Detailed Proposal Report (DPR) for Reconnaissance Survey (G4 Stage) for Bauxite and Associated Minerals in Mirapur area (15.83 Sq. Km) District – Kheda, Gujarat

Commodity: Bauxite and Associated Mineral

By

Gems Projects Pvt. Ltd.
Regt. Office: 1236 / 2, Lajpat Nagar,
Pundag, Ranchi, Jharkhand - 834004.

Place: Ranchi
Date: 14.03.2026

Ref No – NMEDT/E/021/26
Date- 14.03.2026

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 NMET on the proposal of reconnaissance or prospecting surveys to NMET 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-NMET/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 - 834004.
(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 Notification 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	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

3. Location Details of the Area Proposed

(a)	State	Gujarat		
(b)	District (s)/ Taluka(s)/ Block(s)	Kheda/Kapadvanj		
(c)	Nearby Village (s)	Mirapur, Kapadvanj, Mohamadpura, Navagam and Vejalpur		
(d)	Survey of India (SOI) Toposheet (s) No.	46E/04 & 46F/01		
(e)	Area in sq. km.	15.83 Sq.Km.		
(f)	Boundary coordinates of the proposed block (in Decimal degree)	**Sl No.**	**Latitude**	**Longitude**
		A	23° 2' 11.592" N	73° 1' 45.405" E
		B	23° 2' 12.072" N	73° 2' 15.174" E
		C	23° 1' 41.715" N	73° 2' 13.656" E
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		I	23° 0' 11.045" N	73° 2' 23.320" E
		J	23° 0' 24.370" N	73° 1' 43.847" E

4. Mineral Potential of the Area

(a)	Name of Mineral(s) identified/ expected in the	Bauxite and associated mineral
(b)	Title of the Project with name of the block	**RECONNAISSANCE SURVEY (G4 STAGE) FOR BAUXITE AND ASSOCIATED MINERALS IN MIRAPUR AREA, DISTRICT - KHEDA, GUJARAT**
(c)	Stage of Exploration	G4

<table>
<tr>
<td>d)</td>
<td>Basis on which mineral potential in the area has been identified</td>
<td>

The proposed area is located over Deccan Traps. Several occurrences of Bauxite mineralization have been reported in and around the proposed block area. Here the Bauxite occurs as a pocket deposit associated with ferruginous/aluminous laterite. The proposed block is surrounded by exploration blocks of Bauxite and operating leases. Hence this block may be studied as an extension of already existing mineable deposits. Accordingly, maybe considered for Reconnaissance study for Bauxite mineralization.
A field visit to the proposed area was carried out by the geological team of Gems Projects Pvt. Ltd. on 9th and 10th February 2026. The ferruginous/aluminous laterite associated with bauxite was observed to be predominantly in Mirapur area. Representative laterite and aluminous laterite samples were collected from the area and analyzed for alumina content. The analytical results are tabulated below: -

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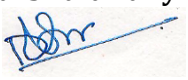
5. Documents to be enclosed with the application

(i) Location of the proposed block demarcated on Survey of India (SOI) Toposheet No- **46E/04 & 46F/01 enclosed as Plate No-Plate II**

(ii) Documents mentioned in item 4(d) above – Project Proposal in Prescribed Format along with its related drawings.

Yours Faithfully



D. K Swain,
Managing Director
Gems Projects Private Limited

Place: - Ranchi

DETAILED PROPOSAL REPORT (DPR) FOR RECONNAISSANCE SURVEY (G4 STAGE) FOR BAUXITE AND ASSOCIATED MINERALS IN MIRAPUR AREA (15.83 Sq. Km) DISTRICT - KHEDA, GUJARAT

COMMODITY: - BAUXITE AND ASSOCIATED MINERALS

To

NATIONAL MINERAL EXPLORATION AND DEVELOPMENT TRUST (NMEDT)

Submitted by

Gems Projects Pvt. Ltd. Ranchi
Regt. Office: 1236 / 2, Lajpat Nagar,
Pundag, Ranchi, Jharkhand - 834004
E-mail: md@gemsgroup.in
www.gemsgroup.in

Place: - **Ranchi**
Date: - **14.03.2026**

Summary of the Block for Reconnaissance Survey (G4 Stage)

GENERAL INFORMATION ABOUT THE BLOCK

	Features	Details
	Block ID	Mirapur Bauxite and Associated Minerals Block
	Exploration Agency	Gems Projects Private Limited
	Commodity	Bauxite and Associated Minerals
	Mineral Belt	Deccan Traps
	Completion Period with entire Time schedule to complete the project	06 Months.
	Objective	The present exploration programme (G4) has been formulated on the basis of previous regional exploration data available and also on the samples collected by Gems Project team during field visit and their analysis to fulfill the following objective ❖ To carry out geological mapping on 1:12500 scale ❖ To demarcate the different rock types exposed in the block and also to decipher the nature of bauxite mineralization. ❖ To collect laterite/Bauxite samples and to analyze them for Al_2O_3, Fe_2O_3, Sio_2, Tio_2 & LOI to know the quality of bauxite, this will help in occurrence of bauxite in the plateau. to decide further course of exploration programme. ❖ To analyze few samples for REE, Ni, Vanadium titanium & Gallium to find out the presence of these REE minerals in the Block. ❖ To estimate reconnaissance Bauxite resources along with accessory elements as per UNFC norms and minerals (Evidence of Mineral Contents) Rules- 2015 at G-4 level.
	Whether the work will be carried out by the proposed agency or through outsourcing and details thereof. Components to be outsourced and name of outsource agency	The Geological Mapping, Survey, Drilling, core logging, Sampling and report writing will be carried out by Gems Project Private Limited. Chemical Analysis and Geophysical investigation will be through outsourcing agencies, which are empaneled by NMET through Gems Project Pvt Ltd
	Name/Number of Geoscientists	02 Geologist 01 Geophysicist
	Expected Field days (Geology) Geological Party Days	Geologist Party days: 240 Days Survey Party days: 90 Days
1.	**Location**	Mirapur, Kapadvanj, Mohamadpura, Navagam and Vejalpur

<table>
<tr><td></td><td>Latitude & Longitude</td><td>
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<tr><th>Sl No.</th><th>Latitude</th><th>Longitude</th></tr>
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<tr><td></td><td>Village</td><td>Mirapur, Kapadvanj, Mohamadpura, Navagam and Vejalpur</td></tr>
<tr><td></td><td>Tehsil/Taluka</td><td>Kapadvanj</td></tr>
<tr><td></td><td>District</td><td>Kheda</td></tr>
<tr><td></td><td>State</td><td>Gujarat</td></tr>
<tr><td>2.</td><td>Area (hectares/square kilometers)</td><td></td></tr>
<tr><td></td><td>Block Area</td><td>15.83 Sq.Km.</td></tr>
<tr><td></td><td>Forest Area</td><td>Data not available</td></tr>
<tr><td></td><td>Government Land Area</td><td>Data not available</td></tr>
<tr><td></td><td>Private Land Area</td><td>Data not available</td></tr>
<tr><td>3.</td><td>Accessibility</td><td>The area is about 68 Km. East of Ahmedabad town. The National Highway 848K is running passes the proposed area.</td></tr>
<tr><td></td><td>Nearest Rail Head</td><td>Ahmedabad (68 Km.)</td></tr>
<tr><td></td><td>Road</td><td>Mirapur, Kapadvanj, Mohamadpura, Navagam and Vejalpur villages are connected by motorable road which in turn connected to National Highway 848K and connected to Dakor to Kapadvanj town.</td></tr>
<tr><td></td><td>Airport</td><td>Ahmedabad Airport Located at 68 Km</td></tr>
<tr><td>4.</td><td>Hydrography</td><td>The surface water in the proposed area occurs in local pond, reservoirs, Narmada canal, Varasi Nadi and Mohar Nadi enter East side corner and flowing south of proposed area.</td></tr>
<tr><td></td><td>Local Surface Drainage Pattern (Channels)</td><td>The drainage is mostly dendritic</td></tr>
<tr><td></td><td>Rivers/Streams</td><td>Mohar Nadi and Varasi Nadi enter east corner and flowing towards south of proposed area. Several small nala are also draining into Mohar Nadi and Varasi Nadi. Varasi Nadi is a tributary of Mohar Nadi.</td></tr>
<tr><td>5.</td><td>Climate and Rainfall</td><td>May is the hottest month. The mean daily maximum and minimum temperatures in this south are 40.7°C and</td></tr>
</table>

		25.8°C respectively. January is the coldest month with the mean daily minimum at 14.5°C and the mean daily maximum at 27.4°C. The average rainfall in this region is 810 mm.
	Mean Annual Rainfall	The annual average Rain Fall recorded is 810 mm
	Temperature (December) (Minimum) Temperature (June) (Maximum)	Minimum temperature 14.5°C Maximum temperature 40.7°C
6.	**Topography**	
	Toposheet Number	46E/04 & 46F/01
	Morphology of the Area	The area represents a plain topographic terrain sloping from north east to south-west. The highest topographic point in the area is 80 m above MSL, lying just south east of Mirapur.
7.	**Availability of baseline geoscience data**	
	Geological Map (1:50K/25K)	Source: NGDR Portal Scale 1:50000
	Geochemical Map	Available
	Geophysical Map (Aeromagnetic, ground geophysical, Regional as well as local scale GP maps)	Not Available

<table>
<tr>
<td>8.</td>
<td>Justification for taking up Reconnaissance Survey/Regional Exploration</td>
<td>
❖ The proposed area is located over Deccan Traps. Several occurrences of Bauxite mineralization have been reported in and around the proposed block area. Here the Bauxite occurs as a pocket deposit associated with ferruginous/aluminous laterite. The proposed block is surrounded by exploration blocks of Bauxite and operating leases. Hence this block may be studied as an extension of already existing mineable deposits. Accordingly, maybe considered for Reconnaissance study for Bauxite mineralization.
❖ A field visit to the proposed area was carried out by the geological team of Gems Projects Pvt. Ltd. on 9th and 10th February 2026. The ferruginous/aluminous laterite associated with bauxite was observed to be predominantly in Mirapur area. Representative laterite and aluminous laterite samples were collected from the area and analyzed for alumina content. The analytical results are tabulated below: -
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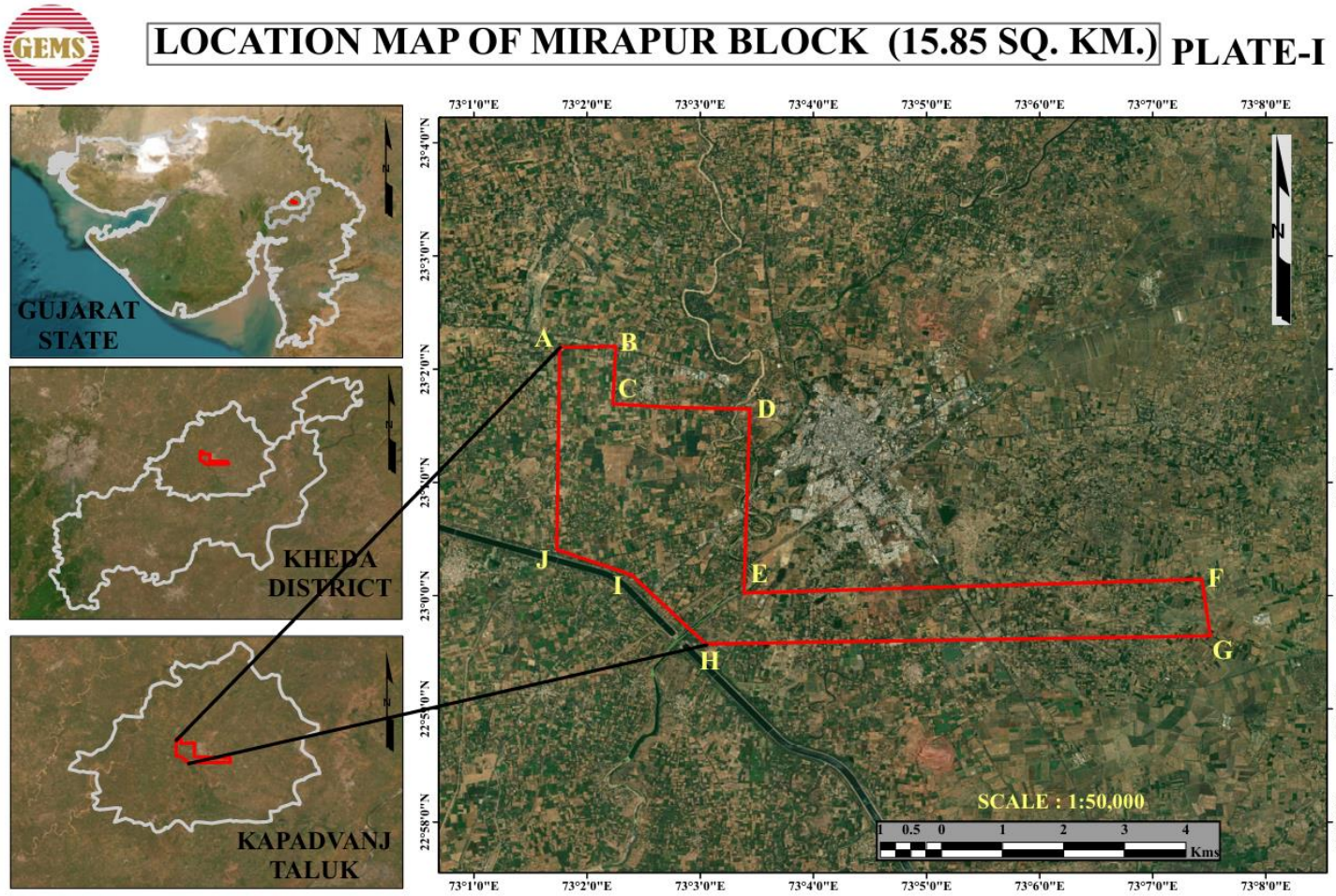
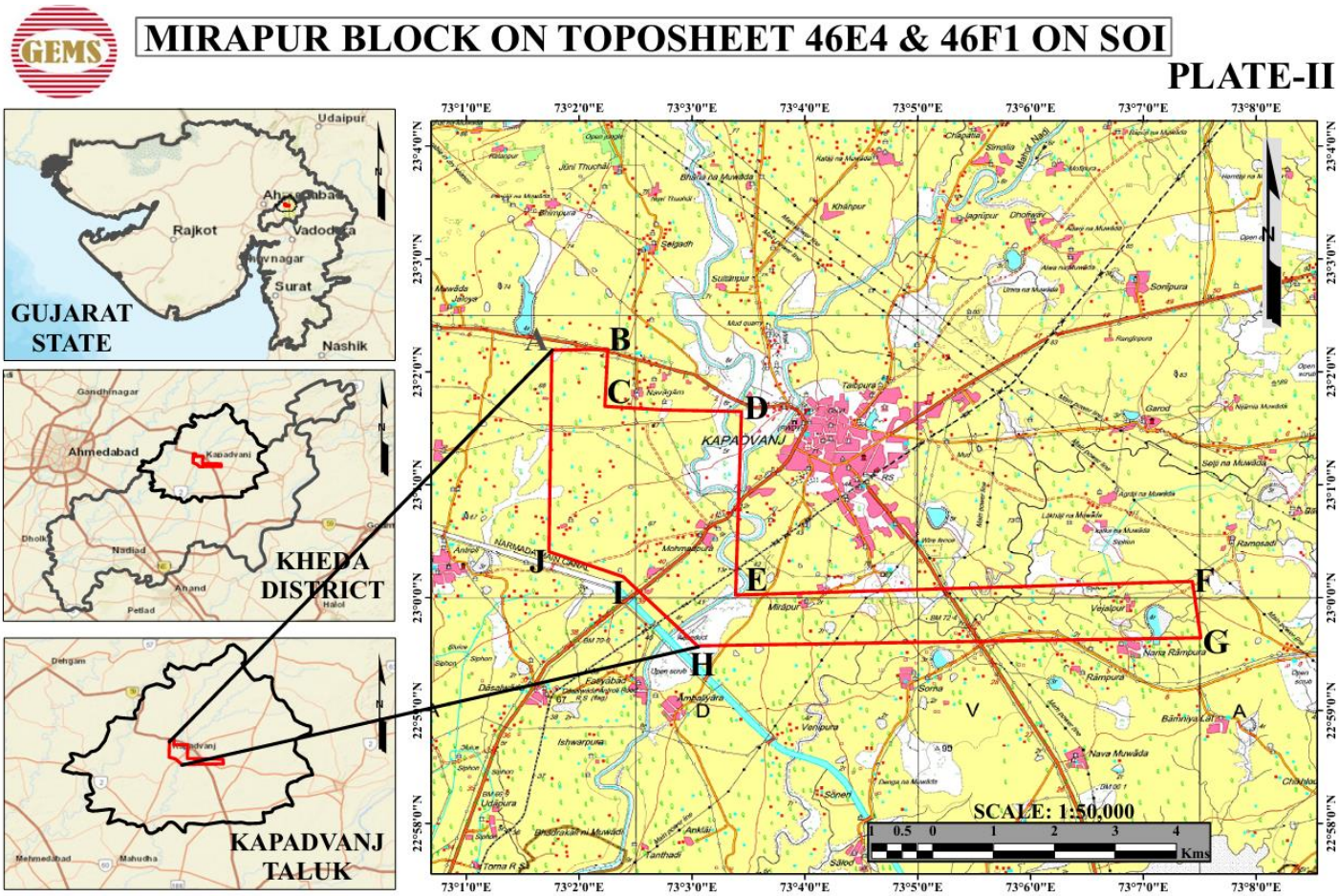
Mirapur Block on Google map



Location of the proposed Mirapur block demarcated on survey of India [Toposheet No. 46E/04 & 46F/01]



Mirapur area on Geological map [Toposheet No. 46E/04 & 46F/01]

Source: NGDR portal

GEOLOGICAL MAP OF MIRAPUR BLOCK IN 1:50,000

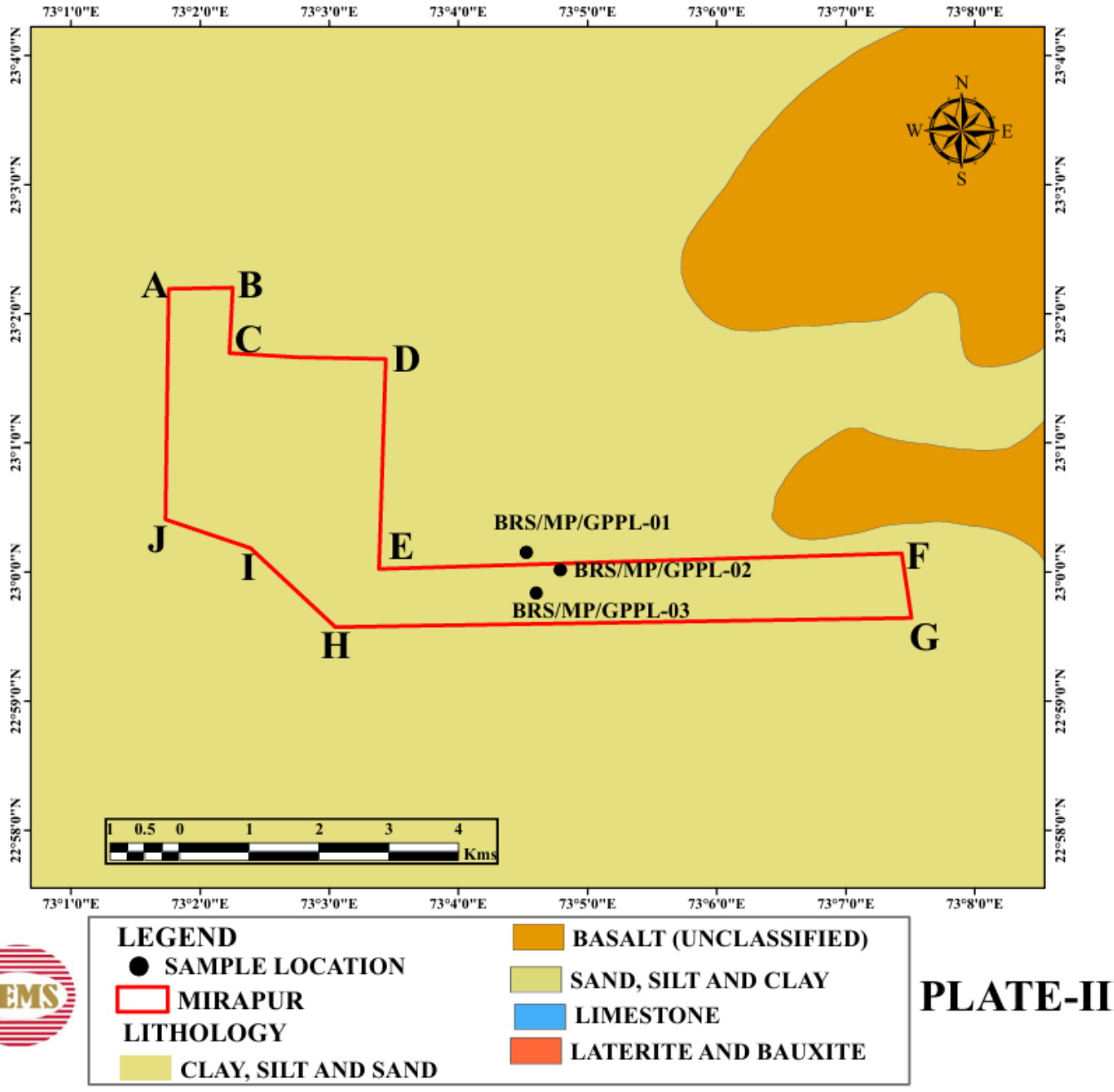
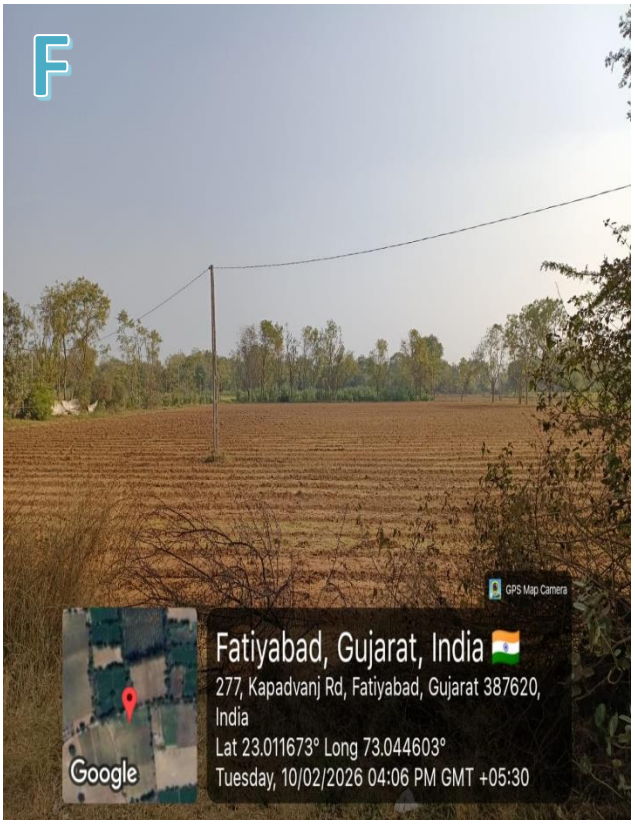


PLATE-III

Field Photographs



List of field photographs

A. BRS- 01 Bauxite
B. BRS- 02 Bauxite
C. BRS- 03 Bauxite
D. Field Photograph
E. Field Photograph
F. Field Photograph

Location of the Block:

The exploration block is covered in Toposheet No. 46E/4 & 46F/1 and located in the West of Ahmedabad town, which is the district headquarter of Kheda district of Gujarat. The exploration block is well connected with NH 848K. The Mahemdabad - Kathlal passes through the block. Part of this Road connects Dakor to Kapadvanj. Ahmedabad (68 Km) is the nearby Railway stations. The Nearest airport from the exploration block is Ahmedabad which is 68 Km away in East direction from the block. Co-ordinates of the cardinal points are tabulated below: -

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Physiography

The area represents a plain topographic terrain sloping from north east to south-west. The highest topographic point in the area is 80 m above MSL, lying just south east of Mirapur.
The surface water in the proposed area occurs in local pond, reservoirs, Narmada canal, Varasi Nadi and Mohar Nadi enter East side corner and flowing south of proposed area.
May is the hottest month. The mean daily maximum and minimum temperatures in this south are 40.7°C and 25.8°C respectively. January is the coldest month with the mean daily minimum at 14.5°C and the mean daily maximum at 27.4°C. The average rainfall in this region is 810 mm.

Previous Work

- A Mukhopadhyay and T. Raja Kumar (1991) carried out Report on systematic geological mapping in parts of Bhavnagar, Sabarkantha, Kheda, Vadodra & Panchmahals Districts, Gujarat. (Toposheet No. 46 C/3 46 E/03,46 F/1,2,6& 46 J/01) **Page: - 14-15**

Regional Geology and Structure of the Area

In the mapped area scanty outcrops of Aravallia, Lametas, Deccan Traps, Tertiary sandstone, limestone, bauxite and laterite are exposed.
The sequence of rock formation in the area is as follows

Geological succession

Age	Rock formation
	Alluvium/soil
	Bauxite and laterite
	Argillaceous limestone
	Calcareous sandstone
Deccan Traps	Basic dykes Basaltic lava flows Pyroclastic rocks
Infratrappean (Lameta)	Cherty limestone and sandstone Quartzite and mica-schist

Objective of the proposed Exploration programme:
The present exploration programme (G4) has been formulated on the basis of previous regional exploration data available and also on the samples collected by Gems Project team during field visit and their analysis to fulfill the following objective

- To carry out geological mapping on 1:12500 scale.
- To demarcate the different rock types exposed in the block and also to decipher the nature of bauxite mineralization.
- To collect laterite/Bauxite samples and to analyze them for Al_2O_3, Fe_2O_3, Sio_2, Tio_2 & LOI to know the quality of bauxite. This will prove the occurrence of bauxite in the plateau and also to decide further course of exploration programme.
- To analyze few samples for REE, Ni, Vanadium titanium & Gallium to find out the presence of these REE minerals in the Block.
- To estimate reconnaissance Bauxite resources along with accessory elements as per UNFC norms and minerals (Evidence of Mineral Contents) Rules- 2015 at G-4 level.

Justification:

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Proposed scheme of Exploration:

The Govt. of India enacted the MMDR Amendment Act-2015 duly introducing the system of auction for allocation of Mineral Concessions. In view of the MMDR Amendment Act-2015, Minerals (Evidence of Mineral Contents) Rule-2015 and Mineral Auction Rule-2015, Ministry of Mines, Government of India has directed State Governments for exploration through NMET funding to facilitate the auctioning of blocks. Accordingly, to expedite mineral exploration and make more blocks available for auction through mining lease or composite license.

Accordingly, being an NPEA Gems Projects Pvt. Ltd. has formulated the following scheme of exploration in order to achieve the objectives. The details of different activities to be carried out are presented in subsequent paragraphs.

Geological mapping:

Geological Mapping will be done in the total area of 18.3 Sq. Km. on 1:12500 scale. Geological mapping to map the lithology of the area by collecting different Rock types, their contact, structural features will be mapped. Surface manifestations of the ore bodies available along with their surface disposition will be marked on geological plan.

Surface/outcrop samplings by collecting samples of various litho-units for quality analysis to identified the occurrence of bauxite and its extension of the ore and presence of REE Ni, Vanadium titanium & Gallium,

Geochemical Sampling

Surface sampling (Bed Rock Samples)

During the course of Geological mapping the Bed rock shall be collected from the out crops. A total 72 no's outcrop samples shall be collected, prepared and analyzed for Al_2O_3, Fe_2O_3, SiO_2, TiO_2 & LoI assay. 16 Nos. sample each will be analyzed for REE & Ni and 08 Nos. samples will be analyzed for Vanadium & Gallium. 12 Nos. check sample will also be analyzed for Al_2O_3, Fe_2O_3, SiO_2, TiO_2 & LoI assay.

Surveying:

Survey party will be associated with outcrop sample collection by taking up the points and plotting its location on map for proper interpretation of the sample data. Survey party will also be associated with Geological Mapping. Rock types,their contact, structural features etc. will be observed during Geological mapping and the Litho-contacts will be plotted for finalization of Geological map on 1:12500 scale.

Trenching/Pitting:

Trenching and pitting shall be carried out in the potential zone identified based on the results of geological mapping. A provision of shallow Pitting/trenching of 336 cu.m is kept. Pitting and trenching shall be done for correlation of mineralized zones from the surface up to a depth of 2 mtrs. Location of the pits and trenches on ground will be decided by field geologist based on field observation. A provision of 214 Nos. primary & check trench/pit sample is kept for analysis for Al_2O_3, Fe_2O_3, SiO_2, and TiO_2 & LoI. The pit & trench walls will be mapped on 1:200 scale. Thus 336 cu.m of shallow trenching & pitting work along with associated work is required.

Core Drilling:

Based on the positive outcome of geological mapping, pitting & trenching and geochemical analysis, potential ore zone will be demarcated. To find out the depth persistent and extension of Bauxite ore body, 06 number scout boreholes involving total depth of 120m of drilling (assuming 20m for each borehole) will be carried out. All borehole will be drilled upto lithomarge and will be closed after drilling 2m in lithomargic clay. The drilling work will be taken up based on the result of pitting and trenching.

Drill Core Logging:

The drilling will be done by taking short run to avoid contamination. The drill core in form of powder/ chips/ solid core will be logged for rock types, structural features, texture and structure of laterite and bauxite horizon.

Drill Core Sampling:

Uniform length of one meter core will be sampled in bauxite/ aluminous zone. Sample length may increase or decrease depending upon lithology. This is likely to generate ten nos of sample in each borehole. Thus 60 nos of primary sample will be generated. The numbers of sample (primary 60 +09 check) will be analyzed for Al_2O_3, Fe_2O_3, SiO_2, TiO_2 & LoI assay.

Composite Sample:
To identify the average grade of Bauxite in boreholes, pits & trenches, composite samples will be drawn by clubbing the samples. This is likely to generate 36 nos of composite sample will be analyzed for Cao, MgO, Al_2O_3, SiO_2, Fe_2O_3, SO_3, P_2O_5, Mn_2O_3, TiO_2, K_2O, Na_2O& LoI assay.

Petrological & Mineralogical Studies:
During the course of Geological mapping, 10 samples from various litho-units will be studied for petrography and 10 samples will be studied for mineralogy including the ore mineral assemblages and their distribution.

Whole Rock Analysis:
10 Nos. of samples shall be subjected to whole rock analysis to check the rock type, their variation in chemical composition will be done for SiO_2, Al_2O_3, Fe_2O_3, TiO_2, MnO, CaO, Na_2O, K_2O+H_2O, MgO, P_2O_5, CO_2, S Analysis.

Specific gravity determination:

A total of 05 Nos. of rock sample will be collected for Specific gravity determination. The rock samples will be drawn from the bauxite zone.

Bulk density determination:
It is proposed to dig 5 pits of 1x1x1m dimension for determination of bulk density in field. The pits will be essentially dug on the bauxite.

XRD studies:
From the composite sample, 10 samples shall be subjected for XRD studies for mineral phase identification.

Quantum of Work:
The quantum of work proposed by Gems Projects for Mirapur Bauxite and Associated Minerals Block, District – Kheda, Gujarat G4 stage exploration is given below: -

Proposed Quantum of Works

Sl No.			Particulars	Unit	Proposed Quantity
1			***Geological Mapping (on 1:12,500 Scale).***	Sq. Km	15.85
			Pitting (35 Nos Pits,2x2x3)	Cum	420
2			***Geochemical Sampling***		
		i.	*Bed Rock Sampling*	Nos	50
		ii.	*Pitting*	Nos	200
		iii.	*ICPMS*	Nos	10
3			**Physical Studies**		
		i.	XRD – Studies on Composite sample	Nos	5
4			***Petrological Samples (Surface & BH Core samples)***		
	A		Preparation of Thin Section	Nos	5
	B		Study of Thin Section	Nos	5
5			**Reactive silica**	Nos	5
6			**Specific gravity determination**	Nos	5
7			**Bulk Density**	Nos	5
8			***Geological Report Preparation***	Nos	1
9			***Exploration Scheme Preparation***	Nos	1

Timeline and Break-up of Expenditure:

Estimated time schedule Detailed Proposal Report (DPR) for Reconnaissance Survey (G4 Stage) for Bauxite and Associated Minerals in Mirapur area (15.85 Sq. Km) District – Kheda, Gujarat								
Schedule Timeline – 06 months								
Item of work	Months							
	1	2	3		4	5		6
Camp Setting/Mobilization				REVIEW			REVIEW	
Geologist Days (Field)								
Pitting/Trenching								
Sampling Days								
Laboratory Studies								
Camp winding								
Geologist Days, HQ								
Preparation of Geological report								

Tentative cost estimate for Reconnaissance Exploration in Mirapur Bauxite and Associated Minerals Block

Sl. No	Item	Total
1	Geological Work	16,70,259
2	Pitting/Trenching	19,84,500
3	Laboratory Studies	13,04,400
	Sub total	**49,59,159**
4	Report	1,50,000
6	Peer Review	30000
7	Proposal Preparation	99,183
	Total	**52,38,342**
8	GST 18%	9,42,901
Total cost including 18% GST		**61,81,244**
SAY, in Lakhs		**61.81 lakh**

References:

1. Report on systematic geological mapping in parts of Bhavnagar, Sabarkantha, Kheda, Vadodra & Panchmahals Districts, Gujarat. (Toposheet No. 46 C/3 46 E/03,46 F/1,2,6& 46 J/01) During the field seasons 1943 and 1947.

List of Plates:

1. Bauxite Analysis Reports
2. Location Map of Mirapur Bauxite and Associated Minerals Block. (Plate- I)
3. Topographical Map of Mirapur Bauxite and Associated Minerals Block in Toposheet No. 46E/04 & 46F/01 Kheda District, Gujarat (Plate- II)
4. Geological Map of Mirapur Bauxite and Associated Minerals Block in Toposheet No. 46E/04 & 46F/01Kheda District, Gujarat (Plate- III)