EXECUTIVE SUMMARY OF ENVIRONMENTAL IMPACT ASSESSMENT
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 = 11.46.5 hectares

THIRU. P. DEVARAJ ROUGH STONE AND GRAVEL QUARRY

At

Kuppam Village, Pugalur Taluk,

Karur District, Tamil Nadu State

ToR letter No. SEIAA-TN/F.No.9653/ToR-1458/2023 Dated:15.05.2023.

NAME AND ADDRESS OF THE PROPOSED PROJECT PROPONENT

Name and Address	Extent & S.F.No
Thiru. P. Devaraj S/o. Pitchaimuthu, Pullaiyampalayam, Punnamchatram Post, Pugalur Taluk, Karur-639 136.	2.27.5 ha & 104/1, 104/2A(Part), 104/2B1(Part), 105/1A(Part) & 105/2

ENVIRONMENTAL CONSULTANT

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Valid till: Dec 31, 2023

ENVIRONMENTAL LAB

EXCELLENCE LABORATORY

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Baseline Study Period – October-December, 2022

CHAPTER I

INTRODUCTION

As the proposed rough stone and gravel mining project, known as P1 falls within the 500 m radius cluster of quarries with the total extent of >5 ha (**i.e., 11.46.5 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 only two proposed projects, known as P1 & P2 and one existing project known as E1 and two expired projects known as EX1 and EX2. All the projects mentioned above have been taken for cluster extent calculation as per MoEF & CC Notification S.O. 2269 (E) Dated 1st July 2016, as shown in Figure 1.1.

This EIA draft discusses the cumulative impacts of 2 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 Kuppam Village, Pugalur Taluk, Karur District and Tamil Nadu State. In compliance with ToR obtained vide Letter No. SEIAA-TN/F.No.9653/SEAC/ToR-1458/2023 Dated 15.05.2023, this EIA report has been prepared for the project proponent, Mr. P. Devaraj applied for rough stone and gravel quarry lease in the Patta land falling in S.F.No.104/1, 104/2A(Part), 104/2B1(Part), 105/1A(Part) & 105/2 over an extent of 2.27.5 ha in Kuppam Village, Pugalur Taluk, Karur District and Tamil Nadu. This EIA report takes into account the rough stone quarries within the cluster of 500 m radius from the periphery of the proposed project site. The cluster contains two proposed projects, known as P1, P2 and One Existing project, known as E1 and two Expired Projects Known as EX1, EX2. All the projects mentioned above have been taken for cluster extent calculation as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016. The total extent of all the quarries is 11.46.5 ha, also known as the cluster extent. The quarries involved in the calculation of cluster extent are shown in Figure 1.1.

Table 1.1 Details of Project Proponent

Name of the Project Proponent	**Mr. P. Devaraj**
Address	S/o. Mr. Pitchaimuthu, Pullaiyampalayam, Punnamchatram Post, Pugalur Taluk, Karur District-639136
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/ Village**	**Extent ha)**	**Status**
P1	Thiru.P. Devaraj	104/1, 104/2A(Part), 104/2B1(Part), 105/1A(Part) & 105/2 Kuppam	2.27.5	Proposed Area
P2	Thiru.N. Sakthivel	105/1B(P), 112/1A(P), 112/2A(P) Kuppam	3.87.0	Applied Area
Existing Quarry				
E1	Thiru.M.Arunachalam	104/2B2, 104/2B3 Kuppam	1.37.5	21.02.2018 to 20.02.2023
Expired Quarries				
EX1	Tmt.T.Sathiya	1287/1, 1287/3 Kuppam	1.83.0	31.07.2017 To 30.07.2022
EX2	Thiru.P. Marappan	74, 75/3B Kuppam	2.11.5	14.10.2016 To 13.10.2021
	Total Cluster Extent		**11.46.5**	---

Source:

DD Letter - Rc.No.743/Mines/2019, Dated:05.12.2022.

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

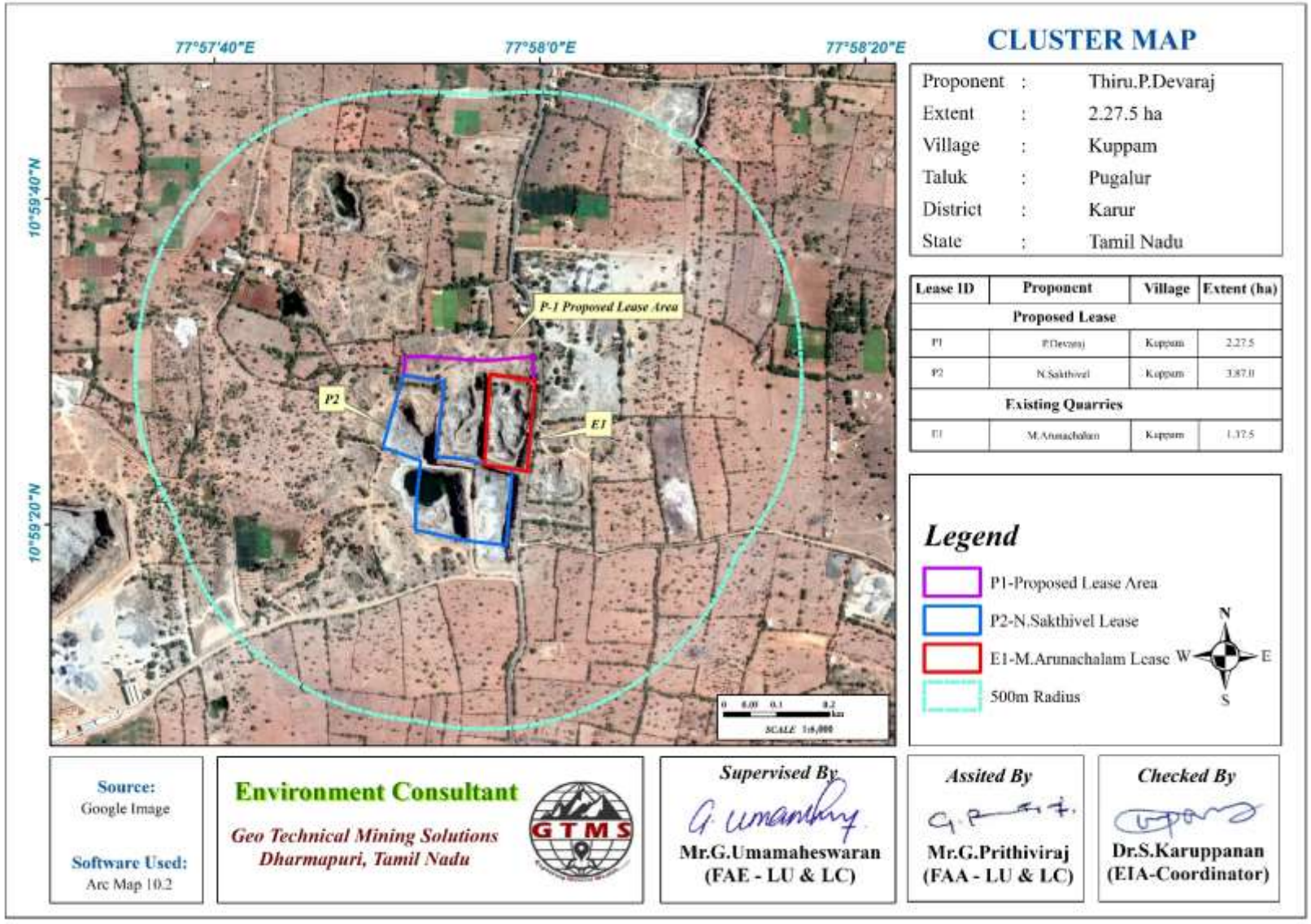


Figure 1.1 Location of the Proposed and Existing Rough Stone and Gravel Quarries in the Cluster of 500m Radius

CHAPTER II

PROJECT DESCRIPTION

The proposed project deals with excavation of rough stone and gravel which is primarily used in construction projects. The method adopted for rough stone and gravel excavation is an open cast manual 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 **10°59'23.69"N to 10°59'30.32"N** and from longitudes from **77°57'51.60"E to 77°57'59.63"E** in Kuppam Village, Pugalur Taluk, and Karur District. The project site is a Patta land with the extent of **2.27.5 ha** owned by the project proponent. The proponent had applied for quarry lease on 10.12.2019 to extract rough stone and gravel and obtained the precise area communication letter issued by Department of Geology and Mining, Karur vide **Rc.No.743/Mines/2019, dated:15.09.2022.** 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, Karur **Rc.No.743/Mines/2019, dated:16.11.2022.**

According to the approved mining plan, about **106213 m^3** of rough stone and about **8136 m^3** of gravel will be mined up to the depth of **35 m BGL** in the first five years. To achieve the estimated production, 4 jack hammers, 2 compressor, 1 excavator with bucket/rock breaker, and 5 tippers will be deployed. To operate the machineries and to break the rough stone to preferred dimension, about **14 persons** will be employed. At the end of the quarry life, the dimension of the ultimate pit will be **142 m*41 m*35** m and about **1.60.0 ha** of land would have been quarried; the progressive quarry closure plan of the proposed project shows present and future land use statistics. According to the land use results, At Present about 1.08.5 ha of land is used for quarrying; about 1.08.0 ha of land is unutilized; about 0.08.0 of land is used for green belt and the rest will be used for roads and infrastructure. Whereas, at the end of the mine life, about 1.60.0 ha of land is used for quarrying; about 0.01.38 ha of land is unutilized; about 0.51.64 ha of land is used for green belt and 0.03.0 will be used for roads and 0.02.0 is used for infrastructure; The final mine closure plan shows that about Rs. 7,73,500 with the annual recurring cost of Rs. 68,250 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	Pillar ID	Latitude	Longitude
1	10°59’30.32’’N	77°57’59.54’’E	8	10°59’28.76’’N	77°57’54.15’’E
2	10°59’28.82’’N	77°57’59.63’’E	9	10°59’29.15’’N	77°57’51.60’’E
3	10°59’29.23’’N	77°57’56.94’’E	10	10°59’30.31’’N	77°57’51.76’’E
4	10°59’23.69’’N	77°57’56.59’’E	11	10°59’30.32’’N	77°57’52.90’’E
5	10°59’24.01’’N	77°57’55.31’’E	12	10°59’30.09’’N	77°57’55.80’’E
6	10°59’24.16’’N	77°57’53.61’’E	13	10°59’30.06’’N	77°57’56.94’’E
7	10°59’28.54’’N	77°57’54.12’’E			

Table 2.2 Site Connectivity to the Project Area

Nearest Roadways	SH-84 Karur - Kodumudi	2.63 km N
	NH-81 Karur - Vellakoil	3.61 km S
Nearest Town	K. Paramathy	7.8 km SW
Nearest Railway Station	Pugalur	7.2km NE
Nearest Airport	Tiruchirappalli	85.0 km E
Nearest Seaport	Tuticorin	245.0 km S

2.1 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	Gravel in m^3
Geological Resource in m^3	586025	15550
Mineable Reserves in m^3	106213	8136
Proposed production for 5 years m^3	106213	8136

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 in (m^3)	Gravel in (m^3)
I	21943	8136
II	20500	--
III	24340	---
IV	20460	---
V	18970	---
Total	**106213**	**8136**

2.2 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	1.08.5	1.60.0
Infrastructure	0.01.0	0.02.0
Roads	0.02.0	0.03.0
Green Belt	0.08.0	0.51.64
Drainage & Settling Tank	Nil	0.09.48
Unutilized area	1.08.0	0.01.38
Total	**2.27.5**	**2.27.5**

Source: Approved mining plan

2.3 METHOD OF MINING

The quarrying operation is proposed to be carried out by open cast manual mining method involving drilling, blasting, and formation of benches. Machineries proposed for this project have been given in Table 2.6.

2.4 PROPOSED MACHINERY DEPLOYMENT

List of machineries proposed for the quarrying operation is given in Table 2.6.

Table 2.6 Proposed Machinery Deployments

S. No.	Type	No of Unit	Capacity	Make	Motive Power
1	Jack Hammers	4	Hand held	-	Diesel Drive
2	Compressor	2	Air	-	Diesel Drive
3	Excavator	1	-	-	Diesel Drive

Table 2.7 Conceptual Blasting Design

Blasthole Diameter (D) in mm	32
Burden (B) in m	2
Spacing (S) in m	1.45
Subdrill in m	0.6
Charge length (C) in m	0.30
Stemming	2
Hole Length (L) in m	2.9
Bench Height (BH) in m	2.3
Mass of explosive/hole in g	187.5
Stemming material size in mm	3.2
Burden stiffness ratio	1.15
Blast volume/hole in m3	6.67

Production of rough stone/day in m3	79
Number of blastholes/day	12
Blasthole pattern	Staggered
Mass of explosive /day in kg	2.21
Powder factor in kg/m3	0.03
Loading density	0.63
Type of explosives	Slurry
Diameter of packaging in mm	25
Initiation system	NONEL
Fly rock distance in m	18

Table 2.8 Fuel Requirement Details

Fuel Requirement for Excavator			
Details	**Rough Stone ($106213m^3$)**	**Gravel ($8136\ m^3$)**	**Total Diesel (litre)**
Average Rate of Fuel Consumption (l/hr)	16	10	---
Working Capacity (m^3/hr)	20	60	---
Time Required (hours)	5311	136	---
Total Diesel Consumption for 5 years (litre)	84970	1356	86326
Fuel Requirement for Compressor			
Average Rate of Fuel Consumption/hole (litre)	0.4	---	---
Number of Drillholes/day	12	---	---
Total Diesel Consumption for 5 years (litre)	6480	---	6480
Fuel Requirement for Tipper			
Average Rate of Fuel Consumption/Trip (litre)	20	20	---
Carrying Capacity in m^3	6	6	---
Number of Trips / days	13	1*	---
Number of Trips / 5 years	17702	1356	---
Total Diesel Consumption for 5 years (litre)	354043	27120	381163
Total Diesel Consumption by Excavator, Compressor and Tipper			**473970**

** Number of truck loads for gravel has been normalized for 5 years.*

Table 2.9 Capital Requirement Details

S. No.	**Description**	**Cost (Rs.)**
1	Fixed Asset Cost	15,50,000/-
2	Machinery cost	--
3	EMP Cost	13,36,700/-
Total Project Cost		**28,86,700/-**

Source: Approved Mining Plan

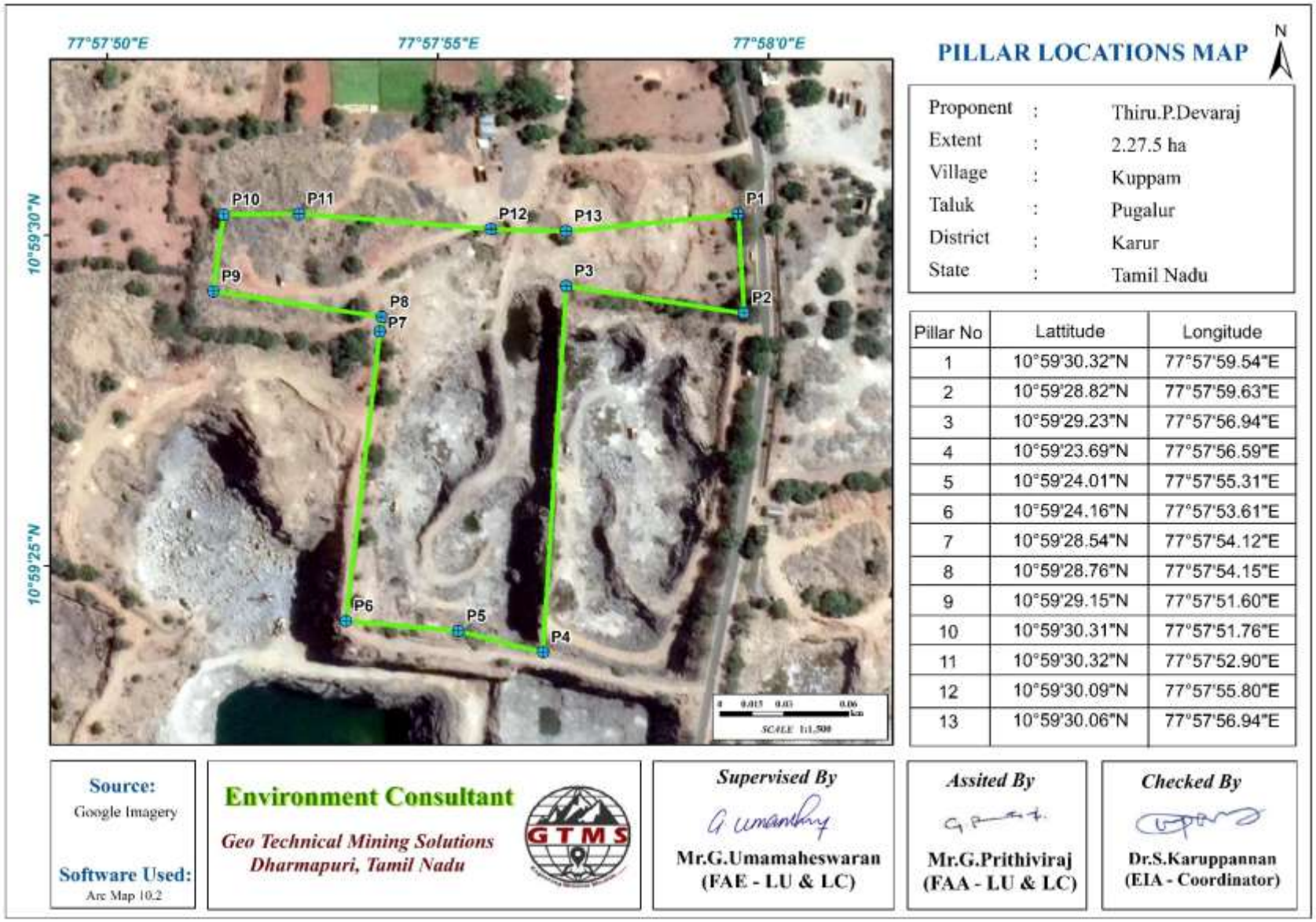


Figure 2.1 Google Earth Image Showing Lease Area with Pillars

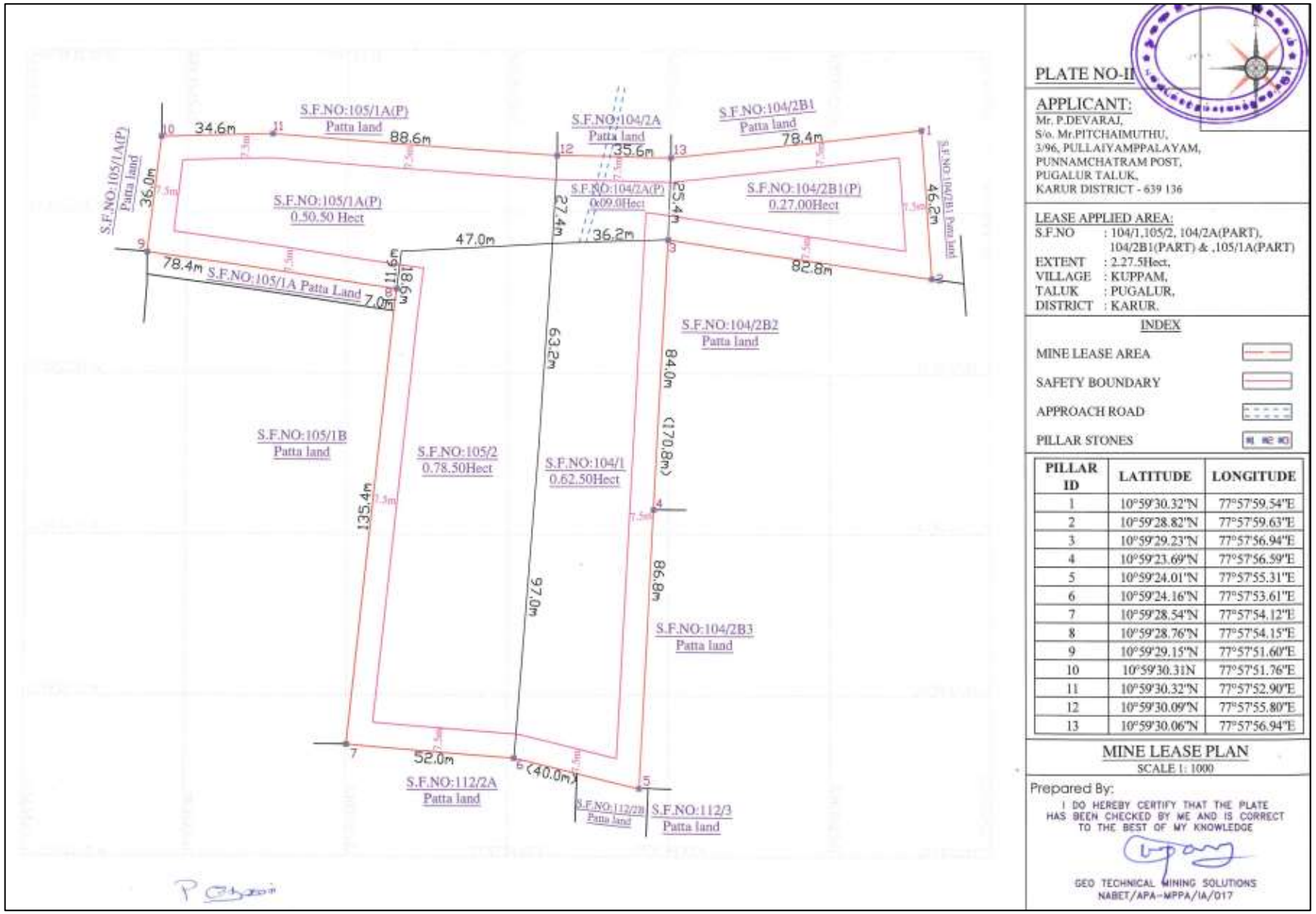


Figure 2.2 Mine Lease Plan

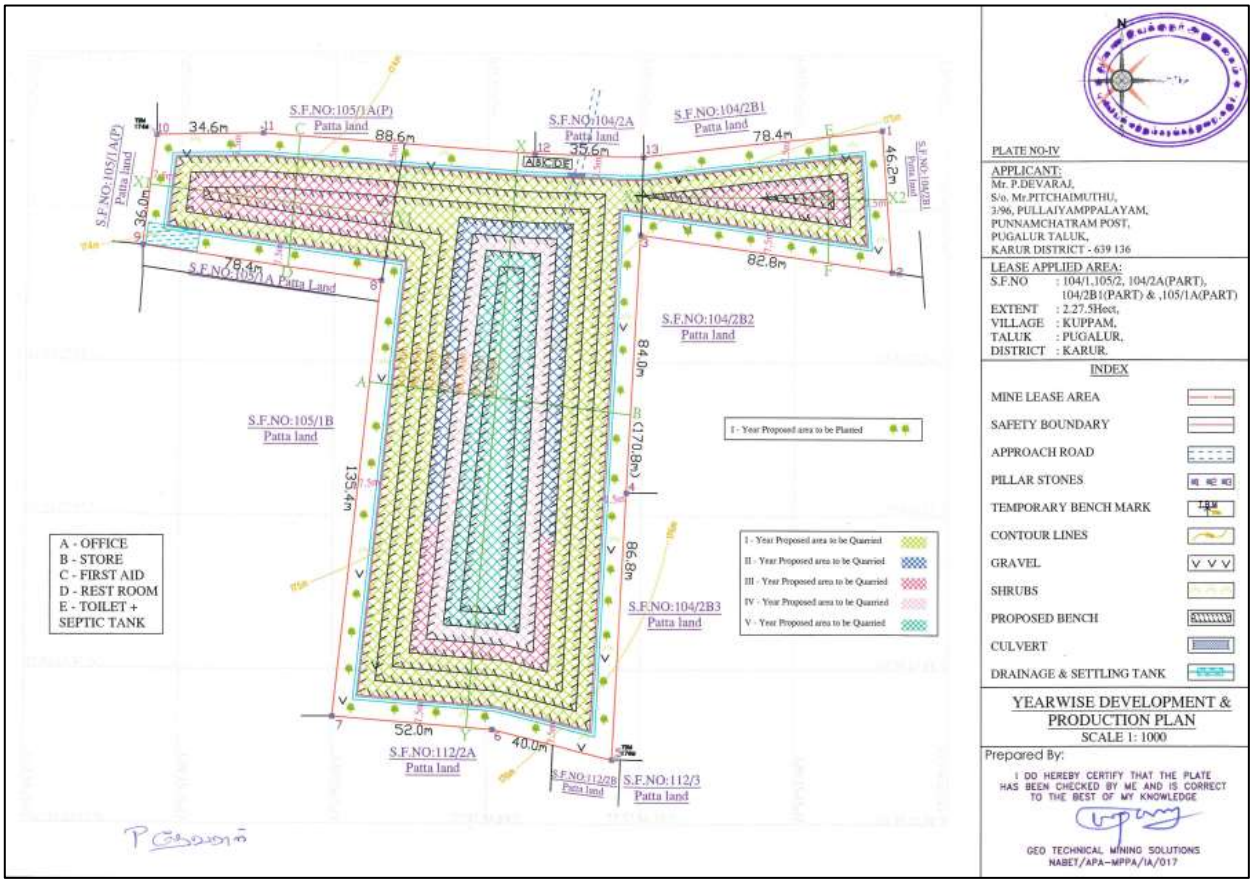


Figure 2.3 Yearwise Development and Production Plan

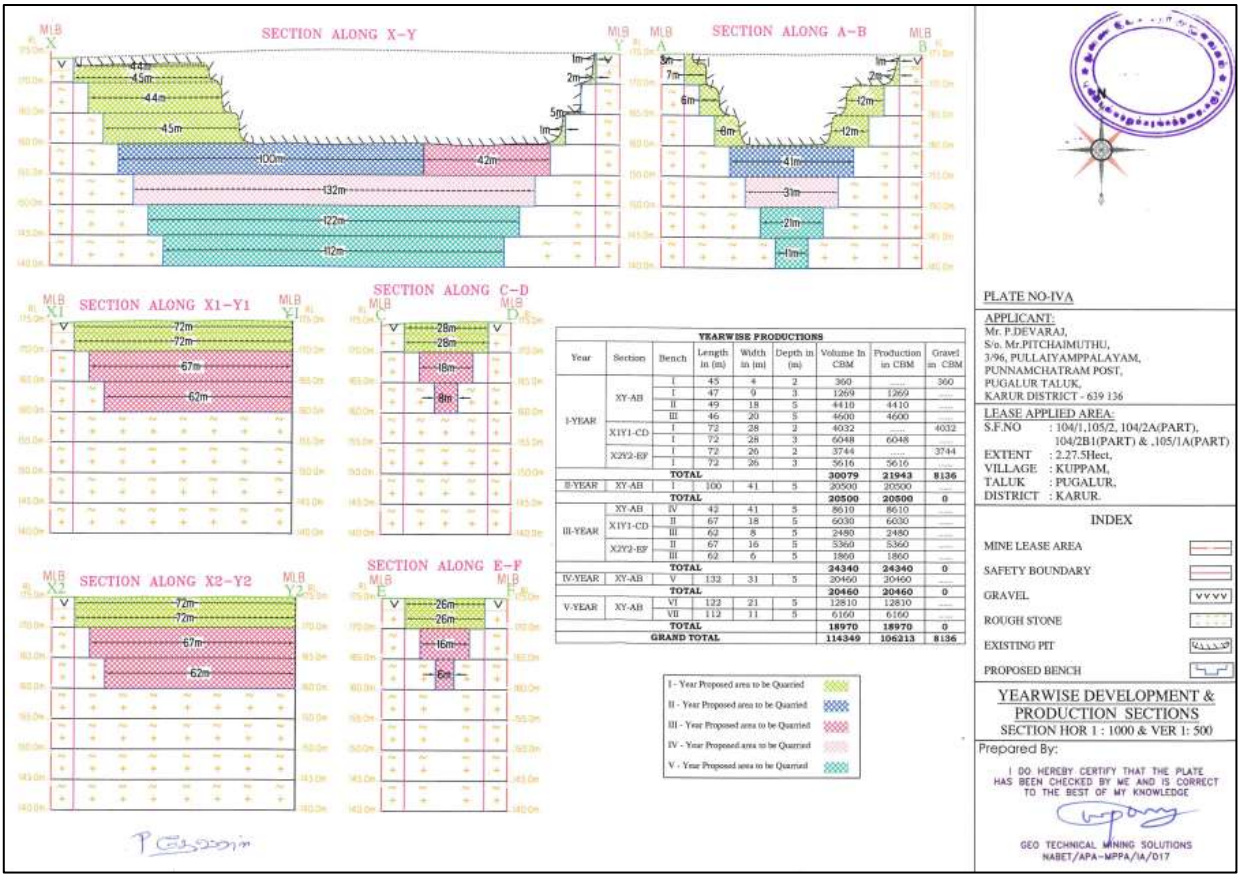


Figure 2.3a Yearwise Development and Production Sections

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**
455 plants inside the lease area	91000	13650
683 plants outside the lease area	204750	20475
Wire Fencing (2.27.5 ha)	455000	22750
Renovation of Garland Drain (2.27.5 ha)	22750	11375
Total	**773500**	**68250**

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 October through December, 2022 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	7022.03	90.68
2	Dense Forest	71.98	0.92
3	Fallow Land	190.05	2.45
4	Mining/Industrial lands	219.58	2.83
5	Plantations	234.49	3.02
6	Settlements	5.29	0.07
Total		**7743.44**	**100.0**

Source: Sentinel II Satellite Imagery

3.2 SOIL ENVIRONMENT

Eight 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 sandy loam, to silty clay loam. pH of the soil varies from 6.5 to 7.7 indicating slightly acidic to slightly alkaline nature. Electrical conductivity of the soil varies from 161 to 338 µs/cm. Bulk density ranges between 1.4 and 9.2 g/cm^3 and organic matter ranges between to 4.2 %.

Chemical Characteristics

Calcium ranges between 301 and 513 mg/kg. Magnesium ranges between 110 and 180 mg/kg. Sulphate ranges between 0.15 and 0.73 %. Potassium ranges between 0.12 and 0.16 %.

Organic matter content ranges between 0.25 and 4.2 % and Iron ranges between 7845 and 37397 mg/kg.

3.3 WATER ENVIRONMENT

Surface Water

Ground Water Resources

- The pH of the water samples ranges from 6.7 to 7.9.
- TDS are found in the range between 560 and 1753 mg/l.
- The total hardness varies between 204 and 1022 mg/l.
- Calcium varies from 58 to 146 mg/l.
- Magnesium from 14 to 75 mg/l.
- Nitrate varies from 1.9 to 6.3 mg/l.
- Chloride varies from 175 to 297 mg/l;
- Sulphate from 102 to 247 mg/l; and fluoride from 0.19 to 1.2 mg/l.
- When speaking about microbiological parameters, the water samples from all the locations meet the requirement.

Results for ground water samplesindicate 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

As the groundwater moves from the points of highest static groundwater elevation to the points of lowest static groundwater elevation under the influence of gravity, 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 October through December, 2021 (Post-Monsoon) and March through May -2022 (Pre-Monsoon) season. The dug well data thus collected onsite According to the data, average depths to the static water table in open wells range from 14.4 to 17.2 m BGL in post monsoon and from 10.6 to 14.1 m BGL in pre monsoon.

The bore well data thus collected onsite the average depth to static potentiometric surface in borewells for the period of March through Oct-2021 through Dec-2021 (Post Monsoon Season) is 63.4 to 70.7 m and for the period of March through May-2022 (Pre-Monsoon Season) is 62.3 to 67.3 m. The depths to static water table and potentiometric surface data were

used to calculate static groundwater table and potentiometric surface elevations for open wells and borewells, respectively to draw contour lines connecting groundwater elevation (also known as equipotential hydraulic head) to determine the groundwater flow direction perpendicular to the contour lines.

The maps thus produced are shown in Figures 3.1-3.4 From the maps of groundwater flow direction, it is understood that most of the open well groundwater for the post- and pre-monsoon seasons flows towards the open well number 6 located in SW of the proposed project sites and that most of the borewell groundwater for the two monsoon seasons flows towards the bore well number 1 located in N of the proposed project sites. On the basis of the groundwater flow information, both open wells and bore wells mentioned above can be chosen for water quality monitoring purpose as the wells may get easily affected by the contaminants resulting from the mining activities of the sites in future.

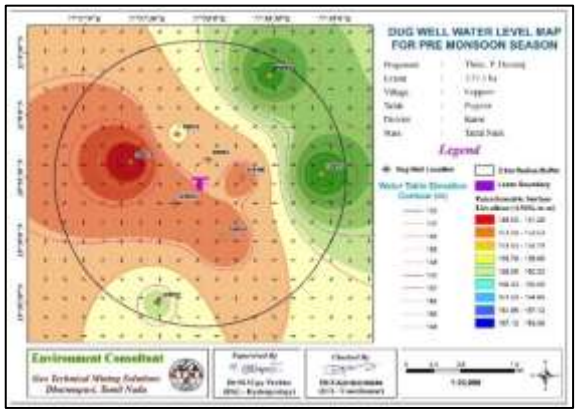


Figure 3.1 Open well static groundwater elevation map showing the direction of groundwater flow during pre-monsoon season

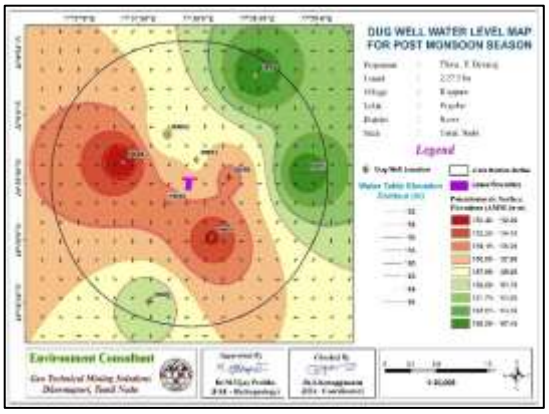


Figure 3.2 Open well static groundwater elevation map showing the direction of groundwater flow during post-monsoon season

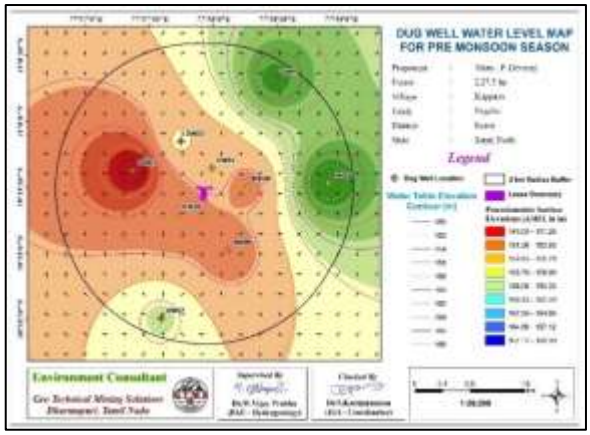


Figure 3.3 Dug well static groundwater elevation map showing the direction of groundwater flow during pre-monsoon season

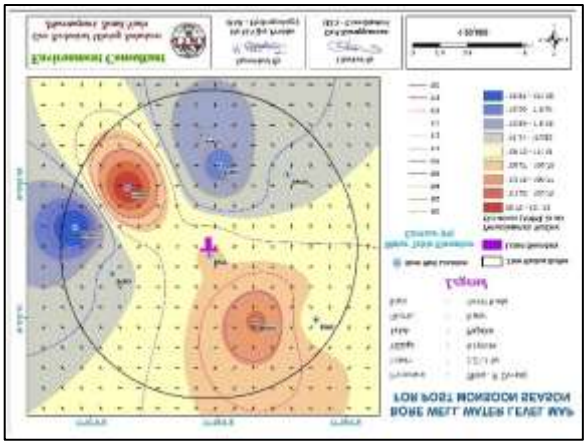


Figure 3.4 Dug well static groundwater elevation map showing the direction of groundwater flow during post-monsoon season

3.4 AIR ENVIRONMENT

The existing ambient air quality of the area is important for evaluating the impact of mining activities on the ambient air quality. The baseline studies on air environment include identification of specific air pollution parameters and their existing levels in ambient air. The ambient air quality with respect to the study zone of 5 km radius around the cluster forms the baseline information.

Ambient Air Quality

As per the monitoring data, $PM_{2.5}$ ranges from 17.9 µg/m^3 to 23.0 µg/m^3; PM_{10} from 37.1 µg/m^3 to 42.3 µg/m^3; SO_2 from 6.8µg/m^3 to 10.1µg/m^3; NO_X from 14.8 µg/m^3 to 21.2 µg/m^3. The concentration levels of the pollutants fall within the acceptable limits of NAAQS prescribed by CPCB.

3.5 NOISE ENVIRONMENT

Ambient noise levels were measured at 09 locations around the proposed project area. The Noise levels in core zone was 41.4 dB (A) Leq. during day time and 31.8 dB (A) Leq. during night time and that noise levels in buffer zone varied from 36.2 to 43.8 dB (A) Leq. during day time and from 30.1 to 40.1 dB (A) Leq. during night time. Thus, the noise level for industrial and residential area meets the requirements of CPCB.

3.6 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. 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.

3.7 SOCIO ECONOMIC ENVIRONMENT

Socio-economic study is an essential part of environmental study. It includes demographic structure of the area, provision of basic amenities viz., housing, education, health and medical services, occupation, water supply, sanitation, communication, transportation, prevailing diseases pattern as well as features like temples, historical monuments etc., at the baseline level. This will help in visualizing and predicting the possible impact depending upon the nature and magnitude of the project. It is expected that the socio-economic status of the area will substantially improve because of this proposed project. As the proposed project will

provide direct and indirect employment and improve the infrastructural facilities in that area, thus leading to the improvement of their standard of living.

3.8 TRAFFIC DENSITY

Table 3.2 Traffic Survey Locations

Station Code	Road Name	Distance and Direction	Type of Road
TS1	Village Road	0.55 Km-N	Village Road
TS2	Erode to Karur Road (SH-84)	2.65 Km-NNE	Erode to Karur Road (SH-84)
TS3	Karappalayam to Kattur Road (NH-67)	4.06 km-SW	Karappalayam to Kattur Road (NH-67)

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	35	105	38	38	68	34	177
TS2	114	342	45	45	101	51	438
TS3	181	543	55	55	117	59	657

Source: On-site monitoring by GTMS FAE & TM

3.9 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
2	Reserve Forest	Thathampalayam R.F.	6.68 km SE
3	Lakes/Reservoirs/ Dams/Streams/Rivers	Cauvery river	7.94 km North
		Noyyal river	8.56 km SE
		Amaravathi river	8.10 km NW
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	Notified Archaeological Sites	None	Nil within 10 km radius
9	Industries/ Thermal Power Plants	TNPL Paper Mill	7.51 km NE
10	Defence Installation	None	Nil within 10 km radius

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

- Permanent or temporary change on land use and land cover.
- Change in topography of the mine lease area will change at the end of the life of the mine.
- Problems to agricultural land and human habitations due to dust, and noise caused by movement of heavy vehicles
- Degradation of the aesthetic environment of the core zone due to quarrying
- 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

- The mining activity will be gradual confined in blocks and excavation will be undertaken progressively along with other mitigate measures like phase wise development of greenbelt etc.
- Construction of garland drains all around the quarry pits and construction of check dam at strategic location in lower elevations to prevent erosion due to surface runoff during rainfall and also to collect the storm water for various uses within the proposed area.
- Green belt development along the boundary within safety zone. The small quantity of water stored in the mined-out pit will be used for greenbelt
- Thick plantation will be carried out on unutilized area, top benches of mined out pits, on safety barrier, etc.,
- At conceptual stage, the land use pattern of the quarry will be changed into Greenbelt area and temporary reservoir.
- In terms of aesthetics, natural vegetation surrounding the quarry will be retained (such as in a buffer area i.e., 7.5 m safety barrier and other safety provided) so as to help minimize dust emissions.

- Proper fencing will be carried out 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

No top soil will be removed in this project. However, some of the common mitigation measures is discussed in the following sections.

Mitigation Measures

- Run-off diversion – Garland drains will be constructed around the project boundary to prevent surface flows from entering the quarry works areas and will be discharged into vegetated natural drainage lines, or as distributed flow across an area stabilised against erosion.
- Sedimentation ponds - Run-off from working areas will be routed towards sedimentation ponds. These trap sediment and reduce suspended sediment loads before runoff is discharged from the quarry site. Sedimentation ponds should be designed based on runoff, retention times, and soil characteristics. There may be a need to provide a series of sedimentation ponds to achieve the desired outcome.
- Retain vegetation – Retain existing or re-plant the vegetation at the site wherever possible.
- Monitoring and maintenance – Weekly monitoring and daily maintenance of erosion control systems so that they perform as specified specially during rainy season.

4.3 WATER ENVIRONMENT

Anticipated Impact

- Generation of waste water from vehicle washing.
- Washouts from surface exposure or working areas
- Domestic sewage
- Disturbance to drainage course in the project area
- Mine Pit water discharge
- Increase in sediment load during monsoon in downstream of lease area.
- This being a mining project, there will be no process effluent, waste from washing of machinery may result in discharge of oil & grease, suspended solids.
- The Sewage from soak pit may percolate to the ground water table and contaminate it.
- Surface drainage may be affected due to Mining.

- As the proposed project acquires 1.7KLD of water from water vendors, it will not extract water by developing abstraction structures in the lease area. Therefore, the project will not deplete aquifer beneath the lease area.

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

Anticipated increase of the air pollutants due to quarrying activities have been predicted using AERMOD software and the results shown in Tables 4.1 to 4.4 will be used in providing mitigation measures.

Table 4.1 Incremental and Resultant $PM_{2.5}$

Station ID	Distance to core area (km)	Direction	$PM_{2.5}$ concentrations(µg/m³)			Comparison against air quality standard (60 µg/m³)	Magnitude of change (%)	Significance
			Base line	Predicted	Total			
AAQ1	0.04	N	20.2	6.49	26.69	Below standard	32.13	Not significant
AAQ2	2.00	SE	23.2	5	28.2		21.55	
AAQ3	2.60	SW	21.0	0	21		0.00	
AAQ4	3.34	SW	16.0	0	16		0.00	
AAQ5	4.32	SW	20.7	0	20.7		0.00	
AAQ6	2.81	SW	21.4	0.5	21.9		2.34	
AAQ7	4.12	S	19.7	0	19.7		0.00	
AAQ8	5.00	E	21.9	0.5	22.4		2.28	

Table 4.2 Incremental and Resultant PM_{10}

Station ID	Distance to core area (km)	Direction	PM_{10} concentrations(µg/m³)			Comparison against air quality standard (100 µg/m³)	Magnitude of change (%)	Significance
			Base line	Predicted	Total			
AAQ1	0.04	N	41.7	10.4	52.1	Below standard	24.94	Not significant
AAQ2	2.00	SE	40.8	5	45.8		12.25	
AAQ3	2.60	SW	39.3	0.5	39.8		1.27	
AAQ4	3.34	SW	37.0	0	37		0.00	
AAQ5	4.32	SW	38.8	0	38.8		0.00	
AAQ6	2.81	SW	39.7	0.5	40.2		1.26	
AAQ7	4.12	S	39.7	0	39.7		0.00	
AAQ8	5.00	E	40.0	0.5	40.5		1.25	

Table 4.3 Incremental & Resultant SO_2

Station ID	Distance to core area (km)	Direction	SO_2 concentrations ($\mu g/m^3$)			Comparison against air quality standard (80 $\mu g/m^3$)	Magnitude of change (%)	Significance
			Base line	Predicted	Total			
AAQ1	0.04	N	8.4	4.51	12.91	Below standard	53.69	Not significant
AAQ2	2.00	SE	9.9	1	10.9		10.10	
AAQ3	2.60	SW	9.2	0	9.2		0.00	
AAQ4	3.34	SW	7.0	0	7		0.00	
AAQ5	4.32	SW	8.4	0	8.4		0.00	
AAQ6	2.81	SW	8.7	0.5	9.2		5.75	
AAQ7	4.12	S	6.6	0	6.6		0.00	
AAQ8	5.00	E	8.7	0.5	9.2		5.75	

Table 4.4 Incremental & Resultant NO_X

Station ID	Distance to core area (km)	Direction	NO_X concentrations ($\mu g/m^3$)			Comparison against air quality standard (80 $\mu g/m^3$)	Magnitude of change (%)	Significance
			Base line	Predicted	Total			
AAQ1	0.04	N	15.6	4.06	19.66	Below standard	26.03	Not significant
AAQ2	2.00	SE	19.6	1	20.6		5.10	
AAQ3	2.60	SW	18.2	0	18.2		0.00	
AAQ4	3.34	SW	11.0	0	11		0.00	
AAQ5	4.32	SW	18.5	0	18.5		0.00	
AAQ6	2.81	SW	17.8	0.5	18.3		2.81	
AAQ7	4.12	S	22.6	0	22.6		0.00	
AAQ8	5.00	E	22.2	0.5	22.7		2.25	

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

Drilling

To control dust at source, wet drilling will be practiced. Where there is a scarcity of water, suitably designed dust extractor will be provided for dry drilling along with dust hood at the mouth of the drill-hole collar.

Advantages of Wet Drilling

- In this system dust gets suppressed close to its formation. Dust suppression becomes very effective and the work environment will be improved from the point of view of occupational comfort and health
- Due to dust free atmosphere, the life of engine, compressor etc., will be increased
- The life of drill bit will be increased
- The rate of penetration of drill will be increased. Due to the dust free atmosphere visibility will be improved resulting in safer working conditions.

Blasting

- Suitable time of blasting will be chosen according to the local conditions and water will be sprinkled on blasting face.
- Blasting will be avoided when temperature inversion is likely to occur and strong wind blows towards residential areas.
- Controlled blasting will be carried out using suitable explosive charge and short delay detonators, adequate stemming of holes at collar zone
- Blasting will be restricted to a particular time of the day i.e., at the time of lunch hours.
- Before loading of material water will be sprayed on blasted material.
- Dust mask will be provided to the workers and their use will be strictly monitored.

Haul Road and Transportation

- Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation
- Transportation of material will be carried out during day time and material will be covered with tarpaulin
- The speed of tippers plying on the haul road will be limited to < 20 km/hr to avoid generation of dust
- Water sprinkling on haul roads and loading points will be carried out twice a day
- Main source of gaseous pollution will be from vehicle used for transportation of mineral; therefore, weekly maintenance of machines improves combustion process and reduces pollution

- ❖ The un-metaled haul roads will be compacted weekly before being put into use
- ❖ Overloading of tippers will be avoided to prevent spillage
- ❖ It will be ensured that all transportation vehicles carry a valid PUC certificate
- ❖ Haul roads and service roads will be graded to clear accumulation of loose materials

Green Belt

- ❖ Planting of trees all along main mine haul roads and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of tractors/tippers
- ❖ Green belt of adequate width will be developed around the project site

Occupational Health

- ❖ Dust mask will be provided to the workers and their use will be strictly monitored
- ❖ Annual medical checkups, trainings and campaigns will be arranged to ensure awareness about importance of wearing dust masks among all mine workers and tipper drivers
- ❖ Ambient air quality monitoring will be conducted every six months to assess effectiveness of mitigation measures proposed

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 Zone	100	41.4	39.38	43.52
Pullaiyampalayam	550	39.4	24.57	39.54
VST Blue metals Core	2010	41.6	13.32	41.61
Near Ponvinayaga Blue Metals	2600	41.2	11.08	41.20
Andisangilipalayam	3340	36.2	8.90	36.21
Punnam Velayuthampalayam	4320	39.6	6.67	39.60
Punnam Chattiram	2810	42.6	10.41	42.60
Pavithiram	4120	43.8	7.08	43.80
Nochipalayam	5000	41.3	5.40	41.30
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	2.2	550	0.039	18	0.00	107

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	2.2	100	0.595	18	0.03	125
		200	0.196		0.01	117
		300	0.103		0.01	113
		400	0.065		0.01	110
		500	0.045		0.00	108

The peak particle velocity produced by the charge of 2.2 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 0.251mm/s
- ❖ Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices.

4.6 BIOLOGICAL ENVIRONMENT

Anticipated Impact

- 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
- The species in the lease area include herbs (7), trees (06), shrubs (05), climbers (02), creepers (01), grass (02). Quarry lease area has the highest abundance of Prosophis juliflora followed by Azadirachta indica, Tectona grandis and Borassus flabellifer. Trees are few and shrubs and herbs are more than trees.
- 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 948kg per day, 256074 kg per year and 1280369 kg over five years.

Table 4.8 Carbon Released During Five Years of Rough Stone and Gravel Production

	Per day	**Per year**	**Per five years**
Fuel consumption of excavator	64	17265	86326
Fuel consumption of compressor	7.6	2052	10260
Fuel consumption of tipper	282	76233	381163
Total fuel consumption in liters	354	95550	477750
Co_2 emission in kg	948	256074	1280369

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.

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, about 2183 trees will be planted within three months from the beginning of mining. These trees, when grown up would sequester carbon of about 101 kg of the total carbon, as provided in Table

Table 4.9 CO_2 Sequestration

CO_2 sequestration in kg	101	27273	136364
Remaining CO_2 not sequestered in kg	840	226775	1133875
Trees required for environmental compensation	9533		
Area required for environmental compensation in hectares	19		

4.7 SOCIO ECONOMIC ENVIRONMENT

Anticipated Impact

- 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
- Increase in Employment opportunities both direct and indirect thereby increasing economic status of people of the region.

Mitigation Measures

- Good maintenance practices will be adopted for all machinery and equipment, which will help to avert potential noise problems.
- Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines.
- Air pollution control measure will be taken 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 mines act and rules.

- Benefit to the State and the Central governments through financial revenues by way of royalty, tax, duties, etc.., from this project directly and indirectly.
- From above details, the quarry operations will have highly beneficial positive impact in the area

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, Spirometric 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 & 1 Buffer)	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 m BGL
5	Noise	2 Locations (1 Core & 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 six months	Physical and chemical characteristics
8	Greenbelt	Within the project area	Daily	Monthly	Maintenance

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

6.1 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 all operations and assess the risk levels of those hazards in order to prioritize those that need immediate attention. Further, mechanisms responsible for these hazards are identified and their control measures, set to timetable are recorded along with pinpointed responsibilities. The whole quarry operation will be carried out under the direction of a Qualified Competent Mine Manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad for proposed project.

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 medical treatment of 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 two 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 two proposed projects is well below the permissible limit of Peak Particle Velocity of 8 mm/s.
- The two proposed project will allocate Rs.10,00,000/- towards CER as recommended by SEAC.
- The two proposed projects will directly provide jobs to about 31 local people.
- The proposed projects will plant about 2458 saplings in and around the lease area.
- The proposed projects will add 132 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.

Table 7.1 Action Plan to Manage Plastic Waste

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 14 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 Kuppam Village. CSR budget is allocated as 2.5% of the profit.
- Rs. 5,00,000 will be allocated for CER.

CHAPTER IX

ENVIRONMENT MANAGEMENT PLAN

Not Applicable, Since Environmental Cost Benefit Analysis not recommended at the Scoping stage.

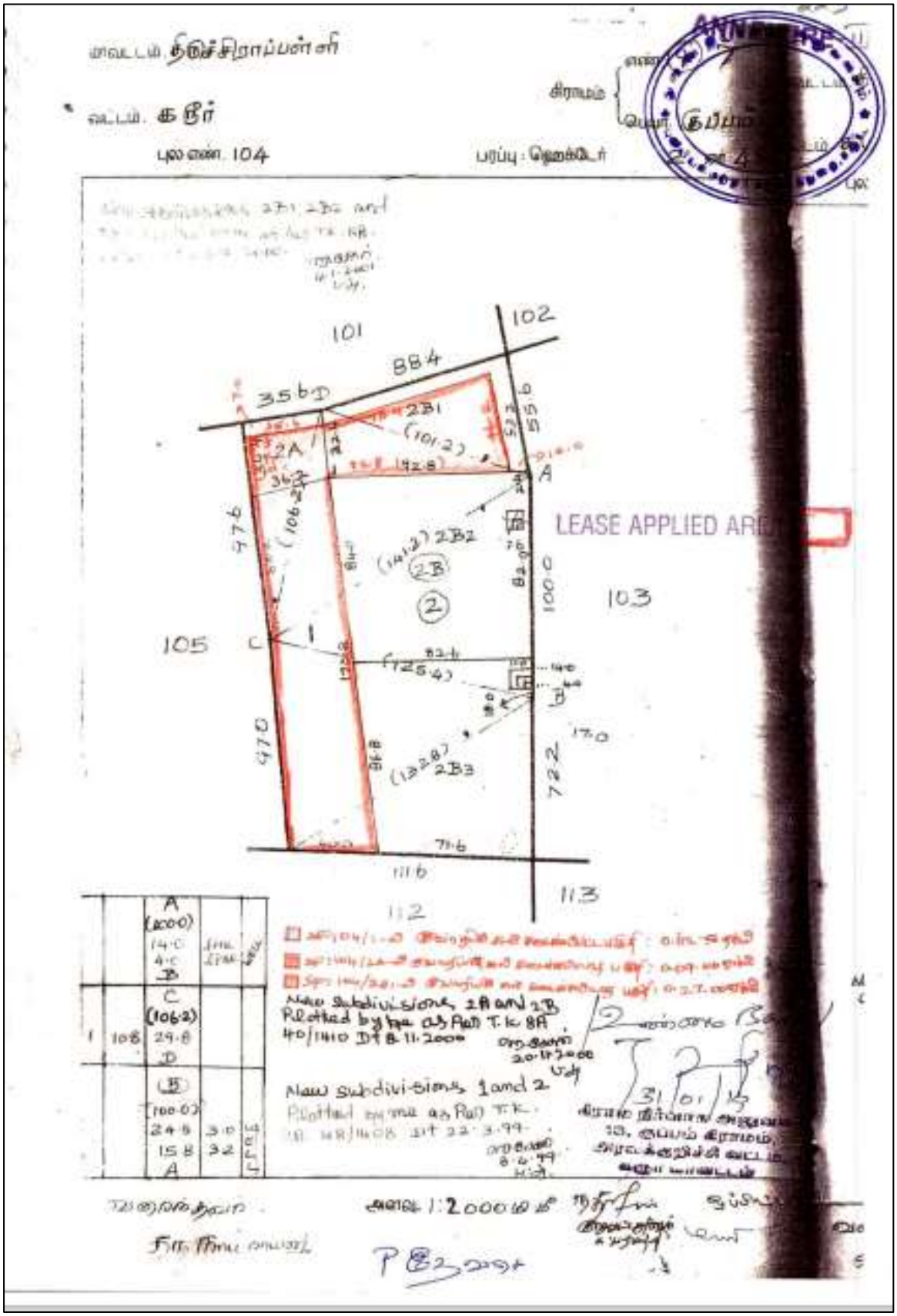
CHAPTER X

ENVIRONMENT MANAGEMENT PLAN

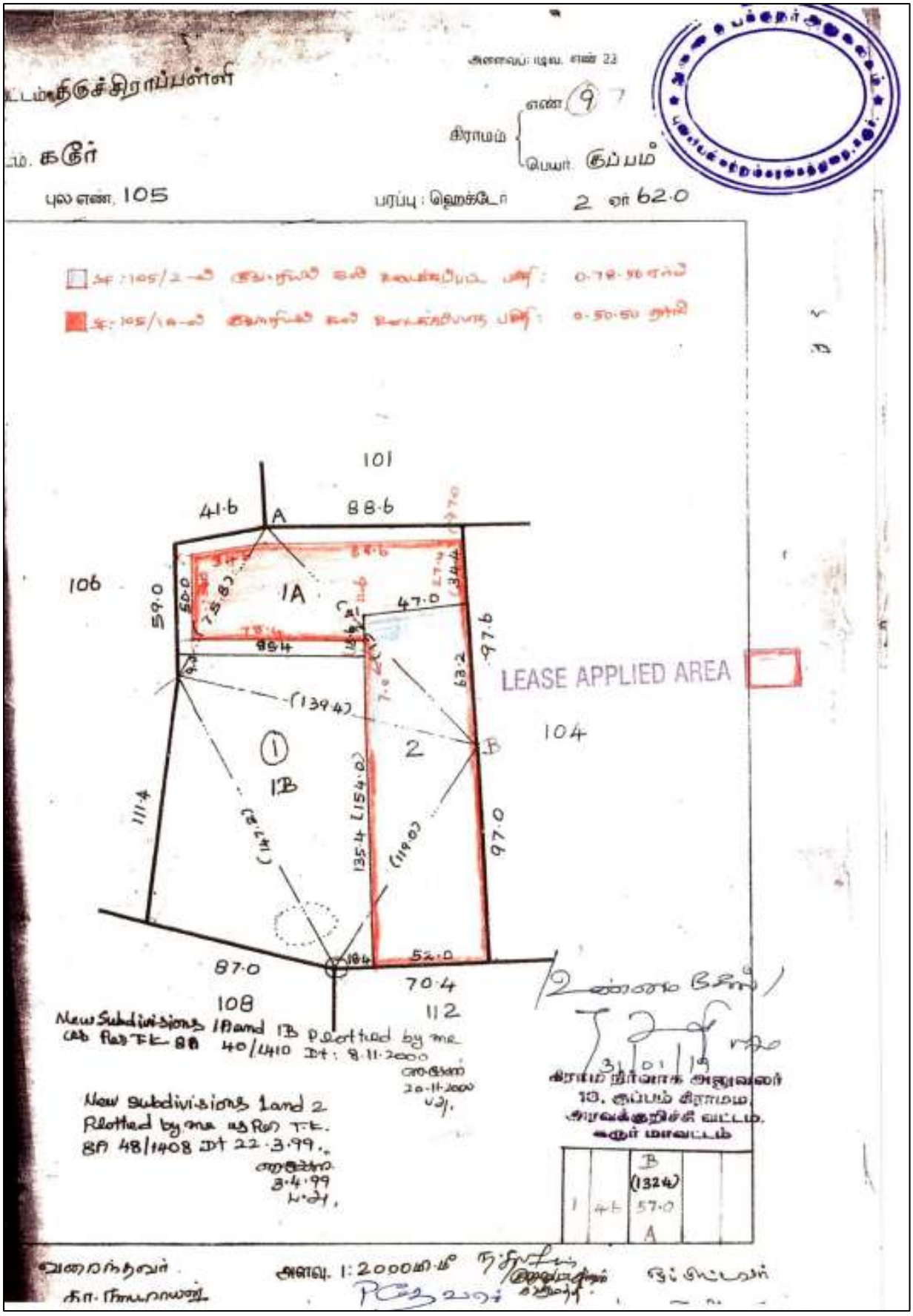
In order to implement the environmental protection measures, an amount of Rs. 2699506 as capital cost and recurring cost as Rs. 1455746 as recurring cost/annum is proposed considering present market price considering present market scenario for the proposed project. After the adjustment of 5% inflation per year, the total recurring cost over 5 years is Rs. 8121268 and the overall EMP cost for 5 years will be Rs. 10820773**.**

LAND DOCUMENTS

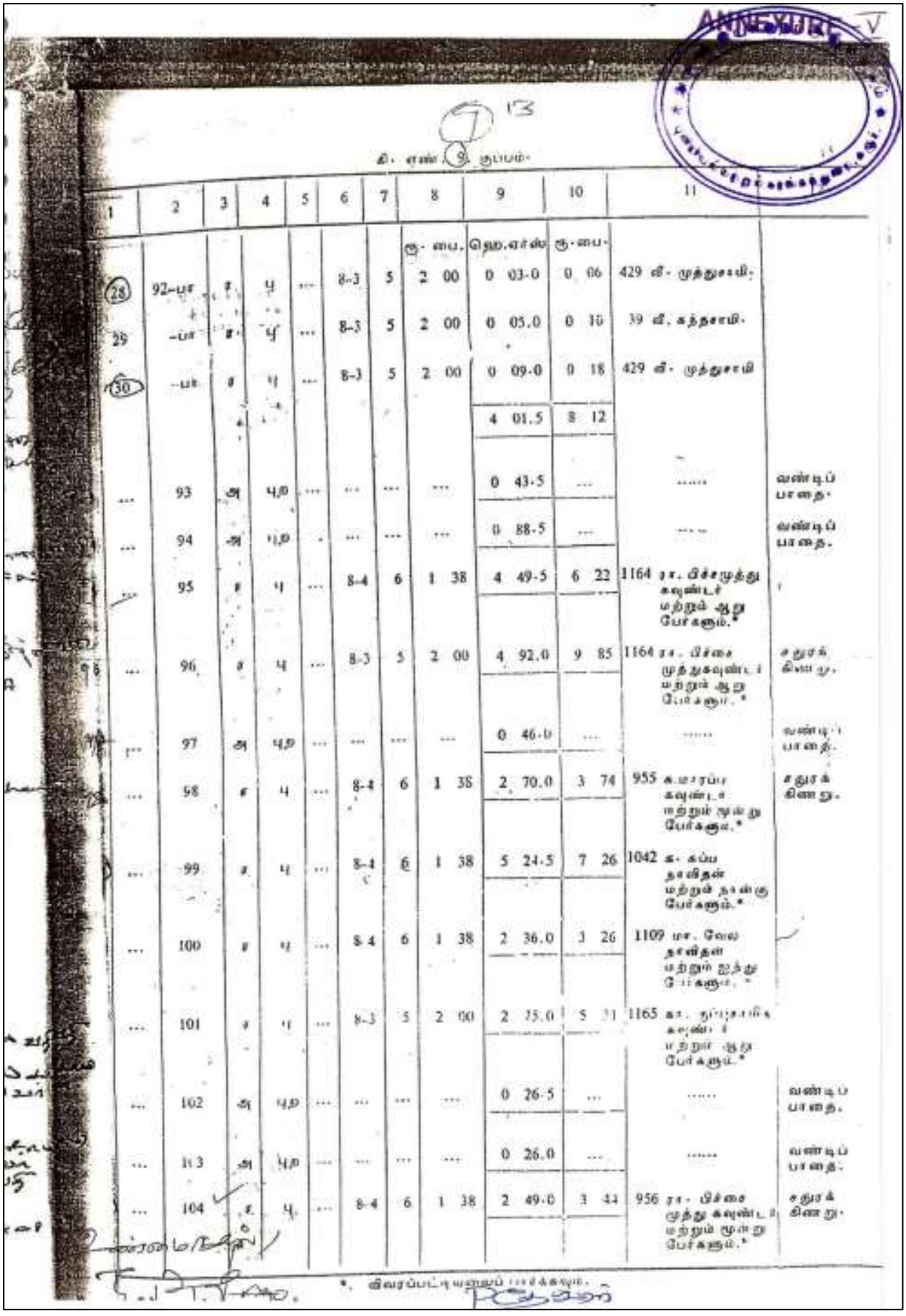
Some of the important land related documents are shown in below.



An FMP sketch showing proposed lease area in red colour



An FMP sketch showing proposed lease area in red colour



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30	-ப	ர	பு	...	8-3	5	2 00	0 09-0	0 18	429 வீ. முத்துசாமி	
								4 01.5	8 12		
...	93	அ	பூ	...	...	...	...	0 43-5	...	.....	வண்டிப் பாதை.
...	94	அ	பூ	...	...	...	...	0 88-5	...	.....	வண்டிப் பாதை.
...	95	ர	பு	...	8-4	6	1 38	4 49-5	6 22	1164 ரா. பிச்சமுத்து கவுண்டர் மற்றும் ஆறு பேர்களும்.*	
...	96	ர	பு	...	8-3	5	2 00	4 92.0	9 85	1164 ரா. பிச்சை முத்துகவுண்டர் மற்றும் ஆறு பேர்களும்.*	சதுரக் கிணறு.
...	97	அ	பூ	...	...	...	...	0 46-0	...	.....	வண்டிப் பாதை.
...	98	ர	பு	...	8-4	6	1 38	2 70.0	3 74	955 கு. மாரப்ப கவுண்டர் மற்றும் ஆறு பேர்களும்.*	சதுரக் கிணறு.
...	99	ர	பு	...	8-4	6	1 38	5 24.5	7 26	1042 கு. கப்ப தனிதன் மற்றும் நான்கு பேர்களும்.*	
...	100	ர	பு	...	8-4	6	1 38	2 36.0	3 26	1109 மா. வேல தனிதன் மற்றும் ஐந்து பேர்களும்.*	
...	101	ர	பு	...	8-3	5	2 00	2 75.0	5 71	1165 கா. நாராயண கவுண்டர் மற்றும் ஆறு பேர்களும்.*	
...	102	அ	பூ	...	...	...	...	0 26-5	...	.....	வண்டிப் பாதை.
...	103	அ	பூ	...	...	...	...	0 26.0	...	.....	வண்டிப் பாதை.
...	104	ர	பு	...	8-4	6	1 38	2 49-0	3 44	956 ரா. பிச்சை முத்து கவுண்டர் மற்றும் மூன்று பேர்களும்.*	சதுரக் கிணறு.

*, விவரப்பட்டியலைப் பார்க்கவும்.

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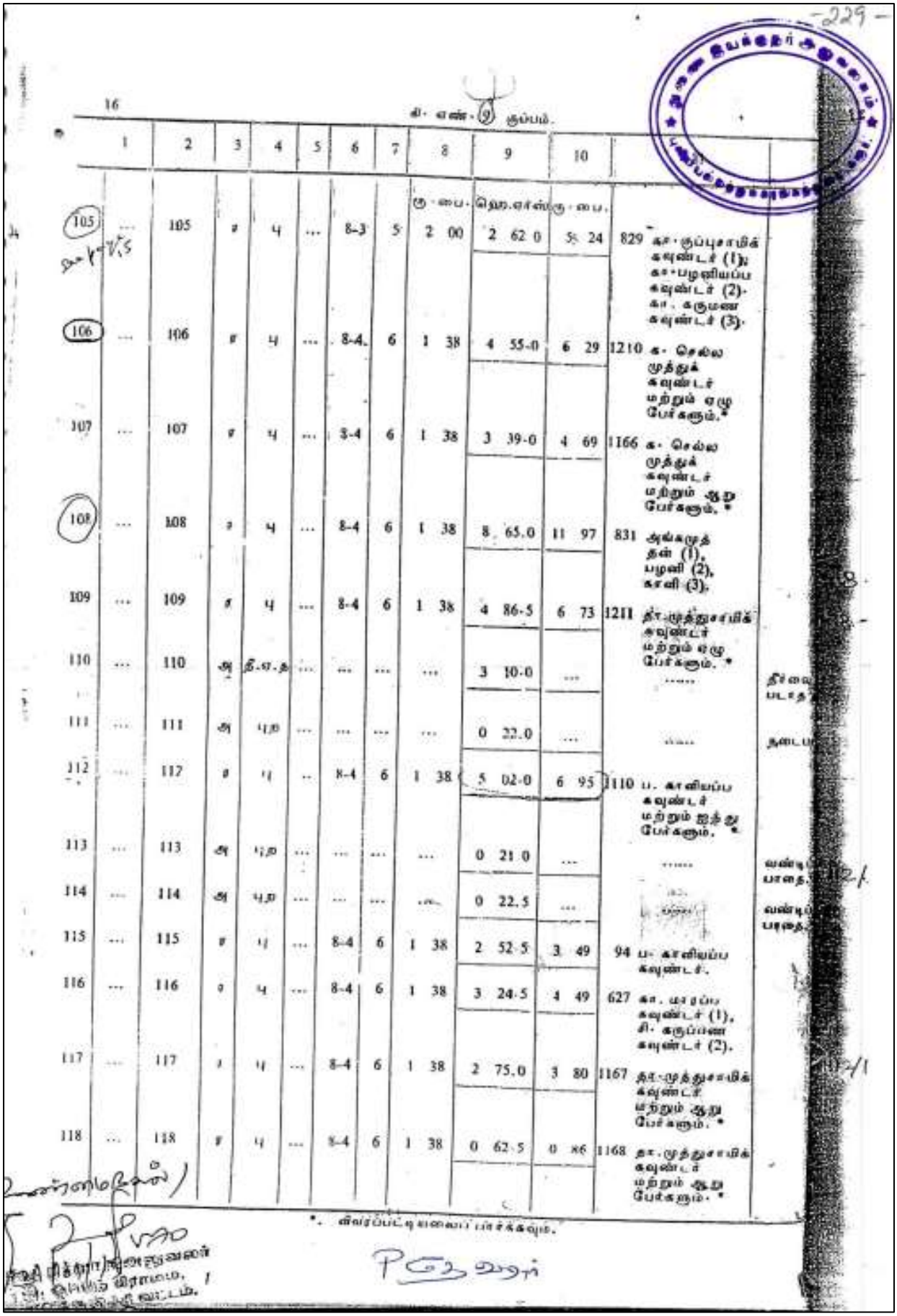
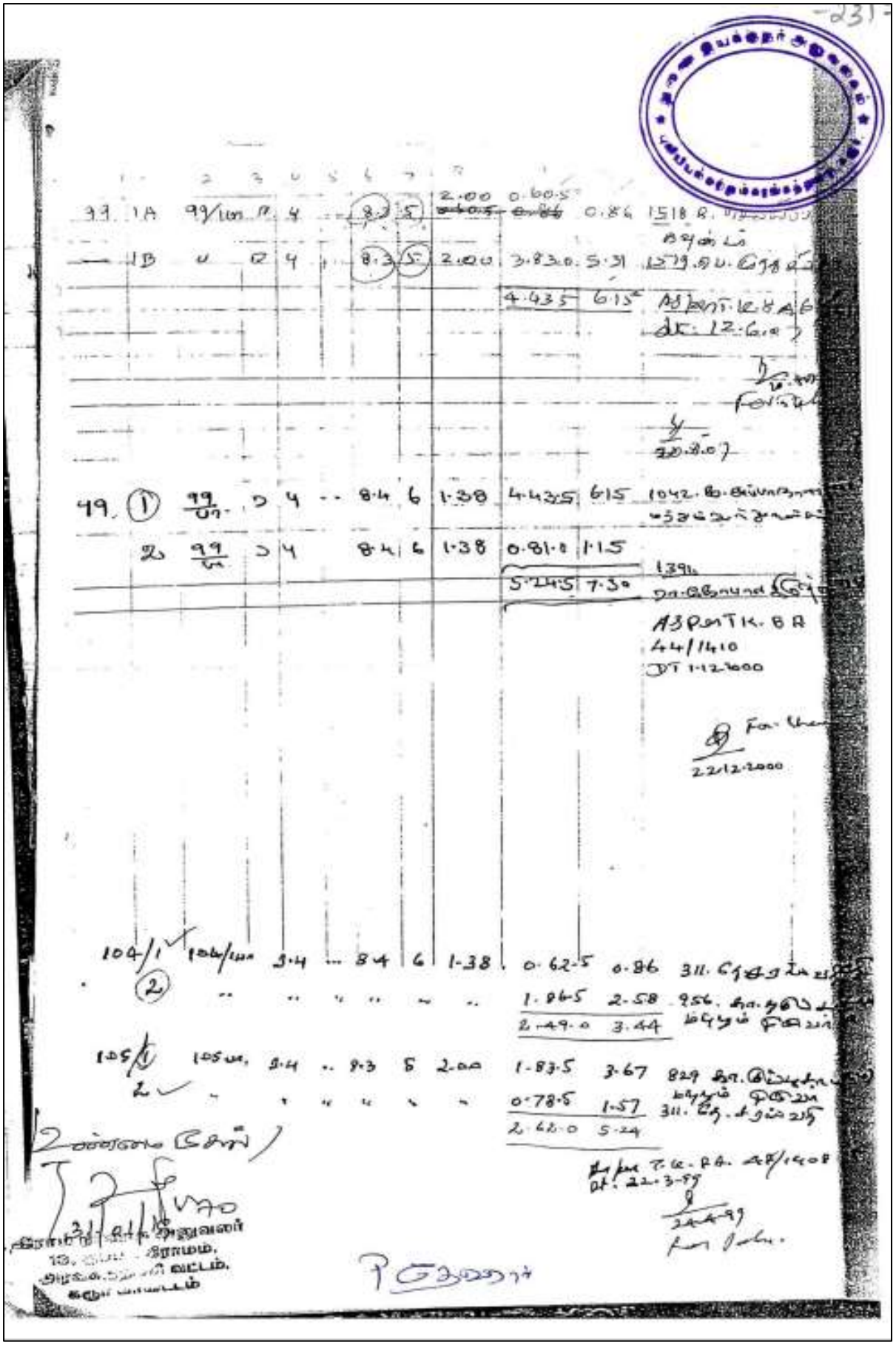
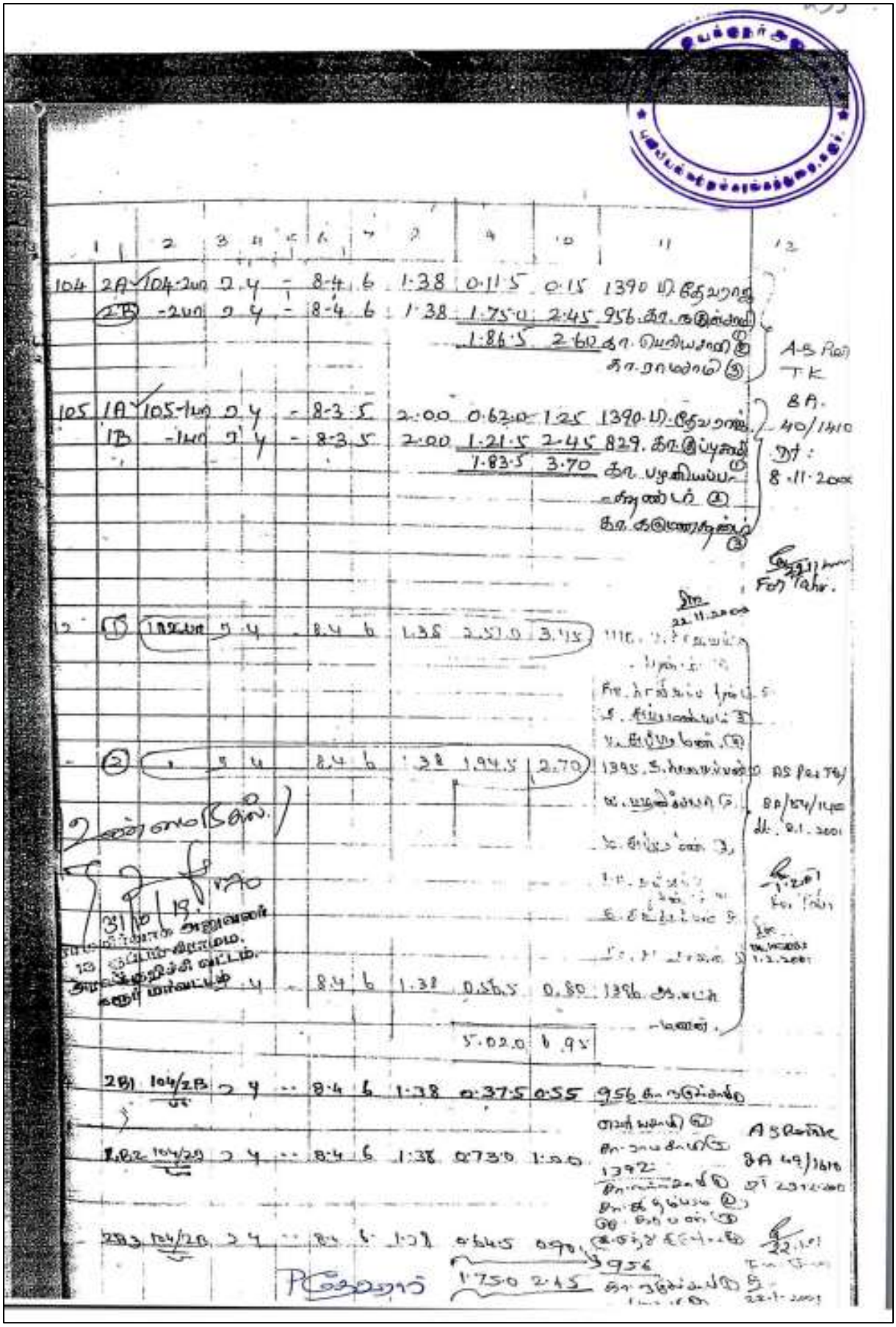


A Register Document



A Register Document



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ANNEXURE

தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : கரூர் வட்டம் : புகளூர்

வருவாய் கிராமம் : குப்பம் பட்டா எண் : 956

உரிமையாளர்கள் பெயர்

1. தேவராஜ் மனைவி சரஸ்வதி

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
104	2B1	0 - 37.50	0.55	--	--	--	--	2019/0103/14/105345-- -- 01-10-2019
		0 - 37.50	0.55					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் 14/07/018/00956/90830 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 30-06-2022 அன்று 03:53:30 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

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தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : கரூர் வட்டம் : புகளூர்

வருவாய் கிராமம் : குப்பம் பட்டா எண் : 1390

உரிமையாளர்கள் பெயர்

1. பிச்சைமுத்து மகன் தேவராஜ்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	நீர்வை	பரப்பு	நீர்வை	பரப்பு	நீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
104	2A	0 - 11.50	0.15	--	--	--	--	---- -- 11-10-2014
105	1A	0 - 62.00	1.25	--	--	--	--	---- -- 11-10-2014
		0 - 73.50	1.40					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **14/07/018/01390/10873** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இந்த தகவல்கள் 30-06-2022 அன்று 03:51:51 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

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6/30/22, 3:53 PM வட்டாட்சியர் அலுவலக இணைய சேவை - நில உரிமை விபரங்கள்

தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : கரூர் வட்டம் : புகளூர்

வருவாய் கிராமம் : குப்பம் பட்டா எண் : 311

உரிமையாளர்கள் பெயர்

1. தேவராஜ் மனைவி சரஸ்வதி

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
104	1	0 - 62.50	0.86	--	--	--	--	---- -- 21-02-2001
105	2	0 - 78.50	1.57	--	--	--	--	---- -- 21-02-2001
		1 - 41.00	2.43					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **14/07/018/00311/30885** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 30-06-2022 அன்று 03:49:58 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

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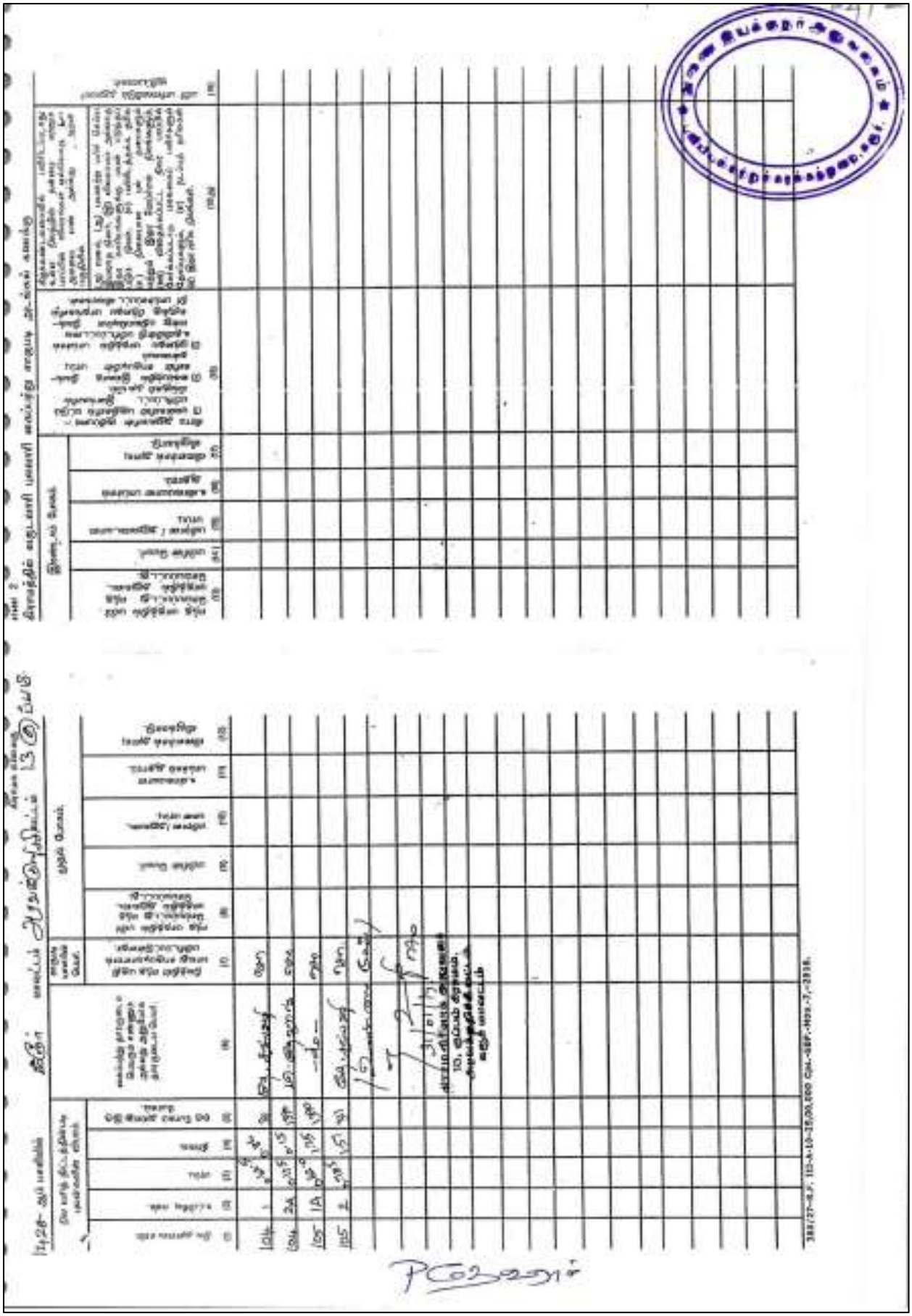

Adangal Document