Validity expires on 16/03/2025

सत्यमेव जयते

Proceedings of the State Environment Impact Assessment Authority Kerala

Present : Prof. (Dr.) K.P. Joy, Chairman, Dr. J. Subhashini. Member. Sri. P.H.Kurian, I.A.S; Member Secretary.

Sub: SEIAA-Environment Clearance for the Proposed Development of Electronics Manufacturing Cluster in Survey. Nos. 570, 574, 575 & 576 at Kakkanad Village, Kanayannur Taluk, Ernakulam District, Kerala by Sri.Sunil.G - Granted – Orders issued

STATE ENVIRONMENT IMPACT ASSESSMENT AUTHORITY, KERALA

File No. 1149/EC/SEIAA/ KL/2017 Dated, Thiruvananthapuram 17/03/2018

Ref:
1. Application received on 19.09.2017 from Sri.Sunil.G, Manager (Technical), of Electronics Manufacturing Cluster, Kakkanad,Ernakulam.
2. Minutes of the 81st meeting of SEAC held on 30th & 31st October 2017.
3. Minutes of the 84th SEAC meeting held on 22nd & 23rd January 2018.
4. Minutes of the 80th meeting of SEIAA held on 16th February 2018.
5. Affidavit dated 16/03/2018 received from Shri.Sunil.G, Manager (Technical), Kinfra House, TC 31/2312, Sasthamangalam, Thiruvananthapuram 695 010

Environmental Clearance No. 60/2018

Sri.Sunil.G, Manager (Technical), Kinfra House, TC 31/2312, Sasthamangalam, Thiruvananthapuram 695 010, vide his application received on 19.09.2017, has sought Environmental Clearance under EIA Notification, 2006 for the proposed Electronics Manufacturing Cluster in Survey. Nos. 570, 574, 575 & 576 in Kakkanad Village, Kanayannur Taluk, Ernakulam District, Kerala. It is interalia, noted that the project comes under the Category B, 8(a) of Schedule of EIA Notification 2006.

BASIC INFORMATION OF BUILDING PROJECT
(To be filled in by the Project Proponent)
PART A

PROJECT DETAILS	
File No	1149/EC/SEIAA/KL/2017
Name /Title of the project	Proposed development of Electronics Manufacturing Cluster at Kakkanad, Ernakulam
Name and address of project proponent.	Sri Sunil G KINFRA HOUSE, TC 31/2312, Sasthamangalam, Thiruvananthapuram -695 010

<table>
<tr><td>Owner of the land</td><td>KINFRA</td></tr>
<tr><td>Survey Nos. District/Taluk/ and Village etc.</td><td><table>
<tr><td>Location</td><td>Kakkanad</td></tr>
<tr><td>Plot/Survey/Khasra No.</td><td>570, 574, 575 & 576</td></tr>
<tr><td>Village</td><td>Kakkanad village</td></tr>
<tr><td>Tehsil</td><td>Kanayannur Taluk</td></tr>
</table></td></tr>
<tr><td>Category/Sub Category and Schedule</td><td>8(a), Category B</td></tr>
<tr><td>Date of submission of Application</td><td>• Online Application Submitted on 25/03/2017
• Resubmission of additional information sough was submitted on 02/08/2017</td></tr>
<tr><td>Total Built up Area& No. of Floors</td><td>95382 sqm.
The proposed Project is an Electronics Manufacturing Cluster with a SDF Building, Residential Building and Commercial Building.<table>
<tr><td>SDF building</td><td>19280 sqm</td></tr>
<tr><td>Residential</td><td>41012 sqm</td></tr>
<tr><td>Commercial</td><td>35090 sqm</td></tr>
<tr><td>Total built up area</td><td>95382 sqm</td></tr>
</table>The project envisages the development of Electronics Manufacturing Cluster as Industrial Sheds which does not comes under the purview of EIA Notification 2006 and its subsequent amendments.</td></tr>
<tr><td>No of apartments</td><td>NA</td></tr>
<tr><td>Height of the building from the ground level</td><td><table>
<tr><td>SDF building</td><td>42m</td></tr>
<tr><td>Residential</td><td>63m</td></tr>
<tr><td>Commercial</td><td>36m</td></tr>
</table></td></tr>
<tr><td rowspan="2">GPS Co-ordinate</td><td>Latitude (N): 9°59'51.38"N</td></tr>
<tr><td>Longitude(E): 76°21'59.34"E</td></tr>
<tr><td>Brief description of the project.</td><td>KINFRA intends to develop an Electronic Manufacturing Cluster of international standards at Kakkanad in Ernakulam District Kerala. The project is intended to create an Industrial Park with all modern facilities exclusively for the Electronic manufacturing Industry with Central Assistance from Ministry of Communication and Information Technology, Government of India, under Electronic Manufacturing Cluster Scheme. The objective of the project is to attract investment to the state and to create employment opportunities at large. Kerala with its vast talent pool consisting of engineering graduates/ post graduates and those with diploma is Electronics present an attractive proposition to the EMS industry.</td></tr>
<tr><td>Is it a new Project or expansion/modification of an existing project?</td><td>New</td></tr>
<tr><td>Details of the Project Cost</td><td>155.76 crores</td></tr>
<tr><td>If CRZ recommendation applicable?</td><td>No</td></tr>
<tr><td>Distance from nearby habitation</td><td>100 m</td></tr>
</table>

Distance from nearby forest, if applicable	NA
Distance from protected area, Wildlife Sanctuary, National Park etc.	NA
Distance from nearby streams/rivers/National Highway Roads and Airport	110m from Kadambrayar River
Is ESA applicable? If so, distance from ESA limit	NA
IMPACT ON WATER	
Details of water requirement per day in KLD	Construction phase : 514 KLD Operation Phase : 825 KLD
Water source/sources.	During the construction phase, the water will be sourced from the water supply scheme by KEPIP and through the supply from approved vendors under contractor's scope. The water requirement for the entire facilities including the SDF building, residential facilities, commercial facilities and industrial sheds is estimated as 825 KLD. The water will be supplied from the water supply scheme of KEPIP. Presently KEPIP water supply scheme having a capacity of 6.5 MLD and current demand of KEPIP water supply is 2.5 MLD. Hence the water source envisaged is sufficient to cater the demand of proposed development.
Details of water requirements met from water harvesting.	A Rain Water Harvesting pond in area of 61 cents of capacity 5000KL proposed at the lower contour within the plot and the rain water harvested from the plot will be used to landscape activities and also as an additional source during emergency.
What are the impacts of the proposal on the ground water?	The impact of the proposal on the ground water table of the surrounding area is negligible. For the construction phase, main water source is the water supply from KEPIP and also the supply form approved suppliers under the contractor's scope. The same water supply scheme will be sourced for the operation phase water demand. Since no tapping of ground water is involved during both construction and operation phase
WASTE MANAGEMENT	
Explain the facilities for Liquid waste Management	A STP of 400 KLD is proposed to treat the waste water generated from the proposed facilities
Solid Waste Management	Biodegradable waste will be treated in the biogas plant. Non-Biodegradable waste shall be collected and segregated and send to authorised dealers.
E-Waste Management	The e waste generated from the electronics cluster will be collected from each unit and then transported to Registered E-Waste Dismantlers/Recyclers.
Facilities for Sewage Treatment Plant	A STP of 400 KLD is proposed to treat the waste water generated from the proposed facilities
How much of the water requirement can be met from the recycling of treated waste water? (Facilities for liquid waste treatment)	The treated water generated will be 335KLD which will be used for flushing purposes and also for landscape water demand.
What is the incremental	The total quantity of sewage generated will be treated in

pollution load from waste water generated from theproposed activities?	proposed STP and the treated water meeting the standards as specified in IS 10500 will reused for flushing and gardening.
How is the storm water from within the site managed?	Project proponent has proposed a rainwater harvesting pond for the collection of rainwater from the portion of their land. Surface run off is directed to this pond and the overflow will be further diverted to Kadambrayar River.
Will the deployment of construction laborers particularly in the peak period lead to unsanitary conditions around the project site (Justify with proper explanation)	No. Adequate number of sanitary toilets which connected to septic tank and soak pit will be provided in the labor camp. Proper waste management will also be provided for the construction period including the management of municipal and solid waste produced form the labor camps. A detailed waste management for the construction phase has been provided with the application.
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)	During the construction period adequate number of toilets will be provided for male & female with adequate water supply. Septic tank will be attached to soak pit sealed bottom with honey comb walls and a 75 cm thick 2mm sand envelop, so that no health hazard occurs and no pollution to the air ground, and adjacent water causes takes places. During the operational phase, Sewage treatment plants will be proposed by individual units for the treatment of liquid waste generated. A STP of capacity 400 KLD is proposed to treat the sewage generated from the entire facilities. Since KINFRA is leasing out the remaining plots to other individual manufacturing units, an agreement will be made between KINFRA and individual units that the waste generated form the units should be treated inside their own premises. The waste generated during operational phase other than industrial effluent are process solid waste, municipal solid waste and sewage. The process related waste will collected, segregated and will reused under the scope of each industrial units.
Give details of dual plumbing system if treated waste is used for flushing of toilets or any other use.	Dual plumbing system will be provided for the buildings proposed inside the cluster.

TRAFFIC MANAGEMENT

Sufficiency of Parking Space (Explain)	**Building**	**Two Wheelers**		**Four Wheelers**	
		Required	**Provided**	**Required**	**Provided**
	SDF building	138	176	110	220
	Residential	256		205	269
	Commercial	439	439	351	480
	Industrial sheds	670	Will be provided by individual units	536	Will be provided by individual units
	The parking slots are allotted as per the KMBR Rules.				
Width ofaccess road	Internal roads of 20m width has been developed in the proposed site.				

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?	The total power requirement for the proposed facilities is about 640kW.
What type of, and capacity of power back-up to you plan to provide?	DG sets of capacity 1250KVA is proposed as the backup for the proposed facilities.
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?	Single glazed for windows with sunshade, double glazing for windows without sunshade and structural glazing and Low E coated glass will be used.
What passive solar architectural features are being used in the building? Illustrate the applications made in the proposed project	Cross ventilation is ensured in whole design which will reduce the load to the artificial ventilation system Shading system is proposed in the design that reduces day time solar gains which create additional cooling load.
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 will be utilized for lighting up the street light.
Is the shading effectively used to reduce cooling/heating	• Projections, shades and louvers would be provided to reduce direct solar heating. • Open area would be planted with trees so as to shade paved areas and external walls.

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?	• Roofs will be provided with a layer of material with high solar reflectance and low thermal conductivity (acrylic, silicone, and urethanes coatings) more over solar panels provided on the building top will also gave shade to roof.
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.	No
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?	During construction phase, there will be an incremental concentration in air emissions due to increased emissions from operation of machines and construction equipment. The increased traffic during construction and operational phases will increase traffic related pollution with increase in CO, NO, SO, and SPM. With careful management of access roads and application of dust suppression/ water spray, SPM concentration can be reduced. All construction machineries will have valid PUC certificate. The ambient air quality levels are far below the critical limits. Hence it is expected that the contribution from the proposed activities will give incremental concentration which will be in acceptable limits. The air pollution control measures as per Environmental Management Plan would be implemented to further reduce the impact on the ambient air quality during construction and operation phase.
What are the thermal characteristics of the building envelope? (a) roof (b) external walls; and (c) fenestration? Give details of the materials used.	The FAR of the proposed facilities are 0.58. Building roof will be painted with white heat reflecting coating .The roof will be coated with material of high solar reflectance. The following measures would be taken up to minimize the heat island effect: • Open area would be planted with trees to shade paved areas and external walls. • Roofs will be provided with a layer of material with high solar reflectance and low thermal conductivity (acrylic, silicone, and urethanes coatings)

What is the rate of air non-conventional energy technologies are utilized in the overall energy consumption? Provide details of the renewable energy technologies used.	<table><tr><th>Sl. No</th><th>Item</th><th>Provided Building Material</th><th>Thermal Characteristics of Provided building Materials (U value in W/m²°C)</th></tr><tr><td>1</td><td>Roof</td><td>Use M40 grade of concrete with maximum w/c ratio of 0.4 and minimum cement content of 320 kg/m3.</td><td>0.7 W/m²,°c</td></tr><tr><td>2</td><td>External Wall</td><td>Brick Wall with cement mortar mix of 1:6 and 15mm thick plastering</td><td>2.2 W/m²,°c</td></tr><tr><td rowspan="2">3</td><td rowspan="2">Fenestration</td><td>Clear glass(Plain glass) ET 150</td><td>5 W/m²,°c</td></tr><tr><td>Clear Glass ST 167</td><td>5.6 W/m²,°c</td></tr></table>
Details of renewable energy (non – conventional) used.	Solar roofing on open terrace shall be provided for the Electronics Cluster.
IMPACT ON AIR ENVIRONMENT	
What are the mitigation measures on generation of dust, smoke , odours, fumes or hazardous gases	The site should be isolated by installing tall fabric fences to obstruct noise and dust. Pollution- under –check (PUC) should be made mandatory for all vehicles used for construction activities. Regular maintenance and inspection of the machineries should be conducted. The excavators, loaders, vehicles and cranes should be operated only well within the fenced area of the project site. Water should be sprinkled periodically to suppress the dust generation. Personnel masks should be provided to workers. The tyres of the transport vehicles have to be washed before leaving the construction site. The material transport vehicles should be adequately covered.
Details of internal traffic management of the site.	There will be separate entry and exit points for the vehicles coming to Electronics Manufacturing Cluster. Internal roads of width 20m with paved shoulders has already been developed by the proponent. The internal road is connected to the Infopark Expressway in the entry and is connected to the Infopark road connecting Irumpanam.
Details of noise from traffic, machines and vibrator and mitigation measures	The proposed development will enhance the traffic noise and vibrations in the site surroundings. The significant sources for noise and vibration and migration measures proposed are presented in **Table** below. <table><tr><td>Construction Phase</td><td>Noise would be generated from construction machineries</td><td>➢ Low amplitude displacement machineries would be used. ➢ All the machines would comply with the norms set by CPCB. ➢ Machines will be maintained periodically to meet CPCB standard ➢ Appropriate fencing will be provided between construction site and existing activity area to reduce the propagation of sound</td></tr><tr><td></td><td>Noise generated</td><td>Noise level of vehicles used for construction activities should meet the</td></tr></table>

		from vehicular movement along the site.	noise standards set by Central Pollution Control Board (maximum 80 dB(A)
	Operation Phase	Noise would be generated from DG sets	DG sets would be incompliance for acoustics and air quality.
		Noise would be generated from traffic	The entry and exit points of Electronics manufacturing cluster where the traffic induced noise will predominate is away from the human settlements. As mostly the LMV will be operating for commuting purpose, traffic induced noise level is not expected to have significant impact on the ambient setting.

Air quality monitoring in detail	Ambient air quality of the project location was monitored at 5 sites. The monitoring report is attached as **Annexure XI of Form IA** The quality of the ambient air is well within the limits of NAAQ set by Central Pollution Control Board. Environmental Monitoring plan is also proposed for the post environmental monitoring of the project including the ambient air quality monitoring.
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. Circulation plan with segregation for entry and exit to the plot will be adopted and traffic management measures will be provided within the site. The Electronics Manufacturing Cluster is directly connected with the Infopark Expressway Road which connects the Seaport Airport Road which is the highway passing through the Cochin Special Economic Zone and connect such major industrial units as HMT, FACT, and Kochi Refineries as also the various oil terminals at Irumpanam and also boost the flow of cargo traffic both from the port and the airport.
Provide details of the movement patterns with internal roads, bicycles tracks, Pedestrian pathways, footpaths etc., with areas under each category	The movement and parking in the Electronics Manufacturing Cluster is limited to the parking areas provided in each plot. Each individual units will be having their own parking provision as per the KMBR Rule. The internal roads are designed in such a way with a separate entry and exit points. Which can thereby reduce the traffic congestion during the peak hours in the future. Pedestrian and vehicle movements are prioritized and crossings are designed accordingly.
Will there be significant increase in traffic noise & vibrations? Give details of the sources and the measures proposed for mitigation of the	There will be minimal increase in the noise and vibration. Proper mitigation measure has been suggested as per the Environmental Management plan for both construction and operation phase.

Construction phase	
Noise would be generated from	➢ Low amplitude displacement machineries would be used. ➢ All the machines would comply with the norms set by CPCB.

above.	

constructio n machineries	➢ Machines will be maintained periodically to meet CPCB standard ➢ Appropriate fencing will be provided between construction site and existing activity area to reduce the propagation of sound
Noise generated from vehicular movement along the site.	➢ Noise level of vehicles used for construction activities should meet the noise standards set by Central Pollution Control Board (maximum 80 dB(A)
Operation Phase	
Noise would be generated from DG sets	➢ DG sets would be incompliance for acoustics and air quality.
Noise would be generated from traffic	➢ The entry and exit points of Electronics manufacturing cluster where the traffic induced noise will predominate is away from the human settlements. As mostly the LMV will be operating for commuting purpose, traffic induced noise level is not expected to have significant impact on the ambient setting.

What will be impact of DG sets & other equipments on noise levels & vibration in & ambient air quality around the project site? Provide details	There would be increased noise levels and degradation of air quality due to the operation of DG sets and equipments. The following mitigation measures will be adopted to reduce the impact on noise levels and ambient air quality: 1. Diesel generator should have noise control measures to meet the noise standards set by Central Pollution Control Board (75 dB (A) at 1 m from the enclosure surface for generators with integral acoustic enclosure. 2. Acoustic enclosure for generators without integral acoustic enclosure shall be designed for minimum 25 dB (A) insertion loss or for meeting the ambient noise standards, whichever is on the higher side at 0.5 m from the enclosure). 3. Workers shall not be exposed to sound of more than 85 – 90 dB for more than eight hours a day and shall be provided with ear plugs. 4. Noise quality monitoring shall be conducted as per Environmental Monitoring Plan to detect noise pollution. 5. Noise level of vehicles used for construction activities should meet the noise standards set by Central Pollution Control Board (maximum 80 dB (A). 6. Construction contract shall clearly specify the use of equipment emitting noise of not greater than 90 dB (A) for the eight hour operation shift. 7. Pollution- under –check (PUC) should be conducted for vehicles in

	every three months 8. Stack height and emission level of vehicles and machineries should meet the relevant SPCB. 9. Water should be sprinkle periodically to suppress the dust generation. 10. High temporary fences provided around the construction site can mitigate the dust generation.
IMPACT ON BIODIVERSITY AND ECO RESTORATION PROGRAMMES	
Will the project involve extensive clearing or modification of vegetation (Provide details)	The only vegetation existing in the proposed site are some acacia plantations which will be partially cleared. A landscape plan is proposed to be developed along the project boundary.
What ate the measures proposed to minimize the likely impact on vegetation (details of proposal for tree plantation/ landscaping)	A well-developed landscape plan will be developed during the operation phase of the Manufacturing Cluster.
Is there any displacement of fauna – both terrestrial and aquatic. – If so what are the mitigation measures? Presence of any endangered species or red listed category (in detail)	No
SOCIO- ECONOMIC ASPECTS	
Will the proposal result in any change to the demographic structure of local population? Provide the details.	Being the proposed site comes under the possession of KINFRA, no rehabilitation and resettlement is required.
Give details of the existing social infrastructure around the proposed project	**Social Infrastructure within 1 km**

Sl no	Name	Distance (Km)
Schools		
1.	ChristhuJayanthi Public School	0.65
2.	Rajagiri School of Engineering and Technology	0.98
3.	Rajagiri College of Management & Applied Sciences	0.95
Industries		
1.	Infopark	
2.	Proposed smart city phase II	
3.	Brahmapuram diesel plant	1
4.	Brahmapuram Waste processing plant	0.8

	5.	Devicolam Distilleries Limited	0.10
	6.	Nita Gelatin India Pvt. Ltd.	0.13
	7.	Kera Fibertex	0.40

Will the project cause adverse effects on local communities, disturbances to sacred sites or other cultural values? What are the safeguards proposed?	Apart from the general socio-economic disturbances, the construction of the proposed Electronics Manufacturing Cluster will not have any adverse impact on the socio-economic and cultural scenario of the area. The Kera Fibertex is located next to the exit gate of the proposed plot, which is adjacent to the proposed main building of Electronics Manufacturing Cluster. In the locality outside the project boundary is the Infopark area, which comprises of several industries both IT and Non IT and also the KINFRA Industrial park which comprises of several industries of nonpolluting nature. Apart from this, the site is adjacent to the proposed Kochi Smart City area and KINFRA has also allocated a portion of land along the proposed site for the Kochi Smart City- Phase II. Also Infopark is proposing to develop their Phase II in a plot adjacent to the proposed location. The Brahmapuram Diesel Plant and Brahmapuram Waste Processing unit is located to the southern side of the proposed plot beyond the Kadambrayar. Also some residential units are present at the North West and South West boundary of the proposed location. However no direct impact is expected on this colony due to project development. The operation of the Electronics Cluster will not have any negative influence on the residing population since the units to be developed inside the cluster belong to the green and white category units which are the least polluting ones.
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 conservation measures in the selection of building materials and their energy efficiency)	From the economical point of view and also unavailability of the energy efficient material source conventional building materials are proposed in the construction. However practices are made to use maximum natural day light and natural air condition in the building.The following measures would be adopted as energy conservation measures in the selection of building materials: • Locally available materials would be utilized for construction purposes. • Fly ash containing cement would be used for construction • PCC cement bricks would be used for construction. • Locally available aggregates would be utilized for construction. • Glass with low SHGC and high U value is proposed
Transport and handling of materials during construction may result in pollution, noise & public nuisance. What measures are taken to minimize the impacts?	• The site shall be isolated by installing tall fabric fences to obstruct noise and dust. • All the materials will be properly covered during transportation. • Sprinkling of water would be conducted periodically to subside the generated dust. • Adequate traffic management measures shall be adopted to monitor the movement of men, vehicles and materials within the project site. • Noise sources would be isolated and would be enclosed with noise absorbing covers/ barriers. • Personnel protective gears would be provided to construction workers. • Machinery of optimum capacity will be employed and low amplitude operation would be preferred to reduce noise pollution. • Man and material transit would be confined to the non-peak hours • The vehicle used in the site will be fitted with speed breaker

Are recycled materials used in roads and structures? State the extent of savings achieved?	Construction waste of inorganic origin would be used in the foundation of roads. This can reduce import of base materials for laying roads.
Give details of the methods of collection, segregation & disposal of the garbage generated during the operation phases of the project.	The waste generated during operational phase other than industrial effluent are process solid waste, municipal solid waste and sewage. The process related waste will collected, segregated and will reused under the scope of each industrial units.
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. Disaster management plan has been prepared for the proposed project. An emergency evacuation plan has also been developed for the project in case of emergencies.
Storage of explosives/hazardous substance in detail.	No
What precautions & safety measures are proposed against fire hazards? Furnish details of emergency plans	Disaster management plan has been prepared for the proposed project. An emergency evacuation plan has also been developed for the project in case of emergencies.
Litigation/court cases if any	Nil
AESTHETICS	
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?	As the proposed location is located in a cluster surrounded by industries and similar set ups such as Smart City and Infopark, it will not impose any obstruction of view or scenic amenity. Moreover, the buildings are designed according to the Industry specification.
Will there be any adverse impacts from new constructions on the existing structures? What are considerations taken	No impacts are anticipated from the proposed activity on the existing structures.

into account?	
Whether there are any local considerations of urban form & urban design influencing the design criteria? They may be explicitly spelt out.	No
Are there any anthropological or archaeological sites or artefacts nearby? State if any other significant features in the vicinity of the proposed site have been considered	No
Details of CSR activity and the amount set apart per year	Kinfra is only a statutory body under Government of Kerala. However, KINFRA is undertaking its CSR activities through its 100% subsidiary companies viz; KINFRA Film & Video Park, KINFRA Apparel Park & KINFRA Export Promotion Industrial Park.
Details of NABET approved EIA Consultant engaged- Their name, address and accreditation details	KITCO Ltd, Femith's, P.B No:4407, Puthiya Road, NH Bypass, Vennala,Kochi-682028 (0484) 4129000, (0484) 2805066, mail@kitco.in
Details of Authorized Signatory and address for correspondence	Sri Sunil G, Manager (Technical) KINFRA HOUSE, TC 31/2312, Sasthamangalam, Thiruvananthapuram -695 010
SUMMARY AND CONCLUSION	
Overall justification for implementation of the project.	EMC scheme was notified vide notification no. 252 dated 22nd October, 2012 to provide support for creation of world-class infrastructure for attracting investments in the Electronics Systems Design and Manufacturing (ESDM) Sector by MeitY. KINFRA got administrative Sanction form GoK for setting up a Greenfield Electronics Park at Ernakulam under the Electronic Manufacturing Cluster (EMC) Scheme of Ministry of Electronics & Information Technology (MietY vide G.O(Rt) No.1290/2014/ID dated 20th November 2014. The project, once operational will generate dividends for the state of Kerala in terms of a boost to foreign direct investment in the state and generation of employment opportunities, which will further fuel economic growth in state. The project is technically feasible & commercially viable.
Explanation of how adverse impact have been mitigated.	The impacts of the proposed project will be mitigated by the implementation of proper Environmental Management plan for both construction and operation phase. The impact due to the generation of waste will be mitigated by a proper waste management plan. Also, an environmental monitoring plan is proposed to monitor whether the construction and operation activities are complying with the national standards.

2. The proposal was placed in the 81st meeting of SEAC held on 30th & 31st October 2017. The Committee deferred the proposal for clarification regarding the type of industries proposed to be set up in the area and also for rectification of omissions in the Form I application. Details of the common amenities and services that will be shared with the adjoining units within the KINFRA Park should also be submitted.

> Site Inspection was also conducted by a Sub committee consisting of Sri Gopinathan V, Chairman, Sri S Ajayakumar and Sri John Mathai on 07/11/2017. The report states that *The proposal of EMC includes establishment of a Standard Design Factory (SDF) of built up area 19280 sq.m which provides the commercial space, office space and other R&D facilities for the electronics manufacturing units. Along with the SDF building KINFRA proposes to develop residential (built up area 41012 sq.m) and commercial units (built up area 35090 sq.m) as part of the Electronics Cluster. The total built-up area of the project is about 95382 sq.m.*

The proposal is located within the area developed by the KINFRA and common facilities like water supply and sewerage facilities are provided by the KINFRA. A Rain Water Harvesting pond in area of 61 cents of capacity 5000KL proposed at the lower contour within the plot and the rain water harvested from the plot will be used to landscape activities and also as an additional source during emergency. An STP of 400 KLD is proposed to treat the waste water generated from the proposed facilities. Access roads are already constructed and are adequate. Parking facilities are also adequate.

As decided in the SEAC meeting the proponent has to submit clarification regarding the type of industries proposed to be set up in the area and also for rectification of omissions in the Form I application. Details of the common amenities and services that will be shared with the adjoining units within the KINFRA Park should also be submitted.

3. The proposal was placed in the 84th SEAC meeting held on 22nd & 23rd January 2018. The Committee appraised the proposal based on Form 1, Form 1 A, Conceptual Plan, field inspection report of the Sub Committee and all other documents submitted with the proposal. The Committee verified the additional documents submitted by the proponent and found satisfactory. The Committee decided to Recommend for issuance of EC subject to general conditions.

4. The proposal was placed in the 80th meeting of SEIAA held on 16th February 2018. Authority accepted the recommendation of SEAC and decided to issue EC subject to general conditions 2% of the total project cost should be set apart for CSR activities for taking up welfare activities of the local community in consultation with the local body. A notarised affidavit for the commitment of CSR activities and also agreeing all the above specific and general conditions should be submitted before the issuance of EC. The proponent has been submitted the affidavit vide ref 5th cited stating that all the specific and general conditions shall be strictly implemented

5. Environmental Clearance as per the EIA notification 2006 is hereby accorded for the proposed development of Electronics Manufacturing Cluster of Mr.Sunil.G, Manager of KINFRA House, TC31/2312, Sasthamangalam, Thiruvananthapuram of in Sy No. 570,574, 575 & 576 Kakkanad Village, Kanayannur Taluk, Ernakulam of total built-up area 95382 sqm subject to the conditions mentioned in para 3rd & 4th above and the usual general conditions for projects other than mining appended hereto and the following green conditions should be strictly adhered to.

Green Guidelines

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, regularization or consent to operate.

6. The clearance will be subject to all the environmental impact mitigation and management measures envisaged by the project proponent in the documents submitted to SEIAA, and the mitigation measures specified. The assurances in form 1A of the application (Appendix 1I) and clarifications given by the proponent will be deemed to be part of these proceedings as if incorporated herein. Also the general conditions for projects other than mining appended hereto and the following green guidelines will be applicable and have to be strictly adhered to

7. Validity of the Environmental Clearance will be seven years from the date of issuance the subject to earlier review in the event of noncompliance or violation of any of the conditions stipulated herein.

8. 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, Ernakulam to take legal action under the Environment (Protection) Act 1986.

iii) The given address for correspondence with the authorized signatory of the project is,

Shri.Sunil.G, Manager (Technical) KINFRA HOUSE, TC 31/2312, Sasthamangalam, Thiruvananthapuram – 695 010.

Sd/-
P.H.Kurian I.A.S
Member Secretary (SEIAA),

To

Shri.Sunil.G, Manager(Technical)
KINFRA HOUSE,
TC 31/2312, Sasthamangalam,
Thiruvananthapuram – 695 010.

Copy to

1. MoEF Regional Office, Southern Zone, Kendriya Sadan, 4th Floor, E&F Wing, II Block, Koramangala, Bangalore-560034
2. Additional chief Secretary to Government, Environment Department,
3. The District Collector, Ernakulam
4. The District Town Planner, Ernakulam
5 Tahsildar, Kanayannur Taluk
6 Member Secretary, Kerala State Pollution Control Board, Pattom
7 Chairman, SEIAA
8 The Secretary, Thrikkakara Municipality
9 Website
10 Stock File
11 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