

**STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY**

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Salt Lake, Kolkata – 700 106

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No. 2275 / EN/T-II-1/044/2015

Date : 17 / 10 /2016

To

M/s. Tivoli Park Apartments Pvt. Ltd.

16A, Brabourne Road, 9<sup>th</sup> Floor

Kolkata - 700 001

*SUB. : Environmental Clearance for the proposed Residential Complex by M/s. Tivoli Park Apartments Pvt. Ltd. at 225B, A.J.C Bose Road, Ward No. 69 of KMC, Borough-VIII, Kolkata-700019, West Bengal.*

Sir,

This has a reference to your application submitted on 03/08/2015 and subsequent communications for environmental clearance for the proposed Residential Complex at 225B, A.J.C Bose Road, Ward No. 69 of KMC, Borough-VIII, Kolkata-700019, West Bengal.

The proposal has been examined and processed in accordance with the EIA Notification, 2006. The proposed proposal is for construction of the residential Complex having block 1A:G+27, Block 1B: B+G+28 & block 1C: B+G+28 storied. Total nos. of flats: 181 nos.

It is noted that the salient features of the project for which Environmental clearance has been considered are given below:

Land Area	: 12304.147 sq.m
Latitude & Longitude	: 22°32'26.9"N & 88°21'27.5"E
Expected Population	: 1105 persons (permanent-905, temporary-200)
No. of flats	: 181
Total Water requirement	: 196 KLD (Operation stage)
Fresh Water requirement	: 100 KLD (KMC supply)
Wastewater generated	: 134 KLD (to be treated in STP)
Treated Wastewater reused	: 93 KLD (to be used in toilet flushing, landscaping & car washing)
Treated Wastewater discharged	: 41 KLD (to KMC drain)
Solid waste disposal	: 0.47 TPD (to be disposed off through on-site compost plant & KMC)
Total Built-up Area	: 46375.64sq.m
Ground Coverage	: 4184.17 sqm. (33.93% of land area)
Exclusive Tree Plantation Area	: 3114.04 sqm (25.31 % of land area)
Total Paved Area	: 3063.78 sqm. (24.90% of land area)
Total Green Area	:4073.85 sq.m (33.34% of land area)

Service area	: 991.34sq.m (8.04% of land area)
Plantation proposed	: 530 (including compensatory plantation of 280 nos. of trees).
No. of solar street light proposed	: 17 nos.
No. of Parking Spaces proposed	: 512 nos. (covered -322, open-190)
Total Power requirement	: 4274 KVA, CESC and solar power
Solar power	: At least 45 KW of solar power to be generated and utilized excluding standalone solar street lights
Backup Power	: DG Sets (4x1000 KVA, 1x250 KVA)

State Level Environment Impact Assessment Authority (SEIAA), examined the proposal and also perused recommendations of the State Level Expert Appraisal Committee (SEAC). After due consideration of the project proposal, and the recommendations of the State Level Expert Appraisal Committee (SEAC), the State Level Environment Impact Assessment Authority accords Environmental Clearance to the project as per provisions of the EIA notification no. S.O. 1533 (E) dt. 14<sup>th</sup> September, 2006 of Ministry of Environment & Forests, GOI, subject to strict compliance of terms and conditions as mentioned below :-

## Part A – SPECIFIC CONDITIONS

### I. Construction Phase

#### Facility of labourers during construction: -

- i. Provision of drinking water, wastewater disposal and solid waste management should be ensured for labour camps. Water usage during construction should be optimized to avoid any wastage.
- ii. Proper sanitation facilities should be provided for construction workers to ensure environmental sanitation. Sewage generated from the areas occupied by the construction labourers have to be directed into the existing sewage drain of the area. In case of non availability of the sewer system, an onsite treatment system has to be provided.
- iii. The scaffolds, stairs and platforms for construction works and the workers must be secured as far as possible to prevent any accident.
- iv. Health and safety of the workers should be ensured during construction. Personnel protective equipment like shoes, helmets, earmuffs, earplugs etc. should be provided to the workers. For vibration control damped tools must be used and the number of hours that a worker uses them must be limited. The Management must ensure that the workers put them while doing work that needs such protection, if any.
- v. Rest and convenience shelter for workers with crèche facility, if required, particularly for women, must be provided with proper toilet facilities.

#### Steps to avoid disturbance during construction:-

- i. All the topsoil excavated during construction activities should be under cover/stored by retaining walls for use in horticulture / landscape development within the project site. Adequate erosion and sediment control measures to be adopted before ensuing construction activities.
- ii. Prior permission should be obtained from the competent authority for demolition of the existing structure, if any. Waste recycling plans should be developed for prior to beginning of demolition and construction activity. The plans should identify wastes to be generated and designate handling, recycling and disposal method to be followed.
- iii. Disposal of muck including excavated material during construction phase should not create any adverse effects on the neighbouring communities and disposed off taking the necessary precautions for general safety and health aspects.
- iv. Diesel generator sets during construction phase should have acoustic enclosures and should conform to E(P) Rules prescribed for air and noise emission standards.



- v. Vehicles / equipment deployed during construction phase should be in good condition and should conform to applicable air and noise emission standards and should be operated only during non-peaking hours.
- vi. Ambient noise levels should conform to residential standards both during day and night. Fortnightly monitoring of ambient air quality (SPM, SO<sub>2</sub> and NO<sub>x</sub>) and equivalent noise levels should be ensured during construction phase.
- vii. Construction spoils including bituminous material and other hazardous materials including oil from construction equipments 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. If necessary, oil trap should be installed where there is deployment of heavy machineries.
- viii. Regular supervision of the above and other measures should be in place all through the construction phase so as to avoid disturbance to the surroundings. Discomfort in the neighbourhood due to the proposed project activity should be minimized as far as practicable.
- ix. Loading and unloading operations should not be carried out in open areas and should be preferably done during day time, if there is any major settlement in the surrounding areas. The construction activities including Piling work, Operation of Ready Mix Plant and Vibrator etc. should not be carried out during the night time (10 P.M. to 6 A.M.). Only essential operations, if any, may be carried out for a limited period during nighttime.
- x. The proponent must ensure that no driven piles shall be proposed for this project, if there is any major settlement in the surrounding areas.
- xi. 15m-screen and adequate sprinkler arrangement shall be provided. Care should be taken to keep all material storages adequately covered and contained so that they are not exposed to winds.
- xii. Use of Ready-Mix concrete is recommended for this project.
- xiii. Adequate measures to be adopted to avoid wastage of water for curing of concrete structures.
- xiv. Adequate mitigative measures should be adopted to control dust emissions, noise and vibrations from construction activities. Vehicles and construction machineries should be properly maintained. Vehicles should conform to Pollution under control (PUC) norms.
- xv. Locally available materials with less transportation cost should be used preferably.
- xvi. Promotion of use of cleaner fuel and fuel quality improvement should be done. Excessive energy consumption and fuel usage should be avoided.
- xvii. Accumulation / stagnation of water should be avoided to ensure vector control.

**Selection of materials for better energy efficiency:-**

- i. Use of energy efficient construction materials should be ensured to achieve the desired thermal comfort.
- ii. Design layout should ensure adequate solar access and ventilation. Proper planning and window design for daylight integration should be considered.
- iii. Fly Ash is to be used for construction as per Notification No. S.O. 763(E) dated 14.09.1999 amended vide Notification No. S.O. 979(E) dated 27.8.2003 and S.O. 2804(E) dated 03.11.2009 of the Ministry of Environment & Forests, Govt. of India.
- iv. Construction should conform to the requirements of local seismic regulations. The project proponent should obtain permission for the plans and designs including structural design, standard and specifications from concerned authority.
- v. Construction technologies that require less material and possess high strength should be adopted. Materials with low embodied energy and high strength should be used preferably.
- vi. The building will be constructed and provisioned to use natural sunlight to the maximum during the day time, during use.
- vii. Use of alternate building materials and alternate construction techniques should be considered apart from the conventional materials and methods. Use of hollow unit masonry should be considered.
- viii. Use of energy efficient lighting systems e.g. High Pressure Sodium Vapour (HPSV) Lamps, LED etc. should be promoted. Solar energy should be used for outdoor lighting. Adequate no. of solar lights should be installed for external lighting as per norms. All common area lighting will be LED system.
- ix. Solar water heating arrangement will be done for water heating .



- x. Passive solar cooling to be incorporated in building design. Buildings should be oriented for ensuring natural ventilation and daylighting.
- xi. Proper insulation of roof should be provided to achieve desired thermal comfort. Use of light coloured, reflective roofs having an SRI (solar reflectance index) of 50% or more should be incorporated.
- xii. Use of high albedo or reflective pavements to keep parking lots, pavements and inside roads cool should be incorporated.
- xiii. Guidelines to the occupants should include usage efficiency measures such as energy efficient lighting and water efficient system.
- xiv. Reduce hard paving-onsite (open area surrounding building premises) and/or provide shade on hard paved surfaces to minimize heat island effect and imperviousness of the site.
- xv. Adequate open space, greenery and water bodies to be provided as per rules.
- xvi. Any proposed building with air-conditioning facility should follow the norms proposed in the ECBC regulations framed by the Bureau of Energy Efficiency. Chillers should be CFC & HCFC free.
- xvii. Restrict the use of glazed surface as per National Building Code 2005.

**Water Body Conservation:-**

- i. Water body if any should not be lined and their embankments should not be cemented. The water body is to be kept in natural conditions without disturbing the ecological habitat.

**Plantation Proposal:-**

- i. The unit should strictly abide by The West Bengal Trees (Protection and Conservation in Non-Forest Areas) Rules, 2007. The proponent should undertake plantation of trees over at least 20% of the total area.
- ii. No tree can be felled without prior permission from the Tree Cutting Authority constituted as per the West Bengal Trees (Protection and Conservation in Non-Forest Areas) Act, 2006 and subsequent rules.
- iii. At least 530 nos. of trees to be planted (including compensatory plantation of 280 nos. of trees). Indicative list of species is given at Annexure – I. The landscape planning should include plantation of native species. The species with heavy foliage and wide canopy cover are desirable. Water intensive and/or invasive species should not be used for landscaping.
- iv. Provision for Roof Top Gardening is mandatory.

**Water supply:-**

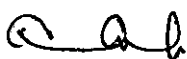
- i. Water requirement during construction phase shall be met from KMC water supply. Ground water shall not be abstracted without prior permission of the competent authority as per the West Bengal Ground Water Resources (Management, Control and Regulation) Act, 2005.

**Sewage Treatment Plant:-**

- i. As per the proposal submitted by the proponent waste water shall be treated in septic tank to soak pit. Construction waste water to be collected in sedimentation trap with adequate retention time and to be reused.

**Storm water Management & Mitigation of Heat Island Effect:-**

- i. Imperviousness of the site shall not exceed the NBC (National Building Code 2005) standards for imperviousness factor applicable to different types of area.
- ii. Total paved area of site under parking, roads, paths or any other use should not exceed 25% of the site area.
- iii. Minimum 50% of paved area on site should have pervious paving or shaded under vegetation or topped with finish having solar reflectance of 0.5 or higher.
- iv. Adequate storm water drainage network to be designed for the project without disturbing the surrounding settlements. Storm water management plan should be implemented so as to prevent sudden discharge of excessive volumes of storm water to the receiving waters thus reducing the shock load on the drainage system and impact on receiving water body.
- v. Disruption to the natural hydrology of the site should be minimised by reducing impervious cover, increasing on site infiltration and managing storm water run off.



- vi. Heat island effect should be minimized by use of shading or reflective surfaces, mainly the surfaces that contribute to the heat island effect i.e. streets, sidewalks, parking lots and buildings. White roofs should be provided in the buildings.

**Rain Water Harvesting Scheme:-**

- i. The proponent must follow the Rainwater Harvesting Guidelines of the State Expert Appraisal Committee (SEAC) available in the website (<http://www.wbpcb.gov.in>).
- ii. The proponent must collect rainwater from roof-top catchments and reuse for various purposes after necessary cleaning. Adequate retention time and storage provisions should be provided for harvesting rainwater.
- iii. Storage capacity of at least 400 KL for harvested rainwater to be provided.
- iv. Adequate firefighting storage should be provided as per norms.

**Municipal Solid Waste Management :-**

- i. Adequate provision shall be made for storage and segregation of solid waste and adequate means of access shall be provided.

**Transport Management: -**

- i. Both internal and external traffic planning and management should be adequate to ensure uninterrupted traffic movement in the area during construction as well as operation phase.
- ii. The design of service road and the entry and exit from the project area should conform to the norms & standards of competent authority for traffic management. Bell mouth type arrangement should be made at the entry & exit. Proper traffic management plan should be adopted in consultation with Traffic authorities.
- iii. Clarified Wastewater will be used for sprinkling water on the unpaved internal roads on a regular basis.

**Others:-**

- i. All mandatory approvals and permission as required from Director of Explosives, Fire Department etc. should be obtained.
- ii. Provision of Effective Controls and Building Management Systems such as Automatic Fire Alarm and Fire Detection and Suppression System etc. must be ensured.
- iii. Efficient management of indoor air quality must be ensured for health and safety of the users.
- iv. Adequate measures to be adopted for water conservation during construction and operation stage. Use of efficient irrigation equipment, evaporative cooling unit in air-conditioning system etc should be considered.
- v. Rest room facilities should be provided for service population.
- vi. Adequate access to fire tenders should be provided.

**II Operation Phase**

**Water supply :-**

- i. Water requirement during operation phase shall be met from KMC water supply. Ground water shall not be abstracted without prior permission of the competent authority as per the West Bengal Ground Water Resources (Management, Control and Regulation) Act, 2005.
- ii. Use of water meter conforming to ISO standards should be installed at the inlet point of water uptake to monitor the daily water consumption and records to be maintained. Use of water efficient devices / fixtures and appliances should be promoted.
- iii. Dual plumbing system to be installed for maximum use of treated wastewater
- iv. The proponent must practice rainwater harvesting on regular basis.

**Sewage Treatment Plant:-**

- i. As per the proposal submitted by the proponent, waste water shall be treated in STP. Treated waste water shall be partly reused for toilet flushing, landscaping, internal road and pavement cleaning etc. and rest will be discharged to KMC drain.
- ii. Dedicated car cleaning area to be provided and car cleaning water to be collected and treated in STP.
- iii. Water meter to be installed at STP inlet & discharge outlet point of treated water and regular records to be maintained



iv. Provision for backup power for operation of STP during power failure should be made

**Emission from Diesel Generator Set: -**

- i. Noise barriers will be provided at appropriate locations so as to ensure that the noise levels do not exceed the prescribed standards. Diesel generator sets should be provided with integral acoustic enclosure at the manufacturing stage itself as per CPCB norms.
- ii. The stack height and emissions from D.G. sets should conform to the norms of Central Pollution Control Board. The certification of space design for DG sets should be done by competent authority.

**Ensure Energy Efficiency:-**

- i. Use of energy efficient construction materials to achieve the desired thermal comfort should be incorporated. The desired level of R and U factors must be achieved. U factor for the top roof should not exceed 0.4 Watt/sq.m/degree centigrade with appropriate modifications of specifications and building technologies. The provisions of National Building Code 2005 should be strictly followed.
- ii. Use of energy efficient electrical systems should be promoted. High efficiency lamps with electronic ballasts should be used.
- iii. Energy efficient Motors and properly rated Transformers should be installed. Manufacturer's certificate to this effect shall be obtained and kept on record. Back up power supply should be based on cleaner fuel.
- iv. The power cabling shall be adequately sized as to maintain the distribution losses not to exceed 1% of the total power usage. Record of transmission losses shall be maintained. The proponent shall install permanent electrical metering to record demand (kVA), energy (kWh) and total power factor.
- v. At least 45 KW of solar power to be generated and utilized excluding standalone solar street lights

**Transport Management: -**

- i. Use of public mode of transportation should be promoted. Use of the least polluting type of transportation should be promoted. Adequate parking space should be provided as per norms.
- ii. Pathways should be covered or shadowed by tree canopy as far as practicable. Transport system should be such that traffic will be calm in neighbourhoods. Traffic within the project site should be restricted by regulation. Adequate vertical and horizontal clearances of overhead electric power and telecommunication lines should be provided.

**Solid Waste Management:-**

- i. The proponent should abide by the Municipal Solid Wastes (Management and Handling) Rules, 2000. The proponent must develop the Solid Waste Management and Disposal Scheme ensuring storage and segregation of biodegradable and non-biodegradable wastes. The solid waste is to be disposed off in consultation with concerned authority.
- ii. The proponent shall install onsite compost plant for treatment of biodegradable part of Municipal Solid Waste. Sufficient space for installation of onsite compost plant should be provided and operation of the compost plant considering full occupancy of the apartments i.e. the capacity of garbage disposal unit should be selected accordingly.
- iii. The handling agency should also take care of the recyclable wastes like plastic, paper board, glass etc. and also inert materials in case of respective municipal authorities want to avoid any kind of waste from the housing complex.
- iv. The proponent should have sufficient area for horticulture where the compost generated can be used as fertilizer and soil supplement and also have arrangement for sale of excess quantity of compost.
- v. Provision for treatment of leachate generated and odor control in onsite compost plant should be made.
- vi. Non-recyclable inorganics and rejects will be disposed off through KMC as proposed.
- vii. The proponent should provide different coloured bins for different categories of waste and ensure complete segregation of biodegradable and non-biodegradable wastes. The solid waste from different collection and storage bins should be finally collected at transfer stations. Further segregation will be done at transfer stations to collect recyclables such as plastic, polythene, glass,



- metals, textiles, rubbers, leathers, paper etc. Separate compartments shall be provided for each type of recyclables.
- viii. The proponent should abide by the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008. Collection and storage of hazardous wastes during Pre-construction and Post-construction activity should be planned properly. The expected hazardous wastes should be disposed off separately as per the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008.
- ix. Spent oil from DG Sets should be stored in HDPE drums in isolated covered facility and disposed off as per the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008. Spent oil from DG Sets should be disposed off through registered recyclers only.

**Others :-**

- i. The implementation of Environmental Management Plan should be carried out, as proposed. Regular monitoring should be carried out during construction and operation phases.
- ii. The project proponent should provide guidelines to the users to ensure conservation of energy and water. In-house environmental awareness campaigns should be carried out at regular intervals to ensure environmental protection.
- iii. Fire fighting systems should be designed in compliance with the WBFS and NBC norms. Preventive measures should be adopted for Risk & Disaster Management as per the provisions of the National Building Code 2005.
- iv. The Corporate Social Responsibility Plan with specific financial commitment should be implemented for the proposed project . At least 2% of the total project cost should be utilized for Corporate Social Responsibility programmes.
- v. The proponent should abide by the Direction issued by the Department of Environment, Government of West Bengal, vide No. EN/3170/T-IV-7/001/2009 dated 10.12.2009.
- vi. Environmental Management Information System shall be maintained properly.
- vii. The proponent should restrict the use of glazed surface as per National Building Code,2005.


**Part-B GENERAL CONDITIONS**

- i. The environmental clearance accorded shall be valid for a period of 7 years for the proposed project.
- ii. Prior Consent-to-Establish (NOC) for the proposed project must be obtained from WBPCB by the proponent. All other statutory clearances should be obtained by project proponent from the competent authorities.
- iii. The proponent should maintain a display board at the site, providing detailed information on the salient features of the proposed project.
- iv. The environmental safeguards contained in the EIA/EMP report should be implemented in letter and spirit.
- v. All the conditions, liabilities and legal provisions contained in the EC shall be equally applicable to the successor management of the project in the event of the project proponent transferring the ownership, maintenance of management of the project to any other entity.
- vi. Provision should be made for the supply of kerosene or cooking gas to the labourers during construction phase. All the labourers to be engaged for construction works should be screened for health and adequately treated before issue of work permits.
- vii. The project proponent should make financial provision in the total budget of the project for implementation of the suggested safeguard measures.
- viii. Six monthly monitoring reports should be submitted to the West Bengal Pollution Control Board, who would be monitoring the implementation of environmental safeguards and should be given full cooperation, facilities and documents / data by the project proponents during their inspection. A complete set of all the documents should also be forwarded to the State Level Environment Impact Assessment Authority, West Bengal.
- ix. In case of any violation of the conditions laid down in this Environmental Clearance, Section 16 of The Environment (Protection) Act, 1986, will be applicable. In case of any change(s) in the scope of the project, the project would require a fresh appraisal by the SEIAA, West Bengal.



- x. The State Level Environment Impact Assessment Authority, West Bengal 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 Environmental (Protection) Act, 1986, to ensure effective implementation of the suggested safeguard measures in a time-bound and satisfactory manner.
- xi. The Project Proponent should inform the public that the proposed project has been accorded environmental clearance by the SEIAA, West Bengal and copies of the clearance letter are available with the State Pollution Control Board / Committee and may also be seen at website of the SEIAA, West Bengal (<http://environmentwb.gov.in>). This should be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned.
- xii. All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Civil Aviation Department (if required) etc. shall be obtained by project proponents from the competent authorities.
- xiii. Provision for incorporation of appropriate conditions in the Sale Agreement / Deed, for ensuring sustained Operation and Maintenance (O&M) of the common facilities (STP, Rainwater harvesting system, Solid waste management system, Solar street lights etc.) even after transfer of ownership of the project, should be made in explicit and transparent manner.
- xiv. The above stipulations would be enforced along with those under the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008, the Public Liability Insurance Act, 1991, the Environment Impact Assessment Notification 2006 and their amendments.
- xv. The contact details of the proponent and the name of the consultant are given below –

Name of the Contact person with Designation	Manish Poddar, Director
Address	16A, Brabourne Road, 9 <sup>th</sup> floor, Kolkata-700001.
Email	tivolipark@gmail.com
Telephone Number, Fax Number	Tel:913340108000, fax-913340108080
Name of the Environmental Consultant	M/s.Envirotech East Pvt. Ltd.

  
( Sandipan Mukherjee, IFS )  
Chief Environment Officer &  
Member Secretary, SEIAA

No. 2275 / EN/T-II-1/044/2015 /1(3)

Date : 17 / 10 /2016

Copy forwarded to :-

1. Secretary, SEAC & M.S. WBPCB
2. Officer-in-Charge, Regional Office (Eastern Zone), Ministry of Environment & Forests, Government of India, A-3, Chandrashekharpur, Bhubaneswar – 751 023, Orissa.
3. Guard file / Record file.

Sd/-  
Chief Environment Officer &  
Member Secretary, SEIAA



**LIST OF TREES PROPOSED FOR PLANTATION**

Sl. No.	BOTANICAL NAME	COMMON NAME	QUANTITY
1.	<i>Polyaalthia longifolia</i>	Debdaru	350
2.	<i>Anthocephalus cadamba</i>	Kadam	15
3.	<i>Mangifera indica</i>	Mango	15
4.	<i>Azadirachta indica</i>	Neem Tree	25
5.	<i>Mimusops elengi</i>	Bakul	25
6.	<i>Alstonia scholaris</i>	Chhatim	30
7.	<i>Hollarhena antidysentrica</i>	Kurchi	25
8.	<i>Bauhinia variegata</i>	Kanchan	25
7.	<i>Ficus benjamina</i>	Fig Tree	20
		<b>Total</b>	<b>530</b>

