



सत्यमेव जयते

राज्य स्तरीय पर्यावरण समाघात निर्धारण प्राधिकरण, झारखण्ड

State Level Environment Impact Assessment Authority, Jharkhand

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पत्रांक:- 51

दिनांक:- 28.04.2023

प्रेषक:

सदस्य सचिव,
राज्य स्तरीय पर्यावरण समाघात निर्धारण
प्राधिकरण (SEIAA), झारखण्ड।

सेवा में,

उपायुक्त,
जिला : देवघर।

विषय : देवघर जिला का बालू खनिज से संबंधित DSR के अनुमोदन के संबंध में।

प्रसंग : आपका कार्यालय का पत्रांक-455/खनन, दि0-13.04.2023।

महाशय,

उपर्युक्त विषयक आपके कार्यालय के प्रासंगिक पत्र दिनांक 13.04.2023 द्वारा देवघर जिला का बालू खनिज से संबंधित DSR की एक प्रति अनुमोदन हेतु दिनांक 16.04.2023 को SEIAA कार्यालय में समर्पित किया गया।

तदनुसार SEAC, झारखण्ड की 103वीं बैठक दिनांक 14.04.2023 से दिनांक 18.04.2023 में Shri Rajesh Kumar, DMO, Deoghar एवं Shri Biswadeep Kumar, Assistant Director, Geology, Deoghar की उपस्थिति में M/s Crystal Consultants, Ranchi, Jharkhand consultant द्वारा दिनांक 17.04.2023 में SEAC के समक्ष Presentation दिया गया, जिसमें DSR के Salient Feature निम्नवत् बताये गये :-

1. The final DSR submitted is duly signed by all members of the Sub Divisional Committee and the Consultant. All the pages of the DSR are signed by the authorized officer of the Sub Divisional Committee.
2. The final DSR consists of the complete potential area and is demarcated as Potential Resource Area (PRA) / Sand Leases / Ghats as per Enforcement and Monitoring Guidelines for Sand Mining (EMGSM), 2020.
3. The replenishment study of pre & post monsoon period is included in final DSR.

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4. The final DSR had been placed in the public domain for 01 (One) month from the 25.02.2023. As per the Sub Divisional Committee no comments / observations were obtained.
5. Demand and supply of the river bed material has been provided. The future demand for next 05 years is included in the final DSR.
6. The PRA / Sand Leases / Ghats have not been proposed on the confluence / meanders / concavities / active channels of the river.
7. Khata & Khasra numbers of the lease area certified by the concerned Circle Officer (CO) are incorporated in the final DSR.
8. The distance of PRA / Sand Leases / Ghats from the Forest / Wildlife Protected area / Birds Sanctuary / Wildlife Sanctuary / National Park / Eco Sensitive Zone has been verified and certified by the concerned DFOs of the respective Territorial and Wildlife division.
9. A report detailing the presence of aquatic animal in the river in proximity of the proposed PRA / Sand Leases / Ghats is included in the final DSR.
10. The proposed PRA / Sand Leases / Ghats meet the siting criteria of State Pollution Control Board / SEIAA.
11. High resolution color satellite images of the proposed potential sand mining areas are included in final DSR.
12. Bulk density and specific gravity of sand sample data has been provided by NABL accredited laboratory.
13. Cluster and contiguous cluster formation as per EMGSM guidelines, 2020 has been included in the Annexures.
14. Mining is restricted to 3/4th of the river width and 60% of the mineable reserve.
15. Transportation routes for movement of sand are provided in the final DSR.
16. All the annexures as per EMGSM guidelines, 2020 are included in the final DSR.
17. An undertaking with reference to Point no. 9.3 of the EMGSM guidelines, 2020 regarding monitoring of mining near inter-district or inter-state boundary has been provided.
18. The representative of the Sub Divisional Committee along with the Consultants have affirmed that all the guidelines of EMGSM guidelines, 2020 / Hon'ble Apex Court in Civil Appeal no. 3661-3662/2020, Pawan Kumar vs State of Bihar & ors, Hon'ble NGT in O.A. no. 54/2022/EZ, Bhumi Adhigrahan Visthapan Avam Punarvas Kisan Samiti vs State of Jharkhand & ors have been followed in preparation of the final DSR.

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SEAC द्वारा उपरोक्त तथ्यों के आलोक में सर्वसम्मति से आपके द्वारा समर्पित DSR को अनुमोदन हेतु SEIAA को अपनी अनुशंसा भेजी गयी।

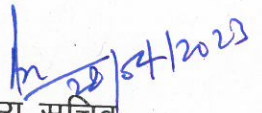
SEAC की DSR Deoghar को अनुमोदन हेतु भेजी गयी अनुशंसा के आलोक में SEIAA, झारखण्ड की 104वीं बैठक दिनांक 27.04.2023 एवं दिनांक 28.04.2023 में विचार किया गया।

विचारोपरांत SEAC द्वारा की गयी अनुशंसा के आलोक में SEIAA द्वारा सर्वसम्मति से देवघर जिला का बालू खनिज से संबंधित DSR का अनुमोदन किया गया।

देवघर जिला का बालू खनिज से संबंधित अनुमोदित DSR की एक मूल प्रति अत्र-सह-संलग्न कर आपको अग्रतर कार्रवाई हेतु भेजी जा रही है।

अनु० यथोक्त।

विश्वासभाजन,


सदस्य सचिव,

राज्य स्तरीय पर्यावरण समाघात निर्धारण
प्राधिकरण (SEIAA), झारखण्ड।





DISTRICT SURVEY REPORT (DSR) FOR SAND MINING

District : Deoghar (Jharkhand)

As per Notification No.- S.O.141 (E), 15th January, 2016 & S.O.3611 (E),
25th July, 2018, of Ministry of Environment Forest and Climate change,
Government of India, New Delhi
YEAR - 2023



PREPARED BY :	SIGMA RESOURCE DEVELOPMENT CONSULTANTS PRIVATE LIMITED	
	Consortium with	
		
	M/s CRYSTAL CONSULTANTS A QCI (NABET) ACCREDITED CONSULTANTS	
	CERTIFICATE NO.: NABET/EIA/2124/RA 0232	
	VALIDITY : 16/08/2024	

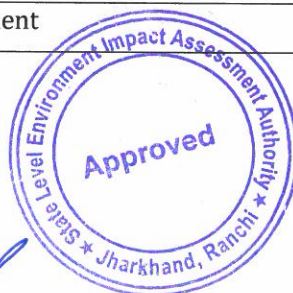
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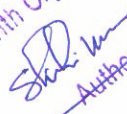
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VI	Final List of Cluster & Contiguous Cluster Clusters:
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B	Pre monsoon data (certified by DMO)
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E	NOC from DFO(T)
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CERTIFICATE

The District Survey Report (DSR) for River Bed Sand Mining of Deochar District has been prepared by SIGMA Resource Development Consultants Private Limited in association with M/s Crystal Consultants, a QCI (NABET) accredited consultancy firm (Certificate No. : NABET/EIA/2124/RA 0232 & Validity : 16/08/2024).

- District Survey Report of River Bed Sand Mining in the district is prepared under:
- ✓ MOEF & CC, Gol notification S.O. 141 (E) dated 15/01/2016
 - ✓ Sustainable Sand Mining Guidelines, 2016
 - ✓ Sand Policy of Govt. of Jharkhand, 2017
 - ✓ MOEF & CC, Gol notification S.O. 3611 (E) dated 25/07/2018
 - ✓ Enforcement and Monitoring Guidelines for Sand Mining 2020
 - ✓ Jharkhand Minor Mineral Concession Rule, 2021

The information mentioned in the District Survey Report for River Bed Sand Mining of Deochar District, Jharkhand are correct to the best of our knowledge and behalf.

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The District Survey Report (DSR) for River Bed Sand Mining of Deoghhar District has been prepared by SIGMA Resource Development Consultants Private Limited in association with M/s Crystal Consultants, a QCI (NABET) accredited consultancy firm (Certificate No.: NABET/EIA/2124/RA 0232 & Validity : 16/08/2024).

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- ✓ Enforcement and Monitoring Guidelines for Sand Mining 2020
- ✓ Jharkhand Minor Mineral Concession Rule, 2021

The information mentioned in the District Survey Report for River Bed Sand Mining of Deoghhar District, Jharkhand are correct to the best of our knowledge and behalf.

District Survey Report: DSR/Deoghhar/001

CERTIFICATE


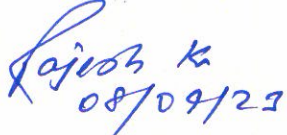

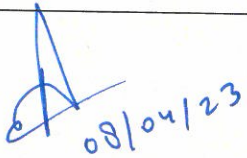
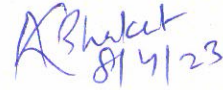
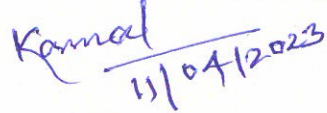
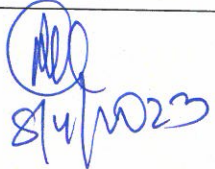
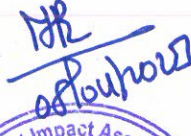

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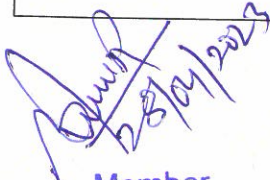


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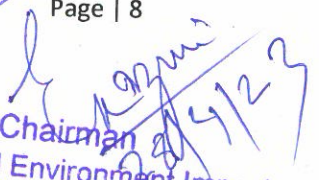


District Survey Report: DSR/Deoghar/001
SIGNATURE OF DISTRICT AUTHORITIES

Assistant Director (Geology), Deoghar	 11/04/2023
District Mining Officer, Deoghar	 08/04/23
SUB-DIVISIONAL COMMITTEE	
Sub-Divisional Magistrate, Deoghar	 13/4/23
Sub-Divisional Magistrate, Madhupur	 08/04/23
Executive Engineer, Minor Irrigation Circle, Deoghar	 08/4/23
Regional Officer, State Pollution Control Board, Deoghar	 11/04/2023
Divisional Forest Officer, Deoghar	 8/4/2023
DEPUTY COMMISSIONER, Deoghar	 08/04/23
MEMBER SECRETARY, STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY, JHARKHAND	


 Member
 State Level Environment Impact
 Assessment Authority, Jharkhand


 Member Secretary
 State Level Environment
 Impact Assessment Authority,
 Jharkhand


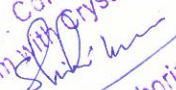

 Chairman
 State Level Environment Impact
 Assessment Authority, Jharkhand

EXECUTIVE SUMMARY



Executive Summary

1. This DSR for Sand Mining in Deoghar District has been prepared keeping in consideration provisions in following documents
 - SSMG – 2016
 - EMGS – 2020
 - Sand Policy of Jharkhand State 2017
 - Gazette Notification no 141(E) dt. 15.01.2016 & 3611 dt. 25.07.2018
2. This Report has been structured as recommended in Gazette Notification no 3611 Dt.- 25thJuly,2018
3. Rivers flowing through the district where lease or sand mining can be allotted were preliminarily identified on close study SOI Toposheet (1:50000) & KML map.
4. Potential Resource Area (PRA), which are stretch of length of river which is in mining zone as per provisions of EMGSM 2020 & SSMG 2016, were identified & marked on Toposheet.
5. In the district twenty six numbers of PRA's have been identified & finalised.
6. This was followed by reconnaissance field survey. During survey location of PRAs were finalised.
7. After finalizing location of PRAs, field survey was conducted using D.G.P.S.
8. Temporary Bench Mark (TBM) were located near identified rivers. Reduced level(R.L) of these TBMs were determined by fly-levelling method of survey using Auto level. Reference Reduced Level were taken from nearest Railway Station (Deoghar).
9. Geographical co-ordinates of cardinal points of identified PRA were measured by GPS.
10. Every PRA were divided into 10m x 10m grid.
11. Co-ordinates and reduced level of centre of grid were measured during field survey.
12. Reduced level of relevant points within every PRAs were measured during post monsoon period (Nov – Dec 22).
13. Reduced level at different points on sand deposits in different identified PRAs during pre-monsoon period were obtained from the District Mining Office.


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14. Annual rate of replenishment of sand in PRAs has been determined using pre-monsoon observed / measured RL.
15. Land details covered in every PRA in respect of Plot No., Thana No. & name of mauza have been determined by use of mauza maps. These details are given in this Report.
16. Every PRA have been assigned an unique identification no. (UIN).
17. Based on data collected during field survey, Gross Geological Reserve & mineable reserve of sand available in every PRA have been calculated.
18. On both sides of PRA, 1/8th width of river will be left as no-mining zone. Mining will be confined to 3/4 of river Reserve of sand available in 3/4th width of river is mineable reserve. As per guidelines 60% of this mineable reserve is treated as extractable reserve.
19. Transport route for every PRA have been marked on Toposheet.
20. After this Report is approved by SEIAA, district authorities will issue LOI for allotment of lease for sand mining Identified PRA will be split into suitable size for allotment of lease.

In this district PRAs have been identified on identified rivers (3 rivers in Table-14). Table-14 shows river wise 26 no. of PRAs in the district works out to 634Ha & total extractable reserve works out to 84,04,400 m³. Total demand of sand for the district has been assessed as 9,25,418 MT. Total demand of sand for the district has been assessed based on guidelines given in document titled "Framework for Sand Mining" published by Ministry of Mines G.O.I.

Details covering name of rivers identified for sand mining, no. of identified Potential Resource Area (PRA) their unique identification number (UIN), Area of identified PRAs, Geological reserve & extractable reserve are given in Table-14 in the report.

Plate 2, show rivers identified for sand mining & location of identified PRAs and transport routes for evacuation of mined out sand.

Methodology for assessment of demand of sand for the district is given in Para 1.4.

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CHAPTER-I



CHAPTER - I INTRODUCTION

1.1 Regulatory Frame Work

EIA notification 1994 published by MoEF & CC mandated that all mining project of all major minerals having lease area more than 5Ha will have to obtain Environment clearance from designated regulatory authority. Mining projects for minor minerals were exempted from obtaining environment clearance.

EIA notification No. 1533 dated 14/09/2006 mandates that all activities listed in the schedule attached with the notification are required to obtain environment clearance from competent regulators. Mining activities are listed at Sl. No. 1(a) in the schedule. This notification exempted mining activities having lease area less than 5 Ha. from obtaining environment clearance.

Hon'ble Supreme Court in its judgement at 27th February, 2012 in 1A No. 12-13 of 2011 in special leave petition (C) No. 10628-19629 of 2009 in the matter of Deepak Kumar VS State of Haryana & other made prior environment clearance mandatory for minor minerals irrespective of area of mining lease. In order to comply with judgment of Hon'ble Supreme Court the MoEF & CC issued SO 141(E) dt. 15/01/2016. Further MoEF & CC published Sustainable Sand Mining Management Guidelines 2016 for scientific and sustainable sand mining in the Country. The recommendations for the management of sustainable sand extraction are the key objective of the Guidelines. This guideline recommended preparation of District Survey Report for potential sand mining lease in the District. Further the MoEF & CC vide notification SO 3611 (E) dt. 25/07/2018 provided the details on structure of DSR for sand mining projects.

1.2 Preparation of District Survey Report

"Sustainable Sand Mining Guidelines, 2016" issued by MoEF & CC recommends preparation of District Survey Report (DSR), which is an important initial step before grant of mining lease/LoI. The guidelines emphasize detailed procedure to be followed for the purpose of identification of areas of aggradation/deposition where mining can be allowed and identification of areas of erosion and proximity to infrastructural structures and installation where mining should be prohibited. Calculation of annual rate of replenishment, allowing time for replenishment after mining, identification of ways of scientific and systematic mining, identifying measures for protection of environment and ecology and determining measures for protection of bank erosion fixing benchmark (BM) with respect to Mean Sea Level (MSL) should be made essential in mining channel reaches (MCR) below which no mining shall be allowed.

Therefore, preparation of District Survey Report is a very important step for sustainable sand mining in any part of the country will depend on the quality of District Survey Report. Considering the importance of District Survey Report (DSR), the Ministry of Environment Forest and Climate Change, after consultation with experts dealing with mining-related matters, formulated the

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following guidelines for the preparation of comprehensive District Survey Report for sand mining.

- a) District Survey Report for sand mining shall be prepared before the auction/e-auction/grant of the mining lease/Letter of Intent (LoI) by Mining department or department dealing the mining activity in respective states.
- b) The first step is to develop the inventory of the River Bed Material in the District. In order to make the inventory of River Bed Material, a detailed survey of the district needs to be carried out, to identify the source of River Bed Material.
- c) District Survey Report is to be prepared in such a way that it not only identifies the mineral-bearing area but also define the mining and no mining zones considering various environmental and social factors.
- d) Defining the sources of 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. Once the area of aggradation/deposition are identified, then the quantity of River Bed Material available needs to be calculated. The next step is channelization of the river bed and for this central $\frac{3}{4}$ th part of the river, width needs to be identified on a map. Out of the $\frac{3}{4}$ th part area, where there is a deposition/aggradation of the material needs to be identified. The remaining $\frac{1}{4}$ th 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 analysing 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.
- e) 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 of the area needs to be defined in sensitive and non-sensitive area.
- f) 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.
- g) The final area selected for the mining should be then divided into mining lease as per the requirement of State Government. It is suggested that the mining lease area should be so selected as to cover the entire depositional 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. 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

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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.

- i) 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.
- j) 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.
- k) Potential site for mining having its impact on the forest, protected area, habitation, bridges etc, shall be avoided. For this, a sub-divisional committee may be formed which after the site visit shall decide its suitability for mining. The Sub-Divisional Committee after the site visit shall make a recommendation on the site for its suitability of mining and also records the reason for selecting the mining lease in the Patta land.
- l) 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.

1.3 Structure of DSR

Ministry of Environment, Forest & Climate Change has formulated "Enforcement and Monitoring Guidelines for Sand Mining 2020" to serve uniform protocol for monitoring & enforcement of regulatory provision prescribed for sustainable sand and gravel mining. Guideline serves as a guideline for collection of critical information for enforcement of regulatory provisions and also highlights the essential infrastructural requirements necessary for effective monitoring for sustainable sand mining. This documents supplement to "Sustainable Sand Mining Management Guideline - 2016"

The structure of DSR suggested by MoEF & CC vide its notification S.O. 3611 (E) dated 25/07/2018 is given below;

1. Introduction
2. Overview of Mining Activity in the District
3. The List of Mining Leases in the District with Location, Area & Period of Validity



4. Details of Royalty or Revenue Received in Last Three Years
5. Detail of Production of Sand or Bajri or Minor Mineral in Last Three Years
6. Process of Deposition of Sediments in the Rivers of the District
7. General Profile of the District
8. Land Utilization Pattern in the District: Forest, Agriculture, Horticulture, Mining etc.
9. Physiography of the District
10. Rainfall: Month-Wise
11. Geology & Mineral Wealth

1.4 Demand and Supply

Demand and supply of the river bed material through market survey needs to be carried out. In addition to this, future demand for the next five year also needs to be considered to justify the number and area of the sandghat to be included in the final DSR.

In this case demand for sand has been estimated as given below:

Ministry of Mines in the Govt. of India circulated a document titled "Sand Mining Framework". This document includes a paragraph on (Para 1.2.2) "demand supply estimation".

This document lays down two methodologies for estimation for demand for sand.

(A) RBI Index Based Methodology

State wise demand for sand in a State may be estimated in following manner

- i. Collect India's Construction GVA (RBI Handbook of Statistics on Indian Economy – Rs. 946396 Crore
- ii. Collect Jharkhand's construction GVA from RBI Handbook of statistics on Indian Economy – Rs. 20482 Crores.
- iii. Ratio of GVA for construction for India is calculated $20482/946396 = 0.0216$
- iv. Obtain information on total sale of cement in the country during the period – 379MT (Source – website statistics)
- v. Obtain quantity of cement sold in Jharkhand = $379 \times 0.0216 = 8.1864 \times 10^6$ MT
- vi. Quantity of Sand = Qty. of cement x conversion factor 2.5
 $= 8.1864 \times 2.5 = 20.46 \times 10^6$ MT
 $= 20,460,000$ mt
Bulk Density 1600 Kg/m^3

Volume of Sand = $12,787,500 \text{ cum} = 12.787 \text{ M cum}$

Projected Rate of growth of Economy World Bank has revised upward its GDP growth forecast for India to 6.9% for 2022-23

Growth of demand in sand will follow the rate of growth in GDP.

Specific demand for sand for the district of Deoghar has been estimated taking into consideration the population of Jharkhand and Deoghar district. The total demand for sand for Deoghar district has been obtained by multiplying the ratio of population of Deoghar to population of Jharkhand

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with total demand of the State. Using this logic total demand of sand for Deoghar brought out to 925418 Mt.

Only five sand ghats, as listed in Table-3, Chapter-V. Operated in the past total amount of sand mined from these ghats worked out to 34,98,100 cft.

This demand will grow @ 7 % per year in future (as per budget 2023).

Potential Resource Areas (PRAs) have been identified based on estimated demand for sand in future.



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1.5 Aquatic Animal Resource in the Area

The undertaking regarding presence of aquatic animal in the river in proximity of the proposed potential area should be verified and certified by concerned Govt. Departments like Zoological Survey of India (ZSI).

Accordingly, a letter has been addressed to Director, Zoological Survey of India with a request to kindly furnish a report on list of aquatic faunal resource found in the area. So far no response has been received from Director ZSI.

Subsequently, a letter has been addressed to District Fishery Department. District Fishery Department furnish a list of aquatic flora and fauna which is attached in Annexure-G.

Detailed information have been obtained from a document titled "Faunal Resource & Assessment of impact of Mining Activities on Fauna of Chotanagpur area in Jharkhand" occasional paper No. 361 ZSI, Kolkata. The report includes list of aquatic animals including Amphibians & pisces. List of Amphibians & pisces are given below:

Class: AMPHIBIA

Order: OSTEOGLOSSIFORMES Family: NOTOPTERIDAE

1. *Notopterus notopterus* Pallas

Order: CYPRINIFORMES Family: CYPRINIDAE

2. *Amblypharyngodon mola* (Hamilton)
3. *Barilius bendelisis* (Hamilton)
4. *Catla catla* (Hamilton)
5. *Cirrhinus mrigala* (Hamilton)


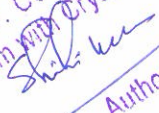


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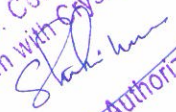
Name of the species
6. <i>C. reba</i> (Hamilton)
7. <i>Crossochilus latius latius</i> Hamilton
8. <i>Danio dangila</i> (Hamilton)
9. <i>D. rerio</i> (Hamilton)
10. <i>Esomus danricus</i> (Hamilton)
11. <i>Garra annandalei</i> Hora
12. <i>G. gotyla</i> (Gray)
13. <i>G. mullya</i> (Sykes)
14. <i>G. satyendranathi</i> Ganguly & Datta
15. <i>Labeo rohita</i> (Hamilton)
16. <i>L. boggut</i> (Hamilton)
17. <i>L. calbasu</i> (Hamilton)
18. <i>Osteobrama cotio cotio</i> (Hamilton)
19. <i>Puntius chola</i> (Hamilton)
20. <i>P. conchonus</i> (Hamilton)
21. <i>P. guganio</i> (Hamilton)
22. <i>P. sophare</i> (Hamilton)
23. <i>P. ticto</i> (Hamilton)
24. <i>Rasbora daniconius</i> (Hamilton)
25. <i>R. Megarashtra elanga</i> (Hamilton)
26. <i>Salmophasia acinaces</i> (Valenciennes)
27. <i>Salmophasia bacaila</i> (Hamilton)


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Name of the species
28. <i>Tor tor</i> (Hamilton) Family: COBITIDAE
29. <i>Lepidocephalichthus guntea</i> (Hamilton) Family: NEMACHEILIDAE
30. <i>Acanthocobitis botia</i> (Hamilton)
31. <i>Schistura dayi</i> Hora
32. <i>S. denisonii</i> Day
33. <i>S. savona</i> (Hamilton)
34. <i>Nemacheilus subfusca</i> (McClelland)
35. <i>Schistura zonata</i> (McClelland) Order: SILURIFORMES Family: BAGRIDAE
36. <i>Spesata aor</i> (Hamilton)
37. <i>Mystus cavasius</i> (Hamilton) Family: SCHILBEIDAE
38. <i>Pseudeutropius atherinoides</i> Family: AMBLYCIPITIDAE
39. <i>Amblyceps mangois</i> (Hamilton) Family: SISORIDAE
40. <i>Gogata cenia</i> (Hamilton)
41. <i>G. sexualis</i> Tilak
42. <i>Glyptothorox coheni</i> Ganguli, Datta & Sen


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Name of the species

Family: CLARIIDAE

43. *Clarias magur* (Hamilton)

Family: HETEROPNEUSTIDAE

44. *Heteropneustes fossilis* (Bloch)

Order: CHANNIFORMES

Family: CHANNIDAE

45. *Channa marulius* (Hamilton)

46. *C. punctatus* (Hamilton)

47. *C. gachua* (Hamilton)

48. *C. striatus* (Bloch)

Order: PERCIFORMES

Family: CHANDIDAE

49. *Parambassis baculis* Hamilton

50. *Chanda nama* Hamilton

51. *Parambassis ranga* Hamilton Family: NANDIDAE

52. *Nandus nandus* (Hamilton)

Family: CICHLIDAE

53. *Oreochromis mossambica* (Peters)

Family: MUGILIDAE


54. *Sicamugil cascasia* (Hamilton)



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Name of the species
Family: GOBIIDAE 55. <i>Glossogobius giuris</i> (Hamilton)
Family: ANABANTIDAE 56. <i>Anabas testudineus</i> (Bloch)
Family: BELONTIDAE 57. <i>Trichogaster fasciata</i> (Schneider)
Order: MASTACEMBELIFORMES Family: MASTACEMBELIDAE 58. <i>Mastacembelus armatus</i> (Lacepede)
59. <i>Macrornathus panchalus</i> (Hamilton)


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Class: PISCES

Subclass: TELEOSTOMI
Order: OSTEOGLOSSIFORMES

Family: NOTOPTERIDAE

1. *Notopterus notopterus* Pallas

Order: CYPRINIFORMES

Family: CYPRINIDAE

2. *Amblypharyngodon mola* (Hamilton)
3. *Barilius bendelisis* (Hamilton)
4. *Catla catla* (Hamilton)
5. *Cirrhinus mrigala* (Hamilton)
6. *C. reba* (Hamilton)
7. *Crossochilus latius latius* Hamilton
8. *Danio dangila* (Hamilton)
9. *D. rerio* (Hamilton)
10. *Esomus danricus* (Hamilton)
11. *Garra annandalei* Hora
12. *G. gotyla* (Gray)
13. *G. mullya* (Sykes)
14. *G. satyendranathi* Ganguly & Datta
15. *Labeo rohita* (Hamilton)
16. *L. boggut* (Hamilton)
17. *L. calbasu* (Hamilton)
18. *Osteobrama cotio cotio* (Hamilton)
19. *Puntius chola* (Hamilton)
20. *P. conchonus* (Hamilton)
21. *P. guganio* (Hamilton)
22. *P. sophare* (Hamilton)
23. *P. ticto* (Hamilton)
24. *Rasbora daniconius* (Hamilton)
25. *R. Megarashtra elanga* (Hamilton)
26. *Salmophasia acinaces* (Valenciennes)
27. *Salmophasia bacaila* (Hamilton)

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28. *Tor tor* (Hamilton)
Family: COBITIDAE
29. *Lepidocephalichthus guntea*
(Hamilton)
Family: NEMACHEILIDAE
30. *Acanthocobitis botia* (Hamilton)
31. *Schistura dayi* Hora
32. *S. denisonii* Day
33. *S. savona* (Hamilton)
34. *Nemacheilus subfusca* (McClelland)
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- Order: SILURIFORMES
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37. *Mystus cavasius* (Hamilton)
38. Family: SCHILBEIDAE
39. *Pseudeutropius atherinoides*
Family: AMBLYCIPITIDAE
40. *Amblyceps mangois* (Hamilton)
- Family: SISORIDAE
41. *Gogata cenia* (Hamilton)
42. *G. sexualis* Tilak
43. *Glyptothorox coheni* Ganguli, Datta & Sen

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Family: CLARIIDAE

43. *Clarias magur* (Hamilton)

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44. *Heteropneustes fossilis* (Bloch)

Order: CHANNIFORMES

Family: CHANNIDAE

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48. *C. striatus* (Bloch)

Order: PERCIFORMES

Family: CHANDIDAE

49. *Parambassis baculis* Hamilton

50. *Chanda nama* Hamilton

51. *Parambassis ranga* Hamilton

Family: NANDIDAE

52. *Nandus nandus* (Hamilton)

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53. *Oreochromis mossambica* (Peters)

Family: MUGILIDAE

54. *Sicamugil cascasia* (Hamilton)

Family: GOBIIDAE

55. *Glossogobius giuris* (Hamilton)

Family: ANABANTIDAE

56. *Anabas testudineus* (Bloch)

Family: BELONTIDAE

57. *Trichogaster fasciata* (Schneider)

Order: MASTACEMBELIFORMES

Family: MASTACEMBELIDAE

58. *Mastacembelus armatus* (Lacepede)

59. *Macrognathus panchalus* (Hamilton)



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1.6 PRAs located near inter district / interstate boundary

In this district there is no PRA that is located on inter district /interstate boundary as per CO report.

1.7 This report has been prepared based on following guideline laid down in two documents namely

- Sustainable Sand Mining Guidelines – 2016
- Enforcement & Monitoring guidelines for Sand Mining – 2020

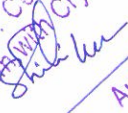
This document has been structured in line with recommendation in Gazette Notification No. 3611 dated 25.07.2018.

In this document Potential Resource Areas for Sand Mining have been identified. These identified PRA's may be split into suitable size for allotment of mining lease. Siting criteria prescribed by Jharkhand State Environment Impact Assessment Authority & Jharkhand State Pollution Control Board for mining projects is attached in Annexure – K for ready reference at the time of splitting the PRA for mining lease.

An advertisement was published on local newspaper dated 28 February, 2023 and the draft DSR was uploaded on district portal from 25 February, 2023 to 25th March, 2023 for public consultation. The final DSR have been submitted to SEIAA after vetted by Sub-Divisional Committee.

1.8 Transport Route

Transport Routes for evacuation of sand mined from different PRAs have been marked for every finalised PRAs. These routes connect a particular PRA's to nearest District Road/State Highway/National Highway. They are enclosed at Annexure – A - VII


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CHAPTER-II



CHAPTER – II : OVERVIEW OF MINING ACTIVITY IN THE DISTRICT

After the exploration of coal by GSI and CMPDI, Deoghar became famous for coal mining. Therefore coal constitutes the major portion of the royalty earned by the district other mining activities includes tone quarrying both dolerite and granite. Dolerite is used for construction purposes due to its durability and granite is mined for both as a construction material and as a decorative stone, depending on its engineering properties. Along with these minerals Sandstone is also mined for decorative purpose. Other minerals that are mined includes quartz and feldspar. Sand mining in the river channels is also prevalent in the district. Copper mining is reported in the past.

Mineral Map of the District is given in fig. 1 below:

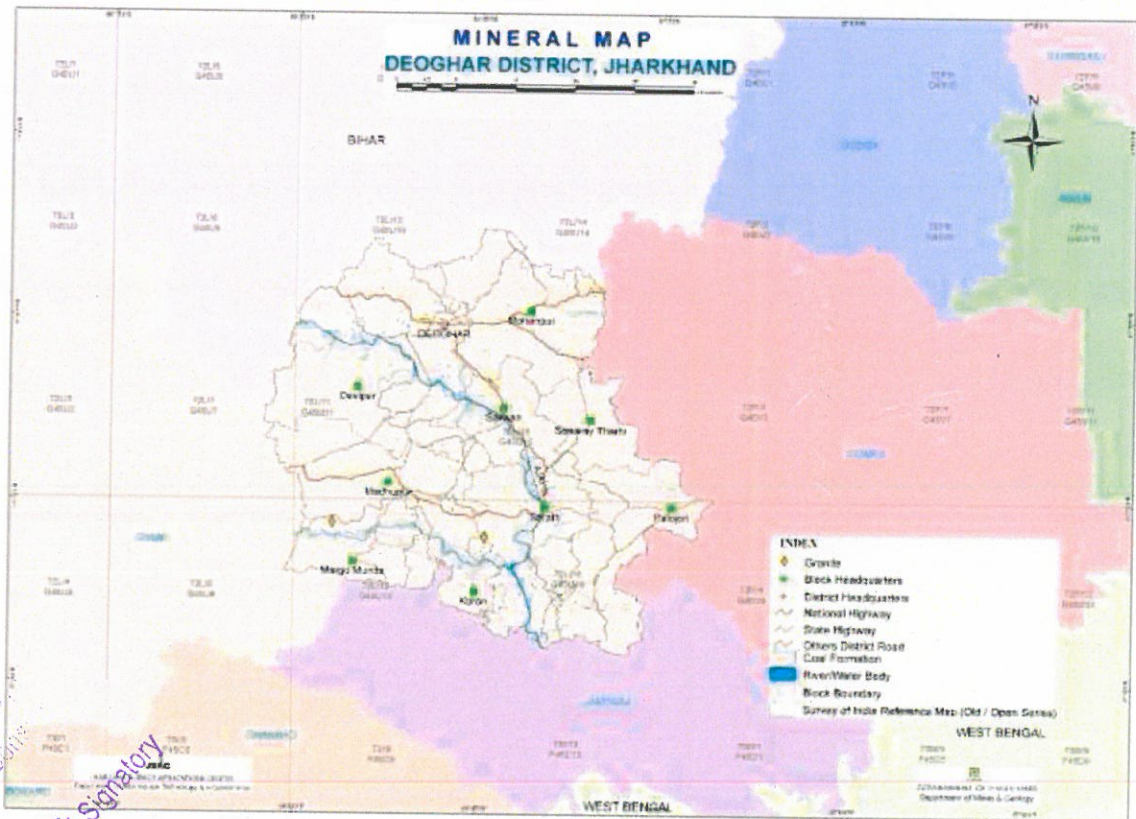


Fig. 1 Mineral Map of the District (Source-JSAC)

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CHAPTER-III



CHAPTER - III :: THE LIST OF SAND MINING LEASES IN THE DISTRICT WITH LOCATION, AREA & PERIOD OF VALIDITY

Table: 1

Sl. No.	Name of Sandghats	Name of River	Area (Ha.)	Location	Co-ordinate	Issue Date of EC	Remarks
1.	Tetariyatn sand ghat mines on Jayanti river over an area of 4.82Ha at village Tetariyatn, dist-Deoghar, Jharkhand,M/s Jharkhand State Mineral Development Corporation Ltd.	Jayanti River	4.82	Village: Tetariyatn Plot No.: 1(P), 181(P) Tehsil : Karon District: Deoghar State : Jharkhand	Latitude: 24°11'57.60" N to 24°12'05.50" N Longitude: 86°41'15.9"E to 86°41'44.0"E	05/06/2019	Proponent: M/s JSMDCLtd. As per Jharkhand Sand Policy 2017
2.	Raniganj Sand Ghat over an area of 3.63 Ha at Mouza Raniganj No.130, P.S. Sarath, Deoghar, Jharkhand of M/s Jharkhand State Mineral Development Corporation	Ajay River	3.63	Village: Raniganj Plot No.: 369 (P) Tehsil : Sarath District: Deoghar State: Jharkhand	Latitude: 24°15'4.0" N to 24°15'14.0"N Longitude: 86°49'50.3" E to 86°49'54.6"E	05/06/2019	Proponent: M/s JSMDCLtd. As per Jharkhand Sand Policy 2017
3.	Pandaniya Sand Ghat on Jayanti River over an area of 3.89 Ha at Vill: Pandaniya, Deoghar, Jharkhand Lessee: Jharkhand State Mineral Development Corporation	Jayanti River	3.89	Village: Pandaniya Plot No.: 2995 (P) & 1639 (P) Tehsil : Madhupur District: Deoghar State: Jharkhand	Latitude: 24°12'45.7"N to 24°12'49.0"N Longitude: 86°27'26.9" E to 86°37'55.6"E	05/06/2019	Proponent: M/s JSMDCLtd. As per Jharkhand Sand Policy 2017
4.	Jugtopa Sand Ghat on Jayanti river over an area of 3.64 Ha, at vill: Jugtopa, Dist Deoghar, Jharkhand of M/s Jharkhand State Mineral Development Corporation Ltd.	Jayanti River	3.64	Village: Jugtopa Plot No.: 159 (P) Tehsil : Karaon District: Deoghar State: Jharkhand	Latitude: 24°12'06.3" N to 24°12'15.5" N Longitude: 86°40'26.7" E to 86°40'44.9"E	05/06/2019	Proponent: M/s JSMDCLtd. As per Jharkhand Sand Policy 2017
5.	Basatpur and Maljhar river bed sand mines on Ajay river over an area of 4.57Ha at village Basatpur, and Maljhar dist-Deoghar, Jharkhand, M/s Jharkhand State Mineral Development Corporation Ltd.	Ajay River	4.57	Village: Basantpur & Maljhar. Plot No.: 383 (P) & 145 (P) Tehsil : Karaon District: Deoghar State: Jharkhand	Latitude: 24°28'08.6" N to 24°28'22.6" N Longitude: 86°36'15.5"E to 86°36'29.4"E	05/06/2019	Proponent: M/s JSMDCLtd. As per Jharkhand Sand Policy 2017



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CHAPTER-IV



CHAPTER – IV :: DETAILS OF ROYALTY OR REVENUE RECEIVED IN LAST THREE YEARS

Royalty received in last three financial years by District Mining Office, Deoghar are given below in Table 2:

Table: 2
Details of Royalty or Revenue received in Last Three Year

Mineral	Royalty & Cess		
	2019-2020	2020-2021	2021-2022
Sand	1028975.00	1950370.00	2698000.00
Bajri	Nil	Nil	Nil

Source: Data Received from District Mining Office, Deoghar

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CHAPTER-V



CHAPTER - V : DETAIL OF PRODUCTION OF SAND OR BAJRI OR MINOR MINERAL IN LAST THREE YEARS

As per the sand policy, 2017 the JSMDC has been empowered to operate sandghats all over the state. Last 3 year production of sand or bajri in Deoghar district are given in Table 3;

Table: 3
Details of Production of Sand received in Last Three Year

Mineral	Production (CFT)		
	2019-2020	2020-2021	2021- 2022
Sand	428100.00	802850.00	2267150.00
Bajri	Nil	Nil	Nil

Source: Data Received from District Mining Office, Deoghar

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CHAPTER-VI



CHAPTER – VI: PROCESS OF DEPOSITION OF SEDIMENTS IN THE RIVERS OF THE DISTRICT

6.1 Introduction

Sediment transport is the movement of organic and inorganic particles by water. In general, the greater the flow, the more sediment that will be conveyed. Water flow can be strong enough to suspend particles in the water column as they move downstream, or simply push them along the bottom of a waterway. Transported sediment may include mineral matter, chemicals and pollutants, and organic material.

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



Fig. 2 Sediment can be carried downstream by water flow (Source-CGWB)

6.2 Bedload

Bedload particles travel with water flow by sliding or bouncing along the bottom. 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.



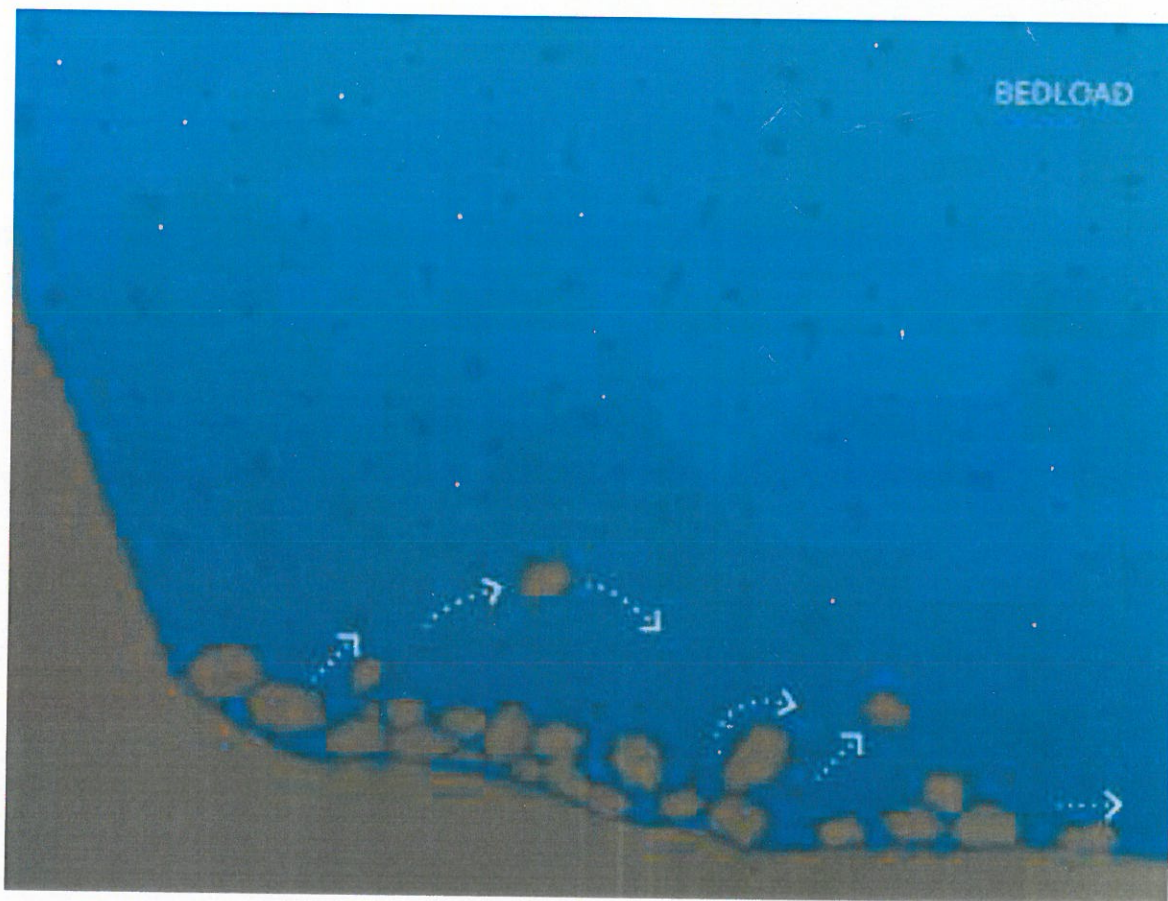


Fig. 3 Bedload (Source-CGWB)

6.3 Suspended Load

If the water flow is strong enough to pick up sediment particles, they will become part of the 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.

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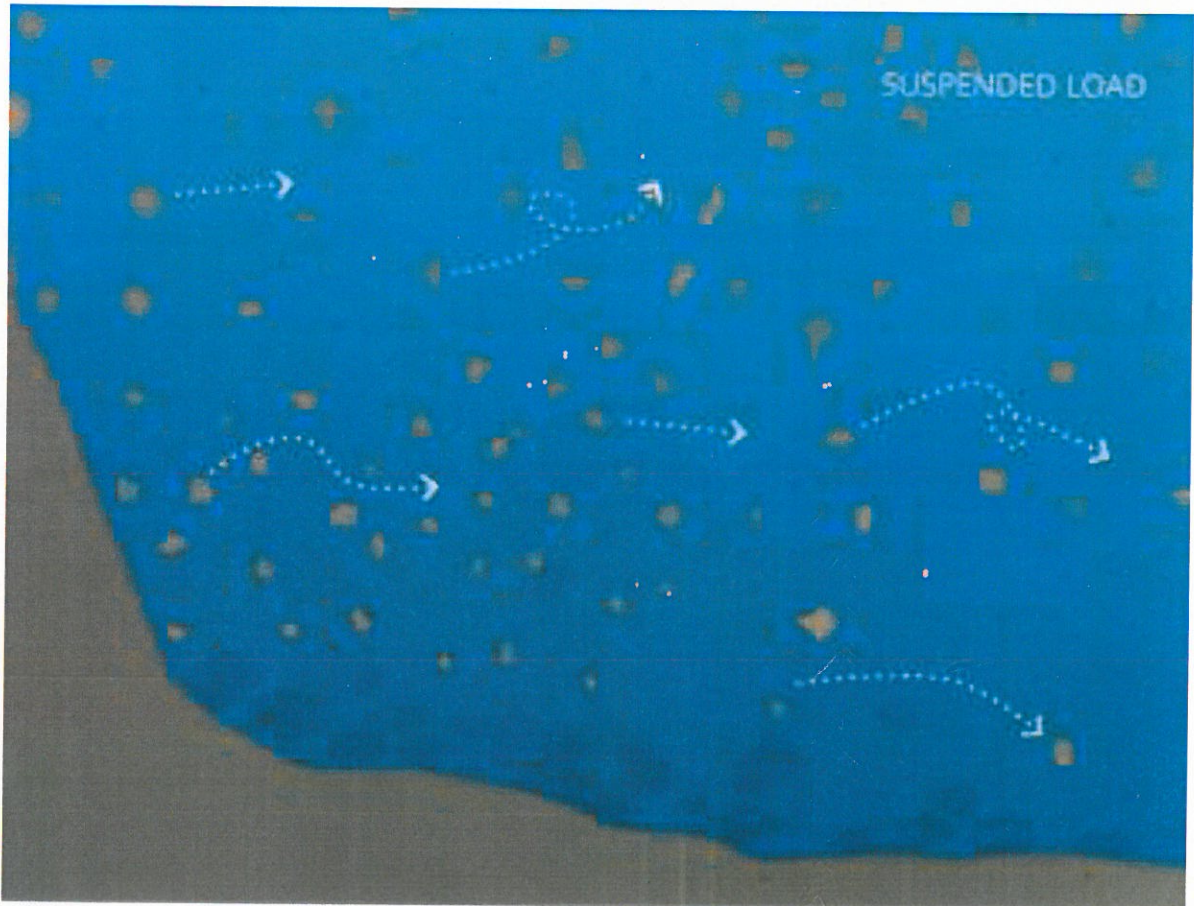


Fig. 4 Sediment Transport Mode (Source-CGWB)

6.4 Wash Load

The wash load is the portion of sediment that will remain suspended even when there is no water flow. The wash load is a subset of the suspended load. This load is comprised 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. Turbidity in lakes and slow moving rivers is typically due the wash load. When the flow rate increases (increasing the suspended load and overall sediment transport), turbidity also increases. While turbidity cannot be used to estimate sediment transport, it can approximate suspended sediment concentrations at a specific location.



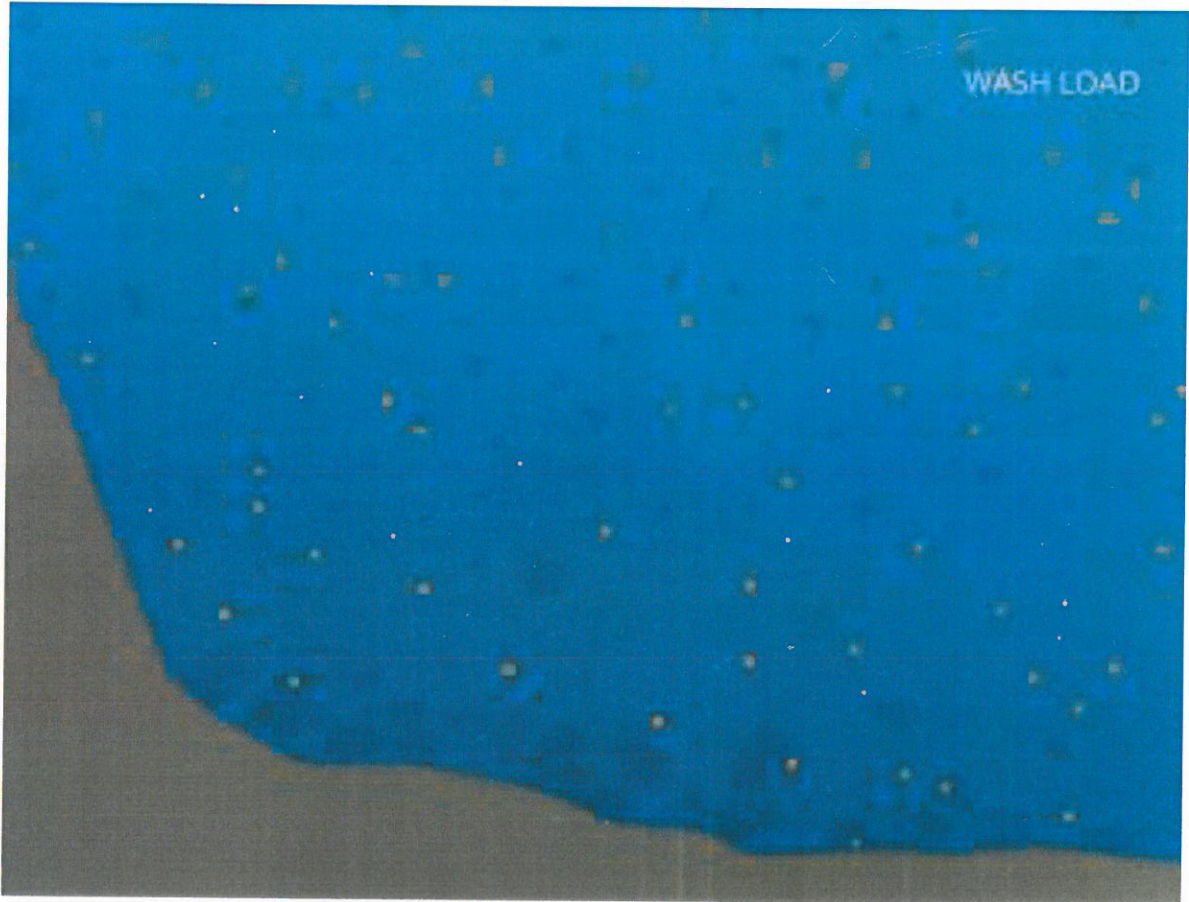


Fig. 5 Wash Load (Source-CGWB)

6.5 Settleable Solids

The suspended particles that fall to the bottom of a water body are called settleable solids. As they are found in riverbeds and streambeds, these settled solids are also known as bedded sediment. The size of settleable solids will vary by water system – in high flow areas, larger, gravel-sized sediment will settle out first. Finer particles, including silt and clay, can be carried all the way out to an estuary or delta.

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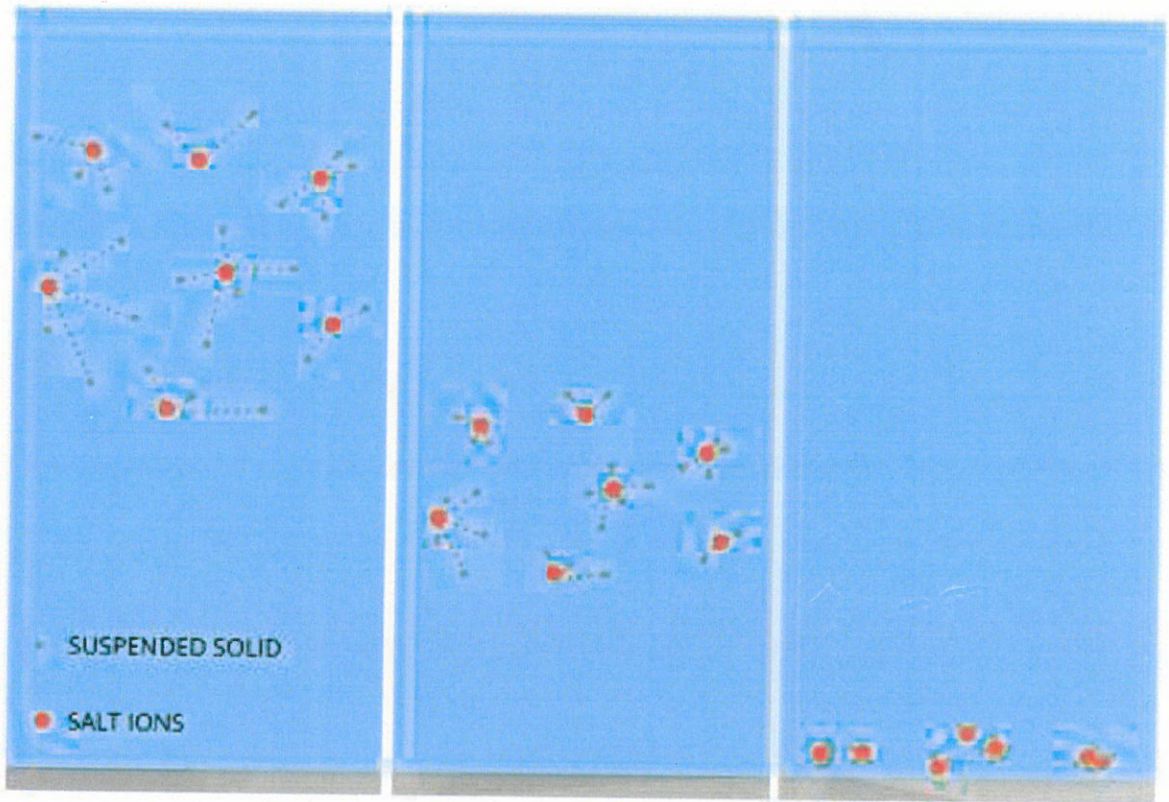


Fig. 6 Settleable Solid (Source-CGWB)

6.6 Sediment Deposition

When the flow rate changes, some sediment can settle out of the water, adding to point bars, channel bars and beaches. Sediment is necessary to the development of aquatic ecosystems through nutrient replenishment and the creation of benthic habitat and spawning areas 10. These benefits occur due to sediment deposition – when suspended particles settle down to the bottom of a body of water. This settling often occurs when water flow slows down or stops, and heavy particles can no longer be supported by the bed turbulence. Sediment deposition can be found anywhere in a water system, from high mountain streams, to rivers, lakes, deltas and floodplains. However, it should be noted that while sediment is important for aquatic habitat growth, it can cause environmental issues if the deposition rates are too high, or too low.

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Fig. 7 Sediment Deposition (Source-CGWB)

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CHAPTER-VII



CHAPTER – VII: GENERAL PROFILE OF THE DISTRICT

7.1 Introduction

General Profile of the district is given below in the Table 4:

Table: 4

General Profile of the District

District	Deoghar
Headquarter	Deoghar
No. of Sub Division	2
No. of Blocks	10
No. of Panchayats	194
No. of Villages	2662
Area (Sq. Km.)	2473.38
No. of Police Stations	16
Water Bodies	Pathro River Ajay River Matihara River Darhwa River Jayanti River
Toposheet	G45U7, G45U8, G45U10, G45U11, G45U12, G45U14, G45U15, G45U16, G45V3 & G45V4
Co-ordinate	Longitude: 24°28' N to 24°48'N Latitude: 86°07'E to 86°42'E
Total Population	1492073
Male Population	775022
Female Population	717051
Percentage urban Population	17.32%
Percentage Rural Population	82.68 %
Sex Ratio	925
Percentage Literacy	
Male-	73.80%
Female-	46.14%
ST Population	190036
SC Population	180962
Total Workers	551467
Total Male Worker	383691
Total Female Worker	167776
Total Main Workers	297146
Total Male Main Workers	238224
Total Female Main Workers	58922
Total Marginal Worker	254321
Total Male Marginal Worker	145467
Total Female Marginal Worker	108854
Total Non-Worker	940606
Total Male Non-Worker	391331
Total Female Non-Worker	549275

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7.2 Drainage

The river Ajay and its tributaries control the drainage of the area. River Ajay originates from the hills of the Chotanagpur plateau at an elevation of 346.23m amsl. Prominent among the tributaries are the Bhagdura, Partho, Dama, and Jayanti. These apart, there are several seasonal streams and nallas which ultimately join the river Ajay and its tributaries (Fig-8).

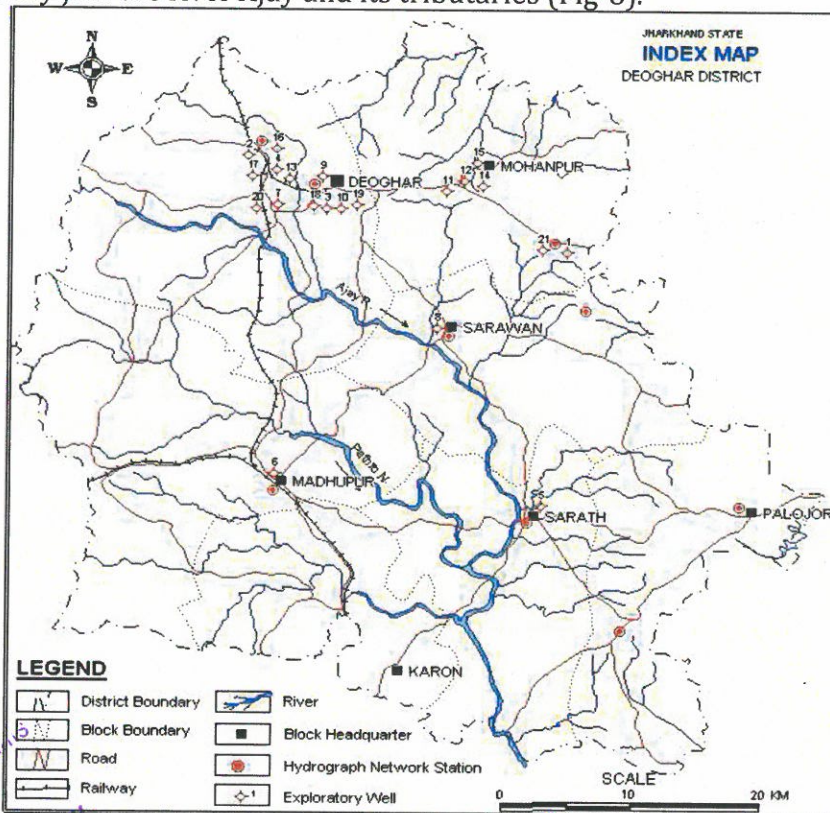


Fig. 8 Drainage Map of Deoghar District (Source-CGWB)

7.3 Geomorphology & Soil

In terms of the physiography, the district shows the following three broad categories of landforms

- i) Mountainous tracts of Chotanagpur granitic gneisses with isolated flat topped hills, steeper escarpments and intermontane valleys
- ii) Plateaus consisting of weathered granite gneiss and Gondwanas
- iii) Alluvium found in the immediate vicinity of major rivers as basin fill deposits.

In general the area shows a general slope from north to south. The land surface is rugged and uneven ranging from flat lands to almost steep slopes. However, in general the slopes are gradual and these have been worked into terraced paddy fields at several places.

The surface lithology has exercised profound impact on the development of soil types. The district is characterized by a wide variety of soils, which can be classified as clayey, loamy, sandy loam and lateritic. Sandy loams to loamy sands are common in uplands whereas loam to sandy loam is common in lowlands.

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Soil Distribution and Classification

- Soil data collected from the field through interpretation, profiling and then chemical / mechanical analysis were placed as per the standards of soil series formation and integrated in to Arc GIS format to form the soil map of the district. Soil map of district Deoghar shows that hills occupy North, and NW part. Pediment occupies very small part in the centre of district. Upper Pediplain occupies Central part of the district. Lower Pediplain occupies small part on Western and NW side. Upper plateau occupies Central, Southern and N-E part of district. Lower plateau on Northern and, Central part. Valley fills on Northern, Central and Western and southern part with alluvium.

7.4 Hydrogeology

Deoghar district is largely covered by Chotanagpur granites and gneissic complex associated with some metasediments and metabasic rocks. The Gondwanas have been developed in tectonic basin fill deposits and are resting on Archaean basements. The Gondwanas mainly consist of sandstones, shales, coal seams and are exposed in Karon and Madhupur blocks of the district. Alluvium occurring along the river channels and adjoining areas and are mainly composed of fine to coarse sand and clays. Laterites occur in isolated patches. About 70% of the district area is underlain by hard and compact granitic rocks, known as Chotanagpur granite gneiss. Weathering, fracturing and jointing have introduced secondary porosities in these hard rocks and these govern the occurrence and movement of groundwater in these rocks. In these formations groundwater occurs under unconfined condition in the weathered mantle and under semi-confined to confined conditions in the fractures underneath. Groundwater also occurs under unconfined condition in the narrow stretches of alluvium along stream courses; however, groundwater potentiality in the alluvium is not promising.

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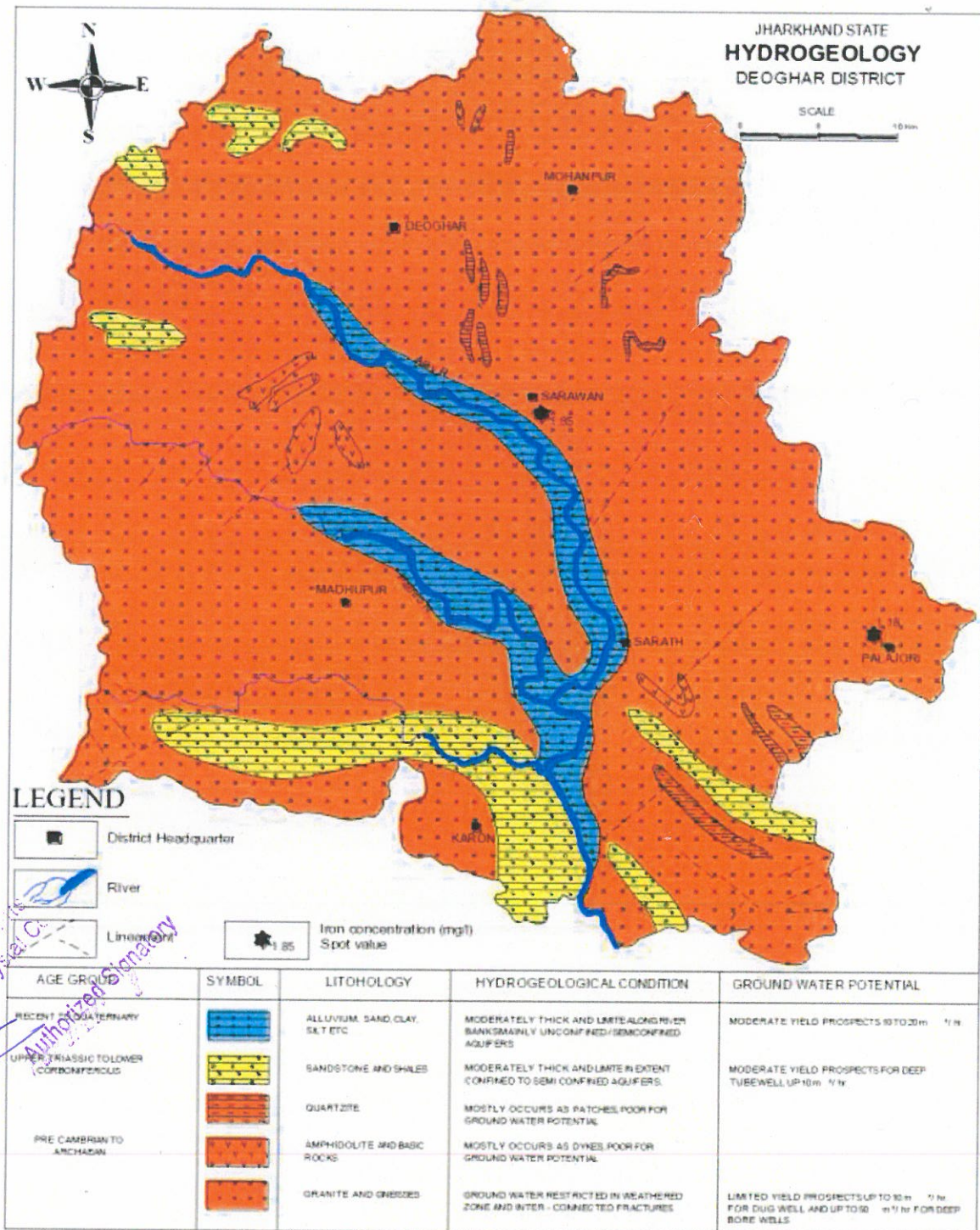


Fig. 9 Hydrogeological Map of Deoqhar District (Source-CGWB)



7.5 Depth to Water Levels

During May 2011, the depth to water levels in HNS wells (Fig-8) tapping shallow aquifer ranged from 5.63 to 12.00 mbgl. Depth to ground water levels during the post monsoon (November 2011) varied between 2.61 mbgl and 12.00 m bgl.

Table-5
Categorization of depth to water level of pre-monsoon period & post monsoon (May 2012)

No. of wells measured	Depth to Water level (m bgl)		0-2 (m)		2-5 (m)		5-10 (m)		10-20(m)	
	Min	Max	No.	%	No.	%	No.	%	No.	%
8	5.63	12.00	0	0	0	0	6	75	2	25
7	2.61	12.00	0	0	5	71.4	1	14.3	1	14.3

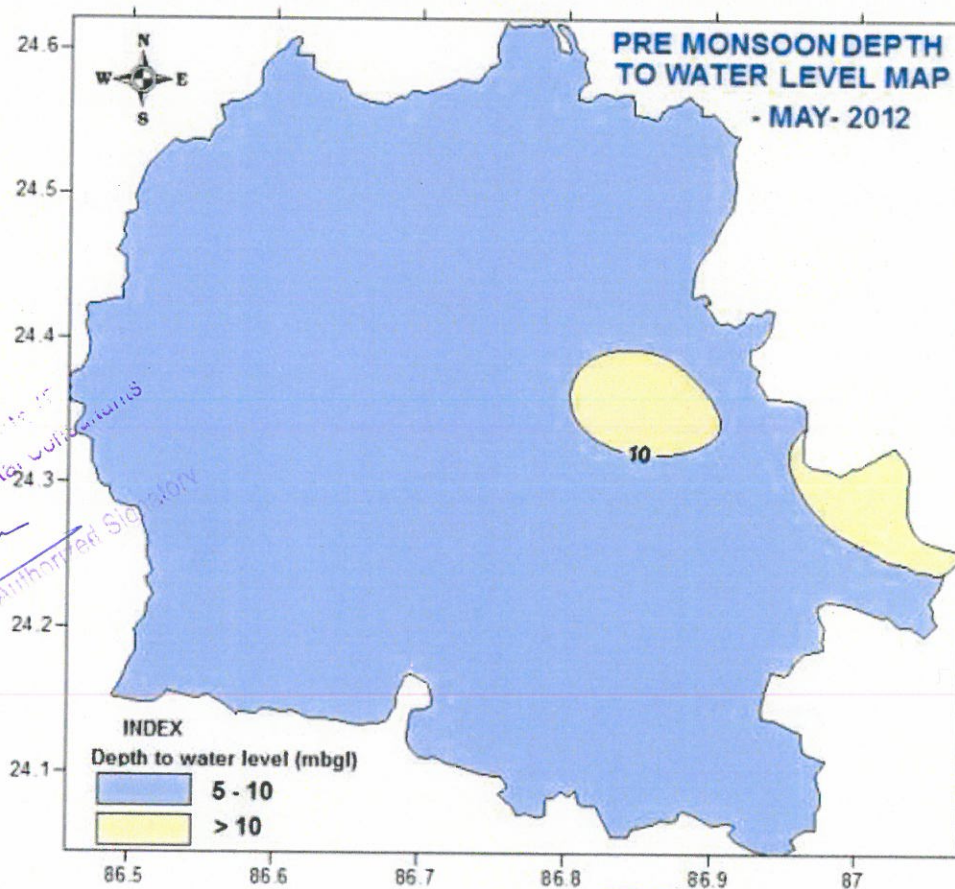


Fig. 10 Pre - Monsoon Depth to Water Level Map of Deoghar District (Source-CGWB)

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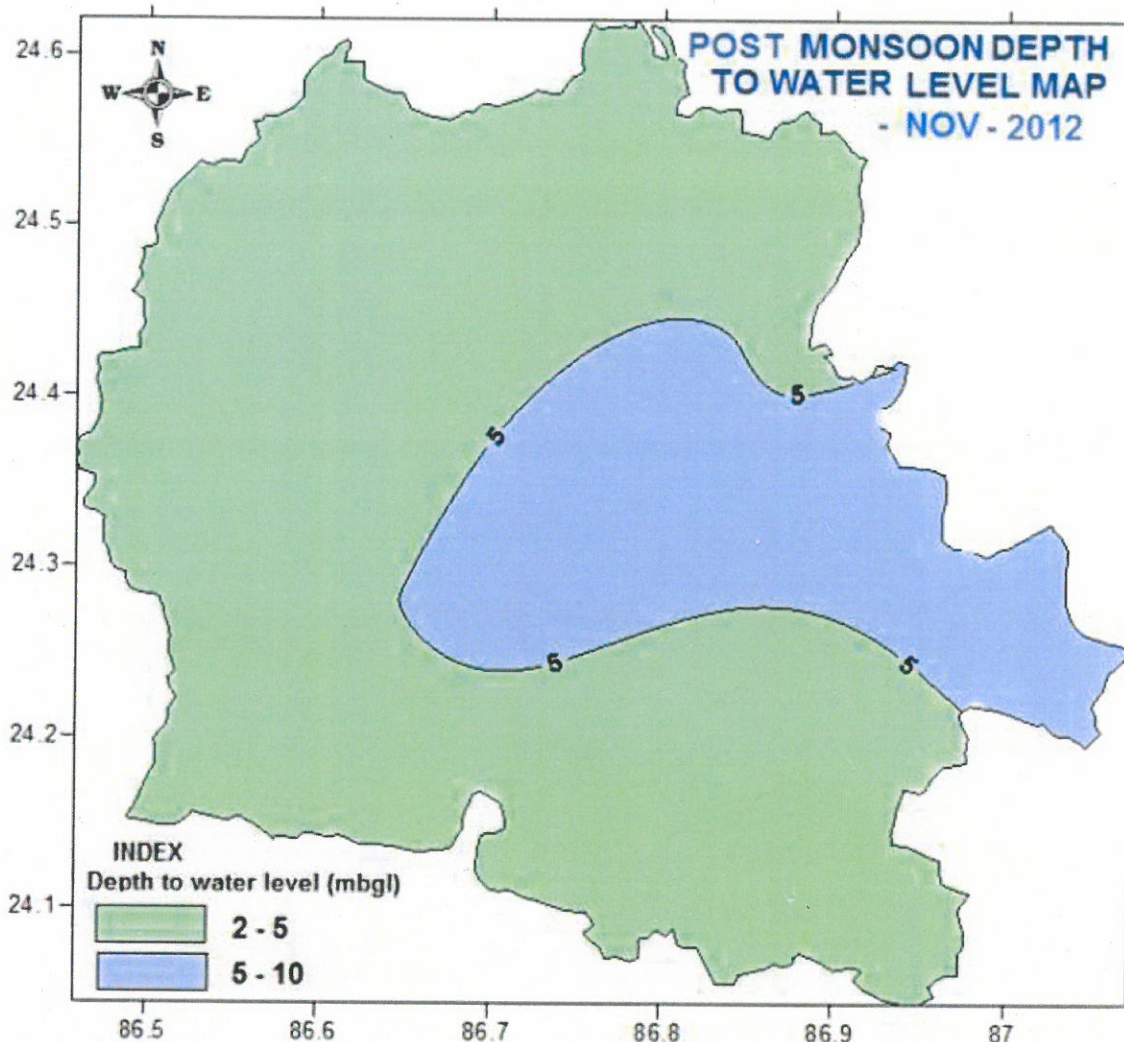


Fig. 11 Post - Monsoon Depth to Water Level Map of Deoqhar District (Source-CGWB)

7.6 Ground Water Quality

Ground water in the phreatic aquifers in Deoqhar district has been found to be slightly alkaline in nature. The specific electrical conductance of ground water in phreatic zone during May 2011 was in the range of 480 to 1130 $\mu\text{S}/\text{cm}$ at 25°C. The suitability of ground water for drinking purpose has been evaluated on the basis of pH, Total hardness (T.H), Ca, Cl, F and NO₃. The chemical concentration of these constituents, when compared with the drinking water specification recommended by IS:10500, 1991 as presented below in table-7, indicates that none of the samples exceed the permissible limit set for drinking use. However, Iron concentration above 1 mg/l has been found at Palajori (1.18 mg/l) and Sarawan (1.85 mg/l).

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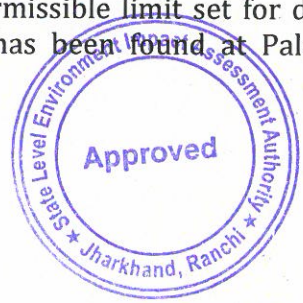


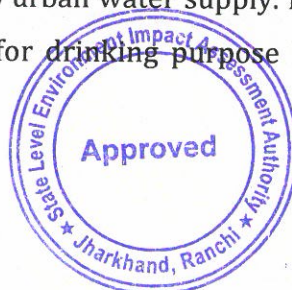
Table : 6
Major Chemical Parameters of Ground Water Samples

Quality	IS:10500, 1991		No. of samples in the district exceeding permissible limit
	Desirable limit	Permissible limit	
pH	6.5-8.5	No relaxation	0
T.H	300	600	0
Ca	75	200	0
Cl	250	1000	0
F	1.0	1.5	0
NO3	45	100	0

7.7 Status of ground water development

In the rural areas of the district, the entire water supply is dependent on ground water. Ground water development is mainly through dug wells and hand pumps. In general dug wells are of 2 m diameter and the depth ranges between 8 and 15 m depending on the thickness of the weathered zone, tapping the shallow aquifer in the weathered zone and uppermost slice of the basement. Large numbers of dug wells used for drinking purpose are under private ownership for which there is no reliable data. Over the years Mark II/ Mark III hand pumps are being installed in large numbers for ground water development. These hand pumps have the two major advantages i.e. less susceptible to contamination from surface sources and ii) Tap fractures between 20-60m depth which have been found to be less affected by seasonal water level fluctuation and thus have lesser chances of failure even during extreme summer. In rural areas of the district, PHED has drilled 13515 wells fitted with hand pumps, out of which 10906 nos. are under working condition at present.


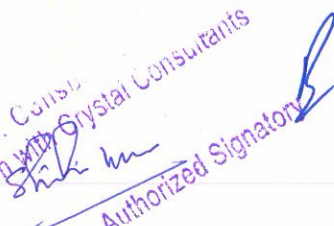
In the urban areas ground water plays a supplementary role in water supply sector, as the major volume of supply being made from dams, reservoirs or weirs across rivers or streams. No authentic data is available for the existing number of ground water structures catering to urban water supply. For Deoghar urban area, the dependence on ground water for drinking purpose has been considered as 25%.



As per the latest ground water resource estimation carried out following GEC 97 methodology, the overall stage of ground water development in Deoghar district (Fig-13) is 33.18% indicating sufficient scope of future development. The ground water resource of Deoghar district is shown in the table-7 below-

**Table-7
Dynamic Ground Water Resource (as on 2009) of Deoghar District**

Block	Annual Replenishable Ground Water Resource				Total	Natural Discharge during non-monsoon season	Net Annual Ground Water Availability	Annual Ground Water Draft			Projected Demand for Domestic and Industrial uses up to 2025	Ground Water Availability for future irrigation	Stage of Ground Water Development (%)
	Monsoon Season		Non-monsoon					Irrigation	Domestic and Industrial uses	Total			
	Recharge from rainfall	Recharge from other sources	Recharge from rainfall	Recharge from other sources									
Deoghar	2342.73	4.39	866.01	131.28	3344	334	3009.97	490.09	882.282	1372.4	552.53	1967.34	45.59
Mohanpur	2124.99	4.70	834.28	193.29	3157	316	2841.53	735.67	241.900	977.6	332.45	1773.41	34.40
Sarwan	2519.52	26.90	989.17	251.10	3787	379	3408.04	970.92	217.385	1188.3	298.76	2138.36	34.87
Devipur	1777.65	3.26	697.91	104.37	2583	258	2324.87	391.50	142.730	534.2	196.16	1737.22	22.98
Madhupur	2192.64	3.58	842.94	126.75	3166	317	2849.32	478.50	472.360	950.9	334.60	2036.22	33.37
Karaon	1218.94	2.87	474.67	131.09	1828	183	1644.81	501.47	201.468	702.9	276.88	866.46	42.74
Sarath	2327.14	3.86	913.64	127.92	3373	337	3035.30	480.94	230.893	711.8	317.22	2237.04	23.45
Palajori	1857.42	3.51	729.13	132.27	2722	272	2450.18	501.12	215.857	717.0	296.66	1652.40	29.26
Total	16361.04	53.88	6347.85	1198.06	23960	2396	21564.03	4550.208	2604.9	7155.1	2605.37	14408.45	33.18


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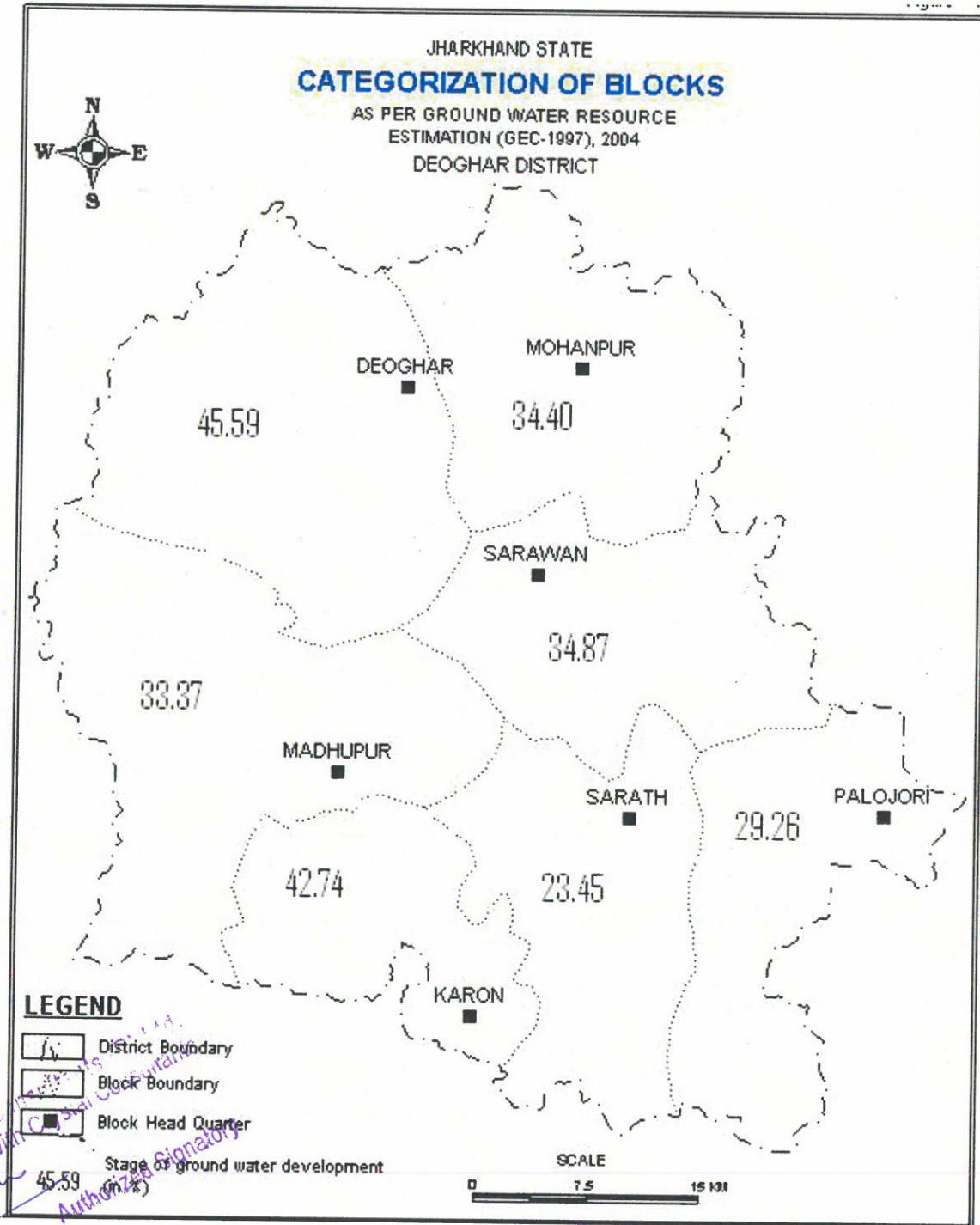
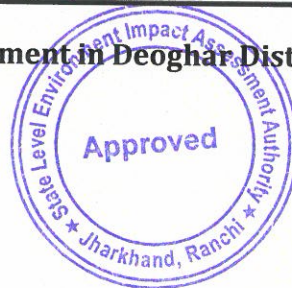


Fig. 12 Stage of Ground Water Development in Deoghar District (Source-CGWB)

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CHAPTER-VIII



CHAPTER - VIII LAND UTILIZATION PATTERN IN THE DISTRICT: FOREST, AGRICULTURE, HORTICULTURE, MINING ETC.

Year Wise Land Utilisation Statistics in the district of Deoghar is given below in Table 8;

Table 8 Classification of Land Utilisation Statistics in the District

Year	Reporting Area	Forest Area	Area under Non-agricultural use	Barren & unculturable land	Permanent pastures & other grazing land	Land under misc. tree groves not included in Net area sown	Culturable waste land	(Thousand hectares)		
								Fallow land other than Current fallow	Current fallow	Net area sown
2013-14	34714.58	4509.73	30.39.15	4579.80	1376.16	488.23	3091.41	5606.19	4690.18	7338.57
2013-14	23533.56	3603.02	1885.36	332.97	1039.95	1044.46	1309.29	4246.43	5328.66	4743.39
2013-14	31684.70	1638.83	1179.59	388.02	727.98	2677.17	463.64	3807.22	8935.01	11057.50
2013-14	36186.84	1677.41	2986.16	1506.26	2050.57	2338.58	2796.96	3787.81	2441.15	12553.32
2013-14	30298.26	1001.70	2589.55	4641.44	1465.07	4.10	4136.40	10701.88	1489.68	4302.51
2013-14	31788.14	2181.61	3508.21	1956.77	1198.99	422.12	1374.19	5876.49	7264.10	8005.63
2013-14	27629.93	3610.32	2271.34	3477.57	1076.38	81.84	2665.86	3260.04	6469.37	4747.17
2013-14	13645.80	153.73	903.19	146.98	735.59	-	728.05	3224.17	1851.72	5902.34
2013-14	25844.08	1031.56	1891.67	1915.53	1228.53	-	2979.80	5385.83	5831.68	5579.44

Source: DSO, Deoghar

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CHAPTER-IX



CHAPTER-X



CHAPTER - X RAINFALL: MONTH-WISE

Monthly Rainfall in the District of Deoghar is given below:

Table 9 Rainfall Data

District - Deoghar

Year/Month	Jan.	Feb.	March	April	May	June	July	Agu.	Sept.	Oct.	Nov.	Dec.	Total
2001	0.0	0.0	0.5	10.7	75.3	444.3	151.5	179.6	413.4	180.2	0.0	0.0	1455.5
2002	0.0	5.9	4.8	14.8	102.0	303.5	347.6	377.3	465.5	86.3	0.0	0.0	1707.7
2003	0.0	15.8	25.6	6.6	14.5	242.8	158.2	147.8	176.9	197.2	0.0	0.0	985.4
2004	0.6	0.0	6.0	25.4	53.2	344.4	189.4	212.5	320.2	196.0	0.0	0.0	1347.7
2005	24.4	11.9	7.2	11.2	38.5	152.1	320.1	114.2	78.6	117.0	0.0	0.0	875.2
2006	0.0	0.0	41.7	27.8	63.3	264.7	402.0	215.0	512.4	16.4	9.4	0.0	1552.7
2007	0.0	52.6	21.7	13.2	69.7	127.9	551.6	353.1	405.1	53.4	0.0	0.0	1648.3
2008	39.2	0.0	0.0	2.0	26.9	268.0	401.3	222.1	173.8	23.4	0.0	0.0	1156.7
2009	2.0	7.0	0.0	0.0	93.2	43.7	193.8	272.9	289.0	107.4	3.0	0.0	1012.0
2010	0.0	0.0	0.0	0.0	47.1	90.7	183.8	220.0	150.4	36.4	0.0	9.2	737.6
2011	4.4	0.0	8.0	22.1	76.3	358.4	163.9	411.1	149.3	3.6	0.0	0.0	1197.1
2012	12.8	3.2	0.7	15.3	12.0	48.8	254.5	223.1	174.1	62.7	33.1	0.0	840.3
2013	0.0	21.1	0.0	8.0	101.3	185.6	152.1	246.0	86.7	130.0	0.0	0.0	930.8
2014	4.9	51.7	0.0	0.0	93.2	185.6	254.5	272.9	289.0	36.4	0.0	0.0	1188.2
2015	5.0	0.0	12.2	60.8	24.9	158.3	241.8	158.8	54.4	30.2	0.0	0.0	746.4
2016	11.6	0.0	1.7	0.2	46.1	169.7	252.9	307.2	213.6	0.4	0.0	0.0	1003.4
2017	0.0	0.0	0.0	0.0	60.1	66.6	287.2	115.1	90.2	108.5	5.0	0.4	733.1
2018	0.0	0.0	0.0	0.0	47.3	94.2	222.2	130.0	76.0	25.8	0.0	5.1	600.6
2019	0.0	12.5	0.0	43.3	81.4	99.0	247.7	146.7	309.3	153.5	0.0	0.9	1094.3
2020	12.4	27.0	37.2	9.2	75.8	99.9	227.9	139.8	137.8	36.0	0.0	36.0	839.0
Total	117.3	208.7	167.3	270.6	1202.1	3748.2	5204.0	4465.2	4565.7	1600.8	50.5	51.6	21652.0
Average	5.9	10.4	8.4	13.5	60.1	187.4	260.2	223.3	228.3	80.0	2.5	2.6	1082.6

Source: DSO, Deoghar

CHAPTER-XI



CHAPTER – XI GEOLOGY & MINERAL WEALTH

11.1 Regional Geology

The geology of the area is mainly by Chhotanagpur Granite Gneiss Complex of Archaean age which is having complex geological structures and different rock types of varying ages and forms the basement rock. The Chhotanagpur Granite Gneiss Complex includes high grade meta-sediments, gneisses, migmatites, khondalite, leptynite, granulites and meta-igneous rocks. Which have been intruded by mafic-ultramafic rocks, gabbro-anorthosite, granite, rapakivi granite, syenite, pegmatite, aplite and dolerite, tholeiitic basalts (Rajmahal Traps) at different geological periods. The regional trend in the area varies from N-S in the west to E-W in the east- central part to ENE-WSW in the extreme east and numerous short and discontinuous shear zones are present almost throughout the area and numerous short and discontinuous shear zones are present almost all the rock types which are indicated by the development of Augens and Mylonite banding. The litho unit consists mainly of granitic gneiss and patches of amphibolites can also be seen at places. The Chhotanagpur Granite Gneiss Complex is overlain by patches of Gondwana formations in the south-west and south portion of the district exposed in area. These formations are traversed by pegmatites and dolerite dykes.

The central portion of the district is covered by quaternary sand and all alluvium.

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General Geological Succession in and around Deoghar:

Age	Formation	Lithology
Quarternary	-----	Sand and Alluvium
Cretaceous } Jurassic } Triassic } Permian }	Gondwana	Dolerite dykes and pegmatites Alternating layers of sandstone, shale, coal and siltstone
Precambrian	UNCONFORMITY Chhotanagpur Granite Gneiss Complex	Granite Gneiss, Amphibolite and older metamorphic.

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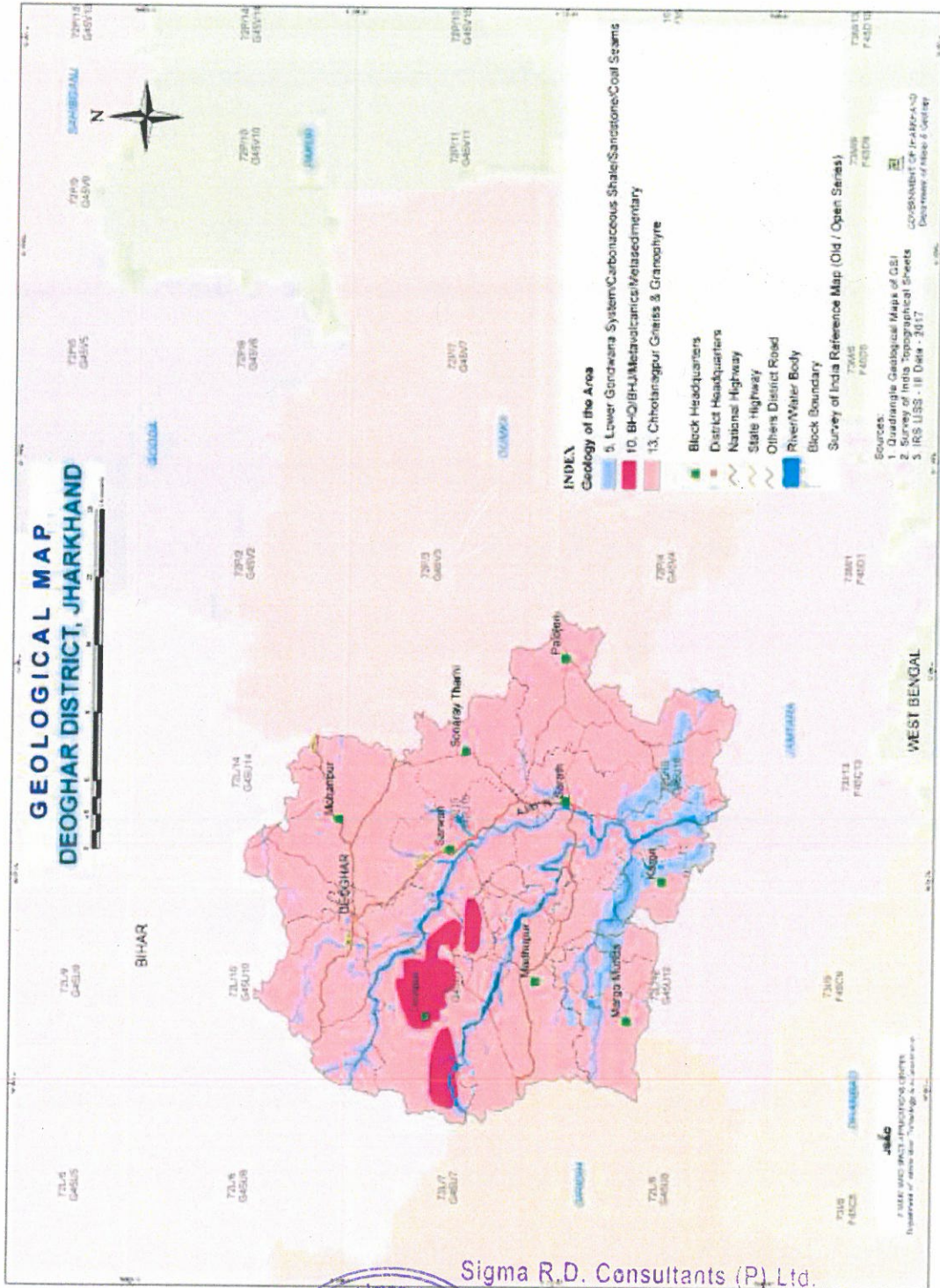


Fig. 13 Geological Map of the District (Source- JSAC)



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11.2 Methodology for Preparation of District Survey Report:

Potential Resource Area/ Sand bars in every identified river in the district have been selected using ISRO satellite imageries.

Resolution in this process due consideration has been given to siting criteria

- Prescribed by SEIAA (specifically in respect of notified forest and ESZ)
- Distance limitations prescribed in E.M. G. S. 2020 {(in respect of major bridges- E.M.G.S – 2020, In its Paragraph 4.3(H) has prescribed guidelines relating to restricting of sand mining from Major Bridges.

Indian Road congress in the code IRC 5-2015 Para 102.2 has categorised Bridge depending on Length which is reproduced below:-

(Minor Bridge is a bridge having a total length of up to 60m)

(Major Bridge is a bridge having a total length of more than 60m)}

- Guidelines prescribed by JSPCB (with respect to mining projects)
- SSMG – 2016

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Table - 10
Name of Bridge

Sl. No.	Name of Bridge	Length	Latitude	Longitude
1	Singhori and Semradih Bridge	Length- 158m	24.46342372	86.56523285
2	Pandedih and Bandarbasra bridge	Length - 237 m	24.463125	86.59505209
3	Lodhrayadih and Birnia Bridge	Length- 239 m	24.46904529	86.61550069
4	Rohini Rail bridge	Length - 271 m	24.45064928	86.6417319
5	Patharchapti and Patardi Bridge	Length - 260 m	24.44230579	86.65463558
6	Khiraunda Bridge	Length - 239 m	24.41482883	86.66528031
7	Mahtodih and Udaypur Bridge	Length- 385m	24.41302741	86.69048554
8	Basbariya Bridge	Length - 294 m	24.39911199	86.71143974
9	Paharpur Sarkanda Bridge	Length -199 m	24.38757119	86.71775488
10	Panchkatiya Bridge	Length- 300m	24.38305231	86.73769716
11	Dasdih and Nawadih Bridge	Length - 346 m	24.36931639	86.77167046
12	Chandna Bridge	Length - 209 m	24.33073288	86.80803071
13	Manjori Bridge	Length - 209 m	24.31034779	86.80659064
14	Silphari Bridge	Length - 212 m	24.28393752	86.8107266
15	Asahna Bridge	Length- 181 m	24.26812577	86.81445875
16	Siri Bridge	Length -177 m	24.35549628	86.47024124
17	Kasidih and Burhai Bridge	Length- 217 m	24.35792849	86.54145927
18	Karikado and Domohani Bridge	Length - 360 m	24.32900444	86.59960232
19	Majhiladih and Manpur Bridge	Length - 404 m	24.32450016	86.61436997
20	Kasati - Beltikri Bridge	Length - 284 m	24.3162177	86.63739972
21	Nawapatra Rail Bridge	Length - 219 m	24.31492776	86.64630203
22	Gariya - Mohanpur Bridge	Length -177 m	24.30424613	86.65088685
23	Mahtobahiar-Saptar Bridge	Length - 362 m	24.3006854	86.684334
24	Charpa - Tanderi bridge	Length- 381 m	24.28293987	86.70630474
25	Paniara - Chormara Bridge	Length - 248 m	24.25998501	86.72932273
26	Bardahi Bridge	Length - 178 m	24.24596366	86.75747926
27	Bara Bridge	Length - 225 m	24.24297765	86.77542957
28	Kharkhuti - Dumariya Bridge	Length- 186 m	24.22871048	86.78920251
29	Barmariya - Mahtoa Bridge	Length - 223 m	24.20118114	86.79636609
30	Majhtar - Lacchnadih Bridge	Length - 225 m	24.16328807	86.7706305
31	Jhunaki - Singpur Bridge	Length - 254 m	24.16659628	86.75203088
32	Jamdabar - Chobkiyari Bridge	Length - 169 m	24.16670565	86.73068234
33	Jashobandh Bridge	Length - 208 m	24.17649488	86.72074737
34	Madankata Rail Bridge	Length - 213 m	24.17614369	86.70295573
35	Mohanachak - Ambatila Bridge	Length - 142 m	24.20069189	86.68393601
36	Barmasiya - Chetnari Bridge	Length - 236 m	24.21535727	86.66082942
37	Rampur Bridge	Length - 149 m	24.21540311	86.61429058
38	Harigarha Bridge	Length - 175 m	24.19630246	86.59563142
39	Jorasimal - Chota Charpa Bridge	Length - 157 m	24.20046329	86.56394534

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Step-1: Inventorization of river bed suitable for sand mining;

For this purpose following maps were procured for the district

1. S.O.I. Topo sheet (1:50,000)
2. KML maps
3. JSAC prepared map of the district
4. Cadastral Map

In addition following documents published by government agencies were also procured.

- Ground water information booklet from CGWB
- Report on slope, aspect and altitude of district published by J.S.A.C.
- Jharkhand river profile (SAUDRP)

Based on details study of above documents, maps, major rivers flowing through the district have been identified and listed in **table 11 below:**



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Table 11
Salient Features of Important Rivers and Streams

S. No.	Name of the River or Stream	Total Length in the District (in Km)	Place of origin	Altitude at Origin (in AMSL)
1.	Ajay River	75	Chakai	333
2.	Jayanti River	33	Chakardaha	359
3.	Patharo River	48	Ghutia	365

Table 12
Drainage system with description of main rivers

S. No.	Name of the River	Area drained (Sq. mile)	% Area drained in the District	Length (m)	Average width (m)	Mean Annual Run-off (inch)	Rate of Annual Deposition in the River (tons / sq. mile / year)	Annual Deposition (tonne) as per empirical formula (Col. 3 x 8)
1.	Ajay River	381.46	40.10 %	75000	260	3.78	5333.25	2034421.55
2.	Jayanti River	84.48	8.88 %	33000	140	2.91	5026.77	424661.53
3.	Pathro River	100.41	10.55 %	48000	260	3.49	5902.09	592628.86



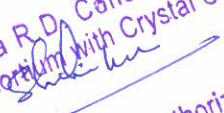
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For every identified river following information were found out;

- ❖ Point of origin of the river
- ❖ Elevation of the point of origin of river (AMSL)
- ❖ Length of the river flowing through the District
- ❖ Average width
- ❖ Mark existence of Bridges (Railway & Road) along the alignment of the river
- ❖ Existence of notified forest, national park, wildlife sanctuary, Eco-Sensitive zone
- ❖ Calculation of catchment area of the river in the district



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Step-2: Selection of Potential Resource Areas (PRA)

- (a) Identification & Marking of Potential Resource Area (PRA) where sand mining lease may be allotted.
PRAs along stretches of identified rivers in the district were selected as per guideline given in SSMG – 2016 & E.M.G.S 2020 & gazette notification S.O. 3611(e). Dated 25th July, 2018, Potential Resource Area for sand mining were identified and marked on KML map of the area
- (b) **Reconnaissance survey**
After demarcation of location of identified PRA, a reconnaissance field survey was done to ascertain mineability of identified PRA, route for evacuation, physical verification of existence of bridges, other social & environmental hotspots.
- (c) After reconnaissance survey PRAs found suitable for mining of sand were finalized. All identified PRAs were marked on Survey of India Toposheet (1:50000)
- (d) **Finalised** PRA were transferred to mauza map (1:3960). With this super imposed map details regarding name of Village, Plot No., Khata No., Thana No. and area of plot covered by particular PRA were tabulated in Table 14. KML maps for every finalised PRA has been prepared and given in **Plate-5**
- (e) The map showing different finalised PRAs super imposed on mauza map are shown in **Plate-3**
- (f) Mauza map for every PRAs were sent to respective circle officer, DFO (Territorial) and DFO (Wildlife) for recording their observation in a prescribed format. This included type of land within the PRA, distance of PRA from notified forest and ESZ. Observation recorded on prescribed format have been received from CO, DFO (T) and DFO (WL) they are enclosed at annexure – observation received are recorded in **Table 14. (Reports received from CO & DFO are enclosed at (Annexure-D, E, F)**
- (g) **Assailment of Unique Identification No: (UIN)**
Every identified PRA was assigned a Unique Identification Number (UIN). This consisted of three letters followed by two numerals. First letter denoted the name of district. This is followed by two letters denoting name of the river. The last two numerals reflected serial no of the PRA. Counting starting from origin of the rivers towards direction of the flow.

All identified PRAs are shown in **plate II.**

Step-3:**Methodology of Field Survey of PRAs:**

Field survey for preparation of a D.S.R is needed for following purposes

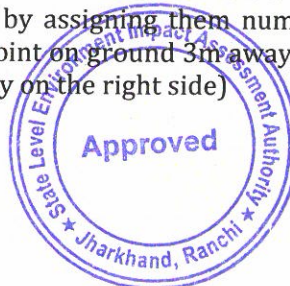
- Location details and bounding co-ordinate of PRA, village, tehsil & district
- Topographical survey of sand deposit within identified PRA in a grid pattern of 10m X 10m.
- Fixing of TBM with its RL (amsl)

Field survey of all finalised PRA was conducted using DGPS-

- First of all TBM was fixed along the river on nearest existing permanent structures like school, bridges of PRA. A.M.S.L of TBM was determined by DGPS.
- Four corners of an identified PRA are assigned as A, B, C and D for upstream side to downstream side. Co-ordinates and elevation (AMSL) measured for all four corners & recorded between cross section axis AB & CD every PRA is divided into section at 100m apart
- Every axis starts 3m away from river bank on left & right bank.

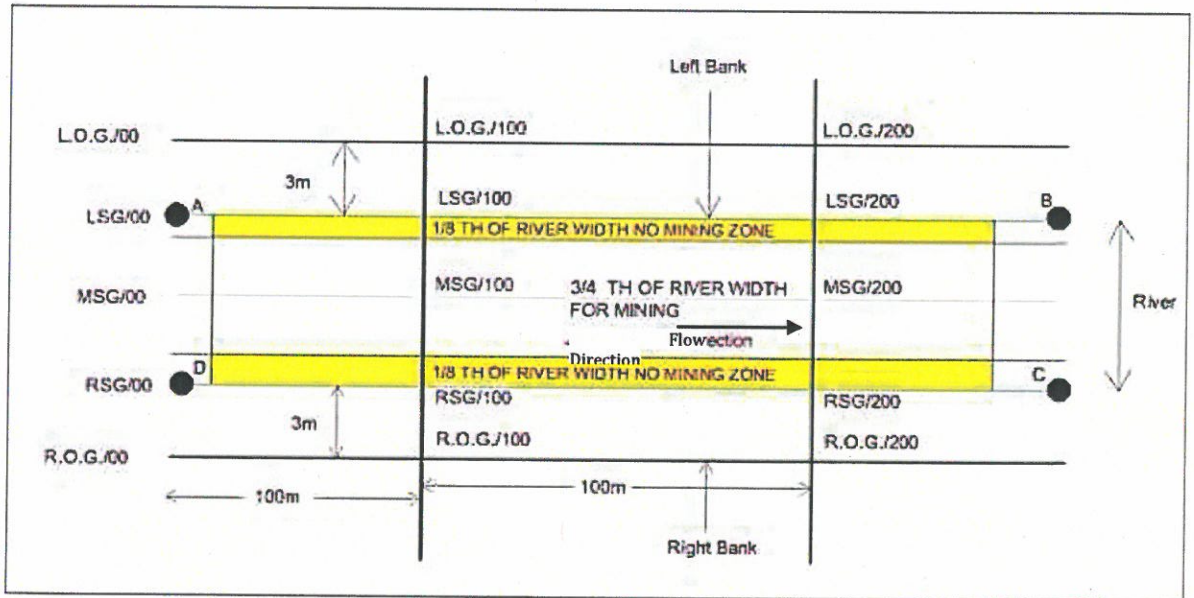
Cross sectional axis are identified by assigning them number denoting distance from the axis AB. LOG (denotes a point on ground 3m away on the left side & ROG (denotes a point on ground 3m away on the right side)

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LOG – A Point On Outside bank of River on left side
 ROG – A Point On Outside bank of River on right side
 LSD – R.L of sand deposit on left end side
 MSD – R.L of sand deposit at mid-point of river
 RSD - R.L of sand deposit on right end side

The above pattern is explained in the Table below:



Sample of Cross Section of River

Part of every cross-sectional axis passing through sand deposit is divided in two equal parts.

Pre-Monsoon field survey

Primary data has been provided by District Mining Office & validated by satellite imagery.

Post Monsoon field survey

For determination of R.L of Sand deposits in rivers in the district Temporary Bench Marks (TBM) were established. R.L. of TBMs were determined by fly leveling survey with Reference point at Madhupur Railway Station Elevation of Madhupur R.S. is 248.30m amsl.

This was started in last week of December, 2022. Post monsoon data for 26 PRA have been completed using DGPS.

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Establishment of Temporary Bench Mark

For topographical survey of sand deposit in identified rivers, Temporary Bench Marks (TBMs) have been established at convenient locations close to identified Potential Resource Areas. Co-ordinates of TBMs have been determined by using DGPS. For determination of its reduced level, Flying Survey using Auto - level have been carried out. Reference level has been taken from Railway station having its amsl as 248.30m. Table below give details of TBMs in Deoghar district:

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Table - 13
List of TBM List

Sl. No.	TBM point	RL (m)	Latitude	Longitude
1	Pandedih and Bandarbasra bridge	235	24.463125	86.59505209
2	Mahtodih and Udaypur Bridge	214	24.41302741	86.69048554
3	Chandna Bridge	193.3	24.33073288	86.80803071
4	Kasidih and Burhai Bridge	240	24.35792849	86.54145927
5	Mahtobahiar-Saptar Bridge	203	24.3006854	86.684334
6	Paniara - Chormara Bridge	206	24.25998501	86.72932273
7	Barmariya - Mahtoa Bridge	180	24.20118114	86.79636609
8	Jamdabar - Chobkiyari Bridge	190	24.16670565	86.73068234
9	Rampur Bridge	210	24.21540311	86.61429058

Step-4: Determination of Extractable Reserve

Mineable reserve is product of area of mining zone in PRA with average depth of sand deposit depth of sand deposit Extractable reserve has been estimated as 60% of mineable reserve.

Required details of identified river PRA's mineable reserve and extractable reserve are given in **Table 14**.




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Table - 14
List of Potential Sand Area of Deoghhar (Category-2)

SI No.	UIN No.	Mauza	Plot No.	Thana No.	Panchayat	Block	Area (ha)	River	Length (m)	Average Width (m)	Depth (m)	Geographic Co-ordinate	Mineable mineral potential (in cubic metre) (Wx3/4xLxD)	Extractable mineral potential (in cubic metre) (60% of total mineral potential)									
1	DPA01	Madanpur	276	58	Tatkio - nawadih	Devipur	3.46	Pathro	1631	186	3.0	A- 24°22'23.18"N 86°30'24.82"E B-24°22'31.35"N 86°30'22.34"E C-24°22'15.08"N 86°31'16.61"E D- 24°22'9.36"N 86°31'13.17"E	682574	409544									
			677				3.50																
			678 (P)				2.50																
		Baghmara	173	59	Daranga		7.32																
			4 (P)				1.75																
		Dhanitanr	1	68			2.50																
			664				6.00																
		Jorasimar	592	60			3.46																
		2	DPA02	Bandgari	235 (P)		87								Jhundi	Devipur	4.10	Pathro	910	289	3.0	A- 24°21'27.86"N 86°32'47.26" B- 24°21'34.35"N 86°32'47.02"E C- 24°21'32.52"N 86°33'20.48"E D- 24°21'22.06"N 86°33'16.41"E	591728	355037
Domandih	121 (P)				85			2.90															
	957							5.90															
Choudhridih	1015			84		5.84																	
	1296					2.35																	
Burhai	1315			82	Burhai	5.43																	

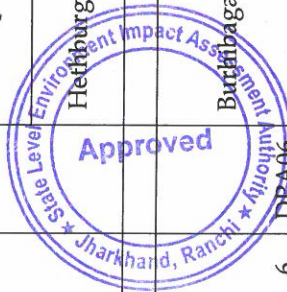
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3	DPA03	Phulkari	850	103	Phulkari	Devipur	9.00	Pathro	1480	181	3.0	A-24°21'27.09"N 86°34'12.79"E B-24°21'32.14"N 86°34'14.98"E C-24°20'43.24"N 86°34'36.81"E D-24°20'42.86"N 86°34'29.41"E	602730	361638
		Bhartidih	182 (P)	150		4.10								
		Mathurapur	151	105	Budhai	Madhupur	9.50							
			450 (P)				4.30							
4	DPA04	Araria	181 (P)	155	Phulkari	Devipur	19.00	Pathro	1077	401	3.0	A-24°20'6.13"N 86°35'6.41"E B-24°20'11.75"N 86°35'7.13"E C-24°20'6.70"N 86°35'45.57"E D-24°19'47.58"N 86°35'32.66"E	971723	583034
		Sapta bandh	169	159	Phulkari		3.40							
		Jariadih	1 (P)	146	Budhai	Madhupur	17.60							
		Laldedih	130	147	Budhai		3.20							
5	DPA05	Bank	1	190	Dalha	Madhupur	19.44	Pathro	1032	310.0	3.0	A-24°19'3.66"N 86°37'14.36"E B-24°19'19.68"N 86°37'18.65"E C-24°19'12.12"N 86°37'46.98"E D-24°18'58.69"N 86°37'45.56"E	719820	431892
		Karanpura	442	179	Manpur	Devipur	10.41							
		Hethburgunia	293	189			2.17							
		Buribagaicha	45	289	Mishura	Madhupur	5.30							
6	DPA06	Sig Ganga 218	218	217	Charpa		4.70	Pathro	657	152	3.0	A-24°18'15.47"N 86°39'35.54"E B-24°18'23.01"N 86°39'38.56"E C-24°18'5.98"N 86°39'49.28"E D-24°17'59.60"N 86°39'46.41"E	224694	134816
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7	DPA07	Saptar	2484	286	Saptar	Madhupur	2.64	Pathro	910	518	3.0	A-24°17'38.82"N 86°41'24.12"E B-24°17'57.88"N 86°41'26.06"E C-24°17'46.42"N 86°42'3.10"E D-24°17'32.74"N 86°41'55.26"E	1060605	636363
			2485											
			2487											
			2799											
		Baniadih	1	354	Champa									
			167											
			1											
		Belwatari	1	355										
8	DPA08	Bili	945 (P)	494	Gonaiya	Madhupur	11.22	Pathro	1580	272	3.0	A-24°16'29.61"N 86°42'31.15"E B-24°16'33.89"N 86°42'39.59"E C-24°16'2.02"N 86°43'17.07"E D-24°15'54.55"N 86°43'13.50"E	966960	580176
			946											
		Jamuni	1479	493	Jamuni									
			267 (P)											
		Panaria	498	495										
			391 (P)											
		Tanderi	554	497	Gobindpur									
			555											
			684 (P)											
		9	DPA09	Gobindpur			516								Jamuni	Madhupur	8.01	Pathro	1610	216	3.0	A-24°14'59.92"N 86°44'17.26"E B-24°15'5.68"N 86°44'15.48"E C-24°14'50.86"N 86°45'9.40"E D-24°14'44.74"N 86°45'7.43"E	782460	469476
Barhi	1													
	517													
Gothia	1			520										
	1 (P)													
Sarheta	1179			47										
	180													
Chormara	180			43	Sarath									
	1355													
	50													
Dhobania	1355	50	Pathradda											
	(P)													
Bardahi														



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10	DPA10	Dumariya	866	69	Aluwara	Sarath	7.20				Pathro	1127	242	3.0	613652	368191	
							7.20	1.32	5.00	3.70							1.20	8.90
11	DPA11	Kharkhuti	1	107	Nawada	Sarath	2.00	2.95	1.70	3.65	2.11	Pathro	1320	156	3.0	463320	277992
			96														
		Ghagharjor	496	39	Arajori	Sarath	2.11	3.80	1.80	2.60	Pathro	1530	192	3.0	660960	396576	
			495														
		Ubia	471	32	Kairabank	Deoghar	7.10	7.30	7.87	7.20	Ajay	1530	192	3.0	660960	396576	
		Barmariya	387	99	Punasi	Deoghar	7.10	7.30	7.87	7.20	Ajay	1530	192	3.0	660960	396576	
			265														
		Gangti	702 (p)	72	Baghmari	Devipur	7.10	7.30	7.87	7.20	Ajay	1530	192	3.0	660960	396576	
			475 (p)														
Kaira bank	470(p)	97	Baghmari	Devipur	7.10	7.30	7.87	7.20	Ajay	1530	192	3.0	660960	396576			
	1																
Othadiah	304	98	Baghmari	Devipur	7.10	7.30	7.87	7.20	Ajay	1530	192	3.0	660960	396576			
	265																
Chota Nokhil	720	158-138	Baghmari	Devipur	7.10	7.30	7.87	7.20	Ajay	1530	192	3.0	660960	396576			
	670																
Nokhil bara	13	157	Baghmari	Devipur	7.10	7.30	7.87	7.20	Ajay	1530	192	3.0	660960	396576			
	1																
Dumar Kundi	1	156	Baghmari	Devipur	7.10	7.30	7.87	7.20	Ajay	1530	192	3.0	660960	396576			



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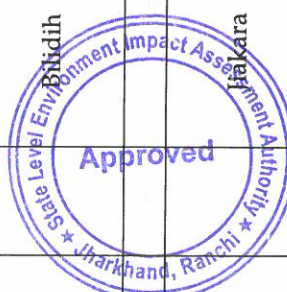
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13	DAJ02	Sangramloria	1847	304	Mahtodih Udayapura	Deoghar	7.60	990	212	3.0	472230	283338	
		Kharwa	670 (P)	303	Sangram Lodhiya								
		Kharuwan	1268(p)	306	Jitjori	Devipur	2.86	Ajay	990	212	3.0	472230	283338
			1703 (P)											7.93
14	DAJ03	Kusmil	821	371	Mahtodih Udayapura	Deoghar	20.95	1243	206	3.0	576131	345678	
		Simra	1604	370	Khaspaika								
		Chanddih	2385 (P)	633	Chanddih	Deoghar	4.73	Ajay	1243	206	3.0	576131	345678
			Bishunpur											1497	373	Sarsa
15	DAJ04	Khaspaika	931(p)	621	Khaspaika	Deoghar	1.45	1350	235	3.0	713813	428288	
		Khadai	479	623									
			Baswariya	1(p)	624	Baswariya	Deoghar	7.34	1350	235	3.0	713813	428288
		Hartatarin	987	622	Hartatarin								



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16	DAJ05	Kelaniya	1011(p)	119	Bhandaro	Sarwan	7.84	Ajay	1054	223	3.0	A-24°21'34.57"N 86°46'49.66"E B-24°21'40.92"N 86°46'51.80"E C-24°21'18.14"N 86°47'21.46"E D-24°21'12.94"N 86°47'14.54"E	528845	317307
		Pandedih	458	118			11.57		160	854280	512568			
		Jogindha	216	124			4.10							
17	DAJ06	Jamdiha	1	163	Jiakara Dahua	Sarwan	8.50	Ajay	2373	160	3.0	A-24°20'51.04"N 86°47'7.92"E B-24°20'50.60"N 86°47'16.02"E C-24°20'7.70"N 86°48'13.63"E D-24°20'3.79"N 86°48'10.65"E	854280	512568
		Buchipahari	2	162			2.72							
		Badiya	104	146			3.60							
		Durjani	1	166			4.65							
		Dahua	735	174			4.80							
			850	145			3.75							
18	DAJ07	Budidih	1219	145	Jiakara Dakai	Sarwan	7.85	Ajay	1105	161	3.0	A-24°19'26.76"N 86°48'34.38"E B-24°19'24.30"N 86°48'39.28"E C-24°18'54.71"N 86°48'17.54"E D-24°18'55.88"N 86°48'11.11"E	400286	240172
			851				2.25							
			1483	167			5.35							
			1062	169			3.74							
		Parsodih	5	169			3.60							
		Manjori	66	168			5.15							



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19	DAJ08	Mahdewa	236	116	Aurajori	Sarath	3.78	Ajay	879	169	3.0	A-24°13'1.06"N 86°49'27.42"E B-24°12'58.08"N 86°49'32.22"E C-24°12'32.87"N 86°49'14.27"E D-24°12'37.13"N 86°49'9.36"E	334240	200544
		Charra	27	114			3.87							
		Damarkuri	1	145	3.50									
		Charakmara	1	144	3.75									
20	DAJ09	Balthara	923	101	Aurajori	Sarath	3.25	Ajay	980	182	3.0	A-24°12'35.74"N 86°48'13.53"E B-24°12'31.44"N 86°48'17.63"E C-24°12'12.35"N 86°47'58.46"E D-24°12'15.77"N 86°47'52.21"E	401310	240786
		Mahto	81	100			3.65							
		Gidhsoli	645(P)	102	1.57									
		Sagharia	1(P) 316 319	149	1.20 3.45 4.81									
21	DJA01	Tibichapar	186 (P)	441	Baghmara	Margomunda	3.20	Jayanti	577	112	3.0	A-24°11'53.60"N 86°34'37.31"E B-24°11'57.79"N 86°34'36.90"E C-24°11'52.91"N 86°34'56.91"E D-24°11'49.53"N 86°34'55.75"E	145404	87242
		Suga pahari	1979 (P)	440	Sugapahari		3.30							



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22	DJA02	Duarpahari	1169 (P)	461	Pandania	Margomunda	4.80	Jayanti	1224	125	3.0	A-24°12'19.19"N 86°35'59.28"E B-24°12'21.60"N 86°35'55.81"E C-24°12'48.65"N 86°36'21.18"E D-24°12'44.12"N 86°36'23.86"E	344250	206550
		Akdura	1374 (F)	460	Pipra		2.80							
		Rampur	606 (P)	463	Rampur		5.20							
		Patojori	1 (P)	465	Pipra		2.60							
23	DJA03	Chitnari	2447 (P)	486	Chitnari	Margomunda	2.75	Jayanti	621	98	3.0	A-24°12'55.74"N 86°38'52.53"E B-24°12'58.49"N 86°38'50.23"E C-24°12'58.48"N 86°39'9.59"E D-24°12'55.91"N 86°39'11.63"E	136931	82158
		Barmasiya	570 (P)	538	Karo		3.35							
		Joramo	405 (P)	586	Kasaiya		1.80							
		Chandajori	145	609			3.60							
24	DJA04	Gormara	74 (P)	610	Karon	Karon	4.40	Jayanti	810	143	3.0	A-24°11'37.89"N 86°42'0.92"E B-24°11'38.39"N 86°42'6.04"E C-24°11'9.99"N 86°42'4.85"E D-24°11'12.55"N 86°41'59.99"E	260618	156371
		Dhantariya	113	608			Badiya		1.80					



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25	DJA05	Chobkiyari	1011 (P)	618	Birnagriya	Karon	1.75	Jayanti	1037	143	3.0	A-24°9'45.66"N 86°44'15.05"E B-24°9'49.50"N 86°44'18.45"E C-24°9'55.47"N 86°44'50.44"E D-24°9'49.91"N 86°44'52.22"E	333655	200193
		Belkiyari	1 (P)	644	Dindakoli		5.90							
		Dahuya	314 (P)	617	Ganjebani		5.35							
			184 (P)				1.85							
26	DJA06	Bhalgarha	212	646	Dindakoli	Karon	2.95	Jayanti	1060	166	3.0	A-24°10'14.79"N 86°45'34.93"E B-24°10'19.67"N 86°45'35.39"E C-24°10'2.70"N 86°46'3.63"E D-24°9'56.38"N 86°46'2.19"E	395910	237546
		Majhiladih	536	95	Majhiladih		6.30							
			856				Sarath								5.45
		Satrahir	39	94	Majhiladih										2.90

Lease area should be identified considering observation of DFO and CO enclosed at annexure D and E vis-à-vis siting criteria of SEIAA (annexureL) State Pollution Control Board.

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JHARKHAND STATE SAND MINING POLICY - 2017

Department of Industries, Mines & Geology, Government of Jharkhand circulated gazette notification No. Kha.Ni (VIVIDH) - 67/2017 - 1905 dated 16.08.17 relating to Jharkhand state sand mining policy 2017.

In paragraph 2 of the notification relates to categorization of streams River. Which is reproduces below

Based on District Survey Report the survey committee shall categorize the sand in 1st order and 2nd order stream/River as category-1 and 3rd order and above as category-2.

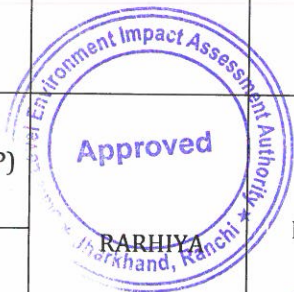


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Table - 15
These Category 1 potential resource area are proposed by Sub-Divisional
Committee

LIST OF POTENTIAL SAND AREA OF DEOGHAR (CATEGORY-1)							
SL NO	MAUZA	PLOT NO	PANCHAYAT	BLOCK	AREA IN (HA)	CO-ORDINATE (Degree Decimal)	RIVER
1	PALMARUA	111(P)	KHORIPANEN	DEOGHAR	1.21	A- 24.56077 N 86.57717 E B-24.56133 N 86.57762 E C-24.55997 N 86.57931 E D-24.55963 N 86.57912 E	Dadwa
		53(P)					
		224(P)					
		621(P)					
2	KUSMATILA	592	KHORIPANEN	DEOGHAR	1.6	A- 24.55576 N 86.58644 E B-24.55631 N 86.58630 E C-24.55636 N 86.58889 E D-24.55586 N 86.58875 E	Dadwa
		45					
3	NILAYA BADIYA	5(P)	KHORIPANEN	DEOGHAR	1.94	A- 24.55174 N 86.59746 E B-24.55238 N 86.59753 E C-24.55084 N 86.60038 E D-24.55052 N 86.60002 E	Dadwa
		210(P)					
4	MADHUPUR GORJORA	64	KHORIPANEN KENMANKAT HI	DEOGHAR	2.1	A- 24.546494 N 86.618157 E B-24.546959 N 86.618377 E C-24.544932 N 86.620493 E D-24.544707 N 86.619880 E	Dadwa
5	AMBATARI RARLIYA	104(P)	RARIYA	MOHANPU	2.23	A- 24.59215 N 86.75726 E B-24.59279 N 86.75701 E C-24.59424 N 86.75945 E D-24.59368 N 86.75968 E	Chandan
		475(P)					



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SL NO	MAUZA	PLOT NO	PANCHAYAT	BLOCK	AREA IN (HA)	CO-ORDINATE	RIVER
6	SIRSIYA RARHIYA	287(P)	RARHIYA	MOHANPUR	1.58	A- 24.59135 N 86.76707 E B-24.59187 N 86.76706 E C-24.59315 N 86.76963 E D-24.59262 N 86.76974 E	Chandan
		19(P)					
7	RAKSA GADIBAHINGA	73(P)	RARHIYA	MOHANPUR	3.86	A- 24.59371 N 86.77963 E B-24.59433 N 86.78002 E C-24.59260 N 86.78393 E D-24.59196 N 86.78372 E	Chandan
		188(P)					
8	KUMHET PAREDIH SIRASIYA	68(P)	PAHARIA	SARWAN	1.5	A- 24.37011 N 86.72426 E B-24.37130 N 86.72625 E C-24.37088 N 86.72667 E D-24.36979 N 86.72450 E	Ratura Jor
		I(P)					
9	PAHARPUR SARKANDA	830(P)	CHANDDIH	DEOGHAR	4.56	A- 24.39103 N 86.71161 E B-24.39147 N 86.71266 E C-24.38970 N 86.71462 E D-24.38873 N 86.71364 E	Ajay
	BANDOE	311(P)	BASBARIYA				
10	SIRSIA	112(P)	RAJPURA	DEVIPUR	0.46	A- 24.42074 N 86.62845 E B-24.42138 N 86.62951 E C-24.42107 N 86.62957 E D-24.42054 N 86.62856 E	Choto
11	ASAHNA	03	BASANTPUR	SARATH	3.60	-	Ajay
12	TALJHARI	102, 191	KUKRAHA	SARATH	4.64	-	Ajay
13	NONI	01	ASANBANI	SARATH	5.00	-	Ajay

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Step-5:

Determination of Rate of Annual Replenishment of Sand

The most important aspect in river engineering is prediction of bed load, transport rates (Annual Replenishment Rate) in streams. Three modes of transport namely rolling, sliding and siltation may occur simultaneously in bed load transport. The different modes of transportation are closely related and it is difficult, to separate them completely. There are a number of empirical equations to compute the Rate of Annual Replenishment of Sand for a River.

(a) Replenishment Study Based on Empirical formula:-

The Replenishment study is based on use of theoretical empirical formula comprising of analytical models to calculate the replenishment estimation. Sedimentation in river bed depends on catchment yield, peak flood discharge, bed load transport rates & sediment yield characteristics of the river use of these empirical formula need assessment of catchment yield, peak flood discharge & sieve analysis of river bed material.

Commonly used Empirical Equation are given below:

(i) Ackers and White Equation:-

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

$$C_t = C_s G_s (d_{50}/h) (v/u_*')^{n'} [(F_{gr}/A_1) - 1]^m$$

The dimensionless particle d_{gr} is calculated by :

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

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

$$F_{gr} = (U_*'^{n'}/(G_s - 1)g d_{50})^{1/2} * (V/(5.66 \log (10/h d_{50}))^{1-n'}$$

Where,

- A_1 = Critical particle mobility factor
- C_s = Concentration coefficient in the sediments transport function
- C_t = Total sediments concentration
- d_{50} = Median grain size
- d_{gr} = Dimensionless particle diameter
- F_{gr} = Particle mobility parameter
- g = Acceleration of gravity
- D_g, 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
- v = Kinematic viscosity

(ii) Meyer - Peter's equation:

Meyer - Peter's equation is based on experimental work carried out at Federal Institute of Technology Zurich. Mayer - Peter gave a dimensionless equation based, Mayer - Peter equations giving an empirical correlation of bed load transport rates in flumes and natural rivers.

The simplified Meyer - Peter's equation is given below:

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

Where,

g_b = Rate of bed load transport (by weight) in **N per m width of channel per second.**

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η' = Manning's coefficient pertaining to grain size on an unrippled bed and stickler formula i.e $\eta' = (1/24) \times d^{1/6}$ 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 11 cu.mecs, and 0.0225 for lower discharges.

τ_c = Critical shear stress required to move the grain in N/m^2 and given by equation $\tau_c = 0.68 \gamma d_a$, where d_a 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} .

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

(iii) Dandy - Bolton Equation :

Dandy - Bolton formula is has commonly been used to calculate the sedimentation yield because:

The formula uses catchment area and mean annual run-off as key determinants.

It does not differentiate in basin wide smaller streams and their characteristics.

Dandy and Bolton equation calculates all type of sediment yield i.e sheet and rill erosion gully erosion, channel bed and **bank erosion and mass movement etc.**

Dandy - Bolton determined the combined the influence of run-off 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:

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

For run-off more than 2 inches:


$$(Q > 2\text{in}): S = 1958 * (e^{-0.055 * Q} [1.43 - 0.26 \text{Log}(A)])$$

Where S = sediment yield (tonnes/sq. miles/yr.)

Q = Mean Annual run-off (inch)

A = Net drainage are in sq. mile

Dandy Bolton formula is often used to calculate the sedimentation yield. But use of these equations to predict sediment yield for a specific location would may not give accurate result 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 plant density because the equations are derived from average values. The equations express the general relationships between sediment yield, run-off and 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 decrease as drainage as drainage area increases. As drainage area increases, average land slopes 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.


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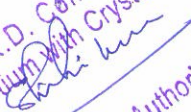
(iv) Catchment Yield Calculation:-

Total quantity of water that is expected in a given period from a stream at the outlet of catchment is known as yield of the catchment in that period. Annual yield from a catchment is the end product of various processes such as precipitation, infiltration & evapotranspiration operating on the catchment.

Catchment yield (m³) = Catchment area (m²) x Run-off co-efficient (%) of rainfall (m).
Run-off generated from the water shed has been analysed using Strange's Table No.-16 method to get the reliable yield results. Run-off from a catchment is dependent on annual rainfall as well as catchment characteristics such as soil by type of ground covering land usage. Remote Sensing was used for demarcation of catchment area relevant to drainage system. Catchment of different rivers flowing in the district of Deoghar are given in table-11.

Run-off co-efficient of the catchment has been established based on Strange's table (Table-16) 50% probability of rainfall.



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**Table-16
Strange Table**

Total Monsoon rainfall (inches)	Total Monsoon rainfall (mm)	Percentage of Runoff to rainfall			Total Monsoon rainfall (inches)	Total Monsoon rainfall (mm)	Percentage of Runoff to rainfall		
		Good catchment	Average catchment	Bad catchment			Good catchment	Average catchment	Bad catchment
1.0	25.4	0.1	0.1	0.1	31.0	787.4	27.4	20.5	13.7
2.0	50.8	0.2	0.2	0.1	32.0	812.8	28.5	21.3	14.2
3.0	76.2	0.4	0.3	0.2	33.0	838.2	29.6	22.2	14.8
4.0	101.6	0.7	0.5	0.3	34.0	863.6	30.8	23.1	15.4
5.0	127.0	1.0	0.7	0.5	35.0	889.0	31.9	23.9	15.9
6.0	152.4	1.5	1.1	0.7	36.0	914.4	33.0	24.7	16.5
7.0	177.8	2.1	1.5	1.0	37.0	939.8	34.1	25.5	17.0
8.0	203.2	2.8	2.1	1.4	38.0	965.2	35.3	26.4	17.6
9.0	228.6	3.5	2.6	1.7	39.0	990.6	36.4	27.3	18.2
10.0	254.0	4.3	3.2	2.1	40.0	1016.0	37.5	28.1	18.7
11.0	279.4	5.2	3.9	2.6	41.0	1041.4	38.6	28.9	19.3
12.0	304.8	6.2	4.6	3.1	42.0	1066.8	39.8	29.8	19.9
13.0	330.2	7.2	5.4	3.6	43.0	1092.2	40.9	30.6	20.4
14.0	355.6	8.3	6.2	4.1	44.0	1117.6	42.0	31.5	21.0
15.0	381.0	9.4	7.0	4.7	45.0	1143.0	43.1	32.3	21.5
16.0	406.4	10.5	7.8	5.2	46.0	1168.4	44.3	33.2	22.1
17.0	431.8	11.6	8.7	5.8	47.0	1193.8	45.4	34.0	22.7
18.0	457.2	12.8	9.6	6.4	48.0	1219.2	46.5	34.8	23.2
19.0	482.6	13.9	10.4	6.9	49.0	1244.6	47.6	35.7	23.8
20.0	508.0	15.0	11.3	7.5	50.0	1270.0	48.8	36.6	24.4
21.0	533.4	16.1	12.0	8.0	51.0	1295.4	49.9	37.4	24.9
22.0	558.8	17.3	12.9	8.6	52.0	1320.8	51.0	38.2	25.5
23.0	584.2	18.4	13.8	9.2	53.0	1346.2	52.1	39.0	26.0
24.0	609.6	19.5	14.6	9.7	54.0	1371.6	53.3	39.9	26.6
25.0	635.0	20.6	15.4	10.3	55.0	1397.0	54.4	40.8	27.2
26.0	660.4	21.8	16.3	10.9	56.0	1422.4	55.5	41.6	27.7
27.0	685.8	22.9	17.1	11.4	57.0	1447.8	56.6	42.4	28.3
28.0	711.2	24.0	18.0	12.0	58.0	1473.2	57.8	43.3	28.9
29.0	736.6	25.1	18.8	12.5	59.0	1498.6	58.9	44.4	29.4
30.0	762.0	26.3	19.7	13.1	60.0	1524.0	60.0	45.0	30.0

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**Catchment Yield and Peak Flood Discharge
Table - 17 (Rainfall in descending order)
River - Ajay**

Sl. No. (n)	Rainfall in descending order in mm	Year	%dependability (n/N+1)*100
1	1707.70	2002	4.76
2	1648.30	2007	9.52
3	1552.70	2006	14.29
4	1455.50	2001	19.05
5	1347.70	2004	23.81
6	1197.10	2011	28.57
7	1188.20	2014	33.33
8	1156.70	2008	38.10
9	1094.30	2019	42.86
10	1012.00	2009	47.62
11	1003.40	2016	52.38
12	985.40	2003	57.14
13	930.80	2013	61.90
14	875.20	2005	66.67
15	840.30	2012	71.43
16	839.01	2020	76.19
17	746.40	2015	80.95
18	737.60	2010	85.71
19	733.10	2017	90.48
20	600.60	2018	95.24

$$m = \frac{n \times p}{100}$$

Where

N = number of years for which rainfall observation available

m = Order No.

p = Rainfall dependability percentage

In present case N=20, p=50% dependability of rainfall, 50%

$$m = (20 \times 50) / 100 = 10$$

Corresponding to m = 10 the rainfall have been observed as 1012.0 mm

$$n = \frac{28.1 \times 1.012}{100} = 0.284 \quad m$$

Referring to strange table give in table No.- 16 and taking catchment as average the run-off coefficient is 28.1%

With this catchment yield works out to (976.54 x 1000 x 1000 x 0.284) =

396.48 MCM

Calculation of Peak flood Discharge using dickens equation

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

Where Q = Peak flood discharge, C a constant depending on characteristics of the catchment, a = catchment area in sqkm

In the present case C = 11, a = 976.54

$$= 11 \times 976.54^{3/4}$$

$$= 1921.58 \times 381.46^{3/4} = 11 \times (976.54)^{3/4}$$

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**Catchment Yield and Peak Flood Discharge
Table - 18 (Rainfall in descending order)
River - Jayanti**

Sl. No. (n)	Rainfall in descending order in mm	Year	%dependability (n/N+1)*100
1	1707.70	2002	4.76
2	1648.30	2007	9.52
3	1552.70	2006	14.29
4	1455.50	2001	19.05
5	1347.70	2004	23.81
6	1197.10	2011	28.57
7	1188.20	2014	33.33
8	1156.70	2008	38.10
9	1094.30	2019	42.86
10	1012.00	2009	47.62
11	1003.40	2016	52.38
12	985.40	2003	57.14
13	930.80	2013	61.90
14	875.20	2005	66.67
15	840.30	2012	71.43
16	839.01	2020	76.19
17	746.40	2015	80.95
18	737.60	2010	85.71
19	733.10	2017	90.48
20	600.60	2018	95.24

$$m = \frac{n \times p}{100}$$

Where

N = number of years for which rainfall observation available

m = Order No.

p = Rainfall dependability percentage

In present case N=20, p=50% dependability of rainfall, 50%

$$m = (20 \times 50) / 100 = 10$$

Corresponding to m = 10 the rainfall have been observed as 1012.0 mm

$$n = \frac{28.1 \times 1.012}{100} = 0.284 \text{ m}$$

Referring to strange table give in table No.- 16 and taking catchment as average the run-off coefficient is 28.1%

With this catchment yield works out to (216.27 x 1000 x 1000 x 0.284) = 87.81 MCM

Calculation of Peak flood Discharge using dickens equation

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

Where Q = Peak flood discharge, C a constant depending on characteristics of the catchment, a = catchment area in sq.km

In the present case C = 11, a = 216.27

$$= 11 \times 84.48^{3/4} = 11 \times (216.27)^{3/4}$$

$$= 620.35$$

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**Catchment Yield and Peak Flood Discharge
Table - 19 (Rainfall in descending order)
River - Pathro**

Sl. No. (n)	Rainfall in descending order in mm	Year	%dependability (n/N+1)*100
1	1707.70	2002	4.76
2	1648.30	2007	9.52
3	1552.70	2006	14.29
4	1455.50	2001	19.05
5	1347.70	2004	23.81
6	1197.10	2011	28.57
7	1188.20	2014	33.33
8	1156.70	2008	38.10
9	1094.30	2019	42.86
10	1012.00	2009	47.62
11	1003.40	2016	52.38
12	985.40	2003	57.14
13	930.80	2013	61.90
14	875.20	2005	66.67
15	840.30	2012	71.43
16	839.01	2020	76.19
17	746.40	2015	80.95
18	737.60	2010	85.71
19	733.10	2017	90.48
20	600.60	2018	95.24

$$m = \frac{n \times p}{100}$$

Where

N = number of years for which rainfall observation available

m = Order No.

p = Rainfall dependability percentage

In present case N=20, p=50% dependability of rainfall, 50%

$$m = (20 \times 50) / 100 = 10$$

Corresponding to m = 10 the rainfall have been observed as 1012.0 mm

$$n = \frac{28.1 \times 1.012}{100} = 0.284 \text{ m}$$

Referring to strange table give in table No.- 16 and taking catchment as average the run-off coefficient is 28.1%

With this catchment yield works out to $(257.05 \times 1000 \times 1000 \times 0.284) = 104.36 \text{ MCM}$

Calculation of Peak flood Discharge using dickens equation

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

Where Q = Peak flood discharge, C a constant depending on characteristics of the catchment, a = catchment area in sqkm

In the present case C = 11, a = 257.05

$$= 11 \times 257.05^{3/4} = 100.41374 = 11 \times (257.05)^{3/4}$$

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Table - 20 - River wise rate of replenishment using Sandy - Bolton equation

Ajay River (Deoghar)

=	1958	(	2.56 ^{-0.055}	x	3.78	[	1.43	-	0.26	x	Log 381.46])
=	1958	(	2.56 ^{-0.055}	x	3.78	[	1.43	-	0.26	x	2.581449
=	1958	(	2.56 ^{-0.055}	x	3.78	[	1.43	-	0.671177		
=	1958	(	2.56 ^{-0.055}	x	3.78	[	0.75882				
=	1958	(	2.56 ^{-0.055}	x	2.8684						
=	1958	(	0.94961	x	2.8684						
=	5333.2498 ton/sq mile/year										

Jayanti River (Deoghar)

=	1958	(	2.56 ^{-0.055}	x	2.91	[	1.43	-	0.26	x	Log 84.48])
=	1958	(	2.56 ^{-0.055}	x	2.91	[	1.43	-	0.26	x	1.92675391
=	1958	(	2.56 ^{-0.055}	x	2.91	[	1.43	-	0.500956		
=	1958	(	2.56 ^{-0.055}	x	2.91	[	0.92904				
=	1958	(	2.56 ^{-0.055}	x	2.7035						
=	1958	(	0.94961	x	2.7035						
=	5026.767 ton/sq mile/year										

Pathro River (Deoghar)

=	1958	(	2.56 ^{-0.055}	x	3.49	[	1.43	-	0.26	x	Log 100.41])
=	1958	(	2.56 ^{-0.055}	x	3.49	[	1.43	-	0.26	x	2.00177697
=	1958	(	2.56 ^{-0.055}	x	3.49	[	1.43	-	0.520462		
=	1958	(2.56 ^{-0.055}	x	3.49	[0.90954				
=	1958	(2.56 ^{-0.055}	x	3.1743						
=	1958	(0.94961	x	3.1743						
=	5902.0891 ton/sq mile/year										

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Determination of Rate of Annual Replenishment Based on Field Survey

Rate of annual replenishment of sand has been determined by considering field survey data generated during pre-monsoon & post -monsoon (elevation of sand deposit).

However in this case, where there has been no mining of sand during last year.

The rate of replenishment arrived by this method may not be realistic.

It may also be noted that sand was mined in following five ghats as discussed earlier in Chapter-III, Table-1.

Methodology :-

As explained earlier, level of sand deposit in river channel were measured at pre-determined locations points pre monsoon & post monsoon. Replenishment volume was estimate by determination of change in area as explained in following figures.

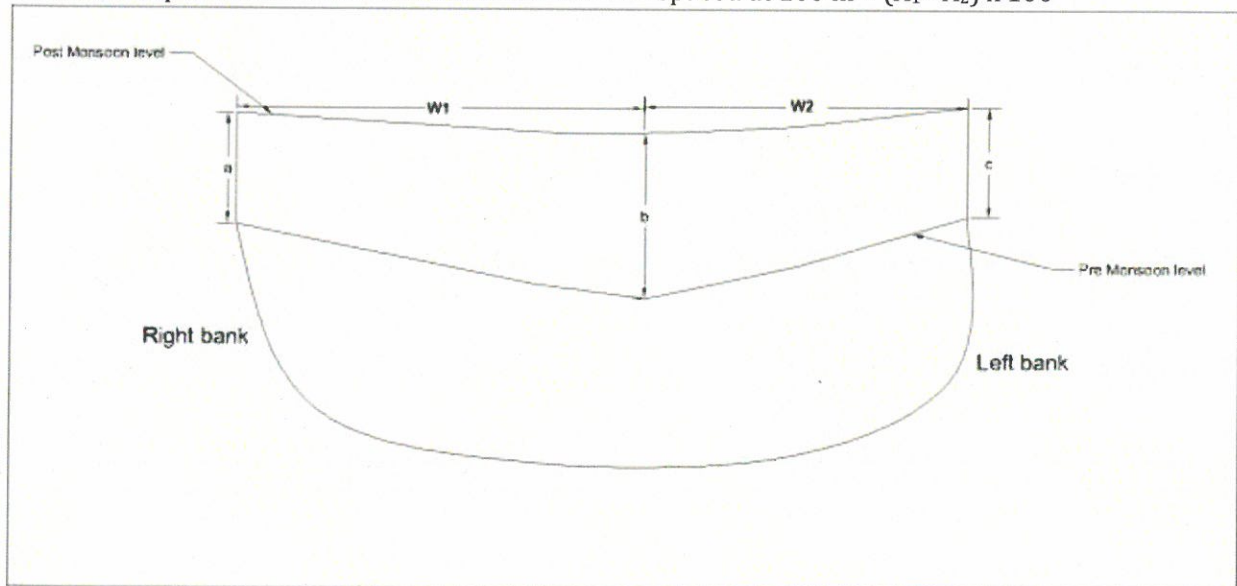
$$A = (a+b/2) \times W1$$

difference of level area of C.S = $(a+b)/2 + (b+c)/2$

$$A2 = (b+c/2) \times W2$$

$$\text{Area of replenishment} = A_1 + A_2$$

$$\text{Volume of replenishment between two cross sections spaced at 100 m} = (A_1 + A_2) \times 100$$



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Table - 21

Sand Replenishment Estimation Sheet												
District- DEOGHAR			River- PATHRO		Mauza- MADANPUR, BAGHMARA, BALAMPUR, DHANITANR, JORASIMAR					UNI-DPA01		
					Volume between Consecutive Axis							
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)
			Pre Monsoon	Post Monsoon								
1	LOG/00	205	242.15	242.15	0.00							
	ROG/00		242.25	242.25	0.00							
	LSD/00		240.62	241.22	0.60	0.60						
	RSD/00		240.5	241.2	0.70		0.70		0.65			
	MSD/00		240.32	240.92	0.60			0.60		0.65	133.25	
2	LOG/100	203	242.17	242.17	0.00							
	ROG/100		242.25	242.25	0.00							
	LSD/100		240.4	241.1	0.70	0.70						
	RSD/100		240.53	241.13	0.60		0.60		0.65			
	MSD/100		240.23	240.83	0.60			0.60		0.60	126.875	6477
3	LOG/200	195	241.9	241.9	0.00							
	ROG/200		241.15	241.15	0.00							
	LSD/200		240.38	240.98	0.60	0.60						
	RSD/200		240.29	240.99	0.70		0.70		0.65			
	MSD/200		240.21	240.71	0.50			0.50		0.60	121.875	6220.62
4	LOG/300	195	241.95	241.95	0.00							
	ROG/300		241.25	241.25	0.00							
	LSD/300		240.41	240.91	0.50	0.50						
	RSD/300		240.3	240.9	0.60		0.60		0.55			
	MSD/300		240.13	240.63	0.50			0.50		0.55	107.25	5484.37
5	LOG/400	190	241.9	241.9	0.00							
	ROG/400		242	242	0.00							
	LSD/400		240.24	240.84	0.60	0.60						
	RSD/400		240.32	240.82	0.50		0.50		0.55			
	MSD/400		239.82	240.52	0.70			0.70		0.60	109.25	5569.75
6	LOG/500	205	242.1	242.1	0.00							
	ROG/500		241.95	241.95	0.00							
	LSD/500		239.95	240.75	0.80	0.80						
	RSD/500		240.06	240.76	0.70		0.70		0.75			
	MSD/500		239.96	240.46	0.50			0.50		0.60	138.375	7028
7	LOG/600	180	241.7	241.7	0.00							
	ROG/600		241.99	241.99	0.00							
	LSD/600		240.05	240.65	0.60	0.60						
	RSD/600		240.03	240.63	0.60		0.60		0.60			
	MSD/600		239.73	240.33	0.60			0.60		0.60	108	5538.37

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8	LOG/700	176	242	241.50	0.00								
	ROG/700		242	241.60	0.00								
	LSD/700		239.84	240.54	0.70	0.70							
	RSD/700		240.02	240.52	0.50		0.50		0.60				
	MSD/700		239.60	240.20	0.60			0.60		0.55	101.2	5168	
9	LOG/800	192	241.62	241.62	0.00								
	ROG/800		241.35	241.35	0.00								
	LSD/800		239.8	240.4	0.60	0.60							
	RSD/800		239.63	240.43	0.80		0.80		0.70				
	MSD/800		239.58	240.08	0.50			0.50		0.65	129.6	6581.2	
10	LOG/900	200	241.3	241.3	0.00								
	ROG/900		241.5	241.5	0.00								
	LSD/900		239.78	240.28	0.50	0.50							
	RSD/900		239.6	240.3	0.70		0.70		0.60				
	MSD/900		239.38	239.98	0.60			0.60		0.65	125	6379.6	
11	LOG/1000	176	241.2	241.2	0.00								
	ROG/1000		241.25	241.25	0.00								
	LSD/1000		239.65	240.15	0.50	0.50							
	RSD/1000		239.49	240.19	0.70		0.70		0.60				
	MSD/1000		239.27	239.87	0.60			0.60		0.65	110	5625	
12	LOG/1100	185	241.25	241.25	0.00								
	ROG/1100		241.1	241.1	0.00								
	LSD/1100		239.5	240	0.50	0.50							
	RSD/1100		239.43	240.13	0.70		0.70		0.60				
	MSD/1100		239.15	239.75	0.60			0.60		0.65	115.625	5891.25	
13	LOG/1200	195	241	241	0.00								
	ROG/1200		241.25	241.25	0.00								
	LSD/1200		239.34	239.84	0.50	0.50							
	RSD/1200		239.32	240.02	0.70		0.70		0.60				
	MSD/1200		239.05	239.65	0.60			0.60		0.65	121.875	6209.37	
14	LOG/1300	201	240.9	240.9	0.00								
	ROG/1300		240.99	240.99	0.00								
	LSD/1300		239.22	239.72	0.50	0.50							
	RSD/1300		239.27	239.97	0.70		0.70		0.60				
	MSD/1300		238.92	239.52	0.60			0.60		0.65	125.625	6403.12	
15	LOG/1400	205	241.01	241.01	0.00								
	ROG/1400		240.65	240.65	0.00								
	LSD/1400		238.98	239.48	0.50	0.50							
	RSD/1400		239.12	239.82	0.70		0.70		0.60				
	MSD/1400		238.73	239.33	0.60			0.60		0.65	128.125	6531.87	
16	LOG/1500	210	240.8	240.8	0.00								
	ROG/1500		241.02	241.02	0.00								
	LSD/1500		239.28	239.78	0.50	0.50							
	RSD/1500		238.93	239.63	0.70		0.70		0.60				
	MSD/1500		238.43	239.03	0.60			0.60		0.65	131.25	6690.62	

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17	LOG/1631	206	241.2	241.2	0.00							
	ROG/1631		240.85	240.85	0.00							
	LSD/1631		239.02	239.52	0.50	0.50						
	RSD/1631		238.82	239.52	0.70		0.70		0.60			
	MSD/1631		238.25	238.85	0.60			0.60		0.65	128.75	6568.75
										Total	98366.9	

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Sand Replenishment Estimation Sheet

District- DEOGHAR

River- PATRHRO

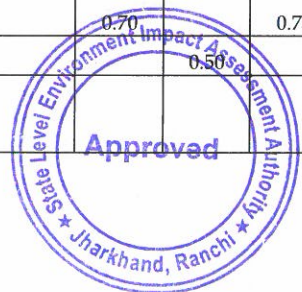
Mauza- BANDGARI,
DOMANDIH, CHOUDHRIDIH,
BUDHAI

UNI-DPA02

Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)
			Pre Monsoon	Post Monsoon								
			Volume between Consecutive Axis									
1	LOG/00	287	233.25	233.25	0.00							
	ROG/00		233.7	233.7	0.00							
	LSD/00		231.56	232.16	0.60	0.60						
	RSD/00		231.93	232.63	0.70		0.70		0.65			
	MSD/00		322.5	323.1	0.60			0.60		0.65	186.55	
2	LOG/100	280	232.99	232.99	0.00							
	ROG/100		233.5	233.5	0.00							
	LSD/100		231.27	231.97	0.70	0.70						
	RSD/100		231.85	232.45	0.60		0.60		0.65			
	MSD/100		231.32	231.92	0.60			0.60		0.60	175	8936.55
3	LOG/200	285	232.9	232.9	0.00							
	ROG/200		233.35	233.35	0.00							
	LSD/200		231.23	231.83	0.60	0.60						
	RSD/200		231.5	232.2	0.70		0.70		0.65			
	MSD/200		231.27	231.77	0.50			0.50		0.60	178.125	9081.25
4	LOG/300	289	232.7	232.7	0.00							
	ROG/300		232.7	232.7	0.00							
	LSD/300		231.18	231.68	0.50	0.50						
	RSD/300		231.3	231.9	0.60		0.60		0.55			
	MSD/300		231.12	231.62	0.50			0.50		0.55	158.95	8125.62
5	LOG/400	285	232.81	232.81	0.00							
	ROG/400		232.45	232.45	0.00							
	LSD/400		230.93	231.53	0.60	0.60						
	RSD/400		231.22	231.72	0.50		0.50		0.55			
	MSD/400		230.76	231.46	0.70			0.70		0.60	163.875	8352.7
6	LOG/500	282	232.5	232.5	0.00							
	ROG/500		232.6	232.6	0.00							
	LSD/500		230.57	231.37	0.80	0.80						
	RSD/500		230.85	231.55	0.70		0.70		0.75			
	MSD/500		230.79	231.29	0.50			0.50		0.60	190.35	9681.37

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7	LOG/600	281	232.4	232.4	0.00								
	ROG/600		232.45	232.45	0.00								
	LSD/600		230.62	231.22	0.60	0.60							
	RSD/600		230.79	231.39	0.60		0.60		0.60				
	MSD/600		230.56	231.16	0.60			0.60		0.60	168.6	8620.35	
8	LOG/700	280	232	232.10	0.00								
	ROG/700		232	232.25	0.00								
	LSD/700		230.36	231.06	0.70	0.70							
	RSD/700		230.66	231.16	0.50		0.50		0.60				
	MSD/700		230.41	231.01	0.60			0.60		0.55	161	8218.6	
9	LOG/800	283	231.99	231.99	0.00								
	ROG/800		231.88	231.88	0.00								
	LSD/800		230.3	230.9	0.60	0.60							
	RSD/800		230.14	230.94	0.80		0.80		0.70				
	MSD/800		230.36	230.86	0.50			0.50		0.65	191.025	9712.25	
10	LOG/910	285	231.75	231.75	0.00								
	ROG/910		232	232	0.00								
	LSD/910		230.26	230.76	0.50	0.50							
	RSD/910		230.1	230.8	0.70		0.70		0.60				
	MSD/910		230.12	230.72	0.60			0.60		0.65	178.125	9097.27	
Total										79826			

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Sand Replenishment Estimation Sheet

District- DEOGHAR

River- PATHRO

Mauza- PHULKARI,
BHARTIDIH, MATHURAPUR

UNI-DPA03

					Volume between Consecutive Axis							
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)
			Pre Monsoon	Post Monsoon								
1	LOG/00	176	229.55	229.55	0.00							
	ROG/00		229.7	229.7	0.00							
	LSD/00		227.81	228.41	0.60	0.60						
	RSD/00		227.89	228.59	0.70		0.70		0.65			
	MSD/00		227.89	228.49	0.60			0.60		0.65	114.4	
2	LOG/100	175	229.4	229.4	0.00							
	ROG/100		229.45	229.45	0.00							
	LSD/100		227.63	228.33	0.70	0.70						
	RSD/100		227.91	228.51	0.60		0.60		0.65			
	MSD/100		227.82	228.42	0.60			0.60		0.60	109.375	5583.15
3	LOG/200	173	229.3	229.3	0.00							
	ROG/200		229.5	229.5	0.00							
	LSD/200		227.67	228.27	0.60	0.60						
	RSD/200		227.74	228.44	0.70		0.70		0.65			
	MSD/200		227.86	228.36	0.50			0.50		0.60	108.125	5515.62
4	LOG/300	171	229.3	229.3	0.00							
	ROG/300		229.3	229.3	0.00							
	LSD/300		227.71	228.21	0.50	0.50						
	RSD/300		227.77	228.37	0.60		0.60		0.55			
	MSD/300		227.79	228.29	0.50			0.50		0.55	94.05	4810.62
5	LOG/400	169	229.2	229.2	0.00							
	ROG/400		229.2	229.2	0.00							
	LSD/400		227.53	228.13	0.60	0.60						
	RSD/400		227.79	228.29	0.50		0.50		0.55			
	MSD/400		227.51	228.21	0.70			0.70		0.60	97.175	4952.8
6	LOG/500	172	229.1	229.1	0.00							
	ROG/500		228.13	228.13	0.00							
	LSD/500		227.25	228.05	0.80	0.80						
	RSD/500		226.34	227.01	0.70		0.70		0.75			
	MSD/500		227.67	228.12	0.50			0.50		0.60	116.1	5902.17

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7	LOG/600	175	228.9	228.9	0.00							
	ROG/600		228.05	228.05	0.00							
	LSD/600		227.39	227.99	0.60	0.60						
	RSD/600		226.41	227.01	0.60		0.60		0.60			
	MSD/600		226.23	226.83	0.60			0.60		0.60	105	5366.1
8	LOG/700	176	228	228.05	0.00							
	ROG/700		228	227.85	0.00							
	LSD/700		226.34	227.04	0.70	0.70						
	RSD/700		226.43	226.93	0.50		0.50		0.60			
	MSD/700		226.16	226.76	0.60			0.60		0.55	101.2	5165
9	LOG/800	178	227.5	227.5	0.00							
	ROG/800		227.9	227.9	0.00							
	LSD/800		226.03	226.63	0.60	0.60						
	RSD/800		226.06	226.86	0.80		0.80		0.70			
	MSD/800		226.15	226.65	0.50			0.50		0.65	120.15	6108.7
10	LOG/900	180	227.3	227.3	0.00							
	ROG/900		227.9	227.9	0.00							
	LSD/900		225.77	226.27	0.50	0.50						
	RSD/900		226.06	226.76	0.70		0.70		0.60			
	MSD/900		225.9	226.5	0.60			0.60		0.65	112.5	5745.15
11	LOG/1000	181	227.55	227.55	0.00							
	ROG/1000		227.7	227.7	0.00							
	LSD/1000		225.8	226.4	0.60	0.60						
	RSD/1000		225.82	226.62	0.80		0.80		0.70			
	MSD/1000		225.88	226.38	0.50			0.50		0.65	122.175	6221.25
12	LOG/1100	183	227.1	227.1	0.00							
	ROG/1100		227.55	227.55	0.00							
	LSD/1100		225.7	226.2	0.50	0.50						
	RSD/1100		225.71	226.41	0.70		0.70		0.60			
	MSD/1100		225.61	226.21	0.60			0.60		0.65	114.375	5840.92
12	LOG/1200	179	227	227	0.00							
	ROG/1200		227.25	227.25	0.00							
	LSD/1200		225.52	226.02	0.50	0.50						
	RSD/1200		225.51	226.21	0.70		0.70		0.60			
	MSD/1200		225.43	226.03	0.60			0.60		0.65	111.875	5708.12

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12	LOG/1300	177	226.85	226.85	0.00							
	ROG/1300		227.02	227.02	0.00							
	LSD/1300		225.38	225.88	0.50	0.50						
	RSD/1300		225.32	226.02	0.70		0.70		0.60			
	MSD/1300		225.25	225.85	0.60			0.60		0.65	110.625	5643.12
12	LOG/1400	175	226.63	226.63	0.00							
	ROG/1400		226.79	226.79	0.00							
	LSD/1400		225.2	225.7	0.50	0.50						
	RSD/1400		225.21	225.91	0.70		0.70		0.60			
	MSD/1400		225.11	225.71	0.60			0.60		0.65	109.375	5579.37
12	LOG/1480	176	226.51	226.51	0.00							
	ROG/1480		226.59	226.59	0.00							
	LSD/1480		225.05	225.55	0.50	0.50						
	RSD/1480		225.08	225.78	0.70		0.70		0.60			
	MSD/1480		224.97	225.57	0.60			0.60		0.65	110	5609.37
Total										83751.5		

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Sand Replenishment Estimation Sheet

District- DEOGHAR

River- PATHRO

Mauza- ARARIA,
SAPTABANDH, JARIADIH,
LALDEDIH

UNI-DPA04

Volume between Consecutive Axis

Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)
			Pre Monsoon	Post Monsoon								
1	LOG/00	401	224.15	224.15	0.00							
	ROG/00		224.1	224.1	0.00							
	LSD/00		222.44	223.04	0.60	0.60						
	RSD/00		222.32	223.02	0.70		0.70		0.65			
	MSD/00		222.39	222.99	0.60			0.60		0.65	260.65	
2	LOG/100	405	223.9	223.9	0.00							
	ROG/100		223.75	223.75	0.00							
	LSD/100		222.16	222.86	0.70	0.70						
	RSD/100		222.24	222.84	0.60		0.60		0.65			
	MSD/100		222.2	222.8	0.60			0.60		0.60	253.125	12916.9
3	LOG/200	398	223.9	223.9	0.00							
	ROG/200		224	224	0.00							
	LSD/200		222.03	222.63	0.60	0.60						
	RSD/200		221.91	222.61	0.70		0.70		0.65			
	MSD/200		222.08	222.58	0.50			0.50		0.60	248.75	12690.6
4	LOG/300	395	223.5	223.5	0.00							
	ROG/300		223.1	223.1	0.00							
	LSD/300		221.93	222.43	0.50	0.50						
	RSD/300		221.81	222.41	0.60		0.60		0.55			
	MSD/300		221.86	222.36	0.50			0.50		0.55	217.25	11111.2
5	LOG/400	400	223.48	223.48	0.00							
	ROG/400		223.55	223.55	0.00							
	LSD/400		221.57	222.17	0.60	0.60						
	RSD/400		221.68	222.18	0.50		0.50		0.55			
	MSD/400		221.44	222.14	0.70			0.70		0.60	230	11717.2
6	LOG/500	405	223	223	0.00							
	ROG/500		222.8	222.8	0.00							
	LSD/500		221.17	221.97	0.80	0.80						
	RSD/500		221.3	222	0.70				0.75			
	MSD/500		221.42	221.92	0.50			0.50		0.60	273.375	13898.7

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7	LOG/600	402	223.1	223.1	0.00							
	ROG/600		222.99	222.99	0.00							
	LSD/600		221.17	221.77	0.60	0.60						
	RSD/600		221.15	221.75	0.60		0.60		0.60			
	MSD/600		221.1	221.7	0.60			0.60		0.60	241.2	12333.4
8	LOG/700	407	223	223.00	0.00							
	ROG/700		223	222.95	0.00							
	LSD/700		220.91	221.61	0.70	0.70						
	RSD/700		221.10	221.60	0.50		0.50		0.60			
	MSD/700		220.94	221.54	0.60			0.60		0.55	234.025	11942.4
9	LOG/800	391	222.5	222.5	0.00							
	ROG/800		222.65	222.65	0.00							
	LSD/800		220.82	221.42	0.60	0.60						
	RSD/800		220.6	221.4	0.80		0.80		0.70			
	MSD/800		220.87	221.37	0.50			0.50		0.65	263.925	13430.3
9	LOG/900	390	222.3	222.3	0.00							
	ROG/900		222.41	222.41	0.00							
	LSD/900		220.71	221.31	0.60	0.60						
	RSD/900		220.48	221.28	0.80		0.80		0.70			
	MSD/900		220.76	221.26	0.50			0.50		0.65	263.25	13426.4
9	LOG/1000	395	222.11	222.11	0.00							
	ROG/1000		222.18	222.18	0.00							
	LSD/1000		220.59	221.19	0.60	0.60						
	RSD/1000		220.42	221.22	0.80		0.80		0.70			
	MSD/1000		220.67	221.17	0.50			0.50		0.65	266.625	13594.5
9	LOG/1077	395	221.89	221.89	0.00							
	ROG/1077		221.95	221.95	0.00							
	LSD/1077		220.36	220.96	0.60	0.60						
	RSD/1077		220.2	221	0.80		0.80		0.70			
	MSD/1077		220.44	220.94	0.50			0.50		0.65	266.625	13597.9
Total										140660		

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Sand Replenishment Estimation Sheet

District- DEOGHAR

River- PATHRO

Mauza- BANK, KARANPURA,
HETHBURGUNIA

UNI-DPA05

Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Volume between Consecutive Axis								
			Pre Monsoon	Post Monsoon	Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)	
1	LOG/00	310	217.5	217.5	0.00								
	ROG/00		217.55	217.55	0.00								
	LSD/00		215.81	216.41	0.60	0.60							
	RSD/00		215.7	216.4	0.70		0.70		0.65				
	MSD/00		215.75	216.35	0.60			0.60		0.65	201.5		
2	LOG/100	315	217.3	217.3	0.00								
	ROG/100		217.25	217.25	0.00								
	LSD/100		215.47	216.17	0.70	0.70							
	RSD/100		215.56	216.16	0.60		0.60		0.65				
	MSD/100		215.51	216.11	0.60			0.60		0.60	196.875	10045.2	
3	LOG/200	318	216.99	216.99	0.00								
	ROG/200		217	217	0.00								
	LSD/200		215.3	215.9	0.60	0.60							
	RSD/200		215.19	215.89	0.70		0.70		0.65				
	MSD/200		215.38	215.88	0.50			0.50		0.60	198.75	10134.4	
4	LOG/300	315	216.95	216.95	0.00								
	ROG/300		16.8	16.8	0.00								
	LSD/300		215.22	215.72	0.50	0.50							
	RSD/300		215.11	215.71	0.60		0.60		0.55				
	MSD/300		215.16	215.66	0.50			0.50		0.55	173.25	8861.25	
5	LOG/400	313	216.6	216.6	0.00								
	ROG/400		216.55	216.55	0.00								
	LSD/400		214.89	215.49	0.60	0.60							
	RSD/400		214.98	215.48	0.50		0.50		0.55				
	MSD/400		214.72	215.42	0.70			0.70		0.60	179.975	9172	
6	LOG/500	315	216.3	216.3	0.00								
	ROG/500		216.35	216.35	0.00								
	LSD/500		214.47	215.27	0.80	0.80							
	RSD/500		214.56	215.26	0.70		0.70		0.75				
	MSD/500		214.69	215.19	0.50			0.50		0.60	212.625	10811.2	

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7	LOG/600	310	216.1	216.1	0.00										
	ROG/600		216.22	216.22	0.00										
	LSD/600		214.42	215.02	0.60	0.60									
	RSD/600		214.42	215.02	0.60		0.60		0.60						
	MSD/600		214.36	214.96	0.60			0.60		0.60	186	9512.62			
8	LOG/700	309	216	215.90	0.00										
	ROG/700		216	215.95	0.00										
	LSD/700		214.11	214.81	0.70	0.70									
	RSD/700		214.30	214.80	0.50		0.50		0.60						
	MSD/700		214.13	214.73	0.60			0.60		0.55	177.675	9069.75			
8	LOG/800	306	216	215.71	0.00										
	ROG/800		216	215.78	0.00										
	LSD/800		214.02	214.72	0.70	0.70									
	RSD/800		214.19	214.69	0.50		0.50		0.60						
	MSD/800		214.01	214.61	0.60			0.60		0.55	175.95	8975.17			
8	LOG/900	304	216	215.51	0.00										
	ROG/900		216	215.58	0.00										
	LSD/900		213.91	214.61	0.70	0.70									
	RSD/900		214.09	214.59	0.50		0.50		0.60						
	MSD/900		213.92	214.52	0.60			0.60		0.55	174.8	8915.95			
8	LOG/1032	310	215	215.31	0.00										
	ROG/1032		215	215.39	0.00										
	LSD/1032		213.82	214.52	0.70	0.70									
	RSD/1032		213.99	214.49	0.50		0.50		0.60						
	MSD/1032		213.80	214.40	0.60			0.60		0.55	178.25	9087.3			
Total															94584.9

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Sand Replenishment Estimation Sheet

District- DEOGHAR

River- PATHRO

Mauza- BUDHIBAGAICHA,
GANGOMARNI

UNI-DPA06

					Volume between Consecutive Axis							
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)
			Pre Monsoon	Post Monsoon								
1	LOG/00	152	210.55	210.55	0.00							
	ROG/00		210.25	210.25	0.00							
	LSD/00		208.74	209.34	0.60	0.60						
	RSD/00		208.65	209.35	0.70		0.70		0.65			
	MSD/00		208.71	209.31	0.60			0.60		0.65	98.8	
2	LOG/100	163	210.3	210.3	0.00							
	ROG/100		210.25	210.25	0.00							
	LSD/100		208.56	209.26	0.70	0.70						
	RSD/100		208.64	209.24	0.60		0.60		0.65			
	MSD/100		208.59	209.19	0.60			0.60		0.60	101.875	5192.55
3	LOG/200	160	210.15	210.15	0.00							
	ROG/200		210.25	210.25	0.00							
	LSD/200		208.47	209.07	0.60	0.60						
	RSD/200		208.36	209.06	0.70		0.70		0.65			
	MSD/200		208.52	209.02	0.50			0.50		0.60	100	5101.87
4	LOG/300	161	210.01	210.01	0.00							
	ROG/300		210	210	0.00							
	LSD/300		208.26	208.76	0.50	0.50						
	RSD/300		208.14	208.74	0.60		0.60		0.55			
	MSD/300		208.21	208.71	0.50			0.50		0.55	88.55	4527.5
5	LOG/400	158	207.55	207.55	0.00							
	ROG/400		207.65	207.65	0.00							
	LSD/400		205.74	206.34	0.60	0.60						
	RSD/400		205.87	206.37	0.50		0.50		0.55			
	MSD/400		205.6	206.3	0.70			0.70		0.60	90.85	4631.05
6	LOG/500	153	207.35	207.35	0.00							
	ROG/500		207.2	207.2	0.00							
	LSD/500		205.39	206.19	0.80	0.80						
	RSD/500		205.47	206.17	0.70		0.70		0.75			
	MSD/500		205.62	206.12	0.50					0.60	103.275	5254.6

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7	LOG/600	150	207.1	207.1	0.00							
	ROG/600		207.22	207.22	0.00							
	LSD/600		205.45	206.05	0.60	0.60						
	RSD/600		205.42	206.02	0.60		0.60		0.60			
	MSD/600		205.38	205.98	0.60			0.60		0.60	90	4603.27
7	LOG/657	150	206.79	206.79	0.00							
	ROG/657		207	207	0.00							
	LSD/657		205.24	205.84	0.60	0.60						
	RSD/657		205.19	205.79	0.60		0.60		0.60			
	MSD/657		205.15	205.75	0.60			0.60		0.60	90	4590
TOTAL											33900.8	

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Sand Replenishment Estimation Sheet

District- DEOGHAR

River- PATHRO

Mauza- SAPTAR, BANIADIH,
BELWATARI

UNI-DPA07

Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)
			Pre Monsoon	Post Monsoon								
1	LOG/00	518	204.72	204.72	0.00							
	ROG/00		204.77	204.77	0.00							
	LSD/00		203.39	203.99	0.60	0.60						
	RSD/00		203.5	204.2	0.70		0.70		0.65			
	MSD/00		203.36	203.96	0.60			0.60		0.65	336.7	
2	LOG/100	520	204.61	204.61	0.00							
	ROG/100		204.64	204.64	0.00							
	LSD/100		203.16	203.86	0.70	0.70						
	RSD/100		203.29	203.89	0.60		0.60		0.65			
	MSD/100		203.21	203.81	0.60			0.60		0.60	325	16586.7
3	LOG/200	517	204.85	204.85	0.00							
	ROG/200		204.35	204.35	0.00							
	LSD/200		203.19	203.79	0.60	0.60						
	RSD/200		203.06	203.76	0.70		0.70		0.65			
	MSD/200		203.22	203.72	0.50			0.50		0.60	323.125	16481.2
4	LOG/300	515	204.23	204.23	0.00							
	ROG/300		204.14	204.14	0.00							
	LSD/300		203.11	203.61	0.50	0.50						
	RSD/300		202.97	203.57	0.60		0.60		0.55			
	MSD/300		203.05	203.55	0.50			0.50		0.55	283.25	14485.6
5	LOG/400	521	204.65	204.65	0.00							
	ROG/400		204.27	204.27	0.00							
	LSD/400		202.81	203.41	0.60	0.60						
	RSD/400		202.89	203.39	0.50		0.50		0.55			
	MSD/400		202.63	203.33	0.70			0.70		0.60	299.575	15262
6	LOG/500	519	203.55	203.55	0.00							
	ROG/500		203.34	203.34	0.00							
	LSD/500		202.09	202.89	0.80	0.80						
	RSD/500		202.16	202.86	0.70		0.70		0.75			
	MSD/500		202.31	202.81	0.50			0.50		0.60	350.325	17815.8
7	LOG/600	517	203.17	203.17	0.00							
	ROG/600		203.14	203.14	0.00							
	LSD/600		202.09	202.69	0.60	0.60						
	RSD/600		202.06	202.66	0.60		0.60		0.60			
	MSD/600		202.03	202.63	0.60			0.60		0.60	310.2	15860.3

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8	LOG/700	519	203	203.10	0.00							
	ROG/700		203	203.15	0.00							
	LSD/700		201.95	202.65	0.70	0.70						
	RSD/700		202.02	202.52	0.50		0.50		0.60			
	MSD/700		201.88	202.48	0.60			0.60		0.55	298.425	15231.4
9	LOG/800	518	203.62	203.62	0.00							
	ROG/800		203.55	203.55	0.00							
	LSD/800		201.81	202.41	0.60	0.60						
	RSD/800		201.59	202.39	0.80		0.80		0.70			
	MSD/800		201.83	202.33	0.50			0.50		0.65	349.65	17780.9
10	LOG/910	520	203.15	203.15	0.00							
	ROG/910		203.28	203.28	0.00							
	LSD/910		201.78	202.28	0.50	0.50						
	RSD/910		201.52	202.22	0.70		0.70		0.60			
	MSD/910		201.59	202.19	0.60			0.60		0.65	325	16599.6
TOTAL												146104

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Sand Replenishment Estimation Sheet

District- DEOGHAR

River- PATHRO

Mauza- BILL, JAMUNI,
PANIARA, TANDERI,
GOBINDPUR

UNI-DPA08

Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Volume between Consecutive Axis								
			Pre Monsoon	Post Monsoon	Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)	
1	LOG/00	272	199.09	199.09	0.00								
	ROG/00		198.97	198.97	0.00								
	LSD/00		197.36	197.96	0.60	0.60							
	RSD/00		197.24	197.94	0.70		0.70		0.65				
	MSD/00		197.31	197.91	0.60			0.60		0.65	176.8		
2	LOG/100	262	198.15	198.15	0.00								
	ROG/100		199.03	199.03	0.00								
	LSD/100		196.99	197.69	0.70	0.70							
	RSD/100		197.07	197.67	0.60		0.60		0.65				
	MSD/100		197.02	197.62	0.60			0.60		0.60	163.75	8364.3	
3	LOG/200	271	198.25	198.25	0.00								
	ROG/200		197.29	197.29	0.00								
	LSD/200		196.87	197.47	0.60	0.60							
	RSD/200		196.7	197.4	0.70		0.70		0.65				
	MSD/200		196.88	197.38	0.50			0.50		0.60	169.375	8632.5	
4	LOG/300	269	198.35	198.35	0.00								
	ROG/300		198.45	198.45	0.00								
	LSD/300		196.74	197.24	0.50	0.50							
	RSD/300		196.61	197.21	0.60		0.60		0.55				
	MSD/300		196.68	197.18	0.50			0.50		0.55	147.95	7566.87	
5	LOG/400	267	197.79	197.79	0.00								
	ROG/400		198.26	198.26	0.00								
	LSD/400		196.44	197.04	0.60	0.60							
	RSD/400		196.51	197.01	0.50		0.50		0.55				
	MSD/400		196.27	196.97	0.70			0.70		0.60	153.525	7824.2	
6	LOG/500	269	197.15	197.15	0.00								
	ROG/500		197.28	197.28	0.00								
	LSD/500		196.02	196.82	0.80	0.80							
	RSD/500		196.1	196.8	0.70		0.70		0.75				
	MSD/500		196.27	196.77	0.50			0.50		0.60	181.575	9232.27	
7	LOG/600	267	197.89	197.89	0.00								
	ROG/600		196.81	196.81	0.00								
	LSD/600		196.04	196.64	0.60	0.60							
	RSD/600		196	196.6	0.60				0.60				
	MSD/600		195.87	196.57	0.60					0.60	160.2	8191.57	


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8	LOG/700	269	198	197.70	0.00									
	ROG/700		197	197.40	0.00									
	LSD/700		195.75	196.45	0.70	0.70								
	RSD/700		195.84	196.34	0.50		0.50		0.60					
	MSD/700		195.79	196.39	0.60			0.60		0.55	154.675	7893.95		
9	LOG/800	269	197.15	197.15	0.00									
	ROG/800		197.38	197.38	0.00									
	LSD/800		195.68	196.28	0.60	0.60								
	RSD/800		195.45	196.25	0.80		0.80		0.70					
	MSD/800		195.71	196.21	0.50			0.50		0.65	181.575	9233.43		
10	LOG/900	265	196.76	196.76	0.00									
	ROG/900		197.16	197.16	0.00									
	LSD/900		195.6	196.1	0.50	0.50								
	RSD/900		195.36	196.06	0.70		0.70		0.60					
	MSD/900		195.42	196.02	0.60			0.60		0.65	165.625	8462.82		
11	LOG/1000	263	197.19	197.19	0.00									
	ROG/1000		197.45	197.45	0.00									
	LSD/1000		195.7	196.2	0.50	0.50								
	RSD/1000		195.4	196.1	0.70		0.70		0.60					
	MSD/1000		195.34	195.94	0.60			0.60		0.65	164.375	8384.37		
12	LOG/1100	261	197.28	197.28	0.00									
	ROG/1100		196.82	196.82	0.00									
	LSD/1100		195.62	196.12	0.50	0.50								
	RSD/1100		195.37	196.07	0.70		0.70		0.60					
	MSD/1100		195.44	196.04	0.60			0.60		0.65	163.125	8320.62		
13	LOG/1200	269	196.24	196.24	0.00									
	ROG/1200		196.36	196.36	0.00									
	LSD/1200		194.62	195.12	0.50	0.50								
	RSD/1200		194.41	195.11	0.70		0.70		0.60					
	MSD/1200		194.44	195.04	0.60			0.60		0.65	168.125	8569.37		
14	LOG/1300	260	196.79	196.79	0.00									
	ROG/1300		196.69	196.69	0.00									
	LSD/1300		195.13	195.63	0.50	0.50								
	RSD/1300		194.91	195.61	0.70		0.70		0.60					
	MSD/1300		194.96	195.56	0.60			0.60		0.65	162.5	8293.12		
15	LOG/1400	271	196.5	196.5	0.00									
	ROG/1400		196.25	196.25	0.00									
	LSD/1400		194.99	195.49	0.50	0.50								
	RSD/1400		194.75	195.45	0.70		0.70		0.60					
	MSD/1400		194.81	195.41	0.60			0.60		0.65	169.375	8631.25		
16	LOG/1500	270	195.81	195.81	0.00									
	ROG/1500		196.36	196.36	0.00									
	LSD/1500		194.8	195.3	0.50	0.50								
	RSD/1500		194.58	195.28	0.70		0.70		0.60					
	MSD/1500		194.65	195.25	0.60			0.60		0.65	168.75	8606.87		


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17	LOG/1580	272	196.23	196.23	0.00							
	ROG/1580		196.16	196.16	0.00							
	LSD/1580		194.68	195.18	0.50	0.50						
	RSD/1580		194.46	195.16	0.70		0.70		0.60			
	MSD/1580		194.52	195.12	0.60			0.60		0.65	170	8668.75
											TOTAL	134876

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 Consortium of Rural Consultants
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Sand Replenishment Estimation Sheet

District- DEOGHAR

River- PATHRO

Mauza- BARHI, KOTHIA,
SARHETA, CHORMARA,
DHOBANIA, BARDAHI

UNI-DPA09

Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)
			Pre Monsoon	Post Monsoon								
			Volume between Consecutive Axis									
1	LOG/00	238	190	190	0.00							
	ROG/00		190.01	190.01	0.00							
	LSD/00		188.53	189.13	0.60	0.60						
	RSD/00		188.08	188.78	0.70		0.70		0.65			
	MSD/00		188.36	188.96	0.60			0.60		0.65	154.7	
2	LOG/100	235	190.12	190.12	0.00							
	ROG/100		189.65	189.65	0.00							
	LSD/100		188.31	189.01	0.70	0.70						
	RSD/100		187.99	188.59	0.60		0.60		0.65			
	MSD/100		188.21	188.81	0.60			0.60		0.60	146.875	7498.45
3	LOG/200	231	189.9	189.9	0.00							
	ROG/200		190	190	0.00							
	LSD/200		188.24	188.84	0.60	0.60						
	RSD/200		188.14	188.84	0.70		0.70		0.65			
	MSD/200		188.34	188.84	0.50			0.50		0.60	144.375	7365.62
4	LOG/300	233	189.7	189.7	0.00							
	ROG/300		189.32	189.32	0.00							
	LSD/300		188.12	188.62	0.50	0.50						
	RSD/300		187.63	188.23	0.60		0.60		0.55			
	MSD/300		187.97	188.47	0.50			0.50		0.55	128.15	6551.87
5	LOG/400	239	189.75	189.75	0.00							
	ROG/400		189.15	189.15	0.00							
	LSD/400		188.05	188.65	0.60	0.60						
	RSD/400		187.54	188.04	0.50		0.50		0.55			
	MSD/400		187.55	188.25	0.70			0.70		0.60	137.425	6999.4
6	LOG/500	238	189.99	189.99	0.00							
	ROG/500		188.95	188.95	0.00							
	LSD/500		188.18	188.98	0.80	0.80						
	RSD/500		187.09	187.79	0.70		0.70		0.75			
	MSD/500		187.54	188.04	0.50			0.50		0.60	160.65	8169.92

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7	LOG/600	236	189.85	189.85	0.00							
	ROG/600		188.8	188.8	0.00							
	LSD/600		188.14	188.74	0.60	0.60						
	RSD/600		187.14	187.74	0.60		0.60		0.60			
	MSD/600		187.24	187.84	0.60			0.60		0.60	141.6	7240.65
8	LOG/700	235	189	189.05	0.00							
	ROG/700		189	188.65	0.00							
	LSD/700		187.33	188.03	0.70	0.70						
	RSD/700		186.92	187.42	0.50		0.50		0.60			
	MSD/700		187.03	187.63	0.60			0.60		0.55	135.125	6897.85
9	LOG/800	234	188.99	188.99	0.00							
	ROG/800		188.45	188.45	0.00							
	LSD/800		187.35	187.95	0.60	0.60						
	RSD/800		186.52	187.32	0.80		0.80		0.70			
	MSD/800		187	187.5	0.50			0.50		0.65	157.95	8032.63
10	LOG/900	236	188.75	188.75	0.00							
	ROG/900		188.17	188.17	0.00							
	LSD/900		187.18	187.68	0.50	0.50						
	RSD/900		186.32	187.02	0.70		0.70		0.60			
	MSD/900		186.6	187.2	0.60			0.60		0.65	147.5	7532.95
11	LOG/1000	238	187.99	187.99	0.00							
	ROG/1000		187.85	187.85	0.00							
	LSD/1000		186.48	186.98	0.50	0.50						
	RSD/1000		186.26	186.96	0.70		0.70		0.60			
	MSD/1000		186.21	186.81	0.60			0.60		0.65	148.75	7585
12	LOG/1100	240	188	188	0.00							
	ROG/1100		188.02	188.02	0.00							
	LSD/1100		186.27	186.77	0.50	0.50						
	RSD/1100		186.05	186.75	0.70		0.70		0.60			
	MSD/1100		186	186.6	0.60			0.60		0.65	150	7648.75
13	LOG/1200	241	187.75	187.75	0.00							
	ROG/1200		187.63	187.63	0.00							
	LSD/1200		186.07	186.57	0.50	0.50						
	RSD/1200		185.82	186.52	0.70		0.70		0.60			
	MSD/1200		185.8	186.4	0.60			0.60		0.65	150.625	7681.25

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14	LOG/1300	236	187.65	187.65	0.00								
	ROG/1300		187.72	187.72	0.00								
	LSD/1300		186.02	186.52	0.50	0.50							
	RSD/1300		185.62	186.32	0.70		0.70		0.60				
	MSD/1300		185.75	186.35	0.60			0.60		0.65	147.5	7525.62	
15	LOG/1400	238	187.3	187.3	0.00								
	ROG/1400		187.22	187.22	0.00								
	LSD/1400		185.89	186.39	0.50	0.50							
	RSD/1400		185.56	186.26	0.70		0.70		0.60				
	MSD/1400		185.72	186.32	0.60			0.60		0.65	148.75	7585	
15	LOG/1500	237	187.11	187.11	0.00								
	ROG/1500		187.02	187.02	0.00								
	LSD/1500		185.78	186.28	0.50	0.50							
	RSD/1500		185.45	186.15	0.70		0.70		0.60				
	MSD/1500		185.57	186.17	0.60			0.60		0.65	148.125	7555	
15	LOG/1610	235	186.89	186.89	0.00								
	ROG/1610		186.81	186.81	0.00								
	LSD/1610		185.65	186.15	0.50	0.50							
	RSD/1610		185.36	186.06	0.70		0.70		0.60				
	MSD/1610		185.42	186.02	0.60			0.60		0.65	146.875	7491.87	
TOTAL												119362	


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Sand Replenishment Estimation Sheet

District- DEOGHAR

River- PATHRO

Mauza- DUMARIYA,
KHARKHUNTI,
GHAGHARJOR, UBIA


UNI-DPA10

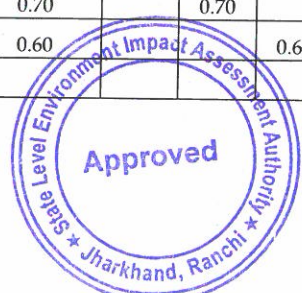
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	Volume between Consecutive Axis						
			Pre Monsoon	Post Monsoon		a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)
1	LOG/00	242	179.35	179.35	0.00							
	ROG/00		179.14	179.14	0.00							
	LSD/00		177.65	178.25	0.60	0.60						
	RSD/00		177.34	178.04	0.70		0.70		0.65			
	MSD/00		177.55	178.15	0.60			0.60		0.65	157.3	
2	LOG/100	240	179.2	179.2	0.00							
	ROG/100		179	179	0.00							
	LSD/100		177.47	178.17	0.70	0.70						
	RSD/100		177.38	177.98	0.60		0.60		0.65			
	MSD/100		177.48	178.08	0.60			0.60		0.60	150	7657.3
3	LOG/200	239	179.15	179.15	0.00							
	ROG/200		178.98	178.98	0.00							
	LSD/200		177.51	178.11	0.60	0.60						
	RSD/200		177.23	177.93	0.70		0.70		0.65			
	MSD/200		177.53	178.03	0.50			0.50		0.60	149.375	7618.75
4	LOG/300	245	179.09	179.09	0.00							
	ROG/300		178.92	178.92	0.00							
	LSD/300		177.54	178.04	0.50	0.50						
	RSD/300		177.27	177.87	0.60		0.60		0.55			
	MSD/300		177.46	177.96	0.50			0.50		0.55	134.75	6886.87
5	LOG/400	250	178.99	178.99	0.00							
	ROG/400		178.91	178.91	0.00							
	LSD/400		177.37	177.97	0.60	0.60						
	RSD/400		177.33	177.83	0.50		0.50		0.55			
	MSD/400		177.2	177.9	0.70			0.70		0.60	143.75	7322.25

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6	LOG/500	255	179.02	179.02	0.00							
	ROG/500		179.06	179.06	0.00							
	LSD/500		177.1	177.9	0.80	0.80						
	RSD/500		177.02	177.72	0.70		0.70		0.75			
	MSD/500		177.31	177.81	0.50			0.50		0.60	172.125	8750
7	LOG/600	248	178.92	178.92	0.00							
	ROG/600		178.75	178.75	0.00							
	LSD/600		177.25	177.85	0.60	0.60						
	RSD/600		177	177.6	0.60		0.60		0.60			
	MSD/600		177.13	177.73	0.60			0.60		0.60	148.8	7612.12
8	LOG/700	242	179	178.80	0.00							
	ROG/700		179	178.65	0.00							
	LSD/700		177.06	177.76	0.70	0.70						
	RSD/700		176.99	177.49	0.50		0.50		0.60			
	MSD/700		177.01	177.61	0.60			0.60		0.55	139.15	7106.3
9	LOG/800	240	178.7	178.7	0.00							
	ROG/800		178.5	178.5	0.00							
	LSD/800		177.06	177.66	0.60	0.60						
	RSD/800		176.57	177.37	0.80		0.80		0.70			
	MSD/800		177.02	177.52	0.50			0.50		0.65	162	8239.15
10	LOG/900	238	178.62	178.62	0.00							
	ROG/900		178.35	178.35	0.00							
	LSD/900		177.07	177.57	0.50	0.50						
	RSD/900		176.59	177.29	0.70		0.70		0.60			
	MSD/900		176.85	177.45	0.60			0.60		0.65	148.75	7599.5
11	LOG/1000	235	178.5	178.5	0.00							
	ROG/1000		178.35	178.35	0.00							
	LSD/1000		176.98	177.48	0.50	0.50						
	RSD/1000		176.5	177.2	0.70		0.70		0.60			
	MSD/1000		176.74	177.34	0.60			0.60		0.65	146.875	7492.5
12	LOG/1127	240	178.4	178.4	0.00							
	ROG/1127		178.45	178.45	0.00							
	LSD/1127		176.88	177.38	0.50	0.50						
	RSD/1127		176.55	177.25	0.70		0.70		0.60			
	MSD/1127		176.71	177.31	0.60			0.60		0.65	150	7646.87
TOTAL										83931.6		


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Sand Replenishment Estimation Sheet

District- DEOGHAR

River- PATHRO

Mauza-
BARMARIYA,GANGTI,
KAIRA BANK, OJHADIH,
PIPRA

UNI-DPA11

Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	Volume between Consecutive Axis					Area of cross section in (m ²)	volume in (m ³)
			Pre Monsoon	Post Monsoon		a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)		
1	LOG/00	156	174.65	174.65	0.00							
	ROG/00		174.8	174.8	0.00							
	LSD/00		172.98	173.58	0.60	0.60						
	RSD/00		173.04	173.74	0.70		0.70		0.65			
	MSD/00		173.07	173.67	0.60			0.60		0.65	101.4	
2	LOG/100	155	174.4	174.4	0.00							
	ROG/100		174.5	174.5	0.00							
	LSD/100		172.62	173.32	0.70	0.70						
	RSD/100		172.88	173.48	0.60		0.60		0.65			
	MSD/100		172.8	173.4	0.60			0.60		0.60	96.875	4945.15
3	LOG/200	153	174.1	174.1	0.00							
	ROG/200		174.14	174.14	0.00							
	LSD/200		172.45	173.05	0.60	0.60						
	RSD/200		172.51	173.21	0.70		0.70		0.65			
	MSD/200		172.63	173.13	0.50			0.50		0.60	95.625	4878.12
4	LOG/300	148	173.45	173.45	0.00							
	ROG/300		173.98	173.98	0.00							
	LSD/300		171.81	172.31	0.50	0.50						
	RSD/300		172.37	172.97	0.60		0.60		0.55			
	MSD/300		172.39	172.89	0.50			0.50		0.55	81.4	4165.62
5	LOG/400	152	173.75	173.75	0.00							
	ROG/400		173.15	173.15	0.00							
	LSD/400		171.94	172.54	0.60	0.60						
	RSD/400		171.62	172.12	0.50		0.50		0.55			
	MSD/400		171.93	172.63	0.70			0.70		0.60	87.4	4451.4
6	LOG/500	155	173.99	173.99	0.00							
	ROG/500		173	173	0.00							
	LSD/500		172.11	172.91	0.80	0.80						

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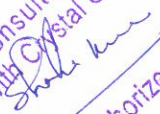


	RSD/500		171.16	171.86	0.70		0.70		0.75				
	MSD/500		171.44	171.94	0.50			0.50		0.60	104.625	5318.65	
7	LOG/600	158	173.65	173.65	0.00								
	ROG/600		173.2	173.2	0.00								
	LSD/600		171.89	172.49	0.60	0.60							
	RSD/600		171.64	172.24	0.60		0.60		0.60				
	MSD/600		172.69	173.29	0.60			0.60		0.60	94.8	4844.62	
8	LOG/700	159	175	174.88	0.00								
	ROG/700		173	173.10	0.00								
	LSD/700		173.01	173.71	0.70	0.70							
	RSD/700		171.55	172.05	0.50		0.50		0.60				
	MSD/700		171.68	172.28	0.60			0.60		0.55	91.425	4666.05	
9	LOG/800	156	174.45	174.45	0.00								
	ROG/800		172.55	172.55	0.00								
	LSD/800		172.7	173.3	0.60	0.60							
	RSD/800		170.67	171.47	0.80		0.80		0.70				
	MSD/800		171.13	171.63	0.50			0.50		0.65	105.3	5356.43	
10	LOG/900	152	174.1	174.1	0.00								
	ROG/900		172.25	172.25	0.00								
	LSD/900		172.71	173.21	0.50	0.50							
	RSD/900		170.38	171.08	0.70		0.70		0.60				
	MSD/900		171.8	172.4	0.60			0.60		0.65	95	4855.3	
11	LOG/1000	148	174.2	174.2	0.00								
	ROG/1000		172.65	172.65	0.00								
	LSD/1000		172.64	173.14	0.50	0.50							
	RSD/1000		170.83	171.53	0.70		0.70		0.60				
	MSD/1000		171.7	172.3	0.60			0.60		0.65	92.5	4720	
12	LOG/1100	151	174.15	174.15	0.00								
	ROG/1100		173	173	0.00								
	LSD/1100		172.6	173.1	0.50	0.50							
	RSD/1100		170.76	171.46	0.70		0.70		0.60				
	MSD/1100		171.69	172.29	0.60			0.60		0.65	94.375	4811.25	
13	LOG/1200	149	174.25	174.25	0.00								
	ROG/1200		172.85	172.85	0.00								
	LSD/1200		172.55	173.05	0.50	0.50							
	RSD/1200		170.75	171.45	0.70		0.70		0.60				
	MSD/1200		171.64	172.24	0.60			0.60		0.65	93.125	4750.62	

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14	LOG/1320	146	173.99	173.99	0.00								
	ROG/1320		172.5	172.5	0.00								
	LSD/1320		172.44	172.94	0.50	0.50							
	RSD/1320		170.74	171.44	0.70		0.70		0.60				
	MSD/1320		171.65	172.25	0.60			0.60		0.65	91.25	4655.62	
											TOTAL	62418.8	


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 Consortium with Crystal Consultants

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Sand Replenishment Estimation Sheet

District- DEOGHAR

River- AJAY

Mauza- CHOTA NOKHIL,
NOKHILBARA,
SEMRAKHAS,
DUMARKUNDI


UNI-DAJ01

Sl. No	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	Volume between Consecutive Axis					Area of cross section in (m ²)	volume in (m ³)	
			Pre Monsoon	Post Monsoon		a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)			
1	LOG/00	192	236.77	236.77	0.00								
	ROG/00		236.75	236.75	0.00								
	LSD/00		235.03	235.63	0.60	0.60							
	RSD/00		234.89	235.59	0.70		0.70		0.65				
	MSD/00		234.95	235.55	0.60			0.60		0.65	124.8		
2	LOG/100	192	236.53	236.53	0.00								
	ROG/100		236.4	236.4	0.00								
	LSD/100		234.73	235.43	0.70	0.70							
	RSD/100		234.78	235.38	0.60		0.60		0.65				
	MSD/100		234.75	235.35	0.60			0.60		0.60	120	6124.8	
3	LOG/200	190	236.41	236.41	0.00								
	ROG/200		236.35	236.35	0.00								
	LSD/200		234.64	235.24	0.60	0.60							
	RSD/200		234.5	235.2	0.70		0.70		0.65				
	MSD/200		234.66	235.16	0.50			0.50		0.60	118.75	6057.5	
4	LOG/300	189	236.3	236.3	0.00								
	ROG/300		236.22	236.22	0.00								
	LSD/300		234.55	235.05	0.50	0.50							
	RSD/300		234.42	235.02	0.60		0.60		0.55				
	MSD/300		234.47	234.97	0.50			0.50		0.55	103.95	5316.25	
5	LOG/400	184	235.92	235.92	0.00								
	ROG/400		235.98	235.98	0.00								
	LSD/400		234.28	234.88	0.60	0.60							
	RSD/400		234.35	234.85	0.50		0.50		0.55				
	MSD/400		234.1	234.8	0.70			0.70		0.60	105.8	5393.95	
6	LOG/500	187	235.86	235.86	0.00								
	ROG/500		235.8	235.8	0.00								
	LSD/500		233.89	234.69	0.80	0.80							
	RSD/500		233.95	234.65	0.70		0.70		0.75				
	MSD/500		234.11	234.61	0.50			0.50		0.60	126.225	6417.05	
7	LOG/600	191	235.65	235.65	0.00								
	ROG/600		235.55	235.55	0.00								
	LSD/600		233.87	234.47	0.60	0.60							
	RSD/600		233.84	234.44	0.60		0.60		0.60				
	MSD/600		233.8	234.4	0.60			0.60		0.60	114.6	5856.22	
8	LOG/700	190	235	235.41	0.00								
	ROG/700		235	235.42	0.00								
	LSD/700		233.58	234.28	0.70	0.70							
	RSD/700		233.75	234.25	0.50			0.50		0.60			
	MSD/700		233.61	234.21	0.60			0.60		0.55	109.25	5577.1	

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9	LOG/800	199	235.24	235.24	0.00								
	ROG/800		235.2	235.2	0.00								
	LSD/800		233.49	234.09	0.60	0.60							
	RSD/800		233.26	234.06	0.80		0.80		0.70				
	MSD/800		233.52	234.02	0.50			0.50		0.65	134.32	5	6825.5
10	LOG/900	200	235.12	235.12	0.00								
	ROG/900		235	235	0.00								
	LSD/900		233.4	233.9	0.50	0.50							
	RSD/900		233.18	233.88	0.70		0.70		0.60				
	MSD/900		233.23	233.83	0.60			0.60		0.65	125		6384.32
11	LOG/1000	205	234.8	234.8	0.00								
	ROG/1000		234.74	234.74	0.00								
	LSD/1000		233.12	233.62	0.50	0.50							
	RSD/1000		232.89	233.59	0.70		0.70		0.60				
	MSD/1000		233.05	233.65	0.60			0.60		0.65	128.12	5	6531.25
12	LOG/1100	204	234.75	234.75	0.00								
	ROG/1100		234.65	234.65	0.00								
	LSD/1100		233.04	233.54	0.50	0.50							
	RSD/1100		232.8	233.5	0.70		0.70		0.60				
	MSD/1100		232.87	233.47	0.60			0.60		0.65	127.5		6503.12
13	LOG/1200	206	234.58	234.58	0.00								
	ROG/1200		234.49	234.49	0.00								
	LSD/1200		232.87	233.37	0.50	0.50							
	RSD/1200		232.63	233.33	0.70		0.70		0.60				
	MSD/1200		232.69	233.29	0.60			0.60		0.65	128.75		6565
13	LOG/1300	207	234.38	234.38	0.00								
	ROG/1300		234.28	234.28	0.00								
	LSD/1300		232.76	233.26	0.50	0.50							
	RSD/1300		232.51	233.21	0.70		0.70		0.60				
	MSD/1300		232.59	233.19	0.60			0.60		0.65	129.37	5	6597.5
13	LOG/1400	209	234.21	234.21	0.00								
	ROG/1400		234.09	234.09	0.00								
	LSD/1400		232.65	233.15	0.50	0.50							
	RSD/1400		232.41	233.11	0.70		0.70		0.60				
	MSD/1400		232.48	233.08	0.60			0.60		0.65	130.62	5	6660.62
13	LOG/1530	208	234.01	234.01	0.00								
	ROG/1530		233.85	233.85	0.00								
	LSD/1530		232.48	232.98	0.50	0.50							
	RSD/1530		232.31	233.01	0.70		0.70		0.60				
	MSD/1530		232.35	232.95	0.60			0.60		0.65	130		6630.62
Total										93440.8			


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Sand Replenishment Estimation Sheet

District- DEOGHAR

River- AJAY

Mauza- SANGRAMLORIA,
KHARWA, SIRSIA CHITT

UNI-DAJ02


Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Volume between Consecutive Axis								
			Pre Monsoon	Post Monsoon	Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)	
1	LOG/00	212	218.5	218.5	0.00								
	ROG/00		218.9	218.9	0.00								
	LSD/00		216.8	217.4	0.60	0.60							
	RSD/00		216.67	217.37	0.70		0.70		0.65				
	MSD/00		216.6	217.2	0.60			0.60		0.65	137.8		
2	LOG/100	210	218.3	218.3	0.00								
	ROG/100		218.35	218.35	0.00								
	LSD/100		216.6	217.3	0.70	0.70							
	RSD/100		216.67	217.27	0.60		0.60		0.65				
	MSD/100		216.47	217.07	0.60			0.60		0.60	131.25	6700.3	
3	LOG/200	206	217.98	217.98	0.00								
	ROG/200		218.16	218.16	0.00								
	LSD/200		216.37	216.97	0.60	0.60							
	RSD/200		216.44	217.14	0.70		0.70		0.65				
	MSD/200		216.44	216.94	0.50			0.50		0.60	128.75	6568.75	
4	LOG/300	209	217.95	217.95	0.00								
	ROG/300		218.35	218.35	0.00								
	LSD/300		216.3	216.8	0.50	0.50							
	RSD/300		216.42	217.02	0.60		0.60		0.55				
	MSD/300		215.8	216.3	0.50			0.50		0.55	114.95	5876.25	
5	LOG/400	211	217.8	217.8	0.00								
	ROG/400		217.99	217.99	0.00								
	LSD/400		216.1	216.7	0.60	0.60							
	RSD/400		216.44	216.94	0.50			0.50		0.55			
	MSD/400		216.01	216.71	0.70			0.70		0.60	121.325	6181.2	

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6	LOG/500	200	217.7	217.7	0.00								
	ROG/500		217.9	217.9	0.00								
	LSD/500		215.85	216.65	0.80	0.80							
	RSD/500		216.14	216.84	0.70		0.70		0.75				
	MSD/500		216.11	216.61	0.50			0.50		0.60	135	6871.32	
7	LOG/600	199	217.8	217.8	0.00								
	ROG/600		217.95	217.95	0.00								
	LSD/600		216.02	216.62	0.60	0.60							
	RSD/600		216.15	216.75	0.60		0.60		0.60				
	MSD/600		215.91	216.51	0.60			0.60		0.60	119.4	6105	
8	LOG/700	195	218	217.6	0.00								
	ROG/700		218	217.8	0.00								
	LSD/700		215.88	216.58	0.70	0.70							
	RSD/700		216.16	216.66	0.50		0.50		0.60				
	MSD/700		215.84	216.44	0.60			0.60		0.55	112.125	5725.65	
9	LOG/800	198	217.6	217.6	0.00								
	ROG/800		217.75	217.75	0.00								
	LSD/800		215.9	216.5	0.60	0.60							
	RSD/800		215.77	216.57	0.80		0.80		0.70				
	MSD/800		215.84	216.34	0.50			0.50		0.65	133.65	6794.63	
10	LOG/900	202	217.5	217.5	0.00								
	ROG/900		217.75	217.75	0.00								
	LSD/900		215.94	216.44	0.50	0.50							
	RSD/900		215.77	216.47	0.70		0.70		0.60				
	MSD/900		215.67	216.27	0.60			0.60		0.65	126.25	6446.15	
11	LOG/990	206	217.5	217.5	0.00								
	ROG/990		217.65	217.65	0.00								
	LSD/990		215.8	216.4	0.60	0.60							
	RSD/990		215.7	216.4	0.70		0.70		0.65				
	MSD/990		215.68	216.18	0.50			0.50		0.60	128.75	6563.75	
TOTAL											63833		


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Sand Replenishment Estimation Sheet

District- DEOGHAR

River- AJAY

Mauza- KUSMIL, SIMRA


UNI-DAJ03

Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	Volume between Consecutive Axis						
			Pre Monsoon	Post Monsoon		a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)
1	LOG/00	212	214.98	214.98	0.00							
	ROG/00		215.85	215.85	0.00							
	LSD/00		212.91	213.61	0.70	0.70						
	RSD/00		214.06	214.56	0.50		0.50		0.60			
	MSD/00		213.78	214.38	0.60			0.60		0.55	121.9	
2	LOG/100	210	215.92	215.92	0.00							
	ROG/100		215.8	215.8	0.00							
	LSD/100		213.44	214.14	0.70	0.70						
	RSD/100		213.5	214.1	0.60		0.60		0.65			
	MSD/100		212.76	213.36	0.60			0.60		0.60	131.25	6684.4
3	LOG/200	206	215.65	215.65	0.00							
	ROG/200		215.99	215.99	0.00							
	LSD/200		213.88	214.48	0.60	0.60						
	RSD/200		212.91	213.61	0.70		0.70		0.65			
	MSD/200		212.99	213.49	0.50			0.50		0.60	128.75	6568.75
4	LOG/300	209	215.88	215.88	0.00							
	ROG/300		215	215	0.00							
	LSD/300		214	214.5	0.50	0.50						
	RSD/300		212.98	213.68	0.70		0.70		0.60			
	MSD/300		213.52	214.02	0.50			0.50		0.60	125.4	6398.75
5	LOG/400	211	215.55	215.55	0.00							
	ROG/400		214.9	214.9	0.00							
	LSD/400		213.64	214.24	0.60	0.60						
	RSD/400		213.4	213.9	0.50		0.50		0.55			
	MSD/400		213.09	213.79	0.70			0.70		0.60	121.325	6191.65
6	LOG/500	200	214.99	214.99	0.00							
	ROG/500		214.99	214.99	0.00							
	LSD/500		213.14	213.94	0.80	0.80						
	RSD/500		213.13	213.83	0.70				0.75			
	MSD/500		213.06	213.56	0.50			0.50		0.60	135	6871.32

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7	LOG/600	199	214.7	214.7	0.00							
	ROG/600		214.6	214.6	0.00							
	LSD/600		212.99	213.59	0.60	0.60						
	RSD/600		213.11	213.71	0.60		0.60		0.60			
	MSD/600		213.09	213.69	0.60			0.60		0.60	119.4	6105
8	LOG/700	195	215	214.6	0.00							
	ROG/700		215	214.75	0.00							
	LSD/700		212.83	213.53	0.70	0.70						
	RSD/700		213.04	213.54	0.50		0.50		0.60			
	MSD/700		212.92	213.52	0.60			0.60		0.55	112.125	5725.65
8	LOG/800	198	214	214.41	0.00							
	ROG/800		215	214.55	0.00							
	LSD/800		212.74	213.44	0.70	0.70						
	RSD/800		212.92	213.42	0.50		0.50		0.60			
	MSD/800		212.81	213.41	0.60			0.60		0.55	113.85	5804.62
8	LOG/900	202	214	214.2	0.00							
	ROG/900		214	214.33	0.00							
	LSD/900		212.64	213.34	0.70	0.70						
	RSD/900		212.81	213.31	0.50		0.50		0.60			
	MSD/900		212.70	213.3	0.60			0.60		0.55	116.15	5921.35
8	LOG/1000	206	214	214.01	0.00							
	ROG/1000		214	214.09	0.00							
	LSD/1000		212.52	213.22	0.70	0.70						
	RSD/1000		212.69	213.19	0.50		0.50		0.60			
	MSD/1000		212.58	213.18	0.60			0.60		0.55	118.45	6038.65
8	LOG/1100	205	214	213.82	0.00							
	ROG/1100		214	213.89	0.00							
	LSD/1100		212.41	213.11	0.70	0.70						
	RSD/1100		212.59	213.09	0.50		0.50		0.60			
	MSD/1100		212.47	213.07	0.60			0.60		0.55	117.875	6012.2
8	LOG/1243	200	214	213.62	0.00							
	ROG/1243		214	213.68	0.00							
	LSD/1243		212.31	213.01	0.70	0.70						
	RSD/1243		212.45	212.95	0.50		0.50		0.60			
	MSD/1243		212.35	212.95	0.60			0.60		0.55	115	5867.87
TOTAL											74190.2	


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Sand Replenishment Estimation Sheet

District- DEOGHAR

River- AJAY

Mauza- CHANDDIH,
BISHUNPUR,
KHASPAIKA, KADAI,
BASWARIYA, HARLATARIN

UNI-DAJ04

Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)
			Pre Monsoon	Post Monsoon								
1	LOG/00	236	210.75	210.75	0.00							
	ROG/00		210.7	210.7	0.00							
	LSD/00		209.17	209.77	0.60	0.60						
	RSD/00		208.02	208.72	0.70		0.70		0.65			
	MSD/00		208.99	209.59	0.60			0.60		0.65	153.4	
2	LOG/100	234	210.79	210.79	0.00							
	ROG/100		210.75	210.75	0.00							
	LSD/100		208.92	209.62	0.70	0.70						
	RSD/100		208.08	208.68	0.60		0.60		0.65			
	MSD/100		207.94	208.54	0.60			0.60		0.60	146.25	7465.9
3	LOG/200	231	210.68	210.68	0.00							
	ROG/200		210.65	210.65	0.00							
	LSD/200		208.85	209.45	0.60	0.60						
	RSD/200		208.05	208.75	0.70		0.70		0.65			
	MSD/200		207.9	208.4	0.50			0.50		0.60	144.375	7365
4	LOG/300	233	210.6	210.6	0.00							
	ROG/300		210.52	210.52	0.00							
	LSD/300		208.82	209.32	0.50	0.50						
	RSD/300		208.23	208.83	0.60		0.60		0.55			
	MSD/300		207.77	208.27	0.50			0.50		0.55	128.15	6551.87
5	LOG/400	235	210.4	210.4	0.00							
	ROG/400		211.42	211.42	0.00							
	LSD/400		208.56	209.16	0.60	0.60						
	RSD/400		210.22	210.72	0.50		0.50		0.55			
	MSD/400		207.42	208.12	0.70			0.70		0.60	135.125	6884.4
6	LOG/500	238	210	210	0.00							
	ROG/500		211.95	211.95	0.00							
	LSD/500		208.21	209.01	0.80	0.80						
	RSD/500		209.86	210.56	0.70		0.70		0.75			
	MSD/500		207.48	207.98	0.50			0.50		0.60	160.65	8167.62
7	LOG/600	239	209.9	209.9	0.00							
	ROG/600		210.98	210.98	0.00							
	LSD/600		208.25	208.85	0.60							
	RSD/600		209.78	210.38	0.60		0.60		0.60			
	MSD/600		207.22	207.82	0.60			0.60		0.60	143.4	7330.65

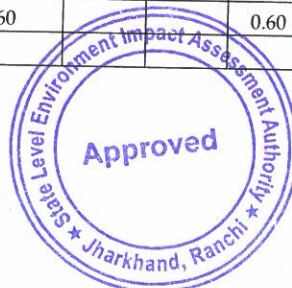
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8	LOG/700	237	209.800	209.8	0.00								
	ROG/700		211.000	211	0.00								
	LSD/700		208.000	208.7	0.70	0.70							
	RSD/700		209.710	210.21	0.50		0.50		0.60				
	MSD/700		207.060	207.66	0.60			0.60		0.55	136.275	6957.15	
9	LOG/800	235	209.5	209.5	0.00								
	ROG/800		211.89	211.89	0.00								
	LSD/800		207.9	208.5	0.60	0.60							
	RSD/800		209.25	210.05	0.80		0.80		0.70				
	MSD/800		207.06	207.56	0.50			0.50		0.65	158.625	8067.53	
10	LOG/900	238	208.88	208.88	0.00								
	ROG/900		211.65	211.65	0.00								
	LSD/900		206.87	207.37	0.50	0.50							
	RSD/900		209.37	210.07	0.70		0.70		0.60				
	MSD/900		206.83	207.43	0.60			0.60		0.65	148.75	7596.12	
10	LOG/1000	232	208.68	208.68	0.00								
	ROG/1000		211.48	211.48	0.00								
	LSD/1000		206.77	207.27	0.50	0.50							
	RSD/1000		209.26	209.96	0.70		0.70		0.60				
	MSD/1000		206.72	207.32	0.60			0.60		0.65	145	7398.75	
10	LOG/1100	230	208.49	208.49	0.00								
	ROG/1100		211.3	211.3	0.00								
	LSD/1100		206.66	207.16	0.50	0.50							
	RSD/1100		209.15	209.85	0.70		0.70		0.60				
	MSD/1100		206.62	207.22	0.60			0.60		0.65	143.75	7332.5	
10	LOG/1200	228	208.29	208.29	0.00								
	ROG/1200		211.09	211.09	0.00								
	LSD/1200		206.56	207.06	0.50	0.50							
	RSD/1200		209.02	209.72	0.70		0.70		0.60				
	MSD/1200		206.52	207.12	0.60			0.60		0.65	142.5	7268.75	
10	LOG/1300	226	208.08	208.08	0.00								
	ROG/1300		210.88	210.88	0.00								
	LSD/1300		206.45	206.95	0.50	0.50							
	RSD/1300		208.91	209.61	0.70		0.70		0.60				
	MSD/1300		206.41	207.01	0.60			0.60		0.65	141.25	7205	
10	LOG/1350	229	207.87	207.87	0.00								
	ROG/1350		210.68	210.68	0.00								
	LSD/1350		206.35	206.85	0.50	0.50							
	RSD/1350		208.82	209.52	0.70		0.70		0.60				
	MSD/1350		206.31	206.91	0.60			0.60		0.65	143.125	7297.5	
TOTAL											102889		

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Sand Replenishment Estimation Sheet

District- DEOGHAR

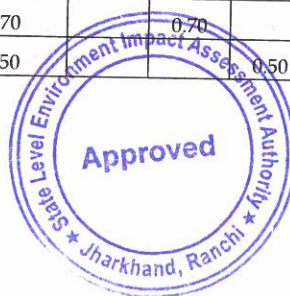
River- AJAY

Mauza- KELANIYA,
PANDEDIH, JOGINDHA


UNI-DAJ05

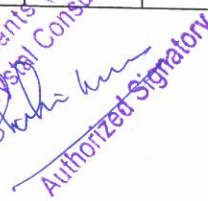
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Volume between Consecutive Axis								
			Pre Monsoon	Post Monsoon	Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)	
1	LOG/00	223	194.2	194.2	0.00								
	ROG/00		194.13	194.13	0.00								
	LSD/00		192.47	193.07	0.60	0.60							
	RSD/00		192.33	193.03	0.70		0.70		0.65				
	MSD/00		192.4	193	0.60			0.60		0.65	144.95		
2	LOG/100	225	193.05	193.05	0.00								
	ROG/100		194	194	0.00								
	LSD/100		192.2	192.9	0.70	0.70							
	RSD/100		192.26	192.86	0.60		0.60		0.65				
	MSD/100		192.22	192.82	0.60			0.60		0.60	140.625	7176.2	
3	LOG/200	227	193.85	193.85	0.00								
	ROG/200		193.8	193.8	0.00								
	LSD/200		192.1	192.7	0.60	0.60							
	RSD/200		191.96	192.66	0.70		0.70		0.65				
	MSD/200		192.12	192.62	0.50			0.50		0.60	141.875	7234.37	
4	LOG/300	224	193.7	193.7	0.00								
	ROG/300		193.65	193.65	0.00								
	LSD/300		192.01	192.51	0.50	0.50							
	RSD/300		191.88	192.48	0.60		0.60		0.55				
	MSD/300		191.94	192.44	0.50			0.50		0.55	123.2	6301.87	
5	LOG/400	222	193.28	193.28	0.00								
	ROG/400		193.45	193.45	0.00								
	LSD/400		191.73	192.33	0.60	0.60							
	RSD/400		191.8	192.3	0.50		0.50		0.55				
	MSD/400		191.56	192.26	0.70			0.70		0.60	127.65	6505.7	
6	LOG/500	220	193.15	193.15	0.00								
	ROG/500		193.25	193.25	0.00								
	LSD/500		191.34	192.14	0.80	0.80							
	RSD/500		191.41	192.11	0.70		0.70		0.75				
	MSD/500		191.58	192.08	0.50			0.50		0.60	148.5	7552.65	

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7	LOG/600	222	193.05	193.05	0.00								
	ROG/600		192.99	192.99	0.00								
	LSD/600		191.35	191.95	0.60	0.60							
	RSD/600		191.31	191.91	0.60		0.60		0.60				
	MSD/600		191.28	191.88	0.60			0.60		0.60		133.2	6808.5
7	LOG/700	223	192.85	192.85	0.00								
	ROG/700		192.83	192.83	0.00								
	LSD/700		191.15	191.75	0.60	0.60							
	RSD/700		191.13	191.73	0.60		0.60		0.60				
	MSD/700		191.1	191.7	0.60			0.60		0.60		133.8	6823.2
7	LOG/800	225	192.75	192.75	0.00								
	ROG/800		192.7	192.7	0.00								
	LSD/800		190.99	191.59	0.60	0.60							
	RSD/800		190.95	191.55	0.60		0.60		0.60				
	MSD/800		190.92	191.52	0.60			0.60		0.60		135	6883.8
7	LOG/900	228	192.55	192.55	0.00								
	ROG/900		192.45	192.45	0.00								
	LSD/900		190.81	191.41	0.60	0.60							
	RSD/900		190.78	191.38	0.60		0.60		0.60				
	MSD/900		190.74	191.34	0.60			0.60		0.60		136.8	6975
7	LOG/1000	231	192.35	192.35	0.00								
	ROG/1000		192.35	192.35	0.00								
	LSD/1000		190.62	191.22	0.60	0.60							
	RSD/1000		190.59	191.19	0.60		0.60		0.60				
	MSD/1000		190.55	191.15	0.60			0.60		0.60		138.6	7066.8
7	LOG/1054	233	192.15	192.15	0.00								
	ROG/1054		192.12	192.12	0.00								
	LSD/1054		190.52	191.12	0.60	0.60							
	RSD/1054		190.49	191.09	0.60		0.60		0.60				
	MSD/1054		190.45	191.05	0.60			0.60		0.60		139.8	7128.6
TOTAL												76456.7	



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Sand Replenishment Estimation Sheet

District- DEOGHAR

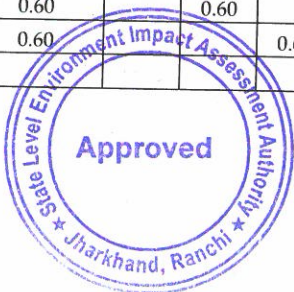
River- AJAY

Mauza- Jamdiha,
Buchipahari, Badiya, Durjani,
Dahua, Bilidih

UNI-DAJ06

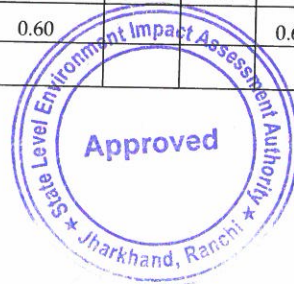
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	Volume between Consecutive Axis						
			Pre Monsoon	Post Monsoon		a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)
1	LOG/00	150	192.6	192.6	0.00							
	ROG/00		192.2	192.2	0.00							
	LSD/00		190.9	191.5	0.60	0.60						
	RSD/00		191.01	191.71	0.70		0.70		0.65			
	MSD/00		191	191.6	0.60			0.60		0.65	97.5	
2	LOG/100	153	192.09	192.09	0.00							
	ROG/100		192.05	192.05	0.00							
	LSD/100		190.72	191.42	0.70	0.70						
	RSD/100		191	191.6	0.60		0.60		0.65			
	MSD/100		190.9	191.5	0.60			0.60		0.60	95.625	4878.75
3	LOG/200	160	192	192	0.00							
	ROG/200		192.02	192.02	0.00							
	LSD/200		190.73	191.33	0.60	0.60						
	RSD/200		190.77	191.47	0.70		0.70		0.65			
	MSD/200		190.91	191.41	0.50			0.50		0.60	100	5095.62
4	LOG/300	151	192.02	192.02	0.00							
	ROG/300		192.01	192.01	0.00							
	LSD/300		190.71	191.21	0.50	0.50						
	RSD/300		190.77	191.37	0.60		0.60		0.55			
	MSD/300		190.81	191.31	0.50			0.50		0.55	83.05	4252.5
5	LOG/400	148	191.8	191.8	0.00							
	ROG/400		191.88	191.88	0.00							
	LSD/400		190.47	191.07	0.60	0.60						
	RSD/400		190.75	191.25	0.50		0.50		0.55			
	MSD/400		190.48	191.18	0.70			0.70		0.60	85.1	4338.05
6	LOG/500	145	191.71	191.71	0.00							
	ROG/500		191.74	191.74	0.00							
	LSD/500		190.14	190.94	0.80	0.80						
	RSD/500		190.4	191.1	0.70		0.70		0.75			
	MSD/500		190.54	191.04	0.50			0.50		0.60	97.875	4978.85
7	LOG/600	160	191.6	191.6	0.00							
	ROG/600		191.75	191.75	0.00							
	LSD/600		190.22	190.82	0.60	0.60						
	RSD/600		190.38	190.98	0.60		0.60		0.60			
	MSD/600		190.33	190.93	0.60			0.60		0.60	96	4897.87

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8	LOG/700	170	191.500	191.5	0.00								
	ROG/700		191.520	191.52	0.00								
	LSD/700		189.990	190.69	0.70	0.70							
	RSD/700		190.350	190.85	0.50		0.50		0.60				
	MSD/700		190.190	190.79	0.60			0.60		0.55	97.75	4983.5	
9	LOG/800	165	191.56	191.56	0.00								
ROG/800	191.43		191.43	0.00									
LSD/800	189.97		190.57	0.60	0.60								
RSD/800	189.93		190.73	0.80		0.80		0.70					
MSD/800	190.16		190.66	0.50			0.50		0.65	111.375	5666.5		
10	LOG/900	165	191.33	191.33	0.00								
ROG/900	191.29		191.29	0.00									
LSD/900	189.94		190.44	0.50	0.50								
RSD/900	189.925		190.625	0.70		0.70		0.60					
MSD/900	189.94		190.54	0.60			0.60		0.65	103.125	5267.62		
11	LOG/1000	161	191.1	191.1	0.00								
ROG/1000	191.12		191.12	0.00									
LSD/1000	189.71		190.31	0.60	0.60								
RSD/1000	189.81		190.51	0.70		0.70		0.65					
MSD/1000	189.91		190.41	0.50			0.50		0.60	100.625	5134.37		
12	LOG/1100	170	191	191	0.00								
ROG/1100	191.03		191.03	0.00									
LSD/1100	189.47		190.17	0.70	0.70								
RSD/1100	189.79		190.39	0.60		0.60		0.65					
MSD/1100	189.77		190.27	0.50			0.50		0.55	102	5200.62		
13	LOG/1200	160	190.98	190.98	0.00								
ROG/1200	190.95		190.95	0.00									
LSD/1200	189.35		190.05	0.70	0.70								
RSD/1200	189.47		190.27	0.80		0.80		0.75					
MSD/1200	189.66		190.16	0.50			0.50		0.65	112	5702		
14	LOG/1300	165	190.76	190.76	0.00								
ROG/1300	190.78		190.78	0.00									
LSD/1300	189.29		189.89	0.60	0.60								
RSD/1300	189.42		190.12	0.70		0.70		0.65					
MSD/1300	189.52		190.02	0.50			0.50		0.60	103.125	5268.25		
15	LOG/1400	169	190.55	190.55	0.00								
ROG/1400	190.48		190.48	0.00									
LSD/1400	189.37		189.87	0.50	0.50								
RSD/1400	189.41		189.91	0.50		0.50		0.50					
MSD/1400	189.27		189.87	0.60			0.60		0.55	88.725	4539.37		

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15	LOG/1500	163	190.35	190.35	0.00								
	ROG/1500		190.28	190.28	0.00								
	LSD/1500		189.27	189.77	0.50	0.50							
	RSD/1500		189.31	189.81	0.50		0.50		0.50				
	MSD/1500		189.17	189.77	0.60			0.60		0.55	85.575	4367.47	
15	LOG/1600	172	190.15	190.15	0.00								
	ROG/1600		190.08	190.08	0.00								
	LSD/1600		189.15	189.65	0.50	0.50							
	RSD/1600		189.2	189.7	0.50		0.50		0.50				
	MSD/1600		189.07	189.67	0.60			0.60		0.55	90.3	4600.57	
15	LOG/1700	173	189.95	189.95	0.00								
	ROG/1700		189.88	189.88	0.00								
	LSD/1700		189.05	189.55	0.50	0.50							
	RSD/1700		189.11	189.61	0.50		0.50		0.50				
	MSD/1700		188.95	189.55	0.60			0.60		0.55	90.825	4631.55	
15	LOG/1800	171	189.75	189.75	0.00								
	ROG/1800		189.68	189.68	0.00								
	LSD/1800		188.95	189.45	0.50	0.50							
	RSD/1800		189	189.5	0.50		0.50		0.50				
	MSD/1800		188.84	189.44	0.60			0.60		0.55	89.775	4579.57	
15	LOG/1900	170	189.65	189.65	0.00								
	ROG/1900		189.48	189.48	0.00								
	LSD/1900		188.85	189.35	0.50	0.50							
	RSD/1900		188.9	189.4	0.50		0.50		0.50				
	MSD/1900		188.75	189.35	0.60			0.60		0.55	89.25	4552.27	
15	LOG/2000	171	189.45	189.45	0.00								
	ROG/2000		189.28	189.28	0.00								
	LSD/2000		188.75	189.25	0.50	0.50							
	RSD/2000		188.79	189.29	0.50		0.50		0.50				
	MSD/2000		188.64	189.24	0.60			0.60		0.55	89.775	4578	
15	LOG/2100	169	189.25	189.25	0.00								
	ROG/2100		189.14	189.14	0.00								
	LSD/2100		188.52	189.02	0.50	0.50							
	RSD/2100		188.57	189.07	0.50		0.50		0.50				
	MSD/2100		188.41	189.01	0.60			0.60		0.55	88.725	4526.02	
15	LOG/2200	165	189.07	189.07	0.00								
	ROG/2200		189.03	189.03	0.00								
	LSD/2200		188.91	188.81	0.50	0.50							
	RSD/2200		188.37	188.87	0.50		0.50		0.50				
	MSD/2200		188.15	188.75	0.60			0.60		0.55	86.625	4419.97	



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15	LOG/2300	160	188.88	188.88	0.00							
	ROG/2300		188.81	188.81	0.00							
	LSD/2300		188.06	188.56	0.50	0.50						
	RSD/2300		188.15	188.65	0.50		0.50		0.50			
	MSD/2300		187.98	188.58	0.60			0.60		0.55	84	4286.62
15	LOG/2373	161	188.68	188.68	0.00							
	ROG/2373		188.61	188.61	0.00							
	LSD/2373		187.86	188.36	0.50	0.50						
	RSD/2373		187.94	188.44	0.50		0.50		0.50			
	MSD/2373		187.75	188.35	0.60			0.60		0.55	84.525	4310.25
TOTAL											115056	


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Sand Replenishment Estimation Sheet

District- DEOGHAR

River- AJAY

Mauza- JIAKARA, PARSODIH,
MANJORI

UNI-DAJ07

Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	Volume between Consecutive Axis						
			Pre Monsoon	Post Monsoon		a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)
1	LOG/00	161	188.5	188.5	0.00							
	ROG/00		188.48	188.48	0.00							
	LSD/00		186.94	187.54	0.60	0.60						
	RSD/00		187.34	188.04	0.70		0.70		0.65			
	MSD/00		187.39	187.99	0.60			0.60		0.65	104.65	
2	LOG/100	170	188.8	188.8	0.00							
	ROG/100		188.98	188.98	0.00							
	LSD/100		187.18	187.88	0.70	0.70						
	RSD/100		187.38	187.98	0.60		0.60		0.65			
	MSD/100		187.33	187.93	0.60			0.60		0.60	106.25	5417.15
3	LOG/200	165	188.99	188.99	0.00							
	ROG/200		188.75	188.75	0.00							
	LSD/200		187.28	187.88	0.60	0.60						
	RSD/200		187.23	187.93	0.70		0.70		0.65			
	MSD/200		187.37	187.87	0.50			0.50		0.60	103.125	5262.5
4	LOG/300	166	188.75	188.75	0.00							
	ROG/300		188.7	188.7	0.00							
	LSD/300		187.27	187.77	0.50	0.50						
	RSD/300		187.28	187.88	0.60		0.60		0.55			
	MSD/300		187.32	187.82	0.50			0.50		0.55	91.3	4668.12
5	LOG/400	167	188.65	188.65	0.00							
	ROG/400		188.72	188.72	0.00							
	LSD/400		187.12	187.72	0.60	0.60						
	RSD/400		187.33	187.83	0.50		0.50		0.55			
	MSD/400		187.07	187.77	0.70			0.70		0.60	96.025	4892.55
6	LOG/500	166	188.7	188.7	0.00							
	ROG/500		188.71	188.71	0.00							
	LSD/500		186.87	187.67	0.80	0.80						
	RSD/500		187.07	187.77	0.70		0.70		0.75			
	MSD/500		187.22	187.72	0.50			0.50		0.60	112.05	5698.52
7	LOG/600	164	188.75	188.75	0.00							
	ROG/600		188.78	188.78	0.00							
	LSD/600		187.01	187.61	0.60	0.60						
	RSD/600		187.12	187.72	0.60		0.60		0.60			
	MSD/600		187.07	187.67	0.60			0.60		0.60	98.4	5032.05


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8	LOG/700	169	188.60	188.60	0.00								
	ROG/700		188.65	188.65	0.00								
	LSD/700		186.85	187.55	0.70	0.70							
	RSD/700		187.16	187.66	0.50		0.50		0.60				
	MSD/700		187.01	187.61	0.60			0.60		0.55	97.175	4957.15	
9	LOG/800	170	188.58	188.58	0.00								
	ROG/800		188.52	188.52	0.00								
	LSD/800		186.88	187.48	0.60	0.60							
	RSD/800		186.8	187.6	0.80		0.80		0.70				
	MSD/800		187.04	187.54	0.50			0.50		0.65	114.75	5834.68	
10	LOG/900	168	188.55	188.55	0.00								
	ROG/900		188.5	188.5	0.00								
	LSD/900		186.92	187.42	0.50	0.50							
	RSD/900		186.86	187.56	0.70		0.70		0.60				
	MSD/900		186.87	187.47	0.60			0.60		0.65	105	5364.75	
11	LOG/1000	165	188.19	188.19	0.00								
	ROG/1000		188.25	188.25	0.00								
	LSD/1000		186.75	187.35	0.60	0.60							
	RSD/1000		186.75	187.45	0.70		0.70		0.65				
	MSD/1000		186.92	187.42	0.50			0.50		0.60	103.125	5261.25	
12	LOG/1105	162	188.4	188.4	0.00								
	ROG/1105		188.42	188.42	0.00								
	LSD/1105		186.59	187.29	0.70	0.70							
	RSD/1105		187.09	187.89	0.80		0.80		0.75				
	MSD/1105		186.83	187.33	0.50			0.50		0.65	113.4	5773.13	
										TOTAL	58161.8		


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Sand Replenishment Estimation Sheet

District- DEOGHAR

River- AJAY

Mauza- MAHDEWA,
CHARRA, DAMARKURI,
CHARAKMARA



UNI-DAJ08

		Volume between Consecutive Axis										
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)
			Pre Monsoon	Post Monsoon								
1	LOG/00	169	173.55	173.55	0.00							
	ROG/00		173.75	173.75	0.00							
	LSD/00		172	172.6	0.60	0.60						
	RSD/00		171.88	172.58	0.70		0.70		0.65			
	MSD/00		171.95	172.55	0.60			0.60		0.65	109.85	
2	LOG/100	175	173.62	173.62	0.00							
	ROG/100		173.55	173.55	0.00							
	LSD/100		171.72	172.42	0.70	0.70						
	RSD/100		171.79	172.39	0.60		0.60		0.65			
	MSD/100		171.75	172.35	0.60			0.60		0.60	109.375	5578.6
3	LOG/200	172	173.1	173.1	0.00							
	ROG/200		173.35	173.35	0.00							
	LSD/200		171.64	172.24	0.60	0.60						
	RSD/200		171.5	172.2	0.70		0.70		0.65			
	MSD/200		171.67	172.17	0.50			0.50		0.60	107.5	5484.37
4	LOG/300	171	173	173	0.00							
	ROG/300		173.19	173.19	0.00							
	LSD/300		171.57	172.07	0.50	0.50						
	RSD/300		171.43	172.03	0.60		0.60		0.55			
	MSD/300		171.49	171.99	0.50			0.50		0.55	94.05	4810
5	LOG/400	168	172.98	172.98	0.00							
	ROG/400		172.9	172.9	0.00							
	LSD/400		171.26	171.86	0.60	0.60						
	RSD/400		171.34	171.84	0.50		0.50		0.55			
	MSD/400		171.1	171.8	0.70			0.70		0.60	96.6	4924.05
6	LOG/500	167	172.81	172.81	0.00							
	ROG/500		172.85	172.85	0.00							
	LSD/500		170.88	171.68	0.80	0.80						
	RSD/500		170.95	171.65	0.70				0.75			
	MSD/500		171.12	171.62	0.50			0.50		0.60	112.725	5732.85

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7	LOG/600	165	172.65	172.65	0.00							
	ROG/600		172.61	172.61	0.00							
	LSD/600		170.9	171.5	0.60	0.60						
	RSD/600		170.87	171.47	0.60		0.60		0.60			
	MSD/600		170.84	171.44	0.60			0.60		0.60	99	5062.72
8	LOG/700	168	172	172.45	0.00							
	ROG/700		172	172.42	0.00							
	LSD/700		170.63	171.33	0.70	0.70						
	RSD/700		170.79	171.29	0.50		0.50		0.60			
	MSD/700		170.66	171.26	0.60			0.60		0.55	96.6	4929
9	LOG/800	170	172.3	172.3	0.00							
	ROG/800		172.22	172.22	0.00							
	LSD/800		170.55	171.15	0.60	0.60						
	RSD/800		170.31	171.11	0.80		0.80		0.70			
	MSD/800		170.58	171.08	0.50			0.50		0.65	114.75	5834.1
10	LOG/879	172	171.99	171.99	0.00							
	ROG/879		171.95	171.95	0.00							
	LSD/879		170.47	170.97	0.50	0.50						
	RSD/879		170.23	170.93	0.70		0.70		0.60			
	MSD/879		170.3	170.9	0.60			0.60		0.65	107.5	5489.75
TOTAL											47845.4	


 Sigma R.D. Consortium with Crystal, Jharkhand

 Authorized Signatory



Sand Replenishment Estimation Sheet

District- DEOGHAR

River- AJAY

Mauza-
BALTHARA, MAHTOA,
GIDHSOLI, SAGHARIA

UNI-DAJ09

Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)
			Pre Monsoon	Post Monsoon								
			Volume between Consecutive Axis									
1	LOG/00	180	175.15	175.15	0.00							
	ROG/00		175	175	0.00							
	LSD/00		173.47	174.07	0.60	0.60						
	RSD/00		173.34	174.04	0.70		0.70		0.65			
	MSD/00		173.4	174	0.60			0.60		0.65	117	
2	LOG/100	192	174.3	174.3	0.00							
	ROG/100		174.25	174.25	0.00							
	LSD/100		172.45	173.15	0.70	0.70						
	RSD/100		172.52	173.12	0.60		0.60		0.65			
	MSD/100		173.2	173.8	0.60			0.60		0.60	120	6117
3	LOG/200	189	174.82	174.82	0.00							
	ROG/200		174.75	174.75	0.00							
	LSD/200		173.08	173.68	0.60	0.60						
	RSD/200		172.95	173.65	0.70		0.70		0.65			
	MSD/200		173.12	173.62	0.50			0.50		0.60	118.125	6026.25
4	LOG/300	186	174.65	174.65	0.00							
	ROG/300		174.63	174.63	0.00							
	LSD/300		173.02	173.52	0.50	0.50						
	RSD/300		172.88	173.48	0.60		0.60		0.55			
	MSD/300		172.94	173.44	0.50			0.50		0.55	102.3	5233.12
5	LOG/400	183	174.52	174.52	0.00							
	ROG/400		174.45	174.45	0.00							
	LSD/400		172.73	173.33	0.60	0.60						
	RSD/400		172.8	173.3	0.50		0.50		0.55			
	MSD/400		172.56	173.26	0.70			0.70		0.60	105.225	5363.55
6	LOG/500	179	174.56	174.56	0.00							
	ROG/500		174.52	174.52	0.00							
	LSD/500		172.36	173.16	0.80	0.80						
	RSD/500		172.42	173.12	0.70		0.70		0.75			
	MSD/500		172.58	173.08	0.50			0.50		0.60	120.825	6146.47

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7	LOG/600	183	174.03	174.03	0.00								
	ROG/600		174	174	0.00								
	LSD/600		172.33	172.93	0.60	0.60							
	RSD/600		172.29	172.89	0.60		0.60		0.60				
	MSD/600		172.25	172.85	0.60			0.60		0.60	109.8	5610.82	
7	LOG/700	181	173.83	173.83	0.00								
	ROG/700		173.81	173.81	0.00								
	LSD/700		172.23	172.83	0.60	0.60							
	RSD/700		172.19	172.79	0.60		0.60		0.60				
	MSD/700		172.15	172.75	0.60			0.60		0.60	108.6	5539.8	
7	LOG/800	179	173.73	173.73	0.00								
	ROG/800		173.61	173.61	0.00								
	LSD/800		172.13	172.73	0.60	0.60							
	RSD/800		172.08	172.68	0.60		0.60		0.60				
	MSD/800		172.05	172.65	0.60			0.60		0.60	107.4	5478.6	
7	LOG/900	180	173.53	173.53	0.00								
	ROG/900		173.4	173.4	0.00								
	LSD/900		171.91	172.51	0.60	0.60							
	RSD/900		171.85	172.45	0.60		0.60		0.60				
	MSD/900		171.85	172.45	0.60			0.60		0.60	108	5507.4	
7	LOG/980	182	173.33	173.33	0.00								
	ROG/980		173.2	173.2	0.00								
	LSD/980		171.71	172.31	0.60	0.60							
	RSD/980		171.65	172.25	0.60		0.60		0.60				
	MSD/980		171.62	172.22	0.60			0.60		0.60	109.2	5568	
TOTAL												56591	


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Sand Replenishment Estimation Sheet

District- DEOGHAR

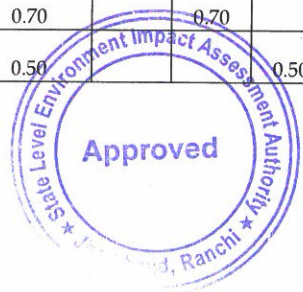
River- JAYANTI

Mauza- TITHICHAPAR,
SUGAPAHARI

UNI-DJA01

Sl. No	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)
			Pre Monsoon	Post Monsoon								
			Volume between Consecutive Axis									
1	LOG/00	112	221.15	221.15	0.00							
	ROG/00		221	221	0.00							
	LSD/00		219.52	220.12	0.60	0.60						
	RSD/00		219.28	219.98	0.70		0.70		0.65			
	MSD/00		219.45	220.05	0.60			0.60		0.65	72.8	
2	LOG/100	108	221.15	221.15	0.00							
	ROG/100		218.99	218.99	0.00							
	LSD/100		219.39	220.09	0.70	0.70						
	RSD/100		217.32	217.92	0.60		0.60		0.65			
	MSD/100		219.41	220.01	0.60			0.60		0.60	67.5	3447.8
3	LOG/200	112	221.06	221.06	0.00							
	ROG/200		220.75	220.75	0.00							
	LSD/200		219.43	220.03	0.60	0.60						
	RSD/200		219.16	219.86	0.70		0.70		0.65			
	MSD/200		219.44	219.94	0.50			0.50		0.60	70	3567.5
4	LOG/300	110	220.99	220.99	0.00							
	ROG/300		220.85	220.85	0.00							
	LSD/300		219.48	219.98	0.50	0.50						
	RSD/300		219.2	219.8	0.60		0.60		0.55			
	MSD/300		219.38	219.88	0.50			0.50		0.55	60.5	3095
5	LOG/400	120	221.02	221.02	0.00							
	ROG/400		221	221	0.00							
	LSD/400		219.3	219.9	0.60	0.60						
	RSD/400		219.25	219.75	0.50		0.50		0.55			
	MSD/400		219.12	219.82	0.70			0.70		0.60	69	3510.5
6	LOG/500	117	220.75	220.75	0.00							
	ROG/500		220.85	220.85	0.00							
	LSD/500		219.05	219.85	0.80	0.80						
	RSD/500		219.09	219.79	0.70		0.70		0.75			
	MSD/500		219.26	219.76	0.50			0.50		0.60	78.975	4017.75

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7	LOG/577	115	220.7	220.7	0.00							
	ROG/577		220.53	220.53	0.00							
	LSD/577		219.16	219.76	0.60	0.60						
	RSD/577		218.91	219.51	0.60		0.60		0.60			
	MSD/577		219	219.6	0.60			0.60		0.60	69	3528.97
										TOTAL	21167.5	

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Sand Replenishment Estimation Sheet

District- DEOGHAR

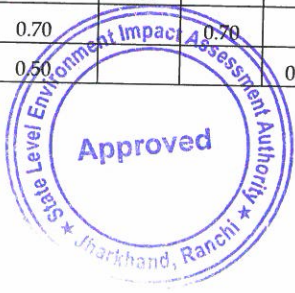
River- JAYANTI

Mauza- DUARPHARI,
AKDUARA, RAMPUR,
PATOJORI

UNI-DJA02

Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Volume between Consecutive Axis								
			Pre Monsoon	Post Monsoon	Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)	
1	LOG/00	125	214.7	214.7	0.00								
	ROG/00		214.65	214.65	0.00								
	LSD/00		213.06	213.66	0.60	0.60							
	RSD/00		212.94	213.64	0.70		0.70		0.65				
	MSD/00		213	213.6	0.60			0.60		0.65	81.25		
2	LOG/100	118	214.65	214.65	0.00								
	ROG/100		214.55	214.55	0.00								
	LSD/100		212.79	213.49	0.70	0.70							
	RSD/100		212.86	213.46	0.60		0.60		0.65				
	MSD/100		212.82	213.42	0.60			0.60		0.60	73.75	3768.75	
3	LOG/200	120	214.45	214.45	0.00								
	ROG/200		214.5	214.5	0.00								
	LSD/200		212.7	213.3	0.60	0.60							
	RSD/200		212.57	213.27	0.70		0.70		0.65				
	MSD/200		212.74	213.24	0.50			0.50		0.60	75	3823.75	
4	LOG/300	125	214.35	214.35	0.00								
	ROG/300		214.22	214.22	0.00								
	LSD/300		212.61	213.11	0.50	0.50							
	RSD/300		212.47	213.07	0.60		0.60		0.55				
	MSD/300		212.54	213.04	0.50			0.50		0.55	68.75	3512.5	
5	LOG/400	118	213.99	213.99	0.00								
	ROG/400		213.98	213.98	0.00								
	LSD/400		212.32	212.92	0.60	0.60							
	RSD/400		212.4	212.9	0.50		0.50		0.55				
	MSD/400		212.16	212.86	0.70			0.70		0.60	67.85	3461.25	
6	LOG/500	120	213.74	213.74	0.00								
	ROG/500		213.55	213.55	0.00								
	LSD/500		211.84	212.64	0.80	0.80							
	RSD/500		211.91	212.61	0.70		0.70		0.75				
	MSD/500		212.08	212.58	0.50			0.50		0.60	81	4117.85	

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State Level Environmental Impact Assessment Authority



BP

B

7	LOG/600	145	213.6	213.6	0.00																
	ROG/600		213.55	213.55	0.00																
	LSD/600		211.86	212.46	0.60	0.60															
	RSD/600		211.83	212.43	0.60		0.60		0.60												
	MSD/600		211.8	212.4	0.60			0.60		0.60				0.60		87					4431
8	LOG/700	140	213	213.30	0.00																
	ROG/700		213	213.35	0.00																
	LSD/700		211.56	212.26	0.70	0.70															
	RSD/700		211.74	212.24	0.50		0.50		0.60												
	MSD/700		211.60	212.20	0.60			0.60		0.55				80.5							4112
9	LOG/800	138	213.2	213.2	0.00																
	ROG/800		213.15	213.15	0.00																
	LSD/800		211.48	212.08	0.60	0.60															
	RSD/800		211.25	212.05	0.80		0.80		0.70												
	MSD/800		211.52	212.02	0.50			0.50		0.65				93.15							4738
10	LOG/900	135	213.11	213.11	0.00																
	ROG/900		213.05	213.05	0.00																
	LSD/900		211.4	211.9	0.50	0.50															
	RSD/900		211.17	211.87	0.70		0.70		0.60												
	MSD/900		211.24	211.84	0.60			0.60		0.65				84.375							4311.9
11	LOG/1000	133	212.9	212.9	0.00																
	ROG/1000		212.85	212.85	0.00																
	LSD/1000		211.23	211.73	0.50	0.50															
	RSD/1000		211	211.7	0.70		0.70		0.60												
	MSD/1000		211.06	211.66	0.60			0.60		0.65				83.125							4240.62
12	LOG/1100	130	212.62	212.62	0.00																
	ROG/1100		212.65	212.65	0.00																
	LSD/1100		211.05	211.55	0.50	0.50															
	RSD/1100		210.82	211.52	0.70		0.70		0.60												
	MSD/1100		210.88	211.48	0.60			0.60		0.65				81.25							4145.62
13	LOG/1224	138	212.49	212.49	0.00																
	ROG/1224		212.45	212.45	0.00																
	LSD/1224		210.83	211.33	0.50	0.50															
	RSD/1224		210.61	211.31	0.70		0.70		0.60												
	MSD/1224		210.68	211.28	0.60			0.60		0.65				86.25							4393.75
										TOTAL		49057									

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 Consortium with Crystal
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Sand Replenishment Estimation Sheet

District- DEOGHAR

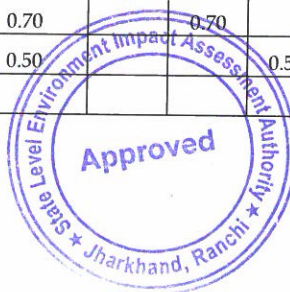
River- JAYANTI

Mauza- CHITNARI,
BARMASIYA

UNI-DJA03

Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Volume between Consecutive Axis								
			Pre Monsoon	Post Monsoon	Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)	
1	LOG/00	98	205.5	205.5	0.00								
	ROG/00		205.35	205.35	0.00								
	LSD/00		203.74	204.34	0.60	0.60							
	RSD/00		203.5	204.2	0.70		0.70		0.65				
	MSD/00		203.69	204.29	0.60			0.60		0.65	63.7		
2	LOG/100	96	204.99	204.99	0.00								
	ROG/100		204.91	204.91	0.00								
	LSD/100		203.27	203.97	0.70	0.70							
	RSD/100		203.29	203.89	0.60		0.60		0.65				
	MSD/100		203.34	203.94	0.60			0.60		0.60	60	3063.7	
3	LOG/200	93	204.82	204.82	0.00								
	ROG/200		204.71	204.71	0.00								
	LSD/200		203.11	203.71	0.60	0.60							
	RSD/200		202.9	203.6	0.70		0.70		0.65				
	MSD/200		203.16	203.66	0.50			0.50		0.60	58.125	2966.25	
4	LOG/300	99	204.66	204.66	0.00								
	ROG/300		204.4	204.4	0.00								
	LSD/300		203.04	203.54	0.50	0.50							
	RSD/300		202.79	203.39	0.60		0.60		0.55				
	MSD/300		202.96	203.46	0.50			0.50		0.55	54.45	2780.62	
5	LOG/400	104	204.52	204.52	0.00								
	ROG/400		204.25	204.25	0.00								
	LSD/400		202.88	203.48	0.60	0.60							
	RSD/400		202.73	203.23	0.50		0.50		0.55				
	MSD/400		202.65	203.35	0.70			0.70		0.60	59.8	3044.45	
6	LOG/500	107	204.51	204.51	0.00								
	ROG/500		204.09	204.09	0.00								
	LSD/500		202.63	203.43	0.80	0.80							
	RSD/500		202.44	203.14	0.70		0.70		0.75				
	MSD/500		202.76	203.26	0.50			0.50		0.60	72.225	3671.05	

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Consortium with
Authorized Signatory*



7	LOG/621	109	204.29	204.29	0.00							
	ROG/621		204.15	204.15	0.00							
	LSD/621		202.73	203.33	0.60	0.60						
	RSD/621		202.53	203.13	0.60		0.60		0.60			
	MSD/621		202.65	203.25	0.60			0.60		0.60	65.4	3342.22
										TOTAL	18868.3	

Sigma R.D. Co.
 Consortium with Crystar Consultants

 Authorized Signatory



Sand Replenishment Estimation Sheet

District- DEOGHAR

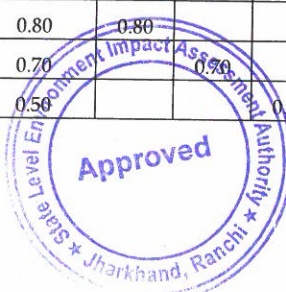
River- JAYANTI

Mauza- JORAMO,
CHANDIAJORI,
GORMARA, DHANTARIYA

UNI-DJA04

Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)
			Pre Monsoon	Post Monsoon								
1	LOG/00	143	188.35	188.35	0.00							
	ROG/00		188.3	188.3	0.00							
	LSD/00		186.57	187.17	0.60	0.60						
	RSD/00		186.45	187.15	0.70		0.70		0.65			
	MSD/00		186.52	187.12	0.60			0.60		0.65	92.95	
2	LOG/100	130	188	188	0.00							
	ROG/100		187.99	187.99	0.00							
	LSD/100		186.24	186.94	0.70	0.70						
	RSD/100		186.31	186.91	0.60		0.60		0.65			
	MSD/100		186.28	186.88	0.60			0.60		0.60	81.25	4155.45
3	LOG/200	125	187.8	187.8	0.00							
	ROG/200		187.75	187.75	0.00							
	LSD/200		186.07	186.67	0.60	0.60						
	RSD/200		185.94	186.64	0.70		0.70		0.65			
	MSD/200		186.1	186.6	0.50			0.50		0.60	78.125	3987.5
4	LOG/300	145	187.58	187.58	0.00							
	ROG/300		187.65	187.65	0.00							
	LSD/300		185.98	186.48	0.50	0.50						
	RSD/300		185.85	186.45	0.60		0.60		0.55			
	MSD/300		185.92	186.42	0.50			0.50		0.55	79.75	4065.62
5	LOG/400	144	187.45	187.45	0.00							
	ROG/400		187.35	187.35	0.00							
	LSD/400		185.69	186.29	0.60	0.60						
	RSD/400		185.76	186.26	0.50		0.50		0.55			
	MSD/400		185.54	186.24	0.70			0.70		0.60	82.8	4219.75
6	LOG/500	152	187.27	187.27	0.00							
	ROG/500		187.25	187.25	0.00							
	LSD/500		185.33	186.13	0.80	0.80						
	RSD/500		185.39	186.09	0.70		0.70		0.75			
	MSD/500		185.56	186.06	0.50			0.50		0.60	102.6	5212.8



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7	LOG/600	153	186.99	186.99	0.00							
	ROG/600		186.9	186.9	0.00							
	LSD/600		185.3	185.9	0.60	0.60						
	RSD/600		185.28	185.88	0.60		0.60		0.60			
	MSD/600		185.25	185.85	0.60			0.60		0.60	91.8	4692.6
7	LOG/700	161	186.81	186.81	0.00							
	ROG/700		186.75	186.75	0.00							
	LSD/700		185.14	185.74	0.60	0.60						
	RSD/700		185.1	185.7	0.60		0.60		0.60			
	MSD/700		185.12	185.72	0.60			0.60		0.60	96.6	4921.8
7	LOG/810	150	186.55	186.55	0.00							
	ROG/810		186.5	186.5	0.00							
	LSD/810		184.92	185.52	0.60	0.60						
	RSD/810		184.94	185.54	0.60		0.60		0.60			
	MSD/810		184.88	185.48	0.60			0.60		0.60	90	4596.6
TOTAL												
L												35852.1


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Sand Replenishment Estimation Sheet

District- DEOGHAR

River- JAYANTI

Mauza- CHOBKIYARI,
BELKIYARI, DAHUYA

UNI-DJA05

					Volume between Consecutive Axis							
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)
			Pre Monsoon	Post Monsoon								
1	LOG/00	143	177.81	177.81	0.00							
	ROG/00		176.55	176.55	0.00							
	LSD/00		176.05	176.65	0.60	0.60						
	RSD/00		174.52	175.22	0.70		0.70		0.65			
	MSD/00		175.8	176.4	0.60			0.60		0.65	92.95	
2	LOG/100	148	177.62	177.62	0.00							
	ROG/100		176.26	176.26	0.00							
	LSD/100		175.79	176.49	0.70	0.70						
	RSD/100		174.46	175.06	0.60		0.60		0.65			
	MSD/100		174.3	174.9	0.60			0.60		0.60	92.5	4717.95
3	LOG/200	160	177.42	177.42	0.00							
	ROG/200		176.18	176.18	0.00							
	LSD/200		175.71	176.31	0.60	0.60						
	RSD/200		175	175.7	0.70		0.70		0.65			
	MSD/200		174.21	174.71	0.50			0.50		0.60	100	5092.5
4	LOG/300	145	177.2	177.2	0.00							
	ROG/300		176.65	176.65	0.00							
	LSD/300		175.58	176.08	0.50	0.50						
	RSD/300		174.91	175.51	0.60		0.60		0.55			
	MSD/300		173.96	174.46	0.50			0.50		0.55	79.75	4087.5
5	LOG/400	146	176.29	176.29	0.00							
	ROG/400		175.48	175.48	0.00							
	LSD/400		175.3	175.9	0.60	0.60						
	RSD/400		173.81	174.31	0.50		0.50		0.55			
	MSD/400		173.49	174.19	0.70			0.70		0.60	83.95	4277.25
6	LOG/500	143	176.67	176.67	0.00							
	ROG/500		176.32	176.32	0.00							
	LSD/500		174.78	175.58	0.80	0.80						
	RSD/500		174.48	175.18	0.70		0.70		0.75			
	MSD/500		173.62	174.12	0.50			0.50		0.60	96.525	4910.2


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7	LOG/600	143	176.75	176.75	0.00								
	ROG/600		175.63	175.63	0.00								
	LSD/600		174.99	175.59	0.60	0.60							
	RSD/600		174.39	174.99	0.60		0.60		0.60				
	MSD/600		173.82	174.42	0.60			0.60		0.60	85.8	4386.52	
8	LOG/700	145	177	176.88	0.00								
	ROG/700		175	175.35	0.00								
	LSD/700		174.96	175.66	0.70	0.70							
	RSD/700		173.71	174.21	0.50		0.50		0.60				
	MSD/700		173.83	174.43	0.60			0.60		0.55	83.375	4254.55	
9	LOG/800	140	176.43	176.43	0.00								
	ROG/800		175.18	175.18	0.00								
	LSD/800		174.73	175.33	0.60	0.60							
	RSD/800		173.24	174.04	0.80		0.80		0.70				
	MSD/800		174.02	174.52	0.50			0.50		0.65	94.5	4808.38	
10	LOG/900	142	176.28	176.28	0.00								
	ROG/900		174.05	174.05	0.00								
	LSD/900		174.57	175.07	0.50	0.50							
	RSD/900		173.28	173.98	0.70		0.70		0.60				
	MSD/900		173.85	174.45	0.60			0.60		0.65	88.75	4532	
10	LOG/1037	140	175.94	175.94	0.00								
	ROG/1037		175.36	175.36	0.00								
	LSD/1037		174.28	174.78	0.50	0.50							
	RSD/1037		173.51	174.21	0.70		0.70		0.60				
	MSD/1037		173.47	174.07	0.60			0.60		0.65	87.5	4463.75	
TOTAL											45530.6		



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Sand Replenishment Estimation Sheet

District- DEOGHAR

River- JAYANTI

Mauza- BHALGARHA,
MAJHILADIH, SATRAHIR

UNI-DJA06

Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m ²)	volume in (m ³)
			Pre Monsoon	Post Monsoon								
			Volume between Consecutive Axis									
1	LOG/00	166	173.1	173.1	0.00							
	ROG/00		172.92	172.92	0.00							
	LSD/00		171.47	172.07	0.60	0.60						
	RSD/00		171.17	171.87	0.70		0.70		0.65			
	MSD/00		171.38	171.98	0.60			0.60		0.65	107.9	
2	LOG/100	164	172.85	172.85	0.00							
	ROG/100		172.71	172.71	0.00							
	LSD/100		171.11	171.81	0.70	0.70						
	RSD/100		171.42	172.02	0.60		0.60		0.65			
	MSD/100		171.21	171.81	0.60			0.60		0.60	102.5	5232.9
3	LOG/200	162	172.74	172.74	0.00							
	ROG/200		172.48	172.48	0.00							
	LSD/200		171.04	171.64	0.60	0.60						
	RSD/200		171.18	171.88	0.70		0.70		0.65			
	MSD/200		171.15	171.65	0.50			0.50		0.60	101.25	5165
4	LOG/300	160	172.6	172.6	0.00							
	ROG/300		172.3	172.3	0.00							
	LSD/300		171.01	171.51	0.50	0.50						
	RSD/300		171.08	171.68	0.60		0.60		0.55			
	MSD/300		171.01	171.51	0.50			0.50		0.55	88	4501.25
5	LOG/400	163	172.38	172.38	0.00							
	ROG/400		172.11	172.11	0.00							
	LSD/400		170.78	171.38	0.60	0.60						
	RSD/400		171.01	171.51	0.50		0.50		0.55			
	MSD/400		170.66	171.36	0.70			0.70		0.60	93.725	4774.25
6	LOG/500	168	172.18	172.18	0.00							
	ROG/500		171.95	171.95	0.00							
	LSD/500		170.42	171.22	0.80	0.80						
	RSD/500		170.65	171.35	0.70		0.70		0.75			
	MSD/500		170.72	171.22	0.50			0.50		0.60	113.4	5763.72


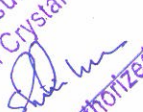
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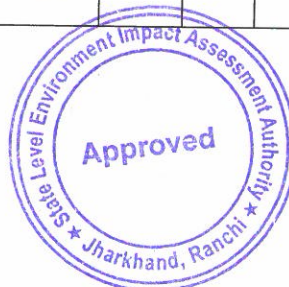


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7	LOG/600	170	172.01	172.01	0.00							
	ROG/600		171.8	171.8	0.00							
	LSD/600		170.49	171.09	0.60	0.60						
	RSD/600		170.58	171.18	0.60		0.60		0.60			
	MSD/600		170.46	171.06	0.60			0.60		0.60	102	5213.4
7	LOG/700	166	171.82	171.82	0.00							
	ROG/700		171.62	171.62	0.00							
	LSD/700		170.41	171.01	0.60	0.60						
	RSD/700		170.45	171.05	0.60		0.60		0.60			
	MSD/700		170.31	170.91	0.60			0.60		0.60	99.6	5082
7	LOG/800	175	171.64	171.64	0.00							
	ROG/800		171.4	171.4	0.00							
	LSD/800		170.31	170.91	0.60	0.60						
	RSD/800		170.32	170.92	0.60		0.60		0.60			
	MSD/800		170.15	170.75	0.60			0.60		0.60	105	5349.6
7	LOG/900	182	171.51	171.51	0.00							
	ROG/900		171.21	171.21	0.00							
	LSD/900		170.16	170.76	0.60	0.60						
	RSD/900		170.15	170.75	0.60		0.60		0.60			
	MSD/900		170	170.6	0.60			0.60		0.60	109.2	5565
7	LOG/1000	190	171.35	171.35	0.00							
	ROG/1000		171.01	171.01	0.00							
	LSD/1000		169.92	170.52	0.60	0.60						
	RSD/1000		169.95	170.55	0.60		0.60		0.60			
	MSD/1000		169.85	170.45	0.60			0.60		0.60	114	5809.2
7	LOG/1060	171	171.2	171.2	0.00							
	ROG/1060		170.91	170.91	0.00							
	LSD/1060		169.81	170.41	0.60	0.60						
	RSD/1060		169.81	170.41	0.60		0.60		0.60			
	MSD/1060		169.72	170.32	0.60			0.60		0.60	102.6	5244
TOTAL											57700.3	


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CHAPTER-XII



CHAPTER – XII COMPLIANCE OF REGULATION

12.1 Introduction

District Survey Report of Sand Mining or River Bed Mining in the district is prepared under-

- ✓ MoEF & CC, GoI notification S.O. 1533(E) dated 14/09/2006
- ✓ MoEF & CC, GoI notification S.O. 141 (E) dated 15/01/2016
- ✓ Sustainable Sand Mining Guidelines, 2016
- ✓ Sand Policy of Govt. of Jharkhand, 2017
- ✓ MoEF & CC, GoI notification S.O. 3611 (E) dated 25/07/2018
- ✓ Enforcement and Monitoring Guidelines for Sand Mining 2020
- ✓ Jharkhand Minor Mineral Concession Rule, 2021

12.2 Compliance to provisions in Gazette notification no. S.O 3611 dated 25.07.2018 & sustainable sand mining guideline (SSMG) 2016 has laid down structure of DSR for sand mining.

Table below gives status of compliance to above guidelines:

Table - 22
Compliance MoEF & CC, GoI notification S.O. 3611 (E) dated 25/07/2018 & SSMG - 2016 Guidelines Applicable to Preparation of D.S.R for Sand Mining

Sl. No.	Prescribed Guideline	Complied
1.	The report can have following structure	
A	Introduction	Complied Refer to Chapter - I
B	Overview of Mining Activity in the District	Complied Refer to Chapter - II
C	The List of Mining Leases in the District with location, area and period of validity	Complied Refer to Chapter - III
D	Details of Royalty or Revenue received in last three years	Complied Refer to Chapter - IV
E	Detail of Production of Sand or Bajari or minor mineral in last three years	Complied Refer to Chapter - V
F	Process of Deposition of Sediments in the rivers of the District	Complied Refer to Chapter - VI
G	General Profile of the District	Complied Refer to Chapter - VII
H	Land Utilization Pattern in the district: Forest, Agriculture, Horticulture, Mining etc	Complied Refer to Chapter - VIII
I	Physiography of the District	Complied Refer to Chapter - IX
J	Rainfall: month-wise	Complied Refer to Chapter - X
K	Geology and Mineral Wealth	Complied Refer to Chapter - XI
2.	Drainage System with description of main rivers.	Complied Refer to



					Table 12								
	Sl. No.	NAME OF RIVER	AREA DRAINED (Sq. Km)	% AREA DRAINED									
3.	Salient Features of Important Rivers and Streams:				Complied Refer to Table 11								
	Sl. No.	Name of the River /Stream	Total Length in the District (in Km)	Place of origin		Altitude at Origin							
4.	<p>Methodology Adopted for Calculating of Mineral Potential</p> <p>The mineral potential is calculated based on field investigation and geology of the catchment area of the river/ streams. As per the policy of the State- location, depth of mineable mineral is defined. The area for removal of mineral in a river or stream can be decided depending on geo-morphology and other factors, it can be 50% to 60% of the area of a particular river/stream.</p> <p>The specific gravity of each mineral constituent is different. While calculating the mineral potential, the average specific gravity is taken as 2.25. The percent of mineral constituent like boulder, bajari, sand also varies for different river and streams.</p>				Complied Refer to Chapter - XI								
5.	The quantum of deposition varies from stream to stream depending upon factors like catchment lithology, discharge, river profile and geomorphology of the river course. There are certain geomorphological features developed in the river beds such as channel bar, point bar etc. where annual deposition is more even two to three meters.				Quantum of replenishment of sand has been determined by surveyed data								
6.	The specific gravity of each mineral constituents is different. While calculating the mineral potential the average specific gravity is taken as 2.25. The percentage of mineral constituent like boulder, river bajari, sand also varies for different river and streams.				Specific gravity of sand samples collected from every PRA have been tested and enclosed with this report.								
7.	<p>Present Status of Mining</p> <p>This gives the detail of mining leases already in operation in this stretch, area and production in last three years from these leases are calculated.</p> <p>Mineral Potential is calculated in following way:</p> <p>Mineral Potential</p> <table border="1"> <tr> <td>Boulder (MT)</td> <td>Bajari (MT)</td> <td>Sand (MT)</td> <td>Total Mineable Mineral Potential (MT)</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>				Boulder (MT)	Bajari (MT)	Sand (MT)	Total Mineable Mineral Potential (MT)					Complied and given in chapter XI
Boulder (MT)	Bajari (MT)	Sand (MT)	Total Mineable Mineral Potential (MT)										

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12.3 Compliance to Environment Monitoring Guideline for Sand mining 2020.

EMGSM-2020 has also laid down guidelines for preparation of DSR for sand mining & also for estimating annual rate of replenishment of sand.

In preparation of this DSR these guidelines have been followed.

Status of Compliance to provisions in EMGS – 2020 is given below in table.

Status of Compliance to provisions in Enforcement & Monitoring Guidelines for Sand Mining (EMGSM) 2020

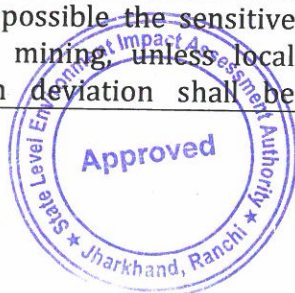
Sl. No.	Condition laid down by SSMG	Compliance
a.	District Survey Report for sand mining shall be prepared before the auction/e- auction/grant of the mining lease/Letter of Intent (LoI) by Mining department or department dealing the mining activity in respective states.	District Survey Report for sand mining has been prepared. After its approval appropriate action will be taken by mining department for auction and grant of mining lease.
b.	The first step is to develop the inventory of the River Bed Material and Other sand sources in the district. In order to make the inventory of River Bed Material, a detailed survey of the district needs to be carried out, to identify the source of River Bed Material and alternative source of sand (M-Sand). The source will include rivers, de-siltation of reservoir/dams, Patta lands/Khatedari Land, M-sand etc.	After detailed survey inventory of rivers in the district has been prepared where sand can be mined. There is no source of M sand in the district. This is covered in chapter – XI
c.	District Survey Report is to be prepared in such a way that it not only identifies the mineral-bearing area but also define the mining and no mining zones considering various environmental and social factors.	District Survey Report identifies both mining and non-mining zone. This is covered in chapter - XI
d.	Identification of the source of Sand & M- Sand. The sources may be from Rivers, Lakes, Ponds, Dams, De-silting locations, Patta land/ Khatedari 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/Khatedari lands [Owner Name, Si. No, Area, Agricultural/Non- Agricultural, Villages, Tehsil, District], in case of M-Sand Plant [Owner Name, Sy No, Area, Quantity/Annum, Villages, Tehsil, District], needs to be recorded as per format given in Annexure-I.	In this District Survey Report, source of sand in the district has been identified as river sand. Only required details on river, land has been furnished in chapter – XI. There is no M-sand plant in the district. Annexure -I has been filled and enclosed.
e.	Defining the sources of Sand/M-Sand in the district is the next step for identification of the potential area of	Source of sand in the district has been found

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 Director, Jharkhand State
 Environmental Assessment
 Authority
 Ranchi



	<p>deposition/aggradation wherein mining lease could be granted. Detailed survey needs to be carried out for quantification of minerals. The purpose of mining in the river bed is for channelization of rivers so as to avoid the possibility of flooding and to maintain the flow of the rivers. For this, the entire river stretch needs to be surveyed and Original Ground Level (OGL) to be recorded and area of aggradation/deposition needs to be ascertained by comparing the level difference between the outside riverbed OGL and water level. Once the area of aggradation/deposition are identified, then the quantity of River Bed Material available needs to be calculated. The next step is channelization of the river bed and for this central ¾th part of the river, width needs to be identified on a map. Out of the ¾th part area, where there is a deposition/aggradation of the material needs to be identified. The remaining ¼th area needs to be kept as no mining zone for the protection of banks. The specific gravity of the material also needs to be ascertained by analyzing the sample from a NABL accredited lab. Thus, the quantity of material available in metric ton needs to be calculated for mining and no mining zone.</p>	<p>to be sand to be mined from the river bed. OGL for every potential resource area have been recorded along with R.L of sand deposit. Portion of the river channel from where sand will be mined have been identified only 3/4th of river to be mined. Sand samples have been tested by NABL certified labs.</p>
f.	<p>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.</p>	<p>Permanent boundary pillar will be erected after lease is granted.</p>
g.	<p>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 non-sensitive area non-sensitive area needs to be defined in sensitive and non-sensitive area.</p>	<p>No mining zone has been identified based on criteria given EMGS-2020. Siting criteria as per SPCB and SEIAA will be followed at stage of seeking E.C or CTE.</p>
h.	<p>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.</p>	<p>Demand and supply of sand has been done as per recommendation given in document titled "Sand Mining Framework" published by Ministry of Mines GoI.</p>
i.	<p>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</p>	<p>This will be followed at the time when E.C or CTE is sought for</p>

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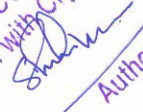


	temporary & shall not be a permanent feature.	individual mining lease.
j.	The final area selected for the mining should be then divided into mining lease as per the requirement of State Government. It is suggested the mining lease area should be so selected as to cover the entire deposition area. Dividing a large area of deposition/aggradation into smaller mining leases should be avoided as it leads to loss of mineral and indirectly promote illegal mining.	In this Report Potential Area of sand in rivers have been identified. Final area for mining will be done when mining lease is allotted by mining dept.
k.	Cluster situation shall be examined. A cluster is formed when one mining lease of homogenous mineral is within 500 meters of the other mining lease. In order to reduce the cluster formation mining lease size should be defined in such a way that distance between any two clusters preferably should not be less than 2.5 Km. Mining lease should be defined in such a way that the total area of the mining leases in a cluster should not be more than 10 Ha.	There is no cluster condition in the DSR.
l.	The number of a contiguous cluster needs to be ascertained. Contiguous cluster is formed when one cluster is at a distance of 2.5 Km from the other cluster.	Do
m.	The mining outside the riverbed on Patta land/Khatedari land be granted when there is possibility of replenishment of material. In case, there is no replenishment then mining lease shall only be granted when there is no riverbed mining possibility within 5 KM of the Patta land/Khatedari land. For government projects, mining could be allowed on Patta land/Khatedari land but the mining should only be done by the Government agency and material should not be used for sale in the open market. Cluster situation as mentioned in para k above is also applicable for the mining in Patta land/Khatedari land.	There is no proposal for mining beyond river bed.
n.	The State Government should define the transportation route from the mining lease considering the maximum production from the mines as at this stage the size of mining leases, their location, the quantity of mineral that can be mined safely etc. is available with the State Government. It is suggested that the transportation route should be selected in such a way that the movement of trucks/tippers/tractors from the villages having habitation should be avoided. The transportation route so selected should be verified by the State Government for its carrying capacity.	Transportation route for every PRA has been identified and marked on toposheet. They are enclosed at plate 4.

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o.	<p>Potential site for mining having its impact on the forest, protected area, habitation, bridges etc, shall be avoided. For this, a sub- divisional committee may be formed which after the site visit shall decide its suitability for mining. The list of mining lease after the recommendation of the Committee needs to be defined in the following format given in as Annexure-II. The Sub-Divisional Committee after the site visit shall make a recommendation on the site for its suitability of mining and also records the reason for selecting the mining lease in the Patta land. The details regarding cluster and contiguous cluster needs to be provided as in Annexure-III. The details of the transportation need to be provided as in Annexure IV.</p>	<p>This DSR was examined by Sub-Divisional Committee. Observations of Sub-Divisional Committee was recorded in annexure II. Similarly annexure III and IV was filled after visit of Sub-Divisional Committee.</p>
p.	<p>Public consultation-The Comments of the various stakeholders may be sought on the list of mining lease to be auctioned. The State Government shall give an advertisement in the local and national newspaper for seeking comments of the general public on the list of mining lease included in the DSR. The DSR should be placed in the public domain for at least one month from the date of publication of the advertisement for obtaining comments of the general public. The comments so received shall be placed before the sub- divisional committee for active consideration. The final list of sand mining areas [leases to be granted on riverbed & Patta land/Khatedari land, de-siltation location (ponds/lakes/dams), M-Sand Plants (alternate source of sand)] after the public hearing needs to be defined in the final DSR in the format as per Annexure-V. The details regarding cluster and contiguous cluster needs to be provided in Annexure-VI. The details of the transportation need to be provided in Annexure-VII.</p>	<p>The DSR was uploaded on district NIC portal for one month for getting suggestion from stakeholders. On receipt of suggestion annexure V was filled up.</p>


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**Physical survey of the field by the conventional method as per
Enforcement & Monitoring Guidelines for Sand Mining (EMGSM) 2020**

Sl. No.	Particular	Compliance / Non-Compliance
1.	The conventional survey technical using DGPS and other survey tools are used to define the topography, contours and offsets of the lease area. The survey should clearly depict the important attributes of the stretch of the river and its nearby important civil and other feature of importance. Such information will provide the eligible spatial area for mining. The contour and the elevation benchmarks will provide the baseline data for assessing the pre and post-study period scenario.	<i>DGPS survey has been done to define topography, contours and offset of PRA's. TBM has been fixed as benchmark for base line survey & reference in future. TBM has been fixed as explained in section-11.2 (Step-2)</i>
2.	Physical benchmarks are to be fixed at appropriate intervals (preferable 1 in 30 m) and the Reduced Level (RL) shall be validated from a nearby standard RL. These RL should be engraved on a steel plate (Bench Plate) and shall be fixed and placed at locations which are free from any damages and are available in pre. and post-study period. The bench plates shall be available for use during the mining period as reference for all mining activity. Reference pillar may also be used in place of bench plates with visible and readable demarcation on the ground as common reference points to control the topographic survey and mining activity.	<i>TBM_s with its reduced level (amsl) have been fixed on bridges/ school /buildings. Physical bench marks at interval of 1 in 30m would be fixed once mining lease is allotted.</i>
3.	Baseline data on elevation status for a grid of 10 m x 10 m is preferred to have accuracy in the assessment. It is expected that two consecutive cross-sections in longitudinal and lateral direction should not be more than 10- meter distance apart, however, the regulatory authority may fix these intervals depending on the geographical and site-specific conditions, only and after providing the scientific reason for such deviation.	<i>Data have been collected through field survey. These being analysed and interpreted. They will be submitted along with the DSR to SEIAA.</i>
4.	The levels (MSL & RL) of the corner point of each grid should be identifiable and safety barriers (Non-Mining) demarcated as restricted in consensus with Mineral Concession Rules of respective State, and the provision mentioned in this Sustainable Sand Mining Management Guidelines.	<i>Complied Details given in chapter - XI</i>

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5.	The changes observed in the elevation in pre and post scenario at each node should be depicted in graphical forms with an appropriate scale to estimate the area of deposition and erosion. These graphical presentations should depict the active channel regime and the flow bed elevation with other important features required to be considered for estimation of the mining area. The area of deposition and erosion shall be calculated for each cross-section after giving due regard to the stability and safety of active channel banks, and other features of importance. The elevation level shall be in reference to the nearest bench-plates established for the purpose.	<i>Pre and post monsoon data on elevation of sand deposits are shown in graphical form. Annexure-J. Based on these areas of deposition has been identified.</i>
6.	A clear identification is required to be highlighted between grids under mineable and grids under the non-mineable area. These baseline data (pre and post) be subjected to stimulation with the help of data mine software to derive at the replenishment area and corresponding volume and estimated weight.	<i>Replenishment volume based on pre and post monsoon elevation has been calculated and given in chapter 11</i>
7.	The database should be structured in a tabulated form clearly depicting the nomenclature of the section lines, latitude and longitude of the starting point, chain-age and respective levels of all the points taken on that section line.	<i>Complied. Refer chapter - 11</i>
8.	Net area shall be derived after the summation of the area of deposition minus area of erosion for each cross-section. The volume will be estimated by multiplying the distance between two cross-sections with the average of net area of these two consecutive cross-sections.	<i>This has been covered at chapter 11. (Sand Replenishment Estimation sheet)</i>
9.	One sample per 900 square meters (30 m x 30 m) shall be preferred sample density for assessment of bulk density for estimation of deposition rate. Care should be taken that the sample for assessment of bulk density is taken from the deposition zone and not from erosion. However, depending on the site condition, river morphology and geographical condition, sample density may be adjusted. Reason for such deviation shall be appropriately highlighted in the report with supporting scientific data.	<i>Sand analysis data for each PRA are given in annexure -D.</i>

12.4

Compliance to observation of state Environment Assessment Committee SEAC, while appraising Draft DSR for sand mining have recorded their observations in Minutes of Meeting. Status of compliance to above observations are given in table below.

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STATUS OF COMPLIANCE TO THE POINTS COVERED IN MINUTES OF MEETING OF SEAC ON APPRAISAL OF DRAFT DSR FOR DEOGHAR & KHUNTI HELD ON 5TH DECEMBER 2022 THE SEAC, IN THEIR SUGGESTION COVERED CERTAIN POINTS TO BE INCLUDED IN FINAL DSR

Sl.	Point Observed by SEAC	Compliance
1.	The final DSR after approval by Sub-Divisional Committee, Deputy Commissioner and incorporation of the public comments is to be submitted for appraisal by SEAC.	Final DSR was submitted to SEAC after approval of sub- divisional committee & incorporation of public comments.
2.	The final DSR should be signed by all members of the Sub-Divisional Committee and the Consultant involved in the preparation of the same. All pages of the DSR should be signed by the authorized officer of the Sub Divisional Committee.	Complied.
3.	The draft DSR submitted is based only on part survey. In the submitted DSR the complete area of the river/rivers have not been surveyed, only some selected ghats/lease have been surveyed. The complete potential area should be demarcated before proposing the sand leases / ghats as per EMGSM	This report incorporates all Potential Resource Area (Twenty Six) identified in the district. They have been demarcated on KML maps, SOI Toposheet & relevant Mauza Maps.
4.	The field survey of pre-monsoon period is to be included in final DSR.	Primary data has been provided by District Mining Office & validated by satellite imagery.
5.	The DSR should be placed in the public domain for at least 01 (one) month from the date of publication of the advertisement for obtaining comments of the public. The comments received shall be placed. The comments received shall be placed before the concerned Sub-Divisional Committee for consideration. The final DSR should be submitted to SEIAA, after incorporation of all replies of the comments received from the public.	An advertisement was published on local newspaper dated 28 February, 2023 and the draft DSR was uploaded on district portal from 25 February, 2023 to 25 th March, 2023 for public consultation. The final DSR have been submitted to SEIAA after vetted by Sub-Divisional Committee.
6.	Demand and Supply of the river bed material through market survey needs to be carried out. In addition to this, future demand for the next five year also needs to be considered to justify the number and area of the sandghat to be included in the final DSR.	Demand & Supply of river bed material have been provided through data furnished by DMO (Supply) & for demand assessment by method given in documents "Sand Mining Framework" published by Ministry of Mines Govt of India.
7.	The sandghat / leases have not to be proposed on the confluence / meanders / concavities / active channels of the river.	In selection of Potential Resource Area for sand this condition has been considered.
8.	The Khata & Khasra (Class / Nature of land including "Jungle Jhari") of the lease area should be certified by the concerned Circle Officer (CO) and to be incorporated in the final DSR.	These details have been obtained & recorded (Annexure - D)

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9.	The distance of sand leases / ghats from the Forest / Wildlife Protected Area / Birds Sanctuary / Wildlife Sanctuary / National Park / Eco Sensitive Zone should be verified and certified by the concerned DFO's of the respective Territorial and Wildlife division.	Distance of Identified Potential Resource Area for sand from notified forest, Wildlife protected area/ Bird sanctuary / National Park have been obtained from DFO (T) & DFO (WL) (Ref. Annexure E & F)
10.	The undertaking regarding presence of aquatic animal in the river in proximity of the proposed sand ghats should be verified and certified by concerned Govt. Departments like Zoological Survey of India.	Letter has been written to Director ZSI, Kolkata with a request to furnish a list of aquatic animals in river in the district. Till the time reply is not received from ZSI. List of aquatic fauna received from District Fishery Department is attached in annexure G.
11.	The proposed leases / ghats should meet all the siting criteria of State Pollution Control Board / SEIAA.	During selection of ghat or lease all the siting criteria of JSPCB/JSEIAA will be considered.
12.	Clear and high resolution color satellite images of the proposed potential sand mining area should be submitted with final DSR including the date of photographs / geocoded location. Details of all such satellite imageries should be included in the final DSR.	High resolution color satellite imagery have been used in preparation of this report. Photographs taken in course of survey are geocoded. They are enclosed in plate - 5.
13.	The table of estimation of sand resources after pre-monsoon and post monsoon survey should be included in the final DSR.	Gross geological reserve, Mineable reserve and extractable reserve during post - monsoon period have been estimated given in Chapter - XI.
14.	All primary & secondary data should be supported with relevant references and documentary evidences in the final DSR.	This has been complied in preparation of the report.
15.	Bulk density and specific gravity of the sand should be certified by NABL accredited laboratory.	Sand sample collected from PRA have been tested for SP. Gravity & size analysis by NABL accredited lab they are enclosed at Annexure - C.
16.	Concave side of the river should be avoided for identification of sand leases / ghats.	In selection of PRA concave side of river has been avoided.
17.	KML files of existing leases / ghats and proposed lease / ghats should be provided.	There are five existing ghat in the district. KML map of all PRA have been prepared & enclosed at Plate-
18.	Clusters and contiguous cluster formation should be followed as per EMGSM guidelines, 2020.	No cluster has been proposed in DSR.

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19.	Average length and width of the river should be included and mining should be restricted to 3/4 th of the river width and mining should be restricted within 60% of the mineable reserve.	Average length & width of river has been furnished in Table 14 Identification of no Mining zone & calculation of mineable reserve only centered ¾ of river width has been considered extractable reserve has been taken as 60% of mineable
20.	Transportation routes should be defined for the proposed mining sites and duly certified from the competent Authorities.	Transport route for every PRA have been worked on Toposheet. They are enclosed at Plate - 4.
21.	All the annexures given in the EMGSM guideline, 2020 should be filled and included in the final DSR.	All annexure of EMSG 2020 have been filled & enclosed at Annexure A.
22.	Point no. 9.3 of the EMGSM guidelines, 2020 regarding monitoring of mining near inter-district or interstate boundary should be addressed in the final DSR, if applicable.	In this district there is no PRA located on inter district/ interstate boundary.
23.	In addition to above, any other applicable criteria as required under SSMG, 2016 & EMGSM guidelines, 2020 should be included in the final DSR.	Applicable criteria as per SSMG 2016, EMGSM -2020 have been complied (Refer Chapter XII)
24.	The presentation of the final DSR at the time of appraisal by SEAC should cover all the points of SSMG, 2016& EMGSM guidelines, 2020.	This DSR covers all points of SSMG, 2016 and EMGSM, 2020.


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REFERENCE

- Publications of Directorate of Economics and Statistics, Jharkhand
- Census Handbook, 2011
- Data from District of Mining Officer (DMO)
- Publications of Central Ground Water Authority (CGWA)
- Publications of Jharkhand Space Applications Centre (JSAC)
- Previous approved District Survey Report (DSR)
- Enforcement and monitoring guidelines for sand mining, 2020
- Sand mining management guidelines, 2016
- JSPCB Norm for Grant of CTE
- SEIAA Norms for grant of E.C. for Minor Mineral.



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ANNEXURE - A



Details of Sand/M-Sand Sources

a) Rivers:

River Name/M-Sand Plant	Total Stretch of River (in KM)	Type of River (Perennial or Non-Perennial)
Ajay	75	Perennial
Jayanti	33	Perennial
Pathro	48	Perennial

b) De-Siltation Location: (Lakes/Ponds/Dams etc.)

Name of Reservoir/Dams	Maintain/Controlled by State Govt./PSU etc.	Location	District	Tehsil	Village	Size(Ha)
NIL	NIL	NIL	NIL	NIL	NIL	NIL

c) Patta Lands/Khatedari Land:

Owner	Sy. No	Area (Ha)	District	Tehsil	Village	Agricultural Land (Yes/No)
NIL	NIL	NIL	NIL	NIL	NIL	NIL

d) M-Sand Plants:

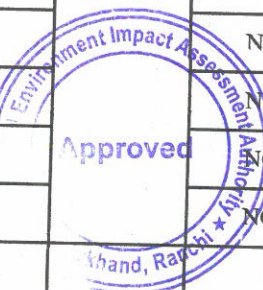
Plant Name	Owner	District	Tehsil	Village	Geo-location	Quantity Tonnes/Annum
NIL	NIL	NIL	NIL	NIL	NIL	NIL

Note: For inclusion of M-Sand Plant/Patta Land in DSR the plant/landowners need to submit the request to the Mining Department with complete details. Inclusion in DSR does not give them the right to operate the M-Sand Plant/Sand Mining lease.



List of Potential Mining Leases (existing & proposed) Rivers
(Identified Potential Resource Area)

River Details	Lease Details	Area (in Ha)	Distance (in KM) from PA/BR/WC/	Distance from Forest Area (in KM)	Mining leases within 500 meters (if yes cluster area)	Total excavation in Tonnes /Annum considering digging depth max as 3 meters	Mineral to be mined (Sand/Bajri/RBM etc.)	Existing / Proposed	
Pathro	NIL	30.49	NIL	Refer to Annexure-E	NO	1230876.00	Sand	Proposed	
Pathro	NIL	26.52	NIL		NO	1257654.60	Sand	Proposed	
Pathro	NIL	26.90	NIL		NO	1205506.80	Sand	Proposed	
Pathro	NIL	43.20	NIL		NO	1467655.20	Sand	Proposed	
Pathro	NIL	32.02	NIL		NO	496578.60	Sand	Proposed	
Pathro	NIL	10.00	NIL		NO	1902690.00	Sand	Proposed	
Pathro	NIL	47.14	NIL		NO	1910206.80	Sand	Proposed	
Pathro	NIL	43.04	NIL		NO	1491145.20	Sand	Proposed	
Pathro	NIL	34.43	NIL		NO	959331.60	Sand	Proposed	
Pathro	NIL	27.32	NIL		NO	1641011.40	Sand	Proposed	
Pathro	NIL	20.61	NIL		NO	1166043.60	Sand	Proposed	
Ajay	NIL	29.47	NIL		NO	1580877.00	Sand	Proposed	
Ajay	NIL	21.08	NIL		NO	1498662.00	Sand	Proposed	
Ajay	NIL	25.68	NIL		NO	1470474.00	Sand	Proposed	
Ajay	NIL	31.82	NIL		NO	1151949.60	Sand	Proposed	
Ajay	NIL	23.51	NIL		NO	1789468.20	Sand	Proposed	
Ajay	NIL	38.12	NIL		NO	1107318.60	Sand	Proposed	
Ajay	NIL	17.84	NIL		NO	729599.40	Sand	Proposed	
Ajay	NIL	14.90	NIL		NO	842351.40	Sand	Proposed	
Ajay	NIL	17.93	NIL		NO	873828.00	Sand	Proposed	
Jayanti	NIL	6.50	NIL		NO	305370.00	Sand	Proposed	
Jayanti	NIL	15.40	NIL		NO	709398.00	Sand	Proposed	
Jayanti	NIL	6.10	NIL		NO	291276.00	Sand	Proposed	
Jayanti	NIL	11.60	NIL		NO	544968.00	Sand	Proposed	
Jayanti	NIL	14.85	NIL		NO	720203.40	Sand	Proposed	
Jayanti	NIL	17.60	NIL		NO	902955.60	Sand	Proposed	
							28344443.40		



Note: Mining lease will be granted only after LOI is issued and EC are granted

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Patta Lands/Khatedari Land: (existing & proposed)

Owner	Sy. No	Area	District	Tehsil	Village	Total Reserve (MT)	Total Mineral to be mined (MT)	Existing /Proposed
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

De-Siltation Location: (Lakes/Ponds/Dams etc.) (Existing & proposed)

Name of Reservoir /Dams	Maintain /Controlled by State Govt./PSU etc.	Location	District	Tehsil	Village	Size (Ha)	Quantity MT /Year	Existing /Proposed
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

M-Sand Plants :(existing & proposed)

Plant Name	Owner	District	Tehsil	Village	Geo-location	Quantity Tonnes/Annum	Existing/ Proposed
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

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Annexure-III

Cluster & Contiguous Cluster details Clusters:

River Name	Cluster No.	Lease No	Location (Riverbed / Patta Land)	Village	Area (in Ha)	Total Excavation (Ton)	Total Mineral Excavation (Ton)
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

Contiguous Clusters:

River Name	Contiguous Cluster No.	Cluster No	Number of leases in the cluster	Location (Riverbed / Patta Land)	Distance between clusters	Village	Area of Cluster (Ha)	Total Mineral Excavation (Ton)
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

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Annexure-IV

Transportation Routes for individual leases and leases in Cluster

Lease No	Transportation Route No	Number of tipper s/day of lease	Number of tipper s/day of all the lease on route	Length of Route in KM	Type of Road (Black Toppe d/ unpaved)	Recommend ation for road (Black Topped/ unpaved)	The road will be Constructed by Govt/ Lease Owner	Route Map & Location
DPA01	DPA01	NIL	NIL	0.596	unpaved	unpaved	Lease Owner	Attached
DPA02	DPA02	NIL	NIL	0.375	unpaved	unpaved	Lease Owner	Attached
DPA03	DPA03	NIL	NIL	0.249	unpaved	unpaved	Lease Owner	Attached
DPA04	DPA04	NIL	NIL	0.466	unpaved	unpaved	Lease Owner	Attached
DPA05	DPA05	NIL	NIL	0.443	unpaved	unpaved	Lease Owner	Attached
DPA06	DPA06	NIL	NIL	0.532	unpaved	unpaved	Lease Owner	Attached
DPA07	DPA07	NIL	NIL	0.412	unpaved	unpaved	Lease Owner	Attached
DPA08	DPA08	NIL	NIL	0.344	unpaved	unpaved	Lease Owner	Attached
DPA09	DPA09	NIL	NIL	0.116	unpaved	unpaved	Lease Owner	Attached
DPA10	DPA10	NIL	NIL	0.721	unpaved	unpaved	Lease Owner	Attached
DPA11	DPA11	NIL	NIL	0.549	unpaved	unpaved	Lease Owner	Attached
DAJ01	DAJ01	NIL	NIL	0.261	unpaved	unpaved	Lease Owner	Attached
DAJ02	DAJ02	NIL	NIL	0.459	unpaved	unpaved	Lease Owner	Attached
DAJ03	DAJ03	NIL	NIL	1.000	unpaved	unpaved	Lease Owner	Attached
DAJ04	DAJ04	NIL	NIL	0.350	unpaved	unpaved	Lease Owner	Attached
DAJ05	DAJ05	NIL	NIL	0.532	unpaved	unpaved	Lease Owner	Attached
DAJ06	DAJ06	NIL	NIL	0.534	unpaved	unpaved	Lease Owner	Attached
DAJ07	DAJ07	NIL	NIL	0.259	unpaved	unpaved	Lease Owner	Attached
DAJ08	DAJ08	NIL	NIL	0.501	unpaved	unpaved	Lease Owner	Attached
DAJ09	DAJ09	NIL	NIL	0.720	unpaved	unpaved	Lease Owner	Attached
DJA01	DJA01	NIL	NIL	0.144	unpaved	unpaved	Lease Owner	Attached
DJA02	DJA02	NIL	NIL	0.394	unpaved	unpaved	Lease Owner	Attached
DJA03	DJA03	NIL	NIL	0.386	unpaved	unpaved	Lease Owner	Attached
DJA04	DJA04	NIL	NIL	0.742	unpaved	unpaved	Lease Owner	Attached
DJA05	DJA05	NIL	NIL	0.587	unpaved	unpaved	Lease Owner	Attached
DJA06	DJA06	NIL	NIL	0.464	unpaved	unpaved	Lease Owner	Attached

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Cluster No	Transportation Route No	Number of tipper s /day of cluster	Number of tipper s /day of all the clusters on route	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Recommendation for road (Black Topped/ unpaved)	The road will be Constructed by Govt/Lease Owner	Route Map & Location
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

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Final List of Potential Mining Leases (existing & proposed) Rivers

River Details	Lease Details	Area (in Ha)	Distance (in KM) from PA/BR/WC/	Distance from Forest Area (in KM)	Mining leases within 500 meters (if yes cluster area)	Total excavation in (MT/Yr) (Mine depth max as 3 m)	Mineral to be mined (Sand/Bajri/RBM etc.)	Existing /Proposed
Pathro	NIL	30.49	NIL	Refer to Annexure-E	NO	1230876.00	Sand	Proposed
Pathro	NIL	26.52	NIL		NO	1257654.60	Sand	Proposed
Pathro	NIL	26.90	NIL		NO	1205506.80	Sand	Proposed
Pathro	NIL	43.20	NIL		NO	1467655.20	Sand	Proposed
Pathro	NIL	32.02	NIL		NO	496578.60	Sand	Proposed
Pathro	NIL	10.00	NIL		NO	1902690.00	Sand	Proposed
Pathro	NIL	47.14	NIL		NO	1910206.80	Sand	Proposed
Pathro	NIL	43.04	NIL		NO	1491145.20	Sand	Proposed
Pathro	NIL	34.43	NIL		NO	959331.60	Sand	Proposed
Pathro	NIL	27.32	NIL		NO	1641011.40	Sand	Proposed
Pathro	NIL	20.61	NIL		NO	1166043.60	Sand	Proposed
Ajay	NIL	29.47	NIL		NO	1580877.00	Sand	Proposed
Ajay	NIL	21.08	NIL		NO	1498662.00	Sand	Proposed
Ajay	NIL	25.68	NIL		NO	1470474.00	Sand	Proposed
Ajay	NIL	31.82	NIL		NO	1151949.60	Sand	Proposed
Ajay	NIL	23.51	NIL		NO	1789468.20	Sand	Proposed
Ajay	NIL	38.12	NIL		NO	1107318.60	Sand	Proposed
Ajay	NIL	17.84	NIL		NO	729599.40	Sand	Proposed
Ajay	NIL	14.90	NIL		NO	842351.40	Sand	Proposed
Ajay	NIL	17.93	NIL		NO	873828.00	Sand	Proposed
Jayanti	NIL	6.50	NIL		NO	305370.00	Sand	Proposed
Jayanti	NIL	15.40	NIL		NO	709398.00	Sand	Proposed
Jayanti	NIL	6.10	NIL		NO	291276.00	Sand	Proposed
Jayanti	NIL	11.60	NIL		NO	544968.00	Sand	Proposed
Jayanti	NIL	14.85	NIL		NO	720203.40	Sand	Proposed
Jayanti	NIL	17.60	NIL		NO	902955.60	Sand	Proposed



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Patta Lands/Khatedari Land: (existing & proposed)

Owner	Sy. No	Area	District	Tehsil	Village	Total Reserve (MT)	Total Mineral to be mined (MT)	Existing /Proposed
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

De-Siltation Location: (Lakes/Ponds/Dams etc.) (Existing & proposed)

Name of Reservoir/ Dams	Maintain/ Controlled by State Govt./PSU etc.	Location	Distt.	Tehsil	Village	Size(Ha)	Quantity MT/Year	Existing/ Proposed
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

M-Sand Plants :(existing & proposed)

Plant Name	Owner	District	Tehsil	Village	Geo-location	Quantity MT/Annum	Existing/Proposed
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL



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Annexure-VI

Final List of Cluster & Contiguous Cluster Clusters:

River Name	Cluster No.	Lease No	Location (Riverbed / Patta Land)	Village	Area (in Ha)	Total Excavation (Ton)	Total Mineral Excavation (Ton)
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

Contiguous Clusters:

River Name	Contiguous Cluster No.	Cluster No	Number of leases in the cluster	Location (Riverbed /Patta Land)	Distance between clusters	Village	Area of Cluster (in Ha)	Total Mineral Excavation (Ton)
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

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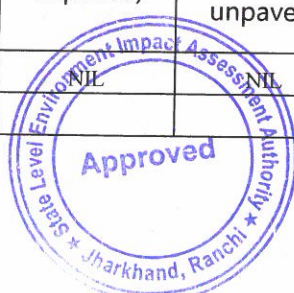
Annexure-VII

Final Transportation Routes for individual leases and leases in Cluster

Lease No	Transportation Route No	Number of tippers /day of lease	Number of tippers /day of all the lease on route	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Recommendation for road(Black Topped/ unpaved)	The road will be Constructed by Govt/Lease Owner	Route Map & Location
DPA01	DPA01	NIL	NIL	0.596	unpaved	unpaved	Lease Owner	Attached
DPA02	DPA02	NIL	NIL	0.375	unpaved	unpaved	Lease Owner	Attached
DPA03	DPA03	NIL	NIL	0.249	unpaved	unpaved	Lease Owner	Attached
DPA04	DPA04	NIL	NIL	0.466	unpaved	unpaved	Lease Owner	Attached
DPA05	DPA05	NIL	NIL	0.443	unpaved	unpaved	Lease Owner	Attached
DPA06	DPA06	NIL	NIL	0.532	unpaved	unpaved	Lease Owner	Attached
DPA07	DPA07	NIL	NIL	0.412	unpaved	unpaved	Lease Owner	Attached
DPA08	DPA08	NIL	NIL	0.344	unpaved	unpaved	Lease Owner	Attached
DPA09	DPA09	NIL	NIL	0.116	unpaved	unpaved	Lease Owner	Attached
DPA10	DPA10	NIL	NIL	0.721	unpaved	unpaved	Lease Owner	Attached
DPA11	DPA11	NIL	NIL	0.549	unpaved	unpaved	Lease Owner	Attached
DAJ01	DAJ01	NIL	NIL	0.261	unpaved	unpaved	Lease Owner	Attached
DAJ02	DAJ02	NIL	NIL	0.459	unpaved	unpaved	Lease Owner	Attached
DAJ03	DAJ03	NIL	NIL	1.000	unpaved	unpaved	Lease Owner	Attached
DAJ04	DAJ04	NIL	NIL	0.350	unpaved	unpaved	Lease Owner	Attached
DAJ05	DAJ05	NIL	NIL	0.532	unpaved	unpaved	Lease Owner	Attached
DAJ06	DAJ06	NIL	NIL	0.534	unpaved	unpaved	Lease Owner	Attached
DAJ07	DAJ07	NIL	NIL	0.259	unpaved	unpaved	Lease Owner	Attached
DAJ08	DAJ08	NIL	NIL	0.501	unpaved	unpaved	Lease Owner	Attached
DAJ09	DAJ09	NIL	NIL	0.72	unpaved	unpaved	Lease Owner	Attached
DJA01	DJA01	NIL	NIL	0.144	unpaved	unpaved	Lease Owner	Attached
DJA02	DJA02	NIL	NIL	0.394	unpaved	unpaved	Lease Owner	Attached
DJA03	DJA03	NIL	NIL	0.386	unpaved	unpaved	Lease Owner	Attached
DJA04	DJA04	NIL	NIL	0.742	unpaved	unpaved	Lease Owner	Attached
DJA05	DJA05	NIL	NIL	0.587	unpaved	unpaved	Lease Owner	Attached
DJA06	DJA06	NIL	NIL	0.464	unpaved	unpaved	Lease Owner	Attached

Cluster No	Transportation Route No	Number of tippers /day of cluster	Number of tippers /day of all the clusters on route	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Recommendation for road(Black Topped/ unpaved)	The road will be Constructed by Govt/Lease Owner	Route Map & Location
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

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ANNEXURE - B



PRE-MONSOON DATA (DEOGHAR)

Sand Ghat	Corner Point	Latitude	Longitude	RL(m)
Tetariyanr	A	24°11'57.60" N	86°41'15.9"E	187.51
	B	24°11'57.60" N	86°41'44.0"E	187.53
	C	24°12'05.50" N	86°41'15.9"E	186.98
	D	24°12'05.50" N	86°41'44.0"E	186.87

Sand Ghat	Corner Point	Latitude	Longitude	RL
Raniganj	A	24°15'4.0" N	86°49'50.3" E	177.6
	B	24°15'4.0" N	86°49'54.6"E	177.51
	C	24°15'14.0"N	86°49'50.3" E	177.12
	D	24°15'14.0"N	86°49'54.6"E	177.09

Sand Ghat	Corner Point	Latitude	Longitude	RL
Pandaniya	A	24°12'45.7"N	86°27'26.9" E	203.42
	B	24°12'45.7"N	86°37'55.6"E	203.41
	C	24°12'49.0"N	86°27'26.9" E	202.88
	D	24°12'49.0"N	86°37'55.6"E	202.76

Sand Ghat	Corner Point	Latitude	Longitude	RL
Jugtopa	A	24°12'06.3" N	86°40'26.7" E	190.86
	B	24°12'06.3" N	86°40'44.9"E	190.75
	C	24°12'15.5" N	86°40'26.7" E	190.11
	D	24°12'15.5" N	86°40'44.9"E	190.21

Sand Ghat	Corner Point	Latitude	Longitude	RL
Basantpur & Malijhar.	A	24°28'08.6" N	86°36'15.5"E	229.91
	B	24°28'08.6" N	86°36'29.4"E	229.89
	C	24°28'22.6" N	86°36'15.5"E	229.10
	D	24°28'22.6" N	86°36'29.4"E	229.12

Sigma P.D. Consultants (Pvt.)
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ANNEXURE - C





EcoCare

Phone : (0341) 2252011

Fax : (0341) 2252011

Email : ecocareasansol@rediffmail.com

Specialised Hoouse on Environmental Monitoring, Analysis, Assessment & Management
ISO 9001:2015 Certified, OHSAS 45001:2018 Certified

Manoj Talkies Basement, Kumarpur

Asansol - 713304

Paschim Bardhaman (W.B.)

ULR No. TC51092300000171P

Date of Print: 15.12.2022

Sand Texture Analysis Report

Client Name: Crystal Consultants Pvt. Ltd.

Client Address: Kshitij Kashyap Vihar,

Opposite Ashok Nagar Road No. 3,

Ranchi, Jharkhand, PIN – 834002

Sample Type: Riverbed Sand

Period of Sampling: 16.10.2022 to 25.11.2022

Sampling Density: Two per Hectare

Sample Collected By: Party

Source: Multiple Rivers in Deoghar District

Period of Analysis: 05.12.2022 to 10.12.2022

Sample Condition: Sealed & Preserved

ID	Area (Ha)	Length (m)	No. of Samples	Sand Sample Collected for texture analysis						Bulk Density (Ton/m ³)
				4.75mm to 2.00 mm		2.00mm to 425 micron		425 to 75 micron		
				Nos.	%	Nos.	%	Nos.	%	
DPA01	30.49	1631	61	11	18.04	32	52.48	18	29.49	1.63
DPA02	26.52	910	53	7	13.2	30	56.56	16	30.24	1.68
DPA03	26.90	1480	54	9	16.73	32	59.48	13	23.79	1.67
DPA04	43.20	1077	86	19	21.99	49	56.71	18	21.3	1.66
DPA05	32.02	1032	64	9	14.05	33	51.53	22	34.42	1.64
DPA06	10.00	657	20	3	15	11	55	6	30	1.63
DPA07	47.14	910	94	16	16.97	48	50.91	30	32.12	1.63
DPA08	43.04	1580	86	18	20.91	49	56.92	19	22.17	1.67
DPA09	34.43	1610	69	14	20.33	36	52.28	19	27.39	1.65
DPA10	27.32	1127	55	9	16.47	32	58.57	14	24.96	1.65
DPA11	20.61	1320	41	7	16.98	22	53.37	12	29.65	1.66
DAJ01	29.47	1530	59	8	13.57	34	57.69	17	28.74	1.64
DAJ02	21.08	990	42	7	16.6	25	59.3	10	24.1	1.61
DAJ03	25.68	1243	51	10	19.47	29	56.46	12	24.07	1.64
DAJ04	31.82	1350	64	12	18.86	35	55	17	26.15	1.65
DAJ05	23.51	1054	47	7	14.89	25	53.17	15	31.94	1.66
DAJ06	38.12	2373	76	13	17.05	44	57.71	19	25.24	1.67
DAJ07	17.84	1105	36	6	16.82	22	61.66	8	21.52	1.68
DAJ08	14.90	879	30	5	16.78	17	57.05	8	26.17	1.67
DAJ09	17.93	980	36	6	16.73	21	58.56	9	24.71	1.68
DJA01	6.50	577	13	2	15.38	8	61.54	3	23.08	1.65
DJA02	15.40	1224	31	4	12.99	19	61.69	8	25.32	1.64
DJA03	6.10	621	12	2	16.39	7	57.38	3	26.23	1.63
DJA04	11.60	810	23	3	12.93	14	60.34	6	26.72	1.66
DJA05	14.85	1037	30	5	16.84	16	53.87	9	29.29	1.64
DJA06	17.60	1060	35	6	17.05	21	59.66	8	23.3	1.65

1. Test values are reported based on the samples received.
2. Samples will be destroyed after 7 days from the date of issues of the Test Report, subject to nature of preservation; sample will be preserved as per the standard method.
3. The Test report shall not be reproduced without the written approval of the laboratory.



MPal

Authorised Signatory

Dr. Mousumi Pal
Ph.D.(Env.), Scientist
Authorised Signatory

ANNEXURE - D





अंचल अधिकारी का कार्यालय, देवघर

दूरभाष संख्या :-

फैक्स: -

ई-मेल codeoghar2017@gmail.com

पत्रांक02...../रा0, देवघर, दिनांक02/01/2023

प्रेषक,

अंचल अधिकारी,
देवघर।

सेवा में,

जिला खनन पदाधिकारी,
देवघर।

विषय :-

देवघर अंचल अन्तर्गत अद्यतन DSR में Category-ii के चिन्हित potential बालुघाटों का जंगल झाड़ी से संबंधित प्रतिवेदन उपलब्ध कराने के संबंध में।

प्रसंग:-

पत्रांक-1437/एम०, देवघर, दिनांक-29.12.2022

महाशय,

उपर्युक्त विषयक प्रासंगिक पत्र के संदर्भ में देवघर अंचल अन्तर्गत अद्यतन DSR में Category-ii के चिन्हित potential बालुघाटों का जंगल झाड़ी से संबंधित ट्रेस- नक्शा सहित प्रतिवेदन राजस्व उपनिरीक्षक/प्रभारी अंचल निरीक्षक द्वारा समर्पित किया गया है, जिसे इस पत्र के साथ सलंगन कर को भेजा जाता है।

अनु०- यथोक्त

विश्वासभाजन

Sigma R.D. Consultants (P) Ltd.
Consortium with Crystal Consultants
Authorized Signatory

अंचल अधिकारी,
देवघर।
02/01/2023



सेवा में,
अंचल अधिकारी
देवघर

विषय - बालुघाटों का जंगल-झाड़ी से संबंधित प्रतिवेदन ।
प्रसंग - जिला खनन पदाधिकारी देवघर का फांक-1437/एम०
दिनांक - 29/12/2022

महोदय,
प्रासंगिक फा में वर्णित प्लॉट संख्या का विवरण
निम्न है—

क्र.सं.	मौजा का नाम	थाना सं.	प्लॉट सं.	जंगल झाड़ी है/नहीं	किस्म
1	खरवा	303	670	नहीं	नदी
2	संग्रामलोड़िया	403	1847	नहीं	नदी
3	विशानपुर शीत	373	1497	नहीं	नदी
4	विशानपुर	619	1093	नहीं	नदी
5	खिपुरिया	622	987	नहीं	नदी
6	कदई	623	479	नहीं	नदी
7	गोंदडीह	633	2385	नहीं	नदी
8	बसवशिया	824	01.	नहीं	नदी

प्रतिवेदन सादर समर्पित ।

Sigma R.D. Consultants (P) Ltd.
Consortium with Crystal Consultants
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विशाल कुमार

29/12/22
02/01/23
दस्तावेज-08खं10



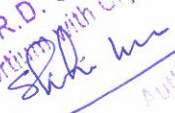
सेवा में,
अंचल अधिकारी
देवघर

विषय - बालुघाटों का जंगल झाड़ी व संबंधित प्रतिकेहन।
प्रसंग - जिला खनन पदाधिकारी देवघर का पत्रांक-1437/एम
दिनांक - 29/12/2022

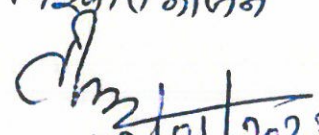
महाशय,
प्राथमिक पत्र में वर्णित प्लॉट संख्या का जंगल-झाड़ी
से संबंधित विवरण निम्न है -

क्र.सं.	मौजा का नाम	थाना नं०	खता सं०	शुग सं०	जंगल झाड़ी है/नहीं	जिला
1	झोरा नौखिल	158-138	23	720	नहीं	नदी
2	बड़ा नौखिल	137	33	670	नहीं	नदी

प्रतिकेहन सादर समर्पित।

Sigma R.D. Consultants (P) Ltd.
Consortium with Crystal Consultants

Authorized Signatory



विश्वास का पत्र

02/01/2023
शा. डी. नि.
ह. नं० - 6

सेवा में,

अंचल अधिकारी
केवधर

विषय - बालुघाटों का जंगल झाड़ी से संबंधित प्रतिवेदन ।

प्रसंग - जिला खनन पदाधिकारी केवधर का पतांक-1437/एक

दिनांक - 29/12/2022

महाशय,

प्रासंगिक फ़ॉर्म में वर्णित प्लॉट सं० का किवरण

निम्न है -

क्र.सं०	मॉजा का नाम	थान सं०	प्लॉट सं०	जंगल झाड़ी है/नहीं	किस्म
1	असपैका	621	01	नहीं	नहीं
2	कुशिमल	371	821	नहीं	नहीं
3	सिमरा	320	1604	नहीं	नहीं

प्रतिवेदन सादर समर्पित ।

Sigma R.D. Consultants
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विज्ञापकाल

20/01/23
2-09

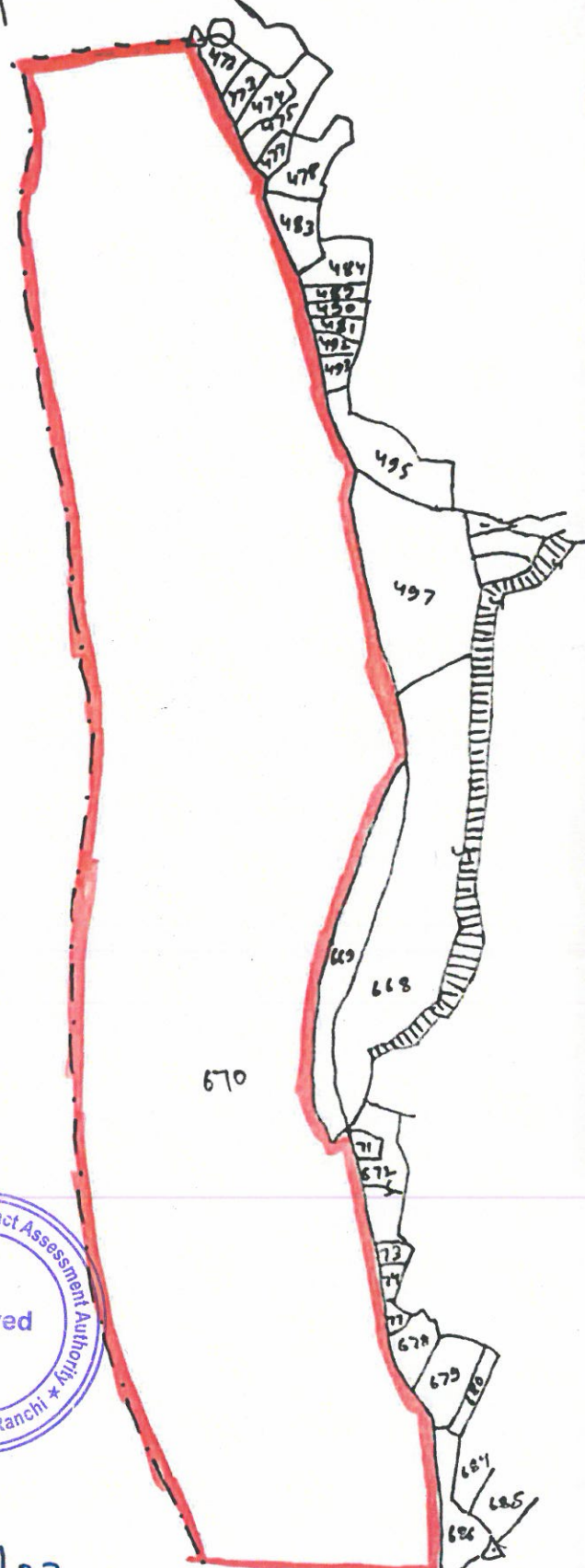
पत्रसंख्या नं०
301

गाँवडीह नं०
285

जिला - देवघर
रावडीविधान - देवघर
अंचल - देवघर
सीमा - खरवा नं०: 303
वीरुज नं०:-
क्षेत्र नं०:- 670
जिला:- जडी
खेती:-

संख्या
नं०:- 302

Sigma R.D. Consultants
Consortium with Crystal Consultants
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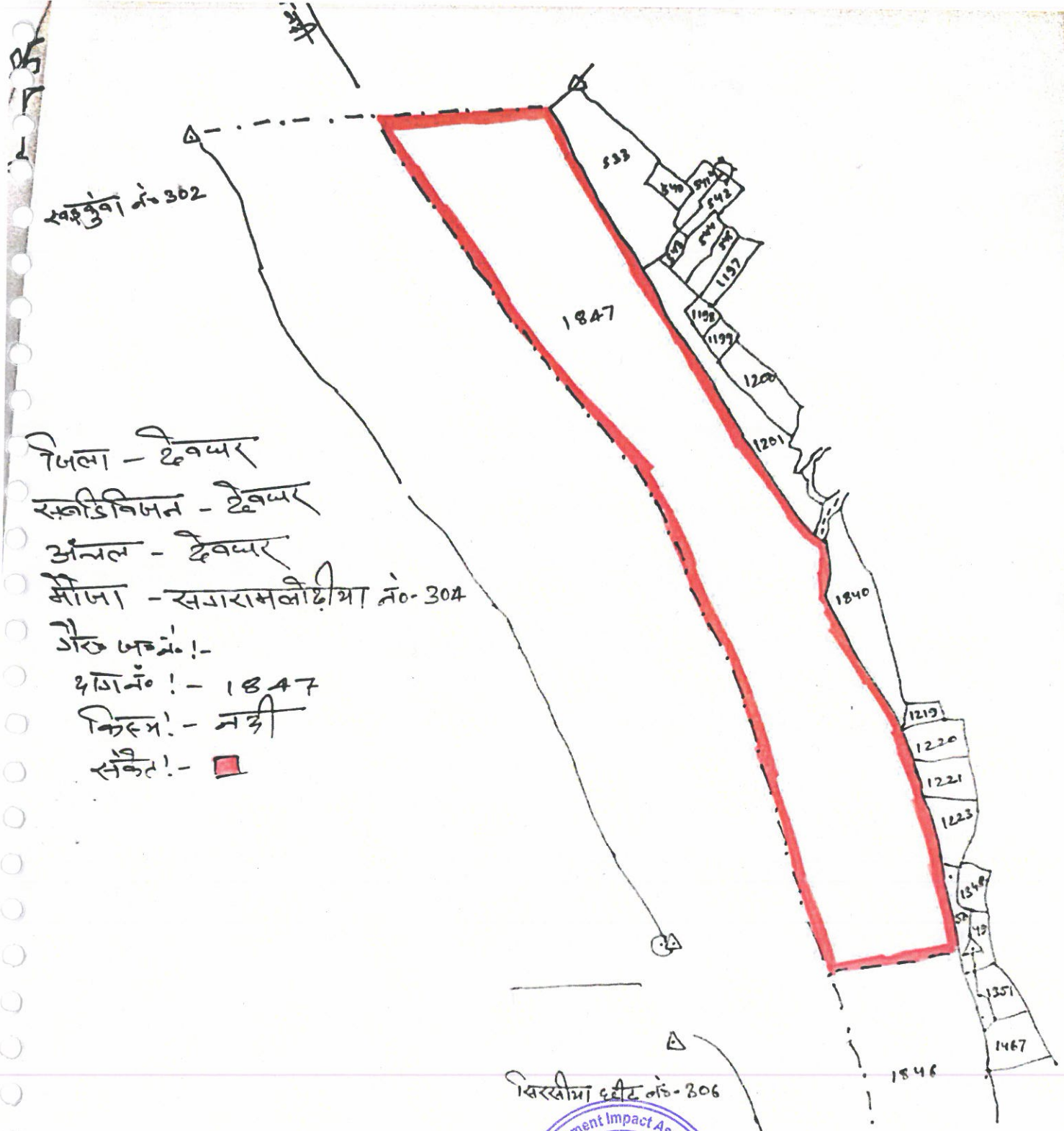


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देवघर

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संख्या
नं०: 302

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राजेश्वर
देवघर

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जिला - देवघर
 सबडिविजन - देवघर
 अंचल - देवघर
 मौजा - सखारामलोदीया नं-304
 जैरु प्लॉट नं:-
 प्लॉट नं:- 1847
 किरान:- मड़ी
 संकेत:- ■

खरखुवा धोई नं-306



Issued by
 Office for
 02/01/2023
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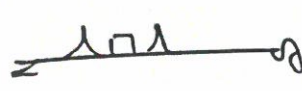
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जिला - देवघर
 सब-डिविजन - देवघर
 डिवीजन - देवघर
 सोना - विहानपुर सं- 619-373

(ख - विहानपुर धीट - 373)

वी जेम्स :-

श्रद्धा सं- 1497
 सिद्धि सं- नदी
 संकरा - ■



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 सर्वेक्षण - देखा
 अंश - देखा
 योजना - विद्युत् नं- 619-873
 (क-विद्युत् नं- 619)
 नोट:-
 शिफ्ट नं- 1093
 किराना - मशी
 सफाई -

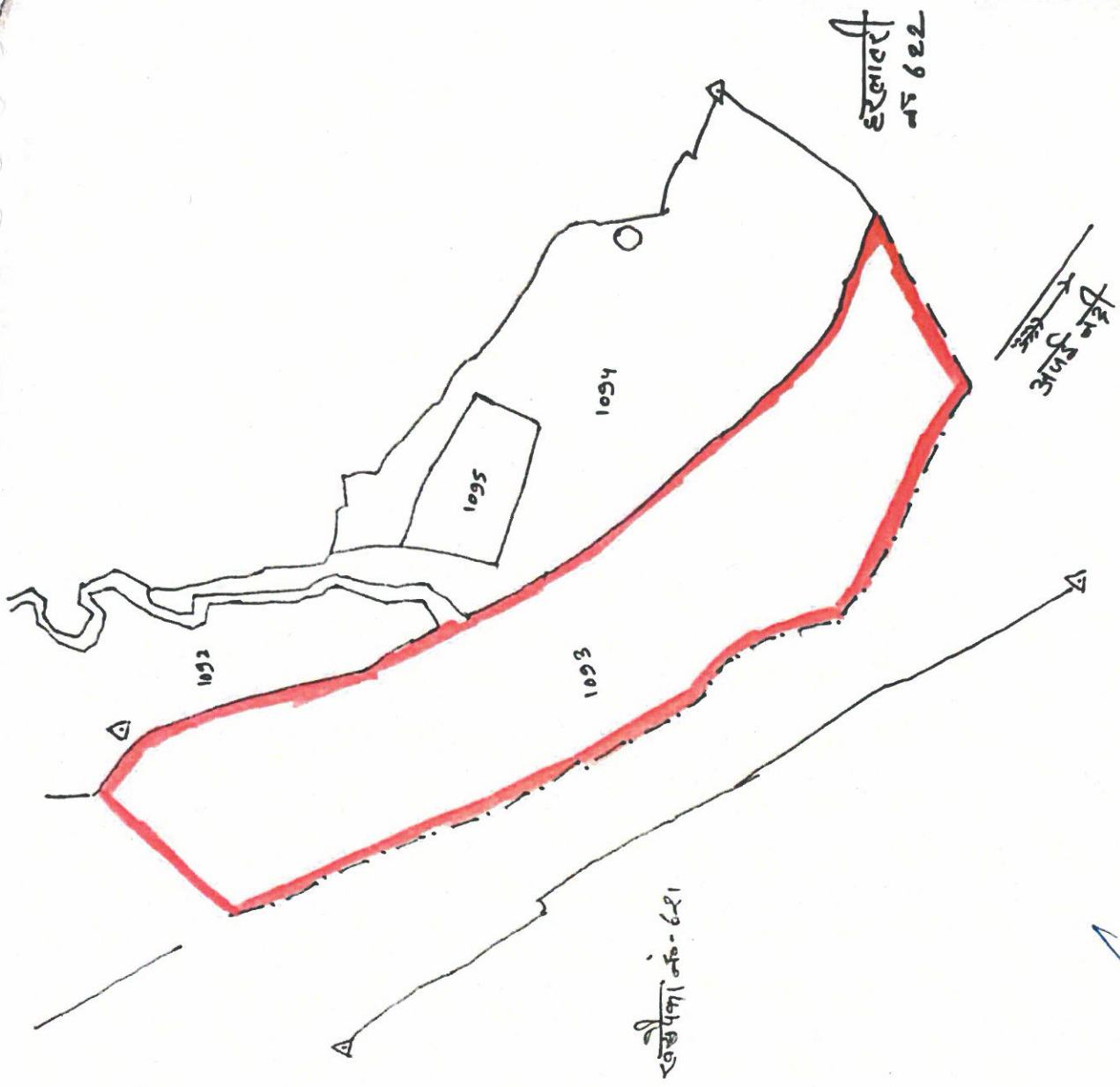


मंजूर
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 अधिकारी

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 अधिकारी

दिनांक 10/08/22
 अधिकारी

दिनांक 10/08/22
 अधिकारी



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विद्युत (नं-619)

खसिरिया नं-622
(हरलातरी)



Shikha



20/10/23
अधुना नदी
खसिरिया नं-622

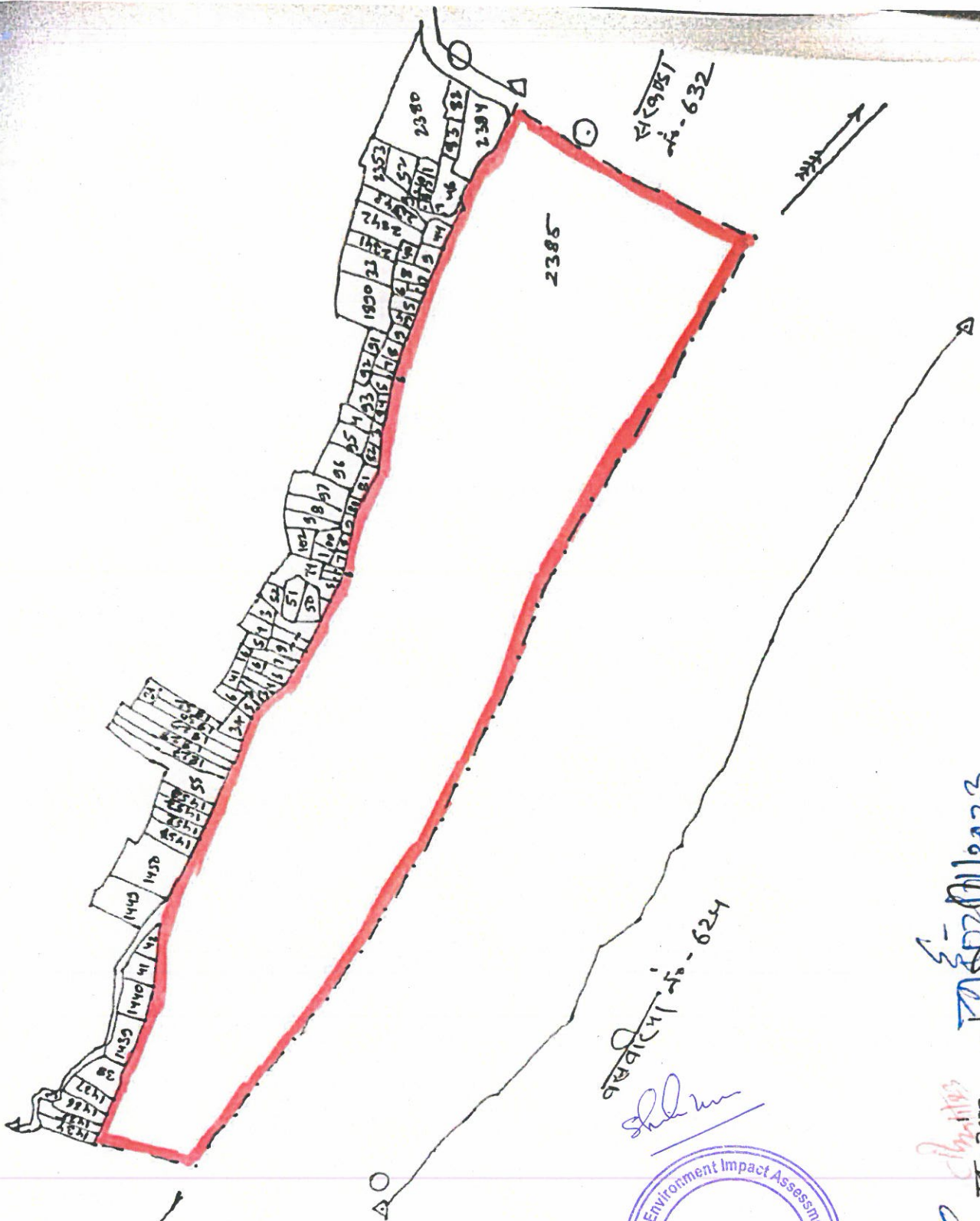
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खसिरिया नं-622

अधुना नदी
खसिरिया नं-622

अधुना नदी
खसिरिया नं-622

अधुना नदी - 479
खसिरिया नं-622
अधुना नदी - 478
खसिरिया नं-622





प्लॉट नं. 632

2385

प्लॉट नं. 624



20/08/2023
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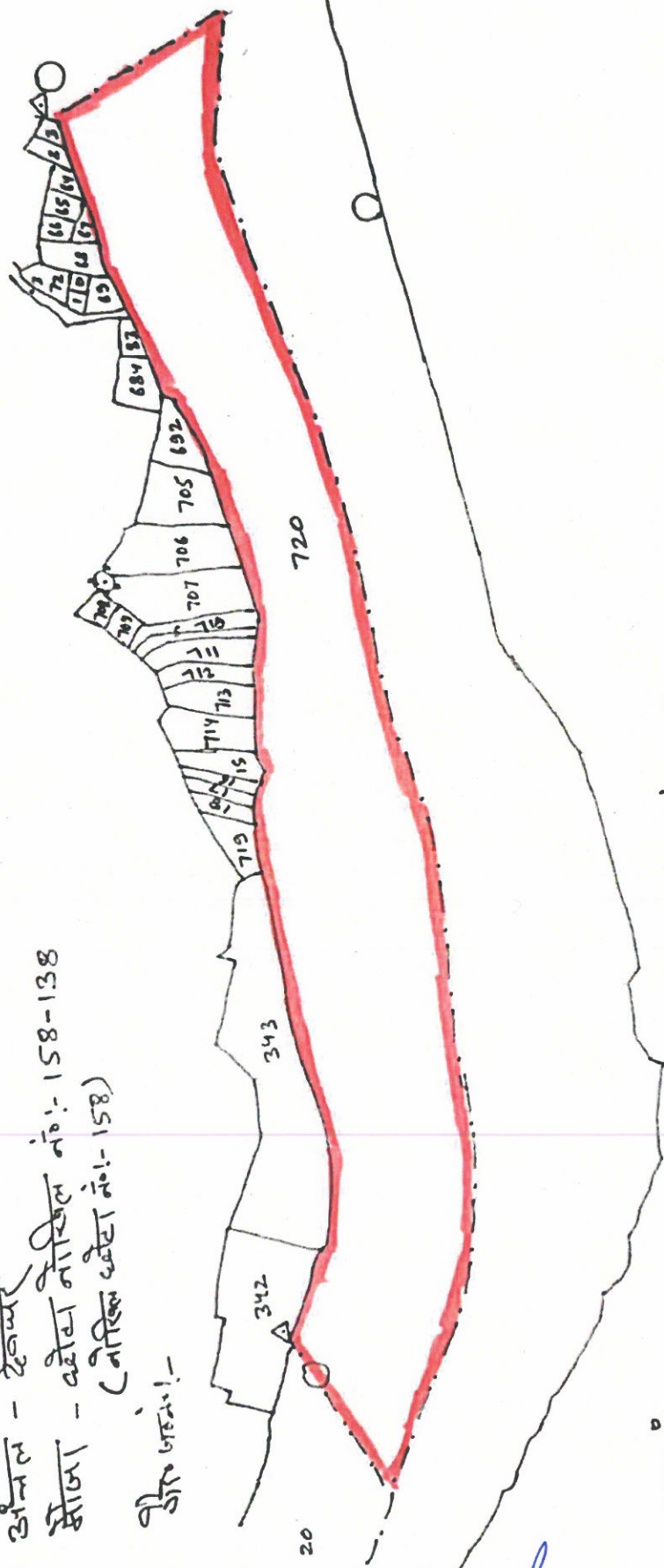
असुरा रोड
 प्लॉट - 2385
 कंसिडरिंग - 2385
 डीमंड - 2385
 सीमा - माइटीई नं. 633

प्लॉट नं. 1 -
 प्लॉट नं. 2 - 2385
 प्लॉट नं. 3 -
 प्लॉट नं. 4 -

असुरा रोड

परमाणु

(A)



सर्वसुविधा - 720
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 आवास - 158

आवास - 720

संख्या 157

Signature



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 158-138
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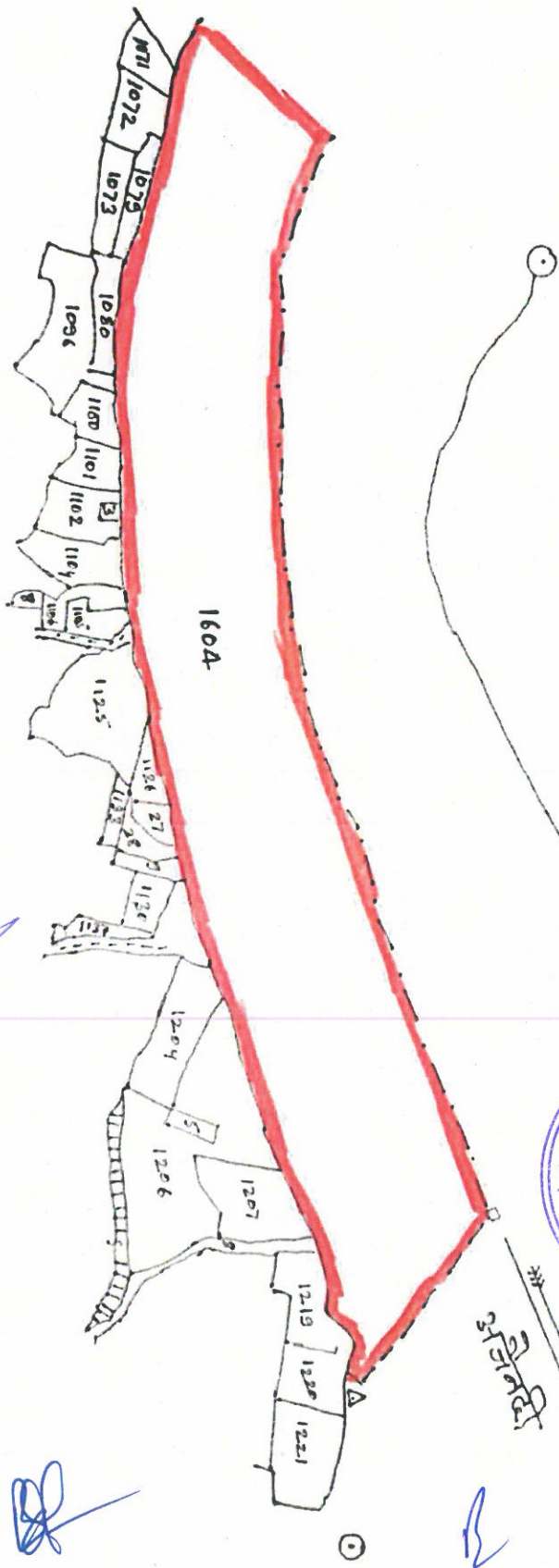
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जिला - देवघर
 सहायक जिला - देवघर
 जिला - देवघर
 सीमा - सीमा सं. - 370
 जिला सं. - 1604
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जिला सं. - 371



जिला सं. - 372

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North Arrow

खंडा नं. 109
अ. 109

खंडा नं. 105
अ. 105

खंडा नं. 103
अ. 103

खंडा - 109

खंडा नं. 109 - 109

खंडा नं. 109 - 109

खंडा नं. 109 - 109

खंडा नं. 109 - 109

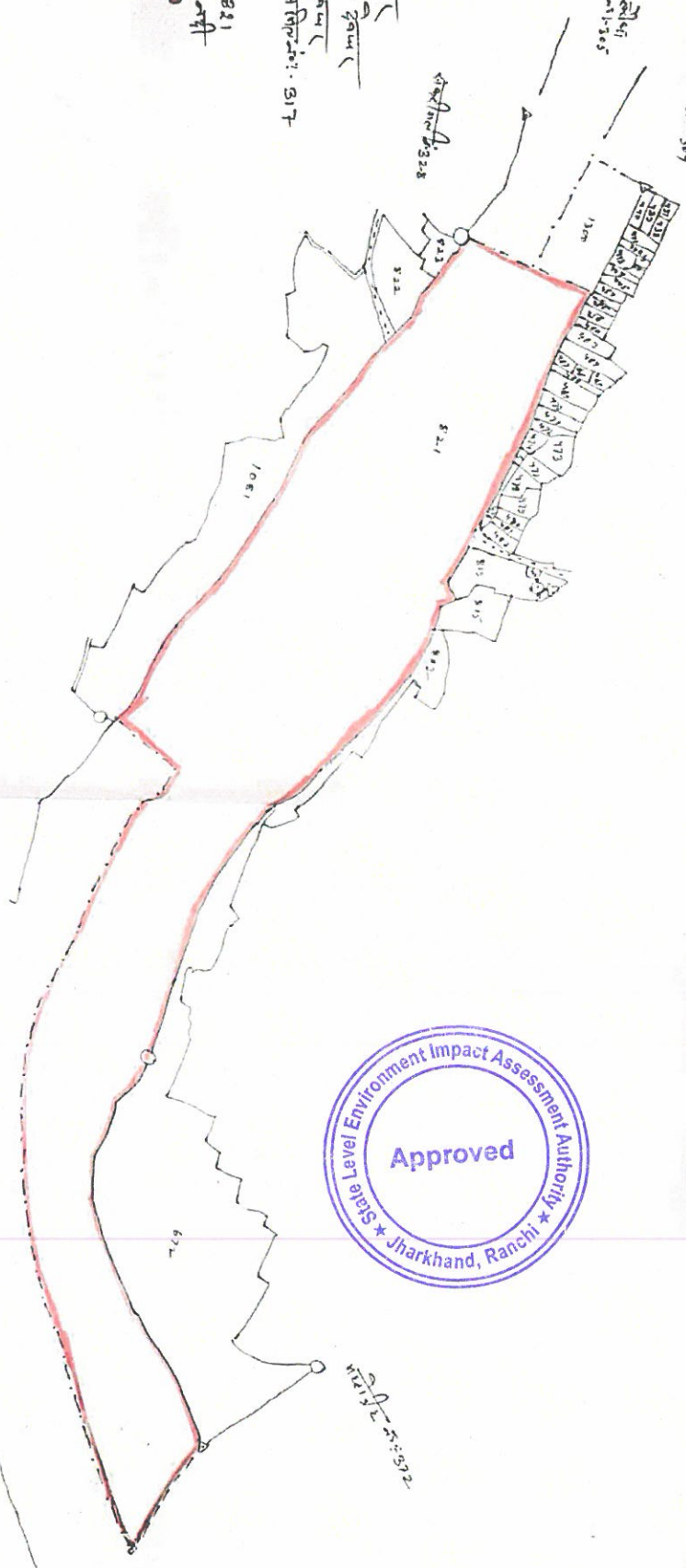
खंडा नं. 109 - 109

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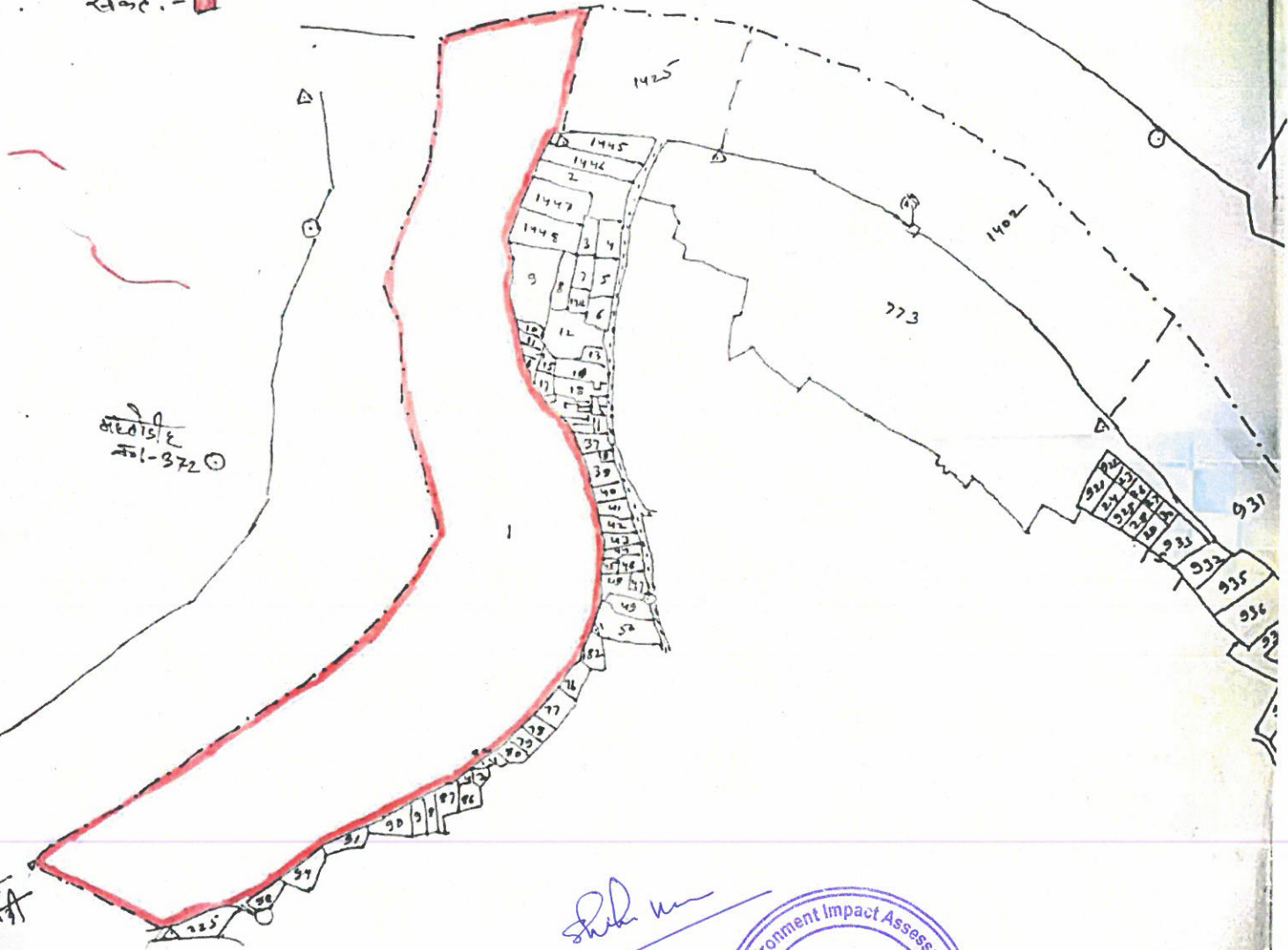
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पिला - डेवपूर
 खकीडमिज - डेवपूर
 अमल - डेवपूर
 मोला - खसपिका
 नं०: 621
 पीरुपुवडा -
 शंग नं०: - 1
 किल्ला: - लकी
 संकेत: - ■

मिथुनपुर वीर नं०-373

खजुपिला (हरमानी)
नं०: 620



Forward by
 Office of
 02/01/2023
 नमो अमल
 पुरा

अमल
 शंगनं०

लकी
 नं० अमल
 मिथुन

अमल
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 मिथुन

Shikha



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कार्यालय— अंचल अधिकारी, करौं (देवघर)

दुरभाष संख्या :- (.....)

ई-मेल—cokarwon2017@gmail.com

पत्रांक :- 533/रा0, करौं, दिनांक :- 31/12/2022 ई०।

प्रेषक,

अंचल अधिकारी,
करौं।

सेवा में,

जिला खनन पदाधिकारी,
देवघर।

विषय:- देवघर जिलाअन्तर्गत अंचल करौं में अद्यतन DSR में Category-II के चिन्हित Potential बालू घाटों का जंगल, झाड़ी से संबंधित प्रतिवेदन का प्रेषण।

प्रसंग:- आपका पत्रांक- 1440/एम0, दिनांक- 29.12.2022।

महाशय,

उपर्युक्त विषयक प्रासंगिक पत्र के आलोक में विषयांकित मामले की जाँच संबंधित राजस्व उप निरीक्षक, प्रभारी अंचल निरीक्षक एवं अंचल अमीन, करौं, से करायी गयी। प्रतिवेदनानुसार देवघर जिलाअन्तर्गत अंचल करौं में अद्यतन DSR में Category-II के चिन्हित Potential बालू घाटों का जंगल, झाड़ी से संबंधित प्रतिवेदन विहित प्रपत्र में विवरणी तैयार कर इस पत्र के साथ संलग्न कर अग्रेतर कार्रवाई हेतु भेजी जाती है।

अनु0—यथोक्त।

विश्वासभाजन

अंचल अधिकारी,

करौं।

आपका पत्रांक- 1440/एम0, दिनांक- 29.12.2022।

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Approved



CIRCLE OFFICE, KAROWN

Sl.No.	Mauza	Plot No.	Thana No.	Panchayat	Block	Area (ha)	River	CO Remarks Whether proposed land is Jungle, Jhadi or not		Remarks
								Yes	No	
1	Joramo	405 (P)	586	Kasaiya	Karon	1.80	Jayanti	-	NO	प्लॉट नं-145 के स्थान पर प्लॉट नं-155 सर्वे नक्सा के अनुसार प्रस्ताव स्थल है।
2	Chandajori	145	609			4.00		-	NO	
3	Gormara	74 (P)	610			4.00		-	NO	
4	Dhantariya	113	608	Badiya	Karon	1.80	Jayanti	-	NO	
5	Chobkiyari	1011 (P)	618	Birnagriya		1.95		-	NO	
6	Belkiyari	1 (P)	644	Dindakoli		5.58		-	NO	
7	Dahuya	314 (P)	617	Ganjebani	Karon	1.80	Jayanti	-	NO	
		184 (F)				6.00		-	NO	
8	Bhalgarha	212	646	Dindakoli	Karon	2.20	Jayanti	-	NO	
9		536				5.00		-	NO	



31/12/2022
CIRCLE OFFICER,
KAROWN

31/12/2022
31/12/2022
31/12/2022
31/12/2022



अंचल अधिकारी का कार्यालय, सारवाँ

दूरभाष संख्या:-

ई-मेल:- cosarwan2017@gmail.com

पत्रांक 567/रा0, दिनांक 31/12/22

प्रेषक,

अंचल अधिकारी,
सारवाँ।

सेवा में

जिला खनन पदाधिकारी,
देवघर।

विषय:- देवघर जिलान्तर्गत अद्यतन DSR में Category II के चिन्हित Potential बालू घाटों का जंगल, झाड़ी से संबंधित प्रतिवेदन उपलब्ध कराने के संबंध में।

प्रसंग:- भवदीय पत्रांक 1438/एम0 दिनांक 29.12.2022।

महाशय,

उपर्युक्त विषयक प्रासंगिक पत्र के संबंध में कहना है कि आपके द्वारा अंचल सारवाँ के अन्तर्गत Category II के चयनित बालू घाटों की सूची अनुसार घाटवार/मौजावार का जंगल झाड़ी से संबंधित प्रतिवेदन उपलब्ध कराने की मांग की गई है। जो इस पत्र के साथ संलग्न कर आवश्यक कार्रवाई हेतु भेजी जा रही है।

सादर सूचनार्थ समर्पित।

अनुलग्नक:- यथोक्त।

विश्वासभाजन

अंचल अधिकारी,
सारवाँ।

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Sumant

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294

अंचल कार्यालय, सारवाँ

Sl	Mouza	Plot No.	Thana No.	Panchayat.	Block	Area (ha)	River	CO Remarks Whether proposed land is jungle, jhadi, or not.		अभ्युक्ति
								Yes	No	
1	Jamdiha	1	163	Jiakhara. Dahua.	Sarwan.	8.50	Ajay.		No	
	Buchipahari	2	162			4.50				
	Badiya	104	146			3.50				
	Durjani	1	166			4.50				
	Dahua	735	174			4.50				
	Balidih.	850 1219 851	145			3.59 3.00 6.00				
2	Jiakhara.	1483 1062	167	Jiakara.	Sarwan.	4.50	Ajay.		No	
	Parsodih.	5	169	Dakai.		4.00 3.60				
	Manjori	66	168	Bhandro.		6.50				
	Kelaniya.	1011	119			7.50				
3	Pandedih.	458	118	Bhandro.	Sarwan.	12.07	Ajay.		No	दाग नं० 448 होगा।
	Jogbindha	216	124			4.00				दाग नं० 1,47 होगा।

अमीन
21/12/22
सारवाँ।



राजस्व एवं निरीक्षक
21/12/22

प्रमारी अंचल निरीक्षक
सारवाँ।

अंचल निरीक्षक
सारवाँ।

अंचल निरीक्षक
सारवाँ।



कार्यालय अंचल अधिकारी, सारठ (देवघर)।

(राजस्व शाखा)

ई-मेल :- (cosarath2017@gmail.com)

पत्रांक :- 700/रा0, दिनांक :- 31 दिसम्बर, 2022 ई0।

अंचल अधिकारी,
सारठ।

रोवा में,

जिला खनन पदाधिकारी,
देवघर।

विषय:- बालू घाटों Category -II के चिन्हित Potential से संबंधित जाँच प्रतिवेदन का प्रेषण के संबंध में।

प्रसंग:- भवीदय पत्रांक- 1436/एम0, देवघर, दिनांक- 29.12.2022

महाशय,

उपर्युक्त विषयक एवं प्रसांगिक पत्र के संबंध में आलोक में Category- II के चिन्हित Potential बालू घाटों से संबंधित जाँच प्रतिवेदन हल्का के राजस्व उपनिरीक्षक एवं प्रमारी अंचल निरीक्षक, सारठ द्वारा कराई गई।

अतः प्राप्त जाँच प्रतिवेदन विहित प्रपत्र में संलग्न कर इस पत्र के साथ भेजी जा रही है।

कृपया प्राप्ति स्वीकार की जाय।

अनुलग्नक :- यथोक्त।

विश्वासभाजन

31/12/2022
अंचल अधिकारी,
सारठ।

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कार्यालय अंचल अधिकारी, सारठ (देवघर)।

DIST- DLOGHAR BLOCK SARATHI

SI No.	Mauza	Plot No.	Thana No.	Panchayat	Block	Area (Acr)	River	CO Remarks whether proposed land is Jungle, thadi or not	
								Yes	No
1	Dhobania	180	43	Pathradda	Sarath	7.29	River		No
2	Bardahi	1355	50	Pathradda	Sarath	13.7	River		No
3	Gangti	702	72	Arajori	Sarath	9	River		No
		475	72	Arajori	Sarath	11.92	River		No
4	Kaira bank	470	97	Kaira bank	Sarath	19	River (Baskhoti)		No
5	Ojhadih	1	98	Kaira bank	Sarath	9.3	River		No
6	Pipra	265	165	Kaira bank	Sarath	0.3	River		No
7	Majhiladih	856	95	Majhiladih	Sarath	13	River		No
8	Satrahir	39	94	Majhiladih	Sarath	7.32	River		No
9	Charakmara	1	144	Dindakoli	Sarath	9	River		No
10	Balthara	923	101	Arajori	Sarath	8.16	River		No
11	Mah:oa	81	100	Arajori	Sarath	8.16	River		No
12	Gidhsoli	546	102	Arajori	Sarath	20.3	River		No

31/12/2021
अंचल अधिकारी,
31/12/2021



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अंचल कार्यालय, मधुपुर।

Email ID-comadhupur2017@gmail.com

पत्रांक..... 899 / रा0, मधुपुर, दिनांक..... 31/12/2022

प्रेषक,

अंचल अधिकारी,
मधुपुर।

सेवा में,

जिला खनन पदाधिकारी,
देवघर।

विषय :- मधुपुर अंचल अन्तर्गत अद्यतन DSR में Category-II के चिन्हित Potential बालूघाटों का जंगल, झाड़ी से संबंधित जाँच प्रतिवेदन भेजने के संबंध में।

प्रसंग - भवदीय पत्रांक-1435/एम0, दिनांक-29.12.2022

महाशय,

उपर्युक्त विषयक प्रासंगिक पत्र द्वारा दिये गये निदेश के आलोक में विषयांकित मामले की जाँच संबंधित राजस्व उप निरीक्षक, प्रभारी अंचल निरीक्षक के द्वारा जाँच कराई गई। उनके द्वारा समर्पित स्थलीय एवं अभिलेखीय जाँच प्रतिवेदन मूल रूप में इस पत्र के साथ संलग्न कर अग्रोतर कार्रवाई हेतु भेजी जाती है।

अनुलग्नक-यथोक्त।

विश्वासभाजन,

अंचल अधिकारी,

मधुपुर।

31/12/22



DIST-DEOGHAR, BLOCK-MADHUPUR

Sl No.	Mauza	Plot No.	Thana No.	Panchayat	Block	Area (ha)	River	CO Remarks		Nature of land
								Whether proposed land is jungle, Jhadi or not	Yes/No	
1	Jariadiah	1 (P)	146	Budhai	Madhupur	3.20	Pathro		No	River
	Laldedth	130	147	Budhai		4.60			No	River
2	Mathurapur	151	105	Budhai	Madhupur	6.80	Pathro		No	River
		450 (p)				3.00			No	River
3	Burhat	1015	82	Burhai	Madhupur	5.20	Pathro		No	River
		1296				5.00			No	River
5	Burhibagaicha	1315	289	Mishura	Madhupur	5.08	Pathro		No	River
		45				5.30			No	River
6	Saptar	218	217	Charpa	Madhupur	5.27	Pathro		No	River
		2484				4.50			No	River
7	Baniadiah	2487	286	Saptar	Madhupur	10.00	Pathro		No	River
		2766				10.00			No	River
8	Belwatari	1	354	Champa	Madhupur	4.00	Pathro		No	River
		167				4.00			No	River
9	Samlabahiari	323	284	Gonaiya	Madhupur	8.00	Pathro		No	River
		945 (P), 946				9.93			No	River
7	Jamuni	1479	493	Jamuni	Madhupur	8.06	Pathro		No	River
		267 (P)				6.20			No	River
7	Tanderi	391 (P)	495	Gobindpur	Madhupur	6.20	Pathro		No	River
		554				3.00			No	River
8	Gobindpur	555	497	Gobindpur	Madhupur	7.20	Pathro		No	River
		624 (p)				6.00			No	River
8	Barhi	1	516	Jamuni	Madhupur	4.00	Pathro		No	River
		1				8.01			No	River
8	Kothia	1	517	Jamuni	Madhupur	4.01	Pathro		No	River
		1 (P)				6.30			No	River
9	Bank	1	190	Dalha	Madhupur	15.80	Pathro		No	River



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अंचल अधिकारी,

मधुपुर I (106) 10/10/2022

31/12/2022

श्रीमान्, अंशक अदिगारी,
मधुपुर।

देवना - ५ वरुण (विमानमार्ग) अचलत २५.२२ कि० मी० २२२५ II से अदिगारि वारुणकी का अंशक मीट
के से अदिगारि अदिगारि ३५ मीट वरुणकी अंशक मीट

अंशक - विमानमार्ग वरुणकी अचलत - १५३५ / अदिगारि - २९.१२.०२२
मद ३५० - अंशक अदिगारि वरुणकी अचलत वरुणकी अंशक मीट का अंशक मीट वरुणकी अंशक मीट
मदीय अंशक मीट अंशक मीट वरुणकी अंशक मीट

अंशक मीट वरुणकी अचलत -	२५२५ - २५२५	२५२५ - २५२५	२५२५ - २५२५	२५२५ - २५२५	२५२५ - २५२५
१) अंशक मीट वरुणकी अचलत -	२५२५ - २५२५	२५२५ - २५२५	२५२५ - २५२५	२५२५ - २५२५	२५२५ - २५२५
२) अंशक मीट वरुणकी अचलत -	२५२५ - २५२५	२५२५ - २५२५	२५२५ - २५२५	२५२५ - २५२५	२५२५ - २५२५
३) अंशक मीट वरुणकी अचलत -	२५२५ - २५२५	२५२५ - २५२५	२५२५ - २५२५	२५२५ - २५२५	२५२५ - २५२५
४) अंशक मीट वरुणकी अचलत -	२५२५ - २५२५	२५२५ - २५२५	२५२५ - २५२५	२५२५ - २५२५	२५२५ - २५२५
५) अंशक मीट वरुणकी अचलत -	२५२५ - २५२५	२५२५ - २५२५	२५२५ - २५२५	२५२५ - २५२५	२५२५ - २५२५

अंशक मीट वरुणकी अचलत - २५२५ - २५२५ - २५२५ - २५२५ - २५२५ - २५२५



श्रीमान्

२५२५ अंशक मीट
२५२५ अंशक मीट
२५२५ अंशक मीट
२५२५ अंशक मीट

श्रीमान्

अधिकारि, मुख्य

विषय : - देवपुर जिला-नवराज अर्थात् DSR में Category-II के पिछले Potential

बाधुप्राय का अंश, काही से संबंधित सुनिश्चित उपलब्ध कराने के संबंध में

आय - सुनिश्चित

संदर्भ : - जिला लेन कमीशन देवपुर पत्रांक 1435/M दिनांक - 29/12/22

प्रति,

जिले के आकार पर मीजा बांधे जाने पर 190 टन टन 01 का

मीजा बांधे जाने का अवलोकन किया, जिसमें (सुनिश्चित पंजी) बिलकुल फु
डुआ ही अंश अमीन DSR नवराज से मिलान किया गया तो पता च
कि मीजा बांधे जाने पर 190 के नवराज में टन टन 01 जो नई
करकर दे रहे हैं के अंश - अंश अंश - काही नही है

① अधिकारि
अधिकारि

SPD

31/12/22
3/12

प्रतिवासी

31/12/22

अधिकारि
अधिकारि



तवा में,

श्रीमान् अंचल अधिकारी

मधुपुर देवघर

विषय:- देवघर जिला अंतर्गत अद्यतन DSR में Category-II के चिह्नित लिखित बालुघाटों का जंगल, गाड़ी से संबंधित प्रतिवेदन उपलब्ध करावे के संबंध में।

महाराज,

अवधीय निर्देशानुसार डलका-09 के अंतर्गत सम्मिलित मौजा की सूची निम्न प्रकार से है।

मौजा - बिल्ली -	दाग नं० 945	रकबा - 34.60	र० नदी
	दाग नं० 946	रकबा 12	डि० नदी
मौजा - मनियारा	दाग नं० 267	रकबा 26.50	र० नदी
मौजा - गोविंदपुर	दाग नं० 554	रकबा 12.87	र० नदी
	दाग नं० 555	रकबा 19.08	र० नदी
	दाग नं० 684	रकबा 29.00	र० नदी
मौजा - बरहो	दाग नं० 01	रकबा 19.37	र० नदी
मौजा - कोठिया	दाग नं० 01	रकबा 10.38	र० नदी
मौजा - सरहैता, मौजा - जगुनी एवं मौजा हण्डेरी का स्वतंत्र रूप में संबंधित दाग नं० स्पष्ट नहीं मिल पाया है। (ऑनलाइन स्वतंत्र रूप से अनुसार)			

Shilpa



विश्वास गान्त

गुपेरा चन्द्र

Bhupendra

31/12/2022

RSI

सीवर से,

अंतराल अस्वीकार्य

अच्छा।

निष्कर्ष: केवल 2 बिन्दुओं पर DSR में Category B के बिन्दु के Potential काय कराई जा सकेगा, बाकी 1 बिन्दु पर सिंचन प्रदान करने के लिए 1435 में बिन्दु काय कराई जा सकेगा।

प्रतिफल - बिन्दु अंतराल अस्वीकार्य है नकार
 पत्रिका 1435/M दिनांक 23/12/2022

प्रमाणित,

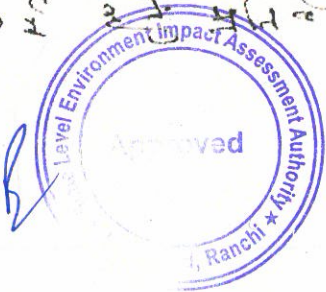
प्रमुख अधिकारी का नाम -

क्र. सं.	बिन्दु का नाम	अंतराल (m)	वर्गीकरण	बि. सं.	क्षेत्रफल (sq. m)	क्षेत्रफल (sq. ft)
2	31547	105	कुच्छ	21	151	25.00
	1	450	"	21	450	11.20
3	कुच्छ	82	"	177	1015	15.00
	"	82	"	177	1296	6.18
	"	82	"	177	1315	13.85

Signature
 अधिकारी

बिन्दु सं. 2 में अंतराल प्रमाणित कुच्छ मलमि

इस बिन्दु पर सिंचन प्रदान करने के लिए 1435 में बिन्दु काय कराई जा सकेगा। बाकी बिन्दु पर सिंचन प्रदान करने के लिए 1435 में बिन्दु काय कराई जा सकेगा।



प्रमुख अधिकारी
 31/12/22
 31-3-22

प्रमुख अधिकारी
 31/12/22
 31-3-22

Signature



अंचल कार्यालय, मारगोमुण्डा।

(comargomunda2017@gmail.com)

पत्रांक 01 / रा०, मारगोमुण्डा, दिनांक 02/01/2023

02/01/23
प्रेषक,

प्रेषक,

अंचल अधिकारी,
मारगोमुण्डा।

संवा में,

उपायुक्त-सह-जिला दण्डाधिकारी,
देवघर।

विषय : देवघर जिलान्तर्गत (Category-1 And Category-1) के चिन्हित Potential
वालूघाटों का District Survey Report उपलब्ध कराने के संबंध में।

प्रसंग - भवदीय पत्रांक-1976, दिनांक-30.12.2022

1143
02/12/23
महाशय,

महाशय,

02/12/23

उपर्युक्त विषयक प्रासंगिक पत्र के आलोक में अंचल अंतर्गत चिन्हित Potential
वालूघाटों का District Survey Report संबंधित राजस्व उपनिरीक्षक एवं प्रगारी अंचल
निरीक्षक द्वारा विहित प्रपत्र में तैयार करा लिया गया है।

अतः विहित प्रपत्र में तैयार District Survey Report अग्रेत्तर कार्रवाई हेतु
भवदीय को सादर समर्पित।

अनु०:- यथोक्त

विश्वासभाजन,

Jindu
02/01/2023

अंचल अधिकारी,
मारगोमुण्डा।

ज्ञापांक 01 / रा०, मारगोमुण्डा, दिनांक 02/01/2023

प्रतिलिपि - जिला खनन पदाधिकारी, देवघर को उनके पत्रांक-1439/एम०, दिनांक-29.12.
2022 के आलोक में सादर समर्पित।

प्रतिलिपि - अपर समाहर्ता, देवघर को सादर सूचनार्थ समर्पित।

Jindu
02/01/2023

Jindu
02/01/2023
अंचल अधिकारी,
मारगोमुण्डा।



STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY

Jindu
02/01/2023



DEOGHAR, BLOCK-MARGOMUNDA										
Sl No.	Mauza	Plot No.	Thana No.	Panchayat	Block	Area (ha)	River	CO Remarks Whether proposed land is Jungle, Jhadi or not	Yes	No
17	Tithichapar	186 (P)	441	Baghmara	Margomunda	3.00	Jayanti			NO
	Suga pahari	1979 (P)	440	Sugapahari		3.50		NO		
18	Duarpahari	1169 (P)	461	Pandania	Margomunda	4.80	Jayanti			NO
	Akdura	1374 (P)	460	Pipra		2.50		NO		
	Rampur	606 (P)	463	Rampur		5.20		NO		
	Patojori	1 (P)	465	Pipra		2.60		NO		
19	Chitnari	2447 (P)	486	Chitnari	Margomunda	3.20	Jayanti			NO
	Barmasiya	570 (P)	538	Kate D		3.00		NO		

Indu
अंचल अधिकारी,
मार्गमुण्डा I

Shukla
21/1/23
य. की तिथि

Shukla



क्र. सं.	पौना का नाम	पाना सं.	दाग सं.	कुल कला	नदी प्रवाह/सिंचन	आयुक्ति
1.	तीरीचापर	441	186	9.68 ए०	जयंती नदी के अपकेन्द्रक	
	सुगापहाडी	440	1979	20.90 ए०	जयंती नदी के अपकेन्द्रक	
2.	सकडारा	460	1374	25.00 ए०	—	कुपलरवा खासगाना की 760 मी. सपलट जयंती नदी के अपकेन्द्रक जयंती नदी के अपकेन्द्रक
	पट्टाजोरी	465	I	0.29 ए०	जयंती नदी के अपकेन्द्रक	
3.	बाभपुर	463	606	20.00 ए०	जयंती नदी के अपकेन्द्रक	
	द्वारपहाडी	461	1169	30.50 ए०	जयंती नदी के अपकेन्द्रक	
4.	चौतनाथ	486	2447	32.40	अन्नोनी नदी के अपकेन्द्रक	
	जखसिआ	370	570		जयंती नदी के अपकेन्द्रक	



I.S.R.
 11/11/23
 I.S.R.
 11/11/23

I.S.R.
 11/11/23

I.S.R.
 11/11/23



अंचल अधिकारी का कार्यालय, देवीपुर

Telephone No-

Email ID- codevipur2017@gmail.com

पत्रांक- 02 / रा० देवीपुर, दिनांक- 03 / 01 / 2023ई०

प्रेषक,

अंचल अधिकारी,
देवीपुर।

उपायुक्त-सह-जिला दण्डाधिकारी
देवघर।

विषय:-

देवघर जिलान्तर्गत अद्यतन DSR में Category-I And Category-II के चिन्हित Portential बालूघाटों का जंगल, झाड़ी से संबंधित प्रतिवेदन उपलब्ध कराने के संबंध में।

प्रस्ताव:-

भवदीय पत्रांक-1976/रा० दिनांक - 30.12.2022 एवं जिला खनन पदाधिकारी, देवघर के पत्रांक - 1434/एम० दिनांक-29.12.2022

महाराज,

उपर्युक्त विषयक प्रासंगिक पत्र के आलोक में देवीपुर अंचल अन्तर्गत अद्यतन DSR में Category-I And Category-II के चिन्हित Portential बालूघाटों से संबंधित जमीन का राजस्व उपनिरीक्षक एवं प्रभारी अंचल निरीक्षक देवीपुर द्वारा राजस्व अभिलेख (गैर मजरुआ पंजी) का जाँच कराई गयी। प्राप्त जाँच प्रतिवेदानुसार अंचल अंतर्गत पंचायतवार जिला खनन कार्यालय देवघर से उपलब्ध कराये गये प्लाटवार बालूघाट जमीन की विवरणी निम्नवत हैं-

क्र०	पंचायत	मौजा	थाना सं०	दाग सं०	किस्म	रकबा	स्रोत	भूमि कि किस्म जंगल झाड़ी है या नहीं
1	2	3	4	5	6	7	8	9
1	फूलकरी	अररिया	155	181	नदी	67.20	गैरमजरुआ पंजी	नहीं
		सप्तायोध	159	169	जंगल-झाड़ी	9.25	गैरमजरुआ पंजी	हाँ
		फूलकरी	103	850	नदी	19	गैरमजरुआ पंजी	नहीं
		भारतीडीह	150	182	नदी	11.65	गैरमजरुआ पंजी	नहीं
2	मानपुर	कर्णपुरा	179	-	-	-	-	-
		बदरगुनिया	189	293	नदी	4.08	गैरमजरुआ पंजी	नहीं



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3	झुण्डी	बन्दगारी	87	235	नदी	11.00	गैरमजरुआ पंजी	नहीं
		डोमनडीह	85	131	नदी	7.73	गैरमजरुआ पंजी	नहीं
		चोधरीडीह	84	957	-	-	-	गैरमजरुआ पंजी में अंकित नहीं है।
4	जितजोरी	सिरसिया-छीट	306	1268	-	-	-	गैरमजरुआ पंजी में अंकित नहीं है।
				1703	-	-	-	गैरमजरुआ पंजी में अंकित नहीं है।
5	हरकिरां	मदनपुर	58	677	नदी	8.85	गैरमजरुआ पंजी	नहीं
				678	नदी	12.40	गैरमजरुआ पंजी	नहीं
				276	नदी	6.20	गैरमजरुआ पंजी	नहीं
6	दरगा	बाधमारा	59	173	-	-	-	गैरमजरुआ पंजी में अंकित नहीं है।
		बलमपुर	69	4	नदी	16.60	गैरमजरुआ पंजी	नहीं
		धानीटाँड	68	1	-	-	-	गैरमजरुआ पंजी में अंकित नहीं है।
		आमसिभर	60	592	नदी	17.00	गैरमजरुआ पंजी	नहीं

Sharma

सादर सूचनार्थ समर्पित।



विश्वासभाजन

3/11/23
अचल अधिकारी,
देवीपुर।
3/11/23

ज्ञापक - .../रा० देवीपुर दिनांक - 03/11/23
प्रतिलिपि - जिला खनन पदाधिकारी, देवघर को सूचनार्थ समर्पित।

[Signature]

[Signature]

3/11/23
अचल अधिकारी,
देवीपुर।
3/11/23



कार्यालय अंचल अधिकारी, सारठ (देवघर)।

(राजस्व शाखा)

ई-मेल :- (cosarath2017@gmail.com)

पत्रांक :- 6 / रा0, दिनांक :- 03 जनवरी, 2023 ई0।

प्रेषक,

अंचल अधिकारी,
सारठ।

सेवा में,

जिला खनन पदाधिकारी,
देवघर।

विषय:- बालू घाटों Category -II के चिन्हित Potential से संबंधित जाँच प्रतिवेदन का प्रेषण के संबंध में।

प्रसंग:- भवीदय पत्रांक- 1436/एम0, देवघर, दिनांक- 29.12.2022

महाषय,

उपर्युक्त विषयक एवं प्रसांगिक पत्र के संबंध में आलोक में Category- II के चिन्हित Potential बालू घाटों से संबंधित जाँच प्रतिवेदन हल्का के राजस्व उपनिरीक्षक एवं प्रभारी अंचल निरीक्षक, सारठ द्वारा कराई गई।

अतः प्राप्त जाँच प्रतिवेदन विहित प्रपत्र में संलग्न कर इस पत्र के साथ भेजी जा रही है।

कृपया प्राप्ति स्वीकार की जाय।

अनुलग्नक :- यथोक्त।

विश्वासभाजन

अंचल अधिकारी,
सारठ।



कार्यालय अंचल अधिकारी, सारठ (देवघर)।

DIST- DEOGHAR BLOCK SARATH

SI No.	Mauza	Plot No.	Thana No.	Panchayat	Block	Area (Acr)	River	CO Remarks whether proposed land is Jungle, Jhadi or not	
								Yes	No
1	Dumaria	866	69	Aluwara	Sarath	10.14	River		No
2	kherkhuti	1	107	Aluwara	Sarath	3.26	River		No
		96				11.25	River		No
3	Ghagarjor	495	36	Nawada	Sarath	3.2	River		No
		496				9.42	River		No
4	Gidhsoli	645	102	Arajori	Sarath	20.3	River		No
5	Mahadeva	236	116	Arajori	Sarath	9.7	River		No
6	Charra	27	114	Arajori	Sarath	10.8	River		No

नोट - पत्रांक-700/राठ दि०-31/12/22 द्वारा प्रेषित सूची के क्र० 12 पर अंकित दाग न० 546 को संशोधित कर सूची क्र० 04 से विलोपित समझा जाय।

3/1/2025
अंचल अधिकारी,
सारठ।



[Handwritten signatures and initials in blue ink]

3/1/2023 सेवामें

अंचल अधिकारी
सार 6।

विषय- देवघर जिल्हान्तर्गत अधलन DSR में Category-II के चिन्हित potential कालुधारों का जंगल, झाड़ी से संबंधित प्रतिवेदन उपलब्ध कराने के संबंध में,

प्रसंग- जिला वन पदाधिकारी देवघर के पत्रांक- 1436/ख
दिनांक- 29-12-2022

महोदय,
उपर्युक्त विषयक प्रसंगिक पत्र के संबंध में आनलाइन परियोजना अनुसर सूची विवरणी निम्न प्रकार ज्ञात हुआ-

गाँव- संख्या	शान्त नं०	संरक्षणकृत कारा नं०	दाम नं०	कुल रकम	किस उपयु.
डुमरिया	69	50	866	10.14 लाख	नदी
बैर खुंरी	107	27	01 96	03.26 लाख 11.25 लाख	पर्वत नदी पर्वत नदी
ए.ए.ए. (लाक)	36	33	495 496	03.20 लाख 09.42 लाख	नदी नदी
कुविया	32	परियोजना निर्णय- श्रीम अलखामें E/	471	अन्य दाम नं० नदी कहर एक में उपलब्ध नहीं है	

Shukla



विशाल गोपाल

3/1/2023

03-01-2023

Shukla
3/1/2023

ANNEXURE - E





झारखण्ड सरकार
खान एवं भूतत्व विभाग

जिला खनन कार्यालय, देवघर

पत्रांक ...०१.../एम०, दिनांक...०२/०१/२३

प्रेषित,

M/s Sigma Resource Development
Consultants Private Ltd,
Ranchi.

विषय:- देवघर जिलान्तर्गत बालू खनिज का DSR तैयार करने के संबंध में।

उपर्युक्त विषय के संबंध में सूचित करना है कि आपके द्वारा दिनांक 29.12.2022 को देवघर जिला से संबंधित कैटेगरी-2 के कुल 26 बालूघाटों की सूची उपलब्ध कराते हुए संबंधित अंचलाधिकारी एवं वन प्रमण्डल पदाधिकारी, देवघर तथा वन प्रमण्डल पदाधिकारी, वन्य प्राणी प्रमण्डल, हजारीबाग से वांछित प्रतिवेदन प्राप्त करने हेतु अनुरोध किया गया था। आपके द्वारा उपलब्ध कराई गई सूची के अनुसार सभी संबंधित कार्यालयों को पत्र प्रेषित किया गया है। आपके द्वारा मात्र कैटेगरी-2 के बालूघाटों की सूची उपलब्ध कराई गई है, किन्तु कैटेगरी-1 बालूघाटों की सूची अब तक अप्राप्त है, जिस पर उपायुक्त महोदय द्वारा काफी नराजगी व्यक्त की गई है।

अतः निदेश दिया जाता है कि पूर्णतः रूप से बालूघाटों की सूची के साथ वांछित नक्शा कार्यालय को उपलब्ध कराते हुए यथाशीघ्र डी०एस०आर० की Draft प्रति इस कार्यालय को उपलब्ध कराई जाए। अब तक इस कार्यालय को प्राप्त वांछित प्रतिवेदन इस पत्र के साथ संलग्न कर आवश्यक कार्रवाई हेतु भेजी जा रही है।

अनलग्नक:-1. वन प्रमण्डल पदाधिकारी, देवघर का प्रतिवेदन, पत्रांक 01, दिनांक 02.01.2023।

2. अंचल अधिकारी, करौं का पत्रांक 533/रा०, दिनांक 31.12.2022।
3. अंचल अधिकारी, सारवाँ का पत्रांक 567/रा०, दिनांक 31.12.2022।
4. अंचल अधिकारी, सारठ का पत्रांक 700/रा०, दिनांक 31.12.2022।
5. अंचल अधिकारी, मधुपुर का पत्रांक 899/रा०, दिनांक 31.12.2022।
6. अंचल अधिकारी, मारगोमुण्डा का पत्रांक 01/रा०, दिनांक 02.01.2023।
7. अंचल अधिकारी, देवघर का पत्रांक ..०१.../रा०, दिनांक ..०२..०१..२३...

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०२/०१/२३
जिला खनन पदाधिकारी,
देवघर।



कार्यालय : वन प्रमण्डल पदाधिकारी, देवघर वन प्रमण्डल, देवघर

संयुक्त वन भवन, बेलाबगान, देवघर

फोन / फ़ैक्स नं०-6432-232397, मो०-9431137795, ईमेल-dfo.deoghar2@gmail.com



पत्रांक ...०१..... दिनांक ...०१...०१... २०२३

सेवा में,

जिला खनन पदाधिकारी,
देवघर।

विषय : देवघर जिला अन्तर्गत अद्यतन DSR में Category-II के चिन्हित Potential बालूघाटों का जाँच प्रतिवेदन उपलब्ध कराने के संबंध में।

पसंग : आपका पत्रांक 1433 दिनांक 29.12.2022।

महाशय,

उपर्युक्त विषयक प्रासंगिक पत्र द्वारा Category-II के चयनित 26 Potential बालूघाटों के भेजे गये सूची के आलोक में मौजावार वन भूमि से दूरी का मापी इस प्रमंडल में उपलब्ध अधिसूचित वनभूमि वाले ग्रामों के मानचित्र के आधार पर किया गया है, जिसका विवरण इस पत्र के साथ संलग्न कर भेजी जा रही है।

गैर भूमि वाले नौजा का मानचित्र इस प्रमंडल में उपलब्ध नहीं है तथा आपके द्वारा बैटरी प्वाइंट का जी.पी.एस विवरणी भी नहीं दिया गया है, अतएव संबंधित अंचल कार्यालय से वनभूमि की दूरी का सत्यापन आपेक्षित है।

अनु० : यथोक्त।

विश्वामाजान

21/1/2023
वन प्रमंडल पदाधिकारी
देवघर वन प्रमंडल, देवघर



DEOGHAR (Distance From Notified Forest)

SI No.	Mauza	Plot No.	Thana No.	Panchayat	Block	Area (ha)	River	DFO(T) Remarks	
								Distance from notified forest (m)	Direction
1	Araria	181 (P)	155	Phulkari	Devipur	15.20	Pathro	848 m (Jariadih PF)	North West
	Sapta bandh	169	159	Phulkari		3.20		1018 m (Laladedih PF)	North West
	Jariadih	1 (P)	146	Budhai	3.20	220 m (Jariadih PF)		North	
	Laladedih	130	147	Budhai	4.60	800 m (Laladedih PF)		North	
2	Phulkari	850	103	Phulkari	Devipur	8.30	Pathro	157 m (Mathurapur PF)	West North
	Bhartidih	182 (P)	150	Phulkari		8.67		173 m (Mathurapur PF)	West North
	Mathurapur	151	105	Budhai	6.80	15 m (Mathurapur PF)		North West	
		450 (p)			3.00	27 m (Mathurapur PF)		West North	
3	Bangari	235 (P)	85	Jhundi	Devipur	4.06	Pathro	430 m (Mathurapur PF)	West
	Domandih	131 (P)				3.20		450 m (Khutabandh PF)	West North
	Choudhrdih	957		3.20	1170 m (Kharuadih PF)	East North			
		1015		5.20	50 m (Burhai PF)	East			
		1296		5.00	98 m (Burhai PF)	East			
		1315		5.00	145 m (Burhai PF)	East			
4	Madanpur	276	58	Tatkio-nawadih	Devipur	3.46	Pathro	200 m (Baltharwa PF)	East
		677				3.50		820 m (Patharia PF)	North
		678 (p)				2.50		1250 m (Bhikhadih PF)	North
	Baghmara	173	59	Daranga		7.32		2000 m (Muglasar & Jorasimal PF)	North East
		4 (P)	69			2.50		1200 m (Carbhusinha PF)	North East
	Dhanitanr	1	68			2.50			
		664	60			6.00			
	Jorasimar	592				3.46			



DEOGHAR (Distance From Notified Forest)

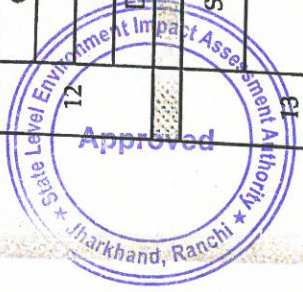
Sl No.	Mauza	Plot No.	Thana No.	Panchayat	Block	Area (ha)	River	DFO(T) Remarks				
								Distance from notified forest (m)	Direction			
5	Burhibagaicha	45	289	Mishura	Madhupur	5.30	Pathro	363 m (Salaiya PF)	North West			
	Gangomarni	218	217	Charpa		5.27		282 m (Salaiya PF)	North West			
6	Saptar	2484	286	Saptar	Madhupur	4.50	Pathro	1670 m (Lorhajore PF)	North East			
		2487				10.00						
		2766				10.00						
	Baniadih	1	354	Champa		4.00		1530 m (Lorhajore PF)	North East			
		167				4.00						
	Belwatari	1	355	Champa		8.00		1600 m (Lorhajore PF)	North East			
	Samlabahiari	323	284			9.93		1430 m (Lorhajore PF)	North East			
	Bili	945 (P), 946	494	Gomua		Madhupur		8.06	Pathro	3140 m (Pathra PF)	South East	
		Jamuni	1479					493		6.20	2670 m (Pathra PF)	South East
		Paniara	267 (P)					498		6.20	2130 m (Pathra PF)	South East
Tanderi		391 (P)	495		3.00		2700 m (Pathra PF)	South East				
Gobindpur		554	497		Gobindpur		7.20	Pathro		2330 m (Pathra PF)	South East	
		555					6.00					
624 (P)				4.00								
7	Barhi	1	516	Jamuni	Madhupur	8.01	Pathro	760 m (Pathra PF)	North			
		Kothia	1			517		4.01	1150 m (Pathra PF)	North East		
	Sarheta	1 (P)	520	6.30		680 m (Chak Jamua PF)		North East				
		Chornara	1179	47		7.01		760 m (Chak Jamua PF)	North East			
	Dhobania	180	43	Pathradda		3.40		1330 m (Chak Jamua PF)	West			
	Bardani	1355 (P)	50			6.20		680 m (Chak Jamua PF)	West			



(R)

DEOGHAR (Distance From Notified Forest)

SI No.	Mauza	Plot No.	Thana No.	Panchayat	Block	Area (ha)	River	DFO(T) Remarks	
								Distance from notified forest (m)	Direction
9	Dumariya	866	69	Aluwara	Sarath	7.20	Pathro Ajay	710 m (Dumaria PF)	West
	Kharakhuti	1, 96	107			6.32		1240 m (Dumaria PF)	West
	Chagharjor	496, 495	39	5.20		785 m (Ubia PF)		North West	
	Ubia	471	32	6.10		745 m (Ubia PF)		South	
10	Kusmil	821	371	Mahtodih Udaypura	Deoghar	16.35	Ajay	370 m (Khirontha PF)	West
	Simra	1604	320	Khaspaika		17.30		1882 m (Dhawatanr PF)	East
11	Chanddih	2385 (P)	633	Chanddih	Deoghar	8.30	Ajay	1950 m (Birajpur PF)	North
	Bishunpur	1497	373	Sarsa		2.00		1862 m (Dhawatanr PF)	North
	Khaspaika	987, 1093 (P)	621	Khaspaika		4.50		1912 m (Dhawatanr PF)	North
	Kadai	479	623	Baswariya		3.30		1765 m (Dhawatanr PF)	North
	Baswariya	1(p)	624			5.30		1885 m (Birajpur PF)	North
	Harlatarin	987	622			4.30		1875 m (Dhawatanr PF)	North
						4.20			
	12	Chota Nokhil	720	158-138		Punasi		Deoghar	8.50	Ajay	310 m (Dumarkundi PF)	North 343°
Nokhil bara		670	137	7.30	320 m (Dumarkundi PF)		North West 386°		
Semra Khas		13	157	8.30	300 m (Dumarkundi PF)		North West 317°		
Dumar Kundi		1	156	7.20	230 m (Dumarkundi PF)		North 351°		
13	Sangramloria	1847	304	Mahtodih Udaypura	Deoghar	6.04	Ajay	1190 m (Khirontha PF)	North
	Kharwa	1457	303	Sangram Lodhiya		2.30		1830 m (Khirontha PF)	North
			670 (P)			3.00			
	Sirsia Chiit	1268(p)	306	Jitjori	Devipur	3.18		630 m (Khirontha PF)	North East
		1703 (P)				10.00		705 m (Khirontha PF)	North East





DEOGHAR (Distance From Notified Forest)

Sl No.	Mauza	Plot No.	Thana No.	Panchayat	Block	Area (ha)	River	DFO(T) Remarks					
								Distance from notified forest (m)	Direction				
14	Barmariya	387	99	Arajori	Sarath	1.40	Pathro	576 m (Sarpatta PF)	North East				
		265				2.80							
	702 (P)	1.32											
		475 (P)	3.00										
	Kaira bank	470 (P)	97	Kairabank		3.20				844 m (Uparbandhi PF)	North		
	Ojhadih	1	98	837 m (Uparbandhi PF)		North							
Pipra	265	165	504 m (Sarpatta PF)	North East									
15	Jamdiha	1	163			8.50		445.56 m (Jamdiha PF)	North 348°				
	Buchipahari	2	162			4.50		772.48 m (Kharwa PF)	South East 121°				
	Badiya	104	146	Jiakara		3.50		498.89 m (Kharwa PF)	South East 114°				
	Durjani	1	166			4.50	Ajay	466.70 m (Durjani PF)	North East 38°				
	Dahua	735	174	Dahua		4.50		316.70 m (Durjani PF)	North East 38°				
	Bididih	850	145	Bhandaro		3.59		885.13 m (Jamdiha PF)	North 348°				
16	Jiakara	1483	167	Jiakara	Sarwan		Ajay	386.24 m (Parsodih PF)	West 262°				
		1062				4.50							
	5	4.00											
		66	3.60										
	Manjori	66	168	Dakai						6.50		225.0 m (Parsodih PF)	North West
												360.0 m (Parsodih PF)	North West
17	Tithichapar	186 (P)	441	Baghmara		3.00	Jayanti	410 m (Tinchapar PF)	South				
	Suga pahari	1979 (P)	440	Sugapahari	Margomunda	3.50		422 m (Suga Pahari PF)	North East				
18	Duarpahari	1169 (P)	461	Pandania		4.80		106 m (Duarpahari PF)	North West				
	Akdura	1374 (P)	460	Pipra	Margomunda	2.50	Jayanti	861 m (Duarpahari PF)	North West				
	Rampur	606 (P)	463	Rampur		5.20		90 m (Duarpahari PF)	West				
	Patojori	1 (P)	465	Pipra		2.60		305 m (Bajutanar PF)	East West				



DEOGHAR (Distance From Notified Forest)

Sl No.	Mauza	Plot No.	Thana No.	Panchayat	Block	Area (ha)	River	DFO(T) Remarks			
								Distance from notified forest (m)	Direction		
19	Chitnari	2447 (P)	486	Chitnari	Margomunda	3.20	Jayanti	5190 m (Baskupi PF)	South East		
	Barmasiya	570 (P)	538	Karo		3.00		5100 m (Baskupi PF)	South East		
20	Joramo	405 (P)	586	Kasaiya	Karon	1.80	Jayanti	1036 m (Kairakol PF)	East		
	Chandajori	145	609			4.00		1021 m (Kairakol PF)	East		
	Gormara	74 (P)	610			4.00		1041 m (Kairakol PF)	East		
	Dhantariya	113	608			1.80		1030 m (Kairakol PF)	East		
21	Chobkiyari	1011 (P)	618	Birmagriya	Karon	1.95	Jayanti	310 m (Dahua PF)	South West		
	Belkiyari	1 (P)	644	Dindakoli		5.58		417 m (Dahua PF)	South		
	Dahuya	314 (P)	617	Ganjabani		1.80		219 m (Dahua PF)	South		
		184 (P)				6.00					
22	Bhaigarha	212	646	Dindakoli	Karon	2.20	Jayanti	942 m (Majhiladih PF)	South West		
	Majhiladih	536	95	Majhiladih		5.00		963 m (Majhiladih PF)	South West		
		856				9.12				1090 m (Majhiladih PF)	South West
		39				2.90					
23	Kelariya	1011(p)	119	Bhandaro	Sarwan	7.50	Ajay	708.10 m (Kharwa PF)	East 103°		
	Pandadih	458	118	Dalha		12.07		883.13 m (Kharwa PF)	North East 50°		
	Jogimcha	216	124			4.00		305.77 m (Nawadih PF)	North 0°		
	Bank	1	190	Dalha		15.80		1080 m (Karanpura PF)	North East		
24	Karanpura		179	Manpur	Devipur	13.57	Pathro	848 m (Karanpura PF)	South		
	Hethburgunia	293	189			2.37		970 m (Karanpura PF)	South East		

Approved
 State Level Environment Impact Assessment
 Jharkhand, Ranchi

DEOGHAR (Distance From Notified Forest)

Sl No.	Mauza	Plot No.	Thana No.	Panchayat	Block	Area (ha)	River	DFO(T) Remarks	
								Distance from notified forest (m)	Direction
25	Mahdewa	236	116	Aurajori	Sarath	4.11	Ajay	982 m (Charakmara PF)	West
	Charra	27	114			3.87		1080 m (Charakmara PF)	West
	Damarkuri	1	145	3.80		918 m (Charakmara PF)		West	
	Charakmara	1	144	3.75		344 m (Charakmara PF)		North West	
26	Balthara	923	101	Aurajori	Sarath	3.25	Ajay	1090 m (Sarpatta PF)	South East
	Mahtoa	81	100			3.65		866 m (Sarpatta PF)	South
	Gidhsoli	645(p)	102			1.57		1230 m (Sarpatta PF)	South East
				1.20		816 m (Sarpatta PF)		South	
				3.45					
	Sagharua	316	149	Sagharua		4.81			
	319								



Signature

21/11/23

Divisional Forest Officer

Deoghar Forest Division, Deoghar

21/11/23

ANNEXURE - F



कार्यालय-वन प्रमण्डल पदाधिकारी, वन्यप्राणी प्रमण्डल, हजारीबाग
Email- dfo-wlhaz@gov.in, dfowildlifehazaribag@yahoo.in, Tel. No.-06546-223767 (O), 8987790209

पत्रांक :- 55

दिनांक :- 11-01/2023

प्रेषक,

9/01/23
सेवा में,

वन प्रमण्डल पदाधिकारी,
वन्यप्राणी प्रमण्डल, हजारीबाग।

जिला खनन पदाधिकारी
देवघर।

विषय :-

देवघर जिलान्तर्गत अद्यतन DSR (Draft) में Category-II के चिन्हित Potential बालूघाटों का बावत वन सीमा की दूरी एवं ESZ से संबंधित प्रतिवेदन उपलब्ध कराने के संबंध में।

प्रसंग :-

आपका पत्रांक 1441/एम0, दिनांक 29.12.2022

महाशय,

उपर्युक्त विषयक प्रसंगाधीन पत्र में देवघर जिलान्तर्गत अवस्थित बालूघाटों के संचालन हेतु बालूघाट के DSR तैयार करने की प्रक्रिया के तहत बालूघाट हेतु प्रस्तावित स्थल /चिन्हित स्थल की सूची प्रासंगिक पत्र के माध्यम से उपलब्ध करायी गई है, जो पारसनाथ वन्यप्राणी आश्रयणी (Protected Area) एवं अधिसूचित पारिस्थितिकी संवेदशील क्षेत्र (ESZ) के बाहर अवस्थित है। परन्तु सूचि में अंकित स्थलों की .kml file एवं नक्शा अप्राप्त है।

अतः अनुरोध होगा कि DSR (Draft) हेतु प्रस्तावित बालूघाट का .kml file एवं नक्शा उपलब्ध कराया जाय, जिससे ESZ तथा आश्रयणी से इसकी स्थिति के बारे में स्पष्ट किया जा सके।

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12/01/23

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विश्वासमाजन

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वन प्रमण्डल पदाधिकारी,
वन्यप्राणी प्रमण्डल, हजारीबाग

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ANNEXURE - G



कार्यालय : जिला मत्स्य पदाधिकारी-सह-मुख्य कार्यपालक पदाधिकारी, देवघर

पत्रांक 196 मत्स्य/देवघर, दिनांक 23/02/2023

प्रेषक :

जिला मत्स्य पदाधिकारी-सह-
मुख्य कार्यपालक पदाधिकारी, देवघर

सेवा में,

सहायक निदेशक, भूतत्व
जिला भूतत्विक कार्यालय, देवघर

विषय :

देवघर जिला अंतर्गत अजय, पथरों एवं जयन्ती नदियों में उपस्थित जलीय जीवों के संबंध में सूचना उपलब्ध कराने के संबंध में।

प्रसंग :

भवदीय पत्रांक 32, दिनांक 02.02.2023

महाशय,

उपर्युक्त विषयक प्रसंगाधीन पत्र के संबंध में सादर सूचित करते हुए कहना है कि जिला मत्स्य कार्यालय, देवघर द्वारा भवदीय द्वारा उपलब्ध कराए गए संभावित रेत क्षेत्रों की सूची में अंकित स्थल पर मत्स्य विभाग, देवघर द्वारा कोई भी योजना संचालित नहीं की जा रही है तथा न ही उक्त सूची में वर्णित जगहों पर मत्स्य पालन का कार्य किया जा रहा है।

सादर सूचनार्थ प्रेषित।

विश्वासभाजन

23/02/2023

जिला मत्स्य पदाधिकारी-सह-
मुख्य कार्यपालक पदाधिकारी देवघर



BP

ll

ANNEXURE - H




देवघर जिलान्तर्गत तैयार बालूघाटों DSR (जिला सर्वेक्षण रिपोर्ट) की प्रति SEIAA, Ranchi को प्रेषण करने संबंधित दिनांक 08.04.2023 को उपायुक्त महोदय, देवघर को अध्यक्षता में सम्पन्न बैठक की कार्यवाही।

उपस्थिति के अनुसार

1. उपायुक्त, देवघर
 2. वन प्रमण्डल पदाधिकारी, देवघर।
 3. अनुमण्डल पदाधिकारी, देवघर/मधुपुर।
 4. कार्यपालक अभियंता, लघु सिंचाई प्रमण्डल, देवघर।
 5. सहायक निदेशक, भूतत्व, देवघर।
 6. क्षेत्रीय पदाधिकारी, प्रदूषण नियंत्रण पर्वद, दुमका।
 7. जिला खनन पदाधिकारी, देवघर
 8. निदेशक, M/s Sigma Resource Development Consultants Private Ltd, Ranchi
-
1. सर्वप्रथम उपायुक्त, देवघर द्वारा बैठक में उपस्थित सभी पदाधिकारियों का स्वागत करते हुए प्राप्त बालू खनिज का DSR (जिला सर्वेक्षण रिपोर्ट) की Final प्रति से अवगत कराने हेतु जिला खनन पदाधिकारी, देवघर को निदेश दिया गया।
 2. जिला खनन पदाधिकारी, देवघर द्वारा बताया गया बालूघाट का DSR विभाग द्वारा प्राधिकृत एजेन्सी M/s Sigma Resource Development Consultants Private Ltd, Ranchi के द्वारा तैयार किया गया है। बालू खनिज का DSR की ड्राफ्ट कॉपी दिनांक 21.02.2023 को Sub Divisional Committee बैठक में सभी सदस्यों का अवलोकन के पश्चात देवघर जिला के NIC पोर्टल पर दिनांक 27.02.2023 को Suggestion एवं Recommendation हेतु upload किया गया था, जिसकी आम सूचना दिनांक 28.02.2023 को सभी प्रमुख दैनिक समाचार पत्रों में प्रकाशित किया जा चुका है। NIC Portal पर Upload DSR में चयनित Category I एवं Category II के बालूघाटों पर अभी तक Public का कोई आपत्ति/सुझाव प्राप्त नहीं हुआ है, बालू खनिज का तैयार DSR में Sub Divisional Committee के किसी भी सदस्य द्वारा भौतिक निरीक्षण में कोई आपत्ति दर्ज नहीं किया गया है। NIC Portal पर upload 30 दिनों के पश्चात Sub Divisional Committee के Recommendation पश्चात Final प्रति SEIAA, Ranchi को प्रेषित किया जाना है।
 3. जिला खनन पदाधिकारी, देवघर द्वारा बैठक में उपस्थित M/s Sigma Resource Development Consultants Private Ltd, Ranchi श्री शिशिर कुमार (Crystal Consultant) को SEIAA, Ranchi को प्रेषित होने वाली DSR की final प्रति PDF Share कर उपायुक्त महोदय को अवगत करने का निदेश दिया गया।
 4. श्री शिशिर कुमार द्वारा DSR की फाईनल प्रति Share करते हुए Category-II के 26 बालूघाटों एवं Category-I के 13 बालूघाटों की घाटवार पूर्ण जानकारी सभी सदस्यों को देते हुए बताया गया कि SEIAA, राँची के गार्डइलाइन के अनुसार की DSR की Final प्रति तैयार किया गया है। SEIAA, राँची की अगली बैठक दिनांक 14.04.2023 से 20.04.2023 के बीच होने की संभावना है। बैठक में उपस्थित सभी सदस्यों द्वारा सहमति व्यक्त करते हुए इसे SEIAA, Ranchi को भेजे जाने का निर्णय लिया गया।



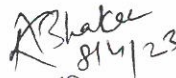
उपायुक्त महोदय द्वारा निदेशित किया गया की Final DSR की हार्ड प्रति 10.04.2023 तक हर हाल में Sub Divisional Committee से सभी बालूघाटों का Recommendation / हस्ताक्षर करवाकर SEIAA, Ranchi में प्रेषित किया जाय।

+  08/04/2023
क्षेत्रीय पदाधिकारी,
प्र0नि0प्र0, देवघर।

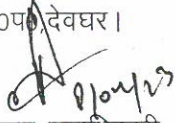
for
Raju Karan
08/04/2023

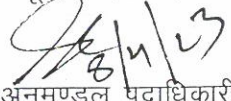
क्षेत्रीय पदाधिकारी,
प्र0नि0प्र0, देवघर।


सहायक निदेशक,
भूतत्व, देवघर।

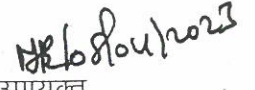
 8/4/23
कार्यपालक अभियन्ता,
लघु सि0प्र0, देवघर।

 08/04/23
जिला खनन पदाधिकारी,
देवघर।

 8/4/23
अनुमण्डल पदाधिकारी,
मधुपुर।

 8/4/23
अनुमण्डल पदाधिकारी,
देवघर।

 8/4/23
वन प्रमण्डल पदाधिकारी,
देवघर।

 8/4/23
उपायुक्त,
देवघर।

ज्ञापांक..... 429 / एम0, दिनांक..... 08/04/23

प्रतिलिपि :- निदेशक खान, खान निदेशालय, झारखण्ड, राँची को सादर सूचनार्थ प्रेषित।

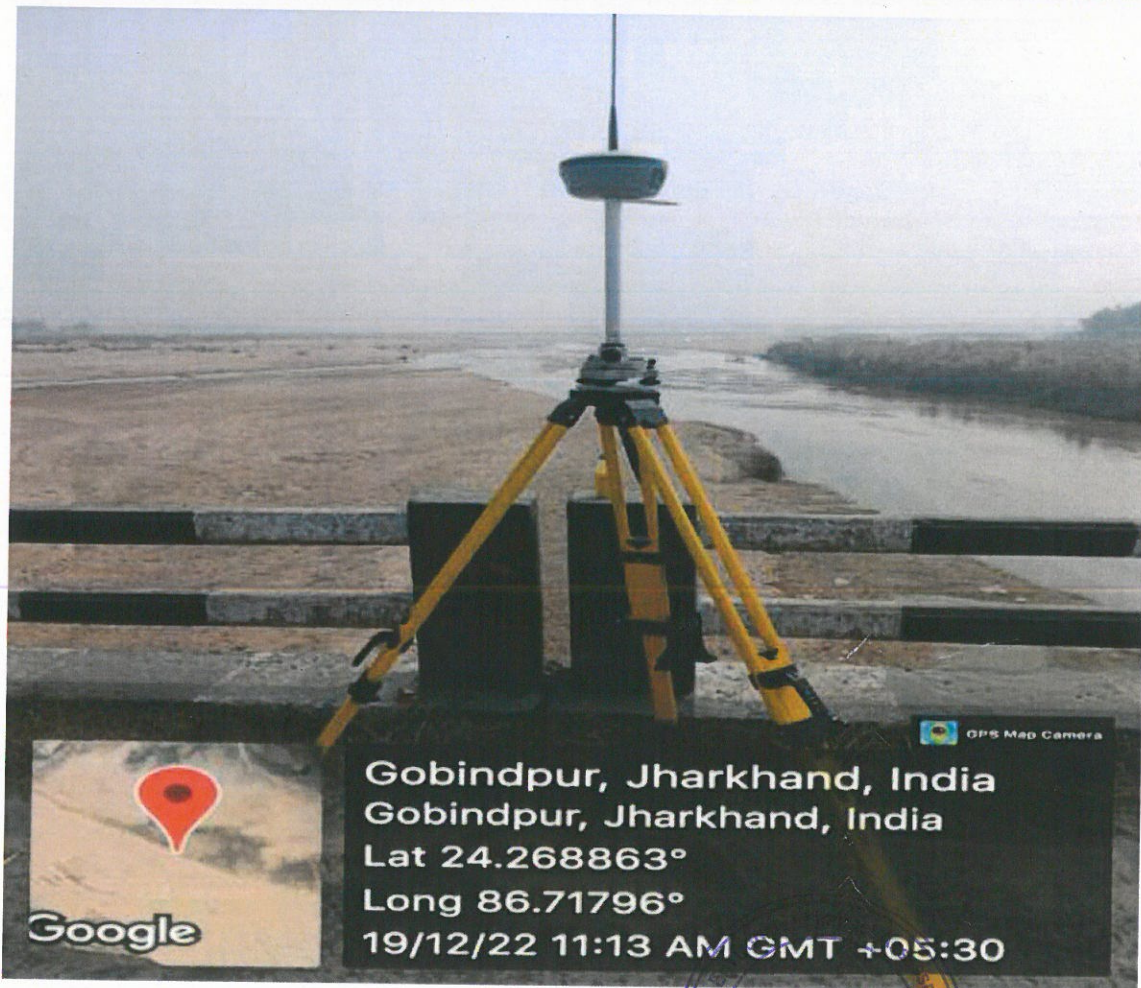
प्रतिलिपि :- वन प्रमण्डल पदाधिकारी, देवघर, अनुमण्डल पदाधिकारी, देवघर/मधुपुर, कार्यपालक अभियन्ता, लघु सिंचाई प्रमण्डल, देवघर, जिला खनन पदाधिकारी, देवघर, सहायक निदेशक, भूतत्व, देवघर, क्षेत्रीय पदाधिकारी, प्रदूषण नियंत्रण पर्षद, दुमका, निदेशक, M/s Sigma Resource Development Consultants Private Ltd, Ranchi को सूचनार्थ एवं अनुपालनार्थ कार्रवाई हेतु प्रेषित।

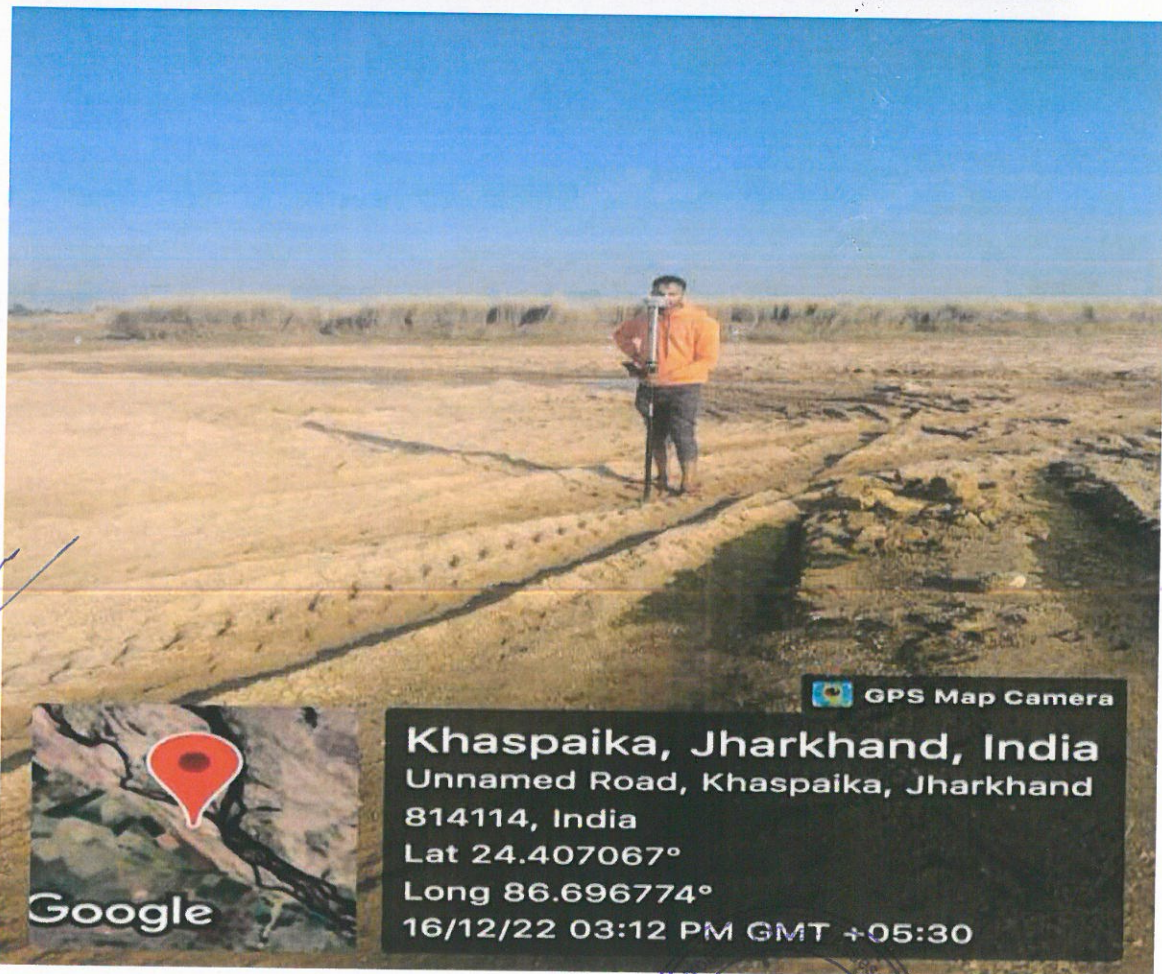


 8/4/23
उपायुक्त,
देवघर।

ANNEXURE - I





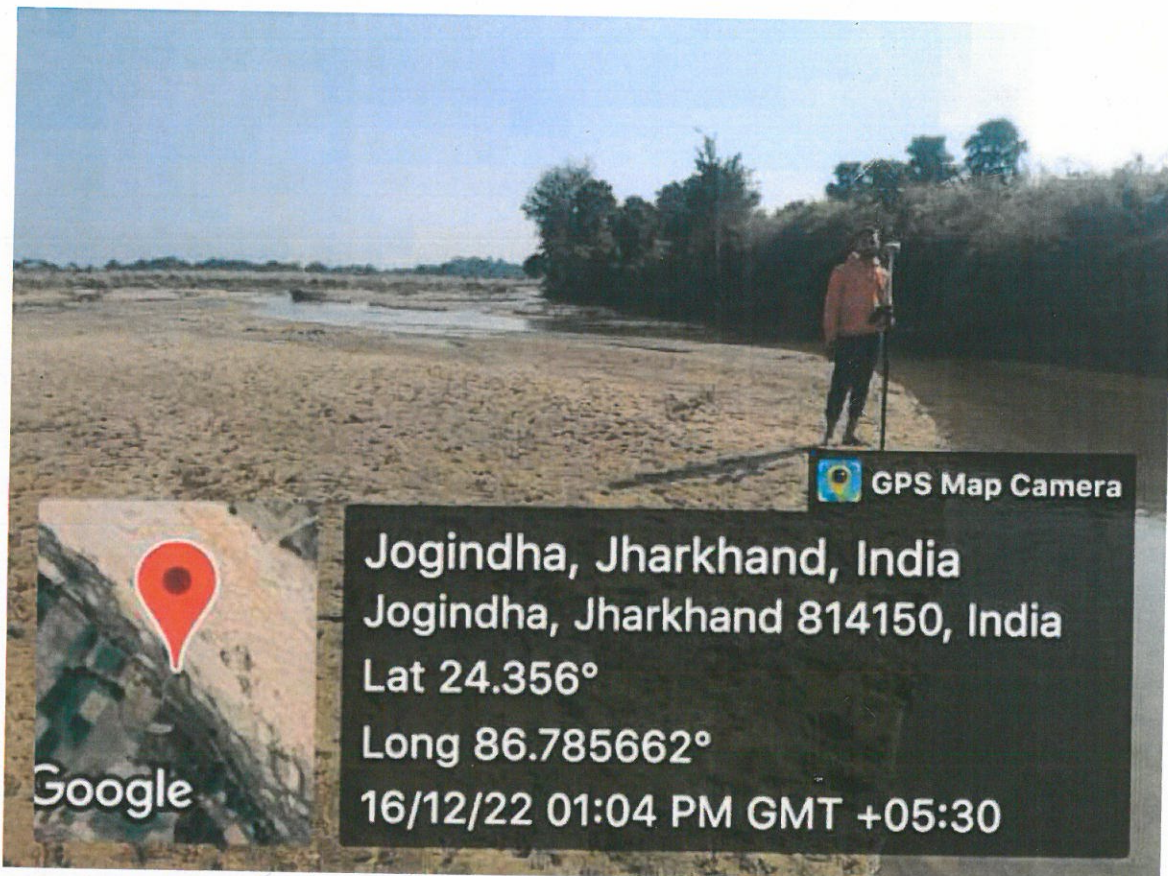


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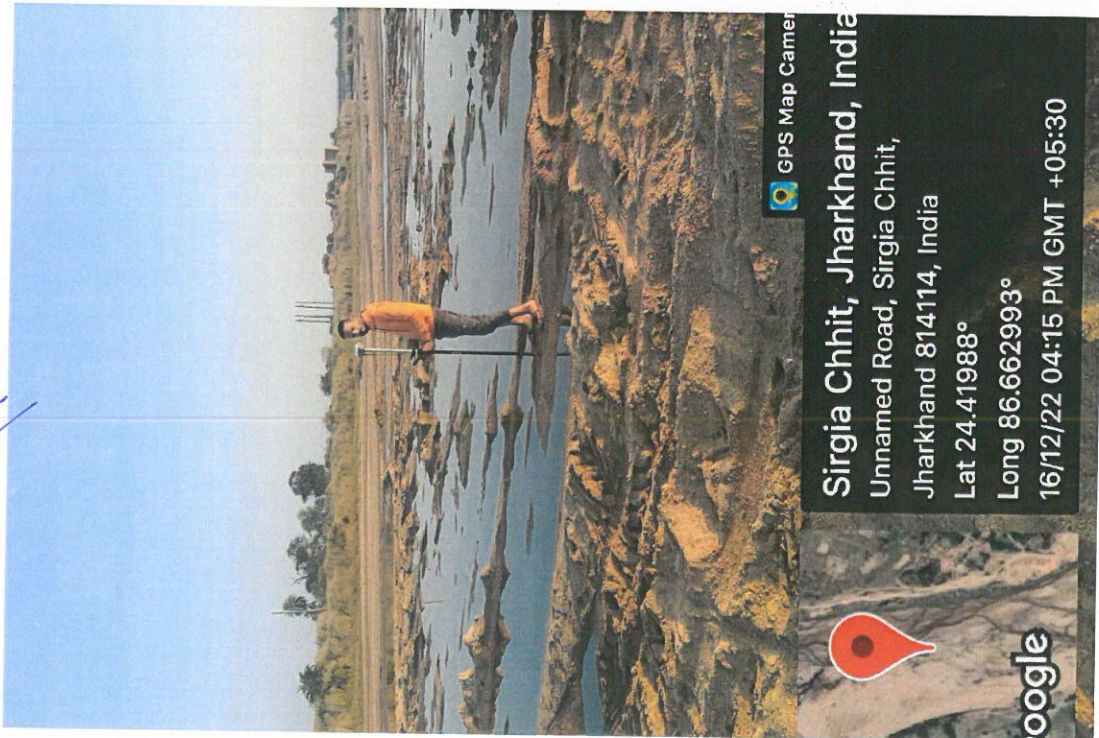
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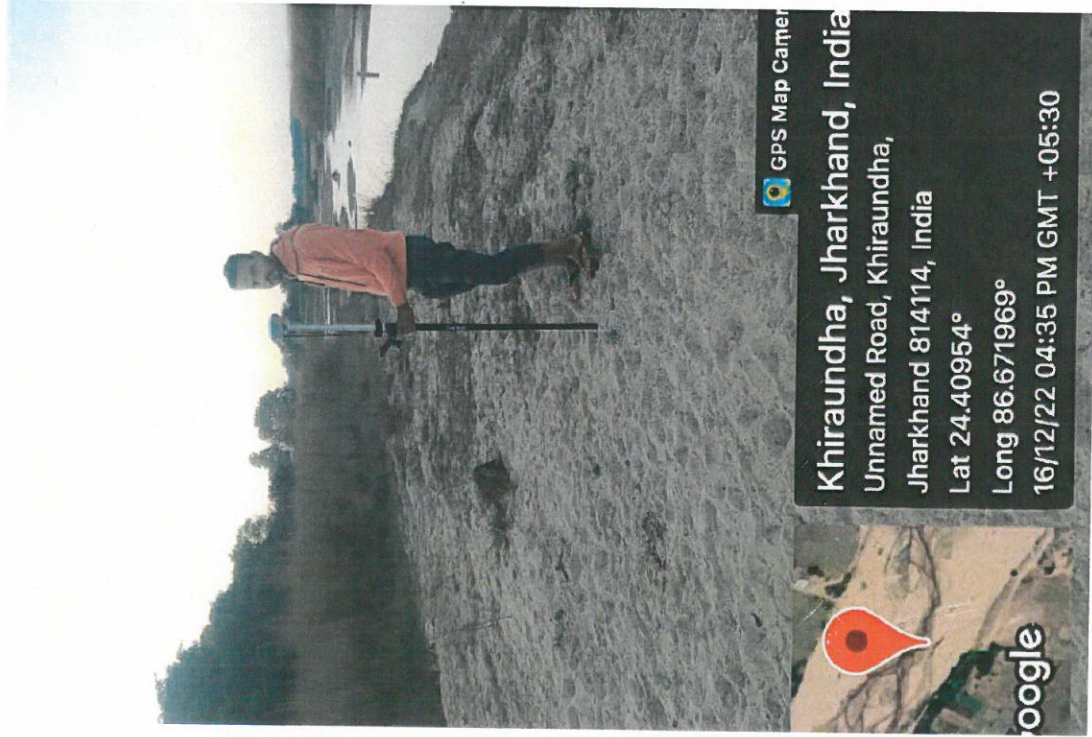
Shilpa



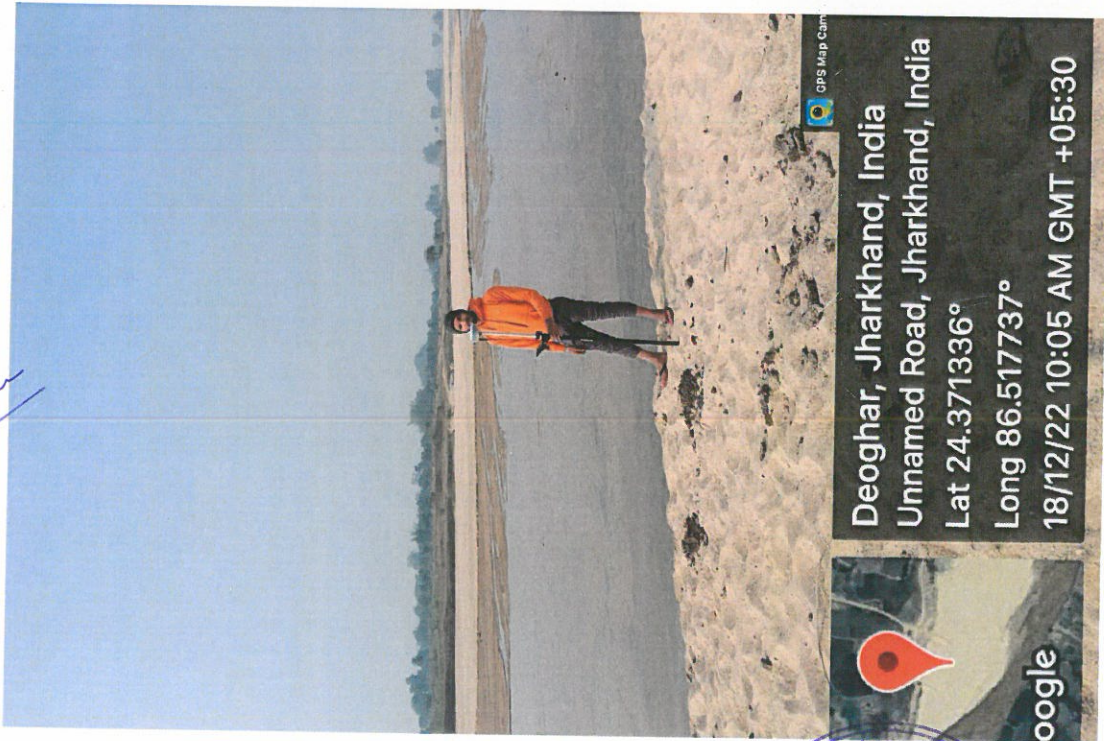
Shilpa



Shilpa



Sd/-



GPS Map Camera

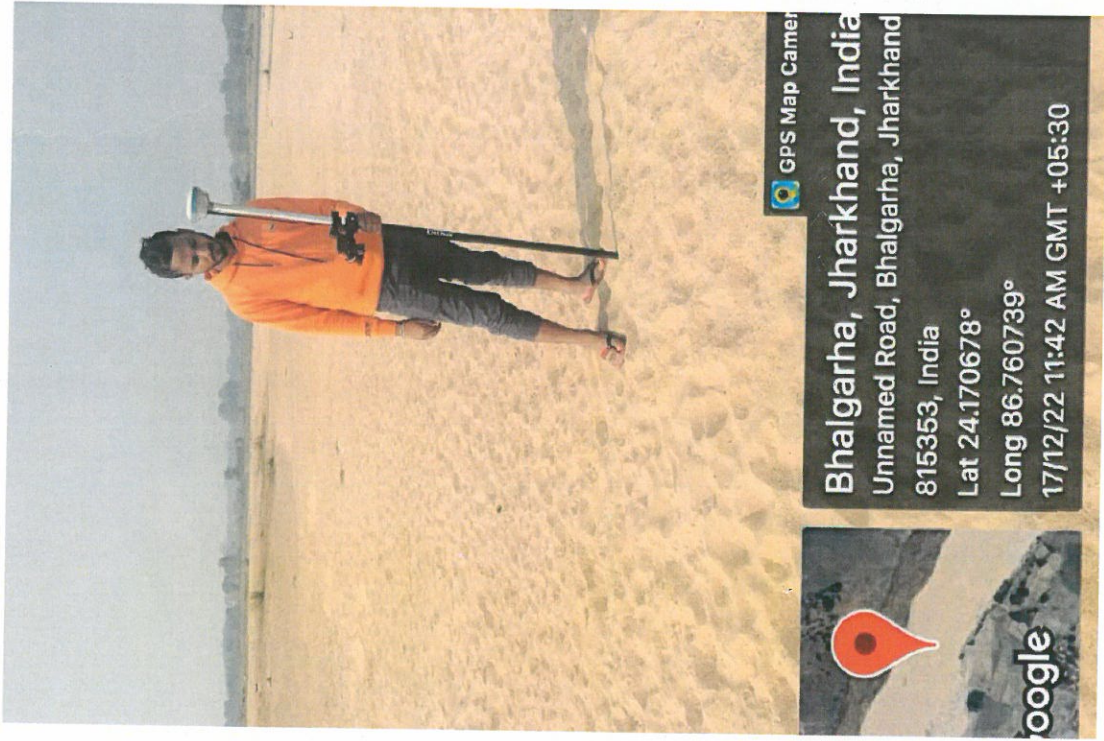
Deoghar, Jharkhand, India
 Unnamed Road, Jharkhand, India
 Lat 24.371336°
 Long 86.517737°
 18/12/22 10:05 AM GMT +05:30



Sd/-



Sd/-

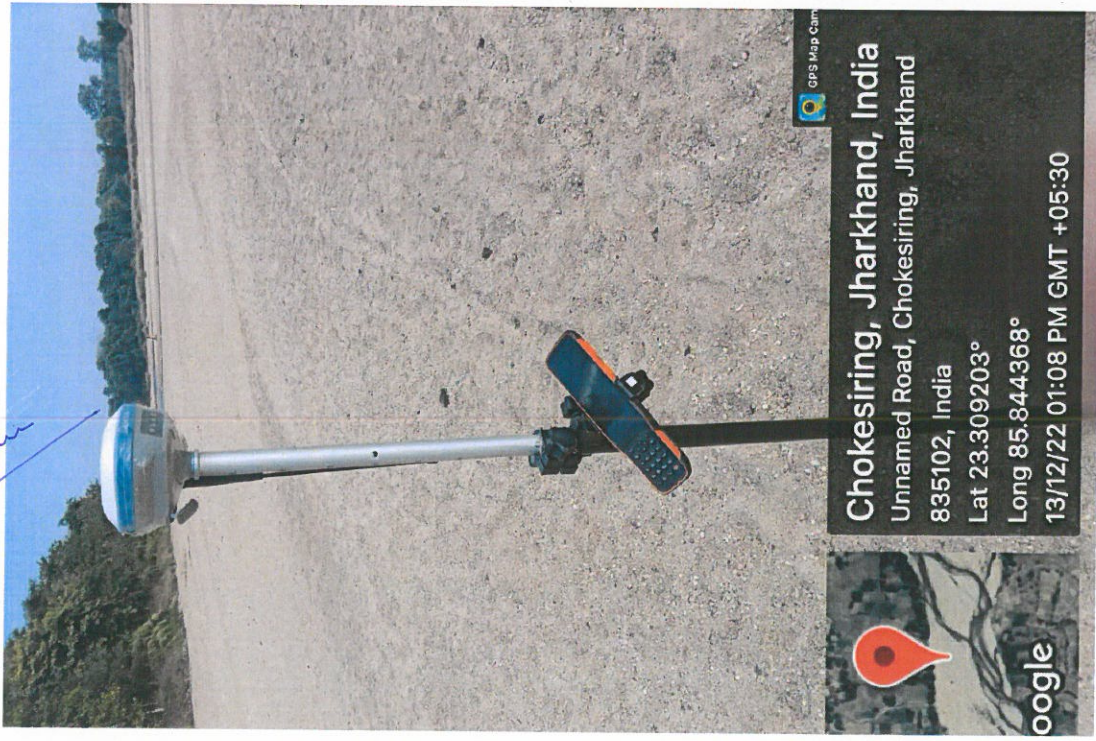


GPS Map Camera

Bhalgarha, Jharkhand, India
 Unnamed Road, Bhalgarha, Jharkhand
 815353, India
 Lat 24.170678°
 Long 86.760739°
 17/12/22 11:42 AM GMT +05:30



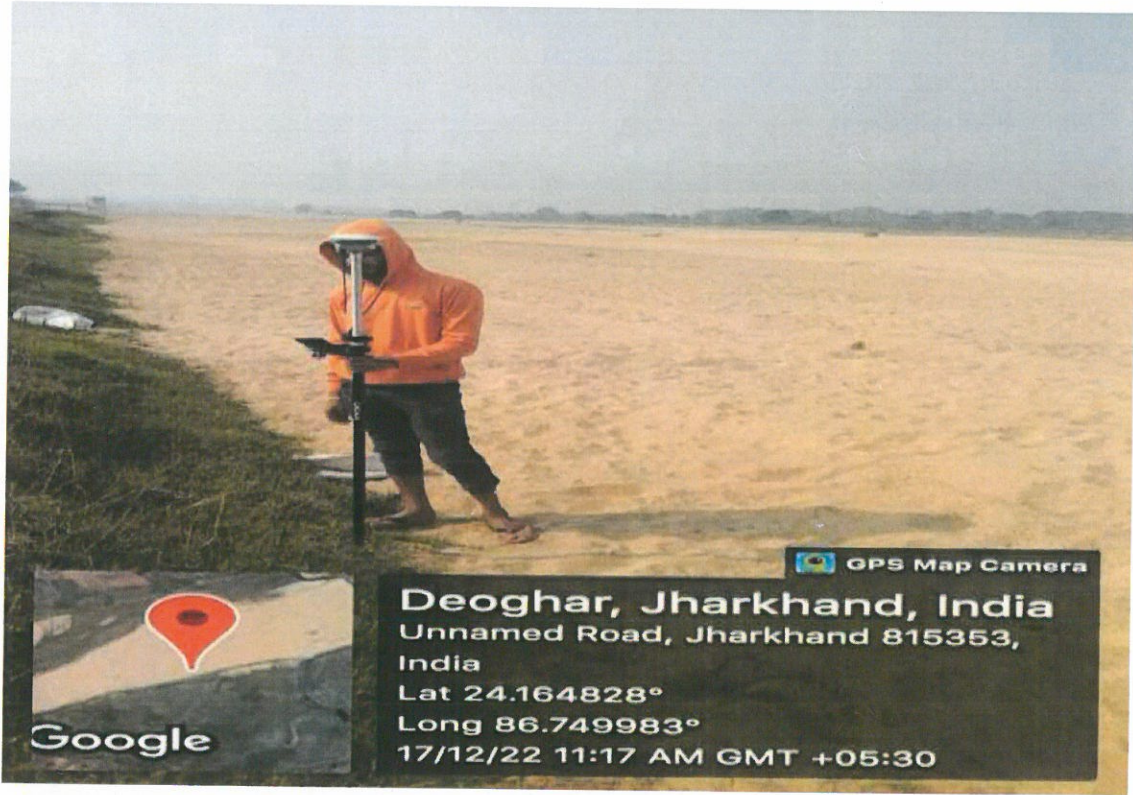
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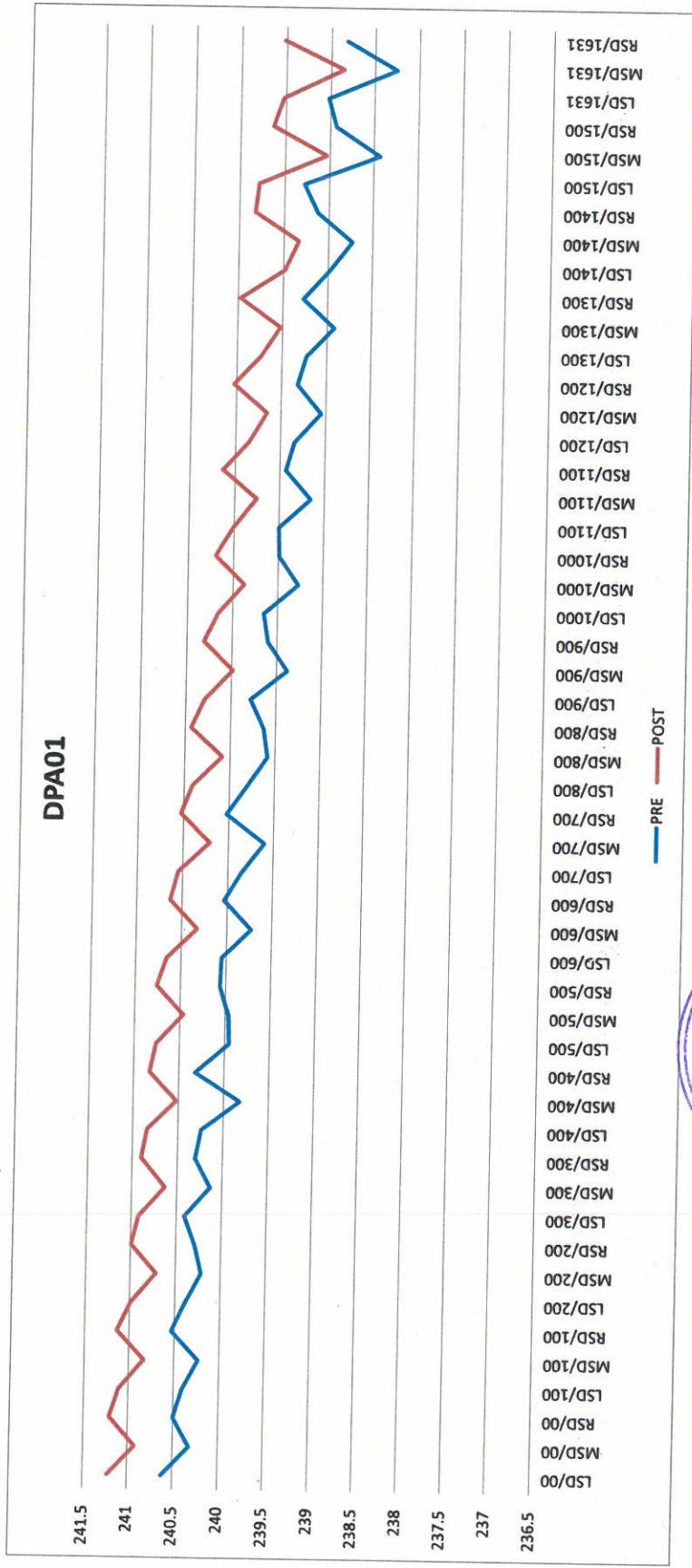
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ANNEXURE - J



Sub

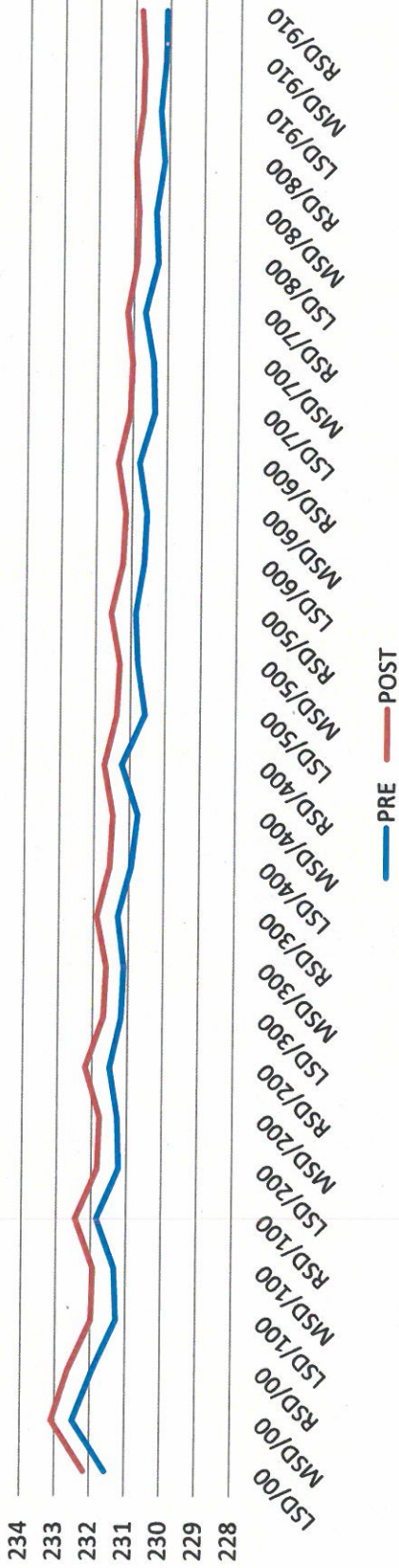


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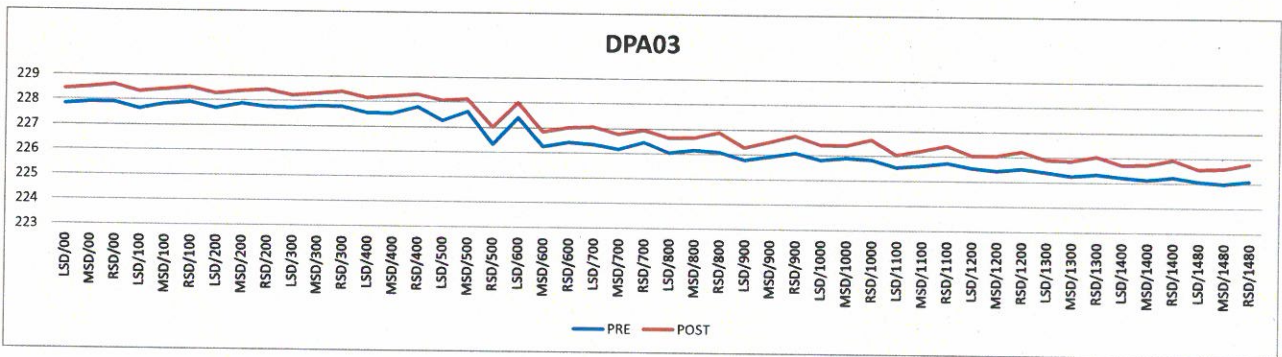
DPA02



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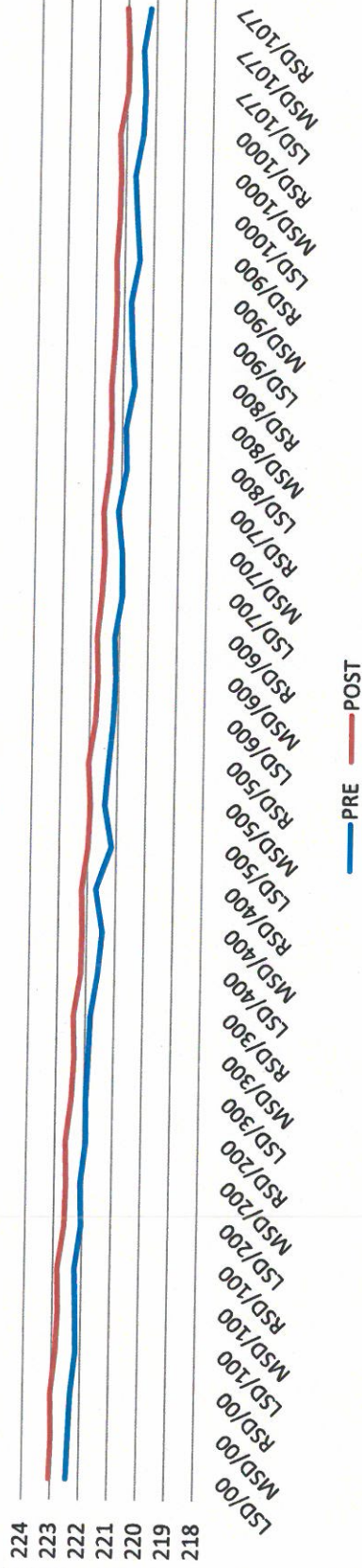
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DPA04



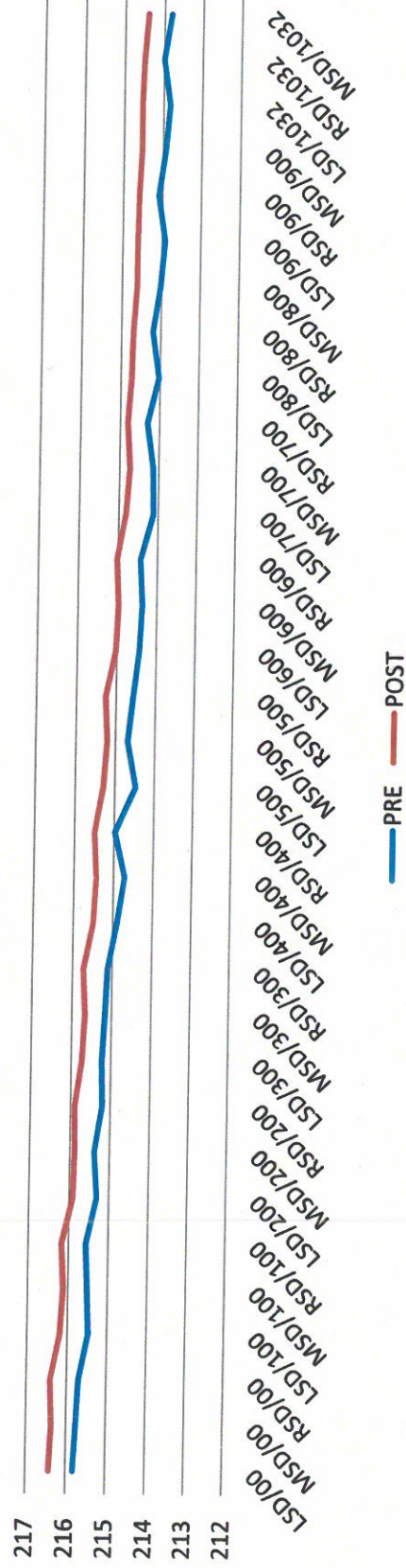
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DPA05

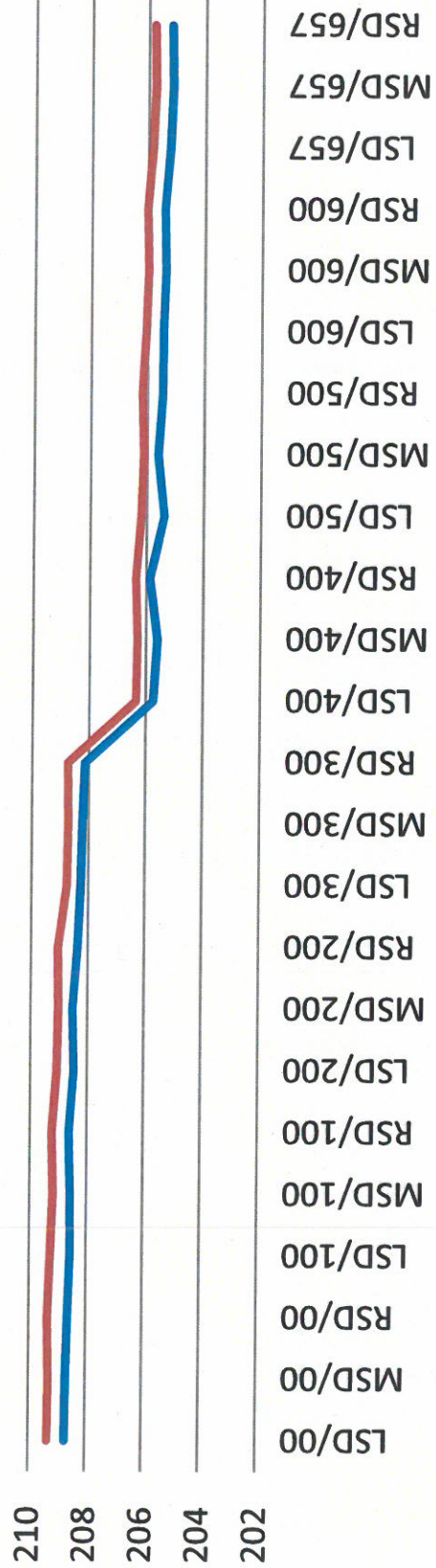


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DPA06



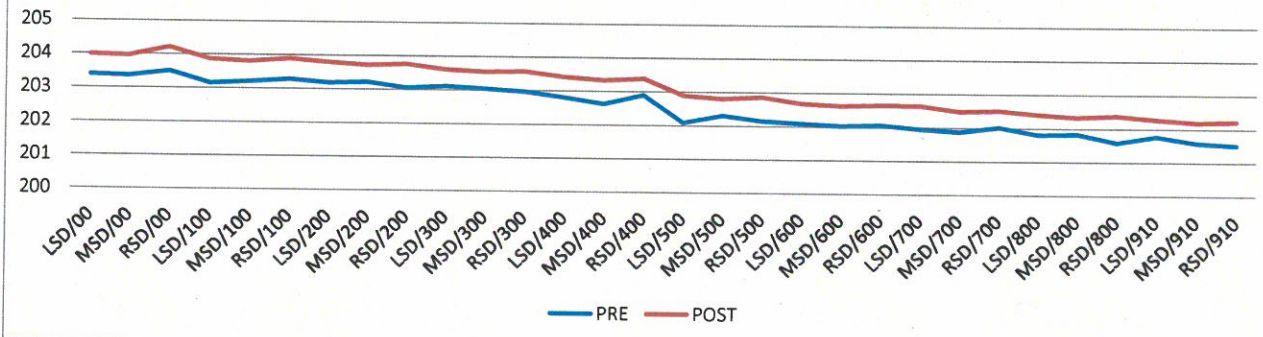
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DPA07



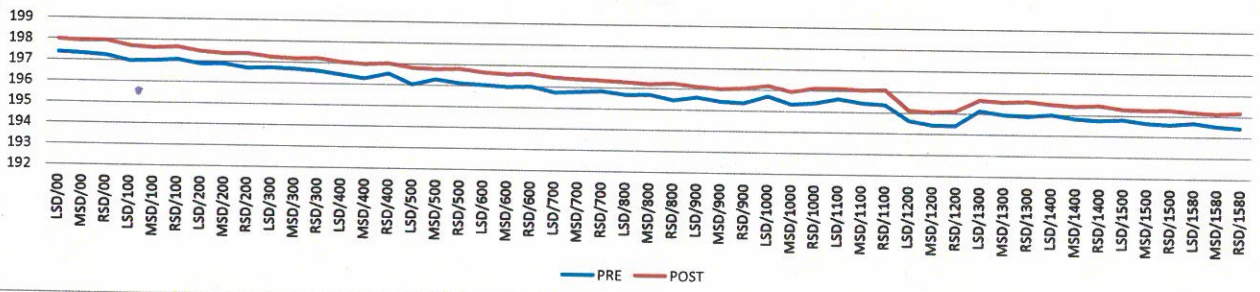
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DPA08

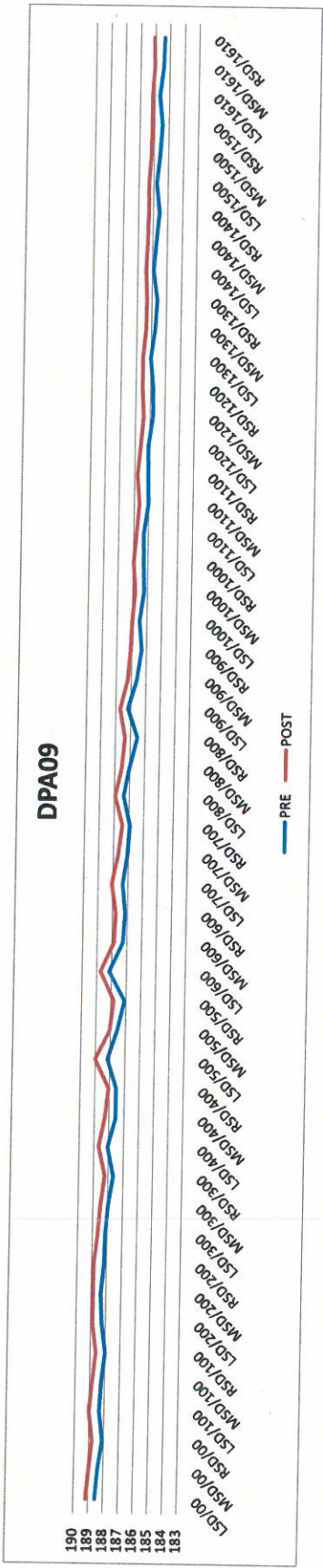


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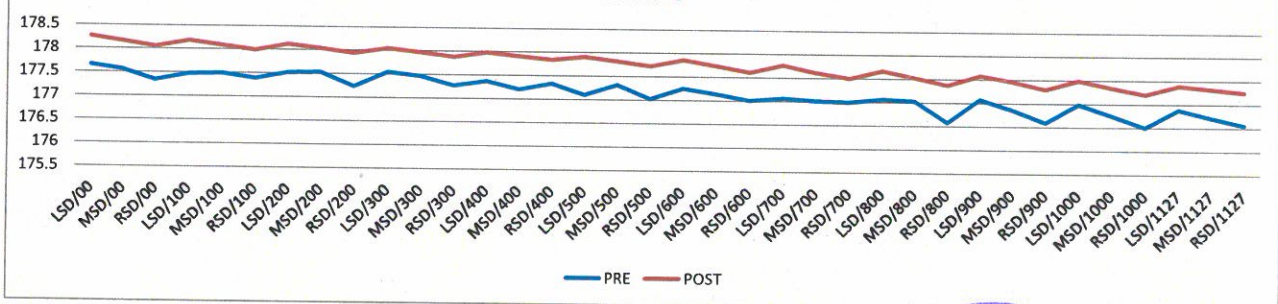


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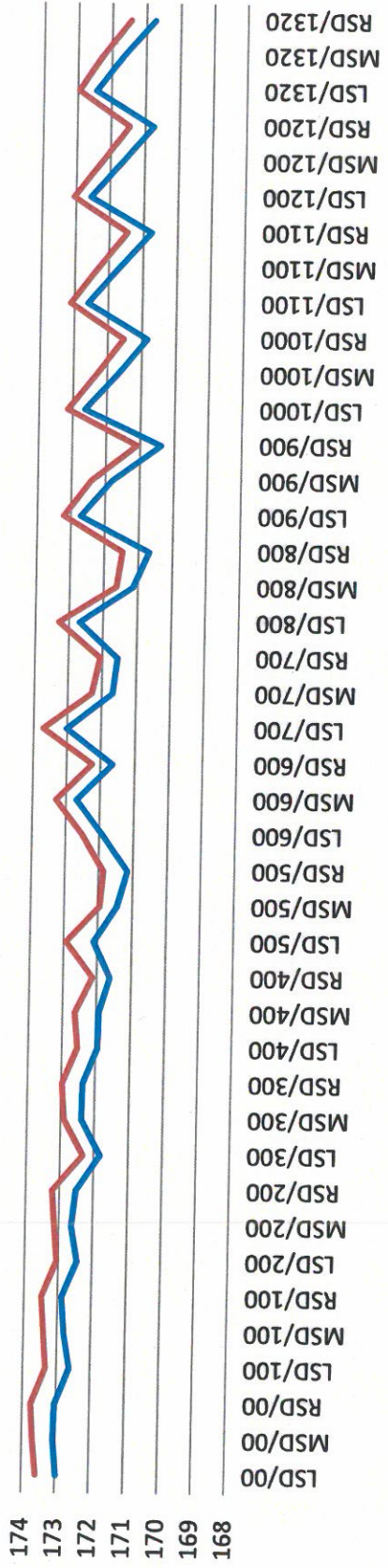
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DPA10



Shikha

DPA11



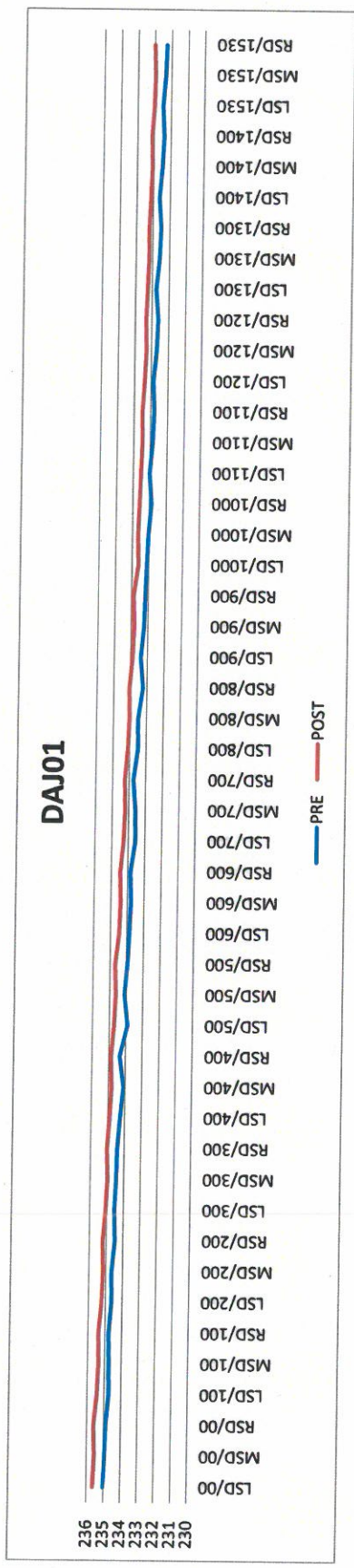
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Sharma

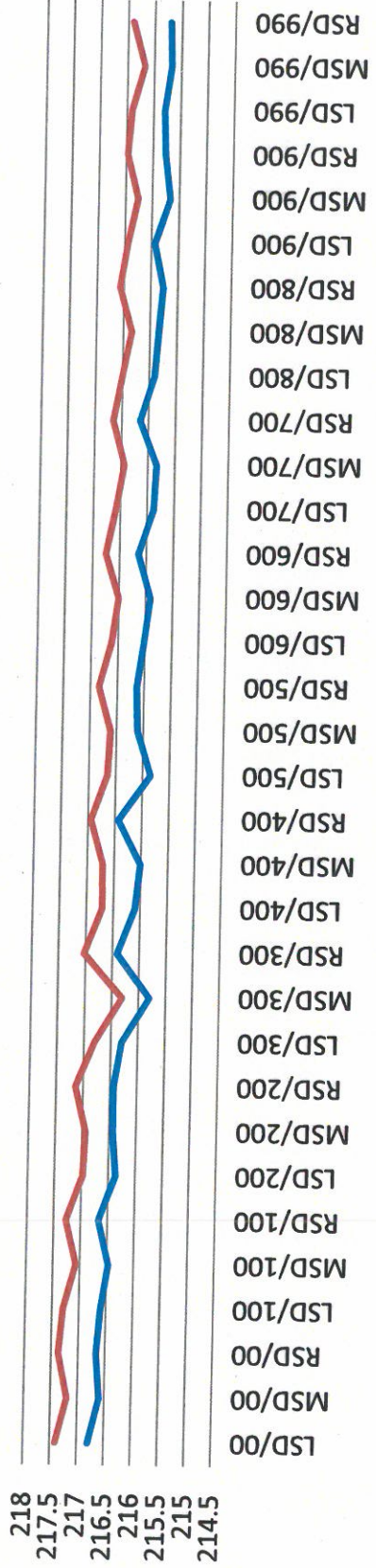


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DAJ02



PRE — POST

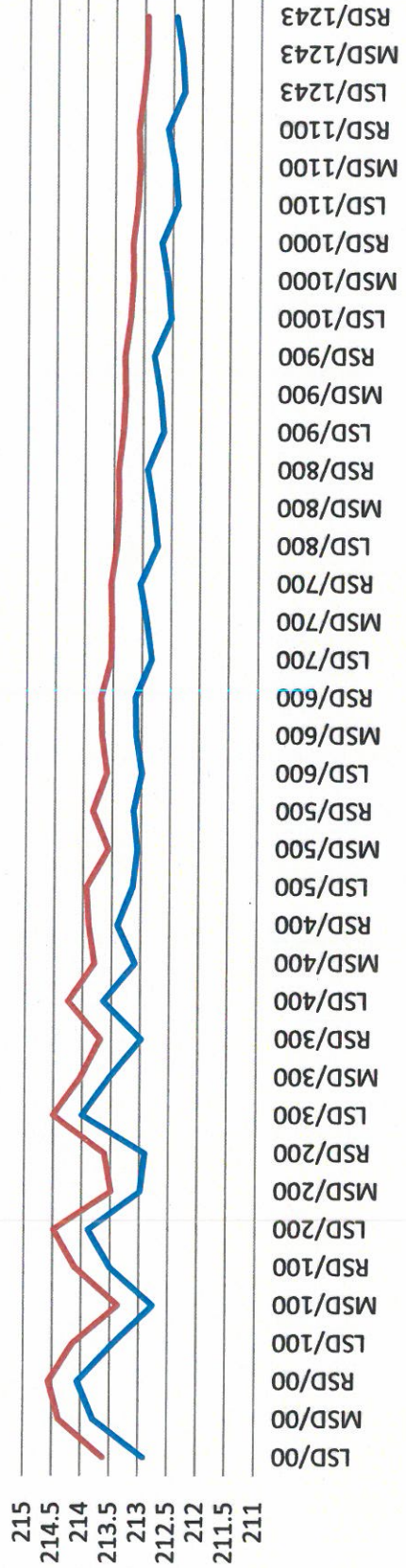
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Signature



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DAJ03



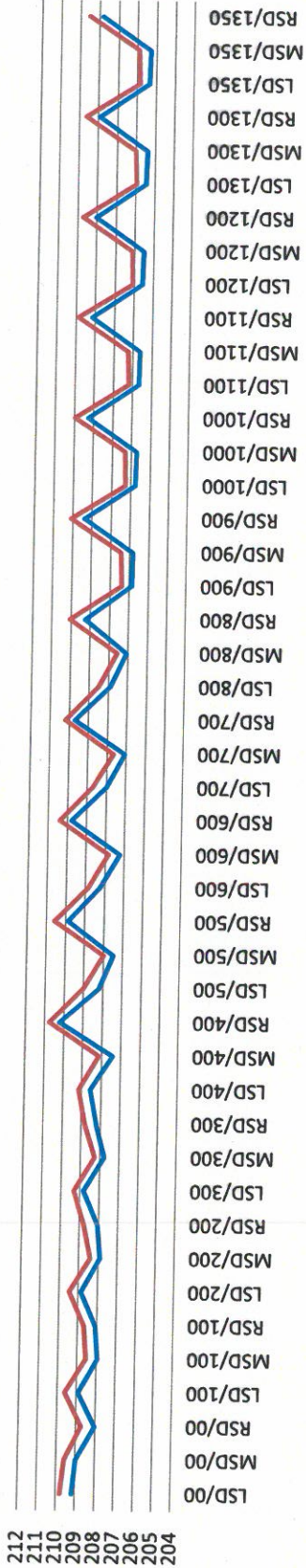
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DAJ04

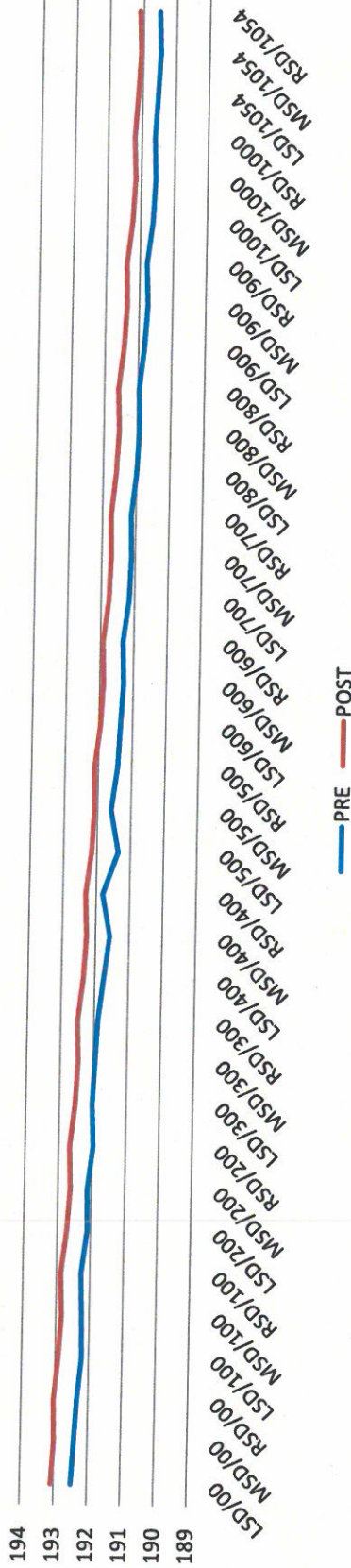


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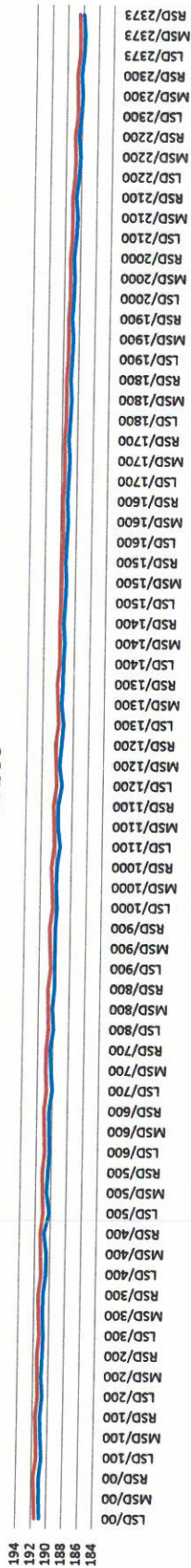
DAJ05



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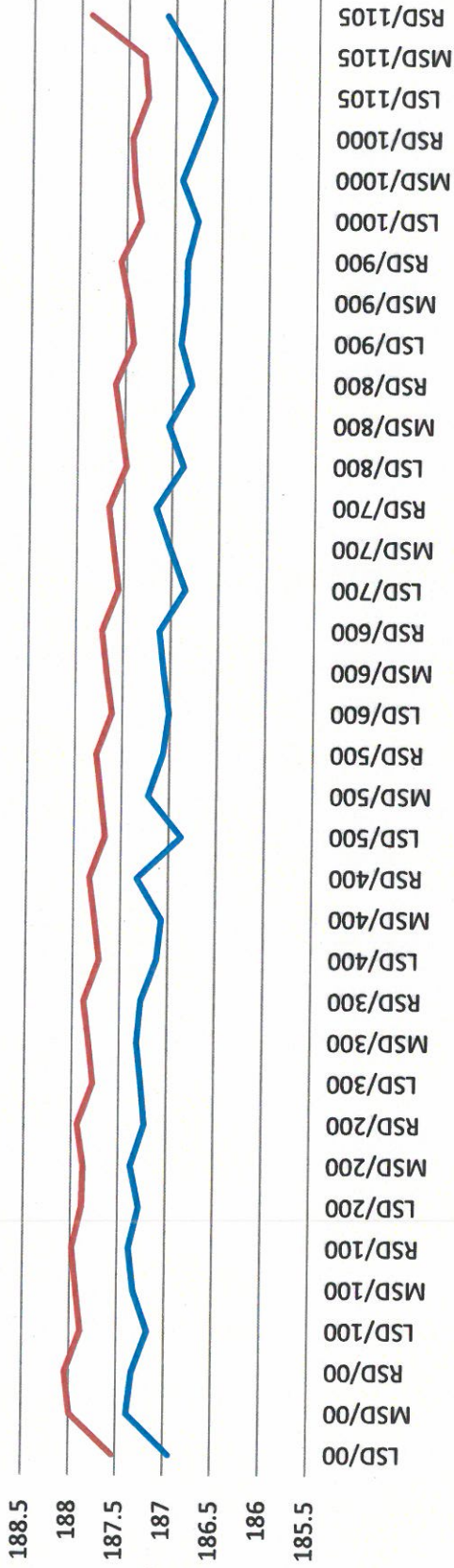
DAJ06



Signature

Signature

DAJ07



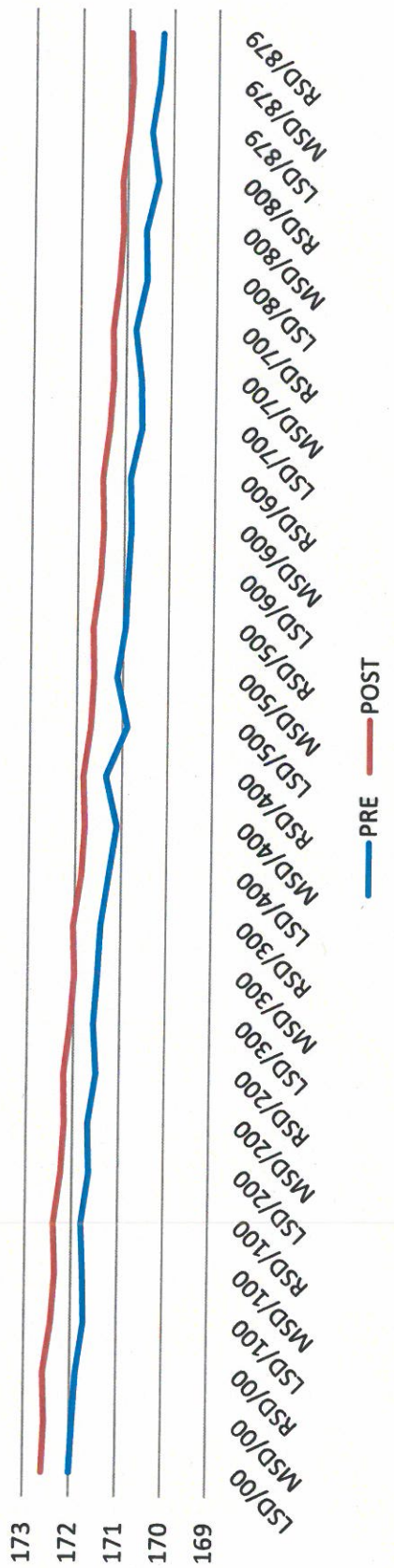
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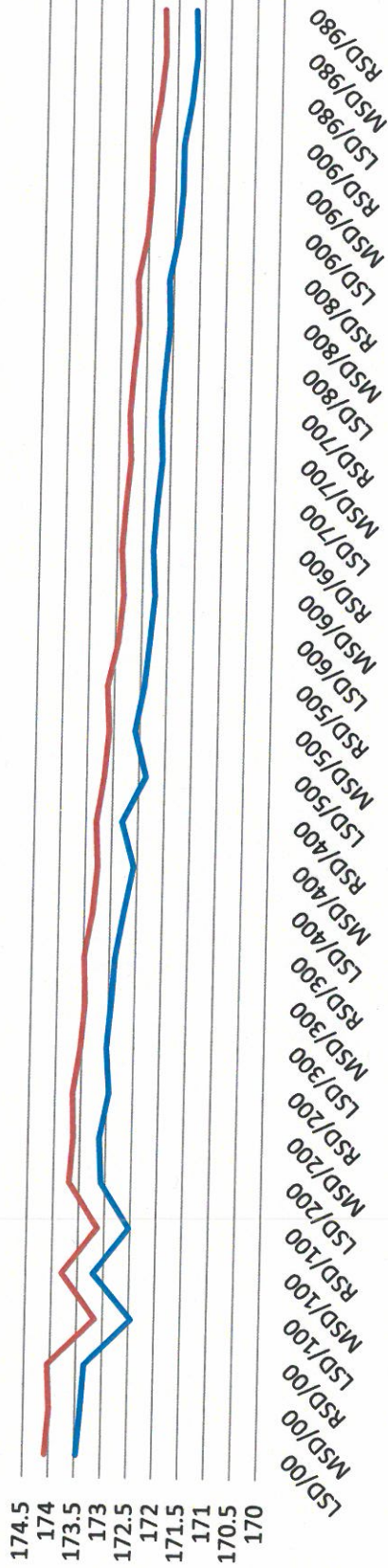
DAJ08



Signature

Signature

DAJ09



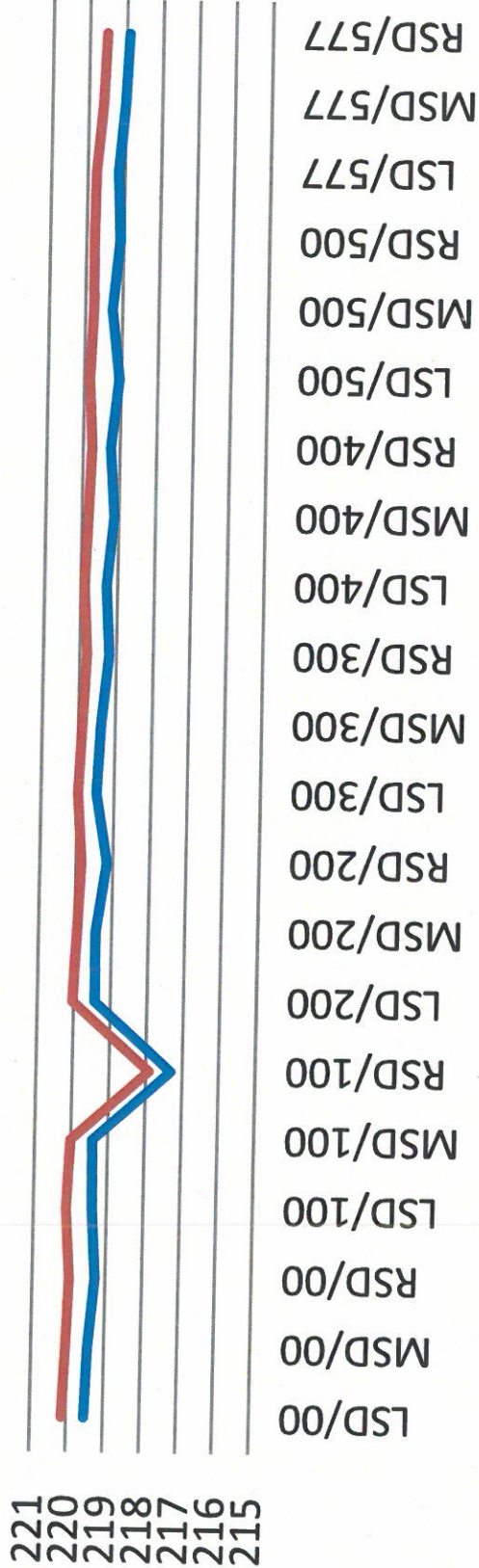
— PRE — POST



Shilpa

[Signature]

DJA01



PRE — POST

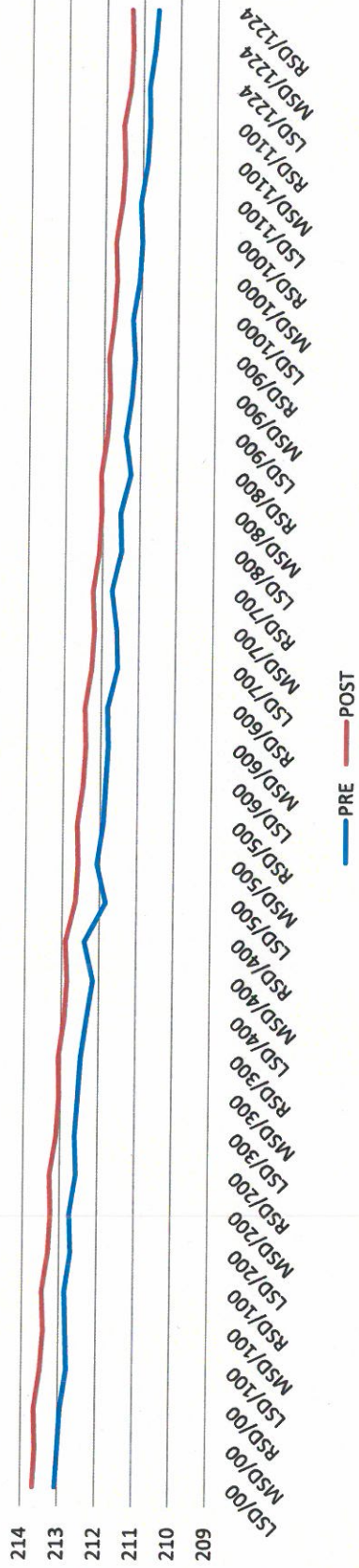


Shilpa

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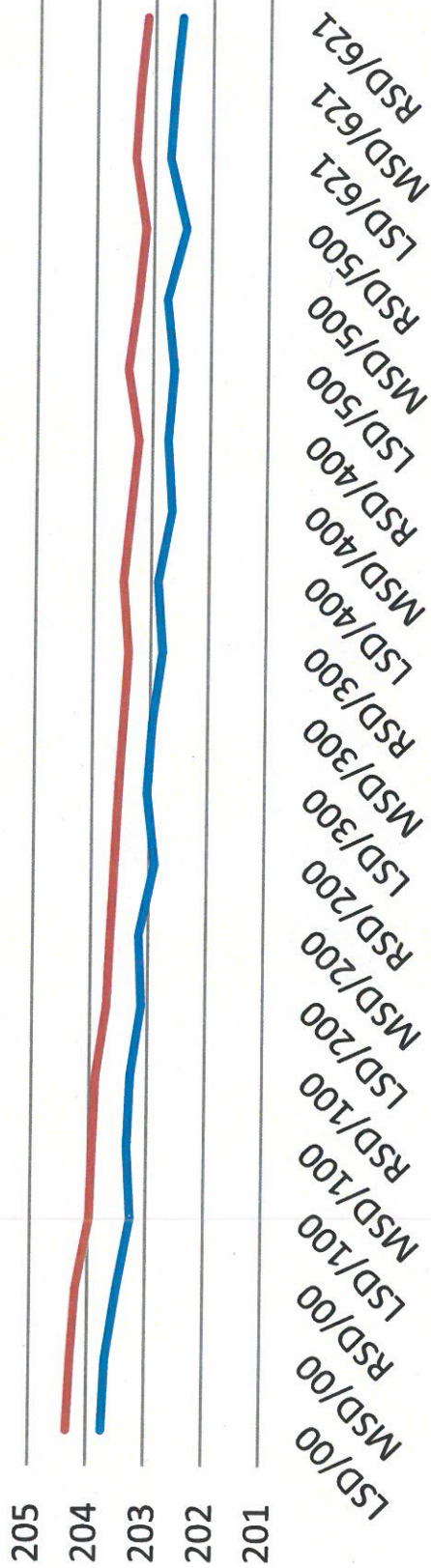
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DJA03



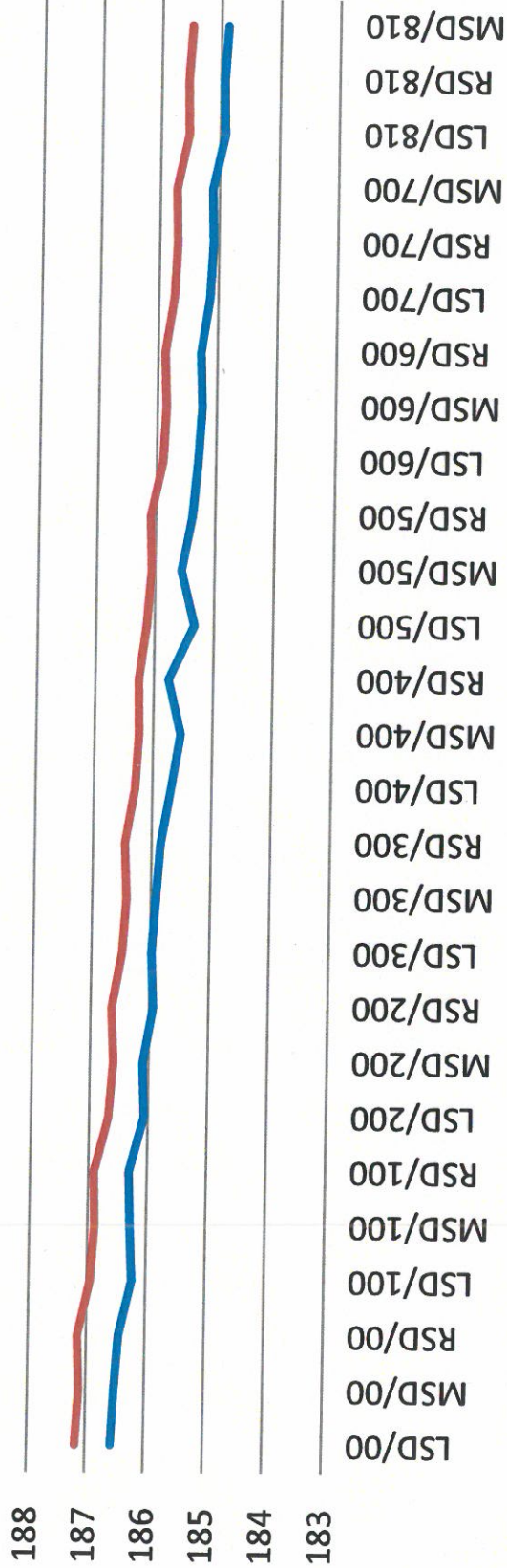
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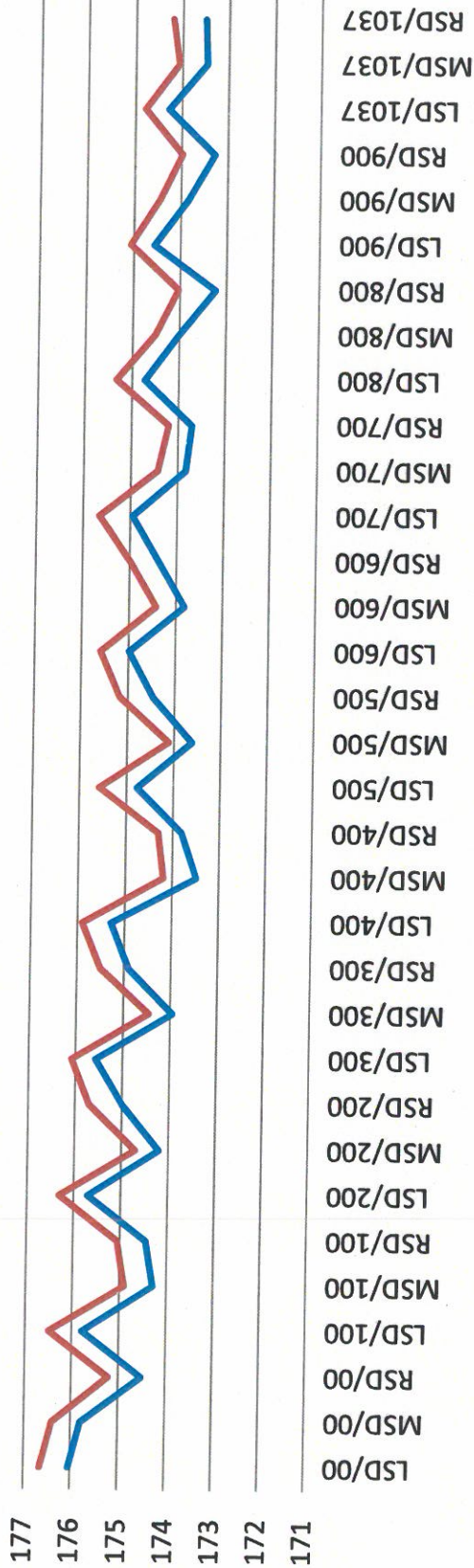
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DJA05



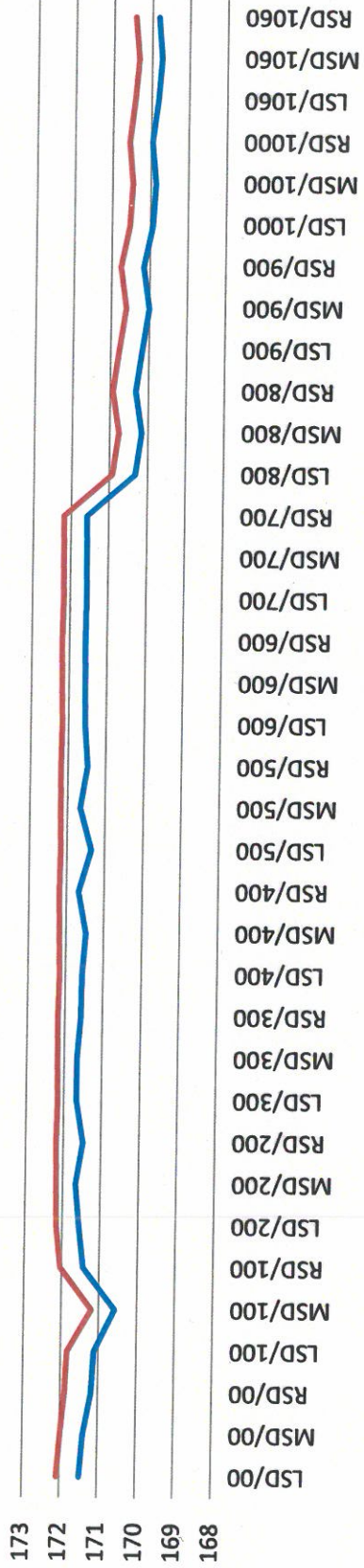
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DJA06



PRE POST



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ANNEXURE - K





HOME / DEOGHAR / District Mining Office



District Mining Office

Jharkhand is a blessed land with the natural gift of immense mineral potential and other natural resources. The state stretches over 79,714 square kilometre geographical areas with 29.61% forest area and owns about 40% of total mineral resources of India. The State occupies 1st position in coal reserve, 2nd position in iron ore reserve, 3rd position in Copper ore reserve, 7th position in Bauxite reserve and is the sole producer of prime coking coal. Limestone, Dolomite, Manganese, Mica, China Clay, Graphite, Soap stone, Coal Bed Methane, Selenite, Phosphoric, Quartz, Feldspar, Gold and Pyrosulphate are other important minerals available in huge quantity in the state.

District Mining Survey Report of Deoghar (DSR) (PDF 3.27MB)

Revised District Survey Report (Sand) 2023 (PDF 9.18 MB)

Sharma

जिला खनन कार्यालय, देवघर।
आम सूचना

एतद द्वारा सर्वसाधारण को सूचित किया जाता है कि देवघर जिला का बालू खनिज का District Survey Report (जिला सर्वेक्षण रिपोर्ट) देवघर जिला के website-<http://deoghar.nic.in> पर प्रकाशित किया गया है। उक्त DSR, Enforcement and Monitoring Guidelines for Sand Mining, 2020 के तहत आम जनता के अवलोकन हेतु उपलब्ध करायी जाती है।

अतएव उक्त के संबंध में यदि कोई आपत्ति / सुझाव हो तो 30 दिनों के अंदर अपनी आपत्ति / सुझाव उपायुक्त, देवघर का कार्यालय या जिला खनन कार्यालय, देवघर अथवा Email- dmo-deoghar@jharkhandmail.gov.in पर प्रेषित की जा सकती है।

ह0/-
जिला खनन पदाधिकारी,
देवघर।

PR 291363 (Deoghar) 22-23 (D)

Tue, 28 February 2023
प्रभात खबर <https://epaper.prabhatkhabar.com/>

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ANNEXURE - I



To whom it may concern

This is to certify that all siting criteria/provisions of JSPCB & SEIAA, JHARKHAND has been complied. As per JSPCB notification no. B-21, Ranchi dated 16/08/13.

Sl. No	Minimum distance from	Distance (in meter)
1	NH	100
2	SH	100
3	Distance metal road	50
4	Railway line	100
5	River	100
6	Any other river	100
7	Habitation	200
8	Forest/ Forest land	400

As per 58th-MOM-of-SEIAA Jharkhand

III. Revised format for PP to get the following information/certification from Circle Officer:-

क्रम सं०	निर्धारित बिन्दु	हाँ / नहीं
1.	क्या आवेदित भूमि की कोई सर्वे खातियान यथा रजिस्टर-II में जंगल झाड़ी के रूप में दर्ज है?	
2.	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है?	
3.	क्या 500 मीटर की दूरी के अंदर कोई जलयोज निकाय (Dam/Reservoir) स्थित है?	
4.	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है?	
5.	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है?	
6.	क्या 500 मीटर की दूरी के अंदर कोई शिफ्टिखालय (Hospital) स्थित है?	
7.	क्या 10 कि०मी० की परिधि में कोई अंतरराज्यीय (Interstate) सीमा है?	
8.	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातात्विक (Monuments/Archaeological) महत्व के स्थल स्थित है?	

Shil

As per 67th-MOM-of-SEIAA Jharkhand

iv. Revised format for project proponent to get the following information / certification from Divisional Forest Officer concerned :-

क्रम सं०	निर्धारित बिन्दु	हाँ / नहीं
1.	2.	3.
1.	क्या परियोजना स्थल से आरक्षित वन / संरक्षित वन भूमि से दूरी 250 मी० है?	
2.	क्या परियोजना स्थल No Mining Zone अंतर्गत आता है?	
3.	क्या परियोजना स्थल से 10 किलो मीटर की दूरी के अंदर कोई ने लान पार्क है?	
4.	क्या परियोजना स्थल से 10 किलो मीटर की दूरी के अंदर कोई अभ्यारण्य एवं जैव विविधता क्षेत्र है?	
5.	क्या परियोजना स्थल से 10 किलो मीटर की दूरी के अंदर कोई इको सेंसिटिव जोन (Eco Sensitive Zone) है?	
6.	क्या आवेदित परियोजना ESZ के अन्तर्गत प्रवर्धित श्रेणी में आता है अथवा नहीं?	



District Mining Officer

Deoghar

[Signature]

PLATE - 1
INDEX PLAN



INDEX MAP



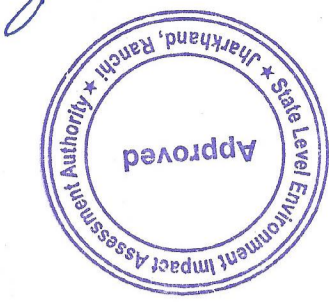
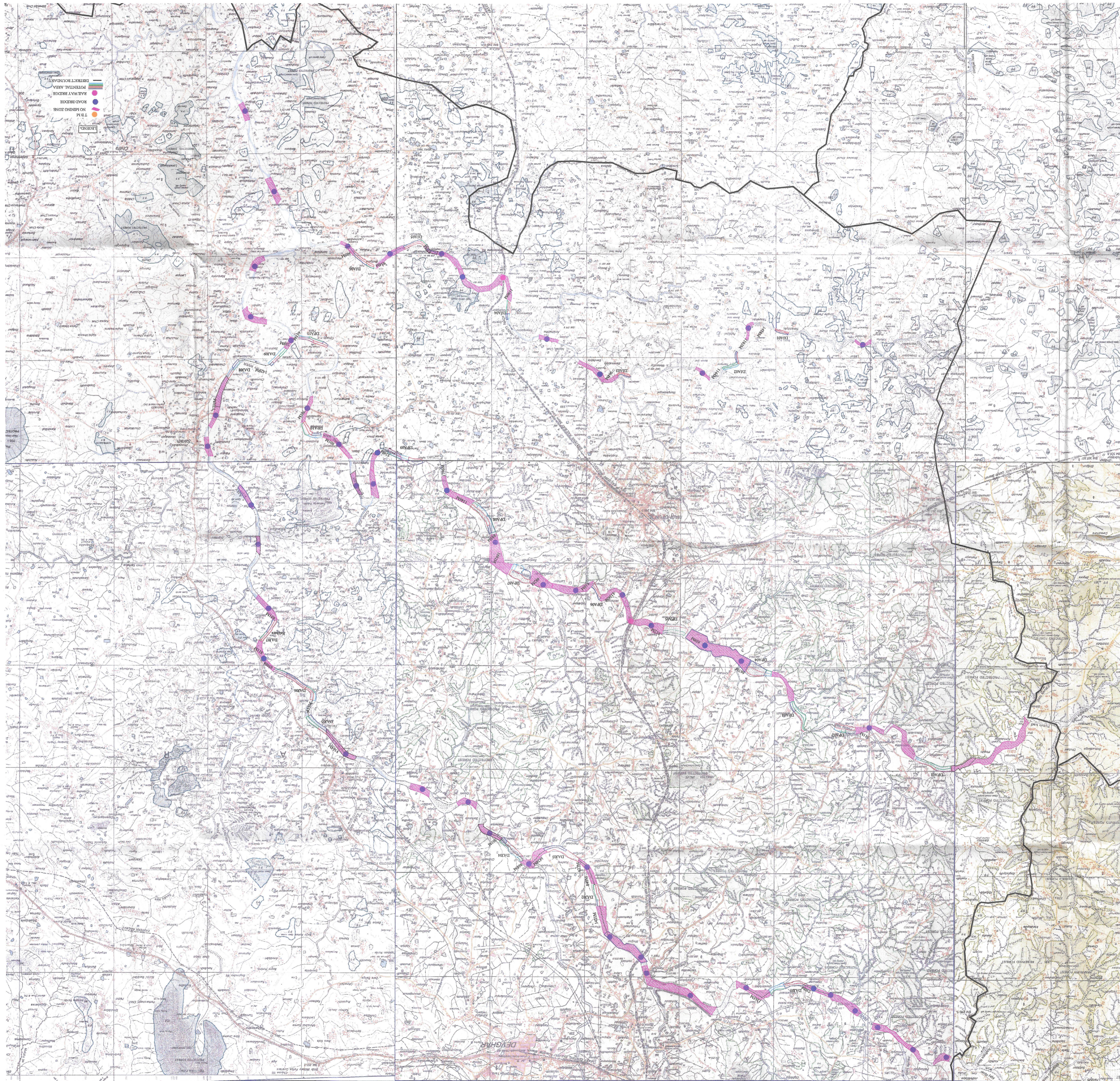
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PLATE - 2
MASTER PLAN ON TOPOSHEET





UIN	Name of Bridge	Distance(m)
D AJ 01	Singhori and Semradih Bridge	510
D AJ 01	Pandedih and Bandarbasas bridge	1265
D AJ 02	Patharchapti and Patardi Bridge	1421
	Khiraunda Bridge	849
D AJ 03	Mahtodih and Udaypur Bridge	1438
	Khiraunda Bridge	627
D AJ 04	Mahtodih and Udaypur Bridge	868
D AJ 05	Dasdih and Nawadih Bridge	1354
D AJ 06	Chandna Bridge	811
D AJ 07	Chandna Bridge	811
	Manjori Bridge	651
D PA 02	Kasidih and Burhai Bridge	511
D PA 04	Karikado and Domohani Bridge	667
D PA 05	Majhiladih and Manpur Bridge	859
D PA 05	Kasati - Beltikri Bridge	812
D PA 06	Gariya - Mohanpur Bridge	1156
D PA 07	Mahtobahiar-Saptar Bridge	682
	Charpa - Tanderi bridge	1682
D PA 08	Charpa - Tanderi bridge	893
	Paniara - Chormara Bridge	1146
D PA 09	Paniara - Chormara Bridge	1796
	Bardahi Bridge	524
D PA 10	Bara Bridge	810
	Kharkhuti - Dumariya Bridge	701
D PA 11	Barmariya - Mahtoa Bridge	611
D AJ 09	Barmariya - Mahtoa Bridge	359
D AJ 08	Barmariya - Mahtoa Bridge	1898
D JA 06	Majhtar - Lacchnadih Bridge	505
	Jhunaki - Singpur Bridge	954
D JA 05	Jhunaki - Singpur Bridge	522
	Jamdabar - Chobkiyari Bridge	877
D JA 04	Madankata Rail Bridge	1190
D JA 03	Barmasiya - Chetnari Bridge	964
D JA 01	Harigarha Bridge	1418
D JA 02	Harigarha Bridge	1183



DMO, Deoghar

Assistant Director (Geology)
Deoghar

PLATE - 3
CADASTRAL MAP



Map No. Santal Parganas No. 58

207040000058 - 00
Madanpur . No.58

SANTAL PARGANAS

सब डिवीजन क्षेत्र

थाना मधुपुर

महापुर नाम मदनपुर नं: ५८

तापदाद डीडीए

कोमलदेव जीव

समाजसेवा संस्थान

खसुपाना नं: ३०

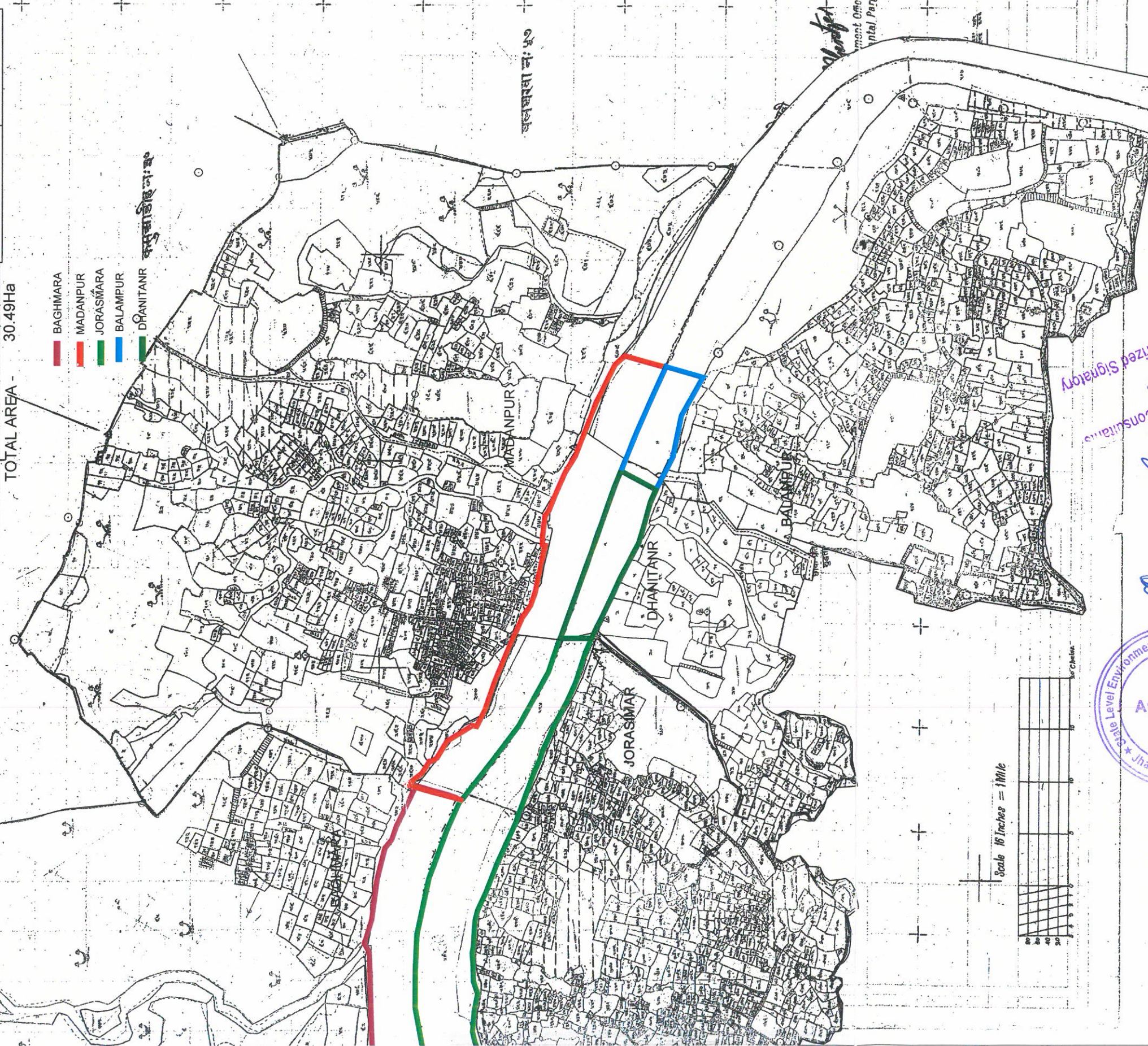
UJINo.-DPA01

VILLAGE NAME	PLOT NO.	AREA(Ha)	PANCHAYAT	BLOCK
BAGHMARA	173	7.32Ha	TATKIO NAWADIH	DEVIPUR
MADANPUR	276	3.46Ha		
	677	3.50Ha		
JORASIMAR	664	2.50Ha	DARANGA	
	592	6.0Ha		
BALAMPUR	4(P)	3.46Ha		
DHANITANR	1	1.75Ha		
		2.50Ha		

TOTAL AREA - 30.49Ha

- BAGHMARA
- MADANPUR
- JORASIMARA
- BALAMPUR
- DHANITANR

कमुडाडी नं: ३०



Scale 16 Inches = 1Mile



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Sigma R.D. Consultants
Consortium with Crystal Consultants

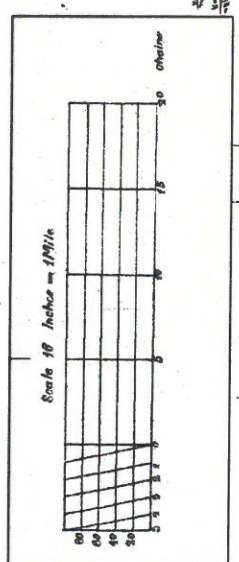
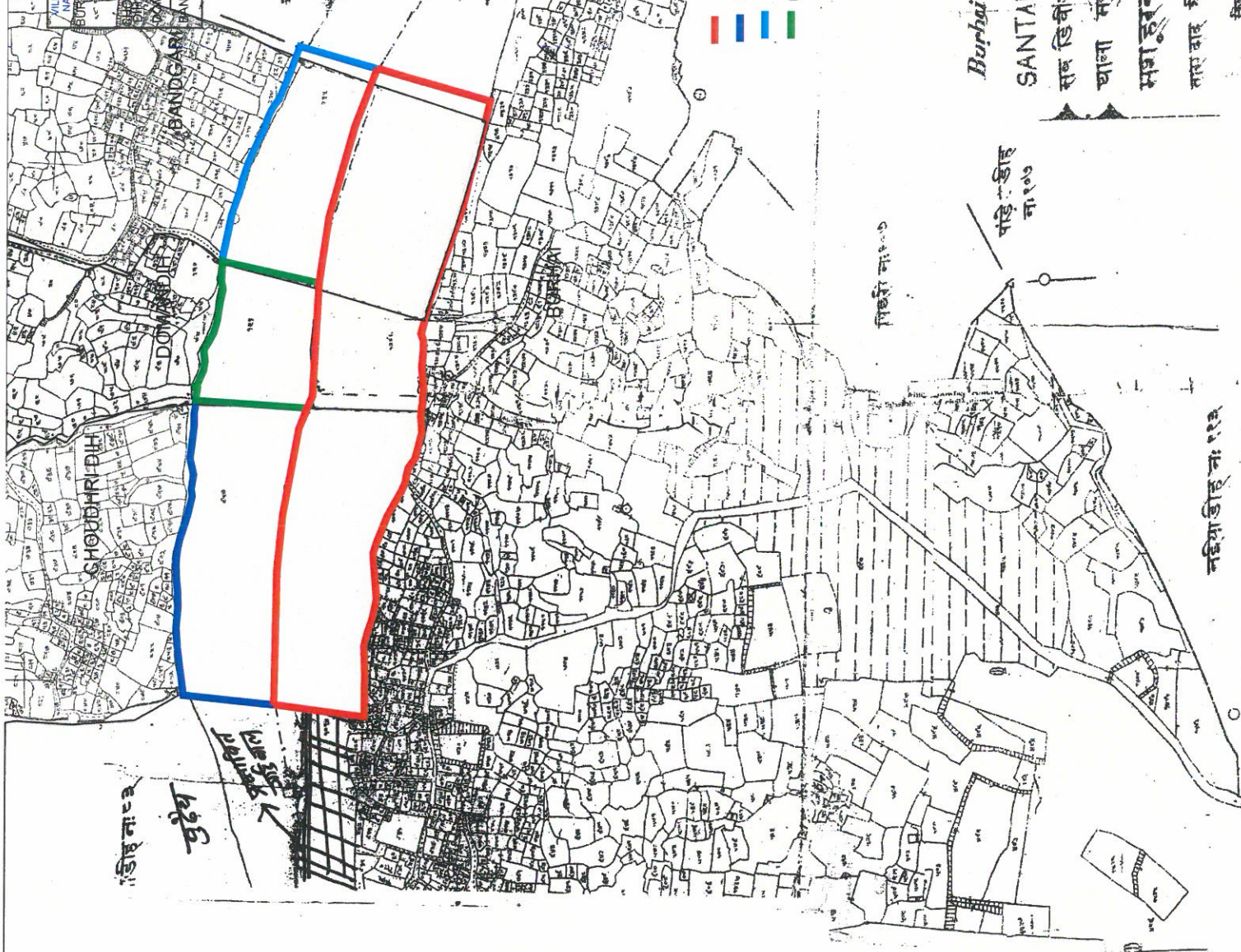
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Project Officer,
Madanpur, Parganas.

UIN No.-DPA02		PANCHAYAT BLOCK	
VILLAGE NAME	PLOT NO	AREA(Ha)	BLOCK
BURHAI	1015	5.20Ha	BURHAI
BURHAI	1296	5.00Ha	BURHAI
BURHAI	1315	5.00Ha	BURHAI
DHRI	957	5.90Ha	JHUNDI
DOMANDIH	121(P)	2.90Ha	JHUNDI
DOMANDIH	235(P)	4.10Ha	DEVIPUR

TOTAL AREA - 28.10Ha



Map used is published by the authority of Government

Burhai . No.82
SANTAL PARGANAS.
सक डिबीजन क्षेत्र
घाना संयुक्त
मशाहरनाम बुडई नं:८२
सारावर सीट २ सीटकार

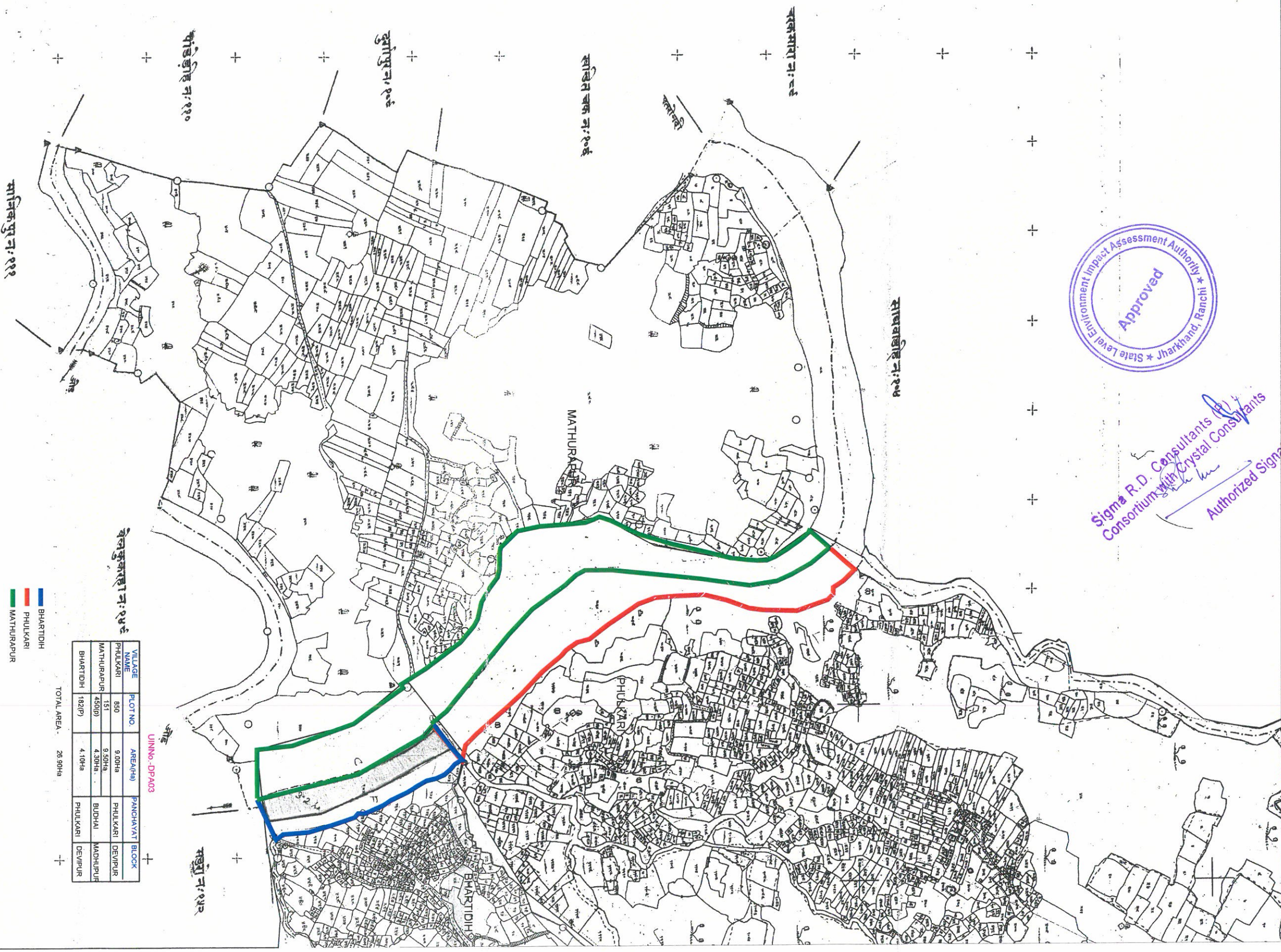
For Settlement Officer,
Santal Parganas.

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UJIN No - DPA03

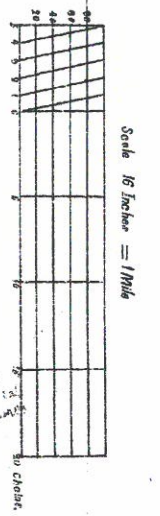
VILLAGE NAME	PLOT NO.	AREA(Ha)	PANCHAYAT	BLOCK
PHULKARI	850	9.00Ha	PHULKARI	DEVIPUR
MATHURAPUR	151	9.50Ha	BUDHAI	MADHURPUR
BHARTIDIH	182(P)	4.10Ha	PHULKARI	DEVIPUR

TOTAL AREA - 26.60Ha

- █ BHARTIDIH
- █ PHULKARI
- █ MATHURAPUR

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For Settlement Officer,
 Santal Parganas.



31/05/19

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Araria, No155

SANTAL PARGANAS.

सब डिवीजन देवघर

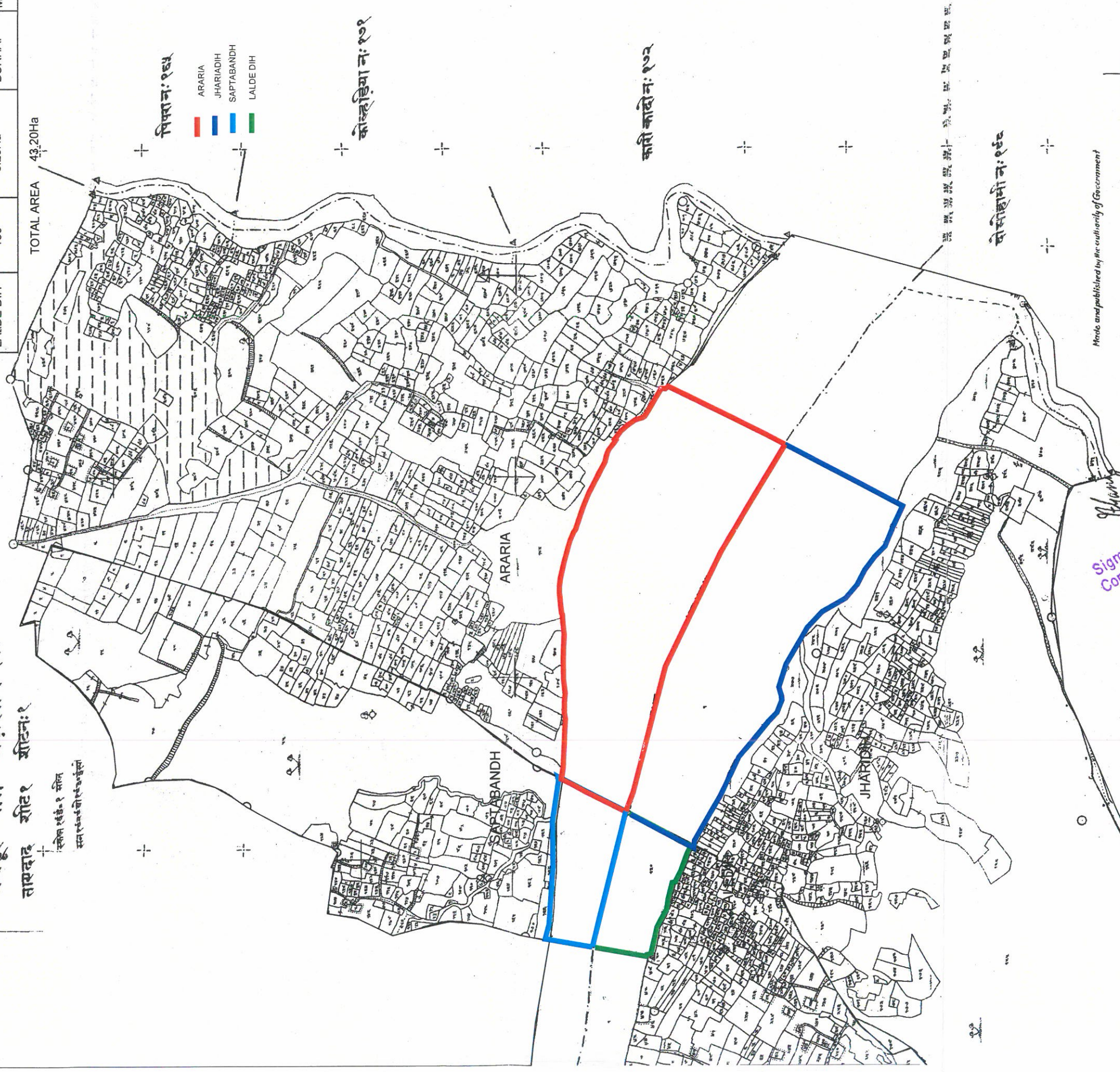
थाना मधुपुर

मसहूर नाम अड्डिया नः १५१

तासदाद शीट नः १३९

VILLAGE NAME	PLOT NO.	AREA(Ha)	PANCHAYAT	BLOCK
ARARIA	181(P)	19.00Ha	PHULKARI	DEVIPUR
JHARIADIH	1(P)	17.60Ha	BURHAI	MADHUPUR
SAPTABANDH	169	3.40Ha	PHULKARI	DEVIPUR
LALDE DIH	130	3.20Ha	BURHAI	MADHUPUR

TOTAL AREA 43.20Ha



पिपानः १६५

- ARARIA
- JHARIADIH
- SAPTABANDH
- LALDE DIH

कोन्हाडिया नः १५१

करी कादोनः १५२

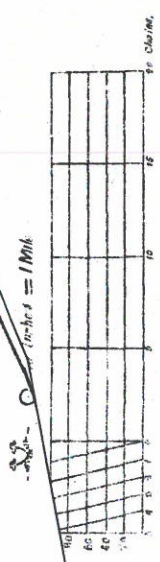
कोसीहाथी नः १६८

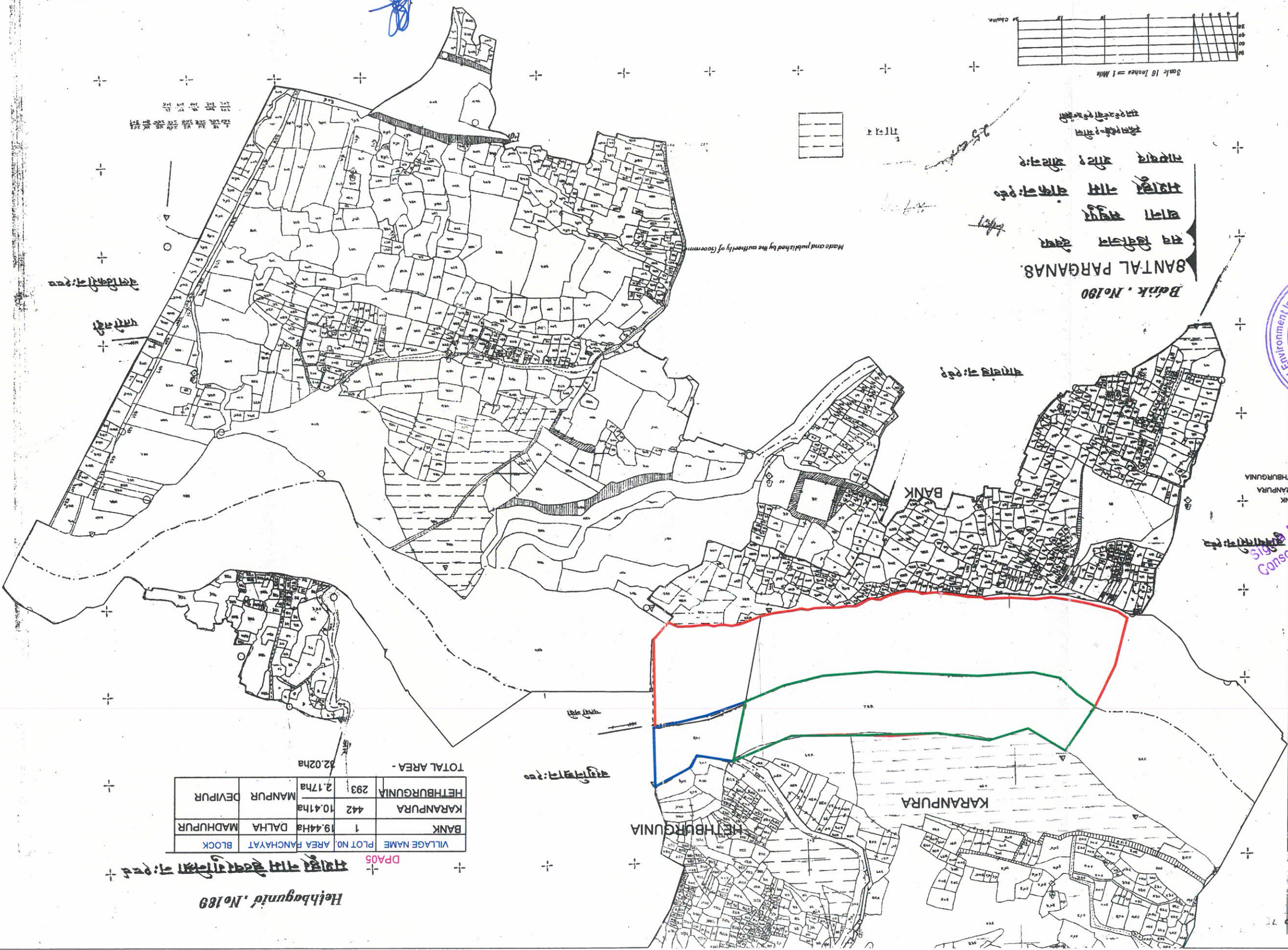
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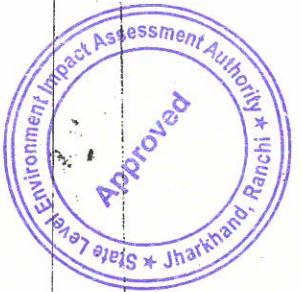
DPA05

VILLAGE NAME	PLOT NO	AREA PANCHAYAT	BLOCK
BANK	1	DALHA	MADHUPUR
KARANPURA	442	10.41ha	
HETHBURGUNIA	293	2.17ha	MANPUR DEVIPUR

TOTAL AREA - 32.02ha

Hehbaguniid, No189
 सहायक गाँव विकास योजना का पैट
 सहायक गाँव विकास योजना का पैट

Bank, No189
 SANTAL PARGANAS
 राँची जिला क्षेत्र
 बाँका जिला क्षेत्र
 सहायक गाँव विकास योजना
 सहायक गाँव विकास योजना



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Burhibagicha No 289

SANTAL PARGANAS

सब डिवीजन देवघर

थाना मधुपुर

मशहूर नाम बुढी बगीचान: २८६

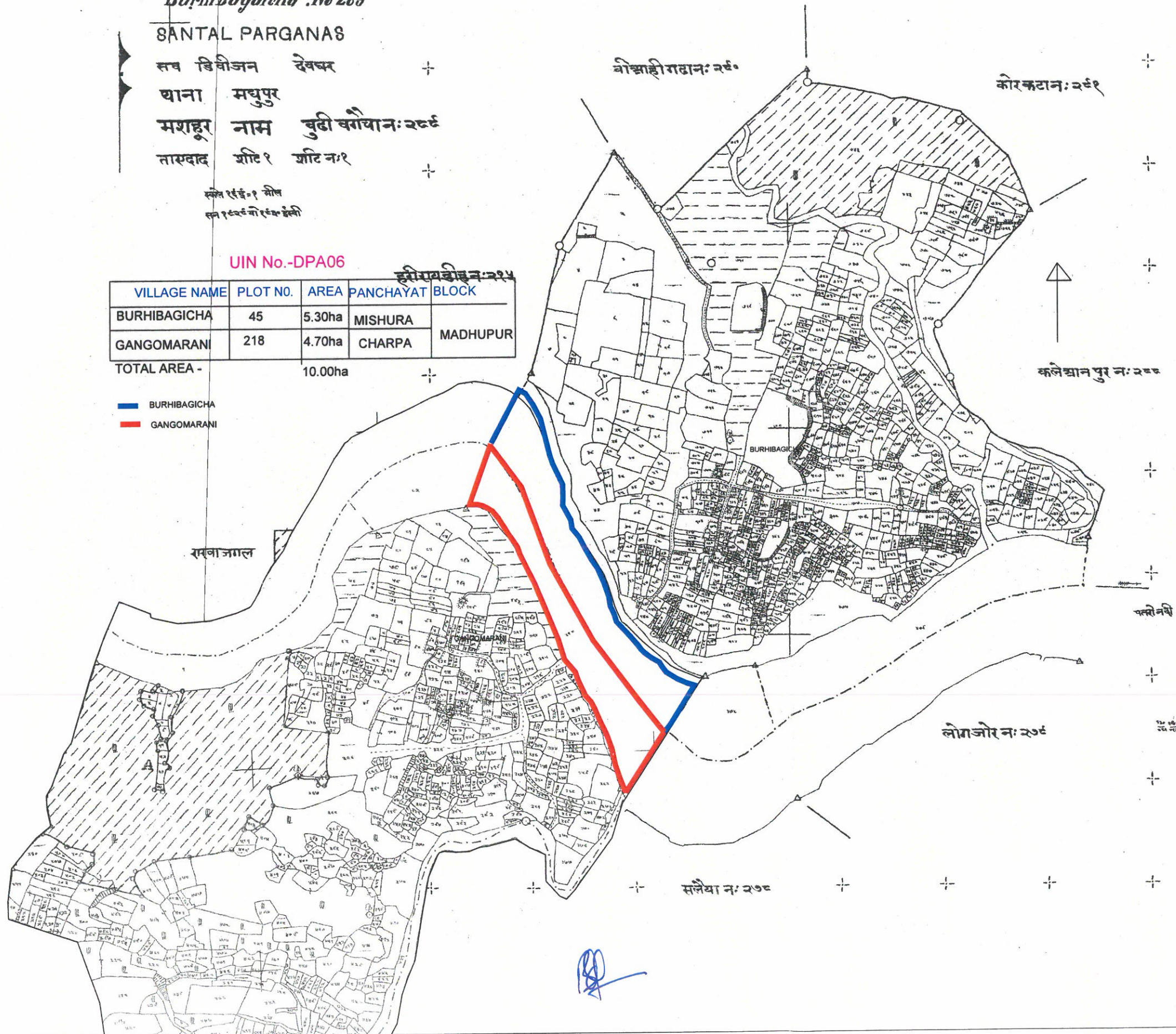
तासदाद शीट १ शीट नं: १

स्केल १ ईंच = १ मील
स्केल १ ईंच = १ ईंच इन्की

UIN No.-DPA06

VILLAGE NAME	PLOT NO.	AREA	PANCHAYAT	BLOCK
BURHIBAGICHA	45	5.30ha	MISHURA	MADHUPUR
GANGOMARANI	218	4.70ha	CHARPA	
TOTAL AREA -		10.00ha		

— BURHIBAGICHA
— GANGOMARANI



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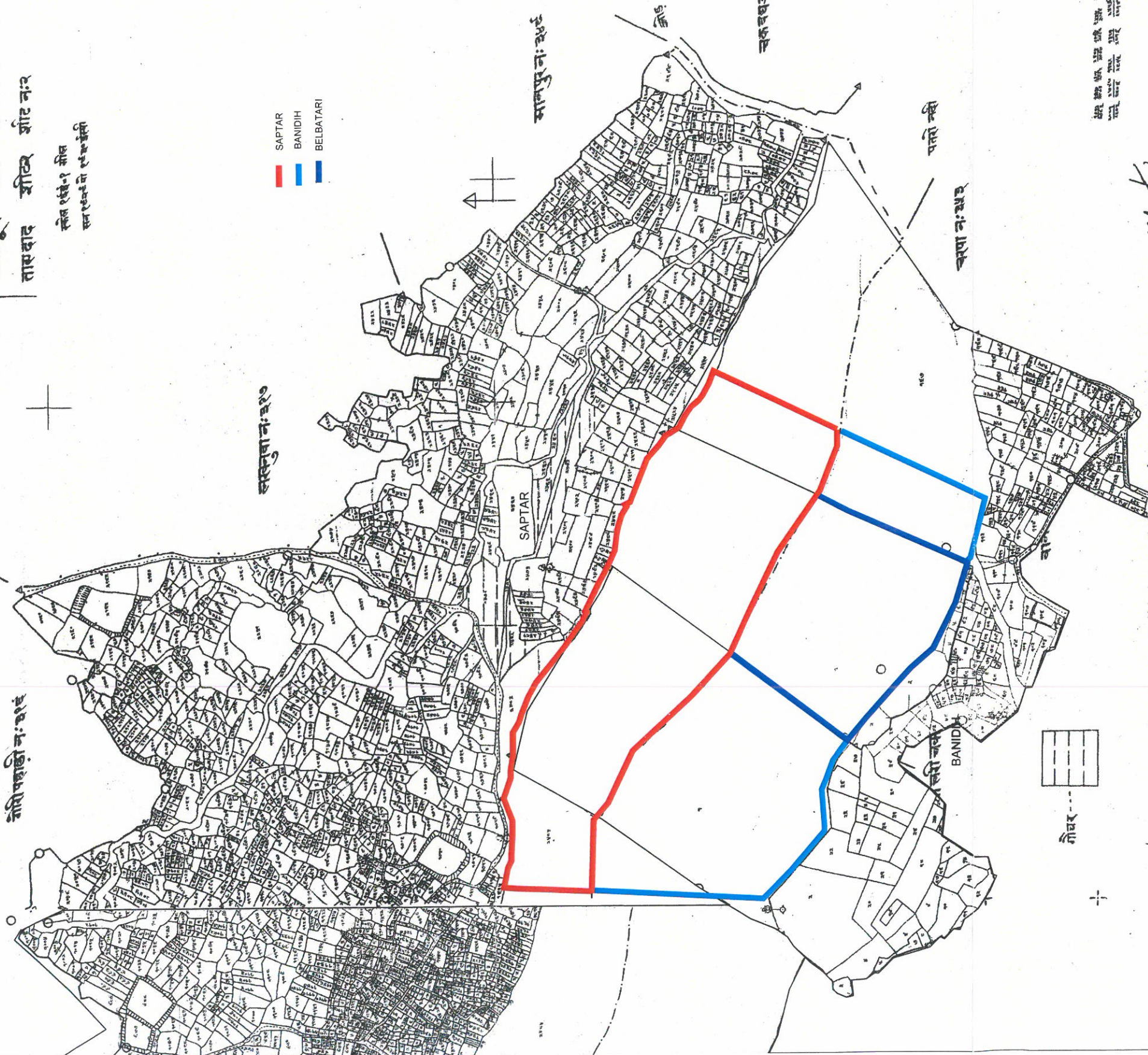
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Santal Parganas.

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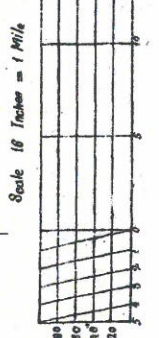
VILLAGE NAME	PLOT NO.	AREA (Ha)	PANCHAYAT	BLOCK
SAPTAR	2484	2.64Ha	SAPTAR	MADHUPUR
	2485	6.0Ha		
	2487	8.75Ha		
	2799	3.20Ha		
BANIADIH	1	13.00Ha	CHAMPA	
BELWATARI	1	10.05Ha		
TOTAL AREA		47.14Ha		

Saptar . No 286
SANTAL PARGANA 8.
 सब डिबीजन देवघर
 थाना मधुपुर
 मशहूर नाम सप्तनः २८६
 तासदाद शीख शीट नः २

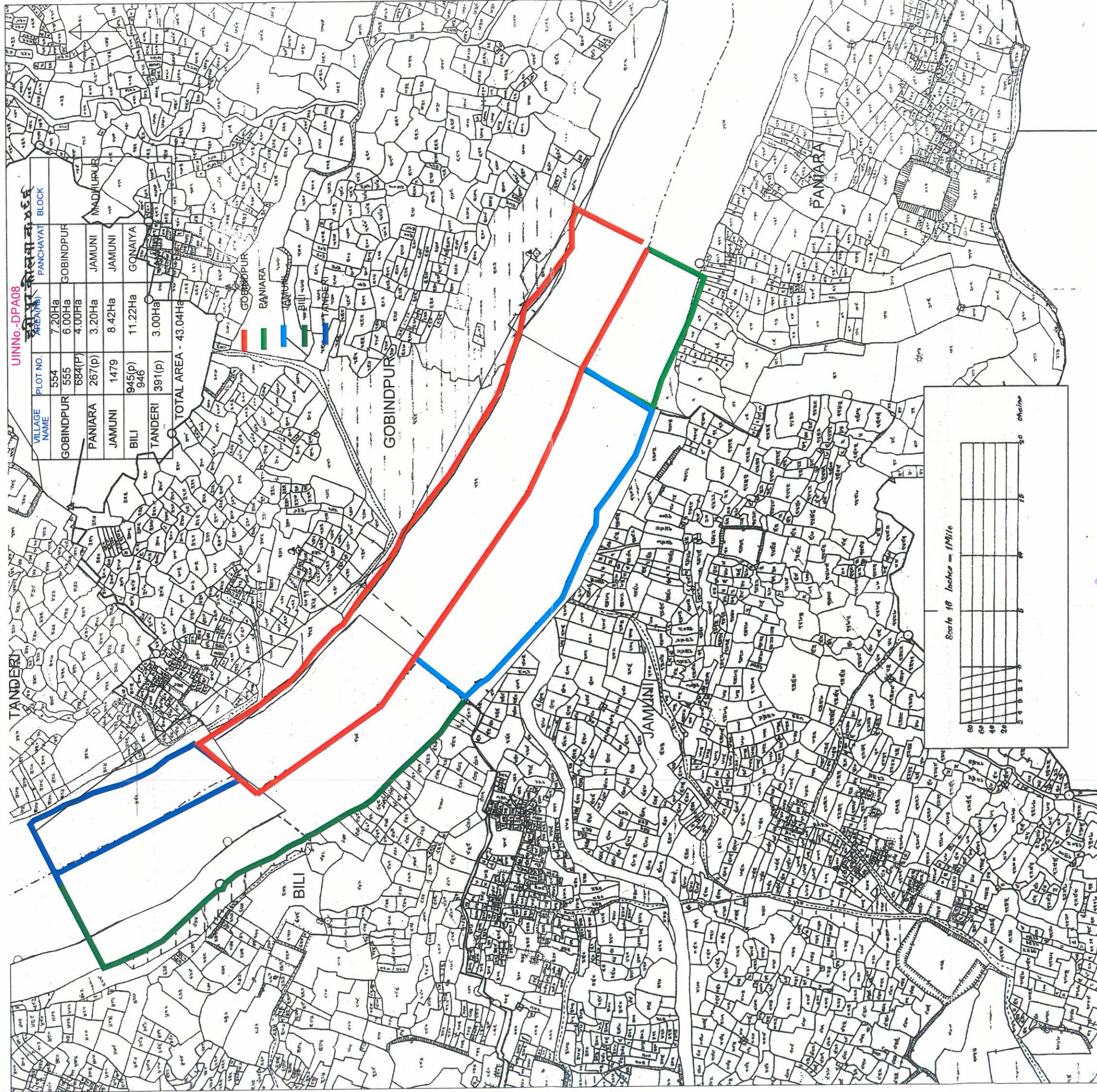
लेवल एंडिंग-१ सील
 सप्तनः २८६ नो. २८६ के सील



P. Prasad
 For Settlement Officer,
 Santal Parganas.
 Sigma R.D. Consultants (P) Ltd.
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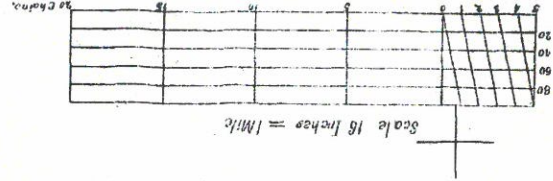
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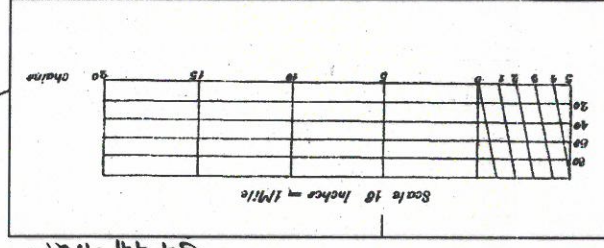
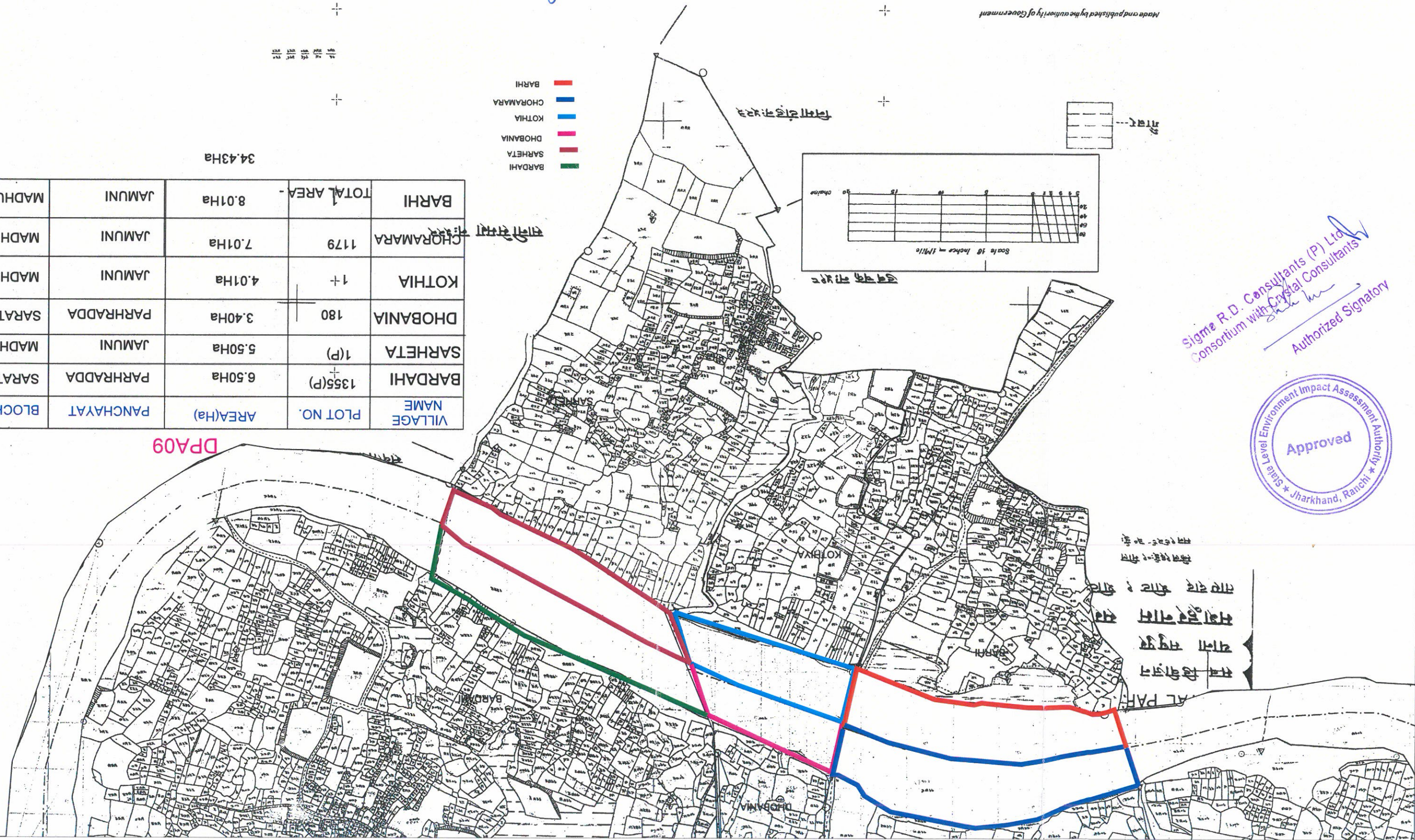
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For Settlement Officer,
Santal Parganas.
[Signature]

- BARDAHI
- SARHETA
- DHOBANIA
- KOTHIA
- CHORAMARA
- BARHI

VILLAGE NAME	PLOT NO.	AREA(ha)	AREA(ha)	BARHI	TOTAL AREA-
BARDAHI	1355(P)	6.50ha			
SARHETA	1(P)	5.50ha			
DHOBANIA	180	3.40ha			
KOTHIA	1+	4.01ha			
CHORAMARA	1179	7.01ha			
BARHI		8.01ha			
			34.43ha		

DPA09



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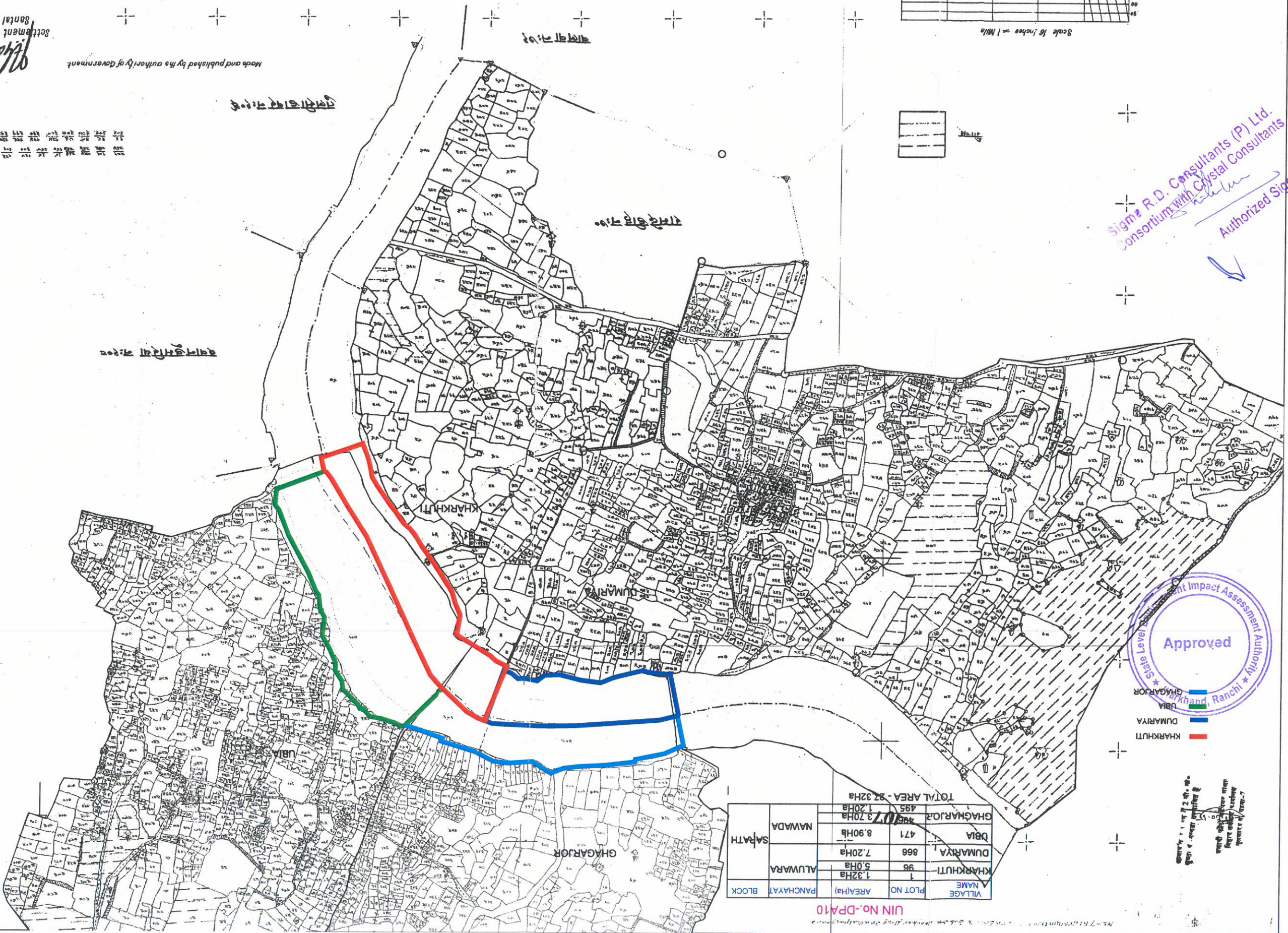
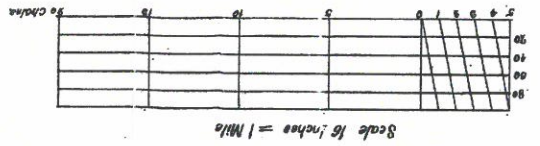


सब विद्यमान
बाजा सर्व सुर
सबो उद बाजा
साए दार बाजा
सिवा सिवा-1 बाजा
साए 1532-1 बाजा

Settlement Officer,
Santal Parganas.

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VILLAGE NAME	PLOT NO.	AREA(ha)	PANCHAYAT	BLOCK
KHARKHUTI	96	1.32Ha	ALWARA	
DUMARIYA	866	7.20Ha		
DBIA	471	8.90Ha		
GHAGARJOR	495	1.20Ha		
TOTAL AREA - 21.32Ha				

UIN No.-DP/10

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Map No. 72, Gangti, Santal Parganas, Jharkhand, India

Gangti . No 72

SANTAL PARGANAS.

सब डिवीजन देवघर

DPA11

थाना सारठ

मशहूर नाम गंगती नो. ७२

तारदाद शीट १ शीट नं. १

कैब १६ ई. १२ मील
सब १६ ई. २२ ई.

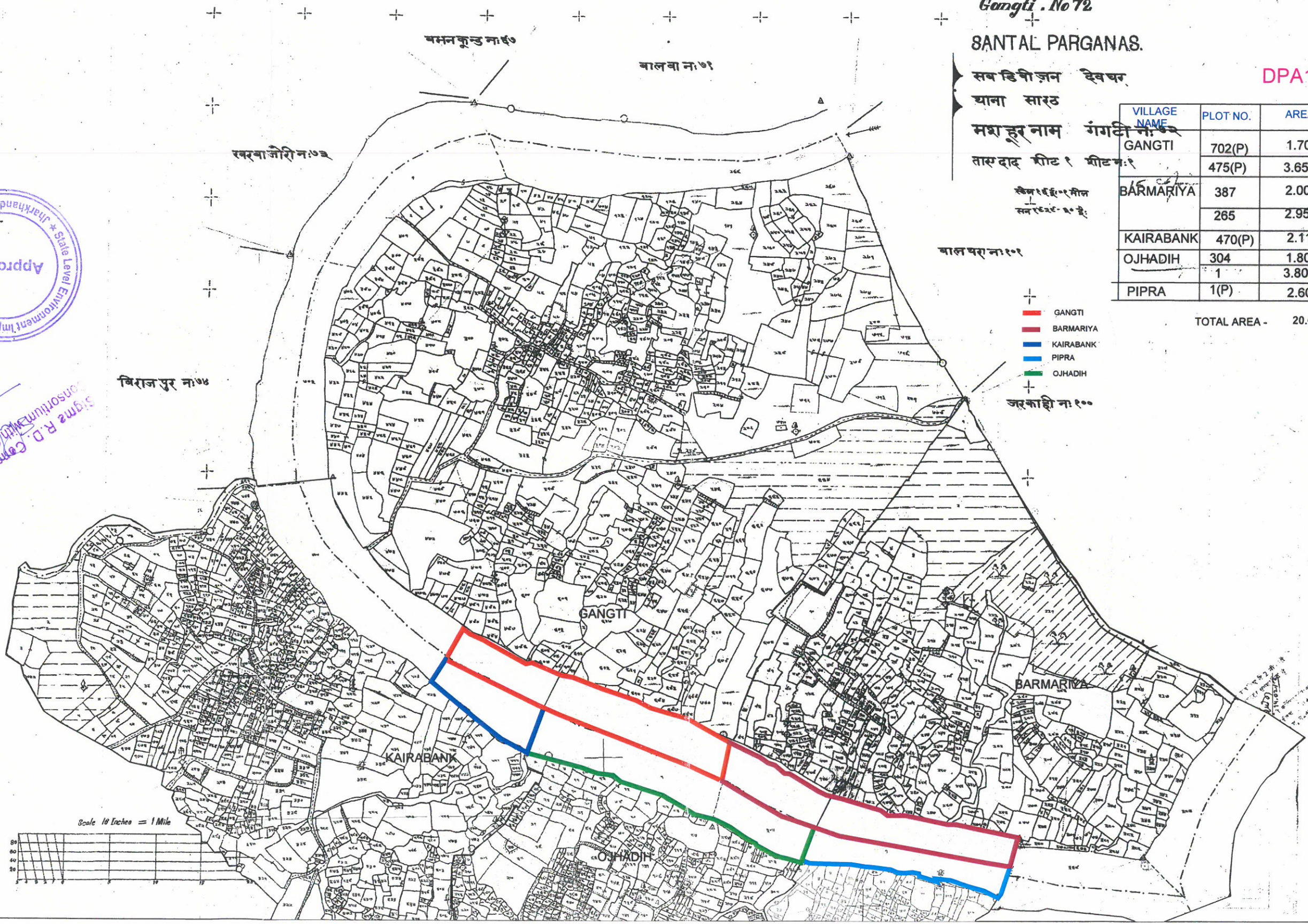
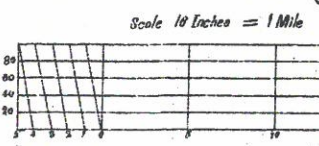
VILLAGE NAME	PLOT NO.	AREA(Ha)	PANCHAYAT	BLOCK
GANGTI	702(P)	1.70Ha	ARAJORI	SARATH
	475(P)	3.65Ha		
BARMARIYA	387	2.00Ha	KAIRABANK	
	265	2.95Ha		
KAIRABANK	470(P)	2.11Ha	KAIRABANK	
OJHADIH	304	1.80Ha		
	1	3.80Ha		
PIPRA	1(P)	2.60Ha		

TOTAL AREA - 20.61Ha

- GANGTI
- BARMARIYA
- KAIRABANK
- PIPRA
- OJHADIH



Authorized Signatory
Sigm R. D. Consultants (P) Ltd.
Ranchi, Jharkhand, India



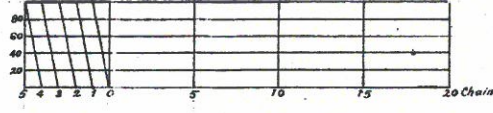
Handwritten signature or initials.

Chhotā Nokhil. No158-138
SANTAL PARGANAS.

सबडिवीजन देवघर
थाना देवघर
मशहूरनाम नोखिल
कोटा नः १५८-१३८
तास्दाद शीट १ शीट नः १

विस्तार १६ ई. २५ मील
सम १६३८-२६ ई.

Scale 1/8 Inch = 1 Mile



सिंगजोरिनः १०८

Nokhilchhit. No138

मशहूरनाम नोखिलकोटा नः १३८

वरिया नः १३५

समर डोहनः १५६

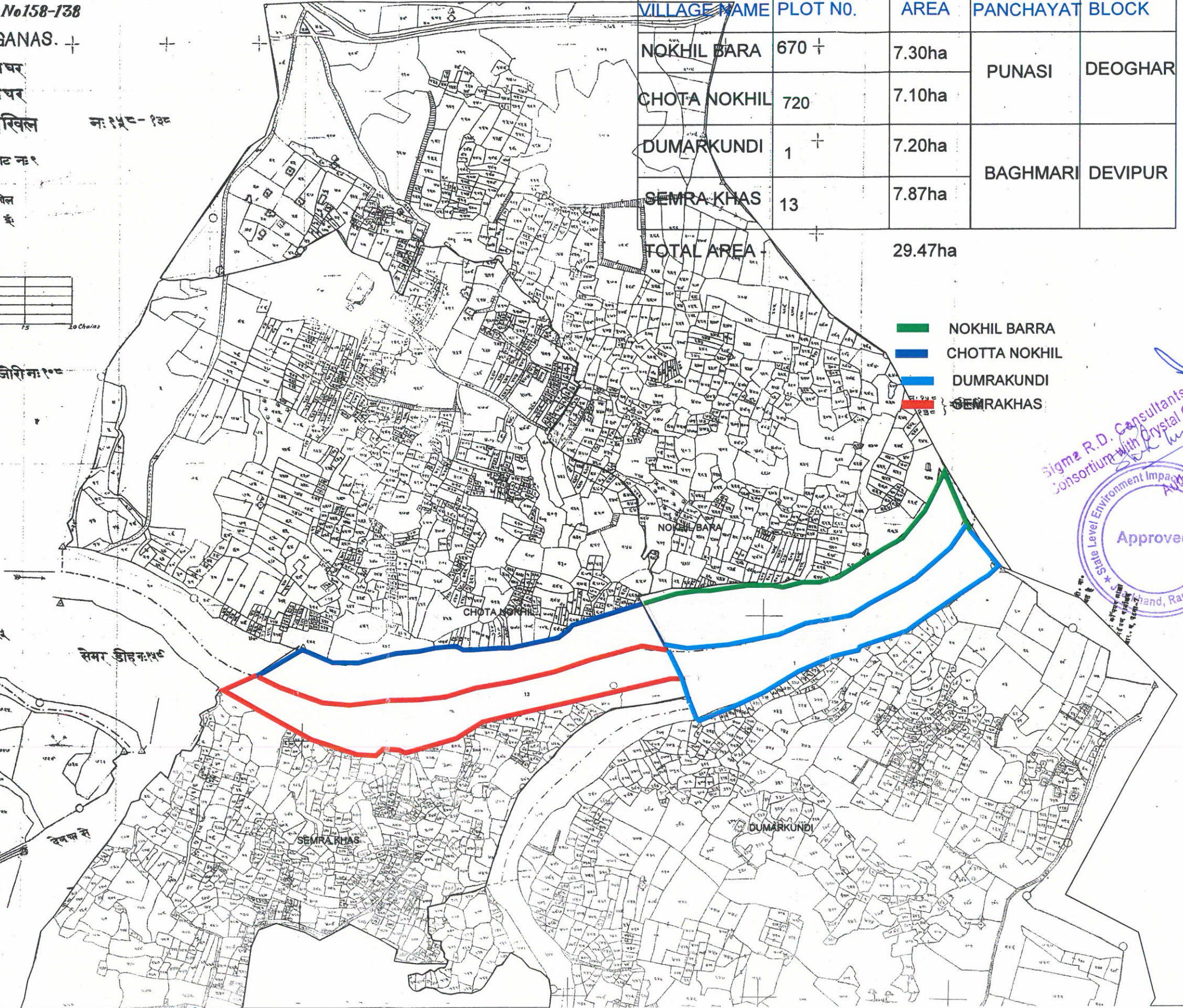
नोखिल बडानः १३७

बकाई नः

VILLAGE NAME	PLOT NO.	AREA	PANCHAYAT	BLOCK
NOKHIL BARRA	670 †	7.30ha	PUNASI	DEOGHAR
CHOTA NOKHIL	720	7.10ha		
DUMARKUNDI	1 †	7.20ha	BAGHMARI	DEVIPUR
SEMRA-KHAS	13	7.87ha		

TOTAL AREA 29.47ha

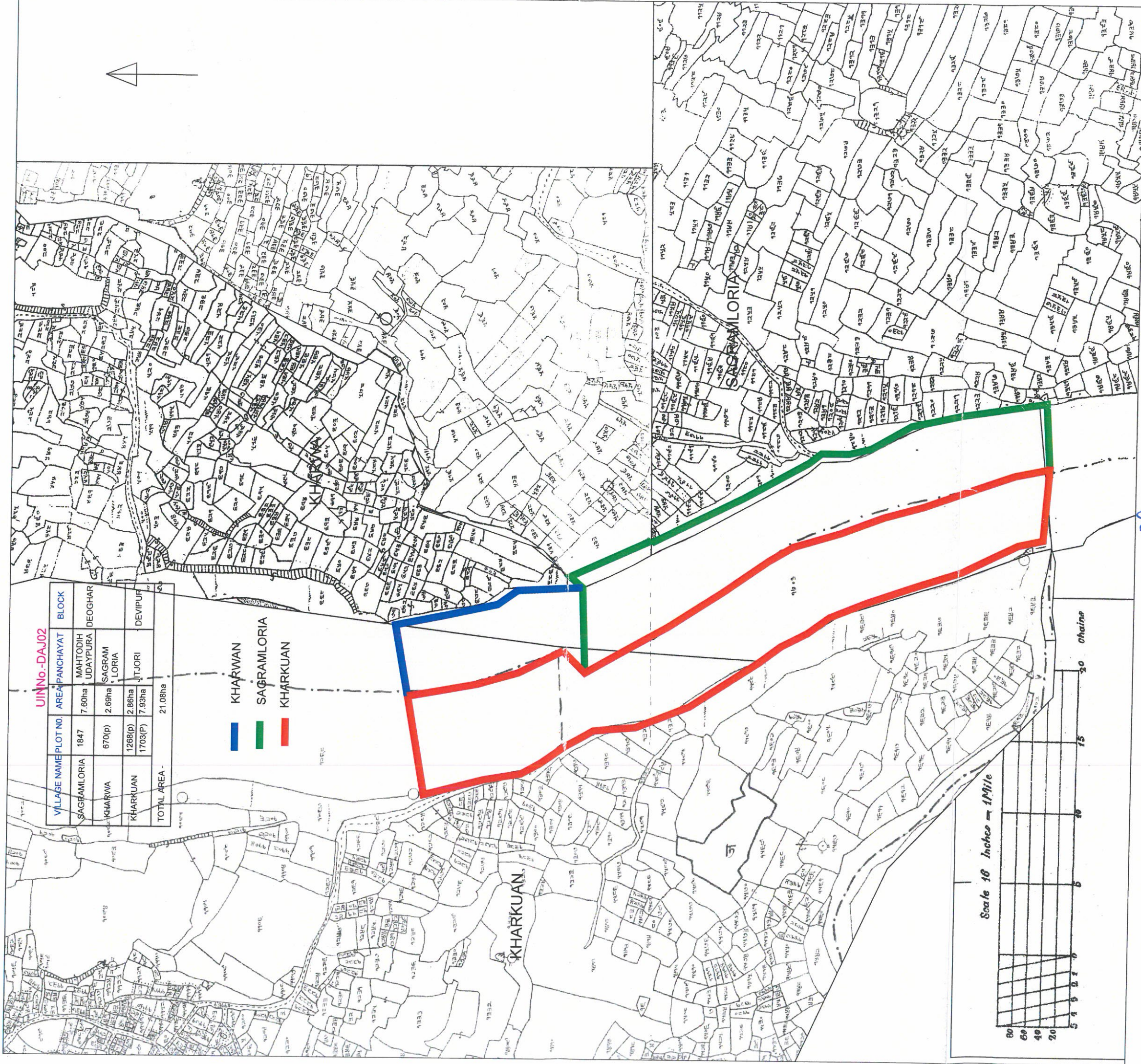
- █ NOKHIL BARRA
- █ CHOTTA NOKHIL
- █ DUMARKUNDI
- █ SEMRAKHAS



Sigma R.D. Consultants (P) Ltd.
Jointsortium with Crystal Consultants



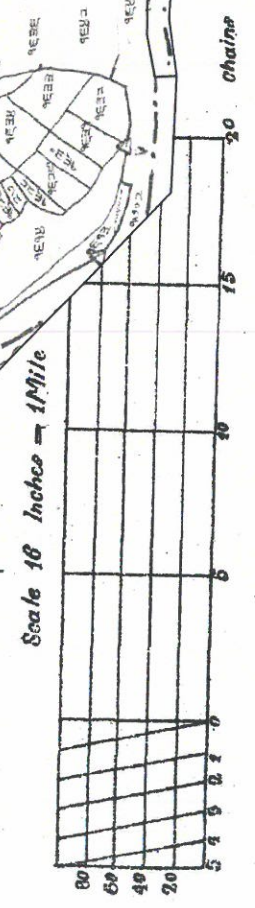
(Handwritten signature)



UIN No. - DAJ02

VILLAGE NAME	PLOT NO.	AREA	PANCHAYAT	BLOCK
SAGRAMLORIA	1847	7.60ha	MAHTODIH UDAYPURA	DEOGHAR
KHARWA	670(p)	2.69ha	SAGRAM LORIA	
KHARKUAN	1268(p) 1703(P)	2.86ha 7.93ha	JTJORI	DEVIPUR
TOTAL AREA -				21.08ha

- █ KHARWAN
- █ SAGRAMLORIA
- █ KHARKUAN





Sigmaz R.D. Consultants (P) Ltd.
 Consortium with Crystal Consultants
 Authorized Signatory

UJINNo.-DAJ03

VILLAGE NAME	PLOT NO.	AREA	PANCHAYAT	BLOCK
KUSMIL	821(P)	20.95ha	MAHTODIH UDAYPURA	DEOGHAR
SIMRA	1604(P)	4.73ha	KHASPAIKA	

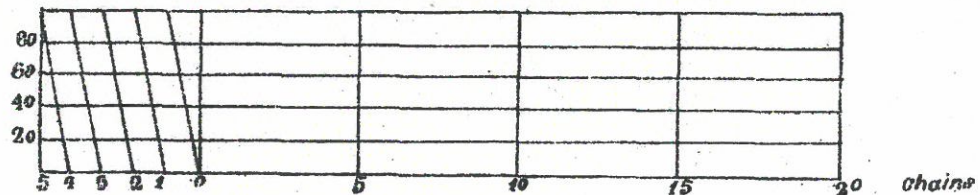
TOTAL AREA - 25.68ha

■ SIMRA
■ KUSMIL

Sigma R.D. Consultants Pvt. Ltd.
Consortium with Crystal Consultants
Authorized Signatory



Scale 16 Inches = 1 Mile

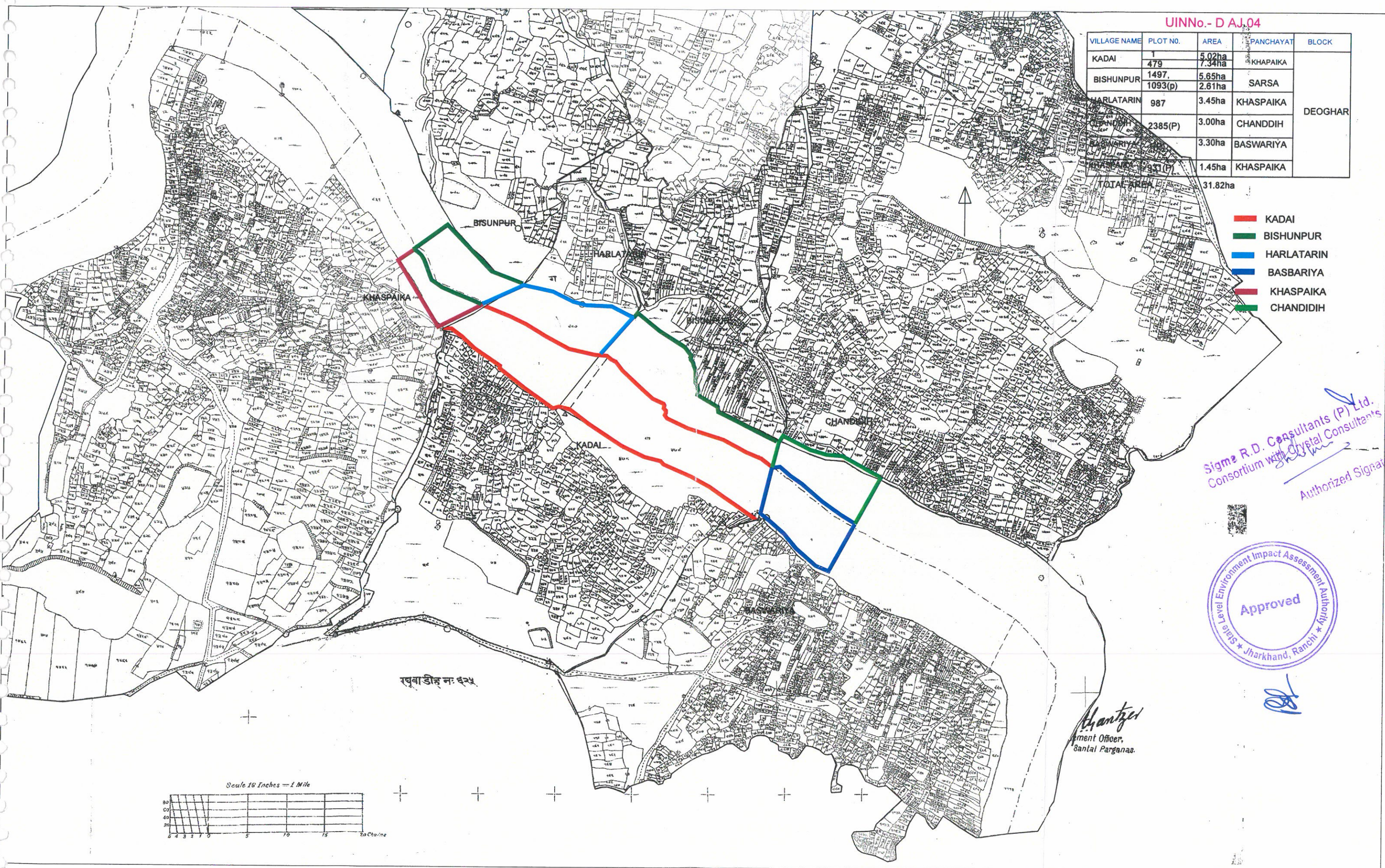


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UINNo.- D AJ.04

VILLAGE NAME	PLOT NO.	AREA	PANCHAYAT	BLOCK
KADAI	1	5.02ha	KHAPAIKA	DEOGHAR
	479	7.34ha		
BISHUNPUR	1497.	5.65ha	SARSA	
	1093(p)	2.61ha		
HARLATARIN	987	3.45ha	KHASPAIKA	
CHANDDIH	2385(P)	3.00ha	CHANDDIH	
BASWARIYA		3.30ha	BASWARIYA	
KHASPAIKA	231(P)	1.45ha	KHASPAIKA	
TOTAL AREA		31.82ha		

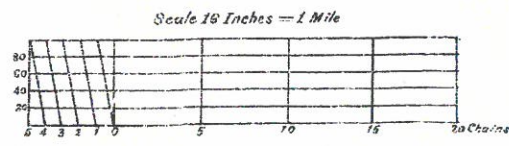
- █ KADAI
- █ BISHUNPUR
- █ HARLATARIN
- █ BASWARIYA
- █ KHASPAIKA
- █ CHANDDIH



Sigma R.D. Consultants (P) Ltd.
 Consortium with Crystal Consultants
[Signature]
 Authorized Signatory



[Signature]
 Development Officer,
 Santal Parganas.



सुवाडीह नः ६२५

Kelaniya. No 119

SANTAL PARGANAS

सय विवाजन देवघर

घाना सरवां

मशहूर नाम केलनियान: ११८

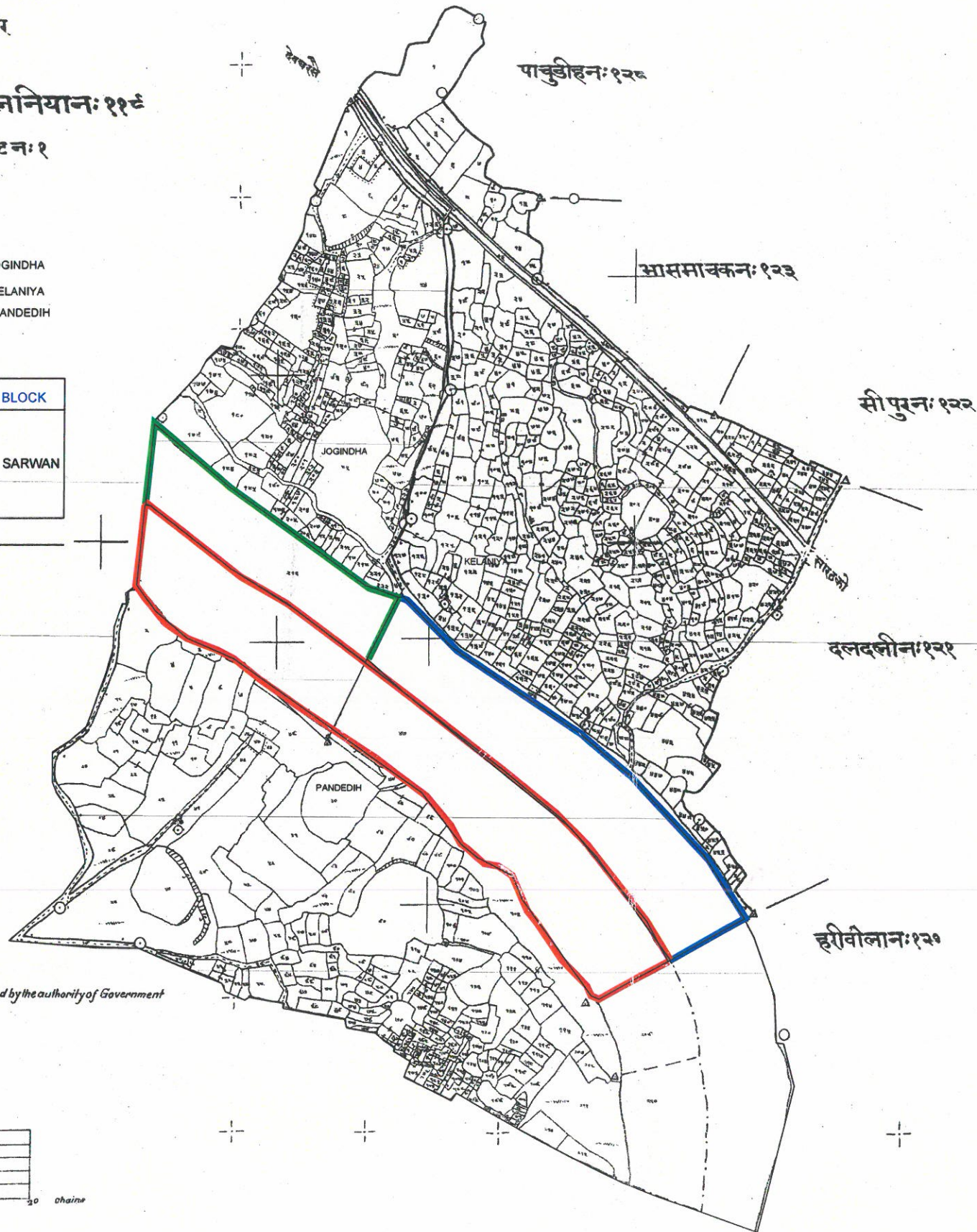
तासदाद शीट १ शीट न: १

स्केल १ इंच = १ मील
सन १९२० - १९२८ ईस्वी

- JOGINDHA
- KELANIYA
- PANDEDIH

UIN No.-DAJ05

VILLAGE NAME	PLOT NO.	AREA	PANCHAYAT	BLOCK
JOGINDHA	216	4.0ha	BHANDAR	SARWAN
KELANIYA	1011(P)	7.50ha		
PANDEDIH	458	12.07ha		
TOTAL AREA -		23.57 ha		



Made and published by the authority of Government

Scale 18 Inches = 1 Mile



Signature
 Sigma R.D. Consultants (P) Ltd.
 Consortium with Crystal Consultants
 Authorized Signatory

Signature
 For Settlement Officer,
 Santal Parganas.

02/04/20
 1-14-20-1
 14/11-14/14
 14/11-14/14

Map No. 146

SANTAL PARGANAS.

सब डिवीजन देवघर
 थाना - सरावा

मशहूर नाम विल्लीडहन: १४५

तासदादरी: १ शीट नं: १

स्केम: १/१६: १: सीम
 सन: १९६०-१९६५

खीबोलान: १२०

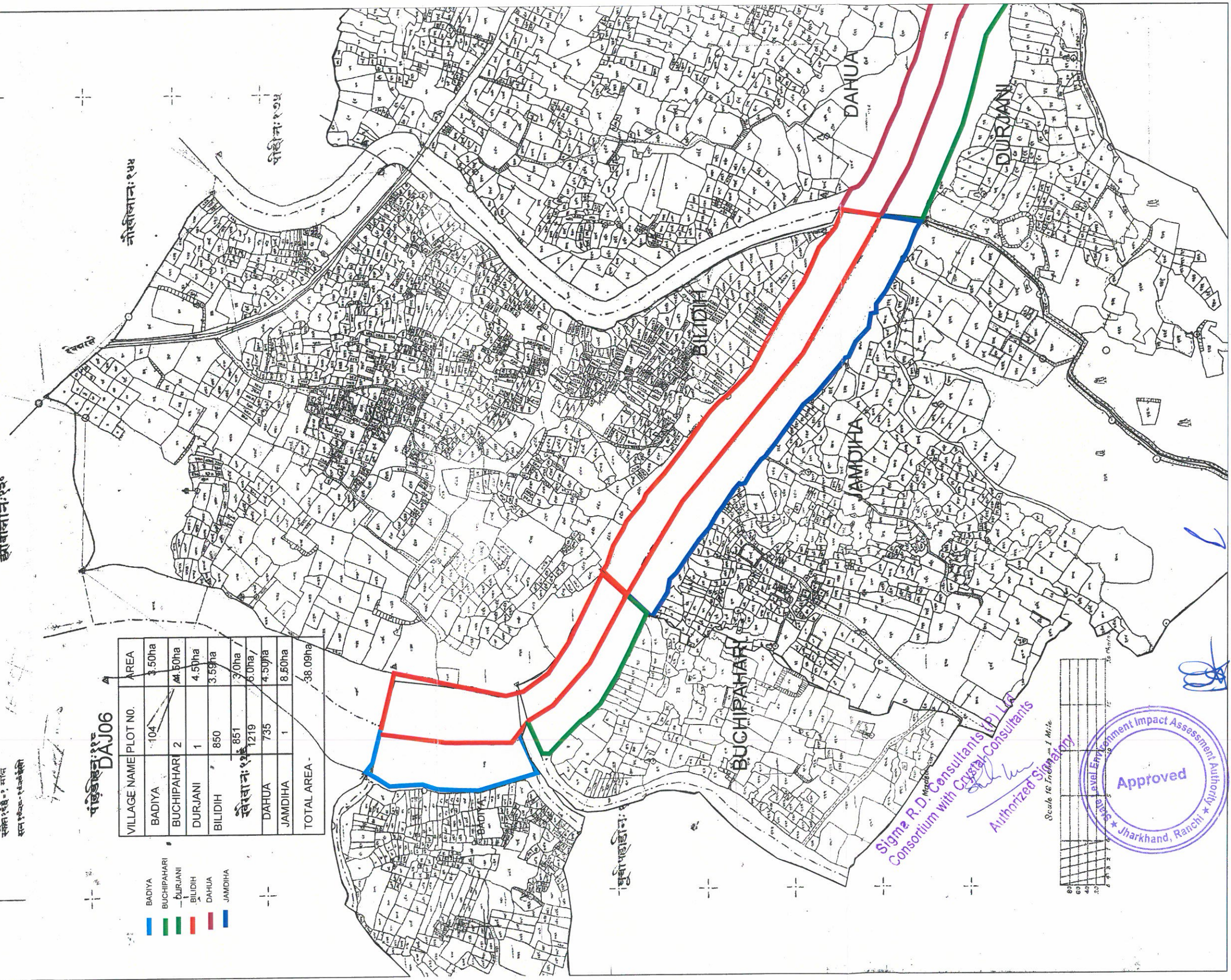
नीबोलान: १५५

दीबोलान: १७५

विल्लीडहन: १४५
 DAJ06

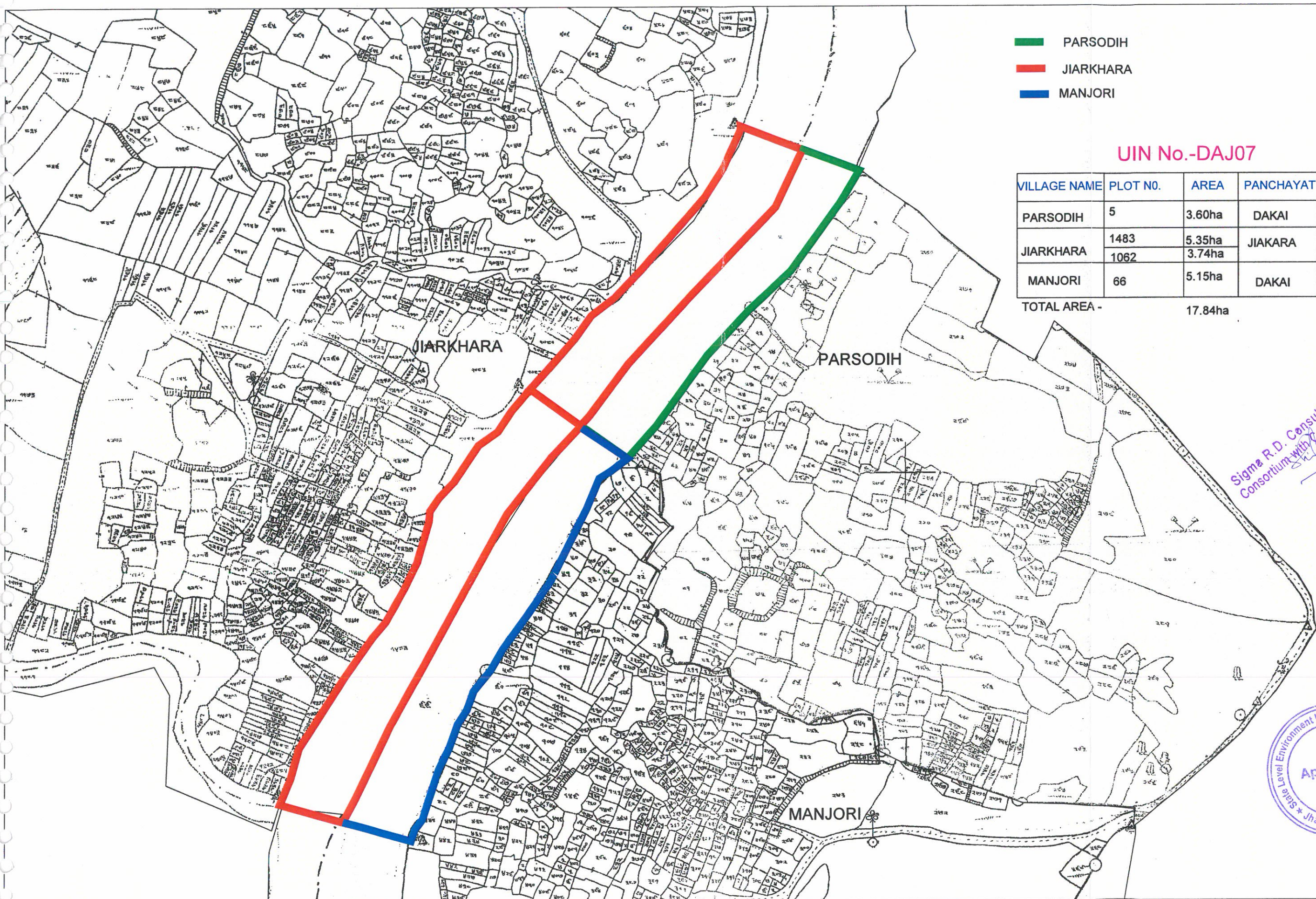
VILLAGE NAME	PLOT NO.	AREA
BADIYA	104	3.50ha
BUCHIPAHARI	2	44.50ha
DURJANI	1	4.50ha
BILIDIH	850	3.55ha
खीबोलान: १२०	851	3.0ha /
	1219	6.0ha /
DAHUA	735	4.50ha
JAMDIHA	1	8.50ha
TOTAL AREA		38.09ha

- BUCHIPAHARI
- DURJANI
- BILIDIH
- DAHUA
- JAMDIHA



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 Consortium with Crystal Consultants
 Authorized Signatory





UIN No.-DAJ07

VILLAGE NAME	PLOT NO.	AREA	PANCHAYAT	BLOCK
PARSODIH	5	3.60ha	DAKAI	SARWAN
JIARKHARA	1483	5.35ha	JIAKARA	
	1062	3.74ha		
MANJORI	66	5.15ha	DAKAI	

TOTAL AREA - 17.84ha

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 Consortium with Crystal Consultants
 Authorized Signatory



Charakmara No 144

SANTAL PARGANAS.

व डिडीजन देवघर

MAHAPUR

MAHDEWA

भारान: १४४

भुसुदिवान: १४२

CHHARA

CHARAKMARA

रानावाचन: १४१

DAMARKURI

विपान: २२५

पारवादन: २२४

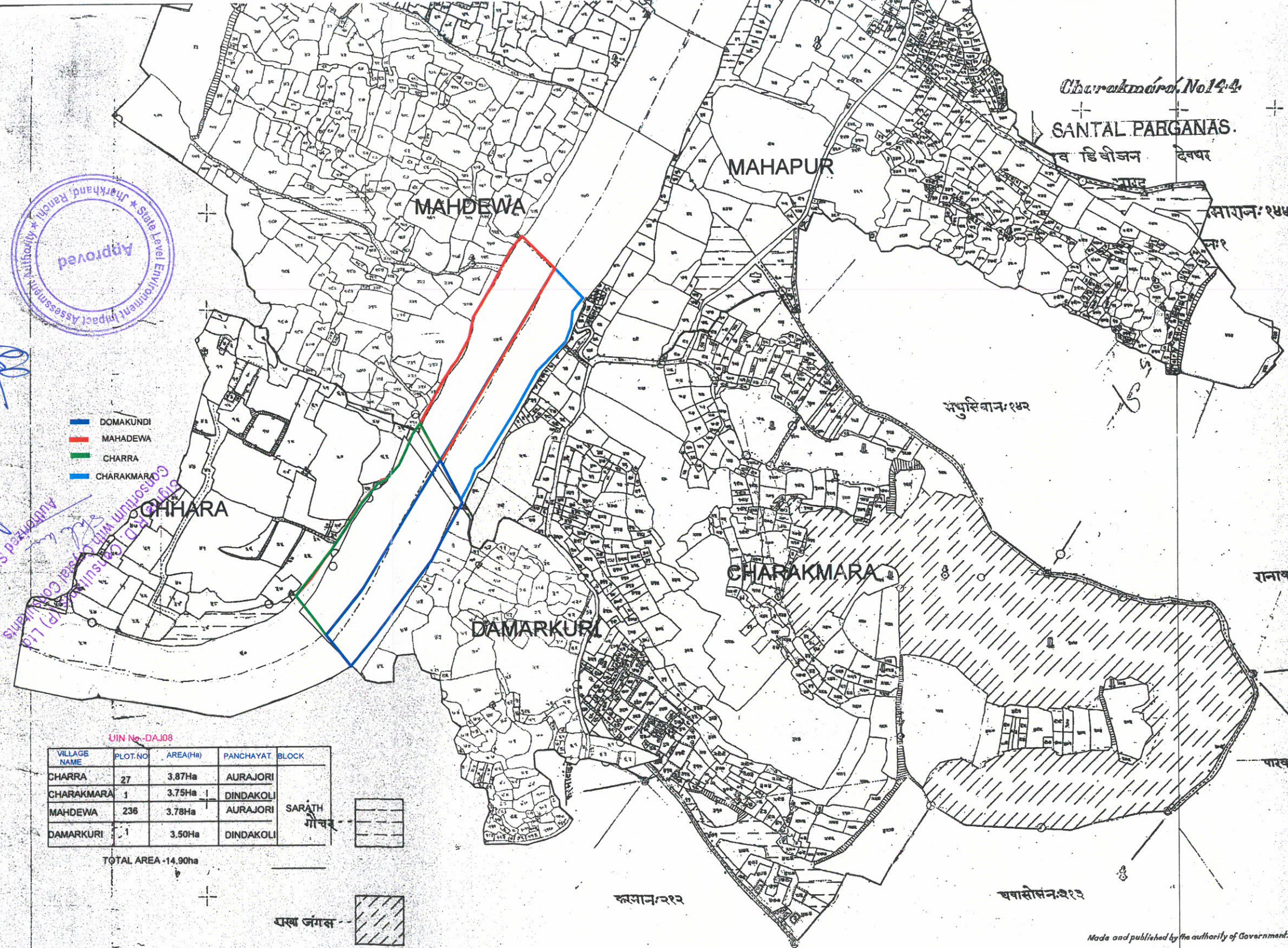
रुसान: २२२

यवासोसन: २२३

जमा प्रति मासिक में दो भी० भी०
मुद्रता व निम्नता सम्पादित है
[Signature]
प्रचारी फोटो अतिरिक्त प्रकाश
न्योक्त कार्यालय, टीकी-१
देवघर

[Signature]
Settlement Officer,
Santal Parganas

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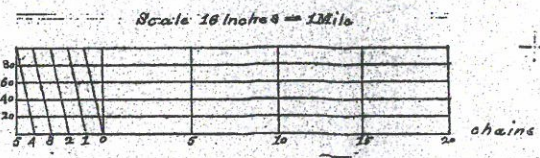
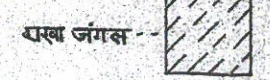
Authorized Signatory
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Consortium with Central Govt. (P) Ltd

- DOMAKUNDI
- MAHADEWA
- CHARRA
- CHARAKMARA

UIN No - DAJ08

VILLAGE NAME	PLOT NO	AREA (Ha)	PANCHAYAT	BLOCK
CHARRA	27	3.87Ha	AURAJORI	SARATH गौचर
CHARAKMARA	1	3.75Ha	DINDAKOLI	
MAHDEWA	236	3.78Ha	AURAJORI	
DAMARKURI	1	3.50Ha	DINDAKOLI	

TOTAL AREA - 14.90ha



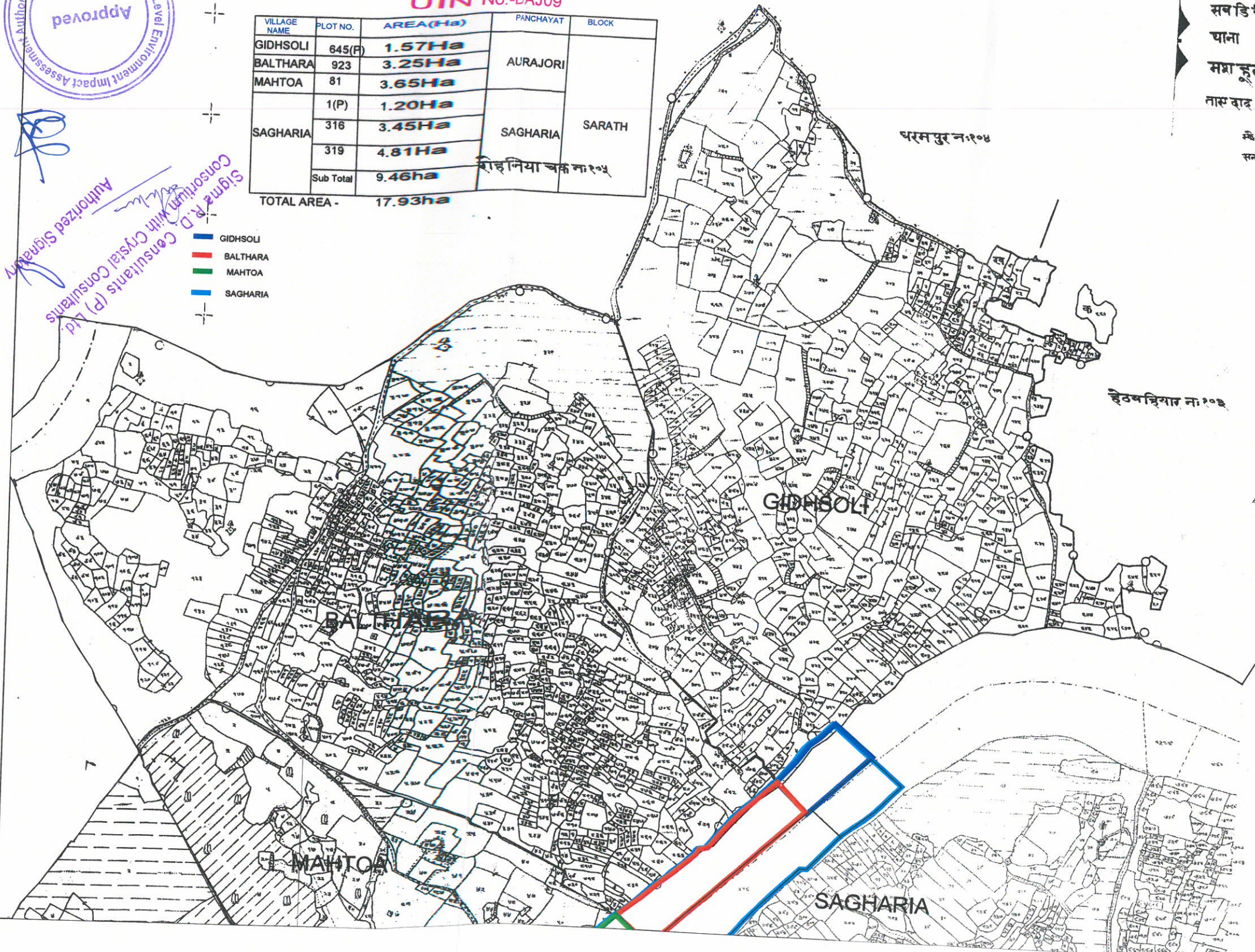


Authorized Signatory
 Sigm & P. D. Consultants (P) Ltd.
 Authorized Signatory
 Sigm & P. D. Consultants (P) Ltd.

UIN No.-DAJ09

VILLAGE NAME	PLOT NO.	AREA (Ha)	PANCHAYAT	BLOCK
GIDHSOLI	645(P)	1.57Ha	AURAJORI	SARATH
BALTHARA	923	3.25Ha		
MAHTOA	81	3.65Ha		
SAGHARIA	1(P)	1.20Ha	SAGHARIA	
	316	3.45Ha		
	319	4.81Ha		
Sub Total		9.46ha	राहिनिया चक नः १०५	
TOTAL AREA -		17.93ha		

- GIDHSOLI
- BALTHARA
- MAHTOA
- SAGHARIA



Gidhsoli No102

SANTAL PARGANAS

सब डिवीजन क्षेत्र
 याना सारठ
 मश हूर नाम निधसोली नः १०२
 ताम वाद गीट १ बिलकः

मैल १६:३०-२०मील
 सन १९२६-२० ई

नोट
 क बिट आराजी अन्वर मौला हेठ बन्धियार नः १०३
 य मीना

हेठ बन्धियार नः १०३

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Chantzer
 Settlement Officer,
 Santal Parganas.

सं. १०३
 १९२६-२० ई

Sugapahari No.440

SANTAL PARGANAS.

सब डिवीजन देवघर

याना सधुज

सडाहर नाम सुगापहाडी नं. ४४०

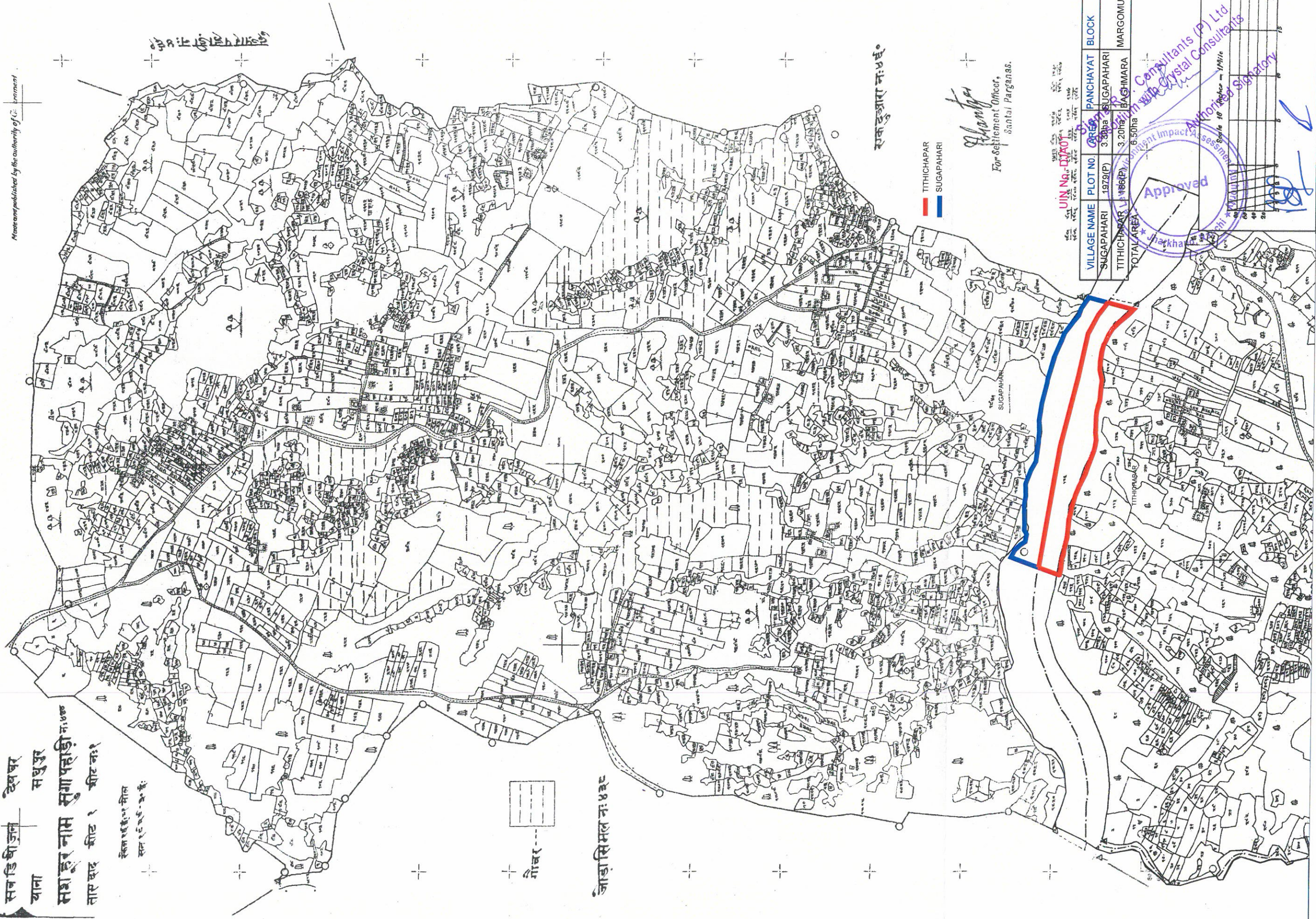
ताएकद शीट १ शीट नं. १

स्का १:६०,००० मील

स्का १:६०,००० - ३० मी.

राजदशा नं. ३००

Map compiled by the authority of Government



गौबर

जाडासिमल नं. ४३८

रकडुआरा नं. ४६०

TITHICHAPAR
SUGAPAHARI

Shant
For Settlement Officer,
Santal Parganas.

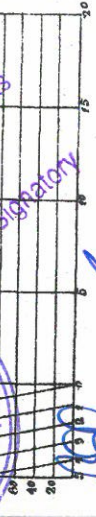
UIN No. 01700

VILLAGE NAME	AREA	PANCHAYAT	BLOCK
SUGAPAHARI	3.30ha	SUGAPAHARI	MARGOMUNDA
TITHICHAPAR	3.20ha	BAGHMARA	
TOTAL AREA	6.50ha		

Approved

Environmental Impact Assessment
Consultants (P) Ltd
with Crystal Consultants

Scale 1:60,000



chain



Duarpahari, No 461

SANTAL PARGANAS

सब डिवीजन देवघर
 थाना मधुपुर
 मशहूर नाम दुआरपहाड़ी नः ४६१
 तासदाद शीट १ शीट नः १

स्केल १ ई.डी. = १ मील
 सन १९२९-३० ई.

राजदहा नः ३८०

नवकाचीउटिया नः ४६२

गीट नः
 UIN No. EDJA02

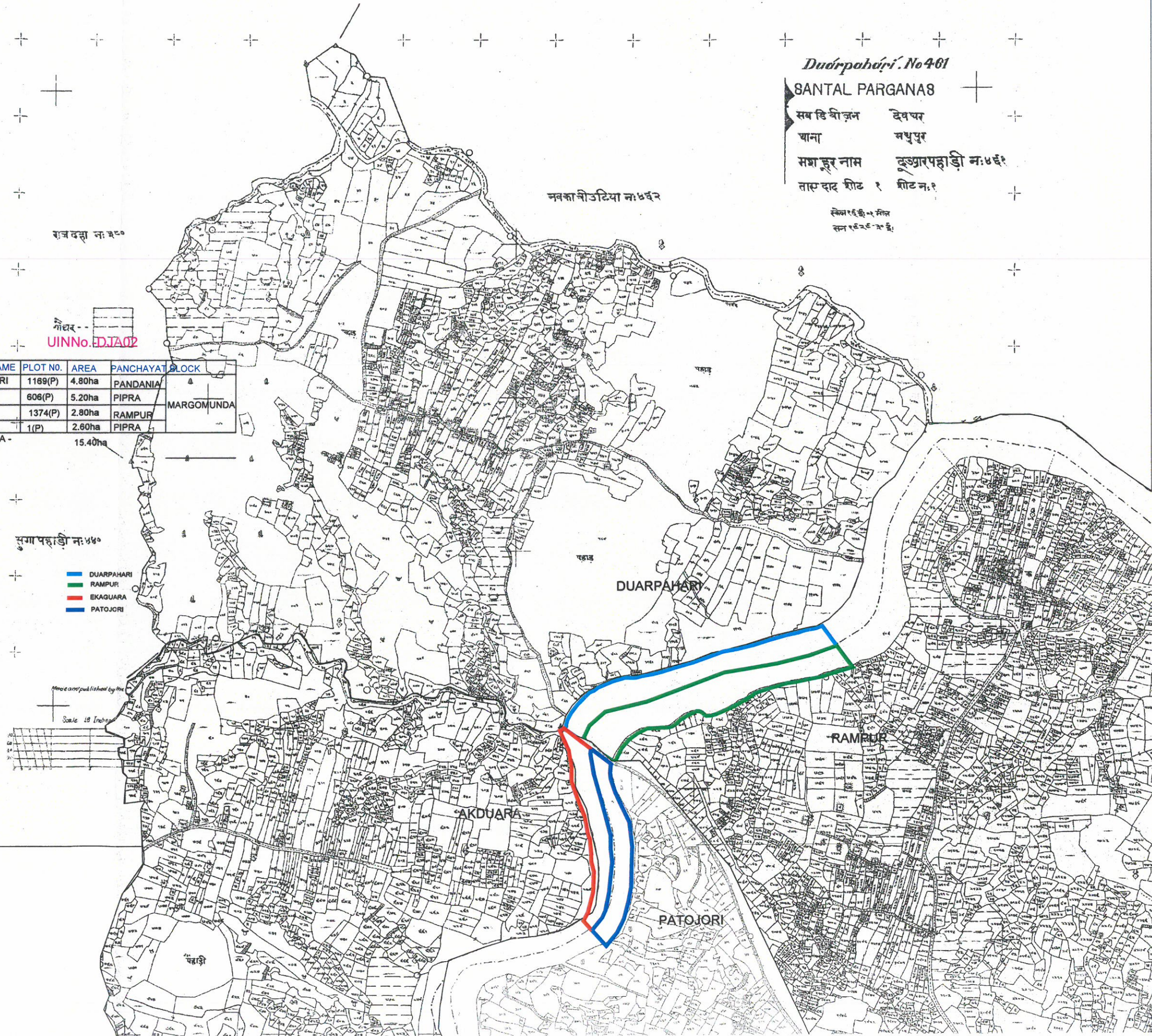
VILLAGE NAME	PLOT NO.	AREA	PANCHAYAT	BLOCK
DUARPAHARI	1169(P)	4.80ha	PANDANIA	MARGOMUNDA
RAMPUR	606(P)	5.20ha	PIPRA	
AKDUARA	1374(P)	2.80ha	RAMPUR	
PATOJORI	1(P)	2.60ha	PIPRA	
TOTAL AREA -		15.40ha		

सुगा पहाड़ी नः ४४०

- █ DUARPAHARI
- █ RAMPUR
- █ EKAGUARA
- █ PATOJORI

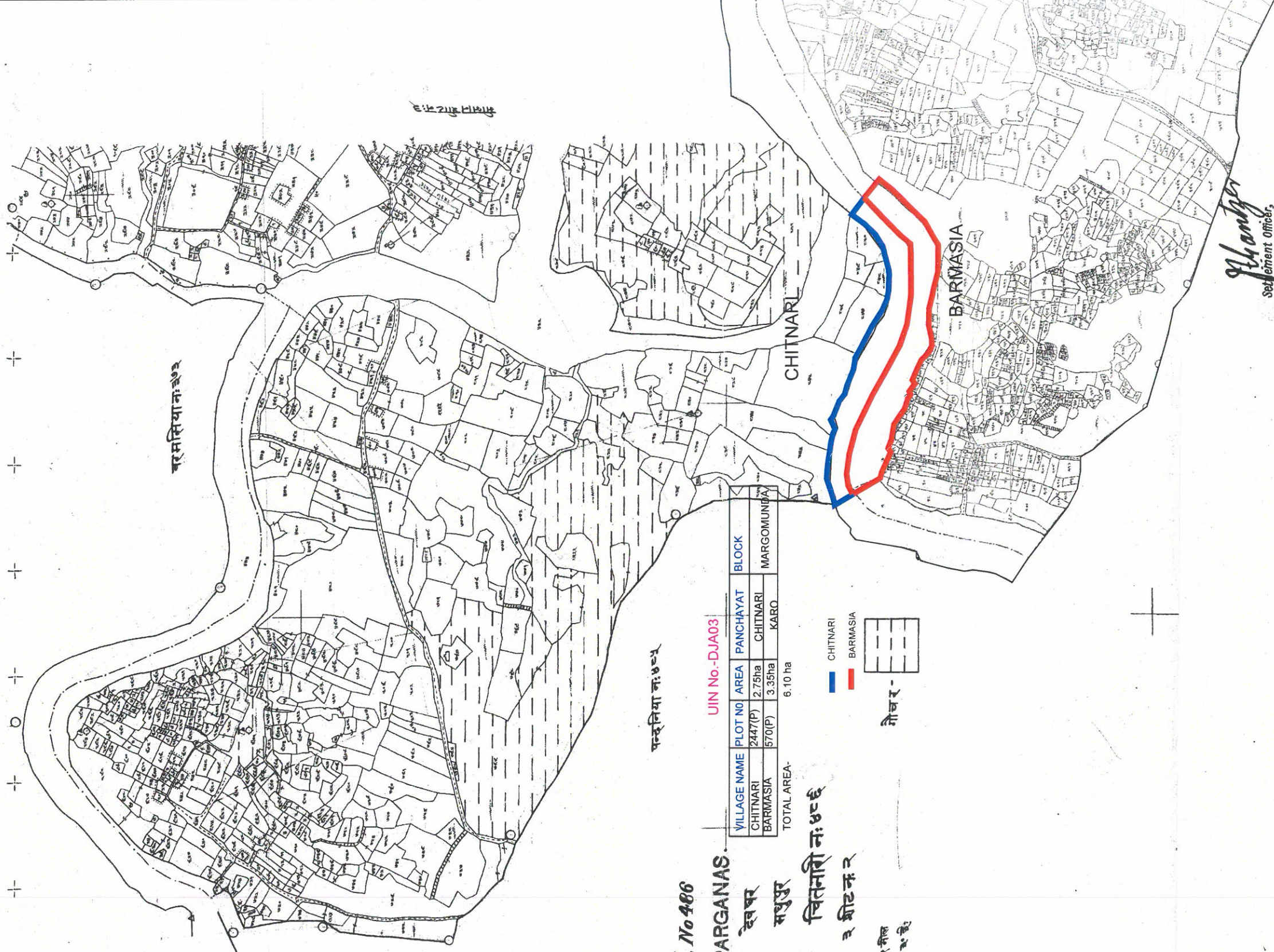
Measure/published by the

Scale 10 inches



सोसायटी ऑफिस

बरमसिया नं: ४७३



पन्डरिया नं: ४८५

Chitnari, No 486
SANTAL PARGANAS

सब डिवीजन देवपर
 थाना मथुरा
 मशहूर नाम चितमरी नं: ४८६
 तारकाद शीट ३ शीट नं २

सैल १६ ई. १ मील
 सन १८८६-८७ ई.

UIN No.-DJA03

VILLAGE NAME	PLOT NO	AREA	PANCHAYAT	BLOCK
CHITNARI	2147(P)	2.75ha	CHITNARI	MARGOMUNDA
BARMASIA	570(P)	3.35ha	KARO	
TOTAL AREA-		6.10 ha		

चौकर -

CHITNARI (Blue line)
 BARMASIA (Red line)

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Shankar
 Settlement Officer,
 Santal Parganas.

Scale 1/8 inches = 1 Mile



Sigma R.D. Consultants (P) Ltd.
 Consortium with Crystal Consultants
Shankar
 Authorized Signatory

Joramo .No 586

SANTAL PARGANAS.

सब डिवीजन देवघर

थाना मधुपुर

मशहूर नाम जोड़ा मो नः ५८६

तासदाद शीट १ शीट नः

स्केल १:६६६६६

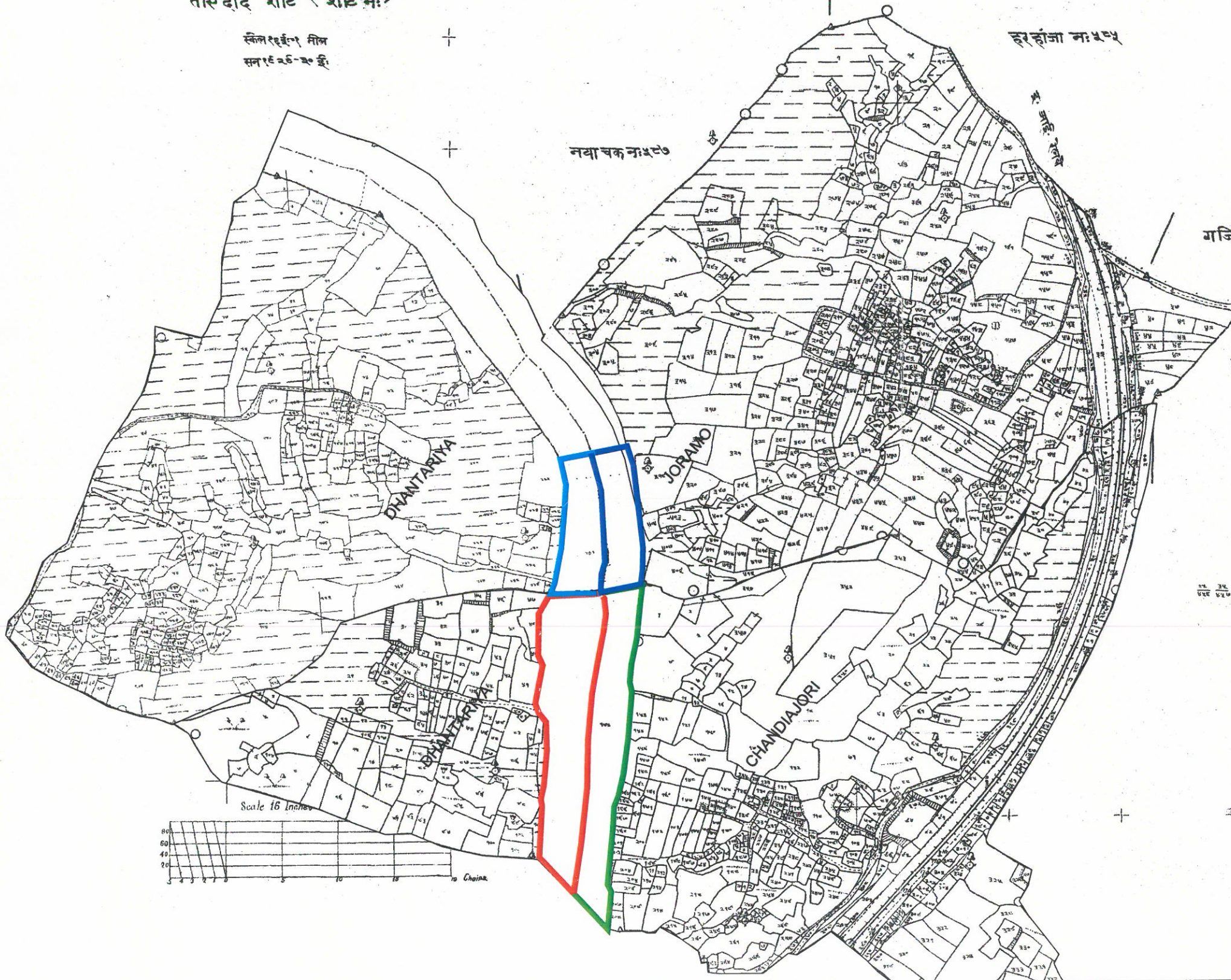
सन १९२६-२७ ई

नया चक नः ५८६

हर हांजा नः ५८५

गजियाडीह नः ५८४

केराकोल नः ५८३



- DHANTARIYA 561
- JORAMO
- DHANTARIYA
- CHANDAJORI

Sigma R.D. Consultants (P) Ltd.
Consortium with Crystal Consultants
Stefan
Authorized Signatory

UIN No.-DJA04

VILLAGE NAME	PLOT NO	AREA	PANCHAYAT	BLOCK
CHANDAJORI	145	3.6ha	KASAIYA	KARON
DHANTARIYA	113	1.8ha		
JORAMO	405(P)	1.8ha	BADIYA	
DHANTARIYA 591	241(P)	4.4ha		

TOTAL AREA - 10.60 ha



Phantzer
For Settlement Officer,
Santal Parganas.

सम्राडंगाल नः ६१६

सिमासतरी नः २२
धाना सारठ

UIN No.-DJA05

VILLAGE NAME	PLOT NO.	AREA	PANCHAYAT	BLOCK
BELKIYARI	1(P)	5.90ha	BINAGARIYA	KARON
CHOBKIYAR	1011(P)	1.75ha	DINDAKOLI	
DAHUYA	314(P) 184(P)	5.35ha 1.85ha	GANJEBANI	
TOTAL AREA -		14.85 ha		

- DAHUA
- CHOBKIYARI
- BELKIYARI

सिमापुर नः ६४५

Sigma R.D. Consultants (P) Ltd.
 Consortium with *Crystal Consultants*
 Authorized Signatory

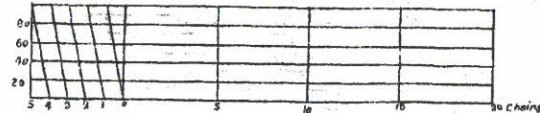


टिकडत बांध नः ६४७

डिडाकुली नः ६४३

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Scale 16 Inches = 1 Mile.



Manjari
 For Settlement Officer,
 Santal Parganas.

UIN No.-DJA06

VILLAGE NAME	PLOT NO.	AREA(Ha)	PANCHAYAT	BLOCK
MAJHILADIH	856	5.45Ha	DINDAKOLI	KARON
BHALGARHA	212	2.95Ha	MAJHILADIH	SARATH
	536	6.30Ha		
SATRAHIR	39	2.90Ha		

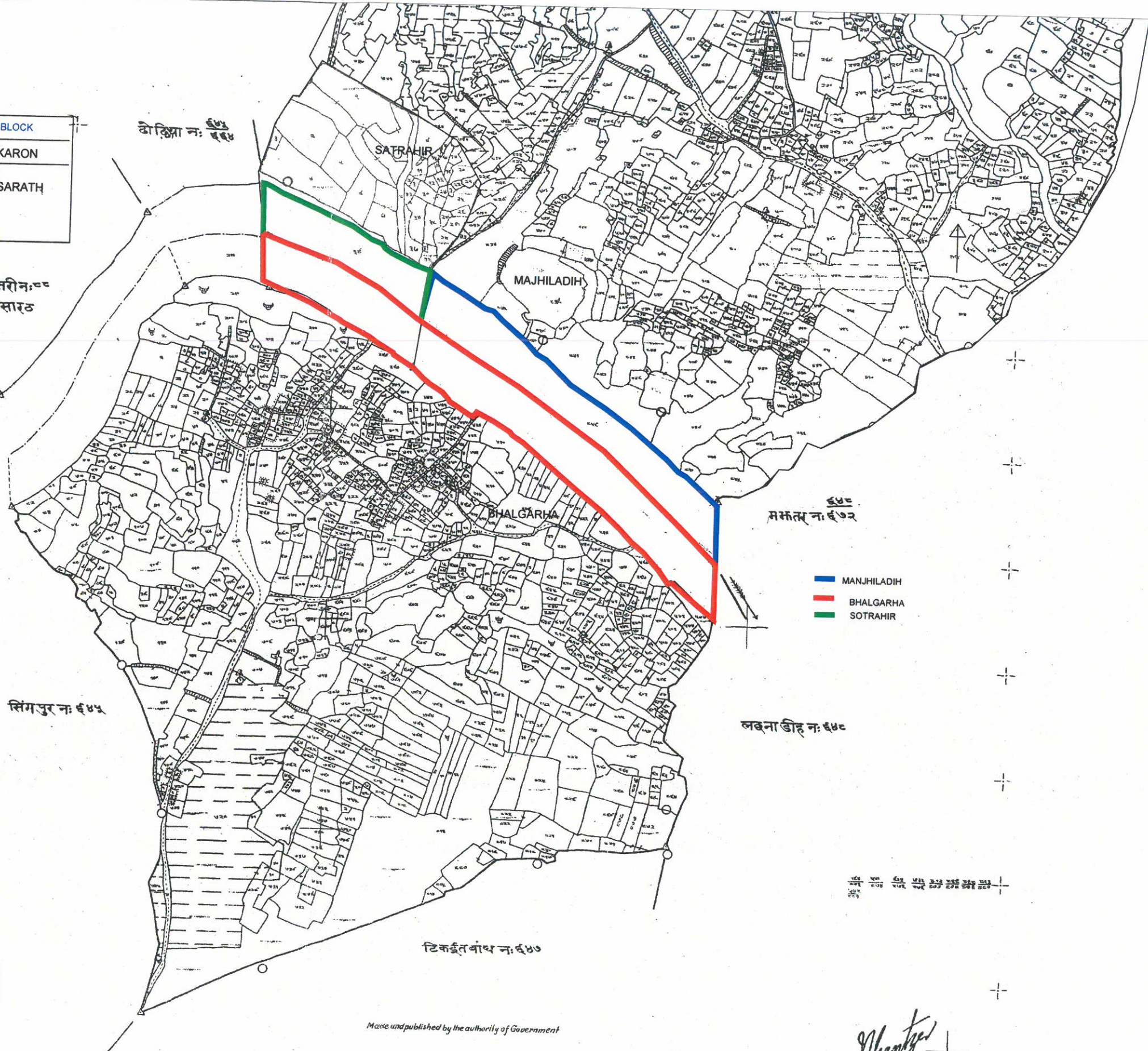
TOTAL AREA - 17.60ha

सिमांतरी नः ८८
घाना सारठ



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Authorized Signatory
Sigma R. D. Consultants (P) Ltd.
Consortium with Crystal Consultants

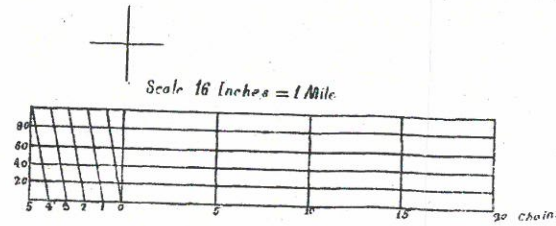


MANJHILADIH
BHALGARHA
SATRAHIR

खरना डीह नः ६४८

टिकईत बांध नः ६४७

गौचर



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[Signature]
For Settlement Officer,
Santal Parganas.

PLATE - 4
TRANSPORTATION ROUTE
SHOWN ON TOPOSHEET



Topo Location Plan of Madanpur Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U11 Village -Madanpur Baghmara, Balampur, dhanitanr, jorasimar Area -31.24ha ,

DPA01



APPROACH ROAD



Sigma R.D. Consultants (P) Ltd.
Authorized Signatory
Crystal Consultants

Topo Location Plan of Burhai Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U11 Village - Burhai, Bandgari, Domandih, Choudharidih Area -28.86ha ,

DPA02



[Handwritten signature]

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Consortium with Crystal Consultants
[Handwritten signature]
Authorized Signatory

Topo Location Plan of Bhartidih Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U11 Village -Bhartidih,Phulkari,Mathurapur Area -26.77ha ,

DPA03



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Sigma R.D. Consultants (P) Ltd.
Consortium With Crystal Consultants
[Handwritten signature]
Authorized Signator

Topo Location Plan of Araria Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U11 Village - Araria, Saptabandh, jariadih, Laldedih, Area -26.2ha , DPA04



24°20'

86°35'

..... APPROACH ROAD



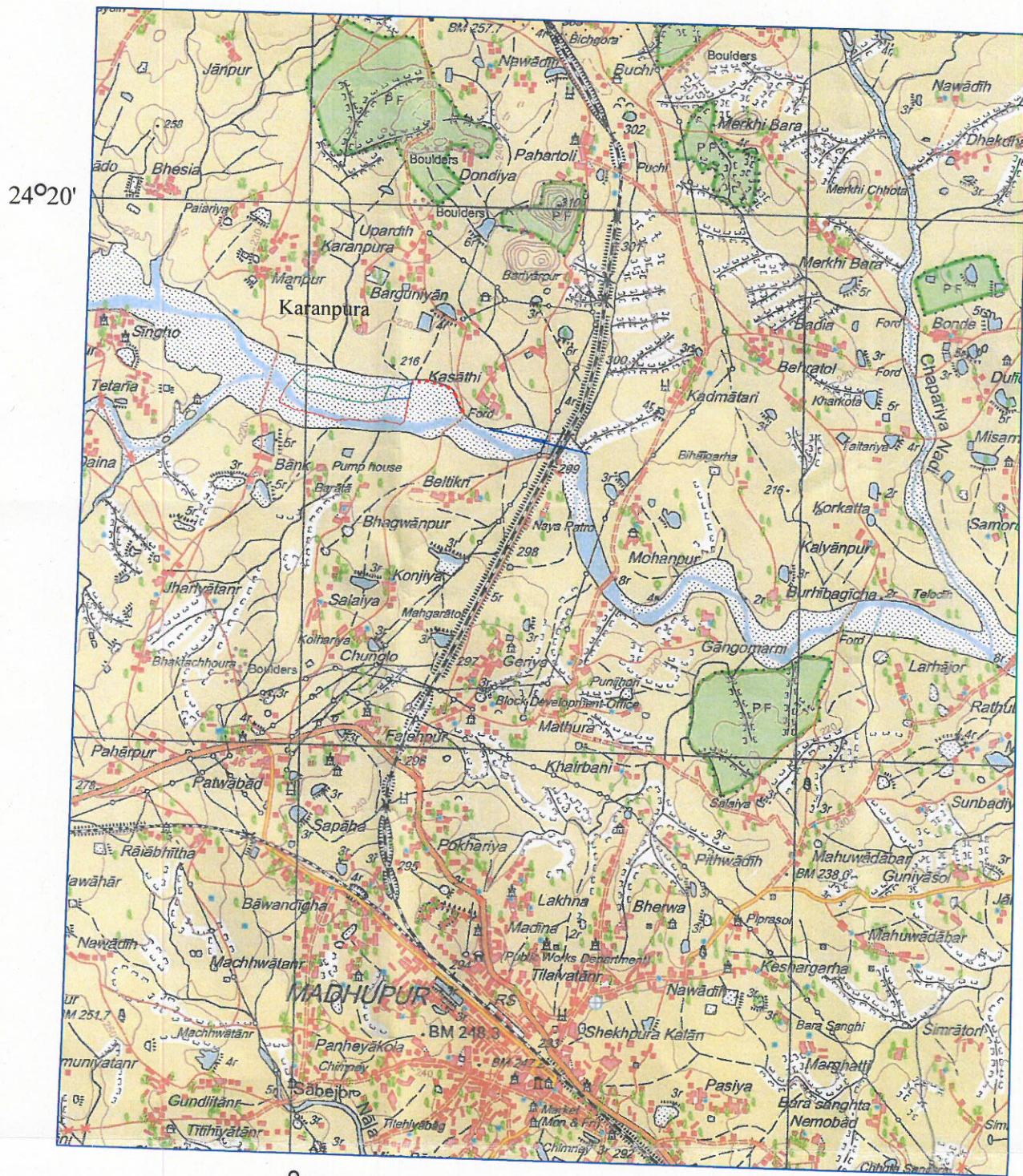
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Sigma R.D. Consultants (P) Ltd.
 Authorized Signatory

Topo Location Plan of Karanpura Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U11 Village - Bank, Hethburgania, Karanpura, Area -31.74ha ,

DPA05



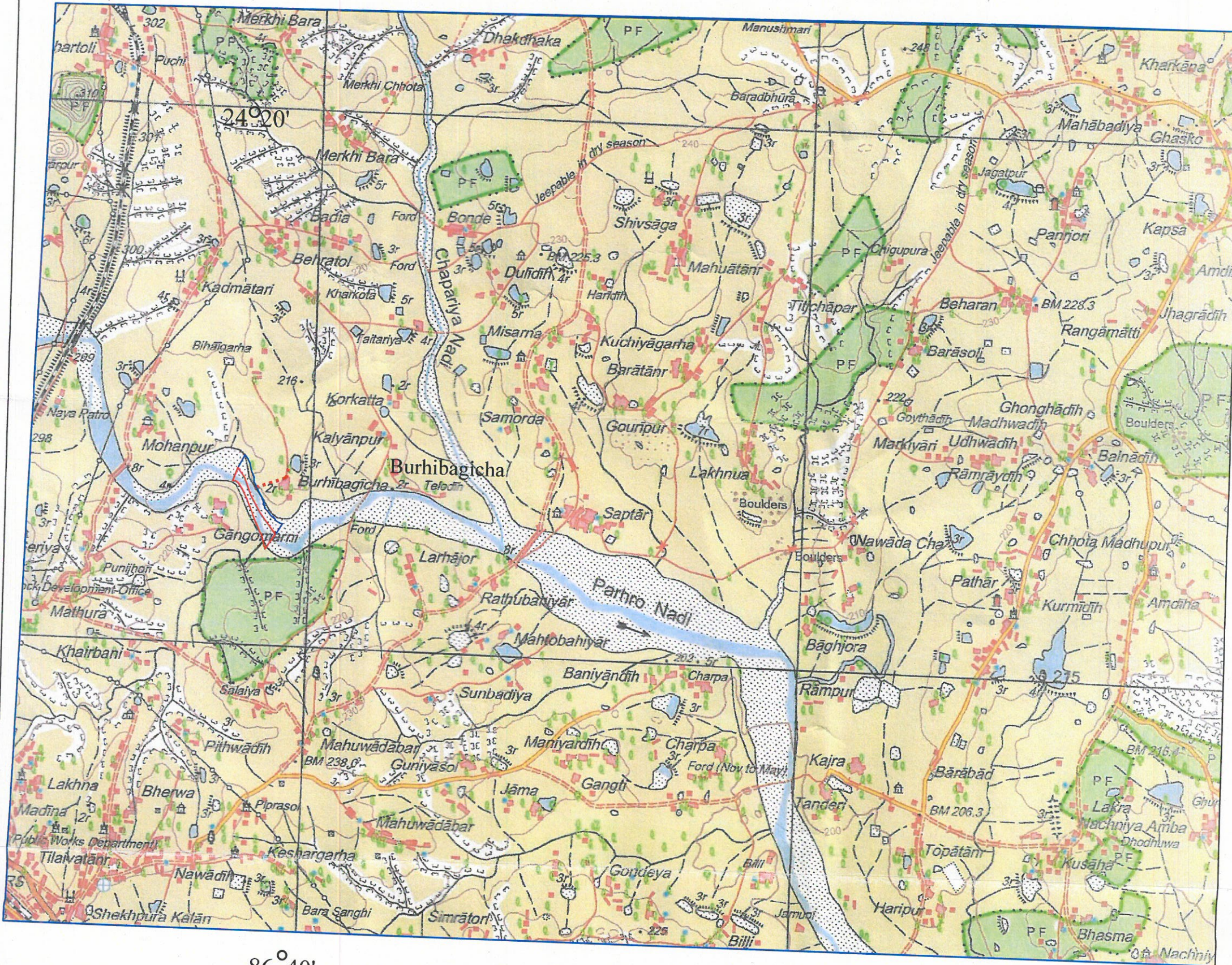
APPROACH ROAD



Sigma R.D. Consultants (P) Ltd.
Authorized Signatory
with Crystal Consultants

Topo Location Plan of Burhi bagicha Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U11 Village - Burhi bagicha, Gangomarni Area -10.57ha ,

DPA06



86°40'



..... APPROACH ROAD

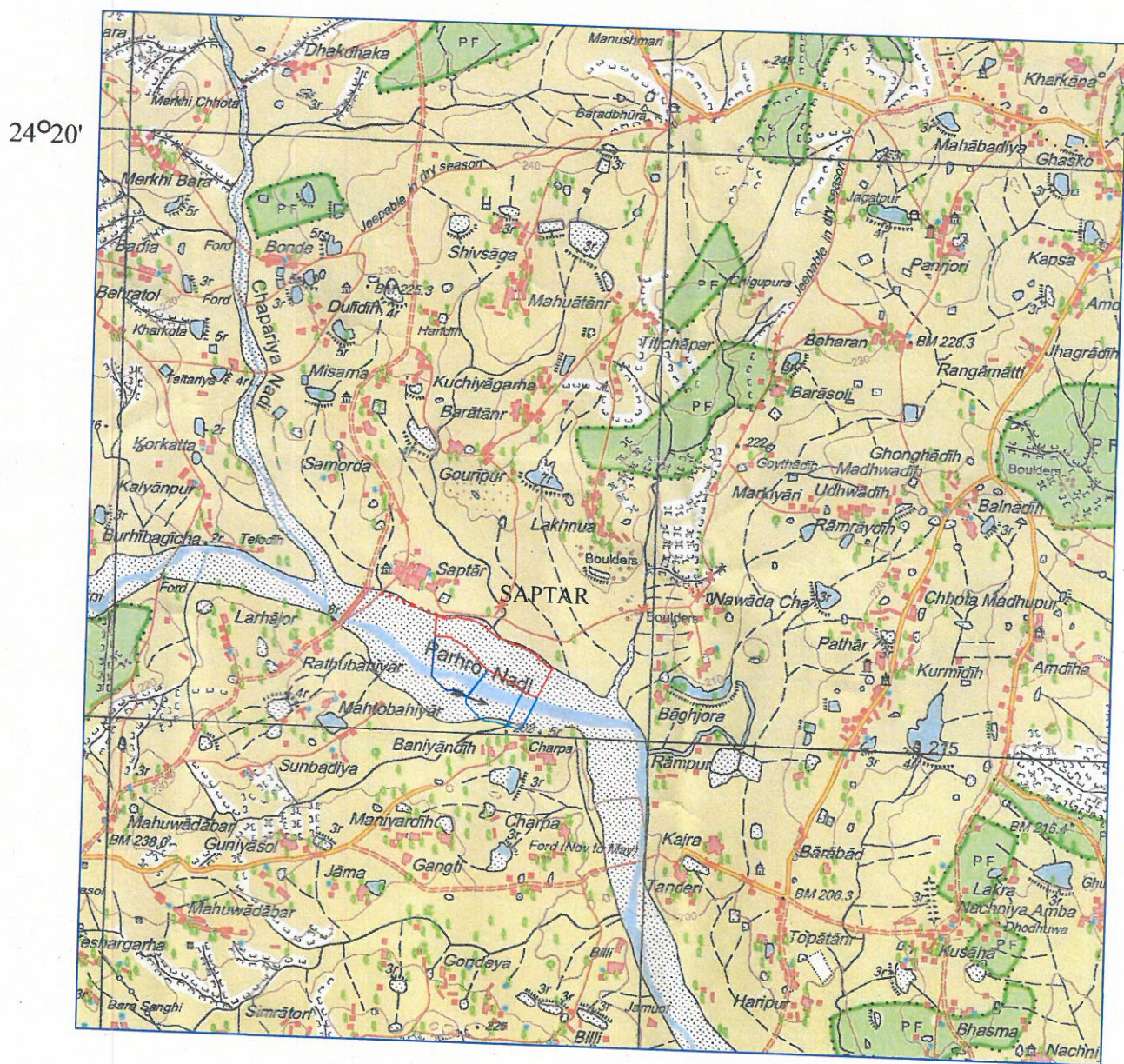
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Sigma R.D. Consultants (P) Ltd.
Consortium with Crystal Consultants
Authorized Signatory

Topo Location Plan of Saptar Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U11 Village - Saptar, Baniadih, Belwatari, Area -40.5ha ,

DPA07



..... APPROACH ROAD



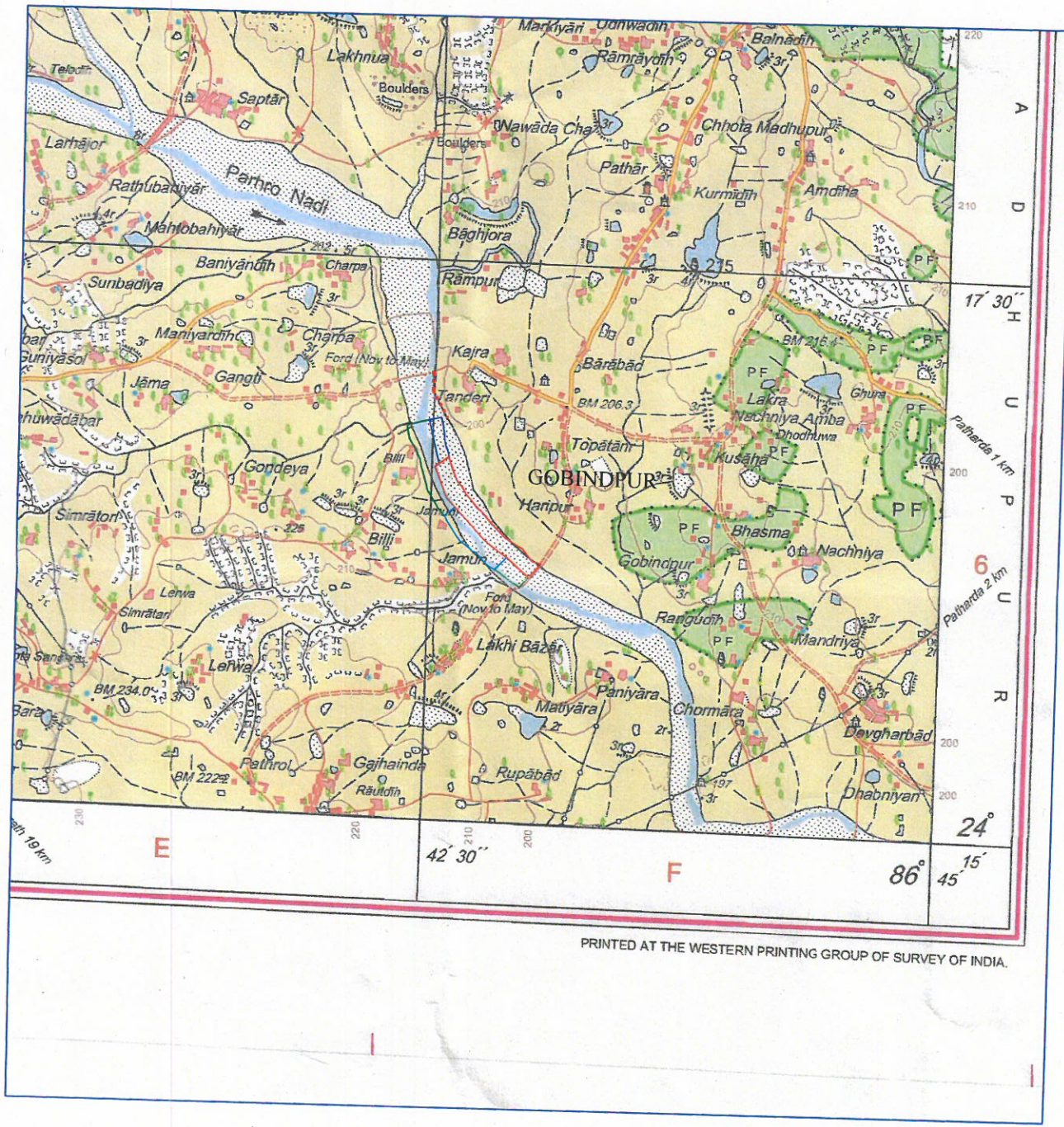
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Sigma R.D. Consultants (P) Ltd.
Consorcia with Coastal Consultants
Authorized Signatory

Topo Location Plan of Gobinpur Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U11 Village - Tanderi, Paniara, Bili, Jamuni, Gobindpur, Area -40.66ha ,

DPA08



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APPROACH ROAD



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 Consortium with Crystal Consultants
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Topo Location Plan of Bardahi Balu Ghat Superimposed on
 Survey of India OSM Sheet NO.-G45 U12& G45 U16 Village
 - Bardahi, Barhi, Dhobania, Chormara, sarheta, Kothia Area
 -34.93ha ,

DPA09



APPROACH ROAD



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Sigma PDC Consultants (P) Ltd.
 Authorized Signatory

Topo Location Plan of Dumariya Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U16 Village - Kharkhuti, Ghaegharjor, Ubia, Dumariya, Area -17.2ha ,

DPA10



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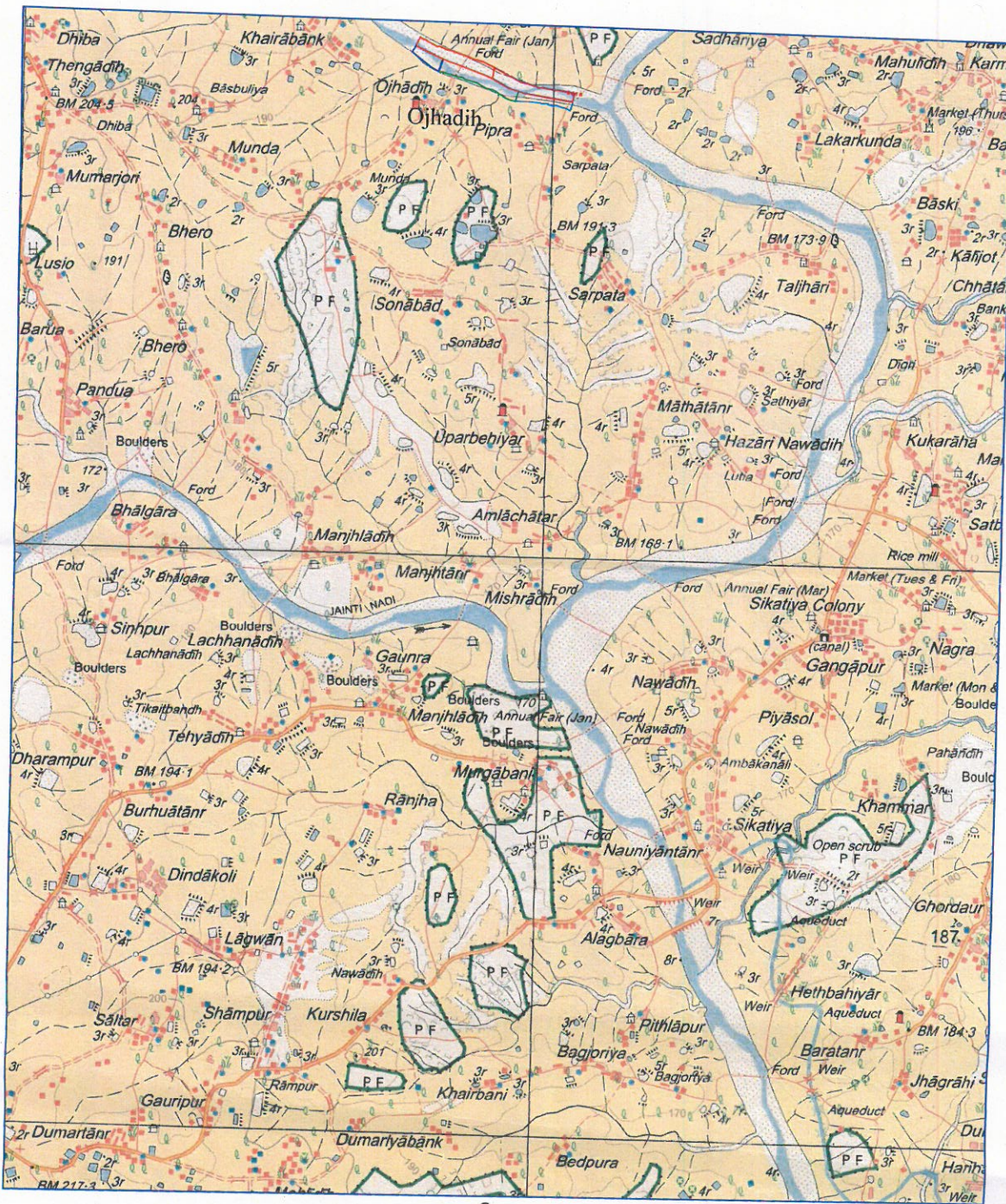


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Topo Location Plan of Ojhadih Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U16 Village - Ojhadih, Pipra, Barmasiya, Gangti, kairabank, Area -20.42ha ,

DPA11

24°10'



86°47'30"

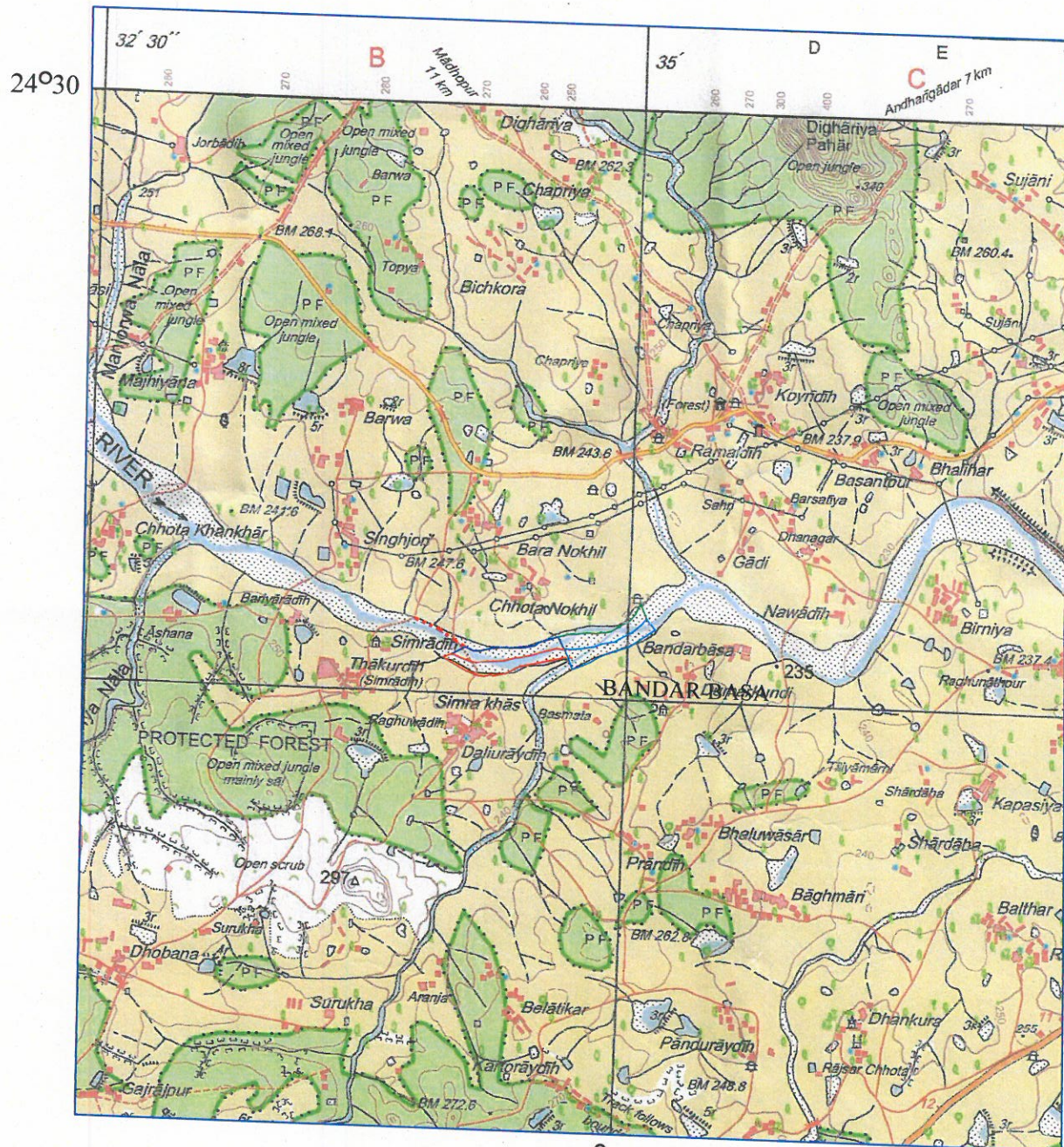
APPROACH ROAD



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Authorized Signatory

Topo Location Plan of Chota Nokhil Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U11 Village - Chota Nokhil, Nokhil Bara, SemraKhas, Dumar kundi Area -31.30ha ,

DAJ01



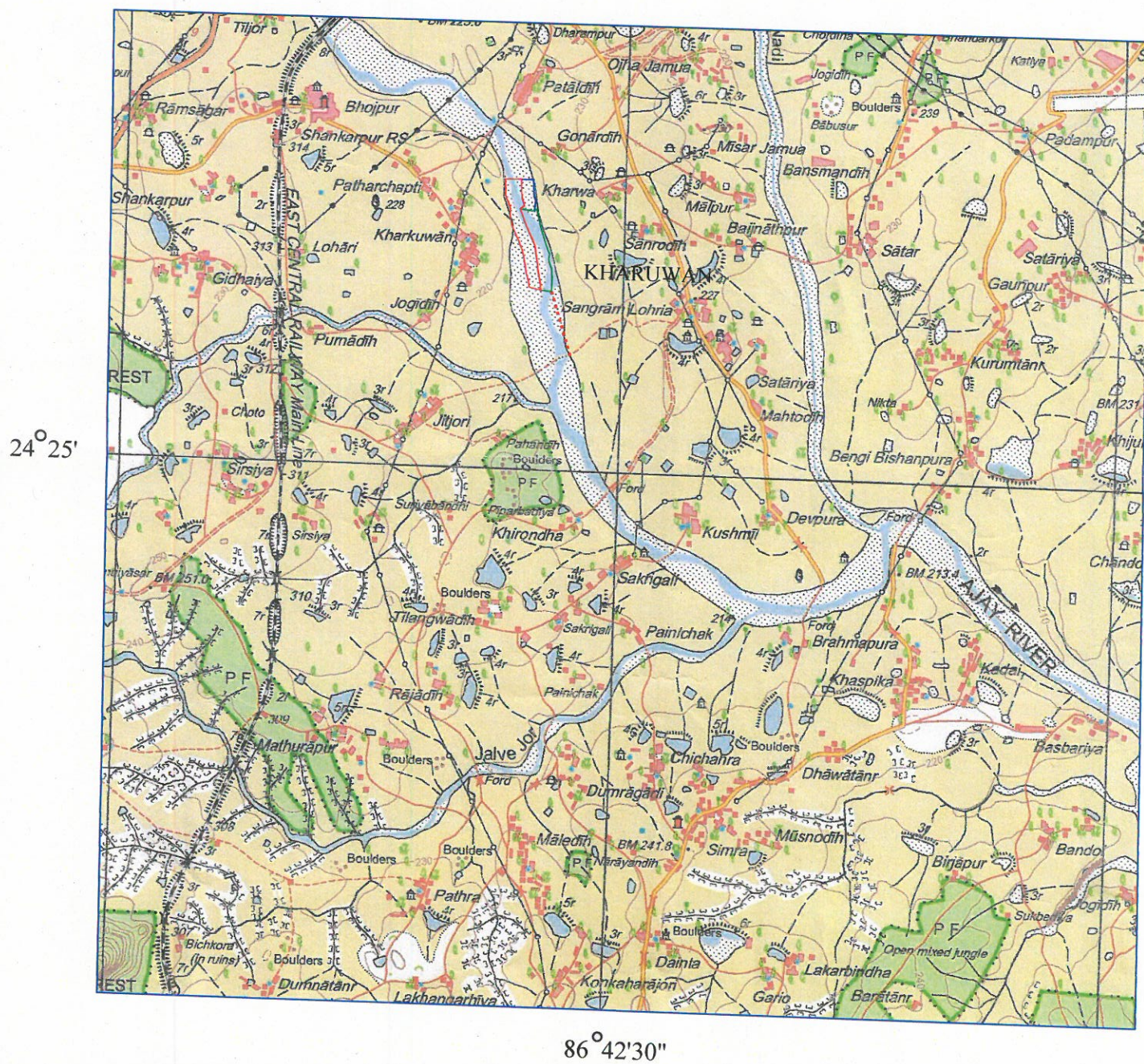
..... APPROACH ROAD



Sigma R.D. Consultants (P) Ltd.
 Authorized Signatory
 With Crystal Consultants

Topo Location Plan of Khurkuwan Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U11 Village - khurkuwan, Sagram Loria, kharwan Area -24.44ha ,

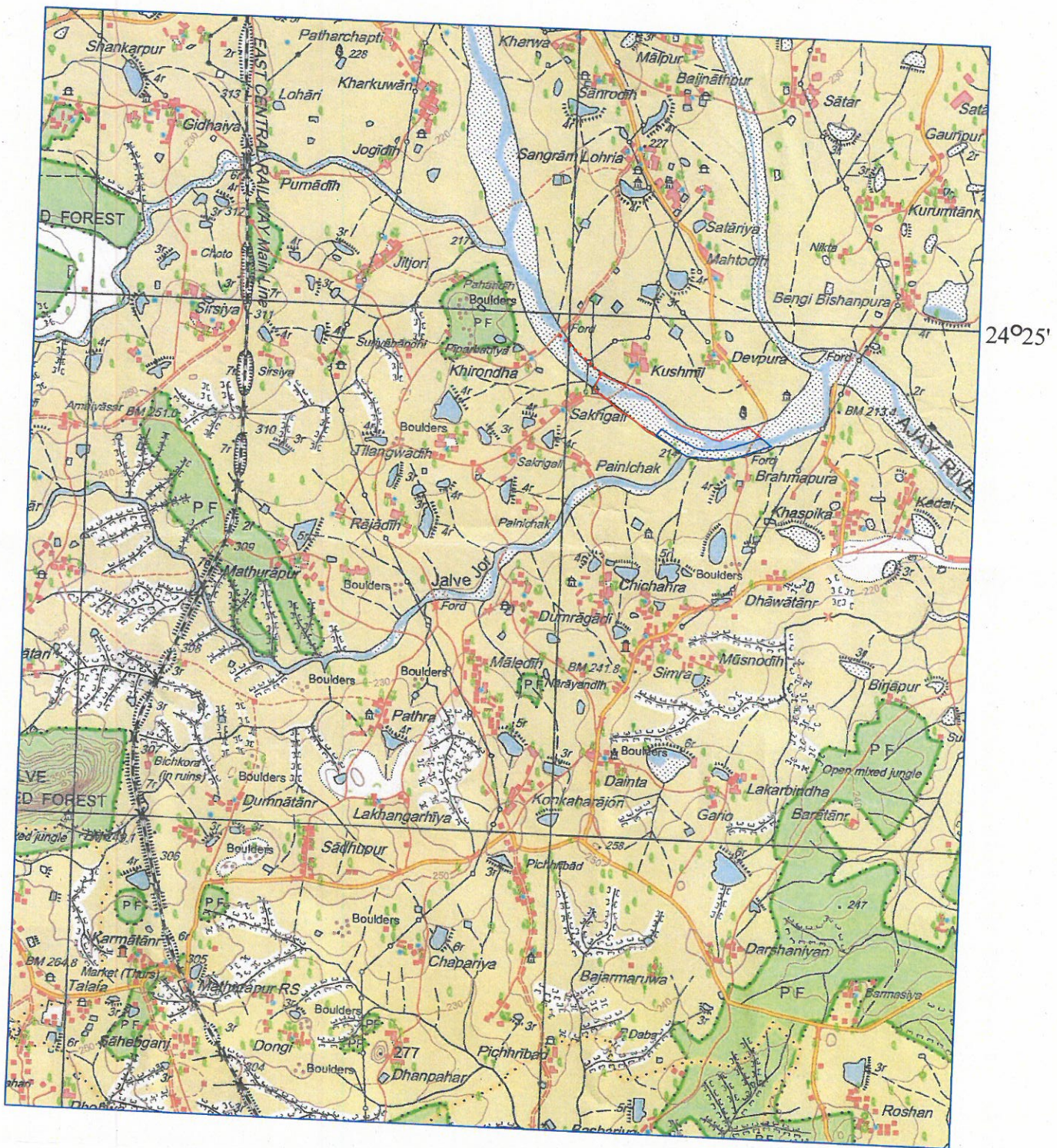
DAJ02



[Handwritten Signature]
Sigma R-D Consultants (P) Ltd.
-Jharkhand- Ranchi-
Authorized Signer

Topo Location Plan of Kusmil Balu Ghat Superimposed on
 Survey of India OSM Sheet NO.-G45 U11 Village -
 Kusmil, simura, Area -31.30ha ,

DAJ03



..... APPROACH ROAD

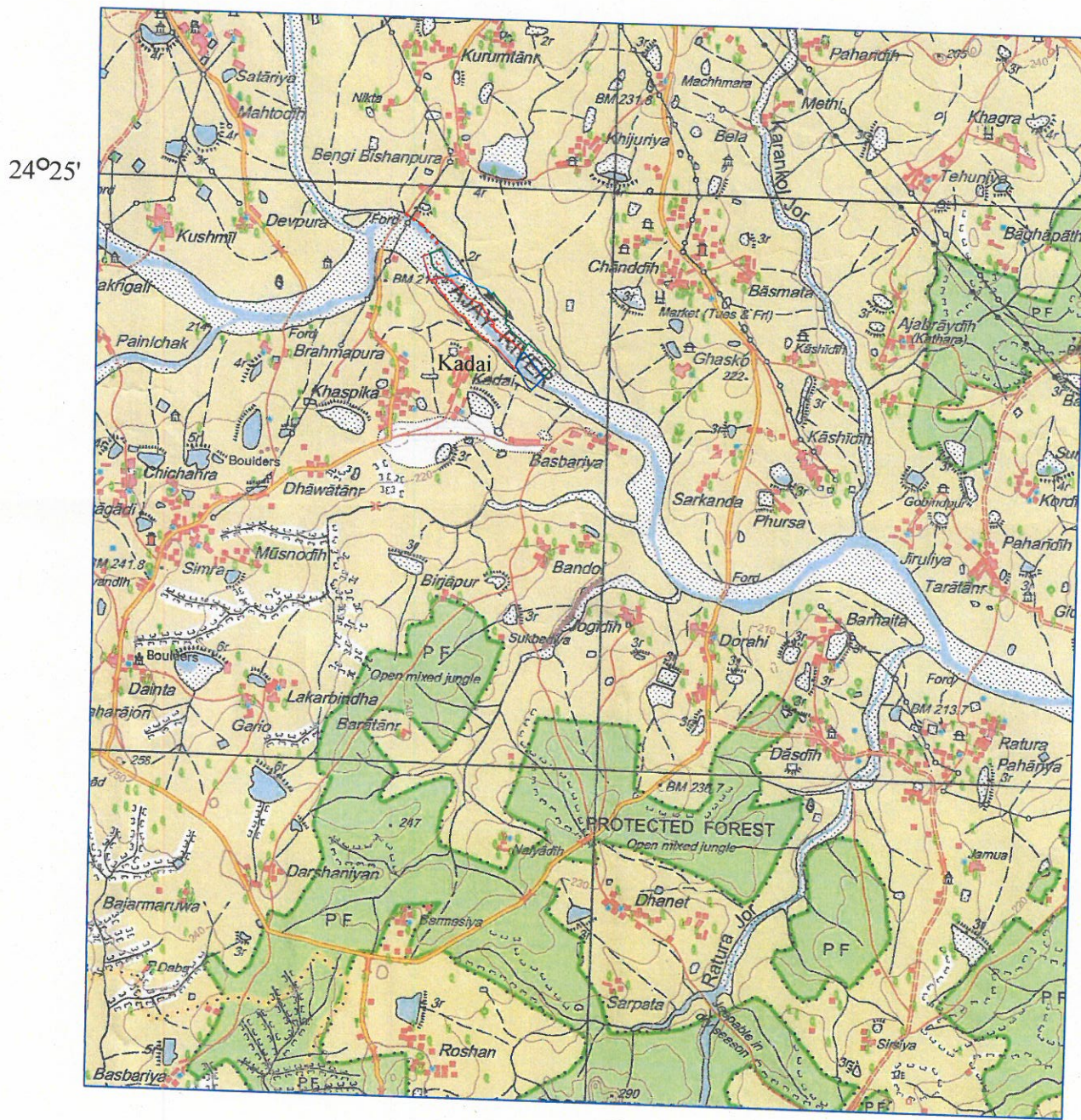


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Sigma R.D. Consultants (P) Ltd.
 Consortium of Crystal Consultants
 Authorized Signatory

Topo Location Plan of Kadai Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U11 Village - kadai, Baswaria, harlatarin, Khaspaika, Bishunpur, Chandidih, Area -31.9ha ,

DAJ04



24°25'

86°40'

APPROACH ROAD



Sigma R-B, Consultants (P) Ltd.
Consolidated With Crystal Consultants
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Topo Location Plan of Pandedih Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U15 Village - pandedih, kelaniya, Jogindha Area -23.57ha ,

DAJ05



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Consortium with Crystal Consultants
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Topo Location Plan of Durjani Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U15 Village - Durjani, Jamdiha, Buchipahari, Badiya, Dahua, Bilidih Area -38.09ha ,

DAJ06



86°47'30"

--- APPROACH ROAD



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with Crystal Consultants

Topo Location Plan of Jiakhara Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U15 Village - Jiakhara, Parsodih, Manjori, Area -18.6ha ,

DAJ07



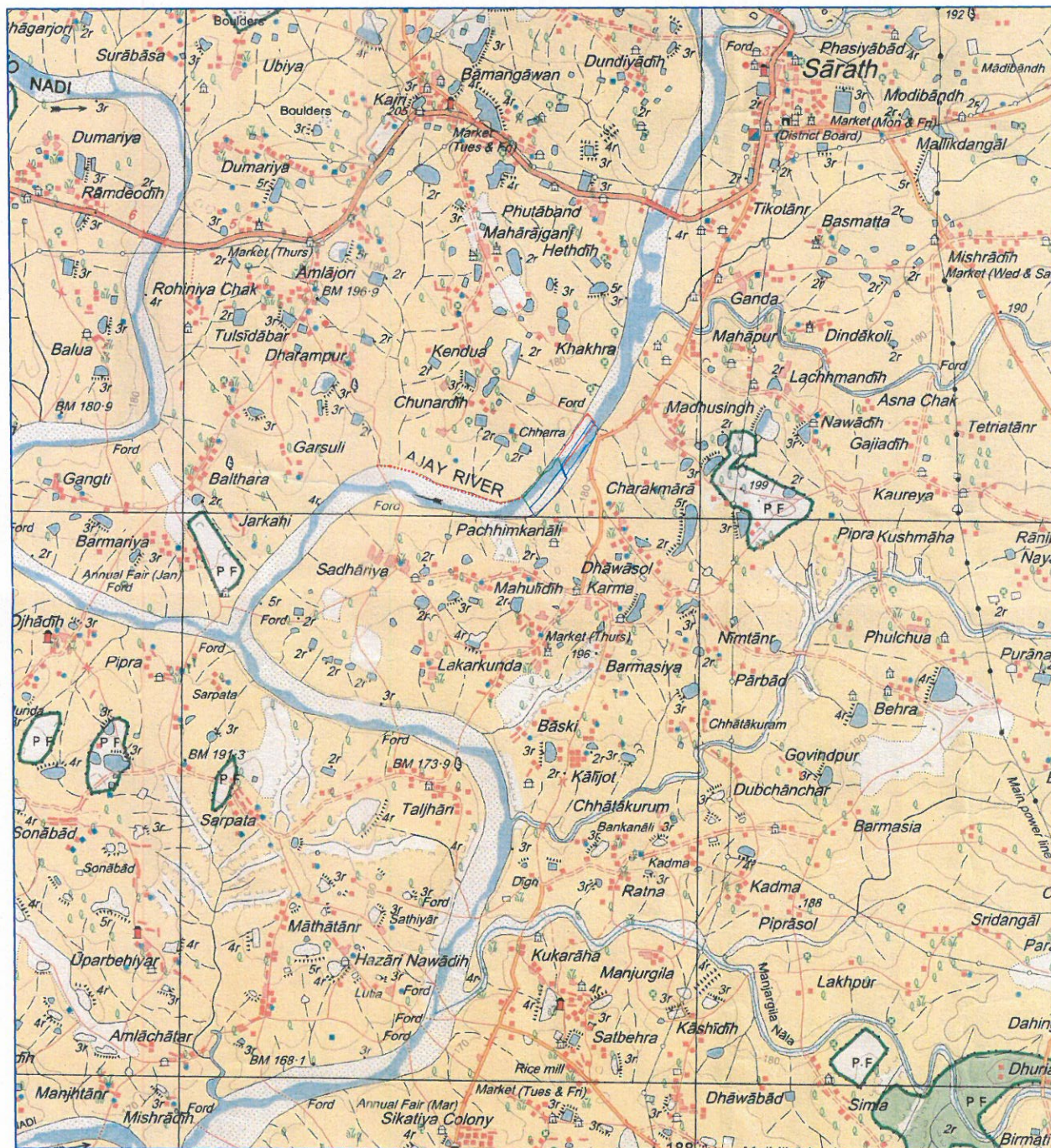
APPROACH ROAD



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Topo Location Plan of Charra Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U16 Village - Mahdewa, Charra, damarkuri, Charakmara, Area -15.53ha ,

DAJ08



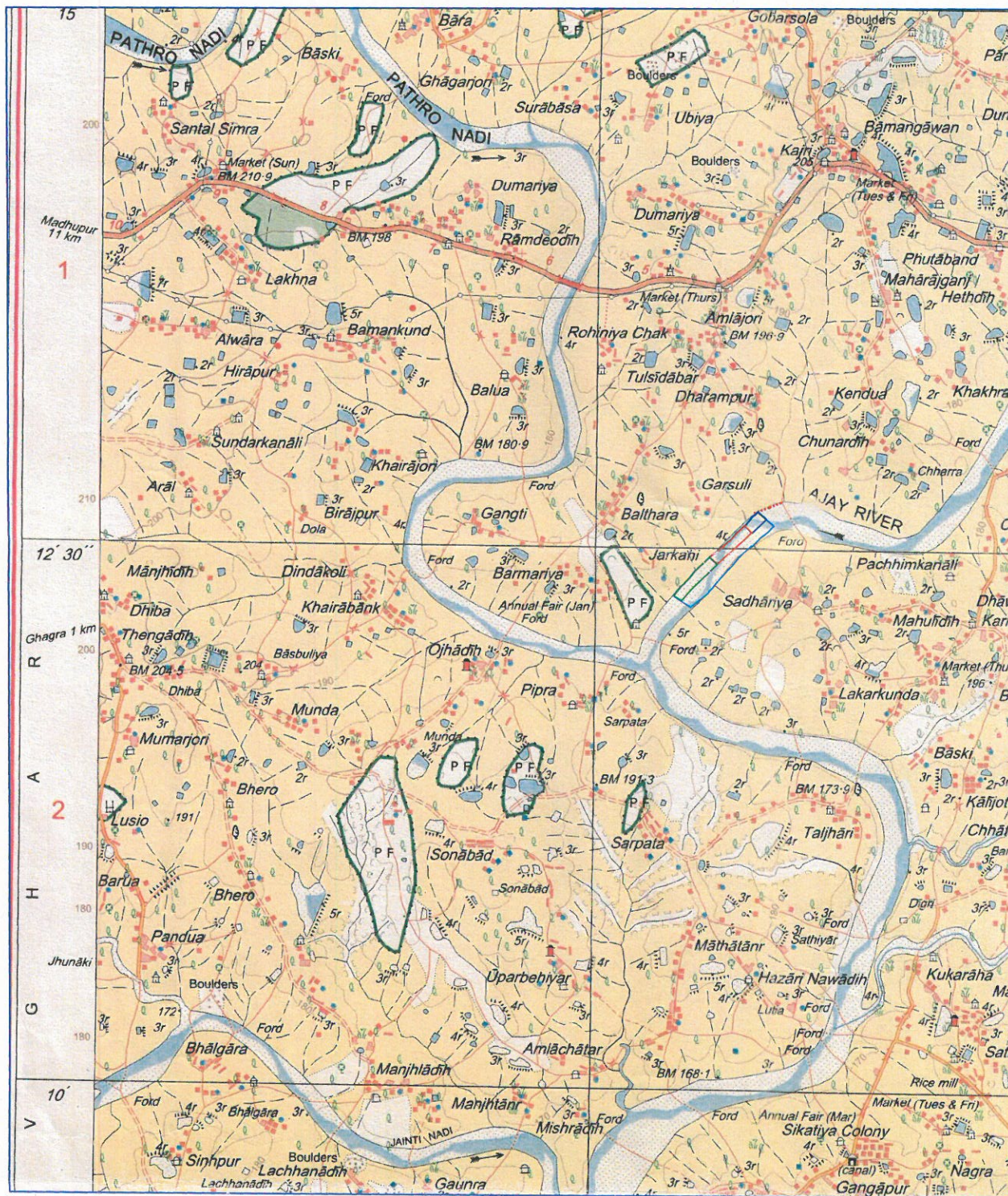
APPROACH ROAD



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Authorized Signatory

Topo Location Plan of Balthara Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U16 Village - balthara, Mahtoa, gidhisoli, Sagharia, Area -17.93ha ,

DAJ09



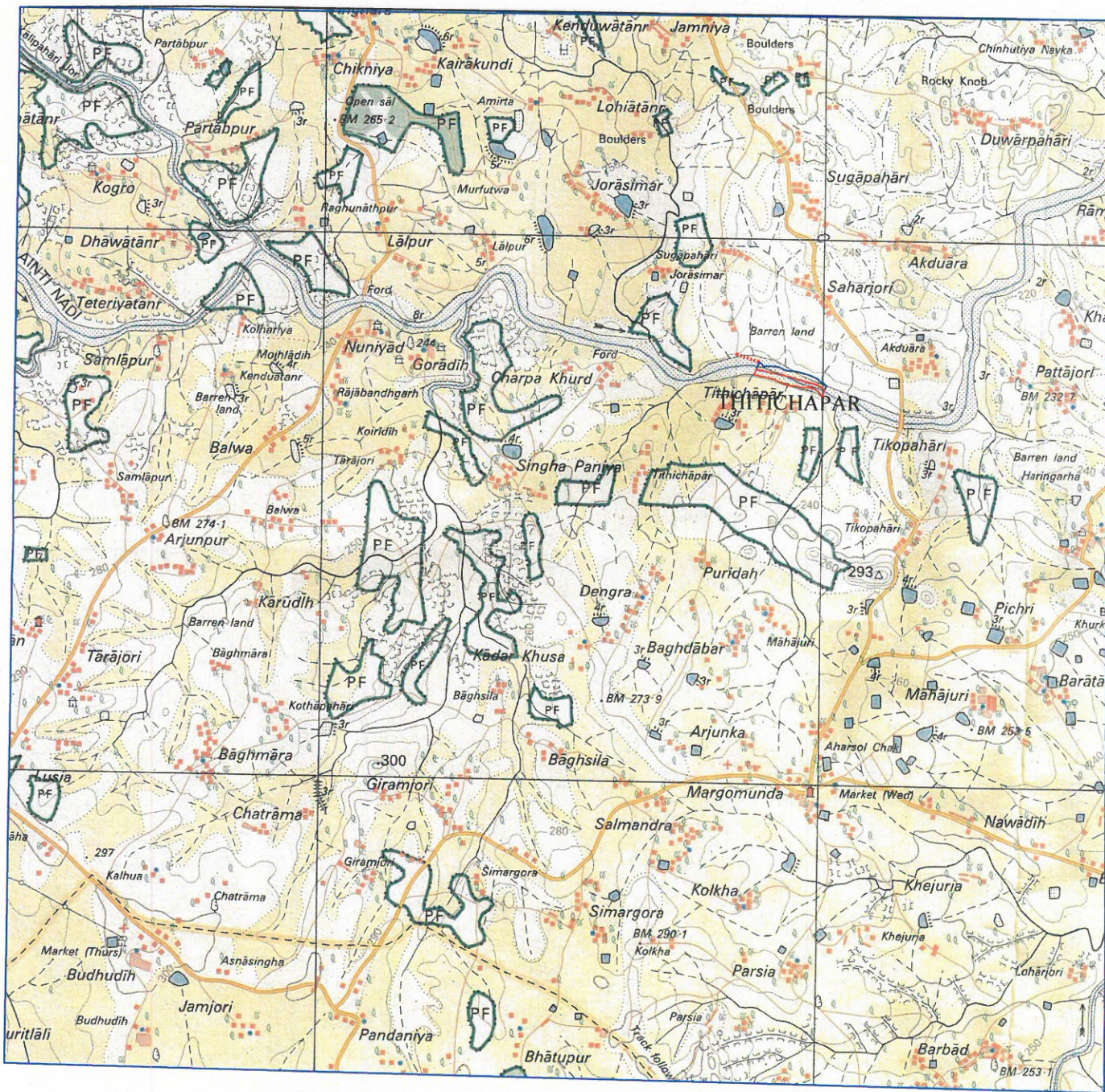
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Topo Location Plan of Thithichapar Balu Ghat Superimposed
 on Survey of India OSM Sheet NO.-G45 U12 Village -
 Thithichapar, Sugapahari Area -6.50ha ,

DJA01



86°32'30"

APPROACH ROAD



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Topo Location Plan of Rampur Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U12 Village - Rampur, Patojori, Duarpahari, Akduara Area -15.10ha ,

DJA02



APPROACH ROAD

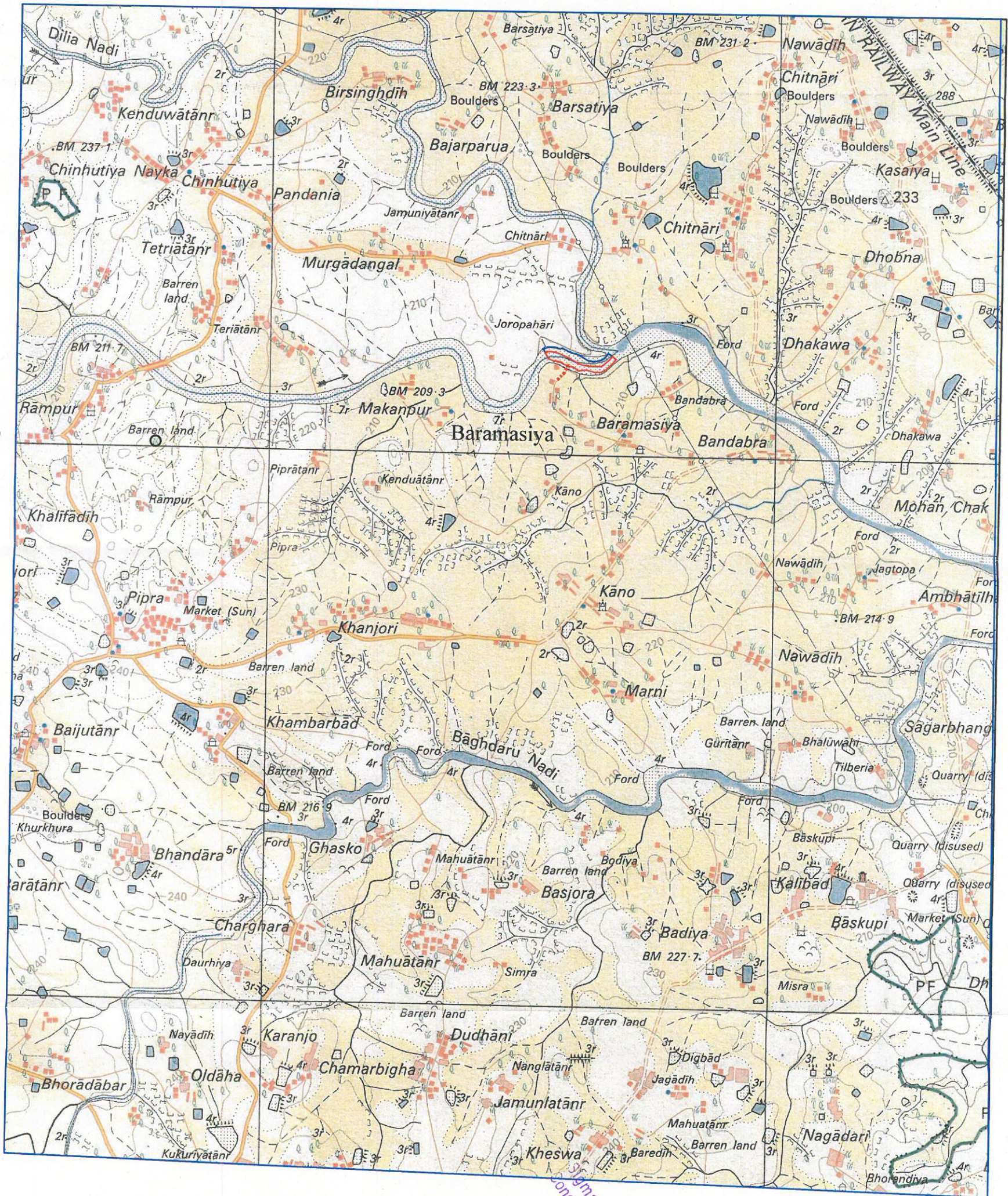


Sigma R.D. Consultants (P) Ltd.
Consortium with Crystal Consultants
Authorized Signatory

Topo Location Plan of BarmasiyaBalu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U15 Village - Barmasiya,Chitnari Area -6.20ha ,

DJA03

24 12'30"



86°40'

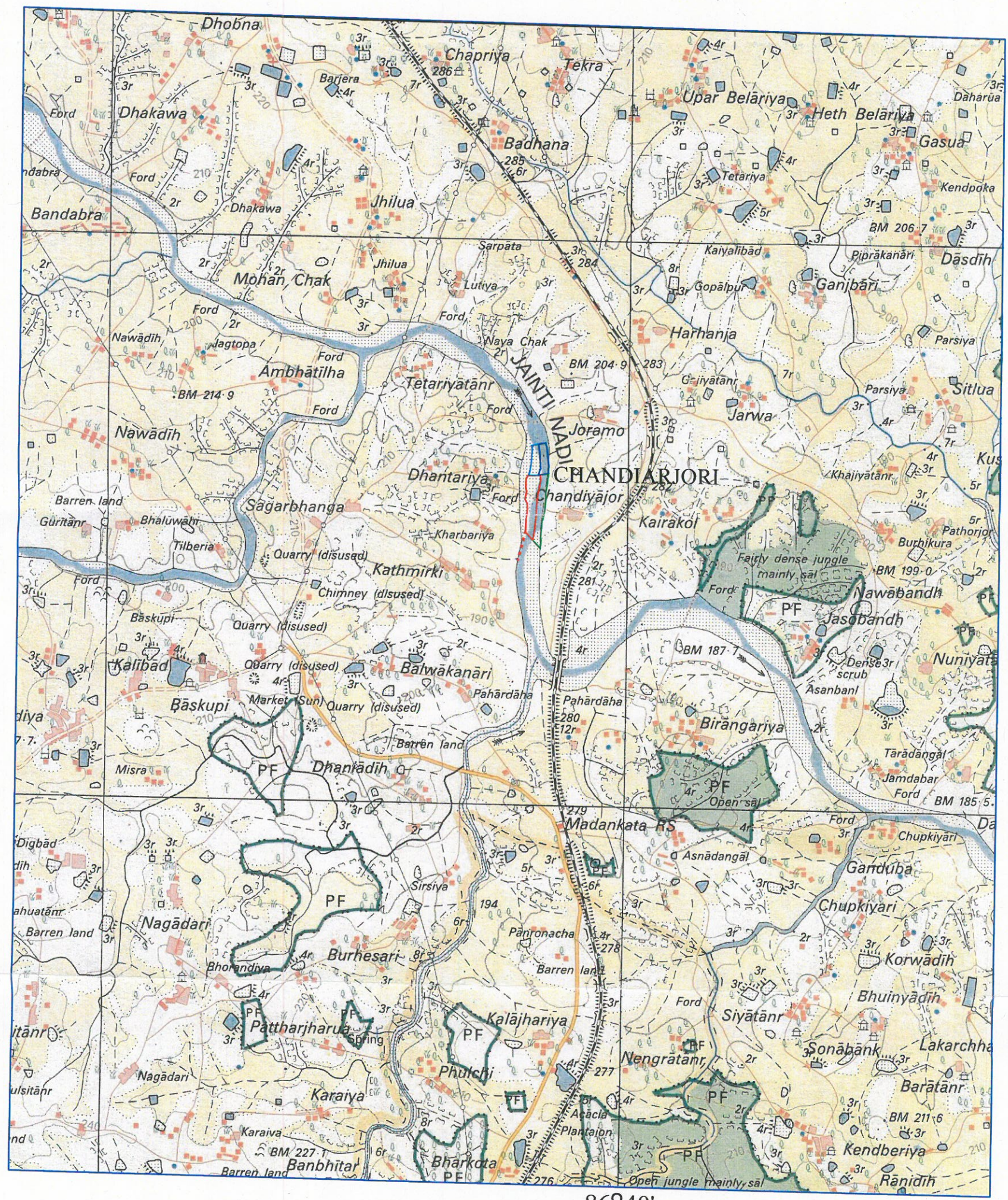


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 Sigma R.D. Consultants (P) Ltd.
 Consortium with Crystal Consultants

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Topo Location Plan of Chandiyarjor Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U15 Village - Jaramo, Gormara, Dhantariya, Chandiarjori, Area - 11.6ha,

DJA04



..... APPROACH ROAD



86°40'

Sigma R.D. Consultants (P) Ltd.
 Authorized Signatory
 [Signature]

Topo Location Plan of Dahua Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U15 Village - Dahua, Chopkiyari, Belkiyari Area -15.33ha ,

DJA05



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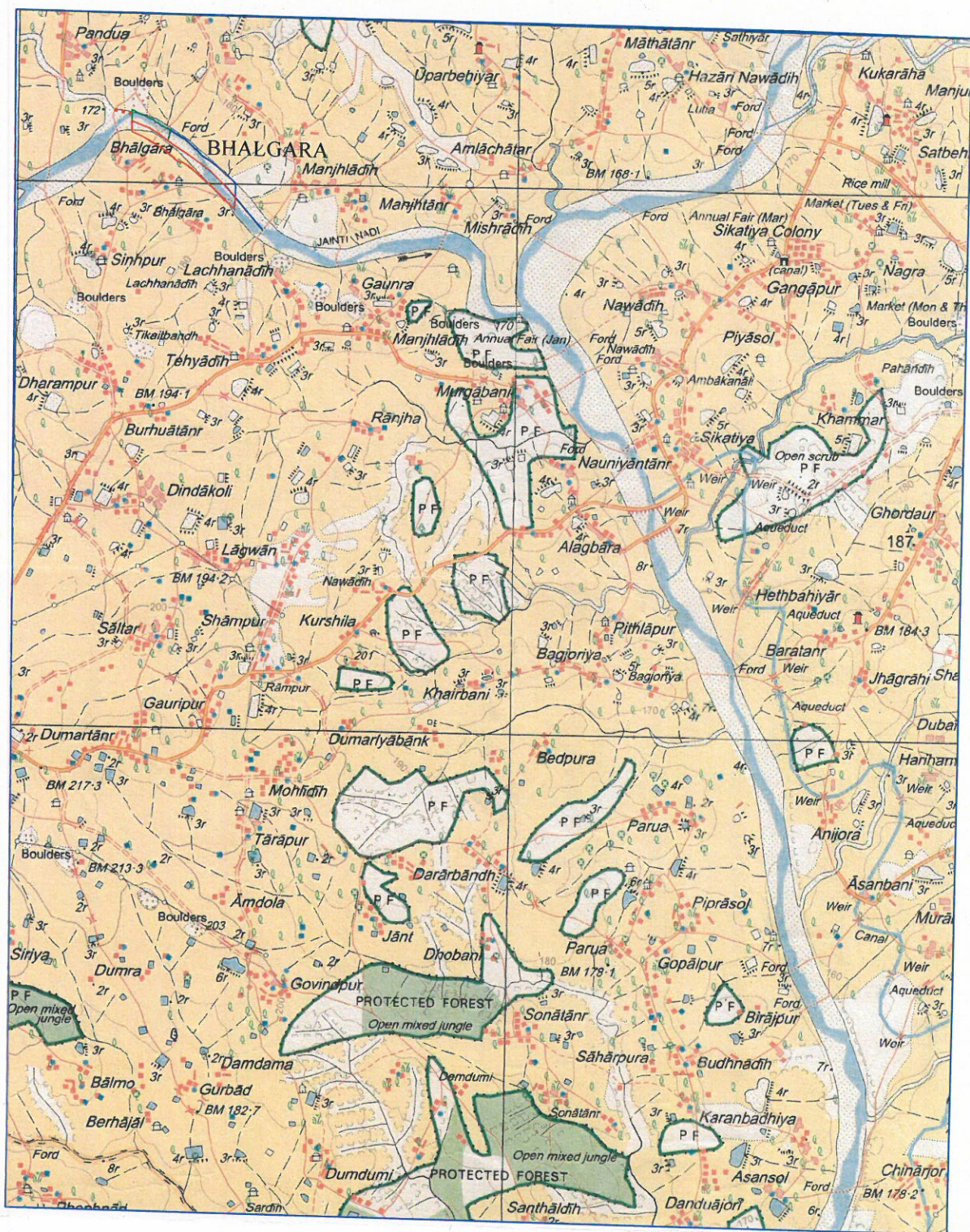


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 Consortium with Crystal Consultants
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Topo Location Plan of Bhalgara Balu Ghat Superimposed on Survey of India OSM Sheet NO.-G45 U16 Village - Bhalgara, Manjaladih, Satrahir Area - 19.22ha ,

DJA06

24°10'



86°47'30"

APPROACH ROAD

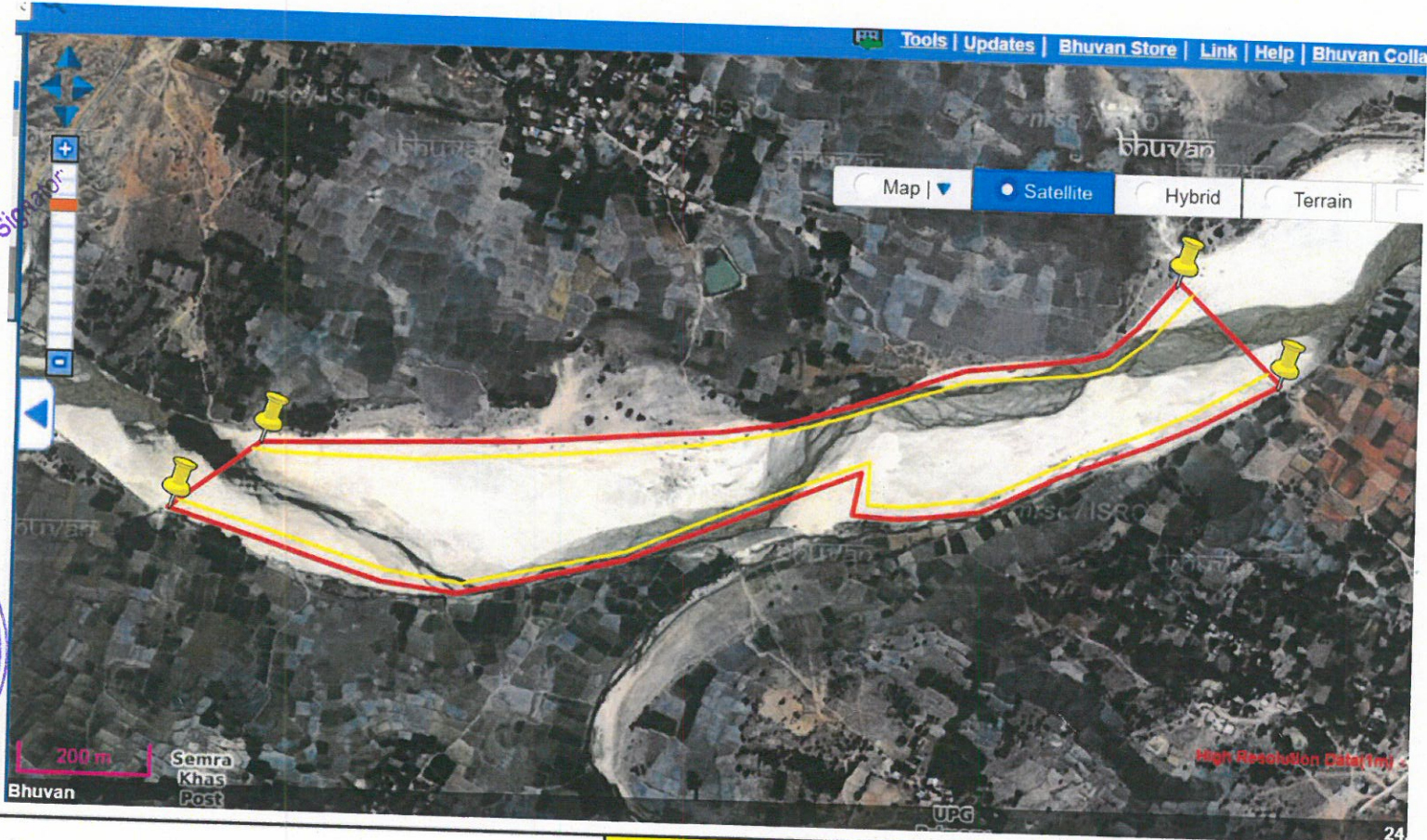


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Consortium with Crystal Consultants
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PLATE - 5
KML MAP



Time R.D. Consultants (P) Ltd.
 Consortium with Crystal Consultan.
[Signature]
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<h1>D AJ 01</h1>		
	No Mining Zone (1/8 th both side River Bank)	Proposed Potential Resource Area (PRA)

[Handwritten signatures]

Sigma R.D. Consultants (P) Ltd
 Consortium with Crystal Consult
[Signature]
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<h1>D AJ 02</h1>		
	No Mining Zone (1/8 th both side River Bank)	Proposed Potential Resource Area (PRA)

[Handwritten signatures]

Sigma R.D. Consultants (P) Ltd
 Consortium with Crysta Consultancy
 Authorized Signatory



<h1>D AJ 03</h1>		
	No Mining Zone (1/8 th both side River Bank)	Proposed Potential Resource Area (PRA)

(Handwritten signatures)

R.D. Consultants (P) Ltd
in consortium with Crystal Consultants
Authorized



D AJ 04		
	No Mining Zone (1/8 th both side River Bank)	Proposed Potential Resource Area (PRA)

[Handwritten signatures]

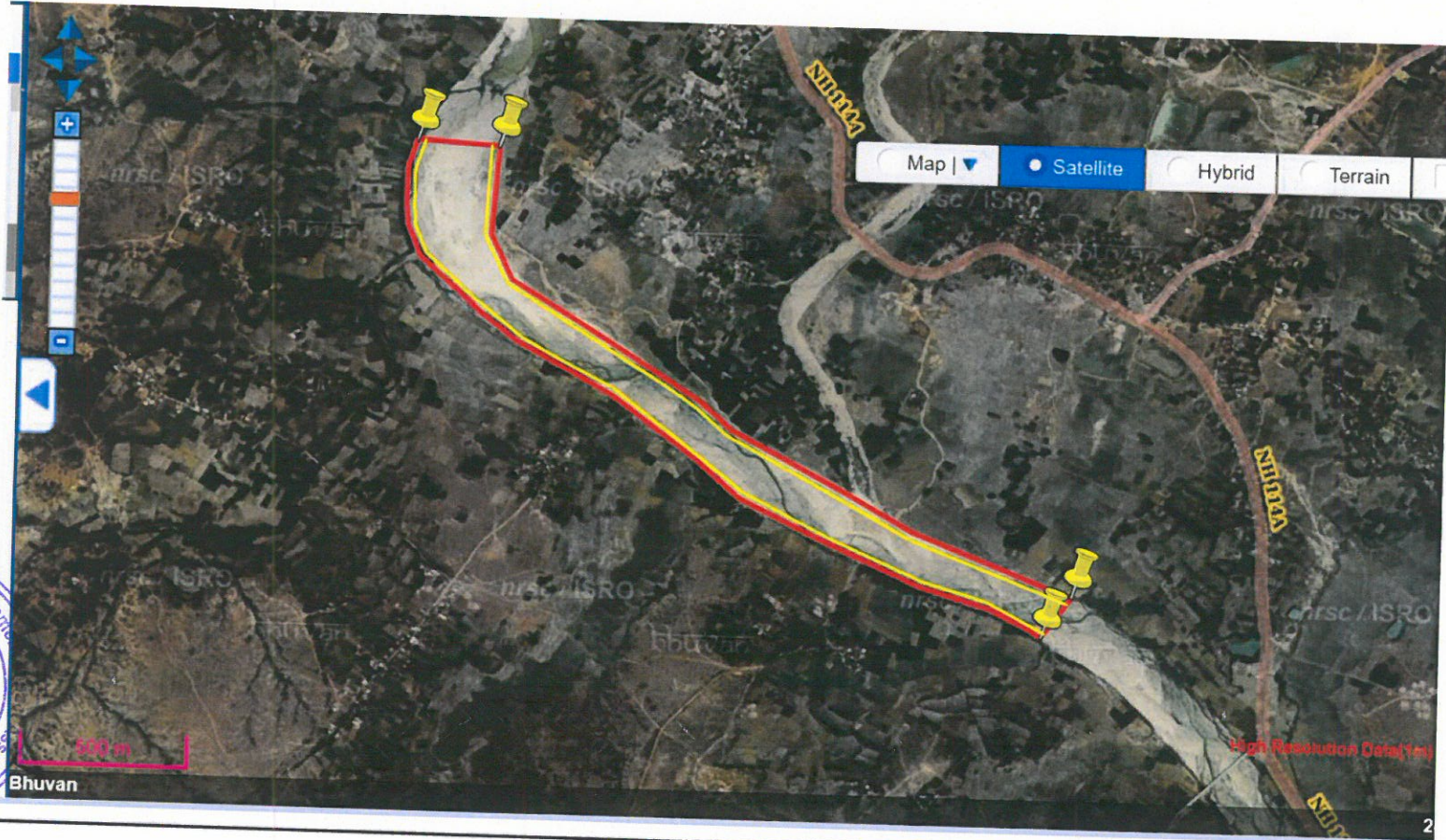
me R.D. Consultants (P) Ltd.
 Consortium with Crystal Consultants
 Authorized Signatory



<h1>D AJ 05</h1>		
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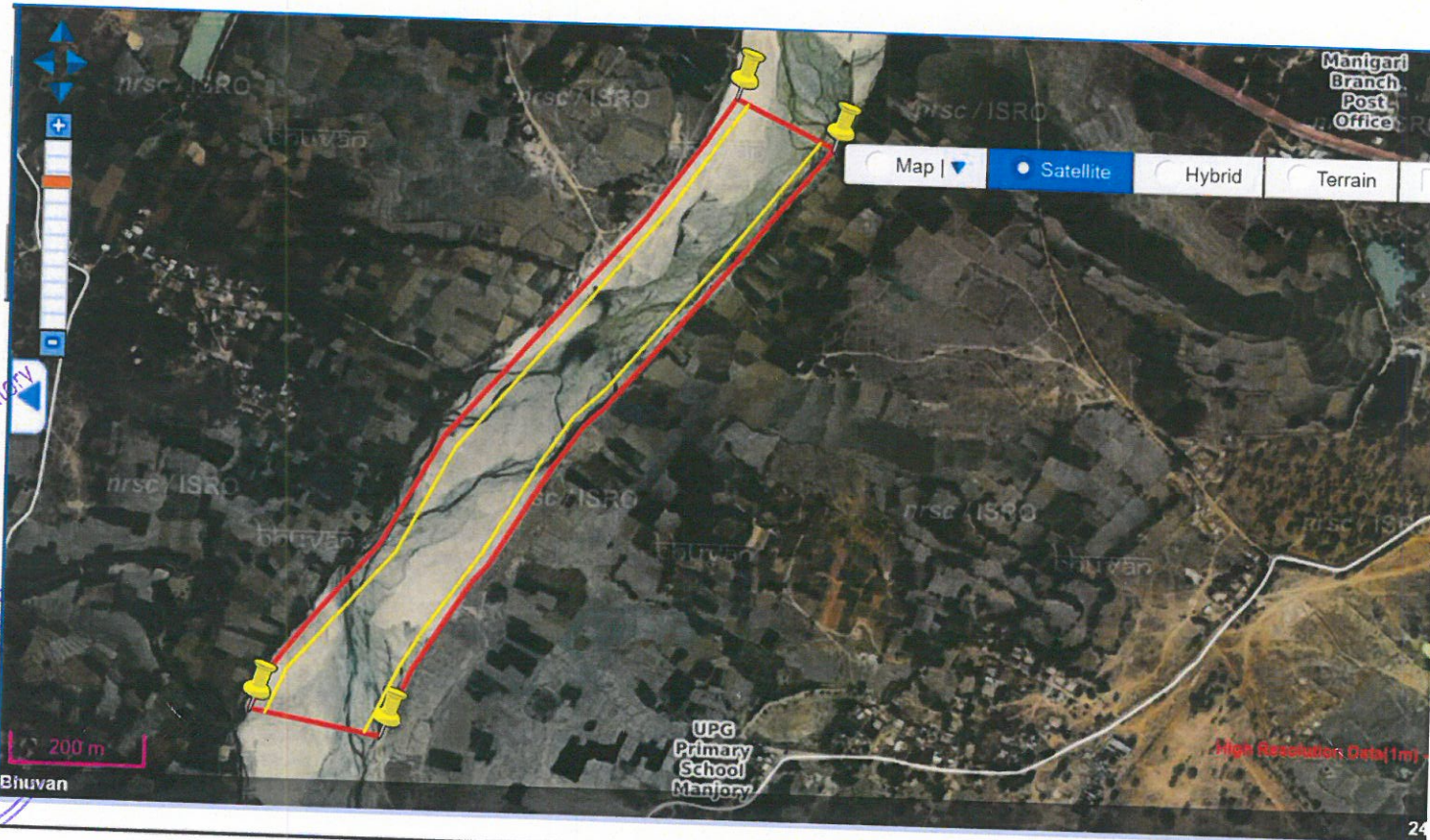
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D AJ 06		
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Handwritten signatures



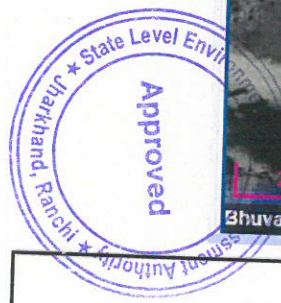
R.D. Consultants (P) Ltd.
 Consortium with Crystal Consultants
Shri...
 Authorized Signatory



<h1>D AJ 07</h1>		
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PR *S*

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Consortium with Crystal Consultants
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D AJ 08		
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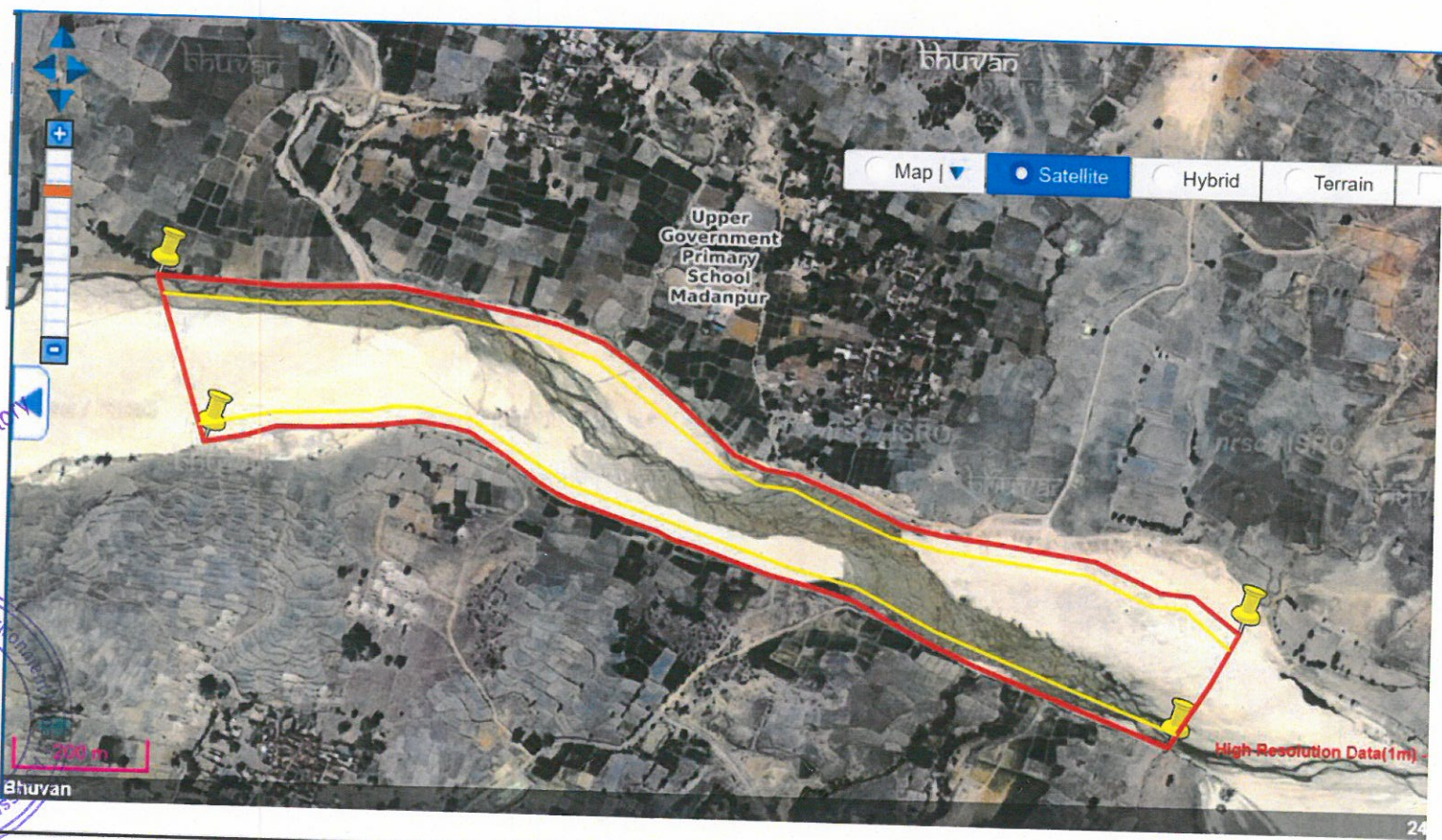
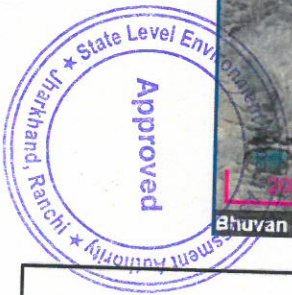
M. R. D. Consultants (P) Ltd.
 Consortium with Crystal Consultants
S. K. W.
 Authorized Signatory



<h1>D AJ 09</h1>		
	No Mining Zone (1/8 th both side River Bank)	Proposed Potential Resource Area (PRA)

[Handwritten signatures]

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 Consortium with Crystal Consultants
Shah
 Authorized Signatory



<h1>D PA 01</h1>		
	No Mining Zone (1/8 th both side River Bank)	Proposed Potential Resource Area (PRA)

Handwritten signatures and initials

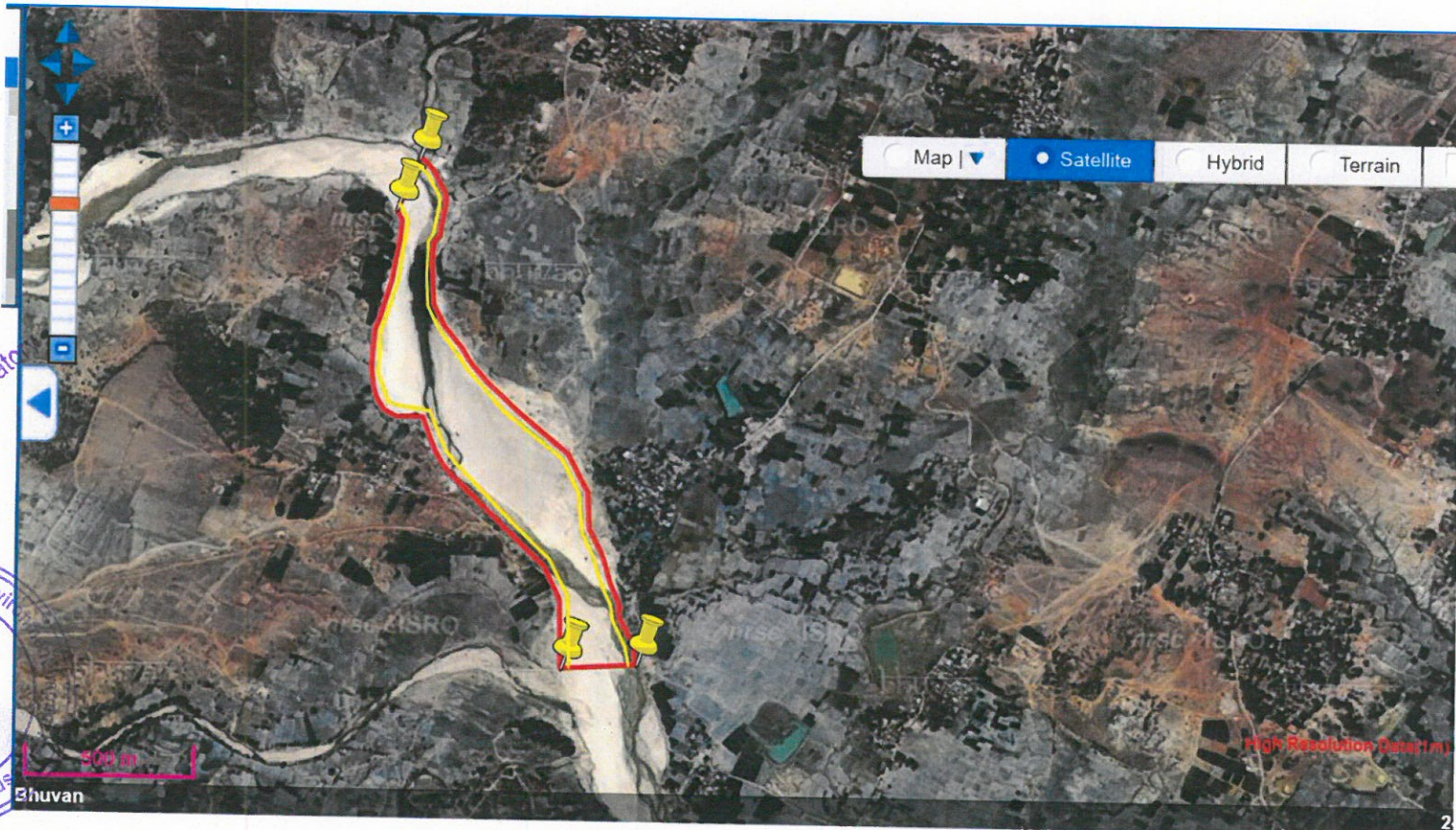
R.D. Consultants (P) Ltd.
 Consortium with Crystal Consultants
 Authorized Signatory



<h1>D PA 02</h1>		
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Joint R.D. Consultants (P) Ltd.
Consortium with Crystal Consultants
Shiv Kumar
Authorized Signatory



D PA 03		
	No Mining Zone (1/8 th both side River Bank)	Proposed Potential Resource Area (PRA)

Shiv Kumar



Sigm & R.D. Consultants (P) Ltd
 Consortium With Crystal Consultan
Shikhar
 Authorized Signatory



<h1>D PA 04</h1>		
	No Mining Zone (1/8 th both side River Bank)	Proposed Potential Resource Area (PRA)

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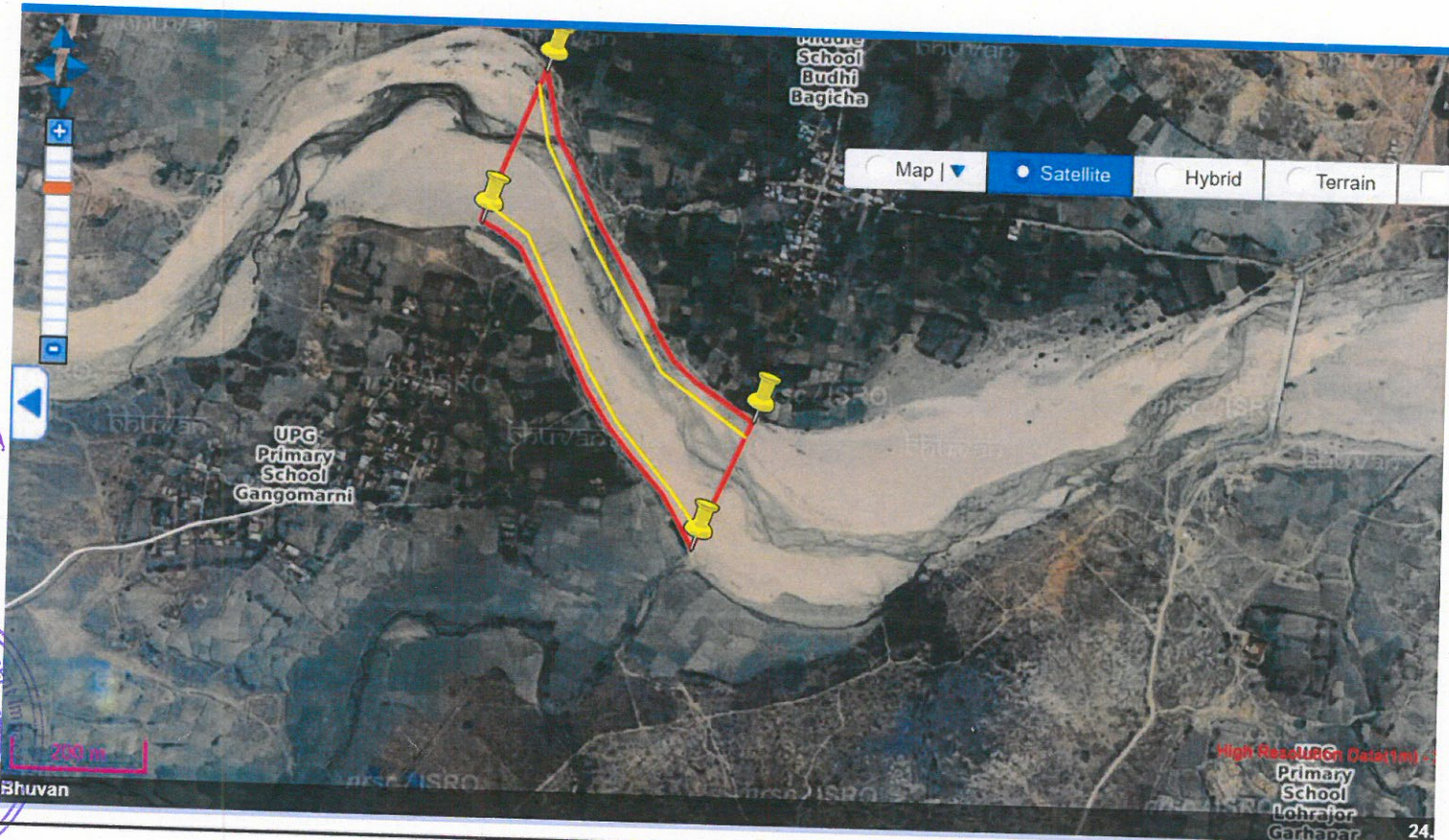
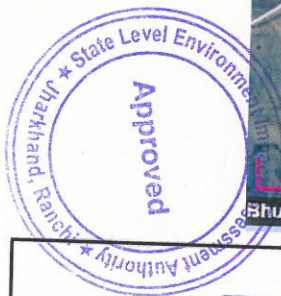
R.D. Consultants (P) Ltd.
 in consortium with Crystal Consultants
Shil
 Authorized Signatory



<h1>D PA 05</h1>		
	No Mining Zone (1/8 th both side River Bank)	Proposed Potential Resource Area (PRA)

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D. Consultants (P) Ltd.
in with Crystal Consultants
Shilpa
Authorized Signatory



D PA 06		
	No Mining Zone (1/8 th both side River Bank)	Proposed Potential Resource Area (PRA)

Handwritten signature

Handwritten mark

D. Consultants (P) Ltd.
 in Partnership with Crystal Consultants
Shikha
 Authorized Signatory



D PA 07

No Mining Zone (1/8 th both side River Bank)	Proposed Potential Resource Area (PRA)

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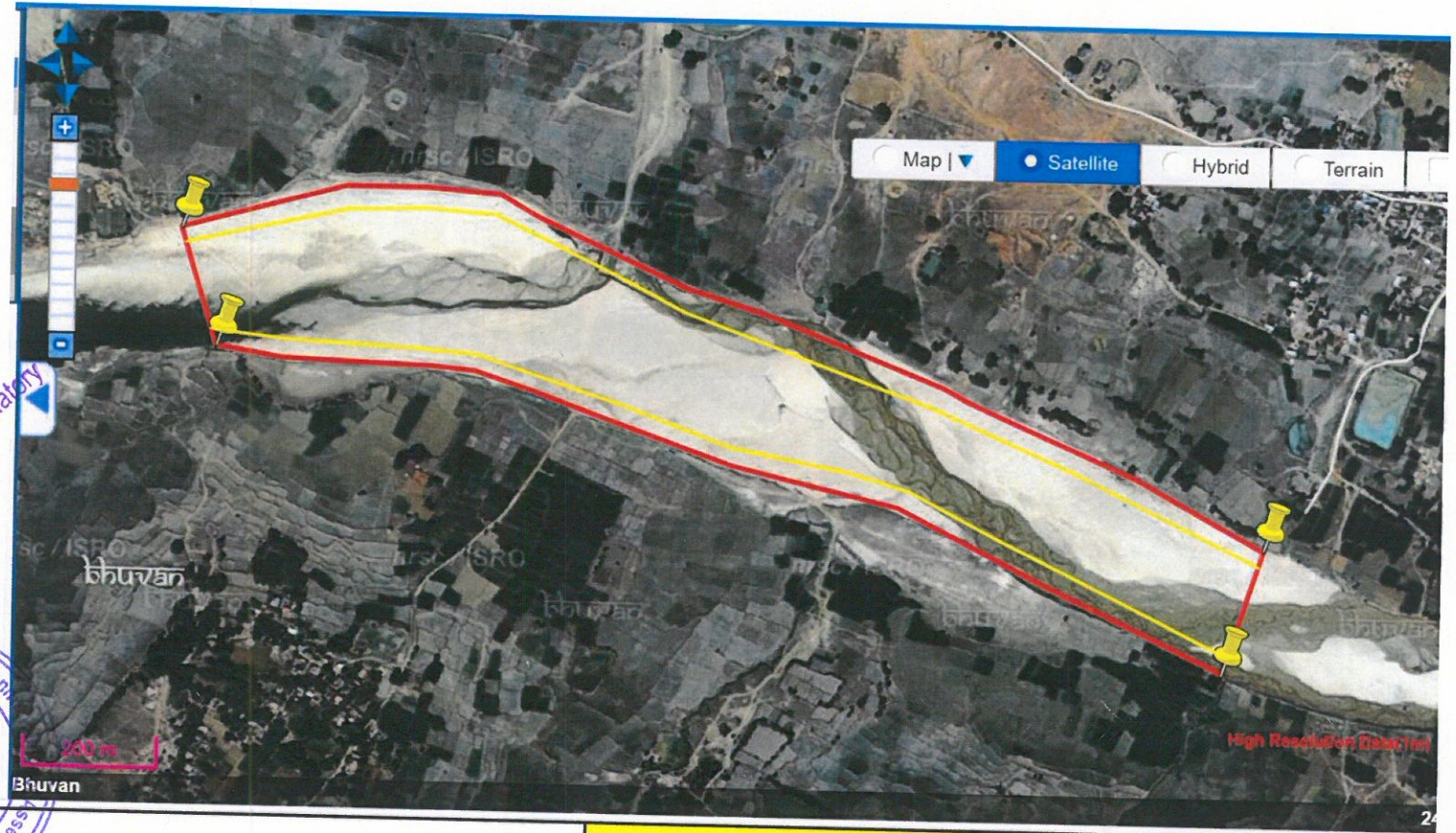
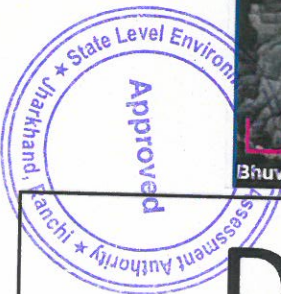
Crystal Consultants (P) Ltd.
Authorized Signatory



D PA 08

	No Mining Zone (1/8 th both side River Bank)	Proposed Potential Resource Area (PRA)

P.D. Consultants (P) Ltd.
 Environment with Crystal Consultants
Shree K
 Authorized Signatory



D PA 09

No Mining Zone (1/8 th both side River Bank)	Proposed Potential Resource Area (PRA)

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M.P.D. Consultants (P) Ltd.
 in association with Crystal Consultants
Shubhu
 Authorized Signatory

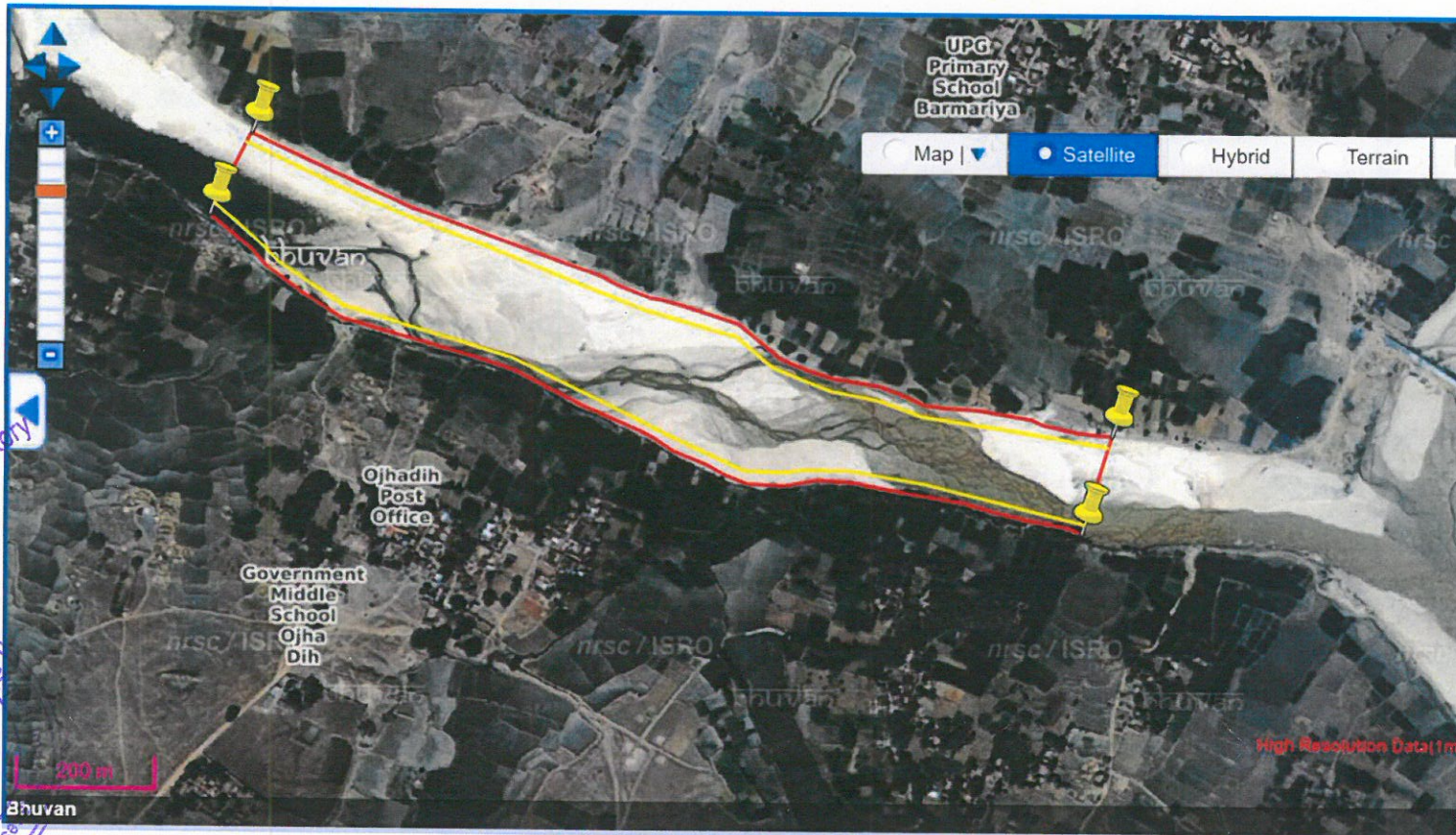


D PA 10

No Mining Zone (1/8 th both side River Bank)	Proposed Potential Resource Area (PRA)

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Crystal Consultants (P) Ltd.
in m with Crystal Consultants
Shahi
 Authorized Signatory



<h1>D PA 11</h1>		
	No Mining Zone (1/8 th both side River Bank)	Proposed Potential Resource Area (PRA)

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M. R. D. Consultants (P) Ltd.
Consortium with Crystal Consultants
Shri Krishna
Authorized Signatory

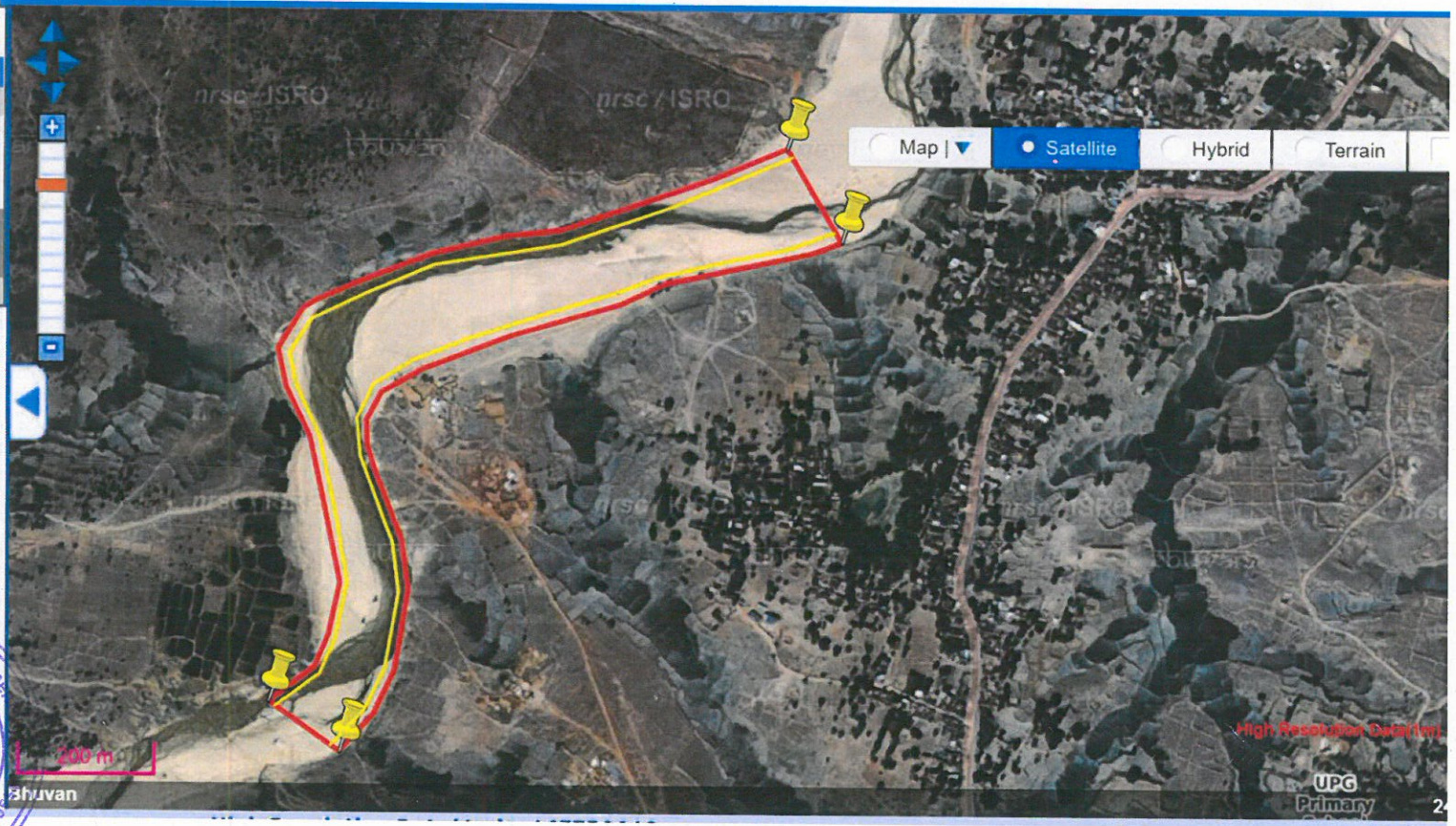
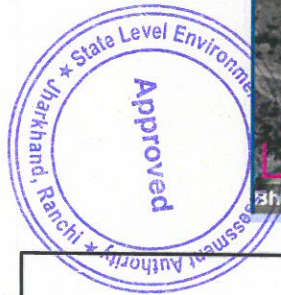


D JA 01		
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M. R.D. Consultants (P) Ltd.
 Consortium with Crystal Consultants

 Authorized Signatory

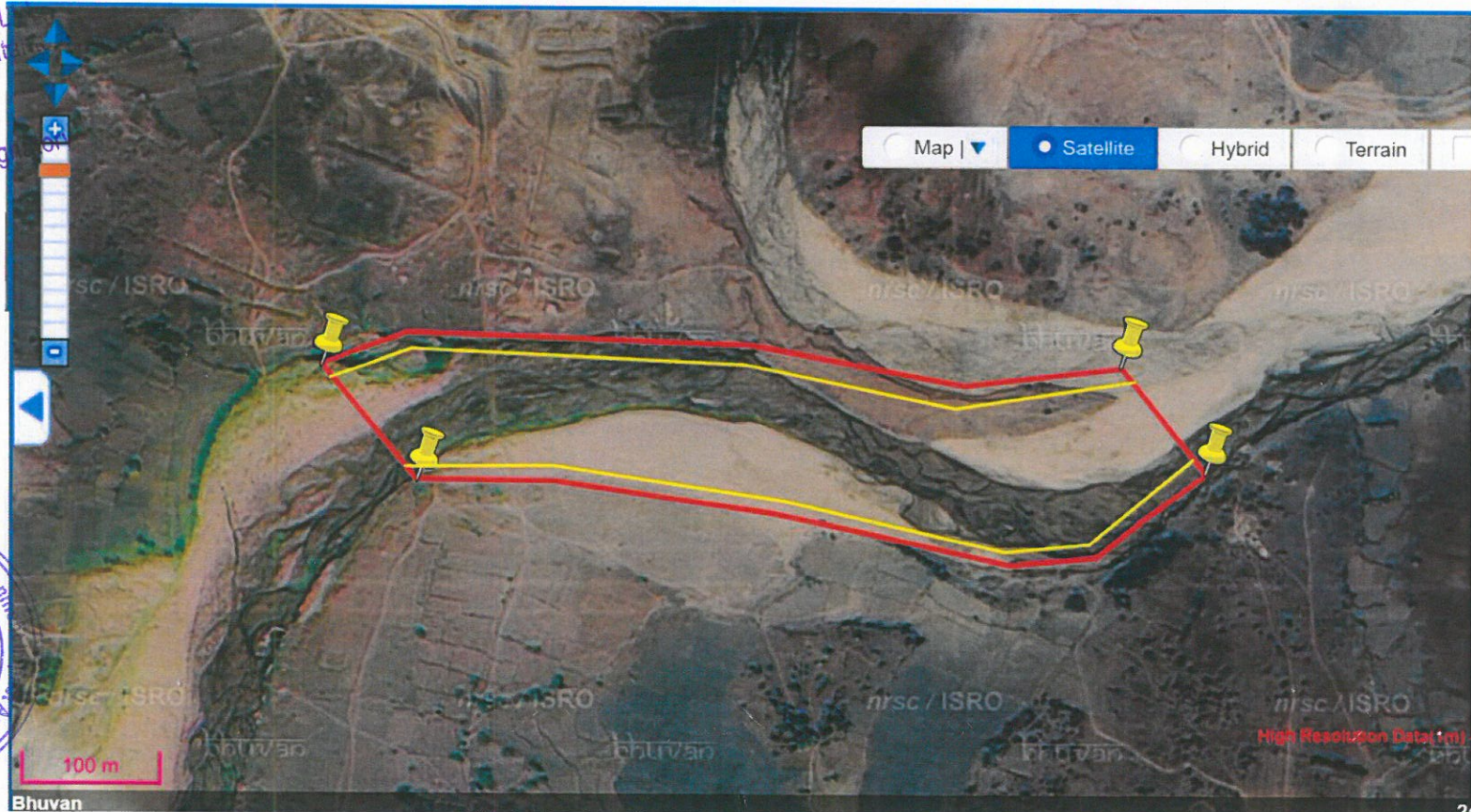


<h1>D JA 02</h1>		
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Sigma R.D. Consultants (P) L
Consortium with Crystal Consult
Shri K. S.
Authorized Sign

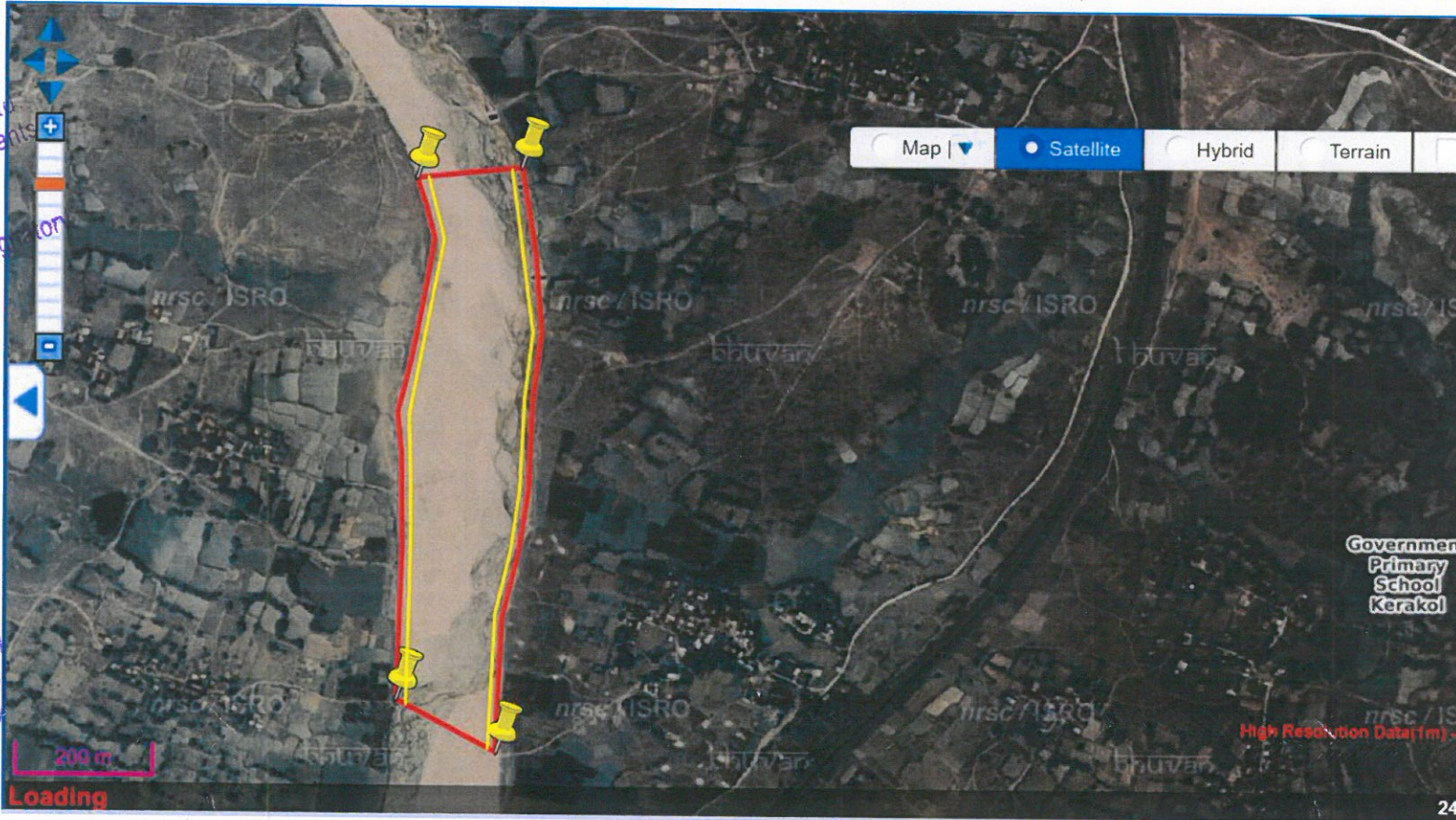


D JA 03		
	No Mining Zone (1/8 th both side River Bank)	Proposed Potential Resource Area (PRA)

Handwritten signature

Handwritten signature

Sigma R.D. Consultants (P) Ltd
Consortium with Crystal Consultants
Shri K
Authorized Signatory

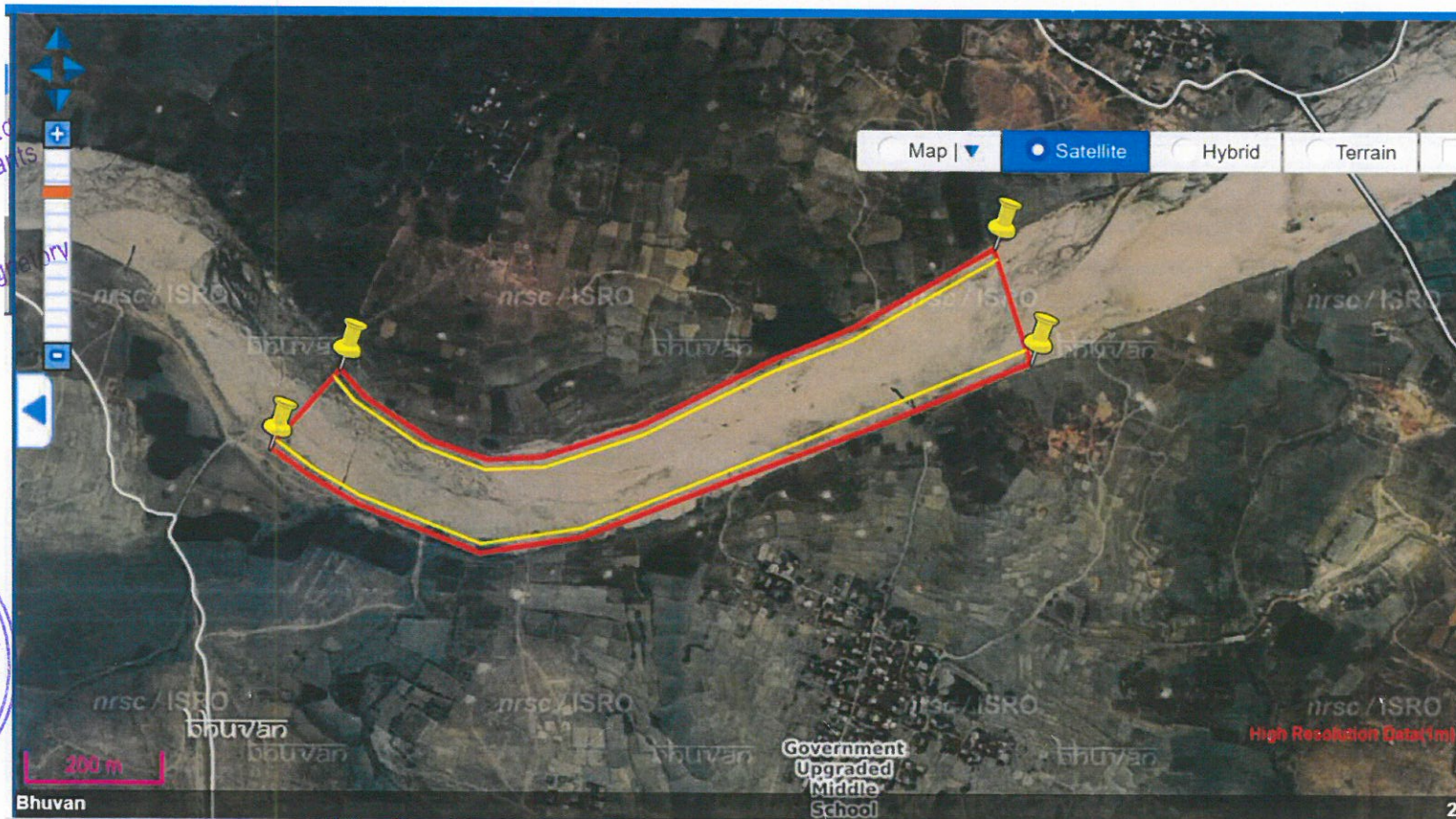


D JA 04		
	No Mining Zone (1/8 th both side River Bank)	Proposed Potential Resource Area (PRA)

SP

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M & R.D. Consultants (P) Ltd
Consortium with Crystal Consultants
Shikha
Authorized Signatory



D JA 05		
	No Mining Zone (1/8 th both side River Bank)	Proposed Potential Resource Area (PRA)

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Sigma R.D. Consultants (P) Ltd
 Consortium with Crystal Consultants
Srinu Kumar
 Authorized Signatory



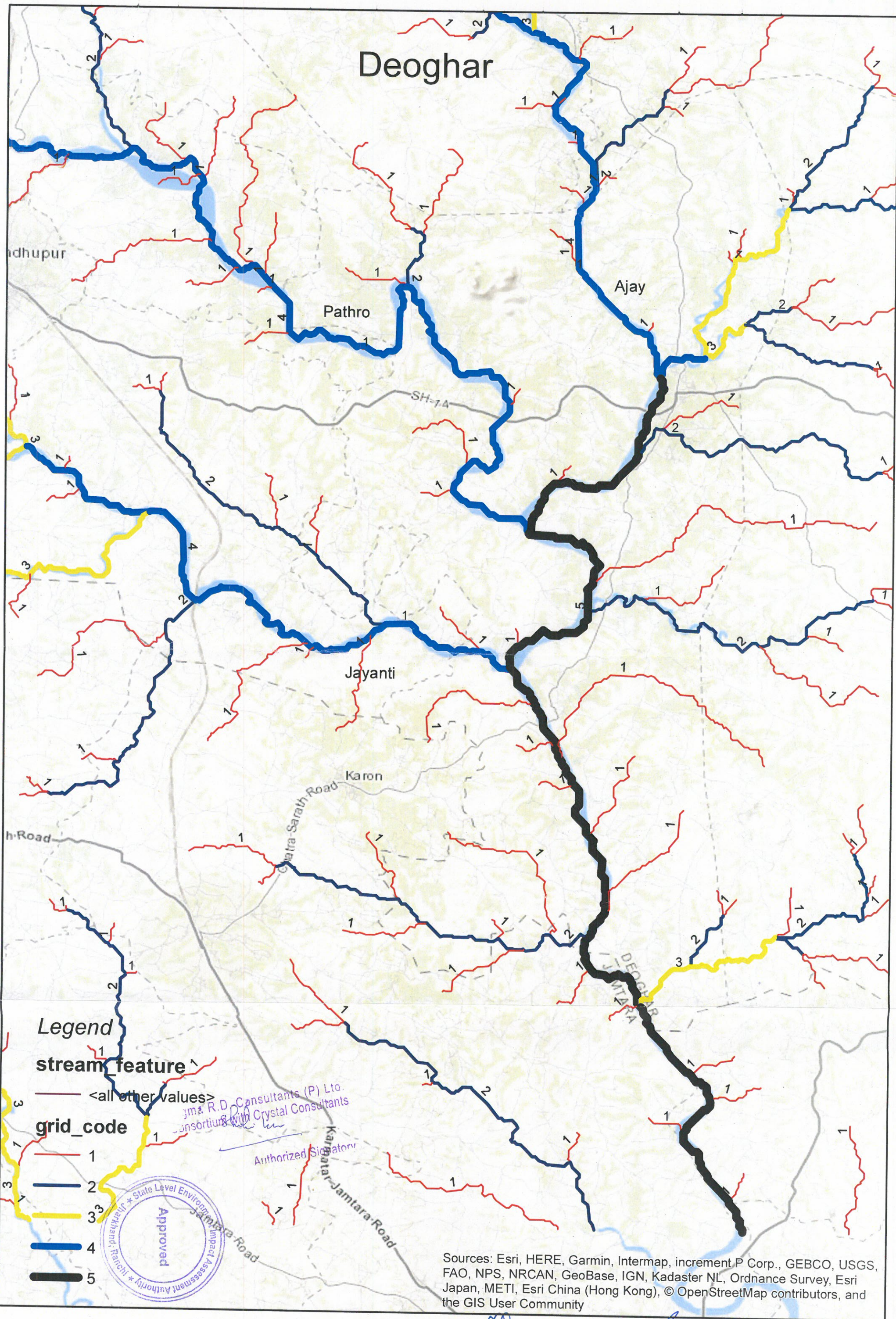
<h1>D JA 06</h1>		
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[Handwritten signatures]

PLATE - 6
STREAM ORDER MAP



Deoghar



Legend

stream feature

<all other values>

grid_code

- 1
- 2
- 3
- 4
- 5

Jm. R.D. Consultants (P) Ltd.
in consortium with Crystal Consultants
Authorized Signatory

Approved
State Level Environmental Impact Assessment Authority
Jharkhand, Ranchi

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), © OpenStreetMap contributors, and the GIS User Community