EXECUTIVE SUMMARY

Environmental Clearance under EIA Notification – 2006
Schedule Sl. No. 1 (a) (i): Mining Project

"VIOLATION" CATEGORY – MAJOR MINERAL – NON-FOREST LAND – CAPTIVE USE

SIRUGUDI LIMESTONE MINE OF M/s. SIVAM MINES

S.F.Nos - 693/1, 2, 3, 4 & 7, Sirugudi Village, Natham Taluk, Dindigul District

EXTENT – 1.70.0 ha (Patta Land)

Available Mineable Reserves = 74,277 tonnes (ROM)

Five Year Mining Plan Period = 66,383 tonnes (ROM)

(As per MMDR Amendment Act 2015, the period of Mining Lease is 50 years from grant of Mining Lease)

Lease Period = 1996 to 2046 & Review of Mining Plan Period = 2020-21 to 2024-25

Project Proponent

M/s. Sivam Mines,

Represented By – Thiru. S.Ilangovan (Managing Partner)

6/209, Main Road, Sirugudi Post,
Natham (Tk), Dindigul District

Submitted for

Environmental Clearance under EIA Notification 2006
Schedule Sl. No. 1 (a): Mining Projects

Complied as per TOR vide
Lr No. SEIAA–TN/F.No.6251/TOR-419/2018 Dated 22.05.2018

Extension of ToR obtained vide
Letter No. SEIAA-TN/F.No.6251/TOR-419/Extn/2018 Dated: 21.12.2022
(ToR Valid upto 21.05.2023)

Environmental Consultant

GEO EXPLORATION AND MINING SOLUTIONS

Old No. 260-B, New No. 17,
Advaitha Ashram Road, Alagapuram,
Salem – 636 004, Tamil Nadu, India

Accredited for sector 1 Cat 'A', sector 31 & 38 Cat 'B'
Certificate No : NABET/EIA/2225/RA 0276

Phone: 0427-2431989,
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Laboratory

EHS 360 LABS PRIVATE LIMITED,
10/2 Ground floor, 50th street, 7th Avenue,
Ashok Nagar, Chennai – 600 083.

Baseline Monitoring Period

October 2023 to December 2023

JUNE 2024

1. INTRODUCTION –

the mining lease for limestone mining was granted to Thiru. S.Asaialangaram, Dindigul District vides G.O. Ms.No. 1691, Dated: 04.12.1982 for a period of 3 years 28.02.1983 to 27.02.1986. The lease was first renewed for a period of 10 years with effect from 28.02.1986 to27.02.1996 vides G.O.Ms. No.1439/Inds, Dated: 13.12.1990 in Patta Land over an extent of 1.70.0 at Sirugudi Village, Natham Taluk, Dindigul District, Tamil Nadu State.

Second renewal was granted vide G.O.(3D).No.83, Industries (MMA2) Department, Dated:09.10.1996 for a period of 20 years from 28.02.1996 to 27.02.2016 and the lease deed was executed on 17.01.1997.

Then the lease was transferred to M/s. Sivam Mines., 6/209, Main Road, Sirugudi Post, Natham (Tk), Dindigul District vide G.O.(D) No.173 Industries (MMA1) Department, Dated: 05.11.2014.

As per Gazette Notification S.O. 804 (E) Dated: 14.03.2017, the proponent had submitted the Environmental Clearance Applications for ToR to MoEF & CC vide online proposal IA/TN/MIN/64259/2017 Submission for TOR Dated 29.04.2017.

Later, as per Gazette Notification S.O. 1030(E) Dated: 08.03.2018, Category "B" Projects was redirected to respective SEIAA. Thus, the project proponent submitted an online proposal for Environmental Clearance vides Proposal No. SIA/TN/MIN/27604/2018 Dated: 29.04.2017.

The above proposal seeking ToR was placed before the 110th SEAC – TN meeting held on 04.05.2018, Based on the document furnished the SEIAA observed that the project falls under "B1" Category and schedule 1(a) of The EIA Notification, 2006. The Committee recommended Terms of Reference for the project for assessment of Ecological Damage, remediation plan and natural & Community resource augmentation plan to be prepared an independent chapter in the Environment Impact Assessment report by Accredited consultant.

The proposals were considered in 303rd SEIAA – TN Meeting held on 22.05.2018 and issued Terms of Reference (ToR) vide Lr No.SEIAA–TN/F.No.6251/TOR-419/2018 Dated 22.05.2018.

Proponent applied for the extension for the existing ToR vide online proposal No SIA/TN/MIN/268968/2022 Dated 21.04.2022. The proposals were considered in 335th SEAC – TN Meeting held on 06.12.2022 and issued Terms of Reference (ToR) vide Lr.No.SEIAA-TN/F.No.6251/TOR-419/Ext Dated: 21.12.2022, The validity of the Terms of Reference is upto **21.05.2023.**

Again, the proposal was placed as TA in 392nd SEAC Meeting held on 14.07.2023 and committee recommended to grant of Environmental Clearance. Subsequently, based on the SEAC recommendation, the proposal was placed in 642nd SEIAA meeting held on 31.07.2023 asked for additional details.

After submitting the details, the proposal was placed in 440th SEAC meeting held on 11.01.2024 and committee decided to modify the earlier recommendation made by the committee in 392nd SEAC meeting held on 14.07.2023 as:

- Project proponent and the EIA coordinator must submit an explanation for submitting the EIA report without conducting Public Hearing.
- The PP should complete the public hearing and rework the remediation plan as per CPCB guidelines and resubmit the document.

Even though there is no provisions to extent the validity of earlier issued Terms of Reference beyond 4 years, in order to proceed further and bring the proponent under the ambit of EIA Notification, 2006 by regulating the past violations committed, the committee decided that

- SEIAA may write a letter to TNPCB to consider the above-mentioned cases as a special case and shall be requested to conduct public hearing as per the procedure laid down in EIA Notification, 2006 with the updated baseline data along with EIA Report and the same shall be completed within one year from the date of issue of letter.

The proposal was placed in 697th SEIAA meeting held on 15.02.2024 and authority decided that the Member Secretary, SEIAA shall write a letter to TNPCB to consider the above-mentioned cases as a special case and shall be requested to conduct public hearing as per the procedure laid down in EIA Notification, 2006 with the updated baseline data along with EIA Report and the same shall be completed within one year from the date of issue of letter.

In the view of above, Authority decided to request the Member Secretary, SEIAA to communicate the minutes to the project proponent.

2. PROJECT DESCRIPTION –

- The Mine Lease area over an extent of 1.70.0 ha is located in 693/1, 2, 3, 4 & 7, Patta land in Sirugudi village, Natham Taluk, Dindigul District and Tamil Nadu State.
- The Topography of the area is almost flat terrain with general gradient towards south; the mine lease area is about 229m AMSL Latitude between N 10° 14.486'to N 10° 14.595' and Longitude between E 78° 17.700'to E 78° 17'809'and ground water table occurrence at 35m during summer and 30m during rainy season.
- The Review of Mining Plan (2020-21 to 2024-25) was got approval for a quantity of available Geological Resources of 5,29,865 Ts (ROM), Mineable reserves is about 74,277 Ts of ROM and Limestone recovery @ 60% 44,566 Ts, the quantity was approved by Indian Bureau of Mines vide Letter No. TN/DGL/MP/LST-1584-MDS, Dated: 10.01.2020

- Geological Resources – ROM = 5,29,865 Ts,
- Mineable Reserves – ROM = 74,277 Ts, Limestone 44,566 Ts, total Waste 14,855 Ts and Top soil 2,576Ts
- Proposed Production for this five years plan period (2020-21 to 2024-25) ROM = 66,383 Ts Top soil – 2,576 Ts

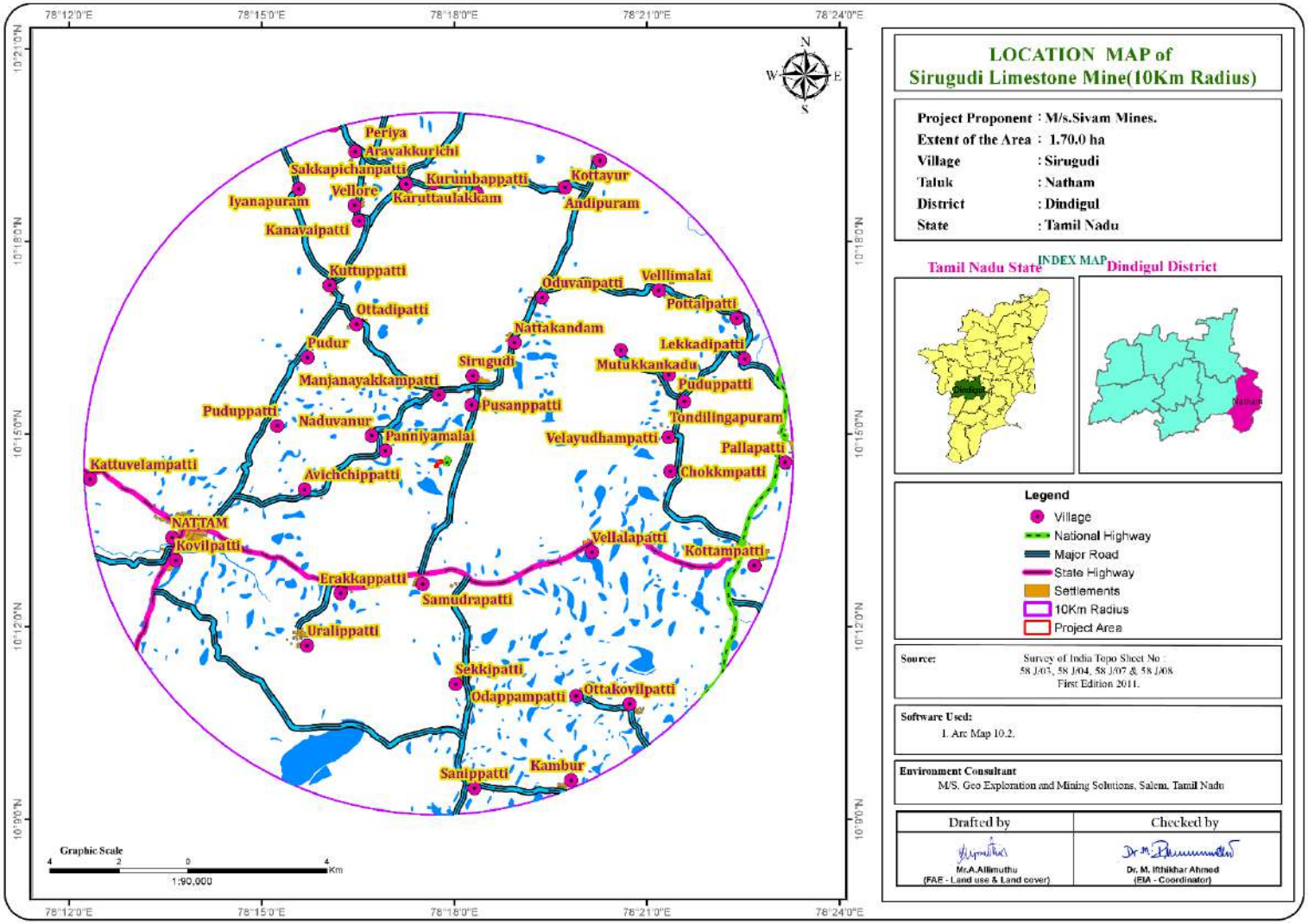
- The waste is in the form of mineral rejects (40% from the ROM), Total Waste would be around 14,855Ts (Mineral rejects + Side burden) is anticipated during this plan period. The waste will be dumped on the north side, Dimension of the dump at the end of this plan period – Dump -I 48m (L) X 20m (W) X 11.5m (H)
- The mined-out quantity of limestone will be transported to needy cement and lime based industries after manual segregation.
- Opencast, Category "B" Mining with:
  - Bench Height is about 3 Meters and Bench Width is 4 Meters with 60° Slope.
  - Short-hole drilling of 32-35 mm diameter by jackhammer drills with Air Compressor
  - Existing Pit dimension
    1.Pit -I 160 m (L) * 50 m (W) * 14 m (D)

    2.Pit – II 48 m (L) * 20 m (W) * 12 m (D)
  - Proposed Depth – 22 m bgl (2m Topsoil + 20m Limestone)
  - Ultimate Pit Limit – 22 m below ground level
  - The Ultimate Pit Dimension – Pit -I 160 m (L) X 60 m (W) X 22 m (D)
    - Pit -II 48 m (L) X 20 m (W) X 12 m (D)and
- Project has provided direct employment opportunities to 10 people
  and indirect employment opportunities for about 10 peoples in the field of Mineral transport, service sector, garages, shops/canteen, etc.,
- Proposed area for greenbelt development is 1000Sq.m for this plan period; Total greenbelt area at the end of life of mine is 1000 Sq.m. It is proposed to plant predominant local species of Neem, anticipated survival rate is 80%.
- The project does not require power supply for the mining operations, Electricity for use in office premises and other internal infrastructure will be obtained from TNEB. The Mining activity is proposed during day time only {General Shift 8 AM – 5 PM (Lunch Break 1 PM – 2 PM).
- The Project Site is well connected to
  - National Highway – (NH 45B) Trichy- Madurai – 9.0Km East.
  - SH -35 (Dindigul - Natham - Singampunari - Tiruppattur - Karaikudi Rastha)
  - Railway Station – Dindigul – 35 Km North West

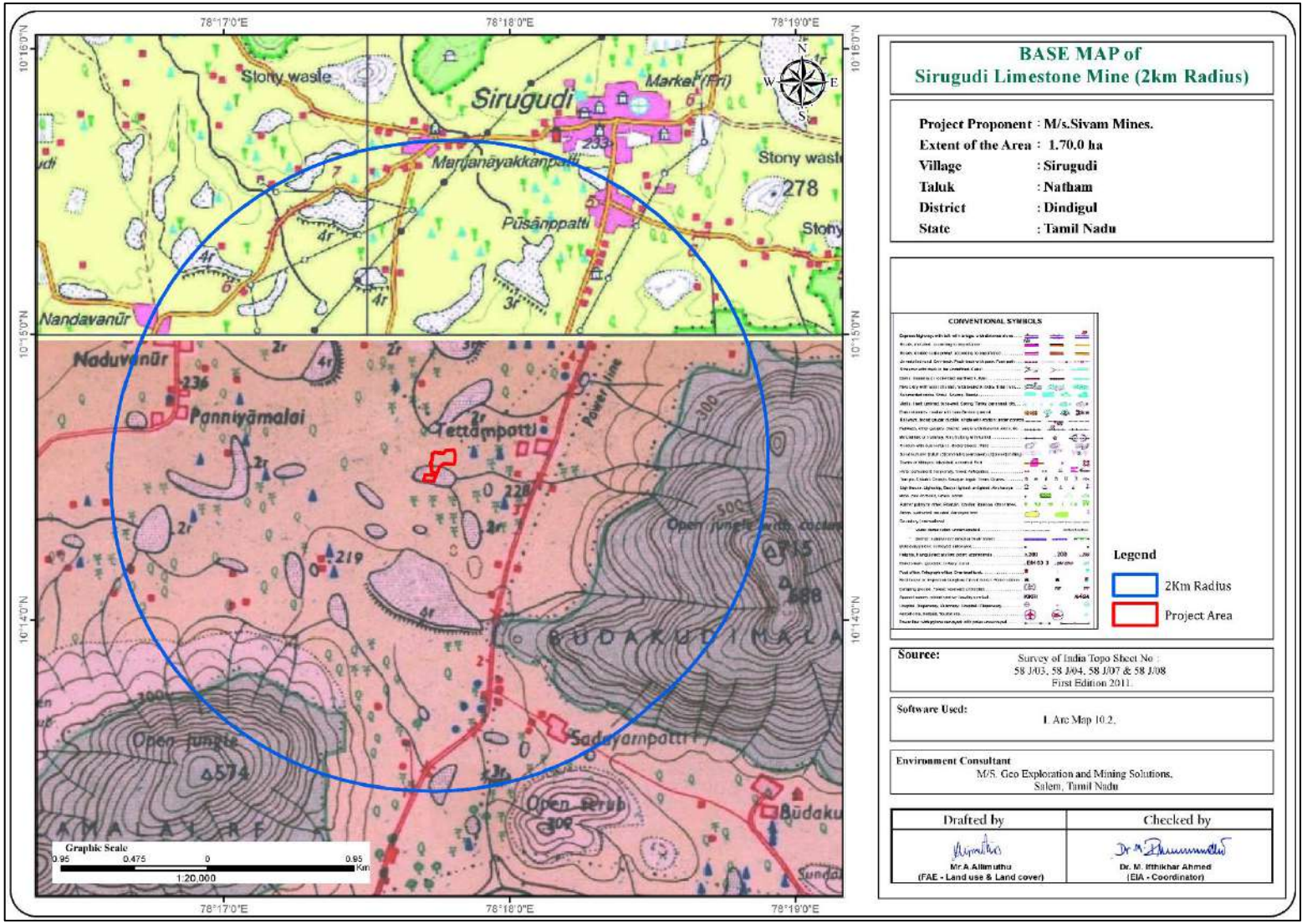
  - Airport – Madurai Airport – 50 Km North west.

- There is No Protected Areas Notified under The Wild Life (Protection) Act, 1972, Critically Polluted Areas as notified by the Central Pollution Control Board constituted, Notified Eco-Sensitive Areas, Interstate boundaries and International Boundaries, besides there are No National Parks, Reserve Forest, Biosphere Reserves, Elephant Corridors, Mangrove Forest, Archeological Monuments, Heritage Site etc. within 10 KM Radius from Project Site.
- The Nearest water bodies are Sirukudi Village Tank 800m – South West, Sirukudi Village Tank 850m - North
- The proponent has been carrying out CSR Activities in various fields for social welfare around the project site and will continue to do. The proponent has spent an amount of Rs 10 Lakhs till date.
- The Seismic Sensitivity of the project area is categorized as Zone II, Low Damage Risk Zone as per BMTPC, Vulnerability Atlas of Seismic Zone of India IS: 1893 – 2002

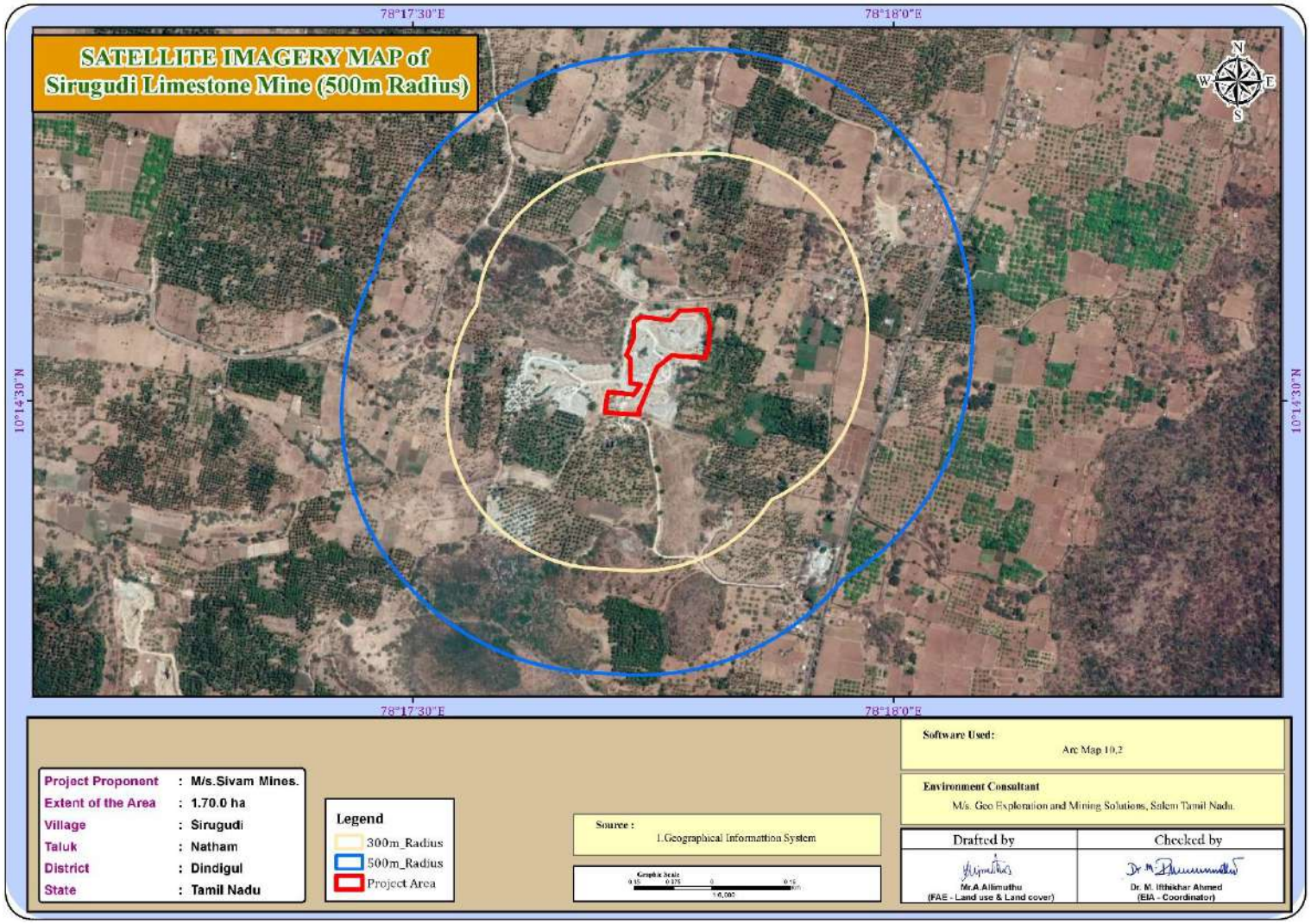
DIGITIZED LOCATION MAP ON THE GEO REFERENCED TOPOSHEET (10Km RADIUS)



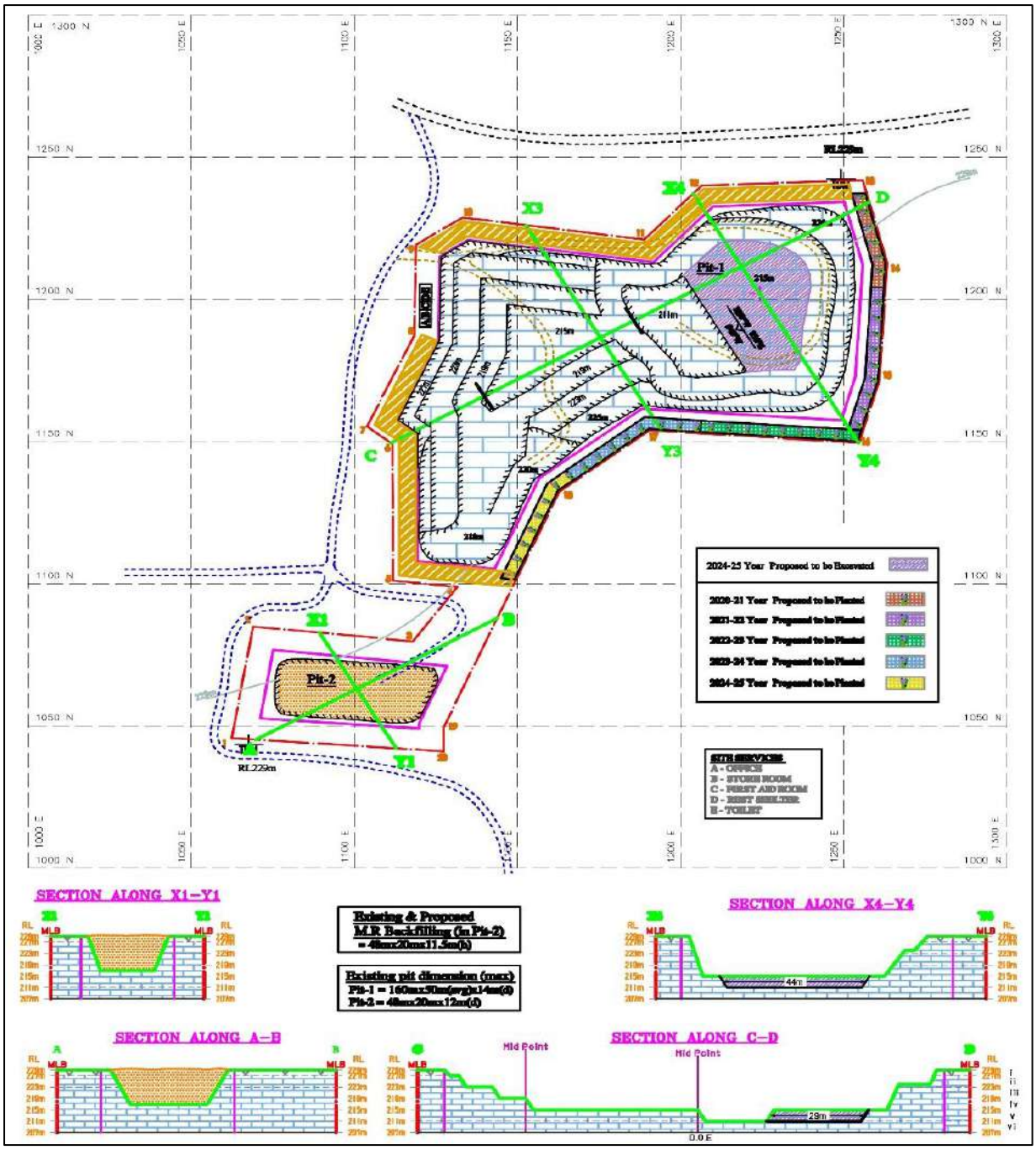
LOCATION MAP COVERING 2KM RADIUS



MINE LEASE AREA COVERING WITH 300m AND 500M RADIUS



YEAR WISE PLAN

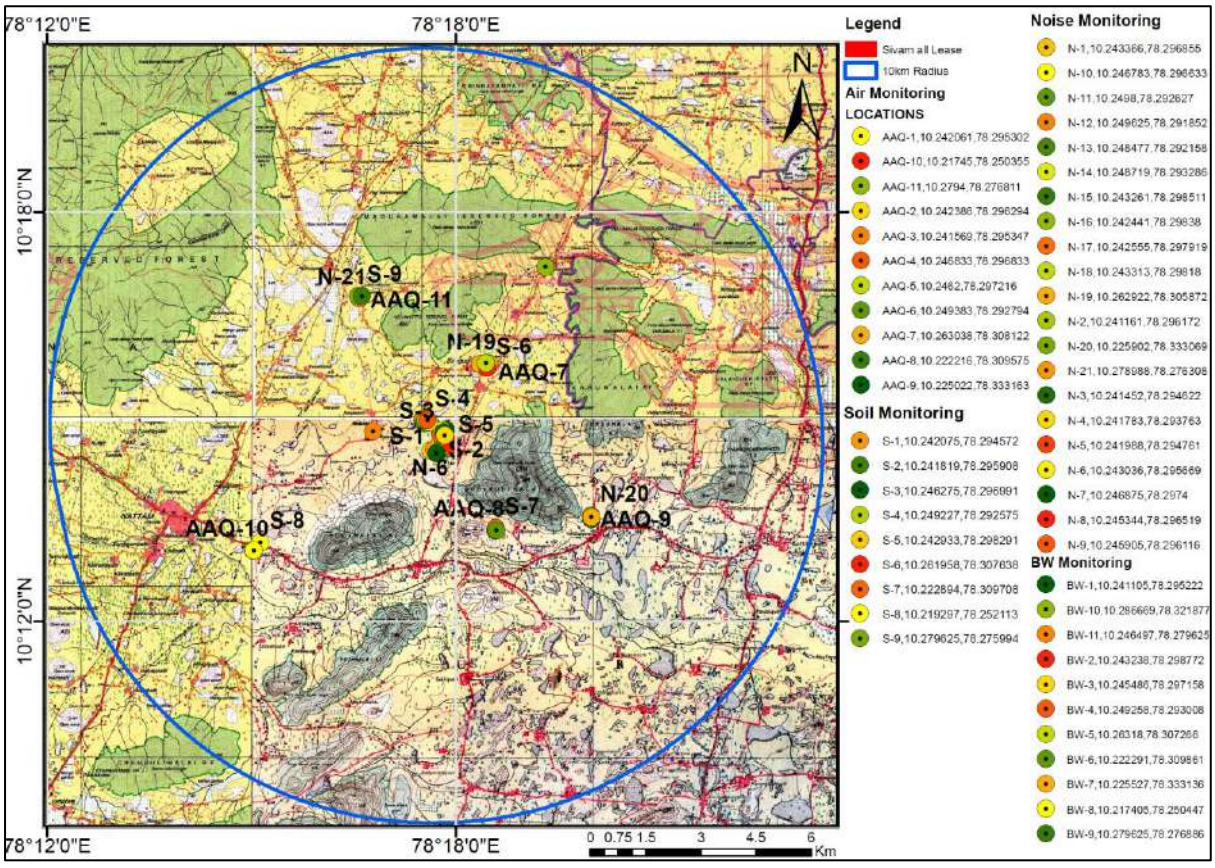


3. DESCRIPTION OF THE ENVIRONMENT –

Baseline data generation forms a part of the Environment Impact Assessment Study, which helps to evaluate the predicted impacts on the various environmental attributes and helps in preparing an Environmental Management Plan (EMP) outlining the measures for improving the environmental quality and scope of future expansions for environmentally sustainable development.

Baseline data was generated for various environmental parameters including air, water (surface and ground water), land and soil, ecology and socio-economic status to determine quality of the prevailing environmental settings. The Base Line Study was conducted during post-monsoon (October - December) season in 2023.

BASE MAP OF THE STUDY AREA

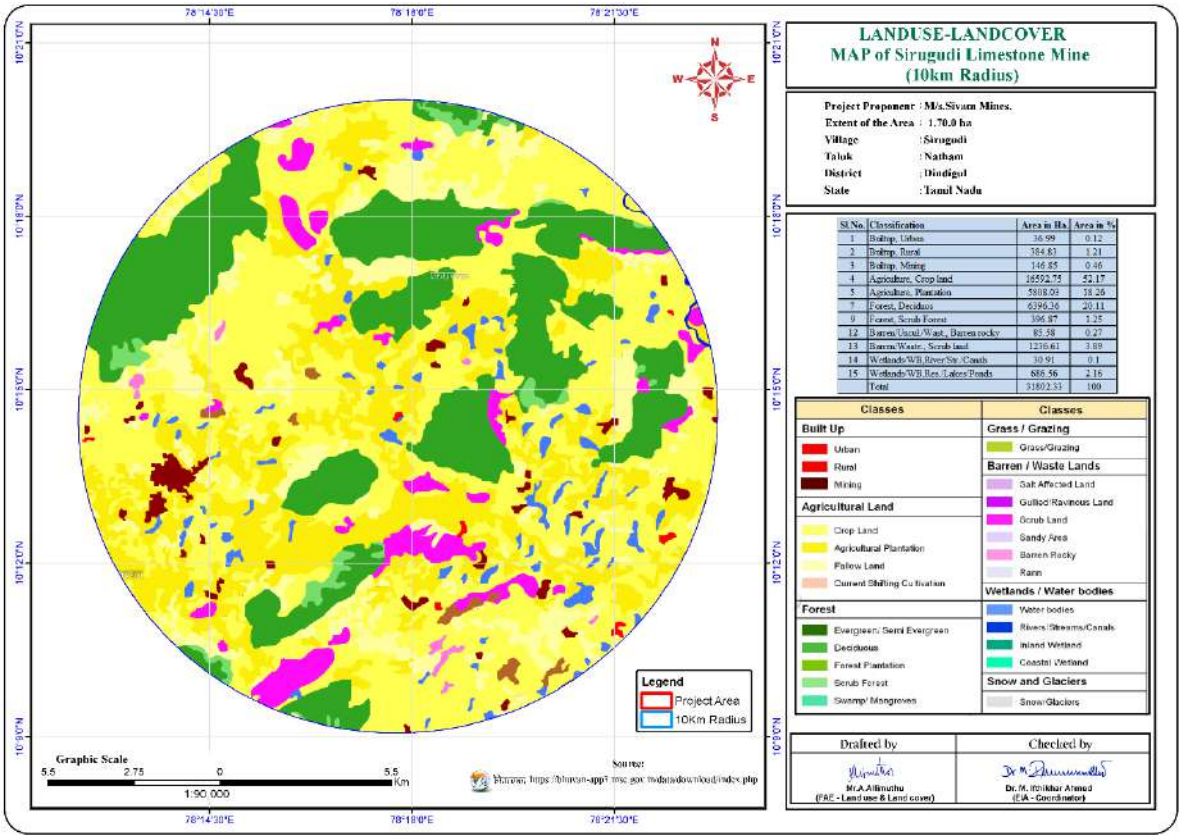


3.1 Land Environment

Land use pattern of the area is studied through the Bhuvan (ISRO). The interpretation made visually by identifying the land use cover through the keys given in the map. In the study area 10Km map radius map has been taken for the analysis of land use cover.

Most of the study area is covered by the agriculture land which depends upon the seasonal vegetation. The total mining areas in the 10Km radius is about 0.46% are very small in nature. The proposed mining area is 1.70.0 ha which covers about 1.16 % from the total mining area within the study area which will not have any significant impact on the environmental.

LAND USE LAND COVER MAP OF THE STUDY AREA (10KM RADIUS)

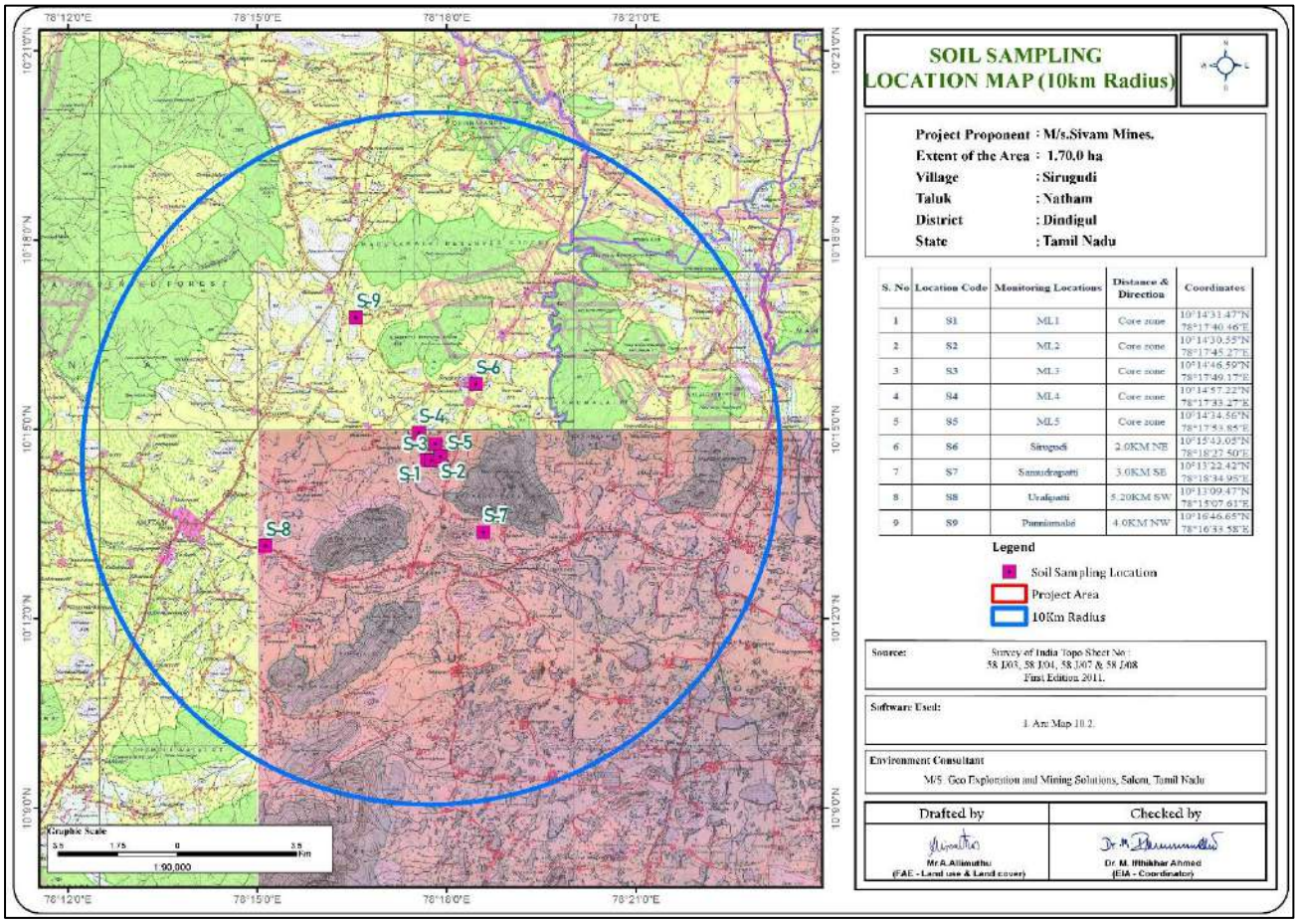


Soil Environment

Nine soil sampling locations were selected and analysed. The physical properties of the soil samples were examined for texture, bulk density, porosity and water holding capacity.

It is observed that the pH of the Soil ranging from 7.47 to 8.31 indicating that the soils is strongly Alkaline in nature. The Electrical Conductivity of the Soil ranges from 516 to 628 indicating Low Conductivity. The concentration of Chlorides is ranging from 2.8 to 12.8 which is found to be on the higher side, this is due to the dispersion of chlorides from the limestone to the nearby areas. The soil found in the area is semi fertile soil.

SOIL SAMPLES COLLECTION LOCATION MAP



3.2 Water Environment –

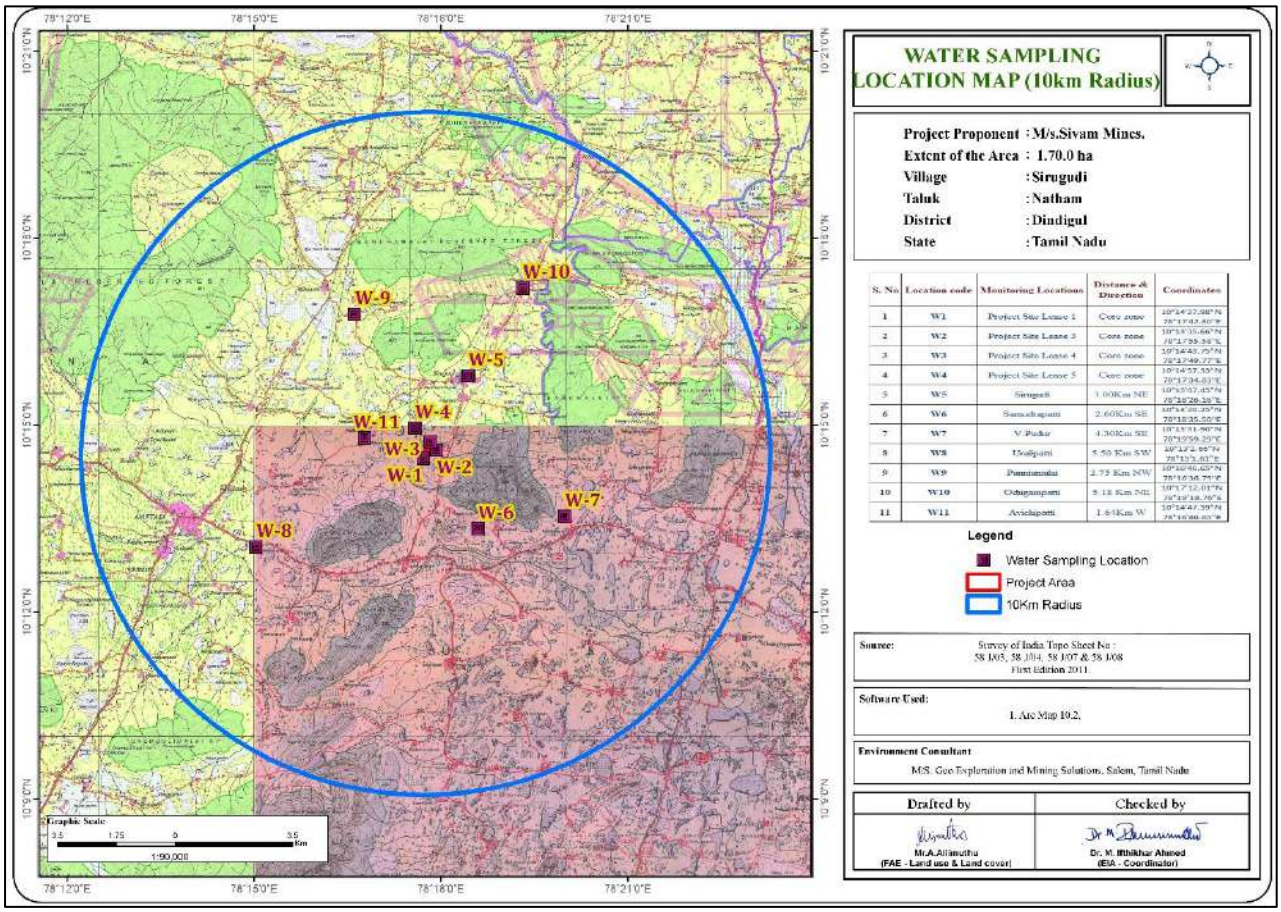
Around 11 ground water samples were collected to assess the water quality. The ground water samples were drawn from bore wells of villages being used for domestic needs. Surface water sample were taken from the mine pit.

Ground Water –

- The pH was varying from 7.01 to 8.2.
- The Calcium value was in the range of 54 to 108 mg/l.
- The TDS values is ranging from 397 to 1872 mg/l
- Hardness values is ranging from 260 to 590 mg/l

The heavy metal content has been found to be well within the limit. The physio-chemical and biological analysis revealed that these waters are well within the prescribed limits as per CPCB standard and the water can be used for drinking purpose in the absence of alternate sources

WATER QUALITY MONITORING LOCATIONS



3.3 Air Environment –
Meteorology (Climate) –

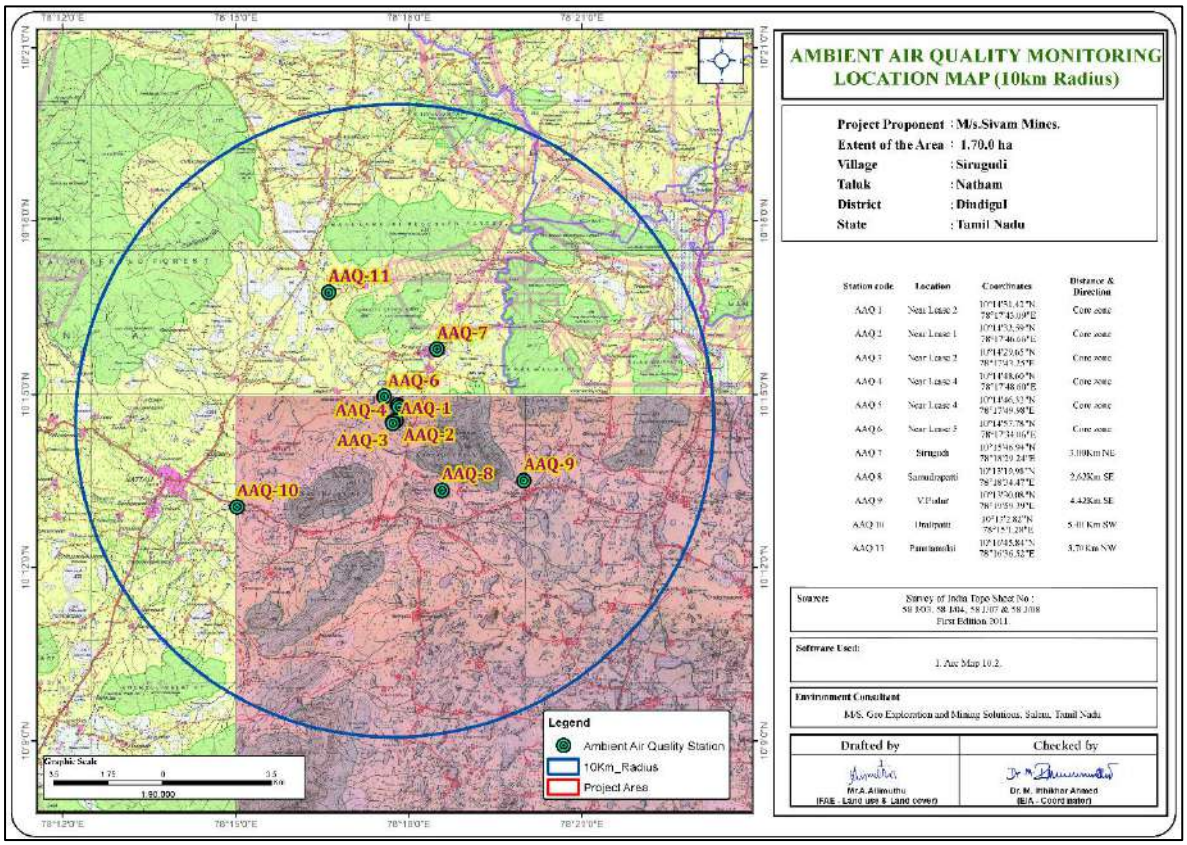
- In Dindigul, the average annual temperature is 27.8 °C. The rainfall here averages 717 mm. The driest month is March, with 11 mm of rainfall. The greatest amount of precipitation occurs in October, with an average of 180 mm. The warmest month of the year is May, with an average temperature of 30.4 °C. The lowest average temperatures in the year occur in January, when it is around 24.8 °C. The difference in precipitation between the driest month and the wettest month is 169 mm. The variation in temperatures throughout the year is 5.6 °C. The nearest IMD station for the proposed mine project is Karur paramathi - index KPM 43342.

Air quality Monitoring -

Ambient Air quality Stations were selected based on the Predominant downwind direction in respect to the project site. Eleven Ambient Air Quality Monitoring (AAQM) Stations were selected by considering the wind rose pattern for Post-monsoon season and the accessibility of the selected sites.

- The 98th Percentile Value of PM_{10} varies between 35 µg/m^3 at project site lease 2 to 43 µg/m^3 at Sirugudi.
- The 98th Percentile Value of $PM_{2.5}$ varies between 17.1 µg/m^3 at project site Lease 2 to 28.4 µg/m^3 at Panniamalai.
- The minimum and maximum of SO_2 and NO_2 varies between 4.0 µg/m^3 and 11.2 µg/m^{3}at Project site Lease 2 to 6.0 µg/m^3 to 19.9 µg/m^3 Sirugudi respectively.
- The concentrations of PM_{10}, $PM_{2.5}$, SO_2 and NO_2 are observed to be well within the NAAQ standards prescribed by Central Pollution Control Board (CPCB) for industrial and rural/residential zone.
- All the values are found to be well within the prescribed standard as per CPCB norms.

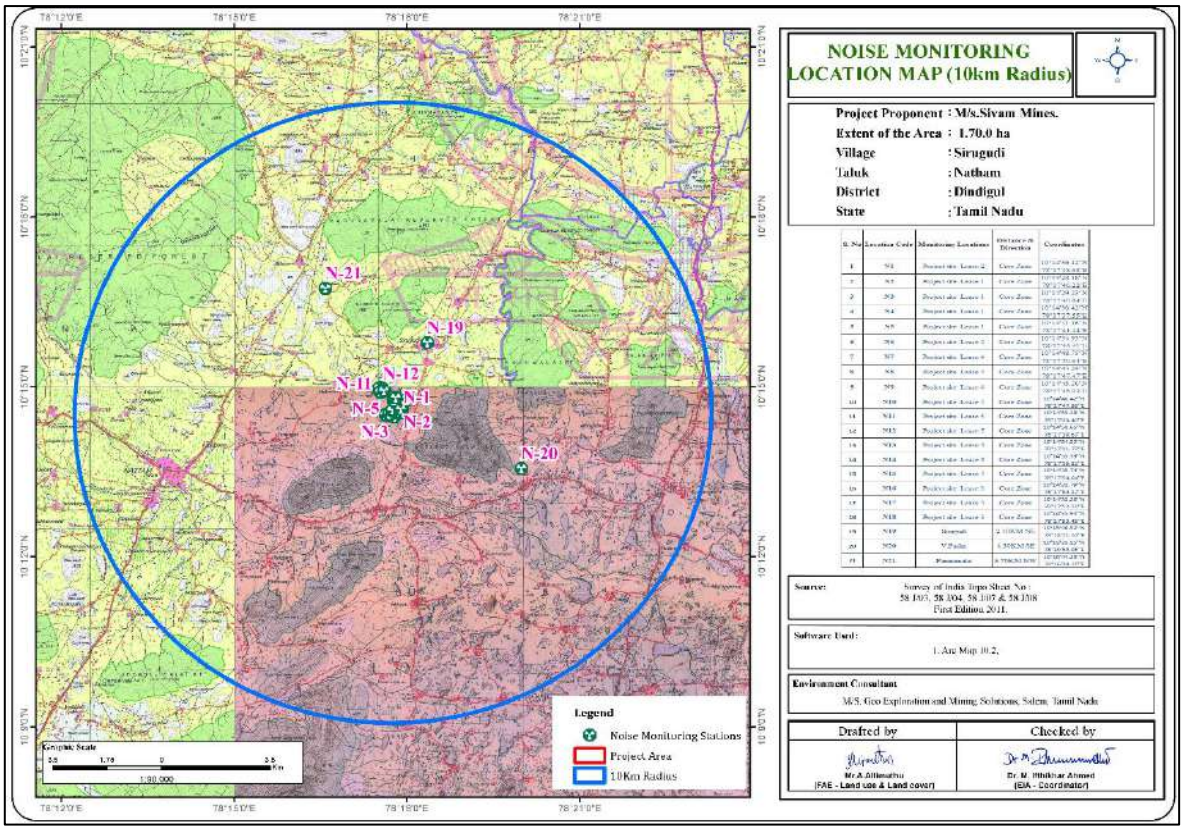
AIR QUALITY MONITORING LOCATION MAP



3.4 Noise Environment –

- Baseline noise levels were monitored at 21 locations, using continuous noise measurement device. Day levels were monitored during 6 AM to 10 PM and the night levels during 10 PM to 6 AM.
- The day equivalents during the study period are ranging between 18.2dB (A) to 59.8dB (A).
- The night equivalents were in the range of 30.2dB (A) to 48.9dB (A).
- From the results, it is inferred the day equivalents and the Night equivalents levels were within the Ambient Noise Standards of Industrial / Commercial / Residential Area.

NOISE MONITORING LOCATION MAP



3.5 Biological Environment –

Ecological survey has been carried out to understand baseline ecological status, important floristic elements and fauna structure.

There are No Schedule – I Species listed as per The Indian Wildlife (Protection) Act, 1972 or Threatened Species as per IUCN Red List noticed within the Study Area.

3.6 Socio Economics –

Sample survey was carried out to collect qualitative information about the socio-economic environment of the area. The Study area has all basic amenities such as roads, drinking water facilities, township, education institution, temples, medical facilities and electricity facilities and was evident during the site visit.

Though agriculture is the main occupation in the surrounding villages, it has provided employment opportunities to only 40 – 50 % of the families. The remaining population is depended on the other type of employment opportunities mainly as laborers.

4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 Land Environment:

In the Opencast Mining method the major impact is Land Environment, the existing land use pattern of the area is dry barren land, no forest land is involved in this project. Total extent of 1.70.0 ha, about 1.05.6 ha area is proposed for Mining activity which will have the impact during the mining. At conceptual stage the mined out pit will be allowed to store the rain water which act as a temporary reservoir. Total area of 1000 sqm is proposed for green belt development. There is no major vegetation found in the project area at present, after the completion of the mining operation the rate of the green belt development will be increased in the project site.

4.2 Water Environment

The ultimate pit limit is 22m below the ground level; the water table in the area is 35m in summer and 30m in rainy season. The proposed depth for the mining operation is well above the water table and there is no intersection of surface water (streams, Canal, Odai etc.,) within the lease area.

Mitigation Measures –

- Construction of garland drains to divert surface run – off in to the mining area
- Construction of retaining with weep holes around the Mineral reject dumps to prevent the siltation to the nearby lands.

4.3 Air Environment–

The air borne particulate matter generated by mining operations and transportation is the main air pollutant. The emissions of Sulphur Dioxide (SO_2), Nitrogen Oxides (NO_x) contributed by vehicles plying on haul roads will be marginal.

The Predicted maximum Ground level concentration of 24 Hour average of particulate matter concentration is superimposed on the maximum baseline concentration obtained during the study period to estimate the post project scenario, which would prevail at the post operational phase.

The maximum incremental ground level concentration of PM_{10} is 43µg/m^3 – Sirugudi Village and 28.4µg/m^3 – Panniamalai village. This shows that the adverse impact of mining outside the ML area is marginal and has no adverse effect on health of human and animals and also on the flora of the area.\

Mitigation Measures –

- Water spraying on working face to control dust emission due to loading & handling operations
- Water sprinklers along the mine haulage roads to reduce dust generation during plying of HEMM
- Controlled blasting techniques will be implemented
- Periodic water sprinkling on waste dumps and haul roads to minimize dust emissions.
- Practicing wet drilling procedures & Dust mask provision to workers
- Avoiding of overloading of tippers and covering of loaded tippers with tarpaulins during mineral transportation
- Green belt development will be carried out to arrest the dust particles
- Periodical monitoring of air quality to take steps to control the pollutants

4.4 Noise Environment

Noise pollution is mainly due to the blasting, Operation of machineries and Occasional plying of tippers in the mines and during transportation of mineral to needy customers.

Mitigation Measures –

- Controlled blasting techniques will be implemented, thus Noise due to the blasting from the mine site not going to be significant it will be upto a few seconds in the whole day.
- In the high noise intensity working areas, earmuffs or earplugs or any other suitable personal protective equipment will be provided to the workers.
- Regular noise level monitoring shall be done periodically for taking corrective action.
- Green belt development around the mine sites, office buildings and all along the internal road will be practiced as to create a barrier between the source and the receiver so that the noise is absorbed and the exposure level is minimized.

4.5 Biological Environment

The impact on biodiversity is minimal as there is no forest, wild life sanctuaries, and Eco sensitive zone within the radius of 10 Km.

The impact would be due to dust generated from drilling and blasting activities and emission of gaseous pollutant from HEMM and mineral transportation. Adequate dust control measures will be taken to control dust emission. Thick Greenbelt development will be carried out in the mine area and haul roads to control the dust emission. Besides the air quality standards for PM_{10}, $PM_{2.5}$, SO_2 and NO_x and all other values are well within the AAQ standards.

4.6 Socio Economic Environment.

Due to the mining activities in the leases about 10 numbers of skilled and unskilled workers are benefitted through direct employment. About 30 numbers of peoples will be benefitted indirectly. Additional facilities such as medical, educational and infrastructural development will also take place under CSR/CER activities.

Considering the socio – economic and sociological impact it has been noticed that the economic level and living standard of the people will generally increase.

5 ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

Site Alternatives –

No alternative site has been proposed as Limestone occurrence is site specific in nature and the location of the proposed project is restricted to the geology and mineral deposition of the area.

Mining Technology alternatives –

Opencast, category "B" opencast and the excavator will be deployed for the formation of benches and loading. Excavator attached with rock breaker will be deployed for breaking and fragmentation to avoid blasting as the strata is medium hard in nature.

The project will follow opencast mining method because of surface mineral deposits and to ensure higher mineral conservation. The mining by opencast method will be highly productive & economical as compared to underground method.

6 ENVIRONMENT MONITORING PROGRAM –

Usually, an impact assessment study is carried over short period of time and the data cannot bring out all variations induced by natural or human activities. Hence regular monitoring program of Environmental parameters is essential to take into account the changes in the Environment. The Objective of Monitoring -

- To check or assess the efficiency of the controlling measures;
- To establish a data base for future impact assessment studies.

7 ADDITIONAL STUDIES - RISK ASSESSMENT & HAZARD –

The components associated with risk and hazard in these mines include jackhammer drilling & blasting, waste dump and explosive storage. Measures to reduce and avoid any incidents occurring from the above mentioned components shall be planned and implemented as soon as the mine starts commissioning; this includes measures to avoid the above discussed risk factors. Proper risk management plan will be proposed to avoid any kind of accident/ disaster.

8 PROJECT BENEFITS –

- Demand supply gap for the limestone
- Improvement in physical infrastructure
- Improvement in Social Infrastructure
- Employment Potential
- Proponents will carry out CSR activities like community awareness program, health camps, Medical aid, family welfare camps etc.,
- A massive plantation will be carried out in the mine area to mitigate the ill-effects of mining and to improve the vicinity and environment of mine and its surrounding area.

9 ENVIRONMENTAL COST BENEFIT ANALYSIS.

Environmental cost benefit analysis is not recommended.

10 ENVIRONMENT MANAGEMENT PLAN –

The Environmental Management Plan (EMP) is a site specific plan developed based on the base line environmental status, mining methodology and environmental impact assessment. In each of the areas of impact, measures have to be taken to reduce potentially significant adverse impacts and where these are beneficial in nature, such impacts are to be enhanced/ augmented so that the overall adverse impacts are reduced to as low level as possible.

The proponent shall organize an Environment Monitoring Cell in common which is responsible for the management and implementation of the environmental control measures. Basically, this department shall supervise the monitoring of environmental pollution levels like ambient air quality, water quality, soil quality and noise level by appointing approved external agencies.

The working conditions in the mines are governed by the enactments of the Director General of Mines Safety (DGMS). The proponent shall take all necessary precautions regarding health and safety of workers as per the guidelines of the Mines Act, sanitary facilities shall be provided within the lease area; carry out periodic health check-up of workers.

The proponent will carry out CSR activities for overall development of the people in the area. The activities shall include medical camps, water supply, improvement of school infrastructure, etc. The proponents have been carrying out CSR Activities in various fields for social welfare around the project site and spent an amount of Rs 1.51 Lakhs till date.

11 CONCLUSION –

It can be concluded from overall assessment of the impacts, in terms of positive and negative effects on various environmental components, that the mining activities will not have any adverse effect on the surrounding environment.

To mitigate any impacts due to the mining activities, a well-planned EMP and a detailed post project monitoring system is provided for continuous monitoring and immediate rectification at site. Due to the mining activities, socio economic conditions in and around the project site will be improved substantially. Hence, the Environmental Clearance shall be granted at the earliest based on the merits of the project.

- Since the mining operation have been stopped for last four years which has caused unemployment and affected the livelihood of the workers who were employed and a major loss to the infrastructure and machinery deployed.
- The livelihood of the proponent is very much dependent upon this mining operation which had been working from several years hence the Environmental Clearance shall be granted at the earliest.