Stormwater Management Report

Edgewood Pre-K Academy

325 and 345 Mix Street, Bristol, CT

Prepared For:

City of Bristol
111 North Main Street
Bristol, CT 06010

Prepared By:

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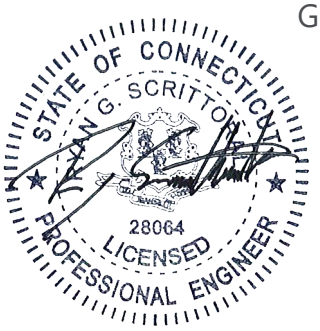

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Edgewood Pre-K Academy

(Site Rendering – Provided by Benesch)

325 and 345 Mix Street

Bristol, CT 06010

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1 INTRODUCTION

1.1 General Information

The subject parcels addressed 325 and 345 Mix Street, Bristol, CT, are located between Mix Street and Willow Brook Road. They are situated in the R-15 (Single Family Residential) Zone and the subject parcel and directly neighboring parcels are denoted and characterized as (per Bristol GIS):

- 325 Mix Street – Vol 1347 / Page 370 – Dennis Malone Aquatics Center (project site)
- 345 Mix Street – Vol 347 & 343 / Page 184 & 70 – Edgewood Pre-k Academy (project site)
- North – Residential Properties on Revere Drive
- East – A Wooded Area
- South – Giamatti Little League Center
- West – Residential Properties on Willow Brook and Edrow Road

The project proposes ADA upgrades to bring the site into compliance with current ADA regulations, updating site features to ensure a 20-year lifespan, new drainage and utility structures, and removal/replacement of existing bituminous pavement and curbing. Renovations and improvements of the existing Edgewood Pre-K Academy, including site improvements and amenities, will consist of the following:

- New Bituminous Pavement and Concrete Curbing
- New Fenced Play Zones
- Updated Utilities and Storm Drainage System
- Updated Concrete Walks
- Updated ADA Accessibility Parking and Pedestrian Routing
- Revised Site Landscaping and Plantings
- New Electric Vehicle Charging Stations

The existing site is comprised of the existing Edgewood Pre-K Academy to remain, bituminous parking areas, sheds, playgrounds, baseball field, and a bio-retention basin. The existing site is approximately half pervious and half impervious; the site enhancements will decrease impervious cover by approximately 0.35 acres.

Site Location Map

The project was designed utilizing the City of Bristol Regulations, the 2000 Connecticut Department of Transportation (ConnDOT) Drainage Manual (as amended), the latest Connecticut Guidelines for Soil Erosion and Sediment Control (as amended), and the latest Connecticut Department of Energy and Environmental Protection (CT DEEP) Water Quality Manual (as amended).

1.2 Project Summary

This project proposes to:

- Rehabilitate existing bituminous parking areas, drive aisles, curbing, and concrete walks.
- Provide new utility connections.
- Improve water quality with updated site drainage.
- Provide ADA accessibility to the existing Edgewood Pre-K Academy.

The project will disturb approximately 4.27 acres, including approximately 0 acres of ROW improvements. The entirety of site work will consist of ADA compliance upgrades, the rehabilitation of the parking lots and sidewalks, and drainage retrofits, while in conformance with city regulations for site layout.

1.3 Existing Site Conditions

1.3.1 Topography

The project site has the existing building acting as a high point with flows being conveyed to the south wetlands and north wetlands. Flows into the south wetlands are conveyed into either Polkville Ave Brook or neighboring properties to the south and flows into the north wetlands (an existing bio-retention basin) eventually end up into the Mix Street drainage system and new Britain watershed property. The existing site elevations (NAVD 88) range from approximately 253 ft at the southern edge of the site to 270 ft located at the northwest corner of the site.

1.3.2 Soils

NRCS soils mapping indicates three (3) soil types located within the project limits; defined as:

- 27A – Sudbury Sandy Loam [Hydrologic Soil Group D]
- 306 – Udorthents-Urban Land Complex [Hydrologic Soil Group B]
- 308 – Udorthents, Smoothed [Hydrologic Soil Group B]

1.3.3 On-site and Adjacent Waterbody Information

There is a small waterbody / watercourse (Polkville Ave Brook) that passes though the southern portion of the project site where a portion of wetlands were delineated Martin Brogie. There is also an existing above ground bio-retention basin in the northern corner of the site where additional wetlands were located. The waterbody / watercourse will not be disturbed during the course of the project, and no work is to be performed within either of the wetlands located on site.

1.3.4 Additional Site Considerations

- The site is not located within a Coastal Management Area, as the City of Bristol is not located within the Coastal NPS Program Management Area, per CT DEEP.
- The site is located within an Aquifer Protection Area, per map titled, "Aquifer Protection Areas – Bristol, Connecticut", dated December 2021. (CT ECO Map Catalog)
- The site is located within a FEMA Flood Zone, per map titled, "Q3 Flood Zone Data – Bristol, CT", dated September 2010. (CT ECO Map Catalog)
- The site is not located within a Natural Diversity Database Area, per map titled, "Natural Diversity Data Base Areas – Bristol, CT", dated December 2025. (CT ECO Map Catalog)

2 HYDROLOGY

2.1 Methodology

The analysis to determine peak flows generated from the site was prepared using TR-55 procedures for calculating peak rates of runoff resulting from precipitation events and procedures for developing runoff hydrographs. HydroCAD software was utilized to perform hydrologic computations. Rainfall frequency estimates for precipitation, based on National Oceanic and Atmospheric Administration (NOAA) data from 345 Mix Street, Bristol, CT, were utilized to generate the flows.

The following 24-hour, precipitation estimates were utilized:

2-Year	3.48 inches
10-Year	5.56 inches
25-Year	6.87 inches
50-Year	7.82 inches
100-Year	8.87 inches

Design Storm Type: NOAA, 24-hour Type D

Project Type: Rehabilitation

2.2 Existing Conditions

2.2.1 Watershed Boundaries and Design Points.

Drainage from the existing site is contained within two (2) watersheds for analysis.

- **Watershed E1 (Flow to South Wetlands):** This watershed consists of overland and piped flow from the western/southern portion of the 325 and 345 Mix Street parcels. All flow from this watershed will be conveyed to the south wetlands, where it either infiltrates or flows overland to Polkville Ave Brook and neighboring properties. The cover characteristics of this watershed include existing grass areas, concrete walks, a baseball field, wetlands, bituminous driveway and drop off loop, playscapes, shed, and play areas. Watershed E1 consists mostly of Hydraulic Soil Group (HSG) B, with small portions of HSG D along its southern extents.
- **Watershed E2 (Flow to North Wetlands):** This watershed consists of overland and pipes flow from the eastern/northern portion of the 325 and 345 Mix Street parcels. All flow from this watershed will be conveyed to the northern wetlands (existing bio-retention basin), where it either infiltrates or is discharged out into the municipal drainage system in Mix Street. The cover characteristics of this watershed include existing grass areas, concrete walks, Edgewood Pre-K

Academy, wetlands, bituminous driveways and parking lots, Dennis Malone Aquatics Center, and the existing detention pond. Watershed E2 consists only of Hydraulic Soil Group (HSG) B.

Existing Watershed Data (Existing Cover Characteristics, Existing Watershed Area Map, and Hydrologic Computations) have been included in Appendix A.

2.3 Proposed Conditions

2.3.1 Watershed Boundaries and Design Points

This project proposes to provide water quality through the use of 4 hydrodynamic separators on site, ensuring all flows that exit the site through the drainage system area treated. Peak flow reduction is achieved by reducing impervious surfaces from the existing conditions to the proposed conditions. Drainage from the proposed site consists of two (2) watersheds for analysis.

- **Watershed P1 (Flow to South Wetlands):** This watershed consists of overland and piped flow from the western/southern portion of the 325 and 345 Mix Street parcels. All flow from this watershed will be conveyed to the south wetlands, where it either infiltrates or flows overland to Polkville Ave Brook and neighboring properties. The cover characteristics of this watershed include existing grass areas, rehabilitated concrete walks, a baseball field, wetlands, rehabilitated bituminous driveway and drop off loop, playscapes, shed, and updated play areas. Watershed P1 consists mostly of Hydraulic Soil Group (HSG) B, with small portions of HSG D along its southern extents.
- **Watershed P2 (Flow to North Wetlands):** This watershed consists of overland and pipes flow from the eastern/northern portion of the 325 and 345 Mix Street parcels. All flow from this watershed will be conveyed to the northern wetlands (existing detention pond), where it either infiltrates or is discharged out into the municipal drainage system in Mix Street. The cover characteristics of this watershed include existing grass areas, rehabilitated concrete walks, Edgewood Pre-K Academy, wetlands, rehabilitated bituminous driveways and parking lots, Dennis Malone Aquatics Center, and the existing detention pond. Watershed P2 consists only of Hydraulic Soil Group (HSG) B.

  Proposed Watershed Data (Proposed Cover Characteristics, Proposed Watershed Area Map, and Hydrologic Computations) have been included in Appendix B.

2.4 Compliance with Performance Criteria

2.4.1 Compliance with Local Criteria

This project has been designed per the City of Bristol's Regulations, as amended.

2.4.2 Compliance with Connecticut Stormwater Quality Manual

The Connecticut Department of Energy and Environmental Protection Stormwater Quality Manual, as amended.

2.4.2.1 Standard 1 – Runoff Volume Reduction

The method of analysis for this stormwater management system is providing site specific peak runoff volume reduction for the 2, 10, 25, 50, or 100-year Type NOAA, 24-hr Type D storm.

Low impact development practices have been implemented throughout this stormwater management design utilizing treatment practices to remove temporarily suspended solids and other pollutants from the discharge locations. The proposed site will greatly reduce or remove the possibility of the watercourse impairment being generated by this property due to existing debris and pollution. Low Impact Development (LID) and Best Management Practices (BMP) that are being used on this site to improve the quality of discharged stormwater include:

- Bio-Retention Basin – These BMPs are designed to treat the inflow of stormwater and reduce stormwater contamination of TSS and vehicular pollutants in the form or filtration and retention.
- Water Quality Unit / Hydrodynamic Separator (HydroStorm Unit) – This structure is designed to treat low and high flows by capturing oils, temporarily suspended solids, and debris. It will be utilized as a form of pre-treatment.

Peak Flow Comparison

Peak flows at the analysis point are as follows:

Watershed	Storm Event (NOAA Type D)	Discharge Existing (cfs)	Discharge Proposed (cfs)	Δ (%)
Wetlands South (E1 & P1)	2-year	6.61	5.82	-12%
	10-year	14.16	13.69	-3%
	25-year	19.54	19.01	-3%
	50-Year	23.51	22.96	-2%
	100-year	27.93	27.36	-2%
Wetlands North / Mix Street (E2 & P2)	2-year	10.69	10.24	-4%
	10-year	21.87	21.33	-2%
	25-year	29.09	28.55	-2%
	50-Year	34.35	33.82	-2%
	100-year	40.16	39.63	-1%
Total Site	2-year	16.68	15.90	-5%
	10-year	35.67	34.67	-3%
	25-year	48.20	47.13	-2%
	50-Year	57.35	56.27	-2%
	100-year	67.49	66.40	-2%

- Peak flow rates have been reduced for each of the analyzed storm events.

2.4.2.2 Standard 2 – Stormwater Runoff Quantity Control

See table in the above section.

3 HYDRAULICS

The intent of the hydraulic analysis is to ensure that proposed on-site drainage facilities are designed to accommodate and safely convey runoff produced up to and including the 10-year storm event. However, since this project is a replace in kind and the existing site has not had any drainage issues it is our assumption that the current drainage facilities are sized to adequately/safely convey site runoff.

3.1 Compliance with Performance Criteria

The existing site has been designed with a series of drainage facilities, including thirteen (13) type C catch basins, six (6) of which will have new type C tops, one (1) of which will have a new type CL top, and two (2) of which will be completely new structures. There are two (2) existing type CL catch basins to remain, and three (3) manholes, one (1) of which will remain, one (1) of which is proposed, and one (1) of which is being replaced with a proposed water quality unit. This drainage system has been

designed to remove stormwater from impervious surfaces and divert it through the water quality units and the above ground detention pond. Minimal flow from grass and landscaped areas will be diverted directly overland to the wetlands or neighboring properties. The existing drainage system was designed to safely convey flows up with sufficient capacity to maintain the hydraulic grade line sufficiently below existing grade.

3.1.1 Compliance with Local Criteria

The proposed storm sewer system has been designed in compliance with City of Bristol's Regulations, as amended.

3.1.2 Compliance with State Criteria

The proposed storm sewer system has been designed in compliance with the State of Connecticut's Drainage Regulations per the 2000 ConnDOT Drainage Manual. (latest revisions)

Computations for the hydraulic analysis can be viewed in Appendix C.

4 WATER QUALITY

4.1 Methodology

The project has been designed to address both short-term and long-term stormwater quality. Short term (during construction) water quality has been provided in the form of erosion control measures, and long-term (post construction) water quality has been provided through the use of primary and secondary treatment practices. Erosion control has been designed per the latest Connecticut Erosion Control Guidelines and long-term stormwater quality has been designed per the latest CT DEEP Stormwater Quality Manual.

4.2 Compliance with Performance Criteria

4.2.1 Compliance with Local Criteria

This project has been designed in coordination with the City of Bristol's Regulations, as amended.

See appendix D, for water quality volume and flow calculations.

4.2.2 Compliance with Connecticut Stormwater Quality Manual

4.2.2.1 Standard 1 – Pollutant Reduction

Long Term Stormwater Quality

The project was designed with guidance from the latest Connecticut Stormwater Quality Manual. The intent of the design is to provide a "stormwater treatment train," where stormwater quality is

achieved through a series of treatment measures. Harmful pollutants, such as sediment, pathogens, organic material, hydrocarbons, metals, synthetic organic chemicals, and/or deicing compounds are typically carried by the low-flow storms. Since pollutants typically attach themselves to solid particles, treatment practices are designed to remove suspended solids.

The treatment for this site includes:

- Source Control and Pollution Prevention
- Grass Filtration
- Storm Drainage System Maintenance
- Above Ground Stormwater Retention Facilities

Primary Treatment Practices

- Bio-Retention Basin – These BMPs are designed to treat the inflow of stormwater and reduce stormwater contamination of TSS and vehicular pollutants in the form or filtration and retention.
- Water Quality Unit / Hydrodynamic Separator (HydroStrom Unit) – This structure is designed to treat low and high flows by capturing oils, temporarily suspended solids, and debris. It will be utilized as a form of pre-treatment.

Computations for Water Quality can be viewed in Appendix D.

5 SOIL EROSION AND SEDIMENT CONTROL

5.1 Methodology

The proposed soil erosion and sediment controls have been designed in accordance with local regulations, the Connecticut Guidelines for Soil Erosion and Sediment Control, and the requirements of the CTDEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities, as applicable. The proposed design considers the specific site characteristics of the site and anticipated construction activities. See the plan set for location and design of proposed short term soil erosion and sediment control measures to be used throughout construction.

Short Term Erosion Control

The proposed erosion and sedimentation controls consider the specific characteristics of the site and the anticipated construction activities. They have been designed in accordance with the latest CT DEEP Guidelines for Soil Erosion and Sediment Control.

Construction Entrances

Construction entrances will be utilized to remove sediment from construction vehicle tires and prevent it from being tracked onto adjoining paved roadway areas.

Erosion Control Barriers

Prior to any construction activity, hay bales, silt fence, or combination hay bale/silt fence barriers will be placed at the downgradient limits of construction. Throughout construction, additional barriers will be installed as necessary at the toe of slopes equal to or in excess of 15 feet. These barriers will be inspected once every seven calendar days and within 24 hours after every rainfall generating a discharge and replaced as necessary. Collected silt will be removed when one-half the barrier height is reached.

Temporary Seeding

Temporary Seeding will be utilized on portions where the phasing and sequencing require an initial disturbance followed by an extended period of inactivity that is greater than 30 days but less than 1 year. Temporary seeding will be conducted within 7 days after the suspension of grading work in disturbed areas where the suspension of work is expected to be more than 30 days but less than 1 year.

Soil Stabilization- Mulches

Structural (non-living) soil stabilization will be utilized to protect the soil surface on a temporary basis without the intention of promoting plant growth. When grading of the disturbed area will be suspended for a period of 30 or more consecutive days, but less than 5 months, disturbed areas will be stabilized within 7 days of the suspension of grading through the use of mulch, non-bituminous tackifiers, erosion control netting, or other approved materials appropriate for use as a temporary soil protector. For surfaces that are not to be reworked within 5 months but will be reworked within 1 year, use temporary seeding, seeding-type mulch (hay, straw, or cellulose fiber) or when slopes are less than 3:1, wood chips, bark chips or shredded bark.

Temporary Filter Inserts

Temporary Filter Inserts will be placed in each existing catch basin and yard drains prior to the start of construction, and in each new catch basin or yard drain during construction. These devices will be removed upon final site stabilization. Filter inserts will be inspected once every seven (7) calendar days and within 24 hours after every rainfall generating a discharge. Replacement of the inserts will be as often as necessary to maintain function of the drainage structure and prevent excessive ponding due to clogged fabric. Ripped or otherwise damaged inserts will be replaced immediately.

Stockpile Management

The topsoil stockpiles which will be idle for at least 30 days will be stabilized with temporary seed and mulch no later than 7 days from the last use. Small stockpiles may be covered with impervious tarps or erosion control matting in lieu of seeding and mulching. A geotextile silt fence or hay bale barrier will be installed around the stockpile area approximately 10 feet from the proposed toe of the slope.

6 OPERATION AND MAINTENANCE

6.1 Inspection Frequency and Criteria

Maintenance and operation will be provided as follows.

During Construction

- **Dust Control:** Moisten disturbed soil areas with water periodically or use a non-asphaltic soil tackifier to minimize dust.
- **Temporary Soil Protection:** Inspect seeded areas weekly and within 24 hours after a storm generating a discharge.
- **Catch Basin Filter Inserts:** Inspect the fabric at least once a week and within 24 hours after the end of a storm generating a discharge. Check the fabric for structural soundness (i.e. tears), proper anchoring/alignment within the grate and ability to drain runoff (i.e. percent of clogging by sediment). Remove the sediment every week, or sooner if ponding is excessive. Each time the sediment is removed, replace the section of fabric removed with a new section. Do not remove the sediment and reuse the same section of fabric.
- **Hay Bale/ Silt Fence Barrier:** Inspect the barrier at least once a week and within 24 hours after the end of a storm generating a discharge. For dewatering operations, inspect frequently before, during and after pumping operations. Remove the sediment deposits when the depth reaches one half the barrier's height. Repair or replace a barrier within 24 hours of observed failure. Maintain the barrier until the contributing disturbed area is stabilized.
- **Construction Entrance/Exit Pad:** Maintain the pad in a condition that will prevent tracking and washing of sediment onto paved surfaces. Place additional clean gravel on top of gravel that has become silted, or remove the silted gravel and replace the gravel to the depth removed with clean gravel, as conditions warrant. Remove immediately all sediment spilled, dropped, washed or tracked onto paved surfaces. Roads adjacent to the

construction site shall be cleaned at the end of each day by hand sweeping or sweeper truck.

- **Existing Catch Basins and Sumps:** Inspect the filter baskets as specified above. After final removal of the filter baskets at the end of construction, clean the sump of all silt and debris.
- **New Catch Basins and Sumps:** As new catch basins are constructed, a sediment trap shall be installed in the unit and a sediment barrier installed around the grate. Inspect the trap and barrier weekly and within 24 hours after a storm generating a discharge. After stabilization of the drainage area entering the catch basin, remove the trap and barrier and clean the basin sump of all silt and debris.
- **Temporary Stockpiles:** Inspect temporary stockpiles at the end of each workday to ensure that tarps are in place and secured. Temporary stockpiles that are expected to be inactive for more than 30 days should be temporarily seeded (see above).

After Construction

- **Catch Basins and Sumps:** Maintenance includes removal of trash from the grate and the sump, as well as sediment from the sump. They shall be inspected semi-annually and cleaned when the sump is one half full of sediment. One of the inspections shall be after the snow and ice removal season is over, and prior to the spring rainfall events. If the sumps is filled more than half-filled with sediment at the semi-annual inspections, they shall be inspected quarterly.
- **Landscaped Areas:** Inspect semi-annually for erosion or dying vegetation. Repair and stabilize any bare or eroded areas and replace vegetation as soon as possible.
- **Driveway Sweeping:** At least twice a year, with the first occurring as soon as possible after snowmelt and the second not less than 90 days following the first.
- **Above Ground Detention Pond:** Inspect the basin semi-annually and after major rain events for the first year, then annually after the first year. Trash should be removed as accumulated. Sediment building up should be removed when it's depth is greater than four (4) inches. Grass should be reseeded if the side slope or bottom exhibit erosion. Grass should be mowed once per month (depending on species) and should be cut to leave at least two (2) inches of height. Mowing should not occur when the ground is soft, to avoid rutting.
- **Hydrodynamic Separators:** Maintain proprietary devices in accordance with the manufacturer's guidelines. Perform inspections of proprietary devices a minimum of once

per year. However, 2 times per year – in late Spring after snowmelt and in late Fall after leaf fall and before the first snowfall is recommended to prevent BMP failure. During inspections, examined the device for standing water. If standing water is present in the device, and standing water is not a component of the design, take corrective action and revise the maintenance plan to prevent similar failures in the future. Clean proprietary devices when pollutant removal capacity is reduced by 50% or more, or when the pollutant storage capacity is reduced by 50% or more. Typical maintenance includes removal of accumulated oil and grease, floatables, and sediment using a vacuum truck or other catch basin cleaning equipment. The Operation and Maintenance (O&M) Plan should indicate the maximum allowable level of oil, sediment, and debris accumulation. These levels should be monitored during inspections to ensure that removal of these materials is performed when necessary. Dispose of material removed from the device, in accordance with CT DEEP guidelines and other state and federal requirements, by a properly licensed contractor or the municipality.

APPENDIX A

Existing Watershed Data

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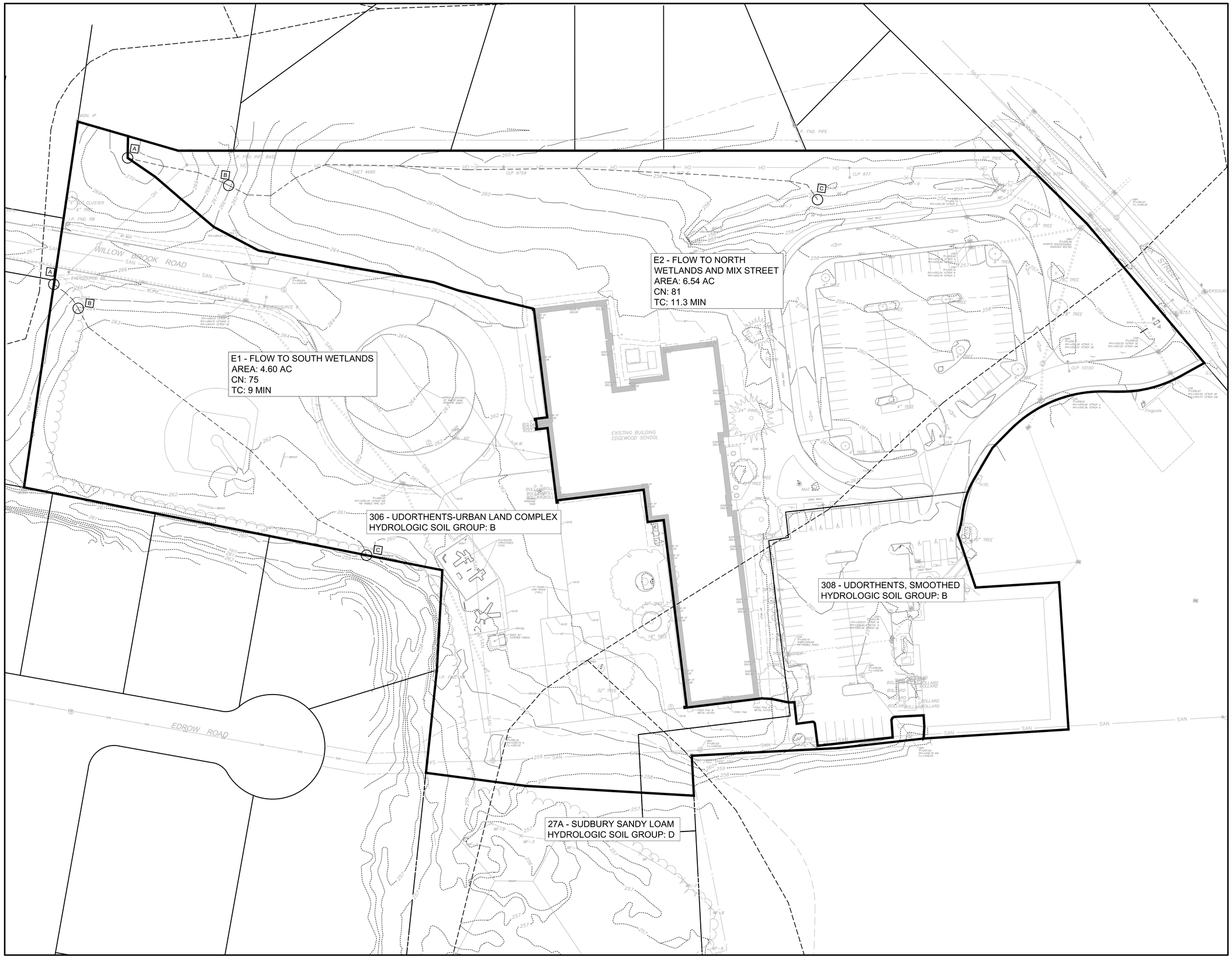

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Project #: 0726-500158.00

NOT FOR CONSTRUCTION
ISSUED FOR REVIEW ONLY

RENOVATIONS TO:

EDGEWOOD PRE-K ACADEMY

BRISTOL, CT 06010

State Project #: 017-0090 RNV

Project #: 25064

Revisions

0 40' 80'
SCALE: 1" = 40'

PHASE 2: DESIGN DEVELOPMENT
MARCH 20, 2026

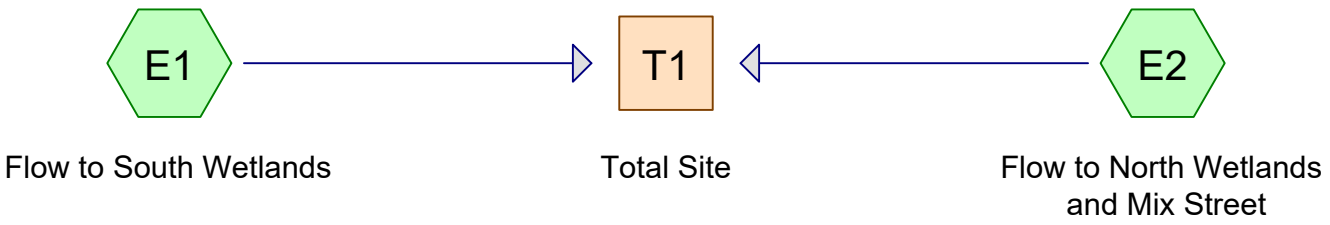
EXISTING WATERSHED AREA MAP

EWAM

Watershed Cover Characteristics
Edgewood Pre-K Academy, Bristol, CT
Project # 0726-500158.00

Existing:

Watershed	Description	Total Area (ac)	Grass B	Grass D	Woods B	Impervious	CN	Tc (min)
E1	Flow to South Wetlands	4.60	2.42	0.35	0.23	1.61	75	9
E2	Flow to North Wetlands and Mix Street	6.54	2.98	0.00	0.00	3.55	81	11.3
TOTAL	Total Site	11.14	5.40	0.35	0.23	5.16	-	-



Subcat Reach Pond Link

Routing Diagram for EWAM
Prepared by Alfred Benesch & Company, Printed 3/18/2026

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-year	NOAA 24-hr	D	Default	24.00	1	3.48	2
2	10-year	NOAA 24-hr	D	Default	24.00	1	5.56	2
3	25-year	NOAA 24-hr	D	Default	24.00	1	6.87	2
4	50-year	NOAA 24-hr	D	Default	24.00	1	7.82	2
5	100-year	NOAA 24-hr	D	Default	24.00	1	8.87	2

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
5.160	HSG A	E1, E2
5.630	HSG B	E1, E2
0.000	HSG C	
0.350	HSG D	E1
0.000	Other	
11.140		**TOTAL AREA**

Summary for Subcatchment E1: Flow to South Wetlands

Runoff = 6.16 cfs @ 12.17 hrs, Volume= 0.495 af, Depth= 1.29"
Routed to Reach T1 : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-year Rainfall=3.48"

Area (ac)	CN	Description
2.420	61	>75% Grass cover, Good, HSG B
0.350	80	>75% Grass cover, Good, HSG D
0.230	55	Woods, Good, HSG B
1.610	98	Paved parking, HSG A
4.610	75	Weighted Average
3.000		65.08% Pervious Area
1.610		34.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	33	0.0730	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.48"
3.9	368	0.0095	1.57		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
9.0	401	Total			

Summary for Subcatchment E2: Flow to North Wetlands and Mix Street

Runoff = 10.69 cfs @ 12.19 hrs, Volume= 0.921 af, Depth= 1.69"
Routed to Reach T1 : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-year Rainfall=3.48"

Area (ac)	CN	Description
2.980	61	>75% Grass cover, Good, HSG B
3.550	98	Paved parking, HSG A
6.530	81	Weighted Average
2.980		45.64% Pervious Area
3.550		54.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.0425	0.24		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.48"
4.4	582	0.0185	2.19		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
11.3	682	Total			

Summary for Reach T1: Total Site

Inflow Area = 11.140 ac, 46.32% Impervious, Inflow Depth = 1.52" for 2-year event
Inflow = 16.68 cfs @ 12.18 hrs, Volume= 1.416 af
Outflow = 16.68 cfs @ 12.18 hrs, Volume= 1.416 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Summary for Subcatchment E1: Flow to South Wetlands

Runoff = 14.16 cfs @ 12.16 hrs, Volume= 1.118 af, Depth= 2.91"
Routed to Reach T1 : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-year Rainfall=5.56"

Area (ac)	CN	Description
2.420	61	>75% Grass cover, Good, HSG B
0.350	80	>75% Grass cover, Good, HSG D
0.230	55	Woods, Good, HSG B
1.610	98	Paved parking, HSG A
4.610	75	Weighted Average
3.000		65.08% Pervious Area
1.610		34.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	33	0.0730	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.48"
3.9	368	0.0095	1.57		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
9.0	401	Total			

Summary for Subcatchment E2: Flow to North Wetlands and Mix Street

Runoff = 21.87 cfs @ 12.19 hrs, Volume= 1.896 af, Depth= 3.49"
Routed to Reach T1 : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-year Rainfall=5.56"

Area (ac)	CN	Description
2.980	61	>75% Grass cover, Good, HSG B
3.550	98	Paved parking, HSG A
6.530	81	Weighted Average
2.980		45.64% Pervious Area
3.550		54.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.0425	0.24		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.48"
4.4	582	0.0185	2.19		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
11.3	682	Total			

Summary for Reach T1: Total Site

Inflow Area = 11.140 ac, 46.32% Impervious, Inflow Depth = 3.25" for 10-year event
Inflow = 35.67 cfs @ 12.18 hrs, Volume= 3.015 af
Outflow = 35.67 cfs @ 12.18 hrs, Volume= 3.015 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Summary for Subcatchment E1: Flow to South Wetlands

Runoff = 19.54 cfs @ 12.16 hrs, Volume= 1.550 af, Depth= 4.04"
Routed to Reach T1 : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 25-year Rainfall=6.87"

Area (ac)	CN	Description
2.420	61	>75% Grass cover, Good, HSG B
0.350	80	>75% Grass cover, Good, HSG D
0.230	55	Woods, Good, HSG B
1.610	98	Paved parking, HSG A
4.610	75	Weighted Average
3.000		65.08% Pervious Area
1.610		34.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	33	0.0730	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.48"
3.9	368	0.0095	1.57		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
9.0	401	Total			

Summary for Subcatchment E2: Flow to North Wetlands and Mix Street

Runoff = 29.09 cfs @ 12.19 hrs, Volume= 2.549 af, Depth= 4.68"
Routed to Reach T1 : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 25-year Rainfall=6.87"

Area (ac)	CN	Description
2.980	61	>75% Grass cover, Good, HSG B
3.550	98	Paved parking, HSG A
6.530	81	Weighted Average
2.980		45.64% Pervious Area
3.550		54.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.0425	0.24		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.48"
4.4	582	0.0185	2.19		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
11.3	682	Total			

Summary for Reach T1: Total Site

Inflow Area = 11.140 ac, 46.32% Impervious, Inflow Depth = 4.42" for 25-year event
Inflow = 48.20 cfs @ 12.17 hrs, Volume= 4.099 af
Outflow = 48.20 cfs @ 12.17 hrs, Volume= 4.099 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Summary for Subcatchment E1: Flow to South Wetlands

Runoff = 23.51 cfs @ 12.16 hrs, Volume= 1.875 af, Depth= 4.88"
Routed to Reach T1 : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 50-year Rainfall=7.82"

Area (ac)	CN	Description
2.420	61	>75% Grass cover, Good, HSG B
0.350	80	>75% Grass cover, Good, HSG D
0.230	55	Woods, Good, HSG B
1.610	98	Paved parking, HSG A
4.610	75	Weighted Average
3.000		65.08% Pervious Area
1.610		34.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	33	0.0730	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.48"
3.9	368	0.0095	1.57		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
9.0	401	Total			

Summary for Subcatchment E2: Flow to North Wetlands and Mix Street

Runoff = 34.35 cfs @ 12.19 hrs, Volume= 3.032 af, Depth= 5.57"
Routed to Reach T1 : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 50-year Rainfall=7.82"

Area (ac)	CN	Description
2.980	61	>75% Grass cover, Good, HSG B
3.550	98	Paved parking, HSG A
6.530	81	Weighted Average
2.980		45.64% Pervious Area
3.550		54.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.0425	0.24		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.48"
4.4	582	0.0185	2.19		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
11.3	682	Total			

Summary for Reach T1: Total Site

Inflow Area = 11.140 ac, 46.32% Impervious, Inflow Depth = 5.29" for 50-year event
Inflow = 57.35 cfs @ 12.17 hrs, Volume= 4.907 af
Outflow = 57.35 cfs @ 12.17 hrs, Volume= 4.907 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Summary for Subcatchment E1: Flow to South Wetlands

Runoff = 27.93 cfs @ 12.16 hrs, Volume= 2.241 af, Depth= 5.83"
Routed to Reach T1 : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-year Rainfall=8.87"

Area (ac)	CN	Description
2.420	61	>75% Grass cover, Good, HSG B
0.350	80	>75% Grass cover, Good, HSG D
0.230	55	Woods, Good, HSG B
1.610	98	Paved parking, HSG A
4.610	75	Weighted Average
3.000		65.08% Pervious Area
1.610		34.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	33	0.0730	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.48"
3.9	368	0.0095	1.57		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
9.0	401	Total			

Summary for Subcatchment E2: Flow to North Wetlands and Mix Street

Runoff = 40.16 cfs @ 12.19 hrs, Volume= 3.574 af, Depth= 6.57"
Routed to Reach T1 : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-year Rainfall=8.87"

Area (ac)	CN	Description
2.980	61	>75% Grass cover, Good, HSG B
3.550	98	Paved parking, HSG A
6.530	81	Weighted Average
2.980		45.64% Pervious Area
3.550		54.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.0425	0.24		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.48"
4.4	582	0.0185	2.19		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
11.3	682	Total			

Summary for Reach T1: Total Site

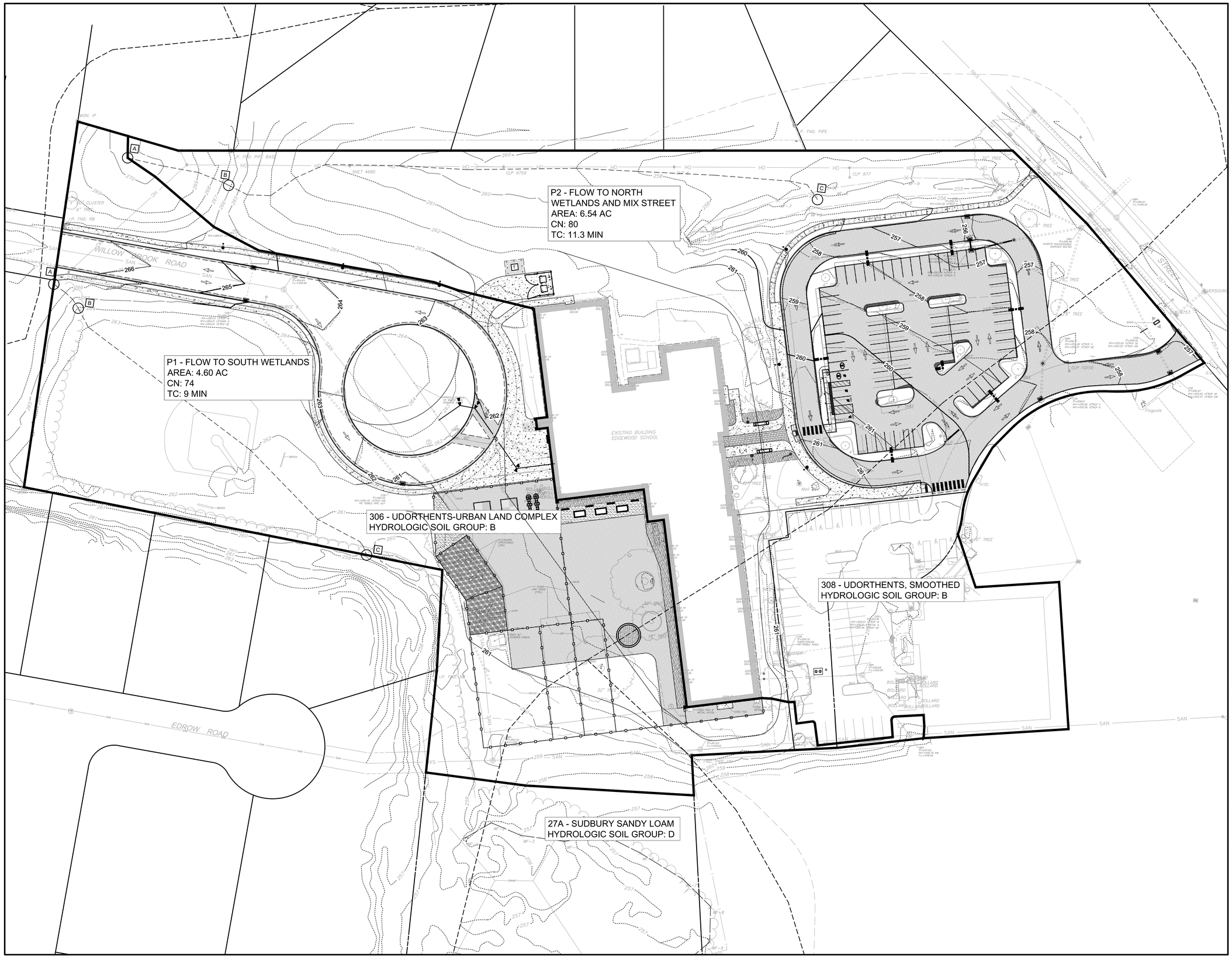
Inflow Area = 11.140 ac, 46.32% Impervious, Inflow Depth = 6.26" for 100-year event
Inflow = 67.49 cfs @ 12.17 hrs, Volume= 5.815 af
Outflow = 67.49 cfs @ 12.17 hrs, Volume= 5.815 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

APPENDIX B

Proposed Watershed Data

benesch



QA+M architecture
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Farmington, CT 06032
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benesch
Alfred Benesch & Company
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860-633-8341

Project #: 0726-500158.00

NOT FOR CONSTRUCTION
ISSUED FOR REVIEW ONLY

RENOVATIONS TO:

EDGEWOOD PRE-K ACADEMY

BRISTOL, CT 06010
State Project #: 017-0090 RNV
Project #: 25064

Revisions

0 40' 80'
SCALE: 1" = 40'

PHASE 2: DESIGN DEVELOPMENT
MARCH 20, 2026

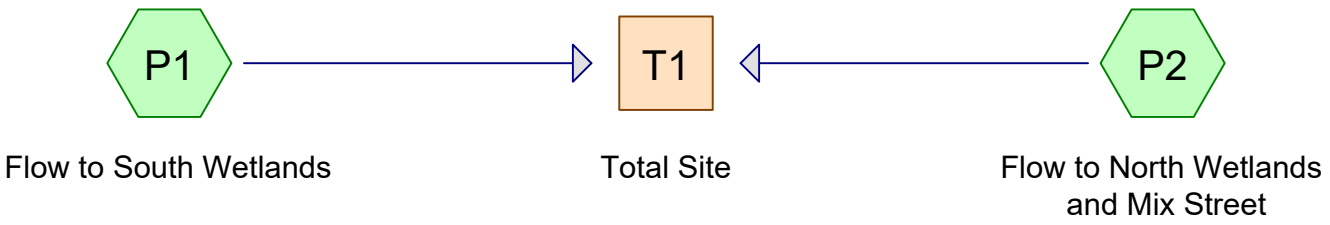
PROPOSED WATERSHED AREA MAP

PWAM

Watershed Cover Characteristics
Edgewood Pre-K Academy, Bristol, CT
Project # 0726-500158.00

Proposed:

Watershed	Description	Total Area (ac)	Grass B	Grass D	Woods B	Impervious	CN	Tc (min)
P1	Flow to South Wetlands	4.60	2.56	0.35	0.23	1.46	74	9
P2	Flow to North Wetlands and Mix Street	6.54	3.19	0.00	0.00	3.35	80	11.3
TOTAL	Total Site	11.14	5.75	0.35	0.23	4.81	-	-



Subcat Reach Pond Link

Routing Diagram for PWAM
Prepared by Alfred Benesch & Company, Printed 3/18/2026

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-year	NOAA 24-hr	D	Default	24.00	1	3.48	2
2	10-year	NOAA 24-hr	D	Default	24.00	1	5.56	2
3	25-year	NOAA 24-hr	D	Default	24.00	1	6.87	2
4	50-year	NOAA 24-hr	D	Default	24.00	1	7.82	2
5	100-year	NOAA 24-hr	D	Default	24.00	1	8.87	2

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
4.810	HSG A	P1, P2
5.980	HSG B	P1, P2
0.000	HSG C	
0.350	HSG D	P1
0.000	Other	
11.140		**TOTAL AREA**

Summary for Subcatchment P1: Flow to South Wetlands

Runoff = 5.82 cfs @ 12.17 hrs, Volume= 0.470 af, Depth= 1.23"
Routed to Reach T1 : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-year Rainfall=3.48"

Area (ac)	CN	Description
2.560	61	>75% Grass cover, Good, HSG B
0.350	80	>75% Grass cover, Good, HSG D
0.230	55	Woods, Good, HSG B
1.460	98	Paved parking, HSG A
4.600	74	Weighted Average
3.140		68.26% Pervious Area
1.460		31.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	33	0.0730	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.48"
3.9	368	0.0095	1.57		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
9.0	401	Total			

Summary for Subcatchment P2: Flow to North Wetlands and Mix Street

Runoff = 10.24 cfs @ 12.19 hrs, Volume= 0.883 af, Depth= 1.62"
Routed to Reach T1 : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-year Rainfall=3.48"

Area (ac)	CN	Description
3.190	61	>75% Grass cover, Good, HSG B
3.350	98	Paved parking, HSG A
6.540	80	Weighted Average
3.190		48.78% Pervious Area
3.350		51.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.0425	0.24		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.48"
4.4	582	0.0185	2.19		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
11.3	682	Total			

Summary for Reach T1: Total Site

Inflow Area = 11.140 ac, 43.18% Impervious, Inflow Depth = 1.46" for 2-year event
Inflow = 15.90 cfs @ 12.18 hrs, Volume= 1.353 af
Outflow = 15.90 cfs @ 12.18 hrs, Volume= 1.353 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Summary for Subcatchment P1: Flow to South Wetlands

Runoff = 13.69 cfs @ 12.17 hrs, Volume= 1.080 af, Depth= 2.82"
Routed to Reach T1 : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-year Rainfall=5.56"

Area (ac)	CN	Description
2.560	61	>75% Grass cover, Good, HSG B
0.350	80	>75% Grass cover, Good, HSG D
0.230	55	Woods, Good, HSG B
1.460	98	Paved parking, HSG A
4.600	74	Weighted Average
3.140		68.26% Pervious Area
1.460		31.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	33	0.0730	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.48"
3.9	368	0.0095	1.57		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
9.0	401	Total			

Summary for Subcatchment P2: Flow to North Wetlands and Mix Street

Runoff = 21.33 cfs @ 12.19 hrs, Volume= 1.846 af, Depth= 3.39"
Routed to Reach T1 : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-year Rainfall=5.56"

Area (ac)	CN	Description
3.190	61	>75% Grass cover, Good, HSG B
3.350	98	Paved parking, HSG A
6.540	80	Weighted Average
3.190		48.78% Pervious Area
3.350		51.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.0425	0.24		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.48"
4.4	582	0.0185	2.19		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
11.3	682	Total			

Summary for Reach T1: Total Site

Inflow Area = 11.140 ac, 43.18% Impervious, Inflow Depth = 3.15" for 10-year event
Inflow = 34.67 cfs @ 12.18 hrs, Volume= 2.926 af
Outflow = 34.67 cfs @ 12.18 hrs, Volume= 2.926 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Summary for Subcatchment P1: Flow to South Wetlands

Runoff = 19.01 cfs @ 12.16 hrs, Volume= 1.506 af, Depth= 3.93"
Routed to Reach T1 : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 25-year Rainfall=6.87"

Area (ac)	CN	Description
2.560	61	>75% Grass cover, Good, HSG B
0.350	80	>75% Grass cover, Good, HSG D
0.230	55	Woods, Good, HSG B
1.460	98	Paved parking, HSG A
4.600	74	Weighted Average
3.140		68.26% Pervious Area
1.460		31.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	33	0.0730	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.48"
3.9	368	0.0095	1.57		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
9.0	401	Total			

Summary for Subcatchment P2: Flow to North Wetlands and Mix Street

Runoff = 28.55 cfs @ 12.19 hrs, Volume= 2.493 af, Depth= 4.57"
Routed to Reach T1 : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 25-year Rainfall=6.87"

Area (ac)	CN	Description
3.190	61	>75% Grass cover, Good, HSG B
3.350	98	Paved parking, HSG A
6.540	80	Weighted Average
3.190		48.78% Pervious Area
3.350		51.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.0425	0.24		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.48"
4.4	582	0.0185	2.19		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
11.3	682	Total			

Summary for Reach T1: Total Site

Inflow Area = 11.140 ac, 43.18% Impervious, Inflow Depth = 4.31" for 25-year event
Inflow = 47.13 cfs @ 12.17 hrs, Volume= 3.999 af
Outflow = 47.13 cfs @ 12.17 hrs, Volume= 3.999 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Summary for Subcatchment P1: Flow to South Wetlands

Runoff = 22.96 cfs @ 12.16 hrs, Volume= 1.827 af, Depth= 4.77"
Routed to Reach T1 : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 50-year Rainfall=7.82"

Area (ac)	CN	Description
2.560	61	>75% Grass cover, Good, HSG B
0.350	80	>75% Grass cover, Good, HSG D
0.230	55	Woods, Good, HSG B
1.460	98	Paved parking, HSG A
4.600	74	Weighted Average
3.140		68.26% Pervious Area
1.460		31.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	33	0.0730	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.48"
3.9	368	0.0095	1.57		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
9.0	401	Total			

Summary for Subcatchment P2: Flow to North Wetlands and Mix Street

Runoff = 33.82 cfs @ 12.19 hrs, Volume= 2.974 af, Depth= 5.46"
Routed to Reach T1 : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 50-year Rainfall=7.82"

Area (ac)	CN	Description
3.190	61	>75% Grass cover, Good, HSG B
3.350	98	Paved parking, HSG A
6.540	80	Weighted Average
3.190		48.78% Pervious Area
3.350		51.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.0425	0.24		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.48"
4.4	582	0.0185	2.19		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
11.3	682	Total			

Summary for Reach T1: Total Site

Inflow Area = 11.140 ac, 43.18% Impervious, Inflow Depth = 5.17" for 50-year event
Inflow = 56.27 cfs @ 12.17 hrs, Volume= 4.800 af
Outflow = 56.27 cfs @ 12.17 hrs, Volume= 4.800 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Summary for Subcatchment P1: Flow to South Wetlands

Runoff = 27.36 cfs @ 12.16 hrs, Volume= 2.189 af, Depth= 5.71"
Routed to Reach T1 : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-year Rainfall=8.87"

Area (ac)	CN	Description
2.560	61	>75% Grass cover, Good, HSG B
0.350	80	>75% Grass cover, Good, HSG D
0.230	55	Woods, Good, HSG B
1.460	98	Paved parking, HSG A
4.600	74	Weighted Average
3.140		68.26% Pervious Area
1.460		31.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	33	0.0730	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.48"
3.9	368	0.0095	1.57		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
9.0	401	Total			

Summary for Subcatchment P2: Flow to North Wetlands and Mix Street

Runoff = 39.63 cfs @ 12.19 hrs, Volume= 3.513 af, Depth= 6.44"
Routed to Reach T1 : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-year Rainfall=8.87"

Area (ac)	CN	Description
3.190	61	>75% Grass cover, Good, HSG B
3.350	98	Paved parking, HSG A
6.540	80	Weighted Average
3.190		48.78% Pervious Area
3.350		51.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.0425	0.24		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.48"
4.4	582	0.0185	2.19		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
11.3	682	Total			

Summary for Reach T1: Total Site

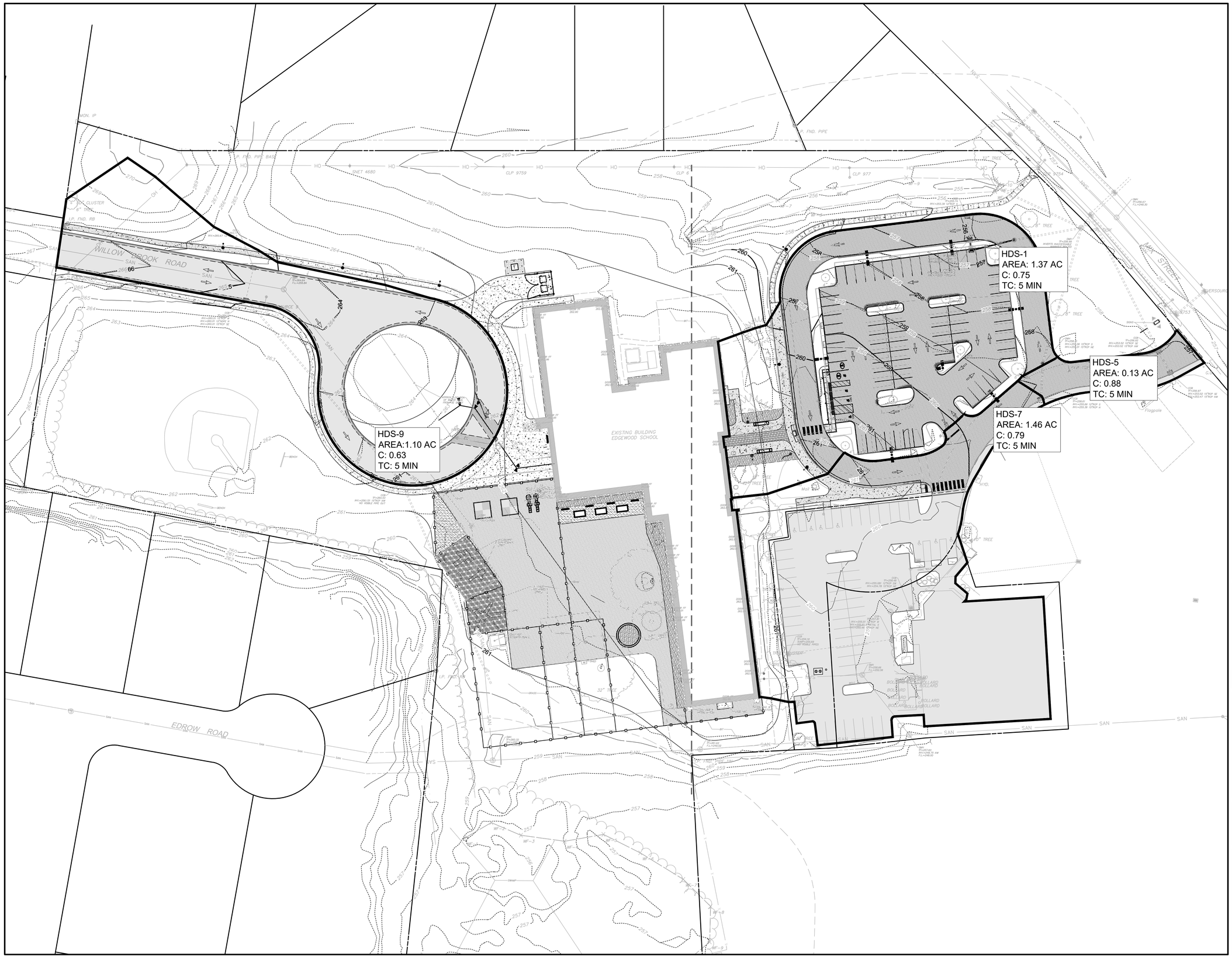
Inflow Area = 11.140 ac, 43.18% Impervious, Inflow Depth = 6.14" for 100-year event
Inflow = 66.40 cfs @ 12.17 hrs, Volume= 5.702 af
Outflow = 66.40 cfs @ 12.17 hrs, Volume= 5.702 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

APPENDIX C

Hydraulic Analysis

benesch



QA+M architecture
QuisenberryArcari Malik
195 Scott Swamp Road
Farmington, CT 06032
qamarch.com

benesch
Alfred Benesch & Company
200 Glastonbury Boulevard, Suite 201
Glastonbury, Connecticut 06033
860-633-8341

Project #: 0726-500158.00

NOT FOR CONSTRUCTION
ISSUED FOR REVIEW ONLY

RENOVATIONS TO:

EDGEWOOD PRE-K ACADEMY

BRISTOL, CT 06010
State Project #: 017-0090 RNV
Project #: 25064

Revisions

0 40' 80'
SCALE: 1" = 40'

PHASE 2: DESIGN DEVELOPMENT
MARCH 20, 2026

CATCHMENT
AREA MAP

CAM

C-Values
Edgewood Pre-K Academy
Bristol, CT

3/17/2026

Job Number: 0726-500158.00 RC

Drainage Areas

BASIN	TOTAL (AC.)	IMPERVIOUS (AC.)	PERVIOUS (AC.)	C-Value	Tc (Min.)
HDS-1	1.37	1.03	0.35	0.75	5.00
HDS-5	0.13	0.12	0.00	0.88	5.00
HDS-7	1.46	1.19	0.26	0.79	5.00
HDS-9	1.10	0.61	0.49	0.63	5.00
TOTAL	2.55	1.80	0.75	0.72	5.00

APPENDIX D

Water Quality Volume

benesch

Water Quality Volume Computations
Edgewood Pre-K Academy, Bristol, CT
Project # 0726-500158.00

Designation	Description	Total Area (ac)	Total Impervious Area (ac)	Impervious Coverage, I (%)	Volumetric Runoff Coefficient (R)	WQV (ac-ft, apply 1.3")	Required WQV (cf)	Provided WQV (cf)
					R = 0.05 + 0.009*(I)	WQV = (1.3")*(R)*(A)/12		
1	Total Site	11.14	4.81	43.19	0.44	0.530	23,066	14,134
2	Hydrodynamic Separator HDS-1	1.37	1.03	75.18	0.73	0.108	4,698	HS-5
3	Hydrodynamic Separator HDS-5	0.13	0.12	92.31	0.88	0.012	540	HS-3i
4	Hydrodynamic Separator HDS-7	1.46	1.19	81.51	0.78	0.124	5,399	HS-5
5	Hydrodynamic Separator HDS-9	1.10	0.61	55.45	0.55	0.065	2,850	HS-4i

Water Quality Flow Calculation

Designation	Description	WQV Applied Impervious Area (ac-ft)	Total Drainage Area (ac)	Total Drainage Area (sq. mi)	Watershed Runoff Depth (Q, in)	P (1.3" for water quality storm, in)	NRCS Runoff Curve Number	Ia, (in, Table 4-1, TR-55)	Ia/P	Tc, (hr)	Peak unit discharge, qu, (csm/in, Exhibit 4-III, TR-55	Total WQF (cfs)	Hydroworks Treatment Unit
2	Hydrodynamic Separator HDS-1	0.108	1.37	0.002	0.94	1.3	89	0.247	0.190	0.1	625	1.26	HS-4i
3	Hydrodynamic Separator HDS-5	0.012	0.13	0.000	1.15	1.3	95	0.105	0.081	0.1	660	0.15	HS-4i
4	Hydrodynamic Separator HDS-7	0.124	1.46	0.002	1.02	1.3	91	0.198	0.152	0.1	630	1.46	HS-5i
5	Hydrodynamic Separator HDS-9	0.065	1.10	0.002	0.71	1.3	82	0.439	0.338	0.1	550	0.67	HS-3i

Hydroworks Sizing Summary

EDGEWOOD HDS-1

03-17-2026

Recommended Size: HydroStorm HS 5

Hydroworks Sizing Program Version 5.8.5

A HydroStorm HS 5 is recommended to provide 80 % annual TSS removal based on a drainage area of 1.37 (ac) with an imperviousness of 75 % and Hartford Wso Airport, Connecticut rainfall for the Hydroworks standard particle size distribution.

The recommended HydroStorm HS 5 treats 99 % of the annual runoff and provides 84 % annual TSS removal for the Hartford Wso Airport rainfall records and Hydroworks standard particle size distribution.

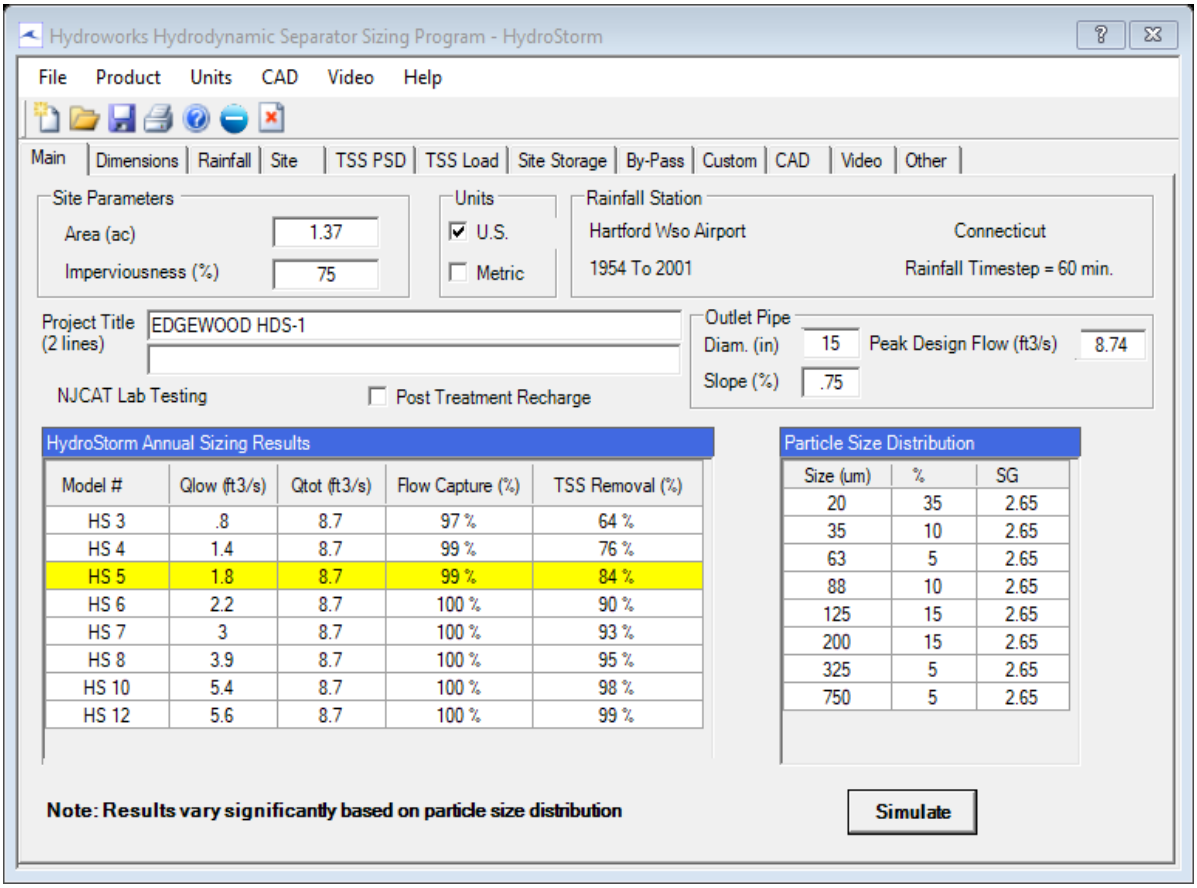
The HydroStorm has a headloss coefficient (K) of 1.04. The given peak flow of 8.74 (ft3/s) Is greater than the full pipe flow of 5.59 (ft3/s) indicating the pipe will be surcharged during the peak flow. Full pipe flow was assumed For the headloss calculations. The pressure head in the pipe was Not evaluated since this would require a hydraulic gradeline analysis. The headloss was calculated to be 10 (in) based on a flow depth of 15 (in) (full pipe flow).

This summary report provides the main parameters that were used for sizing. These parameters are shown on the summary tables and graphs provided in this report.

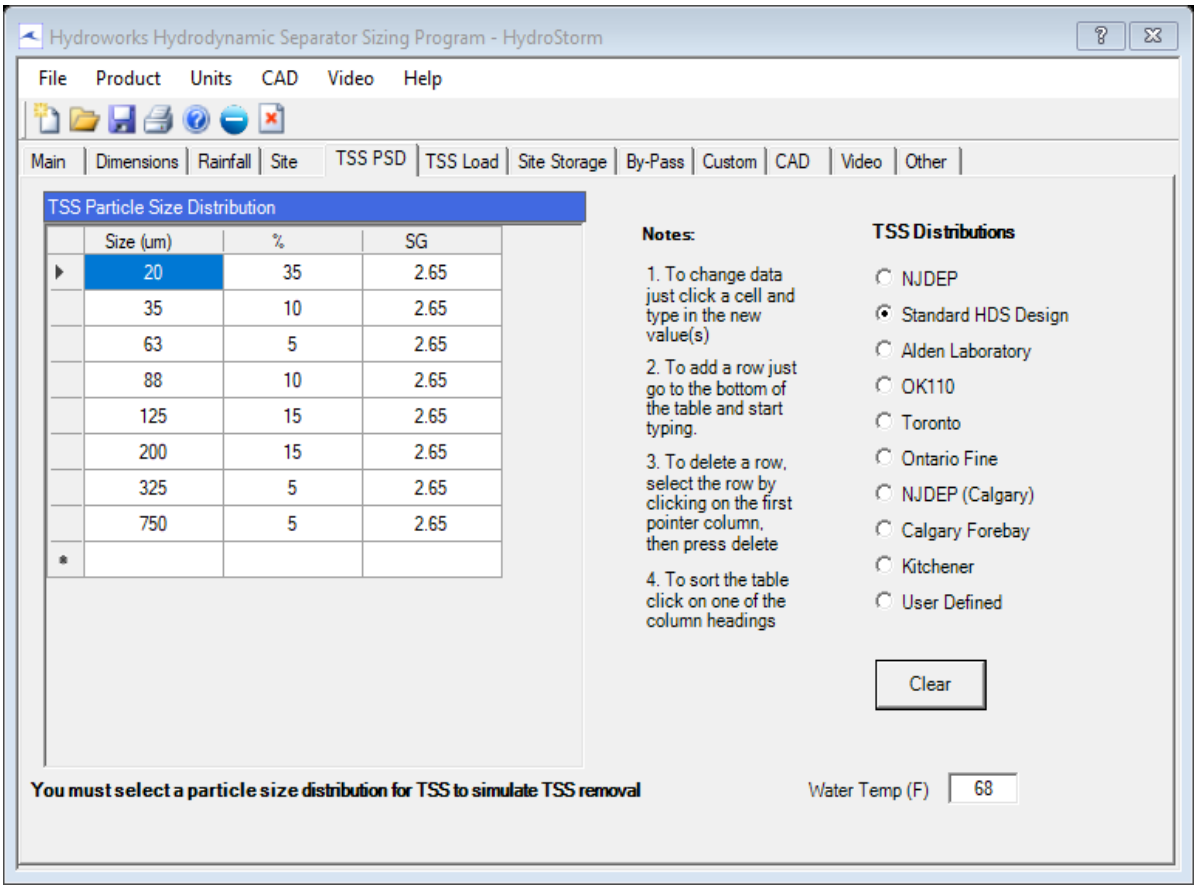
If you have any questions regarding this sizing summary please do not hesitate to contact Hydroworks at 888-290-7900 or email us at support@hydroworks.com.

The sizing program is for sizing purposes only and does not address any site specific parameters such as hydraulic gradeline, tailwater submergence, groundwater, soils bearing capacity, etc. Headloss calculations are not a hydraulic gradeline calculation since this requires a starting water level and an analysis of the entire system downstream of the HydroStorm .

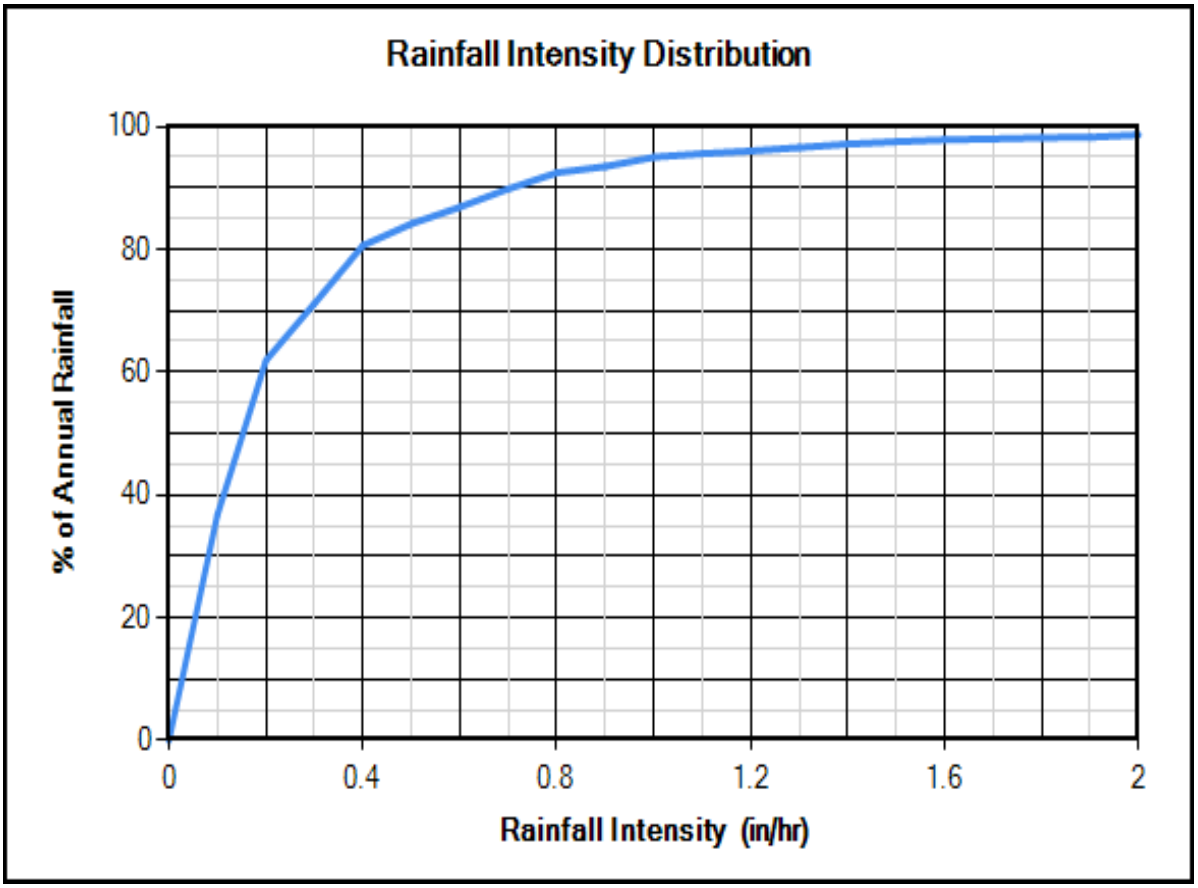
TSS Removal Sizing Summary



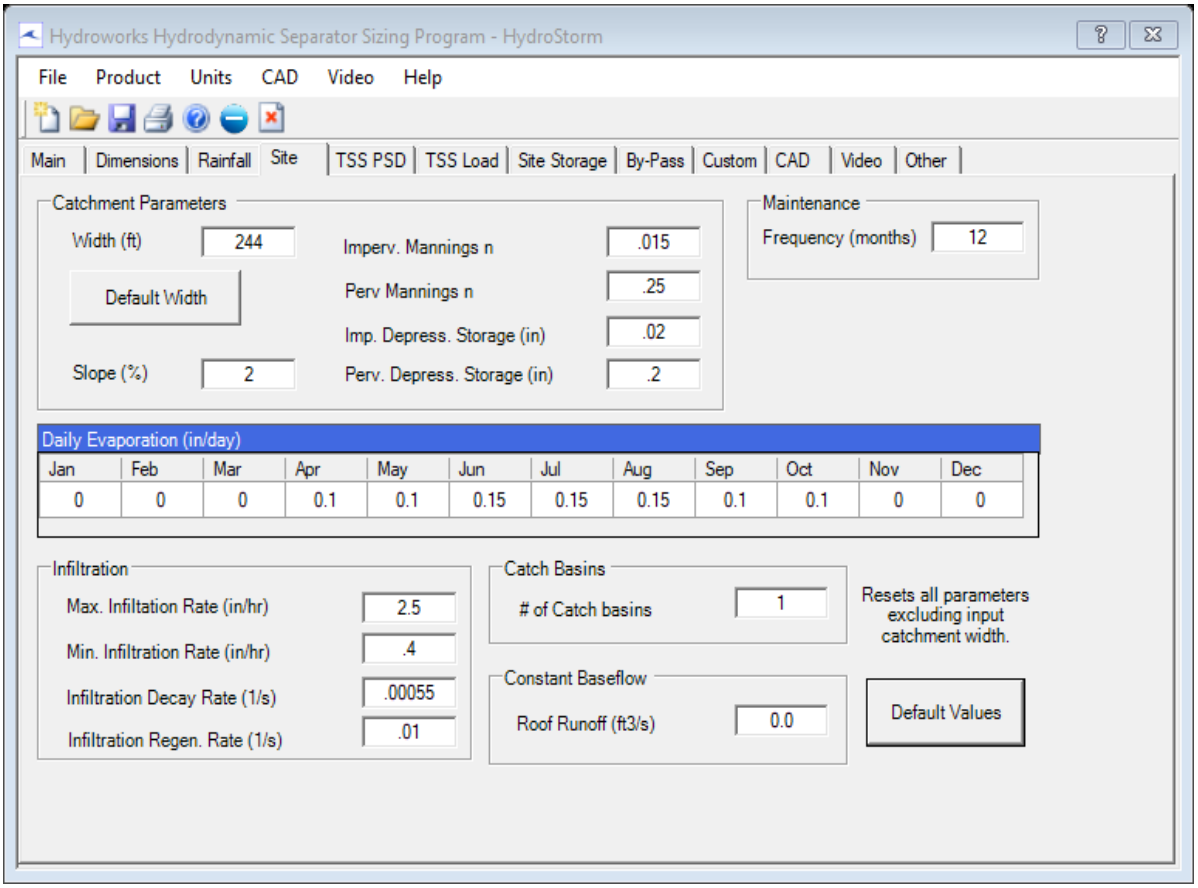
TSS Particle Size Distribution



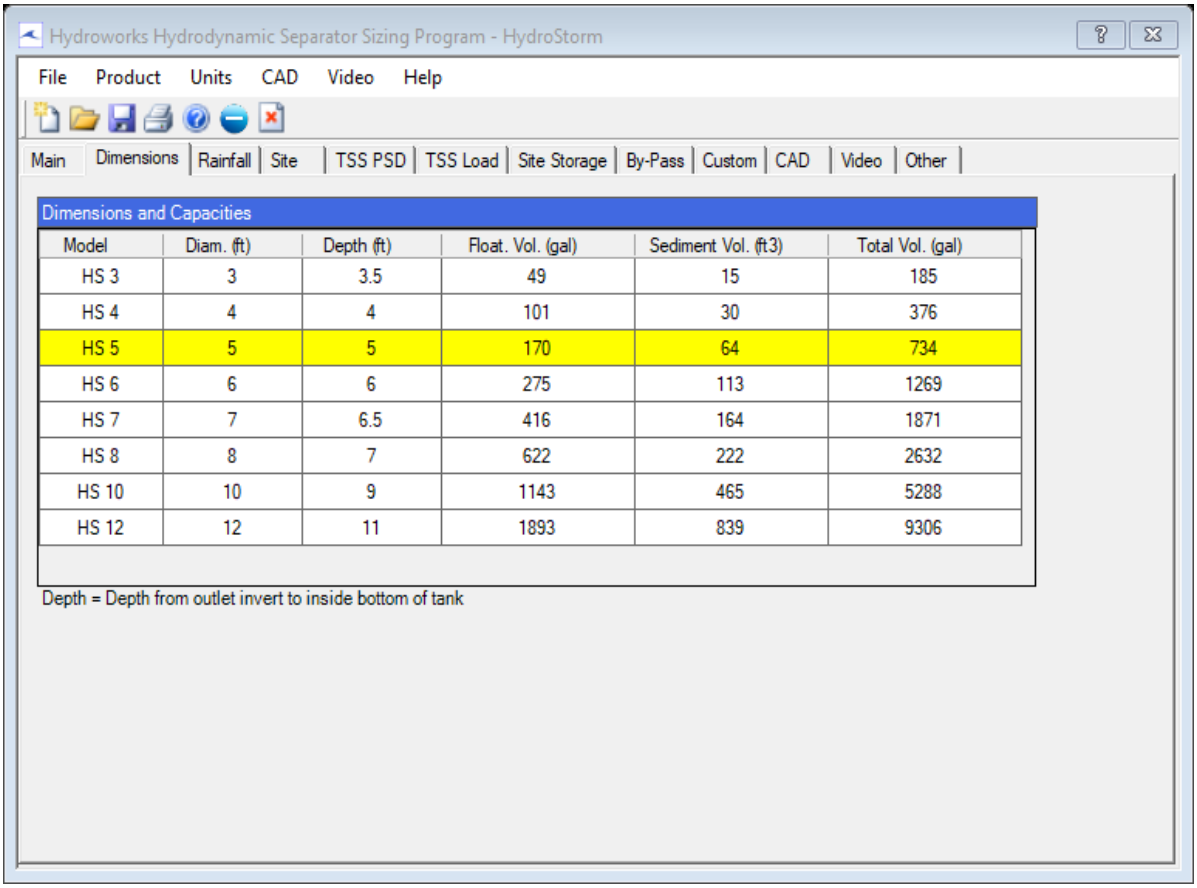
Rainfall Station - Hartford Wso Airport, Connecticut(1954 To 2001)



Site Physical Characteristics



Dimensions And Capacities

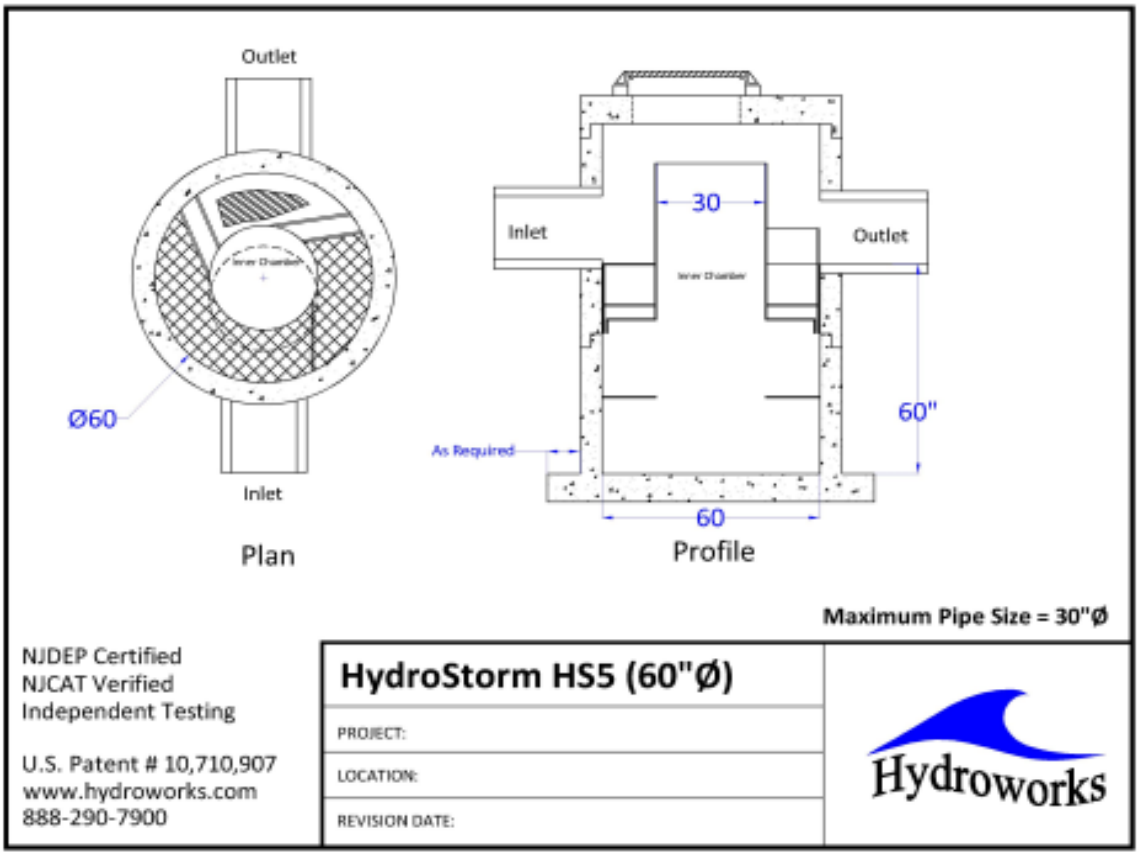


Dimensions and Capacities

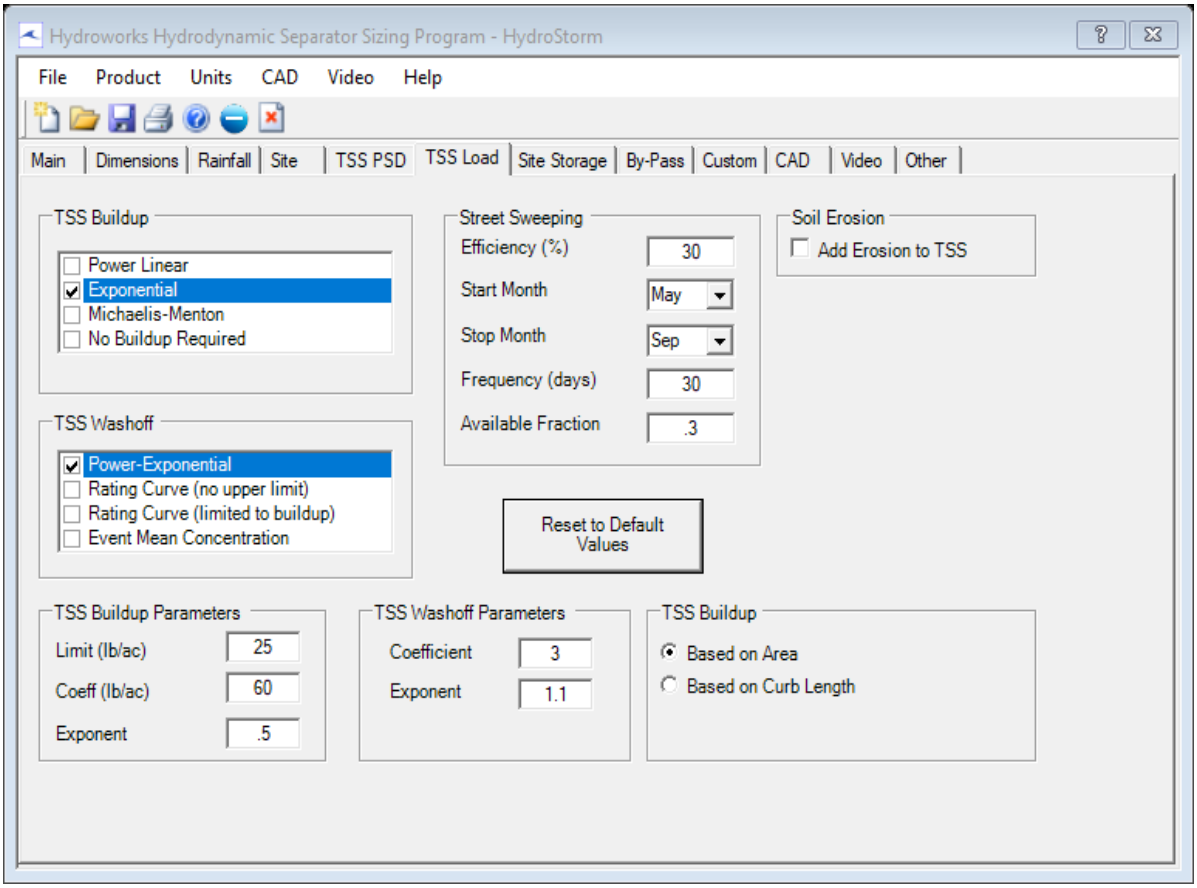
Model	Diam. (ft)	Depth (ft)	Float. Vol. (gal)	Sediment Vol. (ft3)	Total Vol. (gal)
HS 3	3	3.5	49	15	185
HS 4	4	4	101	30	376
HS 5	5	5	170	64	734
HS 6	6	6	275	113	1269
HS 7	7	6.5	416	164	1871
HS 8	8	7	622	222	2632
HS 10	10	9	1143	465	5288
HS 12	12	11	1893	839	9306

Depth = Depth from outlet invert to inside bottom of tank

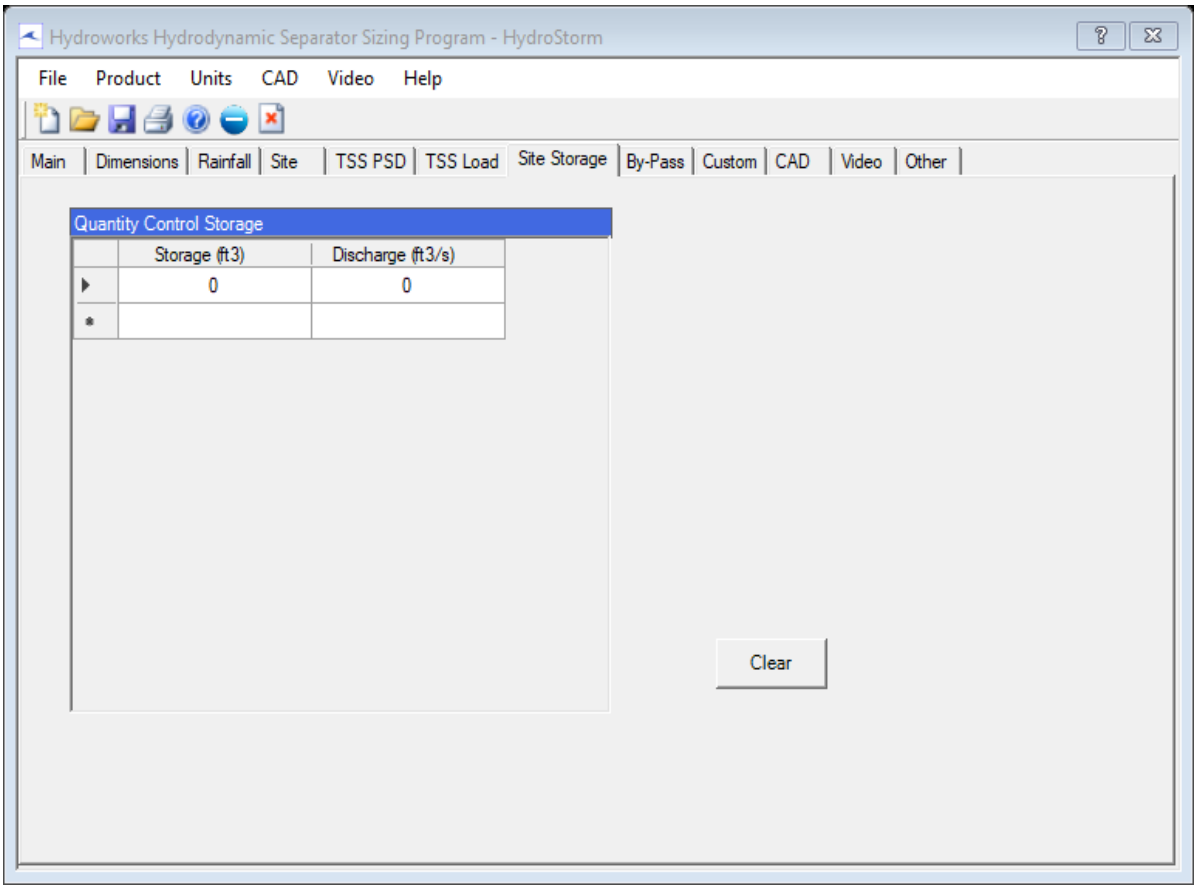
Generic HS 5 CAD Drawing



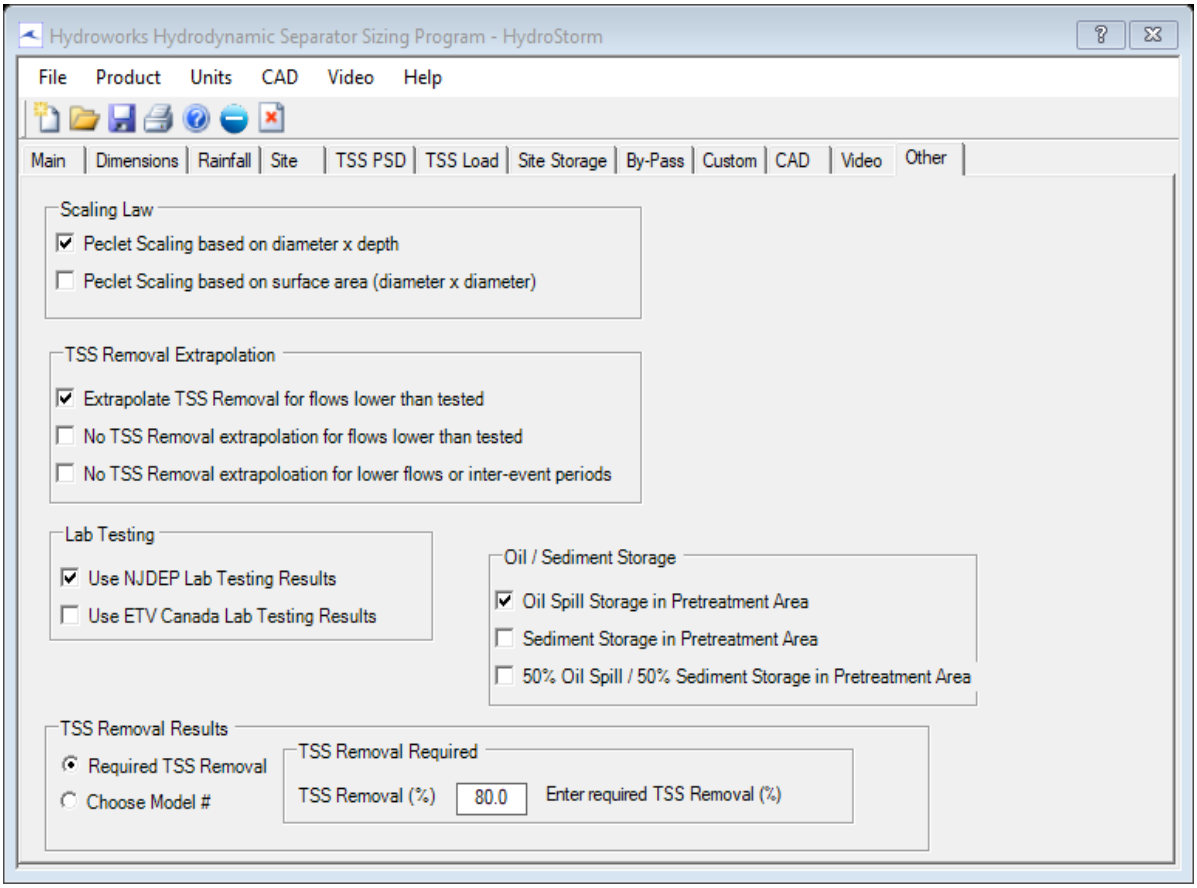
TSS Buildup And Washoff



Upstream Quantity Storage



Other Parameters



Flagged Issues

None

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www.hydroworks.com

Hydroworks Sizing Summary

EDGEWOOD HDS-5

03-17-2026

Recommended Size: HydroStorm HS 3i

Hydroworks Sizing Program Version 5.8.5

A HydroStorm HS 3i is recommended to provide 80 % annual TSS removal based on a drainage area of .13 (ac) with an imperviousness of 92 % and Hartford Wso Airport, Connecticut rainfall for the Hydroworks standard particle size distribution.

The recommended HydroStorm HS 3i treats 100 % of the annual runoff and provides 97 % annual TSS removal for the Hartford Wso Airport rainfall records and Hydroworks standard particle size distribution.

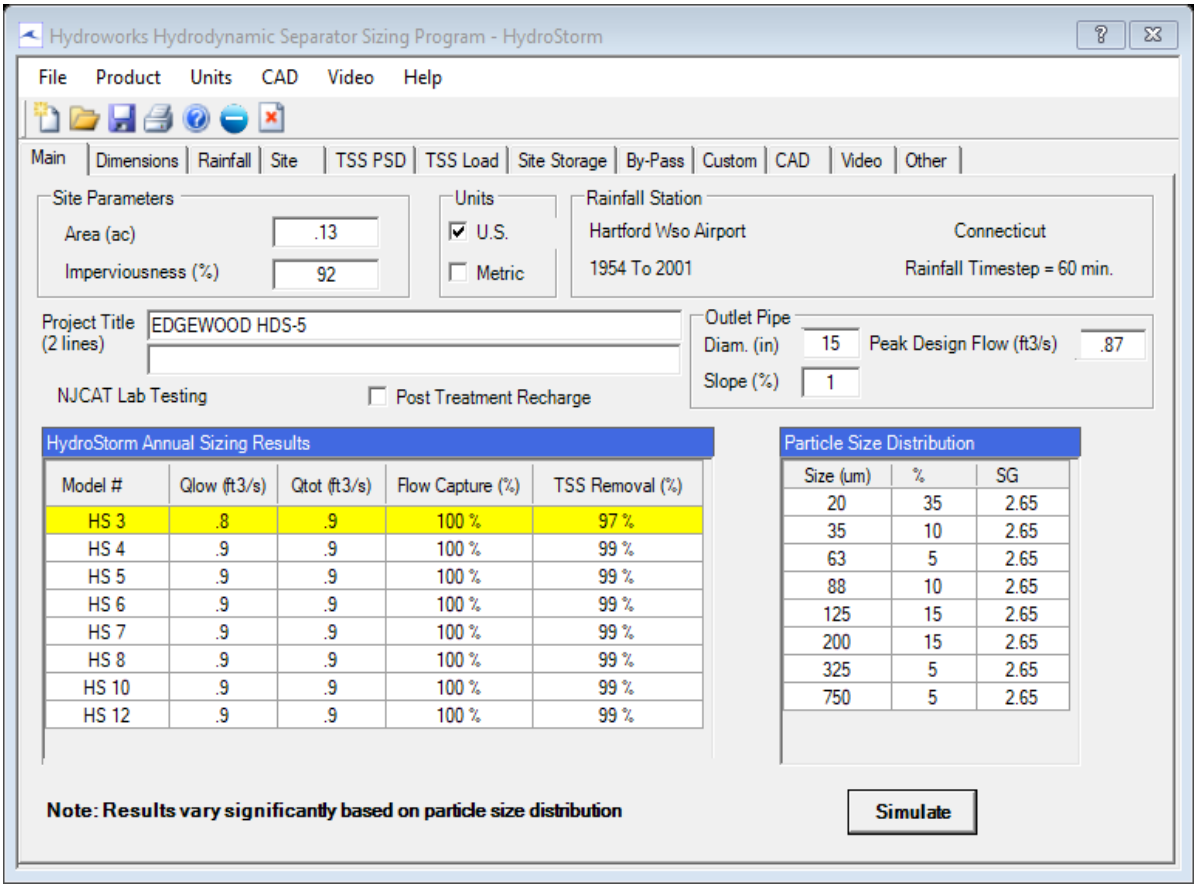
The HydroStorm has a headloss coefficient (K) of 1.04. The given peak flow of .87 (ft3/s) Is less than the full pipe flow of 6.46 (ft3/s) indicating free flow in the pipe during the peak flow assuming no tailwater condition. Partial pipe flow was assumed For the headloss calculations. The critical depth Is greater than the normal depth For the peak flow And 15 (in) pipe diameter And 1 % slope given. Critical depth was assumed For the headloss calculations. The headloss was calculated to be 2 (in) based on a flow depth of 4 (in) .

This summary report provides the main parameters that were used for sizing. These parameters are shown on the summary tables and graphs provided in this report.

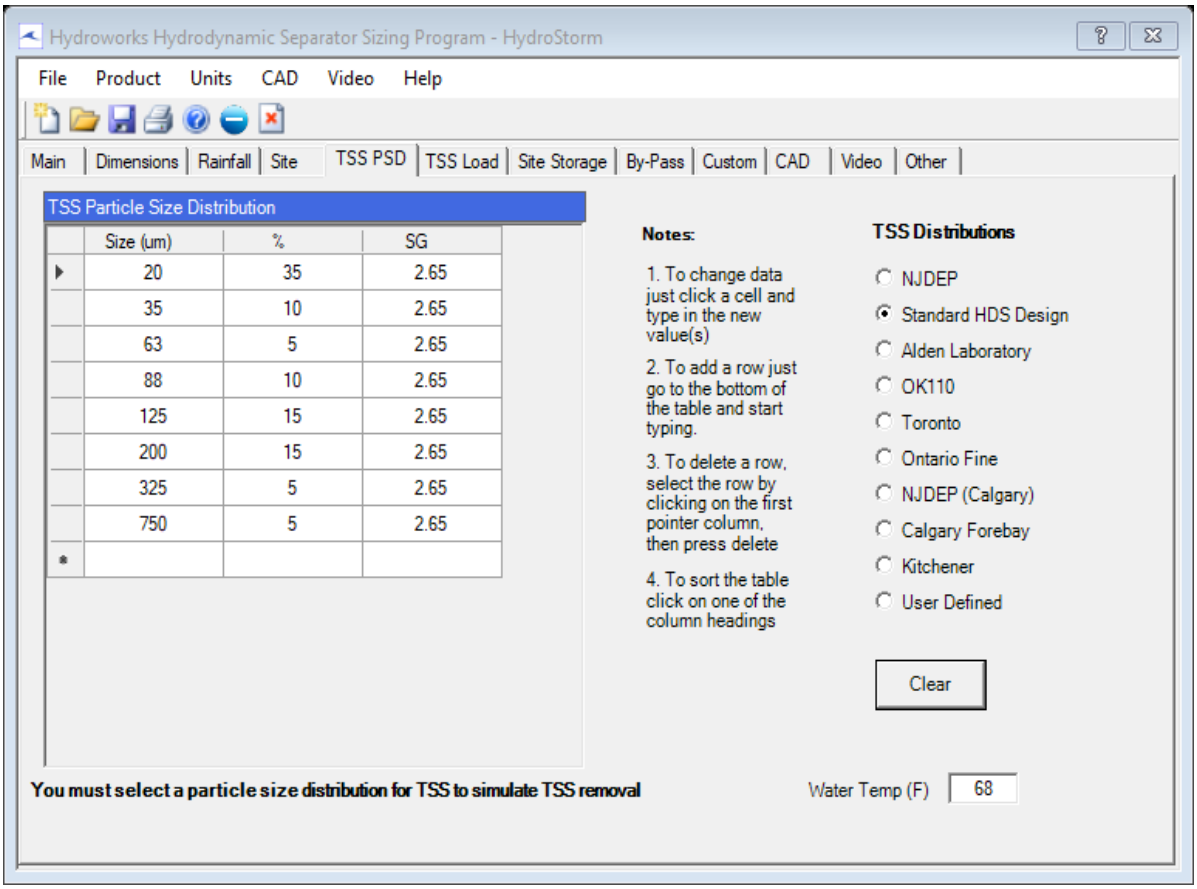
If you have any questions regarding this sizing summary please do not hesitate to contact Hydroworks at 888-290-7900 or email us at support@hydroworks.com.

The sizing program is for sizing purposes only and does not address any site specific parameters such as hydraulic gradeline, tailwater submergence, groundwater, soils bearing capacity, etc. Headloss calculations are not a hydraulic gradeline calculation since this requires a starting water level and an analysis of the entire system downstream of the HydroStorm .

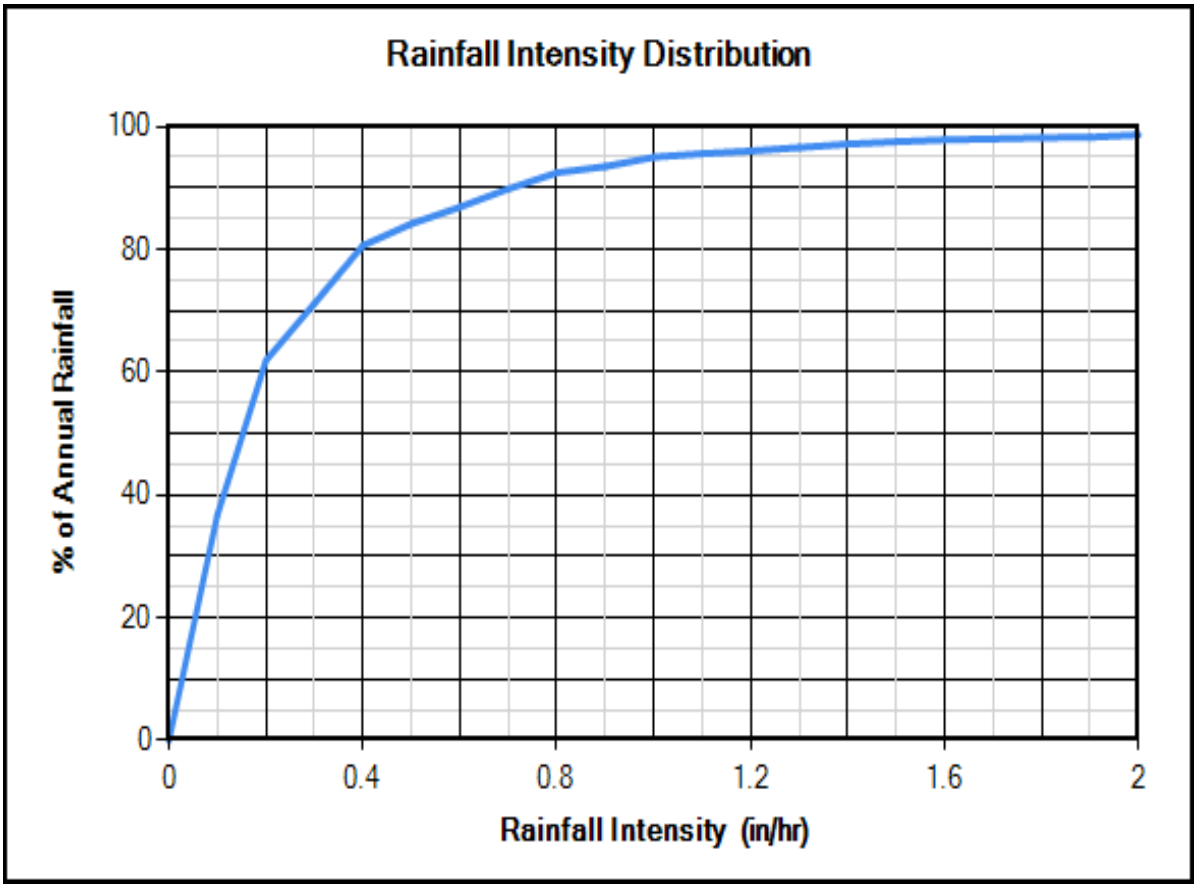
TSS Removal Sizing Summary



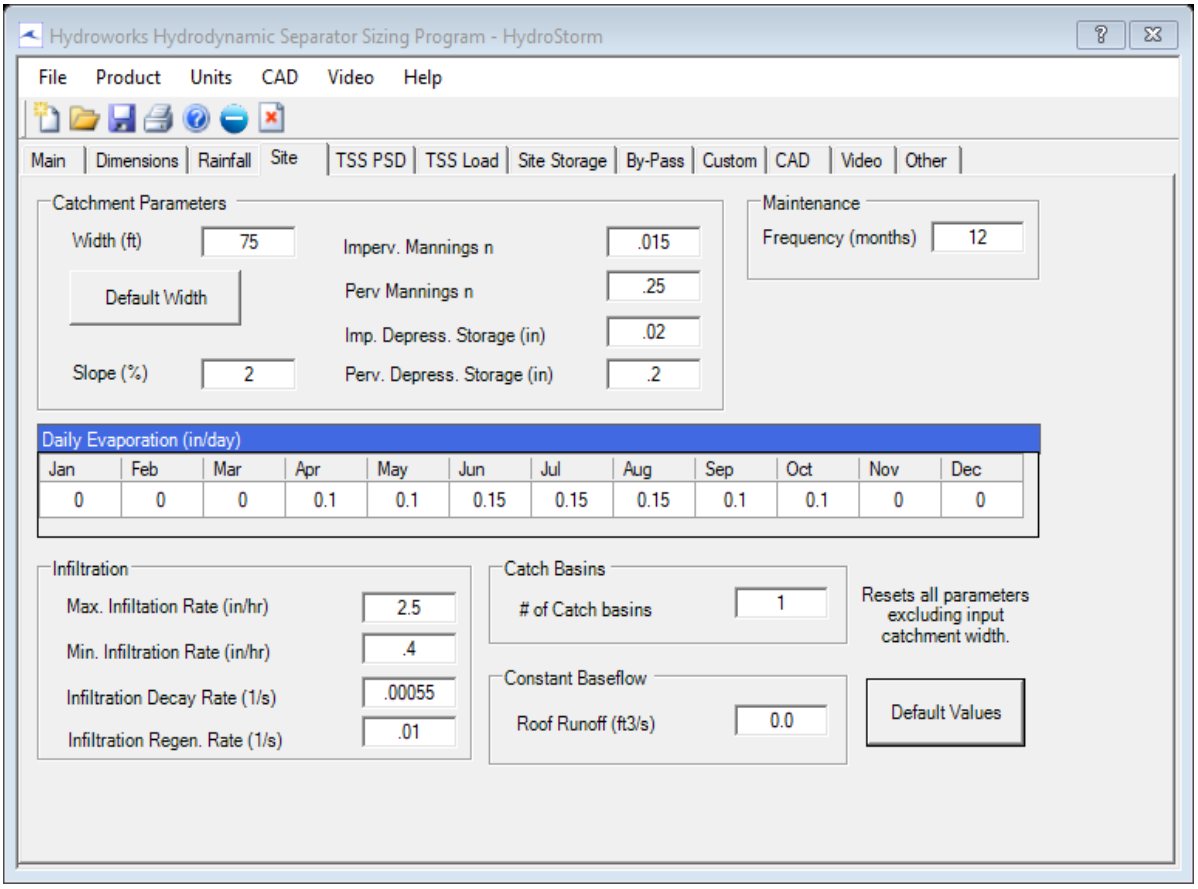
TSS Particle Size Distribution



Rainfall Station - Hartford Wso Airport, Connecticut(1954 To 2001)



Site Physical Characteristics



Dimensions And Capacities

Hydroworks Hydrodynamic Separator Sizing Program - HydroStorm

File Product Units CAD Video Help

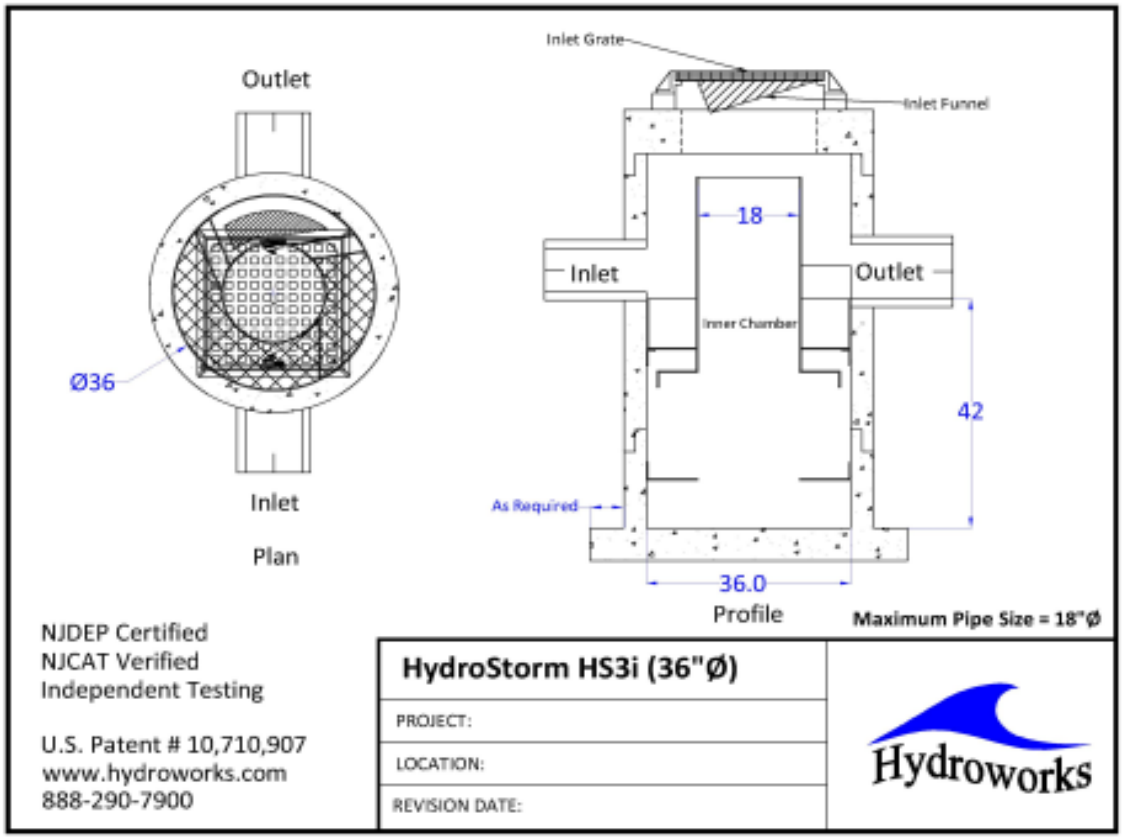
Main | Dimensions | Rainfall | Site | TSS PSD | TSS Load | Site Storage | By-Pass | Custom | CAD | Video | Other

Dimensions and Capacities

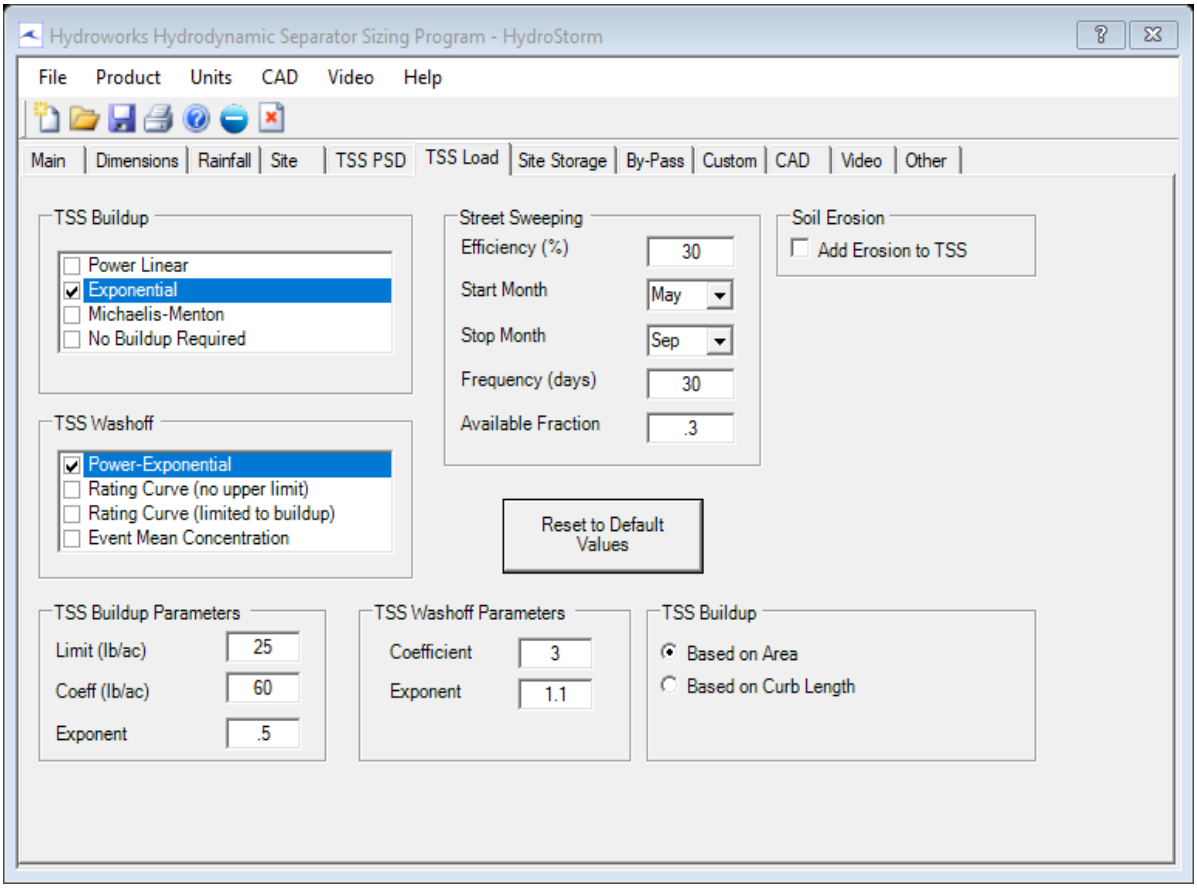
Model	Diam. (ft)	Depth (ft)	Float. Vol. (gal)	Sediment Vol. (ft3)	Total Vol. (gal)
HS 3	3	3.5	49	15	185
HS 4	4	4	101	30	376
HS 5	5	5	170	64	734
HS 6	6	6	275	113	1269
HS 7	7	6.5	416	164	1871
HS 8	8	7	622	222	2632
HS 10	10	9	1143	465	5288
HS 12	12	11	1893	839	9306

Depth = Depth from outlet invert to inside bottom of tank

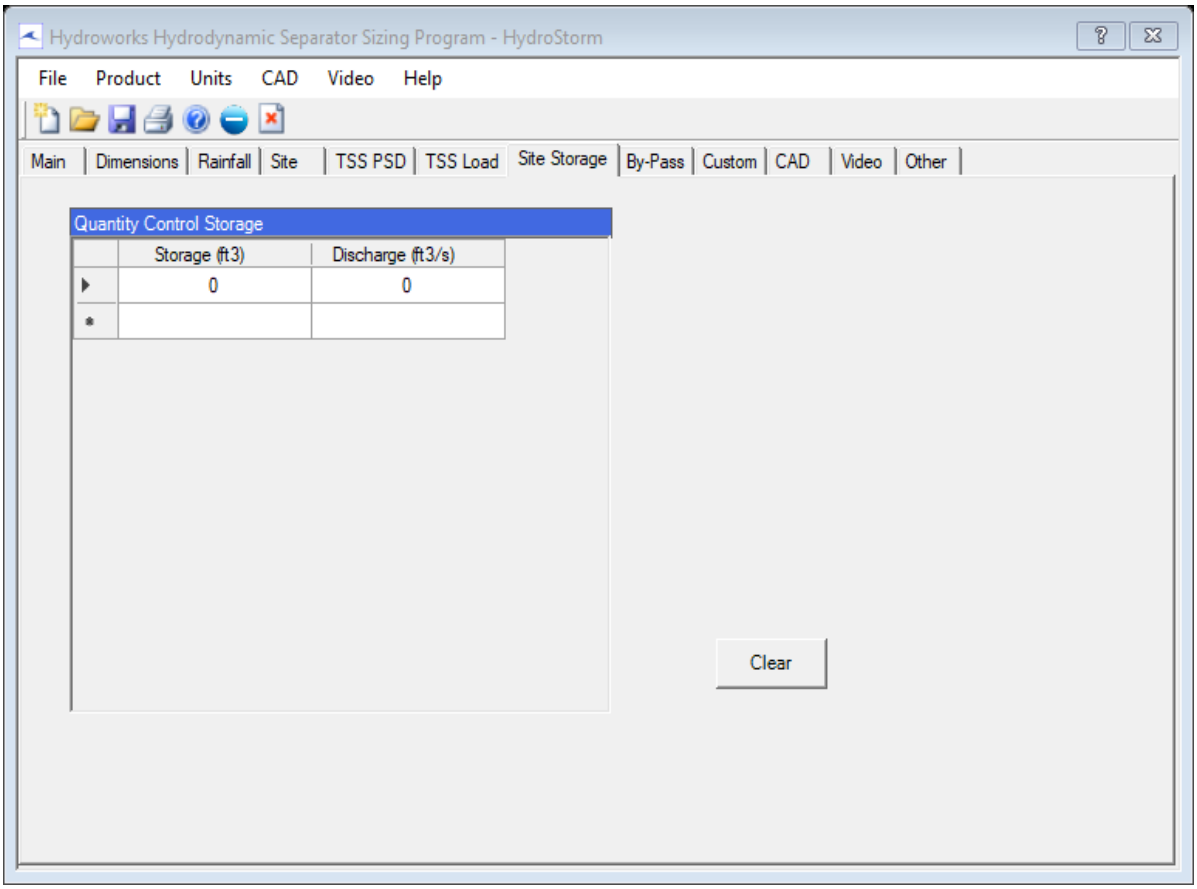
Generic HS 3i CAD Drawing



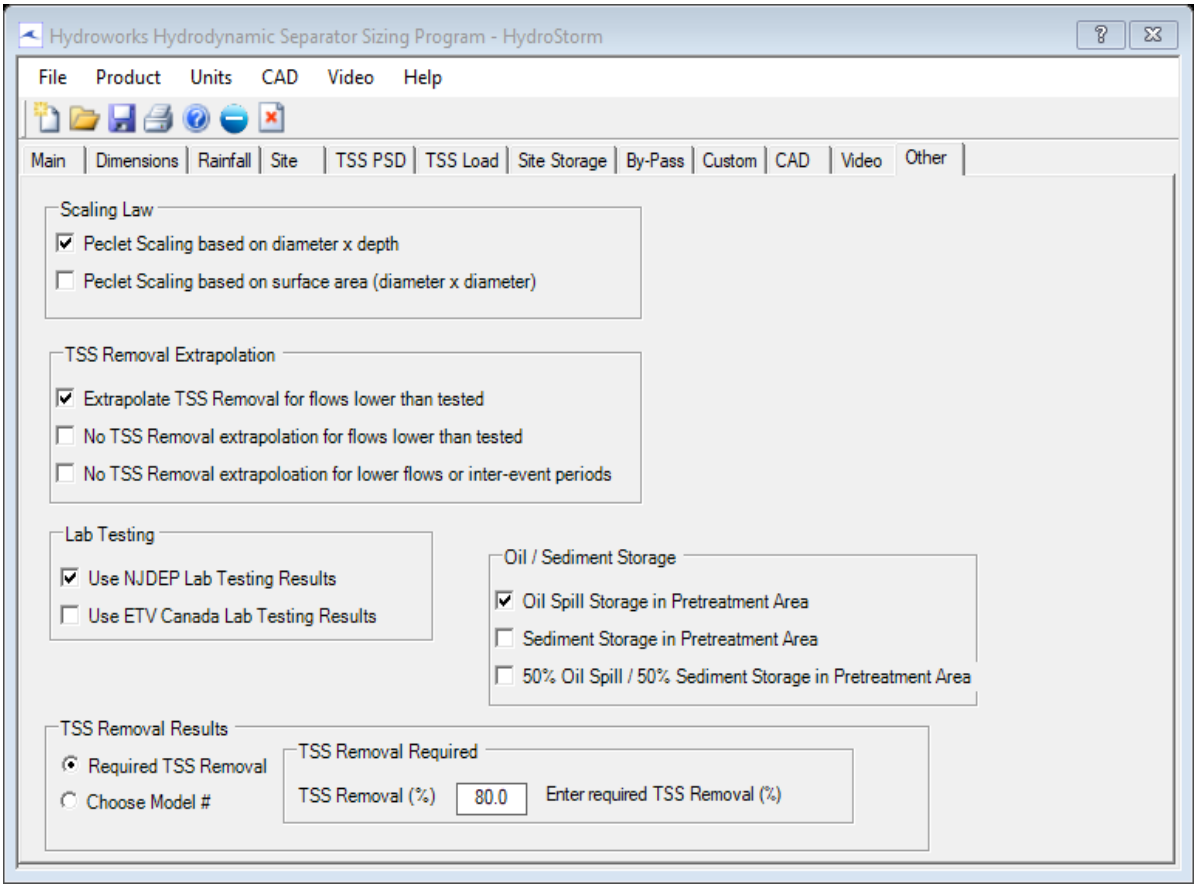
TSS Buildup And Washoff



Upstream Quantity Storage



Other Parameters



Flagged Issues

None

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Hydroworks Sizing Summary

EDGEWOOD HDS-7

03-17-2026

Recommended Size: HydroStorm HS 5

Hydroworks Sizing Program Version 5.8.5

A HydroStorm HS 5 is recommended to provide 80 % annual TSS removal based on a drainage area of 1.46 (ac) with an imperviousness of 82 % and Hartford Wso Airport, Connecticut rainfall for the Hydroworks standard particle size distribution.

The recommended HydroStorm HS 5 treats 99 % of the annual runoff and provides 83 % annual TSS removal for the Hartford Wso Airport rainfall records and Hydroworks standard particle size distribution.

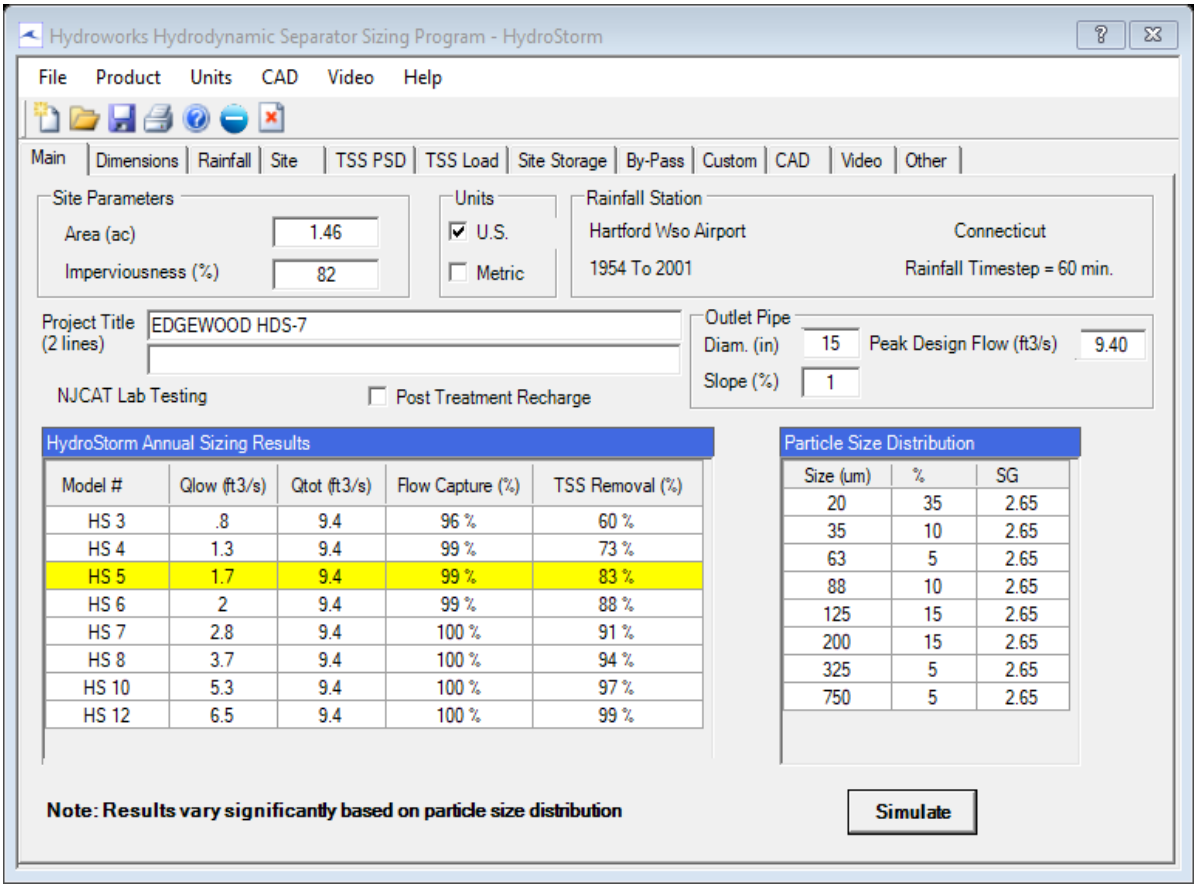
The HydroStorm has a headloss coefficient (K) of 1.04. The given peak flow of 9.4 (ft3/s) Is greater than the full pipe flow of 6.46 (ft3/s) indicating the pipe will be surcharged during the peak flow. Full pipe flow was assumed For the headloss calculations. The pressure head in the pipe was Not evaluated since this would require a hydraulic gradeline analysis. The headloss was calculated to be 11 (in) based on a flow depth of 15 (in) (full pipe flow).

This summary report provides the main parameters that were used for sizing. These parameters are shown on the summary tables and graphs provided in this report.

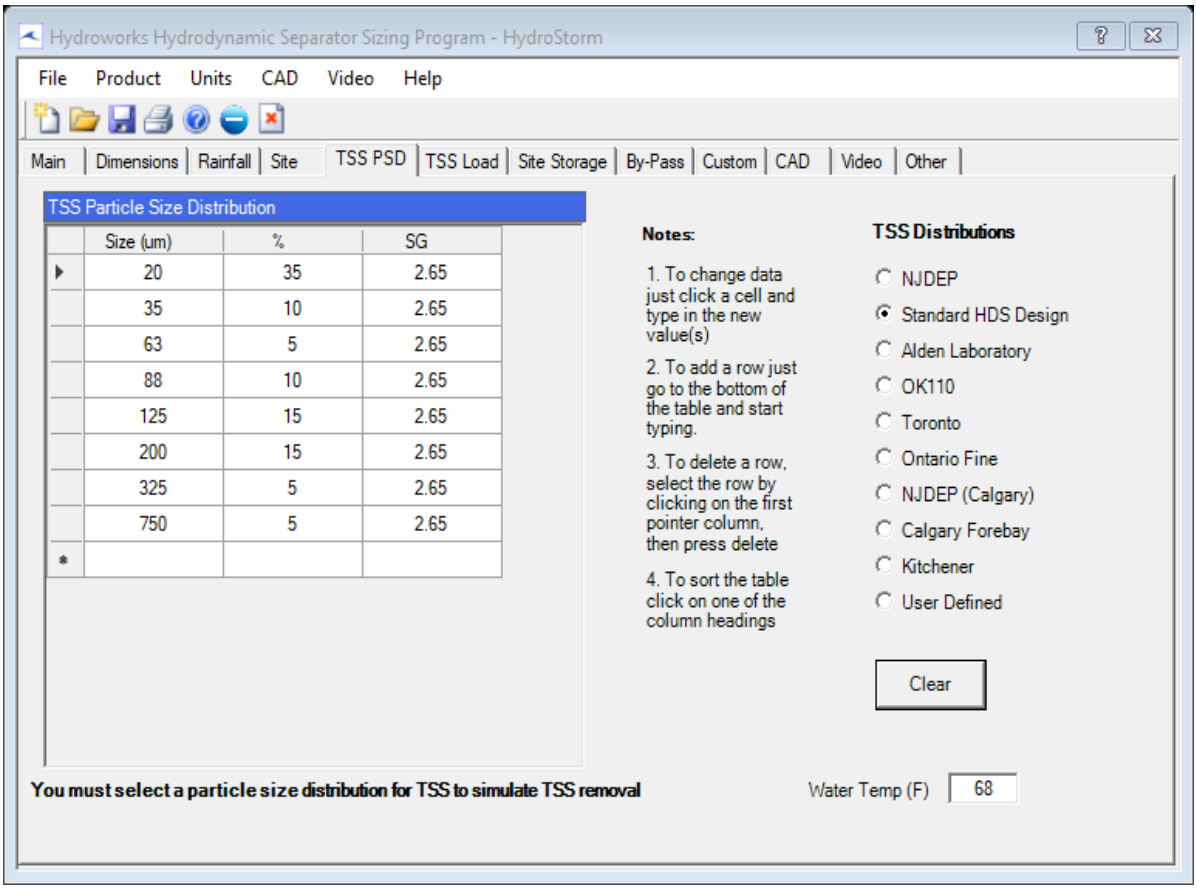
If you have any questions regarding this sizing summary please do not hesitate to contact Hydroworks at 888-290-7900 or email us at support@hydroworks.com.

The sizing program is for sizing purposes only and does not address any site specific parameters such as hydraulic gradeline, tailwater submergence, groundwater, soils bearing capacity, etc. Headloss calculations are not a hydraulic gradeline calculation since this requires a starting water level and an analysis of the entire system downstream of the HydroStorm .

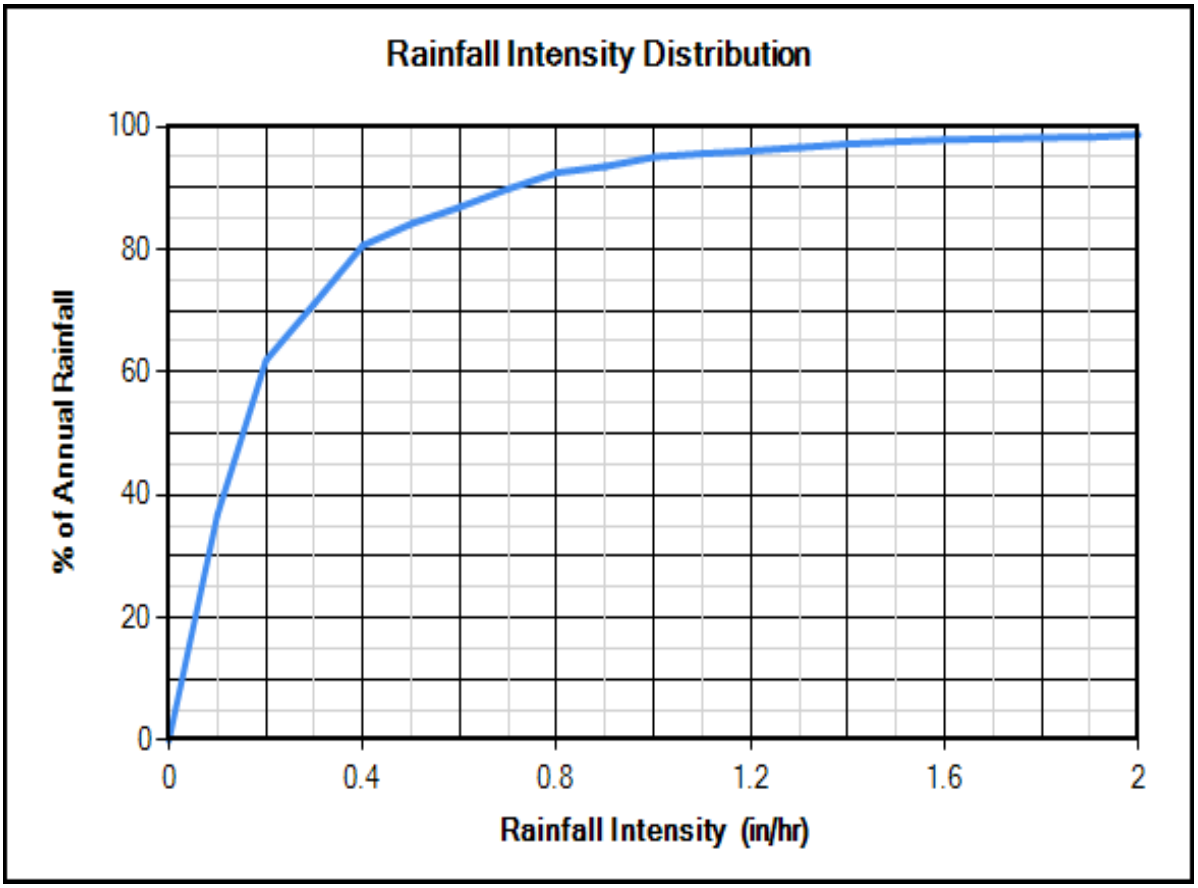
TSS Removal Sizing Summary



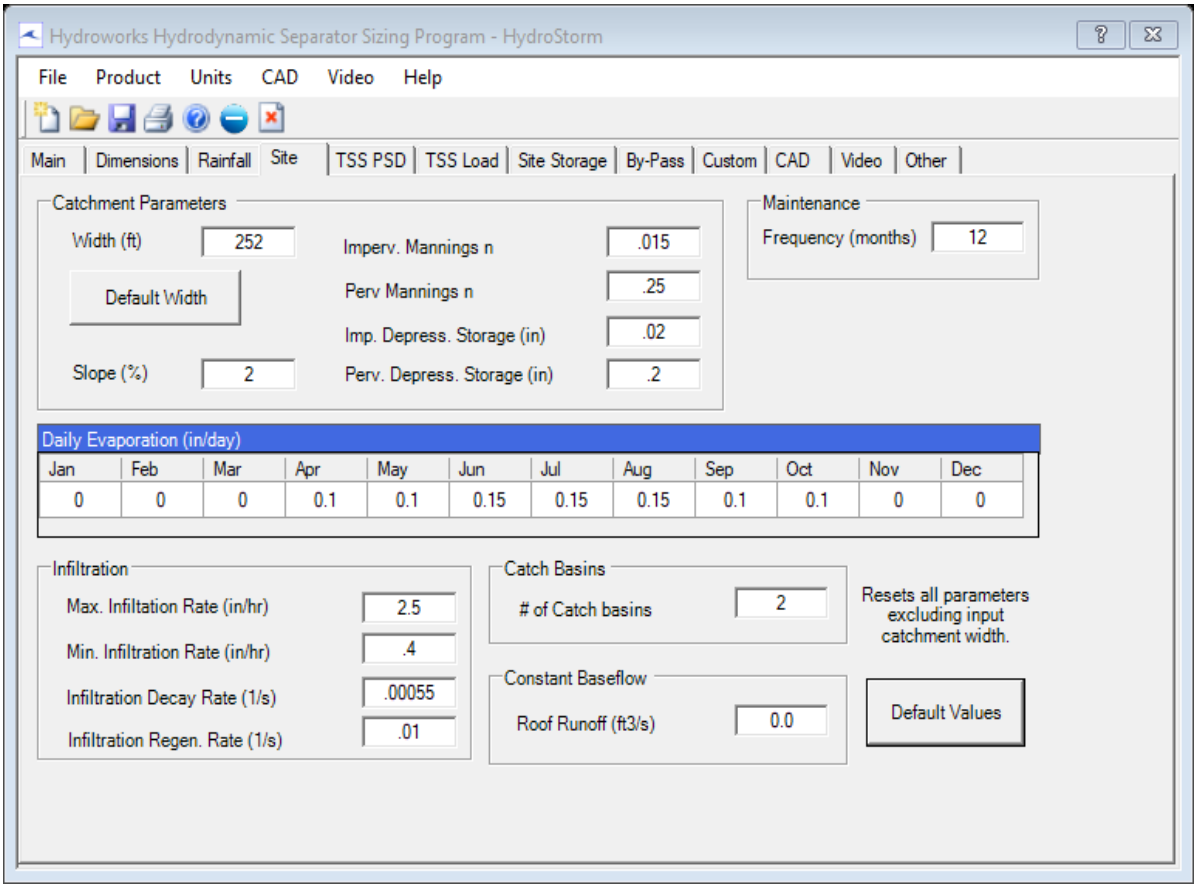
TSS Particle Size Distribution



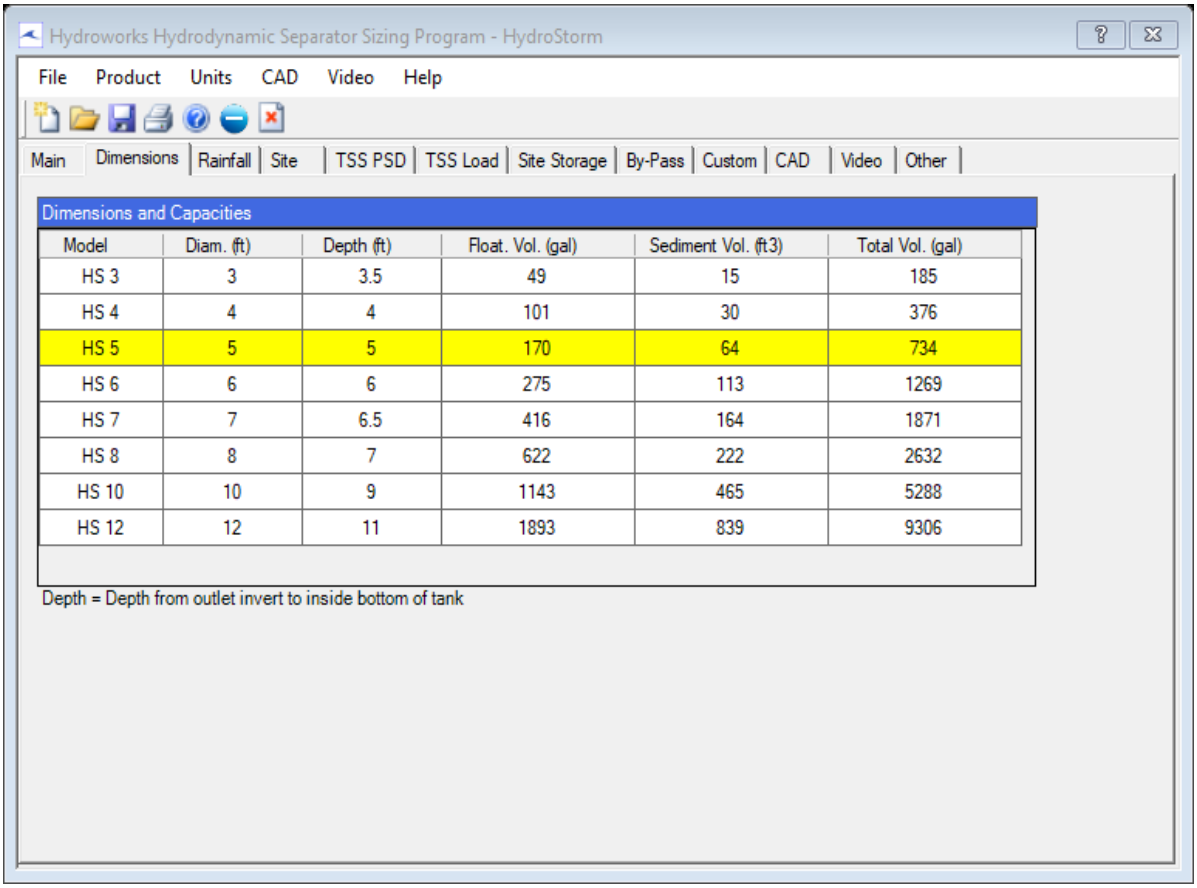
Rainfall Station - Hartford Wso Airport, Connecticut(1954 To 2001)



Site Physical Characteristics



Dimensions And Capacities

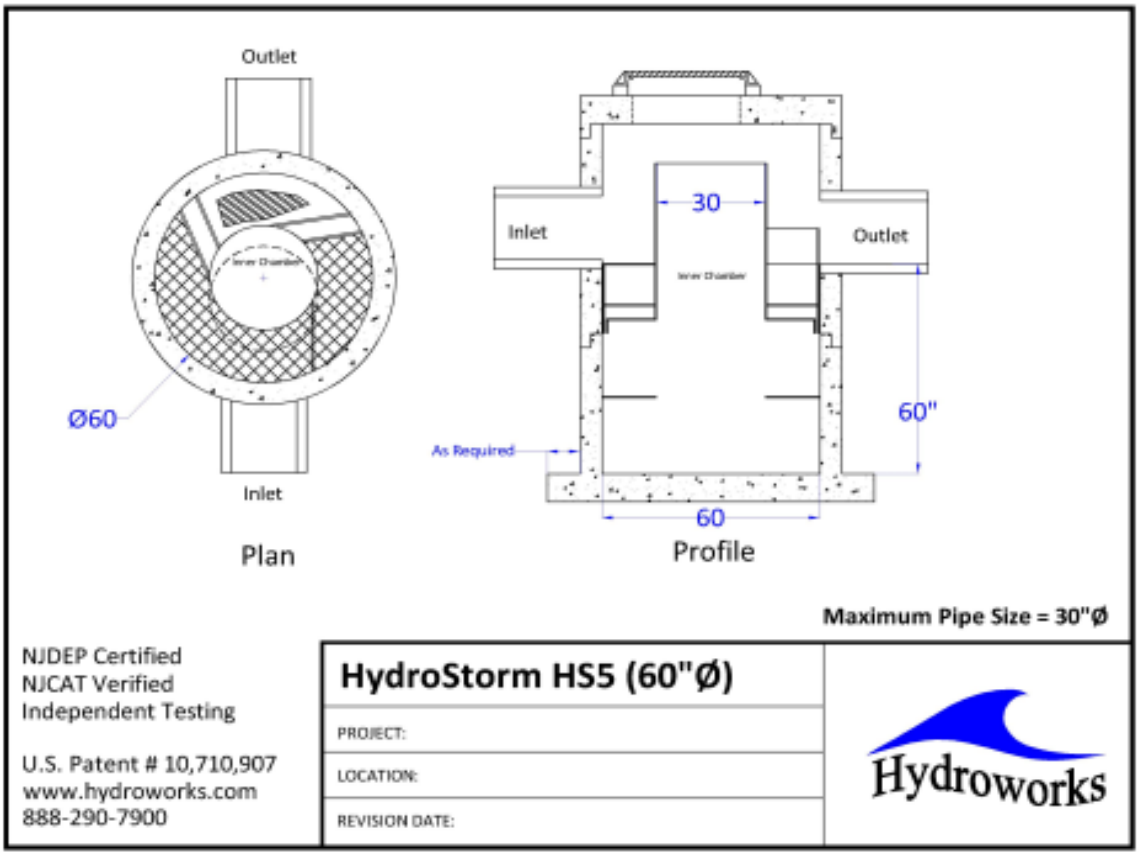


Dimensions and Capacities

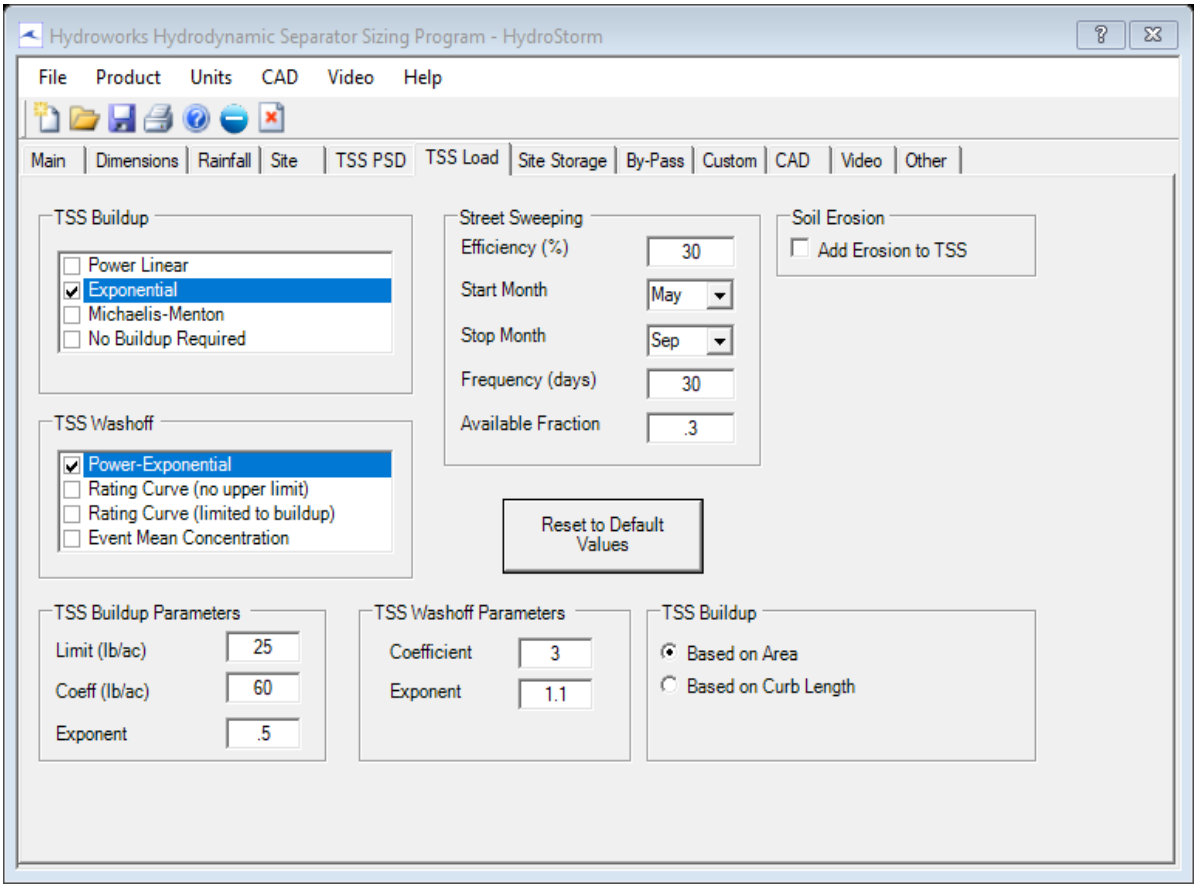
Model	Diam. (ft)	Depth (ft)	Float. Vol. (gal)	Sediment Vol. (ft3)	Total Vol. (gal)
HS 3	3	3.5	49	15	185
HS 4	4	4	101	30	376
HS 5	5	5	170	64	734
HS 6	6	6	275	113	1269
HS 7	7	6.5	416	164	1871
HS 8	8	7	622	222	2632
HS 10	10	9	1143	465	5288
HS 12	12	11	1893	839	9306

Depth = Depth from outlet invert to inside bottom of tank

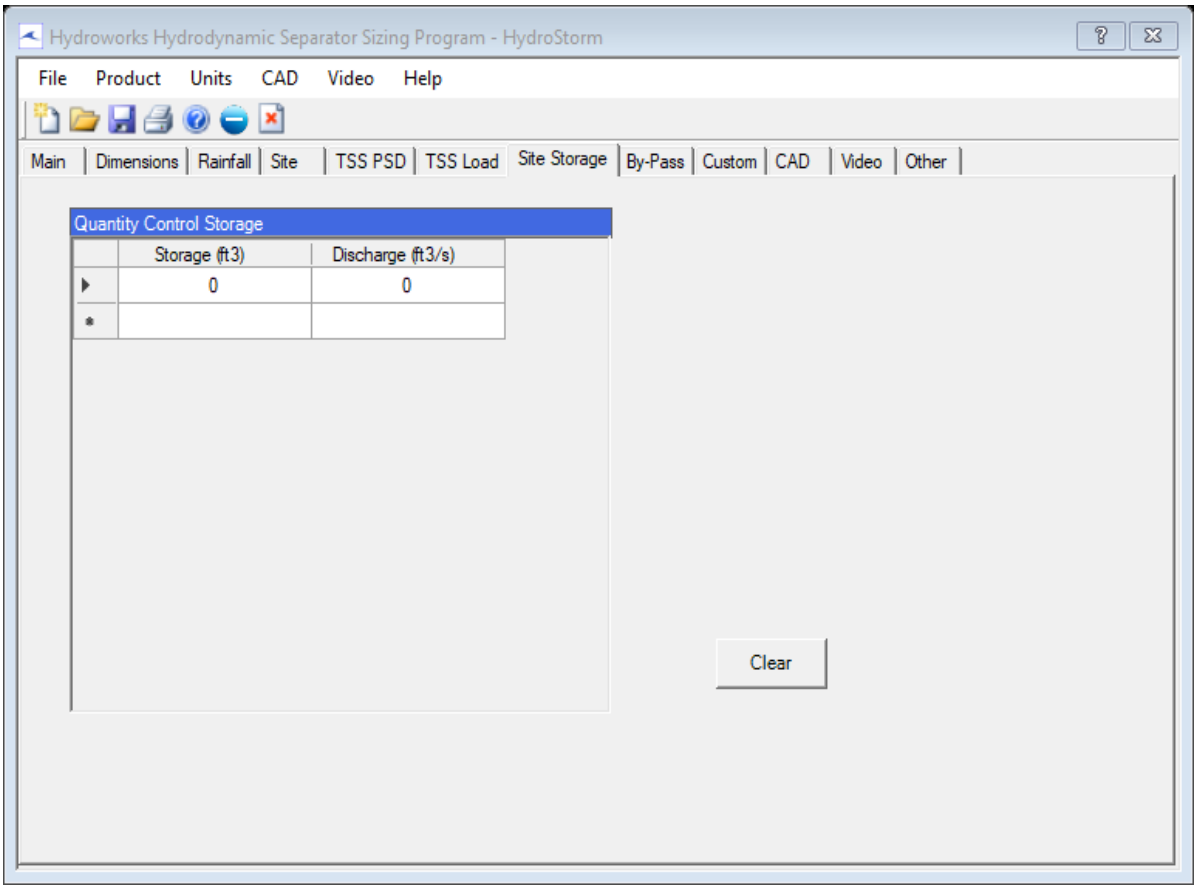
Generic HS 5 CAD Drawing



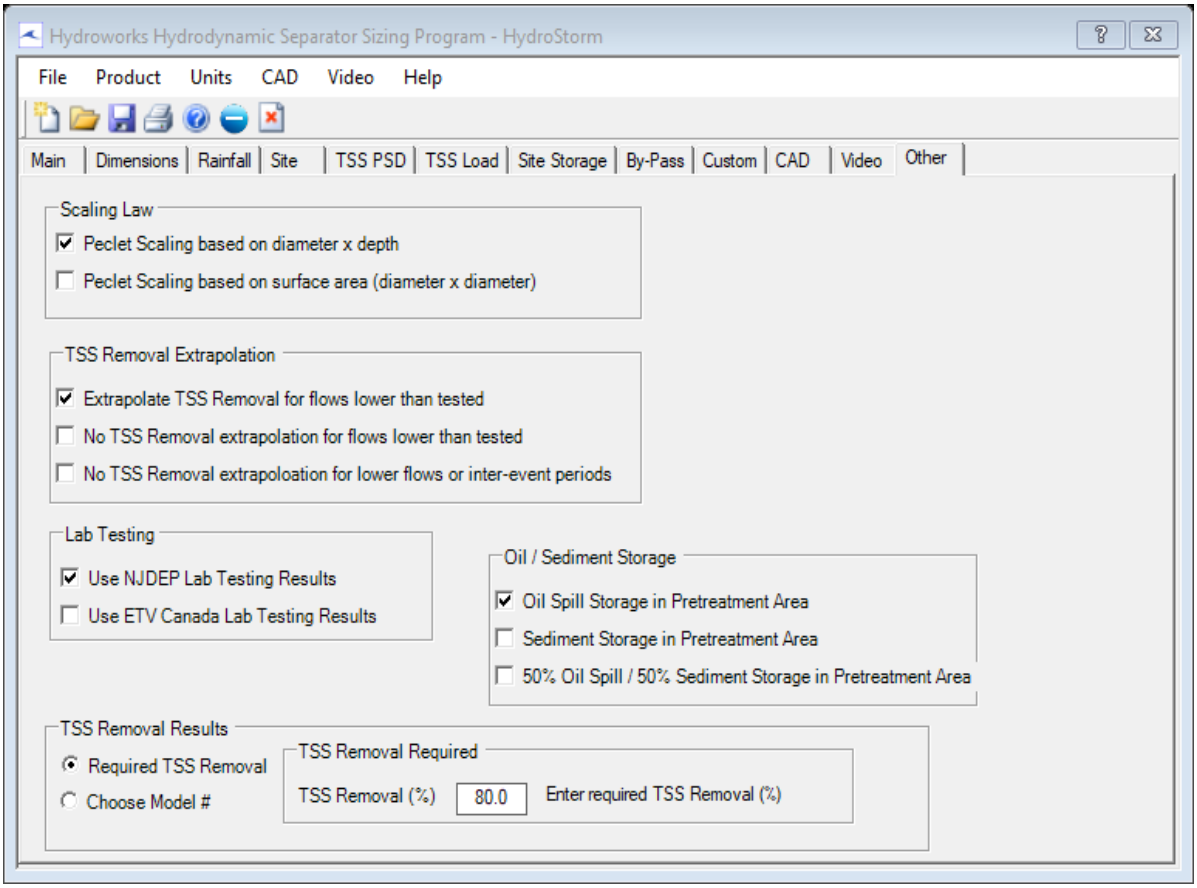
TSS Buildup And Washoff



Upstream Quantity Storage



Other Parameters



Flagged Issues

None

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Hydroworks Sizing Summary

EDGEWOOD HDS-9

03-17-2026

Recommended Size: HydroStorm HS 4i

Hydroworks Sizing Program Version 5.8.5

A HydroStorm HS 4i is recommended to provide 80 % annual TSS removal based on a drainage area of 1.10 (ac) with an imperviousness of 55. % and Hartford Wso Airport, Connecticut rainfall for the Hydroworks standard particle size distribution.

The recommended HydroStorm HS 4i treats 100 % of the annual runoff and provides 83 % annual TSS removal for the Hartford Wso Airport rainfall records and Hydroworks standard particle size distribution.

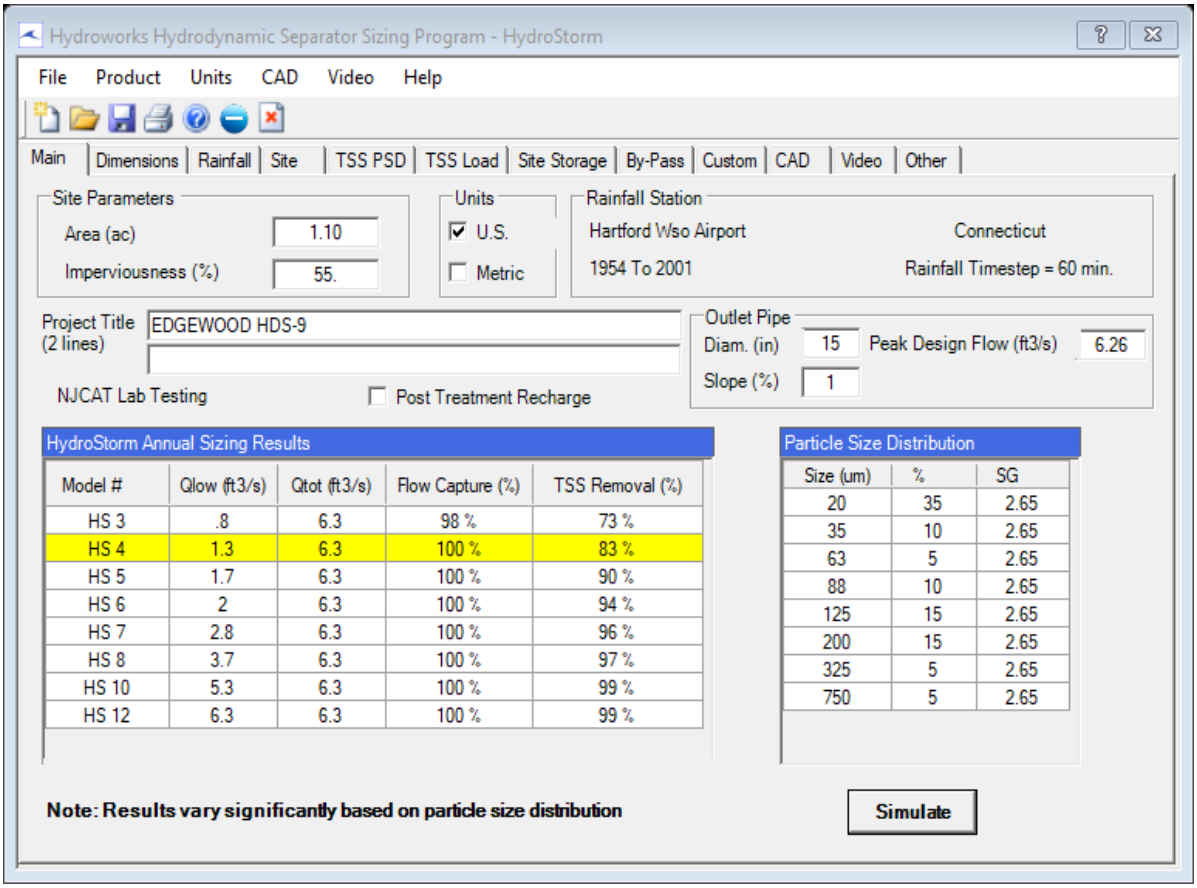
The HydroStorm has a headloss coefficient (K) of 1.04. The given peak flow of 6.26 (ft3/s) Is less than the full pipe flow of 6.46 (ft3/s) indicating free flow in the pipe during the peak flow assuming no tailwater condition. Partial pipe flow was assumed For the headloss calculations. The critical depth Is greater than the normal depth For the peak flow And 15 (in) pipe diameter And 1 % slope given. Critical depth was assumed For the headloss calculations. The headloss was calculated to be 7 (in) based on a flow depth of 12 (in) .

This summary report provides the main parameters that were used for sizing. These parameters are shown on the summary tables and graphs provided in this report.

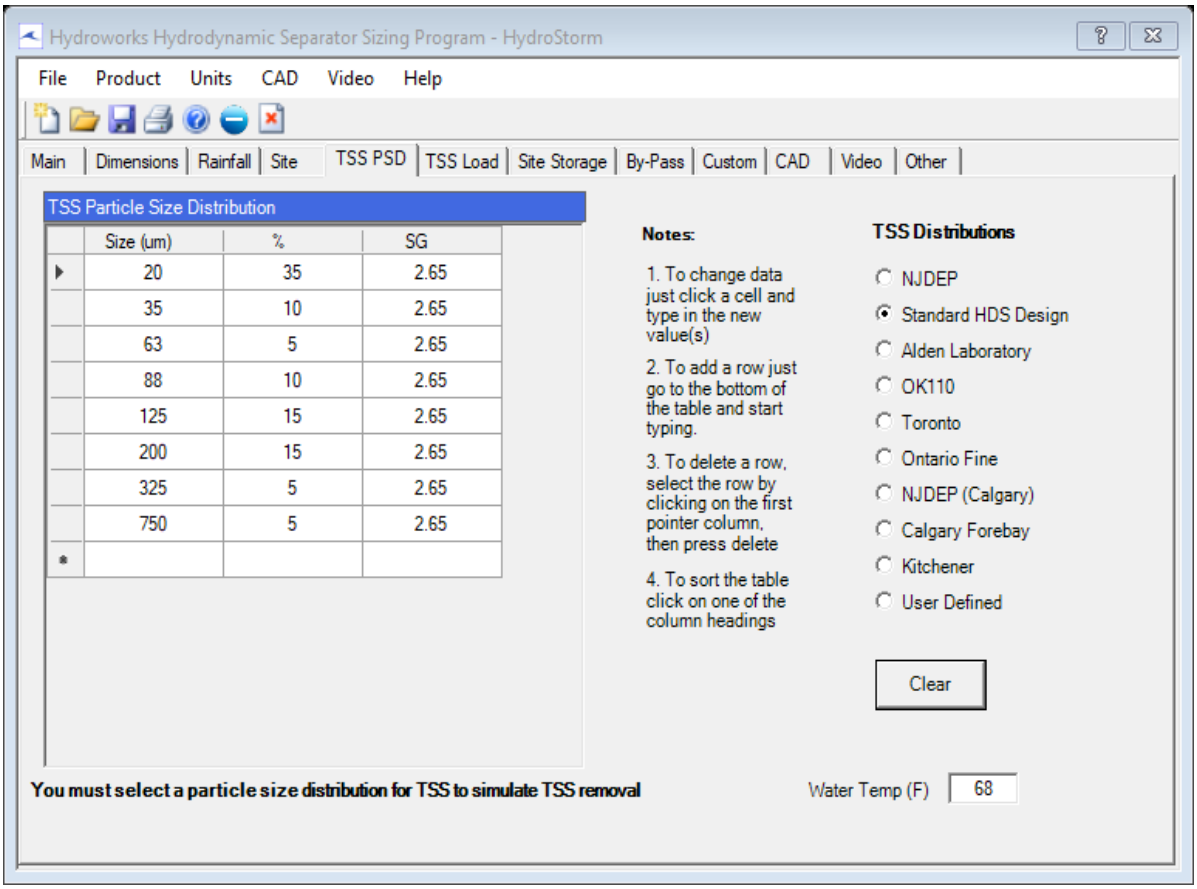
If you have any questions regarding this sizing summary please do not hesitate to contact Hydroworks at 888-290-7900 or email us at support@hydroworks.com.

The sizing program is for sizing purposes only and does not address any site specific parameters such as hydraulic gradeline, tailwater submergence, groundwater, soils bearing capacity, etc. Headloss calculations are not a hydraulic gradeline calculation since this requires a starting water level and an analysis of the entire system downstream of the HydroStorm .

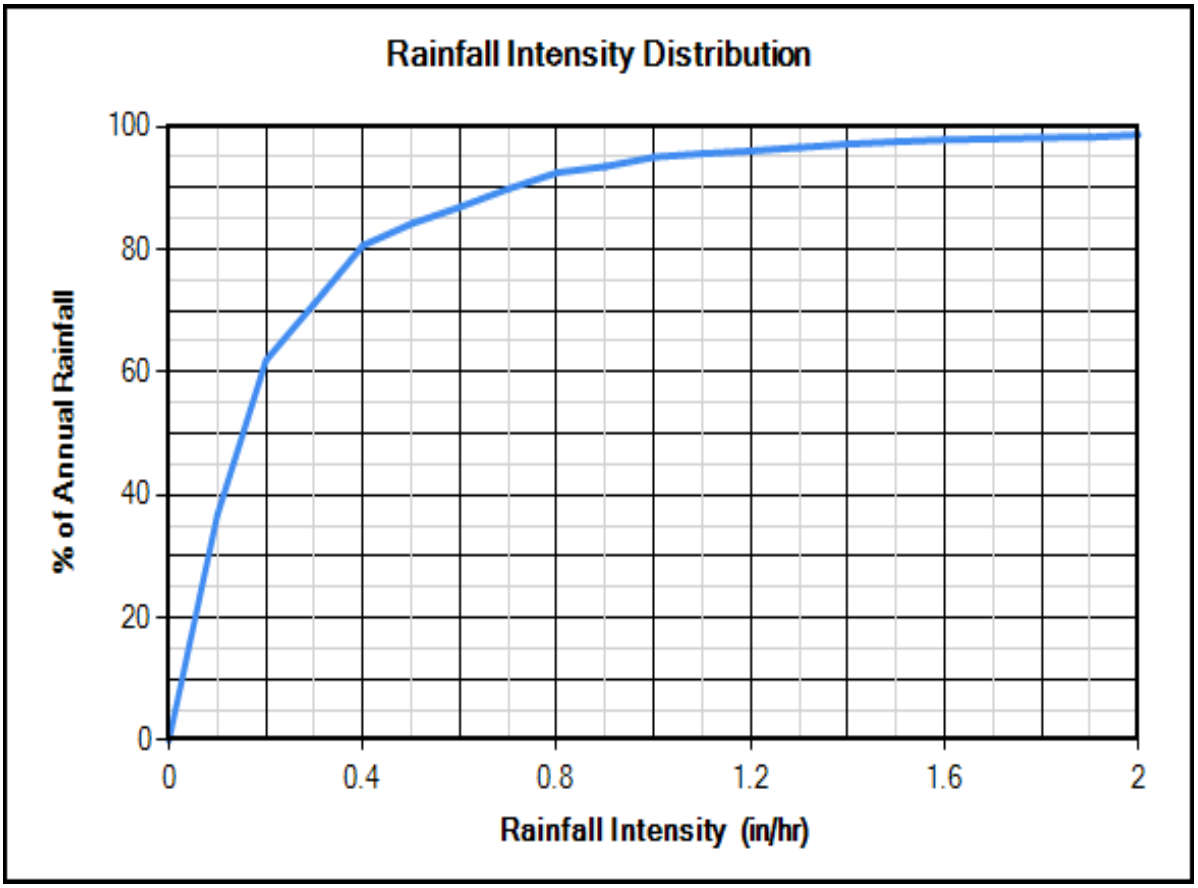
TSS Removal Sizing Summary



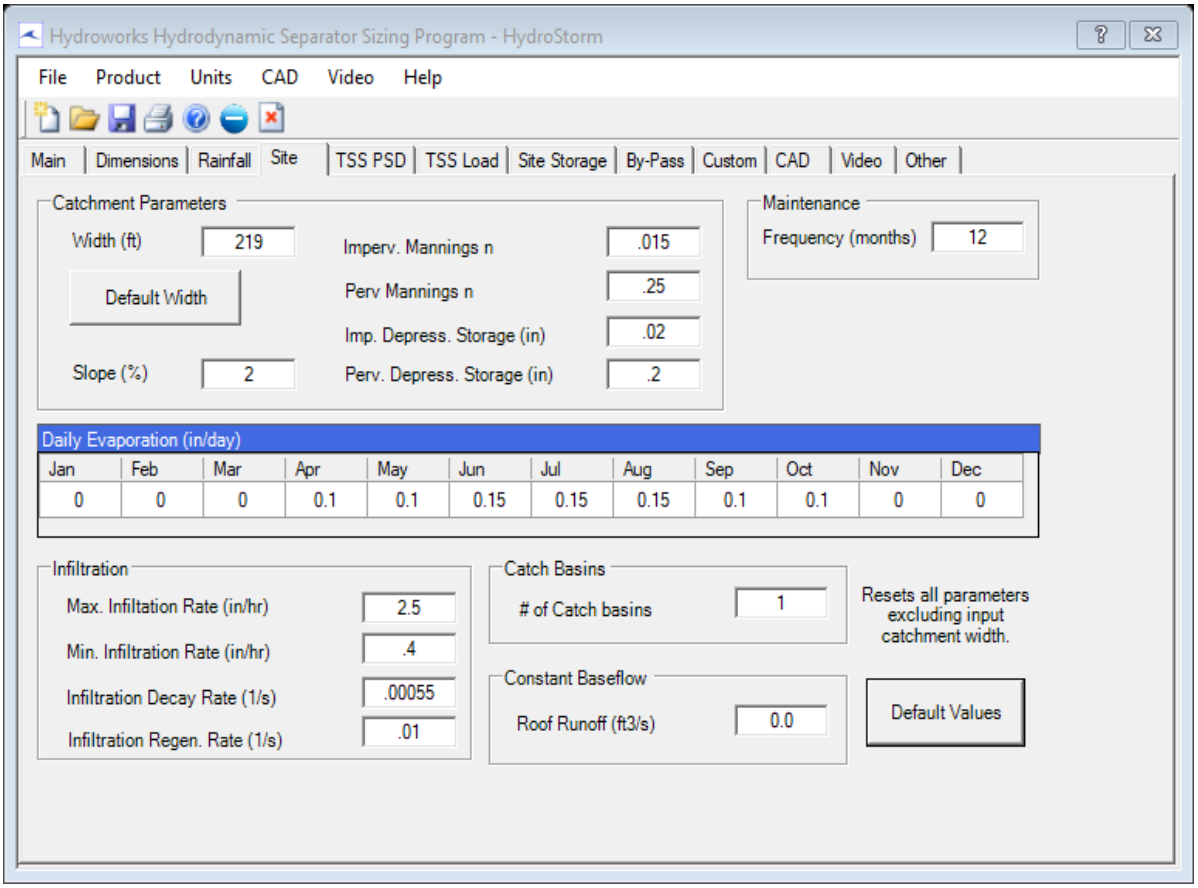
TSS Particle Size Distribution



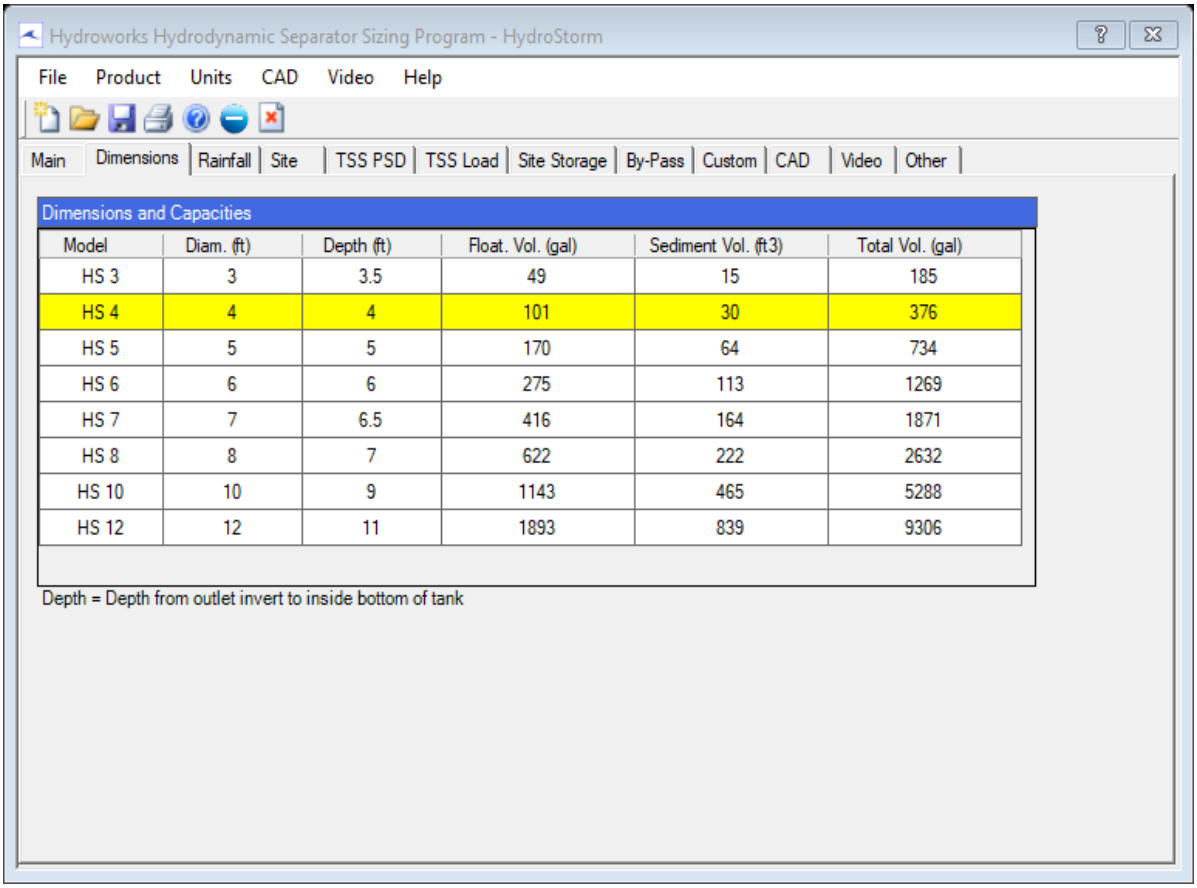
Rainfall Station - Hartford Wso Airport, Connecticut(1954 To 2001)



Site Physical Characteristics



Dimensions And Capacities

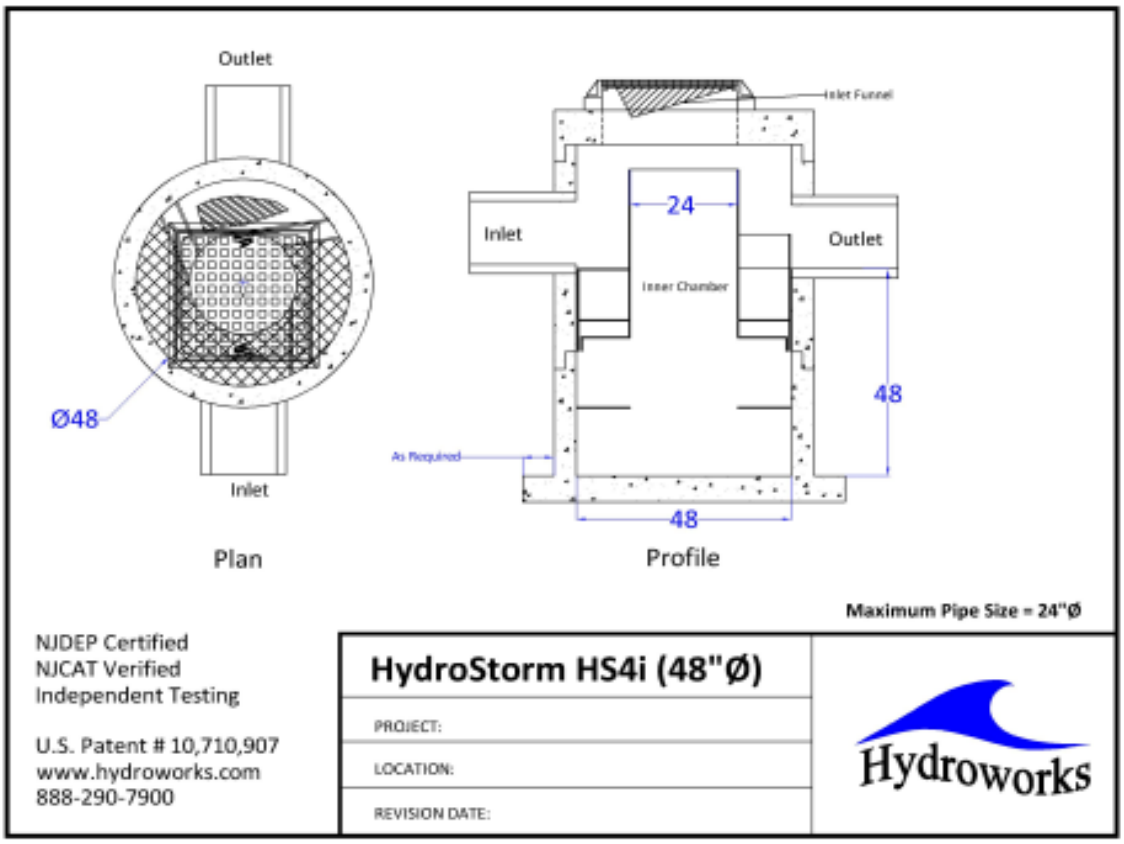


Dimensions and Capacities

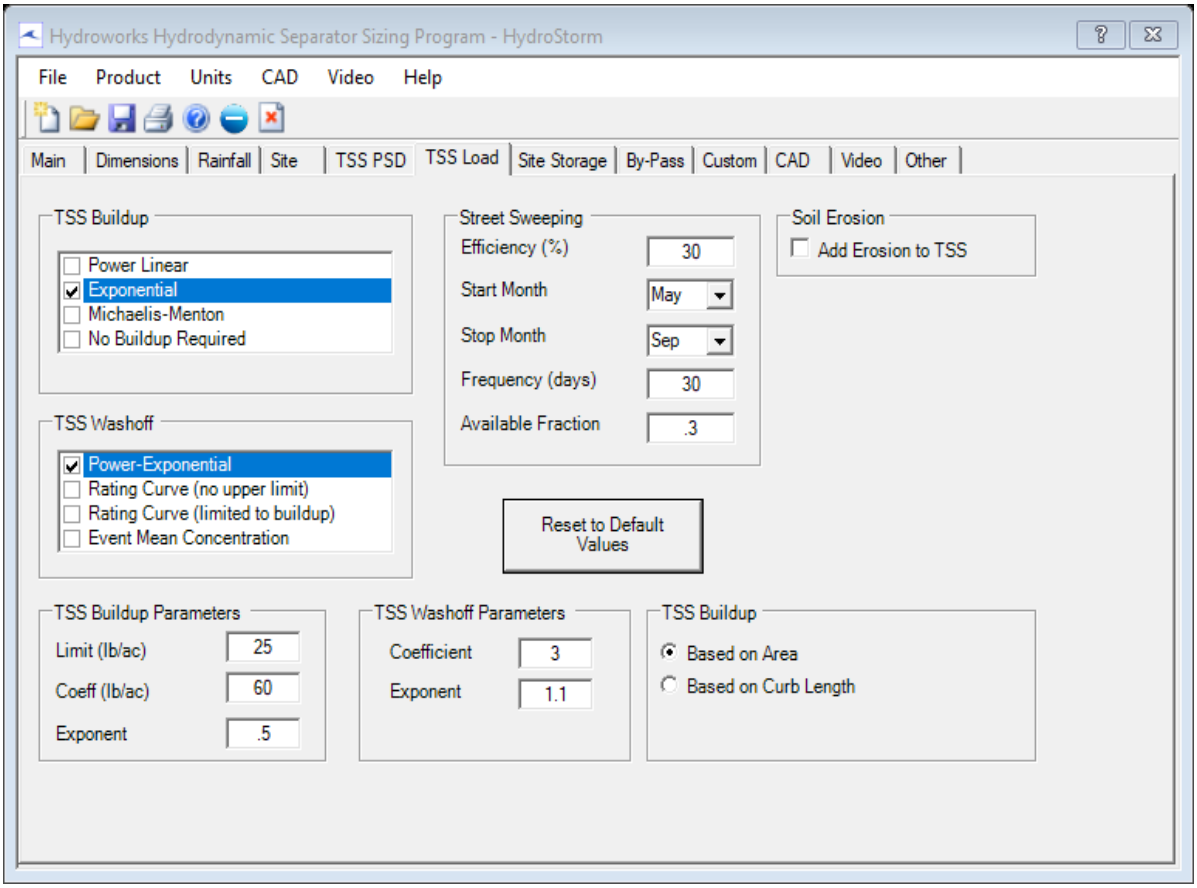
Model	Diam. (ft)	Depth (ft)	Float. Vol. (gal)	Sediment Vol. (ft3)	Total Vol. (gal)
HS 3	3	3.5	49	15	185
HS 4	4	4	101	30	376
HS 5	5	5	170	64	734
HS 6	6	6	275	113	1269
HS 7	7	6.5	416	164	1871
HS 8	8	7	622	222	2632
HS 10	10	9	1143	465	5288
HS 12	12	11	1893	839	9306

Depth = Depth from outlet invert to inside bottom of tank

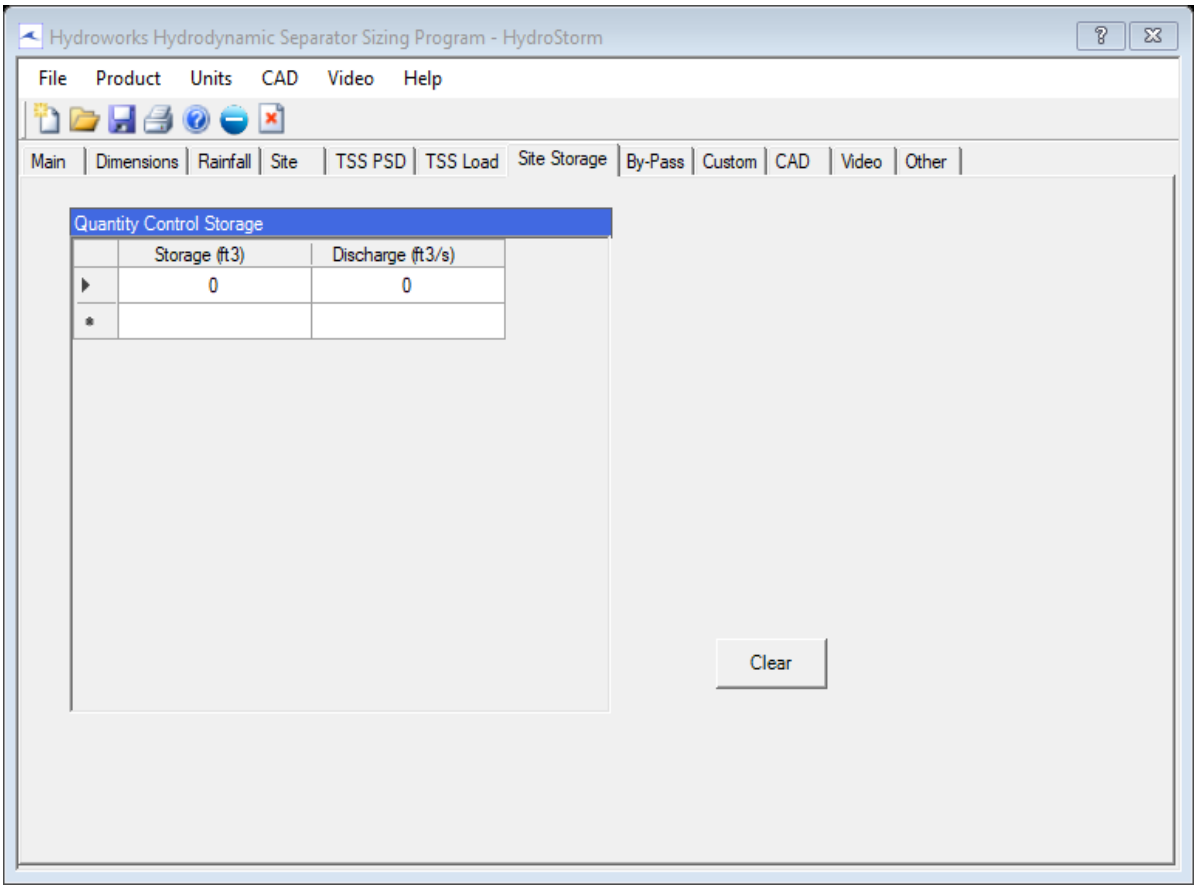
Generic HS 4i CAD Drawing



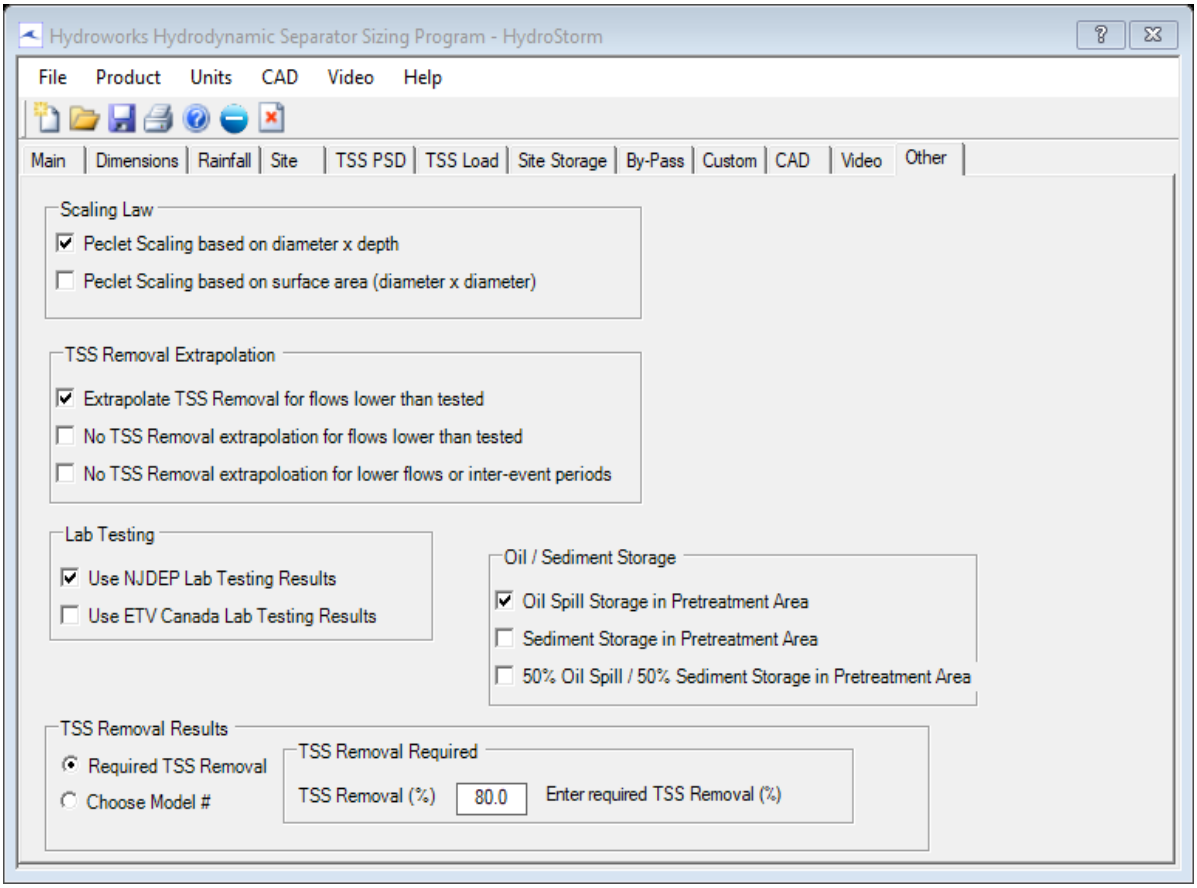
TSS Buildup And Washoff



Upstream Quantity Storage



Other Parameters



Flagged Issues

None

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APPENDIX E

NOAA Rainfall Data

NOAA Atlas 14, Volume 10, Version 3
Location name: Bristol, Connecticut, USA*
Latitude: 41.6921°, Longitude: -72.9205°
Elevation: 266 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	**0.356** (0.272-0.464)	**0.425** (0.325-0.555)	**0.538** (0.409-0.704)	**0.632** (0.479-0.832)	**0.762** (0.560-1.05)	**0.861** (0.620-1.21)	**0.962** (0.674-1.40)	**1.07** (0.718-1.60)	**1.22** (0.791-1.89)	**1.34** (0.851-2.12)
10-min	**0.504** (0.385-0.657)	**0.602** (0.460-0.786)	**0.763** (0.581-0.999)	**0.896** (0.679-1.18)	**1.08** (0.793-1.48)	**1.22** (0.879-1.71)	**1.36** (0.955-1.98)	**1.52** (1.02-2.26)	**1.73** (1.12-2.68)	**1.90** (1.20-3.00)
15-min	**0.593** (0.453-0.773)	**0.709** (0.541-0.925)	**0.898** (0.683-1.18)	**1.06** (0.798-1.39)	**1.27** (0.933-1.74)	**1.44** (1.04-2.01)	**1.60** (1.12-2.33)	**1.79** (1.20-2.67)	**2.04** (1.32-3.15)	**2.24** (1.42-3.54)
30-min	**0.806** (0.616-1.05)	**0.962** (0.735-1.26)	**1.22** (0.926-1.59)	**1.43** (1.08-1.88)	**1.72** (1.27-2.37)	**1.94** (1.40-2.73)	**2.17** (1.52-3.16)	**2.42** (1.62-3.61)	**2.77** (1.79-4.28)	**3.04** (1.92-4.80)
60-min	**1.02** (0.778-1.33)	**1.22** (0.928-1.59)	**1.54** (1.17-2.02)	**1.81** (1.37-2.38)	**2.18** (1.60-2.99)	**2.46** (1.77-3.44)	**2.74** (1.92-3.99)	**3.06** (2.05-4.56)	**3.50** (2.26-5.40)	**3.84** (2.43-6.06)
2-hr	**1.33** (1.02-1.72)	**1.58** (1.21-2.04)	**1.98** (1.51-2.58)	**2.31** (1.76-3.03)	**2.77** (2.05-3.79)	**3.12** (2.26-4.36)	**3.48** (2.46-5.05)	**3.88** (2.61-5.77)	**4.46** (2.89-6.86)	**4.92** (3.12-7.74)
3-hr	**1.54** (1.18-1.99)	**1.83** (1.40-2.36)	**2.29** (1.76-2.98)	**2.68** (2.05-3.50)	**3.22** (2.38-4.39)	**3.62** (2.63-5.05)	**4.04** (2.87-5.86)	**4.52** (3.04-6.70)	**5.22** (3.39-8.02)	**5.79** (3.68-9.08)
6-hr	**1.94** (1.50-2.50)	**2.33** (1.80-2.99)	**2.96** (2.28-3.82)	**3.48** (2.67-4.52)	**4.20** (3.13-5.72)	**4.74** (3.47-6.61)	**5.31** (3.80-7.72)	**5.99** (4.05-8.86)	**7.01** (4.57-10.7)	**7.87** (5.02-12.3)
12-hr	**2.38** (1.85-3.04)	**2.92** (2.26-3.72)	**3.78** (2.93-4.85)	**4.50** (3.47-5.81)	**5.49** (4.12-7.47)	**6.22** (4.59-8.68)	**7.02** (5.07-10.2)	**8.00** (5.42-11.8)	**9.51** (6.22-14.5)	**10.8** (6.92-16.8)
24-hr	**2.78** (2.17-3.53)	**3.48** (2.71-4.42)	**4.62** (3.59-5.89)	**5.56** (4.30-7.14)	**6.87** (5.19-9.32)	**7.82** (5.82-10.9)	**8.87** (6.48-13.0)	**10.2** (6.95-15.0)	**12.4** (8.12-18.9)	**14.3** (9.18-22.2)
2-day	**3.11** (2.44-3.92)	**3.97** (3.11-5.01)	**5.37** (4.20-6.80)	**6.54** (5.08-8.33)	**8.14** (6.19-11.0)	**9.30** (6.98-13.0)	**10.6** (7.85-15.6)	**12.4** (8.42-18.1)	**15.3** (10.0-23.2)	**17.9** (11.5-27.7)
3-day	**3.38** (2.66-4.24)	**4.32** (3.40-5.44)	**5.87** (4.60-7.41)	**7.15** (5.57-9.09)	**8.92** (6.81-12.1)	**10.2** (7.68-14.2)	**11.6** (8.65-17.1)	**13.6** (9.28-19.9)	**16.9** (11.1-25.6)	**19.9** (12.8-30.6)
4-day	**3.63** (2.86-4.54)	**4.64** (3.65-5.82)	**6.28** (4.93-7.92)	**7.65** (5.98-9.70)	**9.54** (7.30-12.9)	**10.9** (8.22-15.2)	**12.4** (9.26-18.3)	**14.5** (9.93-21.2)	**18.0** (11.9-27.3)	**21.2** (13.7-32.7)
7-day	**4.33** (3.42-5.40)	**5.46** (4.32-6.82)	**7.31** (5.76-9.16)	**8.84** (6.93-11.2)	**10.9** (8.40-14.7)	**12.5** (9.43-17.2)	**14.2** (10.6-20.7)	**16.5** (11.3-24.0)	**20.3** (13.4-30.6)	**23.7** (15.3-36.4)
10-day	**5.04** (4.00-6.26)	**6.23** (4.94-7.75)	**8.17** (6.46-10.2)	**9.78** (7.69-12.3)	**12.0** (9.21-16.0)	**13.6** (10.3-18.7)	**15.4** (11.5-22.3)	**17.8** (12.2-25.8)	**21.7** (14.3-32.5)	**25.1** (16.3-38.4)
20-day	**7.28** (5.81-9.00)	**8.52** (6.79-10.5)	**10.5** (8.37-13.1)	**12.2** (9.65-15.3)	**14.5** (11.2-19.2)	**16.2** (12.3-22.0)	**18.1** (13.3-25.7)	**20.4** (14.1-29.3)	**24.0** (16.0-35.9)	**27.2** (17.7-41.5)
30-day	**9.15** (7.32-11.3)	**10.4** (8.31-12.8)	**12.5** (9.92-15.4)	**14.2** (11.2-17.6)	**16.5** (12.7-21.6)	**18.2** (13.7-24.4)	**20.1** (14.7-28.1)	**22.3** (15.4-31.9)	**25.5** (17.0-38.0)	**28.3** (18.4-43.1)
45-day	**11.5** (9.19-14.1)	**12.7** (10.2-15.6)	**14.8** (11.8-18.3)	**16.6** (13.2-20.6)	**19.0** (14.6-24.6)	**20.8** (15.6-27.6)	**22.7** (16.5-31.2)	**24.7** (17.2-35.2)	**27.5** (18.4-40.7)	**29.7** (19.4-45.1)
60-day	**13.3** (10.7-16.3)	**14.7** (11.8-18.0)	**16.8** (13.5-20.7)	**18.6** (14.8-23.1)	**21.1** (16.2-27.2)	**23.0** (17.3-30.3)	**24.9** (18.1-34.0)	**26.8** (18.7-38.1)	**29.2** (19.6-43.1)	**30.9** (20.2-46.9)

[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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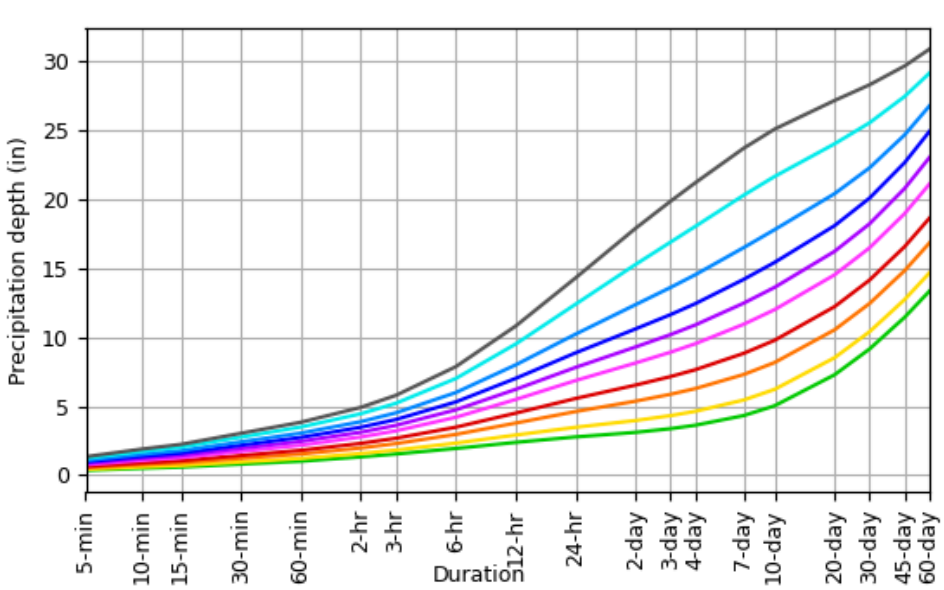
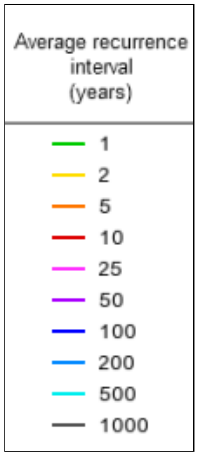
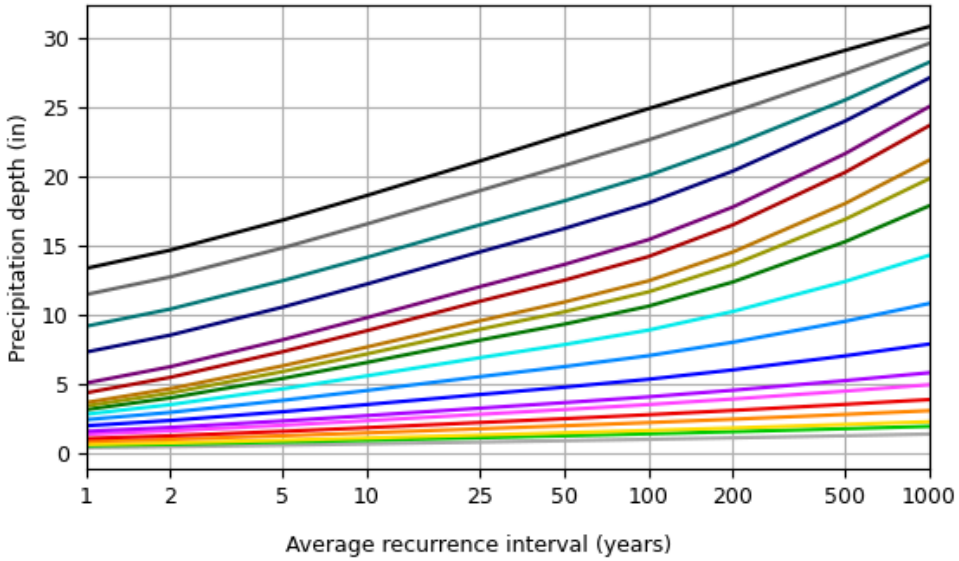
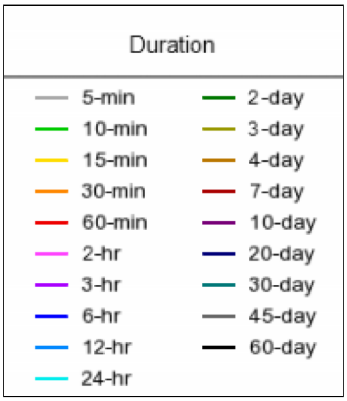
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 41.6921°, Longitude: -72.9205°









NOAA Atlas 14, Volume 10, Version 3

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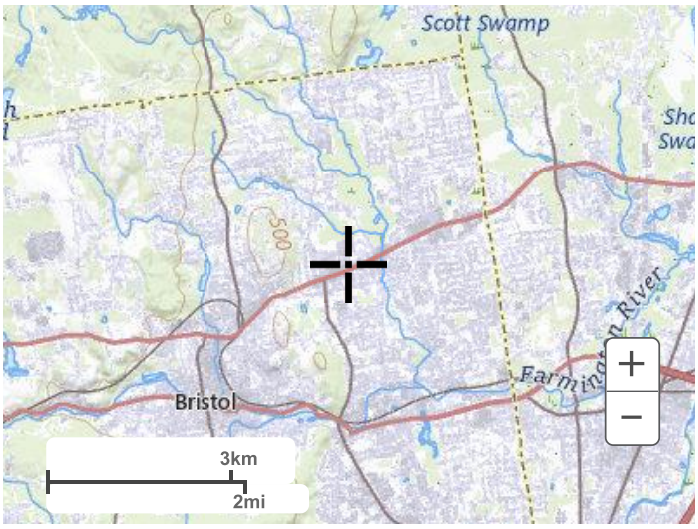
Maps & aerials

Small scale terrain



Large scale terrain

Large scale map

Large scale aerial

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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: Bristol, Connecticut, USA*
Latitude: 41.6921°, Longitude: -72.9205°
Elevation: 266 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	**4.27** (3.26-5.57)	**5.10** (3.90-6.66)	**6.46** (4.91-8.45)	**7.58** (5.75-9.98)	**9.14** (6.72-12.6)	**10.3** (7.44-14.5)	**11.5** (8.09-16.8)	**12.9** (8.62-19.2)	**14.7** (9.49-22.7)	**16.1** (10.2-25.5)
10-min	**3.02** (2.31-3.94)	**3.61** (2.76-4.72)	**4.58** (3.49-5.99)	**5.38** (4.07-7.08)	**6.48** (4.76-8.90)	**7.31** (5.27-10.2)	**8.18** (5.73-11.9)	**9.11** (6.11-13.6)	**10.4** (6.73-16.1)	**11.4** (7.23-18.0)
15-min	**2.37** (1.81-3.09)	**2.84** (2.16-3.70)	**3.59** (2.73-4.70)	**4.22** (3.19-5.56)	**5.08** (3.73-6.98)	**5.74** (4.14-8.04)	**6.42** (4.50-9.31)	**7.14** (4.79-10.7)	**8.16** (5.28-12.6)	**8.96** (5.67-14.1)
30-min	**1.61** (1.23-2.10)	**1.92** (1.47-2.51)	**2.44** (1.85-3.19)	**2.86** (2.17-3.77)	**3.45** (2.53-4.73)	**3.89** (2.80-5.45)	**4.35** (3.05-6.31)	**4.84** (3.25-7.23)	**5.53** (3.58-8.55)	**6.08** (3.85-9.60)
60-min	**1.02** (0.778-1.33)	**1.22** (0.928-1.59)	**1.54** (1.17-2.02)	**1.81** (1.37-2.38)	**2.18** (1.60-2.99)	**2.46** (1.77-3.44)	**2.74** (1.92-3.99)	**3.06** (2.05-4.56)	**3.50** (2.26-5.40)	**3.84** (2.43-6.06)
2-hr	**0.665** (0.510-0.861)	**0.788** (0.604-1.02)	**0.989** (0.756-1.29)	**1.16** (0.879-1.51)	**1.39** (1.02-1.90)	**1.56** (1.13-2.18)	**1.74** (1.23-2.52)	**1.94** (1.30-2.89)	**2.23** (1.44-3.43)	**2.46** (1.56-3.87)
3-hr	**0.512** (0.394-0.662)	**0.608** (0.467-0.785)	**0.763** (0.585-0.991)	**0.893** (0.681-1.16)	**1.07** (0.793-1.46)	**1.20** (0.876-1.68)	**1.34** (0.954-1.95)	**1.50** (1.01-2.23)	**1.74** (1.13-2.67)	**1.93** (1.23-3.02)
6-hr	**0.324** (0.251-0.416)	**0.388** (0.300-0.499)	**0.494** (0.380-0.637)	**0.581** (0.445-0.754)	**0.701** (0.523-0.955)	**0.791** (0.579-1.10)	**0.887** (0.635-1.29)	**1.00** (0.676-1.48)	**1.17** (0.763-1.79)	**1.31** (0.838-2.05)
12-hr	**0.197** (0.153-0.252)	**0.241** (0.187-0.309)	**0.313** (0.243-0.402)	**0.373** (0.287-0.482)	**0.456** (0.342-0.619)	**0.516** (0.381-0.720)	**0.582** (0.421-0.849)	**0.664** (0.449-0.977)	**0.789** (0.515-1.20)	**0.897** (0.574-1.40)
24-hr	**0.115** (0.090-0.146)	**0.144** (0.113-0.184)	**0.192** (0.149-0.245)	**0.231** (0.179-0.297)	**0.286** (0.216-0.388)	**0.325** (0.242-0.454)	**0.369** (0.270-0.541)	**0.426** (0.289-0.625)	**0.516** (0.338-0.786)	**0.596** (0.382-0.925)
2-day	**0.064** (0.050-0.081)	**0.082** (0.064-0.104)	**0.111** (0.087-0.141)	**0.136** (0.105-0.173)	**0.169** (0.128-0.229)	**0.193** (0.145-0.270)	**0.220** (0.163-0.325)	**0.257** (0.175-0.376)	**0.318** (0.209-0.482)	**0.372** (0.239-0.576)
3-day	**0.046** (0.036-0.058)	**0.060** (0.047-0.075)	**0.081** (0.063-0.102)	**0.099** (0.077-0.126)	**0.123** (0.094-0.167)	**0.141** (0.106-0.197)	**0.161** (0.120-0.238)	**0.189** (0.128-0.275)	**0.234** (0.154-0.355)	**0.275** (0.177-0.425)
4-day	**0.037** (0.029-0.047)	**0.048** (0.038-0.060)	**0.065** (0.051-0.082)	**0.079** (0.062-0.101)	**0.099** (0.075-0.134)	**0.113** (0.085-0.157)	**0.129** (0.096-0.190)	**0.151** (0.103-0.220)	**0.187** (0.123-0.284)	**0.220** (0.142-0.340)
7-day	**0.025** (0.020-0.032)	**0.032** (0.025-0.040)	**0.043** (0.034-0.054)	**0.052** (0.041-0.066)	**0.065** (0.049-0.087)	**0.074** (0.056-0.102)	**0.084** (0.062-0.123)	**0.098** (0.067-0.142)	**0.120** (0.079-0.181)	**0.141** (0.091-0.216)
10-day	**0.020** (0.016-0.026)	**0.025** (0.020-0.032)	**0.034** (0.026-0.042)	**0.040** (0.032-0.051)	**0.050** (0.038-0.066)	**0.056** (0.042-0.077)	**0.064** (0.047-0.092)	**0.074** (0.050-0.107)	**0.090** (0.059-0.135)	**0.104** (0.067-0.160)
20-day	**0.015** (0.012-0.018)	**0.017** (0.014-0.021)	**0.021** (0.017-0.027)	**0.025** (0.020-0.031)	**0.030** (0.023-0.039)	**0.033** (0.025-0.045)	**0.037** (0.027-0.053)	**0.042** (0.029-0.061)	**0.050** (0.033-0.074)	**0.056** (0.036-0.086)
30-day	**0.012** (0.010-0.015)	**0.014** (0.011-0.017)	**0.017** (0.013-0.021)	**0.019** (0.015-0.024)	**0.022** (0.017-0.029)	**0.025** (0.019-0.033)	**0.027** (0.020-0.039)	**0.030** (0.021-0.044)	**0.035** (0.023-0.052)	**0.039** (0.025-0.059)
45-day	**0.010** (0.008-0.013)	**0.011** (0.009-0.014)	**0.013** (0.010-0.016)	**0.015** (0.012-0.019)	**0.017** (0.013-0.022)	**0.019** (0.014-0.025)	**0.020** (0.015-0.028)	**0.022** (0.015-0.032)	**0.025** (0.017-0.037)	**0.027** (0.017-0.041)
60-day	**0.009** (0.007-0.011)	**0.010** (0.008-0.012)	**0.011** (0.009-0.014)	**0.012** (0.010-0.016)	**0.014** (0.011-0.018)	**0.015** (0.012-0.021)	**0.017** (0.012-0.023)	**0.018** (0.012-0.026)	**0.020** (0.013-0.029)	**0.021** (0.014-0.032)

[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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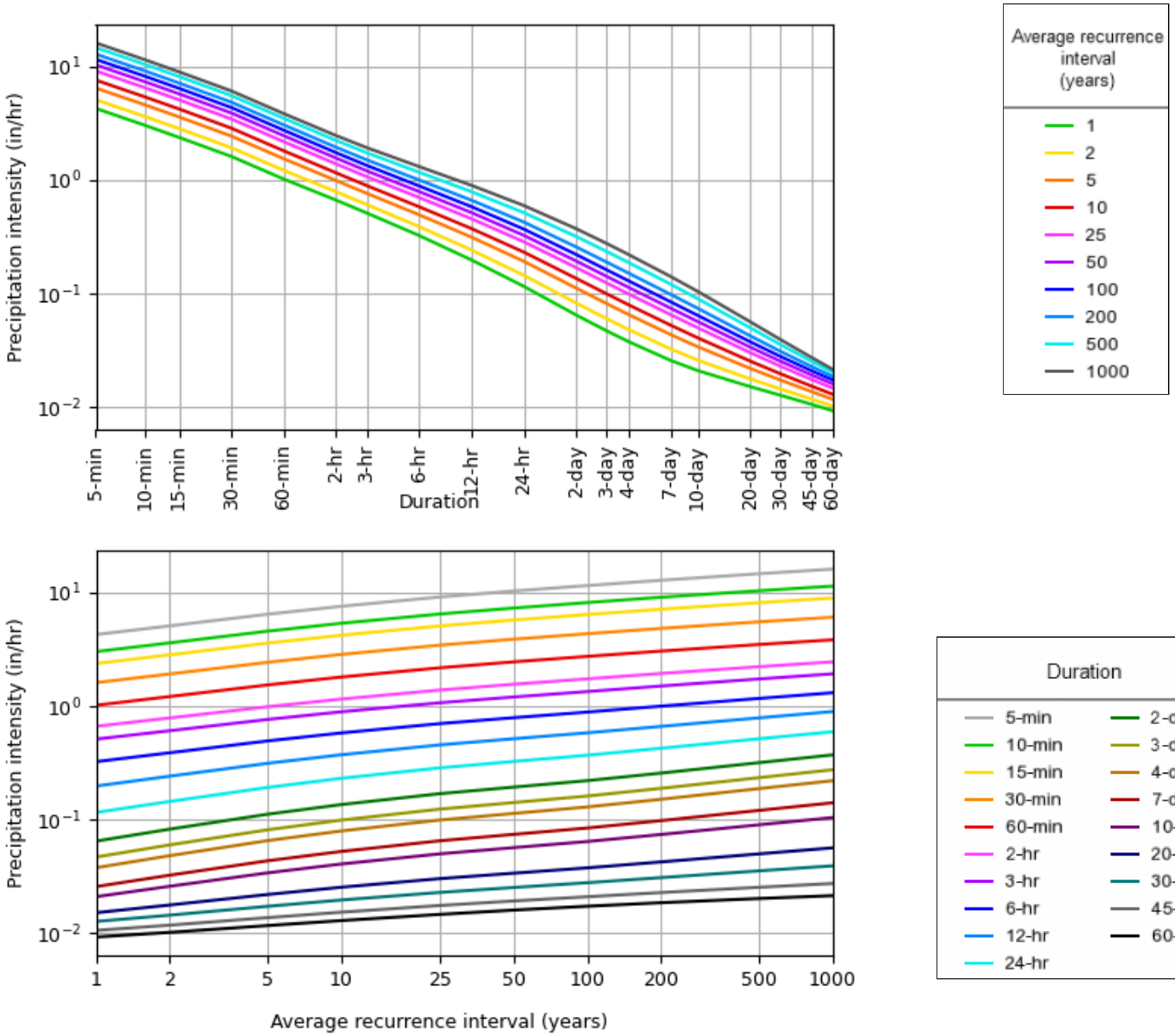
PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 41.6921°, Longitude: -72.9205°



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Created (GMT): Mon Mar 16 13:46:06 2026

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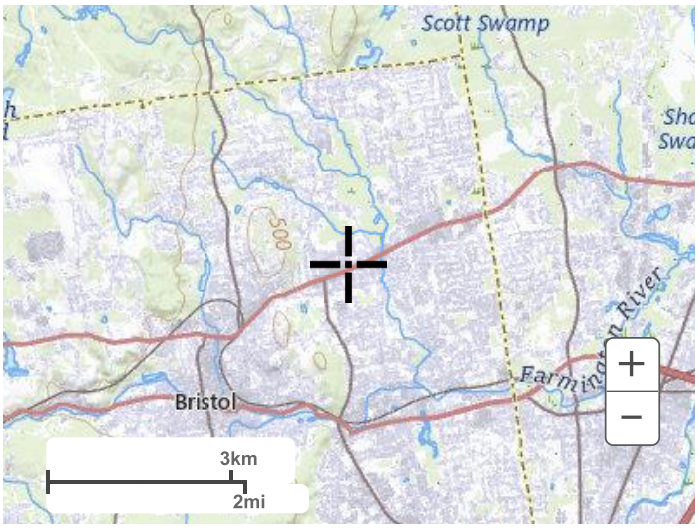
Maps & aerials

Small scale terrain



Large scale terrain

Large scale map

Large scale aerial

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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

APPENDIX F

NRCS Soil Survey

benesch

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for State of Connecticut, Western Part

March 13, 2026

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

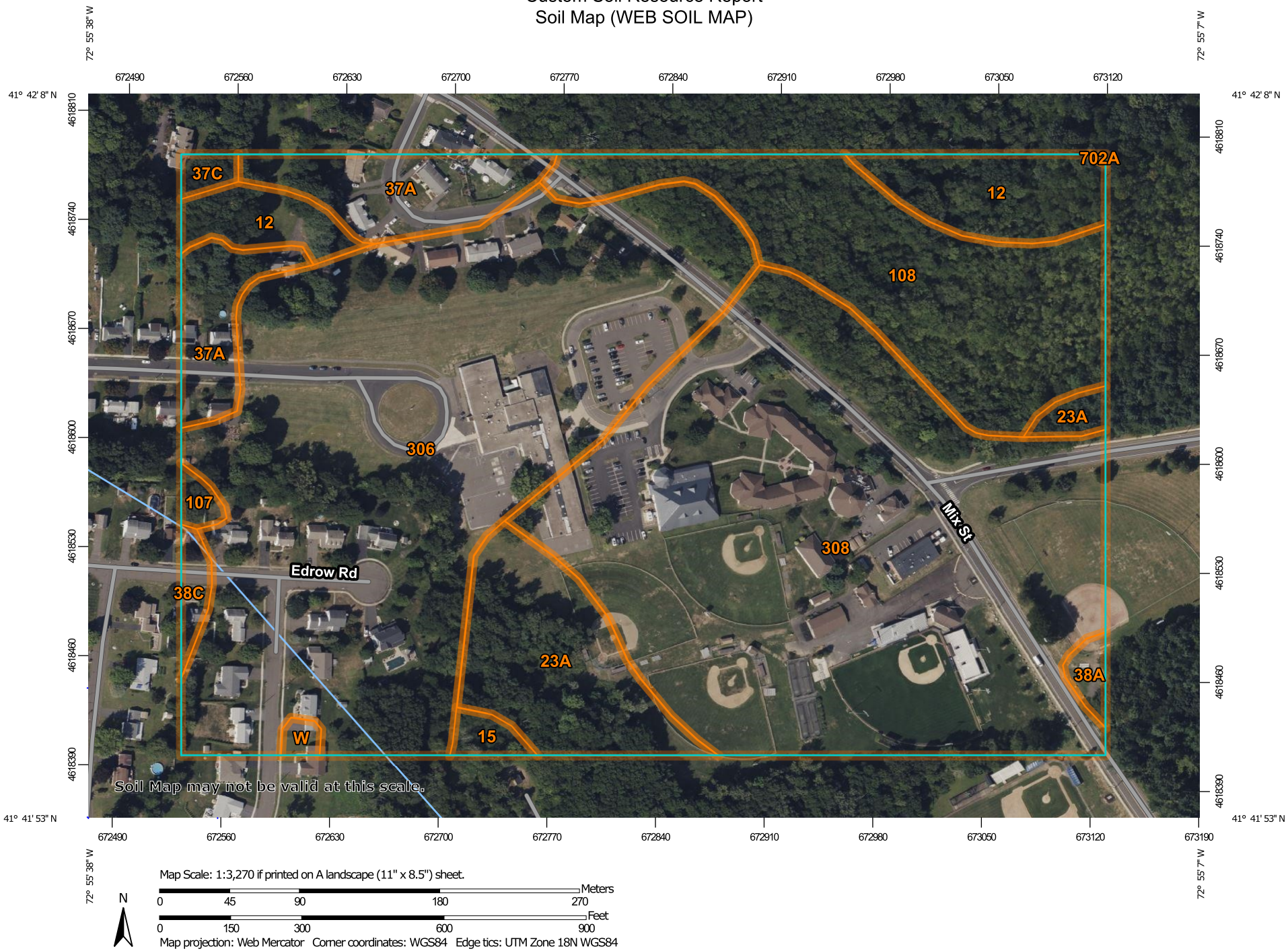
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map (WEB SOIL MAP)



Map Scale: 1:3,270 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 45 90 180 270

Feet: 0 150 300 600 900

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, Western Part
Survey Area Data: Version 6, Sep 16, 2025

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

Date(s) aerial images were photographed: Jun 14, 2022—Oct 6, 2022

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

Map Unit Legend (WEB SOIL MAP)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
12	Raypol silt loam, 0 to 3 percent slopes	2.7	4.8%
15	Scarboro muck, 0 to 3 percent slopes	0.3	0.5%
23A	Sudbury sandy loam, 0 to 5 percent slopes	3.6	6.3%
37A	Manchester gravelly sandy loam, 0 to 3 percent slopes	3.2	5.6%
37C	Manchester gravelly sandy loam, 3 to 15 percent slopes	0.2	0.4%
38A	Hinckley loamy sand, 0 to 3 percent slopes	0.3	0.5%
38C	Hinckley loamy sand, 3 to 15 percent slopes	0.3	0.6%
107	Limerick and Lim soils, 0 to 3 percent slopes, frequently flooded	0.2	0.3%
108	Saco silt loam, frequently ponded, 0 to 2 percent slopes, frequently flooded	6.6	11.6%
306	Udorthents-Urban land complex	19.5	34.3%
308	Udorthents, smoothed	19.9	34.9%
702A	Tisbury silt loam, 0 to 3 percent slopes	0.0	0.0%
W	Water	0.1	0.2%
Totals for Area of Interest		**57.0**	**100.0%**

Map Unit Descriptions (WEB SOIL MAP)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made

up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

State of Connecticut, Western Part

12—Raypol silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9ljx
Landscape: Valleys
Elevation: 0 to 1,350 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Raypol and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Raypol

Setting

Landscape: Valleys
Landform: Drainageways
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from granite and/or schist and/or gneiss

Typical profile

Ap - 0 to 8 inches: silt loam
Bg1 - 8 to 12 inches: very fine sandy loam
Bg2 - 12 to 20 inches: silt loam
Bw1 - 20 to 26 inches: silt loam
Bw2 - 26 to 29 inches: very fine sandy loam
2C1 - 29 to 52 inches: stratified very gravelly coarse sand to loamy fine sand
2C2 - 52 to 65 inches: stratified very gravelly coarse sand to loamy fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 28 to 32 inches to abrupt textural change
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: About 0 to 4 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Ecological site: F144AY028MA - Wet Outwash

Hydric soil rating: Yes

Minor Components

Enfield

Percent of map unit: 5 percent
Landscape: Valleys
Landform: Outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F145XY009CT - Well Drained Outwash
Hydric soil rating: No

Scarboro

Percent of map unit: 5 percent
Landscape: Outwash plains
Landform: Depressions
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: F144AY031MA - Very Wet Outwash
Hydric soil rating: Yes

Tisbury

Percent of map unit: 5 percent
Landscape: Valleys
Landform: Outwash terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: F144AY026CT - Moist Silty Outwash
Hydric soil rating: No

Raynham

Percent of map unit: 5 percent
Landscape: Lake plains
Landform: Depressions
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: F145XY004CT - Wet Lake Plain
Hydric soil rating: Yes

15—Scarboro muck, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2svkt
Landscape: Valleys, outwash plains
Elevation: 0 to 1,350 feet
Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Scarboro and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scarboro

Setting

Landscape: Valleys, outwash plains
Landform: Drainageways, Depressions, Outwash deltas, Outwash terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread, dip
Down-slope shape: Concave
Across-slope shape: Linear, concave
Parent material: Sandy glaciofluvial deposits derived from schist and/or gneiss and/or granite

Typical profile

Oa - 0 to 8 inches: muck
A - 8 to 14 inches: mucky fine sandy loam
Cg1 - 14 to 22 inches: sand
Cg2 - 22 to 65 inches: gravelly sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: About 0 to 2 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D
Ecological site: F144AY031MA - Very Wet Outwash
Hydric soil rating: Yes

Minor Components

Timakwa

Percent of map unit: 10 percent
Landscape: Outwash plains
Landform: Swamps
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear

Hydric soil rating: Yes

Walpole

Percent of map unit: 8 percent
Landscape: Outwash plains
Landform: Deltas, Depressions, Outwash plains, Depressions, Outwash terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Deerfield

Percent of map unit: 2 percent
Landscape: Valleys
Landform: Terraces, Outwash plains
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

23A—Sudbury sandy loam, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 9lkv
Landscape: Valleys
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Sudbury and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sudbury

Setting

Landscape: Valleys
Landform: Terraces, Outwash plains
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Sandy and gravelly glaciofluvial deposits derived from granite and/or schist and/or gneiss

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 5 inches: sandy loam
Bw1 - 5 to 17 inches: gravelly sandy loam

Bw2 - 17 to 25 inches: sandy loam
2C - 25 to 60 inches: stratified gravel to sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 17 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: A/D
Ecological site: F144AY027MA - Moist Sandy Outwash
Hydric soil rating: No

Minor Components

Merrimac

Percent of map unit: 5 percent
Landscape: Valleys
Landform: Terraces, Outwash plains, Kames
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Agawam

Percent of map unit: 5 percent
Landscape: Valleys
Landform: Terraces, Outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Ninigret

Percent of map unit: 5 percent
Landscape: Valleys
Landform: Terraces, Outwash plains
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Tisbury

Percent of map unit: 3 percent
Landscape: Valleys
Landform: Terraces, Outwash plains
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Walpole

Percent of map unit: 2 percent

Landscape: Outwash plains
Landform: Drainageways on terraces, Depressions on terraces
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

37A—Manchester gravelly sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9ln5
Landscape: Valleys
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Manchester and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Manchester

Setting

Landscape: Valleys
Landform: Terraces, Outwash plains, Kames, Eskers
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciofluvial deposits derived from sandstone and shale and/or basalt

Typical profile

Ap - 0 to 9 inches: gravelly sandy loam
Bw - 9 to 18 inches: gravelly loamy sand
C - 18 to 65 inches: stratified extremely gravelly coarse sand to very gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F145XY008MA - Dry Outwash
Hydric soil rating: No

Minor Components

Penwood

Percent of map unit: 5 percent
Landform: Terraces, Outwash plains
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Hartford

Percent of map unit: 5 percent
Landscape: Valleys
Landform: Terraces, Outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Branford

Percent of map unit: 3 percent
Landscape: Valleys
Landform: Terraces, Outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Ellington

Percent of map unit: 3 percent
Landscape: Valleys
Landform: Terraces, Outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Unnamed, nongravelly surface

Percent of map unit: 2 percent
Hydric soil rating: No

Unnamed, gravelly loamy sand surface

Percent of map unit: 2 percent
Hydric soil rating: No

37C—Manchester gravelly sandy loam, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9ln6
Landscape: Valleys
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Manchester and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Manchester

Setting

Landscape: Valleys
Landform: Terraces, Outwash plains, Kames, Eskers
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciofluvial deposits derived from sandstone and shale and/or basalt

Typical profile

Ap - 0 to 9 inches: gravelly sandy loam
Bw - 9 to 18 inches: gravelly loamy sand
C - 18 to 65 inches: stratified extremely gravelly coarse sand to very gravelly loamy sand

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F145XY008MA - Dry Outwash
Hydric soil rating: No

Minor Components

Penwood
Percent of map unit: 5 percent
Landform: Terraces, Outwash plains
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Hartford
Percent of map unit: 5 percent
Landscape: Valleys
Landform: Terraces, Outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Branford
Percent of map unit: 3 percent
Landscape: Valleys
Landform: Terraces, Outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Ellington
Percent of map unit: 3 percent
Landscape: Valleys
Landform: Terraces, Outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Unnamed, nongravelly surface
Percent of map unit: 2 percent
Hydric soil rating: No

Unnamed, gravelly loamy sand surface
Percent of map unit: 2 percent
Hydric soil rating: No

38A—Hinckley loamy sand, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 2svm7
Landscape: Valleys
Elevation: 0 to 1,420 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 250 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hinckley and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landscape: Valleys
Landform: Outwash terraces, Outwash plains, Kame terraces, Outwash deltas
Landform position (three-dimensional): Tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Windsor

Percent of map unit: 5 percent
Landscape: Valleys
Landform: Outwash deltas, Kame terraces, Outwash terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Merrimac

Percent of map unit: 5 percent
Landscape: Valleys
Landform: Outwash deltas, Outwash terraces, Kame terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Sudbury

Percent of map unit: 4 percent
Landscape: Valleys
Landform: Outwash deltas, Outwash terraces, Kame terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Walpole

Percent of map unit: 1 percent
Landscape: Outwash plains
Landform: Deltas, Depressions, Outwash terraces, Depressions, Outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

38C—Hinckley loamy sand, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2svmb
Landscape: Uplands, valleys
Elevation: 0 to 1,290 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hinckley and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landscape: Uplands, valleys
Landform: Outwash deltas, Outwash terraces, Moraines, Eskers, Kames, Outwash plains, Kame terraces

Landform position (two-dimensional): Summit, shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser, tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Windsor

Percent of map unit: 5 percent
Landscape: Uplands, valleys
Landform: Moraines, Eskers, Kames, Outwash deltas, Outwash terraces, Outwash plains, Kame terraces
Landform position (two-dimensional): Summit, shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser, tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Merrimac

Percent of map unit: 5 percent
Landscape: Valleys, outwash plains
Landform: Kames, Outwash plains, Outwash terraces, Moraines, Eskers

Landform position (two-dimensional): Summit, shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser, tread
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Agawam

Percent of map unit: 3 percent
Landscape: Uplands, valleys
Landform: Eskers, Kames, Outwash plains, Kame terraces, Outwash deltas, Outwash terraces, Moraines
Landform position (two-dimensional): Summit, shoulder, backslope, toeslope, footslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser, tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Sudbury

Percent of map unit: 2 percent
Landscape: Valleys, uplands
Landform: Outwash deltas, Moraines, Outwash plains, Kame terraces, Outwash terraces
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

107—Limerick and Lim soils, 0 to 3 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 9ljt
Landscape: Valleys
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Limerick and similar soils: 50 percent
Lim and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Limerick

Setting

Landscape: Valleys
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-silty alluvium

Typical profile

Ap - 0 to 8 inches: silt loam
BCg1 - 8 to 20 inches: silt loam
BCg2 - 20 to 36 inches: silt loam
BCg3 - 36 to 54 inches: silt loam
Cg - 54 to 65 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F144AY015NY - Wet Silty Low Floodplain
Hydric soil rating: Yes

Description of Lim

Setting

Landscape: Alluvial plains
Landform: Flood plains
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy alluvium

Typical profile

A - 0 to 6 inches: very fine sandy loam
Bg1 - 6 to 11 inches: very fine sandy loam
Bg2 - 11 to 15 inches: very fine sandy loam
Bg3 - 15 to 22 inches: silt loam
Bg4 - 22 to 29 inches: fine sandy loam
CBg5 - 29 to 42 inches: stratified very gravelly coarse sand to loamy fine sand
Cg6 - 42 to 50 inches: stratified very gravelly coarse sand to loamy fine sand
Cg7 - 50 to 57 inches: stratified very gravelly coarse sand to loamy fine sand

Cg8 - 57 to 65 inches: stratified very gravelly coarse sand to loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F144AY015NY - Wet Silty Low Floodplain
Hydric soil rating: Yes

Minor Components

Saco

Percent of map unit: 5 percent
Landscape: River valleys
Landform: Flood plains
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: F144AY015NY - Wet Silty Low Floodplain
Hydric soil rating: Yes

Bash

Percent of map unit: 5 percent
Landscape: River valleys
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: F144AY015NY - Wet Silty Low Floodplain
Hydric soil rating: Yes

Winooski

Percent of map unit: 5 percent
Landscape: Alluvial plains
Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: F145XY002MA - Silty Low Floodplain
Hydric soil rating: No

Rippowam

Percent of map unit: 5 percent
Landscape: River valleys
Landform: Flood plains

Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: F144AY014CT - Wet Sandy Low Floodplain
Hydric soil rating: Yes

108—Saco silt loam, frequently ponded, 0 to 2 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 9ljv
Landscape: River valleys
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Saco and similar soils: 82 percent
Minor components: 18 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Saco

Setting

Landscape: River valleys
Landform: Flood plains
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-silty alluvium over sandy alluvium

Typical profile

A - 0 to 12 inches: silt loam
Cg1 - 12 to 32 inches: silt loam
Cg2 - 32 to 48 inches: silt loam
2Cg3 - 48 to 60 inches: stratified very gravelly coarse sand to loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Frequent
Frequency of ponding: Frequent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F144AY015NY - Wet Silty Low Floodplain
Hydric soil rating: Yes

Minor Components

Rippowam

Percent of map unit: 5 percent
Landscape: River valleys
Landform: Flood plains
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: F144AY014CT - Wet Sandy Low Floodplain
Hydric soil rating: Yes

Lim

Percent of map unit: 5 percent
Landscape: Alluvial plains
Landform: Flood plains
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: F144AY015NY - Wet Silty Low Floodplain
Hydric soil rating: Yes

Bash

Percent of map unit: 5 percent
Landscape: River valleys
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: F144AY015NY - Wet Silty Low Floodplain
Hydric soil rating: Yes

Winooski

Percent of map unit: 3 percent
Landscape: Alluvial plains
Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: F145XY002MA - Silty Low Floodplain
Hydric soil rating: No

306—Udorthents-Urban land complex

Map Unit Setting

National map unit symbol: 9lmg
Elevation: 0 to 2,000 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 120 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 50 percent
Urban land: 39 percent
Minor components: 11 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Anthropogenic Feature: Fills
Parent material: Human-transported material

Typical profile

^A - 0 to 5 inches: loam
^C1 - 5 to 21 inches: gravelly loam
^C2 - 21 to 79 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Urban Land

Setting

Anthropogenic Feature: Urban land

Typical profile

M - 0 to 6 inches: cemented material

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Minor Components

Udorthents, wet substratum

Percent of map unit: 9 percent
Anthropogenic features: Fills
Hydric soil rating: No

Rock outcrop

Percent of map unit: 2 percent
Landscape: Uplands
Landform: Hills
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

308—Udorthents, smoothed

Map Unit Setting

National map unit symbol: 9lmj
Elevation: 0 to 2,000 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 120 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 87 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Anthropogenic Feature: Fills
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Human-transported material

Typical profile

^A - 0 to 5 inches: loam
^C1 - 5 to 21 inches: gravelly loam

^C2 - 21 to 79 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 35 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Udorthents, wet substratum

Percent of map unit: 7 percent
Anthropogenic features: Fills
Hydric soil rating: No

Urban land

Percent of map unit: 5 percent
Anthropogenic features: Urban land
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Landscape: Uplands
Landform: Hills
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

702A—Tisbury silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2y07g
Landscape: Outwash plains, valleys
Elevation: 0 to 1,260 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Tisbury and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tisbury

Setting

Landscape: Outwash plains, valleys
Landform: Outwash terraces, Deltas, Outwash plains, Valley trains
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-silty eolian deposits over sandy and gravelly glaciofluvial deposits derived from granite, schist, and/or gneiss

Typical profile

Ap - 0 to 8 inches: silt loam
Bw1 - 8 to 18 inches: silt loam
Bw2 - 18 to 26 inches: silt loam
2C - 26 to 65 inches: extremely gravelly sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 24 to 36 inches to strongly contrasting textural stratification
Drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 16 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B/D
Ecological site: F144AY026CT - Moist Silty Outwash
Hydric soil rating: No

Minor Components

Agawam

Percent of map unit: 5 percent
Landscape: Valleys, outwash plains
Landform: Kame terraces, Outwash plains, Outwash terraces, Moraines, Kames
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Side slope, crest, tread
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Merrimac

Percent of map unit: 5 percent
Landscape: Valleys, outwash plains
Landform: Outwash plains, Outwash terraces, Moraines, Eskers, Kames
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Side slope, crest, tread
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Ninigret

Percent of map unit: 3 percent
Landscape: Outwash plains, valleys
Landform: Kame terraces, Outwash plains, Moraines, Kames, Outwash terraces
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Convex, linear
Across-slope shape: Convex, concave
Hydric soil rating: No

Raypol

Percent of map unit: 2 percent
Landscape: Outwash plains, valleys
Landform: Drainageways, Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

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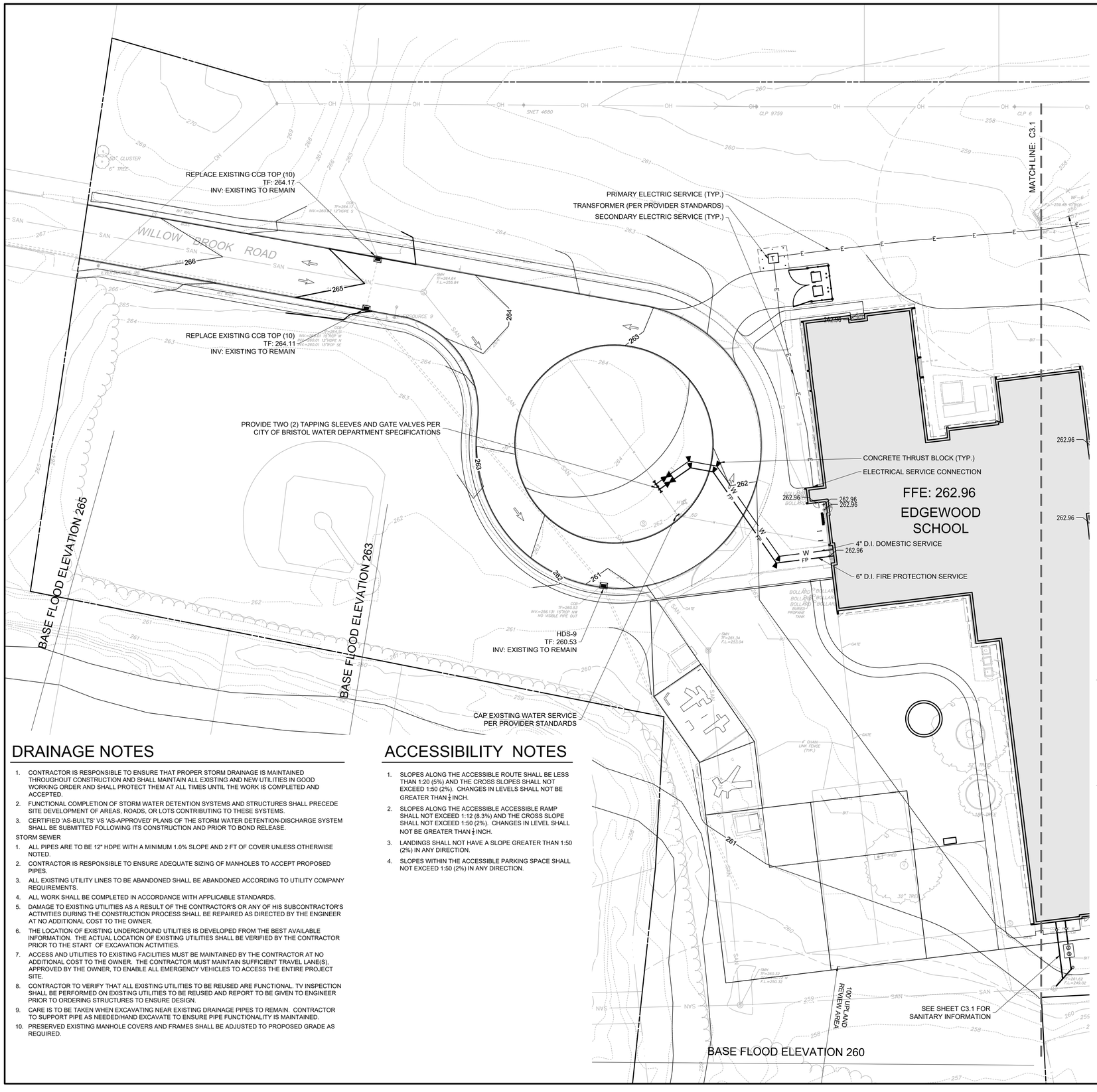
APPENDIX G

Grading & Drainage Plan & Details

benesch



GRADING LEGEND

- DIRECTION OF SURFACE DRAINAGE FLOW
- PROPOSED INTERMEDIATE CONTOUR
- PROPOSED INDEX CONTOUR
- PROPOSED SPOT ELEVATION
- MATCH EXISTING SPOT ELEVATION
- FLUSH CONDITION
- ACCESSIBLE ROUTE
- SOIL BORING LOCATION

DRAINAGE AND UTILITIES LEGEND

- STORM DRAINAGE PIPE
- CATCH BASIN
- DRAINAGE MANHOLE
- AREA/YARD DRAIN
- TREATMENT UNIT
- ROOF LEADER
- SANITARY MANHOLE
- SANITARY SEWER
- VENT LINE
- CLEANOUT
- WATER LINE / FIRE LINE
- WATER LINE DOMESTIC
- WATER GATE VALVE
- WATER TAPPING SLEEVE
- WATER METER
- ELECTRIC / COMM. DUCT BANK
- GAS LINE
- GAS METER

DRAINAGE NOTES

1. CONTRACTOR IS RESPONSIBLE TO ENSURE THAT PROPER STORM DRAINAGE IS MAINTAINED THROUGHOUT CONSTRUCTION AND SHALL MAINTAIN ALL EXISTING AND NEW UTILITIES IN GOOD WORKING ORDER AND SHALL PROTECT THEM AT ALL TIMES UNTIL THE WORK IS COMPLETED AND ACCEPTED.
2. FUNCTIONAL COMPLETION OF STORM WATER DETENTION SYSTEMS AND STRUCTURES SHALL PRECEDE SITE DEVELOPMENT OF AREAS, ROADS, OR LOTS CONTRIBUTING TO THESE SYSTEMS.
3. CERTIFIED 'AS-BUILTS' VS 'AS-APPROVED' PLANS OF THE STORM WATER DETENTION-DISCHARGE SYSTEM SHALL BE SUBMITTED FOLLOWING ITS CONSTRUCTION AND PRIOR TO BOND RELEASE.

STORM SEWER

1. ALL PIPES ARE TO BE 12" HDPE WITH A MINIMUM 1.0% SLOPE AND 2 FT OF COVER UNLESS OTHERWISE NOTED.
2. CONTRACTOR IS RESPONSIBLE TO ENSURE ADEQUATE SIZING OF MANHOLES TO ACCEPT PROPOSED PIPES.
3. ALL EXISTING UTILITY LINES TO BE ABANDONED SHALL BE ABANDONED ACCORDING TO UTILITY COMPANY REQUIREMENTS.
4. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH APPLICABLE STANDARDS.
5. DAMAGE TO EXISTING UTILITIES AS A RESULT OF THE CONTRACTOR'S OR ANY OF HIS SUBCONTRACTOR'S ACTIVITIES DURING THE CONSTRUCTION PROCESS SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
6. THE LOCATION OF EXISTING UNDERGROUND UTILITIES IS DEVELOPED FROM THE BEST AVAILABLE INFORMATION. THE ACTUAL LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO THE START OF EXCAVATION ACTIVITIES.
7. ACCESS AND UTILITIES TO EXISTING FACILITIES MUST BE MAINTAINED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR MUST MAINTAIN SUFFICIENT TRAVEL LANE(S), APPROVED BY THE OWNER, TO ENABLE ALL EMERGENCY VEHICLES TO ACCESS THE ENTIRE PROJECT SITE.
8. CONTRACTOR TO VERIFY THAT ALL EXISTING UTILITIES TO BE REUSED ARE FUNCTIONAL. TV INSPECTION SHALL BE PERFORMED ON EXISTING UTILITIES TO BE REUSED AND REPORT TO BE GIVEN TO ENGINEER PRIOR TO ORDERING STRUCTURES TO ENSURE DESIGN.
9. CARE IS TO BE TAKEN WHEN EXCAVATING NEAR EXISTING DRAINAGE PIPES TO REMAIN. CONTRACTOR TO SUPPORT PIPE AS NEEDED/HAND EXCAVATE TO ENSURE PIPE FUNCTIONALITY IS MAINTAINED.
10. PRESERVED EXISTING MANHOLE COVERS AND FRAMES SHALL BE ADJUSTED TO PROPOSED GRADE AS REQUIRED.

ACCESSIBILITY NOTES

1. SLOPES ALONG THE ACCESSIBLE ROUTE SHALL BE LESS THAN 1:20 (5%) AND THE CROSS SLOPES SHALL NOT EXCEED 1:50 (2%). CHANGES IN LEVELS SHALL NOT BE GREATER THAN ¼ INCH.
2. SLOPES ALONG THE ACCESSIBLE ACCESSIBLE RAMP SHALL NOT EXCEED 1:12 (8.3%) AND THE CROSS SLOPE SHALL NOT EXCEED 1:50 (2%). CHANGES IN LEVEL SHALL NOT BE GREATER THAN ¼ INCH.
3. LANDINGS SHALL NOT HAVE A SLOPE GREATER THAN 1:50 (2%) IN ANY DIRECTION.
4. SLOPES WITHIN THE ACCESSIBLE PARKING SPACE SHALL NOT EXCEED 1:50 (2%) IN ANY DIRECTION.

ADDITIONAL NOTES

1. ALL STORM STRUCTURES TO HAVE TOP, FRAMES, AND GRATES/COVER REPLACED IN KIND UNLESS OTHERWISE NOTED.
2. ALL SANITARY STRUCTURES TO HAVE FRAMES AND COVERS REMOVED AND REPLACED IN KIND UNLESS OTHERWISE NOTED.
3. ALL STORM AND SANITARY PIPING TO REMAIN IS TO BE INSPECTED AND REPORT TO BE PROVIDED TO ENGINEER FOR REVIEW.
4. EXISTING WATER SERVICE TO BE REMOVED BACK TO GATE VALVE AT MAIN.
5. EXISTING ELECTRICAL SERVICE TO BE REMOVED BACK TO CONNECTION POINT.
6. GAS SERVICE TO REMAIN AND BE PROTECTED AT ALL TIMES DURING CONSTRUCTION.

AQUIFER PROTECTION AREA NOTES

TEMPORARY CONSTRUCTION MEASURES

1. SIGNIFICANT FUEL, CHEMICAL OR OTHER HAZARDOUS MATERIALS STORAGE AND HANDLING, INCLUDING FUELING OF CONSTRUCTION VEHICLES, SHOULD BE LOCATED OUTSIDE WELL FIELD AREA AND AQUIFER PROTECTION AREA.
2. NO REPAIR OR MAINTENANCE OF CONSTRUCTION VEHICLES OR WASHING OF CONSTRUCTION VEHICLES IS PERMITTED WITHIN THE AQUIFER PROTECTION AREA.
3. ANY NECESSARY TEMPORARY STORAGE SHOULD BE ABOVEGROUND, PROTECTED FROM RAINFALL, AND ON AN IMPERVIOUS CONTAINMENT SURFACE.
4. AN EMERGENCY SPILL AND RESPONSE PLAN SHOULD BE DEVELOPED, INCLUDING COORDINATION WITH THE WATER SUPPLIER.
5. THE SITE ACCESS SHOULD BE ADEQUATELY SECURED AT ALL TIMES TO PROHIBIT ANY UNAUTHORIZED DISPOSAL OF WASTE MATERIALS.

STORMWATER POLLUTION PREVENTION MEASURES:

1. DEICING MANAGEMENT AREAS SHOULD BE ESTABLISHED INCLUDING LOW SALT USE AREAS, ALTERNATIVE CHEMICAL OR SAND METHODS.
2. WELLHEAD PROTECTION SIGNS SHALL BE POSTED IN CLEAR VISIBILITY AT THE ENTRANCE AND EXIT POINTS OF THE AQUIFER PROTECTION AREA.

SEE SHEET C3.1 FOR UTILITY NOTES AND CONTACTS.

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860-633-8341

Project #: 0726-500158.00

NOT FOR CONSTRUCTION
ISSUED FOR REVIEW ONLY

RENOVATIONS TO:
EDGEWOOD PRE-K ACADEMY
BRISTOL, CT 06010
State Project #: 017-0090 RNV
Project #: 25064

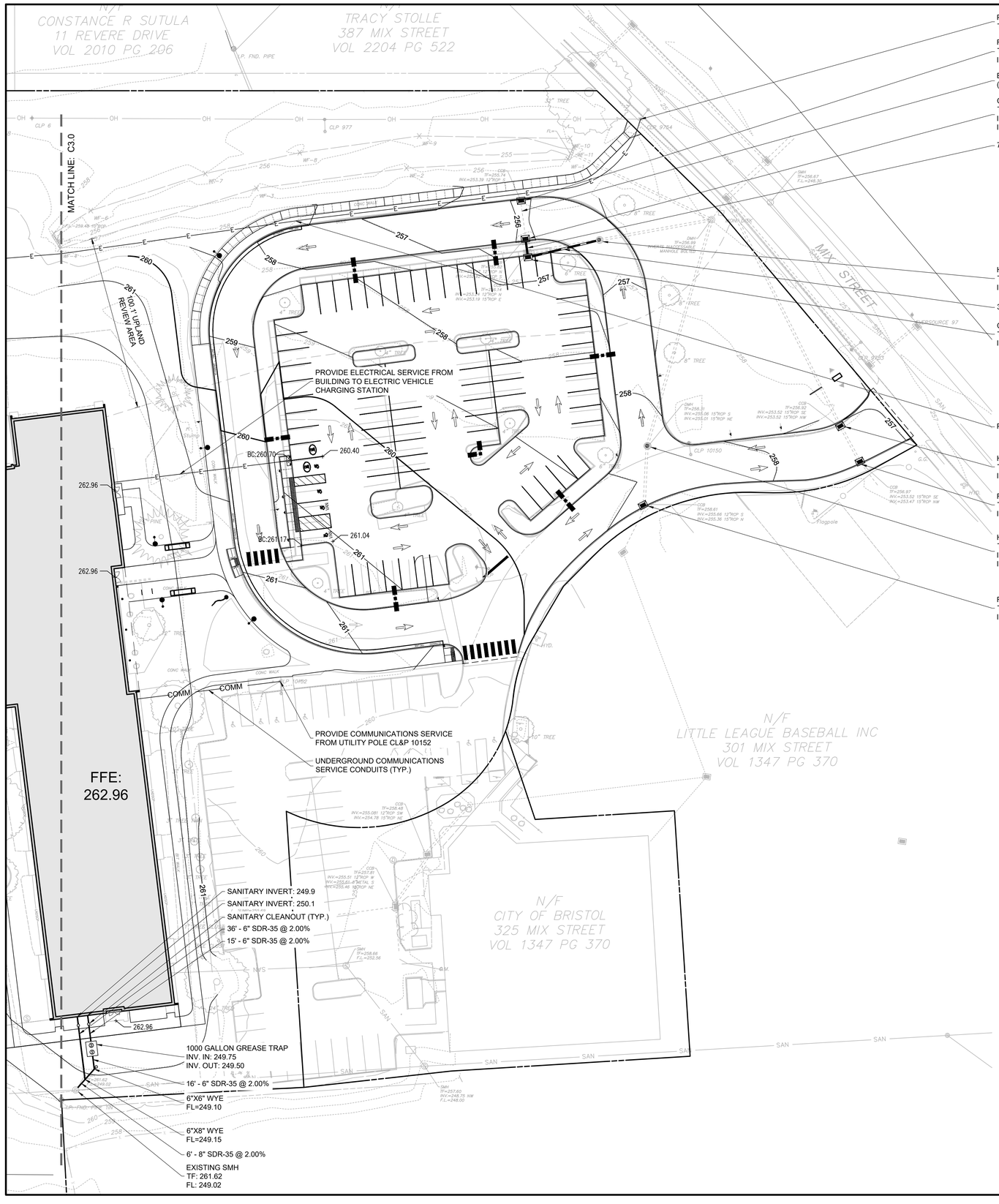
Revisions

0 30' 60'
SCALE: 1" = 30'

PHASE 2: DESIGN DEVELOPMENT
MARCH 20, 2026

GRADING, DRAINAGE & UTILITY PLAN (WEST)

C3.0



GRADING LEGEND

- DIRECTION OF SURFACE DRAINAGE FLOW
- 123 — PROPOSED INTERMEDIATE CONTOUR
- 120 — PROPOSED INDEX CONTOUR
- 123.45 — TW 123.45 / BW 122.45 — PROPOSED SPOT ELEVATION
- 123.45 (ME) — MATCH EXISTING SPOT ELEVATION
- FLUSH CONDITION
- ACCESSIBLE ROUTE
- B-# — SOIL BORING LOCATION

DRAINAGE AND UTILITIES LEGEND

- STORM DRAINAGE PIPE
- CATCH BASIN
- DRAINAGE MANHOLE
- AREA/YARD DRAIN
- TREATMENT UNIT
- RL — ROOF LEADER
- SANITARY MANHOLE
- S — SANITARY SEWER
- VENT — VENT LINE
- CO — CLEANOUT
- W — WATER LINE / FIRE LINE
- W — WATER LINE DOMESTIC
- WATER GATE VALVE
- WATER TAPPING SLEEVE
- WM — WATER METER
- E — ELECTRIC / COMM. DUCT BANK
- G — GAS LINE
- GM — GAS METER

UTILITY NOTES

SANITARY SEWER (CITY OF BRISTOL WATER & SEWER DEPARTMENT)

1. ALL SANITARY SEWER WORK TO COMPLY WITH CITY OF BRISTOL WATER & SEWER DEPARTMENT STANDARDS AND SPECIFICATIONS.
2. ALL SANITARY LATERALS ARE TO BE 6" SDR-35 WITH A MIN. PITCH OF 2% AND 3.5 FT OF COVER UNLESS OTHERWISE NOTED.
3. ALL SANITARY LATERALS ARE TO HAVE INTERNAL CLEANOUTS WITH INLINE BACKFLOW PREVENTER A CLEANOUT WITHIN 10 FT OF BUILDING FOOTPRINT.
4. LOCATION OF SANITARY LATERALS AT BUILDING TO BE COORDINATED WITH PLUMBING DRAWINGS.

WATER SERVICE (CITY OF BRISTOL WATER & SEWER DEPARTMENT)

1. ALL WATER SERVICE WORK TO COMPLY WITH CITY OF BRISTOL WATER & SEWER DEPARTMENT STANDARDS AND SPECIFICATIONS.
2. ALL DOMESTIC WATER SERVICES ARE TO BE 4" D.I. WITH 4.5 FT OF COVER.
3. ALL FIRE SERVICES ARE TO BE 6" D.I. WITH 4.5 FT OF COVER.
4. ALL WATER SERVICES ARE TO BE A MIN. 10 FT FROM ANY SANITARY SERVICE (UNLESS SHELVED IN THE SAME TRENCH) AND A MINIMUM OF 18" OF VERTICAL CLEARANCE FROM ANY OTHER UTILITY LINE.
5. LOCATION OF WATER SERVICES AT BUILDINGS TO BE COORDINATED WITH PLUMBING DRAWINGS.
6. ANY UNUSED WATER MAINS OR WATER SERVICES MUST BE DISCONNECTED AT THE WATER MAIN PRIOR TO DEMOLITION.
7. ALL TAPS ARE TO BE PERFORMED BY THE BRISTOL WATER DEPARTMENT, CONTRACTOR TO COORDINATE.
8. THRUST BLOCKS WILL BE REQUIRED AT EACH CUT AND CAP.
9. EACH CUT AND CAP REQUIRES TWO (2) JOINTS PRIOR TO CUT AND CAP.
10. ALL FITTINGS WILL REQUIRE JOINT RESTRAINTS BEFORE AND AFTER EACH FITTING.

ELECTRICAL SERVICES (EVERSOURCE)

1. ALL ELECTRICAL SERVICES ARE TO CONFORM TO EVERSOURCE CURRENT STANDARDS AND REGULATIONS.
2. FINAL DESIGN TO BE COORDINATED WITH EVERSOURCE.
3. METER LOCATIONS TO BE COORDINATED WITH ELECTRICAL DRAWINGS.
4. CONDUITS ARE FOR REFERENCE ONLY. REFER TO ELECTRIC SITE UTILITY PLAN FOR EXACT NUMBER OF CONDUITS, MATERIAL AND WIRING.

TELEPHONE SERVICES (FRONTIER/SNET)

1. ALL TELEPHONE SERVICES ARE TO CONFORM TO FRONTIER/SNET MOST CURRENT STANDARDS AND REGULATIONS.
2. FINAL DESIGN TO BE COORDINATED WITH FRONTIER/SNET.
3. SERVICE LOCATIONS TO BE COORDINATED WITH M.E.P. DRAWINGS.
4. CONDUITS ARE FOR REFERENCE ONLY. REFER TO ELECTRIC SITE UTILITY PLAN FOR EXACT NUMBER OF CONDUITS, MATERIAL AND WIRING.

CABLE TELEVISION SERVICES (COMCAST)

1. ALL CABLE TELEVISION SERVICES ARE TO CONFORM TO MOST CURRENT STANDARDS AND REGULATIONS.
2. FINAL DESIGN TO BE COORDINATED WITH COMCAST.
3. SERVICE LOCATIONS TO BE COORDINATED WITH M.E.P. DRAWINGS.
4. CONDUITS ARE FOR REFERENCE ONLY. REFER TO ELECTRIC SITE UTILITY PLAN FOR EXACT NUMBER OF CONDUITS, MATERIAL, AND WIRING.

UTILITY COMPANY CONTACTS

WATER: CITY OF BRISTOL WATER & SEWER DEPARTMENT - (860) 582-7431

SANITARY SEWER: CITY OF BRISTOL WATER & SEWER DEPARTMENT - (860) 584-6125

GAS: EVERSOURCE - (203) 317-4445

ELECTRIC: EVERSOURCE - (203) 271-4735

TELEPHONE: FRONTIER/SNET - (877) 308-8822

CATV: COMCAST - (800) 391-3000

SEE SHEET C3.0 FOR DRAINAGE, ACCESSIBILITY AND AQUIFER PROTECTION AREA NOTES.

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Project #: 0726-500158.00

NOT FOR CONSTRUCTION
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RENOVATIONS TO:
EDGEWOOD PRE-K ACADEMY
BRISTOL, CT 06010
State Project #: 017-0090 RNV
Project #: 25064

Revisions

0 30' 60'
SCALE: 1" = 30'

PHASE 2: DESIGN DEVELOPMENT
MARCH 20, 2026

GRADING, DRAINAGE & UTILITY PLAN (EAST)

C3.1

APPENDIX H

Wetland Delineation Report

benesch

Martin Brogie, Inc.
ENVIRONMENTAL SERVICES

• Environmental Site Investigations
• Building Contaminant Surveys
• Wetlands Consulting
• Remediation Contract Management

March 10, 2026

Ryan G. Scrittorale, PE
Project Manager
Alfred Benesch & Company
120 Hebron Avenue - 2nd Floor
Glastonbury, CT
06033

RE: Wetland Delineation Report
Edgewood School
345 Mix Street
Bristol, CT

Dear Ryan:

Martin Brogie, Inc. (MBI) is pleased to submit the following information regarding a wetland delineation performed for the above referenced property on June 2, 2023, and March 8, 2026. The work was completed to evaluate the presence and extent of wetlands on or near the property for purposes of assessing potential impacts to wetlands as a result of drainage improvement infrastructure installations and other site enhancement features.

Site Description

The subject Site consists of an approximate 15.88 acres of land occupied by an elementary school, paved parking and driveway areas, grassed lawn and landscaped areas, forested land and play areas. The site is accessed off of Mix Street to the east and Willow Brook Road to the west. The latter road terminates in a cul-de-sac adjacent to the west of the school building and serves as a bus drop-off and pick-up area. The Mix Street entrance provides access to a paved parking area on the east side of the building. Grassed lawn is located north of the school and paved parking/driveway areas and extends to the northern parking area. An open ditch/swale is located north of the eastern parking area and consisted of a gassed swale connecting two stormwater pipe headwalls to the east and west during our 2023 site visit and has been excavated and planted since that time according to our recent site visit. The southwestern portion of the site consisted of a mature forest and includes portions of Polkville Brook which generally flows from northwest to southeast through this area of the site.

28 Arbor Lane
Madison, CT 06443

martinbrogieinc@gmail.com
860-208-0360

A site location map is provided as Figure 1.

Wetland Delineation

On June 2, 2023, MBI's Soil Scientist Martin Brogie, LEP reported to the site to assess the presence of wetlands and watercourses/intermittent watercourses in accordance with the definitions provided in Connecticut General Statutes Section 22a-38 definitions (15) and (16) including: soil types designated as poorly drained, very poorly drained, alluvial, and floodplain by the National Cooperative Soils Survey; and, rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent. In addition, intermittent watercourses are defined as having a permanent channel and bank and the occurrence of two or more of the following characteristics: evidence of scour or deposits of recent alluvium or detritus; the presence of standing or flowing water for a duration longer than a storm incident; and/or the presence of hydrophytic vegetation were delineated.

MBI accessed the property via Mix Street and walked the northern portion of the site. A grassed swale located north of the eastern parking area was evaluated and determined not to constitute a wetland. MBI circled the site to the west and south and encountered a wet, forested area and a watercourse in the southwestern portion of the site. Soil exploration revealed poorly-drained soil and floodplain soils associated with the brook extending up on to a grassed area southwest of the building. Wetland flags WF-1 through WF-16 were placed southwest of the school and extended generally west to east from the western property boundary and onto the adjacent little league fields, offsite.

The USDA Soil Survey indicates that the majority of the soils on the site consist of man-made land (fill) in the area of the school and paved areas. Scarboro Muck is shown along the watercourse and is consistent with soils identified in this area of the site.

The Soil Survey map is provided as Attachment A.

On March 8, 2026, MBI returned to the site to confirm the previous delineation and to reinspect the property. The wetland in the southwestern portion of the site was confirmed; conditions remained the same. The previous grassed swale north of the eastern parking lot had been converted to a "bio-swale" since the previous site visit as indicated by the presence of standing water in a 5-6 foot wide channel extending from headwalls on each end of the swale. The swale contained various herbaceous wetland plants including Cattail, Soft Rush and Beggars Tick. The soil within the swale consisted of several inches of dark organic matter underlain with orange-brown sand and gravel with high chroma mottles. Based on the presence of standing water and hydrophytic vegetation MBI determined that the area met the definition of an intermittent watercourse and wetland flags WF-1 through WF-11 were placed around the perimeter.

An aerial view with approximate wetland limits is provided as Figure 2.

Photographs are provided in Attachment B.

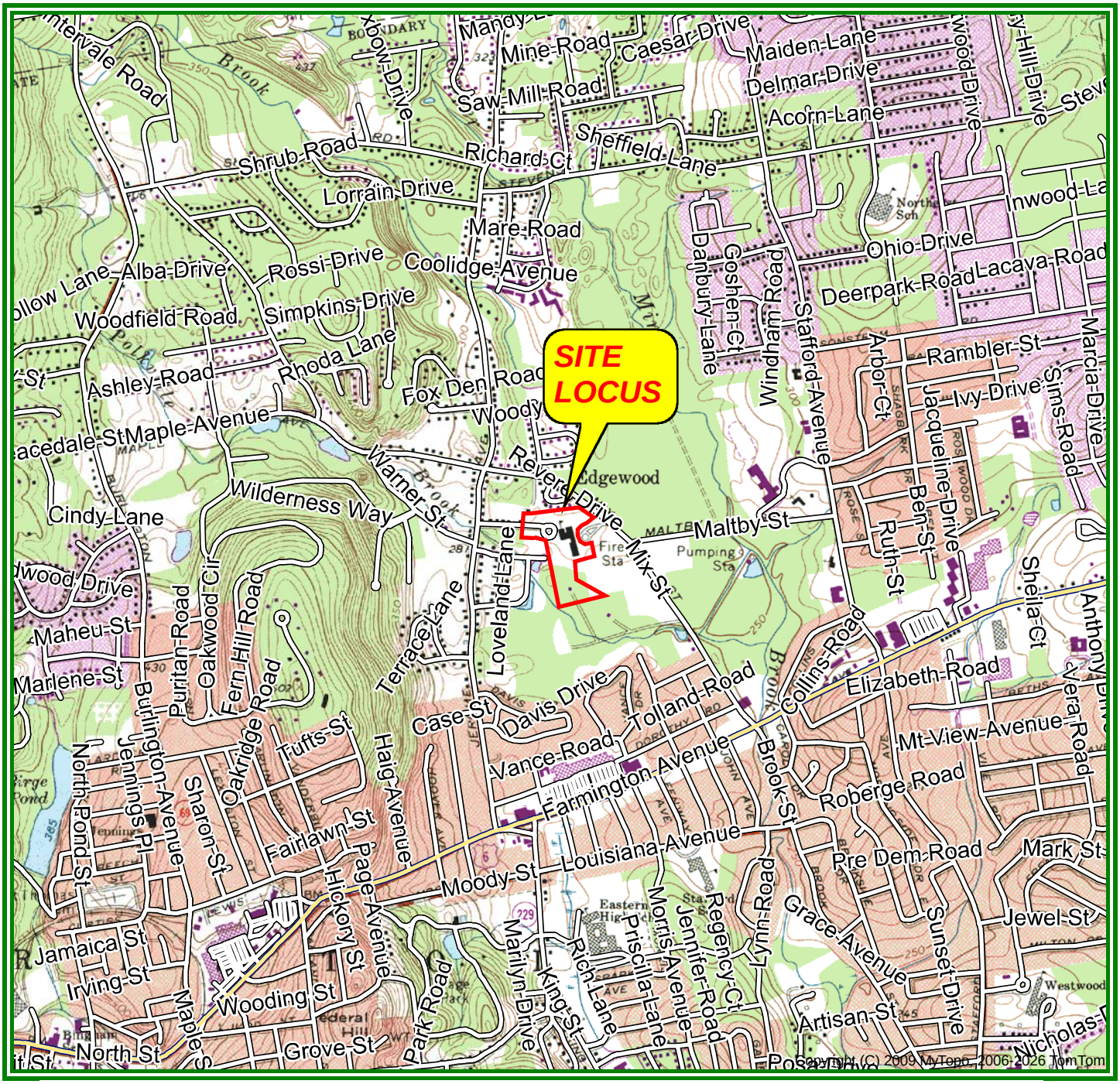
The proposed site improvement project consists of a variety on infrastructure improvements including paving, drainage, lighting and landscaping. Proposed work will be held outside the upland review zone of the southwestern wetland area which will maintain existing conditions in the area of that wetland. Some minor improvements will occur in the area of the new bio-swale wetland in the northern portion of the site. None of the improvements will have any direct impacts to this area. Overall, the site development project aspects will not affect the current site wetlands beyond current conditions.

Please contact the undersigned at 860-208-0360 if you have any questions or require further information. Thank you for the opportunity to be of service.

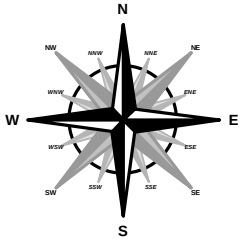
Sincerely,

Martin Brogie, LEP
Soil Scientist

w/Attachments



BRISTOL Topographic 1966 41072-F8-TF-024 National Geodetic Vertical Datum 1929



SCALE 1:24000

0 1000 2000 3000 4000 5000
FEET

0 1
MILE

Site Coordinates:
041° 42' 00.74" N, 072° 55' 28.72" W

Project:
Mix St & Willow Brook Rd

Site Location:
Mix St and Willow Brook Rd,
New London, Connecticut

Martin Brogie, Inc.
ENVIRONMENTAL SERVICES

28 Arbor Lane, Madison, Connecticut 06443
ph: (860) 208-0360
email: martinbrogieinc@gmail.com

Figure 1
Site Locus Map

SCALE

0 200 400

APPROXIMATE SCALE IN FEET

LEGEND

APPROXIMATE WETLAND BOUNDARY

APPROXIMATE PROPERTY BOUNDARY

Martin Brogie, Inc.
ENVIRONMENTAL SERVICES

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Figure 2 - Aerial Site Plan

Mix Street and Willow Brook Road,
Bristol, Hartford County, Connecticut

Project:	Mix Street & Willow Brook Road
Drawn by:	K. Hazel
Date:	3/8/26
Scale:	AS SHOWN

ATTACHMENT A

SOIL SURVEY

Map Scale: 1:5,320 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

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, Western Part
Survey Area Data: Version 6, Sep 16, 2025

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

Date(s) aerial images were photographed: Jun 14, 2022—Oct 6, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
12	Raypol silt loam, 0 to 3 percent slopes	7.2	6.0%
15	Scarboro muck, 0 to 3 percent slopes	13.7	11.3%
23A	Sudbury sandy loam, 0 to 5 percent slopes	7.8	6.5%
37A	Manchester gravelly sandy loam, 0 to 3 percent slopes	9.4	7.8%
37C	Manchester gravelly sandy loam, 3 to 15 percent slopes	6.6	5.5%
38C	Hinckley loamy sand, 3 to 15 percent slopes	23.6	19.6%
107	Limerick and Lim soils, 0 to 3 percent slopes, frequently flooded	2.3	1.9%
108	Saco silt loam, frequently ponded, 0 to 2 percent slopes, frequently flooded	6.4	5.3%
305	Udorthents-Pits complex, gravelly	2.0	1.7%
306	Udorthents-Urban land complex	24.3	20.2%
308	Udorthents, smoothed	16.3	13.6%
W	Water	0.8	0.7%
Totals for Area of Interest		**120.4**	**100.0%**

ATTACHMENT B

PHOTOGRAPHS

Watercourse and floodplain wetlands in southwestern portion of site (2023).

Floodplain wetlands in southwestern portion of site.

2026 view looking southwest to floodplain area from lawn area by school.

View of swale north of eastern parking area in 2023.

Current view of swale (wetland) north of eastern parking area after bio-swale construction.