

**Proposal for G-3 Stage Exploration of Dondapadu Limestone Block in Dondapadu
Cluster (Cluster-6), Mallareddygudem Mandal, Suryapet District, Telangana**

(For NMET)

(Industrial Mineral)

By

Telangana Mineral Development Corporation Limited

Hyderabad

Place: Hyderabad

Date:

Summary of the Block for G-3 stage exploration

	Features	Details
1.	Block ID	Dondapadu 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 completed
5.	Commodity	Limestone
6.	Mineral Belt/ Basin	Palnad 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 1:4000scale 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° 49' 3.45" N (Block Co-ordinate given inside)
	Longitude	80° 1' 48.40" E
	Villages	Dondapadu
	Tehsil/ Taluk	Mallreddygudem
	District	Suryapet
	State	Telangana
13.	Area(hectares/squarekilometres)	
A	Block Name	Dondapadu Block
	Block Area	8.20 Sq.km
	Forest Area	Nil
	Government Land Area	Nil
	Private Land Area	8.20 Sq.Km
14	Accessibility	
	Nearest Rail Head	Miryalaguda
	Road	Kodad to Mellacheruvu
	Airport	Hyderabad
15	Hydrography	
	LocalSurfaceDrainagePattern(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 ^o c during December –January The temperature often exceeds 45 ^o c during May- June
17	Topography	
	Toposheet Number	65D/1
	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	NA
	Geophysical Map (Aerogeophysical, Ground geophysical)	NA
19	Justification for taking up G-2 stage Exploration.	TGMDC Ltd carried out G4 stage investigation for delineating cement grade limestone in the Dondapadu Cluster over an area of ~ 46.82 sq km during 2018-19 field season. Based on the chemical analysis results of surface and subsurface samples cement grade potential area were delineated for further expolration .Tentativile Reconnaissance resource of about 452 million tonnes was estimated for the Dondapadu cluster. In view of the positive results obtained from G-4 stage investigation in the Dondapadu Clusterone block was identified within cement grade limestone potential area for further detailed exploration. The identified block is named as Dondapadu Block and this block is proposed to be explored with Priliminary 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 and after successful completion of exploration the TGMDC shall handover the blocks to State Govt for putting the assessed block for auction. TCC committee has approved in principle the next stage of exploration in the identified block in Doandapadu 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 396.87 lakhs have already been approved for carrying out G-4 to G-3 stage investigation in Dondapadu cluster having One block (Dondapadu Block) vide letter number F.No.6/2/2015, dated: 21.06.2018. After the G-4 investigation a new block Dondapadu Block is identified for carrying out G-3 stage exploration whose cost estimates is coming to around Rupees 132.30 Lakhs. This new identified Dondapadu Block is proposed for approval.
--	--	--

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

1. Block Summary

A. Physiography

The proposed block is mostly a plain & shows undulating topography with highest elevation of 89 MSL and drains towards West.

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

Regional Geology: Dondapadu Cluster-6 forms part of Palnad sub-basin, located in the northeast part of the Cuddapah Basin. Regionally the cluster area lies to the south of the Krishna river and falls in Nalgonda districts of Telangana. Regionally lithotype is ranging in age from archaean to Proterozoic, the latter belonging to the Cuddapah Super group and the Kurnool group of rocks. A major part of the area is occupied by archaean granite gneisses whereas the entire south-western part exposes Proterozoic platformal sediments. The northern and the eastern part is characterized by the granite gneisses is faulted. The Cuddapah Super-group is represented by Cumbum formation overlain by the Kurnool Group represented by Banaganapalle and Narji Formations. The contact between Cumbum and Narji is generally marked by a thrust. A narrow discontinuous floodplain is seen bordering the Krishna river which forms an inverted 'U' in this part.

The granite gneiss is grey, magmatic in nature with enclaves of amphibolites seen at places in the form of bands, lenses, schlieren. This gneiss is traversed by a number of dolerite dykes in N-S, NE-SW, E-W and NW-SE direction. The Cumbum Formation of Cuddapah Super-group is represented by the quartzite, shale/phyllite and dolomite. The quartzites are seen as prominent strike ridges amidst a flat terrain constituted of phyllites with occasional dolomite. The phyllites exhibit colour banding and the strike of the bedding ranges from NNW-ESE to NNE-SSW with 30° to 50° northerly and easterly dips.

The Kurnool group is represented by Banaganapalli and Narji formations. They are succeeded conformably by massive and flaggy limestone belonging to Narji Formation and exposed at Gudimalkapur to Vajinapally. The Banaganapalli Formation is mainly quartzite unit. It generally shows a low dip ranging from 5° to 10° towards NW-SE. Its width ranges from 50 M to about 2 Km. This formation is overlain by the shales/slates and limestone of Narji Formation ranging in width from 0.5 Kms to 2 Kms. It narrows down towards east. However the lowest unit is seen to occupy a larger area in the south-western part between Krishna river and the shale unit of this formation. It has a general trend of NE-SW with varying dip but on an average it is 30° to 45° due SE in most places. The contact between this unit and the Cumbum Formation is marked by a thrust. The formations belonging to the Kurnool group are generally not folded.

The Quaternary Fluvial landforms in the area are mainly the floodplain. Active channel of the Krishna River seen in the southern part form an inverted 'U'. These fluvial sediments of the area are grouped under the Krishna-Godavari Formation of the Holocene age. The floodplain deposit is composed mainly of brown silty clay. The active channel deposit comprised coarse sand with rock fragments and the active channel bar deposit contained coarse to medium sand. The Regional Geology is provided in the Geological Map of Toposheet 65 D/1 published by Geological Survey of India and location of Dondapadu Cluster (Cluster-6).

GE	SUPER GROUP	GROUP	FORMATION	LITHOLOGY
Neoproterozoic		Kurnool	Narji	Flaggy Limestone
				Massive Limestone
			Banaganapalli Quartzite	Shale
				Quartzite
Palaeoproterozoic			Basic Intrusive	Dolerite
Archaean to Paleoproterozoic	PGC -II			Quartz vein
				Grey hornblende granite
				Leuco granite
				Pink biotite granite
				Pink granite
				Grey biotite gneiss
				Grey hornblende biotite gneiss
Archaean	Dharwar		Peddavuru Schist Belt	Banded magnetite quartzite
				Meta-rhyolite
				Meta-basalt

Geology of the Block

Most part of Dondapadu area is soil covered & have scanty outcrop of mostly massive to flaggy limestone belonging to Narji Formation of Kurnool Group. The 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 5° to 13° towards southwest.

The lithostratigraphy of the area is given in below table:

GROUP	FORMATION	LITHO UNITS
	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 Dondapadu Cluster indicated about 14.52 Sq km potential area for Cement grade limestone out of 46.82 Sq km area explored. Tentative reconnaissance resources (334) of about 452 million tones have been assessed having average grade of 44.82% CaO. Thus area has high potential for cement grade limestone.

D. Scope for proposed exploration

As the area has high potential for cement grade limestone, One Block (Dondapadu Block) has been identified in the cluster after removing leasehold and other habitation area for further detailed exploration. 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 of G-4 Stage Mineral Exploration

It is recommended to take up G-3 Stage Exploration in identified limestone block from G-4 stage Exploration in Dondapadu Block in Suryapet 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 blocks up to 50m vertical depth
3. To Delineate block boundary with the help of DGPS

2. Previous Work:

The Dondapadu Cluster forms part of Palnad Sub-basin (Topo Sheet no. 65D/1) 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 14.52 Sq km of cement grade limestone was delineated in Dondapadu area and reconnaissance resources (334) of about 452 million tones was estimated. The authors recommended to take up G-3 Stage Exploration in one identified limestone block.

3. Block description:

Location and Accessibility

Dondapadu Block falls in Dondapadu village in Mallareddygudem Mandal of Suryapet district in Telangana. It covers an area of 8.20 Sq km. The proposed area is a part of Palnad Sub-Basin and is located in the north-eastern part of the Cudappah Basin. The Dondapadu village is located approximately 60 km northwest of Suryapet, the headquarters of the Suryapet district. Most of the Infrastructure (Police Station, Bank facility, workshop facility, Bus Stand etc) are available at Mellacheruvu Mandal Town. The nearest rail head is Janpahad for freight and Mriyalguda for passenger traffic on Secunderabad – Nadikudi Section.

The area falls in Toposheet No. 65 D/01.

The Co-ordinates of the Block is given below:-

Dondapadu Block

Block Corner points / Cardinal Points	Latitude	Longitude	Area in Sq. Km
1	16° 48' 28.067" N	80° 1' 32.794" E	8.20 sq.km
2	16° 47' 53.780" N	80° 2' 22.209"E	
3	16° 47' 53.483" N	80° 2' 27.056" E	
4	16° 47' 31.408" N	80° 3' 8.657" E	
5	16° 47' 19.734" N	80° 2' 58.899" E	
6	16° 47' 2.521" N	80° 2' 53.406"E	
7	16° 46' 44.526" N	80° 2' 7.607" E	
8	16° 46' 47.434" N	80° 1' 58.265"E	
9	16° 46' 20.237" N	80° 1' 22.803"E	
10	16° 46' 30.608" N	80 1' 14.135"E	
11	16° 46' 49.160" N	80 1' 17.186" E	
12	16° 47' 11.840" N	80° 0' 57.363"E	
13	16° 47' 25.822"N	80° 0' 53.746"E	

4. Planned Methodology

The proposed Dondapadu limestone block shall be explored under the Preliminary Exploration (G-3) stage through detailed topographical and geological mapping, core drilling, and chemical analysis, in order to assess the 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 of Quantum and Target work

Dondapadu Block			
Quantum of Work Carried out by TGMDC Ltd. Dondapadu Block, Mallareddygudem Mandal, Suryapet District, Telangana			
S. No	Item Work	Unit	Quantum of work Proposed
1	Topographic Survey (on 1:4000)	sq.km	8.20 sq.km
2	Geological Mapping (on 1:4000)	sq.km	8.20 sq.km
3	Drilling	m	500m (10 BH)
4	Laboratory Studies		
	i) Chemical Analysis; Primary + Check for 6 radicals i.e. CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ and Lol	Nos.	550
	ii) Check Samples for 2 radicals SO ₃ & P ₂ O ₅	Nos.	0
	iii) External Check Samples (10% of Primary) for analysis 6 radicals i.e. CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ and Lol	Nos.	55
	iv) Composite Samples for 12 radicals (CaO, MgO, Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ , SO ₃ , P ₂ O ₅ , Lol, MnO ₂ , K ₂ O, Na ₂ O and TiO ₂)	Nos.	55
5	Physical Studies		
	A. Petrological Studies (Petrographic Studies)	Nos.	10
6	Bulk Density	Nos.	05
7	Report Preparation (Digital format)	Nos.	1

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

7. Manpower deployment = 2 Geologists

8. Break-up of expenditure

Dondapadu Block Mallareddygudem Mandal, Suryapet District, Telangana State

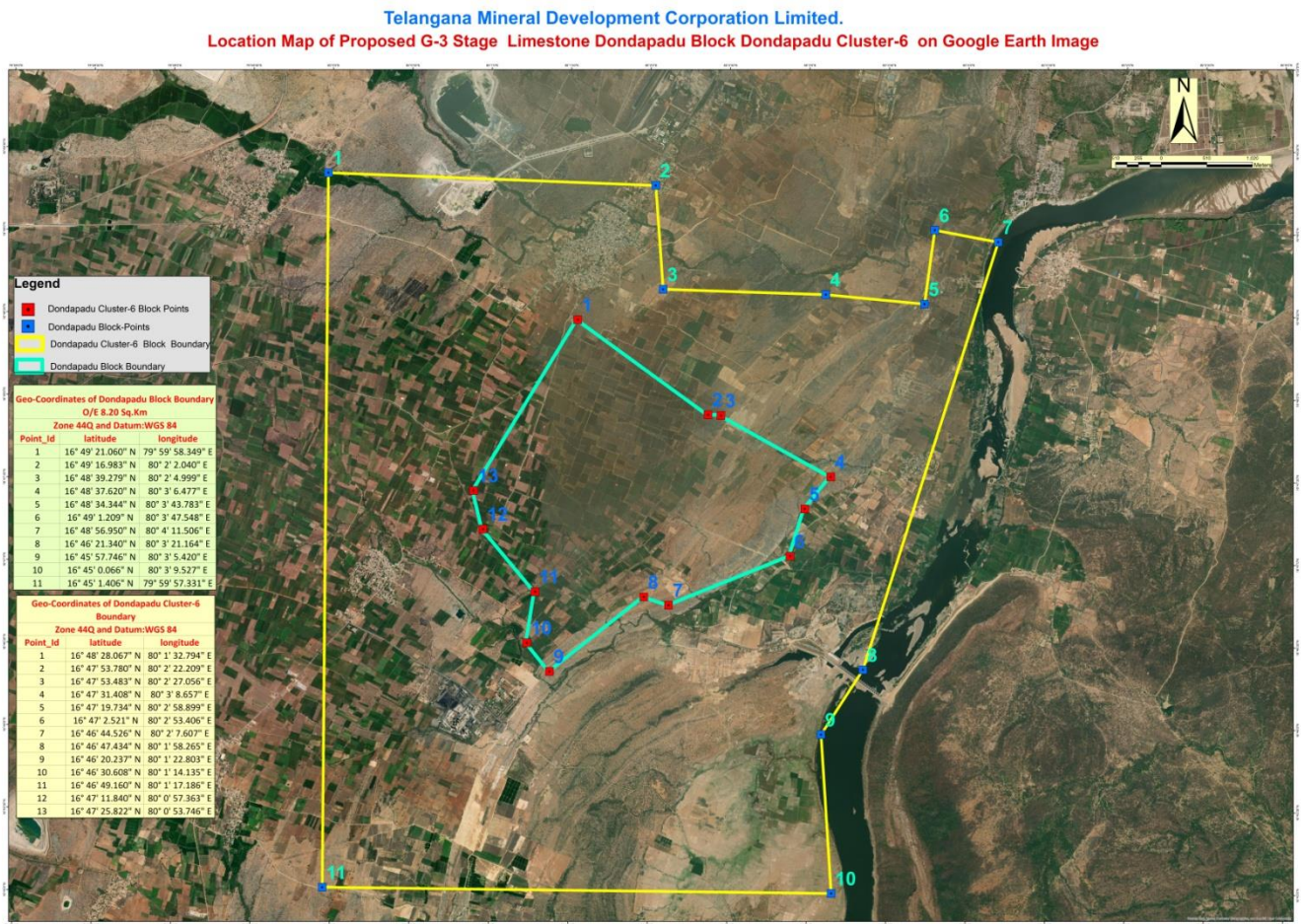
SUMMARY OF COST ESTIMATES		
S. No.	Item	Total Estimated cost (Rs)
1	Geological, Survey & Sampling Work	3263760.00
2	Drilling	3836500.00
3	Laboratory Studies	2708860.00
4	Tendering Cost	196182.40
5	Operational Charges	490456.00
6	Preparation of Explorations proposal	196182.40
7	Geological Report Preparation	490456.00
8	Peer Review Charges	30000.00
9	TOTAL	11212396.80
10	GST @ 18%	2018231.42
11	GRAND TOTAL	13230628.22
12	Rs. In Lakhs	132.3

DETAILS OF ITEM WISE COST ESTIMATES

COST ESTIMATE FOR LIMESTONE G-3 EXPLORATION OF DONDAPADU BLOCK, SURYAPET 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	23	441600.00
	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				3263760.00	
B	Drilling- Out Sourced					
1	Surface drilling	Per Mtr	2.2.1.1B	5242	500	2621000.00
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	450	715500.00

	SUB TOTAL B					3836500.00
C	Laboratory studies					
1	Chemical analysis					
	a) Primary core Samples -XRF method - Major Oxides	per sample	4.1.15 a	4200	550	2310000.00
	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	55	156255.00
	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	55	156255.00
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					2708860.00
	TOTAL (A+B+C)					9809120.00
	Tendering Cost		2.3			196182.40
	Operational Charges		6	1		490456.00
E	Preparation of Exploration proposal		5.1			196182.40
F	Geological Report Preparation		5.2	2		490456.00
G	Peer Review Charges		As per EC Decision			30000.00
	TOTAL (A+B+C+D+E+F+G)					11212396.80
H	GST @ 18%					2018231.42
I	GRAND TOTAL					13230628.22
J	Rs. In Lakhs					132.3

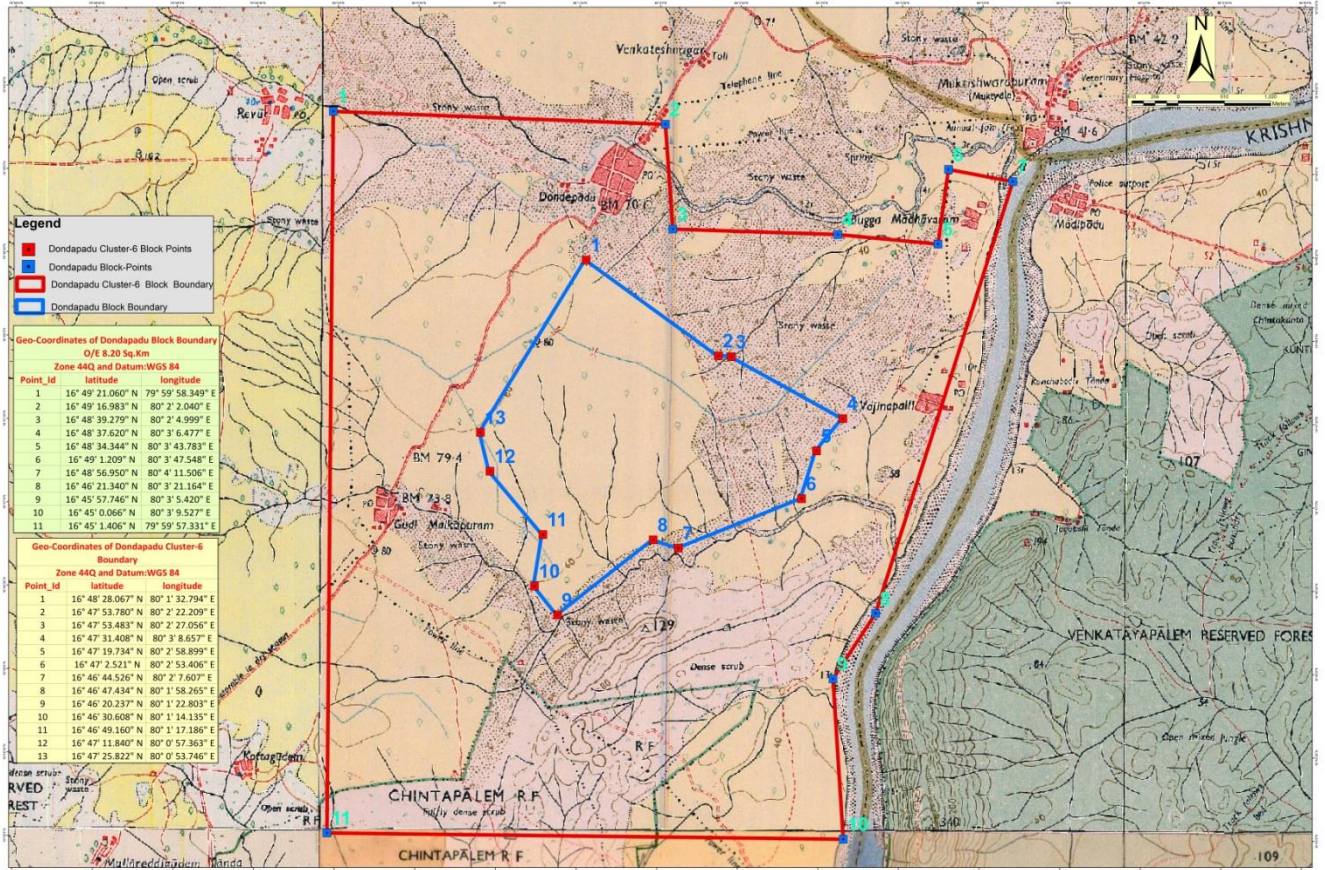
List of Plates:

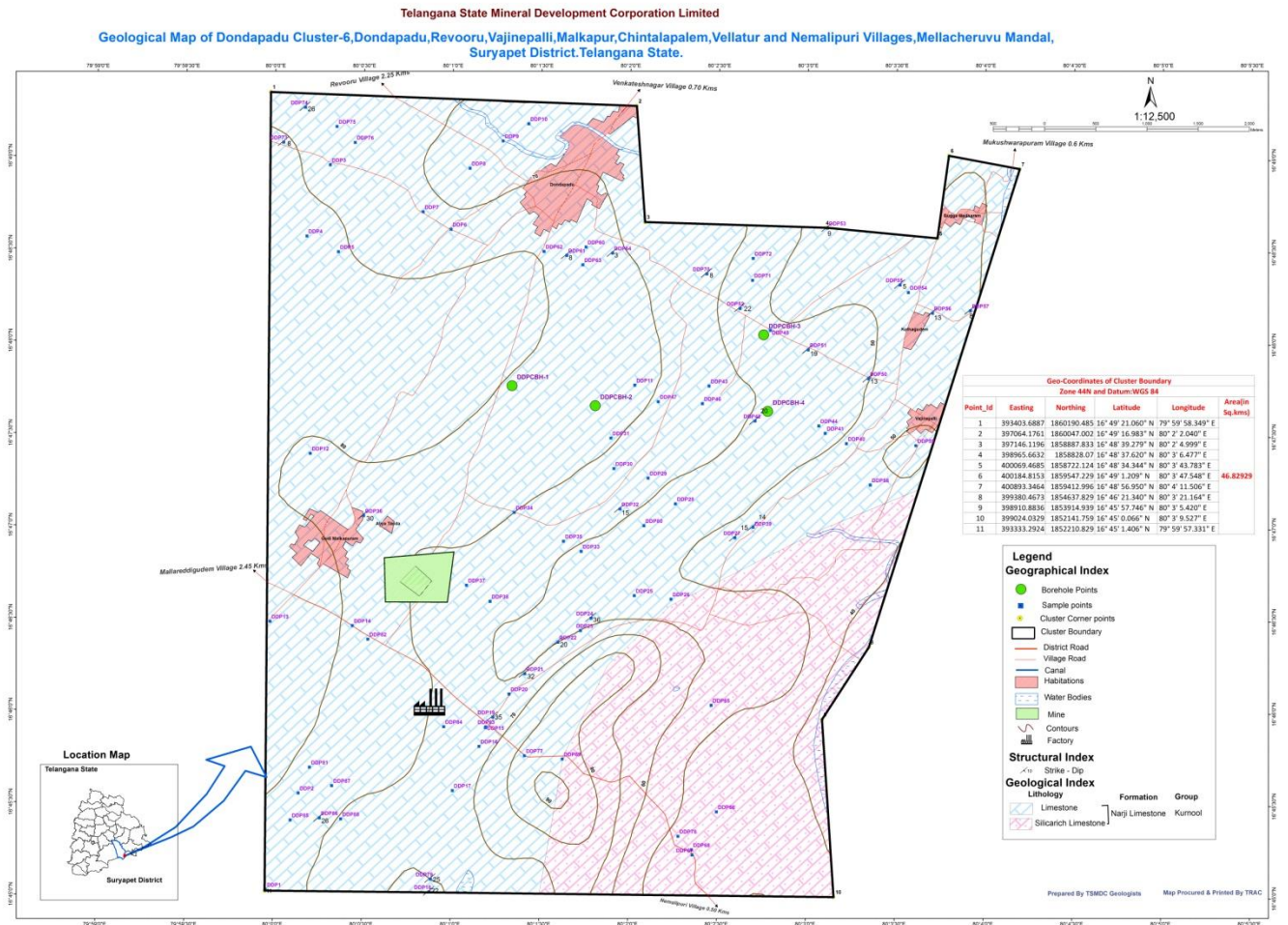


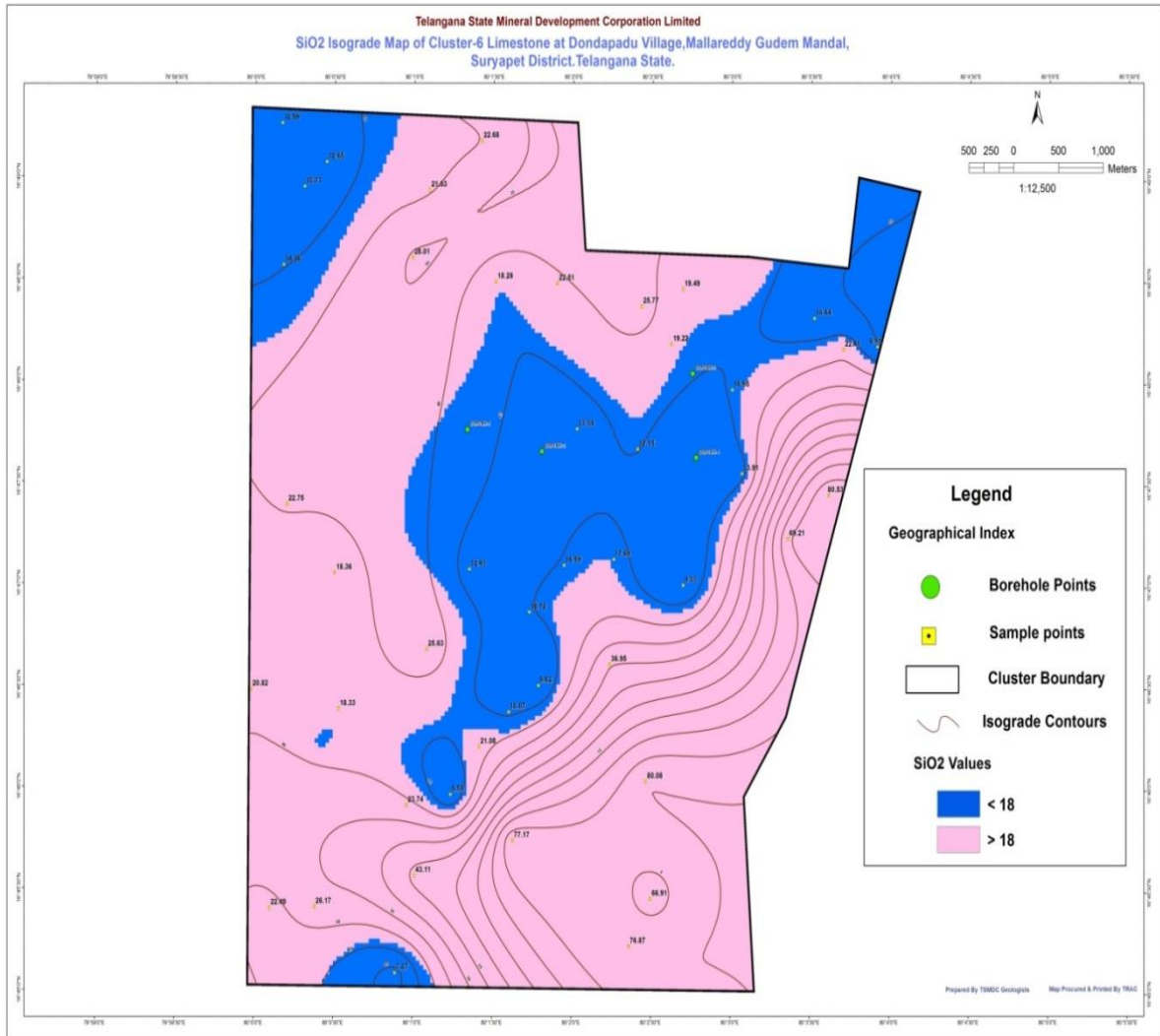


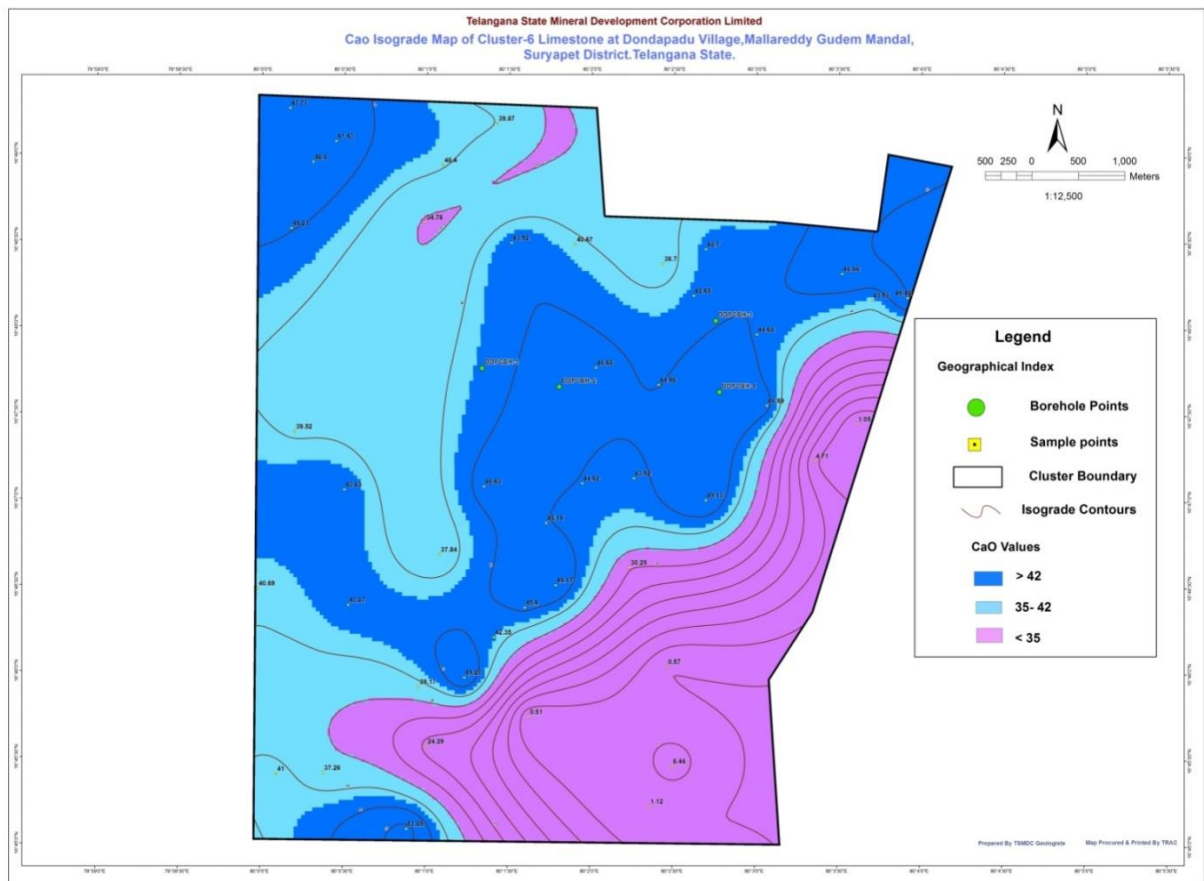
Telangana Mineral Development Corporation Limited.

Location Map of Proposed G-3 Stage Limestone Dondapadu Block Dondapadu Cluster-6 on Part of Toposheet No.65D/1









Location Map

Telangana State

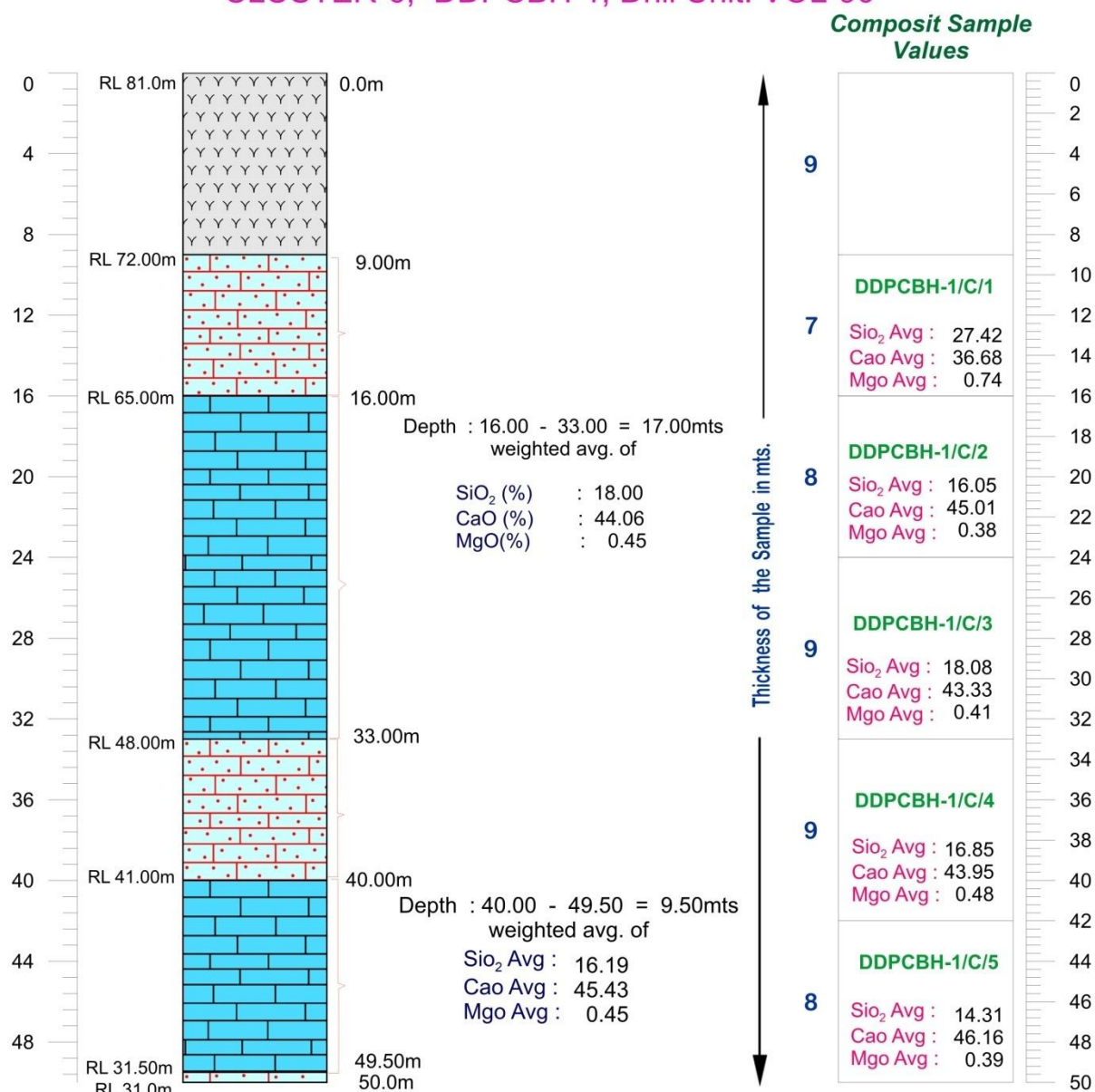
Suryapet District

Geo-Coordinates of Dondapadu Block Boundary

Zone 44Q and Datum: WGS 84

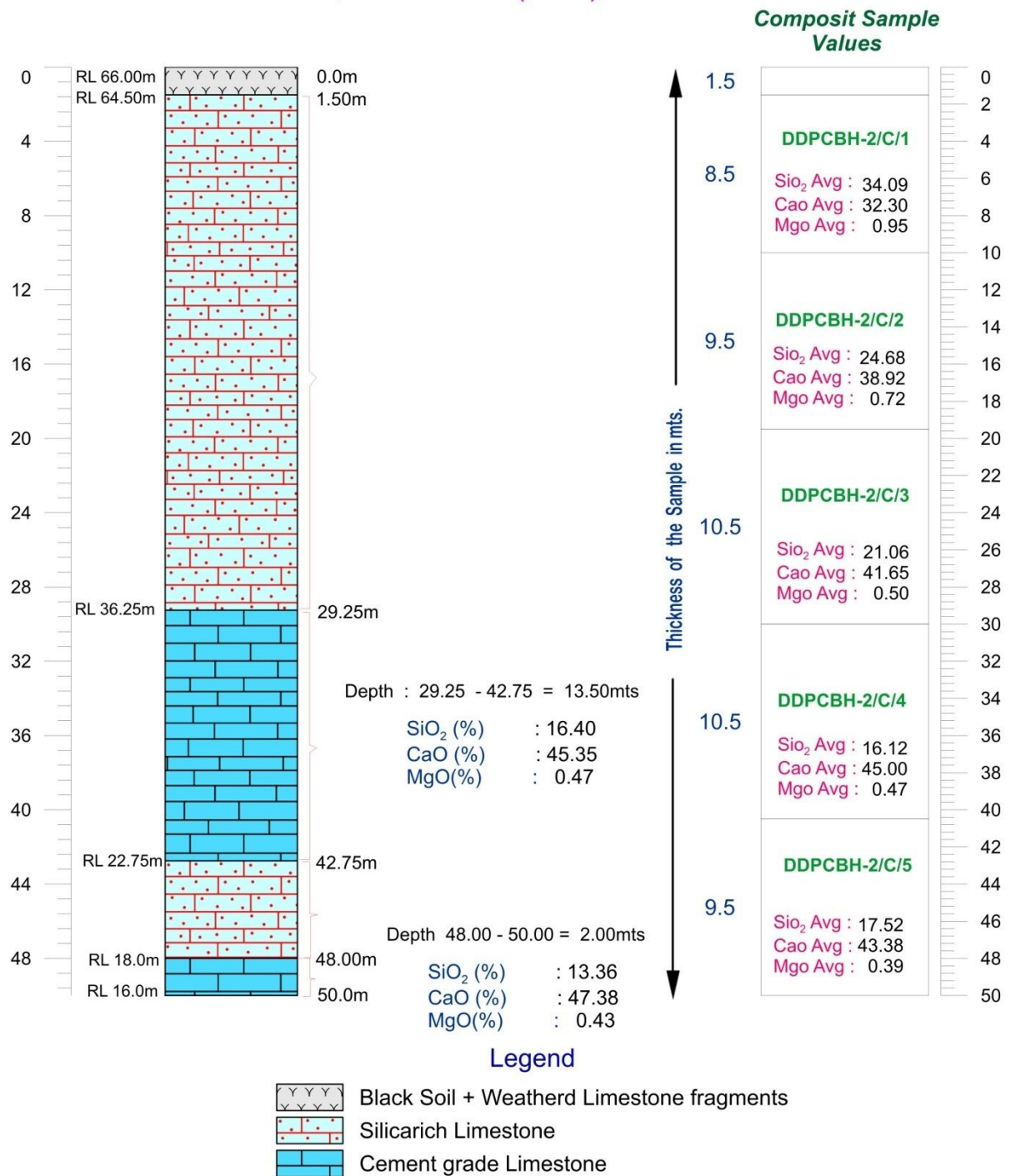
Point Id	latitude	longitude
1	16° 48' 28.067" N	80° 1' 32.794" E
2	16° 47' 53.780" N	80° 2' 22.209" E
3	16° 47' 53.483" N	80° 2' 27.056" E
4	16° 47' 31.408" N	80° 3' 8.657" E
5	16° 47' 19.734" N	80° 2' 58.899" E
6	16° 47' 2.521" N	80° 2' 53.406" E
7	16° 46' 44.526" N	80° 2' 7.607" E
8	16° 46' 17.434" N	80° 1' 58.265" E
9	16° 46' 20.237" N	80° 1' 22.803" E
10	16° 46' 30.608" N	80° 1' 14.135" E
11	16° 46' 49.160" N	80° 1' 17.186" E
12	16° 47' 11.840" N	80° 0' 57.363" E
13	16° 47' 25.822" N	80° 0' 53.746" E

Telangana State Mineral Development Corporation Limited
Subsurface Exploration -Borehole Details
CLUSTER-6, DDPCBH-1, Drill Unit: VOL-90

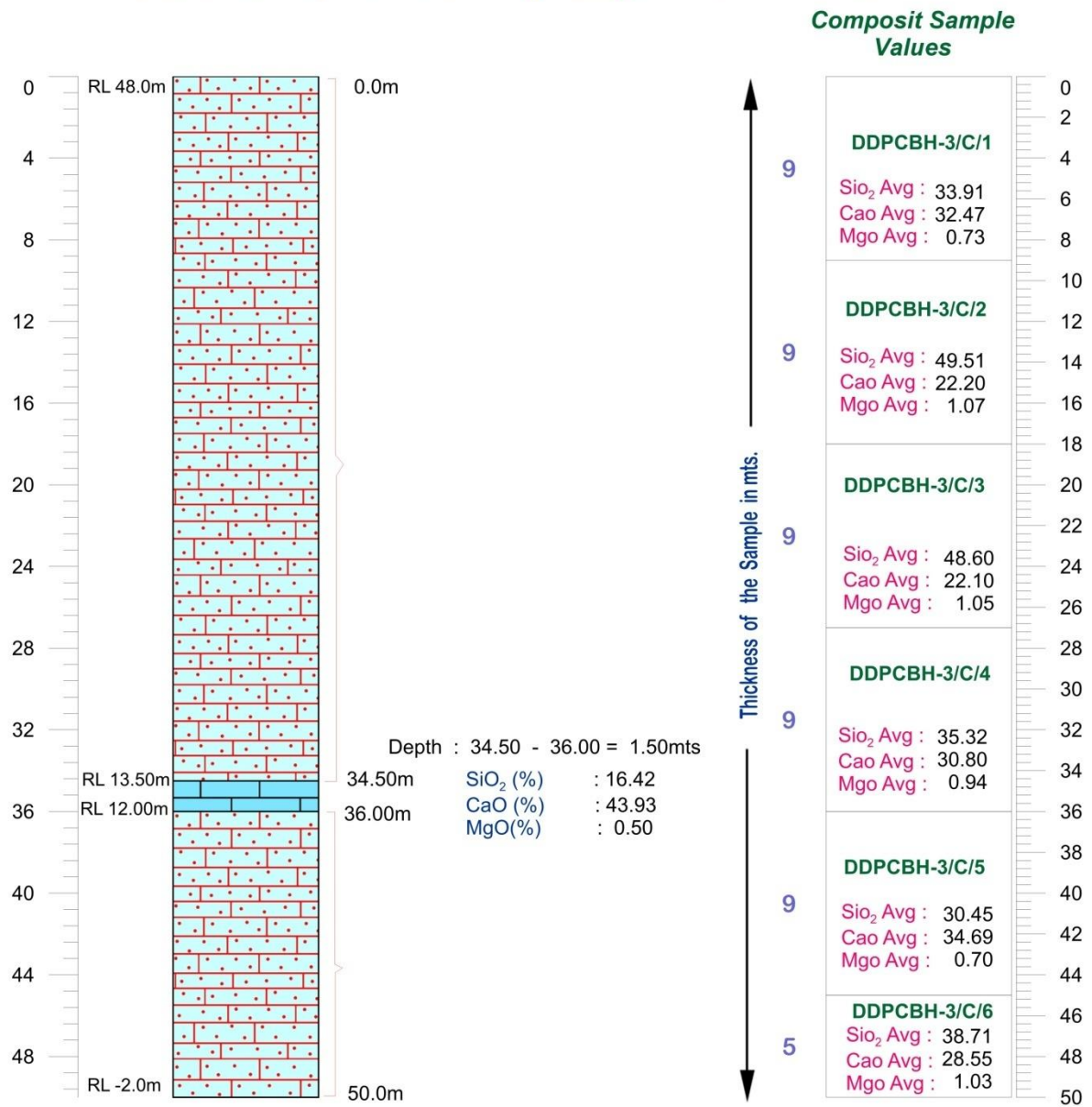


Telangana State Mineral Development Corporation Limited
Subsurface Exploration -Borehole Details
CLUSTER-6, DDPCBH-2(P-23), Drill Unit: KLR

Plate: 3b



Telangana State Mineral Development Corporation Ltd.
Subsurface Exploration -Borehole Details
CLUSTER-6, DDPCBH-3 (P-22), Drill Unit: KOREA

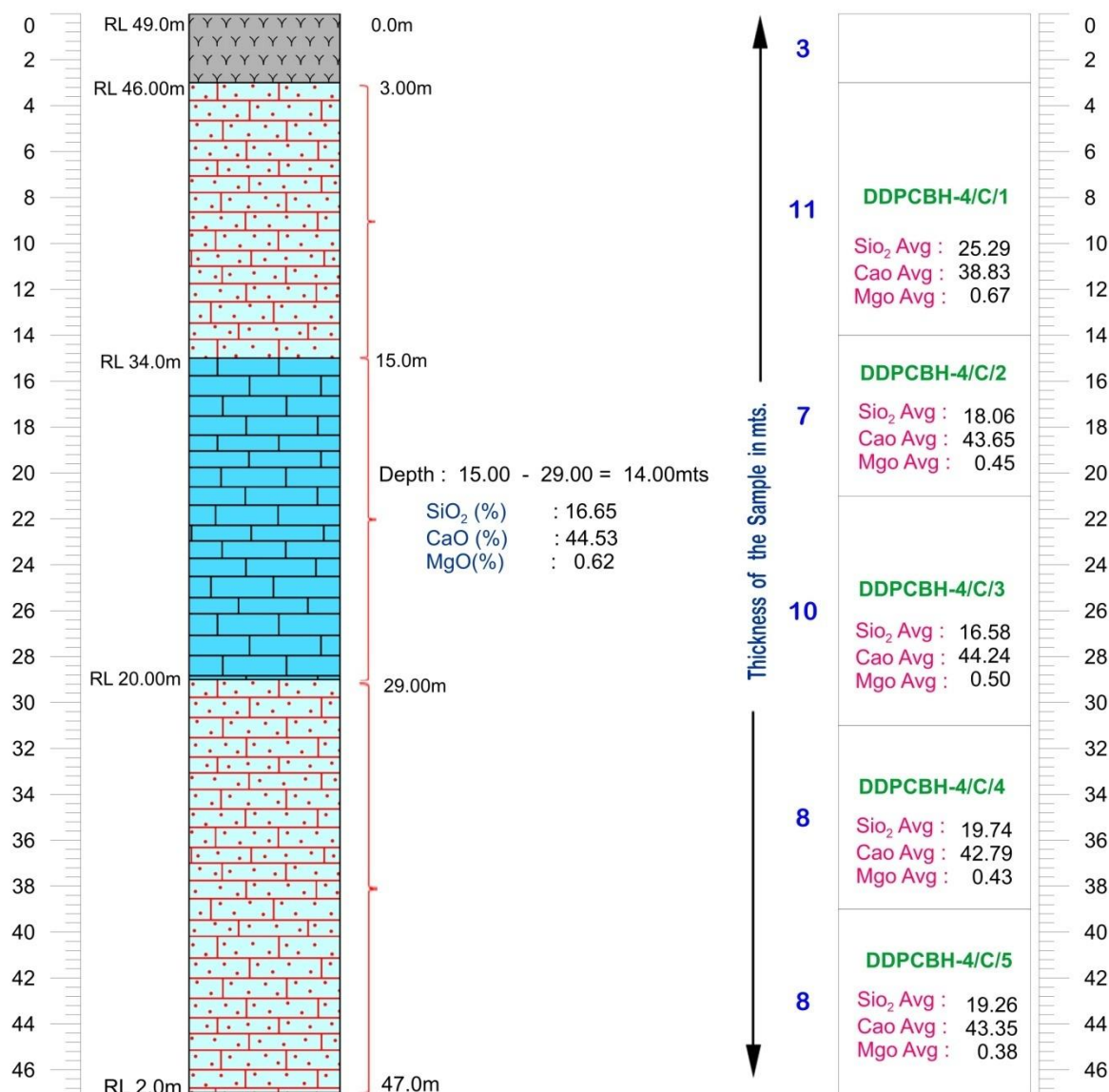


Legend

-  Silicified Limestone
-  Cement grade Limestone

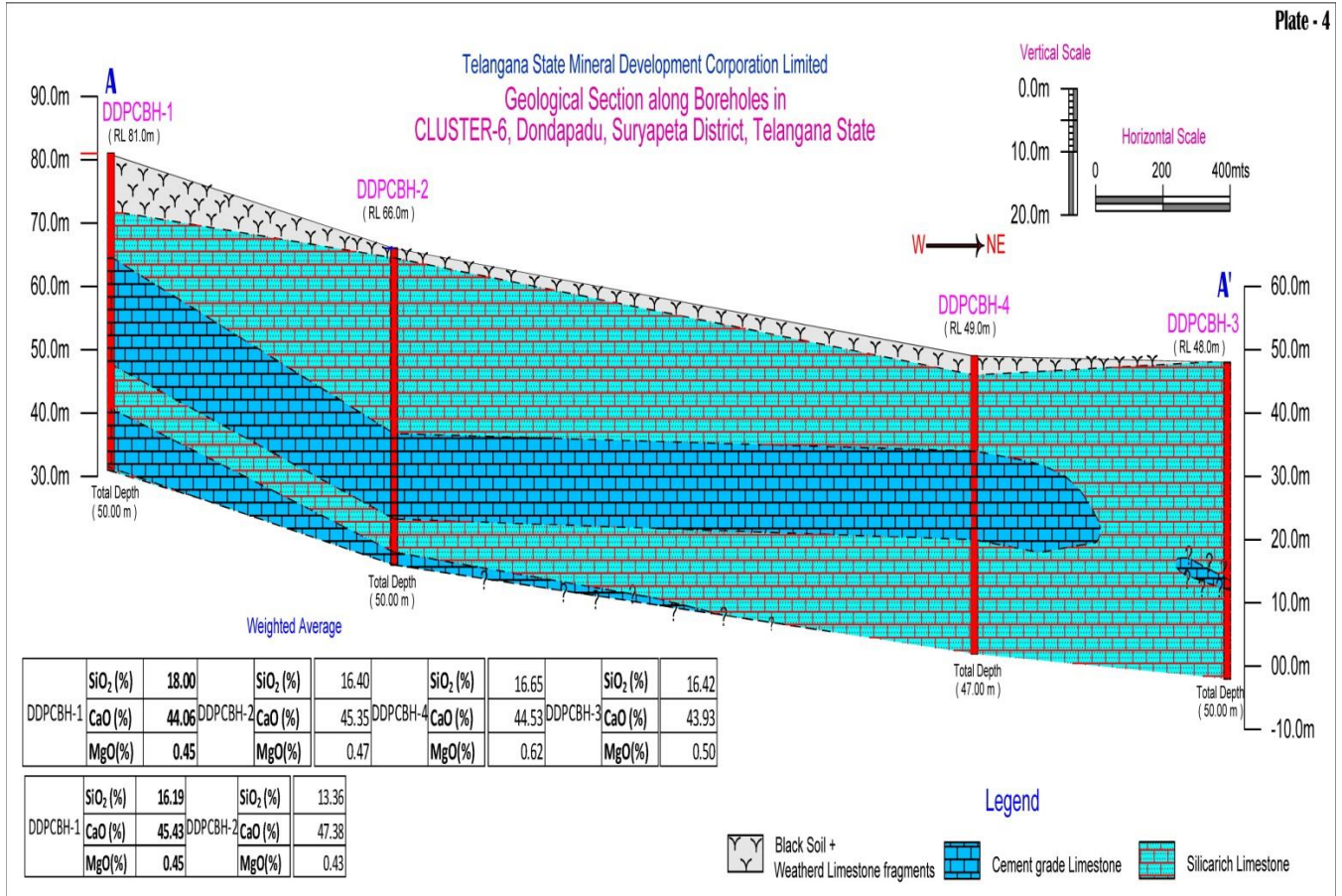
Telangana State Mineral Development Corporation Limited
Subsurface Exploration -Borehole Details
CLUSTER-6, DDPCBH-4(P-21), Drill Unit: VOL-90

Composit Sample Values



Legend

-  Brown to pale yellowish soil
-  Silicarich Limestone
-  Cement grade Limestone



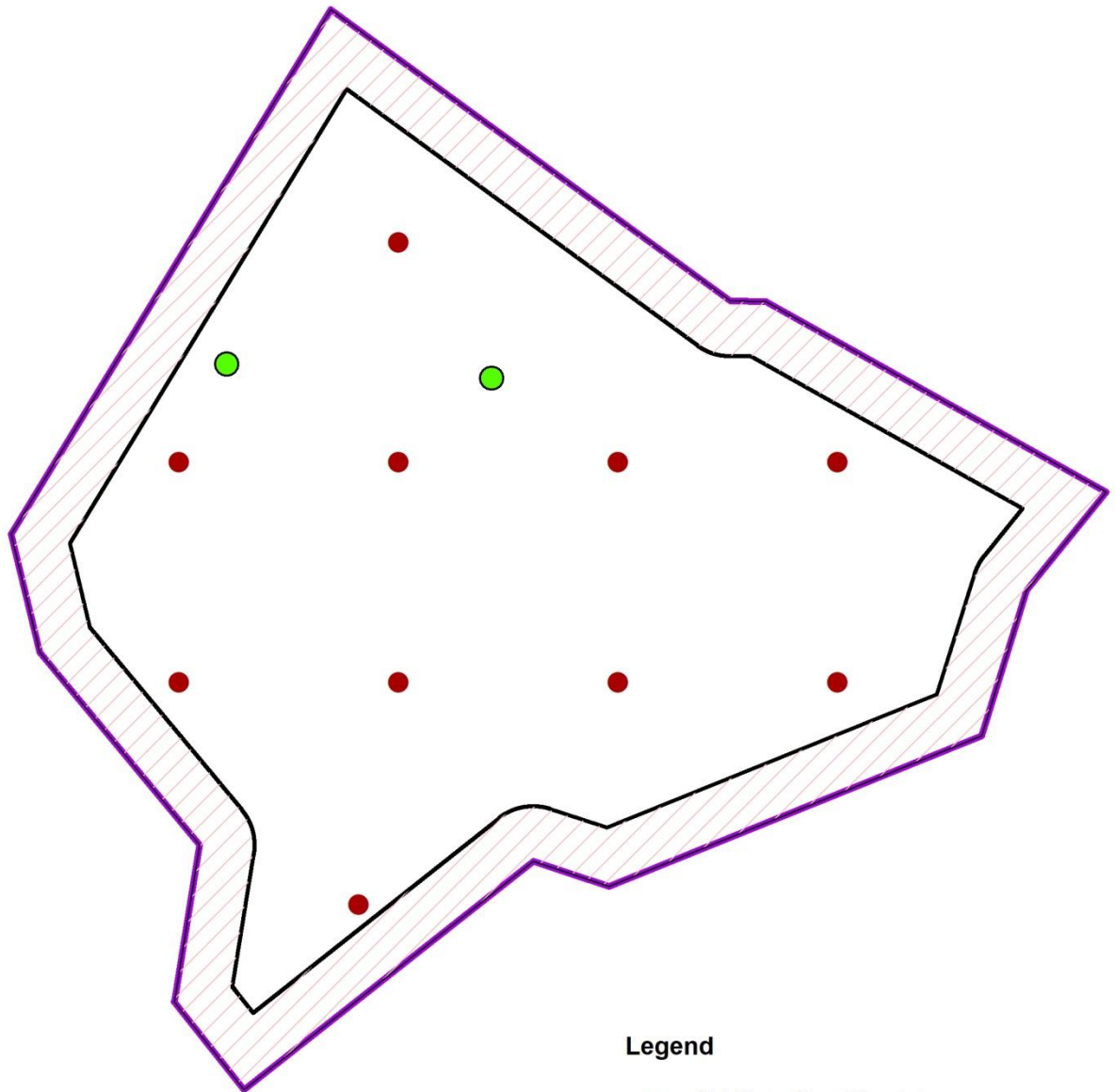
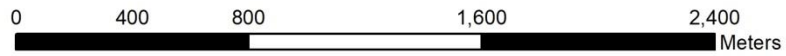
BOREHOLE GRID MAP



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

Area = 8.20 Sq. Kms.

Parts of Toposheet No's: 65D/1



Legend

- G-4 Stage Scout Boreholes
- 800 X 800 DTH = 10 (G3-Exploration)
- Proposed Block Boundary with buffer of 200mts
- Proposed Block Boundary

TIME LINE FOR G-3 EXPLORATION LIMESTONE BLOCK

Sl.No	Activities	Unit	Months									
			1	2	3	4	5	6	7	8	9	10
1	Topographical (1 : 4000) DGPS Survey work	Month										
2	Camp Mobilisation	Month										
3	Surface Drilling	Month										
4	Core logging and Sampling Geological party	Month										
5	Laboratory Studies	Month										
6	Geologist Party days(1 party)	Month										
7	Synthesis of data and Geological report Writing	Month										
8	Peer review work	Month										
9	Finalisation of Geological Report & Priniting	Month										