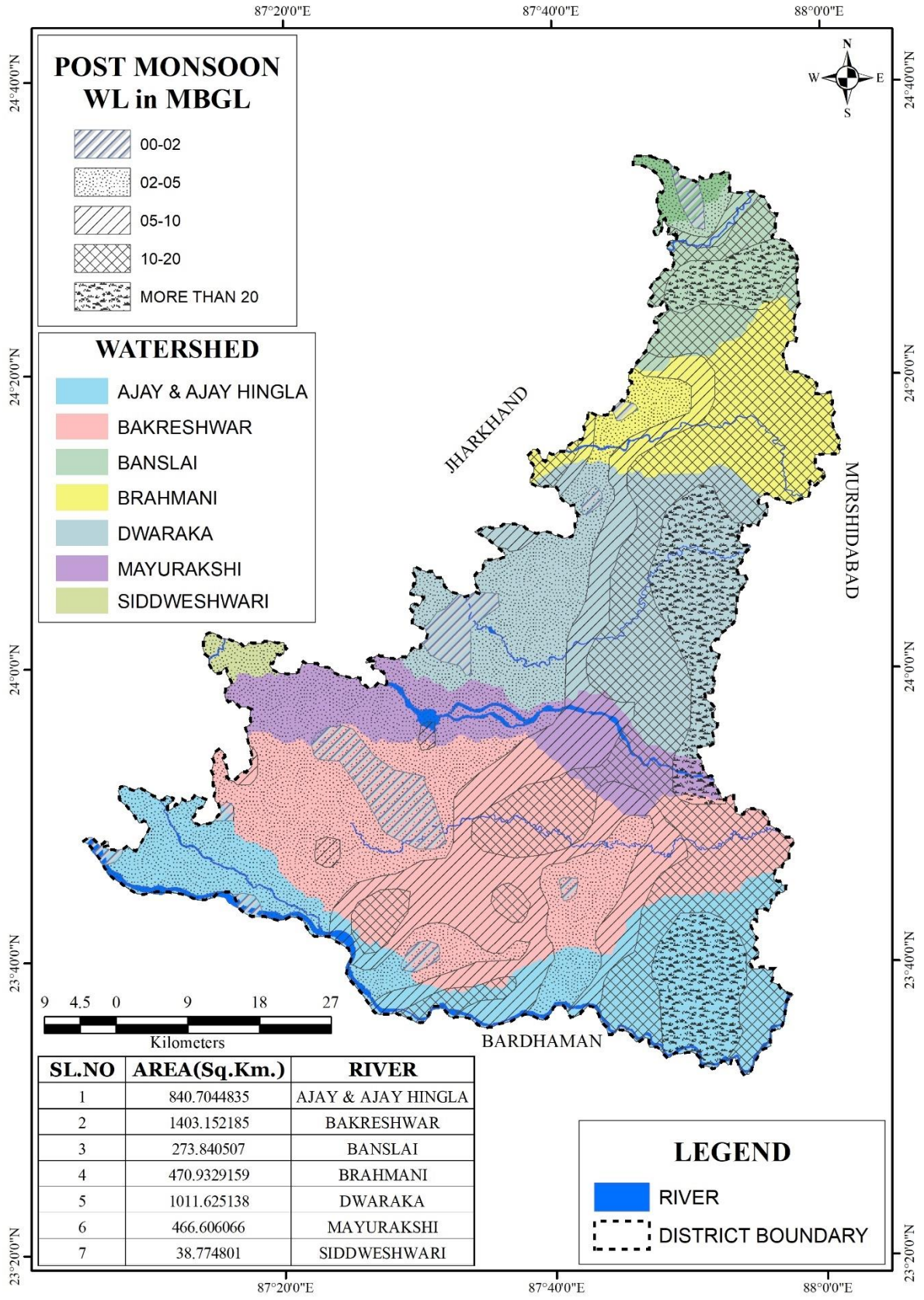


Plate 3A: Watershed Map of Birbhum District *(Source: World Wild Fund for Nature)*



SL.NO	AREA(Sq.Km.)	RIVER
1	840.7044835	AJAY & AJAY HINGLA
2	1403.152185	BAKRESHWAR
3	273.840507	BANSLAI
4	470.9329159	BRAHMANI
5	1011.625138	DWARAKA
6	466.606066	MAYURAKSHI
7	38.774801	SIDDWESHWARI

Plate 3B: District Watershed map showing ground water level during Pre-monsoon period *(Source: World Wild Fund for Nature, September 2020)*



SL.NO	AREA(Sq.Km.)	RIVER
1	840.7044835	AJAY & AJAY HINGLA
2	1403.152185	BAKRESHWAR
3	273.840507	BANSLAI
4	470.9329159	BRAHMANI
5	1011.625138	DWARAKA
6	466.606066	MAYURAKSHI
7	38.774801	SIDDWESHWARI

Plate 3C: District Watershed map showing ground water level during post-monsoon period *(Source: World Wild Fund for Nature, September 2020)*

PLATE 4

FIELD SURVEY PHOTOGRAPHS

4A: Sand deposit at Ajay River (Date: 18-05-21, Lat: 23° 47' 15" N and Long: 87° 06' 05" E)	**4B: Sand deposit at Mayurakshi River (Date: 19-05-21, Lat: 23° 57' 28" N and Long: 87° 32' 36" E)**

PLATE 5

LONG TERM EROSION-ACCRETION MAP OF RIVER BANK

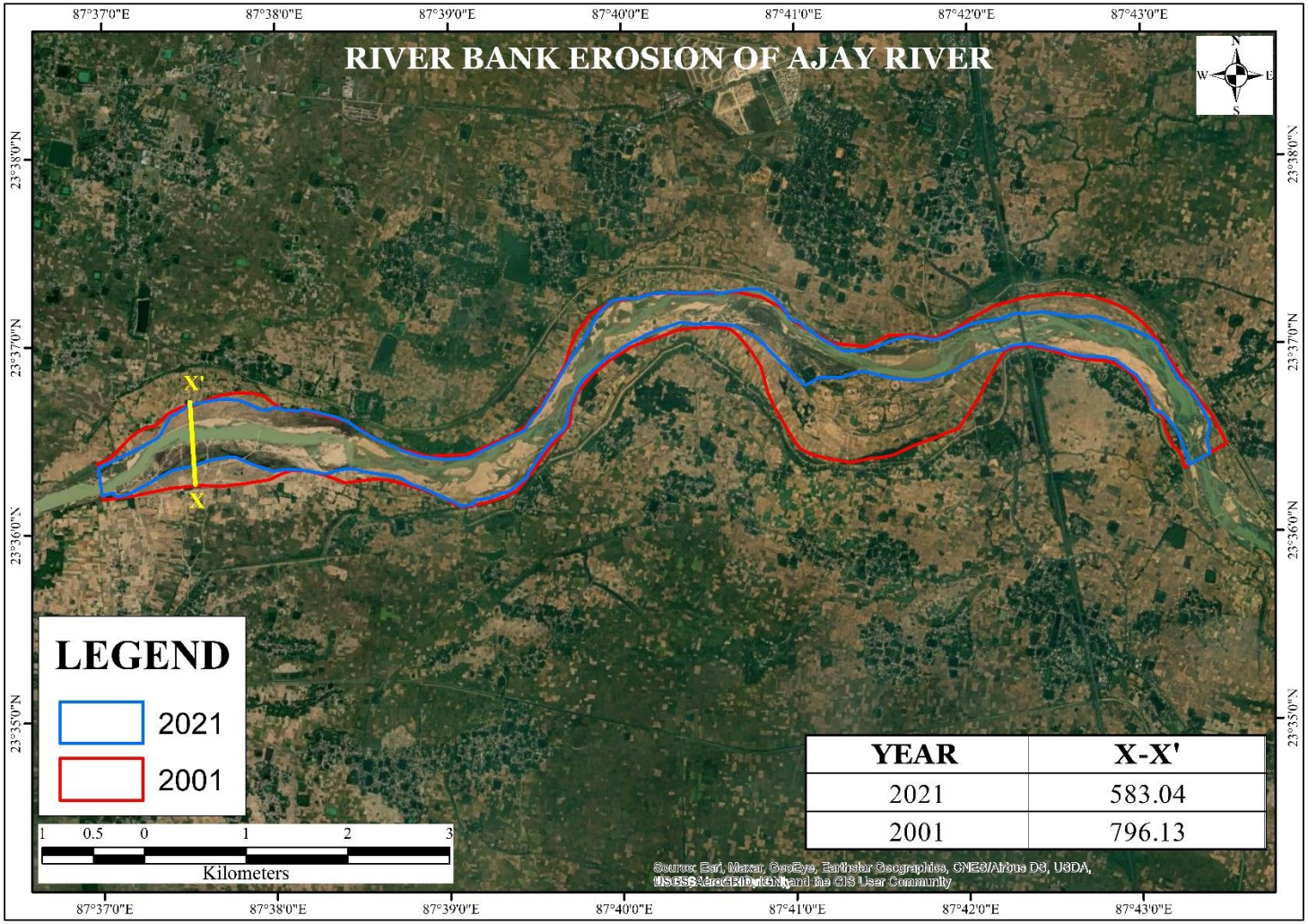


Plate 5: Map showing long-term (10-year or more) erosion-accretion areas on both the banks of Ajay River, Birbhum *(Source: ISRO RESOURCE Sat 2 LISS III Sensor)*

PLATE 6

GEOLOGICAL MAP OF BIRBHUM

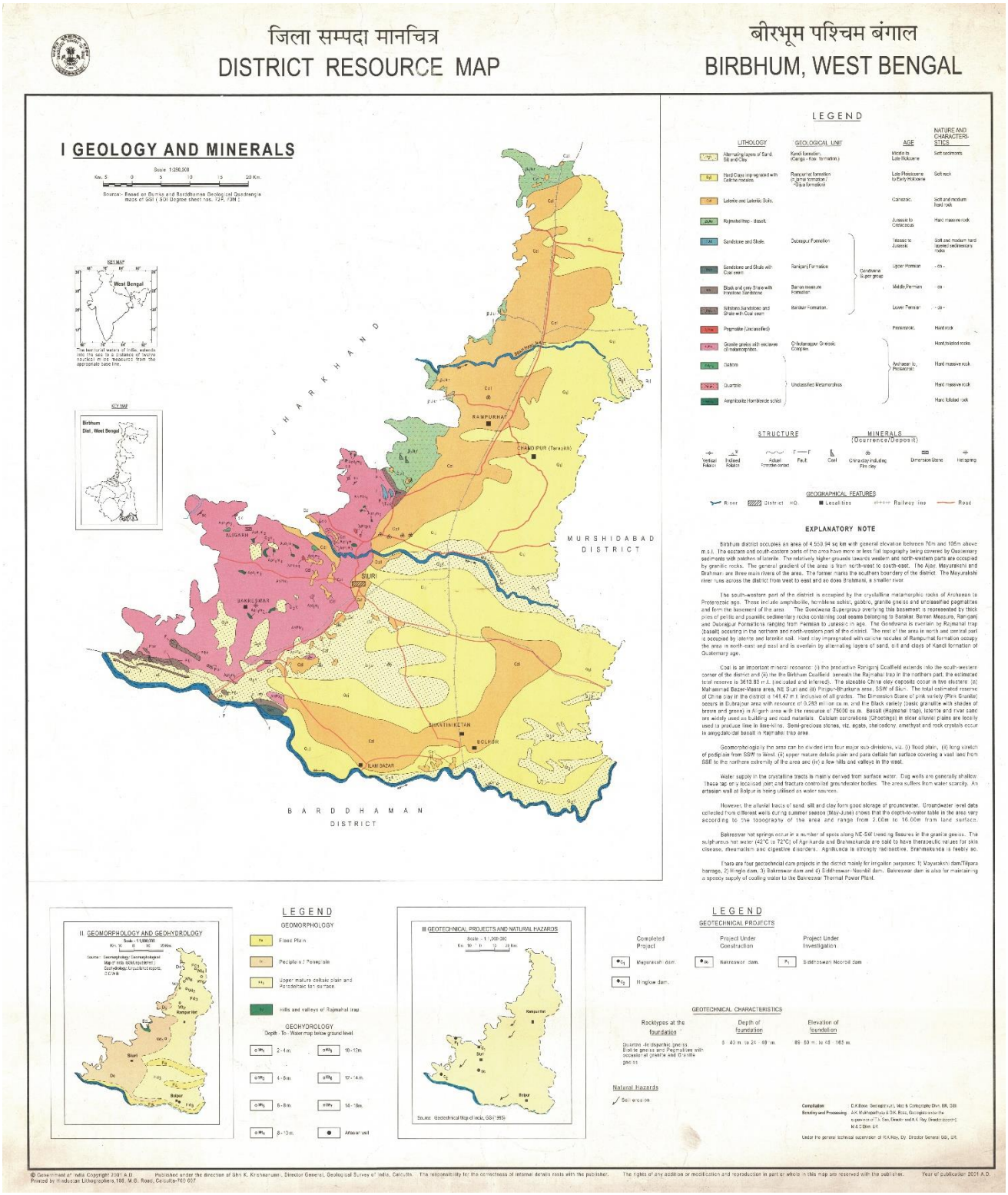


Plate 6: Geological map of Birbhum *(Source: GSI 2001)*

Annexure 1
Compliance as per Enforcement & Monitoring Guidelines for sand Mining, 2020 (MoEF& CC) for preparation of District Survey Report

Sl. No.	Particulars	Status
1	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.	Noted.
2	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.	Complied with and explained in Chapter 7 pg no 52 to 93.
3	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.	Complied with and furnished in pg no 81-84.
4	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 .	Complied with and given in table 7.4 pg 63.
5	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 is 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.	Complied with and given in table 7.15 pg 78 to 81.

Sl. No.	Particulars	Status
6	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.	Benchmark Pillars are established in strategic locations while boundary pillars will be fixed while fixation of the mining lease boundary subsequent to district level verification.
7	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.	Complied with and furnished in pg no 81 to 84.
8	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.	Complied with and given in pg no 11.
9	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.	Complied with and furnished in pg no 81 to 84.
10	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.	Noted. The DSR is composing of all the potential sand zones for defining the resources. In a subsequent phase blocking of potential zones shall be done in due consultation with the district level committee. The areas mentioned in the observation points shall be excluded while blocking of sand mining leases which are part of these potential zones marked in this DSR.
11	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.	Shall be Complied with.
12	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.	Noted. Due care will be taken while distribution of mining leases either to prevent cluster situation or keeping the prescribed distance in-between two mining clusters.
13	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.	Noted and shall be complied with.

Sl. No.	Particulars	Status
14	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.	Noted.
15	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.	Noted and final transport route will be submitted during preparation of mine plan.
16	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.	Shall be Complied with.
17	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.	After publication of the West Bengal Sand Mining Policy, 2021, it is now eminent that State owned The West Bengal Mineral Development and Trading Corporation Limited (WBMDTCL) shall be responsible for mining of sand/ gravel/ river bed materials in whole state of West Bengal. However, the existing mining leases which were in effect before hand of this Gazzate notification July 2021 will be in operation till the year 2027-28. In order to have the rational distribution of mining leases as per the prevailing norms and guidelines grant of mining leases in the state of West Bengal shall be carried out in phases till all the blocks are under the ambit of WBMDTCL. This DSR thus consist of the identified potential sand deposite areas within which the existing and future mining leases shall occur. The details of the mining leases as and when granted shall follow the procedure described in EMGSM 2020 and prevailing norms.
18	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.	Shall be Complied with.

Annexure 2

Estimation of Sand Resources based on sediment load comparison between Pre and Post Monsoon period of Birbhum District

Abbreviation used in the table as below

PERIOD	PR	PRE MONSOON	RIVER	SW	SIDDWESHWARI RIVER
	PO	POST MONSOON		MY	MAYURAKSHI RIVER
DISTRICT	BH	BIRBHUM		BM	BRAHMANI RIVER
BLOCK	NN	NANOOR		BS	BANSLAI RIVER
	M1	MURARAI-I		BK	BAKRESHWAR RIVER
	M2	MURARAI-II		AJ	AJAY RIVER
	N1	NALHATI-I		AH	AJAY HINGLA RIVER
	N2	NALHATI-II		DR	DWARAKA RIVER
	R1	RAMPURHAT-I	BLOCK	S1	SURI-I
	R2	RAMPURHAT-II		S2	SURI-II
	MR1	MAYURESWAR-I		SN	SAINTHIA
	MR2	MAYURESWAR-II		KR	KHOYRASOL
	MB	MOHAMMAD BAZAR		DJ	DUBRAJPUR
	RA	RAJNAGAR		IB	ILLAMBAZAR
	LB	LABHPUR		BL	BOLPUR

Pre monsoon						Post monsoon					
SL No	**Sand Bar_Code**	**RL (m)**	**Area in sq.m.**	**Sand Thickness in m.**	**Sand Volume in M. Cum**	**SL No**	**Sand Bar_Code**	**RL (m)**	**Area in sq.m.**	**Sand Thickness in m.**	**Sand Volume in M. Cum**
Estimation of Sand Resources in Pre monsoon period & Post monsoon period in sand bar regions of Ajay River											
1	PRE_BH_KR_AJ_01	93	3488212.00	2.00	6.98	1	PO_BH_KR_AJ_01	93.5	4199490	2.50	10.50
2	PRE_BH_KR_AJ_02	83	56152.33	2.00	0.11	2	PO_BH_KR_AJ_02	83.5	236779	2.50	0.59
3	PRE_BH_KR_AJ_03	84	63781.68	2.00	0.13	3	PO_BH_KR_AJ_03	84.5	35311.3	2.50	0.09
4	PRE_BH_KR_AJ_04	83	1209511.00	2.00	2.42	4	PO_BH_KR_AJ_04	83.5	1276540	2.50	3.19
						5	PO_BH_KR_AJ_04A	83.5	81157	2.50	0.20
5	PRE_BH_KR_AJ_05	87	33826.84	2.00	0.07		PO_BH_KR_AJ_05		0		
6	PRE_BH_KR_AJ_06	80	35011.45	2.00	0.07	6	PO_BH_KR_AJ_06	80.5	28601.5	2.50	0.07
7	PRE_BH_KR_AJ_07	80	663773.80	2.00	1.33	7	PO_BH_KR_AJ_07	80.5	379351	2.50	0.95
8	PRE_BH_KR_AJ_08	80	446091.80	2.00	0.89	8	PO_BH_KR_AJ_08	80.5	191662	2.50	0.48
						9	PO_BH_KR_AJ_08_10	80.5	75991.5	2.50	0.19
9	PRE_BH_KR_AJ_10	79	123108.20	2.00	0.25						
10	PRE_BH_KR_AJ_09	78	91003.27	2.00	0.18	10	PO_BH_KR_AJ_09	78.5	144050	2.50	0.36
11	PRE_BH_KR_AJ_11	77	371029.50	2.00	0.74	11	PO_BH_KR_AJ_11_12	76.5	627864	2.50	1.57
12	PRE_BH_KR_AJ_12	76	380583.50	2.00	0.76						
						12	PO_BH_KR_AJ_12	76.5	61178.7	2.50	0.15
13	PRE_BH_KR_AJ_13	74	527258.00	2.00	1.05	13	PO_BH_KR_AJ_13	74.5	291698	2.50	0.73
14	PRE_BH_KR_AJ_14	72	61434.79	2.00	0.12	14	PO_BH_KR_AJ_14	72.5	222154	2.50	0.56
15	PRE_BH_KR_AJ_15	67	77251.87	2.00	0.15	15	PO_BH_KR_AJ_15	67.5	77251.9	2.50	0.19

Pre monsoon						Post monsoon					
SL	Sand Bar_Code	RL	Area in	Sand	San	SL No	Sand Bar_Code	RL (m)	Area in	Sand	Sand
16	PRE_BH_KR_AJ_16	66	44939.68	2.00	0.09	16	PO_BH_KR_AJ_16_17	67	326571	2.50	0.82
17	PRE_BH_KR_AJ_17	68	237655.60	2.00	0.48						
18	PRE_BH_KR_AJ_18	70	159652.90	2.00	0.32	17	PO_BH_KR_AJ_18	70.5	159653	2.50	0.40
19	PRE_BH_KR_AJ_19	71	534113.30	2.00	1.07	18	PO_BH_KR_AJ_19_20	62.5	583035	2.50	1.46
20	PRE_BH_KR_AJ_20	62	101759.20	2.00	0.20						
						19	PO_BH_KR_AJ_20	62.5	45770	2.50	0.11
21	PRE_BH_KR_AJ_21	61	532827.10	2.00	1.07	20	PO_BH_KR_AJ_21	61.5	358901	2.50	0.90
22	PRE_BH_KR_AJ_22	60	49005.89	2.00	0.10	21	PO_BH_KR_AJ_22	60.5	22651.1	2.50	0.06
23	PRE_BH_KR_AJ_23	60	85337.47	2.00	0.17	22	PO_BH_KR_AJ_23	60.5	96751.1	2.50	0.24
						23	PO_BH_KR_AJ_23_24	60.5	273678	2.50	0.68
24	PRE_BH_KR_AJ_24	63	96561.57	2.00	0.19						
25	PRE_BH_KR_AJ_25	64	365507.70	2.00	0.73	24	PO_BH_KR_AJ_25	64.5	365508	2.50	0.91
26	PRE_BH_DJ_AJ_26	59	729354.60	2.00	1.46	25	PO_BH_DJ_AJ_26_28	60.5	1741420	2.50	4.35
27	PRE_BH_DJ_AJ_28	61	1374955.00	2.00	2.75						
28	PRE_BH_DJ_AJ_27	62	251657.30	2.00	0.50	26	PO_BH_DJ_AJ_27	62.5	186080	2.50	0.47
29	PRE_BH_DJ_AJ_29	60	1549032.00	2.00	3.10	27	PO_BH_DJ_AJ_29	60.5	1321360	2.50	3.30
30	PRE_BH_IB_AJ_30	58	315454.30	2.00	0.63	28	PO_BH_IB_AJ_30	58.5	217187	2.50	0.54
31	PRE_BH_IB_AJ_31	51	179714.30	2.00	0.36	29	PO_BH_IB_AJ_31	51.5	208485	2.50	0.52
32	PRE_BH_IB_AJ_32	50	474992.10	2.00	0.95	30	PO_BH_IB_AJ_32	50.5	406241	2.50	1.02
33	PRE_BH_IB_AJ_33	54	139855.90	2.00	0.28	31	PO_BH_IB_AJ_33	54.5	139856	2.50	0.35
34	PRE_BH_IB_AJ_34	55	99126.73	2.00	0.20	32	PO_BH_IB_AJ_34	55.5	99126.7	2.50	0.25
35	PRE_BH_IB_AJ_35	51	216661.70	2.00	0.43	33	PO_BH_IB_AJ_35	51.5	176427	2.50	0.44
36	PRE_BH_IB_AJ_36	52	76297.73	2.00	0.15	34	PO_BH_IB_AJ_36	52.5	248327	2.50	0.62
37	PRE_BH_IB_AJ_37	55	31120.19	2.00	0.06	35	PO_BH_IB_AJ_37	55.5	31120.2	2.50	0.08
38	PRE_BH_IB_AJ_38	53	103209.30	2.00	0.21	36	PO_BH_IB_AJ_38	53.5	77325.1	2.50	0.19
39	PRE_BH_IB_AJ_39	52	102073.20	2.00	0.20	37	PO_BH_IB_AJ_39	52.5	75423.7	2.50	0.19
40	PRE_BH_IB_AJ_40	50	236235.40	2.00	0.47	38	PO_BH_IB_AJ_40	50.5	236235	2.50	0.59
41	PRE_BH_IB_AJ_41	49	35595.63	2.00	0.07	39	PO_BH_IB_AJ_41	49.5	35469.9	2.50	0.09
42	PRE_BH_IB_AJ_42	48	92724.39	2.00	0.19	40	PO_BH_IB_AJ_42	48.5	92724.4	2.50	0.23
						41	PO_BH_IB_AJ_42A	48.5	485068	2.50	1.21
43	PRE_BH_IB_AJ_43	47	51182.96	2.00	0.10	42	PO_BH_IB_AJ_43	47.5	51183	2.50	0.13
44	PRE_BH_IB_AJ_44	45	197419.80	2.00	0.39	43	PO_BH_IB_AJ_44	45.5	182491	2.50	0.46
45	PRE_BH_IB_AJ_45	44	177887.40	2.00	0.36	44	PO_BH_IB_AJ_45	44.5	177105	2.50	0.44
46	PRE_BH_IB_AJ_46	40	52347.61	2.00	0.10	45	PO_BH_IB_AJ_46	40.5	8357.07	2.50	0.02
47	PRE_BH_BL_AJ_47	41	39664.00	2.00	0.08		PRE_BH_BL_AJ_47		0		
48	PRE_BH_BL_AJ_48	40	137063.80	2.00	0.27	46	PO_BH_BL_AJ_48	40.5	267061	2.50	0.67
						47	PO_BH_BL_AJ_48_49	40.5	95657.7	2.50	0.24
49	PRE_BH_BL_AJ_49	39	78737.46	2.00	0.16						
50	PRE_BH_BL_AJ_50	38	346160.10	2.00	0.69	48	PO_BH_BL_AJ_50_51_53	38.5	434761	2.50	1.09
51	PRE_BH_BL_AJ_51	38	23252.17	2.00	0.05						
52	PRE_BH_BL_AJ_53	39	182440.10	2.00	0.36						
53	PRE_BH_BL_AJ_52	38	14501.48	2.50	0.04		PO_BH_BL_AJ_52		0		
54	PRE_BH_BL_AJ_54	40	323921.90	2.50	0.81	49	PO_BH_BL_AJ_54	40.5	453240	3.00	1.36
55	PRE_BH_BL_AJ_55	38	12054.78	2.50	0.03		PO_BH_BL_AJ_55		0		
56	PRE_BH_BL_AJ_56	36	98645.20	2.50	0.25	50	PO_BH_BL_AJ_56_57	36.5	165122	3.00	0.50
57	PRE_BH_BL_AJ_57	35	46542.51	2.50	0.12						
58	PRE_BH_BL_AJ_58	36	22902.93	2.50	0.06		PO_BH_BL_AJ_58		0		
59	PRE_BH_BL_AJ_59	34	20039.94	2.50	0.05		PO_BH_BL_AJ_59		0		
60	PRE_BH_BL_AJ_60	33	193586.00	2.50	0.48	51	PO_BH_BL_AJ_60	33.5	219306	3.00	0.66
61	PRE_BH_BL_AJ_61	32	47530.52	2.50	0.12	52	PO_BH_BL_AJ_61	32.5	18417	3.00	0.06
						53	PO_BH_BL_AJ_61A	32.5	35695.6	3.00	0.11
62	PRE_BH_BL_AJ_62	31	83888.09	2.50	0.21	54	PO_BH_BL_AJ_62	31.5	55591.5	3.00	0.17
63	PRE_BH_BL_AJ_63	34	9755.84	2.50	0.02	55	PO_BH_BL_AJ_63	34.5	9755.84	3.00	0.03
64	PRE_BH_BL_AJ_64	30	57389.24	2.50	0.14	56	PO_BH_BL_AJ_64	30.5	57389.2	3.00	0.17

Pre monsoon						Post monsoon					
SL	Sand Bar_Code	RL	Area in	Sand	San	SL No	Sand Bar_Code	RL (m)	Area in	Sand	Sand
65	PRE_BH_BL_AJ_65	32	10320.57	2.50	0.03	57	PO_BH_BL_AJ_65	32.5	10320.6	3.00	0.03
66	PRE_BH_BL_AJ_66	29	49852.48	2.50	0.12	58	PO_BH_BL_AJ_66	29.5	12642.8	3.00	0.04
67	PRE_BH_BL_AJ_67	29	40677.18	2.50	0.10	59	PO_BH_BL_AJ_67	29.5	32063.9	3.00	0.10
68	PRE_BH_BL_AJ_68	27	12309.73	2.50	0.03		PO_BH_BL_AJ_68		0		
69	PRE_BH_BL_AJ_69	26	47871.84	2.50	0.12	60	PO_BH_BL_AJ_69	26.5	43796.1	3.00	0.13
70	PRE_BH_BL_AJ_70	24	11383.42	2.50	0.03		PO_BH_BL_AJ_70		0		
71	PRE_BH_BL_AJ_71	27	14460.50	2.50	0.04	61	PO_BH_BL_AJ_71	27.5	14460.5	3.00	0.04
72	PRE_BH_BL_AJ_72	23	10668.40	2.50	0.03	62	PO_BH_BL_AJ_72	23.5	10668.4	3.00	0.03
73	PRE_BH_BL_AJ_73	23	37464.96	2.50	0.09	63	PO_BH_BL_AJ_73	23.5	38936.4	3.00	0.12
74	PRE_BH_BL_AJ_74	23	27943.41	2.50	0.07		PO_BH_BL_AJ_74		0		
75	PRE_BH_BL_AJ_75	27	107435.70	2.50	0.27	64	PO_BH_BL_AJ_75	27.5	70207.9	3.00	0.21
76	PRE_BH_BL_AJ_76	25	33297.13	2.50	0.08		PO_BH_BL_AJ_76		0		
77	PRE_BH_BL_AJ_77	23	111347.30	2.50	0.28	65	PO_BH_BL_AJ_77	23.5	153651	3.00	0.46
78	PRE_BH_BL_AJ_78	21	160455.70	2.50	0.40	66	PO_BH_BL_AJ_78	21.5	166223	3.00	0.50
79	PRE_BH_BL_AJ_79	21	89633.83	2.50	0.22	67	PO_BH_BL_AJ_79	21.5	64679.2	3.00	0.19
80	PRE_BH_BL_AJ_80	25	185796.30	2.50	0.46	68	PO_BH_BL_AJ_80	25.5	206838	3.00	0.62
81	PRE_BH_BL_AJ_81	20	172210.40	2.50	0.43	69	PO_BH_BL_AJ_81	20.5	97817.4	3.00	0.29
82	PRE_BH_BL_AJ_82	28	24229.94	2.50	0.06		PO_BH_BL_AJ_82		0		
83	PRE_BH_BL_AJ_83	22	42314.38	2.50	0.11	70	PO_BH_BL_AJ_83_84	20.5	106578	3.00	0.32
84	PRE_BH_BL_AJ_84	20	43829.18	2.50	0.11						
85	PRE_BH_BL_AJ_85	20	28982.23	2.50	0.07		PO_BH_BL_AJ_85		0		
86	PRE_BH_NN_AJ_86	20	8592.98	2.50	0.02	71	PO_BH_NN_AJ_86	20.5	10085.9	3.00	0.03
87	PRE_BH_NN_AJ_87	20	16554.63	2.50	0.04	72	PO_BH_NN_AJ_87_88	20.5	315385	3.00	0.95
88	PRE_BH_NN_AJ_88	21	534130.80	2.50	1.34						
89	PRE_BH_NN_AJ_89	20	19710.68	2.50	0.05		PO_BH_NN_AJ_89		0		
90	PRE_BH_NN_AJ_90	23	121929.60	2.50	0.30	73	PO_BH_NN_AJ_90	23.5	20679.1	3.00	0.06
91	PRE_BH_NN_AJ_91	21	83210.70	2.50	0.21	74	PO_BH_NN_AJ_91	21.5	44831.5	3.00	0.13
92	PRE_BH_NN_AJ_92	24	385168.70	2.50	0.96	75	PO_BH_NN_AJ_92	24.5	80570.5	3.00	0.24
93	PRE_BH_NN_AJ_93	19	113942.60	2.50	0.28	76	PO_BH_NN_AJ_93	19.5	88941.6	3.00	0.27
94	PRE_BH_NN_AJ_94	18	292193.00	2.50	0.73	77	PO_BH_NN_AJ_94	18.5	88406.6	3.00	0.27
95	PRE_BH_NN_AJ_95	18	186573.60	2.50	0.47	78	PO_BH_NN_AJ_95	18.5	93026.1	3.00	0.28
96	PRE_BH_NN_AJ_96	17	9347.20	2.50	0.02	79	PO_BH_NN_AJ_96	17.5	86719	3.00	0.26
97	PRE_BH_NN_AJ_97	17	89170.19	2.50	0.22	80	PO_BH_NN_AJ_97	17.5	50782	3.00	0.15
						81	PO_BH_NN_AJ_97A	17.5	62999.1	3.00	0.19
98	PRE_BH_NN_AJ_98	14	10115.35	2.50	0.03		PO_BH_NN_AJ_98		0		
99	PRE_BH_NN_AJ_99	13	97958.04	2.50	0.24	82	PO_BH_NN_AJ_99	13.5	24561.2	3.00	0.07
100	PRE_BH_NN_AJ_100	13	48103.30	2.50	0.12	83	PO_BH_NN_AJ_100	13.5	25352.2	3.00	0.08
101	PRE_BH_NN_AJ_101	13	32373.79	2.50	0.08	84	PO_BH_NN_AJ_101_102	12.5	68657.1	3.00	0.21
102	PRE_BH_NN_AJ_102	12	11800.06	2.50	0.03						
103	PRE_BH_NN_AJ_103	12	6220.89	2.50	0.02		PO_BH_NN_AJ_103		0		
104	PRE_BH_NN_AJ_104	11	33164.88	2.50	0.08		PO_BH_NN_AJ_104		0		
105	PRE_BH_NN_AJ_105	12	12676.76	2.50	0.03		PO_BH_NN_AJ_105		0		
106	PRE_BH_NN_AJ_106	12	5279.88	2.50	0.01		PO_BH_NN_AJ_106		0		
107	PRE_BH_NN_AJ_107	12	10020.55	2.50	0.03	85	PO_BH_NN_AJ_107	12.5	82589.6	3.00	0.25
108	PRE_BH_NN_AJ_108	11	22062.65	2.50	0.06		PO_BH_NN_AJ_108		0		
10	PRE_BH_NN_AJ_10	12	49272.42	2.50	0.12	86	PO_BH_NN_AJ_109	12.5	20402.2	3.00	0.06

Pre monsoon						Post monsoon					
SL	Sand Bar_Code	RL	Area in	Sand	San	SL No	Sand Bar_Code	RL (m)	Area in	Sand	Sand
9	9										
Estimation of Sand Resources in Pre monsoon period & Post monsoon period in sand bar regions of Ajay-Hingla River											
1	PRE_BH_KR_AH_01	97	3068.50	2.00	0.01	1	PO_BH_KR_AH_01	97.5	3068.5	2.50	0.01
2	PRE_BH_KR_AH_02	98	723.05	2.00	0.00	2	PO_BH_KR_AH_02	98.5	723.053	2.50	0.00
3	PRE_BH_KR_AH_03	96	1400.70	2.00	0.00	3	PO_BH_KR_AH_03	96.5	895.205	2.50	0.00
4	PRE_BH_KR_AH_04	95	682.73	2.00	0.00	4	PO_BH_KR_AH_04	95.5	682.73	2.50	0.00
5	PRE_BH_KR_AH_05	96	1893.55	2.00	0.00	5	PO_BH_KR_AH_05	96.5	1893.55	2.50	0.00
6	PRE_BH_KR_AH_06	96	1041.30	2.00	0.00	6	PO_BH_KR_AH_06	96.5	1041.3	2.50	0.00
7	PRE_BH_KR_AH_07	96	1461.39	2.00	0.00	7	PO_BH_KR_AH_07	96.5	1461.39	2.50	0.00
8	PRE_BH_KR_AH_08	97	3887.55	2.00	0.01	8	PO_BH_KR_AH_08	97.5	3887.55	2.50	0.01
9	PRE_BH_KR_AH_09	96	1132.49	2.00	0.00	9	PO_BH_KR_AH_09	96.5	414.69	2.50	0.00
10	PRE_BH_KR_AH_10	95	900.63	2.00	0.00	10	PO_BH_KR_AH_10	95.5	900.629	2.50	0.00
11	PRE_BH_KR_AH_11	95	722.69	2.00	0.00	11	PO_BH_KR_AH_11	95.5	722.691	2.50	0.00
12	PRE_BH_KR_AH_12	90	56096.11	2.00	0.11	12	PO_BH_KR_AH_12	90.5	106464	2.50	0.27
13	PRE_BH_KR_AH_13	87	43802.93	2.00	0.09	13	PO_BH_KR_AH_13	87.5	19040.4	2.50	0.05
14	PRE_BH_KR_AH_14	86	6743.05	2.00	0.01	14	PO_BH_KR_AH_14	86.5	24545.3	2.50	0.06
15	PRE_BH_KR_AH_15	84	219774.90	2.00	0.44	15	PO_BH_KR_AH_15	84.5	151131	2.50	0.38
						16	PO_BH_KR_AH_15A		14279	2.50	0.04
						17	PO_BH_KR_AH_15B		52762.2	2.50	0.13
16	PRE_BH_KR_AH_16	80	41860.81	2.00	0.08		PO_BH_KR_AH_16		0		
17	PRE_BH_KR_AH_17	79	37975.42	2.00	0.08	18	PO_BH_KR_AH_17	79.5	24784.7	2.50	0.06
18	PRE_BH_KR_AH_18	78	17265.97	2.00	0.03	19	PO_BH_KR_AH_18	78.5	6850.91	2.50	0.02
19	PRE_BH_KR_AH_19	77	11700.09	2.00	0.02	20	PO_BH_KR_AH_19	77.5	11700.1	2.50	0.03
20	PRE_BH_KR_AH_20	76	10921.16	2.00	0.02	21	PO_BH_KR_AH_20	76.5	6196.91	2.50	0.02
21	PRE_BH_KR_AH_21	76	24930.46	2.00	0.05	22	PO_BH_KR_AH_21	76.5	8639.61	2.50	0.02
22	PRE_BH_KR_AH_22	76	50241.47	2.00	0.10	23	PO_BH_KR_AH_22	76.5	27652	2.50	0.07
23	PRE_BH_KR_AH_23	75	15927.53	2.00	0.03	24	PO_BH_KR_AH_23	75.5	4181.47	2.50	0.01
24	PRE_BH_KR_AH_24	74	20529.43	2.00	0.04	25	PO_BH_KR_AH_24	74.5	5878.65	2.50	0.01
25	PRE_BH_KR_AH_25	74	11769.12	2.00	0.02	26	PO_BH_KR_AH_25	74.5	4858.84	2.50	0.01
26	PRE_BH_KR_AH_26	75	36282.64	2.00	0.07	27	PO_BH_KR_AH_26	75.5	34512.1	2.50	0.09
27	PRE_BH_KR_AH_27	73	7543.01	2.00	0.02	28	PO_BH_KR_AH_27	73.5	7543.01	2.50	0.02
28	PRE_BH_KR_AH_28	73	1631.18	2.00	0.00	29	PO_BH_KR_AH_28	73.5	1631.18	2.50	0.00
29	PRE_BH_KR_AH_29	72	36949.96	2.00	0.07	30	PO_BH_KR_AH_29	72.5	16926.8	2.50	0.04
30	PRE_BH_KR_AH_30	69	2752.99	2.00	0.01		PO_BH_KR_AH_30		0		
31	PRE_BH_KR_AH_31	70	93597.29	2.00	0.19	31	PO_BH_KR_AH_31	70.5	32056.1	2.50	0.08
32	PRE_BH_KR_AH_32	68	10468.75	2.00	0.02		PO_BH_KR_AH_32		0		
33	PRE_BH_KR_AH_3	69	23672.35	2.00	0.05	32	PO_BH_KR_AH_33	69.5	23672.3	2.50	0.06

Pre monsoon						Post monsoon					
SL	Sand Bar_Code	RL	Area in	Sand	San	SL No	Sand Bar_Code	RL (m)	Area in	Sand	Sand
	3										
34	PRE_BH_KR_AH_34	68	29659.25	2.00	0.06	33	PO_BH_KR_AH_34	68.5	9563.87	2.50	0.02
35	PRE_BH_KR_AH_35	67	26822.50	2.00	0.05	34	PO_BH_KR_AH_35	67.5	8000.58	2.50	0.02
36	PRE_BH_KR_AH_36	66	15579.98	2.00	0.03	35	PO_BH_KR_AH_36	66.5	11488.2	2.50	0.03
37	PRE_BH_KR_AH_37	65	43420.05	2.00	0.09	36	PO_BH_KR_AH_37	65.5	24246.7	2.50	0.06
38	PRE_BH_KR_AH_38	65	3419.88	2.00	0.01		PO_BH_KR_AH_38		0		
39	PRE_BH_KR_AH_39	66	8928.78	2.00	0.02	37	PO_BH_KR_AH_39	66.5	4265.12	2.50	0.01
40	PRE_BH_DJ_AH_40	66	12608.26	2.00	0.03	38	PO_BH_DJ_AH_40	66.5	8131.22	2.50	0.02
41	PRE_BH_DJ_AH_41	65	4958.54	2.00	0.01		PO_BH_DJ_AH_41		0		
42	PRE_BH_DJ_AH_42	64	77133.32	2.00	0.15	39	PO_BH_DJ_AH_42	64.5	47346.2	2.50	0.12
43	PRE_BH_DJ_AH_43	64	38874.71	2.00	0.08	40	PO_BH_DJ_AH_43	64.5	20906.1	2.50	0.05
44	PRE_BH_DJ_AH_44	63	2300.16	2.00	0.00		PO_BH_DJ_AH_44		0		
45	PRE_BH_DJ_AH_45	62	14622.88	2.00	0.03	41	PO_BH_DJ_AH_45	62.5	5472.77	2.50	0.01
46	PRE_BH_DJ_AH_46	62	87469.61	2.00	0.17	42	PO_BH_DJ_AH_46	62.5	46560.9	2.50	0.12
Estimation of Sand Resources in Pre monsoon period & Post monsoon period in sand bar regions of Siddweshwari River											
1	PRE_BH_RA_SW_01	99	35793.54	2.00	0.07	1	PO_BH_RA_SW_01	99.5	36098.7	2.50	0.09
2	PRE_BH_RA_SW_02	97	7539.55	2.00	0.02		PO_BH_RA_SW_02		0		
3	PRE_BH_RA_SW_03	100	11508.37	2.00	0.02		PO_BH_RA_SW_03		0		
4	PRE_BH_RA_SW_04	103	12529.84	2.00	0.03		PO_BH_RA_SW_04		0		
5	PRE_BH_RA_SW_05	101	76580.43	2.00	0.15	2	PO_BH_RA_SW_05	101.5	74137.1	2.50	0.19
6	PRE_BH_RA_SW_06	102	46204.82	2.00	0.09	3	PO_BH_RA_SW_06	102.5	24203.4	2.50	0.06
7	PRE_BH_RA_SW_07	104	48632.09	2.00	0.10	4	PO_BH_RA_SW_07	104.5	48632.1	2.50	0.12
8	PRE_BH_RA_SW_08	105	172848.80	2.00	0.35	5	PO_BH_RA_SW_08	105.5	169375	2.50	0.42
9	PRE_BH_RA_SW_09	104	15563.28	2.00	0.03	6	PO_BH_RA_SW_09	104.5	15563.3	2.50	0.04
Estimation of Sand Resources in Pre monsoon period & Post monsoon period in sand bar regions of Bakreshwar River											
1	PRE_BH_S2_BK_01	45	4059.91	2.00	0.01		PO_BH_S2_BK_01		0		
2	PRE_BH_S2_BK_02	44	7742.33	2.00	0.02		PO_BH_S2_BK_02		0		
3	PRE_BH_S2_BK_03	43	13460.93	2.00	0.03		PO_BH_S2_BK_03		0		
4	PRE_BH_S2_BK_04	43	10043.94	2.00	0.02	1	PO_BH_S2_BK_04A	43.5	2414.43	2.50	0.01
						2	PO_BH_S2_BK_04B		1244.16	2.50	0.00
						3	PO_BH_S2_BK_04C		12764.4	2.50	0.03
						4	PO_BH_S2_BK_04D		19545.4	2.50	0.05
						5	PO_BH_S2_BK_04E		2284.64	2.50	0.01
						6	PO_BH_S2_BK_04F		2819.64	2.50	0.01
						7	PO_BH_S2_BK_04G		2908.12	2.50	0.01
						8	PO_BH_LB_BK_04H		399.827	2.50	0.00
5	PRE_BH_LB_BK_05	25	2976.74	2.00	0.01	9	PO_BH_LB_BK_05	25.5	2320.16	2.50	0.01
6	PRE_BH_LB_BK_06	23	1404.87	2.00	0.00	10	PO_BH_LB_BK_06	23.5	774.554	2.50	0.00
						11	PO_BH_LB_BK_06A	23.5	569.901	2.50	0.00
7	PRE_BH_LB_BK_07	22	1004.54	2.00	0.00		PO_BH_LB_BK_07		0		
8	PRE_BH_LB_BK_08	23	29382.61	2.00	0.06		PO_BH_LB_BK_08		0		

Pre monsoon						Post monsoon					
SL	**Sand Bar_Code**	**RL**	**Area in**	**Sand**	**San**	**SL No**	**Sand Bar_Code**	**RL (m)**	**Area in**	**Sand**	**Sand**
9	PRE_BH_LB_BK_09	22	425.67	2.00	0.00		PO_BH_LB_BK_09		0		
10	PRE_BH_LB_BK_10	21	5774.60	2.00	0.01		PO_BH_LB_BK_10		0		
11	PRE_BH_LB_BK_11	23	1329.44	2.00	0.00		PO_BH_LB_BK_11		0		
Estimation of Sand Resources in Pre monsoon period & Post monsoon period in sand bar regions of Banslai River											
1	PRE_BH_M1_BS_01	33	45344.08	2.00	0.09	1	PO_BH_M1_BS_01	33.5	43549.6	2.50	0.11
2	PRE_BH_M1_BS_02	32	2589.82	2.00	0.01		PO_BH_M1_BS_02		0		
3	PRE_BH_M1_BS_03	33	48241.50	2.00	0.10	2	PO_BH_M1_BS_03	33.5	45552	2.50	0.11
4	PRE_BH_M1_BS_04	31	3048.12	2.00	0.01		PO_BH_M1_BS_04		0		
5	PRE_BH_M1_BS_05	32	105353.60	2.00	0.21	3	PO_BH_M1_BS_05	32.5	98856.9	2.50	0.25
6	PRE_BH_M1_BS_06	30	90036.61	2.00	0.18	4	PO_BH_M1_BS_06	30.5	90036.6	2.50	0.23
7	PRE_BH_M1_BS_07	29	48660.82	2.00	0.10	5	PO_BH_M1_BS_07	29.5	48660.8	2.50	0.12
8	PRE_BH_M1_BS_08	29	8067.13	2.00	0.02		PO_BH_M1_BS_08		0		
9	PRE_BH_M1_BS_09	28	41476.47	2.00	0.08	6	PO_BH_M1_BS_09	28.5	41476.5	2.50	0.10
10	PRE_BH_M1_BS_10	27	1001.33	2.00	0.00		PO_BH_M1_BS_10		0		
11	PRE_BH_M1_BS_11	27	54141.81	2.00	0.11	7	PO_BH_M1_BS_11	27.5	46827.3	2.50	0.12
12	PRE_BH_M1_BS_12	28	22069.79	2.00	0.04	8	PO_BH_M1_BS_12	28.5	18778	2.50	0.05
13	PRE_BH_M2_BS_13	27	17077.05	2	0.03	9	PO_BH_M2_BS_13	27.5	5794.77	2.50	0.01
						10	PO_BH_M2_BS_13A	27.5	9076.69	2.50	0.02
14	PRE_BH_M2_BS_14	27	15991.72	2.00	0.03	11	PO_BH_M2_BS_14	27.5	15991.7	2.50	0.04
15	PRE_BH_M2_BS_15	26	5814.55	2.00	0.01		PO_BH_M2_BS_15		0		
16	PRE_BH_M2_BS_16	25	14619.45	2.00	0.03	12	PO_BH_M2_BS_16	25.5	14619.4	2.50	0.04
17	PRE_BH_M2_BS_17	25	5024.83	2.00	0.01		PO_BH_M2_BS_17		0		
18	PRE_BH_M2_BS_18	24	23288.10	2.00	0.05	13	PO_BH_M2_BS_18	24.5	19516.3	2.50	0.05
19	PRE_BH_M2_BS_19	25	25537.07	2.00	0.05	14	PO_BH_M2_BS_19	25.5	22263.6	2.50	0.06
20	PRE_BH_M1_BS_20	25	40634.23	2.00	0.08	15	PO_BH_M1_BS_20	25.5	28239.9	2.50	0.07
21	PRE_BH_M1_BS_21	24	23587.56	2.00	0.05	16	PO_BH_M1_BS_21	24.5	23453.5	2.50	0.06
22	PRE_BH_M2_BS_22	23	4050.42	2.00	0.01		PO_BH_M2_BS_22		0		
23	PRE_BH_M1_BS_23	22	12327.80	2.00	0.02	17	PO_BH_M1_BS_23	22.5	12227.2	2.50	0.03
24	PRE_BH_M2_BS_24	22	9679.40	2.00	0.02	18	PO_BH_M2_BS_24	22.5	9662.29	2.50	0.02
25	PRE_BH_M2_BS_25	22	581.94	2.00	0.00	19	PO_BH_M2_BS_25	22.5	566.724	2.50	0.00
26	PRE_BH_M2_BS_26	23	31127.20	2.00	0.06	20	PO_BH_M2_BS_26	23.5	31127.2	2.50	0.08
27	PRE_BH_M2_BS_27	23	7979.58	2.00	0.02	21	PO_BH_M2_BS_27	23.5	7979.58	2.50	0.02
28	PRE_BH_M2_BS_28	23	39194.37	2.00	0.08	22	PO_BH_M2_BS_28	23.5	39194.4	2.50	0.10
Estimation of Sand Resources in Pre monsoon period & Post monsoon period in sand bar regions of Dwarkeswar River											
1	PRE_BH_MB_DR_01	59	14675.56	2.00	0.03	1	PO_BH_MB_DR_01	59.5	14675.6	2.5	0.04
2	PRE_BH_MB_DR_02	58	17790.39	2.00	0.04	2	PO_BH_MB_DR_02_03		34901.5	2.5	0.09
3	PRE_BH_MB_DR_03	60	15571.42	2.00	0.03						
4	PRE_BH_MB_DR_04	61	49795.91	2.00	0.10	3	PO_BH_MB_DR_04	61.5	47008.6	2.5	0.12
5	PRE_BH_MB_DR_05	60	20911.99	2.00	0.04	4	PO_BH_MB_DR_05	60.5	18705.6	2.5	0.05
6	PRE_BH_MB_DR_06	58	8438.93	2.00	0.02		PO_BH_MB_DR_06	58.5	7518.85	2.5	0.02
7	PRE_BH_MB_DR_07	58	4997.47	2.00	0.01	5	PO_BH_MB_DR_07_08		9059.05	2.5	0.02
8	PRE_BH_MB_DR_08	58	5803.80	2.00	0.01						
9	PRE_BH_MB_DR_09	57	11583.02	2.00	0.02	6	PO_BH_MB_DR_09	57.5	11121.4	2.5	0.03
10	PRE_BH_MB_DR_10	57	10582.25	2.00	0.02		PO_BH_MB_DR_10		0		
11	PRE_BH_MB_DR_11	58	4600.54	2.00	0.01		PO_BH_MB_DR_11		0		
12	PRE_BH_MB_DR_1	57	1759.71	2.00	0.00		PO_BH_MB_DR_12		0		

Pre monsoon						Post monsoon					
SL No	Sand Bar_Code	RL (m)	Area in	Sand Thickness	Sand Volume	SL No	Sand Bar_Code	RL (m)	Area in	Sand Thickness	Sand Volume
	2										
13	PRE_BH_MB_DR_13	57	2730.32	2.00	0.01		PO_BH_MB_DR_13		0		
14	PRE_BH_MB_DR_14	56	2171.96	2.00	0.00		PO_BH_MB_DR_14		0		
15	PRE_BH_MB_DR_15	58	21166.64	2.00	0.04	7	PO_BH_MB_DR_15	58.5	21166.6	2.5	0.05
16	PRE_BH_MB_DR_16	49	2205.01	2.00	0.00		PO_BH_MB_DR_16		0		
17	PRE_BH_MB_DR_17	48	11844.45	2.00	0.02	8	PO_BH_MB_DR_17	48.5	11844.4	2.5	0.03
18	PRE_BH_MB_DR_18	47	23637.17	2.5	0.06	9	PO_BH_MB_DR_18	47.5	23622.7	2.5	0.06
19	PRE_BH_MB_DR_19	48	49354.80	2.5	0.12	10	PO_BH_MB_DR_19	48.5	44952.8	2.5	0.11
20	PRE_BH_MR1_DR_20	42	4032.11	2.5	0.01		PO_BH_MR1_DR_20		0		
21	PRE_BH_MR1_DR_21	41	13045.93	2.5	0.03	11	PO_BH_MR1_DR_21	41.5	13045.9	3.0	0.04
22	PRE_BH_MR1_DR_22	43	7731.30	2.5	0.02	12	PO_BH_MR1_DR_22	43.5	5247.35	3.0	0.02
23	PRE_BH_MR1_DR_23	42	3214.05	2.5	0.01	13	PO_BH_MR1_DR_23	42.5	7606.58	3.0	0.02
24	PRE_BH_MR1_DR_24	40	14357.48	2.5	0.04	14	PO_BH_MR1_DR_24	40.5	14357.5	3.0	0.04
25	PRE_BH_MR1_DR_25	41	5799.41	2.5	0.01	15	PO_BH_MR1_DR_25	41.5	5424.74	3.0	0.02
26	PRE_BH_MR1_DR_26	39	25571.99	2.5	0.06	16	PO_BH_MR1_DR_26	39.5	25572	3.0	0.08
27	PRE_BH_MR1_DR_27	40	10167.94	2.5	0.03		PO_BH_MR1_DR_27		0		
28	PRE_BH_MR1_DR_28	40	13004.82	2.5	0.03	17	PO_BH_MR1_DR_28	40.5	16004.8	3.0	0.05
29	PRE_BH_MR1_DR_29	39	32036.49	2.5	0.08	18	PO_BH_MR1_DR_29	39.5	30189.3	3.0	0.09
30	PRE_BH_MR1_DR_30	38	2247.92	2.5	0.01		PO_BH_MR1_DR_30		0		
31	PRE_BH_MR1_DR_31	35	3746.79	2.5	0.01		PO_BH_MR1_DR_31		0		
32	PRE_BH_MR1_DR_32	38	5671.14	2.5	0.01		PO_BH_MR1_DR_32		0		
33	PRE_BH_MR1_DR_33	36	3397.80	2.5	0.01		PO_BH_MR1_DR_33		0		
34	PRE_BH_MR1_DR_34	30	3663.77	2.5	0.01		PO_BH_MR1_DR_34		0		
35	PRE_BH_R2_DR_35	27	7928.42	2.5	0.02	19	PO_BH_R2_DR_35	27.5	7928.42	3.0	0.02
36	PRE_BH_R2_DR_36	28	6049.51	2.5	0.02	20	PO_BH_R2_DR_36	28.5	6049.51	3.0	0.02
37	PRE_BH_R1_DR_37	23	7687.36	2.5	0.02	21	PO_BH_R1_DR_37	23.5	7687.36	3.0	0.02
38	PRE_BH_R1_DR_38	23	1191.48	2.5	0.00		PO_BH_R1_DR_38		0		
39	PRE_BH_R1_DR_39	24	3449.28	2.5	0.01	22	PO_BH_R1_DR_39	24.5	5433.43	3.0	0.02
40	PRE_BH_R2_DR_40	24	3479.40	2.5	0.01	23	PO_BH_R2_DR_40	24.5	6458.95	3.0	0.02
41	PRE_BH_R2_DR_41	23	4540.72	2.5	0.01		PO_BH_R2_DR_41		0		
42	PRE_BH_R2_DR_42	20	997.44	2.5	0.00		PO_BH_R2_DR_42		0		
Estimation of Sand Resources in Pre monsoon period & Post monsoon period in sand bar regions of Mayurakshi River											
1	PRE_BH_MB_MY_04	59	66684.16	2.00	0.13	1	PO_BH_MB_MY_04	59.5	54013.4	2.5	0.14
2	PRE_BH_MB_MY_05	56	62038.44	2.00	0.12	2	PO_BH_MB_MY_05	56.5	99837.5	2.5	0.25
3	PRE_BH_MB_MY_01	57	266401.20	2.00	0.53	3	PO_BH_MB_MY_1A	57.5	170374	2.5	0.43
						4	PO_BH_MB_MY_01_0	56.5	796781	2.5	1.99

Pre monsoon						Post monsoon					
SL	Sand Bar_Code	RL	Area in	Sand	San	SL No	Sand Bar_Code	RL (m)	Area in	Sand	Sand
4	PRE_BH_MB_MY_02	56	39768.89	2.00	0.08		3_04_06_08				
5	PRE_BH_MB_MY_03	58	17943.18	2.00	0.04						
6	PRE_BH_MB_MY_06	56	410931.90	2.00	0.82						
7	PRE_BH_MB_MY_08	56	335789.70	2.00	0.67	5	PO_BH_MB_MY_07_08	56.5	334123	2.5	0.84
8	PRE_BH_MB_MY_07	55	17952.72	2.00	0.04		PO_BH_MB_MY_07		0		
9	PRE_BH_MB_MY_09	53	14094.39	2.00	0.03		PO_BH_MB_MY_09		0		
10	PRE_BH_MB_MY_10	54	27279.96	2.00	0.05	6	PO_BH_MB_MY_10_11_12	54.5	452193	2.5	1.13
11	PRE_BH_MB_MY_12	53	64249.25	2.00	0.13						
12	PRE_BH_MB_MY_11	52	9952.56	2.00	0.02	7	PO_BH_MB_MY_11A	52.5	82762	2.5	0.21
13	PRE_BH_MB_MY_13	51	153275.20	2.00	0.31	8	PO_BH_MB_MY_13	51.5	129618	2.5	0.32
14	PRE_BH_MB_MY_16	51	100800.00	2.00	0.20	9	PO_BH_MB_MY_16	51.5	149904	2.5	0.37
15	PRE_BH_MB_MY_14	52	104804.60	2.5	0.26	10	PO_BH_MB_MY_14_15_16_17	52.5	653832	2.5	1.63
16	PRE_BH_MB_MY_15	50	22343.72	2.5	0.06						
17	PRE_BH_MB_MY_17	52	173810.50	2.5	0.43	11	PO_BH_MB_MY_17A	52.5	141580	3.0	0.42
						12	PO_BH_SN_MY_17B	52.5	108120	3.0	0.32
						13	PO_BH_SN_MY_17C	52.5	247885	3.0	0.74
18	PRE_BH_MR2_MY_18	42	136870.20	2.5	0.34		PO_BH_MR2_MY_18		0		
19	PRE_BH_MR2_MY_19	37	35611.21	2.5	0.09		PO_BH_MR2_MY_19		0		
20	PRE_BH_MR2_MY_20	36	40232.63	2.5	0.10	14	PO_BH_MR2_MY_20	36.5	118808	4.0	0.48
21	PRE_BH_MR2_MY_21	33	19851.86	2.5	0.05		PO_BH_MR2_MY_21		0		
22	PRE_BH_MR2_MY_22	32	82555.95	2.5	0.21	15	PO_BH_MR2_MY_22	32.5	88260.7	3.0	0.26
23	PRE_BH_MR2_MY_23	31	3350.65	2.5	0.01		PO_BH_MR2_MY_23		0		
24	PRE_BH_MR2_MY_24	31	18925.79	2.5	0.05		PO_BH_MR2_MY_24		0		
25	PRE_BH_MR2_MY_25	30	4497.46	2.5	0.01		PO_BH_MR2_MY_25		0		
26	PRE_BH_MR2_MY_26	31	123198.70	2.5	0.31		PO_BH_MR2_MY_26		0		
27	PRE_BH_MR2_MY_27	30	11647.32	2.5	0.03		PO_BH_MR2_MY_27		0		
28	PRE_BH_MR2_MY_28	29	5952.62	2.5	0.01		PO_BH_MR2_MY_28		0		
29	PRE_BH_MR2_MY_29	28	4479.86	2.5	0.01	16	PO_BH_MR2_MY_29	28.5	80178.5	3.0	0.24
30	PRE_BH_MR2_MY_30	28	25868.38	2.5	0.06		PO_BH_MR2_MY_30		0		
31	PRE_BH_MR2_MY_31	29	96034.95	2.5	0.24		PO_BH_MR2_MY_31		0		
32	PRE_BH_MR2_MY_	27	63736.34	2.5	0.16		PO_BH_MR2_MY_32		0		

Pre monsoon						Post monsoon					
SL N	Sand Bar_Code	RL (m)	Area in	Sand Thick	San	SL No	Sand Bar_Code	RL (m)	Area in	Sand Thick	Sand
	32										
33	PRE_BH_MR2_MY_33	26	53001.14	2.5	0.13		PO_BH_MR2_MY_33		0		
34	PRE_BH_MR2_MY_34	27	24240.95	2.5	0.06		PO_BH_MR2_MY_34		0		
35	PRE_BH_MR2_MY_35	27	7822.97	2.5	0.02		PO_BH_MR2_MY_35		0		
36	PRE_BH_MR2_MY_36	26	20394.01	2.5	0.05		PO_BH_MR2_MY_36		0		
37	PRE_BH_MR2_MY_37	25	44811.51	2.5	0.11		PO_BH_MR2_MY_37		0		
Estimation of Sand Resources in Pre monsoon period & Post monsoon period in sand bar regions of Brahmani River											
1	PRE_BH_N1_BM_01	31	2515.89	2.00	0.01		PO_BH_N1_BM_01		0		
2	PRE_BH_N1_BM_02	32	994.44	2.00	0.00		PO_BH_N1_BM_02		0		
3	PRE_BH_N1_BM_03	31	16997.55	2.00	0.03	1	PO_BH_N1_BM_03	31.5	15705.4	2.5	0.04
4	PRE_BH_N1_BM_04	30	55638.02	2.00	0.11	2	PO_BH_N1_BM_04	30.5	52783.4	2.5	0.13
5	PRE_BH_N1_BM_05	30	15358.81	2.00	0.03	3	PO_BH_N1_BM_05	30.5	14499.8	2.5	0.04
6	PRE_BH_N1_BM_06	29	31813.84	2.00	0.06	4	PO_BH_N1_BM_06	29.5	22682.6	2.5	0.06
7	PRE_BH_N1_BM_07	28	8800.24	2.00	0.02		PO_BH_N1_BM_07		0		
8	PRE_BH_N1_BM_08	28	10676.63	2.00	0.02		PO_BH_N1_BM_08		0		
9	PRE_BH_N1_BM_09	27	45503.70	2.00	0.09	5	PO_BH_N1_BM_09	27.5	41301.6	2.5	0.10
10	PRE_BH_N1_BM_10	27	60745.44	2.00	0.12	6	PO_BH_N1_BM_10	27.5	59951.9	2.5	0.15
11	PRE_BH_N1_BM_11	27	3626.11	2.00	0.01	7	PO_BH_N1_BM_11	27.5	3626.1	2.5	0.01
12	PRE_BH_N1_BM_12	26	8894.66	2.00	0.02	8	PO_BH_N1_BM_12	26.5	8894.66	2.5	0.02
13	PRE_BH_N1_BM_13	25	3295.19	2.00	0.01		PO_BH_N1_BM_13		0		
14	PRE_BH_N1_BM_14	26	6083.09	2.00	0.01	9	PO_BH_N1_BM_14	26.5	6083.09	2.5	0.02
15	PRE_BH_N1_BM_15	26	39728.55	2.00	0.08	10	PO_BH_N1_BM_15	26.5	39728.6	2.5	0.10
16	PRE_BH_N1_BM_16	27	13134.48	2.00	0.03		PO_BH_N1_BM_16		0		
17	PRE_BH_N1_BM_17	24	100206.90	2.00	0.20	11	PO_BH_N1_BM_17	24.5	100207	2.5	0.25
18	PRE_BH_N1_BM_18	24	23591.15	2.00	0.05	12	PO_BH_N1_BM_18	24.5	23591.1	2.5	0.06
19	PRE_BH_N1_BM_19	24	2290.24	2.00	0.00		PO_BH_N1_BM_19		0		
20	PRE_BH_N1_BM_20	24	11064.79	2.00	0.02	13	PO_BH_N1_BM_20	24.5	11064.8	2.5	0.03
21	PRE_BH_N1_BM_21	23	2062.27	2.00	0.00		PO_BH_N1_BM_21		0		
22	PRE_BH_N1_BM_22	24	2053.18	2.00	0.00		PO_BH_N1_BM_22		0		
23	PRE_BH_N1_BM_23	23	2427.62	2.00	0.00		PO_BH_N1_BM_23		0		
24	PRE_BH_N1_BM_24	23	6744.82	2.00	0.01	14	PO_BH_N1_BM_24	23.5	6744.82	2.5	0.02
25	PRE_BH_N1_BM_25	22	1164.26	2.00	0.00		PO_BH_N1_BM_25		0		
26	PRE_BH_N1_BM_26	23	9831.14	2.00	0.02	15	PO_BH_N1_BM_26	23.5	9831.14	2.5	0.02
27	PRE_BH_N1_BM_27	23	4243.98	2.00	0.01		PO_BH_N1_BM_27		0		
28	PRE_BH_N2_BM_28	22	9124.17	2.00	0.02		PO_BH_N2_BM_28		0		
29	PRE_BH_N2_BM_29	22	3479.85	2.00	0.01	16	PO_BH_N2_BM_29	22.5	5479.85	2.5	0.01
30	PRE_BH_N2_BM_30	22	300.56	2.00	0.00		PO_BH_N2_BM_30		0		
31	PRE_BH_N2_BM_31	23	1031.35	2.00	0.00		PO_BH_N2_BM_31		0		
32	PRE_BH_N2_BM_32	22	461.61	2.00	0.00		PO_BH_N2_BM_32		0		

Pre monsoon						Post monsoon					
SL	Sand Bar_Code	RL	Area in	Sand	San	SL No	Sand Bar_Code	RL (m)	Area in	Sand	Sand
33	PRE_BH_N2_BM_33	23	1523.46	2.00	0.00	17	PO_BH_N2_BM_33	23.5	3523.46	2.5	0.01
34	PRE_BH_N2_BM_34	24	2029.39	2.00	0.00		PO_BH_N2_BM_34		0		
35	PRE_BH_N2_BM_35	21	1825.96	2.00	0.00		PO_BH_N2_BM_35		0		
36	PRE_BH_N2_BM_36	22	24857.74	2.00	0.05	18	PO_BH_N2_BM_36	22.5	24520.6	2.5	0.06
37	PRE_BH_N2_BM_37	22	7981.97	2.00	0.02	19	PO_BH_N2_BM_37	22.5	7981.97	2.5	0.02
38	PRE_BH_N2_BM_38	20	3253.79	2.00	0.01		PO_BH_N2_BM_38		0		
39	PRE_BH_N2_BM_39	21	16286.81	2.00	0.03	20	PO_BH_N2_BM_39	21.5	16286.8	2.5	0.04
40	PRE_BH_N2_BM_40	20	3237.26	2.00	0.01	21	PO_BH_N2_BM_40	20.5	3237.26	2.5	0.01
41	PRE_BH_N2_BM_41	20	2447.56	2.00	0.00		PO_BH_N2_BM_41		0		
42	PRE_BH_N2_BM_42	21	4881.31	2.00	0.01	22	PO_BH_N2_BM_42	21.5	4881.31	2.5	0.01
43	PRE_BH_N2_BM_43	19	5389.93	2.00	0.01	23	PO_BH_N2_BM_43	19.5	5389.93	2.5	0.01
44	PRE_BH_N2_BM_44	19	3750.36	2.00	0.01		PO_BH_N2_BM_44		0		
45	PRE_BH_N2_BM_45	20	7706.51	2.00	0.02	24	PO_BH_N2_BM_45	20.5	7706.5	2.5	0.02
46	PRE_BH_N2_BM_46	19	1544.69	2.00	0.00		PO_BH_N2_BM_46		0		
47	PRE_BH_N2_BM_47	20	3442.19	2.00	0.01	25	PO_BH_N2_BM_47	20.5	5442.19	2.5	0.01
48	PRE_BH_N2_BM_48	19	3276.18	2.00	0.01	26	PO_BH_N2_BM_48	19.5	3276.18	2.5	0.01
49	PRE_BH_N2_BM_49	18	5305.54	2.00	0.01	27	PO_BH_N2_BM_49	18.5	5305.54	2.5	0.01
50	PRE_BH_N2_BM_50	19	5894.07	2.00	0.01	28	PO_BH_N2_BM_50	19.5	5894.07	2.5	0.01
51	PRE_BH_N2_BM_51	18	687.75	2.00	0.00		PO_BH_N2_BM_51		0		
52	PRE_BH_N2_BM_52	18	2078.09	2.00	0.00		PO_BH_N2_BM_52		0		
53	PRE_BH_R2_BM_53	17	3540.24	2.00	0.01		PO_BH_R2_BM_53		0		

Annexure 3
Boundary Coordinates of Potential Blocks of Birbhum District

Abbreviation used in the table as below

PERIOD	PR	PRE-MONSOON	RIVER	SW	SIDDWESHWARI RIVER
	PO	POST MONSOON		MY	MAYURAKSHI RIVER
DISTRICT	BH	BIRBHUM		BM	BRAHMANI RIVER
BLOCK	NN	NANOOR		BS	BANSLAI RIVER
	M1	MURARAI-I		BK	BAKRESHWAR RIVER
	M2	MURARAI-II		AJ	AJAY RIVER
	N1	NALHATI-I		AH	AJAY HINGLA RIVER
	N2	NALHATI-II		DR	DWARAKA RIVER
	R1	RAMPURHAT-I	BLOCK	S1	SURI-I
	R2	RAMPURHAT-II		S2	SURI-II
	MR1	MAYURESWAR-I		SN	SAINTHIA
	MR2	MAYURESWAR-II		KR	KHOYRASOL
	MB	MOHAMMAD BAZAR		DJ	DUBRAJPUR
	RA	RAJNAGAR		IB	ILLAMBAZAR
	LB	LABHPUR		BL	BOLPUR

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
BH_KR_AJ_01	1	23° 46' 1.261" N	87° 7' 7.564" E
	2	23° 45' 59.209" N	87° 7' 7.630" E
	3	23° 46' 0.276" N	87° 7' 5.496" E
	4	23° 46' 5.593" N	87° 6' 59.066" E
	5	23° 46' 5.865" N	87° 7' 0.069" E
	6	23° 46' 5.833" N	87° 7' 2.647" E
	7	23° 46' 3.938" N	87° 7' 6.814" E
	8	23° 46' 8.399" N	87° 6' 55.673" E
	9	23° 46' 9.485" N	87° 6' 54.360" E
	10	23° 46' 13.969" N	87° 6' 53.157" E
	11	23° 46' 13.403" N	87° 6' 53.911" E
	12	23° 48' 25.911" N	87° 5' 15.018" E
	13	23° 48' 30.927" N	87° 5' 22.793" E
	14	23° 48' 34.597" N	87° 5' 28.703" E
	15	23° 48' 27.487" N	87° 5' 35.092" E
	16	23° 48' 14.740" N	87° 5' 52.156" E
	17	23° 48' 7.339" N	87° 6' 0.585" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	18	23° 48' 0.555" N	87° 6' 7.780" E
	19	23° 47' 46.781" N	87° 6' 18.265" E
	20	23° 47' 39.791" N	87° 6' 25.666" E
	21	23° 47' 27.045" N	87° 6' 30.189" E
	22	23° 47' 19.232" N	87° 6' 33.684" E
	23	23° 47' 9.775" N	87° 6' 43.552" E
	24	23° 47' 4.920" N	87° 6' 43.916" E
	25	23° 47' 0.335" N	87° 6' 46.176" E
	26	23° 46' 50.615" N	87° 6' 49.041" E
	27	23° 46' 41.816" N	87° 6' 52.598" E
	28	23° 46' 30.097" N	87° 6' 59.382" E
	29	23° 46' 18.790" N	87° 7' 7.811" E
	30	23° 46' 15.295" N	87° 7' 12.334" E
	31	23° 46' 7.739" N	87° 7' 28.803" E
	32	23° 46' 1.381" N	87° 7' 33.820" E
	33	23° 45' 57.205" N	87° 7' 38.210" E
	34	23° 45' 52.708" N	87° 7' 44.849" E
	35	23° 45' 48.103" N	87° 7' 55.128" E
	36	23° 45' 45.903" N	87° 7' 59.598" E
	37	23° 45' 45.896" N	87° 7' 59.603" E
	38	23° 45' 43.430" N	87° 7' 59.603" E
	39	23° 45' 49.208" N	87° 7' 48.925" E
	40	23° 45' 49.619" N	87° 7' 43.237" E
	41	23° 45' 47.362" N	87° 7' 36.913" E
	42	23° 45' 51.217" N	87° 7' 34.343" E
	43	23° 45' 51.645" N	87° 7' 33.572" E
	44	23° 45' 51.817" N	87° 7' 30.831" E
	45	23° 45' 52.930" N	87° 7' 27.747" E
	46	23° 45' 52.331" N	87° 7' 26.462" E
	47	23° 45' 53.444" N	87° 7' 24.235" E
	48	23° 45' 53.701" N	87° 7' 22.265" E
	49	23° 45' 55.157" N	87° 7' 22.265" E
	50	23° 45' 57.642" N	87° 7' 21.836" E
	51	23° 45' 59.184" N	87° 7' 20.808" E
	52	23° 45' 59.697" N	87° 7' 19.181" E
	53	23° 45' 59.612" N	87° 7' 17.039" E
	54	23° 46' 0.297" N	87° 7' 14.812" E
	55	23° 46' 1.496" N	87° 7' 14.213" E
	56	23° 46' 3.124" N	87° 7' 13.784" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	57	23° 46' 4.837" N	87° 7' 12.242" E
	58	23° 46' 7.150" N	87° 7' 10.701" E
	59	23° 46' 8.606" N	87° 7' 7.788" E
	60	23° 46' 10.062" N	87° 7' 4.790" E
	61	23° 46' 11.776" N	87° 7' 3.248" E
	62	23° 46' 14.260" N	87° 7' 2.391" E
	63	23° 46' 16.915" N	87° 7' 0.678" E
	64	23° 46' 18.371" N	87° 7' 1.706" E
	65	23° 46' 19.828" N	87° 7' 1.364" E
	66	23° 46' 20.941" N	87° 7' 0.336" E
	67	23° 46' 21.969" N	87° 6' 59.907" E
	68	23° 46' 22.826" N	87° 6' 58.965" E
	69	23° 46' 24.967" N	87° 6' 58.622" E
	70	23° 46' 20.856" N	87° 6' 57.070" E
	71	23° 46' 17.686" N	87° 6' 52.969" E
	72	23° 46' 16.487" N	87° 6' 52.482" E
	73	23° 46' 18.265" N	87° 6' 52.004" E
	74	23° 46' 25.332" N	87° 6' 45.152" E
	75	23° 46' 30.044" N	87° 6' 41.083" E
	76	23° 46' 45.462" N	87° 6' 31.446" E
	77	23° 46' 48.151" N	87° 6' 28.976" E
	78	23° 46' 54.866" N	87° 6' 24.710" E
	79	23° 46' 56.956" N	87° 6' 23.382" E
	80	23° 47' 2.842" N	87° 6' 23.043" E
	81	23° 47' 3.587" N	87° 6' 21.843" E
	82	23° 47' 6.311" N	87° 6' 21.226" E
	83	23° 47' 10.166" N	87° 6' 19.684" E
	84	23° 47' 10.783" N	87° 6' 16.908" E
	85	23° 47' 15.614" N	87° 6' 16.292" E
	86	23° 47' 20.291" N	87° 6' 16.394" E
	87	23° 47' 19.232" N	87° 6' 7.822" E
	88	23° 47' 24.438" N	87° 6' 4.249" E
	89	23° 47' 26.007" N	87° 6' 2.576" E
	90	23° 47' 40.241" N	87° 5' 51.555" E
	91	23° 47' 52.691" N	87° 5' 41.914" E
	92	23° 47' 58.976" N	87° 5' 36.047" E
	93	23° 48' 11.765" N	87° 5' 28.271" E
	94	23° 48' 16.263" N	87° 5' 21.204" E
	95	23° 48' 21.758" N	87° 5' 8.581" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
BH_KR_AJ_02	1	23° 45' 21.463" N	87° 8' 20.590" E
	2	23° 45' 19.556" N	87° 8' 20.991" E
	3	23° 45' 23.057" N	87° 8' 14.710" E
	4	23° 45' 25.755" N	87° 8' 7.257" E
	5	23° 45' 33.979" N	87° 7' 56.464" E
	6	23° 45' 38.005" N	87° 7' 45.114" E
	7	23° 45' 41.137" N	87° 7' 41.050" E
	8	23° 45' 42.664" N	87° 7' 53.071" E
	9	23° 45' 41.379" N	87° 7' 55.105" E
	10	23° 45' 37.845" N	87° 7' 57.033" E
	11	23° 45' 34.954" N	87° 8' 0.138" E
	12	23° 45' 32.813" N	87° 8' 3.457" E
	13	23° 45' 30.457" N	87° 8' 7.526" E
	14	23° 45' 28.744" N	87° 8' 12.345" E
	15	23° 45' 26.281" N	87° 8' 17.377" E
BH_KR_AJ_03	1	23° 45' 36.882" N	87° 8' 8.105" E
	2	23° 45' 36.882" N	87° 8' 4.635" E
	3	23° 45' 37.631" N	87° 8' 3.029" E
	4	23° 45' 42.956" N	87° 8' 1.983" E
	5	23° 45' 40.449" N	87° 8' 4.090" E
	6	23° 45' 36.970" N	87° 8' 9.308" E
BH_KR_AJ_04A	1	23° 45' 13.857" N	87° 9' 16.728" E
	2	23° 45' 11.119" N	87° 9' 29.377" E
	3	23° 45' 11.437" N	87° 9' 41.252" E
	4	23° 45' 8.926" N	87° 9' 49.537" E
	5	23° 45' 8.645" N	87° 9' 50.940" E
	6	23° 44' 57.450" N	87° 9' 49.943" E
	7	23° 44' 55.294" N	87° 9' 46.908" E
	8	23° 44' 54.780" N	87° 9' 43.568" E
	9	23° 44' 54.780" N	87° 9' 42.026" E
	10	23° 44' 55.504" N	87° 9' 41.030" E
	11	23° 44' 54.518" N	87° 9' 39.486" E
	12	23° 44' 54.403" N	87° 9' 37.329" E
	13	23° 44' 55.468" N	87° 9' 26.444" E
	14	23° 44' 55.760" N	87° 9' 26.752" E
	15	23° 44' 57.092" N	87° 9' 24.465" E
	16	23° 44' 57.521" N	87° 9' 23.609" E
	17	23° 44' 57.485" N	87° 9' 23.553" E
	18	23° 44' 59.191" N	87° 9' 22.801" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	19	23° 45' 2.403" N	87° 9' 17.554" E
	20	23° 45' 1.547" N	87° 9' 12.730" E
	21	23° 45' 2.617" N	87° 9' 9.202" E
	22	23° 45' 5.509" N	87° 9' 4.169" E
	23	23° 45' 7.644" N	87° 8' 58.338" E
	24	23° 45' 17.396" N	87° 8' 33.661" E
	25	23° 45' 19.279" N	87° 8' 32.298" E
	26	23° 45' 23.133" N	87° 8' 28.700" E
	27	23° 45' 24.438" N	87° 8' 27.969" E
	28	23° 45' 24.130" N	87° 8' 28.761" E
	29	23° 45' 23.119" N	87° 8' 31.370" E
	30	23° 45' 22.201" N	87° 8' 39.261" E
	31	23° 45' 21.820" N	87° 8' 40.716" E
	32	23° 45' 21.483" N	87° 8' 41.999" E
	33	23° 45' 20.413" N	87° 8' 45.210" E
	34	23° 45' 17.231" N	87° 9' 1.089" E
BH_KR_AJ_04B	1	23° 45' 6.631" N	87° 11' 3.983" E
	2	23° 45' 5.316" N	87° 11' 2.118" E
	3	23° 45' 4.888" N	87° 10' 59.463" E
	4	23° 45' 3.431" N	87° 10' 54.152" E
	5	23° 45' 3.089" N	87° 10' 50.383" E
	6	23° 45' 3.174" N	87° 10' 46.271" E
	7	23° 45' 3.774" N	87° 10' 46.442" E
	8	23° 45' 4.031" N	87° 10' 48.070" E
	9	23° 45' 4.459" N	87° 10' 48.927" E
	10	23° 45' 5.573" N	87° 10' 47.899" E
	11	23° 45' 4.802" N	87° 10' 43.273" E
	12	23° 45' 5.402" N	87° 10' 35.564" E
	13	23° 45' 6.235" N	87° 10' 30.410" E
	14	23° 45' 2.832" N	87° 10' 26.832" E
	15	23° 44' 59.941" N	87° 10' 19.551" E
	16	23° 44' 58.847" N	87° 10' 12.876" E
	17	23° 45' 2.925" N	87° 10' 13.280" E
	18	23° 45' 4.759" N	87° 10' 13.764" E
	19	23° 45' 5.293" N	87° 10' 15.312" E
	20	23° 45' 4.232" N	87° 10' 19.165" E
	21	23° 45' 5.123" N	87° 10' 24.305" E
	22	23° 45' 6.494" N	87° 10' 28.759" E
	23	23° 45' 7.600" N	87° 10' 30.644" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	24	23° 45' 6.288" N	87° 10' 40.615" E
	25	23° 45' 7.316" N	87° 10' 51.031" E
	26	23° 45' 6.288" N	87° 10' 53.635" E
	27	23° 45' 5.534" N	87° 10' 56.376" E
	28	23° 45' 8.001" N	87° 10' 58.432" E
	29	23° 45' 8.169" N	87° 11' 1.392" E
	30	23° 45' 6.909" N	87° 11' 4.680" E
BH_KR_AJ_06	1	23° 44' 58.891" N	87° 10' 29.225" E
	2	23° 44' 58.491" N	87° 10' 27.166" E
	3	23° 45' 0.249" N	87° 10' 27.256" E
	4	23° 45' 1.534" N	87° 10' 29.569" E
	5	23° 45' 2.562" N	87° 10' 32.395" E
	6	23° 45' 3.145" N	87° 10' 33.166" E
	7	23° 45' 4.258" N	87° 10' 35.633" E
	8	23° 45' 4.515" N	87° 10' 37.792" E
	9	23° 45' 3.898" N	87° 10' 39.026" E
	10	23° 45' 3.281" N	87° 10' 39.231" E
	11	23° 45' 2.305" N	87° 10' 38.563" E
	12	23° 45' 1.718" N	87° 10' 37.876" E
	13	23° 45' 0.690" N	87° 10' 35.478" E
	14	23° 44' 59.834" N	87° 10' 33.165" E
BH_KR_AJ_07	1	23° 45' 1.461" N	87° 11' 19.079" E
	2	23° 44' 59.799" N	87° 11' 24.340" E
	3	23° 45' 0.262" N	87° 11' 27.388" E
	4	23° 45' 0.249" N	87° 11' 30.079" E
	5	23° 44' 58.364" N	87° 11' 31.536" E
	6	23° 44' 58.022" N	87° 11' 33.591" E
	7	23° 44' 56.620" N	87° 11' 36.236" E
	8	23° 44' 53.562" N	87° 11' 26.474" E
	9	23° 44' 54.253" N	87° 11' 27.424" E
	10	23° 44' 55.281" N	87° 11' 27.167" E
	11	23° 44' 56.394" N	87° 11' 26.053" E
	12	23° 44' 56.309" N	87° 11' 22.884" E
	13	23° 44' 54.338" N	87° 11' 19.286" E
	14	23° 44' 52.699" N	87° 11' 16.497" E
	15	23° 44' 52.295" N	87° 11' 13.254" E
	16	23° 44' 49.424" N	87° 11' 7.441" E
	17	23° 44' 48.519" N	87° 11' 0.765" E
	18	23° 44' 52.262" N	87° 10' 33.766" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	19	23° 44' 51.401" N	87° 10' 23.561" E
	20	23° 44' 51.452" N	87° 10' 23.549" E
	21	23° 44' 54.595" N	87° 10' 27.547" E
	22	23° 44' 55.024" N	87° 10' 32.258" E
	23	23° 44' 55.880" N	87° 10' 36.370" E
	24	23° 44' 55.281" N	87° 10' 39.197" E
	25	23° 44' 56.137" N	87° 10' 43.566" E
	26	23° 44' 57.337" N	87° 10' 47.249" E
	27	23° 44' 56.566" N	87° 10' 51.275" E
	28	23° 44' 58.450" N	87° 10' 53.331" E
	29	23° 44' 59.392" N	87° 10' 56.072" E
	30	23° 44' 58.878" N	87° 10' 56.929" E
	31	23° 44' 57.422" N	87° 10' 57.271" E
	32	23° 44' 56.223" N	87° 11' 2.411" E
	33	23° 44' 54.938" N	87° 11' 13.718" E
	34	23° 44' 56.394" N	87° 11' 15.774" E
	35	23° 44' 57.850" N	87° 11' 15.174" E
	36	23° 44' 58.536" N	87° 11' 12.776" E
	37	23° 44' 59.392" N	87° 11' 11.405" E
	38	23° 45' 0.378" N	87° 11' 10.553" E
	39	23° 45' 1.204" N	87° 11' 14.796" E
	40	23° 45' 0.861" N	87° 11' 16.852" E
BH_KR_AJ_08	1	23° 45' 8.711" N	87° 11' 58.329" E
	2	23° 45' 6.139" N	87° 12' 9.799" E
	3	23° 45' 6.331" N	87° 12' 6.314" E
	4	23° 45' 4.832" N	87° 12' 0.639" E
	5	23° 45' 4.189" N	87° 11' 52.501" E
	6	23° 45' 2.797" N	87° 11' 41.900" E
	7	23° 45' 3.440" N	87° 11' 33.334" E
	8	23° 45' 5.977" N	87° 11' 32.076" E
	9	23° 45' 8.197" N	87° 11' 44.581" E
BH_KR_AJ_09	1	23° 44' 52.381" N	87° 12' 23.924" E
	2	23° 44' 51.942" N	87° 12' 23.952" E
	3	23° 44' 56.459" N	87° 12' 5.865" E
	4	23° 44' 56.782" N	87° 12' 2.271" E
	5	23° 44' 56.835" N	87° 12' 3.880" E
	6	23° 44' 57.606" N	87° 12' 7.649" E
	7	23° 44' 59.906" N	87° 12' 8.884" E
	8	23° 45' 2.583" N	87° 12' 14.344" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	9	23° 45' 0.549" N	87° 12' 20.019" E
	10	23° 44' 58.621" N	87° 12' 20.019" E
	11	23° 44' 58.086" N	87° 12' 19.912" E
	12	23° 44' 55.037" N	87° 12' 20.326" E
	13	23° 44' 54.608" N	87° 12' 22.468" E
	14	23° 44' 54.094" N	87° 12' 23.496" E
BH_KR_AJ_08_10	1	23° 44' 54.523" N	87° 12' 42.770" E
	2	23° 44' 53.696" N	87° 12' 38.222" E
	3	23° 44' 54.678" N	87° 12' 32.908" E
	4	23° 44' 55.122" N	87° 12' 34.289" E
	5	23° 44' 57.337" N	87° 12' 32.012" E
	6	23° 45' 0.611" N	87° 12' 27.893" E
	7	23° 44' 57.147" N	87° 12' 36.876" E
BH_KR_AJ_11_12	1	23° 44' 47.293" N	87° 12' 49.144" E
	2	23° 44' 46.042" N	87° 12' 50.993" E
	3	23° 44' 47.026" N	87° 12' 55.743" E
	4	23° 44' 45.502" N	87° 12' 58.207" E
	5	23° 44' 43.472" N	87° 12' 59.645" E
	6	23° 44' 39.875" N	87° 13' 1.786" E
	7	23° 44' 38.761" N	87° 13' 4.870" E
	8	23° 44' 38.984" N	87° 13' 7.561" E
	9	23° 44' 36.928" N	87° 13' 12.872" E
	10	23° 44' 35.729" N	87° 13' 15.014" E
	11	23° 44' 33.930" N	87° 13' 21.609" E
	12	23° 44' 32.902" N	87° 13' 23.837" E
	13	23° 44' 31.617" N	87° 13' 24.094" E
	14	23° 44' 28.704" N	87° 13' 26.406" E
	15	23° 44' 28.961" N	87° 13' 28.976" E
	16	23° 44' 28.704" N	87° 13' 32.231" E
	17	23° 44' 25.483" N	87° 13' 41.335" E
	18	23° 44' 26.220" N	87° 13' 45.937" E
	19	23° 44' 28.619" N	87° 13' 54.760" E
	20	23° 44' 28.961" N	87° 13' 57.673" E
	21	23° 44' 28.899" N	87° 13' 57.692" E
	22	23° 44' 25.236" N	87° 13' 49.043" E
	23	23° 44' 25.365" N	87° 13' 40.820" E
	24	23° 44' 22.828" N	87° 13' 36.136" E
	25	23° 44' 22.281" N	87° 13' 30.926" E
	26	23° 44' 22.923" N	87° 13' 21.674" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	27	23° 44' 28.191" N	87° 13' 11.781" E
	28	23° 44' 29.177" N	87° 13' 4.114" E
	29	23° 44' 34.359" N	87° 12' 53.663" E
	30	23° 44' 41.297" N	87° 12' 37.345" E
	31	23° 44' 44.767" N	87° 12' 31.820" E
	32	23° 44' 46.447" N	87° 12' 30.893" E
	33	23° 44' 44.980" N	87° 12' 34.582" E
	34	23° 44' 44.295" N	87° 12' 38.865" E
	35	23° 44' 43.095" N	87° 12' 43.062" E
	36	23° 44' 47.207" N	87° 12' 42.548" E
BH_KR_AJ_12	1	23° 44' 32.045" N	87° 13' 49.963" E
	2	23° 44' 30.932" N	87° 13' 47.565" E
	3	23° 44' 31.360" N	87° 13' 41.397" E
	4	23° 44' 33.159" N	87° 13' 38.485" E
	5	23° 44' 34.187" N	87° 13' 39.255" E
	6	23° 44' 34.966" N	87° 13' 39.255" E
	7	23° 44' 35.166" N	87° 13' 50.760" E
BH_KR_AJ_13	1	23° 44' 40.183" N	87° 14' 22.685" E
	2	23° 44' 35.677" N	87° 14' 17.853" E
	3	23° 44' 36.877" N	87° 14' 16.739" E
	4	23° 44' 36.905" N	87° 14' 15.598" E
	5	23° 44' 34.872" N	87° 14' 14.034" E
	6	23° 44' 34.444" N	87° 14' 12.920" E
	7	23° 44' 34.701" N	87° 14' 10.693" E
	8	23° 44' 34.358" N	87° 14' 5.468" E
	9	23° 44' 34.872" N	87° 14' 3.926" E
	10	23° 44' 35.557" N	87° 14' 4.868" E
	11	23° 44' 36.877" N	87° 14' 9.201" E
	12	23° 44' 37.562" N	87° 14' 9.287" E
	13	23° 44' 38.759" N	87° 14' 12.023" E
	14	23° 44' 42.885" N	87° 14' 30.591" E
	15	23° 44' 43.266" N	87° 14' 36.389" E
	16	23° 44' 41.982" N	87° 14' 32.365" E
	17	23° 44' 43.722" N	87° 15' 0.562" E
	18	23° 44' 43.122" N	87° 14' 57.602" E
	19	23° 44' 36.997" N	87° 14' 51.193" E
	20	23° 44' 38.876" N	87° 14' 40.821" E
	21	23° 44' 43.392" N	87° 14' 38.691" E
	22	23° 44' 43.269" N	87° 14' 36.433" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	23	23° 44' 43.527" N	87° 14' 40.356" E
	24	23° 44' 49.566" N	87° 15' 4.770" E
	25	23° 44' 50.080" N	87° 15' 12.864" E
	26	23° 44' 49.775" N	87° 15' 15.563" E
	27	23° 44' 49.554" N	87° 15' 15.502" E
	28	23° 44' 48.441" N	87° 15' 14.303" E
	29	23° 44' 48.064" N	87° 15' 11.683" E
	30	23° 44' 47.892" N	87° 15' 6.801" E
	31	23° 44' 46.977" N	87° 15' 1.492" E
BH_KR_AJ_16_17	1	23° 43' 32.310" N	87° 17' 49.477" E
	2	23° 43' 31.796" N	87° 17' 51.276" E
	3	23° 43' 31.625" N	87° 17' 55.559" E
	4	23° 43' 31.196" N	87° 17' 56.673" E
	5	23° 43' 30.597" N	87° 17' 57.529" E
	6	23° 43' 28.883" N	87° 17' 58.215" E
	7	23° 43' 26.913" N	87° 17' 58.814" E
	8	23° 43' 25.543" N	87° 17' 58.643" E
	9	23° 43' 23.572" N	87° 17' 57.958" E
	10	23° 43' 22.988" N	87° 17' 57.982" E
	11	23° 43' 25.102" N	87° 17' 54.589" E
	12	23° 43' 26.479" N	87° 17' 47.804" E
	13	23° 43' 27.599" N	87° 17' 46.308" E
	14	23° 43' 27.856" N	87° 17' 43.738" E
	15	23° 43' 28.369" N	87° 17' 42.025" E
	16	23° 43' 30.168" N	87° 17' 36.200" E
	17	23° 43' 30.682" N	87° 17' 35.172" E
	18	23° 43' 30.854" N	87° 17' 32.088" E
	19	23° 43' 30.682" N	87° 17' 30.118" E
	20	23° 43' 32.139" N	87° 17' 24.550" E
	21	23° 43' 33.509" N	87° 17' 22.923" E
	22	23° 43' 35.908" N	87° 17' 21.723" E
	23	23° 43' 38.135" N	87° 17' 21.209" E
	24	23° 43' 39.274" N	87° 17' 18.926" E
	25	23° 43' 40.191" N	87° 17' 14.271" E
	26	23° 43' 40.741" N	87° 17' 13.940" E
	27	23° 43' 42.196" N	87° 17' 14.431" E
	28	23° 43' 42.932" N	87° 17' 15.984" E
	29	23° 43' 44.779" N	87° 17' 21.866" E
	30	23° 43' 44.014" N	87° 17' 25.297" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	31	23° 43' 43.703" N	87° 17' 25.921" E
	32	23° 43' 43.679" N	87° 17' 25.897" E
	33	23° 43' 42.143" N	87° 17' 33.698" E
	34	23° 43' 41.219" N	87° 17' 32.773" E
	35	23° 43' 39.123" N	87° 17' 34.473" E
	36	23° 43' 36.679" N	87° 17' 42.025" E
	37	23° 43' 35.565" N	87° 17' 42.881" E
	38	23° 43' 34.794" N	87° 17' 44.680" E
	39	23° 43' 34.109" N	87° 17' 46.907" E
	40	23° 43' 33.595" N	87° 17' 47.935" E
BH_KR_AJ_18	1	23° 43' 25.800" N	87° 18' 11.612" E
	2	23° 43' 25.663" N	87° 18' 12.366" E
	3	23° 43' 25.731" N	87° 18' 14.353" E
	4	23° 43' 25.046" N	87° 18' 16.615" E
	5	23° 43' 23.881" N	87° 18' 19.698" E
	6	23° 43' 23.059" N	87° 18' 21.891" E
	7	23° 43' 22.373" N	87° 18' 22.371" E
	8	23° 43' 20.317" N	87° 18' 22.577" E
	9	23° 43' 19.838" N	87° 18' 22.165" E
	10	23° 43' 19.975" N	87° 18' 20.863" E
	11	23° 43' 19.358" N	87° 18' 17.848" E
	12	23° 43' 18.604" N	87° 18' 16.478" E
	13	23° 43' 18.193" N	87° 18' 13.188" E
	14	23° 43' 17.508" N	87° 18' 12.229" E
	15	23° 43' 16.986" N	87° 18' 10.389" E
	16	23° 43' 17.136" N	87° 18' 8.595" E
	17	23° 43' 19.577" N	87° 18' 3.455" E
	18	23° 43' 21.986" N	87° 17' 59.589" E
	19	23° 43' 23.744" N	87° 17' 59.757" E
	20	23° 43' 25.114" N	87° 17' 59.757" E
	21	23° 43' 26.999" N	87° 17' 59.928" E
	22	23° 43' 28.883" N	87° 18' 0.099" E
	23	23° 43' 30.425" N	87° 17' 59.328" E
	24	23° 43' 29.911" N	87° 18' 3.114" E
	25	23° 43' 28.472" N	87° 18' 3.868" E
	26	23° 43' 26.965" N	87° 18' 7.774" E
	27	23° 43' 26.553" N	87° 18' 10.378" E
BH_KR_AJ_19_20	1	23° 43' 24.857" N	87° 18' 49.782" E
	2	23° 43' 22.802" N	87° 18' 56.121" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	3	23° 43' 20.403" N	87° 18' 58.434" E
	4	23° 43' 19.889" N	87° 18' 57.320" E
	5	23° 43' 19.118" N	87° 18' 59.719" E
	6	23° 43' 17.748" N	87° 19' 4.944" E
	7	23° 43' 15.520" N	87° 19' 11.283" E
	8	23° 43' 13.208" N	87° 19' 17.965" E
	9	23° 43' 12.094" N	87° 19' 20.877" E
	10	23° 43' 10.466" N	87° 19' 25.503" E
	11	23° 43' 7.468" N	87° 19' 29.529" E
	12	23° 43' 5.669" N	87° 19' 30.814" E
	13	23° 43' 4.253" N	87° 19' 29.215" E
	14	23° 43' 3.858" N	87° 19' 33.890" E
	15	23° 43' 5.143" N	87° 19' 36.846" E
	16	23° 43' 7.841" N	87° 19' 41.600" E
	17	23° 43' 6.170" N	87° 19' 41.086" E
	18	23° 43' 3.986" N	87° 19' 39.287" E
	19	23° 43' 2.830" N	87° 19' 36.075" E
	20	23° 43' 1.545" N	87° 19' 33.248" E
	21	23° 43' 0.517" N	87° 19' 28.751" E
	22	23° 43' 0.368" N	87° 19' 27.000" E
	23	23° 43' 1.887" N	87° 19' 18.214" E
	24	23° 43' 2.586" N	87° 19' 17.187" E
	25	23° 43' 2.586" N	87° 19' 15.652" E
	26	23° 43' 2.926" N	87° 19' 13.722" E
	27	23° 43' 5.769" N	87° 19' 7.575" E
	28	23° 43' 7.725" N	87° 19' 4.173" E
	29	23° 43' 9.353" N	87° 18' 59.034" E
	30	23° 43' 10.638" N	87° 18' 58.348" E
	31	23° 43' 11.580" N	87° 18' 56.978" E
	32	23° 43' 13.208" N	87° 18' 55.779" E
	33	23° 43' 14.407" N	87° 18' 54.408" E
	34	23° 43' 15.777" N	87° 18' 52.010" E
	35	23° 43' 18.690" N	87° 18' 49.782" E
	36	23° 43' 20.660" N	87° 18' 46.270" E
	37	23° 43' 22.288" N	87° 18' 42.244" E
	38	23° 43' 23.144" N	87° 18' 38.903" E
	39	23° 43' 22.630" N	87° 18' 35.477" E
	40	23° 43' 21.859" N	87° 18' 33.935" E
	41	23° 43' 21.859" N	87° 18' 32.308" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	42	23° 43' 22.545" N	87° 18' 29.395" E
	43	23° 43' 23.401" N	87° 18' 26.140" E
	44	23° 43' 24.600" N	87° 18' 23.228" E
	45	23° 43' 26.828" N	87° 18' 22.028" E
	46	23° 43' 27.856" N	87° 18' 20.401" E
	47	23° 43' 29.055" N	87° 18' 16.717" E
	48	23° 43' 29.826" N	87° 18' 13.548" E
	49	23° 43' 32.652" N	87° 18' 6.010" E
	50	23° 43' 33.509" N	87° 18' 5.924" E
	51	23° 43' 33.606" N	87° 18' 5.644" E
	52	23° 43' 32.478" N	87° 18' 11.463" E
	53	23° 43' 28.969" N	87° 18' 23.999" E
	54	23° 43' 28.541" N	87° 18' 28.367" E
	55	23° 43' 26.828" N	87° 18' 38.989" E
BH_KR_AJ_21	1	23° 43' 23.273" N	87° 20' 48.285" E
	2	23° 43' 22.605" N	87° 20' 47.463" E
	3	23° 43' 22.861" N	87° 20' 45.870" E
	4	23° 43' 20.240" N	87° 20' 41.861" E
	5	23° 43' 19.932" N	87° 20' 40.165" E
	6	23° 43' 20.086" N	87° 20' 35.796" E
	7	23° 43' 17.516" N	87° 20' 32.815" E
	8	23° 43' 17.156" N	87° 20' 29.834" E
	9	23° 43' 16.854" N	87° 20' 30.043" E
	10	23° 43' 16.622" N	87° 20' 28.264" E
	11	23° 43' 15.212" N	87° 20' 25.781" E
	12	23° 43' 14.946" N	87° 20' 24.489" E
	13	23° 43' 13.148" N	87° 20' 19.041" E
	14	23° 43' 10.083" N	87° 20' 16.744" E
	15	23° 43' 4.330" N	87° 20' 5.609" E
	16	23° 43' 4.462" N	87° 20' 5.215" E
	17	23° 43' 4.667" N	87° 20' 3.930" E
	18	23° 43' 4.205" N	87° 20' 2.131" E
	19	23° 43' 3.536" N	87° 20' 0.949" E
	20	23° 43' 2.354" N	87° 19' 53.291" E
	21	23° 43' 2.533" N	87° 19' 51.326" E
	22	23° 43' 9.770" N	87° 19' 58.162" E
	23	23° 43' 15.683" N	87° 20' 13.367" E
	24	23° 43' 15.929" N	87° 20' 19.033" E
	25	23° 43' 16.964" N	87° 20' 26.315" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	26	23° 43' 18.891" N	87° 20' 29.784" E
	27	23° 43' 20.047" N	87° 20' 26.700" E
	28	23° 43' 20.623" N	87° 20' 21.107" E
	29	23° 43' 24.762" N	87° 20' 29.851" E
	30	23° 43' 25.936" N	87° 20' 52.900" E
	31	23° 43' 23.273" N	87° 20' 51.112" E
BH_KR_AJ_22	1	23° 43' 15.409" N	87° 20' 51.626" E
	2	23° 43' 15.123" N	87° 20' 51.218" E
	3	23° 43' 15.722" N	87° 20' 47.024" E
	4	23° 43' 16.020" N	87° 20' 37.761" E
	5	23° 43' 16.540" N	87° 20' 38.263" E
	6	23° 43' 16.129" N	87° 20' 51.575" E
BH_KR_AJ_23_24	1	23° 43' 20.189" N	87° 21' 11.876" E
	2	23° 43' 15.255" N	87° 21' 11.208" E
	3	23° 43' 13.250" N	87° 21' 11.928" E
	4	23° 43' 12.942" N	87° 21' 12.596" E
	5	23° 43' 11.863" N	87° 21' 13.469" E
	6	23° 43' 10.732" N	87° 21' 14.035" E
	7	23° 43' 10.218" N	87° 21' 15.628" E
	8	23° 43' 9.344" N	87° 21' 16.450" E
	9	23° 43' 7.083" N	87° 21' 17.633" E
	10	23° 43' 6.158" N	87° 21' 17.941" E
	11	23° 43' 4.873" N	87° 21' 17.941" E
	12	23° 43' 3.742" N	87° 21' 17.992" E
	13	23° 43' 4.564" N	87° 21' 15.988" E
	14	23° 43' 5.849" N	87° 21' 14.549" E
	15	23° 43' 6.312" N	87° 21' 13.367" E
	16	23° 43' 7.455" N	87° 21' 8.588" E
	17	23° 43' 9.511" N	87° 21' 5.119" E
	18	23° 43' 11.693" N	87° 20' 59.047" E
	19	23° 43' 12.651" N	87° 20' 56.919" E
	20	23° 43' 14.522" N	87° 20' 57.152" E
	21	23° 43' 14.751" N	87° 21' 0.710" E
	22	23° 43' 17.897" N	87° 21' 0.119" E
	23	23° 43' 16.989" N	87° 20' 48.655" E
	24	23° 43' 19.773" N	87° 20' 47.798" E
	25	23° 43' 21.272" N	87° 20' 49.726" E
	26	23° 43' 21.586" N	87° 20' 53.403" E
	27	23° 43' 23.530" N	87° 20' 54.247" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	28	23° 43' 24.403" N	87° 20' 53.990" E
	29	23° 43' 25.020" N	87° 20' 53.682" E
	30	23° 43' 25.431" N	87° 20' 54.299" E
	31	23° 43' 26.031" N	87° 20' 54.504" E
	32	23° 43' 26.032" N	87° 20' 54.526" E
	33	23° 43' 25.677" N	87° 21' 2.380" E
	34	23° 43' 21.315" N	87° 21' 11.387" E
BH_KR_AJ_25	1	23° 43' 1.058" N	87° 21' 40.939" E
	2	23° 42' 54.682" N	87° 21' 41.666" E
	3	23° 42' 52.305" N	87° 21' 37.272" E
	4	23° 42' 59.322" N	87° 21' 28.015" E
	5	23° 43' 1.282" N	87° 21' 26.013" E
	6	23° 42' 58.723" N	87° 21' 23.836" E
	7	23° 43' 0.029" N	87° 21' 21.660" E
	8	23° 43' 3.691" N	87° 21' 18.969" E
	9	23° 43' 6.569" N	87° 21' 18.815" E
	10	23° 43' 7.237" N	87° 21' 19.174" E
	11	23° 43' 9.807" N	87° 21' 17.735" E
	12	23° 43' 12.171" N	87° 21' 14.754" E
	13	23° 43' 13.610" N	87° 21' 14.086" E
	14	23° 43' 15.460" N	87° 21' 13.521" E
	15	23° 43' 16.848" N	87° 21' 14.035" E
	16	23° 43' 19.007" N	87° 21' 13.418" E
	17	23° 43' 20.252" N	87° 21' 12.989" E
	18	23° 43' 7.030" N	87° 21' 36.538" E
	19	23° 43' 4.960" N	87° 21' 39.094" E
BH_DJ_AJ_26_28	1	23° 42' 23.601" N	87° 22' 13.929" E
	2	23° 42' 15.249" N	87° 22' 22.024" E
	3	23° 42' 4.841" N	87° 22' 52.990" E
	4	23° 42' 3.170" N	87° 23' 12.135" E
	5	23° 42' 7.154" N	87° 23' 46.314" E
	6	23° 42' 5.740" N	87° 24' 5.074" E
	7	23° 42' 2.456" N	87° 24' 19.951" E
	8	23° 42' 0.431" N	87° 24' 21.554" E
	9	23° 41' 58.932" N	87° 24' 23.481" E
	10	23° 41' 57.112" N	87° 24' 28.085" E
	11	23° 41' 55.613" N	87° 24' 29.798" E
	12	23° 41' 53.900" N	87° 24' 30.655" E
	13	23° 41' 52.615" N	87° 24' 30.655" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	14	23° 41' 50.580" N	87° 24' 29.905" E
	15	23° 41' 49.295" N	87° 24' 28.085" E
	16	23° 41' 49.295" N	87° 24' 26.800" E
	17	23° 41' 52.186" N	87° 24' 26.265" E
	18	23° 41' 54.114" N	87° 24' 25.194" E
	19	23° 41' 54.328" N	87° 24' 23.802" E
	20	23° 41' 53.471" N	87° 24' 20.804" E
	21	23° 41' 51.972" N	87° 24' 19.733" E
	22	23° 41' 49.617" N	87° 24' 13.737" E
	23	23° 41' 51.437" N	87° 24' 10.203" E
	24	23° 41' 50.687" N	87° 24' 9.668" E
	25	23° 41' 48.653" N	87° 24' 9.454" E
	26	23° 41' 46.618" N	87° 24' 8.383" E
	27	23° 41' 44.900" N	87° 24' 4.876" E
	28	23° 41' 44.691" N	87° 24' 2.387" E
	29	23° 41' 45.227" N	87° 23' 59.924" E
	30	23° 41' 46.404" N	87° 23' 58.961" E
	31	23° 41' 49.295" N	87° 24' 0.031" E
	32	23° 41' 50.091" N	87° 24' 3.283" E
	33	23° 41' 52.044" N	87° 24' 0.765" E
	34	23° 41' 51.993" N	87° 23' 59.634" E
	35	23° 41' 52.198" N	87° 23' 58.812" E
	36	23° 41' 52.096" N	87° 23' 57.732" E
	37	23° 41' 51.170" N	87° 23' 57.681" E
	38	23° 41' 49.063" N	87° 23' 56.242" E
	39	23° 41' 48.087" N	87° 23' 53.415" E
	40	23° 41' 48.241" N	87° 23' 52.541" E
	41	23° 41' 48.806" N	87° 23' 51.565" E
	42	23° 41' 50.091" N	87° 23' 50.794" E
	43	23° 41' 51.170" N	87° 23' 49.200" E
	44	23° 41' 52.250" N	87° 23' 52.336" E
	45	23° 41' 53.021" N	87° 23' 52.952" E
	46	23° 41' 53.792" N	87° 23' 52.438" E
	47	23° 41' 54.254" N	87° 23' 51.410" E
	48	23° 41' 54.871" N	87° 23' 49.252" E
	49	23° 41' 55.179" N	87° 23' 45.757" E
	50	23° 41' 54.614" N	87° 23' 45.294" E
	51	23° 41' 56.340" N	87° 23' 38.627" E
	52	23° 41' 58.139" N	87° 23' 28.862" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	53	23° 41' 59.038" N	87° 23' 21.923" E
	54	23° 42' 1.737" N	87° 23' 12.929" E
	55	23° 42' 0.195" N	87° 23' 10.102" E
	56	23° 42' 3.021" N	87° 23' 2.778" E
	57	23° 42' 2.711" N	87° 22' 53.647" E
	58	23° 42' 3.367" N	87° 22' 50.893" E
	59	23° 42' 2.632" N	87° 22' 50.403" E
	60	23° 42' 2.118" N	87° 22' 49.683" E
	61	23° 42' 1.861" N	87° 22' 48.758" E
	62	23° 42' 2.118" N	87° 22' 46.086" E
	63	23° 42' 2.704" N	87° 22' 43.802" E
	64	23° 42' 4.435" N	87° 22' 42.990" E
	65	23° 42' 6.234" N	87° 22' 39.650" E
	66	23° 42' 7.262" N	87° 22' 34.767" E
	67	23° 42' 7.052" N	87° 22' 30.564" E
	68	23° 42' 7.874" N	87° 22' 28.816" E
	69	23° 42' 8.161" N	87° 22' 21.532" E
	70	23° 42' 8.290" N	87° 22' 19.862" E
	71	23° 42' 12.658" N	87° 22' 15.365" E
	72	23° 42' 17.794" N	87° 22' 13.038" E
	73	23° 42' 17.691" N	87° 22' 11.907" E
	74	23° 42' 26.223" N	87° 22' 4.814" E
	75	23° 42' 27.744" N	87° 22' 4.115" E
	76	23° 42' 30.592" N	87° 22' 9.186" E
BH_DJ_AJ_27	1	23° 42' 7.262" N	87° 22' 14.979" E
	2	23° 42' 6.669" N	87° 22' 14.044" E
	3	23° 42' 9.164" N	87° 22' 7.845" E
	4	23° 42' 18.915" N	87° 22' 1.733" E
	5	23° 42' 18.187" N	87° 22' 3.868" E
	6	23° 42' 16.971" N	87° 22' 4.455" E
	7	23° 42' 15.378" N	87° 22' 5.226" E
	8	23° 42' 13.271" N	87° 22' 7.538" E
	9	23° 42' 12.603" N	87° 22' 9.080" E
BH_DJ_AJ_29	1	23° 41' 43.581" N	87° 24' 30.574" E
	2	23° 41' 43.495" N	87° 24' 33.230" E
	3	23° 41' 43.838" N	87° 24' 35.200" E
	4	23° 41' 44.009" N	87° 24' 37.342" E
	5	23° 41' 43.238" N	87° 24' 40.340" E
	6	23° 41' 42.639" N	87° 24' 41.196" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	7	23° 41' 41.868" N	87° 24' 41.453" E
	8	23° 41' 40.069" N	87° 24' 41.625" E
	9	23° 41' 38.270" N	87° 24' 44.623" E
	10	23° 41' 38.441" N	87° 24' 44.880" E
	11	23° 41' 39.983" N	87° 24' 44.537" E
	12	23° 41' 39.726" N	87° 24' 45.908" E
	13	23° 41' 38.955" N	87° 24' 48.306" E
	14	23° 41' 37.328" N	87° 24' 50.191" E
	15	23° 41' 33.901" N	87° 24' 52.932" E
	16	23° 41' 30.475" N	87° 24' 54.816" E
	17	23° 41' 28.333" N	87° 24' 55.159" E
	18	23° 41' 21.652" N	87° 24' 58.072" E
	19	23° 41' 19.767" N	87° 24' 59.185" E
	20	23° 41' 9.402" N	87° 25' 1.412" E
	21	23° 40' 57.681" N	87° 25' 3.497" E
	22	23° 40' 56.074" N	87° 24' 54.135" E
	23	23° 40' 59.535" N	87° 24' 52.649" E
	24	23° 41' 4.109" N	87° 24' 48.108" E
	25	23° 41' 7.322" N	87° 24' 42.755" E
	26	23° 41' 10.676" N	87° 24' 39.256" E
	27	23° 41' 13.399" N	87° 24' 37.537" E
	28	23° 41' 17.768" N	87° 24' 32.911" E
	29	23° 41' 22.779" N	87° 24' 29.185" E
	30	23° 41' 26.634" N	87° 24' 24.430" E
	31	23° 41' 28.818" N	87° 24' 17.877" E
	32	23° 41' 34.600" N	87° 24' 7.727" E
	33	23° 41' 40.125" N	87° 24' 2.202" E
	34	23° 41' 43.841" N	87° 23' 56.208" E
	35	23° 41' 43.752" N	87° 23' 57.681" E
	36	23° 41' 43.324" N	87° 23' 59.394" E
	37	23° 41' 43.495" N	87° 24' 0.679" E
	38	23° 41' 42.810" N	87° 24' 5.390" E
	39	23° 41' 42.981" N	87° 24' 7.789" E
	40	23° 41' 42.981" N	87° 24' 18.154" E
	41	23° 41' 43.495" N	87° 24' 19.524" E
	42	23° 41' 44.266" N	87° 24' 20.552" E
	43	23° 41' 45.037" N	87° 24' 20.895" E
	44	23° 41' 45.722" N	87° 24' 21.494" E
	45	23° 41' 45.722" N	87° 24' 21.923" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	46	23° 41' 45.208" N	87° 24' 23.379" E
	47	23° 41' 44.866" N	87° 24' 26.463" E
	48	23° 41' 44.095" N	87° 24' 29.118" E
BH_IB_AJ_30	1	23° 40' 19.974" N	87° 24' 55.151" E
	2	23° 40' 19.974" N	87° 24' 55.151" E
	3	23° 40' 21.112" N	87° 24' 55.588" E
	4	23° 40' 23.771" N	87° 24' 54.692" E
	5	23° 40' 28.941" N	87° 24' 57.067" E
	6	23° 40' 36.137" N	87° 24' 58.095" E
	7	23° 40' 40.377" N	87° 24' 57.324" E
	8	23° 40' 41.034" N	87° 24' 56.928" E
	9	23° 40' 53.402" N	87° 24' 55.282" E
	10	23° 40' 55.270" N	87° 24' 54.481" E
	11	23° 40' 56.870" N	87° 25' 3.689" E
	12	23° 40' 53.812" N	87° 25' 4.410" E
	13	23° 40' 51.157" N	87° 25' 5.524" E
	14	23° 40' 49.272" N	87° 25' 6.723" E
	15	23° 40' 48.415" N	87° 25' 6.723" E
	16	23° 40' 46.445" N	87° 25' 5.610" E
	17	23° 40' 42.591" N	87° 25' 4.496" E
	18	23° 40' 37.879" N	87° 25' 4.239" E
	19	23° 40' 32.483" N	87° 25' 1.841" E
	20	23° 40' 29.484" N	87° 24' 59.870" E
	21	23° 40' 27.857" N	87° 24' 58.671" E
	22	23° 40' 25.287" N	87° 24' 57.472" E
	23	23° 40' 23.231" N	87° 24' 57.215" E
	24	23° 40' 21.518" N	87° 24' 56.444" E
BH_IB_AJ_31	1	23° 40' 22.974" N	87° 25' 2.869" E
	2	23° 40' 22.289" N	87° 25' 3.554" E
	3	23° 40' 22.375" N	87° 25' 5.181" E
	4	23° 40' 21.651" N	87° 25' 5.112" E
	5	23° 40' 13.439" N	87° 25' 2.766" E
	6	23° 39' 58.534" N	87° 24' 49.789" E
	7	23° 39' 51.853" N	87° 24' 45.291" E
	8	23° 39' 47.484" N	87° 24' 43.749" E
	9	23° 39' 43.805" N	87° 24' 44.354" E
	10	23° 39' 41.262" N	87° 24' 42.753" E
	11	23° 39' 42.942" N	87° 24' 40.911" E
	12	23° 40' 13.739" N	87° 24' 52.753" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	13	23° 40' 13.739" N	87° 24' 52.753" E
	14	23° 40' 14.237" N	87° 24' 53.703" E
	15	23° 40' 15.779" N	87° 24' 55.073" E
	16	23° 40' 17.578" N	87° 24' 56.358" E
	17	23° 40' 20.147" N	87° 24' 58.671" E
	18	23° 40' 22.118" N	87° 25' 0.898" E
BH_IB_AJ_32	1	23° 38' 49.644" N	87° 25' 3.591" E
	2	23° 38' 47.120" N	87° 25' 3.982" E
	3	23° 38' 48.062" N	87° 25' 2.098" E
	4	23° 38' 50.289" N	87° 25' 0.213" E
	5	23° 38' 51.143" N	87° 24' 59.045" E
	6	23° 38' 58.741" N	87° 24' 52.313" E
	7	23° 39' 8.377" N	87° 24' 45.503" E
	8	23° 39' 28.233" N	87° 24' 35.255" E
	9	23° 39' 38.729" N	87° 24' 39.290" E
	10	23° 39' 38.728" N	87° 24' 39.291" E
	11	23° 39' 36.375" N	87° 24' 41.796" E
	12	23° 39' 35.176" N	87° 24' 44.537" E
	13	23° 39' 33.462" N	87° 24' 46.936" E
	14	23° 39' 31.401" N	87° 24' 48.513" E
	15	23° 39' 29.164" N	87° 24' 49.588" E
	16	23° 39' 28.751" N	87° 24' 49.677" E
	17	23° 39' 26.859" N	87° 24' 50.696" E
	18	23° 39' 24.168" N	87° 24' 51.990" E
	19	23° 39' 18.986" N	87° 24' 52.247" E
	20	23° 39' 16.330" N	87° 24' 52.932" E
	21	23° 39' 12.647" N	87° 24' 53.532" E
	22	23° 39' 9.049" N	87° 24' 53.532" E
	23	23° 39' 7.250" N	87° 24' 55.673" E
	24	23° 39' 1.636" N	87° 24' 55.111" E
	25	23° 38' 58.210" N	87° 24' 56.396" E
BH_IB_AJ_35	1	23° 37' 42.464" N	87° 26' 16.537" E
	2	23° 37' 40.647" N	87° 26' 16.537" E
	3	23° 37' 43.988" N	87° 26' 14.309" E
	4	23° 37' 47.757" N	87° 26' 12.254" E
	5	23° 37' 50.327" N	87° 26' 10.369" E
	6	23° 37' 54.953" N	87° 26' 6.686" E
	7	23° 37' 57.523" N	87° 26' 5.058" E
	8	23° 38' 1.891" N	87° 25' 58.120" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	9	23° 38' 3.519" N	87° 25' 54.179" E
	10	23° 38' 4.290" N	87° 25' 51.438" E
	11	23° 38' 4.998" N	87° 25' 49.845" E
	12	23° 38' 9.037" N	87° 25' 54.255" E
	13	23° 38' 9.686" N	87° 25' 56.149" E
	14	23° 38' 8.750" N	87° 25' 59.638" E
	15	23° 38' 5.575" N	87° 26' 3.773" E
	16	23° 38' 3.433" N	87° 26' 7.371" E
	17	23° 37' 56.277" N	87° 26' 12.998" E
	18	23° 37' 51.994" N	87° 26' 15.032" E
BH_IB_AJ_36	1	23° 36' 50.203" N	87° 27' 4.017" E
	2	23° 36' 46.938" N	87° 27' 8.276" E
	3	23° 36' 47.367" N	87° 27' 8.790" E
	4	23° 36' 47.795" N	87° 27' 10.417" E
	5	23° 36' 48.309" N	87° 27' 15.128" E
	6	23° 36' 48.812" N	87° 27' 17.543" E
	7	23° 36' 48.797" N	87° 27' 25.017" E
	8	23° 36' 46.681" N	87° 27' 27.892" E
	9	23° 36' 46.167" N	87° 27' 27.892" E
	10	23° 36' 45.139" N	87° 27' 27.549" E
	11	23° 36' 40.673" N	87° 27' 32.607" E
	12	23° 36' 40.313" N	87° 27' 32.302" E
	13	23° 36' 39.585" N	87° 27' 28.429" E
	14	23° 36' 38.668" N	87° 27' 25.372" E
	15	23° 36' 38.425" N	87° 27' 22.970" E
	16	23° 36' 39.067" N	87° 27' 20.079" E
	17	23° 36' 38.522" N	87° 27' 15.254" E
	18	23° 36' 40.227" N	87° 27' 9.541" E
	19	23° 36' 40.529" N	87° 27' 7.601" E
	20	23° 36' 41.958" N	87° 27' 5.409" E
	21	23° 36' 44.309" N	87° 27' 0.979" E
	22	23° 36' 45.110" N	87° 27' 0.675" E
	23	23° 36' 47.784" N	87° 26' 56.664" E
	24	23° 36' 50.096" N	87° 26' 57.700" E
	25	23° 36' 52.130" N	87° 27' 0.270" E
BH_IB_AJ_37	1	23° 36' 48.137" N	87° 27' 37.315" E
	2	23° 36' 47.281" N	87° 27' 36.715" E
	3	23° 36' 46.510" N	87° 27' 35.173" E
	4	23° 36' 47.367" N	87° 27' 31.747" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	5	23° 36' 48.285" N	87° 27' 31.333" E
	6	23° 36' 48.111" N	87° 27' 33.486" E
	7	23° 36' 48.287" N	87° 27' 38.461" E
BH_IB_AJ_38	1	23° 36' 46.835" N	87° 27' 40.535" E
	2	23° 36' 45.920" N	87° 27' 51.773" E
	3	23° 36' 43.381" N	87° 27' 51.841" E
	4	23° 36' 43.238" N	87° 27' 50.095" E
	5	23° 36' 43.443" N	87° 27' 48.450" E
	6	23° 36' 43.289" N	87° 27' 47.834" E
	7	23° 36' 42.672" N	87° 27' 47.782" E
	8	23° 36' 42.261" N	87° 27' 46.652" E
	9	23° 36' 42.087" N	87° 27' 46.390" E
	10	23° 36' 42.151" N	87° 27' 45.809" E
	11	23° 36' 42.621" N	87° 27' 44.287" E
	12	23° 36' 42.621" N	87° 27' 43.414" E
	13	23° 36' 42.368" N	87° 27' 43.856" E
	14	23° 36' 42.412" N	87° 27' 43.463" E
	15	23° 36' 40.744" N	87° 27' 34.595" E
	16	23° 36' 40.976" N	87° 27' 34.162" E
	17	23° 36' 44.523" N	87° 27' 30.719" E
	18	23° 36' 45.499" N	87° 27' 30.770" E
	19	23° 36' 45.396" N	87° 27' 31.233" E
	20	23° 36' 45.756" N	87° 27' 36.064" E
	21	23° 36' 46.373" N	87° 27' 38.017" E
	22	23° 36' 46.167" N	87° 27' 38.942" E
	23	23° 36' 46.219" N	87° 27' 39.559" E
BH_IB_AJ_39	1	23° 36' 49.201" N	87° 28' 13.649" E
	2	23° 36' 48.687" N	87° 28' 14.934" E
	3	23° 36' 48.708" N	87° 28' 15.684" E
	4	23° 36' 48.537" N	87° 28' 16.947" E
	5	23° 36' 48.280" N	87° 28' 17.632" E
	6	23° 36' 47.566" N	87° 28' 18.944" E
	7	23° 36' 46.802" N	87° 28' 17.975" E
	8	23° 36' 46.481" N	87° 28' 17.226" E
	9	23° 36' 46.695" N	87° 28' 16.819" E
	10	23° 36' 46.973" N	87° 28' 15.983" E
	11	23° 36' 46.781" N	87° 28' 15.320" E
	12	23° 36' 46.204" N	87° 28' 14.489" E
	13	23° 36' 45.903" N	87° 28' 14.913" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	14	23° 36' 45.881" N	87° 28' 16.283" E
	15	23° 36' 44.900" N	87° 28' 14.006" E
	16	23° 36' 44.558" N	87° 28' 12.156" E
	17	23° 36' 45.380" N	87° 28' 9.072" E
	18	23° 36' 45.967" N	87° 28' 2.235" E
	19	23° 36' 46.115" N	87° 28' 1.880" E
	20	23° 36' 45.654" N	87° 28' 0.575" E
	21	23° 36' 45.449" N	87° 27' 58.519" E
	22	23° 36' 46.203" N	87° 27' 57.971" E
	23	23° 36' 47.162" N	87° 27' 57.765" E
	24	23° 36' 49.012" N	87° 27' 56.600" E
	25	23° 36' 49.166" N	87° 27' 56.744" E
	26	23° 36' 49.577" N	87° 28' 2.573" E
BH_IB_AJ_40	1	23° 36' 12.603" N	87° 29' 50.192" E
	2	23° 36' 11.095" N	87° 29' 58.210" E
	3	23° 36' 11.472" N	87° 30' 6.810" E
	4	23° 36' 14.745" N	87° 30' 21.597" E
	5	23° 36' 14.628" N	87° 30' 23.271" E
	6	23° 36' 15.527" N	87° 30' 25.455" E
	7	23° 36' 13.514" N	87° 30' 23.442" E
	8	23° 36' 10.816" N	87° 30' 19.844" E
	9	23° 36' 9.445" N	87° 30' 17.746" E
	10	23° 36' 7.347" N	87° 30' 12.649" E
	11	23° 36' 7.047" N	87° 30' 8.195" E
	12	23° 36' 5.041" N	87° 30' 4.337" E
	13	23° 36' 4.673" N	87° 29' 57.655" E
	14	23° 36' 5.241" N	87° 29' 55.407" E
	15	23° 36' 6.870" N	87° 29' 51.588" E
	16	23° 36' 8.246" N	87° 29' 49.906" E
	17	23° 36' 8.889" N	87° 29' 49.349" E
	18	23° 36' 9.745" N	87° 29' 48.964" E
	19	23° 36' 10.944" N	87° 29' 47.979" E
	20	23° 36' 11.630" N	87° 29' 46.694" E
	21	23° 36' 11.801" N	87° 29' 45.452" E
	22	23° 36' 12.529" N	87° 29' 43.610" E
	23	23° 36' 13.600" N	87° 29' 41.854" E
	24	23° 36' 14.200" N	87° 29' 40.869" E
	25	23° 36' 14.499" N	87° 29' 39.841" E
	26	23° 36' 14.585" N	87° 29' 37.999" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	27	23° 36' 15.313" N	87° 29' 37.614" E
	28	23° 36' 16.041" N	87° 29' 38.256" E
	29	23° 36' 16.684" N	87° 29' 38.470" E
	30	23° 36' 17.455" N	87° 29' 37.828" E
	31	23° 36' 19.339" N	87° 29' 36.714" E
	32	23° 36' 19.564" N	87° 29' 36.800" E
	33	23° 36' 16.029" N	87° 29' 42.037" E
BH_IB_AJ_42	1	23° 36' 43.024" N	87° 32' 14.844" E
	2	23° 36' 42.982" N	87° 32' 13.302" E
	3	23° 36' 43.453" N	87° 32' 12.531" E
	4	23° 36' 44.066" N	87° 32' 12.026" E
	5	23° 36' 45.176" N	87° 32' 13.427" E
	6	23° 36' 46.219" N	87° 32' 14.087" E
	7	23° 36' 45.179" N	87° 32' 29.482" E
	8	23° 36' 44.181" N	87° 32' 20.497" E
	9	23° 36' 44.138" N	87° 32' 17.414" E
	10	23° 36' 43.667" N	87° 32' 15.700" E
BH_IB_AJ_42A	1	23° 36' 38.748" N	87° 32' 46.873" E
	2	23° 36' 37.998" N	87° 32' 53.298" E
	3	23° 36' 33.073" N	87° 33' 2.399" E
	4	23° 36' 31.146" N	87° 33' 3.470" E
	5	23° 36' 31.253" N	87° 32' 50.300" E
	6	23° 36' 29.754" N	87° 32' 34.346" E
	7	23° 36' 27.447" N	87° 32' 26.042" E
	8	23° 36' 31.805" N	87° 32' 16.500" E
	9	23° 36' 39.767" N	87° 32' 5.743" E
	10	23° 36' 40.919" N	87° 32' 7.791" E
	11	23° 36' 39.712" N	87° 32' 9.932" E
	12	23° 36' 38.320" N	87° 32' 14.108" E
	13	23° 36' 38.213" N	87° 32' 18.177" E
	14	23° 36' 38.962" N	87° 32' 18.927" E
	15	23° 36' 40.568" N	87° 32' 21.604" E
	16	23° 36' 42.067" N	87° 32' 25.137" E
	17	23° 36' 42.067" N	87° 32' 36.594" E
	18	23° 36' 41.425" N	87° 32' 46.659" E
BH_IB_AJ_43	1	23° 36' 31.032" N	87° 33' 18.404" E
	2	23° 36' 30.561" N	87° 33' 17.933" E
	3	23° 36' 30.432" N	87° 33' 15.449" E
	4	23° 36' 30.903" N	87° 33' 14.249" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	5	23° 36' 30.903" N	87° 33' 12.665" E
	6	23° 36' 32.317" N	87° 33' 10.994" E
	7	23° 36' 33.173" N	87° 33' 10.138" E
	8	23° 36' 35.846" N	87° 33' 6.374" E
	9	23° 36' 34.463" N	87° 33' 10.141" E
	10	23° 36' 32.183" N	87° 33' 20.489" E
BH_IB_AJ_44	1	23° 36' 22.937" N	87° 33' 45.901" E
	2	23° 36' 23.108" N	87° 33' 46.629" E
	3	23° 36' 22.080" N	87° 33' 47.700" E
	4	23° 36' 21.609" N	87° 33' 47.700" E
	5	23° 36' 20.795" N	87° 33' 49.113" E
	6	23° 36' 20.281" N	87° 33' 50.398" E
	7	23° 36' 19.682" N	87° 33' 50.569" E
	8	23° 36' 18.311" N	87° 33' 51.512" E
	9	23° 36' 16.427" N	87° 33' 52.240" E
	10	23° 36' 16.258" N	87° 33' 52.296" E
	11	23° 36' 15.705" N	87° 33' 47.307" E
	12	23° 36' 15.230" N	87° 33' 47.307" E
	13	23° 36' 17.093" N	87° 33' 43.682" E
	14	23° 36' 17.797" N	87° 33' 43.502" E
	15	23° 36' 18.097" N	87° 33' 42.774" E
	16	23° 36' 18.217" N	87° 33' 42.015" E
	17	23° 36' 18.873" N	87° 33' 41.073" E
	18	23° 36' 19.468" N	87° 33' 40.419" E
	19	23° 36' 21.352" N	87° 33' 37.678" E
	20	23° 36' 22.680" N	87° 33' 35.108" E
	21	23° 36' 22.937" N	87° 33' 33.951" E
	22	23° 36' 23.280" N	87° 33' 32.238" E
	23	23° 36' 24.479" N	87° 33' 29.283" E
	24	23° 36' 24.607" N	87° 33' 28.512" E
	25	23° 36' 24.650" N	87° 33' 25.043" E
	26	23° 36' 24.693" N	87° 33' 24.143" E
	27	23° 36' 24.554" N	87° 33' 22.855" E
	28	23° 36' 24.817" N	87° 33' 21.877" E
	29	23° 36' 25.078" N	87° 33' 21.274" E
	30	23° 36' 25.849" N	87° 33' 19.989" E
	31	23° 36' 26.663" N	87° 33' 18.532" E
	32	23° 36' 27.862" N	87° 33' 16.862" E
	33	23° 36' 28.762" N	87° 33' 16.948" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	34	23° 36' 29.147" N	87° 33' 17.462" E
	35	23° 36' 29.276" N	87° 33' 18.618" E
	36	23° 36' 29.490" N	87° 33' 18.918" E
	37	23° 36' 29.918" N	87° 33' 19.132" E
	38	23° 36' 30.389" N	87° 33' 19.175" E
	39	23° 36' 30.946" N	87° 33' 19.689" E
	40	23° 36' 31.546" N	87° 33' 20.460" E
	41	23° 36' 31.951" N	87° 33' 21.541" E
	42	23° 36' 31.023" N	87° 33' 25.752" E
	43	23° 36' 30.389" N	87° 33' 26.799" E
	44	23° 36' 30.090" N	87° 33' 28.598" E
	45	23° 36' 27.177" N	87° 33' 37.849" E
	46	23° 36' 25.849" N	87° 33' 40.804" E
BH_IB_AJ_45	1	23° 35' 53.500" N	87° 34' 33.968" E
	2	23° 35' 49.749" N	87° 34' 40.341" E
	3	23° 35' 48.126" N	87° 34' 49.714" E
	4	23° 35' 48.461" N	87° 34' 50.272" E
	5	23° 35' 47.377" N	87° 35' 4.159" E
	6	23° 35' 48.084" N	87° 35' 13.707" E
	7	23° 35' 47.968" N	87° 35' 15.036" E
	8	23° 35' 45.783" N	87° 35' 15.391" E
	9	23° 35' 45.451" N	87° 35' 12.029" E
	10	23° 35' 44.531" N	87° 35' 9.747" E
	11	23° 35' 44.475" N	87° 35' 1.882" E
	12	23° 35' 44.647" N	87° 34' 59.226" E
	13	23° 35' 44.904" N	87° 34' 56.914" E
	14	23° 35' 45.161" N	87° 34' 51.132" E
	15	23° 35' 45.246" N	87° 34' 47.876" E
	16	23° 35' 45.803" N	87° 34' 45.906" E
	17	23° 35' 46.060" N	87° 34' 45.821" E
	18	23° 35' 46.574" N	87° 34' 46.335" E
	19	23° 35' 46.960" N	87° 34' 45.478" E
	20	23° 35' 47.217" N	87° 34' 44.193" E
	21	23° 35' 47.688" N	87° 34' 43.379" E
	22	23° 35' 47.858" N	87° 34' 41.304" E
	23	23° 35' 48.979" N	87° 34' 40.759" E
	24	23° 35' 49.750" N	87° 34' 38.875" E
	25	23° 35' 50.007" N	87° 34' 37.418" E
	26	23° 35' 49.701" N	87° 34' 34.770" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	27	23° 35' 50.514" N	87° 34' 33.742" E
	28	23° 35' 54.461" N	87° 34' 28.081" E
	29	23° 35' 59.136" N	87° 34' 23.908" E
BH_BL_AJ_48	1	23° 36' 29.668" N	87° 38' 4.460" E
	2	23° 36' 28.691" N	87° 38' 4.966" E
	3	23° 36' 28.536" N	87° 38' 6.564" E
	4	23° 36' 26.156" N	87° 38' 8.143" E
	5	23° 36' 24.736" N	87° 38' 3.996" E
	6	23° 36' 25.378" N	87° 38' 2.754" E
	7	23° 36' 25.807" N	87° 38' 1.298" E
	8	23° 36' 26.192" N	87° 37' 58.728" E
	9	23° 36' 26.363" N	87° 37' 55.859" E
	10	23° 36' 26.492" N	87° 37' 53.846" E
	11	23° 36' 26.792" N	87° 37' 52.261" E
	12	23° 36' 27.477" N	87° 37' 51.190" E
	13	23° 36' 28.376" N	87° 37' 49.991" E
	14	23° 36' 27.845" N	87° 37' 46.096" E
	15	23° 36' 28.156" N	87° 37' 45.385" E
	16	23° 36' 27.385" N	87° 37' 39.218" E
	17	23° 36' 24.815" N	87° 37' 28.579" E
	18	23° 36' 21.475" N	87° 37' 21.023" E
	19	23° 36' 20.845" N	87° 37' 19.488" E
	20	23° 36' 19.132" N	87° 37' 12.807" E
	21	23° 36' 24.100" N	87° 37' 18.289" E
	22	23° 36' 28.126" N	87° 37' 21.801" E
	23	23° 36' 31.809" N	87° 37' 24.371" E
	24	23° 36' 31.552" N	87° 37' 26.769" E
	25	23° 36' 29.582" N	87° 37' 29.511" E
	26	23° 36' 30.696" N	87° 37' 33.794" E
	27	23° 36' 32.409" N	87° 37' 38.762" E
	28	23° 36' 33.351" N	87° 37' 44.244" E
	29	23° 36' 34.208" N	87° 37' 51.097" E
	30	23° 36' 33.608" N	87° 37' 55.980" E
	31	23° 36' 30.610" N	87° 38' 3.004" E
BH_BL_AJ_48_49	1	23° 36' 34.501" N	87° 38' 19.244" E
	2	23° 36' 33.259" N	87° 38' 22.371" E
	3	23° 36' 31.760" N	87° 38' 24.726" E
	4	23° 36' 31.203" N	87° 38' 26.654" E
	5	23° 36' 31.289" N	87° 38' 27.682" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	6	23° 36' 30.518" N	87° 38' 29.523" E
	7	23° 36' 30.625" N	87° 38' 30.417" E
	8	23° 36' 30.352" N	87° 38' 31.060" E
	9	23° 36' 29.634" N	87° 38' 33.051" E
	10	23° 36' 28.976" N	87° 38' 34.235" E
	11	23° 36' 27.177" N	87° 38' 36.547" E
	12	23° 36' 28.119" N	87° 38' 29.737" E
	13	23° 36' 27.698" N	87° 38' 23.991" E
	14	23° 36' 26.841" N	87° 38' 20.993" E
	15	23° 36' 26.755" N	87° 38' 18.080" E
	16	23° 36' 28.640" N	87° 38' 13.968" E
	17	23° 36' 30.867" N	87° 38' 11.656" E
	18	23° 36' 34.288" N	87° 38' 10.663" E
	19	23° 36' 34.244" N	87° 38' 14.533" E
	20	23° 36' 34.630" N	87° 38' 16.503" E
BH_BL_AJ_50_51_53	1	23° 36' 22.295" N	87° 39' 27.301" E
	2	23° 36' 21.781" N	87° 39' 27.142" E
	3	23° 36' 19.873" N	87° 39' 25.595" E
	4	23° 36' 19.553" N	87° 39' 24.474" E
	5	23° 36' 19.339" N	87° 39' 23.489" E
	6	23° 36' 18.483" N	87° 39' 21.905" E
	7	23° 36' 16.849" N	87° 39' 20.932" E
	8	23° 36' 14.947" N	87° 39' 17.847" E
	9	23° 36' 14.533" N	87° 39' 16.926" E
	10	23° 36' 14.028" N	87° 39' 14.367" E
	11	23° 36' 12.958" N	87° 39' 11.283" E
	12	23° 36' 12.401" N	87° 39' 8.756" E
	13	23° 36' 12.401" N	87° 39' 6.357" E
	14	23° 36' 12.064" N	87° 39' 3.479" E
	15	23° 36' 16.968" N	87° 38' 47.562" E
	16	23° 36' 18.289" N	87° 38' 44.682" E
	17	23° 36' 20.003" N	87° 38' 38.617" E
	18	23° 36' 20.936" N	87° 38' 33.028" E
	19	23° 36' 21.010" N	87° 38' 33.421" E
	20	23° 36' 20.881" N	87° 38' 34.406" E
	21	23° 36' 20.967" N	87° 38' 36.376" E
	22	23° 36' 20.239" N	87° 38' 40.359" E
	23	23° 36' 18.703" N	87° 38' 44.508" E
	24	23° 36' 22.164" N	87° 38' 50.017" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	25	23° 36' 22.191" N	87° 38' 58.967" E
	26	23° 36' 22.077" N	87° 38' 59.739" E
	27	23° 36' 22.180" N	87° 39' 7.345" E
	28	23° 36' 26.754" N	87° 39' 17.625" E
	29	23° 36' 31.996" N	87° 39' 27.390" E
	30	23° 36' 39.552" N	87° 39' 33.249" E
	31	23° 37' 0.213" N	87° 39' 46.818" E
	32	23° 37' 8.848" N	87° 39' 53.705" E
	33	23° 37' 11.829" N	87° 39' 58.485" E
	34	23° 37' 13.231" N	87° 40' 3.320" E
	35	23° 37' 12.577" N	87° 40' 3.664" E
	36	23° 37' 11.035" N	87° 40' 3.621" E
	37	23° 37' 10.699" N	87° 40' 0.530" E
	38	23° 37' 9.843" N	87° 39' 57.018" E
	39	23° 37' 3.711" N	87° 39' 52.357" E
	40	23° 37' 2.469" N	87° 39' 51.586" E
	41	23° 37' 1.270" N	87° 39' 51.329" E
	42	23° 37' 0.713" N	87° 39' 50.601" E
	43	23° 36' 59.771" N	87° 39' 49.145" E
	44	23° 36' 58.957" N	87° 39' 47.988" E
	45	23° 36' 56.516" N	87° 39' 45.162" E
	46	23° 36' 54.760" N	87° 39' 44.391" E
	47	23° 36' 52.233" N	87° 39' 44.005" E
	48	23° 36' 50.948" N	87° 39' 43.962" E
	49	23° 36' 49.620" N	87° 39' 43.063" E
	50	23° 36' 48.764" N	87° 39' 43.277" E
	51	23° 36' 48.293" N	87° 39' 42.763" E
	52	23° 36' 48.120" N	87° 39' 42.318" E
	53	23° 36' 44.313" N	87° 39' 39.873" E
	54	23° 36' 40.423" N	87° 39' 40.397" E
	55	23° 36' 37.341" N	87° 39' 39.816" E
	56	23° 36' 29.438" N	87° 39' 31.597" E
	57	23° 36' 28.418" N	87° 39' 32.647" E
	58	23° 36' 28.002" N	87° 39' 32.187" E
BH_BL_AJ_54	1	23° 37' 14.676" N	87° 40' 43.154" E
	2	23° 37' 14.847" N	87° 40' 45.638" E
	3	23° 37' 14.590" N	87° 40' 46.280" E
	4	23° 37' 13.305" N	87° 40' 47.265" E
	5	23° 37' 12.834" N	87° 40' 48.765" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	6	23° 37' 11.764" N	87° 40' 50.992" E
	7	23° 37' 10.821" N	87° 40' 52.405" E
	8	23° 37' 8.466" N	87° 40' 54.718" E
	9	23° 37' 2.646" N	87° 41' 3.258" E
	10	23° 37' 0.783" N	87° 41' 5.542" E
	11	23° 36' 58.718" N	87° 41' 4.395" E
	12	23° 36' 57.272" N	87° 41' 4.575" E
	13	23° 36' 55.896" N	87° 41' 4.381" E
	14	23° 36' 54.868" N	87° 41' 3.442" E
	15	23° 36' 52.734" N	87° 40' 59.195" E
	16	23° 37' 2.318" N	87° 40' 48.893" E
	17	23° 37' 7.703" N	87° 40' 38.822" E
	18	23° 37' 8.108" N	87° 40' 21.554" E
	19	23° 37' 2.795" N	87° 40' 2.345" E
	20	23° 36' 57.691" N	87° 39' 55.117" E
	21	23° 36' 57.565" N	87° 39' 54.652" E
	22	23° 36' 59.649" N	87° 39' 55.648" E
	23	23° 37' 3.026" N	87° 39' 58.053" E
	24	23° 37' 6.673" N	87° 40' 1.215" E
	25	23° 37' 10.357" N	87° 40' 5.498" E
	26	23° 37' 12.327" N	87° 40' 11.923" E
	27	23° 37' 12.791" N	87° 40' 19.726" E
	28	23° 37' 12.749" N	87° 40' 21.824" E
	29	23° 37' 13.091" N	87° 40' 24.394" E
	30	23° 37' 13.605" N	87° 40' 25.465" E
	31	23° 37' 13.819" N	87° 40' 26.279" E
	32	23° 37' 14.586" N	87° 40' 33.732" E
	33	23° 37' 14.450" N	87° 40' 34.257" E
	34	23° 37' 15.206" N	87° 40' 40.157" E
	35	23° 37' 14.847" N	87° 40' 41.912" E
BH_BL_AJ_56_57	1	23° 37' 0.113" N	87° 41' 50.452" E
	2	23° 36' 55.300" N	87° 41' 53.085" E
	3	23° 36' 54.362" N	87° 41' 49.998" E
	4	23° 36' 52.854" N	87° 41' 47.052" E
	5	23° 36' 51.415" N	87° 41' 43.557" E
	6	23° 36' 51.346" N	87° 41' 41.706" E
	7	23° 36' 51.895" N	87° 41' 36.156" E
	8	23° 36' 52.580" N	87° 41' 32.181" E
	9	23° 36' 56.075" N	87° 41' 21.490" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	10	23° 36' 56.844" N	87° 41' 20.020" E
	11	23° 36' 56.966" N	87° 41' 23.847" E
	12	23° 36' 56.966" N	87° 41' 24.369" E
	13	23° 36' 56.829" N	87° 41' 25.808" E
	14	23° 36' 56.692" N	87° 41' 28.343" E
	15	23° 36' 56.143" N	87° 41' 31.221" E
	16	23° 36' 56.349" N	87° 41' 36.293" E
	17	23° 36' 56.417" N	87° 41' 39.513" E
	18	23° 36' 57.651" N	87° 41' 42.803" E
	19	23° 36' 58.542" N	87° 41' 44.653" E
	20	23° 36' 58.816" N	87° 41' 47.189" E
BH_BL_AJ_60	1	23° 36' 36.080" N	87° 43' 10.915" E
	2	23° 36' 39.926" N	87° 43' 5.996" E
	3	23° 36' 43.061" N	87° 43' 4.865" E
	4	23° 36' 45.002" N	87° 43' 3.526" E
	5	23° 36' 47.875" N	87° 43' 0.421" E
	6	23° 36' 49.476" N	87° 42' 58.595" E
	7	23° 36' 49.567" N	87° 42' 58.532" E
	8	23° 36' 49.664" N	87° 42' 58.379" E
	9	23° 36' 51.881" N	87° 42' 55.849" E
	10	23° 36' 53.441" N	87° 42' 53.415" E
	11	23° 36' 56.167" N	87° 42' 50.988" E
	12	23° 36' 56.733" N	87° 42' 44.358" E
	13	23° 36' 58.039" N	87° 42' 37.937" E
	14	23° 36' 59.983" N	87° 42' 37.942" E
	15	23° 37' 0.097" N	87° 42' 39.527" E
	16	23° 37' 1.619" N	87° 42' 46.198" E
	17	23° 37' 1.791" N	87° 42' 53.051" E
	18	23° 37' 0.334" N	87° 42' 55.535" E
	19	23° 36' 58.878" N	87° 42' 59.304" E
	20	23° 36' 56.994" N	87° 43' 0.417" E
	21	23° 36' 55.023" N	87° 43' 0.931" E
	22	23° 36' 53.417" N	87° 43' 1.069" E
	23	23° 36' 52.237" N	87° 43' 3.050" E
	24	23° 36' 49.839" N	87° 43' 5.448" E
	25	23° 36' 48.837" N	87° 43' 5.559" E
	26	23° 36' 47.025" N	87° 43' 6.801" E
	27	23° 36' 46.549" N	87° 43' 7.367" E
	28	23° 36' 44.973" N	87° 43' 8.806" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	29	23° 36' 43.466" N	87° 43' 9.286" E
	30	23° 36' 42.575" N	87° 43' 10.040" E
	31	23° 36' 40.245" N	87° 43' 10.382" E
	32	23° 36' 39.011" N	87° 43' 10.999" E
BH_BL_AJ_61	1	23° 36' 27.704" N	87° 43' 20.867" E
	2	23° 36' 26.333" N	87° 43' 20.867" E
	3	23° 36' 28.212" N	87° 43' 19.520" E
	4	23° 36' 30.182" N	87° 43' 19.434" E
	5	23° 36' 32.409" N	87° 43' 19.091" E
	6	23° 36' 34.762" N	87° 43' 17.372" E
	7	23° 36' 35.516" N	87° 43' 17.509" E
	8	23° 36' 36.476" N	87° 43' 18.263" E
	9	23° 36' 35.653" N	87° 43' 20.113" E
	10	23° 36' 34.557" N	87° 43' 21.004" E
	11	23° 36' 33.392" N	87° 43' 21.415" E
	12	23° 36' 31.998" N	87° 43' 21.658" E
	13	23° 36' 29.075" N	87° 43' 21.347" E
BH_BL_AJ_61A	1	23° 36' 13.307" N	87° 43' 23.203" E
	2	23° 36' 9.452" N	87° 43' 23.203" E
	3	23° 36' 9.644" N	87° 43' 22.388" E
	4	23° 36' 12.686" N	87° 43' 19.924" E
	5	23° 36' 21.171" N	87° 43' 17.821" E
	6	23° 36' 20.097" N	87° 43' 18.537" E
	7	23° 36' 18.590" N	87° 43' 18.880" E
	8	23° 36' 16.819" N	87° 43' 22.946" E
BH_BL_AJ_62	1	23° 36' 7.214" N	87° 43' 32.722" E
	2	23° 36' 6.460" N	87° 43' 33.956" E
	3	23° 36' 6.758" N	87° 43' 34.292" E
	4	23° 36' 5.219" N	87° 43' 35.686" E
	5	23° 36' 5.630" N	87° 43' 37.125" E
	6	23° 35' 59.257" N	87° 43' 43.395" E
	7	23° 35' 54.786" N	87° 43' 46.881" E
	8	23° 35' 53.851" N	87° 43' 47.250" E
	9	23° 35' 55.564" N	87° 43' 44.783" E
	10	23° 35' 56.729" N	87° 43' 42.522" E
	11	23° 35' 57.551" N	87° 43' 41.289" E
	12	23° 35' 58.922" N	87° 43' 39.644" E
	13	23° 35' 59.176" N	87° 43' 38.774" E
	14	23° 36' 2.770" N	87° 43' 37.594" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	15	23° 36' 3.833" N	87° 43' 35.498" E
	16	23° 36' 4.884" N	87° 43' 34.710" E
	17	23° 36' 5.706" N	87° 43' 34.162" E
	18	23° 36' 5.940" N	87° 43' 32.197" E
	19	23° 36' 9.716" N	87° 43' 30.440" E
BH_BL_AJ_63	1	23° 35' 49.499" N	87° 43' 44.578" E
	2	23° 35' 49.432" N	87° 43' 44.602" E
	3	23° 35' 50.226" N	87° 43' 43.412" E
	4	23° 35' 53.361" N	87° 43' 39.969" E
	5	23° 35' 53.529" N	87° 43' 39.692" E
	6	23° 35' 53.765" N	87° 43' 39.592" E
	7	23° 35' 54.022" N	87° 43' 40.620" E
	8	23° 35' 53.817" N	87° 43' 41.443" E
	9	23° 35' 52.943" N	87° 43' 42.265" E
	10	23° 35' 51.504" N	87° 43' 43.653" E
	11	23° 35' 50.938" N	87° 43' 44.064" E
BH_BL_AJ_64	1	23° 35' 28.530" N	87° 43' 59.329" E
	2	23° 35' 25.651" N	87° 44' 0.202" E
	3	23° 35' 24.829" N	87° 44' 0.151" E
	4	23° 35' 25.086" N	87° 43' 58.969" E
	5	23° 35' 25.497" N	87° 43' 58.198" E
	6	23° 35' 26.063" N	87° 43' 57.427" E
	7	23° 35' 27.348" N	87° 43' 57.016" E
	8	23° 35' 27.759" N	87° 43' 56.810" E
	9	23° 35' 26.834" N	87° 43' 56.193" E
	10	23° 35' 27.039" N	87° 43' 55.885" E
	11	23° 35' 27.502" N	87° 43' 55.063" E
	12	23° 35' 28.375" N	87° 43' 54.343" E
	13	23° 35' 29.506" N	87° 43' 53.829" E
	14	23° 35' 30.791" N	87° 43' 53.675" E
	15	23° 35' 32.641" N	87° 43' 53.572" E
	16	23° 35' 33.926" N	87° 43' 53.675" E
	17	23° 35' 34.851" N	87° 43' 53.726" E
	18	23° 35' 35.879" N	87° 43' 54.035" E
	19	23° 35' 36.856" N	87° 43' 54.240" E
	20	23° 35' 37.524" N	87° 43' 54.446" E
	21	23° 35' 37.987" N	87° 43' 54.857" E
	22	23° 35' 39.066" N	87° 43' 54.960" E
	23	23° 35' 40.865" N	87° 43' 54.652" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	24	23° 35' 41.379" N	87° 43' 54.497" E
	25	23° 35' 42.664" N	87° 43' 53.264" E
	26	23° 35' 44.719" N	87° 43' 52.647" E
	27	23° 35' 45.490" N	87° 43' 52.904" E
	28	23° 35' 45.490" N	87° 43' 54.012" E
	29	23° 35' 42.047" N	87° 43' 55.268" E
	30	23° 35' 37.553" N	87° 43' 57.092" E
	31	23° 35' 33.302" N	87° 43' 58.403" E
	32	23° 35' 29.899" N	87° 43' 59.241" E
BH_BL_AJ_65	1	23° 35' 23.184" N	87° 43' 59.534" E
	2	23° 35' 22.722" N	87° 44' 1.230" E
	3	23° 35' 22.722" N	87° 44' 1.487" E
	4	23° 35' 22.311" N	87° 44' 1.898" E
	5	23° 35' 22.105" N	87° 44' 2.155" E
	6	23° 35' 21.077" N	87° 44' 2.310" E
	7	23° 35' 20.769" N	87° 44' 3.595" E
	8	23° 35' 20.255" N	87° 44' 4.109" E
	9	23° 35' 19.741" N	87° 44' 4.006" E
	10	23° 35' 19.689" N	87° 44' 3.183" E
	11	23° 35' 19.895" N	87° 44' 2.310" E
	12	23° 35' 20.666" N	87° 44' 0.511" E
	13	23° 35' 21.540" N	87° 43' 59.380" E
	14	23° 35' 22.413" N	87° 43' 58.352" E
	15	23° 35' 22.825" N	87° 43' 57.581" E
	16	23° 35' 23.698" N	87° 43' 56.759" E
	17	23° 35' 24.418" N	87° 43' 56.862" E
	18	23° 35' 24.264" N	87° 43' 57.787" E
	19	23° 35' 23.801" N	87° 43' 58.455" E
BH_BL_AJ_66	1	23° 35' 10.296" N	87° 44' 17.427" E
	2	23° 35' 11.203" N	87° 44' 15.713" E
	3	23° 35' 12.402" N	87° 44' 15.884" E
	4	23° 35' 13.897" N	87° 44' 17.581" E
	5	23° 35' 13.984" N	87° 44' 19.373" E
	6	23° 35' 14.293" N	87° 44' 20.555" E
	7	23° 35' 14.639" N	87° 44' 22.134" E
	8	23° 35' 16.079" N	87° 44' 24.653" E
	9	23° 35' 16.535" N	87° 44' 25.450" E
BH_BL_AJ_67	1	23° 35' 35.188" N	87° 44' 39.304" E
	2	23° 35' 35.027" N	87° 44' 37.477" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	3	23° 35' 36.951" N	87° 44' 38.030" E
	4	23° 35' 38.801" N	87° 44' 39.263" E
	5	23° 35' 39.932" N	87° 44' 41.267" E
	6	23° 35' 40.703" N	87° 44' 45.533" E
	7	23° 35' 40.710" N	87° 44' 46.357" E
	8	23° 35' 40.042" N	87° 44' 47.024" E
	9	23° 35' 37.141" N	87° 44' 42.593" E
	10	23° 35' 36.216" N	87° 44' 41.206" E
BH_BL_AJ_69	1	23° 35' 35.674" N	87° 44' 57.715" E
	2	23° 35' 35.314" N	87° 44' 59.103" E
	3	23° 35' 36.136" N	87° 45' 1.210" E
	4	23° 35' 36.188" N	87° 45' 1.981" E
	5	23° 35' 35.828" N	87° 45' 3.677" E
	6	23° 35' 35.006" N	87° 45' 4.294" E
	7	23° 35' 34.183" N	87° 45' 5.116" E
	8	23° 35' 33.515" N	87° 45' 6.093" E
	9	23° 35' 32.539" N	87° 45' 6.812" E
	10	23° 35' 31.819" N	87° 45' 7.223" E
	11	23° 35' 30.842" N	87° 45' 9.382" E
	12	23° 35' 29.146" N	87° 45' 12.363" E
	13	23° 35' 28.372" N	87° 45' 14.041" E
	14	23° 35' 25.268" N	87° 45' 18.108" E
	15	23° 35' 25.124" N	87° 45' 18.093" E
	16	23° 35' 32.545" N	87° 45' 5.441" E
	17	23° 35' 34.910" N	87° 44' 59.736" E
	18	23° 35' 36.761" N	87° 44' 52.085" E
	19	23° 35' 36.804" N	87° 44' 52.421" E
	20	23° 35' 36.445" N	87° 44' 54.631" E
BH_BL_AJ_71	1	23° 35' 12.418" N	87° 45' 47.682" E
	2	23° 35' 12.288" N	87° 45' 47.724" E
	3	23° 35' 13.162" N	87° 45' 45.411" E
	4	23° 35' 13.933" N	87° 45' 44.537" E
	5	23° 35' 14.961" N	87° 45' 43.715" E
	6	23° 35' 15.578" N	87° 45' 43.098" E
	7	23° 35' 16.863" N	87° 45' 42.584" E
	8	23° 35' 18.045" N	87° 45' 41.864" E
	9	23° 35' 18.628" N	87° 45' 41.772" E
BH_BL_AJ_72	1	23° 35' 6.213" N	87° 45' 46.101" E
	2	23° 35' 11.310" N	87° 45' 42.499" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	3	23° 35' 10.747" N	87° 45' 43.663" E
	4	23° 35' 9.616" N	87° 45' 45.257" E
	5	23° 35' 7.817" N	87° 45' 46.079" E
BH_BL_AJ_73	1	23° 34' 55.430" N	87° 45' 54.868" E
	2	23° 34' 54.392" N	87° 45' 54.206" E
	3	23° 34' 57.179" N	87° 45' 52.310" E
	4	23° 35' 1.084" N	87° 45' 50.448" E
	5	23° 35' 1.761" N	87° 45' 49.247" E
	6	23° 35' 3.020" N	87° 45' 48.357" E
	7	23° 35' 4.939" N	87° 45' 48.392" E
	8	23° 35' 5.915" N	87° 45' 48.289" E
	9	23° 35' 6.892" N	87° 45' 48.238" E
	10	23° 35' 7.868" N	87° 45' 47.929" E
	11	23° 35' 11.774" N	87° 45' 45.565" E
	12	23° 35' 11.877" N	87° 45' 46.953" E
	13	23° 35' 11.363" N	87° 45' 48.032" E
	14	23° 35' 10.490" N	87° 45' 48.906" E
	15	23° 35' 9.359" N	87° 45' 49.060" E
	16	23° 35' 6.892" N	87° 45' 50.036" E
	17	23° 35' 2.626" N	87° 45' 52.915" E
	18	23° 34' 58.555" N	87° 45' 54.120" E
	19	23° 34' 57.116" N	87° 45' 55.302" E
BH_BL_AJ_75	1	23° 34' 46.443" N	87° 46' 18.259" E
	2	23° 34' 46.374" N	87° 46' 13.119" E
	3	23° 34' 47.896" N	87° 46' 10.894" E
	4	23° 34' 48.176" N	87° 46' 13.832" E
	5	23° 34' 53.881" N	87° 46' 26.013" E
	6	23° 34' 55.997" N	87° 46' 27.352" E
	7	23° 34' 56.150" N	87° 46' 27.813" E
	8	23° 34' 54.351" N	87° 46' 26.785" E
	9	23° 34' 50.599" N	87° 46' 25.294" E
	10	23° 34' 49.395" N	87° 46' 25.375" E
	11	23° 34' 48.449" N	87° 46' 24.520" E
BH_BL_AJ_77	1	23° 35' 0.262" N	87° 47' 0.809" E
	2	23° 34' 59.080" N	87° 47' 1.375" E
	3	23° 34' 56.715" N	87° 47' 2.916" E
	4	23° 34' 52.226" N	87° 47' 4.016" E
	5	23° 34' 40.069" N	87° 47' 4.516" E
	6	23° 34' 38.431" N	87° 47' 3.665" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	7	23° 34' 48.143" N	87° 47' 1.976" E
	8	23° 34' 50.587" N	87° 47' 0.443" E
	9	23° 34' 52.579" N	87° 46' 59.685" E
	10	23° 34' 54.840" N	87° 46' 56.807" E
	11	23° 35' 0.134" N	87° 46' 45.346" E
	12	23° 34' 59.791" N	87° 46' 41.585" E
	13	23° 34' 59.852" N	87° 46' 40.565" E
	14	23° 35' 0.110" N	87° 46' 39.450" E
	15	23° 35' 0.212" N	87° 46' 37.840" E
	16	23° 35' 0.007" N	87° 46' 36.743" E
	17	23° 34' 59.437" N	87° 46' 35.806" E
	18	23° 35' 1.245" N	87° 46' 36.693" E
	19	23° 35' 1.861" N	87° 46' 39.846" E
	20	23° 35' 3.232" N	87° 46' 46.287" E
	21	23° 35' 4.322" N	87° 46' 55.413" E
	22	23° 35' 3.500" N	87° 46' 57.314" E
BH_BL_AJ_78	1	23° 34' 24.000" N	87° 47' 35.180" E
	2	23° 34' 23.505" N	87° 47' 36.786" E
	3	23° 34' 22.549" N	87° 47' 38.368" E
	4	23° 34' 18.843" N	87° 47' 21.307" E
	5	23° 34' 18.669" N	87° 47' 17.459" E
	6	23° 34' 19.788" N	87° 47' 10.944" E
	7	23° 34' 22.732" N	87° 47' 8.541" E
	8	23° 34' 26.734" N	87° 47' 6.548" E
	9	23° 34' 29.421" N	87° 47' 6.042" E
	10	23° 34' 32.350" N	87° 47' 8.740" E
	11	23° 34' 29.496" N	87° 47' 10.699" E
	12	23° 34' 28.341" N	87° 47' 11.214" E
	13	23° 34' 27.753" N	87° 47' 11.680" E
	14	23° 34' 27.751" N	87° 47' 11.684" E
	15	23° 34' 25.187" N	87° 47' 16.806" E
BH_BL_AJ_79	1	23° 34' 3.775" N	87° 47' 55.548" E
	2	23° 34' 2.184" N	87° 47' 55.957" E
	3	23° 34' 2.749" N	87° 47' 55.444" E
	4	23° 33' 59.254" N	87° 47' 56.112" E
	5	23° 33' 59.133" N	87° 47' 55.958" E
	6	23° 34' 1.471" N	87° 47' 54.997" E
	7	23° 34' 7.587" N	87° 47' 51.657" E
	8	23° 34' 15.965" N	87° 47' 45.746" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	9	23° 34' 18.520" N	87° 47' 42.629" E
	10	23° 34' 18.620" N	87° 47' 42.755" E
	11	23° 34' 18.277" N	87° 47' 46.729" E
	12	23° 34' 16.975" N	87° 47' 48.991" E
	13	23° 34' 14.440" N	87° 47' 50.841" E
BH_BL_AJ_80	1	23° 33' 37.810" N	87° 48' 18.330" E
	2	23° 33' 37.557" N	87° 48' 19.034" E
	3	23° 33' 37.865" N	87° 48' 22.323" E
	4	23° 33' 47.754" N	87° 48' 45.574" E
	5	23° 33' 47.690" N	87° 48' 45.863" E
	6	23° 33' 44.452" N	87° 48' 41.700" E
	7	23° 33' 37.625" N	87° 48' 29.430" E
	8	23° 33' 35.308" N	87° 48' 27.886" E
	9	23° 33' 34.794" N	87° 48' 25.328" E
	10	23° 33' 35.383" N	87° 48' 23.742" E
	11	23° 33' 35.131" N	87° 48' 19.298" E
	12	23° 33' 35.424" N	87° 48' 15.940" E
	13	23° 33' 36.128" N	87° 48' 12.920" E
	14	23° 33' 37.925" N	87° 48' 9.834" E
	15	23° 33' 40.793" N	87° 48' 6.871" E
	16	23° 33' 46.148" N	87° 48' 4.036" E
	17	23° 33' 49.979" N	87° 48' 1.145" E
	18	23° 33' 52.334" N	87° 47' 59.990" E
	19	23° 33' 55.967" N	87° 48' 0.572" E
	20	23° 33' 56.172" N	87° 48' 1.276" E
	21	23° 33' 52.513" N	87° 48' 4.797" E
	22	23° 33' 40.859" N	87° 48' 13.583" E
BH_BL_AJ_81	1	23° 34' 3.674" N	87° 49' 15.622" E
	2	23° 34' 2.310" N	87° 49' 16.022" E
	3	23° 34' 2.105" N	87° 49' 16.913" E
	4	23° 33' 56.828" N	87° 49' 10.403" E
	5	23° 33' 56.143" N	87° 48' 58.547" E
	6	23° 33' 54.704" N	87° 48' 57.314" E
	7	23° 33' 54.236" N	87° 48' 56.090" E
	8	23° 33' 56.633" N	87° 48' 56.605" E
	9	23° 33' 55.183" N	87° 48' 55.395" E
	10	23° 33' 56.163" N	87° 48' 55.679" E
	11	23° 33' 58.531" N	87° 48' 56.052" E
	12	23° 34' 0.231" N	87° 48' 56.914" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	13	23° 34' 0.781" N	87° 48' 57.971" E
	14	23° 34' 2.801" N	87° 49' 4.983" E
	15	23° 34' 3.417" N	87° 49' 6.011" E
	16	23° 34' 3.586" N	87° 49' 7.218" E
	17	23° 34' 3.204" N	87° 49' 9.402" E
	18	23° 34' 3.543" N	87° 49' 10.186" E
	19	23° 34' 3.225" N	87° 49' 12.363" E
BH_BL_AJ_83_84	1	23° 34' 9.122" N	87° 49' 50.160" E
	2	23° 34' 8.043" N	87° 49' 51.753" E
	3	23° 34' 7.893" N	87° 49' 52.304" E
	4	23° 34' 6.868" N	87° 49' 42.827" E
	5	23° 34' 5.223" N	87° 49' 33.627" E
	6	23° 34' 3.218" N	87° 49' 28.436" E
	7	23° 34' 1.836" N	87° 49' 21.901" E
	8	23° 34' 4.846" N	87° 49' 23.834" E
	9	23° 34' 5.895" N	87° 49' 25.959" E
	10	23° 34' 6.559" N	87° 49' 26.712" E
	11	23° 34' 9.026" N	87° 49' 33.428" E
	12	23° 34' 8.711" N	87° 49' 38.802" E
	13	23° 34' 9.533" N	87° 49' 40.703" E
	14	23° 34' 9.945" N	87° 49' 42.502" E
BH_BL_AJ_87_88A	1	23° 34' 12.774" N	87° 50' 8.475" E
	2	23° 34' 12.749" N	87° 50' 8.623" E
	3	23° 34' 12.566" N	87° 50' 8.691" E
	4	23° 34' 10.424" N	87° 50' 9.484" E
	5	23° 34' 10.177" N	87° 50' 9.594" E
	6	23° 34' 9.354" N	87° 50' 9.960" E
	7	23° 34' 8.074" N	87° 50' 10.529" E
	8	23° 34' 7.678" N	87° 50' 10.705" E
	9	23° 34' 7.690" N	87° 50' 10.684" E
	10	23° 34' 7.656" N	87° 50' 10.029" E
	11	23° 34' 7.433" N	87° 50' 5.750" E
	12	23° 34' 8.204" N	87° 50' 1.227" E
	13	23° 34' 8.519" N	87° 49' 57.081" E
	14	23° 34' 12.420" N	87° 49' 56.988" E
	15	23° 34' 13.329" N	87° 50' 5.167" E
	16	23° 34' 12.871" N	87° 50' 7.895" E
BH_NN_AJ_87_88B	1	23° 34' 12.616" N	87° 50' 9.416" E
	2	23° 34' 12.433" N	87° 50' 13.458" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	3	23° 34' 10.271" N	87° 50' 16.835" E
	4	23° 34' 9.907" N	87° 50' 17.617" E
	5	23° 34' 8.734" N	87° 50' 20.138" E
	6	23° 34' 8.197" N	87° 50' 20.969" E
	7	23° 34' 1.651" N	87° 50' 29.042" E
	8	23° 33' 58.747" N	87° 50' 31.927" E
	9	23° 33' 53.864" N	87° 50' 35.567" E
	10	23° 33' 53.036" N	87° 50' 36.134" E
	11	23° 33' 42.912" N	87° 50' 39.130" E
	12	23° 33' 39.229" N	87° 50' 41.528" E
	13	23° 33' 34.089" N	87° 50' 41.571" E
	14	23° 33' 30.920" N	87° 50' 42.342" E
	15	23° 33' 25.780" N	87° 50' 42.214" E
	16	23° 33' 20.769" N	87° 50' 43.327" E
	17	23° 33' 11.389" N	87° 50' 43.113" E
	18	23° 33' 4.622" N	87° 50' 43.199" E
	19	23° 33' 2.814" N	87° 50' 43.199" E
	20	23° 33' 1.538" N	87° 50' 45.083" E
	21	23° 33' 1.281" N	87° 50' 48.039" E
	22	23° 33' 4.707" N	87° 50' 46.068" E
	23	23° 33' 9.231" N	87° 50' 46.181" E
	24	23° 33' 8.724" N	87° 50' 46.284" E
	25	23° 33' 3.995" N	87° 50' 52.658" E
	26	23° 33' 2.762" N	87° 51' 4.684" E
	27	23° 33' 2.844" N	87° 51' 16.763" E
	28	23° 33' 2.245" N	87° 51' 14.888" E
	29	23° 33' 2.360" N	87° 51' 11.802" E
	30	23° 33' 0.442" N	87° 50' 57.479" E
	31	23° 33' 0.442" N	87° 50' 50.558" E
	32	23° 32' 59.932" N	87° 50' 49.834" E
	33	23° 33' 1.373" N	87° 50' 44.276" E
	34	23° 33' 4.164" N	87° 50' 42.190" E
	35	23° 33' 8.030" N	87° 50' 41.617" E
	36	23° 33' 9.397" N	87° 50' 42.079" E
	37	23° 33' 15.416" N	87° 50' 41.933" E
	38	23° 33' 19.587" N	87° 50' 41.831" E
	39	23° 33' 22.920" N	87° 50' 39.120" E
	40	23° 33' 31.610" N	87° 50' 39.260" E
	41	23° 33' 42.814" N	87° 50' 36.433" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	42	23° 33' 49.753" N	87° 50' 33.041" E
	43	23° 33' 59.312" N	87° 50' 22.813" E
	44	23° 34' 4.812" N	87° 50' 15.824" E
	45	23° 34' 6.966" N	87° 50' 11.977" E
	46	23° 34' 7.387" N	87° 50' 11.225" E
	47	23° 34' 7.678" N	87° 50' 10.705" E
	48	23° 34' 8.074" N	87° 50' 10.529" E
	49	23° 34' 9.354" N	87° 50' 9.960" E
	50	23° 34' 10.177" N	87° 50' 9.594" E
	51	23° 34' 10.424" N	87° 50' 9.484" E
	52	23° 34' 12.566" N	87° 50' 8.691" E
	53	23° 34' 12.749" N	87° 50' 8.623" E
BH_NN_AJ_90	1	23° 33' 1.802" N	87° 51' 31.929" E
	2	23° 33' 1.288" N	87° 51' 32.957" E
	3	23° 33' 1.288" N	87° 51' 34.345" E
	4	23° 33' 1.740" N	87° 51' 35.065" E
	5	23° 33' 1.430" N	87° 51' 36.760" E
	6	23° 33' 0.825" N	87° 51' 36.298" E
	7	23° 32' 59.000" N	87° 51' 41.066" E
	8	23° 32' 58.608" N	87° 51' 34.827" E
	9	23° 33' 0.032" N	87° 51' 28.482" E
	10	23° 33' 0.517" N	87° 51' 28.845" E
	11	23° 33' 0.876" N	87° 51' 30.130" E
	12	23° 33' 1.699" N	87° 51' 30.593" E
	13	23° 33' 2.470" N	87° 51' 29.925" E
	14	23° 33' 2.657" N	87° 51' 30.065" E
	15	23° 33' 2.492" N	87° 51' 30.962" E
BH_NN_AJ_91	1	23° 33' 0.544" N	87° 51' 45.638" E
	2	23° 32' 59.702" N	87° 51' 43.464" E
	3	23° 33' 1.094" N	87° 51' 41.144" E
	4	23° 33' 2.865" N	87° 51' 59.113" E
	5	23° 33' 5.177" N	87° 52' 3.636" E
	6	23° 33' 11.054" N	87° 52' 8.943" E
	7	23° 33' 9.115" N	87° 52' 8.031" E
	8	23° 33' 3.560" N	87° 52' 4.140" E
	9	23° 33' 2.600" N	87° 52' 0.371" E
BH_NN_AJ_92	1	23° 33' 26.918" N	87° 52' 27.946" E
	2	23° 33' 28.409" N	87° 52' 32.058" E
	3	23° 33' 29.046" N	87° 52' 34.050" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	4	23° 33' 28.754" N	87° 52' 34.616" E
	5	23° 33' 27.359" N	87° 52' 35.368" E
	6	23° 33' 24.322" N	87° 52' 36.975" E
	7	23° 33' 23.471" N	87° 52' 37.586" E
	8	23° 33' 23.371" N	87° 52' 37.841" E
	9	23° 33' 23.051" N	87° 52' 38.651" E
	10	23° 33' 17.903" N	87° 52' 41.401" E
	11	23° 33' 16.884" N	87° 52' 36.616" E
	12	23° 33' 16.577" N	87° 52' 32.374" E
	13	23° 33' 15.995" N	87° 52' 28.308" E
	14	23° 33' 16.007" N	87° 52' 26.039" E
	15	23° 33' 15.759" N	87° 52' 24.736" E
	16	23° 33' 16.448" N	87° 52' 22.875" E
	17	23° 33' 16.100" N	87° 52' 21.770" E
	18	23° 33' 15.957" N	87° 52' 21.317" E
	19	23° 33' 13.967" N	87° 52' 17.701" E
	20	23° 33' 13.842" N	87° 52' 17.513" E
	21	23° 33' 11.925" N	87° 52' 14.652" E
	22	23° 33' 11.898" N	87° 52' 14.625" E
	23	23° 33' 14.159" N	87° 52' 11.991" E
	24	23° 33' 14.808" N	87° 52' 12.333" E
	25	23° 33' 15.251" N	87° 52' 12.733" E
	26	23° 33' 16.431" N	87° 52' 14.269" E
	27	23° 33' 17.432" N	87° 52' 15.573" E
	28	23° 33' 18.942" N	87° 52' 17.032" E
	29	23° 33' 19.828" N	87° 52' 17.889" E
	30	23° 33' 20.729" N	87° 52' 18.760" E
	31	23° 33' 21.416" N	87° 52' 19.443" E
	32	23° 33' 23.213" N	87° 52' 21.229" E
	33	23° 33' 23.940" N	87° 52' 22.834" E
	34	23° 33' 25.022" N	87° 52' 25.223" E
	35	23° 33' 25.870" N	87° 52' 26.441" E
BH_NN_AJ_93	1	23° 33' 6.040" N	87° 53' 30.075" E
	2	23° 33' 5.387" N	87° 53' 29.542" E
	3	23° 33' 18.195" N	87° 53' 29.331" E
	4	23° 33' 24.363" N	87° 53' 28.251" E
	5	23° 33' 26.573" N	87° 53' 27.583" E
	6	23° 33' 27.806" N	87° 53' 25.425" E
	7	23° 33' 28.507" N	87° 53' 23.124" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	8	23° 33' 29.093" N	87° 53' 24.590" E
	9	23° 33' 29.196" N	87° 53' 26.132" E
	10	23° 33' 28.629" N	87° 53' 26.887" E
	11	23° 33' 21.664" N	87° 53' 31.994" E
	12	23° 33' 18.512" N	87° 53' 34.872" E
	13	23° 33' 15.633" N	87° 53' 34.187" E
	14	23° 33' 11.361" N	87° 53' 32.608" E
	15	23° 33' 9.819" N	87° 53' 31.734" E
BH_NN_AJ_94	1	23° 32' 30.206" N	87° 54' 2.906" E
	2	23° 32' 30.062" N	87° 53' 58.514" E
	3	23° 32' 32.598" N	87° 53' 52.278" E
	4	23° 32' 35.407" N	87° 53' 49.400" E
	5	23° 32' 37.737" N	87° 53' 46.453" E
	6	23° 32' 39.382" N	87° 53' 47.070" E
	7	23° 32' 44.796" N	87° 53' 42.684" E
	8	23° 32' 46.509" N	87° 53' 40.834" E
	9	23° 32' 50.895" N	87° 53' 38.504" E
	10	23° 32' 55.692" N	87° 53' 34.529" E
	11	23° 33' 0.078" N	87° 53' 32.953" E
	12	23° 33' 1.766" N	87° 53' 33.473" E
	13	23° 32' 55.155" N	87° 53' 37.640" E
	14	23° 32' 44.516" N	87° 53' 43.139" E
	15	23° 32' 37.937" N	87° 53' 48.587" E
	16	23° 32' 34.134" N	87° 53' 53.316" E
	17	23° 32' 30.947" N	87° 53' 59.895" E
	18	23° 32' 30.701" N	87° 54' 3.897" E
BH_NN_AJ_95	1	23° 33' 2.389" N	87° 54' 36.882" E
	2	23° 33' 1.893" N	87° 54' 36.608" E
	3	23° 33' 2.307" N	87° 54' 35.742" E
	4	23° 33' 2.505" N	87° 54' 35.821" E
	5	23° 33' 12.219" N	87° 54' 36.078" E
	6	23° 33' 13.796" N	87° 54' 36.514" E
	7	23° 33' 11.659" N	87° 54' 37.027" E
	8	23° 33' 6.588" N	87° 54' 37.096" E
BH_NN_AJ_96	1	23° 33' 18.808" N	87° 54' 42.199" E
	2	23° 33' 22.244" N	87° 54' 42.175" E
	3	23° 33' 24.405" N	87° 54' 42.989" E
	4	23° 33' 25.650" N	87° 54' 43.072" E
	5	23° 33' 33.862" N	87° 54' 49.088" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	6	23° 33' 39.207" N	87° 54' 53.954" E
	7	23° 33' 42.733" N	87° 54' 57.691" E
	8	23° 33' 38.959" N	87° 54' 55.625" E
	9	23° 33' 37.366" N	87° 54' 54.906" E
	10	23° 33' 33.666" N	87° 54' 52.079" E
	11	23° 33' 29.502" N	87° 54' 49.252" E
	12	23° 33' 26.933" N	87° 54' 47.607" E
	13	23° 33' 21.330" N	87° 54' 44.369" E
BH_NN_AJ_97	1	23° 34' 22.545" N	87° 55' 33.492" E
	2	23° 34' 21.833" N	87° 55' 33.008" E
	3	23° 34' 21.901" N	87° 55' 32.086" E
	4	23° 34' 20.975" N	87° 55' 30.903" E
	5	23° 34' 19.331" N	87° 55' 29.259" E
	6	23° 34' 17.018" N	87° 55' 26.689" E
	7	23° 34' 14.962" N	87° 55' 22.423" E
	8	23° 34' 13.947" N	87° 55' 21.315" E
	9	23° 34' 15.080" N	87° 55' 17.454" E
	10	23° 34' 16.053" N	87° 55' 18.274" E
	11	23° 34' 17.562" N	87° 55' 19.923" E
	12	23° 34' 22.659" N	87° 55' 28.542" E
	13	23° 34' 23.949" N	87° 55' 33.236" E
	14	23° 34' 23.676" N	87° 55' 33.441" E
	15	23° 34' 23.059" N	87° 55' 34.263" E
BH_NN_AJ_97A	1	23° 34' 1.362" N	87° 55' 15.998" E
	2	23° 34' 1.376" N	87° 55' 15.656" E
	3	23° 34' 5.060" N	87° 55' 17.712" E
	4	23° 34' 12.940" N	87° 55' 26.192" E
	5	23° 34' 14.825" N	87° 55' 31.246" E
	6	23° 34' 5.377" N	87° 55' 19.936" E
BH_NN_AJ_99	1	23° 35' 32.553" N	87° 56' 8.577" E
	2	23° 35' 30.840" N	87° 56' 3.986" E
	3	23° 35' 31.365" N	87° 56' 1.555" E
	4	23° 35' 32.342" N	87° 56' 2.788" E
	5	23° 35' 33.262" N	87° 56' 3.295" E
	6	23° 35' 35.512" N	87° 56' 7.666" E
	7	23° 35' 35.681" N	87° 56' 11.261" E
	8	23° 35' 35.551" N	87° 56' 11.508" E
	9	23° 35' 34.130" N	87° 56' 10.633" E
BH_NN_AJ_100	1	23° 35' 42.421" N	87° 56' 44.966" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	2	23° 35' 42.421" N	87° 56' 41.539" E
	3	23° 35' 42.807" N	87° 56' 40.664" E
	4	23° 35' 44.403" N	87° 56' 44.106" E
	5	23° 35' 46.819" N	87° 56' 47.755" E
	6	23° 35' 49.629" N	87° 56' 49.428" E
	7	23° 35' 46.405" N	87° 56' 48.804" E
	8	23° 35' 44.751" N	87° 56' 47.021" E
	9	23° 35' 42.421" N	87° 56' 44.966" E
BH_NN_AJ_101_102	1	23° 36' 44.958" N	87° 56' 57.883" E
	2	23° 36' 43.200" N	87° 56' 58.489" E
	3	23° 36' 43.731" N	87° 56' 58.810" E
	4	23° 36' 44.605" N	87° 57' 0.044" E
	5	23° 36' 44.601" N	87° 57' 0.059" E
	6	23° 36' 34.056" N	87° 56' 58.001" E
	7	23° 36' 29.237" N	87° 56' 56.600" E
	8	23° 36' 27.644" N	87° 56' 56.754" E
	9	23° 36' 26.728" N	87° 56' 56.602" E
	10	23° 36' 23.714" N	87° 56' 56.019" E
	11	23° 36' 22.659" N	87° 56' 55.624" E
	12	23° 36' 20.811" N	87° 56' 55.169" E
	13	23° 36' 29.838" N	87° 56' 55.207" E
	14	23° 36' 40.014" N	87° 56' 56.647" E
	15	23° 36' 43.649" N	87° 56' 57.179" E
BH_NN_AJ_107	1	23° 37' 22.222" N	87° 57' 10.724" E
	2	23° 37' 24.797" N	87° 57' 11.813" E
	3	23° 37' 26.544" N	87° 57' 12.327" E
	4	23° 37' 28.651" N	87° 57' 13.201" E
	5	23° 37' 30.862" N	87° 57' 14.383" E
	6	23° 37' 35.048" N	87° 57' 18.575" E
	7	23° 37' 38.303" N	87° 57' 24.057" E
	8	23° 37' 42.638" N	87° 57' 29.075" E
	9	23° 37' 41.968" N	87° 57' 31.034" E
	10	23° 37' 40.625" N	87° 57' 26.988" E
	11	23° 37' 38.158" N	87° 57' 24.212" E
	12	23° 37' 35.280" N	87° 57' 23.441" E
	13	23° 37' 30.603" N	87° 57' 17.171" E
	14	23° 37' 25.832" N	87° 57' 15.079" E
BH_NN_AJ_109	1	23° 37' 39.291" N	87° 57' 20.756" E
	2	23° 37' 38.863" N	87° 57' 20.134" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	3	23° 37' 40.014" N	87° 57' 19.328" E
	4	23° 37' 42.481" N	87° 57' 20.014" E
	5	23° 37' 45.037" N	87° 57' 22.066" E
	6	23° 37' 44.271" N	87° 57' 24.304" E
	7	23° 37' 43.566" N	87° 57' 26.365" E
	8	23° 37' 41.449" N	87° 57' 25.382" E
	9	23° 37' 40.318" N	87° 57' 22.452" E
PO_BH_KR_AH_01	1	23° 51' 1.090" N	87° 10' 49.862" E
	2	23° 51' 0.988" N	87° 10' 49.619" E
	3	23° 51' 1.095" N	87° 10' 49.340" E
	4	23° 51' 1.266" N	87° 10' 49.062" E
	5	23° 51' 1.652" N	87° 10' 48.955" E
	6	23° 51' 2.016" N	87° 10' 48.741" E
	7	23° 51' 2.359" N	87° 10' 48.334" E
	8	23° 51' 2.958" N	87° 10' 48.441" E
	9	23° 51' 3.622" N	87° 10' 48.248" E
	10	23° 51' 4.200" N	87° 10' 48.291" E
	11	23° 51' 5.464" N	87° 10' 48.719" E
	12	23° 51' 5.432" N	87° 10' 48.782" E
	13	23° 51' 5.342" N	87° 10' 48.735" E
	14	23° 51' 4.927" N	87° 10' 48.945" E
	15	23° 51' 4.550" N	87° 10' 48.863" E
	16	23° 51' 2.751" N	87° 10' 48.962" E
BH_KR_AH_02	1	23° 50' 58.143" N	87° 10' 52.333" E
	2	23° 50' 57.586" N	87° 10' 53.068" E
	3	23° 50' 57.626" N	87° 10' 52.788" E
	4	23° 50' 57.776" N	87° 10' 52.253" E
	5	23° 50' 58.097" N	87° 10' 51.910" E
	6	23° 50' 58.733" N	87° 10' 51.561" E
BH_KR_AH_03	1	23° 50' 53.129" N	87° 10' 56.043" E
	2	23° 50' 52.886" N	87° 10' 55.980" E
	3	23° 50' 55.013" N	87° 10' 54.954" E
	4	23° 50' 55.414" N	87° 10' 54.455" E
	5	23° 50' 55.751" N	87° 10' 54.407" E
	6	23° 50' 55.442" N	87° 10' 54.630" E
	7	23° 50' 55.227" N	87° 10' 54.930" E
	8	23° 50' 55.035" N	87° 10' 55.144" E
	9	23° 50' 54.799" N	87° 10' 55.230" E
	10	23° 50' 54.521" N	87° 10' 55.337" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	11	23° 50' 54.157" N	87° 10' 55.444" E
	12	23° 50' 53.707" N	87° 10' 55.722" E
	13	23° 50' 53.429" N	87° 10' 55.958" E
BH_KR_AH_04	1	23° 50' 50.323" N	87° 10' 58.699" E
	2	23° 50' 50.323" N	87° 10' 58.528" E
	3	23° 50' 50.944" N	87° 10' 57.907" E
	4	23° 50' 52.037" N	87° 10' 57.200" E
	5	23° 50' 52.251" N	87° 10' 57.278" E
	6	23° 50' 51.448" N	87° 10' 57.742" E
	7	23° 50' 50.878" N	87° 10' 58.355" E
	8	23° 50' 50.730" N	87° 10' 58.547" E
BH_KR_AH_05	1	23° 50' 45.355" N	87° 11' 4.267" E
	2	23° 50' 45.055" N	87° 11' 4.524" E
	3	23° 50' 44.563" N	87° 11' 4.438" E
	4	23° 50' 44.263" N	87° 11' 4.545" E
	5	23° 50' 44.107" N	87° 11' 4.537" E
	6	23° 50' 45.021" N	87° 11' 3.887" E
	7	23° 50' 45.088" N	87° 11' 3.784" E
	8	23° 50' 45.016" N	87° 11' 3.583" E
	9	23° 50' 46.003" N	87° 11' 3.095" E
	10	23° 50' 46.327" N	87° 11' 2.715" E
	11	23° 50' 46.738" N	87° 11' 2.576" E
	12	23° 50' 47.450" N	87° 11' 1.642" E
	13	23° 50' 47.454" N	87° 11' 1.975" E
	14	23° 50' 46.790" N	87° 11' 2.789" E
	15	23° 50' 46.233" N	87° 11' 3.346" E
	16	23° 50' 45.719" N	87° 11' 3.689" E
	17	23° 50' 45.505" N	87° 11' 3.817" E
	18	23° 50' 45.483" N	87° 11' 4.074" E
BH_KR_AH_06	1	23° 50' 41.586" N	87° 11' 7.736" E
	2	23° 50' 41.586" N	87° 11' 7.351" E
	3	23° 50' 41.629" N	87° 11' 7.115" E
	4	23° 50' 41.843" N	87° 11' 6.451" E
	5	23° 50' 42.121" N	87° 11' 6.023" E
	6	23° 50' 42.550" N	87° 11' 5.980" E
	7	23° 50' 42.805" N	87° 11' 6.135" E
	8	23° 50' 41.961" N	87° 11' 7.045" E
	9	23° 50' 41.781" N	87° 11' 7.743" E
	10	23° 50' 41.642" N	87° 11' 7.970" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
BH_KR_AH_07	1	23° 50' 38.777" N	87° 11' 9.703" E
	2	23° 50' 38.802" N	87° 11' 9.684" E
	3	23° 50' 40.411" N	87° 11' 8.882" E
	4	23° 50' 40.807" N	87° 11' 8.291" E
	5	23° 50' 41.105" N	87° 11' 7.551" E
	6	23° 50' 41.108" N	87° 11' 7.540" E
	7	23° 50' 41.329" N	87° 11' 7.800" E
	8	23° 50' 41.286" N	87° 11' 8.250" E
	9	23° 50' 41.072" N	87° 11' 8.550" E
	10	23° 50' 40.879" N	87° 11' 8.785" E
	11	23° 50' 40.537" N	87° 11' 9.107" E
	12	23° 50' 40.301" N	87° 11' 9.449" E
	13	23° 50' 39.937" N	87° 11' 9.663" E
	14	23° 50' 39.680" N	87° 11' 9.728" E
BH_KR_AH_12	1	23° 48' 31.006" N	87° 12' 15.301" E
	2	23° 48' 30.449" N	87° 12' 13.802" E
	3	23° 48' 32.377" N	87° 12' 10.546" E
	4	23° 48' 34.304" N	87° 12' 8.919" E
	5	23° 48' 41.979" N	87° 12' 4.362" E
	6	23° 48' 46.708" N	87° 12' 3.514" E
	7	23° 48' 49.663" N	87° 12' 2.100" E
	8	23° 48' 53.698" N	87° 12' 0.790" E
	9	23° 48' 54.312" N	87° 12' 1.120" E
	10	23° 48' 52.825" N	87° 12' 4.140" E
	11	23° 48' 48.236" N	87° 12' 7.903" E
	12	23° 48' 42.711" N	87° 12' 9.852" E
	13	23° 48' 40.591" N	87° 12' 10.708" E
	14	23° 48' 36.779" N	87° 12' 11.565" E
	15	23° 48' 36.606" N	87° 12' 11.832" E
	16	23° 48' 36.460" N	87° 12' 11.800" E
	17	23° 48' 36.333" N	87° 12' 12.254" E
	18	23° 48' 35.237" N	87° 12' 13.599" E
	19	23° 48' 32.860" N	87° 12' 15.013" E
	20	23° 48' 31.783" N	87° 12' 15.335" E
BH_KR_AH_13	1	23° 47' 59.859" N	87° 12' 37.884" E
	2	23° 47' 59.067" N	87° 12' 44.116" E
	3	23° 47' 59.093" N	87° 12' 45.262" E
	4	23° 47' 58.858" N	87° 12' 46.712" E
	5	23° 47' 57.873" N	87° 12' 46.241" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	6	23° 47' 57.658" N	87° 12' 40.074" E
	7	23° 47' 58.558" N	87° 12' 36.390" E
	8	23° 47' 59.457" N	87° 12' 34.377" E
	9	23° 48' 0.653" N	87° 12' 33.053" E
	10	23° 48' 0.892" N	87° 12' 33.635" E
	11	23° 48' 0.411" N	87° 12' 35.775" E
BH_KR_AH_14	1	23° 47' 57.787" N	87° 12' 56.820" E
	2	23° 47' 57.230" N	87° 12' 55.321" E
	3	23° 47' 57.432" N	87° 12' 54.434" E
	4	23° 47' 56.918" N	87° 12' 53.508" E
	5	23° 47' 56.267" N	87° 12' 51.281" E
	6	23° 47' 55.958" N	87° 12' 48.814" E
	7	23° 47' 56.164" N	87° 12' 47.444" E
	8	23° 47' 56.678" N	87° 12' 47.067" E
	9	23° 47' 57.158" N	87° 12' 47.889" E
	10	23° 47' 57.432" N	87° 12' 49.465" E
	11	23° 47' 59.414" N	87° 12' 51.552" E
	12	23° 47' 59.971" N	87° 12' 53.908" E
	13	23° 48' 0.014" N	87° 12' 56.563" E
	14	23° 48' 1.213" N	87° 12' 58.405" E
	15	23° 48' 1.642" N	87° 12' 59.262" E
	16	23° 48' 0.057" N	87° 12' 59.947" E
BH_KR_AH_15	1	23° 48' 1.941" N	87° 13' 11.425" E
	2	23° 48' 0.228" N	87° 13' 14.509" E
	3	23° 47' 56.245" N	87° 13' 19.221" E
	4	23° 47' 55.878" N	87° 13' 20.922" E
	5	23° 47' 55.619" N	87° 13' 21.143" E
	6	23° 47' 55.463" N	87° 13' 21.635" E
	7	23° 47' 55.099" N	87° 13' 22.335" E
	8	23° 47' 53.349" N	87° 13' 24.612" E
	9	23° 47' 52.343" N	87° 13' 26.304" E
	10	23° 47' 47.910" N	87° 13' 30.891" E
	11	23° 47' 46.364" N	87° 13' 32.021" E
	12	23° 47' 46.764" N	87° 13' 32.186" E
	13	23° 47' 46.218" N	87° 13' 33.542" E
	14	23° 47' 45.824" N	87° 13' 34.008" E
	15	23° 47' 44.809" N	87° 13' 34.382" E
	16	23° 47' 43.610" N	87° 13' 35.839" E
	17	23° 47' 42.539" N	87° 13' 36.267" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	18	23° 47' 41.469" N	87° 13' 36.610" E
	19	23° 47' 40.055" N	87° 13' 36.695" E
	20	23° 47' 38.813" N	87° 13' 37.252" E
	21	23° 47' 37.956" N	87° 13' 37.980" E
	22	23° 47' 38.642" N	87° 13' 38.323" E
	23	23° 47' 40.936" N	87° 13' 38.258" E
	24	23° 47' 36.766" N	87° 13' 42.501" E
	25	23° 47' 36.388" N	87° 13' 42.836" E
	26	23° 47' 36.289" N	87° 13' 42.911" E
	27	23° 47' 35.845" N	87° 13' 43.157" E
	28	23° 47' 34.954" N	87° 13' 43.671" E
	29	23° 47' 34.614" N	87° 13' 44.165" E
	30	23° 47' 33.355" N	87° 13' 45.107" E
	31	23° 47' 32.008" N	87° 13' 45.659" E
	32	23° 47' 29.061" N	87° 13' 47.612" E
	33	23° 47' 27.999" N	87° 13' 47.989" E
	34	23° 47' 26.799" N	87° 13' 48.091" E
	35	23° 47' 25.977" N	87° 13' 48.263" E
	36	23° 47' 25.018" N	87° 13' 49.530" E
	37	23° 47' 24.332" N	87° 13' 50.353" E
	38	23° 47' 21.119" N	87° 13' 53.062" E
	39	23° 47' 19.348" N	87° 13' 51.691" E
	40	23° 47' 20.567" N	87° 13' 51.258" E
	41	23° 47' 21.809" N	87° 13' 51.129" E
	42	23° 47' 22.752" N	87° 13' 50.016" E
	43	23° 47' 23.351" N	87° 13' 48.773" E
	44	23° 47' 23.687" N	87° 13' 46.462" E
	45	23° 47' 27.993" N	87° 13' 42.828" E
	46	23° 47' 31.025" N	87° 13' 41.238" E
	47	23° 47' 32.132" N	87° 13' 41.449" E
	48	23° 47' 33.545" N	87° 13' 41.364" E
	49	23° 47' 34.102" N	87° 13' 41.492" E
	50	23° 47' 35.215" N	87° 13' 40.764" E
	51	23° 47' 35.858" N	87° 13' 39.950" E
	52	23° 47' 37.785" N	87° 13' 39.137" E
	53	23° 47' 37.010" N	87° 13' 38.086" E
	54	23° 47' 37.439" N	87° 13' 37.605" E
	55	23° 47' 38.238" N	87° 13' 37.003" E
	56	23° 47' 38.969" N	87° 13' 36.239" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	57	23° 47' 39.511" N	87° 13' 35.859" E
	58	23° 47' 40.539" N	87° 13' 35.482" E
	59	23° 47' 41.396" N	87° 13' 35.071" E
	60	23° 47' 43.897" N	87° 13' 32.809" E
	61	23° 47' 44.857" N	87° 13' 31.850" E
	62	23° 47' 45.919" N	87° 13' 31.268" E
	63	23° 47' 46.193" N	87° 13' 30.685" E
	64	23° 47' 47.975" N	87° 13' 29.486" E
	65	23° 47' 49.551" N	87° 13' 27.498" E
	66	23° 47' 49.688" N	87° 13' 26.608" E
	67	23° 47' 48.454" N	87° 13' 26.608" E
	68	23° 47' 47.531" N	87° 13' 26.773" E
	69	23° 47' 48.846" N	87° 13' 25.243" E
	70	23° 47' 49.551" N	87° 13' 24.757" E
	71	23° 47' 51.230" N	87° 13' 23.044" E
	72	23° 47' 50.971" N	87° 13' 22.736" E
	73	23° 47' 51.804" N	87° 13' 21.746" E
	74	23° 47' 52.224" N	87° 13' 21.537" E
	75	23° 47' 52.614" N	87° 13' 20.783" E
	76	23° 47' 53.149" N	87° 13' 19.979" E
	77	23° 47' 54.177" N	87° 13' 18.521" E
	78	23° 47' 54.725" N	87° 13' 17.151" E
	79	23° 47' 56.301" N	87° 13' 13.964" E
	80	23° 47' 57.637" N	87° 13' 12.628" E
	81	23° 47' 59.385" N	87° 13' 10.812" E
	82	23° 48' 0.070" N	87° 13' 11.052" E
	83	23° 48' 0.790" N	87° 13' 9.304" E
	84	23° 48' 0.705" N	87° 13' 8.121" E
	85	23° 48' 2.241" N	87° 13' 7.399" E
	86	23° 48' 2.670" N	87° 13' 8.727" E
BH_KR_AH_24	1	23° 45' 42.623" N	87° 17' 9.727" E
	2	23° 45' 42.116" N	87° 17' 9.634" E
	3	23° 45' 46.786" N	87° 17' 9.735" E
	4	23° 45' 46.821" N	87° 17' 9.770" E
	5	23° 45' 46.965" N	87° 17' 9.739" E
	6	23° 45' 47.399" N	87° 17' 9.770" E
	7	23° 45' 47.840" N	87° 17' 10.503" E
	8	23° 45' 47.913" N	87° 17' 11.204" E
	9	23° 45' 47.249" N	87° 17' 11.204" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	10	23° 45' 47.013" N	87° 17' 11.054" E
	11	23° 45' 46.864" N	87° 17' 10.733" E
	12	23° 45' 46.200" N	87° 17' 10.583" E
	13	23° 45' 45.343" N	87° 17' 10.626" E
	14	23° 45' 44.551" N	87° 17' 10.690" E
	15	23° 45' 43.694" N	87° 17' 10.626" E
	16	23° 45' 43.437" N	87° 17' 10.326" E
	17	23° 45' 42.987" N	87° 17' 9.984" E
BH_KR_AH_25	1	23° 45' 43.484" N	87° 17' 11.170" E
	2	23° 45' 42.735" N	87° 17' 12.079" E
	3	23° 45' 41.707" N	87° 17' 12.387" E
	4	23° 45' 40.246" N	87° 17' 12.335" E
	5	23° 45' 39.527" N	87° 17' 12.541" E
	6	23° 45' 39.544" N	87° 17' 12.318" E
	7	23° 45' 39.938" N	87° 17' 11.821" E
	8	23° 45' 40.555" N	87° 17' 10.845" E
	9	23° 45' 41.240" N	87° 17' 10.433" E
	10	23° 45' 41.754" N	87° 17' 10.365" E
	11	23° 45' 42.216" N	87° 17' 10.348" E
	12	23° 45' 42.542" N	87° 17' 10.348" E
	13	23° 45' 42.919" N	87° 17' 10.502" E
	14	23° 45' 43.261" N	87° 17' 10.519" E
	15	23° 45' 43.450" N	87° 17' 10.656" E
	16	23° 45' 43.484" N	87° 17' 10.827" E
	17	23° 45' 43.347" N	87° 17' 10.896" E
	18	23° 45' 43.176" N	87° 17' 10.965" E
	19	23° 45' 43.484" N	87° 17' 11.170" E
BH_KR_AH_26	1	23° 45' 37.595" N	87° 17' 15.026" E
	2	23° 45' 36.580" N	87° 17' 15.864" E
	3	23° 45' 36.666" N	87° 17' 16.156" E
	4	23° 45' 36.681" N	87° 17' 16.364" E
	5	23° 45' 36.628" N	87° 17' 16.423" E
	6	23° 45' 36.443" N	87° 17' 16.515" E
	7	23° 45' 36.203" N	87° 17' 16.789" E
	8	23° 45' 35.997" N	87° 17' 16.961" E
	9	23° 45' 35.792" N	87° 17' 17.286" E
	10	23° 45' 35.836" N	87° 17' 17.311" E
	11	23° 45' 31.763" N	87° 17' 21.878" E
	12	23° 45' 31.749" N	87° 17' 21.878" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	13	23° 45' 31.509" N	87° 17' 21.895" E
	14	23° 45' 31.303" N	87° 17' 22.118" E
	15	23° 45' 30.978" N	87° 17' 22.118" E
	16	23° 45' 30.789" N	87° 17' 22.289" E
	17	23° 45' 30.515" N	87° 17' 22.392" E
	18	23° 45' 30.258" N	87° 17' 22.374" E
	19	23° 45' 30.035" N	87° 17' 22.340" E
	20	23° 45' 29.813" N	87° 17' 22.152" E
	21	23° 45' 29.624" N	87° 17' 21.929" E
	22	23° 45' 29.624" N	87° 17' 21.758" E
	23	23° 45' 29.693" N	87° 17' 21.329" E
	24	23° 45' 29.881" N	87° 17' 20.970" E
	25	23° 45' 29.955" N	87° 17' 20.234" E
	26	23° 45' 29.338" N	87° 17' 19.857" E
	27	23° 45' 29.098" N	87° 17' 19.514" E
	28	23° 45' 28.871" N	87° 17' 17.509" E
	29	23° 45' 29.213" N	87° 17' 17.321" E
	30	23° 45' 29.659" N	87° 17' 17.303" E
	31	23° 45' 30.035" N	87° 17' 17.423" E
	32	23° 45' 30.584" N	87° 17' 17.355" E
	33	23° 45' 31.200" N	87° 17' 16.584" E
	34	23° 45' 33.073" N	87° 17' 15.300" E
	35	23° 45' 34.820" N	87° 17' 14.409" E
	36	23° 45' 35.917" N	87° 17' 13.518" E
	37	23° 45' 37.733" N	87° 17' 12.764" E
	38	23° 45' 38.246" N	87° 17' 13.792" E
BH_KR_AH_27	1	23° 45' 12.698" N	87° 17' 37.040" E
	2	23° 45' 12.612" N	87° 17' 37.365" E
	3	23° 45' 12.724" N	87° 17' 37.813" E
	4	23° 45' 12.500" N	87° 17' 37.868" E
	5	23° 45' 12.447" N	87° 17' 37.913" E
	6	23° 45' 12.372" N	87° 17' 37.913" E
	7	23° 45' 12.013" N	87° 17' 38.239" E
	8	23° 45' 11.687" N	87° 17' 38.513" E
	9	23° 45' 11.533" N	87° 17' 38.707" E
	10	23° 45' 10.551" N	87° 17' 39.559" E
	11	23° 45' 9.610" N	87° 17' 42.342" E
	12	23° 45' 9.494" N	87° 17' 42.145" E
	13	23° 45' 9.426" N	87° 17' 41.751" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	14	23° 45' 9.460" N	87° 17' 41.066" E
	15	23° 45' 9.614" N	87° 17' 40.466" E
	16	23° 45' 9.991" N	87° 17' 39.832" E
	17	23° 45' 9.922" N	87° 17' 39.644" E
	18	23° 45' 10.077" N	87° 17' 39.352" E
	19	23° 45' 10.231" N	87° 17' 39.147" E
	20	23° 45' 10.334" N	87° 17' 39.318" E
	21	23° 45' 10.899" N	87° 17' 38.684" E
	22	23° 45' 10.865" N	87° 17' 38.564" E
	23	23° 45' 10.899" N	87° 17' 38.462" E
	24	23° 45' 10.659" N	87° 17' 38.496" E
	25	23° 45' 10.419" N	87° 17' 38.701" E
	26	23° 45' 10.059" N	87° 17' 38.941" E
	27	23° 45' 9.820" N	87° 17' 39.335" E
	28	23° 45' 9.597" N	87° 17' 39.746" E
	29	23° 45' 9.477" N	87° 17' 39.712" E
	30	23° 45' 9.563" N	87° 17' 38.958" E
	31	23° 45' 9.734" N	87° 17' 38.564" E
	32	23° 45' 10.111" N	87° 17' 37.982" E
	33	23° 45' 10.522" N	87° 17' 37.485" E
	34	23° 45' 10.848" N	87° 17' 37.297" E
	35	23° 45' 11.019" N	87° 17' 37.142" E
	36	23° 45' 11.327" N	87° 17' 37.040" E
	37	23° 45' 11.601" N	87° 17' 36.868" E
	38	23° 45' 11.824" N	87° 17' 36.697" E
	39	23° 45' 12.115" N	87° 17' 36.371" E
	40	23° 45' 12.355" N	87° 17' 36.252" E
	41	23° 45' 12.578" N	87° 17' 36.252" E
	42	23° 45' 12.681" N	87° 17' 36.371" E
	43	23° 45' 12.749" N	87° 17' 36.594" E
BH_KR_AH_28	1	23° 45' 10.025" N	87° 17' 47.816" E
	2	23° 45' 9.991" N	87° 17' 47.473" E
	3	23° 45' 9.957" N	87° 17' 45.880" E
	4	23° 45' 9.066" N	87° 17' 44.064" E
	5	23° 45' 9.426" N	87° 17' 44.492" E
	6	23° 45' 9.683" N	87° 17' 44.681" E
	7	23° 45' 10.008" N	87° 17' 44.937" E
	8	23° 45' 10.104" N	87° 17' 45.060" E
	9	23° 45' 10.579" N	87° 17' 46.956" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	10	23° 45' 10.402" N	87° 17' 48.193" E
	11	23° 45' 10.231" N	87° 17' 48.141" E
BH_KR_AH_31	1	23° 44' 23.117" N	87° 19' 27.847" E
	2	23° 44' 22.668" N	87° 19' 26.460" E
	3	23° 44' 23.182" N	87° 19' 24.148" E
	4	23° 44' 24.424" N	87° 19' 22.092" E
	5	23° 44' 25.495" N	87° 19' 21.107" E
	6	23° 44' 27.551" N	87° 19' 18.751" E
	7	23° 44' 29.906" N	87° 19' 16.053" E
	8	23° 44' 32.005" N	87° 19' 14.768" E
	9	23° 44' 33.240" N	87° 19' 15.145" E
	10	23° 44' 31.019" N	87° 19' 17.512" E
	11	23° 44' 30.698" N	87° 19' 18.454" E
	12	23° 44' 26.522" N	87° 19' 22.545" E
BH_KR_AH_33	1	23° 44' 10.457" N	87° 19' 58.380" E
	2	23° 44' 10.046" N	87° 20' 0.281" E
	3	23° 44' 8.966" N	87° 20' 2.440" E
	4	23° 44' 7.630" N	87° 20' 3.673" E
	5	23° 44' 7.476" N	87° 20' 4.085" E
	6	23° 44' 7.527" N	87° 20' 4.393" E
	7	23° 44' 6.731" N	87° 20' 4.547" E
	8	23° 44' 5.523" N	87° 20' 4.573" E
	9	23° 44' 5.831" N	87° 20' 3.648" E
	10	23° 44' 6.297" N	87° 20' 2.852" E
	11	23° 44' 7.770" N	87° 20' 1.208" E
	12	23° 44' 8.900" N	87° 19' 57.970" E
	13	23° 44' 9.500" N	87° 19' 54.510" E
	14	23° 44' 9.586" N	87° 19' 53.173" E
	15	23° 44' 11.022" N	87° 19' 50.311" E
	16	23° 44' 11.022" N	87° 19' 51.235" E
	17	23° 44' 10.611" N	87° 19' 52.572" E
	18	23° 44' 10.817" N	87° 19' 53.291" E
	19	23° 44' 11.099" N	87° 19' 53.703" E
	20	23° 44' 11.331" N	87° 19' 55.399" E
BH_KR_AH_34	1	23° 43' 57.479" N	87° 20' 16.702" E
	2	23° 43' 57.299" N	87° 20' 16.291" E
	3	23° 43' 57.428" N	87° 20' 14.929" E
	4	23° 43' 57.788" N	87° 20' 13.541" E
	5	23° 43' 58.584" N	87° 20' 11.280" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	6	23° 43' 59.124" N	87° 20' 10.098" E
	7	23° 44' 0.178" N	87° 20' 9.301" E
	8	23° 44' 1.591" N	87° 20' 8.942" E
	9	23° 44' 1.895" N	87° 20' 9.719" E
	10	23° 44' 0.225" N	87° 20' 11.389" E
	11	23° 43' 59.497" N	87° 20' 12.674" E
	12	23° 43' 59.175" N	87° 20' 14.261" E
	13	23° 43' 58.507" N	87° 20' 14.955" E
BH_KR_AH_35	1	23° 43' 52.987" N	87° 20' 35.374" E
	2	23° 43' 52.285" N	87° 20' 35.448" E
	3	23° 43' 52.348" N	87° 20' 34.476" E
	4	23° 43' 53.025" N	87° 20' 32.815" E
	5	23° 43' 53.513" N	87° 20' 32.275" E
	6	23° 43' 54.618" N	87° 20' 31.762" E
	7	23° 43' 54.657" N	87° 20' 32.548" E
	8	23° 43' 54.957" N	87° 20' 33.061" E
	9	23° 43' 55.754" N	87° 20' 33.102" E
	10	23° 43' 55.418" N	87° 20' 34.878" E
	11	23° 43' 54.901" N	87° 20' 35.179" E
	12	23° 43' 53.902" N	87° 20' 35.628" E
BH_KR_AH_36	1	23° 43' 47.346" N	87° 20' 52.500" E
	2	23° 43' 46.523" N	87° 20' 52.680" E
	3	23° 43' 46.652" N	87° 20' 52.397" E
	4	23° 43' 47.397" N	87° 20' 51.678" E
	5	23° 43' 48.574" N	87° 20' 50.198" E
	6	23° 43' 50.288" N	87° 20' 50.065" E
	7	23° 43' 50.845" N	87° 20' 49.765" E
	8	23° 43' 51.916" N	87° 20' 48.866" E
	9	23° 43' 52.614" N	87° 20' 47.180" E
	10	23° 43' 53.290" N	87° 20' 47.028" E
	11	23° 43' 52.472" N	87° 20' 49.854" E
	12	23° 43' 52.021" N	87° 20' 50.756" E
	13	23° 43' 51.725" N	87° 20' 51.081" E
	14	23° 43' 49.366" N	87° 20' 52.060" E
	15	23° 43' 49.171" N	87° 20' 52.433" E
	16	23° 43' 48.939" N	87° 20' 52.526" E
	17	23° 43' 48.091" N	87° 20' 52.603" E
BH_KR_AH_37	1	23° 43' 40.047" N	87° 21' 13.058" E
	2	23° 43' 38.685" N	87° 21' 13.521" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	3	23° 43' 39.019" N	87° 21' 13.058" E
	4	23° 43' 39.328" N	87° 21' 12.365" E
	5	23° 43' 39.996" N	87° 21' 11.337" E
	6	23° 43' 40.278" N	87° 21' 10.747" E
	7	23° 43' 41.226" N	87° 21' 9.168" E
	8	23° 43' 41.799" N	87° 21' 8.953" E
	9	23° 43' 42.690" N	87° 21' 7.480" E
	10	23° 43' 43.307" N	87° 21' 6.760" E
	11	23° 43' 43.478" N	87° 20' 59.359" E
	12	23° 43' 44.335" N	87° 20' 57.132" E
	13	23° 43' 46.166" N	87° 20' 56.107" E
	14	23° 43' 45.212" N	87° 20' 57.350" E
	15	23° 43' 44.891" N	87° 20' 58.656" E
	16	23° 43' 44.312" N	87° 21' 4.545" E
	17	23° 43' 43.884" N	87° 21' 5.466" E
	18	23° 43' 43.327" N	87° 21' 7.286" E
	19	23° 43' 42.963" N	87° 21' 9.278" E
	20	23° 43' 41.657" N	87° 21' 11.976" E
	21	23° 43' 40.886" N	87° 21' 12.490" E
	22	23° 43' 40.624" N	87° 21' 12.900" E
BH_KR_AH_39	1	23° 43' 33.593" N	87° 21' 24.254" E
	2	23° 43' 33.443" N	87° 21' 23.483" E
	3	23° 43' 34.085" N	87° 21' 22.691" E
	4	23° 43' 34.578" N	87° 21' 22.049" E
	5	23° 43' 34.963" N	87° 21' 22.027" E
	6	23° 43' 35.331" N	87° 21' 21.433" E
	7	23° 43' 35.426" N	87° 21' 22.316" E
	8	23° 43' 35.753" N	87° 21' 23.075" E
	9	23° 43' 34.698" N	87° 21' 25.108" E
	10	23° 43' 33.593" N	87° 21' 24.496" E
BH_DJ_AH_42	1	23° 43' 18.314" N	87° 22' 0.225" E
	2	23° 43' 17.522" N	87° 22' 2.516" E
	3	23° 43' 16.451" N	87° 22' 4.486" E
	4	23° 43' 13.089" N	87° 22' 8.255" E
	5	23° 43' 12.432" N	87° 22' 9.073" E
	6	23° 43' 11.990" N	87° 22' 7.545" E
	7	23° 43' 12.401" N	87° 22' 4.804" E
	8	23° 43' 14.125" N	87° 22' 1.771" E
	9	23° 43' 16.339" N	87° 21' 58.118" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	10	23° 43' 16.895" N	87° 21' 56.903" E
	11	23° 43' 18.089" N	87° 21' 54.970" E
	12	23° 43' 17.849" N	87° 21' 52.914" E
	13	23° 43' 16.889" N	87° 21' 50.756" E
	14	23° 43' 15.998" N	87° 21' 46.918" E
	15	23° 43' 15.793" N	87° 21' 41.539" E
	16	23° 43' 16.650" N	87° 21' 39.140" E
	17	23° 43' 17.560" N	87° 21' 38.775" E
	18	23° 43' 16.965" N	87° 21' 40.180" E
	19	23° 43' 16.366" N	87° 21' 43.478" E
	20	23° 43' 16.378" N	87° 21' 43.863" E
	21	23° 43' 16.311" N	87° 21' 44.277" E
	22	23° 43' 16.411" N	87° 21' 45.008" E
	23	23° 43' 16.430" N	87° 21' 46.390" E
	24	23° 43' 17.140" N	87° 21' 48.309" E
	25	23° 43' 17.381" N	87° 21' 49.074" E
	26	23° 43' 17.531" N	87° 21' 49.910" E
	27	23° 43' 17.703" N	87° 21' 50.552" E
	28	23° 43' 18.015" N	87° 21' 51.193" E
	29	23° 43' 18.104" N	87° 21' 51.499" E
	30	23° 43' 18.174" N	87° 21' 52.180" E
	31	23° 43' 18.258" N	87° 21' 52.027" E
	32	23° 43' 19.044" N	87° 21' 54.976" E
	33	23° 43' 18.678" N	87° 21' 58.126" E
BH_DJ_AH_43	1	23° 43' 7.359" N	87° 22' 19.977" E
	2	23° 43' 7.081" N	87° 22' 20.512" E
	3	23° 43' 7.128" N	87° 22' 20.644" E
	4	23° 43' 7.029" N	87° 22' 21.126" E
	5	23° 43' 7.885" N	87° 22' 25.430" E
	6	23° 43' 8.299" N	87° 22' 26.990" E
	7	23° 43' 8.268" N	87° 22' 27.707" E
	8	23° 43' 8.237" N	87° 22' 27.793" E
	9	23° 43' 8.130" N	87° 22' 28.350" E
	10	23° 43' 7.616" N	87° 22' 28.221" E
	11	23° 43' 7.166" N	87° 22' 28.543" E
	12	23° 43' 6.559" N	87° 22' 28.919" E
	13	23° 43' 6.062" N	87° 22' 25.363" E
	14	23° 43' 6.096" N	87° 22' 21.354" E
	15	23° 43' 7.227" N	87° 22' 19.024" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	16	23° 43' 8.632" N	87° 22' 17.413" E
	17	23° 43' 10.139" N	87° 22' 16.077" E
	18	23° 43' 11.030" N	87° 22' 13.781" E
	19	23° 43' 12.374" N	87° 22' 11.906" E
	20	23° 43' 11.890" N	87° 22' 15.194" E
	21	23° 43' 8.099" N	87° 22' 18.834" E
	22	23° 43' 7.433" N	87° 22' 19.966" E
BH_DJ_AH_45	1	23° 42' 35.858" N	87° 22' 31.262" E
	2	23° 42' 35.793" N	87° 22' 30.834" E
	3	23° 42' 36.179" N	87° 22' 30.984" E
	4	23° 42' 36.586" N	87° 22' 30.984" E
	5	23° 42' 37.314" N	87° 22' 31.070" E
	6	23° 42' 38.872" N	87° 22' 31.189" E
	7	23° 42' 39.562" N	87° 22' 31.547" E
	8	23° 42' 40.997" N	87° 22' 31.547" E
	9	23° 42' 43.120" N	87° 22' 31.887" E
	10	23° 42' 41.737" N	87° 22' 32.069" E
	11	23° 42' 40.715" N	87° 22' 32.391" E
	12	23° 42' 39.877" N	87° 22' 32.580" E
	13	23° 42' 39.066" N	87° 22' 32.662" E
	14	23° 42' 36.800" N	87° 22' 32.012" E
BH_DJ_AH_46	1	23° 42' 13.453" N	87° 22' 37.815" E
	2	23° 42' 14.692" N	87° 22' 34.797" E
	3	23° 42' 17.987" N	87° 22' 34.223" E
	4	23° 42' 18.854" N	87° 22' 34.373" E
	5	23° 42' 22.066" N	87° 22' 34.245" E
	6	23° 42' 23.908" N	87° 22' 33.346" E
	7	23° 42' 25.278" N	87° 22' 32.360" E
	8	23° 42' 27.848" N	87° 22' 31.804" E
	9	23° 42' 31.660" N	87° 22' 31.733" E
	10	23° 42' 30.825" N	87° 22' 32.599" E
	11	23° 42' 29.643" N	87° 22' 33.986" E
	12	23° 42' 28.743" N	87° 22' 34.397" E
	13	23° 42' 28.229" N	87° 22' 35.066" E
	14	23° 42' 27.433" N	87° 22' 35.425" E
	15	23° 42' 26.919" N	87° 22' 35.888" E
	16	23° 42' 26.456" N	87° 22' 36.710" E
	17	23° 42' 25.557" N	87° 22' 37.070" E
	18	23° 42' 23.938" N	87° 22' 37.276" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	19	23° 42' 23.321" N	87° 22' 37.507" E
	20	23° 42' 22.088" N	87° 22' 37.507" E
	21	23° 42' 20.186" N	87° 22' 37.224" E
	22	23° 42' 19.441" N	87° 22' 37.353" E
	23	23° 42' 18.850" N	87° 22' 37.147" E
	24	23° 42' 18.464" N	87° 22' 36.736" E
	25	23° 42' 17.822" N	87° 22' 36.685" E
	26	23° 42' 16.897" N	87° 22' 36.890" E
	27	23° 42' 15.894" N	87° 22' 36.813" E
	28	23° 42' 15.560" N	87° 22' 36.659" E
	29	23° 42' 14.789" N	87° 22' 37.096" E
	30	23° 42' 14.712" N	87° 22' 37.456" E
	31	23° 42' 14.507" N	87° 22' 37.584" E
	32	23° 42' 13.813" N	87° 22' 37.713" E
BH_RA_SW_01	1	24° 1' 50.964" N	87° 15' 35.343" E
	2	24° 1' 52.031" N	87° 15' 34.919" E
	3	24° 1' 53.890" N	87° 15' 34.061" E
	4	24° 1' 56.298" N	87° 15' 34.984" E
	5	24° 1' 57.598" N	87° 15' 35.280" E
	6	24° 1' 58.905" N	87° 15' 35.545" E
	7	24° 1' 59.765" N	87° 15' 35.697" E
	8	24° 2' 0.591" N	87° 15' 35.736" E
	9	24° 2' 1.665" N	87° 15' 35.819" E
	10	24° 2' 2.766" N	87° 15' 35.541" E
	11	24° 2' 3.800" N	87° 15' 35.037" E
	12	24° 2' 4.505" N	87° 15' 34.888" E
	13	24° 2' 4.970" N	87° 15' 34.702" E
	14	24° 2' 5.281" N	87° 15' 34.197" E
	15	24° 2' 5.713" N	87° 15' 33.148" E
	16	24° 2' 6.081" N	87° 15' 32.537" E
	17	24° 2' 7.203" N	87° 15' 32.167" E
	18	24° 2' 6.955" N	87° 15' 34.070" E
	19	24° 2' 6.113" N	87° 15' 34.146" E
	20	24° 2' 5.252" N	87° 15' 34.407" E
	21	24° 2' 4.372" N	87° 15' 35.791" E
	22	24° 2' 3.941" N	87° 15' 36.371" E
	23	24° 2' 3.131" N	87° 15' 36.988" E
	24	24° 2' 2.253" N	87° 15' 37.454" E
	25	24° 2' 0.686" N	87° 15' 38.144" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	26	24° 1' 59.171" N	87° 15' 38.460" E
	27	24° 1' 57.279" N	87° 15' 38.231" E
	28	24° 1' 55.834" N	87° 15' 37.778" E
	29	24° 1' 53.307" N	87° 15' 36.574" E
	30	24° 1' 52.670" N	87° 15' 36.479" E
BH_RA_SW_05	1	24° 1' 27.044" N	87° 15' 29.909" E
	2	24° 1' 26.813" N	87° 15' 30.047" E
	3	24° 1' 27.438" N	87° 15' 27.370" E
	4	24° 1' 27.768" N	87° 15' 27.371" E
	5	24° 1' 29.963" N	87° 15' 27.000" E
	6	24° 1' 32.266" N	87° 15' 26.092" E
	7	24° 1' 33.988" N	87° 15' 25.252" E
	8	24° 1' 36.011" N	87° 15' 24.601" E
	9	24° 1' 37.731" N	87° 15' 24.581" E
	10	24° 1' 40.290" N	87° 15' 25.171" E
	11	24° 1' 42.246" N	87° 15' 25.948" E
	12	24° 1' 43.599" N	87° 15' 27.074" E
	13	24° 1' 44.006" N	87° 15' 27.707" E
	14	24° 1' 45.159" N	87° 15' 28.594" E
	15	24° 1' 44.194" N	87° 15' 28.662" E
	16	24° 1' 43.041" N	87° 15' 28.885" E
	17	24° 1' 41.854" N	87° 15' 28.920" E
	18	24° 1' 41.028" N	87° 15' 28.731" E
	19	24° 1' 40.185" N	87° 15' 28.579" E
	20	24° 1' 39.566" N	87° 15' 28.597" E
	21	24° 1' 37.890" N	87° 15' 29.134" E
	22	24° 1' 35.677" N	87° 15' 28.851" E
	23	24° 1' 35.092" N	87° 15' 28.663" E
	24	24° 1' 33.905" N	87° 15' 28.867" E
	25	24° 1' 33.267" N	87° 15' 29.203" E
	26	24° 1' 30.281" N	87° 15' 29.722" E
	27	24° 1' 29.453" N	87° 15' 29.745" E
	28	24° 1' 27.887" N	87° 15' 29.836" E
BH_RA_SW_06	1	24° 1' 25.345" N	87° 15' 16.665" E
	2	24° 1' 25.187" N	87° 15' 18.257" E
	3	24° 1' 25.133" N	87° 15' 19.924" E
	4	24° 1' 25.028" N	87° 15' 20.861" E
	5	24° 1' 24.854" N	87° 15' 21.760" E
	6	24° 1' 24.455" N	87° 15' 22.246" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	7	24° 1' 22.450" N	87° 15' 22.554" E
	8	24° 1' 23.172" N	87° 15' 19.916" E
	9	24° 1' 23.656" N	87° 15' 18.943" E
	10	24° 1' 24.260" N	87° 15' 17.764" E
	11	24° 1' 25.037" N	87° 15' 15.743" E
	12	24° 1' 25.332" N	87° 15' 14.226" E
	13	24° 1' 25.163" N	87° 15' 12.896" E
	14	24° 1' 24.717" N	87° 15' 11.864" E
	15	24° 1' 24.301" N	87° 15' 11.453" E
	16	24° 1' 24.700" N	87° 15' 9.632" E
	17	24° 1' 25.046" N	87° 15' 9.809" E
	18	24° 1' 25.665" N	87° 15' 10.128" E
	19	24° 1' 26.632" N	87° 15' 11.090" E
	20	24° 1' 26.831" N	87° 15' 12.884" E
	21	24° 1' 26.382" N	87° 15' 13.989" E
	22	24° 1' 25.967" N	87° 15' 14.737" E
	23	24° 1' 25.587" N	87° 15' 15.729" E
BH_RA_SW_07	1	24° 1' 24.804" N	87° 15' 9.088" E
	2	24° 1' 25.061" N	87° 15' 7.734" E
	3	24° 1' 25.886" N	87° 15' 8.587" E
	4	24° 1' 26.614" N	87° 15' 9.772" E
	5	24° 1' 26.253" N	87° 15' 9.818" E
	6	24° 1' 25.791" N	87° 15' 9.665" E
	7	24° 1' 25.415" N	87° 15' 9.336" E
BH_RA_SW_08	1	24° 1' 0.234" N	87° 14' 48.685" E
	2	24° 1' 0.198" N	87° 14' 48.950" E
	3	24° 0' 59.714" N	87° 14' 49.235" E
	4	24° 0' 56.867" N	87° 14' 51.772" E
	5	24° 0' 56.705" N	87° 14' 50.999" E
	6	24° 0' 56.568" N	87° 14' 50.305" E
	7	24° 0' 56.552" N	87° 14' 49.406" E
	8	24° 0' 55.935" N	87° 14' 48.075" E
	9	24° 0' 55.489" N	87° 14' 47.138" E
	10	24° 0' 54.906" N	87° 14' 45.975" E
	11	24° 0' 54.478" N	87° 14' 44.907" E
	12	24° 0' 53.894" N	87° 14' 44.044" E
	13	24° 0' 53.551" N	87° 14' 43.350" E
	14	24° 0' 53.003" N	87° 14' 41.719" E
	15	24° 0' 52.472" N	87° 14' 39.883" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	16	24° 0' 51.925" N	87° 14' 38.233" E
	17	24° 0' 51.342" N	87° 14' 36.846" E
	18	24° 0' 50.690" N	87° 14' 35.646" E
	19	24° 0' 49.900" N	87° 14' 34.614" E
	20	24° 0' 48.817" N	87° 14' 33.713" E
	21	24° 0' 47.906" N	87° 14' 33.018" E
	22	24° 0' 46.996" N	87° 14' 32.361" E
	23	24° 0' 46.463" N	87° 14' 31.854" E
	24	24° 0' 45.620" N	87° 14' 31.572" E
	25	24° 0' 44.846" N	87° 14' 31.364" E
	26	24° 0' 43.815" N	87° 14' 30.669" E
	27	24° 0' 42.492" N	87° 14' 29.374" E
	28	24° 0' 41.410" N	87° 14' 28.417" E
	29	24° 0' 39.656" N	87° 14' 27.571" E
	30	24° 0' 37.988" N	87° 14' 26.968" E
	31	24° 0' 36.767" N	87° 14' 26.760" E
	32	24° 0' 35.516" N	87° 14' 26.813" E
	33	24° 0' 35.468" N	87° 14' 26.523" E
	34	24° 0' 36.175" N	87° 14' 25.963" E
	35	24° 0' 37.256" N	87° 14' 25.311" E
	36	24° 0' 37.955" N	87° 14' 25.277" E
	37	24° 0' 38.377" N	87° 14' 25.256" E
	38	24° 0' 39.503" N	87° 14' 24.949" E
	39	24° 0' 40.177" N	87° 14' 25.203" E
	40	24° 0' 40.448" N	87° 14' 25.512" E
	41	24° 0' 40.946" N	87° 14' 26.262" E
	42	24° 0' 41.668" N	87° 14' 26.675" E
	43	24° 0' 42.614" N	87° 14' 26.789" E
	44	24° 0' 43.715" N	87° 14' 26.885" E
	45	24° 0' 44.162" N	87° 14' 27.729" E
	46	24° 0' 44.677" N	87° 14' 27.955" E
	47	24° 0' 45.434" N	87° 14' 28.406" E
	48	24° 0' 45.640" N	87° 14' 28.762" E
	49	24° 0' 46.990" N	87° 14' 29.117" E
	50	24° 0' 47.664" N	87° 14' 29.528" E
	51	24° 0' 48.781" N	87° 14' 30.396" E
	52	24° 0' 49.674" N	87° 14' 30.891" E
	53	24° 0' 50.341" N	87° 14' 31.567" E
	54	24° 0' 50.847" N	87° 14' 32.518" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	55	24° 0' 51.294" N	87° 14' 32.743" E
	56	24° 0' 51.845" N	87° 14' 32.932" E
	57	24° 0' 52.463" N	87° 14' 33.289" E
	58	24° 0' 52.996" N	87° 14' 33.664" E
	59	24° 0' 53.442" N	87° 14' 34.714" E
	60	24° 0' 53.647" N	87° 14' 35.670" E
	61	24° 0' 53.801" N	87° 14' 36.232" E
	62	24° 0' 54.196" N	87° 14' 36.926" E
	63	24° 0' 54.366" N	87° 14' 37.788" E
	64	24° 0' 54.675" N	87° 14' 38.351" E
	65	24° 0' 55.241" N	87° 14' 39.288" E
	66	24° 0' 55.619" N	87° 14' 39.701" E
	67	24° 0' 56.186" N	87° 14' 40.095" E
	68	24° 0' 56.916" N	87° 14' 40.695" E
	69	24° 0' 57.838" N	87° 14' 42.472" E
	70	24° 0' 58.181" N	87° 14' 43.620" E
	71	24° 0' 58.842" N	87° 14' 45.031" E
	72	24° 0' 59.145" N	87° 14' 45.981" E
	73	24° 0' 59.187" N	87° 14' 46.268" E
	74	24° 0' 59.552" N	87° 14' 47.135" E
	75	24° 0' 59.736" N	87° 14' 47.346" E
	76	24° 1' 0.028" N	87° 14' 47.914" E
BH_RA_SW_09	1	24° 0' 24.079" N	87° 14' 26.325" E
	2	24° 0' 23.494" N	87° 14' 26.011" E
	3	24° 0' 36.325" N	87° 14' 25.376" E
	4	24° 0' 35.694" N	87° 14' 25.714" E
	5	24° 0' 35.022" N	87° 14' 26.092" E
	6	24° 0' 34.544" N	87° 14' 26.415" E
	7	24° 0' 33.847" N	87° 14' 26.596" E
	8	24° 0' 32.750" N	87° 14' 26.903" E
	9	24° 0' 32.259" N	87° 14' 27.071" E
	10	24° 0' 31.729" N	87° 14' 27.491" E
	11	24° 0' 31.174" N	87° 14' 27.757" E
	12	24° 0' 30.309" N	87° 14' 27.924" E
	13	24° 0' 29.535" N	87° 14' 27.993" E
	14	24° 0' 29.019" N	87° 14' 27.893" E
	15	24° 0' 27.909" N	87° 14' 27.498" E
	16	24° 0' 26.954" N	87° 14' 27.538" E
	17	24° 0' 26.309" N	87° 14' 27.439" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	18	24° 0' 25.535" N	87° 14' 27.241" E
	19	24° 0' 24.942" N	87° 14' 26.931" E
BH_S2_BK_04C	1	23° 49' 40.763" N	87° 36' 30.436" E
	2	23° 49' 40.025" N	87° 36' 31.207" E
	3	23° 49' 39.805" N	87° 36' 31.513" E
	4	23° 49' 38.682" N	87° 36' 31.789" E
	5	23° 49' 38.525" N	87° 36' 31.827" E
	6	23° 49' 37.466" N	87° 36' 31.808" E
	7	23° 49' 36.385" N	87° 36' 31.596" E
	8	23° 49' 35.804" N	87° 36' 31.124" E
	9	23° 49' 36.134" N	87° 36' 31.078" E
	10	23° 49' 39.021" N	87° 36' 29.322" E
	11	23° 49' 39.774" N	87° 36' 28.474" E
	12	23° 49' 40.168" N	87° 36' 27.643" E
	13	23° 49' 40.391" N	87° 36' 26.418" E
	14	23° 49' 40.271" N	87° 36' 25.028" E
	15	23° 49' 40.667" N	87° 36' 25.987" E
	16	23° 49' 41.365" N	87° 36' 28.621" E
	17	23° 49' 41.326" N	87° 36' 29.612" E
	18	23° 49' 40.771" N	87° 36' 30.362" E
BH_S2_BK_04D	1	23° 49' 59.871" N	87° 37' 12.454" E
	2	23° 49' 59.590" N	87° 37' 13.342" E
	3	23° 49' 59.580" N	87° 37' 13.509" E
	4	23° 49' 59.395" N	87° 37' 14.269" E
	5	23° 49' 59.230" N	87° 37' 15.128" E
	6	23° 49' 58.854" N	87° 37' 15.864" E
	7	23° 49' 57.334" N	87° 37' 17.310" E
	8	23° 49' 55.044" N	87° 37' 18.878" E
	9	23° 49' 54.542" N	87° 37' 19.343" E
	10	23° 49' 53.572" N	87° 37' 19.869" E
	11	23° 49' 53.327" N	87° 37' 19.800" E
	12	23° 49' 59.266" N	87° 37' 9.303" E
	13	23° 49' 59.801" N	87° 37' 10.228" E
	14	23° 49' 59.947" N	87° 37' 11.289" E
	15	23° 49' 59.918" N	87° 37' 12.380" E
BH_M1_BS_01	1	24° 28' 36.271" N	87° 48' 33.995" E
	2	24° 28' 36.093" N	87° 48' 35.051" E
	3	24° 28' 36.086" N	87° 48' 36.390" E
	4	24° 28' 35.579" N	87° 48' 38.690" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	5	24° 28' 35.031" N	87° 48' 40.590" E
	6	24° 28' 34.158" N	87° 48' 42.910" E
	7	24° 28' 33.462" N	87° 48' 44.480" E
	8	24° 28' 32.744" N	87° 48' 45.909" E
	9	24° 28' 32.115" N	87° 48' 46.986" E
	10	24° 28' 31.289" N	87° 48' 48.508" E
	11	24° 28' 30.632" N	87° 48' 50.118" E
	12	24° 28' 30.011" N	87° 48' 49.649" E
	13	24° 28' 30.168" N	87° 48' 47.619" E
	14	24° 28' 31.096" N	87° 48' 45.467" E
	15	24° 28' 31.777" N	87° 48' 43.498" E
	16	24° 28' 32.044" N	87° 48' 41.850" E
	17	24° 28' 32.129" N	87° 48' 40.582" E
	18	24° 28' 32.137" N	87° 48' 39.088" E
	19	24° 28' 31.999" N	87° 48' 38.241" E
	20	24° 28' 31.815" N	87° 48' 37.797" E
	21	24° 28' 35.728" N	87° 48' 32.770" E
	22	24° 28' 36.166" N	87° 48' 32.915" E
BH_M1_BS_03	1	24° 28' 31.352" N	87° 49' 2.415" E
	2	24° 28' 30.597" N	87° 49' 1.296" E
	3	24° 28' 30.636" N	87° 48' 59.597" E
	4	24° 28' 31.624" N	87° 48' 59.933" E
	5	24° 28' 32.009" N	87° 49' 0.032" E
	6	24° 28' 32.601" N	87° 49' 0.477" E
	7	24° 28' 33.180" N	87° 49' 0.856" E
	8	24° 28' 33.949" N	87° 49' 1.778" E
	9	24° 28' 34.955" N	87° 49' 2.607" E
	10	24° 28' 35.770" N	87° 49' 3.035" E
	11	24° 28' 36.372" N	87° 49' 3.133" E
	12	24° 28' 36.781" N	87° 49' 3.065" E
	13	24° 28' 38.541" N	87° 49' 2.912" E
	14	24° 28' 39.056" N	87° 49' 3.309" E
	15	24° 28' 39.519" N	87° 49' 3.391" E
	16	24° 28' 39.909" N	87° 49' 2.947" E
	17	24° 28' 41.056" N	87° 49' 2.735" E
	18	24° 28' 42.589" N	87° 49' 2.797" E
	19	24° 28' 43.003" N	87° 49' 2.735" E
	20	24° 28' 43.199" N	87° 49' 2.968" E
	21	24° 28' 43.671" N	87° 49' 3.089" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	22	24° 28' 44.253" N	87° 49' 2.928" E
	23	24° 28' 44.835" N	87° 49' 2.720" E
	24	24° 28' 45.289" N	87° 49' 2.253" E
	25	24° 28' 45.353" N	87° 49' 2.214" E
	26	24° 28' 45.926" N	87° 49' 2.066" E
	27	24° 28' 46.549" N	87° 49' 2.043" E
	28	24° 28' 47.117" N	87° 49' 2.171" E
	29	24° 28' 47.827" N	87° 49' 2.035" E
	30	24° 28' 48.464" N	87° 49' 2.004" E
	31	24° 28' 48.057" N	87° 49' 3.229" E
	32	24° 28' 44.400" N	87° 49' 5.388" E
	33	24° 28' 41.147" N	87° 49' 6.301" E
	34	24° 28' 39.046" N	87° 49' 6.539" E
	35	24° 28' 38.272" N	87° 49' 6.506" E
	36	24° 28' 37.241" N	87° 49' 6.245" E
	37	24° 28' 36.431" N	87° 49' 5.803" E
	38	24° 28' 35.556" N	87° 49' 5.233" E
	39	24° 28' 34.707" N	87° 49' 4.847" E
	40	24° 28' 33.356" N	87° 49' 4.119" E
	41	24° 28' 32.469" N	87° 49' 3.564" E
	42	24° 28' 31.685" N	87° 49' 2.910" E
BH_M1_BS_05	1	24° 28' 51.746" N	87° 49' 3.336" E
	2	24° 28' 51.906" N	87° 49' 2.797" E
	3	24° 28' 53.359" N	87° 49' 1.341" E
	4	24° 28' 54.567" N	87° 49' 0.672" E
	5	24° 28' 55.944" N	87° 49' 0.455" E
	6	24° 28' 57.013" N	87° 49' 0.123" E
	7	24° 28' 58.079" N	87° 49' 0.168" E
	8	24° 28' 59.629" N	87° 48' 59.877" E
	9	24° 29' 1.176" N	87° 49' 0.113" E
	10	24° 29' 2.858" N	87° 49' 0.951" E
	11	24° 29' 4.125" N	87° 49' 2.012" E
	12	24° 29' 5.014" N	87° 49' 3.183" E
	13	24° 29' 5.796" N	87° 49' 4.918" E
	14	24° 29' 6.473" N	87° 49' 6.952" E
	15	24° 29' 7.952" N	87° 49' 13.278" E
	16	24° 29' 7.556" N	87° 49' 16.547" E
	17	24° 29' 5.475" N	87° 49' 16.860" E
	18	24° 29' 4.932" N	87° 49' 16.135" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	19	24° 29' 4.849" N	87° 49' 15.351" E
	20	24° 29' 4.429" N	87° 49' 13.581" E
	21	24° 29' 3.597" N	87° 49' 11.452" E
	22	24° 29' 1.824" N	87° 49' 8.489" E
	23	24° 29' 0.475" N	87° 49' 6.581" E
	24	24° 28' 54.918" N	87° 49' 3.406" E
BH_M1_BS_06	1	24° 29' 5.985" N	87° 50' 1.084" E
	2	24° 29' 5.371" N	87° 50' 1.315" E
	3	24° 29' 4.618" N	87° 50' 1.451" E
	4	24° 29' 3.797" N	87° 50' 1.998" E
	5	24° 29' 3.334" N	87° 50' 2.230" E
	6	24° 29' 2.493" N	87° 50' 2.589" E
	7	24° 29' 1.490" N	87° 50' 3.122" E
	8	24° 29' 0.746" N	87° 50' 3.287" E
	9	24° 29' 0.600" N	87° 50' 3.092" E
	10	24° 29' 1.434" N	87° 50' 2.476" E
	11	24° 29' 1.900" N	87° 50' 2.112" E
	12	24° 29' 2.496" N	87° 50' 1.679" E
	13	24° 29' 2.806" N	87° 50' 1.568" E
	14	24° 29' 3.077" N	87° 50' 1.570" E
	15	24° 29' 3.515" N	87° 50' 1.742" E
	16	24° 29' 4.382" N	87° 50' 1.339" E
	17	24° 29' 4.692" N	87° 50' 1.256" E
	18	24° 29' 5.275" N	87° 50' 0.795" E
	19	24° 29' 5.679" N	87° 50' 0.107" E
	20	24° 29' 5.823" N	87° 49' 59.657" E
	21	24° 29' 5.839" N	87° 49' 59.262" E
	22	24° 29' 5.765" N	87° 49' 58.641" E
	23	24° 29' 5.681" N	87° 49' 57.442" E
	24	24° 29' 5.683" N	87° 49' 56.963" E
	25	24° 29' 5.663" N	87° 49' 55.961" E
	26	24° 29' 5.436" N	87° 49' 55.001" E
	27	24° 29' 5.251" N	87° 49' 53.971" E
	28	24° 29' 8.030" N	87° 49' 53.989" E
	29	24° 29' 7.978" N	87° 49' 55.552" E
	30	24° 29' 7.931" N	87° 49' 56.351" E
	31	24° 29' 7.843" N	87° 49' 57.595" E
	32	24° 29' 7.524" N	87° 49' 58.885" E
	33	24° 29' 7.056" N	87° 49' 59.975" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	34	24° 29' 6.547" N	87° 50' 0.665" E
BH_M1_BS_07	1	24° 28' 47.149" N	87° 50' 42.465" E
	2	24° 28' 46.473" N	87° 50' 41.438" E
	3	24° 28' 46.828" N	87° 50' 39.608" E
	4	24° 28' 47.097" N	87° 50' 37.636" E
	5	24° 28' 47.841" N	87° 50' 35.385" E
	6	24° 28' 48.285" N	87° 50' 32.897" E
	7	24° 28' 48.683" N	87° 50' 30.832" E
	8	24° 28' 48.735" N	87° 50' 29.187" E
	9	24° 28' 48.832" N	87° 50' 27.308" E
	10	24° 28' 49.232" N	87° 50' 25.008" E
	11	24° 28' 49.673" N	87° 50' 22.943" E
	12	24° 28' 50.971" N	87° 50' 21.767" E
	13	24° 28' 51.241" N	87° 50' 22.911" E
	14	24° 28' 51.559" N	87° 50' 23.618" E
	15	24° 28' 51.568" N	87° 50' 24.053" E
	16	24° 28' 51.627" N	87° 50' 25.017" E
	17	24° 28' 51.755" N	87° 50' 27.015" E
	18	24° 28' 51.623" N	87° 50' 29.505" E
	19	24° 28' 51.361" N	87° 50' 32.147" E
	20	24° 28' 50.553" N	87° 50' 34.421" E
	21	24° 28' 50.256" N	87° 50' 35.523" E
	22	24° 28' 49.199" N	87° 50' 38.042" E
	23	24° 28' 48.220" N	87° 50' 40.198" E
	24	24° 28' 47.599" N	87° 50' 41.509" E
BH_M1_BS_11	1	24° 29' 7.874" N	87° 51' 51.653" E
	2	24° 29' 6.387" N	87° 51' 50.719" E
	3	24° 29' 6.849" N	87° 51' 50.677" E
	4	24° 29' 7.068" N	87° 51' 50.819" E
	5	24° 29' 7.299" N	87° 51' 51.046" E
	6	24° 29' 7.633" N	87° 51' 51.204" E
	7	24° 29' 7.865" N	87° 51' 51.247" E
	8	24° 29' 7.776" N	87° 51' 51.049" E
	9	24° 29' 7.366" N	87° 51' 50.511" E
	10	24° 29' 7.951" N	87° 51' 49.866" E
	11	24° 29' 8.262" N	87° 51' 49.586" E
	12	24° 29' 8.559" N	87° 51' 49.518" E
	13	24° 29' 8.958" N	87° 51' 49.704" E
	14	24° 29' 9.279" N	87° 51' 50.059" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	15	24° 29' 9.602" N	87° 51' 49.976" E
	16	24° 29' 9.936" N	87° 51' 50.091" E
	17	24° 29' 10.220" N	87° 51' 50.107" E
	18	24° 29' 10.606" N	87° 51' 50.307" E
	19	24° 29' 10.940" N	87° 51' 50.634" E
	20	24° 29' 11.248" N	87° 51' 50.876" E
	21	24° 29' 11.623" N	87° 51' 50.780" E
	22	24° 29' 12.126" N	87° 51' 50.797" E
	23	24° 29' 12.473" N	87° 51' 50.997" E
	24	24° 29' 12.987" N	87° 51' 51.409" E
	25	24° 29' 13.939" N	87° 51' 51.966" E
	26	24° 29' 14.673" N	87° 51' 52.140" E
	27	24° 29' 15.071" N	87° 51' 52.453" E
	28	24° 29' 16.570" N	87° 51' 54.338" E
	29	24° 29' 20.360" N	87° 52' 1.468" E
	30	24° 29' 20.007" N	87° 52' 2.143" E
	31	24° 29' 19.683" N	87° 52' 2.763" E
	32	24° 29' 19.620" N	87° 52' 3.045" E
	33	24° 29' 19.392" N	87° 52' 2.612" E
	34	24° 29' 18.902" N	87° 52' 1.798" E
	35	24° 29' 18.336" N	87° 52' 1.030" E
	36	24° 29' 17.514" N	87° 52' 0.096" E
	37	24° 29' 16.574" N	87° 51' 58.985" E
	38	24° 29' 15.580" N	87° 51' 57.851" E
	39	24° 29' 15.024" N	87° 51' 57.353" E
	40	24° 29' 14.179" N	87° 51' 56.631" E
	41	24° 29' 13.558" N	87° 51' 56.203" E
	42	24° 29' 12.669" N	87° 51' 55.563" E
	43	24° 29' 11.973" N	87° 51' 54.935" E
	44	24° 29' 10.251" N	87° 51' 53.490" E
	45	24° 29' 9.255" N	87° 51' 52.755" E
	46	24° 29' 8.624" N	87° 51' 52.151" E
BH_M1_BS_12	1	24° 29' 20.805" N	87° 52' 11.463" E
	2	24° 29' 20.454" N	87° 52' 6.526" E
	3	24° 29' 20.895" N	87° 52' 4.359" E
	4	24° 29' 21.288" N	87° 52' 1.767" E
	5	24° 29' 21.624" N	87° 52' 1.329" E
	6	24° 29' 21.796" N	87° 52' 1.788" E
	7	24° 29' 22.067" N	87° 52' 3.176" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	8	24° 29' 22.718" N	87° 52' 6.024" E
	9	24° 29' 22.881" N	87° 52' 7.506" E
	10	24° 29' 22.918" N	87° 52' 8.493" E
	11	24° 29' 22.886" N	87° 52' 9.878" E
	12	24° 29' 21.732" N	87° 52' 12.558" E
BH_M2_BS_13	1	24° 29' 22.973" N	87° 52' 16.679" E
	2	24° 29' 22.477" N	87° 52' 16.402" E
	3	24° 29' 21.742" N	87° 52' 16.057" E
	4	24° 29' 21.544" N	87° 52' 13.410" E
	5	24° 29' 22.863" N	87° 52' 10.343" E
	6	24° 29' 22.817" N	87° 52' 11.265" E
	7	24° 29' 22.660" N	87° 52' 12.275" E
	8	24° 29' 22.610" N	87° 52' 13.496" E
	9	24° 29' 22.604" N	87° 52' 14.530" E
	10	24° 29' 22.874" N	87° 52' 16.271" E
BH_M2_BS_13A	1	24° 29' 21.883" N	87° 52' 20.031" E
	2	24° 29' 21.665" N	87° 52' 17.198" E
	3	24° 29' 22.470" N	87° 52' 17.567" E
	4	24° 29' 22.974" N	87° 52' 19.676" E
	5	24° 29' 23.807" N	87° 52' 24.382" E
	6	24° 29' 23.564" N	87° 52' 24.972" E
	7	24° 29' 23.148" N	87° 52' 24.387" E
	8	24° 29' 22.755" N	87° 52' 23.538" E
	9	24° 29' 22.449" N	87° 52' 22.596" E
	10	24° 29' 22.046" N	87° 52' 21.524" E
BH_M2_BS_14	1	24° 29' 29.689" N	87° 52' 28.150" E
	2	24° 29' 29.636" N	87° 52' 28.305" E
	3	24° 29' 29.687" N	87° 52' 28.503" E
	4	24° 29' 29.570" N	87° 52' 28.629" E
	5	24° 29' 29.169" N	87° 52' 28.753" E
	6	24° 29' 28.950" N	87° 52' 28.723" E
	7	24° 29' 27.904" N	87° 52' 28.140" E
	8	24° 29' 27.087" N	87° 52' 27.551" E
	9	24° 29' 26.390" N	87° 52' 27.194" E
	10	24° 29' 25.961" N	87° 52' 26.932" E
	11	24° 29' 25.749" N	87° 52' 26.741" E
	12	24° 29' 25.802" N	87° 52' 26.516" E
	13	24° 29' 25.880" N	87° 52' 26.361" E
	14	24° 29' 25.868" N	87° 52' 26.192" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	15	24° 29' 25.973" N	87° 52' 25.868" E
	16	24° 29' 25.988" N	87° 52' 25.586" E
	17	24° 29' 25.835" N	87° 52' 25.148" E
	18	24° 29' 25.915" N	87° 52' 24.796" E
	19	24° 29' 26.304" N	87° 52' 24.503" E
	20	24° 29' 26.473" N	87° 52' 24.264" E
	21	24° 29' 26.926" N	87° 52' 23.901" E
	22	24° 29' 27.264" N	87° 52' 23.607" E
	23	24° 29' 27.768" N	87° 52' 23.470" E
	24	24° 29' 28.141" N	87° 52' 23.515" E
	25	24° 29' 28.334" N	87° 52' 23.713" E
	26	24° 29' 28.461" N	87° 52' 24.053" E
	27	24° 29' 28.613" N	87° 52' 24.547" E
	28	24° 29' 28.792" N	87° 52' 24.887" E
	29	24° 29' 29.074" N	87° 52' 25.157" E
	30	24° 29' 29.318" N	87° 52' 25.285" E
	31	24° 29' 29.446" N	87° 52' 25.455" E
	32	24° 29' 29.640" N	87° 52' 25.513" E
	33	24° 29' 29.897" N	87° 52' 25.698" E
	34	24° 29' 30.165" N	87° 52' 26.081" E
	35	24° 29' 30.410" N	87° 52' 26.153" E
	36	24° 29' 30.666" N	87° 52' 26.592" E
	37	24° 29' 31.990" N	87° 52' 29.548" E
	38	24° 29' 31.706" N	87° 52' 29.687" E
	39	24° 29' 31.345" N	87° 52' 29.557" E
	40	24° 29' 30.715" N	87° 52' 29.158" E
	41	24° 29' 30.293" N	87° 52' 28.605" E
	42	24° 29' 29.920" N	87° 52' 28.250" E
BH_M2_BS_19	1	24° 30' 38.533" N	87° 53' 33.838" E
	2	24° 30' 36.356" N	87° 53' 32.318" E
	3	24° 30' 37.268" N	87° 53' 32.254" E
	4	24° 30' 38.471" N	87° 53' 32.357" E
	5	24° 30' 39.567" N	87° 53' 32.529" E
	6	24° 30' 40.275" N	87° 53' 32.746" E
	7	24° 30' 40.813" N	87° 53' 32.820" E
	8	24° 30' 41.564" N	87° 53' 33.013" E
	9	24° 30' 42.015" N	87° 53' 33.205" E
	10	24° 30' 43.063" N	87° 53' 34.035" E
	11	24° 30' 43.534" N	87° 53' 34.508" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	12	24° 30' 43.875" N	87° 53' 35.028" E
	13	24° 30' 44.216" N	87° 53' 35.500" E
	14	24° 30' 44.986" N	87° 53' 36.258" E
	15	24° 30' 45.411" N	87° 53' 37.013" E
	16	24° 30' 45.944" N	87° 53' 37.933" E
	17	24° 30' 46.348" N	87° 53' 38.618" E
	18	24° 30' 46.858" N	87° 53' 39.609" E
	19	24° 30' 46.986" N	87° 53' 40.272" E
	20	24° 30' 45.790" N	87° 53' 40.207" E
	21	24° 30' 43.810" N	87° 53' 37.485" E
	22	24° 30' 42.750" N	87° 53' 36.387" E
	23	24° 30' 40.559" N	87° 53' 34.491" E
BH_M1_BS_21	1	24° 31' 20.582" N	87° 54' 16.664" E
	2	24° 31' 23.011" N	87° 54' 16.411" E
	3	24° 31' 24.986" N	87° 54' 16.157" E
	4	24° 31' 26.483" N	87° 54' 16.083" E
	5	24° 31' 26.808" N	87° 54' 15.761" E
	6	24° 31' 28.238" N	87° 54' 16.053" E
	7	24° 31' 29.218" N	87° 54' 16.173" E
	8	24° 31' 29.902" N	87° 54' 16.164" E
	9	24° 31' 30.406" N	87° 54' 16.041" E
	10	24° 31' 31.667" N	87° 54' 16.600" E
	11	24° 31' 32.286" N	87° 54' 16.787" E
	12	24° 31' 32.929" N	87° 54' 17.088" E
	13	24° 31' 33.535" N	87° 54' 17.191" E
	14	24° 31' 34.192" N	87° 54' 17.309" E
	15	24° 31' 34.822" N	87° 54' 17.751" E
	16	24° 31' 35.488" N	87° 54' 18.545" E
	17	24° 31' 35.743" N	87° 54' 19.097" E
	18	24° 31' 35.764" N	87° 54' 19.901" E
	19	24° 31' 35.863" N	87° 54' 20.466" E
	20	24° 31' 36.037" N	87° 54' 20.970" E
	21	24° 31' 35.216" N	87° 54' 20.695" E
	22	24° 31' 35.165" N	87° 54' 20.429" E
	23	24° 31' 34.911" N	87° 54' 19.736" E
	24	24° 31' 34.476" N	87° 54' 19.099" E
	25	24° 31' 33.640" N	87° 54' 18.571" E
	26	24° 31' 33.113" N	87° 54' 18.355" E
	27	24° 31' 32.928" N	87° 54' 18.375" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	28	24° 31' 32.194" N	87° 54' 18.106" E
	29	24° 31' 31.924" N	87° 54' 18.047" E
	30	24° 31' 31.318" N	87° 54' 18.334" E
	31	24° 31' 31.022" N	87° 54' 18.354" E
	32	24° 31' 30.089" N	87° 54' 18.401" E
	33	24° 31' 29.727" N	87° 54' 18.497" E
	34	24° 31' 28.910" N	87° 54' 18.968" E
	35	24° 31' 26.112" N	87° 54' 18.492" E
	36	24° 31' 24.778" N	87° 54' 17.595" E
	37	24° 31' 23.530" N	87° 54' 17.657" E
	38	24° 31' 22.929" N	87° 54' 17.511" E
	39	24° 31' 22.070" N	87° 54' 17.223" E
	40	24° 31' 21.745" N	87° 54' 17.174" E
	41	24° 31' 21.404" N	87° 54' 17.025" E
BH_M2_BS_24	1	24° 31' 37.425" N	87° 54' 26.842" E
	2	24° 31' 37.324" N	87° 54' 27.523" E
	3	24° 31' 37.365" N	87° 54' 28.586" E
	4	24° 31' 37.110" N	87° 54' 27.724" E
	5	24° 31' 36.802" N	87° 54' 27.482" E
	6	24° 31' 36.560" N	87° 54' 27.015" E
	7	24° 31' 36.370" N	87° 54' 26.337" E
	8	24° 31' 35.804" N	87° 54' 23.949" E
	9	24° 31' 35.703" N	87° 54' 23.554" E
	10	24° 31' 35.667" N	87° 54' 23.116" E
	11	24° 31' 35.786" N	87° 54' 22.694" E
	12	24° 31' 36.267" N	87° 54' 21.936" E
	13	24° 31' 36.414" N	87° 54' 21.392" E
	14	24° 31' 37.471" N	87° 54' 21.748" E
	15	24° 31' 37.553" N	87° 54' 23.447" E
	16	24° 31' 37.499" N	87° 54' 25.244" E
BH_M2_BS_25	1	24° 31' 35.300" N	87° 54' 21.559" E
	2	24° 31' 35.267" N	87° 54' 20.992" E
	3	24° 31' 35.987" N	87° 54' 21.234" E
	4	24° 31' 35.856" N	87° 54' 21.665" E
	5	24° 31' 35.477" N	87° 54' 22.522" E
	6	24° 31' 35.420" N	87° 54' 22.514" E
	7	24° 31' 35.357" N	87° 54' 22.148" E
	8	24° 31' 35.298" N	87° 54' 21.855" E
BH_M2_BS_26	1	24° 31' 36.154" N	87° 54' 28.520" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	2	24° 31' 36.781" N	87° 54' 29.768" E
	3	24° 31' 36.886" N	87° 54' 30.133" E
	4	24° 31' 36.968" N	87° 54' 30.827" E
	5	24° 31' 36.986" N	87° 54' 31.474" E
	6	24° 31' 37.056" N	87° 54' 32.356" E
	7	24° 31' 37.168" N	87° 54' 33.321" E
	8	24° 31' 37.219" N	87° 54' 33.768" E
	9	24° 31' 37.355" N	87° 54' 34.509" E
	10	24° 31' 38.074" N	87° 54' 35.983" E
	11	24° 31' 38.480" N	87° 54' 36.915" E
	12	24° 31' 38.924" N	87° 54' 37.541" E
	13	24° 31' 39.178" N	87° 54' 38.342" E
	14	24° 31' 39.603" N	87° 54' 39.215" E
	15	24° 31' 40.369" N	87° 54' 40.466" E
	16	24° 31' 40.946" N	87° 54' 41.128" E
	17	24° 31' 41.328" N	87° 54' 41.977" E
	18	24° 31' 41.808" N	87° 54' 43.236" E
	19	24° 31' 42.191" N	87° 54' 43.954" E
	20	24° 31' 42.460" N	87° 54' 44.285" E
	21	24° 31' 42.922" N	87° 54' 44.725" E
	22	24° 31' 43.149" N	87° 54' 44.854" E
	23	24° 31' 43.445" N	87° 54' 44.992" E
	24	24° 31' 44.019" N	87° 54' 45.316" E
	25	24° 31' 45.048" N	87° 54' 45.497" E
	26	24° 31' 46.336" N	87° 54' 45.902" E
	27	24° 31' 46.992" N	87° 54' 46.182" E
	28	24° 31' 47.914" N	87° 54' 46.652" E
	29	24° 31' 48.376" N	87° 54' 46.800" E
	30	24° 31' 49.304" N	87° 54' 47.315" E
	31	24° 31' 49.663" N	87° 54' 47.712" E
	32	24° 31' 49.814" N	87° 54' 48.471" E
	33	24° 31' 50.006" N	87° 54' 48.778" E
	34	24° 31' 50.208" N	87° 54' 49.167" E
	35	24° 31' 50.421" N	87° 54' 49.545" E
	36	24° 31' 50.432" N	87° 54' 49.773" E
	37	24° 31' 50.120" N	87° 54' 49.574" E
	38	24° 31' 48.936" N	87° 54' 49.157" E
	39	24° 31' 48.035" N	87° 54' 48.783" E
	40	24° 31' 46.645" N	87° 54' 48.110" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	41	24° 31' 45.745" N	87° 54' 47.667" E
	42	24° 31' 45.179" N	87° 54' 47.395" E
	43	24° 31' 44.498" N	87° 54' 46.868" E
	44	24° 31' 43.778" N	87° 54' 46.369" E
	45	24° 31' 43.213" N	87° 54' 46.040" E
	46	24° 31' 42.737" N	87° 54' 45.783" E
	47	24° 31' 40.596" N	87° 54' 43.398" E
	48	24° 31' 40.238" N	87° 54' 42.986" E
	49	24° 31' 39.138" N	87° 54' 41.371" E
	50	24° 31' 38.692" N	87° 54' 40.479" E
	51	24° 31' 38.098" N	87° 54' 38.345" E
	52	24° 31' 38.089" N	87° 54' 37.668" E
	53	24° 31' 37.786" N	87° 54' 36.580" E
	54	24° 31' 37.262" N	87° 54' 35.786" E
	55	24° 31' 37.058" N	87° 54' 35.333" E
	56	24° 31' 36.831" N	87° 54' 34.429" E
	57	24° 31' 36.733" N	87° 54' 33.638" E
	58	24° 31' 36.397" N	87° 54' 31.535" E
	59	24° 31' 36.284" N	87° 54' 30.984" E
	60	24° 31' 36.215" N	87° 54' 29.657" E
BH_M2_BS_27	1	24° 32' 10.410" N	87° 54' 40.059" E
	2	24° 32' 9.839" N	87° 54' 40.464" E
	3	24° 32' 9.374" N	87° 54' 40.957" E
	4	24° 32' 9.736" N	87° 54' 40.252" E
	5	24° 32' 9.859" N	87° 54' 39.820" E
	6	24° 32' 9.705" N	87° 54' 39.669" E
	7	24° 32' 9.308" N	87° 54' 39.892" E
	8	24° 32' 9.031" N	87° 54' 40.115" E
	9	24° 32' 8.894" N	87° 54' 40.020" E
	10	24° 32' 8.981" N	87° 54' 39.776" E
	11	24° 32' 9.380" N	87° 54' 39.328" E
	12	24° 32' 9.797" N	87° 54' 38.691" E
	13	24° 32' 10.584" N	87° 54' 37.584" E
	14	24° 32' 11.113" N	87° 54' 37.272" E
	15	24° 32' 14.108" N	87° 54' 36.898" E
	16	24° 32' 14.422" N	87° 54' 37.298" E
	17	24° 32' 13.844" N	87° 54' 37.517" E
	18	24° 32' 11.823" N	87° 54' 38.955" E
BH_M2_BS_28	1	24° 32' 23.649" N	87° 54' 49.549" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	2	24° 32' 23.614" N	87° 54' 51.101" E
	3	24° 32' 23.840" N	87° 54' 52.005" E
	4	24° 32' 23.682" N	87° 54' 52.540" E
	5	24° 32' 23.522" N	87° 54' 53.413" E
	6	24° 32' 23.135" N	87° 54' 53.382" E
	7	24° 32' 22.699" N	87° 54' 52.984" E
	8	24° 32' 22.592" N	87° 54' 53.660" E
	9	24° 32' 22.467" N	87° 54' 53.845" E
	10	24° 32' 22.568" N	87° 54' 52.828" E
	11	24° 32' 22.712" N	87° 54' 50.407" E
	12	24° 32' 22.736" N	87° 54' 46.528" E
	13	24° 32' 22.298" N	87° 54' 44.268" E
	14	24° 32' 21.872" N	87° 54' 43.513" E
	15	24° 32' 21.317" N	87° 54' 42.898" E
	16	24° 32' 20.655" N	87° 54' 42.117" E
	17	24° 32' 20.271" N	87° 54' 41.550" E
	18	24° 32' 19.995" N	87° 54' 40.937" E
	19	24° 32' 19.654" N	87° 54' 40.417" E
	20	24° 32' 19.143" N	87° 54' 39.708" E
	21	24° 32' 18.866" N	87° 54' 39.260" E
	22	24° 32' 18.718" N	87° 54' 38.859" E
	23	24° 32' 18.398" N	87° 54' 38.433" E
	24	24° 32' 17.879" N	87° 54' 38.124" E
	25	24° 32' 15.926" N	87° 54' 37.462" E
	26	24° 32' 16.551" N	87° 54' 36.972" E
	27	24° 32' 17.922" N	87° 54' 36.446" E
	28	24° 32' 19.185" N	87° 54' 36.625" E
	29	24° 32' 20.087" N	87° 54' 36.857" E
	30	24° 32' 20.727" N	87° 54' 37.736" E
	31	24° 32' 21.518" N	87° 54' 39.237" E
	32	24° 32' 22.412" N	87° 54' 40.682" E
	33	24° 32' 23.208" N	87° 54' 41.365" E
	34	24° 32' 23.771" N	87° 54' 42.159" E
	35	24° 32' 24.178" N	87° 54' 43.177" E
	36	24° 32' 24.318" N	87° 54' 45.520" E
	37	24° 32' 24.310" N	87° 54' 46.817" E
	38	24° 32' 23.816" N	87° 54' 47.576" E
BH_MB_DR_01	1	24° 4' 46.918" N	87° 33' 33.929" E
	2	24° 4' 46.296" N	87° 33' 33.799" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	3	24° 4' 46.604" N	87° 33' 33.521" E
	4	24° 4' 47.172" N	87° 33' 33.327" E
	5	24° 4' 48.063" N	87° 33' 33.176" E
	6	24° 4' 48.928" N	87° 33' 32.983" E
	7	24° 4' 49.664" N	87° 33' 32.958" E
	8	24° 4' 50.180" N	87° 33' 33.073" E
	9	24° 4' 50.915" N	87° 33' 33.188" E
	10	24° 4' 52.064" N	87° 33' 33.039" E
	11	24° 4' 52.541" N	87° 33' 33.139" E
	12	24° 4' 53.213" N	87° 33' 32.875" E
	13	24° 4' 53.886" N	87° 33' 32.302" E
	14	24° 4' 54.443" N	87° 33' 31.854" E
	15	24° 4' 55.011" N	87° 33' 31.548" E
	16	24° 4' 55.568" N	87° 33' 31.016" E
	17	24° 4' 55.982" N	87° 33' 30.905" E
	18	24° 4' 56.462" N	87° 33' 30.568" E
	19	24° 4' 56.936" N	87° 33' 30.394" E
	20	24° 4' 57.589" N	87° 33' 30.197" E
	21	24° 4' 57.880" N	87° 33' 31.919" E
	22	24° 4' 57.118" N	87° 33' 32.380" E
	23	24° 4' 55.782" N	87° 33' 33.124" E
	24	24° 4' 53.846" N	87° 33' 33.256" E
	25	24° 4' 51.737" N	87° 33' 33.622" E
BH_MB_DR_02_03	1	24° 4' 36.620" N	87° 33' 32.344" E
	2	24° 4' 36.227" N	87° 33' 32.003" E
	3	24° 4' 37.291" N	87° 33' 31.539" E
	4	24° 4' 39.013" N	87° 33' 31.172" E
	5	24° 4' 40.906" N	87° 33' 30.974" E
	6	24° 4' 42.885" N	87° 33' 30.851" E
	7	24° 4' 46.532" N	87° 33' 30.960" E
	8	24° 4' 47.960" N	87° 33' 31.154" E
	9	24° 4' 48.665" N	87° 33' 31.288" E
	10	24° 4' 49.525" N	87° 33' 31.255" E
	11	24° 4' 50.816" N	87° 33' 31.091" E
	12	24° 4' 53.210" N	87° 33' 30.390" E
	13	24° 4' 56.976" N	87° 33' 28.546" E
	14	24° 4' 56.871" N	87° 33' 28.707" E
	15	24° 4' 56.761" N	87° 33' 29.503" E
	16	24° 4' 56.523" N	87° 33' 29.924" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	17	24° 4' 55.316" N	87° 33' 30.598" E
	18	24° 4' 54.087" N	87° 33' 31.553" E
	19	24° 4' 50.599" N	87° 33' 32.475" E
	20	24° 4' 49.782" N	87° 33' 32.424" E
	21	24° 4' 48.921" N	87° 33' 32.561" E
	22	24° 4' 47.286" N	87° 33' 32.695" E
	23	24° 4' 43.501" N	87° 33' 32.631" E
	24	24° 4' 42.168" N	87° 33' 32.485" E
	25	24° 4' 40.835" N	87° 33' 32.315" E
	26	24° 4' 38.663" N	87° 33' 32.470" E
	27	24° 4' 37.565" N	87° 33' 32.559" E
BH_MB_DR_04	1	24° 4' 22.839" N	87° 33' 45.700" E
	2	24° 4' 22.505" N	87° 33' 44.803" E
	3	24° 4' 22.954" N	87° 33' 43.889" E
	4	24° 4' 23.861" N	87° 33' 42.768" E
	5	24° 4' 24.788" N	87° 33' 42.046" E
	6	24° 4' 25.544" N	87° 33' 41.370" E
	7	24° 4' 26.430" N	87° 33' 40.226" E
	8	24° 4' 27.919" N	87° 33' 38.897" E
	9	24° 4' 28.954" N	87° 33' 38.176" E
	10	24° 4' 29.665" N	87° 33' 37.734" E
	11	24° 4' 30.420" N	87° 33' 37.128" E
	12	24° 4' 30.658" N	87° 33' 36.801" E
	13	24° 4' 34.004" N	87° 33' 33.534" E
	14	24° 4' 36.952" N	87° 33' 33.033" E
	15	24° 4' 37.919" N	87° 33' 33.061" E
	16	24° 4' 39.016" N	87° 33' 33.089" E
	17	24° 4' 40.243" N	87° 33' 32.814" E
	18	24° 4' 43.385" N	87° 33' 33.210" E
	19	24° 4' 43.489" N	87° 33' 33.396" E
	20	24° 4' 42.705" N	87° 33' 33.442" E
	21	24° 4' 39.993" N	87° 33' 33.852" E
	22	24° 4' 37.754" N	87° 33' 34.452" E
	23	24° 4' 35.171" N	87° 33' 34.956" E
	24	24° 4' 31.156" N	87° 33' 38.967" E
	25	24° 4' 29.383" N	87° 33' 41.536" E
	26	24° 4' 27.742" N	87° 33' 43.497" E
	27	24° 4' 26.793" N	87° 33' 44.008" E
	28	24° 4' 25.890" N	87° 33' 43.911" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	29	24° 4' 24.470" N	87° 33' 44.232" E
BH_MB_DR_05	1	24° 4' 11.325" N	87° 33' 48.790" E
	2	24° 4' 10.935" N	87° 33' 48.202" E
	3	24° 4' 11.301" N	87° 33' 48.104" E
	4	24° 4' 11.766" N	87° 33' 48.050" E
	5	24° 4' 12.764" N	87° 33' 47.867" E
	6	24° 4' 13.281" N	87° 33' 47.719" E
	7	24° 4' 14.230" N	87° 33' 47.049" E
	8	24° 4' 15.607" N	87° 33' 46.755" E
	9	24° 4' 17.294" N	87° 33' 46.537" E
	10	24° 4' 19.292" N	87° 33' 45.928" E
	11	24° 4' 20.120" N	87° 33' 45.500" E
	12	24° 4' 20.500" N	87° 33' 45.052" E
	13	24° 4' 20.585" N	87° 33' 44.998" E
	14	24° 4' 21.012" N	87° 33' 45.735" E
	15	24° 4' 21.069" N	87° 33' 46.765" E
	16	24° 4' 20.619" N	87° 33' 47.158" E
	17	24° 4' 19.585" N	87° 33' 47.848" E
	18	24° 4' 19.092" N	87° 33' 48.113" E
	19	24° 4' 18.614" N	87° 33' 48.344" E
	20	24° 4' 17.345" N	87° 33' 48.432" E
	21	24° 4' 16.183" N	87° 33' 48.614" E
	22	24° 4' 14.826" N	87° 33' 49.124" E
	23	24° 4' 13.578" N	87° 33' 49.235" E
	24	24° 4' 12.202" N	87° 33' 49.065" E
BH_MB_DR_06	1	24° 4' 6.250" N	87° 33' 50.993" E
	2	24° 4' 4.165" N	87° 33' 51.550" E
	3	24° 4' 4.212" N	87° 33' 51.144" E
	4	24° 4' 4.661" N	87° 33' 50.790" E
	5	24° 4' 5.299" N	87° 33' 50.399" E
	6	24° 4' 5.919" N	87° 33' 50.233" E
	7	24° 4' 6.607" N	87° 33' 50.095" E
	8	24° 4' 7.490" N	87° 33' 49.630" E
	9	24° 4' 8.589" N	87° 33' 49.096" E
	10	24° 4' 9.537" N	87° 33' 48.772" E
	11	24° 4' 10.783" N	87° 33' 49.129" E
	12	24° 4' 11.426" N	87° 33' 49.718" E
	13	24° 4' 11.511" N	87° 33' 49.903" E
	14	24° 4' 9.393" N	87° 33' 50.210" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
BH_MB_DR_07_08	1	24° 3' 55.233" N	87° 33' 54.413" E
	2	24° 3' 55.152" N	87° 33' 54.048" E
	3	24° 3' 55.724" N	87° 33' 53.484" E
	4	24° 3' 57.362" N	87° 33' 52.672" E
	5	24° 3' 57.975" N	87° 33' 52.604" E
	6	24° 3' 58.277" N	87° 33' 52.453" E
	7	24° 3' 59.883" N	87° 33' 51.336" E
	8	24° 4' 1.486" N	87° 33' 51.156" E
	9	24° 4' 1.958" N	87° 33' 51.228" E
	10	24° 4' 2.422" N	87° 33' 51.455" E
	11	24° 4' 2.591" N	87° 33' 52.015" E
	12	24° 3' 58.455" N	87° 33' 53.441" E
BH_MB_DR_09	1	24° 3' 42.874" N	87° 33' 47.624" E
	2	24° 3' 42.664" N	87° 33' 47.059" E
	3	24° 3' 43.737" N	87° 33' 48.002" E
	4	24° 3' 45.402" N	87° 33' 49.246" E
	5	24° 3' 46.278" N	87° 33' 49.644" E
	6	24° 3' 47.720" N	87° 33' 50.437" E
	7	24° 3' 50.193" N	87° 33' 51.685" E
	8	24° 3' 51.498" N	87° 33' 52.346" E
	9	24° 3' 52.815" N	87° 33' 52.728" E
	10	24° 3' 52.533" N	87° 33' 52.908" E
	11	24° 3' 51.964" N	87° 33' 52.976" E
	12	24° 3' 50.869" N	87° 33' 52.732" E
	13	24° 3' 50.198" N	87° 33' 52.504" E
	14	24° 3' 49.361" N	87° 33' 52.037" E
	15	24° 3' 48.601" N	87° 33' 51.640" E
	16	24° 3' 47.235" N	87° 33' 51.255" E
	17	24° 3' 46.797" N	87° 33' 51.126" E
	18	24° 3' 46.383" N	87° 33' 51.251" E
	19	24° 3' 45.802" N	87° 33' 51.101" E
	20	24° 3' 44.979" N	87° 33' 50.500" E
	21	24° 3' 44.710" N	87° 33' 50.021" E
	22	24° 3' 43.965" N	87° 33' 49.273" E
	23	24° 3' 43.413" N	87° 33' 48.413" E
BH_MB_DR_17	1	24° 1' 20.196" N	87° 36' 32.033" E
	2	24° 1' 19.807" N	87° 36' 32.467" E
	3	24° 1' 19.212" N	87° 36' 32.885" E
	4	24° 1' 18.541" N	87° 36' 32.995" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	5	24° 1' 17.986" N	87° 36' 33.006" E
	6	24° 1' 17.470" N	87° 36' 32.919" E
	7	24° 1' 16.748" N	87° 36' 32.761" E
	8	24° 1' 16.000" N	87° 36' 32.730" E
	9	24° 1' 15.147" N	87° 36' 32.908" E
	10	24° 1' 14.320" N	87° 36' 33.143" E
	11	24° 1' 13.067" N	87° 36' 33.559" E
	12	24° 1' 12.034" N	87° 36' 33.751" E
	13	24° 1' 10.911" N	87° 36' 33.703" E
	14	24° 1' 9.880" N	87° 36' 33.530" E
	15	24° 1' 9.488" N	87° 36' 33.263" E
	16	24° 1' 11.523" N	87° 36' 32.778" E
	17	24° 1' 13.194" N	87° 36' 32.280" E
	18	24° 1' 14.038" N	87° 36' 32.059" E
	19	24° 1' 16.018" N	87° 36' 31.694" E
	20	24° 1' 18.135" N	87° 36' 31.591" E
	21	24° 1' 19.322" N	87° 36' 31.578" E
	22	24° 1' 20.196" N	87° 36' 31.653" E
BH_MB_DR_18	1	24° 0' 57.630" N	87° 36' 49.474" E
	2	24° 0' 57.622" N	87° 36' 49.305" E
	3	24° 0' 57.780" N	87° 36' 48.519" E
	4	24° 0' 58.812" N	87° 36' 45.363" E
	5	24° 0' 59.410" N	87° 36' 44.256" E
	6	24° 0' 59.761" N	87° 36' 43.639" E
	7	24° 1' 0.228" N	87° 36' 43.079" E
	8	24° 1' 1.709" N	87° 36' 40.473" E
	9	24° 1' 2.123" N	87° 36' 40.279" E
	10	24° 1' 3.214" N	87° 36' 38.668" E
	11	24° 1' 3.938" N	87° 36' 38.166" E
	12	24° 1' 5.026" N	87° 36' 37.258" E
	13	24° 1' 5.676" N	87° 36' 36.109" E
	14	24° 1' 5.911" N	87° 36' 35.422" E
	15	24° 1' 6.298" N	87° 36' 34.811" E
	16	24° 1' 7.217" N	87° 36' 34.655" E
	17	24° 1' 7.890" N	87° 36' 34.096" E
	18	24° 1' 8.510" N	87° 36' 33.987" E
	19	24° 1' 8.935" N	87° 36' 34.172" E
	20	24° 1' 9.192" N	87° 36' 34.580" E
	21	24° 1' 9.093" N	87° 36' 34.868" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	22	24° 1' 8.914" N	87° 36' 34.910" E
	23	24° 1' 6.930" N	87° 36' 36.306" E
	24	24° 1' 4.920" N	87° 36' 38.614" E
	25	24° 1' 4.100" N	87° 36' 39.407" E
	26	24° 1' 3.106" N	87° 36' 40.643" E
	27	24° 1' 1.804" N	87° 36' 43.353" E
	28	24° 0' 58.882" N	87° 36' 47.975" E
BH_MB_DR_19	1	24° 0' 45.122" N	87° 36' 59.558" E
	2	24° 0' 42.730" N	87° 36' 58.088" E
	3	24° 0' 43.603" N	87° 36' 57.258" E
	4	24° 0' 46.401" N	87° 36' 54.724" E
	5	24° 0' 47.194" N	87° 36' 54.241" E
	6	24° 0' 50.814" N	87° 36' 52.647" E
	7	24° 0' 52.212" N	87° 36' 51.549" E
	8	24° 0' 54.406" N	87° 36' 49.349" E
	9	24° 0' 57.171" N	87° 36' 46.440" E
	10	24° 0' 57.302" N	87° 36' 46.251" E
	11	24° 0' 57.255" N	87° 36' 47.002" E
	12	24° 0' 56.945" N	87° 36' 49.037" E
	13	24° 0' 56.683" N	87° 36' 50.160" E
	14	24° 0' 56.076" N	87° 36' 51.304" E
	15	24° 0' 54.932" N	87° 36' 52.423" E
	16	24° 0' 52.453" N	87° 36' 53.769" E
	17	24° 0' 50.403" N	87° 36' 55.375" E
	18	24° 0' 48.657" N	87° 36' 56.443" E
	19	24° 0' 47.536" N	87° 36' 57.023" E
BH_MR1_DR_29	1	24° 0' 48.386" N	87° 39' 53.433" E
	2	24° 0' 48.796" N	87° 39' 54.109" E
	3	24° 0' 48.914" N	87° 39' 54.672" E
	4	24° 0' 48.771" N	87° 39' 55.889" E
	5	24° 0' 48.355" N	87° 39' 56.617" E
	6	24° 0' 46.699" N	87° 39' 57.601" E
	7	24° 0' 46.022" N	87° 39' 59.134" E
	8	24° 0' 45.757" N	87° 39' 59.972" E
	9	24° 0' 45.117" N	87° 39' 59.782" E
	10	24° 0' 44.710" N	87° 39' 59.424" E
	11	24° 0' 45.037" N	87° 39' 58.199" E
	12	24° 0' 45.028" N	87° 39' 58.040" E
	13	24° 0' 45.238" N	87° 39' 57.406" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	14	24° 0' 45.260" N	87° 39' 56.264" E
	15	24° 0' 45.129" N	87° 39' 54.596" E
	16	24° 0' 44.862" N	87° 39' 52.834" E
	17	24° 0' 44.796" N	87° 39' 52.028" E
	18	24° 0' 45.195" N	87° 39' 51.337" E
	19	24° 0' 45.182" N	87° 39' 50.476" E
	20	24° 0' 45.030" N	87° 39' 49.726" E
	21	24° 0' 44.965" N	87° 39' 48.845" E
	22	24° 0' 45.003" N	87° 39' 48.021" E
	23	24° 0' 45.348" N	87° 39' 47.929" E
	24	24° 0' 46.172" N	87° 39' 48.252" E
	25	24° 0' 46.897" N	87° 39' 48.484" E
	26	24° 0' 47.305" N	87° 39' 48.932" E
	27	24° 0' 49.002" N	87° 39' 50.364" E
	28	24° 0' 49.132" N	87° 39' 52.032" E
	29	24° 0' 48.698" N	87° 39' 52.891" E
BH_R2_DR_35	1	24° 5' 40.149" N	87° 47' 12.845" E
	2	24° 5' 39.986" N	87° 47' 12.813" E
	3	24° 5' 40.758" N	87° 47' 12.485" E
	4	24° 5' 41.601" N	87° 47' 12.584" E
	5	24° 5' 42.905" N	87° 47' 12.944" E
	6	24° 5' 43.524" N	87° 47' 13.060" E
	7	24° 5' 44.315" N	87° 47' 13.027" E
	8	24° 5' 45.107" N	87° 47' 13.032" E
	9	24° 5' 46.243" N	87° 47' 12.889" E
	10	24° 5' 47.361" N	87° 47' 13.065" E
	11	24° 5' 48.239" N	87° 47' 12.883" E
	12	24° 5' 49.134" N	87° 47' 12.851" E
	13	24° 5' 49.889" N	87° 47' 13.118" E
	14	24° 5' 50.761" N	87° 47' 13.251" E
	15	24° 5' 49.815" N	87° 47' 13.466" E
	16	24° 5' 49.298" N	87° 47' 13.594" E
	17	24° 5' 47.706" N	87° 47' 13.791" E
	18	24° 5' 46.459" N	87° 47' 13.708" E
	19	24° 5' 45.453" N	87° 47' 13.693" E
	20	24° 5' 44.076" N	87° 47' 13.694" E
	21	24° 5' 43.027" N	87° 47' 13.659" E
	22	24° 5' 42.416" N	87° 47' 13.618" E
	23	24° 5' 41.428" N	87° 47' 13.368" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	24	24° 5' 40.596" N	87° 47' 13.026" E
BH_R2_DR_36	1	24° 5' 49.744" N	87° 47' 12.507" E
	2	24° 5' 49.087" N	87° 47' 12.374" E
	3	24° 5' 49.500" N	87° 47' 12.320" E
	4	24° 5' 51.666" N	87° 47' 11.254" E
	5	24° 5' 52.911" N	87° 47' 10.145" E
	6	24° 5' 53.892" N	87° 47' 9.251" E
	7	24° 5' 54.856" N	87° 47' 8.245" E
	8	24° 5' 54.769" N	87° 47' 8.967" E
	9	24° 5' 54.585" N	87° 47' 9.528" E
	10	24° 5' 53.650" N	87° 47' 10.731" E
	11	24° 5' 52.664" N	87° 47' 11.738" E
	12	24° 5' 51.369" N	87° 47' 12.629" E
	13	24° 5' 50.929" N	87° 47' 12.767" E
	14	24° 5' 50.336" N	87° 47' 12.707" E
BH_MB_MY_01_03_04_06_08	1	23° 57' 32.536" N	87° 33' 15.936" E
	2	23° 57' 26.279" N	87° 33' 21.409" E
	3	23° 57' 24.009" N	87° 33' 24.676" E
	4	23° 57' 23.448" N	87° 33' 31.109" E
	5	23° 57' 22.457" N	87° 33' 37.424" E
	6	23° 57' 19.540" N	87° 33' 41.273" E
	7	23° 57' 15.987" N	87° 33' 42.311" E
	8	23° 57' 13.509" N	87° 33' 43.704" E
	9	23° 57' 10.243" N	87° 33' 45.091" E
	10	23° 57' 12.771" N	87° 33' 38.918" E
	11	23° 57' 19.379" N	87° 33' 25.840" E
	12	23° 57' 20.799" N	87° 33' 19.645" E
	13	23° 57' 24.045" N	87° 33' 14.042" E
	14	23° 57' 27.500" N	87° 33' 10.195" E
	15	23° 57' 29.989" N	87° 33' 6.110" E
	16	23° 57' 30.437" N	87° 33' 1.080" E
	17	23° 57' 30.244" N	87° 32' 54.877" E
	18	23° 57' 30.201" N	87° 32' 54.670" E
	19	23° 57' 37.690" N	87° 32' 54.702" E
	20	23° 57' 37.979" N	87° 32' 57.470" E
	21	23° 57' 36.418" N	87° 33' 11.972" E
BH_MB_MY_1A	1	23° 56' 32.702" N	87° 36' 17.752" E
	2	23° 56' 29.888" N	87° 36' 17.529" E
	3	23° 56' 31.113" N	87° 36' 12.106" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	4	23° 56' 35.539" N	87° 36' 2.392" E
	5	23° 56' 40.471" N	87° 35' 55.114" E
	6	23° 56' 44.170" N	87° 35' 55.131" E
	7	23° 56' 48.486" N	87° 35' 56.414" E
	8	23° 56' 46.100" N	87° 36' 1.551" E
	9	23° 56' 41.227" N	87° 36' 10.187" E
	10	23° 56' 37.658" N	87° 36' 15.435" E
BH_MB_MY_07_08	1	23° 57' 14.893" N	87° 34' 0.271" E
	2	23° 57' 13.896" N	87° 34' 7.990" E
	3	23° 57' 14.082" N	87° 34' 15.948" E
	4	23° 57' 16.624" N	87° 34' 26.373" E
	5	23° 57' 17.009" N	87° 34' 32.433" E
	6	23° 57' 15.333" N	87° 34' 29.145" E
	7	23° 57' 12.077" N	87° 34' 25.667" E
	8	23° 57' 11.401" N	87° 34' 22.481" E
	9	23° 57' 11.247" N	87° 34' 17.612" E
	10	23° 57' 9.539" N	87° 34' 14.235" E
	11	23° 57' 9.029" N	87° 34' 12.548" E
	12	23° 57' 9.650" N	87° 34' 7.402" E
	13	23° 57' 9.237" N	87° 34' 2.813" E
	14	23° 57' 8.130" N	87° 33' 59.719" E
	15	23° 57' 7.713" N	87° 33' 56.067" E
	16	23° 57' 8.671" N	87° 33' 52.982" E
	17	23° 57' 11.266" N	87° 33' 49.155" E
	18	23° 57' 14.715" N	87° 33' 47.017" E
	19	23° 57' 18.249" N	87° 33' 45.254" E
	20	23° 57' 21.706" N	87° 33' 40.962" E
	21	23° 57' 24.303" N	87° 33' 36.387" E
	22	23° 57' 24.491" N	87° 33' 32.175" E
	23	23° 57' 25.541" N	87° 33' 27.405" E
	24	23° 57' 27.273" N	87° 33' 24.136" E
	25	23° 57' 31.073" N	87° 33' 20.220" E
	26	23° 57' 32.970" N	87° 33' 18.965" E
	27	23° 57' 29.962" N	87° 33' 27.221" E
	28	23° 57' 25.301" N	87° 33' 37.381" E
	29	23° 57' 22.919" N	87° 33' 41.584" E
	30	23° 57' 18.590" N	87° 33' 49.054" E
BH_MB_MY_10_11_12	1	23° 57' 18.179" N	87° 34' 57.341" E
	2	23° 57' 14.969" N	87° 34' 53.114" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	3	23° 57' 6.738" N	87° 34' 39.855" E
	4	23° 57' 1.763" N	87° 34' 18.771" E
	5	23° 57' 2.578" N	87° 34' 12.711" E
	6	23° 57' 5.390" N	87° 34' 0.430" E
	7	23° 57' 7.514" N	87° 34' 3.555" E
	8	23° 57' 8.099" N	87° 34' 8.050" E
	9	23° 57' 7.476" N	87° 34' 13.851" E
	10	23° 57' 8.927" N	87° 34' 16.947" E
	11	23° 57' 8.912" N	87° 34' 20.972" E
	12	23° 57' 9.333" N	87° 34' 23.408" E
	13	23° 57' 11.209" N	87° 34' 27.816" E
	14	23° 57' 14.040" N	87° 34' 29.982" E
	15	23° 57' 15.838" N	87° 34' 32.330" E
	16	23° 57' 15.655" N	87° 34' 35.137" E
	17	23° 57' 16.245" N	87° 34' 38.510" E
	18	23° 57' 17.686" N	87° 34' 44.227" E
	19	23° 57' 19.393" N	87° 34' 47.604" E
	20	23° 57' 20.762" N	87° 34' 49.764" E
	21	23° 57' 22.372" N	87° 34' 56.136" E
	22	23° 57' 24.246" N	87° 35' 1.200" E
	23	23° 57' 26.297" N	87° 35' 4.767" E
	24	23° 57' 29.809" N	87° 35' 8.714" E
	25	23° 57' 32.553" N	87° 35' 11.067" E
	26	23° 57' 33.571" N	87° 35' 14.910" E
	27	23° 57' 33.555" N	87° 35' 19.029" E
	28	23° 57' 32.511" N	87° 35' 22.113" E
	29	23° 57' 29.512" N	87° 35' 24.480" E
	30	23° 57' 28.585" N	87° 35' 19.601" E
	31	23° 57' 28.050" N	87° 35' 15.330" E
	32	23° 57' 26.825" N	87° 35' 11.692" E
	33	23° 57' 23.626" N	87° 35' 7.195" E
BH_MB_MY_11A	1	23° 57' 19.577" N	87° 34' 43.112" E
	2	23° 57' 19.038" N	87° 34' 39.256" E
	3	23° 57' 24.710" N	87° 34' 49.578" E
	4	23° 57' 29.078" N	87° 35' 0.247" E
	5	23° 57' 32.722" N	87° 35' 8.472" E
	6	23° 57' 29.131" N	87° 35' 4.498" E
	7	23° 57' 26.044" N	87° 35' 1.957" E
	8	23° 57' 24.593" N	87° 34' 58.861" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	9	23° 57' 24.097" N	87° 34' 53.523" E
	10	23° 57' 22.999" N	87° 34' 48.089" E
	11	23° 57' 21.286" N	87° 34' 46.115" E
BH_MB_MY_13	1	23° 57' 37.589" N	87° 35' 52.242" E
	2	23° 57' 36.721" N	87° 35' 55.034" E
	3	23° 57' 37.478" N	87° 35' 48.723" E
	4	23° 57' 37.407" N	87° 35' 44.884" E
	5	23° 57' 37.079" N	87° 35' 40.576" E
	6	23° 57' 36.069" N	87° 35' 34.955" E
	7	23° 57' 34.791" N	87° 35' 31.579" E
	8	23° 57' 33.254" N	87° 35' 28.576" E
	9	23° 57' 33.702" N	87° 35' 23.897" E
	10	23° 57' 35.262" N	87° 35' 21.002" E
	11	23° 57' 35.673" N	87° 35' 15.286" E
	12	23° 57' 36.115" N	87° 35' 16.310" E
	13	23° 57' 37.699" N	87° 35' 23.689" E
	14	23° 57' 39.571" N	87° 35' 40.198" E
BH_MB_MY_14_15_16_17	1	23° 57' 30.503" N	87° 36' 16.783" E
	2	23° 57' 28.659" N	87° 36' 20.636" E
	3	23° 57' 22.371" N	87° 36' 33.478" E
	4	23° 57' 16.074" N	87° 36' 45.013" E
	5	23° 57' 15.838" N	87° 36' 44.135" E
	6	23° 57' 15.510" N	87° 36' 40.108" E
	7	23° 57' 16.311" N	87° 36' 33.465" E
	8	23° 57' 15.203" N	87° 36' 33.078" E
	9	23° 57' 13.631" N	87° 36' 36.729" E
	10	23° 57' 13.442" N	87° 36' 40.941" E
	11	23° 57' 13.948" N	87° 36' 43.564" E
	12	23° 57' 12.902" N	87° 36' 47.023" E
	13	23° 57' 9.534" N	87° 36' 50.096" E
	14	23° 57' 3.930" N	87° 36' 53.252" E
	15	23° 57' 0.825" N	87° 36' 55.110" E
	16	23° 56' 57.372" N	87° 36' 55.371" E
	17	23° 57' 0.203" N	87° 36' 52.048" E
	18	23° 57' 4.528" N	87° 36' 46.101" E
	19	23° 57' 7.679" N	87° 36' 37.925" E
	20	23° 57' 10.068" N	87° 36' 32.085" E
	21	23° 57' 12.451" N	87° 36' 27.767" E
	22	23° 57' 14.730" N	87° 36' 22.629" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	23	23° 57' 17.551" N	87° 36' 16.206" E
	24	23° 57' 20.361" N	87° 36' 12.709" E
	25	23° 57' 24.469" N	87° 36' 7.111" E
	26	23° 57' 27.615" N	87° 36' 0.222" E
	27	23° 57' 30.453" N	87° 35' 49.352" E
	28	23° 57' 31.560" N	87° 35' 41.166" E
	29	23° 57' 30.838" N	87° 35' 33.206" E
	30	23° 57' 30.300" N	87° 35' 29.473" E
	31	23° 57' 33.324" N	87° 35' 32.883" E
	32	23° 57' 35.196" N	87° 35' 38.040" E
	33	23° 57' 35.410" N	87° 35' 49.556" E
	34	23° 57' 34.486" N	87° 35' 57.916" E
	35	23° 57' 33.736" N	87° 36' 5.549" E
	36	23° 57' 32.573" N	87° 36' 10.005" E
BH_MB_MY_17A	1	23° 56' 53.255" N	87° 37' 23.301" E
	2	23° 56' 51.783" N	87° 37' 22.716" E
	3	23° 56' 46.834" N	87° 37' 21.120" E
	4	23° 56' 43.505" N	87° 37' 20.845" E
	5	23° 56' 49.111" N	87° 37' 13.946" E
	6	23° 56' 52.366" N	87° 37' 8.869" E
	7	23° 56' 57.464" N	87° 37' 7.770" E
	8	23° 57' 1.947" N	87° 37' 8.724" E
	9	23° 56' 59.379" N	87° 37' 15.390" E
	10	23° 54' 23.398" N	87° 45' 41.778" E
BH_SN_MY_17B	1	23° 56' 43.505" N	87° 37' 20.845" E
	2	23° 56' 46.834" N	87° 37' 21.120" E
	3	23° 56' 51.783" N	87° 37' 22.716" E
	4	23° 56' 53.255" N	87° 37' 23.301" E
	5	23° 56' 46.260" N	87° 37' 32.468" E
	6	23° 56' 42.736" N	87° 37' 35.567" E
	7	23° 56' 40.637" N	87° 37' 33.000" E
	8	23° 56' 41.471" N	87° 37' 30.982" E
	9	23° 56' 41.274" N	87° 37' 28.810" E
	10	23° 56' 40.529" N	87° 37' 25.661" E
	11	23° 56' 38.747" N	87° 37' 24.005" E
	12	23° 56' 39.994" N	87° 37' 21.915" E
	13	23° 56' 42.125" N	87° 37' 22.524" E
BH_SN_MY_17C	1	23° 56' 31.244" N	87° 37' 57.653" E
	2	23° 56' 28.370" N	87° 38' 10.457" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	3	23° 56' 22.499" N	87° 38' 15.520" E
	4	23° 56' 20.370" N	87° 38' 16.379" E
	5	23° 56' 15.138" N	87° 38' 2.875" E
	6	23° 56' 17.469" N	87° 38' 2.083" E
	7	23° 56' 22.952" N	87° 37' 54.142" E
	8	23° 56' 29.877" N	87° 37' 49.051" E
	9	23° 56' 30.683" N	87° 37' 50.660" E
	10	23° 56' 31.159" N	87° 37' 53.858" E
	11	23° 56' 31.063" N	87° 37' 56.543" E
BH_MR2_MY_20	1	23° 54' 20.578" N	87° 45' 42.337" E
	2	23° 54' 18.809" N	87° 45' 36.276" E
	3	23° 54' 22.177" N	87° 45' 34.780" E
	4	23° 54' 25.180" N	87° 45' 33.001" E
	5	23° 54' 29.372" N	87° 45' 31.687" E
	6	23° 54' 36.458" N	87° 45' 32.137" E
	7	23° 54' 37.074" N	87° 45' 36.987" E
	8	23° 54' 27.750" N	87° 45' 39.234" E
	9	23° 54' 24.697" N	87° 45' 40.901" E
	10	23° 54' 23.398" N	87° 45' 41.778" E
BH_MR2_MY_22	1	23° 53' 34.068" N	87° 46' 29.042" E
	2	23° 53' 33.341" N	87° 46' 28.509" E
	3	23° 53' 34.528" N	87° 46' 27.833" E
	4	23° 53' 38.671" N	87° 46' 25.088" E
	5	23° 53' 42.022" N	87° 46' 22.601" E
	6	23° 53' 47.789" N	87° 46' 18.637" E
	7	23° 53' 47.786" N	87° 46' 19.198" E
	8	23° 53' 49.630" N	87° 46' 22.083" E
	9	23° 53' 49.624" N	87° 46' 23.251" E
	10	23° 53' 49.988" N	87° 46' 24.645" E
	11	23° 53' 49.115" N	87° 46' 25.898" E
	12	23° 53' 47.918" N	87° 46' 25.711" E
	13	23° 53' 47.132" N	87° 46' 26.065" E
	14	23° 53' 46.386" N	87° 46' 26.645" E
	15	23° 53' 45.928" N	87° 46' 27.406" E
	16	23° 53' 45.843" N	87° 46' 27.899" E
	17	23° 53' 44.557" N	87° 46' 28.924" E
	18	23° 53' 43.194" N	87° 46' 29.096" E
	19	23° 53' 40.553" N	87° 46' 28.676" E
	20	23° 53' 38.818" N	87° 46' 28.935" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	21	23° 53' 37.452" N	87° 46' 29.466" E
	22	23° 53' 35.876" N	87° 46' 30.939" E
	23	23° 53' 34.601" N	87° 46' 29.808" E
BH_MR2_MY_29	1	23° 52' 54.362" N	87° 49' 10.201" E
	2	23° 52' 55.525" N	87° 49' 8.996" E
	3	23° 52' 56.781" N	87° 49' 5.816" E
	4	23° 52' 56.995" N	87° 49' 4.290" E
	5	23° 52' 57.339" N	87° 49' 1.777" E
	6	23° 52' 58.714" N	87° 48' 59.406" E
	7	23° 53' 0.328" N	87° 48' 58.877" E
	8	23° 53' 3.057" N	87° 48' 59.272" E
	9	23° 53' 2.587" N	87° 49' 1.475" E
	10	23° 53' 1.189" N	87° 49' 5.780" E
	11	23° 52' 57.731" N	87° 49' 18.471" E
	12	23° 52' 57.004" N	87° 49' 18.121" E
	13	23° 52' 55.334" N	87° 49' 13.845" E
BH_N1_BM_03	1	24° 16' 8.086" N	87° 48' 43.214" E
	2	24° 16' 7.765" N	87° 48' 42.199" E
	3	24° 16' 8.036" N	87° 48' 41.422" E
	4	24° 16' 7.939" N	87° 48' 40.182" E
	5	24° 16' 7.403" N	87° 48' 39.128" E
	6	24° 16' 7.219" N	87° 48' 38.151" E
	7	24° 16' 6.264" N	87° 48' 36.540" E
	8	24° 16' 6.045" N	87° 48' 35.544" E
	9	24° 16' 5.963" N	87° 48' 34.943" E
	10	24° 16' 6.605" N	87° 48' 35.375" E
	11	24° 16' 6.945" N	87° 48' 36.246" E
	12	24° 16' 6.856" N	87° 48' 36.738" E
	13	24° 16' 7.430" N	87° 48' 38.079" E
	14	24° 16' 7.922" N	87° 48' 38.551" E
	15	24° 16' 8.560" N	87° 48' 39.798" E
	16	24° 16' 8.686" N	87° 48' 40.339" E
	17	24° 16' 9.048" N	87° 48' 41.115" E
	18	24° 16' 9.940" N	87° 48' 44.691" E
	19	24° 16' 10.156" N	87° 48' 47.034" E
	20	24° 16' 10.407" N	87° 48' 48.373" E
	21	24° 16' 10.580" N	87° 48' 49.037" E
	22	24° 16' 9.594" N	87° 48' 47.522" E
	23	24° 16' 9.425" N	87° 48' 47.004" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	24	24° 16' 9.006" N	87° 48' 46.580" E
	25	24° 16' 8.667" N	87° 48' 45.526" E
	26	24° 16' 8.362" N	87° 48' 44.642" E
	27	24° 16' 8.254" N	87° 48' 43.938" E
BH_N1_BM_04	1	24° 16' 17.642" N	87° 49' 6.726" E
	2	24° 16' 17.284" N	87° 49' 5.401" E
	3	24° 16' 17.396" N	87° 49' 4.487" E
	4	24° 16' 17.401" N	87° 49' 3.525" E
	5	24° 16' 17.168" N	87° 49' 2.820" E
	6	24° 16' 16.871" N	87° 49' 2.185" E
	7	24° 16' 16.638" N	87° 49' 1.503" E
	8	24° 16' 16.751" N	87° 49' 0.401" E
	9	24° 16' 16.388" N	87° 48' 59.930" E
	10	24° 16' 16.007" N	87° 48' 58.918" E
	11	24° 16' 14.729" N	87° 48' 56.541" E
	12	24° 16' 13.797" N	87° 48' 53.813" E
	13	24° 16' 13.607" N	87° 48' 53.273" E
	14	24° 16' 13.245" N	87° 48' 52.520" E
	15	24° 16' 12.862" N	87° 48' 51.790" E
	16	24° 16' 12.478" N	87° 48' 51.271" E
	17	24° 16' 11.879" N	87° 48' 50.587" E
	18	24° 16' 11.432" N	87° 48' 49.716" E
	19	24° 16' 10.984" N	87° 48' 49.080" E
	20	24° 16' 10.794" N	87° 48' 48.422" E
	21	24° 16' 10.647" N	87° 48' 47.670" E
	22	24° 16' 10.544" N	87° 48' 46.896" E
	23	24° 16' 10.462" N	87° 48' 46.168" E
	24	24° 16' 10.486" N	87° 48' 45.605" E
	25	24° 16' 10.595" N	87° 48' 45.301" E
	26	24° 16' 10.770" N	87° 48' 44.856" E
	27	24° 16' 10.665" N	87° 48' 44.292" E
	28	24° 16' 9.903" N	87° 48' 42.129" E
	29	24° 16' 9.647" N	87° 48' 41.635" E
	30	24° 16' 9.245" N	87° 48' 40.413" E
	31	24° 16' 9.099" N	87° 48' 39.591" E
	32	24° 16' 8.225" N	87° 48' 38.130" E
	33	24° 16' 7.843" N	87° 48' 37.190" E
	34	24° 16' 7.911" N	87° 48' 36.486" E
	35	24° 16' 8.511" N	87° 48' 35.774" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	36	24° 16' 8.931" N	87° 48' 36.977" E
	37	24° 16' 9.630" N	87° 48' 38.964" E
	38	24° 16' 10.947" N	87° 48' 42.186" E
	39	24° 16' 12.275" N	87° 48' 45.139" E
	40	24° 16' 13.593" N	87° 48' 47.997" E
	41	24° 16' 13.900" N	87° 48' 48.961" E
	42	24° 16' 14.163" N	87° 48' 49.925" E
	43	24° 16' 14.789" N	87° 48' 51.477" E
	44	24° 16' 15.544" N	87° 48' 53.136" E
	45	24° 16' 15.979" N	87° 48' 54.264" E
	46	24° 16' 16.954" N	87° 48' 56.933" E
	47	24° 16' 17.483" N	87° 48' 58.450" E
	48	24° 16' 17.530" N	87° 48' 59.823" E
	49	24° 16' 17.662" N	87° 49' 1.255" E
	50	24° 16' 18.414" N	87° 49' 3.265" E
	51	24° 16' 18.621" N	87° 49' 4.768" E
	52	24° 16' 18.747" N	87° 49' 5.938" E
	53	24° 16' 18.674" N	87° 49' 6.806" E
BH_N1_BM_05	1	24° 16' 18.518" N	87° 49' 19.837" E
	2	24° 16' 18.161" N	87° 49' 19.631" E
	3	24° 16' 18.086" N	87° 49' 19.293" E
	4	24° 16' 17.677" N	87° 49' 18.587" E
	5	24° 16' 17.567" N	87° 49' 18.258" E
	6	24° 16' 16.574" N	87° 49' 7.807" E
	7	24° 16' 16.658" N	87° 49' 7.258" E
	8	24° 16' 16.927" N	87° 49' 7.675" E
	9	24° 16' 17.139" N	87° 49' 8.263" E
	10	24° 16' 17.136" N	87° 49' 8.755" E
	11	24° 16' 17.393" N	87° 49' 8.991" E
	12	24° 16' 17.864" N	87° 49' 9.511" E
	13	24° 16' 18.182" N	87° 49' 10.240" E
	14	24° 16' 18.327" N	87° 49' 11.367" E
	15	24° 16' 18.405" N	87° 49' 12.775" E
	16	24° 16' 18.378" N	87° 49' 13.784" E
	17	24° 16' 18.484" N	87° 49' 14.066" E
	18	24° 16' 18.288" N	87° 49' 14.557" E
	19	24° 16' 18.576" N	87° 49' 17.069" E
	20	24° 16' 18.594" N	87° 49' 17.609" E
	21	24° 16' 18.933" N	87° 49' 18.503" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	22	24° 16' 19.031" N	87° 49' 20.357" E
	23	24° 16' 18.725" N	87° 49' 20.489" E
BH_N1_BM_06	1	24° 16' 43.041" N	87° 49' 38.481" E
	2	24° 16' 42.816" N	87° 49' 38.686" E
	3	24° 16' 42.574" N	87° 49' 38.759" E
	4	24° 16' 42.124" N	87° 49' 38.802" E
	5	24° 16' 42.027" N	87° 49' 38.263" E
	6	24° 16' 41.395" N	87° 49' 35.744" E
	7	24° 16' 40.816" N	87° 49' 34.746" E
	8	24° 16' 40.336" N	87° 49' 34.452" E
	9	24° 16' 40.036" N	87° 49' 34.234" E
	10	24° 16' 39.529" N	87° 49' 34.109" E
	11	24° 16' 39.126" N	87° 49' 33.843" E
	12	24° 16' 38.723" N	87° 49' 33.709" E
	13	24° 16' 38.422" N	87° 49' 33.689" E
	14	24° 16' 37.812" N	87° 49' 33.469" E
	15	24° 16' 37.055" N	87° 49' 33.539" E
	16	24° 16' 34.596" N	87° 49' 33.185" E
	17	24° 16' 32.155" N	87° 49' 32.813" E
	18	24° 16' 30.342" N	87° 49' 32.704" E
	19	24° 16' 29.658" N	87° 49' 31.917" E
	20	24° 16' 28.732" N	87° 49' 31.348" E
	21	24° 16' 28.142" N	87° 49' 30.556" E
	22	24° 16' 28.549" N	87° 49' 29.922" E
	23	24° 16' 29.583" N	87° 49' 29.704" E
	24	24° 16' 32.757" N	87° 49' 31.430" E
	25	24° 16' 34.250" N	87° 49' 32.087" E
	26	24° 16' 35.591" N	87° 49' 32.378" E
	27	24° 16' 37.911" N	87° 49' 32.815" E
	28	24° 16' 39.508" N	87° 49' 33.388" E
	29	24° 16' 41.309" N	87° 49' 34.413" E
	30	24° 16' 42.031" N	87° 49' 34.474" E
	31	24° 16' 42.564" N	87° 49' 34.442" E
	32	24° 16' 42.992" N	87° 49' 34.783" E
	33	24° 16' 42.864" N	87° 49' 36.152" E
	34	24° 16' 43.045" N	87° 49' 37.749" E
BH_N1_BM_09	1	24° 16' 30.808" N	87° 50' 44.604" E
	2	24° 16' 30.622" N	87° 50' 45.462" E
	3	24° 16' 30.442" N	87° 50' 47.670" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	4	24° 16' 30.260" N	87° 50' 48.035" E
	5	24° 16' 29.917" N	87° 50' 49.300" E
	6	24° 16' 29.921" N	87° 50' 50.933" E
	7	24° 16' 29.876" N	87° 50' 51.960" E
	8	24° 16' 29.794" N	87° 50' 52.790" E
	9	24° 16' 29.934" N	87° 50' 53.241" E
	10	24° 16' 29.981" N	87° 50' 54.016" E
	11	24° 16' 30.133" N	87° 50' 54.509" E
	12	24° 16' 30.127" N	87° 50' 55.523" E
	13	24° 16' 30.056" N	87° 50' 56.747" E
	14	24° 16' 30.207" N	87° 50' 57.536" E
	15	24° 16' 30.176" N	87° 50' 58.352" E
	16	24° 16' 30.034" N	87° 50' 58.998" E
	17	24° 16' 29.649" N	87° 50' 56.165" E
	18	24° 16' 29.541" N	87° 50' 55.498" E
	19	24° 16' 29.397" N	87° 50' 54.944" E
	20	24° 16' 29.294" N	87° 50' 53.517" E
	21	24° 16' 29.157" N	87° 50' 51.724" E
	22	24° 16' 29.198" N	87° 50' 50.645" E
	23	24° 16' 29.058" N	87° 50' 49.424" E
	24	24° 16' 29.275" N	87° 50' 47.670" E
	25	24° 16' 29.318" N	87° 50' 46.000" E
	26	24° 16' 29.516" N	87° 50' 43.017" E
	27	24° 16' 29.519" N	87° 50' 40.906" E
	28	24° 16' 29.894" N	87° 50' 38.375" E
	29	24° 16' 29.819" N	87° 50' 37.858" E
	30	24° 16' 29.844" N	87° 50' 36.563" E
	31	24° 16' 29.538" N	87° 50' 34.380" E
	32	24° 16' 31.163" N	87° 50' 34.394" E
	33	24° 16' 31.258" N	87° 50' 35.542" E
	34	24° 16' 31.182" N	87° 50' 39.947" E
	35	24° 16' 31.346" N	87° 50' 40.624" E
	36	24° 16' 31.375" N	87° 50' 42.342" E
	37	24° 16' 31.665" N	87° 51' 7.834" E
	38	24° 16' 31.309" N	87° 51' 6.921" E
	39	24° 16' 31.090" N	87° 51' 6.066" E
	40	24° 16' 30.764" N	87° 51' 4.384" E
	41	24° 16' 30.667" N	87° 51' 3.361" E
	42	24° 16' 30.474" N	87° 51' 2.374" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	43	24° 16' 30.216" N	87° 51' 0.233" E
	44	24° 16' 30.433" N	87° 51' 0.930" E
	45	24° 16' 30.827" N	87° 51' 1.988" E
	46	24° 16' 30.890" N	87° 51' 2.284" E
	47	24° 16' 31.262" N	87° 51' 2.653" E
	48	24° 16' 31.363" N	87° 51' 2.963" E
	49	24° 16' 31.438" N	87° 51' 3.428" E
	50	24° 16' 31.590" N	87° 51' 3.978" E
	51	24° 16' 31.575" N	87° 51' 4.302" E
	52	24° 16' 31.662" N	87° 51' 4.978" E
	53	24° 16' 31.774" N	87° 51' 5.598" E
	54	24° 16' 32.132" N	87° 51' 6.192" E
	55	24° 16' 32.387" N	87° 51' 6.728" E
	56	24° 16' 32.537" N	87° 51' 7.743" E
	57	24° 16' 32.597" N	87° 51' 8.419" E
	58	24° 16' 32.879" N	87° 51' 8.815" E
	59	24° 16' 33.120" N	87° 51' 9.605" E
	60	24° 16' 33.307" N	87° 51' 10.760" E
	61	24° 16' 33.174" N	87° 51' 11.435" E
	62	24° 16' 32.985" N	87° 51' 11.844" E
	63	24° 16' 32.759" N	87° 51' 10.582" E
	64	24° 16' 32.107" N	87° 51' 8.879" E
BH_N1_BM_10	1	24° 16' 37.736" N	87° 51' 23.078" E
	2	24° 16' 37.323" N	87° 51' 22.886" E
	3	24° 16' 37.223" N	87° 51' 21.732" E
	4	24° 16' 37.485" N	87° 51' 20.869" E
	5	24° 16' 37.456" N	87° 51' 20.365" E
	6	24° 16' 36.771" N	87° 51' 19.934" E
	7	24° 16' 36.172" N	87° 51' 19.230" E
	8	24° 16' 35.971" N	87° 51' 18.584" E
	9	24° 16' 35.561" N	87° 51' 16.985" E
	10	24° 16' 34.966" N	87° 51' 15.550" E
	11	24° 16' 34.606" N	87° 51' 14.563" E
	12	24° 16' 34.075" N	87° 51' 13.539" E
	13	24° 16' 33.745" N	87° 51' 12.915" E
	14	24° 16' 33.640" N	87° 51' 12.339" E
	15	24° 16' 33.658" N	87° 51' 11.178" E
	16	24° 16' 33.651" N	87° 51' 10.380" E
	17	24° 16' 33.667" N	87° 51' 9.594" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	18	24° 16' 33.199" N	87° 51' 8.594" E
	19	24° 16' 32.974" N	87° 51' 8.370" E
	20	24° 16' 32.923" N	87° 51' 7.936" E
	21	24° 16' 32.950" N	87° 51' 7.044" E
	22	24° 16' 32.175" N	87° 51' 5.279" E
	23	24° 16' 31.964" N	87° 51' 4.551" E
	24	24° 16' 31.936" N	87° 51' 3.765" E
	25	24° 16' 31.845" N	87° 51' 2.755" E
	26	24° 16' 31.708" N	87° 51' 2.215" E
	27	24° 16' 31.367" N	87° 51' 1.591" E
	28	24° 16' 31.090" N	87° 51' 1.143" E
	29	24° 16' 31.008" N	87° 51' 0.498" E
	30	24° 16' 30.505" N	87° 50' 59.420" E
	31	24° 16' 30.611" N	87° 50' 58.876" E
	32	24° 16' 30.619" N	87° 50' 57.469" E
	33	24° 16' 30.590" N	87° 50' 56.549" E
	34	24° 16' 30.629" N	87° 50' 55.592" E
	35	24° 16' 30.465" N	87° 50' 54.202" E
	36	24° 16' 30.523" N	87° 50' 53.170" E
	37	24° 16' 30.558" N	87° 50' 49.961" E
	38	24° 16' 31.033" N	87° 50' 48.068" E
	39	24° 16' 31.298" N	87° 50' 46.700" E
	40	24° 16' 31.388" N	87° 50' 45.969" E
	41	24° 16' 31.290" N	87° 50' 45.161" E
	42	24° 16' 31.380" N	87° 50' 44.486" E
	43	24° 16' 31.792" N	87° 50' 43.799" E
	44	24° 16' 31.794" N	87° 50' 44.924" E
	45	24° 16' 31.950" N	87° 50' 45.957" E
	46	24° 16' 32.019" N	87° 50' 47.048" E
	47	24° 16' 32.075" N	87° 50' 48.550" E
	48	24° 16' 32.167" N	87° 50' 49.548" E
	49	24° 16' 32.126" N	87° 50' 50.967" E
	50	24° 16' 32.118" N	87° 50' 54.462" E
	51	24° 16' 32.009" N	87° 50' 56.561" E
	52	24° 16' 32.313" N	87° 50' 59.871" E
	53	24° 16' 32.376" N	87° 51' 2.101" E
	54	24° 16' 32.794" N	87° 51' 4.180" E
	55	24° 16' 33.269" N	87° 51' 5.778" E
	56	24° 16' 33.809" N	87° 51' 7.365" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	57	24° 16' 34.330" N	87° 51' 8.483" E
	58	24° 16' 34.979" N	87° 51' 9.555" E
	59	24° 16' 35.925" N	87° 51' 11.661" E
	60	24° 16' 36.709" N	87° 51' 13.719" E
	61	24° 16' 37.373" N	87° 51' 16.116" E
	62	24° 16' 37.815" N	87° 51' 17.844" E
	63	24° 16' 38.158" N	87° 51' 19.911" E
	64	24° 16' 38.320" N	87° 51' 21.910" E
BH_N1_BM_11	1	24° 16' 33.087" N	87° 51' 12.867" E
	2	24° 16' 33.464" N	87° 51' 13.054" E
	3	24° 16' 33.849" N	87° 51' 13.431" E
	4	24° 16' 34.008" N	87° 51' 13.913" E
	5	24° 16' 34.260" N	87° 51' 14.924" E
	6	24° 16' 35.001" N	87° 51' 17.005" E
	7	24° 16' 35.520" N	87° 51' 18.545" E
	8	24° 16' 35.523" N	87° 51' 18.852" E
	9	24° 16' 34.712" N	87° 51' 16.732" E
	10	24° 16' 34.143" N	87° 51' 15.471" E
	11	24° 16' 33.556" N	87° 51' 14.322" E
	12	24° 16' 33.284" N	87° 51' 13.616" E
BH_N1_BM_12	1	24° 16' 28.255" N	87° 51' 44.021" E
	2	24° 16' 28.075" N	87° 51' 44.094" E
	3	24° 16' 28.405" N	87° 51' 42.937" E
	4	24° 16' 30.065" N	87° 51' 39.964" E
	5	24° 16' 31.127" N	87° 51' 39.174" E
	6	24° 16' 31.906" N	87° 51' 38.372" E
	7	24° 16' 32.804" N	87° 51' 36.712" E
	8	24° 16' 32.757" N	87° 51' 37.464" E
	9	24° 16' 32.642" N	87° 51' 37.914" E
	10	24° 16' 32.032" N	87° 51' 39.411" E
	11	24° 16' 31.658" N	87° 51' 40.159" E
	12	24° 16' 31.266" N	87° 51' 40.879" E
	13	24° 16' 30.174" N	87° 51' 42.458" E
	14	24° 16' 29.514" N	87° 51' 43.551" E
	15	24° 16' 29.264" N	87° 51' 43.634" E
	16	24° 16' 29.093" N	87° 51' 43.389" E
BH_N1_BM_14	1	24° 16' 22.844" N	87° 52' 16.265" E
	2	24° 16' 22.723" N	87° 52' 16.745" E
	3	24° 16' 22.752" N	87° 52' 17.378" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	4	24° 16' 22.611" N	87° 52' 17.495" E
	5	24° 16' 22.181" N	87° 52' 17.515" E
	6	24° 16' 22.004" N	87° 52' 17.337" E
	7	24° 16' 22.261" N	87° 52' 17.143" E
	8	24° 16' 22.470" N	87° 52' 16.765" E
	9	24° 16' 22.533" N	87° 52' 14.851" E
	10	24° 16' 22.367" N	87° 52' 14.455" E
	11	24° 16' 22.071" N	87° 52' 14.313" E
	12	24° 16' 21.790" N	87° 52' 13.748" E
	13	24° 16' 21.847" N	87° 52' 12.889" E
	14	24° 16' 22.127" N	87° 52' 11.357" E
	15	24° 16' 22.128" N	87° 52' 11.090" E
	16	24° 16' 22.352" N	87° 52' 10.275" E
	17	24° 16' 22.551" N	87° 52' 9.389" E
	18	24° 16' 22.619" N	87° 52' 8.813" E
	19	24° 16' 22.817" N	87° 52' 7.941" E
	20	24° 16' 22.941" N	87° 52' 6.975" E
	21	24° 16' 23.123" N	87° 52' 6.941" E
	22	24° 16' 23.233" N	87° 52' 6.508" E
	23	24° 16' 23.287" N	87° 52' 6.508" E
	24	24° 16' 23.263" N	87° 52' 6.966" E
	25	24° 16' 23.142" N	87° 52' 7.458" E
	26	24° 16' 23.245" N	87° 52' 8.221" E
	27	24° 16' 23.200" N	87° 52' 8.608" E
	28	24° 16' 23.047" N	87° 52' 8.958" E
	29	24° 16' 23.025" N	87° 52' 9.158" E
	30	24° 16' 23.053" N	87° 52' 9.862" E
	31	24° 16' 22.932" N	87° 52' 10.389" E
	32	24° 16' 22.485" N	87° 52' 11.430" E
	33	24° 16' 22.374" N	87° 52' 11.921" E
	34	24° 16' 22.366" N	87° 52' 13.435" E
	35	24° 16' 22.492" N	87° 52' 13.940" E
	36	24° 16' 22.747" N	87° 52' 14.376" E
	37	24° 16' 23.110" N	87° 52' 14.976" E
	38	24° 16' 23.237" N	87° 52' 15.329" E
	39	24° 16' 23.039" N	87° 52' 15.949" E
BH_N1_BM_15	1	24° 16' 37.686" N	87° 52' 59.522" E
	2	24° 16' 36.686" N	87° 53' 0.239" E
	3	24° 16' 37.151" N	87° 52' 59.727" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	4	24° 16' 37.843" N	87° 52' 58.381" E
	5	24° 16' 39.047" N	87° 52' 55.495" E
	6	24° 16' 42.165" N	87° 52' 55.516" E
	7	24° 16' 41.989" N	87° 52' 56.230" E
	8	24° 16' 41.753" N	87° 52' 56.777" E
	9	24° 16' 41.298" N	87° 52' 57.379" E
	10	24° 16' 40.972" N	87° 52' 57.940" E
	11	24° 16' 40.557" N	87° 52' 58.359" E
	12	24° 16' 40.375" N	87° 52' 58.555" E
	13	24° 16' 39.754" N	87° 52' 58.832" E
	14	24° 16' 39.003" N	87° 52' 59.278" E
BH_N1_BM_17	1	24° 16' 39.921" N	87° 53' 22.705" E
	2	24° 16' 38.981" N	87° 53' 21.191" E
	3	24° 16' 39.246" N	87° 53' 20.923" E
	4	24° 16' 38.196" N	87° 53' 18.138" E
	5	24° 16' 36.493" N	87° 53' 15.086" E
	6	24° 16' 35.481" N	87° 53' 11.663" E
	7	24° 16' 35.251" N	87° 53' 9.672" E
	8	24° 16' 35.642" N	87° 53' 7.648" E
	9	24° 16' 35.724" N	87° 53' 5.246" E
	10	24° 16' 36.317" N	87° 53' 4.011" E
	11	24° 16' 37.163" N	87° 53' 4.033" E
	12	24° 16' 36.511" N	87° 53' 6.553" E
	13	24° 16' 36.536" N	87° 53' 9.521" E
	14	24° 16' 36.882" N	87° 53' 11.130" E
	15	24° 16' 38.970" N	87° 53' 16.224" E
	16	24° 16' 41.309" N	87° 53' 20.897" E
	17	24° 16' 43.430" N	87° 53' 24.021" E
	18	24° 16' 44.720" N	87° 53' 25.953" E
	19	24° 16' 45.755" N	87° 53' 27.286" E
	20	24° 16' 47.422" N	87° 53' 29.163" E
	21	24° 16' 49.646" N	87° 53' 31.220" E
	22	24° 16' 52.540" N	87° 53' 32.906" E
	23	24° 16' 54.449" N	87° 53' 33.693" E
	24	24° 16' 56.048" N	87° 53' 34.209" E
	25	24° 16' 57.550" N	87° 53' 34.818" E
	26	24° 16' 59.115" N	87° 53' 35.591" E
	27	24° 17' 2.632" N	87° 53' 37.352" E
	28	24° 17' 4.358" N	87° 53' 38.291" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	29	24° 17' 5.790" N	87° 53' 39.744" E
	30	24° 17' 6.419" N	87° 53' 40.663" E
	31	24° 17' 7.095" N	87° 53' 41.757" E
	32	24° 17' 4.767" N	87° 53' 40.346" E
	33	24° 17' 3.097" N	87° 53' 39.067" E
	34	24° 16' 56.359" N	87° 53' 36.439" E
	35	24° 16' 55.033" N	87° 53' 35.304" E
	36	24° 16' 53.314" N	87° 53' 35.010" E
	37	24° 16' 52.935" N	87° 53' 35.884" E
	38	24° 16' 51.769" N	87° 53' 35.457" E
	39	24° 16' 50.778" N	87° 53' 34.957" E
	40	24° 16' 49.479" N	87° 53' 34.160" E
	41	24° 16' 48.182" N	87° 53' 33.109" E
	42	24° 16' 47.244" N	87° 53' 32.525" E
	43	24° 16' 45.333" N	87° 53' 30.429" E
	44	24° 16' 44.260" N	87° 53' 28.718" E
	45	24° 16' 43.673" N	87° 53' 27.574" E
	46	24° 16' 42.818" N	87° 53' 25.836" E
	47	24° 16' 41.188" N	87° 53' 24.333" E
BH_N1_BM_18	1	24° 16' 57.213" N	87° 53' 37.510" E
	2	24° 16' 57.298" N	87° 53' 37.146" E
	3	24° 16' 57.759" N	87° 53' 37.489" E
	4	24° 16' 58.605" N	87° 53' 37.929" E
	5	24° 16' 59.594" N	87° 53' 38.089" E
	6	24° 17' 0.238" N	87° 53' 38.281" E
	7	24° 17' 1.246" N	87° 53' 38.757" E
	8	24° 17' 1.664" N	87° 53' 38.971" E
	9	24° 17' 2.040" N	87° 53' 38.997" E
	10	24° 17' 3.154" N	87° 53' 39.697" E
	11	24° 17' 4.620" N	87° 53' 40.892" E
	12	24° 17' 4.962" N	87° 53' 41.282" E
	13	24° 17' 5.249" N	87° 53' 41.929" E
	14	24° 17' 6.167" N	87° 53' 43.050" E
	15	24° 17' 6.892" N	87° 53' 44.123" E
	16	24° 17' 7.050" N	87° 53' 44.534" E
	17	24° 17' 8.056" N	87° 53' 45.503" E
	18	24° 17' 8.450" N	87° 53' 46.046" E
	19	24° 17' 8.650" N	87° 53' 46.856" E
	20	24° 17' 8.646" N	87° 53' 47.549" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	21	24° 17' 8.512" N	87° 53' 48.345" E
	22	24° 17' 8.205" N	87° 53' 49.293" E
	23	24° 17' 7.585" N	87° 53' 50.591" E
	24	24° 17' 7.492" N	87° 53' 49.588" E
	25	24° 17' 6.415" N	87° 53' 46.258" E
	26	24° 17' 4.166" N	87° 53' 42.441" E
	27	24° 17' 2.384" N	87° 53' 40.599" E
	28	24° 17' 0.816" N	87° 53' 39.490" E
	29	24° 16' 58.526" N	87° 53' 38.362" E
BH_N1_BM_20	1	24° 17' 6.657" N	87° 54' 2.246" E
	2	24° 17' 6.670" N	87° 54' 2.871" E
	3	24° 17' 6.076" N	87° 54' 4.578" E
	4	24° 17' 6.075" N	87° 54' 4.579" E
	5	24° 17' 5.674" N	87° 54' 4.759" E
	6	24° 17' 5.297" N	87° 54' 5.249" E
	7	24° 17' 5.411" N	87° 54' 5.602" E
	8	24° 17' 5.293" N	87° 54' 5.967" E
	9	24° 17' 5.096" N	87° 54' 6.599" E
	10	24° 17' 4.913" N	87° 54' 6.936" E
	11	24° 17' 4.785" N	87° 54' 7.795" E
	12	24° 17' 4.665" N	87° 54' 8.096" E
	13	24° 17' 4.298" N	87° 54' 8.395" E
	14	24° 17' 3.934" N	87° 54' 8.871" E
	15	24° 17' 3.271" N	87° 54' 9.613" E
	16	24° 17' 3.050" N	87° 54' 9.949" E
	17	24° 17' 2.350" N	87° 54' 10.451" E
	18	24° 17' 2.169" N	87° 54' 10.590" E
	19	24° 17' 2.015" N	87° 54' 10.406" E
	20	24° 17' 1.978" N	87° 54' 10.054" E
	21	24° 17' 1.825" N	87° 54' 9.814" E
	22	24° 17' 2.059" N	87° 54' 9.449" E
	23	24° 17' 2.256" N	87° 54' 8.958" E
	24	24° 17' 2.477" N	87° 54' 8.566" E
	25	24° 17' 2.702" N	87° 54' 7.708" E
	26	24° 17' 2.976" N	87° 54' 7.189" E
	27	24° 17' 3.404" N	87° 54' 6.784" E
	28	24° 17' 4.366" N	87° 54' 5.665" E
	29	24° 17' 4.612" N	87° 54' 5.540" E
	30	24° 17' 4.937" N	87° 54' 5.092" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	31	24° 17' 5.400" N	87° 54' 3.110" E
	32	24° 17' 5.286" N	87° 54' 2.856" E
	33	24° 17' 5.340" N	87° 54' 2.378" E
	34	24° 17' 5.587" N	87° 54' 2.112" E
	35	24° 17' 6.072" N	87° 54' 0.750" E
	36	24° 17' 6.412" N	87° 54' 0.034" E
	37	24° 17' 6.696" N	87° 54' 0.065" E
	38	24° 17' 6.990" N	87° 54' 0.461" E
BH_N1_BM_24	1	24° 17' 0.136" N	87° 55' 2.415" E
	2	24° 16' 59.942" N	87° 55' 2.716" E
	3	24° 16' 59.986" N	87° 55' 3.110" E
	4	24° 16' 59.818" N	87° 55' 3.604" E
	5	24° 16' 59.778" N	87° 55' 4.240" E
	6	24° 16' 59.857" N	87° 55' 4.894" E
	7	24° 16' 59.906" N	87° 55' 6.178" E
	8	24° 16' 59.804" N	87° 55' 6.592" E
	9	24° 16' 59.524" N	87° 55' 6.970" E
	10	24° 16' 58.897" N	87° 55' 7.376" E
	11	24° 16' 58.627" N	87° 55' 7.706" E
	12	24° 16' 58.357" N	87° 55' 7.890" E
	13	24° 16' 58.258" N	87° 55' 8.036" E
	14	24° 16' 58.046" N	87° 55' 8.158" E
	15	24° 16' 57.720" N	87° 55' 8.195" E
	16	24° 16' 57.606" N	87° 55' 8.330" E
	17	24° 16' 57.090" N	87° 55' 8.303" E
	18	24° 16' 56.878" N	87° 55' 8.426" E
	19	24° 16' 56.810" N	87° 55' 8.611" E
	20	24° 16' 56.501" N	87° 55' 8.881" E
	21	24° 16' 57.099" N	87° 55' 7.875" E
	22	24° 16' 57.291" N	87° 55' 7.713" E
	23	24° 16' 57.762" N	87° 55' 7.531" E
	24	24° 16' 58.022" N	87° 55' 7.240" E
	25	24° 16' 58.362" N	87° 55' 6.353" E
	26	24° 16' 58.405" N	87° 55' 6.071" E
	27	24° 16' 58.356" N	87° 55' 5.750" E
	28	24° 16' 59.095" N	87° 55' 3.841" E
	29	24° 17' 0.038" N	87° 55' 2.022" E
BH_N1_BM_26	1	24° 16' 47.956" N	87° 55' 15.458" E
	2	24° 16' 47.409" N	87° 55' 14.380" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	3	24° 16' 48.817" N	87° 55' 14.313" E
	4	24° 16' 50.780" N	87° 55' 14.130" E
	5	24° 16' 51.659" N	87° 55' 13.866" E
	6	24° 16' 52.503" N	87° 55' 13.399" E
	7	24° 16' 53.301" N	87° 55' 12.837" E
	8	24° 16' 54.650" N	87° 55' 11.273" E
	9	24° 16' 54.351" N	87° 55' 11.789" E
	10	24° 16' 54.100" N	87° 55' 12.245" E
	11	24° 16' 53.803" N	87° 55' 12.468" E
	12	24° 16' 53.518" N	87° 55' 12.902" E
	13	24° 16' 53.302" N	87° 55' 13.373" E
	14	24° 16' 53.189" N	87° 55' 13.920" E
	15	24° 16' 52.890" N	87° 55' 14.294" E
	16	24° 16' 52.455" N	87° 55' 14.553" E
	17	24° 16' 52.152" N	87° 55' 14.664" E
	18	24° 16' 51.862" N	87° 55' 14.752" E
	19	24° 16' 51.620" N	87° 55' 14.968" E
	20	24° 16' 51.178" N	87° 55' 15.190" E
	21	24° 16' 50.544" N	87° 55' 15.425" E
BH_N2_BM_39	1	24° 14' 35.484" N	87° 57' 2.732" E
	2	24° 14' 34.924" N	87° 57' 2.754" E
	3	24° 14' 35.228" N	87° 57' 2.299" E
	4	24° 14' 35.568" N	87° 57' 1.211" E
	5	24° 14' 36.157" N	87° 56' 59.879" E
	6	24° 14' 36.853" N	87° 56' 58.734" E
	7	24° 14' 37.308" N	87° 56' 58.116" E
	8	24° 14' 38.488" N	87° 56' 56.823" E
	9	24° 14' 39.515" N	87° 56' 55.916" E
	10	24° 14' 40.293" N	87° 56' 55.336" E
	11	24° 14' 40.790" N	87° 56' 54.976" E
	12	24° 14' 41.512" N	87° 56' 54.676" E
	13	24° 14' 42.342" N	87° 56' 54.436" E
	14	24° 14' 43.182" N	87° 56' 54.106" E
	15	24° 14' 43.175" N	87° 56' 55.186" E
	16	24° 14' 43.158" N	87° 56' 55.188" E
	17	24° 14' 41.495" N	87° 56' 55.806" E
	18	24° 14' 40.410" N	87° 56' 56.534" E
	19	24° 14' 39.934" N	87° 56' 56.808" E
	20	24° 14' 39.009" N	87° 56' 57.296" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	21	24° 14' 37.985" N	87° 56' 58.159" E
	22	24° 14' 37.166" N	87° 56' 59.264" E
	23	24° 14' 36.078" N	87° 57' 1.508" E
BH_N2_BM_40	1	24° 14' 31.296" N	87° 57' 9.150" E
	2	24° 14' 30.794" N	87° 57' 9.463" E
	3	24° 14' 30.899" N	87° 57' 9.205" E
	4	24° 14' 30.953" N	87° 57' 8.867" E
	5	24° 14' 31.240" N	87° 57' 8.321" E
	6	24° 14' 31.617" N	87° 57' 7.817" E
	7	24° 14' 31.982" N	87° 57' 7.341" E
	8	24° 14' 32.165" N	87° 57' 6.850" E
	9	24° 14' 32.580" N	87° 57' 6.543" E
	10	24° 14' 33.345" N	87° 57' 6.028" E
	11	24° 14' 33.963" N	87° 57' 5.658" E
	12	24° 14' 33.676" N	87° 57' 6.053" E
	13	24° 14' 33.231" N	87° 57' 6.658" E
	14	24° 14' 32.522" N	87° 57' 7.801" E
	15	24° 14' 31.891" N	87° 57' 8.576" E
BH_N2_BM_42	1	24° 14' 24.100" N	87° 57' 9.084" E
	2	24° 14' 23.890" N	87° 57' 8.937" E
	3	24° 14' 25.915" N	87° 57' 9.399" E
	4	24° 14' 27.894" N	87° 57' 9.264" E
	5	24° 14' 29.403" N	87° 57' 8.740" E
	6	24° 14' 29.862" N	87° 57' 8.374" E
	7	24° 14' 29.649" N	87° 57' 8.928" E
	8	24° 14' 29.271" N	87° 57' 9.516" E
	9	24° 14' 29.127" N	87° 57' 9.853" E
	10	24° 14' 28.907" N	87° 57' 10.020" E
	11	24° 14' 28.441" N	87° 57' 10.143" E
	12	24° 14' 27.874" N	87° 57' 10.139" E
	13	24° 14' 27.267" N	87° 57' 10.191" E
	14	24° 14' 26.428" N	87° 57' 10.311" E
	15	24° 14' 25.732" N	87° 57' 10.165" E
	16	24° 14' 24.998" N	87° 57' 9.878" E
	17	24° 14' 24.240" N	87° 57' 9.422" E
BH_N2_BM_43	1	24° 14' 4.327" N	87° 57' 4.749" E
	2	24° 14' 3.562" N	87° 57' 4.387" E
	3	24° 14' 3.717" N	87° 57' 4.176" E
	4	24° 14' 4.207" N	87° 57' 4.250" E

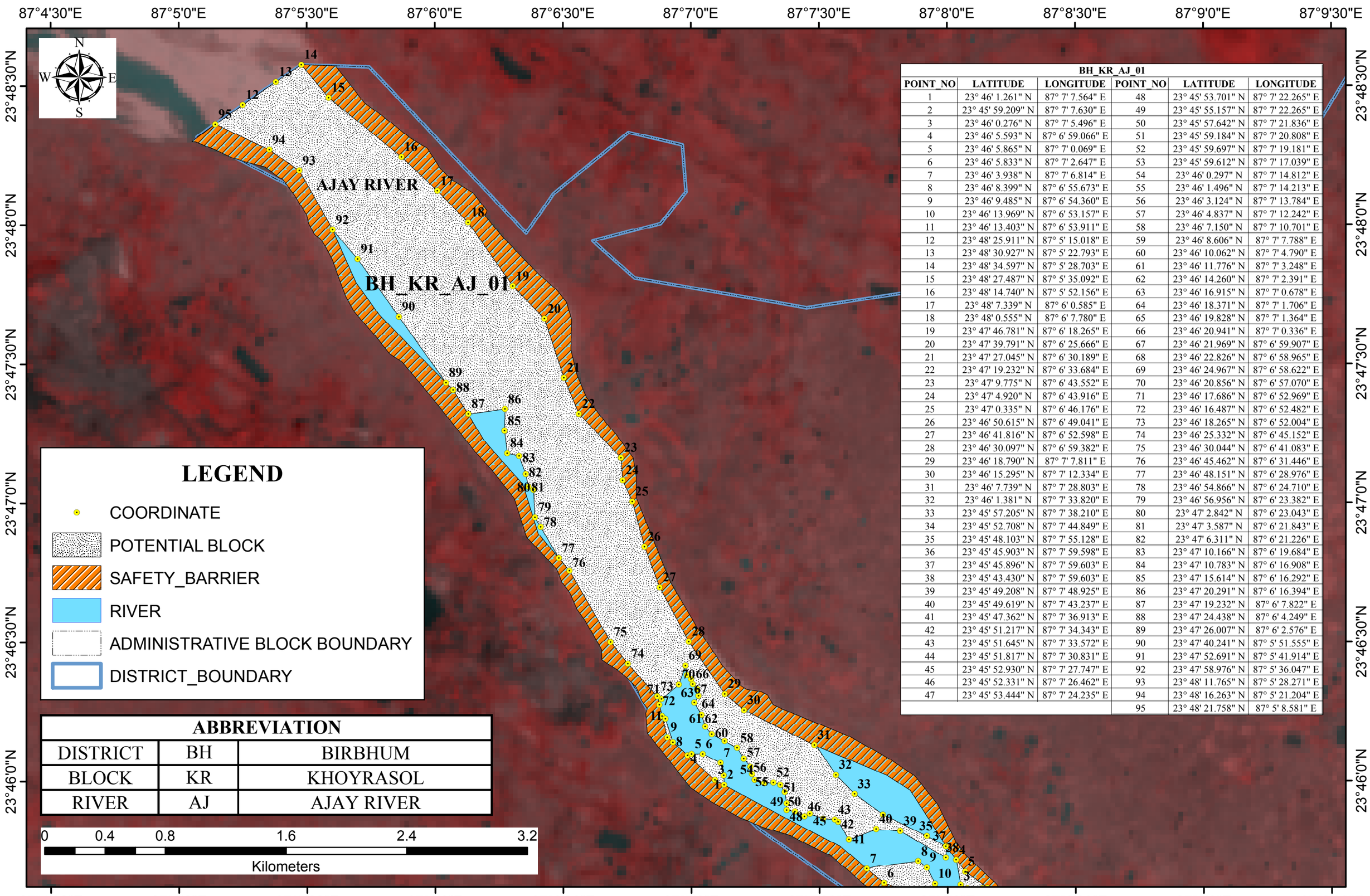
SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	5	24° 14' 5.073" N	87° 57' 4.059" E
	6	24° 14' 5.912" N	87° 57' 3.967" E
	7	24° 14' 6.700" N	87° 57' 3.931" E
	8	24° 14' 7.358" N	87° 57' 3.809" E
	9	24° 14' 8.365" N	87° 57' 3.859" E
	10	24° 14' 9.189" N	87° 57' 4.090" E
	11	24° 14' 10.077" N	87° 57' 4.392" E
	12	24° 14' 10.414" N	87° 57' 4.517" E
	13	24° 14' 8.608" N	87° 57' 4.569" E
	14	24° 14' 7.057" N	87° 57' 4.921" E
	15	24° 14' 5.896" N	87° 57' 4.948" E
BH_N2_BM_45	1	24° 13' 23.540" N	87° 57' 7.365" E
	2	24° 13' 23.046" N	87° 57' 7.762" E
	3	24° 13' 23.100" N	87° 57' 7.302" E
	4	24° 13' 22.894" N	87° 57' 7.160" E
	5	24° 13' 22.583" N	87° 57' 7.392" E
	6	24° 13' 22.359" N	87° 57' 7.447" E
	7	24° 13' 22.187" N	87° 57' 7.408" E
	8	24° 13' 22.639" N	87° 57' 6.717" E
	9	24° 13' 22.916" N	87° 57' 6.391" E
	10	24° 13' 23.065" N	87° 57' 6.027" E
	11	24° 13' 23.775" N	87° 57' 5.272" E
	12	24° 13' 24.268" N	87° 57' 4.807" E
	13	24° 13' 24.656" N	87° 57' 4.650" E
	14	24° 13' 25.146" N	87° 57' 4.710" E
	15	24° 13' 25.669" N	87° 57' 4.939" E
	16	24° 13' 26.183" N	87° 57' 5.252" E
	17	24° 13' 26.999" N	87° 57' 5.559" E
	18	24° 13' 27.537" N	87° 57' 6.069" E
	19	24° 13' 27.596" N	87° 57' 6.323" E
	20	24° 13' 27.397" N	87° 57' 6.546" E
	21	24° 13' 27.202" N	87° 57' 6.511" E
	22	24° 13' 26.625" N	87° 57' 6.572" E
	23	24° 13' 25.816" N	87° 57' 6.547" E
	24	24° 13' 24.395" N	87° 57' 6.912" E
BH_N2_BM_47	1	24° 13' 12.569" N	87° 57' 10.336" E
	2	24° 13' 12.875" N	87° 57' 10.441" E
	3	24° 13' 13.596" N	87° 57' 10.709" E
	4	24° 13' 14.455" N	87° 57' 10.922" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	5	24° 13' 16.315" N	87° 57' 11.035" E
	6	24° 13' 15.901" N	87° 57' 11.160" E
	7	24° 13' 15.797" N	87° 57' 11.394" E
	8	24° 13' 15.286" N	87° 57' 11.859" E
	9	24° 13' 14.571" N	87° 57' 11.985" E
	10	24° 13' 14.201" N	87° 57' 11.992" E
	11	24° 13' 13.892" N	87° 57' 11.905" E
	12	24° 13' 13.420" N	87° 57' 11.705" E
	13	24° 13' 13.249" N	87° 57' 11.544" E
BH_N2_BM_48	1	24° 13' 2.800" N	87° 57' 11.175" E
	2	24° 13' 2.716" N	87° 57' 10.818" E
	3	24° 13' 3.122" N	87° 57' 10.568" E
	4	24° 13' 3.967" N	87° 57' 10.246" E
	5	24° 13' 4.691" N	87° 57' 10.102" E
	6	24° 13' 5.251" N	87° 57' 9.871" E
	7	24° 13' 5.829" N	87° 57' 9.575" E
	8	24° 13' 6.320" N	87° 57' 9.541" E
	9	24° 13' 7.626" N	87° 57' 9.814" E
	10	24° 13' 7.493" N	87° 57' 10.168" E
	11	24° 13' 6.598" N	87° 57' 10.080" E
	12	24° 13' 5.612" N	87° 57' 10.267" E
	13	24° 13' 3.127" N	87° 57' 11.495" E
BH_N2_BM_49	1	24° 12' 48.318" N	87° 57' 17.413" E
	2	24° 12' 47.161" N	87° 57' 16.673" E
	3	24° 12' 47.201" N	87° 57' 16.504" E
	4	24° 12' 48.071" N	87° 57' 15.937" E
	5	24° 12' 49.068" N	87° 57' 16.726" E
	6	24° 12' 51.314" N	87° 57' 17.916" E
	7	24° 12' 51.949" N	87° 57' 18.192" E
	8	24° 12' 52.516" N	87° 57' 18.356" E
	9	24° 12' 53.169" N	87° 57' 18.408" E
	10	24° 12' 54.196" N	87° 57' 18.217" E
	11	24° 12' 53.653" N	87° 57' 18.438" E
	12	24° 12' 51.948" N	87° 57' 18.763" E
	13	24° 12' 50.994" N	87° 57' 18.671" E
	14	24° 12' 49.952" N	87° 57' 18.185" E
BH_N2_BM_50	1	24° 12' 38.511" N	87° 57' 17.153" E
	2	24° 12' 38.245" N	87° 57' 16.677" E
	3	24° 12' 39.801" N	87° 57' 15.380" E

SAND BAR CODE	POINT_NO	LATITUDE	LONGITUDE
	4	24° 12' 40.695" N	87° 57' 14.810" E
	5	24° 12' 41.342" N	87° 57' 14.505" E
	6	24° 12' 42.040" N	87° 57' 14.398" E
	7	24° 12' 43.007" N	87° 57' 14.433" E
	8	24° 12' 43.638" N	87° 57' 14.606" E
	9	24° 12' 44.192" N	87° 57' 14.892" E
	10	24° 12' 44.344" N	87° 57' 15.203" E
	11	24° 12' 44.464" N	87° 57' 15.742" E
	12	24° 12' 43.304" N	87° 57' 15.406" E
	13	24° 12' 42.410" N	87° 57' 15.347" E
	14	24° 12' 41.492" N	87° 57' 15.655" E
	15	24° 12' 40.603" N	87° 57' 15.964" E
	16	24° 12' 39.878" N	87° 57' 16.371" E

Annexure 4
Map showing of Potential Blocks of Birbhum District

POTENTIAL BLOCK BH_KR_AJ_01 OF AJAY RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AJ	AJAY RIVER

BH_KR_AJ_01					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 46' 1.261" N	87° 7' 7.564" E	48	23° 45' 53.701" N	87° 7' 22.265" E
2	23° 45' 59.209" N	87° 7' 7.630" E	49	23° 45' 55.157" N	87° 7' 22.265" E
3	23° 46' 0.276" N	87° 7' 5.496" E	50	23° 45' 57.642" N	87° 7' 21.836" E
4	23° 46' 5.593" N	87° 6' 59.066" E	51	23° 45' 59.184" N	87° 7' 20.808" E
5	23° 46' 5.865" N	87° 7' 0.069" E	52	23° 45' 59.697" N	87° 7' 19.181" E
6	23° 46' 5.833" N	87° 7' 2.647" E	53	23° 45' 59.612" N	87° 7' 17.039" E
7	23° 46' 3.938" N	87° 7' 6.814" E	54	23° 46' 0.297" N	87° 7' 14.812" E
8	23° 46' 8.399" N	87° 6' 55.673" E	55	23° 46' 1.496" N	87° 7' 14.213" E
9	23° 46' 9.485" N	87° 6' 54.360" E	56	23° 46' 3.124" N	87° 7' 13.784" E
10	23° 46' 13.969" N	87° 6' 53.157" E	57	23° 46' 4.837" N	87° 7' 12.242" E
11	23° 46' 13.403" N	87° 6' 53.911" E	58	23° 46' 7.150" N	87° 7' 10.701" E
12	23° 48' 25.911" N	87° 5' 15.018" E	59	23° 46' 8.606" N	87° 7' 7.788" E
13	23° 48' 30.927" N	87° 5' 22.793" E	60	23° 46' 10.062" N	87° 7' 4.790" E
14	23° 48' 34.597" N	87° 5' 28.703" E	61	23° 46' 11.776" N	87° 7' 3.248" E
15	23° 48' 27.487" N	87° 5' 35.092" E	62	23° 46' 14.260" N	87° 7' 2.391" E
16	23° 48' 14.740" N	87° 5' 52.156" E	63	23° 46' 16.915" N	87° 7' 0.678" E
17	23° 48' 7.339" N	87° 6' 0.585" E	64	23° 46' 18.371" N	87° 7' 1.706" E
18	23° 48' 0.555" N	87° 6' 7.780" E	65	23° 46' 19.828" N	87° 7' 1.364" E
19	23° 47' 46.781" N	87° 6' 18.265" E	66	23° 46' 20.941" N	87° 7' 0.336" E
20	23° 47' 39.791" N	87° 6' 25.666" E	67	23° 46' 21.969" N	87° 6' 59.907" E
21	23° 47' 27.045" N	87° 6' 30.189" E	68	23° 46' 22.826" N	87° 6' 58.965" E
22	23° 47' 19.232" N	87° 6' 33.684" E	69	23° 46' 24.967" N	87° 6' 58.622" E
23	23° 47' 9.775" N	87° 6' 43.552" E	70	23° 46' 20.856" N	87° 6' 57.070" E
24	23° 47' 4.920" N	87° 6' 43.916" E	71	23° 46' 17.686" N	87° 6' 52.969" E
25	23° 47' 0.335" N	87° 6' 46.176" E	72	23° 46' 16.487" N	87° 6' 52.482" E
26	23° 46' 50.615" N	87° 6' 49.041" E	73	23° 46' 18.265" N	87° 6' 52.004" E
27	23° 46' 41.816" N	87° 6' 52.598" E	74	23° 46' 25.332" N	87° 6' 45.152" E
28	23° 46' 30.097" N	87° 6' 59.382" E	75	23° 46' 30.044" N	87° 6' 41.083" E
29	23° 46' 18.790" N	87° 7' 7.811" E	76	23° 46' 45.462" N	87° 6' 31.446" E
30	23° 46' 15.295" N	87° 7' 12.334" E	77	23° 46' 48.151" N	87° 6' 28.976" E
31	23° 46' 7.739" N	87° 7' 28.803" E	78	23° 46' 54.866" N	87° 6' 24.710" E
32	23° 46' 1.381" N	87° 7' 33.820" E	79	23° 46' 56.956" N	87° 6' 23.382" E
33	23° 45' 57.205" N	87° 7' 38.210" E	80	23° 47' 2.842" N	87° 6' 23.043" E
34	23° 45' 52.708" N	87° 7' 44.849" E	81	23° 47' 3.587" N	87° 6' 21.843" E
35	23° 45' 48.103" N	87° 7' 55.128" E	82	23° 47' 6.311" N	87° 6' 21.226" E
36	23° 45' 45.903" N	87° 7' 59.598" E	83	23° 47' 10.166" N	87° 6' 19.684" E
37	23° 45' 45.896" N	87° 7' 59.603" E	84	23° 47' 10.783" N	87° 6' 16.908" E
38	23° 45' 43.430" N	87° 7' 59.603" E	85	23° 47' 15.614" N	87° 6' 16.292" E
39	23° 45' 49.208" N	87° 7' 48.925" E	86	23° 47' 20.291" N	87° 6' 16.394" E
40	23° 45' 49.619" N	87° 7' 43.237" E	87	23° 47' 19.232" N	87° 6' 7.822" E
41	23° 45' 47.362" N	87° 7' 36.913" E	88	23° 47' 24.438" N	87° 6' 4.249" E
42	23° 45' 51.217" N	87° 7' 34.343" E	89	23° 47' 26.007" N	87° 6' 2.576" E
43	23° 45' 51.645" N	87° 7' 33.572" E	90	23° 47' 40.241" N	87° 5' 51.555" E
44	23° 45' 51.817" N	87° 7' 30.831" E	91	23° 47' 52.691" N	87° 5' 41.914" E
45	23° 45' 52.930" N	87° 7' 27.747" E	92	23° 47' 58.976" N	87° 5' 36.047" E
46	23° 45' 52.331" N	87° 7' 26.462" E	93	23° 48' 11.765" N	87° 5' 28.271" E
47	23° 45' 53.444" N	87° 7' 24.235" E	94	23° 48' 16.263" N	87° 5' 21.204" E
			95	23° 48' 21.758" N	87° 5' 8.581" E

POTENTIAL BLOCK BH_KR_AJ_02 OF AJAY RIVER

87°7'30"E 87°8'0"E

23°45'30"N

BH_KR_AJ_02		
POINT_NO	LATITUDE	LONGITUDE
1	23° 45' 21.463" N	87° 8' 20.590" E
2	23° 45' 19.556" N	87° 8' 20.991" E
3	23° 45' 23.057" N	87° 8' 14.710" E
4	23° 45' 25.755" N	87° 8' 7.257" E
5	23° 45' 33.979" N	87° 7' 56.464" E
6	23° 45' 38.005" N	87° 7' 45.114" E
7	23° 45' 41.137" N	87° 7' 41.050" E
8	23° 45' 42.664" N	87° 7' 53.071" E
9	23° 45' 41.379" N	87° 7' 55.105" E
10	23° 45' 37.845" N	87° 7' 57.033" E
11	23° 45' 34.954" N	87° 8' 0.138" E
12	23° 45' 32.813" N	87° 8' 3.457" E
13	23° 45' 30.457" N	87° 8' 7.526" E
14	23° 45' 28.744" N	87° 8' 12.345" E
15	23° 45' 26.281" N	87° 8' 17.377" E

BH_KR_AJ_02

AJAY RIVER

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AJ	AJAY RIVER

0 0.075 0.15 0.3 0.45 0.6

Kilometers

POTENTIAL BLOCK BH_KR_AJ_03 OF AJAY RIVER

87°8'0"E 87°8'5"E 87°8'10"E

23°45'40"N

23°45'35"N

AJAY RIVER

BH_KR_AJ_03

38 4 5 6 1 2 3

N W E S

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

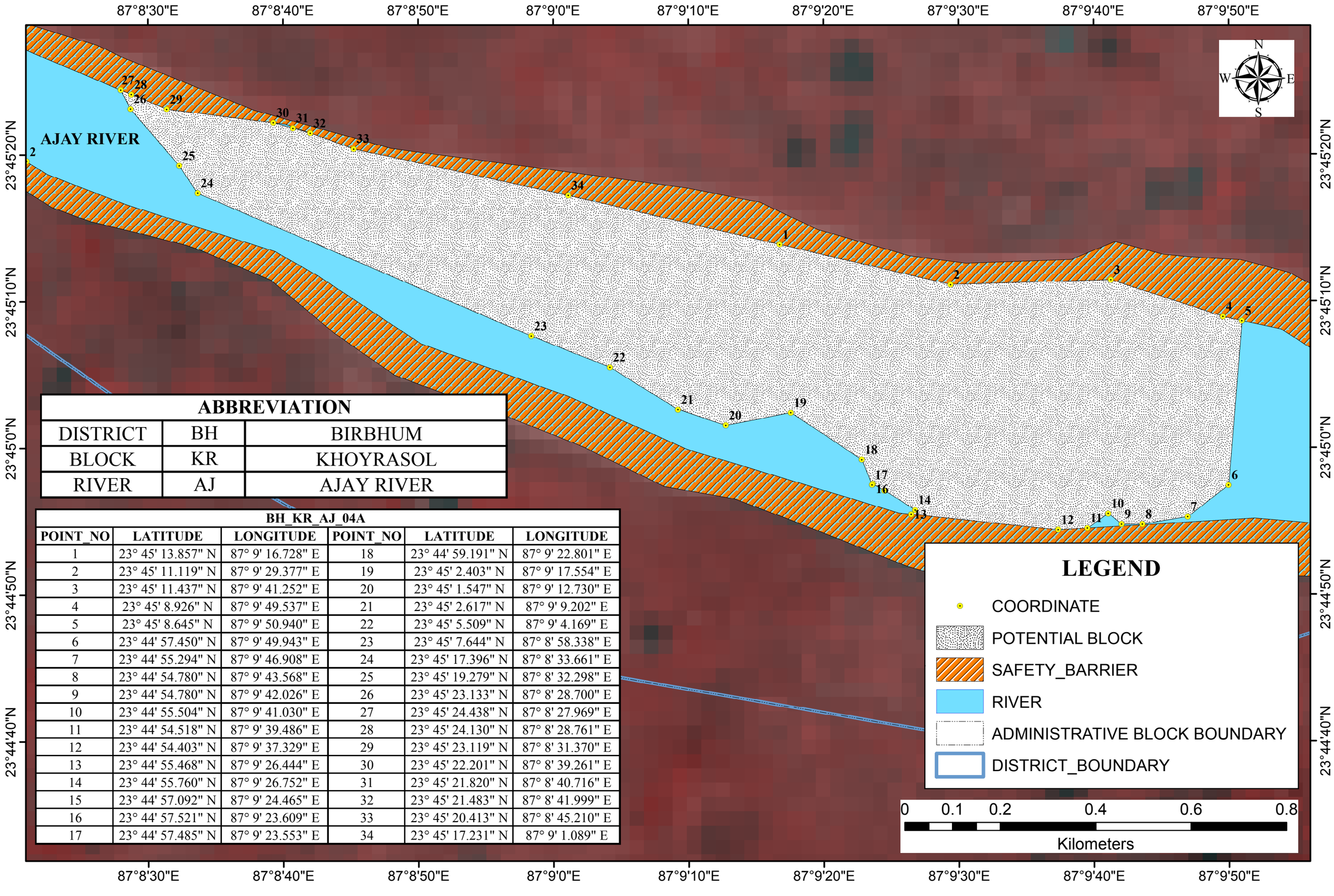
BH_KR_AJ_03		
POINT_NO	LATITUDE	LONGITUDE
1	23° 45' 36.882" N	87° 8' 8.105" E
2	23° 45' 36.882" N	87° 8' 4.635" E
3	23° 45' 37.631" N	87° 8' 3.029" E
4	23° 45' 42.956" N	87° 8' 1.983" E
5	23° 45' 40.449" N	87° 8' 4.090" E
6	23° 45' 36.970" N	87° 8' 9.308" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AJ	AJAY RIVER

0 0.02 0.04 0.08 0.12 0.16

Kilometers

POTENTIAL BLOCK BH_KR_AJ_04A OF AJAY RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AJ	AJAY RIVER

BH_KR_AJ_04A

POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 45' 13.857" N	87° 9' 16.728" E	18	23° 44' 59.191" N	87° 9' 22.801" E
2	23° 45' 11.119" N	87° 9' 29.377" E	19	23° 45' 2.403" N	87° 9' 17.554" E
3	23° 45' 11.437" N	87° 9' 41.252" E	20	23° 45' 1.547" N	87° 9' 12.730" E
4	23° 45' 8.926" N	87° 9' 49.537" E	21	23° 45' 2.617" N	87° 9' 9.202" E
5	23° 45' 8.645" N	87° 9' 50.940" E	22	23° 45' 5.509" N	87° 9' 4.169" E
6	23° 44' 57.450" N	87° 9' 49.943" E	23	23° 45' 7.644" N	87° 8' 58.338" E
7	23° 44' 55.294" N	87° 9' 46.908" E	24	23° 45' 17.396" N	87° 8' 33.661" E
8	23° 44' 54.780" N	87° 9' 43.568" E	25	23° 45' 19.279" N	87° 8' 32.298" E
9	23° 44' 54.780" N	87° 9' 42.026" E	26	23° 45' 23.133" N	87° 8' 28.700" E
10	23° 44' 55.504" N	87° 9' 41.030" E	27	23° 45' 24.438" N	87° 8' 27.969" E
11	23° 44' 54.518" N	87° 9' 39.486" E	28	23° 45' 24.130" N	87° 8' 28.761" E
12	23° 44' 54.403" N	87° 9' 37.329" E	29	23° 45' 23.119" N	87° 8' 31.370" E
13	23° 44' 55.468" N	87° 9' 26.444" E	30	23° 45' 22.201" N	87° 8' 39.261" E
14	23° 44' 55.760" N	87° 9' 26.752" E	31	23° 45' 21.820" N	87° 8' 40.716" E
15	23° 44' 57.092" N	87° 9' 24.465" E	32	23° 45' 21.483" N	87° 8' 41.999" E
16	23° 44' 57.521" N	87° 9' 23.609" E	33	23° 45' 20.413" N	87° 8' 45.210" E
17	23° 44' 57.485" N	87° 9' 23.553" E	34	23° 45' 17.231" N	87° 9' 1.089" E

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

POTENTIAL BLOCK BH_KR_AJ_04B OF AJAY RIVER

87°10'20"E 87°10'30"E 87°10'40"E 87°10'50"E 87°11'0"E

23°45'10"N 23°45'0"N 23°44'50"N 23°44'40"N

BH_KR_AJ_04B

AJAY RIVER

BH_KR_AJ_04B		
POINT_NO	LATITUDE	LONGITUDE
1	23° 45' 6.631" N	87° 11' 3.983" E
2	23° 45' 5.316" N	87° 11' 2.118" E
3	23° 45' 4.888" N	87° 10' 59.463" E
4	23° 45' 3.431" N	87° 10' 54.152" E
5	23° 45' 3.089" N	87° 10' 50.383" E
6	23° 45' 3.174" N	87° 10' 46.271" E
7	23° 45' 3.774" N	87° 10' 46.442" E
8	23° 45' 4.031" N	87° 10' 48.070" E
9	23° 45' 4.459" N	87° 10' 48.927" E
10	23° 45' 5.573" N	87° 10' 47.899" E
11	23° 45' 4.802" N	87° 10' 43.273" E
12	23° 45' 5.402" N	87° 10' 35.564" E
13	23° 45' 6.235" N	87° 10' 30.410" E
14	23° 45' 2.832" N	87° 10' 26.832" E
15	23° 44' 59.941" N	87° 10' 19.551" E
16	23° 44' 58.847" N	87° 10' 12.876" E
17	23° 45' 2.925" N	87° 10' 13.280" E
18	23° 45' 4.759" N	87° 10' 13.764" E
19	23° 45' 5.293" N	87° 10' 15.312" E
20	23° 45' 4.232" N	87° 10' 19.165" E
21	23° 45' 5.123" N	87° 10' 24.305" E
22	23° 45' 6.494" N	87° 10' 28.759" E
23	23° 45' 7.600" N	87° 10' 30.644" E
24	23° 45' 6.288" N	87° 10' 40.615" E
25	23° 45' 7.316" N	87° 10' 51.031" E
26	23° 45' 6.288" N	87° 10' 53.635" E
27	23° 45' 5.534" N	87° 10' 56.376" E
28	23° 45' 8.001" N	87° 10' 58.432" E
29	23° 45' 8.169" N	87° 11' 1.392" E
30	23° 45' 6.909" N	87° 11' 4.680" E

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

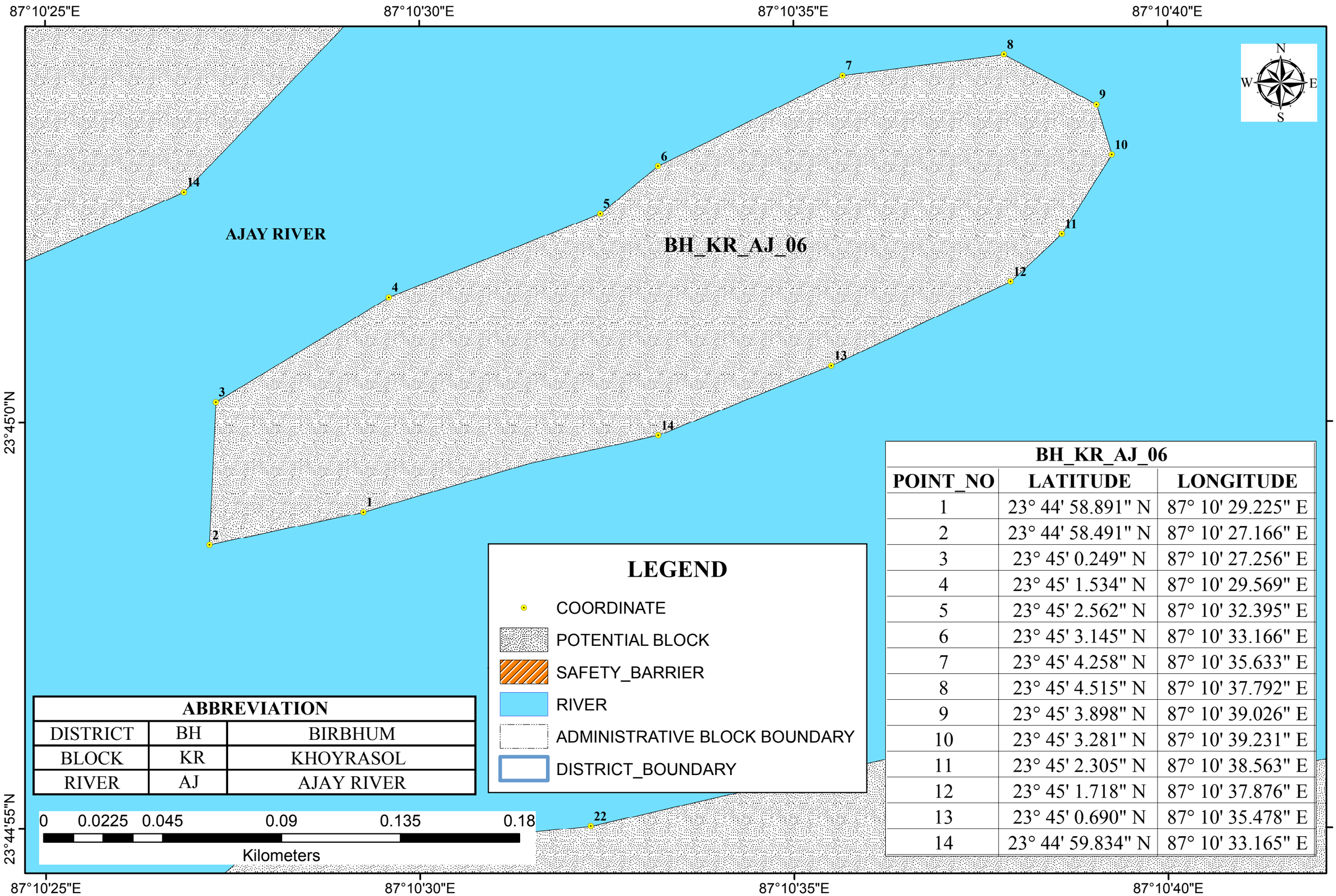
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AJ	AJAY RIVER

0 0.075 0.15 0.3 0.45 0.6

Kilometers

N W E S

POTENTIAL BLOCK BH_KR_AJ_06 OF AJAY RIVER



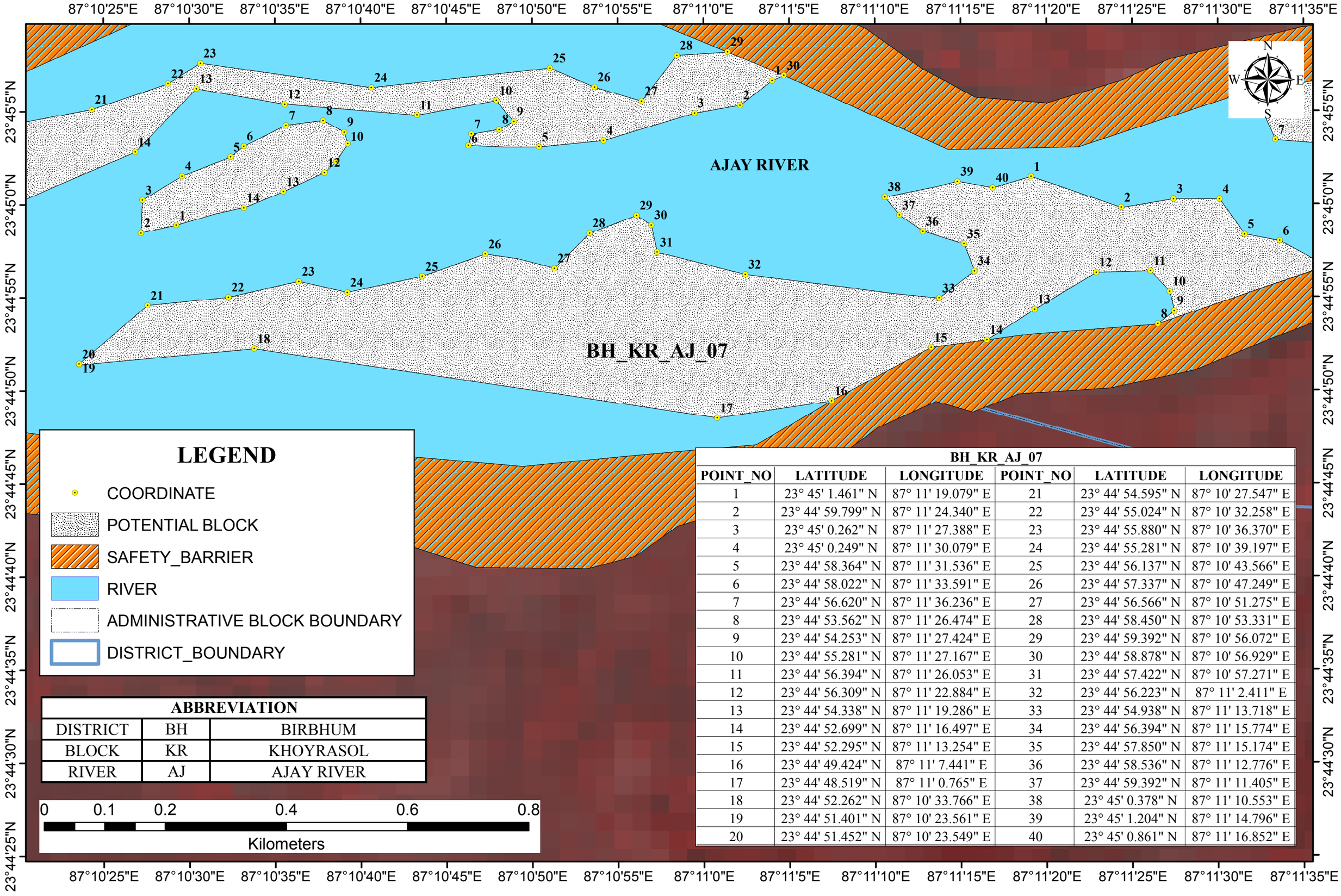
BH_KR_AJ_06		
POINT_NO	LATITUDE	LONGITUDE
1	23° 44' 58.891" N	87° 10' 29.225" E
2	23° 44' 58.491" N	87° 10' 27.166" E
3	23° 45' 0.249" N	87° 10' 27.256" E
4	23° 45' 1.534" N	87° 10' 29.569" E
5	23° 45' 2.562" N	87° 10' 32.395" E
6	23° 45' 3.145" N	87° 10' 33.166" E
7	23° 45' 4.258" N	87° 10' 35.633" E
8	23° 45' 4.515" N	87° 10' 37.792" E
9	23° 45' 3.898" N	87° 10' 39.026" E
10	23° 45' 3.281" N	87° 10' 39.231" E
11	23° 45' 2.305" N	87° 10' 38.563" E
12	23° 45' 1.718" N	87° 10' 37.876" E
13	23° 45' 0.690" N	87° 10' 35.478" E
14	23° 44' 59.834" N	87° 10' 33.165" E

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_KR_AJ_07 OF AJAY RIVER



LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

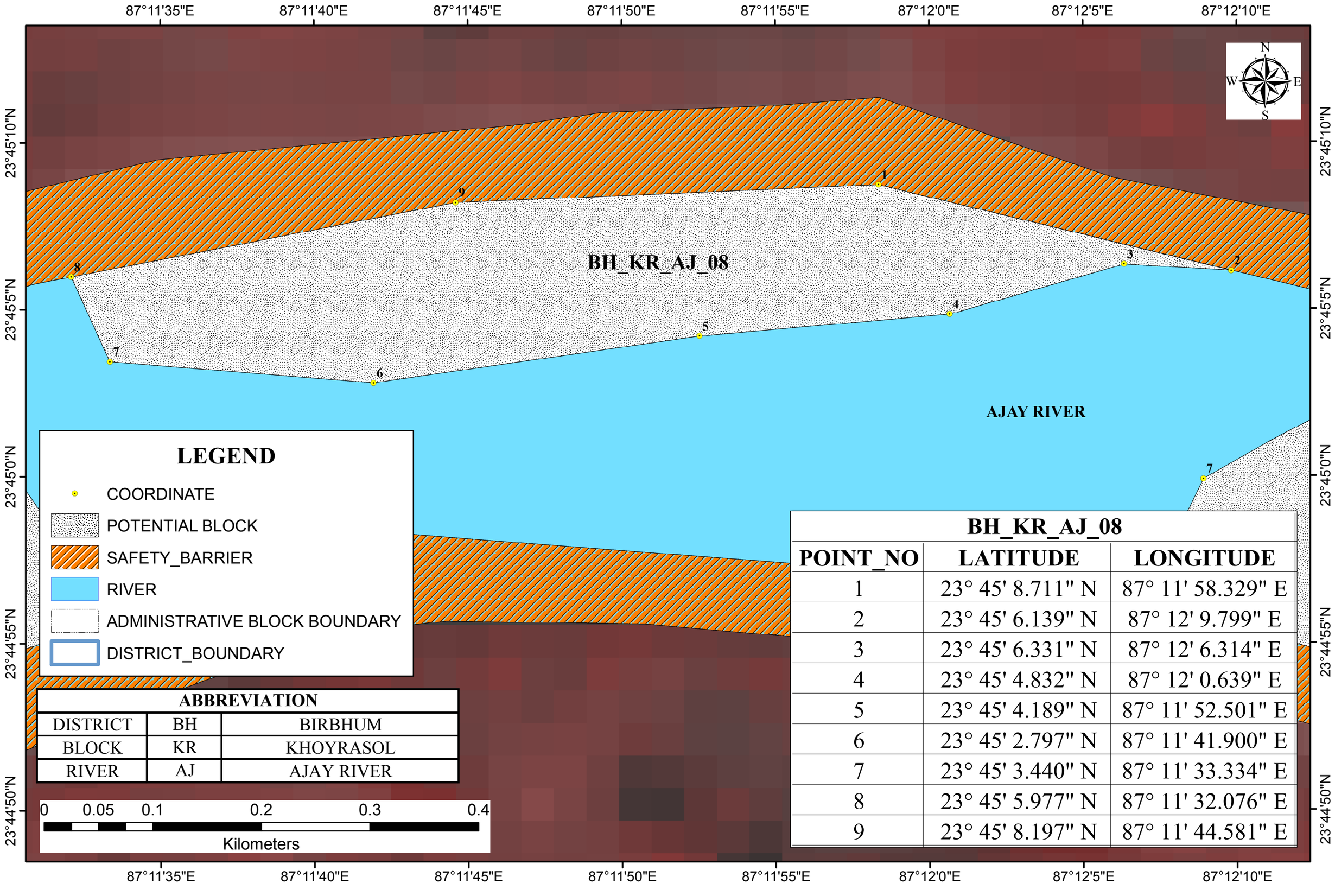
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AJ	AJAY RIVER

0 0.1 0.2 0.4 0.6 0.8

Kilometers

BH_KR_AJ_07					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 45' 1.461" N	87° 11' 19.079" E	21	23° 44' 54.595" N	87° 10' 27.547" E
2	23° 44' 59.799" N	87° 11' 24.340" E	22	23° 44' 55.024" N	87° 10' 32.258" E
3	23° 45' 0.262" N	87° 11' 27.388" E	23	23° 44' 55.880" N	87° 10' 36.370" E
4	23° 45' 0.249" N	87° 11' 30.079" E	24	23° 44' 55.281" N	87° 10' 39.197" E
5	23° 44' 58.364" N	87° 11' 31.536" E	25	23° 44' 56.137" N	87° 10' 43.566" E
6	23° 44' 58.022" N	87° 11' 33.591" E	26	23° 44' 57.337" N	87° 10' 47.249" E
7	23° 44' 56.620" N	87° 11' 36.236" E	27	23° 44' 56.566" N	87° 10' 51.275" E
8	23° 44' 53.562" N	87° 11' 26.474" E	28	23° 44' 58.450" N	87° 10' 53.331" E
9	23° 44' 54.253" N	87° 11' 27.424" E	29	23° 44' 59.392" N	87° 10' 56.072" E
10	23° 44' 55.281" N	87° 11' 27.167" E	30	23° 44' 58.878" N	87° 10' 56.929" E
11	23° 44' 56.394" N	87° 11' 26.053" E	31	23° 44' 57.422" N	87° 10' 57.271" E
12	23° 44' 56.309" N	87° 11' 22.884" E	32	23° 44' 56.223" N	87° 11' 2.411" E
13	23° 44' 54.338" N	87° 11' 19.286" E	33	23° 44' 54.938" N	87° 11' 13.718" E
14	23° 44' 52.699" N	87° 11' 16.497" E	34	23° 44' 56.394" N	87° 11' 15.774" E
15	23° 44' 52.295" N	87° 11' 13.254" E	35	23° 44' 57.850" N	87° 11' 15.174" E
16	23° 44' 49.424" N	87° 11' 7.441" E	36	23° 44' 58.536" N	87° 11' 12.776" E
17	23° 44' 48.519" N	87° 11' 0.765" E	37	23° 44' 59.392" N	87° 11' 11.405" E
18	23° 44' 52.262" N	87° 10' 33.766" E	38	23° 45' 0.378" N	87° 11' 10.553" E
19	23° 44' 51.401" N	87° 10' 23.561" E	39	23° 45' 1.204" N	87° 11' 14.796" E
20	23° 44' 51.452" N	87° 10' 23.549" E	40	23° 45' 0.861" N	87° 11' 16.852" E

POTENTIAL BLOCK BH_KR_AJ_08 OF AJAY RIVER



LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

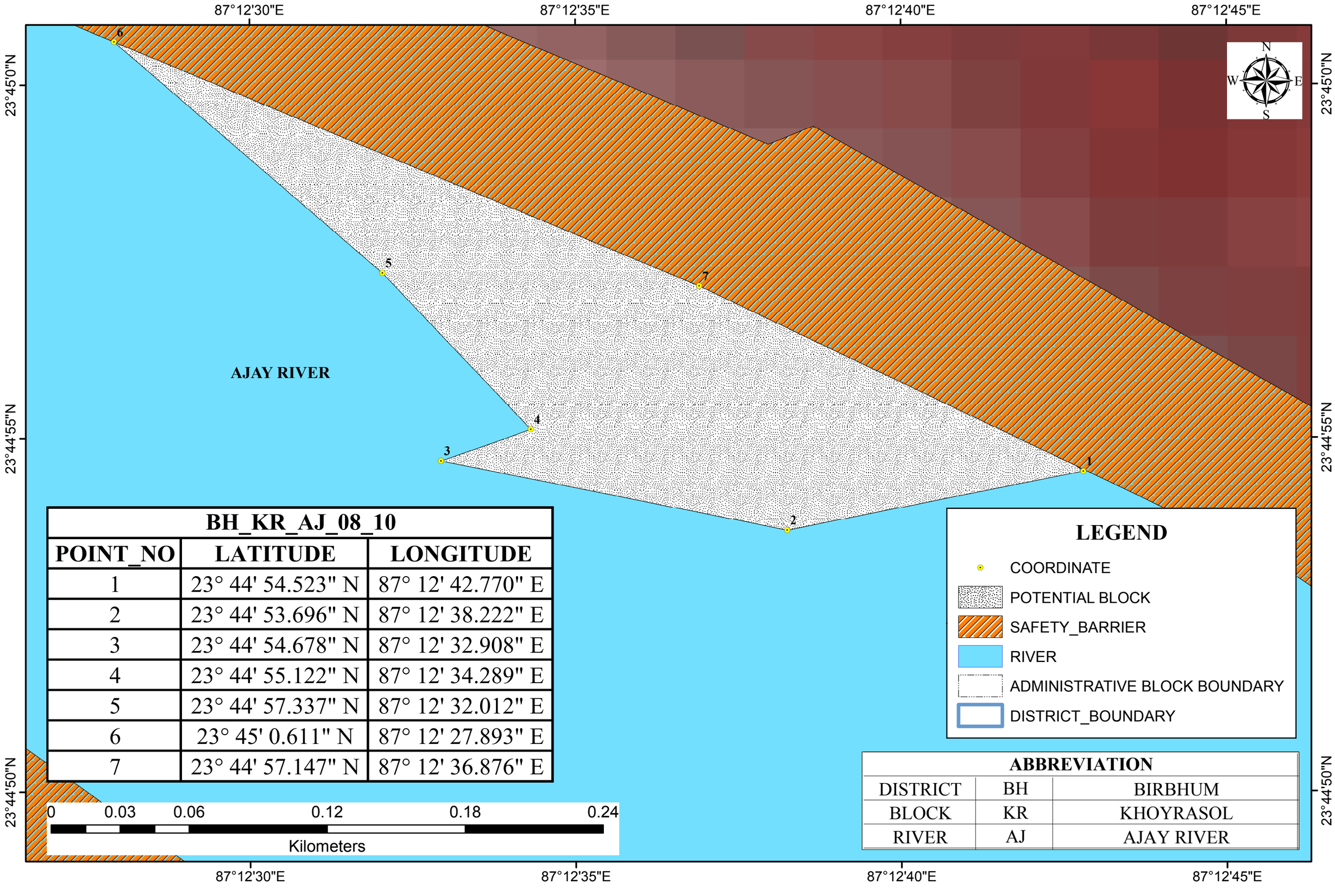
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AJ	AJAY RIVER

0 0.05 0.1 0.2 0.3 0.4

Kilometers

BH_KR_AJ_08		
POINT_NO	LATITUDE	LONGITUDE
1	23° 45' 8.711" N	87° 11' 58.329" E
2	23° 45' 6.139" N	87° 12' 9.799" E
3	23° 45' 6.331" N	87° 12' 6.314" E
4	23° 45' 4.832" N	87° 12' 0.639" E
5	23° 45' 4.189" N	87° 11' 52.501" E
6	23° 45' 2.797" N	87° 11' 41.900" E
7	23° 45' 3.440" N	87° 11' 33.334" E
8	23° 45' 5.977" N	87° 11' 32.076" E
9	23° 45' 8.197" N	87° 11' 44.581" E

POTENTIAL BLOCK BH_KR_AJ_08_10 OF AJAY RIVER



BH_KR_AJ_08_10		
POINT_NO	LATITUDE	LONGITUDE
1	23° 44' 54.523" N	87° 12' 42.770" E
2	23° 44' 53.696" N	87° 12' 38.222" E
3	23° 44' 54.678" N	87° 12' 32.908" E
4	23° 44' 55.122" N	87° 12' 34.289" E
5	23° 44' 57.337" N	87° 12' 32.012" E
6	23° 45' 0.611" N	87° 12' 27.893" E
7	23° 44' 57.147" N	87° 12' 36.876" E

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_KR_AJ_09 OF AJAY RIVER

87°12'5"E 87°12'10"E 87°12'15"E 87°12'20"E 87°12'25"E 87°12'30"E 87°12'35"E

23°45'0"N 23°44'55"N 23°44'50"N 23°44'45"N

BH_KR_AJ_09

AJAY RIVER

BH_KR_AJ_09		
POINT_NO	LATITUDE	LONGITUDE
1	23° 44' 52.381" N	87° 12' 23.924" E
2	23° 44' 51.942" N	87° 12' 23.952" E
3	23° 44' 56.459" N	87° 12' 5.865" E
4	23° 44' 56.782" N	87° 12' 2.271" E
5	23° 44' 56.835" N	87° 12' 3.880" E
6	23° 44' 57.606" N	87° 12' 7.649" E
7	23° 44' 59.906" N	87° 12' 8.884" E
8	23° 45' 2.583" N	87° 12' 14.344" E
9	23° 45' 0.549" N	87° 12' 20.019" E
10	23° 44' 58.621" N	87° 12' 20.019" E
11	23° 44' 58.086" N	87° 12' 19.912" E
12	23° 44' 55.037" N	87° 12' 20.326" E
13	23° 44' 54.608" N	87° 12' 22.468" E
14	23° 44' 54.094" N	87° 12' 23.496" E

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AJ	AJAY RIVER

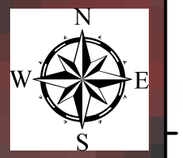
0 0.0475 0.095 0.19 0.285 0.38

Kilometers

POTENTIAL BLOCK BH_KR_AJ_11_12 OF AJAY RIVER

87°12'30"E 87°12'40"E 87°12'50"E 87°13'0"E 87°13'10"E 87°13'20"E 87°13'30"E 87°13'40"E 87°13'50"E 87°14'0"E

23°44'45"N 23°44'40"N 23°44'35"N 23°44'30"N 23°44'25"N 23°44'20"N 23°44'15"N 23°44'10"N 23°44'5"N 23°44'0"N



BH_KR_AJ_11_12

AJAY RIVER

BH_KR_AJ_11_12					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 44' 47.293" N	87° 12' 49.144" E	19	23° 44' 28.619" N	87° 13' 54.760" E
2	23° 44' 46.042" N	87° 12' 50.993" E	20	23° 44' 28.961" N	87° 13' 57.673" E
3	23° 44' 47.026" N	87° 12' 55.743" E	21	23° 44' 28.899" N	87° 13' 57.692" E
4	23° 44' 45.502" N	87° 12' 58.207" E	22	23° 44' 25.236" N	87° 13' 49.043" E
5	23° 44' 43.472" N	87° 12' 59.645" E	23	23° 44' 25.365" N	87° 13' 40.820" E
6	23° 44' 39.875" N	87° 13' 1.786" E	24	23° 44' 22.828" N	87° 13' 36.136" E
7	23° 44' 38.761" N	87° 13' 4.870" E	25	23° 44' 22.281" N	87° 13' 30.926" E
8	23° 44' 38.984" N	87° 13' 7.561" E	26	23° 44' 22.923" N	87° 13' 21.674" E
9	23° 44' 36.928" N	87° 13' 12.872" E	27	23° 44' 28.191" N	87° 13' 11.781" E
10	23° 44' 35.729" N	87° 13' 15.014" E	28	23° 44' 29.177" N	87° 13' 4.114" E
11	23° 44' 33.930" N	87° 13' 21.609" E	29	23° 44' 34.359" N	87° 12' 53.663" E
12	23° 44' 32.902" N	87° 13' 23.837" E	30	23° 44' 41.297" N	87° 12' 37.345" E
13	23° 44' 31.617" N	87° 13' 24.094" E	31	23° 44' 44.767" N	87° 12' 31.820" E
14	23° 44' 28.704" N	87° 13' 26.406" E	32	23° 44' 46.447" N	87° 12' 30.893" E
15	23° 44' 28.961" N	87° 13' 28.976" E	33	23° 44' 44.980" N	87° 12' 34.582" E
16	23° 44' 28.704" N	87° 13' 32.231" E	34	23° 44' 44.295" N	87° 12' 38.865" E
17	23° 44' 25.483" N	87° 13' 41.335" E	35	23° 44' 43.095" N	87° 12' 43.062" E
18	23° 44' 26.220" N	87° 13' 45.937" E	36	23° 44' 47.207" N	87° 12' 42.548" E

0 0.125 0.25 0.5 0.75 1

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_KR_AJ_12 OF AJAY RIVER

87°13'35"E 87°13'40"E 87°13'45"E 87°13'50"E 87°13'55"E

23°44'35"N 23°44'30"N 23°44'25"N

BH_KR_AJ_12

AJAY RIVER

BH_KR_AJ_12		
POINT_NO	LATITUDE	LONGITUDE
1	23° 44' 32.045" N	87° 13' 49.963" E
2	23° 44' 30.932" N	87° 13' 47.565" E
3	23° 44' 31.360" N	87° 13' 41.397" E
4	23° 44' 33.159" N	87° 13' 38.485" E
5	23° 44' 34.187" N	87° 13' 39.255" E
6	23° 44' 34.966" N	87° 13' 39.255" E
7	23° 44' 35.166" N	87° 13' 50.760" E

0 0.0325 0.065 0.13 0.195 0.26

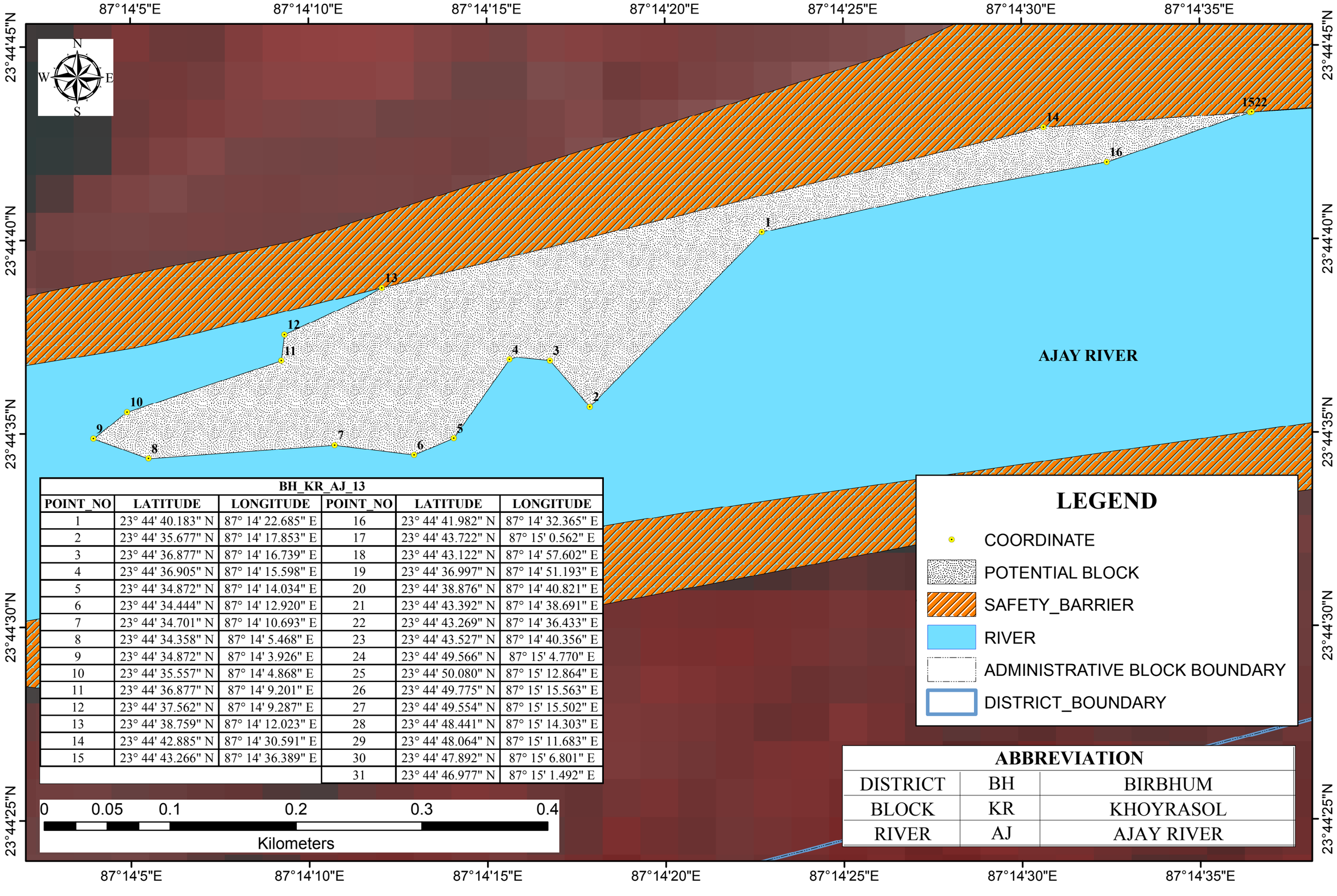
Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_KR_AJ_13 OF AJAY RIVER



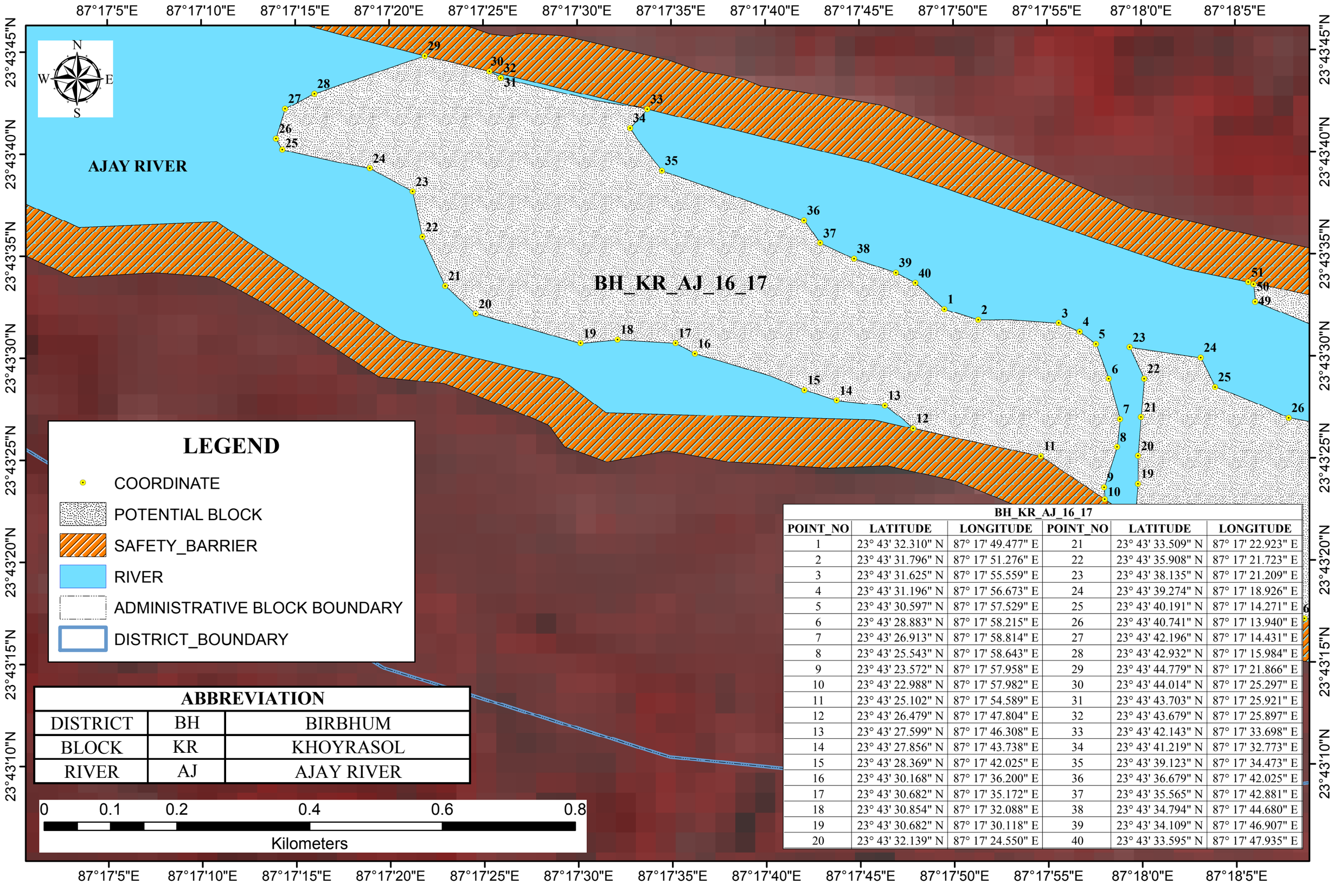
BH_KR_AJ_13					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 44' 40.183" N	87° 14' 22.685" E	16	23° 44' 41.982" N	87° 14' 32.365" E
2	23° 44' 35.677" N	87° 14' 17.853" E	17	23° 44' 43.722" N	87° 15' 0.562" E
3	23° 44' 36.877" N	87° 14' 16.739" E	18	23° 44' 43.122" N	87° 14' 57.602" E
4	23° 44' 36.905" N	87° 14' 15.598" E	19	23° 44' 36.997" N	87° 14' 51.193" E
5	23° 44' 34.872" N	87° 14' 14.034" E	20	23° 44' 38.876" N	87° 14' 40.821" E
6	23° 44' 34.444" N	87° 14' 12.920" E	21	23° 44' 43.392" N	87° 14' 38.691" E
7	23° 44' 34.701" N	87° 14' 10.693" E	22	23° 44' 43.269" N	87° 14' 36.433" E
8	23° 44' 34.358" N	87° 14' 5.468" E	23	23° 44' 43.527" N	87° 14' 40.356" E
9	23° 44' 34.872" N	87° 14' 3.926" E	24	23° 44' 49.566" N	87° 15' 4.770" E
10	23° 44' 35.557" N	87° 14' 4.868" E	25	23° 44' 50.080" N	87° 15' 12.864" E
11	23° 44' 36.877" N	87° 14' 9.201" E	26	23° 44' 49.775" N	87° 15' 15.563" E
12	23° 44' 37.562" N	87° 14' 9.287" E	27	23° 44' 49.554" N	87° 15' 15.502" E
13	23° 44' 38.759" N	87° 14' 12.023" E	28	23° 44' 48.441" N	87° 15' 14.303" E
14	23° 44' 42.885" N	87° 14' 30.591" E	29	23° 44' 48.064" N	87° 15' 11.683" E
15	23° 44' 43.266" N	87° 14' 36.389" E	30	23° 44' 47.892" N	87° 15' 6.801" E
			31	23° 44' 46.977" N	87° 15' 1.492" E

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_KR_AJ_16_17 OF AJAY RIVER

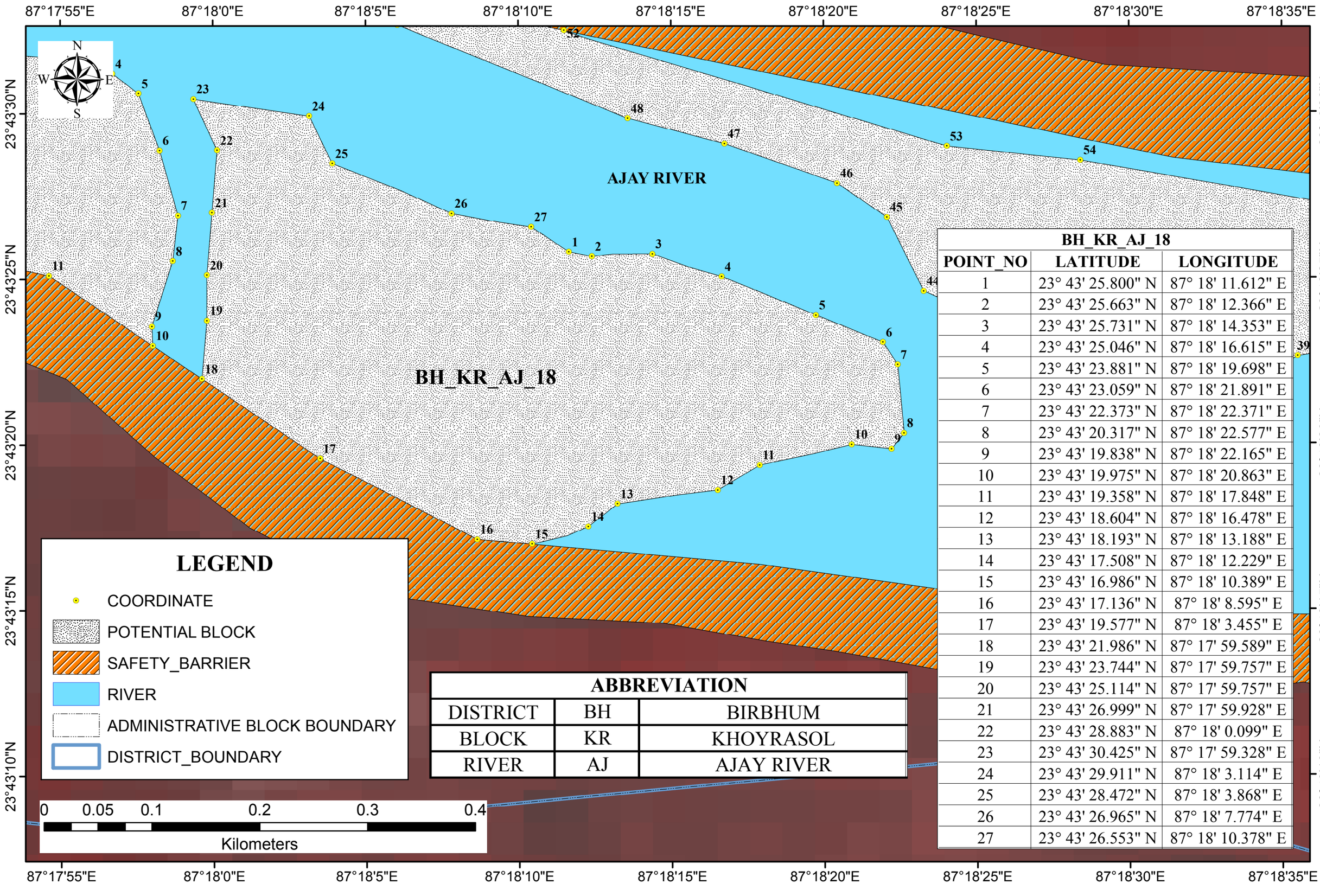


ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AJ	AJAY RIVER

BH_KR_AJ_16_17

POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 43' 32.310" N	87° 17' 49.477" E	21	23° 43' 33.509" N	87° 17' 22.923" E
2	23° 43' 31.796" N	87° 17' 51.276" E	22	23° 43' 35.908" N	87° 17' 21.723" E
3	23° 43' 31.625" N	87° 17' 55.559" E	23	23° 43' 38.135" N	87° 17' 21.209" E
4	23° 43' 31.196" N	87° 17' 56.673" E	24	23° 43' 39.274" N	87° 17' 18.926" E
5	23° 43' 30.597" N	87° 17' 57.529" E	25	23° 43' 40.191" N	87° 17' 14.271" E
6	23° 43' 28.883" N	87° 17' 58.215" E	26	23° 43' 40.741" N	87° 17' 13.940" E
7	23° 43' 26.913" N	87° 17' 58.814" E	27	23° 43' 42.196" N	87° 17' 14.431" E
8	23° 43' 25.543" N	87° 17' 58.643" E	28	23° 43' 42.932" N	87° 17' 15.984" E
9	23° 43' 23.572" N	87° 17' 57.958" E	29	23° 43' 44.779" N	87° 17' 21.866" E
10	23° 43' 22.988" N	87° 17' 57.982" E	30	23° 43' 44.014" N	87° 17' 25.297" E
11	23° 43' 25.102" N	87° 17' 54.589" E	31	23° 43' 43.703" N	87° 17' 25.921" E
12	23° 43' 26.479" N	87° 17' 47.804" E	32	23° 43' 43.679" N	87° 17' 25.897" E
13	23° 43' 27.599" N	87° 17' 46.308" E	33	23° 43' 42.143" N	87° 17' 33.698" E
14	23° 43' 27.856" N	87° 17' 43.738" E	34	23° 43' 41.219" N	87° 17' 32.773" E
15	23° 43' 28.369" N	87° 17' 42.025" E	35	23° 43' 39.123" N	87° 17' 34.473" E
16	23° 43' 30.168" N	87° 17' 36.200" E	36	23° 43' 36.679" N	87° 17' 42.025" E
17	23° 43' 30.682" N	87° 17' 35.172" E	37	23° 43' 35.565" N	87° 17' 42.881" E
18	23° 43' 30.854" N	87° 17' 32.088" E	38	23° 43' 34.794" N	87° 17' 44.680" E
19	23° 43' 30.682" N	87° 17' 30.118" E	39	23° 43' 34.109" N	87° 17' 46.907" E
20	23° 43' 32.139" N	87° 17' 24.550" E	40	23° 43' 33.595" N	87° 17' 47.935" E

POTENTIAL BLOCK BH_KR_AJ_18 OF AJAY RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AJ	AJAY RIVER

BH_KR_AJ_18		
POINT_NO	LATITUDE	LONGITUDE
1	23° 43' 25.800" N	87° 18' 11.612" E
2	23° 43' 25.663" N	87° 18' 12.366" E
3	23° 43' 25.731" N	87° 18' 14.353" E
4	23° 43' 25.046" N	87° 18' 16.615" E
5	23° 43' 23.881" N	87° 18' 19.698" E
6	23° 43' 23.059" N	87° 18' 21.891" E
7	23° 43' 22.373" N	87° 18' 22.371" E
8	23° 43' 20.317" N	87° 18' 22.577" E
9	23° 43' 19.838" N	87° 18' 22.165" E
10	23° 43' 19.975" N	87° 18' 20.863" E
11	23° 43' 19.358" N	87° 18' 17.848" E
12	23° 43' 18.604" N	87° 18' 16.478" E
13	23° 43' 18.193" N	87° 18' 13.188" E
14	23° 43' 17.508" N	87° 18' 12.229" E
15	23° 43' 16.986" N	87° 18' 10.389" E
16	23° 43' 17.136" N	87° 18' 8.595" E
17	23° 43' 19.577" N	87° 18' 3.455" E
18	23° 43' 21.986" N	87° 17' 59.589" E
19	23° 43' 23.744" N	87° 17' 59.757" E
20	23° 43' 25.114" N	87° 17' 59.757" E
21	23° 43' 26.999" N	87° 17' 59.928" E
22	23° 43' 28.883" N	87° 18' 0.099" E
23	23° 43' 30.425" N	87° 17' 59.328" E
24	23° 43' 29.911" N	87° 18' 3.114" E
25	23° 43' 28.472" N	87° 18' 3.868" E
26	23° 43' 26.965" N	87° 18' 7.774" E
27	23° 43' 26.553" N	87° 18' 10.378" E

POTENTIAL BLOCK BH_KR_AJ_19_20 OF AJAY RIVER

87°18'5"E 87°18'15"E 87°18'25"E 87°18'35"E 87°18'45"E 87°18'55"E 87°19'5"E 87°19'15"E 87°19'25"E 87°19'35"E 87°19'45"E

23°43'30"N 23°43'20"N 23°43'10"N 23°43'0"N 23°42'50"N 23°42'40"N

AJAY RIVER

BH_KR_AJ_19_20

BH_KR_AJ_19_20					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 43' 24.857" N	87° 18' 49.782" E	28	23° 43' 7.725" N	87° 19' 4.173" E
2	23° 43' 22.802" N	87° 18' 56.121" E	29	23° 43' 9.353" N	87° 18' 59.034" E
3	23° 43' 20.403" N	87° 18' 58.434" E	30	23° 43' 10.638" N	87° 18' 58.348" E
4	23° 43' 19.889" N	87° 18' 57.320" E	31	23° 43' 11.580" N	87° 18' 56.978" E
5	23° 43' 19.118" N	87° 18' 59.719" E	32	23° 43' 13.208" N	87° 18' 55.779" E
6	23° 43' 17.748" N	87° 19' 4.944" E	33	23° 43' 14.407" N	87° 18' 54.408" E
7	23° 43' 15.520" N	87° 19' 11.283" E	34	23° 43' 15.777" N	87° 18' 52.010" E
8	23° 43' 13.208" N	87° 19' 17.965" E	35	23° 43' 18.690" N	87° 18' 49.782" E
9	23° 43' 12.094" N	87° 19' 20.877" E	36	23° 43' 20.660" N	87° 18' 46.270" E
10	23° 43' 10.466" N	87° 19' 25.503" E	37	23° 43' 22.288" N	87° 18' 42.244" E
11	23° 43' 7.468" N	87° 19' 29.529" E	38	23° 43' 23.144" N	87° 18' 38.903" E
12	23° 43' 5.669" N	87° 19' 30.814" E	39	23° 43' 22.630" N	87° 18' 35.477" E
13	23° 43' 4.253" N	87° 19' 29.215" E	40	23° 43' 21.859" N	87° 18' 33.935" E
14	23° 43' 3.858" N	87° 19' 33.890" E	41	23° 43' 21.859" N	87° 18' 32.308" E
15	23° 43' 5.143" N	87° 19' 36.846" E	42	23° 43' 22.545" N	87° 18' 29.395" E
16	23° 43' 7.841" N	87° 19' 41.600" E	43	23° 43' 23.401" N	87° 18' 26.140" E
17	23° 43' 6.170" N	87° 19' 41.086" E	44	23° 43' 24.600" N	87° 18' 23.228" E
18	23° 43' 3.986" N	87° 19' 39.287" E	45	23° 43' 26.828" N	87° 18' 22.028" E
19	23° 43' 2.830" N	87° 19' 36.075" E	46	23° 43' 27.856" N	87° 18' 20.401" E
20	23° 43' 1.545" N	87° 19' 33.248" E	47	23° 43' 29.055" N	87° 18' 16.717" E
21	23° 43' 0.517" N	87° 19' 28.751" E	48	23° 43' 29.826" N	87° 18' 13.548" E
22	23° 43' 0.368" N	87° 19' 27.000" E	49	23° 43' 32.652" N	87° 18' 6.010" E
23	23° 43' 1.887" N	87° 19' 18.214" E	50	23° 43' 33.509" N	87° 18' 5.924" E
24	23° 43' 2.586" N	87° 19' 17.187" E	51	23° 43' 33.606" N	87° 18' 5.644" E
25	23° 43' 2.586" N	87° 19' 15.652" E	52	23° 43' 32.478" N	87° 18' 11.463" E
26	23° 43' 2.926" N	87° 19' 13.722" E	53	23° 43' 28.969" N	87° 18' 23.999" E
27	23° 43' 5.769" N	87° 19' 7.575" E	54	23° 43' 28.541" N	87° 18' 28.367" E
			55	23° 43' 26.828" N	87° 18' 38.989" E

LEGEND

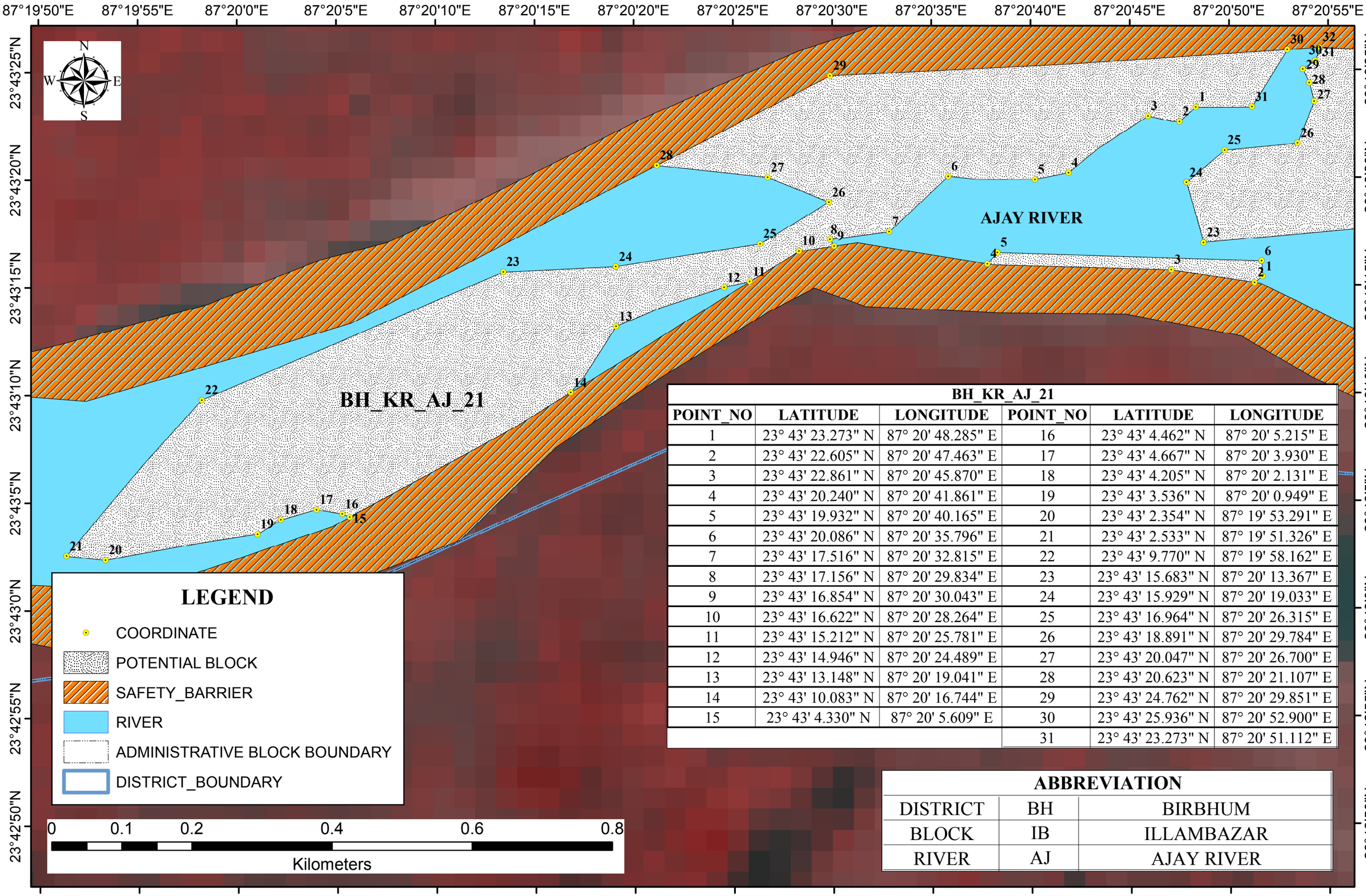
- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AJ	AJAY RIVER

0 0.15 0.3 0.6 0.9 1.2

Kilometers

POTENTIAL BLOCK BH_KR_AJ_21 OF AJAY RIVER



BH_KR_AJ_21					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 43' 23.273" N	87° 20' 48.285" E	16	23° 43' 4.462" N	87° 20' 5.215" E
2	23° 43' 22.605" N	87° 20' 47.463" E	17	23° 43' 4.667" N	87° 20' 3.930" E
3	23° 43' 22.861" N	87° 20' 45.870" E	18	23° 43' 4.205" N	87° 20' 2.131" E
4	23° 43' 20.240" N	87° 20' 41.861" E	19	23° 43' 3.536" N	87° 20' 0.949" E
5	23° 43' 19.932" N	87° 20' 40.165" E	20	23° 43' 2.354" N	87° 19' 53.291" E
6	23° 43' 20.086" N	87° 20' 35.796" E	21	23° 43' 2.533" N	87° 19' 51.326" E
7	23° 43' 17.516" N	87° 20' 32.815" E	22	23° 43' 9.770" N	87° 19' 58.162" E
8	23° 43' 17.156" N	87° 20' 29.834" E	23	23° 43' 15.683" N	87° 20' 13.367" E
9	23° 43' 16.854" N	87° 20' 30.043" E	24	23° 43' 15.929" N	87° 20' 19.033" E
10	23° 43' 16.622" N	87° 20' 28.264" E	25	23° 43' 16.964" N	87° 20' 26.315" E
11	23° 43' 15.212" N	87° 20' 25.781" E	26	23° 43' 18.891" N	87° 20' 29.784" E
12	23° 43' 14.946" N	87° 20' 24.489" E	27	23° 43' 20.047" N	87° 20' 26.700" E
13	23° 43' 13.148" N	87° 20' 19.041" E	28	23° 43' 20.623" N	87° 20' 21.107" E
14	23° 43' 10.083" N	87° 20' 16.744" E	29	23° 43' 24.762" N	87° 20' 29.851" E
15	23° 43' 4.330" N	87° 20' 5.609" E	30	23° 43' 25.936" N	87° 20' 52.900" E
			31	23° 43' 23.273" N	87° 20' 51.112" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	IB	ILLAMBAZAR
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_KR_AJ_22 OF AJAY RIVER

87°20'40"E 87°20'45"E 87°20'50"E

23°43'15"N

23°43'10"N

AJAY RIVER

BH_KR_AJ_22

23 5 4 6 3 1 2

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

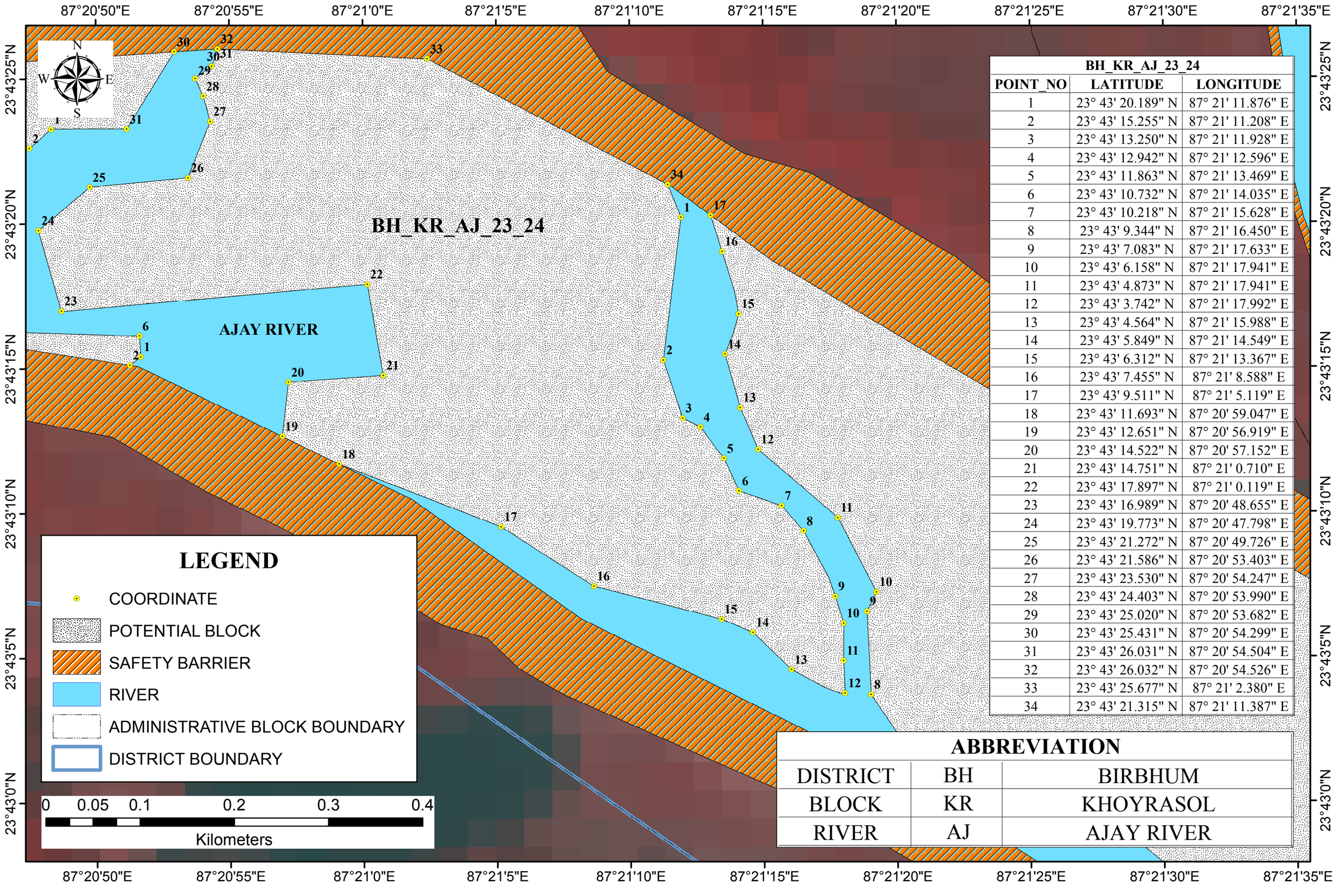
0 0.0225 0.045 0.09 0.135 0.18

Kilometers

BH_KR_AJ_22		
POINT_NO	LATITUDE	LONGITUDE
1	23° 43' 15.409" N	87° 20' 51.626" E
2	23° 43' 15.123" N	87° 20' 51.218" E
3	23° 43' 15.722" N	87° 20' 47.024" E
4	23° 43' 16.020" N	87° 20' 37.761" E
5	23° 43' 16.540" N	87° 20' 38.263" E
6	23° 43' 16.129" N	87° 20' 51.575" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AJ	AJAY RIVER

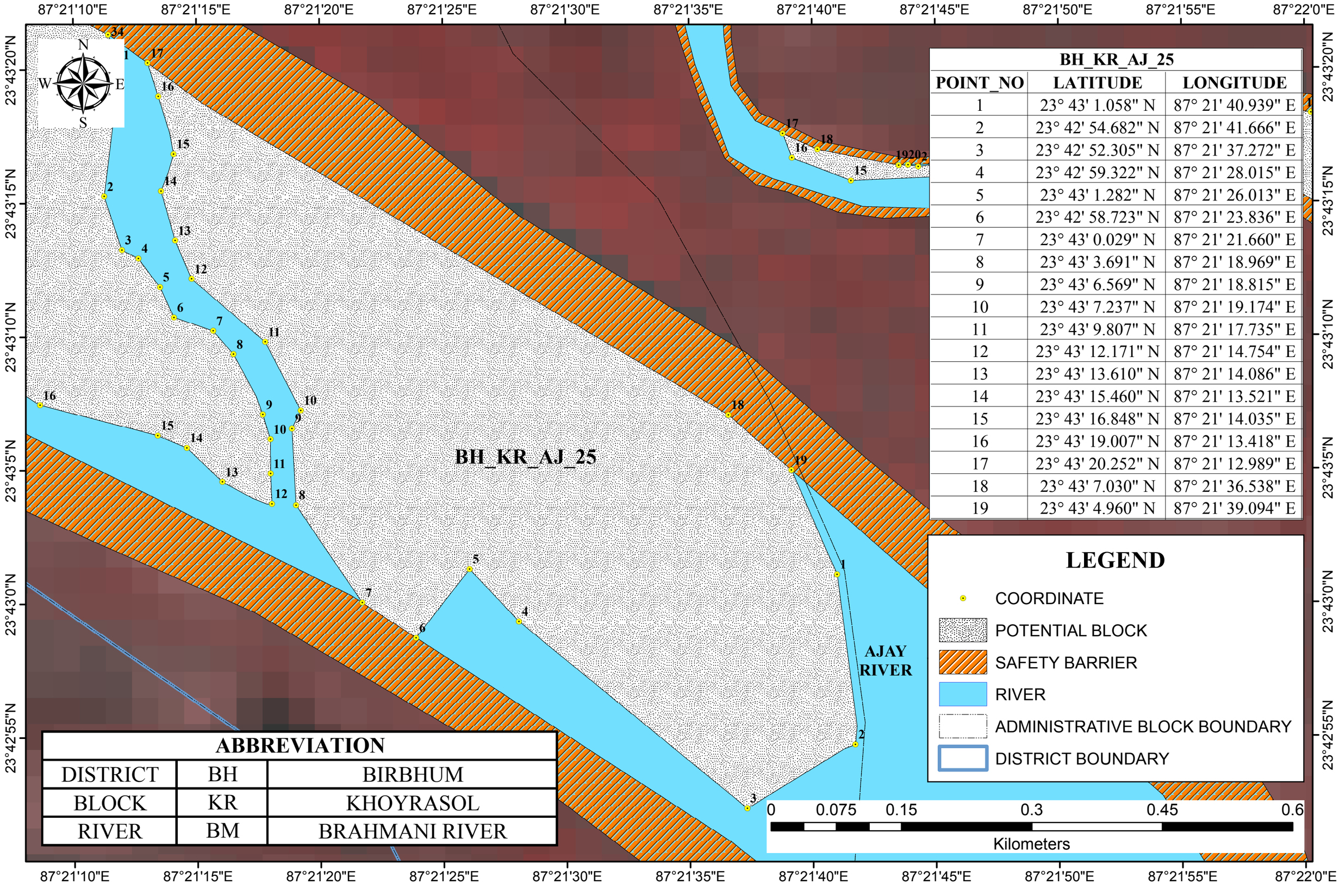
POTENTIAL BLOCK BH_KR_AJ_23_24 OF AJAY RIVER



BH_KR_AJ_23_24		
POINT_NO	LATITUDE	LONGITUDE
1	23° 43' 20.189" N	87° 21' 11.876" E
2	23° 43' 15.255" N	87° 21' 11.208" E
3	23° 43' 13.250" N	87° 21' 11.928" E
4	23° 43' 12.942" N	87° 21' 12.596" E
5	23° 43' 11.863" N	87° 21' 13.469" E
6	23° 43' 10.732" N	87° 21' 14.035" E
7	23° 43' 10.218" N	87° 21' 15.628" E
8	23° 43' 9.344" N	87° 21' 16.450" E
9	23° 43' 7.083" N	87° 21' 17.633" E
10	23° 43' 6.158" N	87° 21' 17.941" E
11	23° 43' 4.873" N	87° 21' 17.941" E
12	23° 43' 3.742" N	87° 21' 17.992" E
13	23° 43' 4.564" N	87° 21' 15.988" E
14	23° 43' 5.849" N	87° 21' 14.549" E
15	23° 43' 6.312" N	87° 21' 13.367" E
16	23° 43' 7.455" N	87° 21' 8.588" E
17	23° 43' 9.511" N	87° 21' 5.119" E
18	23° 43' 11.693" N	87° 20' 59.047" E
19	23° 43' 12.651" N	87° 20' 56.919" E
20	23° 43' 14.522" N	87° 20' 57.152" E
21	23° 43' 14.751" N	87° 21' 0.710" E
22	23° 43' 17.897" N	87° 21' 0.119" E
23	23° 43' 16.989" N	87° 20' 48.655" E
24	23° 43' 19.773" N	87° 20' 47.798" E
25	23° 43' 21.272" N	87° 20' 49.726" E
26	23° 43' 21.586" N	87° 20' 53.403" E
27	23° 43' 23.530" N	87° 20' 54.247" E
28	23° 43' 24.403" N	87° 20' 53.990" E
29	23° 43' 25.020" N	87° 20' 53.682" E
30	23° 43' 25.431" N	87° 20' 54.299" E
31	23° 43' 26.031" N	87° 20' 54.504" E
32	23° 43' 26.032" N	87° 20' 54.526" E
33	23° 43' 25.677" N	87° 21' 2.380" E
34	23° 43' 21.315" N	87° 21' 11.387" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_KR_AJ_25 OF AJAY RIVER



BH_KR_AJ_25		
POINT_NO	LATITUDE	LONGITUDE
1	23° 43' 1.058" N	87° 21' 40.939" E
2	23° 42' 54.682" N	87° 21' 41.666" E
3	23° 42' 52.305" N	87° 21' 37.272" E
4	23° 42' 59.322" N	87° 21' 28.015" E
5	23° 43' 1.282" N	87° 21' 26.013" E
6	23° 42' 58.723" N	87° 21' 23.836" E
7	23° 43' 0.029" N	87° 21' 21.660" E
8	23° 43' 3.691" N	87° 21' 18.969" E
9	23° 43' 6.569" N	87° 21' 18.815" E
10	23° 43' 7.237" N	87° 21' 19.174" E
11	23° 43' 9.807" N	87° 21' 17.735" E
12	23° 43' 12.171" N	87° 21' 14.754" E
13	23° 43' 13.610" N	87° 21' 14.086" E
14	23° 43' 15.460" N	87° 21' 13.521" E
15	23° 43' 16.848" N	87° 21' 14.035" E
16	23° 43' 19.007" N	87° 21' 13.418" E
17	23° 43' 20.252" N	87° 21' 12.989" E
18	23° 43' 7.030" N	87° 21' 36.538" E
19	23° 43' 4.960" N	87° 21' 39.094" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	BM	BRAHMANI RIVER

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

0 0.075 0.15 0.3 0.45 0.6

Kilometers

POTENTIAL BLOCK BH_DJ_AJ_26_28 OF AJAY RIVER

87°22'0"E 87°22'30"E 87°23'0"E 87°23'30"E 87°24'0"E 87°24'30"E

23°42'30"N 23°42'0"N 23°41'30"N 23°41'0"N

AJAY RIVER

BH_DJ_AJ_26_28

N W E S

BH_DJ_AJ_26_28					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 42' 23.601" N	87° 22' 13.929" E	39	23° 41' 48.087" N	87° 23' 53.415" E
2	23° 42' 15.249" N	87° 22' 22.024" E	40	23° 41' 48.241" N	87° 23' 52.541" E
3	23° 42' 4.841" N	87° 22' 52.990" E	41	23° 41' 48.806" N	87° 23' 51.565" E
4	23° 42' 3.170" N	87° 23' 12.135" E	42	23° 41' 50.091" N	87° 23' 50.794" E
5	23° 42' 7.154" N	87° 23' 46.314" E	43	23° 41' 51.170" N	87° 23' 49.200" E
6	23° 42' 5.740" N	87° 24' 5.074" E	44	23° 41' 52.250" N	87° 23' 52.336" E
7	23° 42' 2.456" N	87° 24' 19.951" E	45	23° 41' 53.021" N	87° 23' 52.952" E
8	23° 42' 0.431" N	87° 24' 21.554" E	46	23° 41' 53.792" N	87° 23' 52.438" E
9	23° 41' 58.932" N	87° 24' 23.481" E	47	23° 41' 54.254" N	87° 23' 51.410" E
10	23° 41' 57.112" N	87° 24' 28.085" E	48	23° 41' 54.871" N	87° 23' 49.252" E
11	23° 41' 55.613" N	87° 24' 29.798" E	49	23° 41' 55.179" N	87° 23' 45.757" E
12	23° 41' 53.900" N	87° 24' 30.655" E	50	23° 41' 54.614" N	87° 23' 45.294" E
13	23° 41' 52.615" N	87° 24' 30.655" E	51	23° 41' 56.340" N	87° 23' 38.627" E
14	23° 41' 50.580" N	87° 24' 29.905" E	52	23° 41' 58.139" N	87° 23' 28.862" E
15	23° 41' 49.295" N	87° 24' 28.085" E	53	23° 41' 59.038" N	87° 23' 21.923" E
16	23° 41' 49.295" N	87° 24' 26.800" E	54	23° 42' 1.737" N	87° 23' 12.929" E
17	23° 41' 52.186" N	87° 24' 26.265" E	55	23° 42' 0.195" N	87° 23' 10.102" E
18	23° 41' 54.114" N	87° 24' 25.194" E	56	23° 42' 3.021" N	87° 23' 2.778" E
19	23° 41' 54.328" N	87° 24' 23.802" E	57	23° 42' 2.711" N	87° 22' 53.647" E
20	23° 41' 53.471" N	87° 24' 20.804" E	58	23° 42' 3.367" N	87° 22' 50.893" E
21	23° 41' 51.972" N	87° 24' 19.733" E	59	23° 42' 2.632" N	87° 22' 50.403" E
22	23° 41' 49.617" N	87° 24' 13.737" E	60	23° 42' 2.118" N	87° 22' 49.683" E
23	23° 41' 51.437" N	87° 24' 10.203" E	61	23° 42' 1.861" N	87° 22' 48.758" E
24	23° 41' 50.687" N	87° 24' 9.668" E	62	23° 42' 2.118" N	87° 22' 46.086" E
25	23° 41' 48.653" N	87° 24' 9.454" E	63	23° 42' 2.704" N	87° 22' 43.802" E
26	23° 41' 46.618" N	87° 24' 8.383" E	64	23° 42' 4.435" N	87° 22' 42.990" E
27	23° 41' 44.900" N	87° 24' 4.876" E	65	23° 42' 6.234" N	87° 22' 39.650" E
28	23° 41' 44.691" N	87° 24' 2.387" E	66	23° 42' 7.262" N	87° 22' 34.767" E
29	23° 41' 45.227" N	87° 23' 59.924" E	67	23° 42' 7.052" N	87° 22' 30.564" E
30	23° 41' 46.404" N	87° 23' 58.961" E	68	23° 42' 7.874" N	87° 22' 28.816" E
31	23° 41' 49.295" N	87° 24' 0.031" E	69	23° 42' 8.161" N	87° 22' 21.532" E
32	23° 41' 50.091" N	87° 24' 3.283" E	70	23° 42' 8.290" N	87° 22' 19.862" E
33	23° 41' 52.044" N	87° 24' 0.765" E	71	23° 42' 12.658" N	87° 22' 15.365" E
34	23° 41' 51.993" N	87° 23' 59.634" E	72	23° 42' 17.794" N	87° 22' 13.038" E
35	23° 41' 52.198" N	87° 23' 58.812" E	73	23° 42' 17.691" N	87° 22' 11.907" E
36	23° 41' 52.096" N	87° 23' 57.732" E	74	23° 42' 26.223" N	87° 22' 4.814" E
37	23° 41' 51.170" N	87° 23' 57.681" E	75	23° 42' 27.744" N	87° 22' 4.115" E
38	23° 41' 49.063" N	87° 23' 56.242" E	76	23° 42' 30.592" N	87° 22' 9.186" E

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	DJ	DUBRAJPUR
RIVER	AJ	AJAY RIVER

0 0.225 0.45 0.9 1.35 1.8

Kilometers

POTENTIAL BLOCK BH_DJ_AJ_27 OF AJAY RIVER

87°22'0"E 87°22'5"E 87°22'10"E 87°22'15"E 87°22'20"E 87°22'25"E

23°42'15"N

23°42'10"N

23°42'5"N

N W E S

AJAY RIVER

BH_DJ_AJ_27

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	DJ	DUBRAJPUR
RIVER	AJ	AJAY RIVER

BH_DJ_AJ_27		
POINT_NO	LATITUDE	LONGITUDE
1	23° 42' 7.262" N	87° 22' 14.979" E
2	23° 42' 6.669" N	87° 22' 14.044" E
3	23° 42' 9.164" N	87° 22' 7.845" E
4	23° 42' 18.915" N	87° 22' 1.733" E
5	23° 42' 18.187" N	87° 22' 3.868" E
6	23° 42' 16.971" N	87° 22' 4.455" E
7	23° 42' 15.378" N	87° 22' 5.226" E
8	23° 42' 13.271" N	87° 22' 7.538" E
9	23° 42' 12.603" N	87° 22' 9.080" E

0 0.045 0.09 0.18 0.27 0.36

Kilometers

POTENTIAL BLOCK BH_DJ_AJ_29 OF AJAY RIVER

87°24'0"E 87°24'30"E 87°25'0"E 87°25'30"E 87°26'0"E

23°41'30"N 23°41'0"N

N W E S

BH_DJ_AJ_29

AJAY RIVER

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	DJ	DUBRAJPUR
RIVER	AJ	AJAY RIVER

0 0.175 0.35 0.7 1.05 1.4

Kilometers

BH_DJ_AJ_29

POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 41' 43.581" N	87° 24' 30.574" E	25	23° 41' 7.322" N	87° 24' 42.755" E
2	23° 41' 43.495" N	87° 24' 33.230" E	26	23° 41' 10.676" N	87° 24' 39.256" E
3	23° 41' 43.838" N	87° 24' 35.200" E	27	23° 41' 13.399" N	87° 24' 37.537" E
4	23° 41' 44.009" N	87° 24' 37.342" E	28	23° 41' 17.768" N	87° 24' 32.911" E
5	23° 41' 43.238" N	87° 24' 40.340" E	29	23° 41' 22.779" N	87° 24' 29.185" E
6	23° 41' 42.639" N	87° 24' 41.196" E	30	23° 41' 26.634" N	87° 24' 24.430" E
7	23° 41' 41.868" N	87° 24' 41.453" E	31	23° 41' 28.818" N	87° 24' 17.877" E
8	23° 41' 40.069" N	87° 24' 41.625" E	32	23° 41' 34.600" N	87° 24' 7.727" E
9	23° 41' 38.270" N	87° 24' 44.623" E	33	23° 41' 40.125" N	87° 24' 2.202" E
10	23° 41' 38.441" N	87° 24' 44.880" E	34	23° 41' 43.841" N	87° 23' 56.208" E
11	23° 41' 39.983" N	87° 24' 44.537" E	35	23° 41' 43.752" N	87° 23' 57.681" E
12	23° 41' 39.726" N	87° 24' 45.908" E	36	23° 41' 43.324" N	87° 23' 59.394" E
13	23° 41' 38.955" N	87° 24' 48.306" E	37	23° 41' 43.495" N	87° 24' 0.679" E
14	23° 41' 37.328" N	87° 24' 50.191" E	38	23° 41' 42.810" N	87° 24' 5.390" E
15	23° 41' 33.901" N	87° 24' 52.932" E	39	23° 41' 42.981" N	87° 24' 7.789" E
16	23° 41' 30.475" N	87° 24' 54.816" E	40	23° 41' 42.981" N	87° 24' 18.154" E
17	23° 41' 28.333" N	87° 24' 55.159" E	41	23° 41' 43.495" N	87° 24' 19.524" E
18	23° 41' 21.652" N	87° 24' 58.072" E	42	23° 41' 44.266" N	87° 24' 20.552" E
19	23° 41' 19.767" N	87° 24' 59.185" E	43	23° 41' 45.037" N	87° 24' 20.895" E
20	23° 41' 9.402" N	87° 25' 1.412" E	44	23° 41' 45.722" N	87° 24' 21.494" E
21	23° 40' 57.681" N	87° 25' 3.497" E	45	23° 41' 45.722" N	87° 24' 21.923" E
22	23° 40' 56.074" N	87° 24' 54.135" E	46	23° 41' 45.208" N	87° 24' 23.379" E
23	23° 40' 59.535" N	87° 24' 52.649" E	47	23° 41' 44.866" N	87° 24' 26.463" E
24	23° 41' 4.109" N	87° 24' 48.108" E	48	23° 41' 44.095" N	87° 24' 29.118" E

POTENTIAL BLOCK BH_IB_AJ_30 OF AJAY RIVER

87°24'30"E 87°24'40"E 87°24'50"E 87°25'0"E 87°25'10"E 87°25'20"E 87°25'30"E

23°40'50"N 23°40'40"N 23°40'30"N 23°40'20"N

BH_IB_AJ_30

AJAY RIVER

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

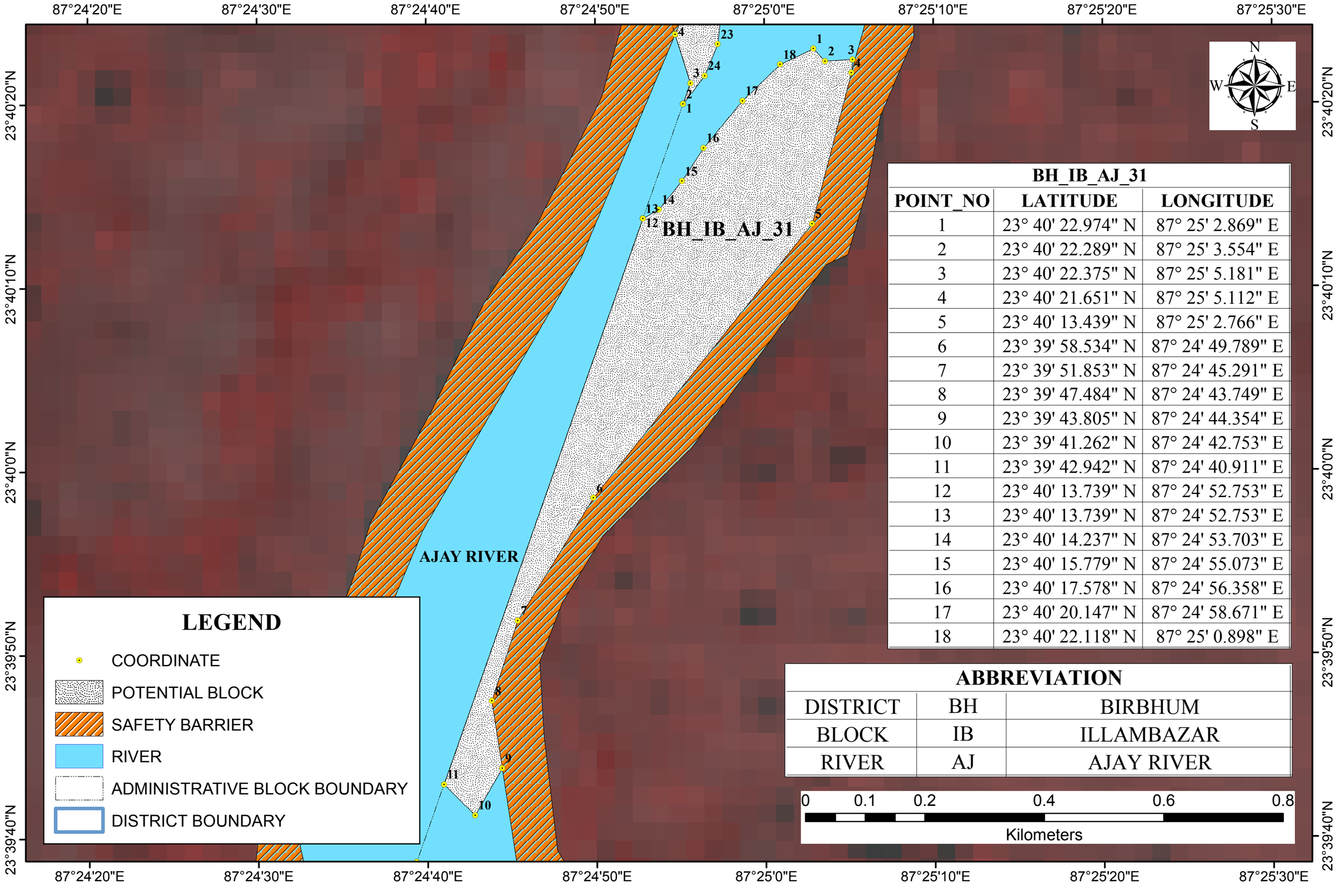
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	IB	ILLAMBAZAR
RIVER	AJ	AJAY RIVER

0 0.1 0.2 0.4 0.6 0.8

Kilometers

BH_IB_AJ_30		
POINT_NO	LATITUDE	LONGITUDE
1	23° 40' 19.974" N	87° 24' 55.151" E
2	23° 40' 19.974" N	87° 24' 55.151" E
3	23° 40' 21.112" N	87° 24' 55.588" E
4	23° 40' 23.771" N	87° 24' 54.692" E
5	23° 40' 28.941" N	87° 24' 57.067" E
6	23° 40' 36.137" N	87° 24' 58.095" E
7	23° 40' 40.377" N	87° 24' 57.324" E
8	23° 40' 41.034" N	87° 24' 56.928" E
9	23° 40' 53.402" N	87° 24' 55.282" E
10	23° 40' 55.270" N	87° 24' 54.481" E
11	23° 40' 56.870" N	87° 25' 3.689" E
12	23° 40' 53.812" N	87° 25' 4.410" E
13	23° 40' 51.157" N	87° 25' 5.524" E
14	23° 40' 49.272" N	87° 25' 6.723" E
15	23° 40' 48.415" N	87° 25' 6.723" E
16	23° 40' 46.445" N	87° 25' 5.610" E
17	23° 40' 42.591" N	87° 25' 4.496" E
18	23° 40' 37.879" N	87° 25' 4.239" E
19	23° 40' 32.483" N	87° 25' 1.841" E
20	23° 40' 29.484" N	87° 24' 59.870" E
21	23° 40' 27.857" N	87° 24' 58.671" E
22	23° 40' 25.287" N	87° 24' 57.472" E
23	23° 40' 23.231" N	87° 24' 57.215" E
24	23° 40' 21.518" N	87° 24' 56.444" E

POTENTIAL BLOCK BH_IB_AJ_31 OF AJAY RIVER



BH_IB_AJ_31		
POINT_NO	LATITUDE	LONGITUDE
1	23° 40' 22.974" N	87° 25' 2.869" E
2	23° 40' 22.289" N	87° 25' 3.554" E
3	23° 40' 22.375" N	87° 25' 5.181" E
4	23° 40' 21.651" N	87° 25' 5.112" E
5	23° 40' 13.439" N	87° 25' 2.766" E
6	23° 39' 58.534" N	87° 24' 49.789" E
7	23° 39' 51.853" N	87° 24' 45.291" E
8	23° 39' 47.484" N	87° 24' 43.749" E
9	23° 39' 43.805" N	87° 24' 44.354" E
10	23° 39' 41.262" N	87° 24' 42.753" E
11	23° 39' 42.942" N	87° 24' 40.911" E
12	23° 40' 13.739" N	87° 24' 52.753" E
13	23° 40' 13.739" N	87° 24' 52.753" E
14	23° 40' 14.237" N	87° 24' 53.703" E
15	23° 40' 15.779" N	87° 24' 55.073" E
16	23° 40' 17.578" N	87° 24' 56.358" E
17	23° 40' 20.147" N	87° 24' 58.671" E
18	23° 40' 22.118" N	87° 25' 0.898" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	IB	ILLAMBAZAR
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_IB_AJ_32 OF AJAY RIVER

87°24'20"E 87°24'30"E 87°24'40"E 87°24'50"E 87°25'0"E 87°25'10"E 87°25'20"E 87°25'30"E 87°25'40"E

23°39'40"N 23°39'30"N 23°39'20"N 23°39'10"N 23°39'0"N 23°38'50"N

N W E S

BH_IB_AJ_32		
POINT_NO	LATITUDE	LONGITUDE
1	23° 38' 49.644" N	87° 25' 3.591" E
2	23° 38' 47.120" N	87° 25' 3.982" E
3	23° 38' 48.062" N	87° 25' 2.098" E
4	23° 38' 50.289" N	87° 25' 0.213" E
5	23° 38' 51.143" N	87° 24' 59.045" E
6	23° 38' 58.741" N	87° 24' 52.313" E
7	23° 39' 8.377" N	87° 24' 45.503" E
8	23° 39' 28.233" N	87° 24' 35.255" E
9	23° 39' 38.729" N	87° 24' 39.290" E
10	23° 39' 38.728" N	87° 24' 39.291" E
11	23° 39' 36.375" N	87° 24' 41.796" E
12	23° 39' 35.176" N	87° 24' 44.537" E
13	23° 39' 33.462" N	87° 24' 46.936" E
14	23° 39' 31.401" N	87° 24' 48.513" E
15	23° 39' 29.164" N	87° 24' 49.588" E
16	23° 39' 28.751" N	87° 24' 49.677" E
17	23° 39' 26.859" N	87° 24' 50.696" E
18	23° 39' 24.168" N	87° 24' 51.990" E
19	23° 39' 18.986" N	87° 24' 52.247" E
20	23° 39' 16.330" N	87° 24' 52.932" E
21	23° 39' 12.647" N	87° 24' 53.532" E
22	23° 39' 9.049" N	87° 24' 53.532" E
23	23° 39' 7.250" N	87° 24' 55.673" E
24	23° 39' 1.636" N	87° 24' 55.111" E
25	23° 38' 58.210" N	87° 24' 56.396" E

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

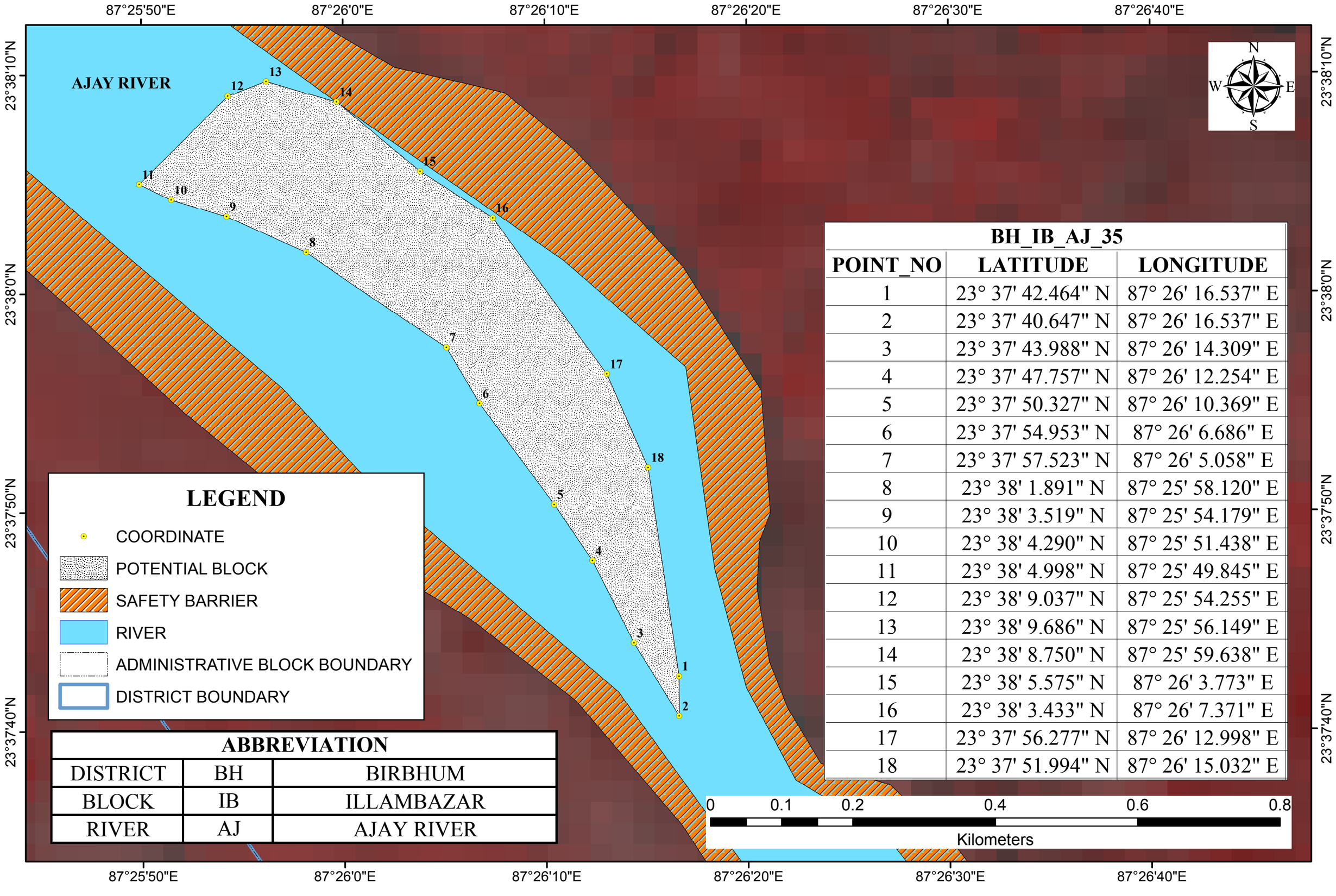
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	IB	ILLAMBAZAR
RIVER	AJ	AJAY RIVER

AJAY RIVER

0 0.125 0.25 0.5 0.75 1

Kilometers

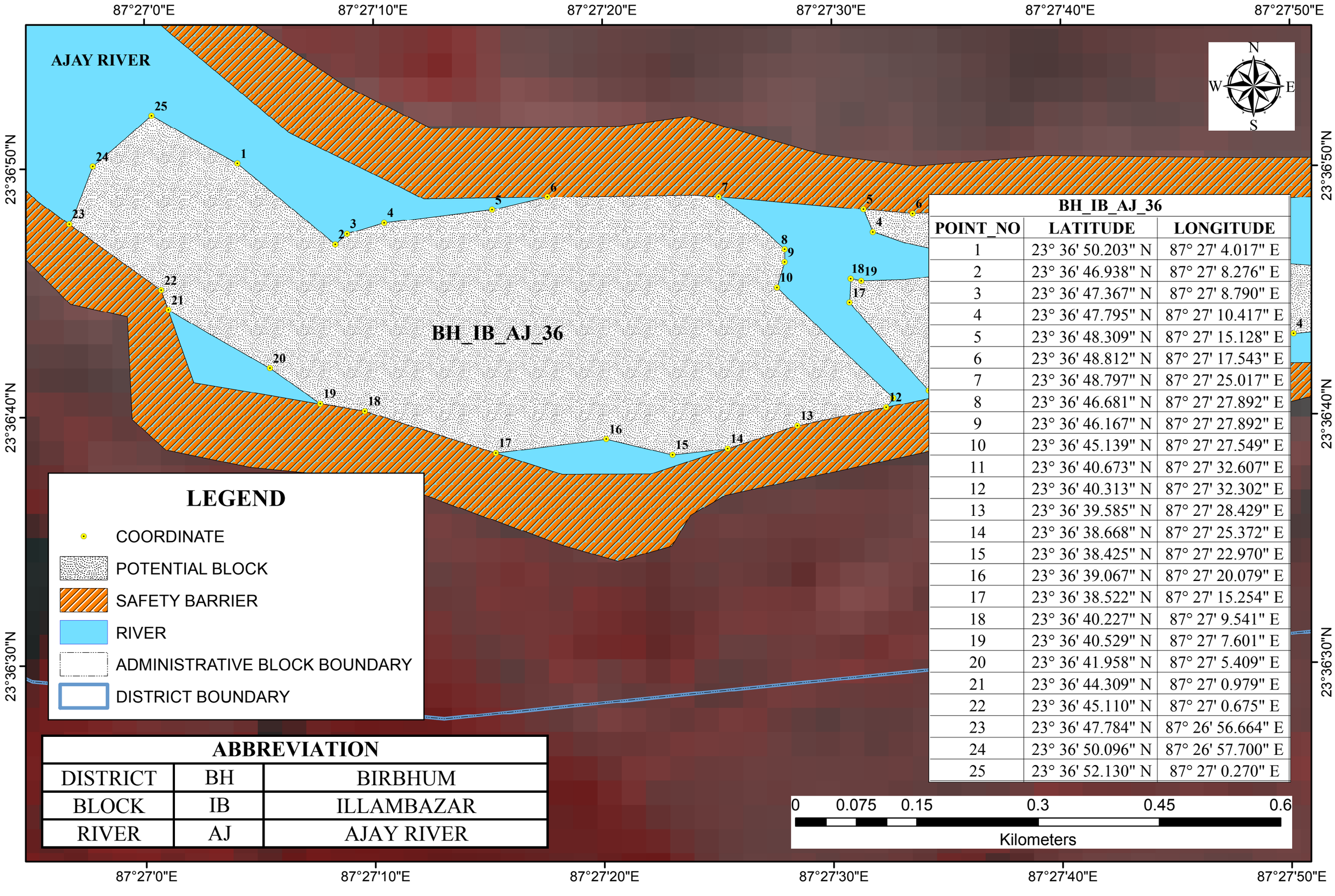
POTENTIAL BLOCK BH_IB_AJ_35 OF AJAY RIVER



BH_IB_AJ_35		
POINT_NO	LATITUDE	LONGITUDE
1	23° 37' 42.464" N	87° 26' 16.537" E
2	23° 37' 40.647" N	87° 26' 16.537" E
3	23° 37' 43.988" N	87° 26' 14.309" E
4	23° 37' 47.757" N	87° 26' 12.254" E
5	23° 37' 50.327" N	87° 26' 10.369" E
6	23° 37' 54.953" N	87° 26' 6.686" E
7	23° 37' 57.523" N	87° 26' 5.058" E
8	23° 38' 1.891" N	87° 25' 58.120" E
9	23° 38' 3.519" N	87° 25' 54.179" E
10	23° 38' 4.290" N	87° 25' 51.438" E
11	23° 38' 4.998" N	87° 25' 49.845" E
12	23° 38' 9.037" N	87° 25' 54.255" E
13	23° 38' 9.686" N	87° 25' 56.149" E
14	23° 38' 8.750" N	87° 25' 59.638" E
15	23° 38' 5.575" N	87° 26' 3.773" E
16	23° 38' 3.433" N	87° 26' 7.371" E
17	23° 37' 56.277" N	87° 26' 12.998" E
18	23° 37' 51.994" N	87° 26' 15.032" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	IB	ILLAMBAZAR
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_IB_AJ_36 OF AJAY RIVER



BH_IB_AJ_36		
POINT_NO	LATITUDE	LONGITUDE
1	23° 36' 50.203" N	87° 27' 4.017" E
2	23° 36' 46.938" N	87° 27' 8.276" E
3	23° 36' 47.367" N	87° 27' 8.790" E
4	23° 36' 47.795" N	87° 27' 10.417" E
5	23° 36' 48.309" N	87° 27' 15.128" E
6	23° 36' 48.812" N	87° 27' 17.543" E
7	23° 36' 48.797" N	87° 27' 25.017" E
8	23° 36' 46.681" N	87° 27' 27.892" E
9	23° 36' 46.167" N	87° 27' 27.892" E
10	23° 36' 45.139" N	87° 27' 27.549" E
11	23° 36' 40.673" N	87° 27' 32.607" E
12	23° 36' 40.313" N	87° 27' 32.302" E
13	23° 36' 39.585" N	87° 27' 28.429" E
14	23° 36' 38.668" N	87° 27' 25.372" E
15	23° 36' 38.425" N	87° 27' 22.970" E
16	23° 36' 39.067" N	87° 27' 20.079" E
17	23° 36' 38.522" N	87° 27' 15.254" E
18	23° 36' 40.227" N	87° 27' 9.541" E
19	23° 36' 40.529" N	87° 27' 7.601" E
20	23° 36' 41.958" N	87° 27' 5.409" E
21	23° 36' 44.309" N	87° 27' 0.979" E
22	23° 36' 45.110" N	87° 27' 0.675" E
23	23° 36' 47.784" N	87° 26' 56.664" E
24	23° 36' 50.096" N	87° 26' 57.700" E
25	23° 36' 52.130" N	87° 27' 0.270" E

LEGEND

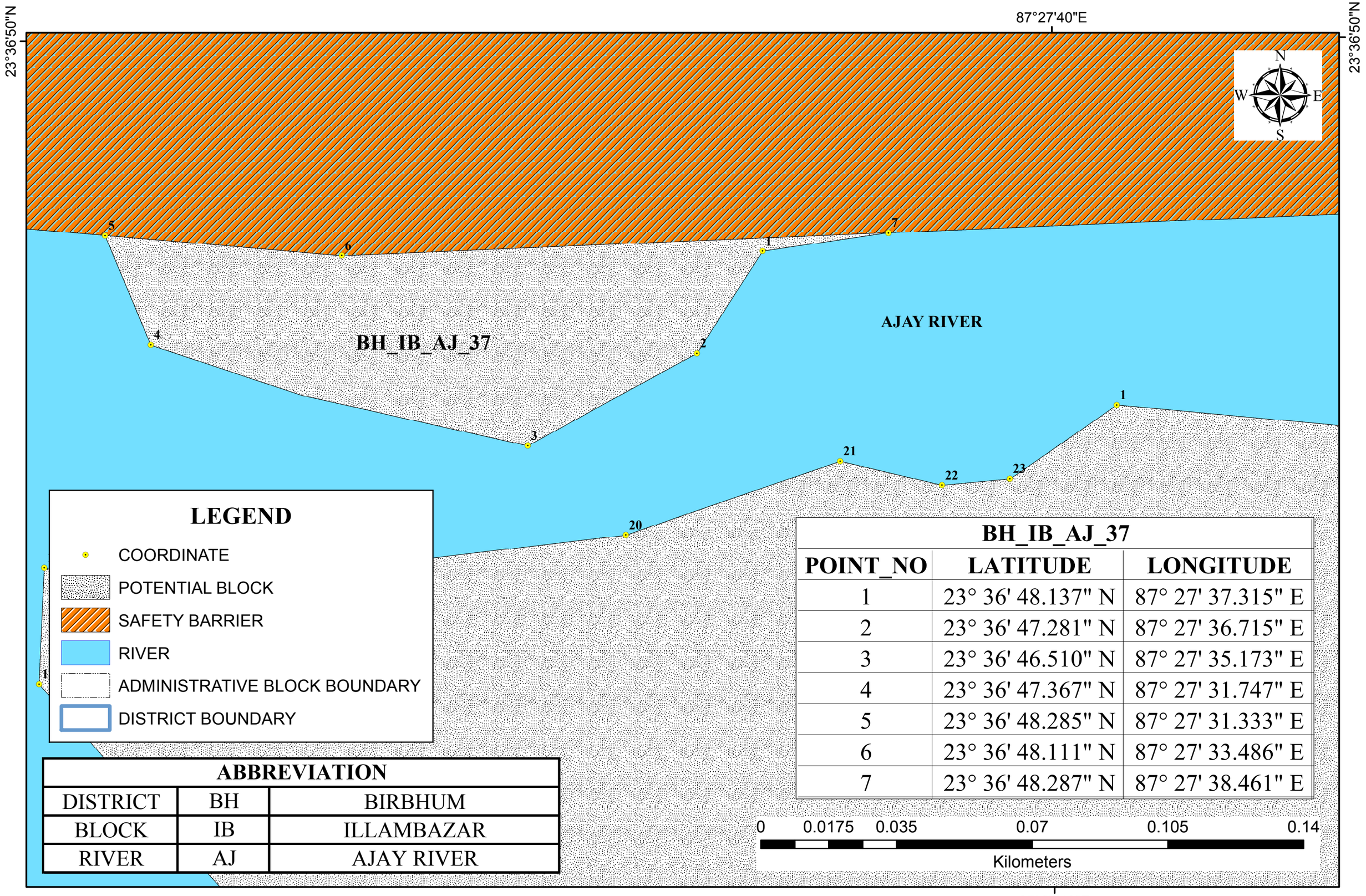
- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	IB	ILLAMBAZAR
RIVER	AJ	AJAY RIVER

0 0.075 0.15 0.3 0.45 0.6

Kilometers

POTENTIAL BLOCK BH_IB_AJ_37 OF AJAY RIVER



LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	IB	ILLAMBAZAR
RIVER	AJ	AJAY RIVER

BH_IB_AJ_37		
POINT_NO	LATITUDE	LONGITUDE
1	23° 36' 48.137" N	87° 27' 37.315" E
2	23° 36' 47.281" N	87° 27' 36.715" E
3	23° 36' 46.510" N	87° 27' 35.173" E
4	23° 36' 47.367" N	87° 27' 31.747" E
5	23° 36' 48.285" N	87° 27' 31.333" E
6	23° 36' 48.111" N	87° 27' 33.486" E
7	23° 36' 48.287" N	87° 27' 38.461" E

POTENTIAL BLOCK BH_IB_AJ_38 OF AJAY RIVER

87°27'40"E 87°27'50"E 87°28'0"E

23°36'40"N

23°36'30"N

AJAY RIVER

BH_IB_AJ_38

BH_IB_AJ_38		
POINT_NO	LATITUDE	LONGITUDE
1	23° 36' 46.835" N	87° 27' 40.535" E
2	23° 36' 45.920" N	87° 27' 51.773" E
3	23° 36' 43.381" N	87° 27' 51.841" E
4	23° 36' 43.238" N	87° 27' 50.095" E
5	23° 36' 43.443" N	87° 27' 48.450" E
6	23° 36' 43.289" N	87° 27' 47.834" E
7	23° 36' 42.672" N	87° 27' 47.782" E
8	23° 36' 42.261" N	87° 27' 46.652" E
9	23° 36' 42.087" N	87° 27' 46.390" E
10	23° 36' 42.151" N	87° 27' 45.809" E
11	23° 36' 42.621" N	87° 27' 44.287" E
12	23° 36' 42.621" N	87° 27' 43.414" E
13	23° 36' 42.368" N	87° 27' 43.856" E
14	23° 36' 42.412" N	87° 27' 43.463" E
15	23° 36' 40.744" N	87° 27' 34.595" E
16	23° 36' 40.976" N	87° 27' 34.162" E
17	23° 36' 44.523" N	87° 27' 30.719" E
18	23° 36' 45.499" N	87° 27' 30.770" E
19	23° 36' 45.396" N	87° 27' 31.233" E
20	23° 36' 45.756" N	87° 27' 36.064" E
21	23° 36' 46.373" N	87° 27' 38.017" E
22	23° 36' 46.167" N	87° 27' 38.942" E
23	23° 36' 46.219" N	87° 27' 39.559" E

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	IB	ILLAMBAZAR
RIVER	AJ	AJAY RIVER

0 0.0475 0.095 0.19 0.285 0.38

Kilometers

N W E S

POTENTIAL BLOCK BH_IB_AJ_39 OF AJAY RIVER

87°28'0"E 87°28'10"E 87°28'20"E

23°36'50"N 23°36'40"N

N W E S

AJAY RIVER

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	IB	ILLAMBAZAR
RIVER	AJ	AJAY RIVER

BH_IB_AJ_39					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 36' 49.201" N	87° 28' 13.649" E	14	23° 36' 45.881" N	87° 28' 16.283" E
2	23° 36' 48.687" N	87° 28' 14.934" E	15	23° 36' 44.900" N	87° 28' 14.006" E
3	23° 36' 48.708" N	87° 28' 15.684" E	16	23° 36' 44.558" N	87° 28' 12.156" E
4	23° 36' 48.537" N	87° 28' 16.947" E	17	23° 36' 45.380" N	87° 28' 9.072" E
5	23° 36' 48.280" N	87° 28' 17.632" E	18	23° 36' 45.967" N	87° 28' 2.235" E
6	23° 36' 47.566" N	87° 28' 18.944" E	19	23° 36' 46.115" N	87° 28' 1.880" E
7	23° 36' 46.802" N	87° 28' 17.975" E	20	23° 36' 45.654" N	87° 28' 0.575" E
8	23° 36' 46.481" N	87° 28' 17.226" E	21	23° 36' 45.449" N	87° 27' 58.519" E
9	23° 36' 46.695" N	87° 28' 16.819" E	22	23° 36' 46.203" N	87° 27' 57.971" E
10	23° 36' 46.973" N	87° 28' 15.983" E	23	23° 36' 47.162" N	87° 27' 57.765" E
11	23° 36' 46.781" N	87° 28' 15.320" E	24	23° 36' 49.012" N	87° 27' 56.600" E
12	23° 36' 46.204" N	87° 28' 14.489" E	25	23° 36' 49.166" N	87° 27' 56.744" E
13	23° 36' 45.903" N	87° 28' 14.913" E	26	23° 36' 49.577" N	87° 28' 2.573" E

0 0.0375 0.075 0.15 0.225 0.3

Kilometers

POTENTIAL BLOCK BH_IB_AJ_40 OF AJAY RIVER

87°29'40"E 87°29'50"E 87°30'0"E 87°30'10"E 87°30'20"E

23°36'20"N 23°36'10"N 23°36'0"N 23°35'50"N

N W E S

AJAY RIVER

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	IB	ILLAMBAZAR
RIVER	AJ	AJAY RIVER

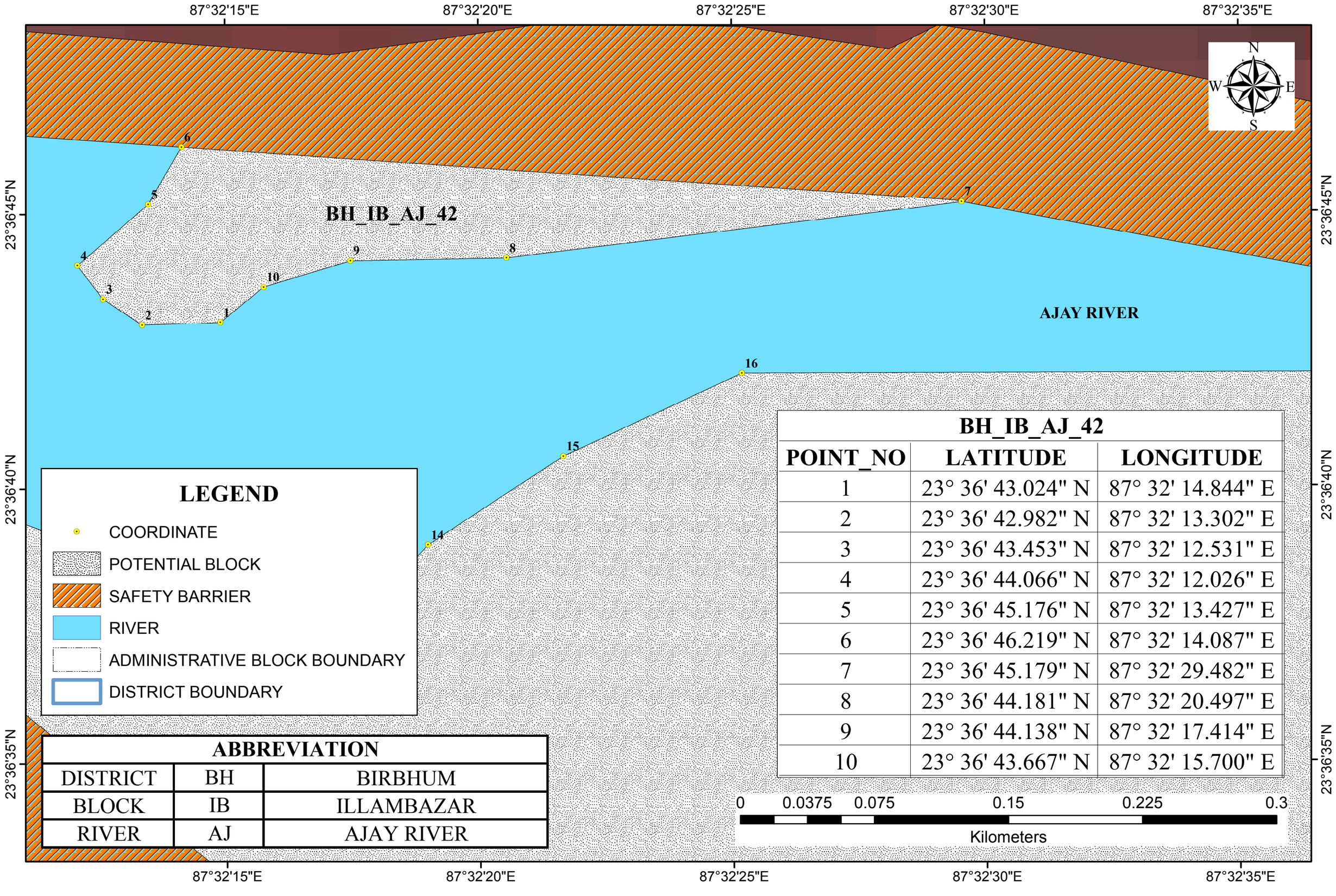
BH_IB_AJ_40

POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 36' 12.603" N	87° 29' 50.192" E	17	23° 36' 8.889" N	87° 29' 49.349" E
2	23° 36' 11.095" N	87° 29' 58.210" E	18	23° 36' 9.745" N	87° 29' 48.964" E
3	23° 36' 11.472" N	87° 30' 6.810" E	19	23° 36' 10.944" N	87° 29' 47.979" E
4	23° 36' 14.745" N	87° 30' 21.597" E	20	23° 36' 11.630" N	87° 29' 46.694" E
5	23° 36' 14.628" N	87° 30' 23.271" E	21	23° 36' 11.801" N	87° 29' 45.452" E
6	23° 36' 15.527" N	87° 30' 25.455" E	22	23° 36' 12.529" N	87° 29' 43.610" E
7	23° 36' 13.514" N	87° 30' 23.442" E	23	23° 36' 13.600" N	87° 29' 41.854" E
8	23° 36' 10.816" N	87° 30' 19.844" E	24	23° 36' 14.200" N	87° 29' 40.869" E
9	23° 36' 9.445" N	87° 30' 17.746" E	25	23° 36' 14.499" N	87° 29' 39.841" E
10	23° 36' 7.347" N	87° 30' 12.649" E	26	23° 36' 14.585" N	87° 29' 37.999" E
11	23° 36' 7.047" N	87° 30' 8.195" E	27	23° 36' 15.313" N	87° 29' 37.614" E
12	23° 36' 5.041" N	87° 30' 4.337" E	28	23° 36' 16.041" N	87° 29' 38.256" E
13	23° 36' 4.673" N	87° 29' 57.655" E	29	23° 36' 16.684" N	87° 29' 38.470" E
14	23° 36' 5.241" N	87° 29' 55.407" E	30	23° 36' 17.455" N	87° 29' 37.828" E
15	23° 36' 6.870" N	87° 29' 51.588" E	31	23° 36' 19.339" N	87° 29' 36.714" E
16	23° 36' 8.246" N	87° 29' 49.906" E	32	23° 36' 19.564" N	87° 29' 36.800" E
			33	23° 36' 16.029" N	87° 29' 42.037" E

0 0.1 0.2 0.4 0.6 0.8

Kilometers

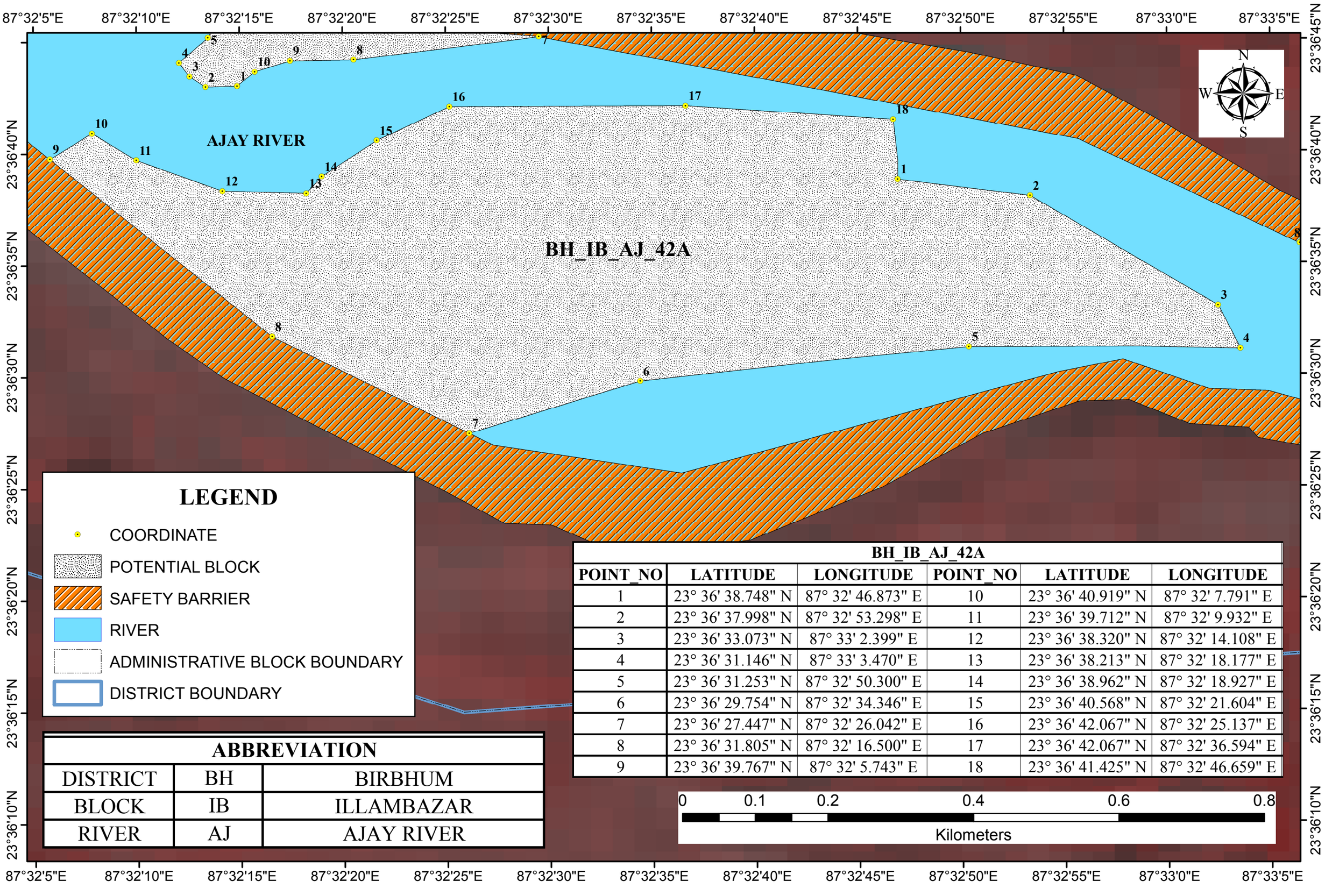
POTENTIAL BLOCK BH_IB_AJ_42 OF AJAY RIVER



BH_IB_AJ_42

POINT_NO	LATITUDE	LONGITUDE
1	23° 36' 43.024" N	87° 32' 14.844" E
2	23° 36' 42.982" N	87° 32' 13.302" E
3	23° 36' 43.453" N	87° 32' 12.531" E
4	23° 36' 44.066" N	87° 32' 12.026" E
5	23° 36' 45.176" N	87° 32' 13.427" E
6	23° 36' 46.219" N	87° 32' 14.087" E
7	23° 36' 45.179" N	87° 32' 29.482" E
8	23° 36' 44.181" N	87° 32' 20.497" E
9	23° 36' 44.138" N	87° 32' 17.414" E
10	23° 36' 43.667" N	87° 32' 15.700" E

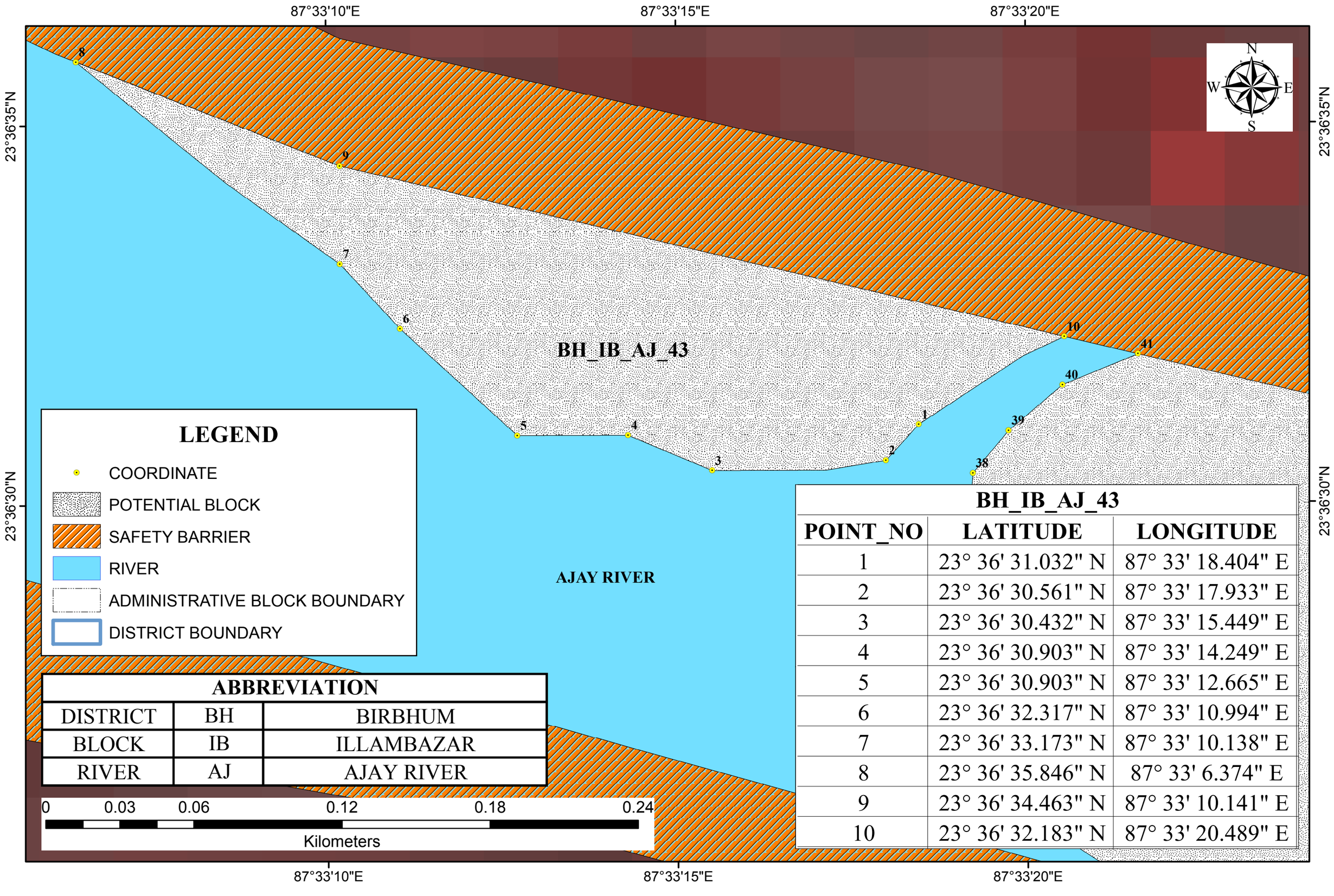
POTENTIAL BLOCK BH_IB_AJ_42A OF AJAY RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	IB	ILLAMBAZAR
RIVER	AJ	AJAY RIVER

BH_IB_AJ_42A					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 36' 38.748" N	87° 32' 46.873" E	10	23° 36' 40.919" N	87° 32' 7.791" E
2	23° 36' 37.998" N	87° 32' 53.298" E	11	23° 36' 39.712" N	87° 32' 9.932" E
3	23° 36' 33.073" N	87° 33' 2.399" E	12	23° 36' 38.320" N	87° 32' 14.108" E
4	23° 36' 31.146" N	87° 33' 3.470" E	13	23° 36' 38.213" N	87° 32' 18.177" E
5	23° 36' 31.253" N	87° 32' 50.300" E	14	23° 36' 38.962" N	87° 32' 18.927" E
6	23° 36' 29.754" N	87° 32' 34.346" E	15	23° 36' 40.568" N	87° 32' 21.604" E
7	23° 36' 27.447" N	87° 32' 26.042" E	16	23° 36' 42.067" N	87° 32' 25.137" E
8	23° 36' 31.805" N	87° 32' 16.500" E	17	23° 36' 42.067" N	87° 32' 36.594" E
9	23° 36' 39.767" N	87° 32' 5.743" E	18	23° 36' 41.425" N	87° 32' 46.659" E

POTENTIAL BLOCK BH_IB_AJ_43 OF AJAY RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	IB	ILLAMBAZAR
RIVER	AJ	AJAY RIVER

BH_IB_AJ_43		
POINT_NO	LATITUDE	LONGITUDE
1	23° 36' 31.032" N	87° 33' 18.404" E
2	23° 36' 30.561" N	87° 33' 17.933" E
3	23° 36' 30.432" N	87° 33' 15.449" E
4	23° 36' 30.903" N	87° 33' 14.249" E
5	23° 36' 30.903" N	87° 33' 12.665" E
6	23° 36' 32.317" N	87° 33' 10.994" E
7	23° 36' 33.173" N	87° 33' 10.138" E
8	23° 36' 35.846" N	87° 33' 6.374" E
9	23° 36' 34.463" N	87° 33' 10.141" E
10	23° 36' 32.183" N	87° 33' 20.489" E

POTENTIAL BLOCK BH_IB_AJ_44 OF AJAY RIVER

87°33'20"E 87°33'25"E 87°33'30"E 87°33'35"E 87°33'40"E 87°33'45"E 87°33'50"E 87°33'55"E 87°34'0"E 87°34'5"E

23°36'30"N 23°36'25"N 23°36'20"N 23°36'15"N 23°36'10"N 23°36'5"N

BH_IB_AJ_44

AJAY RIVER

BH_IB_AJ_44					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 36' 22.937" N	87° 33' 45.901" E	24	23° 36' 24.607" N	87° 33' 28.512" E
2	23° 36' 23.108" N	87° 33' 46.629" E	25	23° 36' 24.650" N	87° 33' 25.043" E
3	23° 36' 22.080" N	87° 33' 47.700" E	26	23° 36' 24.693" N	87° 33' 24.143" E
4	23° 36' 21.609" N	87° 33' 47.700" E	27	23° 36' 24.554" N	87° 33' 22.855" E
5	23° 36' 20.795" N	87° 33' 49.113" E	28	23° 36' 24.817" N	87° 33' 21.877" E
6	23° 36' 20.281" N	87° 33' 50.398" E	29	23° 36' 25.078" N	87° 33' 21.274" E
7	23° 36' 19.682" N	87° 33' 50.569" E	30	23° 36' 25.849" N	87° 33' 19.989" E
8	23° 36' 18.311" N	87° 33' 51.512" E	31	23° 36' 26.663" N	87° 33' 18.532" E
9	23° 36' 16.427" N	87° 33' 52.240" E	32	23° 36' 27.862" N	87° 33' 16.862" E
10	23° 36' 16.258" N	87° 33' 52.296" E	33	23° 36' 28.762" N	87° 33' 16.948" E
11	23° 36' 15.705" N	87° 33' 47.307" E	34	23° 36' 29.147" N	87° 33' 17.462" E
12	23° 36' 15.230" N	87° 33' 47.307" E	35	23° 36' 29.276" N	87° 33' 18.618" E
13	23° 36' 17.093" N	87° 33' 43.682" E	36	23° 36' 29.490" N	87° 33' 18.918" E
14	23° 36' 17.797" N	87° 33' 43.502" E	37	23° 36' 29.918" N	87° 33' 19.132" E
15	23° 36' 18.097" N	87° 33' 42.774" E	38	23° 36' 30.389" N	87° 33' 19.175" E
16	23° 36' 18.217" N	87° 33' 42.015" E	39	23° 36' 30.946" N	87° 33' 19.689" E
17	23° 36' 18.873" N	87° 33' 41.073" E	40	23° 36' 31.546" N	87° 33' 20.460" E
18	23° 36' 19.468" N	87° 33' 40.419" E	41	23° 36' 31.951" N	87° 33' 21.541" E
19	23° 36' 21.352" N	87° 33' 37.678" E	42	23° 36' 31.023" N	87° 33' 25.752" E
20	23° 36' 22.680" N	87° 33' 35.108" E	43	23° 36' 30.389" N	87° 33' 26.799" E
21	23° 36' 22.937" N	87° 33' 33.951" E	44	23° 36' 30.090" N	87° 33' 28.598" E
22	23° 36' 23.280" N	87° 33' 32.238" E	45	23° 36' 27.177" N	87° 33' 37.849" E
23	23° 36' 24.479" N	87° 33' 29.283" E	46	23° 36' 25.849" N	87° 33' 40.804" E

0 0.075 0.15 0.3 0.45 0.6

Kilometers

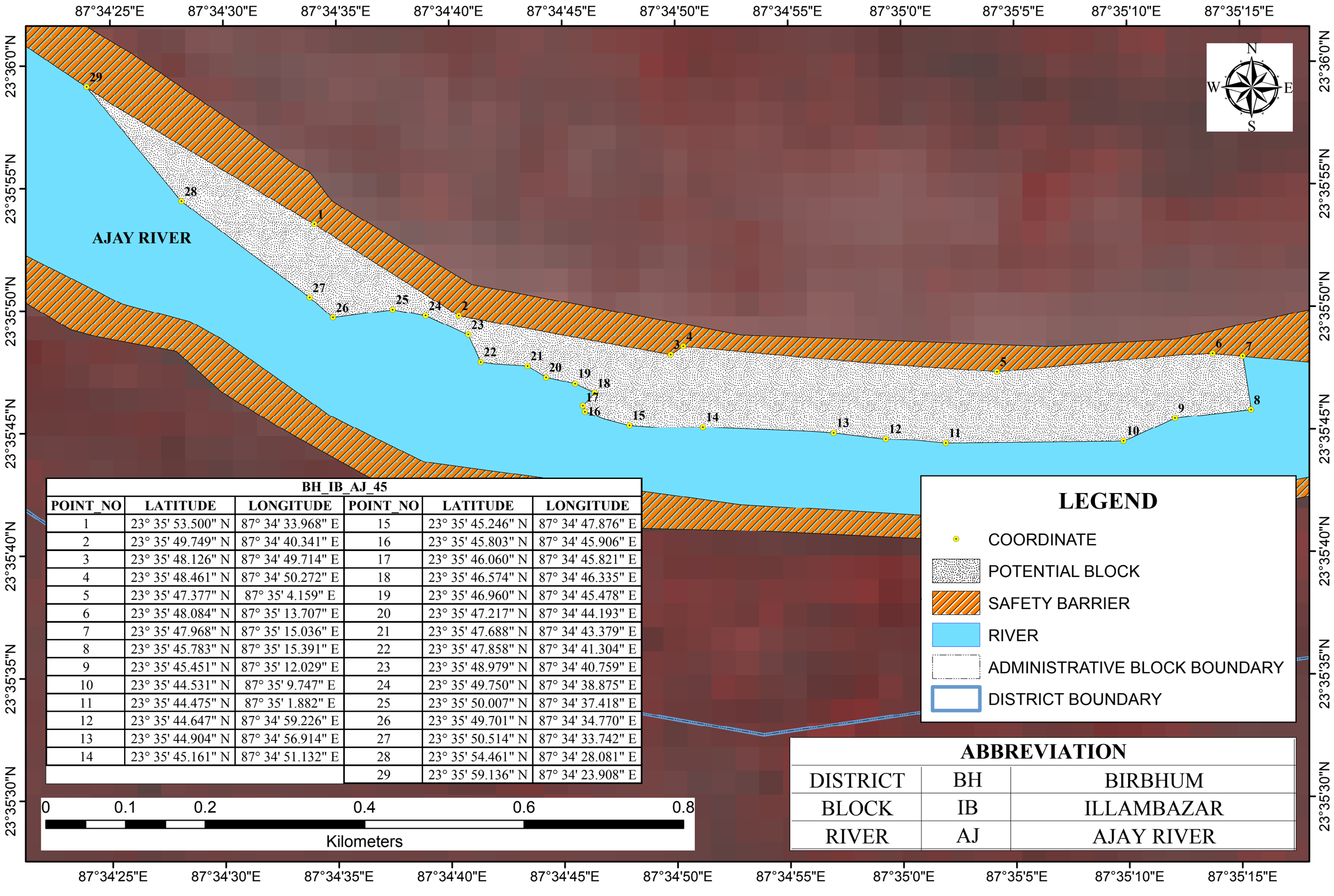
N W E S

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	IB	ILLAMBAZAR
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_IB_AJ_45 OF AJAY RIVER



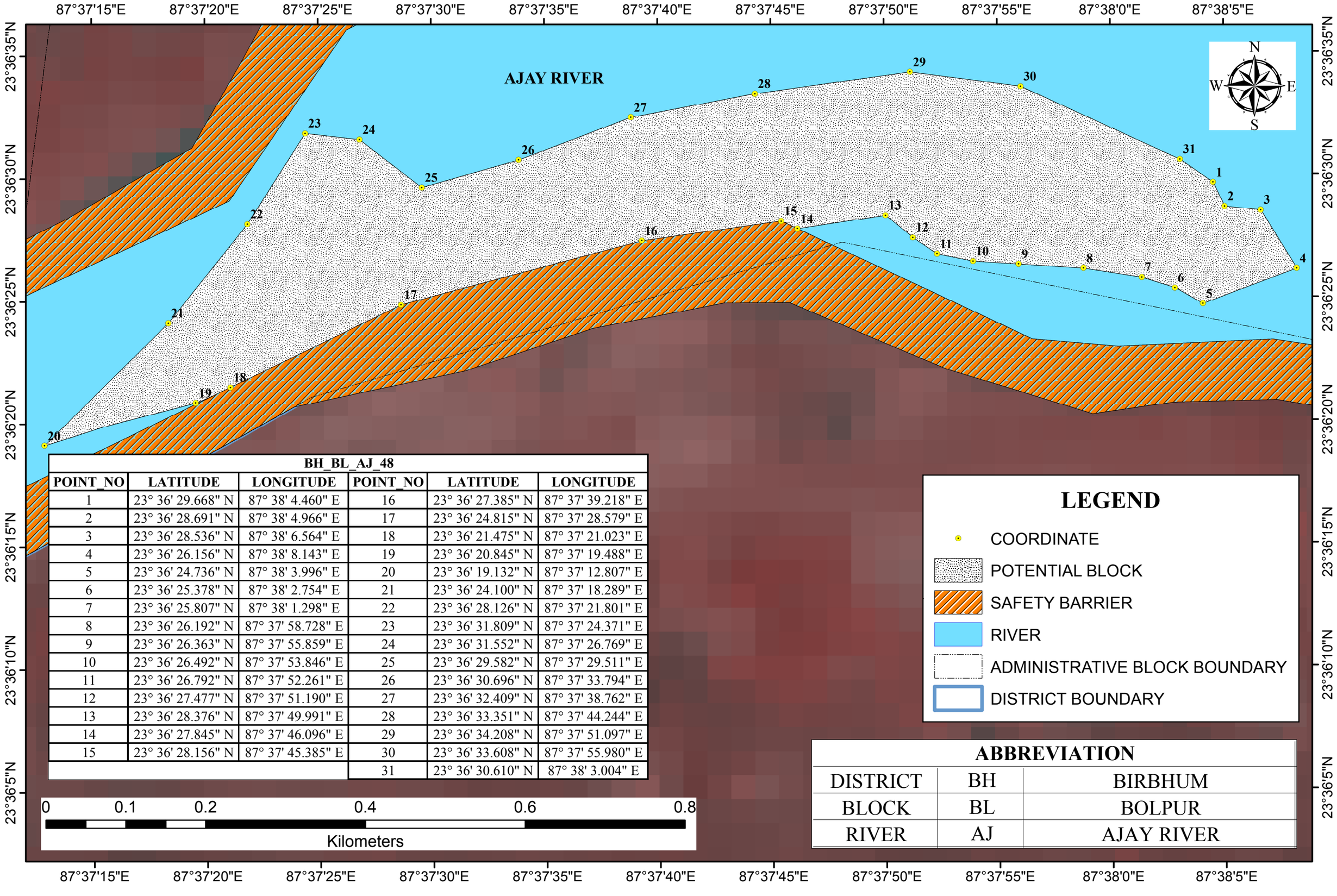
BH_IB_AJ_45					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 35' 53.500" N	87° 34' 33.968" E	15	23° 35' 45.246" N	87° 34' 47.876" E
2	23° 35' 49.749" N	87° 34' 40.341" E	16	23° 35' 45.803" N	87° 34' 45.906" E
3	23° 35' 48.126" N	87° 34' 49.714" E	17	23° 35' 46.060" N	87° 34' 45.821" E
4	23° 35' 48.461" N	87° 34' 50.272" E	18	23° 35' 46.574" N	87° 34' 46.335" E
5	23° 35' 47.377" N	87° 35' 4.159" E	19	23° 35' 46.960" N	87° 34' 45.478" E
6	23° 35' 48.084" N	87° 35' 13.707" E	20	23° 35' 47.217" N	87° 34' 44.193" E
7	23° 35' 47.968" N	87° 35' 15.036" E	21	23° 35' 47.688" N	87° 34' 43.379" E
8	23° 35' 45.783" N	87° 35' 15.391" E	22	23° 35' 47.858" N	87° 34' 41.304" E
9	23° 35' 45.451" N	87° 35' 12.029" E	23	23° 35' 48.979" N	87° 34' 40.759" E
10	23° 35' 44.531" N	87° 35' 9.747" E	24	23° 35' 49.750" N	87° 34' 38.875" E
11	23° 35' 44.475" N	87° 35' 1.882" E	25	23° 35' 50.007" N	87° 34' 37.418" E
12	23° 35' 44.647" N	87° 34' 59.226" E	26	23° 35' 49.701" N	87° 34' 34.770" E
13	23° 35' 44.904" N	87° 34' 56.914" E	27	23° 35' 50.514" N	87° 34' 33.742" E
14	23° 35' 45.161" N	87° 34' 51.132" E	28	23° 35' 54.461" N	87° 34' 28.081" E
			29	23° 35' 59.136" N	87° 34' 23.908" E

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	IB	ILLAMBAZAR
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_BL_AJ_48 OF AJAY RIVER



BH_BL_AJ_48

POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 36' 29.668" N	87° 38' 4.460" E	16	23° 36' 27.385" N	87° 37' 39.218" E
2	23° 36' 28.691" N	87° 38' 4.966" E	17	23° 36' 24.815" N	87° 37' 28.579" E
3	23° 36' 28.536" N	87° 38' 6.564" E	18	23° 36' 21.475" N	87° 37' 21.023" E
4	23° 36' 26.156" N	87° 38' 8.143" E	19	23° 36' 20.845" N	87° 37' 19.488" E
5	23° 36' 24.736" N	87° 38' 3.996" E	20	23° 36' 19.132" N	87° 37' 12.807" E
6	23° 36' 25.378" N	87° 38' 2.754" E	21	23° 36' 24.100" N	87° 37' 18.289" E
7	23° 36' 25.807" N	87° 38' 1.298" E	22	23° 36' 28.126" N	87° 37' 21.801" E
8	23° 36' 26.192" N	87° 37' 58.728" E	23	23° 36' 31.809" N	87° 37' 24.371" E
9	23° 36' 26.363" N	87° 37' 55.859" E	24	23° 36' 31.552" N	87° 37' 26.769" E
10	23° 36' 26.492" N	87° 37' 53.846" E	25	23° 36' 29.582" N	87° 37' 29.511" E
11	23° 36' 26.792" N	87° 37' 52.261" E	26	23° 36' 30.696" N	87° 37' 33.794" E
12	23° 36' 27.477" N	87° 37' 51.190" E	27	23° 36' 32.409" N	87° 37' 38.762" E
13	23° 36' 28.376" N	87° 37' 49.991" E	28	23° 36' 33.351" N	87° 37' 44.244" E
14	23° 36' 27.845" N	87° 37' 46.096" E	29	23° 36' 34.208" N	87° 37' 51.097" E
15	23° 36' 28.156" N	87° 37' 45.385" E	30	23° 36' 33.608" N	87° 37' 55.980" E
			31	23° 36' 30.610" N	87° 38' 3.004" E

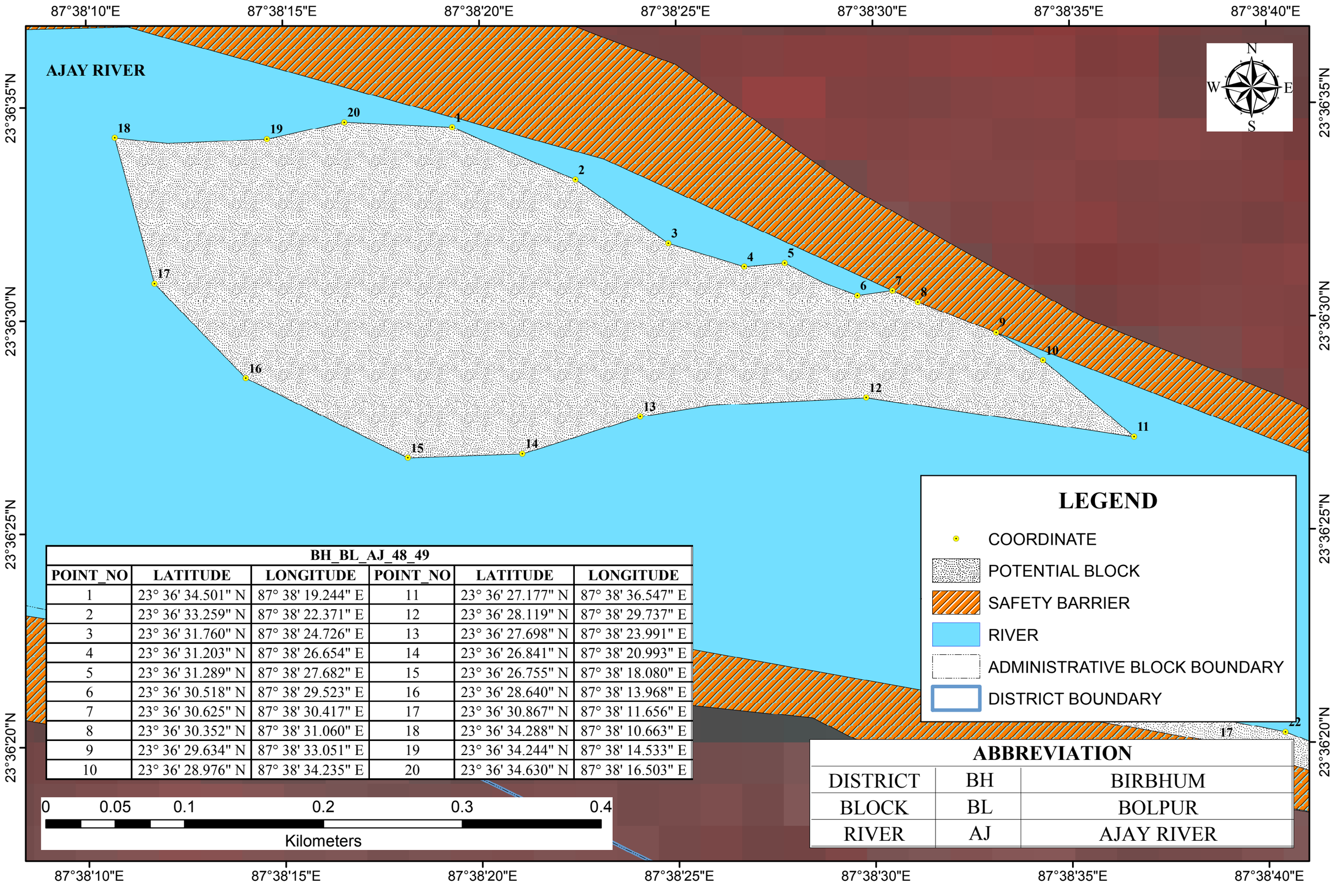
LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION

DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_BL_AJ_48_49 OF AJAY RIVER



BH_BL_AJ_48_49					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 36' 34.501" N	87° 38' 19.244" E	11	23° 36' 27.177" N	87° 38' 36.547" E
2	23° 36' 33.259" N	87° 38' 22.371" E	12	23° 36' 28.119" N	87° 38' 29.737" E
3	23° 36' 31.760" N	87° 38' 24.726" E	13	23° 36' 27.698" N	87° 38' 23.991" E
4	23° 36' 31.203" N	87° 38' 26.654" E	14	23° 36' 26.841" N	87° 38' 20.993" E
5	23° 36' 31.289" N	87° 38' 27.682" E	15	23° 36' 26.755" N	87° 38' 18.080" E
6	23° 36' 30.518" N	87° 38' 29.523" E	16	23° 36' 28.640" N	87° 38' 13.968" E
7	23° 36' 30.625" N	87° 38' 30.417" E	17	23° 36' 30.867" N	87° 38' 11.656" E
8	23° 36' 30.352" N	87° 38' 31.060" E	18	23° 36' 34.288" N	87° 38' 10.663" E
9	23° 36' 29.634" N	87° 38' 33.051" E	19	23° 36' 34.244" N	87° 38' 14.533" E
10	23° 36' 28.976" N	87° 38' 34.235" E	20	23° 36' 34.630" N	87° 38' 16.503" E

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_BL_AJ_50_51_53 OF AJAY RIVER

BH_BL_AJ_50_51_53					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 36' 22.295" N	87° 39' 27.301" E	30	23° 36' 39.552" N	87° 39' 33.249" E
2	23° 36' 21.781" N	87° 39' 27.142" E	31	23° 37' 0.213" N	87° 39' 46.818" E
3	23° 36' 19.873" N	87° 39' 25.595" E	32	23° 37' 8.848" N	87° 39' 53.705" E
4	23° 36' 19.553" N	87° 39' 24.474" E	33	23° 37' 11.829" N	87° 39' 58.485" E
5	23° 36' 19.339" N	87° 39' 23.489" E	34	23° 37' 13.231" N	87° 40' 3.320" E
6	23° 36' 18.483" N	87° 39' 21.905" E	35	23° 37' 12.577" N	87° 40' 3.664" E
7	23° 36' 16.849" N	87° 39' 20.932" E	36	23° 37' 11.035" N	87° 40' 3.621" E
8	23° 36' 14.947" N	87° 39' 17.847" E	37	23° 37' 10.699" N	87° 40' 0.530" E
9	23° 36' 14.533" N	87° 39' 16.926" E	38	23° 37' 9.843" N	87° 39' 57.018" E
10	23° 36' 14.028" N	87° 39' 14.367" E	39	23° 37' 3.711" N	87° 39' 52.357" E
11	23° 36' 12.958" N	87° 39' 11.283" E	40	23° 37' 2.469" N	87° 39' 51.586" E
12	23° 36' 12.401" N	87° 39' 8.756" E	41	23° 37' 1.270" N	87° 39' 51.329" E
13	23° 36' 12.401" N	87° 39' 6.357" E	42	23° 37' 0.713" N	87° 39' 50.601" E
14	23° 36' 12.064" N	87° 39' 3.479" E	43	23° 36' 59.771" N	87° 39' 49.145" E
15	23° 36' 16.968" N	87° 38' 47.562" E	44	23° 36' 58.957" N	87° 39' 47.988" E
16	23° 36' 18.289" N	87° 38' 44.682" E	45	23° 36' 56.516" N	87° 39' 45.162" E
17	23° 36' 20.003" N	87° 38' 38.617" E	46	23° 36' 54.760" N	87° 39' 44.391" E
18	23° 36' 20.936" N	87° 38' 33.028" E	47	23° 36' 52.233" N	87° 39' 44.005" E
19	23° 36' 21.010" N	87° 38' 33.421" E	48	23° 36' 50.948" N	87° 39' 43.962" E
20	23° 36' 20.881" N	87° 38' 34.406" E	49	23° 36' 49.620" N	87° 39' 43.063" E
21	23° 36' 20.967" N	87° 38' 36.376" E	50	23° 36' 48.764" N	87° 39' 43.277" E
22	23° 36' 20.239" N	87° 38' 40.359" E	51	23° 36' 48.293" N	87° 39' 42.763" E
23	23° 36' 18.703" N	87° 38' 44.508" E	52	23° 36' 48.120" N	87° 39' 42.318" E
24	23° 36' 22.164" N	87° 38' 50.017" E	53	23° 36' 44.313" N	87° 39' 39.873" E
25	23° 36' 22.191" N	87° 38' 58.967" E	54	23° 36' 40.423" N	87° 39' 40.397" E
26	23° 36' 22.077" N	87° 38' 59.739" E	55	23° 36' 37.341" N	87° 39' 39.816" E
27	23° 36' 22.180" N	87° 39' 7.345" E	56	23° 36' 29.438" N	87° 39' 31.597" E
28	23° 36' 26.754" N	87° 39' 17.625" E	57	23° 36' 28.418" N	87° 39' 32.647" E
29	23° 36' 31.996" N	87° 39' 27.390" E	58	23° 36' 28.002" N	87° 39' 32.187" E

AJAY RIVER

BH_BL_AJ_50_51_53

0 0.225 0.45 0.9 1.35 1.8

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_BL_AJ_54 OF AJAY RIVER

87°40'0"E 87°40'10"E 87°40'20"E 87°40'30"E 87°40'40"E 87°40'50"E 87°41'0"E 87°41'10"E

23°37'10"N 23°37'0"N 23°36'50"N 23°36'40"N 23°36'30"N

BH_BL_AJ_54

AJAY RIVER

N W E S

BH_BL_AJ_54

POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 37' 14.676" N	87° 40' 43.154" E	18	23° 37' 8.108" N	87° 40' 21.554" E
2	23° 37' 14.847" N	87° 40' 45.638" E	19	23° 37' 2.795" N	87° 40' 2.345" E
3	23° 37' 14.590" N	87° 40' 46.280" E	20	23° 36' 57.691" N	87° 39' 55.117" E
4	23° 37' 13.305" N	87° 40' 47.265" E	21	23° 36' 57.565" N	87° 39' 54.652" E
5	23° 37' 12.834" N	87° 40' 48.765" E	22	23° 36' 59.649" N	87° 39' 55.648" E
6	23° 37' 11.764" N	87° 40' 50.992" E	23	23° 37' 3.026" N	87° 39' 58.053" E
7	23° 37' 10.821" N	87° 40' 52.405" E	24	23° 37' 6.673" N	87° 40' 1.215" E
8	23° 37' 8.466" N	87° 40' 54.718" E	25	23° 37' 10.357" N	87° 40' 5.498" E
9	23° 37' 2.646" N	87° 41' 3.258" E	26	23° 37' 12.327" N	87° 40' 11.923" E
10	23° 37' 0.783" N	87° 41' 5.542" E	27	23° 37' 12.791" N	87° 40' 19.726" E
11	23° 36' 58.718" N	87° 41' 4.395" E	28	23° 37' 12.749" N	87° 40' 21.824" E
12	23° 36' 57.272" N	87° 41' 4.575" E	29	23° 37' 13.091" N	87° 40' 24.394" E
13	23° 36' 55.896" N	87° 41' 4.381" E	30	23° 37' 13.605" N	87° 40' 25.465" E
14	23° 36' 54.868" N	87° 41' 3.442" E	31	23° 37' 13.819" N	87° 40' 26.279" E
15	23° 36' 52.734" N	87° 40' 59.195" E	32	23° 37' 14.586" N	87° 40' 33.732" E
16	23° 37' 2.318" N	87° 40' 48.893" E	33	23° 37' 14.450" N	87° 40' 34.257" E
17	23° 37' 7.703" N	87° 40' 38.822" E	34	23° 37' 15.206" N	87° 40' 40.157" E
			35	23° 37' 14.847" N	87° 40' 41.912" E

0 0.15 0.3 0.6 0.9 1.2

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION

DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_BL_AJ_56_57 OF AJAY RIVER

87°41'20"E 87°41'30"E 87°41'40"E 87°41'50"E

23°37'0"N 23°36'50"N 23°36'40"N

AJAY RIVER

BH_BL_AJ_56_57		
POINT_NO	LATITUDE	LONGITUDE
1	23° 37' 0.113" N	87° 41' 50.452" E
2	23° 36' 55.300" N	87° 41' 53.085" E
3	23° 36' 54.362" N	87° 41' 49.998" E
4	23° 36' 52.854" N	87° 41' 47.052" E
5	23° 36' 51.415" N	87° 41' 43.557" E
6	23° 36' 51.346" N	87° 41' 41.706" E
7	23° 36' 51.895" N	87° 41' 36.156" E
8	23° 36' 52.580" N	87° 41' 32.181" E
9	23° 36' 56.075" N	87° 41' 21.490" E
10	23° 36' 56.844" N	87° 41' 20.020" E
11	23° 36' 56.966" N	87° 41' 23.847" E
12	23° 36' 56.966" N	87° 41' 24.369" E
13	23° 36' 56.829" N	87° 41' 25.808" E
14	23° 36' 56.692" N	87° 41' 28.343" E
15	23° 36' 56.143" N	87° 41' 31.221" E
16	23° 36' 56.349" N	87° 41' 36.293" E
17	23° 36' 56.417" N	87° 41' 39.513" E
18	23° 36' 57.651" N	87° 41' 42.803" E
19	23° 36' 58.542" N	87° 41' 44.653" E
20	23° 36' 58.816" N	87° 41' 47.189" E

0 0.075 0.15 0.3 0.45 0.6

Kilometers

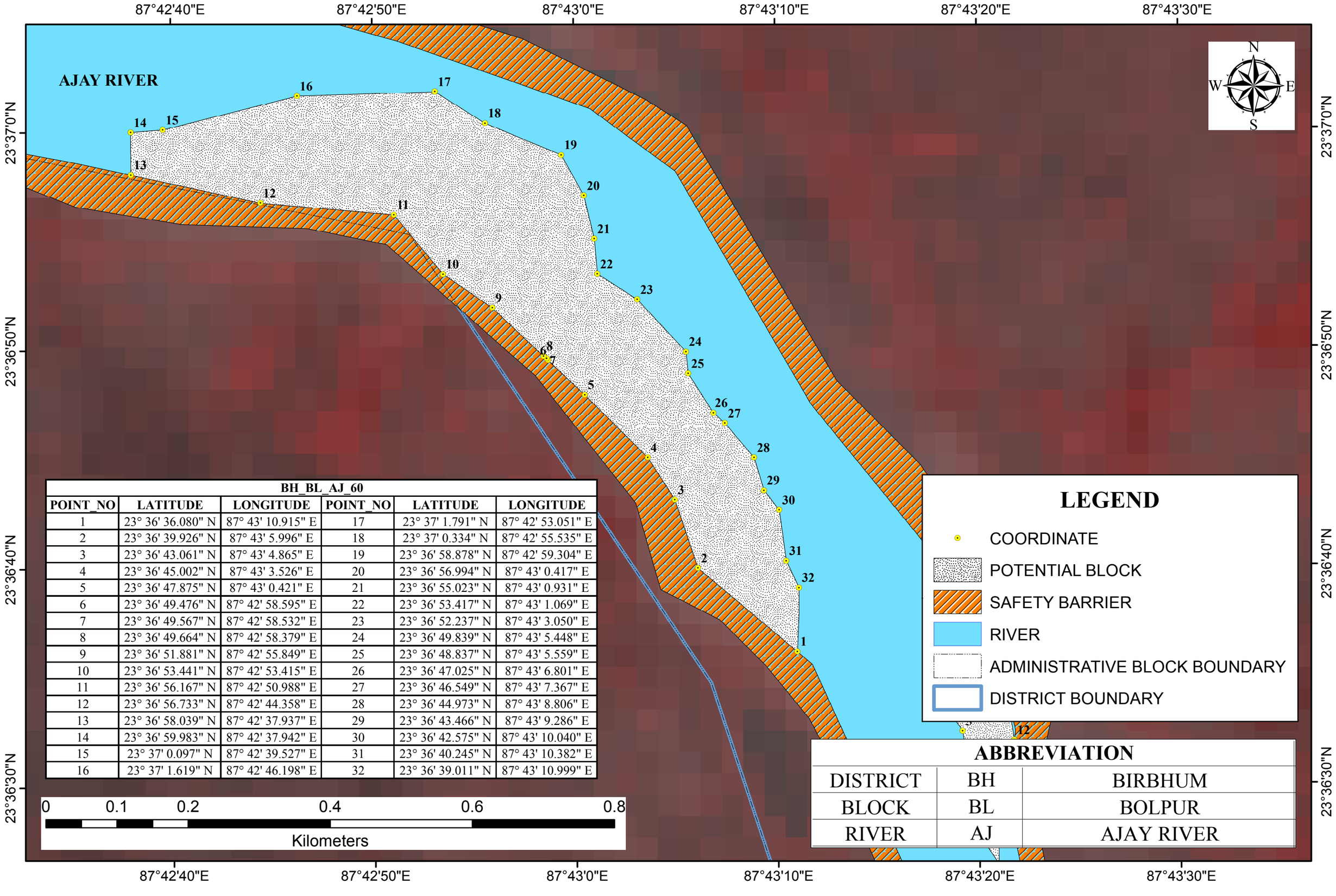
N W E S

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_BL_AJ_60 OF AJAY RIVER



BH_BL_AJ_60					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 36' 36.080" N	87° 43' 10.915" E	17	23° 37' 1.791" N	87° 42' 53.051" E
2	23° 36' 39.926" N	87° 43' 5.996" E	18	23° 37' 0.334" N	87° 42' 55.535" E
3	23° 36' 43.061" N	87° 43' 4.865" E	19	23° 36' 58.878" N	87° 42' 59.304" E
4	23° 36' 45.002" N	87° 43' 3.526" E	20	23° 36' 56.994" N	87° 43' 0.417" E
5	23° 36' 47.875" N	87° 43' 0.421" E	21	23° 36' 55.023" N	87° 43' 0.931" E
6	23° 36' 49.476" N	87° 42' 58.595" E	22	23° 36' 53.417" N	87° 43' 1.069" E
7	23° 36' 49.567" N	87° 42' 58.532" E	23	23° 36' 52.237" N	87° 43' 3.050" E
8	23° 36' 49.664" N	87° 42' 58.379" E	24	23° 36' 49.839" N	87° 43' 5.448" E
9	23° 36' 51.881" N	87° 42' 55.849" E	25	23° 36' 48.837" N	87° 43' 5.559" E
10	23° 36' 53.441" N	87° 42' 53.415" E	26	23° 36' 47.025" N	87° 43' 6.801" E
11	23° 36' 56.167" N	87° 42' 50.988" E	27	23° 36' 46.549" N	87° 43' 7.367" E
12	23° 36' 56.733" N	87° 42' 44.358" E	28	23° 36' 44.973" N	87° 43' 8.806" E
13	23° 36' 58.039" N	87° 42' 37.937" E	29	23° 36' 43.466" N	87° 43' 9.286" E
14	23° 36' 59.983" N	87° 42' 37.942" E	30	23° 36' 42.575" N	87° 43' 10.040" E
15	23° 37' 0.097" N	87° 42' 39.527" E	31	23° 36' 40.245" N	87° 43' 10.382" E
16	23° 37' 1.619" N	87° 42' 46.198" E	32	23° 36' 39.011" N	87° 43' 10.999" E

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION

DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_BL_AJ_61 OF AJAY RIVER

87°43'10"E 87°43'20"E 87°43'30"E

23°36'30"N

AJAY RIVER

BH_BL_AJ_61

BH_BL_AJ_61		
POINT_NO	LATITUDE	LONGITUDE
1	23° 36' 27.704" N	87° 43' 20.867" E
2	23° 36' 26.333" N	87° 43' 20.867" E
3	23° 36' 28.212" N	87° 43' 19.520" E
4	23° 36' 30.182" N	87° 43' 19.434" E
5	23° 36' 32.409" N	87° 43' 19.091" E
6	23° 36' 34.762" N	87° 43' 17.372" E
7	23° 36' 35.516" N	87° 43' 17.509" E
8	23° 36' 36.476" N	87° 43' 18.263" E
9	23° 36' 35.653" N	87° 43' 20.113" E
10	23° 36' 34.557" N	87° 43' 21.004" E
11	23° 36' 33.392" N	87° 43' 21.415" E
12	23° 36' 31.998" N	87° 43' 21.658" E
13	23° 36' 29.075" N	87° 43' 21.347" E

0 0.04 0.08 0.16 0.24 0.32

Kilometers

N W E S

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_BL_AJ_61A OF AJAY RIVER

87°43'20"E

87°43'30"E

23°36'20"N

23°36'10"N

AJAY RIVER

N

W

E

S

BH_BL_AJ_61A		
POINT_NO	LATITUDE	LONGITUDE
1	23° 36' 13.307" N	87° 43' 23.203" E
2	23° 36' 9.452" N	87° 43' 23.203" E
3	23° 36' 9.644" N	87° 43' 22.388" E
4	23° 36' 12.686" N	87° 43' 19.924" E
5	23° 36' 21.171" N	87° 43' 17.821" E
6	23° 36' 20.097" N	87° 43' 18.537" E
7	23° 36' 18.590" N	87° 43' 18.880" E
8	23° 36' 16.819" N	87° 43' 22.946" E

0 0.0325 0.065 0.13 0.195 0.26

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_BL_AJ_62 OF AJAY RIVER

87°43'30"E 87°43'40"E 87°43'50"E

23°36'10"N 23°36'0"N 23°35'50"N

AJAY RIVER

BH_BL_AJ_62

BH_BL_AJ_62		
POINT_NO	LATITUDE	LONGITUDE
1	23° 36' 7.214" N	87° 43' 32.722" E
2	23° 36' 6.460" N	87° 43' 33.956" E
3	23° 36' 6.758" N	87° 43' 34.292" E
4	23° 36' 5.219" N	87° 43' 35.686" E
5	23° 36' 5.630" N	87° 43' 37.125" E
6	23° 35' 59.257" N	87° 43' 43.395" E
7	23° 35' 54.786" N	87° 43' 46.881" E
8	23° 35' 53.851" N	87° 43' 47.250" E
9	23° 35' 55.564" N	87° 43' 44.783" E
10	23° 35' 56.729" N	87° 43' 42.522" E
11	23° 35' 57.551" N	87° 43' 41.289" E
12	23° 35' 58.922" N	87° 43' 39.644" E
13	23° 35' 59.176" N	87° 43' 38.774" E
14	23° 36' 2.770" N	87° 43' 37.594" E
15	23° 36' 3.833" N	87° 43' 35.498" E
16	23° 36' 4.884" N	87° 43' 34.710" E
17	23° 36' 5.706" N	87° 43' 34.162" E
18	23° 36' 5.940" N	87° 43' 32.197" E
19	23° 36' 9.716" N	87° 43' 30.440" E

0 0.05 0.1 0.2 0.3 0.4

Kilometers

N W E S

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_BL_AJ_63 OF AJAY RIVER

87°43'35"E 87°43'40"E 87°43'45"E 87°43'50"E

23°35'55"N

23°35'50"N

BH_BL_AJ_63

AJAY RIVER

BH_BL_AJ_63		
POINT_NO	LATITUDE	LONGITUDE
1	23° 35' 49.499" N	87° 43' 44.578" E
2	23° 35' 49.432" N	87° 43' 44.602" E
3	23° 35' 50.226" N	87° 43' 43.412" E
4	23° 35' 53.361" N	87° 43' 39.969" E
5	23° 35' 53.529" N	87° 43' 39.692" E
6	23° 35' 53.765" N	87° 43' 39.592" E
7	23° 35' 54.022" N	87° 43' 40.620" E
8	23° 35' 53.817" N	87° 43' 41.443" E
9	23° 35' 52.943" N	87° 43' 42.265" E
10	23° 35' 51.504" N	87° 43' 43.653" E
11	23° 35' 50.938" N	87° 43' 44.064" E

0 0.025 0.05 0.1 0.15 0.2

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_BL_AJ_64 OF AJAY RIVER

87°43'40"E 87°43'45"E 87°43'50"E 87°43'55"E 87°44'0"E 87°44'5"E 87°44'10"E 87°44'15"E

23°35'45"N 23°35'40"N 23°35'35"N 23°35'30"N 23°35'25"N

AJAY RIVER

BH_BL_AJ_64

BH_BL_AJ_64					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 35' 28.530" N	87° 43' 59.329" E	17	23° 35' 34.851" N	87° 43' 53.726" E
2	23° 35' 25.651" N	87° 44' 0.202" E	18	23° 35' 35.879" N	87° 43' 54.035" E
3	23° 35' 24.829" N	87° 44' 0.151" E	19	23° 35' 36.856" N	87° 43' 54.240" E
4	23° 35' 25.086" N	87° 43' 58.969" E	20	23° 35' 37.524" N	87° 43' 54.446" E
5	23° 35' 25.497" N	87° 43' 58.198" E	21	23° 35' 37.987" N	87° 43' 54.857" E
6	23° 35' 26.063" N	87° 43' 57.427" E	22	23° 35' 39.066" N	87° 43' 54.960" E
7	23° 35' 27.348" N	87° 43' 57.016" E	23	23° 35' 40.865" N	87° 43' 54.652" E
8	23° 35' 27.759" N	87° 43' 56.810" E	24	23° 35' 41.379" N	87° 43' 54.497" E
9	23° 35' 26.834" N	87° 43' 56.193" E	25	23° 35' 42.664" N	87° 43' 53.264" E
10	23° 35' 27.039" N	87° 43' 55.885" E	26	23° 35' 44.719" N	87° 43' 52.647" E
11	23° 35' 27.502" N	87° 43' 55.063" E	27	23° 35' 45.490" N	87° 43' 52.904" E
12	23° 35' 28.375" N	87° 43' 54.343" E	28	23° 35' 45.490" N	87° 43' 54.012" E
13	23° 35' 29.506" N	87° 43' 53.829" E	29	23° 35' 42.047" N	87° 43' 55.268" E
14	23° 35' 30.791" N	87° 43' 53.675" E	30	23° 35' 37.553" N	87° 43' 57.092" E
15	23° 35' 32.641" N	87° 43' 53.572" E	31	23° 35' 33.302" N	87° 43' 58.403" E
16	23° 35' 33.926" N	87° 43' 53.675" E	32	23° 35' 29.899" N	87° 43' 59.241" E

0 0.075 0.15 0.3 0.45 0.6

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION

DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_BL_AJ_65 OF AJAY RIVER

87°44'0"E

87°44'5"E

23°35'20"N

AJAY RIVER

N

W

E

S

BH_BL_AJ_65		
POINT_NO	LATITUDE	LONGITUDE
1	23° 35' 23.184" N	87° 43' 59.534" E
2	23° 35' 22.722" N	87° 44' 1.230" E
3	23° 35' 22.722" N	87° 44' 1.487" E
4	23° 35' 22.311" N	87° 44' 1.898" E
5	23° 35' 22.105" N	87° 44' 2.155" E
6	23° 35' 21.077" N	87° 44' 2.310" E
7	23° 35' 20.769" N	87° 44' 3.595" E
8	23° 35' 20.255" N	87° 44' 4.109" E
9	23° 35' 19.741" N	87° 44' 4.006" E
10	23° 35' 19.689" N	87° 44' 3.183" E
11	23° 35' 19.895" N	87° 44' 2.310" E
12	23° 35' 20.666" N	87° 44' 0.511" E
13	23° 35' 21.540" N	87° 43' 59.380" E
14	23° 35' 22.413" N	87° 43' 58.352" E
15	23° 35' 22.825" N	87° 43' 57.581" E
16	23° 35' 23.698" N	87° 43' 56.759" E
17	23° 35' 24.418" N	87° 43' 56.862" E
18	23° 35' 24.264" N	87° 43' 57.787" E
19	23° 35' 23.801" N	87° 43' 58.455" E

0 0.0225 0.045 0.09 0.135 0.18

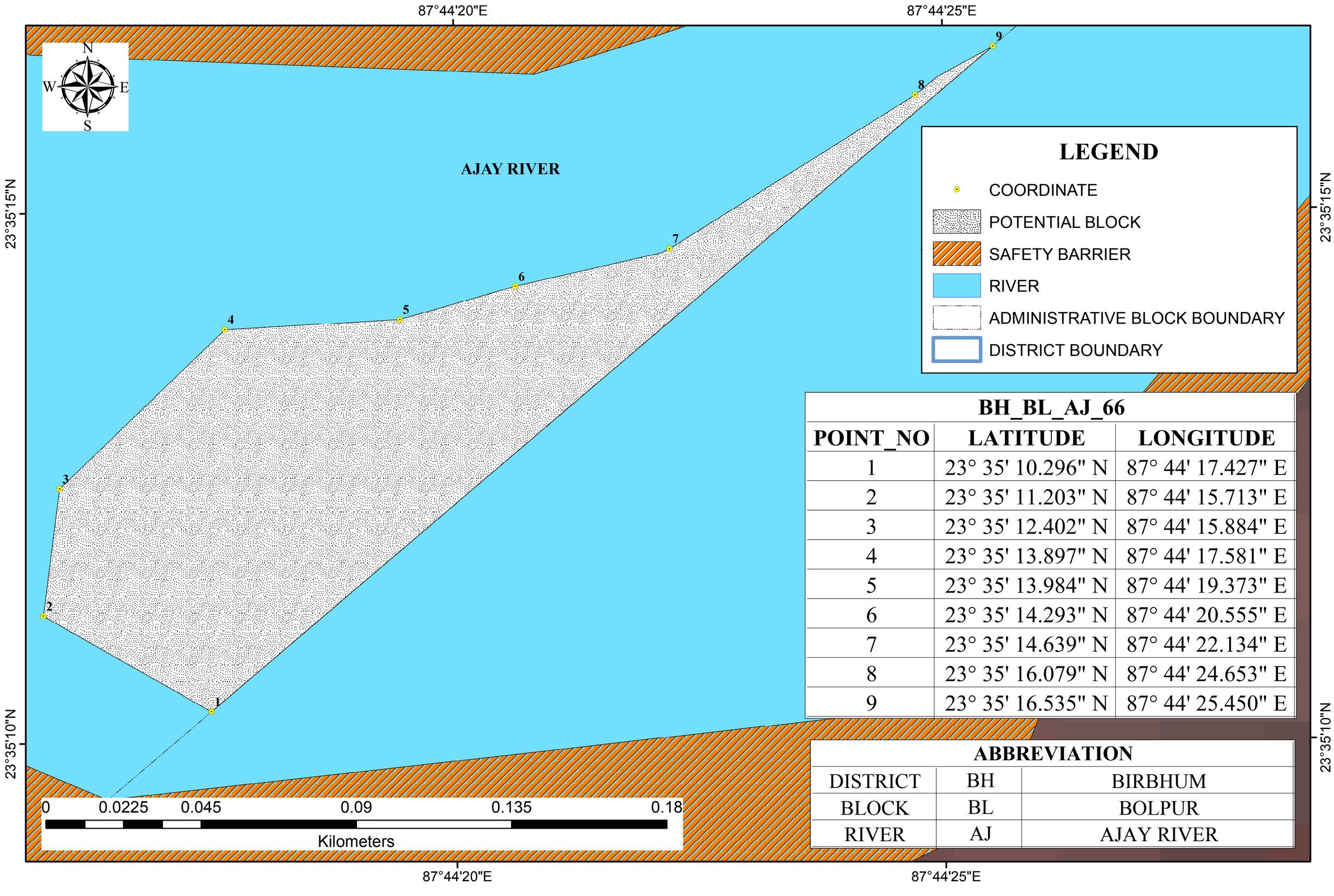
Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_BL_AJ_66 OF AJAY RIVER



LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

BH_BL_AJ_66

POINT_NO	LATITUDE	LONGITUDE
1	23° 35' 10.296" N	87° 44' 17.427" E
2	23° 35' 11.203" N	87° 44' 15.713" E
3	23° 35' 12.402" N	87° 44' 15.884" E
4	23° 35' 13.897" N	87° 44' 17.581" E
5	23° 35' 13.984" N	87° 44' 19.373" E
6	23° 35' 14.293" N	87° 44' 20.555" E
7	23° 35' 14.639" N	87° 44' 22.134" E
8	23° 35' 16.079" N	87° 44' 24.653" E
9	23° 35' 16.535" N	87° 44' 25.450" E

ABBREVIATION

DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_BL_AJ_67 OF AJAY RIVER

87°44'40"E 87°44'45"E 87°44'50"E

23°35'40"N

23°35'35"N

N W E S

AJAY RIVER

LEGEND

- COORDINATE
- ADMINISTRATIVE BLOCK BOUNDARY
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- DISTRICT BOUNDARY

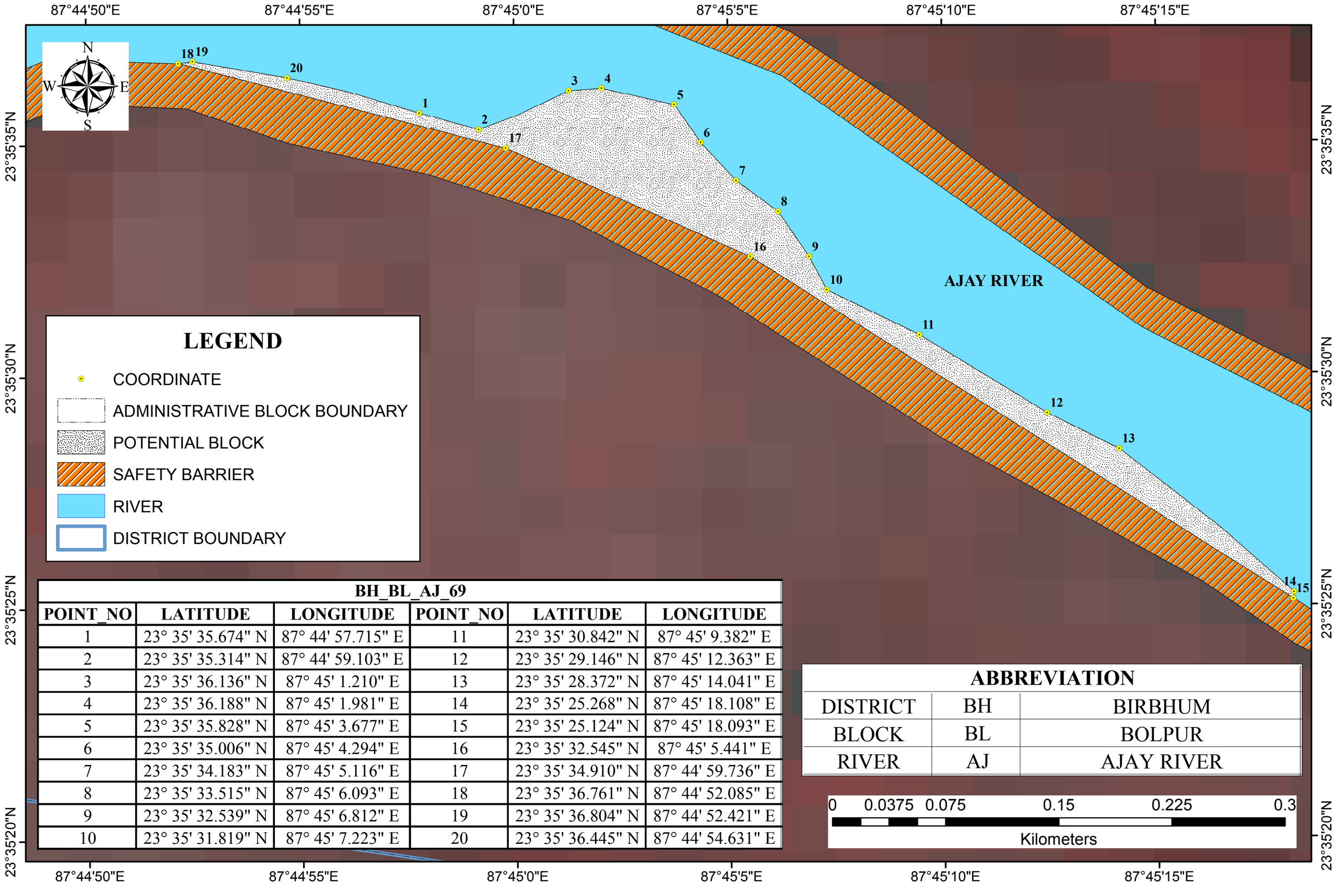
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

0 0.0225 0.045 0.09 0.135 0.18

Kilometers

BH_BL_AJ_67		
POINT_NO	LATITUDE	LONGITUDE
1	23° 35' 35.188" N	87° 44' 39.304" E
2	23° 35' 35.027" N	87° 44' 37.477" E
3	23° 35' 36.951" N	87° 44' 38.030" E
4	23° 35' 38.801" N	87° 44' 39.263" E
5	23° 35' 39.932" N	87° 44' 41.267" E
6	23° 35' 40.703" N	87° 44' 45.533" E
7	23° 35' 40.710" N	87° 44' 46.357" E
8	23° 35' 40.042" N	87° 44' 47.024" E
9	23° 35' 37.141" N	87° 44' 42.593" E
10	23° 35' 36.216" N	87° 44' 41.206" E

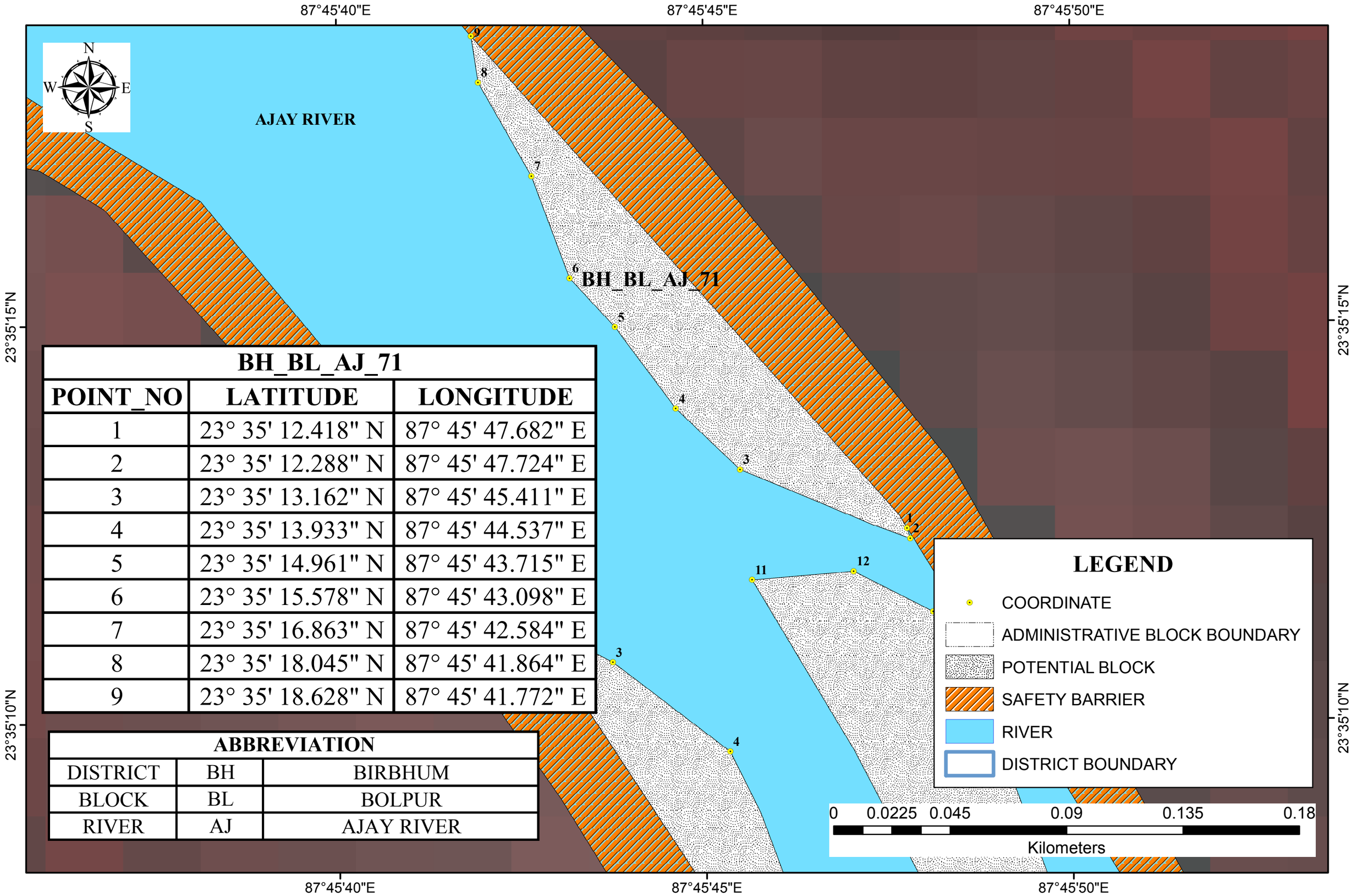
POTENTIAL BLOCK BH_BL_AJ_69 OF AJAY RIVER



BH_BL_AJ_69					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 35' 35.674" N	87° 44' 57.715" E	11	23° 35' 30.842" N	87° 45' 9.382" E
2	23° 35' 35.314" N	87° 44' 59.103" E	12	23° 35' 29.146" N	87° 45' 12.363" E
3	23° 35' 36.136" N	87° 45' 1.210" E	13	23° 35' 28.372" N	87° 45' 14.041" E
4	23° 35' 36.188" N	87° 45' 1.981" E	14	23° 35' 25.268" N	87° 45' 18.108" E
5	23° 35' 35.828" N	87° 45' 3.677" E	15	23° 35' 25.124" N	87° 45' 18.093" E
6	23° 35' 35.006" N	87° 45' 4.294" E	16	23° 35' 32.545" N	87° 45' 5.441" E
7	23° 35' 34.183" N	87° 45' 5.116" E	17	23° 35' 34.910" N	87° 44' 59.736" E
8	23° 35' 33.515" N	87° 45' 6.093" E	18	23° 35' 36.761" N	87° 44' 52.085" E
9	23° 35' 32.539" N	87° 45' 6.812" E	19	23° 35' 36.804" N	87° 44' 52.421" E
10	23° 35' 31.819" N	87° 45' 7.223" E	20	23° 35' 36.445" N	87° 44' 54.631" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

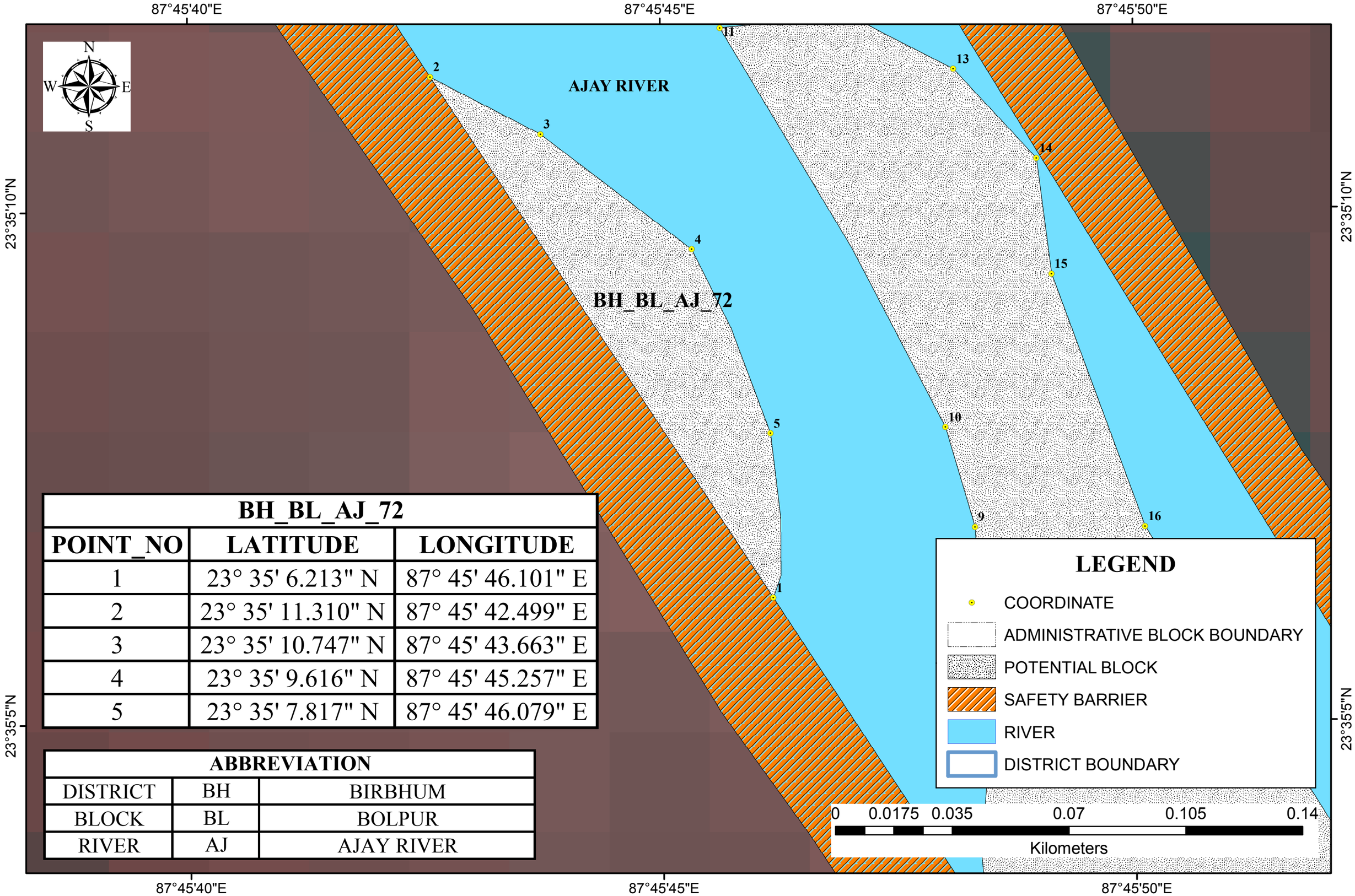
POTENTIAL BLOCK BH_BL_AJ_71 OF AJAY RIVER



BH_BL_AJ_71		
POINT_NO	LATITUDE	LONGITUDE
1	23° 35' 12.418" N	87° 45' 47.682" E
2	23° 35' 12.288" N	87° 45' 47.724" E
3	23° 35' 13.162" N	87° 45' 45.411" E
4	23° 35' 13.933" N	87° 45' 44.537" E
5	23° 35' 14.961" N	87° 45' 43.715" E
6	23° 35' 15.578" N	87° 45' 43.098" E
7	23° 35' 16.863" N	87° 45' 42.584" E
8	23° 35' 18.045" N	87° 45' 41.864" E
9	23° 35' 18.628" N	87° 45' 41.772" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

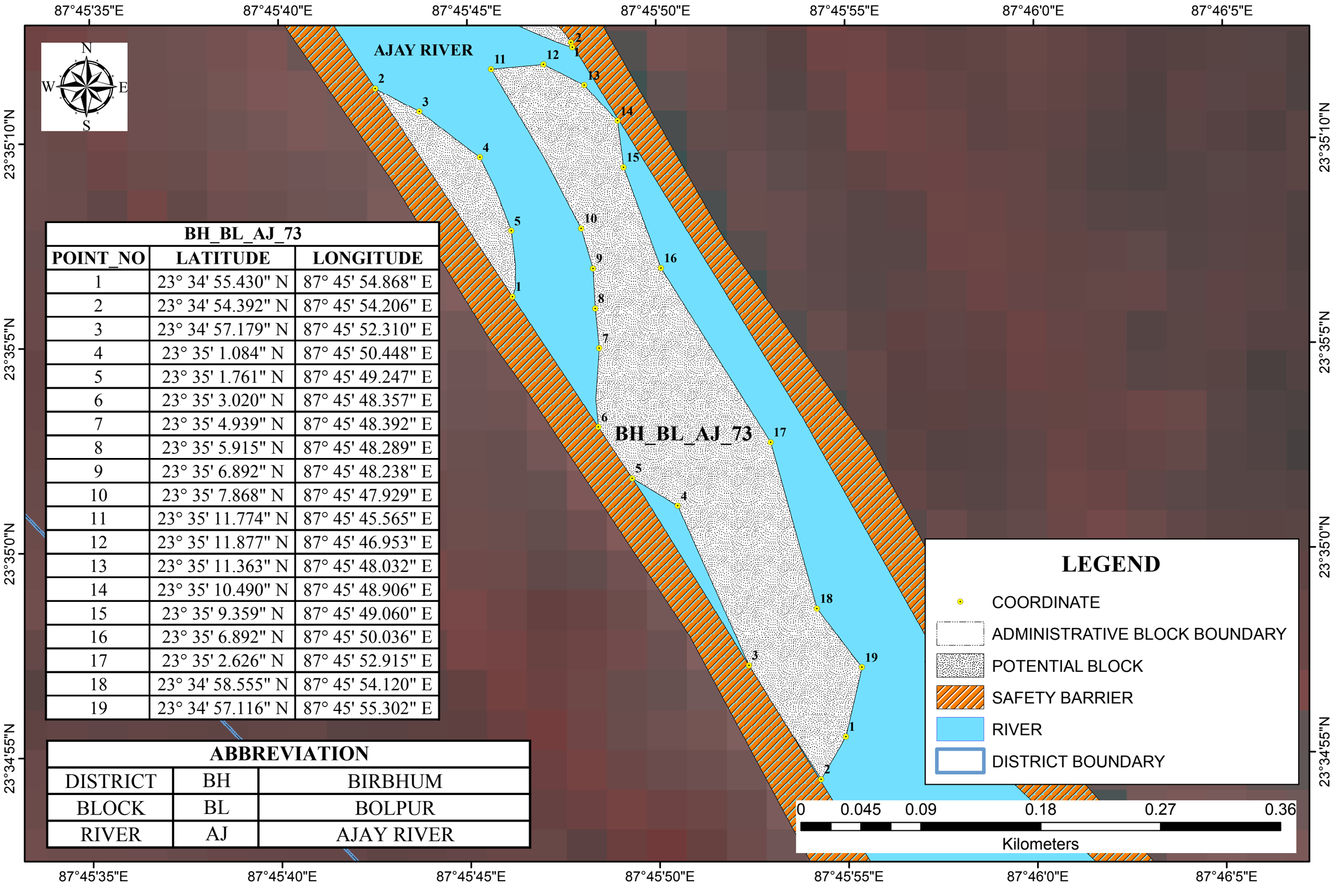
POTENTIAL BLOCK BH_BL_AJ_72 OF AJAY RIVER



BH_BL_AJ_72		
POINT_NO	LATITUDE	LONGITUDE
1	23° 35' 6.213" N	87° 45' 46.101" E
2	23° 35' 11.310" N	87° 45' 42.499" E
3	23° 35' 10.747" N	87° 45' 43.663" E
4	23° 35' 9.616" N	87° 45' 45.257" E
5	23° 35' 7.817" N	87° 45' 46.079" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

POTENTIAL BLOCK BH_BL_AJ_73 OF AJAY RIVER



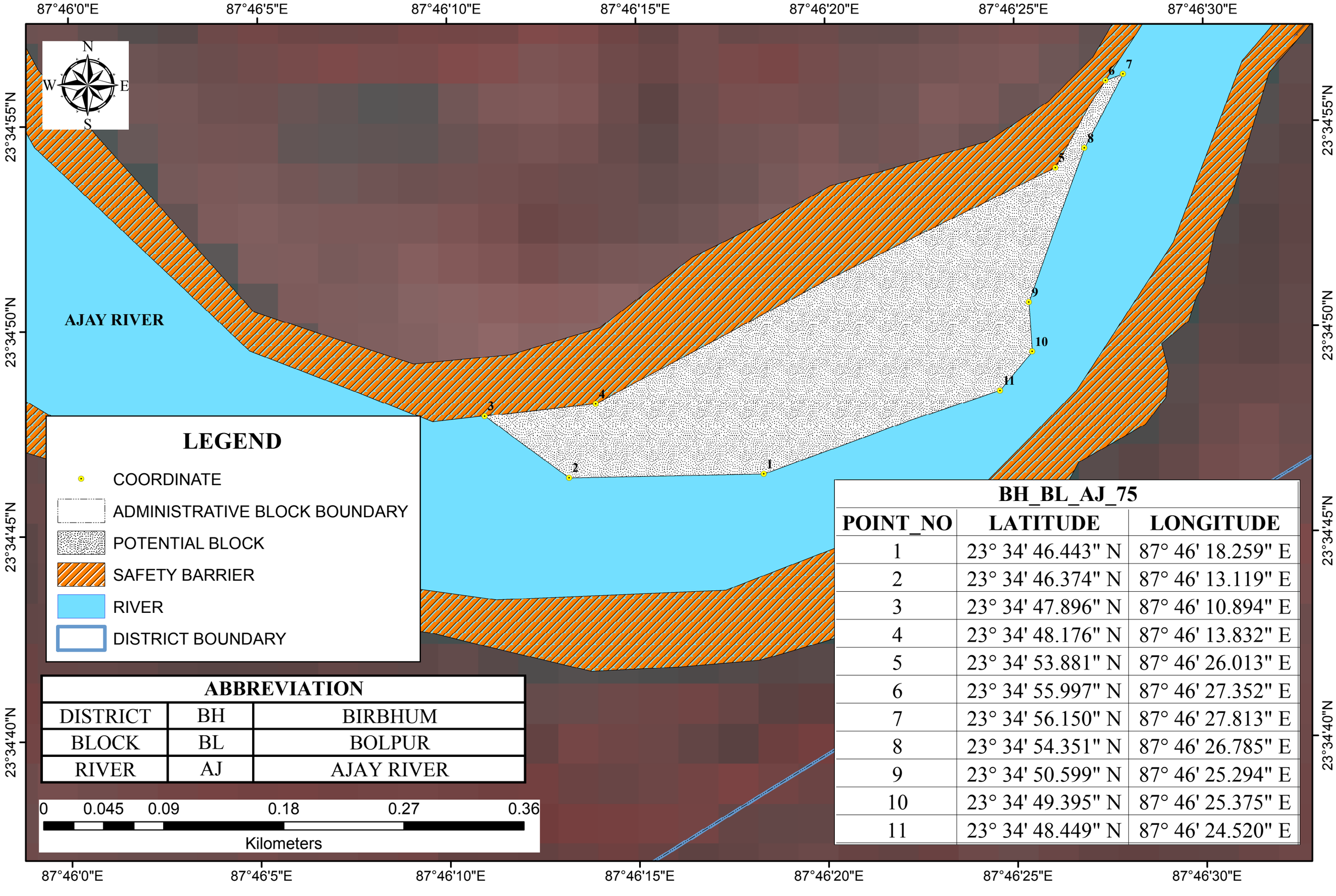
BH_BL_AJ_73		
POINT_NO	LATITUDE	LONGITUDE
1	23° 34' 55.430" N	87° 45' 54.868" E
2	23° 34' 54.392" N	87° 45' 54.206" E
3	23° 34' 57.179" N	87° 45' 52.310" E
4	23° 35' 1.084" N	87° 45' 50.448" E
5	23° 35' 1.761" N	87° 45' 49.247" E
6	23° 35' 3.020" N	87° 45' 48.357" E
7	23° 35' 4.939" N	87° 45' 48.392" E
8	23° 35' 5.915" N	87° 45' 48.289" E
9	23° 35' 6.892" N	87° 45' 48.238" E
10	23° 35' 7.868" N	87° 45' 47.929" E
11	23° 35' 11.774" N	87° 45' 45.565" E
12	23° 35' 11.877" N	87° 45' 46.953" E
13	23° 35' 11.363" N	87° 45' 48.032" E
14	23° 35' 10.490" N	87° 45' 48.906" E
15	23° 35' 9.359" N	87° 45' 49.060" E
16	23° 35' 6.892" N	87° 45' 50.036" E
17	23° 35' 2.626" N	87° 45' 52.915" E
18	23° 34' 58.555" N	87° 45' 54.120" E
19	23° 34' 57.116" N	87° 45' 55.302" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

LEGEND

- COORDINATE
- ADMINISTRATIVE BLOCK BOUNDARY
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- DISTRICT BOUNDARY

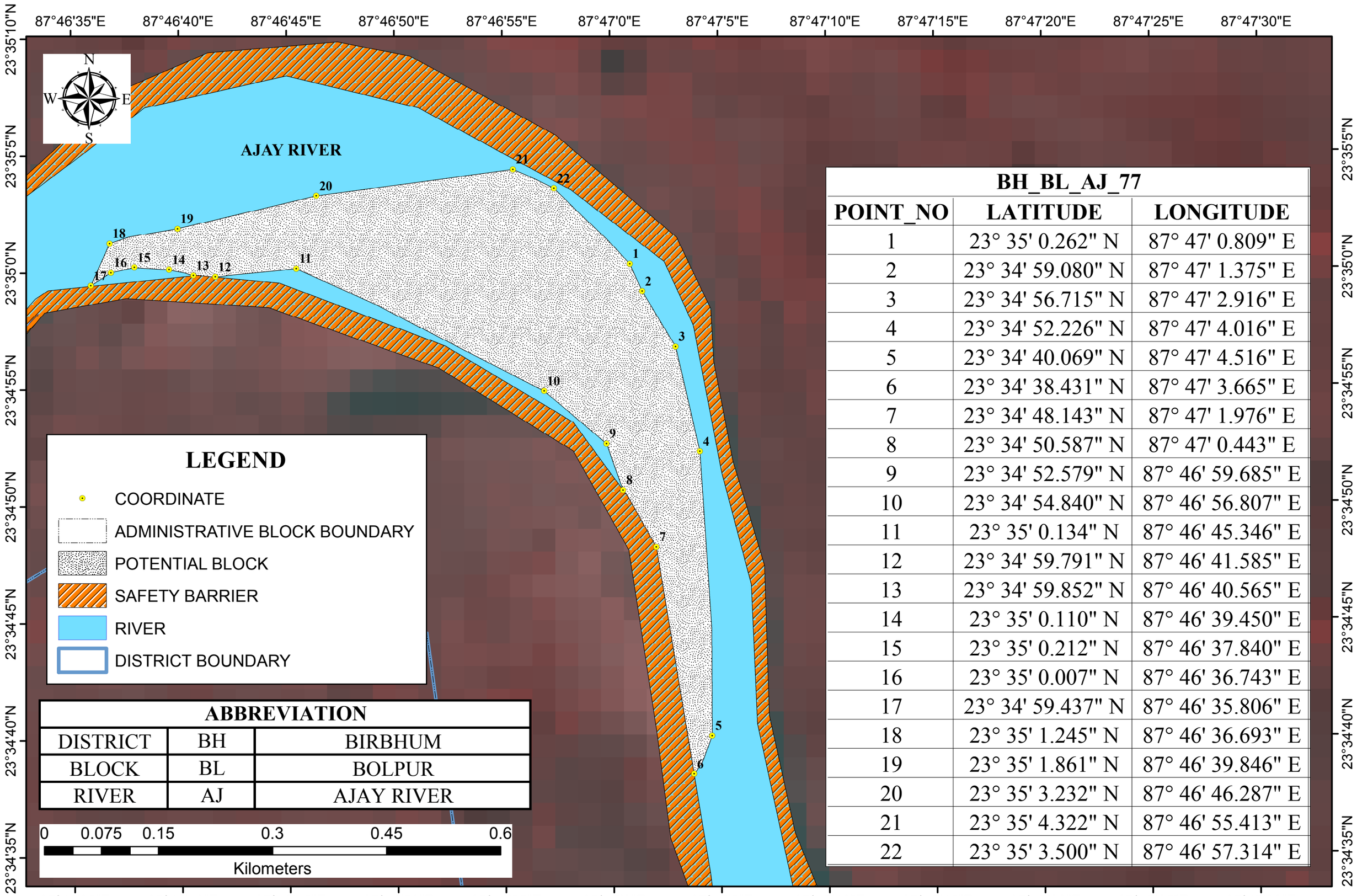
POTENTIAL BLOCK BH_BL_AJ_75 OF AJAY RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

BH_BL_AJ_75		
POINT_NO	LATITUDE	LONGITUDE
1	23° 34' 46.443" N	87° 46' 18.259" E
2	23° 34' 46.374" N	87° 46' 13.119" E
3	23° 34' 47.896" N	87° 46' 10.894" E
4	23° 34' 48.176" N	87° 46' 13.832" E
5	23° 34' 53.881" N	87° 46' 26.013" E
6	23° 34' 55.997" N	87° 46' 27.352" E
7	23° 34' 56.150" N	87° 46' 27.813" E
8	23° 34' 54.351" N	87° 46' 26.785" E
9	23° 34' 50.599" N	87° 46' 25.294" E
10	23° 34' 49.395" N	87° 46' 25.375" E
11	23° 34' 48.449" N	87° 46' 24.520" E

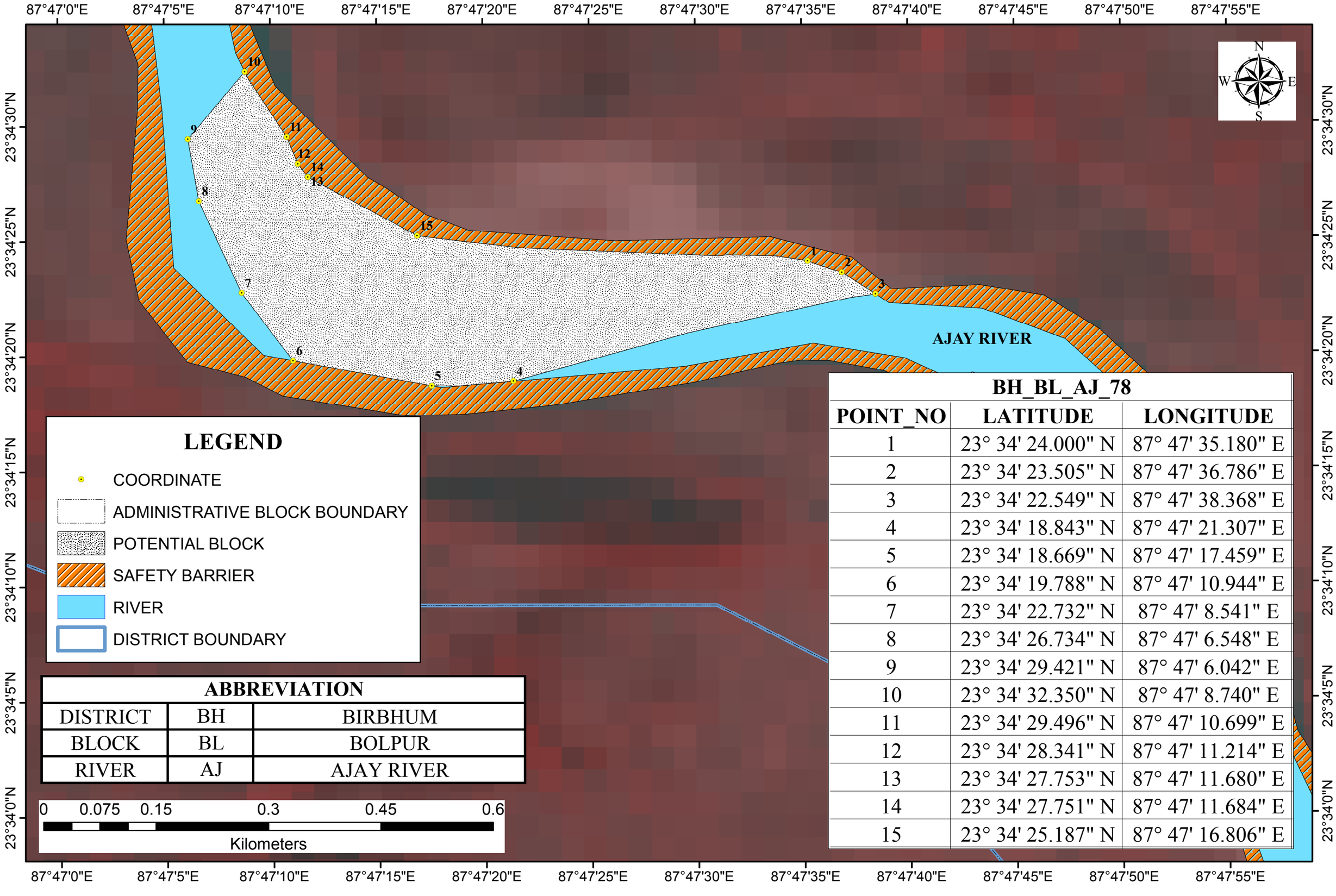
POTENTIAL BLOCK BH_BL_AJ_77 OF AJAY RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

BH_BL_AJ_77		
POINT_NO	LATITUDE	LONGITUDE
1	23° 35' 0.262" N	87° 47' 0.809" E
2	23° 34' 59.080" N	87° 47' 1.375" E
3	23° 34' 56.715" N	87° 47' 2.916" E
4	23° 34' 52.226" N	87° 47' 4.016" E
5	23° 34' 40.069" N	87° 47' 4.516" E
6	23° 34' 38.431" N	87° 47' 3.665" E
7	23° 34' 48.143" N	87° 47' 1.976" E
8	23° 34' 50.587" N	87° 47' 0.443" E
9	23° 34' 52.579" N	87° 46' 59.685" E
10	23° 34' 54.840" N	87° 46' 56.807" E
11	23° 35' 0.134" N	87° 46' 45.346" E
12	23° 34' 59.791" N	87° 46' 41.585" E
13	23° 34' 59.852" N	87° 46' 40.565" E
14	23° 35' 0.110" N	87° 46' 39.450" E
15	23° 35' 0.212" N	87° 46' 37.840" E
16	23° 35' 0.007" N	87° 46' 36.743" E
17	23° 34' 59.437" N	87° 46' 35.806" E
18	23° 35' 1.245" N	87° 46' 36.693" E
19	23° 35' 1.861" N	87° 46' 39.846" E
20	23° 35' 3.232" N	87° 46' 46.287" E
21	23° 35' 4.322" N	87° 46' 55.413" E
22	23° 35' 3.500" N	87° 46' 57.314" E

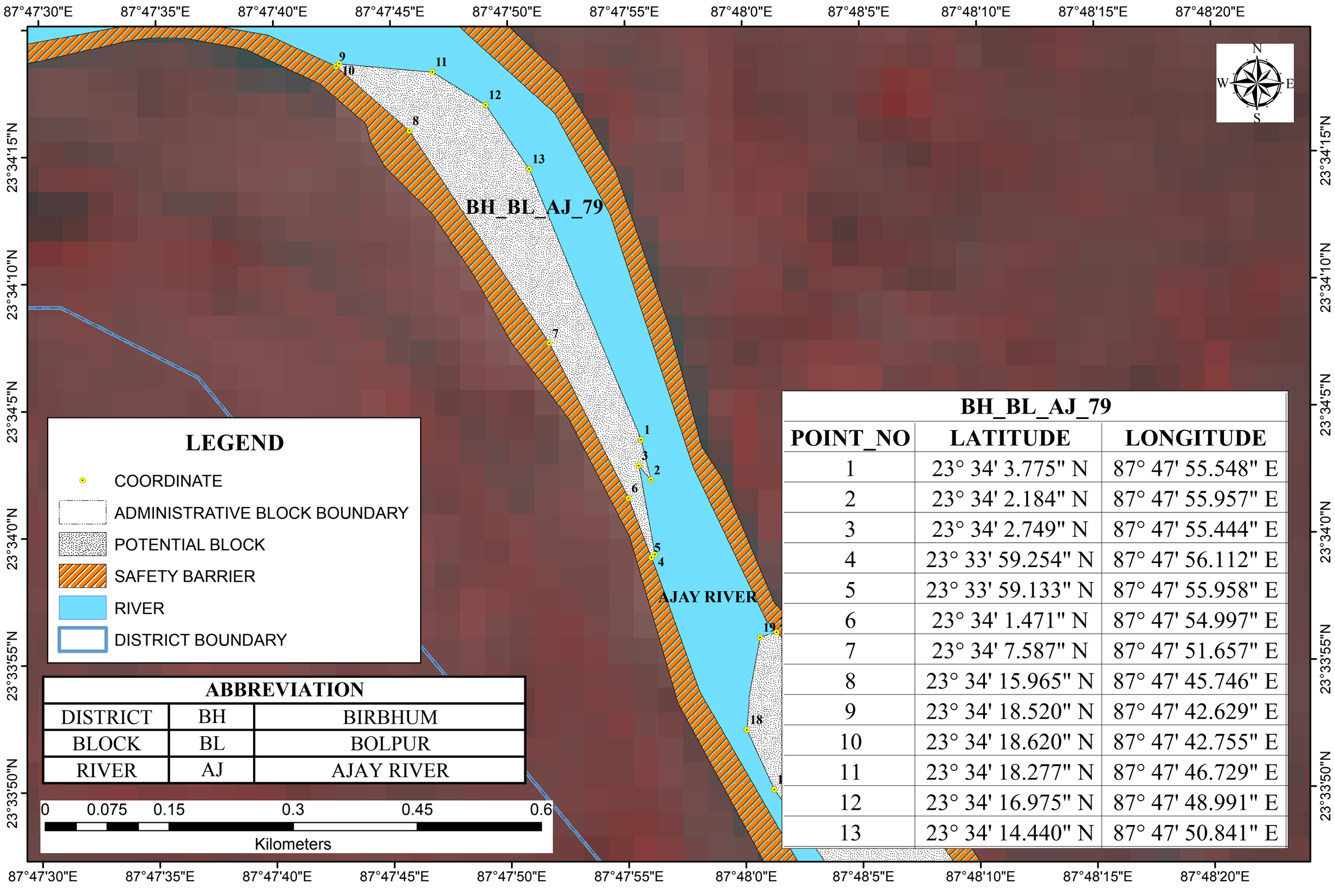
POTENTIAL BLOCK BH_BL_AJ_78 OF AJAY RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

BH_BL_AJ_78		
POINT_NO	LATITUDE	LONGITUDE
1	23° 34' 24.000" N	87° 47' 35.180" E
2	23° 34' 23.505" N	87° 47' 36.786" E
3	23° 34' 22.549" N	87° 47' 38.368" E
4	23° 34' 18.843" N	87° 47' 21.307" E
5	23° 34' 18.669" N	87° 47' 17.459" E
6	23° 34' 19.788" N	87° 47' 10.944" E
7	23° 34' 22.732" N	87° 47' 8.541" E
8	23° 34' 26.734" N	87° 47' 6.548" E
9	23° 34' 29.421" N	87° 47' 6.042" E
10	23° 34' 32.350" N	87° 47' 8.740" E
11	23° 34' 29.496" N	87° 47' 10.699" E
12	23° 34' 28.341" N	87° 47' 11.214" E
13	23° 34' 27.753" N	87° 47' 11.680" E
14	23° 34' 27.751" N	87° 47' 11.684" E
15	23° 34' 25.187" N	87° 47' 16.806" E

POTENTIAL BLOCK BH_BL_AJ_79 OF AJAY RIVER



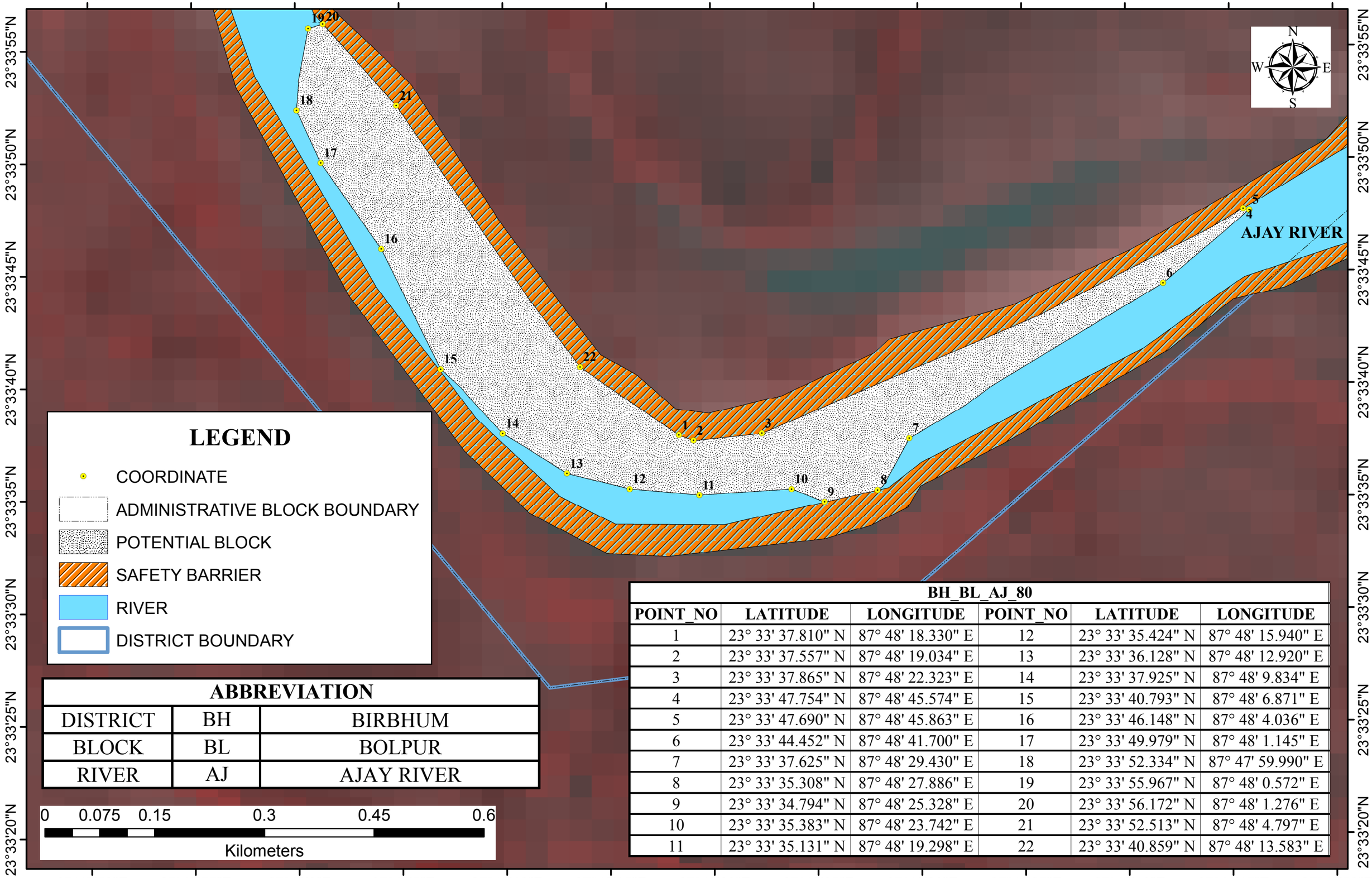
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

BH_BL_AJ_79		
POINT_NO	LATITUDE	LONGITUDE
1	23° 34' 3.775" N	87° 47' 55.548" E
2	23° 34' 2.184" N	87° 47' 55.957" E
3	23° 34' 2.749" N	87° 47' 55.444" E
4	23° 33' 59.254" N	87° 47' 56.112" E
5	23° 33' 59.133" N	87° 47' 55.958" E
6	23° 34' 1.471" N	87° 47' 54.997" E
7	23° 34' 7.587" N	87° 47' 51.657" E
8	23° 34' 15.965" N	87° 47' 45.746" E
9	23° 34' 18.520" N	87° 47' 42.629" E
10	23° 34' 18.620" N	87° 47' 42.755" E
11	23° 34' 18.277" N	87° 47' 46.729" E
12	23° 34' 16.975" N	87° 47' 48.991" E
13	23° 34' 14.440" N	87° 47' 50.841" E

POTENTIAL BLOCK BH_BL_AJ_80 OF AJAY RIVER

87°47'50"E 87°47'55"E 87°48'0"E 87°48'5"E 87°48'10"E 87°48'15"E 87°48'20"E 87°48'25"E 87°48'30"E 87°48'35"E 87°48'40"E 87°48'45"E 87°48'50"E

23°33'55"N 23°33'50"N 23°33'45"N 23°33'40"N 23°33'35"N 23°33'30"N 23°33'25"N 23°33'20"N



LEGEND

- COORDINATE
- ADMINISTRATIVE BLOCK BOUNDARY
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

0 0.075 0.15 0.3 0.45 0.6

Kilometers

BH_BL_AJ_80					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 33' 37.810" N	87° 48' 18.330" E	12	23° 33' 35.424" N	87° 48' 15.940" E
2	23° 33' 37.557" N	87° 48' 19.034" E	13	23° 33' 36.128" N	87° 48' 12.920" E
3	23° 33' 37.865" N	87° 48' 22.323" E	14	23° 33' 37.925" N	87° 48' 9.834" E
4	23° 33' 47.754" N	87° 48' 45.574" E	15	23° 33' 40.793" N	87° 48' 6.871" E
5	23° 33' 47.690" N	87° 48' 45.863" E	16	23° 33' 46.148" N	87° 48' 4.036" E
6	23° 33' 44.452" N	87° 48' 41.700" E	17	23° 33' 49.979" N	87° 48' 1.145" E
7	23° 33' 37.625" N	87° 48' 29.430" E	18	23° 33' 52.334" N	87° 47' 59.990" E
8	23° 33' 35.308" N	87° 48' 27.886" E	19	23° 33' 55.967" N	87° 48' 0.572" E
9	23° 33' 34.794" N	87° 48' 25.328" E	20	23° 33' 56.172" N	87° 48' 1.276" E
10	23° 33' 35.383" N	87° 48' 23.742" E	21	23° 33' 52.513" N	87° 48' 4.797" E
11	23° 33' 35.131" N	87° 48' 19.298" E	22	23° 33' 40.859" N	87° 48' 13.583" E

POTENTIAL BLOCK BH_BL_AJ_81 OF AJAY RIVER

87°48'45"E 87°48'50"E 87°48'55"E 87°49'0"E 87°49'5"E 87°49'10"E 87°49'15"E

23°34'5"N 23°34'0"N 23°33'55"N 23°33'50"N

N W E S

AJAY RIVER

LEGEND

- COORDINATE
- ADMINISTRATIVE BLOCK BOUNDARY
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- DISTRICT BOUNDARY

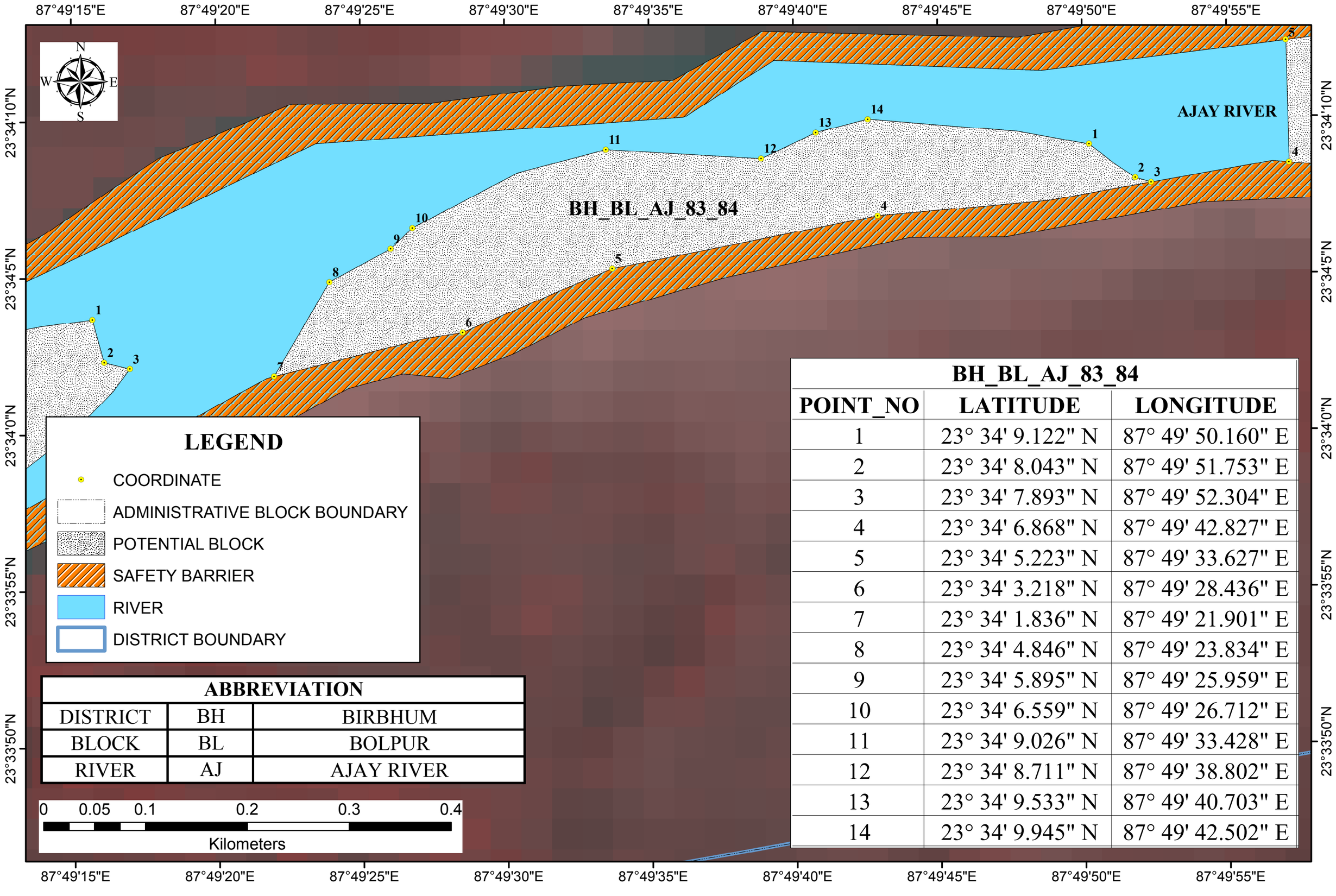
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

0 0.0475 0.095 0.19 0.285 0.38

Kilometers

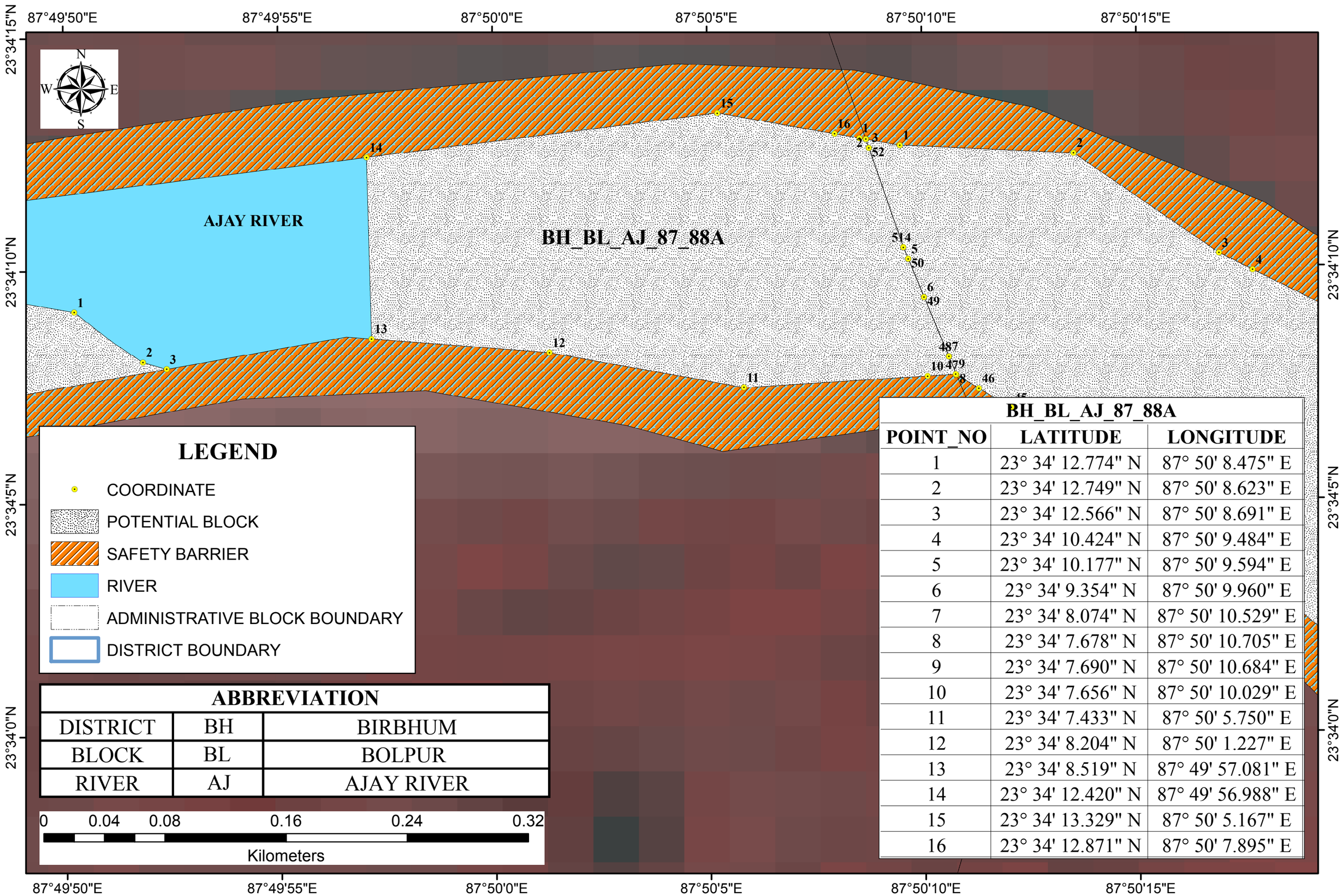
BH_BL_AJ_81					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 34' 3.674" N	87° 49' 15.622" E	10	23° 33' 56.163" N	87° 48' 55.679" E
2	23° 34' 2.310" N	87° 49' 16.022" E	11	23° 33' 58.531" N	87° 48' 56.052" E
3	23° 34' 2.105" N	87° 49' 16.913" E	12	23° 34' 0.231" N	87° 48' 56.914" E
4	23° 33' 56.828" N	87° 49' 10.403" E	13	23° 34' 0.781" N	87° 48' 57.971" E
5	23° 33' 56.143" N	87° 48' 58.547" E	14	23° 34' 2.801" N	87° 49' 4.983" E
6	23° 33' 54.704" N	87° 48' 57.314" E	15	23° 34' 3.417" N	87° 49' 6.011" E
7	23° 33' 54.236" N	87° 48' 56.090" E	16	23° 34' 3.586" N	87° 49' 7.218" E
8	23° 33' 56.633" N	87° 48' 56.605" E	17	23° 34' 3.204" N	87° 49' 9.402" E
9	23° 33' 55.183" N	87° 48' 55.395" E	18	23° 34' 3.543" N	87° 49' 10.186" E
			19	23° 34' 3.225" N	87° 49' 12.363" E

POTENTIAL BLOCK BH_BL_AJ_83_84 OF AJAY RIVER



BH_BL_AJ_83_84		
POINT_NO	LATITUDE	LONGITUDE
1	23° 34' 9.122" N	87° 49' 50.160" E
2	23° 34' 8.043" N	87° 49' 51.753" E
3	23° 34' 7.893" N	87° 49' 52.304" E
4	23° 34' 6.868" N	87° 49' 42.827" E
5	23° 34' 5.223" N	87° 49' 33.627" E
6	23° 34' 3.218" N	87° 49' 28.436" E
7	23° 34' 1.836" N	87° 49' 21.901" E
8	23° 34' 4.846" N	87° 49' 23.834" E
9	23° 34' 5.895" N	87° 49' 25.959" E
10	23° 34' 6.559" N	87° 49' 26.712" E
11	23° 34' 9.026" N	87° 49' 33.428" E
12	23° 34' 8.711" N	87° 49' 38.802" E
13	23° 34' 9.533" N	87° 49' 40.703" E
14	23° 34' 9.945" N	87° 49' 42.502" E

POTENTIAL BLOCK BH_BL_AJ_87_88A OF AJAY RIVER



LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

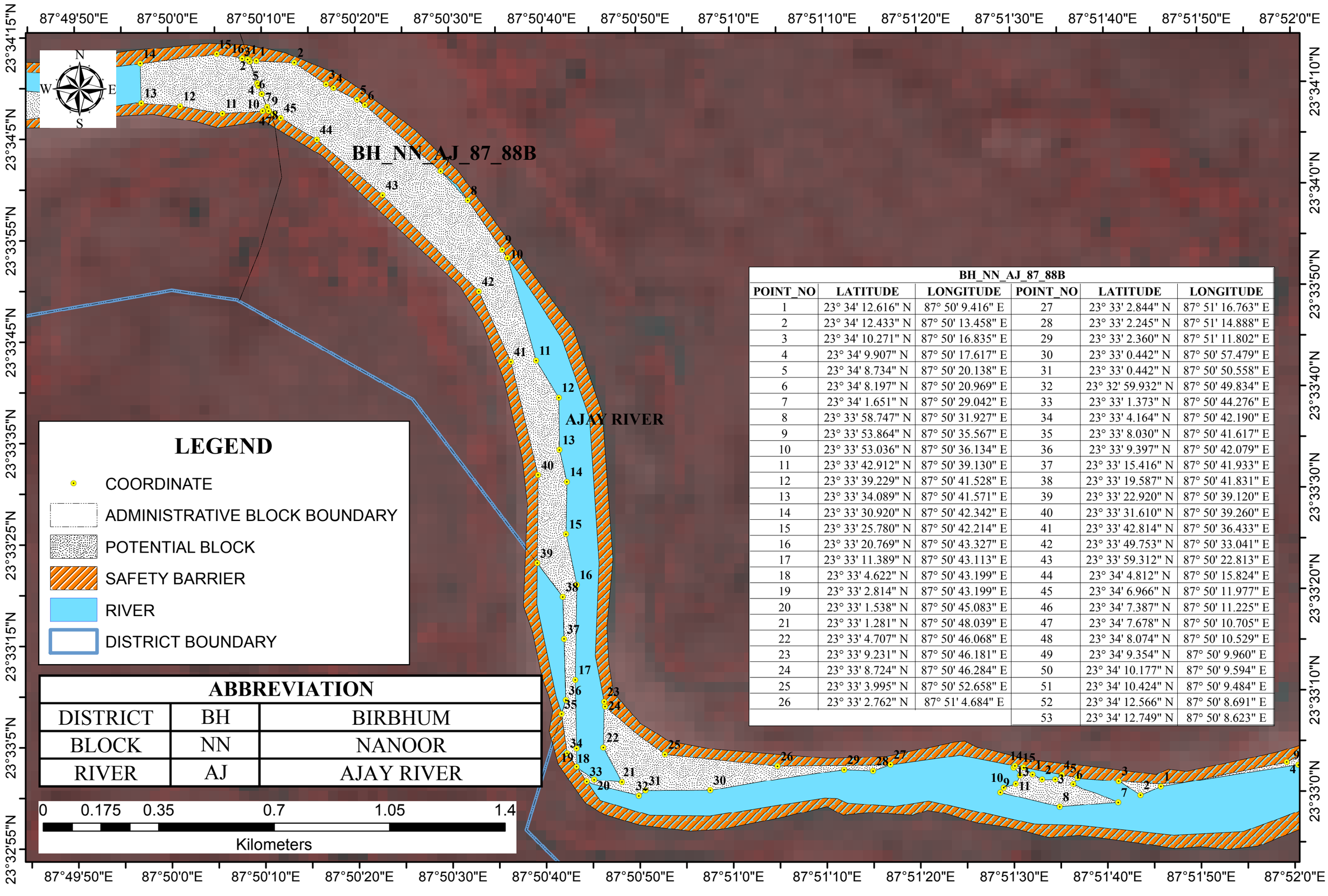
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	BL	BOLPUR
RIVER	AJ	AJAY RIVER

0 0.04 0.08 0.16 0.24 0.32

Kilometers

BH_BL_AJ_87_88A		
POINT_NO	LATITUDE	LONGITUDE
1	23° 34' 12.774" N	87° 50' 8.475" E
2	23° 34' 12.749" N	87° 50' 8.623" E
3	23° 34' 12.566" N	87° 50' 8.691" E
4	23° 34' 10.424" N	87° 50' 9.484" E
5	23° 34' 10.177" N	87° 50' 9.594" E
6	23° 34' 9.354" N	87° 50' 9.960" E
7	23° 34' 8.074" N	87° 50' 10.529" E
8	23° 34' 7.678" N	87° 50' 10.705" E
9	23° 34' 7.690" N	87° 50' 10.684" E
10	23° 34' 7.656" N	87° 50' 10.029" E
11	23° 34' 7.433" N	87° 50' 5.750" E
12	23° 34' 8.204" N	87° 50' 1.227" E
13	23° 34' 8.519" N	87° 49' 57.081" E
14	23° 34' 12.420" N	87° 49' 56.988" E
15	23° 34' 13.329" N	87° 50' 5.167" E
16	23° 34' 12.871" N	87° 50' 7.895" E

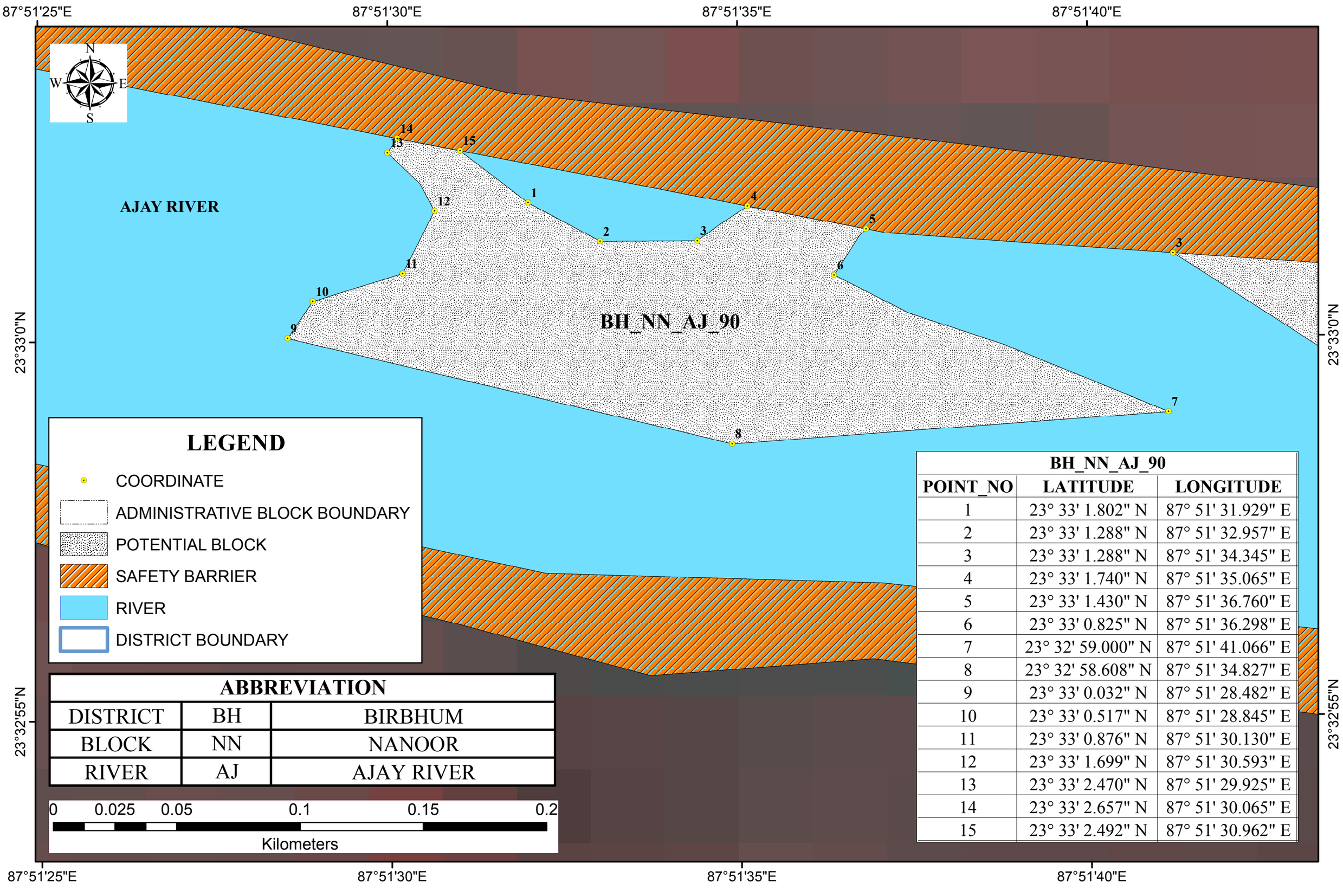
POTENTIAL BLOCK BH_NN_AJ_87_88B OF AJAY RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	NN	NANOOR
RIVER	AJ	AJAY RIVER

BH_NN_AJ_87_88B					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 34' 12.616" N	87° 50' 9.416" E	27	23° 33' 2.844" N	87° 51' 16.763" E
2	23° 34' 12.433" N	87° 50' 13.458" E	28	23° 33' 2.245" N	87° 51' 14.888" E
3	23° 34' 10.271" N	87° 50' 16.835" E	29	23° 33' 2.360" N	87° 51' 11.802" E
4	23° 34' 9.907" N	87° 50' 17.617" E	30	23° 33' 0.442" N	87° 50' 57.479" E
5	23° 34' 8.734" N	87° 50' 20.138" E	31	23° 33' 0.442" N	87° 50' 50.558" E
6	23° 34' 8.197" N	87° 50' 20.969" E	32	23° 32' 59.932" N	87° 50' 49.834" E
7	23° 34' 1.651" N	87° 50' 29.042" E	33	23° 33' 1.373" N	87° 50' 44.276" E
8	23° 33' 58.747" N	87° 50' 31.927" E	34	23° 33' 4.164" N	87° 50' 42.190" E
9	23° 33' 53.864" N	87° 50' 35.567" E	35	23° 33' 8.030" N	87° 50' 41.617" E
10	23° 33' 53.036" N	87° 50' 36.134" E	36	23° 33' 9.397" N	87° 50' 42.079" E
11	23° 33' 42.912" N	87° 50' 39.130" E	37	23° 33' 15.416" N	87° 50' 41.933" E
12	23° 33' 39.229" N	87° 50' 41.528" E	38	23° 33' 19.587" N	87° 50' 41.831" E
13	23° 33' 34.089" N	87° 50' 41.571" E	39	23° 33' 22.920" N	87° 50' 39.120" E
14	23° 33' 30.920" N	87° 50' 42.342" E	40	23° 33' 31.610" N	87° 50' 39.260" E
15	23° 33' 25.780" N	87° 50' 42.214" E	41	23° 33' 42.814" N	87° 50' 36.433" E
16	23° 33' 20.769" N	87° 50' 43.327" E	42	23° 33' 49.753" N	87° 50' 33.041" E
17	23° 33' 11.389" N	87° 50' 43.113" E	43	23° 33' 59.312" N	87° 50' 22.813" E
18	23° 33' 4.622" N	87° 50' 43.199" E	44	23° 34' 4.812" N	87° 50' 15.824" E
19	23° 33' 2.814" N	87° 50' 43.199" E	45	23° 34' 6.966" N	87° 50' 11.977" E
20	23° 33' 1.538" N	87° 50' 45.083" E	46	23° 34' 7.387" N	87° 50' 11.225" E
21	23° 33' 1.281" N	87° 50' 48.039" E	47	23° 34' 7.678" N	87° 50' 10.705" E
22	23° 33' 4.707" N	87° 50' 46.068" E	48	23° 34' 8.074" N	87° 50' 10.529" E
23	23° 33' 9.231" N	87° 50' 46.181" E	49	23° 34' 9.354" N	87° 50' 9.960" E
24	23° 33' 8.724" N	87° 50' 46.284" E	50	23° 34' 10.177" N	87° 50' 9.594" E
25	23° 33' 3.995" N	87° 50' 52.658" E	51	23° 34' 10.424" N	87° 50' 9.484" E
26	23° 33' 2.762" N	87° 51' 4.684" E	52	23° 34' 12.566" N	87° 50' 8.691" E
			53	23° 34' 12.749" N	87° 50' 8.623" E

POTENTIAL BLOCK BH_NN_AJ_90 OF AJAY RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	NN	NANOOR
RIVER	AJ	AJAY RIVER

BH_NN_AJ_90		
POINT_NO	LATITUDE	LONGITUDE
1	23° 33' 1.802" N	87° 51' 31.929" E
2	23° 33' 1.288" N	87° 51' 32.957" E
3	23° 33' 1.288" N	87° 51' 34.345" E
4	23° 33' 1.740" N	87° 51' 35.065" E
5	23° 33' 1.430" N	87° 51' 36.760" E
6	23° 33' 0.825" N	87° 51' 36.298" E
7	23° 32' 59.000" N	87° 51' 41.066" E
8	23° 32' 58.608" N	87° 51' 34.827" E
9	23° 33' 0.032" N	87° 51' 28.482" E
10	23° 33' 0.517" N	87° 51' 28.845" E
11	23° 33' 0.876" N	87° 51' 30.130" E
12	23° 33' 1.699" N	87° 51' 30.593" E
13	23° 33' 2.470" N	87° 51' 29.925" E
14	23° 33' 2.657" N	87° 51' 30.065" E
15	23° 33' 2.492" N	87° 51' 30.962" E

POTENTIAL BLOCK BH_NN_AJ_91 OF AJAY RIVER

87°51'40"E 87°51'45"E 87°51'50"E 87°51'55"E 87°52'0"E 87°52'5"E 87°52'10"E

23°33'10"N 23°33'5"N 23°33'0"N 23°32'55"N

N W E S

LEGEND

- COORDINATE
- ADMINISTRATIVE BLOCK BOUNDARY
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- DISTRICT BOUNDARY

BH_NN_AJ_91

AJAY RIVER

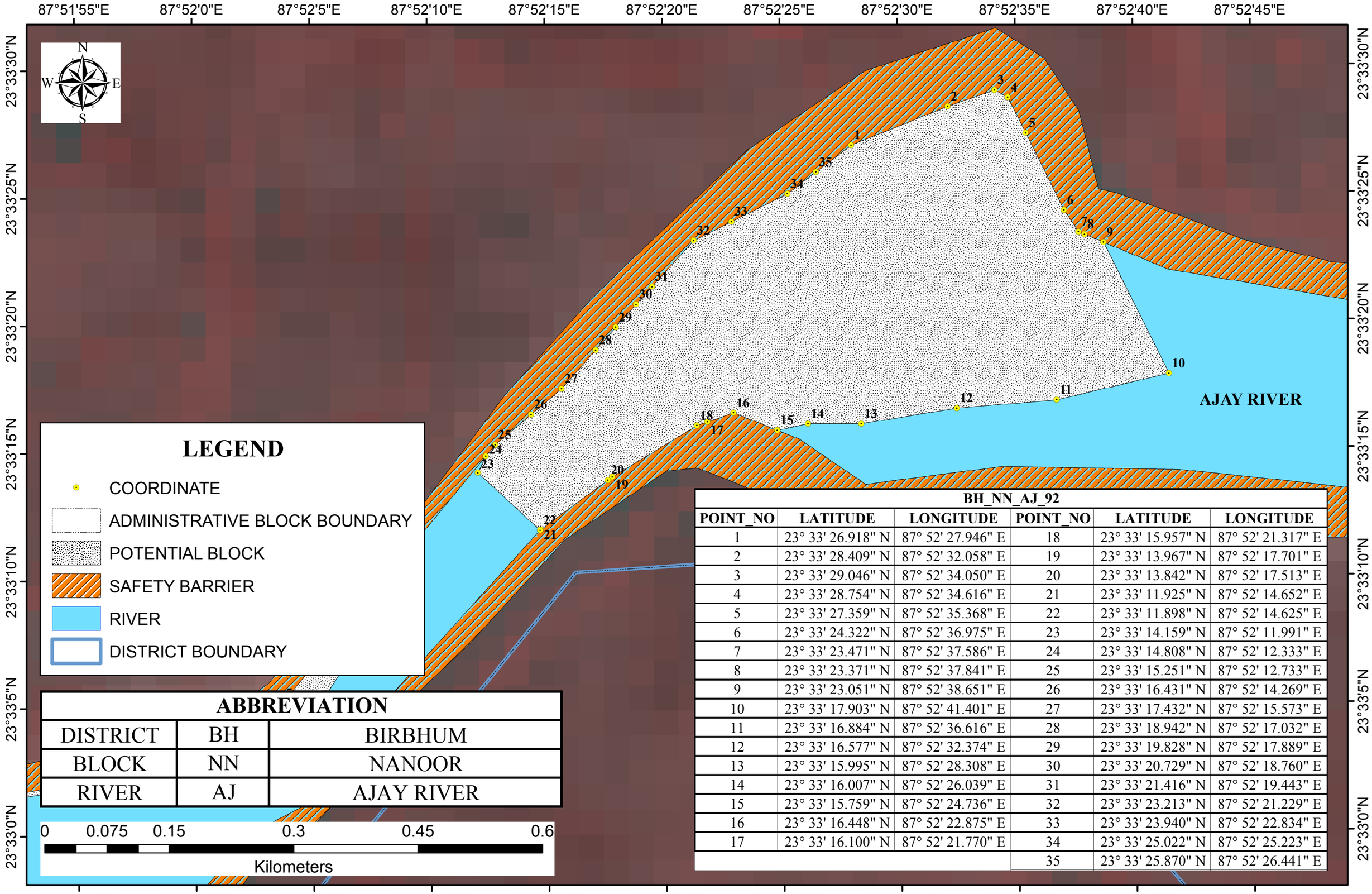
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	NN	NANOOR
RIVER	AJ	AJAY RIVER

0 0.045 0.09 0.18 0.27 0.36

Kilometers

BH_NN_AJ_91		
POINT_NO	LATITUDE	LONGITUDE
1	23° 33' 0.544" N	87° 51' 45.638" E
2	23° 32' 59.702" N	87° 51' 43.464" E
3	23° 33' 1.094" N	87° 51' 41.144" E
4	23° 33' 2.865" N	87° 51' 59.113" E
5	23° 33' 5.177" N	87° 52' 3.636" E
6	23° 33' 11.054" N	87° 52' 8.943" E
7	23° 33' 9.115" N	87° 52' 8.031" E
8	23° 33' 3.560" N	87° 52' 4.140" E
9	23° 33' 2.600" N	87° 52' 0.371" E

POTENTIAL BLOCK BH_NN_AJ_92 OF AJAY RIVER



LEGEND

- COORDINATE
- ADMINISTRATIVE BLOCK BOUNDARY
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- DISTRICT BOUNDARY

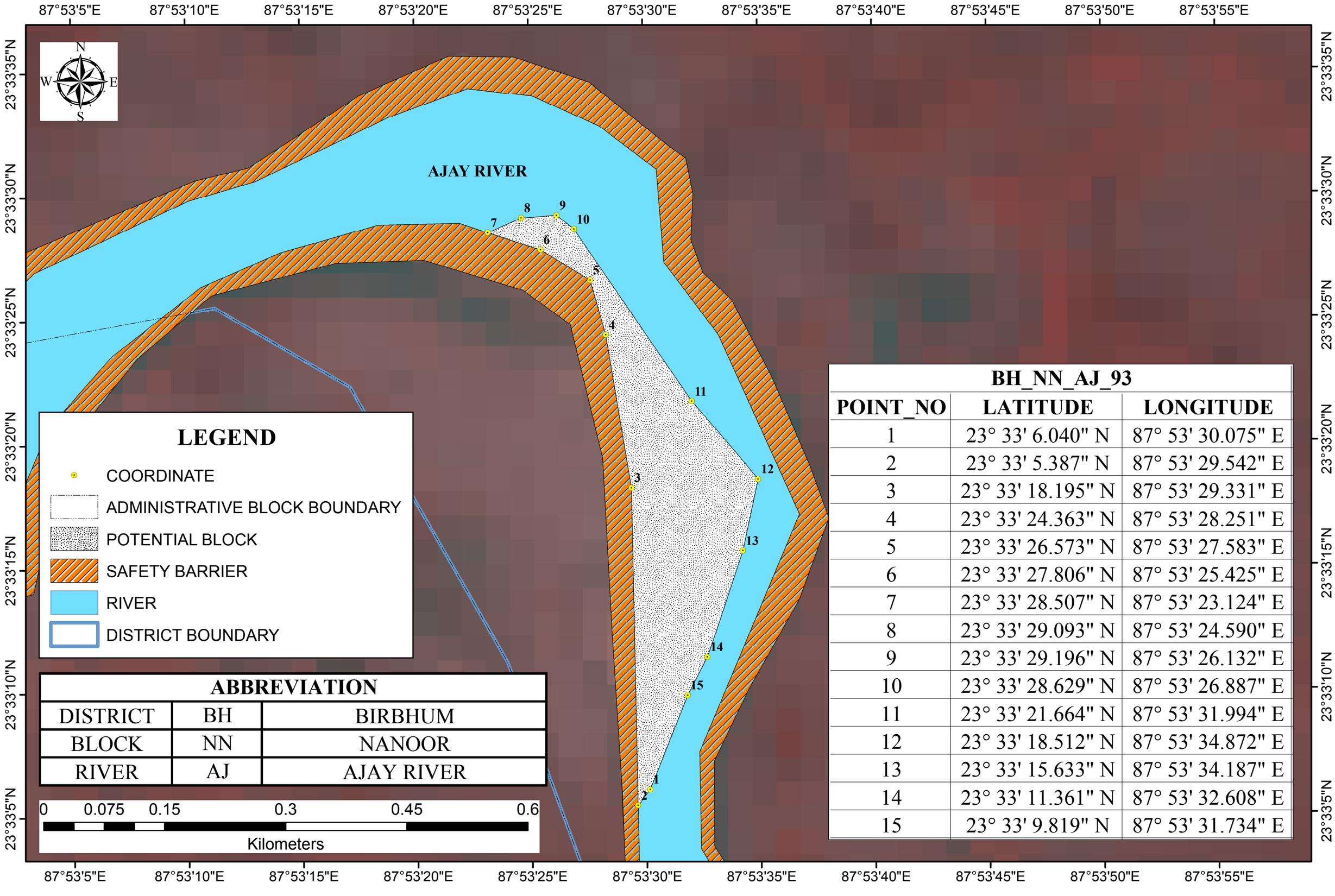
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	NN	NANOOR
RIVER	AJ	AJAY RIVER

0 0.075 0.15 0.3 0.45 0.6

Kilometers

BH_NN_AJ_92					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 33' 26.918" N	87° 52' 27.946" E	18	23° 33' 15.957" N	87° 52' 21.317" E
2	23° 33' 28.409" N	87° 52' 32.058" E	19	23° 33' 13.967" N	87° 52' 17.701" E
3	23° 33' 29.046" N	87° 52' 34.050" E	20	23° 33' 13.842" N	87° 52' 17.513" E
4	23° 33' 28.754" N	87° 52' 34.616" E	21	23° 33' 11.925" N	87° 52' 14.652" E
5	23° 33' 27.359" N	87° 52' 35.368" E	22	23° 33' 11.898" N	87° 52' 14.625" E
6	23° 33' 24.322" N	87° 52' 36.975" E	23	23° 33' 14.159" N	87° 52' 11.991" E
7	23° 33' 23.471" N	87° 52' 37.586" E	24	23° 33' 14.808" N	87° 52' 12.333" E
8	23° 33' 23.371" N	87° 52' 37.841" E	25	23° 33' 15.251" N	87° 52' 12.733" E
9	23° 33' 23.051" N	87° 52' 38.651" E	26	23° 33' 16.431" N	87° 52' 14.269" E
10	23° 33' 17.903" N	87° 52' 41.401" E	27	23° 33' 17.432" N	87° 52' 15.573" E
11	23° 33' 16.884" N	87° 52' 36.616" E	28	23° 33' 18.942" N	87° 52' 17.032" E
12	23° 33' 16.577" N	87° 52' 32.374" E	29	23° 33' 19.828" N	87° 52' 17.889" E
13	23° 33' 15.995" N	87° 52' 28.308" E	30	23° 33' 20.729" N	87° 52' 18.760" E
14	23° 33' 16.007" N	87° 52' 26.039" E	31	23° 33' 21.416" N	87° 52' 19.443" E
15	23° 33' 15.759" N	87° 52' 24.736" E	32	23° 33' 23.213" N	87° 52' 21.229" E
16	23° 33' 16.448" N	87° 52' 22.875" E	33	23° 33' 23.940" N	87° 52' 22.834" E
17	23° 33' 16.100" N	87° 52' 21.770" E	34	23° 33' 25.022" N	87° 52' 25.223" E
			35	23° 33' 25.870" N	87° 52' 26.441" E

POTENTIAL BLOCK BH_NN_AJ_93 OF AJAY RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	NN	NANOOR
RIVER	AJ	AJAY RIVER

BH_NN_AJ_93		
POINT_NO	LATITUDE	LONGITUDE
1	23° 33' 6.040" N	87° 53' 30.075" E
2	23° 33' 5.387" N	87° 53' 29.542" E
3	23° 33' 18.195" N	87° 53' 29.331" E
4	23° 33' 24.363" N	87° 53' 28.251" E
5	23° 33' 26.573" N	87° 53' 27.583" E
6	23° 33' 27.806" N	87° 53' 25.425" E
7	23° 33' 28.507" N	87° 53' 23.124" E
8	23° 33' 29.093" N	87° 53' 24.590" E
9	23° 33' 29.196" N	87° 53' 26.132" E
10	23° 33' 28.629" N	87° 53' 26.887" E
11	23° 33' 21.664" N	87° 53' 31.994" E
12	23° 33' 18.512" N	87° 53' 34.872" E
13	23° 33' 15.633" N	87° 53' 34.187" E
14	23° 33' 11.361" N	87° 53' 32.608" E
15	23° 33' 9.819" N	87° 53' 31.734" E

POTENTIAL BLOCK BH_NN_AJ_94 OF AJAY RIVER

BH_NN_AJ_94		
POINT_NO	LATITUDE	LONGITUDE
1	23° 32' 30.206" N	87° 54' 2.906" E
2	23° 32' 30.062" N	87° 53' 58.514" E
3	23° 32' 32.598" N	87° 53' 52.278" E
4	23° 32' 35.407" N	87° 53' 49.400" E
5	23° 32' 37.737" N	87° 53' 46.453" E
6	23° 32' 39.382" N	87° 53' 47.070" E
7	23° 32' 44.796" N	87° 53' 42.684" E
8	23° 32' 46.509" N	87° 53' 40.834" E
9	23° 32' 50.895" N	87° 53' 38.504" E
10	23° 32' 55.692" N	87° 53' 34.529" E
11	23° 33' 0.078" N	87° 53' 32.953" E
12	23° 33' 1.766" N	87° 53' 33.473" E
13	23° 32' 55.155" N	87° 53' 37.640" E
14	23° 32' 44.516" N	87° 53' 43.139" E
15	23° 32' 37.937" N	87° 53' 48.587" E
16	23° 32' 34.134" N	87° 53' 53.316" E
17	23° 32' 30.947" N	87° 53' 59.895" E
18	23° 32' 30.701" N	87° 54' 3.897" E

LEGEND

- COORDINATE
- ADMINISTRATIVE BLOCK BOUNDARY
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	NN	NANOOR
RIVER	AJ	AJAY RIVER

0 0.075 0.15 0.3 0.45 0.6

Kilometers

AJAY RIVER

87°53'20"E 87°53'25"E 87°53'30"E 87°53'35"E 87°53'40"E 87°53'45"E 87°53'50"E 87°53'55"E 87°54'0"E 87°54'5"E 87°54'10"E 87°54'15"E 87°54'20"E

23°33'0"N 23°32'55"N 23°32'50"N 23°32'45"N 23°32'40"N 23°32'35"N 23°32'30"N

POTENTIAL BLOCK BH_NN_AJ_95 OF AJAY RIVER

87°54'30"E 87°54'35"E 87°54'40"E 87°54'45"E

23°33'10"N

23°33'5"N

N W E S

AJAY RIVER

6 5 7 8 4 3 1 2

LEGEND

- COORDINATE
- ADMINISTRATIVE BLOCK BOUNDARY
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	NN	NANOOR
RIVER	AJ	AJAY RIVER

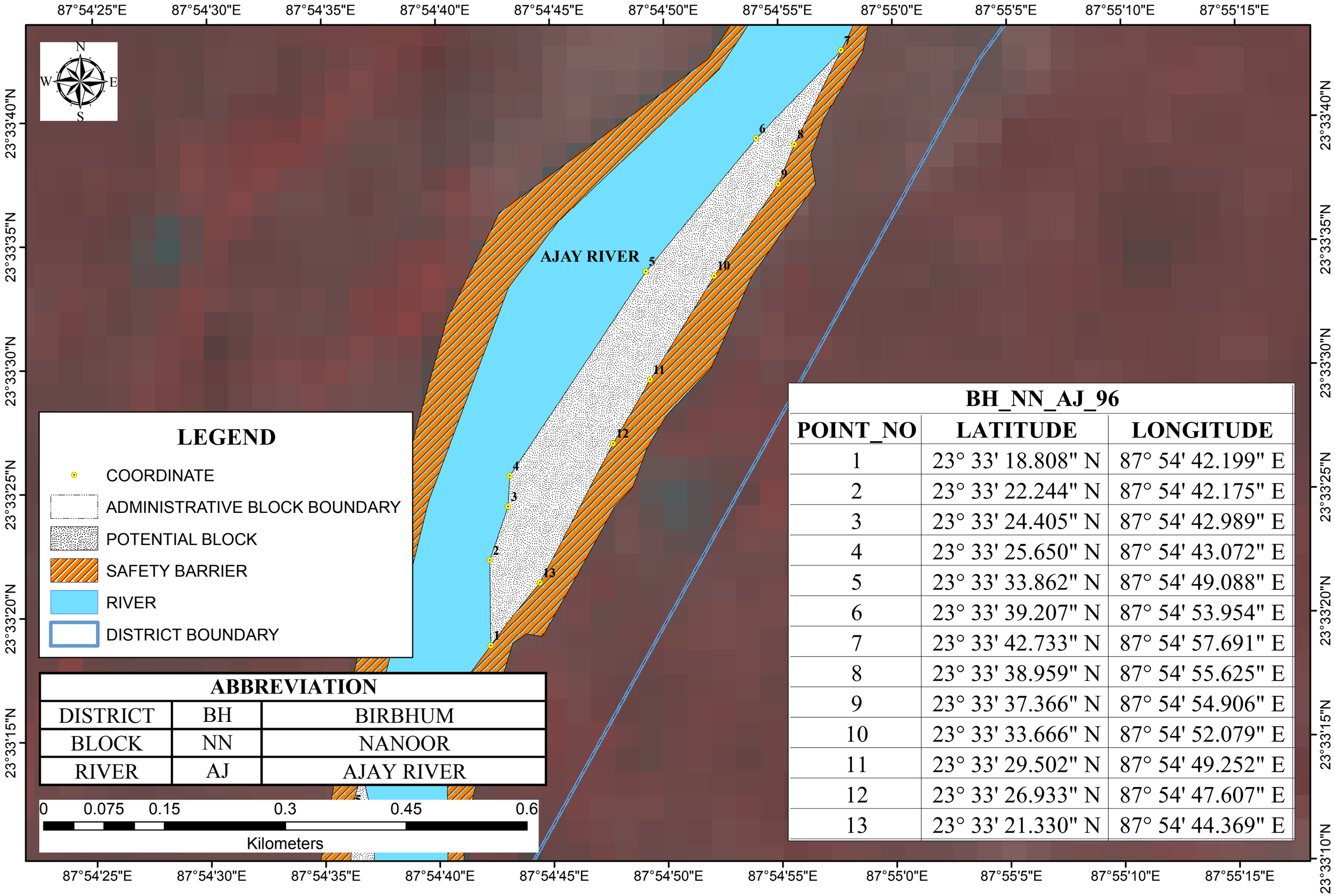
0 0.03 0.06 0.12 0.18 0.24

Kilometers

BH_NN_AJ_95		
POINT_NO	LATITUDE	LONGITUDE
1	23° 33' 2.389" N	87° 54' 36.882" E
2	23° 33' 1.893" N	87° 54' 36.608" E
3	23° 33' 2.307" N	87° 54' 35.742" E
4	23° 33' 2.505" N	87° 54' 35.821" E
5	23° 33' 12.219" N	87° 54' 36.078" E
6	23° 33' 13.796" N	87° 54' 36.514" E
7	23° 33' 11.659" N	87° 54' 37.027" E
8	23° 33' 6.588" N	87° 54' 37.096" E

87°54'30"E 87°54'35"E 87°54'40"E 87°54'45"E

POTENTIAL BLOCK BH_NN_AJ_96 OF AJAY RIVER



LEGEND

- COORDINATE
- ADMINISTRATIVE BLOCK BOUNDARY
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- DISTRICT BOUNDARY

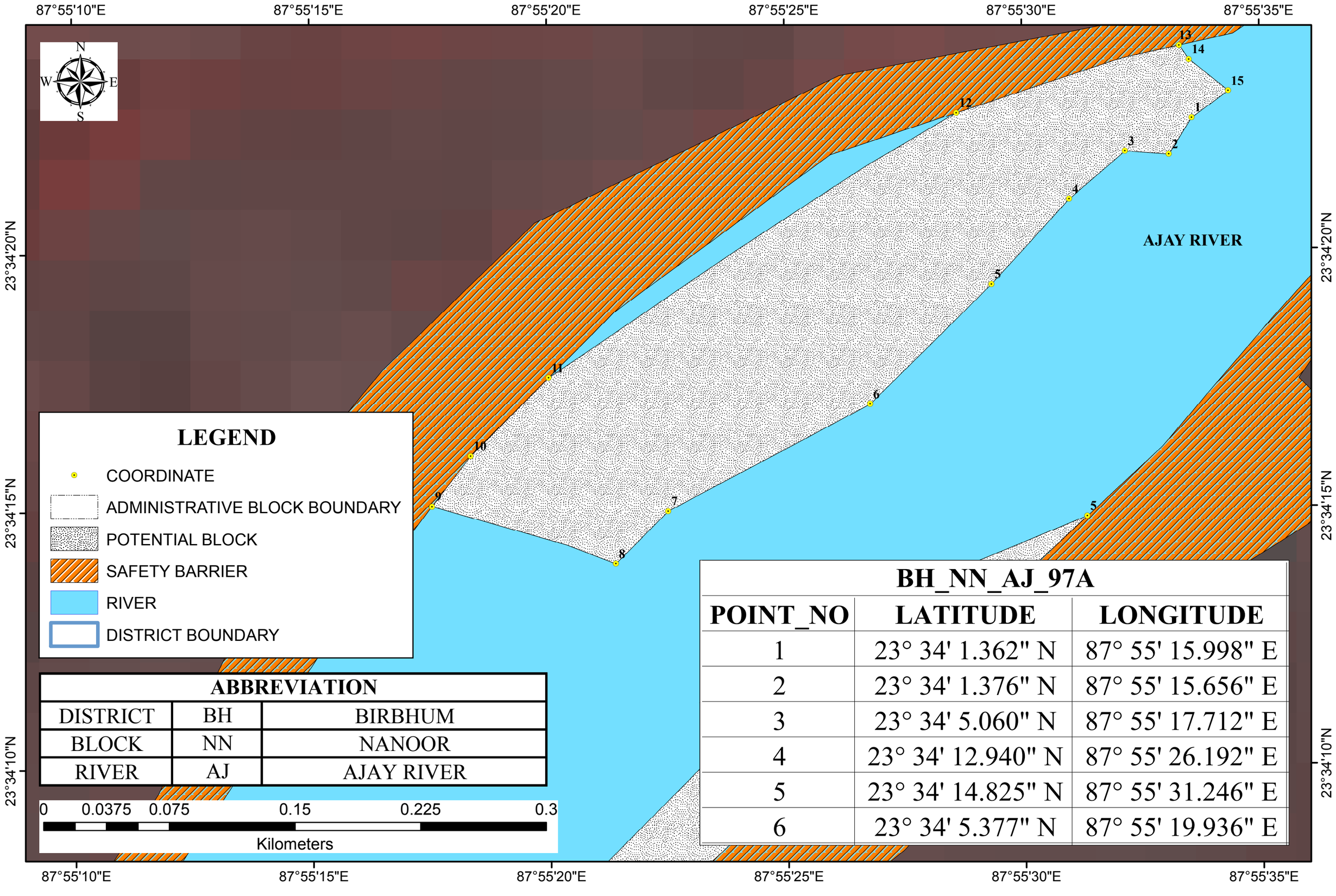
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	NN	NANOOR
RIVER	AJ	AJAY RIVER

0 0.075 0.15 0.3 0.45 0.6

Kilometers

BH_NN_AJ_96		
POINT_NO	LATITUDE	LONGITUDE
1	23° 33' 18.808" N	87° 54' 42.199" E
2	23° 33' 22.244" N	87° 54' 42.175" E
3	23° 33' 24.405" N	87° 54' 42.989" E
4	23° 33' 25.650" N	87° 54' 43.072" E
5	23° 33' 33.862" N	87° 54' 49.088" E
6	23° 33' 39.207" N	87° 54' 53.954" E
7	23° 33' 42.733" N	87° 54' 57.691" E
8	23° 33' 38.959" N	87° 54' 55.625" E
9	23° 33' 37.366" N	87° 54' 54.906" E
10	23° 33' 33.666" N	87° 54' 52.079" E
11	23° 33' 29.502" N	87° 54' 49.252" E
12	23° 33' 26.933" N	87° 54' 47.607" E
13	23° 33' 21.330" N	87° 54' 44.369" E

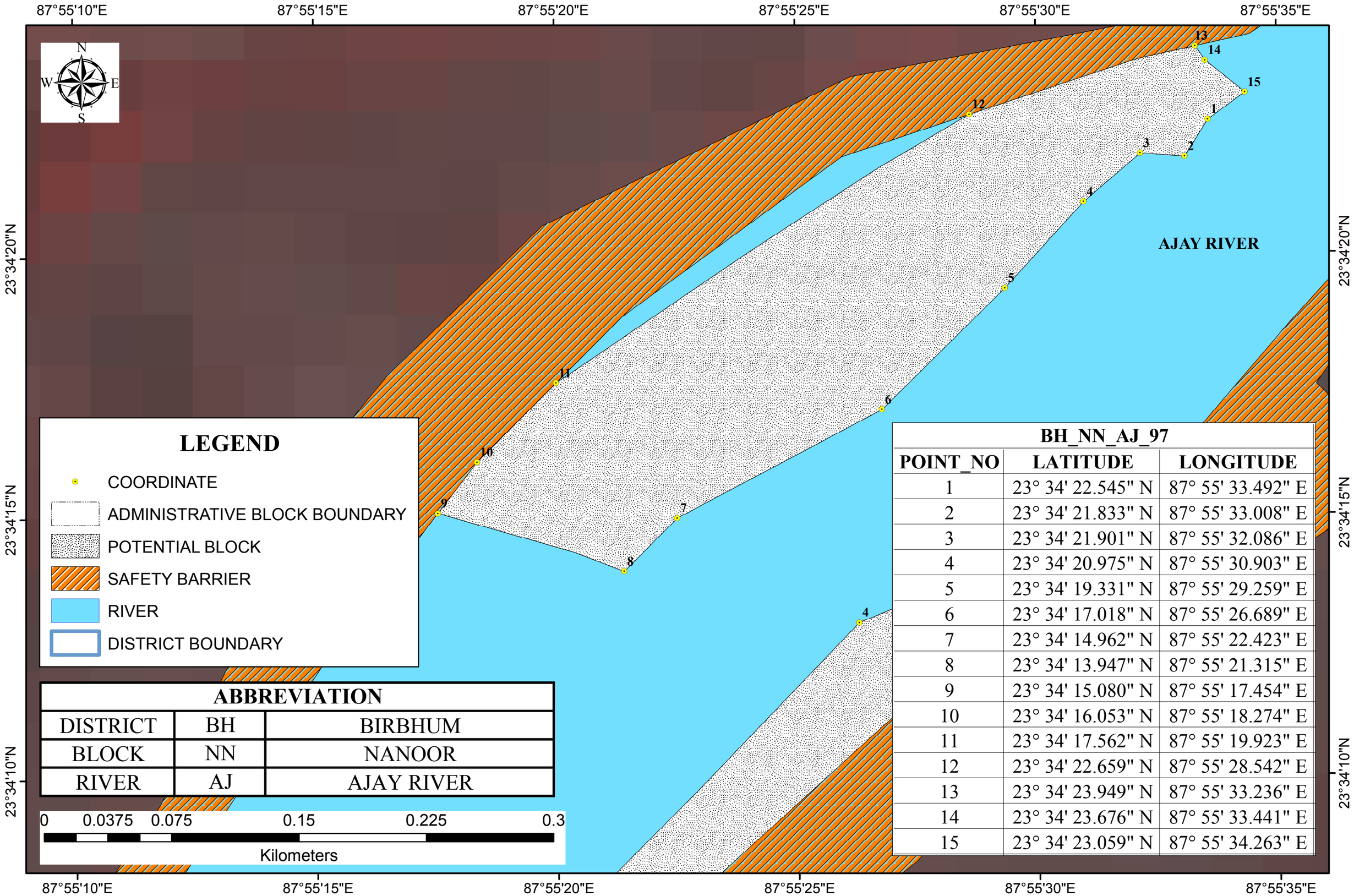
POTENTIAL BLOCK BH_NN_AJ_97A OF AJAY RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	NN	NANOOR
RIVER	AJ	AJAY RIVER

BH_NN_AJ_97A		
POINT_NO	LATITUDE	LONGITUDE
1	23° 34' 1.362" N	87° 55' 15.998" E
2	23° 34' 1.376" N	87° 55' 15.656" E
3	23° 34' 5.060" N	87° 55' 17.712" E
4	23° 34' 12.940" N	87° 55' 26.192" E
5	23° 34' 14.825" N	87° 55' 31.246" E
6	23° 34' 5.377" N	87° 55' 19.936" E

POTENTIAL BLOCK BH_NN_AJ_97 OF AJAY RIVER



LEGEND

- COORDINATE
- ADMINISTRATIVE BLOCK BOUNDARY
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- DISTRICT BOUNDARY

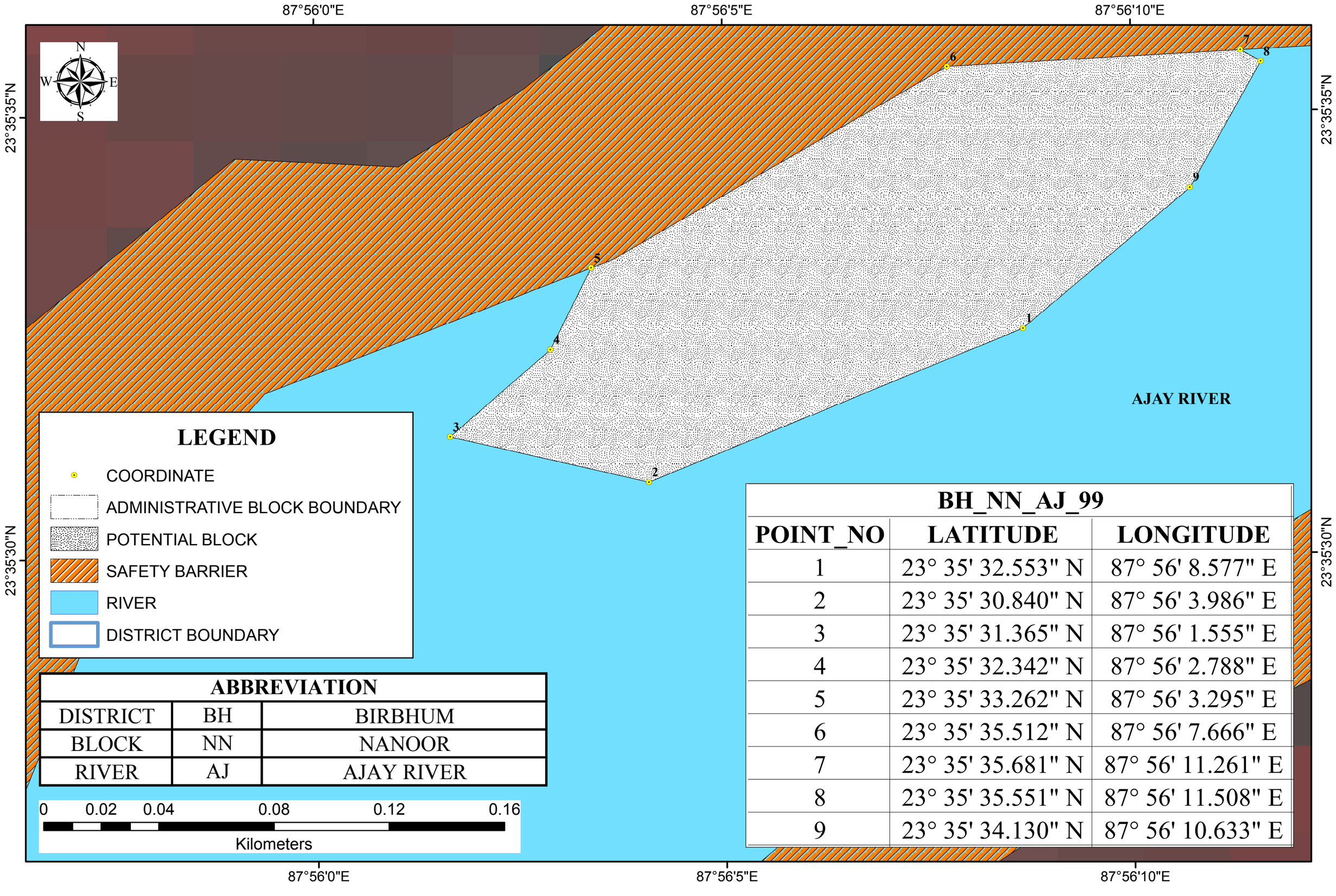
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	NN	NANOOR
RIVER	AJ	AJAY RIVER

0 0.0375 0.075 0.15 0.225 0.3

Kilometers

BH_NN_AJ_97		
POINT_NO	LATITUDE	LONGITUDE
1	23° 34' 22.545" N	87° 55' 33.492" E
2	23° 34' 21.833" N	87° 55' 33.008" E
3	23° 34' 21.901" N	87° 55' 32.086" E
4	23° 34' 20.975" N	87° 55' 30.903" E
5	23° 34' 19.331" N	87° 55' 29.259" E
6	23° 34' 17.018" N	87° 55' 26.689" E
7	23° 34' 14.962" N	87° 55' 22.423" E
8	23° 34' 13.947" N	87° 55' 21.315" E
9	23° 34' 15.080" N	87° 55' 17.454" E
10	23° 34' 16.053" N	87° 55' 18.274" E
11	23° 34' 17.562" N	87° 55' 19.923" E
12	23° 34' 22.659" N	87° 55' 28.542" E
13	23° 34' 23.949" N	87° 55' 33.236" E
14	23° 34' 23.676" N	87° 55' 33.441" E
15	23° 34' 23.059" N	87° 55' 34.263" E

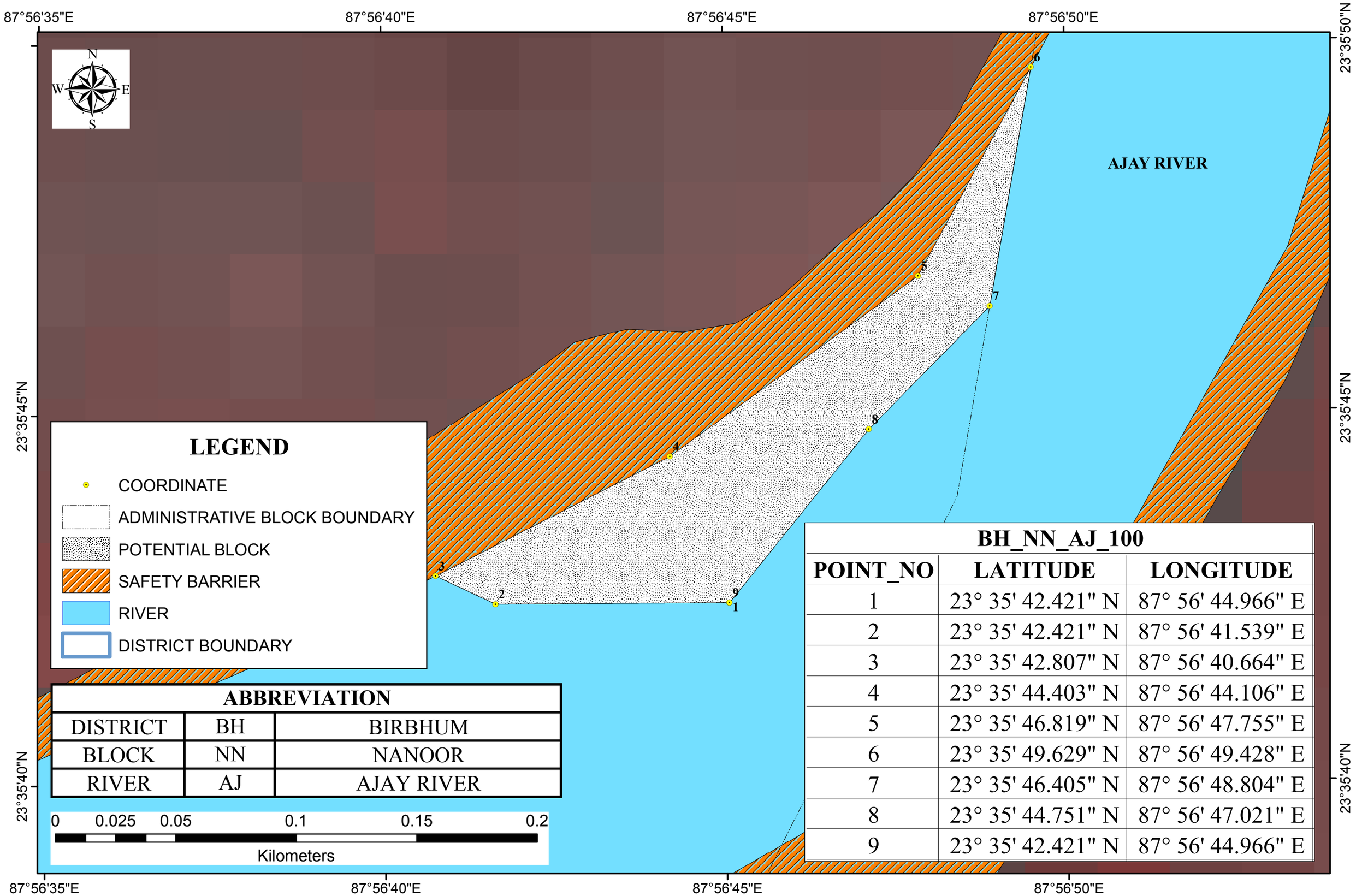
POTENTIAL BLOCK BH_NN_AJ_99 OF AJAY RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	NN	NANOOR
RIVER	AJ	AJAY RIVER

BH_NN_AJ_99		
POINT_NO	LATITUDE	LONGITUDE
1	23° 35' 32.553" N	87° 56' 8.577" E
2	23° 35' 30.840" N	87° 56' 3.986" E
3	23° 35' 31.365" N	87° 56' 1.555" E
4	23° 35' 32.342" N	87° 56' 2.788" E
5	23° 35' 33.262" N	87° 56' 3.295" E
6	23° 35' 35.512" N	87° 56' 7.666" E
7	23° 35' 35.681" N	87° 56' 11.261" E
8	23° 35' 35.551" N	87° 56' 11.508" E
9	23° 35' 34.130" N	87° 56' 10.633" E

POTENTIAL BLOCK BH_NN_AJ_100 OF AJAY RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	NN	NANOOR
RIVER	AJ	AJAY RIVER

BH_NN_AJ_100		
POINT_NO	LATITUDE	LONGITUDE
1	23° 35' 42.421" N	87° 56' 44.966" E
2	23° 35' 42.421" N	87° 56' 41.539" E
3	23° 35' 42.807" N	87° 56' 40.664" E
4	23° 35' 44.403" N	87° 56' 44.106" E
5	23° 35' 46.819" N	87° 56' 47.755" E
6	23° 35' 49.629" N	87° 56' 49.428" E
7	23° 35' 46.405" N	87° 56' 48.804" E
8	23° 35' 44.751" N	87° 56' 47.021" E
9	23° 35' 42.421" N	87° 56' 44.966" E

POTENTIAL BLOCK BH_NN_AJ_101_102 OF AJAY RIVER

87°56'35"E 87°56'40"E 87°56'45"E 87°56'50"E 87°56'55"E 87°57'0"E 87°57'5"E 87°57'10"E 87°57'15"E 87°57'20"E

23°36'45"N 23°36'40"N 23°36'35"N 23°36'30"N 23°36'25"N 23°36'20"N

N W E S

AJAY RIVER

LEGEND

- COORDINATE
- ADMINISTRATIVE BLOCK BOUNDARY
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- DISTRICT BOUNDARY

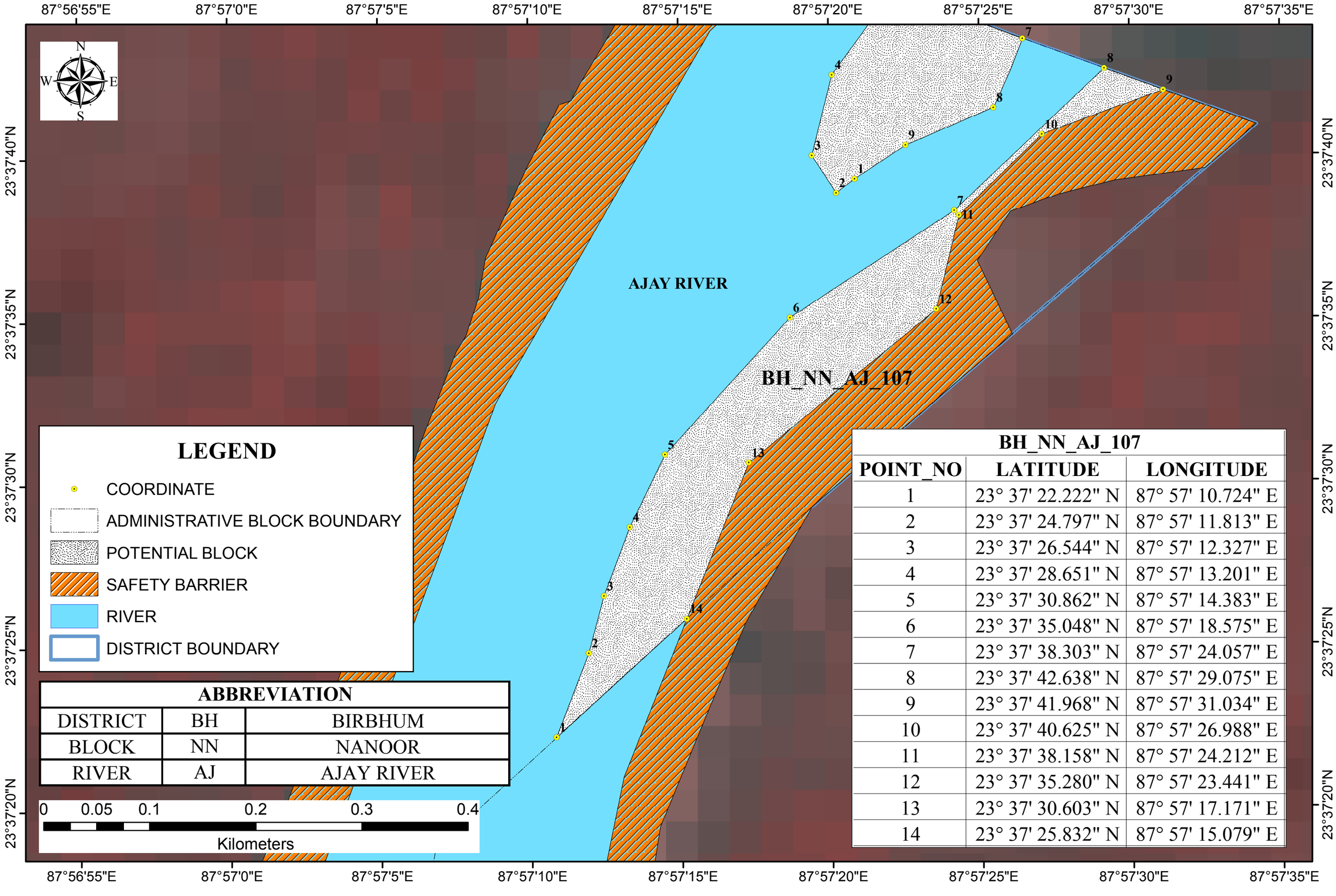
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	NN	NANOOR
RIVER	AJ	AJAY RIVER

0 0.05 0.1 0.2 0.3 0.4

Kilometers

BH_NN_AJ_101_102		
POINT_NO	LATITUDE	LONGITUDE
1	23° 36' 44.958" N	87° 56' 57.883" E
2	23° 36' 43.200" N	87° 56' 58.489" E
3	23° 36' 43.731" N	87° 56' 58.810" E
4	23° 36' 44.605" N	87° 57' 0.044" E
5	23° 36' 44.601" N	87° 57' 0.059" E
6	23° 36' 34.056" N	87° 56' 58.001" E
7	23° 36' 29.237" N	87° 56' 56.600" E
8	23° 36' 27.644" N	87° 56' 56.754" E
9	23° 36' 26.728" N	87° 56' 56.602" E
10	23° 36' 23.714" N	87° 56' 56.019" E
11	23° 36' 22.659" N	87° 56' 55.624" E
12	23° 36' 20.811" N	87° 56' 55.169" E
13	23° 36' 29.838" N	87° 56' 55.207" E
14	23° 36' 40.014" N	87° 56' 56.647" E
15	23° 36' 43.649" N	87° 56' 57.179" E

POTENTIAL BLOCK BH_NN_AJ_107 OF AJAY RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	NN	NANOOR
RIVER	AJ	AJAY RIVER

BH_NN_AJ_107		
POINT_NO	LATITUDE	LONGITUDE
1	23° 37' 22.222" N	87° 57' 10.724" E
2	23° 37' 24.797" N	87° 57' 11.813" E
3	23° 37' 26.544" N	87° 57' 12.327" E
4	23° 37' 28.651" N	87° 57' 13.201" E
5	23° 37' 30.862" N	87° 57' 14.383" E
6	23° 37' 35.048" N	87° 57' 18.575" E
7	23° 37' 38.303" N	87° 57' 24.057" E
8	23° 37' 42.638" N	87° 57' 29.075" E
9	23° 37' 41.968" N	87° 57' 31.034" E
10	23° 37' 40.625" N	87° 57' 26.988" E
11	23° 37' 38.158" N	87° 57' 24.212" E
12	23° 37' 35.280" N	87° 57' 23.441" E
13	23° 37' 30.603" N	87° 57' 17.171" E
14	23° 37' 25.832" N	87° 57' 15.079" E

POTENTIAL BLOCK BH_NN_AJ_109 OF AJAY RIVER

87°57'15"E 87°57'20"E 87°57'25"E 87°57'30"E

23°37'45"N

23°37'40"N

N W E S

AJAY RIVER

BH_NN_AJ_109

LEGEND

- COORDINATE
- ADMINISTRATIVE BLOCK BOUNDARY
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	NN	NANOOR
RIVER	AJ	AJAY RIVER

0 0.0225 0.045 0.09 0.135 0.18

Kilometers

BH_NN_AJ_109		
POINT_NO	LATITUDE	LONGITUDE
1	23° 37' 39.291" N	87° 57' 20.756" E
2	23° 37' 38.863" N	87° 57' 20.134" E
3	23° 37' 40.014" N	87° 57' 19.328" E
4	23° 37' 42.481" N	87° 57' 20.014" E
5	23° 37' 45.037" N	87° 57' 22.066" E
6	23° 37' 44.271" N	87° 57' 24.304" E
7	23° 37' 43.566" N	87° 57' 26.365" E
8	23° 37' 41.449" N	87° 57' 25.382" E
9	23° 37' 40.318" N	87° 57' 22.452" E

POTENTIAL BLOCK BH_KR_AH_01 OF AJAY HINGLA RIVER

BH_KR_AH_01		
POINT_NO	LATITUDE	LONGITUDE
1	23° 51' 1.090" N	87° 10' 49.862" E
2	23° 51' 0.988" N	87° 10' 49.619" E
3	23° 51' 1.095" N	87° 10' 49.340" E
4	23° 51' 1.266" N	87° 10' 49.062" E
5	23° 51' 1.652" N	87° 10' 48.955" E
6	23° 51' 2.016" N	87° 10' 48.741" E
7	23° 51' 2.359" N	87° 10' 48.334" E
8	23° 51' 2.958" N	87° 10' 48.441" E
9	23° 51' 3.622" N	87° 10' 48.248" E
10	23° 51' 4.200" N	87° 10' 48.291" E
11	23° 51' 5.464" N	87° 10' 48.719" E
12	23° 51' 5.432" N	87° 10' 48.782" E
13	23° 51' 5.342" N	87° 10' 48.735" E
14	23° 51' 4.927" N	87° 10' 48.945" E
15	23° 51' 4.550" N	87° 10' 48.863" E
16	23° 51' 2.751" N	87° 10' 48.962" E

AJAY HINGLA RIVER

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

0 0.0125 0.025 0.05 0.075 0.1

Kilometers

87°10'45"E 87°10'46"E 87°10'47"E 87°10'48"E 87°10'49"E 87°10'50"E 87°10'51"E 87°10'52"E 87°10'53"E 87°10'54"E

23°51'6"N 23°51'5"N 23°51'4"N 23°51'3"N 23°51'2"N 23°51'1"N

POTENTIAL BLOCK BH_KR_AH_02 OF AJAY HINGLA RIVER

87°10'50"E 87°10'51"E 87°10'52"E 87°10'53"E 87°10'54"E 87°10'55"E

23°50'59"N 23°50'58"N 23°50'57"N

AJAY HINGLA RIVER

N W E S

BH_KR_AH_02		
POINT_NO	LATITUDE	LONGITUDE
1	23° 50' 58.143" N	87° 10' 52.333" E
2	23° 50' 57.586" N	87° 10' 53.068" E
3	23° 50' 57.626" N	87° 10' 52.788" E
4	23° 50' 57.776" N	87° 10' 52.253" E
5	23° 50' 58.097" N	87° 10' 51.910" E
6	23° 50' 58.733" N	87° 10' 51.561" E

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

0 0.0075 0.015 0.03 0.045 0.06

Kilometers

POTENTIAL BLOCK BH_KR_AH_03 OF AJAY HINGLA RIVER

87°10'53"E 87°10'54"E 87°10'55"E 87°10'56"E 87°10'57"E 87°10'58"E

23°50'55"N 23°50'54"N 23°50'53"N

AJAY HINGLA RIVER

N W E S

BH_KR_AH_03		
POINT_NO	LATITUDE	LONGITUDE
1	23° 50' 53.129" N	87° 10' 56.043" E
2	23° 50' 52.886" N	87° 10' 55.980" E
3	23° 50' 55.013" N	87° 10' 54.954" E
4	23° 50' 55.414" N	87° 10' 54.455" E
5	23° 50' 55.751" N	87° 10' 54.407" E
6	23° 50' 55.442" N	87° 10' 54.630" E
7	23° 50' 55.227" N	87° 10' 54.930" E
8	23° 50' 55.035" N	87° 10' 55.144" E
9	23° 50' 54.799" N	87° 10' 55.230" E
10	23° 50' 54.521" N	87° 10' 55.337" E
11	23° 50' 54.157" N	87° 10' 55.444" E
12	23° 50' 53.707" N	87° 10' 55.722" E
13	23° 50' 53.429" N	87° 10' 55.958" E

LEGEND

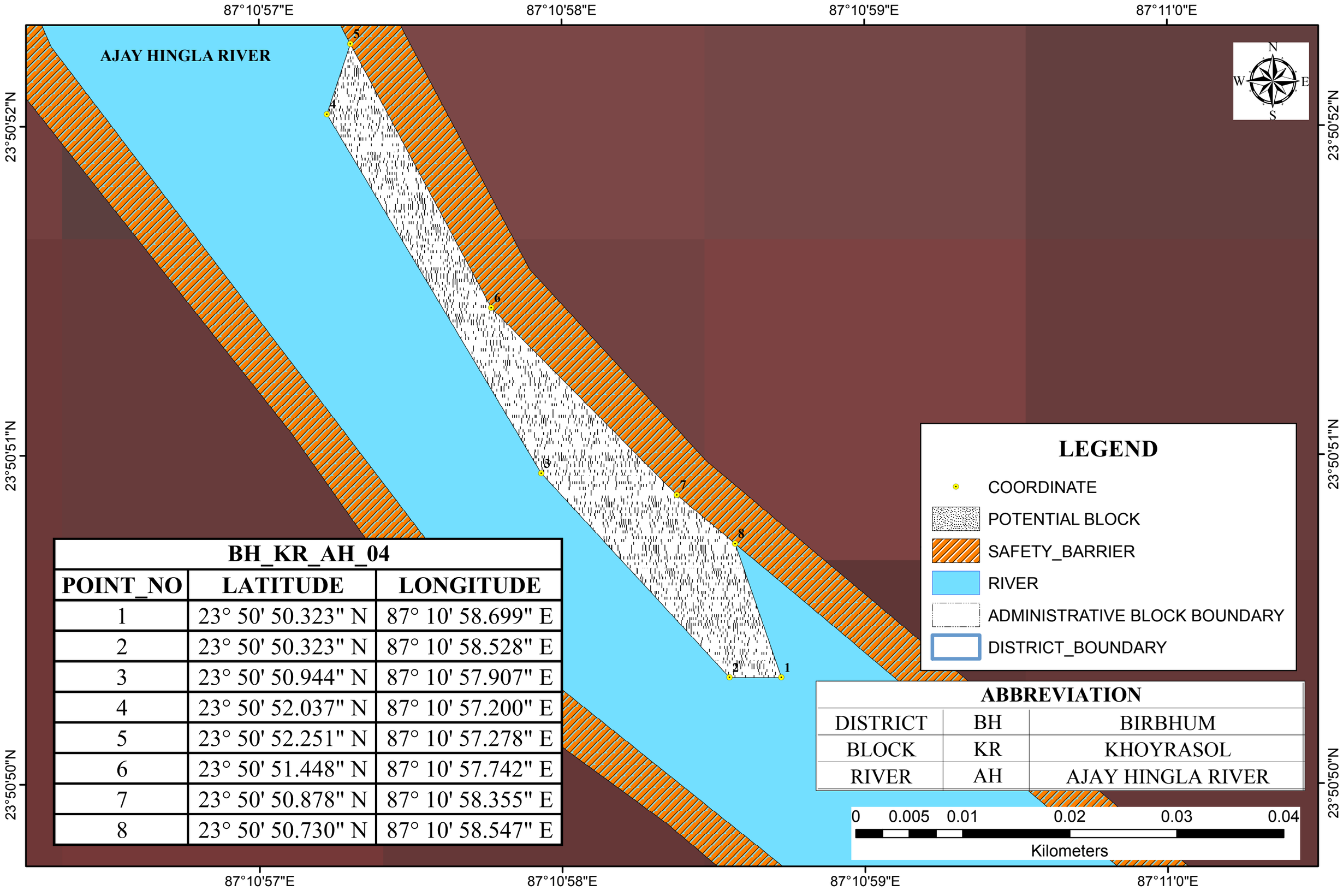
- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

0 0.0075 0.015 0.03 0.045 0.06

Kilometers

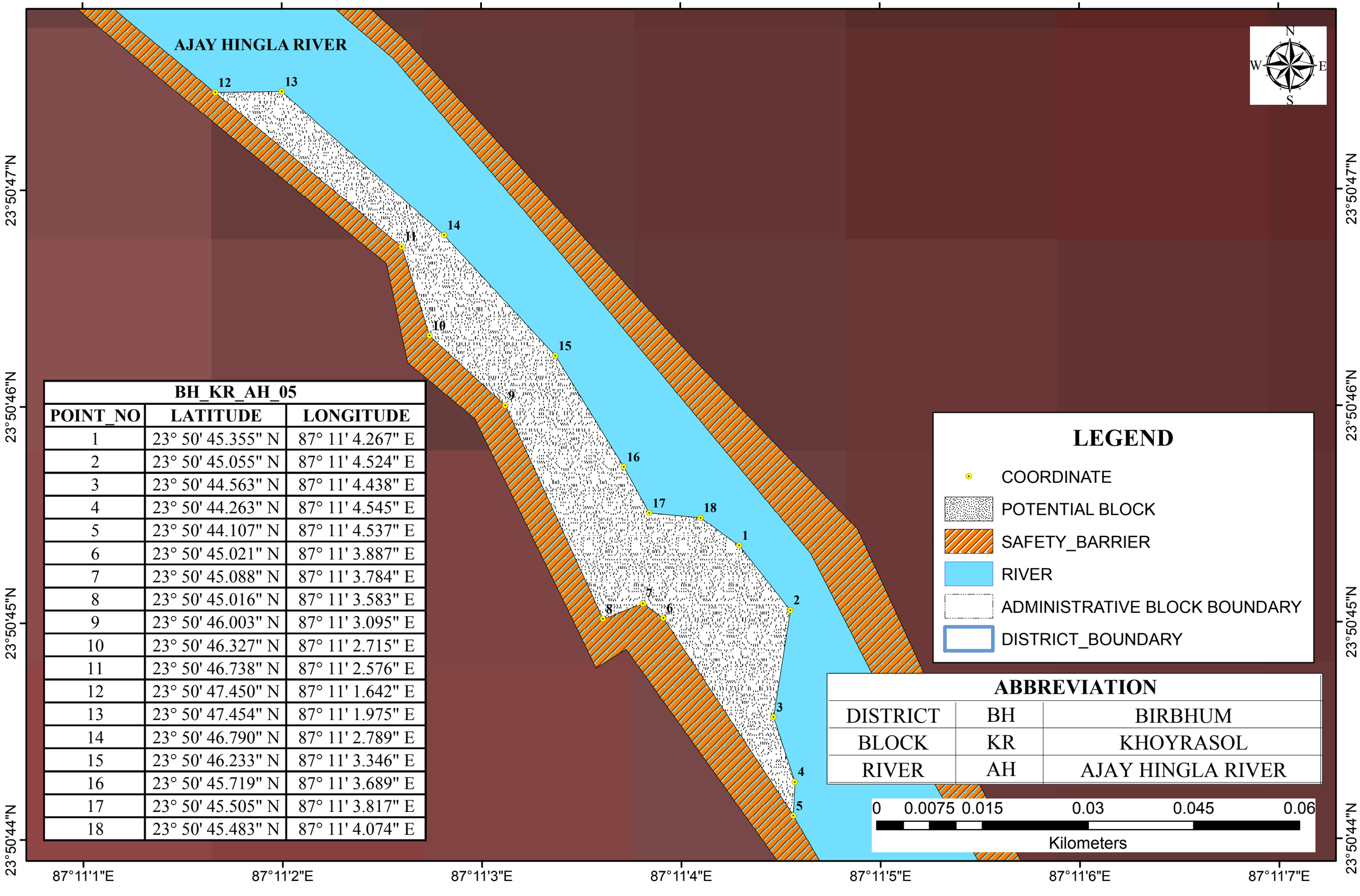
POTENTIAL BLOCK BH_KR_AH_04 OF AJAY HINGLA RIVER



BH_KR_AH_04		
POINT_NO	LATITUDE	LONGITUDE
1	23° 50' 50.323" N	87° 10' 58.699" E
2	23° 50' 50.323" N	87° 10' 58.528" E
3	23° 50' 50.944" N	87° 10' 57.907" E
4	23° 50' 52.037" N	87° 10' 57.200" E
5	23° 50' 52.251" N	87° 10' 57.278" E
6	23° 50' 51.448" N	87° 10' 57.742" E
7	23° 50' 50.878" N	87° 10' 58.355" E
8	23° 50' 50.730" N	87° 10' 58.547" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

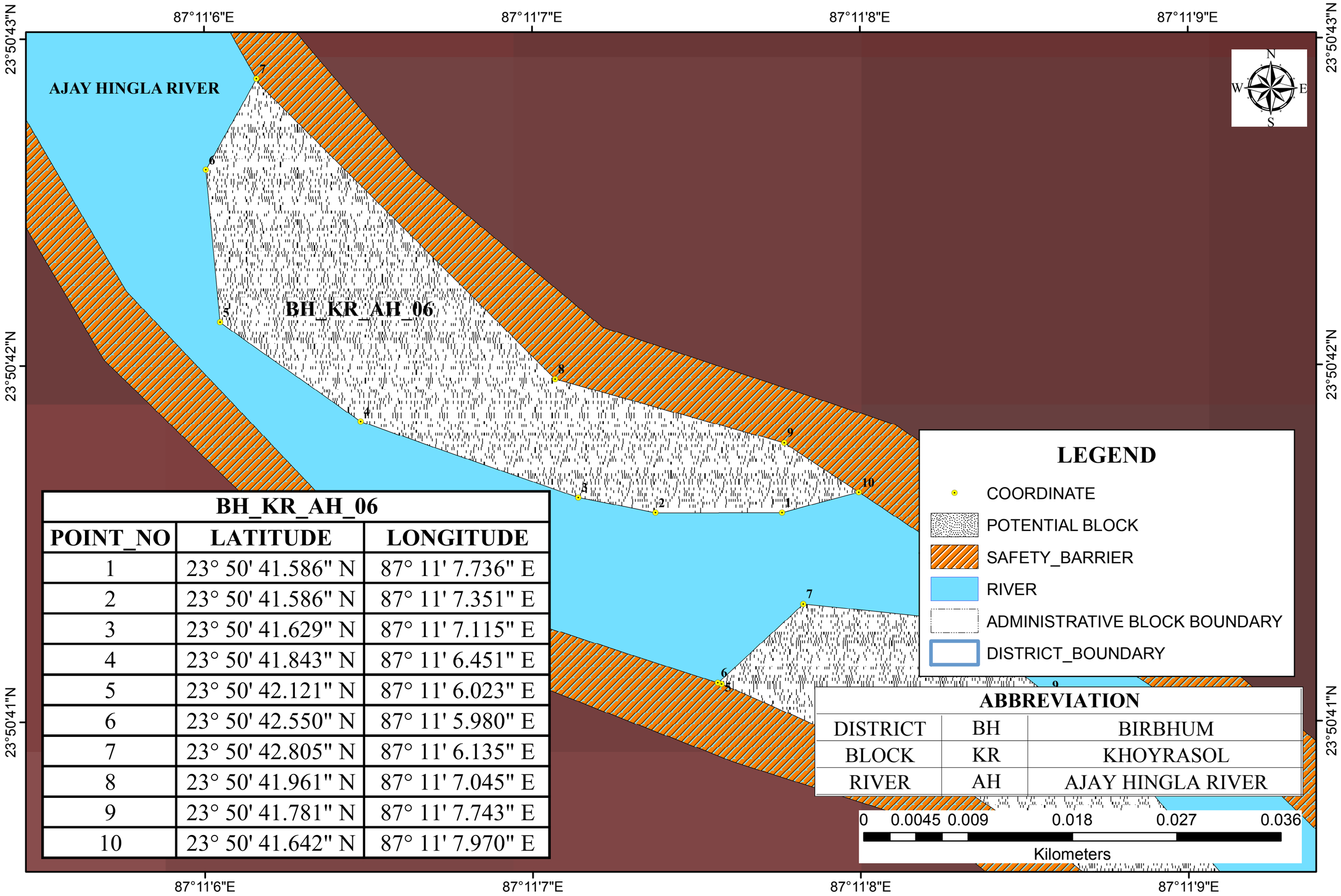
POTENTIAL BLOCK BH_KR_AH_05 OF AJAY HINGLA RIVER



BH_KR_AH_05		
POINT_NO	LATITUDE	LONGITUDE
1	23° 50' 45.355" N	87° 11' 4.267" E
2	23° 50' 45.055" N	87° 11' 4.524" E
3	23° 50' 44.563" N	87° 11' 4.438" E
4	23° 50' 44.263" N	87° 11' 4.545" E
5	23° 50' 44.107" N	87° 11' 4.537" E
6	23° 50' 45.021" N	87° 11' 3.887" E
7	23° 50' 45.088" N	87° 11' 3.784" E
8	23° 50' 45.016" N	87° 11' 3.583" E
9	23° 50' 46.003" N	87° 11' 3.095" E
10	23° 50' 46.327" N	87° 11' 2.715" E
11	23° 50' 46.738" N	87° 11' 2.576" E
12	23° 50' 47.450" N	87° 11' 1.642" E
13	23° 50' 47.454" N	87° 11' 1.975" E
14	23° 50' 46.790" N	87° 11' 2.789" E
15	23° 50' 46.233" N	87° 11' 3.346" E
16	23° 50' 45.719" N	87° 11' 3.689" E
17	23° 50' 45.505" N	87° 11' 3.817" E
18	23° 50' 45.483" N	87° 11' 4.074" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

POTENTIAL BLOCK BH_KR_AH_06 OF AJAY HINGLA RIVER



BH_KR_AH_06		
POINT_NO	LATITUDE	LONGITUDE
1	23° 50' 41.586" N	87° 11' 7.736" E
2	23° 50' 41.586" N	87° 11' 7.351" E
3	23° 50' 41.629" N	87° 11' 7.115" E
4	23° 50' 41.843" N	87° 11' 6.451" E
5	23° 50' 42.121" N	87° 11' 6.023" E
6	23° 50' 42.550" N	87° 11' 5.980" E
7	23° 50' 42.805" N	87° 11' 6.135" E
8	23° 50' 41.961" N	87° 11' 7.045" E
9	23° 50' 41.781" N	87° 11' 7.743" E
10	23° 50' 41.642" N	87° 11' 7.970" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

POTENTIAL BLOCK BH_KR_AH_07 OF AJAY HINGLA RIVER

87°11'7"E 87°11'8"E 87°11'9"E 87°11'10"E 87°11'11"E 87°11'12"E

23°50'41"N

23°50'40"N

23°50'39"N

AJAY HINGLA RIVER

N W E S

BH_KR_AH_07		
POINT_NO	LATITUDE	LONGITUDE
1	23° 50' 38.777" N	87° 11' 9.703" E
2	23° 50' 38.802" N	87° 11' 9.684" E
3	23° 50' 40.411" N	87° 11' 8.882" E
4	23° 50' 40.807" N	87° 11' 8.291" E
5	23° 50' 41.105" N	87° 11' 7.551" E
6	23° 50' 41.108" N	87° 11' 7.540" E
7	23° 50' 41.329" N	87° 11' 7.800" E
8	23° 50' 41.286" N	87° 11' 8.250" E
9	23° 50' 41.072" N	87° 11' 8.550" E
10	23° 50' 40.879" N	87° 11' 8.785" E
11	23° 50' 40.537" N	87° 11' 9.107" E
12	23° 50' 40.301" N	87° 11' 9.449" E
13	23° 50' 39.937" N	87° 11' 9.663" E
14	23° 50' 39.680" N	87° 11' 9.728" E

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

0 0.005 0.01 0.02 0.03 0.04

Kilometers

POTENTIAL BLOCK BH_KR_AH_12 OF AJAY HINGLA RIVER

87°11'50"E 87°12'0"E 87°12'10"E 87°12'20"E 87°12'30"E

23°48'50"N 23°48'40"N 23°48'30"N

BH_KR_AH_12		
POINT_NO	LATITUDE	LONGITUDE
1	23° 48' 31.006" N	87° 12' 15.301" E
2	23° 48' 30.449" N	87° 12' 13.802" E
3	23° 48' 32.377" N	87° 12' 10.546" E
4	23° 48' 34.304" N	87° 12' 8.919" E
5	23° 48' 41.979" N	87° 12' 4.362" E
6	23° 48' 46.708" N	87° 12' 3.514" E
7	23° 48' 49.663" N	87° 12' 2.100" E
8	23° 48' 53.698" N	87° 12' 0.790" E
9	23° 48' 54.312" N	87° 12' 1.120" E
10	23° 48' 52.825" N	87° 12' 4.140" E
11	23° 48' 48.236" N	87° 12' 7.903" E
12	23° 48' 42.711" N	87° 12' 9.852" E
13	23° 48' 40.591" N	87° 12' 10.708" E
14	23° 48' 36.779" N	87° 12' 11.565" E
15	23° 48' 36.606" N	87° 12' 11.832" E
16	23° 48' 36.460" N	87° 12' 11.800" E
17	23° 48' 36.333" N	87° 12' 12.254" E
18	23° 48' 35.237" N	87° 12' 13.599" E
19	23° 48' 32.860" N	87° 12' 15.013" E
20	23° 48' 31.783" N	87° 12' 15.335" E

AJAY HINGLA RIVER

N W E S

LEGEND

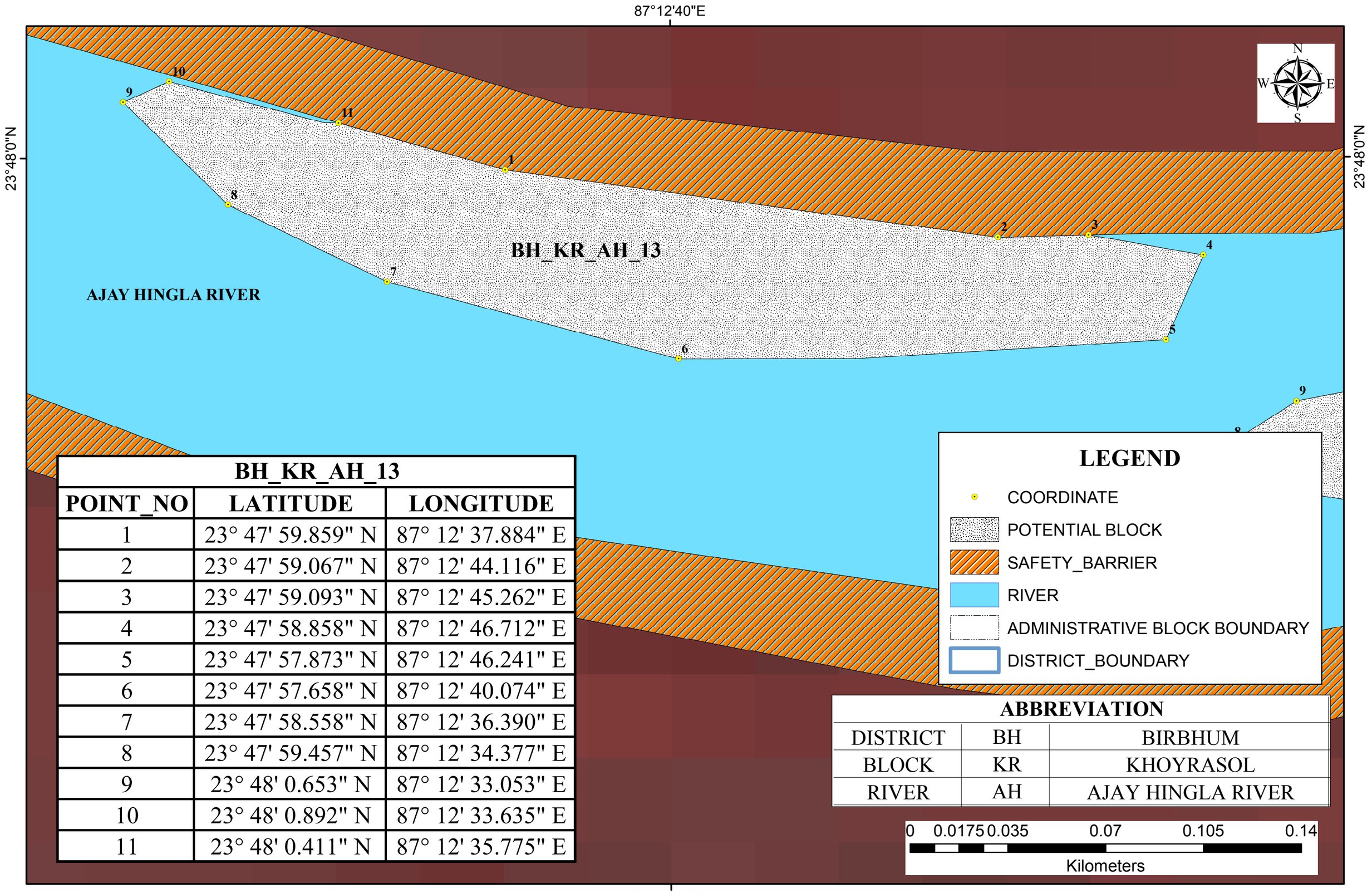
- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

0 0.05 0.1 0.2 0.3 0.4

Kilometers

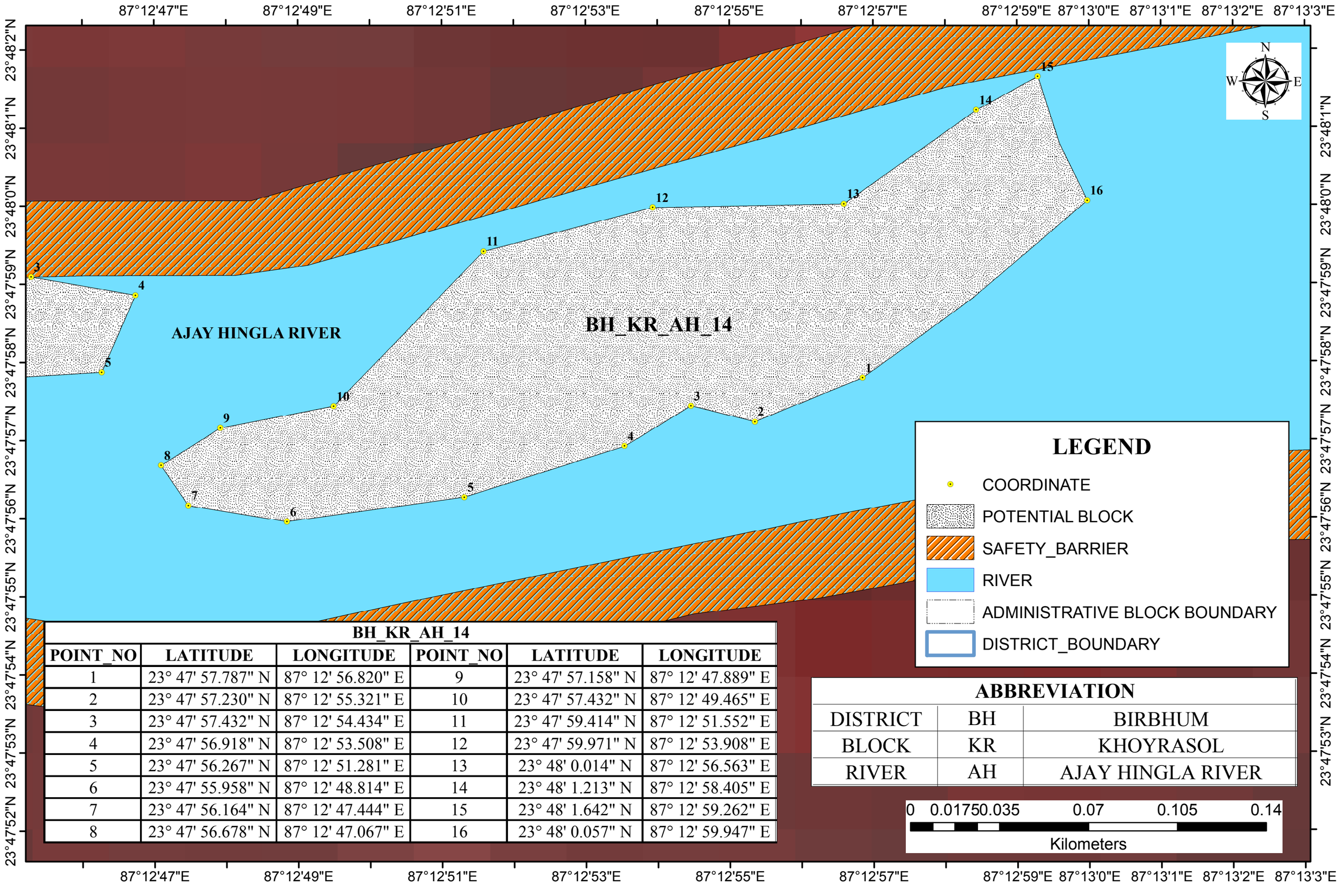
POTENTIAL BLOCK BH_KR_AH_13 OF AJAY HINGLA RIVER



BH_KR_AH_13		
POINT_NO	LATITUDE	LONGITUDE
1	23° 47' 59.859" N	87° 12' 37.884" E
2	23° 47' 59.067" N	87° 12' 44.116" E
3	23° 47' 59.093" N	87° 12' 45.262" E
4	23° 47' 58.858" N	87° 12' 46.712" E
5	23° 47' 57.873" N	87° 12' 46.241" E
6	23° 47' 57.658" N	87° 12' 40.074" E
7	23° 47' 58.558" N	87° 12' 36.390" E
8	23° 47' 59.457" N	87° 12' 34.377" E
9	23° 48' 0.653" N	87° 12' 33.053" E
10	23° 48' 0.892" N	87° 12' 33.635" E
11	23° 48' 0.411" N	87° 12' 35.775" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

POTENTIAL BLOCK BH_KR_AH_14 OF AJAY HINGLA RIVER



LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

BH_KR_AH_14

POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 47' 57.787" N	87° 12' 56.820" E	9	23° 47' 57.158" N	87° 12' 47.889" E
2	23° 47' 57.230" N	87° 12' 55.321" E	10	23° 47' 57.432" N	87° 12' 49.465" E
3	23° 47' 57.432" N	87° 12' 54.434" E	11	23° 47' 59.414" N	87° 12' 51.552" E
4	23° 47' 56.918" N	87° 12' 53.508" E	12	23° 47' 59.971" N	87° 12' 53.908" E
5	23° 47' 56.267" N	87° 12' 51.281" E	13	23° 48' 0.014" N	87° 12' 56.563" E
6	23° 47' 55.958" N	87° 12' 48.814" E	14	23° 48' 1.213" N	87° 12' 58.405" E
7	23° 47' 56.164" N	87° 12' 47.444" E	15	23° 48' 1.642" N	87° 12' 59.262" E
8	23° 47' 56.678" N	87° 12' 47.067" E	16	23° 48' 0.057" N	87° 12' 59.947" E

ABBREVIATION

DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

0 0.0175 0.035 0.07 0.105 0.14

Kilometers

POTENTIAL BLOCK BH_KR_AH_15 OF AJAY HINGLA RIVER

87°13'0"E 87°13'30"E 87°14'0"E

23°48'0"N

23°47'30"N

AJAY HINGLA RIVER

BH_KR_AH_15

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

BH_KR_AH_15

POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 48' 1.941" N	87° 13' 11.425" E	29	23° 47' 34.614" N	87° 13' 44.165" E	58	23° 47' 40.539" N	87° 13' 35.482" E
2	23° 48' 0.228" N	87° 13' 14.509" E	30	23° 47' 33.355" N	87° 13' 45.107" E	59	23° 47' 41.396" N	87° 13' 35.071" E
3	23° 47' 56.245" N	87° 13' 19.221" E	31	23° 47' 32.008" N	87° 13' 45.659" E	60	23° 47' 43.897" N	87° 13' 32.809" E
4	23° 47' 55.878" N	87° 13' 20.922" E	32	23° 47' 29.061" N	87° 13' 47.612" E	61	23° 47' 44.857" N	87° 13' 31.850" E
5	23° 47' 55.619" N	87° 13' 21.143" E	33	23° 47' 27.999" N	87° 13' 47.989" E	62	23° 47' 45.919" N	87° 13' 31.268" E
6	23° 47' 55.463" N	87° 13' 21.635" E	34	23° 47' 26.799" N	87° 13' 48.091" E	63	23° 47' 46.193" N	87° 13' 30.685" E
7	23° 47' 55.099" N	87° 13' 22.335" E	35	23° 47' 25.977" N	87° 13' 48.263" E	64	23° 47' 47.975" N	87° 13' 29.486" E
8	23° 47' 53.349" N	87° 13' 24.612" E	36	23° 47' 25.018" N	87° 13' 49.530" E	65	23° 47' 49.551" N	87° 13' 27.498" E
9	23° 47' 52.343" N	87° 13' 26.304" E	37	23° 47' 24.332" N	87° 13' 50.353" E	66	23° 47' 49.688" N	87° 13' 26.608" E
10	23° 47' 47.910" N	87° 13' 30.891" E	38	23° 47' 21.119" N	87° 13' 53.062" E	67	23° 47' 48.454" N	87° 13' 26.608" E
11	23° 47' 46.364" N	87° 13' 32.021" E	39	23° 47' 19.348" N	87° 13' 51.691" E	68	23° 47' 47.531" N	87° 13' 26.773" E
12	23° 47' 46.764" N	87° 13' 32.186" E	40	23° 47' 20.567" N	87° 13' 51.258" E	69	23° 47' 48.846" N	87° 13' 25.243" E
13	23° 47' 46.218" N	87° 13' 33.542" E	41	23° 47' 21.809" N	87° 13' 51.129" E	70	23° 47' 49.551" N	87° 13' 24.757" E
14	23° 47' 45.824" N	87° 13' 34.008" E	42	23° 47' 22.752" N	87° 13' 50.016" E	71	23° 47' 51.230" N	87° 13' 23.044" E
15	23° 47' 44.809" N	87° 13' 34.382" E	43	23° 47' 23.351" N	87° 13' 48.773" E	72	23° 47' 50.971" N	87° 13' 22.736" E
16	23° 47' 43.610" N	87° 13' 35.839" E	44	23° 47' 23.687" N	87° 13' 46.462" E	73	23° 47' 51.804" N	87° 13' 21.746" E
17	23° 47' 42.539" N	87° 13' 36.267" E	45	23° 47' 27.993" N	87° 13' 42.828" E	74	23° 47' 52.224" N	87° 13' 21.537" E
18	23° 47' 41.469" N	87° 13' 36.610" E	46	23° 47' 31.025" N	87° 13' 41.238" E	75	23° 47' 52.614" N	87° 13' 20.783" E
19	23° 47' 40.055" N	87° 13' 36.695" E	47	23° 47' 32.132" N	87° 13' 41.449" E	76	23° 47' 53.149" N	87° 13' 19.979" E
20	23° 47' 38.813" N	87° 13' 37.252" E	48	23° 47' 33.545" N	87° 13' 41.364" E	77	23° 47' 54.177" N	87° 13' 18.521" E
21	23° 47' 37.956" N	87° 13' 37.980" E	49	23° 47' 34.102" N	87° 13' 41.492" E	78	23° 47' 54.725" N	87° 13' 17.151" E
22	23° 47' 38.642" N	87° 13' 38.323" E	50	23° 47' 35.215" N	87° 13' 40.764" E	79	23° 47' 56.301" N	87° 13' 13.964" E
23	23° 47' 40.936" N	87° 13' 38.258" E	51	23° 47' 35.858" N	87° 13' 39.950" E	80	23° 47' 57.637" N	87° 13' 12.628" E
24	23° 47' 36.766" N	87° 13' 42.501" E	52	23° 47' 37.785" N	87° 13' 39.137" E	81	23° 47' 59.385" N	87° 13' 10.812" E
25	23° 47' 36.388" N	87° 13' 42.836" E	53	23° 47' 37.010" N	87° 13' 38.086" E	82	23° 48' 0.070" N	87° 13' 11.052" E
26	23° 47' 36.289" N	87° 13' 42.911" E	54	23° 47' 37.439" N	87° 13' 37.605" E	83	23° 48' 0.790" N	87° 13' 9.304" E
27	23° 47' 35.845" N	87° 13' 43.157" E	55	23° 47' 38.238" N	87° 13' 37.003" E	84	23° 48' 0.705" N	87° 13' 8.121" E
28	23° 47' 34.954" N	87° 13' 43.671" E	56	23° 47' 38.969" N	87° 13' 36.239" E	85	23° 48' 2.241" N	87° 13' 7.399" E
			57	23° 47' 39.511" N	87° 13' 35.859" E	86	23° 48' 2.670" N	87° 13' 8.727" E

0 0.125 0.25 0.5 0.75 1

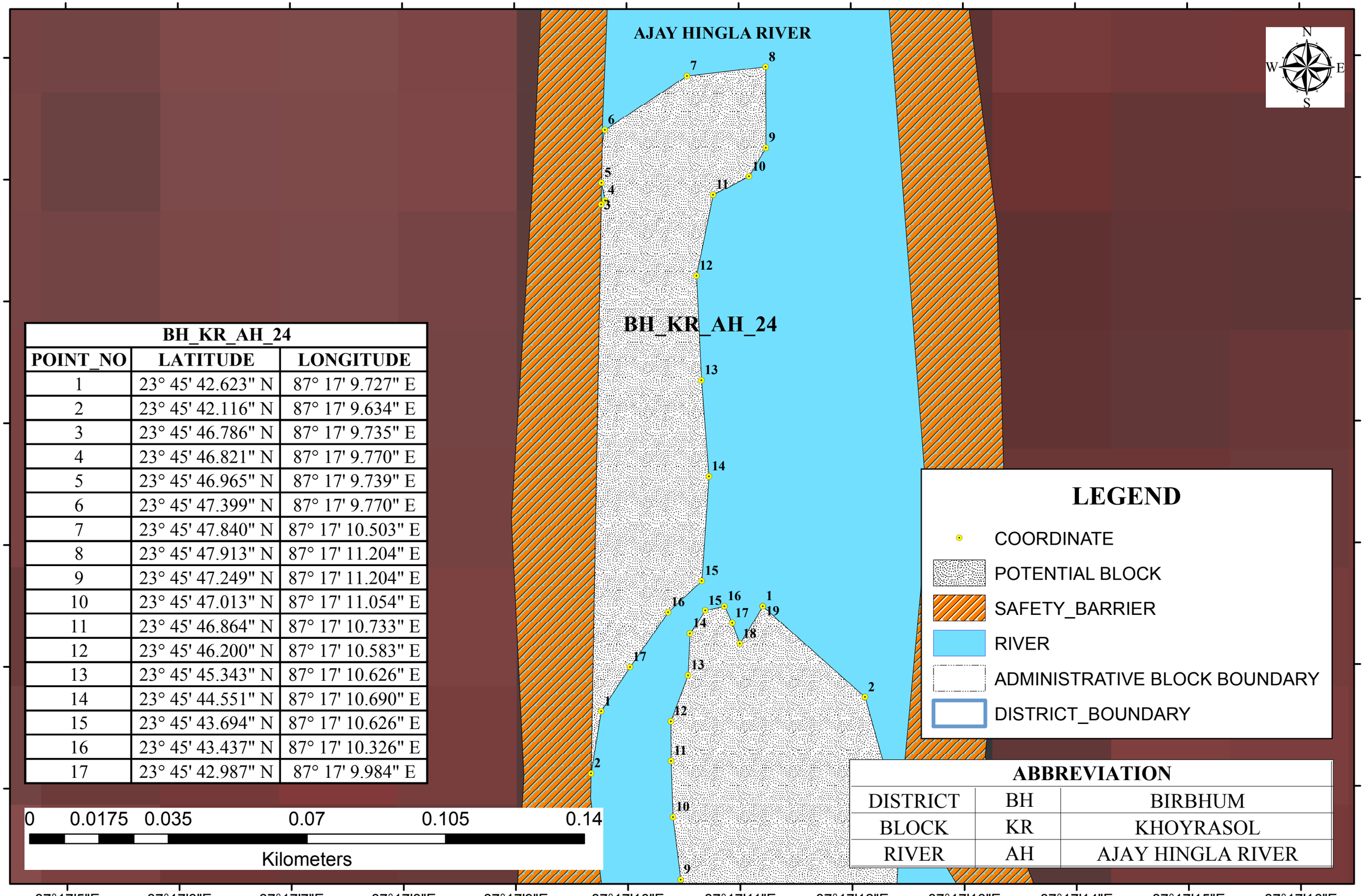
Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

POTENTIAL BLOCK BH_KR_AH_24 OF AJAY HINGLA RIVER

BH_KR_AH_24		
POINT_NO	LATITUDE	LONGITUDE
1	23° 45' 42.623" N	87° 17' 9.727" E
2	23° 45' 42.116" N	87° 17' 9.634" E
3	23° 45' 46.786" N	87° 17' 9.735" E
4	23° 45' 46.821" N	87° 17' 9.770" E
5	23° 45' 46.965" N	87° 17' 9.739" E
6	23° 45' 47.399" N	87° 17' 9.770" E
7	23° 45' 47.840" N	87° 17' 10.503" E
8	23° 45' 47.913" N	87° 17' 11.204" E
9	23° 45' 47.249" N	87° 17' 11.204" E
10	23° 45' 47.013" N	87° 17' 11.054" E
11	23° 45' 46.864" N	87° 17' 10.733" E
12	23° 45' 46.200" N	87° 17' 10.583" E
13	23° 45' 45.343" N	87° 17' 10.626" E
14	23° 45' 44.551" N	87° 17' 10.690" E
15	23° 45' 43.694" N	87° 17' 10.626" E
16	23° 45' 43.437" N	87° 17' 10.326" E
17	23° 45' 42.987" N	87° 17' 9.984" E



LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

POTENTIAL BLOCK BH_KR_AH_25 OF AJAY HINGLA RIVER

BH_KR_AH_25		
POINT_NO	LATITUDE	LONGITUDE
1	23° 45' 43.484" N	87° 17' 11.170" E
2	23° 45' 42.735" N	87° 17' 12.079" E
3	23° 45' 41.707" N	87° 17' 12.387" E
4	23° 45' 40.246" N	87° 17' 12.335" E
5	23° 45' 39.527" N	87° 17' 12.541" E
6	23° 45' 39.544" N	87° 17' 12.318" E
7	23° 45' 39.938" N	87° 17' 11.821" E
8	23° 45' 40.555" N	87° 17' 10.845" E
9	23° 45' 41.240" N	87° 17' 10.433" E
10	23° 45' 41.754" N	87° 17' 10.365" E
11	23° 45' 42.216" N	87° 17' 10.348" E
12	23° 45' 42.542" N	87° 17' 10.348" E
13	23° 45' 42.919" N	87° 17' 10.502" E
14	23° 45' 43.261" N	87° 17' 10.519" E
15	23° 45' 43.450" N	87° 17' 10.656" E
16	23° 45' 43.484" N	87° 17' 10.827" E
17	23° 45' 43.347" N	87° 17' 10.896" E
18	23° 45' 43.176" N	87° 17' 10.965" E
19	23° 45' 43.484" N	87° 17' 11.170" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

0 0.0125 0.025 0.05 0.075 0.1

Kilometers

POTENTIAL BLOCK BH_KR_AH_26 OF AJAY HINGLA RIVER

87°17'6"E 87°17'8"E 87°17'10"E 87°17'12"E 87°17'14"E 87°17'16"E 87°17'18"E 87°17'20"E 87°17'22"E 87°17'24"E

23°45'38"N 23°45'36"N 23°45'34"N 23°45'32"N 23°45'30"N 23°45'28"N

N S W E

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

AJAY HINGLA RIVER

BH_KR_AH_26					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 45' 37.595" N	87° 17' 15.026" E	20	23° 45' 29.813" N	87° 17' 22.152" E
2	23° 45' 36.580" N	87° 17' 15.864" E	21	23° 45' 29.624" N	87° 17' 21.929" E
3	23° 45' 36.666" N	87° 17' 16.156" E	22	23° 45' 29.624" N	87° 17' 21.758" E
4	23° 45' 36.681" N	87° 17' 16.364" E	23	23° 45' 29.693" N	87° 17' 21.329" E
5	23° 45' 36.628" N	87° 17' 16.423" E	24	23° 45' 29.881" N	87° 17' 20.970" E
6	23° 45' 36.443" N	87° 17' 16.515" E	25	23° 45' 29.955" N	87° 17' 20.234" E
7	23° 45' 36.203" N	87° 17' 16.789" E	26	23° 45' 29.338" N	87° 17' 19.857" E
8	23° 45' 35.997" N	87° 17' 16.961" E	27	23° 45' 29.098" N	87° 17' 19.514" E
9	23° 45' 35.792" N	87° 17' 17.286" E	28	23° 45' 28.871" N	87° 17' 17.509" E
10	23° 45' 35.836" N	87° 17' 17.311" E	29	23° 45' 29.213" N	87° 17' 17.321" E
11	23° 45' 31.763" N	87° 17' 21.878" E	30	23° 45' 29.659" N	87° 17' 17.303" E
12	23° 45' 31.749" N	87° 17' 21.878" E	31	23° 45' 30.035" N	87° 17' 17.423" E
13	23° 45' 31.509" N	87° 17' 21.895" E	32	23° 45' 30.584" N	87° 17' 17.355" E
14	23° 45' 31.303" N	87° 17' 22.118" E	33	23° 45' 31.200" N	87° 17' 16.584" E
15	23° 45' 30.978" N	87° 17' 22.118" E	34	23° 45' 33.073" N	87° 17' 15.300" E
16	23° 45' 30.789" N	87° 17' 22.289" E	35	23° 45' 34.820" N	87° 17' 14.409" E
17	23° 45' 30.515" N	87° 17' 22.392" E	36	23° 45' 35.917" N	87° 17' 13.518" E
18	23° 45' 30.258" N	87° 17' 22.374" E	37	23° 45' 37.733" N	87° 17' 12.764" E
19	23° 45' 30.035" N	87° 17' 22.340" E	38	23° 45' 38.246" N	87° 17' 13.792" E

0 0.03 0.06 0.12 0.18 0.24

Kilometers

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

POTENTIAL BLOCK BH_KR_AH_27 OF AJAY HINGLA RIVER

87°17'34"E 87°17'35"E 87°17'36"E 87°17'37"E 87°17'38"E 87°17'39"E 87°17'40"E 87°17'41"E 87°17'42"E

23°45'13"N 23°45'12"N 23°45'11"N 23°45'10"N 23°45'9"N 23°45'8"N

N W E S

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

BH_KR_AH_27

POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 45' 12.698" N	87° 17' 37.040" E	22	23° 45' 10.865" N	87° 17' 38.564" E
2	23° 45' 12.612" N	87° 17' 37.365" E	23	23° 45' 10.899" N	87° 17' 38.462" E
3	23° 45' 12.724" N	87° 17' 37.813" E	24	23° 45' 10.659" N	87° 17' 38.496" E
4	23° 45' 12.500" N	87° 17' 37.868" E	25	23° 45' 10.419" N	87° 17' 38.701" E
5	23° 45' 12.447" N	87° 17' 37.913" E	26	23° 45' 10.059" N	87° 17' 38.941" E
6	23° 45' 12.372" N	87° 17' 37.913" E	27	23° 45' 9.820" N	87° 17' 39.335" E
7	23° 45' 12.013" N	87° 17' 38.239" E	28	23° 45' 9.597" N	87° 17' 39.746" E
8	23° 45' 11.687" N	87° 17' 38.513" E	29	23° 45' 9.477" N	87° 17' 39.712" E
9	23° 45' 11.533" N	87° 17' 38.707" E	30	23° 45' 9.563" N	87° 17' 38.958" E
10	23° 45' 10.551" N	87° 17' 39.559" E	31	23° 45' 9.734" N	87° 17' 38.564" E
11	23° 45' 9.610" N	87° 17' 42.342" E	32	23° 45' 10.111" N	87° 17' 37.982" E
12	23° 45' 9.494" N	87° 17' 42.145" E	33	23° 45' 10.522" N	87° 17' 37.485" E
13	23° 45' 9.426" N	87° 17' 41.751" E	34	23° 45' 10.848" N	87° 17' 37.297" E
14	23° 45' 9.460" N	87° 17' 41.066" E	35	23° 45' 11.019" N	87° 17' 37.142" E
15	23° 45' 9.614" N	87° 17' 40.466" E	36	23° 45' 11.327" N	87° 17' 37.040" E
16	23° 45' 9.991" N	87° 17' 39.832" E	37	23° 45' 11.601" N	87° 17' 36.868" E
17	23° 45' 9.922" N	87° 17' 39.644" E	38	23° 45' 11.824" N	87° 17' 36.697" E
18	23° 45' 10.077" N	87° 17' 39.352" E	39	23° 45' 12.115" N	87° 17' 36.371" E
19	23° 45' 10.231" N	87° 17' 39.147" E	40	23° 45' 12.355" N	87° 17' 36.252" E
20	23° 45' 10.334" N	87° 17' 39.318" E	41	23° 45' 12.578" N	87° 17' 36.252" E
21	23° 45' 10.899" N	87° 17' 38.684" E	42	23° 45' 12.681" N	87° 17' 36.371" E
			43	23° 45' 12.749" N	87° 17' 36.594" E

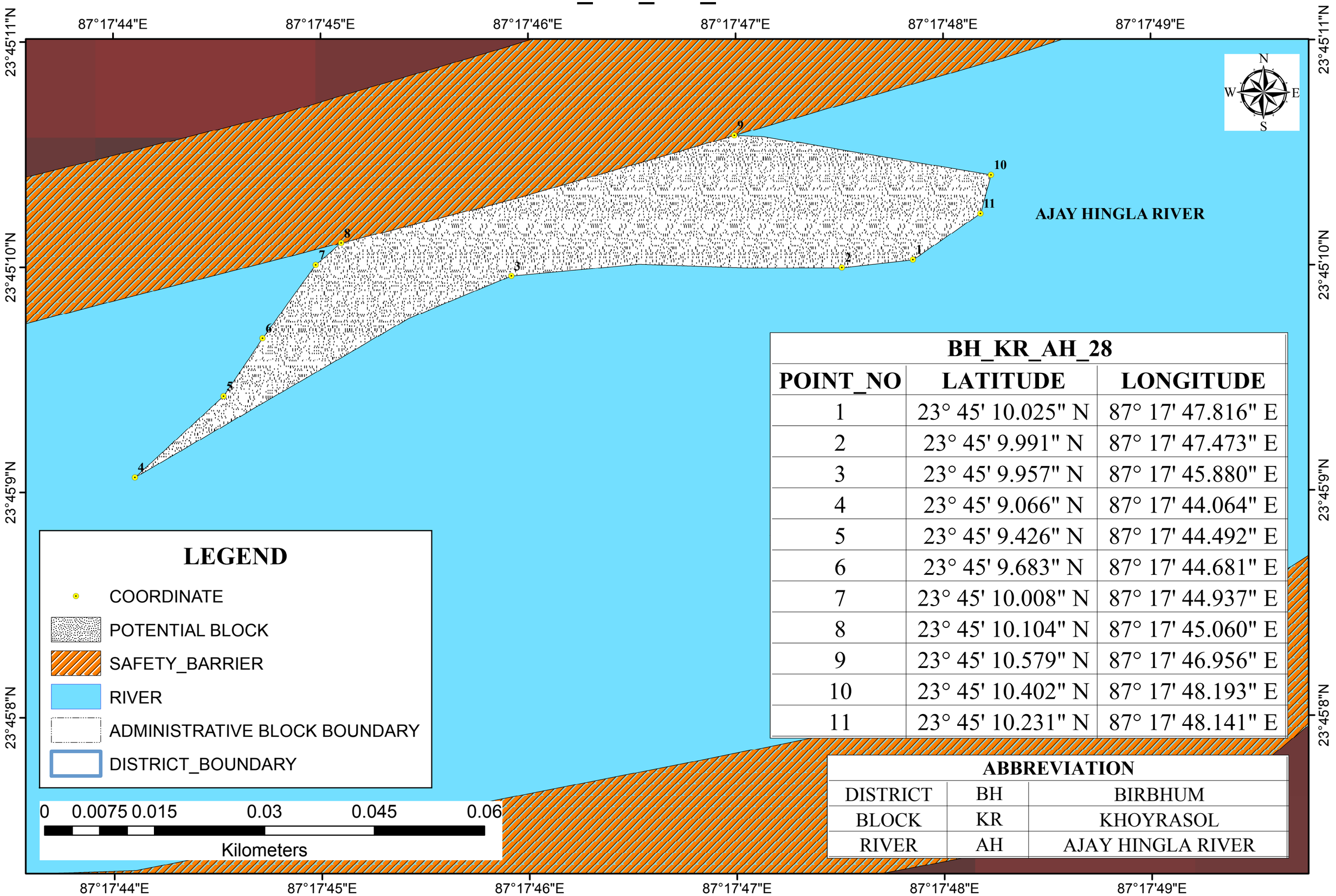
0 0.0125 0.025 0.05 0.075 0.1

Kilometers

AJAY HINGLA RIVER

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

POTENTIAL BLOCK BH_KR_AH_28 OF AJAY HINGLA RIVER



BH_KR_AH_28		
POINT_NO	LATITUDE	LONGITUDE
1	23° 45' 10.025" N	87° 17' 47.816" E
2	23° 45' 9.991" N	87° 17' 47.473" E
3	23° 45' 9.957" N	87° 17' 45.880" E
4	23° 45' 9.066" N	87° 17' 44.064" E
5	23° 45' 9.426" N	87° 17' 44.492" E
6	23° 45' 9.683" N	87° 17' 44.681" E
7	23° 45' 10.008" N	87° 17' 44.937" E
8	23° 45' 10.104" N	87° 17' 45.060" E
9	23° 45' 10.579" N	87° 17' 46.956" E
10	23° 45' 10.402" N	87° 17' 48.193" E
11	23° 45' 10.231" N	87° 17' 48.141" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

POTENTIAL BLOCK BH_KR_AH_31 OF AJAY HINGLA RIVER

87°19'14"E 87°19'16"E 87°19'18"E 87°19'20"E 87°19'22"E 87°19'24"E 87°19'26"E 87°19'28"E 87°19'30"E 87°19'32"E 87°19'34"E 87°19'36"E 87°19'38"E

23°44'34"N 23°44'33"N 23°44'32"N 23°44'31"N 23°44'30"N 23°44'29"N 23°44'28"N 23°44'27"N 23°44'26"N 23°44'25"N 23°44'24"N 23°44'23"N 23°44'22"N 23°44'21"N 23°44'20"N

N W E S

9 8 10 11 7 6 12 5 4 3 1 2

AJAY HINGLA RIVER

BH_KR_AH_31		
POINT_NO	LATITUDE	LONGITUDE
1	23° 44' 23.117" N	87° 19' 27.847" E
2	23° 44' 22.668" N	87° 19' 26.460" E
3	23° 44' 23.182" N	87° 19' 24.148" E
4	23° 44' 24.424" N	87° 19' 22.092" E
5	23° 44' 25.495" N	87° 19' 21.107" E
6	23° 44' 27.551" N	87° 19' 18.751" E
7	23° 44' 29.906" N	87° 19' 16.053" E
8	23° 44' 32.005" N	87° 19' 14.768" E
9	23° 44' 33.240" N	87° 19' 15.145" E
10	23° 44' 31.019" N	87° 19' 17.512" E
11	23° 44' 30.698" N	87° 19' 18.454" E
12	23° 44' 26.522" N	87° 19' 22.545" E

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

0 0.04 0.08 0.16 0.24 0.32

Kilometers

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

POTENTIAL BLOCK BH_KR_AH_33 OF AJAY HINGLA RIVER

AJAY HINGLA RIVER

BH_KR_AH_33		
POINT_NO	LATITUDE	LONGITUDE
1	23° 44' 10.457" N	87° 19' 58.380" E
2	23° 44' 10.046" N	87° 20' 0.281" E
3	23° 44' 8.966" N	87° 20' 2.440" E
4	23° 44' 7.630" N	87° 20' 3.673" E
5	23° 44' 7.476" N	87° 20' 4.085" E
6	23° 44' 7.527" N	87° 20' 4.393" E
7	23° 44' 6.731" N	87° 20' 4.547" E
8	23° 44' 5.523" N	87° 20' 4.573" E
9	23° 44' 5.831" N	87° 20' 3.648" E
10	23° 44' 6.297" N	87° 20' 2.852" E
11	23° 44' 7.770" N	87° 20' 1.208" E
12	23° 44' 8.900" N	87° 19' 57.970" E
13	23° 44' 9.500" N	87° 19' 54.510" E
14	23° 44' 9.586" N	87° 19' 53.173" E
15	23° 44' 11.022" N	87° 19' 50.311" E
16	23° 44' 11.022" N	87° 19' 51.235" E
17	23° 44' 10.611" N	87° 19' 52.572" E
18	23° 44' 10.817" N	87° 19' 53.291" E
19	23° 44' 11.099" N	87° 19' 53.703" E
20	23° 44' 11.331" N	87° 19' 55.399" E

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

0 0.04 0.08 0.16 0.24 0.32

Kilometers

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

POTENTIAL BLOCK BH_KR_AH_34 OF AJAY HINGLA RIVER

87°20'9"E 87°20'10"E 87°20'11"E 87°20'12"E 87°20'13"E 87°20'14"E 87°20'15"E 87°20'16"E 87°20'17"E 87°20'18"E 87°20'19"E 87°20'20"E 87°20'21"E 87°20'22"E

23°44'2"N 23°44'1"N 23°44'0"N 23°43'59"N 23°43'58"N 23°43'57"N 23°43'56"N 23°43'55"N 23°43'54"N

N W E S

BH_KR_AH_34		
POINT_NO	LATITUDE	LONGITUDE
1	23° 43' 57.479" N	87° 20' 16.702" E
2	23° 43' 57.299" N	87° 20' 16.291" E
3	23° 43' 57.428" N	87° 20' 14.929" E
4	23° 43' 57.788" N	87° 20' 13.541" E
5	23° 43' 58.584" N	87° 20' 11.280" E
6	23° 43' 59.124" N	87° 20' 10.098" E
7	23° 44' 0.178" N	87° 20' 9.301" E
8	23° 44' 1.591" N	87° 20' 8.942" E
9	23° 44' 1.895" N	87° 20' 9.719" E
10	23° 44' 0.225" N	87° 20' 11.389" E
11	23° 43' 59.497" N	87° 20' 12.674" E
12	23° 43' 59.175" N	87° 20' 14.261" E
13	23° 43' 58.507" N	87° 20' 14.955" E

AJAY HINGLA RIVER

LEGEND

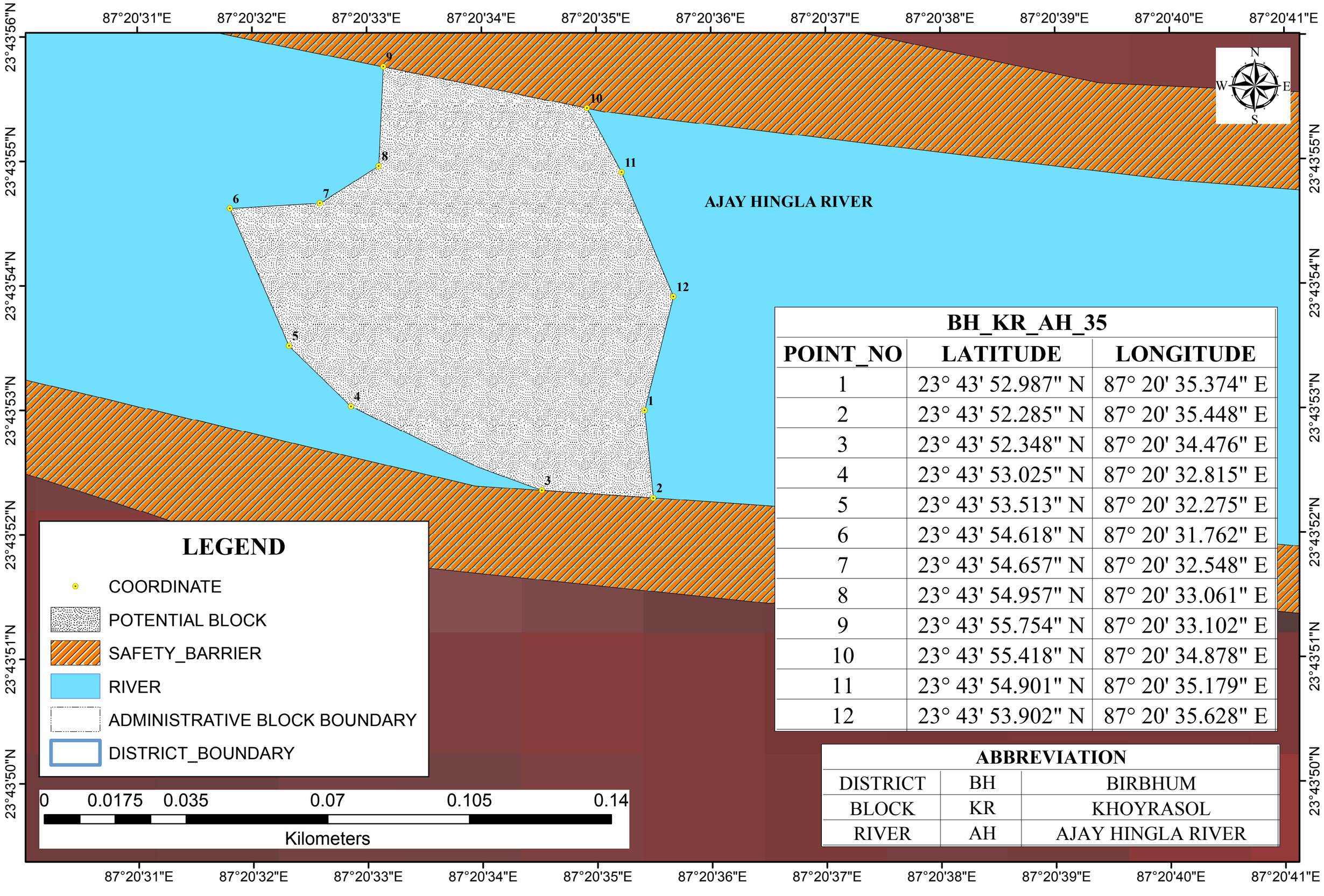
- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

0 0.02 0.04 0.08 0.12 0.16

Kilometers

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

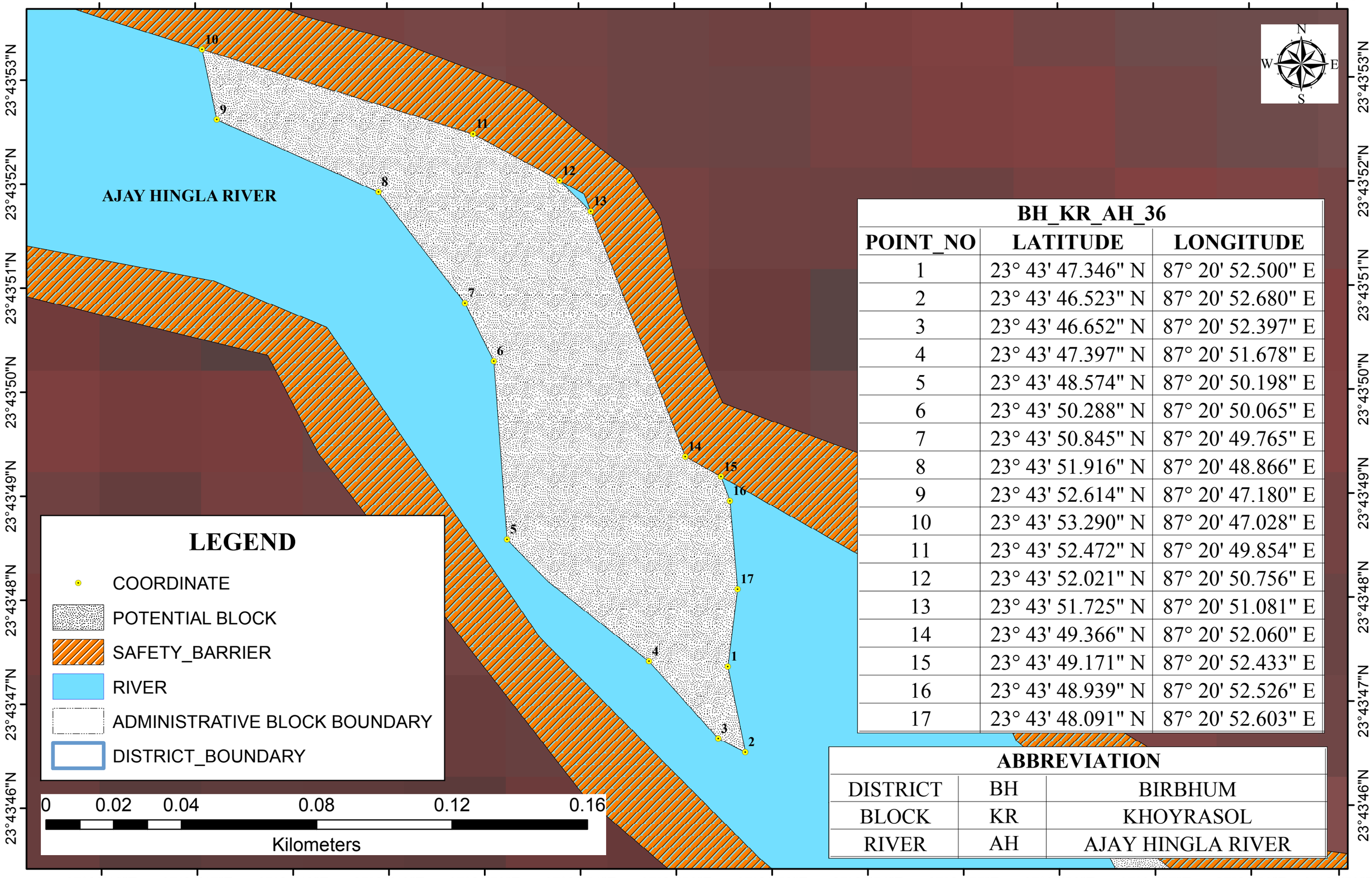
POTENTIAL BLOCK BH_KR_AH_35 OF AJAY HINGLA RIVER



BH_KR_AH_35		
POINT_NO	LATITUDE	LONGITUDE
1	23° 43' 52.987" N	87° 20' 35.374" E
2	23° 43' 52.285" N	87° 20' 35.448" E
3	23° 43' 52.348" N	87° 20' 34.476" E
4	23° 43' 53.025" N	87° 20' 32.815" E
5	23° 43' 53.513" N	87° 20' 32.275" E
6	23° 43' 54.618" N	87° 20' 31.762" E
7	23° 43' 54.657" N	87° 20' 32.548" E
8	23° 43' 54.957" N	87° 20' 33.061" E
9	23° 43' 55.754" N	87° 20' 33.102" E
10	23° 43' 55.418" N	87° 20' 34.878" E
11	23° 43' 54.901" N	87° 20' 35.179" E
12	23° 43' 53.902" N	87° 20' 35.628" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

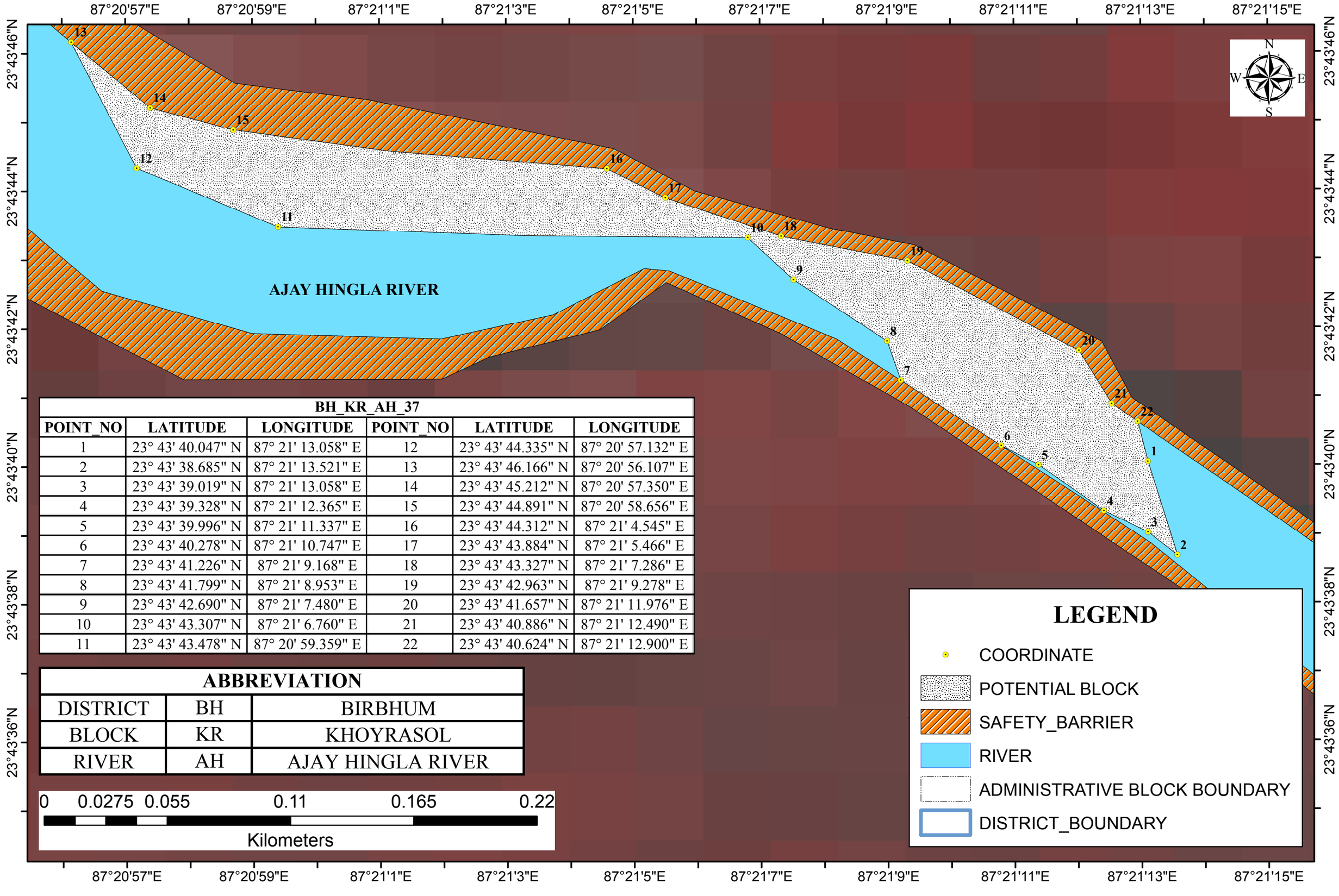
POTENTIAL BLOCK BH_KR_AH_36 OF AJAY HINGLA RIVER



BH_KR_AH_36		
POINT_NO	LATITUDE	LONGITUDE
1	23° 43' 47.346" N	87° 20' 52.500" E
2	23° 43' 46.523" N	87° 20' 52.680" E
3	23° 43' 46.652" N	87° 20' 52.397" E
4	23° 43' 47.397" N	87° 20' 51.678" E
5	23° 43' 48.574" N	87° 20' 50.198" E
6	23° 43' 50.288" N	87° 20' 50.065" E
7	23° 43' 50.845" N	87° 20' 49.765" E
8	23° 43' 51.916" N	87° 20' 48.866" E
9	23° 43' 52.614" N	87° 20' 47.180" E
10	23° 43' 53.290" N	87° 20' 47.028" E
11	23° 43' 52.472" N	87° 20' 49.854" E
12	23° 43' 52.021" N	87° 20' 50.756" E
13	23° 43' 51.725" N	87° 20' 51.081" E
14	23° 43' 49.366" N	87° 20' 52.060" E
15	23° 43' 49.171" N	87° 20' 52.433" E
16	23° 43' 48.939" N	87° 20' 52.526" E
17	23° 43' 48.091" N	87° 20' 52.603" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

POTENTIAL BLOCK BH_KR_AH_37 OF AJAY HINGLA RIVER



BH_KR_AH_37

POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 43' 40.047" N	87° 21' 13.058" E	12	23° 43' 44.335" N	87° 20' 57.132" E
2	23° 43' 38.685" N	87° 21' 13.521" E	13	23° 43' 46.166" N	87° 20' 56.107" E
3	23° 43' 39.019" N	87° 21' 13.058" E	14	23° 43' 45.212" N	87° 20' 57.350" E
4	23° 43' 39.328" N	87° 21' 12.365" E	15	23° 43' 44.891" N	87° 20' 58.656" E
5	23° 43' 39.996" N	87° 21' 11.337" E	16	23° 43' 44.312" N	87° 21' 4.545" E
6	23° 43' 40.278" N	87° 21' 10.747" E	17	23° 43' 43.884" N	87° 21' 5.466" E
7	23° 43' 41.226" N	87° 21' 9.168" E	18	23° 43' 43.327" N	87° 21' 7.286" E
8	23° 43' 41.799" N	87° 21' 8.953" E	19	23° 43' 42.963" N	87° 21' 9.278" E
9	23° 43' 42.690" N	87° 21' 7.480" E	20	23° 43' 41.657" N	87° 21' 11.976" E
10	23° 43' 43.307" N	87° 21' 6.760" E	21	23° 43' 40.886" N	87° 21' 12.490" E
11	23° 43' 43.478" N	87° 20' 59.359" E	22	23° 43' 40.624" N	87° 21' 12.900" E

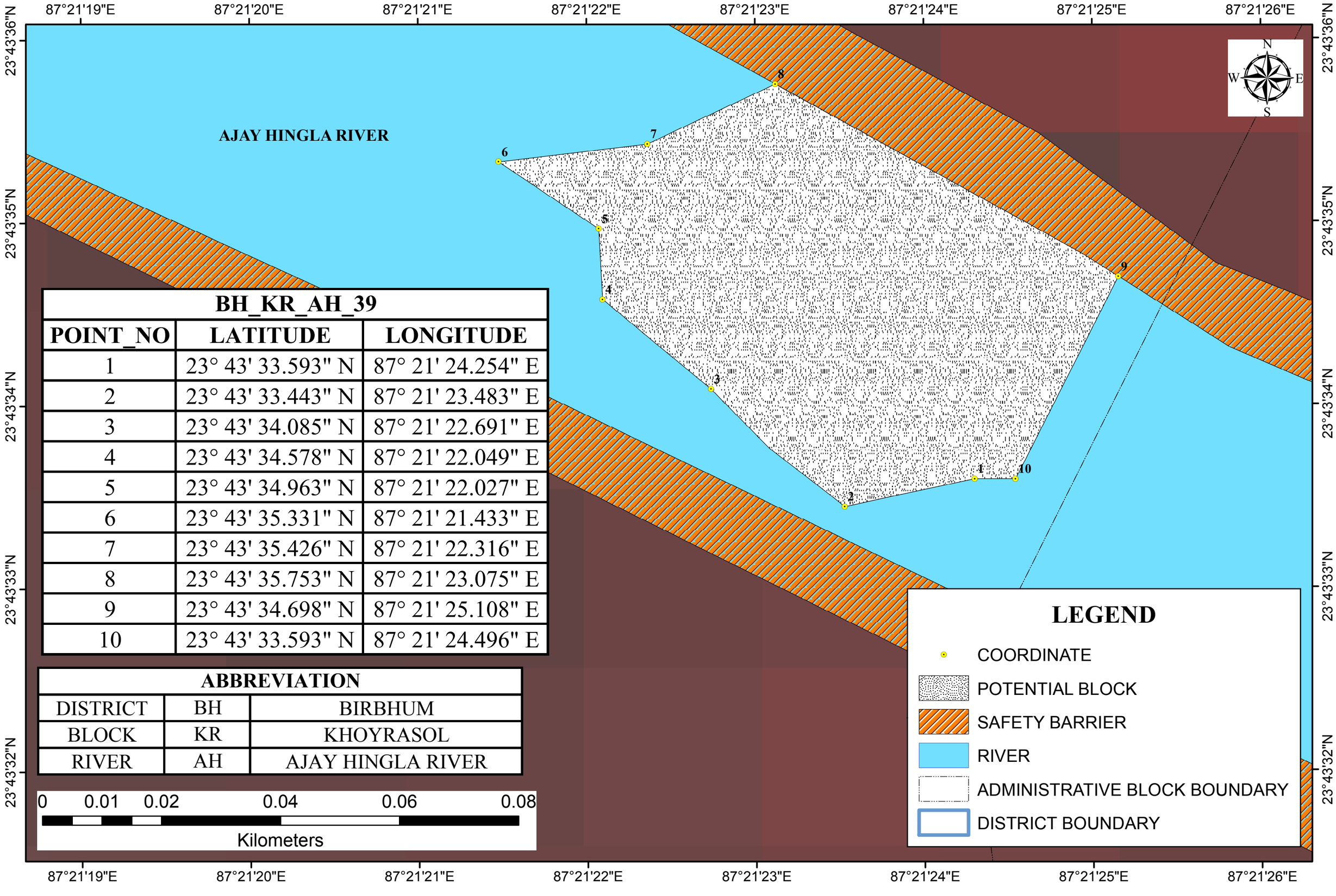
ABBREVIATION

DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

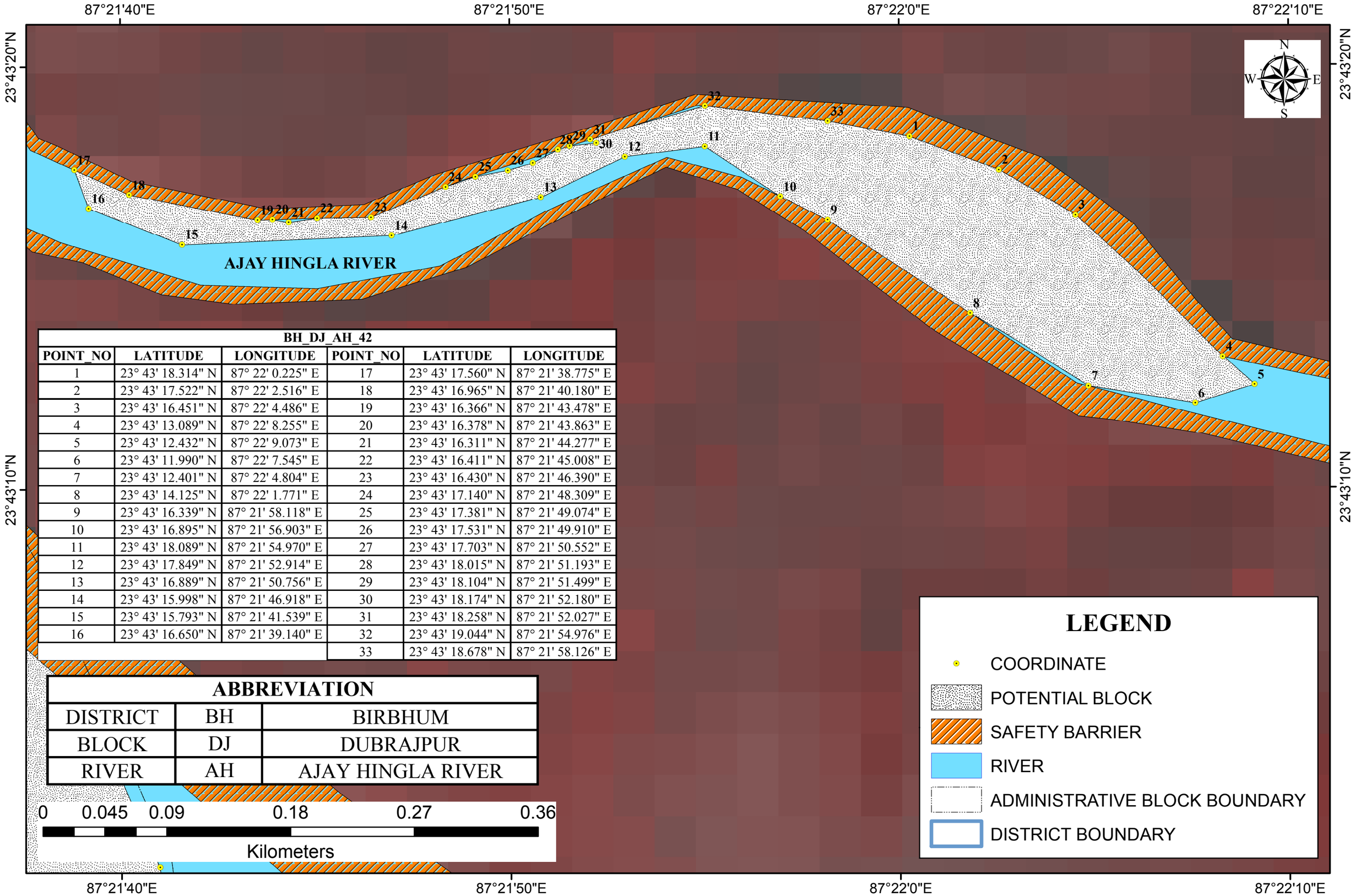
POTENTIAL BLOCK BH_KR_AH_39 OF AJAY HINGLA RIVER



BH_KR_AH_39		
POINT_NO	**LATITUDE**	**LONGITUDE**
1	23° 43' 33.593" N	87° 21' 24.254" E
2	23° 43' 33.443" N	87° 21' 23.483" E
3	23° 43' 34.085" N	87° 21' 22.691" E
4	23° 43' 34.578" N	87° 21' 22.049" E
5	23° 43' 34.963" N	87° 21' 22.027" E
6	23° 43' 35.331" N	87° 21' 21.433" E
7	23° 43' 35.426" N	87° 21' 22.316" E
8	23° 43' 35.753" N	87° 21' 23.075" E
9	23° 43' 34.698" N	87° 21' 25.108" E
10	23° 43' 33.593" N	87° 21' 24.496" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	KR	KHOYRASOL
RIVER	AH	AJAY HINGLA RIVER

POTENTIAL BLOCK BH_DJ_AH_42 OF AJAY HINGLA RIVER



BH_DJ_AH_42					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 43' 18.314" N	87° 22' 0.225" E	17	23° 43' 17.560" N	87° 21' 38.775" E
2	23° 43' 17.522" N	87° 22' 2.516" E	18	23° 43' 16.965" N	87° 21' 40.180" E
3	23° 43' 16.451" N	87° 22' 4.486" E	19	23° 43' 16.366" N	87° 21' 43.478" E
4	23° 43' 13.089" N	87° 22' 8.255" E	20	23° 43' 16.378" N	87° 21' 43.863" E
5	23° 43' 12.432" N	87° 22' 9.073" E	21	23° 43' 16.311" N	87° 21' 44.277" E
6	23° 43' 11.990" N	87° 22' 7.545" E	22	23° 43' 16.411" N	87° 21' 45.008" E
7	23° 43' 12.401" N	87° 22' 4.804" E	23	23° 43' 16.430" N	87° 21' 46.390" E
8	23° 43' 14.125" N	87° 22' 1.771" E	24	23° 43' 17.140" N	87° 21' 48.309" E
9	23° 43' 16.339" N	87° 21' 58.118" E	25	23° 43' 17.381" N	87° 21' 49.074" E
10	23° 43' 16.895" N	87° 21' 56.903" E	26	23° 43' 17.531" N	87° 21' 49.910" E
11	23° 43' 18.089" N	87° 21' 54.970" E	27	23° 43' 17.703" N	87° 21' 50.552" E
12	23° 43' 17.849" N	87° 21' 52.914" E	28	23° 43' 18.015" N	87° 21' 51.193" E
13	23° 43' 16.889" N	87° 21' 50.756" E	29	23° 43' 18.104" N	87° 21' 51.499" E
14	23° 43' 15.998" N	87° 21' 46.918" E	30	23° 43' 18.174" N	87° 21' 52.180" E
15	23° 43' 15.793" N	87° 21' 41.539" E	31	23° 43' 18.258" N	87° 21' 52.027" E
16	23° 43' 16.650" N	87° 21' 39.140" E	32	23° 43' 19.044" N	87° 21' 54.976" E
			33	23° 43' 18.678" N	87° 21' 58.126" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	DJ	DUBRAJPUR
RIVER	AH	AJAY HINGLA RIVER

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

POTENTIAL BLOCK BH_DJ_AH_43 OF AJAY HINGLA RIVER

87°22'10"E 87°22'20"E 87°22'30"E

23°43'10"N

AJAY HINGLA RIVER

N W E S

BH_DJ_AH_43					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 43' 7.359" N	87° 22' 19.977" E	12	23° 43' 6.559" N	87° 22' 28.919" E
2	23° 43' 7.081" N	87° 22' 20.512" E	13	23° 43' 6.062" N	87° 22' 25.363" E
3	23° 43' 7.128" N	87° 22' 20.644" E	14	23° 43' 6.096" N	87° 22' 21.354" E
4	23° 43' 7.029" N	87° 22' 21.126" E	15	23° 43' 7.227" N	87° 22' 19.024" E
5	23° 43' 7.885" N	87° 22' 25.430" E	16	23° 43' 8.632" N	87° 22' 17.413" E
6	23° 43' 8.299" N	87° 22' 26.990" E	17	23° 43' 10.139" N	87° 22' 16.077" E
7	23° 43' 8.268" N	87° 22' 27.707" E	18	23° 43' 11.030" N	87° 22' 13.781" E
8	23° 43' 8.237" N	87° 22' 27.793" E	19	23° 43' 12.374" N	87° 22' 11.906" E
9	23° 43' 8.130" N	87° 22' 28.350" E	20	23° 43' 11.890" N	87° 22' 15.194" E
10	23° 43' 7.616" N	87° 22' 28.221" E	21	23° 43' 8.099" N	87° 22' 18.834" E
11	23° 43' 7.166" N	87° 22' 28.543" E	22	23° 43' 7.433" N	87° 22' 19.966" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	DJ	DUBRAJPUR
RIVER	AH	AJAY HINGLA RIVER

0 0.0275 0.055 0.11 0.165 0.22

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

23°43'10"N

87°22'10"E 87°22'20"E 87°22'30"E

POTENTIAL BLOCK BH_DJ_AH_45 OF AJAY HINGLA RIVER

87°22'30"E

23°42'40"N

BH_DJ_AH_45		
POINT_NO	LATITUDE	LONGITUDE
1	23° 42' 35.858" N	87° 22' 31.262" E
2	23° 42' 35.793" N	87° 22' 30.834" E
3	23° 42' 36.179" N	87° 22' 30.984" E
4	23° 42' 36.586" N	87° 22' 30.984" E
5	23° 42' 37.314" N	87° 22' 31.070" E
6	23° 42' 38.872" N	87° 22' 31.189" E
7	23° 42' 39.562" N	87° 22' 31.547" E
8	23° 42' 40.997" N	87° 22' 31.547" E
9	23° 42' 43.120" N	87° 22' 31.887" E
10	23° 42' 41.737" N	87° 22' 32.069" E
11	23° 42' 40.715" N	87° 22' 32.391" E
12	23° 42' 39.877" N	87° 22' 32.580" E
13	23° 42' 39.066" N	87° 22' 32.662" E
14	23° 42' 36.800" N	87° 22' 32.012" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	DJ	DUBRAJPUR
RIVER	AH	AJAY HINGLA RIVER

0 0.02 0.04 0.08 0.12 0.16

Kilometers

AJAY HINGLA RIVER

N W E S

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

87°22'30"E

POTENTIAL BLOCK BH_DJ_AH_46 OF AJAY HINGLA RIVER

87°22'20"E 87°22'30"E 87°22'40"E 87°22'50"E

23°42'30"N 23°42'20"N 23°42'10"N

BH_DJ_AH_46

AJAY HINGLA RIVER

BH_DJ_AH_46					
POINT_NO	LATITUDE	LONGITUDE	POINT_NO	LATITUDE	LONGITUDE
1	23° 42' 13.453" N	87° 22' 37.815" E	17	23° 42' 25.557" N	87° 22' 37.070" E
2	23° 42' 14.692" N	87° 22' 34.797" E	18	23° 42' 23.938" N	87° 22' 37.276" E
3	23° 42' 17.987" N	87° 22' 34.223" E	19	23° 42' 23.321" N	87° 22' 37.507" E
4	23° 42' 18.854" N	87° 22' 34.373" E	20	23° 42' 22.088" N	87° 22' 37.507" E
5	23° 42' 22.066" N	87° 22' 34.245" E	21	23° 42' 20.186" N	87° 22' 37.224" E
6	23° 42' 23.908" N	87° 22' 33.346" E	22	23° 42' 19.441" N	87° 22' 37.353" E
7	23° 42' 25.278" N	87° 22' 32.360" E	23	23° 42' 18.850" N	87° 22' 37.147" E
8	23° 42' 27.848" N	87° 22' 31.804" E	24	23° 42' 18.464" N	87° 22' 36.736" E
9	23° 42' 31.660" N	87° 22' 31.733" E	25	23° 42' 17.822" N	87° 22' 36.685" E
10	23° 42' 30.825" N	87° 22' 32.599" E	26	23° 42' 16.897" N	87° 22' 36.890" E
11	23° 42' 29.643" N	87° 22' 33.986" E	27	23° 42' 15.894" N	87° 22' 36.813" E
12	23° 42' 28.743" N	87° 22' 34.397" E	28	23° 42' 15.560" N	87° 22' 36.659" E
13	23° 42' 28.229" N	87° 22' 35.066" E	29	23° 42' 14.789" N	87° 22' 37.096" E
14	23° 42' 27.433" N	87° 22' 35.425" E	30	23° 42' 14.712" N	87° 22' 37.456" E
15	23° 42' 26.919" N	87° 22' 35.888" E	31	23° 42' 14.507" N	87° 22' 37.584" E
16	23° 42' 26.456" N	87° 22' 36.710" E	32	23° 42' 13.813" N	87° 22' 37.713" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	DJ	DUBRAJPUR
RIVER	AH	AJAY HINGLA RIVER

0 0.05 0.1 0.2 0.3 0.4

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

POTENTIAL BLOCK BH_RA_SW_01 OF SIDDWESHWARI RIVER

87°15'20"E 87°15'30"E 87°15'40"E 87°15'50"E

24°2'0"N

24°1'50"N

N W E S

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

ABBREVIATION

DISTRICT	BH	BIRBHUM
BLOCK	RA	RAJNAGAR
RIVER	SW	SIDDWESHWARI

0.1 0.05 0 0.1 0.2 0.3

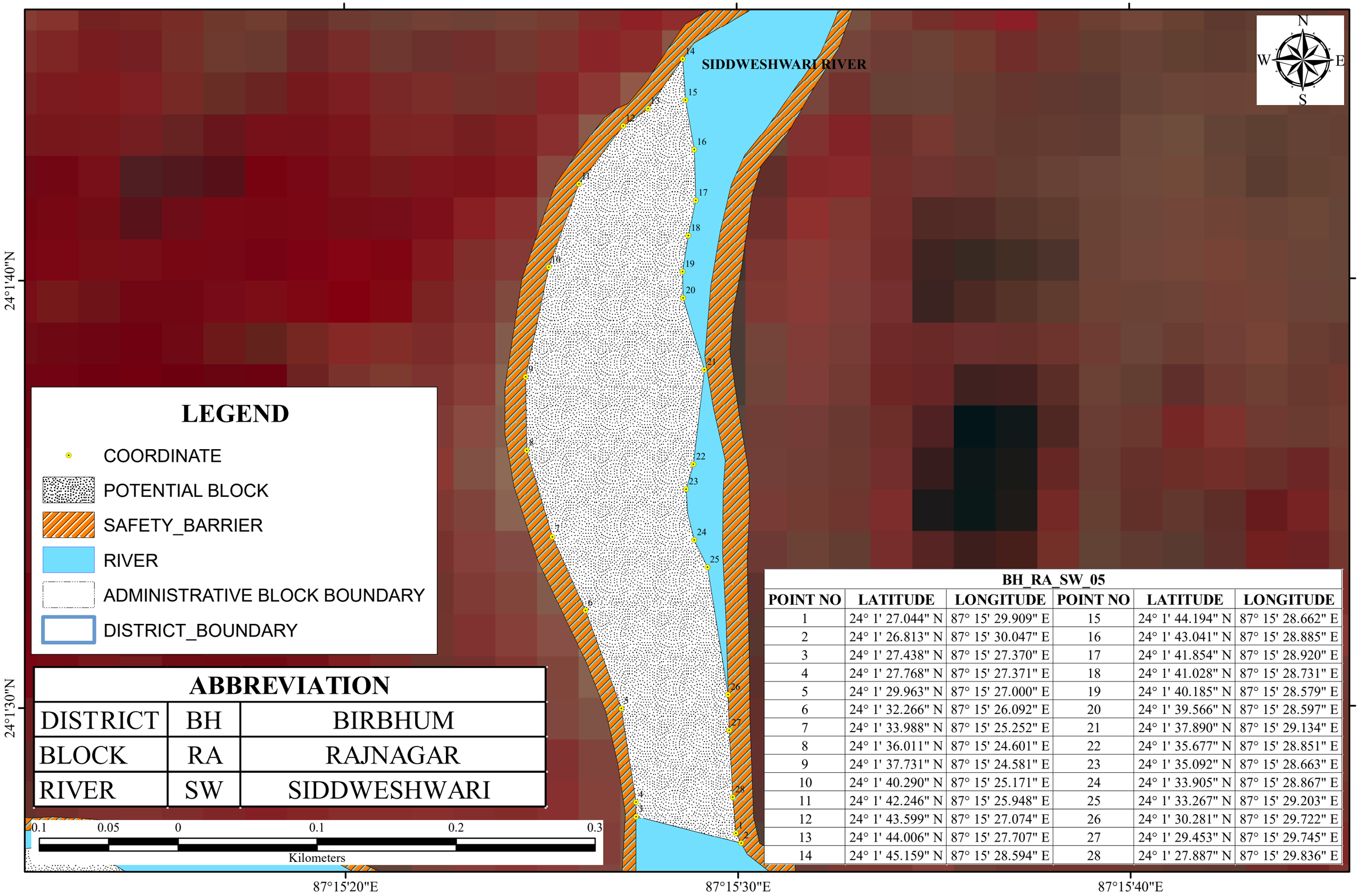
Kilometers

SIDDWESHWARI RIVER

BH_RA_SW_01

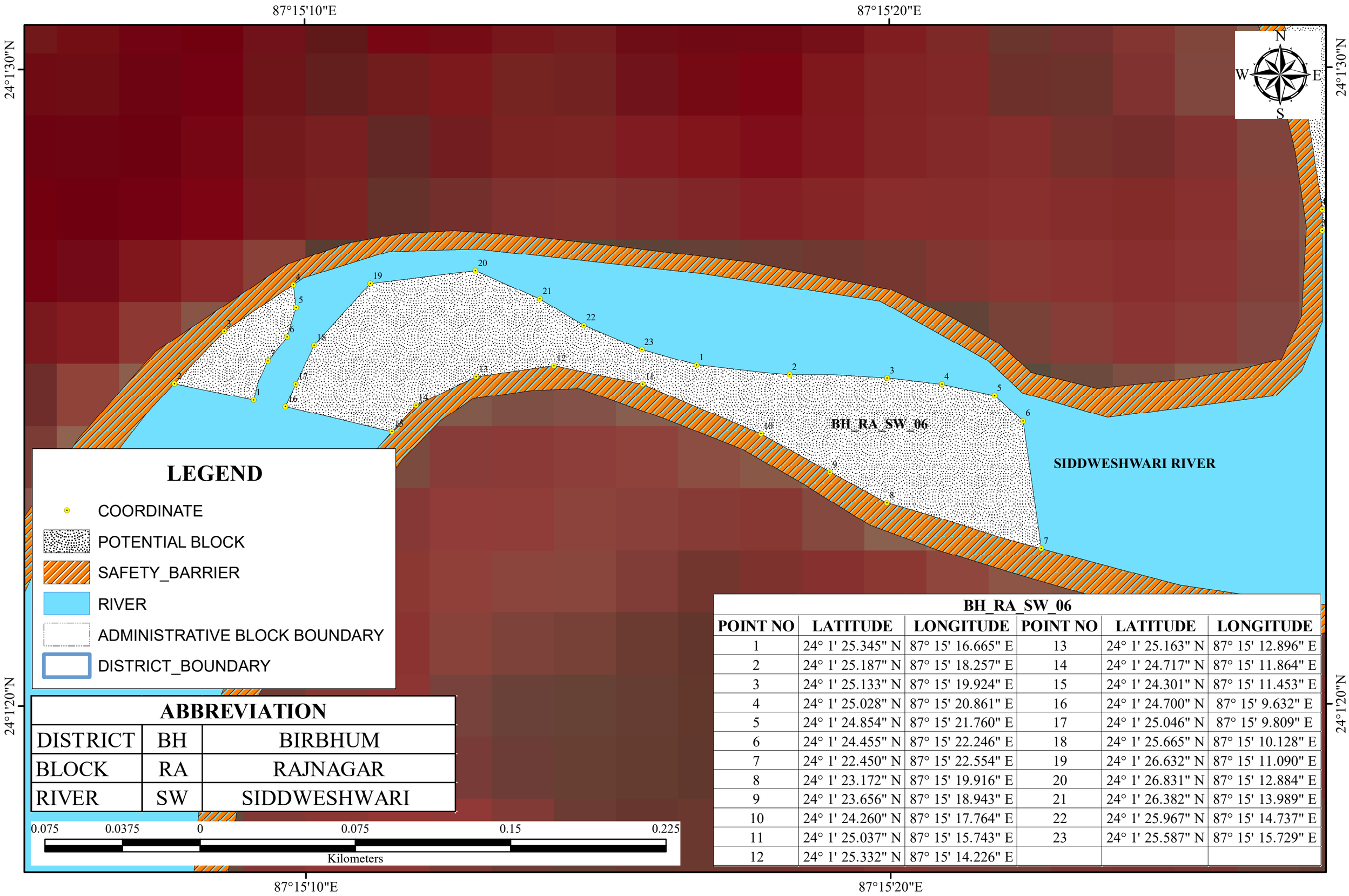
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 1' 50.964" N	87° 15' 35.343" E	16	24° 2' 6.081" N	87° 15' 32.537" E
2	24° 1' 52.031" N	87° 15' 34.919" E	17	24° 2' 7.203" N	87° 15' 32.167" E
3	24° 1' 53.890" N	87° 15' 34.061" E	18	24° 2' 6.955" N	87° 15' 34.070" E
4	24° 1' 56.298" N	87° 15' 34.984" E	19	24° 2' 6.113" N	87° 15' 34.146" E
5	24° 1' 57.598" N	87° 15' 35.280" E	20	24° 2' 5.252" N	87° 15' 34.407" E
6	24° 1' 58.905" N	87° 15' 35.545" E	21	24° 2' 4.372" N	87° 15' 35.791" E
7	24° 1' 59.765" N	87° 15' 35.697" E	22	24° 2' 3.941" N	87° 15' 36.371" E
8	24° 2' 0.591" N	87° 15' 35.736" E	23	24° 2' 3.131" N	87° 15' 36.988" E
9	24° 2' 1.665" N	87° 15' 35.819" E	24	24° 2' 2.253" N	87° 15' 37.454" E
10	24° 2' 2.766" N	87° 15' 35.541" E	25	24° 2' 0.686" N	87° 15' 38.144" E
11	24° 2' 3.800" N	87° 15' 35.037" E	26	24° 1' 59.171" N	87° 15' 38.460" E
12	24° 2' 4.505" N	87° 15' 34.888" E	27	24° 1' 57.279" N	87° 15' 38.231" E
13	24° 2' 4.970" N	87° 15' 34.702" E	28	24° 1' 55.834" N	87° 15' 37.778" E
14	24° 2' 5.281" N	87° 15' 34.197" E	29	24° 1' 53.307" N	87° 15' 36.574" E
15	24° 2' 5.713" N	87° 15' 33.148" E	30	24° 1' 52.670" N	87° 15' 36.479" E

POTENTIAL BLOCK BH_RA_SW_05 OF SIDDWESHWARI RIVER



BH_RA_SW_05					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 1' 27.044" N	87° 15' 29.909" E	15	24° 1' 44.194" N	87° 15' 28.662" E
2	24° 1' 26.813" N	87° 15' 30.047" E	16	24° 1' 43.041" N	87° 15' 28.885" E
3	24° 1' 27.438" N	87° 15' 27.370" E	17	24° 1' 41.854" N	87° 15' 28.920" E
4	24° 1' 27.768" N	87° 15' 27.371" E	18	24° 1' 41.028" N	87° 15' 28.731" E
5	24° 1' 29.963" N	87° 15' 27.000" E	19	24° 1' 40.185" N	87° 15' 28.579" E
6	24° 1' 32.266" N	87° 15' 26.092" E	20	24° 1' 39.566" N	87° 15' 28.597" E
7	24° 1' 33.988" N	87° 15' 25.252" E	21	24° 1' 37.890" N	87° 15' 29.134" E
8	24° 1' 36.011" N	87° 15' 24.601" E	22	24° 1' 35.677" N	87° 15' 28.851" E
9	24° 1' 37.731" N	87° 15' 24.581" E	23	24° 1' 35.092" N	87° 15' 28.663" E
10	24° 1' 40.290" N	87° 15' 25.171" E	24	24° 1' 33.905" N	87° 15' 28.867" E
11	24° 1' 42.246" N	87° 15' 25.948" E	25	24° 1' 33.267" N	87° 15' 29.203" E
12	24° 1' 43.599" N	87° 15' 27.074" E	26	24° 1' 30.281" N	87° 15' 29.722" E
13	24° 1' 44.006" N	87° 15' 27.707" E	27	24° 1' 29.453" N	87° 15' 29.745" E
14	24° 1' 45.159" N	87° 15' 28.594" E	28	24° 1' 27.887" N	87° 15' 29.836" E

POTENTIAL BLOCK BH_RA_SW_06 OF SIDDWESHWARI RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	RA	RAJNAGAR
RIVER	SW	SIDDWESHWARI

BH_RA_SW_06					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 1' 25.345" N	87° 15' 16.665" E	13	24° 1' 25.163" N	87° 15' 12.896" E
2	24° 1' 25.187" N	87° 15' 18.257" E	14	24° 1' 24.717" N	87° 15' 11.864" E
3	24° 1' 25.133" N	87° 15' 19.924" E	15	24° 1' 24.301" N	87° 15' 11.453" E
4	24° 1' 25.028" N	87° 15' 20.861" E	16	24° 1' 24.700" N	87° 15' 9.632" E
5	24° 1' 24.854" N	87° 15' 21.760" E	17	24° 1' 25.046" N	87° 15' 9.809" E
6	24° 1' 24.455" N	87° 15' 22.246" E	18	24° 1' 25.665" N	87° 15' 10.128" E
7	24° 1' 22.450" N	87° 15' 22.554" E	19	24° 1' 26.632" N	87° 15' 11.090" E
8	24° 1' 23.172" N	87° 15' 19.916" E	20	24° 1' 26.831" N	87° 15' 12.884" E
9	24° 1' 23.656" N	87° 15' 18.943" E	21	24° 1' 26.382" N	87° 15' 13.989" E
10	24° 1' 24.260" N	87° 15' 17.764" E	22	24° 1' 25.967" N	87° 15' 14.737" E
11	24° 1' 25.037" N	87° 15' 15.743" E	23	24° 1' 25.587" N	87° 15' 15.729" E
12	24° 1' 25.332" N	87° 15' 14.226" E			

POTENTIAL BLOCK BH_RA_SW_07 OF SIDDWESHWARI RIVER

87°15'6"E 87°15'8"E 87°15'10"E

24°1'26"N

24°1'24"N

N W E S

SIDDWESHWARI RIVER

BH_RA_SW_07

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

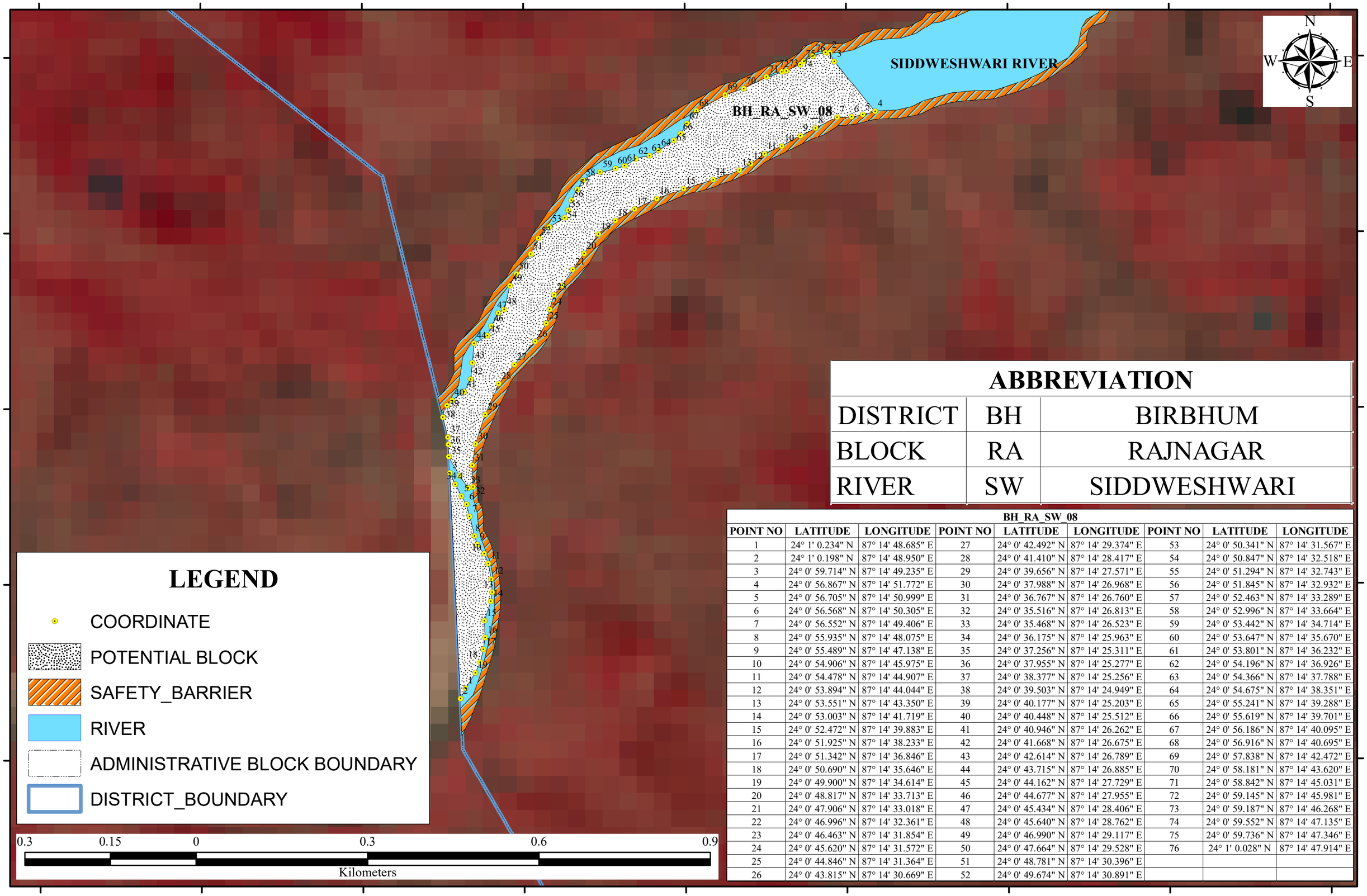
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	RA	RAJNAGAR
RIVER	SW	SIDDWESHWARI

0.02 0.01 0 0.02 0.04 0.06

Kilometers

BH_RA_SW_07		
POINT NO	LATITUDE	LONGITUDE
1	24° 1' 24.804" N	87° 15' 9.088" E
2	24° 1' 25.061" N	87° 15' 7.734" E
3	24° 1' 25.886" N	87° 15' 8.587" E
4	24° 1' 26.614" N	87° 15' 9.772" E
5	24° 1' 26.253" N	87° 15' 9.818" E
6	24° 1' 25.791" N	87° 15' 9.665" E
7	24° 1' 25.415" N	87° 15' 9.336" E

POTENTIAL BLOCK BH_RA_SW_08 OF SIDDWESHWARI RIVER

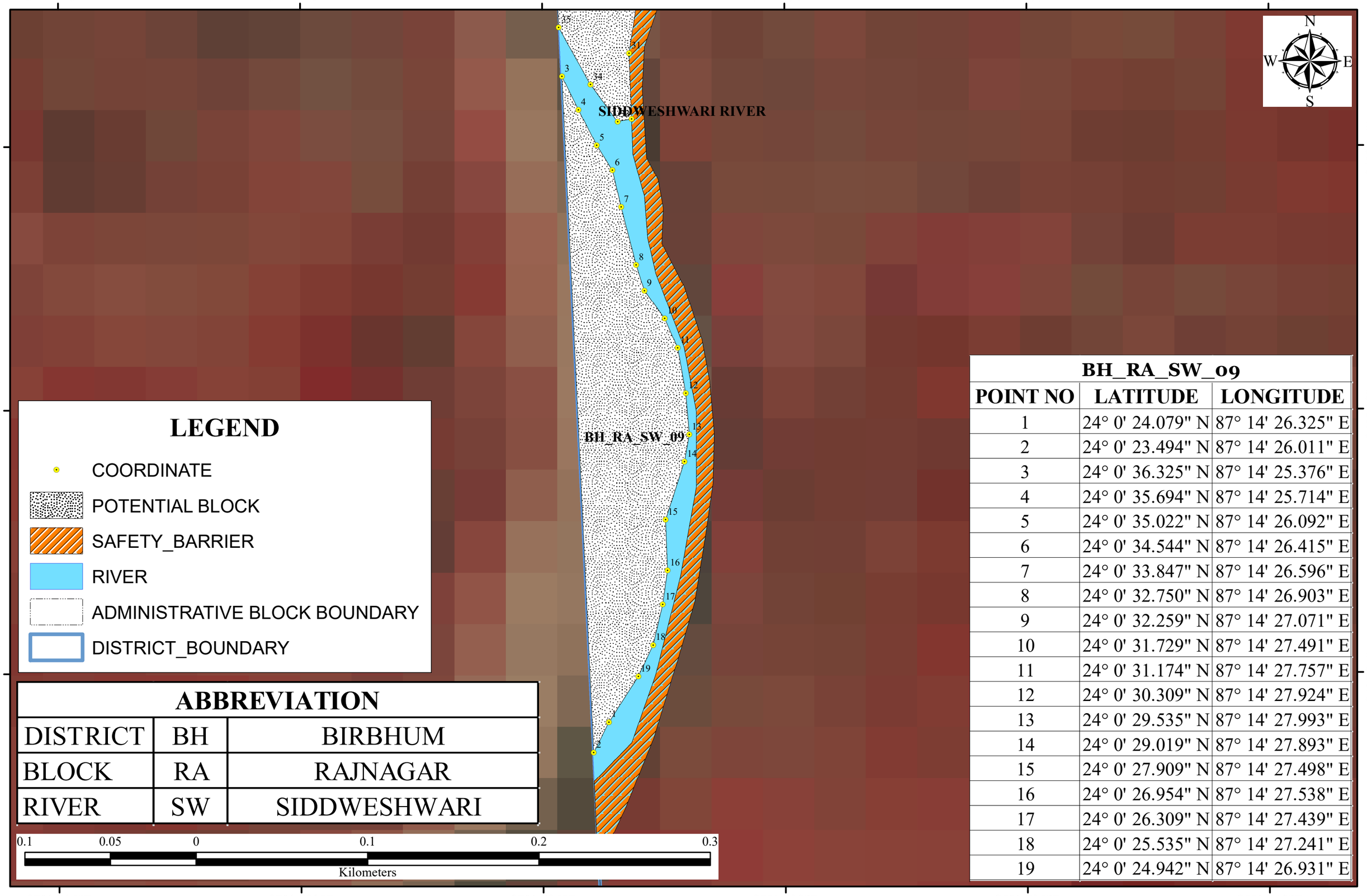


ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	RA	RAJNAGAR
RIVER	SW	SIDDWESHWARI

BH_RA_SW_08

POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 1' 0.234" N	87° 14' 48.685" E	27	24° 0' 42.492" N	87° 14' 29.374" E	53	24° 0' 50.341" N	87° 14' 31.567" E
2	24° 1' 0.198" N	87° 14' 48.950" E	28	24° 0' 41.410" N	87° 14' 28.417" E	54	24° 0' 50.847" N	87° 14' 32.518" E
3	24° 0' 59.714" N	87° 14' 49.235" E	29	24° 0' 39.656" N	87° 14' 27.571" E	55	24° 0' 51.294" N	87° 14' 32.743" E
4	24° 0' 56.867" N	87° 14' 51.772" E	30	24° 0' 37.988" N	87° 14' 26.968" E	56	24° 0' 51.845" N	87° 14' 32.932" E
5	24° 0' 56.705" N	87° 14' 50.999" E	31	24° 0' 36.767" N	87° 14' 26.760" E	57	24° 0' 52.463" N	87° 14' 33.289" E
6	24° 0' 56.568" N	87° 14' 50.305" E	32	24° 0' 35.516" N	87° 14' 26.813" E	58	24° 0' 52.996" N	87° 14' 33.664" E
7	24° 0' 56.552" N	87° 14' 49.406" E	33	24° 0' 35.468" N	87° 14' 26.523" E	59	24° 0' 53.442" N	87° 14' 34.714" E
8	24° 0' 55.935" N	87° 14' 48.075" E	34	24° 0' 36.175" N	87° 14' 25.963" E	60	24° 0' 53.647" N	87° 14' 35.670" E
9	24° 0' 55.489" N	87° 14' 47.138" E	35	24° 0' 37.256" N	87° 14' 25.311" E	61	24° 0' 53.801" N	87° 14' 36.232" E
10	24° 0' 54.906" N	87° 14' 45.975" E	36	24° 0' 37.955" N	87° 14' 25.277" E	62	24° 0' 54.196" N	87° 14' 36.926" E
11	24° 0' 54.478" N	87° 14' 44.907" E	37	24° 0' 38.377" N	87° 14' 25.256" E	63	24° 0' 54.366" N	87° 14' 37.788" E
12	24° 0' 53.894" N	87° 14' 44.044" E	38	24° 0' 39.503" N	87° 14' 24.949" E	64	24° 0' 54.675" N	87° 14' 38.351" E
13	24° 0' 53.551" N	87° 14' 43.350" E	39	24° 0' 40.177" N	87° 14' 25.203" E	65	24° 0' 55.241" N	87° 14' 39.288" E
14	24° 0' 53.003" N	87° 14' 41.719" E	40	24° 0' 40.448" N	87° 14' 25.512" E	66	24° 0' 55.619" N	87° 14' 39.701" E
15	24° 0' 52.472" N	87° 14' 39.883" E	41	24° 0' 40.946" N	87° 14' 26.262" E	67	24° 0' 56.186" N	87° 14' 40.095" E
16	24° 0' 51.925" N	87° 14' 38.233" E	42	24° 0' 41.668" N	87° 14' 26.675" E	68	24° 0' 56.916" N	87° 14' 40.695" E
17	24° 0' 51.342" N	87° 14' 36.846" E	43	24° 0' 42.614" N	87° 14' 26.789" E	69	24° 0' 57.838" N	87° 14' 42.472" E
18	24° 0' 50.690" N	87° 14' 35.646" E	44	24° 0' 43.715" N	87° 14' 26.885" E	70	24° 0' 58.181" N	87° 14' 43.620" E
19	24° 0' 49.900" N	87° 14' 34.614" E	45	24° 0' 44.162" N	87° 14' 27.729" E	71	24° 0' 58.842" N	87° 14' 45.031" E
20	24° 0' 48.817" N	87° 14' 33.713" E	46	24° 0' 44.677" N	87° 14' 27.955" E	72	24° 0' 59.145" N	87° 14' 45.981" E
21	24° 0' 47.906" N	87° 14' 33.018" E	47	24° 0' 45.434" N	87° 14' 28.406" E	73	24° 0' 59.187" N	87° 14' 46.268" E
22	24° 0' 46.996" N	87° 14' 32.361" E	48	24° 0' 45.640" N	87° 14' 28.762" E	74	24° 0' 59.552" N	87° 14' 47.135" E
23	24° 0' 46.463" N	87° 14' 31.854" E	49	24° 0' 46.990" N	87° 14' 29.117" E	75	24° 0' 59.736" N	87° 14' 47.346" E
24	24° 0' 45.620" N	87° 14' 31.572" E	50	24° 0' 47.664" N	87° 14' 29.528" E	76	24° 1' 0.028" N	87° 14' 47.914" E
25	24° 0' 44.846" N	87° 14' 31.364" E	51	24° 0' 48.781" N	87° 14' 30.396" E			
26	24° 0' 43.815" N	87° 14' 30.669" E	52	24° 0' 49.674" N	87° 14' 30.891" E			

POTENTIAL BLOCK BH_RA_SW_09 OF SIDDWESHWARI RIVER



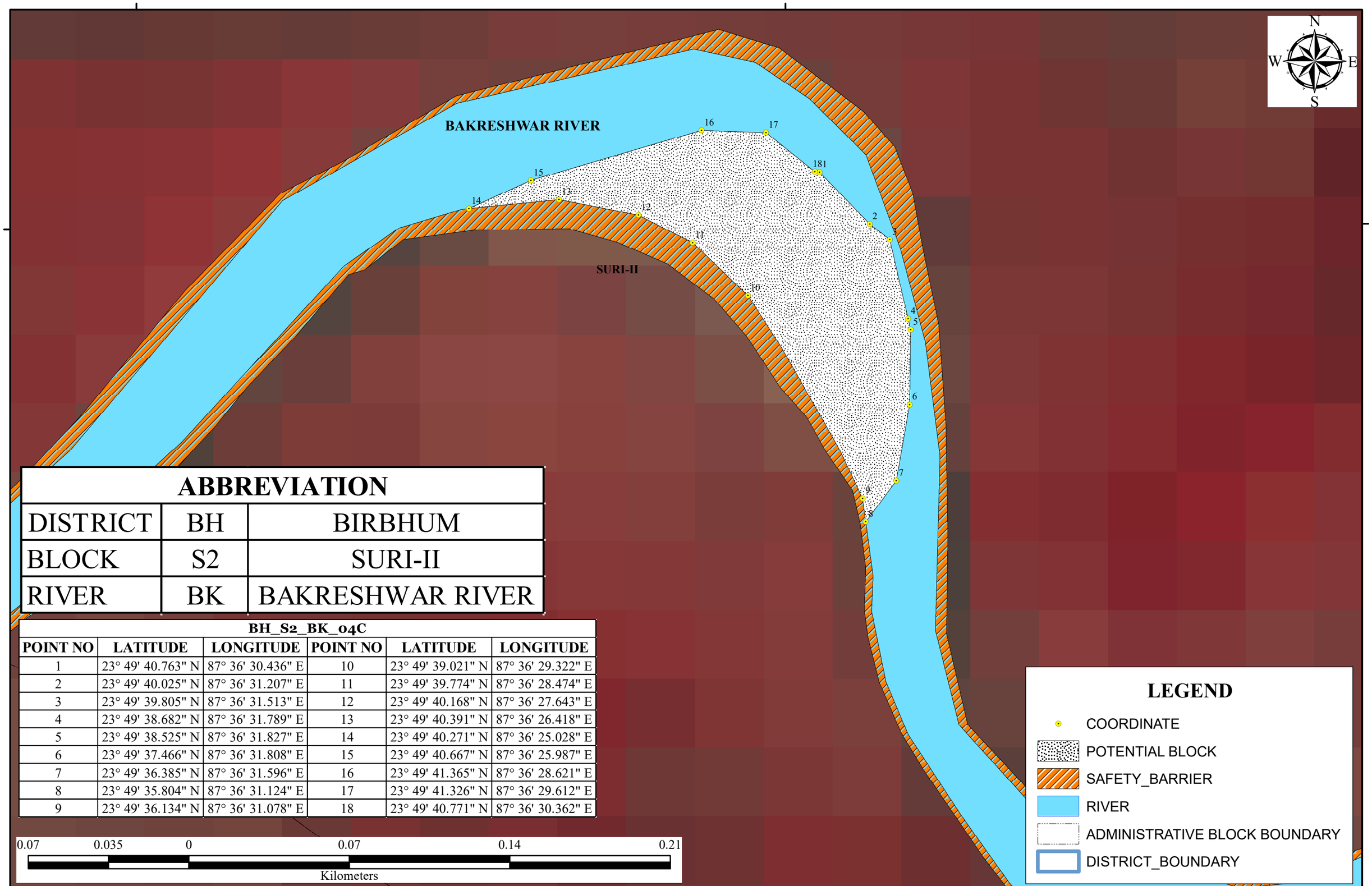
BH_RA_SW_09		
POINT NO	LATITUDE	LONGITUDE
1	24° 0' 24.079" N	87° 14' 26.325" E
2	24° 0' 23.494" N	87° 14' 26.011" E
3	24° 0' 36.325" N	87° 14' 25.376" E
4	24° 0' 35.694" N	87° 14' 25.714" E
5	24° 0' 35.022" N	87° 14' 26.092" E
6	24° 0' 34.544" N	87° 14' 26.415" E
7	24° 0' 33.847" N	87° 14' 26.596" E
8	24° 0' 32.750" N	87° 14' 26.903" E
9	24° 0' 32.259" N	87° 14' 27.071" E
10	24° 0' 31.729" N	87° 14' 27.491" E
11	24° 0' 31.174" N	87° 14' 27.757" E
12	24° 0' 30.309" N	87° 14' 27.924" E
13	24° 0' 29.535" N	87° 14' 27.993" E
14	24° 0' 29.019" N	87° 14' 27.893" E
15	24° 0' 27.909" N	87° 14' 27.498" E
16	24° 0' 26.954" N	87° 14' 27.538" E
17	24° 0' 26.309" N	87° 14' 27.439" E
18	24° 0' 25.535" N	87° 14' 27.241" E
19	24° 0' 24.942" N	87° 14' 26.931" E

POTENTIAL BLOCK BH_S2_BK_04C OF BAKRESHWAR RIVER

87°36'20"E

87°36'30"E

23°49'40"N



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	S2	SURI-II
RIVER	BK	BAKRESHWAR RIVER

BH_S2_BK_04C

POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	23° 49' 40.763" N	87° 36' 30.436" E	10	23° 49' 39.021" N	87° 36' 29.322" E
2	23° 49' 40.025" N	87° 36' 31.207" E	11	23° 49' 39.774" N	87° 36' 28.474" E
3	23° 49' 39.805" N	87° 36' 31.513" E	12	23° 49' 40.168" N	87° 36' 27.643" E
4	23° 49' 38.682" N	87° 36' 31.789" E	13	23° 49' 40.391" N	87° 36' 26.418" E
5	23° 49' 38.525" N	87° 36' 31.827" E	14	23° 49' 40.271" N	87° 36' 25.028" E
6	23° 49' 37.466" N	87° 36' 31.808" E	15	23° 49' 40.667" N	87° 36' 25.987" E
7	23° 49' 36.385" N	87° 36' 31.596" E	16	23° 49' 41.365" N	87° 36' 28.621" E
8	23° 49' 35.804" N	87° 36' 31.124" E	17	23° 49' 41.326" N	87° 36' 29.612" E
9	23° 49' 36.134" N	87° 36' 31.078" E	18	23° 49' 40.771" N	87° 36' 30.362" E

0.07 0.035 0 0.07 0.14 0.21

Kilometers

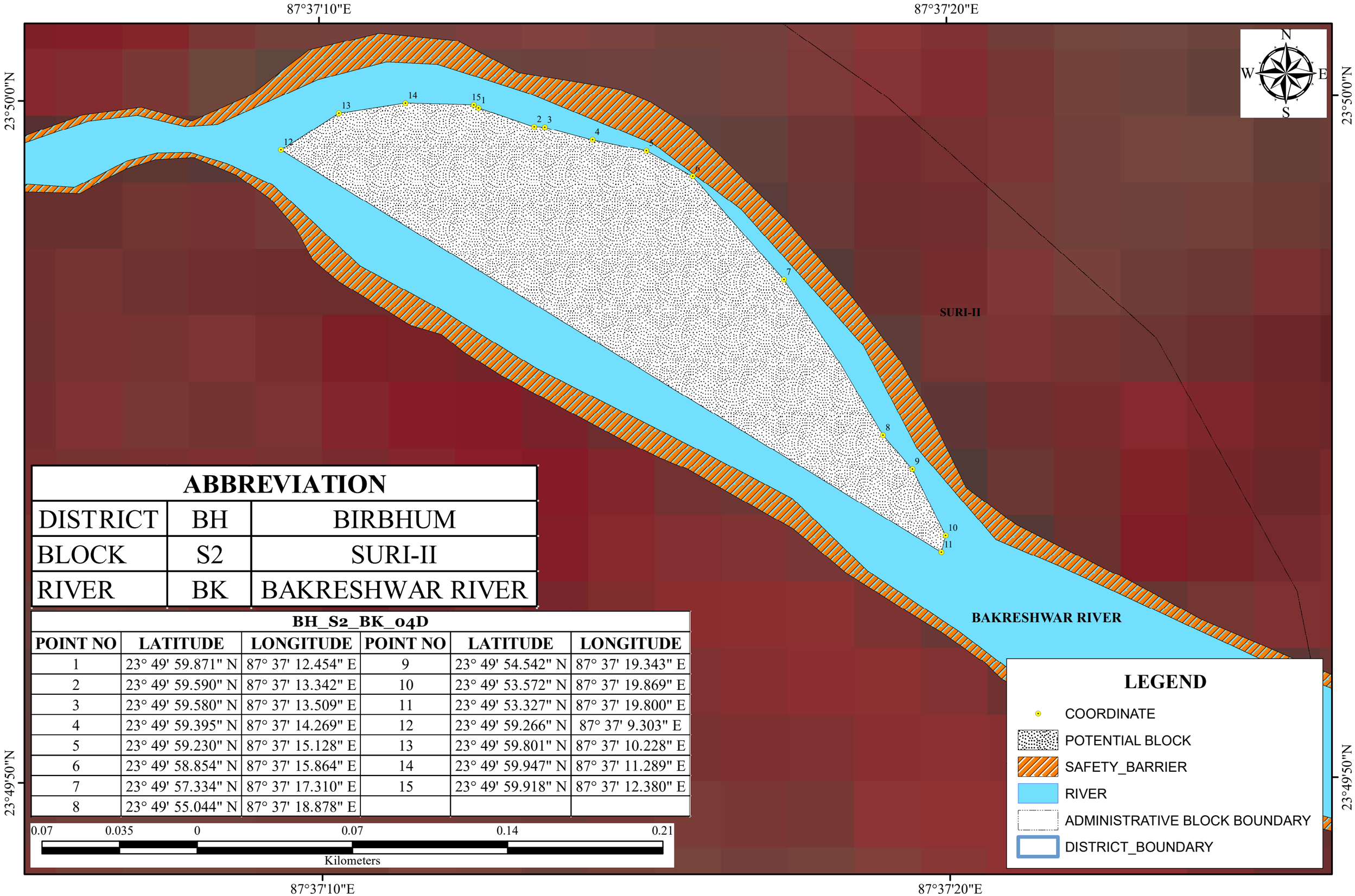
LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

87°36'20"E

87°36'30"E

POTENTIAL BLOCK BH_S2_BK_04D OF BAKRESHWAR RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	S2	SURI-II
RIVER	BK	BAKRESHWAR RIVER

BH_S2_BK_04D

POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	23° 49' 59.871" N	87° 37' 12.454" E	9	23° 49' 54.542" N	87° 37' 19.343" E
2	23° 49' 59.590" N	87° 37' 13.342" E	10	23° 49' 53.572" N	87° 37' 19.869" E
3	23° 49' 59.580" N	87° 37' 13.509" E	11	23° 49' 53.327" N	87° 37' 19.800" E
4	23° 49' 59.395" N	87° 37' 14.269" E	12	23° 49' 59.266" N	87° 37' 9.303" E
5	23° 49' 59.230" N	87° 37' 15.128" E	13	23° 49' 59.801" N	87° 37' 10.228" E
6	23° 49' 58.854" N	87° 37' 15.864" E	14	23° 49' 59.947" N	87° 37' 11.289" E
7	23° 49' 57.334" N	87° 37' 17.310" E	15	23° 49' 59.918" N	87° 37' 12.380" E
8	23° 49' 55.044" N	87° 37' 18.878" E			

POTENTIAL BLOCK BH_M1_BS_01 OF BANSLAI RIVER

87°48'30"E 87°48'35"E 87°48'40"E 87°48'45"E 87°48'50"E 87°48'55"E 87°49'0"E

24°28'35"N 24°28'30"N 24°28'25"N 24°28'20"N

N W E S

MURARAI-I

BANSLAI RIVER

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	M1	MURARAI-I
RIVER	BS	BANSLAI RIVER

0.1 0.05 0 0.1 0.2 0.3

Kilometers

BH_M1_BS_01					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 28' 36.271" N	87° 48' 33.995" E	12	24° 28' 30.011" N	87° 48' 49.649" E
2	24° 28' 36.093" N	87° 48' 35.051" E	13	24° 28' 30.168" N	87° 48' 47.619" E
3	24° 28' 36.086" N	87° 48' 36.390" E	14	24° 28' 31.096" N	87° 48' 45.467" E
4	24° 28' 35.579" N	87° 48' 38.690" E	15	24° 28' 31.777" N	87° 48' 43.498" E
5	24° 28' 35.031" N	87° 48' 40.590" E	16	24° 28' 32.044" N	87° 48' 41.850" E
6	24° 28' 34.158" N	87° 48' 42.910" E	17	24° 28' 32.129" N	87° 48' 40.582" E
7	24° 28' 33.462" N	87° 48' 44.480" E	18	24° 28' 32.137" N	87° 48' 39.088" E
8	24° 28' 32.744" N	87° 48' 45.909" E	19	24° 28' 31.999" N	87° 48' 38.241" E
9	24° 28' 32.115" N	87° 48' 46.986" E	20	24° 28' 31.815" N	87° 48' 37.797" E
10	24° 28' 31.289" N	87° 48' 48.508" E	21	24° 28' 35.728" N	87° 48' 32.770" E
11	24° 28' 30.632" N	87° 48' 50.118" E	22	24° 28' 36.166" N	87° 48' 32.915" E

POTENTIAL BLOCK BH_M1_BS_03 OF BANSLAI RIVER

87°48'45"E 87°48'50"E 87°48'55"E 87°49'0"E 87°49'5"E 87°49'10"E 87°49'15"E

24°28'45"N 24°28'40"N 24°28'35"N 24°28'30"N

N W E S

MURARAI-I

BANSLAI RIVER

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION

DISTRICT	BH	BIRBHUM
BLOCK	M1	MURARAI-I
RIVER	BS	BANSLAI RIVER

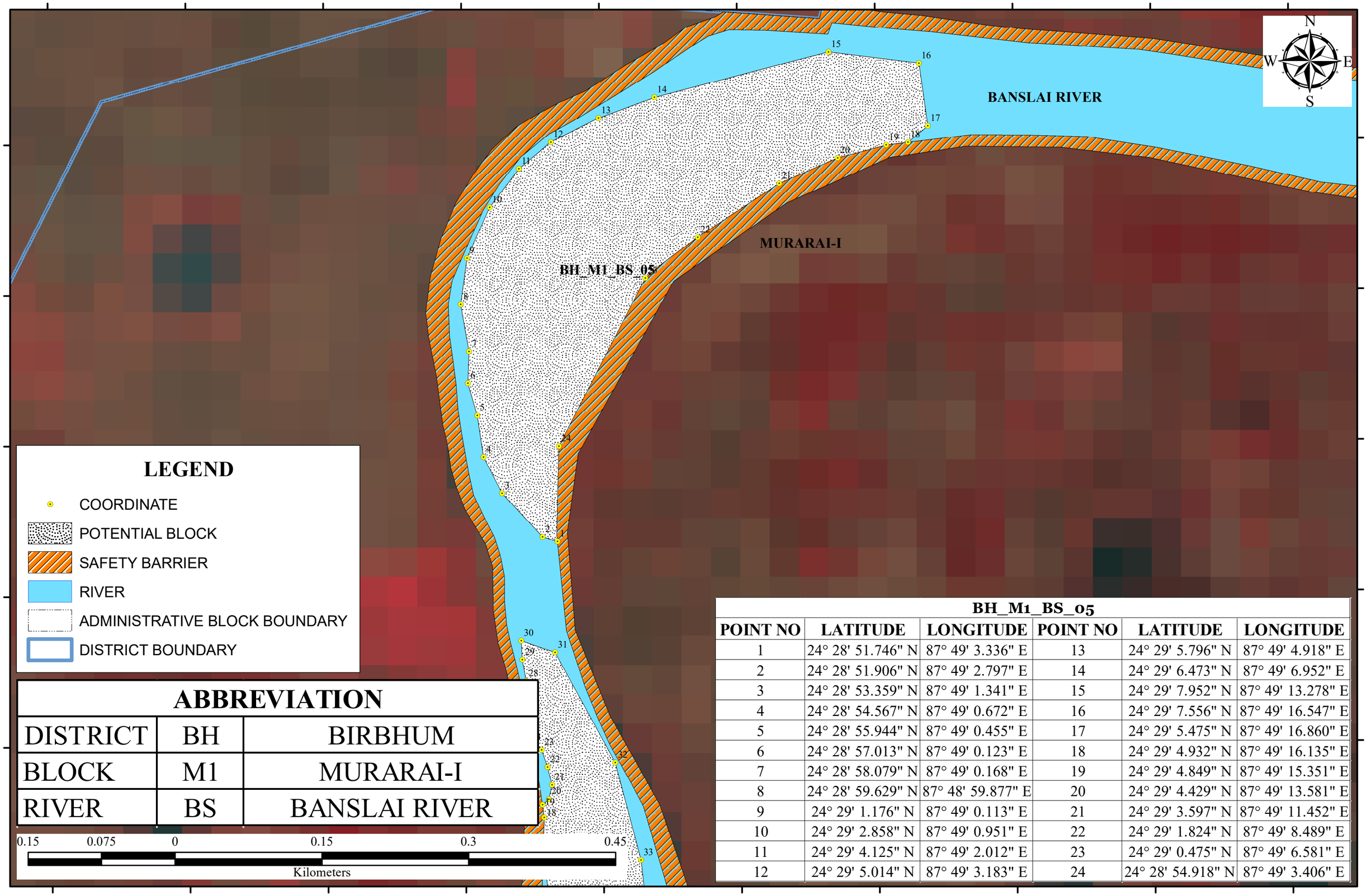
0.1 0.05 0 0.1 0.2 0.3

Kilometers

BH_M1_BS_03

POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 28' 31.352" N	87° 49' 2.415" E	22	24° 28' 44.253" N	87° 49' 2.928" E
2	24° 28' 30.597" N	87° 49' 1.296" E	23	24° 28' 44.835" N	87° 49' 2.720" E
3	24° 28' 30.636" N	87° 48' 59.597" E	24	24° 28' 45.289" N	87° 49' 2.253" E
4	24° 28' 31.624" N	87° 48' 59.933" E	25	24° 28' 45.353" N	87° 49' 2.214" E
5	24° 28' 32.009" N	87° 49' 0.032" E	26	24° 28' 45.926" N	87° 49' 2.066" E
6	24° 28' 32.601" N	87° 49' 0.477" E	27	24° 28' 46.549" N	87° 49' 2.043" E
7	24° 28' 33.180" N	87° 49' 0.856" E	28	24° 28' 47.117" N	87° 49' 2.171" E
8	24° 28' 33.949" N	87° 49' 1.778" E	29	24° 28' 47.827" N	87° 49' 2.035" E
9	24° 28' 34.955" N	87° 49' 2.607" E	30	24° 28' 48.464" N	87° 49' 2.004" E
10	24° 28' 35.770" N	87° 49' 3.035" E	31	24° 28' 48.057" N	87° 49' 3.229" E
11	24° 28' 36.372" N	87° 49' 3.133" E	32	24° 28' 44.400" N	87° 49' 5.388" E
12	24° 28' 36.781" N	87° 49' 3.065" E	33	24° 28' 41.147" N	87° 49' 6.301" E
13	24° 28' 38.541" N	87° 49' 2.912" E	34	24° 28' 39.046" N	87° 49' 6.539" E
14	24° 28' 39.056" N	87° 49' 3.309" E	35	24° 28' 38.272" N	87° 49' 6.506" E
15	24° 28' 39.519" N	87° 49' 3.391" E	36	24° 28' 37.241" N	87° 49' 6.245" E
16	24° 28' 39.909" N	87° 49' 2.947" E	37	24° 28' 36.431" N	87° 49' 5.803" E
17	24° 28' 41.056" N	87° 49' 2.735" E	38	24° 28' 35.556" N	87° 49' 5.233" E
18	24° 28' 42.589" N	87° 49' 2.797" E	39	24° 28' 34.707" N	87° 49' 4.847" E
19	24° 28' 43.003" N	87° 49' 2.735" E	40	24° 28' 33.356" N	87° 49' 4.119" E
20	24° 28' 43.199" N	87° 49' 2.968" E	41	24° 28' 32.469" N	87° 49' 3.564" E
21	24° 28' 43.671" N	87° 49' 3.089" E	42	24° 28' 31.685" N	87° 49' 2.910" E

POTENTIAL BLOCK BH_M1_BS_05 OF BANSLAI RIVER



LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	M1	MURARAI-I
RIVER	BS	BANSLAI RIVER

BH_M1_BS_05

POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 28' 51.746" N	87° 49' 3.336" E	13	24° 29' 5.796" N	87° 49' 4.918" E
2	24° 28' 51.906" N	87° 49' 2.797" E	14	24° 29' 6.473" N	87° 49' 6.952" E
3	24° 28' 53.359" N	87° 49' 1.341" E	15	24° 29' 7.952" N	87° 49' 13.278" E
4	24° 28' 54.567" N	87° 49' 0.672" E	16	24° 29' 7.556" N	87° 49' 16.547" E
5	24° 28' 55.944" N	87° 49' 0.455" E	17	24° 29' 5.475" N	87° 49' 16.860" E
6	24° 28' 57.013" N	87° 49' 0.123" E	18	24° 29' 4.932" N	87° 49' 16.135" E
7	24° 28' 58.079" N	87° 49' 0.168" E	19	24° 29' 4.849" N	87° 49' 15.351" E
8	24° 28' 59.629" N	87° 48' 59.877" E	20	24° 29' 4.429" N	87° 49' 13.581" E
9	24° 29' 1.176" N	87° 49' 0.113" E	21	24° 29' 3.597" N	87° 49' 11.452" E
10	24° 29' 2.858" N	87° 49' 0.951" E	22	24° 29' 1.824" N	87° 49' 8.489" E
11	24° 29' 4.125" N	87° 49' 2.012" E	23	24° 29' 0.475" N	87° 49' 6.581" E
12	24° 29' 5.014" N	87° 49' 3.183" E	24	24° 28' 54.918" N	87° 49' 3.406" E

POTENTIAL BLOCK BH_M1_BS_06 OF BANSLAI RIVER

87°49'50"E 87°49'55"E 87°50'0"E 87°50'5"E 87°50'10"E

24°29'10"N 24°29'5"N 24°29'0"N 24°28'55"N

N W E S

BANSLAI RIVER

MURARAI-I

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	M1	MURARAI-I
RIVER	BS	BANSLAI RIVER

0.1 0.05 0 0.1 0.2 0.3

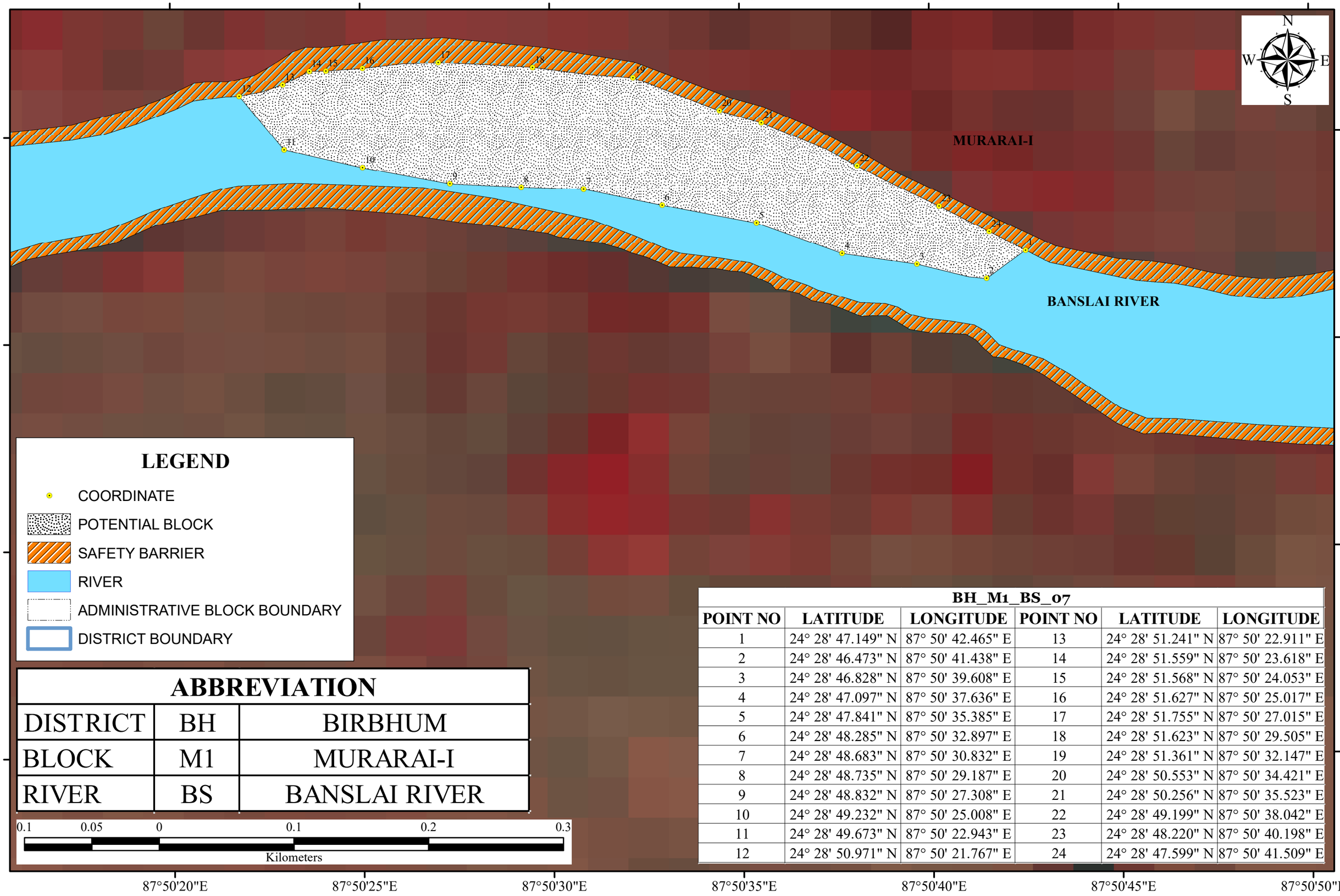
Kilometers

BH_M1_BS_06					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 29' 5.985" N	87° 50' 1.084" E	18	24° 29' 5.275" N	87° 50' 0.795" E
2	24° 29' 5.371" N	87° 50' 1.315" E	19	24° 29' 5.679" N	87° 50' 0.107" E
3	24° 29' 4.618" N	87° 50' 1.451" E	20	24° 29' 5.823" N	87° 49' 59.657" E
4	24° 29' 3.797" N	87° 50' 1.998" E	21	24° 29' 5.839" N	87° 49' 59.262" E
5	24° 29' 3.334" N	87° 50' 2.230" E	22	24° 29' 5.765" N	87° 49' 58.641" E
6	24° 29' 2.493" N	87° 50' 2.589" E	23	24° 29' 5.681" N	87° 49' 57.442" E
7	24° 29' 1.490" N	87° 50' 3.122" E	24	24° 29' 5.683" N	87° 49' 56.963" E
8	24° 29' 0.746" N	87° 50' 3.287" E	25	24° 29' 5.663" N	87° 49' 55.961" E
9	24° 29' 0.600" N	87° 50' 3.092" E	26	24° 29' 5.436" N	87° 49' 55.001" E
10	24° 29' 1.434" N	87° 50' 2.476" E	27	24° 29' 5.251" N	87° 49' 53.971" E
11	24° 29' 1.900" N	87° 50' 2.112" E	28	24° 29' 8.030" N	87° 49' 53.989" E
12	24° 29' 2.496" N	87° 50' 1.679" E	29	24° 29' 7.978" N	87° 49' 55.552" E
13	24° 29' 2.806" N	87° 50' 1.568" E	30	24° 29' 7.931" N	87° 49' 56.351" E
14	24° 29' 3.077" N	87° 50' 1.570" E	31	24° 29' 7.843" N	87° 49' 57.595" E
15	24° 29' 3.515" N	87° 50' 1.742" E	32	24° 29' 7.524" N	87° 49' 58.885" E
16	24° 29' 4.382" N	87° 50' 1.339" E	33	24° 29' 7.056" N	87° 49' 59.975" E
17	24° 29' 4.692" N	87° 50' 1.256" E	34	24° 29' 6.547" N	87° 50' 0.665" E

POTENTIAL BLOCK BH_M1_BS_07 OF BANSLAI RIVER

87°50'20"E 87°50'25"E 87°50'30"E 87°50'35"E 87°50'40"E 87°50'45"E 87°50'50"E

24°28'50"N 24°28'45"N 24°28'40"N 24°28'35"N



LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	M1	MURARAI-I
RIVER	BS	BANSLAI RIVER

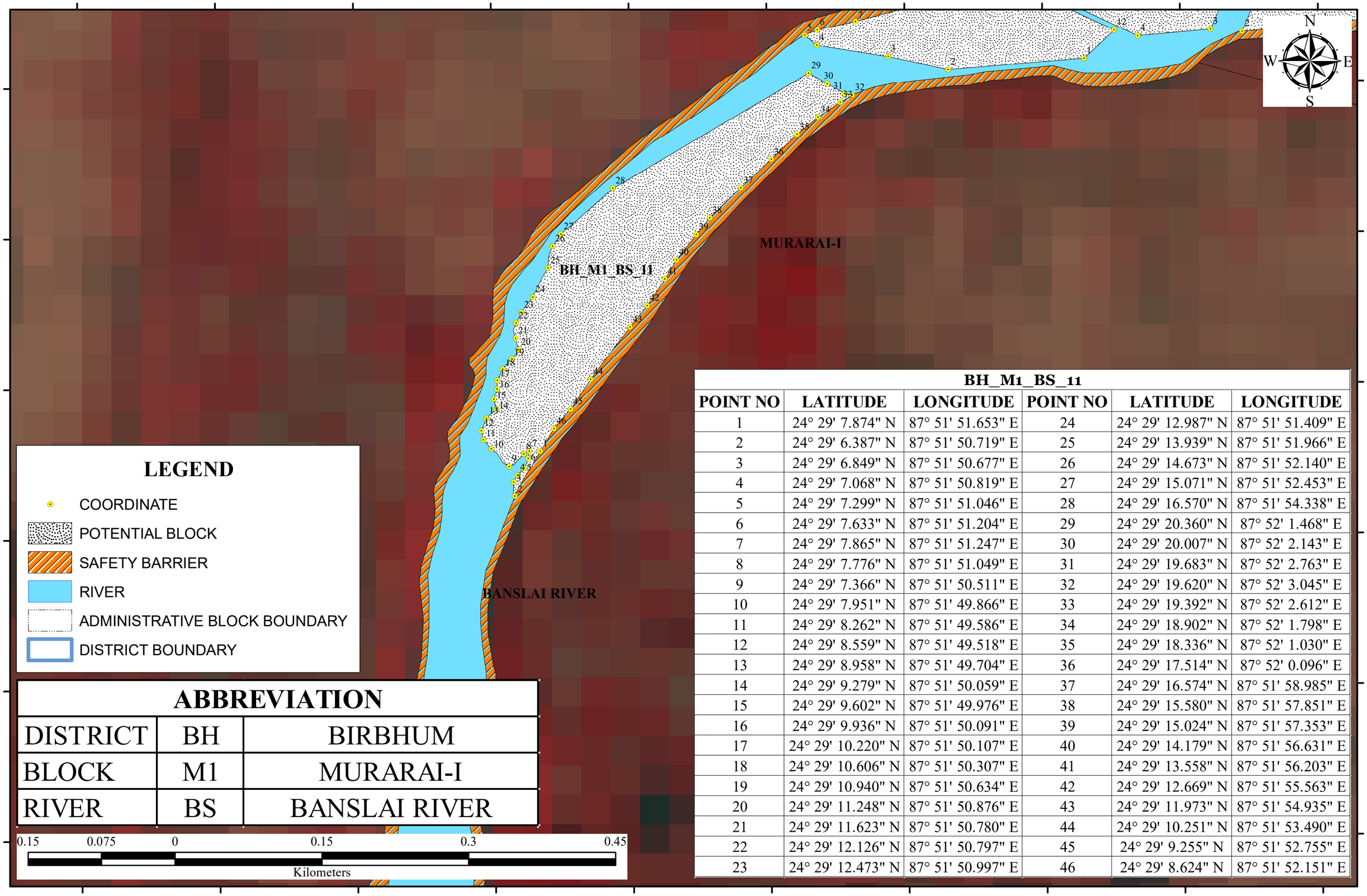
0.1 0.05 0 0.1 0.2 0.3

Kilometers

BH_M1_BS_07

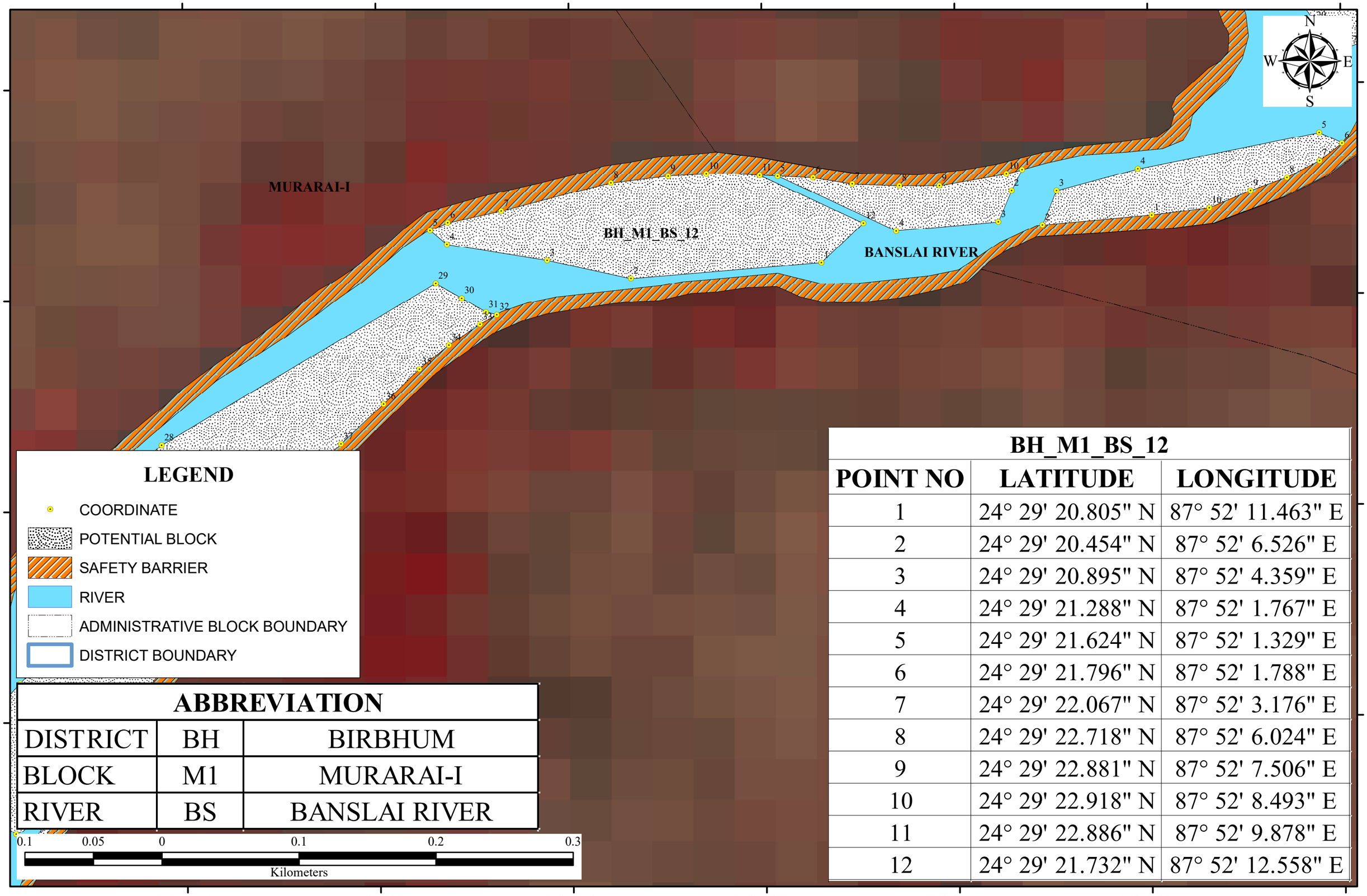
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 28' 47.149" N	87° 50' 42.465" E	13	24° 28' 51.241" N	87° 50' 22.911" E
2	24° 28' 46.473" N	87° 50' 41.438" E	14	24° 28' 51.559" N	87° 50' 23.618" E
3	24° 28' 46.828" N	87° 50' 39.608" E	15	24° 28' 51.568" N	87° 50' 24.053" E
4	24° 28' 47.097" N	87° 50' 37.636" E	16	24° 28' 51.627" N	87° 50' 25.017" E
5	24° 28' 47.841" N	87° 50' 35.385" E	17	24° 28' 51.755" N	87° 50' 27.015" E
6	24° 28' 48.285" N	87° 50' 32.897" E	18	24° 28' 51.623" N	87° 50' 29.505" E
7	24° 28' 48.683" N	87° 50' 30.832" E	19	24° 28' 51.361" N	87° 50' 32.147" E
8	24° 28' 48.735" N	87° 50' 29.187" E	20	24° 28' 50.553" N	87° 50' 34.421" E
9	24° 28' 48.832" N	87° 50' 27.308" E	21	24° 28' 50.256" N	87° 50' 35.523" E
10	24° 28' 49.232" N	87° 50' 25.008" E	22	24° 28' 49.199" N	87° 50' 38.042" E
11	24° 28' 49.673" N	87° 50' 22.943" E	23	24° 28' 48.220" N	87° 50' 40.198" E
12	24° 28' 50.971" N	87° 50' 21.767" E	24	24° 28' 47.599" N	87° 50' 41.509" E

POTENTIAL BLOCK BH_M1_BS_11 OF BANSLAI RIVER



BH_M1_BS_11					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 29' 7.874" N	87° 51' 51.653" E	24	24° 29' 12.987" N	87° 51' 51.409" E
2	24° 29' 6.387" N	87° 51' 50.719" E	25	24° 29' 13.939" N	87° 51' 51.966" E
3	24° 29' 6.849" N	87° 51' 50.677" E	26	24° 29' 14.673" N	87° 51' 52.140" E
4	24° 29' 7.068" N	87° 51' 50.819" E	27	24° 29' 15.071" N	87° 51' 52.453" E
5	24° 29' 7.299" N	87° 51' 51.046" E	28	24° 29' 16.570" N	87° 51' 54.338" E
6	24° 29' 7.633" N	87° 51' 51.204" E	29	24° 29' 20.360" N	87° 52' 1.468" E
7	24° 29' 7.865" N	87° 51' 51.247" E	30	24° 29' 20.007" N	87° 52' 2.143" E
8	24° 29' 7.776" N	87° 51' 51.049" E	31	24° 29' 19.683" N	87° 52' 2.763" E
9	24° 29' 7.366" N	87° 51' 50.511" E	32	24° 29' 19.620" N	87° 52' 3.045" E
10	24° 29' 7.951" N	87° 51' 49.866" E	33	24° 29' 19.392" N	87° 52' 2.612" E
11	24° 29' 8.262" N	87° 51' 49.586" E	34	24° 29' 18.902" N	87° 52' 1.798" E
12	24° 29' 8.559" N	87° 51' 49.518" E	35	24° 29' 18.336" N	87° 52' 1.030" E
13	24° 29' 8.958" N	87° 51' 49.704" E	36	24° 29' 17.514" N	87° 52' 0.096" E
14	24° 29' 9.279" N	87° 51' 50.059" E	37	24° 29' 16.574" N	87° 51' 58.985" E
15	24° 29' 9.602" N	87° 51' 49.976" E	38	24° 29' 15.580" N	87° 51' 57.851" E
16	24° 29' 9.936" N	87° 51' 50.091" E	39	24° 29' 15.024" N	87° 51' 57.353" E
17	24° 29' 10.220" N	87° 51' 50.107" E	40	24° 29' 14.179" N	87° 51' 56.631" E
18	24° 29' 10.606" N	87° 51' 50.307" E	41	24° 29' 13.558" N	87° 51' 56.203" E
19	24° 29' 10.940" N	87° 51' 50.634" E	42	24° 29' 12.669" N	87° 51' 55.563" E
20	24° 29' 11.248" N	87° 51' 50.876" E	43	24° 29' 11.973" N	87° 51' 54.935" E
21	24° 29' 11.623" N	87° 51' 50.780" E	44	24° 29' 10.251" N	87° 51' 53.490" E
22	24° 29' 12.126" N	87° 51' 50.797" E	45	24° 29' 9.255" N	87° 51' 52.755" E
23	24° 29' 12.473" N	87° 51' 50.997" E	46	24° 29' 8.624" N	87° 51' 52.151" E

POTENTIAL BLOCK BH_M1_BS_12 OF BANSLAI RIVER



LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

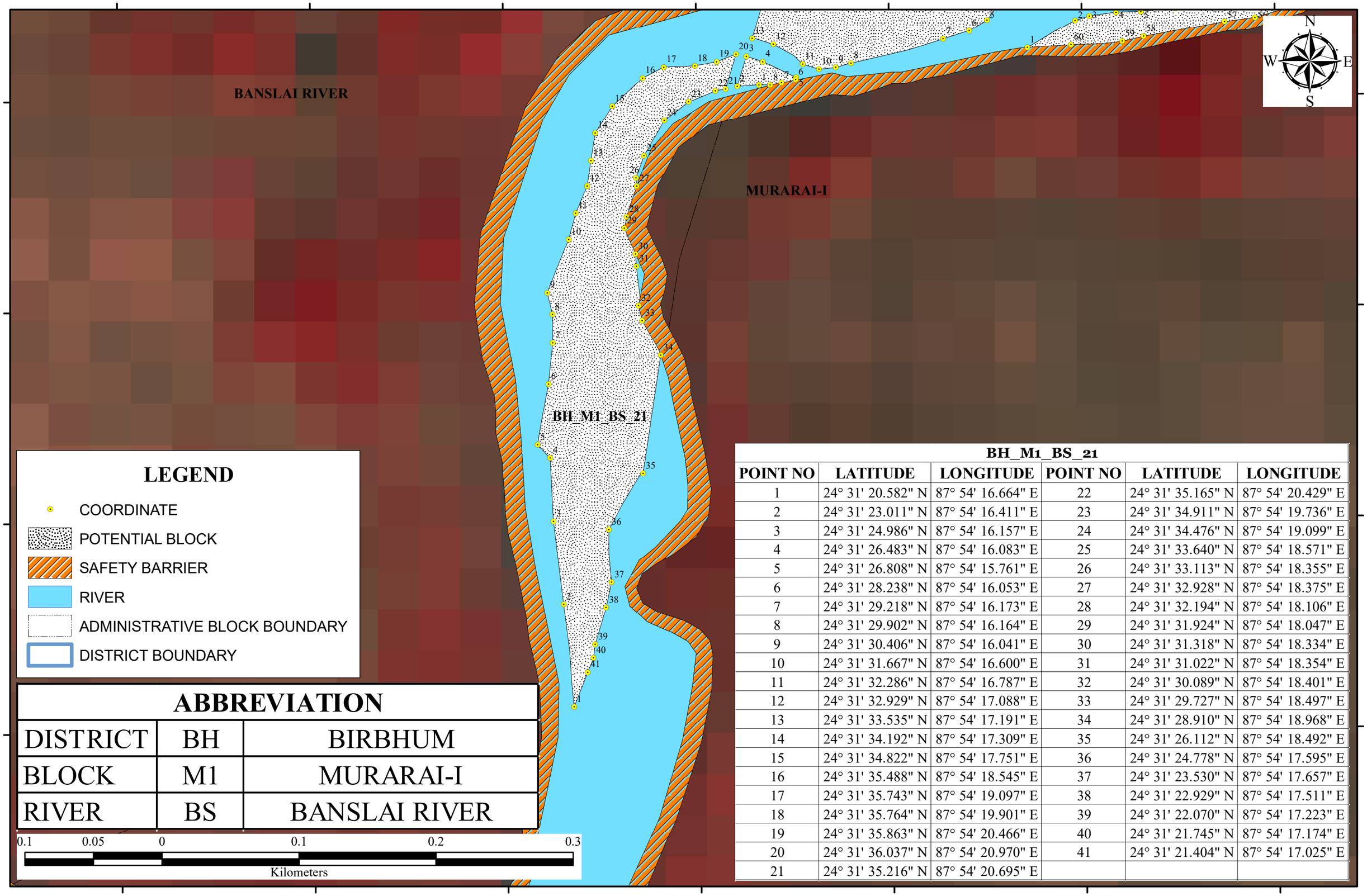
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	M1	MURARAI-I
RIVER	BS	BANSLAI RIVER

0.1 0.05 0 0.1 0.2 0.3

Kilometers

BH_M1_BS_12		
POINT NO	LATITUDE	LONGITUDE
1	24° 29' 20.805" N	87° 52' 11.463" E
2	24° 29' 20.454" N	87° 52' 6.526" E
3	24° 29' 20.895" N	87° 52' 4.359" E
4	24° 29' 21.288" N	87° 52' 1.767" E
5	24° 29' 21.624" N	87° 52' 1.329" E
6	24° 29' 21.796" N	87° 52' 1.788" E
7	24° 29' 22.067" N	87° 52' 3.176" E
8	24° 29' 22.718" N	87° 52' 6.024" E
9	24° 29' 22.881" N	87° 52' 7.506" E
10	24° 29' 22.918" N	87° 52' 8.493" E
11	24° 29' 22.886" N	87° 52' 9.878" E
12	24° 29' 21.732" N	87° 52' 12.558" E

POTENTIAL BLOCK BH_M1_BS_21 OF BANSLAI RIVER



BH_M1_BS_21					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 31' 20.582" N	87° 54' 16.664" E	22	24° 31' 35.165" N	87° 54' 20.429" E
2	24° 31' 23.011" N	87° 54' 16.411" E	23	24° 31' 34.911" N	87° 54' 19.736" E
3	24° 31' 24.986" N	87° 54' 16.157" E	24	24° 31' 34.476" N	87° 54' 19.099" E
4	24° 31' 26.483" N	87° 54' 16.083" E	25	24° 31' 33.640" N	87° 54' 18.571" E
5	24° 31' 26.808" N	87° 54' 15.761" E	26	24° 31' 33.113" N	87° 54' 18.355" E
6	24° 31' 28.238" N	87° 54' 16.053" E	27	24° 31' 32.928" N	87° 54' 18.375" E
7	24° 31' 29.218" N	87° 54' 16.173" E	28	24° 31' 32.194" N	87° 54' 18.106" E
8	24° 31' 29.902" N	87° 54' 16.164" E	29	24° 31' 31.924" N	87° 54' 18.047" E
9	24° 31' 30.406" N	87° 54' 16.041" E	30	24° 31' 31.318" N	87° 54' 18.334" E
10	24° 31' 31.667" N	87° 54' 16.600" E	31	24° 31' 31.022" N	87° 54' 18.354" E
11	24° 31' 32.286" N	87° 54' 16.787" E	32	24° 31' 30.089" N	87° 54' 18.401" E
12	24° 31' 32.929" N	87° 54' 17.088" E	33	24° 31' 29.727" N	87° 54' 18.497" E
13	24° 31' 33.535" N	87° 54' 17.191" E	34	24° 31' 28.910" N	87° 54' 18.968" E
14	24° 31' 34.192" N	87° 54' 17.309" E	35	24° 31' 26.112" N	87° 54' 18.492" E
15	24° 31' 34.822" N	87° 54' 17.751" E	36	24° 31' 24.778" N	87° 54' 17.595" E
16	24° 31' 35.488" N	87° 54' 18.545" E	37	24° 31' 23.530" N	87° 54' 17.657" E
17	24° 31' 35.743" N	87° 54' 19.097" E	38	24° 31' 22.929" N	87° 54' 17.511" E
18	24° 31' 35.764" N	87° 54' 19.901" E	39	24° 31' 22.070" N	87° 54' 17.223" E
19	24° 31' 35.863" N	87° 54' 20.466" E	40	24° 31' 21.745" N	87° 54' 17.174" E
20	24° 31' 36.037" N	87° 54' 20.970" E	41	24° 31' 21.404" N	87° 54' 17.025" E
21	24° 31' 35.216" N	87° 54' 20.695" E			

POTENTIAL BLOCK BH_M2_BS_13 OF BANSLAI RIVER

87°52'10"E 87°52'15"E 87°52'20"E

24°29'20"N

MURARAI-II

BANSLAI RIVER

BH_M2_BS_13

N W E S

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	M2	MURARAI-II
RIVER	BS	BANSLAI RIVER

0.045 0.0225 0 0.045 0.09 0.135

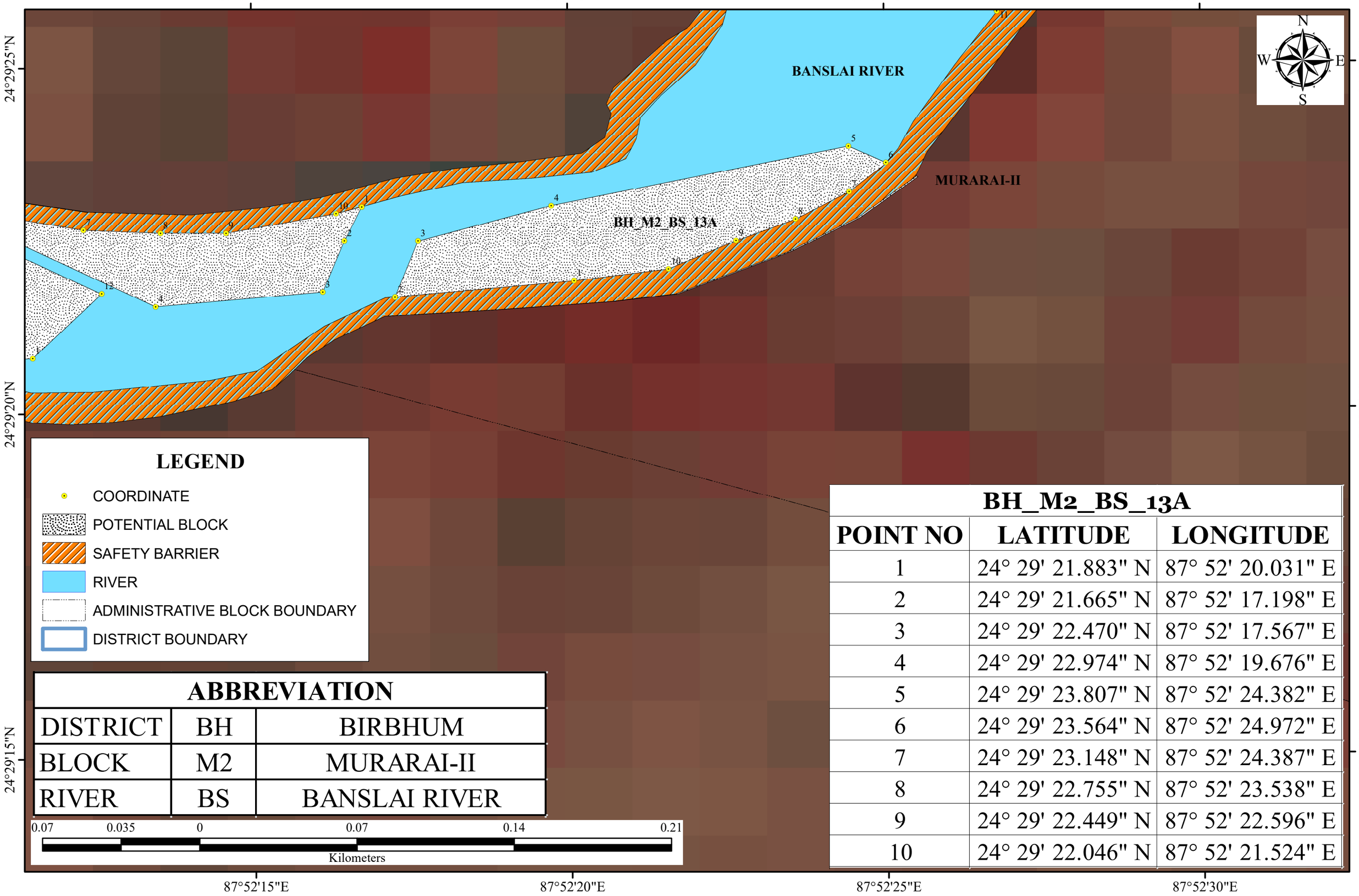
Kilometers

BH_M2_BS_13		
POINT NO	LATITUDE	LONGITUDE
1	24° 29' 22.973" N	87° 52' 16.679" E
2	24° 29' 22.477" N	87° 52' 16.402" E
3	24° 29' 21.742" N	87° 52' 16.057" E
4	24° 29' 21.544" N	87° 52' 13.410" E
5	24° 29' 22.863" N	87° 52' 10.343" E
6	24° 29' 22.817" N	87° 52' 11.265" E
7	24° 29' 22.660" N	87° 52' 12.275" E
8	24° 29' 22.610" N	87° 52' 13.496" E
9	24° 29' 22.604" N	87° 52' 14.530" E
10	24° 29' 22.874" N	87° 52' 16.271" E

24°29'20"N

87°52'10"E 87°52'15"E 87°52'20"E

POTENTIAL BLOCK BH_M2_BS_13A OF BANSLAI RIVER



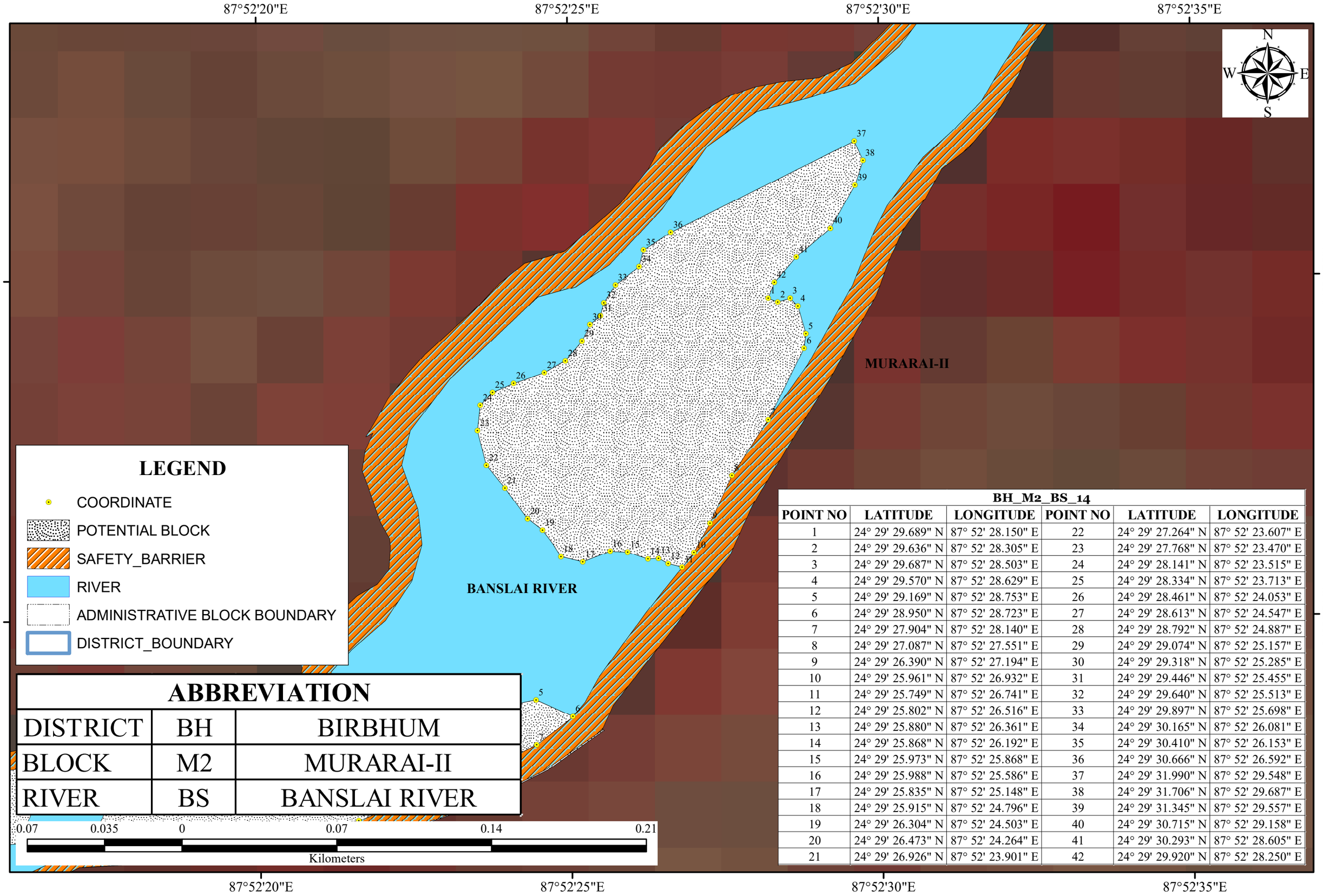
LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	M2	MURARAI-II
RIVER	BS	BANSLAI RIVER

BH_M2_BS_13A		
POINT NO	LATITUDE	LONGITUDE
1	24° 29' 21.883" N	87° 52' 20.031" E
2	24° 29' 21.665" N	87° 52' 17.198" E
3	24° 29' 22.470" N	87° 52' 17.567" E
4	24° 29' 22.974" N	87° 52' 19.676" E
5	24° 29' 23.807" N	87° 52' 24.382" E
6	24° 29' 23.564" N	87° 52' 24.972" E
7	24° 29' 23.148" N	87° 52' 24.387" E
8	24° 29' 22.755" N	87° 52' 23.538" E
9	24° 29' 22.449" N	87° 52' 22.596" E
10	24° 29' 22.046" N	87° 52' 21.524" E

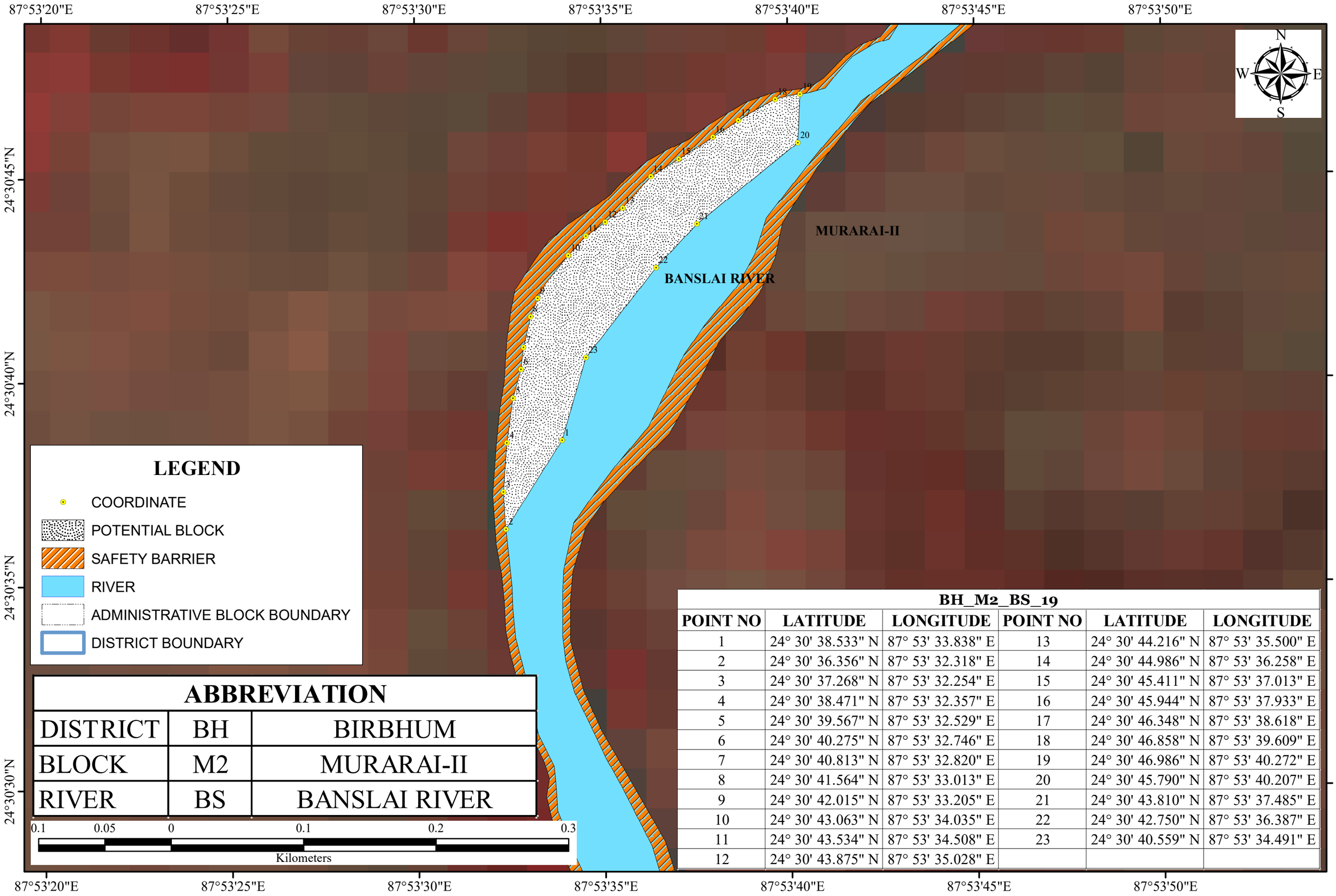
POTENTIAL BLOCK BH_M2_BS_14 OF BANSLAI RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	M2	MURARAI-II
RIVER	BS	BANSLAI RIVER

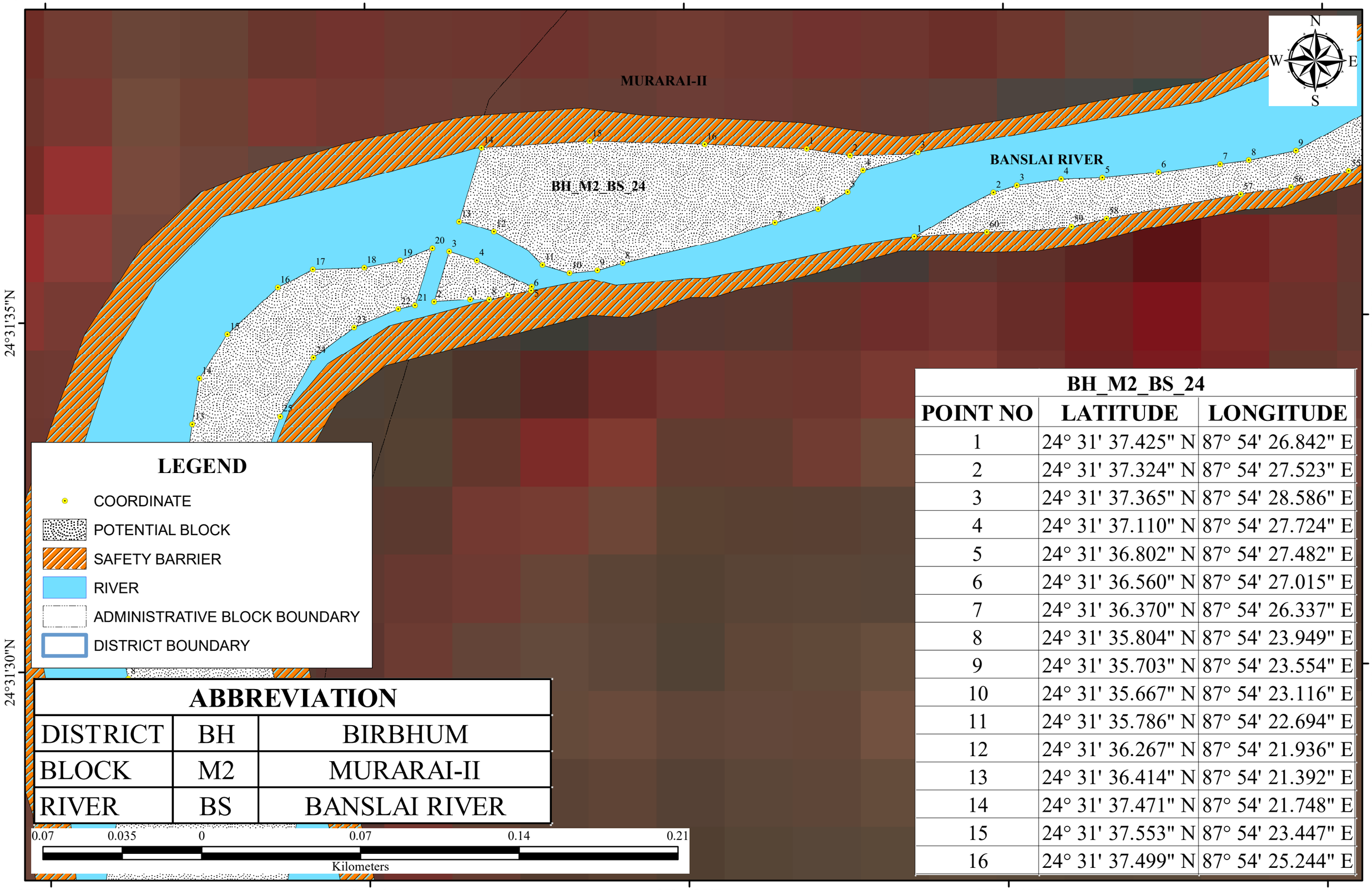
BH_M2_BS_14					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 29' 29.689" N	87° 52' 28.150" E	22	24° 29' 27.264" N	87° 52' 23.607" E
2	24° 29' 29.636" N	87° 52' 28.305" E	23	24° 29' 27.768" N	87° 52' 23.470" E
3	24° 29' 29.687" N	87° 52' 28.503" E	24	24° 29' 28.141" N	87° 52' 23.515" E
4	24° 29' 29.570" N	87° 52' 28.629" E	25	24° 29' 28.334" N	87° 52' 23.713" E
5	24° 29' 29.169" N	87° 52' 28.753" E	26	24° 29' 28.461" N	87° 52' 24.053" E
6	24° 29' 28.950" N	87° 52' 28.723" E	27	24° 29' 28.613" N	87° 52' 24.547" E
7	24° 29' 27.904" N	87° 52' 28.140" E	28	24° 29' 28.792" N	87° 52' 24.887" E
8	24° 29' 27.087" N	87° 52' 27.551" E	29	24° 29' 29.074" N	87° 52' 25.157" E
9	24° 29' 26.390" N	87° 52' 27.194" E	30	24° 29' 29.318" N	87° 52' 25.285" E
10	24° 29' 25.961" N	87° 52' 26.932" E	31	24° 29' 29.446" N	87° 52' 25.455" E
11	24° 29' 25.749" N	87° 52' 26.741" E	32	24° 29' 29.640" N	87° 52' 25.513" E
12	24° 29' 25.802" N	87° 52' 26.516" E	33	24° 29' 29.897" N	87° 52' 25.698" E
13	24° 29' 25.880" N	87° 52' 26.361" E	34	24° 29' 30.165" N	87° 52' 26.081" E
14	24° 29' 25.868" N	87° 52' 26.192" E	35	24° 29' 30.410" N	87° 52' 26.153" E
15	24° 29' 25.973" N	87° 52' 25.868" E	36	24° 29' 30.666" N	87° 52' 26.592" E
16	24° 29' 25.988" N	87° 52' 25.586" E	37	24° 29' 31.990" N	87° 52' 29.548" E
17	24° 29' 25.835" N	87° 52' 25.148" E	38	24° 29' 31.706" N	87° 52' 29.687" E
18	24° 29' 25.915" N	87° 52' 24.796" E	39	24° 29' 31.345" N	87° 52' 29.557" E
19	24° 29' 26.304" N	87° 52' 24.503" E	40	24° 29' 30.715" N	87° 52' 29.158" E
20	24° 29' 26.473" N	87° 52' 24.264" E	41	24° 29' 30.293" N	87° 52' 28.605" E
21	24° 29' 26.926" N	87° 52' 23.901" E	42	24° 29' 29.920" N	87° 52' 28.250" E

POTENTIAL BLOCK BH_M2_BS_19 OF BANSLAI RIVER



BH_M2_BS_19					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 30' 38.533" N	87° 53' 33.838" E	13	24° 30' 44.216" N	87° 53' 35.500" E
2	24° 30' 36.356" N	87° 53' 32.318" E	14	24° 30' 44.986" N	87° 53' 36.258" E
3	24° 30' 37.268" N	87° 53' 32.254" E	15	24° 30' 45.411" N	87° 53' 37.013" E
4	24° 30' 38.471" N	87° 53' 32.357" E	16	24° 30' 45.944" N	87° 53' 37.933" E
5	24° 30' 39.567" N	87° 53' 32.529" E	17	24° 30' 46.348" N	87° 53' 38.618" E
6	24° 30' 40.275" N	87° 53' 32.746" E	18	24° 30' 46.858" N	87° 53' 39.609" E
7	24° 30' 40.813" N	87° 53' 32.820" E	19	24° 30' 46.986" N	87° 53' 40.272" E
8	24° 30' 41.564" N	87° 53' 33.013" E	20	24° 30' 45.790" N	87° 53' 40.207" E
9	24° 30' 42.015" N	87° 53' 33.205" E	21	24° 30' 43.810" N	87° 53' 37.485" E
10	24° 30' 43.063" N	87° 53' 34.035" E	22	24° 30' 42.750" N	87° 53' 36.387" E
11	24° 30' 43.534" N	87° 53' 34.508" E	23	24° 30' 40.559" N	87° 53' 34.491" E
12	24° 30' 43.875" N	87° 53' 35.028" E			

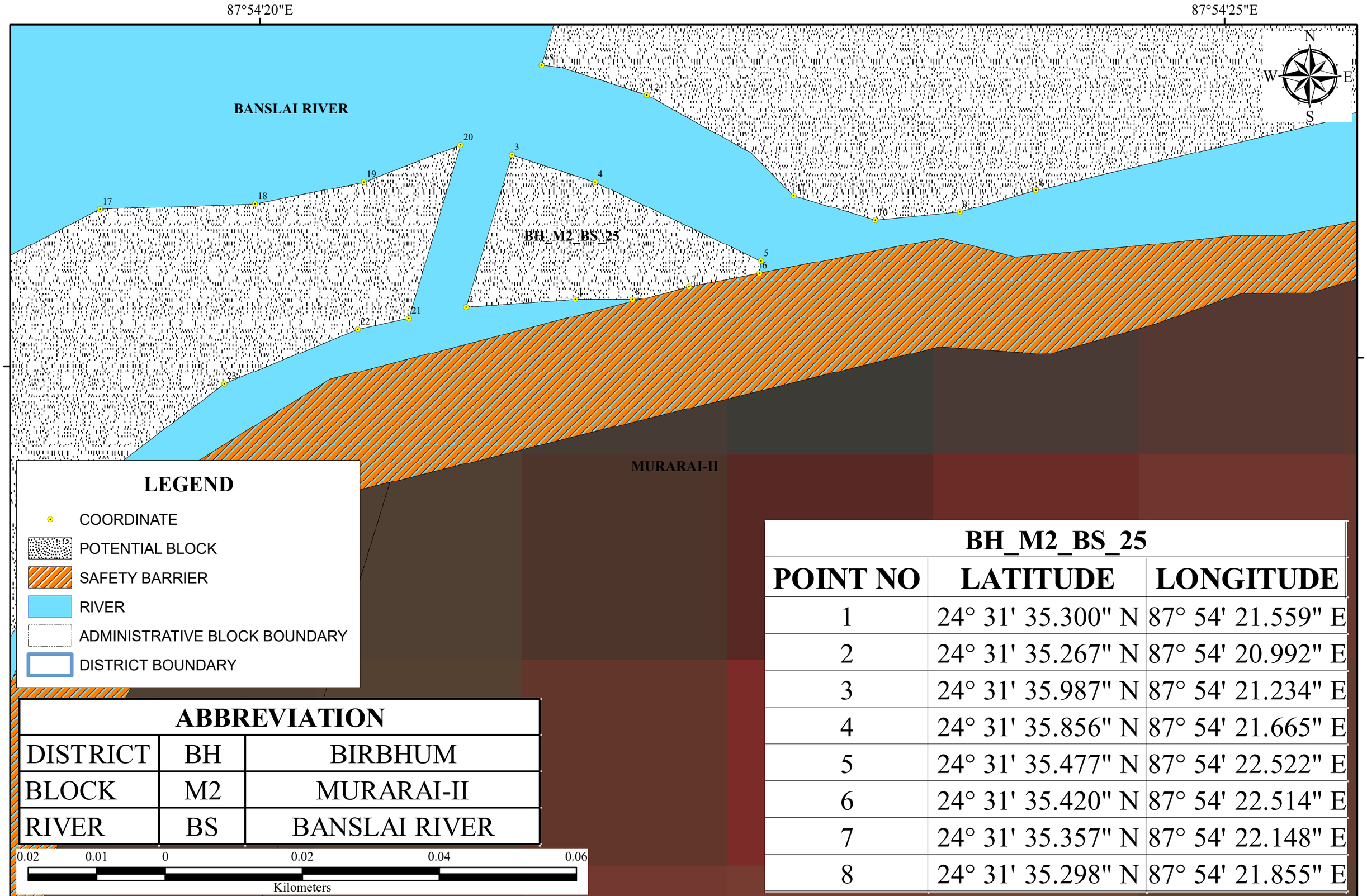
POTENTIAL BLOCK BH_M2_BS_24 OF BANSLAI RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	M2	MURARAI-II
RIVER	BS	BANSLAI RIVER

BH_M2_BS_24		
POINT NO	LATITUDE	LONGITUDE
1	24° 31' 37.425" N	87° 54' 26.842" E
2	24° 31' 37.324" N	87° 54' 27.523" E
3	24° 31' 37.365" N	87° 54' 28.586" E
4	24° 31' 37.110" N	87° 54' 27.724" E
5	24° 31' 36.802" N	87° 54' 27.482" E
6	24° 31' 36.560" N	87° 54' 27.015" E
7	24° 31' 36.370" N	87° 54' 26.337" E
8	24° 31' 35.804" N	87° 54' 23.949" E
9	24° 31' 35.703" N	87° 54' 23.554" E
10	24° 31' 35.667" N	87° 54' 23.116" E
11	24° 31' 35.786" N	87° 54' 22.694" E
12	24° 31' 36.267" N	87° 54' 21.936" E
13	24° 31' 36.414" N	87° 54' 21.392" E
14	24° 31' 37.471" N	87° 54' 21.748" E
15	24° 31' 37.553" N	87° 54' 23.447" E
16	24° 31' 37.499" N	87° 54' 25.244" E

POTENTIAL BLOCK BH_M2_BS_25 OF BANSLAI RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	M2	MURARAI-II
RIVER	BS	BANSLAI RIVER

BH_M2_BS_25		
POINT NO	LATITUDE	LONGITUDE
1	24° 31' 35.300" N	87° 54' 21.559" E
2	24° 31' 35.267" N	87° 54' 20.992" E
3	24° 31' 35.987" N	87° 54' 21.234" E
4	24° 31' 35.856" N	87° 54' 21.665" E
5	24° 31' 35.477" N	87° 54' 22.522" E
6	24° 31' 35.420" N	87° 54' 22.514" E
7	24° 31' 35.357" N	87° 54' 22.148" E
8	24° 31' 35.298" N	87° 54' 21.855" E

POTENTIAL BLOCK BH_M2_BS_26 OF BANSLAI RIVER

BH_M2_BS_26					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 31' 36.154" N	87° 54' 28.520" E	31	24° 31' 49.663" N	87° 54' 47.712" E
2	24° 31' 36.781" N	87° 54' 29.768" E	32	24° 31' 49.814" N	87° 54' 48.471" E
3	24° 31' 36.886" N	87° 54' 30.133" E	33	24° 31' 50.006" N	87° 54' 48.778" E
4	24° 31' 36.968" N	87° 54' 30.827" E	34	24° 31' 50.208" N	87° 54' 49.167" E
5	24° 31' 36.986" N	87° 54' 31.474" E	35	24° 31' 50.421" N	87° 54' 49.545" E
6	24° 31' 37.056" N	87° 54' 32.356" E	36	24° 31' 50.432" N	87° 54' 49.773" E
7	24° 31' 37.168" N	87° 54' 33.321" E	37	24° 31' 50.120" N	87° 54' 49.574" E
8	24° 31' 37.219" N	87° 54' 33.768" E	38	24° 31' 48.936" N	87° 54' 49.157" E
9	24° 31' 37.355" N	87° 54' 34.509" E	39	24° 31' 48.035" N	87° 54' 48.783" E
10	24° 31' 38.074" N	87° 54' 35.983" E	40	24° 31' 46.645" N	87° 54' 48.110" E
11	24° 31' 38.480" N	87° 54' 36.915" E	41	24° 31' 45.745" N	87° 54' 47.667" E
12	24° 31' 38.924" N	87° 54' 37.541" E	42	24° 31' 45.179" N	87° 54' 47.395" E
13	24° 31' 39.178" N	87° 54' 38.342" E	43	24° 31' 44.498" N	87° 54' 46.868" E
14	24° 31' 39.603" N	87° 54' 39.215" E	44	24° 31' 43.778" N	87° 54' 46.369" E
15	24° 31' 40.369" N	87° 54' 40.466" E	45	24° 31' 43.213" N	87° 54' 46.040" E
16	24° 31' 40.946" N	87° 54' 41.128" E	46	24° 31' 42.737" N	87° 54' 45.783" E
17	24° 31' 41.328" N	87° 54' 41.977" E	47	24° 31' 40.596" N	87° 54' 43.398" E
18	24° 31' 41.808" N	87° 54' 43.236" E	48	24° 31' 40.238" N	87° 54' 42.986" E
19	24° 31' 42.191" N	87° 54' 43.954" E	49	24° 31' 39.138" N	87° 54' 41.371" E
20	24° 31' 42.460" N	87° 54' 44.285" E	50	24° 31' 38.692" N	87° 54' 40.479" E
21	24° 31' 42.922" N	87° 54' 44.725" E	51	24° 31' 38.098" N	87° 54' 38.345" E
22	24° 31' 43.149" N	87° 54' 44.854" E	52	24° 31' 38.089" N	87° 54' 37.668" E
23	24° 31' 43.445" N	87° 54' 44.992" E	53	24° 31' 37.786" N	87° 54' 36.580" E
24	24° 31' 44.019" N	87° 54' 45.316" E	54	24° 31' 37.262" N	87° 54' 35.786" E
25	24° 31' 45.048" N	87° 54' 45.497" E	55	24° 31' 37.058" N	87° 54' 35.333" E
26	24° 31' 46.336" N	87° 54' 45.902" E	56	24° 31' 36.831" N	87° 54' 34.429" E
27	24° 31' 46.992" N	87° 54' 46.182" E	57	24° 31' 36.733" N	87° 54' 33.638" E
28	24° 31' 47.914" N	87° 54' 46.652" E	58	24° 31' 36.397" N	87° 54' 31.535" E
29	24° 31' 48.376" N	87° 54' 46.800" E	59	24° 31' 36.284" N	87° 54' 30.984" E
30	24° 31' 49.304" N	87° 54' 47.315" E	60	24° 31' 36.215" N	87° 54' 29.657" E

87°54'20"E 87°54'30"E 87°54'40"E 87°54'50"E

24°31'50"N 24°31'40"N

N W E S

BANSLAI RIVER

MURARAI-II

LEGEND

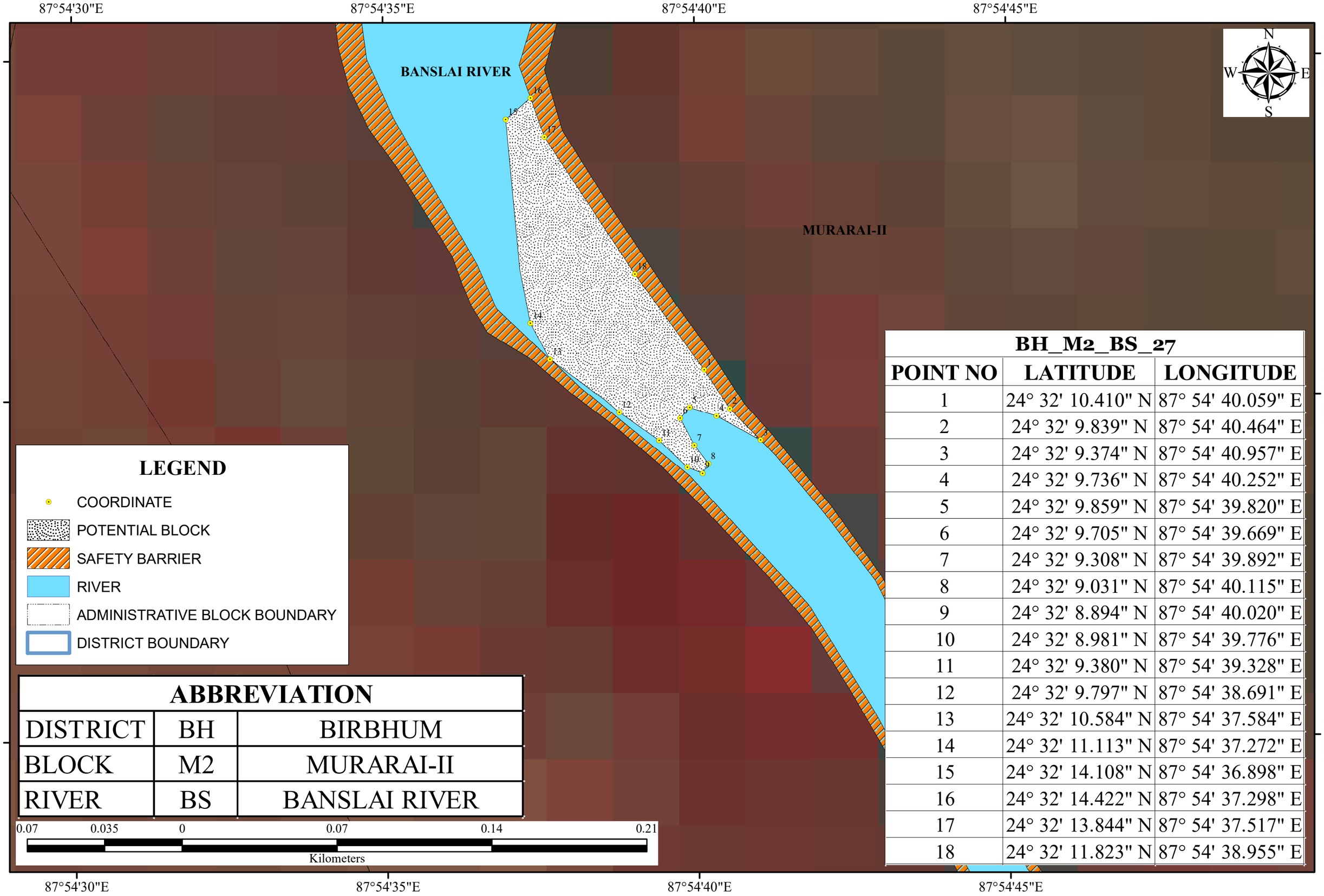
- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

0.1 0.05 0 0.1 0.2 0.3

Kilometers

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	M2	MURARAI-II
RIVER	BS	BANSLAI RIVER

POTENTIAL BLOCK BH_M2_BS_27 OF BANSLAI RIVER



BH_M2_BS_27		
POINT NO	LATITUDE	LONGITUDE
1	24° 32' 10.410" N	87° 54' 40.059" E
2	24° 32' 9.839" N	87° 54' 40.464" E
3	24° 32' 9.374" N	87° 54' 40.957" E
4	24° 32' 9.736" N	87° 54' 40.252" E
5	24° 32' 9.859" N	87° 54' 39.820" E
6	24° 32' 9.705" N	87° 54' 39.669" E
7	24° 32' 9.308" N	87° 54' 39.892" E
8	24° 32' 9.031" N	87° 54' 40.115" E
9	24° 32' 8.894" N	87° 54' 40.020" E
10	24° 32' 8.981" N	87° 54' 39.776" E
11	24° 32' 9.380" N	87° 54' 39.328" E
12	24° 32' 9.797" N	87° 54' 38.691" E
13	24° 32' 10.584" N	87° 54' 37.584" E
14	24° 32' 11.113" N	87° 54' 37.272" E
15	24° 32' 14.108" N	87° 54' 36.898" E
16	24° 32' 14.422" N	87° 54' 37.298" E
17	24° 32' 13.844" N	87° 54' 37.517" E
18	24° 32' 11.823" N	87° 54' 38.955" E

LEGEND

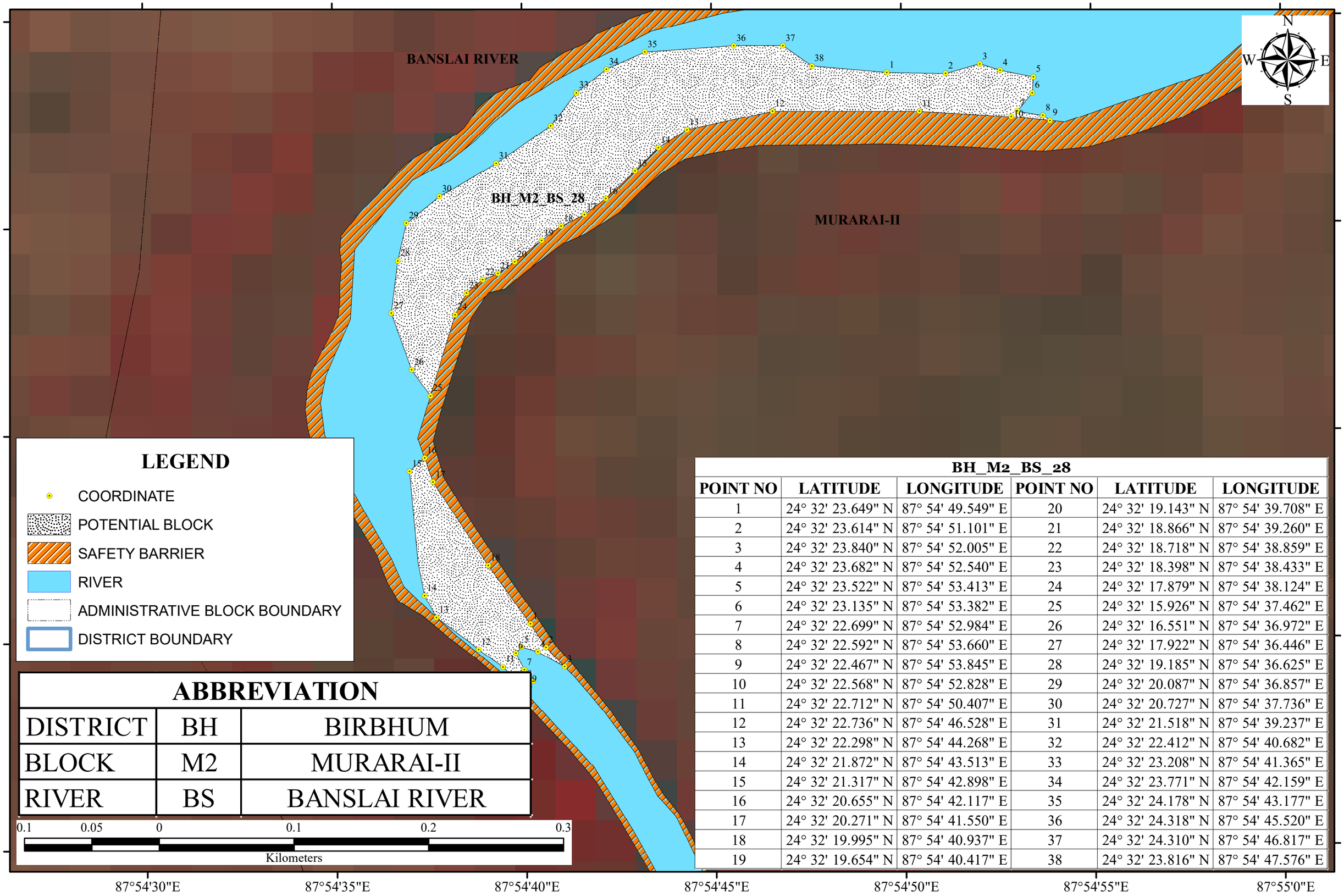
- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	M2	MURARAI-II
RIVER	BS	BANSLAI RIVER

0.07 0.035 0 0.07 0.14 0.21

Kilometers

POTENTIAL BLOCK BH_M2_BS_28 OF BANSLAI RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	M2	MURARAI-II
RIVER	BS	BANSLAI RIVER

BH_M2_BS_28					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 32' 23.649" N	87° 54' 49.549" E	20	24° 32' 19.143" N	87° 54' 39.708" E
2	24° 32' 23.614" N	87° 54' 51.101" E	21	24° 32' 18.866" N	87° 54' 39.260" E
3	24° 32' 23.840" N	87° 54' 52.005" E	22	24° 32' 18.718" N	87° 54' 38.859" E
4	24° 32' 23.682" N	87° 54' 52.540" E	23	24° 32' 18.398" N	87° 54' 38.433" E
5	24° 32' 23.522" N	87° 54' 53.413" E	24	24° 32' 17.879" N	87° 54' 38.124" E
6	24° 32' 23.135" N	87° 54' 53.382" E	25	24° 32' 15.926" N	87° 54' 37.462" E
7	24° 32' 22.699" N	87° 54' 52.984" E	26	24° 32' 16.551" N	87° 54' 36.972" E
8	24° 32' 22.592" N	87° 54' 53.660" E	27	24° 32' 17.922" N	87° 54' 36.446" E
9	24° 32' 22.467" N	87° 54' 53.845" E	28	24° 32' 19.185" N	87° 54' 36.625" E
10	24° 32' 22.568" N	87° 54' 52.828" E	29	24° 32' 20.087" N	87° 54' 36.857" E
11	24° 32' 22.712" N	87° 54' 50.407" E	30	24° 32' 20.727" N	87° 54' 37.736" E
12	24° 32' 22.736" N	87° 54' 46.528" E	31	24° 32' 21.518" N	87° 54' 39.237" E
13	24° 32' 22.298" N	87° 54' 44.268" E	32	24° 32' 22.412" N	87° 54' 40.682" E
14	24° 32' 21.872" N	87° 54' 43.513" E	33	24° 32' 23.208" N	87° 54' 41.365" E
15	24° 32' 21.317" N	87° 54' 42.898" E	34	24° 32' 23.771" N	87° 54' 42.159" E
16	24° 32' 20.655" N	87° 54' 42.117" E	35	24° 32' 24.178" N	87° 54' 43.177" E
17	24° 32' 20.271" N	87° 54' 41.550" E	36	24° 32' 24.318" N	87° 54' 45.520" E
18	24° 32' 19.995" N	87° 54' 40.937" E	37	24° 32' 24.310" N	87° 54' 46.817" E
19	24° 32' 19.654" N	87° 54' 40.417" E	38	24° 32' 23.816" N	87° 54' 47.576" E

POTENTIAL BLOCK BH_MB_DR_01 OF DWARAKA RIVER

87°33'30"E

87°33'40"E

24°4'50"N

BH_MB_DR_01

MOHAMMAD BAZAR

MAYURAKSHI RIVER

N

W

E

S

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

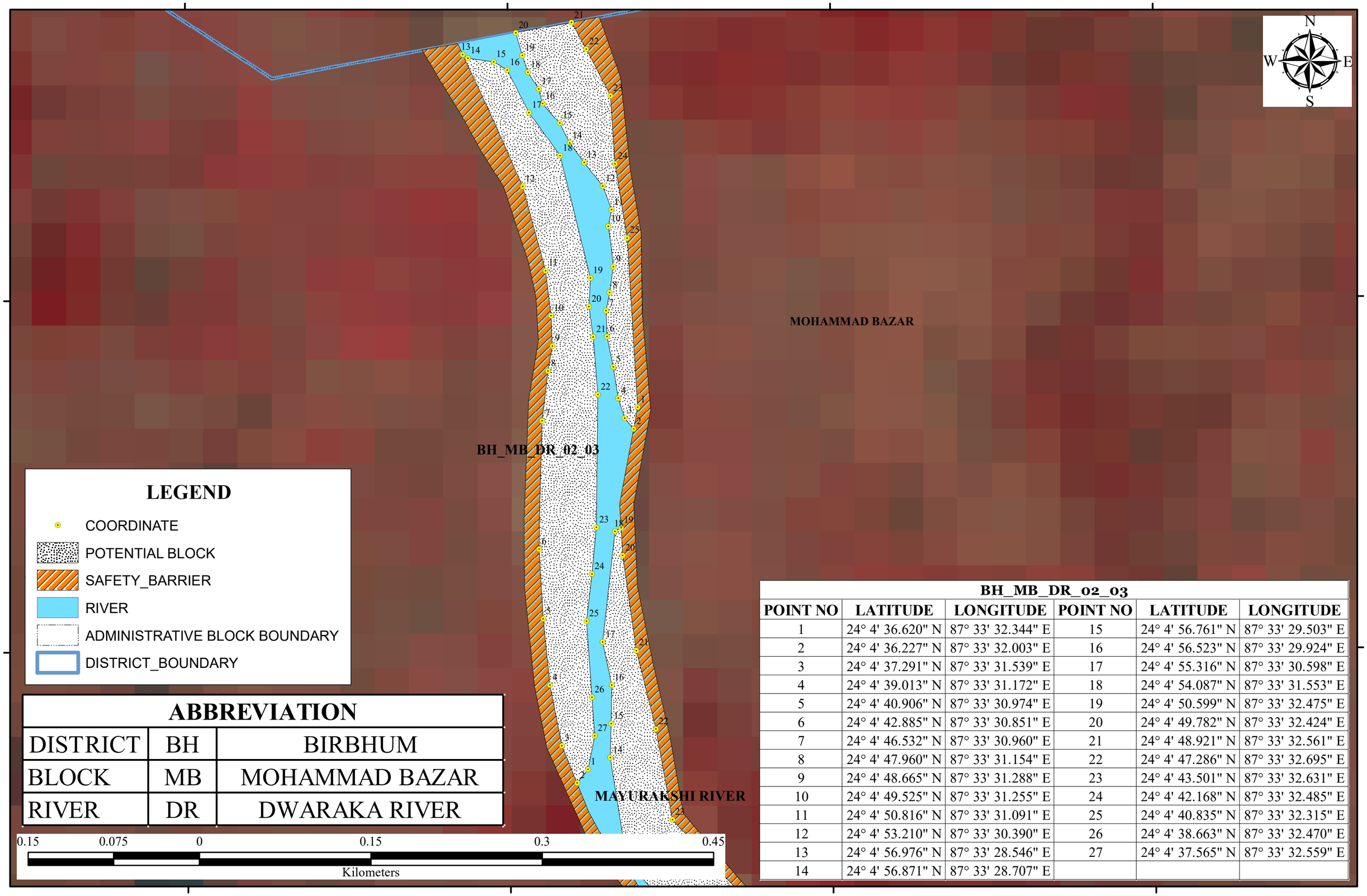
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MB	MOHAMMAD BAZAR
RIVER	DR	DWARAKA RIVER

0.1 0.05 0 0.1 0.2 0.3

Kilometers

BH_MB_DR_01					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 4' 46.918" N	87° 33' 33.929" E	14	24° 4' 54.443" N	87° 33' 31.854" E
2	24° 4' 46.296" N	87° 33' 33.799" E	15	24° 4' 55.011" N	87° 33' 31.548" E
3	24° 4' 46.604" N	87° 33' 33.521" E	16	24° 4' 55.568" N	87° 33' 31.016" E
4	24° 4' 47.172" N	87° 33' 33.327" E	17	24° 4' 55.982" N	87° 33' 30.905" E
5	24° 4' 48.063" N	87° 33' 33.176" E	18	24° 4' 56.462" N	87° 33' 30.568" E
6	24° 4' 48.928" N	87° 33' 32.983" E	19	24° 4' 56.936" N	87° 33' 30.394" E
7	24° 4' 49.664" N	87° 33' 32.958" E	20	24° 4' 57.589" N	87° 33' 30.197" E
8	24° 4' 50.180" N	87° 33' 33.073" E	21	24° 4' 57.880" N	87° 33' 31.919" E
9	24° 4' 50.915" N	87° 33' 33.188" E	22	24° 4' 57.118" N	87° 33' 32.380" E
10	24° 4' 52.064" N	87° 33' 33.039" E	23	24° 4' 55.782" N	87° 33' 33.124" E
11	24° 4' 52.541" N	87° 33' 33.139" E	24	24° 4' 53.846" N	87° 33' 33.256" E
12	24° 4' 53.213" N	87° 33' 32.875" E	25	24° 4' 51.737" N	87° 33' 33.622" E
13	24° 4' 53.886" N	87° 33' 32.302" E			

POTENTIAL BLOCK BH_MB_DR_02_03 OF DWARAKA RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MB	MOHAMMAD BAZAR
RIVER	DR	DWARAKA RIVER

BH_MB_DR_02_03					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 4' 36.620" N	87° 33' 32.344" E	15	24° 4' 56.761" N	87° 33' 29.503" E
2	24° 4' 36.227" N	87° 33' 32.003" E	16	24° 4' 56.523" N	87° 33' 29.924" E
3	24° 4' 37.291" N	87° 33' 31.539" E	17	24° 4' 55.316" N	87° 33' 30.598" E
4	24° 4' 39.013" N	87° 33' 31.172" E	18	24° 4' 54.087" N	87° 33' 31.553" E
5	24° 4' 40.906" N	87° 33' 30.974" E	19	24° 4' 50.599" N	87° 33' 32.475" E
6	24° 4' 42.885" N	87° 33' 30.851" E	20	24° 4' 49.782" N	87° 33' 32.424" E
7	24° 4' 46.532" N	87° 33' 30.960" E	21	24° 4' 48.921" N	87° 33' 32.561" E
8	24° 4' 47.960" N	87° 33' 31.154" E	22	24° 4' 47.286" N	87° 33' 32.695" E
9	24° 4' 48.665" N	87° 33' 31.288" E	23	24° 4' 43.501" N	87° 33' 32.631" E
10	24° 4' 49.525" N	87° 33' 31.255" E	24	24° 4' 42.168" N	87° 33' 32.485" E
11	24° 4' 50.816" N	87° 33' 31.091" E	25	24° 4' 40.835" N	87° 33' 32.315" E
12	24° 4' 53.210" N	87° 33' 30.390" E	26	24° 4' 38.663" N	87° 33' 32.470" E
13	24° 4' 56.976" N	87° 33' 28.546" E	27	24° 4' 37.565" N	87° 33' 32.559" E
14	24° 4' 56.871" N	87° 33' 28.707" E			

POTENTIAL BLOCK BH_MB_DR_04 OF DWARAKA RIVER

87°33'20"E 87°33'30"E 87°33'40"E 87°33'50"E 87°34'0"E

24°4'40"N 24°4'30"N

N W E S

MOHAMMAD BAZAR

BH_MB_DR_04

MAYURAKSHI RIVER

BH_MB_DR_04					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 4' 22.839" N	87° 33' 45.700" E	16	24° 4' 39.016" N	87° 33' 33.089" E
2	24° 4' 22.505" N	87° 33' 44.803" E	17	24° 4' 40.243" N	87° 33' 32.814" E
3	24° 4' 22.954" N	87° 33' 43.889" E	18	24° 4' 43.385" N	87° 33' 33.210" E
4	24° 4' 23.861" N	87° 33' 42.768" E	19	24° 4' 43.489" N	87° 33' 33.396" E
5	24° 4' 24.788" N	87° 33' 42.046" E	20	24° 4' 42.705" N	87° 33' 33.442" E
6	24° 4' 25.544" N	87° 33' 41.370" E	21	24° 4' 39.993" N	87° 33' 33.852" E
7	24° 4' 26.430" N	87° 33' 40.226" E	22	24° 4' 37.754" N	87° 33' 34.452" E
8	24° 4' 27.919" N	87° 33' 38.897" E	23	24° 4' 35.171" N	87° 33' 34.956" E
9	24° 4' 28.954" N	87° 33' 38.176" E	24	24° 4' 31.156" N	87° 33' 38.967" E
10	24° 4' 29.665" N	87° 33' 37.734" E	25	24° 4' 29.383" N	87° 33' 41.536" E
11	24° 4' 30.420" N	87° 33' 37.128" E	26	24° 4' 27.742" N	87° 33' 43.497" E
12	24° 4' 30.658" N	87° 33' 36.801" E	27	24° 4' 26.793" N	87° 33' 44.008" E
13	24° 4' 34.004" N	87° 33' 33.534" E	28	24° 4' 25.890" N	87° 33' 43.911" E
14	24° 4' 36.952" N	87° 33' 33.033" E	29	24° 4' 24.470" N	87° 33' 44.232" E
15	24° 4' 37.919" N	87° 33' 33.061" E			

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MB	MOHAMMAD BAZAR
RIVER	DR	DWARAKA RIVER

0.15 0.075 0 0.15 0.3 0.45

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

POTENTIAL BLOCK BH_MB_DR_05 OF DWARAKA RIVER

87°33'40"E 87°33'50"E 87°34'0"E

24°4'20"N 24°4'10"N

MAYURAKSHI RIVER

MOHAMMAD BAZAR

BH_MB_DR_05

BH_MB_DR_05					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 4' 11.325" N	87° 33' 48.790" E	13	24° 4' 20.585" N	87° 33' 44.998" E
2	24° 4' 10.935" N	87° 33' 48.202" E	14	24° 4' 21.012" N	87° 33' 45.735" E
3	24° 4' 11.301" N	87° 33' 48.104" E	15	24° 4' 21.069" N	87° 33' 46.765" E
4	24° 4' 11.766" N	87° 33' 48.050" E	16	24° 4' 20.619" N	87° 33' 47.158" E
5	24° 4' 12.764" N	87° 33' 47.867" E	17	24° 4' 19.585" N	87° 33' 47.848" E
6	24° 4' 13.281" N	87° 33' 47.719" E	18	24° 4' 19.092" N	87° 33' 48.113" E
7	24° 4' 14.230" N	87° 33' 47.049" E	19	24° 4' 18.614" N	87° 33' 48.344" E
8	24° 4' 15.607" N	87° 33' 46.755" E	20	24° 4' 17.345" N	87° 33' 48.432" E
9	24° 4' 17.294" N	87° 33' 46.537" E	21	24° 4' 16.183" N	87° 33' 48.614" E
10	24° 4' 19.292" N	87° 33' 45.928" E	22	24° 4' 14.826" N	87° 33' 49.124" E
11	24° 4' 20.120" N	87° 33' 45.500" E	23	24° 4' 13.578" N	87° 33' 49.235" E
12	24° 4' 20.500" N	87° 33' 45.052" E	24	24° 4' 12.202" N	87° 33' 49.065" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MB	MOHAMMAD BAZAR
RIVER	DR	DWARAKA RIVER

0.1 0.05 0 0.1 0.2 0.3

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

POTENTIAL BLOCK BH_MB_DR_06 OF DWARAKA RIVER

87°33'50"E

87°34'0"E

24°4'10"N

BH_MB_DR_06		
POINT NO	LATITUDE	LONGITUDE
1	24° 4' 6.250" N	87° 33' 50.993" E
2	24° 4' 4.165" N	87° 33' 51.550" E
3	24° 4' 4.212" N	87° 33' 51.144" E
4	24° 4' 4.661" N	87° 33' 50.790" E
5	24° 4' 5.299" N	87° 33' 50.399" E
6	24° 4' 5.919" N	87° 33' 50.233" E
7	24° 4' 6.607" N	87° 33' 50.095" E
8	24° 4' 7.490" N	87° 33' 49.630" E
9	24° 4' 8.589" N	87° 33' 49.096" E
10	24° 4' 9.537" N	87° 33' 48.772" E
11	24° 4' 10.783" N	87° 33' 49.129" E
12	24° 4' 11.426" N	87° 33' 49.718" E
13	24° 4' 11.511" N	87° 33' 49.903" E
14	24° 4' 9.393" N	87° 33' 50.210" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MB	MOHAMMAD BAZAR
RIVER	DR	DWARAKA RIVER

MAYURAKSHI RIVER

MOHAMMAD BAZAR

BH_MB_DR_06

0.07 0.035 0 0.07 0.14 0.21

Kilometers

N

W E

S

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

POTENTIAL BLOCK BH_MB_DR_07_08 OF DWARAKA RIVER

87°33'50"E

87°34'0"E

24°4'0"N

MAYURAKSHI RIVER

MOHAMMAD BAZAR

BH_MB_DR_07_08		
POINT NO	LATITUDE	LONGITUDE
1	24° 3' 55.233" N	87° 33' 54.413" E
2	24° 3' 55.152" N	87° 33' 54.048" E
3	24° 3' 55.724" N	87° 33' 53.484" E
4	24° 3' 57.362" N	87° 33' 52.672" E
5	24° 3' 57.975" N	87° 33' 52.604" E
6	24° 3' 58.277" N	87° 33' 52.453" E
7	24° 3' 59.883" N	87° 33' 51.336" E
8	24° 4' 1.486" N	87° 33' 51.156" E
9	24° 4' 1.958" N	87° 33' 51.228" E
10	24° 4' 2.422" N	87° 33' 51.455" E
11	24° 4' 2.591" N	87° 33' 52.015" E
12	24° 3' 58.455" N	87° 33' 53.441" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MB	MOHAMMAD BAZAR
RIVER	DR	DWARAKA RIVER

0.07 0.035 0 0.07 0.14 0.21

Kilometers

N

W E

S

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

POTENTIAL BLOCK BH_MB_DR_09 OF DWARAKA RIVER

87°33'40"E

87°33'50"E

24°3'50"N

24°3'50"N

N

W

E

S

MOHAMMAD BAZAR

MAYURAKSHI RIVER

BH_MB_DR_09					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 3' 42.874" N	87° 33' 47.624" E	13	24° 3' 50.198" N	87° 33' 52.504" E
2	24° 3' 42.664" N	87° 33' 47.059" E	14	24° 3' 49.361" N	87° 33' 52.037" E
3	24° 3' 43.737" N	87° 33' 48.002" E	15	24° 3' 48.601" N	87° 33' 51.640" E
4	24° 3' 45.402" N	87° 33' 49.246" E	16	24° 3' 47.235" N	87° 33' 51.255" E
5	24° 3' 46.278" N	87° 33' 49.644" E	17	24° 3' 46.797" N	87° 33' 51.126" E
6	24° 3' 47.720" N	87° 33' 50.437" E	18	24° 3' 46.383" N	87° 33' 51.251" E
7	24° 3' 50.193" N	87° 33' 51.685" E	19	24° 3' 45.802" N	87° 33' 51.101" E
8	24° 3' 51.498" N	87° 33' 52.346" E	20	24° 3' 44.979" N	87° 33' 50.500" E
9	24° 3' 52.815" N	87° 33' 52.728" E	21	24° 3' 44.710" N	87° 33' 50.021" E
10	24° 3' 52.533" N	87° 33' 52.908" E	22	24° 3' 43.965" N	87° 33' 49.273" E
11	24° 3' 51.964" N	87° 33' 52.976" E	23	24° 3' 43.413" N	87° 33' 48.413" E
12	24° 3' 50.869" N	87° 33' 52.732" E			

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MB	MOHAMMAD BAZAR
RIVER	DR	DWARAKA RIVER

0.07 0.035 0 0.07 0.14 0.21

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

87°33'40"E

87°33'50"E

POTENTIAL BLOCK BH_MB_DR_17 OF DWARAKA RIVER

87°36'30"E 87°36'40"E

24°1'20"N

MAYURAKSHI RIVER

MOHAMMAD BAZAR

BH_MB_DR_17					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 1' 20.196" N	87° 36' 32.033" E	12	24° 1' 12.034" N	87° 36' 33.751" E
2	24° 1' 19.807" N	87° 36' 32.467" E	13	24° 1' 10.911" N	87° 36' 33.703" E
3	24° 1' 19.212" N	87° 36' 32.885" E	14	24° 1' 9.880" N	87° 36' 33.530" E
4	24° 1' 18.541" N	87° 36' 32.995" E	15	24° 1' 9.488" N	87° 36' 33.263" E
5	24° 1' 17.986" N	87° 36' 33.006" E	16	24° 1' 11.523" N	87° 36' 32.778" E
6	24° 1' 17.470" N	87° 36' 32.919" E	17	24° 1' 13.194" N	87° 36' 32.280" E
7	24° 1' 16.748" N	87° 36' 32.761" E	18	24° 1' 14.038" N	87° 36' 32.059" E
8	24° 1' 16.000" N	87° 36' 32.730" E	19	24° 1' 16.018" N	87° 36' 31.694" E
9	24° 1' 15.147" N	87° 36' 32.908" E	20	24° 1' 18.135" N	87° 36' 31.591" E
10	24° 1' 14.320" N	87° 36' 33.143" E	21	24° 1' 19.322" N	87° 36' 31.578" E
11	24° 1' 13.067" N	87° 36' 33.559" E	22	24° 1' 20.196" N	87° 36' 31.653" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MB	MOHAMMAD BAZAR
RIVER	DR	DWARAKA RIVER

0.07 0.035 0 0.07 0.14 0.21

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

24°1'10"N

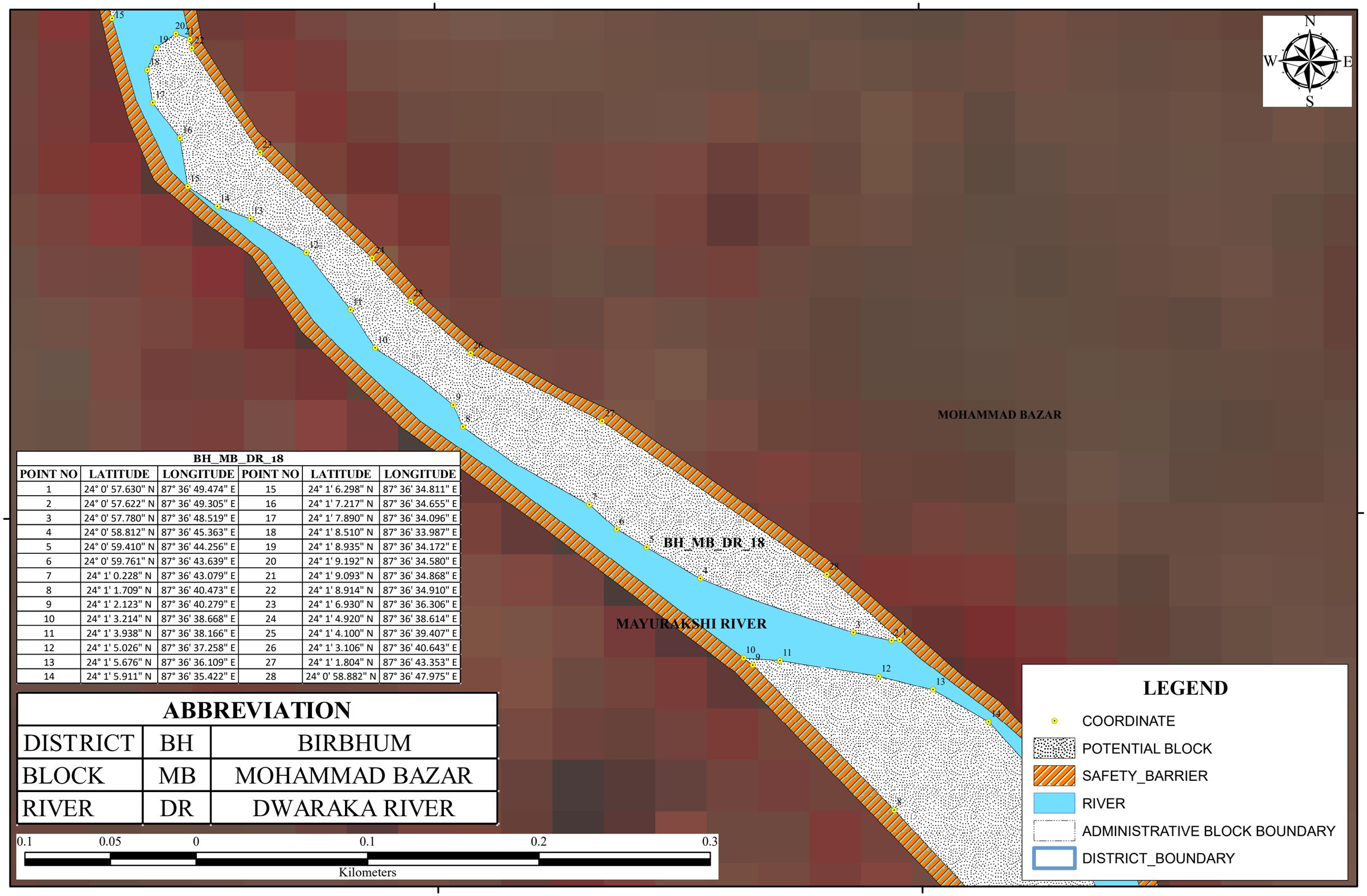
87°36'30"E 87°36'40"E

POTENTIAL BLOCK BH_MB_DR_18 OF DWARAKA RIVER

87°36'40"E

87°36'50"E

24°1'0"N



BH_MB_DR_18					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 0' 57.630" N	87° 36' 49.474" E	15	24° 1' 6.298" N	87° 36' 34.811" E
2	24° 0' 57.622" N	87° 36' 49.305" E	16	24° 1' 7.217" N	87° 36' 34.655" E
3	24° 0' 57.780" N	87° 36' 48.519" E	17	24° 1' 7.890" N	87° 36' 34.096" E
4	24° 0' 58.812" N	87° 36' 45.363" E	18	24° 1' 8.510" N	87° 36' 33.987" E
5	24° 0' 59.410" N	87° 36' 44.256" E	19	24° 1' 8.935" N	87° 36' 34.172" E
6	24° 0' 59.761" N	87° 36' 43.639" E	20	24° 1' 9.192" N	87° 36' 34.580" E
7	24° 1' 0.228" N	87° 36' 43.079" E	21	24° 1' 9.093" N	87° 36' 34.868" E
8	24° 1' 1.709" N	87° 36' 40.473" E	22	24° 1' 8.914" N	87° 36' 34.910" E
9	24° 1' 2.123" N	87° 36' 40.279" E	23	24° 1' 6.930" N	87° 36' 36.306" E
10	24° 1' 3.214" N	87° 36' 38.668" E	24	24° 1' 4.920" N	87° 36' 38.614" E
11	24° 1' 3.938" N	87° 36' 38.166" E	25	24° 1' 4.100" N	87° 36' 39.407" E
12	24° 1' 5.026" N	87° 36' 37.258" E	26	24° 1' 3.106" N	87° 36' 40.643" E
13	24° 1' 5.676" N	87° 36' 36.109" E	27	24° 1' 1.804" N	87° 36' 43.353" E
14	24° 1' 5.911" N	87° 36' 35.422" E	28	24° 0' 58.882" N	87° 36' 47.975" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MB	MOHAMMAD BAZAR
RIVER	DR	DWARAKA RIVER

0.1 0.05 0 0.1 0.2 0.3

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

POTENTIAL BLOCK BH_MB_DR_19 OF DWARAKA RIVER

87°36'40"E 87°36'50"E 87°37'0"E

24°0'50"N

MAYURAKSHI RIVER

BH_MB_DR_19

MOHAMMAD BAZAR

DWARAKA RIVER

BH_MB_DR_19					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 0' 45.122" N	87° 36' 59.558" E	11	24° 0' 57.255" N	87° 36' 47.002" E
2	24° 0' 42.730" N	87° 36' 58.088" E	12	24° 0' 56.945" N	87° 36' 49.037" E
3	24° 0' 43.603" N	87° 36' 57.258" E	13	24° 0' 56.683" N	87° 36' 50.160" E
4	24° 0' 46.401" N	87° 36' 54.724" E	14	24° 0' 56.076" N	87° 36' 51.304" E
5	24° 0' 47.194" N	87° 36' 54.241" E	15	24° 0' 54.932" N	87° 36' 52.423" E
6	24° 0' 50.814" N	87° 36' 52.647" E	16	24° 0' 52.453" N	87° 36' 53.769" E
7	24° 0' 52.212" N	87° 36' 51.549" E	17	24° 0' 50.403" N	87° 36' 55.375" E
8	24° 0' 54.406" N	87° 36' 49.349" E	18	24° 0' 48.657" N	87° 36' 56.443" E
9	24° 0' 57.171" N	87° 36' 46.440" E	19	24° 0' 47.536" N	87° 36' 57.023" E
10	24° 0' 57.302" N	87° 36' 46.251" E			

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MB	MOHAMMAD BAZAR
RIVER	DR	DWARAKA RIVER

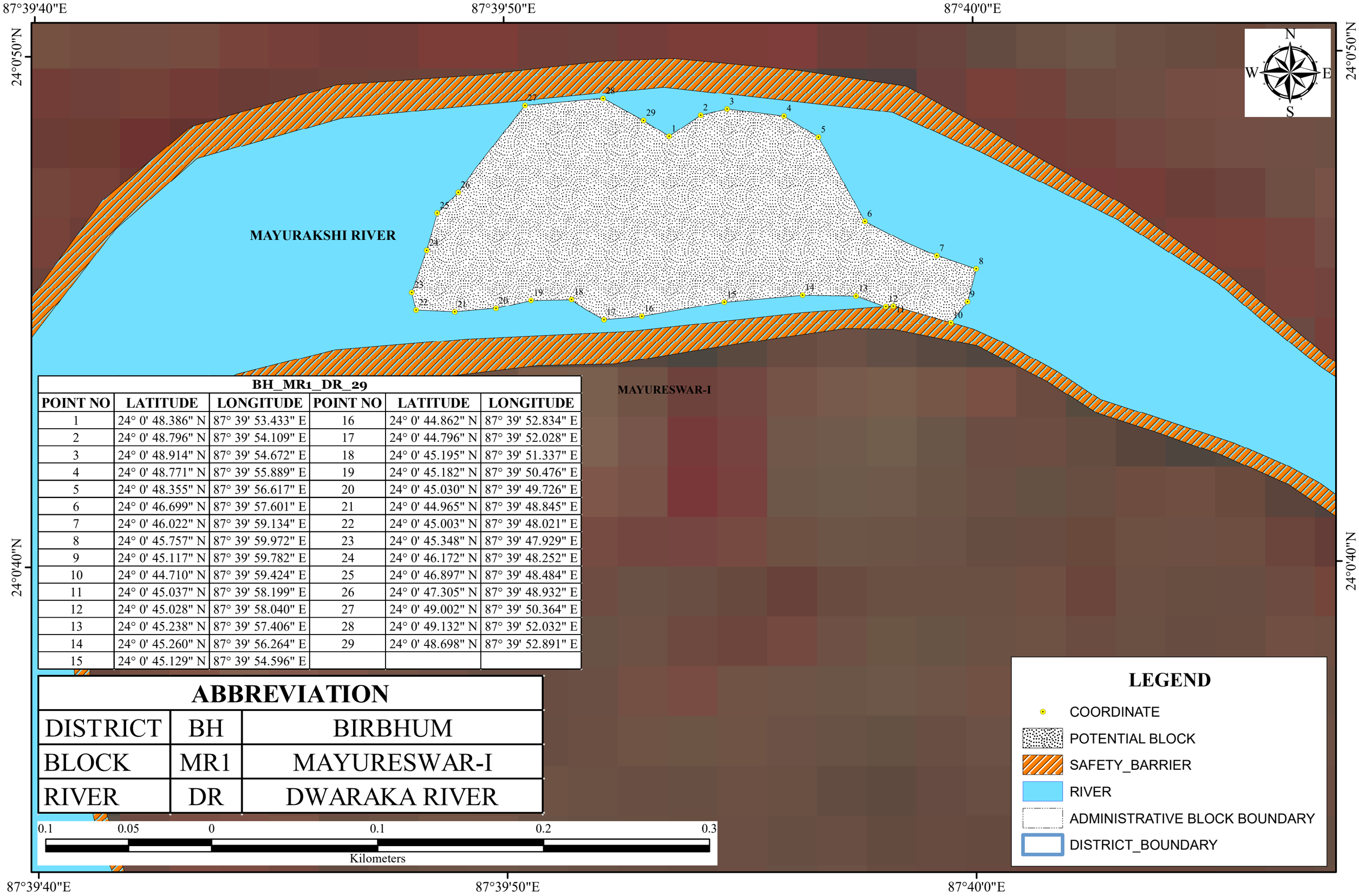
0.1 0.05 0 0.1 0.2 0.3

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

POTENTIAL BLOCK BH_MR1_DR_29 OF DWARAKA RIVER



BH_MR1_DR_29					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 0' 48.386" N	87° 39' 53.433" E	16	24° 0' 44.862" N	87° 39' 52.834" E
2	24° 0' 48.796" N	87° 39' 54.109" E	17	24° 0' 44.796" N	87° 39' 52.028" E
3	24° 0' 48.914" N	87° 39' 54.672" E	18	24° 0' 45.195" N	87° 39' 51.337" E
4	24° 0' 48.771" N	87° 39' 55.889" E	19	24° 0' 45.182" N	87° 39' 50.476" E
5	24° 0' 48.355" N	87° 39' 56.617" E	20	24° 0' 45.030" N	87° 39' 49.726" E
6	24° 0' 46.699" N	87° 39' 57.601" E	21	24° 0' 44.965" N	87° 39' 48.845" E
7	24° 0' 46.022" N	87° 39' 59.134" E	22	24° 0' 45.003" N	87° 39' 48.021" E
8	24° 0' 45.757" N	87° 39' 59.972" E	23	24° 0' 45.348" N	87° 39' 47.929" E
9	24° 0' 45.117" N	87° 39' 59.782" E	24	24° 0' 46.172" N	87° 39' 48.252" E
10	24° 0' 44.710" N	87° 39' 59.424" E	25	24° 0' 46.897" N	87° 39' 48.484" E
11	24° 0' 45.037" N	87° 39' 58.199" E	26	24° 0' 47.305" N	87° 39' 48.932" E
12	24° 0' 45.028" N	87° 39' 58.040" E	27	24° 0' 49.002" N	87° 39' 50.364" E
13	24° 0' 45.238" N	87° 39' 57.406" E	28	24° 0' 49.132" N	87° 39' 52.032" E
14	24° 0' 45.260" N	87° 39' 56.264" E	29	24° 0' 48.698" N	87° 39' 52.891" E
15	24° 0' 45.129" N	87° 39' 54.596" E			

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MR1	MAYURESWAR-I
RIVER	DR	DWARAKA RIVER

POTENTIAL BLOCK BH_R2_DR_35 OF DWARAKA RIVER

87°47'0"E 87°47'10"E 87°47'20"E

24°5'50"N 24°5'40"N

RAMPURHAT-II

BH_R2_DR_35

MAYURAKSHI RIVER

BH_R2_DR_35					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 5' 40.149" N	87° 47' 12.845" E	13	24° 5' 49.889" N	87° 47' 13.118" E
2	24° 5' 39.986" N	87° 47' 12.813" E	14	24° 5' 50.761" N	87° 47' 13.251" E
3	24° 5' 40.758" N	87° 47' 12.485" E	15	24° 5' 49.815" N	87° 47' 13.466" E
4	24° 5' 41.601" N	87° 47' 12.584" E	16	24° 5' 49.298" N	87° 47' 13.594" E
5	24° 5' 42.905" N	87° 47' 12.944" E	17	24° 5' 47.706" N	87° 47' 13.791" E
6	24° 5' 43.524" N	87° 47' 13.060" E	18	24° 5' 46.459" N	87° 47' 13.708" E
7	24° 5' 44.315" N	87° 47' 13.027" E	19	24° 5' 45.453" N	87° 47' 13.693" E
8	24° 5' 45.107" N	87° 47' 13.032" E	20	24° 5' 44.076" N	87° 47' 13.694" E
9	24° 5' 46.243" N	87° 47' 12.889" E	21	24° 5' 43.027" N	87° 47' 13.659" E
10	24° 5' 47.361" N	87° 47' 13.065" E	22	24° 5' 42.416" N	87° 47' 13.618" E
11	24° 5' 48.239" N	87° 47' 12.883" E	23	24° 5' 41.428" N	87° 47' 13.368" E
12	24° 5' 49.134" N	87° 47' 12.851" E	24	24° 5' 40.596" N	87° 47' 13.026" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	R2	RAMPURHAT-II
RIVER	DR	DWARAKA RIVER

0.1 0.05 0 0.1 0.2 0.3

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

POTENTIAL BLOCK BH_R2_DR_36 OF DWARAKA RIVER

87°47'10"E

87°47'20"E

24°5'50"N

MAYURAKSHI RIVER

RAMPURHAT-II

BH_R2_DR_36

BH_R2_DR_36		
POINT NO	LATITUDE	LONGITUDE
1	24° 5' 49.744" N	87° 47' 12.507" E
2	24° 5' 49.087" N	87° 47' 12.374" E
3	24° 5' 49.500" N	87° 47' 12.320" E
4	24° 5' 51.666" N	87° 47' 11.254" E
5	24° 5' 52.911" N	87° 47' 10.145" E
6	24° 5' 53.892" N	87° 47' 9.251" E
7	24° 5' 54.856" N	87° 47' 8.245" E
8	24° 5' 54.769" N	87° 47' 8.967" E
9	24° 5' 54.585" N	87° 47' 9.528" E
10	24° 5' 53.650" N	87° 47' 10.731" E
11	24° 5' 52.664" N	87° 47' 11.738" E
12	24° 5' 51.369" N	87° 47' 12.629" E
13	24° 5' 50.929" N	87° 47' 12.767" E
14	24° 5' 50.336" N	87° 47' 12.707" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	R2	RAMPURHAT-II
RIVER	DR	DWARAKA RIVER

0.07 0.035 0 0.07 0.14 0.21

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

POTENTIAL BLOCK BH_MB_MY_1A OF MAYURAKSHI RIVER

87°35'40"E 87°35'50"E 87°36'0"E 87°36'10"E 87°36'20"E 87°36'30"E

23°56'40"N 23°56'30"N 23°56'20"N

MAYURAKSHI RIVER

MOHAMMAD BAZAR

N W E S

BH_MB_MY_1A		
POINT NO	LATITUDE	LONGITUDE
1	23° 56' 32.702" N	87° 36' 17.752" E
2	23° 56' 29.888" N	87° 36' 17.529" E
3	23° 56' 31.113" N	87° 36' 12.106" E
4	23° 56' 35.539" N	87° 36' 2.392" E
5	23° 56' 40.471" N	87° 35' 55.114" E
6	23° 56' 44.170" N	87° 35' 55.131" E
7	23° 56' 48.486" N	87° 35' 56.414" E
8	23° 56' 46.100" N	87° 36' 1.551" E
9	23° 56' 41.227" N	87° 36' 10.187" E
10	23° 56' 37.658" N	87° 36' 15.435" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MB	MOHAMMAD BAZAR
RIVER	MY	MAYURAKSHI RIVER

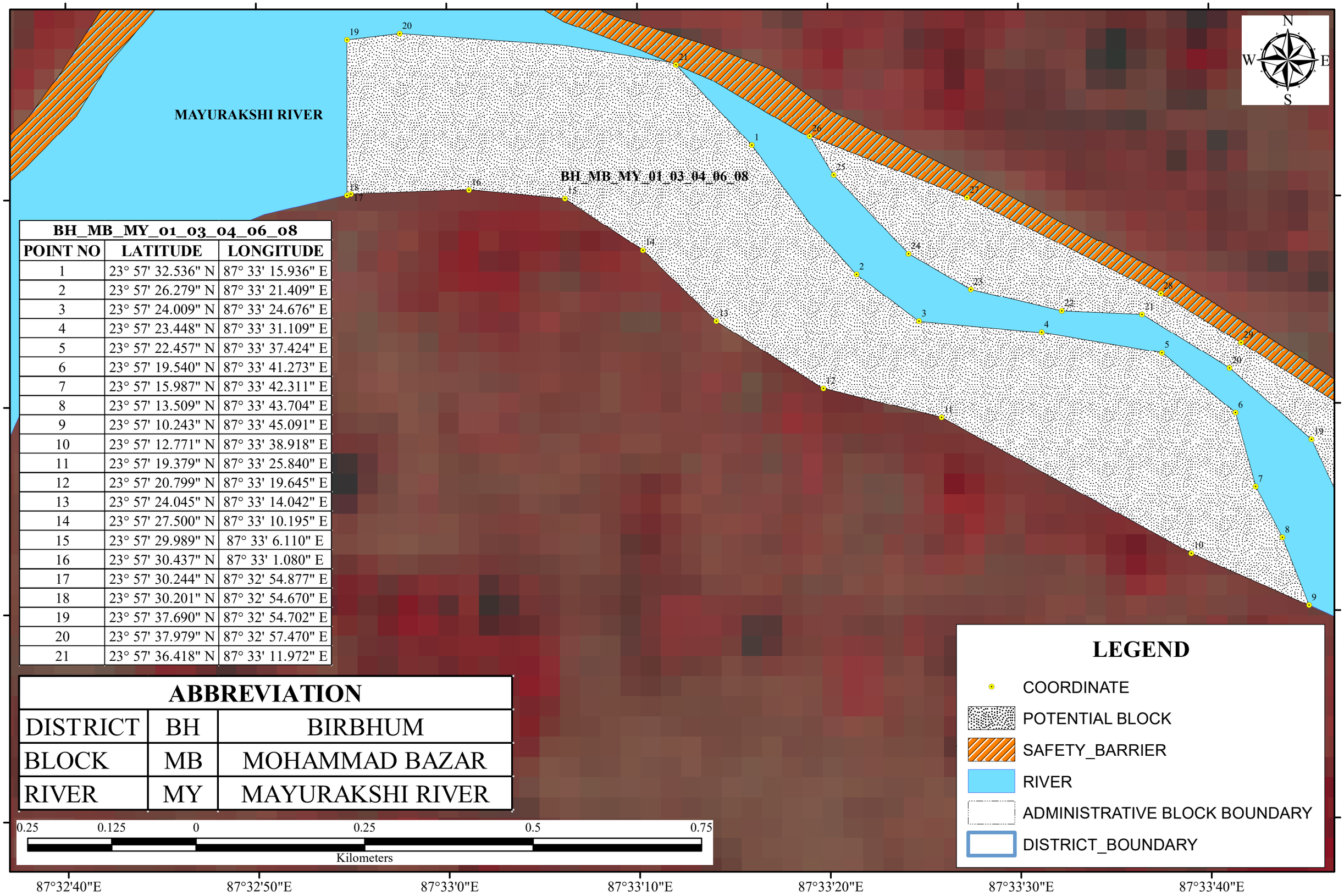
0.2 0.1 0 0.2 0.4 0.6

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

POTENTIAL BLOCK BH_MB_MY_01_03_04_06_08 OF MAYURAKSHI RIVER



BH_MB_MY_01_03_04_06_08		
POINT NO	LATITUDE	LONGITUDE
1	23° 57' 32.536" N	87° 33' 15.936" E
2	23° 57' 26.279" N	87° 33' 21.409" E
3	23° 57' 24.009" N	87° 33' 24.676" E
4	23° 57' 23.448" N	87° 33' 31.109" E
5	23° 57' 22.457" N	87° 33' 37.424" E
6	23° 57' 19.540" N	87° 33' 41.273" E
7	23° 57' 15.987" N	87° 33' 42.311" E
8	23° 57' 13.509" N	87° 33' 43.704" E
9	23° 57' 10.243" N	87° 33' 45.091" E
10	23° 57' 12.771" N	87° 33' 38.918" E
11	23° 57' 19.379" N	87° 33' 25.840" E
12	23° 57' 20.799" N	87° 33' 19.645" E
13	23° 57' 24.045" N	87° 33' 14.042" E
14	23° 57' 27.500" N	87° 33' 10.195" E
15	23° 57' 29.989" N	87° 33' 6.110" E
16	23° 57' 30.437" N	87° 33' 1.080" E
17	23° 57' 30.244" N	87° 32' 54.877" E
18	23° 57' 30.201" N	87° 32' 54.670" E
19	23° 57' 37.690" N	87° 32' 54.702" E
20	23° 57' 37.979" N	87° 32' 57.470" E
21	23° 57' 36.418" N	87° 33' 11.972" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MB	MOHAMMAD BAZAR
RIVER	MY	MAYURAKSHI RIVER

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

POTENTIAL BLOCK BH_MB_MY_07_08 OF MAYURAKSHI RIVER

87°33'20"E 87°33'30"E 87°33'40"E 87°33'50"E 87°34'0"E 87°34'10"E 87°34'20"E 87°34'30"E

23°57'30"N 23°57'20"N 23°57'10"N 23°57'0"N 23°56'50"N

N W E S

BH_MB_MY_07_08

MOHAMMAD BAZAR

MAYURAKSHI RIVER

BH_MB_MY_07_08					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	23° 57' 14.893" N	87° 34' 0.271" E	16	23° 57' 8.671" N	87° 33' 52.982" E
2	23° 57' 13.896" N	87° 34' 7.990" E	17	23° 57' 11.266" N	87° 33' 49.155" E
3	23° 57' 14.082" N	87° 34' 15.948" E	18	23° 57' 14.715" N	87° 33' 47.017" E
4	23° 57' 16.624" N	87° 34' 26.373" E	19	23° 57' 18.249" N	87° 33' 45.254" E
5	23° 57' 17.009" N	87° 34' 32.433" E	20	23° 57' 21.706" N	87° 33' 40.962" E
6	23° 57' 15.333" N	87° 34' 29.145" E	21	23° 57' 24.303" N	87° 33' 36.387" E
7	23° 57' 12.077" N	87° 34' 25.667" E	22	23° 57' 24.491" N	87° 33' 32.175" E
8	23° 57' 11.401" N	87° 34' 22.481" E	23	23° 57' 25.541" N	87° 33' 27.405" E
9	23° 57' 11.247" N	87° 34' 17.612" E	24	23° 57' 27.273" N	87° 33' 24.136" E
10	23° 57' 9.539" N	87° 34' 14.235" E	25	23° 57' 31.073" N	87° 33' 20.220" E
11	23° 57' 9.029" N	87° 34' 12.548" E	26	23° 57' 32.970" N	87° 33' 18.965" E
12	23° 57' 9.650" N	87° 34' 7.402" E	27	23° 57' 29.962" N	87° 33' 27.221" E
13	23° 57' 9.237" N	87° 34' 2.813" E	28	23° 57' 25.301" N	87° 33' 37.381" E
14	23° 57' 8.130" N	87° 33' 59.719" E	29	23° 57' 22.919" N	87° 33' 41.584" E
15	23° 57' 7.713" N	87° 33' 56.067" E	30	23° 57' 18.590" N	87° 33' 49.054" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MB	MOHAMMAD BAZAR
RIVER	MY	MAYURAKSHI RIVER

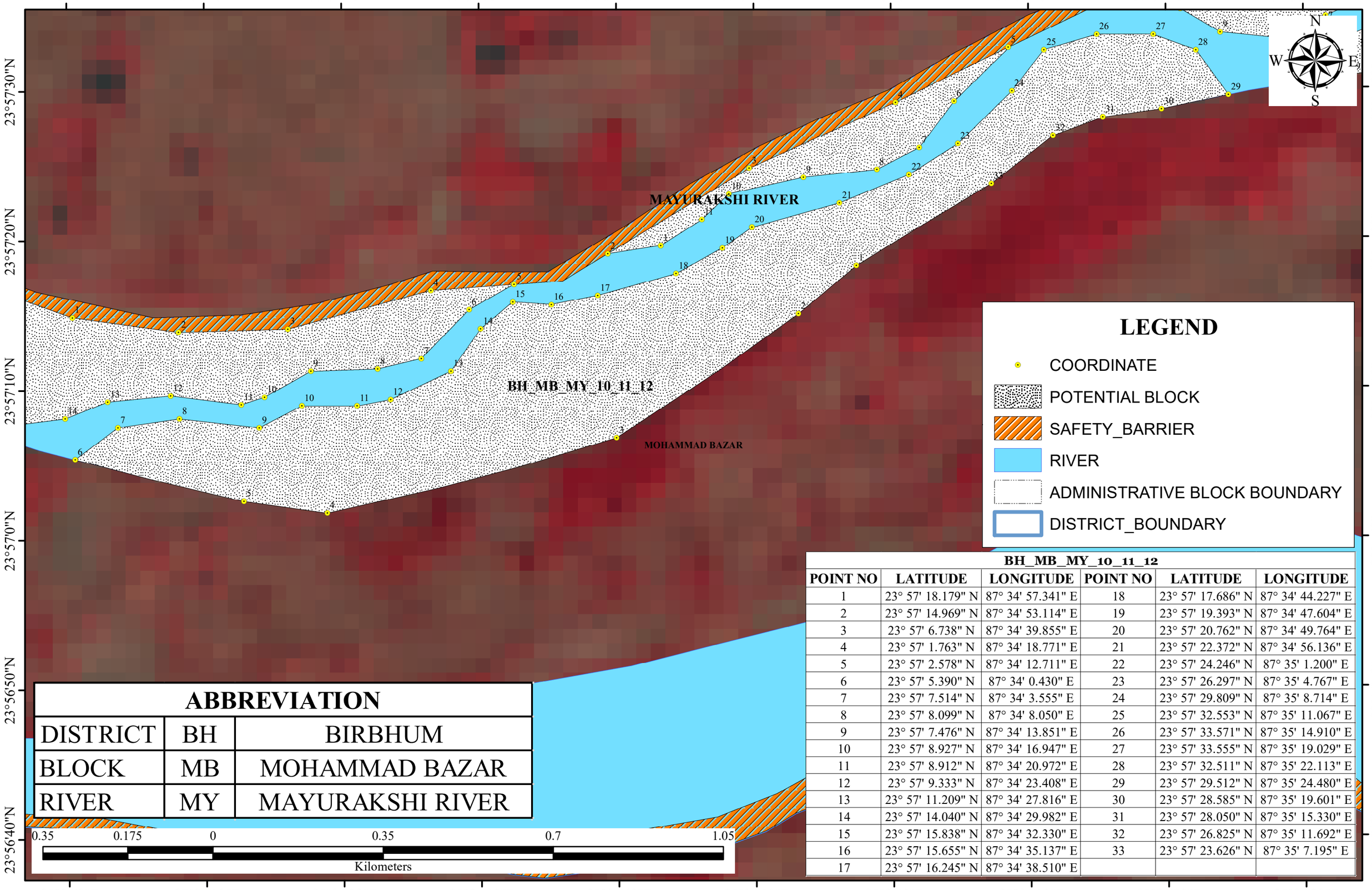
0.3 0.15 0 0.3 0.6 0.9

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

POTENTIAL BLOCK BH_MB_MY_10_11_12 OF MAYURAKSHI RIVER



LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

ABBREVIATION

DISTRICT	BH	BIRBHUM
BLOCK	MB	MOHAMMAD BAZAR
RIVER	MY	MAYURAKSHI RIVER

BH_MB_MY_10_11_12

POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	23° 57' 18.179" N	87° 34' 57.341" E	18	23° 57' 17.686" N	87° 34' 44.227" E
2	23° 57' 14.969" N	87° 34' 53.114" E	19	23° 57' 19.393" N	87° 34' 47.604" E
3	23° 57' 6.738" N	87° 34' 39.855" E	20	23° 57' 20.762" N	87° 34' 49.764" E
4	23° 57' 1.763" N	87° 34' 18.771" E	21	23° 57' 22.372" N	87° 34' 56.136" E
5	23° 57' 2.578" N	87° 34' 12.711" E	22	23° 57' 24.246" N	87° 35' 1.200" E
6	23° 57' 5.390" N	87° 34' 0.430" E	23	23° 57' 26.297" N	87° 35' 4.767" E
7	23° 57' 7.514" N	87° 34' 3.555" E	24	23° 57' 29.809" N	87° 35' 8.714" E
8	23° 57' 8.099" N	87° 34' 8.050" E	25	23° 57' 32.553" N	87° 35' 11.067" E
9	23° 57' 7.476" N	87° 34' 13.851" E	26	23° 57' 33.571" N	87° 35' 14.910" E
10	23° 57' 8.927" N	87° 34' 16.947" E	27	23° 57' 33.555" N	87° 35' 19.029" E
11	23° 57' 8.912" N	87° 34' 20.972" E	28	23° 57' 32.511" N	87° 35' 22.113" E
12	23° 57' 9.333" N	87° 34' 23.408" E	29	23° 57' 29.512" N	87° 35' 24.480" E
13	23° 57' 11.209" N	87° 34' 27.816" E	30	23° 57' 28.585" N	87° 35' 19.601" E
14	23° 57' 14.040" N	87° 34' 29.982" E	31	23° 57' 28.050" N	87° 35' 15.330" E
15	23° 57' 15.838" N	87° 34' 32.330" E	32	23° 57' 26.825" N	87° 35' 11.692" E
16	23° 57' 15.655" N	87° 34' 35.137" E	33	23° 57' 23.626" N	87° 35' 7.195" E
17	23° 57' 16.245" N	87° 34' 38.510" E			

POTENTIAL BLOCK BH_MB_MY_11A OF MAYURAKSHI RIVER

87°34'30"E 87°34'40"E 87°34'50"E 87°35'0"E 87°35'10"E 87°35'20"E

23°57'30"N 23°57'20"N 23°57'10"N

BH_MB_MY_10_11_12

MAYURAKSHI RIVER

MOHAMMAD BAZAR

N W E S

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

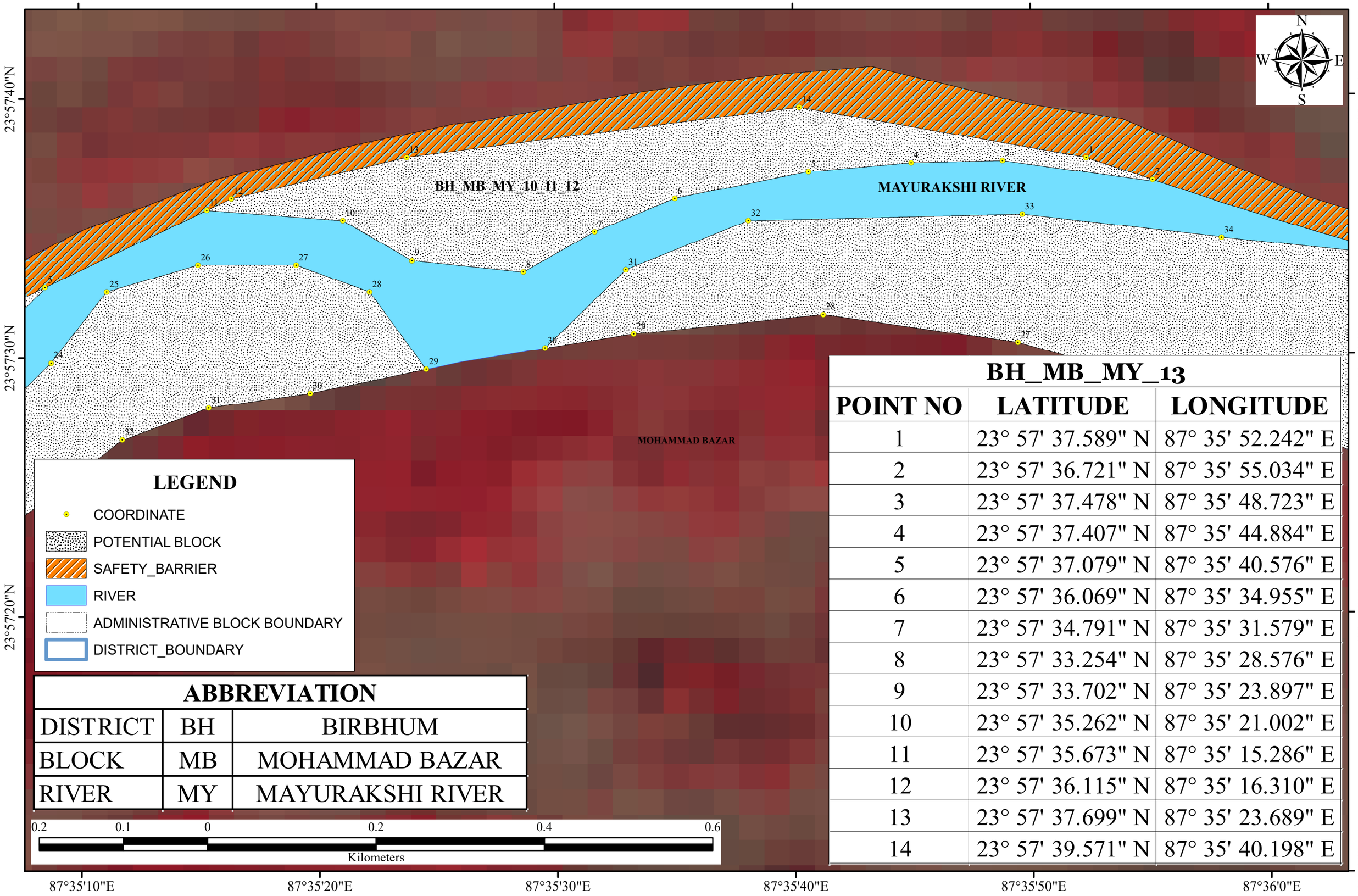
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MB	MOHAMMAD BAZAR
RIVER	MY	MAYURAKSHI RIVER

0.2 0.1 0 0.2 0.4 0.6

Kilometers

BH_MB_MY_11A		
POINT NO	LATITUDE	LONGITUDE
1	23° 57' 19.577" N	87° 34' 43.112" E
2	23° 57' 19.038" N	87° 34' 39.256" E
3	23° 57' 24.710" N	87° 34' 49.578" E
4	23° 57' 29.078" N	87° 35' 0.247" E
5	23° 57' 32.722" N	87° 35' 8.472" E
6	23° 57' 29.131" N	87° 35' 4.498" E
7	23° 57' 26.044" N	87° 35' 1.957" E
8	23° 57' 24.593" N	87° 34' 58.861" E
9	23° 57' 24.097" N	87° 34' 53.523" E
10	23° 57' 22.999" N	87° 34' 48.089" E
11	23° 57' 21.286" N	87° 34' 46.115" E

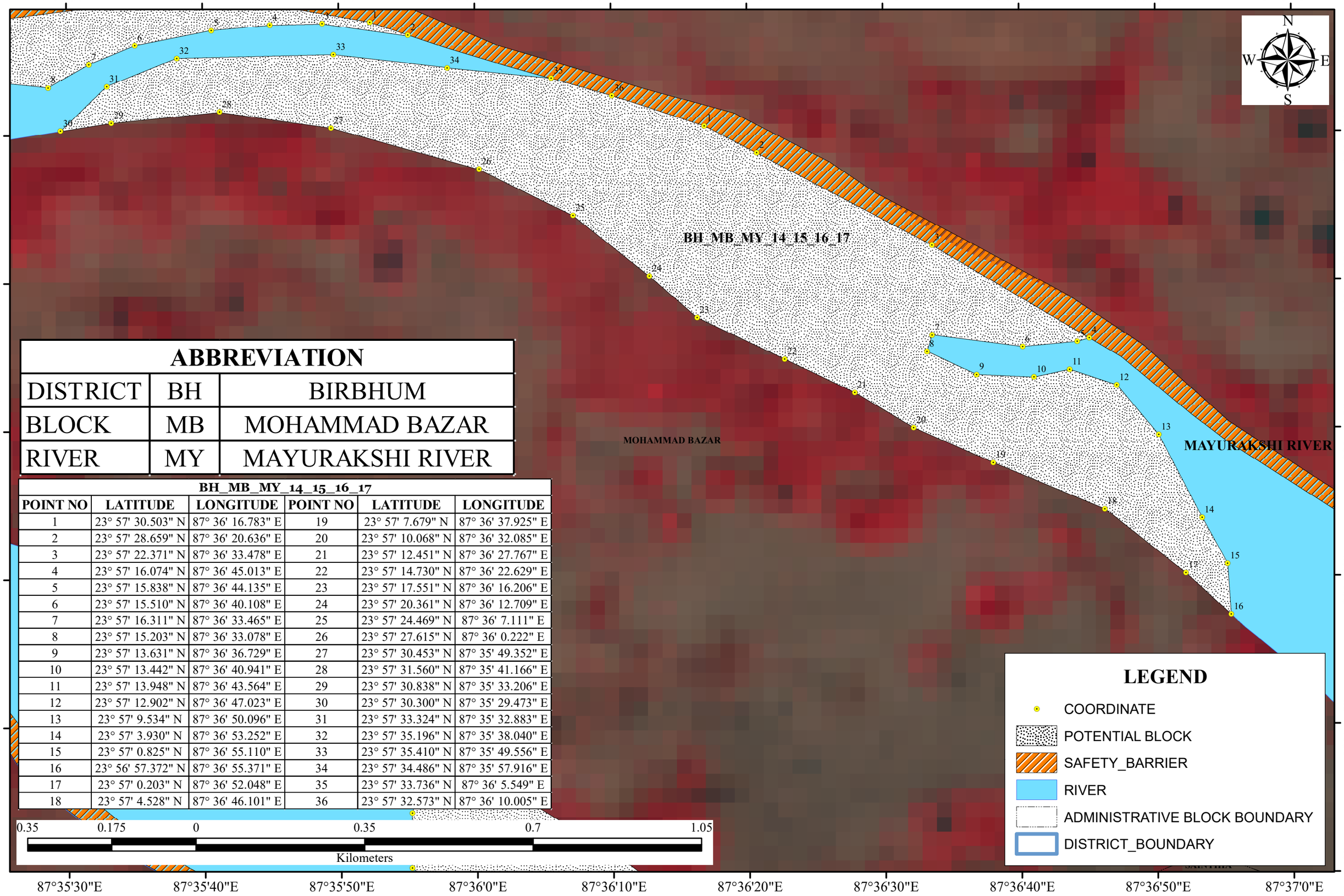
POTENTIAL BLOCK BH_MB_MY_13 OF MAYURAKSHI RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MB	MOHAMMAD BAZAR
RIVER	MY	MAYURAKSHI RIVER

BH_MB_MY_13		
POINT NO	LATITUDE	LONGITUDE
1	23° 57' 37.589" N	87° 35' 52.242" E
2	23° 57' 36.721" N	87° 35' 55.034" E
3	23° 57' 37.478" N	87° 35' 48.723" E
4	23° 57' 37.407" N	87° 35' 44.884" E
5	23° 57' 37.079" N	87° 35' 40.576" E
6	23° 57' 36.069" N	87° 35' 34.955" E
7	23° 57' 34.791" N	87° 35' 31.579" E
8	23° 57' 33.254" N	87° 35' 28.576" E
9	23° 57' 33.702" N	87° 35' 23.897" E
10	23° 57' 35.262" N	87° 35' 21.002" E
11	23° 57' 35.673" N	87° 35' 15.286" E
12	23° 57' 36.115" N	87° 35' 16.310" E
13	23° 57' 37.699" N	87° 35' 23.689" E
14	23° 57' 39.571" N	87° 35' 40.198" E

POTENTIAL BLOCK BH_MB_MY_14_15_16_17 OF MAYURAKSHI RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MB	MOHAMMAD BAZAR
RIVER	MY	MAYURAKSHI RIVER

BH_MB_MY_14_15_16_17

POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	23° 57' 30.503" N	87° 36' 16.783" E	19	23° 57' 7.679" N	87° 36' 37.925" E
2	23° 57' 28.659" N	87° 36' 20.636" E	20	23° 57' 10.068" N	87° 36' 32.085" E
3	23° 57' 22.371" N	87° 36' 33.478" E	21	23° 57' 12.451" N	87° 36' 27.767" E
4	23° 57' 16.074" N	87° 36' 45.013" E	22	23° 57' 14.730" N	87° 36' 22.629" E
5	23° 57' 15.838" N	87° 36' 44.135" E	23	23° 57' 17.551" N	87° 36' 16.206" E
6	23° 57' 15.510" N	87° 36' 40.108" E	24	23° 57' 20.361" N	87° 36' 12.709" E
7	23° 57' 16.311" N	87° 36' 33.465" E	25	23° 57' 24.469" N	87° 36' 7.111" E
8	23° 57' 15.203" N	87° 36' 33.078" E	26	23° 57' 27.615" N	87° 36' 0.222" E
9	23° 57' 13.631" N	87° 36' 36.729" E	27	23° 57' 30.453" N	87° 35' 49.352" E
10	23° 57' 13.442" N	87° 36' 40.941" E	28	23° 57' 31.560" N	87° 35' 41.166" E
11	23° 57' 13.948" N	87° 36' 43.564" E	29	23° 57' 30.838" N	87° 35' 33.206" E
12	23° 57' 12.902" N	87° 36' 47.023" E	30	23° 57' 30.300" N	87° 35' 29.473" E
13	23° 57' 9.534" N	87° 36' 50.096" E	31	23° 57' 33.324" N	87° 35' 32.883" E
14	23° 57' 3.930" N	87° 36' 53.252" E	32	23° 57' 35.196" N	87° 35' 38.040" E
15	23° 57' 0.825" N	87° 36' 55.110" E	33	23° 57' 35.410" N	87° 35' 49.556" E
16	23° 56' 57.372" N	87° 36' 55.371" E	34	23° 57' 34.486" N	87° 35' 57.916" E
17	23° 57' 0.203" N	87° 36' 52.048" E	35	23° 57' 33.736" N	87° 36' 5.549" E
18	23° 57' 4.528" N	87° 36' 46.101" E	36	23° 57' 32.573" N	87° 36' 10.005" E

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

POTENTIAL BLOCK BH_MB_MY_17A OF MAYURAKSHI RIVER

87°37'0"E 87°37'10"E 87°37'20"E 87°37'30"E 87°37'40"E

23°57'0"N 23°56'50"N 23°56'40"N 23°56'30"N

MAYURAKSHI RIVER

BH_MB_MY_17A

MOHAMMAD BAZAR

N W E S

BH_MB_MY_17A		
POINT NO	LATITUDE	LONGITUDE
1	23° 56' 53.255" N	87° 37' 23.301" E
2	23° 56' 51.783" N	87° 37' 22.716" E
3	23° 56' 46.834" N	87° 37' 21.120" E
4	23° 56' 43.505" N	87° 37' 20.845" E
5	23° 56' 49.111" N	87° 37' 13.946" E
6	23° 56' 52.366" N	87° 37' 8.869" E
7	23° 56' 57.464" N	87° 37' 7.770" E
8	23° 57' 1.947" N	87° 37' 8.724" E
9	23° 56' 59.379" N	87° 37' 15.390" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MB	MOHAMMAD BAZAR
RIVER	MY	MAYURAKSHI RIVER

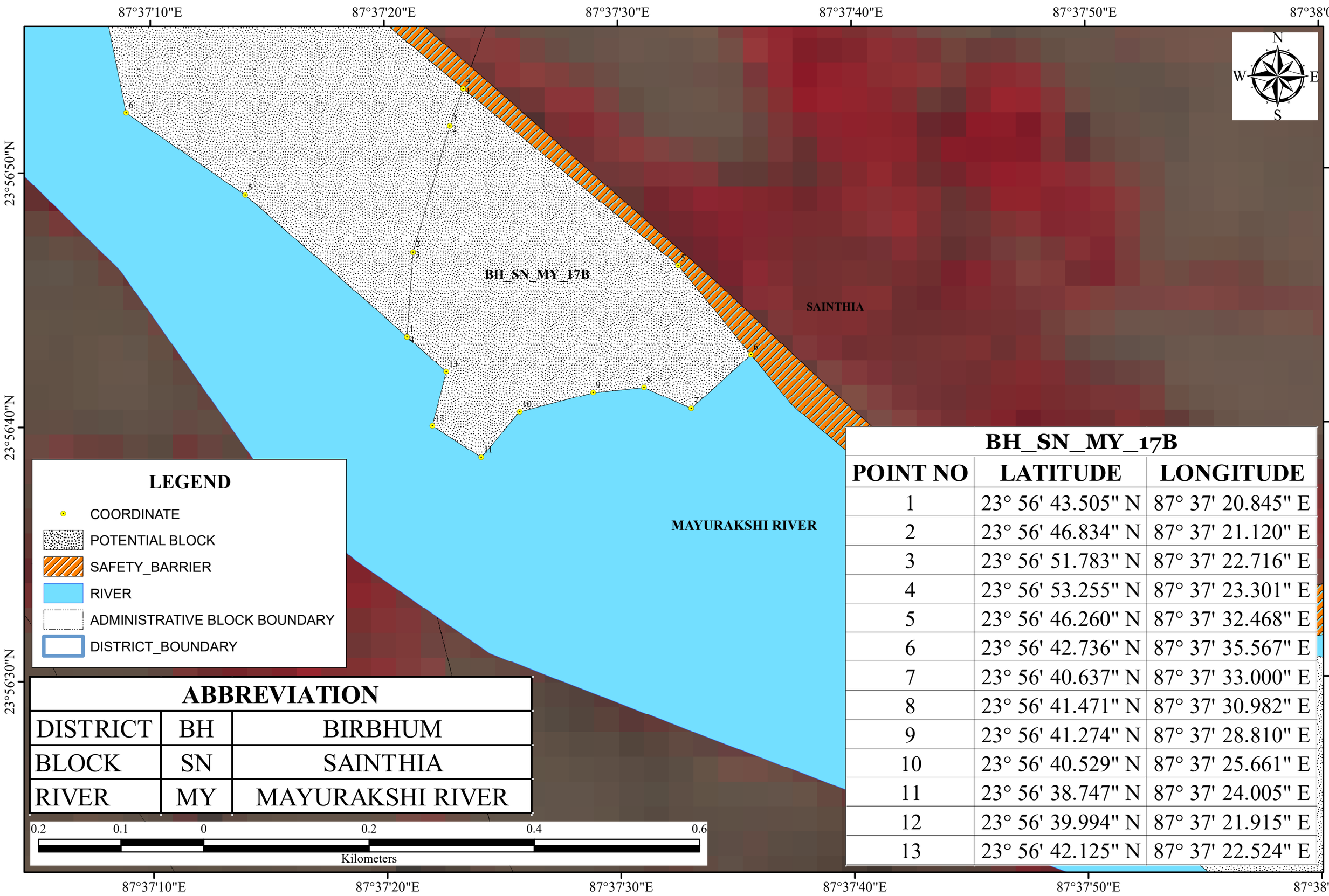
0.2 0.1 0 0.2 0.4 0.6

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

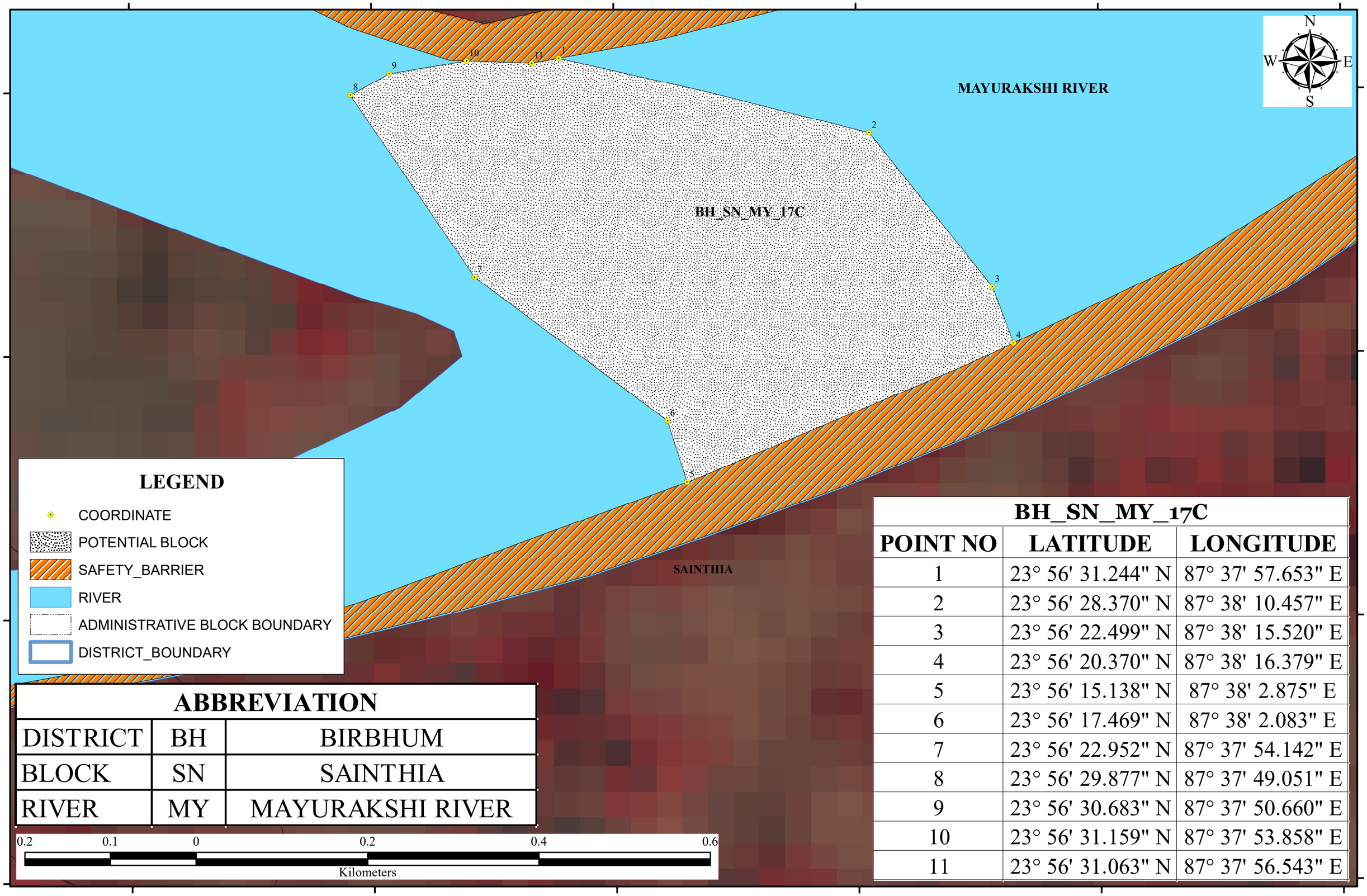
POTENTIAL BLOCK BH_SN_MY_17B OF MAYURAKSHI RIVER



BH_SN_MY_17B		
POINT NO	LATITUDE	LONGITUDE
1	23° 56' 43.505" N	87° 37' 20.845" E
2	23° 56' 46.834" N	87° 37' 21.120" E
3	23° 56' 51.783" N	87° 37' 22.716" E
4	23° 56' 53.255" N	87° 37' 23.301" E
5	23° 56' 46.260" N	87° 37' 32.468" E
6	23° 56' 42.736" N	87° 37' 35.567" E
7	23° 56' 40.637" N	87° 37' 33.000" E
8	23° 56' 41.471" N	87° 37' 30.982" E
9	23° 56' 41.274" N	87° 37' 28.810" E
10	23° 56' 40.529" N	87° 37' 25.661" E
11	23° 56' 38.747" N	87° 37' 24.005" E
12	23° 56' 39.994" N	87° 37' 21.915" E
13	23° 56' 42.125" N	87° 37' 22.524" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	SN	SAINTHIA
RIVER	MY	MAYURAKSHI RIVER

POTENTIAL BLOCK BH_SN_MY_17C OF MAYURAKSHI RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	SN	SAINTHIA
RIVER	MY	MAYURAKSHI RIVER

BH_SN_MY_17C		
POINT NO	LATITUDE	LONGITUDE
1	23° 56' 31.244" N	87° 37' 57.653" E
2	23° 56' 28.370" N	87° 38' 10.457" E
3	23° 56' 22.499" N	87° 38' 15.520" E
4	23° 56' 20.370" N	87° 38' 16.379" E
5	23° 56' 15.138" N	87° 38' 2.875" E
6	23° 56' 17.469" N	87° 38' 2.083" E
7	23° 56' 22.952" N	87° 37' 54.142" E
8	23° 56' 29.877" N	87° 37' 49.051" E
9	23° 56' 30.683" N	87° 37' 50.660" E
10	23° 56' 31.159" N	87° 37' 53.858" E
11	23° 56' 31.063" N	87° 37' 56.543" E

POTENTIAL BLOCK BH_MR2_MY_20 OF MAYURAKSHI RIVER

87°45'20"E 87°45'30"E 87°45'40"E 87°45'50"E 87°46'0"E

23°54'30"N 23°54'20"N 23°54'10"N

N W E S

BH_MR2_MY_20		
POINT NO	LATITUDE	LONGITUDE
1	23° 54' 20.578" N	87° 45' 42.337" E
2	23° 54' 18.809" N	87° 45' 36.276" E
3	23° 54' 22.177" N	87° 45' 34.780" E
4	23° 54' 25.180" N	87° 45' 33.001" E
5	23° 54' 29.372" N	87° 45' 31.687" E
6	23° 54' 36.458" N	87° 45' 32.137" E
7	23° 54' 37.074" N	87° 45' 36.987" E
8	23° 54' 27.750" N	87° 45' 39.234" E
9	23° 54' 24.697" N	87° 45' 40.901" E
10	23° 54' 23.398" N	87° 45' 41.778" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MR2	MAYURESWAR-II
RIVER	MY	MAYURAKSHI RIVER

MAYURESWAR-II

MAYURAKSHI RIVER

0.2 0.1 0 0.2 0.4 0.6

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

POTENTIAL BLOCK BH_MR2_MY_22 OF MAYURAKSHI RIVER

87°46'10"E 87°46'20"E 87°46'30"E 87°46'40"E

23°53'50"N 23°53'40"N 23°53'30"N

N W E S

MAYURESWAR-II

MAYURAKSHI RIVER

BH_MR2_MY_22					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	23° 53' 34.068" N	87° 46' 29.042" E	13	23° 53' 47.132" N	87° 46' 26.065" E
2	23° 53' 33.341" N	87° 46' 28.509" E	14	23° 53' 46.386" N	87° 46' 26.645" E
3	23° 53' 34.528" N	87° 46' 27.833" E	15	23° 53' 45.928" N	87° 46' 27.406" E
4	23° 53' 38.671" N	87° 46' 25.088" E	16	23° 53' 45.843" N	87° 46' 27.899" E
5	23° 53' 42.022" N	87° 46' 22.601" E	17	23° 53' 44.557" N	87° 46' 28.924" E
6	23° 53' 47.789" N	87° 46' 18.637" E	18	23° 53' 43.194" N	87° 46' 29.096" E
7	23° 53' 47.786" N	87° 46' 19.198" E	19	23° 53' 40.553" N	87° 46' 28.676" E
8	23° 53' 49.630" N	87° 46' 22.083" E	20	23° 53' 38.818" N	87° 46' 28.935" E
9	23° 53' 49.624" N	87° 46' 23.251" E	21	23° 53' 37.452" N	87° 46' 29.466" E
10	23° 53' 49.988" N	87° 46' 24.645" E	22	23° 53' 35.876" N	87° 46' 30.939" E
11	23° 53' 49.115" N	87° 46' 25.898" E	23	23° 53' 34.601" N	87° 46' 29.808" E
12	23° 53' 47.918" N	87° 46' 25.711" E			

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MR2	MAYURESWAR-II
RIVER	MY	MAYURAKSHI RIVER

0.15 0.075 0 0.15 0.3 0.45

Kilometers

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

POTENTIAL BLOCK BH_MR2_MY_29 OF MAYURAKSHI RIVER

87°48'50"E 87°49'0"E 87°49'10"E 87°49'20"E

23°53'0"N

23°52'50"N

23°52'40"N

BH_MR2_MY_29		
POINT NO	LATITUDE	LONGITUDE
1	23° 52' 54.362" N	87° 49' 10.201" E
2	23° 52' 55.525" N	87° 49' 8.996" E
3	23° 52' 56.781" N	87° 49' 5.816" E
4	23° 52' 56.995" N	87° 49' 4.290" E
5	23° 52' 57.339" N	87° 49' 1.777" E
6	23° 52' 58.714" N	87° 48' 59.406" E
7	23° 53' 0.328" N	87° 48' 58.877" E
8	23° 53' 3.057" N	87° 48' 59.272" E
9	23° 53' 2.587" N	87° 49' 1.475" E
10	23° 53' 1.189" N	87° 49' 5.780" E
11	23° 52' 57.731" N	87° 49' 18.471" E
12	23° 52' 57.004" N	87° 49' 18.121" E
13	23° 52' 55.334" N	87° 49' 13.845" E

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	MR2	MAYURESWAR-II
RIVER	MY	MAYURAKSHI RIVER

0.15 0.075 0 0.15 0.3 0.45

Kilometers

MAYURESWAR-II

MAYURAKSHI RIVER

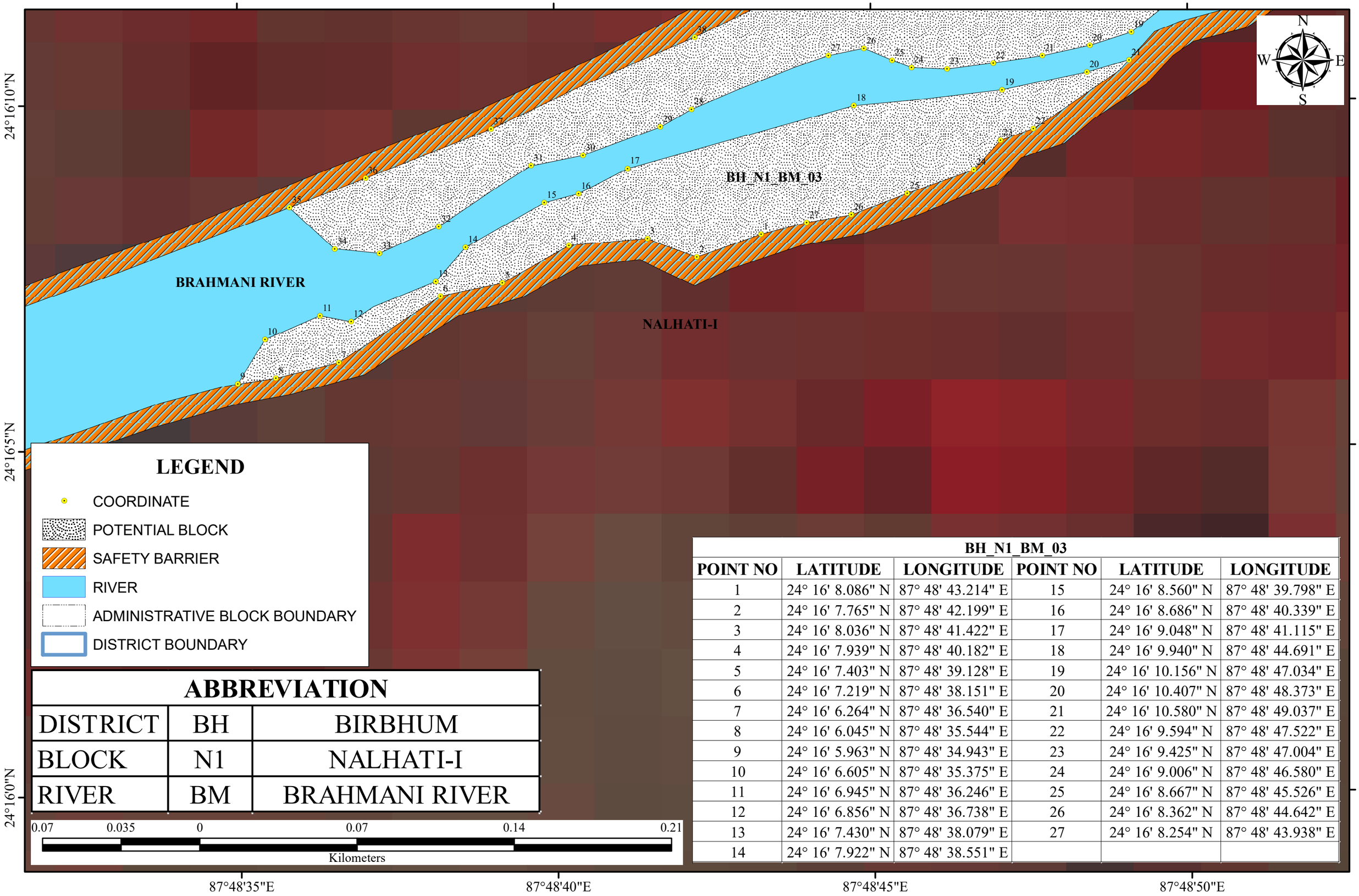
LABHPUR

N W E S

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY_BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT_BOUNDARY

POTENTIAL BH_N1_BM_03 OF BRAHMANI RIVER



LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

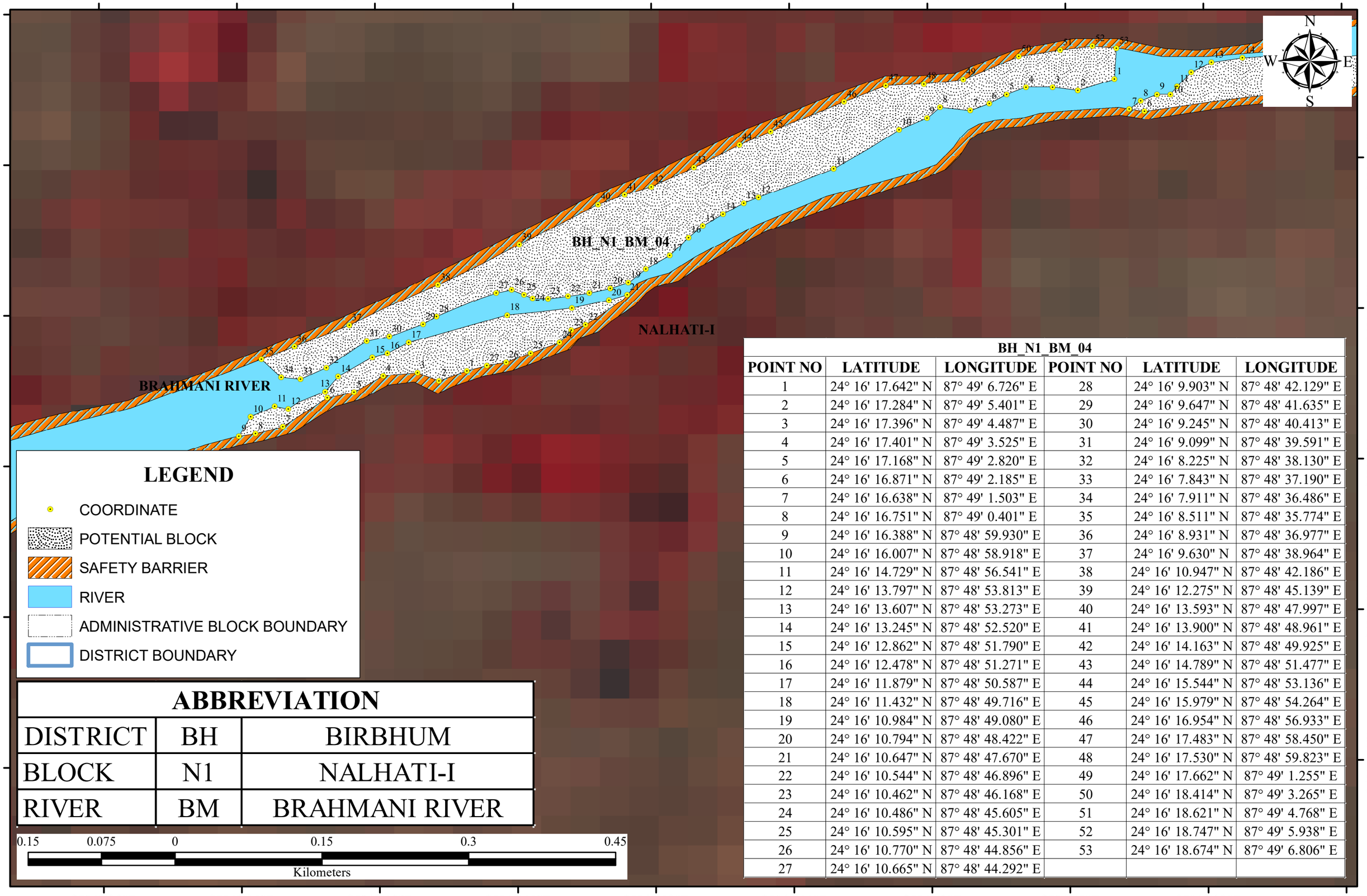
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N1	NALHATI-I
RIVER	BM	BRAHMANI RIVER

0.07 0.035 0 0.07 0.14 0.21

Kilometers

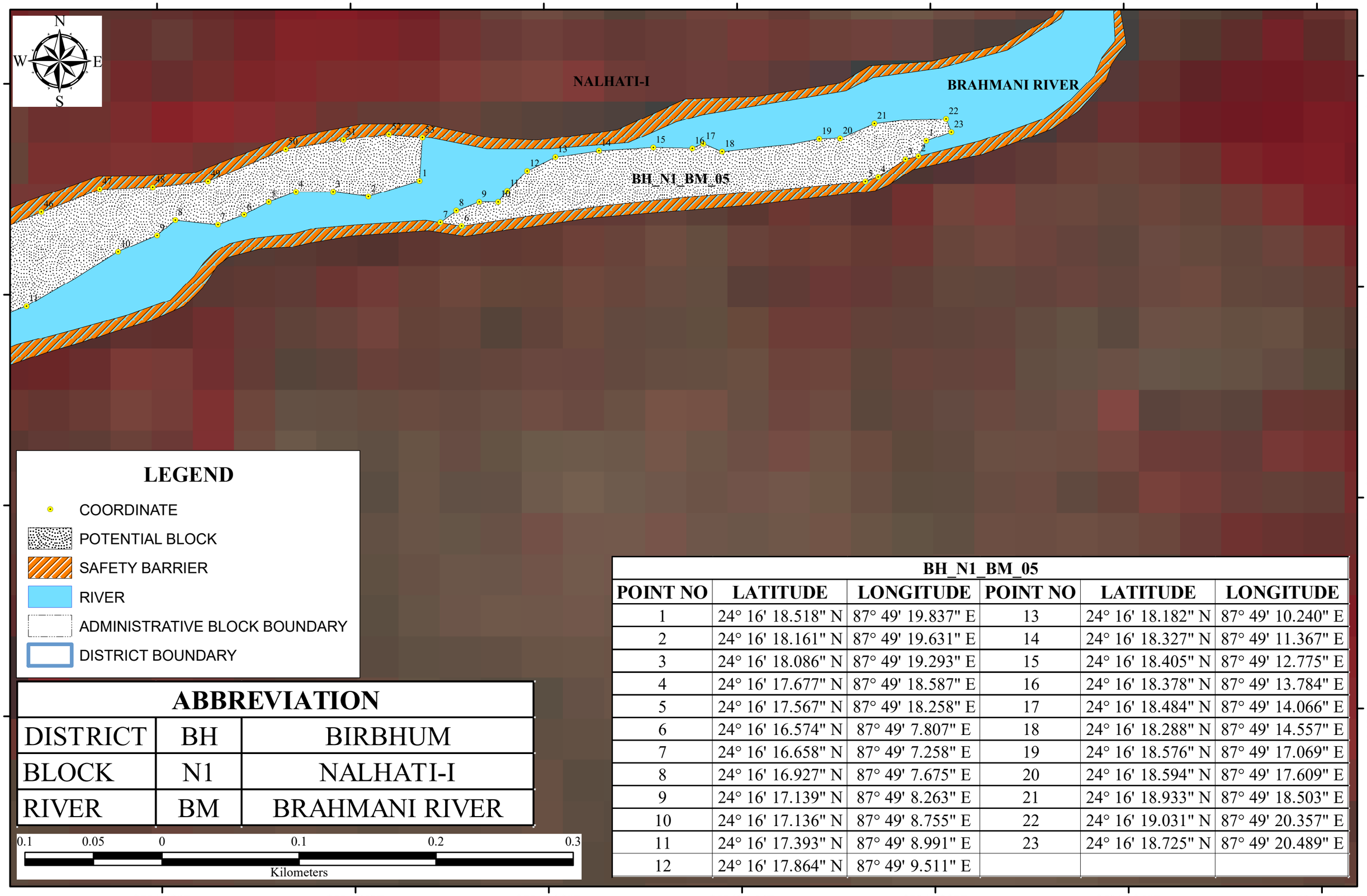
BH_N1_BM_03					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 16' 8.086" N	87° 48' 43.214" E	15	24° 16' 8.560" N	87° 48' 39.798" E
2	24° 16' 7.765" N	87° 48' 42.199" E	16	24° 16' 8.686" N	87° 48' 40.339" E
3	24° 16' 8.036" N	87° 48' 41.422" E	17	24° 16' 9.048" N	87° 48' 41.115" E
4	24° 16' 7.939" N	87° 48' 40.182" E	18	24° 16' 9.940" N	87° 48' 44.691" E
5	24° 16' 7.403" N	87° 48' 39.128" E	19	24° 16' 10.156" N	87° 48' 47.034" E
6	24° 16' 7.219" N	87° 48' 38.151" E	20	24° 16' 10.407" N	87° 48' 48.373" E
7	24° 16' 6.264" N	87° 48' 36.540" E	21	24° 16' 10.580" N	87° 48' 49.037" E
8	24° 16' 6.045" N	87° 48' 35.544" E	22	24° 16' 9.594" N	87° 48' 47.522" E
9	24° 16' 5.963" N	87° 48' 34.943" E	23	24° 16' 9.425" N	87° 48' 47.004" E
10	24° 16' 6.605" N	87° 48' 35.375" E	24	24° 16' 9.006" N	87° 48' 46.580" E
11	24° 16' 6.945" N	87° 48' 36.246" E	25	24° 16' 8.667" N	87° 48' 45.526" E
12	24° 16' 6.856" N	87° 48' 36.738" E	26	24° 16' 8.362" N	87° 48' 44.642" E
13	24° 16' 7.430" N	87° 48' 38.079" E	27	24° 16' 8.254" N	87° 48' 43.938" E
14	24° 16' 7.922" N	87° 48' 38.551" E			

POTENTIAL BH_N1_BM_04 OF BRAHMANI RIVER



BH_N1_BM_04					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 16' 17.642" N	87° 49' 6.726" E	28	24° 16' 9.903" N	87° 48' 42.129" E
2	24° 16' 17.284" N	87° 49' 5.401" E	29	24° 16' 9.647" N	87° 48' 41.635" E
3	24° 16' 17.396" N	87° 49' 4.487" E	30	24° 16' 9.245" N	87° 48' 40.413" E
4	24° 16' 17.401" N	87° 49' 3.525" E	31	24° 16' 9.099" N	87° 48' 39.591" E
5	24° 16' 17.168" N	87° 49' 2.820" E	32	24° 16' 8.225" N	87° 48' 38.130" E
6	24° 16' 16.871" N	87° 49' 2.185" E	33	24° 16' 7.843" N	87° 48' 37.190" E
7	24° 16' 16.638" N	87° 49' 1.503" E	34	24° 16' 7.911" N	87° 48' 36.486" E
8	24° 16' 16.751" N	87° 49' 0.401" E	35	24° 16' 8.511" N	87° 48' 35.774" E
9	24° 16' 16.388" N	87° 48' 59.930" E	36	24° 16' 8.931" N	87° 48' 36.977" E
10	24° 16' 16.007" N	87° 48' 58.918" E	37	24° 16' 9.630" N	87° 48' 38.964" E
11	24° 16' 14.729" N	87° 48' 56.541" E	38	24° 16' 10.947" N	87° 48' 42.186" E
12	24° 16' 13.797" N	87° 48' 53.813" E	39	24° 16' 12.275" N	87° 48' 45.139" E
13	24° 16' 13.607" N	87° 48' 53.273" E	40	24° 16' 13.593" N	87° 48' 47.997" E
14	24° 16' 13.245" N	87° 48' 52.520" E	41	24° 16' 13.900" N	87° 48' 48.961" E
15	24° 16' 12.862" N	87° 48' 51.790" E	42	24° 16' 14.163" N	87° 48' 49.925" E
16	24° 16' 12.478" N	87° 48' 51.271" E	43	24° 16' 14.789" N	87° 48' 51.477" E
17	24° 16' 11.879" N	87° 48' 50.587" E	44	24° 16' 15.544" N	87° 48' 53.136" E
18	24° 16' 11.432" N	87° 48' 49.716" E	45	24° 16' 15.979" N	87° 48' 54.264" E
19	24° 16' 10.984" N	87° 48' 49.080" E	46	24° 16' 16.954" N	87° 48' 56.933" E
20	24° 16' 10.794" N	87° 48' 48.422" E	47	24° 16' 17.483" N	87° 48' 58.450" E
21	24° 16' 10.647" N	87° 48' 47.670" E	48	24° 16' 17.530" N	87° 48' 59.823" E
22	24° 16' 10.544" N	87° 48' 46.896" E	49	24° 16' 17.662" N	87° 49' 1.255" E
23	24° 16' 10.462" N	87° 48' 46.168" E	50	24° 16' 18.414" N	87° 49' 3.265" E
24	24° 16' 10.486" N	87° 48' 45.605" E	51	24° 16' 18.621" N	87° 49' 4.768" E
25	24° 16' 10.595" N	87° 48' 45.301" E	52	24° 16' 18.747" N	87° 49' 5.938" E
26	24° 16' 10.770" N	87° 48' 44.856" E	53	24° 16' 18.674" N	87° 49' 6.806" E
27	24° 16' 10.665" N	87° 48' 44.292" E			

POTENTIAL BH_N1_BM_05 OF BRAHMANI RIVER



LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

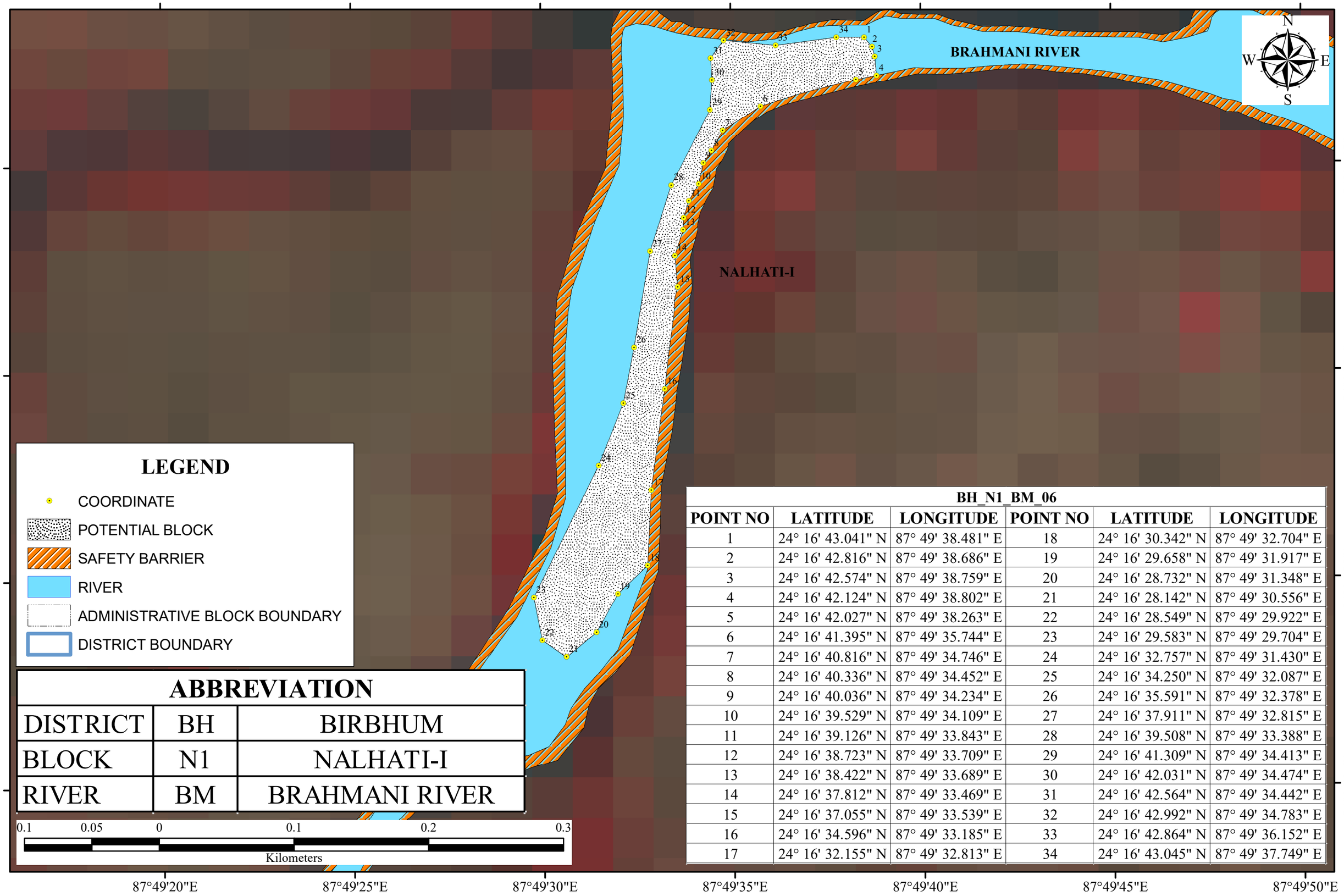
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N1	NALHATI-I
RIVER	BM	BRAHMANI RIVER

0.1 0.05 0 0.1 0.2 0.3

Kilometers

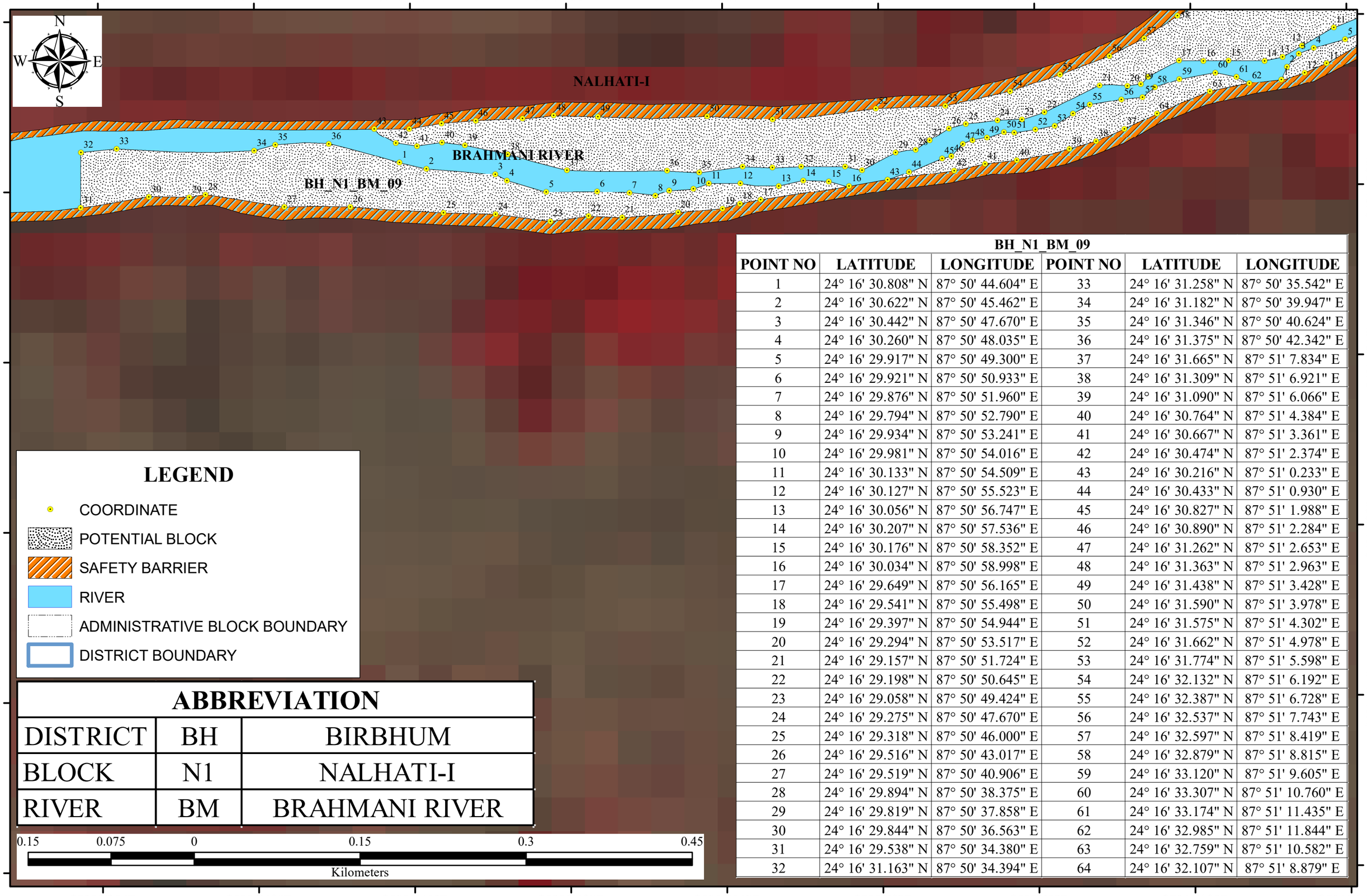
BH_N1_BM_05					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 16' 18.518" N	87° 49' 19.837" E	13	24° 16' 18.182" N	87° 49' 10.240" E
2	24° 16' 18.161" N	87° 49' 19.631" E	14	24° 16' 18.327" N	87° 49' 11.367" E
3	24° 16' 18.086" N	87° 49' 19.293" E	15	24° 16' 18.405" N	87° 49' 12.775" E
4	24° 16' 17.677" N	87° 49' 18.587" E	16	24° 16' 18.378" N	87° 49' 13.784" E
5	24° 16' 17.567" N	87° 49' 18.258" E	17	24° 16' 18.484" N	87° 49' 14.066" E
6	24° 16' 16.574" N	87° 49' 7.807" E	18	24° 16' 18.288" N	87° 49' 14.557" E
7	24° 16' 16.658" N	87° 49' 7.258" E	19	24° 16' 18.576" N	87° 49' 17.069" E
8	24° 16' 16.927" N	87° 49' 7.675" E	20	24° 16' 18.594" N	87° 49' 17.609" E
9	24° 16' 17.139" N	87° 49' 8.263" E	21	24° 16' 18.933" N	87° 49' 18.503" E
10	24° 16' 17.136" N	87° 49' 8.755" E	22	24° 16' 19.031" N	87° 49' 20.357" E
11	24° 16' 17.393" N	87° 49' 8.991" E	23	24° 16' 18.725" N	87° 49' 20.489" E
12	24° 16' 17.864" N	87° 49' 9.511" E			

POTENTIAL BH_N1_BM_06 OF BRAHMANI RIVER



BH_N1_BM_06					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 16' 43.041" N	87° 49' 38.481" E	18	24° 16' 30.342" N	87° 49' 32.704" E
2	24° 16' 42.816" N	87° 49' 38.686" E	19	24° 16' 29.658" N	87° 49' 31.917" E
3	24° 16' 42.574" N	87° 49' 38.759" E	20	24° 16' 28.732" N	87° 49' 31.348" E
4	24° 16' 42.124" N	87° 49' 38.802" E	21	24° 16' 28.142" N	87° 49' 30.556" E
5	24° 16' 42.027" N	87° 49' 38.263" E	22	24° 16' 28.549" N	87° 49' 29.922" E
6	24° 16' 41.395" N	87° 49' 35.744" E	23	24° 16' 29.583" N	87° 49' 29.704" E
7	24° 16' 40.816" N	87° 49' 34.746" E	24	24° 16' 32.757" N	87° 49' 31.430" E
8	24° 16' 40.336" N	87° 49' 34.452" E	25	24° 16' 34.250" N	87° 49' 32.087" E
9	24° 16' 40.036" N	87° 49' 34.234" E	26	24° 16' 35.591" N	87° 49' 32.378" E
10	24° 16' 39.529" N	87° 49' 34.109" E	27	24° 16' 37.911" N	87° 49' 32.815" E
11	24° 16' 39.126" N	87° 49' 33.843" E	28	24° 16' 39.508" N	87° 49' 33.388" E
12	24° 16' 38.723" N	87° 49' 33.709" E	29	24° 16' 41.309" N	87° 49' 34.413" E
13	24° 16' 38.422" N	87° 49' 33.689" E	30	24° 16' 42.031" N	87° 49' 34.474" E
14	24° 16' 37.812" N	87° 49' 33.469" E	31	24° 16' 42.564" N	87° 49' 34.442" E
15	24° 16' 37.055" N	87° 49' 33.539" E	32	24° 16' 42.992" N	87° 49' 34.783" E
16	24° 16' 34.596" N	87° 49' 33.185" E	33	24° 16' 42.864" N	87° 49' 36.152" E
17	24° 16' 32.155" N	87° 49' 32.813" E	34	24° 16' 43.045" N	87° 49' 37.749" E

POTENTIAL BH_N1_BM_09 OF BRAHMANI RIVER



BH_N1_BM_09					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 16' 30.808" N	87° 50' 44.604" E	33	24° 16' 31.258" N	87° 50' 35.542" E
2	24° 16' 30.622" N	87° 50' 45.462" E	34	24° 16' 31.182" N	87° 50' 39.947" E
3	24° 16' 30.442" N	87° 50' 47.670" E	35	24° 16' 31.346" N	87° 50' 40.624" E
4	24° 16' 30.260" N	87° 50' 48.035" E	36	24° 16' 31.375" N	87° 50' 42.342" E
5	24° 16' 29.917" N	87° 50' 49.300" E	37	24° 16' 31.665" N	87° 51' 7.834" E
6	24° 16' 29.921" N	87° 50' 50.933" E	38	24° 16' 31.309" N	87° 51' 6.921" E
7	24° 16' 29.876" N	87° 50' 51.960" E	39	24° 16' 31.090" N	87° 51' 6.066" E
8	24° 16' 29.794" N	87° 50' 52.790" E	40	24° 16' 30.764" N	87° 51' 4.384" E
9	24° 16' 29.934" N	87° 50' 53.241" E	41	24° 16' 30.667" N	87° 51' 3.361" E
10	24° 16' 29.981" N	87° 50' 54.016" E	42	24° 16' 30.474" N	87° 51' 2.374" E
11	24° 16' 30.133" N	87° 50' 54.509" E	43	24° 16' 30.216" N	87° 51' 0.233" E
12	24° 16' 30.127" N	87° 50' 55.523" E	44	24° 16' 30.433" N	87° 51' 0.930" E
13	24° 16' 30.056" N	87° 50' 56.747" E	45	24° 16' 30.827" N	87° 51' 1.988" E
14	24° 16' 30.207" N	87° 50' 57.536" E	46	24° 16' 30.890" N	87° 51' 2.284" E
15	24° 16' 30.176" N	87° 50' 58.352" E	47	24° 16' 31.262" N	87° 51' 2.653" E
16	24° 16' 30.034" N	87° 50' 58.998" E	48	24° 16' 31.363" N	87° 51' 2.963" E
17	24° 16' 29.649" N	87° 50' 56.165" E	49	24° 16' 31.438" N	87° 51' 3.428" E
18	24° 16' 29.541" N	87° 50' 55.498" E	50	24° 16' 31.590" N	87° 51' 3.978" E
19	24° 16' 29.397" N	87° 50' 54.944" E	51	24° 16' 31.575" N	87° 51' 4.302" E
20	24° 16' 29.294" N	87° 50' 53.517" E	52	24° 16' 31.662" N	87° 51' 4.978" E
21	24° 16' 29.157" N	87° 50' 51.724" E	53	24° 16' 31.774" N	87° 51' 5.598" E
22	24° 16' 29.198" N	87° 50' 50.645" E	54	24° 16' 32.132" N	87° 51' 6.192" E
23	24° 16' 29.058" N	87° 50' 49.424" E	55	24° 16' 32.387" N	87° 51' 6.728" E
24	24° 16' 29.275" N	87° 50' 47.670" E	56	24° 16' 32.537" N	87° 51' 7.743" E
25	24° 16' 29.318" N	87° 50' 46.000" E	57	24° 16' 32.597" N	87° 51' 8.419" E
26	24° 16' 29.516" N	87° 50' 43.017" E	58	24° 16' 32.879" N	87° 51' 8.815" E
27	24° 16' 29.519" N	87° 50' 40.906" E	59	24° 16' 33.120" N	87° 51' 9.605" E
28	24° 16' 29.894" N	87° 50' 38.375" E	60	24° 16' 33.307" N	87° 51' 10.760" E
29	24° 16' 29.819" N	87° 50' 37.858" E	61	24° 16' 33.174" N	87° 51' 11.435" E
30	24° 16' 29.844" N	87° 50' 36.563" E	62	24° 16' 32.985" N	87° 51' 11.844" E
31	24° 16' 29.538" N	87° 50' 34.380" E	63	24° 16' 32.759" N	87° 51' 10.582" E
32	24° 16' 31.163" N	87° 50' 34.394" E	64	24° 16' 32.107" N	87° 51' 8.879" E

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

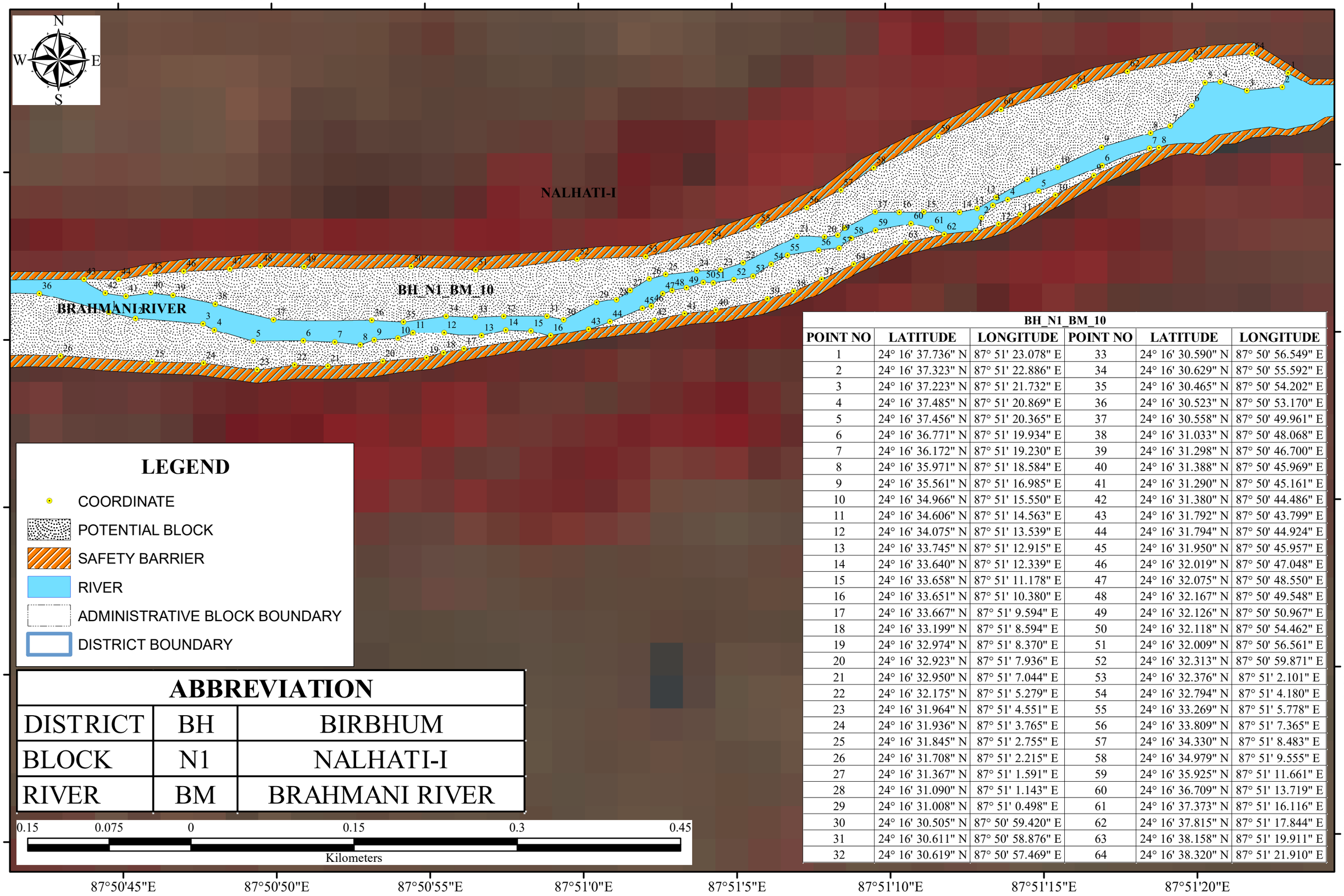
ABBREVIATION

DISTRICT	BH	BIRBHUM
BLOCK	N1	NALHATI-I
RIVER	BM	BRAHMANI RIVER

0.15 0.075 0 0.15 0.3 0.45

Kilometers

POTENTIAL BH_N1_BM_10 OF BRAHMANI RIVER



LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

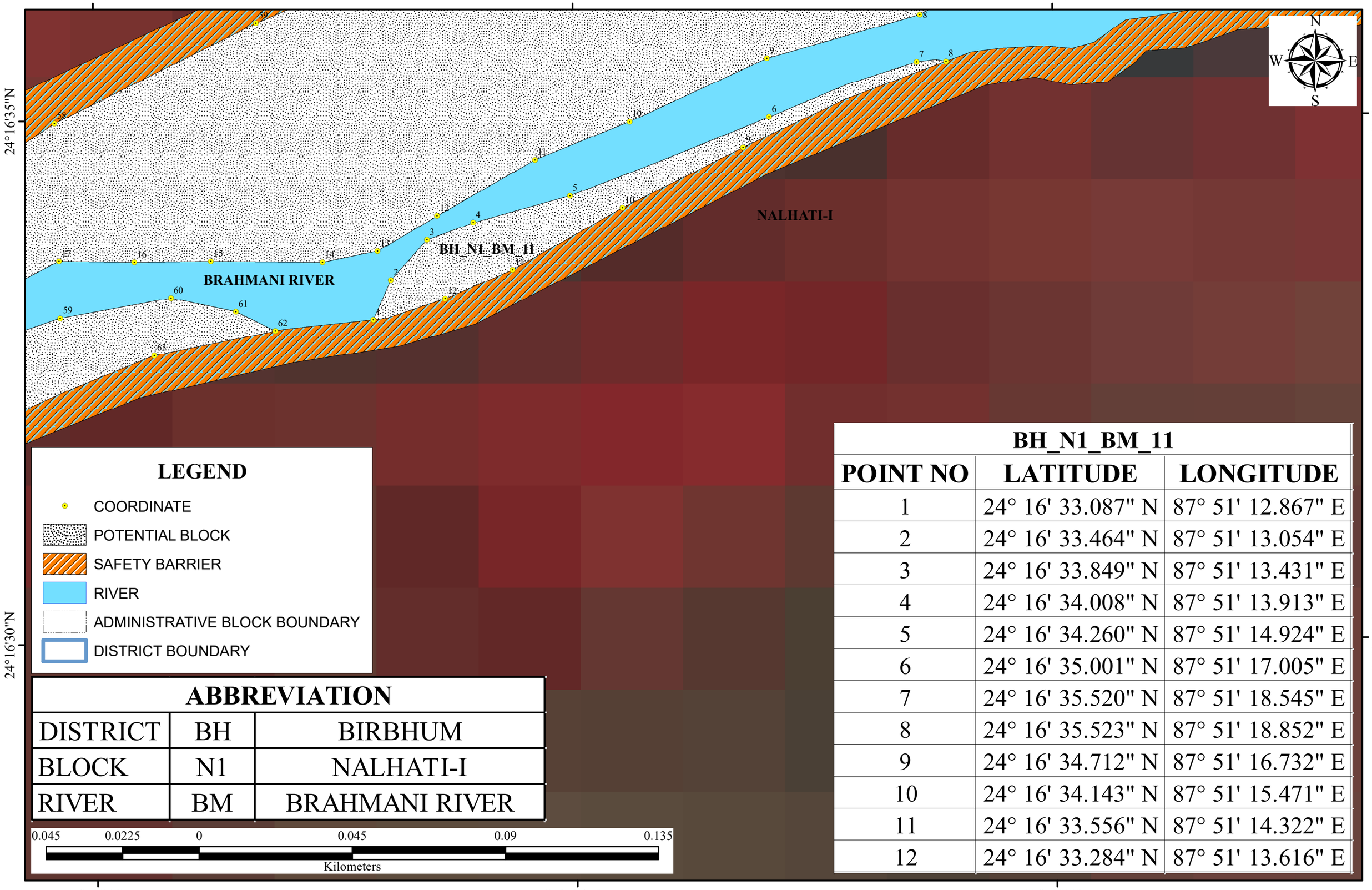
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N1	NALHATI-I
RIVER	BM	BRAHMANI RIVER

0.15 0.075 0 0.15 0.3 0.45

Kilometers

BH_N1_BM_10					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 16' 37.736" N	87° 51' 23.078" E	33	24° 16' 30.590" N	87° 50' 56.549" E
2	24° 16' 37.323" N	87° 51' 22.886" E	34	24° 16' 30.629" N	87° 50' 55.592" E
3	24° 16' 37.223" N	87° 51' 21.732" E	35	24° 16' 30.465" N	87° 50' 54.202" E
4	24° 16' 37.485" N	87° 51' 20.869" E	36	24° 16' 30.523" N	87° 50' 53.170" E
5	24° 16' 37.456" N	87° 51' 20.365" E	37	24° 16' 30.558" N	87° 50' 49.961" E
6	24° 16' 36.771" N	87° 51' 19.934" E	38	24° 16' 31.033" N	87° 50' 48.068" E
7	24° 16' 36.172" N	87° 51' 19.230" E	39	24° 16' 31.298" N	87° 50' 46.700" E
8	24° 16' 35.971" N	87° 51' 18.584" E	40	24° 16' 31.388" N	87° 50' 45.969" E
9	24° 16' 35.561" N	87° 51' 16.985" E	41	24° 16' 31.290" N	87° 50' 45.161" E
10	24° 16' 34.966" N	87° 51' 15.550" E	42	24° 16' 31.380" N	87° 50' 44.486" E
11	24° 16' 34.606" N	87° 51' 14.563" E	43	24° 16' 31.792" N	87° 50' 43.799" E
12	24° 16' 34.075" N	87° 51' 13.539" E	44	24° 16' 31.794" N	87° 50' 44.924" E
13	24° 16' 33.745" N	87° 51' 12.915" E	45	24° 16' 31.950" N	87° 50' 45.957" E
14	24° 16' 33.640" N	87° 51' 12.339" E	46	24° 16' 32.019" N	87° 50' 47.048" E
15	24° 16' 33.658" N	87° 51' 11.178" E	47	24° 16' 32.075" N	87° 50' 48.550" E
16	24° 16' 33.651" N	87° 51' 10.380" E	48	24° 16' 32.167" N	87° 50' 49.548" E
17	24° 16' 33.667" N	87° 51' 9.594" E	49	24° 16' 32.126" N	87° 50' 50.967" E
18	24° 16' 33.199" N	87° 51' 8.594" E	50	24° 16' 32.118" N	87° 50' 54.462" E
19	24° 16' 32.974" N	87° 51' 8.370" E	51	24° 16' 32.009" N	87° 50' 56.561" E
20	24° 16' 32.923" N	87° 51' 7.936" E	52	24° 16' 32.313" N	87° 50' 59.871" E
21	24° 16' 32.950" N	87° 51' 7.044" E	53	24° 16' 32.376" N	87° 51' 2.101" E
22	24° 16' 32.175" N	87° 51' 5.279" E	54	24° 16' 32.794" N	87° 51' 4.180" E
23	24° 16' 31.964" N	87° 51' 4.551" E	55	24° 16' 33.269" N	87° 51' 5.778" E
24	24° 16' 31.936" N	87° 51' 3.765" E	56	24° 16' 33.809" N	87° 51' 7.365" E
25	24° 16' 31.845" N	87° 51' 2.755" E	57	24° 16' 34.330" N	87° 51' 8.483" E
26	24° 16' 31.708" N	87° 51' 2.215" E	58	24° 16' 34.979" N	87° 51' 9.555" E
27	24° 16' 31.367" N	87° 51' 1.591" E	59	24° 16' 35.925" N	87° 51' 11.661" E
28	24° 16' 31.090" N	87° 51' 1.143" E	60	24° 16' 36.709" N	87° 51' 13.719" E
29	24° 16' 31.008" N	87° 51' 0.498" E	61	24° 16' 37.373" N	87° 51' 16.116" E
30	24° 16' 30.505" N	87° 50' 59.420" E	62	24° 16' 37.815" N	87° 51' 17.844" E
31	24° 16' 30.611" N	87° 50' 58.876" E	63	24° 16' 38.158" N	87° 51' 19.911" E
32	24° 16' 30.619" N	87° 50' 57.469" E	64	24° 16' 38.320" N	87° 51' 21.910" E

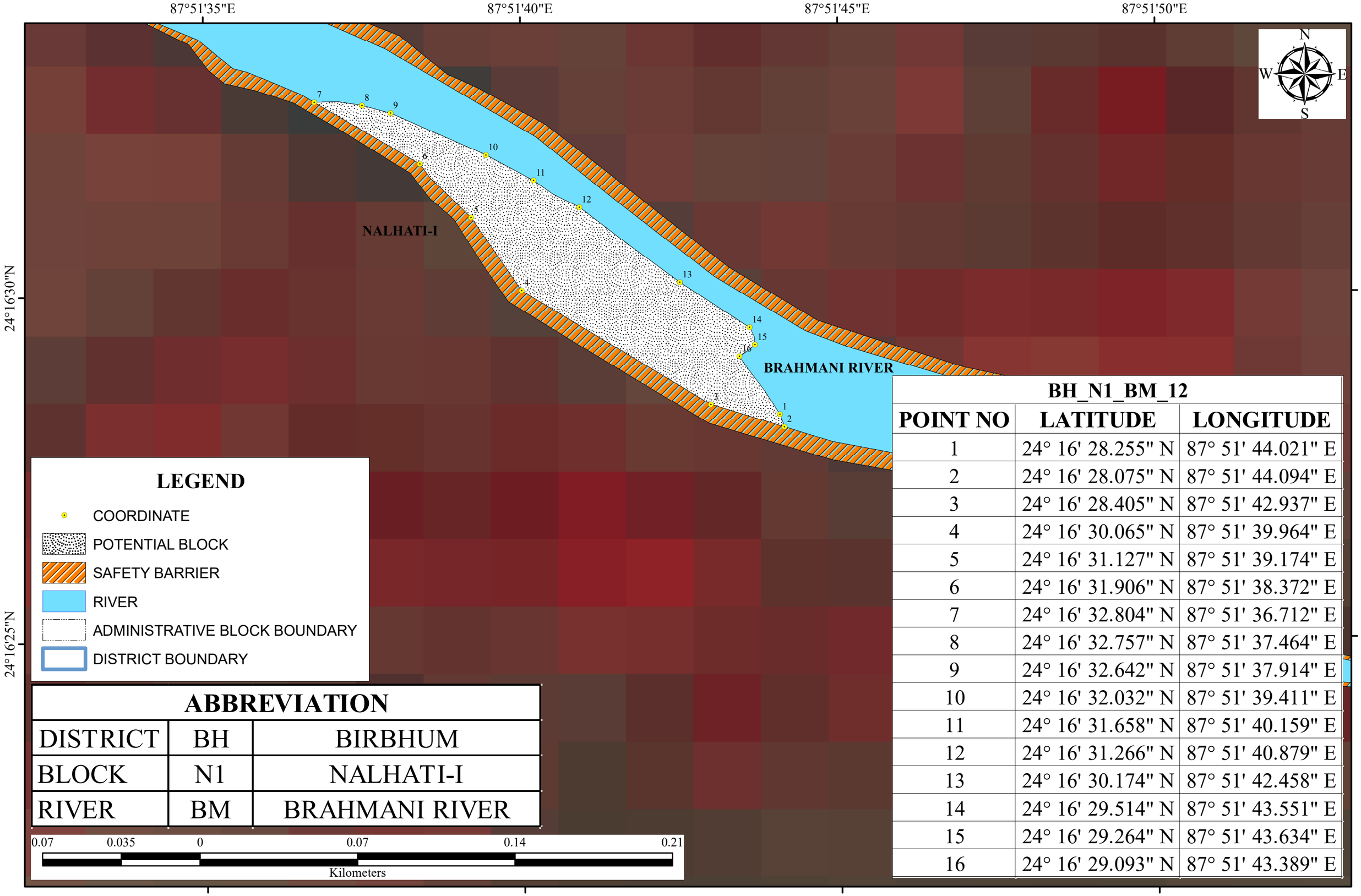
POTENTIAL BH_N1_BM_11 OF BRAHMANI RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N1	NALHATI-I
RIVER	BM	BRAHMANI RIVER

BH_N1_BM_11		
POINT NO	LATITUDE	LONGITUDE
1	24° 16' 33.087" N	87° 51' 12.867" E
2	24° 16' 33.464" N	87° 51' 13.054" E
3	24° 16' 33.849" N	87° 51' 13.431" E
4	24° 16' 34.008" N	87° 51' 13.913" E
5	24° 16' 34.260" N	87° 51' 14.924" E
6	24° 16' 35.001" N	87° 51' 17.005" E
7	24° 16' 35.520" N	87° 51' 18.545" E
8	24° 16' 35.523" N	87° 51' 18.852" E
9	24° 16' 34.712" N	87° 51' 16.732" E
10	24° 16' 34.143" N	87° 51' 15.471" E
11	24° 16' 33.556" N	87° 51' 14.322" E
12	24° 16' 33.284" N	87° 51' 13.616" E

POTENTIAL BH_N1_BM_12 OF BRAHMANI RIVER



LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

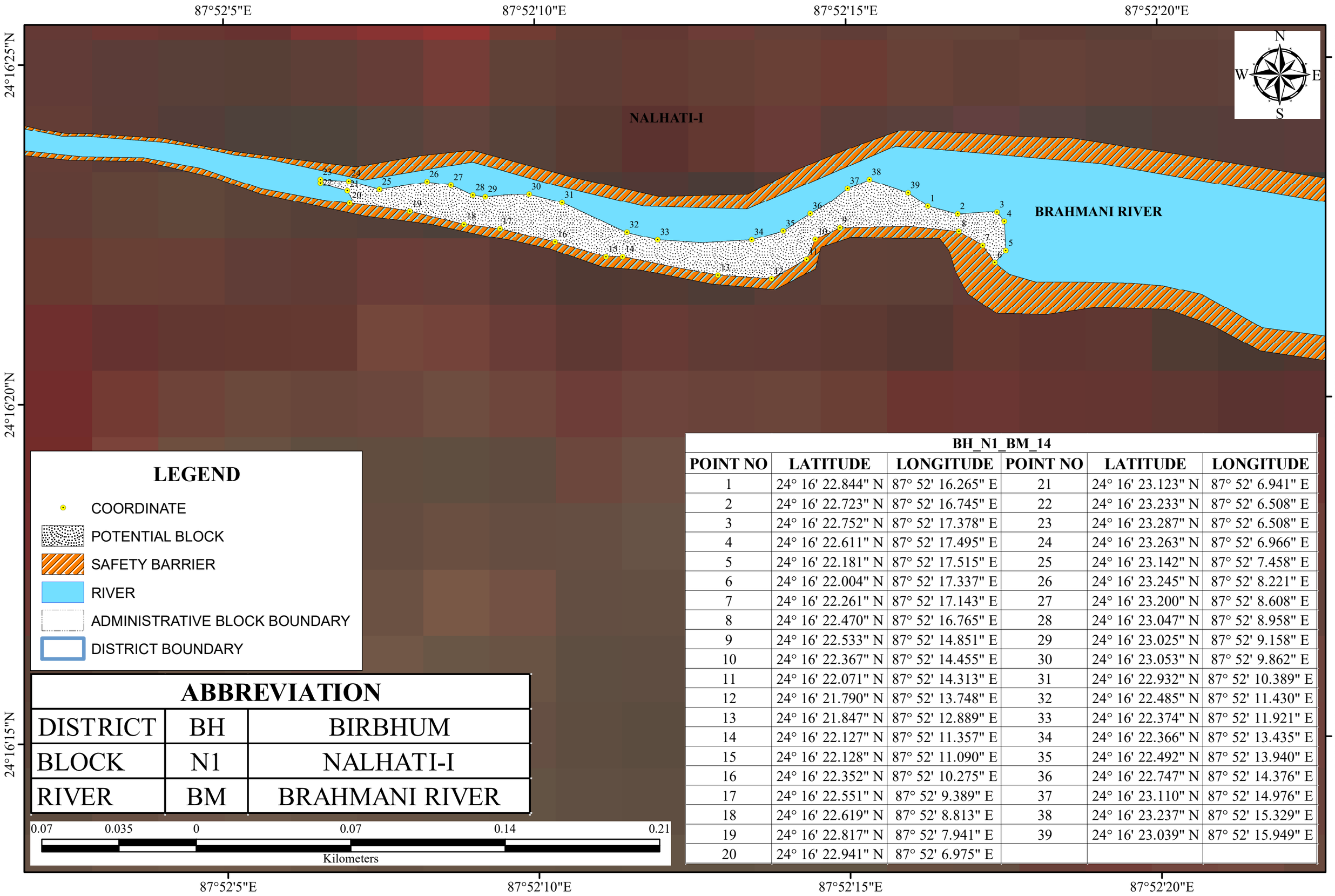
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N1	NALHATI-I
RIVER	BM	BRAHMANI RIVER

0.07 0.035 0 0.07 0.14 0.21

Kilometers

BH_N1_BM_12		
POINT NO	LATITUDE	LONGITUDE
1	24° 16' 28.255" N	87° 51' 44.021" E
2	24° 16' 28.075" N	87° 51' 44.094" E
3	24° 16' 28.405" N	87° 51' 42.937" E
4	24° 16' 30.065" N	87° 51' 39.964" E
5	24° 16' 31.127" N	87° 51' 39.174" E
6	24° 16' 31.906" N	87° 51' 38.372" E
7	24° 16' 32.804" N	87° 51' 36.712" E
8	24° 16' 32.757" N	87° 51' 37.464" E
9	24° 16' 32.642" N	87° 51' 37.914" E
10	24° 16' 32.032" N	87° 51' 39.411" E
11	24° 16' 31.658" N	87° 51' 40.159" E
12	24° 16' 31.266" N	87° 51' 40.879" E
13	24° 16' 30.174" N	87° 51' 42.458" E
14	24° 16' 29.514" N	87° 51' 43.551" E
15	24° 16' 29.264" N	87° 51' 43.634" E
16	24° 16' 29.093" N	87° 51' 43.389" E

POTENTIAL BH_N1_BM_14 OF BRAHMANI RIVER



LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

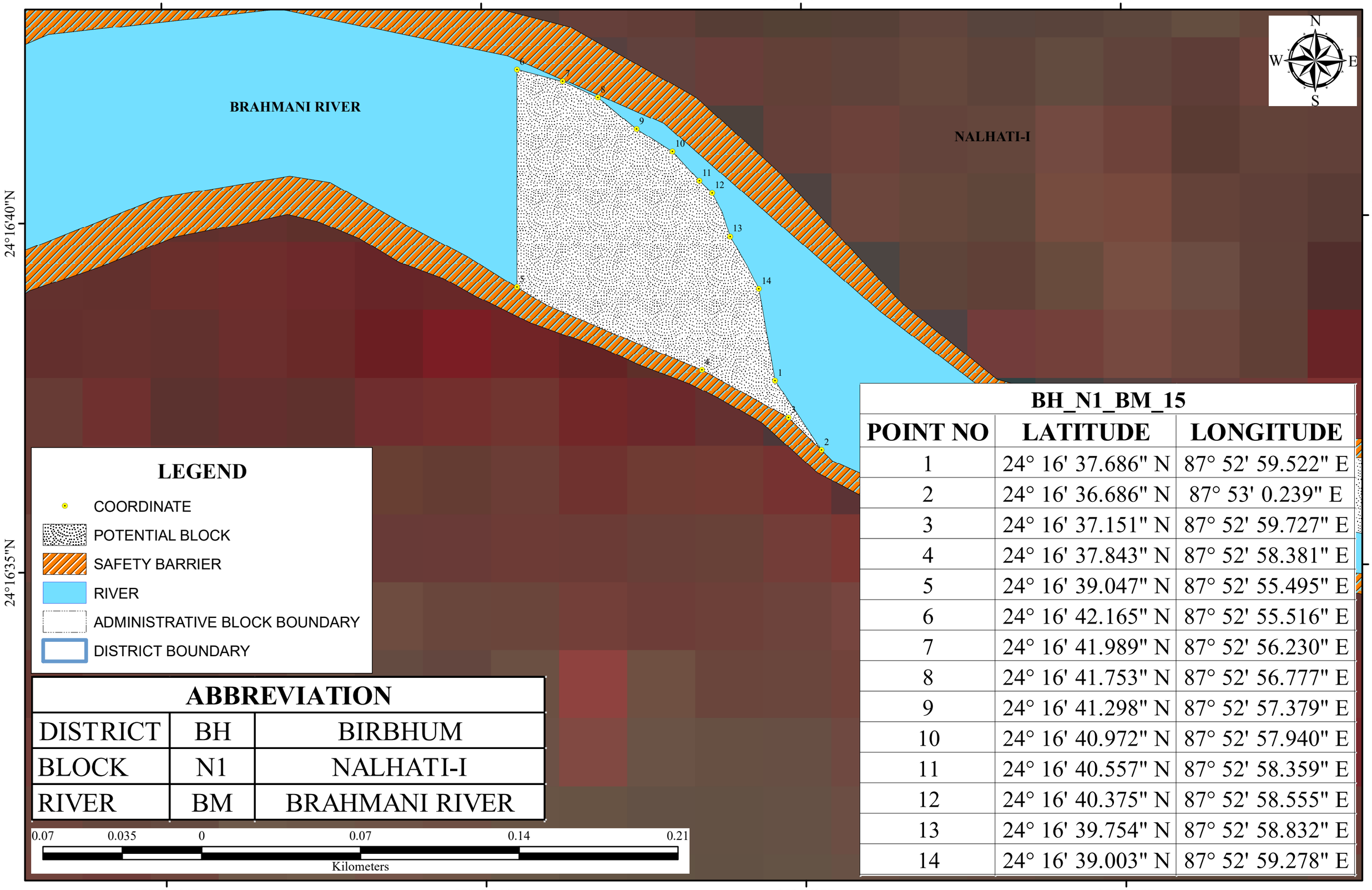
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N1	NALHATI-I
RIVER	BM	BRAHMANI RIVER

0.07 0.035 0 0.07 0.14 0.21

Kilometers

BH_N1_BM_14					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 16' 22.844" N	87° 52' 16.265" E	21	24° 16' 23.123" N	87° 52' 6.941" E
2	24° 16' 22.723" N	87° 52' 16.745" E	22	24° 16' 23.233" N	87° 52' 6.508" E
3	24° 16' 22.752" N	87° 52' 17.378" E	23	24° 16' 23.287" N	87° 52' 6.508" E
4	24° 16' 22.611" N	87° 52' 17.495" E	24	24° 16' 23.263" N	87° 52' 6.966" E
5	24° 16' 22.181" N	87° 52' 17.515" E	25	24° 16' 23.142" N	87° 52' 7.458" E
6	24° 16' 22.004" N	87° 52' 17.337" E	26	24° 16' 23.245" N	87° 52' 8.221" E
7	24° 16' 22.261" N	87° 52' 17.143" E	27	24° 16' 23.200" N	87° 52' 8.608" E
8	24° 16' 22.470" N	87° 52' 16.765" E	28	24° 16' 23.047" N	87° 52' 8.958" E
9	24° 16' 22.533" N	87° 52' 14.851" E	29	24° 16' 23.025" N	87° 52' 9.158" E
10	24° 16' 22.367" N	87° 52' 14.455" E	30	24° 16' 23.053" N	87° 52' 9.862" E
11	24° 16' 22.071" N	87° 52' 14.313" E	31	24° 16' 22.932" N	87° 52' 10.389" E
12	24° 16' 21.790" N	87° 52' 13.748" E	32	24° 16' 22.485" N	87° 52' 11.430" E
13	24° 16' 21.847" N	87° 52' 12.889" E	33	24° 16' 22.374" N	87° 52' 11.921" E
14	24° 16' 22.127" N	87° 52' 11.357" E	34	24° 16' 22.366" N	87° 52' 13.435" E
15	24° 16' 22.128" N	87° 52' 11.090" E	35	24° 16' 22.492" N	87° 52' 13.940" E
16	24° 16' 22.352" N	87° 52' 10.275" E	36	24° 16' 22.747" N	87° 52' 14.376" E
17	24° 16' 22.551" N	87° 52' 9.389" E	37	24° 16' 23.110" N	87° 52' 14.976" E
18	24° 16' 22.619" N	87° 52' 8.813" E	38	24° 16' 23.237" N	87° 52' 15.329" E
19	24° 16' 22.817" N	87° 52' 7.941" E	39	24° 16' 23.039" N	87° 52' 15.949" E
20	24° 16' 22.941" N	87° 52' 6.975" E			

POTENTIAL BH_N1_BM_15 OF BRAHMANI RIVER



LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N1	NALHATI-I
RIVER	BM	BRAHMANI RIVER

0.07 0.035 0 0.07 0.14 0.21

Kilometers

BH_N1_BM_15		
POINT NO	LATITUDE	LONGITUDE
1	24° 16' 37.686" N	87° 52' 59.522" E
2	24° 16' 36.686" N	87° 53' 0.239" E
3	24° 16' 37.151" N	87° 52' 59.727" E
4	24° 16' 37.843" N	87° 52' 58.381" E
5	24° 16' 39.047" N	87° 52' 55.495" E
6	24° 16' 42.165" N	87° 52' 55.516" E
7	24° 16' 41.989" N	87° 52' 56.230" E
8	24° 16' 41.753" N	87° 52' 56.777" E
9	24° 16' 41.298" N	87° 52' 57.379" E
10	24° 16' 40.972" N	87° 52' 57.940" E
11	24° 16' 40.557" N	87° 52' 58.359" E
12	24° 16' 40.375" N	87° 52' 58.555" E
13	24° 16' 39.754" N	87° 52' 58.832" E
14	24° 16' 39.003" N	87° 52' 59.278" E

POTENTIAL BH_N1_BM_17 OF BRAHMANI RIVER

BH_N1_BM_17					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 16' 39.921" N	87° 53' 22.705" E	25	24° 16' 57.550" N	87° 53' 34.818" E
2	24° 16' 38.981" N	87° 53' 21.191" E	26	24° 16' 59.115" N	87° 53' 35.591" E
3	24° 16' 39.246" N	87° 53' 20.923" E	27	24° 17' 2.632" N	87° 53' 37.352" E
4	24° 16' 38.196" N	87° 53' 18.138" E	28	24° 17' 4.358" N	87° 53' 38.291" E
5	24° 16' 36.493" N	87° 53' 15.086" E	29	24° 17' 5.790" N	87° 53' 39.744" E
6	24° 16' 35.481" N	87° 53' 11.663" E	30	24° 17' 6.419" N	87° 53' 40.663" E
7	24° 16' 35.251" N	87° 53' 9.672" E	31	24° 17' 7.095" N	87° 53' 41.757" E
8	24° 16' 35.642" N	87° 53' 7.648" E	32	24° 17' 4.767" N	87° 53' 40.346" E
9	24° 16' 35.724" N	87° 53' 5.246" E	33	24° 17' 3.097" N	87° 53' 39.067" E
10	24° 16' 36.317" N	87° 53' 4.011" E	34	24° 16' 56.359" N	87° 53' 36.439" E
11	24° 16' 37.163" N	87° 53' 4.033" E	35	24° 16' 55.033" N	87° 53' 35.304" E
12	24° 16' 36.511" N	87° 53' 6.553" E	36	24° 16' 53.314" N	87° 53' 35.010" E
13	24° 16' 36.536" N	87° 53' 9.521" E	37	24° 16' 52.935" N	87° 53' 35.884" E
14	24° 16' 36.882" N	87° 53' 11.130" E	38	24° 16' 51.769" N	87° 53' 35.457" E
15	24° 16' 38.970" N	87° 53' 16.224" E	39	24° 16' 50.778" N	87° 53' 34.957" E
16	24° 16' 41.309" N	87° 53' 20.897" E	40	24° 16' 49.479" N	87° 53' 34.160" E
17	24° 16' 43.430" N	87° 53' 24.021" E	41	24° 16' 48.182" N	87° 53' 33.109" E
18	24° 16' 44.720" N	87° 53' 25.953" E	42	24° 16' 47.244" N	87° 53' 32.525" E
19	24° 16' 45.755" N	87° 53' 27.286" E	43	24° 16' 45.333" N	87° 53' 30.429" E
20	24° 16' 47.422" N	87° 53' 29.163" E	44	24° 16' 44.260" N	87° 53' 28.718" E
21	24° 16' 49.646" N	87° 53' 31.220" E	45	24° 16' 43.673" N	87° 53' 27.574" E
22	24° 16' 52.540" N	87° 53' 32.906" E	46	24° 16' 42.818" N	87° 53' 25.836" E
23	24° 16' 54.449" N	87° 53' 33.693" E	47	24° 16' 41.188" N	87° 53' 24.333" E
24	24° 16' 56.048" N	87° 53' 34.209" E			

NALHATI-I

BH_N1_BM_17

BRAHMANI RIVER

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N1	NALHATI-I
RIVER	BM	BRAHMANI RIVER

0.25 0.125 0 0.25 0.5 0.75

Kilometers

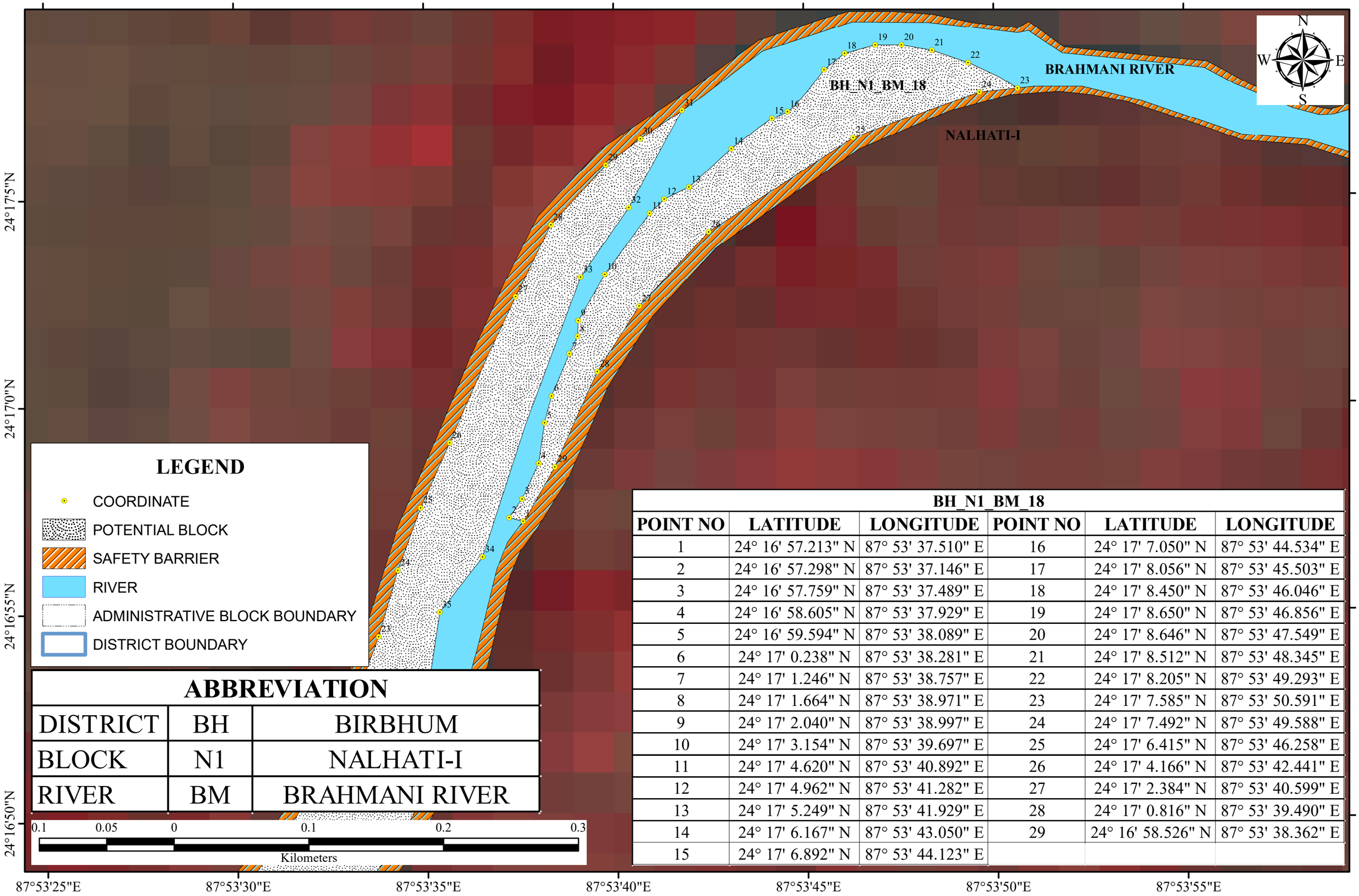
LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

87°52'40"E 87°52'45"E 87°52'50"E 87°52'55"E 87°53'0"E 87°53'5"E 87°53'10"E 87°53'15"E 87°53'20"E 87°53'25"E 87°53'30"E 87°53'35"E 87°53'40"E 87°53'45"E 87°53'50"E

24°17'5"N 24°17'0"N 24°16'55"N 24°16'50"N 24°16'45"N 24°16'40"N 24°16'35"N 24°16'30"N 24°16'25"N

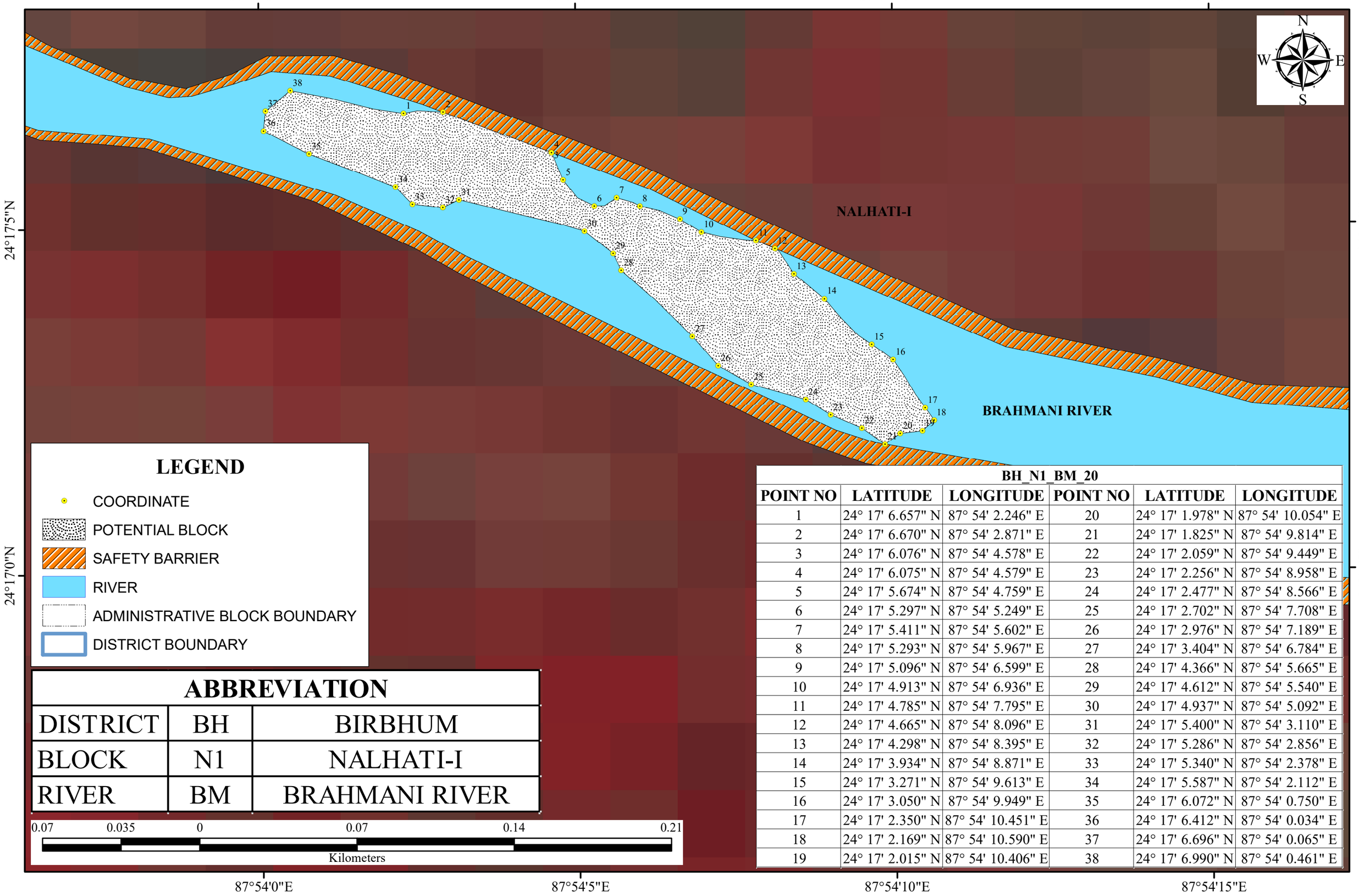
POTENTIAL BLOCK BH_N1_BM_18 OF BRAHMANI RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N1	NALHATI-I
RIVER	BM	BRAHMANI RIVER

BH_N1_BM_18					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 16' 57.213" N	87° 53' 37.510" E	16	24° 17' 7.050" N	87° 53' 44.534" E
2	24° 16' 57.298" N	87° 53' 37.146" E	17	24° 17' 8.056" N	87° 53' 45.503" E
3	24° 16' 57.759" N	87° 53' 37.489" E	18	24° 17' 8.450" N	87° 53' 46.046" E
4	24° 16' 58.605" N	87° 53' 37.929" E	19	24° 17' 8.650" N	87° 53' 46.856" E
5	24° 16' 59.594" N	87° 53' 38.089" E	20	24° 17' 8.646" N	87° 53' 47.549" E
6	24° 17' 0.238" N	87° 53' 38.281" E	21	24° 17' 8.512" N	87° 53' 48.345" E
7	24° 17' 1.246" N	87° 53' 38.757" E	22	24° 17' 8.205" N	87° 53' 49.293" E
8	24° 17' 1.664" N	87° 53' 38.971" E	23	24° 17' 7.585" N	87° 53' 50.591" E
9	24° 17' 2.040" N	87° 53' 38.997" E	24	24° 17' 7.492" N	87° 53' 49.588" E
10	24° 17' 3.154" N	87° 53' 39.697" E	25	24° 17' 6.415" N	87° 53' 46.258" E
11	24° 17' 4.620" N	87° 53' 40.892" E	26	24° 17' 4.166" N	87° 53' 42.441" E
12	24° 17' 4.962" N	87° 53' 41.282" E	27	24° 17' 2.384" N	87° 53' 40.599" E
13	24° 17' 5.249" N	87° 53' 41.929" E	28	24° 17' 0.816" N	87° 53' 39.490" E
14	24° 17' 6.167" N	87° 53' 43.050" E	29	24° 16' 58.526" N	87° 53' 38.362" E
15	24° 17' 6.892" N	87° 53' 44.123" E			

POTENTIAL BLOCK BH_N1_BM_20 OF BRAHMANI RIVER



LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

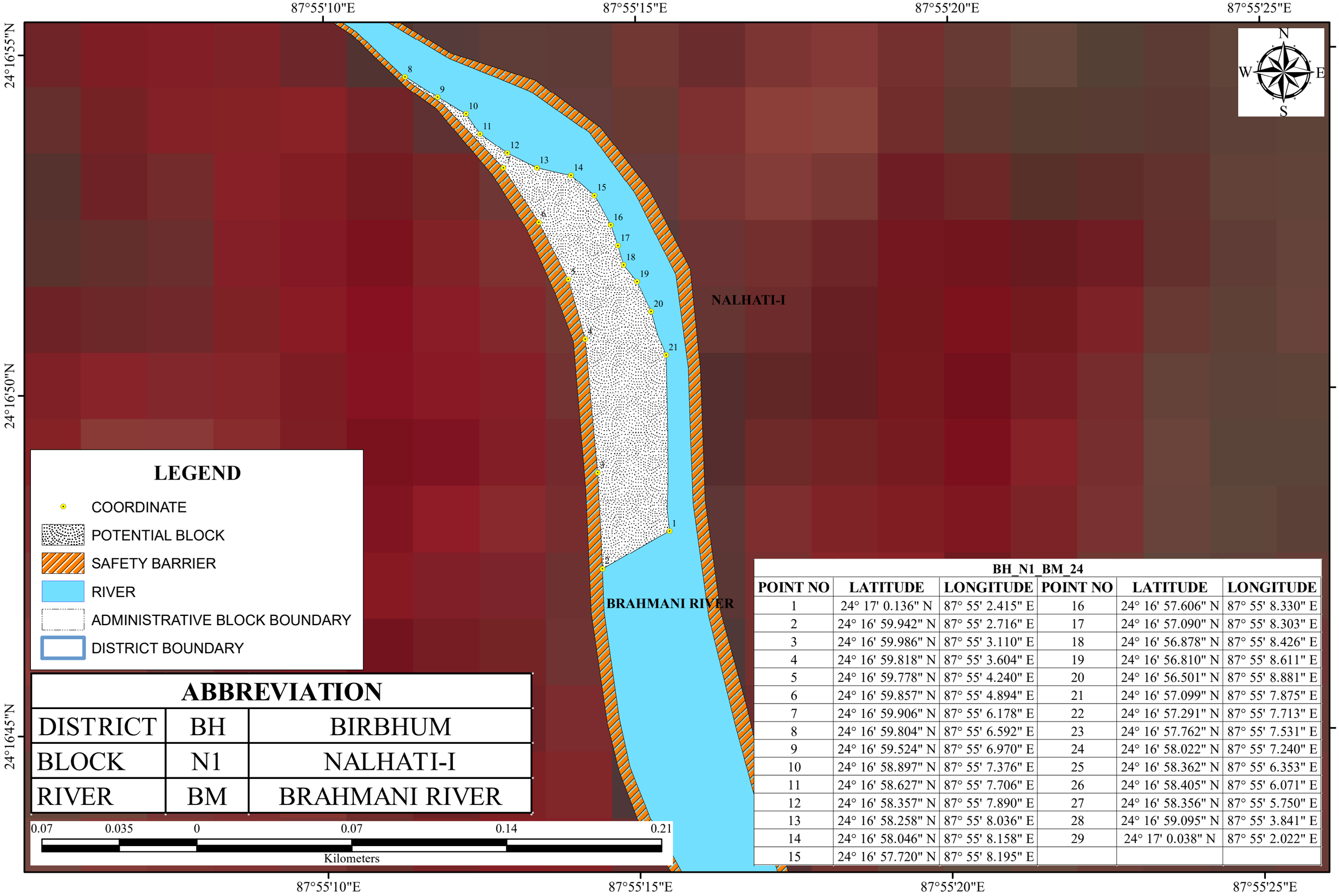
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N1	NALHATI-I
RIVER	BM	BRAHMANI RIVER

0.07 0.035 0 0.07 0.14 0.21

Kilometers

BH_N1_BM_20					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 17' 6.657" N	87° 54' 2.246" E	20	24° 17' 1.978" N	87° 54' 10.054" E
2	24° 17' 6.670" N	87° 54' 2.871" E	21	24° 17' 1.825" N	87° 54' 9.814" E
3	24° 17' 6.076" N	87° 54' 4.578" E	22	24° 17' 2.059" N	87° 54' 9.449" E
4	24° 17' 6.075" N	87° 54' 4.579" E	23	24° 17' 2.256" N	87° 54' 8.958" E
5	24° 17' 5.674" N	87° 54' 4.759" E	24	24° 17' 2.477" N	87° 54' 8.566" E
6	24° 17' 5.297" N	87° 54' 5.249" E	25	24° 17' 2.702" N	87° 54' 7.708" E
7	24° 17' 5.411" N	87° 54' 5.602" E	26	24° 17' 2.976" N	87° 54' 7.189" E
8	24° 17' 5.293" N	87° 54' 5.967" E	27	24° 17' 3.404" N	87° 54' 6.784" E
9	24° 17' 5.096" N	87° 54' 6.599" E	28	24° 17' 4.366" N	87° 54' 5.665" E
10	24° 17' 4.913" N	87° 54' 6.936" E	29	24° 17' 4.612" N	87° 54' 5.540" E
11	24° 17' 4.785" N	87° 54' 7.795" E	30	24° 17' 4.937" N	87° 54' 5.092" E
12	24° 17' 4.665" N	87° 54' 8.096" E	31	24° 17' 5.400" N	87° 54' 3.110" E
13	24° 17' 4.298" N	87° 54' 8.395" E	32	24° 17' 5.286" N	87° 54' 2.856" E
14	24° 17' 3.934" N	87° 54' 8.871" E	33	24° 17' 5.340" N	87° 54' 2.378" E
15	24° 17' 3.271" N	87° 54' 9.613" E	34	24° 17' 5.587" N	87° 54' 2.112" E
16	24° 17' 3.050" N	87° 54' 9.949" E	35	24° 17' 6.072" N	87° 54' 0.750" E
17	24° 17' 2.350" N	87° 54' 10.451" E	36	24° 17' 6.412" N	87° 54' 0.034" E
18	24° 17' 2.169" N	87° 54' 10.590" E	37	24° 17' 6.696" N	87° 54' 0.065" E
19	24° 17' 2.015" N	87° 54' 10.406" E	38	24° 17' 6.990" N	87° 54' 0.461" E

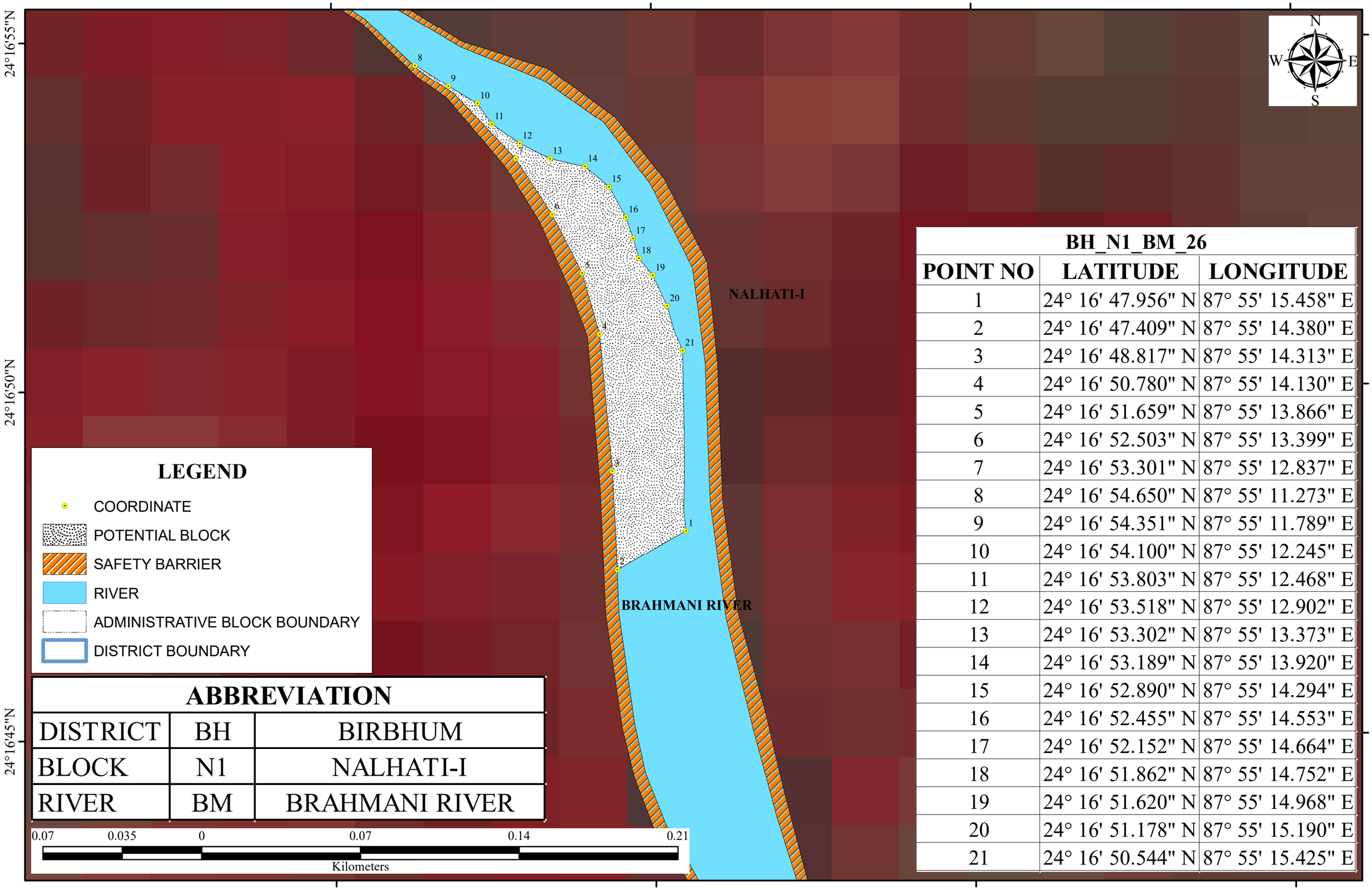
POTENTIAL BLOCK BH_N1_BM_24 OF BRAHMANI RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N1	NALHATI-I
RIVER	BM	BRAHMANI RIVER

BH_N1_BM_24					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 17' 0.136" N	87° 55' 2.415" E	16	24° 16' 57.606" N	87° 55' 8.330" E
2	24° 16' 59.942" N	87° 55' 2.716" E	17	24° 16' 57.090" N	87° 55' 8.303" E
3	24° 16' 59.986" N	87° 55' 3.110" E	18	24° 16' 56.878" N	87° 55' 8.426" E
4	24° 16' 59.818" N	87° 55' 3.604" E	19	24° 16' 56.810" N	87° 55' 8.611" E
5	24° 16' 59.778" N	87° 55' 4.240" E	20	24° 16' 56.501" N	87° 55' 8.881" E
6	24° 16' 59.857" N	87° 55' 4.894" E	21	24° 16' 57.099" N	87° 55' 7.875" E
7	24° 16' 59.906" N	87° 55' 6.178" E	22	24° 16' 57.291" N	87° 55' 7.713" E
8	24° 16' 59.804" N	87° 55' 6.592" E	23	24° 16' 57.762" N	87° 55' 7.531" E
9	24° 16' 59.524" N	87° 55' 6.970" E	24	24° 16' 58.022" N	87° 55' 7.240" E
10	24° 16' 58.897" N	87° 55' 7.376" E	25	24° 16' 58.362" N	87° 55' 6.353" E
11	24° 16' 58.627" N	87° 55' 7.706" E	26	24° 16' 58.405" N	87° 55' 6.071" E
12	24° 16' 58.357" N	87° 55' 7.890" E	27	24° 16' 58.356" N	87° 55' 5.750" E
13	24° 16' 58.258" N	87° 55' 8.036" E	28	24° 16' 59.095" N	87° 55' 3.841" E
14	24° 16' 58.046" N	87° 55' 8.158" E	29	24° 17' 0.038" N	87° 55' 2.022" E
15	24° 16' 57.720" N	87° 55' 8.195" E			

POTENTIAL BLOCK BH_N1_BM_26 OF BRAHMANI RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N1	NALHATI-I
RIVER	BM	BRAHMANI RIVER

BH_N1_BM_26		
POINT NO	LATITUDE	LONGITUDE
1	24° 16' 47.956" N	87° 55' 15.458" E
2	24° 16' 47.409" N	87° 55' 14.380" E
3	24° 16' 48.817" N	87° 55' 14.313" E
4	24° 16' 50.780" N	87° 55' 14.130" E
5	24° 16' 51.659" N	87° 55' 13.866" E
6	24° 16' 52.503" N	87° 55' 13.399" E
7	24° 16' 53.301" N	87° 55' 12.837" E
8	24° 16' 54.650" N	87° 55' 11.273" E
9	24° 16' 54.351" N	87° 55' 11.789" E
10	24° 16' 54.100" N	87° 55' 12.245" E
11	24° 16' 53.803" N	87° 55' 12.468" E
12	24° 16' 53.518" N	87° 55' 12.902" E
13	24° 16' 53.302" N	87° 55' 13.373" E
14	24° 16' 53.189" N	87° 55' 13.920" E
15	24° 16' 52.890" N	87° 55' 14.294" E
16	24° 16' 52.455" N	87° 55' 14.553" E
17	24° 16' 52.152" N	87° 55' 14.664" E
18	24° 16' 51.862" N	87° 55' 14.752" E
19	24° 16' 51.620" N	87° 55' 14.968" E
20	24° 16' 51.178" N	87° 55' 15.190" E
21	24° 16' 50.544" N	87° 55' 15.425" E

POTENTIAL BLOCK BH_N2_BM_39 OF BRAHMANI RIVER

87°56'55"E 87°57'0"E 87°57'5"E 87°57'10"E

24°14'40"N

24°14'35"N

BRAHMANI RIVER

NALHATI-II

N W E S

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N2	NALHATI-II
RIVER	BM	BRAHMANI RIVER

0.07 0.035 0 0.07 0.14 0.21

Kilometers

BH_N2_BM_39		
POINT NO	LATITUDE	LONGITUDE
1	24° 14' 35.484" N	87° 57' 2.732" E
2	24° 14' 34.924" N	87° 57' 2.754" E
3	24° 14' 35.228" N	87° 57' 2.299" E
4	24° 14' 35.568" N	87° 57' 1.211" E
5	24° 14' 36.157" N	87° 56' 59.879" E
6	24° 14' 36.853" N	87° 56' 58.734" E
7	24° 14' 37.308" N	87° 56' 58.116" E
8	24° 14' 38.488" N	87° 56' 56.823" E
9	24° 14' 39.515" N	87° 56' 55.916" E
10	24° 14' 40.293" N	87° 56' 55.336" E
11	24° 14' 40.790" N	87° 56' 54.976" E
12	24° 14' 41.512" N	87° 56' 54.676" E
13	24° 14' 42.342" N	87° 56' 54.436" E
14	24° 14' 43.182" N	87° 56' 54.106" E
15	24° 14' 43.175" N	87° 56' 55.186" E
16	24° 14' 43.158" N	87° 56' 55.188" E
17	24° 14' 41.495" N	87° 56' 55.806" E
18	24° 14' 40.410" N	87° 56' 56.534" E
19	24° 14' 39.934" N	87° 56' 56.808" E
20	24° 14' 39.009" N	87° 56' 57.296" E
21	24° 14' 37.985" N	87° 56' 58.159" E
22	24° 14' 37.166" N	87° 56' 59.264" E
23	24° 14' 36.078" N	87° 57' 1.508" E

87°56'55"E 87°57'0"E 87°57'5"E 87°57'10"E

POTENTIAL BLOCK BH_N2_BM_40 OF BRAHMANI RIVER

87°57'5"E

87°57'10"E

BRAHMANI RIVER

NALHATI-II

BH_N2_BM_40

N

W

E

S

24°14'30"N

24°14'30"N

LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

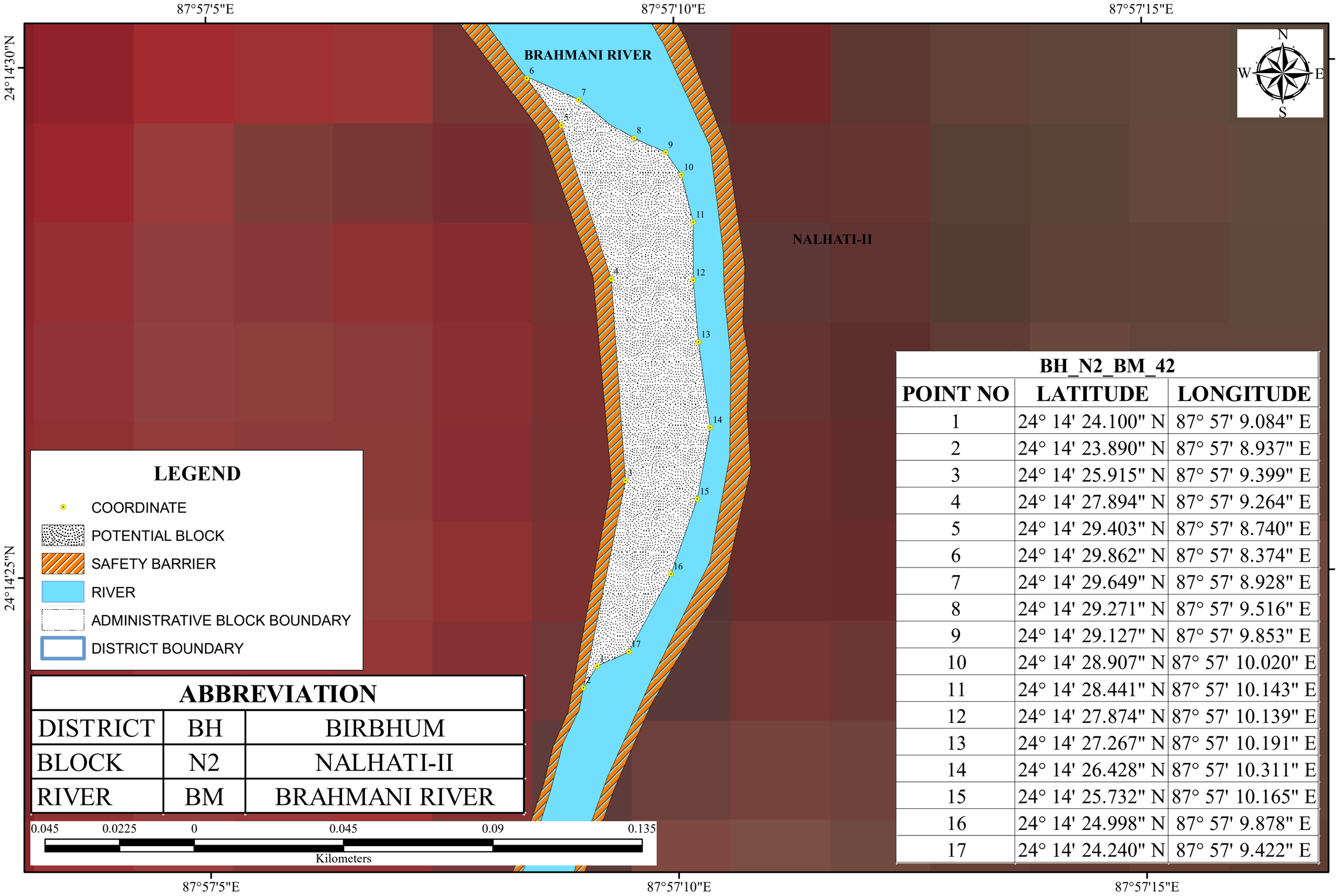
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N2	NALHATI-II
RIVER	BM	BRAHMANI RIVER

0.035 0.0175 0 0.035 0.07 0.105

Kilometers

BH_N2_BM_40		
POINT NO	LATITUDE	LONGITUDE
1	24° 14' 31.296" N	87° 57' 9.150" E
2	24° 14' 30.794" N	87° 57' 9.463" E
3	24° 14' 30.899" N	87° 57' 9.205" E
4	24° 14' 30.953" N	87° 57' 8.867" E
5	24° 14' 31.240" N	87° 57' 8.321" E
6	24° 14' 31.617" N	87° 57' 7.817" E
7	24° 14' 31.982" N	87° 57' 7.341" E
8	24° 14' 32.165" N	87° 57' 6.850" E
9	24° 14' 32.580" N	87° 57' 6.543" E
10	24° 14' 33.345" N	87° 57' 6.028" E
11	24° 14' 33.963" N	87° 57' 5.658" E
12	24° 14' 33.676" N	87° 57' 6.053" E
13	24° 14' 33.231" N	87° 57' 6.658" E
14	24° 14' 32.522" N	87° 57' 7.801" E
15	24° 14' 31.891" N	87° 57' 8.576" E

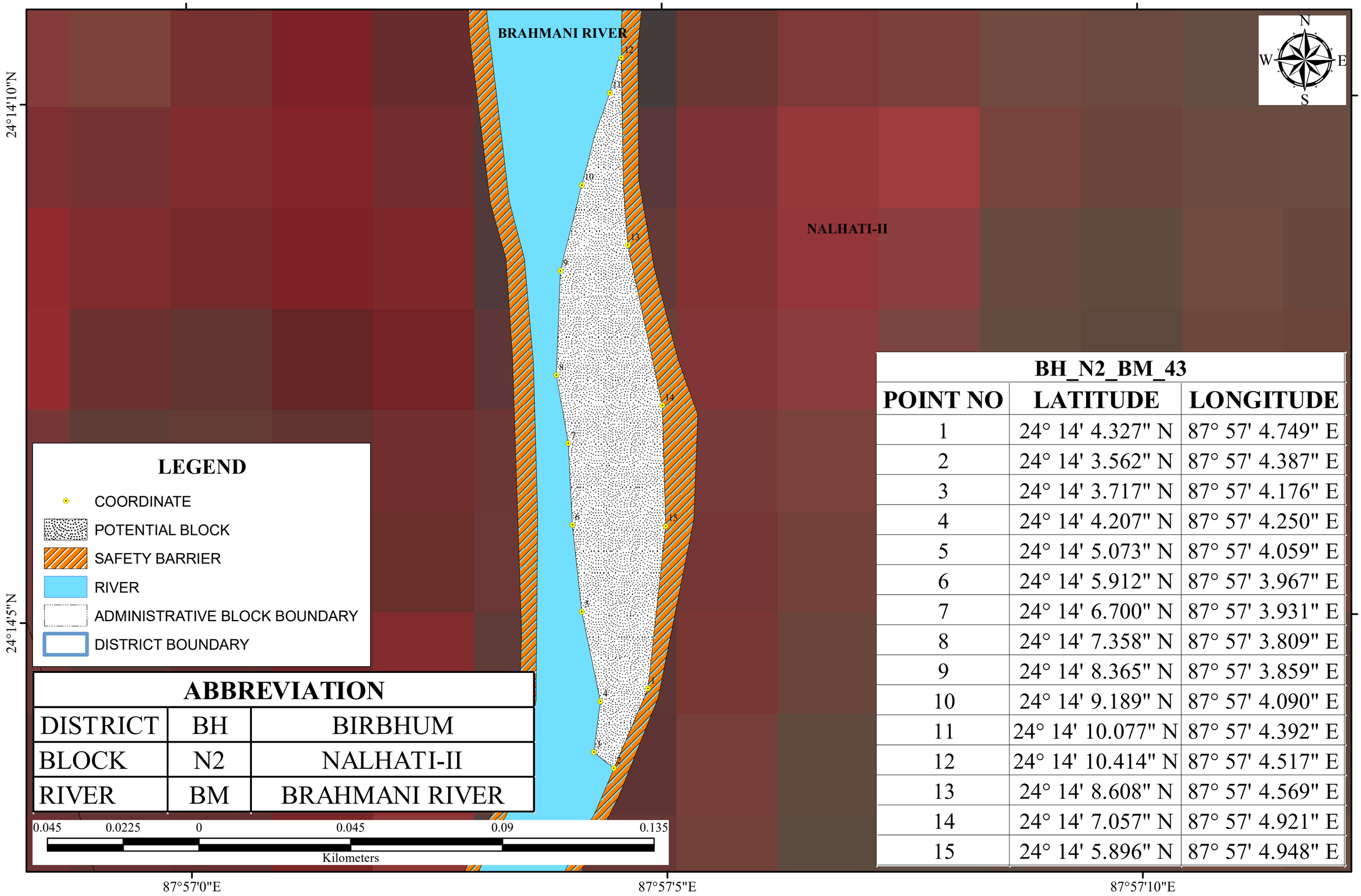
POTENTIAL BLOCK BH_N2_BM_42 OF BRAHMANI RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N2	NALHATI-II
RIVER	BM	BRAHMANI RIVER

BH_N2_BM_42		
POINT NO	LATITUDE	LONGITUDE
1	24° 14' 24.100" N	87° 57' 9.084" E
2	24° 14' 23.890" N	87° 57' 8.937" E
3	24° 14' 25.915" N	87° 57' 9.399" E
4	24° 14' 27.894" N	87° 57' 9.264" E
5	24° 14' 29.403" N	87° 57' 8.740" E
6	24° 14' 29.862" N	87° 57' 8.374" E
7	24° 14' 29.649" N	87° 57' 8.928" E
8	24° 14' 29.271" N	87° 57' 9.516" E
9	24° 14' 29.127" N	87° 57' 9.853" E
10	24° 14' 28.907" N	87° 57' 10.020" E
11	24° 14' 28.441" N	87° 57' 10.143" E
12	24° 14' 27.874" N	87° 57' 10.139" E
13	24° 14' 27.267" N	87° 57' 10.191" E
14	24° 14' 26.428" N	87° 57' 10.311" E
15	24° 14' 25.732" N	87° 57' 10.165" E
16	24° 14' 24.998" N	87° 57' 9.878" E
17	24° 14' 24.240" N	87° 57' 9.422" E

POTENTIAL BLOCK BH_N2_BM_43 OF BRAHMANI RIVER



LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

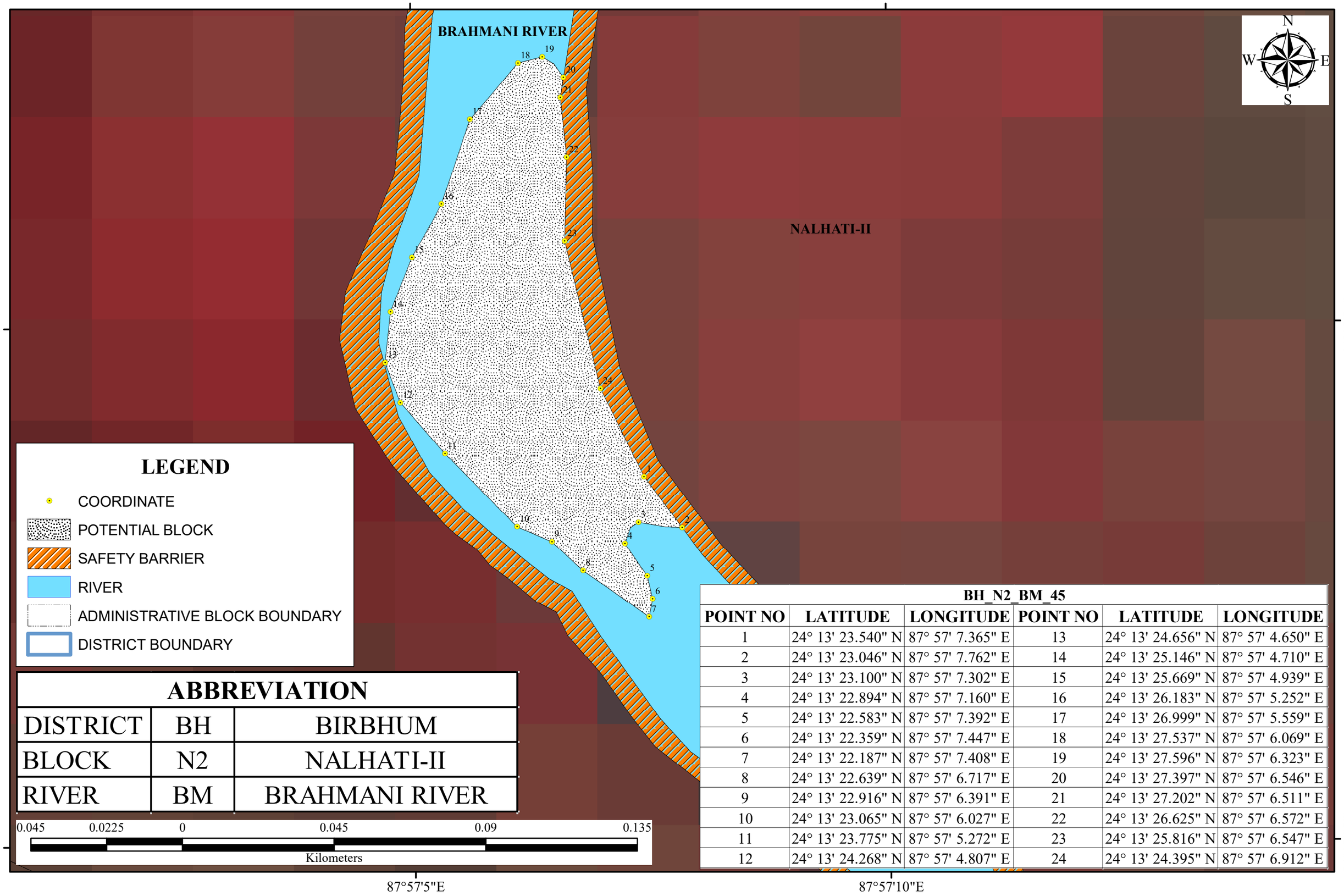
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N2	NALHATI-II
RIVER	BM	BRAHMANI RIVER

0.045 0.0225 0 0.045 0.09 0.135

Kilometers

BH_N2_BM_43		
POINT NO	LATITUDE	LONGITUDE
1	24° 14' 4.327" N	87° 57' 4.749" E
2	24° 14' 3.562" N	87° 57' 4.387" E
3	24° 14' 3.717" N	87° 57' 4.176" E
4	24° 14' 4.207" N	87° 57' 4.250" E
5	24° 14' 5.073" N	87° 57' 4.059" E
6	24° 14' 5.912" N	87° 57' 3.967" E
7	24° 14' 6.700" N	87° 57' 3.931" E
8	24° 14' 7.358" N	87° 57' 3.809" E
9	24° 14' 8.365" N	87° 57' 3.859" E
10	24° 14' 9.189" N	87° 57' 4.090" E
11	24° 14' 10.077" N	87° 57' 4.392" E
12	24° 14' 10.414" N	87° 57' 4.517" E
13	24° 14' 8.608" N	87° 57' 4.569" E
14	24° 14' 7.057" N	87° 57' 4.921" E
15	24° 14' 5.896" N	87° 57' 4.948" E

POTENTIAL BLOCK BH_N2_BM_45 OF BRAHMANI RIVER



LEGEND

- COORDINATE
- POTENTIAL BLOCK
- SAFETY BARRIER
- RIVER
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY

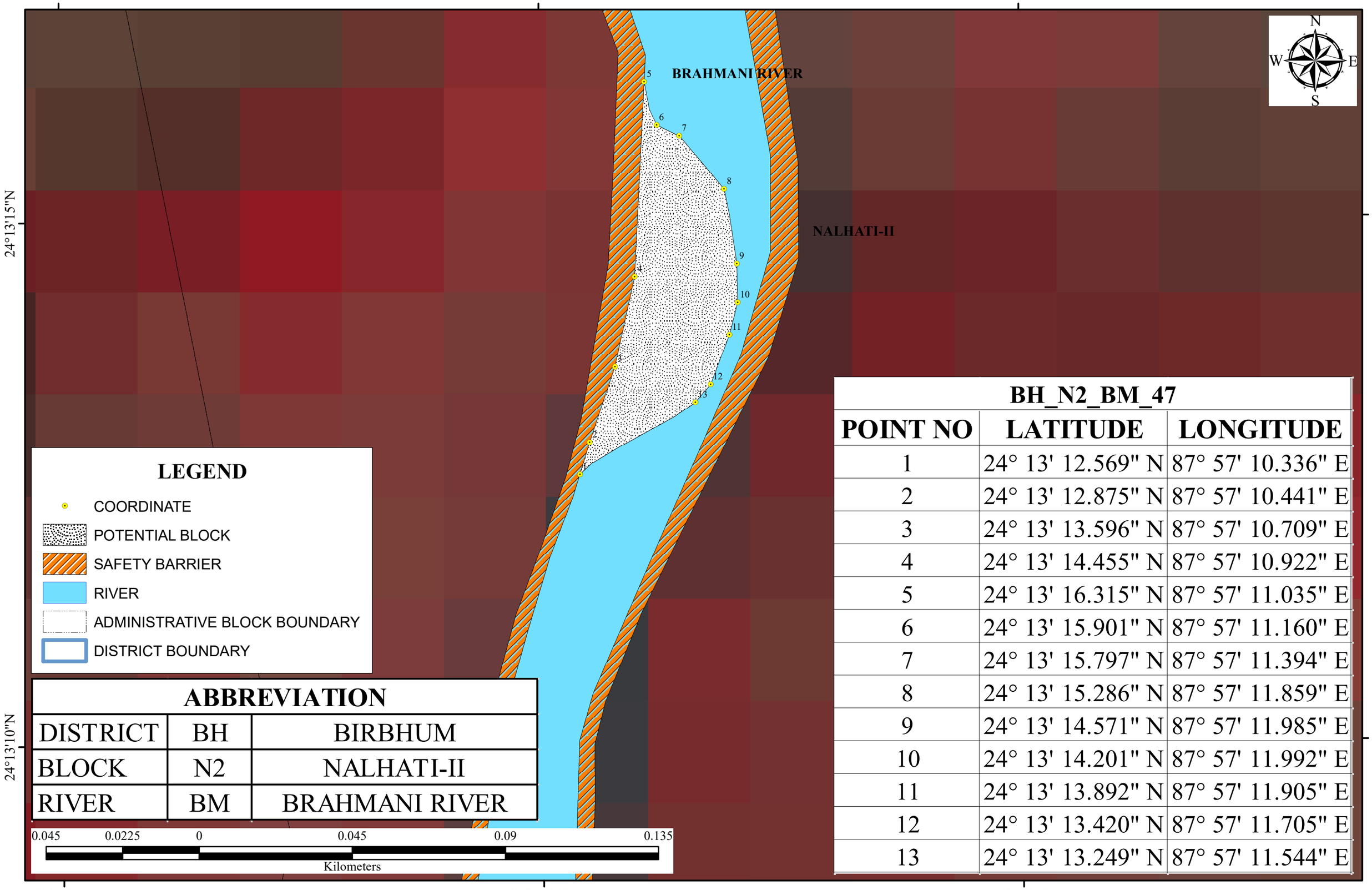
ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N2	NALHATI-II
RIVER	BM	BRAHMANI RIVER

0.045 0.0225 0 0.045 0.09 0.135

Kilometers

BH_N2_BM_45					
POINT NO	LATITUDE	LONGITUDE	POINT NO	LATITUDE	LONGITUDE
1	24° 13' 23.540" N	87° 57' 7.365" E	13	24° 13' 24.656" N	87° 57' 4.650" E
2	24° 13' 23.046" N	87° 57' 7.762" E	14	24° 13' 25.146" N	87° 57' 4.710" E
3	24° 13' 23.100" N	87° 57' 7.302" E	15	24° 13' 25.669" N	87° 57' 4.939" E
4	24° 13' 22.894" N	87° 57' 7.160" E	16	24° 13' 26.183" N	87° 57' 5.252" E
5	24° 13' 22.583" N	87° 57' 7.392" E	17	24° 13' 26.999" N	87° 57' 5.559" E
6	24° 13' 22.359" N	87° 57' 7.447" E	18	24° 13' 27.537" N	87° 57' 6.069" E
7	24° 13' 22.187" N	87° 57' 7.408" E	19	24° 13' 27.596" N	87° 57' 6.323" E
8	24° 13' 22.639" N	87° 57' 6.717" E	20	24° 13' 27.397" N	87° 57' 6.546" E
9	24° 13' 22.916" N	87° 57' 6.391" E	21	24° 13' 27.202" N	87° 57' 6.511" E
10	24° 13' 23.065" N	87° 57' 6.027" E	22	24° 13' 26.625" N	87° 57' 6.572" E
11	24° 13' 23.775" N	87° 57' 5.272" E	23	24° 13' 25.816" N	87° 57' 6.547" E
12	24° 13' 24.268" N	87° 57' 4.807" E	24	24° 13' 24.395" N	87° 57' 6.912" E

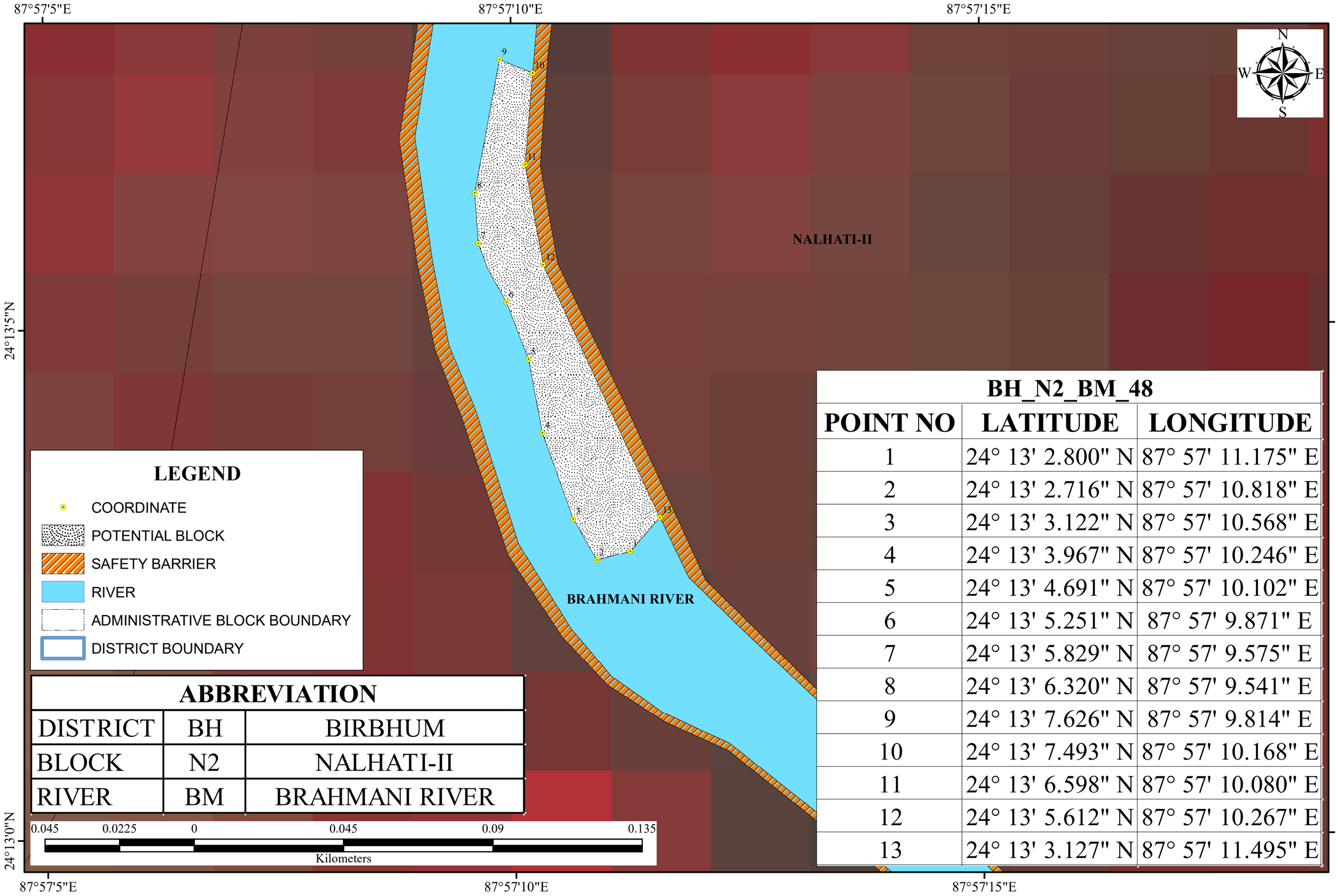
POTENTIAL BLOCK BH_N2_BM_47 OF BRAHMANI RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N2	NALHATI-II
RIVER	BM	BRAHMANI RIVER

BH_N2_BM_47		
POINT NO	LATITUDE	LONGITUDE
1	24° 13' 12.569" N	87° 57' 10.336" E
2	24° 13' 12.875" N	87° 57' 10.441" E
3	24° 13' 13.596" N	87° 57' 10.709" E
4	24° 13' 14.455" N	87° 57' 10.922" E
5	24° 13' 16.315" N	87° 57' 11.035" E
6	24° 13' 15.901" N	87° 57' 11.160" E
7	24° 13' 15.797" N	87° 57' 11.394" E
8	24° 13' 15.286" N	87° 57' 11.859" E
9	24° 13' 14.571" N	87° 57' 11.985" E
10	24° 13' 14.201" N	87° 57' 11.992" E
11	24° 13' 13.892" N	87° 57' 11.905" E
12	24° 13' 13.420" N	87° 57' 11.705" E
13	24° 13' 13.249" N	87° 57' 11.544" E

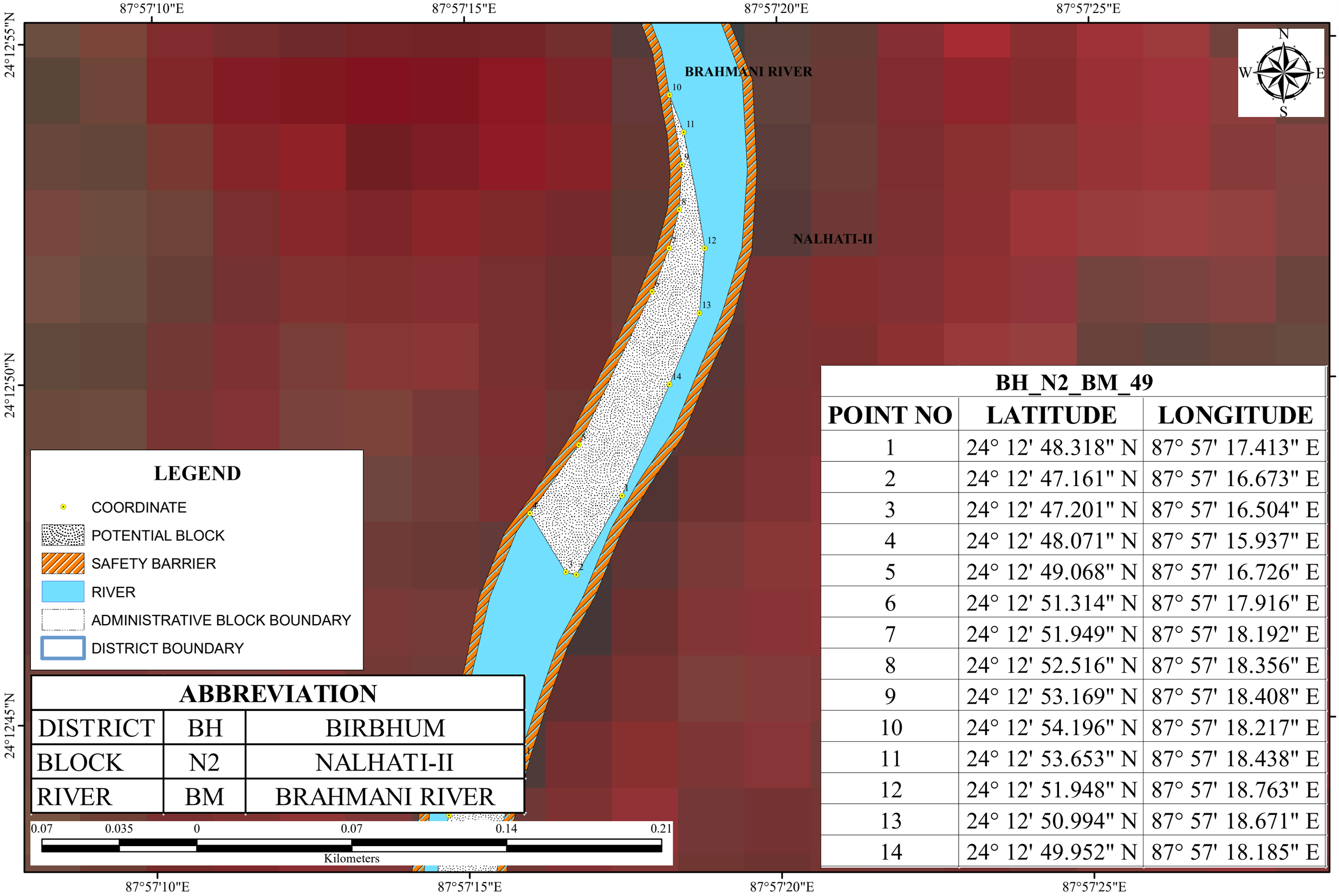
POTENTIAL BLOCK BH_N2_BM_48 OF BRAHMANI RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N2	NALHATI-II
RIVER	BM	BRAHMANI RIVER

BH_N2_BM_48		
POINT NO	LATITUDE	LONGITUDE
1	24° 13' 2.800" N	87° 57' 11.175" E
2	24° 13' 2.716" N	87° 57' 10.818" E
3	24° 13' 3.122" N	87° 57' 10.568" E
4	24° 13' 3.967" N	87° 57' 10.246" E
5	24° 13' 4.691" N	87° 57' 10.102" E
6	24° 13' 5.251" N	87° 57' 9.871" E
7	24° 13' 5.829" N	87° 57' 9.575" E
8	24° 13' 6.320" N	87° 57' 9.541" E
9	24° 13' 7.626" N	87° 57' 9.814" E
10	24° 13' 7.493" N	87° 57' 10.168" E
11	24° 13' 6.598" N	87° 57' 10.080" E
12	24° 13' 5.612" N	87° 57' 10.267" E
13	24° 13' 3.127" N	87° 57' 11.495" E

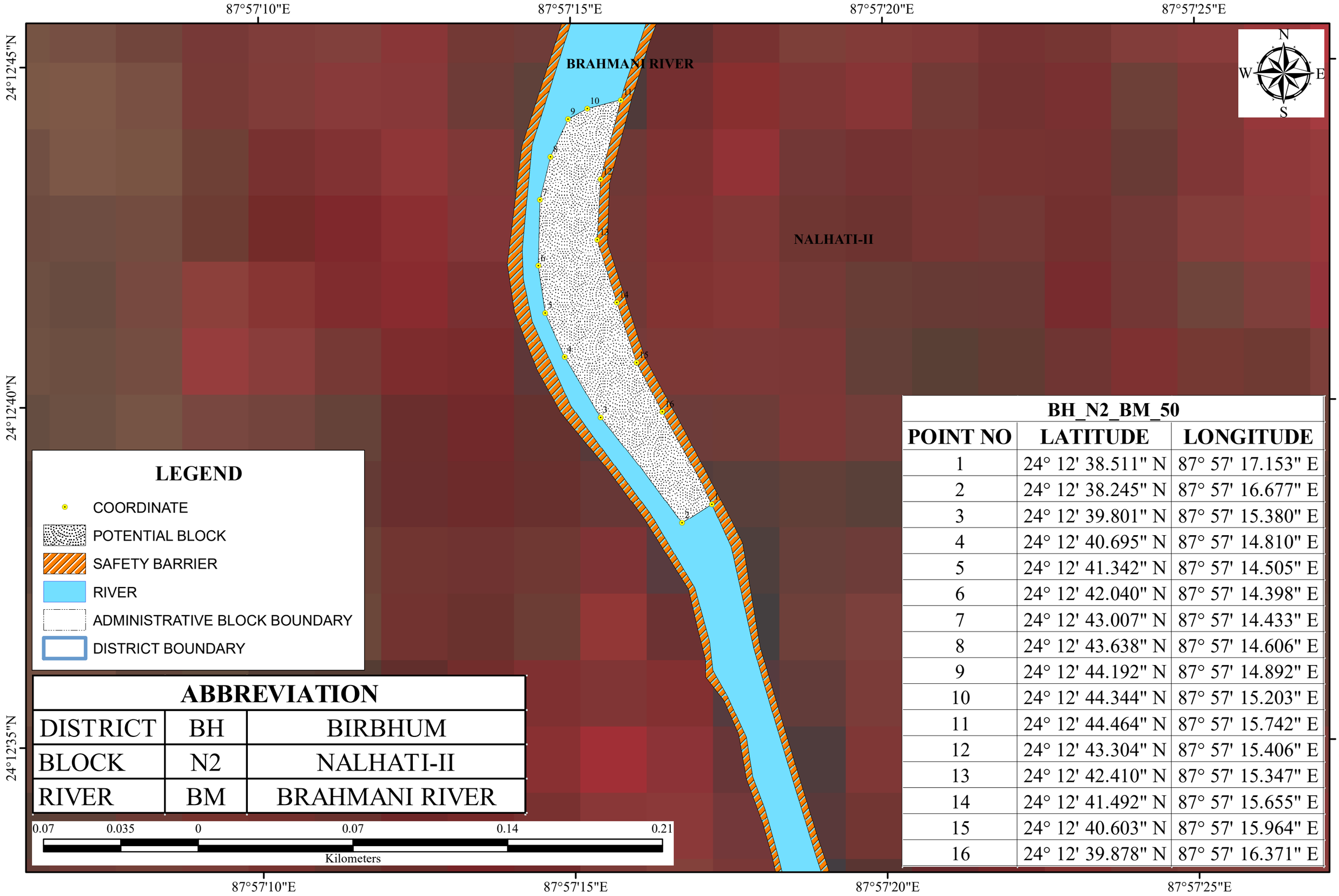
POTENTIAL BLOCK BH_N2_BM_49 OF BRAHMANI RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N2	NALHATI-II
RIVER	BM	BRAHMANI RIVER

BH_N2_BM_49		
POINT NO	LATITUDE	LONGITUDE
1	24° 12' 48.318" N	87° 57' 17.413" E
2	24° 12' 47.161" N	87° 57' 16.673" E
3	24° 12' 47.201" N	87° 57' 16.504" E
4	24° 12' 48.071" N	87° 57' 15.937" E
5	24° 12' 49.068" N	87° 57' 16.726" E
6	24° 12' 51.314" N	87° 57' 17.916" E
7	24° 12' 51.949" N	87° 57' 18.192" E
8	24° 12' 52.516" N	87° 57' 18.356" E
9	24° 12' 53.169" N	87° 57' 18.408" E
10	24° 12' 54.196" N	87° 57' 18.217" E
11	24° 12' 53.653" N	87° 57' 18.438" E
12	24° 12' 51.948" N	87° 57' 18.763" E
13	24° 12' 50.994" N	87° 57' 18.671" E
14	24° 12' 49.952" N	87° 57' 18.185" E

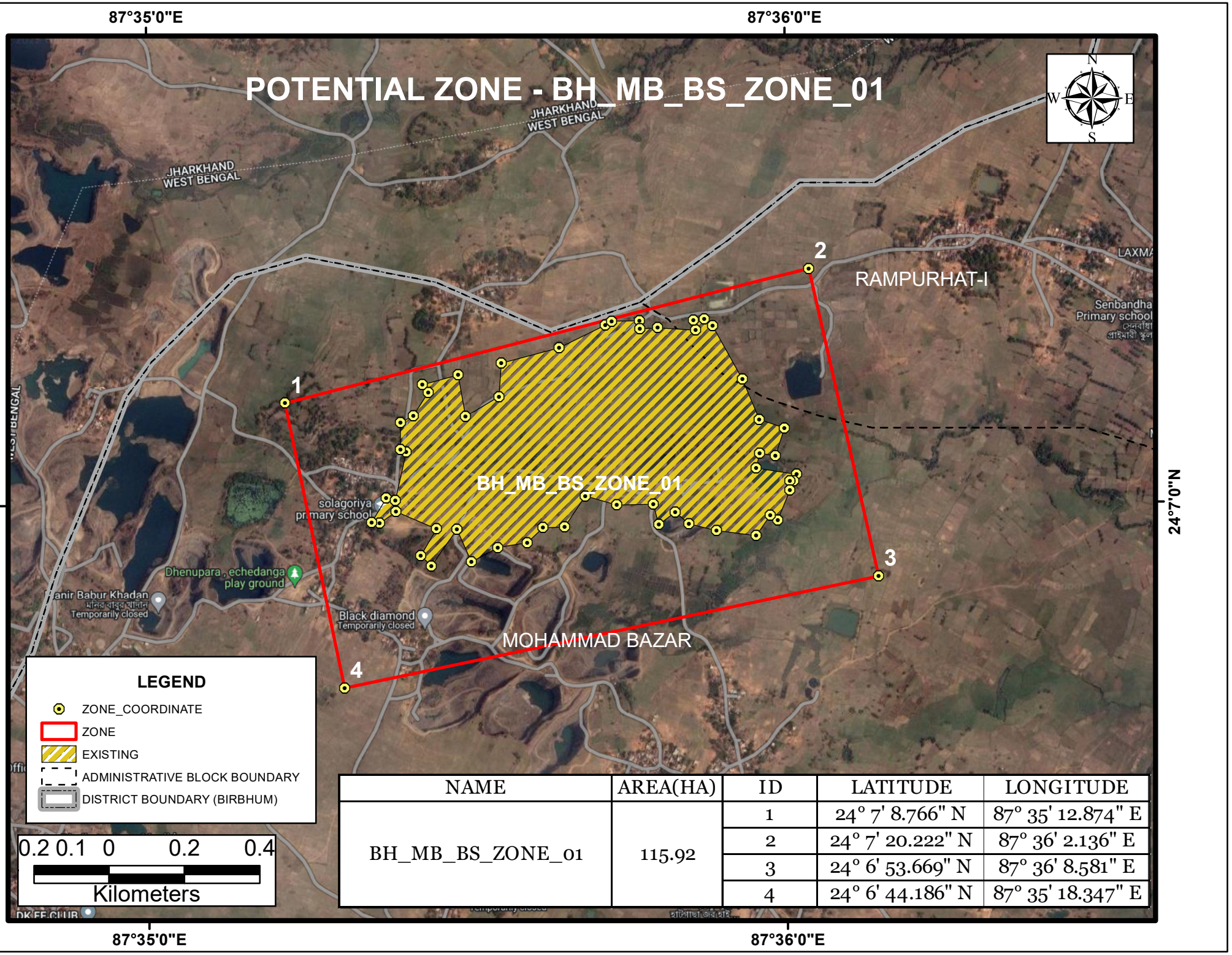
POTENTIAL BLOCK BH_N2_BM_50 OF BRAHMANI RIVER



ABBREVIATION		
DISTRICT	BH	BIRBHUM
BLOCK	N2	NALHATI-II
RIVER	BM	BRAHMANI RIVER

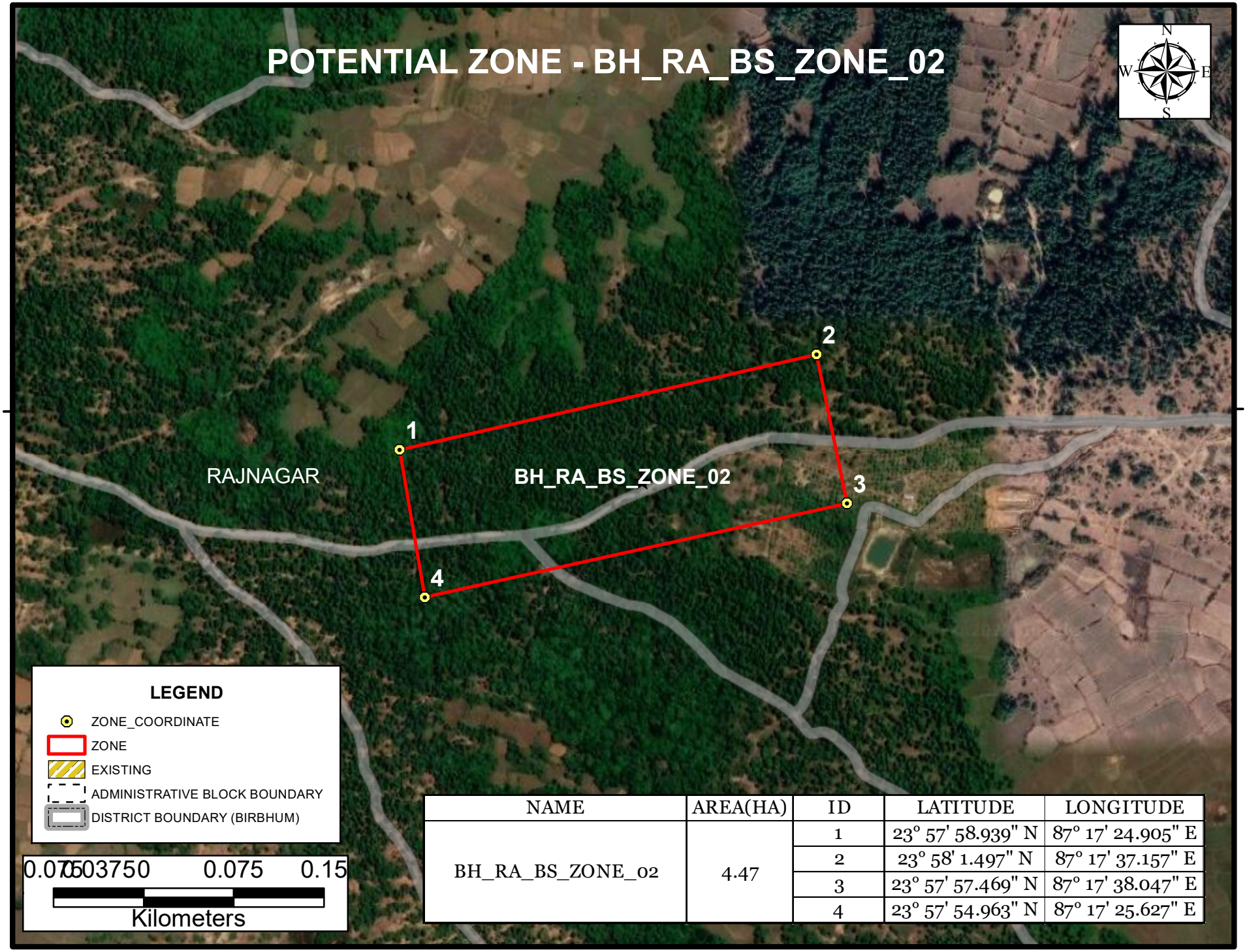
BH_N2_BM_50		
POINT NO	LATITUDE	LONGITUDE
1	24° 12' 38.511" N	87° 57' 17.153" E
2	24° 12' 38.245" N	87° 57' 16.677" E
3	24° 12' 39.801" N	87° 57' 15.380" E
4	24° 12' 40.695" N	87° 57' 14.810" E
5	24° 12' 41.342" N	87° 57' 14.505" E
6	24° 12' 42.040" N	87° 57' 14.398" E
7	24° 12' 43.007" N	87° 57' 14.433" E
8	24° 12' 43.638" N	87° 57' 14.606" E
9	24° 12' 44.192" N	87° 57' 14.892" E
10	24° 12' 44.344" N	87° 57' 15.203" E
11	24° 12' 44.464" N	87° 57' 15.742" E
12	24° 12' 43.304" N	87° 57' 15.406" E
13	24° 12' 42.410" N	87° 57' 15.347" E
14	24° 12' 41.492" N	87° 57' 15.655" E
15	24° 12' 40.603" N	87° 57' 15.964" E
16	24° 12' 39.878" N	87° 57' 16.371" E

Annexure 5
Map showing of Potential In-situ mineral Blocks of Birbhum District

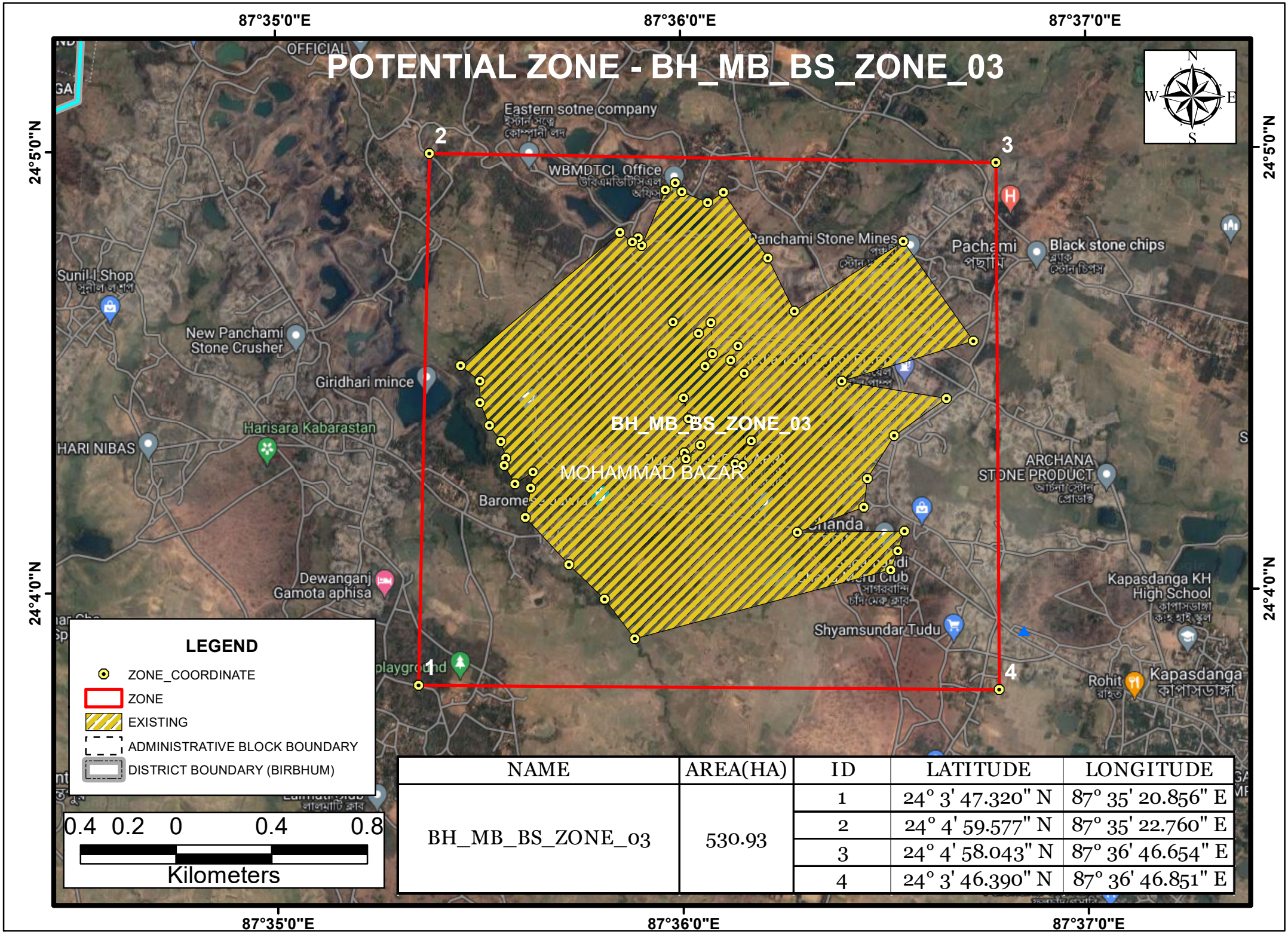


NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_MB_BS_ZONE_01	115.92	1	24° 7' 8.766" N	87° 35' 12.874" E
		2	24° 7' 20.222" N	87° 36' 2.136" E
		3	24° 6' 53.669" N	87° 36' 8.581" E
		4	24° 6' 44.186" N	87° 35' 18.347" E

POTENTIAL ZONE - BH_RA_BS_ZONE_02



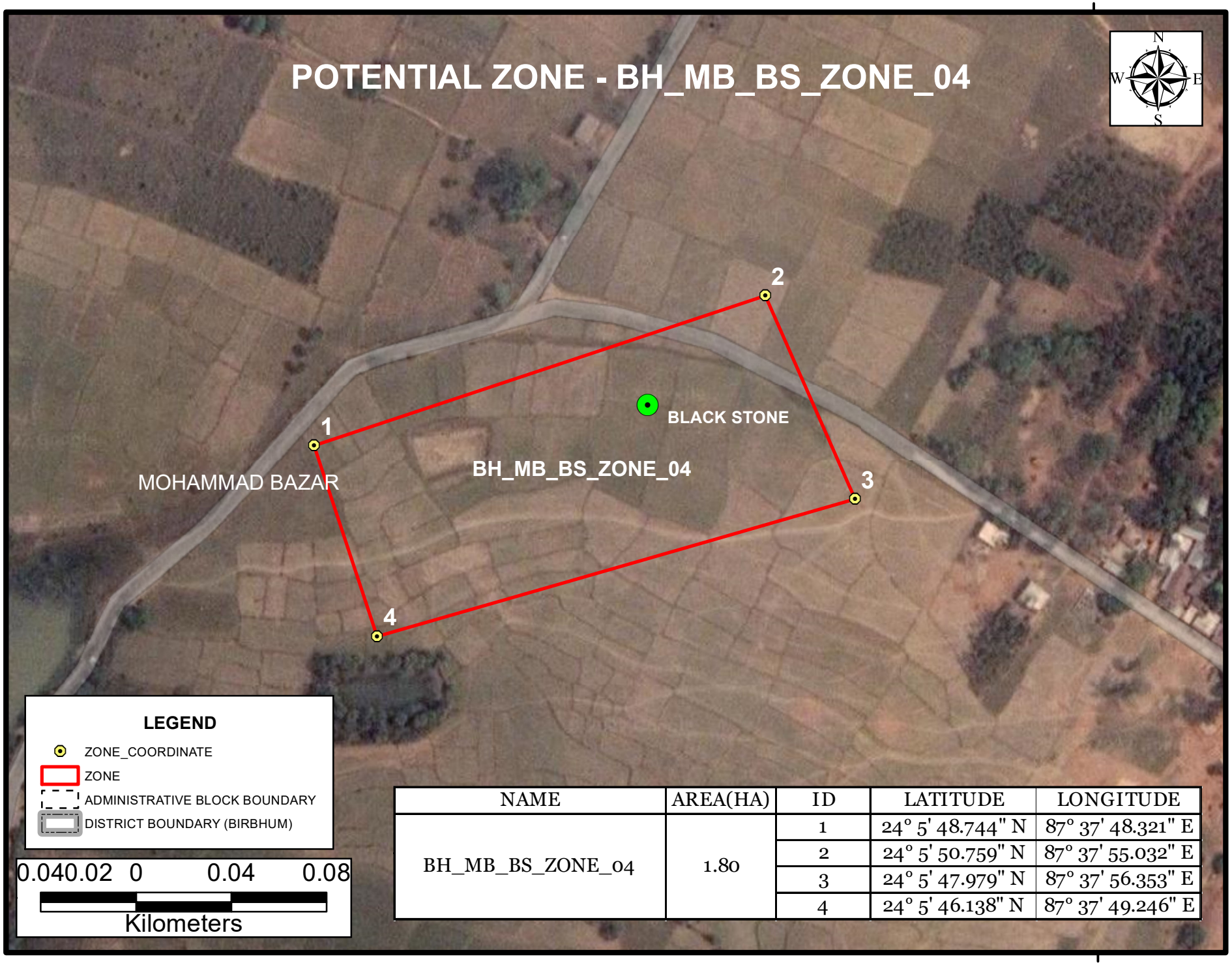
NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_RA_BS_ZONE_02	4.47	1	23° 57' 58.939" N	87° 17' 24.905" E
		2	23° 58' 1.497" N	87° 17' 37.157" E
		3	23° 57' 57.469" N	87° 17' 38.047" E
		4	23° 57' 54.963" N	87° 17' 25.627" E



NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_MB_BS_ZONE_03	530.93	1	24° 3' 47.320" N	87° 35' 20.856" E
		2	24° 4' 59.577" N	87° 35' 22.760" E
		3	24° 4' 58.043" N	87° 36' 46.654" E
		4	24° 3' 46.390" N	87° 36' 46.851" E

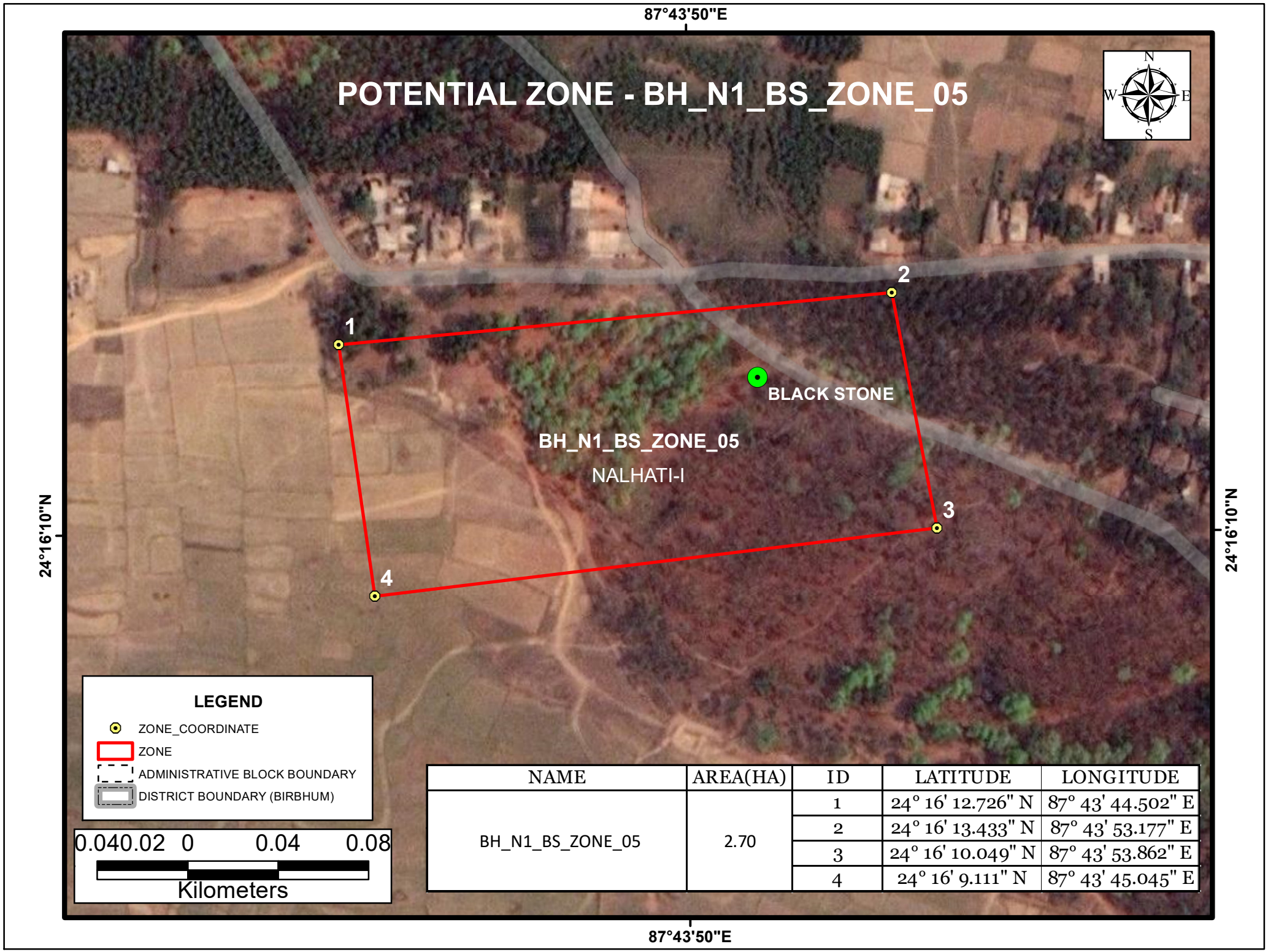
87°38'0"E

POTENTIAL ZONE - BH_MB_BS_ZONE_04



NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_MB_BS_ZONE_04	1.80	1	24° 5' 48.744" N	87° 37' 48.321" E
		2	24° 5' 50.759" N	87° 37' 55.032" E
		3	24° 5' 47.979" N	87° 37' 56.353" E
		4	24° 5' 46.138" N	87° 37' 49.246" E

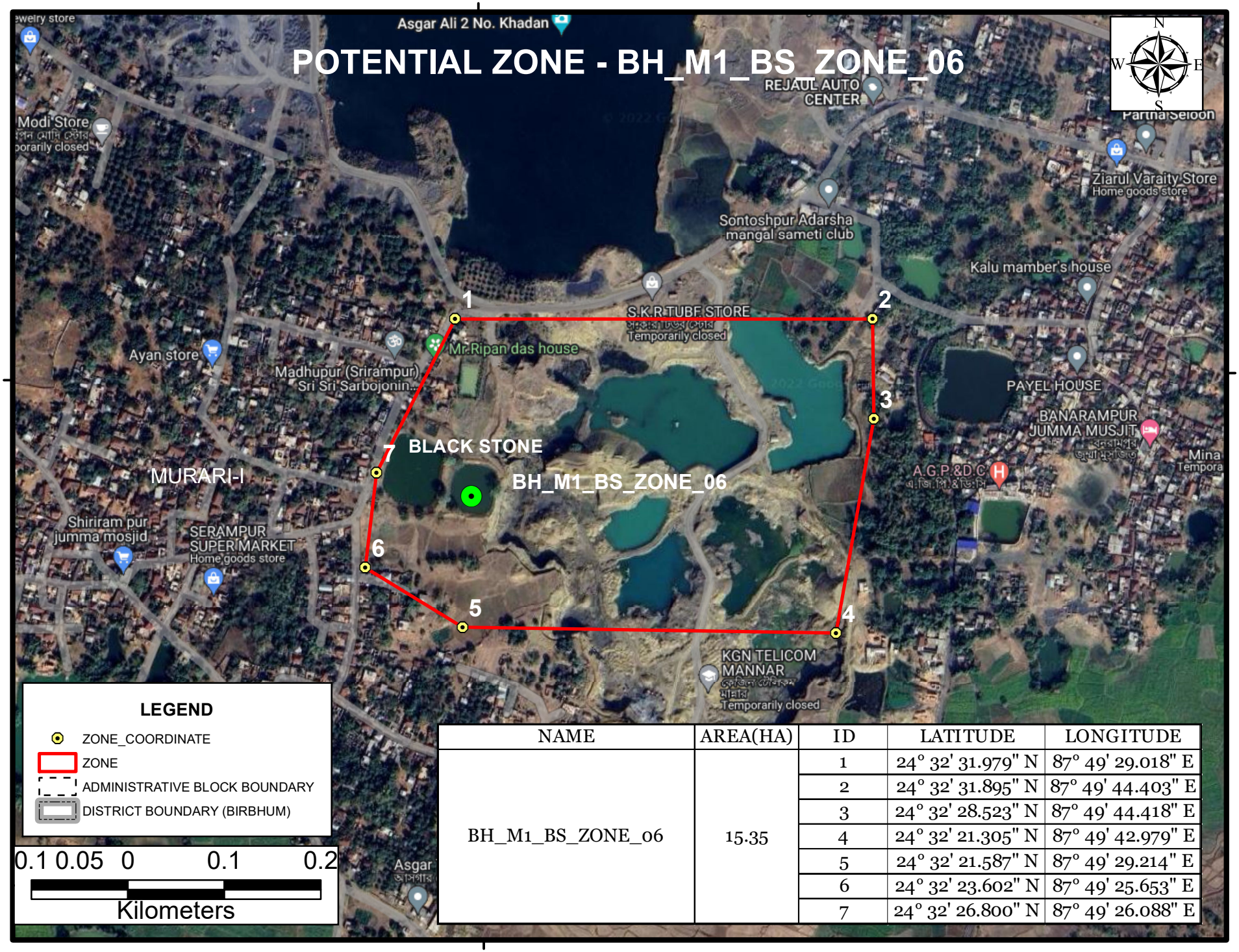
87°38'0"E



NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_N1_BS_ZONE_05	2.70	1	24° 16' 12.726" N	87° 43' 44.502" E
		2	24° 16' 13.433" N	87° 43' 53.177" E
		3	24° 16' 10.049" N	87° 43' 53.862" E
		4	24° 16' 9.111" N	87° 43' 45.045" E

87°49'30"E

POTENTIAL ZONE - BH_M1_BS_ZONE_06



24°32'30"N

24°32'30"N

87°49'30"E

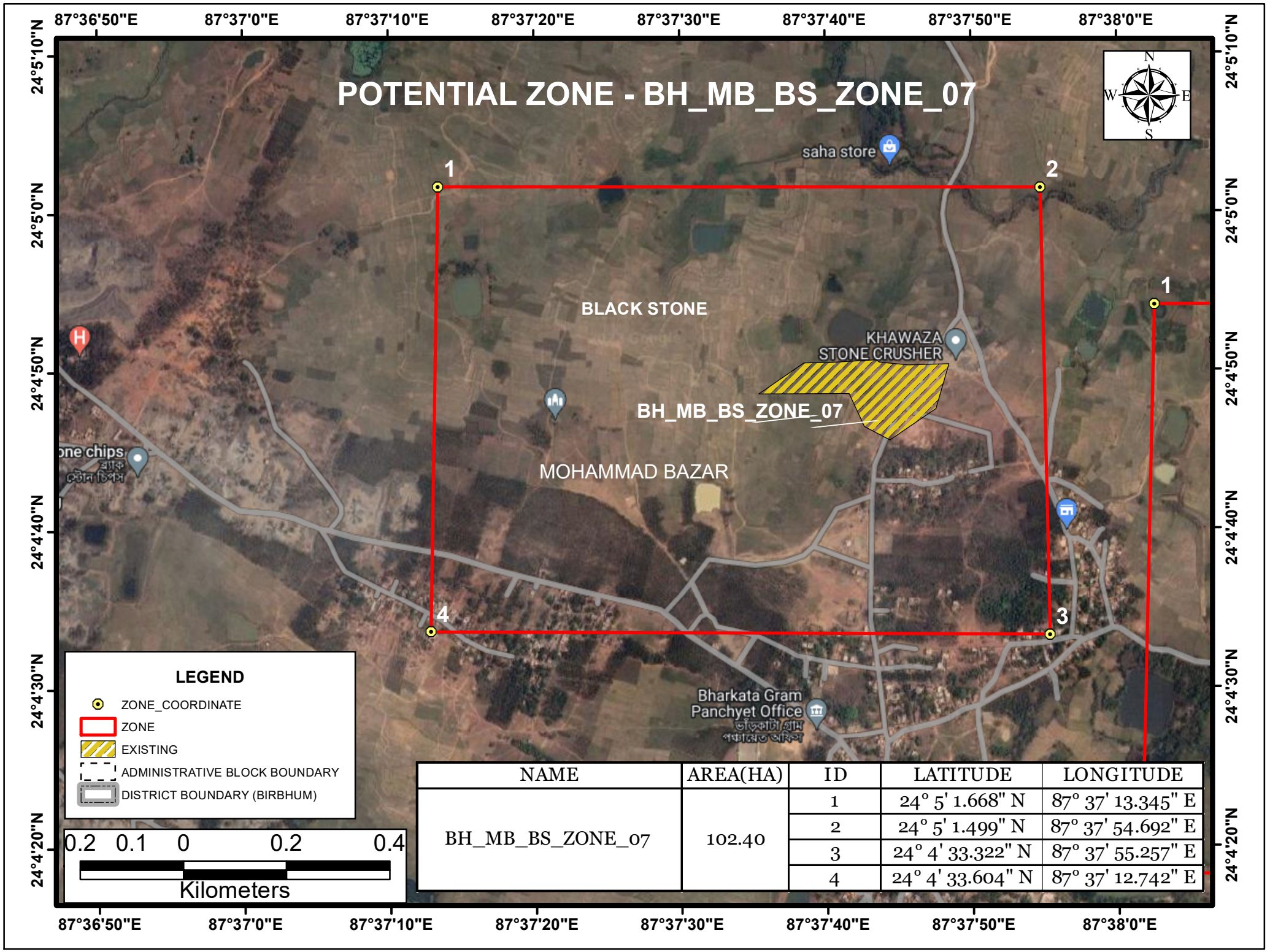
LEGEND

- ZONE_COORDINATE
- ZONE
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY (BIRBHUM)

0.1 0.05 0 0.1 0.2

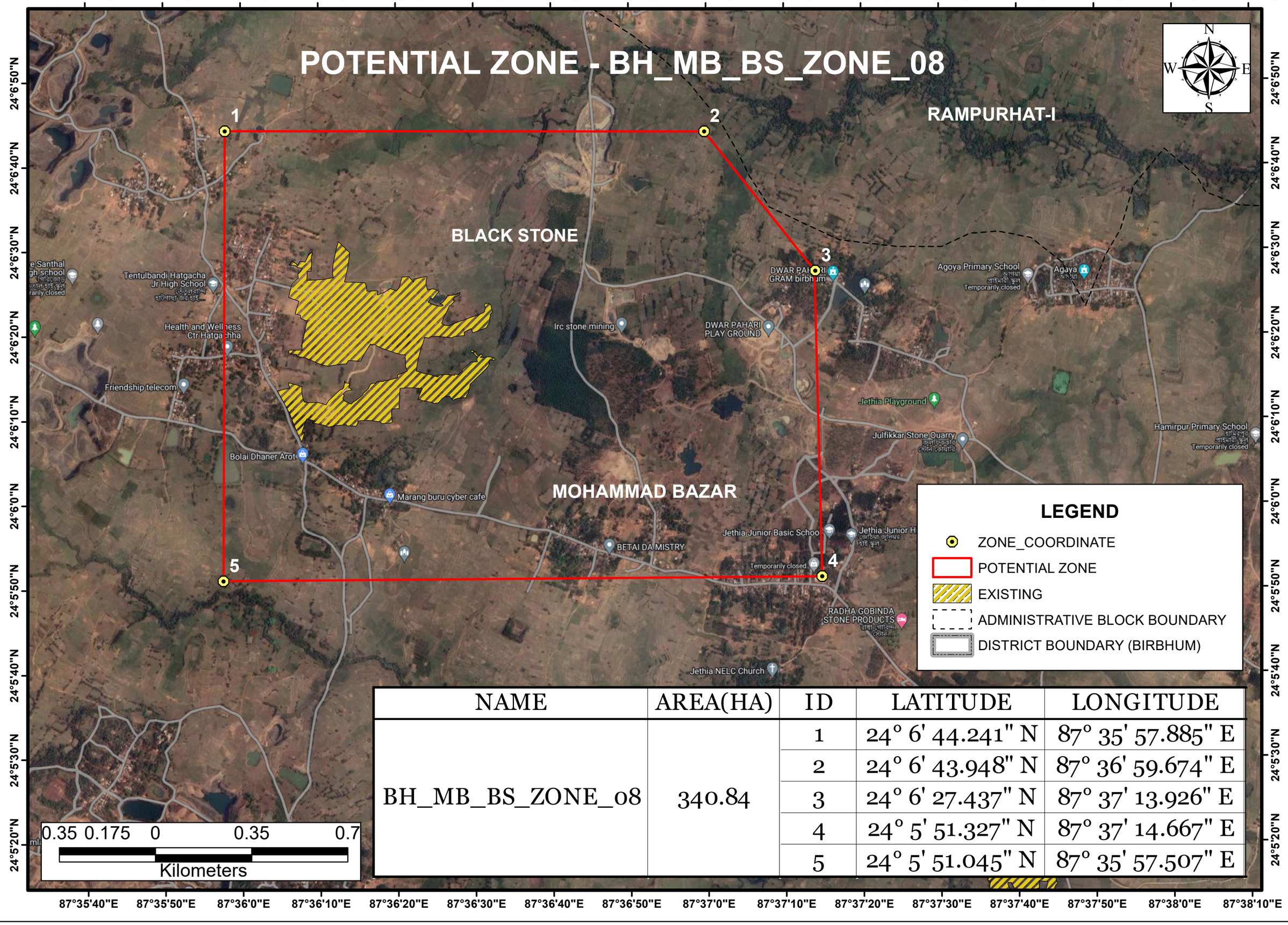
Kilometers

NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_M1_BS_ZONE_06	15.35	1	24° 32' 31.979" N	87° 49' 29.018" E
		2	24° 32' 31.895" N	87° 49' 44.403" E
		3	24° 32' 28.523" N	87° 49' 44.418" E
		4	24° 32' 21.305" N	87° 49' 42.979" E
		5	24° 32' 21.587" N	87° 49' 29.214" E
		6	24° 32' 23.602" N	87° 49' 25.653" E
		7	24° 32' 26.800" N	87° 49' 26.088" E



NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_MB_BS_ZONE_07	102.40	1	24° 5' 1.668" N	87° 37' 13.345" E
		2	24° 5' 1.499" N	87° 37' 54.692" E
		3	24° 4' 33.322" N	87° 37' 55.257" E
		4	24° 4' 33.604" N	87° 37' 12.742" E

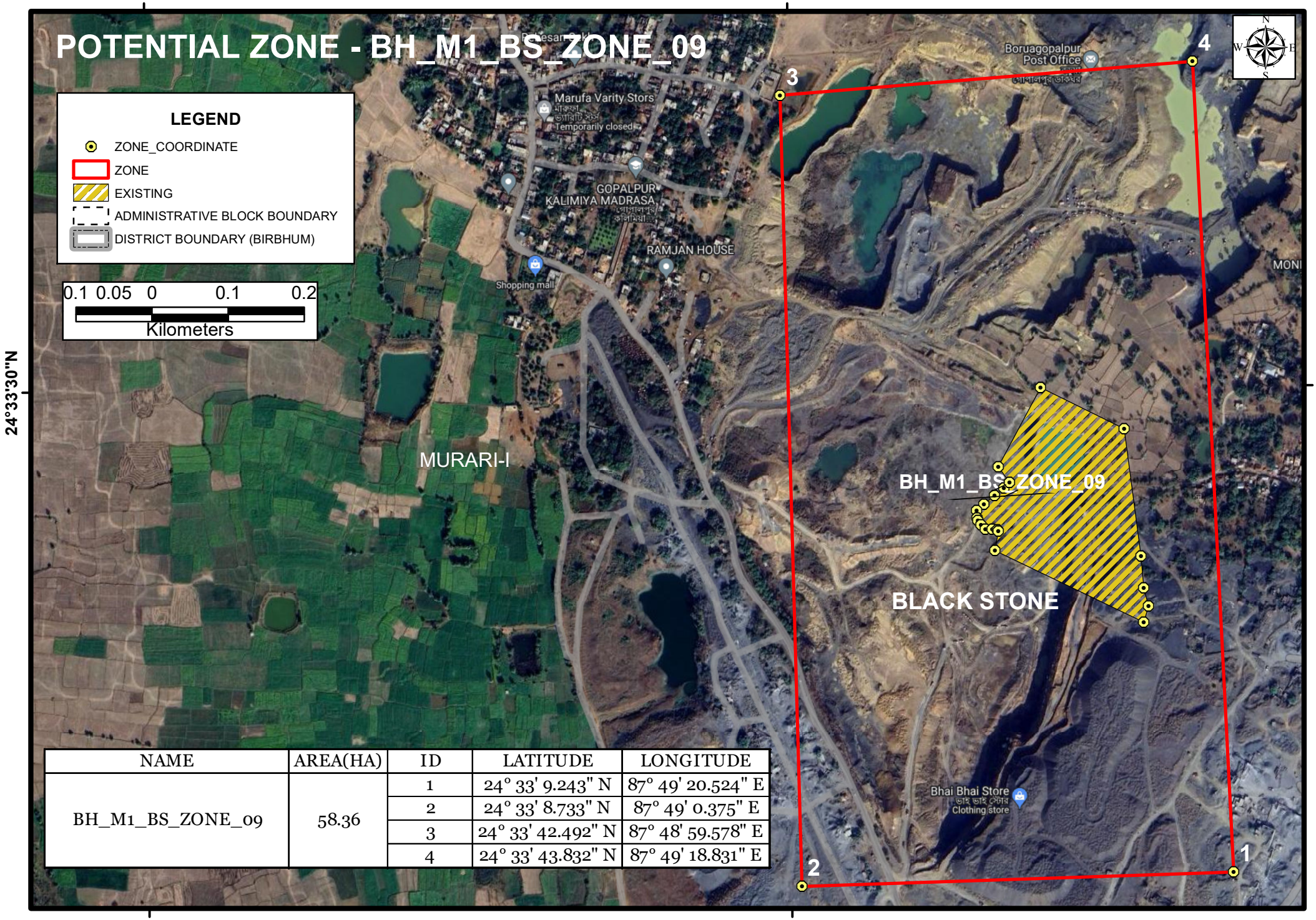
POTENTIAL ZONE - BH_MB_BS_ZONE_08



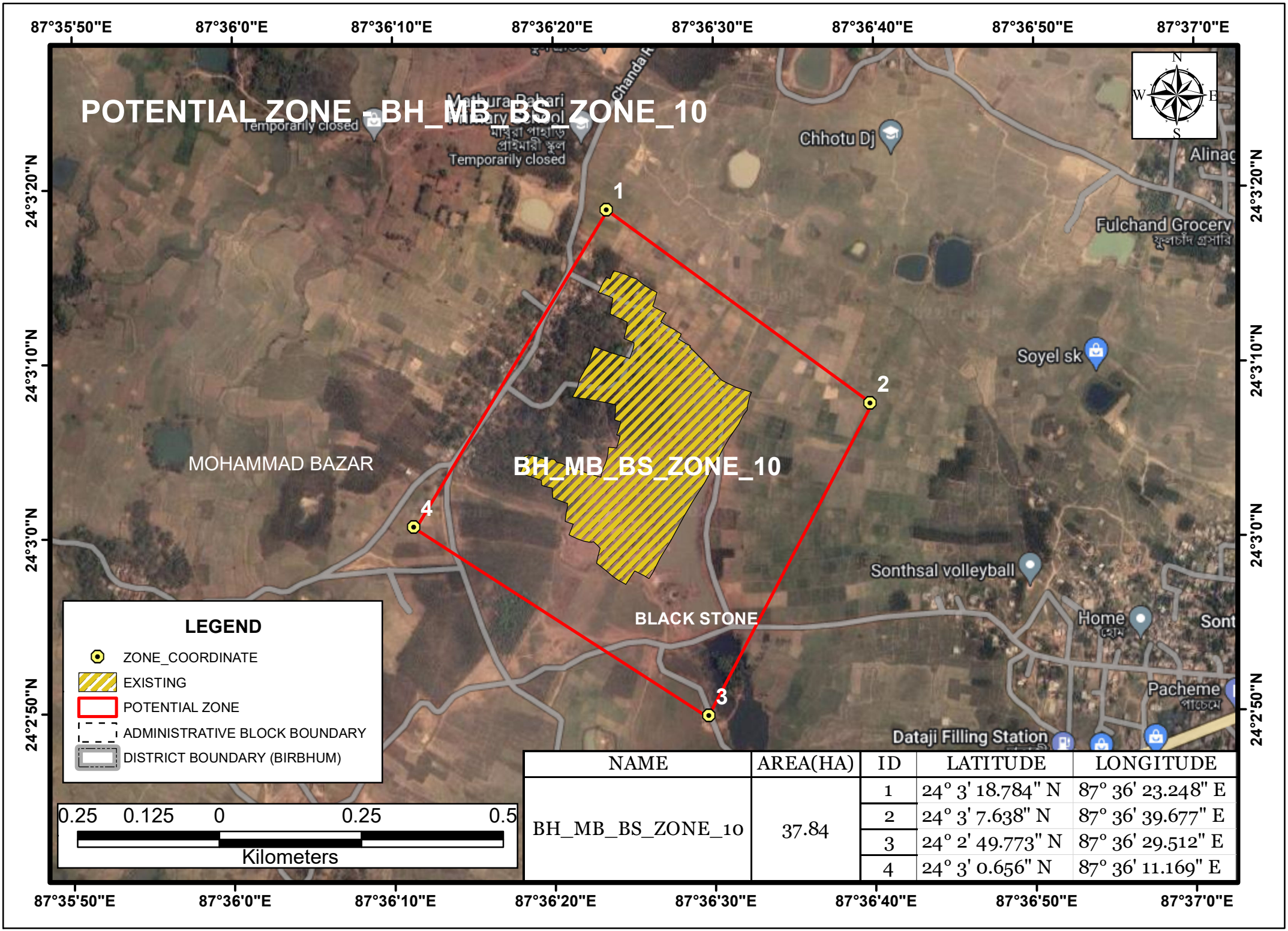
LEGEND

- ZONE_COORDINATE
- POTENTIAL ZONE
- EXISTING
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY (BIRBHUM)

NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_MB_BS_ZONE_08	340.84	1	24° 6' 44.241" N	87° 35' 57.885" E
		2	24° 6' 43.948" N	87° 36' 59.674" E
		3	24° 6' 27.437" N	87° 37' 13.926" E
		4	24° 5' 51.327" N	87° 37' 14.667" E
		5	24° 5' 51.045" N	87° 35' 57.507" E

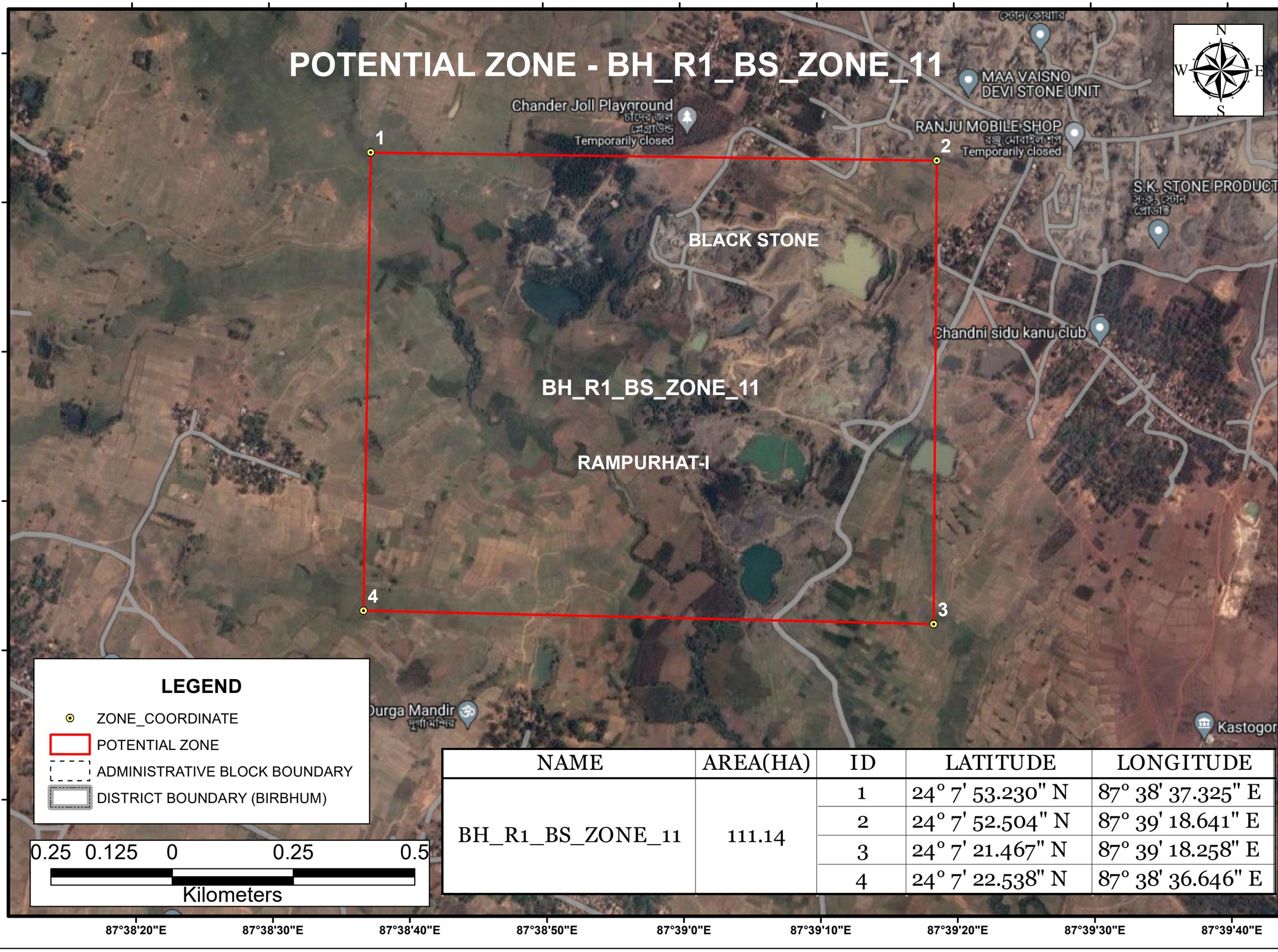


NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_M1_BS_ZONE_09	58.36	1	24° 33' 9.243" N	87° 49' 20.524" E
		2	24° 33' 8.733" N	87° 49' 0.375" E
		3	24° 33' 42.492" N	87° 48' 59.578" E
		4	24° 33' 43.832" N	87° 49' 18.831" E



NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_MB_BS_ZONE_10	37.84	1	24° 3' 18.784" N	87° 36' 23.248" E
		2	24° 3' 7.638" N	87° 36' 39.677" E
		3	24° 2' 49.773" N	87° 36' 29.512" E
		4	24° 3' 0.656" N	87° 36' 11.169" E

POTENTIAL ZONE - BH_R1_BS_ZONE_11



LEGEND

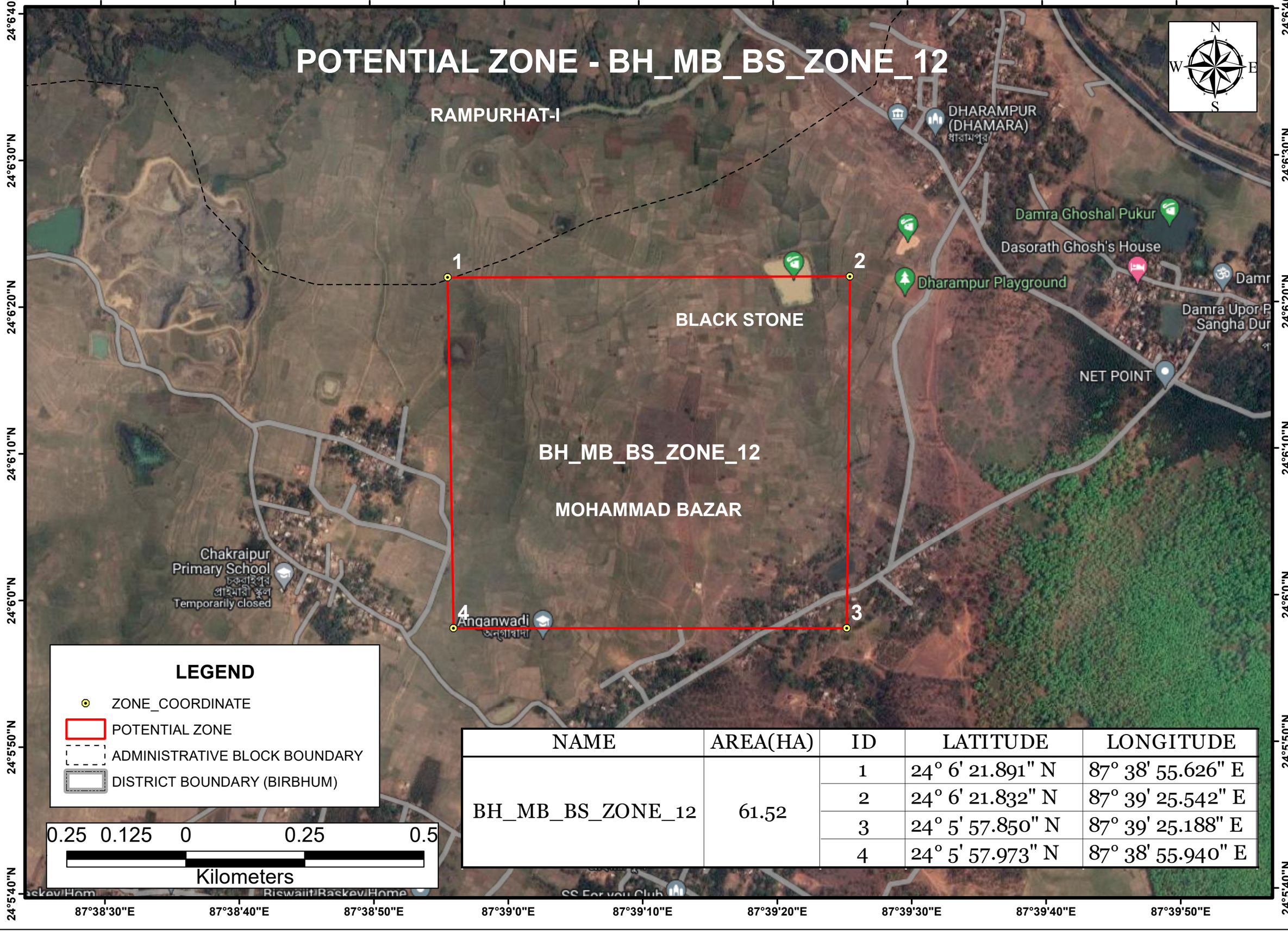
- ZONE_COORDINATE
- POTENTIAL ZONE
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY (BIRBHUM)

0.25 0.125 0 0.25 0.5

Kilometers

NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_R1_BS_ZONE_11	111.14	1	24° 7' 53.230" N	87° 38' 37.325" E
		2	24° 7' 52.504" N	87° 39' 18.641" E
		3	24° 7' 21.467" N	87° 39' 18.258" E
		4	24° 7' 22.538" N	87° 38' 36.646" E

POTENTIAL ZONE - BH_MB_BS_ZONE_12



LEGEND

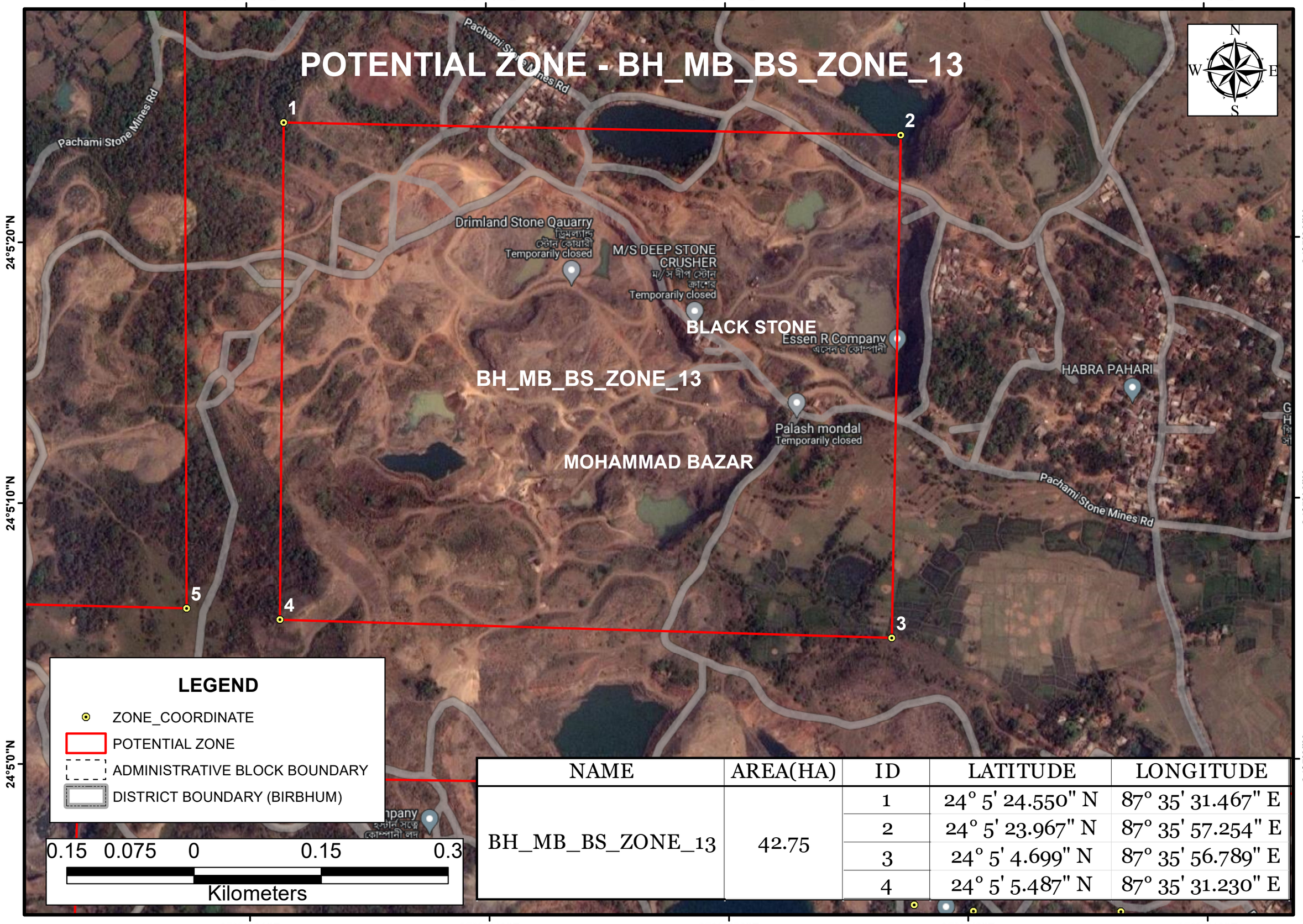
- ZONE_COORDINATE
- POTENTIAL ZONE
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY (BIRBHUM)

0.25 0.125 0 0.25 0.5

Kilometers

NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_MB_BS_ZONE_12	61.52	1	24° 6' 21.891" N	87° 38' 55.626" E
		2	24° 6' 21.832" N	87° 39' 25.542" E
		3	24° 5' 57.850" N	87° 39' 25.188" E
		4	24° 5' 57.973" N	87° 38' 55.940" E

POTENTIAL ZONE - BH_MB_BS_ZONE_13

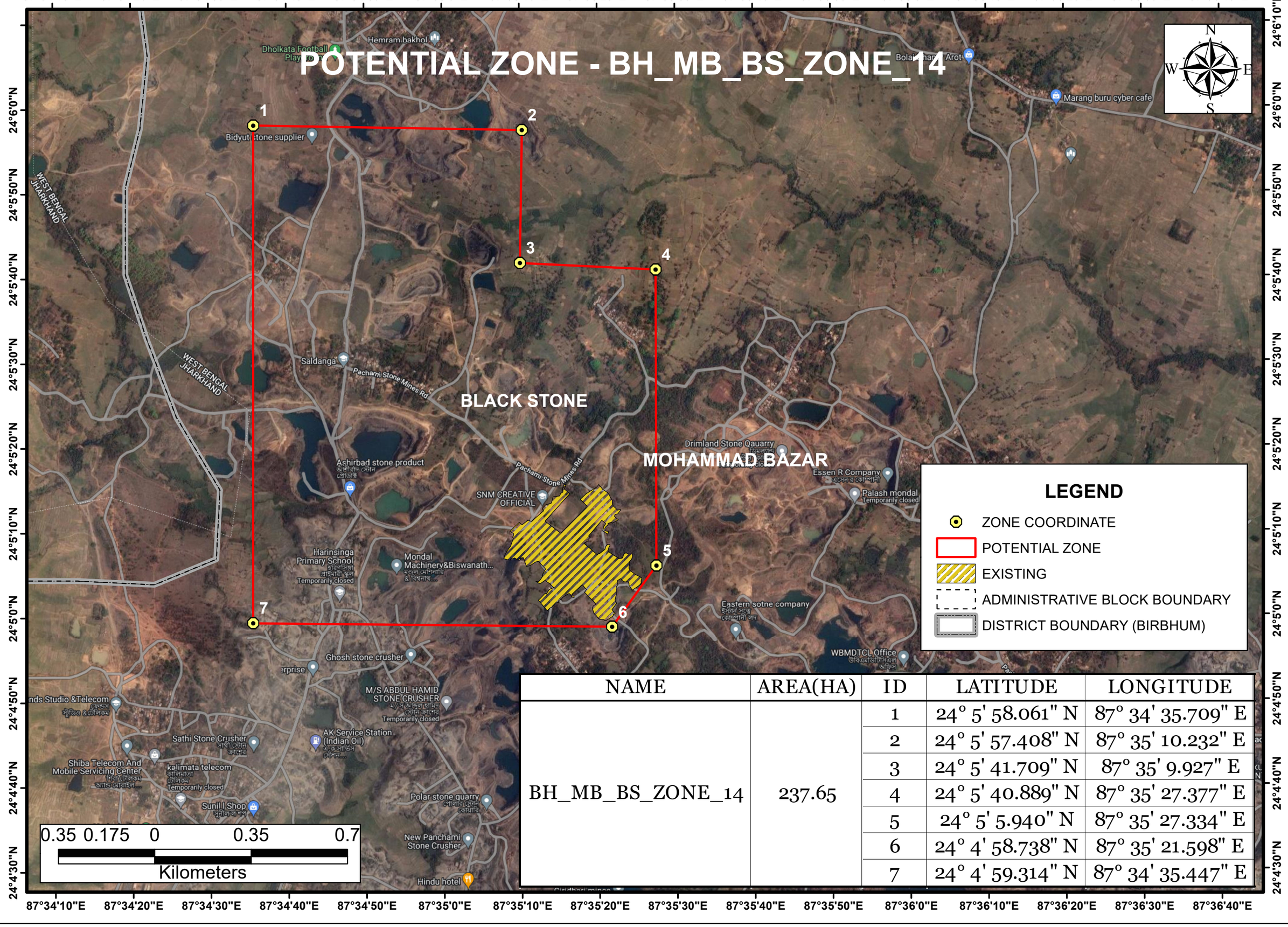


LEGEND

- ZONE_COORDINATE
- POTENTIAL ZONE
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY (BIRBHUM)

NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_MB_BS_ZONE_13	42.75	1	24° 5' 24.550" N	87° 35' 31.467" E
		2	24° 5' 23.967" N	87° 35' 57.254" E
		3	24° 5' 4.699" N	87° 35' 56.789" E
		4	24° 5' 5.487" N	87° 35' 31.230" E

POTENTIAL ZONE - BH_MB_BS_ZONE_14

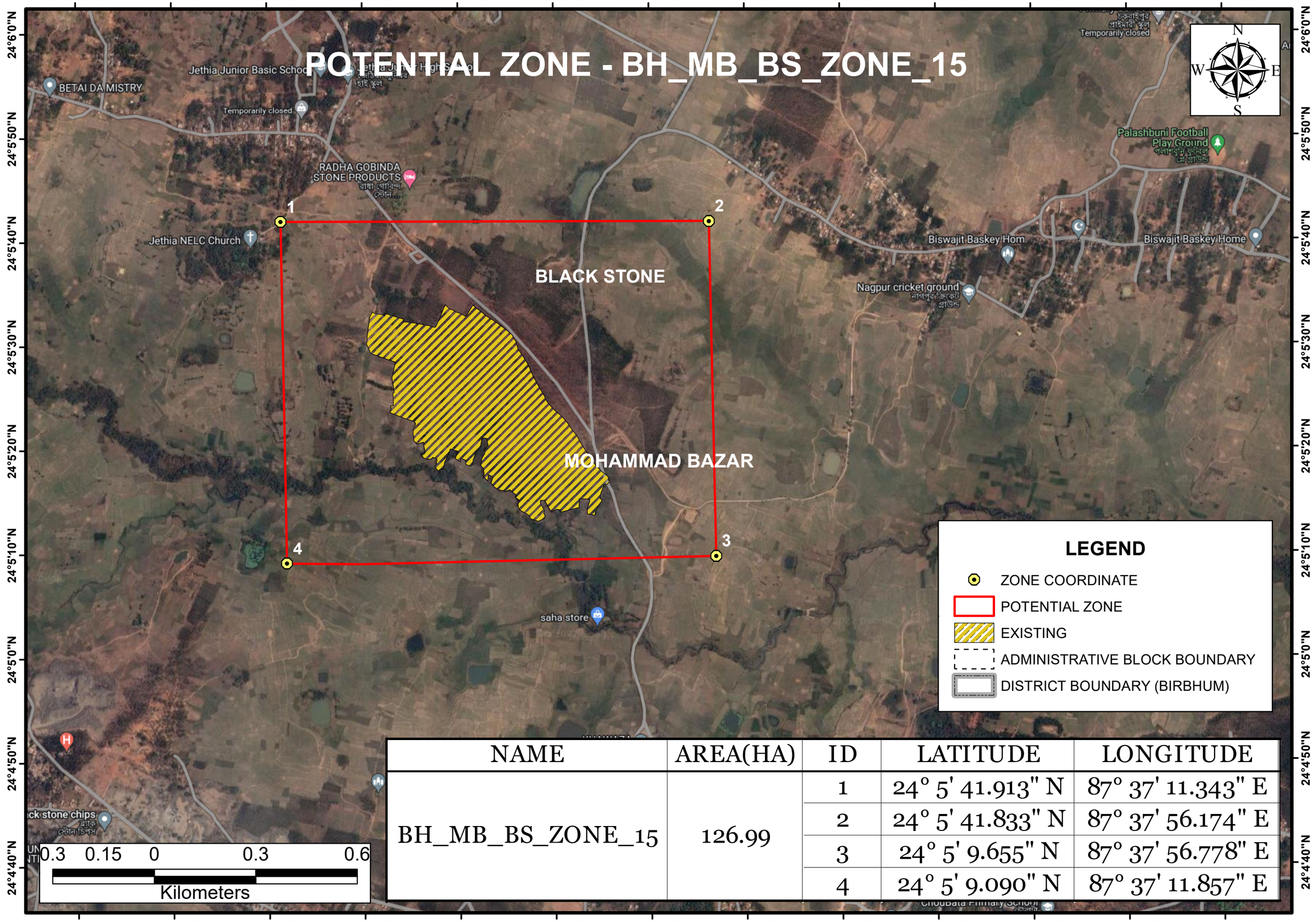


LEGEND

- ZONE COORDINATE
- POTENTIAL ZONE
- EXISTING
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY (BIRBHUM)

NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_MB_BS_ZONE_14	237.65	1	24° 5' 58.061" N	87° 34' 35.709" E
		2	24° 5' 57.408" N	87° 35' 10.232" E
		3	24° 5' 41.709" N	87° 35' 9.927" E
		4	24° 5' 40.889" N	87° 35' 27.377" E
		5	24° 5' 5.940" N	87° 35' 27.334" E
		6	24° 4' 58.738" N	87° 35' 21.598" E
		7	24° 4' 59.314" N	87° 34' 35.447" E

POTENTIAL ZONE - BH_MB_BS_ZONE_15

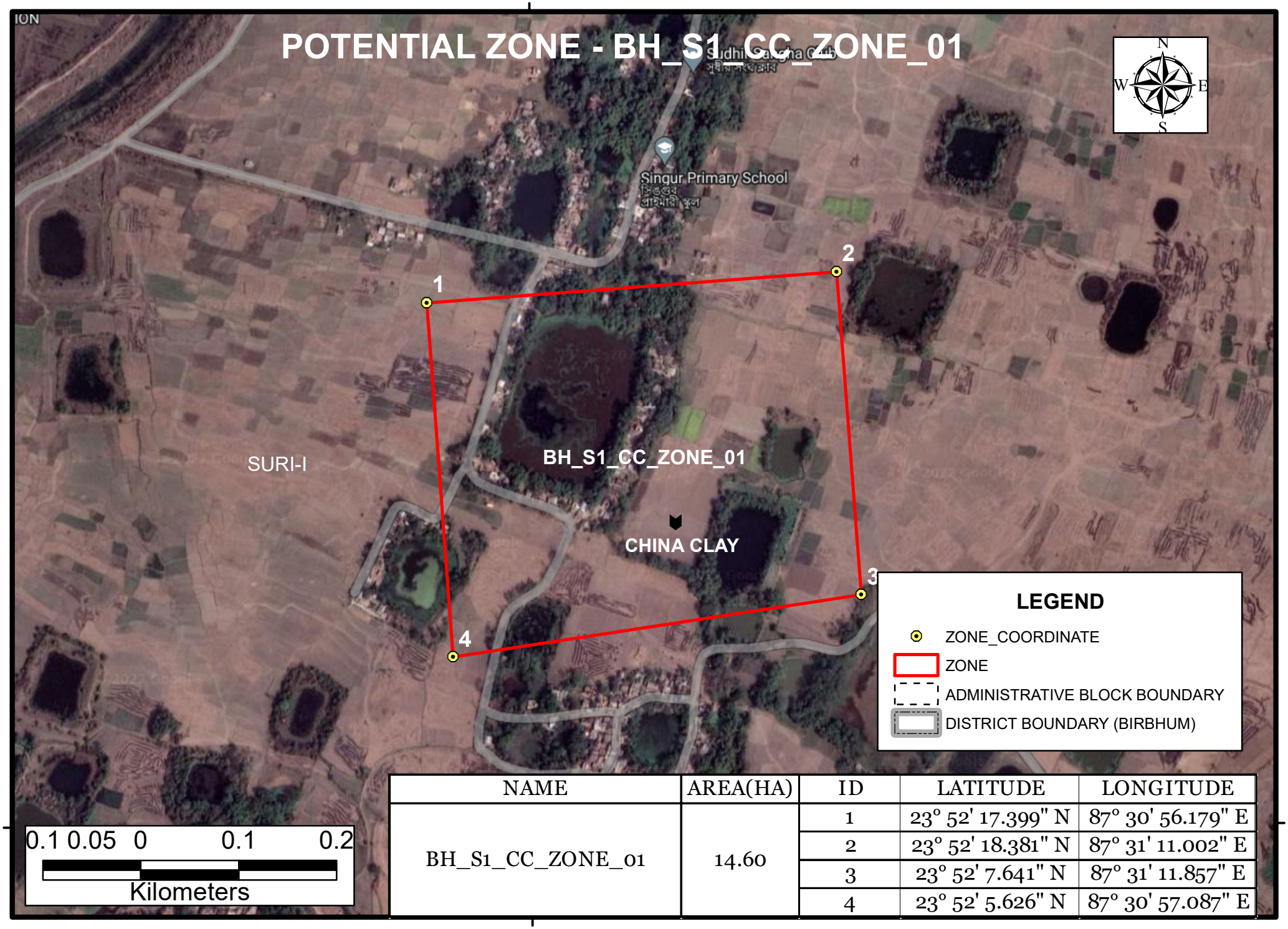


LEGEND

- ZONE COORDINATE
- POTENTIAL ZONE
- EXISTING
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY (BIRBHUM)

NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_MB_BS_ZONE_15	126.99	1	24° 5' 41.913" N	87° 37' 11.343" E
		2	24° 5' 41.833" N	87° 37' 56.174" E
		3	24° 5' 9.655" N	87° 37' 56.778" E
		4	24° 5' 9.090" N	87° 37' 11.857" E

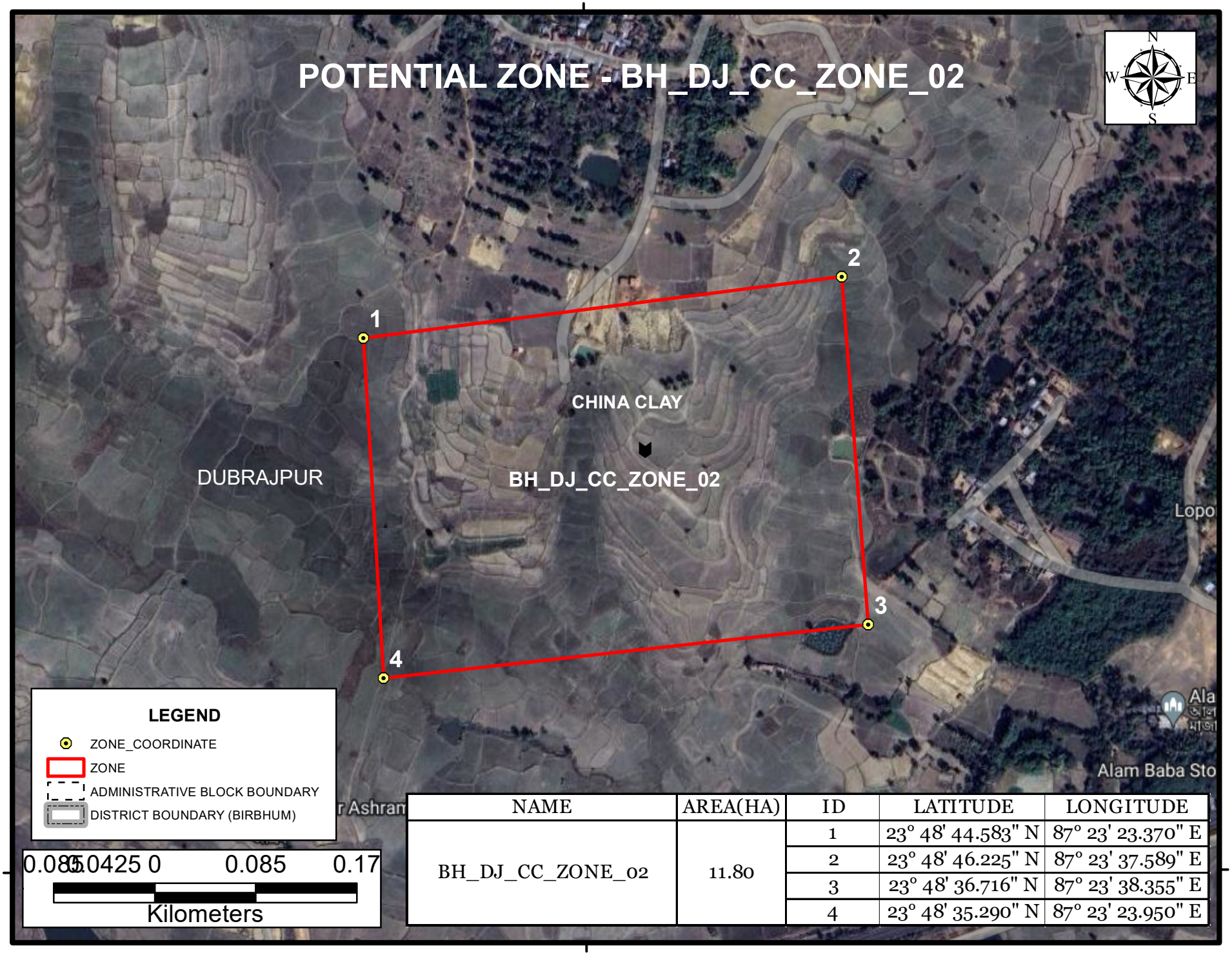
POTENTIAL ZONE - BH_S1_CC_ZONE_01



NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_S1_CC_ZONE_01	14.60	1	23° 52' 17.399" N	87° 30' 56.179" E
		2	23° 52' 18.381" N	87° 31' 11.002" E
		3	23° 52' 7.641" N	87° 31' 11.857" E
		4	23° 52' 5.626" N	87° 30' 57.087" E

87°23'30"E

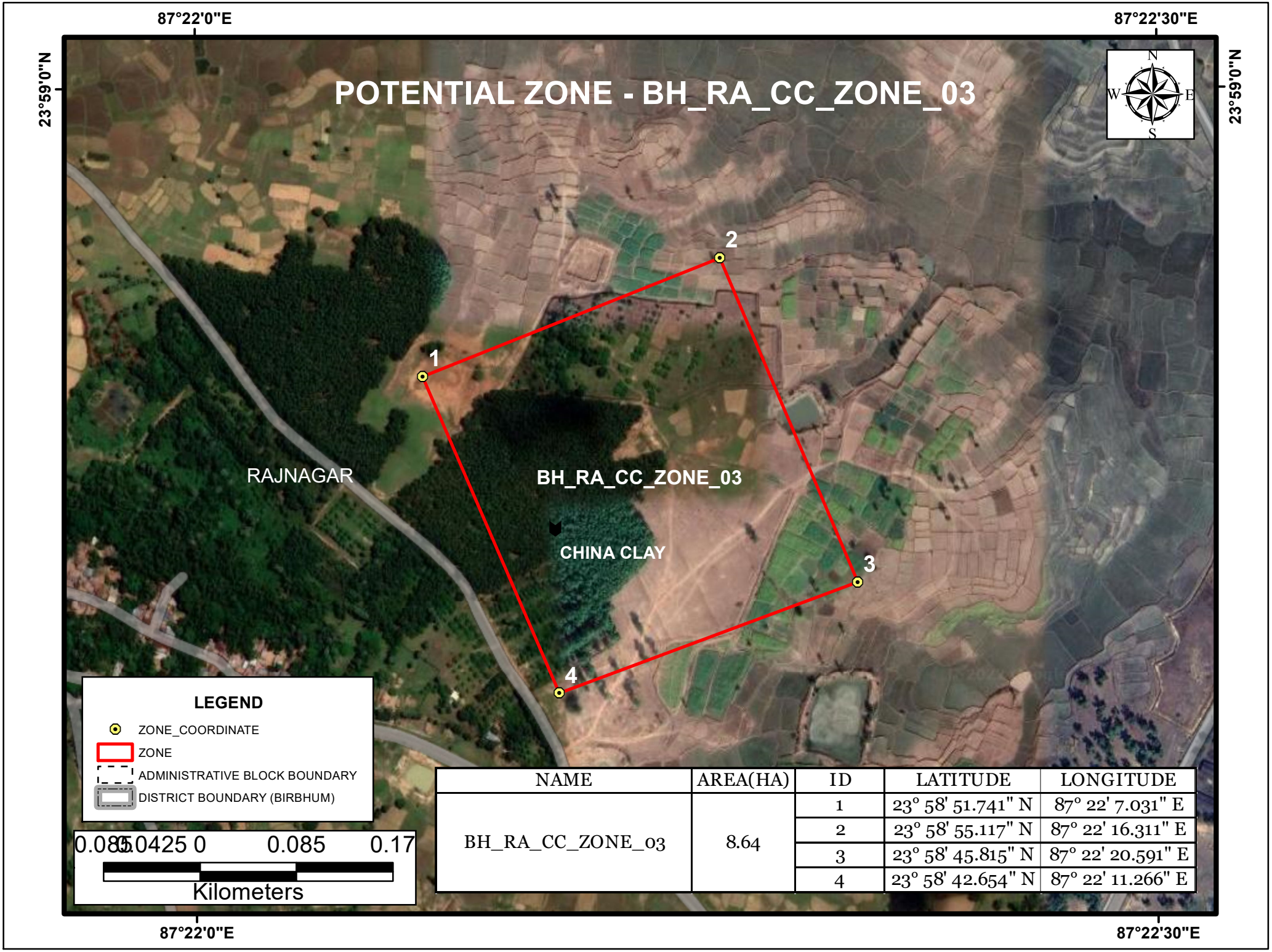
POTENTIAL ZONE - BH_DJ_CC_ZONE_02



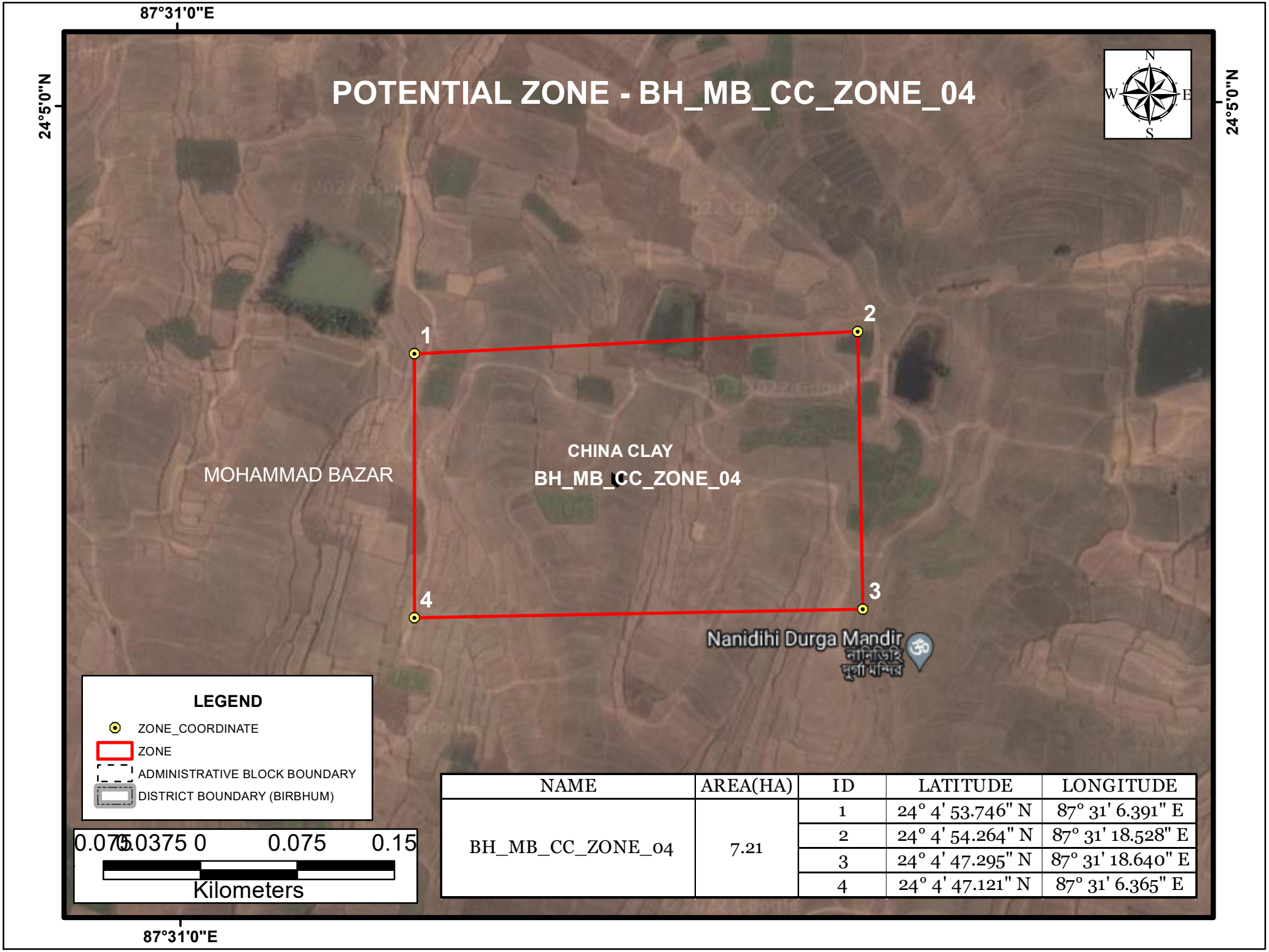
NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_DJ_CC_ZONE_02	11.80	1	23° 48' 44.583" N	87° 23' 23.370" E
		2	23° 48' 46.225" N	87° 23' 37.589" E
		3	23° 48' 36.716" N	87° 23' 38.355" E
		4	23° 48' 35.290" N	87° 23' 23.950" E

23°48'30"N

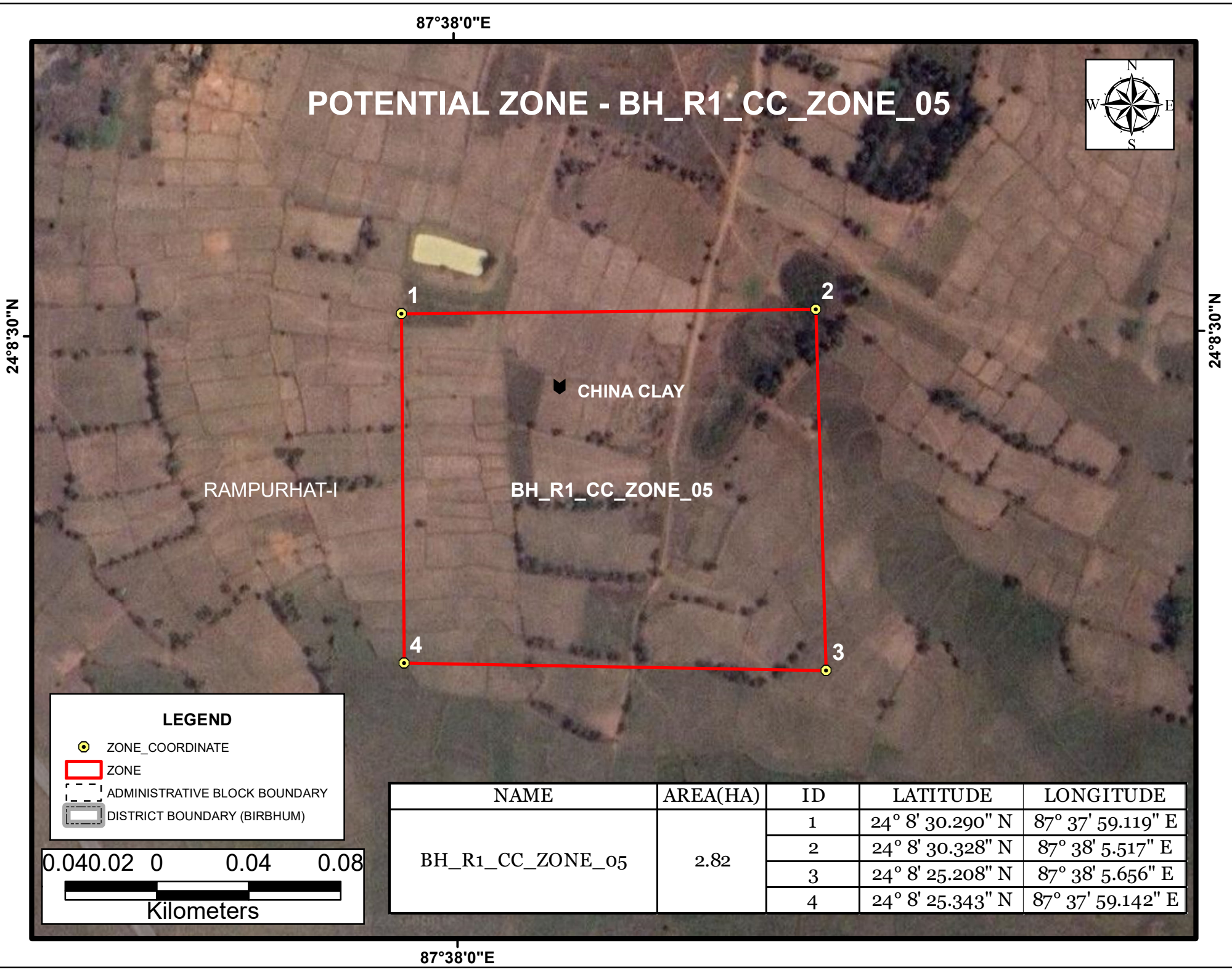
87°23'30"E



NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_RA_CC_ZONE_03	8.64	1	23° 58' 51.741" N	87° 22' 7.031" E
		2	23° 58' 55.117" N	87° 22' 16.311" E
		3	23° 58' 45.815" N	87° 22' 20.591" E
		4	23° 58' 42.654" N	87° 22' 11.266" E



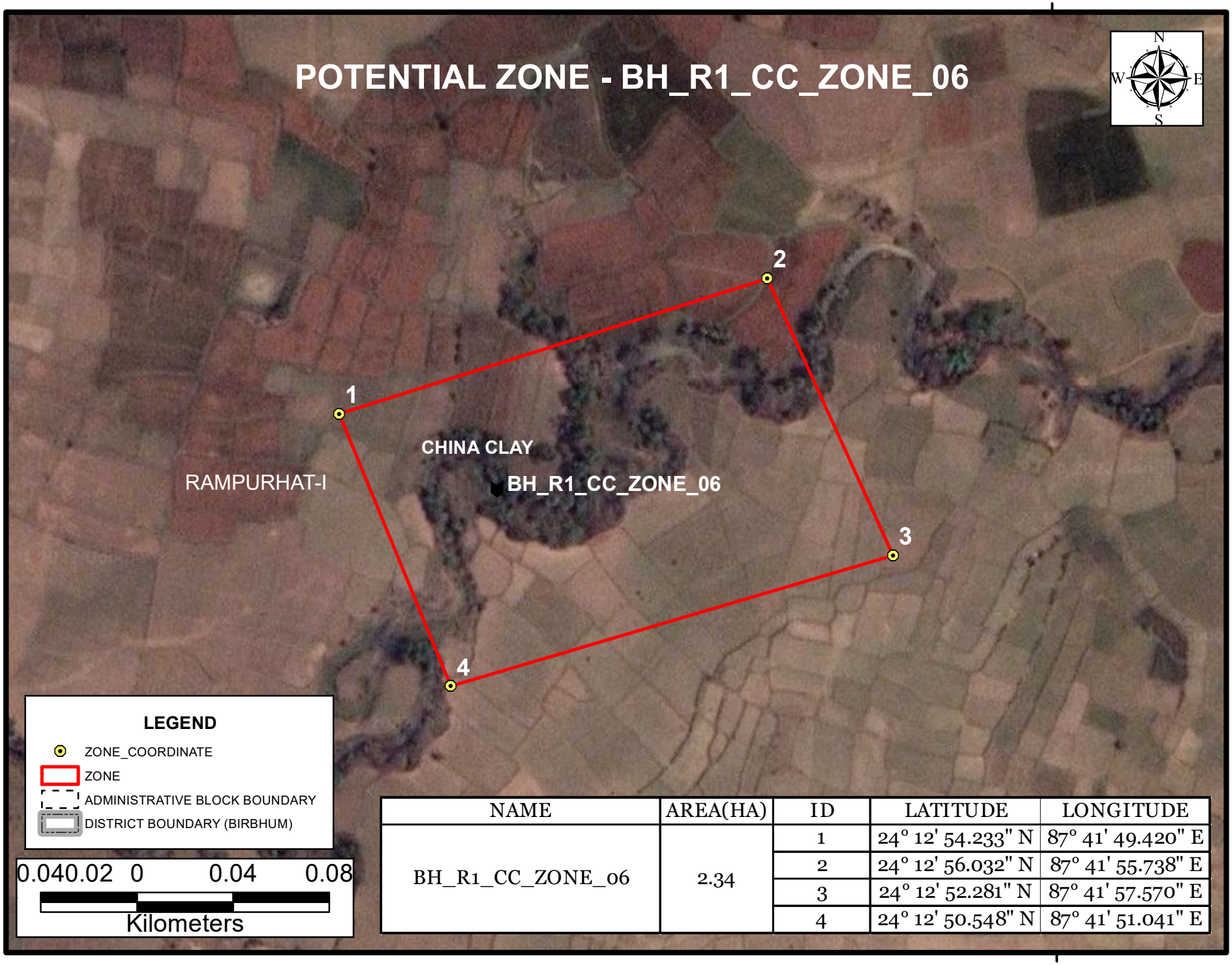
NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_MB_CC_ZONE_04	7.21	1	24° 4' 53.746" N	87° 31' 6.391" E
		2	24° 4' 54.264" N	87° 31' 18.528" E
		3	24° 4' 47.295" N	87° 31' 18.640" E
		4	24° 4' 47.121" N	87° 31' 6.365" E



NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_R1_CC_ZONE_05	2.82	1	24° 8' 30.290" N	87° 37' 59.119" E
		2	24° 8' 30.328" N	87° 38' 5.517" E
		3	24° 8' 25.208" N	87° 38' 5.656" E
		4	24° 8' 25.343" N	87° 37' 59.142" E

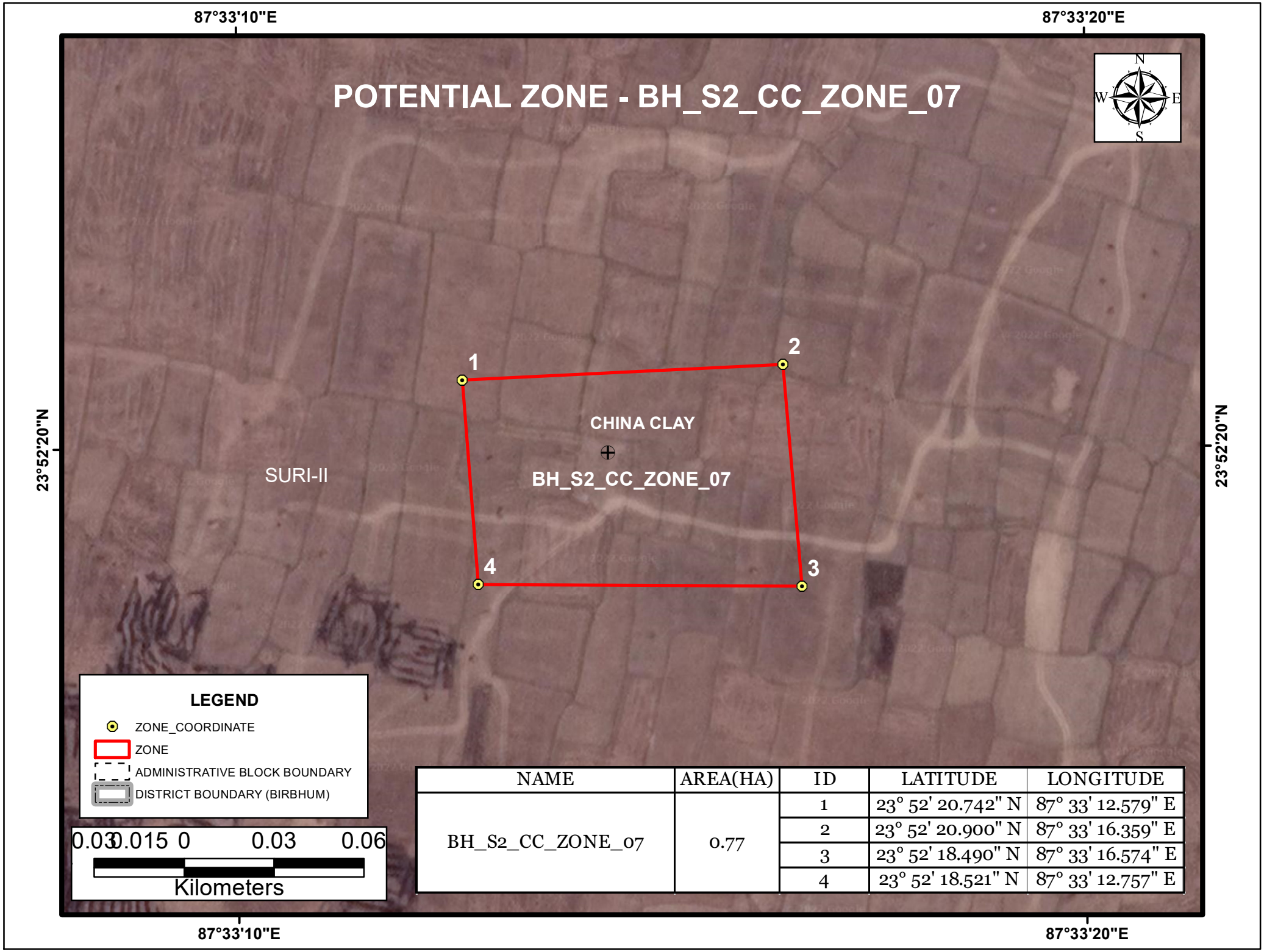
87°42'0"E

POTENTIAL ZONE - BH_R1_CC_ZONE_06



NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_R1_CC_ZONE_06	2.34	1	24° 12' 54.233" N	87° 41' 49.420" E
		2	24° 12' 56.032" N	87° 41' 55.738" E
		3	24° 12' 52.281" N	87° 41' 57.570" E
		4	24° 12' 50.548" N	87° 41' 51.041" E

87°42'0"E



NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_S2_CC_ZONE_07	0.77	1	23° 52' 20.742" N	87° 33' 12.579" E
		2	23° 52' 20.900" N	87° 33' 16.359" E
		3	23° 52' 18.490" N	87° 33' 16.574" E
		4	23° 52' 18.521" N	87° 33' 12.757" E

POTENTIAL ZONE - BH_KR_CC_ZONE_08

87°9'20"E 87°9'30"E 87°9'40"E 87°9'50"E 87°10'0"E

23°48'50"N 23°48'40"N 23°48'30"N 23°48'20"N

N W E S

1 2 3 4

BH_KR_CC_ZONE_08
CHINA CLAY

KHOYRASOL

LEGEND

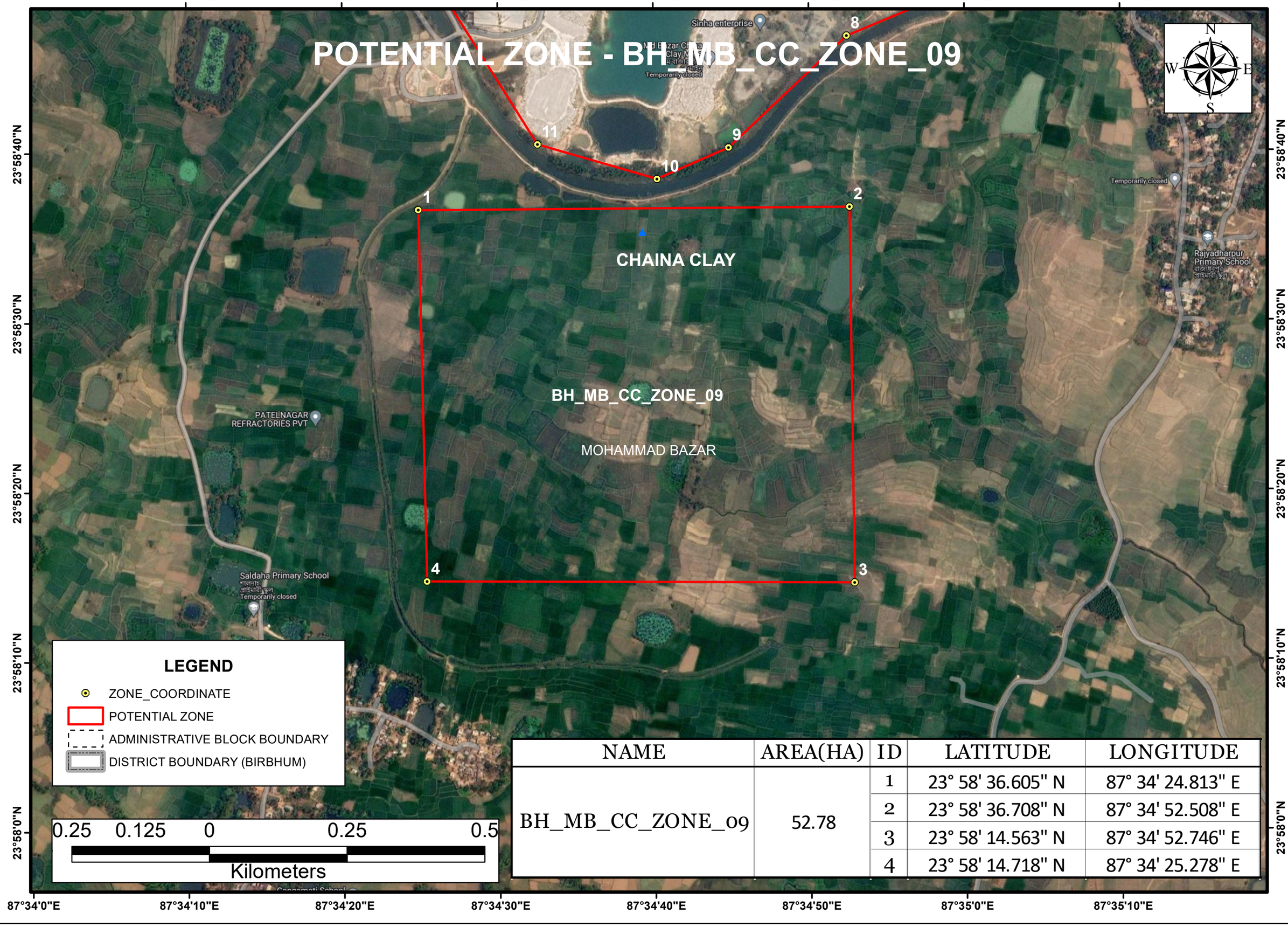
- ZONE_COORDINATE
- POTENTIAL ZONE
- EXISTING
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY (BIRBHUM)

0.15 0.075 0 0.15 0.3
Kilometers

NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_KR_CC_ZONE_08	12.78	1	23° 48' 39.694" N	87° 9' 29.802" E
		2	23° 48' 46.964" N	87° 9' 38.087" E
		3	23° 48' 38.728" N	87° 9' 48.269" E
		4	23° 48' 30.994" N	87° 9' 39.376" E

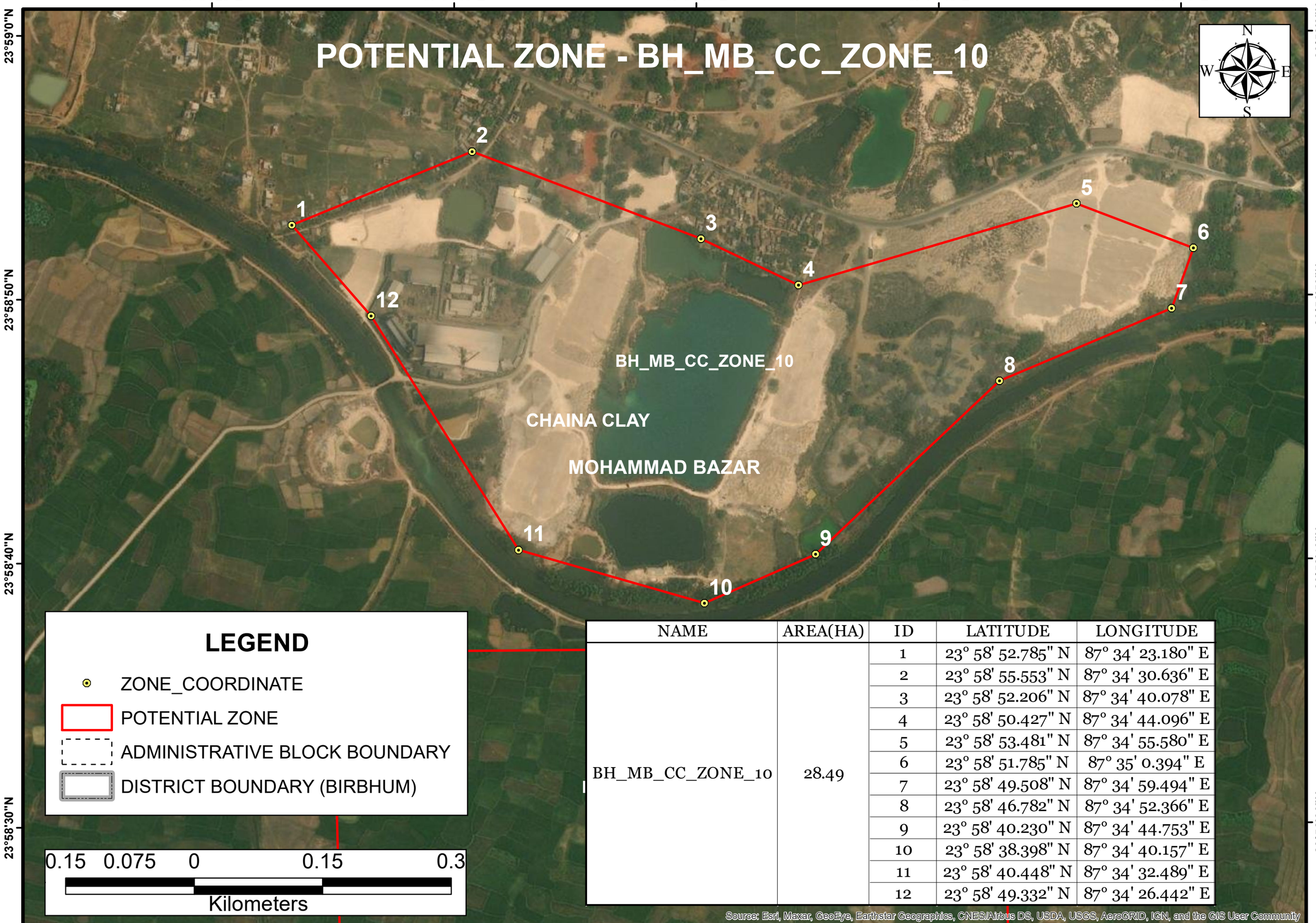
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

POTENTIAL ZONE - BH_MB_CC_ZONE_09



NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_MB_CC_ZONE_09	52.78	1	23° 58' 36.605" N	87° 34' 24.813" E
		2	23° 58' 36.708" N	87° 34' 52.508" E
		3	23° 58' 14.563" N	87° 34' 52.746" E
		4	23° 58' 14.718" N	87° 34' 25.278" E

POTENTIAL ZONE - BH_MB_CC_ZONE_10



LEGEND

- ZONE_COORDINATE
- POTENTIAL ZONE
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY (BIRBHUM)

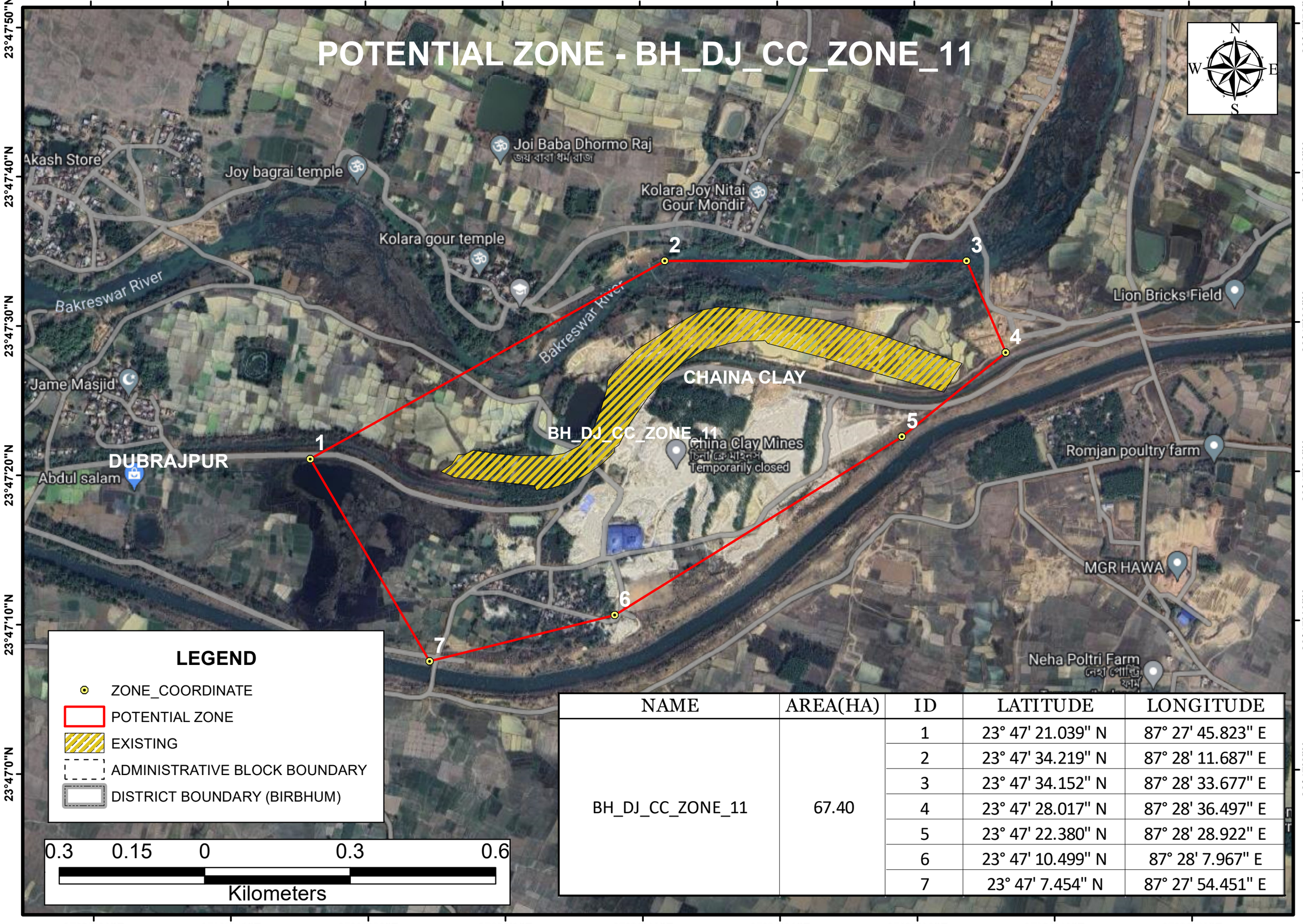
0.15 0.075 0 0.15 0.3

Kilometers

NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_MB_CC_ZONE_10	28.49	1	23° 58' 52.785" N	87° 34' 23.180" E
		2	23° 58' 55.553" N	87° 34' 30.636" E
		3	23° 58' 52.206" N	87° 34' 40.078" E
		4	23° 58' 50.427" N	87° 34' 44.096" E
		5	23° 58' 53.481" N	87° 34' 55.580" E
		6	23° 58' 51.785" N	87° 35' 0.394" E
		7	23° 58' 49.508" N	87° 34' 59.494" E
		8	23° 58' 46.782" N	87° 34' 52.366" E
		9	23° 58' 40.230" N	87° 34' 44.753" E
		10	23° 58' 38.398" N	87° 34' 40.157" E
		11	23° 58' 40.448" N	87° 34' 32.489" E
		12	23° 58' 49.332" N	87° 34' 26.442" E

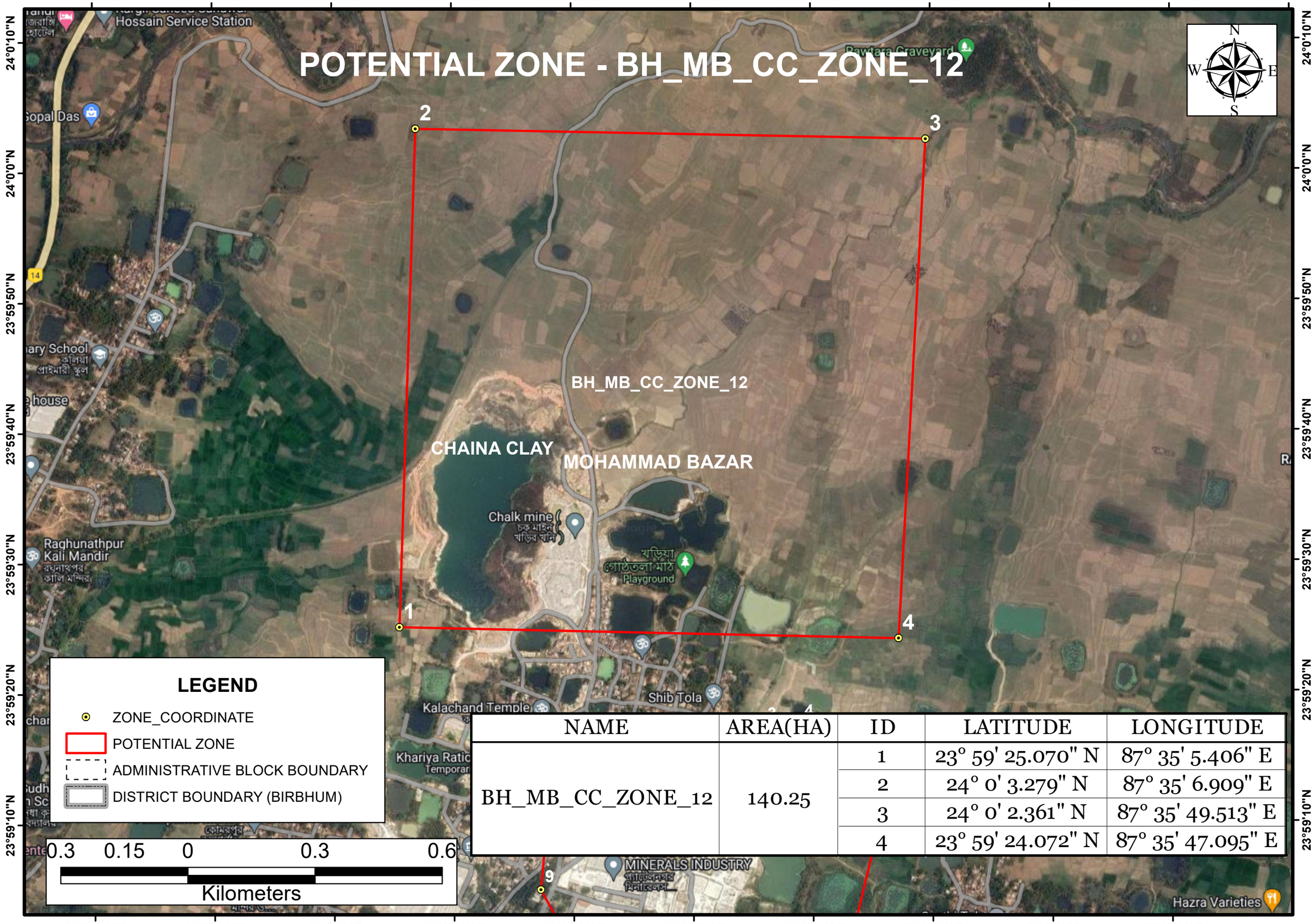
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

POTENTIAL ZONE - BH_DJ_CC_ZONE_11



NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_DJ_CC_ZONE_11	67.40	1	23° 47' 21.039" N	87° 27' 45.823" E
		2	23° 47' 34.219" N	87° 28' 11.687" E
		3	23° 47' 34.152" N	87° 28' 33.677" E
		4	23° 47' 28.017" N	87° 28' 36.497" E
		5	23° 47' 22.380" N	87° 28' 28.922" E
		6	23° 47' 10.499" N	87° 28' 7.967" E
		7	23° 47' 7.454" N	87° 27' 54.451" E

POTENTIAL ZONE - BH_MB_CC_ZONE_12



LEGEND

- ZONE_COORDINATE
- POTENTIAL ZONE
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY (BIRBHUM)

0.3 0.15 0 0.3 0.6

Kilometers

NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_MB_CC_ZONE_12	140.25	1	23° 59' 25.070" N	87° 35' 5.406" E
		2	24° 0' 3.279" N	87° 35' 6.909" E
		3	24° 0' 2.361" N	87° 35' 49.513" E
		4	23° 59' 24.072" N	87° 35' 47.095" E

POTENTIAL ZONE - BH_MB_CC_ZONE_13

87°35'10"E 87°35'20"E 87°35'30"E 87°35'40"E 87°35'50"E 87°36'0"E

23°59'20"N 23°59'10"N 23°59'0"N 23°58'50"N 23°58'40"N

CHAINA CLAY

BH_MB_CC_ZONE_13

MOHAMMAD BAZAR

1 2 3 4 5 6 7 8 9 10

NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_MB_CC_ZONE_13	41.84	1	23° 59' 13.274" N	87° 35' 21.383" E
		2	23° 59' 11.759" N	87° 35' 25.983" E
		3	23° 59' 17.296" N	87° 35' 35.783" E
		4	23° 59' 17.542" N	87° 35' 38.875" E
		5	23° 59' 16.478" N	87° 35' 47.185" E
		6	23° 58' 54.304" N	87° 35' 41.408" E
		7	23° 58' 56.475" N	87° 35' 27.336" E
		8	23° 59' 1.048" N	87° 35' 19.417" E
		9	23° 59' 4.876" N	87° 35' 17.150" E
		10	23° 59' 12.048" N	87° 35' 17.894" E

LEGEND

- ZONE_COORDINATE
- POTENTIAL ZONE
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY (BIRBHUM)

0.2 0.1 0 0.2 0.4

Kilometers

N W E S

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

POTENTIAL ZONE - BH_R1_CC_ZONE_14

87°41'50"E 87°42'0"E 87°42'10"E 87°42'20"E 87°42'30"E 87°42'40"E 87°42'50"E 87°43'0"E

24°10'20"N 24°10'10"N 24°10'0"N 24°9'50"N 24°9'40"N

N W E S

CHAINA CLAY

BH_R1_CC_ZONE_14

Land for SAIP

WEST BENGAL
JHARKHAND

RAMPURHAT-I

1 2 3 4

LEGEND

- ZONE_COORDINATE
- POTENTIAL ZONE
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY (BIRBHUM)

0.2 0.1 0 0.2 0.4
Kilometers

NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_R1_CC_ZONE_14	70.53	1	24° 10' 0.590" N	87° 41' 58.128" E
		2	24° 10' 17.307" N	87° 42' 1.780" E
		3	24° 10' 10.727" N	87° 42' 49.760" E
		4	24° 9' 54.720" N	87° 42' 47.078" E

POTENTIAL ZONE - BH_R1_CC_ZONE_15

87°42'30"E 87°42'40"E 87°42'50"E 87°43'0"E 87°43'10"E 87°43'20"E 87°43'30"E

24°9'50"N 24°9'40"N 24°9'30"N 24°9'20"N 24°9'10"N

N W E S

1 2 3 4

CHAINA CLAY

BH_R1_CC_ZONE_15

RAMPURHAT-I

Somnath let

Radipur cricket ay ground

tutul mondal

Dr.Siddhartha (Chember

Radipur Primary School

LEGEND

- ZONE_COORDINATE
- POTENTIAL ZONE
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY (BIRBHUM)

0.2 0.1 0 0.2 0.4

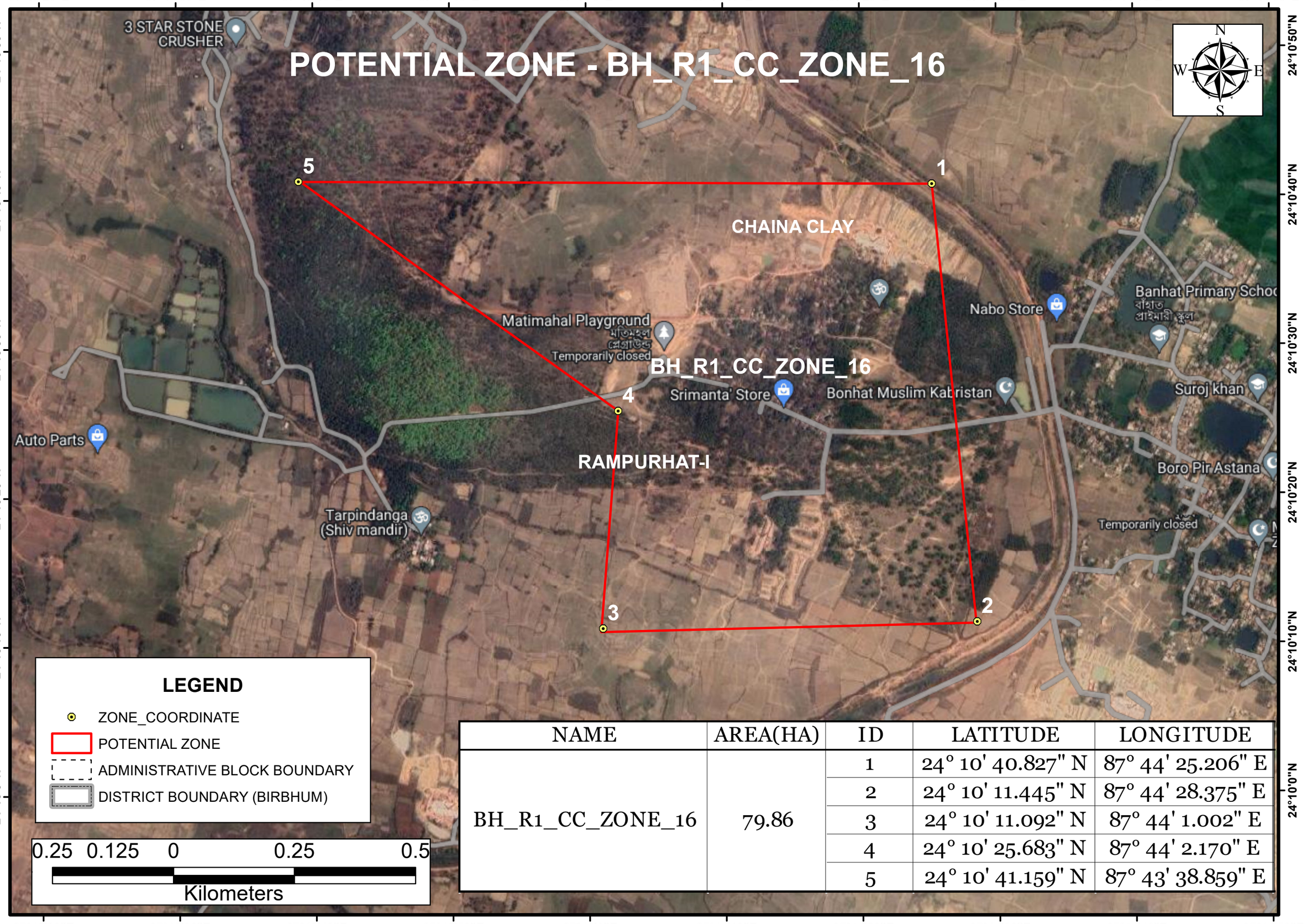
Kilometers

NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_R1_CC_ZONE_15	47.28	1	24° 9' 46.577" N	87° 42' 40.318" E
		2	24° 9' 45.353" N	87° 43' 12.289" E
		3	24° 9' 29.462" N	87° 42' 39.473" E
		4	24° 9' 28.494" N	87° 43' 11.533" E

POTENTIAL ZONE - BH_R1_CC_ZONE_16

87°43'20"E 87°43'30"E 87°43'40"E 87°43'50"E 87°44'0"E 87°44'10"E 87°44'20"E 87°44'30"E 87°44'40"E 87°44'50"E

24°10'50"N 24°10'40"N 24°10'30"N 24°10'20"N 24°10'10"N 24°10'0"N



LEGEND

- ZONE_COORDINATE
- POTENTIAL ZONE
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY (BIRBHUM)

0.25 0.125 0 0.25 0.5

Kilometers

NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_R1_CC_ZONE_16	79.86	1	24° 10' 40.827" N	87° 44' 25.206" E
		2	24° 10' 11.445" N	87° 44' 28.375" E
		3	24° 10' 11.092" N	87° 44' 1.002" E
		4	24° 10' 25.683" N	87° 44' 2.170" E
		5	24° 10' 41.159" N	87° 43' 38.859" E

POTENTIAL ZONE - BH_R1_CC_ZONE_17

87°39'50"E 87°40'0"E 87°40'10"E 87°40'20"E 87°40'30"E

24°7'50"N 24°7'40"N 24°7'30"N 24°7'20"N

Jali Bagan Ground

Dhar varieties store

1 2 3 4

CHAINA CLAY

BH_R1_CC_ZONE_17

RAMPURHAT-I

N W E S

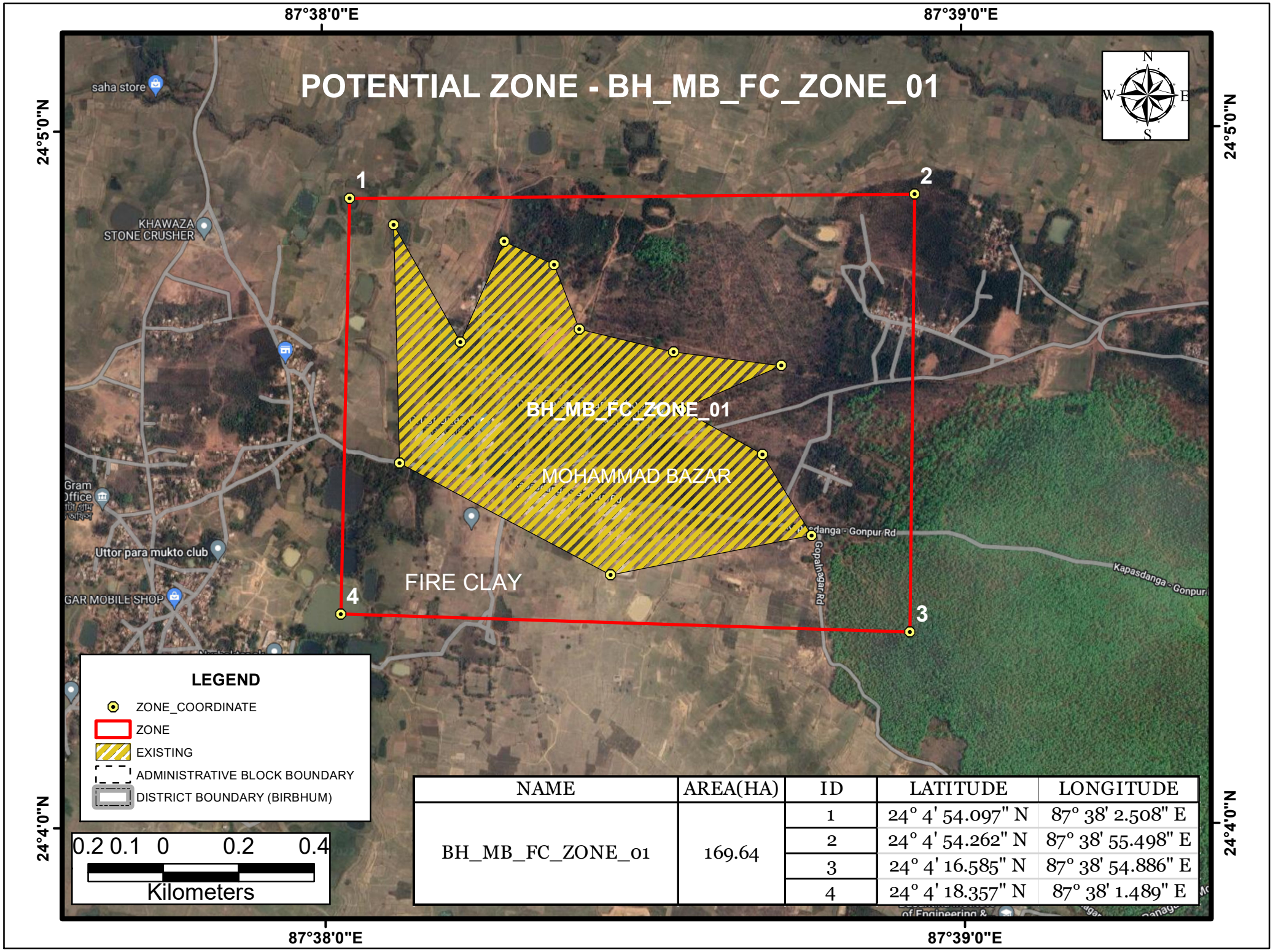
LEGEND

- ZONE_COORDINATE
- POTENTIAL ZONE
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY (BIRBHUM)

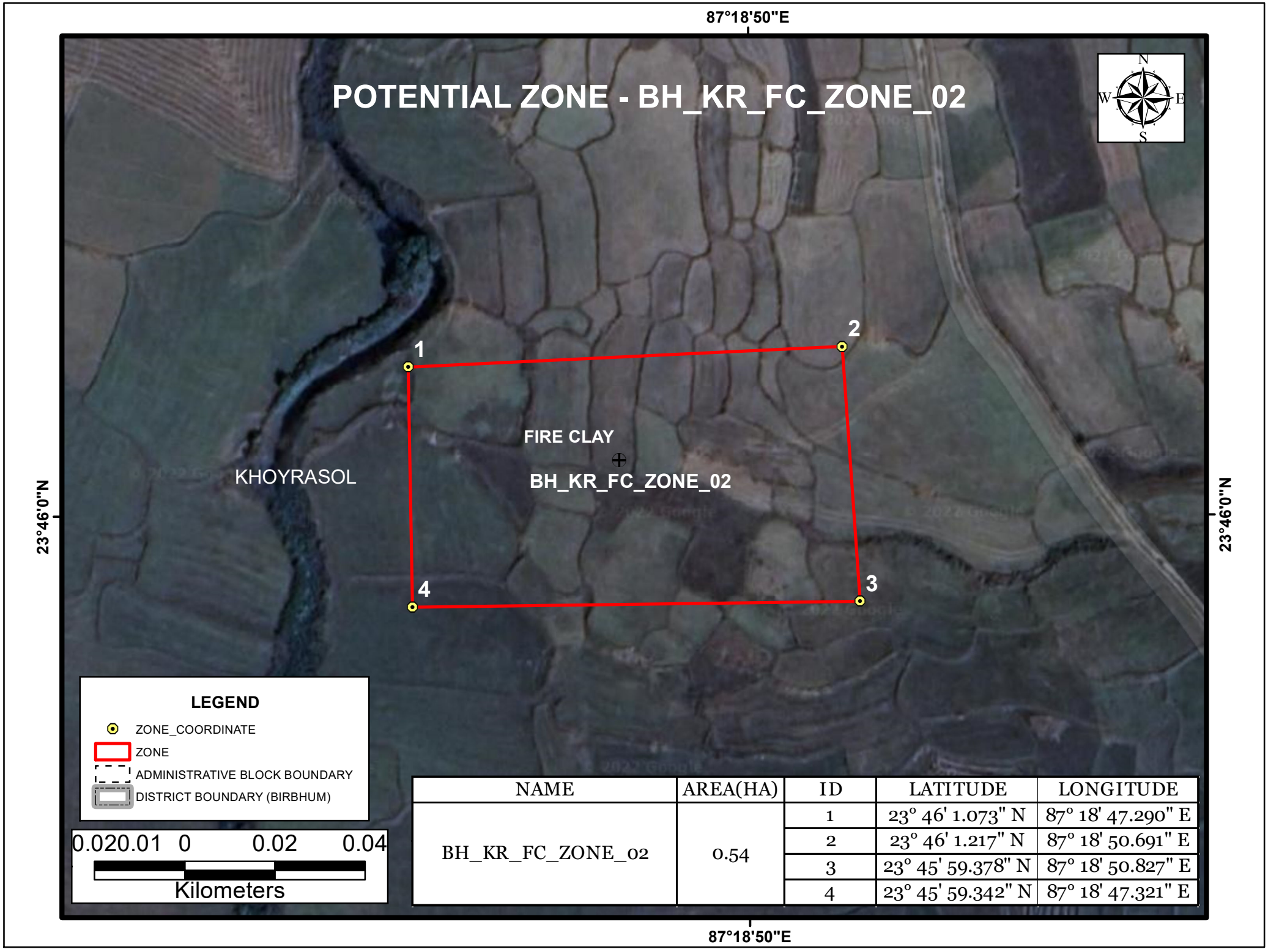
0.15 0.075 0 0.15 0.3

Kilometers

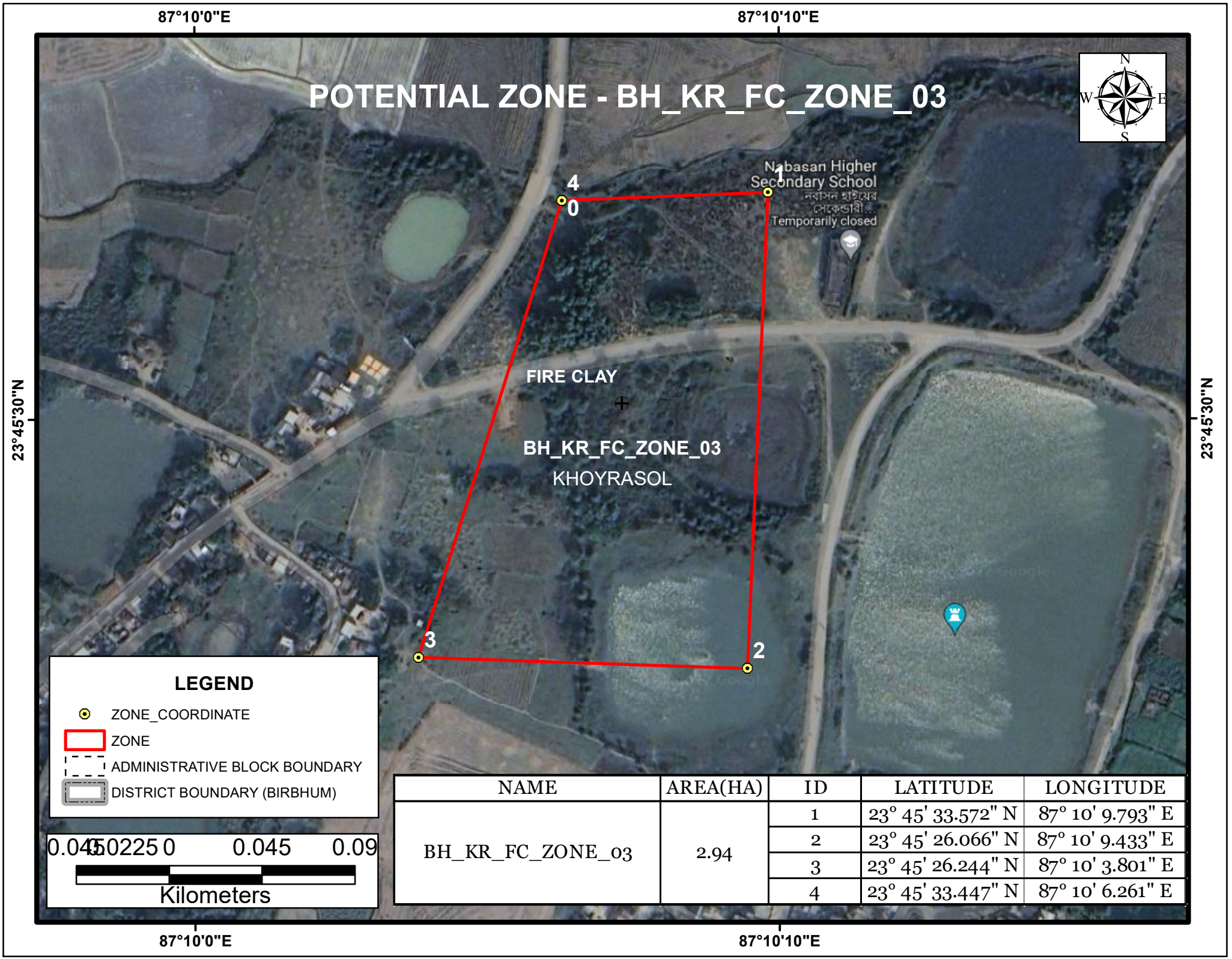
NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_R1_CC_ZONE_17	26.24	1	24° 7' 45.348" N	87° 39' 57.984" E
		2	24° 7' 45.169" N	87° 40' 15.306" E
		3	24° 7' 27.570" N	87° 40' 14.933" E
		4	24° 7' 28.058" N	87° 39' 57.613" E



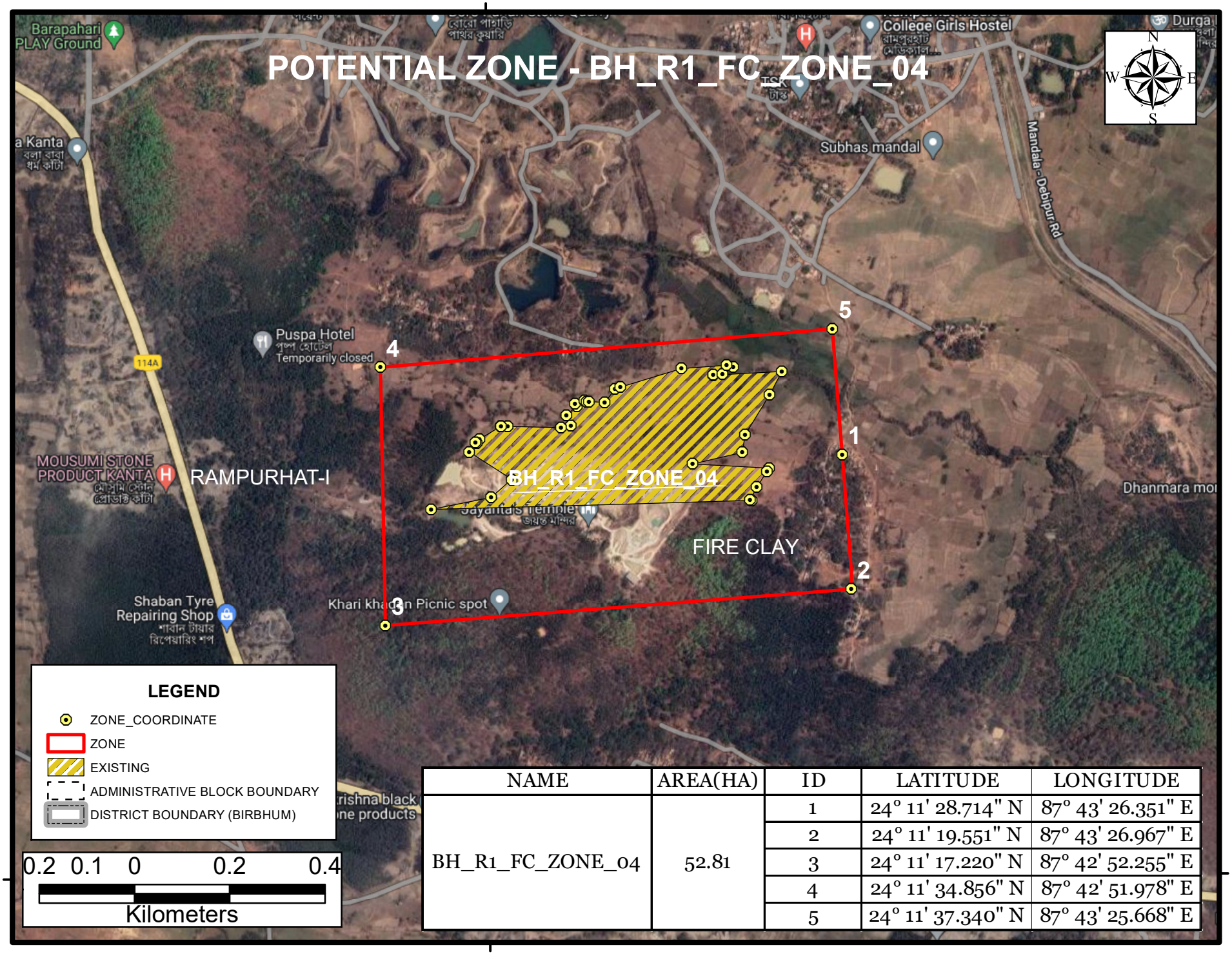
NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_MB_FC_ZONE_01	169.64	1	24° 4' 54.097" N	87° 38' 2.508" E
		2	24° 4' 54.262" N	87° 38' 55.498" E
		3	24° 4' 16.585" N	87° 38' 54.886" E
		4	24° 4' 18.357" N	87° 38' 1.489" E



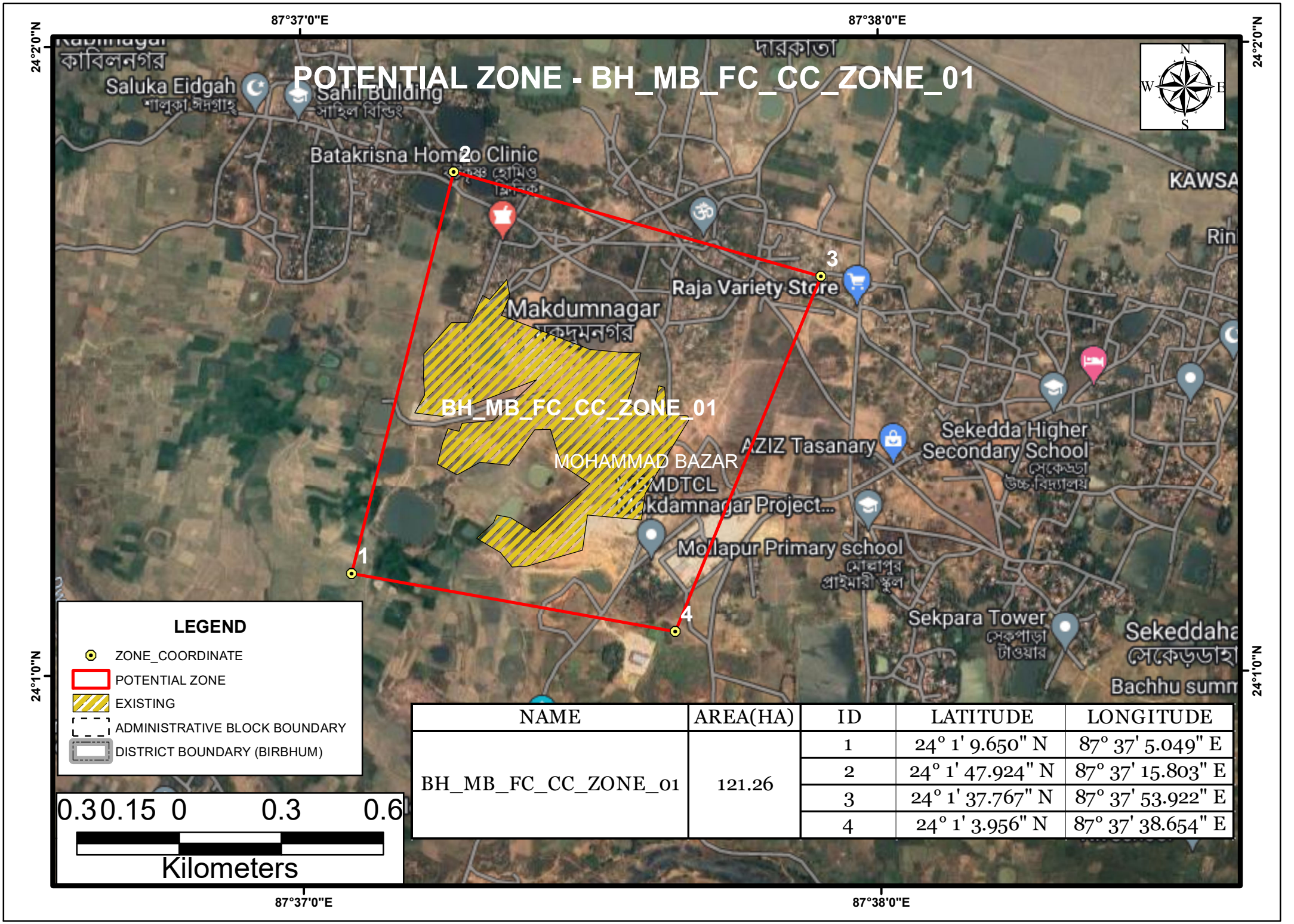
NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_KR_FC_ZONE_02	0.54	1	23° 46' 1.073" N	87° 18' 47.290" E
		2	23° 46' 1.217" N	87° 18' 50.691" E
		3	23° 45' 59.378" N	87° 18' 50.827" E
		4	23° 45' 59.342" N	87° 18' 47.321" E



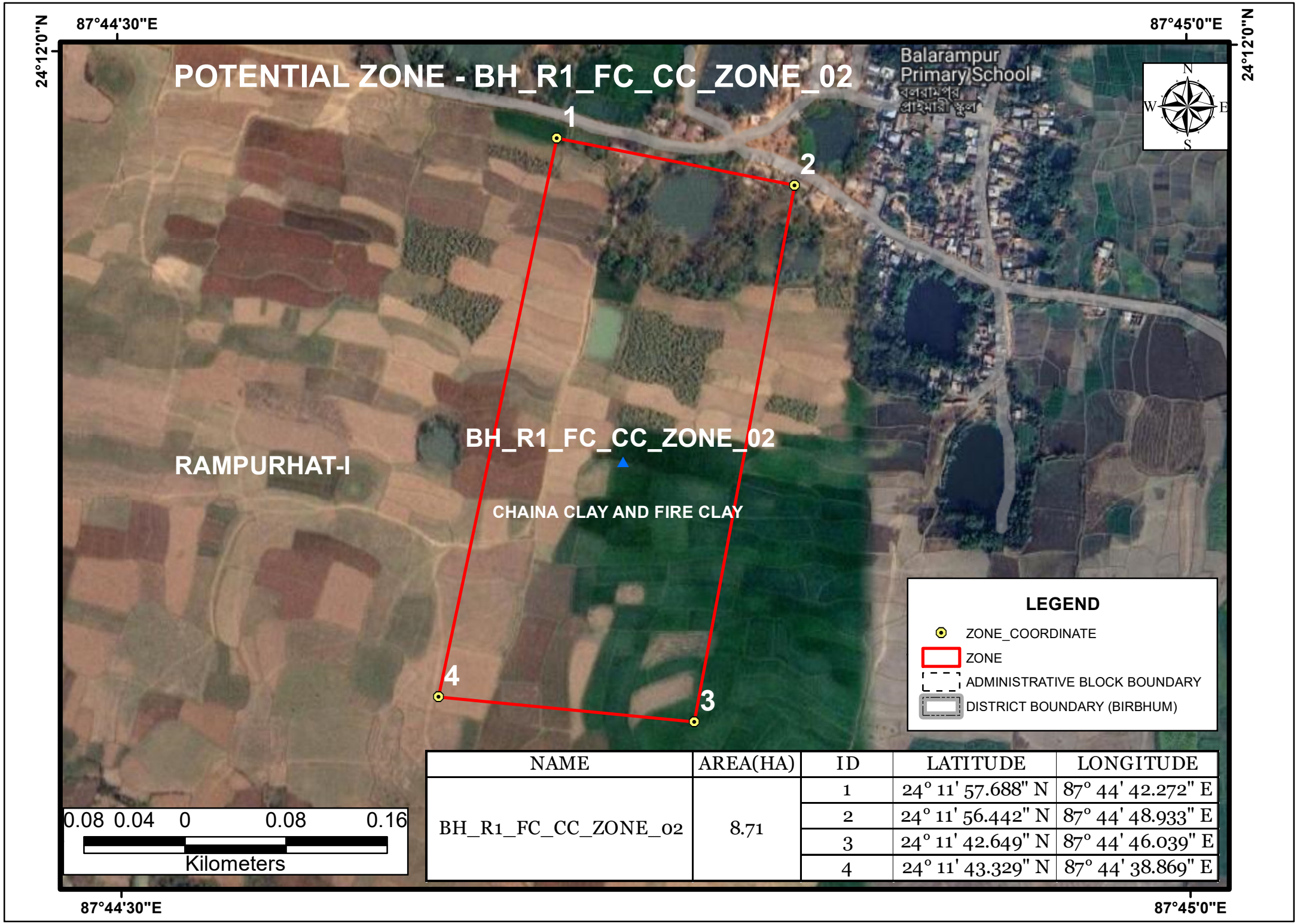
NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_KR_FC_ZONE_03	2.94	1	23° 45' 33.572" N	87° 10' 9.793" E
		2	23° 45' 26.066" N	87° 10' 9.433" E
		3	23° 45' 26.244" N	87° 10' 3.801" E
		4	23° 45' 33.447" N	87° 10' 6.261" E



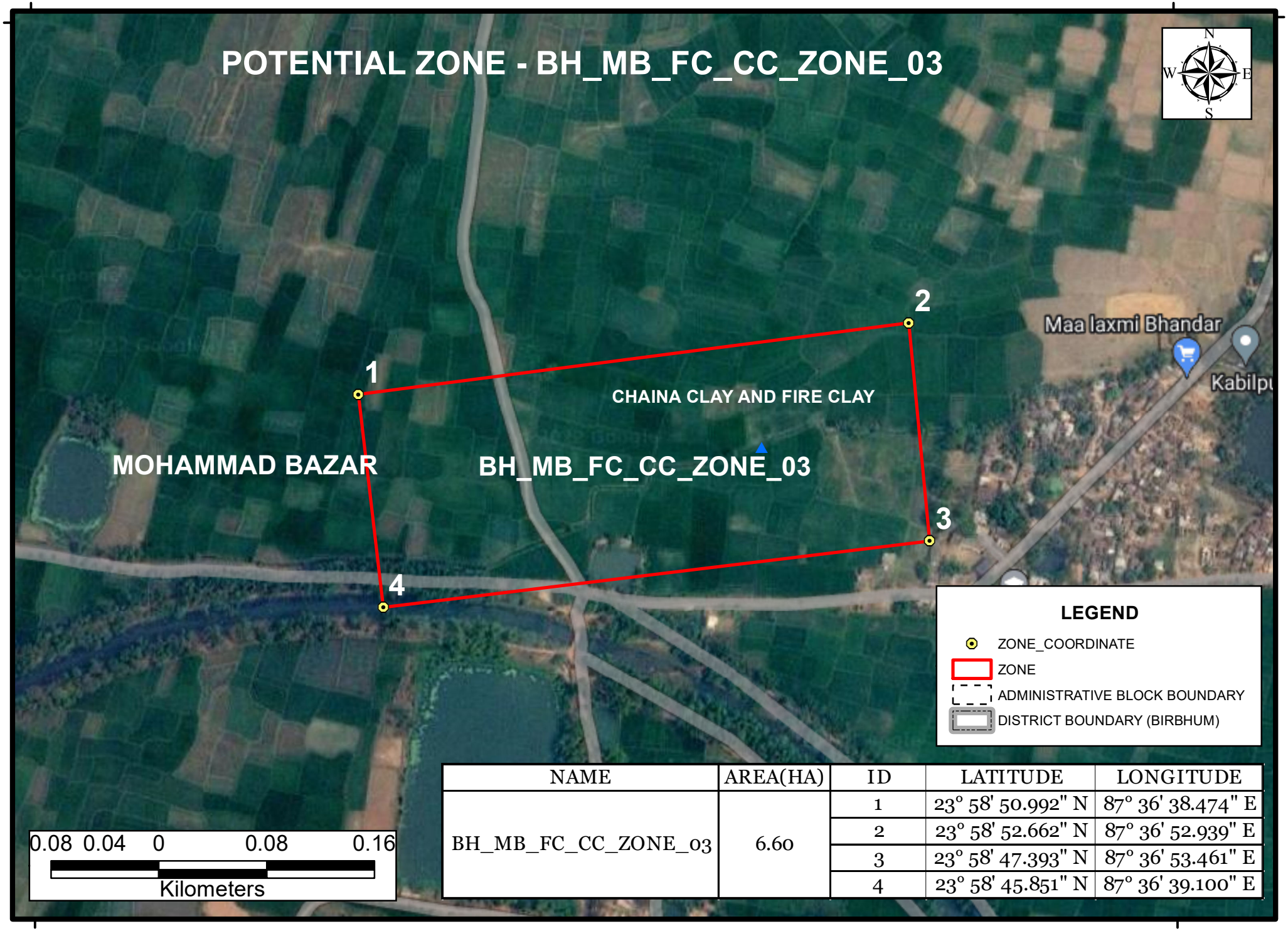
NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_R1_FC_ZONE_04	52.81	1	24° 11' 28.714" N	87° 43' 26.351" E
		2	24° 11' 19.551" N	87° 43' 26.967" E
		3	24° 11' 17.220" N	87° 42' 52.255" E
		4	24° 11' 34.856" N	87° 42' 51.978" E
		5	24° 11' 37.340" N	87° 43' 25.668" E



NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_MB_FC_CC_ZONE_01	121.26	1	24° 1' 9.650" N	87° 37' 5.049" E
		2	24° 1' 47.924" N	87° 37' 15.803" E
		3	24° 1' 37.767" N	87° 37' 53.922" E
		4	24° 1' 3.956" N	87° 37' 38.654" E



NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_R1_FC_CC_ZONE_02	8.71	1	24° 11' 57.688" N	87° 44' 42.272" E
		2	24° 11' 56.442" N	87° 44' 48.933" E
		3	24° 11' 42.649" N	87° 44' 46.039" E
		4	24° 11' 43.329" N	87° 44' 38.869" E



NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_MB_FC_CC_ZONE_03	6.60	1	23° 58' 50.992" N	87° 36' 38.474" E
		2	23° 58' 52.662" N	87° 36' 52.939" E
		3	23° 58' 47.393" N	87° 36' 53.461" E
		4	23° 58' 45.851" N	87° 36' 39.100" E

87°33'40"E

POTENTIAL ZONE - BH_MB_FC_CC_ZONE_04

N
W E
S

1
2
3
4

CHAINA CLAY AND FIRE CLAY

MOHAMMAD BAZAR

BH_MB_FC_CC_ZONE_04

LEGEND

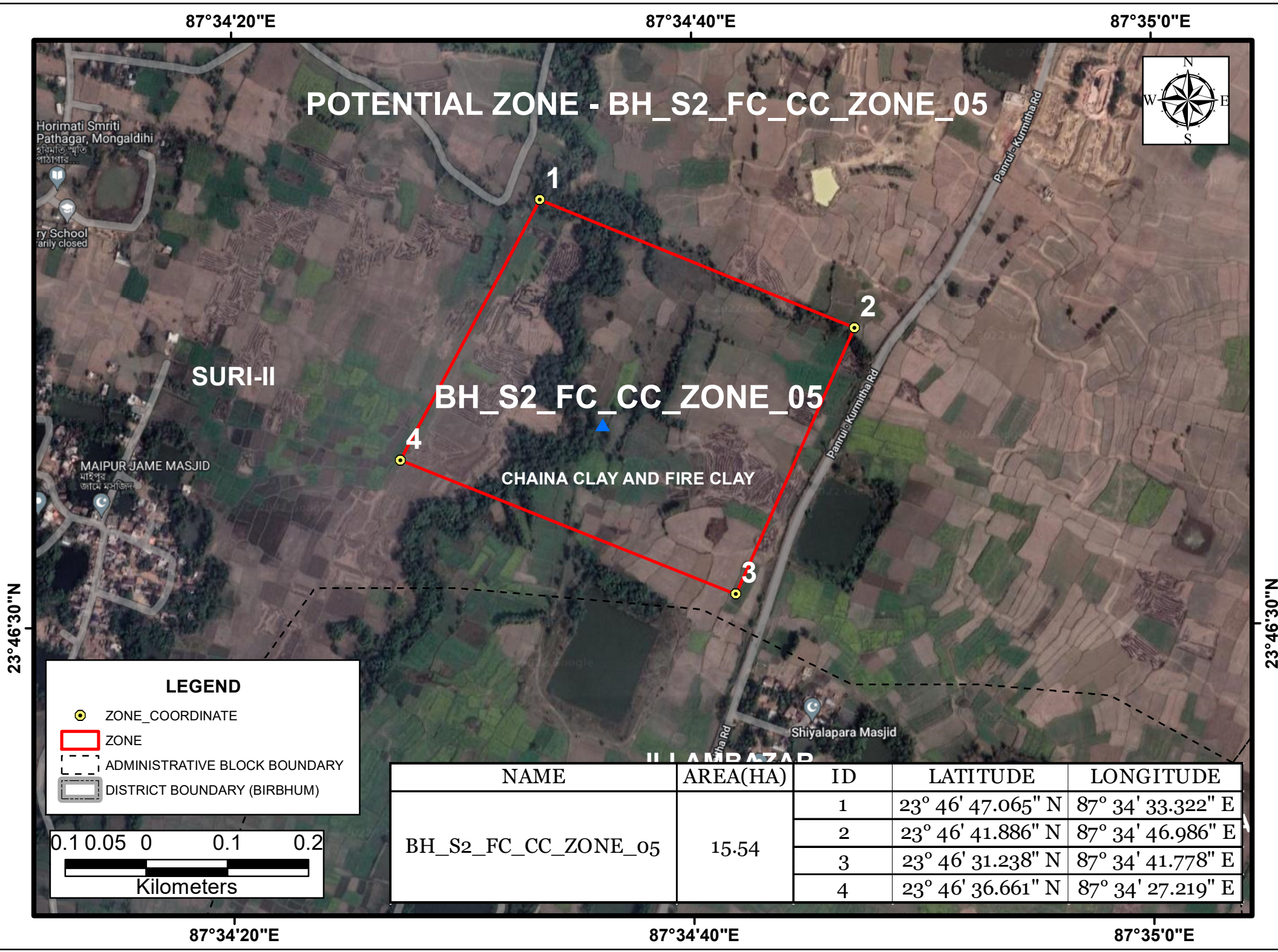
- ZONE_COORDINATE
- ZONE
- ADMINISTRATIVE BLOCK BOUNDARY
- DISTRICT BOUNDARY (BIRBHUM)

0.045 0.0225 0 0.045 0.09

Kilometers

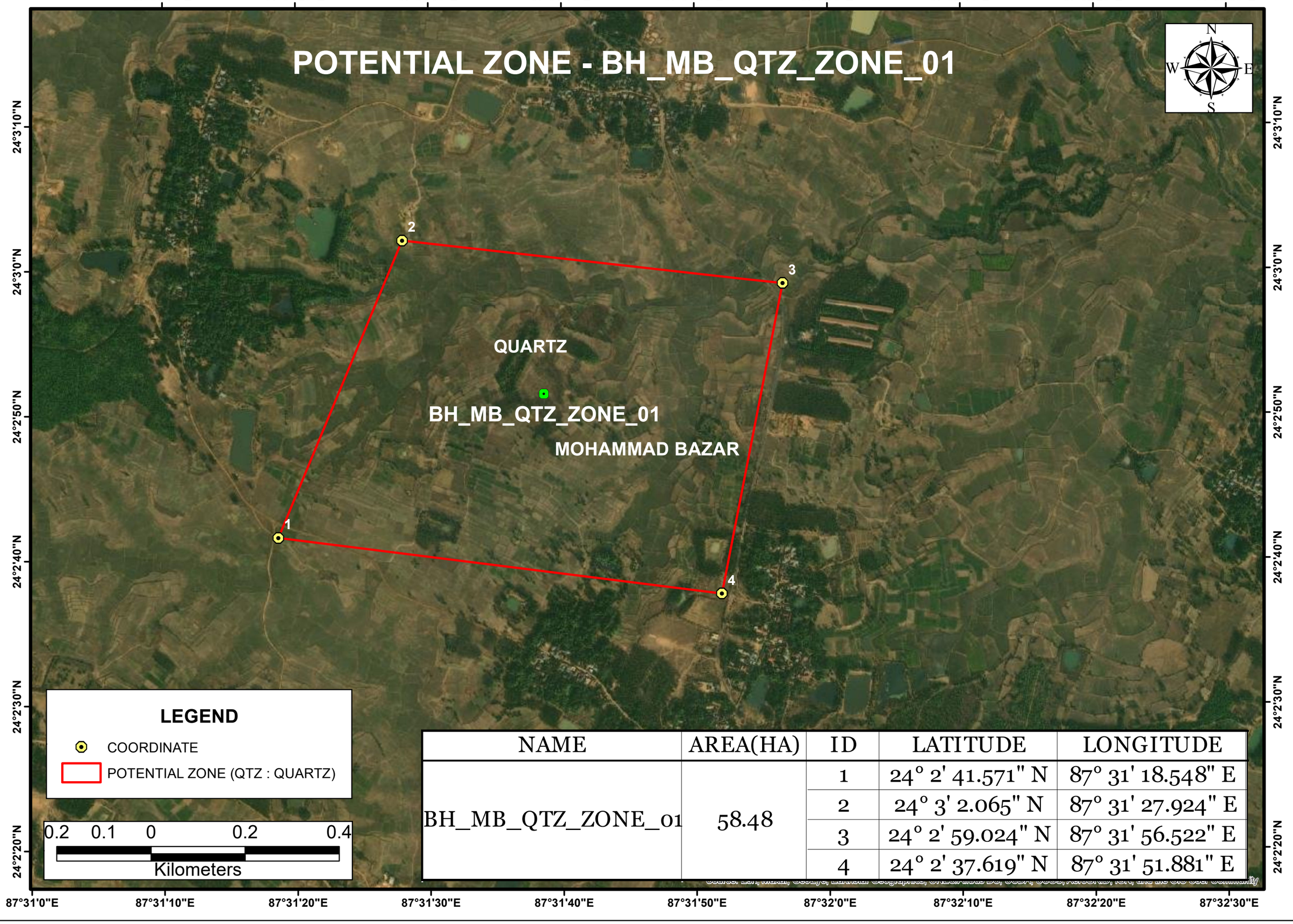
NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_MB_FC_CC_ZONE_04	1.19	1	23° 58' 49.580" N	87° 33' 40.375" E
		2	23° 58' 50.043" N	87° 33' 45.508" E
		3	23° 58' 47.393" N	87° 33' 45.571" E
		4	23° 58' 46.913" N	87° 33' 40.419" E

87°33'40"E



NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_S2_FC_CC_ZONE_05	15.54	1	23° 46' 47.065" N	87° 34' 33.322" E
		2	23° 46' 41.886" N	87° 34' 46.986" E
		3	23° 46' 31.238" N	87° 34' 41.778" E
		4	23° 46' 36.661" N	87° 34' 27.219" E

POTENTIAL ZONE - BH_MB_QTZ_ZONE_01



NAME	AREA(HA)	ID	LATITUDE	LONGITUDE
BH_MB_QTZ_ZONE_01	58.48	1	24° 2' 41.571" N	87° 31' 18.548" E
		2	24° 3' 2.065" N	87° 31' 27.924" E
		3	24° 2' 59.024" N	87° 31' 56.522" E
		4	24° 2' 37.619" N	87° 31' 51.881" E

Annexure 6
SEIAA 81st Meeting (6th December, 2022) Minutes of Meeting

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State Environment Impact Assessment Authority
Pranisampad Bhawan, 5th Floor, Sector-III, Salt Lake, Kolkata - 700106
(West Bengal)
Minutes of SEIAA Meeting

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Subject:- **81st meeting of SEIAA**

Venue:- **Conference Room of Environment Department, Prani Sampad Bhavan, 5th Floor, LB Block, Sector III, Salt Lake, Kolkata 700106.**

From :- **06 December 2022**

To :- **06 December 2022**

1. Proposal No. :- **SIA/WB/IND2/278404/2022** File No- **EN/T-II-1/043/2022**
Proposed drilling of 20 Shale gas Exploratory Wells in Raniganj (South) CBM Block, West Bengal by **M/s. Great Eastern Energy Corporation Ltd.** Type- **EC**

INTRODUCTION

The proponent made online application vide proposal no. **SIA/WB/IND2/278404/2022** dated **16 Jun 2022** along with copies of EIA/EMP seeking environment clearance under the provisions of the EIA Notification, 2006 for the above mentioned project. The proposed project activity is listed at SL.No. **1(b) Offshore and onshore oil and gas exploration, development & production**, under Category "**B2**" of EIA Notification 2006 and the proposal is appraised at State level.

Earlier the project proponent (PP) had obtained ECs from MoEF&CC vide F.No. J-11011/264/2007-IA II (I) dated 28.06.2007 and F.No. J-11011/352/2010-IA II (I) dated 24.11.2011.

SEAC recommended the proposed project for Environmental Clearance during its 54th meeting held on 19.10.2022.

PROJECT DETAILS

The project of **M/S. GREAT EASTERN ENERGY CORPORATION LTD** located in as follows :

State of the project

S. No.	State	District	Tehsil	Village
1.	West Bengal	Bankura	Bankura - I	Inanpur, Radha Madhapur, Gopalganj, Bheska, Jashpur, Madhubanpur, Gangpur, Dulurdi, Berakural, Damodarpur, Manpur, Chapabera chak, Ektira, Kasthagora, Pachandapur, Beliapur, Mohanpur, Bagulia, Nabagra
2.	West Bengal	Purulia	Purulia I	Bhara, Salchur, Salma, Bakulia, Majit, Harakbad, Chandbad, Rautora, Bamuntore, Iswarda, Anandapu, Iswarda, Saburbandh, Shripurnama, Dumdumi, Kalikapur, Poradhia, Chandurdihi, Shunuri, Baltora, Bonora
3.	West Bengal	Burdwan	Kanksa	Chandurdi, Sashpur, Jagnannathdi, Alkusha, Dhangajor, Baruipura, Bonra, Baghakuri, Bortoria, Digha, Tiltorya, Parbbatpur,

14. **Project configuration/product details**

S. No.	Project configuration/product details	Quantity	Unit	Other Unit	Mode of Transport/Transmission of Product	Other Mode of Transport

Drilling of 20 Shale Gas Exploratory Wells in Raniganj (South) CBM Block	

Raw Material Requirement is as follows :

Raw Material Requirement details

S. No.	Item	Quantity per annum	Unit	Other Unit	Source	Mode of Transport/Transmission of Product	Other Mode of Transport	Distance of Source from Project Site(Kilometers)
(1.)	High Speed Diesel (HSD)	420	4		LOCAL	Others	DIESEL BROWSER	20

Expansion Details :

S. No.	Product/Activity (Capacity / Area)	Quantity		Unit	Other Unit
		From	To		
(1.)	SHALE GAS WELLS	20	0	Others	NOS

DELIBERATION IN SEIAA

SEIAA considered the recommendation of SEAC and observed that the PP should submit the following in the PARIVESH Portal:-

1. **In view of MoEF&CC O.M. vide F No. IA3-22/10/2022-IA.III[E 177258] dated 08.06.2022 and since the EC application has been made in the 'Expansion' category, a Certified Compliance Report (CCR) regarding compliance of all the conditions enlisted in the Environmental Clearance granted by MoEF&CC.**
2. **Ownership details of the land in the proposed project area of the respective bore holes including ancillary activities of the project along with the lease agreement.**
3. **Mouza map showing the dag nos. constituting the block for which the EC is applied.**
4. **Map showing the dag nos. for which earlier EC issued vide F.No. J-11011/264/2007-IA II (I) dated 28.06.2007 and F.No. J-11011/352/2010-IA II (I) dated 24.11.2011 from MoEF&CC.**
5. **Superimposed map showing the area as mentioned in point no. 3 & 4 above.**
6. **Location of the bore holes for the present application mentioning the boundary coordinates in 'Degree, Minutes and Seconds' format.**
7. **The present status of vegetation and tree cover in the proposed project area. The requirement of tree felling, if any, with details thereof needs to be mentioned.**

RECOMMENDATIONS OF SEIAA

Therefore, the application for EC is deferred for additional information.

Conclusion
Deferred

2. Proposal No. :- **SIA/WB/MIS/204112/2021** File No- **EN/T-II-1/041/2018**
Proposed construction of Hospital Building of Gouri Devi Institute of Medical Science and Hospital (GIMSH) at Plot No. 759, 763, 766, 771, 822, 770, 773, 767, 769, 774, 775, 823, 825, 826, 755, 772, 768, 756, 749, 696, 699, 695, 705, 706, 707, 712, 718, 719, 7 20, 731, 827, 828, 830, 831, 760, 824, 753, JL No. 77, Mouza – Manikara, Amlajora Panchayat, Block – Kanksa, Dist – Pascim Bardhaman, PIN – 713212, West Bengal by **Gouri Devi Institute of Medical Sciences and Hospital** (VIOLATION CASE). Type- **EC**

INTRODUCTION

The proponent made online application vide proposal no. **SIA/WB/MIS/204112/2021** dated **11 Aug 2021** along with copies of EIA/EMP seeking environment clearance under the provisions of the EIA Notification, 2006 for the above mentioned project. The proposed project activity is listed at SL.No. **8(a) Building and Construction projects**, under Category "**B2** " of EIA Notification 2006 and the proposal is appraised at State level.

The PP obtained ToR for the proposed project vide Memo No. 484-2N-36/2018(E) dated 30.05.2019 against proposal no. SIA/WB/NCP/22890/2018.

SEAC recommended the proposed project for Environmental Clearance under violation category during its 55th meeting held on 09.11.2022.

PROJECT DETAILS

The project of M/s **GIMSH** located in as follows :

State of the project				
S. No.	**State**	**District**	**Tehsil**	**Village**
(1.)	West Bengal	Paschim Bardhaman	Kanksa	Manikara

14. **Project configuration/product details**

S. No.	**Project configuration/product details**	**Quantity**	**Unit**	**Other Unit**	**Mode of Transport/Transmission of Product**	**Other Mode of Transport**
This is a proposal for construction of a 5 storied hospital building including other infrastructural facilities like medical college, hostel buildings, staff quarters etc. under violation category. Total Built-up area is 27069.93 sqm. Total land area is 80940 sqm. Total no. of bed – 300.						

Raw Material Requirement details

S. No.	**Item**	**Quantity per annum**	**Unit**	**Other Unit**	**Source**	**Mode of Transport/Transmission of Product**	**Other Mode of Transport**	**Distance of Source from Project Site(Kilometers)**
NIL								

DELIBERATION IN SEIAA

SEIAA considered the recommendation of SEAC and observed that the PP should submit the following in the PARIVESH Portal:-

1. **The land conversion certificate for a total area of 24523.95 sqm. has been uploaded by the PP while the total project area is 80940 sqm. Therefore, the PP is required to upload land conversion certificate for the entire project area.**
2. **Required permission from Atomic Energy Regulatory Board for dealing with radioactive materials and operation of nuclear medicine facility.**
3. **Details of need based activities for local people specifying the location of proposed activities to be undertaken and tentative target beneficiaries to be covered.**

RECOMMENDATIONS OF SEIAA

Therefore, the application for EC is deferred for additional information.

Conclusion
Deferred

3. Proposal No. :- **SIA/WB/MIS/257178/2022** File No- **EN/T-II-1/008/2022** Proposed Residential, mercantile & MLCP project near Vega Circle Mall, Sevok Road, at Plot no. (LR) – 555, 611, Plot no. (RS) – 82, 82/298, 81/297, Khatian no. (LR) – 545, 2516, Khatian no. (RS) – 282/1, 282/3, 282/5, JL No.- 02, Mouza- Dabgram, Parganas Baikunthapur, P.S.- Bhaktinagar, District- Jalpaiguri, under Siliguri Municipal Corporation, West Bengal by **M/s. Shree Vinayak Constructions.**	Type- **EC**

INTRODUCTION

The proponent made online application vide proposal no. **SIA/WB/MIS/257178/2022** dated **17 Feb 2022** seeking environment clearance under the provisions of the EIA Notification, 2006 for the above mentioned project. The proposed project activity is listed at SL.No. **8(a) Building and Construction projects**, under Category "**B2**" of EIA Notification 2006 and the proposal is appraised at State level.

The SEAC in its 55th meeting held on 09.11.2022 recommended that based on the letter vide No. 2945/WL/2W-682(Part-III)/2019 dated 28.09.2022 received from Principal Chief Conservator of Forest (Wildlife) and Chief Wildlife Warden wherein it was confirmed that the proposed project site is falling within the eco-sensitive zone of Mahananda Wildlife Sanctuary. Hon'ble Supreme Court of India in its order dated 03.06.2022 in its L.A No.1000 of 2003 in W.P.202 of 1995 ordered that no new structure shall be per mitted to come up in ESZ, hence, permission for the above proposal (SIA/WB/MIS/257178/2022) cannot be granted.

PROJECT DETAILS

The project of M/s **SHREE VINAYAK CONSTRUCTIONS** located in as follows :

State of the project				
S. No.	**State**	**District**	**Tehsil**	**Village**
(1.)	West Bengal	Jalpaiguri	Rajganj	Dabgram

14. **Project configuration/product details**

S. No.	**Project configuration/product details**	**Quantity**	**Unit**	**Other Unit**	**Mode of Transport/Transmission of Product**	**Other Mode of Transport**
Mercantile: (B1+B2+G+V), Residential: (3 towers- G+XIII) MLCP: (G+VII)						

Raw Material Requirement details								
S. No.	Item	Quantity per annum	Unit	Other Unit	Source	Mode of Transport/Transmission of Product	Other Mode of Transport	Distance of Source from Project Site(Kilometers)
NIL								

DELIBERATION IN SEIAA

SEIAA considered the recommendation of SEAC and decided to request the PP for a hearing before the final decision on the EC application is taken.

RECOMMENDATIONS OF SEIAA

The project proponent is requested to appear for a hearing before the SEIAA, WB before a final decision on EC application is taken.

Conclusion
Deferred for for further consideration.

MISCELLANEOUS

1. Discussion on draft DSR of **Birbhum**.

   DSR of Birbhum is approved.

2. Complaint received from Mr. Ankur Sharma against flouting of environmental norms at "Embee Delight" at Anugul, Kadamtala, L.R. Dag Nos. 1487(p), 1497(p), 1498, 1499, 1500(p) to 1515, 1516(p) & 1517(p), Mouza – Baramohansingh, J.L. No. – 71, P.S. – Matigara, Siliguri, Dist. – Darjeeling, West Bengal.

   It was observed that no application for EC for the location mentioned in the complaint has been made to SEIAA till date.

   In order to assess the veracity of the complaint, a field inspection by WBPCB is to be organised with prior intimation to the project proponent.

3. Complaint received from Mr. Ankur Sharma against flouting of environmental norms at "Begraj Prakriti" at Medical More, Asian Highway – 2, P.S. – Matigara, Siliguri, Dist. – Darjeeling, West Bengal.

   It was observed that no application for EC for the location mentioned in the complaint has been made to SEIAA till date.

   In order to assess the veracity of the complaint, a field inspection by WBPCB is to be organised with prior intimation to the project proponent.

4. Request for rejection of recommendation of SEAC, WB with respect to online proposal no. SIA/WB/IND/69795/2019 of M/s. C. P. Re-Rollers Ltd.

   It is observed that the proposal was already considered in the 79th meeting of SEIAA held on 10.11.2022 and the application for EC was deferred for additional information including submission of Certified Compliance Report from PP.