### COMPLIANCE REPORT

TO

## THE CONDITIONS

OF

### **ENVIRONMENTAL CLEARANCE ORDER**

NO: 823/SEIAA/EC1/2606/2015

DT. 09-08-2016

 $\mathbf{BY}$ 

# STATE ENVIRONMENT IMPACT ASSESSMENT AUTHORITY (SEIAA)

**FOR** 

## PROPOSED QUARRY PROJECT

AT

SURVEY NO. 1244/1pt KILLANUR VILLAGE, THRISSUR TALUK, THRISSUR
DISTRICT, KERALA

 $\mathbf{BY}$ 

M/S RUDRA GRANITES

(AUGUST 2018- JANUARY, 2019)

#### INTRODUCTION

M/S Rudra Granites is a stone quarry located at Survey No., 1244/1pt Killanur Village, Thrissur Taluk, Thrissur District, Kerala. The quarry project was accorded with the Environmental Clearance by state Environmental Impact Assessment Authority on 09-08-2016. Consequently based on this EC, mining activity started during February 2017 in this area. Six month compliance reports to the conditions of the Environmental Clearance are to be submitted as part of compliance. The compliance report to the specific conditions and general conditions of the Environmental Clearance for the period of August, 2018- January, 2019 (Fifth Report) is being submitted.

## PART A - SPECIFIC CONDITIONS

#### Condition 1

Protection wall (Protective fencing) shall be provided at vulnerable points of the quarry to avoid accidents.

## √ Compliance

The project team has provided barbed metal wire fencing around the lease area with a height of 5ft to avoid accidents. Photograph showing the same is enclosed as Annexure 1.

#### Condition 2

Overburden is to be stored at the designated place.

## √ Compliance

The Overburden and top soil has been storing separately in a prefixed location since starting of the project. Photograph showing the same is enclosed as Annexure 2. The quantity of topsoil and overburden estimated to be 29095MT and 138000MT respectively for the present project.

## Condition 3

The approach road to the quarry from the main road is not maintained at all. This road must be maintained at good condition by the proponent.

The approach road to quarry has well maintained by strengthening by metal pieces pavement and trees are planted along both sides to avoid land sliding. To reduce dust emission during transportation, roads are watered using sprinklers fitted in vehicles. It is proposed to tar the access road as further maintenance. The photographs showing the same is given in Annexure 3.

#### Condition 4

Dust suppression mechanism must be in place.

## √ Compliance

To cut down the dust emission during transportation, the haul roads are watered at regular intervals. Fixed sprinklers are also fixed along the sides of approach road. To ensure adequate supply of water during the summer season, water harvesting pond is constructed in the project area. Dust emission during drilling is reduced using wet sack.

#### Condition 5

A more realistic CSR shall be prepared and submitted before SEIAA

### √ Compliance

More realistic CSR has prepared and submitted to SEIAA. CSR activities are carrying out as per the application submitted to SEIAA. The documents regarding CSR were maintained in the company office as record.

## PART B - GENERAL CONDITIONS

#### Condition 1

Rainwater harvesting facility should be installed as per the prevailing provisions of KMBR/KPBR unless otherwise specified.

### √ Compliance

Rainwater harvesting system has provided in connection with the present project. It consists of one harvesting tanks constructed with stone masonry wall having the capacity of 300000 liter. Photograph of the rainwater harvesting system as enclosed as Annexure 4.

Environment Monitoring Cell as agreed under the affidavit filed by the proponent should be formed and made functional.

## √ Compliance

An Environmental Monitoring Cell has formed with Mr. Dineshmon NT (Owner) as head of the monitoring cell and made functional. Meeting of the monitoring cell has been arranging periodically and discus the status of the compliance of the specific and general conditions stated in the Environmental clearance order. As decided in the meeting of Environmental Monitoring Cell it is proposed to place solar lights in the project area. The details of the monitoring cell members are given below.

Sl. No.	Post	Name
1	Head of the monitoring cell	Dineshmon NT
2	Head in charge (Environment) P. Sathyanarayana Rai	
2	Senior Environmental Officer	Jammu Bhaskara Rao
3	Environmental Officer	Ratheesh N
4	Name of the environmental officers in charge at Site	Jacob AM
5	Address of Environmental laboratory	M/s Poluchem Laboratory Pvt. Ltd.

#### Condition 3

Suitable avenue trees should be planted along either side of the tarred road and, open parking areas if any, including approach road and internal roads.

## √ Compliance

The boundaries of the project area is almost covered by thick vegetation, the vacant spaces including the sides of approach road and other places near to the project area is planted with tree saplings. The photographs showing the same are attached as Annexure No.5.

Maximum possible solar energy generation and utilization shall done at the own cost of the project proponent.

## √ Compliance

In the project site, we have provided solar panels near the project office and associated buildings. All the power needs of the office building are generated from solar power. The photographs showing the solar system is attached as Annexure No.5a.

### Condition 5

Sprinklers shall be installed and used in the project site to contain dust emission.

## √ Compliance

To reduce dust emission during transportation, the haul roads are watered at regular intervals. Fixed Sprinklers are also provided along the sides of approach road. The photographs showing the fixed sprinklers along the road side is attached as Annexure No.5b. To ensure adequate supply of water during the summer season, water harvesting pond is constructed in the project area. Dust emission during drilling is reduced using wet sack.

#### Condition 6

Eco-restoration including the mine closure plan shall be done at the own cost of the project proponent.

### √ Compliance

Subsequent to the closure of the mine, it is proposes to develop a green belt in the mined out area after reclaimed with stacked dumping and overburden. As part of the same, we have stored the top soil and overburden in a prefixed area and started planting. Ten percent of the excavated pit area will maintain as water storage area. Eco-restoration including the mine closure plan will perform at our own cost.

## Condition 7

At least 10 percent out of the total excavated pit area should be retained as water storage area and the remaining area should be reclaimed with stacked dumping and

overburden and planted with indigenous plant species that are eco-friendly, if no other specific condition on reclamation of pit is stipulated in the E.C.

## √ Compliance

Ten percent of the excavated pit area will retain as water storage area following the closure of the mine. It is proposes to develop a green belt in the remaining area with indigenous plant species after reclaimed with stacked dumping and overburden. Grass and Shrub species with strong root system will plant in the areas prone to erosion especially at the foot of the hill. As part of compliance we have started planting teak and jackfruit tree saplings. The photographs showing the same shown as Annexure No.5c

#### Condition 8

Corporate Social Responsibility (CSR) agreed upon by the proponent should be implemented.

## √ Compliance

CSR activities are carrying out as per the application submitted to SEIAA. The registers regarding CSR were maintained in the company office as record. As part of the Corporate Social Responsibility, the amount proposed by the company has been spending for various social activities.

#### Condition 9

The lease area shall be fenced off with barbed wires to a minimum height of 4ft around, before starting of mining. All the boundary indicators (boards, stores, markings, etc.) shall be protected at all times and shall be conspicuous.

## √ Compliance

Barbed metal wire fencing has installed around the mining area with a height of 5 ft to prevent falling of animals/human/belongings/dumping of garbage's etc. The photograph showing the same is attached as Annexure No.1

#### Condition 10

Warning alarms indicating the time of blasting (to be done at specific timings) has to be arranged as per stipulation of Explosive Department.

Warning alarm has installed in the project area and maintaining properly. The blasting time has fixed and is between 4.0pm and 5.0pm. A danger board indicating blasting time has installed in the project site.

#### Condition 11

Control measures on noise and vibration prescribed by KSPCB should be implemented.

## √ Compliance

## Noise pollution

## Mitigation measures Implemented

The major noise generating source from the mining activity is working machinery, drilling, blasting and plying of vehicles. The following control measures are undertaken to bring down the noise levels:-

- Proper maintenance of machinery, equipments and improvement of design of machines.
- > Personal protective devices i.e., earmuffs, ear plugs etc. are provided to workers working in high noise areas.
- > Maintain a wide green belt of dense foliage between mine areas and residential colonies.
- The mining area is working only during day times.
- Noise quality is checking periodically. The sound levels are monitored through an NABL accredited laboratory during the quarry in operation and the monitored results are well within the permissible limits.

#### Blast vibrations and control measures

- Controlled blasting technique is adopted in this project in order to reduce blast vibrations.
- The maximum charge per delay is not more than 10kg to limit the PPV values to 10mm/sec.
- Optimum delay sequence and stem to column ratio is maintaining to minimize the ground vibration intensity.

Quarrying activities should be limited to day time as per KSPCB guidelines/specific conditions.

# √ Compliance

## Quarrying activities is limited to day time only.

#### Condition 13

Blasting should be in a controlled manner as specified by the regulations of Explosive department or any other concerned agency.

## √ Compliance

## Blasting

- ❖ The controlled blasting is proposed by adopting all the safety measures as per "MMR 1961" and with the permission of DGMS.
- ❖ Blasting is carried out for the fragmentation of the granite within the project area. Multiple blast holes of 1.0 to 1.5 m depth will be drilled with the help of 32mm drill rod, Jack Hammer and air compressor of 100 cm capacity.
- ❖ It is estimated about 250g of explosives per hole is required. About 30-50 holes per blast are proposed. Therefore the requirement of explosive will be about 10kg/ blast.

## **Blasting safeguard**

- Blasting in the open cast is done only during day time at designated hours.
- Only competent blasters are appointed to handle explosives.
- Explosives are stored in approved and licensed magazine as per explosive Act/ Rules.
- \* Explosives are brought from magazine to blasting site in licensed explosive van under the care of blaster.
- Sufficient warning signals are given before blasting the holes.
- ❖ Guards are posted on all roads and paths at least 250 m distance to stop entrance to the danger zone during the blasting hour.

- Controlled blasting is practiced to control vibrations and flying fragments.
- Optimum charge is used, while blasting near office complex/ infrastructure site.
- \* Maximum charge per delay is always being less than 10kg to limit the PPV levels within the DGMS standards of 15 mm/sec.

#### > Condition 14

A licensed person should supervise/control the blasting operations.

## √ Compliance

Licensed person is supervising/controlling the blasting operations. Copy of license of the licensed person is enclosed as Annexure 6.

#### > Condition 15

Access road to the quarry shall be tarred to contain dust emissions that may arise during transportation of materials.

## √ Compliance

Access road area to the quarry has well maintained by paving granite stones. Roads have been well maintaining to contain dust emissions that may arise during transportation of materials. The photographs showing the same is given in Annexure 3.

#### > Condition 16

Overburden materials should be managed within the site and used for reclamation of mine pit as per mine closure plan/ specific condition.

## √ Compliance

The excavated top soil has been storing separately in a prefixed location. The quantity of topsoil and overburden estimated to be 29095MT and 138000MT respectively. Photograph showing the same is enclosed as Annexure 2.

#### Condition 17

Height of the benches should not exceed 5m, and width should not be less than 5m, if there is no mention is the mining plan/specific condition.

Present quarry has started working during March 2017 and the operation is carrying out in the form of benches. Now we are managing the height of the bench around 5 meters. The photograph showing our current working is shown as Annexure No.7.

#### ➤ Condition 18

Mats to reduce fly rock blast to a maximum of 10 PPV should be provided.

## √ Compliance

Mats to prevent fly rock during blasting will arranged shortly. Various safety measures have set down to prevent fly rocks cross the lease area. Safety measures include no blasting during unfavorable weather conditions, maintain optimum delay sequence and stem to column ratio etc.

#### > Condition 19

Maximum depth of mining from general ground level at site shall not exceed 10 m.

## √ Compliance

The exploitation of mineral is from 90-15m MSL in conceptual phases. Mining depth will not exceed beyond 10m from general ground level.

#### Condition 20

No mining operation should be carried out at places having a slope greater than 45°.

### √ Compliance

Mining activities will not carry out at regions having a slope greater than 45°.

#### Condition 21

Acoustic enclosures should have been provided to reduce sound amplifications in addition to the provisions of green belt and hollow brick envelop for crushers, so that the noise level is kept within prescribed standards given by CPCB/KSPCB.

### √ Compliance

Project area has covered by thick green belt and this will reduce sound amplifications produced during mining activities. The noise level is keeping within the prescribed standards given by CPCB/KSPCB.

The workers on the site should be provided with the required protective equipment such as ear muffs, helmets, etc.

## √ Compliance

All workers have provided with personal protective devices such as earmuffs, ear plugs, helmet etc. at the site.

#### Condition 23

Garland drains with clarifiers to be provided in the lower slopes around the core area to channelize storm water.

## √ Compliance

From entire lease area, storm water is channelizing in to an excavated pit and stored the storm water in it. During this storage all the debris/slit in the storm water are sedimented in to the bottom of the pit. Overflow from the storm water collected pit is opened in to Garland drains which entering to the main stream.

#### Condition 24

The transportation of minerals should be done in covered trucks to contain dust emissions.

## √ Compliance

To control dust emissions during transportation, trucks are covered after loading with tarpaulin sheets. Different other precautions also set down to control dust emissions are; trucks are not overloading and the loads are maintained to the body level etc.

#### Condition 25

The proponent should plant at least 5 times of the loss that has been occurred while clearing the land for the project.

### √ Compliance

We have started planting tree saplings in the vacant areas inside as well as near to the lease area. We will plant trees at least 5 times of the loss that has been occurred while clearing the land for the project.

Disposal of spend oil from diesel engines should be as specified under relevant rules/regulations.

## √ Compliance

Disposal of spent oil from diesel engines is carrying out under relevant rules/regulations.

#### Condition 27

Explosive should be stored in magazines in isolated place specified and approved by the Explosive Department.

## √ Compliance

Explosives are storing in magazines built in an isolated place specified and approved by the Explosives Department. A photograph showing the magazine is enclosed as Annexure 8.

### Condition 28

A minimum distance of 100 m from the boundary of the quarry to the nearest dwelling unit or other structures, not being any facility for mining shall be provided.

### √ Compliance

Distance of 100m from the boundary of the quarry to the nearest dwelling unit or other structures are providing.

#### Condition 29

100 m buffer distance should be maintained from forest boundaries.

### √ Compliance

Not applicable, no forest boundary within 200m distance.

#### Condition 30

Consent from Kerala State Pollution Control Board under Water and Air Act(s) should be obtained before initiating mining activity.

### √ Compliance

Consent from Kerala State Pollution Control Board under Water and Air Act(s) has obtained before started the mining activity. Consent Order from Kerala State Pollution Control Board is attached as Annexure 9.

All other statutory clearances should be obtained as applicable by project proponents from the respective competent authorities including that blasting and storage of explosives.

## √ Compliance

All statutory approvals required for the quarrying activity is obtained for the project. The details regarding the same along with the copy of the statutory approvals are enclosed as Annexure 10 and 11. Details of statutory approvals are given below.

S1. No.	Annexure	Statutory approvals
1	10	License to possess: (c) for use, explosives of class 1, 2, 3, 4, 5, 6 or 7.
2	11	License from Panchayat

### Condition 32

In the case of any change(s) in the scope of the project, extent quantity, process of mining technology involved or in any way affecting the environmental parameters/impacts are assessed, based on which only the E.C. is issued, the project would require a fresh appraisal by this Authority for which the proponent shall apply and get the approval of this authority.

## √ Compliance

## Would be complied

#### Condition 33

The Authority reserves the right to add additional safeguard measures subsequently if found necessary, and to take action including revoking of the environmental clearance under the provisions of the Environmental (Protection) Act, 1986 to ensure effective implementation of the suggested safeguard measures in a time bound and satisfactory manner.

## Would be complied

### Condition 34

The stipulation by the statutory authorities under different acts and notifications should be complied with including the Water (Prevention and Control of Pollution) Act 1974, The Air (Prevention and Control of Pollution) Act, 1981, The Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification 2006.

## √ Compliance

## Would be complied

#### Condition 35

The project Proponent should advertise in at least two local news papers widely circulated in the region one of which (both the advertisement and the news paper) shall be in the vernacular language informing that the project has been accorded Environmental Clearance and copies of clearance letters are available with the State Environmental Impact Assessment Authority (SEIAA) office and may also be seen on the website of the Authority at <a href="www.seiaa.kerala.org">www.seiaa.kerala.org</a>. The advertisement should be made within 10 days from the date of receipt of the clearance letter and the copy of the same signed in all pages should be forwarded to the office of the Authority as confirmation.

## √ Compliance

Regarding the accordance of environmental clearance to the quarrying activity has advertised in two local newspapers and the copy of the same was submitted to SEIAA Kerala. The copies of the advertisements are provided at Annexure Pl & P2. Details of the newspaper advertisements are given below.

S1.	Annexure	Name of the Newspaper and edition	Dated
No.			
1	12	Mangalam	30/0-8/2016
2	13	Kerala Kaumadi	30/0-8/2016

A copy of the clearance letter shall be send by the proponent to concerned Grama panchayat/ District panchayat/ Muncipality/ Corporation/ Urban local body and also to the Local NGO if any, from whom suggestions/ representations if any, were received while processing the proposal. The Environmental Clearance shall also be put on the website of the company by the proponent.

## √ Compliance

A copy of the environmental clearance order has submitted to Panchayat office. There is no suggestion/representation received so far from anybody. Website of the quarry under construction and the environmental clearance order and compliance report will upload in the website shortly.

### ➤ Condition 37

The proponent shall submit half yearly reports on the status of compliance of the stipulated E.C. conditions including results of monitored data (both in hard copies as well as by e- mail) and upload the status of compliance of the stipulated E.C. conditions, including result of monitored data on website and shall and update the same periodically. It shall simultaneously be send to the respective Regional office, of MOEF, Govt. of India and also to the State Environmental Impact Assessment Authority (SEIAA) office.

## √ Compliance

Fifth Compliance Report is being submitted to Department of Environment and Climate change, Govt. of Kerala and Regional Office of MoEF, Govt. of India both in hard copy as well as soft copy (CD).

#### Condition 38

The details of environmental clearance should be prominently displayed in a metallic board of 3ft x 3ft with green background and yellow letters of Times New Roman font of size of not less than 40. Sign board with extent of lease area and boundaries shall be depicted at the entrance of the quarry visible to the public.

Details of the environmental clearance prominently displayed in a metallic board of 3 ft x 3 ft with green background and yellow letters of Times New Roman fond was installed. The photographs showing the metallic board is given in Annexure 14.

#### Condition 39

The proponent should provide notarized affidavit (indicating the number and date of environmental clearance proceedings) that all the conditions stipulated in the E.C. shall be scrupulously followed.

## √ Compliance

An affidavit stating that all the conditions stipulated in the Environmental clearance will be scrupulously followed has submitted to Department of Environment and climate change.

### Condition 40

No change in mining technology and scope of work should be made without prior approval of the SEIAA, No further expansion or modifications in the mines shall be carried out without prior approval of the SEIAA, as applicable.

## √ Compliance

We will not make any change in mining technology and scope of work without prior approval of the SEIAA and further expansion or modifications in the mines will not be carried out without prior approval of the SEIAA.

#### > Condition 41

The project proponent shall ensure that no natural water course and/or water recourses shall be obstructed due to any mining operations. Necessary safe guard measures to protect the first order streams if any, originated from the mine lease shall be taken.

#### √ Compliance

We ensure that no natural water course and/or water recourses has not obstructed due to any mining operations. There is no first order streams originated from the mine lease.

Monitoring of Ambient Air Quality to be carried out based on the notification 2009, as amended from the time to time by the Central Pollution Control Board. Water sprinkling should be increased at places loading and unloading points and transfer points to reduce fugitive emission.

## √ Compliance

We will carry out monitoring of Ambient Air Quality based on the notification 2009, as amended from the time to time by the Central Pollution Control Board. Water sprinkling has installed at places via loading and unloading points and transfer points to reduce fugitive emission. Copy of the Ambient Air Quality is enclosed as Annexure 15.

#### Condition 43

The top soil, if any, shall be temporarily be stored at earmarked site(s) only for the top soil shall be used for land reclamation and plantation. The overburden generated during the mining operation shall be stacked at earmarked dump site(s) only. The maximum height of the dump shall not exceed 8m and width 20m and overall slope of the dump shall be maintained to 45°. The O.B. dump should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles shall be undertaken for the stabilization of the dump. The entire excavated area shall be backfilled. Monitoring and management of rehabilitated area should continue until the vegetation become self-sustaining.

## √ Compliance

The overburden generated during the mining operation stacking at earmarked dump site only. The top soil also has been storing at earmarked site(s) and it will only used for land reclamation and plantation. The maximum height of the dump will not exceed 8m and width 20m and overall slope of the dump will be maintained to 45°. The O.B. dump will be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, we will use geo textiles undertaken for the stabilization of the dump. The entire

excavated area will be backfilled. We will monitor and manage the rehabilitated area until the vegetation become self-sustaining.

### Condition 44

Catch drains and siltation ponds of appropriate site shall be constructed around the mine working mineral and O.B. dumps to prevent runoff water and flow of sediments directly into the river and other water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly.

## √ Compliance

Siltation ponds and catch drains has provided around the mine working, mineral and O.B. dumps to prevent runoff water and flow of sediments directly into the river and other water bodies. The water so collected will be utilized for watering the mine area, roads, green belt development etc. The drains will be regularly desilted particularly after monsoon and maintained properly.

#### Condition 45

Effective safe guard measures such as regular water sprinkling shall be carried out in critical areas porn to air pollution and having high levels of PM<sub>10</sub> and PM<sub>25</sub> such as haul road loading and uploading points and transfer points. It shall be ensure that the Ambient Air Quality Parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.

#### √ Compliance

Efficient safe guard measures such as regular water sprinkling is carrying out in critical areas porn to air pollution and having high levels of  $PM_{10}$  and  $PM_{25}$  such as haul road loading and uploading points and transfer points. It will be ensuring that the Ambient Air Quality Parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.

#### Condition 46

Fugitive dust emission from all the sources should be controlled regularly. Water spraying arrangements on haul roads, loading and unloading at transfer points. Should be provided and properly maintained.

Fugitive dust emission from all the sources is controlling regularly. Water spraying arrangements on haul roads, loading and unloading at transfer points has arranged and properly maintained.

#### Condition 47

Measures should be taken for the control of Noise level below 85 DBA in the work environment.

## ✓ Compliance

Different measures have taken for the control of noise level below 85 DBA in the work environment. We have been checking the Ambient Sound level periodically and the copy of the same as enclosed as Annexure 16.

#### Condition 48

A separate Environment Management Cell with suitable qualified personal should be setup under the control of a senior executive who will directly report to the head of the organization.

## √ Compliance

A separate Environment Management Cell with suitable qualified personal will be setup shortly under the control of a senior executive who will directly report to the head of the organization.

#### Condition 49

The funds earmarked for the Environmental protection measures and CSR activities should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the State Environmental Impact Assessment Authority (SEIAA) office.

## √ Compliance

The amount earmarked for the Environmental protection measures and CSR activities are keeping in separate account and will not diverted for other purpose. We will reports year wise expenditure to the State Environmental Impact Assessment Authority (SEIAA) office.

The regional office of MOEF and CC located at Bangalore shall monitor compliance of the stipulated conditions. The project Authorities should extent full co-operation to the officer (s) of the regional office by furnishing the requisite data/information/monitoring reports.

## √ Compliance

We will extent full co-operation to the MOEF officer (s) of the regional office by furnishing the requisite data/information/monitoring reports.

### ➤ Condition 51

Any appeal against the Environmental Clearance shall lie with the National Green Tribunal, if preferred within a period of 30 days as prescribed under section 16 of the National Green Tribunal Act, 2010.

## √ Compliance

There is no appeal against this Environmental Clearance with the National Green Tribunal.

#### Condition 52

Concealing the factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in the withdrawal of this clearance and attract action under the provision of Environmental Protection Act, 1986.

### √ Compliance

### We agreed

#### Condition 53

The SEIAA may revoke, or suspend the order for non implementation of any of the specific or this implementation of any of the conditions is not satisfactory. The SEIAA reserves the right to alter/modify the above conditions or stipulate any further conditions or stipulate any further conditions in the interest of Environmental Protection.

## √ Compliance

## We agreed

The above conditions shall prevail not withstanding anything to the contrary in consistent or simplified, contained in any other permit, license on consent given by any other authority for any other project.

## √ Compliance

## We agreed

## Condition 55

The order is valid for a period of 5 years or the expiry date of mining lease period issued by the Government of Kerala, whichever is earlier.

## √ Compliance

## We agreed

#### Condition 56

The Environmental Clearance will be subject to the final order of the courts in any pending litigation related to the land or project, in any court of law.

## √ Compliance

There is no pending litigation related to the land or project, in any court of law regarding this project.

#### Condition 57

The mining operation shall restrict to above ground water table and it should not intersect ground water table.

## √ Compliance

We carried out mining only above the ground water table only and it will not intersect ground water table.

#### Condition 58

All vehicles used for transportation and within the mine shall have 'PUC' certificate from authorized pollution taking center. Washing of all vehicles shall be in the lease area.

Every vehicles have been washing within in the lease area. All vehicles using for the transportation and within the mine have obtained 'PUC' certificate from authorized pollution taking center.

#### Condition 59

Project proponent should obtain necessary prior permission of the competent authorities for withdrawal of requisite quantity of surface water and ground water for the project.

## √ Compliance

We will obtain necessary prior permission of the competent authorities for withdrawal of requisite quantity of surface water and ground water for the project.

#### Condition 60

Regular monitoring of flow rates and water quality upstream and down streams of the spring and perennial nallahs flowing in and around the mining lease area shall be carried out and reported in the six monthly reports to the SEIAA.

## √ Compliance

There is no spring and perennial nallahs flowing in and around the mining lease area. We are carrying out the water quality analysis regarding the water bodies around the lease area. Copy of the water quality reports enclosed as Annexure 17.

## > Condition 61

Occupational Health surveillance programme of the workers should be under taken periodically to observe any contractions due to exposure to dust and take corrective measures if needed.

#### √ Compliance

To monitor any contractions due to exposure to dust, we are carrying out Occupational Health surveillance programme of the workers periodically and take corrective measures if needed in connection with Mines Vocational Training.

## **ANNEXURE 1**





Photograph showing the barbed metal wire fencing erected around the mining area

# **ANNEXURE 2**





Photographs showing the top soil and OB storage area

**Annexure 3** 





Photograph showing access road maintained by paving granite stone



Photograph showing the rain water harvesting tank





Tree saplings planted near to the project area

# **Annexure No.5a**



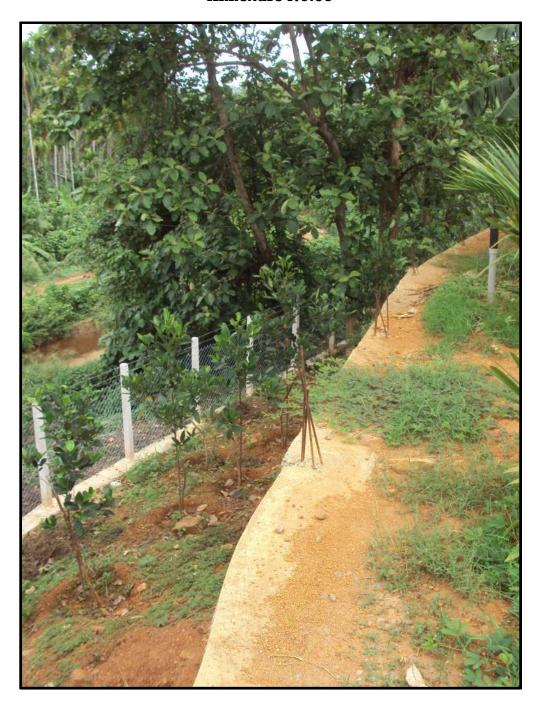
Photograph showing solar panel installed in the project area

# **Annexure No.5b**

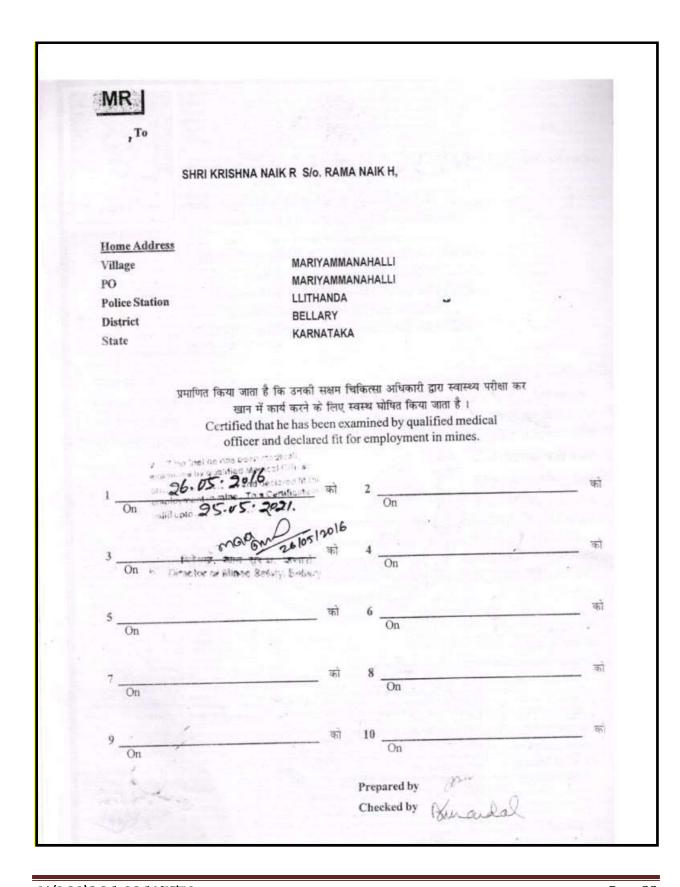


Photograph showing the fixed sprinklers installed along the road side

# Annexure No.5c











The photograph showing bench type mining

**Annexure 8** 





FILE NO: PCB/TSR/IC/7170/2016

Date of issue : 14/06/2016



### KERALA STATE POLLUTION CONTROL BOARD

CONSENT TO

### OPERATE/AUTHORISATION/REGISTRATION

ISSUED UNDER

The Water (Prevention & Control of Pollution) Act, 1974 The Air (Prevention & Control of Pollution) Act, 1981

and -

The Environment (Protection) Act, 1986

As per Application No. :2137886 Dated:27-11-2015

T

M/s RUDRA GRANITES KUNDUKAD P.O, KARUVANKADU,THRISSUR-680028 680028

Consent No. :PCB/DO/TSR/F/ICO/5494 /2016 Valid Upto :31/10/2018







### 1. GENERAL

1.1. This integrated consent is granted subject to the power of the Board to withdraw consent, review and make variation in or revoke all or any of the conditions as the Board deems fit.

1	VALIDITY	31/10/2018	
2	Name and Address of the establishment	RUDRA GRANITES KUNDUKAR RG	
3	Communication	KARUVANKADU,THRISSUR-680028 680028 Telephone:- Fax:- E-mail:dineshnt683@gmail.com	
4	Occupier Details	DINESH MON N.T.NEENDUTHALAKKAL HOUSE, P. O. KUNDUKAD,MUTTIKKAL,KARUVANKADU, THRISSUR-680028	
5	Local Body	MULAKUNNATHUKAVU	
6	Survey Number	1244/IP	
7 .	Village KILLANNUR		
8	Taluk	THRISSUR	
9	District - THRISSUR		
10.	Capital Investment(Rs in Lakhs)	10	
11	Scale	Small	
12	Category	RED	
13	Annual fee(Rs)	2370/-	
	Total Fee remitted(Rs)	15,405/-	
14	. RAW MATERIAL	PRODUCTS	
	GRANITE BUILDING STONE @ 150 Metric Tonnes	QUARRYING FROM 4.9531 HECTARE OF LAND	
14	*	A 93	
19			
		× **	
(4)		40 40	
		8	
		u_ 50 a_ pc	
5	Total Power Required (HP)		

# 2. CONDITIONS AS PER

The Water(Prevention and Control of Pollution)Act, 1974

- In case of generation of trade effluent from the industry, effluent treatment system consisting of treatment units having adequate capacity established as per the Integrated Consent to Establish issued shall be operational at all times during which the industry is functional. Additional facilities required, if along with
- 2.2 Water consumption: 50 Litre/day
- 2.3 Effluent generation:
- 2.4 The characteristics of effluent after treat



n to the following tolerance limits:

of Pollution)	Sewa	ance Limit ge	Trade l	Effluent
0.00	Sewa	ge	Trade l	Effluent
0.00	750			
of Pollution)				
of Pollution)	6		S (6)	
of Pollution)				
,	Act, 1981		10	× 85
measures cho	II be enameles	al at all times du	ilia Vitantini lapoti lancino	
required, if an	y, to achieve th	il at all times di e standards laic	iring the func	tioning of the
		· started tare	down by the	Board shall
			1000	
	Stack Height	above	Control Equ	ipment
	Ground Level	Roof Level	+	
		-		
	SERVICE AND			
101 exceed the	following:			
okmov-		- I		
meter		Limiting	Standards (m	g/Nm3)
			7.	8
1007			97.7	2017
1986.		15	591	
nall be strictly	in compliance	with the provisi	ons of the No	ise Pollution
2000.				
ovement) Kui	andled as per th	e Hazardous W	aste (Manage	ment,
on is granted	1		20	(a)
	transport			1
1000	Control of the Control		-	-
		Disposal		-
	reprocessing/	oisposai .	•	L
age/collection/	disposal of haz	ardous wastes s	hall be as fol	lawar.
			the da lot	iows.
	not exceed the meter  , 1986.  hall be strictly 2000. e disposed of a lovement) Rullon is granted	ssion (Nm3/Hr)  Ground Level  not exceed the following: meter  , 1986.  hall be strictly in compliance 2000 e disposed of as per the Batter iny, shall be handled as per the lovement) Rules, 2008.  on is granted  transport Storage	Stack Height above  Ground Level  Those exceed the following:  Manual be strictly in compliance with the provisic 2000.  The disposed of as per the Batteries (Management), shall be handled as per the Hazardous Willowment) Rules, 2008.  Transport	(Nm3/Hr)  Ground Level  Roof Level  Inot exceed the following:  Inot exceed the follow

e-waste shall be disposed off safely as per the e-waste (Management and Handling) Rules, 2011.

Storage

5. SPECIFIC CONDITIONS

- The location of the industry/out let shall be as per the approved drawing attached.
- 5.2 This consent is granted for operating quarry with production capacity of 150 MT/day granite boulders.
- 5.3 The consent is granted subject to the power of the board to review and make variations to all or any of the conditions as per the Board deems fit as per the relevant Acts/Rules.
- 5.4 The applicant shall comply with the instructions that the Board may issue from time to time regarding prevention and control of air, water, land and sound pollution.
- 5.5 A minimum distance of 100m shall be kept from the boundary of quarry area to residential buildings, places of worship, public buildings, public road having vehicular traffic, river or lake, railway line and bridges.
- 5.6 All control measures provided should be maintained properly to ensure that the system is adequate to control the pollution caused.
- 5.7 The quarry should not be operated between 6.00 pm and 6.00am.
- 5.8 Necessary permission from Mining & Geology, Explosive Department may be obtained before doing blasting.
- 5.9 After excavation at the site is completed the land may be used for rain water harvesting with protective barriers any other suitable approved purpose or may be reclaimed.
- 6.0 The depth of excavation below the highest point shall not exceed 6m.
- 6.1 Fencing shall be provided around the boundary of quarry operation and shall be maintained properly.
- 6.2 This consent is granted for quarrying of exposed rock only.
- 6.3 The PM10 in ambient air at the boundary shall not exceed 100 μg/m³.
- 6.4 The PM2.5 in ambient air at the boundary shall not exceed 60 μg/m³.
- 6.5 The sound level (Leq) at 1m outside the boundary of the site should not exceed the ambient noise standard applicable to the adjoining areas.
- 6.6 Suspended particulate matter at the boundary of the premises shall not exceed the limit applicable to that area as per the National Ambient Air Quality Standards.
- 6.7 The consent issued from the Board shall be valid only for a period when all other statutory or necessary clearance from other concerned authorities are valid.
- 6.8 The renewal application shall be submitted on or before 31.07.2018. Late application shall be accepted only with fine as applicable.
- 6.9 The quarrying lease document from mining and geology department shall be produced within one month of receipt of the same from the department. Otherwise the consent shall be revoked

THE THE PARTY OF T

SIGNATURE & SEAL OF I

P.K. BABURAJAI

DATE:17/06/2016

## अनुज्ञप्ति प्ररुप एल. ई.-3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 की अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (घ) देखिए।) (See article 3(a) to (d) of Part 1 of Schedule IV of Explosives Rules, 2008)

(ग) उपयोग के लिए एक समय पर वर्ग 1,2,3,4,5 या वर्ग 7 के विस्फोटक या किसी मैगजीन में वर्ग 6 के विस्फोटक

रखने के लिए अन्जप्ति

Licence to possess: (c) for use, explosives of class 1, 2,3,4,5,6 or 7 in a magazine

अनुजन्ति सं. (Licence No.) : E/SE/KL/22/1(E84010) वार्षिक फीस रुपए (Annual Fee Rs): 2400/-

1. Licence is hereby granted to Shri N T Dineshmon (अधिमोनी / Occupier : N T Dineshmon), Neenduthalakkal House Muttikkal Kundukadu P.O. Thrissur, kUNDUKADU, Town/Village - KILLANNUR, District-THRISSUR, State-Kerala, Pincode - 680028



को अन्जप्ति अन्दत्त की जाती है।

2. अनुज्ञिप्तिधारी की प्रास्थिति | Status of licensee : Individual

possess for use of Nitrate Mixture, Safety Fuse, 3. अनज्ञप्ति निम्नलिखित प्रयोजनौं के लिए : Electric and/or Ordinary Detonators, - के उपयोग के विधिमान्य है। Licence is valid only for the following purpose.

4- अन्जिप्ति विस्फोटकों के निम्निलिखित किस्मों, प्रकार और मात्रा के लिए विधिमान्य है। Licence is valid for the following kinds and quantity of explosives: -- (南) (a)

新 Sr. No.	नाम और विवरण Name and Description			मात्रा किसी एक समय में 1 Quantity at any one time
	Nitrate Mixture	2.0	0	100 Kg.
-1.	Safety Fuse	6,1	0	1100 Mtrs
3.	Electric and/or Ordinary Detonators	marine and the state of the sta	0	1000 Nos.

(ख) किसी एक कलैंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा [अनुच्छेद 3(ख) और (ग) के 25 times अधीन अन्ज्ञप्ति के लिए as above. (b) Quantity of explosives to be purchased in a calendar month[applicable for licence under article 3(b) and (c)]:

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अन्जप्त परिसर की पष्टि होती है। The licensed premises shall conform to the following

रेखाचित्र क्र. (Drawing No.) E/SE/KL/22/1 : (E84010) दिनांक (Dated) 15/11/2018

drawing(s): . 6. अनुज्ञप्ति परिसर निम्नितिखित पर्ते पर स्थित हैं। The licensed premises are situated at following address: Survey No. 1244/1 , ग्राम (Town/Village) : Killannur पुलिस थाना (Police Station) : Viyyur जिला (District) THRISSUR राज्य (State) पिनकोड (Pincode) 680028 Kerala द्राभाष (Phone) 9744766116 ई. मेल (E-Mail) rudragranite@gmail.com फैक्स (Fax)

7. अनुज्ञप्ति परिसर में निम्नलिखित स्विधाएं अंतर्विष्ट हैं। The licensed premises consist of following

: Portable Magazines D Type No.706 and E type No.956

अनुज्ञप्ति समय - समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2004 के उपबंधों, शर्ती और अतिरिक्त शर्ती और निम्नलिखित उपाबध्दों के अधीन रहते हुए अनुदत्त की

The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2008 framed there under and the conditions, additional conditions and the following

1. उपर्युक्त क्रम सं. 5 में यथा कथित रेखाचित्र (स्थान, सन्निर्माण संबंधी और अन्य विवरण दर्शित करते Drawings (showing site, constructional and other details) as stated in serial No. 5 above.

facilities.

- अनुजप्ति प्राधिकारी व्याररा हस्ता.क्षारित इस अनुजप्ति की शर्ते और अतिरिक्ति शर्ते।
   Conditions and Additional Conditions of this licence signed by the licensing authority.
- 3. द्री प्ररूप DE-2 | Distance Form DE-2.

9. यह अनुजप्ति तारीख 31 मार्च 2018 तक विधिमान्य रहेगी। This licence shall remain valid till 31st day of March 2018.

यह अनुज्ञप्ति, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग व के प्रति निर्दिष्ट सेटः VII के अधीन तथा उपवर्णित इस अनुज्ञप्ति की शर्ती का अधिक्रमण करने या यदि अनुज्ञप्त परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिसंहत की जा सकती है, जहां वह लाग हो।

This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VIII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto.

तारीख | The Date - 31/10/2014

उप मुख्य विरूफोटक नियंत्रक | Dy. Chief Controller of

Explosives Ernakulam

#### Amendments:

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated: 18/07/2017
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated: 08/08/2018

Amendment in Drawings/Facilities/Premises dated: 08/08/2018

Amendment of Quantity of Explosives/Monthly Purchase Limit dated: 15/11/2018

नवीनीकरण के पृष्ठांकन के लिए स्थान Space for Endorsement of Renewal चप मुख्य विश्फोटक नियंत्रक Deputy Chief Controller of Explosive: एरणाकुलम Emakulam

नवीकरण की तारीख समाप्ति की तारीख अनुजापन प्राधिकारी के हस्ताक्षर और स्टाम्प Date of Renewal Date of Expiry Signature of licensing authority and stamp

20/02/2018 31/03/2023 Sd/Dy. Chief Controller of Explosives, Ernakulam

कानूनी चेतावनी : विस्फोटकों को गलत ढंग से चलाने या उनका दुरूपयोग विधि के अधीन गंभीर वांडिक अपराध होगा।

Statutory Warning: Mishandling and misuse of explosives shall constitute serious criminal offence under the law.



## ലൈസൻസുടമസ്ഥർ താഴെ പറയുന്ന വൃവസ്ഥകൾ അനുസരിക്കേണ്ടതാകുന്നു

- പഞ്ചായത്ത് രാജ് ആക്ടും അതേ തുടർന്നുള്ള ചട്ടങ്ങളും അനുസരിച്ചു പ്രവർത്തിക്കേണ്ടതാകുന്നു.
- തൊഴിൽ സ്ഥലവും പരിസരങ്ങളും വെടിപ്പായും വൃത്തിയായും സാംക്രമികരോഗാണുക്കൾ ഉണ്ടാകാത്തവിധത്തിലും പൊതുജനോപദ്രവമാകാത്ത വിധത്തിലും വൃാപാരത്തിനു വച്ചിട്ടുള്ള ഭക്ഷണപദാർത്ഥങ്ങൾ ഈച്ചം അണുക്കൾ, പൊടി മുതലായവയുടെ ശല്യം ഉണ്ടാകാത്ത വിധത്തിലും സൂക്ഷിക്കേണ്ടതാണ്.
- മതാഴിൽ സ്ഥലവും അതിലുള്ള സാധനസാമഗ്രികളും പഞ്ചായത്തധികാരികൾക്കോ/സെക്രട്ടറി അധികാരപ്പെടുത്തുന്നമറ്റ് ഉദ്യോഗസ്ഥർക്കോ പരിശോധിക്കുന്നതിന് ലൈസൻസുടമസ്ഥൻ വേണ്ട സൗകര്യം നൽകേണ്ടതും അവർ ആവശ്യപ്പെട്ടാൽ ഈ ലൈസൻസ് കാണിക്കേണ്ടതുമാകുന്നു.
- പഞ്ചായത്തിൽ നിന്നും അനുവാദം സിദ്ധിച്ചശേഷമല്ലാതെ തൊഴിൽ സ്ഥലം മാറ്റാവുന്നതല്ലാത്തതും തൊഴിൽ നിർത്തുന്ന പക്ഷം വിവരം മുൻകൂട്ടി പഞ്ചായത്തിൽ അറിയിക്കേണ്ടതുമാകുന്നു.
- ഏതൊരു പ്രവർത്തി ദിവസത്തിൻെറയും ഒടുവിൽ സ്ഥലം വൃത്തിയാക്കേണ്ടതാണ്.
- ഒതു സ്ഥലത്തിൻെറയോ പുരയിടത്തിൻെറയോ, ഏതെങ്കിലും ഭാഗത്ത് വിഴുകയോ നിക്ഷേപിക്കപ്പെടുകയോ ചെയ്യുന്ന ചപ്പുചവറോ, മൃഗങ്ങളുടെ തുണ്ടുകളോ മറ്റ് പദാർത്ഥമോ ശേഖരിച്ച് സെക്രട്ടറിക്ക് തൃപ്തികരമായ രീതിയിൽ നീക്കം ചെയ്യിക്കേണ്ടതാണ്.
- 7. ലൈസൻസുകാരൻ ഏതൊരു കെട്ടിടത്തിൻെറയും ചുമരുകളുടെ അകവശത്തിൻെറ ഏതൊരു ഭാഗവും മേൽപറഞ്ഞ പുരയിടത്തിലുള്ള തറയും നടപ്പാതയും അവിടെ തെറിച്ചുവീഴാനിടയുള്ള ഏതെങ്കിലും ദ്രാവകമോ, മാലിനൃമോ ചപ്പുചവറോ, അസഹൃമോ, ഉപദ്രവകരമായ ഏതെങ്കിലും പദാർത്ഥമോ അവിടെ ലയിക്കുന്നത് തടയത്തക്കവിധം എപ്പോഴും നന്നായും കേടുപാട് തീർത്തും വയ്പിക്കേണ്ടതാണ്.
- ഒ. ലൈസൻസൂകാരൻ മേൽപറഞ്ഞ പുരയിടത്തിലോ, അതോടു ചേർന്നോ ഉള്ള ഏതൊരു ഓവുചാലും, അഴുക്കുജലം കളയുന്നതിനുള്ള ഉപകരണവും എപ്പോഴും നന്നായും കേടുപാടുതിർത്തും വയ്പിക്കേണ്ടതാണ്.
- ഏതെങ്കിലും തരത്തിലുള്ള തിക്ക് രോഗമോ കുഷ്ഠ രോഗമോ വ്രണമോ ഉള്ള യാതൊരാളും കച്ചവടം നടത്തുന്നതിന് ഉപയോഗിക്കുന്ന യാതൊരു പരിസരത്തും പ്രവർത്തിക്കുവാർ പാടില്ലാത്തതാകുന്നു.
- 10. ഏത് സ്ഥലത്തിൻെറ കാര്യത്തിൽ ലൈസൻസ് നൽകിയിരിക്കുന്നുവോ ആ സ്ഥലത്ത് എല്ലാവരും കാണത്തക്കവിധ ത്തിലുള്ള ഒരു ഭാഗത്ത് ലൈസൻസുകാരൻ തൻെറ പേരും, ലൈസൻസിൻെറ നമ്പരും ഉദ്ദേശവും കാണിക്കുന്ന ഒരു അടയാളപ്പലക വച്ചിരിക്കേണ്ടതാണ്.
- അയിത്തം ആചരിക്കുന്ന കടകളുടെ ലൈസൻസ് റദ്ദുചെയ്യുന്നതാണ്.

മുകളിൽ കാണിച്ചിരിക്കുന്ന വൃവസ്ഥകളിൽ ഏതെങ്കിലും ലംഘിക്കുന്ന പക്ഷം ഈ ലൈസൻസ് റദ്ദ് ചെയ്യുന്നതാണ്.

മെയുകട്ടറി

R. SUBRAMANIAN Secretary (in charge)

Mulankunnathukavu Grama Panchayat



**Annexure 13** 



**Annexure 14** 



Photograph showing the details of the environmental clearance order prominently displayed in a metallic board



### POLUCHEM LABORATORIES (P) LTD.

CHEMICAL, ENVIRONMENTAL AND MICROBIOLOGY LABORATORY PALLATH BUILDING, N. KALAMASSERY P. O., ERNAKULAM - 683104 Phone: 0484-2544030, 8281982322, 9747400085, 9747400089, www.poluchem.com, poluchem@gmail.com

ACCREDITED BY KSPCR AS "A" GRADE LABORATORY

#### TEST REPORT

page 01 of 01

Client Name & Address	Certificate No:	PL/AMB/RT/5060/2019
	Date of issue:	04/06/2019
Mr. Dineshmon.N.T. M/s Rudra Granites Neenduthalakkal(H) Muttikal,Kundukadu P.O. Thrissur-680028	Date of monitoring	30/05/2019 12.00 Hrs to 31/05/2019 12.00 Hrs
	Date of sample received:	01/06/2019
	Date of analysis Started	01/06/2019
	Monitoring Location	Quarry Owned By Mr. Dineshmon.N.T. M/s Rudra Granites Survey No.1244/1(pt) Village – Killanur Taluk – Thrissur District- Thrissur, Kerala.
	Sample description	Ambient air – Near East Side Boundary
Walter State of the State of th	Sample code given by client	Nil

SL NO	PARAMETERS	TEST METHOD	RESULTS	Limits as per NAAQS
01	Particulate Matter (PM <sub>10</sub> )	I S 5182 Part 23 2006RA2012	54.3 μg/m <sup>3</sup>	100 μg/m <sup>3</sup>
02	Particulate Matter (PM <sub>2.5</sub> )	CPCB	30.2 μg/m <sup>3</sup>	60 μg/m <sup>3</sup>
03	Sulphur dioxide	I S 5182 Part 2 2001 RA 2017	7.3 µg/m <sup>3</sup>	80 μg/m <sup>3</sup>
04	Nitrogen dioxide	IS 5182 Part 06 2006 RA2017	6.4 μg/m <sup>3</sup>	80 μg/m <sup>3</sup>

Note: NAAQS-National Ambient Air Quality Standards

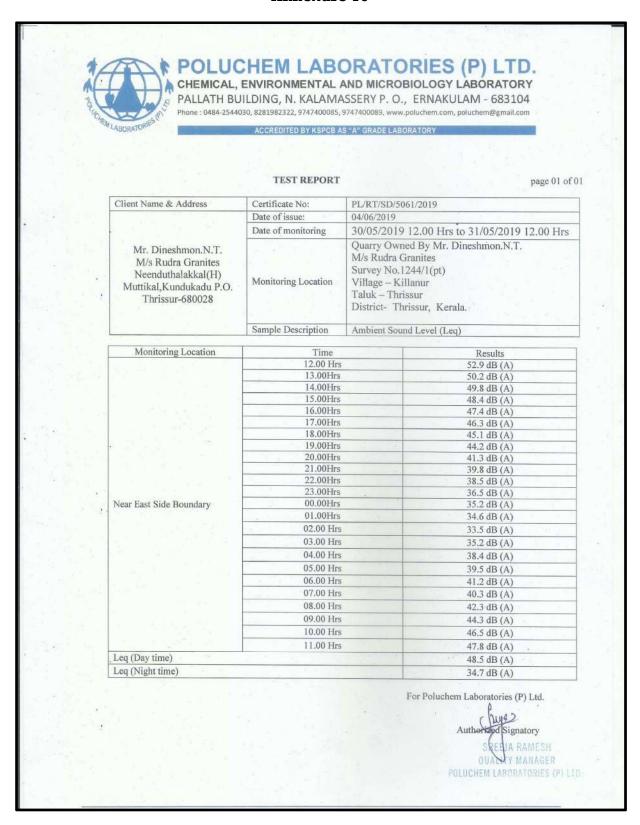
\* End of the Report\*

The results are related only to the sample collected for analysis. This certificate shall not be reproduced except in full and without the written permission with authorized signatory

For and on behalf of POLUCHEM LABORATORIES (P) LTD.

AUTHORIZED SIGNATORY

QUALITY MANAGER
POLUCHEM LABORATORIES (P) LTD



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#### **Annexure 17**



## POLUCHEM LABORATORIES (P) LTD.

CHEMICAL, ENVIRONMENTAL AND MICROBIOLOGY LABÓRATORY PALLATH BUILDING, N. KALAMASSERY P. O., ERNAKULAM - 683104 Phone: 0484-2544030, 8281982322, 9747400085, 9747400089, www.poluchem.com, poluchem@gmail.com

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#### TEST REPORT

Ref.No. PL/RT/OW/5063/2019

Name & address of customer

Project Site

Sample description
Location of sampling
Date of sample collected
Date of analysis started

Date of analysis started
Date of completion of analysis

Date of Issue: 04/06/2019

: Mr. Dineshmon.N.T. M/s Rudra Granites

> Neenduthalakkal(H) Muttikal,Kundukadu P.O.

Thrissur-680028

: Quarry Owned By Mr. Dineshmon.N.T.

M/s Rudra Granites Survey No.1244/1(pt) Village – Killanur Taluk – Thrissur

District- Thrissur, Kerala.

: Quarry water 31/05/2019 : 01/06/2019 : 04/06/2019

: Water Sample

Parameters tested	Test method	Result	Acceptable Limit as per IS 10500 - 2012
Color	IS 3025 (P) 04 – 1983 RA2017	5 Hazen Unit	5 Hazen Unit
Odour	IS 3025 (P) 05 - 1983 RA2017	Agreeable	Agreeable
Turbidity	IS 3025 (P) 10 - 1984 RA2017	BDL	1 NTU
pH	IS 3025 (P) 11 – 1983 RA 2017	6.67	6.5 - 8.5
Total Dissolved Solids	IS 3025 (P) 16 - 1984 RA2017	86 mg/l	500 mg/l
Total Hardness as CaCO <sub>3</sub>	IS 3025 (P) 21 - 1983 RA2014	36.2 mg/l	200 mg/l
Total Alkalinity as CaCO <sub>3</sub>	IS 3025 (P) 23 - 1986 RA2014	26.4 mg/l	200 mg/l
Residual Chlorine	IS 3025 (P) 26 - 1986 RA2014	BDL	Min 0.2 mg/l
Chloride as Cl	IS 3025 (P) 26 - 1986 RA2014	22.3 mg/l	250 mg/l
Calcium as Ca	IS 3025 (P) 40 - 1991 RA2014	8.6 mg/l	75 mg/l
Magnesium as Mg	IS 3025 (P) 46 - 1994 RA2014	4.2 mg/l	30 mg/l
Iron as Fe	IS 3025 (P) 53 - 2003 RA2014	0.15 mg/l	0.3 mg/l
Sulphate as SO <sub>4</sub>	IS 3025 (P) 24 - 1986 RA2009	6.4 mg/l	200 mg/l
Fluoride as F	IS 3025 (P) 60 -2008 RA2013	BDL	1.0 mg/l

Note: BDL - Below Detection Level

For Poluchem Laboratories (P) Ltd.

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Continuation of Test Certificate No: 5063/2019

Parameters tested	Test method	Results	Acceptable Limit as per IS 10500 – 2012
Selenium as Se	IS 3025 (P)56 -2003 RA2014	BDL	0.01 mg/l
Arsenic as As	IS 3025(P) 37-1988 RA2014	BDL	0.05 mg/l
Copper as Cu	IS 3025(P) 42-1992 RA2014	BDL	0.05 mg/l
Manganese as Mn	IS 3025(P) 59-2006 RA2017	BDL	0.1 mg/l
Cadmium as Cd	IS 3025(P) 41- 1992 RA2014	BDL	0.01 mg/l
Chromium as Cr	IS 3025 (P)52 – 2003 RA2014	BDL	0.05 mg/l
Zinc as Zn	IS 3025 (P)49 – 1994 RA2014	BDL	5 mg/l
Mercury as Hg	IS 3025(P) 48 – 1994 RA2014	BDL	0.001 mg/l
Cyanide as CN	IS 3025(P)27-1986 RA2014	BDL	0.05 mg/l
Lead as Pb	IS 3025(P) 47-1994 RA2014	BDL	0.05 mg/l
Aluminum as Al	IS 3025(P) 55-2003 RA2014	BDL	0.03 mg/l
Boron as B	IS 3025(P) 57-2005 RA2017	BDL	l mg/l

Note: BDL- Below Detection Level MICROBIOLOGY ANALYSIS

Parameters Tested	Unit	Test method	Results	Acceptable Limit as per IS 10500 - 2012
Coliforms	MPN/100m1	IS 1622: 1981 RA 2009	Absent	Shall not be detectable in any 100 ml sample
E coli	Present or Absent/100ml	IS 1622: 1981 RA 2009	Absent	Shall not be detectable in any100 ml sample

For Poluchem Laboratories (P) Ltd.

\*End of the report\*

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#### TEST REPORT

Ref.No. PL/RT/OW/5062/2019

Date of Issue: 04/06/2019

Name & address of customer

: Mr. Dineshmon.N.T. M/s Rudra Granites Neenduthalakkal(H) Muttikal, Kundukadu P.O. Thrissur-680028

Project Site

: Quarry Owned By Mr. Dineshmon.N.T.

M/s Rudra Granites Survey No.1244/1(pt) Village - Killanur Taluk - Thrissur District- Thrissur, Kerala.

Sample description Location of sampling Date of sample collected Date of analysis started

Date of completion of analysis

: Drinking Water : Open well Water-Outside-South West Side-Own Property

: 31/05/2019 : 01/06/2019 : 04/06/2019

Acceptable Limit Parameters tested Test method Result as per IS 10500 - 2012 Color IS 3025 (P) 04 - 1983 RA2017 4 Hazen Unit 5 Hazen Unit Odour IS 3025 (P) 05 - 1983 RA2017 Agreeable Agreeable Turbidity IS 3025 (P) 10 - 1984 RA2017 BDL 1 NTU pH IS 3025 (P) 11 - 1983 RA 2017 6.74 6.5 - 8.5Total Dissolved Solids IS 3025 (P) 16-1984 RA2017 60 mg/l 500 mg/l Total Hardness as CaCO3 IS 3025 (P) 21 - 1983 RA2014 20.2 mg/l 200 mg/l Total Alkalinity as CaCO3 IS 3025 (P) 23 - 1986 RA2014 17.3 mg/l 200 mg/l Residual Chlorine IS 3025 (P) 26 - 1986 RA2014 BDL Min 0.2 mg/l Chloride as Cl IS 3025 (P) 26 - 1986 RA2014 13.6 mg/l 250 mg/l Calcium as Ca IS 3025 (P) 40 - 1991 RA2014 4.56 mg/l 75 mg/l Magnesium as Mg IS 3025 (P) 46 - 1994 RA2014 1.21 mg/l 30 mg/l Iron as Fe IS 3025 (P) 53 - 2003 RA2014 0.12 mg/l 0.3 mg/l Sulphate as SO<sub>4</sub> IS 3025 (P) 24-1986 RA2009 BDL 200 mg/l Fluoride as F IS 3025 (P) 60 -2008 RA2013 BDL 1.0 mg/l

Note: BDL - Below Detection Level

For Poluchem Laboratories (P) Ltd.

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Continuation of Test Certificate No:\_\_\_

5062/2019

Parameters tested	Test method	Results	Acceptable Limit as per IS 10500 – 2012
Selenium as Se	IS 3025 (P)56 -2003 RA2014	BDL	0.01 mg/l
Arsenic as As	IS 3025(P) 37- 1988 RA2014	BDL	0.05 mg/l
Copper as Cu	IS 3025(P) 42-1992 RA2014	BDL	0.05 mg/l
Manganese as Mn	IS 3025(P) 59-2006 RA2017	BDL	0.1 mg/l
Cadmium as Cd	IS 3025(P) 41- 1992 RA2014	BDL	0.01 mg/l
Chromium as Cr	IS 3025 (P)52 – 2003 RA2014	BDL	0.05 mg/l
Zinc as Zn	IS 3025 (P)49 – 1994 RA2014	BDL	5 mg/l
Mercury as Hg	IS 3025(P) 48 – 1994 RA2014	BDL	0.001 mg/l
Cyanide as CN	IS 3025(P)27-1986 RA2014	BDL	0.05 mg/l
Lead as Pb	IS 3025(P) 47- 1994 RA2014	BDL	0.05 mg/l
Aluminum as Al	IS 3025(P) 55-2003 RA2014	BDL	0.03 mg/l
Boron as B	IS 3025(P) 57-2005 RA2017	BDL	1 mg/l

Note: BDL-Below Detection Level MICROBIOLOGY ANALYSIS

Parameters Tested	Unit	Test method	Results	Acceptable Limit as per IS 10500 - 2012
Coliforms	MPN/100ml	IS 1622: 1981 RA 2009	Absent	Shall not be detectable in any 100 ml sample
E coli	Present or Absent/100ml	IS 1622: 1981 RA 2009	Absent	Shall not be detectable in any100 ml sample

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\*End of the report\*

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