



2011

ENGINEER'S REPORT

Multi-Family Residential Development
3230 & 3238 Millersport Highway
Amherst, New York

November 14, 2025

Prepared for:
Emily's Garden Estates, Inc.
2217 Sweet Home Road
Amherst, NY 14228

Project M-2011

Prepared by:
Metzger Civil Engineering, PLLC
8245 Sheridan Drive
Williamsville, NY 14221
Phone: 716.633.2601
Fax: 716.633.2704
meteng@roadrunner.com



Michael J. Metzger, P.E.
License No. 066786

PROJECT DESCRIPTION:

The subject property is located on the west side of Millersport Highway in the Town of Amherst and currently consists of 2 separate parcels addressed at 3230 Millersport Hwy (SBL. No 27.20-2-41) and 3238 Millersport Hwy (SBL. No 27.20-2-40). Each parcel is currently occupied by a single-family dwelling. The parcel to the north addressed as 3260 Millersport Hwy (SBL No 27.20-2-39) is also owned and operated by the project sponsor. The proposed development will combine all 3 parcels. Once the 3 parcels are combined, the total area of the resultant parcel will be 2.51± acres.

The scope of the development includes the construction of a 9-unit, 3-story residential apartment building consisting of approximately 16,141 square feet of livable space. The project will also create 39 additional parking spaces to serve the residential dwelling units. The building will be constructed with a basement design and a paved parking lot, concrete sidewalks and a stormwater management area, which is collected in a dry detention area.

Public water and sanitary sewer services are available to the project. As such, the proposed building will be served by tapping the existing 10" municipal water main currently running parallel along the north side of Millersport Highway. In addition, a sanitary sewer lateral will be connected to the existing 8" municipal sanitary sewer line running within the south edge of the property. Additional development is also planned including private utilities (i.e. electric, gas and telecommunication lines).

The area of disturbance needed for the construction of the building and related parking will be under 1.0 acre and therefore will not require coverage under the NYSDEC General SPDES GP-0-25-001. However, an Erosion and Sediment Control Plan has been prepared to meet the Town of Amherst stormwater regulations.

WATER SERVICE:

As previously outlined, the potable water needs for the proposed building shall be met by tapping the existing 10" water main running along the north side of Millersport Hwy with a new 2" 'type k' copper water line. The 2" copper water line running to the property will be split at the Right-of-Way (ROW) and transition 10' onto the property into a 2" SDR-9 PVC domestic service line and a 2" SDR-9 PVC fire service line. Shutoff valves will be installed on both service lines to the building at the ROW. A reduced pressure zone (RPZ) backflow device and double check valve assembly (DCVA) backflow device will be installed on the domestic and fire service lines, respectively, to prevent cross contamination with the municipal main. The RPZ and DCVA will be designed, installed and tested in accordance with the Erie County Water Authority and the Department of Health standards.

The ECWA has provided hydrant flow test data in the vicinity of the property. The hydrant flow test calculated a static pressure of 95 psi with a residual pressure of 82 psi with a flow of 2,276 gpm. A pressure / water demand analysis for the project was performed and is included in Appendix A of this report.

Construction, inspection and testing of the new water service will be in conformance with all applicable Town, ECWA, AWWA, New York State Health Department, and the "Ten State" standards.

SANITARY SEWER SERVICE:

The site will be serviced by a 4" diameter SDR-35 PVC lateral connecting to the existing 8" municipal sanitary sewer located along the southern property line. The anticipated sanitary flows generated from the proposed development have been calculated and are included in Appendix B of this report.

Construction, inspection and testing will be in conformance with all Town, Erie County Health Department, and "Ten State" standards.

Storm Drainage System:

Drainage of surface water runoff from the proposed development will be accomplished via a proposed network consisting of roof gutters, downspouts and a storm drainage system utilizing catch basins and storm water piping.

In accordance with Town of Amherst stormwater requirements, stormwater generated on the site will be collected in a dry detention area, which will detain the flows from a 25-year post development storm and release the stormwater at a rate less than a 10-year pre development storm level.

The TR55 analysis and hydrograph (attached) for the site shows that a pre development 10-year storm will produce a peak flow of 2.52 cfs while a post development 25-year storm will produce a flow of 3.76 cfs. Calculations based on these flows show the difference in stormwater volume between the post development 25-year storm and a pre development 10-year storm was 450± cubic feet. Conservatively, the detention area was sized to hold a minimum of 1,000± cubic feet of storm water. Detention will be accomplished by a reduced size outlet pipe as depicted on the design plans.

A complete set of stormwater calculations via the TR-55 method along with a hydrograph of storm events has been included with this report in Appendix C.

APPENDIX A

Water Demand Calculations

ENGINEER'S REPORT

**Multi-Family Residential Development
3230 & 3238 Millersport Highway
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METZGER CIVIL ENGINEERING

Water Service / Pressure Analysis

3230 & 3238 Millersport Hwy

Town of Amherst, NY

M-2011

11/7/2025

Number of Apartment Units	9 Units
Number of Bedrooms	22 bedrooms
Water use per person per day	100 gallons
Average Daily Flow	2200 gpd
Average Daily Flow	0.0022 MGD
Maximum Daily peaking factor	2.00 per ECWA design manual 3.10
Maximum Daily Flow	4400 gpd - Average Daily Flow x peaking factor
Maximum Daily Flow	0.0044 MGD - Average Daily Flow x peaking factor
Maximum Daily Flow	3 gpm
Peak Hourly peaking factor	3.00 per ECWA design manual 3.10
Peak Hourly Flow	0.0066 MGD - Average Daily Flow x peaking factor
Peak Hourly Flow	5 gpm - Average Daily Flow x peaking factor
Total Peak Flow (Domestic)	5 gpm
Total Peak Flow (Fire Service)	200 gpm
Total Peak Flow (Combined)	205 gpm

Flow Test Data

Date of Hydrant test	From ECWA
Location of Hydrant	3281 Millersport Hwy
Hydrant A - static pressure before test	95 psi
Hydrant A - residual pressure during test	82 psi
Hydrant B - Flow during test (Qf)	2276 gpm
Desired residual pressure	20 psi
Static pressure - desired pressure (Hr)	75 psi
Pressure drop during test (Hf)	13 psi
Calculate flow at 20 psi	
$Q_r = Q_f \times H_r^{0.54} / H_f^{0.54}$	5864 gpm
Peak flow needed at 20 psi	205 gpm
Calculate residual pressure at peak flow	
Static $-(\text{Peak flow} \times (H_f^{0.54})^{1.8518519} / Q_f$	94.8 psi



METZGER CIVIL ENGINEERING

Water Service / Pressure Analysis

3230 & 3238 Millersport Hwy

Town of Amherst, NY

M-2011

11/7/2025

Static Pressure at Main during fire flow	94.8 psi
Existing Flow of Main at 20 psi	5864 gpm
Peak Flow (Domestic)	5 gpm
Elevation difference connection to design pt	2 feet
Length of Pipe in Feet	75
Number of Fittings in line 45 deg or less	1
Number of Tees in Line - In line flow	0
Number of Tees in Line - 90 deg bend	0
Number of Valves in Line	1

"D" Diameter of Waterline in inches	2
Type of Pipe	Copper
Standard Diameter Ratio	N/A
"C" Hazen Williams Coefficient	100
Equivalent Length of 45 deg bend	1.7 feet
Equivalent Length of Each In-Line Tee	1.8 feet
Equivalent Length of Each 90 deg bend	3.1 feet
Equivalent Length of Each Gate Valve	2.6 feet
"L" Design Length of Pipe in feet	79.3 feet

Friction Loss "hf" of Pipe in feet	
$\text{"hf"} = \frac{(10.44 \times \text{"L"}) \times (\text{"gpm"}^{1.85})}{(\text{"C"}^{1.85}) \times (\text{"D"}^{4.8655})}$	-0.1 feet

"hf" in psi (2.3 feet = 1 psi)	0.0 psi
--------------------------------	---------

Head due to elevation in psi	-0.9 psi
------------------------------	----------

Loss due to RPZ / meter	-12.0 psi
-------------------------	-----------

Total difference in psi	-12.9 psi
-------------------------	-----------

Pressure Available in psi (existing - loss)	81.9 psi
--	----------

Pressure Required in psi	20 psi
--------------------------	--------

Calculations By:	JCM
Checked By:	ARH



METZGER CIVIL ENGINEERING

Water Service / Pressure Analysis

3230 & 3238 Millersport Hwy

Town of Amherst, NY

M-2011

11/7/2025

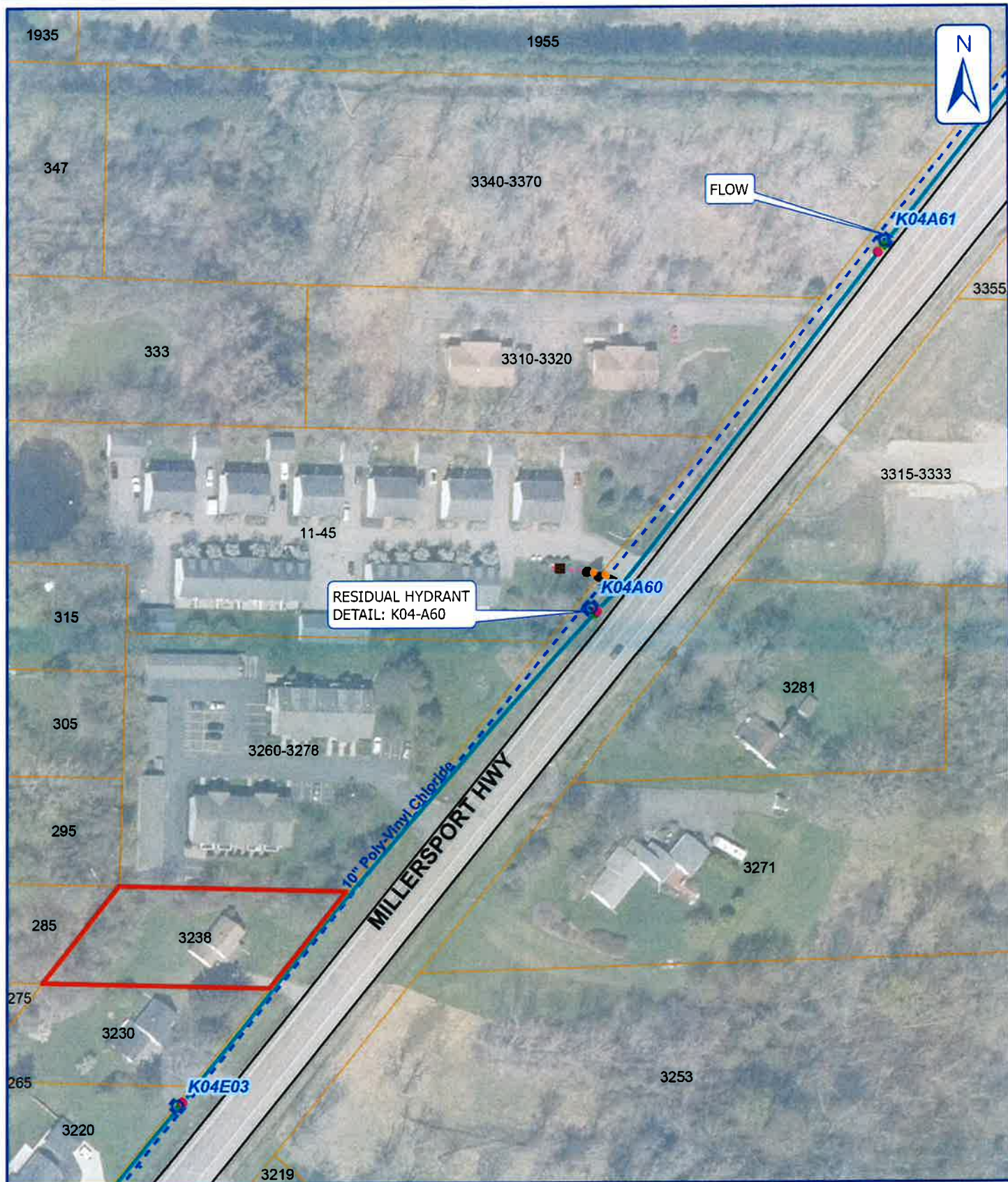
Static Pressure at Main during fire flow	94.8 psi
Existing Flow of Main at 20 psi	5864 gpm
Peak Flow (Fire Service)	200 gpm
Elevation difference connection to design pt	2 feet
Length of Pipe in Feet	75
Number of Fittings in line 45 deg or less	1
Number of Tees in Line - In line flow	0
Number of Tees in Line - 90 deg bend	0
Number of Valves in Line	1
"D" Diameter of Waterline in inches	2
Type of Pipe	Copper
Standard Diameter Ratio	N/A
"C" Hazen Williams Coefficient	100
Equivalent Length of 45 deg bend	1.7 feet
Equivalent Length of Each In-Line Tee	1.8 feet
Equivalent Length of Each 90 deg bend	3.1 feet
Equivalent Length of Each Gate Valve	2.6 feet
"L" Design Length of Pipe in feet	79.3 feet
Friction Loss "hf" of Pipe in feet	
$\text{"hf"} = (10.44 \times \text{"L"}) \times (\text{"gpm"} ^ {1.85})$ $(\text{"C"} ^ {1.85}) \times (\text{"D"} ^ {4.8655})$	-102.4 feet
"hf" in psi (2.3 feet = 1 psi)	-44.5 psi
Head due to elevation in psi	-0.9 psi
Loss due to DCVA	-8.0 psi
Total difference in psi	-53.4 psi
Pressure Available in psi (existing - loss)	41.5 psi
Pressure Required in psi	20 psi

Calculations By:

JCM

Checked By:

ARH



**3238 Millersport Hwy.
Town of Amherst**



Erie County Water Authority
Buffalo, New York



ERIE COUNTY
WATER AUTHORITY
 BUFFALO, NEW YORK

REVISED DR. R.D.C.
 DATE: 9/12/2017
 FIELD

REVISED DR. R.D.C.
 DATE: 3/1/2018
 OFFICE

TOWN OF AMHERST

W.D. 15C

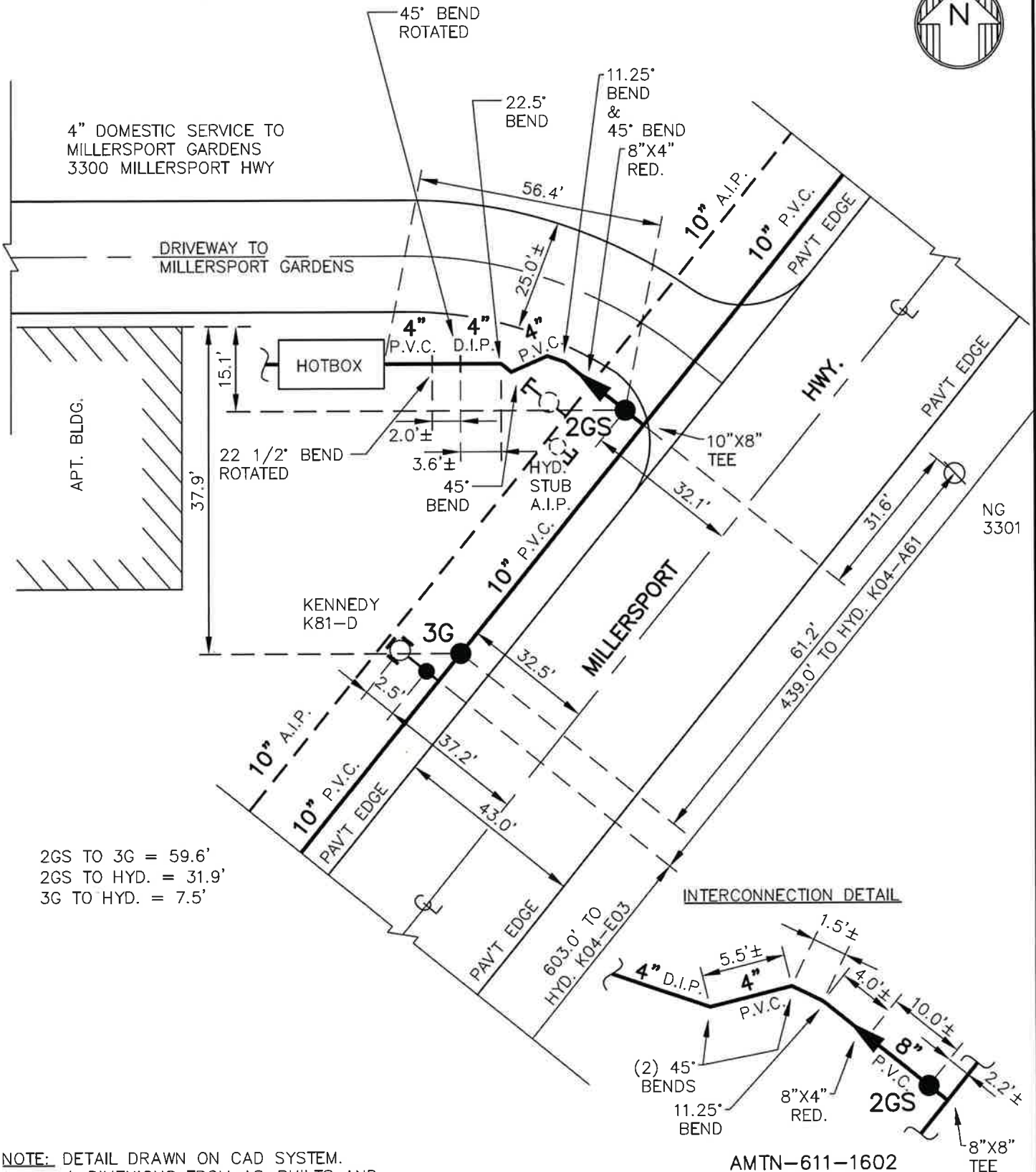
K04-A60

DETAIL SHT. NO.

201600145

CURRENT PROJECT NO.

NOTE: VALVE 1GS A.I.P. UNDER
 AMTN-611-1602.



NOTE: DETAIL DRAWN ON CAD SYSTEM.
 ± DIMENIONS FROM AS-BUILTS AND
 INSP. FIELD BOOK, NOT FIELD
 CHECKED.

AMTN-611-1602
 AMTN-611-0203
 F.B. 463/41
 DWG. 2A-2

K04-A60
 DETAIL SHT. NO.

MASTER COPY

Hydrant FLOW Test

Print Date:10/21/2025

Residual Hydrant: K04A60 Test Date/Time: 7/27/2023 14:00

Location.....: OP 3281 MILLERSPORT HWY 2ND HYD SW/O NORTH FRENCH RD
TOWN OF AMHERST

Size of Main/Branch: 10"/6" Fire District: 22028 GETZVILLE FD 11 Water District: 315 AMHERST DISTRICT 15C

Performed By: MES/CDB Comments: HYDRANT FLOW TEST REQUESTED BY ZACHARY ANDERSON, ARMOR
CONSTRUCTION
EMAIL: ZANDERSON@ARMOR-FIRE.COM
CW #135726

Discharge Coef: 090 Elvtn Usgs(ft): Static(psi): 95 Residual(psi): 82 Required Residual Pressure(psi): 20
Gallons Used..: 13,567 Total Flow(gpm): 2,276 Flow at Req'd Resid Pressure: 5,864

Flow Hydrants:

Flow Hyd	Location	Main/Branch	Nzle	Size	Pitot	Flow	Comments
K04 A61	3340 MILLERSPORT HWY	10"/6"	1:	2.50	46.0	1,138	
	1ST HYD SW/O NORTH FRENCH RD		2:	2.50	46.0	1,138	
			3:				Total Flow: 2,276

APPENDIX B

Sanitary Sewer Flow Calculations

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Multi-Family Residential Development
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Amherst, New York

Project M-2011



METZGER
CIVIL
ENGINEERING, PLLC

8245 Sheridan Drive
Williamsville, New York 14221
Phone: 716-633-2601, Fax: 716-633-2704

Project:	3230 & 3238 Millersport Hwy	By:	JCM	Date:	11/7/2025
Location:	Town of Amherst, New York	Checked:	LKM	Date:	

Sanitary Sewer Flow Calculations

Number of Bedrooms = 22
GPD per Bedroom (as per NYSDEC Design Std) 110

Hydraulic Loading = 100 gpcd x design population = **Design Average Flow**
2420 gpd = **0.0024 mgd**

Peaking Factor, PF = $\frac{[18 + ((p/1000)^{0.5})]}{[4 + ((p/1000)^{0.5})]}$ = 4.23

Maximum Design Flow = Design Average Flow x Peaking Factor =
10241 gpd = **0.0102 mgd**

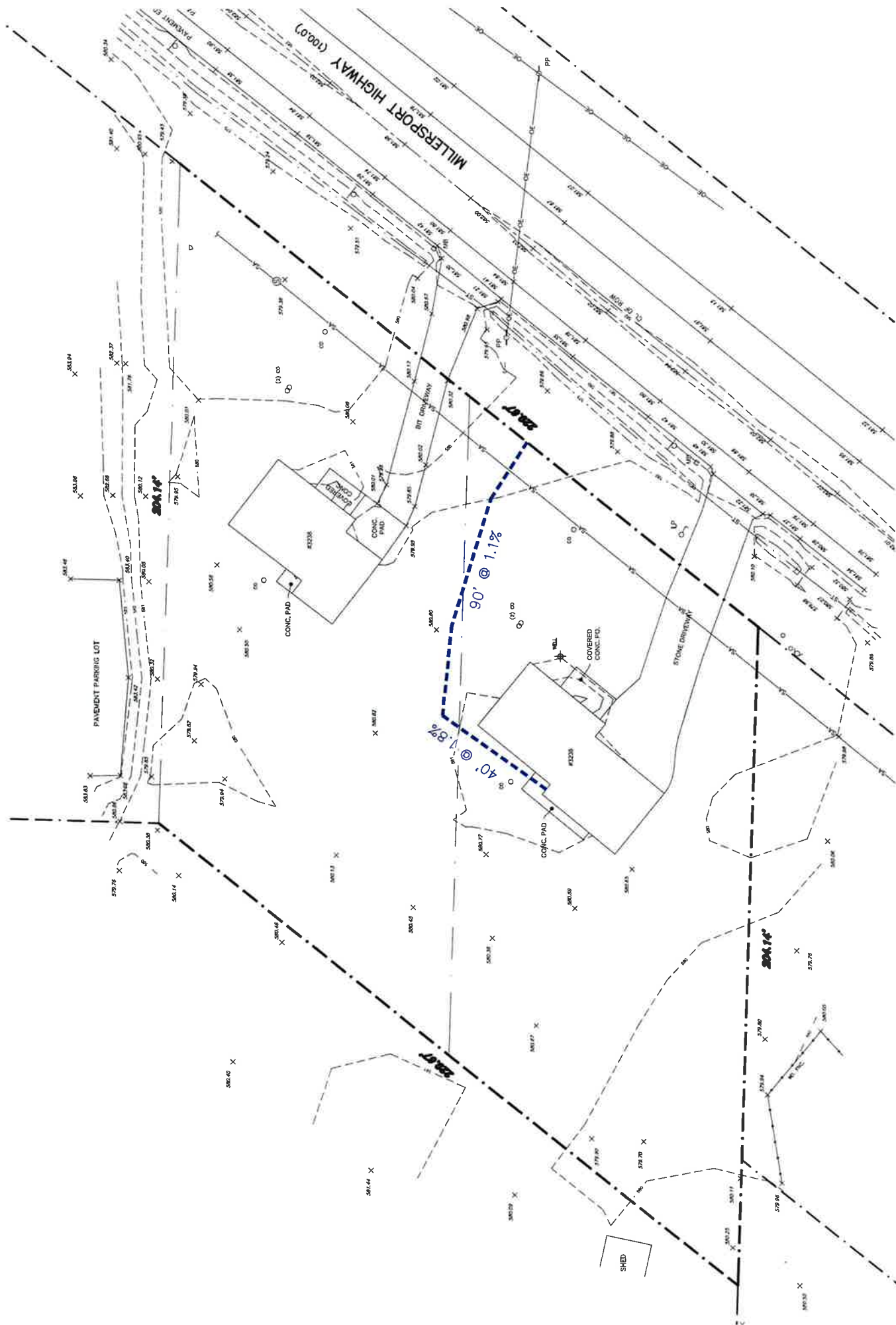
APPENDIX C

Stormwater Calculations

ENGINEER'S REPORT

**Multi-Family Residential Development
3230 & 3238 Millersport Highway
Amherst, New York**

Project M-2011



WinTR-55 Current Data Description

--- Identification Data ---

User: J. Metzger Date: 11/4/2025
 Project: 3230-3238 Millersport Hwy Units: English
 SubTitle: Pre-Development Areal Units: Acres
 State: New York
 County: Erie
 Filename: <new file>

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
Pre-Develo		Outlet	0.86	87	.114

Total area: .86 (ac)

--- Storm Data ---

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.2	2.69	3.25	3.84	4.48	6.0	1.8

Storm Data Source: User-provided custom storm data
 Rainfall Distribution Type: Type II
 Dimensionless Unit Hydrograph: <standard>

J. Metzger

3230-3238 Millersport Hwy
Pre-Development
Erie County, New York

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.2	2.69	3.25	3.84	4.48	6.0	1.8

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type II
Dimensionless Unit Hydrograph: <standard>

J. Metzger

3230-3238 Millersport Hwy
Pre-Development
Erie County, New York

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 10-Yr (cfs)
------------------------------------	---

SUBAREAS Pre-Develo	
------------------------	--

SUBAREAS Pre-Develo	2.52
------------------------	------

REACHES	
---------	--

OUTLET	
--------	--

OUTLET	2.52
--------	------

J. Metzger

3230-3238 Millersport Hwy
Pre-Development
Erie County, New York

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 10-Yr (cfs) (hr)
------------------------------------	--

SUBAREAS

Pre-Develo	2.52
	11.94

REACHES

OUTLET	2.52
--------	------

J. Metzger

3230-3238 Millersport Hwy
Pre-Development
Erie County, New York

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
Pre-Develo	.86	0.114	87	Outlet	
Total Area: .86 (ac)					

J. Metzger

3230-3238 Millersport Hwy
Pre-Development
Erie County, New York

Sub-Area Time of Concentration Details

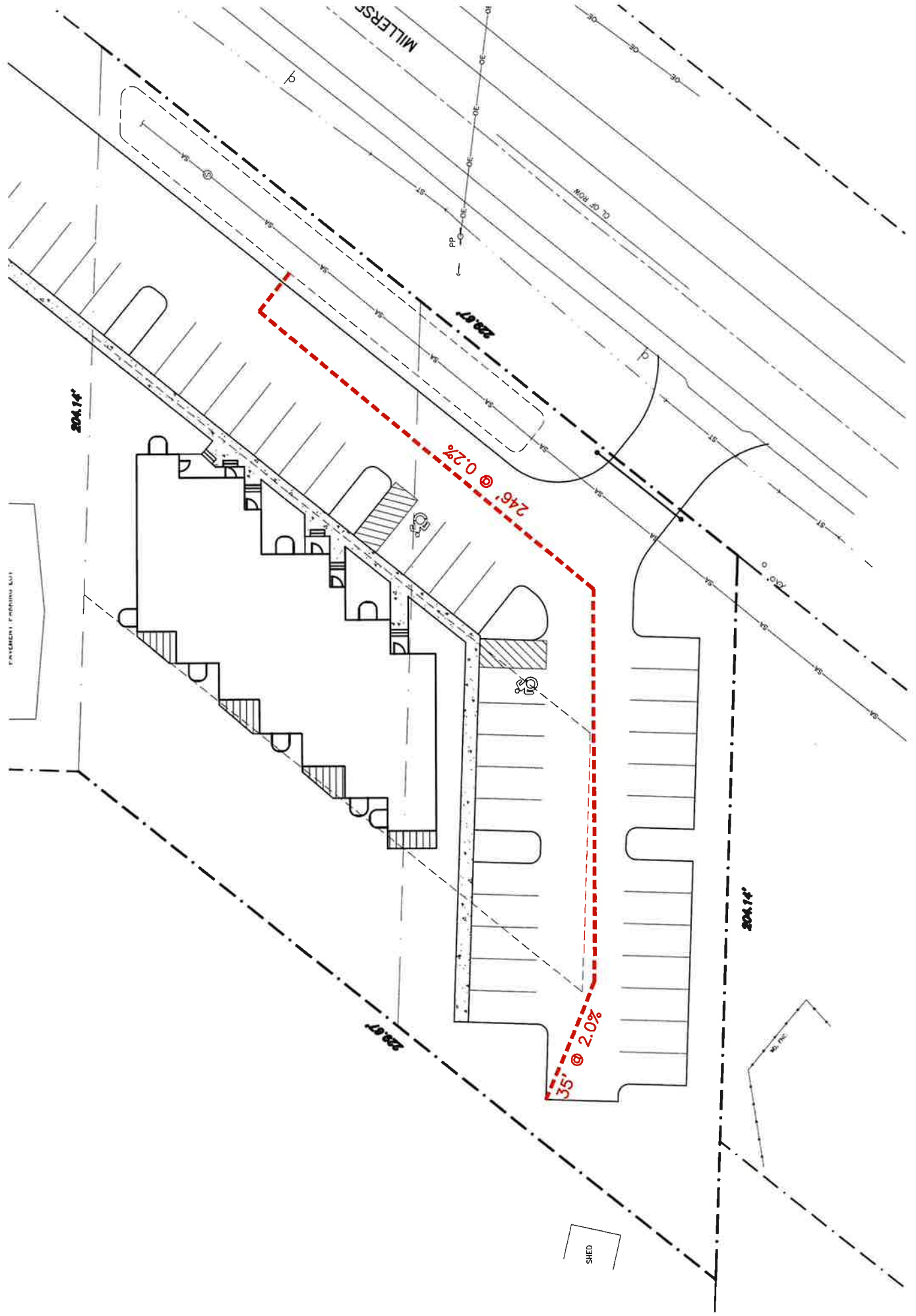
Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
Pre-Develo							
SHEET	40	0.0180	0.150				0.099
SHALLOW	90	0.0110	0.050				0.015
Time of Concentration							.114
							=====

J. Metzger

3230-3238 Millersport Hwy
Pre-Development
Erie County, New York

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
Pre-Develo	Open space; grass cover < 50%	(poor)	C	.567	86
	Paved parking lots, roofs, driveways		C	.107	98
	Woods - grass combination	(poor)	C	.187	82
	Total Area / Weighted Curve Number			.86	87
				==	==



WinTR-55 Current Data Description

--- Identification Data ---

User: J. Metzger Date: 11/4/2025
Project: 3230-3238 Millersport Hwy Units: English
SubTitle: Post-Development Areal Units: Acres
State: New York
County: Erie
Filename: <new file>

--- Sub-Area Data ---

Name	Description	Reach	Area (ac)	RCN	Tc
Post-Devel		Outlet	0.86	92	0.1

Total area: .86 (ac)

--- Storm Data ---

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.2	2.69	3.25	3.84	4.48	6.0	1.8

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type II
Dimensionless Unit Hydrograph: <standard>

J. Metzger

3230-3238 Millersport Hwy
Post-Development
Erie County, New York

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.2	2.69	3.25	3.84	4.48	6.0	1.8

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type II
Dimensionless Unit Hydrograph: <standard>

J. Metzger

3230-3238 Millersport Hwy
Post-Development
Erie County, New York

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 25-Yr (cfs)
------------------------------------	---

SUBAREAS	
Post-Devel	

SUBAREAS	
Post-Devel	3.76

REACHES	
---------	--

OUTLET	3.76
--------	------

J. Metzger

3230-3238 Millersport Hwy
Post-Development
Erie County, New York

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 25-Yr (cfs) (hr)
------------------------------------	--

SUBAREAS

Post-Devel	3.76
	11.93

REACHES

OUTLET	3.76
--------	------

J. Metzger

3230-3238 Millersport Hwy
Post-Development
Erie County, New York

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
Post-Devel	.86	0.100	92	Outlet	
Total Area: .86 (ac)					

J. Metzger

3230-3238 Millersport Hwy
Post-Development
Erie County, New York

Sub-Area Time of Concentration Details

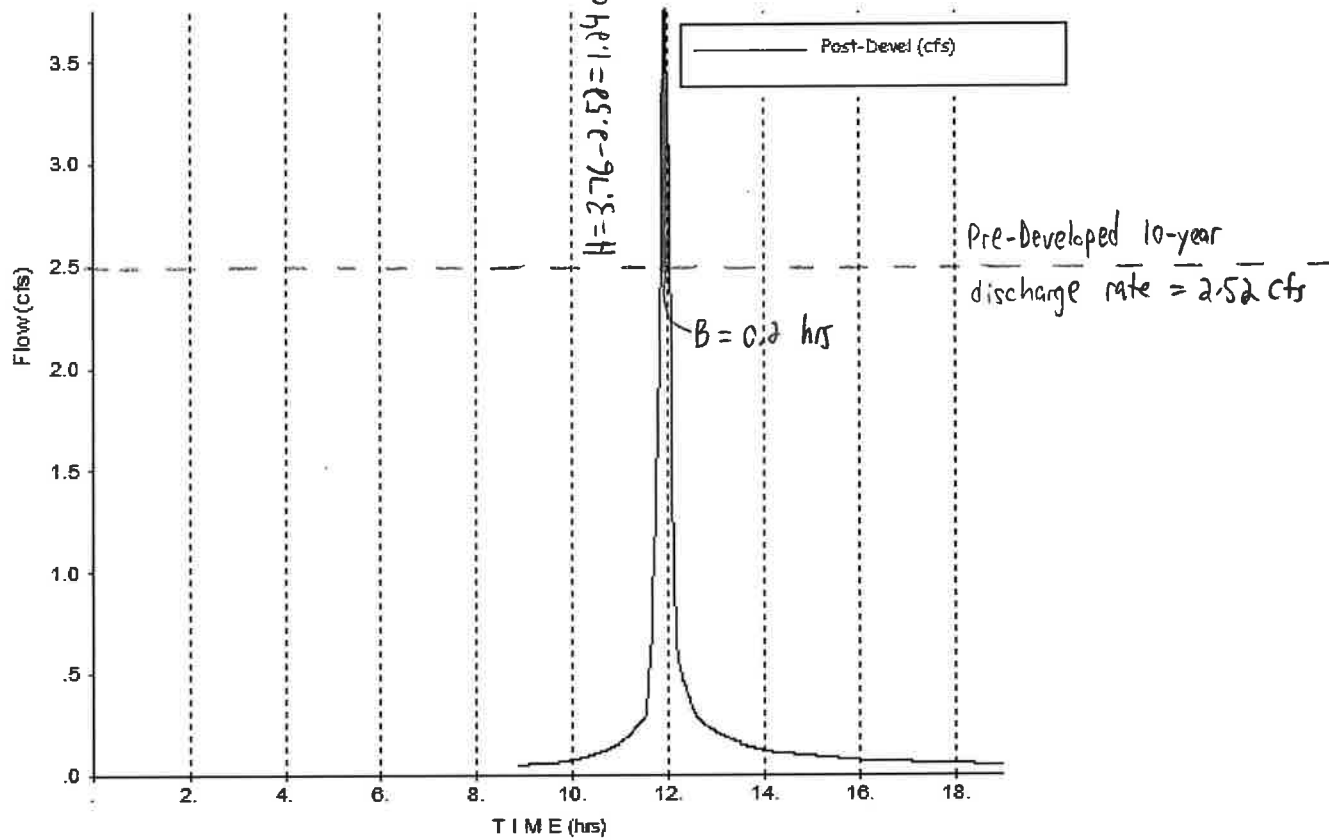
Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
Post-Devel							
SHEET	35	0.0200	0.011				0.011
CHANNEL	246	0.0020	0.012	0.79	3.14	2.204	0.031
Time of Concentration							0.1
							=====

J. Metzger

3230-3238 Millersport Hwy
Post-Development
Erie County, New York

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
Post-Devel	Open space; grass cover < 50%	(poor) C	.322	86
	Paved parking lots, roofs, driveways	C	.465	98
	Woods - grass combination	(poor) C	.074	82
	Total Area / Weighted Curve Number		.86	92
			==	==



Volume Needed to Detain a 10-year Pre-Development Storm
to a Post-Development 25-year Storm

$$V = \frac{1}{2} \cdot B \cdot H$$

$$= \frac{1}{2} (0.2 \text{ hrs} \times 3600 \frac{\text{s}}{\text{hr}}) (1.24 \frac{\text{ft}^3}{\text{s}})$$

$$V \approx 450 \text{ ft}^3$$



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Williamsville, New York 14221
Phone: 716-633-2601

Project:	Mult-Family Residential Development	By: JCM
Location:	3230 & 3238 Millersport Hwy	11.07.25

Outlet Control Structure Design

		Pre Development		Post Development	
		Discharge Rate	Discharge Rate	Discharge Rate	Actual
		(cfs)	(cfs)	(cfs)	Discharge from
		(from TR-55)	(from TR-55)	(from TR-55)	Orifice (cfs)
CL of orifice	Elev (ft) 579.08				
10 year storm event	579.25	2.52			
25 year storm event	579.92	0.84		3.76	1.57
Orifice Diameter	8	inch			
Orifice Diameter	0.67	ft			
Area of Pipe (A)	0.349	sq ft			
Orifice coefficient (C)	0.61				
Acceleration (g)	32.2	ft/sec ²			
Torricelli Equation - Orifice Calculations					
		$Q=CA(2gh)^{.5}$			
		Total Flow			
		10 year pre	2.52		cfs
		25 year post	1.57		cfs

APPENDIX D

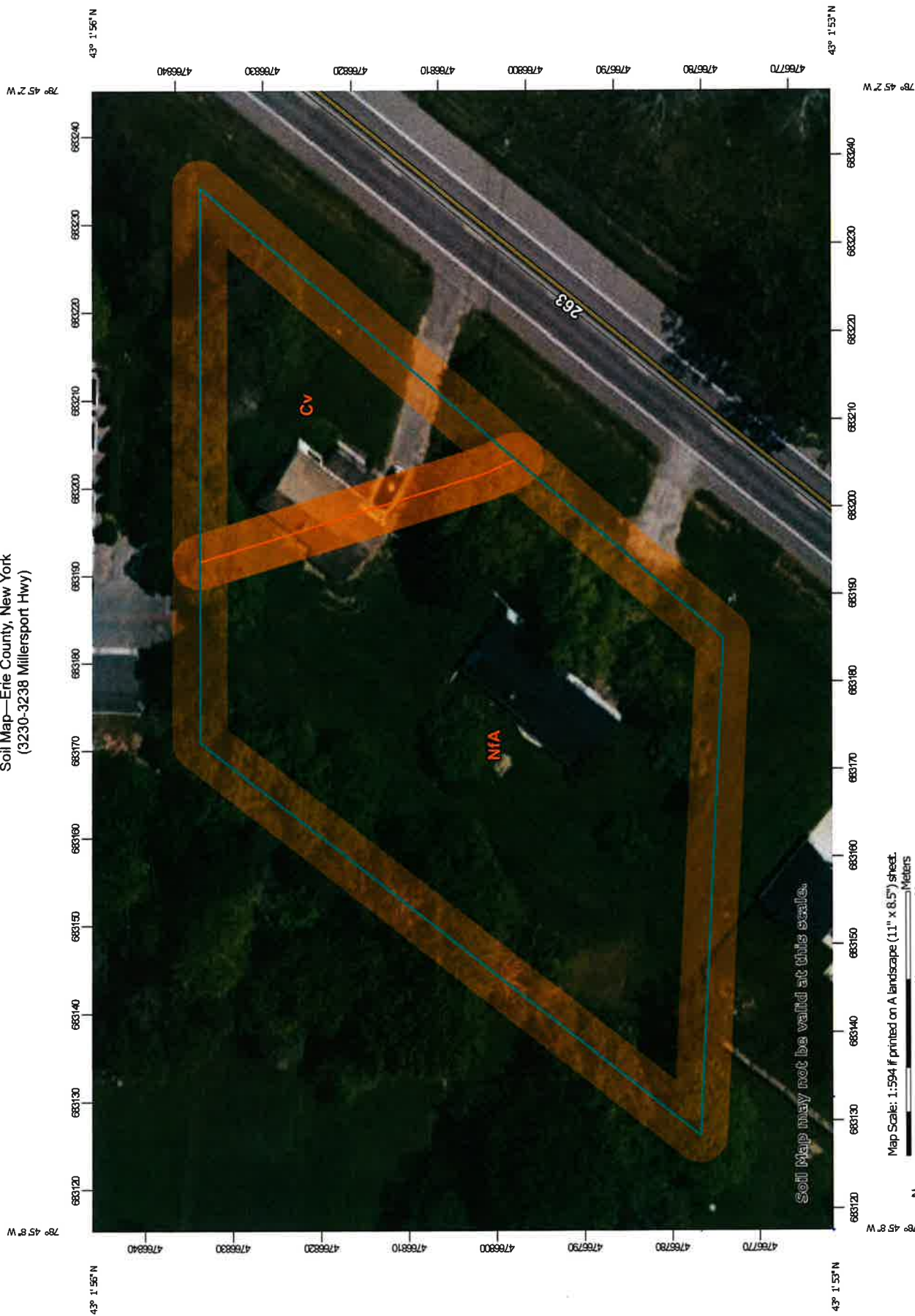
USDA Soil Survey

ENGINEER'S REPORT

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Amherst, New York

Project M-2011

Soil Map—Erie County, New York (3230-3238 Millersport Hwy)



Map Scale: 1:594 if printed on A landscape (11" x 8.5") sheet.

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84



Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Cv	Cosad loamy fine sand	0.2	21.7%
NfA	Niagara silt loam, 0 to 3 percent slopes	0.7	78.3%
Totals for Area of Interest		0.9	100.0%

APPENDIX E

Pipe Sizing Calculations

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