

**DGPS Survey Report of 1850.94 Hectares of Land
(Block Boundary and Forest Patches) Inside the
Bandha Coal Block in Singruali, Madhya Pradesh
Of
EMIL Mines and Mineral Resources Ltd
(EMMRL)**



June 2021

**DGPS SURVEY AND GIS MAPPING DONE BY:
Geotrax International Services
Raipur, Chhattisgarh.**

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1. Introduction and Background

1.1 Background

The Bandha Coal Block is situated in the southern part of the Singrauli Coalfield (Main Basin) in the state of Madhya Pradesh. The coal block comprising parts of villages of Bandha, Tenduha of Sarai Tehsil of Singrauli district, Madhya Pradesh. The area falls in Survey of India Topo sheet No.63 L/8 and lies between latitude 24° 04' 17" N to 24° 06' 52" N and longitudes 82° 21' 39" E to 82° 24' 57" E.

The Bandha Coal Mine spread over a total 18.5094 Sq Km area. Nearest big Railway station is Singrauli whereas local station is Bargawan on Chopan – Singrauli – Katni section of Central Railway.

The Bandha Coal Block in Singrauli Coalfield, in the State of Madhya Pradesh has been allotted to EMIL Mines and Mineral Resources Ltd (EMMRL).

1.2 Location of Coal Deposit

The Singrauli Coalfield which forms the northern most part of Son-Mahanadi Master basin occupies a prominent position on power map of India due to its vast Quarriable coal resources. Singrauli Coalfield covering an area of about 2200 sq km is located mainly in Singrauli district of Madhya Pradesh with a small portion falling in Sonbhadra District of Uttar Pradesh. Singrauli coalfield is structurally composed of two techno-sedimentary domains viz. the Moher sub basin in north east and the Main Basin in the west. The large part of the coalfield known as Main Basin covering nearly 1900 sq km has been partly explored while the Moher sub basin having an area of around 300 sq km has been extensively explored in detail. These two basins of Singrauli Coalfield are separated by a concealed basement high. The Bandha Coal block spread over a total 18.5094 sq.km area is located at about 70 km south-west of Singrauli township, whereas, it is around 50 km south-west of Waidhan township, the District Headquarter of Singrauli District. This area is a part of Survey of India Topo sheet No.63 L/8 (on R.F.1:50000).

1.3 Communication

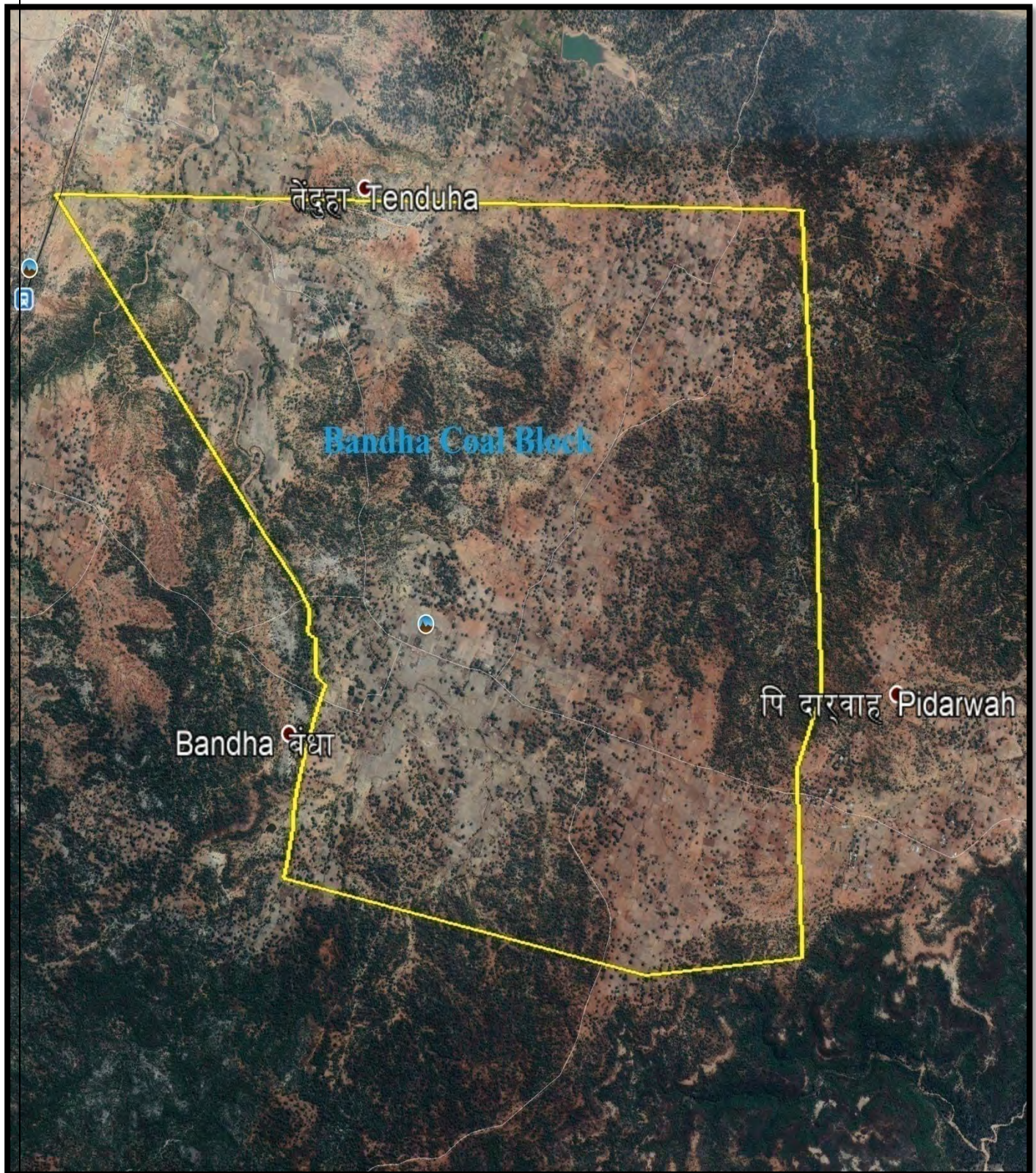
Bandha Coal Block spread over a total 18.5094 sq.km area and it is connected through both Ranchi – Renukut – Singrauli – Bargawan – Sidhi – Rewa national highway and Waidhen-Bargawan-Sidhi state highway. It is located about 25 km SW from Bargawan town. From both national highway and state highway, network of forest roads and few pakka jeepable roads are available connecting the surrounding villages. Nearest big Railway station is Singrauli whereas local station is Bargawan on Chopan – Singrauli – Katni section of Central Railway.

1.4 Bandha Coal Block Village Details

The Coal Block is identified in the following five villages of Sarai tehsil of Singrauli district.

1. Bandha
2. Tenduha
3. Pidharwa
4. Deori
5. Pachaur

1.5 Satellite Image showing Boundaries of Bandha Coal Block



1.6 Geotrax Empanelment Certificate for DGPS Survey from Chhattisgarh Govt.

By Speed post

छत्तीसगढ़ शासन
खनिज साधन विभाग
मंत्रालय

महानदी भवन, नवा रायपुर अटल नगर-492002
// अधिसूचना //

अटल नगर, दिनांक अगस्त, 2020

क्रमांक एफ 7-14/2013/12 :: राज्य शासन एतद् द्वारा चीफ कन्ट्रोलर ऑफ माइन्स, भारतीय खान ब्यूरो, नागपुर के परिपत्र क्रमांक 2/2010, दिनांक 06.04.2010 के पैरा-2 के बिन्दु क्रमांक-2 एवं पत्र दिनांक 21.09.2011 तथा भारत सरकार के राजपत्र दिनांक 08.10.2014 एवं खनिज(परमाणु और हाइड्रोकार्बन ऊर्जा खनिजों से भिन्न) रियायत नियम, 2016 के नियम, 12 के अनुपालन में Differential Global Positioning System(डीजीपीएस) का उपयोग करते हुए खनिज कोयला को छोड़कर समस्त खनिजों के खनिज रियायतों के सीमाओं में Precise Boundary Pillar की स्थापना कर सर्वेक्षण करने के लिए नीचे तालिका के कॉलम नंबर-02 में दर्शित संस्थानों को अधिमान्यता प्रदान करता है :-

क्र०	एजेन्सी का नाम एवं पता	अधिमान्यता का विवरण
1	2	3
नवीन अधिमान्यता हेतु अनुशसित एजेन्सी :-		
1	मेसर्स इण्ड इन्फोटेक सर्विसेस, प्लॉट नं-26, लेण्डर्स पार्क, रामदाशपेट, नागपुर-440012(महाराष्ट्र)	खनिज कोयला को छोड़कर राज्य में समस्त खनिजों की खनिज रियायतों से संबंधित DGPS Survey कार्य हेतु !
2	मेसर्स ग्लोबल बिजनेस सॉल्यूशन, वेद आर्किड, तृतीय तल, 4-1-15/1, प्लॉट नं- 134 नधराम मेन रोड, हैदराबाद-500076(तेलंगाना)	
3	मेसर्स इनजियोटेक कंसल्टेंट, 1338, प्रथम तल, विजय नगर, कचनार सिटी रोड, जबलपुर-482002(मध्य प्रदेश)	
4	मेसर्स एम.एन.ई.सी. कंसल्टेंट प्रा० लिमिटेड, प्रथम तल, 'प्रतिष्ठा संकुल', धर्मपेट, नागपुर(महाराष्ट्र)	
5	मेसर्स सुमधुरा जियोमेटिका प्रा० लिमिटेड, रजि. ऑफिस-1-2-607/54/7, एबीएस कालोनी, डीबीआर मिल्स के पिछे, हैदराबाद-500080(तेलंगाना)	
6	मेसर्स जियोट्रेक्स इंटरनेशनल सर्विसेस, प्लॉट नंबर-53, नीरा एक्सटेंशन, पार्थिवी नगर, हीरापुर रोड, रायपुर-492009(छत्तीसगढ़)	
नवकरण हेतु अनुशसित एजेन्सी :-		
7	मेसर्स कम्प्यूटर प्लस (सॉफ्टवेयर डेवलपमेंट कंसल्टेन्सी) प्लॉट नं. 4, सेक्टर-1, राजीव गांधी वार्ड, देवेन्द्र नगर, रायपुर Email : info@cplus.in , rajendra@cplus.in	

उपर्युक्त तालिका के सरल क्रमांक-07 मेसर्स कम्प्यूटर प्लस(सॉफ्टवेयर डेवलपमेंट कंसल्टेन्सी) को विभागीय समसंख्यक अधिसूचना दिनांक 29.10.2016 द्वारा 03 वर्ष की अवधि के लिये सशर्त प्रदान की गई अधिमान्यता की अवधि दिनांक 28.10.2019 को समाप्त हो गई है। अतएवं राज्य शासन, एतद्वारा मेसर्स कम्प्यूटर प्लस(सॉफ्टवेयर डेवलपमेंट कंसल्टेन्सी) की अधिमान्यता का नवकरण दिनांक 29.10.2019 से आगामी 03 वर्ष के लिये नीचे उल्लिखित शर्तों के अधीन प्रदान करती है।

- 2/ अधिमान्यता प्राप्त संस्थानों के लिए निम्नानुसार शर्तें निर्धारित की गई हैं :-
- (1) Each corner of the lease area shall have a boundary pillar(corner pillar).
 - (2) There shall be erected intermediate boundary pillars between the corner pillars in such a way that each pillar is visible from the adjacent pillar located on either side of it;
 - (3) The distance between two adjacent pillars shall not be more than fifty meters;
 - (4) The pillar shall be of square pyramidal frustum shaped above the surface and cuboid shaped below the surface;
 - (5) Each pillars shall be of reinforced cement concrete;

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- (6) The corner pillar shall have a base of 0.3m X 0.3m and height of 1.30m of which 0.70m shall be above ground level and 0.60m below the ground;
 - (7) The intermediate pillars shall have a base of 0.25m x 0.25m and height of 1.0m of which 0.70m shall be above ground level and 0.30 m below the ground;
 - (8) All pillars shall be painted in yellow colour and the top ten centimeters in red colour by enamel paint and shall be grouted with cement concrete.
 - (9) On all corner pillars, distance and being to the forward and backward pillars and latitude and longitude shall be marked;
 - (10) Each pillar shall have serial number in a clockwise direction and the number shall be engraved on the pillars;
 - (11) The number of pillars shall be the numbers of the individual pillar upon the total number of pillars in the lease;
 - (12) The tip of all the corner boundary pillars shall be a square of 15 centimeter on which a permanent circle of 10 centimeter diameter shall be drawn by paint or engraved and the actual boundary point shall be intersection of two diameters drawn at 90 degrees.
 - (13) The lease boundary survey shall be accurate within such limits of error as the Control General, Indian Bureau of Mines may specify in this behalf;
 - (14) The location and number of the pillars shall also be shown in the surface and other plans maintained by the lessee; and
 - (15) In case of forest area within the lease, the size and construction and colour of the boundary pillars shall be as per the norms specified by the Forest Department in this behalf.
 - (16) The Survey Agency shall be responsible for the accuracy of the data collected during Survey.
 - (17) Coordinates of boundary pillars shall be established in the World Geodetic System 1984 (WGS-84) Datum.
 - (18) डीजीपीएस सर्वे कार्य हेतु पारिश्रमिक का निर्धारण अधिमान्यता प्राप्त संस्थान एवं खनिज रियायतधारी के मध्य आपसी समन्वय से किया जायेगा। किसी भी प्रकार का आपसी विवाद होने पर राज्य शासन उत्तरदायी नहीं होगा।
 - (19) डीजीपीएस सर्वे कार्य के गुणवत्ता में कमी पाये जाने पर या किसी भी प्रकार की कार्य संबंधी शिकायत पाये जाने पर जांच उपरांत राज्य शासन को यह अधिकार होगा कि उक्त अधिकृत एंजेसी की मान्यता किसी भी समय समाप्त की जा सकती है।
 - (20) डीजीपीएस सर्वे के संबंध में भारतीय खान ब्यूरो/राज्य शासन द्वारा समय-समय पर जारी निर्देशों का पालन अधिमान्यता प्राप्त संस्थान को करना होगा।
 - (21) राज्य शासन द्वारा जारी यह अधिमान्यता 03 वर्ष के लिए होगी। समयावधि समाप्ति से 03 माह पूर्व अधिकृत एंजेसी नवीनीकरण हेतु आवेदन कर सकेगा।
- 3/ यह अधिमान्यता/नवकरण अधिसूचना के जारी होने की तिथि से 03 वर्ष के लिए ही मान्य होगी।

छत्तीसगढ़ के राज्यपाल के नाम से
तथा आदेशानुसार,

उत्तरा,
(अन्वेलगन पी०)
सचिव

छत्तीसगढ़ शासन
खनिज साधन विभाग

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पृ0क्रमांक एफ 7-14 / 2013 / 12

अटल नगर, दिनांक अगस्त, 2020
26 AUG 2020

प्रतिलिपि:-

1. सचिव, भारत सरकार, खान मंत्रालय, शास्त्री भवन, नई दिल्ली,
2. कंट्रोलर जनरल, भारतीय खान ब्यूरो, सेक्रेण्ड पलोर, ए-ब्लॉक, इन्दिरा भवन, सिविल लाईन्स, नागपुर(महाराष्ट्र)
3. उप खान नियंत्रक, क्षेत्रीय कार्यालय भारतीय खान ब्यूरो, दूसरी मंजिल, जी.एस.आई. फील्ड प्रशिक्षण केन्द्र, महालेखाकार आफिस काम्पलेक्स, पोस्ट विधानसभा, रायपुर
4. संचालक, भौमिकी तथा खनिकर्म, छत्तीसगढ़, द्वितीय तल, इन्द्रावती भवन, नवा रायपुर अटल नगर, जिला रायपुर(छत्तीसगढ़)
5. समस्त कलेक्टर, जिला ————— छत्तीसगढ़
6. समस्त संबंधित ~~मेसर्स जियोटेक्न इंटरनेशनल सर्विसेस~~
की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु अग्रेषित
7. संचालक, शासकीय क्षेत्रीय मुद्रणालय, खैरागढ़ रोड, राजनांदगांव, जिला राजनांदगांव(छत्तीसगढ़) की ओर साधारण राजपत्र में प्रकाशनार्थ।
8. श्री श्रीकांत राव, उप संचालक(भौमिकी), संचालनालय भौमिकी तथा खनिकर्म, द्वितीय फ्लौर, इन्द्रावती भवन, नवा रायपुर अटल नगर, जिला रायपुर(छत्तीसगढ़)। कृपया उक्त आदेश/अधिसूचना को संचालनालय की वेबसाइट में अपलोड करने का कष्ट करें।
9. गार्ड फाईल रजिस्टर

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सचिव
छत्तीसगढ़ शासन
खनिज साधन विभाग

2. Scope of Work

1. Establishment of one base station for DGPS Survey with 72 Hours observation and one or more secondary control points near/inside the Block boundary.
2. Fixation of block boundary point by DGPS (Boundary point fixed at every corner and turning point).
3. DGPS of Forest Compartments inside/intersecting the Bandha Coal block
4. Data processing and interpretation: -
 - a. Geo referencing of SOI Toposheet map (1:50000) & revenue maps (1:4000).
 - b. Digitization of Private land, Govt. land and Forest Compartment boundary
 - c. Creation of proposed block boundary vector map, Revenue & Forest Compartment boundary vector data based on geo-referenced cadastral map, forest map and using the DGPS survey data.
 - d. Superimposition of vector land polygon layer on Georeferenced forest map and cadastral maps.
 - e. Computation of Bandha Block applied area, which includes revenue land and forest land.
 - f. Preparation of DGPS report along with soft copies of maps in shape file format and kml file.
5. Printing of report and Georeferenced map.

3. Deliverables

The deliverables envisaged for the assignment are described below

1. Georeferenced SOI map & village wise revenue map showing revenue land khasras.
2. Georeferenced shape files & kml file (Soft copy) showing forest compartment Patches.
3. Revenue land Forest land area statement as per DGPS Survey & geo-referenced cadastral maps, showing total Block area
4. Block boundary coordinates as per DGPS Survey.

4. Brief description of the Technical approach

4.1 Input Data

The user agency staff along with officials from revenue department & forest department assisted the Geotrax survey team during the block boundary survey. The forest department provided us the forest compartment maps, which were procured from Forest Department head office in Bhopal, M.P. The revenue maps were procured from the Waidhan tehsil office and land records office at district collectorate in Singrauli.

The user agency also provided us the list of Cardinal Control points (73 nos.) for fixing the block boundary. The list of cardinal control points is annexed herewith and marked as **Annexure-2**

4.2 Establishment of Primary Control Point and Temporary Bench marks (TBM)

The Primary Control Point (PCP) with 72 hours of DGPS Observation was established as the DGPS base station. The PCP was established inside the primary school premises of Deori village (**Latitude: N24°06'01.54636", Longitude: E82°21'42.92172"**). As per Survey of India (SOI) Guideline, the PCP is to be fixed through continuous observation for 72 hours duration. The observed data was processed with reference to the data of International GNSS Service (IGS) stations as per SOI guideline.

The PCP point was post-processed using two SOI base stations.

PSI-0017	Deori	Pillar	638423.658	2666017.428	429.762	24°06'01.54636"	82°21'42.92172"	370.774
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Using the PCP control point, several Temporary bench marks (TBM) are established in Real-Time-Kinematic mode (RTK) using the DGPS instrument. The TBM are used as survey stations for staking out the block boundary cardinal points and also for collecting the coordinates of forest pillars & other topographical features.

The coordinate of the PCP and TBM is given below:

Sl No	TBM	Village	Location	Easting	Northing	Elevation (m)	Latitude(DMS)	Longitude(DMS)	Ellipsoidal Height(m)
1	PSI-0017	Deori	Pillar	638423.658	2666017.428	429.762	24°06'01.54636"	82°21'42.92172"	370.774
2	BG-01	Deori	School	638415.977	2666016.795	432.477	24°06'01.52820"	82°21'42.64950"	373.436
3	BG-02	Deori	Stone	640175.891	2664427.703	454.191	24°05'09.31369"	82°22'44.41809"	395.155
4	BG-03	Tenduha	School	642675.477	2667362.53	457.306	24°06'43.90786"	82°24'13.96178"	398.204
5	BG-04	Bandha	Stone	643195.534	2664075.162	462.95	24°04'56.87928"	82°24'31.21042"	403.89
6	BG-5	Pidrwah	Stone	643906.952	2664262.344	456.18	24°05'02.73118"	82°24'56.46584"	397.11
7	BG-05A	Bandha	Stone	643906.756	2664263.439	455.072	24°05'02.76684"	82°24'56.45929"	396.002
8	BG-6	Pidrwah	Stone	643778.29	2667259.839	452.36	24°06'40.20952"	82°24'52.98053"	393.248
9	BG-6A	Pidrwah	Stone	643694.737	2667491.878	454.039	24°06'47.77953"	82°24'50.10444"	394.925
10	BG-07	Bandha	Stone	643564.637	2668638.014	454.149	24°07'25.07822"	82°24'45.90604"	395.019
11	BG-8	Pidrwah	Stone	643906.585	2664834.383	448.141	24°05'21.32594"	82°24'56.65714"	389.063
12	BG-09	Bandha	Stone	641304.409	2665652.842	441.13	24°05'48.77650"	82°23'24.80585"	382.065
13	BG-11	Tenduha	Stone	640822.613	2667420.711	436.235	24°06'46.39819"	82°23'08.36364"	377.15
14	TBM-03	Tenduha	Pillar	643739.399	2667484.369	455.451	24°06'47.52080"	82°24'51.68344"	396.291
15	BG-04A	Bandha	Stone	643261.859	2663149.55	473.428	24°04'26.76968"	82°24'33.22981"	414.38
16	BG-02A	Deori	Stone	640902.193	2663343.419	457.36	24°04'33.83505"	82°23'09.75565"	398.332
17	TBM-04	Tenduha	Pillar	643748.819	2667521.133	456.699	24°06'48.71275"	82°24'52.03018"	397.58
18	TBM-04A	Pidrwah	School	644327.651	2667232.163	456.092	24°06'39.12938"	82°25'12.42566"	396.975
19	TBM-01	Pidrwah	Pillar	643732.525	2664092.722	460.997	24°04'57.27461"	82°24'50.22949"	401.978
20	TBM-02	Pidrwah	Pillar	643733.702	2664047.232	460.804	24°04'55.79552"	82°24'50.25494"	401.787
21	BG-10	Bandha	Culvert	640005.657	2666969.634	418.939	24°06'31.99701"	82°22'39.27421"	359.869



Fig-1: Photo showing Primary Control Point (PCP) Deori primary school, Deori Village.



4.3 DGPS Survey Procedure

DGPS survey was carried out using a pair of DGPS instrument. One DGPS Instrument was used as Base Station and other is used as Rover.

The survey was conducted in Real Time Kinematic (RTK) survey method. The Survey team carried out DGPS Survey for fixing the block boundary based on the given cardinal points and collected the DGPS coordinates of forest pillars and other topographical features such as road edges, nalla's, tower line center points etc., by walking inside the Bandha allotted block area.

During the survey the forest department staff helped to identify the forest compartments and revenue staff identified in the revenue parcels that are intersecting the block boundary. The revenue department staff also provided information regarding the Khasra number, ownership, land type (Kisam) etc.

4.4 Geo-referencing & digitization khasras/Compartment from revenue maps and Forest maps

The revenue maps and Forest maps are geo-referenced in ArcMap software. From the digitized khasra polygon the area is computed and reconciled with revenue records & forest records. The geo-referenced maps are then mosaiced into one single map and the block boundary is super-imposed onto the revenue and forest compartment maps.

Map Composition: The village wise revenue maps showing the revenue land is plotted on a RF scale of 1:4000 and the forest maps are composed on 1:15000 RF scale. The block boundary is also superimposed on the geo-referenced Survey of India (SOI) map and plotted on a RF scale of 1:50000.

Please find below two sample geo-referenced maps

METRIC



Tenduha

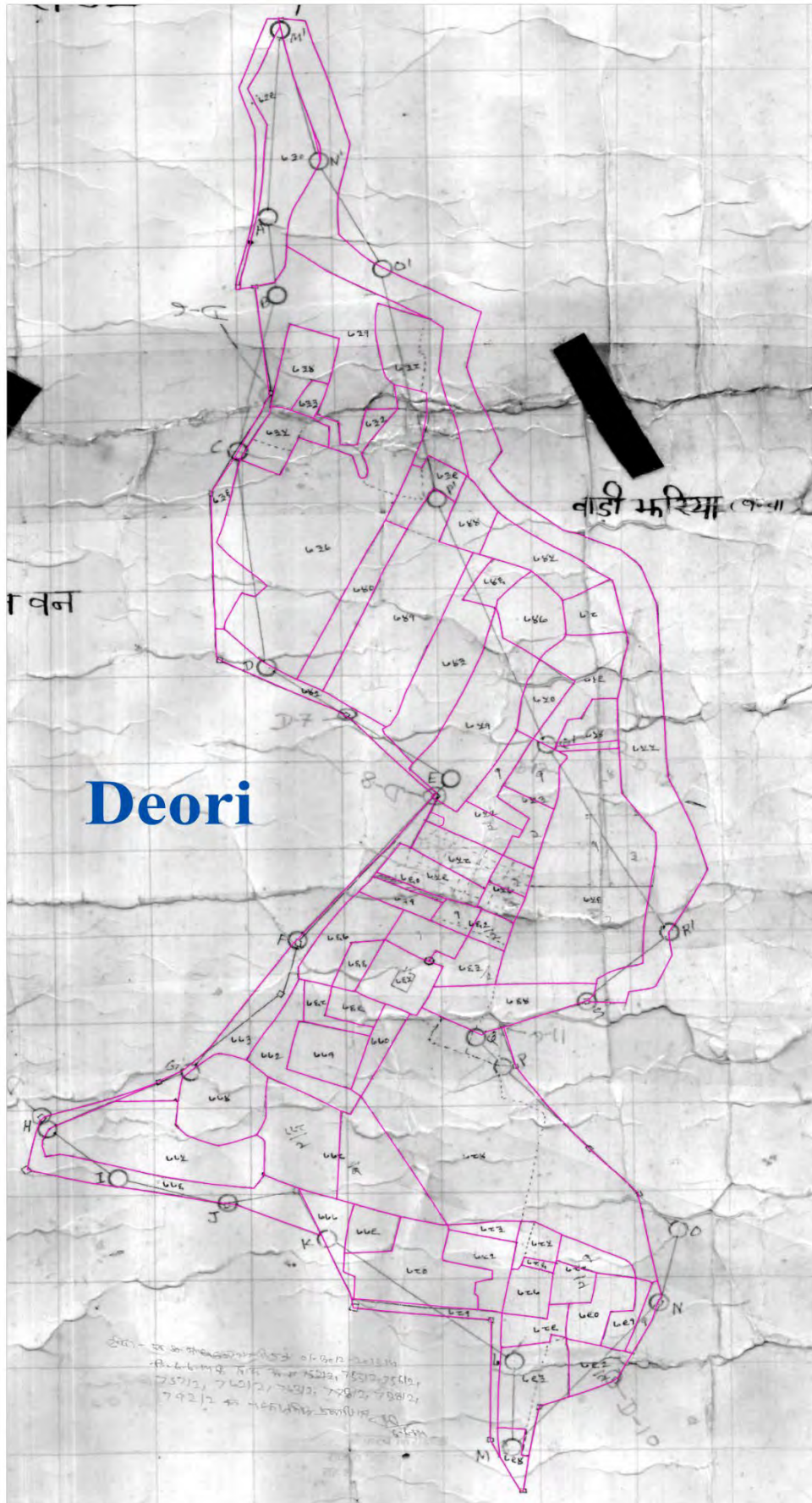
तेन्दुहा उर्फ मेढुलिया खंड 2

आरक्षित वन

खंडाखंड 2

विडरवाह

मापका- 1/4000
प्लॉट नं. 1978-19
कै. सी.टी.डी.

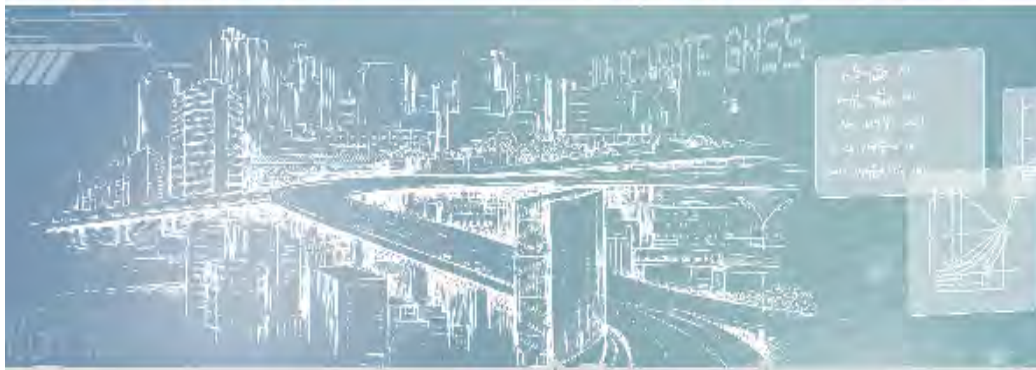


4.5 Specification of DGPS Equipment

Geotrax deployed the most advance and hi-precision devices to carry out the DGPS survey. The DGPS performance specifications are given below. The corresponding fact sheets are placed below for ready reference.

COMNAV

T300 GNSS Receiver



Features

- Ultra small
- Super light
- Many user-friendly conveniences built in
- GPS L1/L2/L5, BeiDou B1/B2/B3, GLONASS L1/L2
- Low power consumption
- Support long baseline E-RTK

RTK robust enough for challenging environments, in a device that is light and easy to carry

With decades of experience in the surveying GNSS receiver, the T300 is a product which combines lots of market proved advantages together. It can track all the working GNSS constellations. By using ComNav's unique QUAN™ algorithm technology, it can function in RTK mode with all the GNSS constellations or by using any single GNSS constellation such as GLONASS or BeiDou. The strong anti-interference ability of the receiver makes it possible to work in any environment.

Design driven to improve user experience

Our R&D people are always thinking about how to improve the physical experience of users and workflow in the field. With this in mind, the T300 integrates a cutting edge GNSS board, Bluetooth®, UHF (Rx&Tx) into a compact board. Smart design makes the T300 the lightest and smallest (volume) receiver in the world.

Hot swap battery design

Extending the field working time is also a passion for our R&D people. They do lots of tests and analysis to reduce the power consumption, and make the whole system work more efficiently. In parallel, they've designed in the capability to hot swap the battery source. When the warning sounds and LED flashes, put your second battery in place. Then recharge the first while you keep working.

Consumer grade batteries... always available

Losing power in the field is significantly inconvenient for users, as the batteries for GNSS receivers are often unusual types and not readily available. Once again our R&D people developed a solution so that the T300 runs on normal consumer batteries.

Technical Specifications

T300

Signal Tracking

- 256 channels with simultaneously tracked satellite signals
- GPS: L1 C/A, L1 C, L2 P, L5
- BeiDou: B1, B2, B3
- GLONASS: L1, L2
- SBAS: WAAS, EGNOS, MSAS, GAGAN

Performance Specifications

- Cold start: <50 s
- Warm start: <30 s
- Hot start: <15 s
- Initialization time: <10 s
- Singal re-acquisition: <2 s
- Initialization reliability: >99.9%

Positioning Specifications

- Post Processing Static
- Horizontal: 2.5 mm + 0.5 ppm RMS
- Vertical: 5 mm + 0.5 ppm RMS
- Real Time Kinematic
- Horizontal: 8 mm + 1 ppm RMS
- Vertical: 15 mm + 1 ppm RMS
- E-RTK¹ (baseline<100 km)
- Horizontal: 0.2 m + 1 ppm RMS
- Vertical: 0.4 m + 1 ppm RMS
- Code differential GNSS positioning
- Horizontal: 0.25 m + 1 ppm RMS
- Vertical: 0.5 m + 1 ppm RMS
- SBAS: Typically <1 m 3D RMS
- Standalone: <1.5 m 3D RMS

Communications and Memory

- 1 Serial port (7 pin Lemo).
- Baud rates up to 921,600 bps.
- Radio modem: Tx/Rx with full frequency range from 410-470 MHz²
- Transmit power: 0.5-2W adjustable
- Range: 1-4 km
- Position data output rates: 1 Hz, 2 Hz, 5 Hz, 10 Hz
- 5 LEDs (indicating Power, Satellite Tracking, Bluetooth[®] and Differential Data)
- Bluetooth[®]: V 2.X protocol, work compatible with Windows 7, Windows mobile and Android

Data Format

- Correction data I/O:
 - RTCM 2.x, 3.x, CMR (GPS only), CMR+ (GPS only).
- Position data output:
 - ASCII: NMEA-0183 GSV, RMC, HDT, VHD, GGA, GSA, ZDA, VTG, GST, PJK, PTNL
 - ComNav Binary update to 20 Hz

Physical

- Size(W×H): 15.8 cm × 7.5 cm
- Weight: 0.95 kg (include 2 batteries)

Environmental

- Operating temperature: -40 °C to +65 °C (40 °F to 149 °F)
- Storage temperature: -40 °C to +65 °C (40 °F to 185 °F)
- Humidity: 100% condensation
- Waterproof and dust proof: IP67 protected from temporary immersion to depth of 1 meter, floats
- Shock: survives a 2 meter drop on to concrete

Electrical

- Input Voltage: 5-27 VDC
- Power consumption: 2.85 W (3 constellations)³
- Li-ion battery capacity: 2 × 1800 mAh, up to 8 hours typically
- Memory: 256 MB internal with up to 16 GB pluggable memory card

Software

- ComNav field data collection software CGSurvey
- Carlson's SurvCE field data collection software (optional)
- MicroSurvey's FieldGenius field data collection software (optional)

¹ E-RTK, BeiDou B3 signal used in RTK calculate engine; concern the current situation, this mode can be used in APAC.

² 410-470 MHz, 3 frequency range, 410-430, 430-460, 460-470, need to clarify when place the order.

³ Power consumption will increase if using internal radio modem transmitter.

Specifications subject to change without notice.

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ComNav Technology Ltd.
Building E, No.50 Alley 2080 Lianhua Road
201103 Shanghai - China

Tel: +86 21 64056796

Fax: +86 21 54309582

Email: sales@comnavtech.com

www.comnavtech.com

5. Results

The area proposed for land inside the ML boundary is 1850.94 Ha. Summary of Forest & Non-Forest Land inside ML Boundary is annexed herewith and marked as **Annexure-1**. The final block boundary coordinates & forest boundary coordinates are annexed herewith and marked as **Annexure -2**. Village wise Geo-referenced maps showing revenue area inside Block Boundary is annexed herewith and marked as **Annexure-3**. Geo-referenced SOI toposheet showing applied area inside Bandha Coal Block is annexed herewith and marked as **Annexure-4**. Geo-referenced Forest Map showing applied forest area inside Bandha Coal Block is annexed herewith and marked as **Annexure-5**. Forest Compartment Boundary Pillar surveyed photographs inside Bandha Coal Block is annexed herewith and marked as **Annexure-6**. Pillar fix on Ground photographs inside Bandha Coal Block is annexed herewith and marked as **Annexure-7**.

6. Background of Organization

Geotrax International Services (www.geotrax.in) is a Professional Land Mapping and Services provider across India established in the year 1999. During the last 15+ years, we had an opportunity to execute a variety of surveying jobs all over India and in the Middle East to various customer specifications for RIS, LIS, and Municipal GIS oriented jobs. Cadastral Surveys using ETS/DGPS and Provision of Ground control conforming to stringent accuracy standards using high end instruments as RTK/GPRS DGPS is our speciality. We also have a UAV (Drone) and Ground Penetrating Radar (on Roaster).

Geotrax is headed by Mr. V.V.S Bandhakavi (Ex-Survey of India employee) who has more than 40+ years' experience in the field of surveying in India and abroad.

Some of our major clients include:

- Odisha Space Application Centre (ORSAC)
- Steel Authority of India (SAIL)
- Andhra Pradesh Mineral Development Corporation (APMDC)
- National Thermal Power Corporation (NTPC)
- Survey Settlement and Land Records Department (Govt. Of Gujarat)
- Survey Settlement and Land Records Department (Govt. Of Madhya Pradesh)
- Irrigation Dept. (Govt. of Jammu and Kashmir)
- National Remote Sensing Agency (Hyderabad)
- Hindalco Industries Limited (HIL)
- Adani Group
- Sterlite Power Transmission Limited
- Power development Corporation (Govt. of Jammu and Kashmir)

Geotrax expertise covers:

- ❖ DGPS Surveys for Mining lease boundary, and Forest Diversion
- ❖ Consultancy services for Mining Plan & EIA
- ❖ Boundary and cadastral surveys using DGPS and Total station;
- ❖ Topographic surveys.
- ❖ Ground control surveys for photogrammetric projects, including Airborne GPS.
- ❖ Only one of the two companies in India who are empanelled by NRSA for DGPS survey for ground control point collection
- ❖ Route and alignment surveys combining conventional and photogrammetric methods.
- ❖ Construction and cross-section surveys (from road design to precision layout and quality control).

Being a client focused organization, Geotrax's combination of survey equipment, personnel, and computer resources allow for the tailoring of the project approach to match the orders of accuracy and precision requirements for each project. Geotrax's equipment resources include 100 DGPS, 33 hand-held GPS units, theodolites, electronic digital and automatic levels, 19 Electronic Total Stations, and data collectors.

On the mapping side, our CAD and GIS professionals assist the survey projects by creating accurate maps. We have dedicated CAD experts who have extensive experience with different CAD software.

7. Annexure

7.1 Annexure – 1: Summary of Forest & Non-Forest Land inside ML Boundary

7.1.1 Summary of Forest & Non- Forest Area Village wise

Bandha Coal Block ML: Summary of Forest and Non-forest area

SlNo	Village	Private Land (Ha)	Govt. Land: Non-Forest (Ha)	Govt. Land: Revenue Forest VAN(Ha)	Village Total Revenue Area in the ML (Ha)
1	Tenduha	108.39	31.48	0.00	139.87
2	Pidarwah	119.03	43.41	2.01	164.46
3	Deori	35.67	13.33	0.00	49.00
4	Bandha	511.31	199.06	1.54	711.91
5	Pachaur	1.84	1.92	0.00	3.76
Sum Total Revenue Land (Ha)					1069.00

7.1.2 Summary of Protected Forest, Reserved Forest & Revenue Forest Land

	Details of Reserved Forest								
A-I	Sl.No	R.A. Circle	Range	Beat	Type of Compartment	Part/Whole Compartment inside the Bandha Coal Block	Compartment No	Total Area Inside Bandha Coal Block	Forest Range Wise Area(Ha)
	1	Bandha	Sarai East	Bandanwada	Dhuskari R.F	Part Compartment	RF-291	211.42	643.03
	2	Bandha	Sarai East	Banijhiria	Bandha R.F	Whole Compartment	RF-292	280.47	
	3	Bandha	Sarai East	Banijhiria	Bandha R.F	Part Compartment	RF-293	54.72	
	4	Bandha	Sarai East	Pidarwah	Dhuskari R.F	Part Compartment	RF-296	0.10	
	5	Bandha	Sarai East	Bandha	Bansibirdha R.F	Part Compartment	RF-319	0.67	
	6	Bandha	Sarai East	Devri	Bansibirdha R.F	Part Compartment	RF-320	0.99	
	7	Bandha	Sarai East	Bandha	Bansibirdha R.F	Part Compartment	RF-391	68.07	
	8	Bandha	Sarai East	Bandha	Bansibirdha R.F	Part Compartment	RF-392	26.60	
	9	Amilia	Waidhan	Amilia (N)	Bansibirdha R.F	Part Compartment	RF-389	42.78	43.01
	10	Amilia	Waidhan	Amilia (N)	Bansibirdha R.F	Part Compartment	RF-390	0.24	
	Total Reserved Forest Area								686.04
	Details of Protected Forest								
A-II	Sl.No	R.A. Circle	Range	Beat	Type of Compartment	Part/Whole Compartment inside the Bandha Coal Block	Compartment No	Total Area Inside Bandha Coal Block	Forest Range Wise Area(Ha)

	6	Bandha	Sarai East	Banijhiria	Bandha P.F	Part Compartment	PF-316	30.28	95.9
	7	Bandha	Sarai East	Bandha	Pindarwah(W) P.F	Part Compartment	PF-317	65.61	
	Total Protected Forest Area								95.90
	Details of Revenue Forest (Jungle/Van)								
A- III	SL No	District	Tehsil	Halka No	Halka Name	Village Name	Khasra No	Total Area (in Ha)	
	8	Singrauli	Sarai	53	Tenduha	Pidarwah	682/1	2.01	
	9			52	Bandha	Bandha	936/1448	1.10	
	10						1176/1440	0.06	
	11						535/1445	0.38	
	Total Revenue Forest Area								3.55
(A)	Total Forest Land (A(I)+A(II)+A(III)) = 686.04+95.9+3.55 = 785.49								
(B)	TOTAL NON-FOREST LAND (Government Land + Private Land) = 1065.45								
(C)	TOTAL BANDHA COAL BLOCK AREA (A + B) - 1850.94 Ha								

7.2 Annexure – 2: Bandha Coal Block DGPS Coordinates

7.2.1 Provisional Cardinal Point Coordinates of Bandha Coal Block

Cardinal Point Id	Longitude (DMS)	Latitude (DMS)
P-01	82°24'36.50614"E	24°04'19.50457"N
P-02	82°24'27.75774"E	24°04'18.75678"N
P-03	82°24'16.82155"E	24°04'17.82180"N

P-04	82°24'11.59428"E	24°04'17.37479"N
P-05	82°24'00.92223"E	24°04'19.56622"N
P-06	82°23'53.50218"E	24°04'21.08974"N
P-07	82°23'31.82858"E	24°04'25.53922"N
P-08	82°23'00.29799"E	24°04'32.01061"N
P-09	82°22'38.54391"E	24°04'36.47432"N
P-10	82°22'39.48565"E	24°04'39.91163"N
P-11	82°22'40.79306"E	24°04'45.77570"N
P-12	82°22'41.25249"E	24°04'50.70730"N
P-13	82°22'41.90712"E	24°04'53.82778"N
P-14	82°22'43.93277"E	24°05'00.68821"N
P-15	82°22'46.24109"E	24°05'07.42245"N
P-16	82°22'48.01530"E	24°05'11.82829"N
P-17	82°22'49.11167"E	24°05'14.16237"N
P-18	82°22'49.05663"E	24°05'14.69735"N
P-19	82°22'48.22791"E	24°05'15.26361"N
P-20	82°22'47.41010"E	24°05'15.89030"N
P-21	82°22'46.81974"E	24°05'16.75576"N
P-22	82°22'46.91037"E	24°05'21.88322"N
P-23	82°22'46.66388"E	24°05'23.82845"N
P-24	82°22'45.99921"E	24°05'24.12778"N
P-25	82°22'45.38058"E	24°05'24.13336"N
P-26	82°22'44.71562"E	24°05'25.03392"N
P-27	82°22'44.87582"E	24°05'25.99583"N
P-28	82°22'45.18888"E	24°05'27.23162"N
P-29	82°22'45.27780"E	24°05'28.53825"N
P-30	82°22'45.20951"E	24°05'29.15818"N
P-31	82°22'45.08740"E	24°05'29.40258"N
P-32	82°22'44.62241"E	24°05'30.33326"N
P-33	82°22'42.26232"E	24°05'33.93278"N
P-34	82°22'37.37662"E	24°05'39.68822"N
P-35	82°22'34.21906"E	24°05'43.35779"N

Cardinal Point Id	Longitude (DMS)	Latitude (DMS)
P-36	82°22'33.37850"E	24°05'44.33462"N
P-37	82°22'24.28238"E	24°05'55.65746"N
P-38	82°22'19.85894"E	24°06'01.16351"N
P-39	82°21'39.76387"E	24°06'51.06425"N
P-40	82°24'51.84378"E	24°06'47.97873"N

P-41	82°24'51.75824"E	24°06'45.95027"N
P-42	82°24'51.88121"E	24°06'43.91029"N
P-43	82°24'52.13803"E	24°06'39.65033"N
P-44	82°24'52.40084"E	24°06'35.29138"N
P-45	82°24'52.86325"E	24°06'28.52994"N
P-46	82°24'53.49215"E	24°06'19.09810"N
P-47	82°24'53.83340"E	24°06'13.58220"N
P-48	82°24'54.95014"E	24°05'57.43988"N
P-49	82°24'55.23728"E	24°05'52.58412"N
P-50	82°24'55.38499"E	24°05'50.08611"N
P-51	82°24'55.53268"E	24°05'45.52501"N
P-52	82°24'55.65475"E	24°05'41.75434"N
P-53	82°24'56.08399"E	24°05'28.98899"N
P-54	82°24'56.40932"E	24°05'20.42630"N
P-55	82°24'56.66804"E	24°05'12.76828"N
P-56	82°24'54.74124"E	24°05'08.50125"N
P-57	82°24'54.41872"E	24°05'07.74693"N
P-58	82°24'53.54313"E	24°05'05.69918"N
P-59	82°24'52.14447"E	24°05'02.33240"N
P-60	82°24'50.44100"E	24°04'58.18600"N
P-61	82°24'50.44099"E	24°04'55.73799"N
P-62	82°24'50.54887"E	24°04'52.62924"N
P-63	82°24'50.71947"E	24°04'47.71346"N
P-64	82°24'50.79561"E	24°04'45.51903"N
P-65	82°24'50.84471"E	24°04'44.10430"N
P-66	82°24'50.94786"E	24°04'41.13229"N
P-67	82°24'51.09462"E	24°04'36.90278"N
P-68	82°24'51.24501"E	24°04'32.56882"N
P-69	82°24'51.46565"E	24°04'26.21095"N
P-70	82°24'51.65300"E	24°04'20.81200"N
P-71	82°24'51.65686"E	24°04'20.79929"N
P-72	82°24'51.27333"E	24°04'20.76652"N
P-73	82°24'36.50614"E	24°04'19.50457"N

7.2.2 Bandha Coal Block Mining Lease Boundary Coordinates fixed on Ground

Sl No	Pillar ID	Latitude	Longitude
1	P- 3	24°04'17.82180"	82°24'16.82155"
2	P- 3/I1	24°04'17.82"	82°24'14.77"

Sl No	Pillar ID	Latitude	Longitude
3	P- 4/I2	24°04'18.97323"	82°24'03.81014"
4	P- 4	24°04'17.37479"	82°24'11.59428"
5	P- 5	24°04'19.56622"	82°24'00.92223"
6	P- 8/I3	24°04'33.71280"	82°22'52.00341"
7	P- 8/I4	24°04'34.55505"	82°22'47.89816"
8	P- 8/I5	24°04'35.35870"	82°22'43.98135"
9	P- 8/I6	24°04'36.06768"	82°22'40.52590"
10	P- 9	24°04'36.47432"	82°22'38.54391"
11	P- 9/I1	24°04'38.31213"	82°22'39.04742"
12	P- 11/I1	24°04'48.26716"	82°22'41.02516"
13	P- 13/I1	24°04'57.58987"	82°22'43.01793"
14	P- 14	24°05'00.68821"	82°22'43.93277"
15	P- 14/I1	24°05'03.53"	82°22'44.94"
16	P- 16	24°05'11.82829"	82°22'48.01530"
17	P- 16/I1	24°05'13.49318"	82°22'48.79733"
18	P- 17	24°05'14.65909"	82°22'49.15141"
19	P- 18	24°05'13.92303"	82°22'49.05234"
20	P- 19	24°05'15.26361"	82°22'48.22791"
21	P- 20	24°05'15.89030"	82°22'47.41010"
22	P- 21/I1	24°05'20.14894"	82°22'46.88831"
23	P- 21	24°05'16.75576"	82°22'46.81974"
24	P- 22/I1	24°05'23.32213"	82°22'46.72801"
25	P- 22	24°05'21.88322"	82°22'46.91037"
26	P- 38/I19	24°06'45.55213"	82°21'44.19336"
27	P- 38/I20	24°06'47.18769"	82°21'42.87905"
28	P- 38/I20A	24°06'48.73577"	82°21'41.72676"
29	P- 38/I17	24°06'41.21272"	82°21'47.68040"
30	P- 38/I7	24°06'14.15771"	82°22'09.41916"
31	P- 38/I8	24°06'16.34360"	82°22'07.66321"
32	P- 38	24°06'01.16351"	82°22'19.85894"
33	P- 38/I3	24°06'07.50711"	82°22'14.76287"
34	P- 38/I4	24°06'09.77185"	82°22'12.94330"
35	P- 38/I6	24°06'12.07288"	82°22'11.09421"
36	P- 38/I18	24°06'43.16644"	82°21'46.12442"
37	P-39/I54	24°06'48.012"	82°24'49.793"
38	P-39/I 53	24°06'48.056"	82°24'47.065"
39	P-39/I52	24°06'48.113"	82°24'43.524"
40	P-39/I51	24°06'48.171"	82°24'39.983"
41	P-39/I50	24°06'48.229"	82°24'36.442"
42	P-39/I49	24°06'48.286"	82°24'32.904"
43	P-39/I48	24°06'48.343"	82°24'29.360"
44	P- 39/I47	24°06'48.40071"	82°24'25.81932"
45	P- 39/I46	24°06'48.45803"	82°24'22.27822"
46	P- 39/I45	24°06'48.51533"	82°24'18.73711"

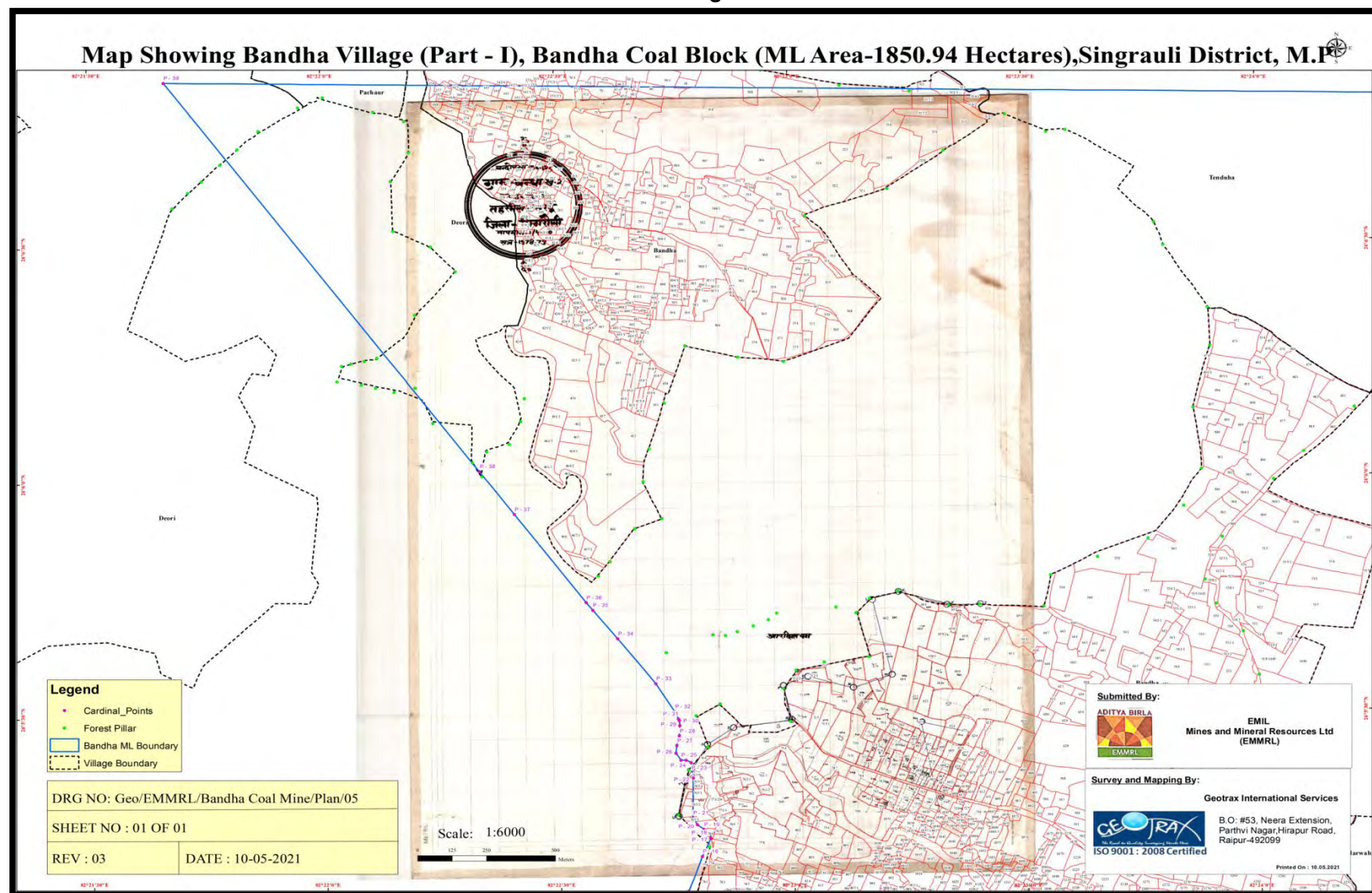
Sl No	Pillar ID	Latitude	Longitude
47	P- 39/I44	24°06'48.57261"	82°24'15.19600"
48	P- 39/I43	24°06'48.62986"	82°24'11.65489"
49	P- 39/I42	24°06'48.68710"	82°24'08.11378"
50	P- 39/I39	24°06'48.85865"	82°23'57.49042"
51	P- 39/I38	24°06'48.91579"	82°23'53.94930"
52	P- 39/I37	24°06'48.97291"	82°23'50.40818"
53	P- 39/I35	24°06'49.08708"	82°23'43.32592"
54	P- 39/I34	24°06'49.14413"	82°23'39.78479"
55	P- 39/I33	24°06'49.20116"	82°23'36.24366"
56	P- 39/I32	24°06'49.25816"	82°23'32.70252"
57	P- 39/I31	24°06'49.31514"	82°23'29.16139"
58	P- 39/I30	24°06'49.37210"	82°23'25.62025"
59	P- 39/I29	24°06'49.42904"	82°23'22.07911"
60	P- 39/I28	24°06'49.48595"	82°23'18.53796"
61	P- 39/I28A	24°06'49.37979"	82°23'16.34386"
62	P- 39/I19	24°06'49.99714"	82°22'46.66758"
63	P- 39/I20	24°06'49.94043"	82°22'50.20874"
64	P- 39/I21	24°06'49.88370"	82°22'53.74990"
65	P- 39/I22	24°06'49.82695"	82°22'57.29106"
66	P- 39/I23	24°06'49.77017"	82°23'00.83221"
67	P- 39/I24	24°06'49.71337"	82°23'04.37337"
68	P- 39/I25	24°06'49.65655"	82°23'07.91452"
69	P- 39/I8	24°06'50.71"	82°22'07.18"
70	P- 39/I9	24°06'50.97"	82°22'10.91"
71	P- 39/I15	24°06'50.22375"	82°22'32.50291"
72	P- 39/I16	24°06'50.16713"	82°22'36.04408"
73	P- 39/I4	24°06'50.84503"	82°21'53.54990"
74	P- 39/I5	24°06'50.78866"	82°21'57.09109"
75	P- 39/I6	24°06'50.73227"	82°22'00.63228"
76	P- 39/I7	24°06'50.67586"	82°22'04.17347"
77	P- 39/I1A	24°06'50.86"	82°21'42.51"
78	P- 39	24°06'51.06425"	82°21'39.76387"
79	P- 39/I10	24°06'50.56649"	82°22'14.51703"
80	P- 39/I11	24°06'50.44999"	82°22'18.33821"
81	P- 39/I12	24°06'50.39346"	82°22'21.87939"
82	P- 39/I13	24°06'50.33996"	82°22'25.27061"
83	P- 39/I14	24°06'50.28034"	82°22'28.96174"
84	P- 39/I17	24°06'50.11049"	82°22'39.58525"
85	P- 39/I18	24°06'50.07735"	82°22'42.81983"
86	P- 39/I36	24°06'49.08381"	82°23'47.68828"
87	P- 39/I40	24°06'48.80149"	82°24'01.03154"
88	P- 39/I41	24°06'48.74430"	82°24'04.57266"
89	P- 39/I1	24°06'50.99795"	82°21'44.05239"
90	P- 39/I2	24°06'50.95206"	82°21'47.11577"

Sl No	Pillar ID	Latitude	Longitude
91	P- 39/I3	24°06'50.89176"	82°21'50.29013"
92	P-40	24°06'47.978"	82°24'51.839"
93	P-41	24°06'45.949"	82°24'51.757"
94	P-42	24°06'43.910"	82°24'51.881"
95	P-43	24°06'39.649"	82°24'52.138"
96	P-44	24°06'35.292"	82°24'52.400"
97	P-44/I1	24°06'31.999"	82°24'52.625"
98	P-45	24°06'28.529"	82°24'52.863"
99	P-45/I1	24°06'25.422"	82°24'53.070"
100	P-45/I2	24°06'22.052"	82°24'53.294"
101	P-46	24°06'19.097"	82°24'53.491"
102	P-46/I1	24°06'16.659"	82°24'53.642"
103	P-47	24°06'13.581"	82°24'53.833"
104	P-47/I1	24°06'10.169"	82°24'54.068"
105	P-47/I2	24°06'06.925"	82°24'54.293"
106	P-47/I3	24°06'03.681"	82°24'54.517"
107	P-47/I4	24°06'00.436"	82°24'54.742"
108	P-48	24°05'57.439"	82°24'54.950"
109	P-48/I1	24°05'54.998"	82°24'55.094"
110	P-49	24°05'52.584"	82°24'55.237"
111	P-50	24°05'50.086"	82°24'55.385"
112	P-50/I1	24°05'47.804"	82°24'55.458"
113	P-51	24°05'45.524"	82°24'55.532"
114	P-53	24°05'28.989"	82°24'56.082"
115	P-52/I3	24°05'32.159"	82°24'55.977"
116	P-52/I2	24°05'35.404"	82°24'55.868"
117	P-52/I1	24°05'38.553"	82°24'55.762"
118	P-52	24°05'41.754"	82°24'55.654"
119	P-53/I1	24°05'24.708"	82°24'56.246"
120	P-54/I2	24°05'14.960"	82°24'56.593"
121	P-54/I1	24°05'18.210"	82°24'56.484"
122	P-54	24°05'20.426"	82°24'56.409"
123	P-55/I1	24°05'10.649"	82°24'55.710"
124	P-55	24°05'12.763"	82°24'56.668"
125	P-56	24°05'08.500"	82°24'54.741"
126	P-57	24°05'07.747"	82°24'54.418"
127	P-58	24°05'05.699"	82°24'53.543"
128	P-59/I1	24°05'00.390"	82°24'51.346"
129	P-59	24°05'02.332"	82°24'52.144"
130	P-60	24°04'58.186"	82°24'50.440"
131	P-61	24°04'55.738"	82°24'50.441"
132	P-62	24°04'52.628"	82°24'50.548"
133	P-62/I1	24°04'50.041"	82°24'50.638"
134	P-63	24°04'47.713"	82°24'50.719"

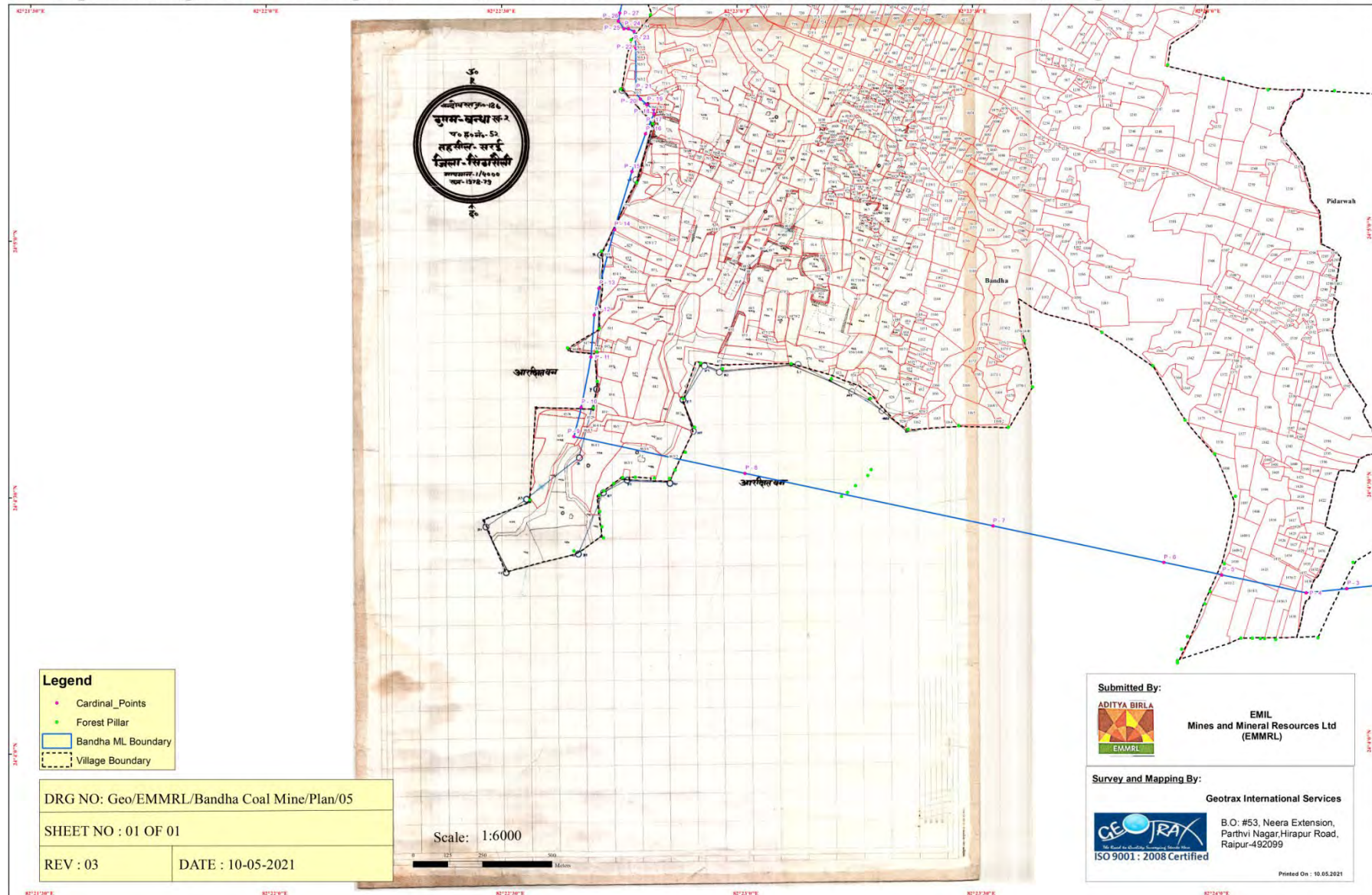
Sl No	Pillar ID	Latitude	Longitude
135	P-64	24°04'45.518"	82°24'50.795"
136	P-65	24°04'44.104"	82°24'50.844"
137	P-66	24°04'41.132"	82°24'50.947"
138	P-67	24°04'37.800"	82°24'50.875"
139	P-67/I1	24°04'34.77310	82.24511685
140	P-68	24°04'32.568"	82°24'51.244"
141	P-68/I1	24°04'29.549"	82°24'51.349"
142	P-69	24°04'26.21095"	82°24'51.46565"
143	P- 69/I1	24°04'23.89170"	82°24'51.54614"
144	P- 70	24°04'20.81200"	82°24'51.65300"

7.3 Annexure-3: Village wise Geo-referenced maps showing Area inside Block Boundary

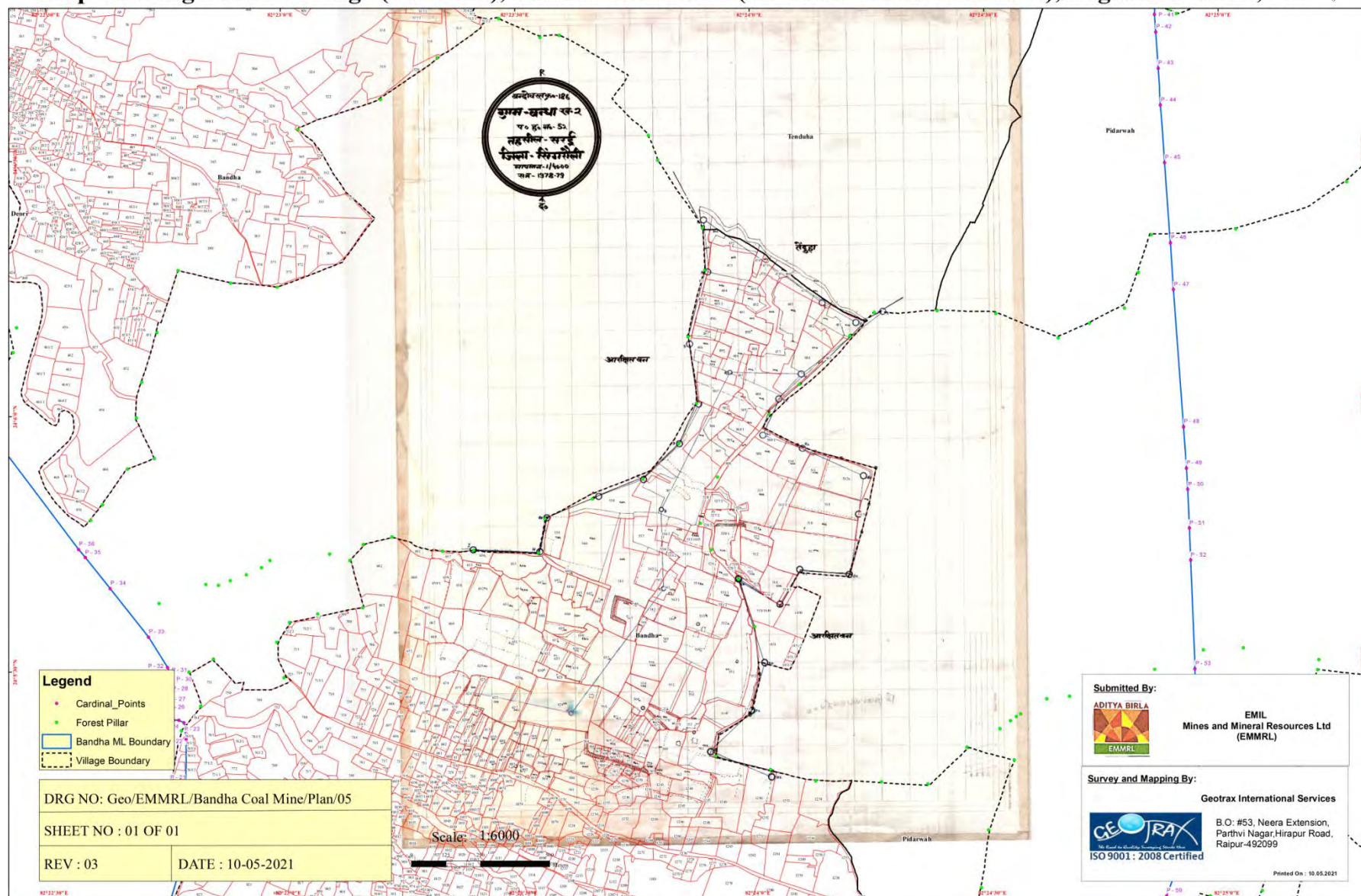
7.3.1 Village Bandha



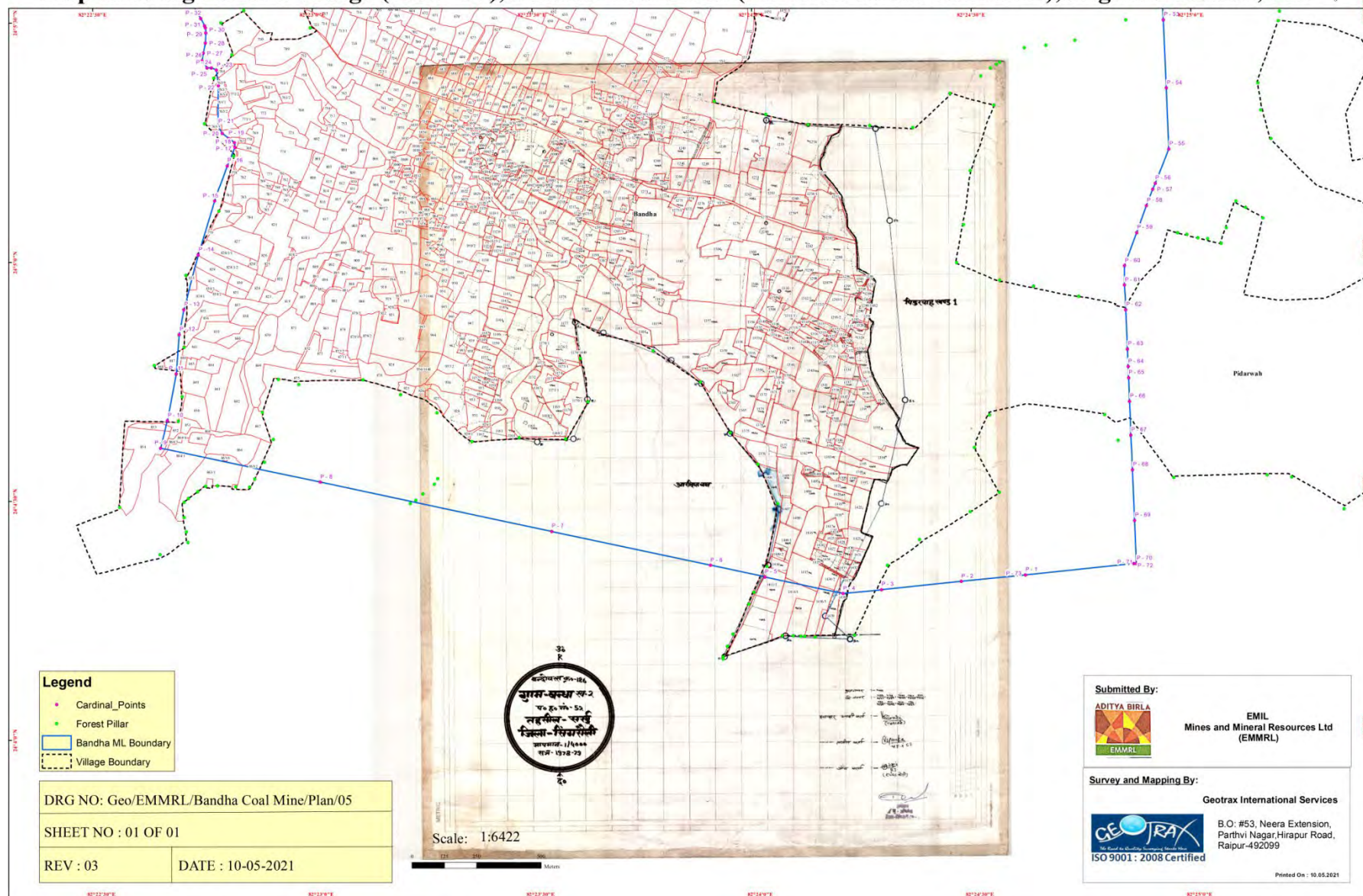
Map Showing Bandha Village (Part - II), Bandha Coal Block (ML Area-1850.94 Hectares), Singrauli District, M.P



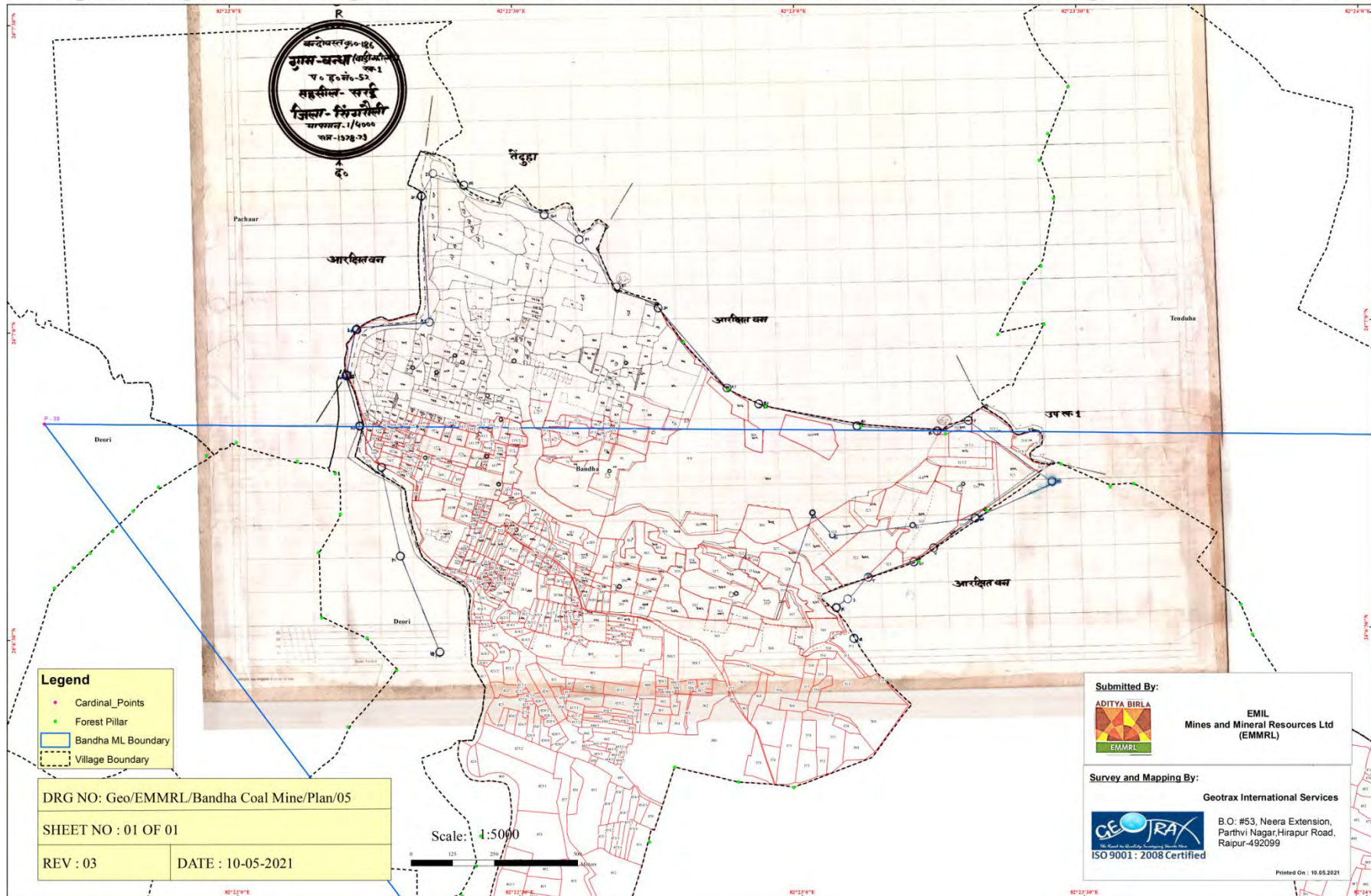
Map Showing Bandha Village (Part - III), Bandha Coal Block (ML Area-1850.94 Hectares), Singrauli District, M.P.



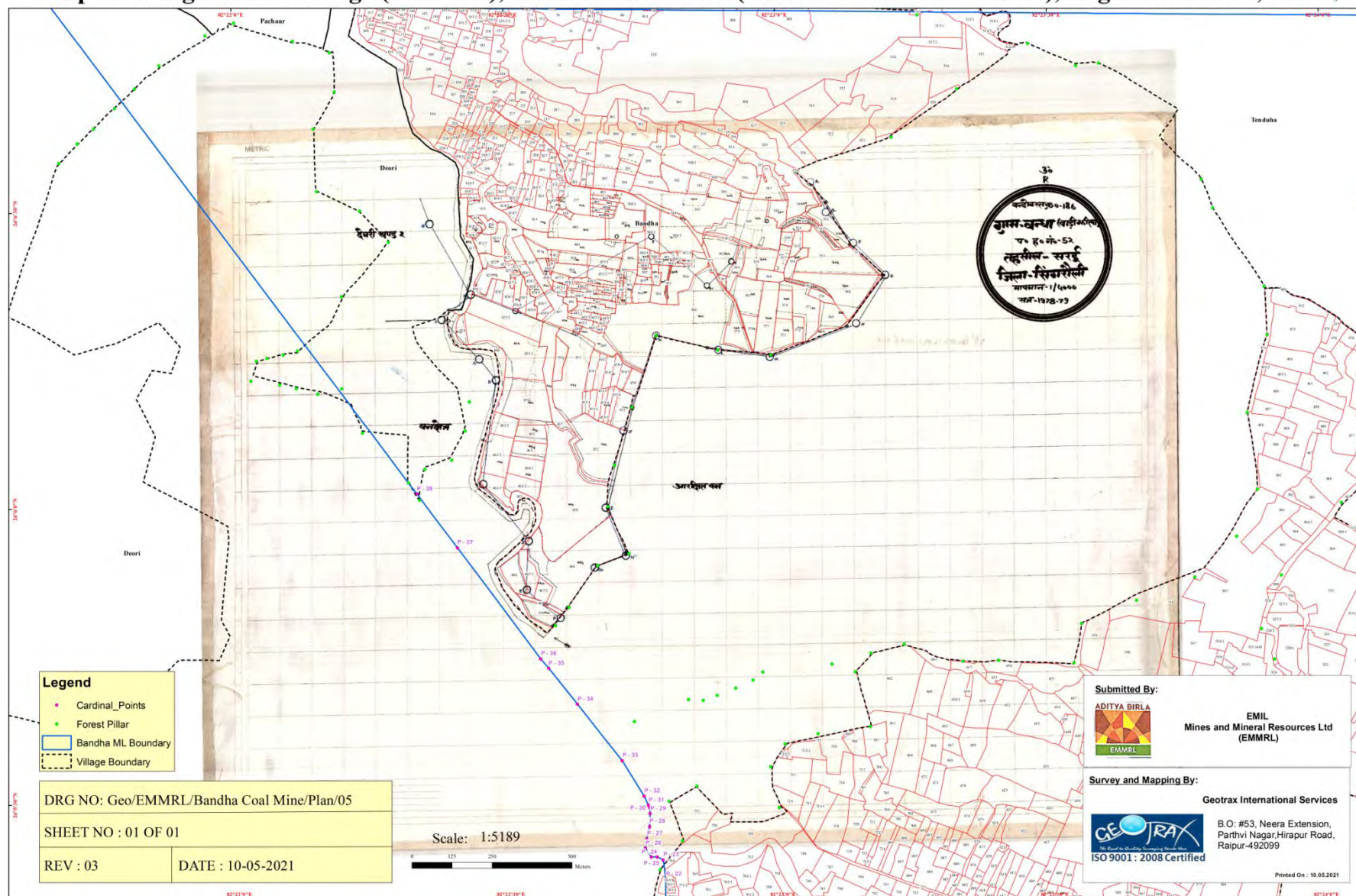
Map Showing Bandha Village (Part - IV), Bandha Coal Block (ML Area-1850.94 Hectares), Singrauli District, M.P.



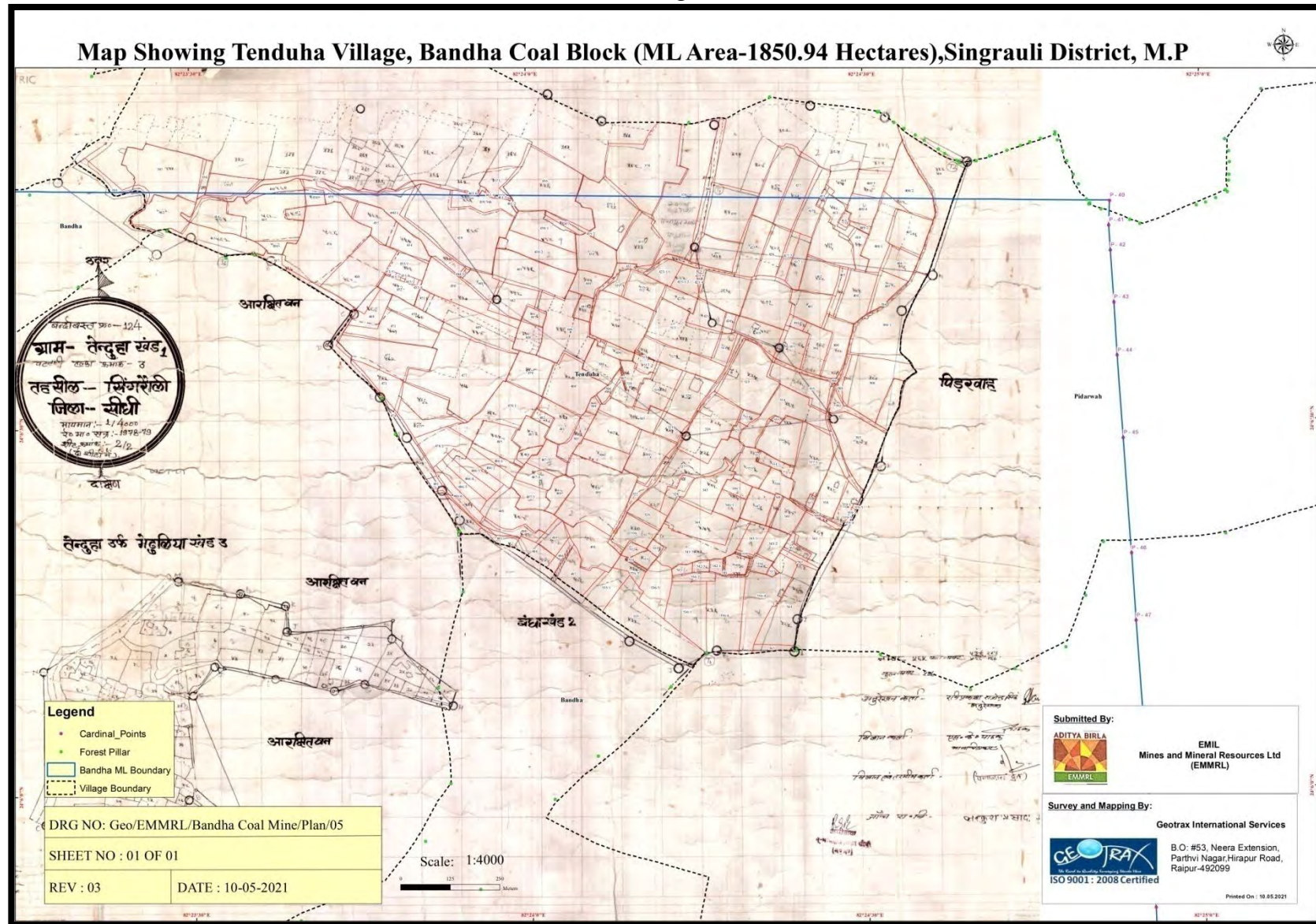
Map Showing Bandha Village (Part - V), Bandha Coal Block (ML Area-1850.94 Hectares), Singrauli District, M.P



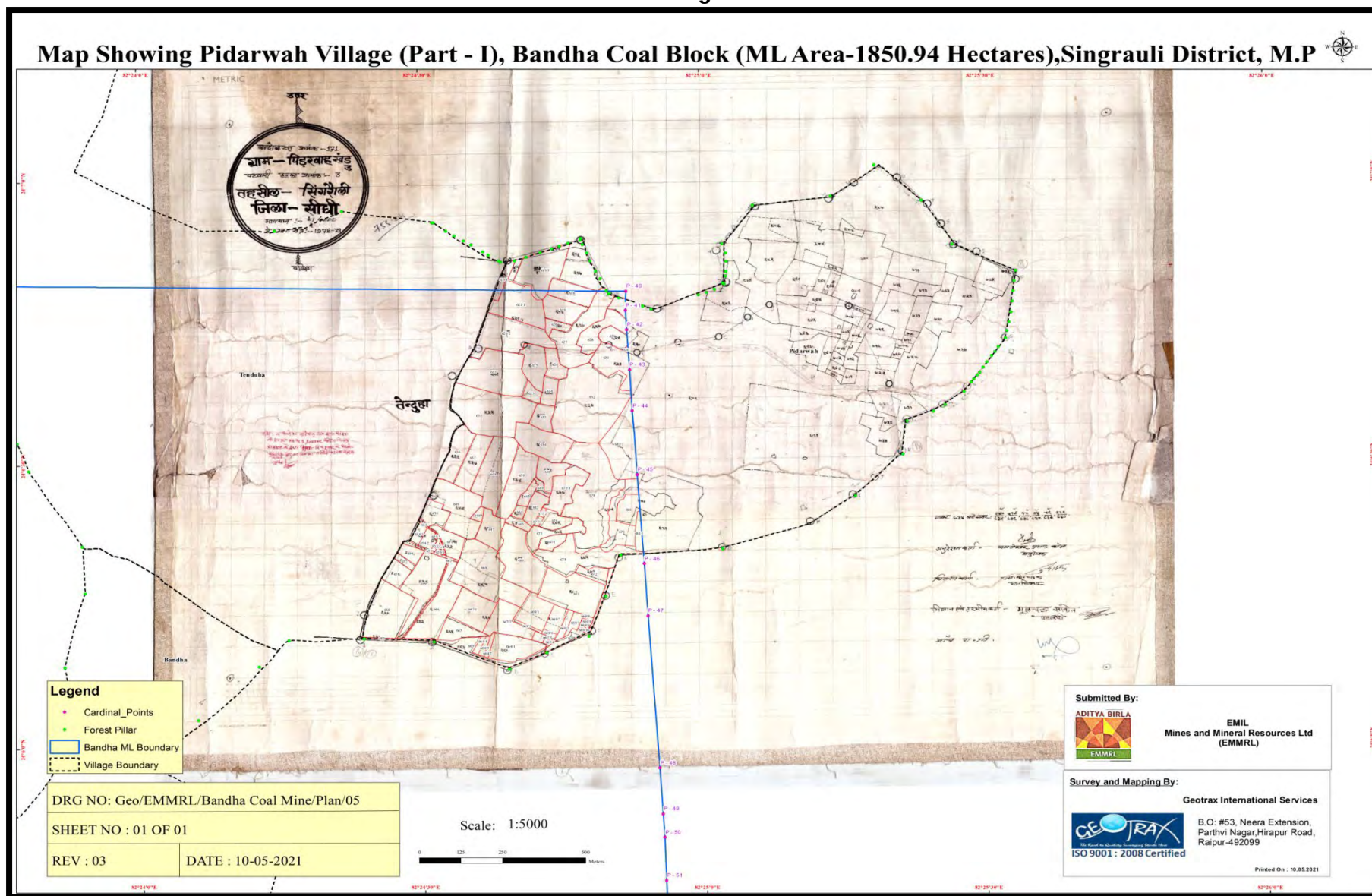
Map Showing Bandha Village (Part - VI), Bandha Coal Block (ML Area-1850.94 Hectares), Singrauli District, M.P.



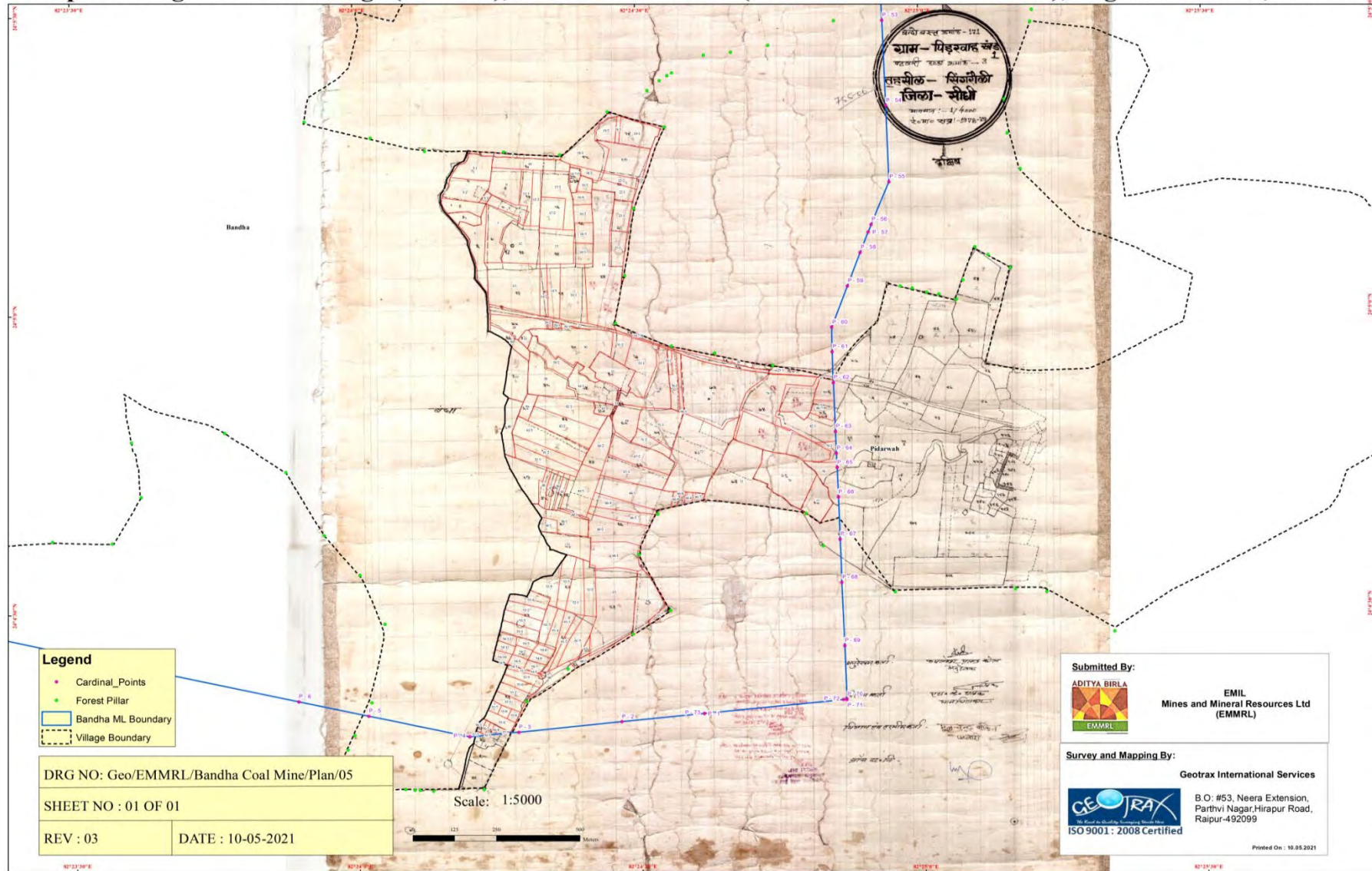
7.3.2 Village Tenduha



7.3.3 Village Pidharwa

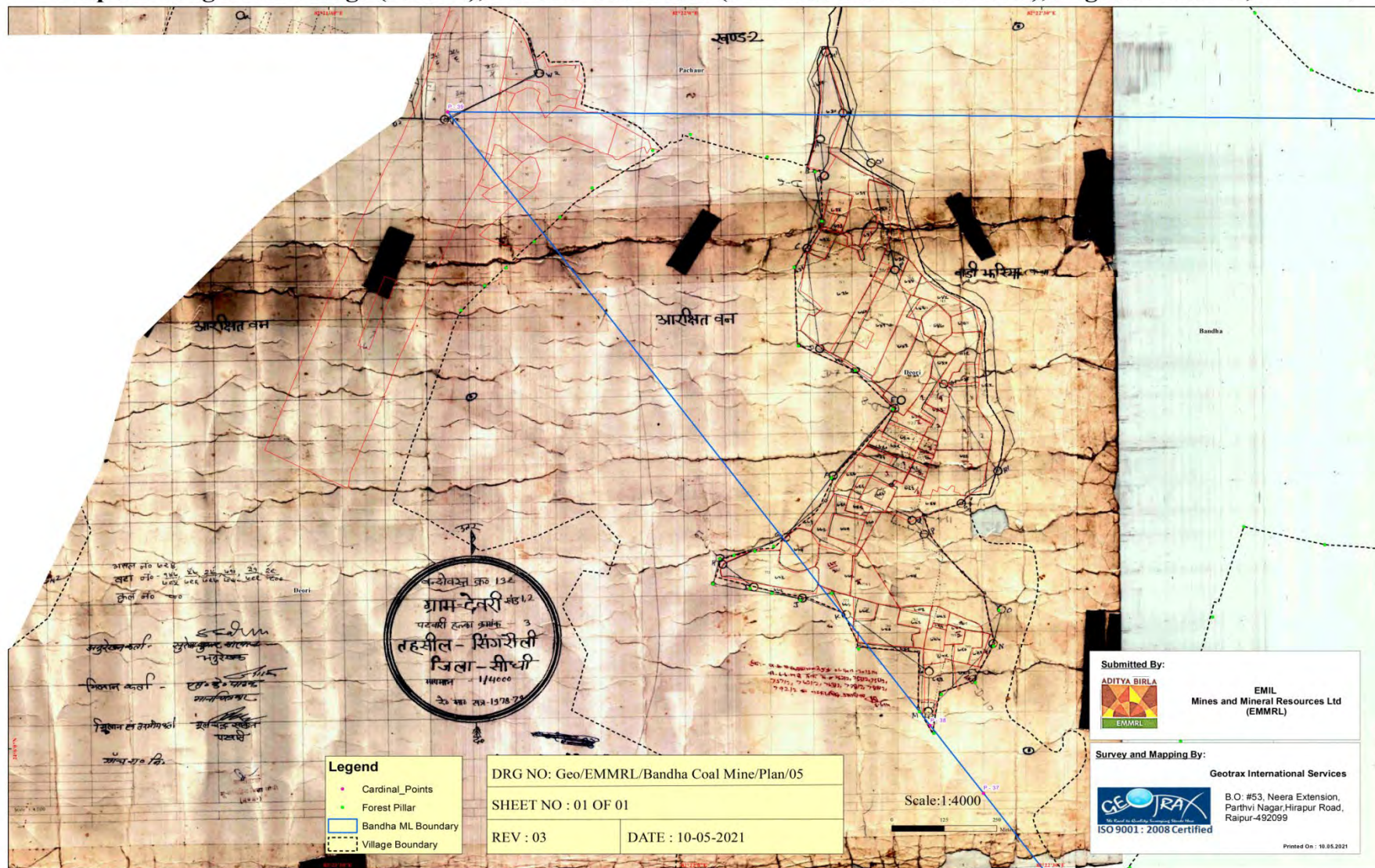


Map Showing Pidarwah Village (Part - II), Bandha Coal Block (ML Area-1850.94 Hectares), Singrauli District, M.P.



7.3.4 Village Deori

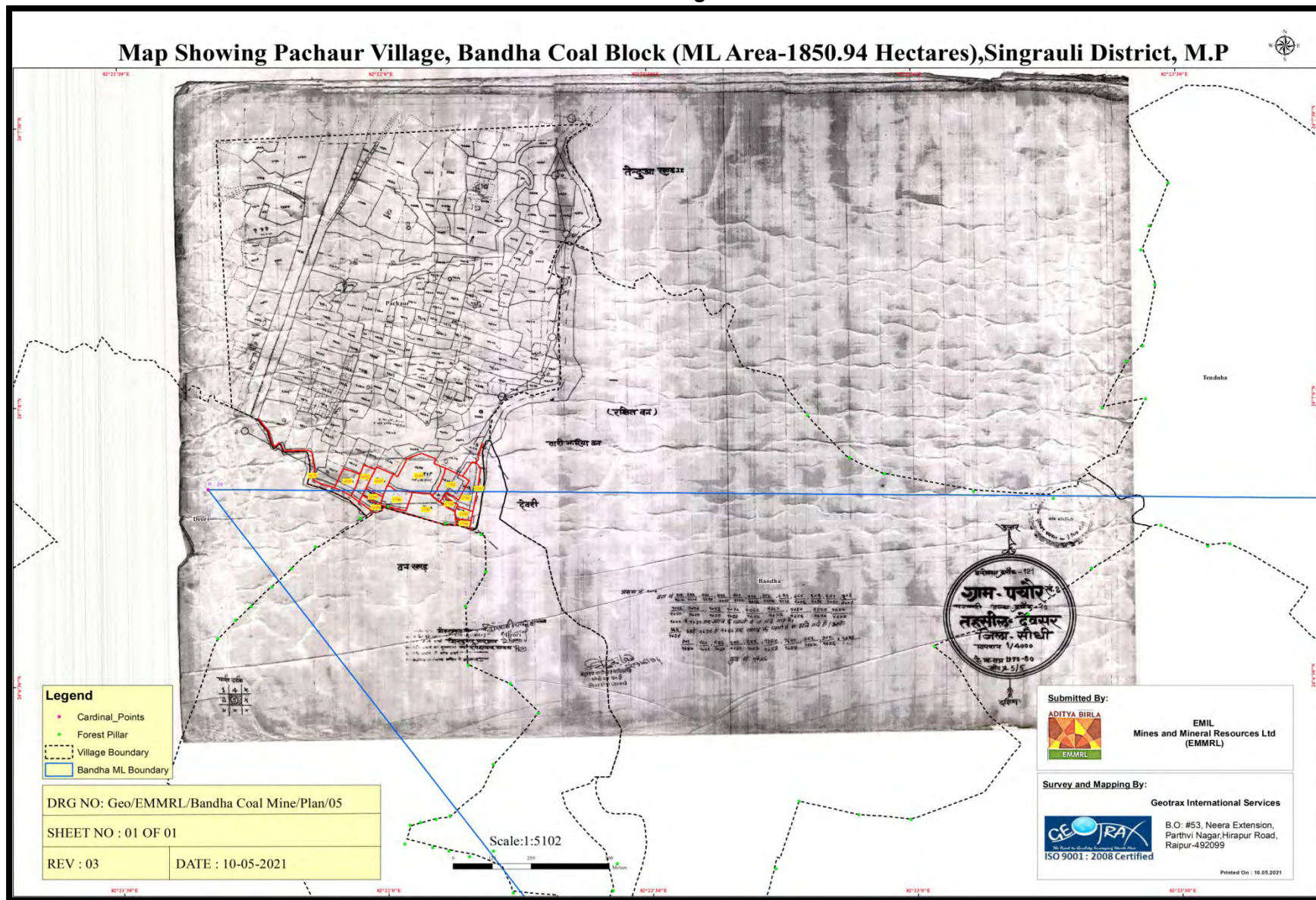
Map Showing Deori Village (Part - I), Bandha Coal Block (ML Area-1850.94 Hectares), Singrauli District, M.P



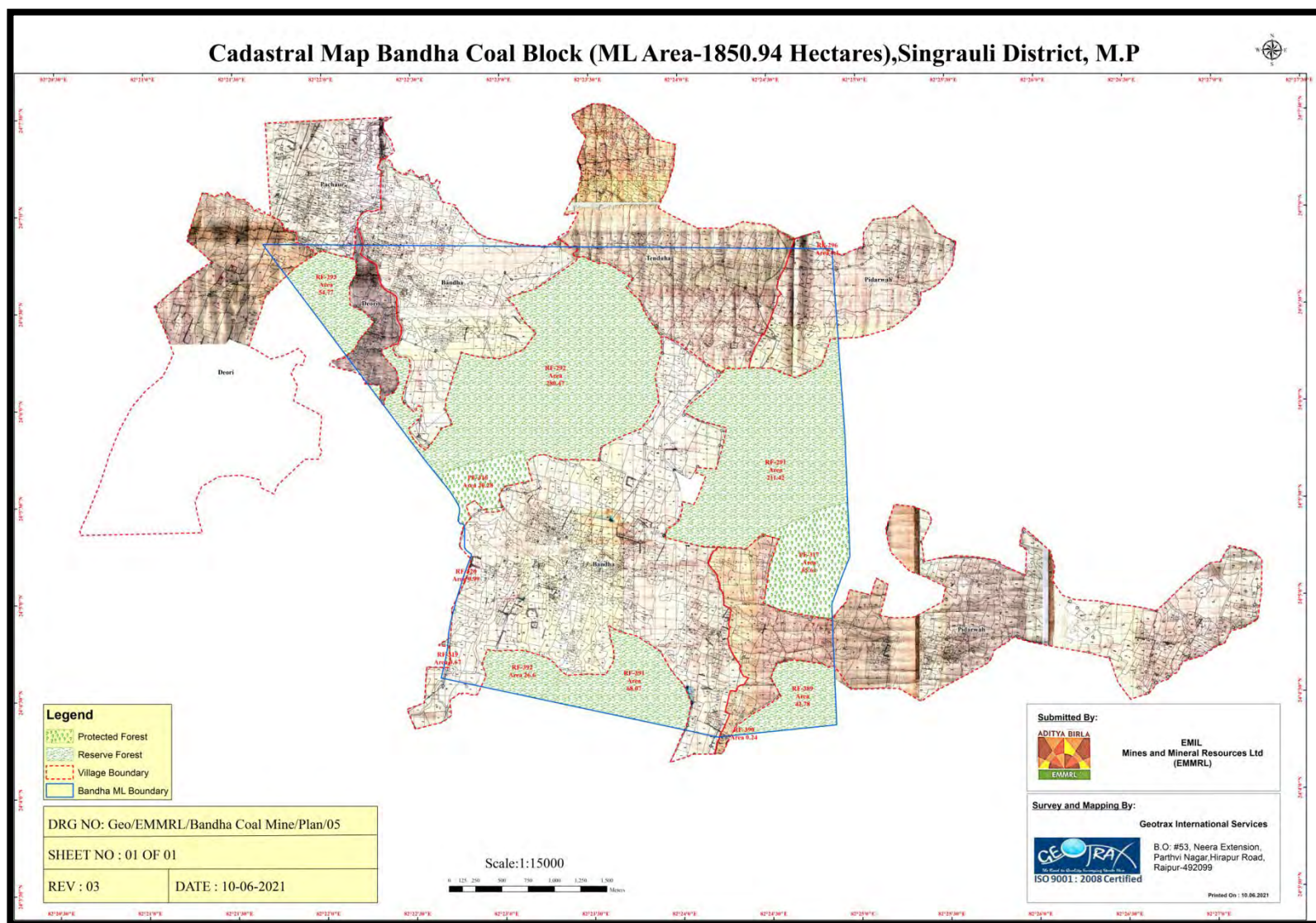
Map Showing Deori Village (Part - II), Bandha Coal Block (ML Area-1850.94 Hectares), Singrauli District, M.P



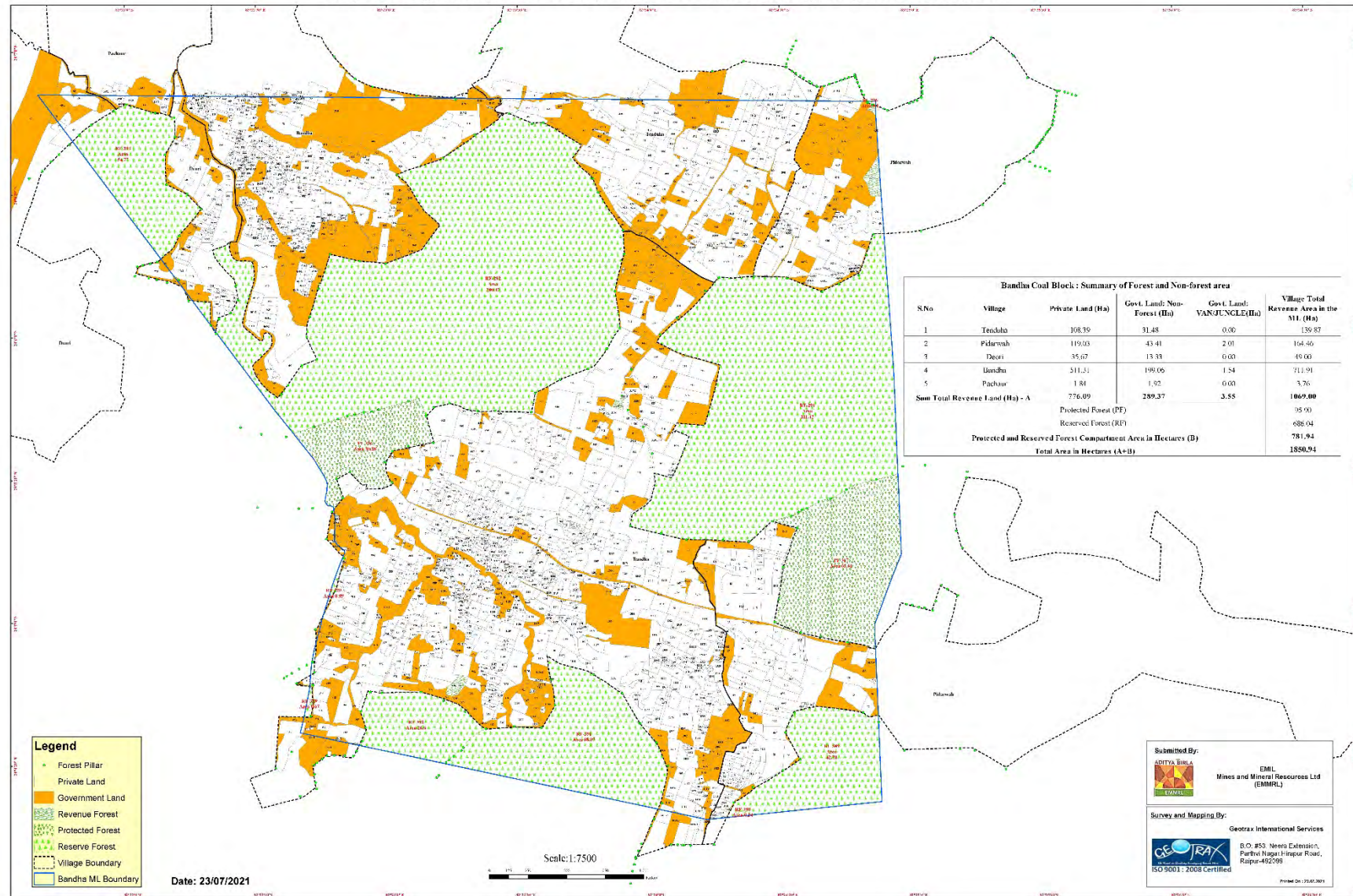
7.3.5 Village Pachaur



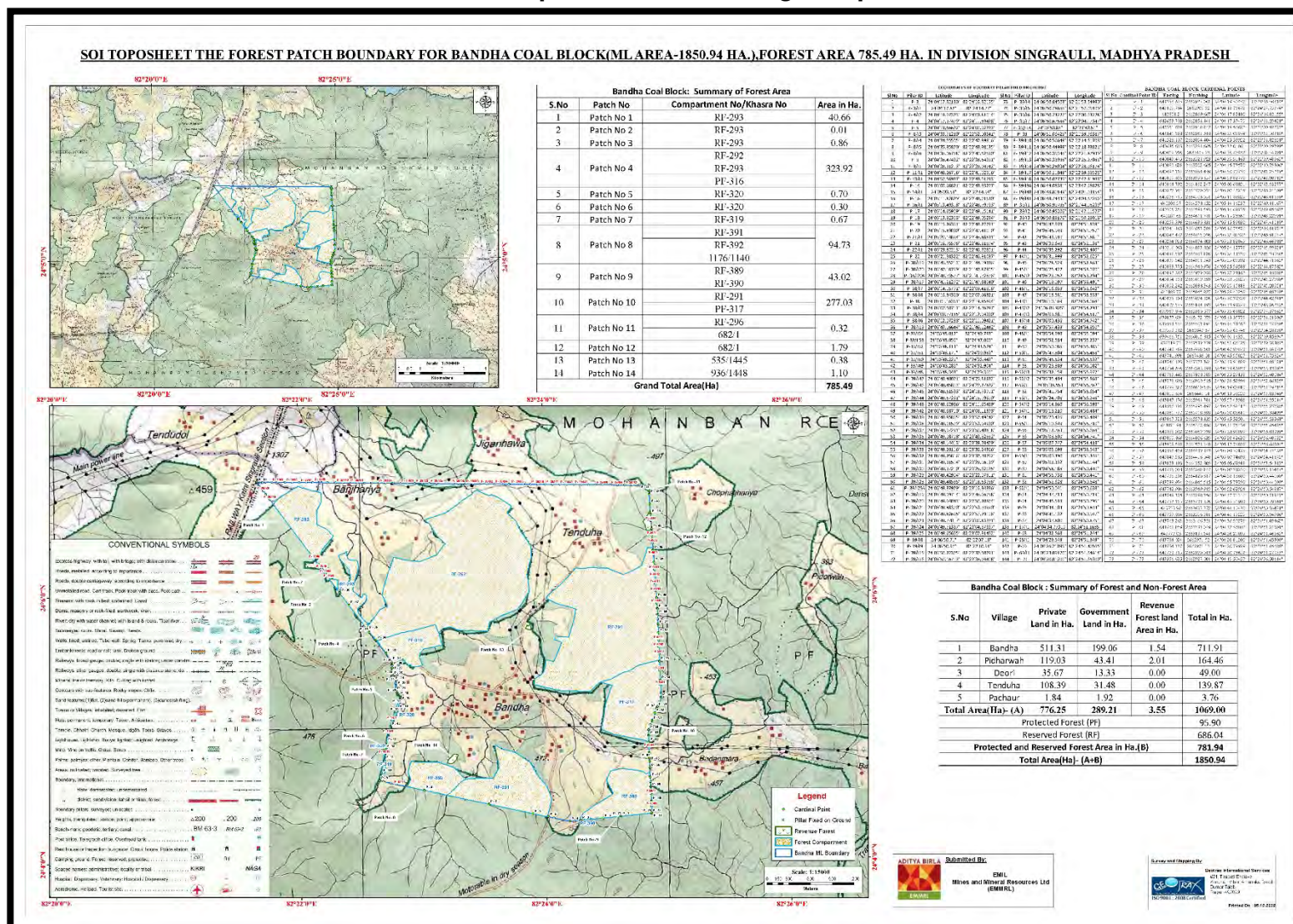
7.3.6 Mosaicked Cadastral Map of Bandha Coal Block



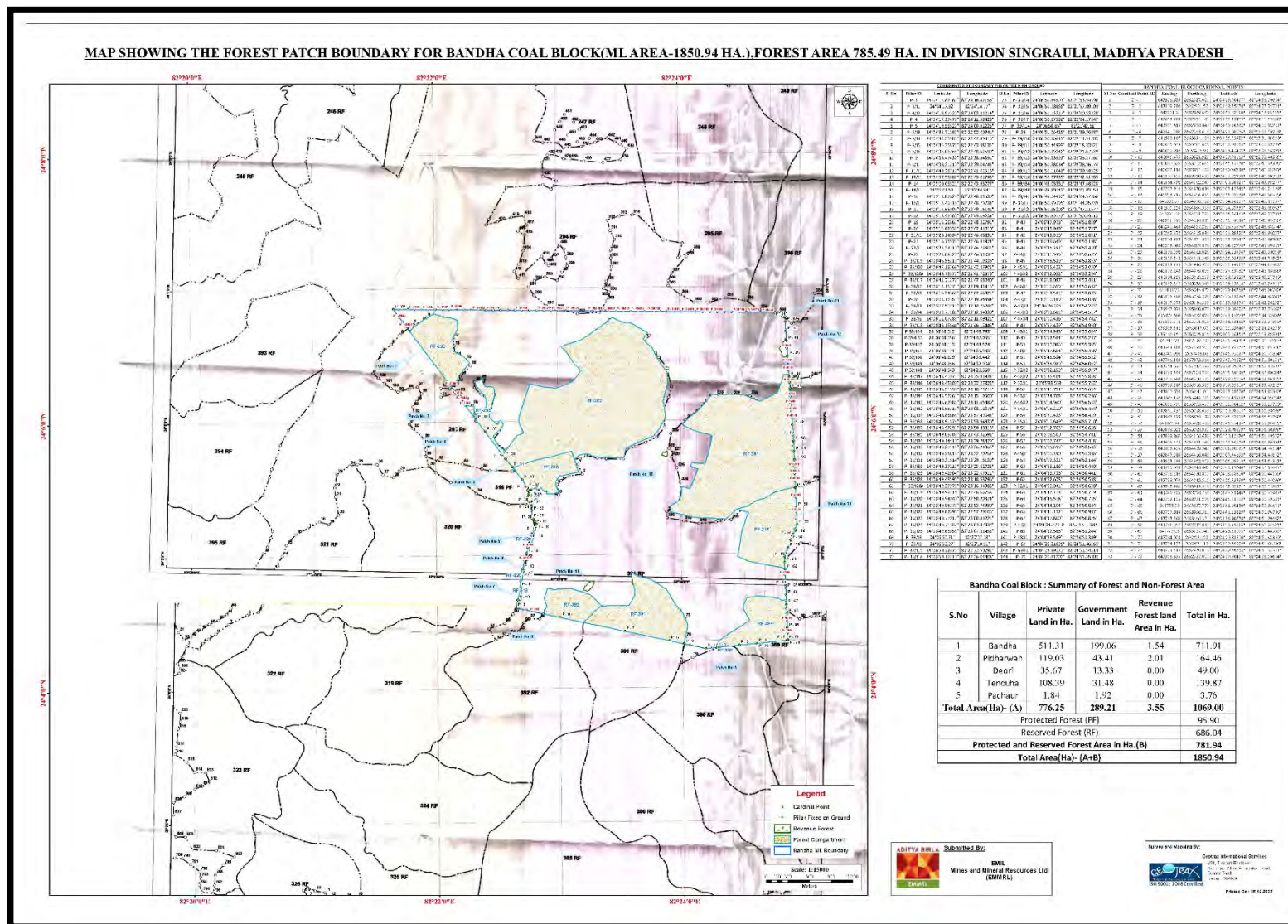
Map Showing Bandha Coal Block (ML Area-1850.94 Hectares), Singrauli District, M.P



7.4 Annexure-4: Geo-referenced SOI Toposheet Showing Proposed Area inside Bandha Coal Block



7.5 Annexure-5: Geo-referenced Forest Map Showing Proposed Area inside Bandha Coal Block



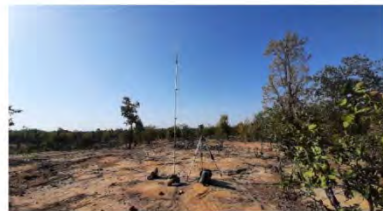
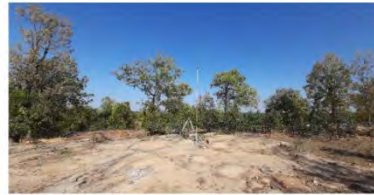
7.6 Annexure-6: Field Survey Photographs (including Forest compartment pillars)



ACM-01



BG-01



BG-02



BG-2A



BG-03



BG-04



BG-04A



BG-5A



BG-10



PSI-0017



TBM-01



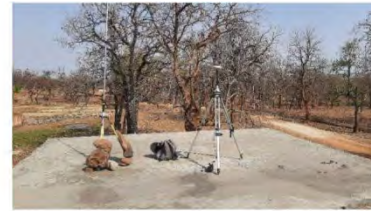
TBM-02



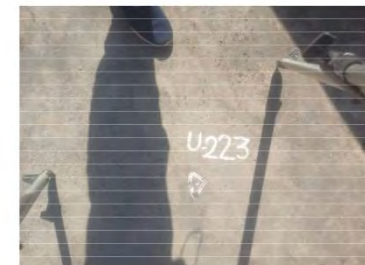
TBM-03



TBM-04



TBM-04A



U-223



289-FP-01



289-FP-02



289-FP-347



291 FP-01



291 FP-02



291 FP-03



291 FP-04



291 FP-05



291 FP-06



291 FP-07



291 FP-10



291 FP-11



291 FP-08



291 FP-09



291 FP-322



291 FP-323



291 FP-325



291 FP-326



291 FP-330



291 FP-332



291 FP-328



291 FP-329



291 FP-334



291 FP-335



291 FP-336



291 FP-337



292-FP-01



292-FP-02



292-FP-03



292-FP-04



292-FP-05



292-FP-06



292-FP-07



292-FP-08



292-FP-11



292-FP-12



292-FP-09



292-FP-10



292-FP-13



292-FP-14



292-FP-15



292-FP-16



292-FP-17



292-FP-18



292-FP-19



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292-FP-24



292-FP-27



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292-FP-25



292-FP-26



292-FP-29



292-FP-30



292-FP-31



293-FP-01



293-FP-04



293-FP-05



293-FP-02



293-FP-03



293-FP-06



293-FP-07



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293-FP-09



293-FP-12



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293-FP-21



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293-FP-19



293-FP-22



293-FP-23



293-FP-24



295-FP-01



296-FP-03



296-FP-04



296-FP-01



296-FP-02



296-FP-05



296-FP-06



296-FP-07



316-FP-01



316-FP-04



316-FP-05



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389-FP-05



391-FP-02



391-FP-03



391-FP-04



391-FP-05



392-FP-03



392-FP-04



392-FP-01



392-FP-02



392-FP-05

7.7 Annexure-7: Photographs of Pillars Fixed on Block Boundary



P-39-I 42



P39-I 43



P39-I 44



P-39-I 46



P-39-I 48



P-39-I 49



P-39-I 50



P-39-I 51



P-39-I 52



P-39-I 53



P-39-I 54



P-40



P-41



P-42



P-43



P-44



P-44-I 1



P-45



P-45-I 1



P-45-I 2



P-46



P-46-I 1



P-47



P-47-I 1



P-47-I 2



P-47-I 3



P-47-I 4



P-48



P-48-I 1



P-49



P-50



P-50-I 1



P-51



P-52



P-52-I 1



P-52-I 2



P-52-I 3



P-53



P-53-I 1



P-38-I 17



P-38-I 19



P-38-I 20



P-38-I 20A



P-39



P-39-I 1A



P-39-I 4



P-39-I 5



P-39-I 6



P-39-I 7



P-39-I 8



P-39-I 9



P-39-I 15



P-39-I 16



P-39-I 19



P-39-I 20



P-39-I 21



P-38-I 20A



P-39



P-39-I 1A



P-39-I 4



P-39-I 5



P-39-I 6



P-39-I 7



P-39-I 8



P-39-I 9



P-39-I 15



P-39-I 16



P-39-I 19



P-39-I 20



P-39-I 21





	P-39-I 22	P-39-I 23
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