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Engineer's Report for Proposed Sanitary Sewer System

August 14, 2024

For

RDM Group, LLC
Neelytown Business Park Development

296 Neelytown Road
Tax Lot: 36-1-33,36-1-11.221, 36-1-11.23, 36-1-11.212, 36-1-11.211, 36-1-11.1, 36-1-10.1, 33-1-91
Town of Montgomery, Orange County, NY

Prepared for:

RDM Group, LLC
21 Philips Parkway
Montvale, NJ 07645

Prepared by:

_____
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NY Professional Engineer
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Project No. 21000327A

Maser Consulting is now Colliers Engineering & Design

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Project Description

The proposed development, Neelytown Business Park Development, also known as Tax Lot 36-1-33, 36-1-11.221, 36-1-11.23, 36-1-11.212, 36-1-11.211, 36-1-11.1, 36-1-10.1, and 33-1-91 is an +/- 112.4-acre site located on Neelytown and Beaver Dam Road in the Town of Montgomery. Currently, the site is largely undeveloped, containing mostly wooded areas with two dirt access roads. There does exist a silo and multiple small areas of minor foundation remains adjacent to the southeast access road off of Neelytown Road. The large majority of the site however is a mixture of dense woodland, bush/meadow areas and wetlands. Per the latest FEMA mapping there are no existing floodplain areas on the project site.

The proposed project will consist of 2 warehouse buildings totaling 1,128,270 SF, with 24,000 SF of that total to be office space. The two buildings will have a combined 190 loading docks, 456 standard parking spaces and 302 trailer storage spaces. Other improvements include driveways, sidewalks, and associated utilities to service the users. The project site has frontage on Neelytown Road to the east and Beaver Dam Road to the west. The site is located within Orange County Sewer District 1, more specifically, the site is located within the Town of Montgomery's Sewer District 1; however, the site is not currently served by the district as the lot is largely undeveloped. As the property lies within Orange County Sewer District 1, the treatment plant for the site will be the Harriman Sewage Treatment Plant. Per a map entitled "Sheet 2, water & sewer utilities, Town of Montgomery" prepared by Michael J Aiello, PE, PLLC last revised 2019 it is shown that there is an existing 6" force main neat the intersection of Neelytown & Beaver Dam Road as well as an existing 6" forcemain further East along Neelytown Road.

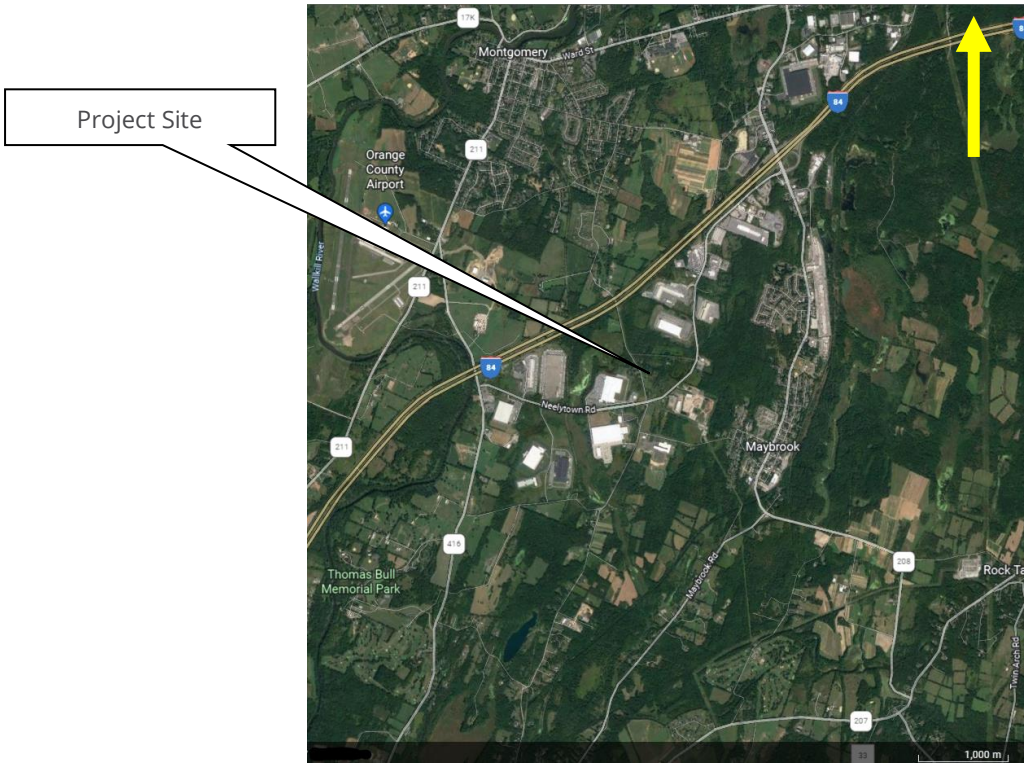

Figure 1: Location Map *(source: Google Earth)*

Scope of Sanitary Sewer System

The proposed Lot One (1) system shall consist of furnishing and installing gravity fed 8" SDR 35 PVC sanitary sewer main to a designated on-site pump station on lot 1 before being pumped to the existing 6" force main within Neelytown Road.

The proposed Lot Two (2) system shall consist of furnishing and installing gravity fed 8" SDR 35 PVC sanitary sewer main to a separate designated on-site pump station also on lot 1 before being pumped to the existing 6" force main within Neelytown Road.

Work shall also include, but not be limited to excavation, backfilling, laying and jointing of pipe, installation of sewer manholes, installation of service lines, testing, and restoration of existing structures & road surfaces as required to complete the work specified on the plans.

Determination of Sanitary Sewer Flows and Capacities

Proposed wastewater flows were determined based on the New York State Design Standards for Intermediate Sized Wastewater Treatment Systems (NYS Design Manual), dated March 5, 2014. Calculations are shown below:

Estimated Design Flows:

In order to provide an estimated sanitary sewer demand we have the estimated employee count used for this analysis based on the Institute of Transportation Engineers (ITE) Parking Generation, 4th Edition. Using Land Code 150 – Warehouse, and 701- Office Building, and a total building area of 1,128,270 SF (24,000 SF of which is anticipated to be office area) we can estimate the following.

1,104,270 SF (0.24 employees / 1,000 SF) = 265 projected employees for a Warehouse use

24,000 (3.4 employees / 1,000 SF) = 82 Projected employees for an Office use

As per NYSDEC Design Standards for Intermediate Sized Wastewater Treatment Systems (2014);

GPD = 15 GPD * # employees (same for office and warehouse uses)
15 x 347 = 5,205 GPD

Total Design Flow = **5,205 GPD**

Pipe Capacity:

(1 GPD=1.547 × 10-6 cubic feet per second)

Total design flow in cfs * peaking factor (4.1) = 0.008817 * 4.1 = 0.036 cfs

Manning's Formula: $Q = \frac{1.49}{n} A * R^{\frac{2}{3}} * S^{\frac{1}{2}}$

For a full flowing 8" PVC pipe:

n = 0.009

$A = \pi r^2$=0.349 sq. ft.

$R = \frac{A}{P} = 0.167$

S = 0.004 (min. allowable design slope for 8" sewer pipe)

Solved: **Q(peak) = 1.11 cfs**

Since the pipe capacity Q (0.762 cfs) is greater than the total design flow (0.130 cfs) the proposed pipes have adequate hydraulic capacity to serve the proposed peak demand.

Sanitary Sewer System Installation and Testing

All installations shall conform to *Recommended Standards for Wastewater Facilities*, Latest Edition, New York State Sanitary Code Part 5, and the standards of the Town of Montgomery.

All construction and testing will conform to the specifications of the Town of Montgomery as well as County and State Environmental Health Standards and Requirements.

Horizontal and Vertical Separations

Horizontal Separation

Horizontal separation between the proposed water main and storm (structures, piping, swales, etc.) or sanitary sewer (structures, mains, services, etc.) will be ten (10) feet or greater, unless due to constructability and impact to existing utilities warrant otherwise at which time deviation will require approval by the Engineer and/or a Town of Montgomery representative.

Vertical Separation

Vertical separation between storm or sanitary sewers and proposed water main crossings will be maintained at 18" minimum unless due to constructability and impact to existing utilities warrant otherwise at which time deviation will require approval by the Engineer and/or a Town of Montgomery representative.

Appendices

APPENDIX A - WASTEWATER WILL SERVE- ADDRESSED TO TOWN OF MONTGOMERY WATER & SEWER

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29 July 2024

Colliers Engineering and Design
Attn: Jesse Cokeley, P.E.
Geographic Discipline Leader
50 Chestnut Ridge Road
Suite 101
Montvale, New Jersey 07645

Re: Water and Wastewater Will Serve Letter
296 Neelytown Road (Lots 36-1-33, 33-1-91, 33-1-11.221, 33-1-11.23, 33-1-11.212, 33-1-11.211, 33-1-11.1, 33-1-10.1)
Town of Montgomery, Orange County, NY

Dear Jesse,

We have reviewed your water and wastewater letters requesting if the Town of Montgomery will provide water and wastewater services to your proposed warehouses located at 296 Neelytown Rd. and the tax map parcels noted above. Your letter indicated that per the NYSDEC Design Standards the projected water/wastewater usage for the warehouses total 5205 gallons per day.

At the time of this letter, the Town has the available capacity to provide the necessary water and wastewater usage for the project.

Should you have any questions, please contact me at (914) 474-1980 or Jfarr@Farr-Engineering.com.

Respectfully submitted,

James M. Farr, P.E.
Town Engineer