

**Proposal for Anandwadi Limestone Block, District, Ariyalur, Tamil
Nadu State for G2 Stage Mineral Exploration under NMET.**

(Industrial Mineral)

By

**Mineral Exploration Corporation Limited
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**Place: Nagpur
Date: 09.11.19**

Summary of the Block for G2 stage exploration

Sl. No.	Features	Details
	Block ID	A25 –Anandavadi –131.21.00 Ha
	Current Exploration Stage	G2
	Current Exploration Agency	
	Previous Exploration agency	State DGM, Tamil Nadu
	Previous Geological Report	Report for adjacent area in same formation enclosed (Annexure –III)
	Commodity	Limestone
	Mineral Belt	Ariyalur Limestone belt
	Completion Period with entire Time schedule to complete the project	
	Objectives	i) To demarcate the limestone occurrence within the area by drilling boreholes at 200 x200mts grid interval. ii) To estimate grade wise Limestone indicated resources in the Block area as per UNFC norms at G2 (332) level of exploration. iii) To carry out exploration as per Minerals (Evidence of Mineral Contents) Rule-2015 Mineral (Auction) Rules-2015 and MMDR Amendment Act-2015 in turn to facilitate the State Govt. (Karnataka) in Auctioning of the Block.
	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	MECL
	Name / Number of Geoscientists	
	Expected Field days	
1.	Location	
	Commodities to be searched for	Limestone
	Latitude	In Chapter -3
	Longitude	
	Villages	Anandavadi
	Tehsil / Taluka	Sendurai
	District	Ariyalur
	State	Tamil Nadu
2.	Area (hectares /square kilometres)	
	Block Area	131.21.00 Ha / 1.31 Sq.Km
	Forest Area	-
	Government Land Area	20.03.50 Ha/ 0.2 Sq.km
	Private land Area	111.17.50 Ha/ 1.11 Sq.km
	Free hold area/ Lease hold area	Free hold area
3.	Accessibility	
	Nearest Rail Head	Ariyalur Railway station
	Road	Accessible from Ariyalur-Sendurai State Highway (SH) - 139 to Sendurai
	Airport	Tiruchirapalli
4.	Hydrography	
	Local Surface Drainage Pattern (Channels)	Radial and dendritic to sub-dendritic
	Rivers / Streams	Vellar River, Marudaiyar River
5.	Climate	
	Mean Annual Rainfall	1100 mm
	Temperature (December)	23°C
	Temperatures (June)	42°C
6.	Topography	

	Toposheet Number	58 M/4
	Morphology of the Area	The area is a plain terrain with elevation ranging from 102 m to 108 m above mean sea level.
7.	Availability of baseline geoscience data	
	Geological map (1:50K)	Available
	Geochemical Map	Not Available
	Geophysical map	Not Available
8.	Justification for taking up G2 stage mineral exploration	Applied block is falling in part of Niniyur Formation. Limestone mines exist nearby.

Detailed description on the following titles to be made in the proposal

1. Block Summary:

1.1 Physiography:

Ariyalur District is bounded on the North by Cuddalore, South by Thanjavur, East by Cuddalore and Thanjavur and West by Perambalur and Tiruchirapalli districts. In general, the district has an undulating topography covered by black cotton soil in the Northern and Western part, the Eastern part covered by red soil and river alluvium in the Southern end. Elevation of this area ranges from 40 m to 50 m from MSL and the regional slope is towards east. Denudation, structural and fluvial processes mainly control the geomorphic evolution of the area. Mainly the varying resistance of geological formations to those processes has governed the evolution of various landforms. Various land forms occurring in the area such as structural hills, erosional plains, residual hills rolling uplands and pediments of different facies belonging to the denudation and structural land forms. Fluvial landforms caused by the activity of Cauvery, Marudayar and Vellar river systems, include younger flood plains, older flood plains and buried pediments.

The top soil is black in color, fine to medium grained friable and sticky when wet (Block cotton soil) with 0.3 m to 3 m soil cover. In general, the climate is dry. Peak summer is in the month of May, maximum temperature reaching up to 46 degree Celsius. The cold season being December, the temperature falls down to 20 Degree Celsius. The average annual rainfall of the district is 1100 mm.

The proposed area is well connected to all major cities by rail/road, and the nearest airport Trichy at a distance of 70 km, Chennai airport is about 230 km. All basic amenities such as school, Hospital, market, etc. are available. Ariyalur is the nearest city and administrative headquarters around 15 km from the proposed block. Power, Water, Fuel, Communication are available in vicinity of the proposed block (Plate-1).

1.2 Background Geology

The stratiform and tabular limestone deposits of Sendurai area are irregular and belong to cretaceous age of Niniyur Formation. The Niniyur formations are underlain by Ariyalur beds and overlain by Recent Alluvium. The regional dip of Niniyur bed is 4 to 5 degrees towards south-east. These beds are deposited during the transgression period of Cretaceous age. Niniyur limestone beds contain Foraminifera fossil remains.

The limestone beds of Niniyur formation extends from Kavanur in the south to Vellar river near Saundaracholapuram in the north over approximately 26 Kms strike length

of N25°E direction. Part of this unit is overlain by sandstone between Manakudayan and Kanjamalaipatti villages over about 4.50 km length. This formation comprises bands of limestone, calcareous sandstone, shale, marl, soft sandstone and thin bands/lenses of white to yellowish chert having algae. The bands of limestone of this Niniyur Group of rocks are enriched with lime content which is suitable for manufacture of cement.

1.2.1 Mineral potentiality

Limestone deposit of this area is characterized by fine grained, yellow to brown color deposits. The thickness of the limestone varies between 15 m to 30 m with various grades. The strike direction of the limestone deposit is NNE-SSW and dips towards south east with dip angle varying from 4° to 5°. Limestone mostly occurs as lenticular bands and is also nodular.

1.3 Scope for proposed exploration

1	Topographic Survey & Geological Mapping on 1:4000 scale.
2	Drilling
3	Laboratory Studies
	i) Chemical Analysis; Primary samples for 6 radicals i.e. CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ and LOI
	ii) For SO ₃ &P ₂ O ₅
	iii) Check sample(5% of Primary samples) for analysis of 6 radicals i.e. CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ and LOI
	iv) External Check (NABL) samples(10% of Primary samples) for analysis of for 6 radicals i.e. CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ and LOI
	v) Primary Sample Analysis for K ₂ O
4	Composite Samples for 12 radicals (CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ , SO ₃ ,P ₂ O ₅ , LOI, MnO ₂ , K ₂ O, Na ₂ O and Cl.)
5	Physical Studies
	a) Petrological Studies
	a) Specific Gravity Determinations
6	Environment Studies
7	Report Preparation (Digital format) with Peer Review of Report

1.4 Recommendations of previous Mineral Exploration Report

Directorate of Geology and Mining has carried out detailed geological investigation during March 1988 to prove limestone reserves in Anandavadi village in Sendurai Taluk, Ariyalur District which covers the area presently proposed for G2 stage exploration. As per the report, the chemical analysis of the core samples in the subject area indicate that the weighted average of total CaO content is between 46.5% and 48.5%, silica 7 to 9.5% and Fe_2O_3 is less than 1%. The ratio of the overburden to limestone is 1:1. and thickness of limestone encountered in the area is about 16m.

1.5 Objectives

The exploration is proposed with the following objectives

1. To demarcate the limestone occurrence within the area by drilling boreholes at 200 x 200mts grid interval to bring the deposit to G2 level.
2. To estimate grade wise Limestone indicated resources in the Block area as per UNFC norms at G2 (332) level of exploration.
3. To carry out exploration as per Minerals (Evidence of Mineral Contents) Rule-2015, Mineral (Auction) Rules-2015 and MMDR Amendment Act-2015 in turn to facilitate the State Govt. (Karnataka) in Auctioning of the Block.

2. Previous Work:

Geological Survey of India has carried out an extensive geological mapping "Geology of the upper Cretaceous Rock formations of parts of Lalgudi, Perambalur and Ariyalur Taluk, Tiruchirapally District, Tamil Nadu (Progress report for field season 1976-77)" Author R.Sundaram Geologist (JR) Geological Survey of India in July 1978.

Directorate of Geology and Mining, Tamil Nadu carried out an exploration at G1 level in Adhanakurichi, Manakudayan Villages, Sendurai taluk, Ariyalur District over an extent of 49.28.50 Hec in 2015. The quality of the proposed limestone block is 48.4% of CaO, 9.20% of SiO_2 , 1.51% of Al_2O_3 and 0.79% of Fe_2O_3 .

This proposed area is contiguous to the existing mining lease of M/s. Chettinad Cements Corporation Pvt. Ltd. in North at a distance of 1.0 Km from the proposed area and M/s TANCEM in South at a distance of 1.0 Km from the proposed area.

3. Block Description

The boundary coordinates of the proposed block are given in table below. The block location is also shown superimposed on Google earth (Plate-3)

Block boundary Co-ordinates

Sl.No.	Latitude (North)	Longitude (East)	Sl.No.	Latitude (North)	Longitude (East)
1	N 11° 12' 55.1"	E 79° 11' 21.0"	51	N 11° 12' 11.5"	E 79° 10' 50.7"
2	N 11° 12' 47.5"	E 79° 11' 20.6"	52	N 11° 12' 12.3"	E 79° 10' 50.2"
3	N 11° 12' 47.2"	E 79° 11' 24.2"	53	N 11° 12' 15.6"	E 79° 10' 58.3"
4	N 11° 12' 46.1"	E 79° 11' 24.1"	54	N 11° 12' 19.6"	E 79° 10' 58.0"
5	N 11° 12' 45.4"	E 79° 11' 23.1"	55	N 11° 12' 20.0"	E 79° 10' 59.0"
6	N 11° 12' 39.2"	E 79° 11' 23.0"	56	N 11° 12' 23.1"	E 79° 10' 58.8"
7	N 11° 12' 32.2"	E 79° 11' 23.3"	57	N 11° 12' 23.1"	E 79° 10' 58.7"
8	N 11° 12' 27.7"	E 79° 11' 24.2"	58	N 11° 12' 30.9"	E 79° 10' 58.8"
9	N 11° 12' 24.5"	E 79° 11' 24.9"	59	N 11° 12' 30.6"	E 79° 11' 05.9"
10	N 11° 12' 22.0"	E 79° 11' 25.0"	60	N 11° 12' 37.2"	E 79° 11' 06.4"
11	N 11° 12' 22.0"	E 79° 11' 26.4"	61	N 11° 12' 37.5"	E 79° 11' 05.2"
12	N 11° 12' 18.9"	E 79° 11' 26.5"	62	N 11° 12' 40.9"	E 79° 11' 05.7"
13	N 11° 12' 18.9"	E 79° 11' 26.7"	63	N 11° 12' 41.7"	E 79° 11' 04.6"
14	N 11° 12' 18.1"	E 79° 11' 26.3"	64	N 11° 12' 43.5"	E 79° 11' 04.5"
15	N 11° 12' 16.0"	E 79° 11' 26.0"	65	N 11° 12' 45.6"	E 79° 11' 04.6"
16	N 11° 12' 16.0"	E 79° 11' 23.8"	66	N 11° 12' 45.4"	E 79° 11' 06.3"
17	N 11° 12' 13.8"	E 79° 11' 23.7"	67	N 11° 12' 49.3"	E 79° 11' 06.8"
18	N 11° 12' 14.0"	E 79° 11' 21.7"	68	N 11° 12' 49.3"	E 79° 11' 06.8"
19	N 11° 12' 13.8"	E 79° 11' 19.5"	69	N 11° 12' 50.2"	E 79° 11' 04.2"
20	N 11° 12' 13.1"	E 79° 11' 18.9"	70	N 11° 12' 50.4"	E 79° 11' 01.9"
21	N 11° 12' 13.1"	E 79° 11' 19.0"	71	N 11° 12' 51.7"	E 79° 11' 01.6"
22	N 11° 12' 04.3"	E 79° 11' 19.4"	72	N 11° 12' 51.7"	E 79° 11' 03.2"
23	N 11° 12' 04.2"	E 79° 11' 18.9"	73	N 11° 12' 53.3"	E 79° 11' 03.2"
24	N 11° 12' 04.7"	E 79° 11' 16.1"	74	N 11° 12' 53.2"	E 79° 11' 02.9"
25	N 11° 12' 02.8"	E 79° 11' 12.9"	75	N 11° 12' 54.6"	E 79° 11' 02.8"
26	N 11° 12' 02.5"	E 79° 11' 10.6"	76	N 11° 12' 54.6"	E 79° 11' 04.3"
27	N 11° 12' 02.4"	E 79° 11' 10.7"	77	N 11° 12' 57.4"	E 79° 11' 04.8"
28	N 11° 12' 01.2"	E 79° 11' 05.6"	78	N 11° 12' 57.5"	E 79° 11' 06.9"
29	N 11° 12' 00.7"	E 79° 11' 05.6"	79	N 11° 12' 58.5"	E 79° 11' 06.7"
30	N 11° 12' 00.5"	E 79° 11' 03.4"	80	N 11° 12' 58.7"	E 79° 11' 06.9"
31	N 11° 12' 58.1"	E 79° 11' 03.2"	81	N 11° 12' 59.0"	E 79° 11' 10.2"
32	N 11° 12' 58.1"	E 79° 11' 02.9"	82	N 11° 12' 58.8"	E 79° 11' 10.2"
33	N 11° 12' 55.9"	E 79° 11' 03.0"	83	N 11° 12' 59.2"	E 79° 11' 11.6"
34	N 11° 11' 55.8"	E 79° 10' 57.0"	84	N 11° 13' 01.6"	E 79° 11' 11.2"
35	N 11° 11' 53.1"	E 79° 11' 56.8"	85	N 11° 13' 01.5"	E 79° 11' 08.7"
36	N 11° 12' 53.2"	E 79° 11' 00.6"	86	N 11° 13' 05.8"	E 79° 11' 09.0"

Sl.No.	Latitude (North)	Longitude (East)	Sl.No.	Latitude (North)	Longitude (East)
37	N 11° 12' 51.0"	E 79° 11' 00.6"	87	N 11° 13' 07.1"	E 79° 11' 10.3"
38	N 11° 12' 49.0"	E 79° 11' 00.9"	88	N 11° 13' 09.3"	E 79° 11' 12.5"
39	N 11° 11' 48.9"	E 79° 10' 59.8"	89	N 11° 13' 07.3"	E 79° 11' 12.4"
40	N 11° 11' 48.2"	E 79° 10' 58.0"	90	N 11° 13' 07.4"	E 79° 11' 16.0"
41	N 11° 11' 47.6"	E 79° 10' 56.9"	91	N 11° 13' 06.8"	E 79° 11' 15.7"
42	N 11° 11' 47.7"	E 79° 10' 56.7"	92	N 11° 13' 05.9"	E 79° 11' 17.1"
43	N 11° 11' 53.2"	E 79° 11' 58.7"	93	N 11° 13' 05.6"	E 79° 11' 17.7"
44	N 11° 11' 56.3"	E 79° 10' 59.0"	94	N 11° 13' 05.1"	E 79° 11' 19.1"
45	N 11° 12' 00.5"	E 79° 10' 56.8"	95	N 11° 13' 03.9"	E 79° 11' 19.3"
46	N 11° 12' 00.2"	E 79° 10' 52.2"	96	N 11° 13' 03.8"	E 79° 11' 21.7"
47	N 11° 12' 01.8"	E 79° 10' 52.4"	97	N 11° 13' 02.3"	E 79° 11' 21.6"
48	N 11° 12' 01.7"	E 79° 10' 53.7"	98	N 11° 13' 02.2"	E 79° 11' 22.3"
49	N 11° 12' 08.4"	E 79° 10' 54.1"	99	N 11° 12' 57.8"	E 79° 11' 22.2"
50	N 11° 12' 08.7"	E 79° 10' 50.6"			

4. Planned Methodology

4.1.0 Topographic Survey & Geological Mapping:

4.1.1 The Block boundary shall be surveyed by DGPS and total station in WGS-84 datum for demarcation of block boundary/corner points. Triangulation network will be laid down in the proposed study area of 131.43 ha. Contouring will be done on scale 1:4000 at 1m contour intervals along with survey of surface features. Borehole will be fixed on the ground. RL's and co-ordinates of survey and exploration points will be determined. Detailed Geological Mapping will be done in the proposed block on scale 1:4000. All the geological features will be recorded and litho contacts will be plotted for finalization of Geological map. This map will be used as base map for future work.

4.2.0 Surface Drilling:

4.2.1 The present exploration scheme is prepared by proposing total drilling of 4725 m in 35 boreholes on grid pattern 200 m X 200 m with an average depth for 80 m. (26 boreholes) for limestone. The borehole depth is planned up to intersection of limestone. In G-2 level apart from geological mapping on 1:4000 scale, firm up the grade and resources of limestone across the length & breadth of proposed 131.43 ha limestone bearing Block area.

The proposed borehole location plan is enclosed as Plate No.-4 and the details of proposed boreholes at G-2 level are given in below Table No. 4.1

Table No. 4.1
Details of Proposed Boreholes (G-2 Level of Exploration) In Anandwadi Block

BH ID	Proposed Depth (m)	BH ID	Proposed Depth (m)
PBH-1	80	PBH-14	80
PBH-2	80	PBH-15	80
PBH-3	80	PBH-16	80
PBH-4	80	PBH-17	80
PBH-5	80	PBH-18	80
PBH-6	80	PBH-19	80
PBH-7	80	PBH-20	80
PBH-8	80	PBH-21	80
PBH-9	80	PBH-22	80
PBH-10	80	PBH-23	80
PBH-11	80	PBH-24	80
PBH-12	80	PBH-25	80
PBH-13	80	PBH-26	80

Note: Proposed Borehole depth is tentative only on the basis of data generated in previous work and may vary subject to the geological and drilling conditions in the study area.

4.3.0 Drill Core Logging and Sampling

4.3.1 Detailed drill core logging will be done with consideration of weathering, grain size, fossil contents, and color of various formations, intercalation / parting of shale, stylolite, and structure. On the basis of these parameters, grade of limestone can be broadly presented and it will also be helpful in sampling.

Primary samples will be drawn at 1m interval subject to change in lithology and core recovery. The following parameters shall be considered while sampling the drill cores.

- 1) Colour, grain size.
- 2) Fossil variation.
- 3) Thin intercalations of shale/siltstone.
- 4) Partially weathered zone.

For preparation of samples the borehole core will be longitudinally split into two equal halves by using core splitter. One half will be powdered to -100 mesh size and the other half will be kept for future studies. The powdered material will be mixed thoroughly and about 100 gm of samples will be taken for chemical analysis by successive coning and quartering as primary samples and rest of the material (-100 mesh size) will be kept as duplicate half for future reference.

Total 1120 number of primary samples are likely to be generated for Limestone, 56 internal check samples (5% of primary samples), 112 nos. external check (10% of primary samples) and 40 Composite samples, totaling 1440 Nos. Around 112 Nos. numbers of primary samples will be prepared for analysis of two radicals i.e. SO_3 & P_2O_5 .

Composite samples will be prepared borehole wise based on primary sample data at every 8-m interval (8 m bench height). Composite samples will be prepared entire limestone zone demarcated at 38% & 44% CaO cut off. This will generate around 200 nos. of composite samples.

4.4.0 Laboratory Studies

4.4.1 Chemical Analysis: Primary samples (1120 Nos.) will be analyzed for 6 radicals, CaO, MgO, Al_2O_3 , SiO_2 , Fe_2O_3 and LOI., 112 Nos. of primary samples will be analyzed for additional two radicals i.e. SO_3 & P_2O_5 . 5% of primary samples around 56 Nos. will be analyzed as internal check for 6 radicals CaO, MgO, Al_2O_3 , SiO_2 , Fe_2O_3 and LOI. 10% of primary samples (112 Nos.) will be sent to NABL external labs as external check samples for analysis of 6 radicals CaO, MgO, Al_2O_3 , SiO_2 , Fe_2O_3 and LOI.

4.4.2 Composite Samples: 40 Nos. of composite samples shall be generated from borehole cores shall be subjected to analysis of 12 radicals, CaO, MgO, Fe_2O_3 , SiO_2 , Al_2O_3 , SO_3 , P_2O_5 , MnO_2 , K_2O , Na_2O , Cl & LOI.

4.4.3 Petrological Studies: Petrological studies will be done on 15 nos. of core specimen.

4.4.4 Specific Gravity Determination: Specific Gravity will be determined on 20 nos. drill core specimens.

4.5.0 The Quantum of work

Table-4.2
Quantum of work For (G-2) Level of Exploration

Sl. No	Item of Work	Unit	Quantum of work
1	Topographic Survey (DGPS survey) & Geological Mapping on 1:4000 scale.	Sq. Km.	1.31
2	Drilling	m.	2080 (26 holes)
3	Laboratory Studies		
	i) Chemical Analysis; Primary samples for 6 radicals i.e. CaO, MgO, Al_2O_3 , SiO_2 , Fe_2O_3 and LOI	Nos.	1120
	ii) For SO_3 & P_2O_5	Nos.	112
	iii) Check sample (5% of Primary samples) for analysis of 6 radicals i.e. CaO, MgO, Al_2O_3 , SiO_2 , Fe_2O_3 and LOI	Nos.	56

	iv) External Check (NABL) samples(10% of Primary samples) for analysis of for 6 radicals i.e. CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ and LOI	Nos.	112
4	Composite Samples for 12 radicals (CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ , SO ₃ , P ₂ O ₅ , LOI, MnO ₂ , K ₂ O, Na ₂ O and Cl.)	Nos.	40
5	Physical Studies		
	a) Petrological Studies	Nos.	15
	a) Specific Gravity Determinations	Nos.	20
8	Report Preparation (Digital format) with Peer Review of Report	Nos.	1 No

4.6.0 Exploration Report:

Data generated from adjoining blocks.

5 Nature Quantum and Target

Since, the topography of proposed area is gentle and the formation is dipping less than 5 degree only, it is preferred to drill vertical bore holes with a grid interval of 200 m x 200 m arriving a total number of boreholes to a total depth of 1280m (80m/Borehole).

6 Exploratory Drilling:

Please refer point no. 4.2.0 Surface Drilling

7 Manpower Deployment: Below manpower deployed during the work start.

Geologist, Sampler, Surveyor and survey technician

Drilling engineer, Drill Machine Operator, Helper, Driver

8 Break-up of expenditure:

Cost has been estimated based on actual and provisional escalation as per RBI indices as on 31-03-19 and provisional escalation of @ 15% points for drilling work and 25% points for Geological and Laboratory Studies for the subsequent years. The total estimated cost is Rs. 242.75 Lakhs. The summary of cost estimates is given in Table 8.1 and details of cost estimates are given in Table 8.2

Table 8.1

Summary of Cost Estimates for G-2 Level of Exploration

Sl. No.	Item	Estimated Cost (Rs.)
1	Drilling	13350312
2	Geology	2229240
3	Laboratory	4026682
	Sub Total (1 to 3)	19606234
4	Exploration Report	196062
5	Preservation of Cores	770000
	Sub Total (1 to 7)	20572296
7	GST 18%	3703013
	Total	24275370
		Say Rs.242.75 Lakh

9. References

- i. Report on the detailed geological investigation for limestone deposit in Anandavadi Village, Ariyalur Taluk, Trichy District during the year march 1988 by Directorate of Geology and Mining, Tamilnadu.
- ii. Rc. No. 2390/MM1/2009 dated 17.04.2015- Lease granted to Tvl. Chettinad Cement Corporation Private Ltd for Limestone and Marl.
- iii. Report on the detailed prospecting for limestone deposit in Adhanakurichi & Manakudayan Villages, Sendurai Taluk, Ariyalur District over an extent of 49.28.5 Hectares.

COST SHEET FOR GENERAL EXPLORATION (G-2) FOR LIMESTONE IN ANANDAWADI BLOCK, SENDURAI TALUK, DISTRICT-ARIYALUR, TAMIL NADU. 19-20 & 20-21.						
S.No.	Item of Work	Unit	Base Rate as on 01-04-1990	Financial Year (2019-20)		
				Escalated Rate	Quantity	Amount (Rs)
A	DRILLING					
1	Surface Drilling (2 Rigs)	m.	1,174	7,427	1,400	1,03,97,800
2	Transportation	Km.	9	35	5,600	1,96,000
3	Accommodation	One time/ Drill	1,85,925	7,33,958	2	14,67,916
4	Camp Mobilisation/ Demobilisation	Drill/month	68,606	2,70,829	4	10,83,316
5	Road Making (Flat Terrain)	Km	5,200	20,528	10	2,05,280
	Sub Total A					1,33,50,312
B	GEOLOGICAL WORK					
1	Survey Party Days (1 party)	day	1,180	6,445	60	3,86,700
2	Geologist Party days (1 party)	day	1,541	8,590	150	12,88,500
3	Core Sampling Party days(2 party)	day	525	3,078	180	5,54,040
	Sub-Total B					22,29,240
C	LABORATORY STUDIES					
a	Chemical Analysis					
1	Primary + Check Samples					
	i) for 6 radicals i.e. CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ and LOI	Nos	490 '(110+76x5)	2,832	1,120	31,71,840
	ii) for additional 2 radicals SO ₃ & P ₂ O ₅	Nos	186 '(76+110)	1,068	112	1,19,616
	iii) Check samples for analysis of for 6 radicals i.e. CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ and LOI	Nos	490 '(76x5+110)	2,832	56	1,58,592
	iv) External Check (NABL) samples for analysis of for 6 radicals i.e. CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ and LOI	Nos	490 '(76x5+110)	2,832	112	3,17,184
2	Composite Samples					
	i) for 12 radicals (CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ , SO ₃ , P ₂ O ₅ , LOI, MnO ₂ , K ₂ O, Na ₂ O and Cl.)	Nos	946 '(76x11+110)	5,478	40	2,19,120
b	Physical Analysis					
1	Preparation of thin section	Nos	100	589	15	8,835
2	Petrographic Studies	Nos	228	1,553	15	23,295
3	Specific Gravity determination	Nos	64	410	20	8,200
	Sub-Total C					40,26,682
	Total A+B+C					1,96,06,234
D	EXPLORATION REPORT - 1% of (A+B+C) or 175000 which ever is more					1,96,062
F	Preservation of Cores					
	GI core boxes	nos	0	2000	350	7,00,000
	Transportation	kms	8.8	35	2,000	70,000
	GRAND TOTAL A to G					2,05,72,296
	GST 18%					37,03,013
	Grand Total : with GST 18%					2,42,75,310
						Say 242.75 Lakhs
1	Revised Rates of Promotional Work done by MECL on behalf of Govt. of India Vide letter No. 37(I)/2006-M.I. dated- 02-07-2014 and based on actual escalation as per RBI indices as on 31-03-2019.					
2	Phosphorite rates have been considered as there is no rate for Limestone in Revised Rates of Promotional Work of MoM Schedule of Rates.					
3	*The Peer Review amount to be paid to the members of Peer Review Committee was finalised by the Executive Committee of NMET					
4	** Beneficiation rates has been considered based on IBM rates.					

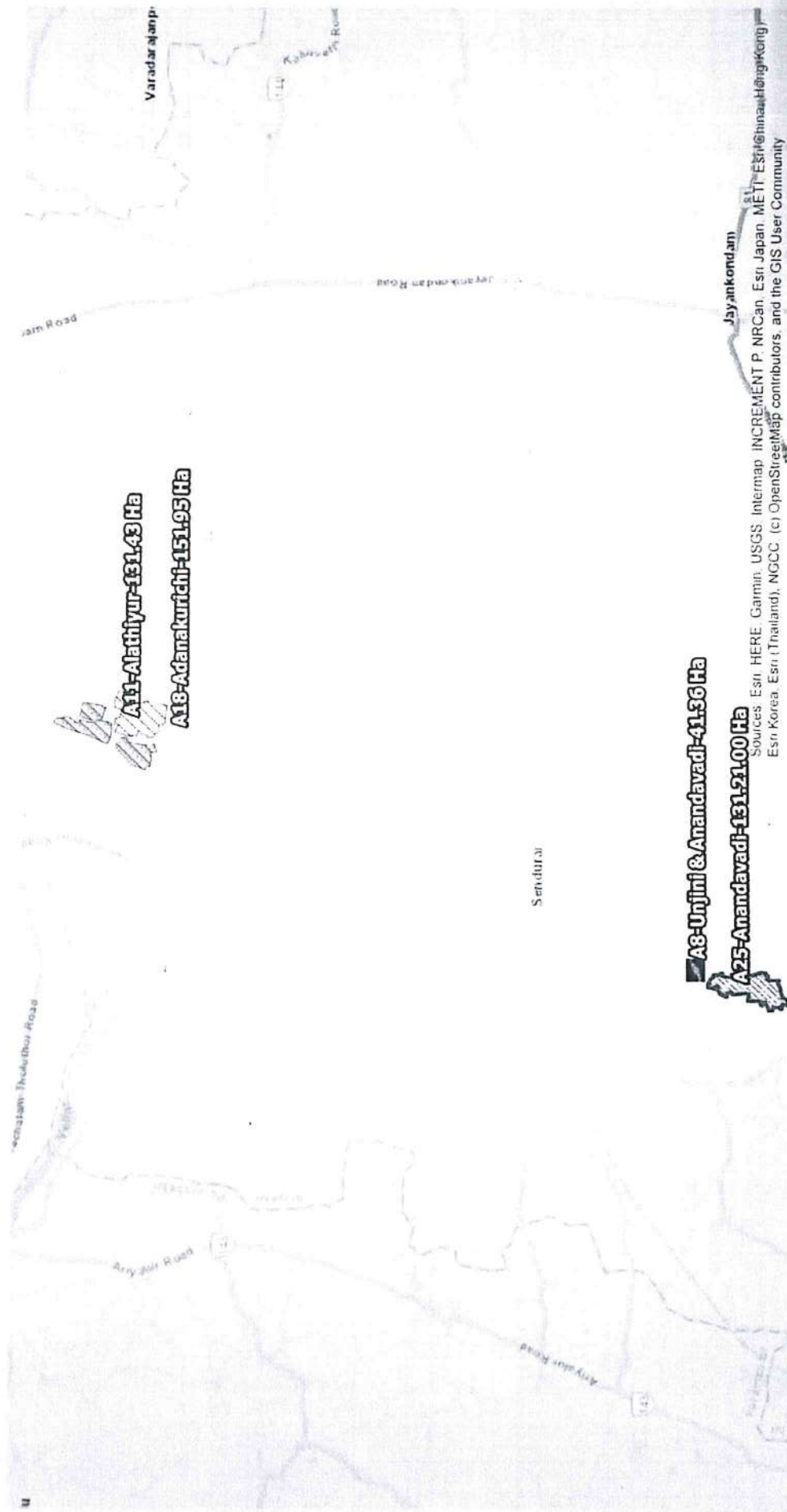
Sl. No.	Item	Estimated Cost (Rs.)
1	Drilling	13350312
2	Geology	2229240
3	Laboratory	4026682
	Sub Total (1 to 3)	19606234
4	Exploration Report	196062
5	Preservation of Cores	770000
	Sub Total (1 to 5)	20572296
7	GST 18%	3703013
	Total:	24275310
		Say Rs.242.75 Lakhs

242.75



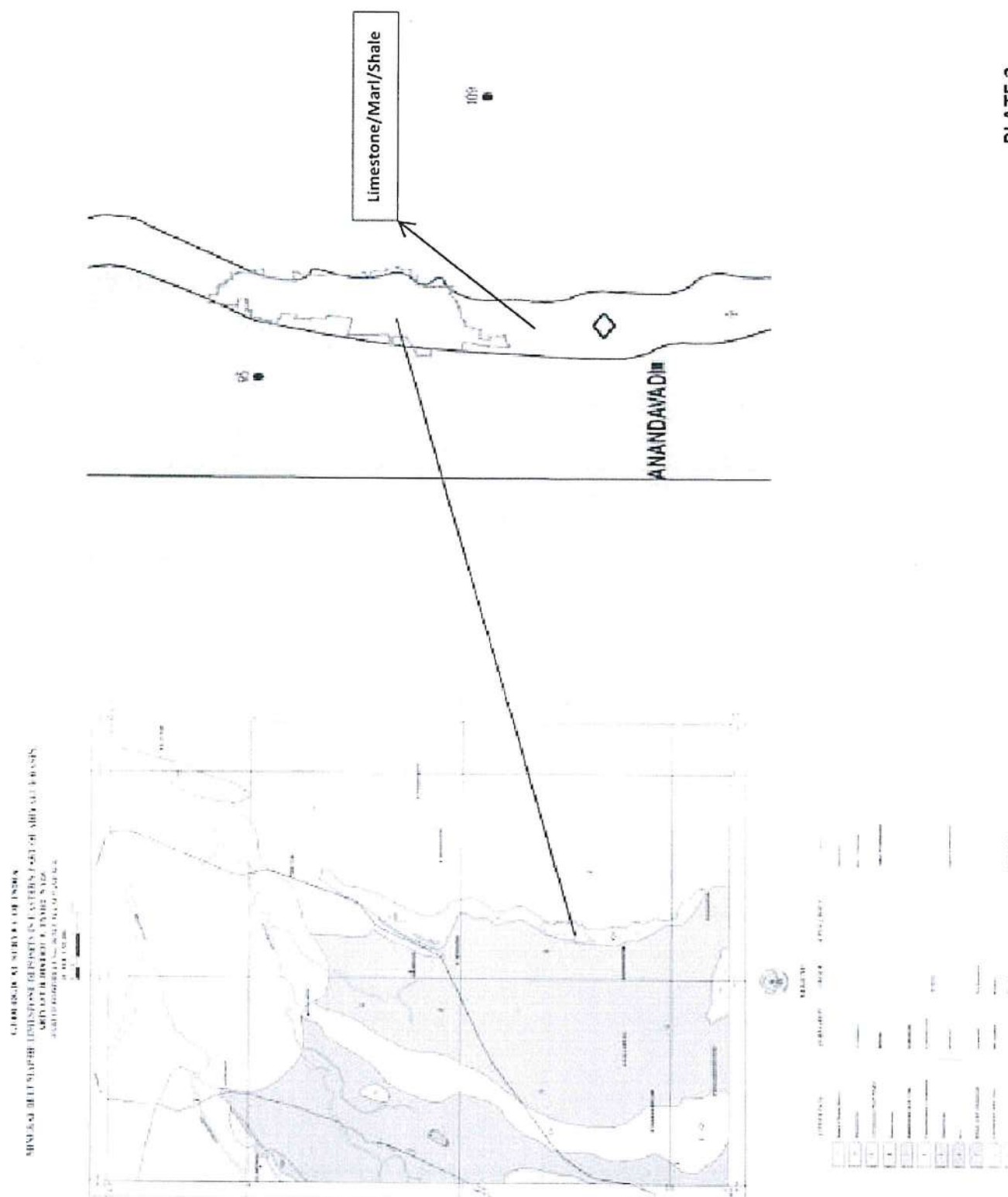
LOCATION MAP OF PROPOSED BLOCKS

PLATE 1



Sources: Esri HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community.

MINERAL EXPLORATION CORPORATION LIMITED
GEOLOGICAL MAP OF ARIYALUR BASIN (AFTER GSI)



MINERAL EXPLORATION CORPORATION LIMITED

Existing Mines with proposed block in Anandavadi Village,
Sendurai Taluk, Ariyalur District, Tamil Nadu, TS NO. 58 M/4 (Area 131.21.00 Ha)

