DRAINAGE REPORT

Prepared for

TOWN OF MONTVILLE

For the

MONTVILLE ANIMAL CONTROL FACILITY

225 Maple Avenue
Montville, CT

Prepared By:

Donald W. Smith, Jr., P.E.
CONSULTING ENGINEER
56 Greenwood Circle
Seymour, CT 06483
(203) 888-4904

October 2, 2022

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PRE & POST DEVELOPMENT HYDROGRAPHS

Donald W. Smith, Jr., P.E.
CONSULTING ENGINEER
56 Greenwood Circle
Seymour, Connecticut 06483
(203) 888-4904
Fax: (203) 881-3434
Email: dwsjrpe@sbcglobal.net

CIVIL ENGINEERING **CONSTRUCTION INSPECTION**
SEPTIC DESIGN **SITE DEVELOPMENT**

EXECUTIVE SUMMARY

Montville Animal Shelter

225 Maple Avenue
Montville, Connecticut

September 30, 2023

This Drainage Report has been prepared to evaluate the impacts to the peak rate of stormwater runoff due to the development of the proposed Montville animal Shelter on Maple Avenue in Montville, CT. The proposed project entails the construction of an approximately 3,250 sf building, a six (6) car parking area, driveway and associated site improvements. The project results in the creation of approximately 12,700 sf of new impervious surface.

The Project Site encompasses approximately 1.25 ac. of the 11.77 ac. DPW complex on the north side of Maple Avenue.

There are no regulated inland wetlands within 100 of the project area and there are no FEMA Flood Hazard Areas on the parcel

The Site is not located in an Aquifer Protection Zone or a Public Water Supply Watershed.

Due to limited storm drainage facilities on the Site, the storm water management system has been designed to infiltrate all of the stormwater generated by the project area, resulting in a decrease in runoff to the existing on-site drainage systems

The Hydraulic analysis for this project utilized Intelisolve Drainage software and TR-20 methods and an SCS 24 hour storm event to analyze the increase in the peak rate of runoff due to the project The following SCS 24 hour precipitation Values were generated by the National Weather Service for the Site and were used in the Hydraulic analysis:

Return Period:	2 yr	10 yr.	25 yr.	50 yr.	100 yr.
Precip. (In.)	3.46	5.12	6.15	6.93	7.75

The contributing watershed area to each point of analysis was identified and a Weighted Runoff Curve Number (WCN) was computed. The Time of Concentration (Tc) for the watershed area was calculated based on the amount of overland and channelized flow in the watershed.

In order to mitigate the impacts of the development, a Storm Water Management Area (SWMA) is proposed to be constructed. The SWMA will be an excavated style, open detention basin that will provide improved water quality as well as reducing the post development peak rate of runoff.

The SWMA will consist of an open basin that provides approximately 16,700 CF of storage. The site is underlain by Hydrologic Group A soils, an infiltration rate of 5 in/hr was used in the analysis based on testing performed and applying a 25% safety factor. A riprap overflow channel will be provided in the event of unforeseen conditions.

A summary of the Pre and Post development flows for the project area are indicated below.

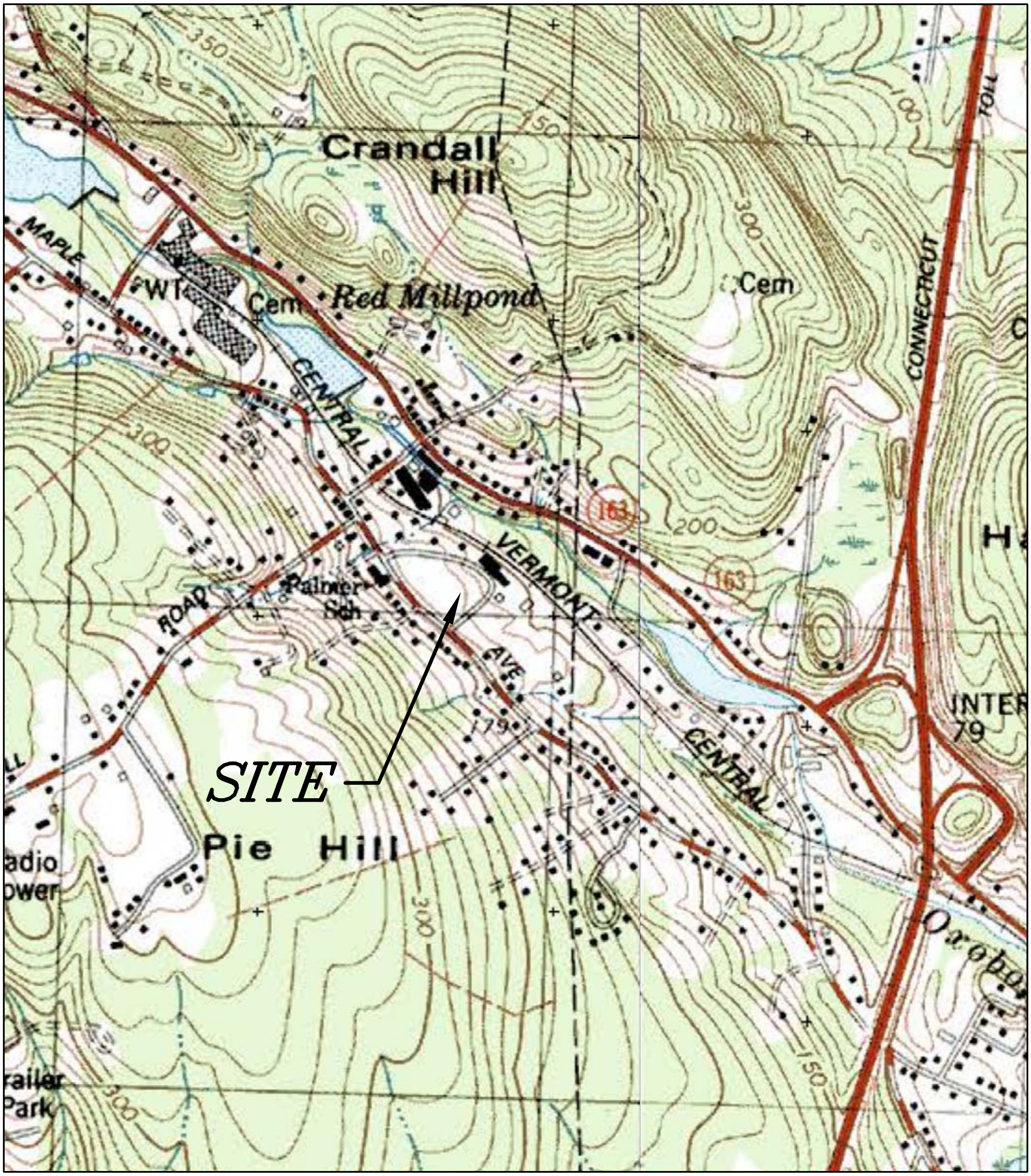
PEAK RUNOFF SUMMARY (All results are in CFS)

CONDITION	2 Year Storm	10 Year Storm	25 Year Storm	100 year Storm
Pre Development	0.033	0.683	1.693	3.864
Post Development	0.000	0.000	0.000	0.000
Δ Pre vs. Post Development	- 0.033	- 0.683	- 1.693	- 3.864

Erosion controls will be installed & maintained in accordance with the erosion control plan and details and good engineering practice.

The proposed building will be connected to the municipal water and sewer systems and there will be no underground oil tanks installed.

LOCATION MAP



ATTACHMENT A

GRAPHIC SCALE:

1000 0 1000

MAP REFERENCE: United States Department of the Interior Geological Survey, Montville & Uncasville Quadrangles, Connecticut — New London Co., 7.5 Series Topographic, Scale: 1:24,000, Dated: Montville 1983, Uncasville 1984.

REVISIONS		
NO.	DESCRIPTION	DATE

USGS LOCUS MAP

MONTVILLE ANIMAL SHELTER

225 MAPLE AVENUE

MONTVILLE, CONNECTICUT

DONALD W. SMITH, JR., P.E.
CONSULTING ENGINEER
56 GREENWOOD CIRCLE SEYMOUR, CT. 203-888-4904

Job No. 22-24

Scale: 1"=1000'

Date: 10/2/23

Designed: D.W.S.

Drawn: K.D.K.

Sheet: 1 OF 1

Map Scale: 1:2,340 if printed on A landscape (11" x 8.5") sheet.

Meters: 0, 30, 60, 120, 180

Feet: 0, 100, 200, 400, 600

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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.

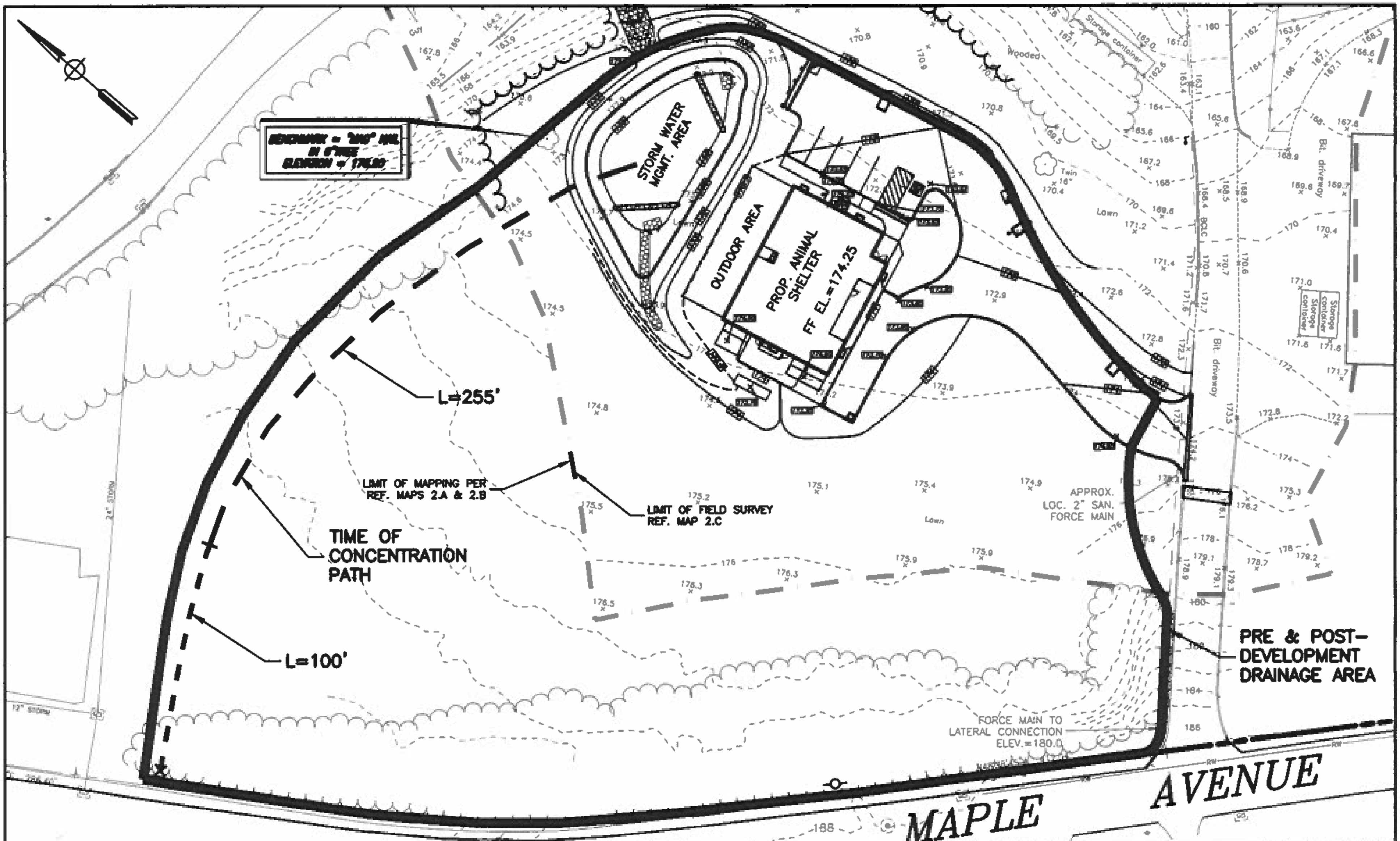
This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut
Survey Area Data: Version 22, Sep 12, 2022

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

Date(s) aerial images were photographed: Data not available.

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.



GRAPHIC SCALE

60 0 60

REVISIONS		
NO.	DESCRIPTION	DATE

SILVER / PETRUCELLI + ASSOCIATES
Architects / Engineers / Interior Designers
3190 Whitney Avenue, Hamden, CT 06518-2340
Tel. 203 230 9007 Fax. 203 230 8247
silverpetrucelli.com

DONALD W. SMITH, JR., P.E.
CONSULTING ENGINEER
56 GREENWOOD CIRCLE SEYMOUR, CT 06483
Tel. 203-888-4904 Fax 203-881-3434 dwsjrpe@sbcglobal.net

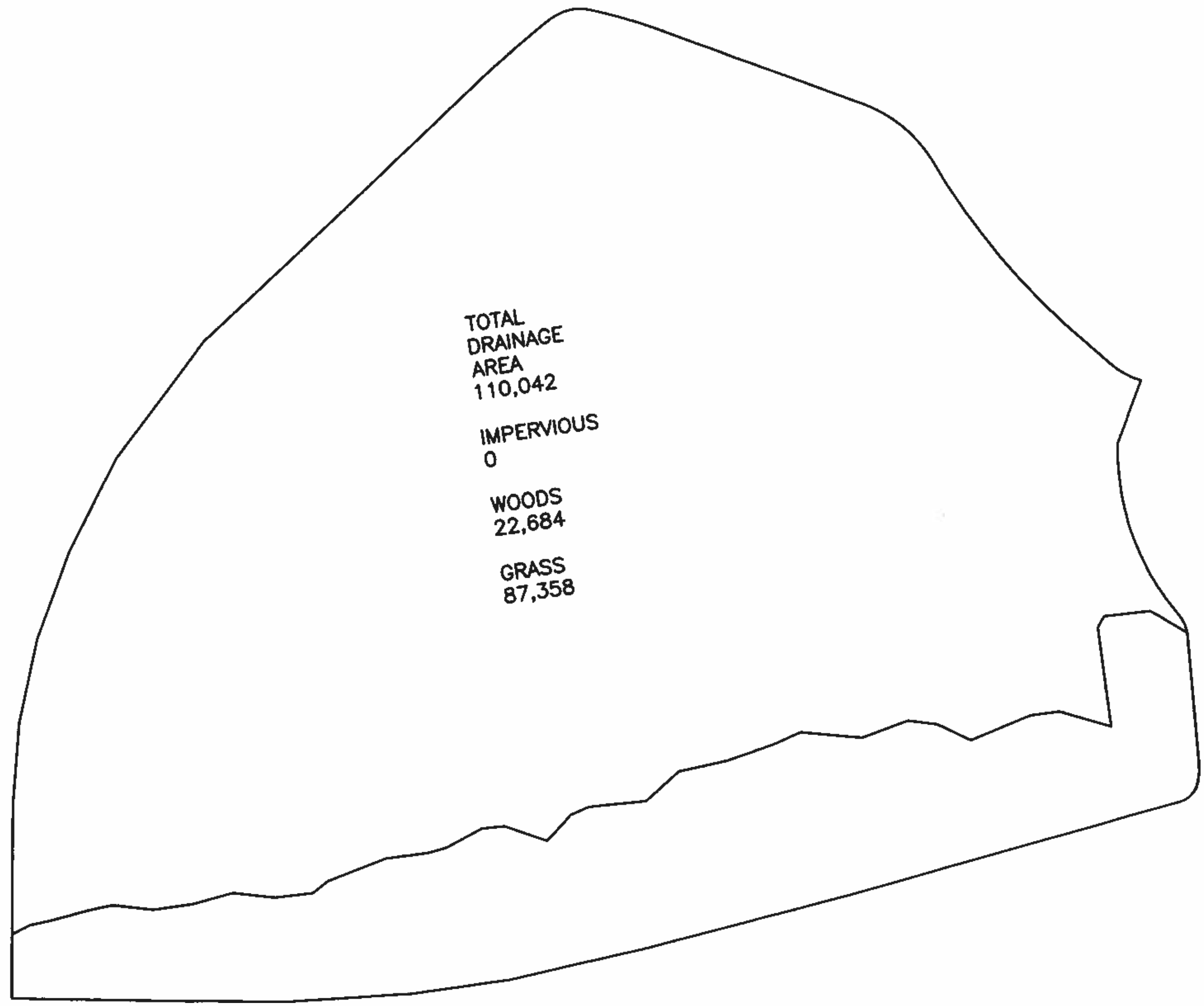
PRE & POST-DEVELOPMENT DRAINAGE AREA MAP

MONTVILLE ANIMAL SHELTER

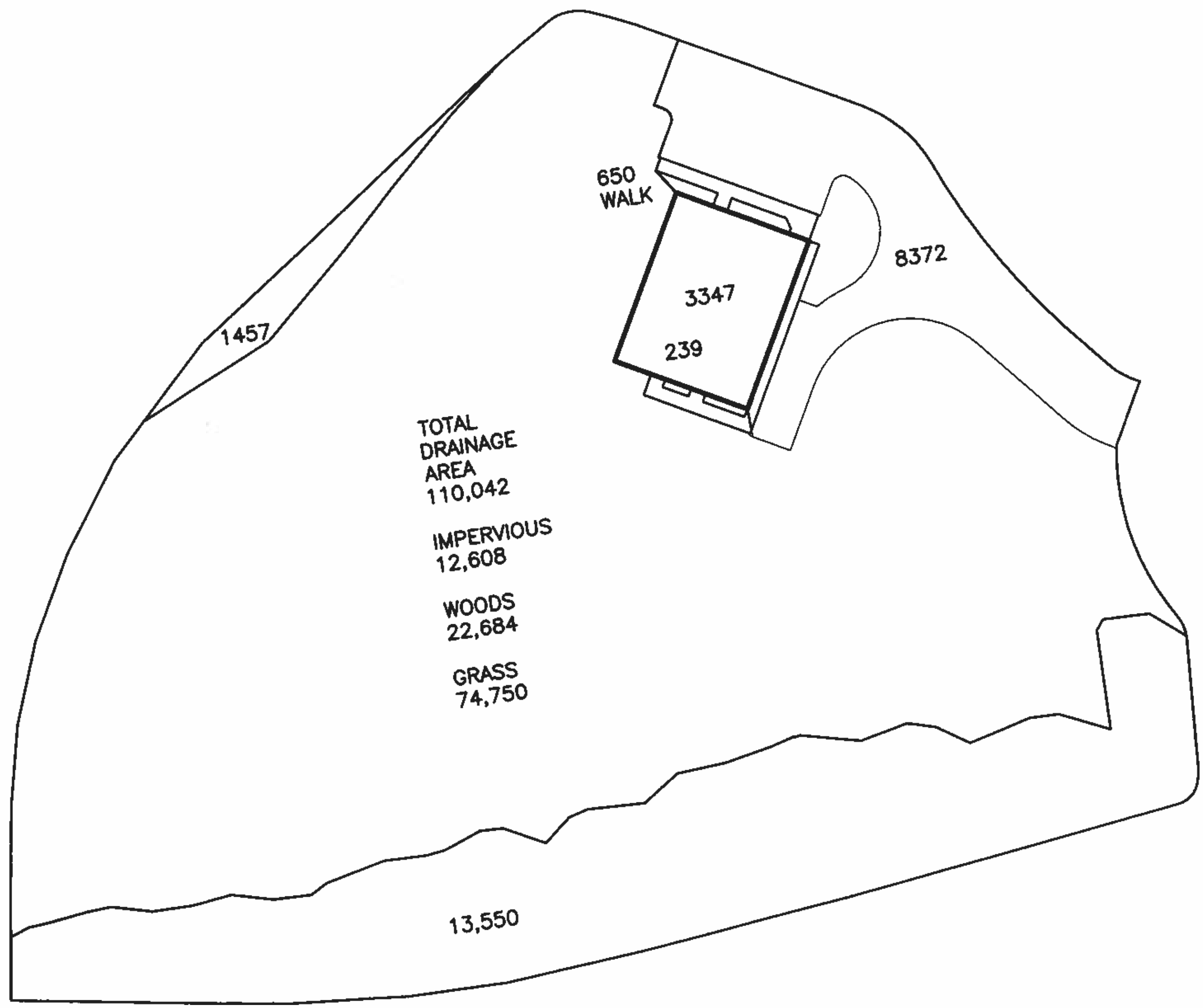
225 MAPLE AVENUE

MONTVILLE, CONNECTICUT

Job No. 22-24
Scale: 1"=60'
Date: 10/2/22
Designed: D.W.S.
Drawn: K.D.K.
Sheet: 1 of 1



PRE · DEVELOPMENT



Post Development.

RUNOFF CURVES,

TIME OF CONCENTRATION,

NOAA RAINFALL VALUES

Table 2-2a.—Runoff curve numbers for urban areas[1]

Cover description		Curve numbers for hydrologic soil group—			
Cover type and hydrologic condition	Average percent impervious area[2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.)[3]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only)[4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation)[5]		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

[1]Average runoff condition, and $I_a = 0.2S$.

[2]The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

[3]CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

[4]Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

[5]Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4, based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Table 2-2c.—Runoff curve numbers for other agricultural lands[1]

Cover description		Curve numbers for hydrologic soil group—			
Cover type	Hydrologic condition	A	B	C	D
Pasture, grassland, or range—continuous forage for grazing.[2]	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow—continuous grass, protected from grazing and generally mowed for hay.	—	30	58	71	78
Brush—brush-weed-grass mixture with brush the major element.[3]	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	[4]30	48	65	73
Woods—grass combination (orchard or tree farm).[5]	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods.[6]	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	[4]30	55	70	77
Farmsteads—buildings, lanes, driveways, and surrounding lots.	—	59	74	82	86

[1]Average runoff condition, and $I_a = 0.2S$.

[2]*Poor:* <50% ground cover or heavily grazed with no mulch.
Fair: 50 to 75% ground cover and not heavily grazed.
Good: >75% ground cover and lightly or only occasionally grazed.

[3]*Poor:* <50% ground cover.
Fair: 50 to 75% ground cover.
Good: >75% ground cover.

[4]Actual curve number is less than 30; use CN = 30 for runoff computations.

[5]CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

[6]*Poor:* Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.
Fair: Woods are grazed but not burned, and some forest litter covers the soil.
Good: Woods are protected from grazing, and litter and brush adequately cover the soil.

TIME OF CONCENTRATION COMPUTATIONS: DA PROPOSED

OVERLAND FLOW:

$T_t = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5} S^{0.4}}$ X 60 = ______ mins.

n = Roughness Coefficient 0.24, Surface Type grass

L = Length (ft) 100' P = 2 year rainfall (in) 3.46

G1 = 186 G2 = 178.5

S = Slope (ft/ft) G1 – G2/L = 0.075

$T_t = \frac{0.007(0.24 \times 100)^{0.8}}{(3.46)^{0.5} (0.075)^{0.4}}$ X 60 = 8.1 mins.

SHALLOW CONCENTRATED FLOW: - See Fig 3.

Tt = L/60V = ___ mins.

Overland

L= Length (ft) 225 V = velocity (ft/sec) 2.3

G1 = 178.5 G2 = 174

S = Slope (ft/ft) G1 – G2/L = 2%

Tt = 225 /60 x 2.3 = 1.6 mins.

Paved

L= Length (ft) ______ V = velocity (ft/sec) ____

G1 = _____ G2 = ______

S = Slope (ft/ft) G1 – G2/L = _______

Tt = ______/60______ = ______ mins.

Tt = 8.1 + 1.6 + 0 = 9.7 Mins.

For sheet flow of less than 300 feet, use Manning's kinematic solution (Overton and Meadows 1976) to compute T_t:

$$T_t = \frac{0.007\,(nL)^{0.8}}{(P_2)^{0.5}\,s^{0.4}} \qquad \text{[Eq. 3-3]}$$

Table 3-1.—Roughness coefficients (Manning's n) for sheet flow

Surface description	n[1]
Smooth surfaces (concrete, asphalt, gravel, or bare soil)	0.011
Fallow (no residue)	0.05
Cultivated soils:	
Residue cover ≤20%	0.06
Residue cover >20%	0.17
Grass:	
Short grass prairie	0.15
Dense grasses[2]	0.24
Bermudagrass	0.41
Range (natural)	0.13
Woods:[3]	
Light underbrush	0.40
Dense underbrush	0.80

[1]The n values are a composite of information compiled by Engman (1986).

[2]Includes species such as weeping lovegrass, bluegrass, buffalo grass, blue grama grass, and native grass mixtures.

[3]When selecting n, consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.

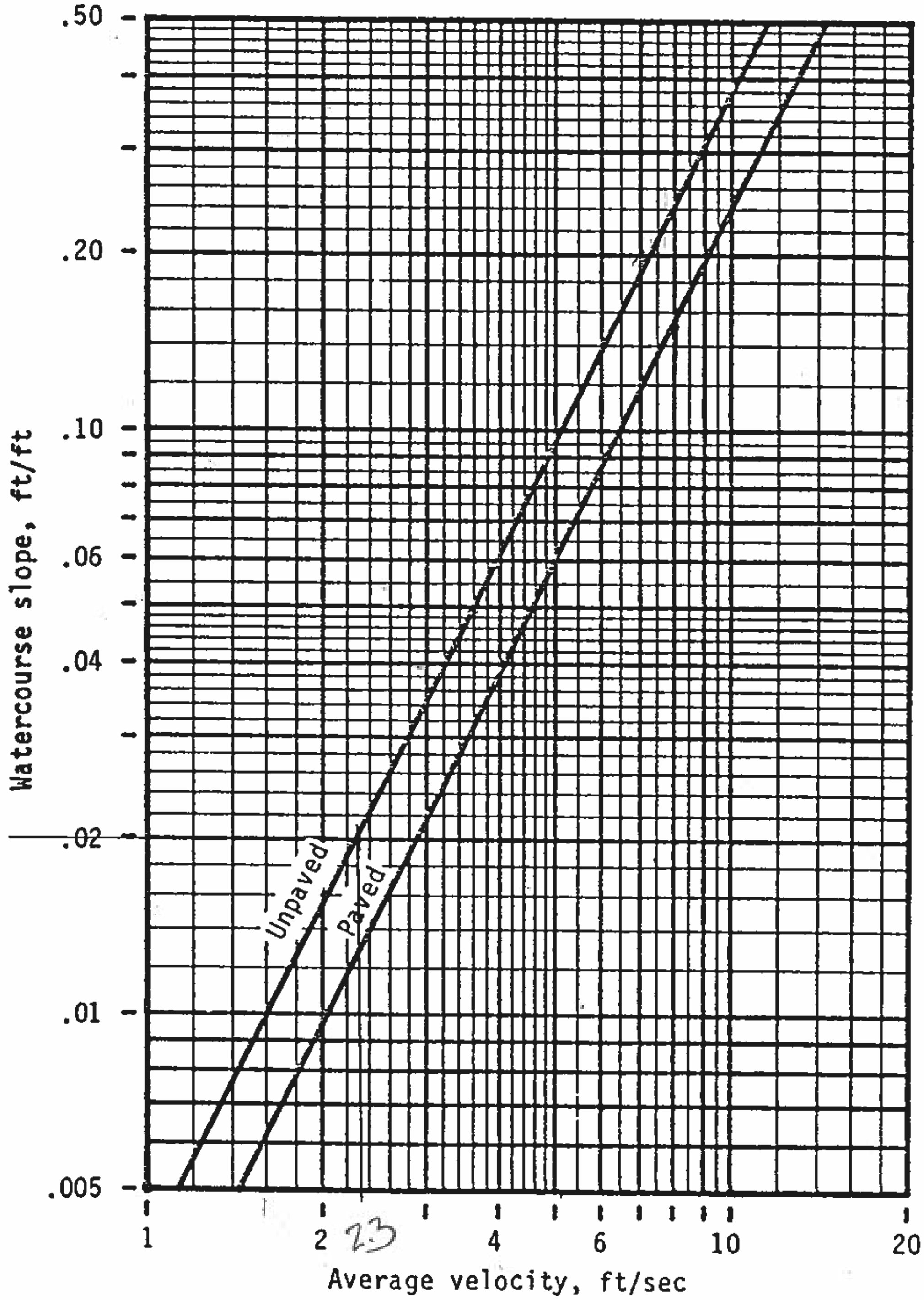


Figure 3-1.—Average velocities for estimating travel time for shallow concentrated flow.

NOAA Atlas 14, Volume 10, Version 3
Location name: Milford, Connecticut, USA*
Latitude: 41.2226°, Longitude: -73.0544°
Elevation: 14 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.346 (0.280-0.425)	0.417 (0.336-0.513)	0.532 (0.427-0.657)	0.628 (0.501-0.779)	0.759 (0.583-0.986)	0.858 (0.643-1.14)	0.962 (0.696-1.33)	1.08 (0.733-1.52)	1.24 (0.809-1.82)	1.38 (0.874-2.06)
10-min	0.491 (0.396-0.603)	0.590 (0.476-0.726)	0.753 (0.604-0.929)	0.888 (0.708-1.10)	1.08 (0.825-1.40)	1.22 (0.911-1.62)	1.36 (0.986-1.88)	1.53 (1.04-2.16)	1.76 (1.15-2.58)	1.96 (1.24-2.92)
15-min	0.577 (0.466-0.709)	0.695 (0.560-0.854)	0.887 (0.712-1.09)	1.05 (0.834-1.30)	1.26 (0.971-1.64)	1.43 (1.07-1.90)	1.60 (1.16-2.21)	1.80 (1.22-2.54)	2.07 (1.35-3.04)	2.30 (1.46-3.44)
30-min	0.804 (0.649-0.988)	0.968 (0.780-1.19)	1.24 (0.992-1.52)	1.46 (1.16-1.81)	1.76 (1.35-2.29)	1.99 (1.49-2.64)	2.23 (1.62-3.08)	2.50 (1.70-3.53)	2.89 (1.88-4.23)	3.21 (2.03-4.80)
60-min	1.03 (0.832-1.27)	1.24 (1.00-1.53)	1.58 (1.27-1.96)	1.87 (1.49-2.32)	2.26 (1.73-2.93)	2.55 (1.91-3.39)	2.86 (2.07-3.95)	3.21 (2.18-4.53)	3.71 (2.41-5.42)	4.11 (2.60-6.15)
2-hr	1.34 (1.09-1.63)	1.61 (1.31-1.97)	2.06 (1.66-2.53)	2.43 (1.95-3.00)	2.94 (2.27-3.80)	3.33 (2.51-4.40)	3.73 (2.72-5.13)	4.20 (2.87-5.89)	4.88 (3.18-7.10)	5.45 (3.46-8.09)
3-hr	1.55 (1.26-1.88)	1.87 (1.52-2.27)	2.39 (1.94-2.91)	2.82 (2.27-3.46)	3.41 (2.64-4.39)	3.85 (2.92-5.08)	4.32 (3.16-5.93)	4.87 (3.33-6.81)	5.68 (3.71-8.23)	6.36 (4.04-9.40)
6-hr	1.97 (1.62-2.38)	2.37 (1.94-2.87)	3.03 (2.48-3.68)	3.58 (2.90-4.37)	4.33 (3.38-5.55)	4.90 (3.73-6.42)	5.50 (4.05-7.50)	6.20 (4.26-8.61)	7.25 (4.75-10.4)	8.12 (5.18-11.9)
12-hr	2.44 (2.02-2.93)	2.95 (2.43-3.54)	3.78 (3.10-4.55)	4.46 (3.64-5.41)	5.41 (4.24-6.88)	6.11 (4.68-7.95)	6.86 (5.08-9.31)	7.75 (5.35-10.7)	9.07 (5.97-13.0)	10.2 (6.52-14.8)
24-hr	2.87 (2.38-3.42)	3.50 (2.90-4.17)	4.52 (3.74-5.42)	5.38 (4.42-6.47)	6.55 (5.18-8.29)	7.42 (5.72-9.62)	8.36 (6.24-11.3)	9.50 (6.57-13.0)	11.2 (7.41-15.9)	12.7 (8.15-18.4)
2-day	3.20 (2.68-3.79)	3.97 (3.32-4.70)	5.22 (4.35-6.21)	6.26 (5.18-7.49)	7.70 (6.13-9.71)	8.75 (6.81-11.3)	9.91 (7.47-13.4)	11.4 (7.88-15.5)	13.6 (9.02-19.2)	15.6 (10.0-22.4)
3-day	3.46 (2.91-4.08)	4.30 (3.61-5.08)	5.68 (4.75-6.73)	6.82 (5.66-8.13)	8.40 (6.71-10.6)	9.55 (7.46-12.3)	10.8 (8.19-14.6)	12.4 (8.64-16.8)	15.0 (9.92-21.0)	17.2 (11.1-24.6)
4-day	3.72 (3.13-4.37)	4.60 (3.87-5.42)	6.05 (5.07-7.14)	7.25 (6.03-8.61)	8.91 (7.14-11.2)	10.1 (7.92-13.0)	11.5 (8.69-15.4)	13.2 (9.16-17.8)	15.8 (10.5-22.1)	18.1 (11.7-25.9)
7-day	4.44 (3.76-5.19)	5.39 (4.56-6.31)	6.96 (5.86-8.16)	8.25 (6.90-9.74)	10.0 (8.07-12.5)	11.3 (8.90-14.5)	12.8 (9.70-17.0)	14.6 (10.2-19.5)	17.3 (11.5-24.1)	19.7 (12.7-27.9)
10-day	5.14 (4.37-5.98)	6.13 (5.21-7.15)	7.76 (6.56-9.08)	9.11 (7.64-10.7)	11.0 (8.84-13.5)	12.3 (9.70-15.6)	13.8 (10.5-18.2)	15.6 (11.0-20.9)	18.4 (12.3-25.4)	20.7 (13.4-29.2)
20-day	7.24 (6.20-8.37)	8.32 (7.12-9.64)	10.1 (8.60-11.7)	11.6 (9.78-13.5)	13.6 (11.0-16.6)	15.1 (11.9-18.8)	16.7 (12.6-21.6)	18.5 (13.1-24.5)	21.1 (14.2-29.0)	23.2 (15.1-32.5)
30-day	8.99 (7.72-10.4)	10.1 (8.70-11.7)	12.0 (10.3-13.9)	13.6 (11.5-15.8)	15.7 (12.7-19.0)	17.3 (13.7-21.4)	19.0 (14.3-24.3)	20.8 (14.7-27.4)	23.2 (15.7-31.7)	25.2 (16.4-35.1)
45-day	11.2 (9.63-12.8)	12.4 (10.7-14.2)	14.4 (12.3-16.5)	16.0 (13.6-18.5)	18.3 (14.8-21.9)	20.0 (15.8-24.5)	21.7 (16.4-27.5)	23.5 (16.7-30.8)	25.8 (17.4-35.1)	27.5 (18.0-38.3)
60-day	13.0 (11.2-14.8)	14.2 (12.3-16.3)	16.3 (14.0-18.7)	18.0 (15.4-20.8)	20.4 (16.6-24.3)	22.2 (17.5-27.0)	24.0 (18.0-30.1)	25.7 (18.3-33.6)	27.9 (18.9-37.8)	29.5 (19.3-40.8)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical

PRE & POST DEVELOPMNET HYDROGRAPH RECAP & SUMMARIES

Hydrograph Return Period Recap

Hydraflow Hydrographs by Intelisolve v9.22

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	SCS Runoff	------	------	0.033	------	------	0.683	1.693	------	3.864	Pre Development
2	SCS Runoff	------	------	0.333	------	------	2.083	3.609	------	6.340	Post development
3	Reservoir	2	------	0.000	------	------	0.000	0.000	------	0.000	route thru pond

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.22

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	0.033	2	874	884	----	------	------	Pre Development
2	SCS Runoff	0.333	2	738	2,756	----	------	------	Post development
3	Reservoir	0.000	2	964	0	2	168.31	940	route thru pond

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.22

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	0.683	2	734	4,863	----	------	------	Pre Development
2	SCS Runoff	2.083	2	728	8,981	----	------	------	Post development
3	Reservoir	0.000	2	776	0	2	169.14	3,447	route thru pond

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.22

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	3.864	2	728	15,636	----	------	------	Pre Development
2	SCS Runoff	6.340	2	726	23,052	----	------	------	Post development
3	Reservoir	0.000	2	1444	0	2	171.03	10,823	route thru pond

100 YEAR HYDROGRAPHS

OTHER YEAR HYDROGRAPHS AVAILABLE UPON REQUEST

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Pond Report - Final 10

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Wednesday, Oct 4, 2023

Hyd. No. 1

Pre Development

Hydrograph type	= SCS Runoff	Peak discharge	= 3.864 cfs
Storm frequency	= 100 yrs	Time to peak	= 728 min
Time interval	= 2 min	Hyd. volume	= 15,636 cuft
Drainage area	= 2.530 ac	Curve number	= 46*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 8.6 min
Total precip.	= 7.75 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.530 x 36) + (2.000 x 49)] / 2.530

Hydrograph Discharge Table

(Printed values >= 50.00% of Qp.)

Time -- (min	Outflow cfs)
722	2.474
724	3.244
726	3.754
728	3.864 <<
730	3.669
732	3.327
734	2.968
736	2.666
738	2.456
740	2.309
742	2.174
744	2.025

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Wednesday, Oct 4, 2023

Hyd. No. 2

Post development

Hydrograph type	= SCS Runoff	Peak discharge	= 6.340 cfs
Storm frequency	= 100 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 23,052 cuft
Drainage area	= 2.530 ac	Curve number	= 54*
Basin Slope	= 6.0 %	Hydraulic length	= 250 ft
Tc method	= USER	Time of conc. (Tc)	= 8.6 min
Total precip.	= 7.75 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.290 x 98) + (0.520 x 36) + (1.720 x 49)] / 2.530

Hydrograph Discharge Table

(Printed values >= 50.00% of Qp.)

Time -- (min	Outflow cfs)
720	3.432
722	4.598
724	5.711
726	6.340 <<
728	6.319
730	5.834
732	5.152
734	4.488
736	3.955
738	3.594
740	3.343

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 Wednesday, Oct 4, 2023

Hyd. No. 3

route thru pond

Hydrograph type	= Reservoir	Peak discharge	= 0.540 cfs
Storm frequency	= 100 yrs	Time to peak	= 856 min
Time interval	= 2 min	Hyd. volume	= 23,038 cuft
Inflow hyd. No.	= 2 - Post development	Reservoir name	= Final
Max. Elevation	= 171.03 ft	Max. Storage	= 10,823 cuft

Storage Indication method used. Outflow includes exfiltration.

Hydrograph Discharge Table

(Printed values >= 50.00% of Qp.)

Time (min)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
726	6.340 <<	169.27	-----	-----	-----	-----	-----	-----	-----	-----	0.279	0.279
728	6.319	169.51	-----	-----	-----	-----	-----	-----	-----	-----	0.331	0.331
730	5.834	169.73	-----	-----	-----	-----	-----	-----	-----	-----	0.381	0.381
732	5.152	169.94	-----	-----	-----	-----	-----	-----	-----	-----	0.426	0.426
734	4.488	170.07	-----	-----	-----	-----	-----	-----	-----	-----	0.447	0.447
736	3.955	170.17	-----	-----	-----	-----	-----	-----	-----	-----	0.456	0.456
738	3.594	170.26	-----	-----	-----	-----	-----	-----	-----	-----	0.465	0.465
740	3.343	170.33	-----	-----	-----	-----	-----	-----	-----	-----	0.472	0.472
742	3.121	170.41	-----	-----	-----	-----	-----	-----	-----	-----	0.479	0.479
744	2.885	170.47	-----	-----	-----	-----	-----	-----	-----	-----	0.486	0.486
746	2.637	170.53	-----	-----	-----	-----	-----	-----	-----	-----	0.491	0.491
748	2.378	170.58	-----	-----	-----	-----	-----	-----	-----	-----	0.497	0.497
750	2.109	170.63	-----	-----	-----	-----	-----	-----	-----	-----	0.501	0.501
752	1.843	170.67	-----	-----	-----	-----	-----	-----	-----	-----	0.505	0.505
754	1.604	170.70	-----	-----	-----	-----	-----	-----	-----	-----	0.508	0.508
756	1.417	170.72	-----	-----	-----	-----	-----	-----	-----	-----	0.510	0.510
758	1.286	170.75	-----	-----	-----	-----	-----	-----	-----	-----	0.512	0.512
760	1.201	170.77	-----	-----	-----	-----	-----	-----	-----	-----	0.514	0.514
762	1.147	170.78	-----	-----	-----	-----	-----	-----	-----	-----	0.516	0.516
764	1.114	170.80	-----	-----	-----	-----	-----	-----	-----	-----	0.517	0.517
766	1.086	170.81	-----	-----	-----	-----	-----	-----	-----	-----	0.519	0.519
768	1.058	170.83	-----	-----	-----	-----	-----	-----	-----	-----	0.520	0.520
770	1.030	170.84	-----	-----	-----	-----	-----	-----	-----	-----	0.522	0.522
772	1.001	170.85	-----	-----	-----	-----	-----	-----	-----	-----	0.523	0.523
774	0.972	170.87	-----	-----	-----	-----	-----	-----	-----	-----	0.524	0.524
776	0.943	170.88	-----	-----	-----	-----	-----	-----	-----	-----	0.525	0.525
778	0.913	170.89	-----	-----	-----	-----	-----	-----	-----	-----	0.526	0.526
780	0.883	170.90	-----	-----	-----	-----	-----	-----	-----	-----	0.527	0.527
782	0.854	170.91	-----	-----	-----	-----	-----	-----	-----	-----	0.528	0.528
784	0.827	170.91	-----	-----	-----	-----	-----	-----	-----	-----	0.529	0.529
786	0.806	170.92	-----	-----	-----	-----	-----	-----	-----	-----	0.529	0.529
788	0.789	170.93	-----	-----	-----	-----	-----	-----	-----	-----	0.530	0.530
790	0.777	170.94	-----	-----	-----	-----	-----	-----	-----	-----	0.531	0.531
792	0.768	170.94	-----	-----	-----	-----	-----	-----	-----	-----	0.531	0.531
794	0.760	170.95	-----	-----	-----	-----	-----	-----	-----	-----	0.532	0.532
796	0.753	170.95	-----	-----	-----	-----	-----	-----	-----	-----	0.533	0.533
798	0.746	170.96	-----	-----	-----	-----	-----	-----	-----	-----	0.533	0.533
800	0.739	170.96	-----	-----	-----	-----	-----	-----	-----	-----	0.534	0.534
802	0.732	170.97	-----	-----	-----	-----	-----	-----	-----	-----	0.534	0.534
804	0.725	170.98	-----	-----	-----	-----	-----	-----	-----	-----	0.535	0.535
806	0.718	170.98	-----	-----	-----	-----	-----	-----	-----	-----	0.535	0.535

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route thru pond

Hydrograph Discharge Table

Time (min)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
808	0.710	170.98	-----	-----	-----	-----	-----	-----	-----	-----	0.536	0.536
810	0.703	170.99	-----	-----	-----	-----	-----	-----	-----	-----	0.536	0.536
812	0.695	170.99	-----	-----	-----	-----	-----	-----	-----	-----	0.536	0.536
814	0.688	171.00	-----	-----	-----	-----	-----	-----	-----	-----	0.537	0.537
816	0.680	171.00	-----	-----	-----	-----	-----	-----	-----	-----	0.537	0.537
818	0.673	171.00	-----	-----	-----	-----	-----	-----	-----	-----	0.538	0.538
820	0.665	171.01	-----	-----	-----	-----	-----	-----	-----	-----	0.538	0.538
822	0.657	171.01	-----	-----	-----	-----	-----	-----	-----	-----	0.538	0.538
824	0.649	171.01	-----	-----	-----	-----	-----	-----	-----	-----	0.538	0.538
826	0.642	171.02	-----	-----	-----	-----	-----	-----	-----	-----	0.539	0.539
828	0.634	171.02	-----	-----	-----	-----	-----	-----	-----	-----	0.539	0.539
830	0.626	171.02	-----	-----	-----	-----	-----	-----	-----	-----	0.539	0.539
832	0.618	171.02	-----	-----	-----	-----	-----	-----	-----	-----	0.539	0.539
834	0.610	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
836	0.602	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
838	0.593	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
840	0.585	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
842	0.577	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
844	0.570	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
846	0.563	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
848	0.558	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
850	0.553	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
852	0.549	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
854	0.545	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
856	0.542	171.03 <<	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540 <<
858	0.538	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
860	0.534	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
862	0.530	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
864	0.527	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
866	0.523	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
868	0.519	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
870	0.515	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
872	0.512	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
874	0.508	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
876	0.504	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
878	0.500	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
880	0.496	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
882	0.492	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
884	0.488	171.03	-----	-----	-----	-----	-----	-----	-----	-----	0.540	0.540
886	0.484	171.02	-----	-----	-----	-----	-----	-----	-----	-----	0.539	0.539
888	0.480	171.02	-----	-----	-----	-----	-----	-----	-----	-----	0.539	0.539
890	0.476	171.02	-----	-----	-----	-----	-----	-----	-----	-----	0.539	0.539
892	0.472	171.02	-----	-----	-----	-----	-----	-----	-----	-----	0.539	0.539
894	0.468	171.02	-----	-----	-----	-----	-----	-----	-----	-----	0.539	0.539
896	0.464	171.02	-----	-----	-----	-----	-----	-----	-----	-----	0.539	0.539
898	0.460	171.01	-----	-----	-----	-----	-----	-----	-----	-----	0.538	0.538
900	0.456	171.01	-----	-----	-----	-----	-----	-----	-----	-----	0.538	0.538
902	0.452	171.01	-----	-----	-----	-----	-----	-----	-----	-----	0.538	0.538
904	0.448	171.01	-----	-----	-----	-----	-----	-----	-----	-----	0.538	0.538
906	0.444	171.00	-----	-----	-----	-----	-----	-----	-----	-----	0.538	0.538
908	0.440	171.00	-----	-----	-----	-----	-----	-----	-----	-----	0.537	0.537
910	0.436	171.00	-----	-----	-----	-----	-----	-----	-----	-----	0.537	0.537
912	0.432	171.00	-----	-----	-----	-----	-----	-----	-----	-----	0.537	0.537
914	0.428	170.99	-----	-----	-----	-----	-----	-----	-----	-----	0.537	0.537

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route thru pond

Hydrograph Discharge Table

Time (min)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
916	0.423	170.99	-----	-----	-----	-----	-----	-----	-----	-----	0.536	0.536
918	0.419	170.99	-----	-----	-----	-----	-----	-----	-----	-----	0.536	0.536
920	0.415	170.99	-----	-----	-----	-----	-----	-----	-----	-----	0.536	0.536
922	0.411	170.98	-----	-----	-----	-----	-----	-----	-----	-----	0.535	0.535
924	0.407	170.98	-----	-----	-----	-----	-----	-----	-----	-----	0.535	0.535
926	0.402	170.98	-----	-----	-----	-----	-----	-----	-----	-----	0.535	0.535
928	0.398	170.97	-----	-----	-----	-----	-----	-----	-----	-----	0.534	0.534
930	0.394	170.97	-----	-----	-----	-----	-----	-----	-----	-----	0.534	0.534
932	0.390	170.96	-----	-----	-----	-----	-----	-----	-----	-----	0.534	0.534
934	0.385	170.96	-----	-----	-----	-----	-----	-----	-----	-----	0.533	0.533
936	0.381	170.96	-----	-----	-----	-----	-----	-----	-----	-----	0.533	0.533
938	0.377	170.95	-----	-----	-----	-----	-----	-----	-----	-----	0.533	0.533
940	0.372	170.95	-----	-----	-----	-----	-----	-----	-----	-----	0.532	0.532
942	0.368	170.94	-----	-----	-----	-----	-----	-----	-----	-----	0.532	0.532
944	0.364	170.94	-----	-----	-----	-----	-----	-----	-----	-----	0.531	0.531
946	0.359	170.94	-----	-----	-----	-----	-----	-----	-----	-----	0.531	0.531
948	0.355	170.93	-----	-----	-----	-----	-----	-----	-----	-----	0.530	0.530
950	0.351	170.93	-----	-----	-----	-----	-----	-----	-----	-----	0.530	0.530
952	0.346	170.92	-----	-----	-----	-----	-----	-----	-----	-----	0.530	0.530
954	0.342	170.92	-----	-----	-----	-----	-----	-----	-----	-----	0.529	0.529
956	0.338	170.91	-----	-----	-----	-----	-----	-----	-----	-----	0.529	0.529
958	0.333	170.91	-----	-----	-----	-----	-----	-----	-----	-----	0.528	0.528
960	0.329	170.90	-----	-----	-----	-----	-----	-----	-----	-----	0.528	0.528
962	0.324	170.90	-----	-----	-----	-----	-----	-----	-----	-----	0.527	0.527
964	0.320	170.89	-----	-----	-----	-----	-----	-----	-----	-----	0.527	0.527
966	0.317	170.89	-----	-----	-----	-----	-----	-----	-----	-----	0.526	0.526
968	0.314	170.88	-----	-----	-----	-----	-----	-----	-----	-----	0.525	0.525
970	0.312	170.88	-----	-----	-----	-----	-----	-----	-----	-----	0.525	0.525
972	0.310	170.87	-----	-----	-----	-----	-----	-----	-----	-----	0.524	0.524
974	0.308	170.86	-----	-----	-----	-----	-----	-----	-----	-----	0.524	0.524
976	0.306	170.86	-----	-----	-----	-----	-----	-----	-----	-----	0.523	0.523
978	0.304	170.85	-----	-----	-----	-----	-----	-----	-----	-----	0.523	0.523
980	0.302	170.85	-----	-----	-----	-----	-----	-----	-----	-----	0.522	0.522
982	0.300	170.84	-----	-----	-----	-----	-----	-----	-----	-----	0.522	0.522
984	0.299	170.84	-----	-----	-----	-----	-----	-----	-----	-----	0.521	0.521
986	0.297	170.83	-----	-----	-----	-----	-----	-----	-----	-----	0.521	0.521
988	0.295	170.82	-----	-----	-----	-----	-----	-----	-----	-----	0.520	0.520
990	0.293	170.82	-----	-----	-----	-----	-----	-----	-----	-----	0.519	0.519
992	0.291	170.81	-----	-----	-----	-----	-----	-----	-----	-----	0.519	0.519
994	0.289	170.81	-----	-----	-----	-----	-----	-----	-----	-----	0.518	0.518
996	0.287	170.80	-----	-----	-----	-----	-----	-----	-----	-----	0.518	0.518
998	0.285	170.79	-----	-----	-----	-----	-----	-----	-----	-----	0.517	0.517
1000	0.284	170.79	-----	-----	-----	-----	-----	-----	-----	-----	0.516	0.516
1002	0.282	170.78	-----	-----	-----	-----	-----	-----	-----	-----	0.516	0.516
1004	0.280	170.78	-----	-----	-----	-----	-----	-----	-----	-----	0.515	0.515
1006	0.278	170.77	-----	-----	-----	-----	-----	-----	-----	-----	0.515	0.515
1008	0.276	170.76	-----	-----	-----	-----	-----	-----	-----	-----	0.514	0.514
1010	0.274	170.76	-----	-----	-----	-----	-----	-----	-----	-----	0.514	0.514
1012	0.272	170.75	-----	-----	-----	-----	-----	-----	-----	-----	0.513	0.513
1014	0.270	170.75	-----	-----	-----	-----	-----	-----	-----	-----	0.512	0.512
1016	0.268	170.74	-----	-----	-----	-----	-----	-----	-----	-----	0.512	0.512
1018	0.266	170.73	-----	-----	-----	-----	-----	-----	-----	-----	0.511	0.511
1020	0.265	170.73	-----	-----	-----	-----	-----	-----	-----	-----	0.510	0.510
1022	0.263	170.72	-----	-----	-----	-----	-----	-----	-----	-----	0.510	0.510

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Hydrograph Discharge Table

Time (min)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
1024	0.261	170.71	-----	-----	-----	-----	-----	-----	-----	-----	0.509	0.509
1026	0.259	170.71	-----	-----	-----	-----	-----	-----	-----	-----	0.509	0.509
1028	0.257	170.70	-----	-----	-----	-----	-----	-----	-----	-----	0.508	0.508
1030	0.255	170.69	-----	-----	-----	-----	-----	-----	-----	-----	0.507	0.507
1032	0.253	170.69	-----	-----	-----	-----	-----	-----	-----	-----	0.507	0.507
1034	0.251	170.68	-----	-----	-----	-----	-----	-----	-----	-----	0.506	0.506
1036	0.249	170.67	-----	-----	-----	-----	-----	-----	-----	-----	0.505	0.505
1038	0.247	170.67	-----	-----	-----	-----	-----	-----	-----	-----	0.505	0.505
1040	0.245	170.66	-----	-----	-----	-----	-----	-----	-----	-----	0.504	0.504
1042	0.243	170.65	-----	-----	-----	-----	-----	-----	-----	-----	0.503	0.503
1044	0.241	170.65	-----	-----	-----	-----	-----	-----	-----	-----	0.503	0.503
1046	0.239	170.64	-----	-----	-----	-----	-----	-----	-----	-----	0.502	0.502
1048	0.237	170.63	-----	-----	-----	-----	-----	-----	-----	-----	0.501	0.501
1050	0.235	170.63	-----	-----	-----	-----	-----	-----	-----	-----	0.501	0.501
1052	0.233	170.62	-----	-----	-----	-----	-----	-----	-----	-----	0.500	0.500
1054	0.231	170.61	-----	-----	-----	-----	-----	-----	-----	-----	0.499	0.499
1056	0.229	170.61	-----	-----	-----	-----	-----	-----	-----	-----	0.499	0.499
1058	0.228	170.60	-----	-----	-----	-----	-----	-----	-----	-----	0.498	0.498
1060	0.226	170.59	-----	-----	-----	-----	-----	-----	-----	-----	0.497	0.497
1062	0.224	170.58	-----	-----	-----	-----	-----	-----	-----	-----	0.497	0.497
1064	0.222	170.58	-----	-----	-----	-----	-----	-----	-----	-----	0.496	0.496
1066	0.220	170.57	-----	-----	-----	-----	-----	-----	-----	-----	0.495	0.495
1068	0.218	170.56	-----	-----	-----	-----	-----	-----	-----	-----	0.495	0.495
1070	0.216	170.56	-----	-----	-----	-----	-----	-----	-----	-----	0.494	0.494
1072	0.214	170.55	-----	-----	-----	-----	-----	-----	-----	-----	0.493	0.493
1074	0.212	170.54	-----	-----	-----	-----	-----	-----	-----	-----	0.492	0.492
1076	0.210	170.53	-----	-----	-----	-----	-----	-----	-----	-----	0.492	0.492
1078	0.208	170.53	-----	-----	-----	-----	-----	-----	-----	-----	0.491	0.491
1080	0.206	170.52	-----	-----	-----	-----	-----	-----	-----	-----	0.490	0.490
1082	0.204	170.51	-----	-----	-----	-----	-----	-----	-----	-----	0.490	0.490
1084	0.202	170.50	-----	-----	-----	-----	-----	-----	-----	-----	0.489	0.489
1086	0.201	170.50	-----	-----	-----	-----	-----	-----	-----	-----	0.488	0.488
1088	0.199	170.49	-----	-----	-----	-----	-----	-----	-----	-----	0.487	0.487
1090	0.198	170.48	-----	-----	-----	-----	-----	-----	-----	-----	0.487	0.487
1092	0.198	170.47	-----	-----	-----	-----	-----	-----	-----	-----	0.486	0.486
1094	0.197	170.47	-----	-----	-----	-----	-----	-----	-----	-----	0.485	0.485
1096	0.197	170.46	-----	-----	-----	-----	-----	-----	-----	-----	0.484	0.484
1098	0.196	170.45	-----	-----	-----	-----	-----	-----	-----	-----	0.484	0.484
1100	0.196	170.44	-----	-----	-----	-----	-----	-----	-----	-----	0.483	0.483
1102	0.195	170.44	-----	-----	-----	-----	-----	-----	-----	-----	0.482	0.482
1104	0.194	170.43	-----	-----	-----	-----	-----	-----	-----	-----	0.482	0.482
1106	0.194	170.42	-----	-----	-----	-----	-----	-----	-----	-----	0.481	0.481
1108	0.193	170.41	-----	-----	-----	-----	-----	-----	-----	-----	0.480	0.480
1110	0.193	170.41	-----	-----	-----	-----	-----	-----	-----	-----	0.479	0.479
1112	0.192	170.40	-----	-----	-----	-----	-----	-----	-----	-----	0.479	0.479
1114	0.192	170.39	-----	-----	-----	-----	-----	-----	-----	-----	0.478	0.478
1116	0.191	170.38	-----	-----	-----	-----	-----	-----	-----	-----	0.477	0.477
1118	0.190	170.38	-----	-----	-----	-----	-----	-----	-----	-----	0.476	0.476
1120	0.190	170.37	-----	-----	-----	-----	-----	-----	-----	-----	0.476	0.476
1122	0.189	170.36	-----	-----	-----	-----	-----	-----	-----	-----	0.475	0.475
1124	0.189	170.35	-----	-----	-----	-----	-----	-----	-----	-----	0.474	0.474
1126	0.188	170.35	-----	-----	-----	-----	-----	-----	-----	-----	0.474	0.474
1128	0.188	170.34	-----	-----	-----	-----	-----	-----	-----	-----	0.473	0.473
1130	0.187	170.33	-----	-----	-----	-----	-----	-----	-----	-----	0.472	0.472

Continues on next page...

route thru pond

Hydrograph Discharge Table

Time (min)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
1132	0.187	170.33	-----	-----	-----	-----	-----	-----	-----	-----	0.471	0.471
1134	0.186	170.32	-----	-----	-----	-----	-----	-----	-----	-----	0.471	0.471
1136	0.185	170.31	-----	-----	-----	-----	-----	-----	-----	-----	0.470	0.470
1138	0.185	170.30	-----	-----	-----	-----	-----	-----	-----	-----	0.469	0.469
1140	0.184	170.30	-----	-----	-----	-----	-----	-----	-----	-----	0.469	0.469
1142	0.184	170.29	-----	-----	-----	-----	-----	-----	-----	-----	0.468	0.468
1144	0.183	170.28	-----	-----	-----	-----	-----	-----	-----	-----	0.467	0.467
1146	0.183	170.27	-----	-----	-----	-----	-----	-----	-----	-----	0.466	0.466
1148	0.182	170.27	-----	-----	-----	-----	-----	-----	-----	-----	0.466	0.466
1150	0.181	170.26	-----	-----	-----	-----	-----	-----	-----	-----	0.465	0.465
1152	0.181	170.25	-----	-----	-----	-----	-----	-----	-----	-----	0.464	0.464
1154	0.180	170.24	-----	-----	-----	-----	-----	-----	-----	-----	0.464	0.464
1156	0.180	170.24	-----	-----	-----	-----	-----	-----	-----	-----	0.463	0.463
1158	0.179	170.23	-----	-----	-----	-----	-----	-----	-----	-----	0.462	0.462
1160	0.178	170.22	-----	-----	-----	-----	-----	-----	-----	-----	0.461	0.461
1162	0.178	170.21	-----	-----	-----	-----	-----	-----	-----	-----	0.461	0.461
1164	0.177	170.21	-----	-----	-----	-----	-----	-----	-----	-----	0.460	0.460
1166	0.177	170.20	-----	-----	-----	-----	-----	-----	-----	-----	0.459	0.459
1168	0.176	170.19	-----	-----	-----	-----	-----	-----	-----	-----	0.459	0.459
1170	0.176	170.19	-----	-----	-----	-----	-----	-----	-----	-----	0.458	0.458
1172	0.175	170.18	-----	-----	-----	-----	-----	-----	-----	-----	0.457	0.457
1174	0.174	170.17	-----	-----	-----	-----	-----	-----	-----	-----	0.456	0.456
1176	0.174	170.16	-----	-----	-----	-----	-----	-----	-----	-----	0.456	0.456
1178	0.173	170.16	-----	-----	-----	-----	-----	-----	-----	-----	0.455	0.455
1180	0.173	170.15	-----	-----	-----	-----	-----	-----	-----	-----	0.454	0.454
1182	0.172	170.14	-----	-----	-----	-----	-----	-----	-----	-----	0.454	0.454
1184	0.171	170.13	-----	-----	-----	-----	-----	-----	-----	-----	0.453	0.453
1186	0.171	170.13	-----	-----	-----	-----	-----	-----	-----	-----	0.452	0.452
1188	0.170	170.12	-----	-----	-----	-----	-----	-----	-----	-----	0.451	0.451
1190	0.170	170.11	-----	-----	-----	-----	-----	-----	-----	-----	0.451	0.451
1192	0.169	170.10	-----	-----	-----	-----	-----	-----	-----	-----	0.450	0.450
1194	0.169	170.10	-----	-----	-----	-----	-----	-----	-----	-----	0.449	0.449
1196	0.168	170.09	-----	-----	-----	-----	-----	-----	-----	-----	0.449	0.449
1198	0.167	170.08	-----	-----	-----	-----	-----	-----	-----	-----	0.448	0.448
1200	0.167	170.08	-----	-----	-----	-----	-----	-----	-----	-----	0.447	0.447
1202	0.166	170.07	-----	-----	-----	-----	-----	-----	-----	-----	0.446	0.446
1204	0.166	170.06	-----	-----	-----	-----	-----	-----	-----	-----	0.446	0.446
1206	0.165	170.05	-----	-----	-----	-----	-----	-----	-----	-----	0.445	0.445
1208	0.164	170.05	-----	-----	-----	-----	-----	-----	-----	-----	0.444	0.444
1210	0.164	170.04	-----	-----	-----	-----	-----	-----	-----	-----	0.444	0.444
1212	0.163	170.03	-----	-----	-----	-----	-----	-----	-----	-----	0.443	0.443
1214	0.163	170.02	-----	-----	-----	-----	-----	-----	-----	-----	0.442	0.442
1216	0.162	170.02	-----	-----	-----	-----	-----	-----	-----	-----	0.441	0.441
1218	0.161	170.01	-----	-----	-----	-----	-----	-----	-----	-----	0.441	0.441
1220	0.161	170.00	-----	-----	-----	-----	-----	-----	-----	-----	0.440	0.440
1222	0.160	169.99	-----	-----	-----	-----	-----	-----	-----	-----	0.438	0.438
1224	0.160	169.98	-----	-----	-----	-----	-----	-----	-----	-----	0.436	0.436
1226	0.159	169.97	-----	-----	-----	-----	-----	-----	-----	-----	0.433	0.433
1228	0.159	169.96	-----	-----	-----	-----	-----	-----	-----	-----	0.431	0.431
1230	0.158	169.95	-----	-----	-----	-----	-----	-----	-----	-----	0.429	0.429
1232	0.157	169.94	-----	-----	-----	-----	-----	-----	-----	-----	0.426	0.426
1234	0.157	169.93	-----	-----	-----	-----	-----	-----	-----	-----	0.424	0.424
1236	0.156	169.92	-----	-----	-----	-----	-----	-----	-----	-----	0.422	0.422
1238	0.156	169.91	-----	-----	-----	-----	-----	-----	-----	-----	0.419	0.419

Continues on next page...

route thru pond

Hydrograph Discharge Table

Time (min)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
1240	0.155	169.90	-----	-----	-----	-----	-----	-----	-----	-----	0.417	0.417
1242	0.154	169.89	-----	-----	-----	-----	-----	-----	-----	-----	0.415	0.415
1244	0.154	169.88	-----	-----	-----	-----	-----	-----	-----	-----	0.412	0.413
1246	0.153	169.87	-----	-----	-----	-----	-----	-----	-----	-----	0.410	0.410
1248	0.153	169.86	-----	-----	-----	-----	-----	-----	-----	-----	0.408	0.408
1250	0.152	169.85	-----	-----	-----	-----	-----	-----	-----	-----	0.406	0.406
1252	0.151	169.84	-----	-----	-----	-----	-----	-----	-----	-----	0.404	0.404
1254	0.151	169.83	-----	-----	-----	-----	-----	-----	-----	-----	0.401	0.401
1256	0.150	169.82	-----	-----	-----	-----	-----	-----	-----	-----	0.399	0.399
1258	0.149	169.81	-----	-----	-----	-----	-----	-----	-----	-----	0.397	0.397
1260	0.149	169.80	-----	-----	-----	-----	-----	-----	-----	-----	0.395	0.395
1262	0.148	169.79	-----	-----	-----	-----	-----	-----	-----	-----	0.393	0.393
1264	0.148	169.78	-----	-----	-----	-----	-----	-----	-----	-----	0.391	0.391
1266	0.147	169.77	-----	-----	-----	-----	-----	-----	-----	-----	0.389	0.389
1268	0.146	169.76	-----	-----	-----	-----	-----	-----	-----	-----	0.386	0.386
1270	0.146	169.75	-----	-----	-----	-----	-----	-----	-----	-----	0.384	0.384
1272	0.145	169.74	-----	-----	-----	-----	-----	-----	-----	-----	0.382	0.382
1274	0.145	169.73	-----	-----	-----	-----	-----	-----	-----	-----	0.380	0.380
1276	0.144	169.72	-----	-----	-----	-----	-----	-----	-----	-----	0.378	0.378
1278	0.143	169.71	-----	-----	-----	-----	-----	-----	-----	-----	0.376	0.376
1280	0.143	169.70	-----	-----	-----	-----	-----	-----	-----	-----	0.374	0.374
1282	0.142	169.69	-----	-----	-----	-----	-----	-----	-----	-----	0.372	0.372
1284	0.142	169.68	-----	-----	-----	-----	-----	-----	-----	-----	0.370	0.370
1286	0.141	169.67	-----	-----	-----	-----	-----	-----	-----	-----	0.368	0.368
1288	0.140	169.66	-----	-----	-----	-----	-----	-----	-----	-----	0.366	0.366
1290	0.140	169.66	-----	-----	-----	-----	-----	-----	-----	-----	0.364	0.364
1292	0.139	169.65	-----	-----	-----	-----	-----	-----	-----	-----	0.362	0.362
1294	0.139	169.64	-----	-----	-----	-----	-----	-----	-----	-----	0.360	0.360
1296	0.138	169.63	-----	-----	-----	-----	-----	-----	-----	-----	0.358	0.358
1298	0.137	169.62	-----	-----	-----	-----	-----	-----	-----	-----	0.356	0.356
1300	0.137	169.61	-----	-----	-----	-----	-----	-----	-----	-----	0.355	0.354
1302	0.136	169.60	-----	-----	-----	-----	-----	-----	-----	-----	0.353	0.353
1304	0.135	169.59	-----	-----	-----	-----	-----	-----	-----	-----	0.351	0.351
1306	0.135	169.59	-----	-----	-----	-----	-----	-----	-----	-----	0.349	0.349
1308	0.134	169.58	-----	-----	-----	-----	-----	-----	-----	-----	0.347	0.347
1310	0.134	169.57	-----	-----	-----	-----	-----	-----	-----	-----	0.345	0.345
1312	0.133	169.56	-----	-----	-----	-----	-----	-----	-----	-----	0.343	0.343
1314	0.132	169.55	-----	-----	-----	-----	-----	-----	-----	-----	0.341	0.341
1316	0.132	169.54	-----	-----	-----	-----	-----	-----	-----	-----	0.340	0.340
1318	0.131	169.54	-----	-----	-----	-----	-----	-----	-----	-----	0.338	0.338
1320	0.131	169.53	-----	-----	-----	-----	-----	-----	-----	-----	0.336	0.336
1322	0.155	169.52	-----	-----	-----	-----	-----	-----	-----	-----	0.334	0.334
1324	0.180	169.51	-----	-----	-----	-----	-----	-----	-----	-----	0.333	0.333
1326	0.206	169.51	-----	-----	-----	-----	-----	-----	-----	-----	0.332	0.332
1328	0.193	169.50	-----	-----	-----	-----	-----	-----	-----	-----	0.331	0.331
1330	0.179	169.50	-----	-----	-----	-----	-----	-----	-----	-----	0.329	0.329
1332	0.165	169.49	-----	-----	-----	-----	-----	-----	-----	-----	0.328	0.328
1334	0.151	169.48	-----	-----	-----	-----	-----	-----	-----	-----	0.326	0.326
1336	0.136	169.48	-----	-----	-----	-----	-----	-----	-----	-----	0.325	0.325
1338	0.136	169.47	-----	-----	-----	-----	-----	-----	-----	-----	0.323	0.323
1340	0.135	169.46	-----	-----	-----	-----	-----	-----	-----	-----	0.322	0.322
1342	0.135	169.46	-----	-----	-----	-----	-----	-----	-----	-----	0.320	0.320
1344	0.134	169.45	-----	-----	-----	-----	-----	-----	-----	-----	0.318	0.318
1346	0.134	169.44	-----	-----	-----	-----	-----	-----	-----	-----	0.317	0.317

Continues on next page...

route thru pond

Hydrograph Discharge Table

Time (min)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
1348	0.133	169.43	-----	-----	-----	-----	-----	-----	-----	-----	0.315	0.315
1350	0.133	169.43	-----	-----	-----	-----	-----	-----	-----	-----	0.314	0.314
1352	0.132	169.42	-----	-----	-----	-----	-----	-----	-----	-----	0.312	0.312
1354	0.132	169.41	-----	-----	-----	-----	-----	-----	-----	-----	0.310	0.310
1356	0.132	169.40	-----	-----	-----	-----	-----	-----	-----	-----	0.309	0.309
1358	0.131	169.40	-----	-----	-----	-----	-----	-----	-----	-----	0.307	0.307
1360	0.131	169.39	-----	-----	-----	-----	-----	-----	-----	-----	0.306	0.306
1362	0.130	169.38	-----	-----	-----	-----	-----	-----	-----	-----	0.304	0.304
1364	0.130	169.38	-----	-----	-----	-----	-----	-----	-----	-----	0.303	0.303
1366	0.129	169.37	-----	-----	-----	-----	-----	-----	-----	-----	0.301	0.301
1368	0.129	169.36	-----	-----	-----	-----	-----	-----	-----	-----	0.300	0.300
1370	0.128	169.36	-----	-----	-----	-----	-----	-----	-----	-----	0.298	0.298
1372	0.128	169.35	-----	-----	-----	-----	-----	-----	-----	-----	0.297	0.297
1374	0.127	169.34	-----	-----	-----	-----	-----	-----	-----	-----	0.295	0.295
1376	0.127	169.34	-----	-----	-----	-----	-----	-----	-----	-----	0.294	0.294
1378	0.126	169.33	-----	-----	-----	-----	-----	-----	-----	-----	0.292	0.292
1380	0.126	169.32	-----	-----	-----	-----	-----	-----	-----	-----	0.291	0.291
1382	0.126	169.32	-----	-----	-----	-----	-----	-----	-----	-----	0.290	0.290
1384	0.125	169.31	-----	-----	-----	-----	-----	-----	-----	-----	0.288	0.288
1386	0.125	169.30	-----	-----	-----	-----	-----	-----	-----	-----	0.287	0.287
1388	0.124	169.30	-----	-----	-----	-----	-----	-----	-----	-----	0.285	0.285
1390	0.124	169.29	-----	-----	-----	-----	-----	-----	-----	-----	0.284	0.284
1392	0.123	169.28	-----	-----	-----	-----	-----	-----	-----	-----	0.283	0.283
1394	0.123	169.28	-----	-----	-----	-----	-----	-----	-----	-----	0.281	0.281
1396	0.122	169.27	-----	-----	-----	-----	-----	-----	-----	-----	0.280	0.280
1398	0.122	169.27	-----	-----	-----	-----	-----	-----	-----	-----	0.278	0.278
1400	0.121	169.26	-----	-----	-----	-----	-----	-----	-----	-----	0.277	0.277
1402	0.121	169.25	-----	-----	-----	-----	-----	-----	-----	-----	0.276	0.276
1404	0.120	169.25	-----	-----	-----	-----	-----	-----	-----	-----	0.274	0.274
1406	0.120	169.24	-----	-----	-----	-----	-----	-----	-----	-----	0.273	0.273
1408	0.120	169.24	-----	-----	-----	-----	-----	-----	-----	-----	0.272	0.272
1410	0.119	169.23	-----	-----	-----	-----	-----	-----	-----	-----	0.270	0.270

...End

Pond Report

Hydraflow Hydrographs by Intelisolve v9.22 — Wednesday, Oct 4, 2023

Pond No. 1 - Final

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 168.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	168.00	2,311	0	0
2.00	170.00	3,800	6,049	6,049
4.00	172.00	5,481	9,229	15,278
4.25	172.25	6,070	1,443	16,721

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	0.00	0.00	0.00
Crest El. (ft)	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 5.000 (by Contour)
TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).