

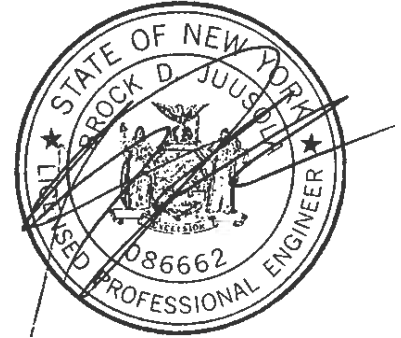
**FINAL GENERIC ENVIRONMENTAL IMPACT STATEMENT (FGEIS)
DOLSONTOWN CORRIDOR
Town of Wawayanda, Orange County, New York**

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**APPENDIX G: DOLSONTOWN
ROAD WATER/SEWER SYSTEM
EXTENSION REPORT**

DOLSONTOWN ROAD WATER SEWER SYSTEM EXTENSION SANITARY SEWER AND WATER DISTRIBUTION SYSTEM ENGINEERING REPORT AUGUST 10, 2022 REVISION



This document serves as an Engineering Report detailing the technical components of the water and sanitary sewer system extensions as required to provide potable water and sanitary sewer service to two Dolsontown East (RDM #5) warehouses, the Simon Business Park (RDM #6) and the Marangi transfer station on Dolsontown Road.

Project Summary

The Dolsontown Road projects includes three distinct projects. Each project is located on Dolsontown Road in the Town of Wawayanda, Orange County, New York. These projects are the Dolsontown East (RDM #5) site, the Simon Business Park (RDM #6) and the Marangi transfer station project. The Dolsontown East projects involves a parcel which will be subdivided into two parcels. Each parcel will have a warehouse, with each warehouse being equipped with a privately owned sanitary sewer pump station. The Simon Business Park project includes two warehouses on a single parcel. These warehouses will be served by a sanitary sewer pump station that serves both facilities. The Marangi transfer station will also be equipped with a sanitary sewer pump station. While all the pump stations will be privately owned, they will discharge to the Town of Wawayanda collection system via a common forcemain that will be installed on Dolsontown Road. This forcemain will discharge to an existing gravity sewer on Dolsontown Road. Ownership of this forcemain will be transferred to the Town of Wawayanda upon completion.

Potable water will be provided to all parcels via the extension of the Town of Wawayanda's water main on Dolsontown Road. Ownership of this water main will be transferred to Town upon completion.

Town Sanitary Sewer and Potable Water System Capacities

The Town of Wawayanda (Town) has an agreement to purchase up to 200,000 gpd of potable water from the City of Middletown (City) and to send the same amount back to the City's sewage treatment plant as wastewater. The Town currently purchases / consumes ~ 75,000 gpd, resulting in excess capacity in both the potable water and the sanitary sewer system of ~ 125,000 gpd.

The sanitary sewer system on Dolsontown Road consists of a 12" gravity sewer which discharges to the Town's Sewer District #1 pump station. The pump station then discharges to the City of Middletown WWTP via an 8" forcemain. The 12" sanitary has a minimum slope of 1.08% between the connection point and the pump station. A 12" gravity system with a slope of 1.08% has a minimum peak hourly flow (PHF) capacity of 2,400,000 gpd. The Sewer District #1 Pump

Station has a reported design PHF of 648,000 gpd, with an associated design average daily flow (ADF) of 162,000 gpd. The pump station is reportedly designed to allow for an upgrade which will accommodate a PHF of 864,000 gpd and an associated ADF of 216,000 gpd. Design and permitting of upgrades to the pump station are underway, with the upgraded station designed to discharge flows up to 864,000 gpd. The upgrades include new electrical, mechanical and pumping systems. The upgraded station will be equipped with variable frequency drives which will allow for the actual pumping rate of the system to be controlled to match current demands and limit downstream impacts.

The potable water system on Dolsontown Road is a 12” ductile iron pipe. Flow testing conducted by Sullivan Fire Corporation shows this pipeline having a fire flow capacity of 1,900 gpm at 20 psi. This fire flow capacity will be maintained to all the proposed developments on Dolsontown Road with the extension of the 12” main. This water main extension will be designed in conformance with all applicable regulatory standards and will include appropriately placed fire hydrants.

The Town’s sanitary sewer system and potable water systems have sufficient capacity to accommodate this project.

Overall System Sizing and Design

The Dolsontown East and the Simon Business Park projects are warehouse facilities and the DOM The water usage and wastewater generated within this type of warehouse facility and within the Marangi transfer station facility will generally be limited to employee restroom type use. As a result, the pollutant concentrations and composition will have the characteristics of typical domestic wastewater and will follow the characteristics of “medium strength” wastewater in accordance with Table 3-18 of *Metcalf & Eddy* (Metcalf & Eddy / EACOM, *Wastewater Engineering: Treatment and Resource Recovery: 5th Edition*, McGraw-Hill, Inc., New York 2014) as follows:

Constituent	Concentration
Biological Oxygen Demand (BOD ₅)	200 mg/l
Total Suspended Solids (TSS)	195 mg/l
Ammonia (NH ₃)	20 mg/l

Regulatory standards determine the projected potable water usage and the sanitary sewer generation rates on for warehouse facilities on the number of employees. The design employee counts were determined based the system traffic designs utilizing the *ITE Parking Generation Manual 5th Edition* as follows:

Peak Parking Demand / 1,000 ft ²	1.2 vehicles
Peak Parking Demand / Employee	0.86
Employees / 1,000 ft ²	1.4

Employee count calculation based on ITE Parking Generation Manual, 5th Edition

The details of the development as they pertain to water and sanitary sewer requirements and the associated water and sanitary sewer hydraulic demands for the development are as follows:

Wastewater System Design**Dolsontown East (RDM #5) – Warehouse #1**

Description	Square Footage of Warehouse (ft ²)	Total Number of Employees	Typical Per-Unit Hydraulic Loading Rate (gpd)	Total Design Flow (gpd)
Warehouse	61,000	85	12	1,020
Total Hydraulic Demand				1,020

Water and Sanitary Sewer Design Flow based on New York State Design Standards for Intermediate Sized Wastewater Systems

The Dolsontown East Warehouse #1 facility will be equipped with a sanitary sewer pump station. This station will be designed to meet all applicable regulatory standards.

Potable water service will be provided via a water main that will connect to the Town's existing 12" main and extend down Dolsontown Road to the Dolsontown East Warehouse #1 parcel. The 1,900 gpm fire flow capability of the Town's system will be maintained.

Dolsontown East (RDM #5) – Warehouse #2

Description	Square Footage of Warehouse (ft ²)	Total Number of Employees	Typical Per-Unit Hydraulic Loading Rate (gpd)	Total Design Flow (gpd)
Warehouse	402,000	563	12	6,756
Total Hydraulic Demand				6,756

Water and Sanitary Sewer Design Flow based on New York State Design Standards for Intermediate Sized Wastewater Systems

The Dolsontown East Warehouse #2 facility will be equipped with a sanitary sewer pump station. This station will be designed to meet all applicable regulatory standards.

Potable water service will be provided via a water main that will connect to the Town's existing 12" main and extend down Dolsontown Road past the Dolsontown East Warehouse #2 parcel. The 1,900 gpm fire flow capability of the Town's system will be maintained,

Simon Business Park (RDM #6)

Description	Square Footage of Warehouse (ft ²)	Total Number of Employees	Typical Per-Unit Hydraulic Loading Rate (gpd)	Total Design Flow (gpd)
Warehouse #1	54,000	76	12	912
Warehouse #2	244,200	342	12	4,104
Total Hydraulic Demand				5,016

Water and Sanitary Sewer Design Flow based on New York State Design Standards for Intermediate Sized Wastewater Systems

The Simon Business Park facility will be equipped with a sanitary sewer pump station serving both warehouses. This station will be designed to meet all applicable regulatory standards.

Marangi Transfer and Recycling Facility

The potable water and wastewater generation rates from the Marangi facility are projected to be 2,476 gpd. Reference the Full Environmental Assessment Form, revised May 11, 2021, prepared by The Chazen Companies for details on the estimated Marangi water and sewer production rates.

The Marangi facility will be equipped with a sanitary sewer pump station. This station is being designed by others.

Water System Design

Potable water service will be provided via a 12” water main that will connect to the Town’s existing 12” main and extend beyond the Simon Business Park property. The fire flow capacity of the Town’s distribution system at the point of connection between the existing system and the proposed extension is 1,900 gpm at 20 psi. This 1,900 gpm fire flow capacity will be maintained to through the entirety of the water extension, with the available fire flow at the termination point of the watermain being 1,900 gpm at 28 psi. The fire flow calculations are attached as Appendix A.

NFPA/ ISO determines the required fire flow to be provided at any specific facility based on the type of occupancy, the materials of construction, the presence of and type of fire suppression systems and other factors. These factors are part of the specific use and design of each building and are not known at this time. Instead, the water distribution system is designed to maintain the fire flow capabilities of the existing system.

Appendix A

Dolsontown Road Water Distribution System Extension

Fire Flow Test - 1081 Dolsontown Road Warehouse

Static Pressure, SP	69 psi	Sullian Fire Protection Corp. 11/11/20 Report of 11/11/20
Residual Pressure, RP	60 psi	Sullian Fire Protection Corp. 11/11/20 Report of 11/11/20
Pitot Pressure, PP	NA psi	Sullian Fire Protection Corp. 11/11/20 Report of 11/11/20
Coefficient of Discharge, c	0.9	Sullian Fire Protection Corp. 11/11/20 Report of 11/11/20
Diameter of Outlet, d	2.5 inches	Sullian Fire Protection Corp. 11/11/20 Report of 11/11/20
Total Residual Flow During Test, Qr	760 gpm	$Q_f = 29.84 \times c \times d^2 \times PP^{1/2}$
Fire Flow Pressure, FP	20	$FP = SP - (SP - RP) \times (Q_a / Q_r)^{1.85}$
Fire Flow Available, Qa	1,900	$Q_a = Q_r [(SP - FP) / (SP - RP)]^{0.54}$

Fire Flow at End of Pipe

Hazen-Williams Constant	130	$HI = 4.727 * L * Q^{1.852} / (C^{1.852} * d^{4.871})$	
Pipe Distance - Connection Point to Termination	2,000		
Pipe Dia (in)	10.30	12" HDPE	
Pipe Area (ft ²)	0.58		
			<u>Total</u>
<u>Flow (GPM)</u>	<u>Flow (MGD)</u>	<u>Headloss (ft)</u>	<u>Headloss</u>
1900	2.736	35.03	35.03

Hydraulic Condition at Connection Point

Elevation at Existing Line / Extension Connection Point	519 ft
Flow at connection point	1,900 gpm
Hydraulic grade at connection point	565 ft
Pressure at Connection Point	20 psi

Hydraulic Condition at Termination of Extension

Total Headloss in 2,000 linear feet of watermain	35 ft
Elevation at termination point	466 ft
Hydraulic grade at at termination point	530 ft
Pressure	28 psi
Fire Flow	1,900 gpm