



Validity expires on 24.10.2022

## ***Proceedings of the State Environment Impact Assessment Authority Kerala***

*Present: Prof. (Dr.) K.P. Joy, Chairman; Dr. J. Subhashini, Member and  
Sri. James Varghese, I.A.S., Member Secretary.*

Sub: **SEIAA- Environmental Clearance for the quarry project in Survey Nos. 464/2A, 464/2B1, 464/1A1, 462/1A2, 463/3B, 464/3-2 and 464/3-1 of Thirumarady Village, Muvattupuzha Taluk, Ernakulam District, Kerala State by Smt. Bindhu P.A. - Granted – Orders issued.**

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### **STATE ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY, KERALA**

**No. 997/EC3/4906/2015**

***Dated, Thiruvananthapuram 25.10.2017***

- Ref:
1. Application received on 26.11.2015 from Smt. Bindhu P.A., Managing Director, Thevarmadathil House, Mannathoor P.O., Ernakulam District, Kerala – 686723
  2. Minutes of the 60<sup>th</sup> meeting of SEAC held on 28<sup>th</sup> & 29<sup>th</sup> July, 2016
  3. Minutes of the 63<sup>rd</sup> meeting of SEAC held on 4<sup>th</sup> October 2016
  4. Minutes of the 73<sup>rd</sup> meeting of SEAC held on 30<sup>th</sup> & 31<sup>st</sup> May 2017
  5. Minutes of the 72<sup>nd</sup> meeting of SEIAA held on 01<sup>st</sup> August 2017
  6. Affidavit dt.20.09.2017 received from Smt.Bindhu P.A

### **ENVIRONMENTAL CLEARANCE NO.76/2017**

Smt. Bindhu P.A., Managing Director, Thevarmadathil House, Mannathoor P.O., Ernakulam District, Kerala - 686723, vide her application received on 26/11/2015, has sought Environmental Clearance under EIA Notification, 2006 for the quarry project in Survey Nos. 464/2A, 464/2B1, 464/1A1, 462/1A2, 463/3B, 464/3-2 and 464/3-1 of Thirumarady Village, Muvattupuzha Taluk, Ernakulam District, Kerala State for an area of 4.7975 hectares. The project comes under Category B, Activity 1(a), (i) as per the Schedule of EIA Notification 2006 (since it is below 50 hectares) and as per O.M. No. L-11011/47/2011-IA.II(M) dated 18<sup>th</sup> May 2012 of Ministry of Environment and Forests. It is further categorized as Category B2 as per Notification No.S.O.141 (E) dt.15.01.2016 of Ministry of Environment and Forests, since the area of the project is below 25 hectares.

**Details of the project as furnished by the applicant are as follows;**

The proposed project site falls within Latitude N - 9°54'43.912" to 9°54'52.877" and Longitude E - 76°32'53.919" to 76°33'4.541". The proposed project is for quarrying of 1000 TPD (2.0 Lakh TPA) of building stone. Distance of the mining area from the nearest human settlement is recorded as more than 147m from the lease boundary. The water requirement for the mining operation is about 8.0 KLD comprising Domestic Sanitary needs 1.0 KLD Dust Suppression Greenbelt requirement 7.0 KLD. The source of water for domestic sanitary water requirement is being met from well water and for industrial operation is being met from mine sump pit/ well.

**BASIC INFORMATION OF QUARRY  
(To be filled in by the Project Proponent)  
PART A**

I. Project details		
1.	File No.	997/SEIAA/EC3/4906/2015
2.	Name /Title of the project	Granite Stone Quarry of Smt. Bindhu P.A
3.	Name and address of project proponent.	Smt. Bindhu P.A, Thevarmadathil House, Mannathoor P.O., Thirumarady village, Muvattupuzha Taluk, Ernakulam District, Kerala. Mobile No: 09447292846 E-mail: <a href="mailto:jojimol1977@yahoo.co.in">jojimol1977@yahoo.co.in</a>
4.	Owner of the land	Private land partly owned by proponent and partly by others. For land owned by others, NOC is obtained.
5.	Survey No. District/Taluk/ and Village etc.	Survey No: 464/2A, 464/2B1, 464/1A1, 462/1A2, 463/3B, 464/3-2 and 464/3-1, Thirumarady village, Muvattupuzha Taluk Ernakulam District , Kerala
6.	Details of period of lease or permit with number including the beginning and expiry date of lease/permit period (Copy to be attached)	Recent permit granted vide letter No. 03/16-17/MM/GS/QP/DOE/4648/E2/15 dated 18 <sup>th</sup> April 2016 valid till 17.04.2017
7.	Present Status of the project a. Date & Year of starting the work of	a. 25.05.2011

	the quarry project. b. whether the quarry is working at present or not ? c. If stopped working since when?	b. No  c. 01.12.2016
8.	Date of submission of Application	26.11.2015
9.	Brief description of the project.	Enclosed as Annexure – I
10.	Details of Authorized Signatory and address for correspondence	Smt. Bindhu P.A, Thevarmadathil House, Mannathoor P.O., Thirumarady village, Muvattupuzha Taluk, Ernakulam District, Kerala. Mobile No: 09447292846 E-mail: <a href="mailto:jojimol1977@yahoo.co.in">jojimol1977@yahoo.co.in</a>
<b>II. Land Details</b>		
11.	1. Extent of area in hectares	4.7975 Ha
12.	2. Is the property forest land/Govt. land/own land/patta land	Private land partly owned by proponent and partly by others. For land owned by others, NOC is obtained.
13.	3. Quantity of top soil/over burden produced and managed	The total waste to be generated from the mine area is expected to be 27117 m <sup>3</sup> comprising 4067 m <sup>3</sup> of top soil and 23050 m <sup>3</sup> of overburden / waste. Topsoil shall be used for afforestation purpose. Part of the waste/overburden will be used for road formation, filling of low lying areas. The remaining waste can be dumped in the proposed external dump in eastern side of the lease area temporarily or other commercial purpose outside the lease as per norms. Liquid domestic effluents are minimal and let out into septic tank and soak pits.
14.	4. Latitude and Longitude	Latitude:N - 9°54'43.912" to 9°54'52.877" Longitude:E - 76°32'53.919" to 76°33'4.541"
15.	5. Topography of land and elevation	+40m AMSL to +133m AMSL sloping from Northwest to Southeast
16.	6. Slope analysis	The bench slopes will be maintained as per DGMS rules and requirement and hence there cannot be any instable slopes.
17.	7. Will there be any significant land disturbance resulting in soil	This is an opencast mine hence there will not be any subsidence. The bench slopes will be maintained as per DGMS rules and requirement and hence there cannot be any instable slopes.

	erosion, subsidence & natural drainage.	There will be land disturbance due to mining activity.
18.	8. Access road to the site width and condition	The project site is approachable from Vettimood - Mannathoor road (Width - 8m) which is branching out from Marady - Mannathoor Road.
19.	9. Will there be any adverse impact on the aesthetics of the proposal site	No. During the mine closure stage, water body will be formed up to +40 m AMSL. Out of 4.0212 Ha of mined out area, 1.2696 Ha will be left as water body and the remaining 2.7516 Ha of area including the proposed external dump in eastern side of the lease area will be reclaimed back with bench plantation / plantation which improves the aesthetics of the area.
<b>III. Mining details</b>		
20.	a) Minimum and Maximum height of excavation.	+40m AMSL to +133m AMSL sloping from Northwest to Southeast
21.	b) Life of mine proposed.	9 years
22.	c) Underground mining if any proposed	No
23.	d) Method of Mining	Semi-Mechanized opencast mining
24.	e) Distance from the adjacent quarry	Quarry of Shri. Babu Jacob is located adjacent to this quarry.
25.	f) Cluster condition if any	The combined extent including present applied lease area is 8.6773 Ha only
26.	g) Has "No cluster certificate" submitted?	Yes
27.	h) Distance from nearby habitation	More than 147 m away
28.	i) Distance from nearby forest, if applicable	Nil within study area
29.	j) Distance from protected area, Wildlife Sanctuary, National Park etc.	Nil within study area
30.	k) Distance from nearby streams/rivers/National Highway and Roads	<u>Water bodies:</u> Muvattupuzha River - 4.3 km (NW), Thodupuzha River - 5.7 km (NE), Valiya Todu - 3 km (SW) and Kavalamattam Todu - 3.4 km (South) <u>Highway:</u> NH - 49 (Cochi - Madurai - Tondi Point Hwy) - 7km - North (Aerial), SH -1- MC Road (Trivandrum - Angamaly Road) -3.5km - East

		(Aerial)
31.	l) Is ESA applicable? If so distance from ESA limit	Nil within study area
32.	m) Has approved mining plan, prepared by RQP submitted?	Yes
33.	n) Capacity of production in TPA	1000 TPD (2.0 Lakh TPA)
34.	o) Details of mining process	The mining operation comprises of drilling using jack hammer and compressors, blasting, removal of blasted material using excavator and transportation of material directly to the outside crusher unit.
<b>IV. Details of Project cost</b>		
35.	a) Land cost	68 lakhs
36.	b) Plant and Machinery	48.92 lakhs
37.	c) Total Cost	116.92 lakhs
38.	V. Financial Statement including funding source and details of insurance etc.	An loan of Rs. 18 lakhs obtained from bank
39.	Management Plan	<p><b>Air Pollut ion</b></p> <p><b>MANAGEMENT PLAN:</b></p> <ul style="list-style-type: none"> <li>➤ Regular wetting of transport road using water tanker</li> <li>➤ Avoiding overloading of tippers</li> <li>➤ Covering of loaded tippers with tarpaulins during transportation</li> <li>➤ Development of green belt / barriers wherever possible</li> </ul>
		<p><b>Water Pollut ion</b></p> <ul style="list-style-type: none"> <li>➤ Sewage generated will be properly discharged into septic tanks with soak pits.</li> <li>➤ The rain water falling in the quarry will be harvested up to +40m AMSL. This pit will act as a settling pond to prevent solids escaping along with discharge, before outlet etc.</li> <li>➤ It is suggested to construct a settling pond in the eastern corner of the lease area around +40m AMSL so that water can be diverted into this pond.</li> </ul>

			<ul style="list-style-type: none"> <li>➤ Clear supernatant water after settling can be let out of this pond after passing through settling traps.</li> </ul>
		Noise	<ul style="list-style-type: none"> <li>➤ Noise levels can be abated through good preventive maintenance of machineries, green belt creation, provision of ear muffs to workers, etc.,</li> <li>➤ Sound proof operator's cabin for equipments like dumpers, shovel, tippers, etc.,</li> <li>➤ Ground vibration are controlled through optimum design for burden &amp; spacing, inclined drilling practice, using ordinary electric milli second delay detonators, in combination with detonating fuse etc.,</li> </ul>
		Solid waste Management	<ul style="list-style-type: none"> <li>➤ The total waste to be generated from the mine area is expected to be 27117 m<sup>3</sup> comprising 4067 m<sup>3</sup> of top soil and 23050 m<sup>3</sup> of overburden / waste.</li> <li>➤ Topsoil shall be used for afforestation purpose. Part of the waste/overburden will be used for road formation, filling of low lying areas. The remaining waste can be dumped in the proposed external dump in eastern side of the lease area temporarily or other commercial purpose outside the lease as per norms.</li> </ul>
		Eco restoration	<ul style="list-style-type: none"> <li>➤ In the Mine Closure stage, Water body will be formed up to +40 m AMSL. Out of 4.0212 Ha of mined out area, 1.2696 Ha will be left as water body and the remaining 2.7516 Ha of area including the proposed external dump in eastern side of the lease area will be reclaimed back with bench plantation / plantation. The mined area will be properly fenced all around.</li> </ul>
40.	VI. Whether Environment Management Plan or Eco restoration Plan satisfactory?	Yes	

41.	VII. Does it suggest mitigation measures for each activity	Yes
42.	VIII. If Pre-Feasibility Report (PFR) satisfactory	Yes
43.	IX. Does it need public hearing	No
44.	X. Details of litigation and Court verdict if any	Attached as Enclosure - 2
45.	XI. Details of public complaint, if any	No
46.	XII. Details of statutory sanction required	Environmental clearance yet to be obtained
47.	XIII.If CRZ recommendation applicable?	No.
<b>PART B</b>		
<b>Environment Impact Assessment and Mitigation Measures</b>		
<b>Impact on water</b>		
48.	a) Details of water requirement per day in KLD	8.0 KLD
49.	b) Water source/sources.	Mine sump pit/ well and from own well.
50.	c) Expected water use per day in KLD.	For domestic & sanitary needs -1.0 KLD, For dust suppression and Plantation - 7.0 KLD, Total - 8.0 KLD
51.	d) Details of water requirements met from water harvesting.	The rain water falling in the quarry will be harvested up to +40m AMSL. This pit will act as a settling pond to prevent solids escaping along with discharge, before outlet, etc. Besides, it is also suggested to construct settling pond in eastern side of the lease area around +40 m AMSL so that water can be diverted into this pond. Supernatant clear water will be let out of the area after passing through silt traps.
52.	e) What are the impact of the	The entire water requirement for domestic purpose and industrial activities such as Dust suppression and greenbelt

	proposal on the ground water?	development is met from mine pit water/ well water or procured from outside if necessary. Moreover, mining operation require very less quantity of water and as such its impact on water environment is negligible.
53.	f) How much of the water requirement can be met from the recycling of treated waste water? (Facilities for liquid waste treatment)	This is a mining project and there is no generation of liquid effluent
54.	g) What is the incremental pollution load from waste water generated from the proposed activities?	There will not be any effluent generated from this mine. Hence, not applicable.
55.	h) How is the storm water from within the site managed?	Rainwater falling in the quarry will be collected in the sump and will be advantageously utilized for dust suppression, afforestation etc.
Impact on Biodiversity and Eco restoration Programmes		
56.	a) Will the project involve extensive clearing or modification of vegetation (Provide details)	No. Part of the area is covered under mining operation. The balance area has sparse vegetation which has to be cleared. However, at the mine closure stage, bench plantation and plantation in the safety barrier will be done
57.	b) What are the measures proposed to minimize the likely impact on vegetation (details of proposal for tree plantation/ landscaping)	Out of 4.0212 Ha of mined out area, 1.2696Ha will be left as water body and the remaining 2.7516 Ha of area including the proposed external dump in eastern side of the lease area will be reclaimed back with bench plantation / plantation.
58.	c) Is there any displacement of fauna – both terrestrial and aquatic. – If so what are the mitigation measures ? d) Presence of any endangered species	There are no forests within the 10km buffer zone. Also, there are no endangered or endemic species of flora in the area. There are no schedule – 1 Fauna in the study area.



	or red listed category (in detail)	
Impact on Air Environment		
59.	a) What are the mitigation measures on generation of dust, smoke and air quality	<p>Air pollution in mines is mainly due to:</p> <ul style="list-style-type: none"> <li>• Drilling &amp; Blasting.</li> <li>• Movement of HEMM.</li> <li>• Loading &amp; Unloading.</li> <li>• Transportation of Material.</li> <li>• Drilling &amp; Blasting.</li> <li>• Movement of HEMM.</li> <li>• Loading &amp; Unloading.</li> <li>• Transportation of Material.</li> </ul> <p>The following mitigation measures are and will be adopted:</p> <ul style="list-style-type: none"> <li>• Covering of drill holes with wet cloth for controlling dust emission</li> <li>• Usage of sharp drill bits for drilling of holes.</li> <li>• Regular wetting of transport road using water tanker to suppress the dust.</li> <li>• Well-designed blasting parameter, effective stemming to achieve optimum breakage occurs without generating fines.</li> <li>• Avoiding blasting during high wind periods where the fine dust is carried out away easily affecting the ambient air quality.</li> <li>• Use of controlled blasting techniques to keep the dust generation, noise as well as vibration level within the prescribed limits.</li> <li>• Proper maintenance of HEMM which avoids excessive noise and vibration</li> <li>• Acoustic enclosures for operator cabin.</li> <li>• Imparting sufficient training to operators on safety and environmental parameters</li> <li>• Proper maintenance of hauling equipment's</li> <li>• Regular maintenance of the transport vehicles.</li> <li>• Avoiding of overloading of tippers and covering of loaded tippers with tarpaulins during transportation.</li> <li>• Development of Greenbelt.</li> <li>• Periodical monitoring of air quality to take steps to control the pollutants.</li> </ul>
60.	b) Details of internal traffic management of the site.	Only few tippers will be engaged for transporting granite to outside crusher plant. No internal traffic management in the site is needed.
61.	c) Details of noise from traffic, machines and vibrator and	<p>Noise/Vibration generation in mining operations are mainly due to:</p> <ul style="list-style-type: none"> <li>• Mechanization adopted.</li> </ul>

	mitigation measures	<ul style="list-style-type: none"><li>• Drilling &amp; Blasting Operation.</li><li>• Movement of Vehicles, etc.</li><li>• Ground Vibration</li></ul>																																						
62.	d) Impact of DG sets and other equipment on noise and vibration and ambient air quality around the project site and mitigation measures	<p>The mitigation measures are given below:</p> <ul style="list-style-type: none"><li>• Planting of trees wherever possible to act as acoustic barriers.</li><li>• Sound proof operator's cabin for equipment like dumpers, shovel, tippers, etc.</li><li>• Proper and regular maintenance of equipment may lead to less noise generation.</li><li>• Providing in-built mechanism for reducing sound emissions.</li><li>• Providing earplugs, earmuffs to workers exposed to higher noise level.</li><li>• Conducting regular health check-up of workers including Audiometry test for the workers engaged in noise/vibration prone area.</li></ul> <p>The following mitigation measures will be adopted for noise control:</p> <ul style="list-style-type: none"><li>• Optimum design for burden and spacing.</li><li>• Inclined drilling practice, whenever necessary.</li><li>• Reducing explosive charge to minimum.</li><li>• Proper deck charging practices, looking to consolidation and hardness of strata conditions.</li><li>• Using ordinary electric milli second delay detonators, in combination with denoting fuse etc. This sequence of blasting reduces vibration to a large extent, thereby minimizing propagation of shock waves.</li><li>• Avoiding blasting in unfavorable weather condition.</li></ul>																																						
63.	e) Air quality monitoring in detail	<p>AAQ monitoring were studied in 3 locations</p> <table><tr><th rowspan="2">Parameter (in <math>\mu\text{g}/\text{m}^3</math>)</th><th colspan="3">Sample Code &amp; Location</th><th rowspan="2">*Permissible Limits</th></tr><tr><th>BA1</th><th>BA2</th><th>BA3</th></tr><tr><td></td><td>NEAR MINE LEASE AREA</td><td>NAVOLI MATTAM</td><td>VETTI MOOD</td><td></td></tr><tr><td>PM<sub>10</sub></td><td>55.7</td><td>50.5</td><td>53.5</td><td>100</td></tr><tr><td>PM<sub>2.5</sub></td><td>23.3</td><td>21.9</td><td>22.7</td><td>60</td></tr><tr><td>SO<sub>2</sub></td><td>4.4</td><td>4.1</td><td>4.2</td><td>80</td></tr><tr><td>NO<sub>2</sub></td><td>9.8</td><td>8.5</td><td>9.2</td><td>80</td></tr><tr><td>CO</td><td>BDL(D</td><td>BDL(DL-</td><td>BDL(DL-</td><td>4000</td></tr></table>	Parameter (in $\mu\text{g}/\text{m}^3$ )	Sample Code & Location			*Permissible Limits	BA1	BA2	BA3		NEAR MINE LEASE AREA	NAVOLI MATTAM	VETTI MOOD		PM <sub>10</sub>	55.7	50.5	53.5	100	PM <sub>2.5</sub>	23.3	21.9	22.7	60	SO <sub>2</sub>	4.4	4.1	4.2	80	NO <sub>2</sub>	9.8	8.5	9.2	80	CO	BDL(D	BDL(DL-	BDL(DL-	4000
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		L-1144)	1144)	1144)	
		*National Ambient Air Quality Standards from CPCB Remarks: BDL- Below detectable limit , DL- Detectable Limit.			
Energy Conservation					
64.	a) Details of power requirement and source of supply.	No electricity is needed for quarry operations as only diesel operated mining machinery including jack hammer are used for quarrying. Hence the negligible power requirement of the administrative buildings etc., are and will be met from state grid. The power connection for office use is available near to the site.			
65.	b) Details of renewable energy (non – conventional) used.	Not Applicable			
Risk Management					
66.	a) Are there sufficient measures proposed for risk hazards in case of emergency such as accident at the site?	<ul style="list-style-type: none"><li>• Yes. Bench height, width and slope will be maintained as per direction of DGMS.</li><li>• The mined area will be properly fenced all around to prevent fall of animals.</li><li>• License to store and use of Explosive obtained from Deputy Chief Controller of Explosives, Ernakulam. Explosive License No. E/SE/KL/22/30(E85862) Dated 23.07.2015, which is valid up to 31.03.2020.</li><li>• Topsoil shall be used for afforestation purpose. Remaining waste will be used for road formation, filling of low lying areas and creation of bund around the mine periphery. The other waste if any can be dumped in proponents own land nearby or can be utilized for filling of low lying areas or other commercial purpose outside the lease as per norms.</li></ul>			
67.	b) Are proposals for fencing around the quarry satisfactory?				
	c) Storage of explosives/hazardous substance in detail				
	d) Facility for solid waste management				
Socio Economic Impacts					
68.	1) Will the project cause adverse effects on local communities disturbance to sacred sites or other cultural values. What are the safe guards proposed?	Not Applicable			
69.	2) Will the proposal				

	result in any changes to the demographic structure of local population. If so, provide details.	No																																																
70.	3) Are the CSR proposals satisfactory. Give details	<p>The proponent has already spent Rs. 2.50 lakhs for various CSR activities like</p> <ul style="list-style-type: none"><li>• Education aid</li><li>• Providing fund to local needy poor persons</li><li>• Donation of medicines to old age homes, etc.</li></ul> <p>For future CSR activities, need based assessment for the local community to the tune of around Rs.25.30 lakhs is made.</p> <table><tr><th>SLN o</th><th>Particulars</th><th>Capital Cost in Lakhs</th><th>Recurring cost in lakhs</th></tr><tr><td>1.</td><td colspan="3">EDUCATION FACILITIES:</td></tr><tr><td>a.</td><td>Providing Note books, Bags, Stationery items for Students (Rs. 1500 * 10 Students * 5Yrs)</td><td>-</td><td>0.75</td></tr><tr><td rowspan="5">b.</td><td>Schools in Thirumarady</td><td></td><td></td></tr><tr><td>Infrastructure development</td><td></td><td></td></tr><tr><td>Construction of Toilets</td><td>1.00</td><td>-</td></tr><tr><td>School roof repairing and other renovation works</td><td>0.75</td><td>-</td></tr><tr><td>Providing Tables, Chairs, Library facilities</td><td>-</td><td>0.75</td></tr><tr><td>b.</td><td>Prizes and scholarship for meritorious students in nearby schools (Rs. 1500* 20 students * 5 Yrs)</td><td>-</td><td>1.50</td></tr><tr><td>c.</td><td>Providing fees for computer education &amp; other courses for needy locals (Rs. 2000 * 20 students * 5 Yrs)</td><td>-</td><td>2.00</td></tr><tr><td>2.</td><td colspan="3">MEDICAL FACILITIES:</td></tr><tr><td>a.</td><td>Providing free medicines, Conducting free medical camps, Health awareness programmes to poor and needy people in nearby villages (Avg of Rs. 70000 * 5Yrs)</td><td>-</td><td>3.5</td></tr><tr><td>b.</td><td>Hospitals, Improvement in Medical aid</td><td></td><td></td></tr></table>	SLN o	Particulars	Capital Cost in Lakhs	Recurring cost in lakhs	1.	EDUCATION FACILITIES:			a.	Providing Note books, Bags, Stationery items for Students (Rs. 1500 * 10 Students * 5Yrs)	-	0.75	b.	Schools in Thirumarady			Infrastructure development			Construction of Toilets	1.00	-	School roof repairing and other renovation works	0.75	-	Providing Tables, Chairs, Library facilities	-	0.75	b.	Prizes and scholarship for meritorious students in nearby schools (Rs. 1500* 20 students * 5 Yrs)	-	1.50	c.	Providing fees for computer education & other courses for needy locals (Rs. 2000 * 20 students * 5 Yrs)	-	2.00	2.	MEDICAL FACILITIES:			a.	Providing free medicines, Conducting free medical camps, Health awareness programmes to poor and needy people in nearby villages (Avg of Rs. 70000 * 5Yrs)	-	3.5	b.	Hospitals, Improvement in Medical aid		
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		PHCs in Thirumarady	Beds, Bedsheet & Pillows	0.80	-
			Chairs for OP Patients	-	0.75
			Fan, Tubelight, other electrical gadgets	-	0.50
			Upgradation of Infrastructure facilities		
			Construct of Toilet	0.75	-
			Providing Drinking Water system	0.25	-
		3. ORPHANAGE/OLD AGE HOMES:			
		Oldage Homes in and around Thirumarady	Dress Materials (Rs. 10000 * 5Yrs)	-	0.50
			Providing beds, chairs, improving the existing infrastructure, etc.,	0.50	-
			Mess Items like Rice, Pulses, vegetables (Rs. 15,000 * 5Yrs)	-	0.75
			Medicine, medical Aids like spectacles, hearing aid, walk stick etc., (Rs. 50,000 * 5Yrs)	-	2.50
			Construct of Toilet	0.50	-
			Providing foods & other Entertainment activities	-	1.00
		4. AREA DEVELOPMENT:			
		Thirumarady Panchayat	Maintenance of Panchayat road (Renovation, Construction, etc.,)	2.5	-
			Providing aggregates free of cost for construction of houses	2.5	-
			Providing Road lighting facilities Rs. 10,000 x 5 years	0.50	-
			Conducting medical camp (Rs. 5000 x 5 years)	-	0.25
			Festival contribution through panchayat	0.50	-

			Total Cost (Capital and Recurring)	25.30
71.	4) What are the projects benefits in terms of employment potential?	This project provides direct employment to about 18 persons and indirect employment to about 75 persons		
PART C				
72.	Details of NABET approved EIA Consultant engaged- Their name, address and accreditation details	Creative Engineers & Consultants Address: 9 B/4, Bharathwajar Street, East Tambaram, Chennai – 600059 E-mail: <a href="mailto:cecgiri@yahoo.com">cecgiri@yahoo.com</a> Tel.: 044- 22395170 Mob: 09444133619 Listed in S.No 28 in NABET list of Accredited Consultants		
Summary and Conclusion				
73.	a) Overall justification for implementation of the project.	<ul style="list-style-type: none"><li>• The final product from the quarry is used in the outside crusher unit for producing aggregates &amp; M-sand which is an essential supply component in road making, construction activities and building works, which are all core sectors for infrastructural growth of the country.</li><li>• Working of this quarry resulted in overall development of the region in its own way due to provision of direct &amp; indirect employment, improvement in the general living standards and knowledge sharing, improved wage level and the living standard of the local people and continual improvements of the local amenities for the local society.</li><li>• Under their CSR initiatives, proponent has already carried out excellent activities. About Rs. 2.5 lakhs is spent so far for this purpose. These programmes will continue in future vigorously. Rs. 3.0 lakhs per year will be spent for future CSR activities. Future planned social outreach programmes will further enhance the life style, income levels educational and medical services and infrastructural services of the local area and local community.</li></ul>		
74.	b) Explanation of how adverse impact have been mitigated.	The mitigation measures to control the adverse impact due to this project on various environmental factors are explained in Part B above.		

2. The proposal was placed in the 60<sup>th</sup> meeting of SEAC, Kerala, held on 28<sup>th</sup> and 29<sup>th</sup> July, 2016. The proponent did not turn up for the meeting. Hence, the Committee decided to defer the item.

3. The proposal was again considered in the 63<sup>rd</sup> meeting of SEAC held on 4<sup>th</sup> October 2016. The proponent admitted that the quarry is in operational phase based on quarry permit

issued by the Govt. (permit granted vide letter No. 03/16-17/MM/GS/QP/DOE/4648/E2/15 dated 18<sup>th</sup> April 2016 valid till 17.04.2017) as ordered by Hon: High Court of Kerala. The proponent has admitted that the quarry has stopped working since 01.12.2016. The Committee decided to defer the item for field visit and for the production of revised CSR.

Subsequently, site visit was conducted on 08.04.2017 by Subcommittee consisting of Er.P.Sreekumaran Nair, Dr.K.G.Padmakumar & Dr.E.A.Jayson. The representatives of the proponent were present at the site at the time of site visit. The report is as follows;

*Smt. Bindhu P.A., Managing Director, Thevarmadathil House, Mannathoor P.O., Ernakulam District, Kerala - 686723, (ThevarmadomQuarie) vide application received on 26/11/2015, has sought Environmental Clearance for the quarry project in Survey No. 464/2A, 464/2B1, 464/1A1, 462/1A2, 463/3B, 464/3-2 and 464/3-1 Thirumarady village, Muvattupuzha Taluk, Ernakulam District, Kerala State for an area of 4.7975 hectares. The proposed project site falls within Latitude N - 9°54'43.912" to 9°54'52.877" and Longitude E - 76°32'53.919" to 76°33'4.541". The proposed mine lease area consists of 4.7975 Ha hectares, which is Patta Land and is in lessee possession. The proposed project is for quarrying of 1000 TPD of building stone.*

*Distance of the mining area from the nearest human settlement is recorded as more than 147m from the lease boundary. This is an existing Quarry project, which has been closed down as the permit for 0.4 ha has been exhausted in December 2016. The proponent has submitted the Mining plan as per Kerala Minor Mineral Concession Rule, 2015 along with the application. The proponent has also submitted a Corporate Social Responsibility (CSR) and Environmental Management Plan (EMP).*

*The proposed project area is not adjacent to any of the ecologically sensitive areas or ESA village. The nearest river is Valiya Todu- 3 km- SW (Aerial), The proposed mine lease is for 4.7975 Ha, is a patta land and is in lessee possession. Nearest house is at 147 m. The proponent shall ensure formation of sediment trap and fixing of sign boards. In the past, mining was apparently done indiscriminately as is evident from the steep cut nature of the old quarry. The proponent shall ensure scientific benching methods in the new project, as per plan.*

4. The proposal was considered in the 73<sup>rd</sup> meeting of SEAC held on 30<sup>th</sup> and 31<sup>st</sup> May 2017. The Committee verified the additional documents submitted by the proponent and found satisfactory. Based on the Mining plan, Form.1, all other documents submitted with the proposal and the field visit report, the committee decided to **Recommend for issuance of EC** subject to general conditions in addition to the following specific condition.

1. *If any plant species endemic to Western Ghats are noticed in the area they shall be properly protected in situ or by transplanting to an appropriate location inside the lease area.*

The proponent agreed to set apart Rs10 lakhs (non-recurring) and 5 lakhs (recurring) per annum for CSR activities for the welfare of the local community in consultation with the local body.

5. The proposal was finally considered in the 72<sup>nd</sup> meeting of SEIAA held on 01<sup>st</sup> August 2017. Authority accepted the recommendation of SEAC and decided to issue EC subject to general condition in addition to the following specific conditions.

- i) The proponent shall ensure formation of sediment trap and fixing of sign boards.
- ii) The proponent shall ensure scientific benching methods as per plan.
- iii) The deep pits should be reclaimed with overburden as specified in the general conditions.
- iv) If any plant species endemic to Western Ghats are noticed in the area they shall be properly protected in situ or by transplanting to an appropriate location inside the lease area.

The proponent should set apart an amount of Rs.10 lakh (non-recurring) and Rs.5 lakh per annum (recurring) for CSR activities for the welfare of the local community in consultation with the local Panchayat. A notarised affidavit for the commitment of CSR activities and agreeing all the general and specific conditions should be submitted before the issuance of EC. The proponent has submitted an affidavit vide reference 6<sup>th</sup> cited, satisfying all the above conditions.

6. Environmental Clearance as per the EIA Notification 2006 is hereby accorded for the proposed quarry project of Smt. Bindhu P.A., Managing Director, Thevarmadathil House, Mannathoor P.O., Ernakulam District, Kerala - 686723, in Survey Nos. 464/2A, 464/2B1, 464/1A1, 462/1A2, 463/3B, 464/3-2 and 464/3-1 in Thirumarady Village, Muvattupuzha Taluk, Ernakulam District, Kerala for an area of 4.7975 hectares, subject to the specific conditions as in para 5 above, all the environmental impact mitigation and management measures undertaken by the project proponent in the revised Form I, EMP, PFR and Mining plan submitted to SEIAA. The assurances and clarifications given by the proponent will be deemed to be a part of these proceedings as if incorporated herein. Also the general conditions for projects stipulated for mining (items 1 to 61), appended hereto will be applicable and have to be strictly adhered to.

9. The Clearance issued will also be subject to full and effective implementation of all the undertakings given in the application form, mitigation measures as assured in the Environment Management Plan and the mining features including progressive mine closure plan as submitted with the application and relied on for grant of this clearance. The above undertakings and the conditions and the undertakings in Chapter 4 (Mining) Chapter 5 (Blasting) Chapter 6 (Mines Drainage), Chapter 7 (Stacking of Mineral rejects and Disposal of waste), Chapter 11 (EMP) Chapter 12 (Progressive Mine Closure Plan) of the Mining Plan as submitted will be deemed to be part of this proceedings as conditions as undertaken by the proponent, as if incorporated herein.



10. Validity of the Environmental Clearance will be five years from the date of this clearance, subject to inspection by SEIAA on annual basis and compliance of the conditions, subject to earlier review of E.C in case of violation or non-compliance of conditions or genuine complaints from residents within the security area of the quarry.

11. Compliance of the conditions herein will be monitored by the State Environment Impact Assessment Authority or its authorised offices and also by the regional office of the Ministry of Environment & Forests, Govt. of India, Bangalore.

- i. Necessary assistance for entry and inspection should be provided by the project proponent and those who are engaged or entrusted by him to the staff for inspection or monitoring.
- ii. Instances of violation if any shall be reported to the District Collector, Ernakulam.
- iii. The given address for correspondence with the authorised signatory of the project is Smt. Bindhu P.A., Managing Director, Thevarmadathil House, Mannathoor P.O., Ernakulam District, Kerala – 686723.

Sd/-

**JAMES VARGHESE I.A.S.,**  
**Member Secretary (SEIAA)**

To,

Smt. Bindhu P.A.,  
Managing Director,  
Thevarmadathil House,  
Mannathoor P.O.,  
Ernakulam, Kerala – 686723

Copy to,

1. MoEF Regional Office, Southern Zone, Kendriya Sadan, 4<sup>th</sup> Floor, E&F Wing, II Block, Koramangala, Bangalore-560034.
2. The Additional Chief Secretary to Government, Environment Department, Government of Kerala.
3. District Collector, Ernakulam
4. Director, Mining & Geology, Thiruvananthapuram -4.
5. The Member Secretary, Kerala State Pollution Control Board
6. District Geologist, Ernakulam
7. Tahsildar, Muvattupuzha Taluk, Ernakulam
8. Chairman, SEIAA.
9. Website.
10. S/f
11. O/c



Forwarded/By Order

Administrator, SEIAA



# STATE ENVIRONMENT IMPACT ASSESSMENT AUTHORITY KERALA

## GENERAL CONDITIONS (for mining projects)

1. Rain Water Harvesting facility should be installed as per the prevailing provisions of KMBR / KPBR, unless otherwise specified.
2. Environment Monitoring Cell as agreed under the affidavit filed by the proponent should be formed and made functional.
3. Suitable avenue trees should be planted along either side of the tarred road and open parking areas, if any, including of approach road and internal roads.
4. Maximum possible solar energy generation and utilization shall be ensured as an essential part of the project.
5. Sprinklers shall be installed and used in the project site to contain dust emissions.
6. Eco-restoration including the mine closure plan shall be done at the own cost of the project proponent.
7. At least 10 percent out of the total excavated pit area should be retained as water storage areas 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.
8. Corporate Social Responsibility (CSR) agreed upon by the proponent should be implemented
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.
10. Warning alarms indicating the time of blasting (to be done at specific timings) has to be arranged as per stipulations of Explosive Department.
11. Control measures on noise and vibration prescribed by KSPCB should be implemented.
12. Quarrying activities should be limited to day time as per KSPCB guidelines/specific conditions.
13. Blasting should be done in a controlled manner as specified by the regulations of Explosives Department or any other concerned agency.
14. A licensed person should supervise/ control the blasting operations.
15. Access roads to the quarry shall be tarred to contain dust emissions that may arise during transportation of materials.
16. Overburden materials should be managed within the site and used for reclamation of mine pit as per mine closure plan / specific conditions.
17. Height of benches should not exceed 5 m, and width should not be less than 5 m, if there is no mention is the mining plan/specific condition.
18. Mats to reduce fly rock blast to a maximum of 10 PPV should be provided.
19. Maximum depth of mining from general ground level at site shall not exceed 10m
20. No mining operations should be carried out at places having a slope greater than 45°.
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.
22. The workers on the site should be provided with the required protective equipment such as ear muffs, helmet, etc.
23. Garland drains with clarifiers to be provided in the lower slopes around the core area to channelize storm water.
24. The transportation of minerals should be done in covered trucks to contain dust emissions.
25. The proponent should plant trees at least 5 times of the loss that has been occurred while clearing the land for the project.
26. Disposal of spent oil from diesel engines should be as specified under relevant Rules/ Regulations.
27. Explosives should be stored in magazines in isolated place specified and approved by the Explosives Department.
28. A minimum buffer distance of 100m from the boundary of the quarry to the nearest dwelling unit or other structures, not being any facility for mining shall be provided.
29. 100 m buffer distance should be maintained from forest boundaries.

30. Consent from Kerala State Pollution Control Board under Water and Air Act(s) should be obtained before initiating mining activity.
31. All other statutory clearances should be obtained, as applicable, by project proponents from the respective competent authorities including that for blasting and storage of explosives.
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 as assessed, based on which only the E.C is issued, the project would require a fresh appraisal by this Authority, for which the proponents shall apply and get the approval of this Authority.
33. The Authority reserves the right to add additional safeguard measures subsequently, if found necessary, and to take action including revoking of the environment clearance under the provisions of the Environment (Protection) Act, 1986, to ensure effective implementation of the suggested safeguard measures in a time bound and satisfactory manner.
34. The stipulations by Statutory Authorities under different Acts and Notifications should be complied with, including the provisions of 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.
35. The project proponent should advertise in at least two local newspapers widely circulated in the region, one of which (both the advertisement and the newspaper) 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 Environment Impact Assessment Authority (SEIAA) office and may also be seen on the website of the Authority at [www.seiaakerala.org](http://www.seiaakerala.org). The advertisement should be made within 10 days from the date of receipt of the Clearance letter and a copy of the same signed in all pages should be forwarded to the office of this Authority as confirmation.
36. A copy of the clearance letter shall be sent by the proponent to concerned Grama Panchayat/ District Panchayat/ Municipality/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.
37. The proponent shall submit half yearly reports on the status of compliance of the stipulated EC 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 EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the respective Regional Office of MoEF, Govt. of India and also to the State Environment Impact Assessment Authority (SEIAA) office.
38. The details of Environmental Clearance should be prominently displayed in a metallic board of 3 ft x 3 ft 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
39. The proponent should provide notarized affidavit (indicating the number and date of Environmental Clearance proceedings) that all the conditions stipulated in the EC shall be scrupulously followed.
40. No change in mining technology and scope of working should be made without prior approval of the SEIAA, No further expansion or modifications in the mine shall be carried out without prior approval of the SEIAA, as applicable.
41. The Project proponent shall ensure that no natural water course and/or water resources shall be obstructed due to any mining operations. Necessary safeguard measures to protect the first order streams, if any, originating from the mine lease shall be taken.
42. Monitoring of Ambient Air Quality to be carried out based on the Notification 2009, as amended from time to time by the Central Pollution Control Board. Water sprinkling should be increased at places loading and unloading points & transfer point to reduce fugitive emissions.
43. The top soil, if any, shall temporarily be stored at earmarked site(s) only for the topsoil shall be used for land reclamation and plantation. The over burden (OB) generated during the mining operations shall be stacked at earmarked dump site(s) only. The maximum height of the dumps shall not exceed 8m and width 20m and overall slope of the dumps shall be maintained to 45°. The OB dumps 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 stabilization of the dump. The entire excavated area shall be backfilled. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining.

44. Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, mineral and OB dumps to prevent run off of 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.
45. Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of PM<sub>10</sub> and PM<sub>2.5</sub> such as haul Road, loading and unloading points and transfer points – it shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
46. Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.
47. Measures should be taken for control of noise levels below 85 dBA in the work environment.
48. A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.
49. The funds earmarked for environmental protection measures and CSR activate should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the State Environment Impact Assessment Authority (SEIAA) office.
50. The Regional Office of MOEF & CC located at Bangalore shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (S) of the Regional Office by furnishing the requisite data/information/monitoring reports.
51. Any appeal against this 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.
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 withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
53. The SEIAA may revoke or suspend the order, for non implementation of any of the specific or this implementation of any of the above conditions is not satisfactory. The SEIAA reserves the right to alter/modify the above conditions or stipulate any further condition in the interest of environment protection.
54. The above conditions shall prevail notwithstanding anything to the contrary, in consistent, or simplified, contained in any other permit, license on consent given by any other authority for the same project.
55. This order is valid for a period of 5 years or the expiry date of mine lease period issued by the Government of Kerala, whichever is earlier.
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.
57. The mining operation shall be restricted to above ground water table and it should not intersect ground water table.
58. All vehicles used for transportation and within the mines shall have 'PUC' certificate from authorized pollution taking centre. Washing of all vehicles shall be inside the lease area'
59. Project proponent should obtain necessary prior permission of the competent authorities for drawal of requisite quantity of surface water and ground water for the project.
60. Regular monitoring of flow rates and water quality upstream and downstream of the springs and perennial nallahs flowing in and around the mine lease area shall be carried out and reported in the six monthly reports to SEIAA.
61. Occupational health surveillance program of the workers should be under taken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.



For Member Secretary, SEIAA Kerala

