



DOWNSTREAM SANITARY SEWER CAPACITY ANALYSIS REPORT

for

Multi-Family Project
480 Dodge Road
Town of Amherst, Erie County, New York

Prepared for

The Green Organization

6465 Transit Road
East Amherst, NY 14051

Prepared by

Carmina Wood Design

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March 2023
rev. December 2023
rev. April 2025
rev. August 2025



Project Description

This project is a redevelopment of a 5.17 acre site located at 480 Dodge Road in the Town of Amherst. Construction will consist of two three story multi-family buildings and six townhouse buildings with attached garages totaling 108 units, detached garage buildings, and associated utility, lighting and landscaping improvements. Currently the site is developed and utilized as a landscape nursery. All existing structures on site are to be demolished. The proposed site development area to be disturbed for this project is approximately 5.17 acres when construction is completed.

An existing 15" public sanitary sewer main is located adjacent to the parcel to the west of the property (460 Dodge Road) and will be utilized for this project. The proposed multi-family development will have a private 8" SDR-35 PVC sanitary lateral at 0.4% minimum slope route through the site. All multi-family, clubhouse and townhouse buildings will connect to this 8" private sewer via a 6" SDR-35 PVC sanitary lateral at 2.0% minimum. The private 8" sanitary sewer will connect the nearest public sanitary sewer manhole along the western boundary of the project site and a new public sanitary sewer manhole will be installed on the project site to allow for the connection to the existing public sanitary sewer. This public manhole will be located in a 30'x30' easement to the Town of Amherst.

Wastewater from the proposed project will flow west along Dodge Road via an 18" sewer, and then west along Dodge Road via the 60" Peanut Line sewer. Flows then continue west and are conveyed north through an 84" sewer, and then ultimately to the Town of Amherst Wastewater Treatment Facility. Refer to the sewer routing map located in the TECSmith monitoring section of this downstream sewer capacity analysis report.

Node 1 - 340 Dodge Road (18"):

Existing Peak Flow measured (wet weather event)	= 0.043 cfs (0.028 mgd)*
Proposed 480 Dodge Road Peak Flow	= 0.127 cfs**
Proposed Total Peak Flow	= 0.170 cfs

Theoretical capacity of existing 18" RCP pipe @ 0.06% = 3.038 cfs

Conclusion: The proposed total peak flow is less than the capacity of the 18" ACP pipe, therefore there is sufficient capacity. At no time during the monitoring period did flow depth exceed the pipe diameter at Node 1 of the downstream monitoring points during the rain events monitored.

Node 2 - North Ellicott Creek Road (60"):

Existing Peak Flow measured (wet weather event)	= 31.763 cfs (20.532 mgd)*
Proposed 480 Dodge Road Flow Peak Flow	= 0.127 cfs**
Proposed Total Peak Flow	= 31.890 cfs

Theoretical capacity of existing 60" RCP pipe @ 0.07% = 81.366 cfs

Conclusion: The proposed total peak flow is less than the capacity of the 60" RCP pipe, therefore there is sufficient capacity. At no time during the monitoring period did flow depth exceed the pipe diameter at Node 2 of the downstream monitoring points during the rain events monitored.

Node 3 - Peanut Line (66"):

Existing Peak Flow measured (wet weather event)	= 56.466 cfs (36.50 mgd)*
Proposed 480 Dodge Road Peak Flow	= 0.127 cfs**
Proposed Total Peak Flow	= 56.593 cfs

Capacity of existing 66" Peanut Line sewer = 88.798 cfs (57.4 mgd)

Conclusion: The proposed total peak flow is less than the capacity of the 66" Peanut Line sewer, therefore there is sufficient capacity.

Foot Notes:

Downstream capacity node information provided by Town of Amherst Engineering Department

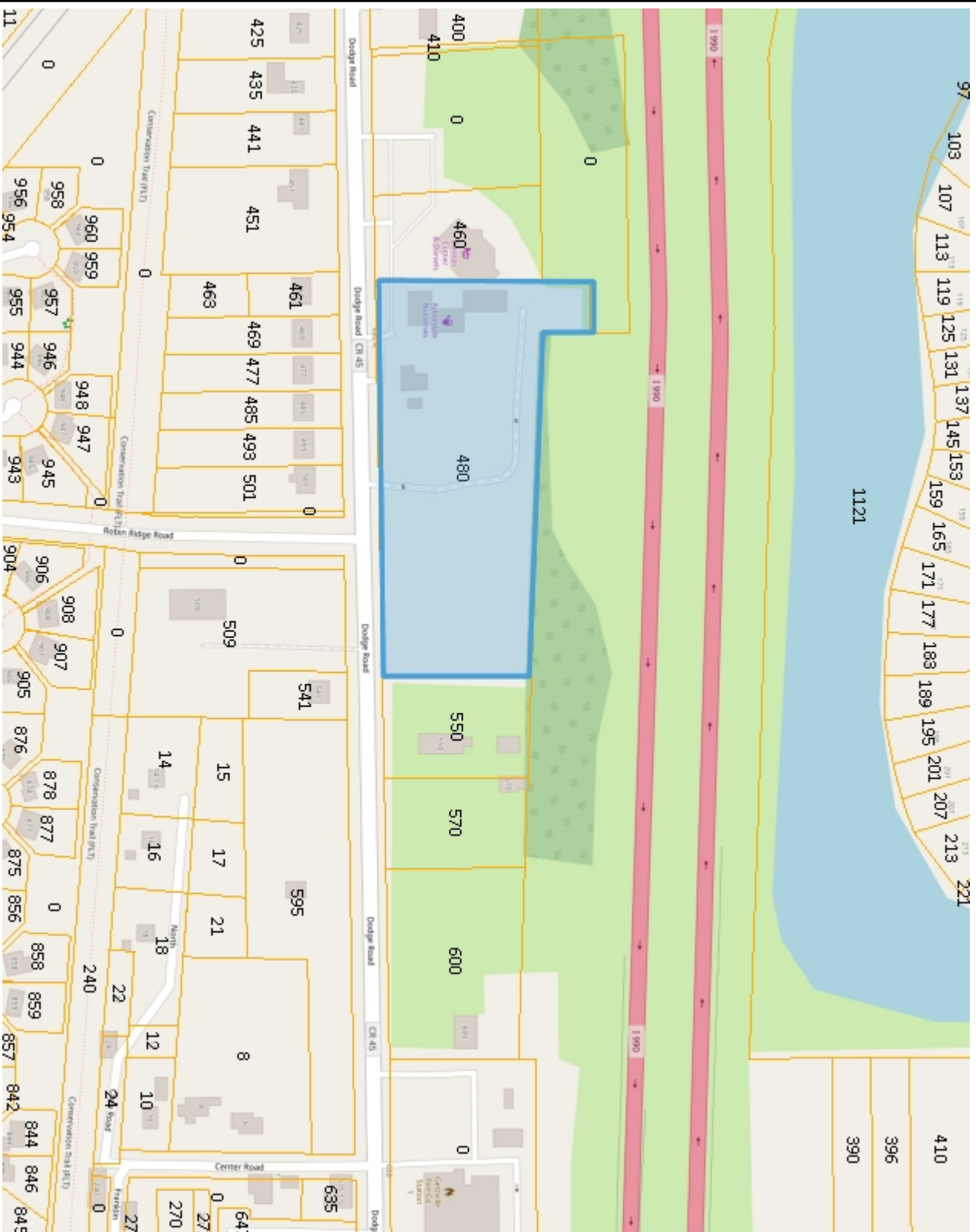
*Converted from measurements in TECSmith report dated 8/12/20

**See Sanitary Sewage Demand Calculations

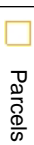
Location Map



Erie County On-Line Mapping Application



Legend



Parcels

0 0.07 0.1 Miles

**ERIE COUNTY
DEPARTMENT OF ENVIRONMENT & PLANNING
OFFICE OF GIS**

This map is a user-generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

1: 4,514



Sanitary Demand Calculations

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Project No.: 22.296 Date: 3/20/2023
Project Name: Multi-Family Development rev. 8/22/25
Project Address: 480 Dodge Road Amherst, NY
Subject: Sanitary Sewer & Water Demand Calcs
Sheet: 1 of 2

Sanitary Sewage Demand Calculations:

Proposed Townhouses

110 gal/d/unit x 36 units = 3,960 gpd *use 110 gallons per unit per day (1-bdrm)
220 gal/d/unit x 72 units = 15,840 gpd *use 220 gallons per unit per day (2-bdrm)

Total Site Sanitary Demand: = 19,800 gpd

Find Peak Sanitary Demand:

Peaking Factor based on Population:

Total demand: 19,800 gpd / 100 gpcd = 198 per capita

Population (P) = 198 people

Peaking Factor : $(18 + \sqrt{P}) / (4 + \sqrt{P})$ where P is in thousands

Peaking Factor = 4.15

Peak Sanitary Demand = 19,800 x 4.15 = 82,163 gpd
= 0.082 MGD
= 0.127 cfs

Required Infiltration and Inflow Mitigation:

Peak Sanitary Flow = 82,163 gpd = 57.06 gpm

4:1 offset flow per NYSDEC requirements = 57.06 x 4 = 228.23 gpm req'd

Mitigation Credit = \$250 / gpm

Mitigation Agreement Amount = \$57,057.36

TECSmith Monitoring Report

Date	Node 1			Node 2			Rain ₂ (inches)
	340 Dodge Road (18")			North Ellicott Creek Rd. (60")			
	FLOW (GAL x 1,000)	PEAK FLOW (MGD)	PEAK LEVEL (IN)	FLOW (GAL x 1,000)	PEAK FLOW (MGD)	PEAK LEVEL (IN)	
7/14/2020	2.772	0.016	1.480	6974.494	9.101	15.869	0
7/15/2020	4.498	0.017	1.409	6591.385	8.845	15.512	0
7/16/2020	8.981	0.028	1.915	9916.241	20.532	27.213	0.86
7/17/2020	7.891	0.023	1.581	10096.644	16.639	23.493	0.03
7/18/2020	4.239	0.018	1.514	8256.593	10.757	17.307	0
7/19/2020	4.120	0.017	1.443	7589.558	11.382	18.060	0.21
7/20/2020	5.074	0.018	1.463	7269.757	9.235	16.144	0
7/21/2020	4.950	0.021	1.574	6681.658	8.895	15.365	0
7/22/2020	7.724	0.025	1.803	8633.887	15.390	22.402	0.42
7/23/2020	6.646	0.022	1.634	7327.211	9.216	16.027	0
7/24/2020	4.713	0.017	1.457	6764.464	8.779	15.317	0
7/25/2020	4.290	0.017	1.452	6426.122	8.861	15.407	0
7/26/2020	3.747	0.022	1.443	6409.255	8.667	15.297	0
7/27/2020	7.977	0.020	1.740	6487.339	8.269	15.107	0.03
7/28/2020	6.442	0.017	1.514	6298.427	8.016	14.780	0.01
7/29/2020	7.408	0.019	1.574	8340.302	16.584	23.592	0.18
7/30/2020	8.040	0.024	1.628	6969.955	8.785	15.769	0
7/31/2020	6.650	0.021	1.577	6450.443	8.415	15.050	0
8/1/2020	6.228	0.022	1.525	6190.340	8.162	14.979	0
8/2/2020	7.807	0.025	1.638	7093.727	10.270	17.033	0.29
8/3/2020	8.748	0.025	1.748	6767.967	8.538	15.346	0
8/4/2020	8.173	0.023	1.663	6796.062	10.365	17.180	0.9
8/5/2020	8.747	0.026	1.743	8708.573	13.072	20.203	0
8/6/2020	5.549	0.024	1.538	6692.090	8.551	15.230	0
8/7/2020	3.728	0.022	1.634	6318.850	8.227	14.918	0
8/8/2020	5.740	0.022	1.580	6101.179	8.330	15.085	0
8/9/2020	4.715	0.017	1.563	6073.131	8.252	14.955	0
8/10/2020	7.088	0.020	1.628	6101.557	7.953	14.573	0
8/11/2020	3.030	0.019	1.576	2981.304	8.010	14.695	0
							2.93

Date: August 12, 2020

SANITARY SEWER FLOW CAPACITY STUDY – Summary Review

Prepared For: 460 Dodge Road Capacity Analysis

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Project Name: 460 Dodge Road Capacity Analysis

Flow Monitoring Period: July 8, 2020 to August 5, 2020

Rain Events (> 0.5-inches) Monitored: July 16 (0.86"), and August (0.90")

Number of Monitoring Nodes: Two (2) downstream manholes

Node Locations and Descriptions:

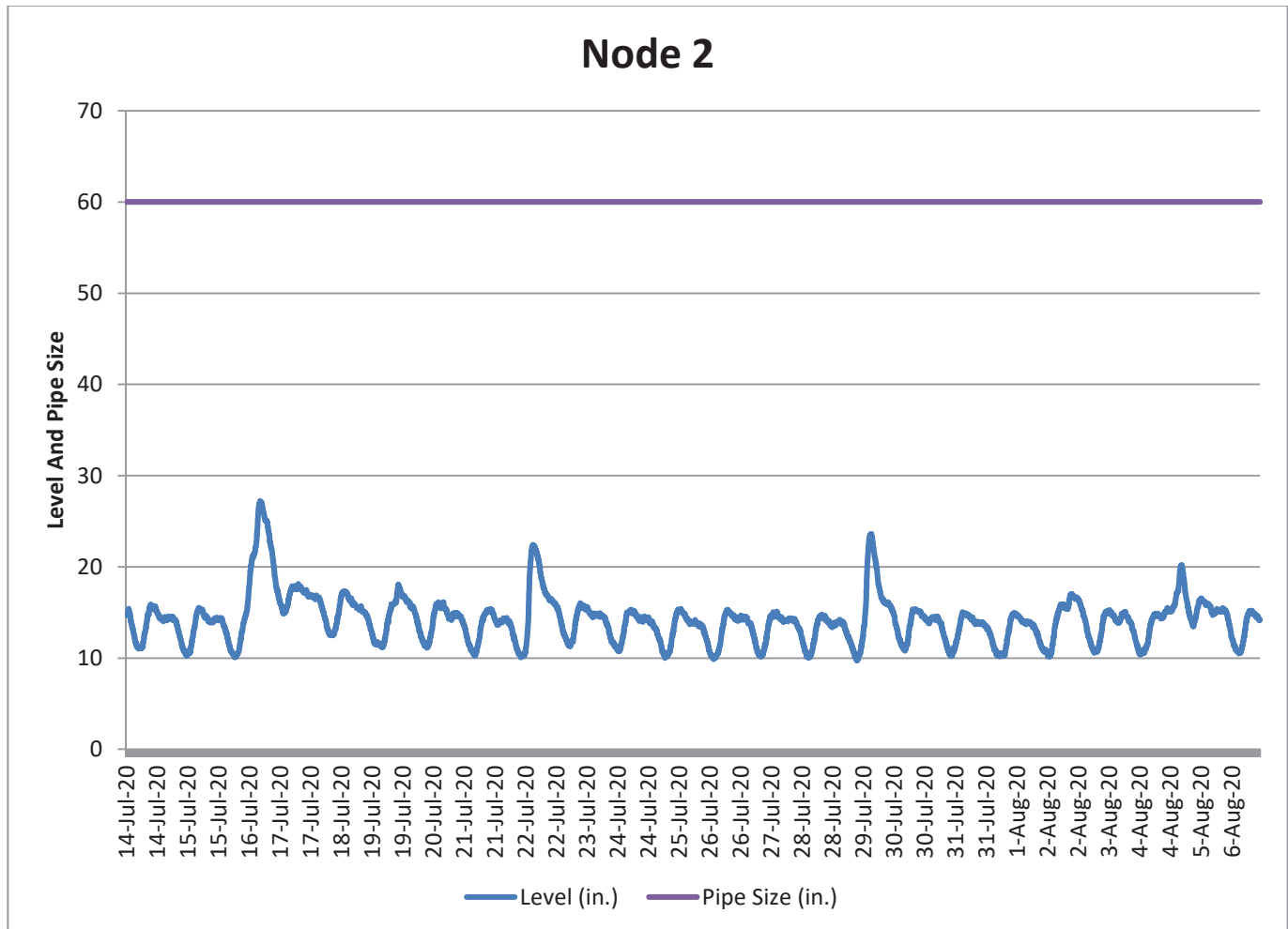
- Node 1 340 Dodge Road (18")
- Node 2 Dodge Rd 60" (60")

Summary Conclusion:

Based on the data presented in this report, specifically the flow depth measurements recorded (see graphs below)

- At no time did the flow depth exceed pipe diameter at any of the downstream monitoring points during the rain events monitored.
- At no time during the monitoring period did the flow at any point slow or stall which would have caused a backup or flooding at the manhole.

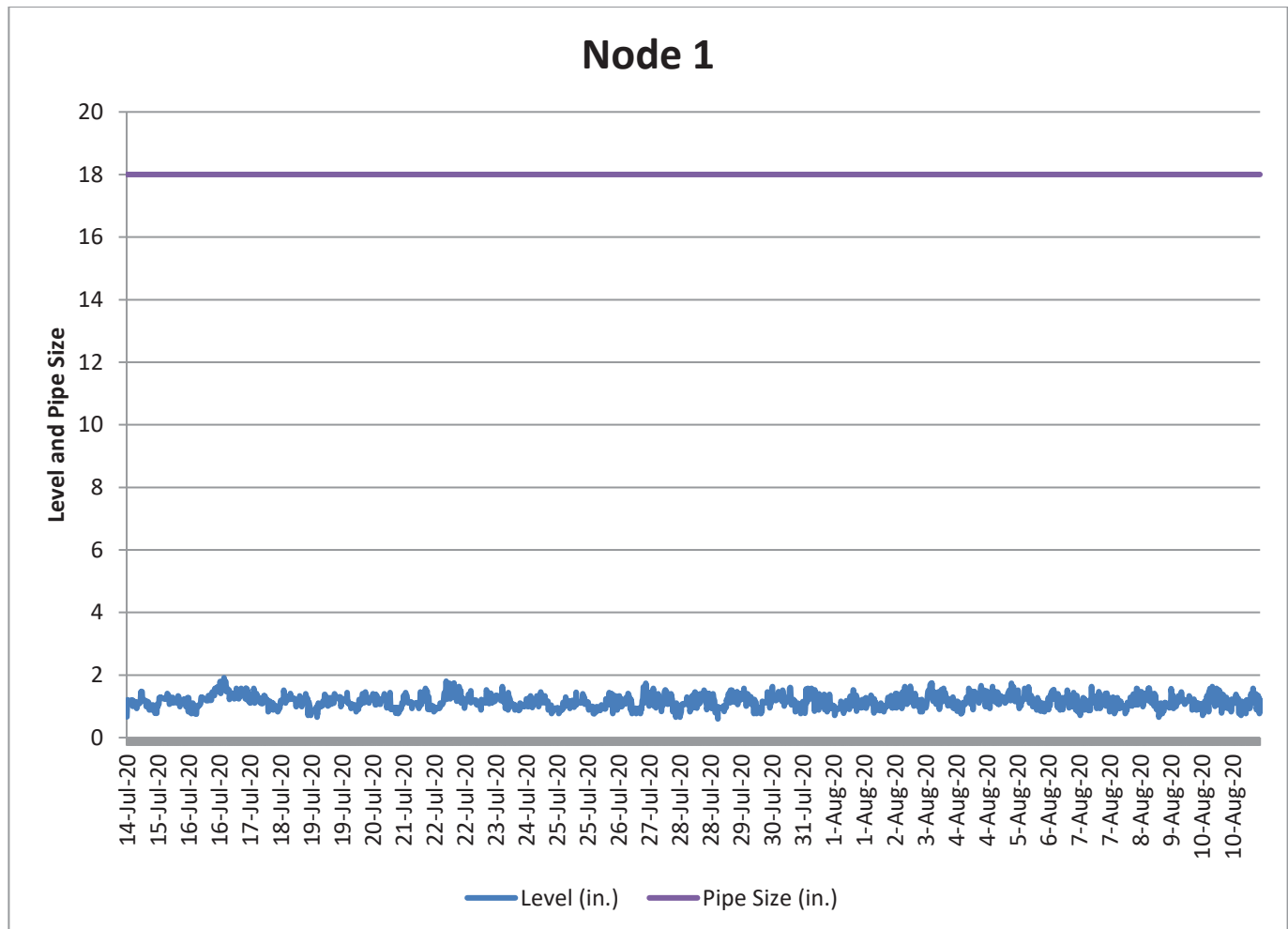
- At no time during the monitoring period did depth of flow exceed pipe diameter at Node 2.



Depth of Flow Capacity Summary:

Depth of flow capacity is based on diameter of pipe. See graphs below.

- At no time during the monitoring period did depth of flow exceed pipe diameter at Node 1.



Town of Amherst Sanitary Sewer Downstream Routing Maps



Town of Amherst Engineering Department
Sewer Maintenance Division

Main Sanitary Sewer Interceptors

DOWNSTREAM SEWER

AMHERST PEANUT LINE & WEST SIDE INTERCEPTOR

460 Dodge Road - Proposed 26 Unit Apartment Building - Amherst Consolidated Sewer District

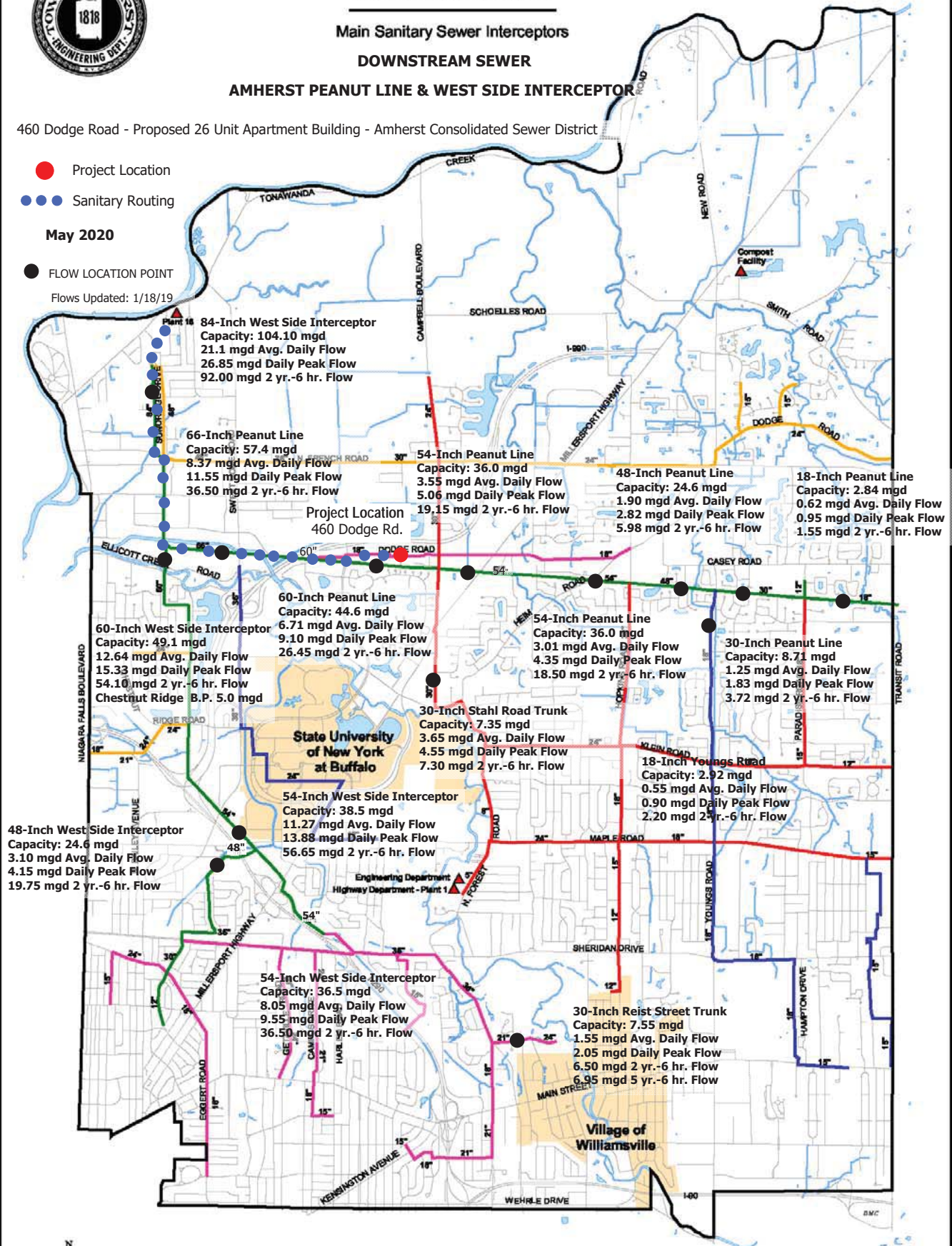
● Project Location

●●● Sanitary Routing

May 2020

● FLOW LOCATION POINT

Flows Updated: 1/18/19



1 0 1 Miles

