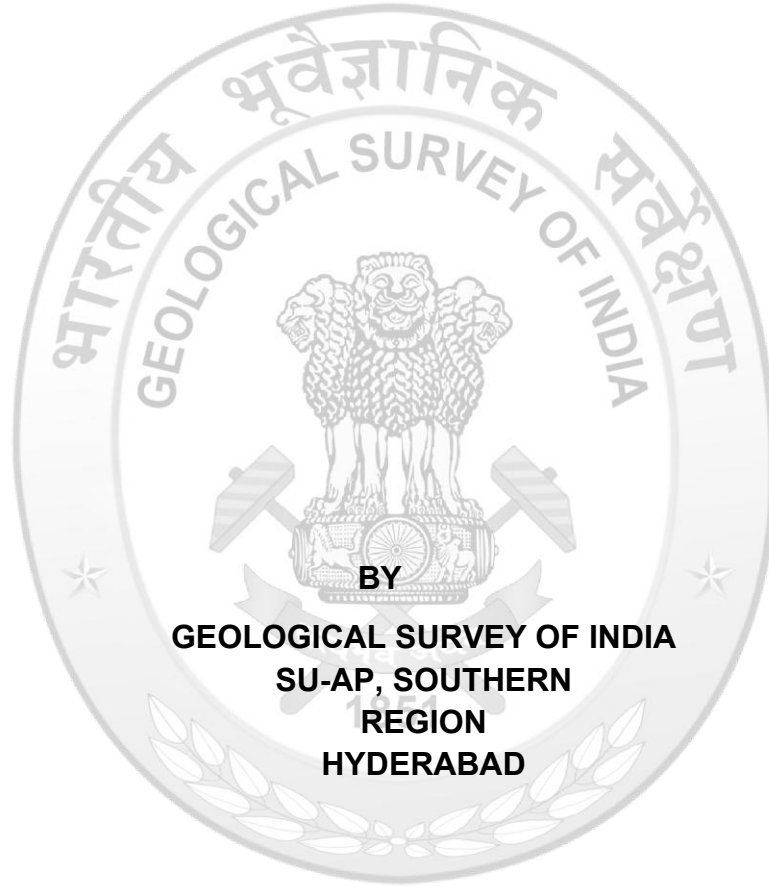


**PRELIMINARY EXPLORATION FOR REE AND ASSOCIATED MINERALIZATION IN
CARBONATITE-PHOSCORITE IN CHINTALACHERUVU BLOCK, PALNADU DISTRICT,
ANDHRA PRADESH**

COMMODITY: REE AND ASSOCIATED MINERALS



PLACE: HYDERABAD

DATE: 17.04.2026

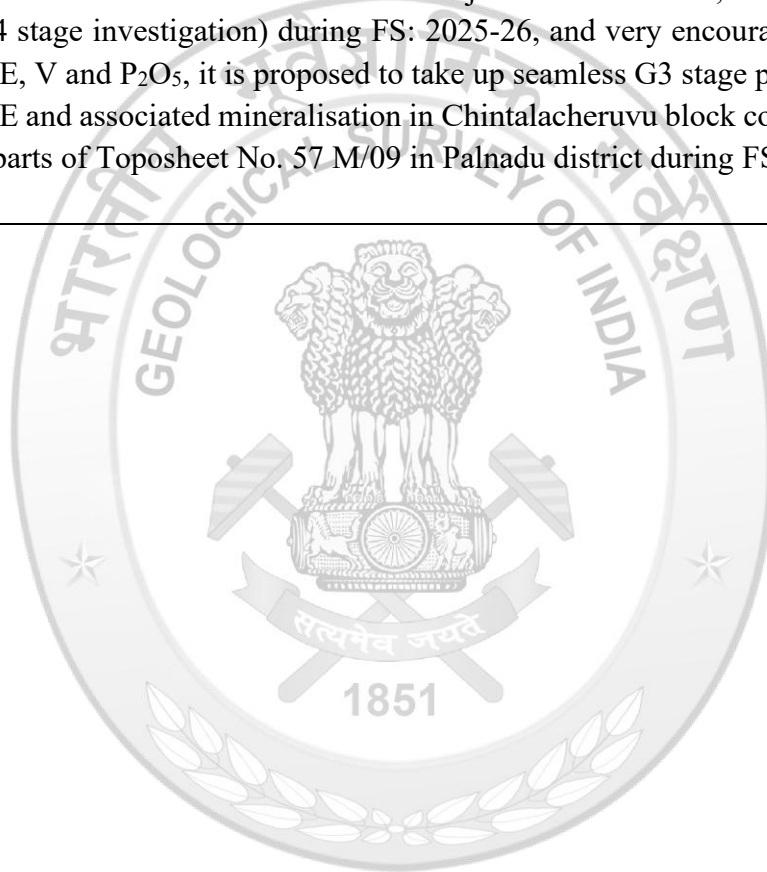
Summary of the Block for G3 Level Exploration
GENERAL INFORMATION ABOUT THE BLOCK

Features	Details				
Block ID	CHINTALACHERUVU BLOCK				
Exploration Agency	GEOLOGICAL SURVEY OF INDIA				
Commodity	REE AND ASSOCIATED MINERALS				
Mineral Belt	Prakasam Alkaline Complex, Nellore Schist Belt				
Completion period with entire Time schedule to complete the project	12 months				
Objectives	1. To establish sub-surface continuity of the carbonatite and phosphorite. 2. To estimate the resource of REE and associated mineralization.				
Whether the work will be carried out by the proposed agency or through outsourcing	Work will be carried out by the proposed agency (GSI).				
Name/Number of Geoscientists	Two no. Geoscientists				
Expected Field days	Geologist Party days: 240 days at field				
1. Location					
Block boundary corner points	Cardinal Points	Easting(m)	Northing(m)	Latitude	Longitude
	A	351,700	1,764,440	15.96348°N	79.61213 °E
	B	352,520	1,764,448	15.96355 °N	79.62048 °E
	C	352,635	1,762,636	15.94716 °N	79.62065 °E
	D	351,950	1,760,962	15.93201 °N	79.61464 °E
	E	351,100	1,760,958	15.93198 °N	79.60707 °E
F	351,670	1,762,678	15.94755 °N	79.61223 °E	
Villages	Chintalacheruvu, West Veerayyapalem				

Tehsil/Taluk	Nuzendla, Kurichedu
District	Palnadu
State	Andhra Pradesh

2. Area	
Block Area	3 Sq. Km.
Forest Area	No forest
Government Land Area	Private agriculture land
Charagaha	Yes
Private Land Area	Most of the area is private land
3. Accessibility	
Nearest Rail Head	Kurichedu (5 Km)
Road	The area is approachable by NH-16 (Vijaywada-Ongole) and SH-51 (Vinukonda-Darsi-Podili) roadways.
Airport	Vijayawada (120 km)
4. Hydrography	
Local Surface Drainage Pattern (Channels)	Vala eru river flowing towards East and one canal flowing towards SE. Others are seasonal nalas flowing West to East
5. Climate	
Mean Annual Rainfall	Annual rainfall of approximately 40–50 cm
Temperatures (December) (Minimum)	Minimum temperatures 15°C.
Temperatures (June) (Maximum)	Maximum temperatures up to 45°C.
6. Topography	
Toposheet Number	57M/09
Morphology of the Area	The terrain of the block has plain with low undulating terrain. The lowest valley floors at an altitude of 87 metres from the MSL and the highest elevation of 98 meters above the MSL.
7. Availability of baseline geosciences data	
Geological Map	Geological map on 1:12500 and 1:2000 scale (Source: GSI)
(1:50K/25K)	

Geochemical Map	NGCM Map (Source: GSI)
Geophysical Map (Aeromagnetic, ground geophysical, Regional as well as local scale GP maps)	1.Gravity and Magnetic Maps of NGPM data 2. Magnetic and Radiometric maps of NAGMP (Source:GSI)
8. Justification for taking up G3 level Exploration	In view of the outcome of Research Project of FS: 2023-24, and reconnaissance survey (G4 stage investigation) during FS: 2025-26, and very encouraging analytical results for REE, V and P ₂ O ₅ , it is proposed to take up seamless G3 stage preliminary exploration for REE and associated mineralisation in Chintalacheruvu block covering an area of 3 sq. km in parts of Toposheet No. 57 M/09 in Palnadu district during FS: 2026-27.



PROPOSAL FOR PRELIMINARY EXPLORATION FOR REE AND ASSOCIATED MINERALIZATION IN CARBONATITE-PHOSCORITE IN CHINTALACHERUVU BLOCK, PALNADU DISTRICT, ANDHRA PRADESH

1.1.0 INTRODUCTION

- 1.1.1 Rare Earth Elements (REEs) comprise 17 metals, including the 15 lanthanides (La–Lu), along with scandium (Sc) and yttrium (Y), which share similar properties. They are known for high density, melting point, conductivity, and thermal conductance. Global demand for REEs has surged over the past two decades due to their essential role in advanced technologies, environmental applications, and economic sectors.
- 1.1.2 The lanthanides are grouped into: Light REEs (LREEs): La, Ce, Pr, Nd, Pm, Sm, Eu and Heavy REEs (HREEs): Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu. Over 245 REE-bearing minerals exist, primarily as carbonates, oxides, silicates, and phosphates. REEs often occur as trace elements and are recoverable as by-products from phosphate rocks and uranium leaching.
- 1.1.3 In India, monazite is the main source of REEs and thorium. Key REE minerals include: Bastnaesite: fluoro-carbonate in carbonatites, Xenotime: yttrium phosphate in placer deposits, Loparite: in alkaline igneous rocks, Monazite: REE-Th phosphate. Economic REE deposits are found in specific geologic settings such as carbonatites, peralkaline igneous systems, IOCG deposits, xenotime-monazite in gneiss, ion-adsorption clays, and placer deposits.

2.1.0 BACKGROUND INFORMATION

- 2.1.1 Rare earth elements (REEs) and rare-metals (RM) such as Li, Be, Nb and Ta are strategic metals having critical applications in modern technology. The REE-RM bearing minerals do not occur concentrated in geological environments unlike those of basemetals or iron ores. The REE-RM bearing minerals are commonly present in carbonatites, syenites, evolved granites of alkaline affinity and pegmatites. Such alkaline suite of rocks is generally found in rift related tectonic settings
- 2.1.2 Deformed alkaline rocks and carbonatites (DARC) are commonly associated with the ancient suture zones at the margin of cratons. These rocks are the primary host rocks for REE and RM mineralization. The contact zone between the Eastern Ghats Mobile Belt (EGMB) and Eastern Dharwar Craton (EDC) is one such geotectonic setting, where carbonatites and other alkaline rocks have been reported (Paul et al., 2020; Leelanandam et al., 2006; Nag et al., 1984; Upadhyay et al., 2006).

2.1.3 In the state of Andhra Pradesh, a few carbonatite bodies have been reported along the contact between EGMB and Udayagiri-Vinjamuru tectonic domains of Nellore Schist Belt (NSB). Chintalacheruvu carbonatite is one among them. This body was first reported by Bhaskar and Thimmaiah (1997). One G-4 stage exploration in Chintalacheruvu area has recently been carried out mainly based on the anomalous values of TREE, upto 7953 ppm within the carbonatite/phoscorite bodies near Chintalacheruvu village within T.S. 57M/09 during Research project of FS 2023-24 by Renjith et al. The analyses of surface and sub-surface samples received during G4 investigation also indicate towards the REE potential of the area with maximum reported REE values upto 7240 ppm in Phoscorite and 7386 ppm in carbonatite.

2.1.4 Therefore, GSI has prepared Preliminary Exploration (G3) proposal of Chintalacheruvu block, with channel sampling, 2600m drilling in 23 boreholes (20 first level and 03 second level), has been proposed for technical evaluation of NMET.

3.1.0 LOCATION AND ACCESSIBILITY

3.1.1 The study area falls under the Toposheet No. 57M/09. The investigation area is located to 8 km North East of Kurichedu town falling in Palnadu district towards the north and Prakasam district to the south. Chintalacheruvu village is located in Nuzendla Mandal of Palnadu district (formerly part of Guntur district) in Andhra Pradesh, India. It is situated approximately 15 kilometers southwest of Vinukonda, the nearest town, which serves as the primary hub for economic and administrative activities in the region. The area is approachable by NH-16 (Vijaywada-Ongole) and SH-51 (Vinukonda-Darsi-Podili) roadways. The area is accessible via local roads connecting it to Vinukonda and other neighboring villages. Public bus services are available within the village, and private bus services operate within a 5 to 10 km radius. Besides these, there are several metalled and unmetalled road and tracks which provide connectivity to the interior villages. The nearest railway station is located more than 10 km away, in Vinukonda, providing connectivity to broader regions.

CARDINAL POINT COORDINATE OF CHINTALACHERUVU BLOCK, DISTRICT: PALNADU, ANDHRA PRADESH (G-3 LEVEL)

Cardinal Points	Easting(m)	Northing(m)	Latitude	Longitude
A	351,700	1,764,440	15.96348°N	79.61213 °E
B	352,520	1,764,448	15.96355 °N	79.62048 °E
C	352,635	1,762,636	15.94716 °N	79.62065 °E
D	351,950	1,760,962	15.93201 °N	79.61464 °E
E	351,100	1,760,958	15.93198 °N	79.60707 °E
F	351,670	1,762,678	15.94755 °N	79.61223 °E

4.1.0 PHYSIOGRAPHY, DRAINAGE AND CLIMATE

- 4.1.1 Physiographically, the area corresponding to T.S. No. 57M/9 consists of gently undulating to nearly flat terrain, punctuated by several linear ridges trending northeast–southwest and east–west, along with some circular hill formations. The landscape is predominantly a pediplain, with hill features concentrated in the south-central and northwestern parts of the area. Notable nearby hills include Viru Konda, Mangametta Konda, Yerra Konda, Singaraya Konda, and Tora Konda. The highest elevation reaches 437 meters above mean sea level (MSL) on a hill located approximately 2.5 km north-northeast of Tora Konda, while the lowest point is around 76 meters above MSL.
- 4.1.2 The region lies within the Krishna River basin, shaping the local drainage patterns. Rainfall from both the southwest and northeast monsoons feeds seasonal streams and water bodies. The area is primarily drained by the Nagarjunasagar Right Canal (Jawahar Canal), with the Chilakaleru River, flowing eastward, draining the eastern portion. Smaller third-order feeder streams (nalas) manage drainage across the rest of the area, typically flowing south and southeast, though some in the north flow eastward. The drainage pattern ranges from dendritic to sub-dendritic, and the numerous small streams are seasonal, often drying up for much of the year. Key surface water sources include rivers, streams, canals, and tanks, which are essential for both domestic use and irrigation, although many of them become dry during the summer months.
- 4.1.3 The study area is characterized by a subtropical climate, marked by distinct seasonal variations. Winters are relatively cool, with temperatures dropping to as low as 5°C, while summers can be hot and semi-dry, reaching up to 46°C. The region experiences an average annual rainfall of about 1560 mm, with the monsoon active from July to September, contributing significantly to the precipitation.

5.1.0 PREVIOUS WORK

- 5.1.1 In 1881, King explored the Nellore plains and introduced the term “Schistose Series” to describe the rock formations within the Nellore mica belt, interpreting them as part of the ancient Archaean Crystalline complex. Later, in 1956, Roy conducted detailed mapping of the entire Nellore Schist Belt (NSB) at a scale of 1:63,360 and reaffirmed its Archaean classification. Thomas Holland, in his 1902 monograph on India’s mica resources, briefly acknowledged the mica deposits in the Nellore region.
- 5.1.2 Systematic geological surveys by Rao (1963), Rao and Narahari (1971–72), and Vasudevan and Rao (1971, 1975) delineated mica schist, chlorite schist, crystalline limestone, and ferruginous quartzite, assigning them to the Dharwar Supergroup. Subsequent work by Prasada Rao and Ahluwalia (1973–74) north of Kanigiri identified high-grade pelitic (garnet–biotite schist with staurolite/kyanite/andalusite), psammitic (quartzite, quartz–sericite schist), and mafic (garnetiferous amphibolite, hornblende schist) assemblages, along with quartz–chlorite–sericite schist, crystalline limestone bands, and migmatized biotite–hornblende schist and amphibolite, all attributed to the Dharwarian sequence, with associated intrusives of granite gneiss, pink granite, hornblende granite, and gabbro.

- 5.1.3 Leelanandam and Krishna Reddy (1981) investigated the petrology of nepheline syenite in the Uppalapadu area. A geochemical analysis by Gupta et al. (1984) dated the Kanigiri granitoids to roughly 1000 million years based on Rb-Sr isotopic data. Several alkaline plutonic complexes in the northern NSB—west of the boundary between the Vinjamuru Group and Eastern Ghats Granulite Belt (EGGB)—are commonly referred to as the Podili-Alkaline-Kanigiri Province (PAKP), a term popularized by Leelanandam (1989). This tract features both mafic (gabbro-anorthosite) and felsic (syenite, alkali granite) intrusions, some of which, like the Elchuru syenite, are emplaced within Vinjamuru lithologies. Others, including the plutons at Podili and Kanigiri, directly cut across the contact between the Vinjamuru and Udayagiri domains.
- 5.1.4 Leelanandam and Krishna Reddy (1981) studied nepheline syenite at Uppalapadu, and Gupta et al. (1984) dated the Kanigiri granitoids to ~1000 Ma (Rb–Sr). Alkaline plutons in the northern Nellore Schist Belt, west of the Vinjamuru Group–Eastern Ghats Granulite Belt contact, were grouped as the Podili Alkaline Kanigiri Province, comprising mafic and felsic intrusions that locally cut across regional lithological boundaries.
- 5.1.5 Leelanandam (1990) formally recognized the Podili–Kanigiri tract as an alkaline province within the Nellore Schist Belt. Srinivasan and Roop Kumar (1995) proposed a revised stratigraphic framework based on geochemical studies, identifying a ring complex and relating associated volcanics to ring-related magmatism. Kesari and Sumanth (1999) further interpreted the belt as a metamorphosed volcano-sedimentary sequence subsequently intruded by younger granite and gabbro bodies.
- 5.1.6 Shukla and Orroj carried out G4 stage exploration in the south of the proposed area covering parts of 57M/09 for REE-RM during FS: 2023-24 (Fig: 5). Chemical results so far received, recorded is 2831.89 to 841.79 ppm TREE (05 nos BRS > 2000 ppm). Highest value recorded over Hornblende biotite granite near Mottupalle. Niobium (Nb) values range 743.92 ppm to 46.33 ppm (12 nos BRS > 200 ppm). Out of 30 nos of soil sample (SS) received so far from chemical division, TREE values range from 2773.70 to 680.71 ppm (SS). 14 nos SS shows values >1500 ppm. High values are observed over hornblende biotite granite north of Chalivendra. Nb shows value > 200 ppm upto 376.05 ppm (SS) over Hornblende biotite granite near north of Chalivendra.
- 5.1.7 During FS: 2023-25, in the Research Project taken up by GSI, Southern Region to identify potential zones of REE mineralisation in the contact region between EGMB-NSB-EDC, Renjith et al. have studied the Chintalacheruvu carbonatite among few other such bodies. They have brought out an outcrop map as well as identified lithological variation in the carbonatite. According to them, the carbonatite and associated rocks occur as a thick sheet-like body. This is a north-south trending dyke-like body having more than 4 km strike length from north of Chintalacheruvu in the north to Veerayapalem in the south.
- 5.1.8 During FS:2025-26 the G4 item taken by SU: AP, SR to Reconnaissance survey for REE & RM in carbonatite and associated alkaline rocks around Chintalacheruvu area in Palnadu and Prakasam District of Andhra Pradesh by Chatterjee, P. & Murthy, KSN. The very encouraging analytical results received for REE, V and P2O5, it is proposed to take up seamless G3 stage preliminary exploration for REE and associated mineralisation.

6.1.0 GEOLOGY OF THE AREA AND COMMON ROCK TYPES

- 6.1.1 The investigation area falls within toposheet 57M/09 and comprises rocks belonging to PGC of Archaean to Paleoproterozoic age, Nallamalai Group of Cudappah sediments and Udaigiri Group of Nellore Schist Belt (NSB) of Mesoproterozoic age with presence of rift-related alkaline bodies.
- 6.1.2 Nallamalai Group of rocks with low angle thrust with underlying sheared granite is represented by Cumbum Formation. They are exposed to northwest over 80 sq km area. Cumbum Formation comprises a basically argillaceous unit with intercalations of quartzite and dolomite. Argillaceous unit is essentially shale/phyllite in this part. These are intruded by sub aerial basaltic flows and shallow sills, occurring in an arcuate pattern in parallelism with the configuration of the basin.
- 6.1.3 Udaigiri Group of younger suite of NSB rocks are represented by volcanics & pyroclastics in southeastern part. The volcanic rocks mainly composed of tuffs with conformable bands of basalt, rhyolite and lamprophyres. Quartz chlorite schist, Quartzite and Basic sills and are exposed to South Central part. Younger granites of alkalic affinity exposed is mostly biotite granite.
- 6.1.4 Sheared granite occupies most of the area towards southeastern extremity of the proposed block. Shearing is evidenced by quartz ribbons, asymmetrical feldspars porphyroclasts, C & S planes. Granite mylonite is also observed at some places. The effect of mylonitisation is increased towards west which leads to phyllonite near the thrust contact between sheared granite and meta-sediments of Nallamalai Group. Shear zone trends in NE-SW direction. Sheared granite is medium grained in the southeastern side where as it is fine grained (Phyllonite) in the western side
- 6.1.5 Gabbro of Chimakurthy complex is noticed in the southernmost part of topo sheet. This is coarse grained, greenish black to dark in colour with bronze coloured mica. Structurally the area has undergone deformation. Folding and faulting are observed in meta-sediments as well as in the quartzo feldspathic veins intruded into granitic rocks. Antiformal and synformal folding are observed in schist belt rocks. Foliation planes are commonly observed in PGC, sheared granite, schist belt rocks and also in meta sediments of Nallamalai Group.
- 6.1.6 Carbonatite and associated rocks occur as thick dyke-like or sheet-like body, north-south trending body extending for about 3 km from north of Chintalacheruvu in the north to W. Veerayapalem in the south. The intrusion of carbonatite here occurred in two stages. The earlier phase is coarse- to very coarse-grained rock comprising of calcite along with varying proportions of magnetite and apatite. The later phase is manifested as medium- to fine-grained calcite rich rock co-relatable to diatreme facies. Phoscorite is ferruginised and brecciated, composed mainly of magnetite and apatite with clinopyroxene and olivine, showing textural evidence of early crystallization of magnetite. Carbonatite comprises coarse-grained magnetite–apatite–calcite and a later fine-grained calcite-rich phase. The carbonatite body contains profuse magnetite, acicular calcites and apatites, fluorite, sulphides, ankerite, siderite and nepheline.
- 6.1.7 Locally, the overall area shows foliation varying from NW-SE to NE-SW with moderate to steep easterly dips. The phoscorite body towards the northern part of DM area shows primary magmatic foliation with majorly NW-SE trend and moderately steep dip amounts. Sheared contact between carbonatite/Phoscorite and PGC granite gneiss is evident on the northwestern part near

Chennakesava temple where L dominant L-S tectonite granite gneiss has been reported by the current workers. As one goes from North to South Carbonatite body is gently swerving from NNW-SSE to NE-SW with moderate easterly dips having dimension of 3.2 Km in length and width varying from 50 meters to 250 meters.

7.1.0 OBJECTIVE OF THE PROPOSED EXPLORATION PROGRAMME

The present exploration programme has been formulated to fulfill the following objectives:

1. To establish sub-surface continuity of the carbonatite and phoscorite.
2. To estimate the resource of REE and associated mineralization

8.1.0 PROPOSED SCHEME OF EXPLORATION

- 8.1.1 In accordance with the objectives set for G-3 level exploration in Chintalacheruvu Block, work component comprises of detailed mapping, systematic channel sampling & trenching, systematic drilling, logging, core sampling, and other associated geological and laboratory work will be performed. The exploration shall be carried out as per Mineral (Evidence & Mineral Contents) Rule -2015, Mineral Auction Rule-2015 and MMDR Amendment Act-2015. The details of different activities to be carried out are presented in subsequent paragraphs.
- 8.1.2 **Detailed Mapping:** An area of 1.7 sq. km was already covered by detailed mapping on 1:2000 scale during FS: 2025-26. Therefore, detailed mapping (1:2000 scale) of the remaining 1.3 sq. km will be carried out during FS: 2026-27. Different lithological units and their relationship will be determined based on field criteria. The mapping will also focus to identify the fenitisation zone of the country rock, which will serve as the basis for planning the drilling.
- 8.1.3 **Trenching:** Trenching of around 100 cubic meter will be done to expose mineralized zones within carbonatite/phoscorite bodies, across the strike of previously delineated mineralized zones.
- 8.1.4 **Channel/BRS sampling:** Systematic channel/Bed rock sampling will be performed across the identified possible mineralised zones in surface and exposed zones in trenches. Samples will be collected after tearing off the weathered part. Around 2 Kg of rock sample will be collected for each sample. The interval of the samples from a channel will be judicially calculated by the field geologist, with strong justification. In this way, 50 nos. of samples will be collected.
- 8.1.5 **Sample processing and chemical analysis:** Each of the collected 50 samples will be entirely powdered to -80 mesh size. Following the initial crushing, representative samples of around 400 grams are drawn through successive reduction using the coning and quartering method. All the samples will be analysed for major oxides, REE and other potential elements.
- 8.1.6 **Topographic Survey:** The triangulation network would be laid down in the block area with the help of DGPS & Total Station and the same would be tied up with the GTS triangulation station present in the nearby area. Topographical survey will be carried out in the block area in which G-3 stage of exploration is to be carried out. All the surface features will be picked up and marked on a map on 1: 2000 scale. The entire area will be covered by doing contouring in 1m interval. The

block boundary will be surveyed by DGPS & total station in WGS-84 Datum for demarcation of Block Boundary points and ancillary area to facilitate the State Governments for auctioning of the Block.

- 8.1.7 **Core Drilling:** The present exploration scheme is prepared by proposing 20nos. first level inclined boreholes with 60m vertical depth, 03nos. of second level inclined boreholes at 120m vertical depth based on the geological mapping and channel sampling. The second level boreholes will only be taken up after mineralization is confirmed in the first level boreholes.
- 8.1.8 **Core Logging:** Geological core logging will be carried out systematically by recording carefully the minute details and physical/lithological characters of the rock formations including colour, core recovery, grain size, weathered zone, texture, banding, mineralogical composition, micro-structural/structural details, shear zones, fracture system, lithological variations along with visual estimate in respect of sulphide mineralization in the core.
- 8.1.9 **Core sampling procedure and Chemical analysis:** For preparation of samples, the borehole core will be split into two equal halves by using core splitter. Again half will be divided into two halves. 1/4th of total core will be powdered to (-) 80 mesh size and the remaining core will be kept for future studies. Around 700 nos. of samples will be drawn from the potential part of the core for analysis of REE and other associated elements. Following the initial crushing, representative samples of around 400 grams are drawn through successive reduction using the coning and quartering method.
- 8.1.10 **Petrography/Ore Microscopy:** 20 core samples from the mineralized zones in boreholes will be analyzed to identify ore mineral assemblages at various levels of intersection. These samples will be subjected to petrography studies.
- 8.1.7 **Determination of Specific gravity:** To calculate the resource, volume of the ore body needs to be multiplied with a density factor. Hence, specific gravity will be determined from 10 nos. of core samples selected from the mineralized zones at various intersections.

9.1.0 QUANTUM OF WORK

- 9.1.1 The following quantum of work has been proposed for G3 level exploration REE and associated minerals in Chintalacheruvu block:

Nature of work	Total workload envisaged	a) Expected year & month of completion b) Circulation of final report
Detailed Mapping (1:2,000 scale) (sq. km)	3.0	a) March, 2027
Drilling (m)	2600	b) June, 2027
Pitting/Trenching (cu. m)	100	
Geophysical Borehole Logging (m)	1300	
Sampling (Nos.)		
Core Sample	700	

BRS (Chip/Channel)	50	
PTS	100	
PCS	10	
Heavy minerals	05	
PS**	20	
XRD~	05	
SEM^	05	
EPMA**	05	
Geotechnical studies	10	
Chemical analysis*		
a) REE, Y, Nb, Ta, Be, Ge, Sn, U, Th, Hf, Zr, Rb, Sr, Ba, Sc, V	850	
b) P ₂ O ₅ , Fe ₂ O ₃ , MgO, CaO	50	
b) Major, Trace and REE	10	
c) Check samples	40	

10.1.0 TIME SCHEDULE AND COST ESTIMATES

10.1.1 The proposed exploration programme is planned in such a way that all the activities like, camp setting, mapping, trenching, channel sampling, drilling, logging, core sampling and associated geological work and laboratory work will be completed within 12 months' time. Report writing will take 4 months' time with 2 months overlapping with laboratory analysis. Thus, the total duration of the project for completion of the above exploration will be 18 months from the date of commencement of the project. Review will be done after 9 months.

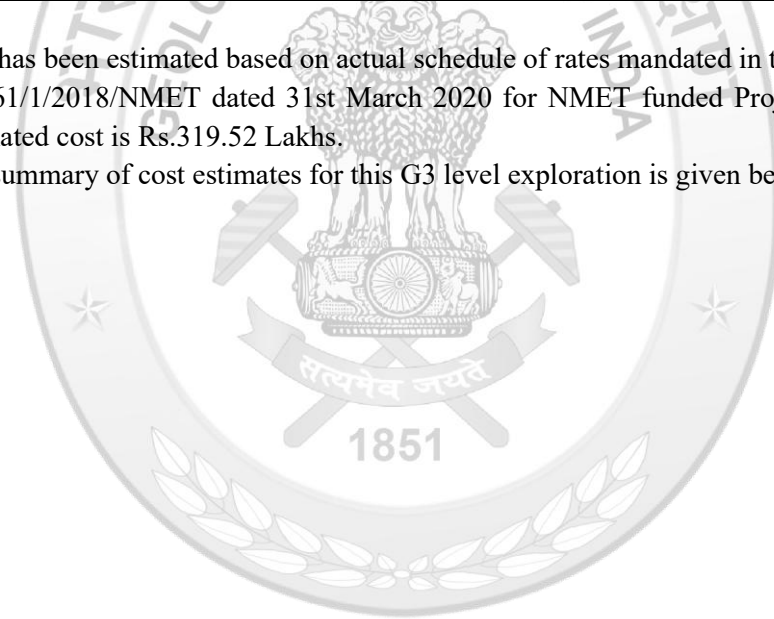
SCHEDULED TIME FOR G-3 LEVEL EXPLORATION FOR REE AND ASSOCIATED ELEMENTS IN CHINTALACHERUVU BLOCK, DISTRICT- PALNADU, ANDHRA PRADESH													
S.No	Activity	MONTHS											
		1	2	3	4	5	6	7	8	9	10	11	12
1	Camp setting	■											
2	Geological Mapping (1:2000)		■	■	■	■	■						
3	Channel sampling		■	■	■	■							
4	Trenching		■	■	■	■							
5	Laboratory studies								■	■	■	■	■
6	Drilling		■	■	■	■	■	■	■	■			
7	Geologist days (Field)	■	■	■	■	■	■	■	■	■			
8	Core sampling		■	■	■	■	■	■	■	■			
9	Camp winding									■			
10	Geologist days (HQ)										■	■	■
11	Report writing / Peer review											■	■

* Commencement of project will be reckoned from the day the exploration acreage is available along with all statutory clearances

*Time loss on account of monsoon/agricultural activity/forest clearance/ local law & order problems will be addition to above time line.

10.1.2 Cost has been estimated based on actual schedule of rates mandated in the circular OM No. 61/1/2018/NMET dated 31st March 2020 for NMET funded Projects. The total estimated cost is Rs.319.52 Lakhs.

The summary of cost estimates for this G3 level exploration is given below:



Summary of Cost Estimates

	Item	Total Estimated Cost (Rs.)	Remarks
1	Geological work	₹ 0.00	By GSI
2	Excavation	₹ 0.00	By GSI
3	Drilling and Related works	₹ 2,60,00,000.00	By NMEDT
4	Ground Geophysical Survey	₹ 0.00	By GSI
5	Laboratory studies	₹ 0.00	By GSI
6	Geologist at HQ	₹ 0.00	By GSI
7	Survey work	₹ 10,77,720.00	By NMEDT
8	Proposal Preparation	₹ 0.00	By GSI
9	Exploration Report Preparation	₹ 0.00	By GSI
#	Peer review charges	₹ 0.00	By GSI
#	3D Ore Modeling	₹ 0.00	By GSI
#	Ore Beneficiation	₹ 0.00	By GSI
	Sub Total (1 to 12)	₹ 2,70,77,720.00	
	GST 18%	₹ 48,73,989.60	
	Total:	₹ 3,19,51,709.60	

Enclosures:

- Location Maps of the block
- Regional Geological maps showing block
- Detailed Geological map along with proposed borehole location Map
- Large scale map of the area
- Cost Sheet

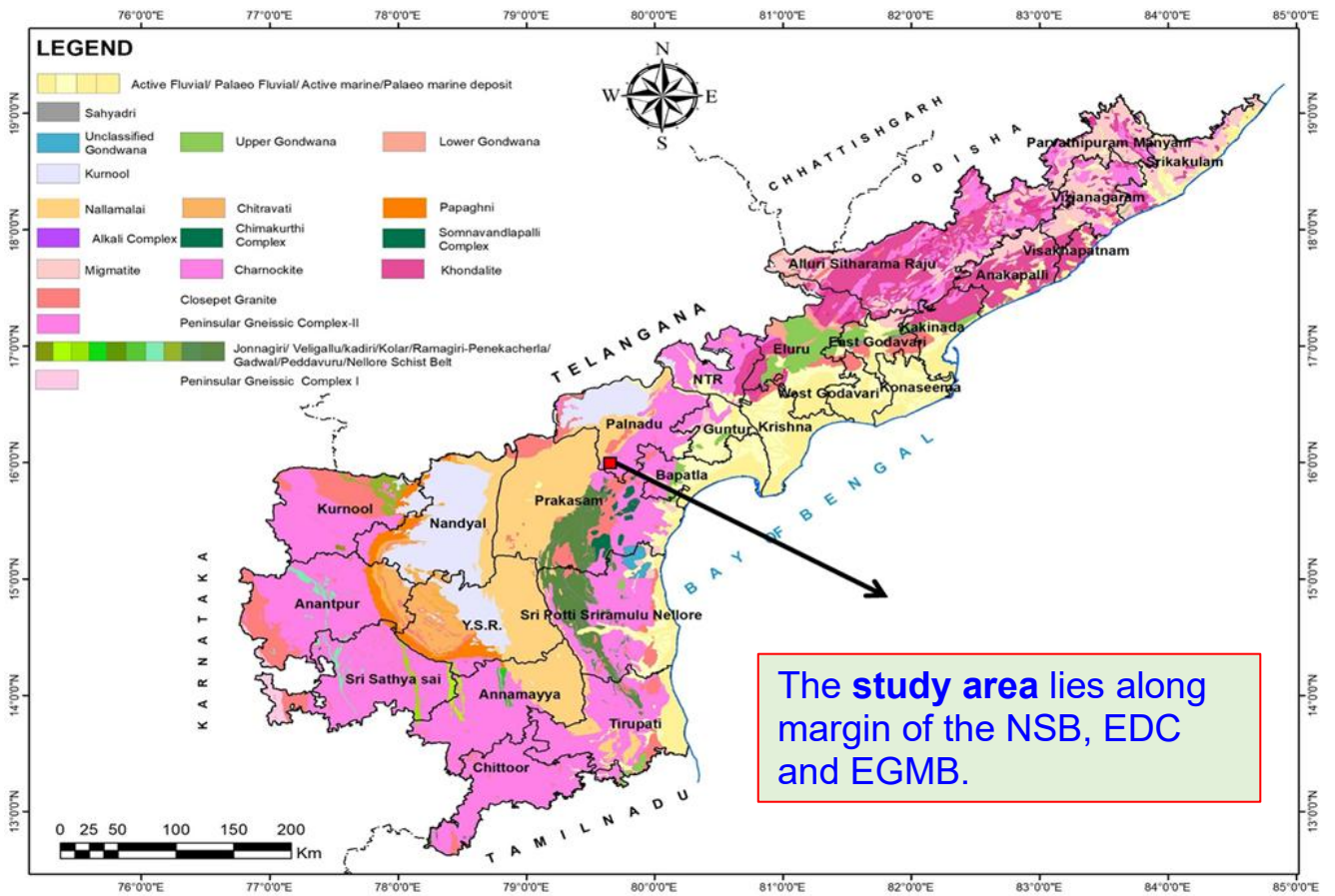
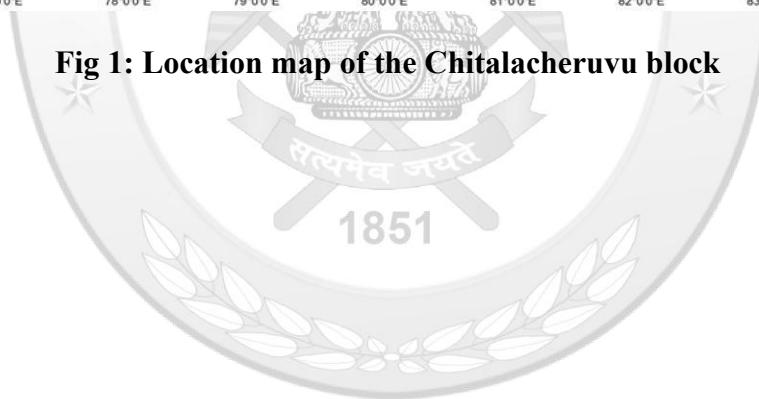


Fig 1: Location map of the Chitalacheruvu block



Proposed G3 Block on OSM

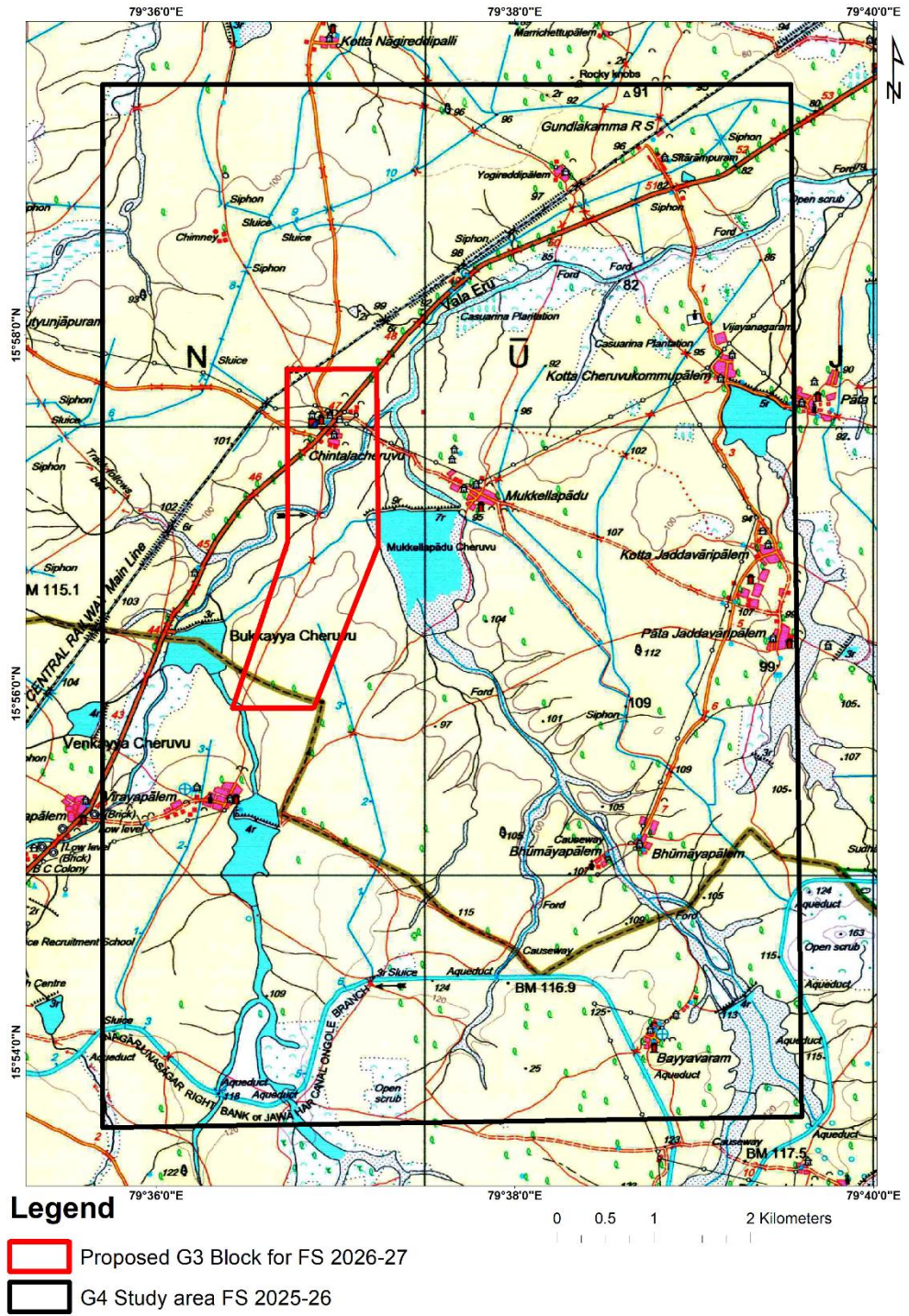


Fig. 3: Proposed Chintalacheruvu G3 block for FS 2026-27 along with ongoing LSM G4 study area for FS 2025-26 on OSM

Detailed Geological map (Interpreted) of Chintalacheruvu Block in Prakasam and Palnadu District of Andhra Pradesh (Scale 1: 2000)

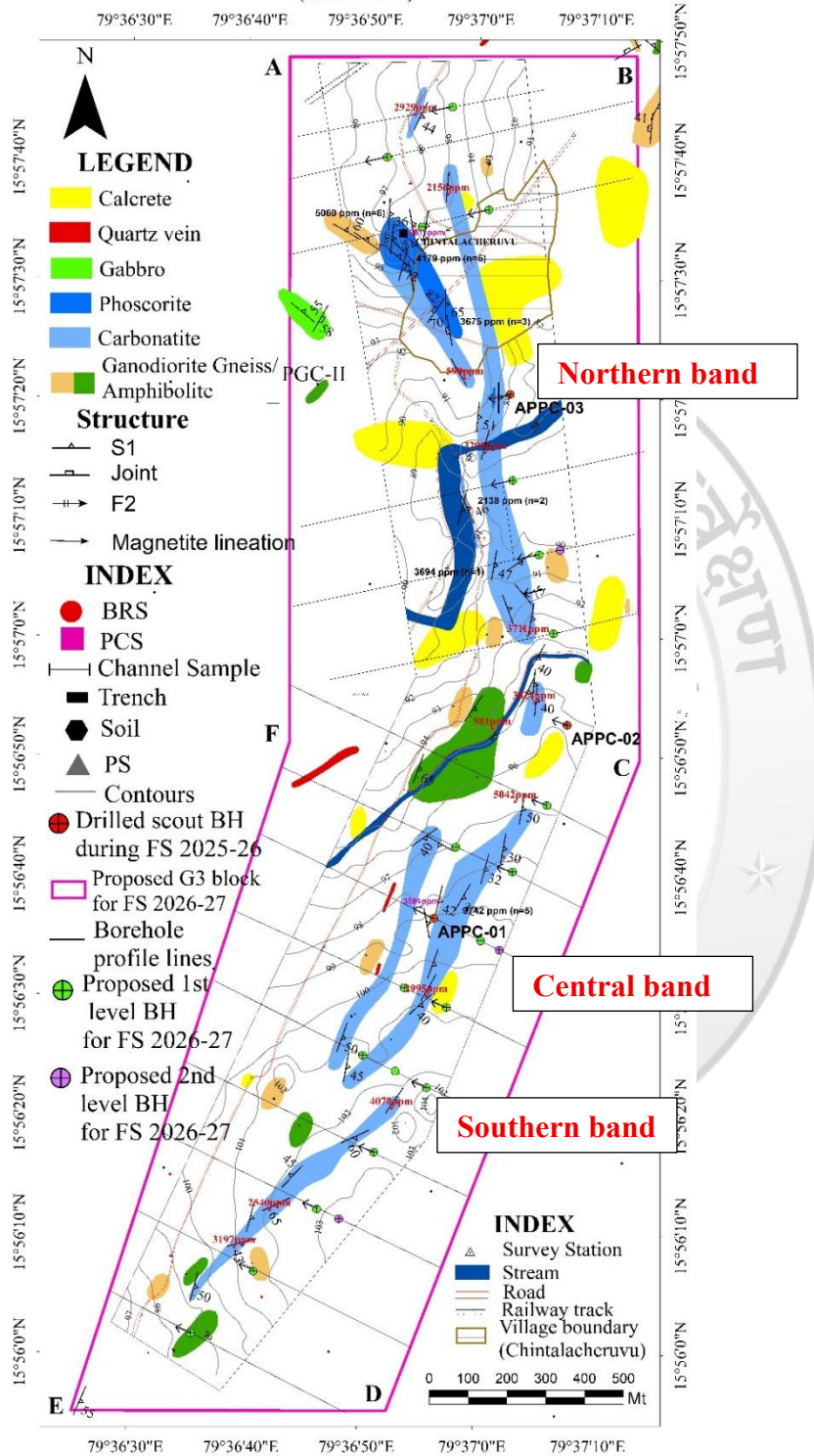


Fig. 4: Detailed Geological (Interpreted) map of Chintalacheruvu area along with G3 block and proposed borehole locations for FS 2026-27

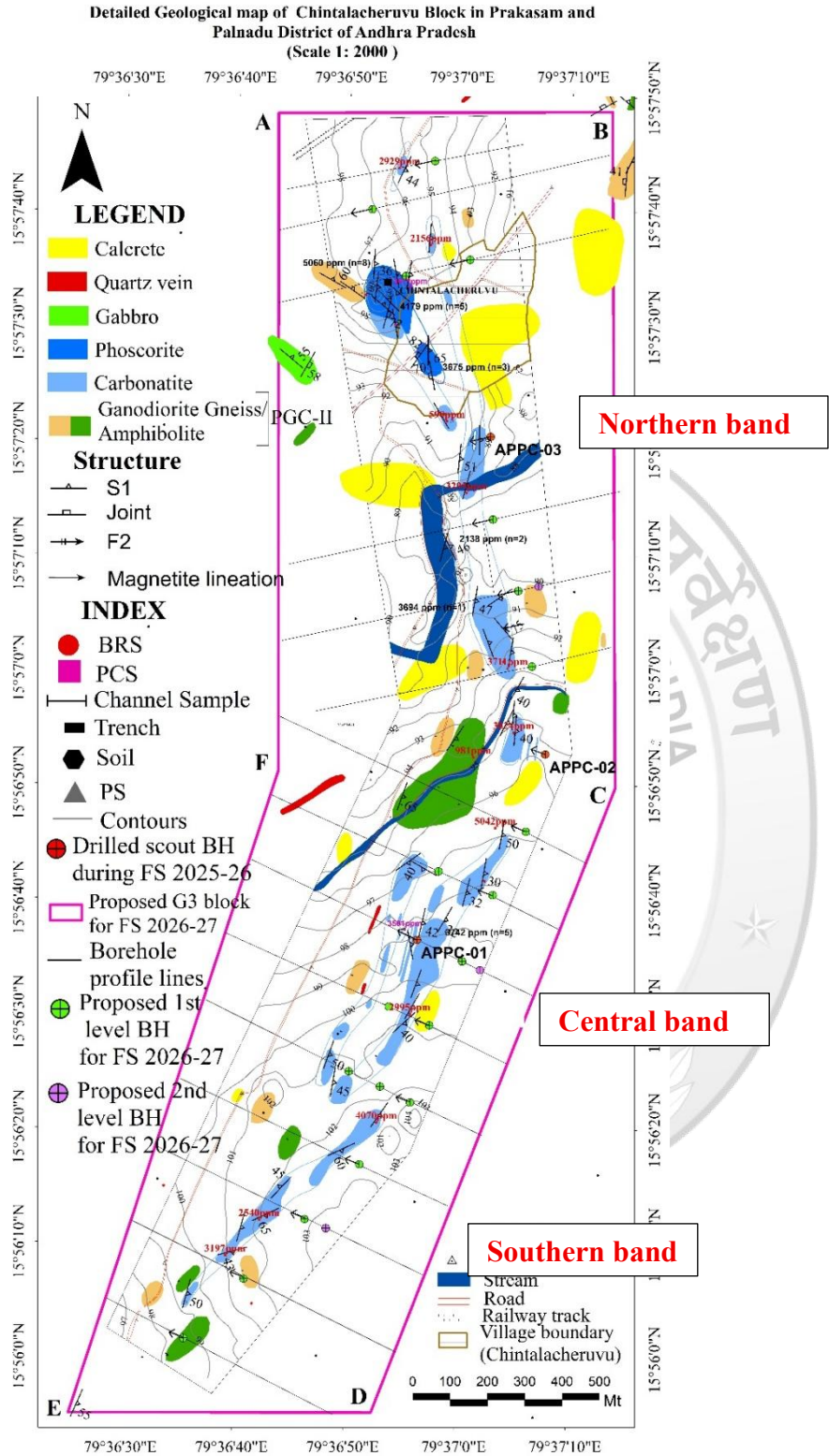


Fig. 5: Detailed Geological (Outcrop) map of Chintalacheruvu area along with G3 block and proposed borehole locations for FS 2026-27

ESTIMATED COST FOR G-3 LEVEL EXPLORATION OF REE AND ASSOCIATED ELEMENTS IN CHINTALACHERUVU BLOCK, DISTRICT- PALNADU, ANDHRA PRADESH
Total Area - 3 Sq. Km; Drilling- 2600m, Completion Time - 12 Months, Review: after 9 months

Sl. No.	Item of Work	Unit	Rates as per NMET SoC 2020-21		Total Cost of the Project		Remarks
			SoC- Item- S. No.	Rates as per SoC	Qty.	Total Amount (Rs)	
1.0	Geology & Survey						
1.1	Geologist (Field) man days for core logging/mapping/ Sampling/topographic survey	days	As per govt rates	11000	250	0	BY GSI
1.2	Unskilled Labour (Field) (2 workers per geologist)	per worker	1	615	480	0	BY GSI
1.3	Survey Party Days for topographic survey	days	1.3.1	10500	30	315000	BY NMEDT
1.4	Unskilled Labour (Survey) (4 workers per Surveyor)	Days	1	615	120	0	BY GSI
1.5	Sampling man days - Sampler (core sample,) Labour charge not included	day	1.5.2	5100	100	0	BY GSI
1.6	4 labours/ party (Rs 431/day/labour) (As per rates of Central Labour Commissioner) for sampling work	day	5.7	615	240	0	BY GSI
1.7	Determination of co-ordinates and Reduced Level (RL) of boreholes by DGPS including boundary corner points.	Nos.	1.3.2	24000	29	6,96,000	23 boreholes and 6 boundary points BY NMEDT
2.0	Trenching						
2.1	Trenching	Cu.m	2.1.1	3300	100	0	BY GSI
3.0	Drilling						
3.1	Drilling -Hard rock (up to 300m)	m	2.2.1.1d	10,000	2600	2,60,00,000/-	BY NMEDT
3.2	Borehole deviation survey	m	2.2.1.1e	330	450	0	
3.3	Land / Crop Compansation (in case the BH falls in agricultural Land)	per BH	5.6	30,000	23	0	
3.4	Construction of concrete Pillar (12"x12"x30")	per borehole	2.2.7a	2000	23	0	
3.5	Miscellaneous Charges (Transportation of Drilling Rig, accommodation for Drilling Camp, Camp setting and winding, construction of approach road and Drill core preservation)	Lumsum	2.2.9.4	For Drilling cost >2 Cr: 10 % of the Drilling Cost with a maximum ceiling of Rs.25 Lkh		0	
3.6	Drill Core Preservation- One complete BH plus mineralized cores of all the BHs of the block/ prospect to be preserved in GI Core boxes and subsequently transported to the notified core repository.	per m	X	₹ 1,590	850	0	
3.7	GSI Drilling camp inspection	day	As per govt rates	6699	5	0	BY GSI
3.8	Borehole Geophysical Logging	per m	20 BH of 100m each 3 BH of 200m each	622.25	2600	0	BY GSI
4.0	Other						

4.1	Primary (Channel, BRS, PT, Core) + Check Sample(10% of total) for REE and associated minerals	per sample	4.1.15	7400	940	0	BY GSI
4.2	PCS samples-Major oxides (WD-XRF)- oxides and traces 24 elements	per sample	4.1.1a	4200	10		BY GSI
4.3	Ore microscopy	per sample	4.3.4	2800	10	0	BY GSI
4.4	Preparation of polished thin section	per sample	4.3.2	1549	10	0	BY GSI
4.5	Specific gravity determination	per sample	4.8.1	1605	10	0	BY GSI
4.6	SEM	Per sample	4.5.2a	4900	5	0	BY GSI
4.7	EPMA per hour	Per sample	4.4.1	10500	10	0	BY GSI
5							
5.0	Geologist man days (1 No.) for geological map & Report (HQ)	days	1.2	9000	90	0	BY GSI
Total (1 to 5)						2,70,77,720	
5.0	Preparation of Exploration Proposal	Nos	5.1/28th EC	2% of the cost or Rs. 5.0 lakh - whichever is lower	1	0	BY GSI
6.0	Geological Report Preparation	Nos	5.2	3% of the total (1 to 5)	1	0	BY GSI
7.0	Report Peer Review Charges	lumpsum	As per EC decision		1	0	
Total Estimated Cost without GST						2,70,77,720	
Provision for GST (18%)						48,73,989.60	
Total Estimated Cost with GST						3,19,51,709.60	
Say Rs. in Lakhs						319.52	
Note -							
1. If any part of the project is outsourced, the amount will be reimbursed as per the Paragraph 3 of NMET SoC and Item no. 6 of NMET SoC. In case of execution of the project by EA on its own, a Certificate regarding non outsourcing of any component/project is required.							