

**PROPOSAL FOR G-3 STAGE EXPLORATION FOR ONE LIMESTONE BLOCK IN
VEERAPPAGUDEM CLUSTER -4, DAMERACHERLA MANDAL, NALGONDA DISTRICT,
TELANGANA.**

(For NMET)

(Industrial Mineral)

By

**Telangana Mineral Development Corporation Limited
Hyderabad**

Place:

Date:

Summary of the Block for G3 stage exploration

	Features	Details
1.	Block ID	Veerappagudem Block
2.	Current Exploration Agency	TGMDC Ltd.,
3.	Previous Exploration Agency	TGMDC Ltd.,
4.	G4 stage Geological Report (Previous stage Geological Report)	G-4 Stage report is completed.
5.	Commodity	Limestone
6.	Mineral Belt/ Basin	Palnad sub Basin
7.	Completion Period with entire Time schedule to complete the project	10 months
8.	Objectives	1. To carry out Topographical and Geological Mapping on 1:4000 scale. 2. To Assess the quantity & quality of cement grade limestone in the blocks up to 50m vertical depth 3. To Delineate block boundary with the help of DGPS
9.	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	Exploration to be carried out by officers of TGMDC with outsourcing of survey, drilling & chemical analysis components. Outsourcing of components for identifying agencies will be done through e-tendering.
10.	Name/ Number of Geoscientists	02
11.	Expected Field days (Geology, Geophysics, Surveyor)	Geology = 240 days (Geological mapping, core logging & sampling) Surveyor = 30 days (Establishing block coordinates, Topographic mapping, & locating boreholes)
12.	Location	
	Latitude	16°41'46.06"N (Block Co-ordinate given inside)
	Longitude	79°37'25.07"E
	Villages	Veerappagudem
	Tehsil/ Taluk	Dameracherla
	District	Nalgonda
	State	Telangana
13.	Area (hectares/ square kilometers)	
	Block Name	Veerappagudem Block
	Block Area	4.70 sq.km
	Forest Area	Nil
	Government Land Area	Nil
	Private Land Area	4.70 sq.km
14	Accessibility	
	Nearest Rail Head	Miryalaguda
	Road	Dachepally to Miryalaguda
	Airport	Hyderabad
15	Hydrography	
	Local Surface Drainage Pattern (Channels)	A few nalas originates in the cluster and joins the Krishna River in the south.
	Rivers/ Streams	Krishna river
16	Climate	The area experiences tropical wet and dry climate.
	Mean Annual Rainfall	The average annual rainfall in the area is 821 mm.
	Temperatures (December) (Minimum) Temperatures (June) (Maximum)	In winter the temperature comes down to 9-11° c during December – January The temperature often exceeds 45° c during May- June

17	Topography	
	Toposheet Number	56P/10
	Morphology of the Area	The proposed area is part of Palnad sub-Basin
18	Availability of baseline geoscience data	
	Geological Map (1:50K/ 25K)	Available
	Geochemical Map	Available
	Geophysical Map (Aero-geophysical, Ground geophysical)	NA
19	Justification for taking up G-3 stage Exploration.	<p>TGMDC Ltd carried Reconnaissance stage (G-4) exploration for limestone in the Dameracherla Cluster (Cluster-4) in Wazigudem/ Irkigudem village in Dameracherla Mandal of Nalgonda district in Telangana state was carried out by officers of TGMDC Ltd during 2018-2019 with an objective to delineate cement grade limestone area in the cluster for further exploration work. Cluster is irregular polygonal with an area of 18.12 Sq km. Based on the chemical analysis results of surface and subsurface samples cement grade potential area were delineated for further exploration. Tentative Reconnaissance resource of about 455 million tonnes was estimated for the Dameracherla cluster. In view of the positive results obtained from G-4 stage investigation in the Dameracherla Cluster one block was identified within cement grade limestone potential area for further detailed exploration. The identified block is named as Veerappagudem Block, and these block are proposed to be explored with Preliminary Exploration Stage (G-3) to gather all necessary information required in G-3 stage to assess the quantity & quality of cement grade limestone resources in the area and classify the resources as per UNFC and Minerals (Evidence and Mineral Contents) Rule, 2021 norms. The exploration will be carried out with the help of geological & topographical mapping on 1:4000 scale & drilling.</p> <p>TCC committee has approved in principle the next stage of exploration in the identified block in Dameracherla Cluster after successful completion of G-4 stage investigation and review by the TCC. The review of the G-4 investigation was completed on 12th November 2019. The total amount of 655.82 lakhs have already been approved for carrying out G-4 to G-2 stage investigation in Dameracherla cluster having one block (Veerappagudem Block, Wazigudem Block) vide letter number F.No.6/2/2015, dated 21.06.2018. Expenditure for Eight limestone clusters completing G-4 exploration has come to around 3.30 crore. After the G-4 investigation of Dameracherla cluster one Block are identified for carrying out G-3 stage exploration whose cost estimate is coming to around Rupees 107.60 Lacs. This one identified Veerappagudem Block are proposed for approval.</p>

DETAILED DESCRIPTION ON THE FOLLOWING TITLES TO BE MADE IN THE PROPOSAL

1. Block Summary

A. Physiography

The proposed one block are mostly a plain land with highest elevation 98 MSL and no proper drainage system has been developed in this block, but small gullies channels formed in these block flows into Krishna River.

B. Background Geology (Regional Geology & Geology of the Block)

Regional Geology:

Dameracherla cluster (Cluster-4) forms part of Palnad sub basin (3400 sq km). Palnad sub-Basin is located in the northeastern part of Cuddapah basin. It comprises sequence of arenaceous, argillaceous and carbonate sediments belonging to Kurnool Group. These sediments unconformably overlie older Cuddapah sediments in eastern part whereas older granitoids form basement in the north and west. Sedimentary sequences are of Meso- to Neo-Archaean to Neoproterozoic age and are deposited predominantly over Palaeoproterozoic basement granitoids and greenstone belt of Archaean age. The Regional Geology is provided in the Geological Map of Toposheet 56 P/10 published by Geological Survey of India and location of the Dameracherla Cluster (Cluster-4) . Regionally the area exposes crystallines of PGC-II and sediments of Kurnool Group equivalents of Neoproterozoic age. The PGC-II includes biotite gneiss, hornblende granite- and biotite granite traversed by dolerite dykes. Rocks of Banaganapalli and Narji formation belonging to Kurnool Group are exposed all along the northern bank of Krishna River from Adavi devulapally in the west to Dameracherla in the east. The Narji Formation can be further divided into three litho divisions based on their physical characteristics and chemical constituents. The middle grey massive limestone and variegated limestone is most suitable for cement manufacturing.

AGE	SUPER GROUP	GROUP	FORMATION	LITHOLOGY
Holocene		Krishna Godavari	Avanigadda	Sand
Neoproterozoic		Kurnool	Paniam	Quartzite
			Narji	Flaggy Limestone
				Massive Limestone
				Quartzite
			Banaganapalli	Shale
Archaean	Dharwar		Peddavuru Schist Belt	Grey hornblende Granite

				Grey biotite granite
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Geology of the Area:

Most part of Cluster-4 area is soil covered & have scanty outcrop of mostly massive to flaggy limestone & impure (silicified) limestone of Narji Formation of Kurnool Group. The uniform horizontal to sub horizontal disposition of the sedimentary sequence in the area of investigation indicates that the area has not undergone any major tectonic disturbance. Among the primary sedimentary structures, bedding planes and laminations are common. The secondary structures observed in the area are joints. The generalized strike of the strata is NE-SW with dips varying 8° -12° towards Southeast. Strike & Dip

GROUP	FORMATION	LITHOUNITS
	Recent	Black Soil
Kurnool Group	Narji Formation	Upper flaggy limestone
		Middle massive limestone (Variegated and grey massive)
		Lower purple Shale

C. Mineral potentiality based on geology,geophysics, ground geochemistry etc.

G-4 stage exploration in Dameracherla Cluster indicated about 12.19 Sq km potential area for Cement grade limestone out of 18.12 Sq km area explored. Tentative reconnaissance resources (334) of about 455 million tones has been assessed having average grade of 46.77% CaO. Thus, area has high potential for cement grade limestone.

D. Scope for proposed exploration

As the area have high potential for cement grade limestone, One Block (Veerappagudem Block) have been identified in the cluster after removing leasehold, forest area,other habitation area for further detailed exploration. And overburden also below 10 meters except DMCCBH-2 Borehole. The identified block in the area have to be explored by G-3 stage exploration to assess the quantity & quality of cement grade limestone resources and classify the resources as per UNFC and Minerals (Evidence and Mineral Contents) Rule, 2021 norms before the block is handed over to State Government for auctioning.

E. Recommendations ofG-4StageMineralExploration

It is recommended to take up G-3 Stage Exploration in identified limestone block from G-4 stage Exploration in Dameracherla Block in Nalgonda district of Telangana.

F. Objectives:

1. To carry out Topographical and Geological Mapping on 1:4000 scale
- 2.To Assess the quantity & quality of cement grade limestone in the block up to 50m vertical depth
3. To Delineate block boundary with the help of DGPS

2. Previous Work:

The Dameracherla Cluster forms part of Palnad Sub-basin (Topo Sheet no. 56P/10) and is located north of

River Krishna in the north-eastern portion of the Cudappah Basin. The earliest geological account of Palnad Sub-basin was documented by William King (1872). Mukherjee and Syed Kazim (1947) of erstwhile Hyderabad Geological Survey carried out geological mapping of Palnad Basin covering parts of Nalgonda district. Systematic geological mapping and mineral investigation in this part of Palnad Sub-basin was carried out by Ziauddin and Sharma (1959-61); Appavadhanulu et al., (1963-64); Rajurkar (1972); Ramalingaswamy (1971-72, 1973-74); Hazra et al (2005) and Sekhram A (1978-79).

Recently G-4 stage exploration was carried out by TGMDC for delineating cement grade limestone in the area during 2018-19. An area of 12.19 Sq km of cement grade limestone was delineated in Dameracherla area and reconnaissance resources (334) of about 455 million tonnes were estimated. The authors recommended to take up G-3 Stage Exploration in one identified limestone block after completion of G-4 stage Exploration in Veerappagudem area in Nalgonda district of Telangana.

3. Block description:

Location and Accessibility

Dameracherla cluster falls in Dameracherla village in Dameracherla Mandal of Nalgonda district in Telangana state. It covers an area of 18.12 sq km. It is located near Indians Cements Ltd., Veerappagudem Village, Dameracherla Mandal, Nalgonda District, Telangana. The proposed area is a part of Palnad Sub-Basin and is located in the north-eastern part of the Cudappah Basin.

The Dameracherla Mandal is ~65 km from Nalgonda town which is district headquarter of Nalgondda. The cluster one block area falls entirely within the Veerappagudem, Dameracherla village cadastral boundary. Block is well connected by metaled roads and is connected to National highway number 167A which is ~1 km from the Dameracherla cluster. Most of the Infrastructure (Police Station, Bank facility, workshop facility, Bus Stand etc) are available at Dameracherla Mandal Town. The nearest rail head is Janpahad for freight and Miryalaguda for passenger traffic on Secunderabad – Nadikudi Section. One block are falls in Toposheet No. 56P/10 .The Co-ordinates of the Block are given below:-

Veerappagudem Block: -

4.	Block Corner points / Cardinal Points	Latitude	Longitude	Area in Sq. Km
	1	16° 41' 34.837" N	79° 36' 38.914" E	4.70 Sq. Km
	2	16° 41' 39.584" N	79° 36' 40.811" E	
	3	16° 41' 42.558" N	79° 36' 37.488" E	
	4	16° 42' 17.904" N	79° 37' 11.582" E	
	5	16° 42' 19.757" N	79° 37' 16.314" E	
	6	16° 42' 27.903" N	79° 37' 25.769" E	
	7	16° 42' 35.749" N	79° 37' 34.084" E	
	8	16° 42' 6.158" N	79° 38' 18.656" E	
	9	16° 41' 0.176" N	79° 37' 28.823" E	
	1	16° 41' 1.092" N	79° 37' 26.598" E	
	11	16° 40' 57.511" N	79° 37' 22.477" E	

Planned Methodology

The proposed Veerappagudem block shall be explored as Preliminary Exploration stage by detailed topographical, geological mapping, drilling and chemical analysis to assess quantity and quality of cement grade limestone resources. Borehole spacing shall be planned at 800 X 800 meters grid (As per MEMC, 2021).

5. Nature Quantum and Target

Veerappagudem Block			
Quantum of Work Carried out by TGMDC Ltd. In Veerappagudem Block, Dameracherla Mandal, Nalgonda District, Telangana State			
S.No	Item Work	Unit	Quantum of work Proposed
1	Topographic Survey (on 1:4000)	sq.km	4.70 sq.km
2	Geological Mapping (on 1:4000)	sq.km	4.70 sq.km
3	Drilling (Core borehole)	m	350 m (7 BH)
4	Laboratory Studies		
	1) Chemical Analysis for Primary Check samples for 6 radicals i.e. CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ and Lol	Nos.	400
	ii) Internal Check Samples (10% of Primary) for 6 radicals i.e. CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ and Lol	Nos.	0
	iii) External Check Samples (5% of Primary) for analysis 6 radicals i.e. CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ and Lol	Nos.	40
	iv) Composite Samples for 6 radicals (CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ , and Lol	Nos.	40
5	Physical Studies		
	A. Petrological Studies (Petrographic Studies)	Nos.	10
6	Bulk Density	Nos.	5
7	Report Preparation (Digital format)	Nos.	1

6. Exploratory Drilling: (Referred another document on exploratory drilling)

7. Man power deployment = 2 Geologists

8. Break-up of expenditure

In Veerappagudem Block, Dameracherla Mandal, Nalgonda District, Telangana State

SUMMARY OF COST ESTIMATES		
S. NO.	Item	Total Estimated cost (Rs)
A	Geological work	3167760.00
B	Drilling	2811700.00
C	Laboratory studies	1993630.00
D	Tendering cost	159461.80
E	Operational Charges	398654.50
F	Preparation of Exploration proposal	159461.80
G	Geological Report Preparation	398654.50
H	Peer Review Charges	30000.00
I	Sub Total (A to H)	9119322.60
	GST @ 18%	1641478.07
	Grand Total	10760800.67

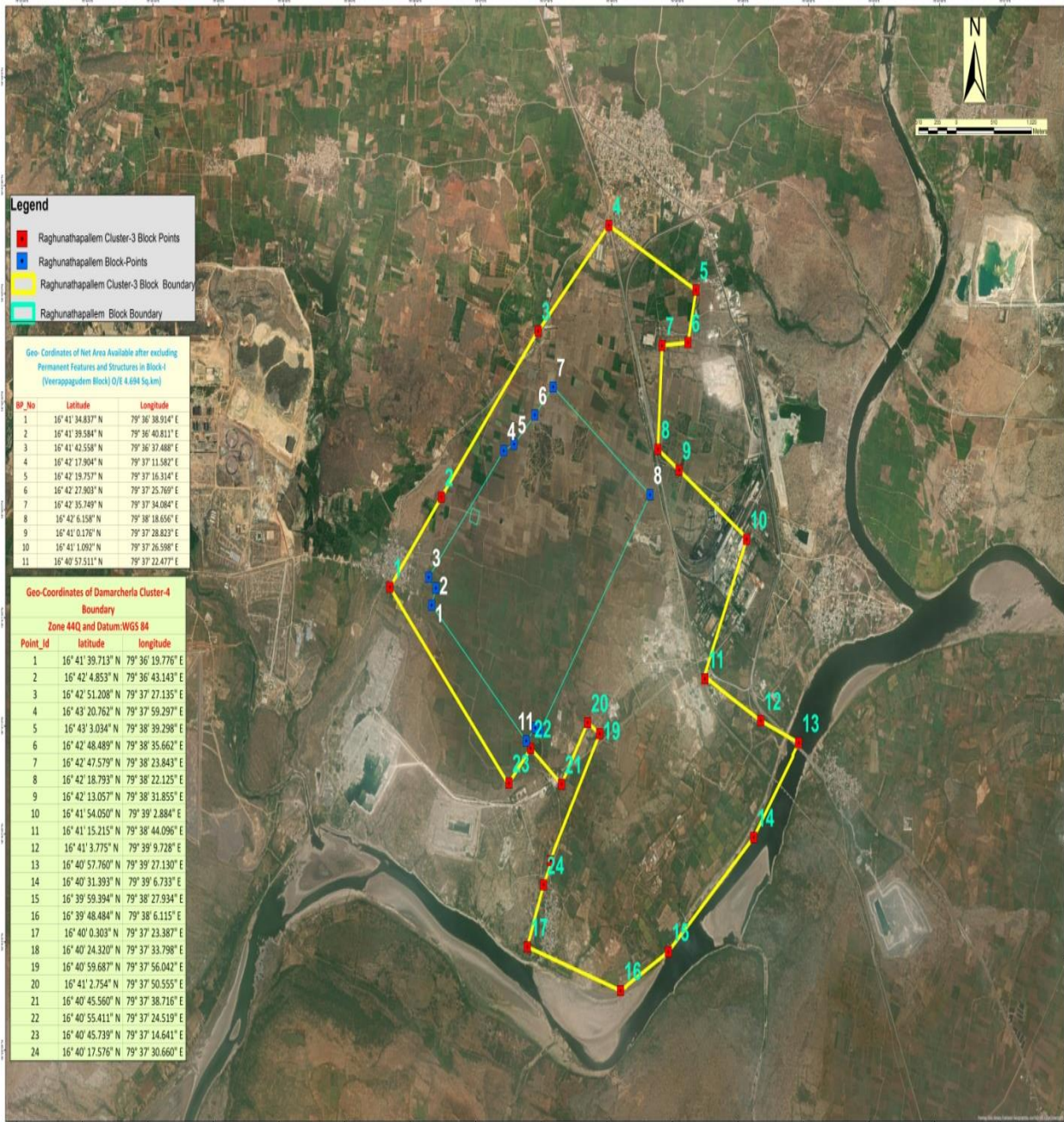
COST ESTIMATE FOR LIMESTONE G-3 EXPLORATION OF VEERAPAGUDEM BLOCK, NALGONDA DISTRICT, TELANGANA						
S. NO	Item of Work	Unit	Rates as per NMET SoC 2020-21		Estimated Cost of the Proposal	
			SoC-Item- Sl. No.	Rates as per SoC	Quantity	Amount
a	b	c	d	e	f	g
A	Geological work					
1	Geological Mapping (1:4000) with Topographical Survey, Core logging, Sampling & report writing					
	a) Survey work - Surveyor	per day	1.6.11a	8,300	30	249000.00
	b) 4 labours / Party (Rs 526 / day / labour) (As per rates of Central Labour Commissioner)	day	5.7	526	120	63120.00
	C) Demarcation of lease boundary, Fixation of borehole and determination of co-ordinates & Reduced Level (RL) of the boreholes by DGPS	per point of observation	1.6.2	19,200	18	345600.00
	d) Charges for Geologist party days in field	Per day	1.5.1a	11,000	150	1650000.00
	e) 2 labours / Party (Rs 526 / day / labour) (As per rates of Central Labour Commissioner)	day	5.7	526	300	157800.00
	f) Charges for Geologist party days (at H Q)	Per day	1.5.1a	9,000	30	270000.00
	e) Sample processing work	Sampler per day	1.5.2	5,100	60	306000.00
	f) 4 labours / Party (Rs 526/ day / labour) (As per rates of Central Labour Commissioner)	day	5.7	526	240	126240.00
	Sub total - A					3167760.00
B	Drilling- Out Sourced					
1	Surface drilling	Per Mtr	2.2.1.1B	5242	350	1834700.00
2	Accommodation	ONE Month	2.2.9	50000	0	0.00
3	Approach road making for flat terrain	Per km	2.2.10a	22020	0	0.00
4	Land or Crop Compensation	per bore hole	5.6	20000	0	0.00
5	Camp setting	per drill	2.2.9a	250000	0	0.00
6	Camp winding	per drill	2.2.9b	250000	0	0.00
7	Drilling Tendering process cost	One time	2.3	500000	1	500000.00

8	Transportation of drill rig & truck associated per drill	K.M	2.2.8	36	0	0.00
9	Vehicle & POL Charges for field	Month	N.A.	40,000	0	0.00
10	Drill Core Preservation	Per Mtr	5.3	1,590	300	477000.00
	SUB TOTAL B					2811700.00
C	Laboratory studies					
1	Chemical analysis					
	a) Primary core Samples -XRF method - Major Oxides	per sample	4.1.15 a	4200	400	1680000.00
	b) Internal Check Samples for 8 radicals i.e. CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ and Lol	Per sample	4.1.9	3511	0	0.00
	c) External Check Samples 10 % XRF method - Major Oxides	Per sample	4.1.9	2841	40	113640.00
	d) Composite Samples for 6 radicals CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ , and Lol	Per sample	4.1.9	2841	40	113640.00
2	Physical analysis					0.00
	a) Preparation of thin sections	Nos.	4.3.1	2353	10	23530.00
	b) Petrographic studies	Nos.	4.3.4	4232	10	42320.00
	c) Bulk density	Nos.	4.1	3540	5	17700.00
	Digital Photographs	Nos.	4.3.7	280	10	2800.00
	SUB TOTAL C					1993630.00
	TOTAL (A+B+C)					7973090.00
	Tendering Cost		2.3			159461.80
	Operational Charges		6	1		398654.50
E	Preparation of Exploration proposal		5.1			159461.80
F	Geological Report Preparation		5.2	2		398654.50
G	Peer Review Charges		As per EC Decision			30000.00
	TOTAL (A+B+C+D+E+F+G)					9119322.60
H	GST @ 18%					1641478.07
I	GRAND TOTAL					10760800.67
J	Rs. In Lakhs					107.6

List of Plates:

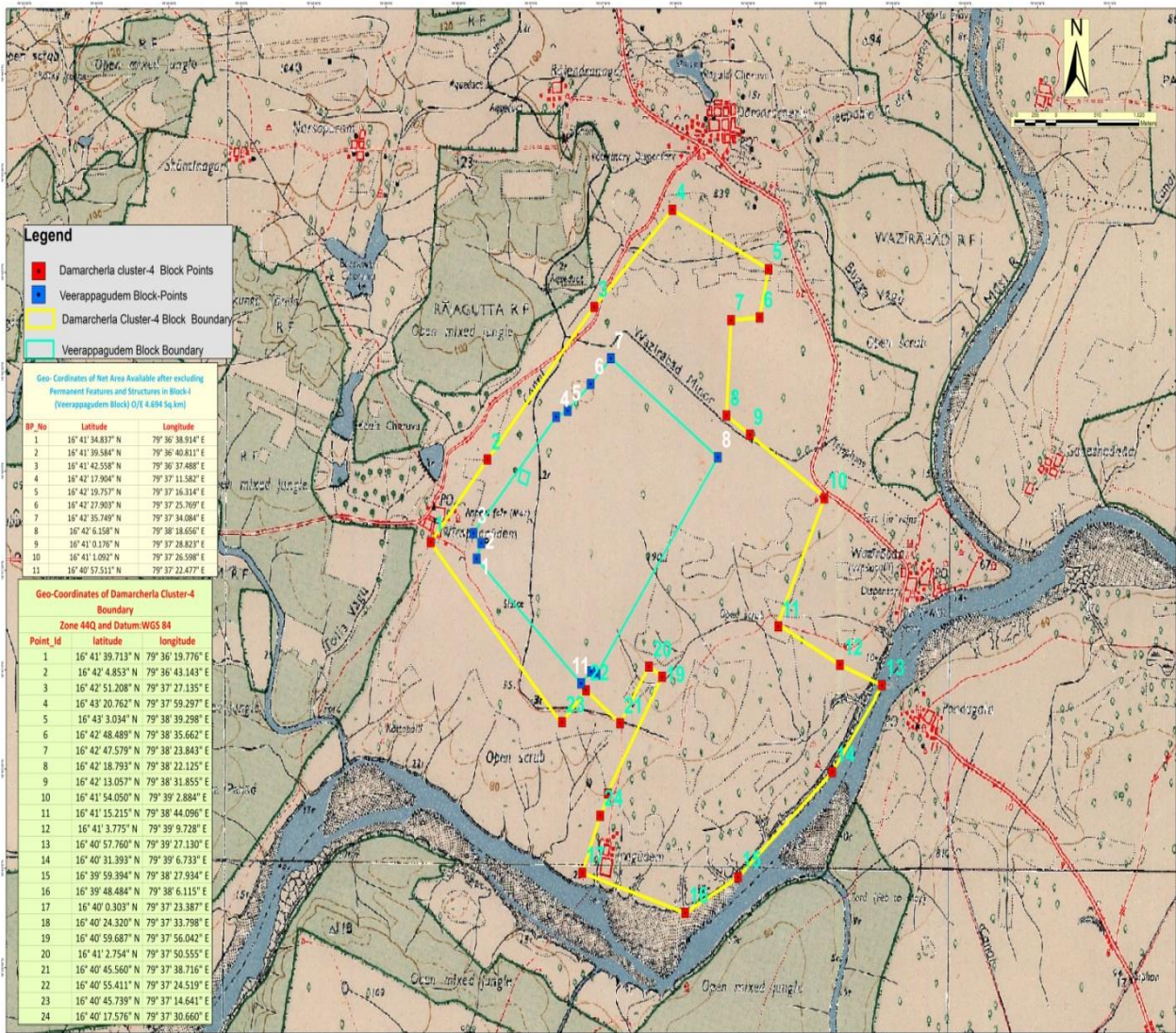
Telangana Mineral Development Corporation Limited.

Location Map of Proposed G-3 Stage Limestone Veerappagudem Block Damarcherla Cluster-4 on Google Earth Image



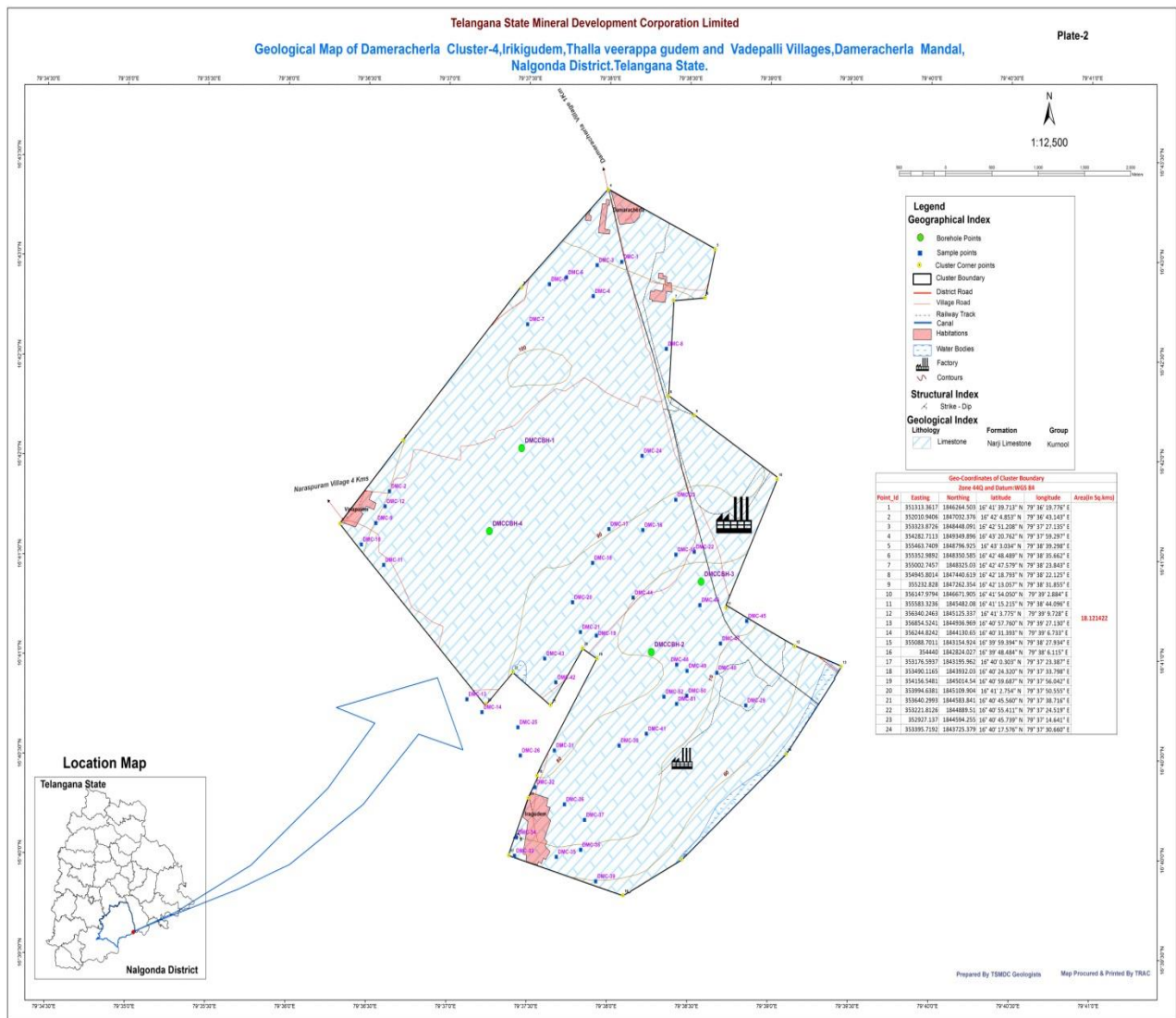
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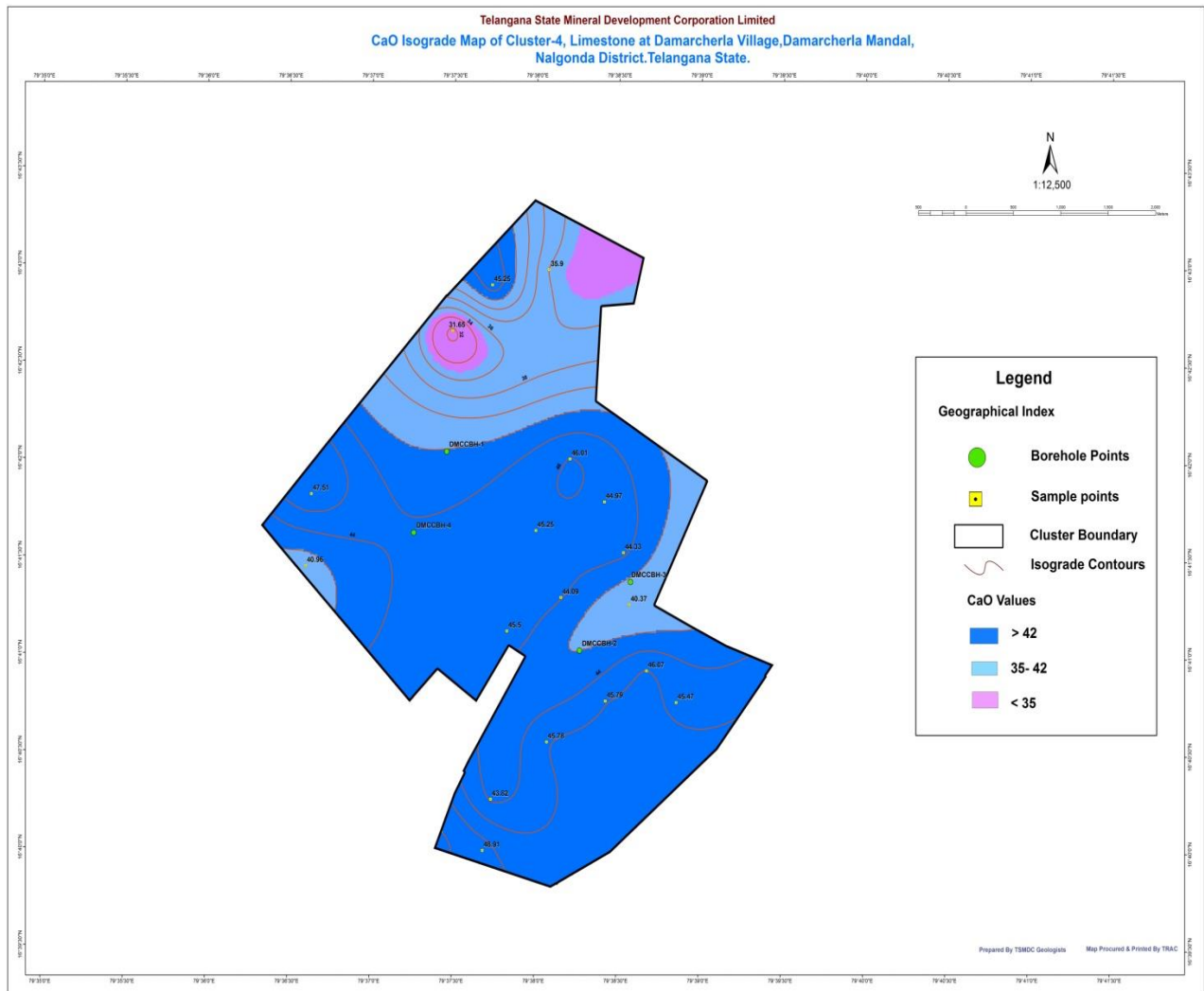
Location Map of Proposed G-3 Stage Limestone Veerappagudem Block Damarcherla Cluster-4 on Part of Toposheet No.56P/10



Location Map of Proposed G-3 Stage Limestone Veerappagudem Block Damarcherla Cluster-4 on GSI Geological Map No.56P/10







Telangana State Mineral Development Corporation Limited
SiO₂ Isograde Map of Cluster-4 Limestone at Damarcherla Village, Damarcherla Mandal,
Nalgonda District, Telangana State.



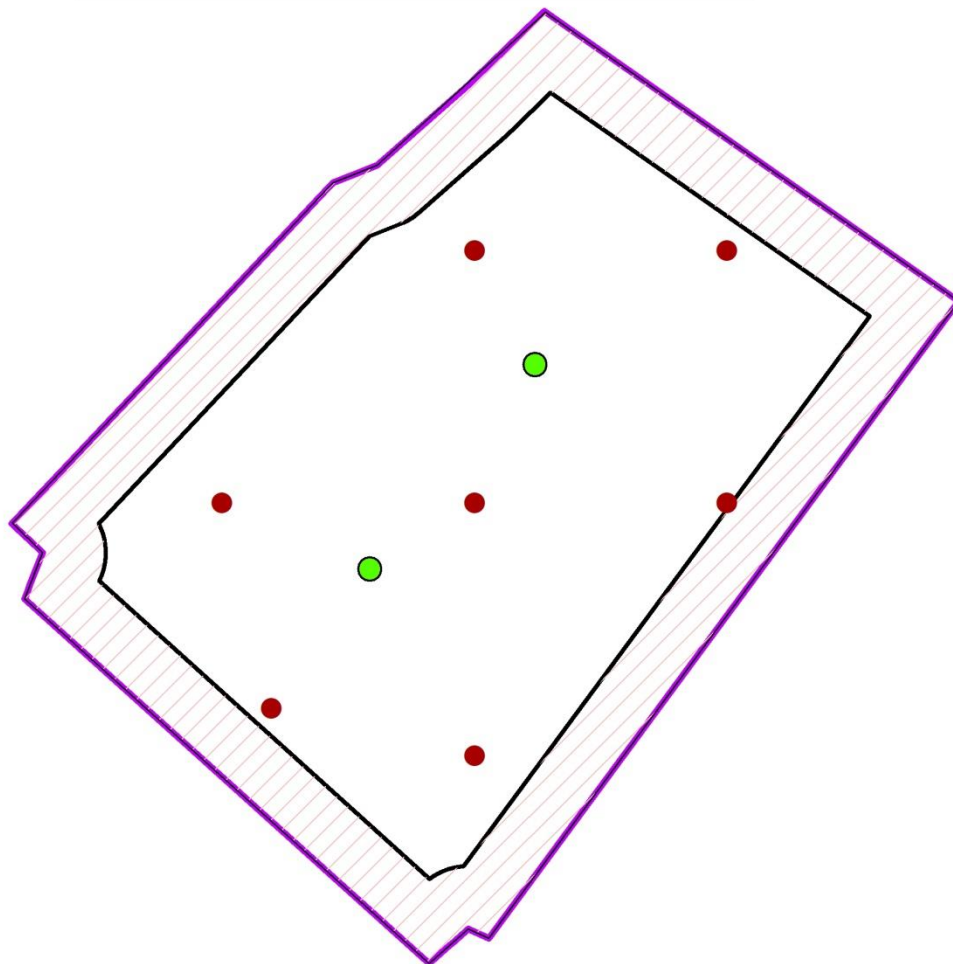
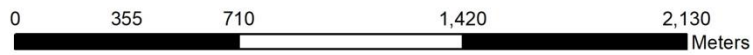
BOREHOLE GRID MAP



MAP SHOWING THE BOREHOLE GRID OF THE VEERAPPAGUDEM BLOCK PROPOSED FOR LIMESTONE G-3 EXPLORATION IN NALGONDA DISTRICT, TELANGANA

Area = 4.70 Sq. Kms.

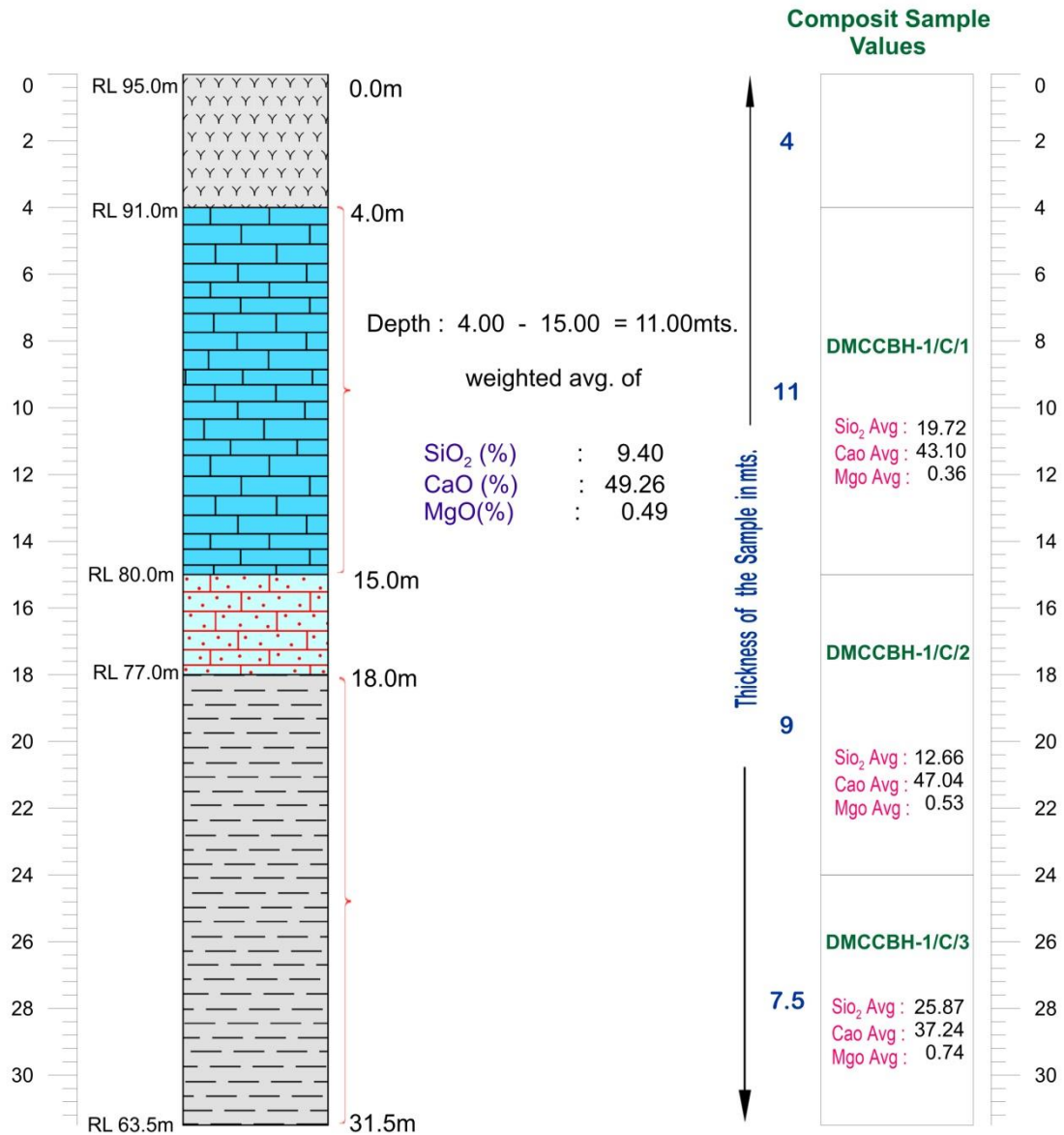
Parts of Toposheet No's: 56P/10



Legend

- G-4 Stage Scout Boreholes
- 800 X 800 DTH = 7 (G3-Exploration)
- Proposed Block Boundary with buffer of 200mts
- Proposed Block Boundary

Telangana State Mineral Development Corporation Limited
 Subsurface Exploration -Borehole Details
 CLUSTER-4, DMCCBH-1(P-1), Drill unit: VOL-90



Legend

	Black Soil + Weathered Limestone fragments		Silicified Limestone
	Cement grade Limestone		Shale

Telangana State Mineral Development Corporation Limited
Subsurface Exploration -Borehole Details
CLUSTER-4, DMCCBH-4, Drill unit: VOL-90

