# Exhibit IX.A.2.b.2 - Water demand and supply

Delta Engineers, Architects, & Land Surveyors, P.C. (Delta) conducted a review of water demand, supply and infrastructure capacity. The existing water supply from the Village of Johnson City, which is connected at Beech St., has adequate flow capacity to meet the Casino Phase I and Phase II demand. The municipal supply has low water pressure, but the existing Traditions Resort has a booster pumping system that pumps water to a 100,000-gallon storage tank on the property. This tank stores municipal water at an elevation that will meet the fire flow and domestic requirements of both Phase I and Phase II Casino and hotel facilities.

Refer to the subsequent documentation for detailed water system information including fixture count information and estimated water demand.

## **Delta Qualifications**

**Delta Engineers, Architects, & Land Surveyors, P.C. (Delta)**, an ISO 9001:2008 certified company founded in 1976, is a multidisciplinary professional services firm that delivers a wide range of engineering, architectural, and survey & mapping services targeted to clients in five (5) primary market sectors: Facilities, Transportation, Specialty Precast, Environmental, and Survey & Mapping.

Delta's architects and engineers deliver an integrated package of structural, civil, mechanical, electrical, plumbing, fire protection, environmental, and construction administration services that are customized to our clients' requirements. Projects range from small single system renovations such as a fire protection system upgrade to complex renovations involving design coordination across all design disciplines such as a complete dormitory upgrade. Details about Delta's experience are provided in Exhibit VIII.C.18.

### **DELTA SUSTAINABLE DESIGN EXPERIENCE**

Sustainable design starts from day one in the design of a Delta project. As project concepts are developed, sustainable alternatives are reviewed with the client and solutions that best match project priorities are selected. Delta is proud of our own LEED Gold Corporate Headquarters facility in Endwell, NY that stands as an example of our commitment to sustainability leadership. Delta's LEED design expertise is described further in Exhibit VIII.C.18. Current Delta initiatives include **Combined Heat and Power** (CHP) systems that save energy and that reduce greenhouse gas emissions. Delta is also developing smart grid, solar energy, and district heating projects in local communities. Other sustainable systems

Exhibit VIII.C.17.c Page 1

used in recent projects include rainwater harvesting, daylight harvesting, advanced control systems, and sustainable materials selection or reuse.

### DELTA MECHANICAL-HVAC, & PLUMBING EXPERIENCE

Delta designs mechanical and plumbing systems for residential, educational, health care, correctional, industrial, and commercial clients. Our staff has developed new systems and retrofitted all types of HVAC and plumbing systems for facilities such as high rise university dormitories, commercial kitchens, and correctional facilities. Our mechanical and plumbing engineers work closely with our architects and other design disciplines within a Revit®-based BIM system to eliminate potential system conflicts before they become costly change orders.

#### **DELTA FIRE PROTECTION EXPERIENCE**

Delta provides state-of-the-art fire protection design services including engineering design for wet and dry fire protection systems including water supply analysis for fire pump and storage tank requirements and alternative systems such as wet chemical and clean agent extinguishing systems. All of our fire protection systems conform strictly to the NFPA and FM Global specifications and standards.

#### **DELTA ELECTRICAL EXPERIENCE**

Delta's engineers also provide new and renovation electrical design for a wide range of clients and facilities. Our staff is well-versed with all relevant building codes for projects ranging from educational facilities to municipal buildings. We provide comprehensive and integrated design packages that address all things electrical including overall facility assessment, load balancing, interior lighting, access and security systems, and life cycle cost analysis. In addition to electrical design for facilities, our staff expertise includes primary and secondary power distribution as well as arc flash risk evaluation and mitigation.

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AN ISO 9001:2008 CERTIFIED COMPANY

June 12, 2014

Mr. William Walsh Traditions Resort & Casino 4101 Watson Boulevard Johnson City, NY 13790

RE: Water Usage for the Traditions Resort & Casino

Delta Project No.: 2014.181.001

Dear Mr. Walsh:

Attached is our water comsumption calculations and water tank capacity study for your use.

Please feel free to contact me, Don Harris directly at 607-231-6609 with any questions or concerns.

Respectfully,

DEATA ENGINEERS, ARCHITECTS, & LAND SURVEYORS, P.C.

Donald P. Harris

Director of MEP Services

Attachment

# **Estimated Water Consumption**

Phase 1 Casino Addition

This phase incorporates men's and women's toilet rooms as well as kitchen support for a sports bar and second floor restaurant.

Toilet rooms:

First Floor - two goups of men's & women's

Second Floor - one group of men's & women's

Women's water closets = 8 per toilet room x 3 rooms x 1.6 gpf x 4 uses/hr = 154 gph

Women's lavatories = 8 per toilet room x 3 rooms x .5 gpm x 4 uses/hr x 1 min/use = 48 gph

Men's water closets = 4 per toilet room x 3 rooms x 1.6 gpf x 4 uses/hr = 77 gph

Men's urinals = 4 per toilet room x 3 rooms x .5 gpf x 4 uses/hr = 24 gph

Men's lavatories = 8 per toilet room x 3 x .5 x 4 uses/hr x 1min/use = 48 gph

Total Toilet room water use = 351 gph/60 min = 6 gpm

Kitchen support:

**Sports Bar** 

- 1- 90 gph 3-bay sink
- 1- 45 gph 1-bay sink
- 1- Dishwasher @ 345 gph Total = 435 gph / 60 min = 8 gpm

### Restaurant

- 1- 90 gph 3-bay sink
- 1- 60 gph 2-bay sink
- 1- 45 gph 1-bay sink
- 2- 45 gph pre-rinse
- 1- Dishwasher @ 500 gph
  Total = 785 gph/60 min = 13 gpm

Total Water Usage Phase 1 = Total water use load = 6 gpm + 8 gpm + 13 gpm = 27 gpm

Phase 2 Hotel Addition

Toilet rooms:

First Floor – one goup of men's & women's

Women's water closets = 6 per toilet room x 1.6 gpf x 2 uses/hr = 19 gph

Women's lavatories = 6 per toilet room x .5 gpm x 2 uses/hr x 1 min/use = 6 gph

Men's water closets = 4 per toilet room x 1.6 gpf x 2 uses/hr = 13 gph

Men's urinals = 2 per toilet room x .5 gpf x 2 uses/hr = 2 gph

Men's lavatories = 6 per toilet room  $x \cdot 5 \times 2$  uses/hr  $x \cdot 1$ min/use = 6 gph

Total Toilet room water use = 52 gph/60 min = 1 gpm

Laundry support:

6 commercial HD washers @ 45 gallon/load x 2 loads/hr = 540 gph/60 = 9 gpm

**Hotel Suites:** 

160 rooms

160 water closets x 1.6 gpf x 2 occupants = 512 gph

160 lavatories x .5 gpm x 2 occupants = 160 gph

160 showers x 1.5 gpm x 10 min/shower x 2 occupants = 4800 gph

Total hotel suites = 5,472/60 = 91 gpm

Total Water Usage Phase 2 = 1 gpm + 9 gpm + 91 gpm = 101 gpm

# Traditions Existing 100,000 gal Tank

The existing 100,000 gallon water storage tank on site will have sufficient water supply for the existing building and proposed new casino and hotel. Review the calculations below.

Existing water pressure at the existing building from the storage tank = 75 psi

Existing pipe size = 6" from the tank to the existing building

The size of the pumped supply from the city main to the storage tank is unknown as well as the existing pump capacity.

The proposed new casino addition (Phase 1) will be two stories in height with a two level parking garage below ground under the casino. The proposed fire protection system will be light hazard for the casino area and ordinary hazard for the parking garage levels. Using the ordinary hazard for the parking garage the sprinkler design flow would be approximately 500 gpm.

With the existing storage tank water supply pressure at the building of 75 psi no fire pump will be required. Based on NFPA 13 the flow duration will be for 60 minutes = **30,000 gallons**.

The proposed water consumption average hourly demand would be approximately 27 gpm based on occupant load factor (refer to the Estimated water Consumption Calculation sheet) and estimated fixture count + the restaurant kitchen load factor.

The proposed new hotel (Phase 2) will be a 160 bed hotel with 4 floors. The proposed fire protection will have sprinkler protection throughout the building and will include a standpipe system due to the building height. It is expected that with the existing water pressure from the storage tank of 75 psi and with the hotel bedroom floors as light hazard there will be no requirement for a fire pump. The standpipe system will be a manual wet system in that the fire department apparatus would provide the system pressure as required by NFPA 14.

The largest fire protection demand would be for the standpipe system = 750 gpm for 30 minutes (NFPA 14 section 9.2 for class I standpipes) = **22,500 gallons**.

The proposed water consumption average hourly demand would be approximately 101 gpm based on occupant load factor (refer to the Estimated water Consumption Calculation sheet) and estimated fixture count + the restaurant kitchen load factor.

The existing water storage tank capacity can meet the current and proposed domestic water demands. During a fire system demand for either the existing building or for the Phase 1 casino or Phase 2 hotel, the existing storage tank would be sufficient.