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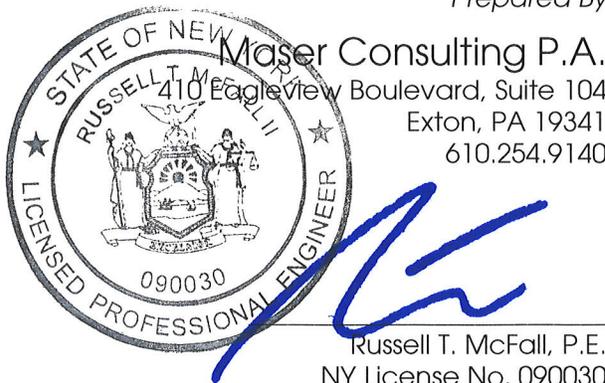
Engineering Report

FOR
Costco Wholesale
at Crossgates Mall
Town of Guilderland
Albany County, New York

October 28, 2019

Prepared For
Costco Wholesale Corporation
45940 Horseshoe Drive, Suite 150
Sterling, Virginia 20166

Prepared By
Maser Consulting P.A.
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Exton, PA 19341
610.254.9140

A circular professional engineer seal for the State of New York. The seal contains the text 'STATE OF NEW YORK' at the top, 'RUSSELL T. McFALL II' in the center, and 'LICENSED PROFESSIONAL ENGINEER' at the bottom. The license number '090030' is also visible. A blue ink signature is written over the seal.

Russell T. McFall, P.E.
NY License No. 090030

MC Project No. 13001204A





SITE CONDITIONS

This project consists of the construction of a +/- 158,202 S.F. Costco Wholesale retail facility with a four-bay loading dock, a fueling facility, and associated driveways, parking areas, and other infrastructure. The site consists of +/- 14.9 acres located to the east of the intersection of Western Avenue and Rapp Road in the Town of Guilderland, Albany County, NY.

The site is bounded by Crossgates Mall Road to the north, largely commercial uses to the east and to the south, Western Avenue to the south, and Rapp Road to the west. Access to the site will be provided by one (1) right-in-right-out driveway off Rapp Road, one (1) full access driveway off Crossgates Mall Road, and one (1) full-access driveway off Gabriel Terrace.

A review of the National Resource Conservation Service (NRCS) Soil Survey indicates soils at the site are generally loamy fine sands. The soils in the vicinity of the existing drainage ditch towards the western side of the site are poorly drained, while the soils on the remainder of the site are well-drained. According to the Report of Geotechnical Exploration, prepared by Maser Consulting P.A., groundwater was encountered at the site at elevations ranging from 260.0 to 268.7.

The eastern portion of the site consists of mainly vacant structures along with associated infrastructure. The western portion of the site is heavily wooded and consists of an abandoned roadway which was formerly Rapp Road. There remains asphalt pavement, guardrails, traffic signs, utilities with mapped easements, and a drainage ditch with three culverts.

DEMOLITION

The project proposes the removal of 13 unoccupied structures along with all associated infrastructure. The infrastructure associated with the abandoned roadway will also be demolished. The existing drainage ditch will be replaced with a new culvert system.

REQUIRED PARKING

The parking requirements are set forth on the parking tabulation on the Site Plan. The project provides 700 customer/employee parking spaces.



STORMWATER MANAGEMENT

A Stormwater Pollution Prevention Plan (SWPPP) has been prepared for this project for the Town's Stormwater Management Officer's review. The SWPPP contains the methodology and calculations to support the design of a stormwater management system in accordance with NYSDEC guidelines. An underground stormwater management basin has been designed along with three water quality structures to meet the requirements of the NY State SWM Design Manual. Refer to the SWPPP for more information.

WATER SUPPLY

A 10-inch diameter water main is proposed to service the site. The main is expected to connect to the water main in Western Avenue upon coordination with the Town of Guilderland Department of Water and Wastewater Management. The new building will require a 10-inch fire service lateral and a 3-inch domestic service lateral.

Fire hydrants will be proposed around the site. Testing will be done to confirm that fire flows will be adequate to meet the standards of the National Board of Fire Underwriters.

WASTEWATER

Wastewater will be directed to the 12-inch diameter municipal gravity sewer main located in Gabriel Terrace. Laterals on the west and north side of the warehouse will connect to an 8-inch diameter gravity sewer main that will run along the north side of the facility and discharge into an existing manhole near the north end of Gabriel Terrace. Laterals on the south side of the facility will connect to a proposed 12-inch diameter gravity sewer main that will run along the south side of the warehouse and discharge into the existing 12-inch diameter municipal gravity sewer main near the southeast corner of the warehouse. Two grease interceptors and one sand separator are proposed.

UTILITIES

Gas and electric will be provided by National Grid, and telephone will be provided by Verizon. The gas, electric, and telephone services are expected to be connected to services in Western Avenue upon coordination with the utility service providers.



SOLID WASTE

Two compactors will be provided for solid waste which will be serviced regularly by a private entity.

STORAGE AND DISPOSAL OF CHEMICALS

Cleaning chemicals will be stored in a secure location. Any disposal of chemicals will be done in accordance with all regulatory guidelines by COSTCO.