

DETAILED PROJECT REPORT [DPR]

**PROPOSAL FOR PRELIMINARY EXPLORATION OF BAUXITE IN
SOKRAHATU BLOCK (G3 LEVEL)
[6.71 SQ. KM.],
GUMLA DISTRICT, JHARKHAND**

COMMODITY: BAUXITE

To

**NATIONAL MINERAL EXPLORATION & DEVELOPMENT TRUST
(NMEDT)**

BY



M/s Gems Projects Pvt. Ltd. Ranchi

E-mail: md@gemsgroup.in

www.gemsgroup.in

PLACE: RANCHI
DATE: 18th September 2026



Gems Projects Private Limited

Ref No – NMEDT/E/097/2026

Date- 18-09-2026

To

The Director & HoD

National Mineral Exploration & Development Trust (NMEDT)

Ministry of Mines

Room No. 325&326, Wing- F,

Udyog Bhawan,

Rafi Ahmed Kidwai Marg,

Rajpath Area, Central Secretariat

New Delhi- 110011

Sir,

We are herewith submitting the following details for granting 'in-principle' approval by NMEDT on the proposal of reconnaissance or prospecting surveys to NMEDT under the "Scheme for Engagement of Notified Private Exploration Agencies in Mineral Exploration directly through National Mineral Exploration Trust issued by Ministry of Mines vide OM No. 6/3/2015-NMEDT/28 dt-10.05.2022.

1. Name and Address of the Applicant:

(a)	Name of NPEA:	Gems Projects Private Limited
(b)	Name of Authorized Signatory	Deepak Kumar Swain
(c)	Postal address:	Street: 1236/2, Lajpat Nagar, Near Lala Lajpat Rai School Pundag, City: Ranchi, State: Jharkhand -
(d)	Telephone Number (Office):	
(e)	Fax number (Office):	
(f)	Mobile No:	+91-9431115961, +91- 9934307900
(g)	Telephone Number (Residence):	
(h)	E-mail address:	md@gemsgroup.in

2.Details of Accreditation as Private Exploration Agency and Noti-fication under the provision to Section 4(1) of the MMRD Act:

(a)	Date of accreditation granted by QCI-NABET:	18 January 2024
(b)	Date of expiry of accreditation:	17 January 2027
(c)	Date of Notification under the proviso to Section 4(1) of the MMRD Act:	19 January 2024
(d)	Date of expiry of Notification:	17 January 2027
(e)	Category of the exploration Agency (Category A or B) under Notification:	A Category Exploration Agency



Gems Projects Private Limited

3. Location Details of Proposed Block Area:

(a)	State	Jharkhand		
(b)	District (s)/ Taluka(s)/ Block(s)	Gumla, Chainpur		
(c)	Nearby Village (s)	Behrapat, Keona, Burhikona, Sokrahatu		
(d)	Survey of India (SOI) Toposheet (s) No.	73A/08		
(e)	Area in sq. km.	6.71 Sq.Km.		
(f)	Boundary coordinates of the proposed block (in Degree Minute Second)	Sl No.	Latitude	Longitude
		A	23° 3' 17.601"	84° 25' 6.544"
		B	23° 3' 23.165"	84° 25' 16.017"
		C	23° 2' 52.721"	84° 25' 40.631"
		D	23° 3' 1.227"	84° 26' 1.264"
		E	23° 3' 14.464"	84° 25' 58.133"
		F	23° 3' 16.802"	84° 26' 9.477"
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		J	23° 2' 19.386"	84° 27' 14.593"
		K	23° 2' 15.328"	84° 27' 42.636"
		L	23° 1' 57.494"	84° 27' 40.460"
		M	23° 1' 49.896"	84° 26' 26.584"
		N	23° 1' 31.158"	84° 25' 45.915"

4. Mineral Potential of the Area:

(a)	Name of Mineral(s) identified/ expected in the area/ block	Bauxite
(b)	Title of the Project with name of the block	Preliminary Exploration of Bauxite in Sokrahatu Block (G3 Level) [6.71 Sq. Km.], Gumla District, Jharkhand.
(c)	Stage of Exploration	G3
(d)	List of documents relied upon in support of item	Location map, Geological map

5. Documents to be enclosed with the application:

- (i) Location of the proposed block demarcated on Survey of India (SOI) Toposheet No.73A/08 enclosed as **Plate II**.
- (ii) Documents mentioned in item 4(d) above, Project Proposal in Prescribed Format.

Yours Faithfully



D. K. Swain,
Managing Director

Place: Ranchi
Date: 18-09-2026

Gems Projects Private Limited



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COMMODITY: BAUXITE

To

**NATIONAL MINERAL EXPLORATION & DEVELOPMENT TRUST
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PLACE: RANCHI

DATE: 18th September 2026



Summary of the Block for Preliminary Exploration (G3)

Features	Details
Block ID	Sokrahatu Block (G3)
Exploration Agency	Gems Project Private Limited
Commodity	Bauxite
Mineral Belt	Chhotanagpur Gneissic Complex
Completion Period with entire Time schedule to complete the project	12 Months
Objectives	1. To determine the extent of the bauxitic area in the block. 2. To assess the grade of bauxite deposit in the block area. 3. To drill bore holes on 400X400m grid as per necessity using MEMC rules 2015 to decipher its depth and subsurface continuity to establish the different zones having different grades of bauxite deposits. 4. To estimate the resources and reserves of bauxite as per MEMC Rule-2015. 5. To estimate the in-situ resources of bauxite for G3 stage of exploration (333), and preparation of Geological Report (GR).
Whether the work will be carried out by the proposed agency or through outsourcing and details thereof. Components to be outsourced and name of the outsource agency	Work will be carried out by the proposed agency; Gems Projects Private Limited. Some parts like chemical analysis, some laboratory studies should be outsourced (Details will be submitted later).
Name/ Number of Geoscientists	Two Names will be provided prior to field work.
Expected Field days (Geology, Geophysicist, Surveyor)	Geology-180 days or above Surveyor-30 days or above



Gems Projects Private Limited

1	Location				
	Latitude & Longitude		Sl No.	Latitude	Longitude
			A	23° 3' 17.601"	84° 25' 6.544"
			B	23° 3' 23.165"	84° 25' 16.017"
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			N	23° 1' 31.158"	84° 25' 45.915"
	Villages	Behrapat, Keona, Burhikona, Sokrahatu			
	Tehsil/ Taluk	Chainpur			
	District	Gumla			
	State	Jharkhand			
2	Area (hectares/ square kilometers)				
	Block Area	6.71 Sq.Km.			
	Forest Area	Nearly 60-70% in protected forest as per toposheet			
	Government Land Area	NA			
	Private Land Area	Agricultural areas are private land			
3	Accessibility				
	Nearest Rail Head	Lohardaga (nearly 80Km)			
	Road	Kasir-Gumla Road near to the block area.			



	Airport	Ranchi is the nearest airport about 130 Km from the block area.
4	Hydrography	
	Local Surface Drainage Pattern (Channels)	Dendritic drainage pattern.
	Rivers/ Streams	Kudari Nadi flowing North side of proposed area.
5	Climate	
	Mean Annual Rainfall	1100 mm
	Temperature (December) (Min) Temperature (June)(Max)	Minimum temperature 5°C Maximum temperature 45°C
6	Topography	
	Toposheet Number	73A/08
	Morphology of the Area	The area under investigation is represented by a flat-topped plateau sharply dissected by vertical cliff sections at random as may be observed from the contours and the drainage pattern.
7	Availability of baseline geosciences data	
	Geological Map (1:50K/ 25K)	1:50,000 (Source: NGDR)
	Geochemical Map	NGCM data is available in NGDR.
	Geophysical Map (Aeromagnetic, ground geophysical, Regional as well as local scale GP maps)	Available in NGDR.
8	Justification for taking up Reconnaissance Survey / Regional Exploration	A. The proposed area is located at South-western limit of the Chhotanagpur Gneissic Complex. Several occurrences of Bauxite mineralization have been reported within the Chhotanagpur Gneissic Complex. B. According GSI investigation Report (F.S. 1970-71) proposed area is promising. The flat-topped plateau is capped by laterite



		generally from contour 900m upwards. Such plateaus are locally known as Pat. The more or less uniform thickness of the capping of laterite and the well-defined scarps at their margins give a distinctive feature to the topography of the area. C. To obtain first-hand information and to ground-truth the findings of the GSI report, a field visit to the proposed area was carried out by the geological team of Gems Projects Pvt. Ltd. on 9th April & 10th April 2026. The area was observed to be predominantly covered by laterite, with bauxite exposures noted at certain locations. Representative laterite/bauxite samples were collected from the area and analyzed for alumina content. (Refer Table: II For Analytical Results) D. There are few existing leases near about 25-40 Km around project area.
9	Documents to be enclosed with the application	1. Location Map of study area plotted on satellite image. 2. Location Map of the proposed block demarcated on Survey of India Toposheet No.73A/08 3. Geological Map 4. Exploration Plan



LOCATION MAP OF SOKRAHATU BAUXITE BLOCK

PLATE-1



INDIA



JHARKHAND

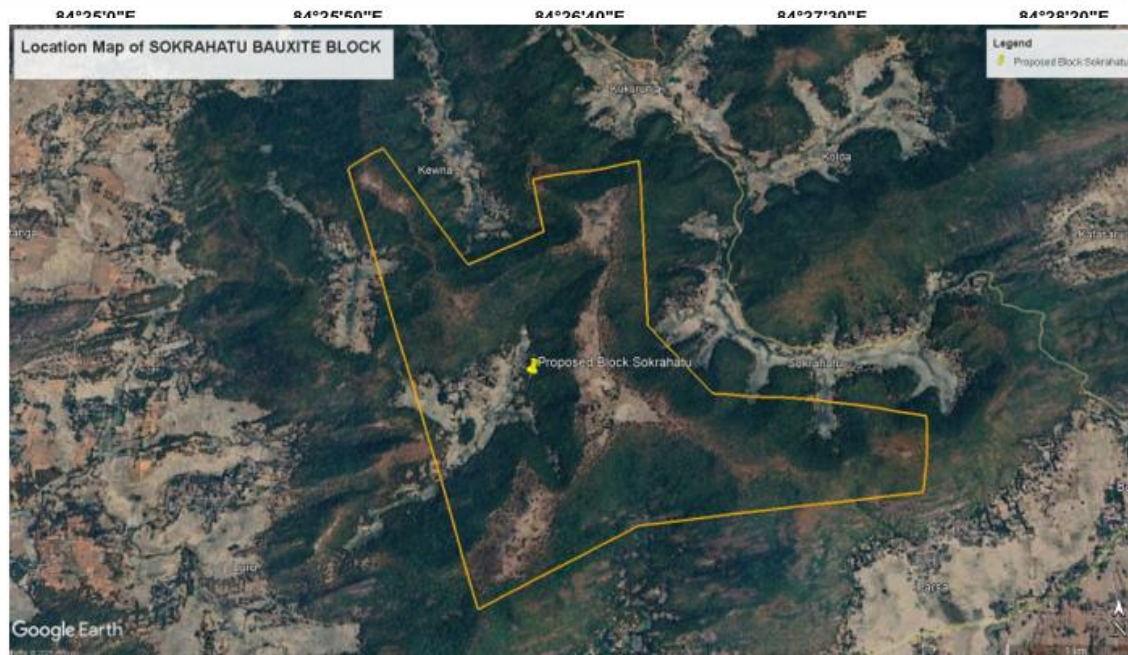


GUMLA



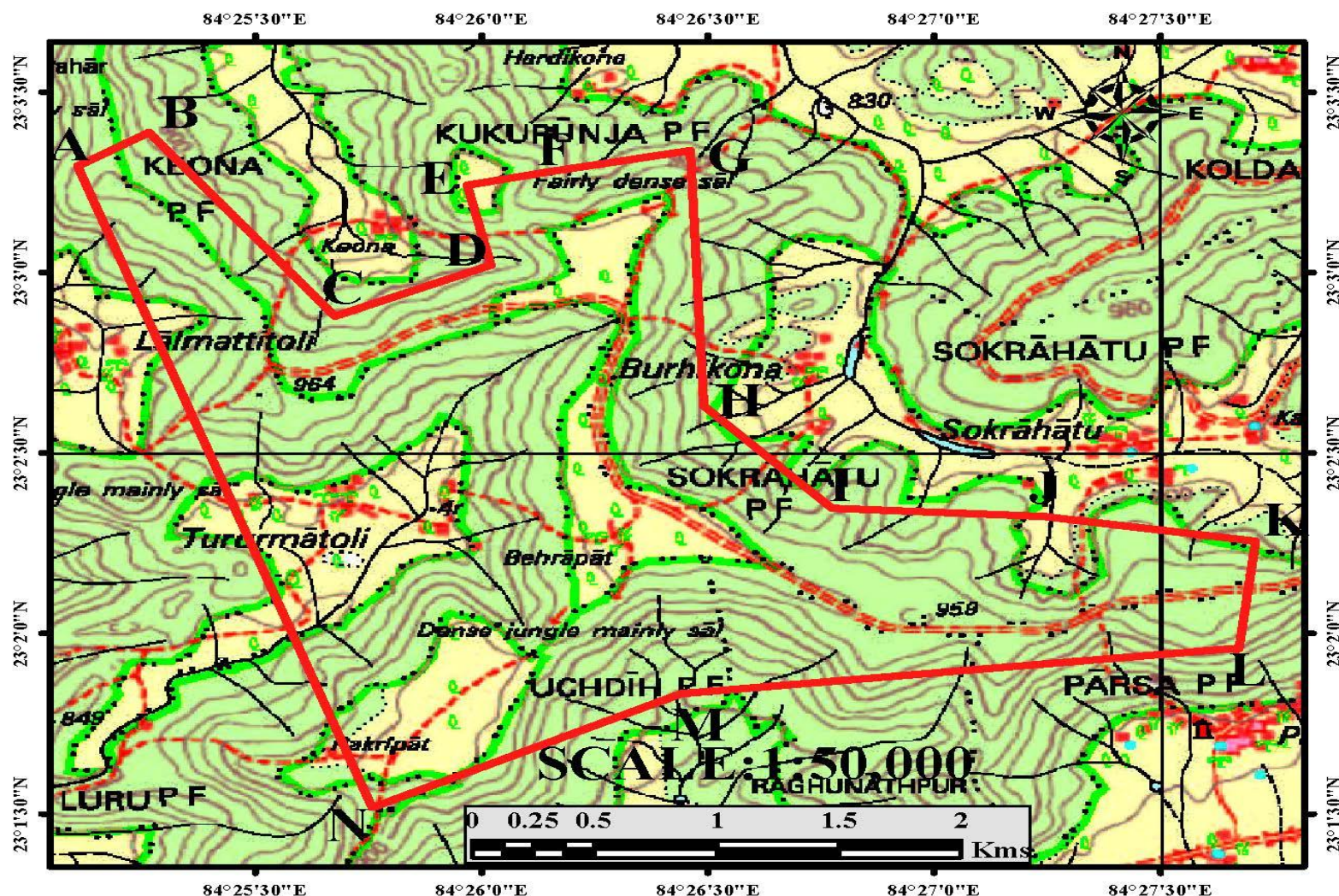
Legend

 Sokrahatu_Block

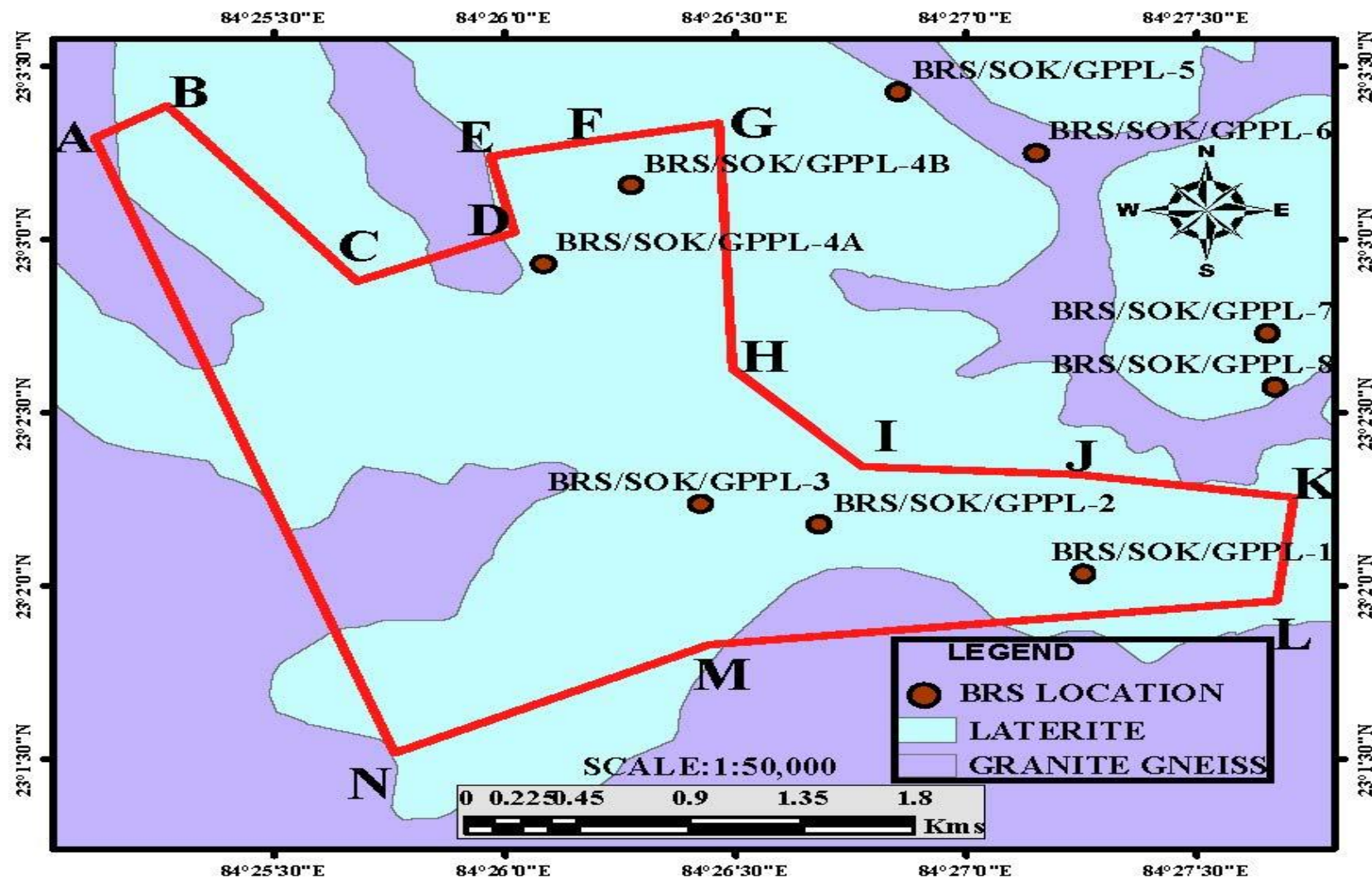


Coordinates of Corner Points of Proposed Block (DD)		
Sl No.	Latitude	Longitude
A	23° 3' 17.601"	84° 25' 6.544"
B	23° 3' 23.165"	84° 25' 16.017"
C	23° 2' 52.721"	84° 25' 40.631"
D	23° 3' 1.227"	84° 26' 1.264"
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SOKRAHATU BLOCK PLOTTED ON SOI TOPOSHEET NO. 73A08

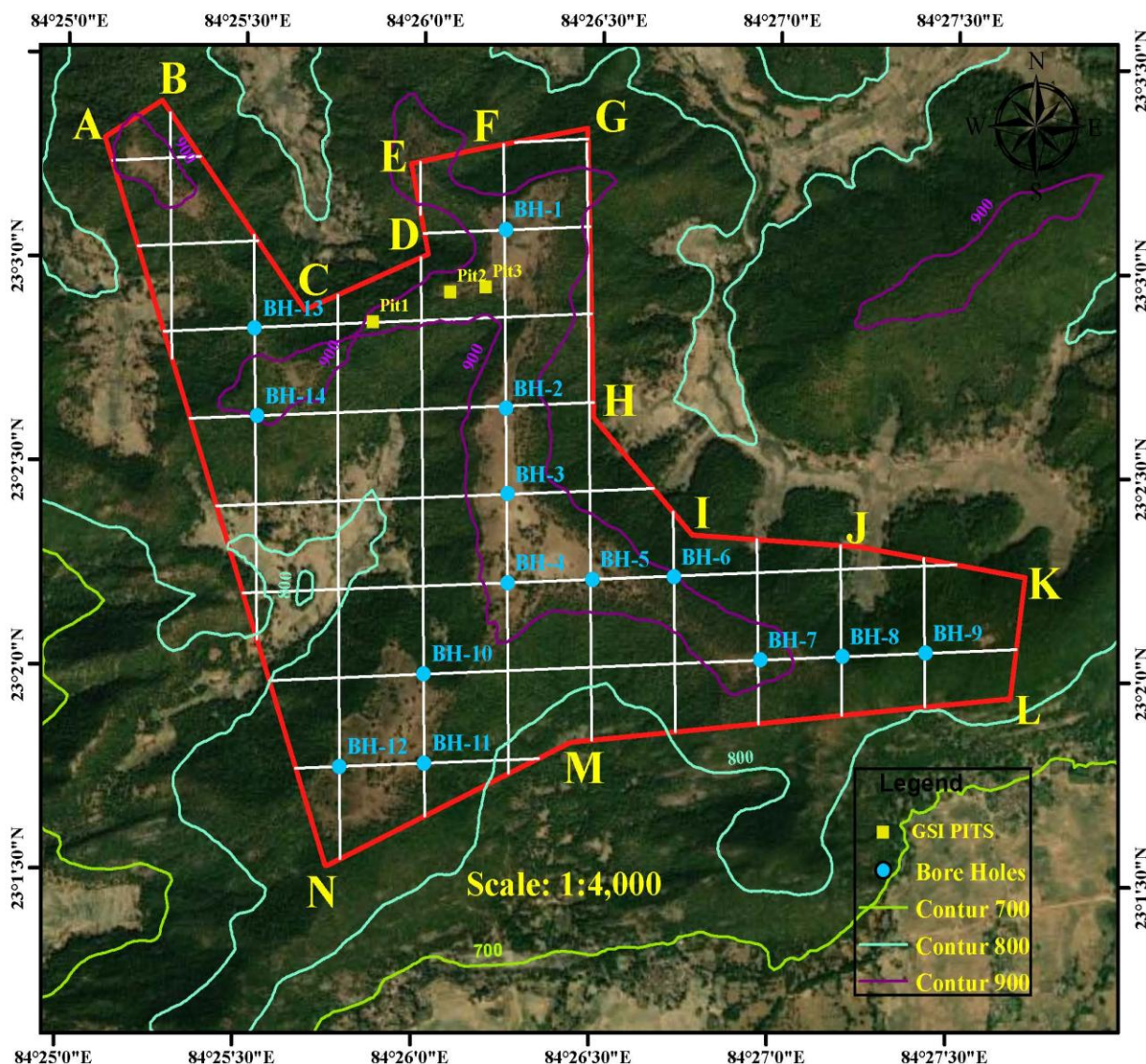


GEOLOGY OF SOKRAHATU BLOCK IN 1:50,000





Proposed Borehole Plan (400 m × 400 m Grid)

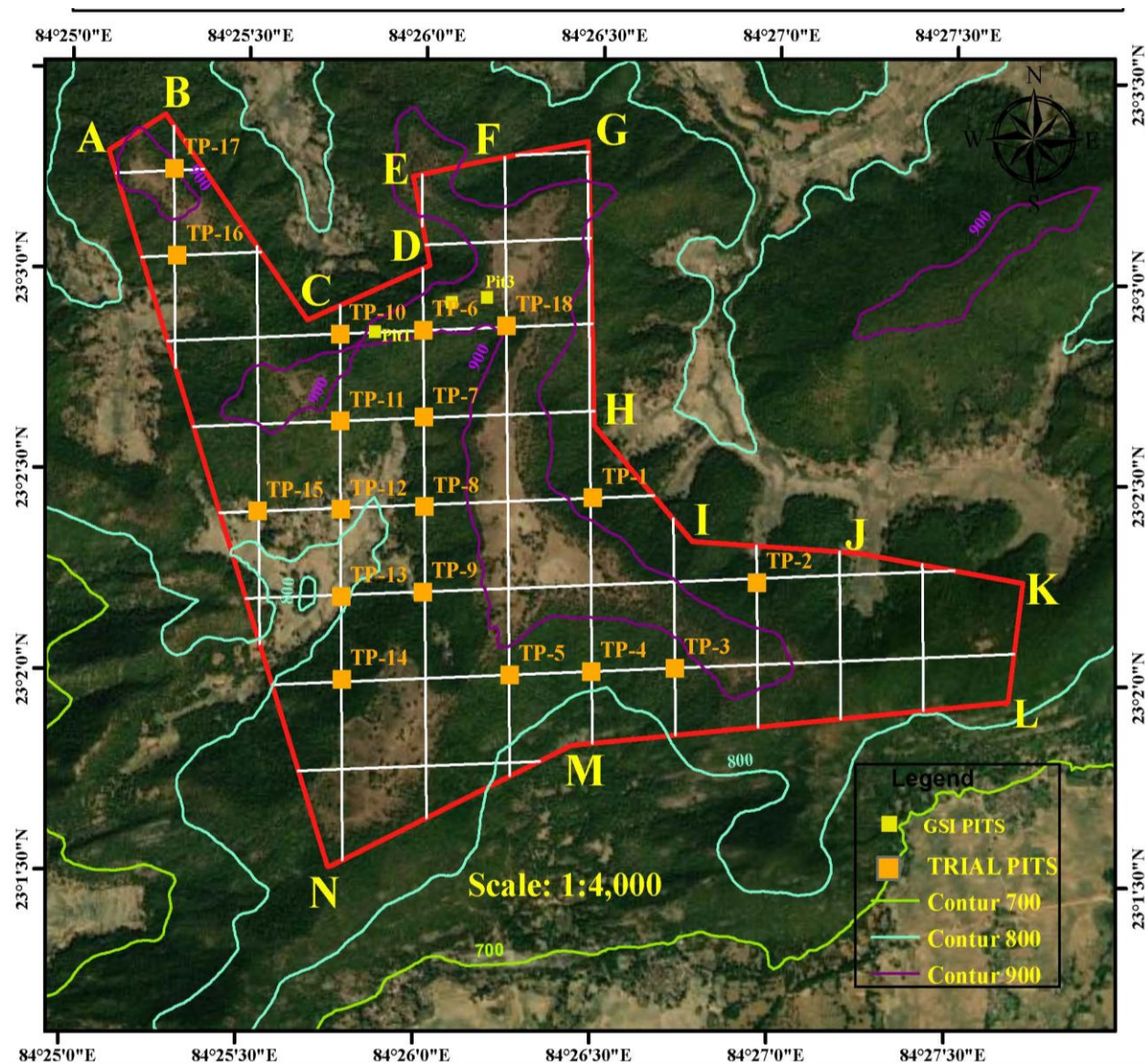


Borehole Coordinates of Sokrahatu G3 Block

BH Points	Latitude	Longitude
BH-01	23° 3'5.02"	84°26'14.27"
BH-02	23° 2'38.78"	84°26'14.74"
BH-03	23° 2'26.18"	84°26'15.24"
BH-04	23° 2'13.17"	84°26'15.46"
BH-05	23° 2'13.90"	84°26'29.73"
BH-06	23° 2'14.49"	84°26'43.52"
BH-07	23° 2'2.49"	84°26'58.26"
BH-08	23° 2'3.21"	84°27'12.08"
BH-09	23° 2'3.95"	84°27'26.11"
BH-10	23° 1'59.57"	84°26'1.67"
BH-11	23° 1'46.45"	84°26'2.02"
BH-12	23° 1'45.72"	84°25'47.68"
BH-13	23° 2'49.86"	84°25'32.24"
BH-14	23° 2'37.04"	84°25'32.88"



Proposed Exploration TRIAL PIT Plan (400 m × 400 m Grid)



TP Coordinates of Sokrahatu G3 Block		
TP Points	Latitude	Longitude
TP-1	23° 2'26.90"	84°26'29.49"
TP-2	23° 2'14.72"	84°26'57.56"
TP-3	23° 2'1.73"	84°26'43.88"
TP-4	23° 2'0.99"	84°26'29.76"
TP-5	23° 2'0.27"	84°26'15.95"
TP-6	23° 2'51.45"	84°26'0.29"
TP-7	23° 2'38.56"	84°26'0.64"
TP-8	23° 2'25.15"	84°26'0.99"
TP-9	23° 2'12.44"	84°26'1.00"
TP-10	23° 2'50.70"	84°25'46.20"
TP-11	23° 2'37.73"	84°25'46.51"
TP-12	23° 2'24.51"	84°25'46.83"
TP-13	23° 2'11.51"	84°25'47.14"
TP-14	23° 1'59.14"	84°25'47.43"
TP-15	23° 2'24.01"	84°25'32.68"
TP-16	23° 3'2.05"	84°25'18.36"
TP-17	23° 3'15.00"	84°25'17.63"
TP-18	23° 2'52.40"	84°26'14.36"



1. BLOCK SUMMARY

A. Location details of the study area:

The exploration block is covered in Toposheet No. 73A/8 and located in the West of Gumla town, which is the district headquarter of Gumla district of Jharkhand. The exploration block is well connected with moterable/metalled road. The Gumla-Ghaghara- Chainpur District Road passes through the block. Part of this Road connects Gumla to Sokrahatu. Lohardaga (80Km), Chandwa (90 Km), Ranchi (130Km) are the nearby Railway stations. The Nearest airport from the exploration block is Ranchi which is 130 Km away in North - East direction from the block. Co-ordinates of the cardinal points are tabulated below:

SI No.	Latitude	Longitude
A	23° 3' 17.601"	84° 25' 6.544"
B	23° 3' 23.165"	84° 25' 16.017"
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N	23° 1' 31.158"	84° 25' 45.915"

B. Physiography & Drainage:

The area under investigation is represented by a flat-topped plateau sharply dissected by vertical cliff sections at random as may be observed from the contours and the drainage pattern. There are minor rolls on the plateau top as a result of weathering and drainage. The Sokrahatu plateau is one of the larger laterite capped dissected table lands compared to the Kolda area. This assumes an average elevation of about 990m above M.S.L. The valleys in between the flat-topped plateaus are at an average elevation of about 856 meters. The laterite capped high lands of this area and the neighboring plateaus are irregular in shape with sharp scarps at the margins.

Drainage is strongly controlled by the relief and flow out normal to the regional trend of the locality. One interesting feature is the presence of few small springs



along the edges of the plateau, some 30 to 40 m below the top. The surface water in the proposed area occurs in local pond, reservoirs, Kudari Nadi which flows North side of proposed area.

C. Climate:

Being at an elevation of 940 metres the plateau area provides very pleasant climate. The day temperatures during the peak summer periods are within 40°C and night temperatures between 15°C & 20°C. The winter months are quite cold and the mercury touches freezing point on some night in December and January. The average annual rainfall is about 1750 mm and most of the precipitation is during monsoon.

D. Vegetation:

The area is covered by a fairly dense forest but in general, the growth is sparse on the plateau portions compared to the steep slopes. The broad shallow valleys are almost devoid of any trees but the gentle slopes have dense growth of forest. The forest is made up of mainly Sal, Bija, Asan, Hawa, Kusum, Jamun, Dhota, Putri, Kumbhi, Katmahali, Dhewai, Anla, Aam, Pales, Kotal etc. The creepers locally known as Munjri, Mohlain, Bendo etc. are wide spread and are very useful for making ropes and used by the local people.

2. PREVIOUS WORK:

Field season 1945-48; The area was mapped by Shri M.K.Roy Chowdhury in this field season, The bauxite deposit No. 49 has been reported as the southern-most plateau of the area which shows a thick capping of primary laterite with some segregation of aluminous laterite and bauxite on the Spur south-west of Lelmattitoli (23° 03' : 84° 26'), north of Pakripat toli (23° 02':84° 26'), on both sides of the Plateau, south of Keona (23° 03' : 84° 26'), The best exposure of bauxite in the plateau is found in the eastern side. North of Parsa, He estimated a reserve of 15.000 tonnes of bauxite from north of Parsa area.

Field season 1970-71; B.K. Verma & J. Dutta collected chip samples from the area from eight localities. No proper channel samples were collected due to onset of monsoon. Laterite, aluminous laterite and ferruginous bauxite occurred as capping on the cliff sections. The chip samples of ferruginous bauxite show that alumina (Al₂O₃) content is higher than 50%, Iron oxide (Fe₂O₃) content between 8 to 15%. The Titania (TiO₂) content is rather high varying between 6.5 to 9.0% and silica (SiO₂) content between 0.5 to 1.5%. They estimated the probable reserve in the order 18 tonnes.

Field season 1971-72; S.S. Saha mapped the total area of 2.01 sq. km on 1:4,000 scales. Pitting had done in grid intersections at 400 and or 300 metric intervals. The results of



chemical analyses indicate that the laterite - bauxite rock show much variation in Al_2O_3 , SiO_2 , Fe_2O_3 and TiO_2 contents. Al_2O_3 ranges from around 20% to 60%, SiO_2 from 1 to 18%, Fe_2O_3 is commonly present around 14% but increases high up to 27% as noted in few samples. He calculated the probable reserve of the order of 1.45 million tons (up to a depth of 6m)

3. GENERAL GEOLOGY OF THE AREA:

The Precambrian comprises steep to moderate dipping, medium to high grade metamorphic rocks consisting mostly of a group of para-metamorphic gneisses and partly of schists, etc surrounding the plateau. The para-metamorphics consist of various types of granite gneisses as the dominant member along with schists and hornblende gneisses.

An extensive blanket of laterite with associated bauxite is seen to occur on the plateau area and resting directly on the granite gneisses of Precambrian age.

The general stratigraphy of the area as follow:

TABLE-I	
Recent	Alluvium etc.
Tertiary to Recent	Laterite associated with bauxite.
-----Unconformity-----	
Archaean	Granite gneisses and schists.

4. JUSTIFICATION:

- The proposed area is located at South-western limit of the Chhotanagpur Gneissic Complex. Several occurrences of Bauxite mineralization have been reported within the Chhotanagpur Gneissic Complex.
- According GSI investigation Report (F.S. 1970-71) proposed area is promising. The flat-topped plateau is capped by laterite generally from contour 900m upwards. Such plateaus are locally known as Pat. The more or less uniform thickness of the capping of laterite and the well-defined scarps at their margins give a distinctive feature to the topography of the area.
- To obtain first-hand information and to ground-truth the findings of the GSI report, a field visit to the proposed area was carried out by the geological team of Gems Projects Pvt. Ltd. on 9th April & 10th April 2026. The area was observed to be predominantly covered by Aluminous & Ferruginous laterite, with bauxite exposures noted at certain locations. Representative laterite/bauxite samples were collected from the area and analyzed for alumina content.

The analytical results are presented below:

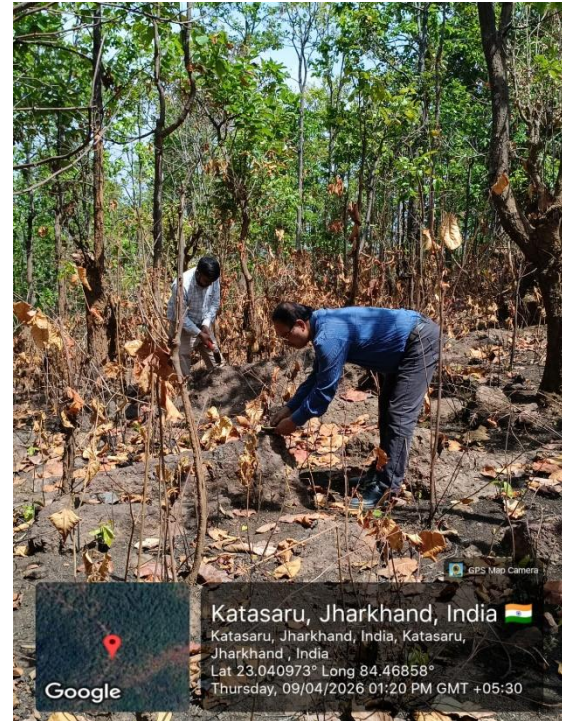


Sample ID	Parameter of Test				
	Al ₂ O ₃	Fe ₂ O ₃	SiO ₂	TiO ₂	LOI
BRS/SOK/GPPL- 01	39.50	9.58	8.71	2.55	25.97
BRS/SOK/GPPL- 02	36.45	13.97	7.98	2.00	27.28
BRS/SOK/GPPL- 03	32.88	15.57	9.61	4.03	24.90
BRS/SOK/GPPL- 04A	42.31	15.57	12.85	2.80	22.50
BRS/SOK/GPPL- 04B	43.07	13.73	8.64	3.25	28.02
BRS/SOK/GPPL- 05	40.01	14.45	5.20	3.05	23.51
BRS/SOK/GPPL- 06	40.52	9.50	10.68	2.65	31.11
BRS/SOK/GPPL- 07	38.74	14.45	7.62	1.98	24.05
BRS/SOK/GPPL- 08	35.94	15.81	8.65	4.35	30.15

5. PLANNED METHODOLOGY:

- **Detailed Geological Mapping:** The detailed Geological Mapping on a 1:4,000 scale has been carried out in and around **6.71 sq km** area. The detailed geological map will be finalized by adding physical features in addition to geological features, attitudes of beds, structural features etc. have been picked up and plotted during mapping.
- **Pitting:** To know near-surface geology **18 nos.** of pits will be excavated with volume **150 Cu. M.**
- **Drilling:** The entire area will be drilled in a grid pattern of **400m x 400m**, (**14 nos. BH** each up to **25m = 350m**), total drilling will be **350m**.
- **Geochemical sampling:** Pit samples & Core samples will be collected for analysis.
- **Chemical Analysis:** WD XRF analysis of major oxides & trace elements study of selected samples.
- **Petrographic and mineralogical studies:** Petrographic & mineralogical studies of possible host rock.
- **Exploration Report:** Generate a detailed G3 stage Report for identifying and establishing the area to upgrade to G-2 stage as per MEMC-2015. Data generated from G-3 level shall be presented in the Report as per the laid guidelines.

6. FIELD PHOTOGRAPHS:



(Geological team of Gems Projects Pvt. Ltd. Visited Sokrahatu Block on 9th April & 10th April 2026)



7. QUANTUM OF WORK:

Sl. No.	Item of Work *	Unit *	Proposed Qua.	Remarks
A	Geological Mapping	Sq. Km.	6.71	
B	Survey work	Points	28	BH – 14 Corner point - 14
C	Pitting			
	a) Excavation of Pits	per cu.m	150	18 nos.
D	DRILLING (after review)	meter	350	@ 25 m each Borehole
E	LABORATORY STUDIES			
1	Chemical Analysis			
i)	Pit & Sample from Pit			
	Major oxides	Nos	50	6 Samples/Pit (4 Primary+2 Composite)
ii)	Pit Check samples (10% External)			
	Major oxides	Nos	05	
iii)	BH Core samples			
	Major oxides	Nos	150	11Samples/ BH (9 Primary + 2 Composite)
iv)	BH Core Check samples (10%External)			
	Major oxides	Nos	15	
2	Physical & Petrological Studies			
i	Preparation of thin section	Nos	10	
ii	Study of thin section	Nos	10	
iii	XRD Studies	Nos	10	
iv	Bulk Density	Nos	5	
v	Reactive Silica	Nos	5	



8. TENTATIVE COST ESTIMATION OF THE PROJECT:

Sl. No	Item	Total
1	Geological Work	25,93,305
2	Survey	12,44,580
3	Pitting	7,08,750
4	Drilling	32,72,500
5	Laboratory Studies	10,34,500
	Sub total	88,53,635
6	Report	2,50,000
7	Peer Review	30,000
8	Proposal Preparation	1,77,073
	Total	93,10,708
9	GST 18%	16,75,927.39
Total cost including 18% GST		1,09,86,635
SAY, in Lakhs		109.87



9. TIME SCHEDULES:

ESTIMATED TIME SCHEDULE FOR PRELIMINARY EXPLORATION OF SOKRAHATU BAUXITE BLOCK (G3) [6.71 SQ. KM.], GUMLA DISTRICT, JHARKHAND														
Item of work	Months													
	1	2	3	4		5	6	7	8		9	10	11	12
1. Camp Setting/Mobilization					REVIEW					REVIEW				
2. Geologist Days (Field) (Mapping)														
3. Pitting														
4. Survey Days (01 party)														
5. Drilling														
6. Sampling Days														
7. Laboratory Studies														
8. Camp winding														
9. Geologist Days, HQ														
10. Preparation of Geological report														
11. Peer review & Report Final Submission														

10. REFERENCE:

Progress Report on the Bauxite investigation in Sukrahatu - Koenatoli plateau and around Kolda, Gumla, Ranchi District, Bihar, Falling in Toposheet No.73A/8. Field Session 1971-72, S. S. Saha. Pg:4-38