



ENGINEER'S REPORT

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

June 19, 2026

Prepared for:
Emily's Garden Estates, Inc.
867 Hopkins Road
Williamsville, NY 14221

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 proposed development will combine both parcels. Once both parcels are combined, the total area of the resultant parcel will be 0.86± acres.

The scope of the development includes the construction of an 8-unit, 3-story residential apartment building consisting of approximately 16,000± square feet of livable space. The project will also create 29 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
Amherst, New York**

Project M-2011



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 | |
| "hf" = $(10.44 \times "L") \times ("gpm" ^ 1.85)$ $("C" ^ 1.85) \times ("D" ^ 4.8655)$ | -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 | |
| $\text{"hf"} = \frac{(10.44 \times \text{"L"}) \times (\text{"gpm"}^{1.85})}{(\text{"C"}^{1.85}) \times (\text{"D"}^{4.8655})}$ | -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

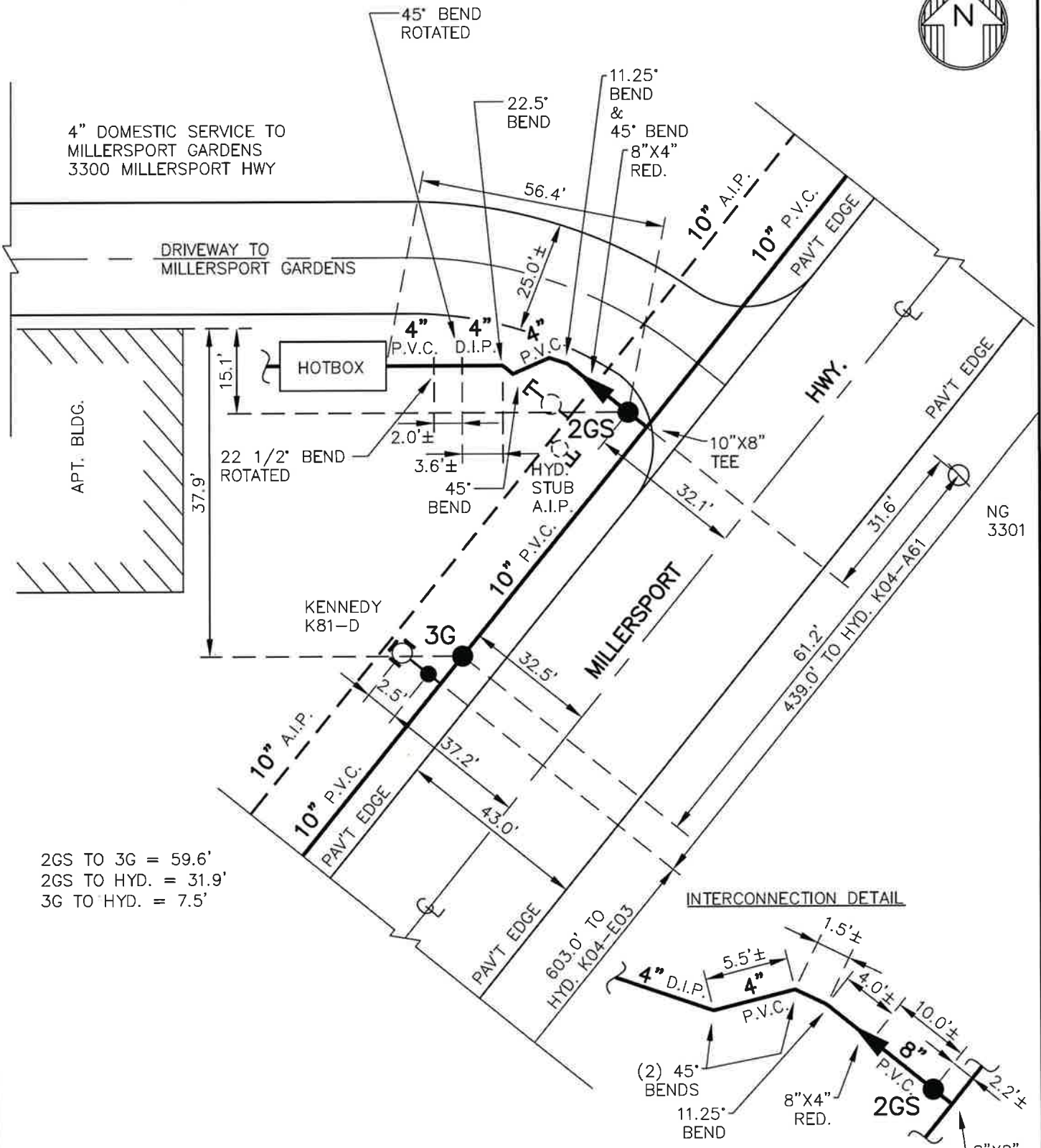
K04-A60

DETAIL SHT. NO.

201600145

CURRENT PROJECT NO.

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



2GS TO 3G = 59.6'
 2GS TO HYD. = 31.9'
 3G TO HYD. = 7.5'

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

APPENDIX B

Sanitary Sewer Flow Calculations

ENGINEER'S REPORT

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3230 & 3238 Millersport Highway
Amherst, New York

Project M-2011



METZGER
CIVIL
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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 = $[(18 + ((p/1000)^{0.5})) / (4 + ((p/1000)^{0.5}))]$ = 4.23

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

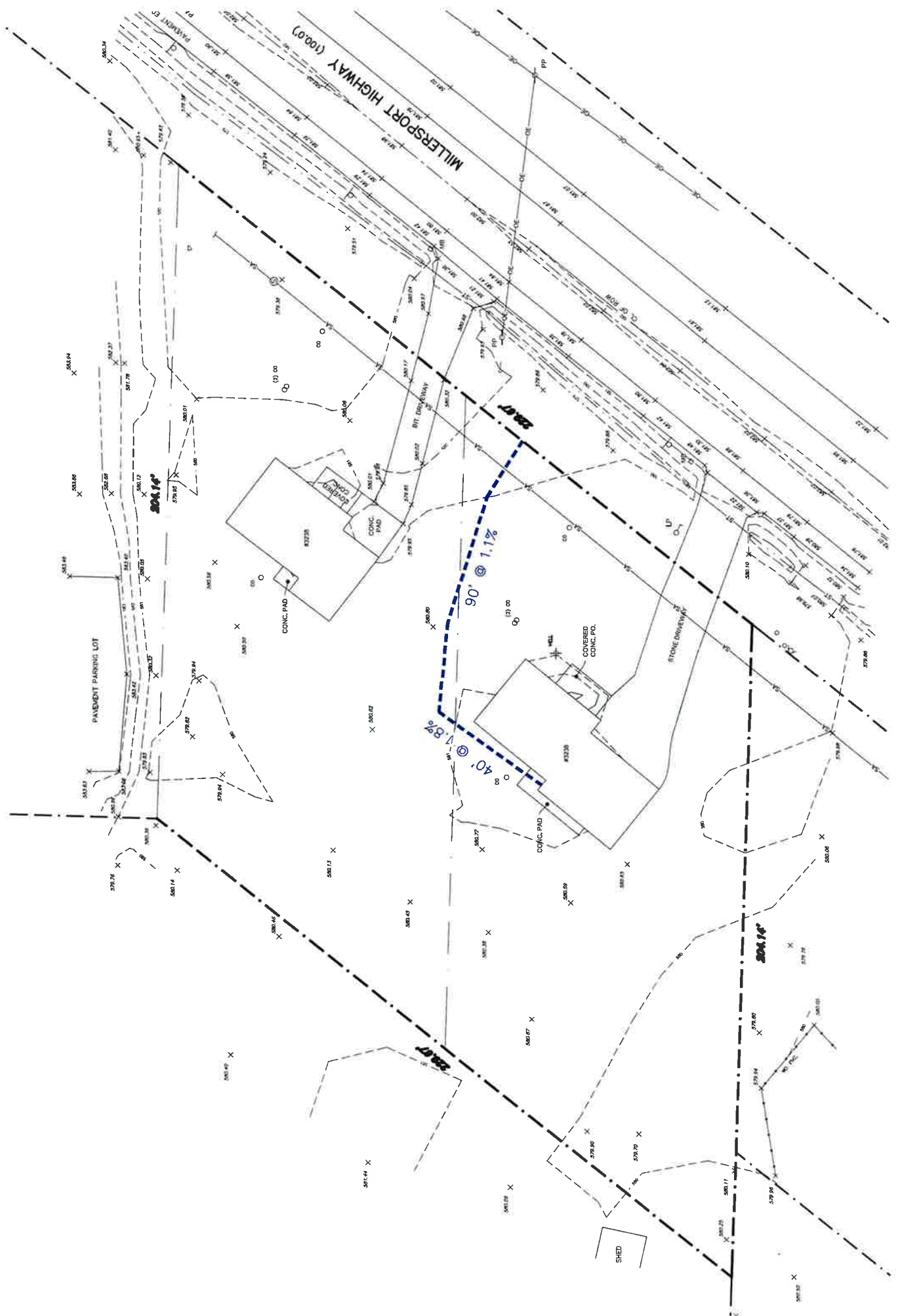
APPENDIX C

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

2.52

REACHES

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

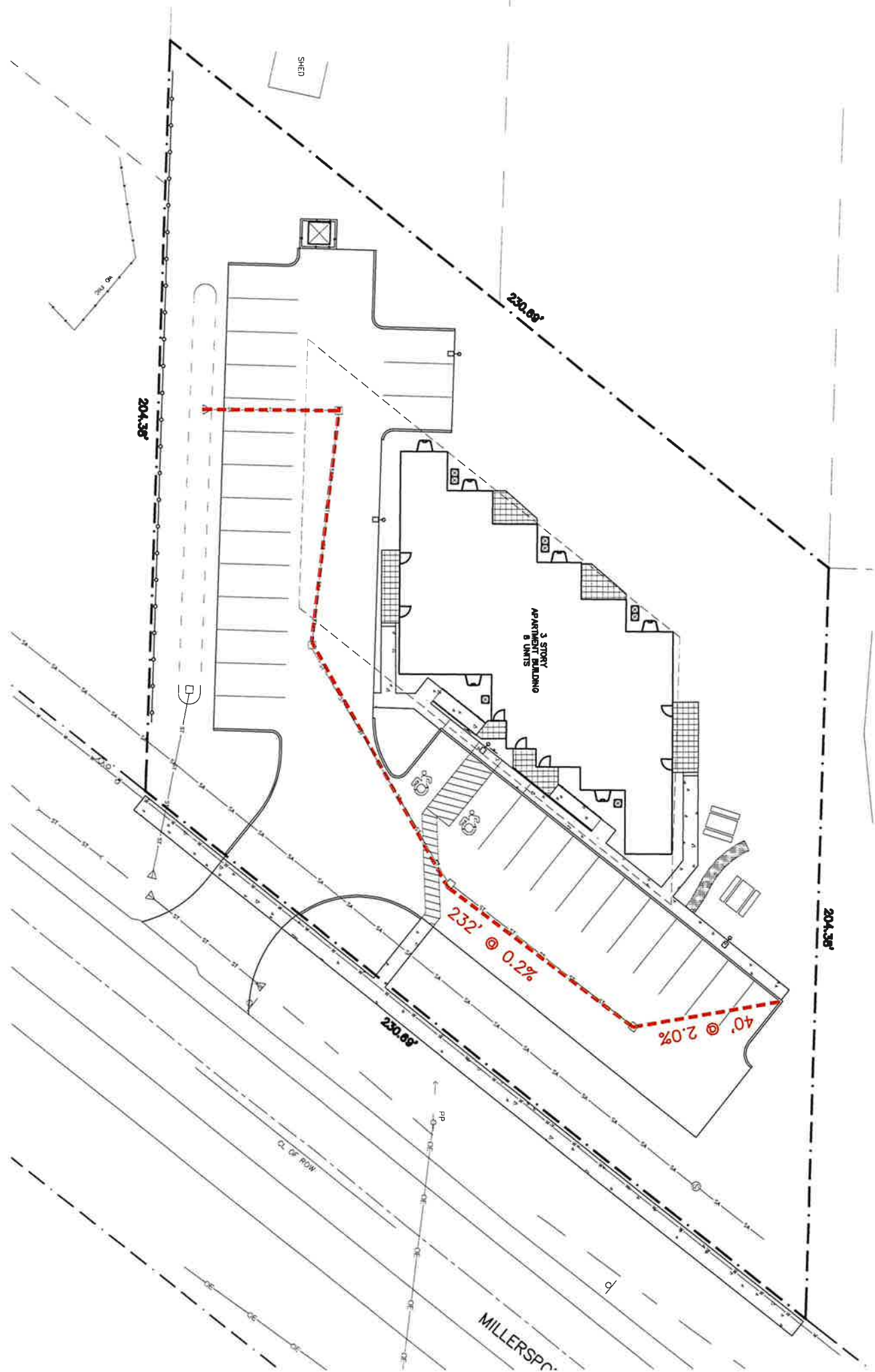
| Sub-Area Identifier/ | Flow Length (ft) | Slope (ft/ft) | Mannings's n | End Area (sq ft) | Wetted Perimeter (ft) | Velocity (ft/sec) | Travel Time (hr) |
|----------------------|------------------|---------------|--------------|------------------|-----------------------|-----------------------|------------------|
| 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

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

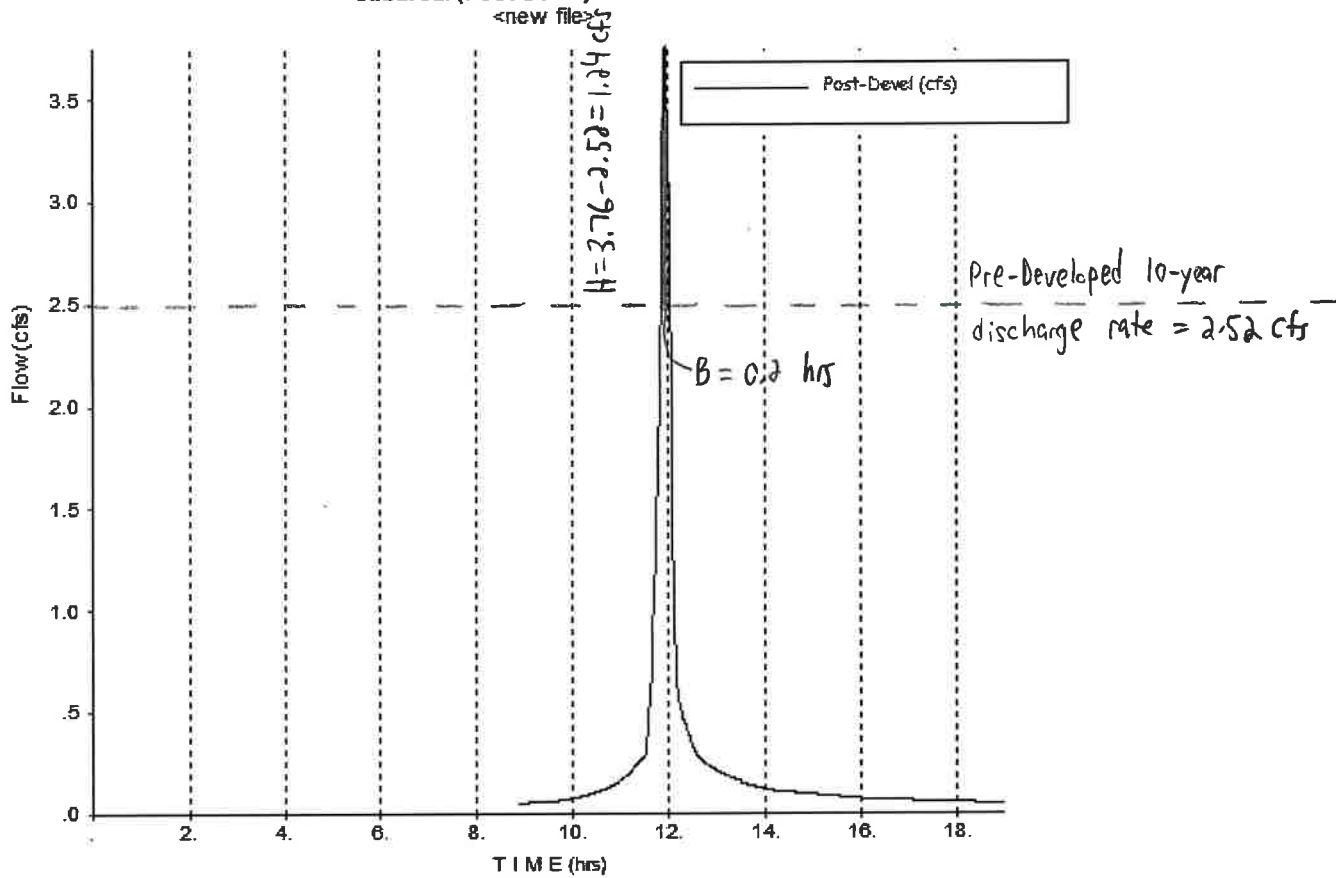
| Sub-Area Identifier/ | Flow Length (ft) | Slope (ft/ft) | Mannings's n | End Area (sq ft) | Wetted Perimeter (ft) | Velocity (ft/sec) | Travel Time (hr) |
|----------------------|------------------|---------------|--------------|------------------|-----------------------|-----------------------|------------------|
| Outlet | | | | | | | |
| SHEET | 40 | 0.0200 | 0.011 | | | | 0.012 |
| CHANNEL | 232 | 0.0020 | 0.012 | 0.79 | 3.14 | 2.222 | 0.029 |
| | | | | | | 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

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

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

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



METZGER
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ENGINEERING, PLLC

8245 Sheridan Drive
 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

| | Elev (ft) | Head (h) (ft) | Pre Development Discharge Rate (cfs) (from TR-55) | Post Development Discharge Rate (cfs) (from TR-55) | Actual Discharge from Orifice (cfs) |
|--|-----------|------------------|--|---|---|
| CL of orifice | 579.08 | | | | |
| 10 year storm event | 579.25 | | 2.52 | | |
| 25 year storm event | 579.92 | 0.84 | | 3.76 | 1.57 |
| Oriface Diameter | 8 | | inch | | |
| Oriface 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

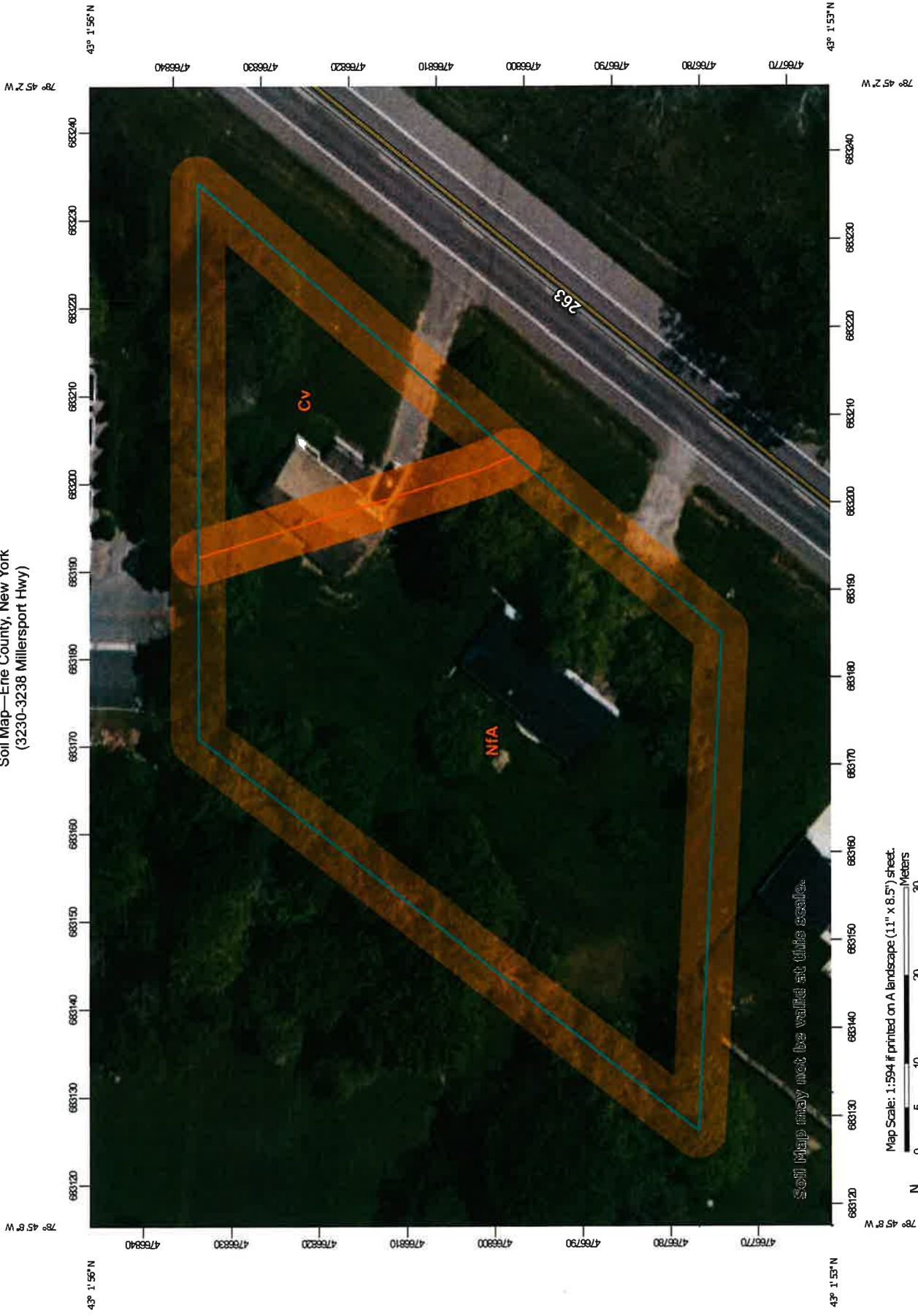
USDA Soil Survey

ENGINEER'S REPORT






































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

Project M-2011

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



MAP LEGEND

| | |
|--|---|
|  Area of Interest (AOI) |  Spoil Area |
|  Soils |  Stony Spot |
|  Soil Map Unit Polygons |  Very Stony Spot |
|  Soil Map Unit Lines |  Wet Spot |
|  Soil Map Unit Points |  Other |
| Special Point Features |  Special Line Features |
|  Blowout | Water Features |
|  Borrow Pit |  Streams and Canals |
|  Clay Spot | Transportation |
|  Closed Depression |  Rails |
|  Gravel Pit |  Interstate Highways |
|  Gravelly Spot |  US Routes |
|  Landfill |  Major Roads |
|  Lava Flow |  Local Roads |
|  Marsh or swamp | Background |
|  Mine or Quarry |  Aerial Photography |
|  Miscellaneous Water | |
|  Perennial Water | |
|  Rock Outcrop | |
|  Saline Spot | |
|  Sandy Spot | |
|  Severely Eroded Spot | |
|  Sinkhole | |
|  Slide or Slip | |
|  Sodic Spot | |

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Erie County, New York
Survey Area Data: Version 25, Sep 4, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 13, 2023—May 27, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

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

ENGINEER'S REPORT

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

Project M-2011

METZGER CIVIL ENGINEERING, PLLC

PROJECT NO.: M-2011
 PROJECT: Multi-Family Residential Development
 COUNTY / TOWN: Town of Amherst, New York

DATE: #####
 BY: JCM
 Ck: LKM

Frequency 10 Year
 n= 0.012

SHEET 1
 OF 1

| WATER FLOWING to DESIGN POINT | STRUCT. TYPE | LINE TYPE | OUTLET PIPE FROM DESIGN POINT (FT) | DRAINAGE AREA (ACRES) | | | SUBTOTAL CA | TIME OF CONC. (MIN) | TIME OF FLOW IN SECTION (MIN) | i (IN/HR) | TOTAL CA | TOTAL RUNOFF (CFS) | DESIGN POINT (RIM) INLET ELEV. (FT) | OUTLET PIPE FROM DESIGN POINT | | | | | | | | |
|-------------------------------|--------------|-----------|------------------------------------|-----------------------|-----------|---------|-------------|---------------------|-------------------------------|-----------|----------|--------------------|-------------------------------------|-------------------------------|-------------|-----------|------------|-----------|---------|----------------|------|-----|
| | | | | PAVMT C= | GUTTER C= | LAWN C= | | | | | | | | INCRMNT | CROWN ELEV. | | DIA. (IN.) | SLOPE (%) | V (FPS) | CAPACITY (CFS) | | |
| | | | | | | | | | | | | | | | UPPER END | LOWER END | | | | | FALL | END |
| | | | | | | | | | | | | | | | | | | | | | | |
| CB4 | Cat. Basin | HDPE | 61 | 0.08 | 0.08 | 0.08 | 0.08 | 10.00 | 0.47 | 4.10 | 0.08 | 0.35 | 581.48 | 0.12 | 0.12 | 0.12 | 12 | 0.20 | 2.2 | 1.7 | | |
| | | | | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | | 580.38 | 580.26 | 0.12 | 12 | 0.20 | 2.2 | 1.7 | | |
| | | | | 0.02 | 0.02 | 0.01 | 0.01 | | | | | | | 579.38 | 579.26 | 0.12 | 12 | 0.19 | 2.2 | 1.7 | | |
| CB3 | Cat. Basin | HDPE | 73 | 0.08 | 0.16 | 0.16 | 0.16 | 10.47 | 0.57 | 4.06 | 0.17 | 0.69 | 581.42 | 0.14 | 0.14 | 0.14 | 12 | 0.19 | 2.2 | 1.7 | | |
| | | | | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | | 580.26 | 580.12 | 0.14 | 12 | 0.19 | 2.2 | 1.7 | | |
| | | | | 0.02 | 0.04 | 0.01 | 0.01 | | | | | | | 579.26 | 579.12 | 0.14 | 12 | 0.19 | 2.2 | 1.7 | | |
| CB2 | Cat. Basin | HDPE | 62 | 0.13 | 0.29 | 0.28 | 0.28 | 11.03 | 0.48 | 4.01 | 0.30 | 1.21 | 581.17 | 0.12 | 0.12 | 0.12 | 12 | 0.19 | 2.2 | 1.7 | | |
| | | | | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | | 580.12 | 580.00 | 0.12 | 12 | 0.19 | 2.16 | 1.7 | | |
| | | | | 0.02 | 0.06 | 0.02 | 0.02 | | | | | | | 579.12 | 579.00 | 0.12 | 12 | 0.19 | 2.2 | 1.7 | | |
| CB1 | Cat. Basin | HDPE | 36 | 0.10 | 0.39 | 0.38 | 0.38 | 11.51 | 0.28 | 3.95 | 0.41 | 1.62 | 581.17 | 0.07 | 0.07 | 0.07 | 12 | 0.19 | 2.2 | 1.7 | | |
| | | | | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | | 580.00 | 579.93 | 0.07 | 12 | 0.19 | 2.2 | 1.7 | | |
| | | | | 0.03 | 0.09 | 0.03 | 0.03 | | | | | | | 579.00 | 578.93 | 0.07 | 12 | 0.19 | 2.2 | 1.7 | | |