

LBM Engineering, LLC

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CIVIL ENGINEERING - LAND DEVELOPMENT - SITE PLANS – STORMWATER ANAGEMENT**Engineering Report
For Land Use Commissions Submittals
Shewville Heights Subdivision, Ledyard, Connecticut**

February 24, 2026

RECEIVED**MAR 26 2026****Land Use Department**

EXISTING CONDITIONS: Reference is made to the following Plan Set: "Plan Showing Open Space Subdivision Property of 84 Silas Deane LLC 84 Silas Deane Road Shewville Road and 58 & 59 Seabury Avenue, Ledyard, Connecticut" Scales as Shown February 2026, By Dieter & Gardner, Gales Ferry, CT. The property is located at the east end of Seabury Avenue, east of Seabury Circle. The property is wooded and hilly and drains to the north, east and south.

METHODOLOGY: The Rational Method was used for analyzing runoff rates per Part III of the Town of Ledyard's *Ordinance Regulating the Management of Stormwater Runoff*. The descending leg of the hydrographs are increased by a factor of 2.5 to provide additional stormwater volume. Intensity-Duration-Frequency (IDF) Curves were downloaded from the Northeast Regional Climate Center (NRCC) web site. Calculations are attached to this report.

STORMWATER MANAGEMENT: The proposed development will not change the existing drainage patterns. Only 3.5 acres of the 170 acre parcel drains to the road's piped storm drain. An additional 1.52 acres (including 3 proposed houses) drains to the detention basin via sheet flow. A proposed detention/water quality basin is sized to reduce the peak rates of runoff from the proposed road's drainage system for 2, 10, 25 and 100-year rainfall events to below the pre-development rates. The basin is designed to over-compensate for the runoff through the drainage system to make up for increases for development not associated with the road/storm drain.

Discharge rate from the detention/water quality basin will be further reduced as it flows over 1,000 feet through wetlands and underbrush. The basin is designed to slowly drain empty after each storm. The following table provides a comparison of computed peak rates of runoff from the area that flows to the basin (4.77 acres) for undeveloped land versus the developed condition:

(*Developed Peak Flow Rates do not include the flow from the extended detention underdrain. Peak Flow Rate from a 4-inch PVC pipe will be less than 1 CFS.)

Eight of the remaining lots drain to a swale/wetland that flows off the property to the northeast. The following table provides a comparison of computed peak rates of runoff from the area of development from those lots (8.84 acres) for undeveloped land versus the developed condition:

WATER QUALITY: The proposed detention/water quality basin is to hold the Water Quality Volume (WQV) for 12 hours to settle out suspended solids from the proposed roadway's runoff. The CT D.E.E.P. 2024 Stormwater Quality Manual Paragraph 7.4.1 states: "In the northeastern U.S., the 90 percent rainfall event is equal to approximately 1.3 inches, which is consistent with the recommended WQV sizing criteria for Connecticut." Therefore, by treating one inch of runoff from the new road's drainage system, the proposal effectively improves the runoff from the property for 90 percent of all storm events.

CONCLUSION: The proposed development will not have adverse effects on down-gradient properties and is in keeping with the policies and goals of the Ledyard Planning and Zoning Commission.

Submitted by:
LBM Engineering, LLC

John R. Martucci, P.E.

| | | | | |
|--------------------|-------------------------|--|-------------|------------------|
| PREPARED BY JRM | DATE PREPARED 2/2026 | LBM Engineering, LLC 11 HALLY LANE COLCHESTER, CONNECTICUT 06415 TEL: (860)-416-9809 EMAIL: JOHN@LBMENGINEERING.COM | JOB NUMBER | PAGE NUMBER 1 |
| CHECKED BY | DATE CHECKED | | CLIENT NAME | TOTAL PAGES |

SHEWVILLE HEIGHTS SUB, - DRAINAGE CALCS.

CB1 STA 11+82, LT (4% SLOPE)

ROAD 200' x 14' ÷ 43,560 0.06 AC

OVERLAND 200' x 10' ÷ 43,560 0.05 AC

WEIGHTED 'C' [(0.06 x 0.9) + (0.05 x 0.3)] ÷ 0.11 = 0.11
0.63

TG = 366.72 INV 362.22

CB2 STA. 11+82, RT (4.0%)

ROAD 200' x 14' ÷ 43,560 0.06 AC

DRIVEWAY 75 x 10 0.02 AC

OVERLAND 5000 SF ÷ 43560 0.11 AC

WEIGHTED 'C' [(0.08 x 0.9) + (0.11 x 0.3)] ÷ 0.19 = 0.55 0.19 AC

TG 366.72 INV = 361.98

CB3 STA 14+04, LT (1%)

ROAD 212' x 14' ÷ 43,560 0.07

OVERLAND 200 x 20 ÷ 43,560 0.09

WEIGHTED C [(0.07 x 0.9) + (0.09 x 0.3)] ÷ 0.16 = 0.56
0.16

TG = 363.21 INV 359.95

| | | | | |
|-------------|---------------|--|-------------|-------------|
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CB 4 STA 14+04 RT (1.0%)

ROAD 212' x 14' ÷ 43,560 0.07 AC

DRIVEWAY 120 x 10 0.03 AC

ROOF 1500 0.03 AC

OVERLAND (80 x 200 ÷ 43,560) = 0.06
 0.30 AC
 0.43 AC

WEIGHTED 'C' $[(0.13 \times 0.9) + (0.30 \times 0.3)] \div 0.43 = 0.48$

TG 363.21 INV 358.71

CB 5 STA 17+0 LT (LOW POINT)

ROAD 550' x 14' ÷ 43,560 0.18 AC

AI = $0.18 \times 0.9 = 0.16$
 TG = 360.50 INV 355.25

CB 6 STA 17+0, RT (LOW POINT)

ROAD 500' x 14' ÷ 43,560 0.16 AC

DRIVEWAYS & ROOF 3 x 3,000 ÷ 43,560 0.21 AC

OVERLAND 45,000 ÷ 43,560 1.03 AC
 1.40

WEIGHTED 'C' $[(0.37 \times 0.9) + (1.03 \times 0.3)] \div 1.40$
 AI = 0.46

TG 360.50 INV 355.75

TYPE C Double Gate

PROJECT: SHEWVILLE HEIGHTS SUBDIVISION
 PROJECT NO.: _____
 TOWN: Ledyard
 ROUTE: _____
 LOCATION: N/A

DESIGNED BY: JRM
 CHECKED BY: _____
 DATE: 02/23/26
 REV: _____
 DATE: _____

| GUTTER FLOW ANALYSIS - 25 YR STORM | | | | | | | | | | | | | | | | |
|------------------------------------|--------------------------|-------------------|-------------------|----------------------|----------------------------|------------------------|----------------|------------------|----------------------------|------------------------------------|------------------------------|------------------------|-------------------------|--------------------|-------------------------|------------|
| Inlet D | Inlet Station and Offset | Area in Acres (A) | Runoff Coeff. (C) | Time to Inlet (min.) | Rainfall Intensity (in/hr) | AC | Total AC | Q to Inlet (cfs) | Grade of Gutter ft/ft (SL) | Cross Slope Of Shoulder ft/ft (Sx) | Depth of Flow of Gutter (ft) | Gutter Flow Width (ft) | Q Bypassing Inlet (cfs) | AC Bypassing Inlet | AC Entering Catch Basin | Inlet Type |
| PROPOSED ROAD LEFT GUTTER | | | | | | | | | | | | | | | | |
| CB1 | 11+82, LT | 0.110 | 0.63 | 10 | 6.20 | 0.069 | 0.069 | 0.473 | 0.043 | 0.043 | 0.104 | 2.415 | 0.000 | 0.000 | 0.069 | "C" |
| CB3 | 14+04, LT | 0.160 | 0.56 | 10 | 6.20 | 0.090 | 0.090 | 0.611 | 0.010 | 0.043 | 0.148 | 3.449 | 0.046 | 0.007 | 0.082 | "C" |
| CB5 | 17+00, LT | 0.180 | 0.9 | 10 | 6.20 | 0.162 | 0.169 | 1.156 | LOW PT | 0.043 | | | | | 0.169 | "C" |
| PROPOSED ROAD RIGHT GUTTER | | | | | | | | | | | | | | | | |
| CB2 | 11+82, RT | 0.190 | 0.55 | 10 | 6.20 | 0.105 | 0.105 | 0.713 | 0.040 | 0.043 | 0.121 | 2.818 | 0.009 | 0.001 | 0.103 | "C" |
| CB4 | 14+04, RT | 0.430 | 0.48 | 10 | 6.20 | 0.206 | 0.208 | 1.418 | 0.010 | 0.043 | 0.203 | 4.729 | 0.315 | 0.051 | 0.157 | "C" |
| CB6 | 17+00, RT | 1.400 | 0.46 | 10 | 6.20 | 0.644 | 0.696 | 4.749 | LOW PT | 0.043 | | | | | 0.696 | "C" |
| NOTES: | | | | | | | | | | | | | | | | |
| LOW POINT ANALYSIS | | | | | | | | | | | | | | | | |
| INLET | Q TO INLET | PERIM. | C WEIR | d WEIR | WIDTH | d ^d ORIFICE | | | | | | | | | | |
| CB5 | 1.156 | 5.020 | 3 | 0.180 | 4.20 | 0.019 | 0.3' DEEP - OK | | | | | | | | | |
| CB6 | 4.749 | 7.330 | 3 | 0.360 | 8.37 | 0.318 | 0.3' DEEP - OK | | | | | | | | | |

| GRATES | PERIM | AREA |
|---------|-------|------|
| C | 5.02 | 3.13 |
| C DOUB | 7.33 | 6.26 |
| CL | 7.33 | 3.13 |
| CL DOUB | 11.96 | 6.26 |

- Notes
- 1.) Manning's n = 0.016 (asphalt).
 - 2.) Tc = 5 minutes minimum for areas with all pavement.
 - 3.) Tc = 10 minutes minimum for small areas with pavement and grass.
 - 4.) Allow points operate as a weir. Depth (d) over grate is less than 0.4 feet.

STORM SEWER SYSTEM DESIGN DRAINAGE SYSTEM

Sheet No. 1 of 1

Client: SHEWILLE HEIGHTS SUBDIVISION
 Project: SHEWILLE HEIGHTS SUBDIVISION
 Proj. No.:
 Return Period for Design: 25-YR

Prepared By: JRM Date: 02/20/26 Revised:

| Line Segment | | Time to Inlet (min.) | Time in Pipe (min.) | Accumul. Time (min.) | A x C Entering System | Sum of A x C in System | Rainfall Intensity, R (in./hr.) | Q in System (c.f.s.) | Pipe Data | | | | | | |
|------------------|------------------|----------------------|---------------------|----------------------|-----------------------|------------------------|---------------------------------|----------------------|------------|--------------|-----------------|--------------------|--------------------|-----------------|-------------|
| From | To | | | | | | | | Size (in.) | Length (ft.) | Slope (ft./ft.) | Avg. Vel. (f.p.s.) | Full Cap. (c.f.s.) | Headwater (ft.) | Manning "n" |
| CB 1 11+82,LT | CB 2 11+82,RT | 10 | 0.08 | 10.0 | 0.069 | 0.069 | 6.2 | 0.43 | 15 | 24 | 0.010 | 5.0 | 6.99 | 0.30 | 0.012 |
| CB 2 11+82,RT | CB 4 14+04,RT | 10 | 0.74 | 10.1 | 0.103 | 0.172 | 6.2 | 1.07 | 15 | 222 | 0.010 | 5.0 | 6.99 | 0.40 | 0.012 |
| CB 3 14+04,LT | CB 4 14+04,RT | 10 | 0.08 | 10.8 | 0.092 | 0.092 | 6.2 | 0.57 | 15 | 24 | 0.010 | 5.0 | 6.99 | 0.60 | 0.012 |
| CB 4 14+04,RT | CB 6 17+00,RT | 10 | 0.99 | 10.9 | 0.157 | 0.249 | 6.2 | 1.54 | 15 | 296 | 0.010 | 5.0 | 6.99 | 0.55 | 0.012 |
| CB 6 17+00,RT | CB 5 17+00,LT | 10 | 0.08 | 11.9 | 0.696 | 0.945 | 6.2 | 5.86 | 15 | 24 | 0.010 | 5.0 | 6.99 | 1.70 | 0.012 |
| CB 5 17+00,LT | OUTLET | 10 | 0.08 | 12.0 | 0.173 | 1.118 | 6.2 | 6.93 | 18 | 50 | 0.026 | 10.0 | 18.34 | 2.00 | 0.012 |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

Manning's "n" for HDPE and RC pipe = 0.012

NOTE: ALL PIPES ARE BELOW FULL CAPACITY.

| | | | | |
|-------------|---------------|--|-------------|------------------|
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| CHECKED BY | DATE CHECKED | | CLIENT NAME | 5 TOTAL PAGES |

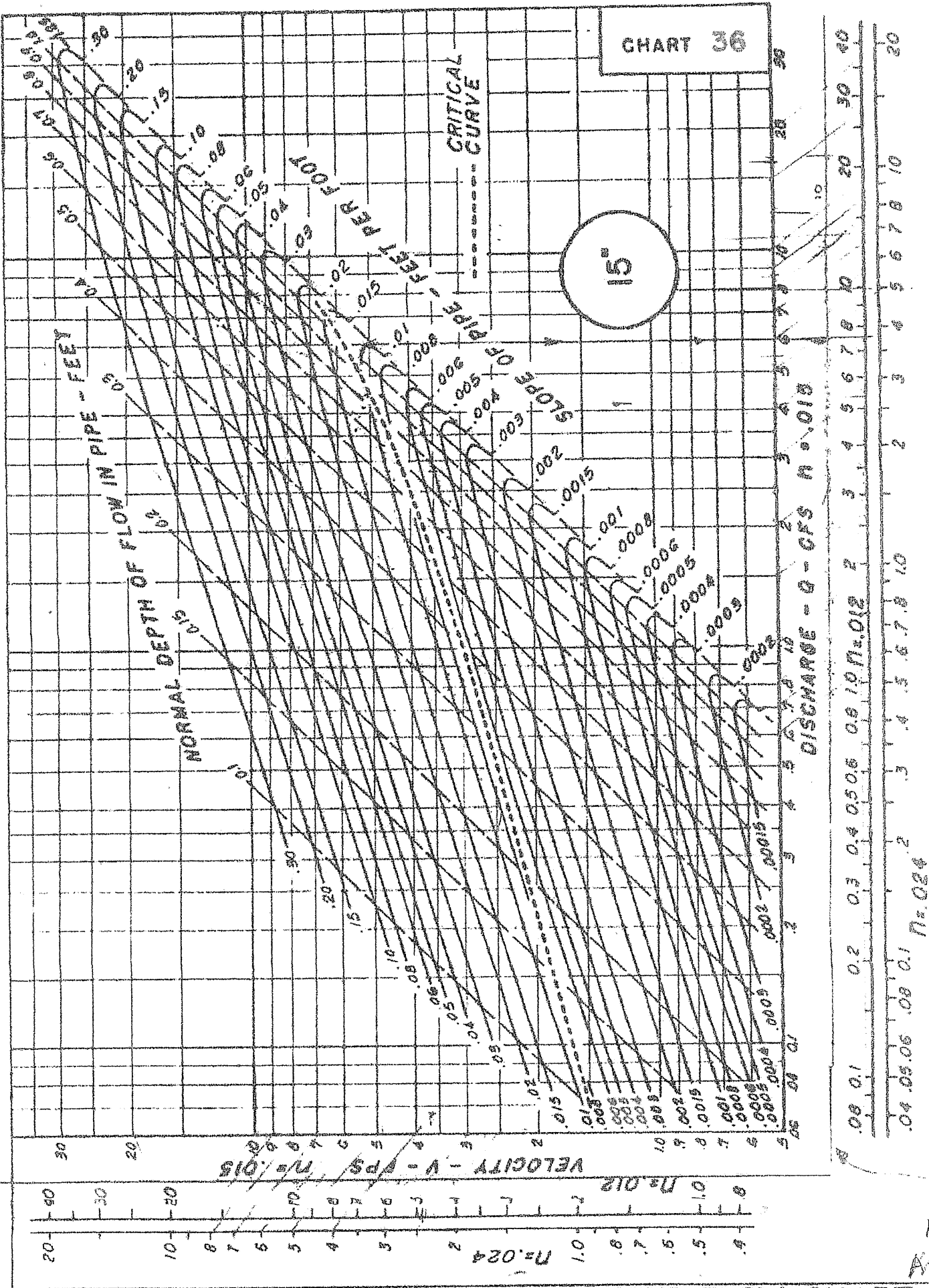
STORM DRAIN TO DETENTION BASIN

| | AREA | ROOF & PAV'T | O'LAND |
|-----|--------------|--------------|-------------|
| CB1 | 0.11 | 0.06 | 0.05 |
| CB2 | 0.19 | 0.08 | 0.11 |
| CB3 | 0.16 | 0.09 | 0.07 |
| CB4 | 0.43 | 0.13 | 0.3 |
| CB5 | 0.18 | 0.18 | |
| CB6 | <u>1.140</u> | <u>0.37</u> | <u>1.03</u> |
| | 2.47 AC | 0.91 | 1.56 |

CHART 36



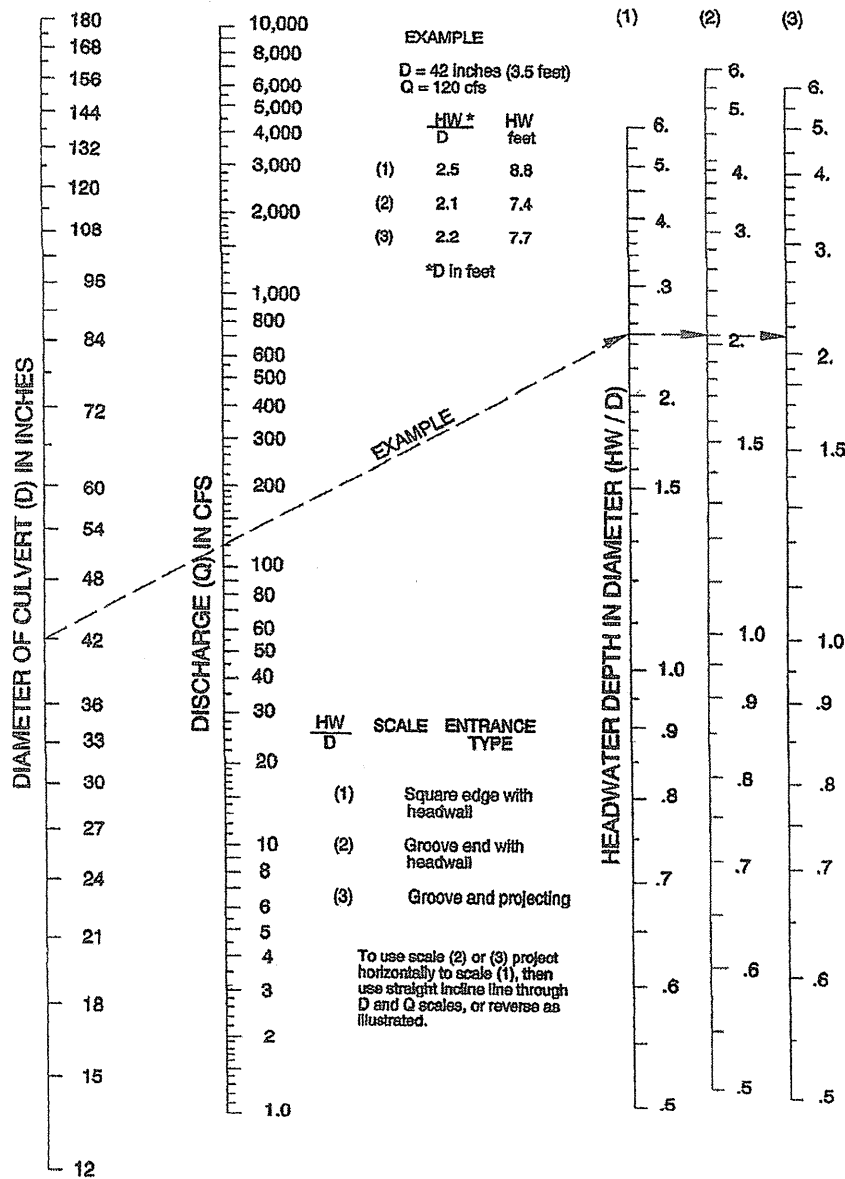
PIPE FLOW CHART
15-INCH DIAMETER

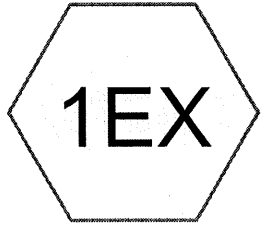


A-1
A-7A

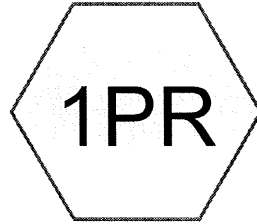
CHART 1

HEADWATER DEPTH FOR CONCRETE PIPE CULVERTS WITH INLET CONTROL

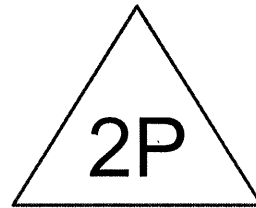




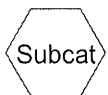
UNDEV



TO BASIN



WQ BASIN



BASIN 02-2026

GALESFERRY 2-yr Duration=20 min, Inten=2.35 in/hr

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Summary for Subcatchment 1EX: UNDEV

Runoff = 1.76 cfs @ 0.17 hrs, Volume= 2,899 cf, Depth= 0.32"

Runoff by Rational method, Rise/Fall=1.0/2.5 xTc, Time Span= 0.00-6.00 hrs, dt= 0.01 hrs
GALESFERRY 2-yr Duration=20 min, Inten=2.35 in/hr

| Area (ac) | C | Description | Land Use |
|-----------|------|-----------------------|----------|
| 2.470 | 0.30 | EXISTING UNDEVELOPED | |
| 2.470 | | 100.00% Pervious Area | |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 10.0 | | | | | Direct Entry, |

Summary for Subcatchment 1PR: TO BASINRunoff = 3.05 cfs @ 0.17 hrs, Volume= 5,025 cf, Depth= 0.56"
Routed to Pond 2P : WQ BASINRunoff by Rational method, Rise/Fall=1.0/2.5 xTc, Time Span= 0.00-6.00 hrs, dt= 0.01 hrs
GALESFERRY 2-yr Duration=20 min, Inten=2.35 in/hr

| Area (ac) | C | Description | Land Use |
|-----------|------|-----------------------|----------|
| 0.910 | 0.90 | PAVEMENT & ROOFS | |
| 1.560 | 0.30 | OVERLAND | |
| 2.470 | 0.52 | Weighted Average | |
| 2.470 | | 100.00% Pervious Area | |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|-----------------------|
| 10.0 | | | | | Direct Entry, MINIMUM |

Summary for Pond 2P: WQ BASIN

Inflow Area = 107,593 sf, 0.00% Impervious, Inflow Depth = 0.56" for 2-yr event
 Inflow = 3.05 cfs @ 0.17 hrs, Volume= 5,025 cf
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-6.00 hrs, dt= 0.01 hrs
 Peak Elev= 359.10' @ 0.75 hrs Surf.Area= 3,647 sf Storage= 5,025 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no outflow)

| Volume # | Invert | Avail.Storage | Storage Description |
|----------|---------|---------------|---|
| #1 | 357.50' | 21,700 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

BASIN 02-2026

GALESFERRY 2-yr Duration=20 min, Inten=2.35 in/hr

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| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 357.50 | 2,650 | 0 | 0 |
| 359.50 | 3,900 | 6,550 | 6,550 |
| 361.50 | 5,450 | 9,350 | 15,900 |
| 362.50 | 6,150 | 5,800 | 21,700 |

| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|--|
| #1 | Primary | 360.00' | 7.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32 |

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=357.50' (Free Discharge)

↑1=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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GALESFERRY 10-yr Duration=20 min, Inten=3.49 in/hr

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Summary for Subcatchment 1EX: UNDEV

Runoff = 2.61 cfs @ 0.17 hrs, Volume= 4,302 cf, Depth= 0.48"

Runoff by Rational method, Rise/Fall=1.0/2.5 xTc, Time Span= 0.00-6.00 hrs, dt= 0.01 hrs
GALESFERRY 10-yr Duration=20 min, Inten=3.49 in/hr

| Area (ac) | C | Description | Land Use |
|-----------|------|-----------------------|----------|
| 2.470 | 0.30 | EXISTING UNDEVELOPED | |
| 2.470 | | 100.00% Pervious Area | |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 10.0 | | | | | Direct Entry, |

Summary for Subcatchment 1PR: TO BASINRunoff = 4.52 cfs @ 0.17 hrs, Volume= 7,457 cf, Depth= 0.83"
Routed to Pond 2P : WQ BASINRunoff by Rational method, Rise/Fall=1.0/2.5 xTc, Time Span= 0.00-6.00 hrs, dt= 0.01 hrs
GALESFERRY 10-yr Duration=20 min, Inten=3.49 in/hr

| Area (ac) | C | Description | Land Use |
|-----------|------|-----------------------|----------|
| 0.910 | 0.90 | PAVEMENT & ROOFS | |
| 1.560 | 0.30 | OVERLAND | |
| 2.470 | 0.52 | Weighted Average | |
| 2.470 | | 100.00% Pervious Area | |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|-----------------------|
| 10.0 | | | | | Direct Entry, MINIMUM |

Summary for Pond 2P: WQ BASIN

Inflow Area = 107,593 sf, 0.00% Impervious, Inflow Depth = 0.83" for 10-yr event
 Inflow = 4.52 cfs @ 0.17 hrs, Volume= 7,457 cf
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-6.00 hrs, dt= 0.01 hrs
 Peak Elev= 359.73' @ 0.75 hrs Surf.Area= 4,076 sf Storage= 7,457 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no outflow)

| Volume # | Invert | Avail.Storage | Storage Description |
|----------|---------|---------------|---|
| #1 | 357.50' | 21,700 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

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GALESFERRY 10-yr Duration=20 min, Inten=3.49 in/hr

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| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 357.50 | 2,650 | 0 | 0 |
| 359.50 | 3,900 | 6,550 | 6,550 |
| 361.50 | 5,450 | 9,350 | 15,900 |
| 362.50 | 6,150 | 5,800 | 21,700 |

| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|--|
| #1 | Primary | 360.00' | 7.0' long x 0.5' breadth Broad-Crested Rectangular Weir |
| | | | Head (feet) 0.20 0.40 0.60 0.80 1.00 |
| | | | Coef. (English) 2.80 2.92 3.08 3.30 3.32 |

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=357.50' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

BASIN 02-2026

GALESFERRY 50-yr Duration=20 min, Inten=4.74 in/hr

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Summary for Subcatchment 1EX: UNDEV

Runoff = 3.54 cfs @ 0.17 hrs, Volume= 5,840 cf, Depth= 0.65"

Runoff by Rational method, Rise/Fall=1.0/2.5 xTc, Time Span= 0.00-6.00 hrs, dt= 0.01 hrs
GALESFERRY 50-yr Duration=20 min, Inten=4.74 in/hr

| Area (ac) | C | Description | Land Use |
|-----------|------|-----------------------|----------|
| 2.470 | 0.30 | EXISTING UNDEVELOPED | |
| 2.470 | | 100.00% Pervious Area | |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 10.0 | | | | | Direct Entry, |

Summary for Subcatchment 1PR: TO BASINRunoff = 6.14 cfs @ 0.17 hrs, Volume= 10,123 cf, Depth= 1.13"
Routed to Pond 2P : WQ BASINRunoff by Rational method, Rise/Fall=1.0/2.5 xTc, Time Span= 0.00-6.00 hrs, dt= 0.01 hrs
GALESFERRY 50-yr Duration=20 min, Inten=4.74 in/hr

| Area (ac) | C | Description | Land Use |
|-----------|------|-----------------------|----------|
| 0.910 | 0.90 | PAVEMENT & ROOFS | |
| 1.560 | 0.30 | OVERLAND | |
| 2.470 | 0.52 | Weighted Average | |
| 2.470 | | 100.00% Pervious Area | |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|-----------------------|
| 10.0 | | | | | Direct Entry, MINIMUM |

Summary for Pond 2P: WQ BASIN

Inflow Area = 107,593 sf, 0.00% Impervious, Inflow Depth = 1.13" for 50-yr event
 Inflow = 6.14 cfs @ 0.17 hrs, Volume= 10,123 cf
 Outflow = 1.50 cfs @ 0.65 hrs, Volume= 1,524 cf, Atten= 76%, Lag= 28.7 min
 Primary = 1.50 cfs @ 0.65 hrs, Volume= 1,524 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-6.00 hrs, dt= 0.01 hrs
Peak Elev= 360.18' @ 0.65 hrs Surf.Area= 4,427 sf Storage= 9,382 cfPlug-Flow detention time= 41.5 min calculated for 1,522 cf (15% of inflow)
Center-of-Mass det. time= 28.4 min (48.0 - 19.5)

| Volume #1 | Invert | Avail.Storage | Storage Description |
|-----------|---------|---------------|---|
| | 357.50' | 21,700 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

BASIN 02-2026

GALESFERRY 50-yr Duration=20 min, Inten=4.74 in/hr

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| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 357.50 | 2,650 | 0 | 0 |
| 359.50 | 3,900 | 6,550 | 6,550 |
| 361.50 | 5,450 | 9,350 | 15,900 |
| 362.50 | 6,150 | 5,800 | 21,700 |

| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|--|
| #1 | Primary | 360.00' | 7.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32 |

Primary OutFlow Max=1.50 cfs @ 0.65 hrs HW=360.18' (Free Discharge)
 ↳ **1=Broad-Crested Rectangular Weir** (Weir Controls 1.50 cfs @ 1.19 fps)

BASIN 02-2026

GALESFERRY 100-yr Duration=20 min, Inten=5.30 in/hr

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Summary for Subcatchment 1EX: UNDEV

Runoff = 3.96 cfs @ 0.17 hrs, Volume= 6,528 cf, Depth= 0.73"

Runoff by Rational method, Rise/Fall=1.0/2.5 xTc, Time Span= 0.00-6.00 hrs, dt= 0.01 hrs
 GALESFERRY 100-yr Duration=20 min, Inten=5.30 in/hr

| Area (ac) | C | Description | Land Use |
|-----------|------|-----------------------|----------|
| 2.470 | 0.30 | EXISTING UNDEVELOPED | |
| 2.470 | | 100.00% Pervious Area | |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 10.0 | | | | | Direct Entry, |

Summary for Subcatchment 1PR: TO BASIN

Runoff = 6.86 cfs @ 0.17 hrs, Volume= 11,315 cf, Depth= 1.26"
 Routed to Pond 2P : WQ BASIN

Runoff by Rational method, Rise/Fall=1.0/2.5 xTc, Time Span= 0.00-6.00 hrs, dt= 0.01 hrs
 GALESFERRY 100-yr Duration=20 min, Inten=5.30 in/hr

| Area (ac) | C | Description | Land Use |
|-----------|------|-----------------------|----------|
| 0.910 | 0.90 | PAVEMENT & ROOFS | |
| 1.560 | 0.30 | OVERLAND | |
| 2.470 | 0.52 | Weighted Average | |
| 2.470 | | 100.00% Pervious Area | |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|-----------------------|
| 10.0 | | | | | Direct Entry, MINIMUM |

Summary for Pond 2P: WQ BASIN

Inflow Area = 107,593 sf, 0.00% Impervious, Inflow Depth = 1.26" for 100-yr event
 Inflow = 6.86 cfs @ 0.17 hrs, Volume= 11,315 cf
 Outflow = 2.59 cfs @ 0.59 hrs, Volume= 2,717 cf, Atten= 62%, Lag= 25.4 min
 Primary = 2.59 cfs @ 0.59 hrs, Volume= 2,717 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-6.00 hrs, dt= 0.01 hrs
 Peak Elev= 360.26' @ 0.59 hrs Surf.Area= 4,487 sf Storage= 9,725 cf

Plug-Flow detention time= 35.3 min calculated for 2,717 cf (24% of inflow)
 Center-of-Mass det. time= 23.4 min (43.0 - 19.5)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|---|
| #1 | 357.50' | 21,700 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

BASIN 02-2026

GALESFERRY 100-yr Duration=20 min, Inten=5.30 in/hr

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| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 357.50 | 2,650 | 0 | 0 |
| 359.50 | 3,900 | 6,550 | 6,550 |
| 361.50 | 5,450 | 9,350 | 15,900 |
| 362.50 | 6,150 | 5,800 | 21,700 |

| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|--|
| #1 | Primary | 360.00' | 7.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32 |

Primary OutFlow Max=2.59 cfs @ 0.59 hrs HW=360.26' (Free Discharge)
 ↳ **1=Broad-Crested Rectangular Weir** (Weir Controls 2.59 cfs @ 1.44 fps)

