

June 2, 2014

via email

**RUSH STREET GAMING, LLC**  
900 North Michigan Avenue  
16<sup>th</sup> Floor  
Chicago, Illinois 60611

**Regarding: GEOTECHNICAL DOCUMENT REVIEW & RECOMMENDATIONS  
PROPOSED RIVERS CASINO RESORT SITE  
ERIE BOULEVARD  
CITY OF SCHENECTADY, SCHENECTADY COUNTY, NEW YORK  
WHITESTONE PROJECT NO.: EJ1412983.000**

As requested by Rush Street Gaming, LLC (RSG), Whitestone Associates, Inc. (Whitestone) has reviewed available geotechnical information related to the proposed Rivers Casino site in Schenectady, New York. The following describes the generalized geologic setting and subsurface conditions revealed by readily-available mapping and prior site-specific investigations at the site. Preliminary considerations based on the available geotechnical data and recommendations for further study are provided below.

#### ***SUMMARY OF REGIONAL & ON-SITE CONDITIONS***

**Surficial and Bedrock Geology Maps:** Based on the *Surficial Geologic Map of New York – Hudson Mohawk Sheet* (1987), the site is underlain by recent Alluvial Deposits (al). The Alluvial Deposits are characterized by oxidized, non-calcareous, fine sand to gravel, overlain by silt materials that generally are confined to floodplains within valleys. According to the *Geologic Map of New York – Hudson Mohawk Sheet* (1995), the site is mapped within shale formations consisting of Utica Shale, Canajoharie Shale and Normanskill Shale. The Normanskill shale contains minor mudstone and sandstone members.

**Historical USGS Topographic Maps:** Historical topographic mapping from 1904 to 1925 indicates a stream crossing evident in the central portion of the site oriented approximately in a southeast to northwest direction. The stream is not indicated on the 1930 mapping when several structures are indicated on the property.

**Previous Subsurface Explorations:** Barton & Loguidice, P.C. (B&L) completed subsurface explorations at the site in support of environmental investigations. The subsurface conditions reported by B&L indicated that the site is characterized by approximately two feet to 12 feet of fill material underlain by silt and silty sand. The fill is described as silt, sand and gravel with brick, concrete, ash, cinders, slag, metal, organics and glass. Groundwater is reported at approximately 10 feet to 14 feet below ground surface and reportedly flows to the north. Strength testing of the soil was not conducted by B&L.

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Subsurface conditions also were documented by CME Associates, Inc. (CME) in a March 31, 2014 geotechnical report entitled *Subsurface Exploration Report, ALCO Waterfront Marina*. The CME report included four geotechnical test borings to depths of 26 feet to 50 feet below ground surface in order to provide recommendations for proposed retaining walls surrounding a proposed on-site marina. The CME borings encountered up to 15 feet of existing fill material consisting of heterogeneous mixtures of sand, silt, clay, trace roots and debris. The debris was described to include as brick, cinders, slag, concrete, and asphalt. Standard Penetration Test (SPT) N-values conducted by CME to evaluate the strength of the fill varied widely indicating the fill was placed in an uncontrolled manner. Below the fill materials, an unconsolidated stratum of natural alluvial silts with lesser percentages of clay and trace organics was encountered to depths of 18 feet to 22 feet below the ground surface. SPT N-values within the alluvial materials typically indicated very loose to loose or very soft to medium stiff materials, and portions of the silt strata exhibited no resistance to penetration. Below the silt was a natural sand layer with lesser percentages of gravel and silt that typically was in a loose condition to depths explored of 50 feet with the exception of one of the four test locations that encountered medium dense to dense gravel materials from 38 feet to 50 feet. Recorded groundwater data in the CME borings varied considerably, however, generally ranged between depths of eight feet and 16 feet.

The CME geotechnical report references a previous November 20, 2013 geotechnical report for a formerly planned marina location, however, the previous CME geotechnical report was not available for Whitestone's review.

### ***PRELIMINARY GEOTECHNICAL CONSIDERATIONS & RECOMMENDATIONS***

Preliminary geotechnical investigations undertaken in the nearby proposed marina area as documented in the March 31, 2014 CME geotechnical report revealed that the subsurface strata at the site are composed of uncontrolled fill materials that typically overlie poor bearing materials consisting of unconsolidated and loose natural silts and sands in the flood plain of the Mohawk River. For structures with moderate loads, mitigation of the poor bearing materials should be expected through either ground improvement or deep foundations.

The unconsolidated materials extended beyond the depths explored in three of the four CME borings. As such, the geotechnical suitability of the subsurface strata at the site has not been sufficiently characterized for building loads, and depth to firm bearing materials will need to be confirmed. Once the site redevelopment plans have been approved, Whitestone recommends conducting a geotechnical investigation that identifies development-impactive subsurface geotechnical conditions via borings and test pits. The preliminary geotechnical investigation should evaluate anticipated foundation types as well as ground improvement options that appropriately coincide with the goals of the environmental remedial activities. Upon receipt of site plan approval and confirmation that the redevelopment will proceed, Whitestone recommends completing at least two deep borings in both the proposed casino/hotel building area and parking garage. Borings should be advanced to a sufficient depth of at least 15 feet into suitable bearing materials (which are expected at depths greater than 50 feet). Test pits also are recommended within the fill materials to further characterize the suitability of the existing fill materials for re-use on site as structural fill. A comprehensive geotechnical investigation ultimately will be required to complete foundation designs and provide an appropriate level of detail for contractor bidding purposes.



Hopefully, this information will assist you with site planning. Please contact us at (908) 668-7777 with any questions regarding these matters.

Sincerely,

**WHITESTONE ASSOCIATES, INC.**

A handwritten signature in blue ink, appearing to read 'LW Keller'.

Laurence W. Keller, P.E.  
Director, Geotechnical Services

A handwritten signature in blue ink, appearing to read 'Thomas K. Uzzo'.

Thomas K. Uzzo, LSRP, PEA  
President

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Copy: Robert Osterhoudt, P.E., Bohler Engineering  
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