



भारत सरकार /Govt. of India
खान मंत्रालय /Ministry of Mines
भारतीय खान ब्यूरो / Indian Bureau of Mines
हैदराबाद क्षेत्रीय कार्यालय / Hyderabad Regional Office



Phone No. : (040)-29553603/29554603
E-Mail: ro.hyderabad@ibm.gov.in
No. AP/KNL/MP/LST-51/HYD

Room No.603, 6th Floor,
CGO Towers, Kavadiguda,
Secunderabad – 500 080
Date:

To
P.R.Venketrama Raja, Chairman & Managing Director,
M/s. The Ramco Cements Limited,
Auras Corporate Center,
98-A Dr Radhakrishnan Salai,
Mylapore, Chennai-600 004, Tamilnadu State

Sub: Approval of Modified Mining Plan in respect of Nayanapalli Limestone Mine of M/s. The Ramco Cements Ltd. over an extent of 735.72 ha. in Kolimigundla & Petnikota Villages, Kolimigundla Mandal, Kurnool District, Andhra Pradesh State submitted under Rule 17(3) of MCR, 2016.

Ref: 1. Your letter no. RCL/MMP/NP/IBM/20-21/780 dated 20.03.2021.
2. This office letter even no. dated 19.04.2021 by mail.
3. Your letter no. RCL/MMP/NP/IBM/2020-21/790 dated 03.05.2021.
4. This office mail dated 27.05.2021
5. This office mail dated 27.05.2021 (Provisional Approval)
6. Your letter no. RCL/MMP/NP/IBM/2020-21/ dated 09.06.2021
7. Your letter no. nil dated 18.06.2021

Sir,

In exercise of the power conferred by the clause (b) of sub-section (2) of Section-5 of Mines and Minerals (Development and Regulation) Act, 1957(as amended up to 27th March, 2015), and Powers delegated by Controller General, Indian Bureau of Mines vide Order no. S.O.1857(E) dated 18th May,2016, I hereby approve Modified Mining Plan (including Progressive Mine Closure Plan) in respect of Nayanapalli Limestone Mine of M/s. The Ramco Cements Ltd. over an extent of 735.72 ha. in Kolimigundla & Petnikota Villages, Kolimigundla Mandal, Kurnool District, Andhra Pradesh State submitted under Rule 17(3) of MCR, 2016.

The approval is subject to the following conditions:

- i) The Modified Mining Plan is approved without prejudice to any other law applicable to the Mining lease area from time to time whether made by the Central Government, State Government or any other authority and without prejudice to any order or direction from any court of competent jurisdiction.
- ii) The proposals shown on the plates and/or given in the document is based on the lease map/sketch submitted by the lessee and is applicable from the date of approval.

iii) It is also clarified that the approval of the aforesaid Modified Mining Plan does not in any way imply the approval of the Government in terms of any other provision of the Mines and Minerals (Development & Regulation) Act, 1957, or the Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rule 2016 and any other laws including Forest (Conservation) Act, 1980, Environment (Protection) Act, 1986 or the rules made there under, Mines Act, 1952 and Rule & Regulations made there under.

iv) Indian Bureau of Mines has not undertaken verification of the Mining lease boundary on the ground and does not undertake any responsibility regarding correctness of the boundaries of the leasehold shown on the ground with reference to lease map & other plans furnished by the Lessee.

v) The execution of approved Modified Mining Plan shall be for the Development & Production proposals related to Limestone only.

vi) At any stage, if it is observed that the information furnished, data incorporated in the document are incorrect or misrepresentation of facts, the approval of the document shall be revoked with immediate effect.

vii) The production proposals pertain to the period w.e.f 2021-22 to 2024-25 and subject to the approved quantity of Environment clearance of MOEF, GOI.

viii) Next Financial Assurance shall be due for submission on 01.04.2025

Yours faithfully,

Encl: Document containing Sheets-125,
Annexures-35, and Plates -12.

Shailendra
28/6/21

(Shailendra kumar)
Regional Controller of Mines

Copy for kind information to:

1. Shri E.V.Naresh Kumar, Qualified Person, C/o. B.S.Envi-Tech. Pvt.Ltd., 12-13-1270/71/73, Amity Ville, 4th.Floor, St.Ann's School Road, Tarnaka, Secunderabad- 5000 17 - for information & necessary action.
2. The Director of Mines & Geology, Govt. of A.P., 4th and 5th Floor, Sri Anjaneya Towers, Ibrahimpatnam., Vijayawada, A.P along with the Approved Modified Mining Plan and soft copy(CD).
3. The Director of Mines Safety, Bellary Region, Bellary-583110, Karnataka State.

I

(Shailendra Kumar)
Regional Controller of Mines

MODIFICATION OF MINING PLAN
and
PROGRESSIVE MINE CLOSURE PLAN
(Submitted under Rule 17(3) of MCR 2016)

Mining Plan Period : 2020-21 TO 2024-25
Proposal Period : 2021-22 TO 2024-25

Of

NAYANAPALLI LIMESTONE MINE

(MINING LEASE Letter vide Go Ms. No. 137 & Dt.15.02.2000 &
Go Ms. No. 6 & Dt.03.01.2019; Area: 735.72 Ha or 1817.23 Ac)

(Lease Period – 50 years, Lease Expiry – 08.08.2050)

**KOLIMIGUNDLA & PETNIKOTA VILLAGES, KOLIMIGUNDLA MANDAL,
KURNOOL DIST, ANDHRA PRADESH**

IBM Regn. No: IBM/638/2011, Mine Code: 638/38APR11156

Forest	Area (Ac.)	Non- Forest	Area (Ac.)
Reserve forest	Nil	Govt. Waste land	353.02
Protected forest	Nil	Govt. Grazing Land	Nil
Wild life sanctuary	Nil	Pvt. Agricultural Irrigated land	Nil
Bird sanctuary	Nil	Pvt. Agricultural non-Irrigated land	1464.21
Others (specify)	Nil	Pvt. Other land	Nil
		Others (Specify)	Nil

CATEGORY of MINES: "A" Category

M/s THE RAMCO CEMENTS LIMITED
(Formerly Madras Cements Ltd.,)

Kalvatata Project, Kolimigundla Mandal & PO
Kurnool - District- Pin: 518123, Andhra Pradesh.
Phone No: 08510-244488,

(TEXT & ANNEXURES)

Prepared by:



Name of the QP: E.V.Naresh Kumar,
C/o B.S Envi-Tech Pvt Ltd.,
"Amity Ville", 4th Floor, #12-13-1270/71/73,
Beside Spencer Super Market, Tarnaka,
Secunderabad – 500 017, Telangana State.

May, 2021



THE RAMCO CEMENTS LIMITED

(formerly known as Madras Cements Ltd)

Kalvatala Project,
Kolimigundla Mandal & PO
Kurnool District – Pin: 518 123
Andhra Pradesh
Phone No: 08510 - 244488

CONSENT LETTER / UNDERTAKING / CERTIFICATE FROM THE LESSEE

1. The Modified Mining Plan in respect of **Nayanapalli Limestone Mine**, a mining lease for Limestone granted vide G.O.Ms.No.137 Industries and Commerce(M.III) Department dated 15.02.2000, subsequently extension of Mining Lease period for 50 years granted valid upto 08.08.2050 vide G.O.Ms.No.6 Industries and Commerce(M.III) Department dated 03.01.2019 and further Errata have been issued by Government of Andhra Pradesh vide G.O.Ms.No.40 Industries & Commerce (Mill) Department dated 04.06.2021 for the above said G.Os, Wherever the words “775.57 Hectares” occur shall be read as “735.72 Hectares”, situated in Survey Nos. 1 to 10, 11/1,2 etc., of Kolimigundla and Petnikota villages, Kolimigundla Mandal, Kurnool District, Andhra Pradesh belonging to M/s The Ramco Cements Limited, submitted Under Rule 17(3) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016 has been prepared by Qualified person Mr. E.V.Naresh Kumar.

This is to request the Regional Controller of Mines, Indian Bureau of Mines (IBM), Hyderabad, to make any further correspondence regarding any correction of the Modified Mining Plan with the said Qualified Person at the following address:

Mr. E.V.Naresh Kumar
C/o. B.S.Envi-Tech Pvt. Ltd.,
12-13-1270/71/73, Amity Ville,
4th Floor, St. Ann’s School Road,
Tarnaka, Secunderabad – 500014
Mobile No. +919989659275,
Email.ID: info@bsenvitech.com



We hereby undertake that all the modifications/updating as made in the said Modified Mining Plan by the said Qualified Person be deemed to have been made with my knowledge and consent and shall be acceptable on me and binding in all respects.

02. It is certified that the Chief Controller of Mines (CCOM) Circular No. 2/2010 will be implemented and complied with when an authorized agency is approved by the State Government.



THE RAMCO CEMENTS LIMITED

(formerly known as Madras Cements Ltd)

Kalvatala Project,
Kolimigundla Mandal & PO
Kurnool District – Pin: 518 123
Andhra Pradesh.
Phone No: 08510 - 244488

03. It is certified that the Progressive Mine Closure Plan in respect of Nayanapalli Limestone Mine of M/s The Ramco Cements Limited over an area of 735.72 Ha (1817.23 Ac) complies with all statutory rules, Regulations, Orders made by the Central or State Government, Statutory Organizations, Court etc. Which have been taken into consideration and wherever any specific permission is required the lessee will approach the concerned authorities.

The information furnished in the Progressive Mine Closure Plan is true and correct to the best of our knowledge and records.

04. The Provisions of Mines Acts, Rules and Regulations made there under have been observed in the Modified Mining Plan including Progressive Mine Closure Plan for Nayanapalli Limestone Mine over an area of 735.72 Ha (1817.23 Ac). in Sy. No's 1 to 10, 11/1, 2 etc. of Kolimigundla & Petnikota Villages, Kolimigundla Post Office, Kolimigundla Mandal, Kurnool District, Andhra Pradesh belonging to M/s The Ramco Cements Limited and where specific permissions are required, the lessee will approach the Directorate General of Mines Safety (**DGMS**). Further, standards prescribed by **DGMS** in respect of the miners' health will be strictly implemented.

Place: CHENNAI

Date:



(P.R.VENKETRAMA RAJA)

CHAIRMAN & MANAGING DIRECTOR
THE RAMCO CEMENTS LIMITED
(OWNER – MINES)

Registered Office: 'Ramamandiram', Rajapalayam – 626 117 Tamil Nadu

Corporate Office: Auras Corporate Centre, V Floor, 98-A, Dr. Radhakrishnan Salai, Mylapore, Chennai - 600 004.

Website: www.ramcocements.in

CERTIFICATE FROM QUALIFIED PERSON

The Provisions of the Mineral Conservation and Development Rules, 2017 made under section 18 of the Mines and Minerals (Development & Regulation) Act 1957, have been observed in the Preparation of Modified Mining Plan for NAYANAPALLI LIMESTONE MINE over an extent of 735.72 Ha of THE RAMCO CEMENTS LTD in Kolimigundla & Petnikota Villages, Kolimigundla Mandal, Kurnool District, Andhra Pradesh State, and whenever specific permissions are required, the applicant will approach the concerned authorities of Indian Bureau of Mines. The information furnished in the Review Mining Plan is true and correct to the best of our knowledge.

E.V. Naresk Kumar

E.V.NARESH KUMAR
Geologist / Qualified Person

Place: Hyderabad.

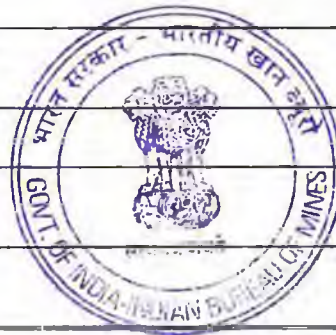
Date:



**MODIFIED MINING PLAN
FOR NAYANAPALLI LIMESTONE MINE
OVER AN EXTENT OF 735.72 Ha OF KOLIMIGUNDLA & PETNIKOTA
VILLAGES, KOLIMIGUNDLA (M), KURNOOL (DT), ANDHRA PRADESH
OF M/s THE RAMCO CEMENTS LTD.,
(Submitted under Rule 17 (3) of MCR, 2016)**

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Annexure No	Particulars
1	Copy of the Board Resolution for Rated Capacity
2	Resolution of Board of Directors is enclosed (Nominated Owner)
3	Copy of Photo ID and Address Proof of Nominated Owner
4	Copy of the Certificate regarding the Change of the Company
5	Copy of the Certificate of Incorporation since inception in the name of M/s. Madras Cements Ltd.
6	Copy of letter issued by the Govt. of A.P, Memo no. 13534/M.III(1)/98-2. Dtd. 28.08.1998 for submission of Mining Plan.
7	Previously Approved Mining Plan of vide IBM Letter no, AP/KNL/MP/Lst-51/Hyd. dtd 29.11.1999.
8	The mining lease was granted to erstwhile Madras Cements Limited vide G.O.Ms. No.136 dtd.15.02.2000 over an extent of 775.57Ha.
9	Copy of lease execution letter vide proceeding No.1335/M4/2000 dtd.09.08.2000
10	The lease has been transferred the lease in the name of M/s Ramco Cements Limited on 13.10.2015, vide GO MS No. 96.
11	The Ministry of Mines has issued order for relaxation of area limits for prospecting license and mining lease in the state of Andhra Pradesh for limestone vide order No 16/143/2016-M.VI dated 08.12.2016
12	Letter of the Govt. of A.P., vide Memo no. 576/M.III(1)/2015 dtd. 16.10.2015 issued time extension for putting up Cement Plant upto 13.10.2018.
13	Copy of Permission Letter for 3 more years ie up to 13-10-2021, for commencement of cement plant and invariably mines
14	Copy of lease letter granted upto 50 years
15	Copy of supplementary mining lease deed executed on 26.03.2019 lease period up to 08.08.2050
15A	Copy of the amendment for the reduced extent of 735.72 Ha vide G.O.M.S.No.40, dated 04.06.2021
16	Nayanapalli mining lease area arrived to over an extent of 735.72 Ha (1817.23 Ac) vide letter No.1335/M4/2000 dated 03.02.2021 issued by the Department of Mines & Geology, Andhra Pradesh
17	DGPS Sketch
18	List of Board of Directors is enclosed.
19	Attested copy of registration of company is enclosed
20	Qualification & Experience Certificate of QP is enclosed
21	Survey Number wise lease extent (Lease Deed)



21A	Copy of the Compliance Report
22	Prepare Surface Plans and Surface Geological Plans on a scale of 1: 4000 instead of 1: 2000. A copy of the permission letter is enclosed.
23	Particulars of the Drilled Boreholes
24	Lithologs and Meter wise Chemical Analysis of the Boreholes
25	10% Samples Analysis Reports from NABL Accredited Laboratory (NRDCS)
26	Copy of the total approximate expenditure incurred for drilling, sampling and analysis of core boreholes
27	Borehole wise and Section wise Summary of Quality Report
28	Feasibility Study Report
29	Copy of NIRM study report
30	Detailed calculation of the Year Wise Proposed Production
31	Copy of Ground Water Investigation Report
32	Copy of NOC of APWALTA
32A	Copy of the Chemical Analysis Report of the Limestone Heaps
33	Copy of Flow Chart
34	Copy of the Bank Guarantee

35 Copy of the Affidavit



**MODIFIED MINING PLAN
FOR NAYANAPALLI LIMESTONE MINE
OVER AN EXTENT OF 735.72 Ha OF KOLIMIGUNDLA & PETNIKOTA
VILLAGES, KOLIMIGUNDLA (M), KURNOOL (DT), ANDHRA PRADESH
OF M/s THE RAMCO CEMENTS LTD.,
(Submitted under Rule 17 (3) of MCR, 2016)**

LIST OF PLATES

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INTRODUCTION

The Ramco Cements Limited (TRCL) is a flagship company of Ramco Group which has been growing steadily right from its inception. Ramco group of Companies having its annual turnover of about Rs. 8000 Crore With diversified manufacturing activities in Textiles, Cement, Fibre-Cement products, ready-made Plaster of Paris, Surgical dressings, ready-mix concrete and Dry Mortar Plant.

The Group is managed by a Board of Directors under the dynamic leadership of **Sri. P.R. Venketrama Raja** as Chairman and Managing Director and supported by a team of Experts in Cement Technology, Marketing, Finance, Administration etc.

The Ramco Cements Limited (TRCL), under RAMCO Group, is one of the reputed and largest Cement Companies in India.

The Ramco Cements Limited is well known for its implementation of new and latest technology for not only in cement industry but also in the Mining. The Ramco Cements Limited has installed its cement industry in the various parts of south India more particular in Tamilnadu, Andhra Pradesh and Karnataka. The present installed capacity of all units is amounts to 14.50 million tonnes of cement per annum. The company is the second largest cement producer in South India and sixth largest manufacturer of cement in the Country. RAMCO Super Grade is one of the most popular brands of cement in South India. The following table shows the location and production capacity of the plants.

Cement Plant Capacity of M/s The Ramco Cements Limited:
The five modern Cement Plants are located at:

Location	District	State	Capacity
RR Nagar	Virudhunagar	Tamilnadu	2.00 MTPA
Alathiyur	Ariyalur	Tamilnadu	3.05 MTPA
Ariyalur	Ariyalur	Tamilnadu	5.50 MTPA
Jayanthipuram	Krishna	Andhra Pradesh	3.65 MTPA
Method	Chitradurga	Karnataka	0.30 MTPA
TOTAL			14.50MTPA

TRCL is constantly upgrading the technology and is the trend setter for the rest of the industry in the country. TRCL, which is always striving for Total Quality, possesses the International Certificates in IS/ISO 9001, IS/ISO 14001, IS 18001, ISO 50001 and 5S Work Place Management System.

Proposal of Green field Cement Plant:

The Ramco Cement Limited is proposing to establish a Cement plant with a capacity of 4.485 Million Tonnes Per Annum (MTPA) of Clinker at Kalvatata Village, Kolimigundla Mandal, Kurnool Dist., Andhra Pradesh, vide Board Resolution dated 22.05.2019. The copy of the Resolution is enclosed vide **ANNEXURE -1**

Shri P.R. Venketrama Raja, nominated as "Owner" of the Company and designated as the Chairman and Managing Director of the Company. In supersession of the resolutions passed earlier **Shri P.R. Venketrama Raja**, shall continue to act as "Owner / Occupier" in his new designation of Chairman & Managing Director for all of the mines, cement



E.V. eParash Keemas

अनुमोदित
AP/KNE/SP/LST-71
20-6-21
date.....2021-22 to 2024-25
valid from.....
Regional Controller of Mines
भारतीय खान ब्यूरो
Indian Bureau of Mines
हैदराबाद/Hyderabad

plants, power plants etc., owned by the company covering all the existing as well as future establishments vide Board Resolution dated 06.02.2018. The copy of the Resolution is enclosed vide **ANNEXURE-2**

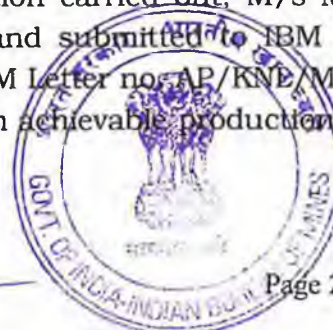
The copy of the photo identify and address proof of the Nominated Owner is enclosed vide **ANNEXURE-3**. The copy of the Certificate of Incorporation regarding change of name of the company is enclosed vide **ANNEXURE-4** and The copy of the Certificate of Incorporation since inception in the name of M/s. Madras Cements Ltd. is enclosed vide **ANNEXURE-5**.

Details of Mining Leases:

S. No.	Name of the Mining Block	Villages Covered	G.O.No. & Date	Extension of Lease Period G.O.No. & Date	M.L. Extent and its Validity	
					Extent (Ha)	Lease valid upto
1	Kanakadripalli Block	Petnikota & Itikyala	136 dt 15.2.2000	G.O. Ms. No.3 dated 03.01.2019	435.24	08.08.2050
2	Nayanapalli Block	Petnikota & Kolimigundla	137 dt 15.2.2000	G.O. Ms. No.40 dated 04.06.2021	735.72	08.08.2050
3	Chintalayapalle Block	Chintalayapalli & Itikyala	138 dt 15.2.2000	G.O. Ms. No.4 dated 03.01.2019	491.55	08.08.2050
4	Kolimigundla Block	Kolimigundla & Itikyala	139 dt 15.02.2000	G.O. Ms. No.5 dated 03.01.2019	255.00	08.08.2050

The Govt. of A.P had issued a Memo no. 13534/M.III (1)/98-2 dated 28.08.1998 (**ANNEXURE-6**) to erstwhile Madras Cements Ltd (Now company name changed as The Ramco Cements Limited) considering grant of Mining Lease for limestone mining in Kolimigundla and Petnikota villages over an extent of 775.57 Hectares. GSI also had conducted exploration of the limestone deposit in the Tadipatri region in 1971-74 field season. Further, MECL had done detailed exploration during Nov. 1994 to May 1995, in the area along with adjoining three blocks in the region. MECL has explored in Nayanapalle limestone block by carrying out topographic survey, geological mapping and exploratory core drilling etc. Based on geological exploration carried out, M/s Madras Cements Ltd had prepared Mining Plan for 775.57 Ha and submitted to IBM for its approval in the year 1999. The same was approved vide IBM Letter no. AP/KNE/MP/Lst-51/Hyd. dtd. 29.11.1999. (**ANNEXURE-7**) with a maximum achievable production of 0.1 MTPA.

E. V. Narayana Kumar



The Mining Lease was granted to erstwhile Madras Cements Ltd vide G.O.Ms. No.137 dtd.15.02.2000 over an extent of 775.57 Ha. in Kolimigundla and Petrikota Villages, Kolimigundla Mandal, Kurnool District, Andhra Pradesh. (**ANNEXURE-8**). The mining lease was executed vide proceeding No.1335/M4/2000 dtd.09.08.2000. (**ANNEXURE-9**). Madras Cements could not commence mining operations for the sluggishness in the market.

In the meantime, the Madras Cements Ltd., has been rechristened as The Ramco Cements Limited and upon request, the lease holders name has been changed to M/s The Ramco Cements Limited on 13.10.2015, vide GO MS No. 96 (**ANNEXURE-10**), by Government of Andhra Pradesh. The Ministry of Mines has issued order for relaxation of area limits for prospecting license and mining lease in the state of Andhra Pradesh for limestone vide order No 16/143/2016-M.VI dated 08.12.2016 (**ANNEXURE-11**)

Now the Govt. of A.P., vide Memo no. 576/M.III(1)/2015 dtd 16.10.2015 (**ANNEXURE-12**), had accorded M/s The Ramco Cements Limited (RCL henceforth), extension of time for 3 years, i.e: up to 13.10.2018, for commencement of cement production and mines, after obtaining all the necessary clearances from both the MoEF & CC and State Pollution Control Board.

RCL initiated the process of Environmental Clearance for both the Cement Plant and four mine leases. The Cement Plant, Chintalayapalle and Kolimigundla Limestone Mines received Environmental Clearances after obtaining mining plan approval from IBM, Hyderabad. For the other two mines namely Kanakadripalli and Nayanapalli blocks was granted for TOR. Looking at the progress of the process, GoAP further extended the permission for 3 more years ie up to 13-10-2021, for commencement of cement plant and mining activities vide Memo No. 510020/2018/A1-MINES.III-INDS Dtd 04.10.2018 (**ANNEXURE-13**)

However as per lease agreement lease is granted till 08.08.2030 and RCL has been granted extension of mining Lease period up to 50 years under Section 8A(3) of the MMDR(Amended) Act, 2015. Vide G.O.Ms. No.6 Dated 03.01.2019 (Copy enclosed as **ANNEXURE-14**) and supplementary mining lease deed executed on 26.03.2019 lease period up to 08.08.2050. vide proceeding No1335/M4/2000 dated 26.03.2019 (Copy enclosed as **ANNEXURE-15**).

We have started construction of green field Cement Plant after obtaining Consent For Establishment (CFE) from Andhra Pradesh Pollution Control Board (APPCB) during the month 12.05.2019.

The construction activities have been commenced during the month of May 2019, for the major civil structure like limestone Crusher, Raw mill, Pre-heater, Blending Silo, Cooler, Clinker Storage Silo etc. and till the month of March 2020, part of the work has been completed. Due to Covid-19 pandemic situation all the project activities have been disturbed. In view of the migration of labour subsequently the part of the work has been resumed and presently 90% of the Civil work, 50% Mechanical works has been completed. We have stated the erection of major mechanical structure in the activities like Kiln, Pre-heater, Cooler, Raw mill and limestone Crusher etc.

It is expected that the completion of major mechanical structure for commencing of the plant operation would be during the month of April-June of 2021, subject to the condition that all necessary various statutory clearances from State and Central Govt. Departments.

We shall make all effort for completion of the clinkerisation, however if the pandemic situation worsens / increases, the above process and completion of work may get delay, in such extreme situation, we may apply to the Govt. of A.P. seeking for grant of extension of time pertaining to the commencement of Cement Plant and mining operation of the mining leases.

As limestone is the major raw material to produce the clinker, lessee has acquired 4 captive Mining Leases and this lease is one of 4 for which Modification in the Approved Mining Plan is submitted. All four Mining Leases are in process to get various statutory clearances from State & Central Government departments.

E. V. Anand Kumar

As per section 8A(3) of the MMDR (Amendment) Act, 2015. The existing mining leases have been extended up to 08.08.2050.

As per Board of Directors resolution (**ANNEXURE-1**, dated. 22.05.2019) cement plant is proposed for 4.485 MTPA clinker for which limestone requirement is 6.727 MTPA. Following justification is provided for considering additional 10% of the limestone requirement for plant with a rated capacity of 7.4 MTPA.

Each mine wise individual rated production capacity provided is as below

Name of the Mine	Rated capacity (MTPA)
Chintalayapalle Limestone Mine	4.0
Kolimigundla Limestone Mine	0.6
Kanakdripalle Limestone Mine	0.1
Nayanapalli Limestone Mine	2.7
Total	7.4

We are proposing 2.7 MTPA for Nayanapalli Limestone mine by considering following practical issues:

1. Flaggy limestone ($\text{SiO}_2 > 25\%$) is available predominantly in Nayanapalli Limestone mine only which has to be blended with other three mine limestone for manufacture of Clinker. The flaggy limestone requirement for the cement plant raw mix varies from 18 to 25 % and the balance only would be cement grade limestone.
2. Interstitial clay is filled in the joints of the limestone deposit of four limestone mines. To remove interstitial clay from limestone, we have installed vibrating screen in the Limestone Crusher to separate the interstitial clay for quality requirements. The estimated quantity of this clay may vary 5-10%. Considering a maximum 10 % clay removal, the limestone of 6.727 MPTA ROM is increased to 7.47 MTPA, justifying the proposal of 10% margin.
3. The green field integrated cement plant is located in Rayalaseema region and four mines are to be started afresh... In this regard, it is challenging task for us for smooth startup of mines and plant operations in view of socio- political issues that may arise during start up. If mines production is stopped due to above issues for some period, plant clinker production may suffer and operations may get affected. To circumvent any such exigencies and ensure uninterrupted supply to the cement plant, we need to have provision for this 10 % in addition to rated capacity.
4. It is proposed to produce and maintain the limestone stock, a minimum of 10% quantity of the rated capacity near factory crusher from all four mines to overcome any excergencies.
5. We are using various types of coal for manufacture of Clinker like Pet coke, Imported and Indian coal. The ash content varies considerably from Coke (2-4%), Imported Coal (20-22%) and Indigenous coal (35-40%). As per the availability as well the cost of coal, coal is selected. Raw mix is designed considering the ash content and quality of Coal. High grade Limestone consumption is higher while using high ash coal. Therefore there is more Loss on Ignition (LOI) and increases limestone requirement. Further based on the market we may have produce OPC or PPC. If OPC to be produced, Limestone consumption will increase. Further based on the Limestone analysis, we have to select type of additives. Therefore, all these points will influence on the Limestone consumption.

Raw mix design study to produce the clinker is required to assess the conversion factor. The raw mix design study can be conducted, once clinkarisation unit is commissioned. Presently Limestone Consumption Factor was taken as 1.5 based on the experience and standard norm of NCCBM.

Lease grant sketch issued along with lease deed for over an extent of 775.57 Ha (1915.65 Ac.) After completion of DGPS survey conducted by state empaneled agency (V.V.N. Technologies Pvt Ltd), the Nayanapalli mining lease area arrived to over an extent of 735.72 Ha (1817.23 Ac) vide letter No.1335/M4/2000 dated 03.02.2021 issued by the Department of Mines & Geology, Andhra Pradesh Letter enclosed as **ANNEXURE-16** & Sketch enclosed as **ANNEXURE-17**.

E. V. Anand Kumar

1.0 GENERAL

a) **Name of lessee:** M/s The Ramco Cements Limited
Mine Code: 638/38APR11156
IBM Registration No: IBM/638/2011
Corporate Office Address: Auras Corporate Center,
 98-A Dr Radhakrishnan Salai
 Mylapore, Chennai - 600004
 Phone: 044-28478666
 www.ramcocements.in

Registered Office Address: Ramamandiram,
 Virudhunagar District,
 Rajapalayam,
 Tamil Nadu - 626 117.
 Email: reddyagaraju@ramcocements.co.in

Name of Nominated Owner : Sri P.R. Venketrama Raja
 (Chairman & Managing Director)

The Photo ID of Nominated Owner **ANNEXURE-3** and resolution of Board of Directors is enclosed as **ANNEXURE-2** and List of Board of Directors is enclosed in **ANNEXURE-18**. Attested copy of registration of company is enclosed as **ANNEXURE-19**.

b) Status of lessee Public Limited Company

Private Individual : NO.
 Co-operative Association : NO.
 Private Company : NO.
 Public Limited Company: **YES**.
 Public Sector Undertaking: NO.
 Other (Please specify) : NO.

**Other Leases Held by the Lessee:**

Leases held by the Lessee in Andhra Pradesh State are summarized in a tabular form below:

S. No.	Lease reference No. & Date	Area in Ha.	Postal address & location	Type of mineral	Working / Non-working	Status of approval of mining plan	Date of Execution & Expiry
1	Chintalayapalli Limestone Mine	491.55	The Ramco Cements Kolimigundla Village, Kolimigundla Mandal, Kurnool District, A.P.	Limestone	Non-Working	Approved MMP	09.08.2000 & 08.08.2050

E. V. Venkatesh Kumar

2	Kolimigundla Limestone Mine	255.00	The Ramco Cements Kolimigundla Village, Kolimigundla Mandal, Kurnool District, A.P.	Limestone	Non-Working	Approved MMP	09.08.2000 & 08.08.2050
3	Nayanipalle Limestone Mine	735.72	The Ramco Cements Kolimigundla Village, Kolimigundla Mandal, Kurnool District, A.P.	Limestone	Nonworking	Under submission	09.08.2000 & 08.08.2050
4	Kanakadripalle Limestone Mine	435.24	The Ramco Cements Kolimigundla Village, Kolimigundla Mandal, Kurnool District, A.P.	Limestone	Nonworking	Approved MMP	09.08.2000 & 08.08.2050
5	Jayanthipuram Limestone Mine (North Band)	256.54	The Ramco Cements Limited, Kumarasamy Raja Nagar 521 457 Jaggayyapet Mandal, Krishna Dt. A.P.	Limestone	Working	Modified Mining Plan	16.07.1982 & 15.07.2032
6	Jayanthipuram Limestone Mine (South Band)	88.35	-do-	Limestone	Working	Modified Mining Plan	19.12.1984 & 18.12.2034
7	Ravirala Limestone Mine (Forest)	60.72	-do-	Limestone	Working	Modifications in the Approved Mining Plan	27.06.2001 & 26.06.2051
8	Ravirala Limestone	124.33	-do-	Limestone	Nonworking	Approved MP	01.10.1997 &

E.V. Anvesh Kumar

THE RAMCO CEMENTS LIMITED

NAYANAPALLI LIMESTONE MINE
AREA: 735.72 Ha (1817.23 Ac) Kolimigundla (M), Kurnool (Dt), AP.

	Mine (Revenue)						30.09.2017
9	Ramco Budawada Limestone Mine	160.00	-do-	Limestone	Working	Modified Mining Plan	17.03.2009 & 16.03.2019

c) Mineral(s) which is / are included in the prospecting license (For Fresh grant)
Not Applicable

d) Mineral(s) which is / are included in the letter of Intent / lease deed:
Limestone

e) Mineral(s) which is the lessee intends to mine:
Limestone

f) Name of Recognized Person under rule 22C of MCR,1960 or a Person employed under clause (c) of Sub rule (1) of rule 42 of MCDR, 1988(Applicable for Scheme of Mining only)preparing Mining Plan :

Name of the Qualified Person :

E.V.NARESH KUMAR
C/o B S ENVI- TECH PVT. LTD.,
12-13-1270/71/73, Amity Ville,
4th Floor, St. Ann's road, Tamnaka,
Secunderabad - 500 017
Phone No.- +91 040 49783062
E.Mail- info@bsenvitech.com
Mobile No. 9989659275

Qualification & Experience certificate enclosed as ANNEXURE-20



E.V. Naresh Kumar

2.0 LOCATION AND ACCESSIBILITY**a) Lease Details :**

Name of Mine : Nayanapalle Limestone Mine (ML No.: 137 dt.15.02.2000) of M/s The Ramco Cements Limited, Kolimigundla and Petnikota villages, Kolimigundla Mandal, Kurnool District, Andhra Pradesh.

Lat/long of any boundary point: The Mining Lease area is a part of the Survey of India Topo sheet No. 57/I/4 (New No. D44A4). The site falls between 15°04'51.24875"N - 15°06'44.36631"N and 78°03'35.27704"E - 78°06'23.60471"E latitude and Longitude as per DGPS readings with an altitude ranging from 276 to 330 m above MSL.

Geo Co-ordinates of all Boundary Pillars

Sl.No.	Boundary Pillar Number	GEO COORDINATES - MAP DATUM WGS-84	
		DMS (Degrees, Minutes, Seconds)	
		N-LATITUDE	E-LONGITUDE
1	NP1	N15°6'44.36631"	E78°4'23.37604"
2	NP2	N15°6'43.55421"	E78°4'30.94612"
3	NP3	N15°6'41.89087"	E78°4'31.59952"
4	NP4	N15°6'40.29791"	E78°4'32.81371"
5	NP5	N15°6'37.69774"	E78°4'31.60167"
6	NP6	N15°6'37.04361"	E78°4'32.05153"
7	NP7	N15°6'32.46853"	E78°4'32.19454"
8	NP8	N15°6'30.75642"	E78°4'31.71264"
9	NP9	N15°6'29.48508"	E78°4'30.63824"
10	NP10	N15°6'23.80751"	E78°4'23.99001"
11	NP10A	N15°6'22.75354"	E78°4'23.63253"
12	NP10B	N15°6'20.32512"	E78°4'22.79323"
13	NP10C	N15°6'16.72964"	E78°4'21.53701"
14	NP11	N15°5'53.50564"	E78°4'13.48947"
15	NP12	N15°5'54.68764"	E78°4'17.97851"
16	NP13	N15°5'53.78258"	E78°4'17.79088"
17	NP14	N15°5'53.80203"	E78°4'27.07946"
18	NP15	N15°5'57.68627"	E78°4'26.10249"
19	NP16FS	N15°5'59.08088"	E78°4'25.71959"
20	NP17	N15°6'1.22891"	E78°4'28.10489"
21	NP18FS	N15°6'0.81983"	E78°4'29.51851"
22	NP19	N15°5'59.83366"	E78°4'30.31441"
23	NP20	N15°5'59.61229"	E78°4'30.92224"
24	NP21	N15°6'0.38623"	E78°4'33.12457"



E. P. Anand Kumar

Sl.No.	Boundary Pillar Number	GEO COORDINATES - MAP DATUM WGS-84	
		DMS (Degrees, Minutes, Seconds)	
		N-LATITUDE	E-LONGITUDE
25	NP22FS	N15°6'1.48695"	E78°4'33.74471"
26	NP23	N15°6'5.84687"	E78°4'33.58653"
27	NP24KS	N15°6'7.91345"	E78°4'36.12611"
28	NP25	N15°6'7.45425"	E78°4'36.84841"
29	NP26	N15°6'6.92354"	E78°4'38.26593"
30	NP27	N15°6'6.97062"	E78°4'39.30879"
31	NP28	N15°6'7.87111"	E78°4'40.01366"
32	NP29KS	N15°6'8.83555"	E78°4'40.33686"
33	NP30	N15°6'9.29492"	E78°4'46.39001"
34	NP30A	N15°6'11.02251"	E78°4'52.73752"
35	NP31	N15°6'11.94183"	E78°4'56.18362"
36	NP32	N15°6'12.81217"	E78°4'59.71229"
37	NP32A	N15°6'12.53507"	E78°5'4.76362"
38	NP33	N15°6'11.39544"	E78°5'25.85341"
39	NP34	N15°6'11.34471"	E78°5'27.94076"
40	NP35KS	N15°6'11.21214"	E78°5'29.19822"
41	NP36KS	N15°6'4.32574"	E78°5'28.09091"
42	NP37	N15°6'5.25745"	E78°5'29.77816"
43	NP38	N15°6'4.92113"	E78°5'30.57632"
44	NP39	N15°6'4.69124"	E78°5'32.79904"
45	NP40	N15°6'4.21427"	E78°5'33.71275"
46	NP41	N15°6'3.60447"	E78°5'35.09616"
47	NP42	N15°6'3.00314"	E78°5'35.39956"
48	NP43	N15°6'1.15226"	E78°5'34.99059"
49	NP44	N15°6'0.92936"	E78°5'35.87134"
50	NP44A	N15°6'0.45583"	E78°5'38.27173"
51	NP45	N15°5'59.93181"	E78°5'40.96261"
52	NP46KS	N15°5'59.41473"	E78°5'44.71901"
53	NP46BIJ	N15°5'54.28295"	E78°5'45.06706"
54	NP47BIJ	N15°5'48.94356"	E78°5'45.42918"
55	NP47A	N15°5'48.24751"	E78°5'49.14176"
56	NP48	N15°5'47.57021"	E78°5'52.61261"
57	NP49	N15°5'48.21574"	E78°5'52.53275"
58	NP50	N15°5'48.29194"	E78°5'53.41263"
59	NP51	N15°5'47.16108"	E78°5'53.77131"
60	NP52	N15°5'45.55575"	E78°5'57.53344"
61	NP53	N15°5'45.83182"	E78°5'59.14141"
62	NP54BIJ	N15°5'47.25467"	E78°5'59.67671"
63	NP55	N15°5'46.28849"	E78°6'1.69415"



Sl.No.	Boundary Pillar Number	GEO COORDINATES - MAP DATUM WGS-84	
		DMS (Degrees, Minutes, Seconds)	
		N-LATITUDE	E-LONGITUDE
64	NP56	N15°5'44.41535"	E78°6'6.01488"
65	NP57	N15°5'42.73278"	E78°6'9.70414"
66	NP58BIJ	N15°5'42.20083"	E78°6'10.94012"
67	NP59	N15°5'45.01962"	E78°6'21.87141"
68	NP60BIJ	N15°5'44.39962"	E78°6'23.60471"
69	NP61	N15°5'38.14385"	E78°6'22.68095"
70	NP62	N15°5'33.31585"	E78°6'21.87131"
71	NP63	N15°5'31.01366"	E78°6'21.40063"
72	NP63A	N15°5'26.77093"	E78°6'20.73863"
73	NP63B	N15°5'25.04776"	E78°6'20.47181"
74	NP63C	N15°5'23.32854"	E78°6'20.17967"
75	NP63D	N15°5'20.98096"	E78°6'19.77874"
76	NP64	N15°5'18.71035"	E78°6'19.39095"
77	NP65	N15°5'13.93232"	E78°6'18.61349"
78	NP66KS	N15°5'11.88362"	E78°6'18.28052"
79	NP67	N15°5'9.27141"	E78°6'17.76451"
80	NP68	N15°5'5.73775"	E78°6'17.19975"
81	NP69KS	N15°5'0.33559"	E78°6'16.24608"
82	NP70	N15°4'59.95756"	E78°6'17.13497"
83	NP71	N15°4'51.24875"	E78°6'16.06199"
84	NP72	N15°4'51.83132"	E78°6'11.24769"
85	NP73	N15°4'52.29393"	E78°6'8.19978"
86	NP74	N15°4'55.92182"	E78°6'7.27052"
87	NP75	N15°4'59.46567"	E78°6'7.48545"
88	NP76	N15°5'1.89096"	E78°6'7.85118"
89	NP77	N15°5'3.95665"	E78°6'7.90226"
90	NP77A	N15°5'8.09893"	E78°6'6.59817"
91	NP77B	N15°5'9.69008"	E78°6'5.49945"
92	NP77C	N15°5'11.59796"	E78°6'5.41625"
93	NP77D	N15°5'11.34237"	E78°6'5.84367"
94	NP77E	N15°5'11.36213"	E78°6'6.58619"
95	NP77F	N15°5'11.44627"	E78°6'8.67092"
96	NP77G	N15°5'9.94711"	E78°6'8.29414"
97	NP77H	N15°5'9.37231"	E78°6'7.67472"
98	NP78	N15°5'4.06447"	E78°6'7.36488"
99	NP79	N15°5'2.59657"	E78°6'7.29626"
100	NP80	N15°5'0.90797"	E78°6'7.37831"
101	NP81	N15°4'57.06481"	E78°6'6.48427"
102	NP82	N15°4'53.85658"	E78°6'7.20333"

E. V. Narash Kumar

Sl.No.	Boundary Pillar Number	GEO COORDINATES - MAP DATUM WGS-84	
		DMS (Degrees, Minutes, Seconds)	
		N-LATITUDE	E-LONGITUDE
103	NP83	N15°4'51.70911"	E78°6'7.76681"
104	NP83A	N15°4'51.69655"	E78°6'7.16506"
105	NP84	N15°4'51.79903"	E78°6'7.01091"
106	NP85	N15°4'52.09458"	E78°6'4.30441"
107	NP85A	N15°4'53.05054"	E78°6'1.69318"
108	NP86	N15°4'53.89616"	E78°5'59.44688"
109	NP86A	N15°4'54.69463"	E78°5'57.34684"
110	NP87	N15°4'54.99791"	E78°5'56.54919"
111	NP88	N15°4'56.32371"	E78°5'55.09502"
112	NP89	N15°4'57.79203"	E78°5'53.86694"
113	NP90	N15°4'58.61793"	E78°5'52.93044"
114	NP91	N15°4'56.69785"	E78°5'52.19698"
115	NP91A	N15°4'59.35074"	E78°5'46.37465"
116	NP92	N15°4'59.79518"	E78°5'45.39921"
117	NP92A	N15°5'0.30308"	E78°5'44.40392"
118	NP92B	N15°5'0.53896"	E78°5'43.94186"
119	NP93	N15°5'0.77484"	E78°5'43.47981"
120	NP93A	N15°5'0.99348"	E78°5'43.01627"
121	NP93B	N15°5'1.22561"	E78°5'42.51486"
122	NP94	N15°5'1.97324"	E78°5'40.90235"
123	NP95	N15°5'2.67527"	E78°5'38.87947"
124	NP96	N15°5'2.99331"	E78°5'36.95309"
125	NP97	N15°5'3.36981"	E78°5'34.46024"
126	NP98	N15°5'5.51699"	E78°5'35.27549"
127	NP99	N15°5'4.96215"	E78°5'33.75296"
128	NP100	N15°5'5.14042"	E78°5'32.43391"
129	NP101	N15°5'6.28458"	E78°5'32.45335"
130	NP102	N15°5'7.42866"	E78°5'27.40954"
131	NP103	N15°5'8.10675"	E78°5'26.13614"
132	NP104	N15°5'9.00488"	E78°5'25.98377"
133	NP105	N15°5'11.18819"	E78°5'24.02981"
134	NP106	N15°5'12.74123"	E78°5'22.68662"
135	NP107	N15°5'12.59634"	E78°5'24.23867"
136	NP108	N15°5'14.03831"	E78°5'23.26804"
137	NP109	N15°5'15.58651"	E78°5'20.92042"
138	NP110	N15°5'17.42445"	E78°5'19.47235"
139	NP111	N15°5'17.82258"	E78°5'18.86891"
140	NP112	N15°5'18.05009"	E78°5'18.05891"
141	NP113	N15°5'19.10992"	E78°5'16.64381"



E. V. e. Parash Kumar

Sl.No.	Boundary Pillar Number	GEO COORDINATES - MAP DATUM WGS-84	
		DMS (Degrees, Minutes, Seconds)	
		N-LATITUDE	E-LONGITUDE
142	NP114	N15°5'19.44879"	E78°5'15.36555"
143	NP115	N15°5'21.28003"	E78°5'14.48301"
144	NP116	N15°5'22.93576"	E78°5'14.39485"
145	NP117	N15°5'24.69386"	E78°5'20.45428"
146	NP118	N15°5'26.38574"	E78°5'28.51957"
147	NP118A	N15°5'26.43343"	E78°5'28.64408"
148	NP119	N15°5'27.59292"	E78°5'28.88731"
149	NP120	N15°5'27.10993"	E78°5'32.25027"
150	NP120A	N15°5'27.25451"	E78°5'32.38503"
151	NP121	N15°5'27.92359"	E78°5'32.48565"
152	NP122	N15°5'32.20705"	E78°5'37.00071"
153	NP123	N15°5'33.29195"	E78°5'38.64489"
154	NP124	N15°5'34.44033"	E78°5'40.38223"
155	NP125	N15°5'39.97431"	E78°5'45.44733"
156	NP126	N15°5'40.18882"	E78°5'45.50229"
157	NP127	N15°5'34.61071"	E78°5'40.42792"
158	NP128	N15°5'32.18969"	E78°5'36.78125"
159	NP129	N15°5'28.24996"	E78°5'32.53852"
160	NP129A	N15°5'28.07622"	E78°5'32.44726"
161	NP130	N15°5'27.28382"	E78°5'32.16432"
162	NP131	N15°5'27.70568"	E78°5'28.79265"
163	NP132	N15°5'26.54721"	E78°5'28.51341"
164	NP133	N15°5'24.90106"	E78°5'20.49279"
165	NP134	N15°5'23.20874"	E78°5'14.43444"
166	NP135	N15°5'24.97851"	E78°5'14.29455"
167	NP136	N15°5'27.61127"	E78°5'12.93567"
168	NP137	N15°5'32.96628"	E78°5'9.51943"
169	NP138	N15°5'33.97555"	E78°5'8.15198"
170	NP139	N15°5'35.23287"	E78°5'7.07172"
171	NP139A	N15°5'37.09892"	E78°5'5.80377"
172	NP139B	N15°5'37.72666"	E78°5'4.98045"
173	NP139C(KS)	N15°5'38.77051"	E78°5'4.42117"
174	NP139D(KS)	N15°5'40.98754"	E78°5'4.81373"
175	NP139E	N15°5'40.60781"	E78°5'0.01013"
176	NP139F(KS)	N15°5'41.40298"	E78°4'52.48211"
177	NP139G	N15°5'52.77386"	E78°4'54.71083"
178	NP139H	N15°5'53.09231"	E78°4'56.17361"
179	NP139I	N15°5'53.92632"	E78°4'56.40867"
180	NP139J	N15°5'53.90546"	E78°4'58.13511"



E. V. Eshwarth Kumar

Sl.No.	Boundary Pillar Number	GEO COORDINATES - MAP DATUM WGS-84	
		DMS (Degrees, Minutes, Seconds)	
		N-LATITUDE	E-LONGITUDE
181	NP139K	N15°5'54.19375"	E78°5'0.03711"
182	NP139K1	N15°5'54.04042"	E78°5'0.81312"
183	NP139K2	N15°5'54.41496"	E78°5'4.39791"
184	NP139L	N15°5'48.00284"	E78°5'9.30245"
185	NP139M(KS)	N15°5'47.26071"	E78°5'7.51366"
186	NP139N	N15°5'42.90965"	E78°5'5.28908"
187	NP139O	N15°5'40.19033"	E78°5'4.89122"
188	NP139P	N15°5'38.36595"	E78°5'4.88431"
189	NP140	N15°5'35.19323"	E78°5'6.77336"
190	NP141	N15°5'34.27229"	E78°5'7.46107"
191	NP142	N15°5'32.15534"	E78°5'9.73861"
192	NP143	N15°5'27.58645"	E78°5'12.36653"
193	NP144	N15°5'23.18432"	E78°5'13.65711"
194	NP145	N15°5'22.38501"	E78°5'8.73321"
195	NP145A	N15°5'22.19098"	E78°5'7.67809"
196	NP146	N15°5'21.51031"	E78°5'4.51636"
197	NP147	N15°5'19.85154"	E78°4'59.98223"
198	NP148	N15°5'19.76748"	E78°5'0.36745"
199	NP149	N15°5'21.37096"	E78°5'4.56496"
200	NP150	N15°5'22.23104"	E78°5'8.90563"
201	NP151	N15°5'22.89612"	E78°5'13.78982"
202	NP152	N15°5'20.33951"	E78°5'14.10321"
203	NP153	N15°5'19.03534"	E78°5'14.01692"
204	NP154	N15°5'18.92268"	E78°5'12.81326"
205	NP155	N15°5'17.96893"	E78°5'14.65396"
206	NP156	N15°5'18.80454"	E78°5'14.78493"
207	NP157	N15°5'18.39476"	E78°5'16.31381"
208	NP158	N15°5'17.12214"	E78°5'17.77281"
209	NP159	N15°5'14.39001"	E78°5'21.12632"
210	NP160	N15°5'12.63164"	E78°5'21.86313"
211	NP160A	N15°5'10.92652"	E78°5'23.67551"
212	NP161	N15°5'9.91456"	E78°5'24.69738"
213	NP162	N15°5'7.88926"	E78°5'25.76526"
214	NP163	N15°5'6.17854"	E78°5'24.51157"
215	NP164	N15°5'4.88469"	E78°5'24.51332"
216	NP165	N15°5'5.83425"	E78°5'17.81892"
217	NP166	N15°5'6.49554"	E78°5'14.55668"
218	NP167	N15°5'7.42515"	E78°5'10.54025"
219	NP168	N15°5'8.32459"	E78°5'6.83311"



E. V. eNresh Kumar

Sl.No.	Boundary Pillar Number	GEO COORDINATES - MAP DATUM WGS-84	
		DMS (Degrees, Minutes, Seconds)	
		N-LATITUDE	E-LONGITUDE
220	NP169	N15°5'8.97254"	E78°5'5.98693"
221	NP170	N15°5'8.90272"	E78°5'5.12668"
222	NP171	N15°5'12.58053"	E78°4'58.46495"
223	NP171A	N15°5'12.83623"	E78°4'57.04198"
224	NP172	N15°5'13.19561"	E78°4'55.53902"
225	NP173	N15°5'12.71588"	E78°4'55.36521"
226	NP174	N15°5'13.21163"	E78°4'52.79213"
227	NP174A	N15°5'13.99716"	E78°4'51.78498"
228	NP175	N15°5'14.19474"	E78°4'50.44185"
229	NP176	N15°5'18.78558"	E78°4'56.71826"
230	NP177	N15°5'18.90697"	E78°4'56.42235"
231	NP178	N15°5'14.28697"	E78°4'50.20231"
232	NP179	N15°5'14.60439"	E78°4'49.26028"
233	NP180	N15°5'15.64794"	E78°4'44.39883"
234	NP181	N15°5'17.59563"	E78°4'44.78241"
235	NP182	N15°5'21.46344"	E78°4'46.56809"
236	NP182A	N15°5'28.89851"	E78°4'50.08791"
237	NP182B	N15°5'29.97877"	E78°4'50.49619"
238	NP182C	N15°5'32.78719"	E78°4'53.18956"
239	NP182D	N15°5'34.91751"	E78°4'54.82041"
240	NP182E	N15°5'39.19247"	E78°4'58.19696"
241	NP182F	N15°5'39.07854"	E78°4'58.54584"
242	NP182G	N15°5'34.33047"	E78°4'54.76462"
243	NP182H	N15°5'32.57602"	E78°4'53.28352"
244	NP183	N15°5'22.82736"	E78°4'41.02141"
245	NP184	N15°5'23.60465"	E78°4'35.40342"
246	NP185	N15°5'21.5699"	E78°4'33.42996"
247	NP186	N15°5'22.20072"	E78°4'32.26587"
248	NP187	N15°5'22.61845"	E78°4'31.44733"
249	NP188	N15°5'23.12184"	E78°4'29.71503"
250	NP189	N15°5'23.30411"	E78°4'28.74283"
251	NP190	N15°5'23.76683"	E78°4'26.80252"
252	NP191	N15°5'23.30098"	E78°4'25.40241"
253	NP192	N15°5'22.98775"	E78°4'24.28452"
254	NP193	N15°5'22.78063"	E78°4'23.09616"
255	NP194	N15°5'22.69154"	E78°4'21.38341"
256	NP195	N15°5'22.48338"	E78°4'20.57244"
257	NP196	N15°5'21.46389"	E78°4'17.36532"
258	NP197	N15°5'21.16054"	E78°4'16.76113"



Sl.No.	Boundary Pillar Number	GEO COORDINATES - MAP DATUM WGS-84	
		DMS (Degrees, Minutes, Seconds)	
		N-LATITUDE	E-LONGITUDE
259	NP198	N15°5'21.01554"	E78°4'16.19822"
260	NP199	N15°5'20.50721"	E78°4'15.77432"
261	NP200	N15°5'21.62627"	E78°4'13.37294"
262	NP201	N15°5'22.90463"	E78°4'11.35493"
263	NP202	N15°5'23.47855"	E78°4'11.96591"
264	NP203	N15°5'23.90391"	E78°4'11.55231"
265	NP204	N15°5'23.46275"	E78°4'10.61232"
266	NP205	N15°5'22.54781"	E78°4'9.66131"
267	NP206	N15°5'22.30397"	E78°4'9.07212"
268	NP207	N15°5'21.99053"	E78°4'8.29812"
269	NP208	N15°5'21.88965"	E78°4'7.87205"
270	NP209	N15°5'21.67856"	E78°4'7.14688"
271	NP210	N15°5'21.40482"	E78°4'6.08741"
272	NP211	N15°5'21.45844"	E78°4'5.45075"
273	NP212	N15°5'21.61358"	E78°4'4.83443"
274	NP213	N15°5'21.74281"	E78°4'4.43088"
275	NP214	N15°5'21.43938"	E78°4'1.20382"
276	NP215	N15°5'22.23228"	E78°3'57.32081"
277	NP216	N15°5'23.58743"	E78°3'54.55258"
278	NP217	N15°5'26.58518"	E78°3'51.89534"
279	NP218	N15°5'28.57534"	E78°3'42.86326"
280	NP219	N15°5'29.81893"	E78°3'41.19857"
281	NP220	N15°5'32.74681"	E78°3'39.79392"
282	NP221	N15°5'37.74401"	E78°3'38.30901"
283	NP222	N15°5'40.73962"	E78°3'36.51591"
284	NP223	N15°5'42.59244"	E78°3'35.44483"
285	NP224(KS)	N15°5'44.21912"	E78°3'35.27704"
286	NP225	N15°5'48.48863"	E78°3'46.88495"
287	NP226(KS)	N15°5'50.16635"	E78°3'50.42365"
288	NP227	N15°5'53.17925"	E78°3'56.65425"
289	NP228	N15°6'0.94461"	E78°4'0.11465"
290	NP229	N15°6'6.74963"	E78°4'2.81007"
291	NP229A	N15°6'9.02509"	E78°4'4.26162"
292	NP230	N15°6'12.40521"	E78°4'6.22505"
293	NP231	N15°6'17.99096"	E78°4'9.49689"
294	NP232	N15°6'20.30568"	E78°4'10.75598"
295	NP233	N15°6'22.44407"	E78°4'11.91916"
296	NP234	N15°6'24.36623"	E78°4'10.54446"
297	NP235	N15°6'25.21014"	E78°4'11.03411"



S. V. e. Ramesh Kumar

Sl.No.	Boundary Pillar Number	GEO COORDINATES - MAP DATUM WGS-84	
		DMS (Degrees, Minutes, Seconds)	
		N-LATITUDE	E-LONGITUDE
298	NP236	N15°6'26.06653"	E78°4'11.96898"
299	NP237	N15°6'29.92373"	E78°4'11.88412"
300	NP238	N15°6'31.33074"	E78°4'13.36957"
301	NP239	N15°6'32.76843"	E78°4'14.68644"
302	NP240	N15°6'32.01865"	E78°4'17.46916"
303	NP241	N15°6'32.56222"	E78°4'20.29471"
304	NP242	N15°6'33.32731"	E78°4'20.13744"
305	NP243	N15°6'35.68733"	E78°4'18.23935"
306	NP244	N15°6'35.87557"	E78°4'20.66768"
307	NP245	N15°6'36.89739"	E78°4'21.28193"
308	NP246	N15°6'36.86962"	E78°4'22.68171"
309	NP246A(KS)	N15°5'52.39658"	E78°5'22.29333"
310	NP246B(KS)	N15°5'57.29892"	E78°5'26.81106"
311	NP246C	N15°5'56.74484"	E78°5'27.52036"
312	NP246D	N15°5'55.35143"	E78°5'26.78268"
313	NP246E	N15°5'53.73936"	E78°5'26.10989"
314	NP246F(KS)	N15°5'52.96264"	E78°5'24.71142"

Date of grant of lease & Period/Expiry Date

Extent (Ha. / Acres)	Village	Taluka / Mandal	District & State	Period of Mining Lease	Date of grant of lease/ Execution	Date of Expiry
735.72	Kolimigundla and Petnikota	Kolimigundla	Kurnool & Andhra Pradesh	50 years From the date of execution	09.08.2000	08.08.2050

*RCL has been granted extension of mining Lease for a period of 50 years valid upto 08.08.2050 under Section 8A(3) of the MMDR(Amended) Act, 2015.(Copy enclosed as ANNEXURE-14) And supplementary mining lease deed executed on 26.03.2019 and registered on 23.07.2019 (Copy enclosed as ANNEXURE-15)

** TRCL has obtained amendment for the reduced extent of 735.72 Ha vide G.O.No.40. dated 04.05.21 (ANNEXURE-15A)

E.V. Aravesh Kumar

Name of leaseholder:

The Ramco Cements Limited

Postal Address of Mine:

The Ramco Cements Limited
Door No-2-77, 1st floor,
Jwala Complex, Main Raod,
Kolimigundla, Kurnool District,
Andhra Pradesh.
Pin - 518 123.
Mobile - 91 9942989938

Email: reddynagaraju@ramcocements.co.in.**b) Details of applied / lease area with location map (fresh area)****Details of applied area**

Land Classification				
Forest(Specify)	Area (Ac)	Non - Forest (Specify)	Area (Ac)	Present status of surface right
1.Reserved Forest	Nil	1.Govt.waste Land	353.02	353.02
2.Protected Forest	Nil	2. Govt. grazing land	Nil	Nil
3.Wild life Sanctuary	Nil	3.Pvt.Agricultural Irrigated land	Nil	Nil
4.Bird Sanctuary	Nil	4.Pvt.Agricultural irrigated land	Un 1464.21	1386.8
5. Others (Specify)	Nil	5.Pvt Other land	Nil	Nil
		6. Others(Specify)	Nil	Nil

Out of 1817.23 Ac or 735.72 Ha M/s. The Ramco Cements Limited having surface rights over an extent of 1739.82 Ac. or 704.38 Ha. An under taking has been enclosed as **ANNEXURE-20** for obtaining surface rights before start of mining operation for the balance extent of 77.41 Ac or 31.34 Ha.

Total lease area : 735.72 Ha.
District & State : Kurnool & Andhra Pradesh
Taluka/Mandal : Kolimigundla
Villages : Kolimigundla and Petnikota

Land Details:

Survey Number wise breakup of the Mining Lease area of 735.72 hectares or 1817.23 Acres is given as **ANNEXURE- 21**

E. V. Lakshmi Kumar

Name of the Village	Extent in Ha. (2.47Ac.=1.0Ha.)	Extent in Acres (1.0Ha=2.47Ac.)
Kolimigundla	162.79	402.09
Petnikota	572.93	1415.14
Total	735.72	1817.23

Whether the area falls under Coastal Regulation Zone (CRZ)? if yes, details Thereof:

Not Applicable

Existence of public road/railway line, if any nearby and approximate distance:

NH-544D connecting Ananthpuram -Amaravati is located at about 0.7 km - SE direction National Highway (NH-7) connecting-Kurnool - Anantapur is located at a distance of about 40.0 km - WNW direction.

The nearest railway station is located at Tadipatri RS which 23.0 km in SW direction. Nearest Settlements from the Mine site are Petnikota - 0.5 km - SE & Kolimigundla - 1.5 km - SE.



C) Attach a general location map showing area and access routes. It is preferred that the area be marked on a Survey of India topographical map or a cadastral map or forest map as the case may be. However, if none of these are available, the area may be shown on an administrative map.

The Mine is located at Kolimigundla & Petnikota Villages, Kolimigundla Mandal, Kurnool District of Andhra Pradesh.

E. V. Eshesh Kumar

The Mining Lease area is a part of the Survey of India Topo sheet No. 57/I/4 (New No. D44A4). The site falls between 15°04'51.24875"N - 15°06'44.36631"N and 78°03'35.27704"E - 78°06'23.60471"E latitude and Longitude as per DGPS readings with an altitude ranging from 276 to 330 m above MSL.

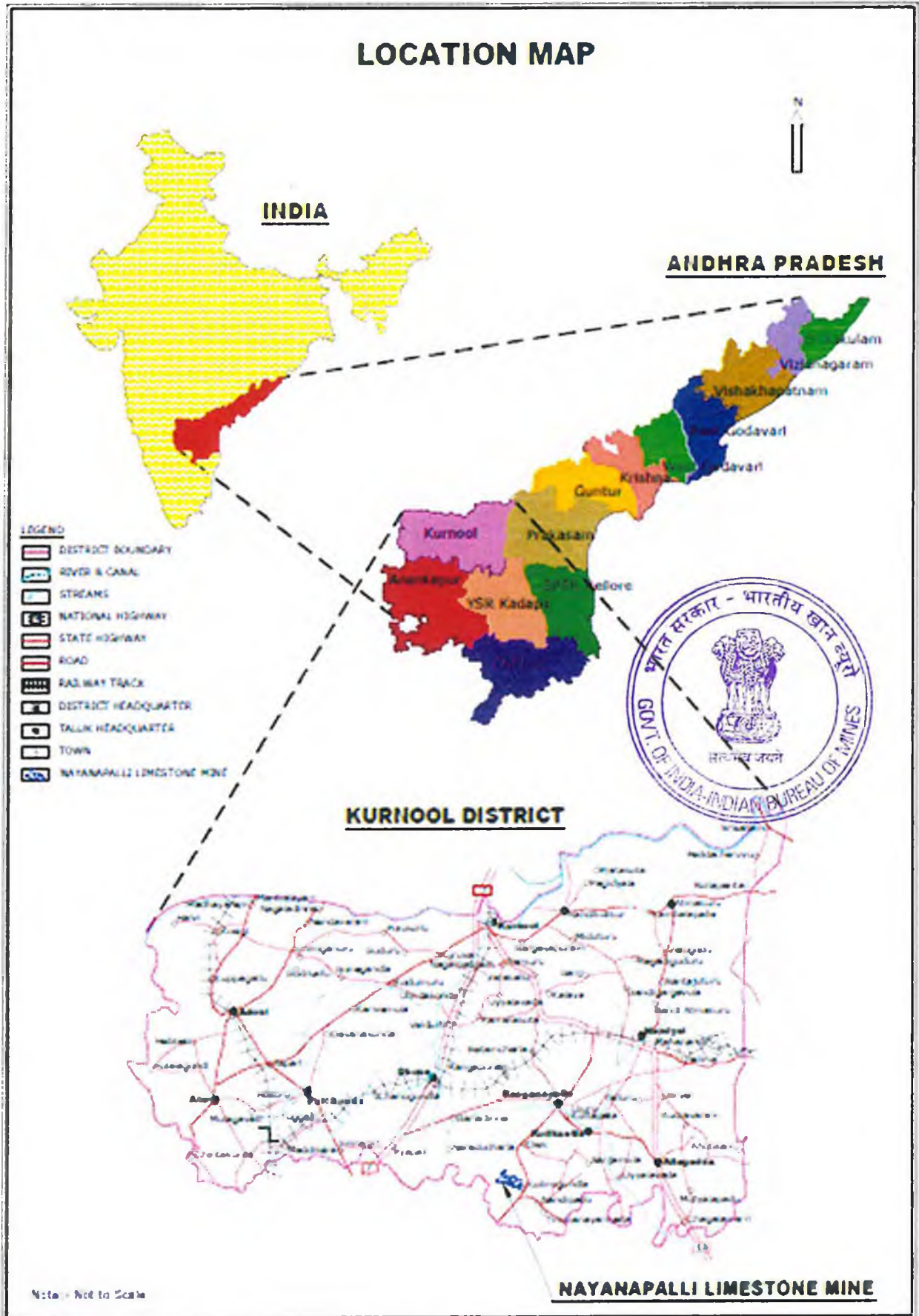
Nearest railway line connecting Gooty Junction- Kadapa of South Central Railway line is located at a distance of 23.0 km to SW direction from the Mining Lease Area. Key Map showing the location of various features around the Mining Lease Area. Kadapa is major town is located at a distance of 100.0 km in SE direction.

The nearest railway station is Tadiptri RS at a distance of 23.0 km in SW direction. There are no wild life sanctuaries, national parks, elephant/tiger reserves within 10 km radius of the study area. Nearest Settlements from the Mine site are Petnikota - 0.5 km - SE & Kolimigundla - 0.5 km - SE.

All the details are furnished in Key Plan **Plate- I**



E. N. Elnesh Kumar



E. V. Eshwarish Kumar

3.0 DETAILS OF APPROVED MINING PLAN / SCHEME OF MINING (if any)**3.1. Date and reference of earlier approved MP/SOM**

Last approved Mining Plan: AP/KNL/MP/LST-51/HYD dated: 29.11.1999.

Date of commencement of mining operation on 14.04.2018.

3.2. Details of last modifications if any (for the previous approved period) of approved MP/SOM, indicating date of approval, reason for modification:

No modifications /proposals made in the earlier Approved Mining Plan, except the introduction of Geo exploration data and shifting of planned production area from the earlier. Last approved Mining Plan: AP/KNL/MP/LST-51/HYD dated: 29.11.1999.

3.3. Give review of earlier approved proposal (if any) in respect of exploration, excavation, reclamation etc.**Review of Compliance position of Salient features of the Scheme of Mining**

Item	Proposed as per the approved Mining Plan	Status of Implementation	Reasons for Deviation														
Exploration	2000-01 : 55 holes 2001-02 : 50 holes 2002-03 : 46 holes 2003-04 : Nil 2004-05 : Nil	Total 185 Core Bore holes were drilled, during the year 2018-19 for a meterage of 3790.55m.	During the year 2018-19 Total 185 Core Bore holes were drilled. The plant has not been put up.														
Top Soil	2000-01 : 12,800 Cu.m 2001-02 : 12,800 Cu.m 2002-03 : 12,800 Cu.m 2003-04 : Nil 2004-05 : Nil	No developmental works were undertaken in the leasehold area.	The plant has not been put up.														
Exploitation	Proposed limestone production of Limestone are as under: <table border="1" data-bbox="422 1724 813 2022"> <thead> <tr> <th>Year</th> <th>Qty (Tonnes)</th> </tr> </thead> <tbody> <tr> <td>2000-01</td> <td>40,000</td> </tr> <tr> <td>2001-02</td> <td>60,000</td> </tr> <tr> <td>2002-03</td> <td>1,00,000</td> </tr> <tr> <td>2003-04</td> <td>1,00,000</td> </tr> <tr> <td>2004-05</td> <td>1,00,000</td> </tr> <tr> <td>Total</td> <td>4,00,000</td> </tr> </tbody> </table>	Year	Qty (Tonnes)	2000-01	40,000	2001-02	60,000	2002-03	1,00,000	2003-04	1,00,000	2004-05	1,00,000	Total	4,00,000	No production or Development works were undertaken	The plant has not been put up.
Year	Qty (Tonnes)																
2000-01	40,000																
2001-02	60,000																
2002-03	1,00,000																
2003-04	1,00,000																
2004-05	1,00,000																
Total	4,00,000																



E. V. Narash Kumar

Reclamation & Rehabilitation	No reclamation was proposed in the approved document.	No Reclamation & Rehabilitation has been carried out in the last 5 years.	There is no deviation														
Afforestation	Proposed Afforestation Plan are as under: <table border="1"> <thead> <tr> <th>Year</th> <th>Area (Ha)</th> </tr> </thead> <tbody> <tr> <td>2000-01</td> <td>1.25</td> </tr> <tr> <td>2001-02</td> <td>1.25</td> </tr> <tr> <td>2002-03</td> <td>1.25</td> </tr> <tr> <td>2003-04</td> <td>1.25</td> </tr> <tr> <td>2004-05</td> <td>1.25</td> </tr> <tr> <td>Total</td> <td>6.25</td> </tr> </tbody> </table>	Year	Area (Ha)	2000-01	1.25	2001-02	1.25	2002-03	1.25	2003-04	1.25	2004-05	1.25	Total	6.25	No plantation programme were undertaken.	The plant has not been put up.
Year	Area (Ha)																
2000-01	1.25																
2001-02	1.25																
2002-03	1.25																
2003-04	1.25																
2004-05	1.25																
Total	6.25																

3.4. Give status of compliance of violations pointed out by IBM:

The details of violations of significant provisions of MCDR-1988 & 2017 and its compliance is as mentioned below.

Letter No	Rule	Nature of Violation	Compliance / Corrective Action
AP/KNL/LST-213, Hyd dated 27.10.2020	11(1)	No holder of a mining lease shall commence or carry out mining operations in any area except in accordance with the mining plan approved, modified or reviewed by the Indian Bureau of Mines. The Mining Plan for the above said mine was approved on 22.11.1999 which has already been expired on 31.03.2005. Since you have no approved document, It's evident that mining operation is not being carried out in accordance with it. You have also not submitted the required financial assurance in the form of bank Guarantee as per rule 27(1) of MCDR, 2017	Compliance was submitted vide Letter dated 06.11.2020. (Enclosed as ANNEXURE - 21A)



3.5. Indicate and give details of any suspension /closure/ prohibitory order issued by any Government agency under any rule or Court of law.

None

E. V. Narayana Kumar

3.6. In case the MP/SOM is submitted under rules 9 and 10 of the MCDR'88 or under rule 22(6) of the MCR'1960 for approval of modification, specify reason and justification for modification under these rules.

- The initial Mining Plan was approved in the year 1999 for a production of 0.1 MTPA. Now RCL has been granted extension of mining Lease period up to 50 years under Section 8A(3) of the MM(D&R)Amendment Act, 2015.(Copy enclosed as **ANNEXURE-14** And supplementary mining lease deed executed on 26.03.2019 lease period up to 08.08.2050. (Copy enclosed as **ANNEXURE-15**)
- Enhancement of production from 0.1 MTPA to 2.7 MTPA, shifting of place of proposed mining area and also reserves enhanced by detailed Exploration.
- As per DGPS Survey Mining Lease extent has been arrived to 735.72 Ha (1817.23 Ac). vide letter No.1335/M4/2000 dated 03.02.2021 issued by the Department of Mines & Geology, Andhra Pradesh Letter enclosed as **ANNEXURE-16** & Sketch enclosed as **ANNEXURE-17**

Hence the modification in the approved Mining Plan is necessitated.



E. V. Ram Kumar

PART - A**1.0 GEOLOGY AND EXPLORATION:**

a) Briefly describe the topography, drainage pattern, vegetation, climate, rainfall data of the area applied/mining lease area.



The Mining Lease area is a part of the Survey of India Topo sheet No. 57/I/4 (New No:D44A4). The site falls between 15°04'51.24875"N - 15°06'44.36631"N and 78°03'35.27704"E - 78°06'23.60471"E latitude and Longitude as per DGPS readings with an altitude ranging from 276 to 330 m above msl with a gentle slope towards S and SE. The map of the mining lease is given as **Plate- II**

Topography:

The proposed lease area and its surroundings are generally a flat terrain excepting for a small plateau at western side. The ground level of the flat terrain is around 330m above msl, with max. RL of 330m and min. of 276m with a surface relief of 54m over a stretch of 4.8 km and the nearby plateau rises to a height of about 54m above the ground level. The area is gently sloping towards S and SE.

Drainage:

The drainage pattern in the area is dendritic with two small streams, which remain dry for most part of the year becoming active only during monsoon. A shallow topographic depression (drainage channel) running across the lease area from NW to SE drains storm water from the lease area to a nearby water body called Saddala Venganna Cheruvu located about 0.5 km - S.

Vegetation:

The area covered with dense scrub except that they possess sparse vegetation or devoid of scrub and have a thin soil covers. The open scrub is found at foothills surrounded by agricultural lands.

Climate:

The Climate of the district is normally good and healthy. January, February and March months are usually pleasant with moderate winds from South-East. April and May are the hottest months of the year, during these months the wind shifts to Southwest with increased force and brings welcome showers by the end of May. The temperature of the area is varying from 18 - 43°C.

Rainfall Data:

Rainfall is rare and wind is light with occurrence of heavy dew. District normal rainfall of the year is 670.3 mm. The rainfall in the district in general increases from the East towards the West. The normal rainfall of the district is 670 mm. The highest amount of

E. V. Narayana Kumar

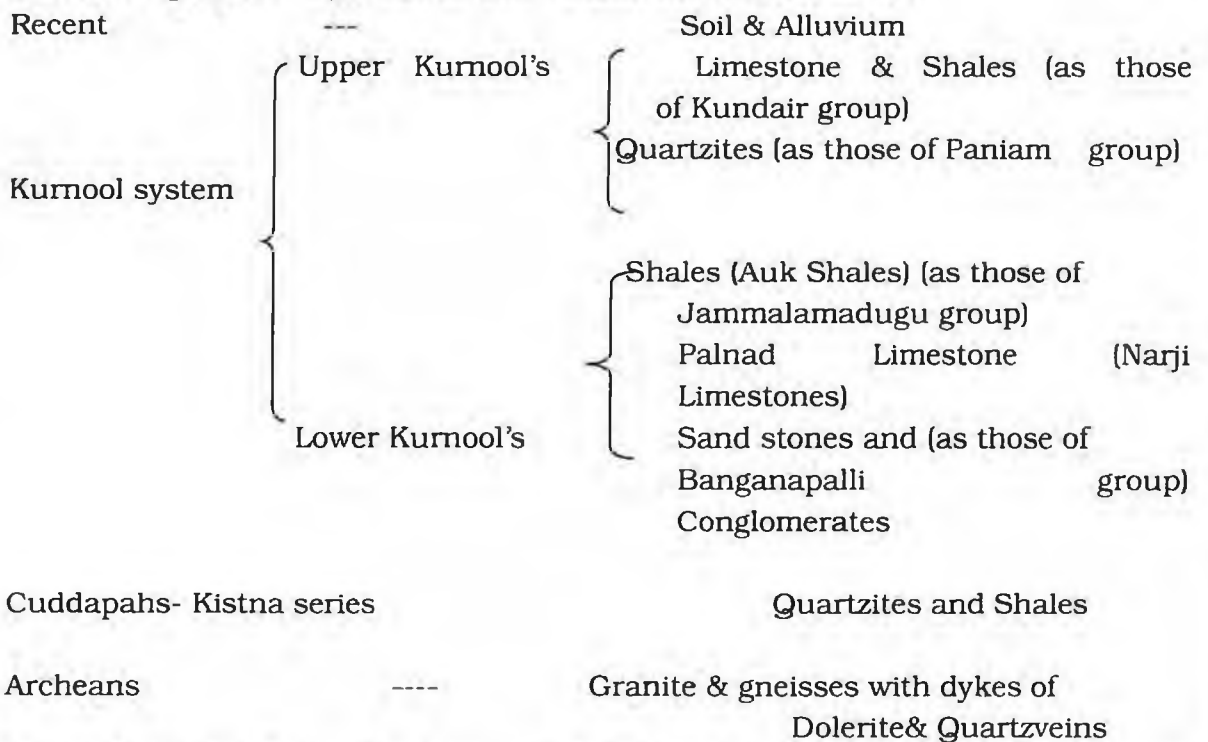
rainfall of 902 mm is received during the year 2000 - 2001, while the least amount of rainfall of 505 mm is recorded during the year 2002-2003.

b) Brief descriptions of Regional Geology with reference to location of lease area.

Regional Geology / Leased area based:

Nested within the 'Cuddapah' basin, the lease area hosts Kurnool Group of rocks of Proterozoic era overlying Kadapa Supergroup of Formations. Regional tectonism has had its impacts on the sedimentaries.

The Stratigraphic sequence of the Palnad area is as follows:



The Archean formation forms the basement for the basin over which the arenaceous, argillaceous and calcareous sediments were deposited. This can be observed all along the fringes of the basin.

c) Detailed description of geology of the lease area such as shape and size of the mineral/ore deposit, disposition various litho-units indicating structural features if any etc. (Applicable for Mining Plan for grant & renewal and not for Scheme of Mining/Modifications in the approved mining plan/scheme of Mining).

Local Geology

The Limestone deposit within the Mining lease hold area forms a part of Narji Limestone formation of Kurnool Group. The Narji Formation Limestone is sub divided into several distinct Lithological units.

E. P. Chinnappa



- ↑ Soil with or without weathered limestone pebbles
- Flaggy Limestone
- Massive Limestone
- Conglomerate
- Quartzite



The general strike direction of the beds are NNW - SSE and dip direction of the deposit is towards South West with dip angle less than 5°.

The Grey limestone Cement grade is fine to medium textured, compact and the weathering / solution effects / cavities are prominently visible on surface. General dips of about 7° are discernible though variations prevail.

The bottom unit Conglomerate underlies Grey limestone. Surface Geological Plans of the area are enclosed at **Plate No IV** Geological sections of the Mining Lease area are enclosed at **Plate No. V**.

Top Soil: The lease area is covered with a soil cap with 0.0 to 2.50 m thickness. On an average the thickness is considered as 1.00 m.

Flaggy Limestone: It overlies the massive limestone in ML area. The thickness of flaggy limestone varies from 4m to 21m.

The grade range is about 21.75-37.11 of CaO% and 25.37-45.34 of SiO₂%.

Massive Limestone: It belongs to the Narji Stage of Jammalamadugu series of Kurnool Group and overlies the conglomerate band. It is compact, massive, fine to medium grained and light grey to dark grey in colour. It is dark grey in colour. The colour changes to light grey/greenish grey at lower levels. However, there is no significant chemical variation observed in the limestone horizon. A number of small grooves and holes are observed in the limestone out crops as solution cavities formed due to chemical action. The heavy water loss during drilling and less core recovery also supports the presence of these cavities. Stylolites, which are observed invariably in this formation, are sub-divided into three broad groups namely low, medium and high relief stylolites. Nodules of pyrite are noticed.

The grade range is about 41.97 - 52.09 of CaO% and 3.90 - 16.40 of SiO₂%.

Pay Zone: The total Limestone unit is pay zone and the flaggy limestone may also be exploited and blended. The lime and silica contents are within the feed able grade quality. The flaggy limestone exists on the western side of ML area.

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Conglomerate: It separates the lower quartzite from upper massive limestone and is intersected in almost all the boreholes. It predominantly contains pebbles of quartz with occasional limestone and shale pebbles. It is mostly grey in colour. On account of limited borehole data and scanty outcrops, precise demarcation of conglomerate band could not be ascertained in these areas.

Quartzite: It is the lowermost formation of Kurnool Group of rocks. It is mostly grey in colour but brownish and purple coloured varieties are also observed. It is fine to medium grained and massive in nature.

The grade range is about 0.55 – 26.07 of CaO% and 41.24 – 93.47 of SiO₂%.

The bottom unit Conglomerate underlies Grey limestone. Surface Geological Plans of the area are enclosed at **Plate-IV** Geological sections of the Mining Lease area are enclosed at **Plate-IVA**.

STRUCTURE:

The rock formations are Sub horizontal with gentle dips of 2° to 5° towards SW. They show series of strike and dip joints which dip at 60° to vertical. The captive Nayanapalle Limestone Mining lease sprawling over an extent of 735.72 ha. The Limestone deposit is a "Simple", "Tabular", undisturbed stratigraphic horizon. The deposit within leasehold is devoid of structural disturbances and possess a uniformity in its attitude and disposition. Non-fossiliferous nature is due to chemical precipitation of carbonate sediment & diagenesis.

Typically, the grey limestone qualifies as cement grade and is within the Threshold values. Regional geological evidences indicate that the ground water regime is confined to broken quartzitic formation i:e about 50m depth. Its incidence during mining is remote.

The lease area consists of land parcels of two villages, Kolimigundla and Petnikota as can be seen in the lease map. Safety zones are proposed alongside the road and reserves too are computed as such. In the long run, it is proposed not to divert the village road and leave the safety zone of 50m on either side.

All along the lease boundary, GPS co-ordinated pillars have been erected and tied up with 3 prominent 'Ground Control Points'. all boundary corner pillars were demarcated the lease area. In the middle of the leasehold, a small island in Sy. No. 1203/1 of Pentikota village is not within the Lease hold, as shown in the map.



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Table - 1: The details of the Ground Control Points are given below.**GEO CO-ORDINATES AND DISTANCE FROM PERMANENT GROUND CONTROL POINTS TO LEASE BOUNDARY PILLARS :- DATUM:WGS84**

PERMANENT GROUND CONTROL POINTS AND GEO CO-ORDINATES	LEASE BOUNDARY PILLAR			DISTANCE in Mtrs
	BOUNDARY PILLAR No.	LATITUDE Deg Min Sec	LONGITUDE Deg Min Sec	
GCP - 1: CULVERT ON PETNIKOTA TO OWK R & B ROAD N 15°06'32.3124", E 78°03'34.3648"	NP - 1	N15°6'44.3663"	E78°4'23.3760"	1513.14 Mtrs
	NP - 227	N15°5'53.1792"	E78°3'56.6542"	1376.21 Mtrs
GCP - 2: CULVERT ON KOLIMIGUNDLA, NAYANAPALLE & PETNIKOTA TO OWK R & B ROAD N 15°05'09.8354", E 78°04'31.4398"	NP - 184	N15°5'23.6046"	E78°4'35.4034"	441.08 Mtrs
	NP - 217	N15°5'26.5851"	E78°3'51.8953"	1288.91 Mtrs
GCP - 3: CULVERT ON KOLIMIGUNDLA TO OWK & BANAGANAPALLE N 15°05'18.9364", E 78°06'48.44697"	NP - 60BIJ	N15°5'44.3996"	E78°6'23.6047"	1079.19 Mtrs
	NP - 71	N15°4'51.2487"	E78°6'16.0619"	1287.91 Mtrs



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Limestone deposition is uniform in the leasehold as deciphered from the intensive exploration conducted. There are no structural disturbances like folds, faults and non-mineralized areas within leasehold.

d) Name of prospecting /exploration agency:

Mineral Exploration Corporation Limited (MECL), Seminary Hills, Nagpur has done the initial exploration in the lease area, there after RCL has under taken detailed exploration (200 X 200 grid interval) in the year 2018-19.

e) Details of prospecting/exploration already carried out:

i) Number of pits and trenches indicating dimensions, spacing etc along and across the strike/ foliation with reference to geological plan:

No pits and trenches were dug.

ii) Number of boreholes indicating type (Core/RC/DTH), diameter, spacing, inclination, Collar level, depth etc. with standard borehole logs duly marked on geological plan/sections.

Topographic Survey: As permitted by IBM, Surface Plan on scale 1:4000 (Permission obtained) is enclosed as **Plate-III** contours with 2m interval is shown in the same plan together with gridlines and exploratory borehole locations etc. The R.L. of Bench Mark at temple in Itikyala village (310m) was considered as reference. From the temple, the reference has been transferred to one of the Boundary Pillar point (BP : NP-184,RL298.90 m) and its RL's and locations were ascertained. From this, the remaining Boundary Pillars and all surface features including Boreholes drilled were fixed.

Permission obtained vide letter No:3 (13)/2012/35/Hyd - RCOM, Hyd. dated 13-10-2017 to prepare Surface Plans and Surface Geological Plans on a scale of 1: 4000 instead of 1: 2000. A copy of the permission letter is enclosed as **ANNEXURE – 22**.

Itikyala Temple



E. P. Narayankumar

Surface Geological Mapping: Geological mapping along profile lines was carried out with the help of tape and compass entire lease area. The contacts of different litho units wherever exposed, their attitudes and other structural features were recorded and accordingly a surface geological map on 1:4000 scale was prepared.

Exploratory Drilling: MECL carried out exploratory drilling in the area in the year 1994-95, Core drill was used for the exploratory drilling. Drilling was carried out on 600m and 600m grid. A total of 15 boreholes were drilled in the mining lease area involving 335.50m with depth ranging from 7.6m to 52.2m. The particulars of boreholes are given as **ANNEXURE-23**.

Phase wise exploration carried out in the lease area:

GSI has carried out bore hole investigations during the period 1970-74 and the report has not been published till date. No data is available in the public domain and hence not furnished in this document

No. of bore holes	year of drilling	total meterage,	type of drilling (DTH/ Core)	Angular/ Vertical,	maximum and Minimum depth
185	2018-19	3790.55	Core	Vertical,	Min:1.5m Max:54m

Further, RCL carried out exploratory drilling in the lease area during 2018-19, Core drill was used for the exploratory drilling. TC casing bits of NX size were used to pierce the top soil cover and boulder zone. Diamond bits of NWT size were used for drilling through the limestone and other formations. Double tube core barrels were used to achieve maximum core recovery. Drilling was carried out on 200m X 200m grid. A total of 185 boreholes in the lease area, were drilled involving 3790.55m with depth ranging from 1.5m to 54m. The particulars of boreholes are given in **ANNEXURE-23**.
Details of all drilled bore holes by MECL & RCL:

Drilled by RCL:

Bore Hole ID	Latitude	Longitude	RL in mtrs	Max. Depth	Angular/ Vertical
NPA-1	N15° 04' 53.8"	E78° 06' 15.1"	275.00	50.00	Vertical
NPA-2	N15° 04' 52.2"	E78° 06' 06.1"	276.00	48.00	Vertical
NPA-3	N15° 04' 57.7"	E78° 06' 09.7"	278.00	48.20	Vertical
NPA-4	N15° 05' 03.2"	E78° 06' 13.2"	279.00	38.00	Vertical
NPA-5	N15° 05' 08.7"	E78° 06' 16.8"	280.00	24.50	Vertical
NPA-6	N15° 04' 54.2"	E78° 05' 59.6"	277.00	54.00	Vertical
NPA-7	N15° 04' 59.7"	E78° 06' 03.1"	280.00	51.70	Vertical

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Bore Hole ID	Latitude	Longitude	RL in mtrs	Max. Depth	Angular/ Vertical
NPA-8	N15° 05' 05.2"	E78° 06' 06.7"	281.00	39.60	Vertical
NPA-9	N15° 05' 10.7"	E78° 06' 10.2"	282.00	23.00	Vertical
NPA-10	N15° 05' 16.2"	E78° 06' 13.8"	284.00	16.50	Vertical
NPA-11	N15° 05' 21.8"	E78° 06' 17.3"	285.00	11.00	Vertical
NPA-12	N15° 05' 26.0"	E78° 06' 20.0"	285.00	9.00	Vertical
NPA-13	N15° 04' 58.0"	E78° 05' 54.1"	279.00	53.00	Vertical
NPA-14	N15° 05' 03.5"	E78° 05' 57.6"	281.00	52.00	Vertical
NPA-15	N15° 05' 44.7"	E78° 06' 00.5"	283.00	46.00	Vertical
NPA-16	N15° 05' 14.5"	E78° 06' 04.7"	285.00	33.00	Vertical
NPA-17	N15° 05' 20.0"	E78° 06' 08.3"	285.00	16.00	Vertical
NPA-18	N15° 05' 25.5"	E78° 06' 11.8"	286.00	9.00	Vertical
NPA-19	N15° 05' 31.0"	E78° 06' 15.4"	287.00	5.00	Vertical
NPA-20	N15° 05' 36.6"	E78° 06' 18.9"	287.00	4.50	Vertical
NPA-21	N15° 05' 42.1"	E78° 06' 22.5"	288.00	6.00	Vertical
NPA-22	N15° 04' 59.5"	E78° 05' 47.2"	281.00	46.00	Vertical
NPA-23	N15° 05' 03.9"	E78° 05' 50.0"	281.00	50.00	Vertical
NPA-23A	N15° 05' 09.4"	E78° 05' 53.6"	283.00	52.00	Vertical
NPA-24	N15° 05' 13.5"	E78° 05' 56.2"	285.00	42.20	Vertical
NPA-24A	N15° 05' 17.6"	E78° 05' 58.9"	286.00	23.00	Vertical
NPA-25	N15° 05' 21.8"	E78° 06' 01.5"	286.00	15.00	Vertical
NPA-25A	N15° 05' 25.9"	E78° 06' 04.2"	287.00	4.00	Vertical
NPA-26	N15° 05' 30.1"	E78° 06' 06.9"	287.00	3.00	Vertical
NPA-26A	N15° 05' 34.2"	E78° 06' 09.6"	288.00	1.50	Vertical
NPA-29	N15° 05' 02.1"	E78° 05' 41.0"	282.00	36.00	Vertical
NPA-30	N15° 05' 07.7"	E78° 05' 44.5"	284.00	49.40	Vertical
NPA-31	N15° 05' 13.2"	E78° 05' 48.1"	285.00	53.00	Vertical
NPA-32	N15° 05' 18.7"	E78° 05' 51.6"	286.50	39.00	Vertical
NPA-33	N15° 05' 24.2"	E78° 05' 55.2"	287.50	15.00	Vertical
NPA-34	N15° 05' 29.7"	E78° 05' 58.7"	288.00	9.00	Vertical
NPA-35	N15° 05' 35.2"	E78° 06' 02.3"	289.00	3.00	Vertical
NPA-36	N15° 05' 40.7"	E78° 06' 05.8"	289.00	6.00	Vertical
NPA-37	N15° 05' 42.7"	E78° 06' 07.1"	289.00	3.00	Vertical
NPA-38	N15° 05' 05.1"	E78° 05' 35.0"	284.00	36.00	Vertical
NPA-39	N15° 05' 10.6"	E78° 05' 38.5"	285.00	47.00	Vertical
NPA-40	N15° 05' 16.1"	E78° 05' 42.1"	286.00	48.50	Vertical
NPA-41	N15° 05' 21.6"	E78° 05' 45.6"	287.50	30.00	Vertical
NPA-42	N15° 05' 27.1"	E78° 05' 49.2"	289.00	32.00	Vertical
NPA-43	N15° 05' 32.6"	E78° 05' 52.7"	290.00	9.50	Vertical
NPA-44	N15° 05' 38.2"	E78° 05' 56.3"	290.00	5.00	Vertical
NPA-45	N15° 05' 43.7"	E78° 05' 59.8"	292.00	6.00	Vertical
NPA-47	N15° 05' 07.2"	E78° 05' 28.5"	286.00	31.00	Vertical
NPA-47A	N15° 05' 12.0"	E78° 05' 31.6"	286.00	36.50	Vertical
NPA-48	N15° 05' 16.2"	E78° 05' 34.3"	287.00	43.50	Vertical

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Bore Hole ID	Latitude	Longitude	RL in mtrs	Max. Depth	Angular/ Vertical
NPA-48A	N15° 05' 20.3"	E78° 05' 37.0"	288.00	25.00	Vertical
NPA-49	N15° 05' 24.4"	E78° 05' 39.6"	288.00	27.50	Vertical
NPA-49A	N15° 05' 28.6"	E78° 05' 42.3"	291.00	17.00	Vertical
NPA-50	N15° 05' 34.2"	E78° 05' 45.8"	292.00	15.00	Vertical
NPA-51	N15° 05' 39.7"	E78° 05' 49.4"	292.00	10.00	Vertical
NPA-51A	N15° 05' 45.1"	E78° 05' 52.9"	292.00	2.00	Vertical
NPA-52	N15° 05' 46.4"	E78° 05' 53.7"	292.00	6.00	Vertical
NPA-53	N15° 05' 05.9"	E78° 05' 19.7"	288.00	20.00	Vertical
NPA-54	N15° 05' 11.0"	E78° 05' 23.0"	288.00	27.00	Vertical
NPA-55	N15° 05' 16.5"	E78° 05' 26.6"	288.00	36.00	Vertical
NPA-56	N15° 05' 22.0"	E78° 05' 30.1"	288.00	36.50	Vertical
NPA-57	N15° 05' 27.6"	E78° 05' 33.7"	290.00	27.00	Vertical
NPA-58	N15° 05' 33.1"	E78° 05' 37.2"	292.00	21.00	Vertical
NPA-59	N15° 05' 38.6"	E78° 05' 40.8"	294.00	11.00	Vertical
NPA-60	N15° 05' 44.1"	E78° 05' 44.3"	294.50	9.00	Vertical
NPA-61	N15° 05' 48.3"	E78° 05' 47.0"	294.00	3.45	Vertical
NPA-62	N15° 05' 07.2 "	E78° 05' 12.7"	291.00	13.50	Vertical
NPA-63	N15° 05' 12.7 "	E78° 05' 16.2"	289.00	22.00	Vertical
NPA-64	N15° 05' 18.2 "	E78° 05' 19.8"	290.00	32.00	Vertical
NPA-65	N15° 05' 23.7"	E78° 05' 23.3"	290.00	33.00	Vertical
NPA-66	N15° 05' 29.2"	E78° 05' 26.9"	290.50	25.00	Vertical
NPA-67	N15° 05' 34.7"	E78° 05' 30.4"	293.00	15.00	Vertical
NPA-68	N15° 05' 40.2"	E78° 05' 33.9"	295.00	11.50	Vertical
NPA-69	N15° 05' 45.8"	E78° 05' 37.5"	296.00	9.00	Vertical
NPA-70	N15° 05' 51.3"	E78° 05' 41.0"	296.00	5.00	Vertical
NPA-71	N15° 05' 56.8"	E78° 05' 44.6"	296.00	4.00	Vertical
NPA-72	N15° 05' 09.2"	E78° 05' 06.1"	293.00	11.00	Vertical
NPA-72A	N15° 05' 14.7"	E78° 05' 09.7"	292.00	18.00	Vertical
NPA-73	N15° 05' 18.9"	E78° 05' 12.3"	291.00	24.50	Vertical
NPA-73A	N15° 05' 22.8"	E78° 05' 15.3"	291.00	27.00	Vertical
NPA-74	N15° 05' 27.0"	E78° 05' 17.6"	292.00	28.50	Vertical
NPA-74A	N15° 05' 31.3"	E78° 05' 20.3"	293.00	23.00	Vertical
NPA-75	N15° 05' 35.4"	E78° 05' 23.0"	294.00	21.00	Vertical
NPA-75A	N15° 05' 39.5"	E78° 05' 25.6"	296.00	17.00	Vertical
NPA-76	N15° 05' 45.1"	E78° 05' 29.2"	297.00	9.00	Vertical
NPA-77	N15° 05' 50.6"	E78° 05' 32.7"	297.00	13.50	Vertical
NPA-77A	N15° 05' 56.1"	E78° 05' 36.3"	297.00	7.00	Vertical
NPA-78	N15° 05' 00.0"	E78° 05' 38.8"	297.00	4.00	Vertical
NPA-79	N15° 05' 12.1"	E78° 05' 00.0"	295.00	9.00	Vertical
NPA-80	N15° 05' 17.6"	E78° 05' 03.6"	293.00	15.20	Vertical
NPA-81	N15° 05' 23.1"	E78° 05' 07.1"	293.00	21.00	Vertical
NPA-82	N15° 05' 28.6"	E78° 05' 10.7"	294.00	27.50	Vertical
NPA-83	N15° 05' 34.1"	E78° 05' 14.2"	294.00	32.00	Vertical

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Bore Hole ID	Latitude	Longitude	RL in mtrs	Max. Depth	Angular/ Vertical
NPA-84	N15° 05' 39.6"	E78° 05' 17.8"	296.00	28.00	Vertical
NPA-85	N15° 05' 45.1"	E78° 05' 21.3"	298.00	23.00	Vertical
NPA-86	N15° 05' 50.7"	E78° 05' 24.9"	299.00	17.70	Vertical
NPA-87	N15° 05' 56.2"	E78° 05' 28.4"	299.00	11.00	Vertical
NPA-88	N15° 06' 01.7"	E78° 05' 32.0"	299.00	6.00	Vertical
NPA-89	N15° 05' 13.4"	E78° 04' 53.0"	296.00	6.00	Vertical
NPA-90	N15° 05' 19.1"	E78° 04' 56.6"	295.00	13.50	Vertical
NPA-91	N15° 05' 24.6"	E78° 05' 00.2"	295.00	21.00	Vertical
NPA-92	N15° 05' 30.1"	E78° 05' 03.7"	296.00	26.00	Vertical
NPA-93	N15° 05' 35.6"	E78° 05' 07.3"	297.00	30.00	Vertical
NPA-94	N15° 05' 41.1"	E78° 05' 10.8"	297.00	26.00	Vertical
NPA-95	N15° 05' 46.6"	E78° 05' 14.4"	299.00	24.00	Vertical
NPA-96	N15° 05' 52.1"	E78° 05' 17.9"	301.00	20.00	Vertical
NPA-98	N15° 06' 03.2"	E78° 05' 25.0"	301.00	6.00	Vertical
NPA-99	N15° 06' 08.6"	E78° 05' 28.5"	300.00	6.00	Vertical
NPA-100	N15° 05' 15.5"	E78° 04' 46.5"	297.00	6.00	Vertical
NPA-101	N15° 05' 20.2"	E78° 04' 49.5"	297.00	9.00	Vertical
NPA-101A	N15° 05' 25.7"	E78° 04' 53.0"	297.00	17.00	Vertical
NPA-102	N15° 05' 29.9"	E78° 04' 55.7"	298.00	15.00	Vertical
NPA-102A	N15° 05' 34.0"	E78° 04' 58.4"	300.00	28.00	Vertical
NPA-103	N15° 05' 38.1"	E78° 05' 01.0"	301.00	31.00	Vertical
NPA-104	N15° 05' 56.1"	E78° 05' 12.6"	304.00	20.00	Vertical
NPA-103A	N15° 05' 50.6"	E78° 05' 09.0"	303.00	22.00	Vertical
NPA-105	N15° 06' 01.6"	E78° 05' 16.1"	304.00	8.00	Vertical
NPA-105A	N15° 06' 07.1"	E78° 05' 19.7"	302.00	3.30	Vertical
NPA-107	N15° 05' 22.7"	E78° 04' 43.2"	297.00	10.00	Vertical
NPA-108	N15° 05' 28.2"	E78° 04' 46.7"	298.00	10.00	Vertical
NPA-109	N15° 05' 33.7"	E78° 04' 50.3"	300.00	24.00	Vertical
NPA-110	N15° 05' 39.2"	E78° 04' 53.8"	302.00	30.00	Vertical
NPA-112	N15° 05' 58.1"	E78° 05' 06.0"	306.00	18.00	Vertical
NPA-113	N15° 06' 03.7"	E78° 05' 09.6"	304.00	7.00	Vertical
NPA-116	N15° 05' 23.9"	E78° 04' 36.1"	297.00	15.00	Vertical
NPA-117	N15° 05' 29.4"	E78° 04' 39.6"	299.00	9.00	Vertical
NPA-118	N15° 05' 34.9"	E78° 04' 43.2"	301.00	20.00	Vertical
NPA-119	N15° 05' 40.4"	E78° 04' 46.7"	303.00	27.00	Vertical
NPA-120	N15° 05' 46.0"	E78° 04' 50.3"	305.00	230.80	Vertical
NPA-121	N15° 05' 51.5"	E78° 04' 53.8"	306.00	29.50	Vertical
NPA-122	N15° 05' 57.0"	E78° 04' 57.4"	306.00	22.00	Vertical
NPA-123	N15° 06' 02.5"	E78° 05' 00.9"	304.00	15.00	Vertical
NPA-124	N15° 06' 08.0"	E78° 05' 04.5"	304.00	5.00	Vertical
NPA-126A	N15° 05' 28.3"	E78° 04' 31.1"	298.00	11.00	Vertical
NPA-127	N15° 05' 32.5"	E78° 04' 33.7"	300.00	14.00	Vertical
NPA-127A	N15° 05' 36.6"	E78° 04' 36.4"	301.00	14.00	Vertical

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Bore Hole ID	Latitude	Longitude	RL in mtrs	Max. Depth	Angular/ Vertical
NPA-128	N15° 05' 40.8"	E78° 04' 39.0"	302.00	17.00	Vertical
NPA-128A	N15° 05' 44.9"	E78° 04' 41.6"	304.00	21.00	Vertical
NPA-129	N15° 05' 50.4"	E78° 04' 45.2"	306.00	26.00	Vertical
NPA-130	N15° 05' 55.9"	E78° 04' 48.8"	306.00	24.00	Vertical
NPA-130A	N15° 06' 01.4"	E78° 04' 52.3"	305.00	15.00	Vertical
NPA-131	N15° 06' 07.0"	E78° 04' 55.9"	305.00	7.00	Vertical
NPA-137	N15° 05' 44.5"	E78° 04' 33.5"	301.00	15.00	Vertical
NPA-138	N15° 05' 50.0"	E78° 04' 37.1"	304.00	18.00	Vertical
NPA-139	N15° 05' 55.5"	E78° 04' 40.6"	306.00	19.00	Vertical
NPA-140	N15° 06' 01.0"	E78° 04' 44.1"	306.00	13.50	Vertical
NPA-141	N15° 06' 06.5"	E78° 04' 47.7"	306.00	6.00	Vertical
NPA-145	N15° 05' 31.4"	E78° 04' 17.2"	302.00	22.00	Vertical
NPA-146	N15° 05' 36.9"	E78° 04' 20.8"	302.00	20.00	Vertical
NPA-147	N15° 05' 42.4"	E78° 04' 24.3"	302.00	9.50	Vertical
NPA-149	N15° 05' 53.4"	E78° 04' 31.4"	304.00	10.00	Vertical
NPA-150	N15° 05' 59.0"	E78° 04' 34.9"	306.00	6.00	Vertical
NPA-151	N15° 06' 04.5"	E78° 04' 38.5"	306.00	7.00	Vertical
NPA-152	N15° 06' 08.7"	E78° 04' 41.2"	306.00	5.00	Vertical
NPA-155	N15° 05' 33.0"	E78° 04' 10.3"	307.00	33.00	Vertical
NPA-156	N15° 05' 38.5"	E78° 04' 13.9"	303.00	23.00	Vertical
NPA-157	N15° 05' 44.0"	E78° 04' 17.4"	308.00	11.00	Vertical
NPA-158	N15° 05' 49.5"	E78° 04' 21.0"	304.00	6.00	Vertical
NPA-160	N15° 05' 59.4"	E78° 04' 27.4"	306.00	6.00	Vertical
NPA-164	N15° 05' 39.4"	E78° 04' 06.6"	310.00	24.00	Vertical
NPA-165	N15° 05' 44.9"	E78° 04' 10.1"	310.00	23.50	Vertical
NPA-166	N15° 05' 50.4"	E78° 04' 13.6"	312.00	19.50	Vertical
NPA-167	N15° 05' 53.9"	E78° 04' 16.0"	310.00	14.00	Vertical
NPA-170	N15° 05' 38.2"	E78° 03' 58.0"	315.00	34.00	Vertical
NPA-171	N15° 05' 43.8"	E78° 04' 01.5"	310.00	24.00	Vertical
NPA-172	N15° 05' 49.3"	E78° 04' 05.1"	310.00	27.00	Vertical
NPA-173	N15° 05' 54.8"	E78° 04' 08.6"	314.00	21.00	Vertical
NPA-179	N15° 05' 39.6"	E78° 03' 50.9"	325.00	20.00	Vertical
NPA-180	N15° 05' 45.1"	E78° 03' 54.5"	310.00	30.00	Vertical
NPA-181	N15° 05' 50.6"	E78° 03' 58.0"	310.00	30.00	Vertical
NPA-182	N15° 05' 56.1"	E78° 04' 01.6"	316.00	30.00	Vertical
NPA-183	N15° 06' 01.7"	E78° 04' 05.1"	318.00	24.00	Vertical
NPA-186	N15° 06' 18.2"	E78° 04' 15.8"	313.00	17.00	Vertical
NPA-187	N15° 06' 23.7"	E78° 04' 19.3"	313.00	12.00	Vertical
NPA-188	N15° 06' 29.2"	E78° 04' 22.9"	316.00	12.00	Vertical
NPA-189	N15° 06' 34.7"	E78° 04' 26.4"	317.00	9.00	Vertical
NPA-190	N15° 06' 40.2"	E78° 04' 30.0"	320.00	4.00	Vertical
NPA-193	N15° 05' 43.8"	E78° 03' 45.8"	320.00	27.00	Vertical
NPA-194	N15° 05' 49.3"	E78° 03' 49.3"	310.00	33.50	Vertical

E.V. Narayana Kumar

Bore Hole ID	Latitude	Longitude	RL in mtrs	Max. Depth	Angular/ Vertical
NPA-195	N15° 06' 23.6"	E78° 04' 11.4"	320.00	21.00	Vertical
NPA-196	N15° 06' 29.1"	E78° 04' 14.9"	320.00	18.00	Vertical
NPA-197	N15° 06' 31.9"	E78° 04' 16.7"	320.00	20.00	Vertical
NPA-198	N15° 05' 43.3"	E78° 03' 37.5"	310.00	29.50	Vertical
NPA-51B	N15° 05' 42.4 "	E78° 05' 51.2"	292.00	8.00	Vertical
NPA- 87A	N15° 05' 58.9 "	E78° 05' 30.2"	299.00	9.00	Vertical
Total				3790.55	

Core logging, sampling and Chemical Analysis :

MECL drilled Bore holes: Based on the detailed core logging by MECL in the year 1994-95, the limestone horizons were delineated and two meter core falling between two even RLs was taken as a single primary sample. The portion left out above and below the even RLs and cores of different diameters were sampled separately. The sample lengths were also suitably adjusted depending upon the physical characteristics of limestone horizon. The samples were analysed in MECL laboratories. Most of the primary samples were prepared and analyzed for six major radicals viz. CaO, MgO, SiO₂, Al₂O₃, Fe₂O₃ and LOI and a few of them were also analyzed for acid insolubles. The samples representing non-mineralized zones were analyzed for CaO and MgO only.

RCL drilled Bore holes: Further, The boreholes were systematically logged by RCL during 2018-19 to demarcate various litho units, and its chemical characteristics. Summarized litho logs with average grade were prepared to draw various sections, plans and geographic lithologs (**ANNEXURE-24 and Plate-IVA**). Individual core samples representing one meter thickness of litho logical units of interest or part thereof were drawn by splitting the core longitudinally in two equal parts. One half was retained in the core box and other was systematically crushed, coned quartered by applying grain size/quantity principles for forming representative sample. All the meter wise samples were sent and analyzed in Ramco Research and Development Center (RRDC) Chennai for CaO, MgO, SiO₂, Al₂O₃, Fe₂O₃, Na₂O, K₂O & LOI. Further, 457 numbers of 10% samples were sent and analyzed for CaO, MgO, SiO₂, Al₂O₃, Fe₂O₃, Na₂O, K₂O, SO₃, Cl, TC & LOI in NABL accredited Laboratory of Natural Resources Development Co-operative Society Limited (NRDCS), Hyderabad.

Pl. refer surface geological plan **Plate No: IV**. Also pls see **ANNEXURE-24** (Lithologs of Bore holes- Form-J)

Bulk Density Determination: A total of 52 samples representing different litho units encountered in the boreholes were subjected to specific gravity determinations. The details of these tests are furnished in **ANNEXURE-25**.

E. V. Ananth Kumar

General exploration has been carried out by MECL, in the part of lease area by geological mapping/ Survey and drilling of 15 core bore holes with lab analysis of the core samples in limestone covering a meterage of 335.50m Total 15 Core bore holes were drilled in the year of 1994-95 with less than 600 X 600 m. interval in the ML area. The exploration was done in G3 category only.

Further, Detailed exploration has been carried out by RCL, in the entire lease area by Geological mapping/ Survey and drilling of 185 core bore holes with lab analysis of the core samples in limestone covering a meterage of 3790m. The exploration was carried out under the supervision of the geologist of RCL.

All the bore holes were drilled in the year of 2018-19 with less than 200 X 200 m. and 200 X 400m interval in the ML area. The exploration was done in G1, G2 & G3 category only.

The details of exploration carried out category wise is given below:

S NO	Category	No.of boreholes	Area covered (Ha)
1	G1	170	664.03
*2	G2	15	59.6778
#3	G3	3	12.0122

* G2 area classified based on bore holes influence falling more than 200m and less than 400m grid interval.

#G3 area classified based on bore holes influence falling more than 400m and less than 800m grid interval. In this area Non-Mineral bearing area also included.

The boreholes are marked on Geological Plan and sections (**Plate-IV**) and the copy of the lithologs and chemical analysis are given as **ANNEXURE-24**.

iii) Details of samples analysis indicating type of sample (surface/sub-surface from pits/trenches/borehole etc.) Complete chemical analysis for entire strata for all radicals maybe undertaken for selected samples from a NABL accredited Laboratory or Government laboratory or equivalent.

Entire mineralized area may be analyzed meter wise with 10% of check samples. (At least for 10% of total samples may be analyzed in accordance to BIS and reports from NABL accredited/other government laboratory).

MECL drilled Bore holes: The samples were collected, prepared and analysed in MECL laboratories. Most of the primary samples were prepared and analyzed for 6 major radicals. In this phase of drilling, boreholes were drilled upto a max. depth of 52.20m. All boreholes were culminated on intersecting the bottom Conglomerate /Quartzite.

E. P. Eshwar Kumar

The meter wise chemical analysis of all core boreholes are obtained from the MECL laboratory is enclosed as **ANNEXURE-24**

RCL drilled Bore holes 2018-19: Meter wise core samples were collected, prepared and analyzed for CaO, MgO, SiO₂, Al₂O₃, Fe₂O₃, Na₂O, K₂O & LOI, in Ramco Research and Development Center (RRDC) Chennai. Core recovery was 90% on an average. 10% samples were analyzed for CaO, MgO, SiO₂, Al₂O₃, Fe₂O₃, Na₂O, K₂O, SO₃, Cl, TC & LOI in NABL accredited Laboratory of Natural Resources Development Co-operative Society Limited (NRDCS), Hyderabad is enclosed as **ANNEXURE-25**.

In this phase of drilling, boreholes were drilled upto a max. depth of 54m (NPA-6). All boreholes were culminated on intersecting the bottom Conglomerate /Quartzite

The meter wise chemical analysis of all core boreholes are obtained from the Ramco Research and Development Center (RRDC) Chennai is enclosed as **ANNEXURE-24**.

iv) Expenditure incurred in various prospecting operations.

No expenditure data available as the area explored MECL during 1994-95.

The total approximate expenditure incurred for drilling, sampling and analysis of core boreholes is about Rs.94,76,375/- during 2018-19 by RCL. Documentary evidence for carrying out for all the four mines belonging to M/s. The Ramco Cements Limited, Kalvatala Project, Kolimigundla Mandal Kurnool District is attached as **ANNEXURE-26**

f) The surface plan of the lease area may be prepared on a scale of 1: 1000 or 1: 2000 with contour interval of maximum of 10 m depending upon the topography and size of the area duly marked by grid lines showing all features indicated under Rule 28(1)(a) of MCDR 1988.

As permitted by IBM, Surface Plan on scale 1:4000 (Permission obtained) is enclosed as **Plate No: III** contours with 2.0 m interval are shown in the same plan together with gridlines and exploratory boreholes locations etc. The R.L. of Bench Mark at temple in Itikyala village (310m) was considered as reference . Permission obtained from vide letter No:3 (13)/2012/35/Hyd - RCOM, Hyd. dated 13-10-2017 to prepare Surface Plans and Surface Geological Plans on a scale of 1: 4000 instead of 1: 2000. A copy of the permission letter is enclosed as **ANNEXURE-22**.



E. V. Charesh Kumar

g) For preparation of geological plan, surface plan prepared on a scale of 1: 1000 or 1: 2000 scale specified under para 1.0 (f) of Part A of the format may be taken as the base plan. The details of exploration already carried out along with supporting data for existence of mineral, locations proposed exploration, various lithounits along with structural features, mineralized/ore zone with grade variation if any may be marked on the geological plan along with other features indicated under Rule 28 (1)(b) of MCDR 1988.

The Geological Plan & Surface Plans are prepared on a scale of 1: 4000.

The details of exploration already carried out by MECL (1994-95) and RCL (2018-19) along with supporting data for existence of mineral, locations proposed exploration, various lithounits along with structural features, mineralized/ore zone with grade variation are marked on the geological plan along with other features. (Plate No. III & IV).

h) Geological sections may be prepared on natural scale of geological plan at suitable interval across the lease area from boundary to boundary.

Geological sections are prepared on a scale of 1: 4000. Please see Plate No: V Geological Sections showing litho units, pit limits & UNFC category of limestone repository in leasehold.

i) Broadly indicate the future programme of exploration with due justification (duly marking on Geological plan year wise location in different colours) taking into consideration the future tentative excavation programme planned in next five years as in table below: -

The Nayanapalle Limestone Mine is now explored over a close spaced grid of 200 X 200 m and 200 X 400m in all 185 core boreholes (Covering an entire area) have been drilled during 2018-19

Further, exploration has been proposed with 13 no of bore holes 200m X 200m grid interval in the year 2021-22. Details has been provided in the below table.

It may be noted that Blocked Reserves in the buffer zones, safety zones are also estimated and reported.



E. V. Suresh Kumar

List of Proposed CORE Bore Holes (2021-22)

S.No.	PROPOSED BORE HOLE No.	GRID / YEAR	GRID CO-ORDINATES		Depth in m
			Easting	Northing	
1	PBH-1	<200 X 200	187105	1671385	Up to marker bed i.e. Quartzite / Conglomerate / Shale)
2	PBH-2		186535	1671239	
3	PBH-3		185342	1670494	
4	PBH-4		185450	1670663	
5	PBH-5		185557	1670832	
6	PBH-6		185499	1671108	
7	PBH-7		185373	1671282	
8	PBH-8		184753	1670688	
9	PBH-9		185033	1671495	
10	PBH-10		185143	1671662	
11	PBH-11		185251	1671829	
12	PBH-12		184933	1671707	
13	PBH-13		185042	1671875	



j) Reserves and Resources as per UNFC with respect to the threshold value notified by IBM may be furnished in a tabular form as given below: (Area explored under different level of exploration may be marked on the geological plan and UNFC code for area considered for different categories of reserve/resources estimation may also be marked on geological cross sections).

Submit a feasibility/pre-feasibility study report along with financial analysis for economic viability of the deposit as specified under the UNFC field guidelines may be incorporated.

Mineral Resources:

As per MEMC Rules, 2015, the category of deposit of the lease hold area is belongs to "bedded stratiform and tabular deposits of regular type". Exploration has been carried out by MECL (1994-95) & RCL (2018-19), with reference to the threshold value of minerals declared by IBM. Level of Exploration, Reserves/Resources, G1 - Detailed exploration, G2 - General Exploration, G3 - Prospecting, G4- Reconnaissance:

Parameters considered for Limestone Reserves estimation:

Organizing the disparate data sets study of lithological succession in borehole logs together with chemical analysis lends the database for reserves estimation by conventional geological cross sectional computation. The bulk density considered is 2.50 T / Cu.m. based on the local Geology of the deposit. Weighted average cross sectional method is adopted for reserves computation. The 'recovery factor' considered is 90%

E.V. Anvesh Kumar

(Core recovery is 90% in an average) on account of no losses during mining. Recovery factor may be variable during the actual mining operations.

Mining Lease area is covered by drilling 15 (MECL) & 185 (RCL) core bore holes (existing) grid pattern of 200m X 200m and 200m X 400m. While categorizing the reserves under 111 and 122 of UNFC, those blocked under the benches and in Safety zone of road are considered under 211 and 222. and depth continuity beyond borehole bottom have been considered. Reserves estimation has been carried out, based on the litho units of limestone. The total reserves have CaO & SiO₂ better quality than threshold limits and are treated as direct feed grade. Reserves are estimated by conventional sectional area method. Reserves have been established through cross-sectional area method with 25 cross sectional lines covered by entire area with drilling pattern of 200 X 200 m and 200 X 400m, grid interval for classifying under **111 & 122** is furnished in the following table. It is to note that the estimated **227.055** million tonnes come under 111 and **2.943** million tonnes come under 122. Therefore, during this Plan Period, a total of **229.998** million tonnes (UNFC: 111 & 122) is available for exploitation.

The lease hold has potential reserves of cement grade limestone. The cutoff grade of limestone for clinker in cement manufacture is 42.5% CaO and 13.5% SiO₂. As seen in the exploratory drill holes and practical mining, layers of marginally better grade of limestone too are available and this warrants blending with high silica limestone. The prospect of intersecting the shale/ Conglomerate/Quartzite under laying the limestone band is expected.

In view of the above estimation of limestone reserves in ML and also to classify the same under UNFC guidelines for reporting reserves, the quantum of limestone reserves under (111 & 122) is:

Total under 111 & 122: 227.055 & 2.943 Million Tonnes
The details of the reserves section is shown in below Table
TABLE 2: Section and Bench Wise Reserves: (G1) Category



E. V. Naveesh Kumar

Section Wise Reserves Estimation of NAYANAPALLI BLOCK MINING LEASE AREA (G1) Category, M/s RCL

MINEABLE RESERVES (G1) - 111																					
SECTION	SECTIONAL AREA in sqm.							SECT.	VOLUME in cum.						B.D	TONNAGE					
NAME	SOIL	O.B. / WASTE	H.G.LST.	C.G.LST.	L.G.LST.	S.LST.	F Lst	INF.	SOIL	O.B. / WASTE	H.G.LST.	C.G.LST.	L.G.LST.	S.LST.	F Lst	t/cum.	H.G.LST.	C.G.LST.	L.G.LST.	S.LST.	F Lst
2 2'	379	0	8,289	2,179	2,697	873	2,164	200	75,800	0	16,57,800	4,35,800	5,39,400	1,74,600	4,32,800	2.50	41,44,500	10,89,500	13,48,500	4,36,500	10,82,000
3 3'	1,494	524	12,196	1,009	3,228	880	4,295	200	2,98,800	1,04,800	24,39,200	2,01,800	6,45,600	1,76,000	8,59,000	2.50	60,98,000	5,04,500	16,14,000	4,40,000	21,47,500
4 4'	1,261	0	16,795	4,051	2,970	2,336	4,767	200	2,52,200	0	33,59,000	8,10,200	5,94,000	4,67,200	9,53,400	2.50	83,97,500	20,25,500	14,85,000	11,68,000	23,83,500
5 5'	950	0	13,144	1,622	4,565	3,226	6,808	200	1,90,000	0	26,28,800	3,24,400	9,13,000	6,45,200	13,61,600	2.50	65,72,000	8,11,000	22,82,500	16,13,000	34,04,000
6 6'	644	0	17,176	1,651	4,849	1,343	6,554	200	1,28,800	0	34,35,200	3,30,200	9,69,800	2,68,600	13,10,800	2.50	85,88,000	8,25,500	24,24,500	6,71,500	32,77,000
7 7'	920	0	13,803	2,265	6,934	1,683	4,183	200	1,84,000	0	27,60,600	4,53,000	13,86,800	3,36,600	8,36,600	2.50	69,01,500	11,32,500	34,67,000	8,41,500	20,91,500
8 8'	1,229	0	16,546	3,104	3,586	1,994	621	200	2,45,800	0	33,09,200	6,20,800	7,17,200	3,98,800	1,24,200	2.50	82,73,000	15,52,000	17,93,000	9,97,000	3,10,500
9 9'	1,115	0	15,563	2,472	4,446	0	0	200	2,23,000	0	31,12,600	4,94,400	8,89,200	0	0	2.50	77,81,500	12,36,000	22,23,000	-	-
10 10'	1,258	0	18,346	848	3,397	0	0	200	2,51,600	0	36,69,200	1,69,600	6,79,400	0	0	2.50	91,73,000	4,24,000	16,98,500	-	-
11 11'	2,654	242	17,286	1,935	1,850	0	0	200	5,30,800	48,400	34,57,200	3,87,000	3,70,000	0	0	2.50	86,43,000	9,67,500	9,25,000	-	-
12 12'	1,587	0	16,988	3,719	1,131	156	0	200	3,17,400	0	33,97,600	7,43,800	2,26,200	31,200	0	2.50	84,94,000	18,59,500	5,65,500	78,000	-
13 13'	2,141	0	22,639	1,858	1,262	0	0	200	4,28,200	0	45,27,800	3,71,600	2,52,400	0	0	2.50	1,13,19,500	9,29,000	6,31,000	-	-
14 14'	853	318	14,623	2,368	2,160	40	0	200	1,70,600	63,600	29,24,600	4,73,600	4,32,000	8,000	0	2.50	73,11,500	11,84,000	10,80,000	20,000	-
15 15'	531	0	10,645	1,231	887	0	0	200	1,06,200	0	21,29,000	2,46,200	1,77,400	0	0	2.50	53,22,500	6,15,500	4,43,500	-	-
16 16'	931	0	16,762	3,520	2,930	203	0	200	1,86,200	0	33,52,400	7,04,000	5,86,000	40,600	0	2.50	83,81,000	17,60,000	14,65,000	1,01,500	-
17 17'	1,645	0	13,778	5,888	280	0	86	200	3,29,000	0	27,55,600	11,77,600	56,000	0	17,200	2.50	68,89,000	29,44,000	1,40,000	-	43,000
18 18'	890	0	6,355	1,634	-	0	0	200	1,78,000	0	12,71,000	3,26,800	-	0	0	2.50	31,77,500	8,17,000	-	-	-
19 19'	1,551	0	4,310	1,815	270	0	0	200	3,10,200	0	8,62,000	3,63,000	54,000	0	0	2.50	21,55,000	9,07,500	1,35,000	-	-
20 20'	817	20	5,214	2,321	1,302	0	0	200	1,63,400	4,000	10,42,800	4,64,200	2,60,400	0	0	2.50	26,07,000	11,60,500	6,51,000	-	-
21 21'	200	0	6,424	2,562	296	0	0	200	40,000	0	12,84,800	5,12,400	59,200	0	0	2.50	32,12,000	12,81,000	1,48,000	-	-
22 22'	943	529	6,482	1,678	2,965	200	0	200	1,88,600	1,05,800	12,96,400	3,35,600	5,93,000	40,000	0	2.50	32,41,000	8,39,000	14,82,500	1,00,000	-
23 23'	1,428	243	15,972	3,356	5,638	0	0	200	2,85,600	48,600	31,94,400	6,71,200	11,27,600	0	0	2.50	79,86,000	16,78,000	28,19,000	-	-
24 24'	459	356	5,497	2,925	553	255	0	200	91,800	71,200	10,99,400	5,85,000	1,10,600	51,000	0	2.50	27,48,500	14,62,500	2,76,500	1,27,500	-
25 25'	311	0	1,889	491	366	0	0	175	-	0	3,30,575	85,925	64,050	0	0	2.50	8,26,438	2,14,813	1,60,125	-	-
TOTAL									51,76,000	4,46,400	5,92,97,175	1,12,88,125	1,17,03,250	26,37,800	58,95,600		14,82,42,938	2,82,20,313	2,92,58,125	65,94,500	1,47,39,000
GRAND TOTAL																					22,70,54,875

O.B. Over Burden
H.G.LST. High Grade Limestone (<12% SiO2)
C.G.LST. Cement Grade Limestone (12 - 15% SiO2)
L.G.LST. Low Grade Limestone (15 - 18% SiO2)
S.LST. Silicious Limestone (18 - 25% SiO2)
SECT. INF. Section Influence
F Lst. Flaggy Limestone (>25% SiO2)
B.D. Bulk Density

E. V. Eshesh Kumar



Section Wise Reserves Estimation of NAYANAPALLI BLOCK MINING LEASE AREA(G2 & G3) Category, M/s RCL																							
MINEABLE RESERVES (G2) - (121 / 122)																							
SECTIONAL AREA in sqm.								SECT.	VOLUME in cum.							B.D	TONNAGE						
NAME	SOIL	O.B. / WASTE	H.G.LST.	C.G.LST.	L.G.LST.	S.LST.	F Lst	INF.	SOIL	O.B. / WASTE	H.G.LST.	C.G.LST.	L.G.LST.	S.LST.	F Lst	t/cum.	H.G.LST.	C.G.LST.	L.G.LST.	S.LST.	F Lst		
13 13'	116	0	4,151	-	-	0	0	200	23,200	0	8,30,200	-	-	0	0	2.50	20,75,500	-	-	-	-		
19 19'	388	0	1,282	453	-	0	0	200	77,600	0	2,56,400	90,600	-	0	0	2.50	6,41,000	2,26,500	-	-	-		
TOTAL									1,00,800		10,86,600	90,600	-				27,16,500	2,26,500	-	-	-		
RESOURCES (G3) - (333)																							
23 23'	1,850	0	4,896	2,034	933	0	0	200	3,70,000	0	9,79,200	4,06,800	1,86,600	0	0	2.50	24,48,000	10,17,000	4,66,500	-	-		
TOTAL									3,70,000		9,79,200	4,06,800	-										39,31,500

O.B.	Over Burden
H.G.LST.	High Grade Limestone (<12% SiO2)
C.G.LST.	Cement Grade Limestone (12 - 15% SiO2)
L.G.LST.	Low Grade Limestone (15 - 18% SiO2)
S.LST.	Silicious Limestone (18 - 25% SiO2)
SECT.INF.	Section Influence
F Lst	Flagy Limestone (>25% SiO2)
B.D.	Bulk Density



E.V. Anvesh Kumar

Blocked Reserves (7.5m Buffer Zone) Estimation of NAYANAPALLI BLOCK MINING LEASE AREA (G1) Category, M/s RCL

MINEABLE RESERVES (G1)-211																						
SECTION		SECTIONAL AREA in sqm.						SECT.	VOLUME in cum.						B.D	TONNAGE						
NAME	SOIL	O.B. / WASTE	H.G.LST.	C.G.LST.	L.G.LST.	S.LST.	F Lst	INF.	SOIL	O.B. / WASTE	H.G.LST.	C.G.LST.	L.G.LST.	S.LST.	F Lst	t/cum.	H.G.LST.	C.G.LST.	L.G.LST.	S.LST.	F Lst	
1 1'	21		261	180	45	90	144	160	3,360	-	41,760	28,800	7,200	14,400	23,040	2.50	1,04,400	72,000	18,000	36,000	57,600	
2 2'	21		480	38	204	111	306	200	4,200	-	96,000	7,600	40,800	22,200	61,200	2.50	2,40,000	19,000	1,02,000	55,500	1,53,000	
3 3'	56		237	15	83	31	133	200	11,200	-	47,400	3,000	16,600	6,200	26,600	2.50	1,18,500	7,500	41,500	15,500	66,500	
4 4'	89		123	15	79	39	129	200	17,800	-	24,600	3,000	15,800	7,800	25,800	2.50	61,500	7,500	39,500	19,500	64,500	
5 5'	6		129	23	61	45	61	200	1,200	-	25,800	4,600	12,200	9,000	12,200	2.50	64,500	11,500	30,500	22,500	30,500	
6 6'	31		120		44	32	39	200	6,200	-	24,000	-	8,800	6,400	7,800	2.50	60,000	-	22,000	16,000	19,500	
7 7'	26		97	57	79		25	200	5,200	-	19,400	11,400	15,800	-	5,000	2.50	48,500	28,500	39,500	-	12,500	
8 8'	20		110	46	56			200	4,000	-	22,000	9,200	11,200	-	-	2.50	55,000	23,000	28,000	-	-	
9 9'	119		1,418	143	72	6		200	23,800	-	2,83,600	28,600	14,400	1,200	-	2.50	7,09,000	71,500	36,000	3,000	-	
10 10'	64		762	53	295			200	12,800	-	1,52,400	10,600	59,000	-	-	2.50	3,81,000	26,500	1,47,500	-	-	
11 11'	66	10	669	234				200	13,200	2,000	1,33,800	46,800	-	-	-	2.50	3,34,500	1,17,000	-	-	-	
12 12'	41		228	108				200	8,200	-	45,600	21,600	-	-	-	2.50	1,14,000	54,000	-	-	-	
13 13'	80	-	504	265	-	-	-	200	16,000	-	1,00,800	53,000	-	-	-	2.50	2,52,000	1,32,500	-	-	-	
14 14'	19	-	317	30	8	-	-	200	3,800	-	63,400	6,000	1,600	-	-	2.50	1,58,500	15,000	4,000	-	-	
15 15'	21	-	302	58	30	-	-	200	4,200	-	60,400	11,600	6,000	-	-	2.50	1,51,000	29,000	15,000	-	-	
16 16'	39	-	356	34	40	5	-	200	7,800	-	71,200	6,800	8,000	1,000	-	2.50	1,78,000	17,000	20,000	2,500	-	
17 17'	-	-	-	-	-	-	-	200	-	-	-	-	-	-	-	2.50	-	-	-	-	-	
18 18'	-	-	-	-	-	-	-	200	-	-	-	-	-	-	-	2.50	-	-	-	-	-	
19 19'	3	-	-	-	-	-	-	200	600	-	-	-	-	-	-	2.50	-	-	-	-	-	
20 20'	41		38	-	-	-	-	200	8,200	-	7,600	-	-	-	-	2.50	19,000	-	-	-	-	
21 21'	23	-	49	34	7	-	-	200	4,600	-	9,800	6,800	1,400	-	-	2.50	24,500	17,000	3,500	-	-	
22 22'	-	-	-	-	-	-	-	200	-	-	-	-	-	-	-	2.50	-	-	-	-	-	
23 23'	20	-	11	-	-	-	-	200	4,000	-	2,200	-	-	-	-	2.50	5,500	-	-	-	-	
24 24'	26	29	418	195	61	67	-	200	5,200	5,800	83,600	39,000	12,200	13,400	-	2.50	2,09,000	97,500	30,500	33,500	-	
25 25'	43	-	387	79	62	-	-	175	7,525	-	67,725	13,825	10,850	-	-	2.50	1,69,313	34,563	27,125	-	-	
TOTAL									1,73,085	7,800	13,83,085	3,12,225	2,01,800	67,200	1,61,640		34,57,713	7,80,563	6,04,625	2,04,000	4,04,100	
GRAND TOTAL																						54,51,000

- O.B. Over Burden
- H.G.LST. High Grade Limestone (<12% SiO2)
- C.G.LST. Cement Grade Limestone (12 - 15% SiO2)
- L.G.LST. Low Grade Limestone (15 - 18% SiO2)
- S.LST. Silicious Limestone (18 - 25% SiO2)
- SECT. INF. Section Influence
- F Lst Flagy Limestone (>25% SiO2)
- B.D. Bulk Density

S. V. Ananth Kumar



Blocked Reserves (Nala & Road Safety Zones) Estimation of NAYANAPALLI BLOCK MINING LEASE AREA (G1) Category, M/s RCL

MINEABLE RESERVES (G1)-211																							
SECTION	SECTIONAL AREA in sqm.							SECT.	VOLUME in cum.							B.D	TONNAGE						
NAME	SOIL	O.B. / WASTE	H.G.LST.	C.G.LST.	L.G.LST.	S.LST.	F Lst	INF.	SOIL	O.B. / WASTE	H.G.LST.	C.G.LST.	L.G.LST.	S.LST.	F Lst	t/cum.	H.G.LST.	C.G.LST.	L.G.LST.	S.LST.	F Lst		
1 1'	200		1,047	1,080	298	692	1,229	160	32,000	-	1,67,520	1,72,800	47,680	1,10,720	1,96,640	2.50	4,18,800	4,32,000	1,19,200	2,76,800	4,91,600		
2 2'	107		1,545	175	1,117	525	1,565	200	21,400	-	3,09,000	35,000	2,23,400	1,05,000	3,13,000	2.50	7,72,500	87,500	5,58,500	2,62,500	7,82,500		
3 3'	142		2,667	1,096	466	242	372	200	28,400	-	5,33,400	2,19,200	93,200	48,400	74,400	2.50	13,33,500	5,48,000	2,33,000	1,21,000	1,86,000		
4 4'	12		77	10	49	24	80	200	2,400	-	15,400	2,000	9,800	4,800	16,000	2.50	38,500	5,000	24,500	12,000	40,000		
5 5'	24		531	92	252	192	277	200	4,800	-	1,06,200	18,400	50,400	38,400	55,400	2.50	2,65,500	46,000	1,26,000	96,000	1,38,500		
6 6'	31		188		72	44	64	200	6,200	-	37,600	-	14,400	8,800	12,800	2.50	94,000	-	36,000	22,000	32,000		
9 9'	102		1,234	588	302	44		200	20,400	-	2,46,800	1,17,600	60,400	8,800	-	2.50	6,17,000	2,94,000	1,51,000	22,000	-		
10 10'	72		1,163	98	289			200	14,400	-	2,32,600	19,600	57,800	-	-	2.50	5,81,500	49,000	1,44,500	-	-		
11 11'	126	26	1,200	113	21			200	25,200	5,200	2,40,000	22,600	4,200	-	-	2.50	6,00,000	56,500	10,500	-	-		
12 12'	176		1,689	436	759			200	35,200	-	3,37,800	87,200	1,51,800	-	-	2.50	8,44,500	2,18,000	3,79,500	-	-		
13 13'	-	-	1,084	896	-	-	-	200	-	-	2,16,800	1,79,200	-	-	-	2.50	5,42,000	4,48,000	-	-	-		
TOTAL									1,90,400	5,200	24,43,120	8,73,600	7,13,080	3,24,920	6,68,240		61,07,800	21,84,000	17,82,700	8,12,300	16,70,600		
GRAND TOTAL																							1,25,57,400

- O.B. Over Burden
- H.G.LST. High Grade Limestone (<12% SiO₂)
- C.G.LST. Cement Grade Limestone (12 - 15% SiO₂)
- L.G.LST. Low Grade Limestone (15 - 18% SiO₂)
- S.LST. Silicious Limestone (18 - 25% SiO₂)
- SECT.INF. Section Influence
- F Lst Flagy Limestone (>25% SiO₂)
- B.D. Bulk Density



E. P. Anesh Kumar

Blocked Reserves (Village Safety Zone) Estimation of NAYANAPALLI BLOCK MINING LEASE AREA (G1) Category, M/s RCL

MINEABLE RESERVES (G1)-211																					
SECTION NAME	SECTIONAL AREA in sqm.							SECT. INF.	VOLUME in cum.							B.D t/cum.	TONNAGE				
	SOIL	O.B. / WASTE	H.G.LST.	C.G.LST.	L.G.LST.	S.LST.	F Lst		SOIL	O.B. / WASTE	H.G.LST.	C.G.LST.	L.G.LST.	S.LST.	F Lst		H.G.LST.	C.G.LST.	L.G.LST.	S.LST.	F Lst
13 13'	66		13					200	13,200	13,200	2,600	-	-	-	-	2.50	6,500	-	-	-	
14 14'			2,451					200	-	-	4,90,200	-	-	-	-	2.50	12,25,500	-	-	-	
15 15'	462		991	156				200	92,400	92,400	1,98,200	31,200	-	-	-	2.50	4,95,500	78,000	-	-	
16 16'	551		1,325	162				200	1,10,200	1,10,200	2,65,000	32,400	-	-	-	2.50	6,62,500	81,000	-	-	
17 17'	1,296		553	181				200	2,59,200	2,59,200	1,10,600	36,200	-	-	-	2.50	2,76,500	90,500	-	-	
TOTAL									4,75,000	4,75,000	10,66,600	99,800	-	-	-		26,66,500	2,49,500	-	-	
GRAND TOTAL																					29,16,000

- O.B. Over Burden
- H.G.LST. High Grade Limestone (<12% SiO2)
- C.G.LST. Cement Grade Limestone (12 - 15% SiO2)
- L.G.LST. Low Grade Limestone (15 - 18% SiO2)
- S.LST. Silicious Limestone (18 - 25% SiO2)
- SECT.INF. Section Influence
- F Lst Flagy Limestone (>25% SiO2)
- B.D. Bulk Density



E. V. Anand Kumar

Blocked Reserves (Under Bench Slopes) Estimation of NAYANAPALLI BLOCK MINING LEASE AREA (G1) Category, M/s RCL

MINEABLE RESERVES (G1)-211																					
SECTION	SECTIONAL AREA in sqm.							SECT.	VOLUME in cum.						B.D	TONNAGE					
NAME	SOIL	O.B. / WASTE	H.G.LST.	C.G.LST.	L.G.LST.	S.LST.	F Lst	INF.	SOIL	O.B. / WASTE	H.G.LST.	C.G.LST.	L.G.LST.	S.LST.	F Lst	t/cum.	H.G.LST.	C.G.LST.	L.G.LST.	S.LST.	F Lst
11'			1,472	688	144	191	188	160	-	-	2,35,520	1,10,080	23,040	30,560	30,080	2.5	5,88,800	2,75,200	57,600	76,400	75,200.0
2 2'			829	39	306	59	115	200	-	-	1,65,800	7,800	61,200	11,800	23,000	2.50	4,14,500	19,500	1,53,000	29,500	57,500.0
3 3'			1,578	210	364	97	182	200	-	-	3,15,600	42,000	72,800	19,400	36,400	2.50	7,89,000	1,05,000	1,82,000	48,500	91,000.0
4 4'			669	68	276	106	165	200	-	-	1,33,800	13,600	55,200	21,200	33,000	2.50	3,34,500	34,000	1,38,000	53,000	82,500.0
5 5'			573	65	156	75	38	200	-	-	1,14,600	13,000	31,200	15,000	7,600	2.50	2,86,500	32,500	78,000	37,500	19,000.0
6 6'	5		513		100	62	48	200	1,000	-	1,02,600		20,000	12,400	9,600	2.50	2,56,500		50,000	31,000	24,000.0
7 7'	5		340	207	133		27	200	1,000	-	68,000	41,400	26,600		5,400	2.50	1,70,000	1,03,500	66,500		13,500.0
8 8'			271	113	40			200	-	-	54,200	22,600	8,000			2.50	1,35,500	56,500	20,000		
9 9'	3		915	290	31			200	600	-	1,83,000	58,000	6,200			2.50	4,57,500	1,45,000	15,500		
10 10'			911	137	56			200	-	-	1,82,200	27,400	11,200			2.50	4,55,500	68,500	28,000		
11 11'			395	48				200	-	-	79,000	9,600				2.50	1,97,500	24,000			
12 12'			753	199				200	-	-	1,50,600	39,800				2.50	3,76,500	99,500			
13 13'	-	-	566	158	-	-	-	200	-	-	1,13,200	31,600				2.50	2,83,000	79,000			
14 14'	-	16	600	84	-	-	-	200	-	-	1,20,000	16,800				2.50	3,00,000	42,000			
15 15'	-	-	624	143	6	-	-	200	-	-	1,24,800	28,600	1,200			2.50	3,12,000	71,500	3,000		
16 16'	-	-	529	47	-	13	-	200	-	-	1,05,800	9,400		2,600		2.50	2,64,500	23,500		6,500	
17 17'	-	-	67	31	-	-	-	200	-	-	13,400	6,200				2.50	33,500	15,500			
18 18'	640	-	706	79	-	-	-	200	1,28,000	-	1,41,200	15,800				2.50	3,53,000	39,500			
19 19'	75	-	862	261	-	-	-	200	15,000	-	1,72,400	52,200				2.50	4,31,000	1,30,500			
20 20'	66	16	1,265	532	594	-	-	200	13,200	-	2,53,000	1,06,400	1,18,800			2.50	6,32,500	2,66,000	2,97,000		
21 21'	-	-	951	142	305	-	-	200	-	-	1,90,200	28,400	61,000			2.50	4,75,500	71,000	1,52,500		
22 22'	343	315	1,425	497	652	-	-	200	68,600	-	2,85,000	99,400	1,30,400			2.50	7,12,500	2,48,500	3,26,000		
23 23'	199	-	985	484	446	-	-	200	39,800	-	1,97,000	96,800	89,200			2.50	4,92,500	2,42,000	2,23,000		
24 24'	51	29	1,467	451	198	-	-	200	10,200	-	2,93,400	90,200	39,600			2.50	7,33,500	2,25,500	99,000		
25 25'	-	-	700	47	49	-	-	175	-	-	1,22,500	8,225	8,575			2.50	3,06,250	20,563	21,438		
								TOTAL	2,600	-	17,84,920	3,85,280	3,15,440	1,10,360	1,45,080		97,92,050	24,38,263	19,10,538	2,82,400	3,62,700
								GRAND-TOTAL													1,47,85,950

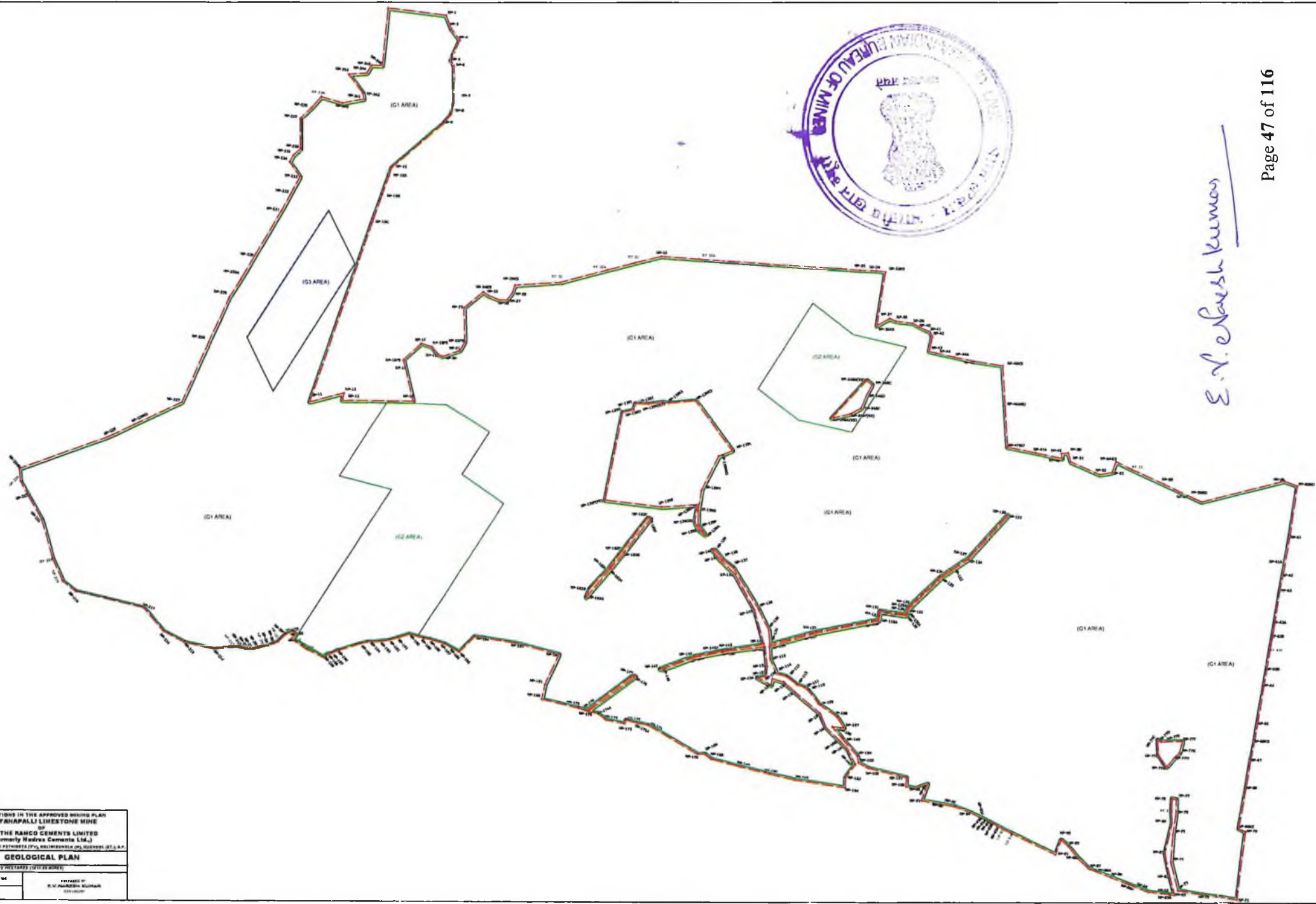
- O.B. Over Burden
- H.G.LST. High Grade Limestone (<12% SiO2)
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- SECT.INF. Section Influence
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- B.D. Bulk Density



E. P. Narash Kumar



E. V. Suresh Kumar



MODIFICATIONS IN THE APPROVED MINING PLAN NAYANAPALLI LIMESTONE MINE OF M/s. THE RAMCO CEMENTS LIMITED (Formerly Madras Cement Co. Ltd.) MADRAS CEMENTS CO. LIMITED, CHENNAI, INDIA.	
GEOLOGICAL PLAN	
EXTENT : 100.12 HECTARES (107.75 ACRES)	
PLAN NO. 04/2016/M	DATE : 01.07.2016
PREPARED BY : E. V. SURESH KUMAR	DESIGNED BY :
DATE : 01.07.2016	

6. Geostatistical analysis of borehole data	Geo-statistical analysis of the borehole core data will be carried out on completion exploration of the deposit. It is evident that there is only one type of geological formation in the study area having uniform quality.
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FEASIBILITY AXIS:

1. Geology	The Limestone deposit within the Mining Lease area belongs to the stratigraphic horizon Palnad Sub -basin "of Late Proterozoic sediments; the later in turn forms a part of the NE corner of the "Kadapa (Cuddapah) basin". Lithological succession of the area is as follows: <table border="1" data-bbox="638 683 1236 862"> <thead> <tr> <th>Item</th> <th>Thickness</th> </tr> </thead> <tbody> <tr> <td>Soil</td> <td>0 - 2.0m</td> </tr> <tr> <td>Limestone</td> <td>0-41 m</td> </tr> <tr> <td>Shale</td> <td>Total Th. Not established</td> </tr> </tbody> </table>	Item	Thickness	Soil	0 - 2.0m	Limestone	0-41 m	Shale	Total Th. Not established								
Item	Thickness																
Soil	0 - 2.0m																
Limestone	0-41 m																
Shale	Total Th. Not established																
2. Mining	The deposit will be mined through conventional drilling - blasting and opencast mechanized mining methods. ROM is directly fed to crusher for size reduction. Crushed limestone material will be transported to the plant by tippers to stacker located to be located in the factory. No beneficiation is needed.																
3. Environment	The deposit is being mined through conventional opencast mechanized mining methods without any adverse environmental impact.																
4. Processing	Further pilot scale study of the deposit is not warranted, as the total material can be consumed in cement plant. Mining operations is being carried out by deployment of adequate fleet of HEMMs & manpower.																
5. Infrastructure and Services, Construction activities	Adequate infrastructure facilities will be provided such as Office, Rest Shelter etc. The Mining lease area is well connected with important cities / Mandal HQ's through public roads.																
7. Costing (Tentative)	The Cost of production is as follows per tonne (in Rs): (Proposed) <table border="1" data-bbox="470 1601 1396 2027"> <thead> <tr> <th>Item</th> <th>Cost, Rs.</th> </tr> </thead> <tbody> <tr> <td>1. Drilling, loading, transportation and water spraying etc.</td> <td>75</td> </tr> <tr> <td>2. Blasting</td> <td>10</td> </tr> <tr> <td>3. Electricity</td> <td>4.00</td> </tr> <tr> <td>4. Salary & Wages</td> <td>5.00</td> </tr> <tr> <td>5. Development works</td> <td>1.50</td> </tr> <tr> <td>6. Other cost green belt development</td> <td>1.00</td> </tr> <tr> <td>TOTAL PRODUCTION COST</td> <td>116.50</td> </tr> </tbody> </table>	Item	Cost, Rs.	1. Drilling, loading, transportation and water spraying etc.	75	2. Blasting	10	3. Electricity	4.00	4. Salary & Wages	5.00	5. Development works	1.50	6. Other cost green belt development	1.00	TOTAL PRODUCTION COST	116.50
Item	Cost, Rs.																
1. Drilling, loading, transportation and water spraying etc.	75																
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4. Salary & Wages	5.00																
5. Development works	1.50																
6. Other cost green belt development	1.00																
TOTAL PRODUCTION COST	116.50																

E. V. Anvesh Kumar

	<p>The total production cost is about Rs. 116.50/-. It will vary slightly based on escalation of Diesel price and other inputs. In addition to the above Royalty and other taxes are:</p> <p>Royalty for the limestone mineral : Rs. 80/- M.T (Once in three years the rate will be reviewed by the Ministry of Mines and Steel, Govt. of India)</p> <p>Other taxes:</p> <p>Income Tax :Rs.1.6 (2% on Royalty) DMF :Rs.24 (30 % on Royalty) NMET :Rs.1.6 (2 % on Royalty)</p> <p>The cost comes to around Rs 223.70/- per tonne</p>
7. Marketing	Cement grade limestone exploited from the deposit is utilized in captive consumption of cement plant. Cement / Clinker produced from the plant is being marketed in the states of Karnataka, Andhra Pradesh, Tamil Nadu, etc. Cement produced from the plant is marketed under the Ramco brand
8.Economic Viability	Mining lease is meeting the captive requirement of cement plant. Under the present techno-economic and legal considerations, exploitation of the deposit is viable and would remain viable in near future.
9.Others (Statutory)	Mining Operations in the deposit will be carried out under the various statutory provisions of MM (R & D) Act, MCR, MCDR, Mines Act and Rules & Regulations made there under, Electricity Rules, Environment (Protection) Act etc. Relevant clearances are being perused for continuing Mining operation in the Mining lease area. Environmental Clearance is being pursued now.

ECONOMIC AXIS:

1. General and Detailed Exploration	<p>The maximum ML area of about 664.03 hectares area has been explored by 170 Core boreholes up to average depth of 30 m in a grid pattern of 200 X 200m and also 59.6778 Ha. has been explored by 12 core boreholes up to average depth of 30 m in a grid pattern of 400 X 400m. Balance 12.0122 ha. Mining Lease area considered as G3 area it will be upgraded later with Core drilling. All the boreholes will be drilled for shale intersection</p> <p>The deposit is simple, strata bound, tabular in nature & is being worked by the company since long back. Deposit characteristics are well established for bulk handling purpose. However the total area would be drilled in a grid pattern of 200 X 200 m up to foot wall rock in accordance with the UNFC field guidelines in the present plan period.</p>
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E. V. Anvesh Kumar

2. Mining Reports / Mining Plan / Working Mines	Cement grade limestone is exploitable through conventional drilling – blasting & opencast mechanized mining methods. ROM is directly fed to the crusher for size reduction and sized material will be stock piled, before taken into the cement manufacturing process. No beneficiation is needed. Mining Plan has been prepared and approved by IBM.
Specific end use grades of reserves (above economic cutoff grade).	Used for the cement plant only.
Specific knowledge of forest / non-forest and other land use data.	There is no forest land in the Mining lease area.



The findings are summarized here below;

The Nayanapalli limestone mining lease area covering 723.7088 Ha. was explored for G1 & G2 category in the year 2018-19.

All the limestone core samples of the 185 core boreholes drilled were analysed in RCL lab and 10% of the samples are analysed by NABL accredited laboratory. The summary of quality reported borehole wise is annexed under **ANNEXURE-27**.

Topographic survey was carried out and a contour map has been prepared on 1:4000 scale for the Nayanapalli Mining Lease area.

The surface plan (**Plate-III**) has been re drawn in 2019.

- The current proposals for the plan period present mine planning is from RL 288 m to RL 266 m by the end of the Plan period in march 2025.
- The deposit in terms of geological axis has sustainable reserves/resources base to cater to needs of plant from time to time. For raw material sourcing this deposit has potential and there will not be any unforeseen geological uncertainties, since it is a simple deposit from the known geological milieu of cement grade limestone basins of the country.
- Based on the exploration, G1 & G2 level reserves were estimated. The mining equipment have been selected to match the present and future modes of operation of conventional mining by drilling and blasting with shovel-dumper combination. All the equipment will be maintained well for operations. The availability factor of all the mining machinery will be put at over 85%. Adequate manpower to operate two shifts will be employed. Mining will be carried out by bench optimization, systematic exploitation and mineral conservation. The entire infrastructure at the plant and mines will be made available to meet the Requirements.

E. V. Braesh Kumar

The area is free from Forest Land.

Geological Plan and Geological cross sections are enclosed as **Plate-IV & V** respectively.

Submit a feasibility/pre-feasibility study report along with financial analysis for economic viability of the deposit as specified under the UNFC field guidelines may be incorporated:

Feasibility study report along with financial analysis for economic viability of the deposit as specified under the UNFC field guide lines. **(ANNEXURE-28)**

k) Furnish detailed calculation of reserves/resources section wise (When the mine is fully mechanized and deposit is of complex nature with variation of size, shape of mineralized zones, grade due to intrusion within ore zone etc., an attempt may be made to estimate reserves/resources by slice plan method). In case of deposits where underground mining is proposed, reserve/resources may be estimated by level plan method, as applicable, as per the proposed mining parameters.

l) Mineral Reserves/Resources:

Mineral Reserves: (Mineral reserves may be estimated purely based on level of exploration, with reference to the threshold value of minerals declared by IBM)

Table 4: Details of level of Exploration and Reserves

Level of Exploration	Reserves in million tonnes	Grade
G1 - General Exploration	227.055	%CaO : 42.50, %SiO ₂ : 13.50.
G2 & G3- General Exploration	2.943 & 3.931	%MgO : <1.0 %CaO : 43.23, %SiO ₂ : 14.56, %MgO : <1.0
G4- Reconnaissance	---	--

Resources and Reserves within the lease may be arrived after applying results feasibility/prefeasibility study and economic evaluation of deposit based on various factors such as:

a) **Mining method, Recovery factor, mining losses, processing loss etc.**

Mining method: Open Cast- Fully Mechanized.

Bulk density: The bulk density of 2.5 t/cum. is estimated by standard method.

E. V. Anvesh Kumar

In-situ density of limestone is inclusive of inherent cracks / crevices / joints / joint fills / porosity / lithological variations etc. The bulk density is always lower than that of specific gravity.

Recovery factor: In estimation values, 100% recovery is considered

Mining loss: Nil.

Processing loss: No processing in this mine product.

b) Cut off grade, Ultimate pit depth proposed.

Cutoff grade: the requirement of limestone quality for cement plant in terms of quality is between % CaO: 45.5% and corresponding %SiO₂: 13.15%

Ultimate pit depth proposed: The Ultimate Pit Limit (UPL) as shown in **Plate No.-IV** is the limestone reserves will last for the entire lease life up to December 2050 as per the MM(D&R) Amendment Act 2015. The extension of Lease period of 50 years under Section 8A(3) of the MM(D&R) Amendment Act, 2015 has been granted valid upto 08.08.2050.

In consecutive five yearly blocks starting from 2021-22 to 2024-25 (First year lapsed i.e. 2020-21), and subsequent exploitation to the tune of 10.80 million tonnes in every five yearly block @ 2.70 MTPA is shown in the conceptual plan by excavating three limestone benches above the ground water table.

As on now, the average depth is expected to be about 30 m from surface. With 258m RL is the mine floor. But ultimate depth of mining is 48m i.e. upto 230mRL.

This feasible mechanized working is established through local geological parameters. The conceptual pit limit at the end of the lease period (August, 2050) is tentatively shown.

C) Mineral/ ore blocked dues to benches, barriers, pillars, road, railway, river, nala, reservoir, electric line and other statutory barriers etc., under forest, sanctuaries etc. where necessary permissions are not available

Mineral Blocked due to benches, barriers, pillars, road, railway, river, Nala, reservoir, electric line and other statutory barriers etc. have been taken into account while estimating the reserves.



E. V. Anvesh Kumar

Table: 5 Estimation of the Reserves: AS on 01.04.2021

	UNFC code	Qty.in million tonnes	Grade/Wt. Avg. Grade
A. Total Mineral Reserves			
Proved Mineral Reserves (G1)	111	227.055	The weighted average grade of deposit (cement and sub grade) is assessed as %CaO : 42.50 %SiO ₂ : 13.50 %MgO : <1.0
Probable Mineral Reserves (G2)	121 & 122	2.943	
B. Total Remaining Resources			
Feasibility Mineral Resource	211	35.709	
Prefeasibility Mineral Resource	221 & 222	-	
Measured Mineral Resource	331	-	
Indicated Mineral Resource	332	-	
Inferred Mineral Resource	333	3.931	
Reconnaissance Mineral Resource	334	-	
	Total B	39.64	
Total Reserves + Resource(A+B)		269.638	



Note: It may not be possible to quantify grade wise reserves, as normally there is considerable variation in size and grade distribution within the ore zone, which results variable recovery factor and bulk density. Thus tonnages arrived are tentative.

E. V. Eshesh Kumar

2.0 MINING**A. OPEN CAST MINING:**

a) Briefly describe the existing as well as proposed method for excavation with all design parameters indicating on plans /sections.

The Mining operations will be carried out by fully mechanized opencast Mining method with Three shifts. The black cotton soil present as the top slice thickness is scraped with a dozer / pay loader and collected in the form of a heap and then loaded into tippers by means of either a front end pay loader or hydraulic excavator and transported to designated locations for use in plantation development / and or reclamation areas. Blast hole drilling is conducted with versatile "Wagon" drilling units powered by Atlas Copco make, compressors. A sequential blast and drill hole pattern is adopted (6 m Burden X 8 m Spacing or 3 m Burden X 4.5 m Spacing) of Blast hole drill depth 8.3 m) to control the fly rock, ground vibration, noise level etc. These holes will be drilled using 150 MM dia or 115 MM dia. bit in a staggered manner at an inclination of 15 ° to the vertical. For charging the blast hole the distribution of explosive will be 20% to 25% base charge (slurry explosives) and 75% to 80% column charge (ANFO mixture). Controlled blasting techniques, along with adequate stemming; using NONEL initiation system (Excel down-the-hole detonators as well as surface connectors) and electronic detonators for effective control of blast induced ground vibrations, fly rock and noise, will be adopted.

Copy of the NIRM study report is enclosed as **ANNEXURE-29**

Usage of NONEL initiation system and electronic detonators, the explosive charge will be utilized better when compared to the other type of initiation. Toe breakage will be good to facilitate ease digging of the muck material.



An explosives van of 10 tonnes capacity will serve to transport the required quantity of explosives from the licensed magazine to the mine-working site for blasting operations. In order to facilitate on-site maintenance of the field mining equipment, an Mobile Service and utility Van will be provided.

Hydraulic excavators are employed to load the blasted limestone into tippers. The bench height of 8m maximum is maintained. The mined out limestone is used exclusively for captive consumption in the cement plant. The limestone from the mine is transported by tippers and unloaded in the crusher hopper with 1400 TPH capacity, which is located at cement plant premises about 3.0 km from the mine. The maximum feed size of 1000mm from the feed hopper is drawn by a reciprocating feeder, and fed to the Jaw Crusher of 1400 TPH. It will be produces an output size of 50 mm and feed to the raw mill. The crushed material will be stocked in the limestone stacker inside the plant.

E. P. Naresh Kumar

In the lease area 17 pits are exist, which are excavated by the local villagers for their livelihoods and not by the lessee. All the pits are shown in Plate-III and their Dimensions are mentioned in the below table.

Pit No	Location	Length in (mt)	Width in (mt)	Depth in (mt)	Area in (Sqm)	Area in Ha
P1	E185021, N1670661	38	15	3.2	564.22	0.056
P2	E184941, N1670735	60	44	7.1	2607.78	0.261
P3	E184856, N1670793	84	40	5.1	3500.29	0.350
P4	E184789, N1670814	40	17	3.6	682.03	0.068
P5	E184762, N1670868	78	40	2.6	3185.92	0.319
P6	E184690, N1670842	41	16	2.4	643.18	0.064
P7	E184537, N1670913	36	26	2.5	975.28	0.098
P8	E184598, N1670942	51	15	2.2	761.76	0.076
P9	E184582, N1670990	30	16	2	498.84	0.050
P10	E184588, N1671030	25	25	3	676.32	0.068
P11	E184615, N1671047	30	19	2.2	576.59	0.058
P12	E184690, N1671055	49	41	2.5	1811.85	0.181
P13	E184617, N1671122	86	62	5.4	5330.30	0.533
P14	E184723, N1671192	23	19	3	448.74	0.045
P15	E184521, N1671205	31	13	3.1	422.15	0.042
P16	E184476, N1671187	56	32	10.2	1731.86	0.173
P17	E184231, N1671048	19	11	2.3	202.83	0.020
Total						2.462

Briefly described the existing/proposed method for developing/working the deposit with all design parameters

Mining of limestone in the area shall be accomplished by conventional open cast, mechanized method of working.

The following mining parameters are proposed:

Type of working	: 'A category' Opencast, mechanized
Bench height	: 8.0 m
Bench width (working bench)	: 20.0 m
Bench face angle	: 80° to 85°
Overall pit slope	: 45° (at the UPL)

Process:

- Drilling of rotary. Percussive blast holes
- Blasting by conventional explosives – Nonel system and electronic detonators for controlled blasting
- Loading into tippers by excavator
- Transport by matching capacity of tippers (30 t) to the crusher.



E. V. Narayana Kumar

The mining operations will be carried out by open cast mechanized method using Heavy earth moving machinery, deep hole drilling, blasting and deploying hydraulic excavators and tippers combination. The layout of mine faces is across the strike and along the dip direction. The salient features of mode of working are as follows.

- Drilling will be carried out by wagon drills, conventional blasting, loading by excavators and transport from mine to crusher by tippers.
- Sprinkling of water on the roads and blasted muck pile to suppress dust-blows, especially during the dry months of the year, watering to the plantations, maintenance of the roads and pits to minimize the wear and tear of the dumper tyres etc. constitute the miscellaneous operations.

b) Indicate year-wise tentative Excavation in Cubic Meters indicating development, ROM, pit wise as in table below.

Insitu Tentative Excavation

Year	Pit No.	Total tentative Excavation (Cu m)	Top Soil (Cu m)	OB/SB /IB (C um)	ROM (Cu m)		Mineral Reject (Cum)	ROM / Waste Ratio
					Ore (C um)*	Mineral reject (Cum)		
1	2	3	4	5	6	7	8	9
2020-21	Lapsed							
2021-22	Pit-1 & 2	1,211,800	131,800	Nil	108000	Nil	Nil	1:0.0
2022-23	Pit-1 & 2	1,141,200	61,200	Nil	108000	Nil	Nil	1:0.0
2023-24	Pit-1	1,094,400	14,400	Nil	108000	Nil	Nil	1:0.0
2024-25	Pit-1	1,091,400	11,400	Nil	108000	Nil	Nil	1:0.0

i) First Year i.e. 2020-21 : Lapsed



E. P. Narayana Kumar

iii) Third Year i.e. 2022-23**Table: 7 In-situ Tentative Excavation (vide ANNEXURE-30 for details of calculation) for the Third Year i.e. 2022-23**

Year	Working area & Coordinates.	Total tentative Excavation (Cu m) Bench(RL)	Top Soil (Cu m)	OB/S B/IB (C um)	ROM (Cu m)		ROM to Waste/ O.B. Ratio	Direction
					Ore (C um)*	Mineral reject/ Mine Loss (Cu.m)		
1	2	3	4	5	6	7	8	9
2022-23	Pit-1, 4-4' 1669945N - 1670422N & 187966E-188438E Pit-2, 7-7' 1670027N - 1670283N & 187618E-187862E	1,141,200 (4-4':RL 282-274 5-5':RL Sur - 274 6-6':RL Sur-282) (7-7':RL Sur-282-274)	61,200	Nil	1080000 (2700000 Tonnes)	---	Nil	E
Total		1,141200	61,200	Nil	1,080,00

* Tentative tonnage (2700000 tonnes) of the mineral has been arrived by computing approximate bulk density and recovery factor as these data are variable and may be established on time series and no mining loss.

ANNEXURE-30 for details of calculation.

In the Third year of the Plan Period i.e. 2022-23, the mining is advanced in the first bench. It is developed from 282-274 mRL in the Eastern part of the ML area. Bench will be opened and will be advanced towards all directions. No material waste generation in the year. Top soil is about 61,200 cu.m will be generated. This will be dumped separately on the designated area of 4.663Ha and with a height of 3.0m; it is used for greenbelt development. 1.0Ha green belt will be developed in the Third year (2022-23).

1ST bench average SiO₂% is 17.74 and CaO% is 41.72

Year-wise development plan proposed for the Third year, is depicted on plans and sections and enclosed as **Plate-VIB**

E. V. Babesh Kumar

iv) Fourth Year i.e. 2023-24**Table: 8 In-situ Tentative Excavation (vide ANNEXURE-30 for details of calculation) for the Fourth Year i.e. 2023-24**

Year	Working area & Coordinates.	Total tentative Excavation (Cu m) Bench(RL)	Top Soil (Cu m)	OB/S B/IB (C um)	ROM (Cu m)		ROM to Waste/ O.B. Ratio	Direction
					Ore (C um)*	Mineral reject/ Mine Loss (Cu.m)		
1	2	3	4	5	6	7	8	9
2023-24	Pit-1, 6-6' & 7-7' 1670004N- 1670612N & 187604E- 188322E	1,094,400 (6-6':RL Sur - 274 7-7':RL Sur - 266)	14,400	Nil	1080000 (2700000 Tonnes)	---	Nil	E
Total		1,094,400	14,400	Nil	1,080,00			

* Tentative tonnage (2700000 tonnes) of the mineral has been arrived by computing approximate bulk density and recovery factor as these data are variable and may be established on time series and no mining loss.

ANNEXURE-30 for details of calculation.

In the Fourth year of the Plan Period i.e. 2023-24, the mining is advanced in the first, second and third bench will open. It is developed from 274-266 mRL in the Eastern part of the ML area. Benches will be opened and will be advanced towards all directions. No material waste generation in the year. Top soil is about 14,400 cu.m will be generated. This will be dumped separately on the designated area of 4.99Ha and with a height of 3.0m; it is used for greenbelt development. 1.0Ha green belt will be developed in the Fourth year (2023-24).

1st bench average SiO₂% is 15.03 and CaO% is 41.63

Year-wise development plan proposed for the Fourth year, is depicted on plans and sections and enclosed as **Plate-VIC**

E. V. Anand Kumar

v) Fifth Year i.e. 2024-25**Table: 9 In-situ Tentative Excavation (vide ANNEXURE-30 for details of calculation) for the Fifth Year i.e. 2024-25**

Year	Working area & Coordinates.	Total tentative Excavation (Cu m) Bench(RL)	Top Soil (Cu m)	OB/S B/IB (C um)	ROM (Cu m)		ROM to Waste/ O.B. Ratio	Direction
					Ore (C um)*	Mineral reject/ Mine Loss (Cu.m)		
1	2	3	4	5	6	7	8	9
2024-25	Pit-1, 4-4', 5-5', 6-6' & 7-7' 1670290N-1669959N & 187574 E - 188517E	1,091,400 (4-4':RL 274-266 5-5':RL Sur-266 6-6':Sur-266 7-7':282-266)	11,400	Nil	1080000 (2700000 Tonnes)	---	Nil	E
Total		1,091,400	11,400	Nil	1,080,00			

* Tentative tonnage (2700000 tonnes) of the mineral has been arrived by computing approximate bulk density and recovery factor as these data are variable and may be established on time series and no mining loss.

ANNEXURE-30 for details of calculation.

In the Fifth year of the Plan Period i.e. 2024-25, the mining is advanced towards western side of the Pit-1. It is developed from 282-266 mRL in the Eastern part of the ML area. Benches will be opened and will be advanced towards all directions. No material waste generation in the year. Top soil is about 11,400 cu.m will be generated. This will be dumped separately on the designated area of 5.20Ha and with a height of 3.0m; it is used for greenbelt development. 1.0Ha green belt will be developed in the Fifth year (2024-25).

1ST bench average SiO₂% is 11.53 and CaO% is 45.09

Year-wise development plan proposed for the Fifth year, is depicted on plans and sections and enclosed as **Plate-VID**

E. V. Narash Kumar

Mining of Limestone

It is proposed to mine the limestone deposit by mechanized opencast method. Considering various technical parameters like surface topography, configuration of limestone deposit, quality variations, geo-technical aspects, required production rate etc., it is proposed to work the deposit by adopting 8m high benches and ultimate bench slope of 45 degrees. The disposition of floor and surface contours of limestone bed has been used in deciding the floor levels of benches. Accordingly, it is proposed to form the bench at 282 RL.

II. Dump re-handling (for the purpose of recovery of mineral):

Not applicable as no dump formation is there.

c) Enclose Individual year wise development plans and sections showing pit layouts, dumps, stacks of mineral reject, if any, etc. in case of 'A' category mines. Composite development plans showing pit layouts, dumps, stacks of mineral reject, if any, etc. and year wise sections in case of 'B' category mines.

Enclosed individual year wise development plan and sections showing pit layouts, Year wise top soil general details are shown in the Plans **(Plate No. VIA & B)**

d) Describe briefly giving salient features of the proposed method of working indicating Category of mine.

Salient features of present mining methods are given below.

The category of mine is "A" category- Fully Mechanised.

A safe working bench height of 8 m maximum will be maintained in the workings. Presently, two benches in yielding relatively high grade Limestone are produced. A safe blast and drill hole pattern is adopted 6 m Burden X 8 m Spacing for 150 mm dia drill hole or 3 m Burden X 4.5 m Spacing for 115 mm drill hole as recommended by NIRM for a drill depth 8.3 m to control the fly rock, ground vibration, noise level etc.

The mining operations will be carried by open cast mechanized method using Heavy earth moving machinery, deep hole drilling, blasting and deploying hydraulic excavators and combination. The layout of mine faces is across the strike and along the dip direction. The salient features of mode of working are as follows.

- A bench height of 8 m width 20m with matching machinery.
- Systematic, safe and scientific mining.



E. V. Prakash Kumar

- Drilling will be carried out by DTH wagon drill, conventional blasting, loading by excavators and transport from mine to crusher by tippers.
- Sprinkling of water on the roads and blasted muck pile to suppress dust-blows, especially during the dry months of the year, watering to the plantations, maintenance of the roads and pits to minimize the wear and tear of the dumper tyres etc. constitute the miscellaneous operations.
- Ultimate Pit Limit is upto 230mRL
- All the above details are shown in **Plate-VA to VF**

EXTENT OF MECHANIZATION:

The intended production from the mine would be met in 3 shift operations. The following equipment would be deployed.

As stated earlier all the mining operations such as drilling, blasting, loading, hauling/transportation and other allied activities will be done by fully and highly mechanized method. The parameters of various operations of mining in relation to machinery type, capacity & specifications and requirement of machinery including calculation for adequacy proposed to be used is discussed below:

Mine is operated by mechanized means with the equipment and its adequacy is listed below:

Table No.10: Fact for calculation of Extent of Mechanization:

Maximum Ore handling / Annum	2,700,000 tonnes
Maximum Ore handling per annum in volume	1080000 m ³
Maximum Soil handling / Annum	131800 m ³
Total Maximum handling (Ore + Soil) in volume	1,211,800 m ³

Machinery to be Deployed:

Salient features of the Proposed Mining Machinery are listed below:

(1) Drilling Machine: Calculation for drill Machine

A	Total handling of Ore	10,80,000 m ³
B	Per day handling of Ore assuming 300 working day in a year (A/300)	3600 m ³
C	Required meterage in day assuming spacing 4.5 meters burden 3 mtrs. (B/4.5*3)	267 m
D	Working shift	3 shift of 6 hours each
E	Per hour output of 115mm dia drill	15 m
F	Per day meterage (assuming 18 effective hours in a day)	270 meters
G	Hence number of 115mm dia drill machine required. (C/F)	0.98 or say One

E. V. Parash Kumar

Table - 11: The following drill machinery will be procured and deployed in the proposed mine:-

S.No	Type	Nos.	Dia of hole (mm)	Make	Motor Power	HP
1	Crawler/tyre mounted	1	115mm	Atlas Copco	Diesel/Electric	-

All the drill machinery will be fitted with water injection system which will suppress the dust at its point of generation

(2) Loading Equipment:

Material required to be handled : 4040 m³ per day

Bucket fill factor : 85%

Bucket capacity : 4.3 cu.m

Bulk Density : 1.6

Material handled by each bucket : $4.3 \times 0.85 = 3.655$ m³

Cycle time (including pastime) : 40 seconds

No. of buckets to be filled per hour : 90

Material handled per hour : $90 \times 3.655 = 328.95$ m³

Material handled in a day of 3 shifts : $18 \times 328.95 = 5921.1$ m³

Number of excavators required : $4040/5921.1 = 0.682$ or say 1.0

Therefore excavators will be sufficient to handle the required targeted production. One is kept as standby.

**Table - 12: The following loading machinery will be procured and deployed in the proposed mine:-**

S.No.	Type	Nos.	Bucket capacity	Make	Motive power	H.P
1	Hydraulic excavator	2	4.3 m ³	L&T Komatsu/ TATA Hitachi	Diesel	410 HP 1800 RPM

(3) Haulage and Transport Equipment:

Effective working days in a year : 300 days

No. of shifts per day : 3 shifts

No. of shifts per annum : $300 \times 3 = 900$ shifts

Production per day : 4040 m³

Distance between pit head to crusher : 2.50km

No. of trips per hour : 1 trip

No. of trips per day : $1 \times 18 = 18$ trips

Material handled per day : $18 \times 25T = 450$ MT or 180 m³

No. of required : $4040/180 = 22.4$ or say 23.0

E. P. Anand Kumar

Considering 80% availability, the number of required is $23/0.80 = 28.75$ say 29.0
Therefore 29 tippers of 25 tonnes capacity are adequate to meet the required production target. One more will be kept as standby.

Table: 13 The following tippers will be procured and deployed in the proposed mine:-

S.No.	Type	Nos.	Size/Capacity	Make	Make	HP	Motor power
1	Rear dump	29	25 MT	Ashok Leyland/Volvo	Diesel	180 HP	at 2400 rpm

MISCELLANEOUS:-

Describe briefly any allied operations and machineries related to the mining of the deposit not covered earlier –

(A) Operations :-

- Compressors of 13 kg/ cm² capacity will be used along with cabin mounted crawler drill.
- Dozers will be used for leveling of surfaces, dozing of all dumps and temporary stocks.
- Water tanker will be utilized for water sprinkling on haul roads, ramp and water spraying on blasted muck.
- Mobile service unit will be used for attending the breakdown of machine and routine maintenance and supervising activities in the mine.
- Explosive van of 10 MT capacity for transportation of explosive.
- Dewatering pumps will be utilized to pump out the rain water collected in the pit during rainy season.

(B) Machinery Deployed (As in AMP)

(A) TABLE No 14: Other machinery proposed to be deployed



S.No	Type	No.s	Size/Capacity	Make	Motive Power	HP
1	Dozer D-355	1	15.2 MT	L&T Komatsu	Diesel	410 H.P at 2000 RPM
2	Compressor mounted on wagon drill	1	750cfm	Ingersol Rand / Atlas Copco	Diesel/Ele ctric	198 HP at 1900 RPM
3	Water tanker	2	10,000 lt	Ashok Leyland/	Diesel	112 PS at 2800

E. V. eharish Kumar

				TATA		
4	Explosive van	1	10 MT	Ashok leyland	Diesel	180 HP at 2400 rpm
5	Dewatering pump	2	125 LPM	Kirloskar	Diesel/Electrical	60 HP

One crusher of 1400 tonnes / hour capacity will be installed in cement plant site and the limestone from mines will be transported through tippers to the factory crusher for captive use. The crushed material will be transported through conveyor belt to the circular/linear storage yard.

ANY CHANGE IN PROPOSED METHOD OF MINING AND DEPLOYMENT OF MACHINERY, TOGETHER WITH REASONS THEREOF

The proposed capacity of the plant at Kalvatata by M/s The Ramco Cements Limited is 4.485 million tonnes of clinker per annum.

For the Plan period 2020-21 to 2024-25 (Proposal period only four years)

- Limestone consumption factor considered 1.5 per ton of clinker (may vary marginally)

Proposed Capacity of Clinkerisation = 4.485 million tonnes per annum

Limestone required to be raised $4.485 \times 1.5 = 6.727$ MTPA

- No of Working Days considered = 300 of mine operation

BLASTING:

i) **Broad blasting parameters like charge per hole, blasting pattern, charge per delay, maximum number of holes blasted in a round, manner and sequence of firing etc.**

Limestone in this lease area is massive, compact with sub-horizontal/ or low dipping attitude. Hence, no problems are envisaged or encountered in blasting. 6 m Burden X 8 m Spacing for 150 mm dia drill hole or 3 m Burden X 4.5 m Spacing for 115 mm drill hole as recommended by NIRM for a drill depth 8.3 m with additional 10% drilling Bench heights are generally 8 m. However minor variations at different locations within the lease due to the nature of the deposit are common. Blast holes are normally drilled in rows in the selected block. Usually 3 to 5 rows are blasted by using milli-second delay detonators (one delay for each row-Nonel). Multi-delay firing is adopted to achieve best fragmentation and optimum results. However the drilling and blasting will be carried out as per the NIRM study report enclosed as **ANNEXURE-29**

E. V. Anand Kumar

ii) Type of explosive to be used and powder factor:

For charging holes, booster and ANFO are used in 20:80 proportions. The powder factor at present in the surrounding mines is 8.5 and the same will be achieved in the future years also. On the basis of the powder factor, requirement of slurry explosives and the details of yield per hole and daily requirement are as under

Maximum number of holes / round	: 30 holes/round
Spacing	: 4.5 meters
Burden	: 3.0 meters
Depth of drilling	: 8.8 (including 10%)
Yield of each blast	: 4.5m X 3m X 8m X 2.5t/cum. X 30 = 8100 tonnes
Powder factor	: 8.5
Requirement of explosive per each blast	: 8100/8.5= 952.94 Kgs

Total requirement of explosives is 26470 Kgs per month as detailed above.

Applied for obtaining explosive Magazine license for 25T capacity and it is awaited . About 100T of class 2 explosives will be required and about 300 T of AN is required per annum at rated capacity. The location of magazine has been proposed outside of the Mining Lease area.

Thus at the ratio of 20:80 break up requirement of, ANFO 21176 kg per month and Slurry 5294 Kg per month.

The shock tube (Nonel) for control of ground vibrations will be used, to carryout blasting trails and regular blasting. Necessary safety precautions will be adopted to safeguard against likely danger due to blasting to the adjoining villages and public roads. These precautions are adopted in mechanized mines and include hoisting of red flags and posting of guards at vintage points, blowing of siren and other standard precautions laid down by the Metalliferous Mines Regulations 1961 and circulars issued by the Directorate General of Mines Safety, Dhanbad.

ii) Types of explosives used/to be used:

It is proposed to use a combination of ANFO and slurry explosive (booster charge) in the ratio of 80:20. Nonel system and electronic detonators with MMS delay detonators/relays in conjunction with Cordex fuse will be used for initiation of charge.

E. V. Parash Kumar

iv) Powder factor in ore and overburden/waste development heading/slope:

Blasting is required only for excavation of limestone. Each hole of 8.8m depth will yield about 270 tonnes of Limestone for which about 32 kgs of explosive is used. Therefore, the powder factor in with an optimal figure of 8.5 tonnes/kg has been adopted for estimation purpose.

No overburden is there for estimating the charge for the same.

v) Whether secondary blasting is needed, if so describe in brief:

Considering the nature of limestone (massive) and suggested method of blasting it is reasonable to assume that there will be hardly any need for secondary blasting. If needed, larger boulders will be broken by rock breakers.

Storage of explosives (cap. and type of explosive magazine):

The Explosive license is being applied for now.

e) Describe briefly the layout of mine workings, pit road layout, the layout of faces and sites for disposal of overburden/waste along with ground preparation prior to disposal of waste, reject etc. A reference to the plans and sections may be given. UPL or ultimate size of the pit is to be shown for identification of the suitable dumping site.

This Nayanapalli Limestone Mine lease area is a single block. Mining operations will commence with 2 pit operations ie Pit-1 & Pit-2. The Limestone beds are sub-horizontal in attitude and are homogeneously 'Simple' and 'Tabular'. Please see **Plate No. IV Geological Plan 1:4000**.

At the end of plan period, the broken up will be 35.672 ha. This deposit does not have any mineral reject or overburden except top soil. The layout of mine workings, pit, road layout, the layout of faces has been shown in the Pit Development and Production Plan (**Plate No. VA to VD**). No material waste generation is there.

The UPL has been shown in the Plan and sections and ultimate size of the pit was shown for identification.

Mine development current Plan: The mine is being worked by mechanized opencast benching method keeping an average bench height of 8 m each. For the plan period, the mine is planned for developing & production 266m RL. It is projected that the ultimate pit depth will be around 230 m RL.

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f) **Conceptual Mine planning upto the end of lease period taking into consideration the present available reserves and resources describing the excavation, recovery of ROM, Disposal of waste, backfilling of voids, reclamation and rehabilitation showing on a plan with few relevant sections.**

CONCEPTUAL MINING PLAN:

Nayanapalle Limestone Mine is captive to M/s. The Ramco Cements Limited Cement Plant. Limestone from the mines is entirely consumed in cement manufacturing process of the cement plant. Exploitation of limestone in the mine will be commenced in 2021-22. The reserves are to the tune of 229.998 million tonnes. Anticipated life of the mine is 85.18 years at the rate of 2.70 million tonnes per year.

Lessee has been granted deemed extension of mining lease period up to 50 years under Section 8A(3) of MMDR (Amended) Act, 2015 (Copy enclosed as **ANNEXURE-14**) and supplementary mining lease deed executed on 26.03.2019 lease period up to 08.08.2050 (Copy enclosed as **ANNEXURE-15**)

The end of lease of the mine at the present reserves holding state is 85.18 years i.e. the conceptual stage will be reached in 2095-96. However, the lease period is upto 08/08/2050. With the proposed Exploration, the life of the mine gets enhanced further. The ultimate conceptual plan can be drawn after the total exploration is completed.

RECOVERY OF ROM:

The recovery is 100%.

MINE DEVELOPMENT:

Limestone production will commence with 2 pit operations i.e. Pit-1 & Pit-2 and the production will be at peak in the year 2021-22 itself

A table showing limestone production and handling of top soil in the form of five yearly blocks till end of the lease life of the mine (till 2050) is furnished below:



E. V. Naresk Kumar

Table - 15: Production and handling of top soil till the end of lease life

5 Yearly Block	Excavation area Ha.	Generation of top soil (Cu.m.)	Limestone production in million tonnes	Ore : OB	Remarks
2020-21 to 2024-25	33.21	218,800	10.80	Nil	The total quantity of soil likely to be generated 56,46,800 Cu.m till life of mine Which will be utilized later for on Road safety, plantation.
2025-26 to 2029-30	26.996	183,600	13.50		
2030-31 to 2034-35	36.442	297,400	13.50		
2035-36 to 2039-40	35.287	227,800	13.50		
2040-41 to 2044-45	28.227	249,000	13.50		
2045-46 to 08.08.2050	25.767	223,000	13.50		

RECLAMATION & REHABILITATION:

Since there is no generation of waste material till the end of the life of the mine, there is no proposal for backfilling the worked out pits. Total generation of top soil will be 56,46,800 m³ at the end of life of mine. Similarly, the reclamation is in terms of greenbelt development in 7.5m barrier zone and backfilled area.

The mine does not cover any habitation. Hence the mining activity does not involve any displacement of human settlement. No public buildings, places, monuments etc. exists within the lease area or in the vicinity. At present mining operations will not disturb/relocate any village. Thus no rehabilitation is involved.



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Table – 16 : Conceptual land use pattern up to the end of lease life is as under:

Sl. No	Head	Area put on use (ha) at the end 1st five years (2020-21 to 2024-25)	Conceptual land use pattern (ha) (At the End of Lease Period)
1	Area under Mining	35.672	191.483
2	Infrastructure (Workshop, Administrative Building etc.)	0.10	-
3	Storage for soil (Temporary)	3.30	-
4	Waste Dump (Temporary)	1.00	-
5	Surface manual limestone heaps	2.172	2.172
6	Storage for Limestone Stock (Temporary)	1.00	-
7	Roads, Ramps etc.	1.612	1.612
8	Greenbelt	4.0	55.02
9	Garland Drain and settling tank	0.34	0.34
10	Others (Undisturbed area)	686.524	485.093
Grand Total		735.72	735.72

Note:

1. The above figures will be revised later after further exploration is completed
2. UPL shown in conceptual plan for the plan period only is shown in (**Plate No: IX**) and corresponds to G2 level.

Conceptual Mining Plan showing ultimate pit limits, both in lateral and vertical directions, plantation area etc. are shown **Plate-VIII**. Salient features of the Conceptual Mining Plan are as under:-

ULTIMATE PIT LIMIT

As discussed, limestone from the mine is being raised by adopting conventional open cast deep drilling and blasting methodology. Safety is one of the prime aspects that are considered while designing the benches. An ultimate bench slope of 60° while the ultimate pit slope of 45° would be maintained during the entire mining operations. Commensuration to the depth of mining main haul road with ramp in 1:16 gradient will be developed in the centre of the area supported by ancillary haul roads and ramps from time to time.

The pit dimensions at the end of mine life would be tentatively as under which may undergo changes as the mine progresses

Max Length (m)	1600m
Max Width (m)	1500 m
Max Depth (m)	48m (278m RL to 230m RL (4-4'))
Ultimate pit slope angle	45°

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ANTICIPATED LIFE OF THE MINE

The life of the mine has been arrived at based on the reserves and resources. At the ultimate rate of 2.70 MTPA production, the life of the mine anticipated is 81.18 years after this proposed plan period. With the up-gradation of reserves in future, the life shall increase. The currently rated production of 2.70 MTPA would be sustained upto lease life, i:e 08/08/2050.

EXPLOITATION PROPOSED

The following is the proposed exploitation program of this plan period and upto Conceptual plan period based on the exploration data available as on date.

DEVELOPMENT AND PRODUCTION**i) Development:**

No development is planned in the plan period except for top soil. A quantum of top soil 2,18,800 Cu.m. is proposed to remove /re-used for plantation works/bund creation within leasehold / temporary stacked.

ii) Production:

It is planned to produce 10.80 million tonnes of limestone from this mine during this plan period.

AFFORESTATION:

It is proposed to develop a green belt in 7.5 m barrier zone all along the lease boundary at a total distance 27,712m. The species chosen for green belt are fast growing with good canopy and dense leaf. The avenue plantation shall have fruit and flower bearing and some ornamental plants for aesthetic look. The black soil in the area is very much useful to grow avenue plantation. The area proposed to be covered in this plan period is 4.0 Ha covering 6000 saplings. The afforestation would be done around 7.5 barrier zone by planting saplings of different varieties such as (Azadirachta Indica (Neem), Ficus religiosa (Peepul) Leucaena leucaena (Subabul), Mangifer Indica (Mango), Tamarindus Indica (Tamarind), Saraca India (Ashoka).



E. N. e. Naresk Kumar

Five year block period	Area covered (Ha.)	No. of saplings	Location		Remarks
			ML Boundary Pillar No	Coordinates	
2020-21 to 2024-25 (This Plan period)	4.0	6000	NP94-NP45	N15°5'1.97324" E78°5'40.90235" To N15°5'59.93181" E78°5'40.96201"	7.5m ML Boundary safety Barrier area
2025-26 to 2029-30	10.0	15000	NP45- NP225	N15°5'59.93181"E78°5'40.96201" To N15°5'48.48863" E78°3'46.88495"	7.5m ML Boundary safety Barrier area
			NP77A- NP77H	N15°5'8.09893"E78°6'6.59817" To N15°5'9.37231"E78°6'7.67472"	
			NP94- NP150	N15°5'1.97324"E78°5'40.90235" To N15°5'22.23104"E78°5'8.90563"	
2030-31 to 2034-35	10.0	15000	NP246AKS- NP246BKS	N15°5'52.39658"E78°5'22.29333" To N15°5'57.29892"E78°5'26.81106"	7.5m ML Boundary safety Barrier area
			NP139A- NP139P	N15°5'37.09892"E78°5'5.80377" To N15°5'38.36595"E78°5'4.88431"	
			NP182A- NP182H	N15°5'28.89851"E78°4'50.08791" To N15°5'32.57602"E78°4'53.28352"	
			NP150- NP225	N15°5'22.23104" E78°5'8.90563" To N15°5'48.48863"E78°3'46.88495"	
			NP71-NP74	N15°4'51.24875"E78°6'16.06199" To N15°4'55.92182"E78°6'7.27052"	
2035-36 to 2039-40	10.0	15000	NP83-NP97	N15°4'51.70911"E78°6'7.76681" To N15°5'3.36981"E78°5'34.46024"	50m Road & Power line safety Barrier area
			NP163- NP175	N15°5'6.17854"E78°5'24.51157" To N15°5'14.19474"E78°4'50.44185"	
2040-41 to 2044-45	10.0	15000	NP178- NP189	N15°5'14.28697"E78°4'50.20231" To N15°5'23.30411"E78°4'28.74283"	Village safety Barrier area
2045-46 to 2049- 08.08.2050	11.02	16530	NP177- NP191	N15°5'18.90697"E78°4'56.42235" To N15°5'23.30098"E78°4'25.40241"	Barrier area
Total	55.02	82530			

WASTE & SUB GRADE MINERAL MANAGEMENT:

No material waste or subgrade generation is there.

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- (I) The status of conceptual position of pit at the end of the life of mine and waste dump location as well as Top soil utilization along the buffer zone have shown **Plate No.VIII**

Land use pattern in the Mining Lease Present and at the end of life of the Mine is as follows:

Sl. No.	Description	Area put on use at the start of plan (in ha.)	Additional requirement during the plan period (In ha.) (2020-21 to 2024-25)	Land use pattern at the end of Lease period (in ha) (08.08.2050)
01.	Area under mining	2.462 #	33.21	191.483
02.	Storage for topsoil (temporary)	-	3.30	-
03.	Waste dump (temporary)	-	1.0	-
04.	Surface manual limestone heaps	2.172 #	-	2.172
05	Storage for limestone stock (temporary)	-	1.00	-
06.	Mineral Reject Stack	-	-	-
07.	Infrastructure (Workshop, Admin. Building, plant area etc)	-	0.10	-
08.	Roads, Ramps etc.	-	1.612	1.612
09.	Railways	-	-	-
10.	Greenbelt	-	4.0	55.02
11.	Tailing pond	-	-	-
12.	Effluent Treatment plant	-	-	-
13	Mineral separation plant	-	-	-
13.	G.Drain & Retaining Wall	-	0.34	0.34
14.	Others (Area un-utilized)	731.086	691.158	485.093
GRAND TOTAL		735.72	735.72	735.72

Old manually digged area and surface manual limestone heaps have been observed in the mining lease area created by local habitants for house hold purpose/livelihood.

NOISE, VIBRATION & DUST (CONTROL MEASURES):

Machinery parts are totally covered to minimize the noise levels at the point of source, where possible. Ear Muffs will be provided to the drillers, HEME operators, crusher operator, etc and also where the persons working are exposed to noise levels beyond the allowable limits. Noise control measures adopted during blasting, such

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as use of minimum 25m delay interval, covering detonating cord with drill chips, surface initiation with shock tube technology, green belt development etc.

To control vibrations from blasting, the faces will be thoroughly cleaned up before every blast. Every blast is monitored and the charge ratios are fixed accordingly. SBM in combination with delay detonators and Non-Electric Initiation System will be invariably employed for ensuring controlled blasting. Dust is generated at various operations in the Mining system. Dust suppression at various locations is ensured as follows:

- a) Near Drilling Machinery: Using dust extractors & Wet drilling.
- b) Near Loading Units: Wetting the blasted material by sprinkling water through water pump fitted on the water tanker itself.
- c) Near Ore / Mineral transfer Points: Fine mist spray arrangement will be installed to suppress the dust.
- d) In Workshop: Water spraying arrangement with water tanker.
- e) Along Mine haul roads : Water spraying arrangement with water tanker.

STORAGE & UTILIZATION OF TOP SOIL:

Top soil generated up to the end of the life of the mine would be 56,46,800 Cu.m. and soil will be used for afforestation all along the mine boundary in 7.5m boundary area. Hence there will be no provision of storage of top soil within the lease area.

OTHERS:

1. Anticipated life of the mine would vary depending upon future production capacity of the cement plant, non-availability of limestone reserves in un-explored area which is presently categorized under Reconnaissance Mineral Resource category (UNFC Code 333) and unforeseen circumstances beyond control of the lessee.
2. Limestone mined from the mining lease area is entirely utilized in captive requirement of the cement plant, as such, requirement of limestone, grade wise & quantity wise is solely depended on the performance of the cement plant which is again controlled by certain external factors viz. Market demand, quality of other raw materials & fuel, Govt. restrictions, etc. Mining operation and mine's life would be similarly influenced at par with the cement plant.

B. UNDERGROUND MINING

Not Applicable



S. P. Paresh Kumar

3.0 MINE DRAINAGE**a) Minimum and maximum depth of water table based on observations from nearby wells and water bodies:**

The likely depth of permanent water table, based on observations from nearby wells and water bodies, is below 65m from average ground level. The mine workings will not intersect the water table. During the currency of the pit workings, a sump area will be developed to collect rain water. This water will be used up in dry period for haul road spraying / watering the plants in the mine periphery. Year wise proposed sump details are given below.

Proposed Year	Sump Dimensions in 'm' (L x W x D)	Location	Volume (cu.m.)
2020-21	Lapsed		
2021-22	Sump-1 - 50 x 50 x 3	E 187673 - 187743 N 1669932 - 1670000	7,500
	Sump-2 - 50 x 50 x 3	E 188415 - 188485 N 1670027 - 1670096	7,500
2022-23	Sump-1 - 50 x 50 x 3	E 187711 - 187780 N 1670027 - 1670096	7,500
	Sump-2 - 60 x 60 x 3	E 188407 - 188490 N 1669976 - 1670059	10,800
2023-24	Sump - 80 x 80 x 3	E 188333 - 188539 N 1669976 - 1670185	19,200
2024-25	Sump - 180 x 175 x 3	E 188271 - 188517 N 1669983 - 1670203	94,500

Ground water table in the buffer zone occurs at 65-80 m bgl during summer and the rainy season as observed and as mentioned in the Ground Water Report which is studied by the Govt. of Andhra Pradesh Ground Water & Water Audit Department. The same report is enclosed as **ANNEXURE-31**.

Further, the ground water table study has been carried out by ground water department (Govt. of A.P.), Kurnool district. They have submitted the report directly to O/o The Commissioner, Rural Development & Administrator, APWALTA. Based on the report, APWALTA have issued the NOC to carry out the mining operations. Since the water table in the area is well below the limestone deposits. The NOC copy is enclosed as **ANNEXURE-32**.

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b) Indicate maximum and minimum depth of Workings:

The minimum depth of working will be 8m BGL i.e. 280mRL. and the maximum depth of workings 48m BGL i.e. 230mRL, on the basis of exploratory findings on the suitability of limestone origin intersected. Further the G4/G3 category of limestone as and when proven will also be considered for mining.

c) Quantity and quality of water likely to be encountered, the pumping arrangements and places where the mine water is finally proposed to be discharged:

The mining is carried out to a depth of 48m from the surface max. and it will not intersect with water table. Ultimate depth of mining is 48m below the ground level, much above Ground water table, which is at 65-80m BGL. During rainy season, storm water will be collected in the lower bench of the mine. All precautionary measures will be taken to dewater from the mine sump with 5 H.P. pumping set and placed in the mining locality. The dewatered water will be utilized for dust suppression and green belt development and mining operations. The rain water upon stagnation in the mine sump will be desilted and only good quality water will be pumped out to extend mining operations under.

d) Describe regional and local drainage pattern. Also indicate annual rain fall, catchments area, and likely quantity of rain water to flow through the lease area, arrangement for arresting solid wash off etc.:

The regional drainage pattern is dendritic pattern whereas the local drainage pattern is sub dendritic. The catchment area for rain water is away from the lease area. Flow of rainfall water will be from North West to South East. However, Garland drain - construction proposal were initiated to arrest solid wash off from the mine area during this plan period. *Likely depth of water table based on observations from nearby wells and water bodies:*

The Ground water table in the area occurs at 65-80 m bgl during summer and the rainy season as observed and as mentioned in the Ground Water Report which is studied by the Govt. of Andhra Pradesh Ground Water & Water Audit Department.

E. V. Brahesh Kumar



4.0 STACKING OF MINERAL REJECT /SUB GRADE MATERIAL AND DISPOSAL OF WASTE

Location co-ordinates, volume & grade of old existing dump located within the lease area

Dump No	Location		Avg Length in (mt)	Avg Width in (mt)	Avg Height in (mt)	Area in (Sqm)	Area in Ha	Volume in Cum	Chemical Analysis report
	East	North							
Dump Sample 1	184232.064	1671038.200	76.00	6.00	1.20	431.31	0.043	517.572	Chemical Analysis report Enclosed as Annexure - 32A
Dump Sample 2	184481.004	1671124.044	64.00	31.00	2.50	2173.60	0.217	5433.988	
Dump Sample 3	184555.331	1671186.847	32.00	9.00	0.50	312.86	0.031	156.429	
Dump Sample 4	184648.500	1671191.010	30.00	20.00	2.30	618.84	0.062	1423.337	
Dump Sample 5	184746.849	1671198.077	50.00	7.00	2.50	358.50	0.036	896.254	
Dump Sample 6	184542.917	1670880.965	19.00	7.00	1.80	108.78	0.011	195.800	
Dump Sample 7	184980.845	1670750.587	76.00	17.00	1.20	1293.72	0.129	1552.466	
Dump Sample 8	186037.305	1670377.683	97.18	54.50	1.80	5385.32	0.539	9693.573	
Dump Sample 9	186130.847	1670465.703	101.00	37.00	3.50	3756.54	0.376	13147.888	
Dump Sample 10	186530.885	1671306.617	36.00	38.00	1.90	1373.01	0.137	2608.728	
Dump Sample 11	186625.920	1671269.210	60.00	25.00	2.80	1503.69	0.150	4210.334	
Dump Sample 12	186673.616	1671223.613	50.00	50.00	3.20	2415.95	0.242	7731.032	
Dump Sample 13	186722.489	1671122.939	39.00	13.00	3.10	508.65	0.051	1576.830	
Dump Sample 14	184902.582	1671914.338	31.00	19.50	2.40	608.10	0.061	1459.434	
Dump Sample 15	184914.546	1671944.438	39.00	17.00	2.90	683.06	0.068	1980.870	
Dump Sample 16	184939.170	1671991.592	19.50	9.00	3.90	188.35	0.019	734.552	
Total							2.172	53319.088	

a) Indicate briefly the nature and quantity of top soil, overburden / waste and Mineral Reject to be disposed off:

No subgrade generation is there. The entire limestone including low grade (Siliceous limestone SiO₂ is 18% to 25% and Flaggy Limestone SiO₂ is more than 25%) is planned to be consumed by judicious blending with high grade limestone. Thus waste / sub grade mineral dumps will not be created however we have given provision for temporary waste dump and temporary limestone stock.

Top Soil Management: The top soil amounting to 2,18,800 cu.m of soil is stacked separately as temporary soil dump. The same will be utilized for green belt in future.

Table - 17 : Year wise Top Soil and Mineral Rejects

Year	Top Soil (Cu.m)		Mineral Reject (Cu.m)			
	Reuse / Spreading	Storage	Backfilling	Storage	Blending	Beneficiation
2020-21	Lapsed					
2021-22	Nil	131,800	Nil	Nil	Nil	Nil
2022-23	Nil	61,200	Nil	Nil	Nil	Nil
2023-24	Nil	14,400	Nil	Nil	Nil	Nil
2024-25	Nil	11,400	Nil	Nil	Nil	Nil

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b) The proposed dumping ground within the lease area be proved for presence or absence of mineral and be outside the UPL unless simultaneous backfilling is proposed or purely temporary dumping for a short period is proposed in mineralized area with technical constraints & justification:

No material waste generation and hence, no dump formation except temporary soil dump. The dump area is 6.0 Ha with a height of 5.0m. No back filling and the only Greenbelt development will be done about 4.0 Ha. During the plan period.

c) Attach a note indicating the manner of disposal of waste, configuration and sequence of year wise buildup of dumps along with the proposals for protective measures.

No waste generation of material and as a contingency measures temporary waste dump and temporary soil dump proposed.



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5.0 USE OF MINERAL AND MINERAL REJECT

The following are to be furnished in the interest of mineral conservation

a) Describe briefly the requirement of end-use industry specifically in terms of physical and chemical composition:

The Limestone produced from this mine is exclusively for captive consumption of the cement plant. The Limestone from other captive mines is blended so as to have an average SiO₂ between 12.50 - 13.75 %. The maximum size of the limestone for the crusher feed is up to 1.0 m³ (1mx1mx1m). The output size is -50mm.

The specifications of other parameters of Limestone used in cement plant for manufacture of clinker are as follows.

CaO	-	41.60 to 48.50%
SiO ₂	-	10.60 to 18.00 %
MgO	-	0.5 to 0.8%

Physical Characteristics of Limestone:

Colour: The colour of the limestone is light to dark grey.

Fracture: The Limestone is massive, compact with few joints and fractures and resulting in solution cavity.

Grindability: The Grindability of the limestone is varying from 8.6 to 10.2kwh/Short Ton.

Rock Quality Designation: The Rock Quality Designation percentage varying from 50 % to 90% with an average of 70%. So the in-situ rock character is fair.

The Limestone occurring in this area is in shades of grey, fine grained hard and compact. The limestone show typical bedded nature with varying thickness. The limestone outcrops show smoothly weathered surfaces.

b) Give brief requirement of intermediate industries involved in up gradation of mineral before its end-use:

The limestone produced from this mine will be utilized for manufacture of cement.

c) Give detail requirements for other industries, captive consumption, export, associated industrial use etc.:

The entire limestone produced from this mine is used in the captive cement plant.



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d) Indicate precise physical and chemical specification stipulated by buyers:

No buyers are involved as the entire production from the mine is used for captive purpose.

e) Give details of processes adopted to upgrade the ROM to suit the user requirements:

The useable mineral recovered from ROM may not be directly used in any industry and may need intermediate process to suit the user industry in terms of physical and chemical compositions.

The limestone from the lease area is ideally suitable for cement manufacturing. The limestone of all grades has TC ranging from 80 to 88% i.e 45.98 to 48.1 % CaO which is well within the norms of cement grade limestone prescribed by National Council for Cement and Building Materials. The average Lime Saturation Factor (LSF) varies from 104-120.

Hence, there is no necessity to upgrade the ROM.

Crusher is located in Plant area the ROM limestone shall be transported by tippers to the crusher located at Plant site. The transport of ROM by tippers from mines to crusher initially through public road and later stage it will be transported through dedicated company own road.

The ROM limestone produced is subjected to crusher operations at the crushing plant installed in the cement plant area. The limestone from the mines fed to the crusher with a capacity of 1400 TPH. The maximum input size of the feed is 1.0 m³ while the out put size is (-) 50 mm.

The chemical characteristics of limestone extracted from this mine does not warrant any mineral beneficiation, since the quality of limestone produced from this mine will be suitable for manufacture of cement with proportionate ROM blending. Hence no mineral beneficiation is involved. Therefore discharge of any tailings / middlings and disposal / utilization practices does not arise.

At the proposed 2.70 million tonnes per annum of Limestone requirement, the limestone required 9000 tonnes/day and the installed capacity of the crusher is 1400 TPH. With Three shift operations and to maintain a buffer stock, the rated capacity of crusher is sufficient. A flow chart is enclosed as **ANNEXURE-33**

As such there is no specific size requirement for each grade of limestone by the plant. The blasted maximum size of the boulder is 1.0 m³ as through put to the crusher while the out size is -50 mm which is fed to the raw mill section through the stacker reclaimer.

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6.0 PROCESSING OF ROM AND MINERAL REJECT

- a) If processing / beneficiation of the ROM or Mineral Reject is planned to be conducted, briefly describe nature of processing / beneficiation. This may indicate size and grade of feed material and concentrate (finished marketable product), recovery etc.:

The ROM from this mine is being transported for feeding to Crusher directly at factory. There is no proposal for beneficiation of the ROM.

Not applicable

- b) Give a material balance chart with a flow sheet or schematic diagram of the processing procedure indicating feed, product, recovery, and its grade at each stage of processing.:

The processing flow chart is enclosed as ANNEXURE-34

- c) Explain the disposal method for tailings or reject from the processing plant:

No possibility of reject

- d) Quantity and quality of tailings /reject proposed to be disposed, size and capacity of tailing pond, toxic effect of such tailings, if any, with process adopted to neutralize any such effect before their disposal and dealing of excess water from the tailings dam:

Not Applicable.

- e) Specify quantity and type of chemicals if any to be used in the processing plant:

Not applicable

- f) Specify quantity and type of chemicals to be stored on site / plant:

Not applicable

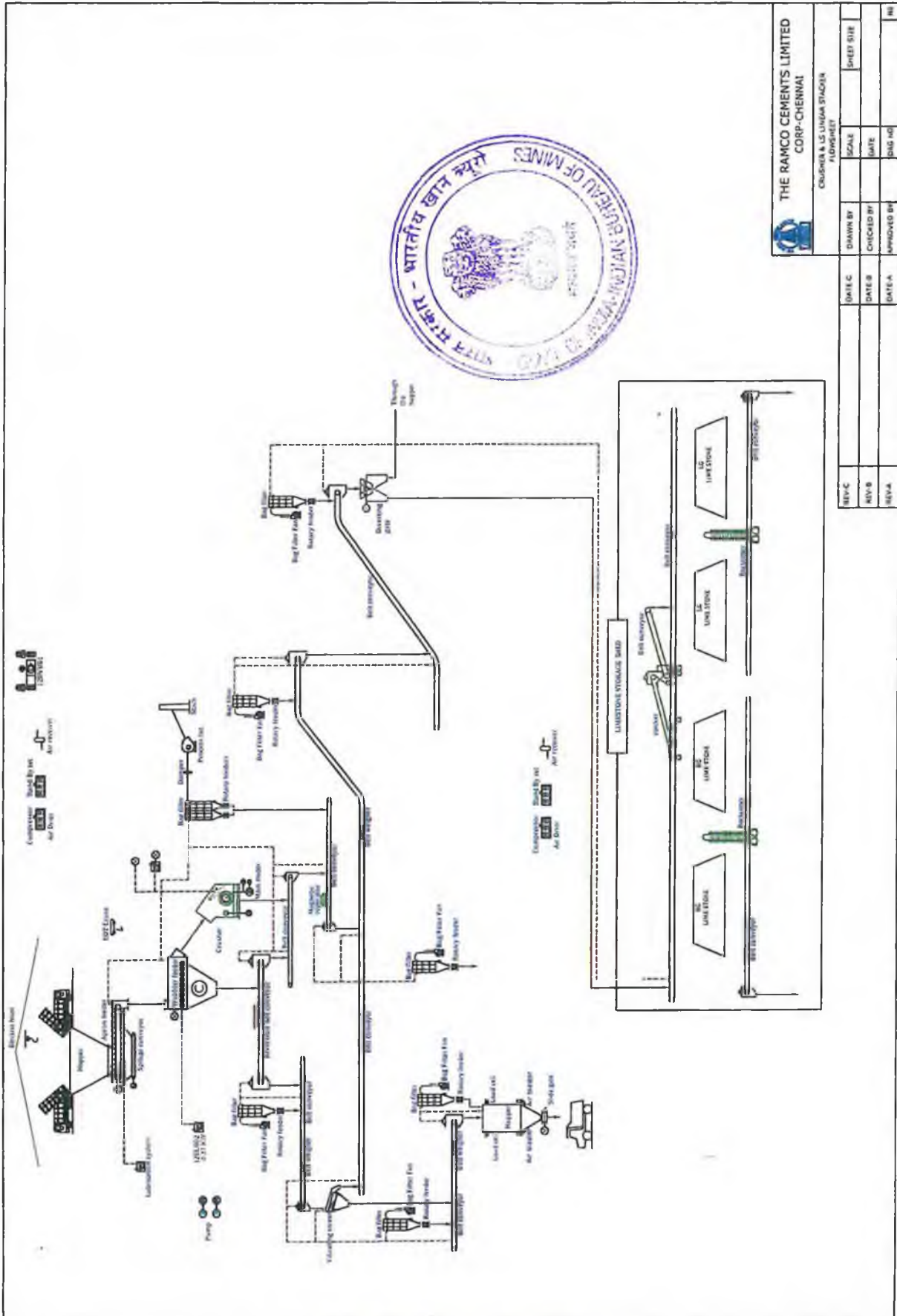
- g) Indicate quantity (cu.m per day) of water required for mining and processing and sources of supply of water, disposal of water and extent of recycling. Water balance chart may be given:

Total requirement of water for mining and allied activities is estimated at 100 m³/day. The break-up of the required water for different activities is as under:

Table- 18: WATER BALANCE TABLE (m³/day)

S no	Application	Required quantity	Loss	Waste water
1	Dust Suppression	70	70	-
2	Drinking & Sanitation	10	2	8
3	Greenbelt	20	20	-
Total		100	92	8

E. V. Lakshmi Kumar



THE RAMCO CEMENTS LIMITED
 CORP-CHENNAI

DATE C	DATE B	DATE A	DATE A	DATE A	DATE A	DATE A
DRAWN BY	CHECKED BY	APPROVED BY	SCALE	SHEET SIZE		

E. P. Eswarath Kumar

7.0 OTHERS

Describe briefly the following:

a) Site services

All the facilities will be provided / installed at the mine. Details of various facilities available are:

The following site services will be provided.

1. Approach roads to Mine workings and Office Complex.
2. Mines office: the facilities include mines managers office, other engineers offices, time office, mine planning and quality control cell, central stores etc.
3. Dispensary in colony premises to serve mine employees. A full-time male doctor and a female doctor, a female nurse and a male compounder will be appointed on regular rolls by the company. An Ambulance Van also will be provided.
4. HSD tank: Diesel storage and dispensing facilities for vehicles and other machinery
5. Maintenance facilities: facilities are provided to take care of preventive and breakdown maintenance of all heavy moving equipment. A well equipped mobile maintenance van is also provided
- 6 Canteen cum rest shelter
8. Water facilities: an overhead water storage tank with adequate capacity cater to the water requirement for workshop, mines office and canteen
9. 3 no's of portable blasting shelters would be provided in the mining area
10. Lighting arrangement: working is proposed in two shifts and accordingly. Tower mounted halogen lighting arrangement would be provided within the mine area for working and security purposes.

b) Employment potential :

Following is the employment needs for achieving the proposed production:

Staff:

Sl. No.	Category	Nos
1	Mines Manager	01
2	Mining Engineer	01
3	Asst. Manager (Mines)	03
4	Geologist	01
5	Surveyor - Part time	01
6	Foreman (Mines)	03
7	Foreman (D&B)	03
8	Blaster	01
9	Mining Mate	03
10	Mechanical Engineer	01
11	Electrical Engineer	01
Total		17

Workmen:

Skilled : **25** (Supervisors, HEMM operators and drivers)

Semi-Skilled : **12** (Helpers - HEMM, drilling and blasting etc..)

Un-Skilled : **15** (plantation, housekeeping, etc..)

E. P. Eshesh Kumar

8.0 PROGRESSIVE MINE CLOSURE PLAN UNDER RULE 23 OF MCDR'1988

-Existing land use pattern indicating the area already degraded due to mining, roads, processing plant, workshop, township etc in a tabular form.

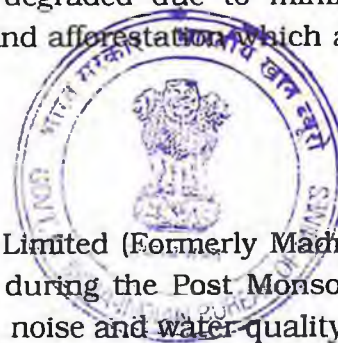
Land use pattern in the Mining Lease Present and at the end of life of the Mine is as follows:

Sl. No.	Description	Area put on use at the start of plan (in ha.)	Additional requirement during the plan period (In ha.) (2020-21 to 2024-25)	Land use pattern at the end of Lease period (in ha) (08.08.2050)
01.	Area under mining	2.462	33.21	191.483
02.	Storage for topsoil (temporary)	-	3.30	-
03.	Waste dump (temporary)	-	1.0	-
04.	Surface manual limestone heaps	2.172	-	2.172
05	Storage for limestone stock (temporary)	-	1.0	-
06.	Mineral Reject Stack	-	-	-
07.	Infrastructure (Workshop, Admin. Building, plant area etc)	-	0.10	-
08.	Roads, Ramps etc.	-	1.612	1.612
09.	Railways	-	-	-
10.	Greenbelt	-	4.0	55.02
11.	Tailing pond	-	-	-
12.	Effluent Treatment plant	-	-	-
13.	Mineral separation plant	-	-	-
14.	G.Drain & Retaining Wall	-	0.34	0.34
15	Others (Area un-utilized)	731.086	691.158	485.093
GRAND TOTAL		735.72	735.72	735.72

The existing Land use pattern indicating area already degraded due to mining, Roads, Storage of Top soil, Haulage Road, Infrastructure and afforestation which are carried out in the lease area have been furnished below:

8.1 ENVIRONMENT BASE LINE INFORMATION

Nayanapalli Limestone Mine of M/s The Ramco Cements Limited (Formerly Madras Cements Ltd.,) has carried out baseline data monitoring during the Post Monsoon season -2017 covering parameters like ambient air quality, noise and water quality.



E. P. Naveesh Kumar

CLIMATIC CONDITIONS

The climate of the area is tropical which is manifested in hot and humid summer, moderate monsoon and mild winter seasons. The area experiences extreme climatic conditions with wide variation in climatic conditions during summer and mild winter seasons. May is generally the hottest month in the year. The maximum temperature during the day time was recorded as 45.6°C and December the coldest month with temperature falling down to 6.7°C. The period between March and November is very humid and muggy daytime. The months of December to February are considered to have pleasant climate. Majority of the rainfall occurs during the months of June to September through South West monsoon is moderate to low annual rainfall, The total rainfall was approximately 726 mm.

AMBIENT AIR QUALITY (AAQ)

Ambient air quality monitoring was carried out in five different locations.

AMBIENT AIR QUALITY MONITORING STATIONS

Station Code	Locations	Distance [Km]	Direction w.r.t Mine	Co-ordinates
A1	Nayanapalli Village	---	---	N 15° 05' 11.98" E 78° 04' 46.85"
A2	Petnikota Village	0.6	SW	N 15° 05' 07.34" E 78° 03' 44.93"
A3	Kolimigundla Village	0.6	SE	N 15° 04' 37.36" E 78° 06' 30.25"
A4	Itikyala Village	3.5	S	N 15° 03' 11.91" E 78° 05' 33.53"
A5	Kanakadripalle Village	4.7	S	N 15° 02' 36.98" E 78° 04' 23.12"

Detailed Ambient Air Quality Data is given below table.



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SUMMARY OF AMBIENT AIR QUALITY DATA IN THE STUDY AREA

COD E	($\mu\text{g}/\text{m}^3$)			PERCENTILE VALUES ($\mu\text{g}/\text{m}^3$)									
	MIN	MA X	AVG	10	20	30	40	50	60	70	80	90	98
Particulate Matter (PM₁₀)													
A1	49.7	57.3	53.5	50.1	51.3	52.1	53.3	54.1	54.5	55.0	55.3	55.9	56.2
A2	47.5	60.1	54.9	48.1	51.2	52.5	54.1	55.2	56.1	57.1	58.2	59.4	59.7
A3	45.8	55.6	50.7	46.0	46.8	47.2	48.0	48.4	48.9	49.6	50.1	50.8	51.0
A4	45.2	52.6	48.9	45.3	46.2	46.9	47.7	48.3	48.6	49.1	49.5	50.0	50.2
A5	46.9	55.2	51.1	47.1	48.2	49.1	50.2	50.9	51.7	52.8	53.6	54.5	54.7
Particulate Matter (PM_{2.5})													
A1	21.3	27.5	24.4	21.4	22.2	22.7	23.4	23.9	24.3	25.0	25.7	26.5	27.3
A2	17.1	28.8	23.0	17.9	19.2	20.3	21.9	22.8	23.8	25.0	26.2	27.6	28.4
A3	19.8	25.2	22.5	19.9	20.9	21.1	21.4	22.0	22.3	22.9	23.1	23.4	23.5
A4	18.5	22.8	20.7	18.6	19.1	19.5	19.9	20.3	20.6	20.9	21.2	21.6	21.7
A5	19.3	26.2	22.8	19.5	20.5	21.0	21.8	22.3	22.8	23.6	24.1	25.2	25.4
Sulfur Dioxide (SO₂)													
A1	9.0	12.4	10.7	9.2	9.5	9.7	10.2	10.4	10.6	11.0	11.4	11.8	11.9
A2	8.7	13.9	11.4	8.9	9.7	10.2	10.8	11.3	11.8	12.3	12.8	13.5	13.7
A3	8.6	13.3	11.0	8.7	9.1	10.1	10.4	10.7	11.3	11.6	12.0	12.3	12.4
A4	8.3	12.3	10.3	8.5	8.9	9.2	9.7	10.0	10.3	10.8	11.0	11.5	11.6
A5	8.8	12.9	10.9	8.9	9.4	9.9	10.2	10.5	10.8	11.2	11.4	11.8	12.3
Oxides of Nitrogen (NO_x)													
A1	10.1	13.3	11.7	10.2	10.5	10.9	11.3	11.5	11.9	12.3	12.6	13.0	13.1
A2	9.9	15.2	12.5	10.3	11.1	11.4	11.9	12.2	12.5	13.4	13.7	14.6	14.9
A3	9.2	14.0	11.6	9.3	9.7	10.2	11.4	11.8	12.0	12.3	12.6	13.0	13.7
A4	10.4	14.3	12.4	10.6	11.1	11.5	11.9	12.2	12.5	12.8	13.3	13.5	13.8
A5	9.7	13.4	11.6	9.8	10.5	10.8	11.3	11.5	11.8	12.2	12.6	12.9	13.0

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Results of the Ambient Air Quality at all the above locations were found to be well within the limits of NAAQ standards.

NOISE LEVELS

Noise levels were recorded at different locations of study area. Noise levels were recorded at each station and equivalent noise levels were computed for day and night. Details of noise monitoring stations and equivalent values given below

NOISE MONITORING STATIONS

Station Code	Location	Noise Level dB (A)		Co-ordinates
		Day Equivalent	Night Equivalent	
N-1	Nayanapalli Village	42.4	40.7	N 15° 05' 11.98" E 78° 04' 46.85"
N-2	Petnikota Village	53.7	42.5	N 15° 05' 07.34" E 78° 03' 44.93"
N-3	Kolimigundla Village	51.8	42.9	N 15° 04' 37.36" E 78° 06' 30.25"
N-4	Itikyala Village	54.7	44.5	N 15° 03' 11.91" E 78° 05' 33.53"
N-5	Kanakadripalle Village	50.6	43.1	N 15° 02' 36.98" E 78° 04' 23.12"
Ambient Air Quality Standards w.r.t. Noise levels (Industrial Areas)		Day Time 75	Night Time 70	
Ambient Air Quality Standards w.r.t. Noise levels (Residential Areas)		Day Time 55	Night Time 45	

WATER QUALITY

The assessment of water quality in the study area includes, the quality assessment of the water samples verified against the Indian Standards mentioned in the IS 10500 (Drinking Water Standards).

Water samples were collected from two locations of study area. Detailed water quality report at the above locations is given below:

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WATER QUALITY REPORT

Water quality monitoring was carried out in five different locations.

WATER QUALITY MONITORING STATIONS

Station Code	Locations	Distance [Km]	Direction w.r.t Mine	Co-ordinates
W1	Nayanapalli Village	---	---	N 15° 05' 11.98" E 78° 04' 46.85"
W2	Petnikota Village	0.6	SW	N 15° 05' 07.34" E 78° 03' 44.93"
W3	Kolimigundla Village	0.6	SE	N 15° 04' 37.36" E 78° 06' 30.25"
W4	Itikyala Village	3.5	S	N 15° 03' 11.91" E 78° 05' 33.53"
W5	Kanakadripalle Village	4.7	S	N 15° 02' 36.98" E 78° 04' 23.12"

Detailed Water Quality Data is given below table.



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WATER QUALITY REPORT

S.No	TESTS	RESULTS		IS 10500 [DRINKING WATER STANDARD]	
		Nayanapalli Village (W1)	Petnikota Village (W2)	DESIRABLE LIMITS	PERMISSIBLE LIMITS
1	Odour	Agreeable	Agreeable	Agreeable	Agreeable
2	Colour (Hazen units)	<5	<5	5	15
3	pH	6.70	6.92	6.5 to 8.5	No Relaxation
4	Turbidity, NTU	<1	<1	1	5
5	Total Hardness as CaCO ₃ , mg/l	231	546	200	600
6	Iron as Fe, mg/l	0.04	0.06	1.0	No Relaxation
7	Chlorides as Cl, mg/l	80	219	250	1000
8	Total Dissolved solids, mg/l	365	1265	500	2000
9	Calcium as Ca, mg/l	55	164	75	200
10	Magnesium as Mg, mg/l	23	33	30	100
11	Sulphate as SO ₄ , mg/l	12	287	200	400
12	Nitrate as NO ₃ , mg/l	29	38	45	No Relaxation
13	Fluoride as F, mg/l	0.65	0.86	1	1.5
14	Total Alkalinity as CaCO ₃ , mg/l	124	332	200	600
15	Boron as B, mg/l	<0.10	0.13	0.5	1
16	Aluminium as Al, mg/l	<0.02	<0.02	0.03	0.2
17	Copper as Cu, mg/l	<0.02	<0.02	0.05	1.5
18	Manganese as Mn, mg/l	0.07	<0.03	0.1	0.3
19	Selenium as Se, mg/l	<0.01	<0.01	0.01	No Relaxation
20	Zinc as Zn mg/l	<0.2	0.13	5	15
21	Cadmium as Cd, mg/l	<0.003	<0.003	0.003	No Relaxation
22	Lead as Pb, mg/l	<0.01	<0.01	0.01	No Relaxation
23	Mercury as Hg, mg/l	<0.001	<0.001	0.001	No Relaxation
24	Total Arsenic as As, mg/l	<0.01	<0.01	0.01	No Relaxation
25	Cyanide as CN, mg/l	<0.02	<0.02	0.05	No Relaxation
26	Total Chromium as Cr, mg/l	<0.02	<0.02	0.05	No Relaxation

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S.No	TESTS	RESULTS			IS 10500 [DRINKING WATER STANDARD]	
		Kolimigudla Bore Well (W3)	Itikyala Bore well (W4)	kanakadripa lli (W5)	DESIRABLE LIMITS	PERMISSIBLE LIMITS
1	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
2	Colour (Hazen units)	<5	<5	<5	5	15
3	pH	7.09	7.10	7.28	6.5 to 8.5	No Relaxation
4	Turbidity, NTU	<1	<1	<1	1	5
5	Total Hardness as CaCO ₃ , mg/l	585	319	477	200	600
6	Iron as Fe, mg/l	0.10	0.08	0.06	1.0	No Relaxation
7	Chlorides as Cl, mg/l	328	83	83	250	1000
8	Total Dissolved solids, mg/l	1406	682	847	500	2000
9	Calcium as Ca, mg/l	179	99	138	75	200
10	Magnesium as Mg, mg/l	33	18	32	30	100
11	Sulphate as SO ₄ , mg/l	120	76	150	200	400
12	Nitrate as NO ₃ , mg/l	40	34	35	45	No Relaxation
13	Fluoride as F, mg/l	0.69	0.79	0.96	1	1.5
14	Total Alkalinity as CaCO ₃ , mg/l	451	293	347	200	600
15	Boron as B, mg/l	0.15	<0.10	<0.10	0.5	1
16	Aluminium as Al, mg/l	<0.02	<0.02	<0.02	0.03	0.2
17	Copper as Cu, mg/l	<0.02	<0.02	<0.02	0.05	1.5
18	Manganese as Mn, mg/l	<0.03	<0.03	<0.03	0.1	0.3
19	Selenium as Se, mg/l	<0.01	<0.01	<0.01	0.01	No Relaxation
20	Zinc as Zn mg/l	<0.02	0.02	<0.02	5	15
21	Cadmium as Cd, mg/l	<0.003	<0.003	<0.003	0.003	No Relaxation
22	Lead as Pb, mg/l	<0.01	<0.01	<0.01	0.01	No Relaxation
23	Mercury as Hg, mg/l	<0.001	<0.001	<0.001	0.001	No Relaxation
24	Total Arsenic as As , mg/l	<0.01	<0.01	<0.01	0.01	No Relaxation
25	Cyanide as CN, mg/l	<0.02	<0.02	<0.02	0.05	No Relaxation
26	Total Chromium as Cr, mg/l	<0.02	<0.02	<0.02	0.05	No Relaxation



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SOIL QUALITY

Soil samples were collected from two locations of study area for analysis of the physico-chemical and characteristics of the soil quality.

Station Code	Locations	Distance [Km]	Direction w.r.t Mine	Co-ordinates
S1	Itikyala Village	---	---	N 15° 03' 11.91" E 78° 05' 33.53"
S2	Kolimigundla Village	---	---	N 15° 04' 37.36" E 78° 06' 30.25"

SOIL QUALITY REPORT

S. No	Parameters	RESULTS	
		S1 Itikyala Village	S2 Kolimigundla Village
1	pH (1:2 Soil water Extract)	8.02	7.16
2	Electrical conductivity ($\mu\text{S}/\text{cm}$) (1:2 Soil water Extract)	169	689
3	Total soluble salts, mg/kg	230	850
4	Available Nitrogen as N, kg/Ha	295	435
5	Available Phosphorous as (P_2O_5) kg/Ha	17	97
6	Available Sodium as Na_2O (mg/kg)	198	362
7	Available Potassium as (K_2O)kg/Ha	241	1002
8	Available Calcium as Ca (mg/kg)	2465	4068
9	Available Magnesium as Mg (mg/kg)	353	584
10	Available Chlorides as Cl (mg/kg)	49	185
11	Total Organic carbon (%)	0.68	1.16
12	Sodium Absorption Ratio(SAR)	0.23	0.33
13	Texture of Soil	Sandy Loam	Clay loam
	Sand (%)	60	35
	Silt (%)	22	34
	Clay (%)	18	31

FLORAL AND FAUNA STUDIES

Secondary data on ecology of the study area were obtained from available literature including that from the Forest department. The primary data relating to flora and fauna of the area was generated on site through a detailed ecological survey.

Forest types were closely observed and identified, as also vegetation types were sampled for assessing ecological status. The forest types were based on the composition of the forests and dominant species found in them. The identified forest types have been confirmed from published and authenticated sources.

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The vegetation was sampled by employing the standardized field ecological sampling methods (transect and quadrant method). Both Terrestrial Ecosystem and Aquatic Ecosystem were studied. The study of terrestrial ecosystem covers the forest type analysis, floral analysis, faunal analysis and assessment of agriculture and livestock, etc.

The common crops are *Oryza sativa*, *Triticum vulgare*, *Triticum diococcum*, *Pennisetum glaucum*, *Sorghum vulgare*, *Zea mays*, which are mainly dependent on rainwater during monsoon season and also through ground water source, tubewells, open wells during non-monsoon season. Apart from the commercial crops like ground nut, sunflower and several vegetables like Brinjal, Lady Finger and leafy vegetable crops could also grow in this region.

In the floristic checklist, the study area shows rich floristic diversity. A good number of species are commercially cultivated in orchards. Number of plant species have medicinal value and also important for other non-timber produces. From the present survey it appears that none of the endangered plant species exist in the study area.

None of the species are under endangered and threatened species, and not listed in the Schedule I of the Indian Wildlife (Protection) Act, 1972 as amended in 1991. Some of the species are under Schedule II for which conservation the habitat is much required.

HUMAN SETTLEMENTS

Villages surrounded within 10 Km radius are listed below:

S. No	Name of the Village	Population	Distance from Mine
1	Nayanapalli	6019	0.6
2	Kanakadripalli	3052	0.8
3	Chintalayapalli	3672	4.1
4	Itikyala	3799	1.6
5	Satriam chennampalle	296	6.8
6	Abdullapuram	2505	5.9
7	Nandipadu	1931	8.1
8	Timmananipeta	1944	8.8
9	Boyala tadipatri	266	10.6
10	Kotapadu	1558	6.4
11	(Boyala) Uppalur	1437	7.3
12	Thollamadugu	1232	8.3
13	Korumanipali	655	6.6
14	Talaricheruvu	1664	9.4
15	Venkatareddipalle	865	8.9
16	Bhogasamudram	3097	6.4
17	Mirjapuram	849	7.4
18	Petnikota	6253	1.5

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PUBLIC BUILDINGS, PLACES OF WORSHIP AND MONUMENTS

Belum caves situated at a distance of 1.48kms from the mining lease boundary. Further, there are no public buildings and places within ML area and its close vicinity. There are no buildings of public interest in and around the lease area. The cement plant, and township of said unit forms part of the buffer zone. The surrounding areas are characterized by rural environment.

INDICATE ANY SANCTUARY & FOREST LOCATED IN THE VICINITY OF LEASEHOLD

There is no forest area located within 10 km radius from the ML area.

IMPACT ASSESSMENT: ATTACH AN ENVIRONMENTAL IMPACT ASSESSMENT STATEMENT DESCRIBING THE IMPACT OF MINING AND BENEFICIATION ON ENVIRONMENT ON THE FOLLOWING:

Opencast mining activity causes some adverse impacts on the surrounding environment unless proper environmental management plan is adopted.

AIR QUALITY

Dust is the major pollutant generated from the mining operations. Monitoring of air quality is conducted periodically to ensure that the contribution of dust and other components is kept within permissible limits.

Drilling, Blasting, Excavation, Loading operation, Transportation of limestone to Crusher, Crushing is the dust prone spots are identified for which control measures are given below:

- Introduction of wet drilling
- The state-of-the-art dust suppression system
- vehicles and machinery are kept in well-maintained condition
- Fixing permanent pipe sprinklers along the haul road in the mine lease area
- Development of greenbelt

**WATER QUALITY**

The dumping of waste on steep slopes on the higher altitude without providing adequate Toe protection to withstand the earth pressures from the surcharge, coupled with unscientific dumping in to the flow course of natural drainage in the mine shall contribute to impairment/deterioration of water quality.

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The major impact on water quality is due to erosion of waste dump and sub-grade dump, oil and grease, contamination of water bodies due to discharge of mine water/effluent and sedimentation into the local seasonal streams flowing through the mine area.

NOISE LEVELS

Noise pollution by mining activities is mainly because of operation of heavy earth moving machinery for excavation, handling and transportation of ore and overburden and operation of processing equipment.

VIBRATION LEVELS (DUE TO BLASTING)

In the process of blasting, apart from breaking of rock, explosive energy sets up a seismic wave in the ground which can cause significant damage to the structures and buildings. The key factors affecting ground vibrations are geology and rock type, burden, maximum charge/ delay, initiation pattern and distance, conditions and type of material used in the structure. Blast holes are drilled in rows in the selected block. Staggered drill holes usually 3 to 5 rows are blasted using bottom tube initiation using Non Electrical milli-second delay detonators. Multi-delay firing is adopted to achieve best fragmentation and optimum results. Occurrence of fly rock is avoided by proper precautions and adhering to control measures like proper blast design.

During blasting, a small quantity of dust is produced due to shattering and disintegration of strata. In the present mine shallow depth opencast working gases generated due to blasting are normally swept away by wind quite quickly. Hence, there is very negligible and momentary impact on environment. Ground vibration studies are being carried out at regular intervals.

SAFETY IN BLASTING

All safety precautions specified by DGMS are followed during blasting. Care is taken to evacuate the mining area completely at the time of blasting operations. The blasting team is equipped with all personal safety and precautionary measure. The following safety measures are taken while conducting the blasting operations.

- A blasting SIREN is used at the time of blasting for audio signal.
- Before blasting and after blasting, red and green flags are displayed as visual signals.
- Warning notice boards indicating the time of blasting and NOT TO TRESSPASS are displayed prominently.

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SURFACE SUBSIDENCE

Not applicable as it is opencast mining.

SOCIO-ECONOMICS

Socio Economic Status in the study area is found to be moderate with respect to livelihood, amenities etc. Transport and other infrastructural facilities such as market centres, business establishment, recreation etc., in the area were improved. The existing mining operations have provided many indirect/ direct job opportunities to unskilled and skilled labourers. Owing to implementation of the subject mining project in the area there is a positive impact on socio cultural aspects.

**HISTORICAL MONUMENTS ETC.**

Belum caves situated at a distance of 1.48kms from the mining lease boundary.

- Public buildings, Places of worship and monuments

Belum caves situated at a distance of 1.48kms from the mining lease boundary. Further, there are no public buildings and places within ML area and its close vicinity. There are no buildings of public interest in and around the lease area. The cement plant, and township of said unit forms part of the buffer zone. The surrounding areas are characterized by rural environment.

- Indicate any sanctuary & forest is located in the vicinity of leasehold

There is no Forest land in the core zone. There is no sanctuary is located in the vicinity of leasehold.

8.2 Impact Assessment: Attach an Environmental Impact Assessment Statement describing the impact of mining and beneficiation on environment on the following:

In the preceding paras, an assessment of the prevailing environment in the mining lease area and its surrounding was described. A detailed mine plan indicating the method of mining, ultimate pit limit, blasting techniques, the nature, type and quantity of raw material likely to be raised is described in the preceding chapter. The direct physical impact of mining is identified by super imposition of the above activities and discussed below on each environment.

i) Impact on Land Environment

Various components of land environment have been identified for study of impact of the mine operations. Details of the same are given below:

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Mostly it is rocky limestone out crops in area, but whenever the top soil was available, the same will be stacked and preserved and is being used for helping growth of the saplings / plants being planted

No top soil is disposed outside the mining lease area.

The total mine lease area is about 435.24 ha. The active mine area/area degraded under mining will be about 28.90 ha at end of lease period.

At the end of the lease period, the land use pattern in the core zone is likely to be as follows:

Land use pattern in the Mining Lease Present and at the end of life of the Mine is as follows:

Sl. No.	Description	Area put on use at the start of plan (in ha.)	Land use pattern at the end of Lease period (in ha) (08.08.2050)
01.	Area under mining	2.462 #	191.483
02.	Storage for topsoil (Temporary)	-	-
03.	Storage of Limestone stock (Temporary)		
04.	Waste dump(Temporary)	-	-
05.	Surface manual limestone heaps	2.172 #	2.172
06.	Mineral Reject Stack	-	-
07.	Infrastructure (Workshop, Admin. Building, plant area etc)		-
08.	Roads, Ramps etc		1.612
09.	Railways		-
10.	Greenbelt		55.02
11.	Tailing pond, Garland drain		-
12.	Effluent Treatment plant		-
13.	Mineral separation plant		-
14.	G.Drain & Retaining Wall		0.34
15.	Others (Area un-utilized)	731.086	485.093
GRAND TOTAL		735.72	735.72

Old manually digged area and surface manual limestone heaps have been observed in the mining lease area created by local habitants for house hold purpose/livelihood.

Ultimate depth to the reached will be on average about 30 meters. Therefore, it would not be feasible to take up the proper reclamation work with suitable techniques in the Mining Areas before the Limestone deposit is exhausted.

S.P. Anvesh Kumar

After complete extraction of limestone upto the ultimate pit limit, the total waste anticipated will be negligible to fill the void resulting from mining. Hence these pits will be used to store rain water to recharge ground water level and to develop flora & fauna.

The reservoirs will terraced on all sides with benches of 8m height this water body may be useful for raising irrigated dry crops, for water sports and for augmenting the ground water conditions of the surroundings.

i) Impact on Air quality

Mining of limestone involves drilling, blasting, handling, and transport to the crusher. The above activity invariably generates dust which causes air pollution in and around mine. Apart from the above, the fumes emitted by the mining equipment also pollute the atmosphere. Thus, the more common pollutants in air are PM₁₀, SO₂ and NO_x.

The major activity being limestone transport from the working pit to the crushing plant to respective designated areas the dust levels are distributed all along the transport route in the mine area and to the crusher.

The following dust prone areas are identified for adopting proper control measures in the mine area.

- a. Drilling
- b. Excavation
- c. Transportation

The environmental control measure which are being implemented and proposed to be continued to control the fugitive dust released for the increased production are given below:

- ❖ Wagon drill with dust collector has been provided for control of dust emission at its source.
- ❖ RCL has constructed a well-compacted cement concrete road for transportation of limestone to the crusher.
- ❖ Regular water sprinkling on blasted heaps and haul roads with water tanker.
- ❖ Water will be used for dust suppression operations at mine, this water is drawn from the mine sump where the rain water/seepage water is stored.
- ❖ Use of sharp drill bits for drilling holes and arrangements for bit regrinding. Charging the holes by using optimum charge and using time delay detonator.
- ❖ Regular grading of haul roads and service roads to clear accumulation of loose material.
- ❖ Avoiding over filling of tippers and consequent spillage on the roads

E. V. Anesh Kumar

- ❖ The vehicles and machinery are kept in well-maintained condition so that emissions are minimized.
- ❖ Avenue plantation all along the haulage roads and peripheral plantation all around the mine for control of dust. To arrest the airborne dust, plantation has been carried out within the mining lease.
- ❖ Plantation of wide leaf trees, creepers, tall grass along approach roads, and on safety barrier zones will help suppress dust. The plantation already is helping in this direction.
- ❖ Operator cabin in all items of major HEMM equipment are enclosed, to minimize dust exposure of the operators.
- ❖ All the mine workers are provided with dust masks.

iii) Impacts on Water Quality

Water samples collected from bore wells located in the buffer zone have indicated that the groundwater is free from heavy metal concentration indicating no interference of mine activity on the water quality.

- ❖ As the mining progresses horizontally and vertically, the rain water precipitating within the work area shall be stored in the worked out pit.
- ❖ During mining of the limestone, in order to avoid soil erosion and also the possibility of carry over of the material with rainwater, garland drains are provided with sedimentation pits to prevent carryover of silt and sediments into the nallahs from the mine. Hence adverse impact on water quality is not envisaged.

iv) Noise Pollution Control Measures

Noise produced at the operating mine is due to drilling, blasting, compressors, pumps, movement of vehicles and other machinery. The noise generated by the mining activity is dissipated within a small zone around the mines. There is no major impact of the mining activity on the vicinity however, pronounced effect of above noise levels is felt only near the active working area and on the personnel working in the vicinity.

The impact of noise on the villages is negligible as the villages are located far from the mine site. The mine is almost isolated from the surrounding villages by a green barrier which is reducing the impact of noise levels on the surrounding villages. RCL will develop greenbelt within the mine lease area to control the work zone noise levels around the mine.

S. P. Anand Kumar



Periodic inspection and checks of the risk prone areas and equipment will be conducted. The generation of noise by the quarry equipment and machinery will be much below the tolerance limits.

The following noise abatement measurements are adopted and similar measures will be continued for the increased production:

- Proper and regular maintenance of vehicles, machinery and other equipment.
- Limiting time exposure of workers to excessive noise.
- The noise generated by the machinery is reduced by proper lubrication of the machinery and equipment.
- The workers employed will be provided with protection equipment, earmuffs and ear-plugs, as a protection from the high noise level generated at the plant site wherever required.
- Proper and timely maintenance of mining machinery
- Carrying out blasting only during daytime and avoiding the same on cloudy days and when strong wind blows across.
- Speed of trucks entering or leaving the mine will be limited to moderate speed of 25 kmph to prevent undue noise from empty tippers.



v) Protective measures for ground vibrations / air blast caused by blasting

During blasting, proper blast pattern will be adopted. The latest technology of non-electric delay detonators, which reduce the impact on the ground vibrations and noise generation during blasting operations, will be adopted.

The following measures are adopted to restrict the Peak Particle Velocity to less than 2mm/s due to Blasting within the permissible limits as per the NIRM study report, operational experience and ground vibration studies carried out at the mine:

- The charge distribution is 15 to 20% base charge (Slurry explosives) and 80% column charge (ANFO mixture), stemming is about one third the length of hole or 2.6 m.
- Nonel initiation system and electronic detonators will be adopted. Staggered pattern of blasting is being adopted.
- Charge weights per delay will be properly adopted so as to protect different categories of structures surrounding the mine site.
- Blasting is done in only one bench at a time.
- Delay between the circuits is varied as per the requirement with machine capable of having delay from 8 to 27 milliseconds

E. V. Narash Kumar

- Reduction in total Charge weight per delay with the aid of delay detonators
- Supervision of drilling and blasting operations to ensure the designed blast geometry
- Keeping the sub drilling just adequate to tear off the bench
- Elimination of hole to hole propagation between charges.
- Avoidance of Top initiation of blast holes.
- No blasting under meteorological conditions that produce focusing of air blast waves.

The drilling and blasting operations will be carried out as recommended by the NIRM study report to reduce the ground vibrations/ air blast due to blasting.

vi) Impact on Water Regime:

The core zone is characterized by uneven topography with a near plain land interspersed with mounds and hillocks and the latter forming a chain with a slopes towards southern and northern directions. Ephemeral nallas originate in the higher RLs in mine area and drains through the mine lease area. The nallas falling under ultimate pit limit of the mining will be disturbed during the course of mining.

Seasonal nallas which are originating from the upstream of the mine are left beyond the active mine area and remain undisturbed and the mine working does not interfere with the flow pattern of the nalla.

The control carryover of silt, RCL proposed to construct two check dams with intermediate gully plugs in the flow path to arrest silt. The silt free storm water from the mine will be discharged to seasonal.

Water samples collected from bore wells located in the buffer zone have indicated that the groundwater is free from heavy metal concentration indicating no interference of mine activity on the water quality.

As the mining progresses horizontally and vertically, the rain water precipitating within the work area shall be stored in the worked out pit.

During mining of the limestone, in order to avoid soil erosion and also the possibility of carry over of the material with rainwater, garland drains are provided with sedimentation pits to prevent carryover of silt and sediments into the nallahs from the mine. Hence adverse impact on water quality is not envisaged.

The ultimate depth of mining in the area vary between 8-48 m. There is no possibility of encountering ground water in the working pits.

E.P. Narish Kumar

vii) Acid Mine Drainage:

Limestone mining do not involve any acid mine drainage, hence it is not applicable.

viii) Surface subsidence

Surface subsidence mitigation measures through backfilling of mine voids or by any other means and its monitoring mechanism. The information on protective measures for reclamation and rehabilitation works year wise furnished at 8.3.5

ix) Socio-Economic:

The inhabitants of the surrounding villages are mainly agriculture. Mining is on small scale, limited to 15 to 20 labours. Hence there will not be much impact on Socio-Economics of the local.

RCL will undertake the following social welfare programme for upliftment of the area.

The salient features of rural development programme are to provide:

Health and hygiene through mobile medical clinic

Agricultural extension

Drinking water Project

Educational Programme

Woman and youth development activities

Income generating schemes

Sports and cultural activities



As a responsible corporate group, RCL is supporting development of local infrastructural facilities like bus shelter, roads, school building with the active help of local NGO's and other voluntary organization at their existing Jaggayyapet area. and the same will be implemented in this area.

x) Historical monuments etc.

No Historical monuments in the vicinity of the area are witnessed in the applied area or in the vicinity of the area.

S. P. Anand Kumar

8.3 Progressive Reclamation Plan:

To mitigate the impacts and ameliorate the condition, describe year wise steps proposed for phased restoration, reclamation of lands already/to be degraded in respect of following items separately for 5 years period.

Reclamation Plan:

Since the mining lease area being devoid of waste, RCL proposes the total mined out area to be converted in to water pond.

An area of about 55.02 Ha will be afforested during the Lease period of the mine.

Environmental Monitoring Program

The management is committed for sustainable development and eco-friendly mining operations. The environment management plan is detailed on the basis of impact assessment. Control and mitigation measures for the adverse impacts have been proposed. RCL will ensure the implementation of the EMP measures within the mine area and carryout efficient monitoring.

Environmental Monitoring**Action Plan for Monitoring Of Environmental Parameters Around Limestone Mine**

Monitoring of various environmental parameters will be carried out on a regular basis.

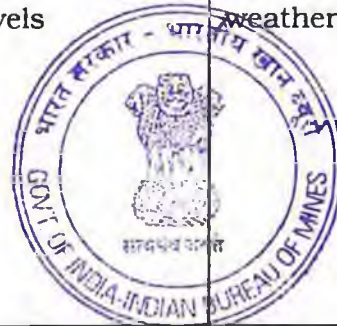
Monitoring will be carried out as per the CPCB guidelines using Fine dust samplers, and Respirable Dust samplers. The detailed Environmental Monitoring Program is given below



E. V. Anush Kumar

Proposed Environmental Monitoring Locations

Discipline	Locations	Geo-Coordinates	Parameter	Frequency
Ambient Air Quality	Nayanapalli Village	N 15° 05' 11.98" E 78° 04' 46.85"	PM10, PM2.5, SO ₂ and NO ₂	Once in a month by third party approved by MoEF&CC
	Petnikota Village	N 15° 05' 07.34" E 78° 03' 44.93"		
	Kolimigundla Village	N 15° 04' 37.36" E 78° 06' 30.25"	Fugitive Dust	Once in six months by third party approved by MoEF&CC
	Itikyala Village	N 15° 03' 11.91" E 78° 05' 33.53"		
	Kanakadripalle Village	N 15° 02' 36.98" E 78° 04' 23.12"		
Soil Quality	Itikyala Village	N 15° 03' 11.91" E 78° 05' 33.53"	Physico-chemical parameters, Organic content	Half Yearly
	Kolimigundla Village	N 15° 04' 37.36" E 78° 06' 30.25"		
Surface water quality	Nayanapalli Village	N 15° 05' 11.98" E 78° 04' 46.85"	pH, Temp, Conductivity, TSS & TDS, BOD & DO, MPN Coliform. Iron & Heavy Metals (Hg, Cd, Cr, Pb, Zn, As, Cu)	Monthly & Quarterly
	Petnikota Village	N 15° 05' 07.34" E 78° 03' 44.93"		
	Kolimigundla Village	N 15° 04' 37.36" E 78° 06' 30.25"		
	Itikyala Village	N 15° 03' 11.91" E 78° 05' 33.53"		
	Kanakadripalle Village	N 15° 02' 36.98" E 78° 04' 23.12"		
Ground Water Quality	Kolimigundla Village	N 15° 04' 37.36" E 78° 06' 30.25"	pH, TSS, TDS, Fluoride and Boron & Heavy Metals	Monthly & Quarterly
	Itikyala Village	N 15° 03' 11.91" E 78° 05' 33.53"		
Noise	Nayanapalli Village	N 15° 05' 11.98" E 78° 04' 46.85"	Day-and Night noise Levels	Once in a season (in dry weather)
	Petnikota Village	N 15° 05' 07.34" E 78° 03' 44.93"		
	Kolimigundla Village	N 15° 04' 37.36" E 78° 06' 30.25"		
	Itikyala Village	N 15° 03' 11.91" E 78° 05' 33.53"		
	Kanakadripalle Village	N 15° 02' 36.98" E 78° 04' 23.12"		



E. P. Parash Kumar

8.3.1. Mined-Out Land: Describe the proposals to be implemented for reclamation and rehabilitation of mined-out land including the manner in which the actual site of the pit will be restored for future use. The proposals may be supported with yearly plans and sections depicting yearly progress in the activities for land restoration/reclamation/rehabilitation, afforestation etc., called "Reclamation Plan".

No waste generation of material and hence no dumps except temporary soil dump.

The only reclamation is in terms of greenbelt development in about 55.02 Ha.

The mined out pit will be left open to act as reservoirs to store rain water.

8.3.2 Topsoil Management:

The topsoil available at the site and its utilization may be described.

The total quantity of top soil generated would be 56,46,800 cu.m during the entire life of the mine which would be utilized for afforestation along 7.5m buffer zone and barrier zones of road HT line and stream.

8.3.3 Tailings Dam Management: The steps to be taken for protection and stability of tailing dam, stabilization of tailing material and its utilization, periodic desilting measures to prevent water pollution from tailings etc, arrangement for surplus water overflow along with detail design, structural stability studies, the embankment seepage loss into the receiving environment and ground water contaminant if any may be described.

Not applicable

8.3.4 Acid mine drainage, if any and its mitigate measures.

Not applicable

8.3.5 Surface subsidence mitigation measures through backfilling of mine voids or by any other means and its monitoring mechanism.

Evidences of surface substances is lacking. The excavated ground and further down are hard and solid with no kaverns / solution cavities etc that are phenonmenal to cause such incidences. The diagenetic processes - chemical precipitation of calcareous and argillaceous sediments resulting in compactness in stratification is probable attribute.

The information on protective measures for reclamation and rehabilitation works year wise may be provided as per the following table

E. V. E. Prakash Kumar



THE RAMCO CEMENTS LIMITED

NAYANAPALLI LIMESTONE MINE
 AREA: 735.72 Ha (1817.23 Ac) Kolimigundla (M), Kurnool (Dt), AP.


SUMMARY OF YEAR WISE AFFORESTATION PROPOSAL 2020-21 to 2024-25

year	Area covered (Ha.)	No. of saplings	Location		Remarks
			ML Boundary Pillar No	Coordinates	
2020-21			(lapsed)		
2021-22	1.0	1500	NP94 - NP78	N15°5'1.97324" E78°5'40.90235" To N15°5'4.06447" E78°6'7.36488"	7.5m ML boundary safety barrier area
2022-23	1.0	1500	NP78- NP65	N15°5'4.06447" E78°6'7.36488" To N15°5'13.93232" E78°6'18.61349"	
2023-24	1.0	1500	NP65- NP58BIJ	N15°5'13.93232"E78°6'18.61349" To N15°5'42.20083" E78°6'10.94012"	
2024-25	1.0	1500	NP58BIJ- NP45	N15°5'42.20083"E78°6'10.94012" To N15°5'59.93181" E78°5'40.96201"	
Total	4.00	6000			




S. V. Eshesh Kumar

**SUMMARY OF YEAR WISE PROPOSAL FOR ITEM NO.8.3
(2020-21) (lapsed)****(2021-22)**

Item	Details	Proposed	Actual	Remarks
Dump management	Area afforested (ha)	Nil	Nil	Over an area of 1.0Ha has been proposed as temporary waste dump
	Number of saplings planted	Nil	Nil	
	Cumulative no. of plants	Nil	Nil	
	Cost including watch and care during the year	Nil	Nil	
Management of worked out benches	Area available for rehabilitation(ha)	Nil	Nil	This will be done after all Mining is completed
	Afforestation done (ha)	Nil	Nil	
	No. of saplings planted during the year	Nil	Nil	
	Cumulative number of saplings	Nil	Nil	
	Any other method of rehabilitation	Nil	Nil	
	Cost including watch & care	Nil	Nil	
Reclamation and Rehabilitation by back filling	Void available for Backfilling (L x B x D) pit wise / stope wise	Nil	Nil	No Reclamation proposals in the plan period
	Void filled by waste/tailings	Nil	Nil	
	Afforestation of backfilled area	Nil	Nil	
	Rehabilitation by making water reservoir	Nil	Nil	
	Any other means	Recreational facilities in the water-filled reservoir		
Rehabilitation of waste land within lease	Area available (ha)	Nil	Nil	Nil
	Area rehabilitated	Nil	Nil	
	Method of rehabilitation	By intense plantation		
	Plantation on the top bench of the pit	Nil		
Others	Afforestation	1.0ha.	Nil	Pheltopharma, Deteropharma, Neem, Ganuga
	Environmental Monitoring Programme (24 samples AAQ, 6 samples Water, 6 samples Noise Level, 4 samples Soil)	Once in a month Locations 4 in Buffer zone, 4 in Core zone	Nil	
	Ground Vibration Study	Once in a Year	Nil	

S. P. Parash Kumar


(2022-23)

Item	Details	Proposed	Actual	Remarks
Dump management	Area afforested (ha)	Nil	Nil	Same 1.0Ha has been proposed as temporary waste dump
	Number of saplings planted	Nil	Nil	
	Cumulative no. of plants	Nil	Nil	
	Cost including watch and care during the year	Nil	Nil	
Management of worked out benches	Area available for rehabilitation(ha)	Nil	Nil	This will be done after all Mining is completed
	Afforestation done (ha)	Nil	Nil	
	No. of saplings planted during the year	Nil	Nil	
	Cumulative number of saplings	Nil	Nil	
	Any other method of rehabilitation	Nil	Nil	
	Cost including watch & care	Nil	Nil	
Reclamation and Rehabilitation by back filling	Void available for Backfilling (L x B x D) pit wise / stope wise	Nil	Nil	No Reclamation proposals in the plan period
	Void filled by waste/tailings	Nil	Nil	
	Afforestation of backfilled area	Nil	Nil	
	Rehabilitation by making water reservoir	Nil	Nil	
	Any other means	Recreational facilities in the water-filled reservoir		
Rehabilitation of waste land within lease	Area available (ha)	Nil	Nil	Nil
	Area rehabilitated	Nil	Nil	
	Method of rehabilitation	By intense plantation		
	Plantation on the top bench of the pit	Nil		
Others	Afforestation	1.0ha.	Nil	Pheltopharma, Deteropharma, Neem, Ganuga
	Environmental Monitoring Programme (24 samples AAQ, 6 samples Water, 6 samples Noise Level, 4 samples Soil)	Once in a month Locations 4 in Buffer zone, 4 in Core zone	Nil	
	Ground Vibration Study	Once in a Year		

E.P. Chavala Kumar


(2023-24)

Item	Details	Proposed	Actual	Remarks
Dump management	Area afforested (ha)	Nil	Nil	Same 1.0Ha has been proposed as temporary waste dump
	Number of saplings planted	Nil	Nil	
	Cumulative no. of plants	Nil	Nil	
	Cost including watch and care during the year	Nil	Nil	
Management of worked out benches	Area available for rehabilitation(ha)	Nil	Nil	This will be done after all Mining is completed
	Afforestation done (ha)	Nil	Nil	
	No. of saplings planted during the year	Nil	Nil	
	Cumulative number of saplings	Nil	Nil	
	Any other method of rehabilitation	Nil	Nil	
Cost including watch & care	Nil	Nil		
Reclamation and Rehabilitation by back filling	Void available for Backfilling (L x B x D) pit wise / stope wise	Nil	Nil	No Reclamation proposals in the plan period
	Void filled by waste/tailings	Nil	Nil	
	Afforestation of backfilled area	Nil	Nil	
	Rehabilitation by making water reservoir	Nil	Nil	
	Any other means	Recreational facilities in the water-filled reservoir		
Rehabilitation of waste land within lease	Area available (ha)	Nil	Nil	Nil
	Area rehabilitated	Nil	Nil	
	Method of rehabilitation	By intense plantation		
	Plantation on the top bench of the pit	Nil		
Others	Afforestation	1.0ha.	Nil	Pheltopharma, Deteropharma, Neem, Ganuga
	Environmental Monitoring Programme (24 samples AAQ, 6 samples Water, 6 samples Noise Level, 4 samples Soil)	Once in a month Locations 4 in Buffer zone, 4 in Core zone		
	Ground Vibration Study	Once in a Year		



E. N. Eshwar Kumar

(2024-25)

Item	Details	Proposed	Actual	Remarks
Dump management	Area afforested (ha)	Nil	Nil	Same 1.0Ha has been proposed as temporary waste dump
	Number of saplings planted	Nil	Nil	
	Cumulative no. of plants	Nil	Nil	
	Cost including watch and care during the year	Nil	Nil	
Management of worked out benches	Area available for rehabilitation(ha)	Nil	Nil	This will be done after all Mining is completed
	Afforestation done (ha)	Nil	Nil	
	No. of saplings planted during the year	Nil	Nil	
	Cumulative number of saplings	Nil	Nil	
	Any other method of rehabilitation	Nil	Nil	
	Cost including watch & care	Nil	Nil	
Reclamation and Rehabilitation by back filling	Void available for Backfilling (L x B x D) pit wise / stope wise	Nil	Nil	No Reclamation proposals in the plan period
	Void filled by waste/tailings	Nil	Nil	
	Afforestation of backfilled area	Nil	Nil	
	Rehabilitation by making water reservoir	Nil	Nil	
	Any other means	Recreational facilities in the water-filled reservoir		
Rehabilitation of waste land within lease	Area available (ha)	Nil	Nil	Nil
	Area rehabilitated	Nil	Nil	
	Method of rehabilitation	By intense plantation		
	Plantation on the top bench of the pit	Nil		
Others	Afforestation	1.0ha.	Nil	Pheltopharma, Deteropharma, Neem, Ganuga
	Environmental Monitoring Programme (24 samples AAQ, 6 samples Water, 6 samples Noise Level, 4 samples Soil)	Once in a month Locations 4 in Buffer zone. 4 in Core zone	Nil	
	Ground Vibration Study	Once in a Year		

E. P. Parash Kumar

8.4 Disaster Management and Risk Assessment: This may deal with action plan for high risk accidents like landslides, subsidence flood, inundation in underground mines, fire, seismic activities, tailing dam failure etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of lessee to meet such eventualities and the assistance to be required from the local authority may also be described.

The aim of disaster management is to identify potential dangers associated with the mining operations.

The entire mining operations will be done under the supervision of the Mines Manager having first class Mines manager's certificate of competency and supported by a team of mining engineers. The following natural/industrial problems are plausible during the mining operation.

- ↪ Mine pit inundation due to storm water
- ↪ Slope failure at mine faces - work faces.
- ↪ Accident due to plying of heavy mining equipment
- ↪ Sabotage in case of Magazine

In order to take care of above hazard/disasters, the following will be strictly implemented:

- ↪ Working of mine as per approved plans.
- ↪ All safety precautions and provisions of MMR 1961 shall be strictly followed during all mining operations.
- ↪ Regular maintenance and testing of all mining equipment as per manufacturers guidelines.
- ↪ Provision of adequate capacity pumps for pumping out water from the mining pit with standby arrangements.
- ↪ Checking and regular maintenance of garland drainage to avoid inflow of surface water into the mine pit.
- ↪ Entry to unauthorized persons will be prohibited.
- ↪ Periodic checking of the worthiness of fire fighting and first aid provision in the mining area.
- ↪ Training and refresher courses for all the employees.
- ↪ Cleaning of mining faces regularly.
- ↪ Providing good security system by proper fencing, communication etc. at explosive magazines.

Person to be contacted in emergency situation is:

Mr. Ajmal Ahmed N,
Sr. Deputy General Manager-Mines
M/s. The Ramco Cements Limited
Kolimigundla Village & Mandal, Kurnool District,
Andhra Pradesh - Pin: 518001
Cell no.9942989938, Ph No : 085102-44488
Email : ajmal@ramcocements.co.in



S. P. Babu

8.5 Care and maintenance during temporary discontinuance:

An emergency plan for the situation of temporary discontinuance due to court order or due to statutory requirements or any other unforeseen circumstances may indicate measures of care, maintenance and monitoring of status of discontinued mining operations expected to re-open in near future.

Fencing will be made all around the mine pit to avoid intrusion. Round the clock security with Lighting arrangement will be made.

8.6 Financial Assurance:

The financial assurance can be submitted in any en-cashable form preferably a Bank Guarantee from a Scheduled bank as stated in Rule 27 (2) of Mineral Conservation and Development Rules, 2017, for plan period (2020-21 & 2024-25) expiring at the end of validity of the document. The amount calculated for the purpose of Financial Assurance is Rs. 1,47,58,800/-

The area put to use for plan period will be 49.196 Ha. Since this is "A" category mine, a financial assurance of 3,00,000/- per Ha has to be provided. Therefore the financial assurance in the instant case works out to 49.196 Ha. X Rs. 3,00,000 = Rs. 1,47,58,800/- only in the form of bank guarantee will be furnish in favor of the Regional Controller of Mines, Indian Bureau of Mines, Hyderabad, Telangana. The Financial Assurance map is enclosed as **Plate-XII**.

This Mining Plan is approved subject to the conditions/stipulations indicated in the Mining Plan approval letter no. AP/KNL/MP/LST-SI/H/4pd. date. 18-6-21. The proposals in the document are valid from 2021-22 to 2024-25



अनुमोदित
APPROVED
Suman

क्षेत्रीय खान नियंत्रक
Regional Controller of Mines
भारतीय खान ब्यूरो
Indian Bureau of Mines
हैदराबाद/Hyderabad

E. N. Laksh Kumar

Table indicating the break-up of areas in the Mining Lease for calculation of Financial Assurance

Sl.no	Type of land use	Area of land use (in Ha)			The area considered as fully reclaimed and rehabilitated	Net area considered for calculation of financial assurance
		As at present	As at the end of the planned period of 5 years	Total		
		A	B	C=A+B	D	E=C-D
1	Area of excavation	2.462	33.21	35.672	-	35.672
2	Storage for top soil (temporary)	-	3.30	3.30	-	3.30
3	Storage of Limestone stock (temporary)	-	1.00	1.00	-	1.00
4	Waste dump (temporary)	-	1.00	1.00	-	1.00
	Surface manual limestone heaps	2.172	-	2.172	-	2.172
5	Mineral Reject Stack	-	-	-	-	-
6	Infrastructure	-	0.10	0.10	-	0.10
7	Roads	-	1.612	1.612	-	1.612
8	Railways	-	-	-	-	-
9	Green belt	-	4.0	4.0	-	4.0
10	Tailing pond	-	-	-	-	-
11	Effluent treatment plant	-	-	-	-	-
12	Mineral separation plant	-	-	-	-	-
13	Others (G.Drain & R. Wall)	-	0.34	0.34	-	0.34
	Sub Total	#4.634	44.562	49.196		49.196
	Area un-utilized	731.086	691.158	686.524		686.524
	Grand Total	735.72	735.72	735.72		735.72

Area put to use before start of mining plan period 4.634 Ha has not been degraded by Lessee. There are considerable old manually digged area have been observed in the western side of mining lease created by local habitants for house hold purpose/livelihood. However lessee has considered for calculation of Financial

E.P. Chinn

Assurance area put to use for plan (2020-21 tom 2024-25) period ie 49.196 Ha under Rule 27 (2) of Mineral Conservation and Development Rules, 2017.

The Financial Assurance in the form of Bank Guarantee for the area is 49.196 Ha. The amount is Rs. 1,47,58,800/- (Rupees One Crore Forty seven Lakhs Fifty Eight Thousand Eight Hundred only) is submitted to IBM as per the Land put to use for the period 2020-21 to 2024-25 vide Bank guarantee No. 210380136P00206 dated 11.06.2021. a Xerox copy of the same has been enclosed as ANNEXURE-34

The above mentioned actions have been taken to be stated clearly in the mine closure plan. A certificate duly signed by the lessee to the effect that said closure plan complies all statutory rules, regulations, orders made by the Central or State Government, statutory organizations, court etc. have been taken into consideration and wherever any specific permission is required, the lessee will approach the concerned authorities. The lessee may also give an undertaking to the effect that all the measures proposed in this closure plan will be implemented in a time bound manner as proposed.

As prescribed under Rule 27 (2) of Mineral Conservation and Development Rules, 2017, Financial Assurance is calculated @ Rs. 3,00,000 /- per hectares. The Financial Assurance in the form of Bank Guarantee for the area is 49.196 Ha. The amount is Rs. 1,47,58,800/-will be submitted.

All the required certificates from Lessee have been enclosed.



E. P. Lakshmi

PART-B

9.0 CERTIFICATE

Certificate duly signed by lessee is enclosed.

10.0 PLANS, SECTIONS ETC.

The land use at present and at the end of plan period as per the financial assurance table is shown in progressive Mine Closure Plan and enclosed as **Plate No-11**

E.V. Naresh Kumar

E.V.NARESH KUMAR
QUALIFIED PERSON

Date:

Place: Hyderabad

