

**PROPOSAL FOR PRELIMINARY REGIONAL EXPLORATION (G-3 STAGE) ALONG
WITH 2D SEISMIC SURVEY FOR COAL**

WEST OF SHEETALDHARA

NMET FUNDED PROJECT

SOHAGPUR COALFIELD

DISTRICT– ANUPPUR,

MADHYA PRADESH

AUGUST - 2021

**PROPOSAL FOR PRELIMINARY EXPLORATION FOR COAL (G-3 STAGE
WITH 2D SEISMIC SURVEY) IN WEST OF SHEETALDHARA BLOCK,
SOHAGPUR COALFIELD
DISTRICT-ANUPPUR, CHHATTISGARH**

1.0 INTRODUCTION

The Sohagpur Coalfield, as described by Fox (1936), extends from near Ghunghuti in the west to the Hasia nala on to the east, for a length of about 103 km. In the north the field extends upto Jaitpur, while the southern margin runs along the latitude near the confluence of Kewai & Tipon rivers with river Son, attaining a maximum width of 50 km. The spread of Sohagpur Coalfield is about 3100 sq.km.

The Sohagpur Coalfield can be broadly divided into two parts, i.e., the North and South Sohagpur, along the E-W trending intrabasinal Bahmani-Chilpa fault. The North Sohagpur represents the down thrown block of the Sohagpur basin where two coal measures, i.e, Raniganj and Barakar are surmised to occur.

The coal horizons in South Sohagpur are either exposed or occur under a thin cover of younger sediments, except in the southwest where it is overlain by a thick Lameta Formation and Traps. In South Sohagpur, three sub basins namely Jhagrakhand, Jamuna-Kotma & Amlai-Burhar, from east to west, have been recognised. The intervening patches between the sub-basins were considered devoid of workable coal seams. However, recent exploration in Amadand area by CMPDI has conclusively established workable coal deposit in between Jhagrakhand and Jamuna-Kotma sub-basin.

Sohagpur Coalfield has been a traditional source of superior quality, low rank, high volatile coals. Such coals have been under active exploitation in the entire tract in South Sohagpur. It was in late '79 and early '80 that existence of high rank caking coals was established in Beheraband area, located in the eastern part of North Sohagpur. Sharply contracting occurrence of high rank coals across above intrabasinal dislocation has probably been caused by emplacement of large volume of magma in the area which is well manifested by the presence of large basic bodies in North Sohagpur. This provided the required heat for increase in coal rank and development of caking properties commensurate to the rank. Wherever the heat flow was more, on account of nearness of the intrusive body to coal beds, a depletion of volatile matter and loss of caking properties have been observed.

1.1 The sheetaldhara Mine block is located in the Northern part of Jhagrakhand sub-

basin, Sohagpur coalfield. The area is covered by barakar rocks under a thick soil cover. On the recommendations of the Sub-Committee on Coal, Geological Survey of India took up exploratory drilling in Bijuri Extn. Block in 1975. Large scale geological mapping of the area was carried out by them during 1978-8. On the study of the data thus generated along with findings of IBM and DGM (MP) to the north and south respectively of this area. Sheetaladhara Mine Block constitutes the western part of the larger Bijuri Extension block. Drilling in Sheetaladhara Mine block by CMPDI commenced in March 1981 and till its completion on February, 1988, a total of 50 boreholes involving 6801.48m have been drilled for Sheetaladhara Mine Block. The data accrued during this period was published in Geological Report on "Sheetaladhara Mine Block", November 1988. The West of Sheetaladhara Block has been identified for Preliminary (G-1) stage of exploration based on findings in the earlier explored Sheetaladhara Mine block.

- 1.2** CMPDI has drawn proposal for exploration for coal in the West of Sheetaladhara Block having area of about 3.94 sq.km and involving **400m of drilling in 2 boreholes** along with 2D seismic survey and resistivity imaging.

2.0 OBJECTIVES

- 2.1** The G-3 stage of Exploration in the block is proposed to fulfill following objectives-

1. To establish the existence and continuity of coal seams of Barakar Formation occurring in the block.
2. To establish the lay, disposition and potentiality of coal seams upto basement
3. To assess the coal resource by G-3 stage of exploration in the block.

3.0 LOCATION, COMMUNICATION AND ACCESSIBILITY

- 3.1** The proposed block located immediately south of Bijuri Railway station in the eastern part of Sohagpur CF.
- 3.2** The West of Sheetaladhara block has a very good rail and road communication. The Mand Raigarh- Pendra road passes close to its southern boundary. A number of fair weather roads passes close to its southern boundary.

- 3.3 The propose block is located in the eastern part of the Sohagpur Coalfield, District Shahdol, Madhya Pradesh. The area is covered by Survey of India toposheet No. 64I/4 (RF: 1:50,000). The extent of geographical co-ordinates of the block is as follows:

Latitude : 23°12'31"N to 23°13'39"N
Longitude : 82°04'48"E to 82°06'23"E

The cardinal points of block boundary of the West of Sheetaladhara Block is presented in Table-I

Table-I

CARDINAL POINTS	LATITUDE	LONGITUDE
1	23° 13' 17.355" N	82° 6' 18.251" E
2	23° 13' 37.494" N	82° 6' 16.332" E
3	23° 13' 36.710" N	82° 6' 0.452" E
4	23° 13' 36.258" N	82° 5' 48.685" E
5	23° 13' 27.326" N	82° 5' 48.810" E
6	23° 13' 27.136" N	82° 5' 33.011" E
7	23° 13' 15.542" N	82° 5' 33.815" E
8	23° 13' 16.036" N	82° 4' 49.586" E
9	23° 12' 32.062" N	82° 4' 51.404" E
10	23° 12' 32.055" N	82° 5' 0.097" E
11	23° 12' 32.087" N	82° 5' 8.754" E
12	23° 12' 32.051" N	82° 5' 16.743" E
13	23° 12' 32.097" N	82° 5' 22.954" E
14	23° 12' 32.084" N	82° 5' 31.955" E
15	23° 12' 32.065" N	82° 5' 34.946" E
16	23° 12' 36.518" N	82° 5' 59.783" E
17	23° 12' 36.913" N	82° 6' 5.373" E
18	23° 12' 37.793" N	82° 6' 9.469" E
19	23° 12' 38.674" N	82° 6' 13.574" E
20	23° 12' 40.435" N	82° 6' 21.767" E

(Cardinal points are software generated. Hence actual ground survey required for confirmation)

4.0 PHYSIOGRAPHY, DRAINAGE

The area has a flat rolling topography with elevation ranging from 540.00 mt to 590.00 mt above M.S.L. The higher contours particularly close to the Rajnagar railway siding is occupied by dolerite intrusives and the area slopes in all directions from the high ground. The area has a radial drainage pattern

5.0 CLIMATE AND VEGETATION

The rainy season may range from June to October. June is the hottest month and temperature in January remains the lowest temperature. The Minimum temperature ranges from 7°C -10°C, while in summer maximum temperature shoots up to around 40°C - 46°C. The annual rainfall is approximately 110 cm. The proposed block is free from forest cover.

6.0 BROAD GEOLOGICAL SET UP

6.1 Stratigraphic Sequence

The general stratigraphic succession of Sohagpur basin as per GSI is given in table II.

Table II: Stratigraphic succession of Sohagpur Coalfield

Age	Formation (max. recorded thickness)	Lithology
Early Eocene To Late Cretaceous	Deccan Trap (100m)	Dolerite dykes and basic flows
Late Cretaceous	Lameta (25m)	Calcareous sandstone & sandy limestone
Early Jurassic To Late Triassic	Parsora (100m)	Mature well sorted arenite interbedded with lavender coloured clay beds (Not found in the area)
Early Triassic To Late Permian	Pali (+250m)	Immature sandstone with varying amount of clay matrix. Decrease in feldspar content towards top (Not found in the area)
Late Permian	Raniganj (+550m) (?)	Fine to medium grained feldspathic, cross-bedded immature and poorly sorted sandstone alternating with gray claystone,

		shale and coal.
Local disconformity (scoured contact, Coal & caliche development), may be conformable in the deeper parts of the basin		
Late Permian	Barren Measures(250m)	Medium to coarse grained arkosic, immature and poorly sorted sandstone interbedded with siltstone, shale and variegated claystone.
Local disconformity (palaeosol), may be conformable in the deeper parts of the basin		
Early Permian	Barakar(265m)	Medium to coarse grained arkosic, immature and poorly sorted sandstone alternating with siltstone, shale, variegated claystone and coal.
		Medium to fine grained arkosic, immature and poorly sorted sandstone alternating with siltstone, shale and grey claystone.
Early Permian	Talchir (+120m)	Medium to coarse grained pebbly sandstone with argillaceous matrix; angular pebbles of quartz, rock fragments, claystone and shale
-UNCONFORMITY-		
Precambrian	Surguja crystalline complex	Granite

6.2 Broad Structural Set up

The Sohagpur coalfield constitutes the middle segment of the Rewa Gondwana basin. The structural set up of the Sohagpur basin is fairly simple. In conformity with the regional E-W alignment, the rock formation in general strike in an E-W to WNW-ESE direction with low northerly dips (1° to 4°). Small basins, resulting from rolling nature of the beds, are also observed. Local rolls of the strata are also common.

The Sohagpur basin is composed of three well defined sub-basinal structures. These include the (i) Jhagrakhand sub-basin to the east; (ii) Jamuna-Kotma sub-basins in the middle and (iii) Burhar-Amlai sub-basin to the west. Basinal evolution in these sectors was probably controlled by greater subsidence in comparison to the adjoining areas with shallow Barakar cover.

Within the Sohagpur basin, the most structural element is the intrabasinal almost E- W trending Bamni-Chilpi fault. This fault has downthrown the northern block by more than 400m at places and the 'Barakar Measure' occurs in this area at depth, under a thick cover of younger sediments. In the southern upthrown block, the Barakars are either exposed or occur under a thin cover of younger sediments. Mining activity, except "Beheraband Pilot Mine', located to the north of Bamni-Chilpi fault, is entirely confined to the shallower southern part of the coalfield. This fault has separated Beheraband from Bijuri colliery area.

7.0 Geology of the block

7.1 On the basis of Surface and Subsurface data of exploratory boreholes drilled by GSI/CMPDI/MECL in and around West of Sheetaladhara block, the generalized sequence of the different formations in the area under study is given below in Table III.

Table - III

Age	Formation	Lithology(Thickness in m)
Recent/Sub Recent		Alluvium, Soil & Sandy Soil (Up to 18.00m).
Middle Permian	Barakar Formation	Fine to coarse grained feldspathic sandstone, grey and carbonaceous shales and coal seams.(269.96 + m)
Lower Permian	Talchir Formation	Fine to medium grained moderately sorted greenish sandstone with shales and siltstone.(338.79 + m)
-----Unconformity-----		
Pre Cambrian	Metamorphics	Granite and Gneiss

8.0 Tentative Structure of the Proposed Block

8.1 The general attitude of the beddings is Northwest-Southeast with gently dipping toward northeast to north in the block. The block is traversed by one major fault (F1) with approximate throw of 50m.

8.2 Fault F1 is trending in E-W direction. Throw of F1 is approximately 50m towards south.

8.3 The geological structure deciphered in the block is highly tentative in nature and occurrence of additional Fault in the area under investigation cannot be ruled out completely which may increase or decrease the depths of the boreholes.

9.0 Sequence and quality of coal seams:

9.1 The nomenclature of seams encountered in the block under investigation are different as reported by GSI and CMPDI in the adjacent blocks of Sheetaladhara. The Correlation between these nomenclature is tabulated below.

Table-IVa

	GSI	CMPDI
V	VT	AT
	VB	AB
	IV	B
III	IIIT	L4T
	IIIB	L4B
II	IIT	CT
	IIB	CB
	I	D

9.2 The sequence of coal seams likely to occur in the proposed block on the basis of boreholes drilled in regional report on Korja Area and correlating with adjoining blocks of Sheetaladhara lying east to the block under investigation.

The details of coal seams are tabulated below.

Table-IVb

SEAM	DEPTH RANGE (m)		THICKNESS			EXPECTED OVERALL QUALITY OF THE SEAM	Formation
	From	To	Min.	Max.	Avg thickness		
A	27.65	53.21	2.37	2.8	2.585	G10-G9	Barakar Formation
Parting			29.65				
B	34.24	86.68	0.48	1.34	0.91	G5-G4	
Parting			25.24	31.22			
L4	14.5	112.4	0.58	1.84	1.21	G8-G1	
Parting			23.42	32.42			
C	43.4	145.66	0.72	2.38	1.55	G5-G1	
Parting			21.08	32.6			
D	75.92	182.55	0.66	2.48	1.57	G8-G1	
Parting			33.06				
Local seam	109.75		0.94		0.94		
Strata above Talchir Formation			74.76	138.02			

9.3 Seam-wise Grade wise reserve

The details of indicated reserve of coal seams in the regional area (as per GSI report on Korja area) are tabulated below:

Table-IVc

SEAM/GRADE	G1-G3	G4-G5	G6	G7-G8	G9-G10	GRAND TOTAL (in million tonnes)
A/ Seam-V*					4.12	4.12
B/ Seam-IV*		2.81				2.81
L4 /Seam-III*	0.6	6.53		2.57		9.7
C /Seam-II*	8.21	3.59				11.8
D / Seam-I*	3.8		2.09	1.82		7.71
TOTAL	12.61	12.93	2.09	4.39	4.12	36.14

Note: * : Coal Seam Nomenclature as per GSI

10.0 EXPLORATION SCHEME

10.1 Drilling:

Drilling of 200 m in two boreholes (Table V) has been proposed for the West of Sheetaladhara block. Boreholes have been proposed with target seam up to Talchir.

TABLE-V

Depth of Proposed Boreholes in West of Sheetaladhara block, Sohagpur Coalfield

Sl. No.	Proposed BH No.	Projected Depth for Target seam (m)
1	P1	200
2	P2	200
	Total	400m

10.2 Geophysical Investigation:

For G-3 stage of coal exploration, Integrated Geophysical survey will be carried out in finding out the lay, disposition and continuity of coal seams.

2 no. of boreholes will be geophysical logged. The parameters involved are Sonic, Dual density, Natural Gamma, caliper, SPR, deviation etc.

2D Seismic survey has been proposed in this block along dip and strike lines with line intervals of 400m and 400m respectively. The data acquisition parameters in the block are hereby proposed as follows:

Geophones	Low distortion, high sensitivity with 10Hz Natural Frequency
Recording System	Telemetry (Wired)/ Wireless with 24-bit $\Delta\Sigma$ Technology
No. of active channels per shot	60 for End on spread
Sampling rate	0.5 ms
Record length	2 sec
Geophone group interval	4 m
Shot interval	4 m
No. of geophones per group	1 string of 6 Geophones to be bunched per station
Source@	EXPLOSIVE/VIBRATORS
Fold-age of data	Minimum 30 even at Block boundary
Shooting pattern	Symmetrical split spread
Geophone Array Pattern	Bunched
Offset	Near offset shall be fixed after experimental work and shall normally be kept as short as possible but adequate enough to minimize shot generated noise.
Statics correction	Using up-hole/Refraction surveys at every 1 Km interval

10.3 Laboratory Studies :

Band by Band Analysis, overall analysis, special tests, & Geotechnical studies will be carried out on coal samples.

10.4 Quantum of Work Proposed: Details of proposed work for detailed exploration for coal in West of Sheetal dhara block is given below in Table-VI

TABLE-VI
QUANTUM OF WORK

S. No.	Activity	Quantity
1.	Geological Mapping	3.94 sq. km
2.	<u>Drilling:</u>	
	i) Boreholes	2 BHs.
	ii) Meterage	400m
3.	i) Levelling and Triangulation	As per requirement

	ii) RL and Co-ordinates	2
4.	Drill Core Logging	400 m
5.	Geophysical Logging	2 BHs(400m)
6	Geophysical survey	A. 2D Seismic survey has been proposed in this block along dip and strike lines with line intervals of 400m and 400m respectively. Total line km along dip direction is 13.00km and along strike direction is 12.50km. B. Resistivity imaging survey has been proposed in this block along dip direction with line intervals of 400m spacing. Total line km along dip direction is 13.00km.
7.	<u>Chemical Analysis:</u>	
	i) Band by Band (ash, moisture, volatile matter)	2 BHs (about 60 samples)
	ii) Overall (for I100,I30,BCS)	2 boreholes (about 35 samples)
	iii) Calorific Value	2 boreholes (about 35 samples)
8.	Special Tests (Ultimate analysis, Sulphur, phosphorous content)	2 bh for all seams (about 35 samples)

(Note: 3 samples per 1 m of coal has been assumed for band by band analysis)

11.0 2D SEISMIC SURVEY

11.0 Ministry of Coal vide letter no. File No.17022/4/2012-CRC-IVolII-Part (2) dated 14.05.2020 directed to enhance the pace of exploration of coal & lignite. Therefore, 2D Seismic survey along with drilling has been proposed in the block. 2D Seismic survey has been proposed in this block along dip and strike lines with line intervals of 400m and 400m respectively. The data acquisition parameters in the block are hereby proposed as follows:

Geophones	Low distortion, high sensitivity with 10Hz Natural Frequency
Recording System	Telemetry (Wired)/ Wireless with 24-bit $\Delta\Sigma$ Technology
No. of active channels per shot	60 for End on spread
Sampling rate	0.5 ms
Record length	2 sec
Geophone group interval	4 m
Shot interval	4 m
No. of geophones per group	1 string of 6 Geophones to be bunched per station
Source@	EXPLOSIVE/VIBRATORS
Fold-age of data	Minimum 30 even at Block boundary
Shooting pattern	Symmetrical split spread

Geophone Array Pattern	Bunched
Offset	Near offset shall be fixed after experimental work and shall normally be kept as short as possible but adequate enough to minimize shot generated noise.
Statics correction	Using up-hole/Refraction surveys at every 1 Km interval

* However the data acquisition survey may be finalized after the findings of experimental survey.

11.1 QUANTUM OF SURVEY

The total estimated quantum of survey proposed in the area including dip and strike lines in the block is 25.50 LKMs, the details of which has been described below:

Proposed Strike lines		Proposed Dip lines	
PROFILE NAME	LENGTH (LKM)	PROFILE NAME	LENGTH (LKM)
S1	1.15	D1	1.05
S2	2.00	D2	2.75
S3	2.15	D3	3.35
S4	2.00	D4	2.70
S5	2.25	D5	1.90
S6	1.75	D6	1.25
S7	1.20		
Total along strike	12.50	Total along dip	13.00
Cumulative	25.50 LKM		

Resistivity imaging survey will be carried out along dip lines on same profile lines proposed in 2D seismic survey.

11.1 LIMITATIONS

11.2 Meterage and sample no. may require modification after getting proper information about seam disposition of formational contact through integrated geophysical survey.

11.3 Some of the boreholes may require shifting due to non-approachability due to hills / gullies / villages/ forest cover, geological structure etc.

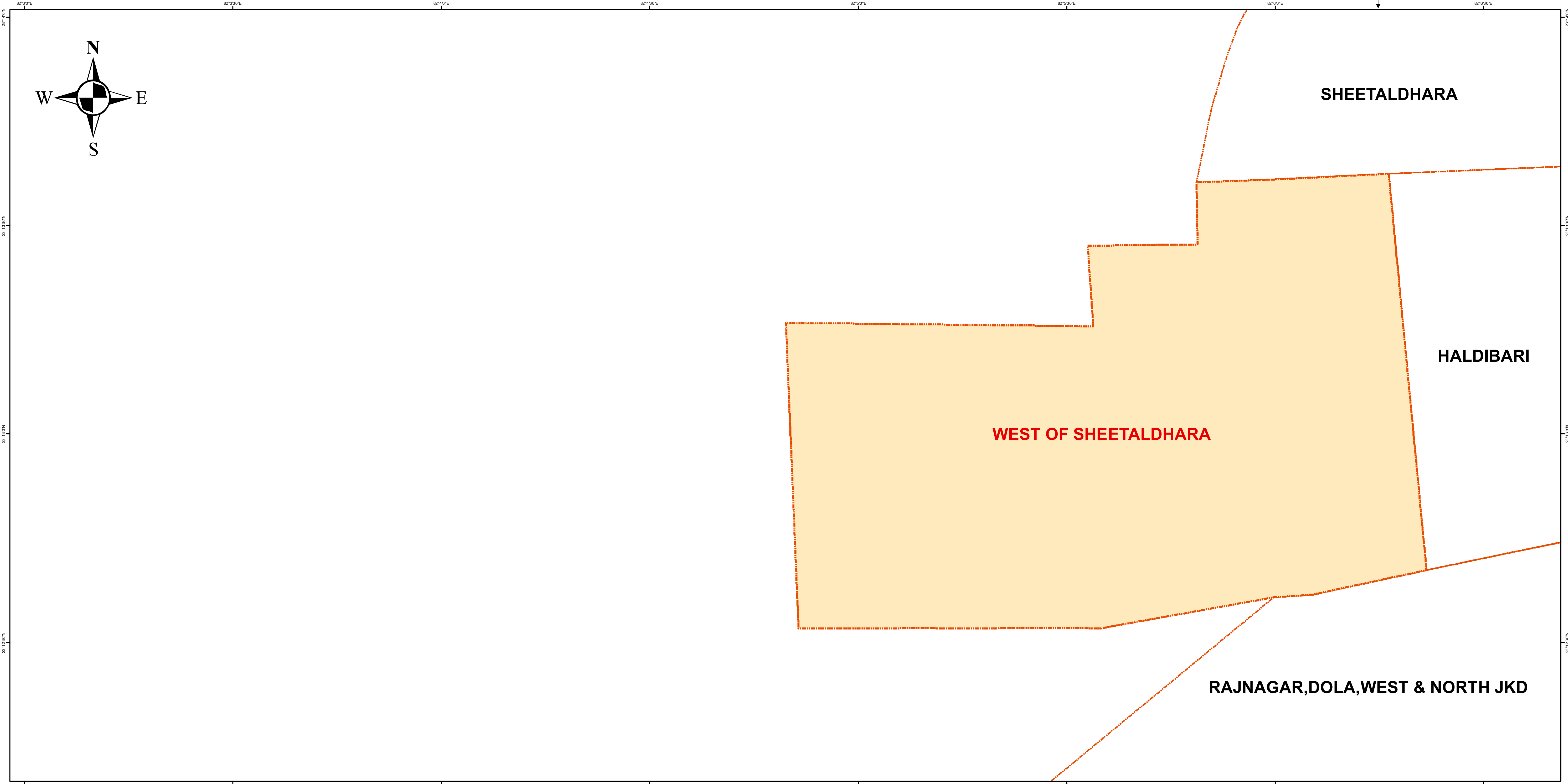
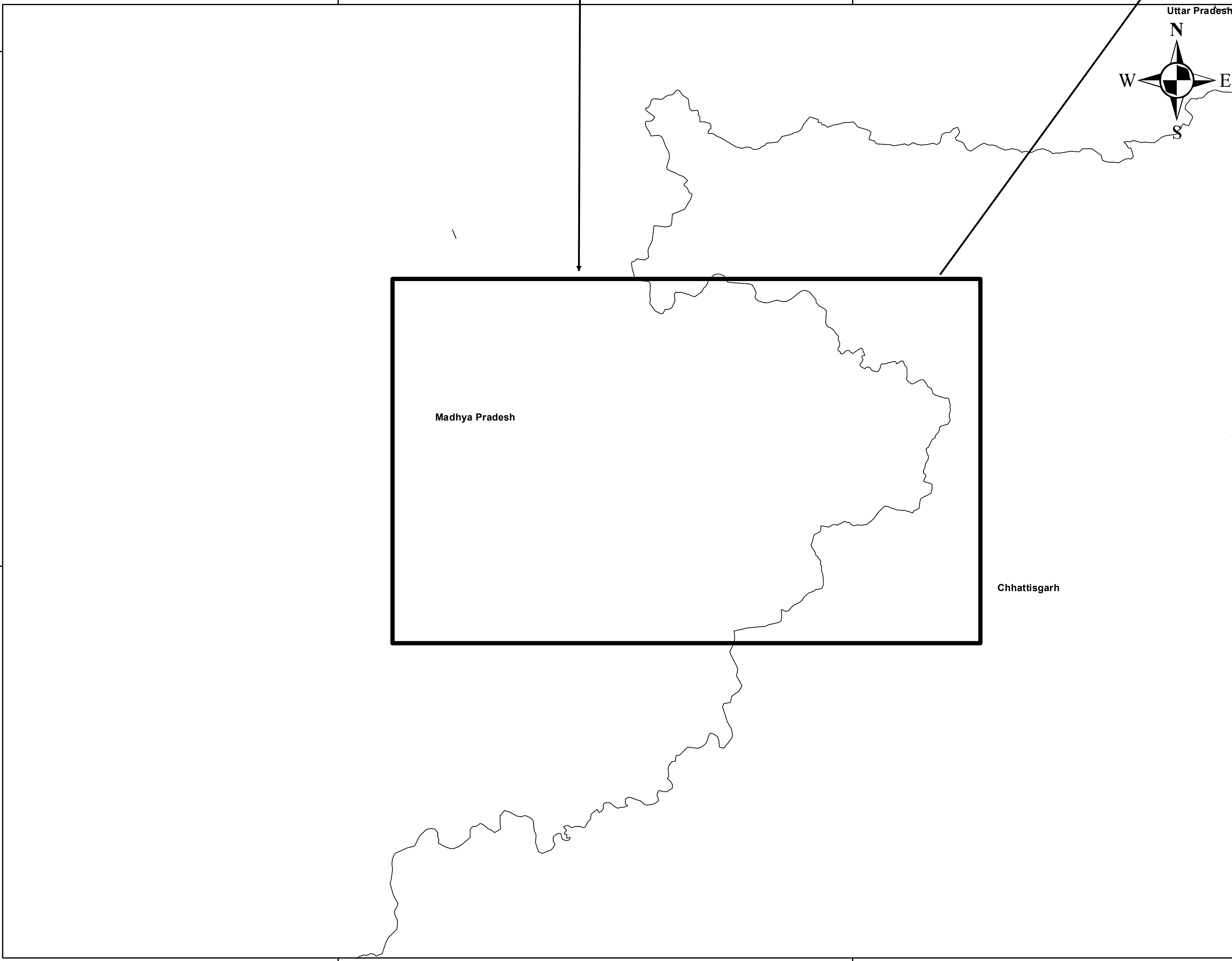
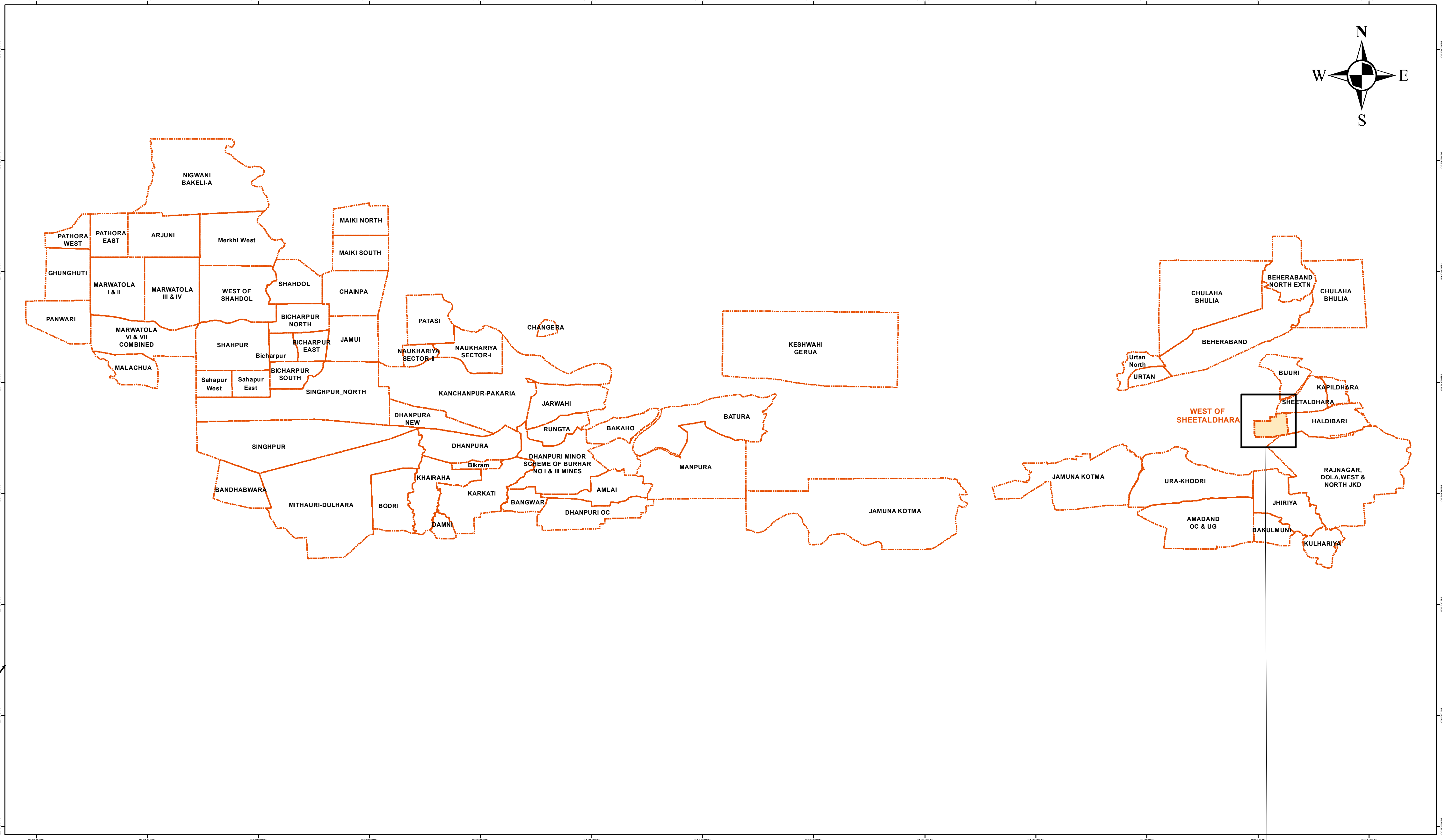
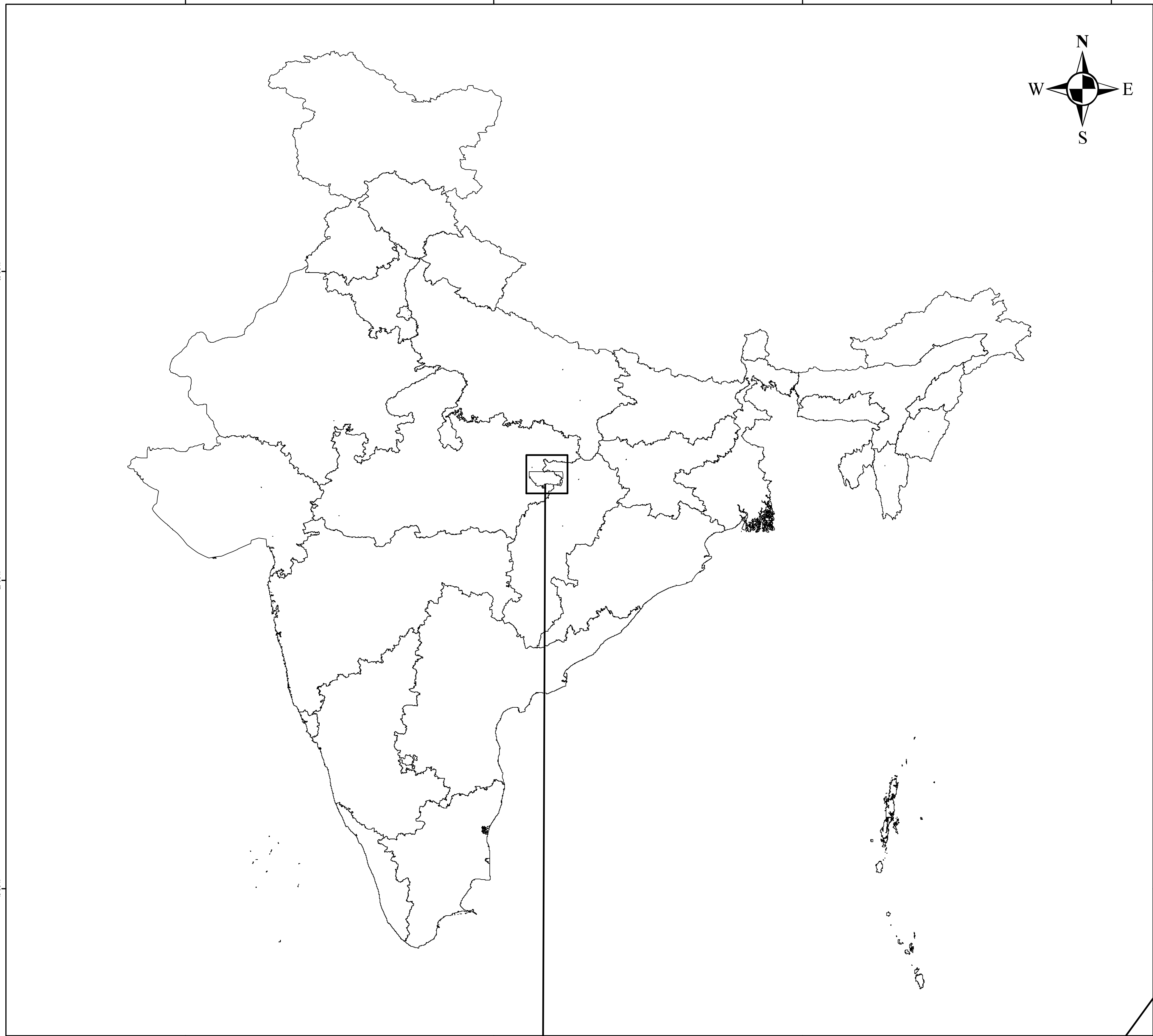
11.4 As the proposed meterage is based on the tentative structure as per surrounding reports and data of adjoining blocks, actual meterage may vary during course of exploration.

12.0 LIST OF PLATES

12.1 Following plates are enclosed with the proposal:

- I. Block Location Map
- II. Borehole Location Plan along with Floor contour plan (tentative) of seam D in West of Shetaldhara block, Sohagpur coalfield.
- III. Geological plan of West of Shetaldhara block, Sohagpur coalfield
- IV. Graphic logs of boreholes drilled in and around of West of Shetaldhara block, Sohagpur coalfield.
- V. 2D Seismic Survey profile lines in block boundary.
- VI. Resistivity profile line in block boundary

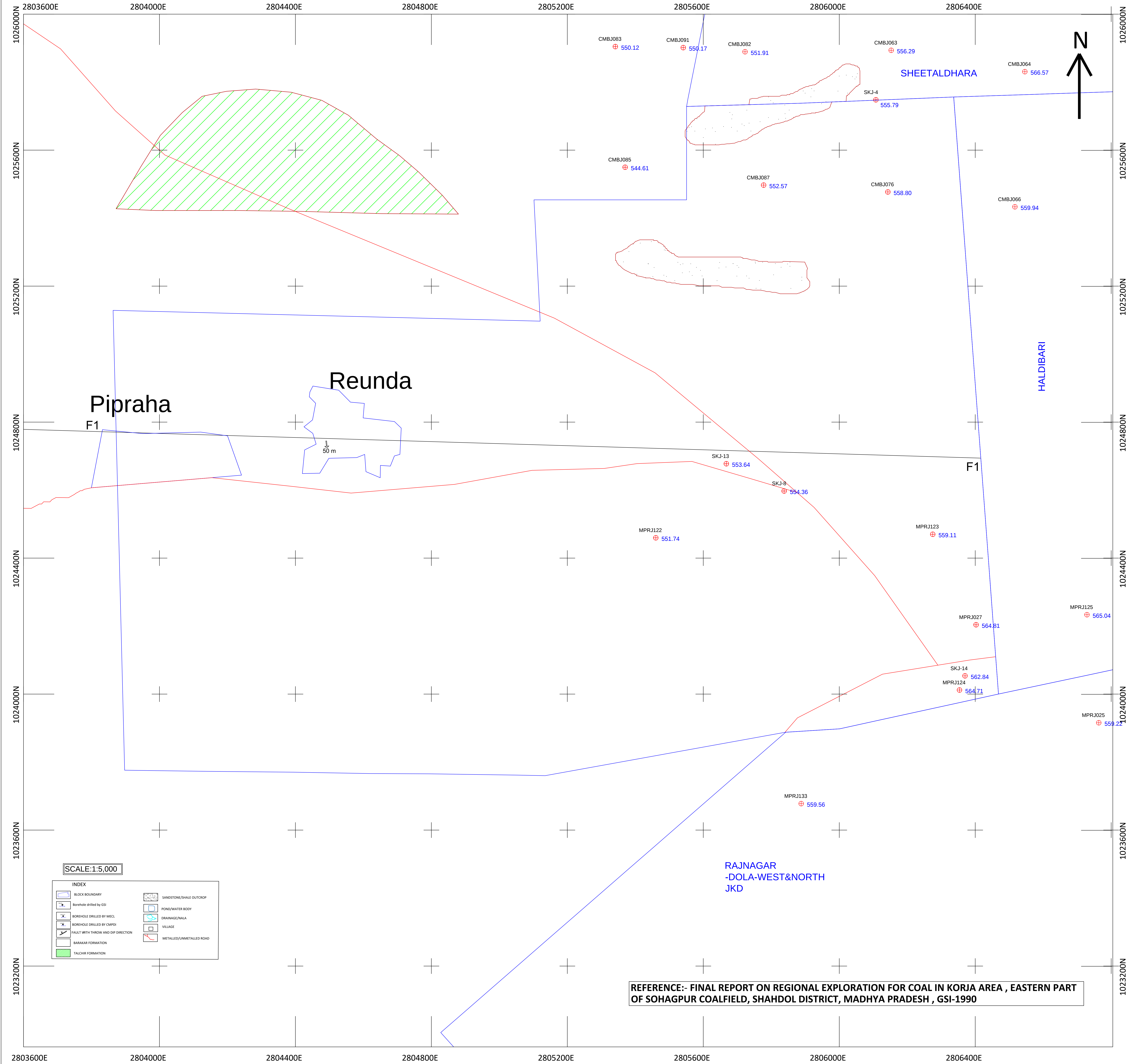
LOCATION OF WEST OF SHEETALDHARA BLOCK IN SOHAGPUR COALFIELD,MADHYA PRADESH



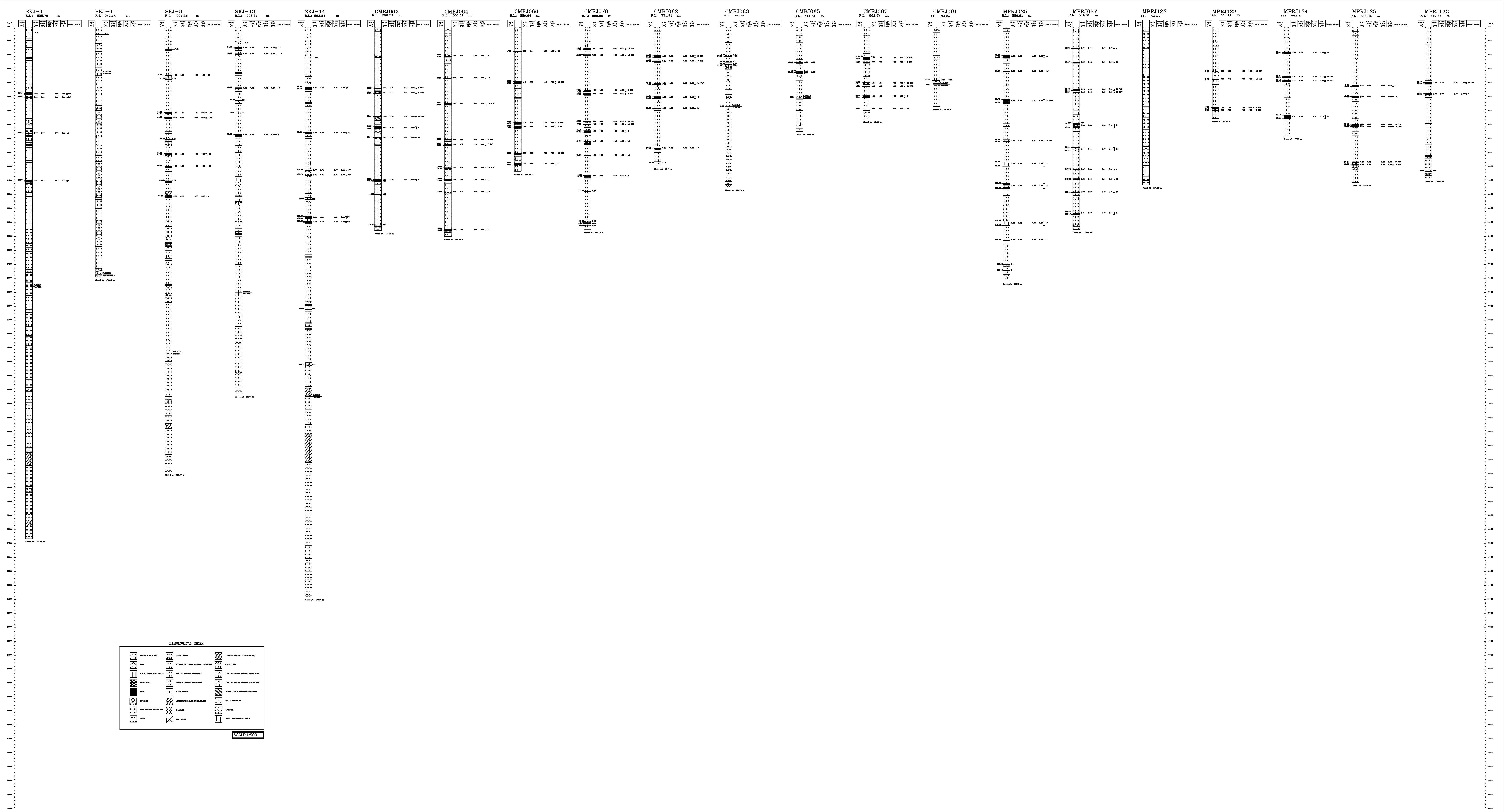
Legend

- WEST OF SHEETALDHARA
- BLOCK BOUNDARY

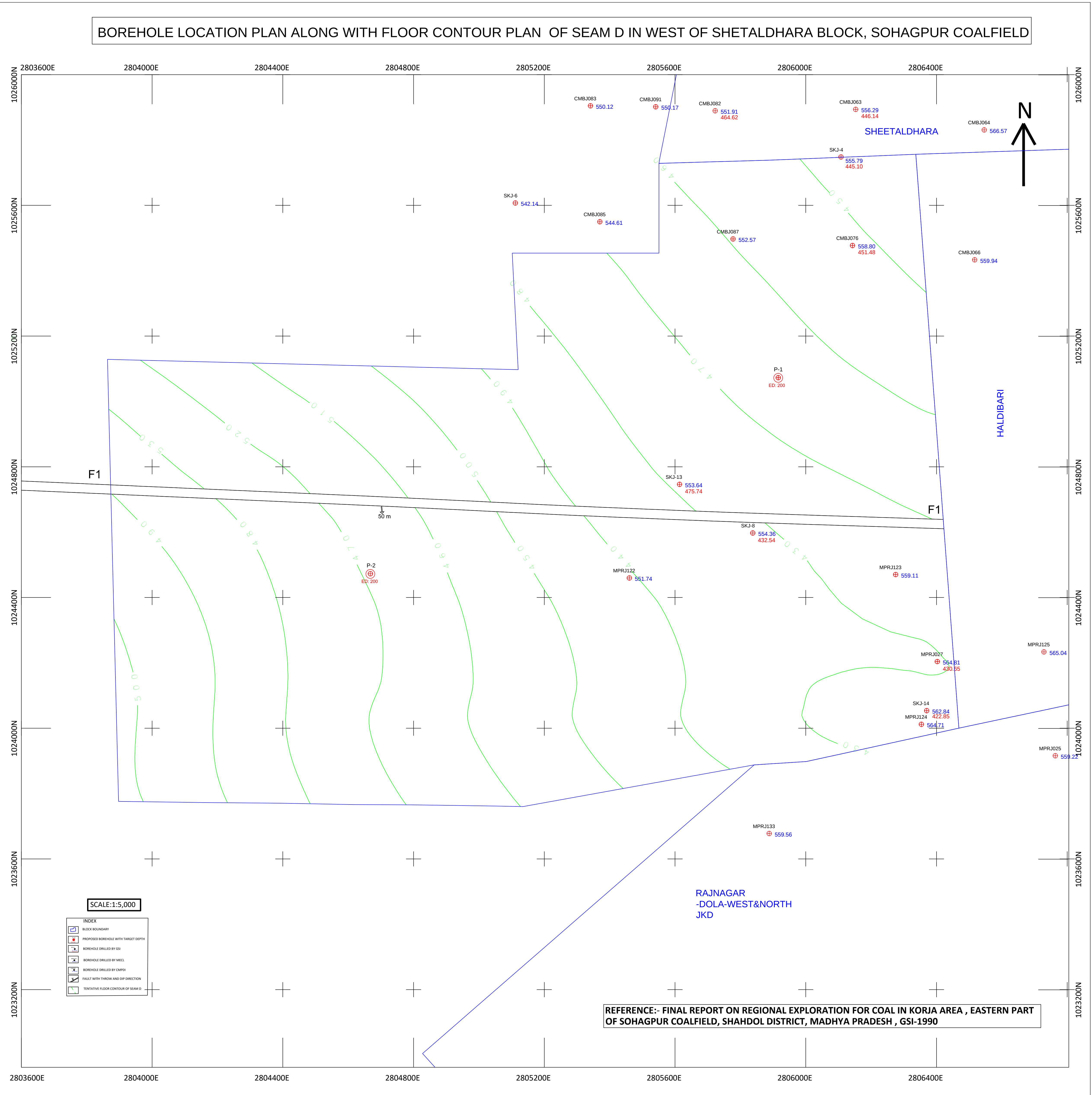
GEOLOGICAL PLAN OF WEST OF SHEETALDHARA BLOCK,SOHAGPUR COALFIELD, MADHYA PRADESH



GRAPHIC LITHOLOGS OF BOREHOLES DRILLED IN AND AROUND WEST OF SHEETALDHARA BLOCK, SOHAGPUR COALFIELD, MADHYA PRADESH



BOREHOLE LOCATION PLAN ALONG WITH FLOOR CONTOUR PLAN OF SEAM D IN WEST OF SHETALDHARA BLOCK, SOHAGPUR COALFIELD

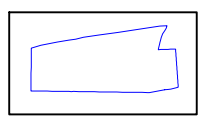


2D SEISMIC PROFILE LINES IN WEST OF SHEETALDHARA BLOCK, SOHAGPUR COALFIELD, MADHYA PRADESH



SCALE: 1:5,000

INDEX



BLOCK BOUNDARY

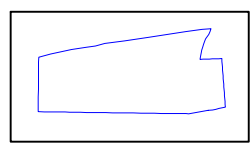
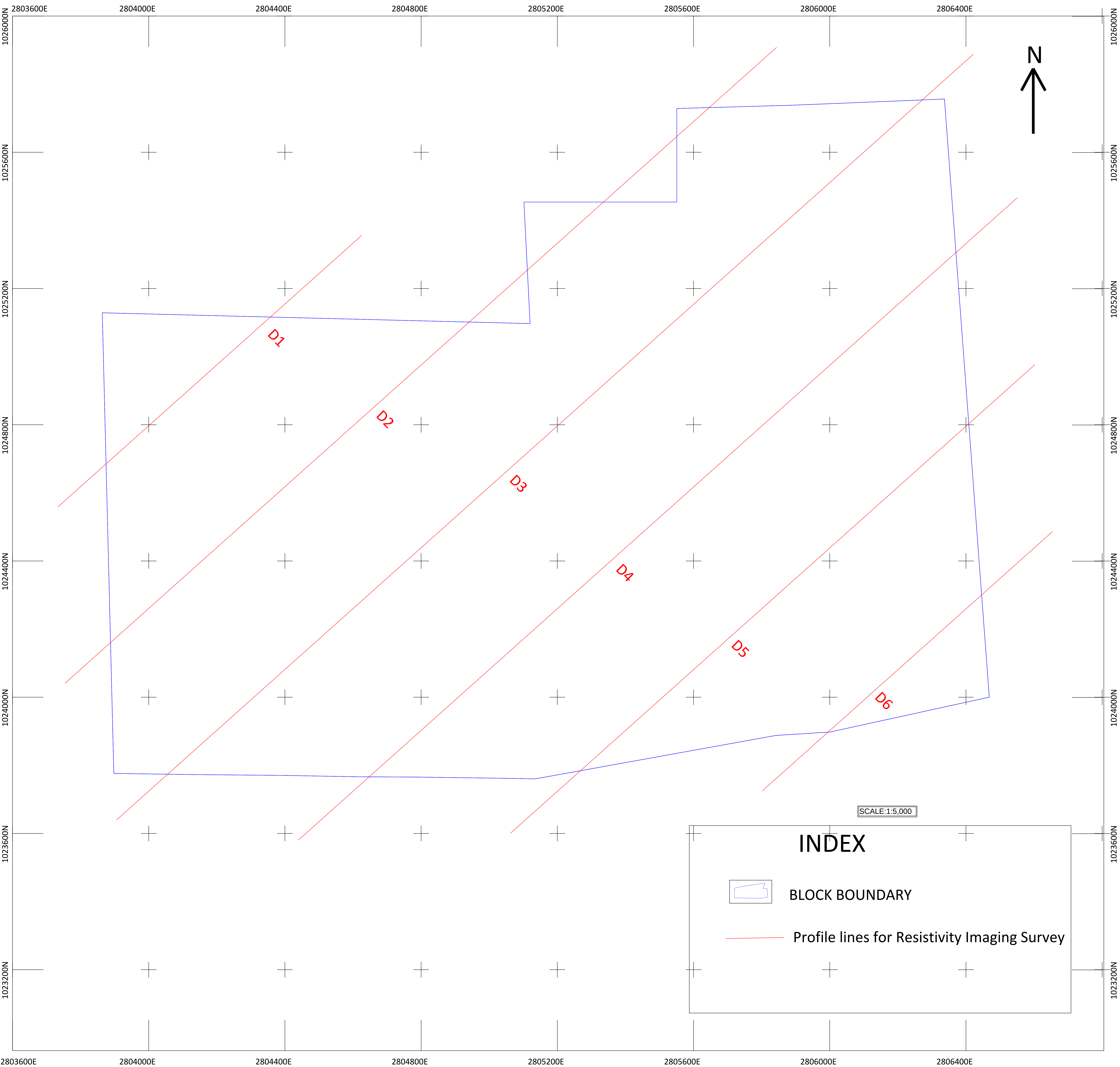


2D seismic lines along dip direction



2D seismic lines along strike direction

2D SEISMIC PROFILE LINES IN WEST OF SHEETALDHARA BLOCK,SOHAGPUR COALFIELD, MADHYA PRADESH



BLOCK BOUNDARY



Profile lines for Resistivity Imaging Survey

Project Cost Estimate for Exploration (G3 Stage) in West of Sitaldhara Block, Sohagpur Coalfield

Sl. No	Item Work	Item no in Soc	Unit	Rates as per SoC of NMET	Rate (Rs)	Qty.	Amount (Rs)
I- Field operations (Outsourcing)							
A	DRILLING						
1	Drilling (As per MoC Rate 2020-21)	2.2.1.1b	m	5619	5619	400	2247600
B	GEOPHYSICAL STUDIES						
1	Borehole Geophysical logging (As per MoC Rate 2020-21)	3.11	m	656	601	400	240400
2	*2D Seismic Survey (as per actulas)	3.14 a/3.14 b	Lkm		700000	25.5	17850000
3	Resistivity Imaging	3.6c	line km	34759	34759	13	451867
	Field operations Total (A+B)						20789867
II- Field Work (In House)							
A	GEOLOGICAL WORK						
1	Survey Work -1 Surveyor	1.6.1a	Day	8300	8300	15	124500
2a	Geological Party days-Field - 1 Geologist	1.5.1b	Day	11000	11000	30	330000
2b	Geological Party days-HQ (Data processing & Report Preparation)-1 Geologist	1.5.1b	Day	9000	9000	15	135000
	Sub Total A						589500
B	GEOPHYSICAL STUDIES						
3a	Geophysicst Party days-Field (Field Work) - 1 Geologist	3.19	Day	11000	11000	60	660000
3b	Geophysicst Party days-HQ (Data processing & Report Preparation)-- 1 Geologist	3.19	Day	9000	9000	30	270000
	Sub Total B						930000
	Field Work Total (A+B)						1519500
III-Laboratory Studies (In House)							
1	Band By Band Analysis						
a	Ash+Moisture	4.2.6	per sample	700	700	60	42000
b	House Keeping	4.2.1	per sample	115	115	60	6900
2	Overall analysis						
a	Proximate analysis	4.2.7	per sample	935	935	35	32725
b	Moisture at 60% RH & 40C	4.2.8	per sample	1010	1010	35	35350
c	GCV	4.2.11	per sample	1505	1505	35	52675
d	Sample preparation & House Keeping	4.2.3	per sample	795	795	35	27825
3	Special Test						
a	Ultimate analysis	4.2.17	per sample	9945	9945	10	99450
b	Total Sulphur	4.2.14	per sample	1900	1900	10	19000
c	Distribution of Sulpher	4.2.15	per sample	3695	3695	10	36950
d	HGI including sample preparation	4.2.18	per sample	3805	3805	10	38050
e	AFT (Ash Fusion Temperature)	4.2.20	per sample	2745	2745	10	27450

f	Ash analysis	4.2.25	per sample	325	325	10	3250
4	Petrographic analysis						
a	Pellet preparation	4.3.14a	per sample	1160	1160	5	5800
b	Maceral Analysis (with photomicrography)	4.3.14e	per sample	25000	25000	5	125000
c	Microlithotype Analysis (with photomicrography)	4.3.14g	per sample	25000	25000	5	125000
d	Mean Ro%	4.3.14j	per sample	16345	16345	5	81725
6	Trace Element /REE Studies ICPMS (1 bh)	4.1.14	per sample	7731	7731	5	38655
	Laboratory Studies Total						797805
	IV. Miscellaneous Charges (In House)						
a	Preparation of Exploration Proposal	5.1	lump sum	380000	380000		380000
b	Outsourcing process cost	2.3	lump sum	500000	500000		500000
c	Operational charges for CMPDI	Point 3 of SOC					1414493
d	DGPS Survey of bundary, borehole points (2 boreholes & 8 boundary point)	1.6.2	per point	19200	19200	10	192000
e	Geological Report preparation (3% or 200000 Max)	5.2					768110
f	Peer review			10000	10000		10000
	Miscellaneous Charges Total						3264603
	Total (I- Field op +II- Field work+III- Lab+ IV -Misc)						26371775
	GST (@18%)						4746919.5
	Grand Total						31118695

3.11186945

Note- 1) Above rate of drilling, GPL, Chemical, are budgeted rates.

2) There are numerous items in chemical anlysis.The CIMFR rates will be applied for actual payment.

3)For Drilling & Geophysical the approved rates of MoC for FY 2020-21 has been taken other rates are as per approved SoC rates.

4) The Drilling rate for coal is Rs 5619/- is as per approved rate of Promotional exploration MoC.

5) GPL rates is Rs 601/- per meter different parameters, the break up is as follow

	Probe	SoC item No	Rate 2020-21 (in Rs)
1	Base Log	3.11a	162
2	Dual Density	3.11d	110
3	Natural Gamma	3.11h	96
4	Caliper	3.11g	20
5	SPR	3.11i	41
6	Sonic	3.11k	131
7	Resistivity	3.11c	41
	Total		601

6) Rs 10000/- for Peer review is budgeted rate.

7) *The rates for 2D seismic is Rs 7,00, 000/- per line km by explosives/vibrator, identified as per market survey & recent work awarded by CMPDI through open tendering.

Time Schedule/Action Plan for West of Sitaldhara Block, Sohagpur Coalfield																
S. No	Activities														Remarks	
		Months	1	2	3	4	5	6	7	8	9	10	11	12		
1	Outsourcing	Months	<----->												3 Months	
2	Mobilising	Months				↔									1 months	
3	2D seismic Survey & Resistivity Survey	Months					<----->								25.5 Line km & 13 line Km	
4	Drilling (Nos of rigs-1 rigs)	Months							↔						400 in 2 Bh	
5	Borehole Geophysical logging	Days							↔						400 in 2 Bh	
6	Survey Party days (1 Party)	Days					<----->								15 Days	
7	Geologist Party days, Field (1 Party)	Days							↔						30 Days	
8	Geophysict Party days, Field (1 Party)	Days					<----->								60 Days	
9	Laboratory Studies (Band By Band)	Nos.						<----->							60 sample	
10	Laboratory Studies (Overall)	Nos.								<----->					35 sample	
11	Laboratory Studies (Special) & (Petrography)	Nos.										↔			10 Sample & 5 Sample	
12	Geologist Party days, HQ (1 Party)	Days								<----->					15 Days	
13	Geophysict Party days, HQ (1 Party)	Days								<----->					30 Days	
14	2 D seismic Report	Months								<----->					4 Months	
15	Report Writing & Peer Review	Months								<----->					4 Months	

Note: Please add activities accordingly and timeline (months)

Total Time Period of Completion of Project- 12 months from Sanction of Project