<table>
<tr><td></td><td><table>
<tr><td>4</td><td>Parking Structure 2</td><td>16.2</td></tr>
</table></td></tr>
<tr><td>Brief description of the project</td><td>The proposed project includes a 600 bed hospital, staff quarters and a geriatric centre. It has two separate parking buildings.</td></tr>
<tr><td>Is it a new Project or expansion/modification of an existing project?</td><td>New project</td></tr>
<tr><td>Details of the Project Cost</td><td><table>
<tr><th>Sl. No</th><th>Item</th><th>Cost (in Crores)</th></tr>
<tr><td>1</td><td>Hospital</td><td>312.51</td></tr>
<tr><td>2</td><td>Geriatric Centre</td><td>118.37</td></tr>
<tr><td>3</td><td>Parking Structure 1</td><td>51</td></tr>
<tr><td>4</td><td>Parking Structure 2</td><td>148.8</td></tr>
<tr><td>5</td><td>CSR Activities</td><td>0.078</td></tr>
<tr><td>6</td><td>Environmental Management Plan</td><td>1.55</td></tr>
<tr><td></td><td>Total</td><td>630.758Crores</td></tr>
</table></td></tr>
<tr><td>If CRZ recommendation applicable?</td><td>NA</td></tr>
<tr><td>Distance from nearby habitation</td><td>Nearest town is Attingal at an aerial distance of 2.4 km</td></tr>
<tr><td>Distance from nearby forest, if applicable</td><td>NA</td></tr>
<tr><td>Distance from nearby streams/rivers/National Highway Roads and Airport</td><td><table>
<tr><th>Sl. No.</th><th>Name/ Identity</th><th>Distance (in km)</th></tr>
<tr><td>1</td><td>Water body – Mamam River</td><td>In close proximity</td></tr>
<tr><td>2</td><td>Road – NH 47</td><td>In close proximity</td></tr>
<tr><td>3</td><td>Railway Station – Chirayinkeezhu railway station
Kadakkavur railway station</td><td>5.48
7.2</td></tr>
<tr><td>4</td><td>Airport – Trivandrum International Airport</td><td>24</td></tr>
</table></td></tr>
<tr><td>Is ESA applicable? If so distance from ESA limit</td><td>NA</td></tr>
</table>

IMPACT ON WATER

Details of water requirement per day in KLD	

Quantity of water required during Construction Phase (in KLD)	
Domestic	10
Flushing	12.5
Construction activity	10-20
Quantity of water required during Operation Phase (in KLD) – Non-Monsoon Season	
Domestic	287
Flushing	150
Gardening	26
HVAC Make up water	456
Swimming Pool make up water	1
Total	**921KLD**
Quantity of water required during Operation Phase (in KLD) – Monsoon Season	
Domestic	287
Flushing	150
HVAC Make up water	456
Swimming Pool make up water	1
Total	**895 KLD**

Water source/sources	

Water Source - Construction Phase	
Domestic	Bottled cans
Flushing	Bore well
Construction activity	Bore well
Water Source - Operation Phase – Non-Monsoon Season	
Domestic	Bore well & Rain water harvesting
Flushing	Treated sewage from STP
Gardening	Treated sewage from STP
HVAC Make up water	Treated sewage from STP, Bore well
Swimming Pool make up water	Bore well
Water Source - Operation Phase – Monsoon Season	
Domestic	Bore well
Flushing	Treated sewage

		from STP, Bore well	
	HVAC Make up water	Treated sewage from STP, Bore well	
	Swimming Pool make up water	Bore well	
Details of water requirements met from water harvesting.	Rainwater harvesting system will be constructed for the project. The annual rain water harvesting potential is 11649.93 x 0.9 x1.5 m^3 (assuming a roof runoff coefficient of 0.9). This will be available distributed in nearly 70 rain days. This will be stored in roof top rainwater harvesting tank of capacity 200 m^3 and used in the fill and draw mode during rainy days.		
What are the impacts of the proposal on the ground water?	Water will be abstracted for the project using 3 open wells and from the existing pond at the site. But enough measures are taken to ensure sufficient recharge of ground water.		
WASTE MANAGEMENT			
Explain the facilities for			
✓ Liquid Waste Management	Sewage generation from the project will be 380 KLD and will be treated in full-fledged STP of capacity 390 KLD by MBBR process. The effluent from the hospital will be treated in an ETP of capacity 20 KLD and the treatment technology for the ETP is Activated Sludge Process. Treated sewage will be reused for HVAC, flushing and gardening.		

<table>
<tr><td>Solid Waste Management</td><td>Solid wastes generated shall be separated into biomedical, biodegradable and non-biodegradable at the source of generation itself.

• Non-<table><tr><td colspan="2">Solid Waste generation during construction phase (kg/day)</td></tr><tr><td>Non-Biodegradable</td><td>30</td></tr><tr><td>Biodegradable</td><td>70</td></tr><tr><td>Total</td><td>100</td></tr><tr><td colspan="2">Biomedical Waste generation during operation phase from the hospital and geriatrics (kg/day)</td></tr><tr><td>Biomedical waste</td><td>959</td></tr><tr><td>Non-Biodegradable</td><td>411</td></tr><tr><td>Total</td><td>1370</td></tr><tr><td colspan="2">Non-Infectious Solid Waste generation during operation phase (kg/day)</td></tr><tr><td>Non-Biodegradable</td><td>183.6</td></tr><tr><td>Biodegradable</td><td>428.4</td></tr><tr><td>Total</td><td>612</td></tr></table>biodegradable garbage shall be segregated into recyclable and non-recyclable waste. Recyclable waste shall be handed over to recyclers and Non-recyclable waste shall be handed over for land filling.
• Biodegradable garbage shall be treated in mechanized treatment plant
• Bio medical waste will be segregated & stored separately and conveyed to ground level/ based level separate room and then handed over to vendors approved by Government.</td></tr>
<tr><td>✓ E - Waste Management</td><td>Approved E - Waste vendors</td></tr>
<tr><td>Facilities for Sewage Treatment Plant</td><td></td></tr>
<tr><td>✓ How much of the water requirement can be met from the recycling of treated waste water? (Facilities for liquid waste treatment)</td><td>All secondary requirements like flushing (150 kLD), HVAC (166 kLD during non monsoon
season and 192 kLD during the monsoon season)& gardening (26 KLD) would be fulfilled by
treated sewage from STP.</td></tr>
<tr><td>✓ What is the incremental pollution load from waste water generated from the proposed activities?</td><td>The incremental pollution load from waste water generated from the proposed activities will be managed by the provision of STP and ETP of adequate capacities.</td></tr>
</table>

✓ How is the storm water from within the site managed?	Storm water from within the site managed by provision of detention tanks and rain gardens. The over flow from the existing pond will be carried to the adjoining stream.
✓ Will the deployment of construction labourers particularly in the peak period lead to unsanitary conditions around the project site (Justify with proper explanation)	No housing will be provided to construction labourers at the site. Adequate number of toilets with septic tank followed by soak pit will be provided for construction labourers
✓ What on- site facilities are provided for the collection, treatment & safe disposal of sewage? (Give details of the quantities of wastewater generation, treatment capacities with technology & facilities for recycling and disposal)	Sewage generation from the project will be 380 KLD and will be treated in full-fledged STP of capacity 390 KLD by MBBR process. The effluent from the hospital will be treated in an ETP of capacity 20 KLD and the treatment technology for the ETP is Activated Sludge Process. Treated sewage will be reused for HVAC, flushing and gardening.
✓ Give details of dual plumbing system if treated waste is used for flushing of toilets or any other use	Dual plumbing will be employed for enabling the reuse of treated wastewater for flushing and HVAC
ENERGY CONSERVATION	
Details of power requirement and source of supply, backup source etc. What is the energy consumption assumed per square foot of built-up area? How have you tried to minimize energy consumption?	

Phase	**Power requirement**	**Source of Power**
Construction	200 kW	KSEB Transformer
Operation	3957.5 kW	KSEB Transformer
Operation (Stand by)	4920 kVA	Hospital block: 2 DG Sets of capacity

			1250 kVA and 2 DG sets of capacity 1010 kVA (In case of power failure) Geriatric and parking: 2 DG sets of 200 kVA capacity	

What type of, and capacity of power back-up to you plan to provide?	Hospital block: 2 DG Sets of capacity 1250 kVA and 2 DG sets of capacity 1010 kVA (In case of power failure) Geriatric and parking: 2 DG sets of 200 kVA capacity
What are the characteristics of the glass you plan to use? Provide specifications of its characteristics related to both short wave and long wave radiation?	The project site is located in a place with predominantly tropical climate. Glass used for glazing should preferably avoid long and wavelengths (IR and UV). Soft glass which absorbs UV with special features to reflect IR radiation will be used for blazing. Typically locally available Saint Gobain™ neutral glass Evolite® or its equivalent will be used. Typical specifications are light transn ission 50%, solar factor 0.5, shading coefficient 0.58 and U-value 5 (0.88 W/m^2 K).
What passive solar architectural features are being used in the building? Illustrate the applications made in the proposed project	• Double glazing windows, carefully designed shading devices like overhangs blocks the direct sunlight and eaves shades. • Solar lighting and use of LED Lighting. • Natural lighting and cross ventilation. • Landscaping feature like water fountains, planting for wind diversion and to provide shade.
✓ Does the layout of streets & buildings maximize the potential for solar energy devices? Have you considered the use of street lighting, emergency lighting and solar hot water systems for use in the building complex? Substantiate with details	Solar power is utilized for generating hot water. The use of solar power for lighting the walkways and emergency lighting will be done

✓ Is the shading effectively used to reduce cooling/heating loads? What principles have been used to maximize the shading of Walls on the East and the West and the Roof? How much energy saving has been effected?	Yes. Shading has been effectively used to reduce the cooling loads. The orientation of the building shall be provided in a way such that most of the façades face North thus reducing glare and prolonged solar exposure. The principles used to maximize the shading of the walls are as follows: Reducing heat by providing shading devices like vertical fins and overhangs. Trees will be planted on both sides of internal roads. Provision of thermal insulation for roof. Individual rooms have large windows with chajjas overhangs to cutoff harsh sunlight to keep interior cooler. Medium size windows for better natural light and ventilation. Maximum setback is maintained for permitting free flow of air and maximum natural light for all inhabitants. Special heat reflecting paints will be used for the terrace and external walls
✓ Do the structure use energy-efficient space conditioning, lighting and mechanical systems? Provide technical details. Provide details of transformers and motor efficiencies, lighting intensity and air-conditioning load assumptions? Are you using CFC and HCFC free chillers? Provide specifications.	For PHE – motor efficiency should be 70%. Transformer capacities are already worked out and shown in our Tentative Space Planning. Lighting intensity shall be varied as per space requirements but overall it will be approx. 10 W/m2. Air conditioning will be approx. 50 m2/TR of built up area. It is proposed to use R134a refrigerant in chillers, this refrigerant is free of CFC and HCFC
✓ What are the likely effects of the building activity in altering the micro-climates? Provide a self assessment on the likely impacts of the proposed construction on creation of heat island & inversion effects?	Un-shaded roof portion will be provided with expanded poly styrene sheet insulation to reduce adverse thermal effect. Paved areas will be covered under the canopy of shade trees in the landscape. Open spaces will be covered with grass turf and with garden shrubs so that heat absorption by paving materials and open soil can be minimized. Irrigation of landscape with treated effluent will keep the surroundings cool. This will mitigate heat island effect to a large extent

✓ What are the thermal characteristics of the building envelope? (a) Roof (b) External walls; and (c) Fenestration? Give details of the materials used	The details are given in the Table below

Model Input Parameter	Proposed Design Input	Baseline Design Input
Exterior Wall Construction	6" AAC BLOCK WALL +150 mm air gap + 4" AAC wall U – value : 0.112 BTU/hr. ft².˚F Construction as per floor plan.	Steel Frame Construction R – 13 Insulation. U – factor = 0.124 BTU / hr. ft².˚F
Roof construction	Under – deck 3" insulation U – Factor = 0.0749 BTU/hr. ft².˚F As per consultant's brief	Insulation R-15 hr. ft².˚F/BTU Continuous insulation, U -Factor =0.06 BTU / hr. ft².˚F Roof reflectivity=0.30
Floor / slab Construction	Mass floor, U – Factor = 0.350 BTU/hr. ft².˚F	Steel joist construction U – Factor = 0.350 BTU/hr. ft².˚F
Window - to – gross wall ratio	11.2%	11.2%
Fenestration type	Saint Gobain KT 140	All orientations
Fenestration – U – factor	DGU : 0.32 BTU / hr. ft².˚F	1.22 BTU / hr. ft².˚F
Fenestration SHGC – ALL	DGU :0.28	0.25
Fenestration Visible Light Transmittance	DGU : 0.37	0.40
Shading Devices	Yes	None

✓ What is the rate of non-conventional energy technologies are utilized in the overall energy consumption? Provide details of the renewable energy technologies	The hospital requires hot water for hospital units like nurses' station and patient rooms. This will be met by solar water heaters installed in the roof.

<table>
<tr><td>used.</td><td></td></tr>
<tr><td>✓ Details of renewable energy (non – conventional) used.</td><td></td></tr>
<tr><td>IMPACT ON AIR ENVIRONMENT</td><td></td></tr>
<tr><td>What are the mitigation measures on generation of dust, smoke , odours, fumes or hazardous gases</td><td>• Water Sprinkling
• Cover on trucks
• Use of RMC instead of preparing concrete at site
• Vehicles with valid PUC
• DG sets: CPCB approved low sulphur fuel.</td></tr>
<tr><td>Details of internal traffic management of the site.</td><td>The project proponent has proposed to provide well organized parking arrangement
<table>
<tr><td>Category</td><td colspan="2">Parking Area proposed to be provided in TIMC</td></tr>
<tr><td>4 wheelers</td><td>935 no.s</td><td>14025 m^2</td></tr>
<tr><td>2 wheelers</td><td>220 no.s</td><td>660 m^2</td></tr>
<tr><td>Handicapped</td><td>19 no.s</td><td>399 m^2</td></tr>
</table></td></tr>
<tr><td>Details of noise from traffic, machines and vibrator and mitigation measures</td><td>The proposed project being a Medical Centre, the source of noise is mainly vehicular noise.
The project proponents have proposed to provide well organized parking arrangement and maintaining smooth traffic flow which would help in reducing traffic congestion and noise levels.
Green belt would act as noise barrier and will reduce the noise level</td></tr>
<tr><td>Air quality monitoring in detail</td><td>
<table>
<tr><th rowspan="2">Parameters</th><th colspan="4">Monitoring Station (Value reported)</th></tr>
<tr><th>A1</th><th>A2</th><th>A3</th><th>A4</th></tr>
<tr><td>Particulate Matter of size less than 10µm (pm_{10})</td><td>67.3</td><td>72.4</td><td>65.3</td><td>69.1</td></tr>
<tr><td>Particulate Matter of size less than 2.5µm ($pm_{2.5}$)</td><td>14.2</td><td>12.9</td><td>13.7</td><td>14.3</td></tr>
</table></td></tr>
</table>

	Sulphur Dioxide (SO_2) 9.6 8.7 9.3 8.5 Nitrogen Dioxide (NO_2) 10.3 10.1 10.6 11.1 Carbon Monoxide (CO) 0.7 0.8 0.7 0.9 The details of background air quality levels
Will the proposal create shortage of parking space for vehicles? Furnish details of the present level of transport infrastructure and measures proposed for improvement including the traffic management at the entry & exit to the project site.	No. proposal doesnot create shortage of parking space for vehicles. The project proponent has proposed to provide well organized parking arrangement Category: Parking Area proposed to be provided in TIMC 4 wheelers: 935 no.s, 14025 m^2 2 wheelers: 220 no.s, 660 m^2 Handicapped: 19 no.s, 399 m^2
Provide details of the movement patterns with internal roads, bicycles tracks, Pedestrian pathways, footpaths etc., with areas under each category	The project proponent will provide adequate driveways and walkways
Will there be significant increase in traffic noise & vibrations? Give details of the sources and the measures proposed for mitigation of the above.	The proposed project being a Medical Centre, the source of noise is mainly vehicular noise. The project proponents have proposed to provide well organized parking arrangement and maintaining smooth traffic flow which would help in reducing traffic congestion and noise levels. Green belt would act as noise barrier and will reduce the noise level
What will be impact of DG sets & other equipments on noise levels & vibration in & ambient air quality around the project site? Provide details	D.G. Sets will be operated only in case of power failures during operational phase. The Pollutants like SPM, SO2 that may arise from emissions from D.G. sets will be discharged through vent of proper height. D.G. sets are with inbuilt acoustic enclosures to reduce the noise of D.G. sets while in operation. The green belt would act as noise barrier and will reduce the noise level
SOCIO- ECONOMIC ASPECTS	
Will the proposal result in any change to the demographic structure of local population? Provide the details.	There will be maximum influx of 3238 people. Building: Hospital; Beds: 1 patient/bed, 600 beds, 600; Bystanders: 1 person/bed, 600 beds, 600; 1, 600 beds, No.of non-

		person/2beds		residential staff= 259(Out of the total 300 staff 41 occupy the staff quarters and hence the balance is 259)
	Residential staff quarters	2 persons/room	41 rooms	82
	Visitors	1 person/100 m^2	61968 m^2	620
	Geriatric Centre			
	Type 1 Unit	2 persons/unit	146 units	292
	Type 2 Unit	2 persons/unit	80 units	240
	Type 3 Unit	4 persons/unit	44 units	220
	Staff	1 person/2beds	270 units total	124
	Visitors	1 person/100 m^2	25669 m^2	256
	Caretaker and supporting staff	4 persons/floor	Units in 17 floors	68
			Total	**3238**
Give details of the existing social infrastructure around the proposed project	The project site is located in the outskirts of Thiruvanathapuram City. Primary to higher secondary school and higher education institutions are located within 10 km radius. Civil amenities police station, schools, colleges, places of worship and recreation facilities are also available within 10 km radius.			
Will the project cause adverse effects on local communities, disturbances to sacred sites or other cultural values? What are the safeguards proposed?	As this project is a Medical Centre, it will not cause adverse effects on local communities, disturbance to sacred sites or other cultural values.			
BUILDING MATERIALS				
May involve the use of building materials with high –embodied energy. Are the construction materials produced with energy efficient process? (Give details of energy	Pozalona Portland cement shall be used which already contains 15% Fly ash. Construction materials from nearest source are chosen to minimize energy consumption for transportation			

conservation measures in the selection of building materials and their energy efficiency)	
Transport and handling of materials during construction may result in pollution, noise & public nuisance. What measures are taken to minimize the impacts?	The material required for construction activities shall be procured from company's authorized / approved vendors only. The vendor's performance is monitored periodically. In case of urgency or non-availability of materials from authorized/approved vendors, it will be procured from the open market to maintain the pace of the work. The mode of transport for above materials will be by trucks and / or by trailers. • The construction material will be carried in properly covered vehicles • Security staff presents at site will supervise loading and unloading of material at site • Construction material will be stored at identified site/ temporary godowns at site
Are recycled materials used in roads and structures? State the extent of savings achieved?	The construction waste will be used for laying the internal roads.
Give details of the methods of collection, segregation & disposal of the garbage generated during the operation phases of the project.	• Segregation of solid waste into biomedical, biodegradable and non biodegradable at the source of generation itself. • Non- biodegradable garbage: Shall be segregated into recyclable and non-recyclable waste • Recyclable waste: Shall be handed over to recyclers and • Non-recyclable waste: Shall be handed over for landfilling. • Biodegradable garbage shall be treated in mechanized treatment plant • Bio medical waste will be segregated & stored separately and conveyed to ground level/based level separate room and then handed over to vendors approved by Government.
RISK MANAGEMENT	
Are there sufficient measures proposed for risk hazards in case of emergency such as accident at the site during construction & post construction phase.	Yes ,sufficient measures are proposed for risk hazards in case of emergency such as accident at the site during construction & post construction phase
Storage of explosives/ hazardous substance in detail	The only hazardous materials used during construction will be fuels and engine oils.
What precautions & safety measures are proposed against fire	The project proponents are implementing a fire safety plan based on National Building Code. Details are provided in the Fire and safety Plan Approved Directorate of Fire and Safety.

<table>
<tr><td>hazards? Furnish details of emergency plans</td><td></td></tr>
<tr><td>AESTHETICS</td><td></td></tr>
<tr><td>Will the proposed constructions in any way result in the obstruction of a view, scenic amenity or landscapes? Are these considerations taken into account by the proponents?</td><td>The proposed construction will not cause any obstruction of a view, scenic amenity or landscapes</td></tr>
<tr><td>Will there be any adverse impacts from new constructions on the existing structures? What are considerations taken into account?</td><td>There will not be any adverse impacts from the new construction on the existing structures</td></tr>
<tr><td>Whether there are any local considerations of urban form & urban design influencing the design criteria? They may be explicitly spelt out.</td><td>The project site is not covered by any master plan for development. As such there is no restriction on the design, except those imposed by building rules and regulations.</td></tr>
<tr><td>Details of CSR activity and the amount set apart</td><td>
<table>
<tr><th>Sl. No.</th><th>CSR Activity</th><th>Funds to be allocated</th></tr>
<tr><td></td><td>Donation to Karunalayam Charitable Trust, Attingal</td><td>360000</td></tr>
<tr><td></td><td>Donation to Yatheem Khana, Veli</td><td>120000</td></tr>
<tr><td></td><td>Provision of furniture and systems for the computer lab to the Govt. Model Boys Higher Secondary School</td><td>150000</td></tr>
<tr><td></td><td>Donation for construction of bus shelter and provision of solar street lighting in Mamam, Attingal</td><td>150000</td></tr>
<tr><td></td><td>Total</td><td>7,80,000</td></tr>
</table>
</td></tr>
<tr><td>Details of NABET approved EIA Consultant engaged-Their name, address and accreditation details</td><td>ULTRA-TECH
Environmental Consultancy & Laboratory
Door No. 27/2957 A1, First Floor
Vaniampilly, K.P Vallon Road,
Kadavanthra, Kochi- 682 020
Tel: 0484-4011173
Mob: 9895200526
Email : kochi@ultratech.in
NABET/EIA/1417/RA010</td></tr>
<tr><td>Details of Authorized Signatory and address for</td><td>Dr. Abdul Nazar Y
Managing Director,</td></tr>
</table>

correspondence	Trivandrum International Medical Centre Pvt Ltd TC/2/376/36, Near Ulloor Bridge, Palmgroove Villa Lane, Pattom, Trivandrum, Kerala, India Tel: 9387517800,
SUMMARY AND CONCLUSION	
Overall justification for implementation of the project.	Trivandrum Corporation area is undergoing a very precarious situation regarding infrastructure, especially housing and roads. The project is located on the outskirts. The location will slowly develop in to active suburb with shopping malls and other services to cater to the Medical Centre. The project will also create / add job opportunities for support staff like Security, Maintenance, Household Workers etc.
Explanation of how adverse impacts have been mitigated.	The runoff from the site during construction phase will be intercepted by temporary detention ponds constructed with geomembrane liner for protecting surface of soil. Detained water will be discharged through aprons made from geomembrane. This will avoid any adverse impacts from runoff.

2. The proposal was placed in 72nd meeting of SEAC held on 8th & 9th May 2017. Further to the intimation of SEAC, the proponent and engineer attended the meeting and the engineer made a power point presentation about the salient features of the project briefly. The Committee appraised the proposal based on Form 1, Form I A and conceptual plan.

The Committee decided to defer the item for field inspection and directed the proponent to submit the following additional documents/ details.

1. *Revised Plan after including the lately acquired piece of land.*
2. *Quantify the total energy proposed to be met from solar source.*
3. *Revised list of flora and fauna observed at the site.*
4. *Revised CSR Commitments.*

Accordingly the site inspection was conducted by the Sub Committee members consisting of Sri. Gopinathan.V (Chairman) and Sri. S. Ajayakumar on 23/05/2017. The report is as follows;

The proposed project includes a 600 bed hospital, staff quarters and a geriatric centre. It has two buildings. The total built up area of the proposed project = 135664.71m^2. Access to the plot is directly from NH 66. The plot abuts, at the other end,a road which connects to NH again. Therefore the plot has effectively two accesses. The plot extends in an elongated manner starting from the N H at a higher elevation run along the Mamam River at a lower elevation to the road at the other end. The first building is set sufficiently away from the road with a large open space in the front yard. Thebasements of the first building are planned along a steep slope and therefore need not be considered as basement even though termed as basements in the application. Parking is adequate. Rainwater harvesting tank is provided which is sufficient for 7 days requirement.

1. *Since the plot intervenes the flow of rainwater from the adjacent areas to the Mamam river, the proponent was asked to propose arrangements for unhindered flow of storm water*
2. *At least one open well should be dug sufficiently near to the proposed pond*
3. *Reliance on KWA water should be limited to emergency/ peak requirement only*
4. *Bore wells, open wells and harvested rain water are cited as the water supply sources. Yield test should be conducted and result produced so as to assess the adequacy of the proposed arrangement.*
5. *Solid waste management facilities and Material recovery facilities are adequate*
6. *Green areas and open space necessary for a geriatric centre is provided.*
7. *Cutting and filling is limited only for building foundation purpose. However, They should provide the quantity of cutting and filling*
8. *Emergency assembly points are provided at strategic points.*

After analysing the results of the yield test the Committee may make appropriate recommendation to the SEIAA

The proponent has also submitted the documents / clarifications sought by the 72nd SEAC meeting.

3. The proposal was placed in the 74th meeting of SEAC held on 14th & 15th June 2017. The proposal was appraised by SEAC considering Form I, Form IA, Conceptual plan, field visit report and all other documents and details provided by the proponent. The committee verified the additional documents submitted by the proponent. The Committee directed the proponent to submit the following additional documents:

1. *Yield test shows very poor yield of water. So, submit a robust plan to meet the water requirement of the project.*
2. *Drawings indicating the quantum of cutting and filling at the site.*

The proponent has submitted the additional documents sought by 74th SEAC.

4. The proposal was again considered in the 76th meeting SEAC held on 25th & 26th July 2017. The Committee appraised the proposal based on Form 1, Form I A, field inspection report of the Sub Committee and all other documents submitted with the proposal. The Committee decided to **Recommend for issuance of EC** subject to general conditions in addition to the following specific conditions.

1. *Since the plot intervenes the flow of rainwater from the adjacent areas to the Mamam river, arrangements should be made for the unhindered flow of storm water to the river.*
2. *Reliance on KWA water should be limited to emergency/ peak requirement only*
3. *The proponent has committed to provide 3 open wells of diameter 4m and 2 open wells of diameter 9 m. The existing pond at the project site should be deepened and renovated to ensure a capacity of atleast 2500 m^3.*

SEIAA may also obtain an appropriate commitment from the proponent towards CSR activities.

5. The proposal was placed in the 74th meeting of SEIAA held on 09.10.2017. Authority accepted the recommendation of SEAC and decided to issue EC subject to general condition in addition to the following specific conditions.

(1) Since the plot intervenes the flow of rainwater from the adjacent areas to the Mamam river, arrangements should be made for the unhindered flow of storm water to the river.

(2) Reliance on KWA water should be limited to emergency/ peak requirement only

(3) The proponent has committed to provide 3 open wells of diameter 4m and 2 open wells of diameter 9 m. The existing pond at the project site should be deepened and renovated to ensure a capacity of atleast 2500 m^3.

(4) Since the yield test shows very poor yield of water, as reported by the Committee, a scheme for full Rainwater harvesting facility should be provided

2% of the total project cost should be set apart for CSR activities. Details of the disposal of hospital waste including a copy of the agreement with the company should be submitted. A notarised affidavit for the commitment of CSR activities and also agreeing all the general and specific conditions should be submitted before the issuance of EC.

6. The proponent has submitted the affidavit dated 03.11.2017 read as paper (6) at page 1 of this order and stating that all the specific and general conditions shall be strictly implemented. A letter of consent from IMAGE dt 2.11.2017 for disposing biomedical waste has also been submitted. Environmental Clearance as per the EIA notification 2006 is therefore granted to Trivandrum International Medical Centre by Dr. Abdul Nazar Y, Managing Director , Trivandrum International Medical Centre Pvt Ltd in Sy. Nos. Edacodu Village: 318/1,318/2, 318/3, 318/4,318/5, 318/6, 318/7, 318/8,318/9, 318/10, 318/11,318/12, 318/13, 318/14, 318/15, 318/16, 318/17,318/18, 319/1, 319/2, 319/3,319/4, 319/5, 319/6, 319/7,319/9, 320/1, 320/2, 320/3,320/4, 320/14, 320/22 and in Kizhuvilam Village: 225/11,229/2, 229/4, 229/5, 229/6,229/7, 229/8, 229/9, 229/10, 229/11 of Chirayinkeezhu Taluk, Thiruvananthapuram District, Kerala subject to the specific conditions mentioned in para 5 above, the usual general conditions for projects other than mining appended hereto and the following green conditions should be strictly adhered to.

Green Conditions.

1. Adequate rain water harvesting facilities shall be arranged for.

2. Technology and capacity of the STP to be indicated with discharge point (if any) of the treated effluent.
3. Effluent water not conforming to specifications shall not be let out to water bodies.
4. Maximum reuse of grey water for toilet flushing and gardening and construction work shall be ensured.
5. Dual plumbing for flushing shall be done.
6. Provisions for disposal of e-wastes, solid wastes, non-biodegradables and separate parking facility for the buildings shall be provided.
7. Generation of solar energy to be mandatory for own use and/or to be provided to the grid.
8. There shall be no compromise on safety conditions and facilities to be provided by the project proponent, which shall be ensured for occupation, regularisation or consent to operate.

7. The clearance will also be subject to full and effective implementation of all the undertakings given in the application form, all the environmental impact mitigation and management measures undertaken by the project proponent in the documents submitted to SEIAA, and the mitigation measures and waste management proposal as assured in the Form - 1 and Form-1A, Environment Management Plan as submitted. The assurances and clarifications given by the proponent in the application and related documents will be deemed to be part of these proceedings as conditions as undertaken by the proponent, as if incorporated herein.

8. Validity of the Environmental Clearance will be seven years from the date of issuance of E.C, 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 any of the conditions stipulated herein or genuine complaints from residents within the scrutiny area of the project.

9. Compliance of the conditions herein will be monitored by the State Environment Impact Assessment Authority or its agencies and also by the Regional Office of the Ministry of Environment and Forests, Govt. of India, Bangalore.

i. Necessary assistance for entry and inspection by the concerned officials and staff should be provided by the project proponents.

ii. Instances of violation if any shall be reported to the District Collector, Thiruvananthapuram to take legal action under the Environment (Protection) Act 1986.

iii. The given address for correspondence with the authorized signatory of the project is, Dr. Abdul Nazar Y (Managing Director), M/s Trivandrum International Medical

Centre Pvt Ltd TC/2/376/36, Near Ulloor bridge, Palmgroove Villa lane, Pattom, Thiruvananthapuram - 695004 .

Sd/-
JAMES VARGHESE.I.A.S,
Member Secretary (SEIAA)

To,

Dr. Abdul Nazar Y
(Managing Director),
M/s Trivandrum International Medical Centre Pvt Ltd
TC/2/376/36, Near Ulloor bridge,
Palmgroove Villa lane,
Pattom, Thiruvananthapuram- 695004

Copy to:

1. MoEF Regional Office, Southern Zone, Kendriya Sadan, 4th Floor, E&F Wing, II Block, Koramangala, Bangalore-560034
2. The Additional Chief Secretary to Government, Environment Department
3. The District Collector, Thiruvananthapuram
4. The District Town Planner, Thiruvananthapuram
5. The Tahsildhar, Chirayinkeezhu Taluk
6. The Member Secretary, Kerala State Pollution Control Board
7. The Director, Dept. of Environment and Climate Change, Govt. of Kerala, Tvm-24
8. The Secretary, Municipal Corporation of Thiruvananthapuram, VikasBhavan P.O, Tvpm – 695 033
9. Chairman, SEIAA, Kerala
10. Website
11. Stock file
12. O/c

Forwarded/By Order

Administrator, SEIAA

GENERAL CONDITIONS *(for projects other than mining)*

(i) Rain Water Harvesting capacity should be installed as per the prevailing provisions of KMBR / KPBR, unless otherwise specified elsewhere.

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

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

(iv) The project shall incorporate devices for solar energy generation and utilization to the maximum possible extent with the possibility of contributing the same to the national grid in future.

(v) Safety measures should be implemented as per the Fire and Safety Regulations.

(vi) STP should be installed and made functional as per KSPCB guidelines including that for solid waste management.

(vii) The conditions specified in the Companies Act, 2013 should be observed for Corporate Social Responsibility.

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

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

(x) 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.

(xi) In the case of any change(s) in the scope of the project, the project would require a fresh appraisal by this Authority.

(xii) 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.

(xiii) 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.

(xiv) The environmental safeguards contained in the EIA Report should be implemented in letter and spirit.

(xv) Provision should be made for supply of kerosene or cooking gas and pressure cooker to the labourers during construction phase.

(xvi) Officials from the Regional of MOEF, Banglore who would be monitoring the implementation of environmental safeguards should be given full co-operation, facilities and documents/data by the project proponents during their inspection. A complete set of all the documents submitted to MoEF should be forwarded to the CCF, Regional Office of MOEF, Bangalore.

(xvii) These stipulations would be enforces among others under the provisions of Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control Pollution) at 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification, 2006.

(xviii) Environmental Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.

(xix) Any appeal against this Environmental Clearance shall lie with the National Environment Appellate Authority, if preferred, within a period of 30 days as prescribed under section 11 of the National Environment Appellate Act, 1997.

(xx) 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 Department of Environment and Climate Change, Govt. of Kerala and may also be seen on the website of the Authority at 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.

(xxi) A copy of the clearance letter shall be sent by the proponent to concerned GramaPanchayat/ 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.

(xxii) 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 Directorate of Environment and Climate Change, Govt. of Kerala.

(xxiii) 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.

(xxiv) 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.

SPECIFIC CONDITIONS

I.Construction Phase

i. "Consent for Establishment" shall be obtained from Kerala State Pollution Control Board under Air and Water Act and a copy shall be submitted to the Ministry before start of any construction work at the site.

ii. All required sanitary and hygienic measures should be in place before starting construction activities and to be maintained throughout the construction phase.

iii. A First Aid Room will be provided in the project both during construction and operation of the project.

iv. Adequate drinking water and sanitary facilities should be provided for construction workers at the site, Provision should be made for mobile toilets. The safe disposal of wastewater and solid wastes generated during the construction phase should be ensured.

v. All the topsoil excavated during construction activities should be stored for use in horticulture/landscape development within the project site.

vi. Disposal of muck during construction phase should not create any adverse effect on the neighbouring communities and be disposed taking the necessary precautions for general safety and health aspects of people, only in approved sites with the approval of competent authority.

vii. Soil and ground water samples will be tested to ascertain that there is no threat to ground water quality by leaching of heavy metals and other toxic contaminants.

viii. Construction spoils, including bituminous material and other hazardous materials, must not be allowed to contaminate watercourses and the dump sites for such material must be secured so that they should not leach into the ground water.

ix. Any hazardous waste generated during construction phase, should be disposed off as per applicable rules and norms with necessary approval of the Kerala State Pollution Control Board.

x. The diesel generator sets to be during construction phase should be low sulphur diesel type and should conform to Environment (Protection) Rules prescribed for air and noise emission standards.

xi. The diesel required for operating DG sets shall be stored in underground tanks and if required, clearance from Chief Controller of Explosives shall be taken.

xii. Vehicles hired for bringing construction material to the site should be in good condition and should have a pollution check certificate and should conform to the applicable air and noise emission standards and should be operated only during non-peak hours.

xiii. Ambient noise levels should conform to residential standards both during day and night. Incremental pollution loads on the ambient air and noise quality should be closely monitored during construction phase. Adequate measures should be made to reduce ambient air and noise level during construction phase, so as to conform to the stipulated standards by CPCB/KSPCB.

xiv. Fly ash should be used as building material in construction as per the provisions of Fly Ash Notification of September, 1999 and amended as on 27th August 2003. (The above condition is applicable Power Stations).

xv. Ready mixed concrete must be used in building construction.

xvi. Storm water control and its re-use per CGWB and BIS standards for various applications.

xvii. Water demand during construction should be reduced by use of pre-mixed concrete, curing agents and other best practices referred.

xviii. Permission to draw ground shall be obtained from the Computer Authority prior to construction/operation of the project.

xix. Separation of grey and black water should be done by the use of dual plumbing line for separation of grey and black water.

xx. Fixtures for showers, toilet flushing and drinking should be of low flow either by use of aerators or pressure reducing devices or sensor based control.

xxi. Use of glass may be reduced by upto 40% to reduce the electricity consumption and load on airconditioning. If necessary, use high quality double glass with special reflective coating in windows.

xxii. Roof should meet prespective requirement as per Energy Conservation Building Code by using appropriate thermal insulation material to fulfil requirement.

xxiii. Opaque wall should meet perspective requirement as per energy Conservation Building Code which is proposed to be mandatory for all airconditioned spaces while it is aspirational for non-airconditioned spaces by use of appropriate thermal insulation material to fulfil requirement.

xxiv. The approval of the competent authority shall be obtained for structural safety of the buildings due to earthquake, adequacy of fire fighting equipments, etc. as per National, Building Code including protection measures from lightening etc.

xxv. Regular supervision of the above and other measures for monitoring should be in place all through the construction phase, so as to avoid disturbance to the surroundings.

xxvi. Under the provisions of Environment (Protection) Act, 1986, legal action shall be initiated against the protect proponent if it was found that construction of the project has been started without obtaining environmental clearance.

II. **Operation Phase**

i. The installation of the Sewage Treatment Plant (STP) should be certified by an independent expert and a report in this regard should be submitted to the Ministry before the project is commissioned for operation. Treated affluent emanating from STP shall be recycled / reused to the maximum extent possible. Treatment of 100% grey water by decentralised treatment should be done. Discharge of unused treated affluent shall conform to the norms and standards of the Kerala State Pollution Control Board. Necessary measures should be made to mitigate the odour problem from STP.

ii. The solid waste generated should be properly collected and segregated. Wet garbage should be composted and dry/inert solid waste should be disposed off to the approved sites for land filling after recovering recyclable material.

iii. Diesel power generating sets proposed as source of back up power for elevators and common area illumination during operation phase should be of enclosed type and conform to rules made under the Environment (Protection) Act, 1986. The height of stack of DG sets should be equal to the height needed for the combined capacity of all proposed DG sets. Use low sulphur diesel. The location of the DG sets may be decided with in consultation with Kerala State pollution Control Board.

iv. Noise should be controlled to ensure that it does not exceed the prescribed standards. During night time the noise levels measured at the boundary of the building shall be restricted to the permissible levels to comply with the prevalent regulations.

v. The green belt of the adequate width and density preferably with local species along the periphery of the plot shall be raised so as to provide protection against particulates and noise.

vi. Weep holes in the compound walls shall be provided to ensure natural drainage of rain water in the catchment area during the monsoon period.

vii. Rain water harvesting for roof run-off and surface run-off, as plan submitted should be implemented. Before recharging the surface run off, pre-treatment must be done to remove suspended matter, oil and grease. The borewell for rainwater recharging should be kept at least 5 mts.above the highest ground water table.

viii. The ground water level and its quality should be monitored regularly in consultation with Central Ground Water Authority.

ix. Traffic congestion near the entry and exit points from the roads adjoining the purposed project site must be avoided. Parking should be fully internalized and no public space should be utilized.

x. A Report on the energy conservation measures confirming to energy conservation norms finalise by Bureau of Energy Efficiency should be prepared incorporating details about building materials & technology, R & U Factors etc and submit to the Ministry in three months time.

xi. Energy conservation measures like installation of CFLs/TFLs for the lighting the areas outside the building should be integral part of the project design and should be in place before project commissioning. Use CFLs and TFLs should be properly collected and disposed off/sent for recycling as per the prevailing guidelines/rules of the regulatory authority to avoid mercury contamination. Use of solar panels may be done to the extent possible.

xii. Adequate measures should be taken to prevent odour problem from solid waste processing plant and STP.

xiii. The building should have adequate distance between them to allow movement of fresh air and passage of natural light, air and ventilation.

III Post Operational Phase

Environmental Monitoring Committee with defined functions and responsibility should foresee post operational environmental problems e.g. development of slums near the site, increase in traffic congestion, power failure, increase in noise level, natural calamities, and increase in suspended particulate matter etc. solve the problem immediately with mitigation measures

For Member Secretary, SEIAA

SEIAA