

Morayoor Granites Pvt. Ltd

Mr.Ummer Kutty K

Director of Morayoor granites Pvt Ltd

Mucheth House, Elambra Nellikuzhy Ernakulam-686691

From

Mr. Ummer Kutty K

Director

Morayoor granites Pvt Ltd

Mucheth House, Elambra

Nellikuzhy Ernakulam-686691

To

The Director- IA. II

(M), (Non-Coal Mining

Sector)

Ministry OF Environment, Forest & Climate Change

Indira Paryavaran Bhawan,

Jorbagh, New Delhi- 110003

Respected Sir,

Ref 1: Proposal No. IA/KL/MIN/232178/2021

Ref 2: As per minutes of 16th EAC (Non-Coal Mining) meeting held on 20th June, 2023

Ref 3: MoEF&CC file no: IA-J-11015/82/2021-IA-II(NCM)

Ref 4: ADS information through Mail alert

Sub: ADS submission of environmental clearance application for Granite Building Stone Quarry of M/s Morayoor Granites Private Limited, for an extent of 4.9797Ha.

I, Ummerkutty, the Director of proposed Granite Building Stone Quarry of Morayoor Granites Pvt Ltd which is situated at Re Survey No.152/1-1, 152/1, 159/1-1, 159/1-2, 159/1-3, 160/1-1, 160/1-2, 160/1-3, 160/1-4, Re Survey Block No. 56 of Morayur Village, Kondotty Taluk, Malappuram District, Kerala for an area of 4.9797 hectares.

We have submitted an application for Environmental Clearance for our project at EAC through Parivesh online portal. The application was considered in 16th EAC meeting. In the 16th EAC minutes states that, proponent has to submit the detailed Subsidence study under the guidance of qualified RQP, and to submit a letter from Forest Department, that mine site is not a forest land. We have received a mail subject that Proponent has to submit the point wise reply to the recommendations of the subcommittee.

In the view of submission of above document, we request you to consider our application for the further proceeding to grant the environmental clearance, at your earlier convenience

Yours faithfully,



Place: Malappuram

Date: 19-01-2024

Mr. Ummerkutty K
Authorized Signatory

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3.	<p>The PP shall construct Garland drains around the mining pits to channelize surface water from higher elevation areas to nearby areas within mining lease. The Garland drains will have silt check dams at regular interval. Finally, the Garland drains will be terminated into settling ponds where the sediments will get settled and rain water should be harvested by construction of rain water harvesting pond/tank.</p> <p>Retaining walls will be erected around the temporary waste dumps, which will eventually be backfilled into the mined out pits</p>	6
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ANNEXURE

Sl. No.	Annexure
1	Forest Letter
2	Tree species Study
3	Subsidence Study
4	Kml
5	Survey Map

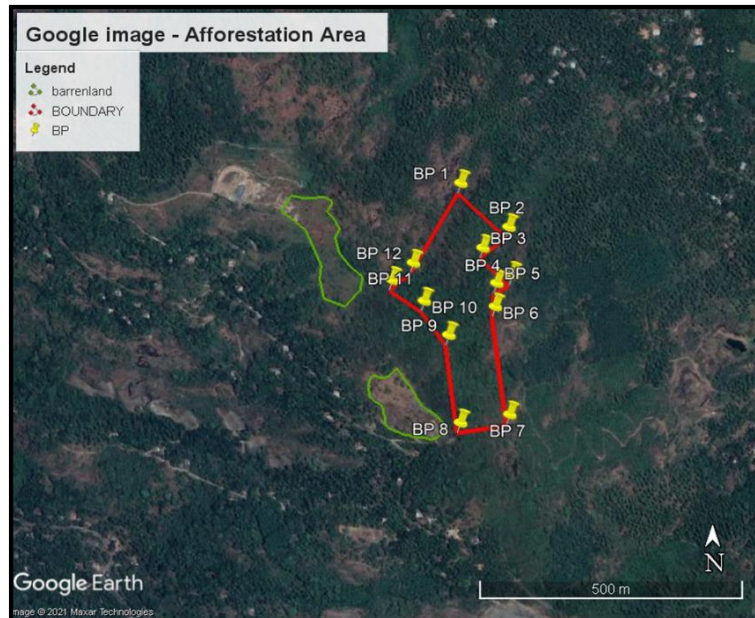
1. The project proponent to obtain a letter from the Forest Department, that mine site is not a forest land. Project Proponent shall undertake a survey to count the number of trees present in the lease area.

We have received the Letter from the Office of the Divisional Forest Officer, Nilambur North Division dated on 13.12.2023, informing that the proposed land of Morayoor Granites Pvt Ltd for the Granite building stone quarry situated at Re Survey No.152/1-1, 152/1, 159/1-1, 159/1-2, 159/1- 3, 160/1-1, 160/1-2, 160/1-3, 160/1-4, Re Survey Block No. 56 of Morayur Village, Kondotty Taluk, Malappuram District, Kerala for an area of 4.9797 is a non-forest land. The said letter has attached as Annexure 01.

Aswell we have conducted a study in tree species and examined that the total number of trees present in the proposed land is 657 number of trees, out of this number of tree species present in core zone area is 362 shall be removed for the mining activities and number of tree species present in greenbelt (7.5 m Buffer zone) area is 295, which will be maintained as such during project operation phase. Detailed Tree species report has attached as Annexure 02

2. The PP should take permission before felling of trees and shall take compensatory plantation activities if applicable.

The proposed site is coming under private owned land of proponent. The land area is filled with native species and it doesn't include any endemic/endangered species. As the site doesn't fall in forest land and found majority of trees species belong to the tropical tree crops like Rubber tree *Hevea bresiliensis* , hence permission on felling of trees is not necessary. The trees within the mining core area has to be removed for the mining activities. However, as a part of EMP, Compensatory afforestation has proposed near to the applied area in order to compensate the loss of 362 trees, here by suggesting an afforestation plan by planting 5 times of core area about 2000 nos of trees is planning to plant in 5 different periods in the nearby own land, and also the greenbelt area (7.5m buffer zone zone) will be maintained with existing 295 nos of existing plantation and improve the same by planting 600 nos of tree species.



Year	Number of Plants	Area in Hectares	Expecting Survival Rate
1	400	0.8	90-95%
2	400		
3	400		
4	400		
5	400		
Total	2000		

3. The PP shall construct Garland drains around the mining pits to channelize surface water from higher elevation areas to nearby areas within mining lease. The Garland drains will have silt check dams at regular interval. Finally, the Garland drains will be terminated into settling ponds where the sediments will get settled and rain water should be harvested by construction of rain water harvesting pond/tank. Retaining walls will be erected around the temporary waste dumps, which will eventually be backfilled into the mined out pits

- ✓ A garland drainage will be constructed at the start of mining itself.
- ✓ In the initial phase, garland drainage with silt traps will be constructed along the boundary pillars BP8-BP10-BP11-BP12.

- ✓ While mine progressing stage, garland drain will be constructed along the boundary pillars BP8-BP7-BP6-BP5-BP4.
- ✓ We will construct the garland drain of above mentioned area.
- ✓ In the second year, Garland Drainage with silt traps constructed in the northern stretch of the lease area i.e, along the boundary pillars BP2-BP1.
- ✓ Garland Drains will be constructed in the lower slope of Project area about having dimensions of 1m width around the working benches
- ✓ The surface runoff water from the quarry area carries by Garland Drains and flows through silt traps at each slope breaks.
- ✓ Collected run-off from the lease area passes through De siltation tanks.
Two De siltation tanks will be proposed in the quarry area.
- ✓ One De siltation tank will be proposed nearer to the boundary pillars BP6 having dimensions of 3mx1.5mx2.5m and another one proposed nearer to boundary pillar BP2 of lease area having dimensions of 3mx1.5mx2.5m.
- ✓ We will construct the De siltation tanks. Clarified and controlled water flow passes through check dam.
- ✓ From the check dam, the controlled flow only connects to the existing natural Drainage
- ✓ Top soil and Over Burden is managed by storing in the lowest part of the mining area i.e, in the North Side
- ✓ Protected with retaining walls made of RCC having dimensions of 2.5m height and 1m width.
- ✓ Retaining wall will have weep holes to drain out water to the garland drain, we will maintain the stability of topsoil and overburden by providing proper seeding.
- ✓ The retaining wall will be constructed within the first year of the mining period.

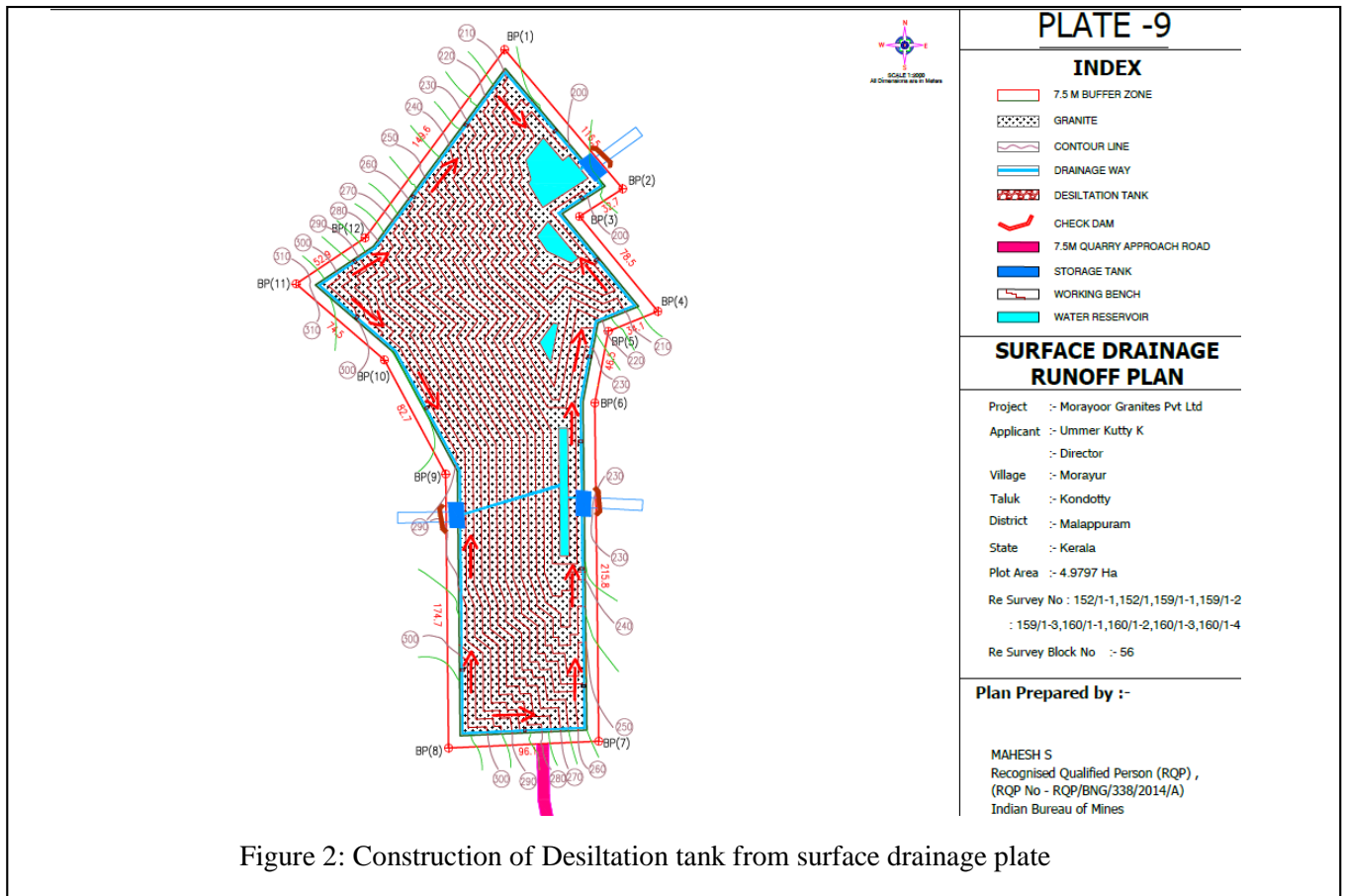


Figure 2: Construction of Desiltation tank from surface drainage plate

4. Owing to the hilly terrain and steep slopes, committee is of the opinion that project proponent may undertake land subsidence studies through a qualified geologist and report to submit to the Ministry and IRO.

We have conducted slope stability report of the proposed project with 2 qualified RQP's Mr. Jayachandra Panicker. P, former Senior Geologists of Department of mining and geology, Kerala, and Mr. Mahesh. S. is also a well-qualified RQP registered from Indian Bureau of Mines. Attaching the subsidence study report as Annexure 03

5. During site visit, no habitation seen within a vicinity of 200 meters and the same has been reiterated through google earth image.

There is no habitation is occurring in 200m area, hence we are attaching google earth image of 200m area as Annexure 04 and also we are attaching the survey map of the same as Annexure 05

6. To maintain the pristine nature of the Hill, committee was of the opinion that PP should include provision for permanent sprinklers for the entire mineral transportation route.

Water Dynamics offers multiple solutions for mine sites to assist in suppressing the dust that is generated from mining activities. Sprinklers are available at the site and are using at the time of generating dust from the site and make wet the internal roads daily. Sprinkler systems are highly effective for dust control and suppression by distributing water droplets more evenly over large areas. About 10no's of sprinklers and mist canister will be providing in the quarry site. 1500 litres of water tanker vehicles will be used for wetting of approach road and haul road.

ANNEXURE 1



RAVEENDRANATHAN.M.P
Divisional Forest Officer
Nilambur North Division
(Full additional charge)

Office of the Divisional Forest Officer,
Nilambur North Division,
Nilambur - 679 329.
☎ Office: 04931 220232
Email: dfo.nilamburnorth@gmail.com
dfo-nlbrn.for@kerala.gov.in

L-7379/2023

Date: 13.12.2023

The District Geologist,
Malappuram.

Sir,


Sub:- Mines and minerals - Quarrying lease application of Morayur granites Pvt. Ltd - reg.

- Ref:-
1. That office letter no. D.O.M/M-4211/2018 dated 21.07.2023.
 2. This office Letter no. L-7379/2023 dated 07.11.2023.
 3. That office Letter no. D.O.M/M-4211/2022 dated 05.12.2023.

Attention is invited to the references cited. In continuation of reference (2) letter, you are hereby informed that the proposed land for quarrying operation leased out by Morayur Granite Private Limited, which comprises in survey No. 152/1-1, 152/1, 159/1-1, 159/1-2, 159/1-3, 160/1-1, 160/1-2, 160/1-3, 160/1-4 of block 56 in Morayur village of Kondotty Taluk in Malappuram District is non-forest land. The above land is situated at an aerial distance of 2.1 kilometers away from the nearest forest land.



Yours faithfully


Divisional Forest Officer,
Nilambur North Division.

ANNEXURE 2

BIODIVERSITY ASSESMENT REPORT

FOR

GRANITE BULDING STONE QUARRY

OWNED BY

M/s MORAYOOR GRANITES PVT LTD

EXTENT : 4.9797 Ha,

RE SURVEY NO. 152/1-1, 152/1, 159/1-1, 159/1-2, 159/1-3, 160/1-1,

160/1-2, 160/1-3, 160/1-4,

Re Survey Block No. 56 of Morayur Village, Kondotty Taluk,

Malappuram District, Kerala

Biodiversity Assessment Report

Declaration of experts contributed to Biodiversity Assessment Report

We prepared this Biodiversity Assessment Report for the Granite Building Stone quarry for M/s Morayoor Granites, Proposed building stone quarry, in Re Survey No.152/1-1, 152/1, 159/1-1, 159/1-2, 159/1-3, 160/1-1, 160/1-2, 160/1-3, 160/1-4, Re Survey Block No. 56 of Morayur Village, Kondotty Taluk, Malappuram District, Kerala for an area of 4.9797 hectares in favor of Mr. Ummer Kutty K, Director of Morayoor Granites Pvt Ltd. Observations from the field visit and Fact analysis reproduced in this report.

For Prime Technology Services


Technical Manager



Mr. Arun Kumar R
Technical Manager

PROJECT SITE DESCRIPTION

The building stone quarry (Minor Mineral) project of M/s Morayoor Granites is situated at Re Survey No.152/1-1, 152/1, 159/1-1, 159/1-2, 159/1-3, 160/1-1, 160/1-2, 160/1-3, 160/1-4, Re Survey Block No. 56 of Morayur Village, Kondotty Taluk, Malappuram District, Kerala for an area of 4.9797 hectares.

The site is mainly covered by rubber plantation with exposed rocks in some part of the area

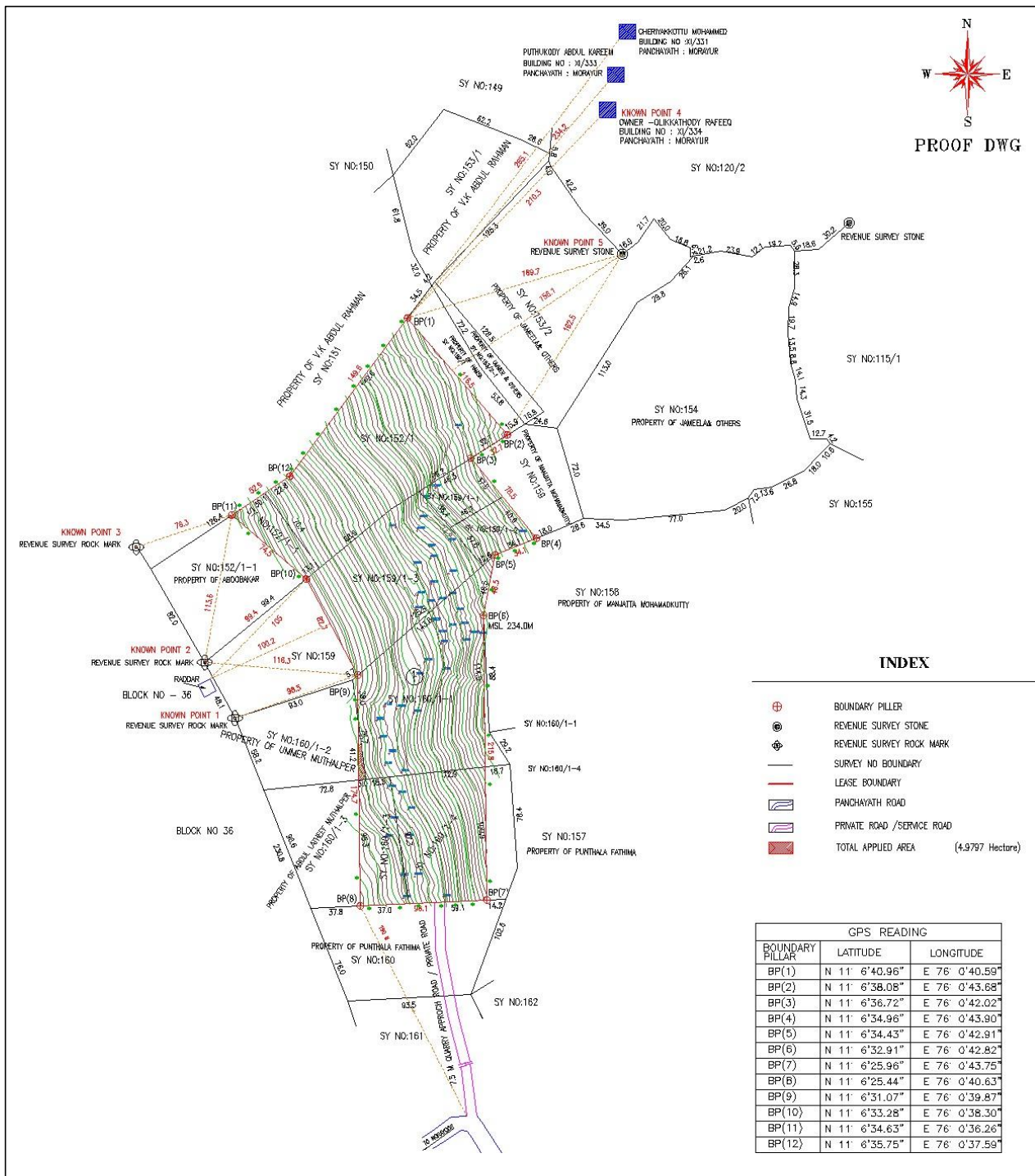


Figure 1. Survey Map of Area

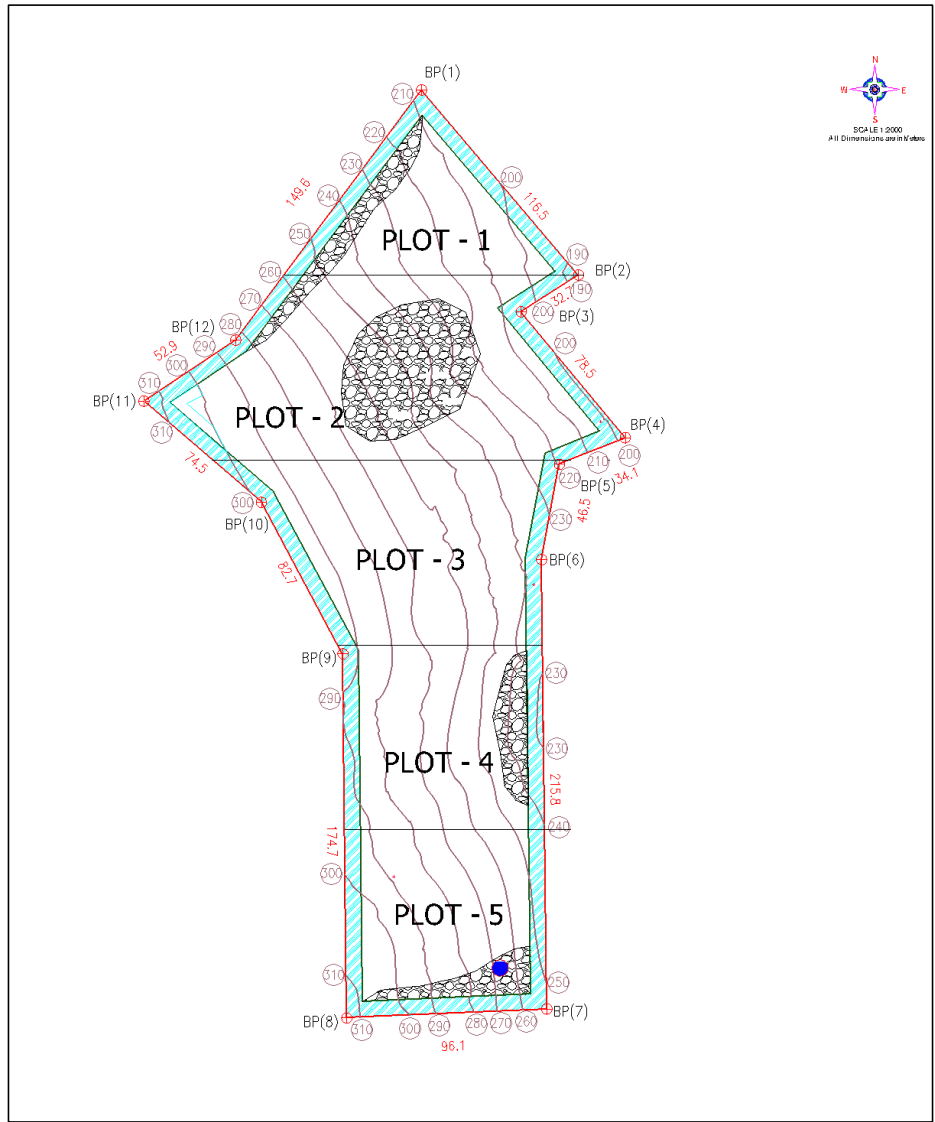


Figure 2. Schematic Diagram with Sample Plots

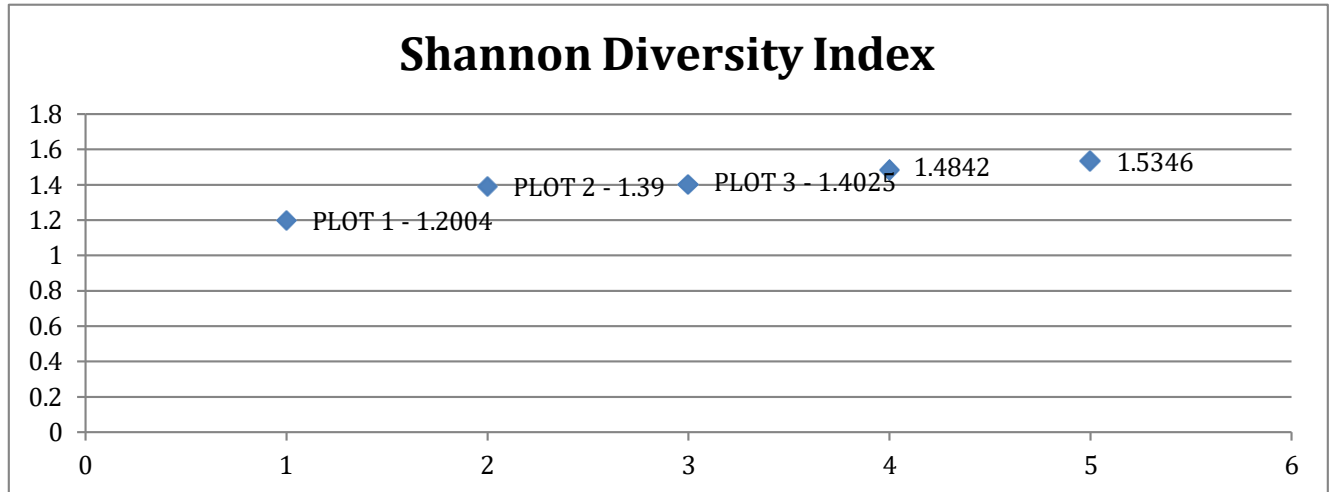
Brief Summary of Rapid Biodiversity Assessment

	Species	Plot 1		Plot 2		Plot 3		Plot 4		Plot 5		Total
		Core Zone	Barrier Zone	Core Zone	Barrier Zone	Core Zone	Barrier Zone	Core Zone	Barrier Zone	Core Zone	Barrier Zone	
1	<i>Hevea bresiliensis</i>	42	36	48	37	54	41	43	37	46	36	420
2	<i>Artocarpus heterophyllus</i> Lam.	1	0	0	1	1	1	0	1	1	0	6
3	<i>Bombax ceiba</i> L.	1	1	1	0	0	1	1	1	1	1	8
4	<i>Caryota urens</i> L.	1	2	1	1	1	1	1	1	2	1	12
5	<i>Cocos nucifera</i> L.	1	1	1	2	3	1	1	0	2	1	13
6	<i>Dillenia pentagyna</i> Roxb.	0	1	0	1	0	0	0	1	1	0	4
7	<i>Ficus hispida</i> L. f.	1	2	2	2	3	2	3	2	3	3	23
8	<i>Gliricidia sepium</i> (Jacq.) Kunth ex Walp.	2	4	4	3	4	5	6	4	9	7	48
9	<i>Macaranga peltata</i> (Roxb.) Muell.-Arg.	2	2	5	3	8	4	10	6	7	4	51
10	<i>Mangifera indica</i> L.	0	0	0	0	1	0	1	0	1	0	3
11	<i>Sapindus trifoliatus</i> L.	2	0	1	1	1	1	1	1	1	1	10
12	<i>Swietenia macrophylla</i> King	1	2	3	3	4	3	5	7	2	4	34
13	<i>Tectona grandis</i> L. f.	1	1	2	4	3	1	1	1	2	1	17
14	<i>Trema orientalis</i> (L.) Blume	0	0	1	1	2	1	1	0	1	1	8
	<i>Total</i>	55	52	69	59	85	62	74	62	79	60	657
	<i>Shannon diversity index</i>	1.2004		1.3900		1.4025		1.4842		1.5346		

No of tree within mining area (Core zone)– 362 nos

No of trees within Greenbelt barrier zone – 295 nos

The trees within the core zone has to be removed for excavation, and the trees within the barrier zone will be maintained as greenbelt barrier.



A total of 61 species of plants were record, of which 14 are trees, 21 are herbs, 17 are shrubs and 9 are climbers.

List of Trees

Sl No.	Scientific Name	Vernacular / English name	Family	Approx. Number of Trees	IUCN Status
1.	<i>Hevea bresiliensis</i>	Euphorbiaceae	Rubber	420	
2.	<i>Artocarpus heterophyllus</i> Lam.	Moraceae	Plavu	6	LC
3.	<i>Bombax ceiba</i> L.	Bombaceae	Poola	8	LC
4.	<i>Caryota urens</i> L.	Arecaceae	Aanapana	12	LC
5.	<i>Cocos nucifera</i> L.	Arecaceae	Thenga	13	LC
6.	<i>Dillenia pentagyna</i> Roxb.	Dilleniaceae	Kattupunnakai	4	LC
7.	<i>Ficus hispida</i> L. f.	Moraceae	Thondi	23	LC
8.	<i>Gliricidia sepium</i> (Jacq.) Kunth ex Walp.	Fabaceae	Cheema konna	48	LC
9	<i>Macaranga peltata</i> (Roxb.) Muell.-Arg.	Euphorbiaceae	Vatta	51	LC

10	<i>Mangifera indica</i> L.	Anacardiaceae	Mavu	3	LC
11	<i>Sapindus trifolius</i> L.	Sapindaceae	Urulungi	10	LC
12	<i>Swietenia macrophylla</i> King	Meliaceae	Mahogani	34	LC
13	<i>Tectona grandis</i> L. f.	Lamiaceae	Thekku	17	LC
14	<i>Trema orientalis</i> (L.) Blume	Ulmaceae	Aamathali	8	LC

List of Shrubs

Sl No.	Scientific Name	Vernacular/ English name	Local Name
1.	<i>Acalypha fruticosa</i> Forssk.	Euphorbiaceae	Balamunja
2.	<i>Ageratina adenophora</i> (Spreng.) King & Robins.	Asteraceae	Neelagiri
3.	<i>Allophylus cobbe</i> (L.) Raeusch.	Sapindaceae	Mukkannanpezhu
4.	<i>Bambusa bambos</i> (L.) Voss	Poaceae	Karmmaram
5	<i>Breynia retusa</i> (Dennst.) Alston	Euphorbiaceae	Aattacherukola
6	<i>Callicarpa tomentosa</i> (L.) L. in Murr.	Verbenaceae	Cheruthekku
7	<i>Calotropis gigantea</i> (L.) R. Br.	Asclepiadaceae	Erikku
8	<i>Chromolaena odorata</i> (L.) King & Robins.	Asteraceae	Communist-pacha
9	<i>Clerodendrum infortunatum</i> L.	Verbenaceae	Peruku
10	<i>Crotalaria pallida</i> Dryand.	Fabaceae	Kilukilikki
11	<i>Cycas circinalis</i> L.	Cycadaceae	Eenth
12	<i>Ficus hispida</i> L. f.	Moraceae	Thondi
13	<i>Flueggea leucopyrus</i> Willd.	Euphorbiaceae	Mulpulanji

14	<i>Grewia nervosa</i> (Lour.) Panigrahi	Tiliaceae	Cherikkotta
15	<i>Helicteres isora</i> L.	Sterculiaceae	Edampiri- Valampiri
16	<i>Hibiscus hispidissimus</i> Griff.	Malvaceae	Anicham
17	<i>Hyptis suaveolens</i> (L.) Poit.	Lamiaceae	Nattapoochedi

List of Herbs

Sl No.	Scientific name	Vernacular/ name	English	Local Name
1.	<i>Chrysopogon aciculatus</i> (Retz.) Trin.	Poaceae		Asthrapullu
2.	<i>Cleome burmannii</i> Wight & Arn.	Capparaceae		Kattukadugu
3.	<i>Cleome viscosa</i> L.	Capparaceae		Vaikadugu
4.	<i>Coldenia procumbens</i> L.	Boraginaceae		Nilamparanda
5	<i>Colocasia esculenta</i> (L.) Schott	Araceae		Kaattuchembu
6	<i>Commelina benghalensis</i> L.	Commelinaceae		Adukkavettila
7	<i>Costus speciosus</i> (Koenig) J.E. Smith	Costaceae		Aanakoova
8	<i>Curcuma longa</i> L.	Zingiberaceae		Manjal
9	<i>Cyanotis cristata</i> (L.) D. Don	Commelinaceae		Nabhali
10	<i>Cyathula prostrata</i> (L.) Blume	Amaranthaceae		Cherukadaladi
11	<i>Cyperus iria</i> L.	Cyperaceae		Iria flatsedge
12	<i>Cyperus rotundus</i> L.	Cyperaceae		Karimuttan
13	<i>Desmodium triflorum</i> (L.) DC.	Fabaceae		Cherupulladi
14	<i>Digitaria ciliaris</i> (Retz.) Koeler	Fabaceae		Henry's crabgrass
15	<i>Drymaria cordata</i> (L.) Willd. ex Roem. & Schult.	Caryophyllaceae		Pipili
16	<i>Elephantopus scaber</i> L.	Asteraceae		Aanayadiyan
17	<i>Emilia sonchifolia</i> (L.) DC.	Asteraceae		Muyalchevian
18	<i>Eragrostis unioides</i> (Retz.) Nees ex Steud.	Poaceae		Karayampullu
19	<i>Galinsoga parviflora</i> Cav.	Asteraceae		Mukuthipoovu

20	<i>Gomphrena celosioides</i> Mart.	Amaranthaceae	Nirvadamalli
21	<i>Ischaemum indicum</i> (Houtt.) Merr.	Poaceae	Chenkodipullu

List of Climbers

Sl No.	Scientific name	Vernacular/ English name	Local name
1	<i>Centrosema molle</i> Benth.	Fabaceae	Aaral
2	<i>Cryptolepis buchananii</i> Roem. & Schult.	Periplocaceae	Kattupalvalli
3	<i>Dioscorea esculenta</i> (Lour.) Burkill	Dioscoreaceae	Cherukizhangu
4	<i>Diplocyclos palmatus</i> (L.) Jeffrey	Cucurbitaceae	Iyiviralikkova
5	<i>Hemidesmus indicus</i> (L.) R. Br.	Periplocaceae	Nannari
6	<i>Ipomoea cairica</i> (L.) Sweet	Convolvulaceae	Kolambipoo
7	<i>Luffa cylindrica</i> (L.) Roem.	Cucurbitaceae	Peechinga
8	<i>Merremia umbellata</i> (L.) Hall. f.	Convolvulaceae	Kolavaravalli
9	<i>Mikania micrantha</i> Kunth	Asteraceae	Vayara
10	<i>Mimosa diplotricha</i> C. Wight ex Sanvalle	Fabaceae	Aanathottavadi
11	<i>Mucuna pruriens</i> (L.) DC.	Fabaceae	Naikurana

Records of threatened species in the area

No threatened species were observed

Endangered Species as per Wildlife (Protection) Act:

No Endangered fauna was recorded in the project area.

Endemic Species of the Project areas:

No endemic species were observed in the project area.

Migratory species of the Project areas:

No migratory fauna observed in project area.

Migratory corridors and Flight paths:

No migratory corridors and Flight paths were observed in project area.

Breeding and spawning grounds:

No breeding and spawning grounds were earmarked for the wildlife fauna in project area.

Plant composition

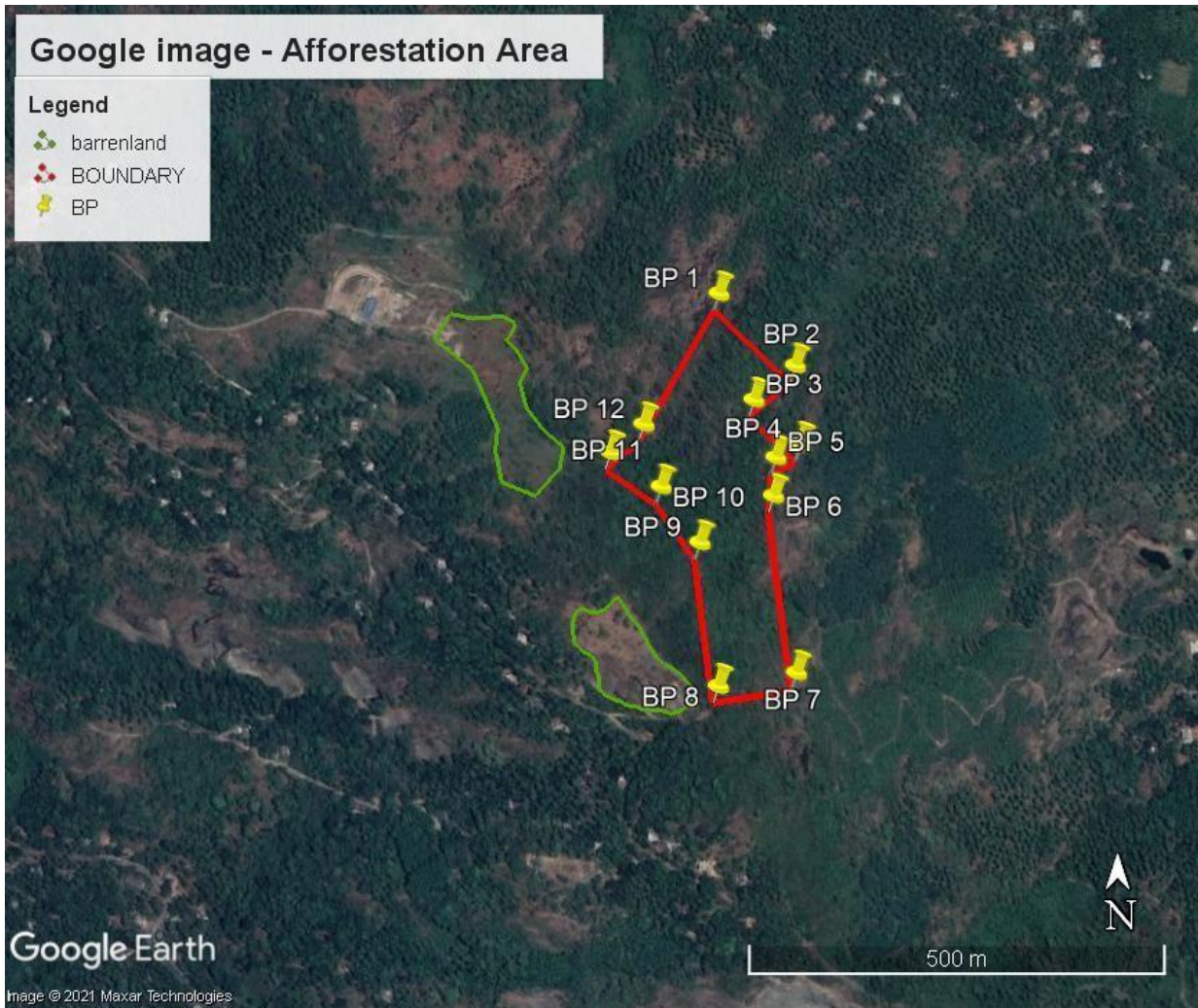
The vegetation of the study area was subdivided into 10×10 m plots for the analysis of tree composition, with a subdivision of this area into 1m ×1 m for analysis of shrub and herb composition as per the standard methodology. Totally 61 species of plants identified from the study area and the representation of these species composition indicates that, this vegetation belongs to moist deciduous type vegetation. Out of these nine were species of trees, nine were species of shrubs, six were species of climbers and four species of herbs were noted.

CONCLUSION

As discussed above area was found with least concerned species, where as it is a thick vegetation. We proposed here that active reforestation program has to be implemented with the recommended species at the nearby owned area and buffer zone.

Afforestation Plan

The total number of trees within the mine lease area is 657 in which 295 trees are in the barrier zone and 362 trees are in mining core area. The trees within the mining core area has to be removed for the mining activities. To compensate the loss of 362 trees, here by suggesting an afforestation of 750 trees in the nearby barren land. And also the greenbelt barrier zone will be maintained with more plantations.



Google image location

List of species recommended for greenbelt and afforestation

Sl.No.	Scientific name	Common name
1	<i>Anogeissus latifolia</i>	Mazhukanjiram
2	<i>Terminalia arjuna</i>	Neermaruthu
3	<i>Dalbergia latifolia</i>	Eeti
4	<i>Sterculia villosa</i>	Para Vakka
5	<i>Butea monosperma</i>	Chamatha
6	<i>Bombax ceiba</i>	Elavu
7	<i>Dillenia pentagyna</i>	Pattipunna
9	<i>Grewia tiliifolia</i>	Unnam, Chadachi
10	<i>Alstonia scholaris</i>	Eazhilam pala
11	<i>Holarrhena antidysenterica</i>	Kudakapala
12	<i>Wrightia tinctoria</i>	Danthapala

13	<i>Tabernaemontana heyneana</i>	Koonanpala
14	<i>Mimusops elengi</i>	Elanji
15	<i>Mimusops sp</i>	Mala Elanji
16	<i>Schleichera oleosa</i>	Poovam
17	<i>Litsea coriacea</i>	Vettithali
18	<i>Chionanthus mala-elengi</i>	Elanji
19	<i>Tamarindus indica</i>	Puli
20	<i>Wrightia sp</i>	Kambi Pala
21	<i>Ficus benghalensis</i>	Aal
22	<i>Ficus mysorensis</i>	Aal
23	<i>Ficus callosa</i>	Aal
24	<i>Polyanthia longifolia</i>	Arana maram

ANNEXURE 3

**“STONE QUARRY MINING PROJECT OF MORAYUR
GRANITE PVT LTD”**

SUBSIDENCE STUDY REPORT

For

Ummer Kutty K

Director

Morayoor granites Pvt Ltd

Reg. Office Mucheth House,

Elambra, Nellikuzhy,

Ernakulam District, Kerala



Pin:686691

PREPARED BY

<p>Mahesh. S RQP/BNG/338/2014/A TC31/580, Navadeepam,S N Nager Pettah (p.o), Trivandrum – 695024 Kerala.</p>	<p>Dr. Jayachandra Panikar DMG/KERALA/RQP/12/2017 Navajyothi Nagar 39A, Kadappakada P.O., Kollam District-691008</p>
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Certificate

As per the instruction from the EAC committee meeting for the Stone Quarry project of Morayoor Granites in favour of Ummer Kutty. K over an extent of 4.9797 Ha at Re-Survey No. 152/1-1, 152/1, 159/1-1, 159/1-2, 159/1-3, 160/1-1, 160/1-2, 160/1-3, 160/1-4, block no. 56 of Morayur Village, Kondotty Taluk, Malappuram District, Kerala, the Subsidence study where carried out. We had assessed the topographical features of the terrain, mining plan proposed, Sub profiling, Possibilities of Subsidence and recommended the measures to be followed during the operational phase of the project.

Sl. No.	RQP Name	RQP Reg. No.	Validity	Signature
1	Mahesh. S M-Tech in Geotechnical Engineering	RQP/BNG/338/2014/A IBM - Bangalore	01/07/2024	
2.	Dr.Jayachandra Panikar PhD in Geology (Retd. Deputy Director of Department of Mining & Geology, Kerala)	DMG/KERALA/RQP/12/2017	01-12-2027	

Place: Malappuram

Date: 21.12.2023

Undertaking

I Ummer Kutty K, Director of Morayoor Granites Pvt Ltd, hereby authorise MAHESH. S, RQP /BNG/338/2014/A and Dr.JAYACHANDRA PANIKAR, DMG/KERALA/RQP/12/2017 to prepare the Subsidence Study Report in respect of Granite Stone Quarry, over an area of 4.9797 hectares in Morayur Village, Kondotty Taluk , Malappuram District, Kerala.

I entrust them for preparing Subsidence Study Report because they are well expert in this field and Mahesh.S. is having more than 20years of experience and Dr. Jayachandra Panicker is having more than 30 years of experience.

Name of RQP:

Mahesh. S	Dr. Jayachandra Panikar
RQP/BNG/338/2014/A	DMG/KERALA/RQP/12/2017
TC31/580, Navadeepam,S N Nager	Navajyothi Nagar 39A, Kadappakada
Pettah (p.o), Trivandrum – 695024	P.O., Kollam District-691008
Validity : 01/07/2024	Validity: 01-12-2027

Place: Malappuram

Date: 21.12.2023

Ummer Kutty K

Authorised Signatory

Sl. No.	Description	Page no.
1.	Introduction	1
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Sl.No	ANNEXURES
1	RQP Certificate of Mahesh. S
2	RQP Certificate of Dr. Jayachandra Panikar

1. INTRODUCTION

S. No	ITEM	DETAILS				
1.	Application details	File No.: IA/KL/MIN/232178/2021				
2.	Name of the Project	: Granite Building Stone Quarry of Morayoor Granites				
3.	Proposed capacity/ area/ length/tonnage to be handled /command area/ lease area /number of wells to be drilled	Production Capacity: 157669.4 MTA Area : 4.9797Ha : Mineable reserves : 1576694 MT Life of Mine About :10 years				
4.	New/ Expansion / Modernization	: New Quarry Project				
5.	Category of project i.e. 'A' or 'B'	: B2				
6.	Location	The building stone quarry project is situated at Re Survey No.152/1-1, 152/1, 159/1-1, 159/1-2, 159/1-3, 160/1-1, 160/1-2, 160/1-3, 160/1-4, Block No. 56 of Morayur Village, Kondotty Taluk, Malappuram District, Kerala for an area of 4.9797 hectares. The geographical location of the mine with respect to the pillar boundary of the lease area is given below: - <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Latitude</td> <td>11°06'25.44"N to 11°06'40.96"N</td> </tr> <tr> <td>Longitude</td> <td>76°0'36.26"E to 76°0'43.90"E</td> </tr> </table>	Latitude	11°06'25.44"N to 11°06'40.96"N	Longitude	76°0'36.26"E to 76°0'43.90"E
Latitude	11°06'25.44"N to 11°06'40.96"N					
Longitude	76°0'36.26"E to 76°0'43.90"E					
7.	Name of Applicant	Mr. Ummer Kutty K				
8.	Address of the applicant	Ummer Kutty K Director Morayoor granites Pvt Ltd Reg. Office Mucheth House, Elambra, Nellikkuzhy, Ernakulam District, Kerala				

			Pin:686691
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Mr Ummer Kutty K has applied for environmental clearance for the operation of Granite Building Stone quarry over an extent of 4.9797 Ha at Re Survey No.152/1-1, 152/1, 159/1-1, 159/1-2, 159/1-3, 160/1-1, 160/1-2, 160/1-3, 160/1-4, Block No. 56 of Morayur Village, Kondotty Taluk, Malappuram District, Kerala. As per the 16th meeting of EAC the committee decided to direct the proponent to submit a Subsidence Study Report for the proposed area.

LOCATION

The geographical location of the mine with respect to the pillar boundary of the lease area is given below: -

Boundary Pillar	Latitude	Longitude
BP 1	11°06'40.96"N	76°0'40.59"E
BP 2	11°06'38.08"N	76°0'43.68"E
BP 3	11°06'36.72"N	76°0'42.02"E
BP 4	11°06'34.96"N	76°0'43.90"E
BP 5	11°06'34.43"N	76°0'42.91"E
BP 6	11°06'32.91"N	76°0'42.82"E
BP 7	11°06'25.96"N	76°0'43.75"E
BP8	11°06'25.44"N	76°0'40.63"E
BP9	11°06'31.07"N	76°0'39.87"E
BP10	11°06'33.28"N	76°0'38.30"E
BP11	11°06'34.63"N	76°0'36.26"E
BP12	11°06'35.75"N	76°0'37.59"E

Table 1: Geo-coordinates of project-site

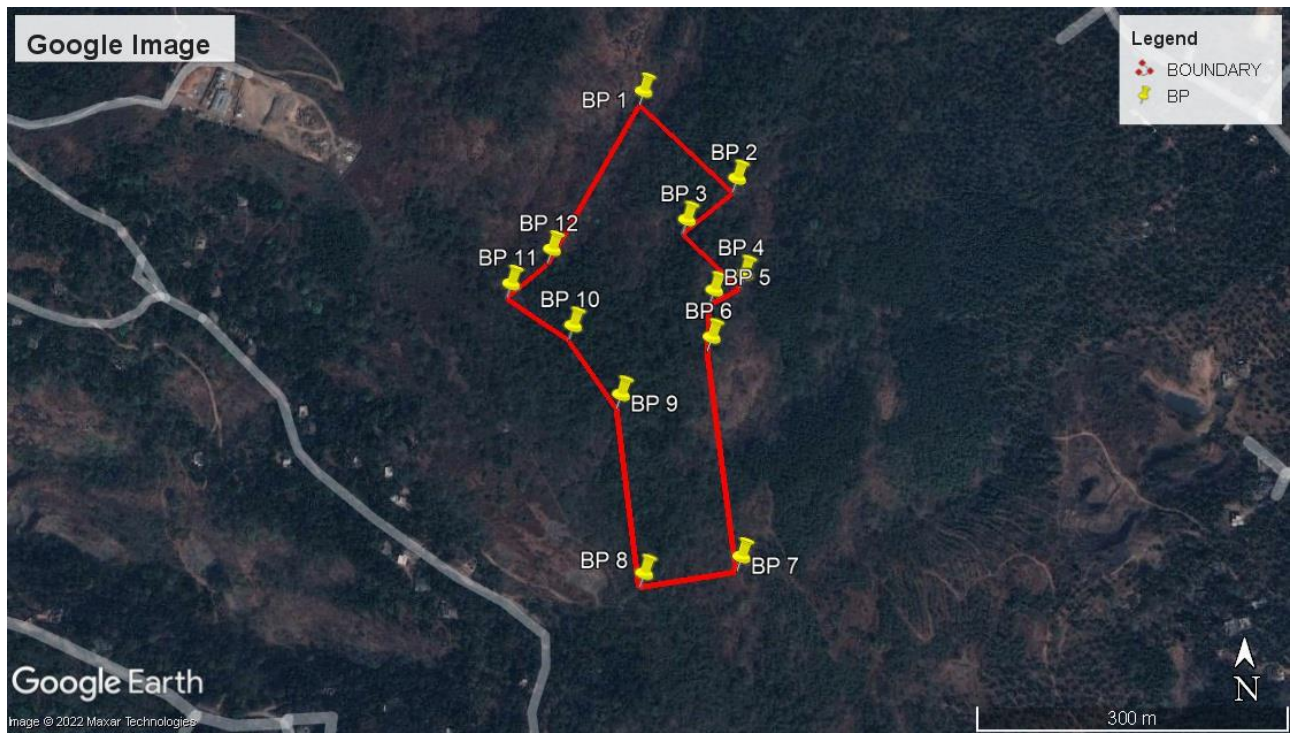


Fig.01 The Google Map showing Location of the lease Area

OBJECTIVE OF STUDY

- This study is conducting to analyse the possibilities of Subsidence during the mining activity of the site and recommend for the measures to be followed during the mining activity.

Site specific observations of Potential factors affecting Subsidence

Topography

The Quarry lease area is an undulated rocky terrain with thin layers of soil (0.9 to 1.8 m) as substratum and shrubby growth of weeds. Area found that of charnockite rock. In the proposed site, is in between 301 AMSL and 195 AMSL. The site is a rocky area with an outcrop (about 25% of area) without extensive vegetation. The weeds and shrubby growth of plant will be cleaned manually. The loose soil layer will be removed and stored in the non-mining area, which will be used for plantation purpose. The boulder and the underneath rock bed consist of rock mass, which is a massive rock. 500 m surrounding of the proposed site has been found that same features as outcropped rocky area with thin layer of soil. also elevation found in gentle manner at higher elevations above this site. The respective area located in small isolated hilly terrain, the slope of hill is projected towards NE - E -SE direction.



Figure 02: Site photographs of massive rocks

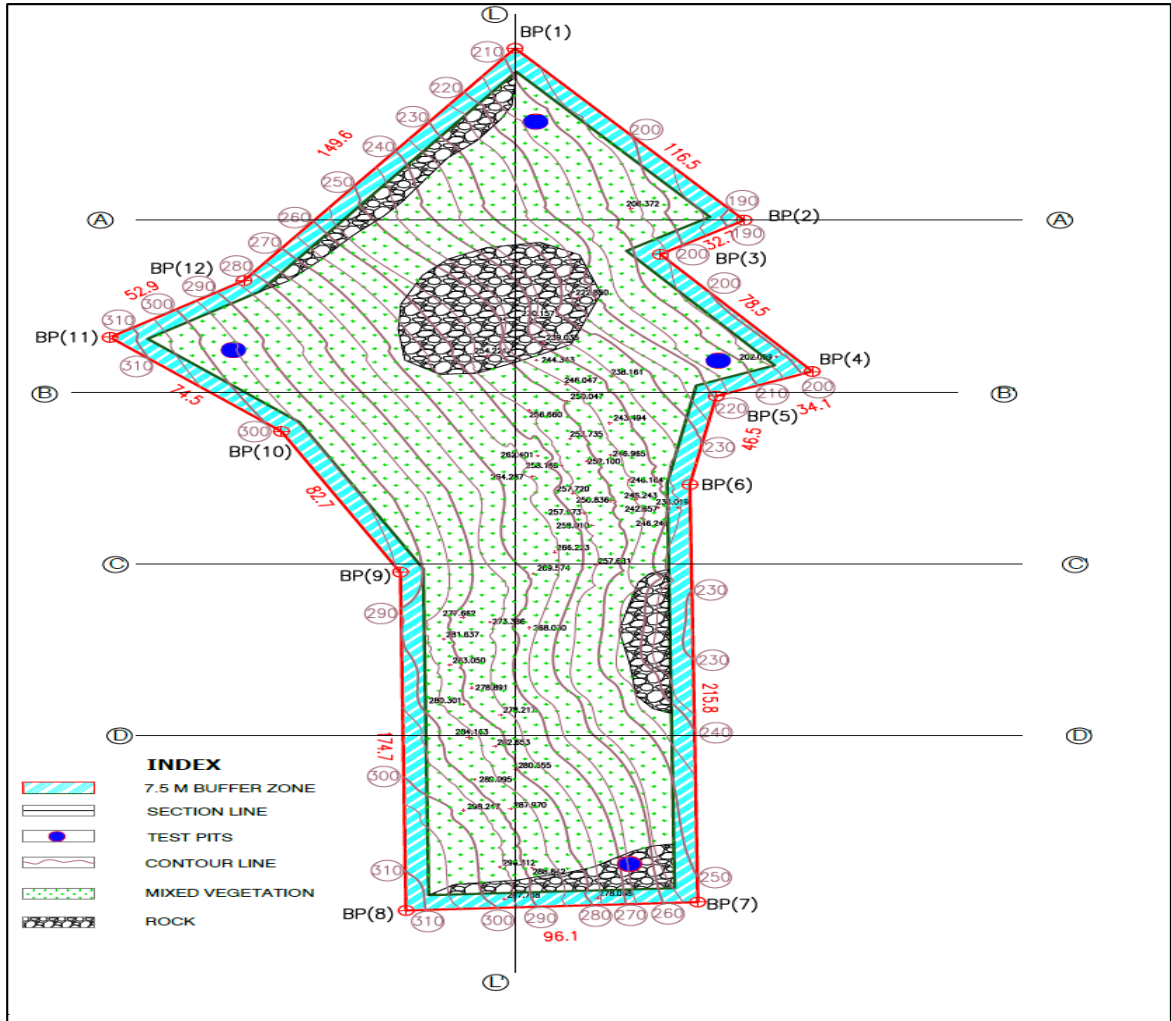


Figure 03: Geological Plan

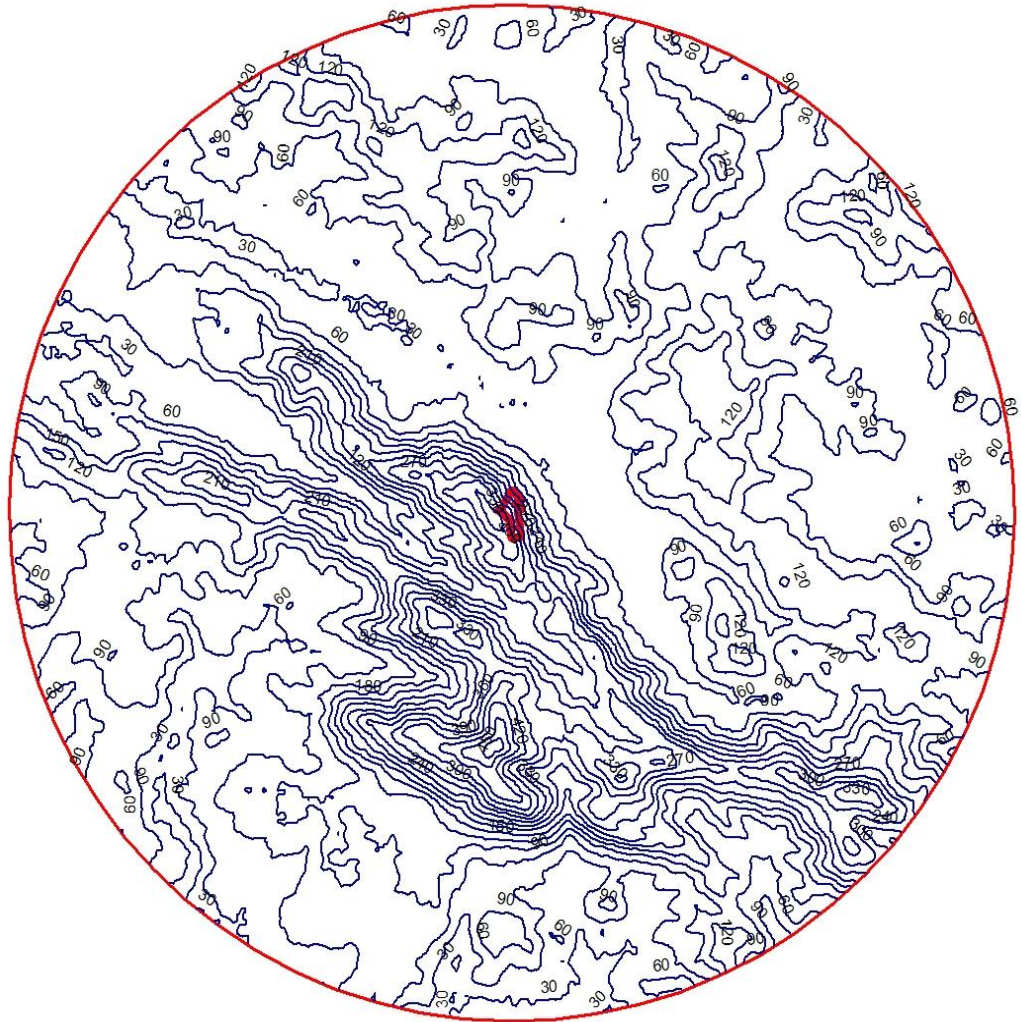


Figure 04: Contour within the 500m radius area

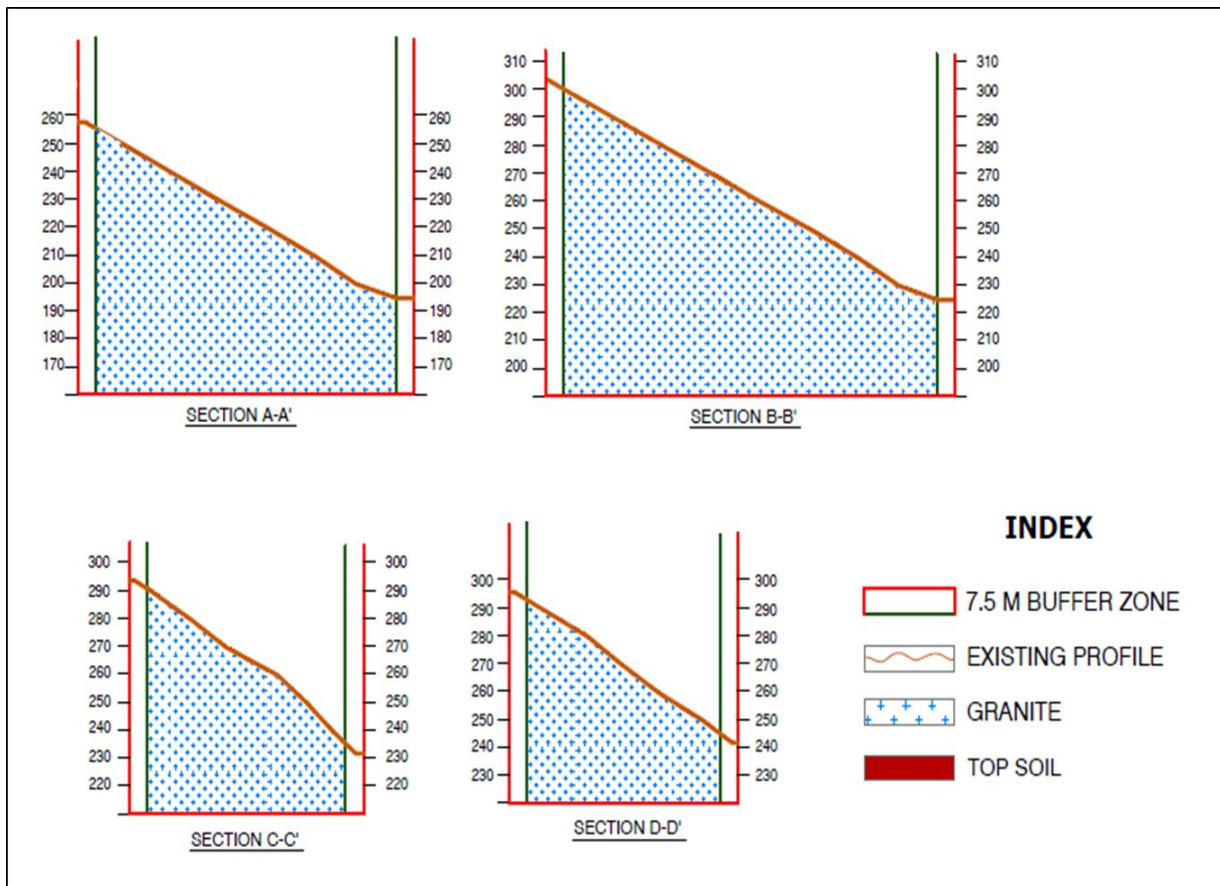


Fig.05 Geological Section

Slope analysis of each sections

In the proposed site, the production will start at the bench 250 MSL and end at 190 MSL, with an average production of 3,58,309MT from section A-A'. From section B-B' the production will start from 295 MSL bench and ends in 205 MSL with an average production of 5,84,819MT. Section of C-C' which start from 285 MSL- 220 MSL with an average production of 2,98,324MT. D-D' section will have average production of 335242MT

The total mineable reserve is about 1576694MT and annual production was about 157669.4MTA with a life of mine is about 10years

Slope stability

Slope stability refers to the condition of inclined soil or rock slopes to withstand or undergo movement. The stability condition of slopes is connected with soil mechanics, geology and geotechnical engineering. Slope stability analysis include static and dynamic, analytical or empirical methods to evaluate the stability of earth and rock-fill excavated slopes, and natural slopes in soil and rock. The analysis is generally aimed at understanding the causes of an occurred slope failure, or the factors that can potentially trigger a slope movement, resulting in a landslide. We here analyze the geological structures at representative locations and conduct a rock mass quality (Q) study for the same.

Geological Structure: The main geological structure which affect the stability of the slopes in the open pit mines are:

- Amount and direction of dip
- Intra-formational shear zones
- Joints and discontinuities
- Faults

Instability of rock slope may occur by failure along pre-existing structural discontinuity, by failure through intact material or by failure along a surface formed partly along discontinuity and partly through intact material. Instability may occur if the strata dip into the excavations. Localized steepening of strata is critical for the stability of the slopes. Stability is hampered if a clay band comes in between the two rock bands. Bedding planes and Joints also provide surfaces of weakness.

Rock Mass Quality (Q) – Existing Terrain

$$Q = \frac{RQD}{J_n} \times \frac{J_r}{J_a} \times \frac{J_w}{SRF}$$

RQD= 90 (2 joints per m³)

Based on no of joints, J_n= 1 (2 Joints)

Based on discontinuity roughness, J_r= 2 (Smooth undulating)

Based on discontinuity alteration, J_a= 3 (Silt and sandy clay coating)

Based on presence of water, $J_w = 1$ (minor inflow)

Stress Reduction Factor, $SRF = 5$ (No or few weak zone)

Equivalent Supported Ratio, $ESR = 5$ (Open cast mine)

Maximum height of face observed = 8

$$Q = \frac{RQD}{J_n} \times \frac{J_r}{J_a} \times \frac{J_w}{SRF}$$

$$Q = \frac{90}{1} \times \frac{2}{3} \times \frac{1}{5}$$

$$Q = 12$$

$$\text{Equivalent Dimensions} = \frac{\text{maximum height of face observed}}{ESR} = \frac{8}{5} = 1.6$$

Based on the Q value and Equivalent dimension (Q-system, after Barton & Grimstad, 1994), the Face falls in an unsupported category i.e., the faces are stable and do not require any support.

As well here analyze the production benches stability throughout the life of the project.

As well as at preventing the initiation of such movement, slowing it down or arresting it through mitigation countermeasures.

Stability of slopes can be improved by:

- Flattening of slope results in reduction in weight which makes the slope more stable
- Soil stabilization
- Providing lateral supports by piles or retaining walls
- Grouting or cement injections into special places
- Consolidation by surcharging or electro osmosis increases the stability of slope.

Slope Geometry: Slope geometry is the important factor which affects the slope stability. The basic geometrical slope design parameters are bench height, overall slope angle and area of failure surface. Stability of slope decreases with increases in height and slope angle. As well it should be considered

so that the ground deformation at the mine peripheral area also affects the stability. Generally overall slope angle of 45° is considered to be safe by Directorate General of Mines Safety (DGMS). Section A-A' is having an average slope of 27° , section B-B' is having an average slope of 26° , section C-C' is having average slope of 25° , section D-D' is having an average slope of 27° , and total average of slope is 26° .

Here final slope of the area become less than 45° The curvature of the slope has profound effect on the instability and therefore convex section slopes should be avoided in the slope design. The proposed bench designs found the stable geometry.

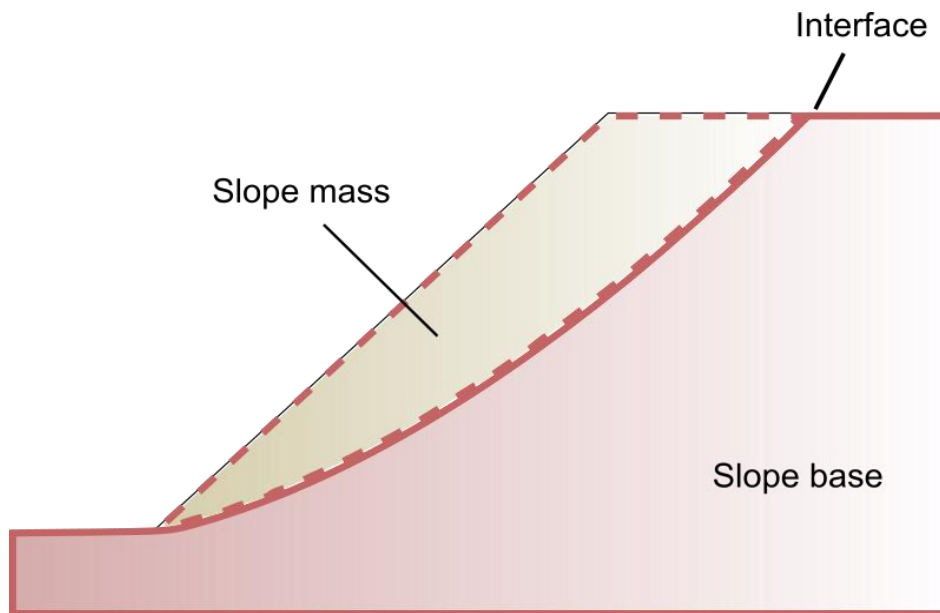


Fig 06. Diagram Showing Two Dimensional Analysis of Slope

Lithology and Ground Water: The rock materials forming a large pit slope determines the rock mass strength modified by discontinuities, folding, faulting, old workings and weathering. Low rock mass strength is characterized by ravelling, circular; and rock fall instability like the formation of slope in Massive sandstone restricts stability. Pit slopes having soil alluvium or weathered rocks at the surface have low shearing strength and the strength gets further reduced if water seepage takes place through them. These types of slopes must be flatter.

Ground water causes increased up thrust and driving water forces and has adverse effect on the stability of the slopes. Chemical and Physical effect of pure water pressure in joints filling material can thus alter the cohesion and friction of the discontinuity surface. Physical effects of providing uplift on the joint surface, reduces the frictional resistances. This will reduce the shearing resistance

along the potential failure plane by reducing the effective normal stress acting on it. Physical and the chemical effect of the water pressure in the pores of the rock cause a decrease in the compressive strength particularly where confining stress has been reduced.

There is no accumulation or impoundment at this hill, as area found virgin area. Also, Hill have a natural course of drain. By the activities proposed there is no disturbances shall be occurred for this natural flow of the hill. To manage surface runoff in the site there should be a garland canal and desiltation tanks and check dams should be constructed and that help to control the runoff water discharge from the site. Detailed drainage management plan has attached with the mining plan and in latter sections.

Mining activities triggered Subsidence

In the proposed site, the production will start at the bench 301 MSL and end at 195 MSL. The total mineable reserve is about 1576694MT and annual production was about 157669.4MTA with a life of mine is about 10years. The said area proposed to work with conventional open cast method with bench system and mode of operation will be semi-mechanized. Based on the mode and method so adopted and taking geological parameters of the ore body into consideration, the quarry is designed in such a way that conceptually the height of the bench is kept about 5m max and maintaining a maximum slope of 45° from the horizontal plane. Mining will be done with the help of machineries like rock drills, jack hammer, compressors, hydraulic excavators, breakers etc.

MINEABLE RESERVE (MT)	GEOLOGICAL RESERVE (MT)
1576694	4681408.8

Table2: Geological and Mineable Reserve

Year	Bench	Minerals(MT)
I	300-270	157669.4
II	270-260	157669.4
III	255-250	157669.4
IV	250-245	157669.4
V	245-240	157669.4
VI	235-230	157669.4
VII	230-225	157669.4

VIII	225-215	157669.4
IX	215-205	157669.4
X	200-190	157669.4
TOTAL		1576694

Table3: Year wise Production

Site Preparation and Bench Height Formation

1. Remove the soil cover and expose the rock
2. Remove the loose boulders with the help of excavator and prepare free face for drilling
3. To develop haul road from the proposed quarry using natural gradient of the hill for movement of tippers
4. Drill holes of 32mm diameter and 2.6m in depth will be made using Jack Hammer. The spacing and burden will be kept at 1m
5. To reduce the noise levels will be blasted by using nitrate mixture and millisecond delay detonators
- 6 About 48 holes will be blasted in one blast
7. Number of blast per day will be 2 nos' and totally blast of 96 holes per day
8. To maintain the bench height of 5m, sub-bench of 2.5m will be formed first, later on two benches of 2.5m will be merged and one bench of 5m will be formed and maintained.

Drilling and Blasting Details

Drilling: The production of Granite Building Stone in Compact zone is obtained by Drilling and Blasting. Drilling will be done by Jack Hammer with the help of air compressor. About 3 No's of Jack hammers will be used in the respective site. It is capable of drilling 32mm diameter holes upto a depth of 2.6m. About 50no's of holes can be drilled using one jack hammer of above mentioned capacity. So, totally 150no's of holes can be drilled using 3 No's of Jack hammers.

Blasting: The controlled blasting is proposed by adopting all the safety measures as per "MMR 1961" and with the permission of DGMS. In this area for fragmentation of granite the blasting will be conducted. Multiple blast holes of 2.6m depth will be drilled with 32mm drill rod, Jack Hammer and Air Compressors of 100cfm Capacity.

Requirement of Explosives: It is estimated about 375g of explosives per hole is required. About 48 holes per blast are proposed. Therefore, about 96no's of holes required for 1-day blast. So, 36kg of explosives required for 96holes per day.

Average Annual Production	157669.4TPA
Diameter of the hole	32mm
Spacing	1m
Burden	1m
Depth	1.8m
No. of Working days	250
Charge/Hole	0.125kg/stick 3stick/hole=0.375kg
Pattern of Hole	Zig-Zag
Inclination of hole	70 ⁰ from the horizontal
No. of holes per day	2x48=96 holes
No. of holes blast per round	Max.15
Quantity of the explosives per blast round	6 Kg

The bench production ends at the boundary line BP6-BP7 and the last bench will be at the same level as the ground level along the boundary line. Benches has designed as the Reduced levels are at a stable position as maintained the height of 05m and width of 05 m and design has been followed to maintain the same depth manner will be complied with the existing terrain as well.

The Blasing designs mentioned above is found effective to meet with the targeted production and this neither propagates the vibration (Peak Particle Velocity shall be less than 01 mm/s) more than 100 m from the blasting locations (As per the empirical modelling). Also PPV shall be less than 05 mm/s beyond 50m from the blasting location. This induces negligible impacts on subsidence factors associated with geotechnical aspects of the terrain.

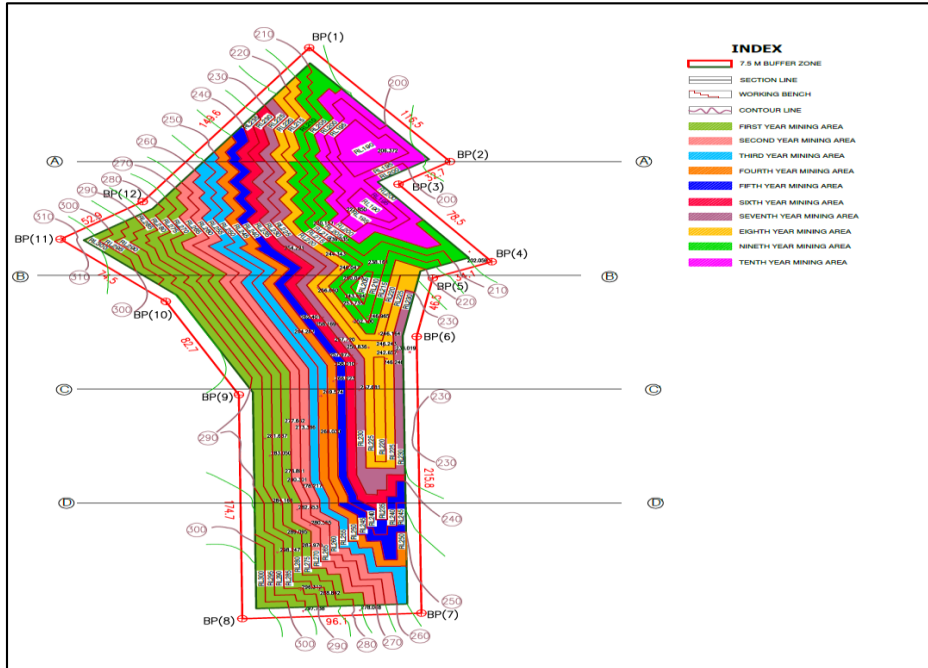


Fig.07 Production Plan

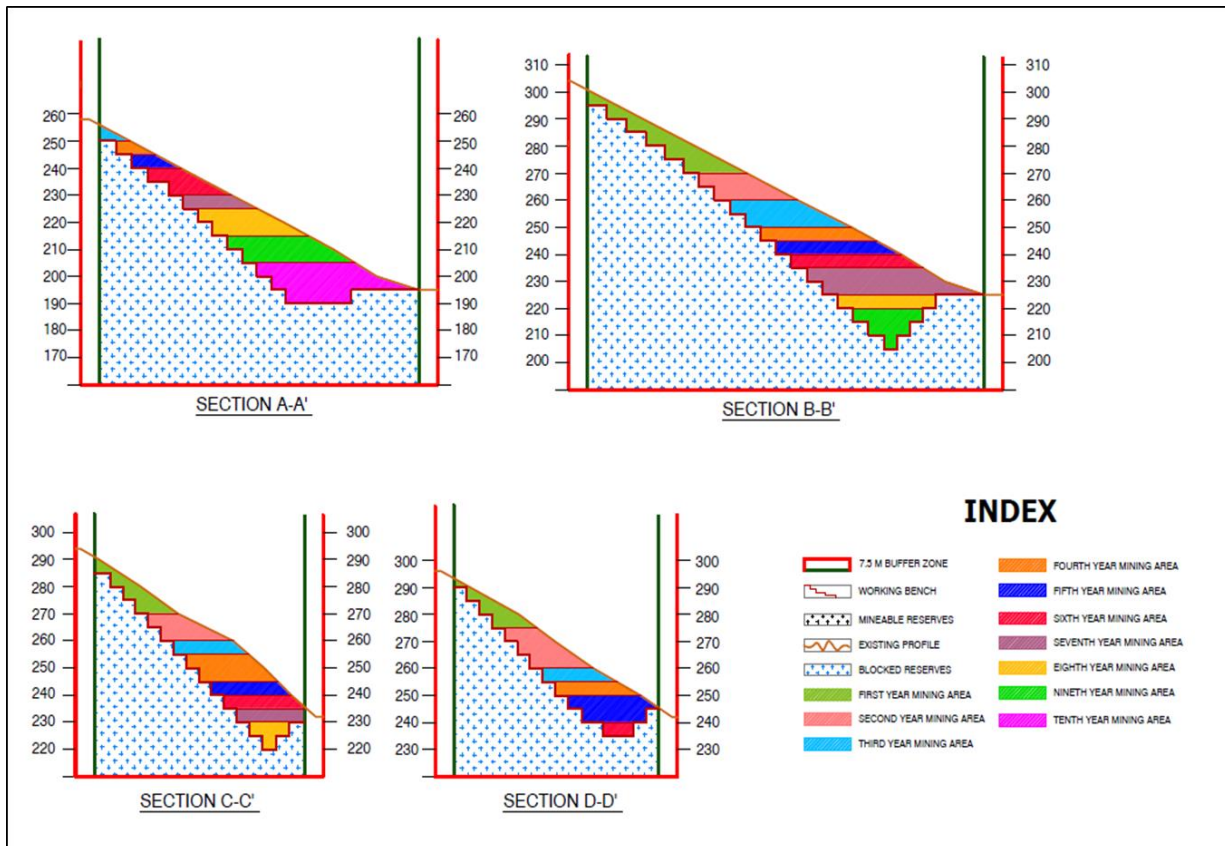


Fig 07.1: Section wise Production details

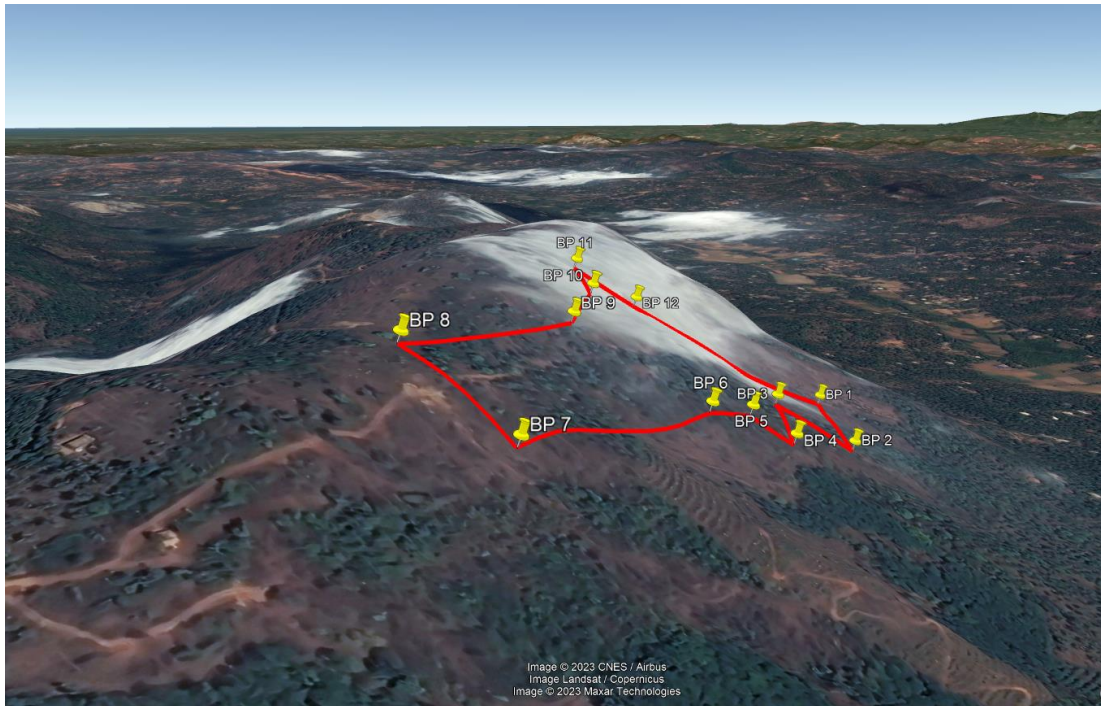


Figure 08: Typical terrain view of project site

Measures to be followed

1.Drainage

The Project Proponent submitted that proper drainage management plan has been designed to prevent the contamination of public drainage and water bodies. Slope of the project area is towards SE direction. Garland Drains will be constructed in the lower slope of Project area about having dimensions of 1m width around the working benches. The surface runoff water from the quarry area carries by Garland Drains and flows through silt traps at each slope breaks. Collected run-off from the lease area pass through Desiltation tanks. Two Desiltation tanks will be proposed in the quarry area.

A garland drainage shall be constructed at the start of mining operation. In the initial phase, garland drainage with silt traps will be constructed along the boundary pillars BP8-BP10-BP11-BP12. While mine progressing stage, garland drain will be constructed along the boundary pillars BP8-BP7-BP6-BP4 within 1year. In the 2ndyear, garland drainage with silt traps are constructed in the northern

stretch of the lease area i.e., along the boundary pillars BP2-BP1. Garland Drains will be constructed in the lower slope of mine lease area having enough width around the working benches. PP also submitted that the surface runoff water from the quarry area carries by Garland Drains and flows through silt traps at each slope breaks. Collected run-off from the lease area passes through Desiltation tanks. Two Desiltation tanks will be proposed in the quarry area. One Desiltation tank will be proposing nearer to the boundary pillars BP6 having dimensions of 3mx1.5mx2.5m and another one proposing nearer to boundary pillar BP2 of lease area having dimensions of 3mx1.5mx2.5m. Within 1 year it is proposed to construct the Desiltation tanks. Clarified and controlled water flow passes through check dam. From the check dam, the controlled flow only connects to the existing natural drainage.

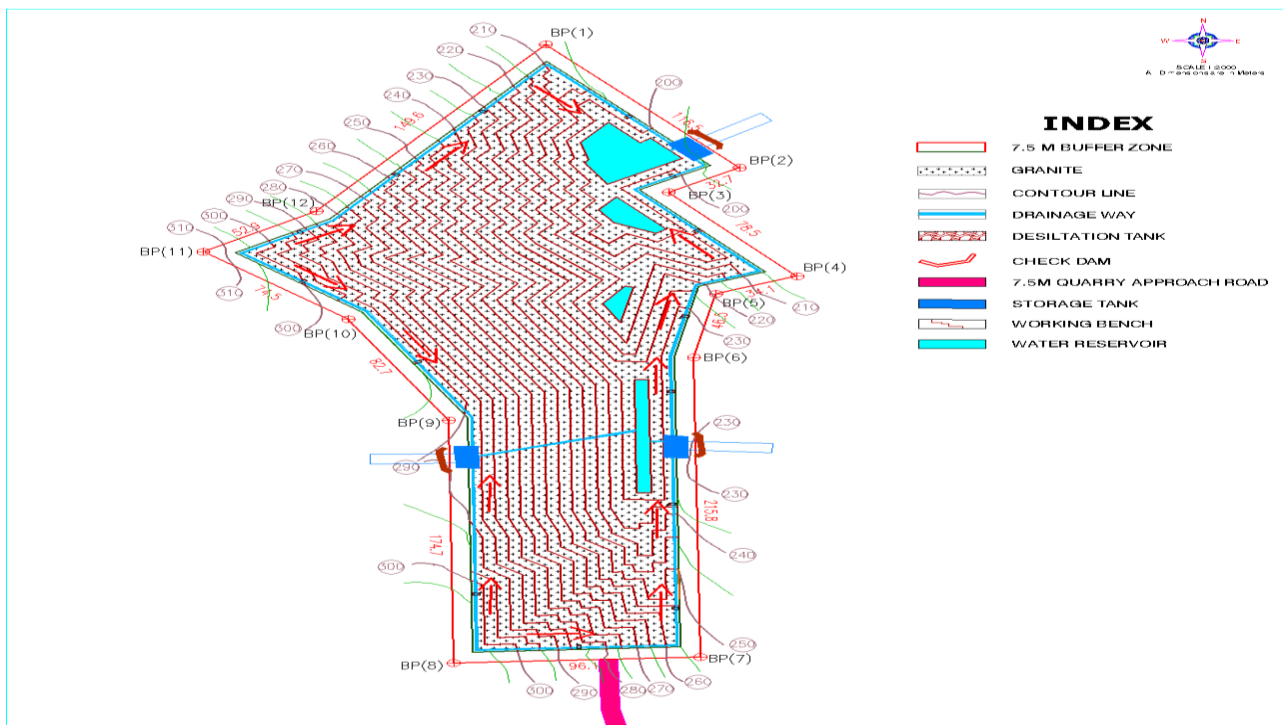


Figure 9: Surface drainage runoff plan Initial stage

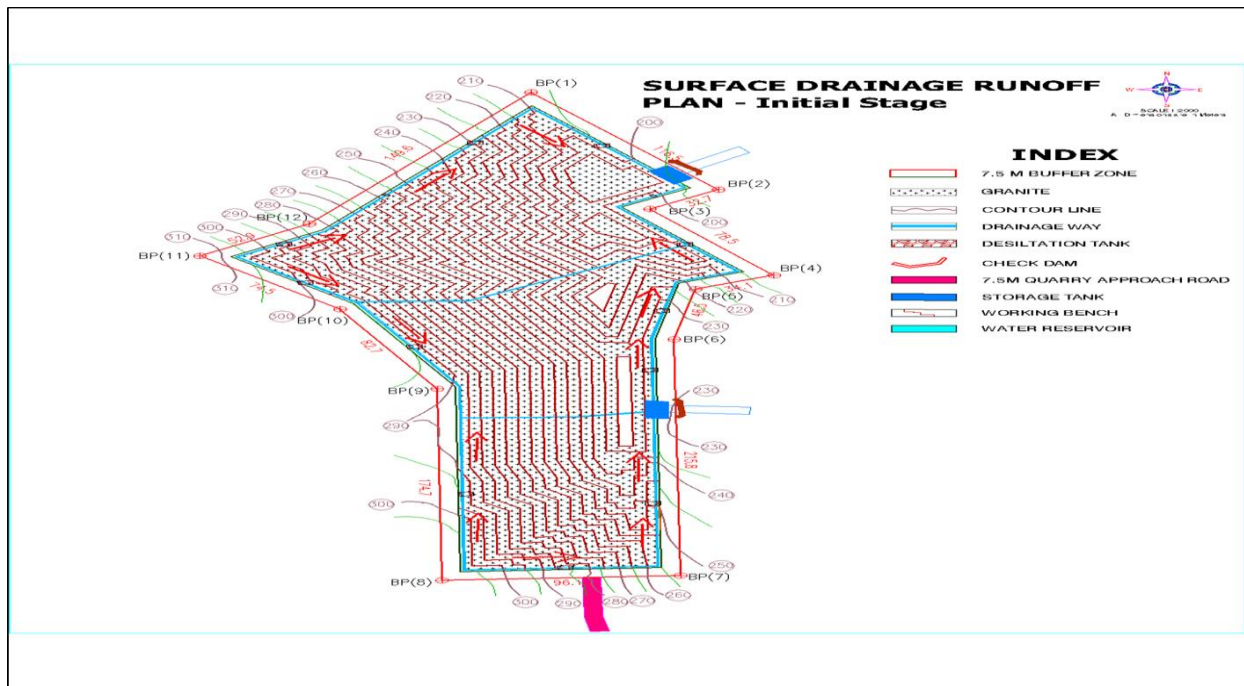


Figure 9.1: Drainage plan in mine closure stage

Before onset of monsoon, drains are cut along toe of the quarry faces to divert the surface run off. Garland drain is provided at the quarry top to regulate monsoon water and direct the same to the settling ponds / quarry pit to contain the quarry wash off and to avoid the same joining to the adjoining surface water bodies / water courses. It also helps to avert eventual collapses and damages to the quarry faces if any. The quarry is currently designed to avoid surface water courses and drainage channels.

2. Geotextiles

While Mining activities advances if any sections around the benches having more than two-meter thickness of soil, we suggest apply geotextile to stabilize that stretch. This would help to accelerate vegetation development in that area. Geotextile are fibrous materials, which made of elements such as individual fibres, filaments, yarns, tapes, etc. that are long, small in cross section and strong in tension. One of important characteristics of geotextile is flexibility. Flexibility is useful both for good contact conditions and for avoiding stress concentration in the fibres. Besides, hydraulic functions of geotextile due to its fibrous nature allows geotextile to have a high void ratio (high permeability) and at a same time, a small filtration diameter. By stabilising the slope and improving water management

the mats provided favourable conditions for seeds germination and accelerated further plants growth. In unfavourable terrain conditions, the geotextiles enabled quick greening of that soil section slopes and formation of vegetation with great ecological value.



Fig.10 Model for proposed geotextile method

Advantages of Geosynthetics can include;

- Relatively low cost for many applications
- Ease and convenience for many applications
- Quick and effective protection against erosion problems
- Many varieties of geosynthetic products are available to meet specific needs
- May be removed and reused if economically feasible

Storage of OB and Top Soil

About 20701 cu.m of topsoil and 24841.2 cu.m of Over burden was generated from the site. The area selected for dump is near to the buffer area. A total area of 0.06Ha will be allotted for dumping top soil and OB waste. This will dump separately in NE side of the site, where the area is stable and plain. Precautions were taken to limit the height of the topsoil dump to 5 to 6 meters in order to preserve its fertility and shelf life.

Retaining walls with weep holes and with a garland drain will be provided around the dump. Hence, contamination of surface drainage/ water body due to seepage of topsoil/OB is insignificant.

Plantation in Buffer Zone

The native trees within the buffer zone will maintain undisturbed and for more soil stability more deep rooted trees, shrubs will plant to protect the soil slope. Where ever find the soil sections shall plant the species *Bambusoideae* (Bamboo) is also proposed to avoid soil erosion. The potential of bamboo in erosion control and slope stabilization has been proven worldwide. The soil and water bioengineering approach are combined with bamboo traits and mechanical properties. Also proposed more deep rooted and native species to plant along the buffer zone which enrich the green belt of the project as follows.

Sl.No.	Scientific Name	Common/ Vernacular Name	Family
1.	<i>Anogeissus latifolia</i>	Mazhukanjiram	Combretaceae
2.	<i>Terminalia arjuna</i>	Neermaruthu	Combretaceae
3.	<i>Dalbergia latifolia</i>	Eeti	Fabaceae
4.	<i>Sterculia villosa</i>	Para Vakka	Malvaceae
5.	<i>Butea monosperma</i>	Chamatha	Fabaceae
6.	<i>Bombax ceiba</i>	Elavu	Malvaceae
7.	<i>Dillenia pentagyna</i>	Pattipunna	Dilleniaceae
8.	<i>Grewia tiliifolia</i>	Unnam, Chadachi	Malvaceae
9.	<i>Alstonia scholaris</i>	Eazhilam pala	Apocynaceae
10.	<i>Holarrhena antidysenterica</i>	Kudakapala	Apocynaceae
11.	<i>Wrightia tinctoria</i>	Danthapala	Apocynaceae

12.	<i>Tabernaemontana heyneana</i>	Koonanpala	Apocynaceae
13.	<i>Mimusops elengi</i>	Elanji	Sapotaceae
14.	<i>Schleichera oleosa</i>	Poovam	Sapindaceae
15.	<i>Chionanthus mala- elengi</i>	Mala Elanji	Oleaceae
16.	<i>Tamarindus indica</i>	Puli	Fabaceae
17.	<i>Ficus benghalensis</i>	Aal	Moraceae
18.	<i>Ficus mysorensis</i>	Aal	Moraceae
19.	<i>Bambusa vulgaris</i>	Bamboo	Poaceae
20.	<i>Ficus callosa</i>	Aal	Moraceae
21.	<i>Polyanthia longifolia</i>	Arana maram	Annonaceae

Table 4: List of trees planning to plant in buffer zone



Figure 11: Site photograph

Rolled Down management

The roll down possibility of rock boulders is very low at this site since the entire lease area is massive rock formation and with few boulders. As the proposed lease area is a hilly area, propose here additional measures to manage the roll down of boulders during the site preparation phase of the mine while, top soil removal, construction of road and removal of OB. So, necessary measures have taken to control the rolling down of boulders at pre & operation phases.

According to the size of boulders, the blasting of boulders can be categorised into two:

- (i) Secondary breaking methods
- (ii) Blasting with expansive chemicals



Figure 12: Typical figure showing filling of chemicals for breaking of boulders

Construction of Trenches or ditches at the bottom

As an additional measure we propose here a trench at the lower altitude. A trench is an excavation in which the depth exceeds the width. Trenches will be provided with 1.5 metres height for preventing roll down possibilities. The trench will act like a container which holds on the dropdown boulders and prevents further rolling.

Fencing with Retaining Wall will be provided after trench

Different types of walls or fences are also considered here to avoid the further rolling of fall down boulders as a vertical barrier in the form of a wire mesh or anything with equivalent strength. The height of the barrier will be maintained at 1.5m and depth will be 2m, so that the boulders tending to further rolling will be bounce back to the trench by hitting the wire mesh wall.

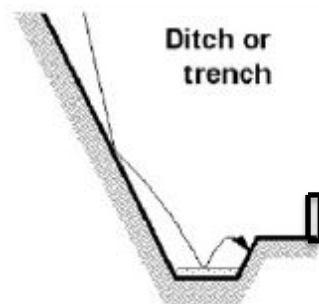


Figure 13: Schematic representation of the trench/ditch & Fencing-wire mesh

It can be concluded that the boulders present in the proposed lease area can be handle scientifically without causing any impact. For breaking boulders having size less than 1.5m, secondary breaking methods will be used. Whereas, for breaking boulders having size greater than 1.5m non-explosive chemical agents will be used. Trenches will be provided at the bottom to collect the roll down rock fragments and prevents further rolling of rocks. Fencing of about 2m height will be provided which act as a barrier.

Conclusion

As the scrutiny instruction from EAC committee meeting, the Subsidence Study for the project has been conducted. Since the proposed terrain is Rocky massive formation there is negligible possibility of the subsidence. As well we recommend few measures and practices to have a safe environment of mining activities.



Mahesh. S
RQP/BNG/338/2014/A



Jayachandra Paniker
DMG/KERALA/RQP/12/2017

Place: Malappuram

Date: 21.12.2023



खननयोजना तैयार करने के लिए अर्हता प्राप्त व्यक्ति के रूप में मान्यता

प्रमाण पत्र

CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON TO PREPARE MINING PLAN

(खनिज रियायत नियमावली 1960 के नियम 22सी के अंतर्गत)

(Under Rule 22C of Mineral Concession Rules, 1960)

श्री महेश एस. पुत्र श्री पी. सुरेन्द्रन पिल्लई, निवासी - टी.सी. - 31/580, नवदीपम, एस.एन. नगर, हाउस नं. 24, पेडा पोस्ट ऑफिस, त्रिवेन्द्रम, तालुक - त्रिवेन्द्रम, जिला - त्रिवेन्द्रम 695024, राज्य केरला, जिनका फोटो एवं हस्ताक्षर दिया गया है उनकी योग्यता तथा अनुभवों के संतोषजनक प्रमाण पत्र देने के एवज में एतद द्वारा खनिज रियायत नियमावली 1960 के नियम 22 सी के अंतर्गत खनन योजना / खनन अभियोजना / उतरोत्तर-खान बंद/ अंतिम खान बंद करने की योजना तैयार करने के लिये अर्हता प्राप्त व्यक्ति के रूप में मान्यता दी जाती है।

Shri Mahesh S. son of Shri P.Surendran Pillal, resident of :-T.C 31/580, Navadeepam S.N Nagar, House No.-24, Pettah Post Office, Trivandrum, Taluk- Trivandrum,

District- Trivandrum-695024, State- Kerala whose Photograph and Signature is appended herewith having given satisfactory evidence of his qualifications & experience is hereby granted RECOGNITION under Rule 22C of the Mineral Concession Rules, 1960 as a Qualified Person to prepare Mining Plan / Scheme of Mining / Progressive Mine Closure Plan / Final Mine closure plan.

उनका पंजीकरण क्रमांक/ His Registration Number is

आर.क्यू.पी./बेंग/338/2014/ए

/

RQP/BNG/338/2014/A

यह मान्यता दस वर्ष की अवधि के लिए वैध है जो दिनांक 01.07.2024 को समाप्त होगी।

The recognition is valid for a period of Ten Years, ending on 01.07.2024.

खनन योजना / खनन अभियोजना / उतरोत्तर खान बंद/ अंतिम खान बंद करने की योजना में यदि कोई गलत/झूठ सूचनाएँ दी गई हो तो उनका यह प्रमाण पत्र वापस ले लिया जाएगा।

Furnishing any wrong/false information in the Mining Plan/Scheme of Mining / PMCP / FMCP may lead to withdrawal of this certificate.

आर.क्यू. पी. के हस्ताक्षर / Signature of RQP

स्थान/Place: बेंगलोर/Bangalore

दिनांक/Date: 02.07.2014

क्षेत्रीय खान नियंत्रक/
02.07.14

Regional Controller of Mines

B. RAM MOHAN

क्षेत्रीय खान नियंत्रक
Regional Controller of Mines

भारतीय खान ब्यूरो

Indian Bureau of Mines

दस्तावेज/बेंगलूर/BANGALORE



GOVERNMENT OF KERALA

DEPARTMENT OF MINING AND GEOLOGY

Directorate of Mining and Geology, Pattom Palace PO,
Kesavadasapuram, Thiruvananthapuram-695004, Kerala
www.dmg.kerala.gov.in

FORM Q


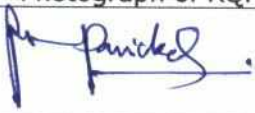
CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON TO PREPARE MINING PLANS FOR QUARRYING MINOR MINERALS IN KERALA

(Issued under Rule 54 of the Kerala Minor Mineral Concession Rules, 2015)

Shri. Jayachandra Panicker. P. S, S/o Sukumara Panicker. K. P, Souparnika, Navajyothi Nagar 39A, Kadappakada. P. O, Kollam District - 691 008, Kerala, having given satisfactory evidence of his qualification and experience is hereby granted **RECOGNITION** under Rule 54 of the Kerala Minor Mineral Concession Rules, 2015 as qualified person to prepare Mining Plans for quarrying minor minerals in Kerala.

The registration number is **DMG/KERALA/RQP/12/2017**

This recognition is valid for a period of 10 years ending 01/12/2027


Photograph of RQP

Signature of RQP




20/12/17

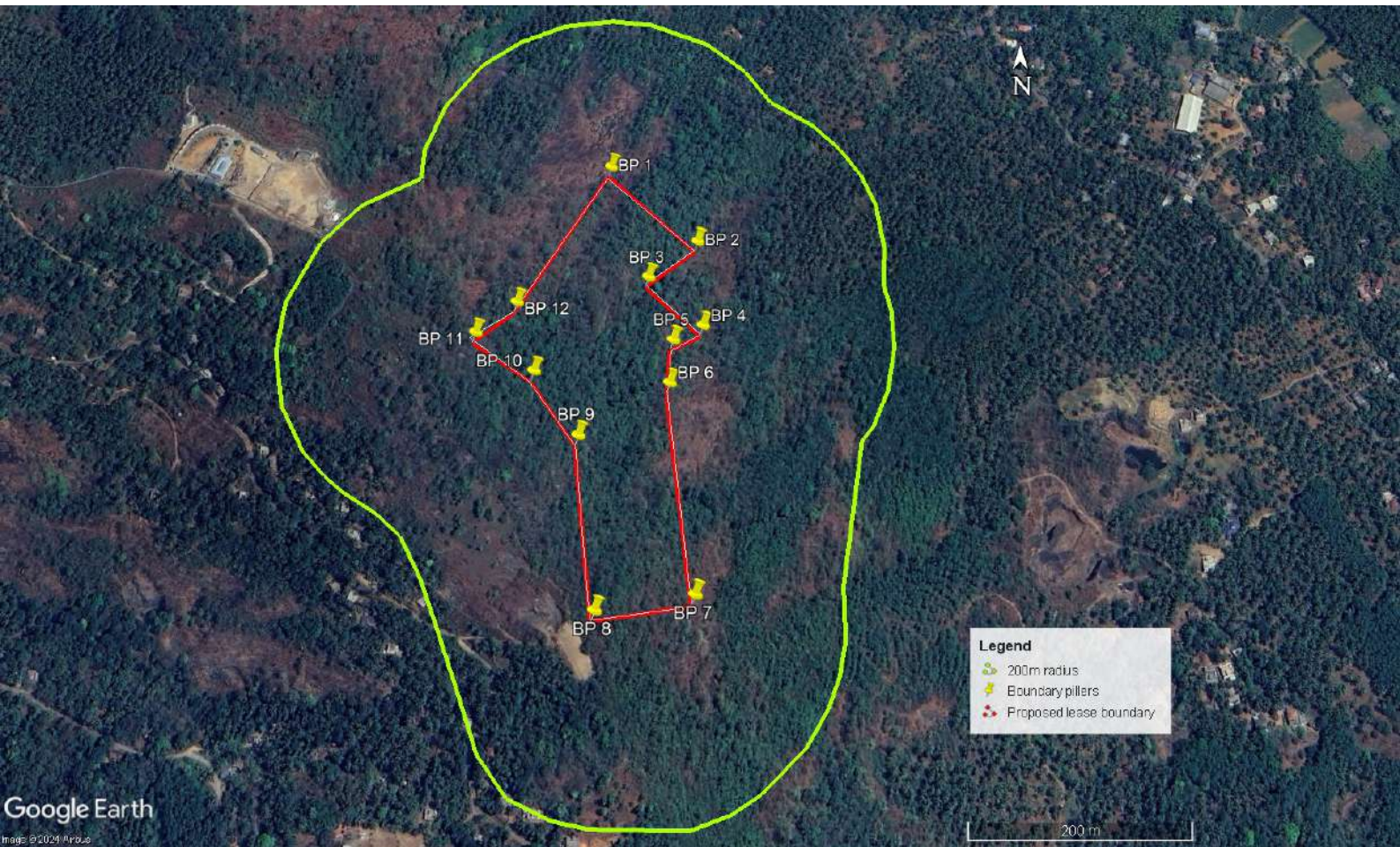
C. K. BAIJU
DIRECTOR OF MINING AND GEOLOGY [I/C]

C.K. BAIJU
M.Sc, MPhil, Dip.Crl, MMGI
Director of Mining & Geology (i/c)
Kesavadasapuram, Pattom Palace PO
Thiruvananthapuram-695 004

Place: Thiruvananthapuram
Date: 20-12-2017

ANNEXURE 4

Google image showing 200m study area

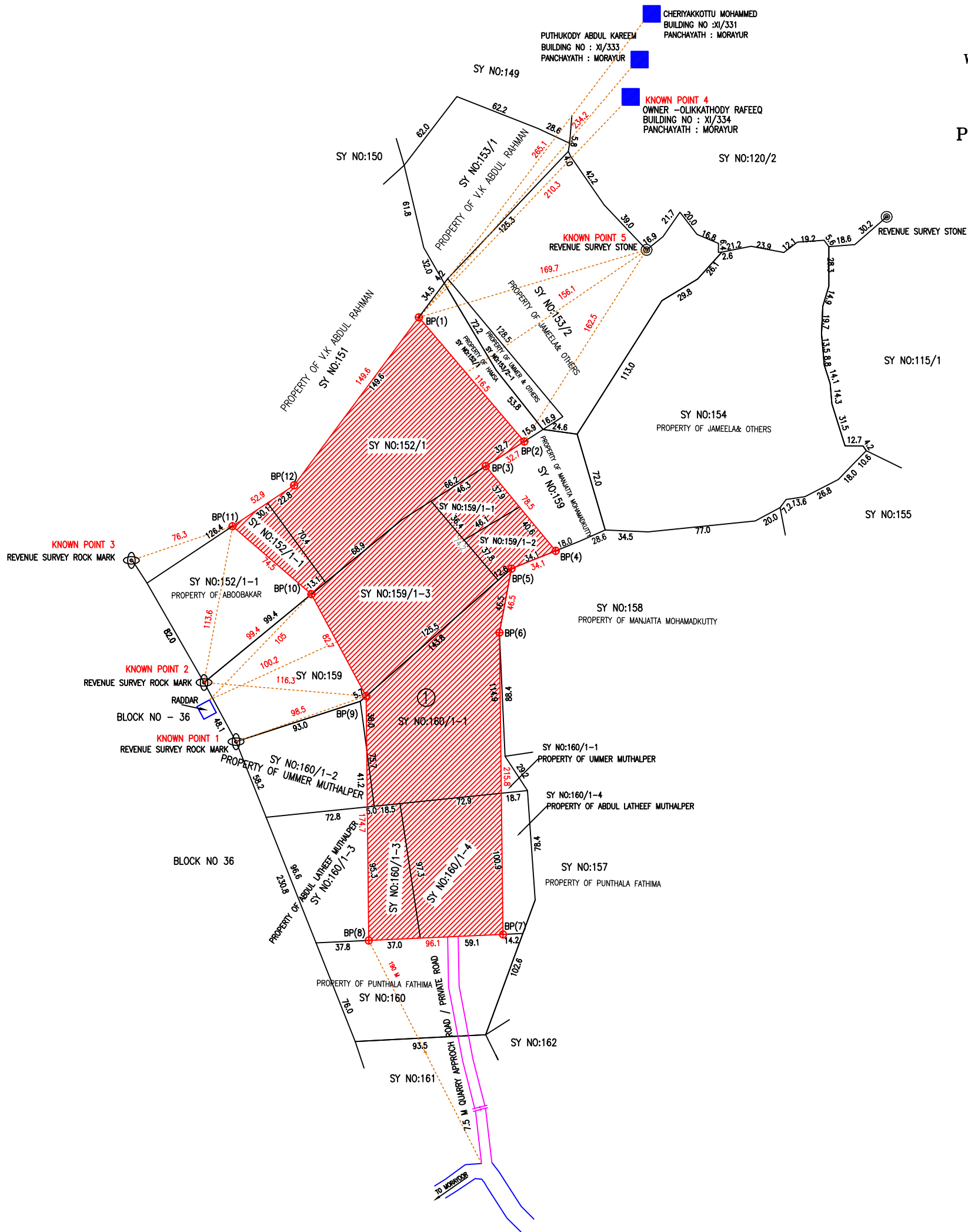
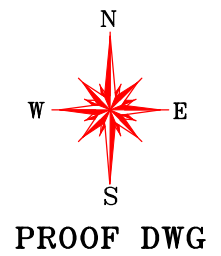


ANNEXURE 5

DISTRICT : MALAPPURAM
 TALUK : KONDOTTY
 VILLAGE : MORAYUR
 BLOCK NO : 56
 PANCHAYATH : MORAYUR
 SY NO : 152/1-1,152/1,159/1-1,159/1-2
 159/1-3,160/1-1,160/1-2,160/1-3,160/1-4

Scale 1cm = 30m
 LEASE AREA-4.9797 H

SURVEY MAP



Submit before The Mining and Geology Department/DEIAA

INDEX	DETAILS OF PROPERTY					
	DOC.NO.	RE.SY.NO.	TP.NO	AREA IN POSSESSION	TOTAL APPLIED AREA	NAME OF OWNER
⊕	213/1961	152/1-1	3323	0.8094 H	0.1539 H	ABOUBAKAR
⊙	213/1961	152/1	1494	1.7446 H	1.5097 H	HAMSA
⊕	213/1961	159/1-1	1494	0.1700 H	0.1700 H	ABOUBAKAR
—	213/1961	159/1-2	1494	0.1700 H	0.1700 H	HAMSA
—	213/1961	159/1-3	3323	0.8883 H	0.8883 H	ABOUBAKAR
—	213/1961	160/1-1	4388	1.2141 H	1.1437 H	UMMER,RABIA K.P.,JAVAD SARJAN K.M JIYAD SAKLIN K.M
—	213/1961	160/1-2	4388	0.5464 H	0.0102 H	UMMER,RABIA K.P.,JAVAD SARJAN K.M JIYAD SAKLIN K.M
—	213/1961	160/1-3	4449	0.8094 H	0.2822 H	ABDUL LATHEEF SHAMSUDEEN
—	213/1961	160/1-4	4449	0.8883 H	0.8517 H	FATHIMA SUHRA ,RASEENA
—		TOTAL		7.2405 H	4.9797 H	

APPLICANT:-
 UMMER KUTTY
 DIRECTOR,
 MORAYUR GRANITES PVT.LTD
 KONDOTTY,MALAPPURAM
 KERALA.