STATE ENVIRONMENT IMPACT ASSESSMENT AUTHORITY,

BIHAR, PATNA.

Ref No: **236** Patna, Date: 5/12/13

From,
S .K. Karn.
Member Secretary,
SEIAA, Bihar.

To,
Sri Sureshwar Sharma,
Bihar State Building Construction Corporation Ltd,
Hospital Road, Shastri Nagar,
Patna - 800023.

Sub: Environmental Clearance for College of Agriculture at Kishanganj, Bihar.

Sir,

With reference to your letter No. B.S.B.C.L- CGM., letter No.1214 dated 30/8/2013 and subsequent letter No. B.S.C.C.-CGM 1590 dated 21/10/2013, the proposal has been examined by SEAC and processed in accordance with the EIA Notification, 2006 and its amendment, thereof. It is noted that the salient features of the project for which Environmental Clearance has been accorded by SEIAA are as follows:

Name of the Project	:	College of Agriculture at Village- Arrabari, Kishanganj
Project Proponent	:	Building Construction Department, Govt. of Bihar
Type of the Project	:	Building & Construction Project
Category of the Project	:	8 (a) – B2

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Project Location	:	Village- Arrabari & Darigaon in Pothia Block of Kishanganj District. Plot/Survey/Khasara nos. at Arrabari village: 2, 3, 4, 5, 6, 1778, 1779, 1780, 1781, 1782, 1783, 634 & at Darigaon village: 2, 3, 6, 7, 8, 9, 10, 11, 12, 13, 179.
Existing structure & vegetation	:	Barren agricultural land of Govt. of Bihar, No permanent structure existing presently.
Geo-coordinates of the Site	:	Latitude: 26^0 16′ 3.30″ N Longitude: 88° 2.2′ 74″ E
Nearest Railway Station	:	Kishanganj – 25 km
Nearest Airport	:	Bagdogra Airport – 52 km
Nearest River	:	River Mahananda – adjacent to the project site (50 m)
Total Plot Area	:	344.19 Acres or 13, 93,300 sq.m.
Total Built –up Area	:	1, 33,382.68 sq. m.
Green Belt & Landscape Area	:	43.25 Acres or 1, 75,000 sq. m.
Proposed Ground coverage	:	48, 065.88 sq. m.
Parking Area	:	26, 236.5 sq. m. (1283 ECS), Adequate nos. of parking provided
Total Nos. of Structures/Buildings	:	43 Nos.
Maximum height of the building	:	15.15 m
Total Water requirement	:	830 KLD: i) Domestic – 398 KLD ii) Flushing – 247 KLD iii) Green Belt & Others – 185 KLD
Source of Water	:	Primary source: Bore wells (ground water source) Secondary source: Water recovered through STP
Waste water generated	:	Approx. 525 KLD (Domestic waste water – 315 KLD + Flushing water – 210 KLD)
Waste water treatment	:	All waste water generated will be treated in STP and reused for makeup water in cooling towers, toilet flushing & for landscape irrigation.
Capacity of STP	:	525 KLD capacity STP based on Moving Bed Bio Reactor (MBBR) Technology; treated water to be recycled & reused for toilet flushing & irrigation of green belt within premises.

Rain water harvesting		As the ground water table of the project site area is very high, rain water harvesting not feasible, hence not proposed.
Solid waste/other waste generation	:	Excavation waste, construction wastes Approx.2.82 TPD of kitchen & other waste to be generated from the proposed Agriculture College complex. Approx. 0.5 TPD agriculture waste to be generated from agro-activities.
Disposal of waste	:	Excess excavated earth to be used for filling & landscape development, Construction debris disposal through Kishanganj Municipality as per MSW Rule, 2000. Waste paints, empty paint cans, empty drums of solvents, thinners & other materials used for interior decoration & furniture etc. and waste lube oil generated from DG sets to be disposed off as per guidelines of Environment (Protection) Act 1986 through CPCB/BSPCB authorized vendors..
Emissions	:	i) Exhaust emission from DG sets ii) Dust emissions from construction activities (applicable only to construction phase) & due to movement of trucks, tractors & other construction machineries.
Energy requirement	:	Total Power requirement – 4500 KVA Energy consumption per sq. ft. of built-up area: 1.8 W/sq. ft.
Energy source	:	Primary source: BSEB Grid supply Alternative source (Power back up system): DG sets – 8 nos. (625 KVA) + 2 nos. (200 KVA) + 1 no. (250 KVA) + 1 no. (25 KVA)
Water & Energy conservation	:	i) Solar energy for external & landscape lighting ii) Provision for solar heating water system iii) Installation of window film to lower heating & cooling loads and to reduce glare iv) All light fittings to be provided with electronic ballast v) Pergolas, projections, facades, metal louvers to be provided for sun shading

		to reduce the heat influx into the building, thus reducing the air conditioning loads vi) Low-flow toilet tank fill diverters to be installed vii) Installation of low-flow sink aerators
Fire Safety Management	:	i) <u>Fire Fighting System</u> <u>Provisions for:</u> • Water storage for the hydrant & sprinkler system • Fire water tank & Pump room • Hydrant system & Wet riser piping • Fire alarm system • Fire control room • Wall mounted hand held fire extinguishers • Adequate nos. of Fire Hose cabinets at each level
Environmental Management Plan	:	Environmental Budget of Rs. 7, 50,400/Annum committed
Total cost of the project	:	Approx 581.37 Crores

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 temporary sewage collection pits to be developed within the project premises. In no case, the sewage should be discharged into the river adjacent to the project site.

iii) Health and safety of the workers should be ensured during construction. Personnel protective equipment like 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.

Steps to avoid disturbance during construction:.

i) No structure should be constructed in the riverbed.

ii) Appropriate protection measures for the proposed structures along the river bank should be ensured before initiating construction activity.

iii) No diversion of the river main channel should be made for any construction activity.

iv) Land should be vacated from encroachers before initiating any construction activity.

v) All the topsoil excavated during construction activities should be stored for use in horticulture/landscape development within the project site. Adequate erosion and sediment control measures to be adopted before ensuing construction activities.

vi) The plans should identify wastes to be generated and designate handling, recycling and disposal method to be followed.

vii) Disposal of muck including excavated material during construction phase should not create any adverse effects on the neighboring communities and disposed of taking the necessary precautions for general safety and health aspects.

viii) Diesel generator sets during construction phase should have acoustic enclosures and should conform to Environment (Protection) Rules prescribed for air and noise emission standards.

ix) 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.

x) Ambient noise levels should conform to residential standards both during day and night. Only limited necessary construction should be done during night time. Fortnightly monitoring of ambient air quality (SPM, SO2 and NOx) and equivalent noise levels should be ensured during construction phase.

xi) Construction spoils including bituminous material and other hazardous materials including oil from construction equipments must not be allowed to contaminate river water/soil 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.

xii) 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.

xiii) 15 m 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.

xiv) Loading and unloading operations should not be carried out in open areas.

xv) Use of Ready Mix concrete is recommended for this project.

xvi) Adequate measures to be adopted to avoid wastage of water for curing of concrete structures.

xvii) Adequate mitigation 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 CPCB/Bihar State Pollution Control Board (BSPCB) norms.

xviii) Locally available materials with less transportation cost should be used preferably.

xix) Promotion of use of cleaner fuel and fuel quality improvement should be done. Excessive energy consumption and fuel usage should be avoided.

xx) 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) Use of fly ash based bricks/blocks/tiles/products shall be explored to the maximum extent possible.

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) 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.

vii) Passive solar cooling to be incorporated in building design. Buildings should be oriented for ensuring natural ventilation and day lighting. Zoning of work place will be done to reduce energy consumption.

viii) Proper insulation of roof should be provided to achieve desired thermal comfort. Use of light colored, reflective roofs having an SRI (solar reflectance index) of 50% or more should be incorporated.

ix) Use of high albedo or reflective pavements to keep parking lots, pavements and inside roads cool should be incorporated.

x) Guidelines to the occupants should include usage efficiency measures such as energy efficient lighting and water efficient system.

xi) Reduce hard paving on site (open area surrounding building premises) and/or provide shade on hard paved surfaces to minimize heat island effect and imperviousness of the site.

xii) Adequate open space, greenery and water bodies to be provided as per rules.

xiii) Any proposed building with air-conditioning facility should follow the norms proposed in the ECBC regulations framed by the Bureau of Energy Efficiency. Use of chillers will be CFC & HCFC free.

xiv) Restrict the use of glazed surface as per National Building Code 2005.

Plantation Proposal:

i) The greening programme shall include plantation of both exotic and indigenous species.

ii) Plantation along the side of the proposed building complex roads and in the open spaces shall be developed to act as sinks of air pollutants. The plantation of trees shall be completed in the construction stage. The plantations shall consist of mixture of available indigenous, fast growing and sturdy species of trees, shrubs and herbs. Preferential plantation of flowering trees with less timber and fruit value shall be carried out.

iii) The existing plantations made by the State Forest Department along the river bank should be protected & nurtured.

iv) Water intensive and/or invasive species should not be used for landscaping.

Water supply:

i) Ground water should not be abstracted without prior permission of the competent authority.

ii) Project proponent shall provide adequate measuring arrangement at the inlet point of water uptake and at the discharge point for the measurement of water utilized in different categories to monitor the daily water consumption.

iii) Water saving practices such as usage of water saving devices / fixtures, low flow flushing systems, sensor based fixtures, auto control walls, pressure reducing devices etc. should be adopted.

iv) Water budget should be adopted as per the plan submitted.

Sewage Treatment Plant:

i) As per the proposal submitted by the proponent, wastewater shall be treated in STP and fully reused.

ii) Treated water recovered from STP would be used for flushing the toilets, gardening purpose, make up water in air conditioning systems etc. As proposed, Moving Bed Bio Reactor (MBBR) type sewage treatment plant should be installed. The Sewage Treatment Plant shall be ensured before the completion of the Building Project.

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. 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.

v) 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) Rainwater from open spaces shall be collected and reused for landscaping and other purposes. Rooftop rainwater harvesting shall be adopted for the Project Building Complex.

Municipal Solid Waste Management:

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

ii) Space should be kept reserved for waste storage, collection etc. in site planning and architectural designs.

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.

II. Operation Phase

Water supply

i) Water requirement during operation phase shall be primarily met from Bore well supply. Arsenic free water supply should be ensured.

ii) Ground water should not be abstracted without prior permission of the competent authority.

iii) Use of water meter conforming to ISO standards should be installed at the inlet point of water uptake to monitor the daily water consumption. Use of water efficient devices / fixtures and appliances should be promoted. Installation of dual flushing system should be considered to conserve water.

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.

ii) Treated waste water shall be fully reused for landscaping, car washing etc. Reuse of treated wastewater should be carried out as proposed.

iii) Sewage Treatment Plants should be monitored on a regular basis.

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.

ii) Diesel generator sets should be provided with integral acoustic enclosure at the manufacturing stage itself as per CPCB norms.

iii) The stack height and emissions from D.G. sets should conform to the norms of Central Pollution Control Board.

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. Backup 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) The Project proponent should resort to solar energy at least for street lighting and water heating.

Transport Management:

i) Use of the least polluting type of transportation should be promoted.
ii) Adequate parking space should be provided as per norms.
iii) Pathways should be covered or shadowed by tree canopy as far as practicable.
iv) Transport system should be such that traffic will be calm in neighborhoods. Traffic within the project site should be restricted by regulation.
v) 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.
ii) The solid waste is to be disposed off in consultation with Kishanganj municipal authority.
iii) The proponent should provide different colored 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.
iv) The proponent should abide by the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008. Collection and storage of hazardous wastes, if any, 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.

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.

Part - B

GENERAL CONDITIONS:

1. The project proponent should advertise in at least two local newspapers widely circulated in the region, one of which should be in the vernacular language informing that the project has been accorded Environmental Clearance and

copies of clearance letters are available with the Bihar State Pollution Control Board and may also be seen on the website of the SEIAA, Bihar. The advertisement should be made within 10 days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the Regional Office of this Ministry at Bhubaneswar.

2. The environmental safeguards contained in the EMP Report should be implemented.

3. All the conditions, liabilities and legal provisions contained in the stipulated conditions for Environment Clearance 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.

4. The project proponent should adhere to the financial provision in the total budget of the project for implementation of the suggested environmental safeguard measures.

5. Risk Assessment study along-with Disaster Management Plan (DMP) shall be prepared. The mitigative measures for disaster prevention and Control shall be prepared and get approved from competent authority. All other statutory clearances/licenses/permissions from concerned State Government Department, Boards and Corporations shall be obtained for development of Residential Building Complex. Project proponent shall follow direction issued by Central Government/State Government, Central Pollution Control Board/Bihar State Pollution Control Board.

6. In case of any violation of the conditions laid down in this stipulated conditions for Environmental Clearance, Section 16 of The Environment (Protection) Act, 1986, will be applicable.

7. In case of any change(s) in the scope of the project, the project would require a fresh appraisal by the SEAC, Bihar.

8. The SEIAA, Bihar reserves the right to add additional safeguard measures subsequently, if found necessary, and to take action including revoking of the stipulated conditions for 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.

9. All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Civil Aviation Department etc. shall be complied

by project proponents.

10. Provision for incorporation of appropriate conditions in the Sale Agreement/ Deed, for ensuring sustained Operation and Maintenance (O&M) of the common facilities (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.

11. These stipulations would be enforced among others under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification 2006 including the amendments thereof.

12. Any appeal against this environmental clearance shall lie with the National Green Tribunal (NGT), if preferred within a period of 30 days as prescribed under Sec. 16 of the National Green Tribunal Act, 2010.

Yours faithfully,

MEMBER SECRETARY
STATE ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY
(SEIAA) BIHAR

(S.K. Karn)
Member Secretary
SEIAA, Bihar

Memo No. **:- 236** Patna 5/12/13

Copy forwarded to : The Secretary, Environment & Forests Department, Sichai Bhawan, Patna/ The Chairman, Bihar State Pollution Control Board, Beltron Bhawan, IInd Floor, LBS Nagar, Jawaharlal Nehru Marg, Shastrinagar, Patna-800023/Chairman, SEAC, Bihar/Chairman, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi-23/ Chief Conservator of Forest (C), Ministry of Environment & Forests, Regional Office (EZ), A/3, Chandrasekharpur, P.O. Rail Vihar, Bhubaneswar - 751023/, Advisor (EIA), Paryavaran Bhawan, Ministry of Environment & Forests, CGO Complex, Lodhi Road, New Delhi- 110003/ Guard File.

Yours faithfully,

MEMBER SECRETARY
STATE ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY
(SEIAA) BIHAR

(S.K. Karn)
Member Secretary
SEIAA, Bihar