EXECUTIVE SUMMARY OF
ENVIRONMENTAL IMPACT ASSESSMENT REPORT
AND
ENVIRONMENT MANAGEMENT PLAN

FOR OBTAINING

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

"B1" CATEGORY – MINOR MINERAL – CLUSTER – NON-FOREST LAND
CLUSTER EXTENT = 19.50.0 hectares

Thiru. J. Vijayakumar Rough Stone Quarry

At

Gopanapalli Village, Hosur Taluk, Krishnagiri District

ToR issued vide Letter No. . SEIAA-TN/F.No.9593/SEAC/ToR-1334/2022 dated 10.02.2023

Name and Address	Extent & S.F.No.
Thiru.J. Vijayakumar S/o. Jayaram, D.No.1/41, T.Shoolagunda, Madakkal Village, Denkanikottai Taluk, Krishnagiri District-635 118.	2.00.0 ha & S. F. No. 220/1(Part-4)

ENVIRONMENTAL CONSULTANT

GEO TECHNICAL MINING SOLUTIONS

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NABET ACC. NO: NABET/EIA/2023/IA0067
Valid till : 29th Dec.2023

ENVIRONMENTAL LAB
ENVIRO FARMERS LABS & TECHNOLOGIES

Baseline Study Period – December-2022 to February-2023

CHAPTER I

INTRODUCTION

As the proposed rough stone mining project, known as P1 falls within the 500 m radius cluster of quarries with the total extent of >5 ha (**i.e.,19.50.0 ha**), it is classified under category "B1" and requires submission of EIA report for grant of Environmental Clearance (EC) after conducting public hearing. The cluster contains 6 proposed projects, known as P1, P2, P3, P4, P5 and P6, 2 existing quarries, as shown in Table 1.2. All the projects mentioned above have been taken for cluster extent calculation as per MoEF & CC Notification S.O. 2269 I dated 1st July 2016, as shown in Figure 1.1. This EIA draft discusses the cumulative Impacts of 6 proposed projects in a cluster on the environment and provides a detailed Environmental Management Plan (EMP) to minimize the adverse impacts of those projects situated in the cluster falling in Gopanapalli Village, Hosur Taluk, Krishnagiri District and Tamil Nadu State. It has been prepared in compliance with SEIAA-TN/F.No.9593/SEAC/ToR-1334/2022 dated,10.02.2023 for the proposed project by conducting baseline study during the period of December 2022 to February 2023. Details of the project proponent and the list of quarries within the cluster of 500 m radius have been provided in Tables 1.1 and 1.2, respectively.

Table 1.1 Details of Project Proponent

Name of the Project Proponent	**Thiru. J. VijayaKumar**
Address	S/o. Jayaram, D.No.1/41, T.Shoolagunda, Madakkal Village, Denkanikottai Taluk, Krishnagiri District-635 118.
Status	Proprietor

Table 1.2 Details of Quarries within the cluster area of 500 m radius

Proposed Quarries				
Code	**Name of the Owner**	**S.F. No and Village**	**Extent (ha)**	**Status**
P1	Thiru. Vijayakumar	220/1(Part-4) Gopanapalli	2.00.0	Proposed Area
P2	Thiru. S. Raghu	381(Part-1) Gopanapalli	1.30.0	Applied Area
P3	M/s. Natural Stone	220/1(Part-1) Gopanapalli	3.00.0	Applied Area

P4	Thiru. Nithin Reddy	220/1(Part-2) Gopanapalli	3.00.0	Applied Area
P5	Thiru. Sri Krish	220/1(Part-3) Gopanapalli	3.00.0	Applied Area
P6	Thiru. Dhivakar	381/1(Part-2) Gopanapalli	1.50.0	Applied Area
Existing Quarries				
E1	P. Nagarajareddy	457(Part-1) Hosapuram	2.00.0	17.08.2016 To 16.08.2026
E2	P. Venkata Reddy	457(Part-2) Hosapuram	3.70.0	26.02.2020 To 25.02.2030
Expired Quarries				
--Nil--				
	Total Cluster Extent		**19.50.0**	---

Source:

DD Letter: Rc.No.538/Mines/2022, Dated:04.07.2022

Note: Cluster area is calculated as per MoEF & CC Notification – S.O. 2269 (E) Dated: 01.07.2016**.**

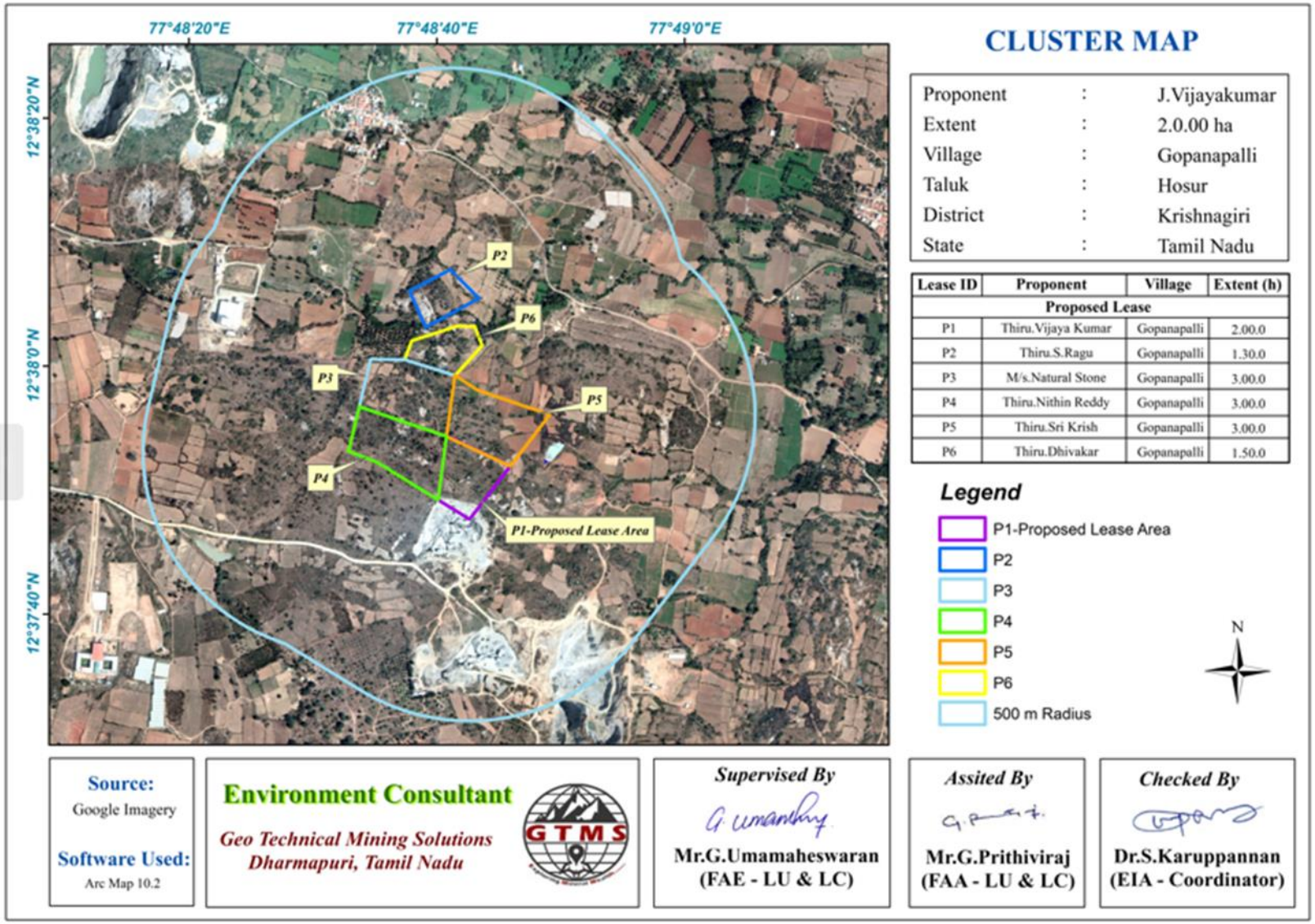


Figure 1.1 Google Earth Image Showing 500m Radius Limit and the Proposed Project and Existing Quarries within the Limit

CHAPTER II

PROJECT DESCRIPTION

The proposed project deals with excavation of rough stone which is primarily used in construction projects. The method adopted for rough stone excavation is an open cast semi-mechanized mining method involving drilling, blasting and formation of benches with 5 m height and 5 m width and secondary blasting. The proposed project area is located between Latitudes from 12°37'51.83"N to 12°37'49.10"N and Longitudes from 77°48'45.92"E to 77°48'40.11"E. in Gopanapalli Village, Hosur Taluk, Krishnagiri District and Tamil Nadu. The project site is a Government Poramboke land with the extent of 2.00.0 ha owned by the project proponent. The proponent had applied for quarry lease on 19.04.2022 to extract rough stone and obtained the precise area communication letter issued by Department of Geology and Mining, Krishnagiri vide (Rc.No.538/Mines/2022 Dated 26.04.2022. Based on the precise area communication letter, mining plan was prepared. The mining plan thus prepared was approved by Deputy Director of Geology and Mining, Krishnagiri (Rc.No.538/Mines/2022, Dated 04.07.2022). According to the approved mining plan, about 257342 m^3 of rough stone will be mined up to the depth of 30 m (11m above ground level + 19 m below ground level) L in the first five years. To achieve the estimated production, 4 jack hammers, 1 compressor, 1 excavator with bucket/rock breaker, and 2 tippers will be deployed. To operate the machineries and to break the rough stone to preferred dimension, about 18 persons will be employed. At the end of the quarry life, the dimension of the ultimate pit will be 140 m*107 m*58 m and about 1.51.0 ha of land would have been quarried; about 0.01.0 ha of land would have been used for establishing infrastructures; about 0.01.0 ha of land would have been used for road development; about 0.47.0 ha of land would have been used for green belt development. The final mine closure plan shows that about Rs. 6,80,000 with the annual recurring cost of Rs.60,000 will be spent towards mine closure. Boundary coordinates of corner pillars of the project site and accessibility details to the location of the project site are given in Tables 2.1 & 2.2, respectively. The lease area of the project site overlaid on Google earth image is shown in Figure 2.1.

Table 2.1 Corner Geographic Coordinates of Proposed Project

Pillar ID	Latitude	Longitude
1	12°37'49.2085"N	77°48'40.1127"E
2	12°37'54.3668"N	77°48'40.8039"E
3	12°37'51.9387"N	77°48'45.9251"E
4	12°37'47.6537"N	77°48'42.6373"E

Table 2.2 Site Connectivity to the Project Area

Type of Features	Name/Location	Distance (km)	Direction
Nearest Roadways	(NH-44) Dharmapuri-Hosur	8	NE
	(SH-17A) Hosur-Thenkanikottai	2.80	W
Nearest Railway	Hosur	14.0	N
Nearest Airport	Bangalore	88.0	N
Nearest Seaport	Chennai	322.0	E

2.3 DETAILS OF RESERVES

Reserves were calculated using cross-section method after leaving the safety distance as shown in Figure 2.2. Details of resources and reserves of the project are given in Table 2.3.

Table 2.3 Estimated Resources and Reserves of the Project

Resource Type	Rough Stone in m^3	Top Soil in m^3
Geological Resource in m^3	1009267	39878
Mineable Reserves in m^3	396263	29960
Proposed production for 5 years m^3	257243	29960

Based on the year wise development and production plan and sections, as shown in Figures 2.3 & 2.3a, the year wise production results are given in Table 2.4.

Table 2.4 Year-Wise Production Details

Year	Rough Stone (m^3)	Top Soil (m^3)
I	63973	13696
II	52500	16264
III	36540	-
IV	40950	-
V	63280	-
Total	**257243**	**29960**

2.3 LAND USE PATTERN

Land use and land cover information for the proposed project site has been given in Table 2.5.

Table 2.5 Land use data at present, during scheme of mining, and at the end of mine life

Description	Present Area (ha)	Area at the end of life of quarry (ha)
Area under quarry	Nil	1.51.0
Infrastructure	Nil	0.01.0
Roads	Nil	0.01.0
Green Belt	Nil	0.47.0
Unutilized area	2.00.0	Nil
Total	**2.00.0**	**2.00.0**

Source: Approved mining plan

2.4 METHOD OF MINING

The quarrying operation is proposed to be carried out by opencast semi mechanized mining method involving drilling, blasting, and formation of benches. Machineries, blasting design and fuel requirement and capital proposed for this project have been given in Tables 2.6-2.9.

Table 2.6 Proposed Machinery Deployments

S. No.	Type	No. of Unit	Size/Capacity	Make/Dia of Hole (mm)	Motive Power/ H. P
1	Jack Hammers	4	Hand Held	25.5 mm/Atlas Copco	Diesel Drive 60 H.P
2	Compressor	1	Air	-	Diesel Drive
3	Excavator	1	1.2 M. T	L&T or EX200	Diesel Drive 120 H.P
Haulage & Transport Equipment					
4	Tipper	2	10 M. T	Ashok Leyland	Diesel Drive 110 H.P

Table 2.7 Conceptual Blasting Design

Blasthole Diameter (D) in mm	32
Burden (B) in m	1
Spacing (S) in m	0.97
Subdrill in m	0.3
Charge length (C) in m	0.64
Stemming	1

Hole Length (L) in m	1.9
Bench Height (BH) in m	1.6
Mass of explosive/hole in g	400
Stemming material size in mm	3.2
Burden stiffness ratio	1.64
Blast volume/hole in m3	1.59
Production of rough stone/day in m3	191
Number of blastholes/day	120
Blasthole pattern	Staggered/Rectangular
Mass of explosive /day in kg	48
Powder factor in kg/m3	0.25
Loading density	0.63
Type of explosives	Slurry
Diameter of packaging in mm	25
Initiation system	NONEL
Fly rock distance in m	23

Table 2.8 Fuel Requirement Details

Fuel Requirement for Excavator			
Details	**Rough Stone (257243 m^3)**	**Top Soil (29960 m^3)**	**Total Diesel (litre)**
Average Rate of Fuel Consumption (l/hr)	16	10	---
Working Capacity (m^3/hr)	20	60	---
Time Required (hours)	12862	499	---
Total Diesel Consumption for 5 years (litre)	205794	4993	210787
Fuel Requirement for Compressor			
Average Rate of Fuel Consumption/hole (litre)	0.4	---	---
Number of Drillholes/day	120	---	---
Total Diesel Consumption for 5 years (litre)	64800	---	64800
Fuel Requirement for Tipper			
Average Rate of Fuel Consumption/Trip (litre)	20	0	---
Carrying Capacity in m^3	6	0	---
Number of Trips / days	32	0	---
Number of Trips / 5 years	42874	0	---
Total Diesel Consumption for 5 years (litre)	857477	0	857477
Total Diesel Consumption by Excavator, Compressor and Tipper			**1133064**

Table 2.9 Capital Requirement Details

S. No.	Description	Cost (Rs.)
1	Fixed Asset	2,12,20,000/-
2	Machinery	30,00,000/-
3	EMP	3,50,000/-
Total Project Cost		**2,45,70,000/-**

Source: Approved Mining Plan

2.5 CONCEPTUAL MINE CLOSURE PLAN

- Mine closure is a process of returning a disturbed site to its natural state for other productive uses to minimize adverse effects on the environment or threats to humans' health and safety.
- The objective of the mine closure plan is to transform quarries to be physically safe to humans and animals, geo-technically stable, geo-chemically non-polluting, and non-contaminating.
- At the end of mining life, the mine pit will act as an artificial reservoir for collecting rain water and will help to meet the water demand during drought season.
- After mine closure, the greenbelt will be developed along the safety barrier and over top benches. Water from the pit will be used to the greenbelt development and maintenance. Budgetary provision for mine closure is provided in Table 2.10.

Table 2.10 Mine Closure Budget

Activity	Capital Cost	Recurring Cost/Annum
400 Plants Inside the Lease Area	80000	12000
600 Plants Outside the Lease Area	180000	18000
Wire Fencing	400000	20000
Garland Drain	20000	10000
Total	**680000**	**60000**

Source: Environment Management Plan

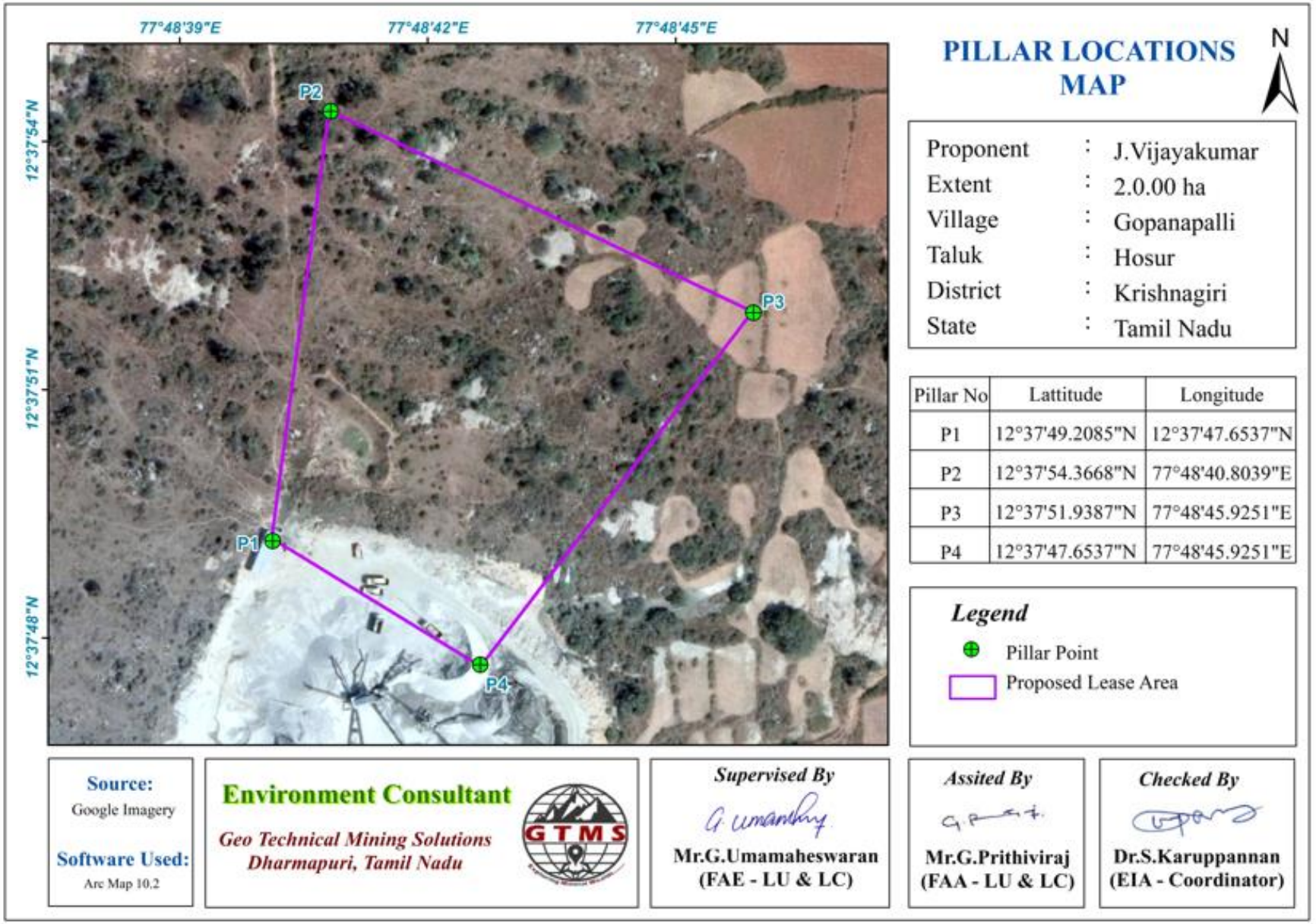


Figure 2.1 Google Earth Image Showing Lease Area with Pillars

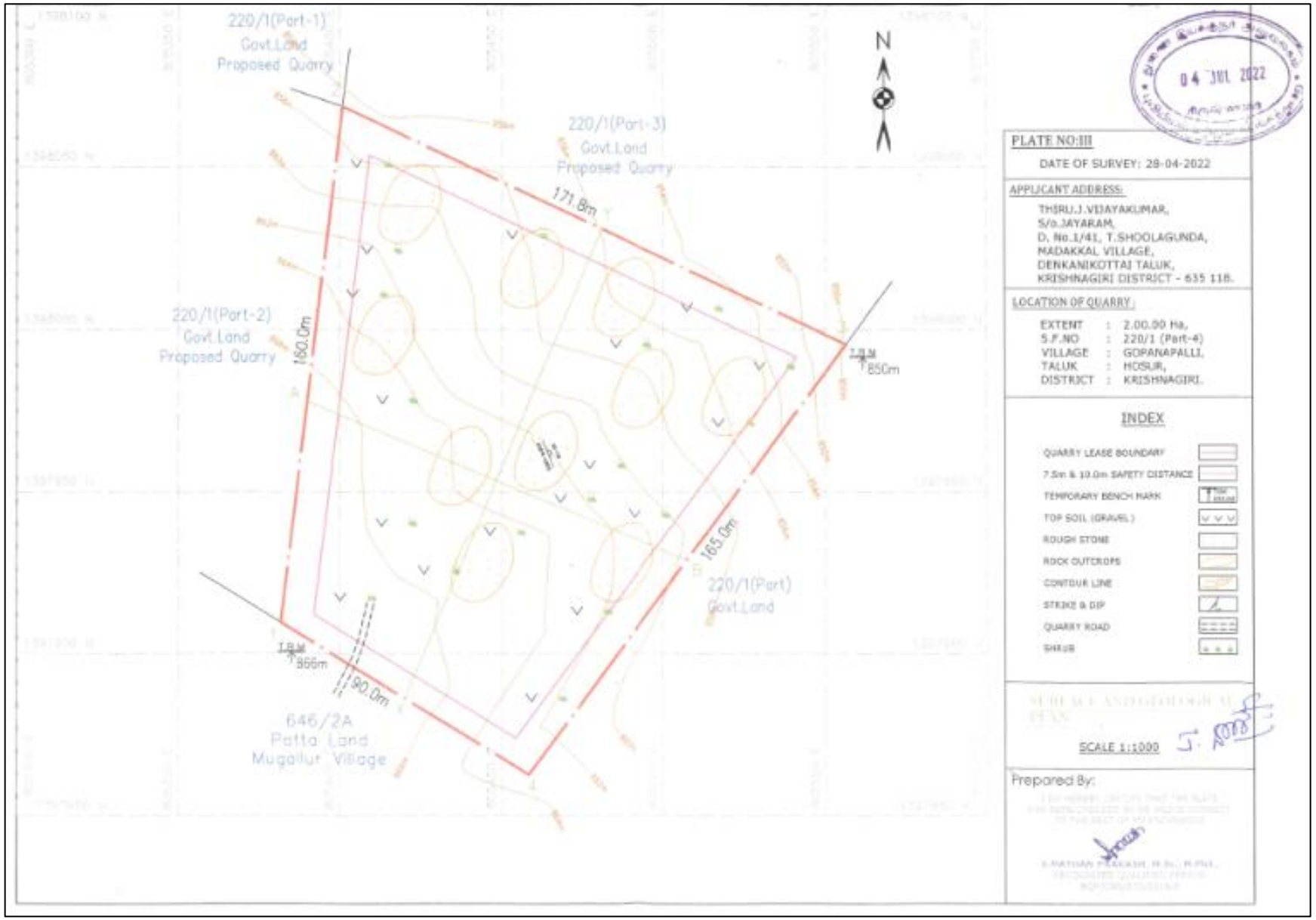


Figure 2.2 Mine Lease Plan

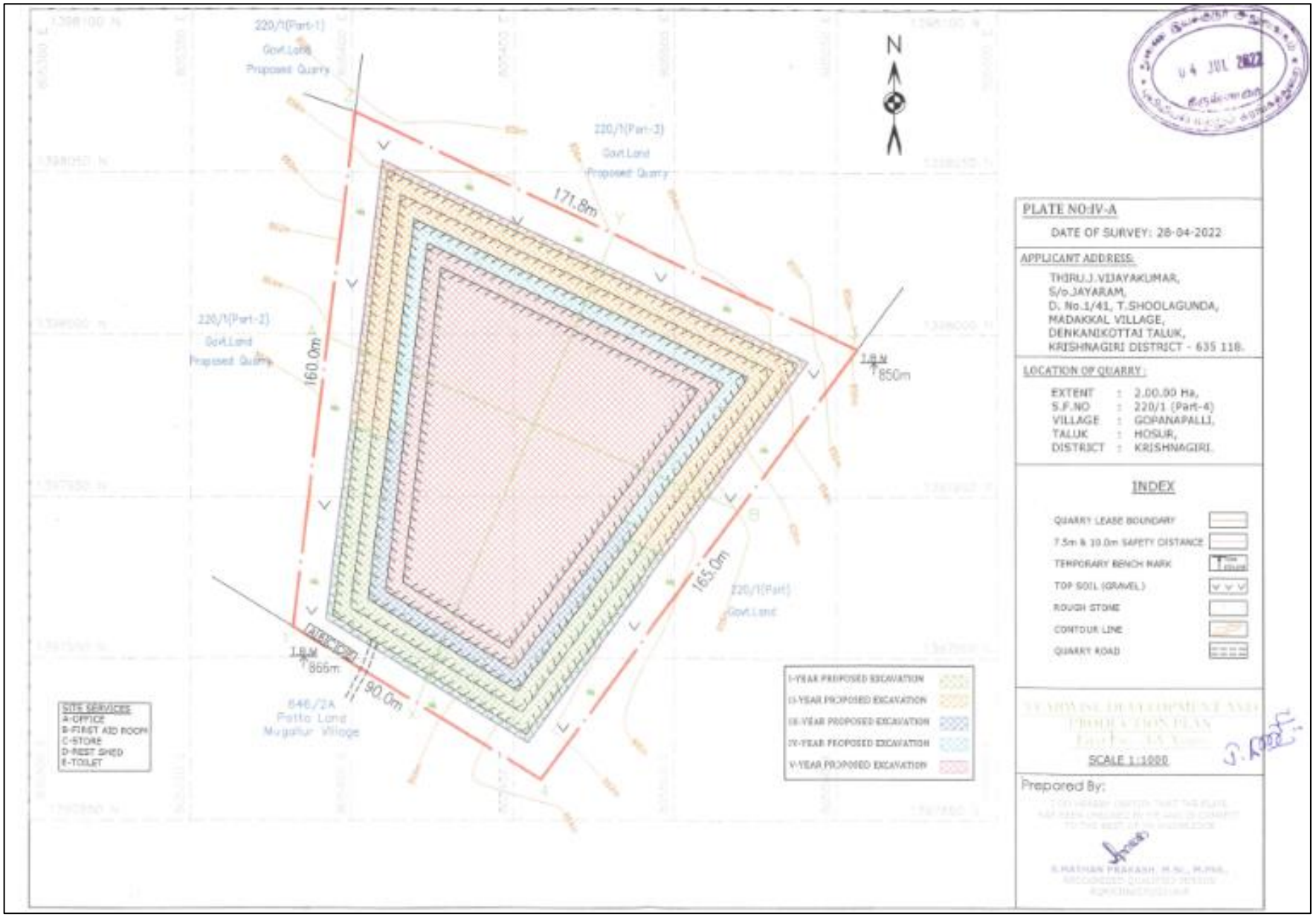
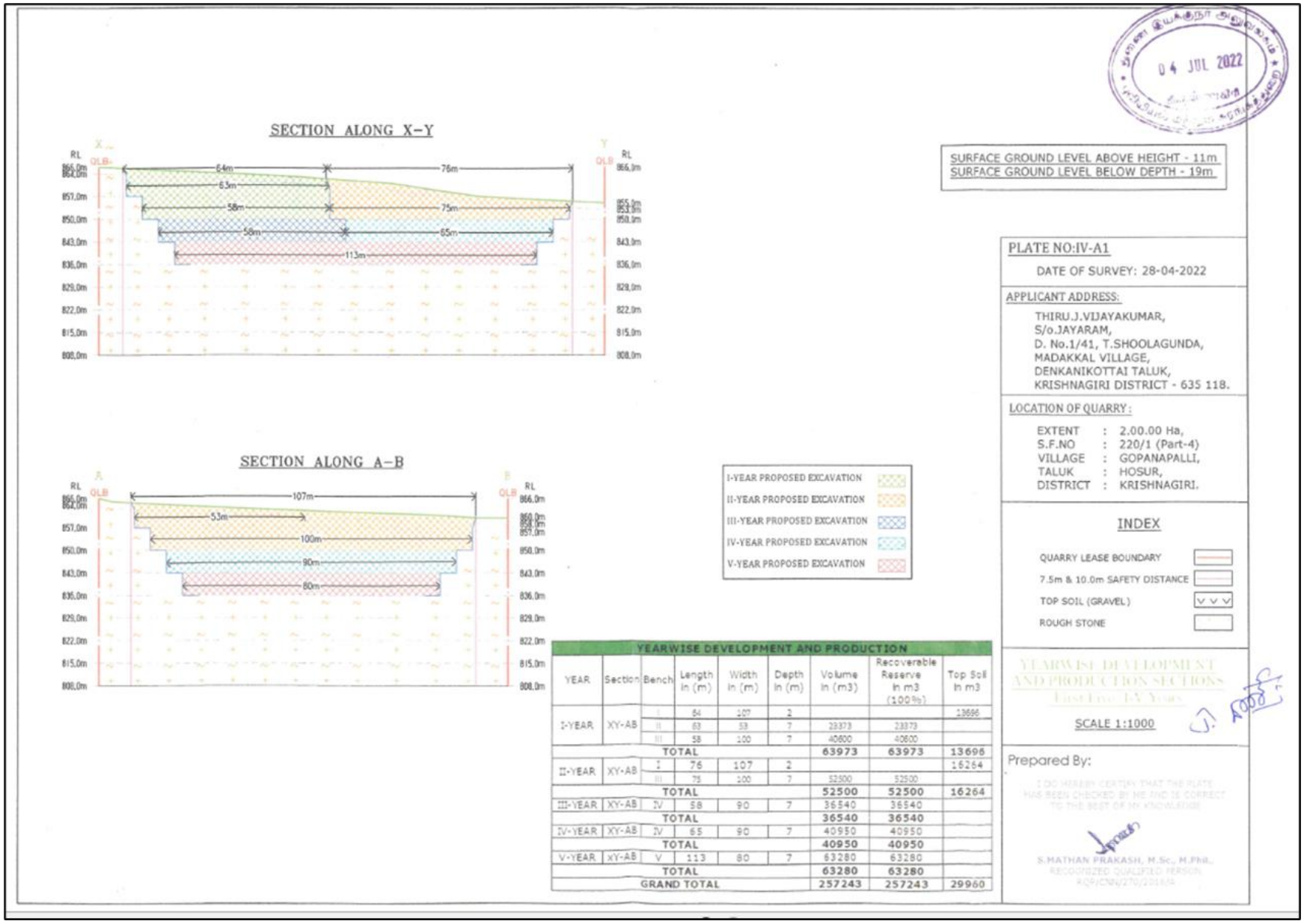


Figure 2.3 Yearwise Development and Production Plan



YEARWISE DEVELOPMENT AND PRODUCTION

YEAR	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in (m3)	Recoverable Reserve in m3 (100%)	Top Soil in m3
I-YEAR	XY-AB	I	84	107	2			13696
		II	63	53	7	23373	23373	
		III	58	100	7	40600	40600	
TOTAL						63973	63973	13696
II-YEAR	XY-AB	I	76	107	2			16264
		III	75	100	7	52500	52500	
TOTAL						52500	52500	16264
III-YEAR	XY-AB	IV	58	90	7	36540	36540	
TOTAL						36540	36540	
IV-YEAR	XY-AB	IV	65	90	7	40950	40950	
TOTAL						40950	40950	
V-YEAR	XY-AB	V	113	80	7	63280	63280	
TOTAL						63280	63280	
GRAND TOTAL						257243	257243	29960

Figure 2.4 Yearwise Development and Production Sections

CHAPTER III

DESCRIPTION OF THE ENVIRONMENT

3.0 INTRODUCTION

Field monitoring studies were carried out to evaluate the existing environmental condition of the project site during **December-2022 through Februar-2023** as per CPCB guidelines. Environmental baseline data were collected by an NABL accredited and MoEF notified Excellence Laboratory for the environmental attributes including soil, water, noise, air and by FAEs for ecology and biodiversity, traffic, and socio-economy.

3.1 LAND ENVIRONMENT

Land use pattern of the area of 5 km radius was studied using Sentinel II imagery. LULC types and their extent are given in Table 3.1.

Table 3.1 Land Use / Land Cover Statistics for the Area of 5 km Radius

S. No.	Classification	Area (ha)	Area (%)
1	Crop land	5325.56	70.22
2	Dense Forest	1.01	0.01
3	Fallow land	30.76	0.41
4	Mining Area	55.00	0.72
5	Land with or without scrub	1209.37	15.94
6	Plantations	843.79	11.13
7	Settlement	5.04	0.07
8	Water bodies	113.50	1.50
Total		**7584.03**	**100**

Source: Sentinel II Imagery

3.1.1 SOIL ENVIRONMENT

Six locations were selected for soil sampling based on soil types, vegetative cover, and industrial & residential activities including infrastructure facilities. The physical and chemical characteristic results of soil samples are provided below.

Physical Characteristics

The soil samples in the study area show loamy textures varying between silty clay loam, silty loam and sandy loam. pH of the soil varies from 6.93 to 8.22 indicating slightly acidic to slightly alkaline nature. Electrical conductivity of the soil varies from 2.93 to 3.65 dsm^{-1}. Bulk density ranges between 0.79 and 0.92 g/cm^3

Chemical Characteristics

Nitrogen ranges between 1.27 and 1.63 %. Phosphate ranges between 0.88 and 2.22 %. Potassium ranges between 2.23 and 4.27 %. Boron ranges between 13.58 and 19.81 mg/kg. Zinc content ranges between 13.58 and 19.81 mg/kg soil.

3.2 WATER ENVIRONMENT

Surface Water

Lakes near Mugalur and near Gopanapalli are the prominent surface water resources present in the study area. The proposed project area is located 0.77 km W of the lake near Mugalur and 3.12 km NNW of the lake near Gopanapalli, as shown in Table 3.5 and Figure 3.4. Totally, two surface water samples, known as SW1 and SW2 were collected from the lakes to assess the baseline water quality. Table 3.6 summarizes surface water quality data of the collected sample. Result for surface water sample in the Table 3.6 indicate that the physical, chemical and biological parameters, and heavy metals are within permissible limits in comparison with standards of IS10500:2012.

Ground Water Resources

Groundwater in the study area occurs in the crystalline rocks of Archaean age and recent alluvium. The movement of the groundwater is controlled by the intensity of weathering and fracturing of crystalline rocks. Dug wells and bore wells are the most common ground water abstraction structures in the area. However, in dry season, people in the study area heavily rely on bore wells for their domestic and agriculture purpose.

Five groundwater samples, known as GW1, GW2, GW3, GW4 and GW5 were collected from bore wells and open wells were analysed for physico-chemical conditions, heavy metals and bacteriological contents in order to assess baseline quality of ground water. Ground water sampling locations and their distance and direction from the lease area are provided in Table 3.5 and the spatial occurrence of water sampling locations is shown in Figure 3.4. Table 3.6 summarizes ground water quality data of the five samples.

Results for ground water samples in the Table 3.6 indicate that the physical, chemical and biological parameters, and heavy metals are within permissible limits in comparison with standards of IS10500:2012.

Groundwater Levels and Flow Direction

Data regarding depth to groundwater levels are essential to infer the direction of groundwater movement within the study area. Knowledge of groundwater flow direction is must in choosing location for background groundwater quality monitoring well and in locating recharge and discharge areas. Therefore, data regarding groundwater elevations were collected from 9 open wells and 9 bore wells at various locations within 2 km radius around the proposed project sites for the period from March through May 2022 (Pre-Monsoon Season) and from October through December, 2022 (Post Monsoon Season).

The open well water level data thus collected onsite are provided in Tables 3.7 and 3.8. According to the data, average depths to the static water table in open wells range from 10.1 to 14.1 m BGL in pre monsoon and 11.5 to 16.3 m BGL in post monsoon. The bore well data thus collected onsite are provided in Tables 3.9 and 3.10. The average depths to static potentiometric surface in bore wells for the period of October through December 2022 (Post-Monsoon Season) vary from 63.8 to 66.3 m and from 62.3 to 65.8 m for the period of March through May, 2022 (Pre-Monsoon Season). Data on the depths to static water table and potentiometric surface were used to draw contour lines connecting groundwater elevation (also known as equipotential hydraulic head) to determine the groundwater flow direction perpendicular to the contour lines.

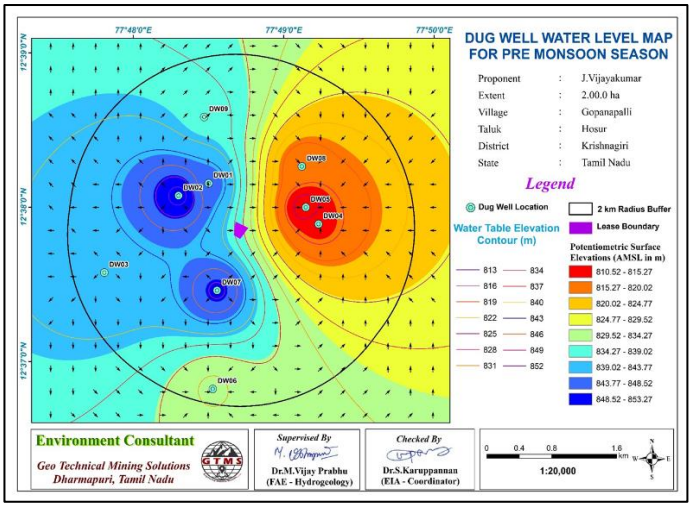


Figure 3.1 Open Well Static Groundwater Elevation Map Showing the Direction of Groundwater Flow During Pre-Monsoon Season

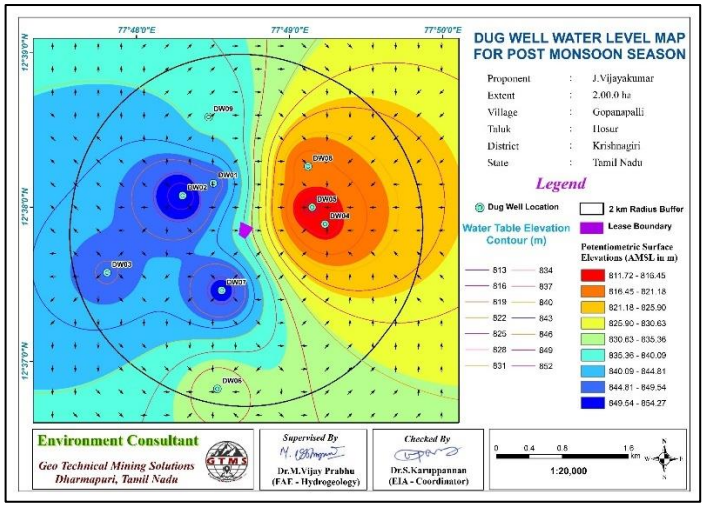


Figure 3.2 Open Well Static Groundwater Elevation Map Showing the Direction of Groundwater Flow During Post-Monsoon Season

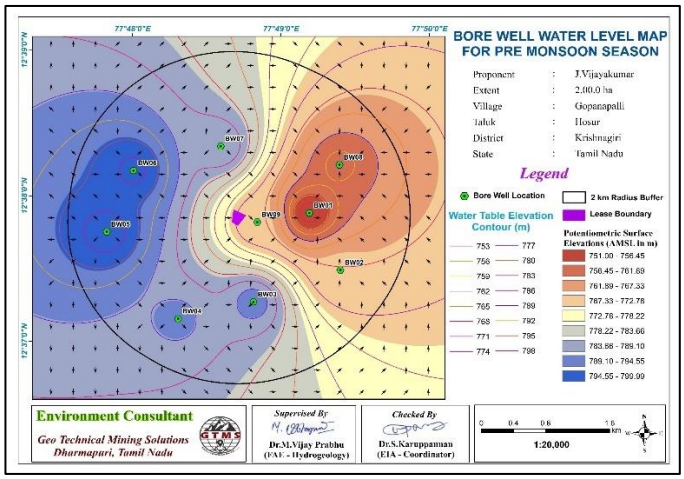


Figure 3.3 Borewell Static Groundwater Elevation Map Showing the Direction of Groundwater Flow During Pre-Monsoon Season

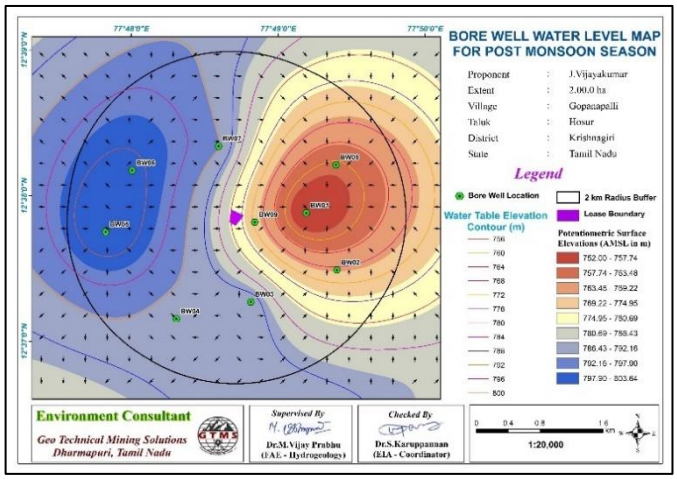


Figure 3.4 Borewell Static Groundwater Elevation Map Showing the Direction of Groundwater Flow During Post-Monsoon Season

3.3 AIR ENVIRONMENT

As per the monitoring data, $PM_{2.5}$ ranges from 14.7 µg/m^3 to 20.2 µg/m^3; PM_{10} from 28.9 µg/m^3 to 35.3 µg/m^3; SO_2 from 6.0 µg/m^3 to 9.3 µg/m^3; NO_2 from 11.2 µg/m^3 to 17.5g/m^3. The concentration levels of the pollutants fall within the acceptable limits of NAAQS prescribed by CPCB.

3.4 NOISE ENVIRONMENT

The noise level in core zone was 42.1 dB (A) Leq during day time and 36.5 dB(A) Leq during night time. Noise levels recorded in buffer zone during day time varied from 32.1 to 40.6dB (A) Leq and during night time from 28.5 to 33.9dB (A) Leq. Thus, the noise level for industrial and residential area meets the requirements of CPCB.

3.5 BIOLOGICAL ENVIRONMENT

The main objective of biological study is to collect the baseline data regarding flora and fauna in the study area and identify ecologically sensitive areas and whether there are any rare, endangered, endemic or threatened (REET) species of flora and fauna in the core zone as well as buffer zone. In core zone, 17 species belonging to 16 families have been recorded from the core mining lease area. Based on habitat classification of the enumerated plants the majority of species were 5 Tree (29%) followed by Herbs & Climbers & Grass 7 (41%), Shrubs 5 (29%). are present in the mining lease area, whereas in buffer zone, 36 species belonging to 25 families have been recorded from the 300 m radius buffer zone. Based on habitat classification of the enumerated plants the majority of species were 7 Tree (19%) followed by Herbs & Climbers & Grass 21 (58%), Shrubs 8 (22%). From the study of biological environment, it is concluded that there was no schedule I species of animals observed within study area as per Wildlife Protection Act, 1972 and no species were found in vulnerable, endangered or threatened category as per IUCN and that there is no endangered red list species found in the study area.

3.6 SOCIO ECONOMIC ENVIRONMENT

The socio-economic study in the study area gives a clear picture of its population, average household size, literacy rate and sex ratio etc. It is also found that a part of population is suffering from a lack of permanent job to run their day-to-day life. Their expectation is to earn some income for their sustainability on a long-term basis. The proposed project will aim to provide preferential employment to the local people there by improving the employment opportunity in the area and in turn the social standards will improve.

3.7 TRAFFIC ENVIRONMENT

Table 3.2 Traffic Survey Locations

Station Code	Road Name	Distance and Direction	Type of Road
TS1	Village Road	1.9 Km-SSE	Village Road
TS2	Hosur – Denkanikottai (SH-17A)	3.01 Km-SW	Hosur – Denkanikottai (SH-17A)
TS3	Rayakottai- Hosur (SH-85)	5.6 km-SE	Rayakottai- Hosur (SH-85)

Source: On-site monitoring by GTMS FAE & TM

Table 3.3 Existing Traffic Volume

Station code	HMV		LMV		2/3 Wheelers		Total PCU
	No	PCU	No	PCU	No	PCU	
TS1	60	180	48	48	78	39	267
TS2	95	285	52	52	94	47	384
TS3	105	315	55	55	105	53	423

Source: On-site monitoring by GTMS FAE & TM

* PCU conversion factor: HMV (Trucks and Bus) = 3, LMV (Car, Jeep and Auto) = 1 and 2/3 Wheelers = 0.5

3.8 SITE SPECIFIC FEATURES

Table 3.4 Details of Environmentally Sensitive Ecological Features in the Study Area

S. No.	Sensitive Ecological Features	Name	Areal Distance in km
1	National Park / Wild life Sanctuaries	None	Nil within 10 km radius
		None	Nil within 10 km radius
2	Reserve Forest	Sanamavu Reserve Forest	6.30 km NE
3	Lakes/Reservoirs/ Dams/Streams/Rivers	Ponnaiyar River	9.71 km NE
		Chinar River	5.65 km SSW
4	Tiger Reserve/Elephant Reserve/ Biosphere Reserve	None	Nil within 10 km radius
5	Critically Polluted Areas	None	Nil within 10 km radius
6	Mangroves	None	Nil within 10 km radius
7	Mountains/Hills	None	Nil within 10 km radius
8	Centrally Protected Archaeological Sites	None	Nil within 10 km radius
9	Industries/ Thermal Power Plants	None	Nil within 10 km radius
10	Defence Installation	None	Nil within 10 km radius

Source: Survey of India Toposheet

CHAPTER IV

ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.0 INTRODUCTION

In order to maintain the environmental commensuration with the mining operation, it is essential to undertake studies on the existing environmental scenario and assess the impact on different environmental components. This would help in formulating suitable management plans for sustainable resource extraction.

4.1 LAND ENVIRONMENT

Anticipated Impact

The proposed project would result in:

- Permanent impact on mineral resources due to removal of 257243 m^3 of rough stone and 29960 m^3 of topsoil in the five years.
- Substantial change to topographic features or significant change in surface relief
- Permanent or temporary change on land use and land cover.
- Problems to agricultural land and human habitations due to dust, and noise caused by movement of heavy vehicles
- Soil erosion and sediment deposition in the nearby water bodies due to earthworks during the rainy season
- Siltation of water course due to wash off from the exposed working area

Mitigation Measures

In order to minimize the adverse effects, the following control measures will be implemented:

- After completion of the quarrying operation, the land will be partially backfilled with dumped material and part of the area will be allowed to collect rainwater which will act as temporary reservoir
- Topsoil will be utilized for greenbelt development in the safety barrier to prevent noise and sound propagation to the nearby lands
- Garland drains will be constructed all around the quarry pit and check dams will be constructed at suitable locations in lower elevations to prevent soil erosion due to surface runoff during rainfall and also to collect the storm water within the proposed area
- Barbed wire fencing will be reconstructed at the conceptual stage
- Security will be posted round the clock, to prevent inherent entry of the public and cattle

4.2 SOIL ENVIRONMENT

Anticipated Impact

This project does not result in any impact on the soil of the project site, as topsoil is neither removed from the project site nor preserved in the safety margin area. However, some of the common mitigation measures have been discussed in the following sections to protect the immediate soil environment surrounding the lease area.

Mitigation Measures

- ❖ The top soil will be preserved in the safety barrier and kept in moisture condition. The preserved topsoil will be utilized for greenbelt development in the safety barrier and utilized for plantation on the top bench
- ❖ Garland drains will be constructed around the project area to arrest any soil from the quarry area being carried away by the rainwater. This will also avoid the soil erosion and siltation in the mining pits and maintaining the stability of the benches
- ❖ Retaining wall with weep hole, garland drain will be provided around the dump areas
- ❖ Proper angle of repose will be maintained
- ❖ Grasses will be grown over the dump areas for stability.

4.3 WATER ENVIRONMENT

Anticipated Impact

- ❖ As the water required for the mining operations, as given in Table 2.10 is obtained from the approved water supplying agency, the project does not develop any abstraction structures in the lease area. Therefore, no impact responsible for the water table declination is anticipated.
- ❖ Surface and ground water resources may be contaminated due to mine pit water discharge, domestic sewage, waste water from vehicle washing, washouts from surface exposure or working areas, discharge of oil & grease, and suspended solids due to waste from washing of machineries. To address this impact, some of the important mitigation measures is provided as below.

Mitigation Measures

- ❖ Garland drainage system and settling tank will be constructed along the proposed mining lease area. The garland drainage will be connected to settling tank and sediments will be trapped in the settling tanks and only clear water will be discharged to the natural drainage
- ❖ Rainwater from the mining pits will be collected in sump and will be allowed to store and pumped out to surface settling tank of 15 m x 10 m x 3 m to remove suspended solids if

any. This collected water will be judiciously used for dust suppression and such sites where dust likely to be generated and for developing green belt. The proponent will collect and judicially utilize the rainwater as part of rainwater harvesting system.

- Benches will be provided with inner slopes and through a system of drains and channels, rain water will be allowed to descent into surrounding drains to minimize the effects of erosion and water logging arising out of uncontrolled descent of water.
- The water collected will be reused during storm for dust suppression and greenbelt development within the mines.
- Interceptor traps/oil separators will be installed to remove oils and greases. Water from the tipper wash-down facility and machinery maintenance yard will be passed through interceptor traps/oil separators prior to its reuse.
- Flocculating or coagulating agents will be used to assist in the settling of suspended solids during monsoon seasons.
- Periodic (every 6 month once) analysis of ground water quality of quarry pit water and ground water of nearby villages will be conducted.
- Domestic sewage from site office and urinals/latrines provided in ML is discharged in septic tank followed by soak pits.
- Waste water discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes.
- De-silting will be carried out before and immediately after the monsoon season.
- Regular monitoring (once every 6 months) and analysing the quality of water in open well, bore wells and surface water.

4.4 AIR ENVIRONMENT

Anticipated Impact

Table 4.1 Incremental and Resultant $PM_{2.5}$

Station ID	Distance to core area (km)	Direction	$PM_{2.5}$ Concentrations(µg/m^3)			Comparison against air quality standard (60 µg/m^3)	Magnitude of change (%)	Significance
			Baseline	Predicted	Total			
AAQ1	--	--	24.0	5.23	29.23	Below Standard	21.79	Not Significant
AAQ2	1.80	W	18.9	1	19.9		5.29	
AAQ3	3.06	SW	21.6	0.5	22.1		2.31	
AAQ4	3.38	NW	22.0	0.5	22.5		2.27	

AAQ5	4.60	SW	16.5	0	16.5		0.00	
AAQ6	1.17	E	15.6	1	16.6		6.41	
AAQ7	4.30	S	20.4	0.5	20.9		2.45	
AAQ8	4.40	NE	19.9	0.5	20.4		2.51	

Table 4.2 Incremental & Resultant GLC of PM_{10}

Station ID	Distance to core area (km)	Direction	PM_{10} Concentrations (µg/m^3)			Comparison against air quality standard (100 µg/m^3)	Magnitude of change (%)	Significance
			Baseline	Predicted	Total			
AAQ1	--	--	44.3	7.92	52.22	Below Standard	17.88	Not Significant
AAQ2	1.80	W	33.4	1	34.4		2.99	
AAQ3	3.06	SW	37.3	0.5	37.8		1.34	
AAQ4	3.38	NW	37.7	0.5	38.2		1.33	
AAQ5	4.60	SW	33.2	0	33.2		0.00	
AAQ6	1.17	E	33.5	1	34.5		2.99	
AAQ7	4.30	S	36.0	0	36		0.00	
AAQ8	4.40	NE	36.4	0.5	36.9		1.37	

Table 4.3 Incremental & Resultant GLC of SO_2

Station ID	Distance to core area (km)	Direction	SO_2 concentrations (µg/m^3)			Comparison against air quality standard (80 µg/m^3)	Magnitude of change (%)	Significance
			Baseline	Predicted	Total			
AAQ1	--	--	10.9	3.18	14.08	Below Standard	29.17	Not Significant
AAQ2	1.80	W	8.2	0.5	8.7		6.10	
AAQ3	3.06	SW	8.4	0.5	8.9		5.95	
AAQ4	3.38	NW	8.7	0.5	9.2		5.75	
AAQ5	4.60	SW	6.4	0	6.4		0.00	
AAQ6	1.17	E	8.3	0.5	8.8		6.02	
AAQ7	4.30	S	7.8	0	7.8		0.00	
AAQ8	4.40	NE	9.1	0.5	9.6		5.49	

Table 4.4 Incremental & Resultant GLC of NOx

Station ID	Distance to core area (km)	Direction	NOx concentrations(µg/m^3)			Comparison against air quality standard (80 µg/m^3)	Magnitude of change (%)	Significance
			Baseline	Predicted	Total			
AAQ1	--	--	20.7	3.99	24.69		19.28	Not Significant
AAQ2	1.80	W	15.6	1	16.6		6.41	
AAQ3	3.06	SW	17.1	0.5	17.6		2.92	
AAQ4	3.38	NW	17.8	0.5	18.3		2.81	
AAQ5	4.60	SW	13.7	0	13.7		0.00	
AAQ6	1.17	E	15.6	0.5	16.1		3.21	
AAQ7	4.30	S	15.1	0	15.1		0.00	
AAQ8	4.40	NE	17.0	0.5	17.5		2.94	

The values of cumulative concentration i.e., background + incremental concentration of pollutant in all the receptor locations are still within the prescribed NAAQ limits without effective mitigation measures. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be controlled further.

Mitigation Measures

- Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation.
- Rough stone will be properly covered with tarpaulin and transported during the day time.
- The speed of tippers plying on the haul road will be limited to below 20 km/hr to avoid generation of dust.
- Main source of gaseous pollution will be from vehicle used for transportation of mineral; therefore, weekly maintenance of vehicles and other machines will be done to improve combustion process and reduce the emission of pollutants.
- The haul roads will be compacted weekly before being put into use.
- Over loading of tippers will be avoided to prevent spillage.
- It will be ensured that all transportation vehicles carry a valid PUC (Pollution Under Control) certificate.
- Trees will be planted all along the main haul roads and haul roads will often be levelled to prevent the generation of dust due to movement of tippers.

- ❖ Green belt of adequate width will be developed around the project areas.
- ❖ Dust masks will be provided to the workers and their use will be strictly monitored.
- ❖ Annual medical check-ups, trainings and campaigns will be arranged to create awareness about the importance of wearing dust masks among all mine workers and tipper drivers.
- ❖ Ambient air quality monitoring will be conducted six months once to assess the effectiveness of mitigation measures proposed for the projects.

4.5 NOISE ENVIRONMENT

Anticipated Impact

Table 4.5 Predicted Noise Incremental Values

Noise Monitoring Location	Distance From Project Site(m)	Baseline Noise Level (dBA)m During Day Time	Predicted Noise Level (dBA)	Total (dBA)
Core	100	42.1	57.16	57.29
Gulisandiram	880	38.9	38.27	41.61
Kallu Barundur	1760	36.9	32.25	38.18
Barandhur	3080	38.7	27.39	39.01
Muduganappalli	3250	40.6	26.92	40.78
Beegisettipalli	4570	36.1	23.96	36.36
Kottur	1210	39.4	35.50	40.89
Kamaiyanur	4310	32.1	24.47	32.79
Angondapalli	4520	39.6	24.06	39.72
NAAQ Standards	Industrial Day Time - 75 dB (A) & Night Time- 70 dB (A) Residential Day Time -55 dB (A) & Night Time- 45 dB (A)			

Total noise level in all the sampling areas is well below the CPCB standards for industrial and residential areas. By adopting suitable mitigation measures, the noise levels due to the project can be controlled further.

Table 4.6 Predicted PPV Values due to Blasting

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in mm/s	Fly rock distance in m	Air Blast	
					Pressure (kPa)	Sound Level (dB)
P1	48	880	0.21	23	0.10	134

Table 4.7 Predicted PPV Values due to Blasting at 100-500 m radius

Location ID	Maximum Charge in kgs	Radial Distance in m	PPV in mm/s	Fly rock distance in m	Air Blast	
					Pressure (kPa)	Sound Level (dB)
P1	48	100	6.98	23	1.36	157
		200	2.30		0.59	149
		300	1.20		0.37	145
		400	0.75		0.26	147
		500	0.53		0.20	140

The peak particle velocity produced by the charge of 48 kg is well below that of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997.

Mitigation Measures

- The blasting operations in the cluster quarries are carried out without deep hole drilling and blasting using delay detonators which reduce the ground vibrations
- Proper quantity of explosives, suitable stemming materials and appropriate delay system will be adopted to avoid overcharging and for safe blasting
- Adequate safe distance from blasting will be maintained as per DGMS guidelines
- Blasting shelter will be provided as per DGMS guidelines
- Blasting operations will be carried out only during day time
- The charge per delay will be minimized and preferably a greater number of delays will be used per blasts
- During blasting, other activities in the immediate vicinity will be temporarily stopped
- Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast
- A fully trained explosives blast man (Mining Mate, Mines Foreman, 2nd Class Mines Manager/ 1st Class Mines Manager) will be appointed
- A set of shot firing rules will be drawn up and blasting shall commence outlining the detailed operating procedures that will be followed to ensure that shot firing operations on site take place without endangering the workforce or public
- Sufficient angular stemming material will be used to confine the explosive force and minimise environmental disturbance caused by venting / misfire

- The detonators will be connected in a predetermined sequence to ensure that only one charge is detonated at any one time and a NONEL or similar type initiation system will be used
- The detonation delay sequence shall be designed so as to ensure that firing of the holes is in the direction of free faces so as to minimise vibration effects
- Appropriate blasting techniques shall be adopted in such a way that the predicted peak particle velocity shall not exceed 1.09mm/s
- Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices.

4.6 ECOLOGY AND BIODIVERSITY

Anticipated Impact on Flora

- The proposed mining activities include removal of some scattered bushes and other thorny species.
- a total of 17 species belonging to 16 families have been recorded from the core mining lease area. Based on habitat classification of the enumerated plants the majority of species were herbs & climbers & grass 7 (41%), shrubs 5 (29%) followed by tree 5 (29%). Details of flora with the scientific name were mentioned in Chapter -III Table.3.21. There shall be negligible air emissions or effluents from the project site. During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly.
- Most of the land in the buffer area is undulating terrain with crop lands, grass patches and small shrubs. Hence, there will be no effect on flora of the region.
- carbon released from quarrying machineries and tippers during quarrying would be 2249 kg per day, 607323 kg per year and 3036613 kg over five years, as provided in Table 4.8.

Table 4.8 Carbon Released During Five Years of Rough Stone Production

	Per day	Per year	Per five years
Fuel consumption of excavator	156	42158	210788
Fuel consumption of compressor	48	12960	64800
Fuel consumption of tipper	635	171495	857477
Total fuel consumption in litters	839	226613	1133064
CO_2 emission in kg	2249	607323	3036613

Mitigation Measures

Mitigation Measures

- During conceptual stage, the top bench will be re-vegetated by planting local /native species and lower benches will be converted into rainwater harvesting structure following

completion of mining activities, which will replace habitat resources for fauna species in this locality over a longer time.

- ❖ Existing roads will be used; new roads will not be constructed to reduce impact on flora.
- ❖ None of the plants in the lease area will be cut during operational phase of the mine. we recommend uprooting and planting of the 10 trees along the 7.5 m safety zone to prevent environmental pollution during quarrying. As the survival rate due to uprooting was only 30%, 100 seedlings will be procured at the rate of 10 seedlings per tree and planted in 7.5 m safety zone.

Carbon Sequestration

- ❖ To mitigate carbon emission due to mining activities, we recommend planting trees around the quarry to offset the carbon emission during quarrying. A tree can sequester 24 kg of carbon per year. Therefore, we recommend planting large number of trees around the quarry and near school campuses, government wasteland, roadsides etc.
- ❖ As per the greenbelt development plan as recommended by SEAC (CHAPTER-III Table 4.14), about 1000 trees will be planted within three months from the beginning of mining. These trees, when grown up would sequester carbon of about 89 kg of the total carbon, as provided in Table 4.12.

Table 4.9 CO_2 Sequestration

CO_2 sequestration in kg	89	23976	119880
Remaining CO_2 not sequestered in kg	2161	583347	2916733
Trees required for environmental compensation	24306		
area required for environmental compensation in hectares	49		

Anticipated Impact on Fauna

- ❖ There is no Wildlife Sanctuary and Biosphere Reserve within 10 km radius of the project site.
- ❖ No rare, endemic & endangered species are reported in the buffer zone. However, during the course of mining, the management will practice scientific method of mining with proper Environmental Management Plan including pollution control measures especially for air and noise, to avoid any adverse impact on the surrounding wildlife.
- ❖ Fencing around all the proposed mine lease areas will be constructed to restrict the entry of stray animals
- ❖ Green belt development will be carried out which will help in minimizing adverse impact on the flora found in the area.

- Wild life is not commonly found in the project area and its immediate environs because of lack of vegetal cover and surface water.

Mitigation Measures

- All the preventive measures will be taken for growth & development of fauna.
- Creating and development awareness for nature and wildlife in the adjoin villages.
- The workers shall be trained to not harm any wildlife, should it come near the project site. No work shall be carried out after 6.00 pm.
- Undertaking mitigative measures for conducive environment to the flora and fauna in consultation with Forest Department.
- Dust suppression system will be installed within mine and periphery of mine for proposed project
- Plantation around mine area will help in creating habitats for small faunal species and to create better environment for various fauna. Creating and developing awareness for nature and wildlife in the adjoining villages.

Aquatic Biodiversity

Mining activities will not disturb the existing aquatic ecology as there is no effluent discharge proposed from the rough stone quarry. There is no natural perennial surface water body within the mine lease area. Hence, aquatic biodiversity is not observed in the mine lease area.

4.7 SOCIO ECONOMIC ENVIRONMENT

Anticipated Impact

- The project will generate employment for about 18 persons
- Dust generation from mining activity can have negative impact on the health of the workers and people in the nearby area.
- Approach roads can be damaged by the movement of tippers

Mitigation Measures

- Good maintenance practices will be adopted for plant machinery and equipment to avert potential noise problems.
- Green belt will be developed in and around the project sites as per Central Pollution Control Board (CPCB) guidelines.
- Appropriate air pollution control measure will be provided to minimize the environmental impact within the core zone.
- For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices will be provided as per the mines act and rules.

- Both the State and the Central governments will be benefited through financial revenues by way of royalty, tax, DMF, NMET etc. from the projects directly and indirectly.

4.8 OCCUPATIONAL HEALTH MEASURES

All the persons will undergo pre-employment and periodic medical examination. Employees will be monitored for occupational diseases by conducting the following tests

- General physical tests
- Audiometric tests
- Full chest, X-ray, Lung function tests, Spiro metric tests
- Periodic medical examination – yearly
- Lung function test – yearly, those who are exposed to dust
- Eye test

Essential medicines will be provided at the site. The medicines and other test facilities will be provided at free of cost. The first aid box will be made available at the mine for immediate treatment. First aid training will be imparted to the selected employees regularly. The lists of first aid trained members shall be displayed at strategic places.

CHAPTER V
ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

The mineral deposits are site specific in nature; hence question of seeking alternate sites do not arise for the projects.

CHAPTER VI
ENVIRONMENT MONITORING PROGRAM

Regular monitoring program of environmental components is essential to take into account the changes in the environmental components as shown in Table 6.1. The Objectives of monitoring is:

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

Table 6.1 Post Environmental Clearance Monitoring Schedule

S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	2 locations (1 core & 1buffer)	24 hours	Once in 6 months	Fugitive dust, $PM_{2.5}$, PM_{10}, SO_2 and NO_x.
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 locations (1SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in BGL
5	Noise	2 locations (1Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting Operation	Peak Particle Velocity
7	Soil	2 locations (1 core & 1 Buffer)	–	Once in 6 months	Physical and Chemical Characteristics
8	Greenbelt	Within the Project Area	Daily	Monthly	Maintenance

Source: Guidance of manual for mining of minerals, February 2010

6.2 BUDGETARY PROVISION FOR EMP

The cost in respect of monitoring of environmental components has been shown in Table 6.2.

Table 6.2 Environment Monitoring Budget

S. No.	Parameter	Capital Cost	Recurring Cost per annum
1	Air Quality	-	Rs. 60,000/-
2	Meteorology	-	Rs. 15,000/-
3	Water Quality	-	Rs. 20,000/-
4	Water Level Monitoring		Rs. 10,000/-
5	Soil Quality	-	Rs.20,000/-
6	Noise Quality	-	Rs.10,000/-
7	Vibration Study	-	Rs.1,50,000/-
8	Greenbelt	-	Rs.10,000/-
Total		-	**Rs.2,95,000 /-**

Source: Field Data

CHAPTER VII

ADDITIONAL STUDIES

7.1 RISK ASSESSMENT

Risk assessment is all about prevention of accidents and to take necessary steps to prevent it from happening. The methodology for the risk assessment is based on the specific risk assessment guidance issued by the Directorate General of Mine Safety (DGMS), Dhanbad vide circular no.13 of 2002 dated 31st December 2002. The DGMS risk assessment process is intended to identify existing and probable hazards in the work environment and assess the risk levels of those hazards in order to prioritize those that need an immediate attention. Further, mechanisms responsible for these hazards are identified and control measures are recorded along with pinpointed responsibilities. The whole quarry operation will be carried out under the direction of a qualified competent mine manager certified by the DGMS, Dhanbad.

7.2 DISASTER MANAGEMENT PLAN

The objective of the disaster management plan is to make use of the combined resources of the mine and the outside services to:

- ❖ Rescue and treat casualties;
- ❖ Safeguard other people;
- ❖ Minimize damage to property and the environment;
- ❖ Initially contain and ultimately bring the incident under control;

- ❖ Secure the safe rehabilitation of affected area; and
- ❖ Preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of the emergency.

7.3 CUMULATIVE IMPACT STUDY

- ❖ The results on the cumulative impact of the 6 proposed projects on air environment of the cluster do not exceed the permissible limits set by CPCB for air pollutants.
- ❖ The cumulative results of noise for the habitation in consideration do not exceed the limit set by CPCB for residential areas for day time.
- ❖ PPV resulting from 6 proposed projects is well below the permissible limit of Peak Particle Velocity of 8 mm/s.
- ❖ The 6 proposed projects will allocate Rs. 30,00,000 /- towards CER as recommended by SEAC.
- ❖ The 6 proposed projects will directly provide jobs to about 108 local people.
- ❖ The proposed projects will plant about 6900 saplings in and around the lease area.
- ❖ The proposed projects will add an average of 864 PCU per day to the nearby roads.

7.4 PLASTIC WASTE MANAGEMENT PLAN

The Project Proponent shall comply with Tamil Nadu Government Order (Ms) No. 84 Environment and Forest (EC.2) Department Dated: 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986.

Objective

- ❖ To investigate the actual supply chain network of plastic waste.
- ❖ To identify and propose a sustainable plastic waste management by installing bins for collection of recyclables with all the plastic waste
- ❖ Preparation of a system design layout, and necessary modalities for implementation and monitoring.

S. No.	Activity	Responsibility
1	Framing of Layout Design by incorporating provision of the Rules, user fee to be charged from waste generators for plastic waste management, penalties/fines for littering, burning plastic waste or committing any other acts of public nuisance	Mines Manager
2	Enforcing waste generators to practice segregation of bio-degradable, recyclable and domestic hazardous waste	Mines Manager

3	Collection of plastic waste	Mines Foreman
4	Setting up of Material Recovery Facilities	Mines Manager
5	Segregation of Recyclable and Non-Recyclable plastic waste at Material Recovery Facilities	Mines Foreman
6	Channelization of Recyclable Plastic Waste to registered recyclers	Mines Foreman
7	Channelization of Non-Recyclable Plastic Waste for use either in Cement kilns, in Road Construction	Mines Foreman
8	Creating awareness among all the stakeholders about their responsibility	Mines Manager
9	Surprise checking's of littering, open burning of plastic waste or committing any other acts of public nuisance	Mine Owner

CHAPTER VIII

PROJECT BENEFITS

Various benefits are envisaged due to the proposed mine and benefits anticipated from the proposed project to the locality, neighbourhood, region and nation as a whole are:

- Direct employment to 18 local people
- Rain water harvesting structures to augment the water availability for irrigation and plantation and ground water recharge
- Creation of community assets (infrastructure) like school buildings, village roads/ linked roads, dispensary & health Centre, community Centre, market place etc.,
- Strengthening of existing community facilities through the Community Development Program
- Skill development & capacity building like vocational training
- Awareness program and community activities, like health camps, medical aids, sports & cultural activities, plantation etc.,
- CSR activities mainly contributing to education, health, training of women self-help groups and infrastructure etc., will be taken up in the Gopanapalli Village. CSR budget is allocated as 2.5% of the profit.
- Rs. 5,00,000 will be allocated for CER.

CHAPTER X

ENVIRONMENT MANAGEMENT PLAN

In order to implement the environmental protection measures, an amount of **Rs. 1962000** as capital cost and recurring cost as **Rs. 1823056** as recurring cost/annum is proposed considering present market price considering present market scenario for the proposed project. After the adjustment of 5% inflation per year, the overall EMP cost for 5 years will be **Rs. 12035536.**

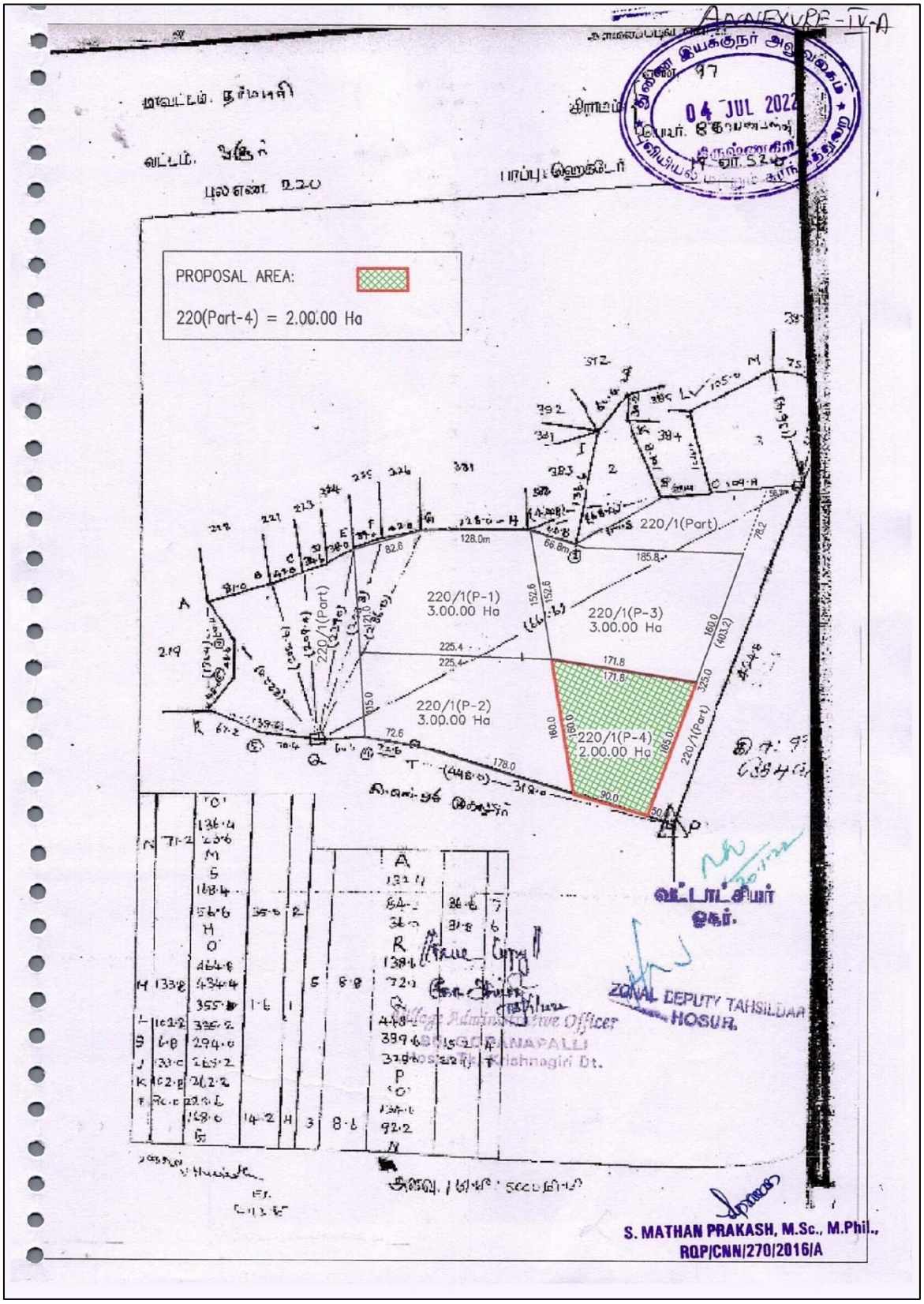
CHAPTER XI

CONCLUSION

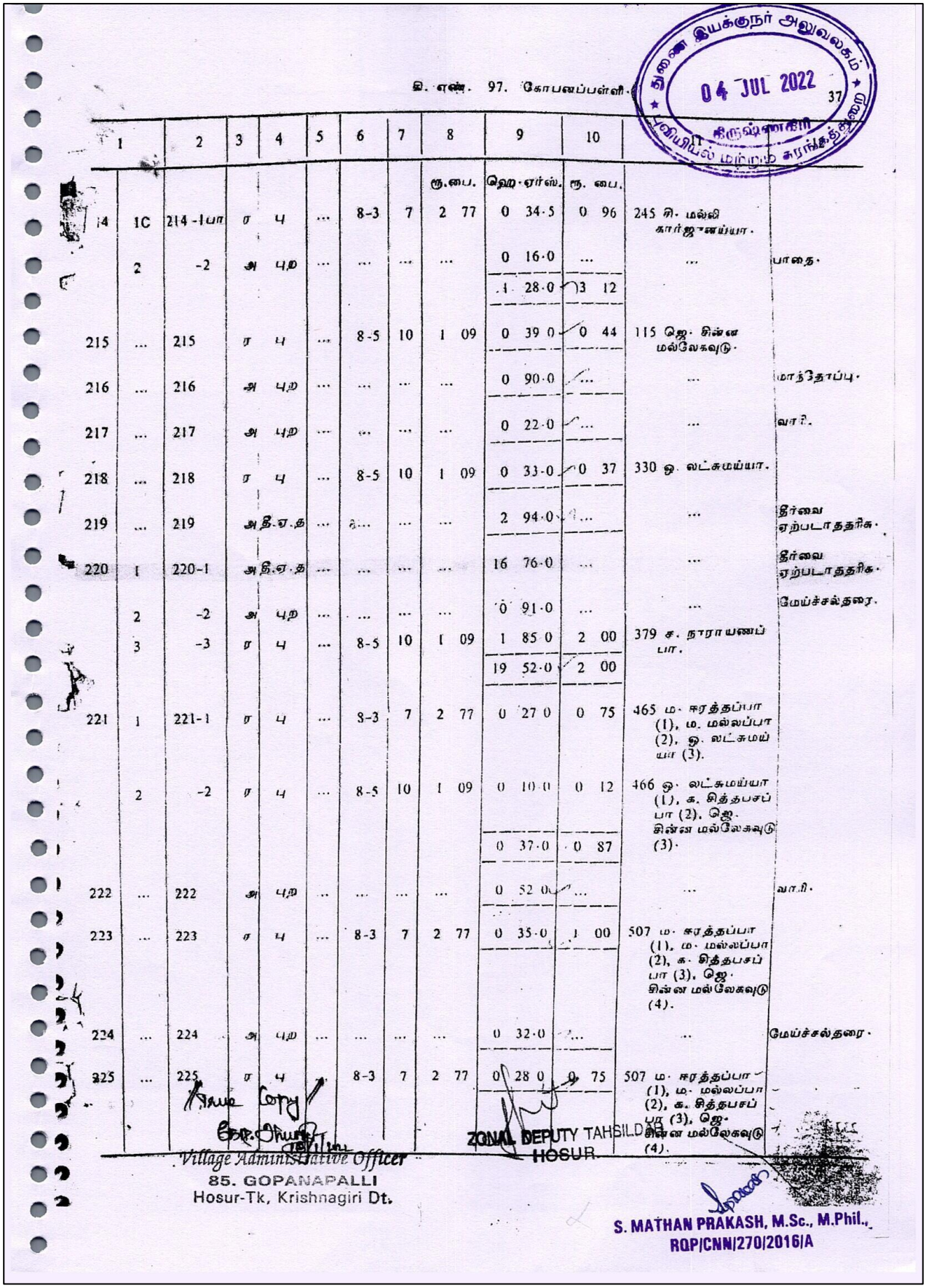
Various aspects of mining activities were considered and related impacts were evaluated. Considering all the possible ways to mitigate the environmental issues, environmental management plan (EMP) was prepared and fund has been allocated for the same. The EMP is dynamic, flexible and subjected to periodic review. For project where the major environmental impacts are associated, EMP will be under regular review. Senior management responsible for the project will conduct a review of EMP and its implementation to ensure that the EMP remains effective and appropriate. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area

LAND DOCUMENTS

Some of the important land related documents are shown in below.



An FMP sketch showing proposed lease area in red colour



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217	...	217	அ	புற	...	...	...	...	0 22·0	...	...	வரி.
218	...	218	ர	பு	...	8-5	10	1 09	0 33·0	0 37	330 ஓ. லட்சுமய்யா.	
219	...	219	அ	தி.ஏ.த	...	...	...	...	2 94·0	...	...	தீர்வை ஏற்படாததரிசு.
220	1	220-1	அ	தி.ஏ.த	...	...	...	...	16 76·0	...	...	தீர்வை ஏற்படாததரிசு.
	2	-2	அ	புற	...	...	...	...	0 91·0	...	...	மேய்ச்சல்தரை.
	3	-3	ர	பு	...	8-5	10	1 09	1 85 0	2 00	379 ச. நாராயணப்பா.	
									19 52·0	2 00		
221	1	221-1	ர	பு	...	8-3	7	2 77	0 27 0	0 75	465 ம. ஈரத்தப்பா (1), ம. மல்லப்பா (2), ஓ. லட்சுமய்யா (3).	
	2	-2	ர	பு	...	8-5	10	1 09	0 10·0	0 12	466 ஓ. லட்சுமய்யா (1), க. சித்தபசப்பா (2), ஜெ. சின்ன மல்லேகவுடு (3).	
									0 37·0	0 87		
222	...	222	அ	புற	...	...	...	...	0 52 0	...	...	வரி.
223	...	223	ர	பு	...	8-3	7	2 77	0 35·0	1 00	507 ம. ஈரத்தப்பா (1), ம. மல்லப்பா (2), க. சித்தபசப்பா (3), ஜெ. சின்ன மல்லேகவுடு (4).	
224	...	224	அ	புற	...	...	...	...	0 32·0	...	...	மேய்ச்சல்தரை.
225	...	225	ர	பு	...	8-3	7	2 77	0 28 0	0 75	507 ம. ஈரத்தப்பா (1), ம. மல்லப்பா (2), க. சித்தபசப்பா (3), ஜெ. சின்ன மல்லேகவுடு (4).	

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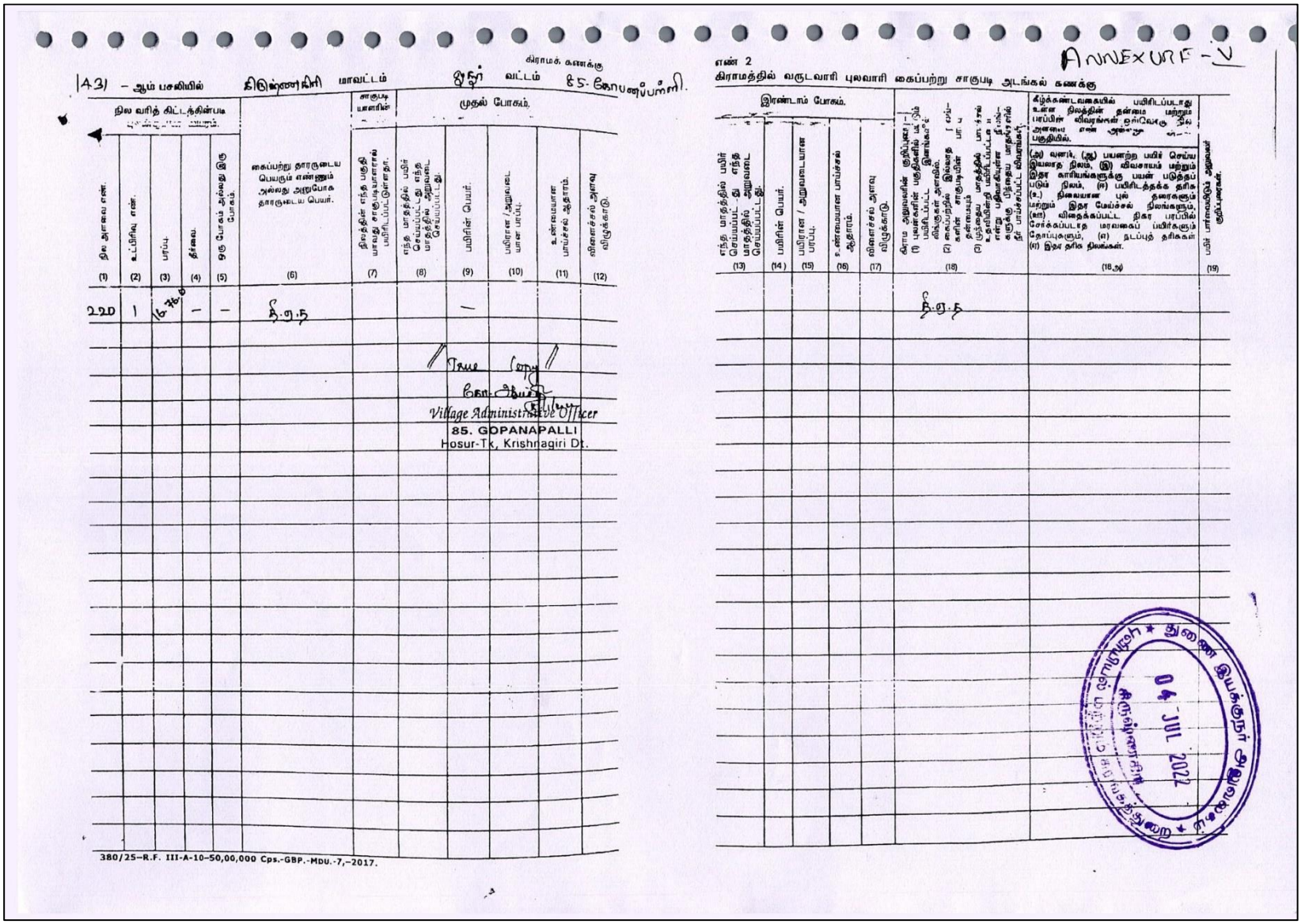
ZONAL DEPUTY TAHSILDAR
HOSUR.

S. MATHAN PRAKASH, M.Sc., M.Phil.,
RQP/CNN/270/2016/A

A Register Document



கிராமக் கணக்கு

431 – ஆம் பசலியில் திருவண்ணாமலை மாவட்டம் ஜமுர் வட்டம் 85. கோபனப்பள்ளி.

நில வரித் திட்டத்தின்படி					கைப்பற்று தாரருடைய பெயரும் எண்ணும் அல்லது அநுபோக தாருடைய பெயர்.	சாகுபடியாளரின்	முதல் போகம்.				இரண்டாம் போகம்.					கீழ்க்கண்டவகையில் பயிரிடப்படாத உள்ள நிலத்தின் தன்மை மற்றும் பயிரிடா விவரங்கள் ஒவ்வொரு நில அளவை எண் அல்லது பகுதியில்.	பயிர் பார்வையிடும் அலுவலர் குறிப்புகள்.
நில அளவை எண்.	உட்பிரிவு எண்.	பரப்பு.	தீர்வை.	ஒரு போகம் அல்லது இரு போகம்.		நிலத்தின் எந்த பகுதி யாரது சாகுபடியாளரால் பயிரிடப்பட்டுள்ளதோ.	எந்த மாதத்தில் பயிர் செய்யப்பட்டது அறுவடை மாதத்தில் செய்யப்பட்டது.	பயிரின் பெயர்.	பயிரான / அறுவடை யான பரப்பு.	உண்மையான பாய்ச்சல் ஆதாரம்.	விளைச்சல் ஆளவு விழுக்காடு.	எந்த மாதத்தில் பயிர் செய்யப்பட்டது அறுவடை மாதத்தில் செய்யப்பட்டது.	பயிரின் பெயர்.	பயிரான / அறுவடையான பரப்பு.	உண்மையான பாய்ச்சல் ஆதாரம்.	விளைச்சல் ஆளவு விழுக்காடு.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
220	1	1.50	–	–	தி.ஏ.த			–									தி.ஏ.த	

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ANNEXURE - V

எண் 2

கிராமத்தில் வருடவாரி புலவாரி கைப்பற்று சாகுபடி அடங்கல் கணக்கு

(அ) வனம், (ஆ) பயனற்ற பயிர் செய்ய இயலாத நிலம், (இ) விவசாயம் மற்றும் இதர காரியங்களுக்கு பயன் படுத்தப் படும் நிலம், (ஈ) பயிரிடத்தக்க தரிசு (உ.) நிலவரான புல் தரைகளும் மற்றும் இதர மேய்ச்சல் நிலங்களும், (ஊ) விதைக்கப்பட்ட நிகர பரப்பில் சேர்க்கப்பட்ட மரவகைப் பயிர்களும் தோப்புகளும், (எ) நடப்புத் தரிசுகள் (ஏ) இதர தரிசு நிலங்கள்.

04 JUL 2022

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