April 18, 2014

Midtown Bridge Approach
Hackensack, Bergen County, New Jersey
Block 308.01, Lot 3

EXECUTIVE SUMMARY

Geotechnical Findings

An exploration program consisting of 4 standard test borings reaching a maximum depth of 47 feet below grade was performed by SOR Consulting Engineers on March 26, 2014. The site is presently an on-grade asphalt covered parking lot which slopes down gently from an approximate elevation of +11 feet in the eastern portion to approximately +6 feet in the western portion of the lot.

Subsurface Conditions:

The surface cover consisted of 4 to 10 inches of bituminous concrete and 4 to 6 inches of aggregate base. Below this was fill material consisting of very loose to medium dense silty sand with inclusions of cinders, brick, wood, wire, and steel and extended to depths ranging from 9 to 10.5 feet below grade. Soft to firm fibrous peat and organic silt was encountered below the fill material. The lower portions of this layer were mixed with silty medium to fine textured sand containing seams, layers, and pockets of peat. This layer extended to depths ranging from 25 to 27 feet below grade. Natural silt and clay with fine sand varves was found below the organic materials and extended to the maximum depths explored of 47 feet. These silt and clay soils were determined to be in a stiff condition based on the Standard Penetration Test. Groundwater was encountered in all of the borings at an approximate depth of 5 feet below grade. Ground water levels will vary at this site and may be influenced by seasonal variations in rainfall and temperature, water trapped in the existing fill, the water level of the adjacent Hackensack River, and other factors.

SOR Recommendations:

Due to the variable composition and relative density of the existing fill and potential for consolidation of the underlying soft to firm organic materials under new foundation and slab loads, these materials are unsuitable for support of new structures. Building loads must be transmitted to the suitable bearing natural silt and clay soils below the organic material. The relatively shallow groundwater, composition and thickness of the existing fill and organics, and the sensitivity of the silts and clays below preclude excavation and replacement and the use of drilled piers, dynamic compaction and stone filled subsurface columns. The professional opinion of SOR Consulting Engineers for structural support at this site is driven piles. Additional explorations are recommended once site redevelopment plans are finalized and building locations and details are established. Timber piles would be appropriate for light to moderate loads, deriving frictional support from the natural silt and clay soils. These would have typical ultimate capacities of 20 to 25 tons. Pile capacities would have to be reduced by an estimated 5 to 10 tons due to the effects of downdrag. Higher capacity steel pipe or H-piles are feasible if supported on the bedrock below the overburden soils and could typically achieve capacities on the order of 100 tons. Additional deep borings would be required to further define the bearing materials and evaluate design pile capacities.

Environmental Findings

An inspection of the Property was conducted on March 21, 2013 by Thomas Burke of JM Sorge, Inc. in order to determine if any Recognized Environmental Conditions (RECs) exist on the property. JMS identified the following potential environmental concerns associated with the Property:

- Storm Water Sewer System
- Historic Fill
- Surrounding Properties

Of these environmental concerns, the historic fill and surrounding properties are considered RECs.

Storm Water Sewer System

There is a storm water sewer system on the property consisting of 18 catch basins. Each basin is located on or immediately adjacent to the property. Some refuse and litter was found in several catch basins, however there is no significant evidence of discharge of hazardous materials, therefore no further investigation is recommended

Historic Fill

According to NJDEP's Historic Fill Map of the Hackensack Quadrangle, a portion of the property is located within an area of known historic fill. Additionally, a review of historical aerial photographs and Sanborn Maps indicates a portion of the property was formerly a swamp and was historically filled. Geotechnical borings confirmed the presence of fill material. Sampling of this material indicated that the historic fill is an REC and therefore further investigation is recommended.

Surrounding Properties

Several auto repair and auto body shops were identified across Midtown Place. One site (Circle Tire Service, Inc.), is associated with an NJDEP open spill case involving soil and groundwater contamination resulting from a gasoline spill. According to NJDEP's online records indicates remedial investigation of this contamination has not yet been completed. The LSRP for the site was contacted, but no additional information has been received. The former Circle Tire Service building is no longer present and the site is fenced in. Several monitoring wells were observed on and adjacent to this site. This is an REC and therefore further investigation is recommended.

Further investigation of these two (2) RECs is recommended. No further investigation is recommended for any other areas.