STORMWATER MANAGEMENT REPORT

50 Mastrianni Place
Southington, Connecticut

Prepared For
Buck, LLC
HEC Project #2078

May 19, 2021
Revised: August 2, 2022

By

Harry E. Cole & Son
876 South Main Street
Plantsville, CT 06479
(860) 628-4484

Barton N. Bovee, P.E. #13653
NOT VALID UNLESS EMBOSSED
SEAL IS AFFIXED HERETO.

Table of Contents

I. INTRODUCTION

1.1 Objective

The intent of this report is to summarize the engineering drainage analysis and technical findings for 50 Mastrianni Place. The development team desires to present to the Town of Southington all of the pertinent site factors which have influenced the plan; thereby making a joint effort to solidify a design proposal that ensures a balance of quality, technical adequacy, and conservation. This document will demonstrate that the proposed Stormwater Management plan will comply with the Town of Southington drainage criteria, and that there will be no significant impact on downstream properties.

To achieve these objectives Harry E. Cole & Son (HEC) conducted an evaluation of regulatory criteria, existing site conditions, and the proposed development plan. Specific to this mission were the assessment of Stormwater Management opportunities, constraints, and the various competing site factors, which are important to the design and layout of the project. Elements that were most critical in developing a stormwater plan, included the following:

- **A.)** An inventory and inspection of the site soils and surficial geology, wetland/watercourses, surface drainage and runoff patterns, general forms of vegetation, wildlife, and habitat values, topography-shapes, slopes and orientation, physical constraints, surroundings.
- **B.)** Site background and history.
- **C.)** Zoning and land use regulations.
- **D.)** Infrastructure capacity and demands.
- **E.)** Off-site impacts, engineering, and construction practices.
- **F.)** Previous Drainage Calculations.

II. EXISTING CONDITIONS

2.1 Site Location

The 1.8± acre subject site is located at 50 Mastrianni Place in Southington Connecticut.

2.2 Site Description

The current 1.8± acre project is comprised of one existing parcel currently zoned Industrial. Originally the parcel had a mix of unimproved areas, gravel and impervious driveways and large areas for storing construction material, equipment, and landscaping materials. Town Water and Sewage mains are located in Mastrianni Place at the west side of the property. Drainage for the property is divided into two basins. Basin E1 is comprised of 1.68 acres and slopes at grades of 2-20% to the southeast and into a retention basin. Basin E2 drains easterly across the site but offsite and is not collected in the retention basin. Soils on the site have a predominate hydrologic rating of A in the eastern side of the site. The western side of the site from the road into the property, about 50 to 100 feet of the site, have a predominant rating of C. These A type soils are composed of Hartford Sandy Loam have high infiltration rates. While the C type soils are Wilbraham Silt Loam and Udorthents-Pits complex which have slow infiltration rates.

III. POST-DEVELOPMENT CONDITIONS

3.1 Proposed Facilities

The proposed plan will regrade the front of the site and construct an L shape building near the front of the property. An access drive will be provided to circle the building with parking along the front and northern side of the building, and storage areas at the back of the building. Water and sewer services will be tied in from the mains in Mastrianni Place. The existing retention basin will be enlarged to collect flows onsite and store them onsite with no release; just as the existing retention basin does.

The site overall has a lower runoff coefficient due to the amount of industrial unimproved area and gravel storage area which is being converted to grass; particularly on the south side of the building adjacent to the access drive.

Additionally, the retention basin will provide adequate water quality volume as there are no flows off-site up to the 100-year storm event.

3.2 Detention

Detention for the site will be provided in the form of a retention basin. Slopes for this basin are 3:1 on the sides with a 1% minimum bottom slope. This basin will receive runoff from the building roofs, the driveways, parking areas, and immediate surrounding area. Flows from the retention basin will not occur until storm events over the 100 year storm; at which point the excess volume of runoff is released into a watercourse on the neighboring property. A summary of the site flows is located in Appendix B. The summary table depicts an overall decease in runoff.

IV. FINDINGS & CONCLUSION

Overall, a slight reduction in peak flows will be achieved with the designed drainage system, and the conveyance systems will adequately convey runoff for all design storms. In summary, we believe the proposed stormwater management plan has satisfied the Town of Southington's drainage criteria and significant impacts to downstream properties should not occur.

V. TECHNICAL CRITERIA & METHODOLOGY

5.1 Technical Criteria

Design Element	Design Frequency
-Detention Basin Sizing	2, 5, 10, 25, & 100 Year

5.2 Methodology	Design Storm
-Detention Volume	24-Hour Type III from NOAA Atlas Precipitation Frequency Data Serve
-Peak infrastructure flow	Rational Method with NOAA Atlas Precipitation Frequency Data Serve IDF tables.

Time of Concentration: Interpreted from topography with the aid of computer software. Based on calculations from the State of Connecticut, Department of Transportation equations for Sheet-Flow (6.C.2), Shallow Concentrated Flow (6.C.4) and Open Channel Flow (6.C.6).

Areas: Estimates from computer software (Land Desktop) and results of surveying.

REFERENCES

1) Rules and Regulations Controlling Subdivision of Land, Town of Southington, Connecticut

2) Town of Southington Zoning Regulations

3) 2004 Connecticut Stormwater Quality Manual, Connecticut Department of Environmental Protection, 79 Elm Street, Hartford, Connecticut

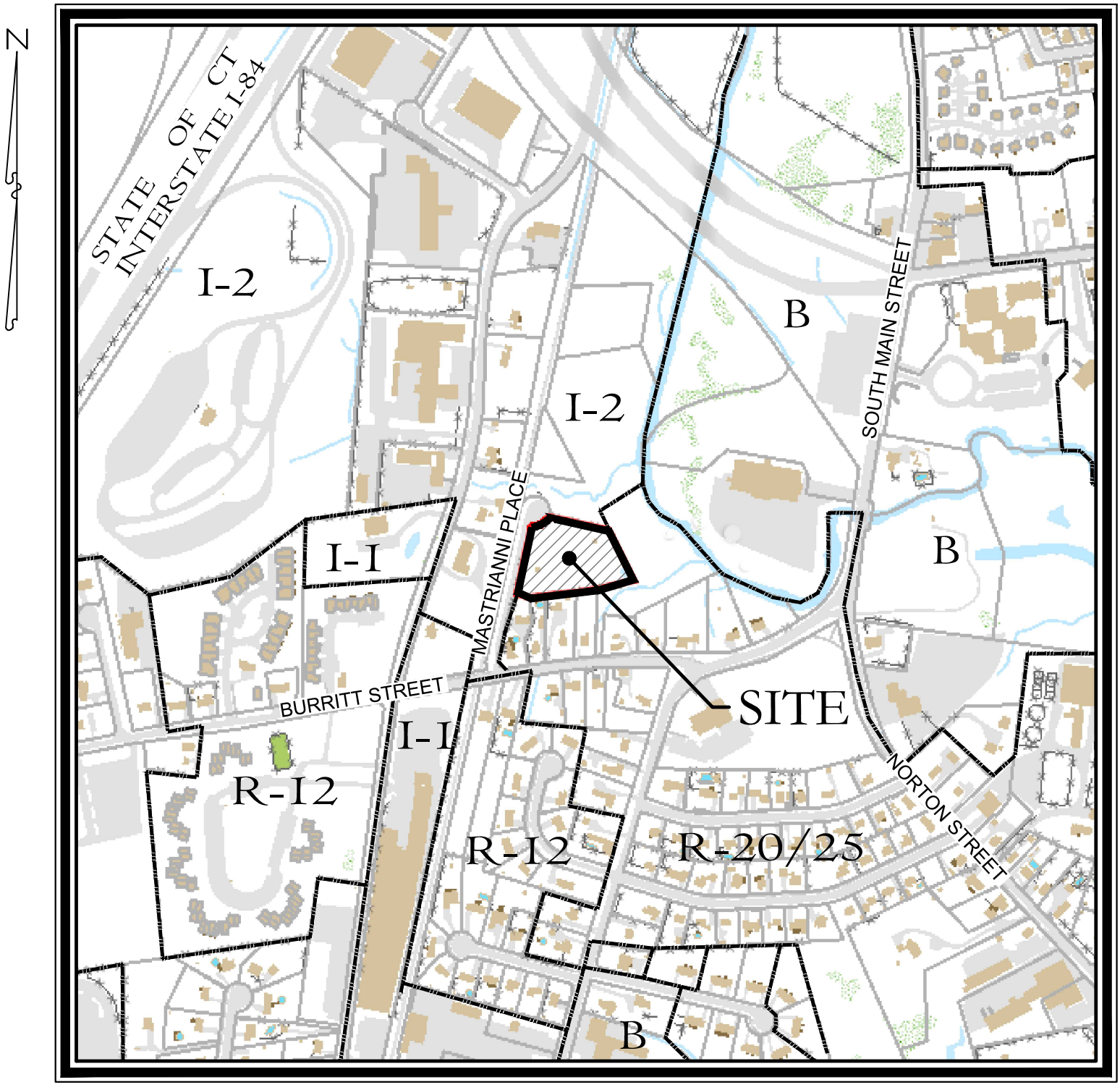
4) 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, Connecticut Council on Soil and Water Conservation, 79 Elm Street, Hartford, Connecticut.

5) 2000 Drainage Manual, Connecticut Department of Transportation,

APPENDICES TABLE OF CONTENTS

APPENDIX 'A'

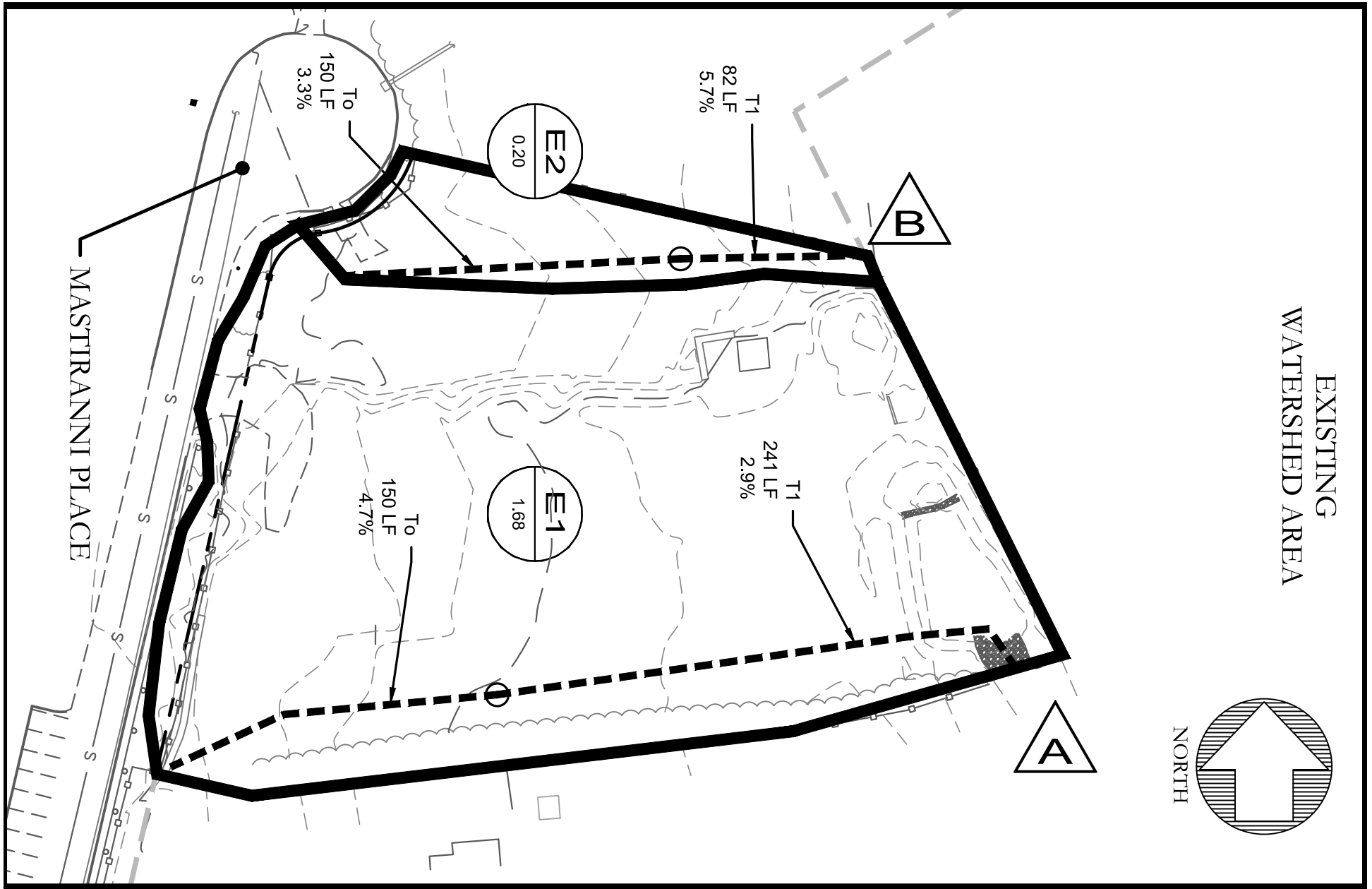
FIGURES



KEY MAP

SCALE: 1"=500'

DRAWING NAME: P:\Land Projects\2078-Buck, LLC-50 Mastrianni Place, Southington CT\Stormwater Management\Figures\2078 - Drainage - Existing Watershed Areas.dwg LAYOUT: 02 PLOT DATE: May 18, 2021 - 12:11pm OPERATOR: panico



EXISTING WATERSHED AREA

cole
engineering. surveying. planning.

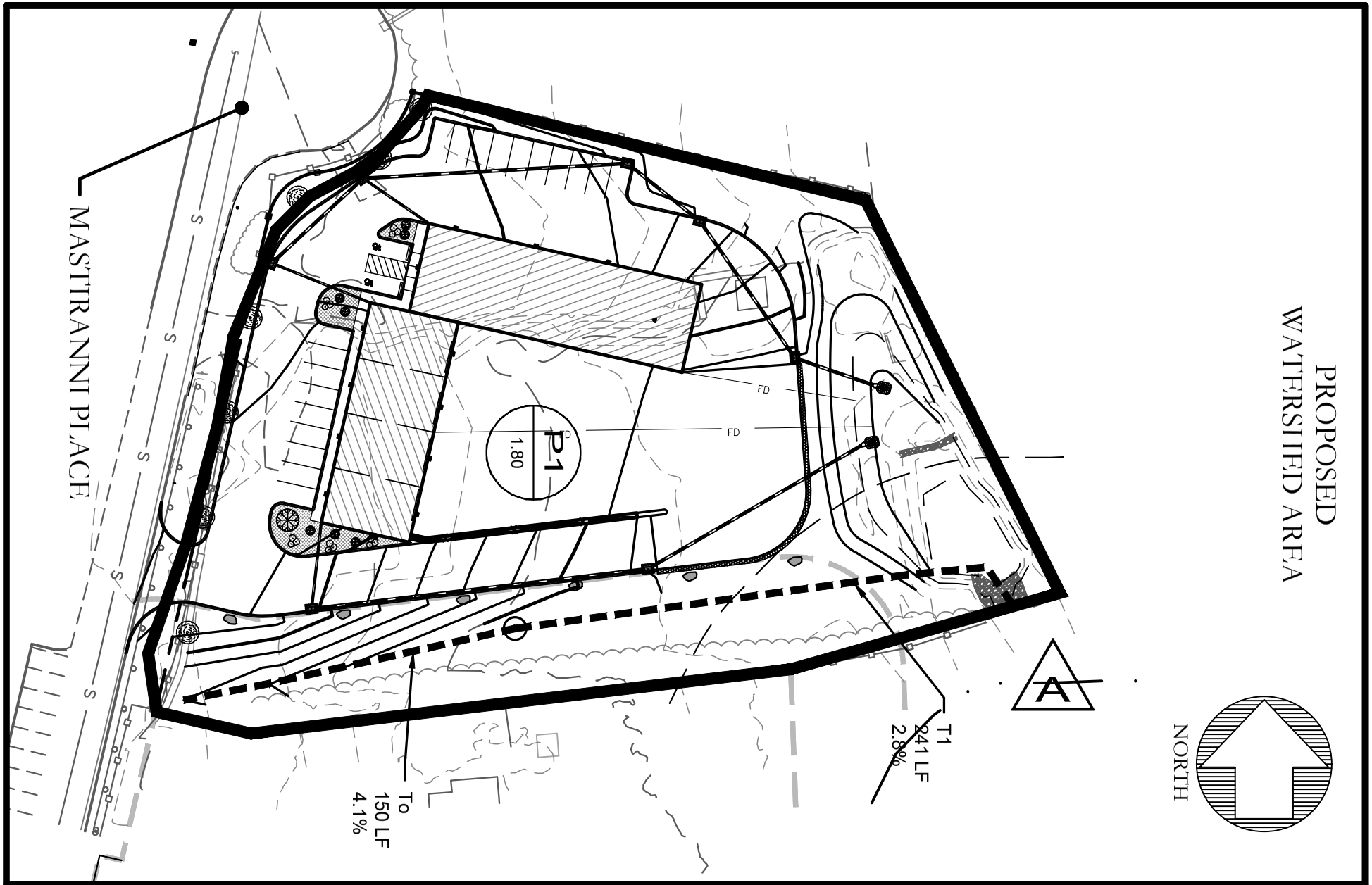
P. O. BOX 44
876 SOUTH
MAIN STREET
PLANTSVILLE, CT
06479
T (860) 628-4484
F (860) 620-0196

50 Mastrianni Place
PRE DEVELOPMENT
WATERSHED AREA MAP
Southington, Connecticut

Scale: 1" = 60'
Date: May 18, 2021
Project #: 2078

02

DRAWING NAME: D:\HECole and Son\HEC-2078 Buck\Stormwater\Figures\2078 - Drainage - Proposed Watershed Areas.dwg LAYOUT: 03 PLOT DATE: Aug 02, 2022 - 9:33am OPERATOR: swsoc



PROPOSED
WATERSHED AREA

cole
engineering. surveying. planning.

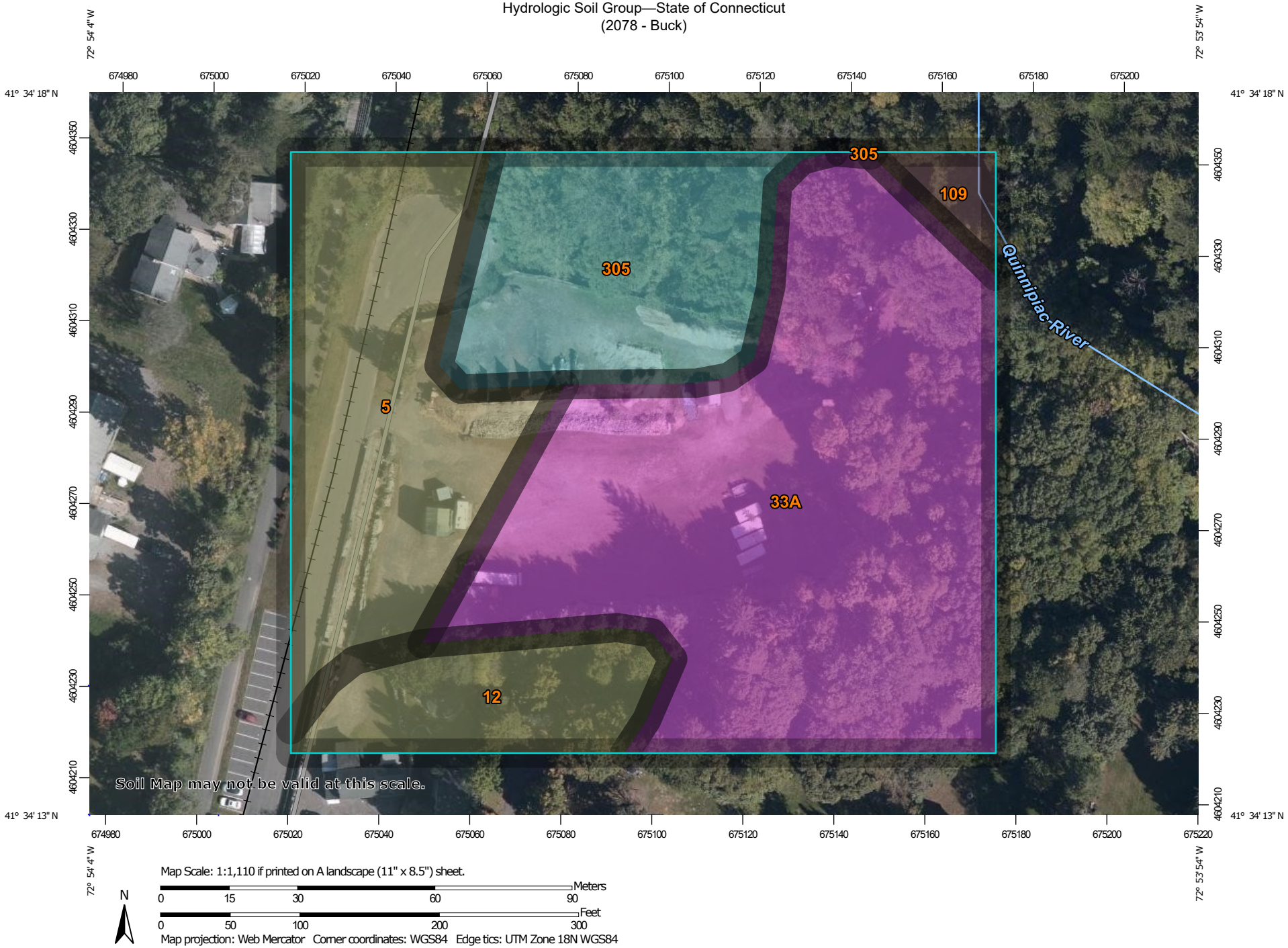
P. O. BOX 44
876 SOUTH
MAIN STREET
PLANTSVILLE, CT
06479
T (860) 628-4484
F (860) 620-0196

50 Mastrianni Place
POST DEVELOPMENT
WATERSHED AREA MAP
Southington, Connecticut

Scale: 1" = 60'
Date: Aug 2, 2022
Project #: 2078

03

Hydrologic Soil Group—State of Connecticut
(2078 - Buck)



Map Scale: 1:1,110 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

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 Rating Polygons

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Lines

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Points

A
A/D
B
B/D
C
C/D
D
Not rated or not available

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 20, Jun 9, 2020

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

Date(s) aerial images were photographed: Aug 30, 2019—Nov 9, 2019

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
5	Wilbraham silt loam, 0 to 3 percent slopes	C/D	1.1	22.7%
12	Raypol silt loam	C/D	0.5	9.0%
33A	Hartford sandy loam, 0 to 3 percent slopes	A	2.5	49.7%
109	Fluvaquents-Udifluvents complex, frequently flooded	B/D	0.1	1.9%
305	Udorthents-Pits complex, gravelly	C	0.8	16.8%
Totals for Area of Interest			**5.1**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Natural Diversity Data Base Areas

SOUTHINGTON, CT

December 2021

State and Federal Listed Species

Critical Habitat

Town Boundary

NOTE: This map shows general locations of State and Federal Listed Species and Critical Habitats. Information on listed species is collected and compiled by the Natural Diversity Data Base (NDDB) from a variety of data sources . Exact locations of species have been buffered to produce the generalized locations.

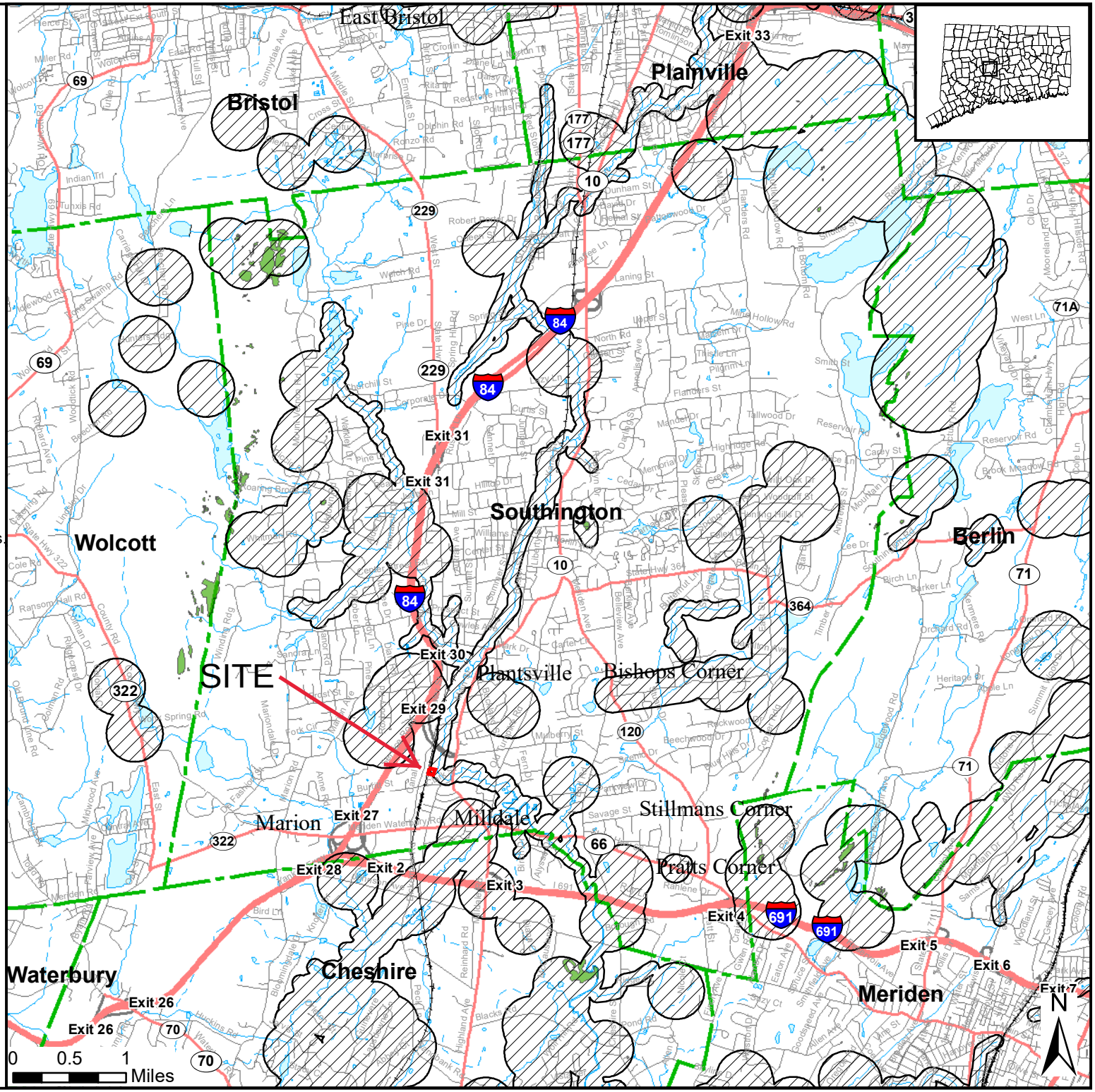
This map is intended for use as a preliminary screening tool for conducting a Natural Diversity Data Base Review Request. To use the map, locate the project boundaries and any additional affected areas. If the project is within a hatched area there may be a potential conflict with a listed species. For more information, complete a Request for Natural Diversity Data Base State Listed Species Review form (DEP-APP-007), and submit it to the NDDB along with the required maps and information. More detailed instructions are provided with the request form on our website.

www.ct.gov/deep/nddbrequest

Use the CTECO Interactive Map Viewers at http://cteco.uconn.edu to more precisely search for and locate a site and to view aerial imagery with NDDB Areas.

QUESTIONS: Department of Energy and Environmental Protection (DEEP)
79 Elm St, Hartford, CT 06106
email: deep.nddbrequest@ct.gov
Phone: (860) 424-3011

Connecticut Department of Energy & Environmental Protection
Bureau of Natural Resources
Wildlife Division



APPENDIX 'B'

PRE AND POST DEVELOPMENT ANALYSIS

Pre and Post Development Summary Table

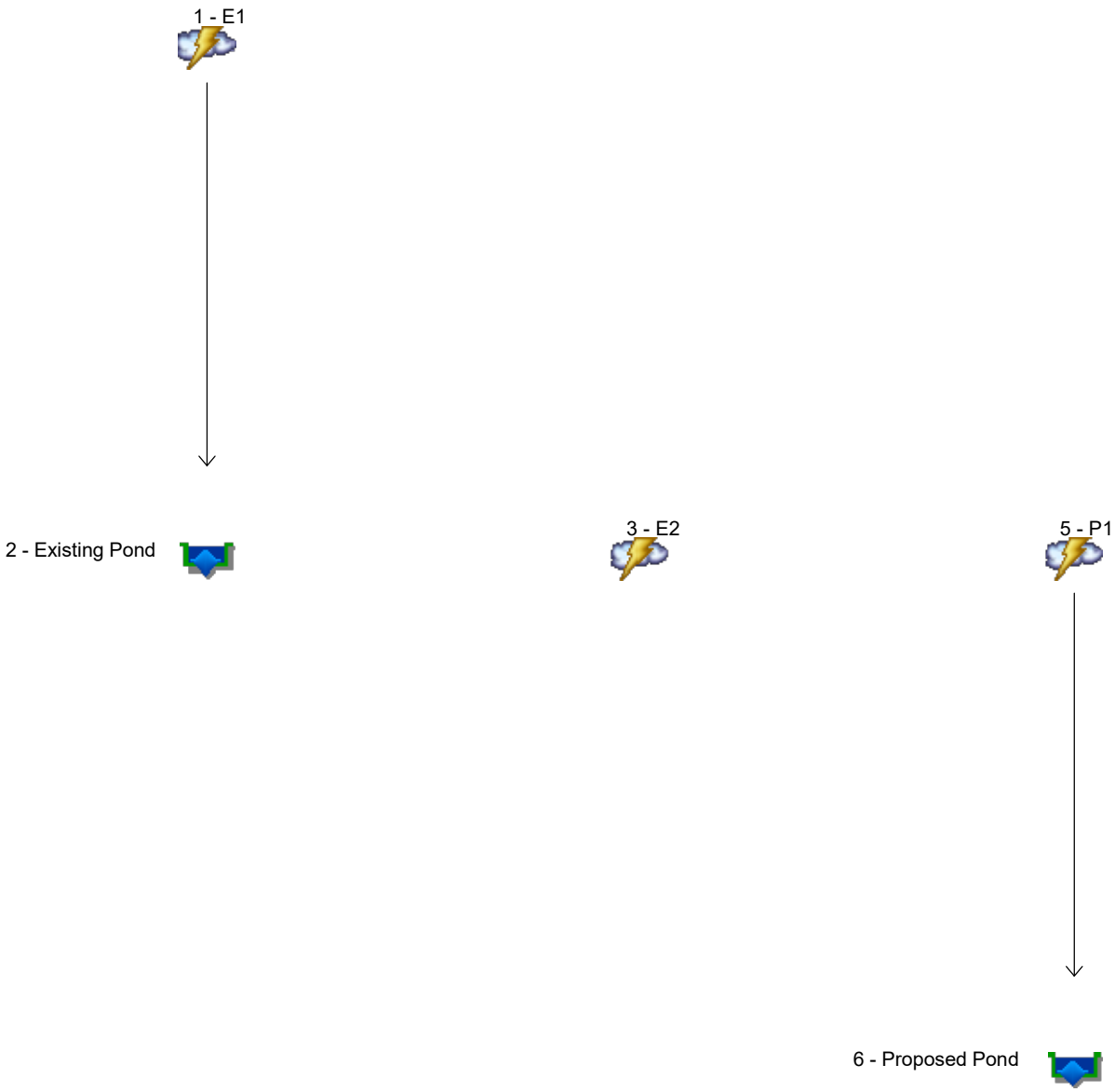
Design Point	Design Storm	Existing Peak Flow (cfs)	Proposed Peak Flow (cfs)	Change in Peak Flow (cfs)	
DP A (Existing Pond Spillway)	2	0.00	0.00	0.00	See note #1 Below
	5	0.00	0.00	0.00	
	10	0.00	0.00	0.00	
	25	0.00	0.00	0.00	
	100	0.00	0.00	0.00	
DP B (Northeast Corner of Site)	2	0.57	0.00	-0.57	See note #2 Below
	5	0.72	0.00	-0.72	
	10	0.85	0.00	-0.85	
	25	1.03	0.00	-1.03	
	100	1.31	0.00	-1.31	

Notes:

1. Existing Retention Pond has no offsite flows. Proposed pond designed to retain all storm water on site.

2. Proposed site redirects offsite flows to proposed enlarged retention basin. Therefore no offsite flows are directed to DP B

Watershed Model Schematic



Legend

Hyd.	Origin	Description
1	Rational	E1
2	Reservoir	Existing Pond
3	Rational	E2
5	Rational	P1
6	Reservoir	Proposed Pond

Hydrograph Return Period Recap

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	Rational	------	-------	4.535	-------	5.805	6.849	8.284	-------	10.49	E1
2	Reservoir	1	-------	0.000	-------	0.000	0.000	0.000	-------	0.000	Existing Pond
3	Rational	------	-------	0.566	-------	0.724	0.854	1.033	-------	1.308	E2
5	Rational	------	-------	2.348	-------	2.998	3.534	4.265	-------	5.400	P1
6	Reservoir	5	-------	0.000	-------	0.000	0.000	0.000	-------	0.000	Proposed Pond

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

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	Rational	4.535	1	7	1,905	------	------	------	E1
2	Reservoir	0.000	1	n/a	0	1	132.11	1,905	Existing Pond
3	Rational	0.566	1	7	238	------	------	------	E2
5	Rational	2.348	1	24	3,381	------	------	------	P1
6	Reservoir	0.000	1	n/a	0	5	132.15	2,817	Proposed Pond

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

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	Rational	5.805	1	7	2,438	------	------	------	E1
2	Reservoir	0.000	1	n/a	0	1	132.33	2,438	Existing Pond
3	Rational	0.724	1	7	304	------	------	------	E2
5	Rational	2.998	1	24	4,318	------	------	------	P1
6	Reservoir	0.000	1	n/a	0	5	132.35	3,598	Proposed Pond

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

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	Rational	6.849	1	7	2,876	------	------	------	E1
2	Reservoir	0.000	1	n/a	0	1	132.52	2,876	Existing Pond
3	Rational	0.854	1	7	359	------	------	------	E2
5	Rational	3.534	1	24	5,089	------	------	------	P1
6	Reservoir	0.000	1	n/a	0	5	132.51	4,241	Proposed Pond

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

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	Rational	8.284	1	7	3,479	------	------	------	E1
2	Reservoir	0.000	1	n/a	0	1	132.77	3,479	Existing Pond
3	Rational	1.033	1	7	434	------	------	------	E2
5	Rational	4.265	1	24	6,142	------	------	------	P1
6	Reservoir	0.000	1	n/a	0	5	132.73	5,118	Proposed Pond

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

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	Rational	10.49	1	7	4,407	------	------	------	E1
2	Reservoir	0.000	1	n/a	0	1	133.12	4,407	Existing Pond
3	Rational	1.308	1	7	550	------	------	------	E2
5	Rational	5.400	1	24	7,775	------	------	------	P1
6	Reservoir	0.000	1	n/a	0	5	133.05	6,479	Proposed Pond

Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	23.2475	3.7000	0.7135	--------
3	0.0000	0.0000	0.0000	--------
5	31.4774	4.0000	0.7287	--------
10	37.2329	4.0000	0.7298	--------
25	43.0321	3.7000	0.7191	--------
50	49.5765	3.8000	0.7237	--------
100	55.5061	3.8000	0.7239	--------

File name: 2078.IDF

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4.97	3.59	2.88	2.43	2.12	1.89	1.71	1.57	1.45	1.36	1.27	1.20
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.35	4.60	3.68	3.11	2.71	2.41	2.18	2.00	1.85	1.72	1.61	1.52
10	7.49	5.43	4.34	3.66	3.19	2.84	2.57	2.35	2.18	2.03	1.90	1.79
25	9.08	6.55	5.24	4.42	3.85	3.43	3.11	2.85	2.63	2.45	2.30	2.17
50	10.27	7.42	5.93	5.00	4.36	3.88	3.51	3.22	2.97	2.77	2.60	2.45
100	11.50	8.30	6.64	5.59	4.87	4.34	3.93	3.60	3.33	3.10	2.91	2.74

Tc = time in minutes. Values may exceed 60.

e: P:\Land Projects\2078-Buck, LLC-50 Mastrianni Place, Southington CT\Stormwater Management\Detention\2078.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	0.00	3.46	0.00	4.55	5.46	6.70	7.62	8.62
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

NOAA Atlas 14, Volume 10, Version 3
Location name: Plantsville, Connecticut, USA*
Latitude: 41.5709°, Longitude: -72.9004°
Elevation: 148.64 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	**0.344** (0.268-0.435)	**0.414** (0.322-0.526)	**0.529** (0.411-0.674)	**0.626** (0.483-0.802)	**0.758** (0.566-1.02)	**0.858** (0.628-1.18)	**0.962** (0.683-1.38)	**1.08** (0.725-1.58)	**1.24** (0.803-1.89)	**1.37** (0.869-2.14)
10-min	**0.487** (0.379-0.617)	**0.587** (0.457-0.745)	**0.751** (0.582-0.957)	**0.887** (0.684-1.14)	**1.07** (0.802-1.44)	**1.22** (0.889-1.67)	**1.36** (0.967-1.95)	**1.53** (1.03-2.24)	**1.76** (1.14-2.69)	**1.94** (1.23-3.04)
15-min	**0.573** (0.446-0.726)	**0.691** (0.537-0.876)	**0.884** (0.686-1.13)	**1.04** (0.806-1.34)	**1.26** (0.943-1.70)	**1.43** (1.05-1.97)	**1.60** (1.14-2.29)	**1.80** (1.21-2.64)	**2.07** (1.34-3.16)	**2.29** (1.45-3.57)
30-min	**0.785** (0.611-0.995)	**0.944** (0.734-1.20)	**1.20** (0.933-1.53)	**1.42** (1.10-1.82)	**1.72** (1.28-2.31)	**1.94** (1.42-2.67)	**2.17** (1.54-3.11)	**2.43** (1.64-3.58)	**2.80** (1.82-4.28)	**3.10** (1.96-4.85)
60-min	**0.997** (0.777-1.26)	**1.20** (0.931-1.52)	**1.52** (1.18-1.94)	**1.79** (1.38-2.30)	**2.17** (1.62-2.91)	**2.45** (1.79-3.37)	**2.74** (1.95-3.92)	**3.07** (2.07-4.51)	**3.54** (2.29-5.40)	**3.92** (2.48-6.12)
2-hr	**1.31** (1.02-1.65)	**1.56** (1.22-1.97)	**1.98** (1.54-2.50)	**2.32** (1.80-2.95)	**2.79** (2.10-3.73)	**3.15** (2.31-4.30)	**3.52** (2.51-5.01)	**3.94** (2.66-5.76)	**4.54** (2.95-6.90)	**5.04** (3.20-7.82)
3-hr	**1.52** (1.20-1.91)	**1.81** (1.43-2.28)	**2.29** (1.80-2.89)	**2.69** (2.10-3.42)	**3.24** (2.44-4.32)	**3.65** (2.70-4.99)	**4.09** (2.93-5.81)	**4.58** (3.11-6.68)	**5.30** (3.45-8.03)	**5.89** (3.75-9.12)
6-hr	**1.93** (1.53-2.40)	**2.32** (1.83-2.89)	**2.95** (2.32-3.70)	**3.48** (2.72-4.38)	**4.20** (3.19-5.57)	**4.74** (3.53-6.45)	**5.32** (3.84-7.55)	**5.99** (4.07-8.69)	**6.99** (4.57-10.5)	**7.83** (4.99-12.0)
12-hr	**2.38** (1.89-2.95)	**2.90** (2.30-3.59)	**3.74** (2.96-4.66)	**4.44** (3.50-5.56)	**5.41** (4.13-7.15)	**6.12** (4.58-8.31)	**6.90** (5.03-9.79)	**7.83** (5.34-11.3)	**9.24** (6.06-13.8)	**10.5** (6.69-16.0)
24-hr	**2.79** (2.24-3.44)	**3.46** (2.77-4.26)	**4.55** (3.63-5.63)	**5.46** (4.32-6.79)	**6.70** (5.15-8.84)	**7.62** (5.75-10.3)	**8.62** (6.35-12.3)	**9.89** (6.76-14.2)	**11.9** (7.80-17.7)	**13.6** (8.73-20.7)
2-day	**3.14** (2.53-3.84)	**3.96** (3.19-4.85)	**5.31** (4.26-6.52)	**6.42** (5.12-7.94)	**7.95** (6.16-10.5)	**9.07** (6.91-12.3)	**10.3** (7.69-14.7)	**11.9** (8.20-17.1)	**14.6** (9.62-21.7)	**17.0** (10.9-25.7)
3-day	**3.41** (2.76-4.16)	**4.32** (3.49-5.26)	**5.80** (4.67-7.10)	**7.03** (5.62-8.65)	**8.72** (6.78-11.4)	**9.94** (7.60-13.4)	**11.3** (8.48-16.1)	**13.1** (9.04-18.7)	**16.1** (10.6-23.9)	**18.8** (12.1-28.4)
4-day	**3.66** (2.97-4.45)	**4.63** (3.75-5.62)	**6.20** (5.00-7.57)	**7.51** (6.02-9.23)	**9.31** (7.26-12.2)	**10.6** (8.14-14.3)	**12.1** (9.07-17.2)	**14.0** (9.66-19.9)	**17.2** (11.4-25.4)	**20.0** (12.9-30.2)
7-day	**4.36** (3.56-5.27)	**5.44** (4.43-6.58)	**7.20** (5.84-8.74)	**8.66** (6.98-10.6)	**10.7** (8.34-13.9)	**12.1** (9.32-16.2)	**13.8** (10.3-19.4)	**15.9** (11.0-22.4)	**19.3** (12.8-28.3)	**22.3** (14.4-33.4)
10-day	**5.07** (4.15-6.11)	**6.21** (5.07-7.48)	**8.06** (6.56-9.75)	**9.60** (7.76-11.7)	**11.7** (9.18-15.1)	**13.3** (10.2-17.6)	**15.0** (11.2-20.9)	**17.1** (11.9-24.1)	**20.5** (13.7-30.0)	**23.5** (15.3-35.1)
20-day	**7.29** (6.00-8.72)	**8.49** (6.98-10.2)	**10.5** (8.56-12.6)	**12.1** (9.83-14.6)	**14.3** (11.2-18.2)	**16.0** (12.3-20.9)	**17.8** (13.2-24.2)	**19.9** (13.9-27.7)	**22.9** (15.3-33.3)	**25.5** (16.6-37.9)
30-day	**9.14** (7.55-10.9)	**10.4** (8.56-12.4)	**12.4** (10.2-14.8)	**14.1** (11.5-16.9)	**16.3** (12.9-20.6)	**18.1** (13.9-23.4)	**19.9** (14.7-26.7)	**21.9** (15.3-30.3)	**24.6** (16.5-35.6)	**26.9** (17.5-39.7)
45-day	**11.4** (9.48-13.6)	**12.7** (10.5-15.1)	**14.8** (12.2-17.6)	**16.5** (13.5-19.8)	**18.9** (14.9-23.6)	**20.7** (15.9-26.5)	**22.5** (16.6-29.9)	**24.4** (17.1-33.7)	**26.8** (18.0-38.6)	**28.7** (18.7-42.3)
60-day	**13.3** (11.1-15.8)	**14.6** (12.2-17.3)	**16.8** (13.9-20.0)	**18.6** (15.2-22.2)	**21.0** (16.6-26.1)	**22.9** (17.6-29.1)	**24.8** (18.2-32.6)	**26.5** (18.7-36.5)	**28.8** (19.4-41.3)	**30.4** (19.9-44.7)

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

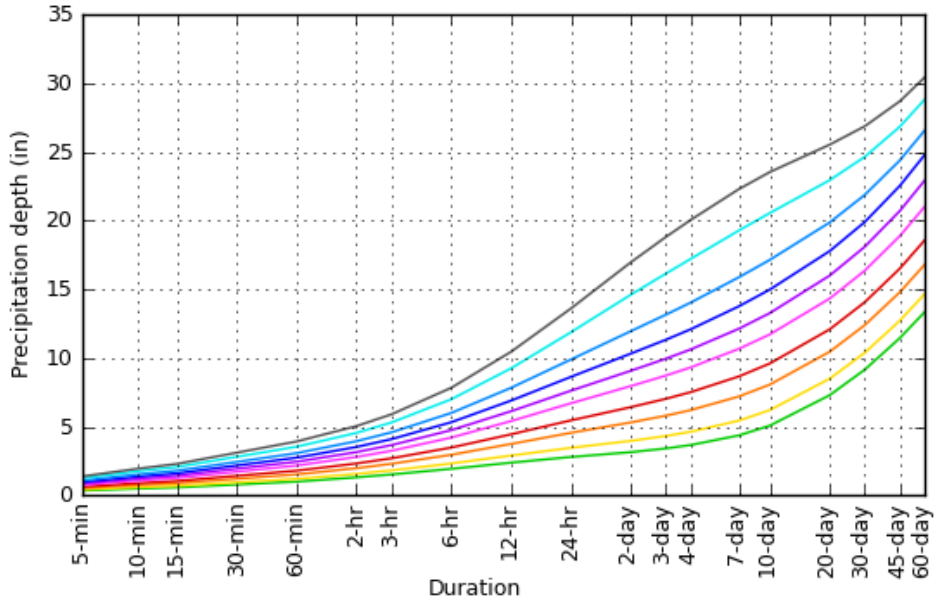
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper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

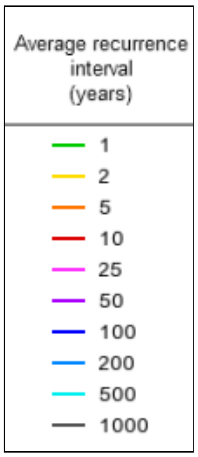
Please refer to NOAA Atlas 14 document for more information.

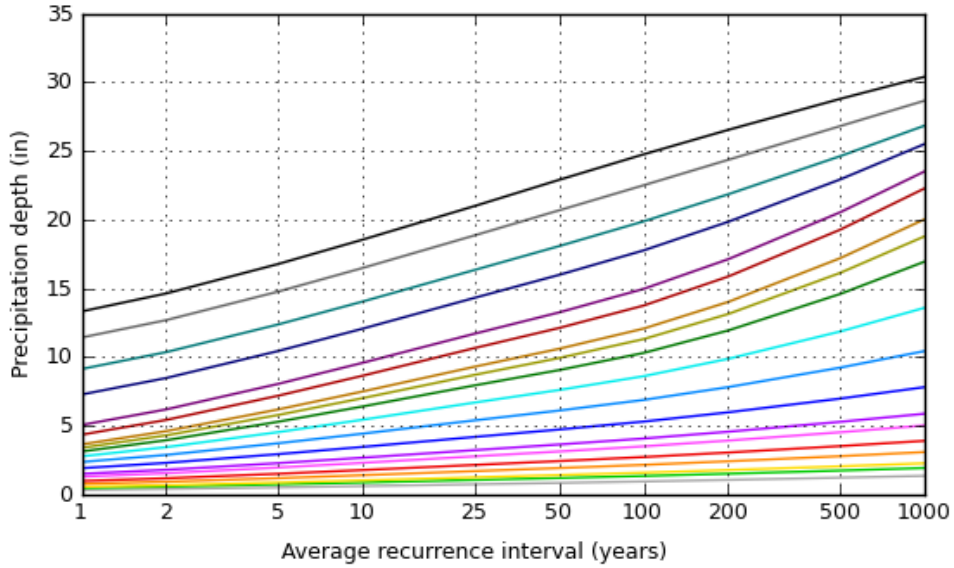
Back to Top

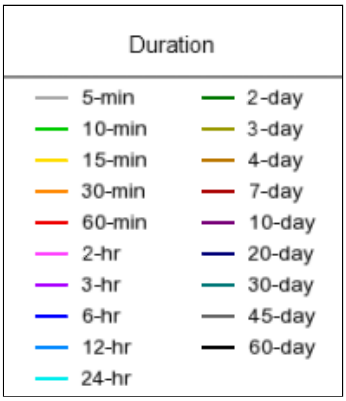
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 41.5709°, Longitude: -72.9004°









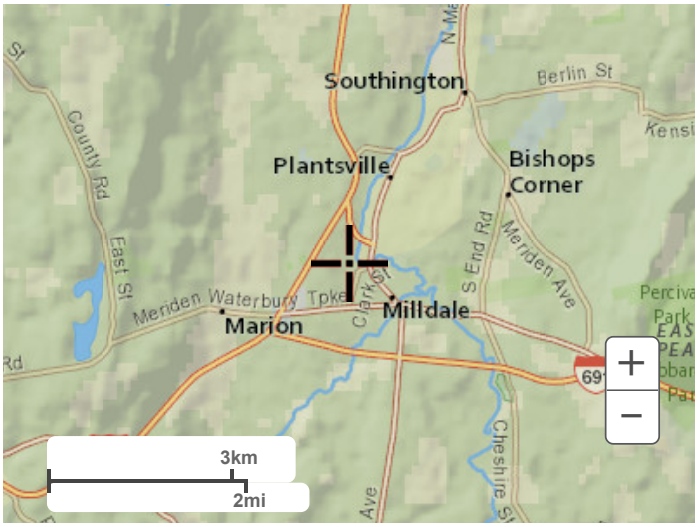
NOAA Atlas 14, Volume 10, Version 3

Created (GMT): Tue Aug 2 15:52:00 2022

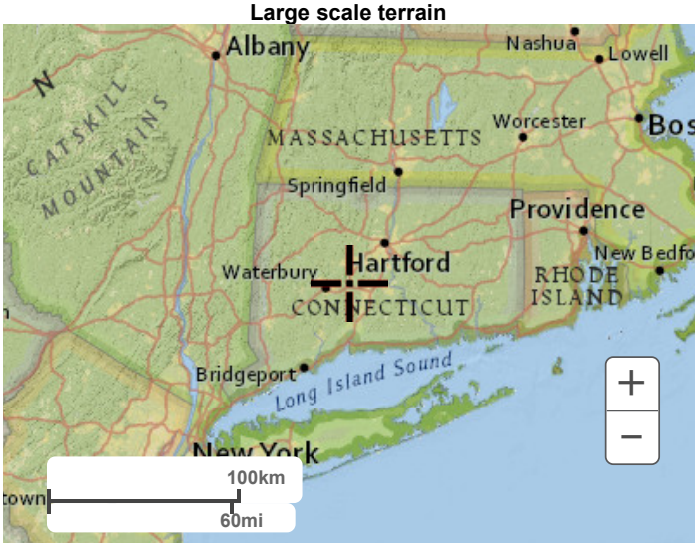
Back to Top

Maps & aerials

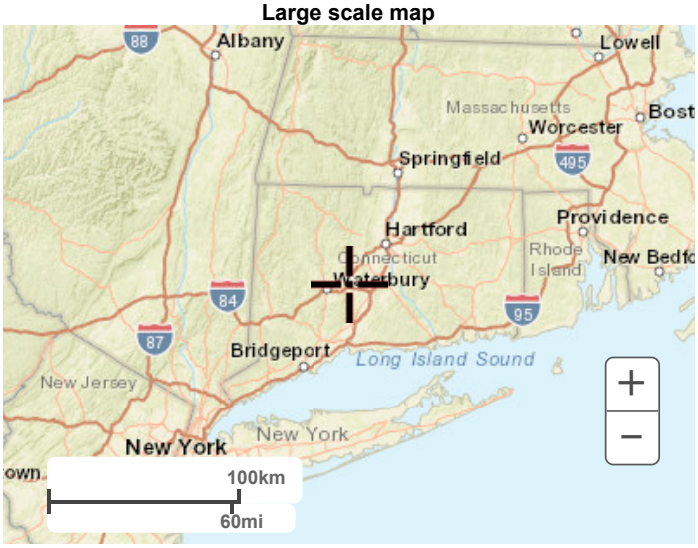
Small scale terrain



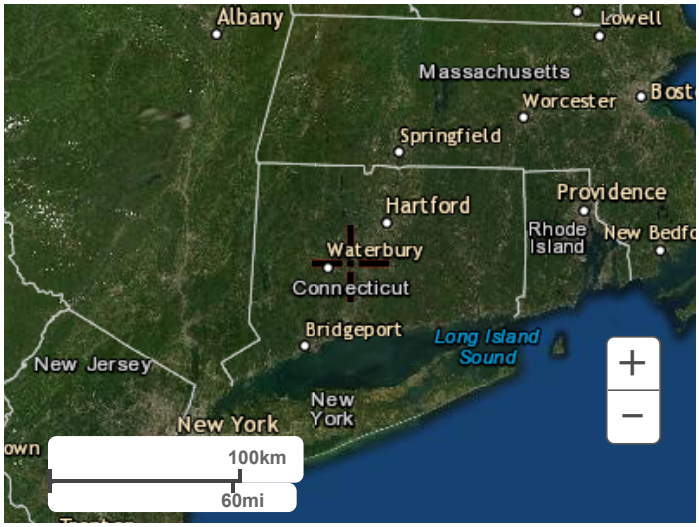
Large scale terrain



Large scale map



Large scale aerial



Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

NOAA Atlas 14, Volume 10, Version 3
Location name: Plantsville, Connecticut, USA*
Latitude: 41.5709°, Longitude: -72.9004°
Elevation: 148.64 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/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**4.13** (3.22-5.22)	**4.97** (3.86-6.31)	**6.35** (4.93-8.09)	**7.51** (5.80-9.62)	**9.10** (6.79-12.2)	**10.3** (7.54-14.2)	**11.5** (8.20-16.5)	**12.9** (8.70-19.0)	**14.9** (9.64-22.7)	**16.5** (10.4-25.7)
10-min	**2.92** (2.27-3.70)	**3.52** (2.74-4.47)	**4.51** (3.49-5.74)	**5.32** (4.10-6.82)	**6.44** (4.81-8.66)	**7.30** (5.33-10.0)	**8.18** (5.80-11.7)	**9.16** (6.17-13.5)	**10.5** (6.83-16.1)	**11.7** (7.39-18.2)
15-min	**2.29** (1.78-2.90)	**2.76** (2.15-3.50)	**3.54** (2.74-4.51)	**4.18** (3.22-5.36)	**5.06** (3.77-6.80)	**5.72** (4.18-7.87)	**6.41** (4.55-9.17)	**7.18** (4.84-10.6)	**8.26** (5.36-12.6)	**9.15** (5.79-14.3)
30-min	**1.57** (1.22-1.99)	**1.89** (1.47-2.40)	**2.41** (1.87-3.07)	**2.84** (2.19-3.64)	**3.43** (2.56-4.61)	**3.88** (2.84-5.34)	**4.34** (3.08-6.22)	**4.86** (3.28-7.15)	**5.60** (3.63-8.56)	**6.21** (3.93-9.69)
60-min	**0.997** (0.777-1.26)	**1.20** (0.931-1.52)	**1.52** (1.18-1.94)	**1.79** (1.38-2.30)	**2.17** (1.62-2.91)	**2.45** (1.79-3.37)	**2.74** (1.95-3.92)	**3.07** (2.07-4.51)	**3.54** (2.29-5.40)	**3.92** (2.48-6.12)
2-hr	**0.654** (0.512-0.824)	**0.780** (0.611-0.984)	**0.988** (0.770-1.25)	**1.16** (0.899-1.48)	**1.40** (1.05-1.86)	**1.57** (1.16-2.15)	**1.76** (1.26-2.51)	**1.97** (1.33-2.88)	**2.27** (1.48-3.45)	**2.52** (1.60-3.91)
3-hr	**0.506** (0.398-0.635)	**0.604** (0.475-0.759)	**0.764** (0.598-0.963)	**0.896** (0.698-1.14)	**1.08** (0.814-1.44)	**1.22** (0.898-1.66)	**1.36** (0.976-1.94)	**1.53** (1.03-2.22)	**1.77** (1.15-2.67)	**1.96** (1.25-3.04)
6-hr	**0.322** (0.255-0.401)	**0.387** (0.306-0.483)	**0.493** (0.388-0.617)	**0.580** (0.455-0.732)	**0.702** (0.532-0.931)	**0.792** (0.589-1.08)	**0.888** (0.642-1.26)	**1.00** (0.680-1.45)	**1.17** (0.763-1.76)	**1.31** (0.834-2.01)
12-hr	**0.197** (0.157-0.245)	**0.240** (0.191-0.298)	**0.310** (0.246-0.386)	**0.369** (0.290-0.462)	**0.449** (0.343-0.593)	**0.508** (0.380-0.689)	**0.572** (0.417-0.812)	**0.650** (0.443-0.937)	**0.767** (0.503-1.15)	**0.867** (0.555-1.33)
24-hr	**0.116** (0.093-0.143)	**0.144** (0.115-0.178)	**0.190** (0.151-0.235)	**0.227** (0.180-0.283)	**0.279** (0.215-0.368)	**0.317** (0.240-0.430)	**0.359** (0.265-0.511)	**0.412** (0.282-0.591)	**0.495** (0.325-0.737)	**0.567** (0.364-0.863)
2-day	**0.065** (0.053-0.080)	**0.083** (0.066-0.101)	**0.111** (0.089-0.136)	**0.134** (0.107-0.165)	**0.166** (0.128-0.218)	**0.189** (0.144-0.256)	**0.215** (0.160-0.307)	**0.249** (0.171-0.355)	**0.304** (0.200-0.451)	**0.353** (0.227-0.535)
3-day	**0.047** (0.038-0.058)	**0.060** (0.048-0.073)	**0.081** (0.065-0.099)	**0.098** (0.078-0.120)	**0.121** (0.094-0.159)	**0.138** (0.106-0.187)	**0.157** (0.118-0.224)	**0.183** (0.126-0.260)	**0.224** (0.148-0.331)	**0.261** (0.168-0.394)
4-day	**0.038** (0.031-0.046)	**0.048** (0.039-0.059)	**0.065** (0.052-0.079)	**0.078** (0.063-0.096)	**0.097** (0.076-0.127)	**0.111** (0.085-0.149)	**0.126** (0.094-0.179)	**0.146** (0.101-0.207)	**0.179** (0.118-0.264)	**0.209** (0.135-0.314)
7-day	**0.026** (0.021-0.031)	**0.032** (0.026-0.039)	**0.043** (0.035-0.052)	**0.052** (0.042-0.063)	**0.063** (0.050-0.082)	**0.072** (0.055-0.096)	**0.082** (0.061-0.115)	**0.094** (0.065-0.133)	**0.115** (0.076-0.168)	**0.133** (0.086-0.199)
10-day	**0.021** (0.017-0.025)	**0.026** (0.021-0.031)	**0.034** (0.027-0.041)	**0.040** (0.032-0.049)	**0.049** (0.038-0.063)	**0.055** (0.042-0.073)	**0.062** (0.047-0.087)	**0.071** (0.049-0.100)	**0.086** (0.057-0.125)	**0.098** (0.064-0.146)
20-day	**0.015** (0.012-0.018)	**0.018** (0.015-0.021)	**0.022** (0.018-0.026)	**0.025** (0.020-0.030)	**0.030** (0.023-0.038)	**0.033** (0.026-0.043)	**0.037** (0.028-0.050)	**0.041** (0.029-0.058)	**0.048** (0.032-0.069)	**0.053** (0.035-0.079)
30-day	**0.013** (0.010-0.015)	**0.014** (0.012-0.017)	**0.017** (0.014-0.021)	**0.020** (0.016-0.024)	**0.023** (0.018-0.029)	**0.025** (0.019-0.032)	**0.028** (0.020-0.037)	**0.030** (0.021-0.042)	**0.034** (0.023-0.049)	**0.037** (0.024-0.055)
45-day	**0.011** (0.009-0.013)	**0.012** (0.010-0.014)	**0.014** (0.011-0.016)	**0.015** (0.013-0.018)	**0.017** (0.014-0.022)	**0.019** (0.015-0.025)	**0.021** (0.015-0.028)	**0.023** (0.016-0.031)	**0.025** (0.017-0.036)	**0.027** (0.017-0.039)
60-day	**0.009** (0.008-0.011)	**0.010** (0.008-0.012)	**0.012** (0.010-0.014)	**0.013** (0.011-0.015)	**0.015** (0.012-0.018)	**0.016** (0.012-0.020)	**0.017** (0.013-0.023)	**0.018** (0.013-0.025)	**0.020** (0.013-0.029)	**0.021** (0.014-0.031)

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

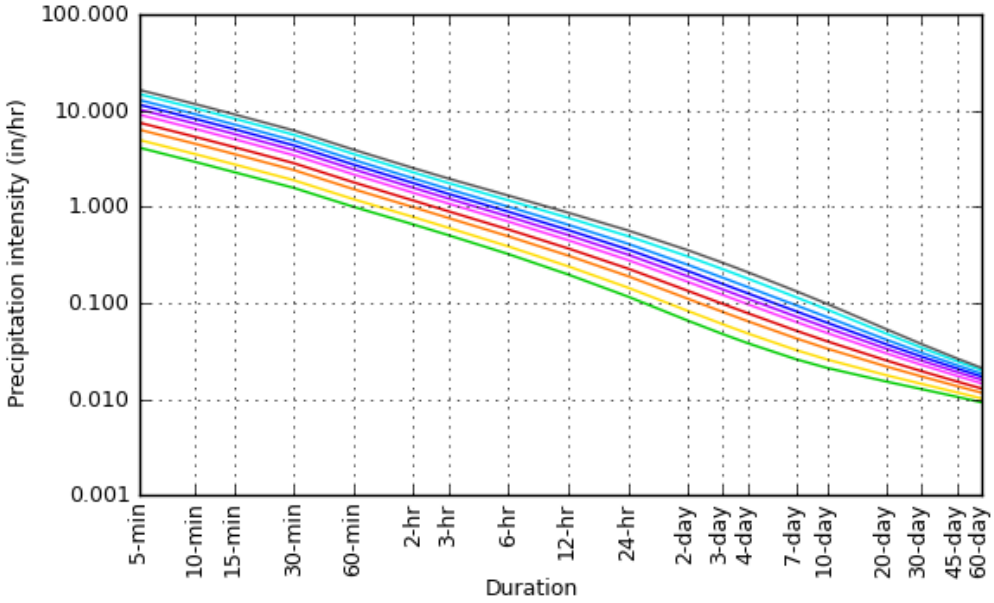
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper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

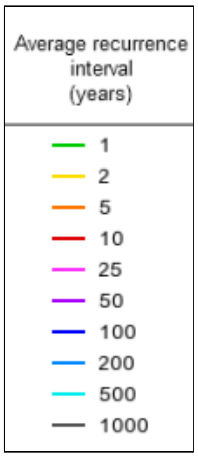
Please refer to NOAA Atlas 14 document for more information.

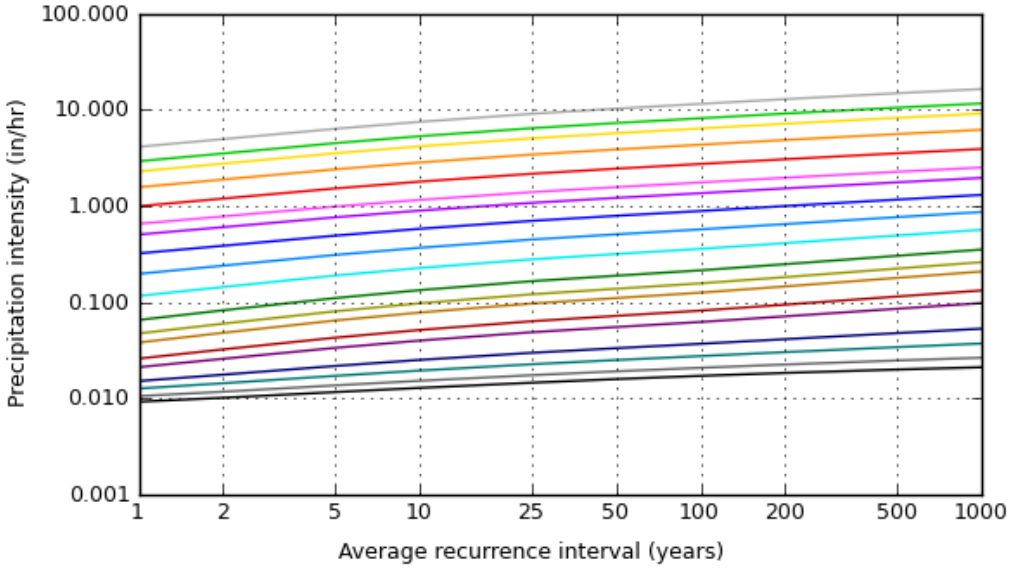
Back to Top

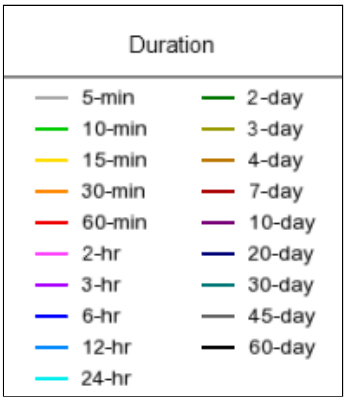
PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 41.5709°, Longitude: -72.9004°









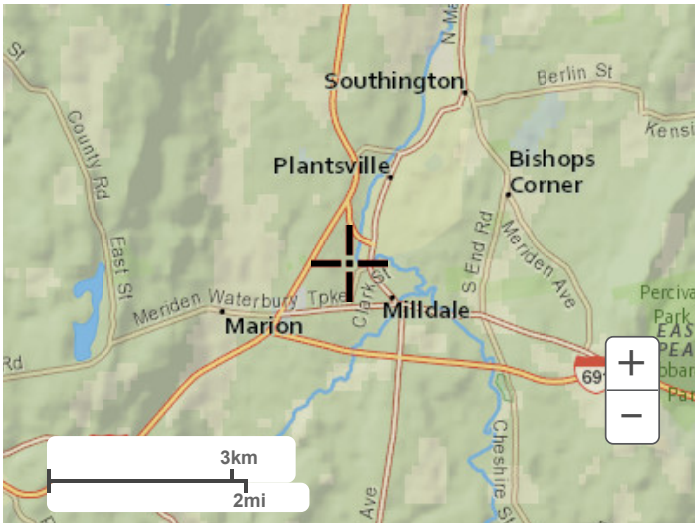
NOAA Atlas 14, Volume 10, Version 3

Created (GMT): Tue Aug 2 15:52:44 2022

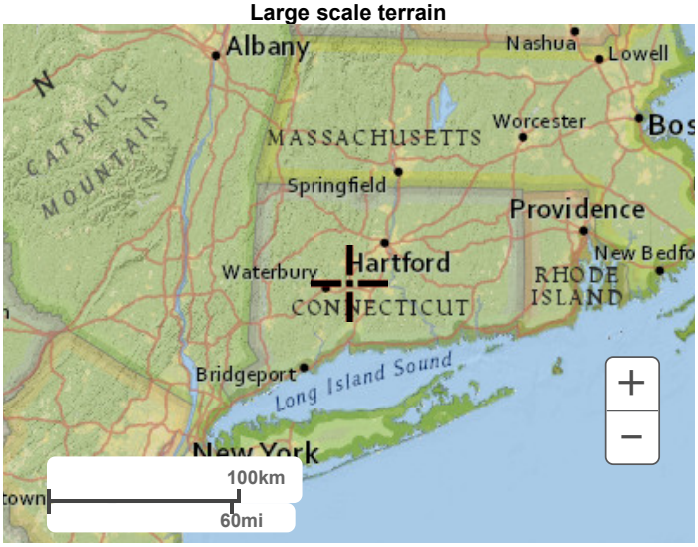
Back to Top

Maps & aerials

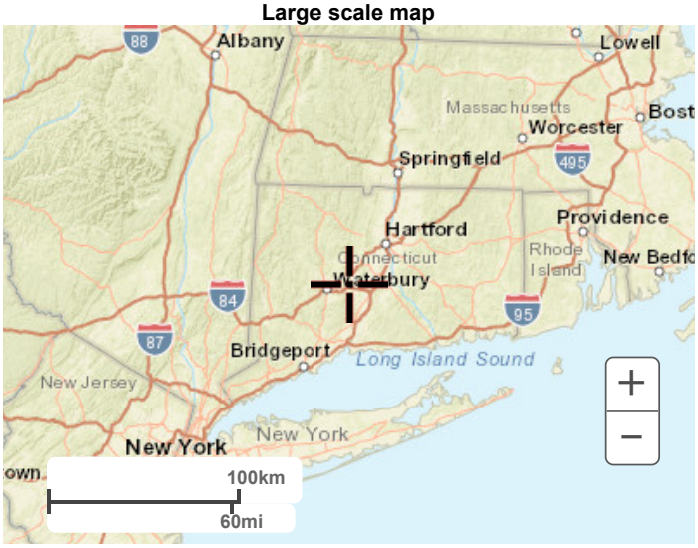
Small scale terrain



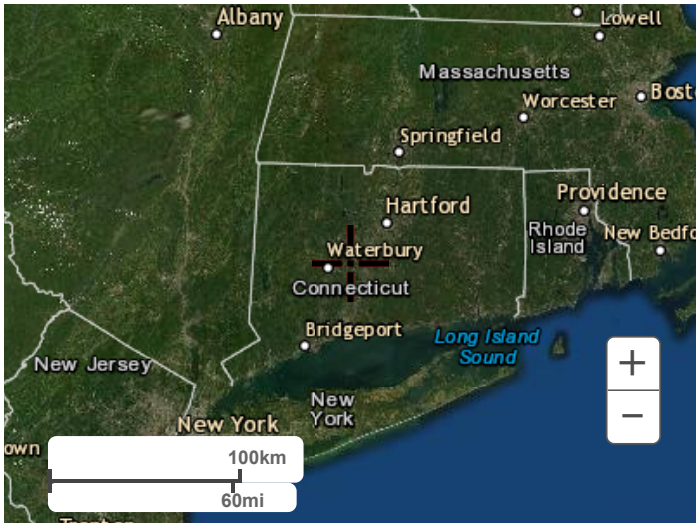
Large scale terrain



Large scale map



Large scale aerial



Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

RATIONAL METHOD COMPOSITE RUNOFF COEFFICIENTS

Character of Surface	Runoff Coefficient	Source
Asphalt, Concrete, Roofs & Water Surface	0.95	CONN DOT Table 6-5
Light Industrial Areas	0.65	CONN DOT Table 6-4
Residential Single Family Area	0.50	CONN DOT Table 6-4
Parks & Cemeteries	0.25	CONN DOT Table 6-4
Unimproved Areas	0.30	CONN DOT Table 6-4
		CONN DOT Table 6-4

Character of Surface	Runoff Coefficient	Source
Forest (Hydrologic Type A Soil)	0.14	McCuen, 1989 Table 7-2
Forest (Hydrologic Type C Soil)	0.22	McCuen, 1989 Table 7-3
Lawns Sandy Soil (Steep 7%+)	0.18	McCuen, 1989 Table 7-3
Lawns Sandy Soil (2% to 7%)	0.16	McCuen, 1989 Table 7-3
		McCuen, 1989 Table 7-3

Project: 50 Mastrianni Place
Southington, CT

Calcs By: BTP
Date: 5/18/21
Revised : 08/02/22

Basin ID	Basin Area (acres)	Asphalt, Concrete, Roofs & Water Surface (acres)	Light Industrial Areas (acres)	Residential Single Family Area (acres)	Parks & Cemeteries (acres)	Unimproved Areas (acres)	0 (acres)	Forest (Hydrologic Type A Soil) (acres)	Forest (Hydrologic Type C Soil) (acres)	Lawns Sandy Soil (Steep 7%+) (acres)	Lawns Sandy Soil (2% to 7%) (acres)	Composite Runoff Coefficient
E1	1.68	0.04	1.54						0.10			0.63
E2	0.20	0.01	0.19									0.66
P1	1.80	1.00							0.10	0.14	0.56	0.60

Note:

TIME OF CONCENTRATION COMPUTATIONS

Project: 50 Mastrianni Place
Southington, CT

Calculations By: BTP
Date: 5/18/2021
Rev; 8/2/2022

Overland Flow: (Maximum 150 FT)

$$T_t = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5} s^{0.4}}$$ (TR-55 Equation 3-3)

T_t=Travel Time (Hr)
n=Manning's Roughness (TR-55 Table 3-1)
L=Flow Length (ft)
P_2= 2 Year, 24-hour Ranfall (in)
s=slope (ft/ft)

Shallow Concentrated Flow:

Unpaved: $V=16.1345(s)^{0.5}$
Paved: $V=20.3284(s)^{0.5}$
$T_t = L / 60V$
} (Conn DOT Equations 6.C.4 & C.C.5)

T_t=Travel Time (min)
V=Velocity (ft/s)
s=slope (ft/ft)

Open Channel\Swale Flow:

$$V = \frac{1.49 r^{\frac{2}{3}} s^{\frac{1}{2}}}{n}$$ (TR-55 Equation 3-4)

T_t=Travel Time (min)
n=Manning's Roughness
L=Flow Length (ft)
V=Velocity (ft/s)
s=slope (ft/ft)
r= hydraulic radius (a/pw)
a=cross-section area (ft^2)
p_w=wetted perimeter (ft)

$T_t = L / 60V$

Common Manning n Values for overland flow (TR-55 Table 3-1)

Woods	0.400	Light Underbrush
Pavement	0.011	(concrete, asphalt, gravel, or bare soil)
Lawns	0.410	Bermuda Grass
Dense Grass	0.240	Lovegrass, Bluegrass, Buffalo,Grama & Native
Industrial Area	0.08	(unimproved industrial area, estimated n value based on site conditions and impacts on overland flow)

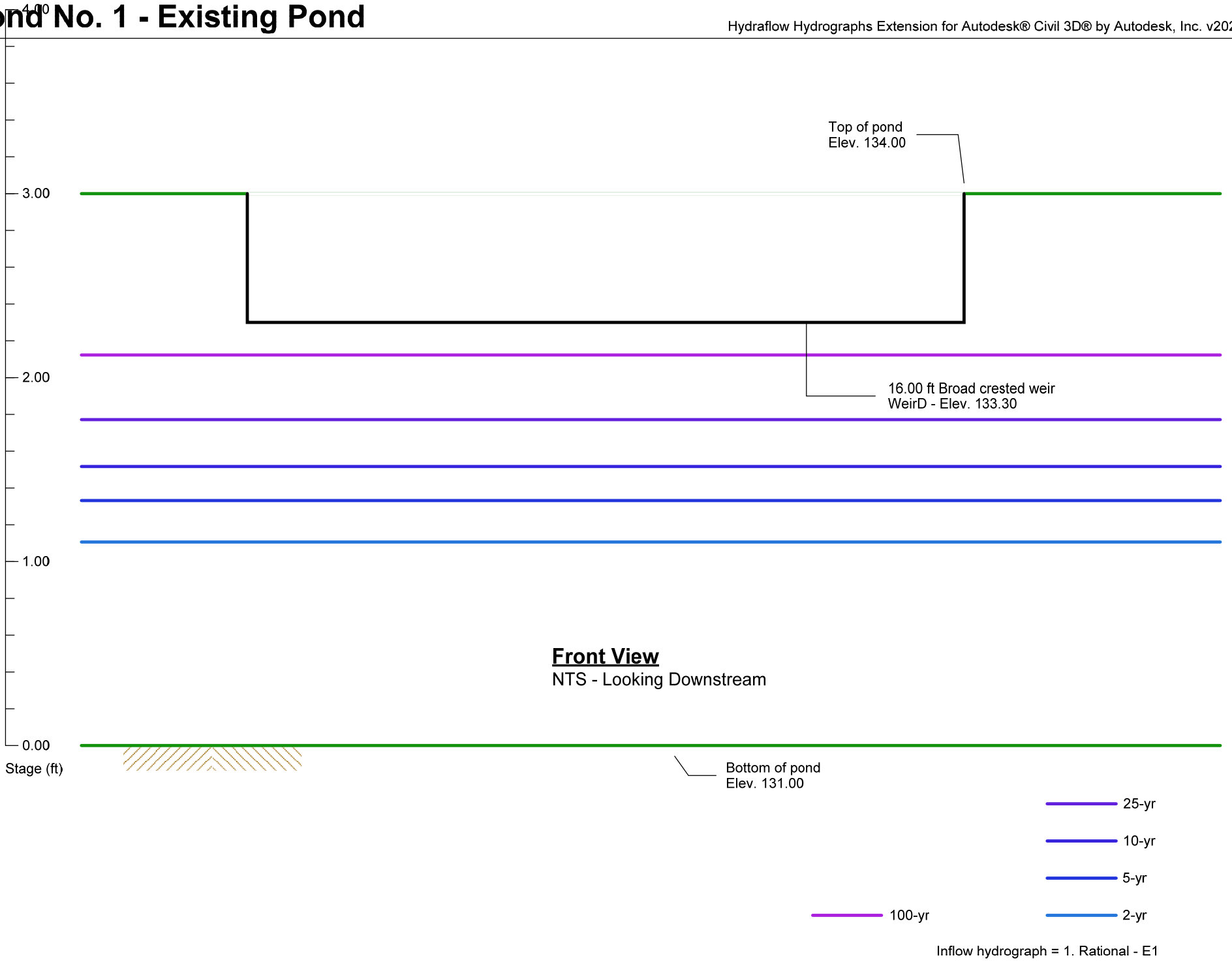
Minimum allowable T_c = 5.00 min.

		Overland Sheet Flow				Shallow Flow					Swale Flow							Pipe Flow					Total
Design Point	Basin(s)	n	L (ft)	S (%)	T_o (min)	Paved (Y or N)	L (ft)	S (%)	V (ft/s)	T_1 (min)	n	Area (s.f.)	Wet. Perim. (ft)	S (%)	V(full flow) (ft/s)	L (ft)	Ts (min)	Dia. (in)	L (ft)	S (%)	V(full flow) (ft/s)	Tp (min)	T (min)
	E1	0.080	150	4.67	5.84	N	241	2.90	2.75	1.46													
				Subtotal	5.84				Subtotal	1.46						Subtotal					Subtotal		7.30
	E2	0.080	150	3.33	6.68	N	82	5.73	3.86	0.35													
				Subtotal	6.68				Subtotal	0.35						Subtotal					Subtotal		7.04
	P1	0.410	150	4.13	22.66	N	232	2.80	2.70	1.43													
				Subtotal	22.66				Subtotal	1.43						Subtotal					Subtotal		24.09

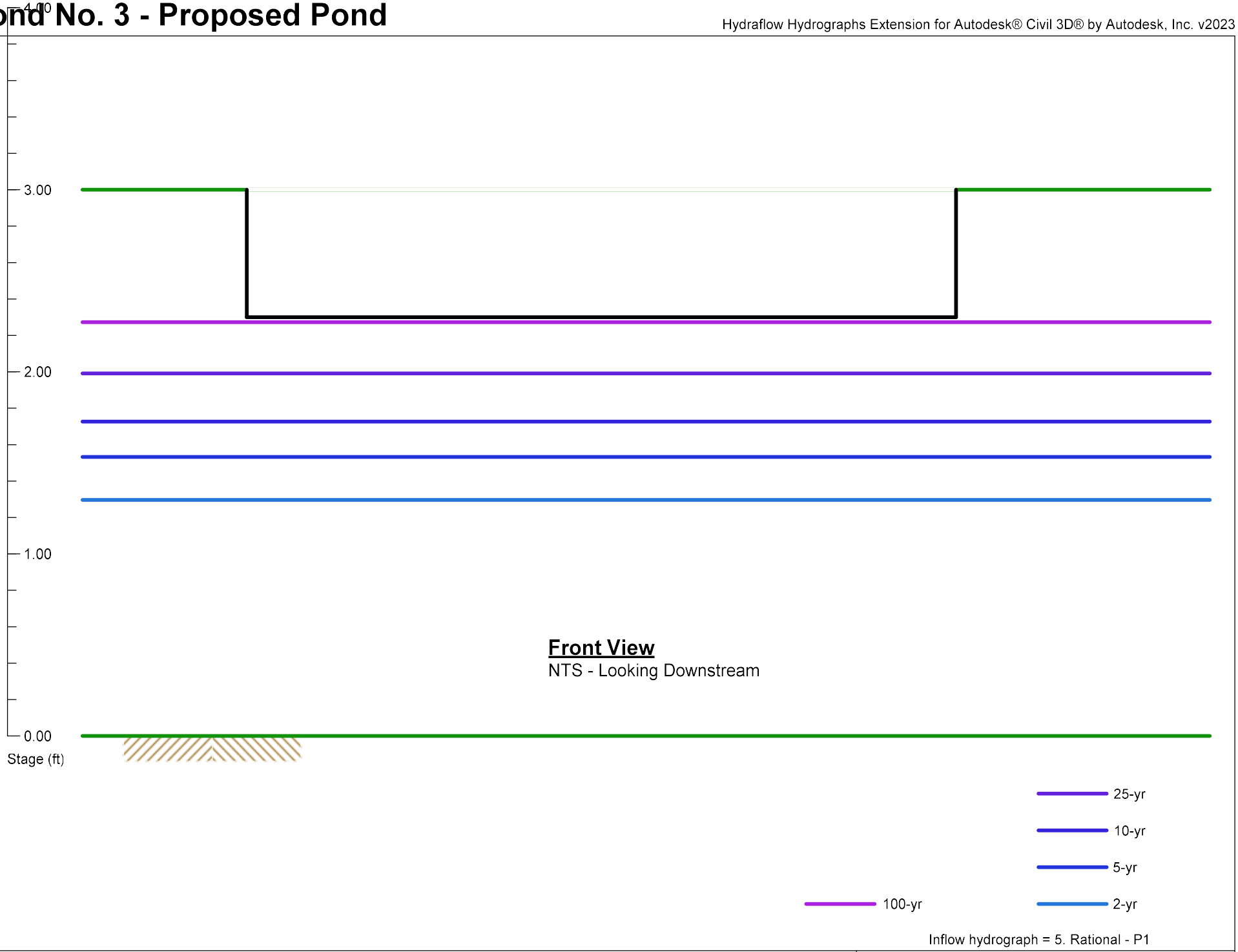
APPENDIX 'C'

DETENTION DESIGN

Pond No. 1 - Existing Pond



Pond No. 3 - Proposed Pond



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020 Wednesday, 05 / 19 / 2021

Pond No. 1 - Existing Pond

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 131.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	131.00	1,318	0	0
1.00	132.00	2,012	1,653	1,653
2.00	133.00	2,743	2,368	4,020
3.00	134.00	3,566	3,145	7,166

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

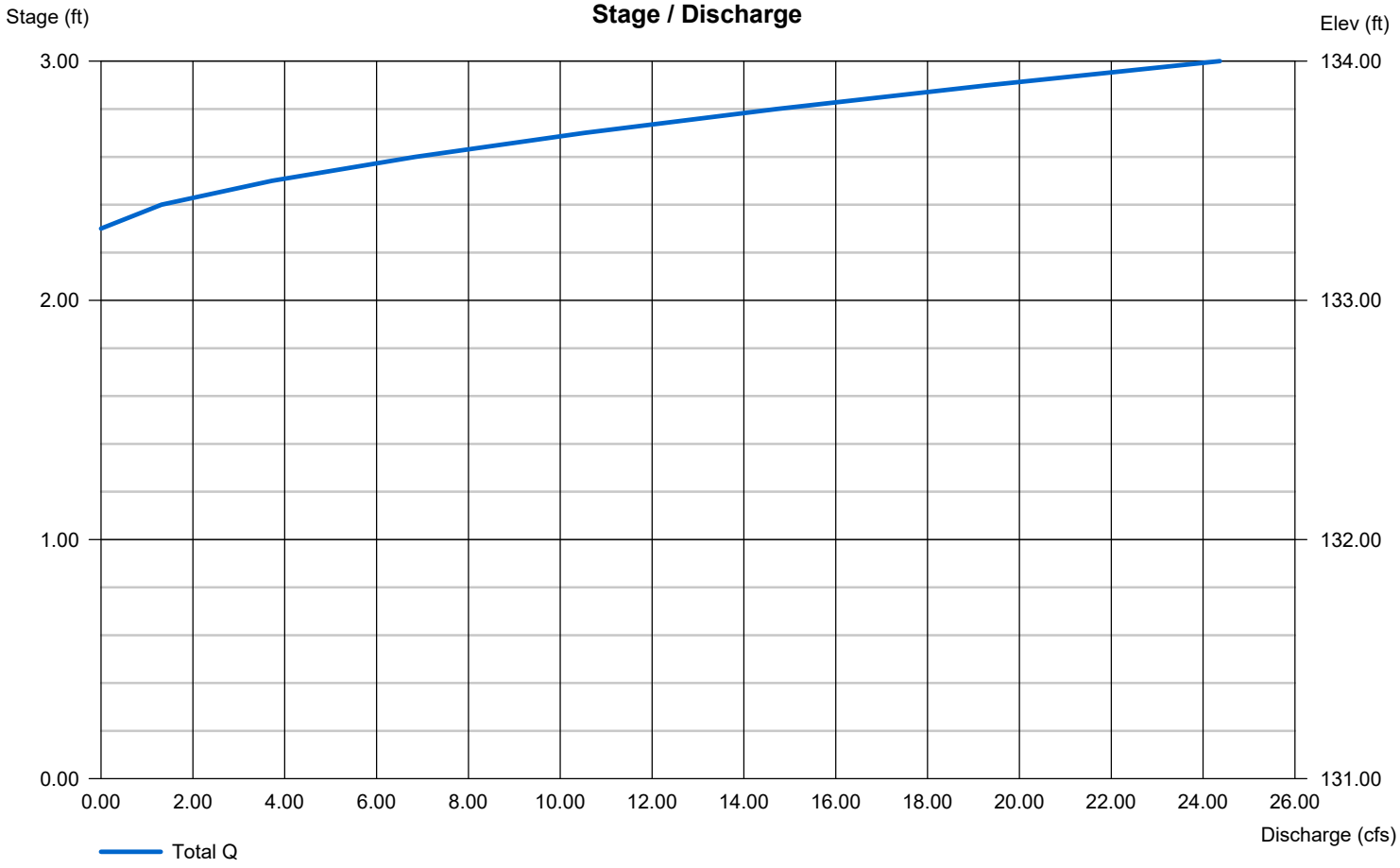
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	0.00	0.00	16.00
Crest El. (ft)	= 0.00	0.00	0.00	133.30
Weir Coeff.	= 3.33	3.33	3.33	2.60
Weir Type	= ---	---	---	Broad
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (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).



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Tuesday, 08 / 2 / 2022

Pond No. 3 - Proposed Pond

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 131.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	131.00	1,318	0	0
1.00	132.00	3,230	2,203	2,203
2.00	133.00	4,769	3,974	6,177
3.00	134.00	7,022	5,859	12,036

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

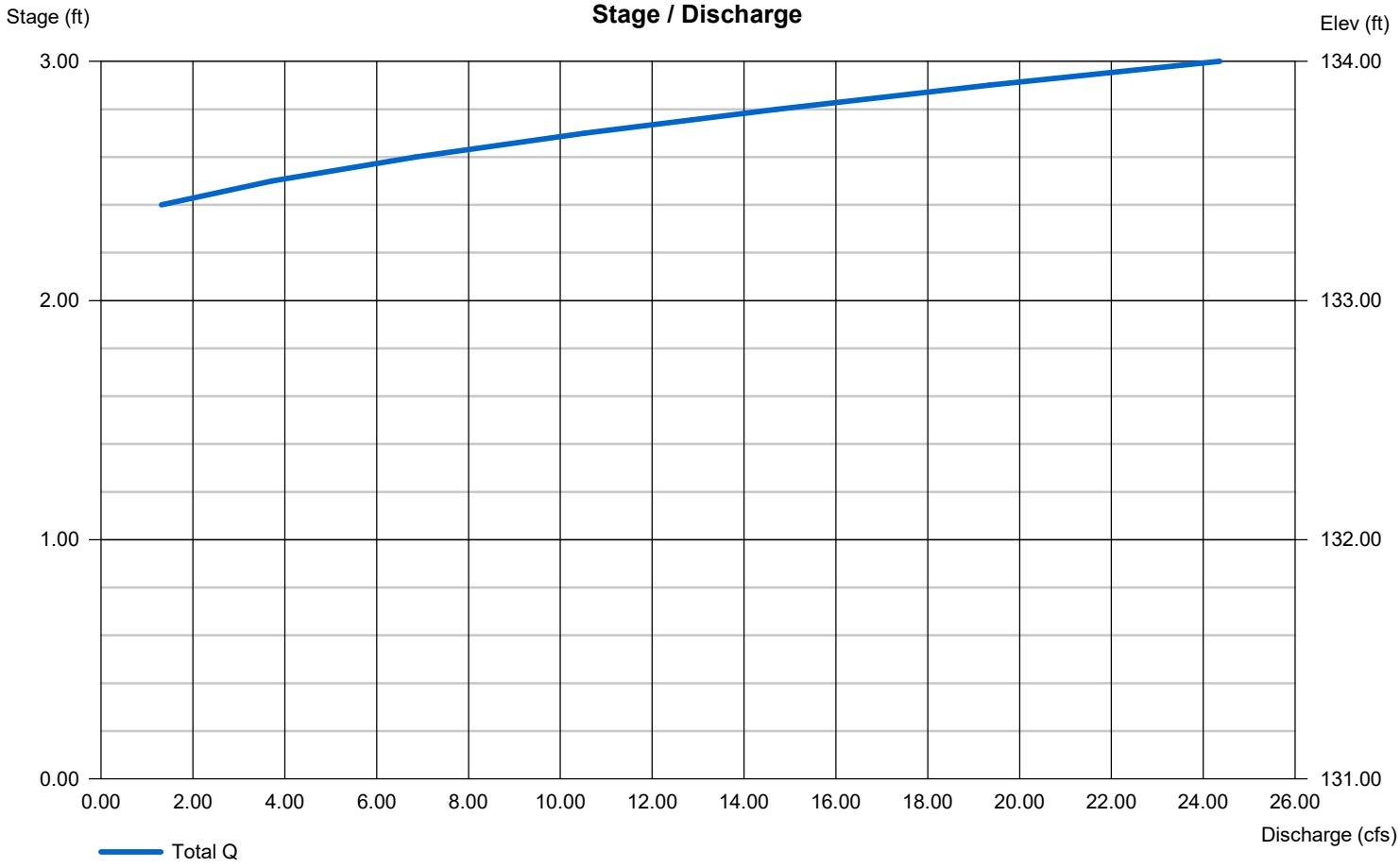
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	0.00	0.00	16.00
Crest El. (ft)	= 0.00	0.00	0.00	133.30
Weir Coeff.	= 3.33	3.33	3.33	2.60
Weir Type	= ---	---	---	Broad
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (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).



Stage Storage
Project: 2078
Basin Description: Existing Pond

Contour Elevation	Contour Area (sq. ft)	Depth (ft)	Incremental Volume Avg. End (cu. ft)	Cumulative Volume Avg. End (cu. ft)	Incremental Volume Conic (cu. ft)	Cumulative Volume Conic (cu. ft)
131.00	1,318.13	N/A	N/A	0	N/A	0
132.00	2,012.00	1.00	1665	1665	1653	1653
133.00	2,743.05	1.00	2378	4043	2368	4021
134.00	3,565.86	1.00	3154	7197	3145	7166

Stage Storage
Project: 2078 - Buck
Basin Description: Proposed Expanded Pond

Contour Elevation	Contour Area (sq. ft)	Depth (ft)	Incremental Volume Avg. End (cu. ft)	Cumulative Volume Avg. End (cu. ft)	Incremental Volume Conic (cu. ft)	Cumulative Volume Conic (cu. ft)
131.00	1,318.13	N/A	N/A	0	N/A	0
132.00	3,229.50	1.00	2274	2274	2204	2204
133.00	4,769.18	1.00	3999	6273	3974	6178
134.00	7,022.34	1.00	5896	12169	5860	12038

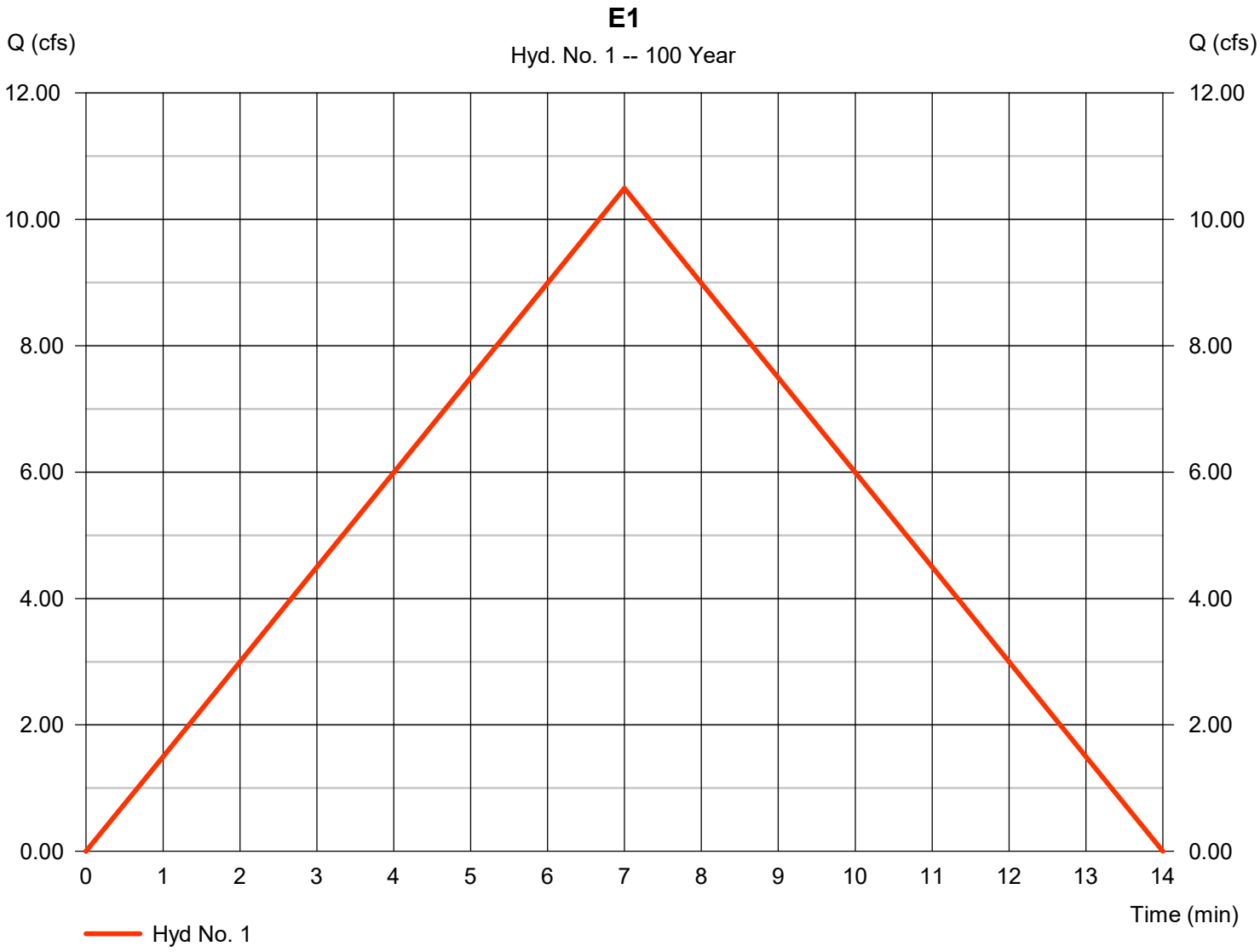
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Tuesday, 08 / 2 / 2022

Hyd. No. 1

E1

Hydrograph type	=	Rational	Peak discharge	=	10.49 cfs
Storm frequency	=	100 yrs	Time to peak	=	7 min
Time interval	=	1 min	Hyd. volume	=	4,407 cuft
Drainage area	=	1.680 ac	Runoff coeff.	=	0.63
Intensity	=	9.913 in/hr	Tc by User	=	7.00 min
IDF Curve	=	2078.IDF	Asc/Rec limb fact	=	1/1



Hydrograph Report

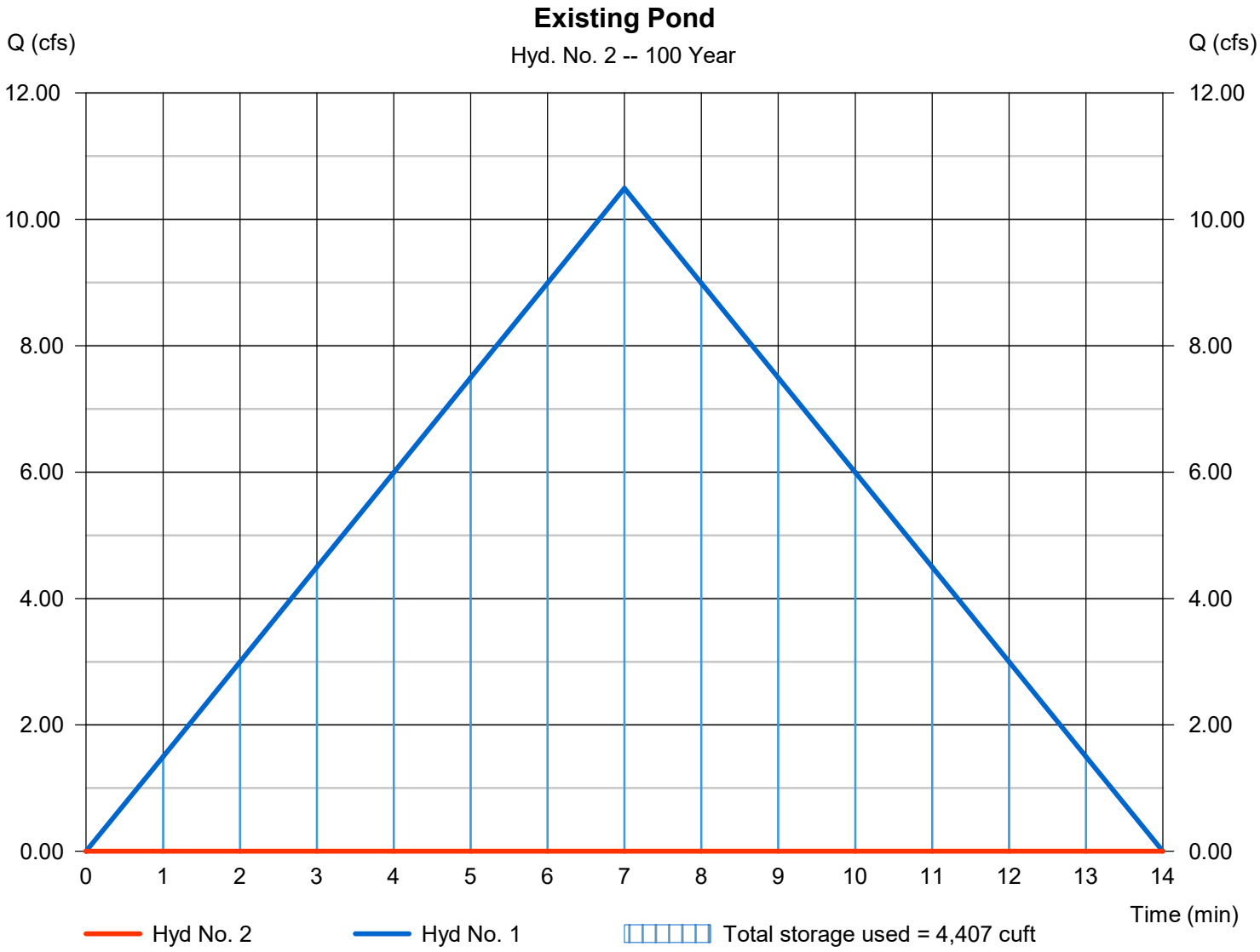
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Tuesday, 08 / 2 / 2022

Hyd. No. 2

Existing Pond

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	100 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	1 - E1	Max. Elevation	=	133.12 ft
Reservoir name	=	Existing Pond	Max. Storage	=	4,407 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Tuesday, 08 / 2 / 2022

Hyd. No. 3

E2

Hydrograph type	=	Rational	Peak discharge	=	1.308 cfs
Storm frequency	=	100 yrs	Time to peak	=	7 min
Time interval	=	1 min	Hyd. volume	=	550 cuft
Drainage area	=	0.200 ac	Runoff coeff.	=	0.66
Intensity	=	9.913 in/hr	Tc by User	=	7.00 min
IDF Curve	=	2078.IDF	Asc/Rec limb fact	=	1/1

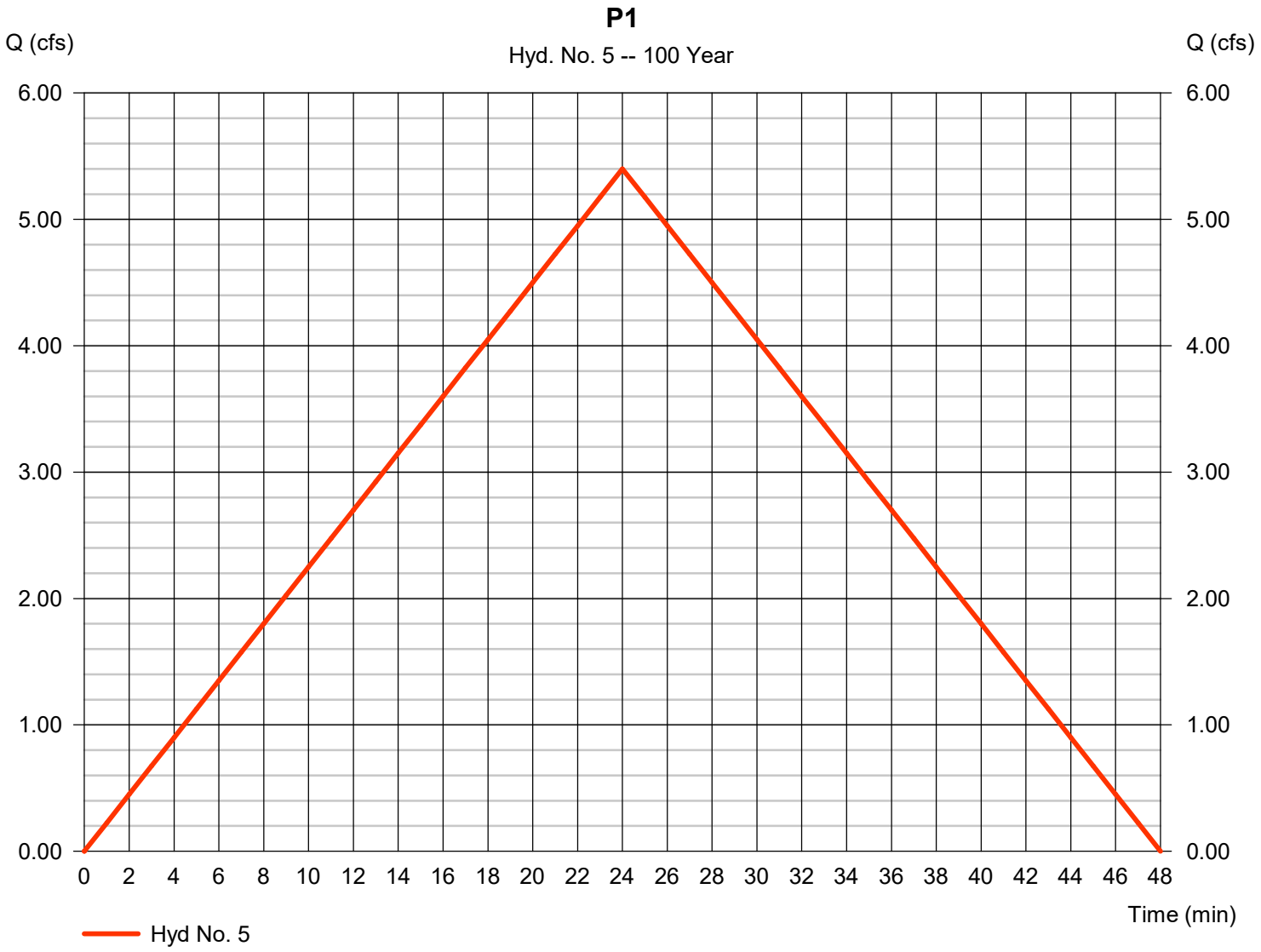
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Tuesday, 08 / 2 / 2022

Hyd. No. 5

P1

Hydrograph type	= Rational	Peak discharge	= 5.400 cfs
Storm frequency	= 100 yrs	Time to peak	= 24 min
Time interval	= 1 min	Hyd. volume	= 7,775 cuft
Drainage area	= 1.800 ac	Runoff coeff.	= 0.6
Intensity	= 5.000 in/hr	Tc by User	= 24.00 min
IDF Curve	= 2078.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

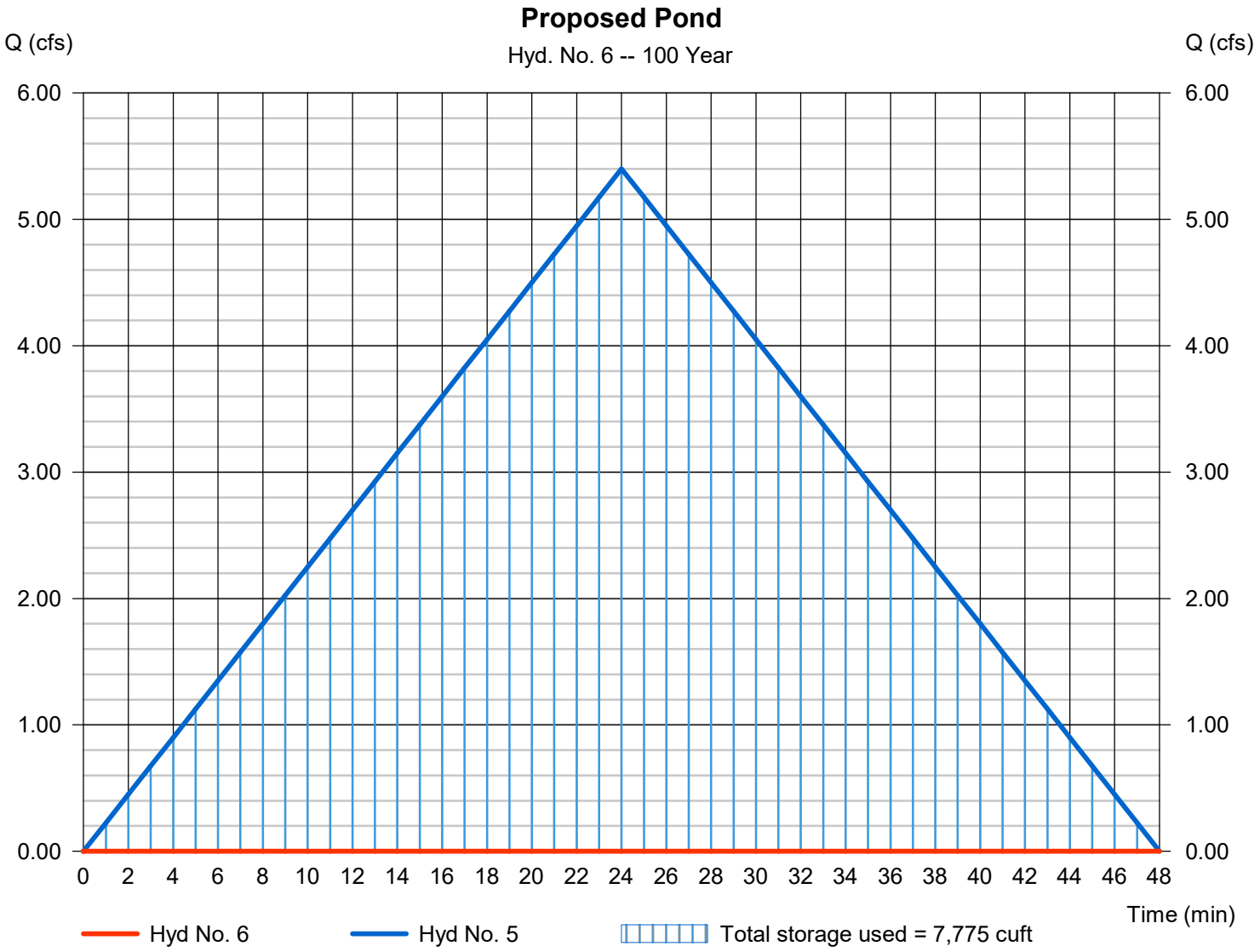
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Tuesday, 08 / 2 / 2022

Hyd. No. 6

Proposed Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 100 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 5 - P1	Max. Elevation	= 133.20 ft
Reservoir name	= Proposed Pond	Max. Storage	= 7,775 cuft

Storage Indication method used.



APPENDIX "D"

STORMWATER MANAGEMENT MAINTENANCE SCHEDULE

STORMWATER MANAGEMENT MAINTENANCE SCHEDULE

SOUTHINGTON, CONNECTICUT

The following are the required maintenance and monitoring procedures:

Riprap and Discharge Aprons - Shall be cleared of all sediment deposits and invasive plant species and are to be inspected for rip-rap damage and deterioration. These procedures to be conducted yearly between May I and before September 15.

Emergency Spillway - Shall be cleared of all sediment deposits and invasive plant species and are to be inspected for riprap damage and deterioration. These procedures to be conducted yearly between May 1 and September 15. Repairs shall be executed immediately.

Catch Basins - All basin rim areas and sumps shall be cleaned of all sediment, trash and debris. These procedures to be conducted yearly anytime after May I and before September 15.

Swales - all swales be cleared of all sediment deposits, invasive plant species and debris. Any erosion shall be repaired. These procedures to be conducted annually. Swales shall be inspected two times a year and after significant rainfall events. Additional maintenance, beyond schedule maintenance, may be required based upon inspections.

Detention Basin - Basin shall be cleared of all sediment deposits, invasive plant species and debris. These procedures to be conducted yearly between May 1 and September 15. Basin shall be inspected two times a year and after significant rainfall events. Additional maintenance, beyond scheduled maintenance, may be required based upon inspections.

Slopes - Slope erosion control blankets and vegetation shall be inspected twice a year and after significant rainfall events. Additional maintenance, beyond schedule maintenance, may be required based upon inspections. Any rills or channeling shall be repaired immediately

Parking Lot\Drive Sweeping - Use mechanical sweeping on paved areas where dust and fine materials accumulate. These procedures to be conducted yearly anytime after May I and before September 15.
All sediment deposits, trash and debris shall be removed to a location off-site and disposed of in an environmentally acceptable manner.

All sediment deposits, trash and debris shall be removed to a location off-site and disposed of in an environmentally acceptable manner.