

**PROPOSAL FOR PRELIMINARY
EXPLORATION (G-3 STAGE) FOR COAL**

WEST OF BORDA & GHONSA-PARSODA

NMET FUNDED PROJECT

WARDHA VALLEY COALFIELD

DISTRICT– YAVATMAL, MAHARASHTRA



cmpdi
A Mini Ratna Company

सेन्ट्रल माईन प्लानिंग एण्ड डिजाइन इन्स्टीच्यूट लिमिटेड
(कोल इण्डिया लिमिटेड की अनुषंगी कम्पनी / भारत सरकार का एक लोक उपक्रम)
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**PROPOSAL FOR PRELIMINARY EXPLORATION FOR COAL (G-3 STAGE)
IN WEST OF BORDA & GHONSA-PARSODA BLOCK, WARDHA VALLEY
COALFIELD DISTRICT-CHANDRAPUR, MAHARASHTRA**

1.0 INTRODUCTION

- 1.1 Wardha Valley Coalfield has assumed importance by virtue of its location to meet the increasing coal demand in southern and western part of the country. Wardha Valley Coalfield covers an area of about 4130 sq.kms. Within the districts of Chandrapur and Yeotmal in Maharashtra State. The likely extension of this coalfield due NNW in the Wardha district below the Deccan Traps cannot be ruled out. Furthermore, the Godavari Valley Coalfield in SSE may be the likely extension of Wardha Valley Coalfield in the Adilabad district of Telangana. The block proposed in the present area forms part of western limb of the plunging anticline in the southwestern part of Wardha Valley Coalfield. The possible occurrence of coal in the block is located in dip side of Borda Dip side block & Ghonsa-Parsoda Block where G4 exploration for coal has been carried out by GSI.
- 1.2 Wardha Valley Coalfield is located in the south-eastern part of Maharashtra State and is bounded between Latitude N 19° 30' & N 20° 27' and Longitude E 78°50' & E 79°49'.
- 1.3 Regional exploration in the part block was carried out by GSI, in the nearby blocks such as Borda & Borda Extn, Ghonsa & Parsoda Blocks. Exploration was carried out by CMPDI & MECL for identifying underground and open cast resources of coal. In assumption that similar geological structure occurs in the block in continuation with the blocks mentioned earlier few scout boreholes were drilled by GSI in and around the proposed area. GSI drilled 4 scout boreholes in Jamkhola area, Wardha Valley Coalfield in 2012-15 (WJ-1, 2, 3 & 3A totaling 1596.80m) and **Exploration report on scout drilling in Jamkhola Area, Wardha valley Coalfield, District Yavatmal, Maharashtra, 2015** was prepared by GSI. Similarly, in the adjacent area an **Exploration report on scout drilling in Dabhadi Area, Wardha valley Coalfield, District Yavatmal, Maharashtra, 2015** was prepared by GSI involving drilling of 3 BHs totaling a meterage of 1341.50 m.
- 1.4 Out of the 7 scout boreholes drilled by GSI coal was only encountered in 4, the other boreholes were closed in Motur/Deccan Trap and were not lowered upto Barakars and prematurely closed. CMPDI/MECL undertook regional/detailed exploration in the adjoining up-dip blocks i.e. Borda & Borda Extension and Ghonsa-Parsoda etc where complete coal sequence has been identified in Barakars in the drilled boreholes establishing significant coal resources. The West of Borda & Ghonsa-Parsoda has been identified for Preliminary (G3) stage of exploration on the basis of findings in GSI BHs drilled in and around the block.

- 1.5 West of Borda & Ghonsa-Parsoda is located in the South western part of Wardha valley CF District Yavatma. The area is covered in the toposheet **56 I/13**. The area falls in the Yavatmal district of Maharashtra state.
- 1.6 Accordingly CMPDI has drawn proposal for exploration for coal in West of Borda & Ghonsa-Parsoda Block involving **20000 m** of drilling in **26** boreholes along with Resistivity imaging of 150 Line Km for G3 stage . The boreholes have been proposed at 1600m×1600 m grid.

2.0 OBJECTIVES

- 2.1 The G3 stage of Exploration in the block is proposed to fulfill following objectives-
1. To establish the existence and continuity of coal seams occurring in the block as significant coal resources are present in adjoining block such as Borda & Borda Extn , Ghonsa-Parsoda etc.
 2. To establish the lay, disposition and potentiality of coal seams.
 3. To assess the coal resource by G3 stage of exploration in the block

3.0 LOCATION, COMMUNICATION AND ACCESSIBILITY

- 3.1 The area falls in the Yavatmal district of Maharashtra state The Wani Township is located at a distance of about 25 kms from this block and is connected by a fair weather Wani–Ghonsa/Borda road. From Nagpur, the block is at a distance of 140 Kms. The nearest railway station is at Wani on Majri–Rajur branch of Central Railway.
- 3.2 The area is also well connected with Wani-Yeotmal state highway through Karanwadi Raipur fair weather road. Since, the block is located in the interior part, the suitable communication to the area is by Wani-Ghonsa/Borda road and Wani – Maregaon – Karanwadi – Raipur road.

Table-I

CARDINAL POINTS OF BLOCK BOUNDARY FOR WEST OF BORDA & GHONSA PARSODA BLOCK

CARDINAL POINT OF WEST OF BORDA & GHONSA PARSODA BLOCK , WARDHA VALLEY COALFIELD, CHANDRAPUR DISTRICT, MAHARASHTRA CARDINAL POINTS_COALGRID & WGS84					
Sl. No.	CARDINAL POINT No.	Easting	Northing	Longitude	Latitude
1	CP1	2973324.183	1083760.667	78° 44' 36.639" E	20° 0' 43.088" N
2	CP2	2973880.34	1083144.532	78° 44' 55.814" E	20° 0' 23.068" N
3	CP3	2974307.003	1083179.775	78° 45' 10.498" E	20° 0' 24.234" N
4	CP4	2974788.26	1082776.775	78° 45' 27.083" E	20° 0' 11.144" N

5	CP5	2975327.329	1082325.366	78° 45' 45.659" E	19° 59' 56.481" N
6	CP6	2976002.452	1081133.47	78° 46' 8.950" E	19° 59' 17.731" N
7	CP7	2976366.605	1080623.489	78° 46' 21.506" E	19° 59' 1.154" N
8	CP8	2976684.268	1080019.913	78° 46' 32.466" E	19° 58' 41.530" N
9	CP9	2976823.939	1079754.529	78° 46' 37.284" E	19° 58' 32.901" N
10	CP10	2977469.685	1078755.381	78° 46' 59.550" E	19° 58' 0.419" N
11	CP11	2977887.605	1078253.877	78° 47' 13.953" E	19° 57' 44.119" N
12	CP12	2978295.13	1077940.415	78° 47' 27.989" E	19° 57' 33.936" N
13	CP13	2978314.284	1077923.457	78° 47' 28.649" E	19° 57' 33.385" N
14	CP14	2978993.846	1077321.823	78° 47' 52.057" E	19° 57' 13.836" N
15	CP15	2980047.258	1076389.209	78° 48' 28.340" E	19° 56' 43.531" N
16	CP16	2981416.963	1075176.574	78° 49' 15.512" E	19° 56' 4.123" N
17	CP17	2982501.781	1073475.368	78° 49' 52.892" E	19° 55' 8.807" N
18	CP18	2983267.827	1072274.06	78° 50' 19.284" E	19° 54' 29.744" N
19	CP19	2979816.953	1070219.865	78° 48' 20.653" E	19° 53' 22.791" N
20	CP20	2973641.161	1074536.535	78° 44' 48.013" E	19° 55' 42.984" N

3.3 West of Borda & Ghonsa-Parsoda is located in the south western part of Wardha valley CF District Yavatmal. The area is covered in the toposheet 56 I/13. The geographical co-ordinates of the block defined are as follows:

Latitude : N – 19° 53' 22 " N to 20° 0' 43.08" N
Longitude : E – 78° 44' 36" E to 78° 50' 19.28" E

4.0 PHYSIOGRAPHY, DRAINAGE

4.1 The area is almost entirely covered by thick and hard Deccan Trap and presents a rugged and undulating topography due to differential weathering and erosion. The general slope in southern half of the block is towards south while general slope in northern half of the block is towards north/north-east. The exposures of basalt forms hillock like features in the block at places.

5.0 CLIMATE AND VEGETATION

5.1 The area experiences typical tropical climate. The summer season is from April to June with the maximum temperature reaching up to 48⁰ C during May. Winters are moderate with the minimum temperature dropping up to 8⁰ C. Monsoon generally extends from June to September. The average annual rainfall is around 1000 mm. The major precipitation is experienced between July and September.

5.2 The area under study is partly forested however occurrence of Thick forests and dense Jungles are found in the area. Out of the Total area 60.95 Sq. km (approx.) under

exploration 17.17 Sq. km is Forest area and 43.78 Sq. km (approx. 72%) Non Forest Area. Teak, sal pipal, Kendu and bamboo are the dominant plants in the Forest.

6.0 BROAD GEOLOGICAL SET UP

6.1 Stratigraphic Sequence

The geological succession in this basin as per published report of GSI, CMPDI and MECL in the study area are as given below

TABLE-II
STRATIGRAPHIC SUCCESSION OF THE COALFIELD

Age	Formation	Lithology
Recent/Sub-Recent	Detrital Mantle	Black cotton soil/sandy soil
Upper Cretaceous	Deccan Trap	Basalts
-----UNCONFORMITY-----		
Cretaceous	Lameta	Cherty limestone, chert, brown, yellowish to pale white silicified sandstones, claystone.
-----UNCONFORMITY-----		
Upper Permian to Lower Triassic	Kamthi	Red, brown and variegated clays, ferruginous coarse grained sandstone and shale bands.
-----UNCONFORMITY-----		
Middle Permian	Motur	Medium to fine grained variegated sandstones, variegated clays and shales.
Lower Permian	Barakar	Light grey to whitish sandstones with grey shale, sandy shale, alternate bands of shale and sandstone and coal seams.
Upper Carboniferous to Lower Permian	Talchir	Greenish to grey sandstones, siltstone and shale.
-----UNCONFORMITY-----		
Pre-Cambrian	Vindhyan	Greenish to grey quartzitic sandstone, pinkish limestone and chert.
-----UNCONFORMITY-----		
Archaeans	Metamorphics	Quartzites, granites, gneisses and schist etc.

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 Dabhadi/ Jamkhola/ Borda & Borda Extn. .The generalised sequence of the different formations in the area under study is given below in Table III

TABLE-III
STRATIGRAPHIC SUCCESSION OF THE BLOCK

Age	Formation	Thickness range (m)		Lithology
		Minimum	Maximum	
Recent / Sub-Recent	Detrital Mantle	0.20	7.80	Black cotton soil / sandy soil
Upper Cretaceous to Eocene	Deccan Trap	1.50	171.33	Basalt
-----UNCONFORMITY-----				
Cretaceous	Lameta	36.60		Shale, alternate bands of shale and sandstone and silicified sandstone
-----UNCONFORMITY-----				
Upper Permian to Lower Triassic	Kamthi	9.72	45.00	Yellow to brown fine to coarse grained sandstones, shale and clay.
-----UNCONFORMITY-----				
Middle Permian	Motur	3.00	569.05	Brown, green & greyish green shaly sandstone, clay, fine grained sandstone
Lower Permian	Barakar	6.00	110.11	Grey to white fine to coarse grained sandstones, thin clay bands, shale, intercalation of shale and sandstone, sandy shale, shaly sandstone, carb. shale, shaly coal and coal
Upper Carboniferous to Lower Permian	Talchir	(+) 3.00		Greenish shale.

8.0 Regional Structure

- 8.1 The general attitude of the bedding in the West of Borda & Ghonsa-Parsoda is North West to South east with South –Westerly dip ,however the amount of dip and change in direction cannot be ruled out due to occurrence of large faults.
- 8.2 The interpretation of geological structure in West of Borda & Ghonsa-Parsoda block is solely based on the sub-surface data obtained from the boreholes drilled in the block coupled with regional structure interpreted in adjacent Borda & Borda Extn., and Ghonsa Parsoda Block.

- 8.3 Based on the data obtained from boreholes drilled in and around the block by MECL, GSI and CMPDI and regional structure in Blocks, tentative floor contour plans have been attempted to decipher the geological structure of West of Borda & Ghonsa-Parsoda Block.
- 8.4 It is observed from the floor contour plans that the general strike of the beds trends North Westerly to South easterly with low dip in south westerly direction.
- 8.5 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 Wardha Valley Coalfield is characterized by the presence of one thick Coal Seam varying in thickness from 15 m to 20 m that splits into two sections as Seam II & Seam I. These correlatable sections are separated by well-defined parting.
- 9.2 The detailed exploration in the adjoining blocks reveals mainly the existence of two prominent seams, Seam II and Seam I as per the recent nomenclature for delineation of Coal seams.
- 9.3 The sequence of coal seams likely to occur in the proposed block on the basis of boreholes drilled in adjoining blocks reveals mainly the existence of two prominent seams, Seam II and Seam I as per the recent nomenclature for delineation of Coal seams.. The details of coal seam encountered in the surrounding blocks are described below.

SEAM NO	DEPTH RANGE(m)		THICKNESS	OVERALL QUALITY OF THE SEAM
	FROM	TO		
Seam II	500	1000	0.10-6.84	(G-6 to G-10)
Parting			8.73-28.10	
Seam I	500	1000	0.15-6.50	(G-4 to G-9)

The overall grade in the proposed block varies from **G5-G10**.

The tentative coal resources likely to be established through G3 stage of exploration is 750Mt.

10.0 EXPLORATION SCHEME

10.1 Drilling:

Drilling of **20,000 m** in **26** boreholes has been proposed in 1600X1600 m grid for the West of Borda & Ghonsa-Parsoda Block. The depth of intersection for Seam I has been proposed from 500 m to 1000 m at minimum to maximum range. (Table IV)

TABLE IV

Depth of Proposed Boreholes in West of Borda & Ghonsa-Parsoda block, Wardha valley Coalfield

ANNEXURE I					
APPROXIMATE METERAGE OF PROPOSED BOREHOLE POINTS IN WEST OF BORDA GHONSA PARSODA BLOCK, WARDHA VALLEY COALFIELD					
S. NO.	P. POINT NO	TENTATIVE R.L.	TENTATIVE F.R.L.	APPROXIMATE DEPTH	REMARKS
1	P-1	300.00	-200.00	500.00	
2	P-2	300.00	-550.00	850.00	
3	P-3	300.00	-460.00	760.00	
4	P-4	300.00	-370.00	670.00	
5	P-5	300.00	-480.00	780.00	
6	P-6	300.00	-570.00	870.00	
7	P-7	300.00	-370.00	670.00	
8	P-8	300.00	-250.00	550.00	
9	P-9	300.00	-590.00	890.00	
10	P-10	300.00	-490.00	790.00	
11	P-11	300.00	-390.00	690.00	
12	P-12	300.00	-290.00	590.00	
13	P-13	300.00	-320.00	620.00	
14	P-14	300.00	-410.00	710.00	
15	P-15	300.00	-520.00	820.00	
16	P-16	300.00	-610.00	910.00	
17	P-17	300.00	-700.00	1000.00	
18	P-18	300.00	-650.00	950.00	
19	P-19	300.00	-530.00	830.00	
20	P-20	300.00	-430.00	730.00	
21	P-21	300.00	-490.00	790.00	
22	P-22	300.00	-460.00	760.00	
23	P-23	300.00	-570.00	870.00	
24	P-24	300.00	-480.00	780.00	
25	P-25	300.00	-510.00	810.00	
26	P-26	300.00	-510.00	810.00	
				20000.00	
Grand Total		26 Boreholes		20000.00	
Note: Meterage of proposed boreholes may also vary due to, surface R.L., change in trend and throw amount of faults if any. Existence of faults cannot be ruled out.					

Timeline of Completion of work-23 Months from Sanction of the Project

Some boreholes may be extended beyond 1000m due to structural complexities like faulting/ to encounter the Talchir formation & for establishing the complete stratigraphical sequence in the region.

In view of soft and friable nature of Motur clays and sandstone which causes problem in the drilling appropriate technology, combination of drilling method be adopted to complete the project in the time schedule.

10.2 Geophysical Investigation:

Gravity datasets is downloaded from Bhukosh-GSI for studying the basin configuration. Since sparse gravity data points are available in the blocks, gravity data from neighbouring toposheet have also been taken to understand the basin configuration in the area. Magnetic data is not available in the block and neighbouring toposheet area. After studying the Bouguer anomaly map and regional & residual gravity anomaly map following inferences are drawn:

1. In the regional gravity anomaly map it is observed that gravity is relatively high in the blocks and its northern & eastern vicinity area.
2. From residual gravity anomaly, it can't differentiate the sedimentary formation from the Deccan trap area due to very meagre amount of difference in the density contrast.

Since no magnetic data is available in the area, geological map of Borda dip side and Ghonsa Parsoda Dip side blocks, Wardha valley CF has been taken into consideration to study the trap in the blocks area. As per the geological map of the blocks, it is learnt that the area is almost completely covered by Deccan trap, therefore detailed resistivity imaging survey is mandatory for planning drilling in the concerned area. Resistivity imaging survey is suitable to delineate the vertical and horizontal extent of shallow trap regions, which could assist in planning borehole points in the study area.

Detailed resistivity imaging survey followed by proper planning of boreholes to be drilled in the area is proposed.

All the boreholes will be geophysical logged. The parameters involved are Sonic, Dual density, Natural Gamma, caliper, SPR, deviation, etc.

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 Borda & Ghonsa-Parsoda block is given below in Table-V

TABLE-V
QUANTUM OF WORK

S.No.	Activity	Quantity
1.	Geological Mapping	60.95 Sq km
2.	<u>Drilling:</u>	
	i) Boreholes	26 BHs.
	ii) Meterage	20000m
3.	i) Levelling and Triangulation	As per requirement
	ii) RL and Co-ordinates	26 BHs.
4.	Drill Core Logging	20000m
5.	Geophysical Logging	26 boreholes 20000m
6	Resistivity Imaging	150 Line Km
7	<u>Chemical Analysis:</u>	
	i) Band by Band	1050 Samples
	ii) Overall	250 Samples
	iii) Calorific Value	250 Samples
8	Special Tests	25 Samples

11.0 LIMITATIONS

11.1 Out of the Total area 60.95 Sq km (approx.) under exploration 17.17 Sq. km (approx.28%) is Forest area and remaining 43.78 Sq. km (approx. 72%) Non Forest Area. Teak, sal pipal, Kendu and bamboo are the dominant plants in the Forest.

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

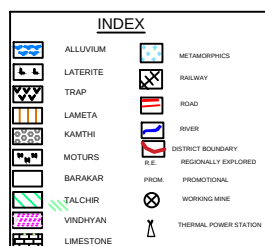
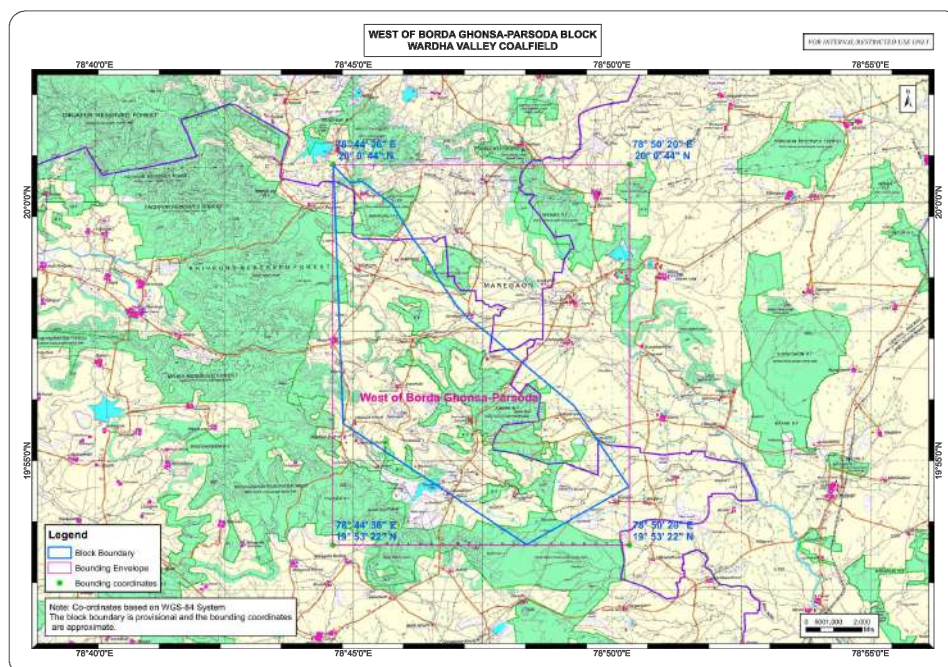
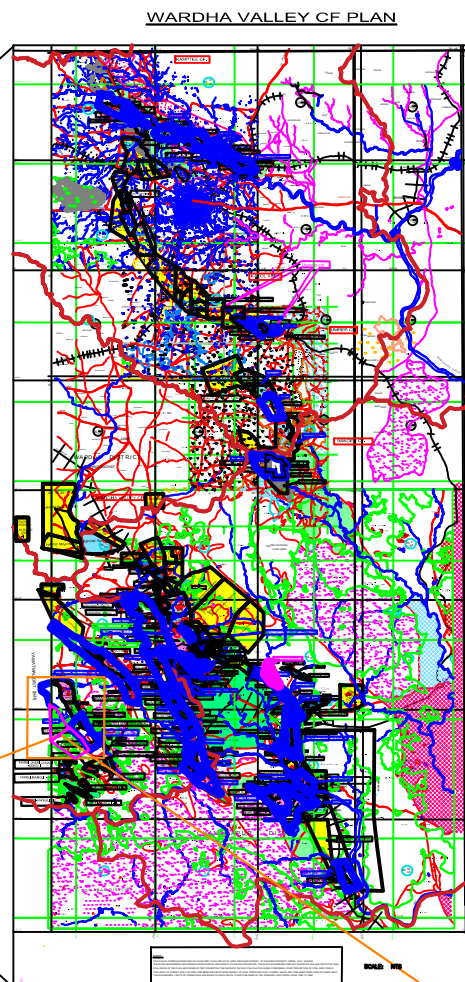
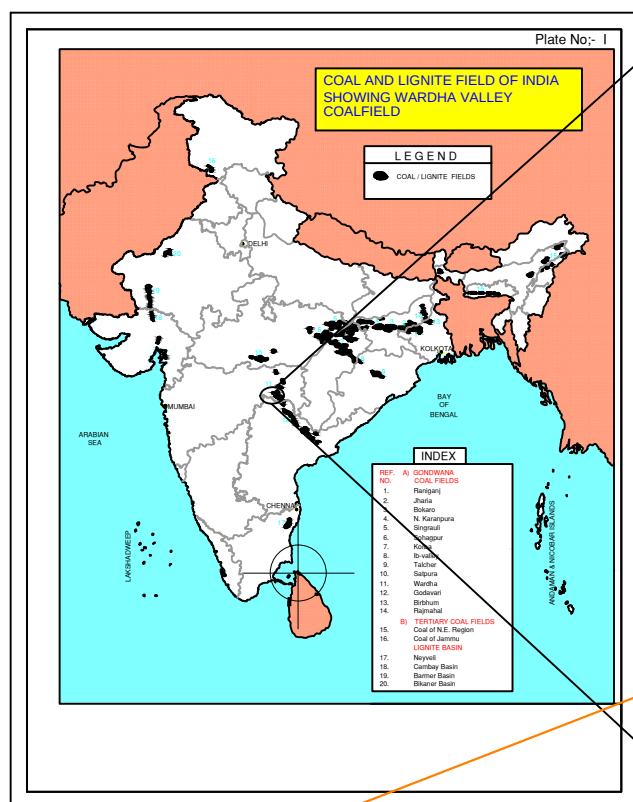
11.3 As the proposed meterage is based on the tentative structure as per Regional reports and data of adjoining blocks, actual meterage may vary during course

12.0 LIST OF PLATES

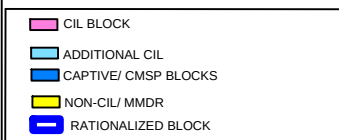
12.1 Following plates are enclosed with the proposal:

- I. Block Location Map
- II. Geological Map of the block
- III. Topographic Plan of the block
- IV. Graphic logs of boreholes drilled by GSI, CMPDI and MECL.
- V. Borehole Location Plan on RF 1:10,000 along with Floor contour plan (tentative) of Seam I in West of Borda, Ghonsa-Parsoda Block, Wardha valley CF coalfield.
- VI. Seismic Profile lines in block boundary.

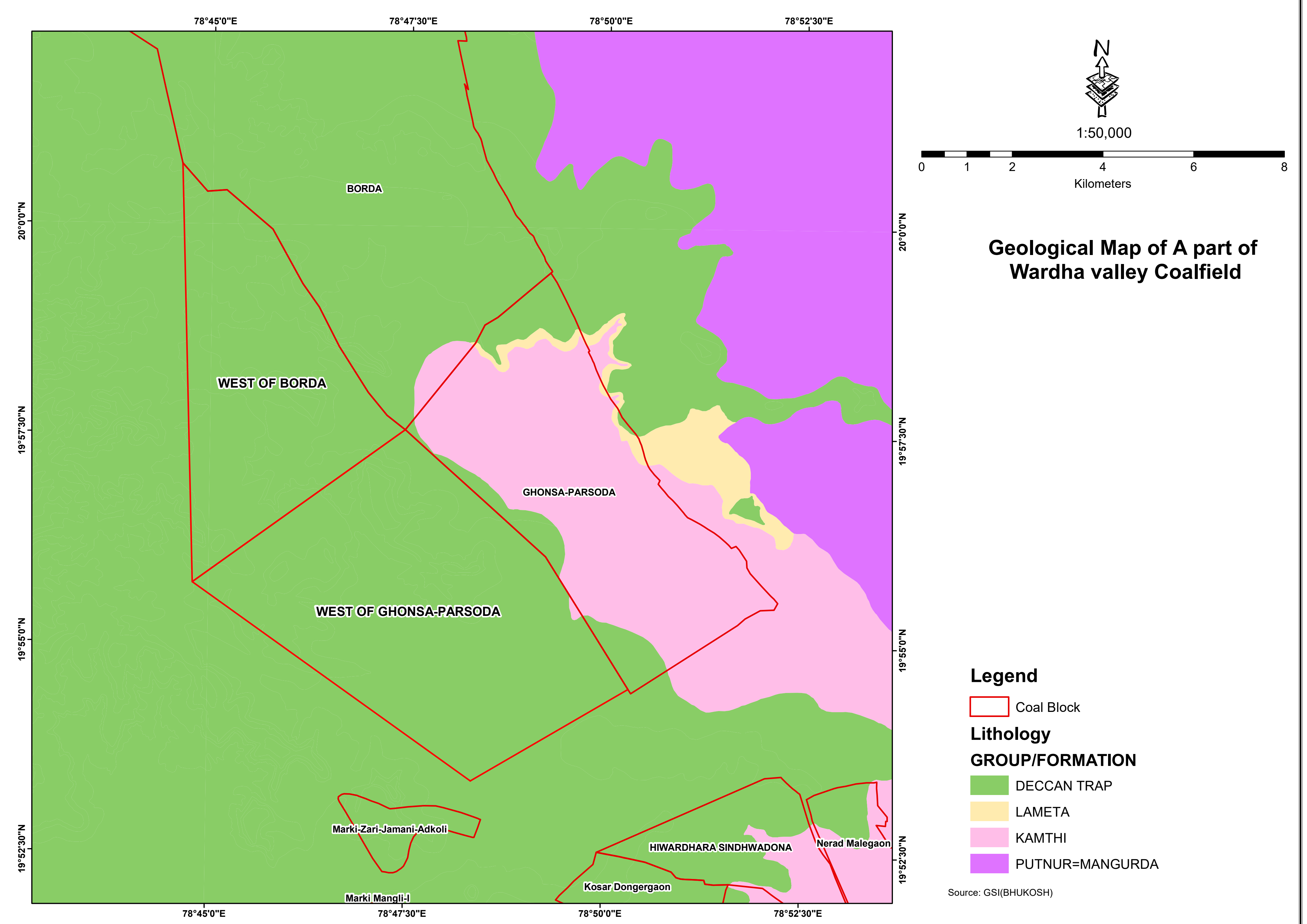
LOCATION PLAN OF WEST OF BORDA, GHONSA-PARSODA. (PLATE-i)



COAL BLOCKS SHOWN:

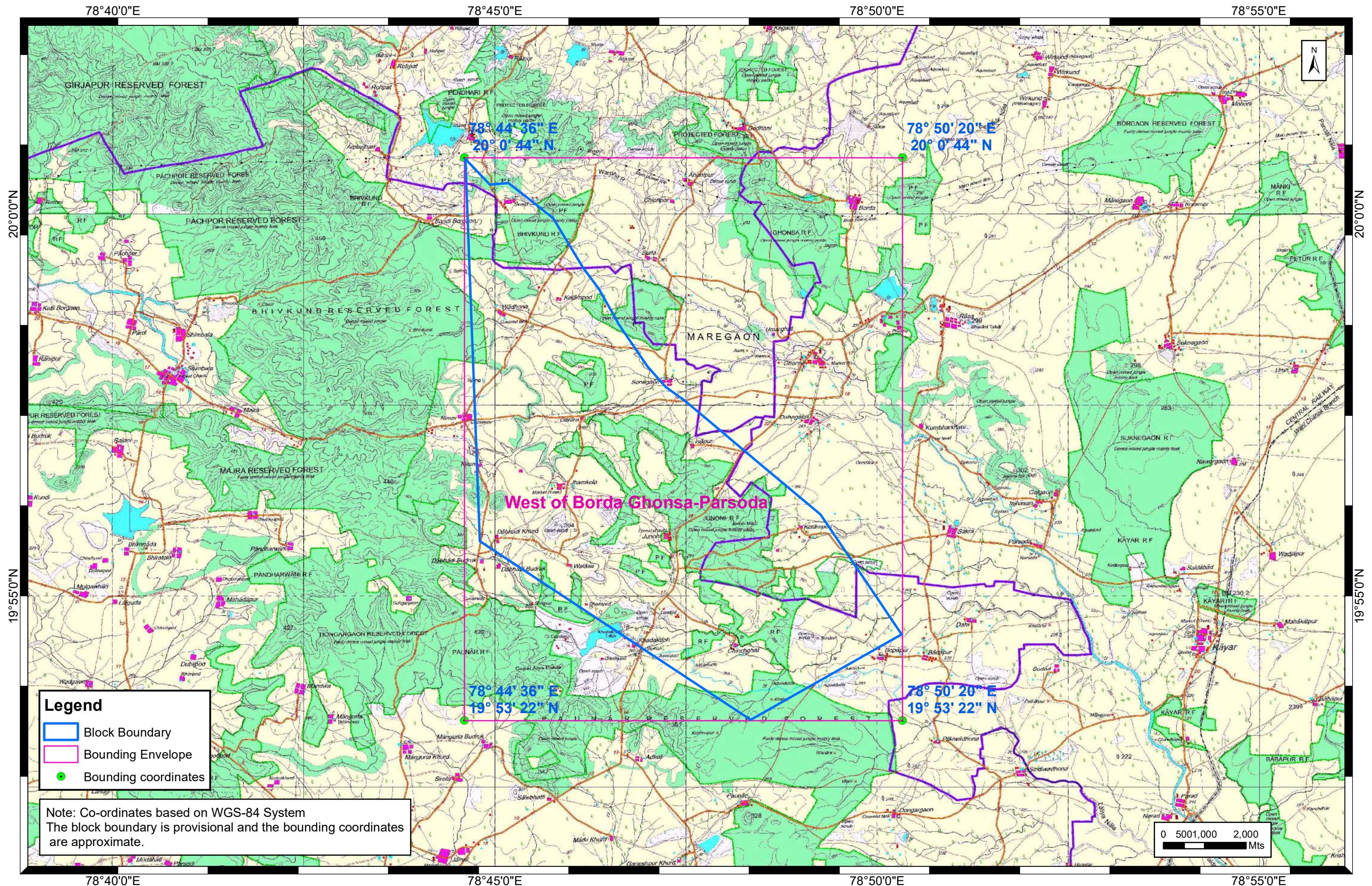


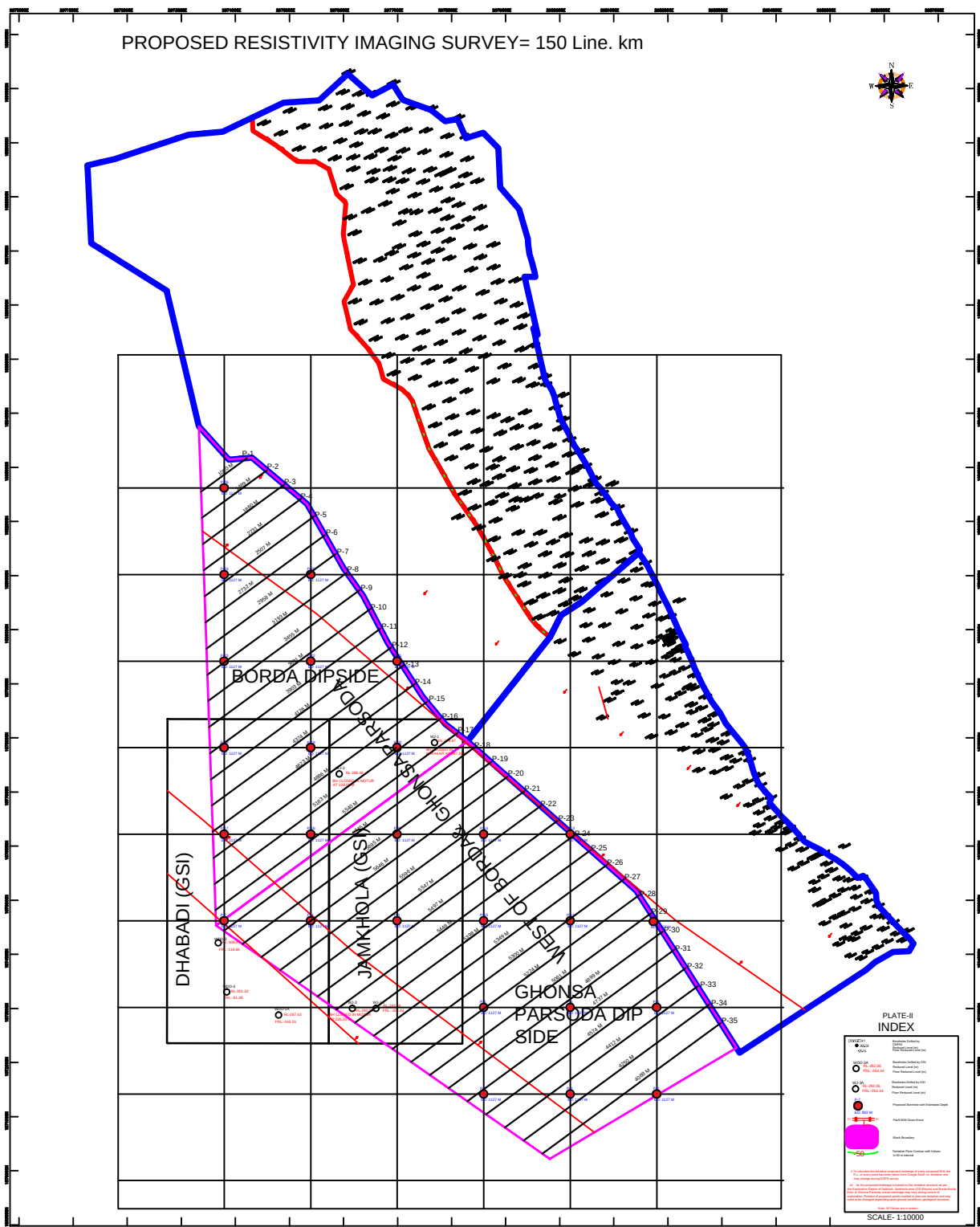
LOCATION PLAN -(PLATE : I)

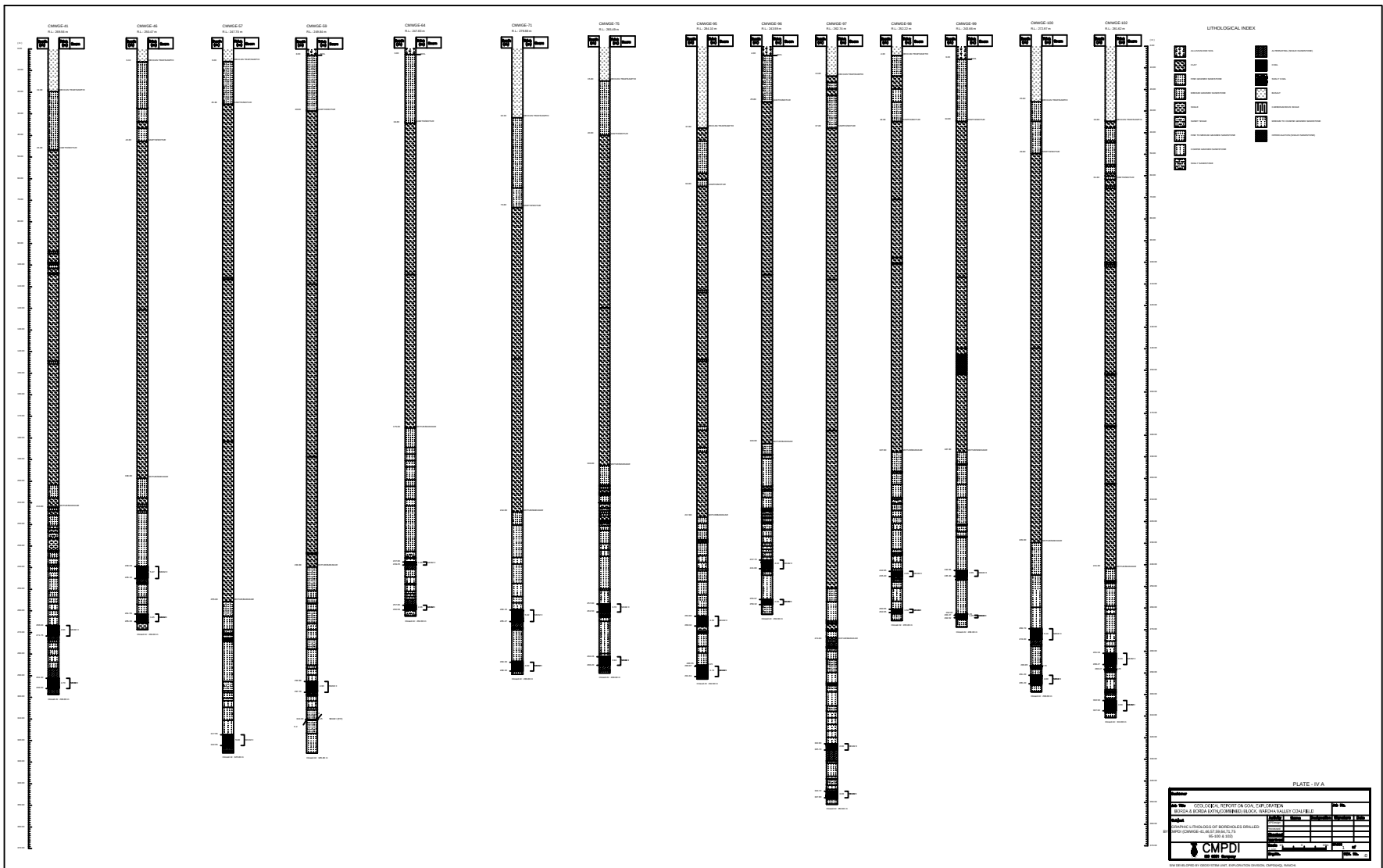


WEST OF BORDA GHONSA-PARSODA BLOCK WARDHA VALLEY COALFIELD

FOR INTERNAL/RESTRICTED USE ONLY





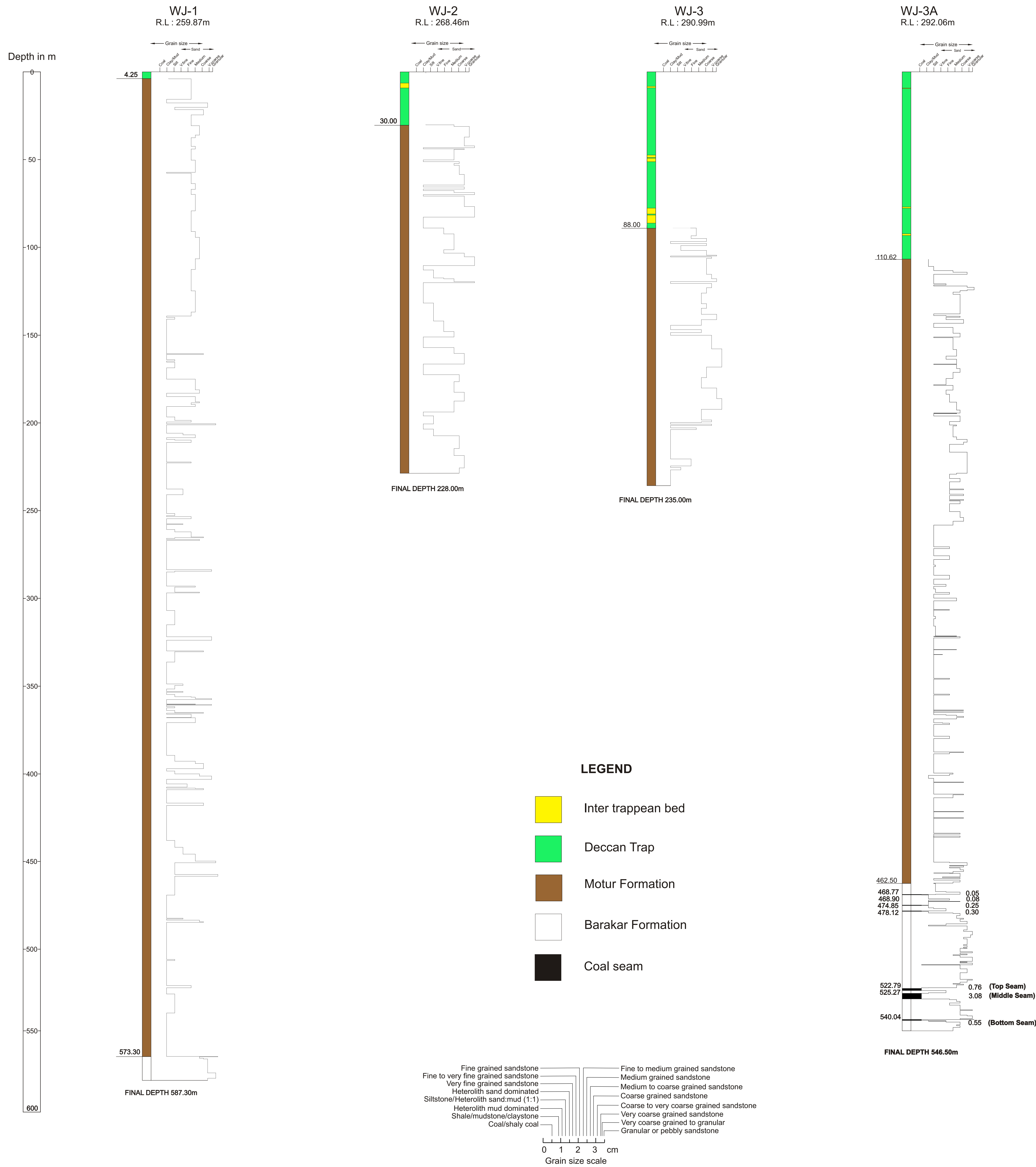


GOVERNMENT OF INDIA
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LITHOLOGICAL LOG OF BOREHOLES DRILLED IN JHAMKOLA AREA, WARDHA VALLEY COALFIELD, YAVATMAL DISTRICT, MAHARASHTRA.

Vertical Scale : 1:1000
1cm = 10m

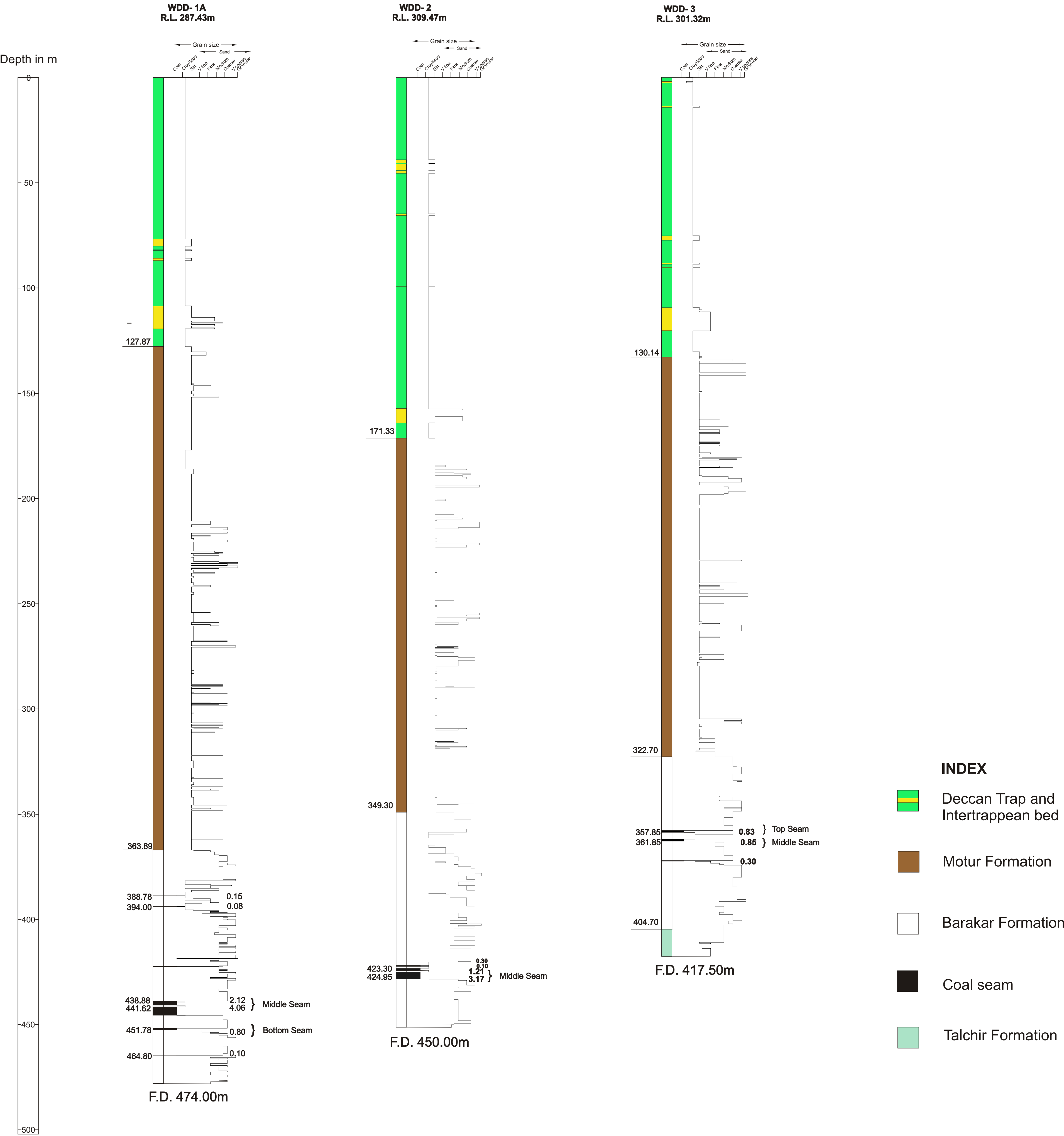




GOVERNMENT OF INDIA
GEOLOGICAL SURVEY OF INDIA

GRAPHIC LITHOLOG OF BOREHOLES DRILLED IN DABHADI SECTOR, WARDHA VALLEY COALFIELD,
YAVATMAL DISTRICT, MAHARASHTRA.

Vertical Scale: 1cm = 10m
RF. 1:1000



FLOOR CONTOUR PLAN OF WEST OF BORDA&GHONSA PARSODA BLOCK



PLATE-II
INDEX

CHANGES#1

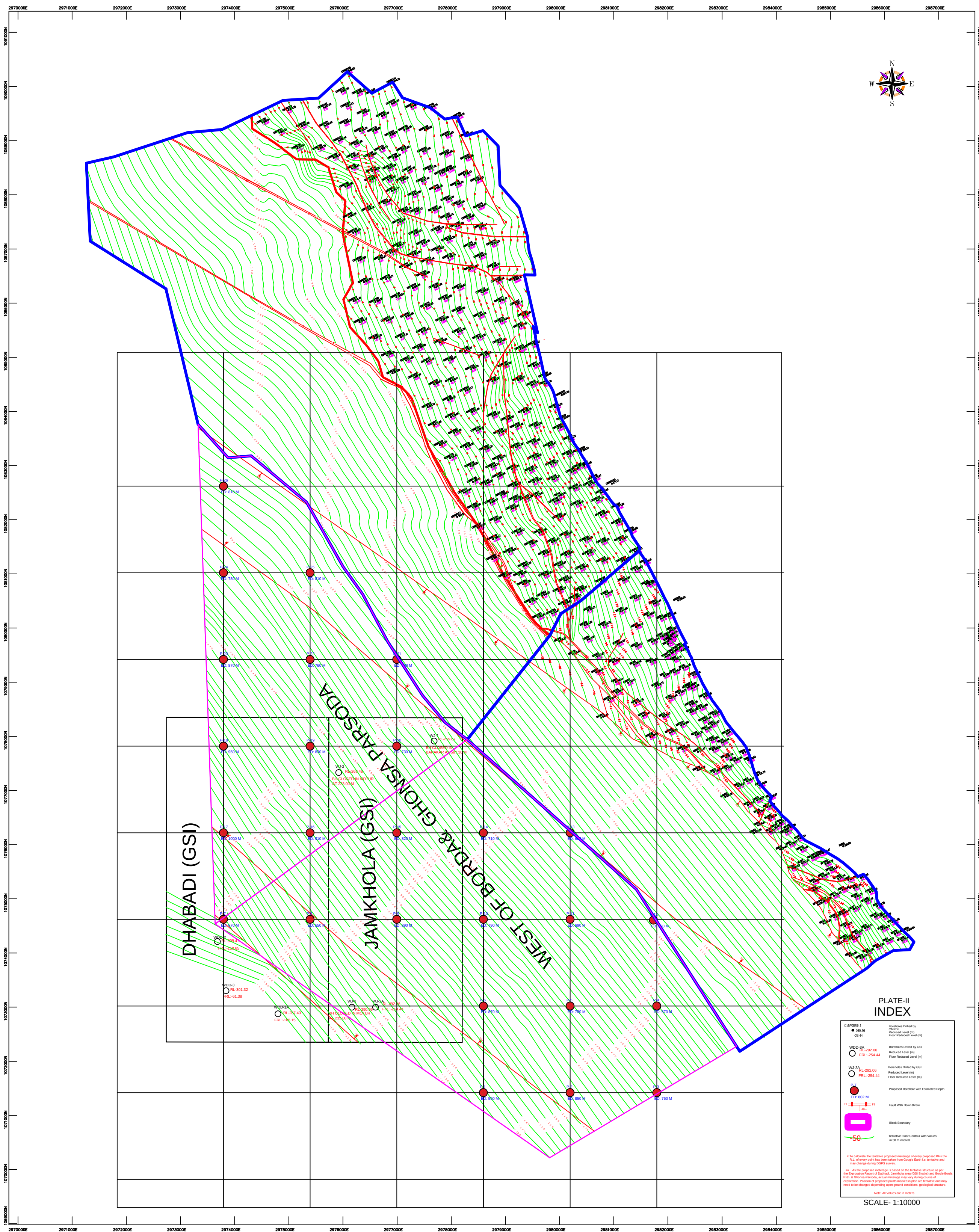
- Spot heights Collected by GSI
- W/O-3A: RL-252.06, FRL-254.44
- W/O-3B: RL-252.06, FRL-254.44
- Proposed Roadside with Estimated Depth
- Fault With Down Throw
- Block Boundary
- Temporary Floor Contour with Values in 50 m Interval

50

As the proposed drainage is based on the tentative structure as per the preliminary report of Central, Western and GSI Bhadracharya and Borda-Borda East & Ghonsa Parsoda, actual drainage may vary during course of execution. Position of proposed drains marked in plan are tentative and may need to be changed depending upon ground conditions, geological structure.

Note: All values are in meters

SCALE- 1:10000



Project Cost Estimate for Exploration (G3 Stage) in Borda & Ghonsa Parsoda Block, Wardha Valley Coalfield

Sl. No							
	Item Work	Item no in Soc	Unit	Rates as per SoC of NMET	Rate (Rs)	Qty.	Amount (Rs)
	<i>I- Field operations (Outsourcing)</i>						
A	DRILLING						
1	Drilling (As per MoC Rate 2020-21)	2.2.1.1b	m	5619	5619	20000	112380000
B	GEOPHYSICAL STUDIES						
1	Borehole Geophysical logging (As per MoC Rate 2020-21)	3.11	m	656	697	20000	13940000
	Field operations Total (A+B)						126320000
	<i>II- Field Work (In House)</i>						
A	GEOLOGICAL WORK						
1	Survey Work -1 Surveyor	1.6.1b	Day	8300	8300	150	1245000
2a	Geological Party days-Field - 1 Geologist	1.5.1b	Day	11000	11000	250	2750000
2b	Geological Party days-HQ (Data processing & Report Preparation)-1 Geologist	1.5.1b	Day	9000	9000	90	810000
	Sub Total A						4805000
B	GEOPHYSICAL STUDIES						
1a	Resistivity Imaging	3.6c	line km	34759	34759	150	5213850
2b	Geophysict Party days-Field (Field Work) - 1 Geologist	3.19	Day	11000	11000	180	1980000
2bc	Geophysicst Party days-HQ (Data processing & Report Preparation)-- 1 Geologist	3.19	Day	9000	9000	60	540000
	Sub Total B						7733850
	Field Work Total (A+B)						12538850
	<i>III-Laboratory Studies (In House)</i>						
1	<i>Band By Band Analysis</i>						
a	Ash+Moisture	4.2.6	per sample	700	700	1050	735000
b	House Keeping	4.2.1	per sample	115	115	1050	120750
2	<i>Overall analysis</i>						
a	Proximate analysis	4.2.7	per sample	935	935	250	233750
b	Moisture at 60% RH & 40C	4.2.8	per sample	1010	1010	250	252500
c	GCV	4.2.11	per sample	1505	1505	250	376250
d	Sample preparation & House Keeping	4.2.3	per sample	795	795	250	198750
3	<i>Special Test</i>						
a	Ultimate analysis	4.2.17	per sample	9945	9945	25	248625
b	Total Sulphur	4.2.14	per sample	1900	1900	25	47500
c	Distribution of Sulpher	4.2.15	per sample	3695	3695	25	92375
d	HGI including sample preparation	4.2.18	per sample	3805	3805	25	95125
e	AFT (Ash Fusion Temperature)	4.2.20	per sample	2745	2745	25	68625
f	Ash analysis	4.2.25	per sample	325	325	25	8125

4	Petrographic analysis						
a	Pellet preparation	4.3.14a	per sample	1160	1160	5	5800
b	Quantification of Maceral composition	4.3.14b	per sample	10060	10060	5	50300
c	Quantification of Microlithotype composition	4.3.14c	per sample	20000	20000	5	100000
d	Maceral Analysis (with photomicrography)	4.3.14e	per sample	25000	25000	5	125000
e	Microlithotype Analysis (with photomicrography)	4.3.14g	per sample	25000	25000	5	125000
f	Mean Ro%	4.3.14j	per sample	16345	16345	5	81725
	Laboratory Studies Total						2965200
	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		1500000	1500000		1500000
d	DGPS Survey of bundary, borehole points (26 boreholes & 10 boundary point)	1.6.2	per point	19200	19200	36	691200
e	Geological Report preparation (3% or 200000 Max)	5.2		2000000	2000000		2000000
f	3 D ore body modelling using Minex software 3 D ore body modelling using Minex sof	5.4		2500000	2500000		2500000
g	Peer review			10000	10000		10000
	Miscellaneous Charges Total						7581200
	Total (I- Field op +II- Field work+III- Lab+ IV -Misc)						149405250
	GST (@18%)						26892945
	Grand Total						176298195

17.6298195

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) GPL rates is Rs 697/- 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	Deviation	3.11m	96
8	Resistivity	3.11c	41
	Total		697

5) Rate for Rs 2500000/-is budgeted rate for 3 D ore body modelling using Minex software .

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

Time Schedule/Action Plan for West of Borda & Ghonsa Parsoda , Wardha Valley Coalfield																													
S. No	Activities																												Remarks
		Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	Outsourcing	Months	<----->																								3 Months		
2	Mobilising	Months				↔																					1 months		
3	Resistivity Imaging	Months				<----->																				150 Line Km			
4	Drilling	Months				<----->																						20000 in 26 Bh	
5	Borehole Geophysical logging	Days				<----->																						20000 in 26 Bh	
6	Survey Party days (1 Party)	Days				<----->																							150 Days
7	Geologist Party days, Field (1 Party)	Days				<----->																							250 Days
8	Geophysict Party days, Field (1 Party)	Days				<----->																							180 Days
9	Laboratory Studies (Band By Band)	Nos.						<----->																			1050 sample		
10	Laboratory Studies (Overall)	Nos.						<----->																					250 Sample
11	Laboratory Studies (Special)	Nos.											<----->														25 Sample		
12	Geologist Party days, HQ (1 Party)	Days																	<----->									90 Days	
13	Geophysict Party days, HQ (1 Party)	Days																	<----->									60 Days	
14	3 D Modiliing	Months																				<----->					3 Months		
15	Report Writing & Peer Review	Months																	<----->									7 Months	

Note: Please add activities accordingly and timeline (months)

Total Time Period of Completion of Project- 23 months from Sanction of Project