MINING PLAN FOR PULLAMADAI-II SAND QUARRY

[illegible]

[illegible]

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT	: 4.88.5 Ha
S.F.NO	: 825 (P)
VILLAGE	: PULLAMADAI - II
TALUK	: R.S.MANGALAM
DISTRICT	: RAMANATHAPURAM
STATE	: TAMIL NADU

For

APPLICANT

THE EXECUTIVE ENGINEER,

Public Works Department,

Water Resources Department,

Mining and Monitoring Division,

Madurai

PREPARED BY

R.RAJASEKAR M.Sc.,

RQP/CHN/264/2015/A

Golden Mining Solutions,

No.6, Chozha nagar, Pennadam (P.O),

Tittakudi (T.K.), Cuddalore - 606 105

Cell: [illegible]

E-mail: [illegible]

[illegible]

Executive Engineer, PWD/WRD, M&M Division, Madurai

Executive Engineer,
Public Works Department,
Water Resources Department,
Mining and Monitoring Division,
Madurai.

CONSENT LETTER FROM THE APPLICANT

Re: Mining Plan in respect of **Sand** quarry over an extent of 4.80.0 Ha of Government land (Poramboke land) in S.F.No. 523 (Pt) of Pothumedu - II Village, R.S.Mangalam Taluk, Ramanathapuram District, Tamil Nadu State has been prepared by

R.Rajasekar M.Sc.,
RQP/CSM/264/2015/A

I request the Assistant Director, Department of Geology and Mining, Ramanathapuram District to make further correspondence regarding of the Mining Plan with the said Recognised Qualified Person in the following address.

R.Rajasekar M.Sc.,
RQP/CSM/264/2015/A,
Golden Mining Solutions,
No.4A, Chettiar nagar, Perumalpatti (P.O),
Tuticorin (T.K.), Cuddalore- 608 105.
Cell: 8870110345, 9003269862
E-mail: rajasekargeo1983@gmail.com
info@rmsource.com

I hereby undertake that all modifications as made in the Mining Plan by the Recognised Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respects.

Signature of the Applicant

Executive Engineer,
PWD, WRD,
Mining and Monitoring Division,
Madurai.

Place: Madurai
Date: 05.06.2019.

for Executive Engineer/PWD/WRD,
M & M Division

Executive Engineer,
Public Works Department,
Water Resources Department,
Mining and Monitoring Division,
Madurai.

DECLARATION

The Mining Plan in respect of **Sand** quarry over an extent of 4.80.0 Ha of Government land (Kottakkarai Block) in S.F.No.528 (P) of Pulimankombai – II Village, K.Sithampatti Taluk, Ramanathapuram District and Tamil Nadu State has been prepared with my consultation and I have understood the contents and agree to implement the same in accordance with the Mining Laws.

Signature of the Applicant

Executive Engineer,
PWD, WRD,
Mining and Monitoring Division,
Madurai.

Place: Madurai
Date: 25.02.19

Executive Engineer (I/c),
PWD, WRD,
Madurai.

R.RAJASEKAR M.Sc.,
RQP/CNR/264/2013/A
Quality Mining Solutions,
No4A, Chettiar nagar, Perumalam (P.O),
Thanjavur (T.K), Cuddalore- 608 105.
Cell: 8870110245, 9952309802
E-mail: rajasekarpec1983@gmail.com
dallagrasekar@gmail.com

CERTIFICATE

This is to certify that, the provisions of Rule 12 of Draft Minor Mineral Conservation and Development Rules, 2010 & as per amendment rules 41 & 42 under Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Mining Plan for the grant of **Sand** quarry lease over an extent of 4.88.0 Hect of Government land (Kottakkovil Kuru) in S.F.No. 523 (P) of Pallimadai – II Village, R.S.Mangudi Taluk, Ramanathapuram District, Tamil Nadu State has been prepared for

The Executive Engineer,
Public Works Department,
Water Resources Department,
Mining and Minerals Division,
Madurai.

Whenever specific permissions / exemptions / relaxations and approvals are required, the applicant will approach the concerned authorities of State and Central Governments for granting such permissions etc.

It is also certified that information furnished in the above mining plan are true and correct to the best of my knowledge.

Certified

R.Rajasekar M.Sc.,
RQP/CNR/264/2013/A

R. Rajasekar, M.Sc.,
Recognised Qualified Person
Reg. No. RQP/CNR/264/2013/A

Place: Salem
Date:

Executive Engineer (WRD),
M & M Division,
Madurai.

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Executive Engineer (Mining)
M & M Division,
Madurai.

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Asst. Executive Engineer (Mines)
M & M Division
Medinipur-2

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Executive Engineer (PLANNING)
M & M Division
Madurai-1

MINING PLAN FOR MINOR MINERALS

SAND

Over an extent of 4.80.0 Hectares of Government land (Kottakkarai Road) in S.F.No. 523 (P) of Puthumanai – II Village, K.R.Managalam Taluk, Kancheepuram District, Tamil Nadu.

[Prepared under rule 22 of Minor Mineral Concession and Development Rules, 2010 as per amendment vide G.O.(3D) No.43 under Tamil Nadu Minor Mineral Concession Rules, 1959]

1.0 INTRODUCTION

1. The present mining plan & Environmental Management plan is prepared for The Executive Engineer, Public Works Department, Water Resources Department, Mining and Monitoring Division, Madurai.
2. Tamilnadu Public Works Department creates, maintains and protects all irrigation systems including the rivers. Periodical maintenance including desilting of the drain/river is carried out to maintain the functional efficiency including the carrying capacity of the river. But as river flood protection works are carried out by increasing top level of bund and protecting the sides of bund with revetments.
3. The desilting was never carried out in river due to the cost constraints. Therefore, prolonged siltation for decades and more, the level of the floor of riverbed has increased and reduced the carrying capacity.
4. Whenever floods and consequent damages occurred, it was resorted to increase the bund level to restore the carrying capacity of river. It was never thought of de-silting the river floor by the available cost, it regular and the problem of ways and means to dispose the de-silted sand. Consequence of this change in river regime and reduction in carrying capacity of the Kottakkarai River, the silts in the river, divert the flow of water resulting in bund erosion and consequent breaches, which lead to loss of property and lives.
5. Solution to the above problem is to de-silt the shoals in the Kottakkarai River by expending huge amount. Alternatively, the economical solution to this problem is to make the sand to remove the shoals. This option might yield the net revenue to the state exchequer apart from making available the important construction material for infrastructure development at a reasonable price to the common people.

Executive Engineer PWD/WRD
M & M Division
Madurai-2.

6. As per G.O No. 40/Industries (MMC1) Department, dated 25.09.2012, committee had been constituted to conduct a survey of rivers and report to in the areas with reference to sand quarry. The committee, after detailed, Even though several rules on sand mining exist, illegal quarrying of sand is out of control. Authority for regulating sand mining is vested with different organizations such as, State Geology and Mining Department, Revenue Department and Public Works Department. Hence, implementation and monitoring of rules and regulation regarding sand quarrying are not effective. This important task of sand mining function, should be entrusted to a Single Agency.

7. The Government issued an order vide G.O (1t) No. 40, Industries (MMC1) Department, Dt.21/10.2003 to ignite sand quarries in Tamil Nadu to Public Works department. Accordingly, sand quarrying operations are being carried out from October 2003 in Districts of the Tamil Nadu. Hence the priority of mining of sand for maintain the functional efficiency of Kottakkudi River and its carrying capacity.

8. The applicant proposed to fund quarry in Government land (Poramboke) Sand survey field No. 522 (P) over an extent of 0.80.0 Ha in Kottakkudi River at Pillumedu - I Village, R.S.Mangalam Taluk and Ramanathapuram District for a period of Three years only. The upstream level is 8.600 m and downstream level is 8.074 m. The excavated Sand is used for domestic purpose and other infrastructure development work in and around the district.

9. The applicant was processed by the District Collector, Ramanathapuram and passed an order vide Rc. No. 1419/GM1/2015, Dated: 21.06.2016 to obtain an approved mining plan and Environmental Clearance from the State Level Environment Impact Assessment Authority (SEIAA), Chennai.

10. Geological Resources is estimated at 2,53,296 m³ of sand and Mineable Reserves is estimated at 58,000 m³ of Sand as mentioned in the precise area letter and relevant mining laws in force.

11. The proposed quantity of Sand is estimated about 58,000 m³ for the period of Three years.

12. Environmental permission.

i) The area does not attract the Forest Conservation Act, 1980 as

Executive Engineer, PWD/WRO,
M & D Unit,
Madurai-7.

There is no forest around 10 Km radius.

ii) There is no interstate boundary around 10 Km radius.

iii) There is no wild life sanctuary with 10 Km radius from the project site area under the Wildlife (Protection) Act, 1972.

iv) The area applied for lease is 10 Km away from the interstate boundary, protected areas under wild life protection Act 1972, critically polluted areas as identified by CPCB and notified Eco sensitive areas.

Therefore the project seeks clearance only from State Level Environmental Impact Assessment Authority (SEIAA), under B2 Category.

2.0 EXECUTIVE SUMMARY :

The area applied for lease is a Government land (Kurinjakkudi Kovil) in Survey Field No. 523 (P) in Pillayarkkadu - II Village, K.S.Mangalam Taluk and Kanniyakumari District.

a. Village Panchayat - Pillayarkkadu - II

b. Panchayat Union - K.S.Mangalam

c. The total mineable reserves - 30,000 m³ of Sand

d. The proposed quantity of reserves (Level of production to be raised - 10,000 m³ of Sand) for a Period of Three years.

e. Proposed for Manual mining quantity: - 30,000 m³ (100%)

f. Total extent of the area - 4.86.0 Ha.

g. Proposed Period of mining - Three years.

h. Proposed Depth of mining - 1.0 m (Avg) below the theoretical river bed level.

i. Height Of Bench - 0.3963 m (Avg)

j. Method of mining, level of mechanization

Manual mining method is proposed without drilling and blasting.

k. Type of machineries used in the quarry

It is a manual mining operation, hence no machineries are proposed for this quarrying operation.

l. No trees are uprooted due to mining operations.

Executive Engineer, PWD/WRO,
M & M Division,
Nagercoil.

m. The area applied for lease is (Ore) 4.50.0 Ha which is bounded by 8 corners. The Corners are designated as 1 to 8 which are connected to form boundary and the co-ordinates for the boundaries are listed below:

Table - I

Pullimandai - II Village (Toposheet No. 58 M/13/4)

Boundaries/Corners	Co-ordinates		Distance between Boundaries/ Corners
	Latitude	Longitude	
1	09°46'27.56"N	78°50'34.23"E	1-2 = 150 m.
2	09°46'32.79"N	78°50'34.28"E	2-3 = 223 m.
3	09°46'19.40"N	78°50'31.22"E	3-4 = 90 m.
4	09°46'20.06"N	78°50'33.50"E	4-5 = 93 m.
5	09°46'17.38"N	78°50'33.22"E	5-6 = 228 m.
6	09°46'12.42"N	78°50'36.42"E	6-7 = 100 m.
7	09°46'09.19"N	78°50'36.81"E	7-8 = 77 m.
8	09°46'08.80"N	78°50'37.80"E	8-1 = 118 m.

n. Around 36 employees are proposed to be employed for the quarrying operation.

o. Total Cost of the project is Rs. 37,35,940/-

3.0 GENERAL INFORMATION

3.1.a.	Name of the Applicant	The Executive Engineer,
3.1.b.	Address of the Applicant with phone No. and e-mail id if any	Public Works Department, Water Resources Department, Mining and Monitoring Division, Madurai. Pincode – 625 020 Cell No: 0452 2601013 Email: tnbmmdu@gmail.com
3.1.c.	Status of the Applicant	Individual (The Applicant is an Executive Engineer, on behalf of Public Works Department, Government of Tamil Nadu)
3.2.a.	Mineral Which the applicant intends to mine	Sand Only
3.2.b.	Precise area communication letter No.	Precise area communication letter received from District Collector, Ramanathapuram letter vide Rc.No.

Executive Engineer
M & M Division,
Madurai

			1419/SAM1 / 2018 Dated: 21.06.2018
3.2 c	Period of permission / lease granted	:	The above quarry lease shall remain for a period of **Five years only**
3.2 d	Name and Address of the RQP preparing Mining Plan	:	R.Rajasekar M.Sc., RQP/CQP/204/2013/A Golden Mining Solutions, No.4A, Chubba nagar, Periyadam (P.O), Thiruthani (T.K), Cuddalore- 606 103 Cell: 8870210248, 9952300862 E-mail: rajasekarpm1983@gmail.com info@goldenmine.com

4.0 LOCATION

a)	Details of the area with location map	:	The quarry lease applied area falls in the Kottakkarai Block, Pudiamadai - II Village, R.S.Mangalam Taluk & Ramanathapuram District. Please refer the location map enclosed as plate No.1
	i) District, Taluk and village		Ramanathapuram District, R.S.Mangalam Taluk and Pudiamadai - II Village.
	ii) Survey Number		S.F.No.
	iii) Extent to be leased		4.86.0 Ha.
	Classification of the area (Reserved/ Poramboke / others)		It is a Government Other Poramboke Land
c)	Ownership / Occupancy of the applied area (Interior rights)		It is a Government Land maintained by Public Works Department.
d)	Toposheet No. with latitude and longitude		Toposheet No : 58-K/14, Latitude : 09°40'56.80"N to 09°41'20.60"N Longitude: 78°52'31.20"E to 78°52'58.81"E

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c) Existence of public road / Railway line, if any nearby and approximate distance :

There is an existing road running parallel to the banks of the river which leads to Sattoor – Kalamandalam on Northern side of the area.

The Nearest Railway station is Ramanathapuram which connects the line between Madurai – Rameswaram about 35 Km on the Southern side of the area.

PART – A

5.0 GEOLOGY AND MINERAL RESERVES

5.1. Brief description of the Topography and general Geology of the area (with plans):

The lease applied area is Kottakarai River exhibits alluvial plain topography covered with Sand which is formed by the continuous mechanical action of river erosion of weathered particles transported and deposited. The altitude of the area is 0.478 m (Maximum) from MSL the slope of the area is gently towards Eastern side. Please refer the Topography, Geological plan and sections (Plate No –VI & VII.

5.2. Details of exploration already carried out if any:

The auger drilling was carried out. The Sand formation is clearly visible right from the surface.

5.3. Estimation of reserves:

The Geological plans demarcating the commercially viable sand body have been prepared in 1:2000 scales. (Plate No. VI).

The three Levels (III) taken for the reserve calculation.

Totally ten sections have been drawn one along the length wise of the area (X-Y) and another nine sections are drawn A1-A1' to A9-A9' sections along the width wise of the area to cover the area consider for lease in the scale of Horizontal 1:2000 & Vertical 1:200. Please refer (Plate No. VII)

The cross sectional area for the proved depth potentiality of 5.0 m has been worked out for the section. The cross sectional area multiplied by its length of influence on the longer axis gives the volume in-situ of the cross sectional area. The sum total of the in-situ reserves available within the individual cross sectional area gives the geological reserves of the lease applied area.

As the mineable of Sand in the terms of cubic metre. The Geological Reserves, Mineable Reserves are given only in terms of Cubic metre. Please refer Geological Plan and Section shown in (Plate No. VI & VII)

Executive Director
M & M Granites
Chennai-2.

a) Geological reserve with Geological sections on a scale of Horizontal 1:2000 & vertical 1:200.

The geological Resources calculated up to a depth [illegible] below the theoretical river bed level. The Resources is given below.

Table - II

GEOLOGICAL RESOURCES OF SHOALS

(ABOVE THE THEORETICAL RIVER BED LEVEL)

S.No	Cont	Area (m²)	Mean Area (m²)	Distance (m)	Geological Resources of Shoals (m³)
1	0m	35.03			
2	50m	12,952	24,991	50	1457,475
3	100m	22.36	18,468	50	738,650
4	150m	21.22	22,603	50	1130,259
5	200m	24,632	25,316	50	1265,794
6	250m	18.34	23,371	50	1124,554
7	300m	13,197	14,668	50	733,427
8	350m	345	24,298	50	1912,413
9	400m	17,604	26,032	50	1301,588
10	TRIANGULAR AREA				319,000
TOTAL					**9298.163**
TOTAL (ROUND OFF)					**9,298**

Table - III

GEOLOGICAL RESOURCES OF SILT			
Area in (Ha)	Depth in (m)	Volume in (m³) (Area X Depth)	Geological Resources of Silt (m³)
4,898.380	6.5	24,950	24,950
Total			**2,44,000**

Executive Engineer (PWD/WRD)
M & M Division,
Tadepalli.

Table - IV

GEOLOGICAL RESOURCES OF SAND

(BELOW THE THEORETICAL RIVER BED LEVEL)

Area in (ha)	Depth in (m)	Volume in (m^3) (Area X Depth)	Geological Resources of Sand (m^3)
4.88.00	5	2,44,000	2,44,000
Total			**2,44,000**

Average Height Of Shoals = 9,296 m^3/ 48,800 m^2

= 0.1903 m

Geological Resources Of Shoals = 9,296 m^3

Geological Resources of Sand below the

Theoretical river bed level = 2,44,000 m^3

Total Geological Resources Of Sand

Including Shoals = 2,53,296 m^3

Recoverable reserves

There is no wastages is anticipated in the quarrying operation. The Mineable reserve is restricted up to a depth 1.0 m (below theoretical river bed level). The area for lease has been applied after leaving the 50 m safety distance on both sides of the bank. Mineable Resources are estimated in area calculation method.

Executive Engineer,PWD(WRO)
M & M Division,
Kasaragod.

Table – V

MINEABLE RESERVES OF SHOALS
(ABOVE THE THEORETICAL RIVER BED LEVEL)

S.No	CSS	Area (m²)	Mean Area (m²)	Elevation (m)	Mineable Reserve Of Sand (m³)
I	Ora	35.63			
II	50m	12.853	24.241	60	1457.455
III	100m	23.09	18.465	40	738.650
IV	150m	21.23	22.005	50	1100.270
V	200m	24.892	23.516	50	1175.794
VI	250m	19.24	22.571	50	1128.556
VII	300m	15.997	16.666	50	733.327
VIII	350m	24.5	24.248	50	1212.413
IX	400m	17.604	26.102	50	1305.088
III	TRIANGULAR AREA				370.000
TOTAL					**9268.163**
TOTAL (ROUND OFF)					**9,268**

Table – VI

MINEABLE RESERVES OF SILT

Area in (Ha)	Depth (m)	Volume (m³) (Area X Depth)	Mineable Reserves (ROM) (m³)
4.3849	0.5	24,400	24,400
Total			**24,400**

Executive Engineer(PWD)
M & M Division,
Udhagai.

Table - VII

MINEABLE RESERVES OF SAND

(BELOW THE THEORETICAL RIVER BED LEVEL)

Area in (Ha)	Depth (m)	Volume (m³) (Area X Depth)	Mineable Reserves of Sand (m³)
4.86.0	1	48,600	48,600
Total			**48,600**

Mineable Reserves Of Sand above the theoretical river bed level = 9,298m³

Mineable Reserves of Sand below the theoretical river bed level = 48,800 m³

Total Mineable Reserves Of Sand including Shoals = 58,098 m³

(Please refer Plate No-VII & Annexure-V)

6.0 MINING

6.1. Method of mining (opencast / underground):

The sand is directly loaded into bullock cart. The sand either continuously or intermittently in the length and breadth of the river. The sand on the river bed carries huge sand shit downs along the length and breadth of the river. Hence, by applying the manual labours to directly load the sand from river bed into the bullock cart, which is 4 to 6 feet height, is not feasible one. Person operating quarries possess good knowledge of the Theoretical river bed level.

No drilling or blasting is proposed for this type of sand quarrying, it is a conventional eco-friendly quarrying operation.

The sand will be loaded by manually. After that the loaded bullock cart are allowed to go out after covering the sand load properly with tarpaulin to avoid any spillage.

6.2. Mode of working (mechanized, semi-mechanized, manual):

The quarrying operation is being carried out in manual mining method. Mining activities is being carried out in a manner so that there is no obstruction to the movement of water flow.

The sand is being loaded directly to the bullock cart for transportation to the needy customers. Initially to approach the quarrying site a temporary road was

Assistant Director (Mines)
M & M Division,
Malkangiri.

forward by using sand mixed with Bio-degradable materials and a pit around the sand quarrying site to raise the vehicle easily. During female the approach road and pit, necessary temporary pipes provided wherever necessary to free flow of water in to downstream.

However, movement of bullock cart after mineral loading will be towards both sides through approach roads connecting to the roads. Lease area already has approach roads, well connected to main highways. No processing of mineral is being done within the lease area.

Table - VIII

List of equipment required for the quarrying operation

S.L.No.	Name of the equipment	Capacity	No.
1	Bullock cart	0.18 tons	30 Nos (in Rotation)
2	Water Tanker	1000 Ltr	2 Nos

6.3: Proposed bench height & width:

The bench height is 1.0 m vertical bench the width of 111.4 m (Avg).

6.4: Indicate the anywhere / mineral production expected pit wise as detailed below (composite plan and section showing pit layout, dumps, disposal of waste if any etc.):

The silt is deposited over sand. The lease is to extract only to a depth of 1.0 m (Avg) below theoretical river bed level. The applicant proposed to excavate up to a depth of 1.0 m (Avg) below theoretical river bed level for a period of Three years only.

Table - IX

Year Wise Production Table

Year	Pit No.	Quarry history	ROM ore/ Mineral m³	Saleable ore / Mineral m³	Any grade ore / mineral	Mineral reject	Ore to beneficiation ratio
I	1	8154	18,366	18,366	Nil	Nil	1:0.42
II	1	8154	18,366	18,366	Nil	Nil	1:0.42
III	1	8154	18,366	18,366	Nil	Nil	1:0.42
Grand Total		**24,462**	**55,098**	**55,098**	Nil	Nil	1:0.42

The applicant has obtained permission to quarry Sand for a period of **Three years only.**

Assistant Director
Mines & Geology
Madurai.

6.5 Machineries to be used:

a) For mining:

The manual mining method has been adopted for this quarrying operation.

b) Loading equipment:

The sand loaded by manually into the bullock cart.

c) Transportation (inside the mine and mine to destination):

The excavated mud has been directly to the nearby customer's site.

6.6 Disposal of overburden / waste:

There are silt wastage is dumped on both side of the river banks.

6.7. Brief note on conceptual mining plan for the entire lease period base on the geological, mining and environmental considerations:

Conceptual mining plan is prepared based upon Topography, Geological plan and section with an object of There shall systematic development of the area, selection of ultimate pit limit etc.,

The ultimate pit dimensions of the quarry are given below

Table - X

Conceptual Table

Description	L (m) (Avg)	W (m) (Avg)	Depth (m) (Avg) (Below the ground level (mgl))
Conceptual	438	111.4	1.0

It is an Eco friendly Quarrying operation without drilling and Blasting

7.0 BLASTING

The quarrying operation is being carried out by open cast method in conjunction with semi-mechanical method of manual mining. It is a conventional Eco friendly quarrying proposed without drilling and blasting.

8.0 MINE DRAINAGE

8.1	Depth of water table (level) in nearby wells and water bodies	The water table in this area is 4.5 m below ground level as observed in nearby villages.
8.2	Arrangements and places where the mine water is finally proposed to be discharged	There is no such type of activities anticipated in this quarrying operation.

Executive Engineer (MINING)
M & M Division,
Vellore-2

9.0 OTHER PERMANENT STRUCTURES (also shown in the map)

9.1	Habitations / village (nos)	There is no habitation situated within the radius of 300 m.
9.2	Power lines (HT/ LT)	There is no HT or LT line passing through the radius of 500 m.
9.3	Water bodies (river, Pond, lake, nala, channel etc.)	The lease applied area lies in the Kaveri River basin; there is no other major water bodies like pond, lake ... within the radius of 500 m.
9.4	Archaeological / historical monuments	There is no Archaeological / historical monuments within 500 m radius from the area.
9.5	Road (SH, NH, others)	The Nearest National Highway (NH-210) Dendukkal – Kannamangalam which is about 1 km on the western side of the area. The State Highway (SH-39A) Bayanapalli – R.S.Mangalam which is about 3.7 Km on Southwestern side of the area.
9.6	Places of worship	There is no place of worships within the Radius of 500 m.
9.7	Reserved forest / forest / animal forest / wild life sanctuary etc.	There are no Reserved forests, wildlife forest within the radius of 500 m. There is no wild life sanctuary within the radius of 10 km.

Executive Engineer, PWD/WRD,
M & G Division,
Hosur-2.

10.0 EMPLOYMENT POTENTIAL & WELFARE MEASURES

10.1 Employment potential (skilled, unskilled) :

Table - XI

Employment Requirement

Skilled :			
Sl.No	Designation		No
1	PW(I) Assistant Engineer		1
2	Technical Assistant		1
		Total	**2**
Unskilled			
3	Permit Slip Issuer		2
4	Traffic Regulator	Entrance	2
		Exit	2
		Quarrying Site	2
5	Loading Watcher		2
6	Office Helper		1
7	Track Maintainer		0
8	Watchman (Three Shifts)		0
		Total	**24**
		Grand Total	**26**

Allowing for 10% absenteeism, the No. of men at mill will be around 25.

It is ensured that the labour will not deploy less than 18 years. **No child labour** will engage or entertained for any kind of quarrying operation; all the labours engaged for quarrying operation will be insured till the end of life of quarry.

10.2. Welfare measures

a) Drinking water	Packaged Drinking water will be brought from the authorised water suppliers in Dist. R.S.Mangalam which is about 4.5 km on the Southwestern side of the area.
b) Sanitary facilities	Hygienic Sanitary facilities will be constructed with in the quarrying area as semi-permanent structures.
c) First Aid facility	First aid kits are kept in Mines office room. If any accident happens first aid will be given at site and the injured persons will be taken to the hospital immediately. Hospital is available at R.S.Mangalam which is about 4.5 km on the Southwestern side of

Executive Engineer, PWD (WSD)
M & M Division,
Madurai-2.

	the area. The competent statutory foreman will be in charge of first aid.
vi) Labour Health	To be Eco friendly quarrying operation dusting to blasting is reached, with proper dust are proposed, hence labourers health will not affected in any manner however periodically medical checking will be conducted to all the workers in quarries own cost.
vii) Precautionary safety measures to the labours	All the quarry workers will be provided with safety helmets, Mine Goggles, Ear plugs, ear muffs, Dust masks, reflector jackets and Safety Shoes as personal protective device as per the specification of Director of Mine Safety. Besides also conducting periodically medical checkups for all workers for any mine health related problems, proper training and education will be given to quarrying personal to create awareness of Eco friendly quarrying operations.

Assistant Engineer, JH/DMG/TO,
M & M Division,
Hadagali.

PART – B

11.0 ENVIRONMENT MANAGEMENT PLAN

11.1	Existing land use pattern	:	It is a barren land. The land is not used for any purpose.
11.2	Water Regime	:	Ground water is about 4-6 m during pre-monsoon level. The quarrying is restricted up to 1.0 m below the annual pre-monsoon level hence the quarry operation will not be affected by the ground water.
11.3	Flora and fauna	:	The main flora are Ashi Plant, Neem etc. There is no wild life, bird sanctuary, reserve or sacred forest near the area applied for quarrying lease. No form of botanical interest or fauna of zoological interest noticed.
11.4	Climatic conditions	:	Both the North East and South West monsoon occurs here and the summer are hot and winter is cool. During April and May the temperature may goes up to 40°C and during winter the temperature does fall below 20°C. The annual rainfall is around 950mm.
11.5	Human settlement	:	There are few villages located in 5.0 Km radius from the lease applied area the details of the areas are given below.

Table - XII

S.No	Name of the Village	Distance & Direction from lease applied area	Approximate population
1.	Muthulachipudur	03.1.0 Km	500
2.	Ilanadi	04.1.5 Km	200
3.	Kilanilaikkadu	05.2.0 Km	450
4.	Kavalur pattanam	05.1.5 Km	300

11.6	Plan for air, dust suppression	:	As this for mainly quarrying operation only manual mining method are proposed without drilling and blasting hence the air quality will not

Deputy Director, PWD/WRO,
M & M Circle,
Madurai.

			affect due to the quarrying operation, water will be sprinkled in the haul roads periodically to suppress dust. Ambient Air Quality monitoring will be carried out to check the effects, if any in and around the Quarry. Water for dust suppressions will be extract from the existing borehole nearby earth. During transportation the Sand will be fully covered by Tarpaulin to prevent dust and spillage. The estimated budget for Air Quality sampling would be around Rs. 50,000/-.
11.7	Plan for noise level control	:	This Eco Friendly quarrying operation does not involve any blasting and drilling methods, hence noise will be minimal and this is only due to the movement of bullock cart. Periodically noise level monitoring will be carried out to check the Noise level in and around the Quarry. The estimated budget for Noise level monitoring would be around Rs. 35,000/-.
11.8	Environmental impact assessment statement describing impact of mining on the next Three years	:	The life span of the quarry is proposed for the period of Three years only, the Proposed quarrying for a small production of Sand does not involve deep hole drilling and blasting, such limited mining activity is not likely to cause any impact adversely on environment as far as pollution of air, water and noise is concerned.
11.9	Proposal for waste management	:	There are nil wastage is dumped on both side of the river banks.
11.10	Proposal for reclamation of land affected during mining activities and at the end of mining (refilling / limiting etc.)	:	The quarry operation is restricted up to a depth of 1.5 m below the theoretical water fed level, after removing the Sand there is no proposal for backfilling or reclamation. The quarried out land will used for free flow of water during rainy and flood season, no area provided for leaving the Sand will be leveled manually.

Executive Engineer PWD/WRO
M & M Division
Madurai-2.

11.11	Program of afforestation (indicate extent, number, name of species to be afforested)	After the completion of the quarrying operation. The afforestation is not proposed inside the quarry lease area, the applicant intends to plant native species like pungam, neem, casuarina in the nearby village and village road after consultation with the competent panchayat authorities. It is proposed to plant around 500 trees. The estimate cost for afforestation and its maintenance is around **Rs. 1,00,000/-**

11.12 PROPOSED FINANCIAL ESTIMATE / BUDGET FOR EMP/ ENVIRONMENT MANAGEMENT:

11.12. A. PROJECT COST / INVESTMENT:

i) **Land cost :**

It's a Government Land hence no cost is involved.

ii) **Machinery to be used:**

No machineries are proposed for this sand quarrying operation. The sand is directly loaded from above the river bed to bullock cart by manual labourers.

Rs. 20,000/- which includes shovels, Baskets, etc.

iii) **Refilling / Fencing :**

There is no proposal for Refilling and fencing, hence no cost is involved.

iv) **Labours shed :**

The labours are from nearby local villages, hence no cost is involved. Anyhow rest shelter will be constructed as semi-permanent structure at the cost of **Rs.1,00,000/-**

v) **Sanitary facility :**

Sanitary facility will be constructed as semi-permanent structure, the cost will be around **Rs.1,00,000/-**

11.12. B. EXPENDITURE:

i) **Drinking water facility for the labourers:**

Drinking water facility at the cost of Rs. 1,500/ month for a period of Three years, the cost will be around **Rs.54,000/-**

ii) **Sanitary arrangement:**

Sanitary maintenance at the cost of Rs. 1500/ month the cost will be around **Rs.54,000/-** for a period of Three years.

iii) Safety kits:

Rs.50,000 will be spent for the safety kits such as Helmet, Goggles, Ear plugs, Ear muffs, Safety shoes and Reflector jackets.

iv) Water sprinkling (If necessary) :

Water sprinkling on haul roads for Dust suppression; the cost will be around **Rs. 1,50,000**/- for a period of three years.

v) Afforestation etc. :

Re Afforestation is proposed within the lease applied area, plantation will be carried out on the river bank, nearby villages and village roads after consultation with the panchayat authorities. The cost estimate is around **Rs.1,00,000/-** in which includes Rs.50,000 for sapling & Rs.50,000 for maintenance.

11.12.C. BUDGET FOR CSR (Corporate Social Responsibility)

The proposed financial estimate budget for CSR would be around **Rs. 17,42,940** @2.5% per Ton of the sand cost from the royalty which will be handed over to the panchayat authority for panchayat development & Social Interest projects.

A) Estimated operational Cost of the project:-

i) Re-excavation (Provision)	=Rs.	20,000/-
ii) Bund studies	=Rs.	1,00,000/-
iii)Drinking Water	=Rs.	54,000/-
iv) Safety Kits	=Rs.	50,000/-
v) Sanitary facility	=Rs.	1,00,000/-
vi) Survey Maintenance	=Rs.	84,000/-
vii) Protection of Bio-Degradable Pathways	=Rs.	10,00,000/-
Total	**=Rs**	**13,78,000/-**

B Estimated EMP Cost of the project:-

i) Air Quality Sampling	=Rs.	30,000/-
ii) Water Quality Sampling	=Rs.	25,000/-
iii) Noise Level Monitoring	=Rs.	25,000/-
iv) Ground vibration test	=Rs.	25,000/-
v) Water Sprinkling	=Rs.	1,50,000/-
vi) Afforestation	=Rs.	1,00,000/-
VII Baseline studies	= Rs.	2,40,000
Total	**=Rs.**	**6,15,000/-**

Executive Engineer, PWD/WRD,
M & G Division,
Madurai-2

Cost towards CSR	= Rs.	17,42,940/-
Environmental upgradation cost of project	= Rs.	15,75,000/-
Estimated EMP Cost	= Rs.	4,18,000/-
Total Cost	**= Rs. 37,35,940/-**	

(The project cost including EMP Cost is about Rupees thirty seven lakhs thirty five thousand nine hundred forty only)

12.0 MINE CLOSURE PLAN

12.1. Steps proposed for phased restoration, reclamation of already mined out areas:

It's a new quarrying project no quarried out areas within the lease applied area.

12.2. Measures to be undertaken on mine closure as per Act & Rules:

This Etc – Periodic quarrying for a depth of 1.0 m (Avg) below functional river bed level does not require any backfill, reclamation and rehabilitation, any how the closure plan will be prepared after removing the agreed quantity, leaving the floor will be leveled naturally.

12.3. Mitigation measures to be undertaken for safety and restoration / reclamation of the already mined out area:

This is a fresh Sand quarry.

Executive Engineer (Mines)
M & M Division
Madurai-2

12.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

(i) Permission will be obtaining from the District Mines Office to extract the sand from the Boundary barriers and for signs.

(ii) Care and precautionary measures will be taken for the safety of workers as per Rules and Acts.

(iii) The applicant will endeavour every attempt to quarry the sand economically without any wastage and to improve the environment and ecology.

Prepared by

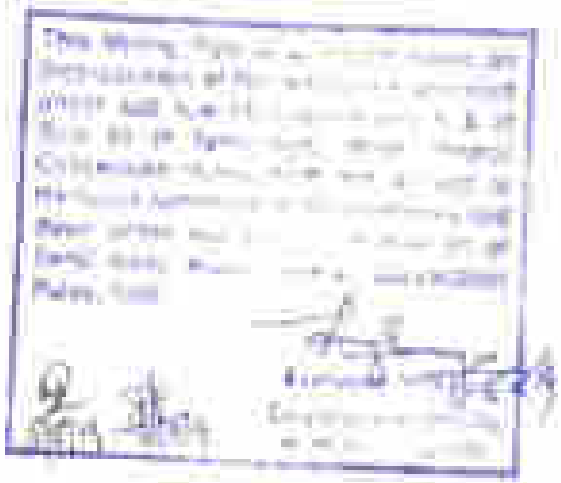
K. Rajasekar M.Sc.,

RQP/CHN/264/2015/A

K. Rajasekar, M.Sc.
Recognised Qualified Person
Reg. No. RQP / CHN / 264 / 2015/A

Place : Salem

Date :



Executive Engineer (PM&QC)
S.S.M.I.Board,
Madurai

ANNEXURE-4

அனுப்புநர்

[illegible]

பெறுநர்

[illegible]

மதுரை

[illegible] நாள் [illegible]

ஐயா,

பொருள்: [illegible]

பார்வை: [illegible]

[illegible]

*****

[illegible]

[illegible]

Executive Engineer [illegible]

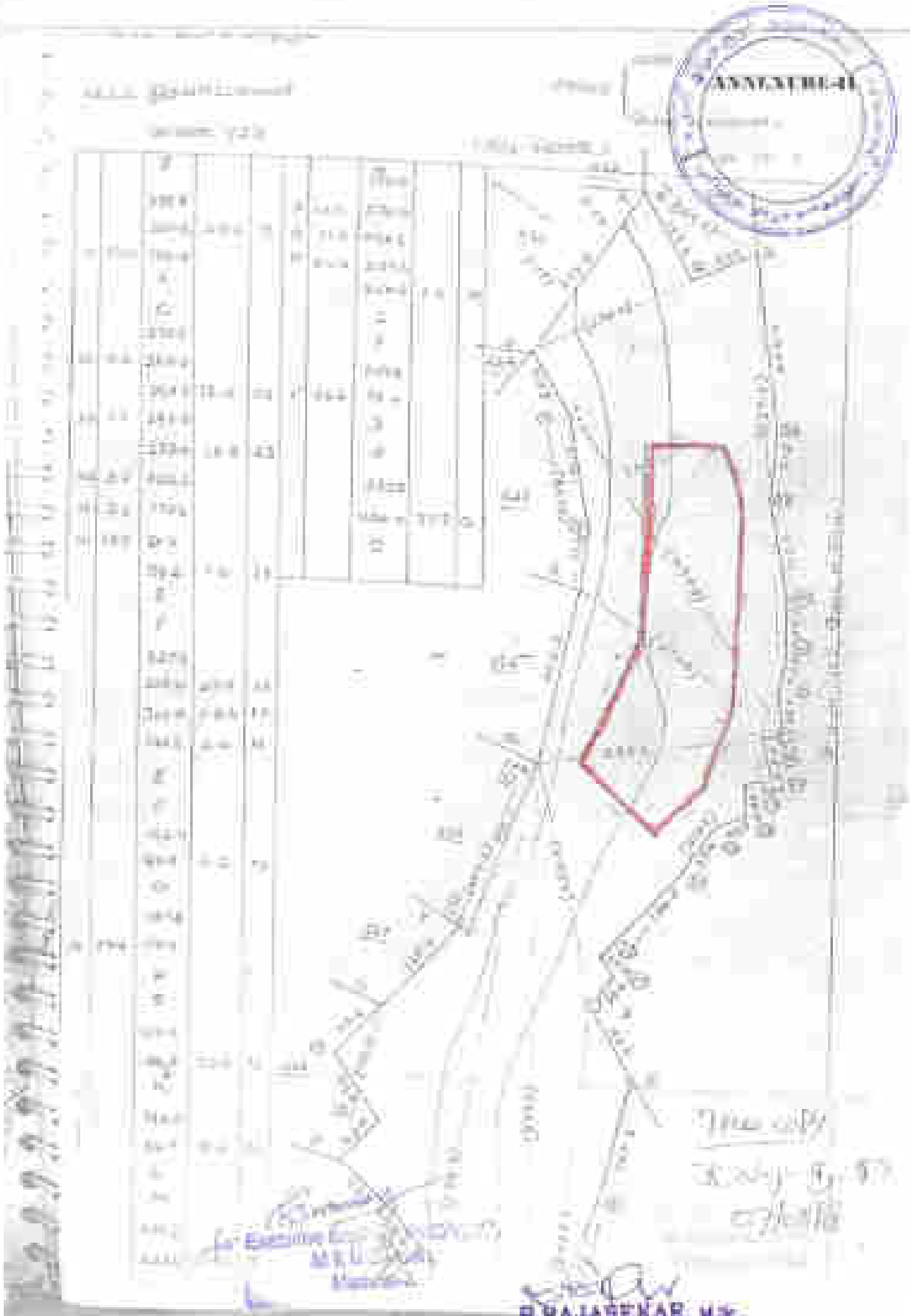
[illegible]

Madurai

R.RAJASEKAR, M.Sc.,
Recognised Qualified Person
Reg.No.RQP/CHN/364/2015/A

Executive Engineer (HSG) WSD,
M & M Division,
Madurai-2

ANNEXURE-II



LEASE APPLIED AREA

R.RAJASEKAR, M.Sc.,
Recognised Qualified Person
Reg.No.RQP/CBN/264/2015(A)

ANNEXURE-III

LEASE APPLIED AREA

R. RAJASEKAR, M.Sc.,
Recognised Qualified Person
No RQP/CNR/264/2015/A

ANNEXURE-IV

Executive Engineer
M & M Division
Pollachi-2

R.RAJASEKAR, M.Sc.,
Recognised Qualified Person
Reg.No.RQP/CHN/264/2013/A

CS @ 0m

EXISTING LEVEL (m)	THEORITICAL BED LEVEL (m)	DIFFERENCE (m)	MEAN DIFF (m)	DIST (m)	QTY IN m3
8.765	8.9	0.265			
8.998	8.9	0.398	0.332	35	20.790
9.08	8.8	0.480	0.439	35	14.840
		TOTAL			35.630

CS @ 50m

EXISTING LEVEL (m)	THEORITICAL BED LEVEL (m)	DIFFERENCE (m)	MEAN DIFF (m)	DIST (m)	QTY IN m3
8.617	8.34	0.277			
8.613	8.34	0.273	0.175	35	6.108
8.55	8.34	0.210	0.242	35	8.225
		TOTAL			14.333

CS @ 100m

EXISTING LEVEL (m)	THEORITICAL BED LEVEL (m)	DIFFERENCE (m)	MEAN DIFF (m)	DIST (m)	QTY IN m3
8.745	8.48	0.265			
8.671	8.48	0.191	0.228	35	7.980
8.724	8.48	0.244	0.218	35	7.613
		TOTAL			15.593

CS @ 150m

EXISTING LEVEL (m)	THEORITICAL BED LEVEL (m)	DIFFERENCE (m)	MEAN DIFF (m)	DIST (m)	QTY IN m3
8.638	8.43	0.208			
8.63	8.43	0.200	0.204	35	7.140
8.642	8.43	0.212	0.206	35	7.210
		TOTAL			14.350

CS @ 200m

EXISTING LEVEL (m)	THEORITICAL BED LEVEL (m)	DIFFERENCE (m)	MEAN DIFF (m)	DIST (m)	QTY IN m3
8.3587	8.26	0.099			
8.635	8.26	0.375	0.237	35	8.295
8.675	8.26	0.415	0.395	35	13.825
		TOTAL			22.120

Executive Engineer
M & M Division,
Madurai-2.

CH @ 250m

EXISTING LEVEL (m)	THEORITICAL BED LEVEL (m)	DIFFERENCE (m)	MEAN DIFF (m)	DIST (m)	QTY IN m2
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
TOTAL					[illegible]

CH @ 300m

EXISTING LEVEL (m)	THEORITICAL BED LEVEL (m)	DIFFERENCE (m)	MEAN DIFF (m)	DIST (m)	QTY IN m3
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
TOTAL					[illegible]

CH @ 350m

EXISTING LEVEL (m)	THEORITICAL BED LEVEL (m)	DIFFERENCE (m)	MEAN DIFF (m)	DIST (m)	QTY IN m2
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
TOTAL					34.500

CH @ 400m

EXISTING LEVEL (m)	THEORITICAL BED LEVEL (m)	DIFFERENCE (m)	MEAN DIFF (m)	DIST (m)	QTY IN m2
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
TOTAL					17.654

[illegible]

MINEABLE RESOURSE OF SAND DEPOSIT					
S.No	CS.L	AREA (m2)	MEAN AREA (m2)	DISTANCE (m)	QTY IN M3
1	Dec	[illegible]			
2	60m	12,858	24,201	60	1452,474
3	100m	22,98	16,440	40	1316,520
4	150m	28,23	22,665	50	1133,250
5	200m	26,902	25,516	50	1275,794
6	250m	15,34	22,571	50	1128,566
7	300m	13,093	14,469	50	723,432
8	350m	24,3	24,288	50	1272,413
9	400m	17,591	25,152	50	1302,388
10	TRIANGULAR AREA				319,000
TOTAL					9298,163
TOTAL (ROUND OFF)					9298

R.RAJASEKAR, M.Sc.,
Recognised Qualified Person
Reg No.RQP/CHN/294/2015/A

Executive Engineer PWD/WRO
M & M Division,
Madurai-2.

GOVERNMENT OF INDIA
MINISTRY OF MINES
INDIAN BUREAU OF MINES

CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON
(Under Rule 22C of Mineral Concession Rules, 1960)

Shri. R. Rajaraman, S/o. Ramanathan V, No.4A, Chettiar Nagar, Perradam P.O, Tirubuvanai Taluk, Cuddalore – 605 111 whose Photograph and signature is affixed hereto above, having been satisfied by evidence of his qualifications & experience hereby RECOGNISED under Rule 22C of the Mineral Concession Rule, 1960 as a Qualified Person to prepare Mining Plans.

The registration number is [redacted]

This recognition is valid for a period of 10 years ending on 27.01.2025

This certificate will liable to be withdrawn / cancelled in the event of furnishing the wrong information / documents in the Mining Plan submitted by him.

Place : Chennai
Date : 28.04.2015

Regional Controller of Mines
Indian Bureau of Mines
Chennai Region

Executive Engineer (P&R)
M & M Division
Madurai.

09°40'20.68" N

78°52'38.81" E

78°52'38.81" E

09°42'06.80" N

PLATE NO-I

APPLICANT:

THE EXECUTIVE ENGINEER,
PWD/WRD,
MINING AND MONITORING DIVISION,
MADURAI.

LOCATION:

S.F.NO : 283(P),
EXTENT : 4.85.0 Ha.
VILLAGE : KOTTAMADAI-I,
TALUK : R.S.MANGALAM,
DISTRICT : RAMANATHAPURAM.

INDEX

QUARRY LEASE APPLIED AREA :

TOPO SHEET NO : 58 K/14,

LATITUDE : 09°41'05.30"N to 09°41'20.10"N

LONGITUDE : 78°52'31.20"E to 78°52'38.81"E

LEGEND

- State Boundary
- District Boundary
- National Highway with no
- Major Roads
- Railway Line
- State Capital
- Union Territory Capital
- District Headquarters
- Other Towns
- Tourist Places
- Airport
- Station

LOCATION PLAN

NOT TO SCALE

PREPARED BY

THE PLANS AND SECTIONS PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY THE STATE GOVERNMENT

D.RAMASUBRAMANI,
RECOGNISED QUALIFIED PERSON
RQP/CHN/264/2015/A

Executive Engineer/PWD/WRD,
M & M Division,
Madurai-2

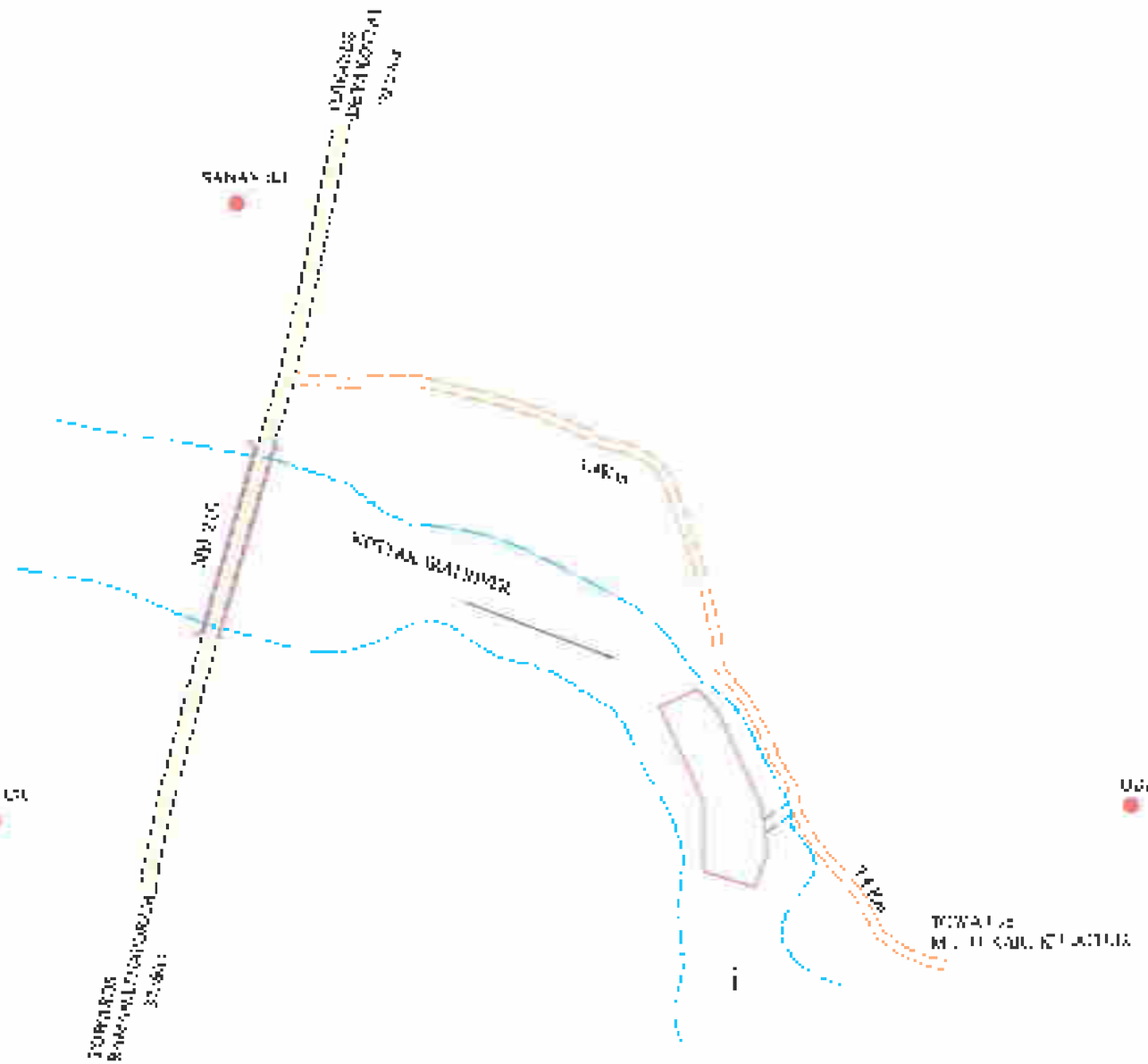


PLATE NO:II

APPLICANTS:

THE EXECUTIVE ENGINEER,

PWD (WRM),

MINING AND MONITORING DIVISION

BAILHONGAL.

LOCATION

TALUK	BAILHONGAL,
DISTRICT	BELAGAVI,
VILLAGE	KOTTAL BAILHONGAL,
HOBLI	BAILHONGAL,
STATE	KARNATAKA

INDEX

Q.L.A BOUNDARY	
APPROACH ROAD	
NH-210	
PANCHAYAT ROAD	
STREAM/CHANNEL	
HABITATIONS	

KEY PLAN

NOT TO SCALE

REMARKS:

THE PLANS AND SECTIONS ARE PREPARED BASED ON THE ISSUE MAP GIVEN BY GEOLOGY DEPARTMENT

EXECUTIVE ENGINEER,
PWD(WRM),
BAILHONGAL

Executive Engineer,PWD(WRM),
M & M Division,
Mangaluru.

PLAN NO.[illegible]

APPLICANT:

THE EXECUTIVE ENGINEER,
PWD/WRO,
MINES AND MONITORING DIVISION,
MADURAI.

LOCATION

S.F.NO : 523(P).
EXTENT : 4.86.0 Ha.
VILLAGE : PUDUAMADAI-II.
TALUK : R.S.MANGALAM,
DISTRICT : RAMANATHAPURAM.

INDEX

TOPO SHEET NO : 58-K/14,
LATITUDE : 09°42'56.80"N to 09°45'20.60"N
LONGITUDE: 78°52'31.20"E to 78°52'05.81"E

Q.L.A BOUNDARY

10KM RADIUS

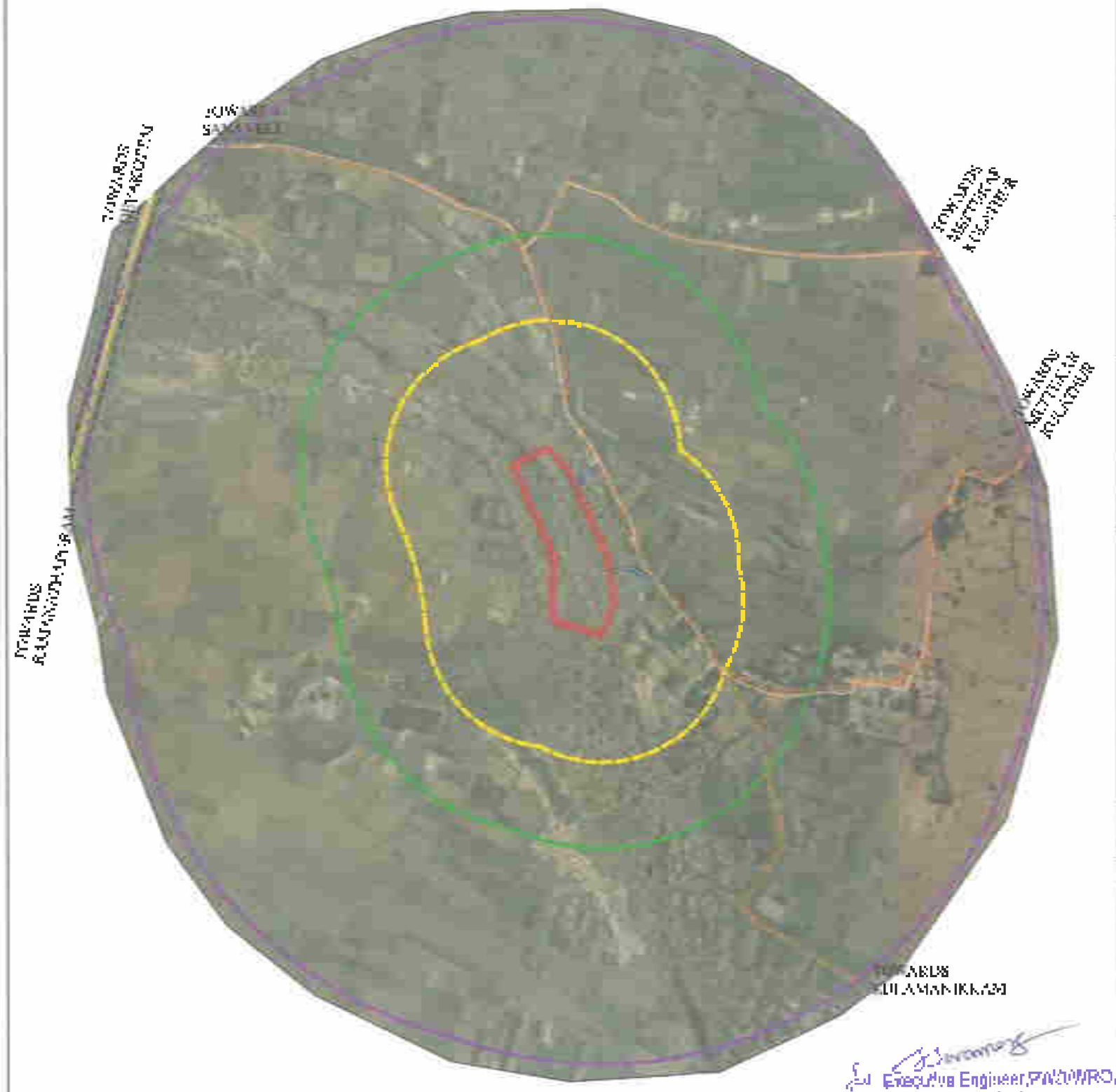
TOPO SKETCH OF QUARRY LEASE APPLIED AREA FOR 10KM RADIUS
SCALE:- 1:1,00,000

PREPARED BY

THE PLANS AND SECTIONS PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY THE STATE GOVERNMENT.

K.PANNEERSELVAM, M.Sc.,
RECOGNISED QUALIFIED PERSON
RQP/COA/284/2015/A

for Executive Engineer, PWD/WRO,
M & M Division,
Madurai-2.



PLAN NO-IV

APPLICANT:

THE EXECUTIVE ENGINEER,
PWD/WRO,
MINING AND ROCK QUARRY DIVISION,
MADURAI.

LOCATION:

S.F.NO : 523(P),
EXTENT : 4.85.0 Ha.,
VILLAGE : PULLAMADAI-II,
TALUK : R.S.MANGALAM,
DISTRICT : RAMANATHAPURAM.

INDEX

Q.L.A BOUNDARY

500m BUFFER

1000m BUFFER

1Km BUFFER

APPROACH ROAD

NATIONAL HIGHWAY

PANCHAYAT ROAD

SATELLITE IMAGE

SCALE : 1000

PREPARED BY

THE PLANS AND SECTIONS PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY THE STATE GOVERNMENT

R.RAJENDRAN M.Sc.,
RECOGNISED QUALIFIED PERSON
(QP/CHE/254/2020)

Executive Engineer,PWD/WRO,
M & R Division,
Madurai-2

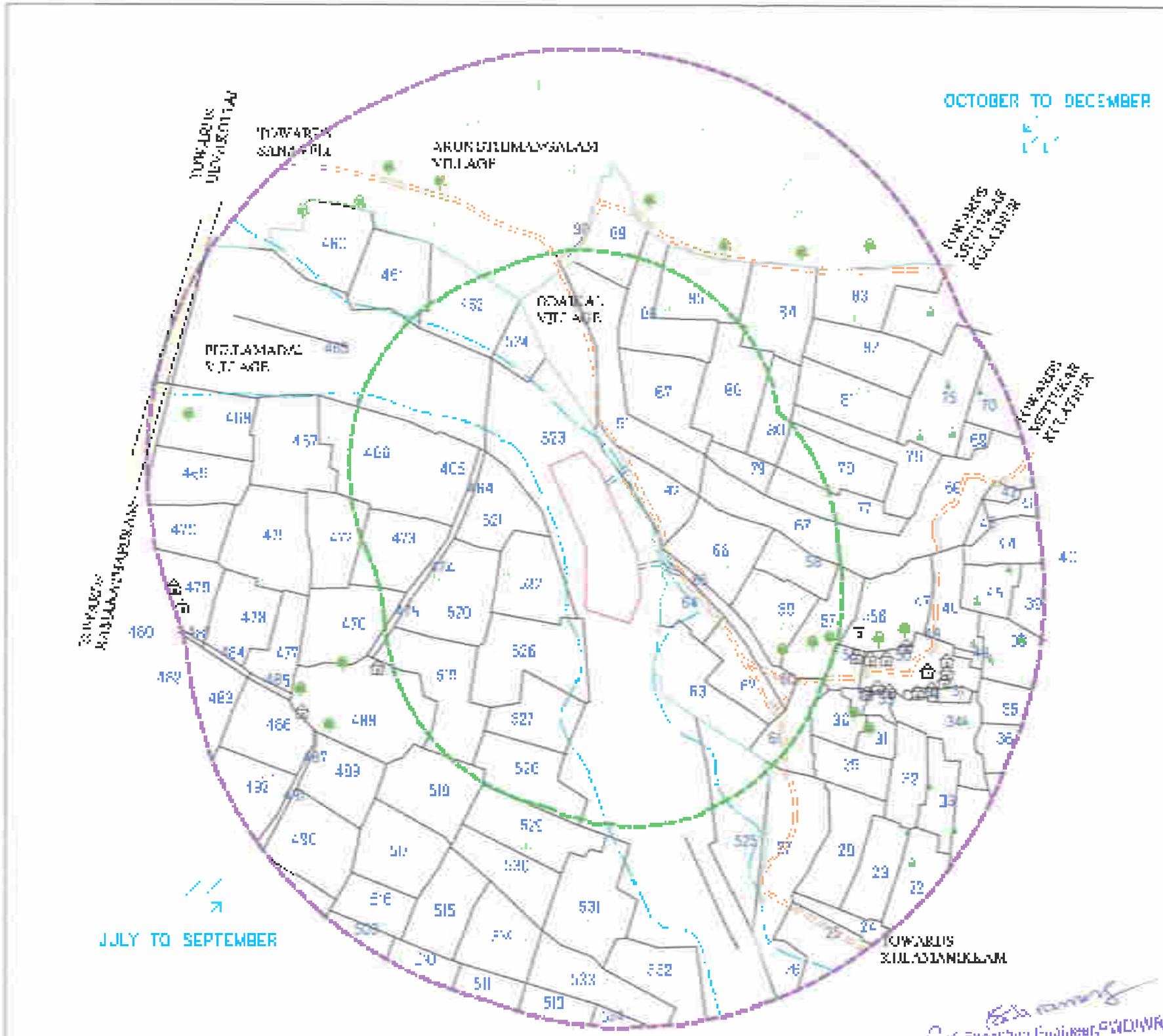


PLATE NO :

APPLICANT:
THE EXECUTIVE ENGINEER,
TWAD(WRD),
SAND QUARRY MONITORING DIVISION,
MADURAI.

LOCATION:

S.F.NO : 525/1P1.
EXTENT : 4.86.0 Ha.
VILLAGE : PUDUPALAYAM(V),
TALUK : R.S.MANGALAM,
DISTRICT : RAMANATHAPURAM.

INDEX

- C.L.A BOUNDARY
- 300m RADIUS
- 500m RADIUS
- 1Km RADIUS
- APPROACH ROAD
- PANCHAYAT ROAD
- NATIONAL HIGHWAY
- TREES
- WIND DIRECTION
- BARREN LAND
- SEASONAL AGRICULTURAL LAND
- STREAM/RIVER/CHANNEL
- HABITATION
- BRIDGE
- WELL
- VILLAGE BOUNDARY

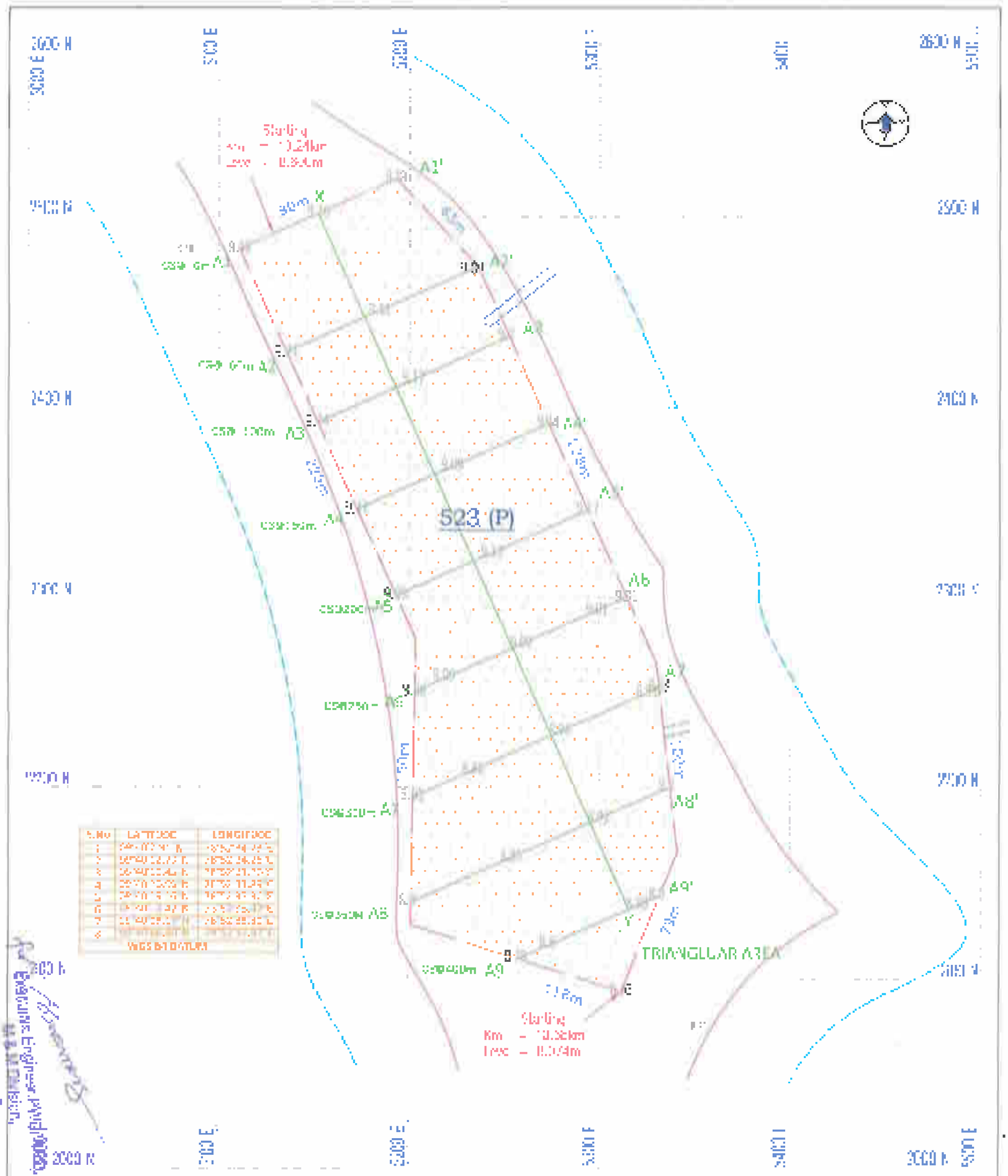
ENVIRONMENT MANAGEMENT PLAN
SCALE : 1:5000

RESPONSIBILITY

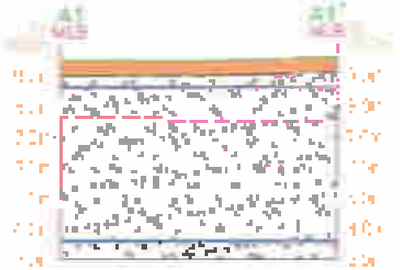
THE PLANS AND SECTIONS PREPARED BASED ON THE BASIC MAP AUTHENTICATED BY THE STATE GOVERNMENT

Executive Engineer, TWDB(WRD),
M & M Division,
Madurai-2.

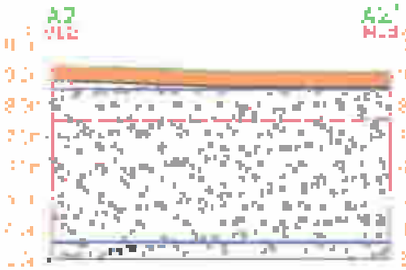
[redacted]
LICENSED SURVEYOR,
WP/CON/264/2015


523 (P)
TRIANGULAR AREA
Starting
Km – 0.24km
Easting – 0.54m
Starting
Km – 0.32km
Easting – 0.04m
A1
A2
A3
A4
A5
A6
A7
A8
A9
A1'
A2'
A3'
A4'
A5'
A6'
A7'
A8'
A9'
X
Y
Z
B
C
72.8m
LATITUDE
LONGITUDE
PLATE NO: [illegible]
APPLICANT:
MINING AND MONITORING DIVISION,
LOCATION:
VILLAGE : TUKLAKANDAM
TALUK :
DISTRICT :
QUARRY LEASE SITE BACK & FORE SIGHT TIE ALL
SCALE : 1:2000
THE PLANS AND SECTIONS PREPARED
BASED ON THE TOPOG MAP
SURVEYED BY THE STATE
GOVERNMENT
PREPARED QUALIFIED
Engineering Geologist
Madurai-2

SECTION ALONG A1-A1'



SECTION ALONG A2-A2'



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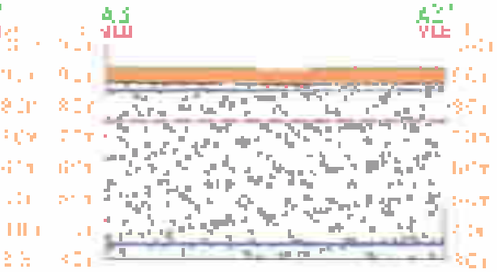

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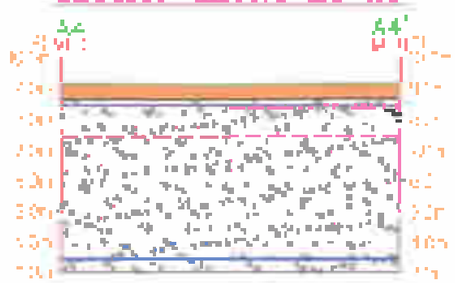

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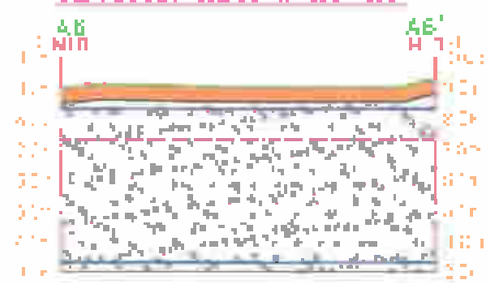
SECTION ALONG A6-A6'



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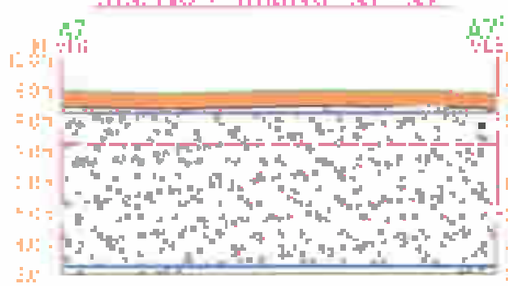

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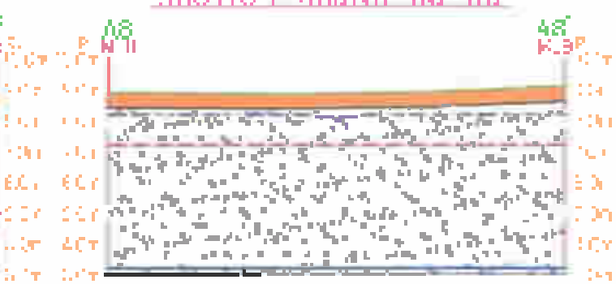

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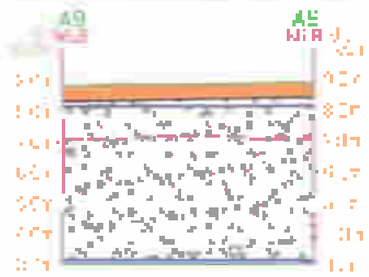

SECTION ALONG X-Y

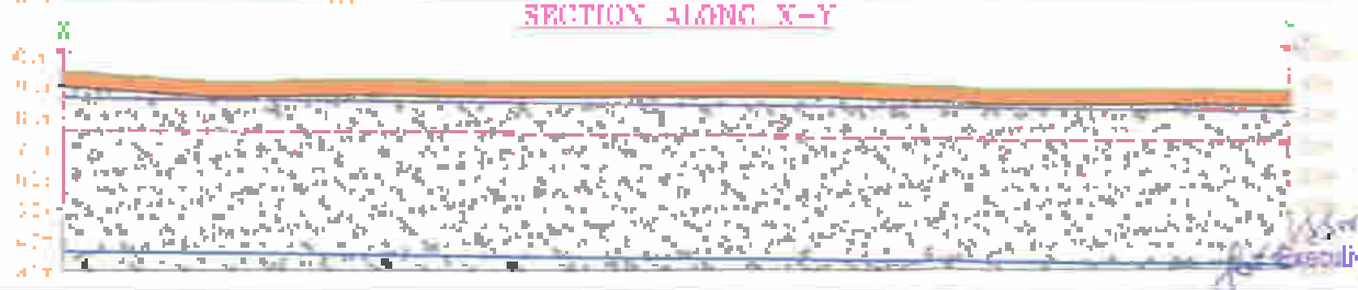

PLATE NO V3

APPLICANT:

THE EXECUTIVE ENGINEER,
PWD/WRD,
MINING AND MONITORING DIVISION,
MADURAI DISTRICT.

LOCATION:

S.F.NO : 53A3P,
EXTENT : 4.68.0 Ha,
VILLAGE : PULLAMADAI,
TALUK : K.S.KANGALAM,
DISTRICT : RAMANATHAPURAM.

INDEX

QUARRY LEASE APPLIED AREA

NORMAL GROUND LEVEL

DEPTH OF EXCAVATION

GEOLOGICAL FORMATION

OVER BURDEN

SAND

SILT

QUARRY LEASE, SURFACE & TOPOGRAPHICAL CONTOUR PLAN SECTION

SCALE: SECTION 1CM = 1M, 1CM = 2M

PREPARED BY

THE PLANS AND SECTIONS PREPARED BASED ON THIS LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

R.RAMASWAMY M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/CHN/264/2015/A

Executive Engineer/PWD/WRD
M & M Division
Madurai-2.