VIII. ECONOMIC ACTIVITY AND BUSINESS DEVELOPMENT

C. LAND, CONSTRUCTION AND DESIGN OF PHYSICAL PLANT

16. PHYSICAL PLANT AND MECHANICAL SYSTEMS

Submit as Exhibit VIII. C.16. a brief description of plans for mechanical systems and on---site infrastructure, with particular emphasis on unique features (e.g. district hot or cold water, on---site power generation, on---site water or waste treatment, etc.). Indicate whether the project relies on distributed or building HVAC, chilled and hot water, and other systems. Describe plans for systems redundancy, if any. Describe significant dedicated physical plant spaces by location and approximate square footage. Describe plans for emergency power generation and uninterruptable power supply

Mechanical Systems

Mechanical systems design will incorporate concepts geared toward providing cost effective, energy saving and sustainable systems. Systems design will include use of variable frequency drives, economizers and controls with the capability of optimizing performance. High efficiency equipment, to meet or exceed the requirement by code will be provided to assist the overall design in achieving compliance with the New York Energy Code, as well as 20% reduction in energy usage when compared to ASHRAE 90.1-2007 baseline model and to achieve LEED Silver Certification.

Chillers will each be sized to provide one spare unit ("N+1") for redundancy. Duplex machines with dual compressors will be evaluated, with plant consisting of four machines at 2000 tons capacity each anticipated for Phase 1, with space to add a fifth 2000 ton machine to support future expansion. Chilled water supply temperatures will be provided at 42° F with a design return temperature of 57° F. Plate and frame heat exchangers will be provided both for preheating domestic hot water with condenser water from the chillers if practical based on plant proximity to the building, and separately for free cooling operation during the winter months. All chillers will be provided with reduced voltage starters to coordinate with start-up on standby power from the generators. The option of providing variable frequency drives (VFD's) for the chillers shall also be evaluated for additional energy savings at part load.

Boilers will each be sized to provide one spare unit ("N+1") of the largest capacity, based on the block heating load and domestic water heating requirements currently estimated at approximately 65,000 MBH for Phase 1. Natural gas-fired high efficiency condensing type hot water boilers will be provided to handle space heating and reheat loads for the podium and hotel. Reliability of the natural gas supply to the site will be evaluated to determine the need for back-up fuel source for boilers. Boilers and burner assemblies will be required to meet minimum performance ratings required by local, state and federal air permitting regulations.

Cooling towers will be selected at wet bulb temperature typical for the geographic region with condenser water supply temperature to the chillers maintained at a maximum of 85° F with up to 100° F return water temperature. Condenser water pumps will be located in the plant for water circulation from the chillers to the cooling towers. The tower fans will be provided with VFD's for energy savings. Drift eliminators shall be provided to minimize water waste. Collection of air conditioning condensate for use as tower makeup water is another potential water conservation approach that will be considered.

Chemical treatment for the closed loop systems and the condenser water loop will be provided. System application for the condenser water loop shall take into consideration water conservation efforts to maximize number of cycles while maintaining safe water conditions through treatment and testing. Use of chemical free treatment for the condenser water system will also be investigated. Requirements for regular scheduled maintenance of the system will be included in the specifications.

Pumping distribution will consist of variable primary flow pumps for circulation of chilled and heating water from the plant to the building loads. Condenser water pumps will be located in the plant for water circulation from the chillers to the cooling towers. The tower fans will be provided with VFD's for energy savings. VFD's will be used on the chilled and heating water circulating pumps for energy conservation and optimum system operation. Two way control valves shall be used at coils and valve type and balancing valve arrangement will be reviewed for optimum performance to maximize delta T of water distribution systems while minimizing pump energy.

A complete Building Automation System (BAS) shall be provided for the facility. The BAS will consist of a fully integrated direct digital control (DDC) system for energy management, equipment monitoring and control, and complete energy management system and subsystems. Energy saving control schemes shall be incorporated into the design including demand controlled ventilation, transfer of casino ventilation to kitchens for make-up air and night setback to shut down equipment when areas of the facility are not in use. The BAS shall also include provisions for measurement and verification, trending, and sustainability to coordinate with the requirements of LEED for indoor environmental quality, in support of the project achieving LEED Silver certification.

Control of outdoor airflow to large, open spaces such as the gaming floor, multipurpose and restaurants will be performed via demand control sequence noted above, utilizing space-mounted CO2 sensors. In addition to the demand control for outdoor airflows, outdoor airflow control will also be configured to provide makeup air to replace exhausted air.

HVAC systems will include 4-pipe air handling units located either on the roof or in mechanical rooms. Use of energy recovery from toilet exhaust and building relief air to precondition outside air for supply to the public spaces will be evaluated. Demand controlled ventilation with CO2

monitoring shall be used for casino, theater and other high density occupancy areas to minimize cooling and heating loads while maintaining adequate ventilation in the building when needed. Units will include air side economizers to allow for use of 100% outside air when ambient conditions permit. Air distribution will include variable air volume (VAV) boxes, each provided with hot water reheat coils. VFD's will be included for supply and return fans for each air handling system to allow for proper operation of the building pressure control. Airflow monitoring stations will be provided in the supply ducts and outside air intakes for building pressure control purposes. Ductwork distribution and coils in the air handling equipment shall be sized to minimize fan energy consumption.

All ductwork systems (except special exhaust systems) will be galvanized sheet metal, medium (6") and low pressure (+/-2") construction. Type I kitchen hood exhaust ductwork will be welded 16 gauge steel, constructed in accordance with the code required sloping, cleanouts, etc. Hood exhaust will be wrapped with 2 layers of external fire barrier duct wrap. Dishwasher and vapor hood/Type II exhaust ducts will be stainless steel welded construction with drains at all low points.

Kitchen ventilation systems will include consideration of VFD's for exhaust and make-up air fans controlled by sensors included with the hood assemblies, to ramp up fans only when cooking operations are occurring. With the ventilation capacity available for the casino/public areas, transfer of this ventilation air to the kitchens as make-up for exhaust will also be evaluated for further energy savings.

Vertical stacked fan coil units will be provided for each typical guestroom in the hotel tower, with horizontal concealed units above the ceiling with ductwork distribution and linear diffusers provided in suites. The fan coil units will be selected to serve the peak cooling load at the medium fan speed setting. Remote wall mounted thermostats will be utilized for each fan coil. The use of "smart" energy saving guestroom thermostats will be evaluated to allow for setback when the room is unoccupied. All stats will be remote mounted from the fan coil at the entrance foyer to the room, with the temperature sensor located within the fan coil return air plenum.

Ventilation make-up air and toilet exhaust for the guestrooms will be provided by a dedicated system of roof mounted energy recovery units (ERU's) which introduce 100 percent outside air, using the toilet exhaust to precondition the outside air.

Electrical System

The 15KV service switchgear will feed 13.2KV:480V unit substations, which will located in the vicinity of the Central Plant. 480V will be distributed throughout the building and transformed to 208V, as required. The standby generators will be connected to paralleling switchgear, which will feed multiple automatic transfer switches (ATSs). The automatic transfer switches will be load add/shed based upon their programmed priority. A single generator will support all life safety and legally required loads. Approximately 9,000 SF of space will be required for the service switchgear, unit substations, generators, paralleling switchgear and ATSs.

Emergency Power

The emergency power generation system will designed to support (but not be limited to) life safety (egress lighting & fire alarm), fire protection systems, elevators, smoke control equipment (if required), communication systems, domestic water system, hot water system, public restrooms, (1) Food venue, food refrigeration, critical systems (data, security, surveillance, etc.) and casino floor, including the associated support areas. The generators will be located near the Central Plant and its fuel system will designed to have a minimum capacity of 24-hours at full load.

Uninterruptable Power Supplies

All low voltage systems (data, communication, surveillance, security, etc.), the State Gaming office critical equipment, the slot machines, Gaming table lighting, Cage lighting and all Gaming support equipment will be supported by UPS.

On-Site Infrastructure, Water and Wastewater Systems –

Water Supply- The proposed water system will include 3 wells each with a pump building for pumps, treatment and emergency power generator, a water storage tank and connection to the Village of South Blooming Grove water main in Route 208. These facilities will be dedicated to the Village. Onsite distribution water mains to the buildings will be private and maintained by the owner.

Redundancy is provided in the water system such that the wells will allow providing the peak water demand with the highest yielding well out of service. The water tank will provide a minimum of 24-hours of domestic water demand plus fire protection demand for a 2-hour fire flow which will provide additional redundancy and back-up water supply. All water wells and pumps will include emergency power generator.

Sanitary Collection System- The proposed on-site sanitary pump station and force main connection to the Village of South Blooming Grove force main in Route 208 will be dedicated to the Village. Onsite distribution gravity sewer mains from the buildings to the pump station will be private and maintained by the owner.

Redundancy is provided in the sanitary pump station by use of duplex pumps. The pumps are sized to allow one pump to handle peak sewer demand in the extent of failure of one pump. The sanitary pump station will include emergency power generator.

Gas and Electric - The gas and electric service to the building will be underground from the existing facilities in Route 208 to the buildings.