

STORMWATER MANAGEMENT REPORT

Project Address: 4 Earle Street
Fairhaven, MA 02719

Date Prepared: October 05, 2026

Project Number: 25004

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INTRODUCTION

This analysis summarizes the stormwater impacts and proposed stormwater management improvements associated with the proposed subdivision of 4 Earle Street in Fairhaven, Massachusetts (the “Project”). The subject property is identified by the Town of Fairhaven Assessor’s Office as Map 31A, Parcel 453.

The existing property contains approximately 37,917 square feet (SF) and is currently developed with a single-family dwelling, paved driveway, and associated lawn and landscaped areas. Earle Street is an existing dead-end private way that is predominantly gravel surfaced.

The Applicant proposes to subdivide the existing property into two conforming residential lots. The existing dwelling at 4 Earle Street will remain on a lot containing approximately 22,896 SF, while the newly created lot, to be known as 6 Earle Street, will contain approximately 15,021 SF. The proposed 6 Earle Street lot will be developed with a new single-family dwelling and paved driveway. The Project also includes an extension of the existing gravel portion of Earle Street to provide the required frontage and access to the proposed lot.

The proposed stormwater management improvements associated with the Project include the construction of a sediment forebay and an above-ground infiltration/detention basin. The proposed stormwater management system has been designed to provide pretreatment and water quality treatment of stormwater runoff, promote groundwater recharge, and provide attenuation of post-development peak runoff rates associated with the proposed development and existing developed portions of the site.

For detailed information regarding existing site conditions and proposed development, refer to the plans entitled, “Proposed Stormwater Improvements for Coastal Village Partners LLC | 4 Earle Street | Fairhaven, Massachusetts,” dated October 05, 2026 and prepared by KBM Design Group.

METHODOLOGY

The hydrologic analysis demonstrates that the proposed stormwater improvements will reduce peak rates of run off for all four (4) storm events while improving water quality and promoting stormwater recharge.

The site topography establishes the watersheds and points of analysis.

For this analysis one (1) POA have been established, including:

- POA 1: Southeast Corner (Wetlands)

The hydrologic model, analysis, and proposed mitigation measures have been developed using the following resources:

- Hydrologic modeling techniques and methods established in NRCS - Technical Releases No. 20 and No. 55 (TR-20 and TR-55) using proprietary HydroCAD® stormwater modeling software.
- Massachusetts Department of Environmental Protection – Stormwater Handbook Volumes #1, #2, and #3 (as amended).

RAINFALL DATA

Peak stormwater discharges have been determined for total rainfall estimated for the 2, 10, 25, and 100-year storm event recurrence intervals. For this analysis, the values used for the 24-hour rainfall calculations were taken from NOAA ATLAS 14 Precipitation Frequency Map. The rainfall depths for all 4 storm events are outlined in Table 1 – Summary of Rainfall Data.

Table 1. – Summary of Rainfall Data

Reference	Rainfall Recurrence Interval	24 Hour Rainfall Depth
NOAA ATLAS 14	2-Year Storm	3.20 inches
	10-Year Storm	4.45 inches
	25-Year Storm	5.82 inches
	100-Year Storm	7.48 inches

SOILS DATA

Based upon the USDA – NRCS Soil Conservation Service (SCS) Web Soil Survey for Bristol, soils underlying the Project (excluding surface water bodies) are classified as follows:

Table 2. – Summary of USDA Soil Classification

Soil Classification	Hydrologic Soil Group (HSG)
71A Ridgebury Fine Sandy Loam	[HSG (A/D)]

Subsurface investigations consisting of two (2) test pits were conducted at the site by Alfons Koka, PE. of kbm design group llc on august 6, 2026.

Based on observations made during the subsurface investigation, the soils within layer c2 were classified as sandy loam. Based on the corresponding rawls soil texture infiltration rate, an exfiltration rate of 1.02 inches per hour was established for use in the stormwater analysis and design.

PRE-DEVELOPMENT CONDITIONS

The Subject Property delineated in this analysis is comprised of one (1) watershed area as described below and analyzed at the POA described in the “Methodology” section in this report. Existing watershed areas include:

- Ex_Ws1 – A 19,530 ft² area comprised of a mostly grassed (lawn) area and a small portion of overgrown shrubs and trees.

Refer to the Pre-Development Watershed Plan under Figures for information and limits of the existing watershed areas.

For the pre-development watershed analysis, Table 3 presents a summary of the watershed areas, the weighted TR-55 runoff curve numbers (CN – based on ground cover types), and Times of Concentration (T_c) for the existing Watershed Areas:

Table 3. – Pre-Development Watershed Areas and Runoff Curve Numbers

	Ex_Ws1
Area	19,530 ft ²
CN	80
T _c	6 min

POST-DEVELOPMENT CONDITIONS

The project proposes to construct a new single family house, paved driveway and extend the gravel road and:

- Construction of stormwater management improvements, which includes a new sediment forebay and infiltration/detention basin.

The proposed stormwater improvements will result in the reduction of peak flow rates.

The portions of the Subject Property affected by the Project are divided into two (2) proposed watershed areas. The POA remain unchanged.

- Pr-Ws1 – A 15,515 ft² area comprised of the proposed roof area, paved driveway a section of the new gravel road and lawn area.
- Pr-Ws2 – A 4,015 ft² area comprised of mostly of the new gravel road, and lawn area.

Refer to the Post-Development Watershed Plan under Figures for information and limits of the proposed watershed areas.

Table 4 presents a comparison of watershed area, the weighted TR-55 runoff curve number (CN – based on ground cover types), and Time of Concentration (T_c) for the proposed watersheds:

Table 4. – Post-Development Watershed Areas and Runoff Curve Numbers

	Pr_Ws1
Area	15,515 ft ²
CN	83
T _c	6 min

	Pr_Ws1
Area	4,015 ft ²
CN	87
T _c	6 min

STORMWATER MITIGATION

The stormwater management improvements are designed to meet the requirements of the Massachusetts Stormwater Handbook. The detention system combined with the sediment forebay will provide the required 80% TSS removal.

The Project is an existing developed site and the proposed stormwater management system and BMPs proposed for the Project are designed to mitigate water quantity and quality impacts. The Project results in net decreases in peak runoff rates generated by all storm events up to and including the 100-year storm.

Table 5. – Summary of Pre- and Post-Development Peak Rates of Runoff

Design Storm	POA [1]: Rear of Property		
	Pre-Dev	Post-Dev	Change
2 Year	0.72 cfs	0.63 cfs	-0.09 cfs
10 Year	1.38 cfs	1.17 cfs	-0.21 cfs
25 Year	1.86 cfs	1.55 cfs	-0.31 cfs
100 Year	2.61 cfs	2.15 cfs	-0.46 cfs

Refer to Appendix C for TSS removal rates for each treatment train. The proposed TSS removal rates meet the Massachusetts Stormwater Policy Guidelines minimum removal rate of 80% prior to surface discharge.

Construction-Phase and Long-Term Stormwater Operation and Maintenance Plans (O&M Plans) have been included in Appendix D of this report and include information regarding the responsible party for O&M plan implementation, a project overview, and structural and non-structural BMPs to be utilized on site.

CONCLUSION

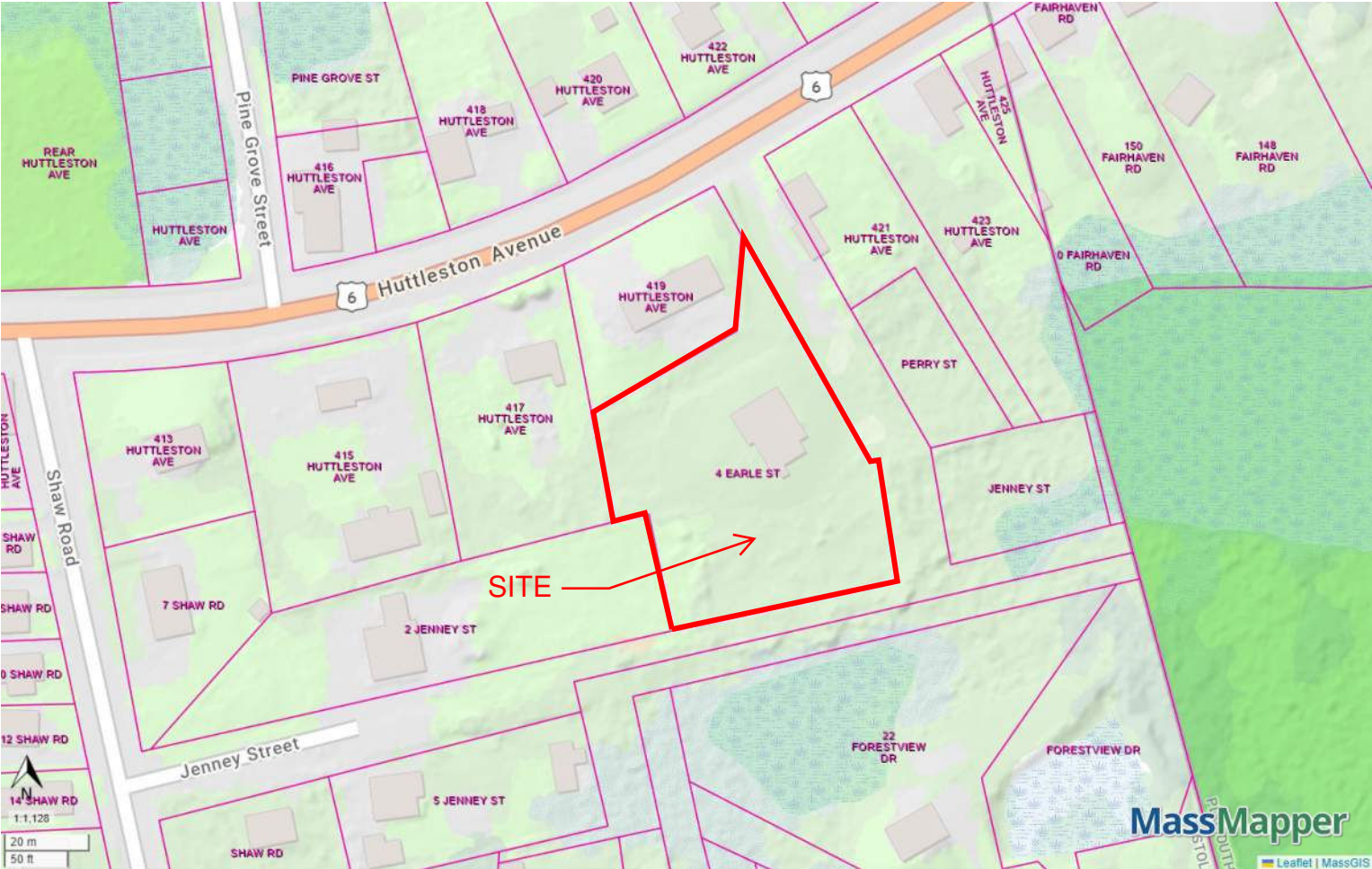
The Project will preserve the existing runoff patterns and off-site discharge locations of the Subject Property, improve discharge conditions through implementation of stormwater BMPs, and reduce the volume of uncontrolled and untreated runoff. The Project will also implement water quality treatment measures. Potential stormwater impacts associated with the development will be mitigated as required by State and Municipal Regulations.

The Project will comply with Standards outlined in the Massachusetts Stormwater Management Handbook as follows:

STANDARD 1	No New Untreated Discharges	All existing discharge points are maintained. Mitigation is proposed to treat discharge impacts at existing points as feasible.
STANDARD 2	Peak Rate Attenuation	Calculations are provided showing post-development peak discharge rates do not exceed pre-development rates for the 2, 10,25 and 100-year 24-hour storm events at the POAs.
STANDARD 3	Recharge	The required recharge volume for HSG D soils is provided within infiltration basin P1.
STANDARD 4	Water Quality	The sediment forebay and infiltration basin are designed to achieve a minimum 80% TSS removal rate prior to discharge.
STANDARD 5	Land Uses with Higher Potential Pollutant Loads	The proposed project is not a listed activity associated with a LUHPPL defined in the Handbook.
STANDARD 6	Critical Areas	The Site does not discharge to a Critical Area.
STANDARD 7	Redevelopments and Other Projects Subject to the Standards only to the Maximum Extent Practicable	The proposed project is not considered a redevelopment. Standard does not apply
STANDARD 8	Construction Period Pollution Prevention and Erosion and Sedimentation Control	The project is not required to obtain an EPA - NPDES Construction General Permit prior to construction.
STANDARD 9	Operation & Maintenance Plan	Construction Phase and Long-Term Operation and Maintenance (O&M) Plans are included in Appendix D.
STANDARD 10	Prohibition of Illicit Discharges	A No Illicit Discharge Compliance Statement has provided.

FIGURES

FEMA



- Property Tax Parcels
- FEMA National Flood Hazard Layer Polygons
- 1% Annual Chance Flood Hazard
 - Regulatory Floodway
 - Area of Undetermined Flood Hazard
 - 0.2% Annual Chance Flood Hazard
 - Area with Reduced Risk Due to Levee
 - Area Not Included

USGS

Property Tax Parcels
USGS Topographic Maps





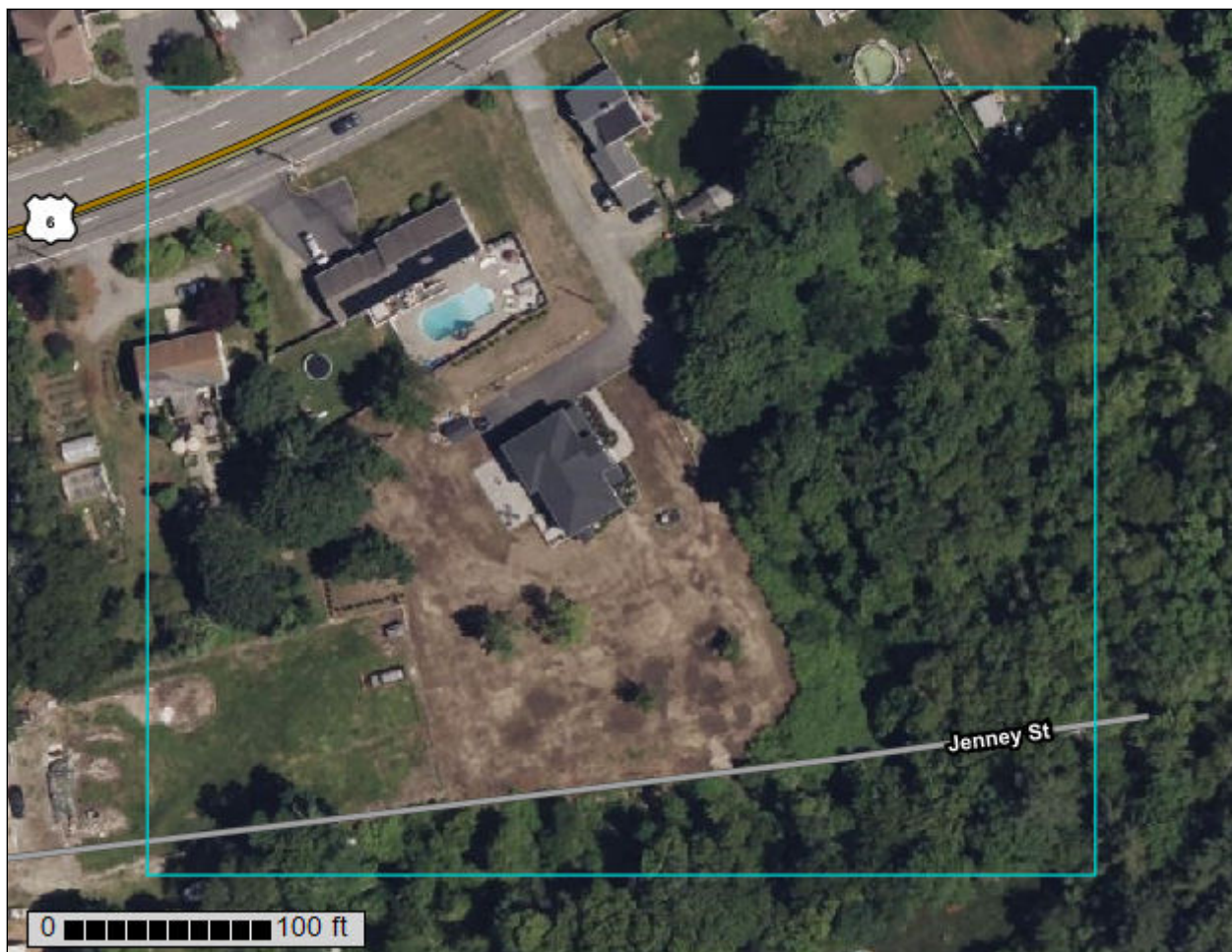
United States
Department of
Agriculture

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 Bristol County, Massachusetts, Southern Part; and Plymouth County, Massachusetts



October 4, 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.

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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



Custom Soil Resource Report

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 scales ranging from 1:12,000 to 1:20,000.

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: Bristol County, Massachusetts, Southern Part

Survey Area Data: Version 20, Sep 8, 2026

Soil Survey Area: Plymouth County, Massachusetts

Survey Area Data: Version 19, Sep 8, 2026

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

MAP LEGEND

MAP INFORMATION

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

Date(s) aerial images were photographed: Jun 10, 2022—Jun 30, 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
70A	Ridgebury fine sandy loam, 0 to 3 percent slopes	0.9	22.3%
71A	Ridgebury fine sandy loam, 0 to 3 percent slopes, extremely stony	2.4	59.6%
449B	Gloucester-Hinckley complex, 3 to 8 percent slopes	0.7	16.3%
Subtotals for Soil Survey Area		4.0	98.3%
Totals for Area of Interest		4.0	100.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
71A	Ridgebury fine sandy loam, 0 to 3 percent slopes, extremely stony	0.0	1.0%
420B	Canton fine sandy loam, 3 to 8 percent slopes	0.0	0.7%
Subtotals for Soil Survey Area		0.1	1.7%
Totals for Area of Interest		4.0	100.0%

Map Unit Descriptions

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.

Bristol County, Massachusetts, Southern Part

70A—Ridgebury fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2w69f
Landscape: Glaciated uplands
Elevation: 0 to 1,480 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

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

Description of Ridgebury

Setting

Landscape: Glaciated uplands
Landform: Ground moraines, Hills, Drumlins, Depressions, Drainageways
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 6 inches: fine sandy loam
Bw - 6 to 10 inches: sandy loam
Bg - 10 to 19 inches: gravelly sandy loam
Cd - 19 to 66 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 15 to 35 inches to densic material
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 to 6 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 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Ecological site: F144AY009CT - Wet Till Depressions

Custom Soil Resource Report

Hydric soil rating: Yes

Minor Components

Woodbridge

Percent of map unit: 9 percent

Landscape: Glaciated uplands

Landform: Ground moraines, Hills, Drumlins

Landform position (two-dimensional): Summit, footslope

Landform position (three-dimensional): Base slope, crest

Down-slope shape: Convex

Across-slope shape: Linear

Hydric soil rating: No

Whitman

Percent of map unit: 5 percent

Landscape: Glaciated uplands

Landform: Hills, Drainageways, Drumlins, Ground moraines, Depressions

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Leicester

Percent of map unit: 1 percent

Landscape: Glaciated uplands

Landform: Ground moraines, Hills, Drainageways, Depressions

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave, linear

Across-slope shape: Concave

Hydric soil rating: Yes

71A—Ridgebury fine sandy loam, 0 to 3 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2w69b

Landscape: Glaciated uplands

Elevation: 0 to 1,480 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

Ridgebury, extremely stony, and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ridgebury, Extremely Stony

Setting

Landscape: Glaciated uplands
Landform: Drumlins, Depressions, Ground moraines, Hills, Drainageways
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 6 inches: fine sandy loam
Bw - 6 to 10 inches: sandy loam
Bg - 10 to 19 inches: gravelly sandy loam
Cd - 19 to 66 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 15 to 35 inches to densic material
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 to 6 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 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F144AY009CT - Wet Till Depressions
Hydric soil rating: Yes

Minor Components

Whitman, extremely stony

Percent of map unit: 7 percent
Landscape: Glaciated uplands
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Woodbridge, extremely stony

Percent of map unit: 7 percent
Landscape: Glaciated uplands
Landform: Ground moraines, Hills, Drumlins
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Base slope, crest

Custom Soil Resource Report

Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Paxton, extremely stony

Percent of map unit: 1 percent
Landscape: Glaciated uplands
Landform: Ground moraines, Hills, Drumlins
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

449B—Gloucester-Hinckley complex, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2svlr
Landscape: Glaciated uplands
Elevation: 0 to 200 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

Gloucester and similar soils: 35 percent
Hinckley and similar soils: 25 percent
Minor components: 40 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gloucester

Setting

Landscape: Glaciated uplands
Landform: Moraines, Hills, Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oa - 0 to 2 inches: highly decomposed plant material
A - 2 to 6 inches: sandy loam
Bw1 - 6 to 15 inches: gravelly sandy loam
Bw2 - 15 to 29 inches: very gravelly loamy coarse sand
C - 29 to 65 inches: very gravelly loamy coarse sand

Properties and qualities

Slope: 3 to 8 percent

Custom Soil Resource Report

Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: 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
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: A
Ecological site: F144AY032NH - Dry Till Uplands
Hydric soil rating: No

Description of Hinckley

Setting

Landscape: Glaciated 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, crest, side slope, 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

A - 0 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 8 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: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Custom Soil Resource Report

Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Charlton

Percent of map unit: 15 percent
Landscape: Glaciated uplands
Landform: Ridges, Ground moraines, Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Merrimac

Percent of map unit: 15 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

Paxton

Percent of map unit: 10 percent
Landscape: Glaciated uplands
Landform: Drumlins, Ground moraines, Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Plymouth County, Massachusetts

71A—Ridgebury fine sandy loam, 0 to 3 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2w69b
Landscape: Glaciated uplands
Elevation: 0 to 1,480 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

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

Description of Ridgebury, Extremely Stony

Setting

Landscape: Glaciated uplands
Landform: Drumlins, Depressions, Ground moraines, Hills, Drainageways
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 6 inches: fine sandy loam
Bw - 6 to 10 inches: sandy loam
Bg - 10 to 19 inches: gravelly sandy loam
Cd - 19 to 66 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 15 to 35 inches to densic material
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 to 6 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 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D

Custom Soil Resource Report

Ecological site: F144AY009CT - Wet Till Depressions
Hydric soil rating: Yes

Minor Components

Whitman, extremely stony

Percent of map unit: 7 percent
Landscape: Glaciated uplands
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Woodbridge, extremely stony

Percent of map unit: 7 percent
Landscape: Glaciated uplands
Landform: Ground moraines, Hills, Drumlins
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Base slope, crest
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Paxton, extremely stony

Percent of map unit: 1 percent
Landscape: Glaciated uplands
Landform: Ground moraines, Hills, Drumlins
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

420B—Canton fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w81b
Landscape: Glaciated uplands
Elevation: 0 to 1,180 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: All areas are prime farmland

Map Unit Composition

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

Description of Canton

Setting

Landscape: Glaciated uplands
Landform: Hills, Moraines, Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: gravelly fine sandy loam
2C - 26 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: 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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Scituate

Percent of map unit: 10 percent
Landscape: Glaciated uplands
Landform: Hills, Drumlins, Ground moraines
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Montauk

Percent of map unit: 5 percent
Landscape: Glaciated uplands
Landform: Moraines, Ground moraines, Hills, Drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest

Custom Soil Resource Report

Down-slope shape: Convex, linear

Across-slope shape: Convex

Hydric soil rating: No

Charlton

Percent of map unit: 4 percent

Landscape: Glaciated uplands

Landform: Ridges, Ground moraines, Hills

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Side slope, crest

Down-slope shape: Convex, linear

Across-slope shape: Convex

Hydric soil rating: No

Swansea

Percent of map unit: 1 percent

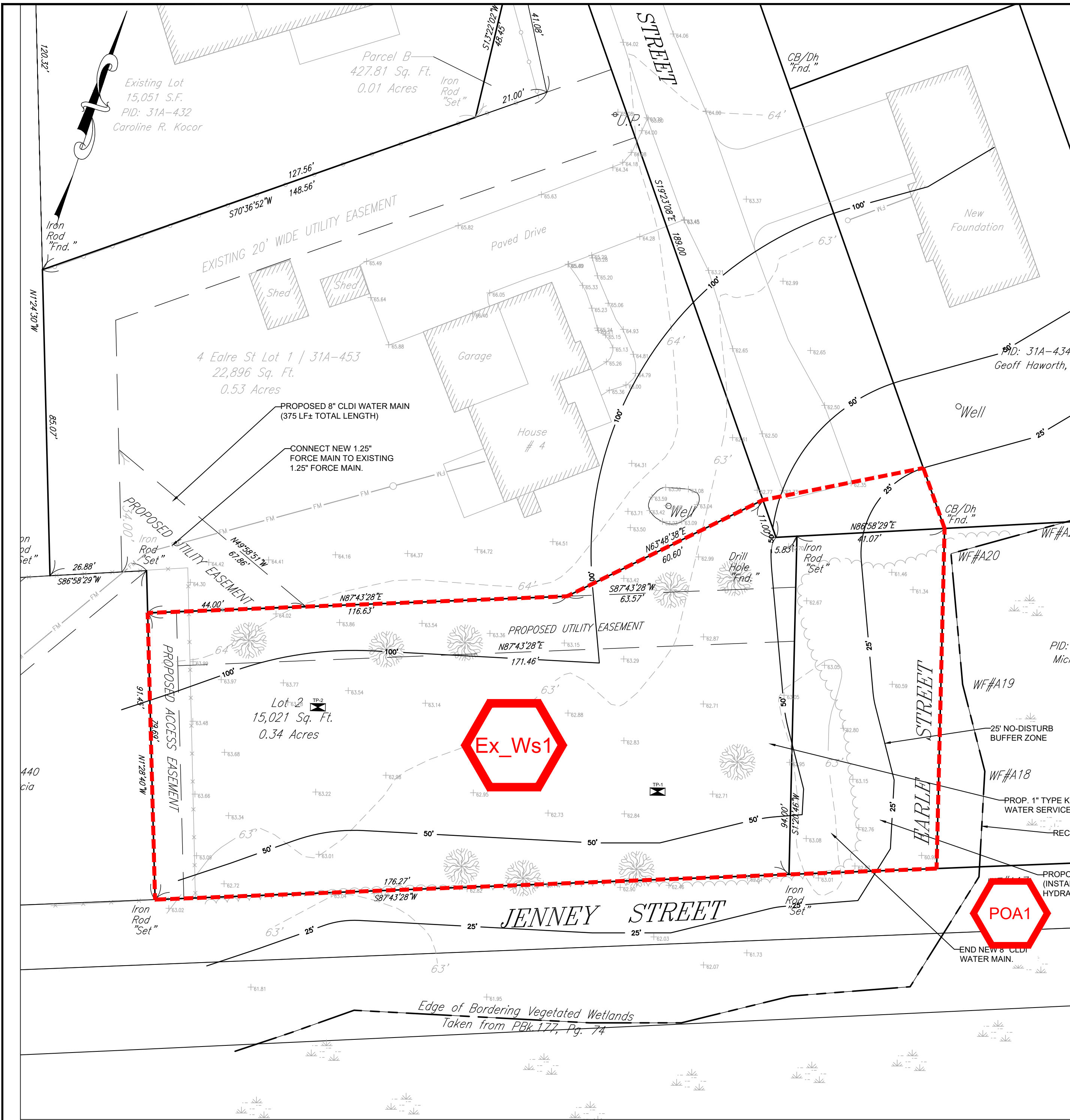
Landscape: Glaciated uplands, valleys, outwash plains

Landform: Marshes, Depressions, Bogs, Swamps, Kettles

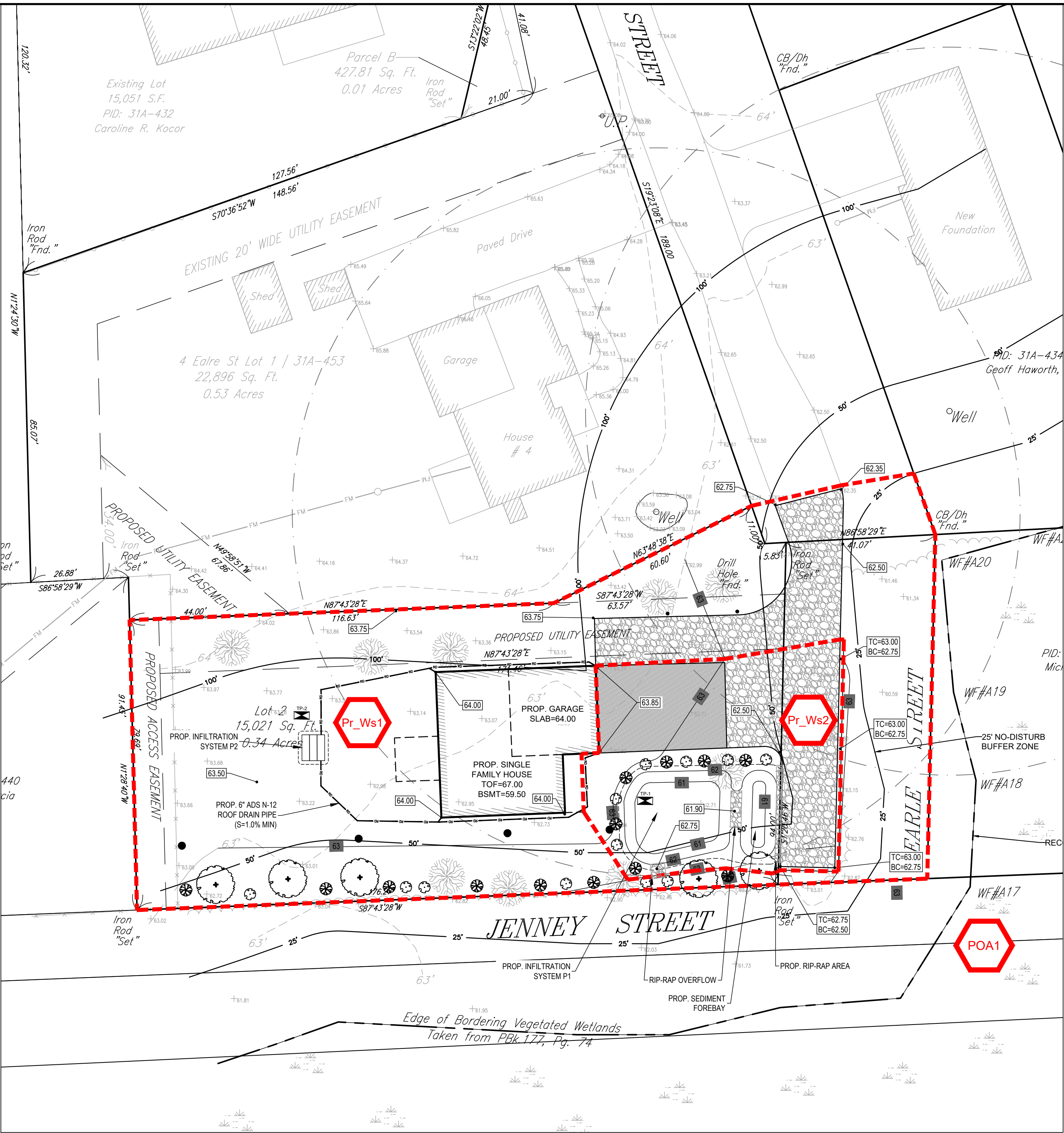
Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes



EXISTING CONDITIONS WATERSHED PLAN

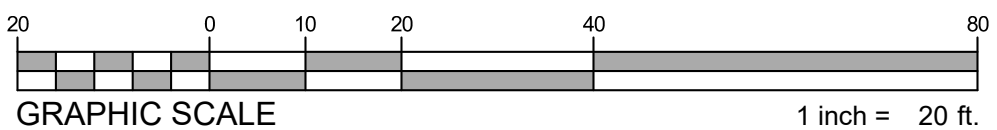


PRE-DEVELOPMENT WATERSHED	
WATERSHED	
EXISTING WATERSHED 1 (Ex_Ws1):	
- GRASS COVER "GOOD"	= 16,900 SF
- WOODED AREA "GOOD"	= 2,630 SF

DEEP OBSERVATION HOLE LOG											
DEEP OBSERVATION HOLE NUMBER:					TP-1	GROUND ELEVATION:					62.50±
Depth (in)	Horizon/ Layer	Matrix: Color-Moist	Redoximorphic Features			Texture (USDA)	Coarse Fragments (Percent by Volume)		Structure	Consistence (Moist)	Other
			Depth (in)	Color	Percent		Gravel	Cobbles & Stones			
0-18 (61.00)	Fill	--	--	--	--	--	--	--	--	--	--
18-26 (60.33)	Bw	10YR 2 1/2	--	--	--	SANDY LOAM	<5	<5	MASSIVE	FRIABLE	--
26-44 (58.83)	C1	10YR 2 1/4	40	--	--	LOAMY SAND	10	<5	SINGLE GRAINED	LOOSE	--
44-72 (56.50)	C2	10YR 2 1/2	--	--	--	SANDY LOAM	10	<5	SINGLE GRAINED	LOOSE	--
NOTES: 1. WEEPING 47" 2. REDOX. OBSERVED AT 42" (ESHOW=59.00) 3. LOGGED BY MATTHEW MUI, SE14000 ON 08/03/2025.											

DEEP OBSERVATION HOLE LOG											
DEEP OBSERVATION HOLE NUMBER:				TP-2		GROUND ELEVATION:					63.50±
Depth (in)	Horizon/ Layer	Matrix: Color-Moist	Redoximorphic Features			Texture (USDA)	Coarse Fragments (Percent by Volume)		Structure	Consistence (Moist)	Other
			Depth (in)	Color	Percent		Gravel	Cobbles & Stones			
0-14 (62.33)	Fill	--	--	--	--	--	--	--	--	--	--
14-24 (61.50)	Bw	10YR 2 1/2	--	--	--	SANDY LOAM	<5	<5	MASSIVE	FRIABLE	--
24-46 (59.67)	C1	10YR 2 1/2	40	--	--	LOAMY SAND	10	<5	SINGLE GRAINED	LOOSE	--
46-76 (57.17)	C2	10YR 2 1/2	--	--	--	SANDY LOAM	10	<5	MASSIVE	FRIABLE	--
NOTES: 1. WEEPING 50" 2. REDOX. OBSERVED AT 46" (ESHGW=59.67) 3. LOGGED BY MATTHEW MUI, SE14000 ON 08/03/2025.											

POST-DEVELOPMENT WATERSHED	
WATERSHED	
PROPOSED WATERSHED 1 (Pr_Ws1):	
- GRASS COVER "GOOD"	= 10,668 SF
- GRAVEL ROAD	= 1,291 SF
- ROOF	= 1,685 SF
- WOODED AREA	= 1,871 SF
WATERSHED	
PROPOSED WATERSHED 2 (Pr_Ws2):	
- GRASS COVER "GOOD"	= 1,766 SF
- PAVED DRIVEWAY	= 835 SF
- GRAVEL ROAD	= 1,414 SF



102 State Rd | Unit #F
North Dartmouth, MA 02747
Tel: (508)-730-9515

COASTAL VILLAGE PARTNERS LLC
C/O JOEL CORDERO
4 EARLE ST
FAIRHAVEN, MA 02719

Owner/Applicant

AMERICAN LAND SURVEYS
3 SUNSET LANE
FAIRHAVEN, MA 02719

Consultant:

ISSUED FOR PLANNING
BOARD APPROVAL
(NOT APPROVED FOR CONSTRUCTION)

Issue Type

4 EARLE STREET
FAIRHAVEN MA 02719

10.5.26	Revised Per PB Comments	AK		1
Date	Description	By		REV

SUBDIVISION PLAN
FOR 4 EARLE ST

WATERSHED PLAN

Drawing Title

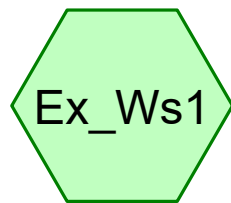
Project No. 25004	Checked AK	Date 08.24.2026
Designed AK/BB	Approved AK	Scale AS SHOWN

Drawing No.

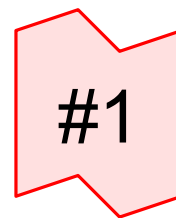
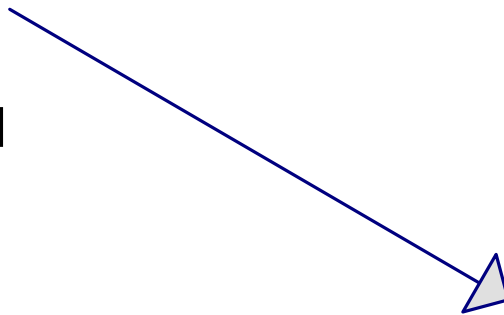
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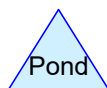
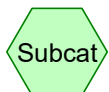
APPENDIX A



Ex_Ws_1



POA-1



Routing Diagram for 4 Earle St_Pre

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4 Earle St_Pre

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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type III 24-hr		Default	24.00	1	3.20	2
2	10-yr	Type III 24-hr		Default	24.00	1	4.75	2
3	25-yr	Type III 24-hr		Default	24.00	1	5.82	2
4	100-yr	Type III 24-hr		Default	24.00	1	7.48	2

4 Earle St_Pre

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.388	80	>75% Grass cover, Good, HSG D (Ex_Ws1)
0.060	79	Woods/grass comb., Good, HSG D (Ex_Ws1)
0.448	80	TOTAL AREA

4 Earle St_Pre

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Type III 24-hr 2-yr Rainfall=3.20"

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Summary for Subcatchment Ex_Ws1: Ex_Ws_1

Runoff = 0.72 cfs @ 12.10 hrs, Volume= 0.052 af, Depth= 1.40"
Routed to Link #1 : POA-1

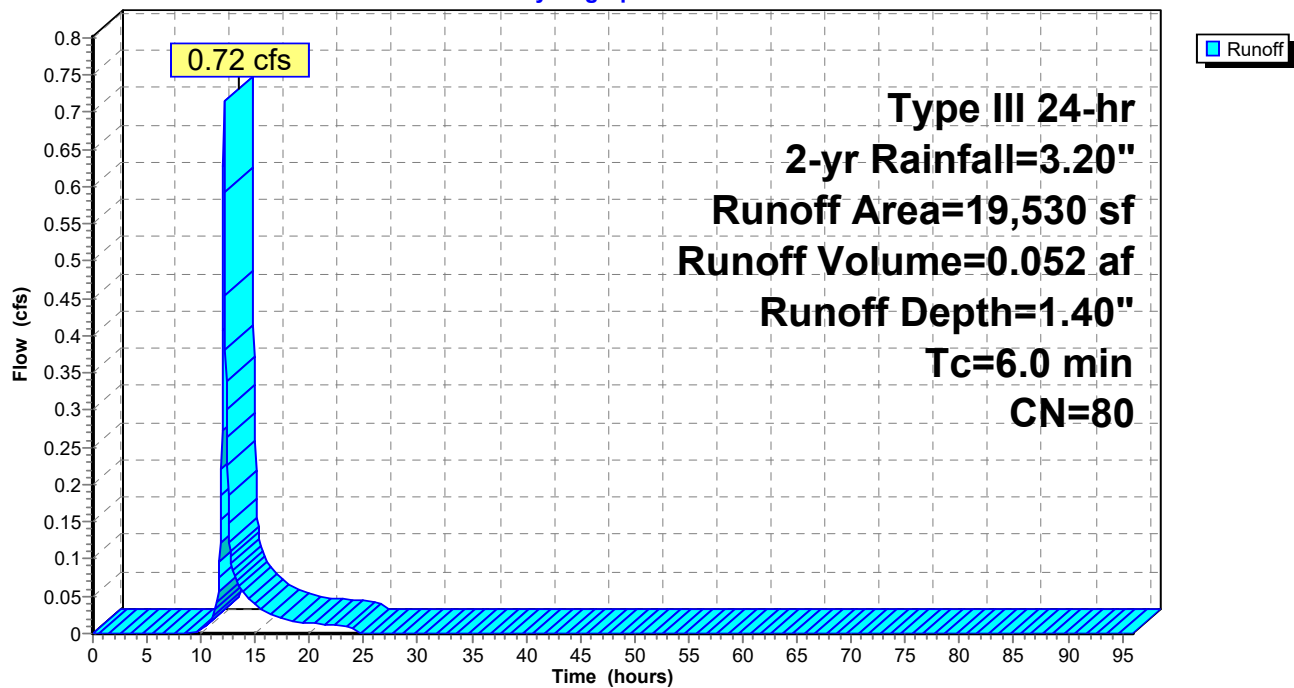
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Description
2,630	79	Woods/grass comb., Good, HSG D
16,900	80	>75% Grass cover, Good, HSG D
19,530	80	Weighted Average
19,530		100.00% Pervious Area

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

Subcatchment Ex_Ws1: Ex_Ws_1

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.20"

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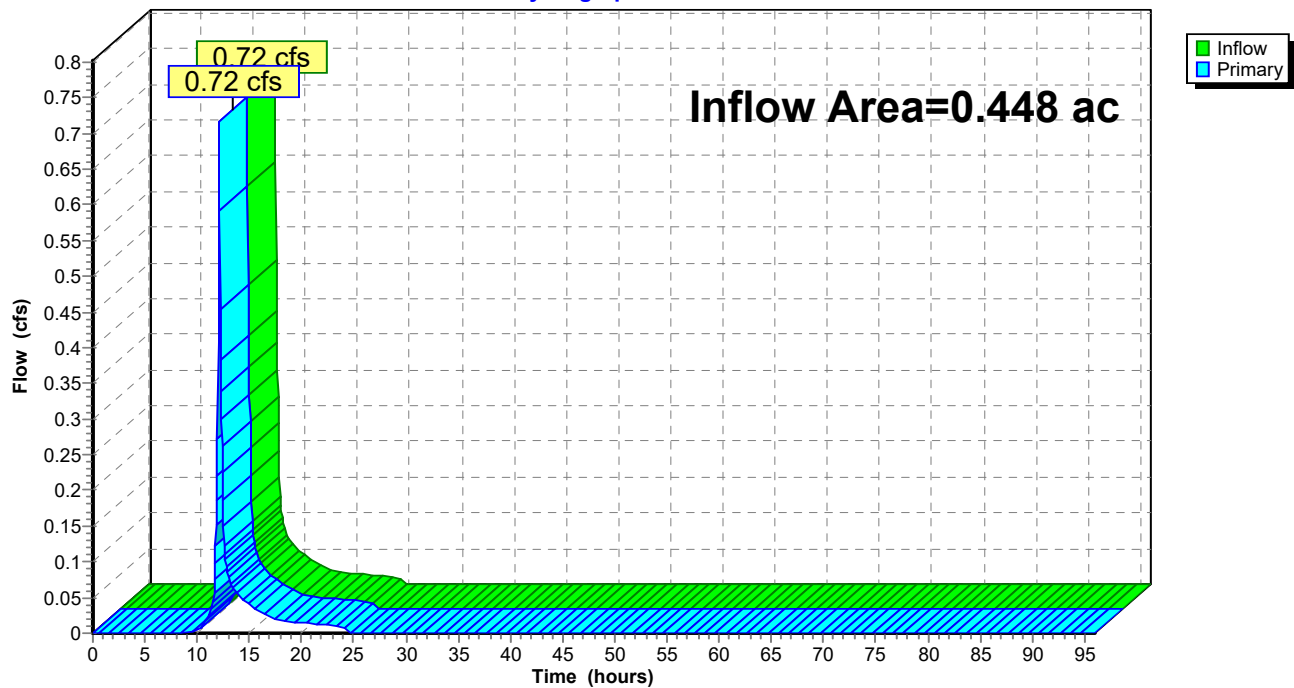
Summary for Link #1: POA-1

Inflow Area = 0.448 ac, 0.00% Impervious, Inflow Depth = 1.40" for 2-yr event
Inflow = 0.72 cfs @ 12.10 hrs, Volume= 0.052 af
Primary = 0.72 cfs @ 12.10 hrs, Volume= 0.052 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Link #1: POA-1

Hydrograph



4 Earle St_Pre

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Type III 24-hr 10-yr Rainfall=4.75"

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Summary for Subcatchment Ex_Ws1: Ex_Ws_1

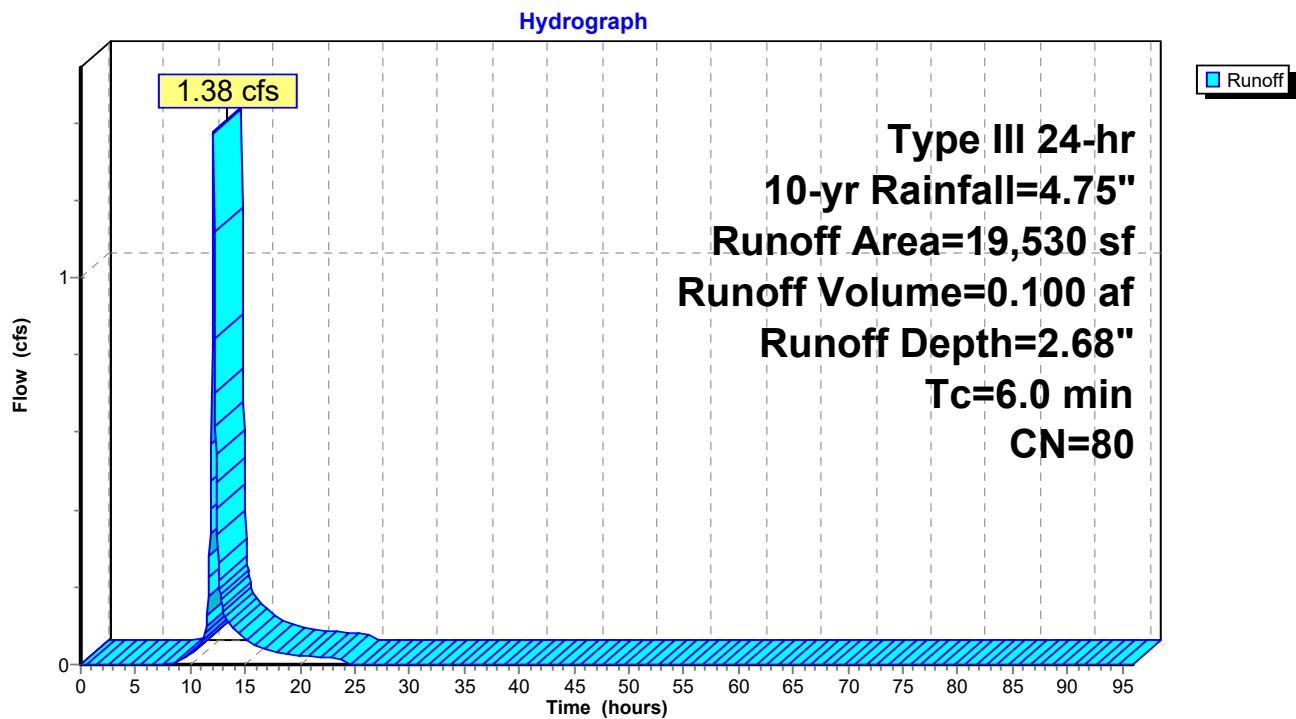
Runoff = 1.38 cfs @ 12.09 hrs, Volume= 0.100 af, Depth= 2.68"
Routed to Link #1 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.75"

Area (sf)	CN	Description
2,630	79	Woods/grass comb., Good, HSG D
16,900	80	>75% Grass cover, Good, HSG D
19,530	80	Weighted Average
19,530		100.00% Pervious Area

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

Subcatchment Ex_Ws1: Ex_Ws_1



4 Earle St_Pre

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Type III 24-hr 10-yr Rainfall=4.75"

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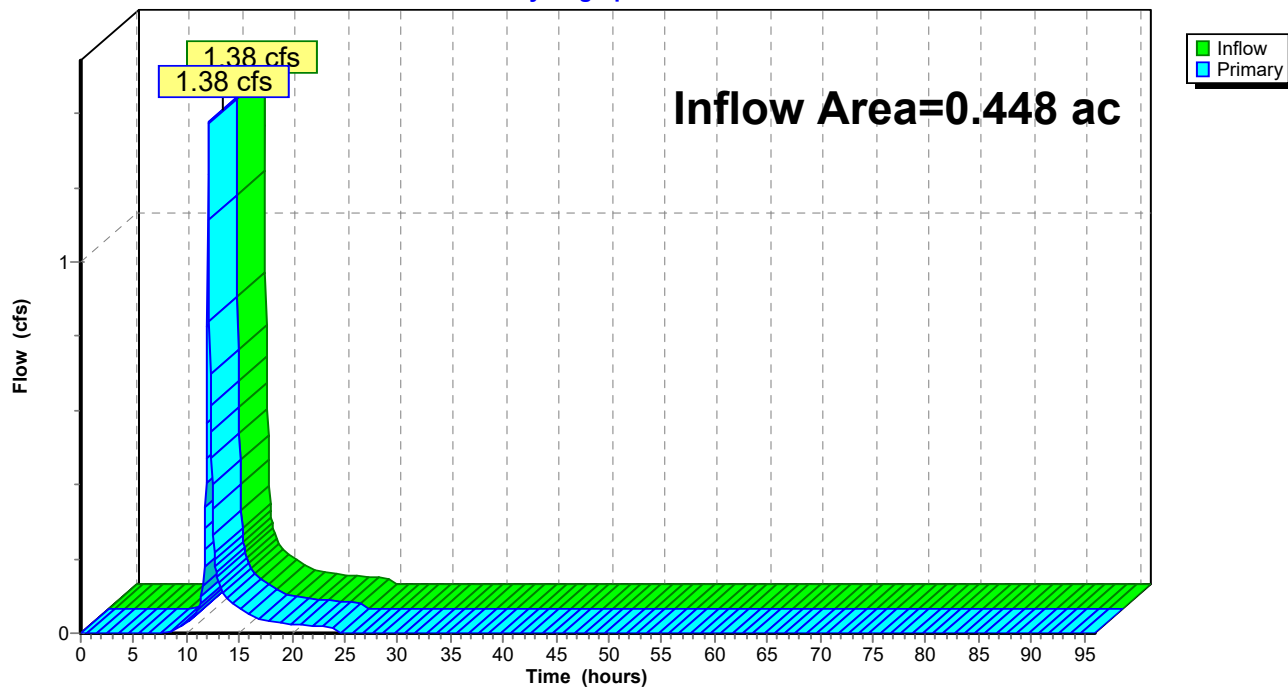
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Inflow Area = 0.448 ac, 0.00% Impervious, Inflow Depth = 2.68" for 10-yr event
Inflow = 1.38 cfs @ 12.09 hrs, Volume= 0.100 af
Primary = 1.38 cfs @ 12.09 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Link #1: POA-1

Hydrograph



4 Earle St_Pre

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Type III 24-hr 25-yr Rainfall=5.82"

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Summary for Subcatchment Ex_Ws1: Ex_Ws_1

Runoff = 1.86 cfs @ 12.09 hrs, Volume= 0.135 af, Depth= 3.62"
Routed to Link #1 : POA-1

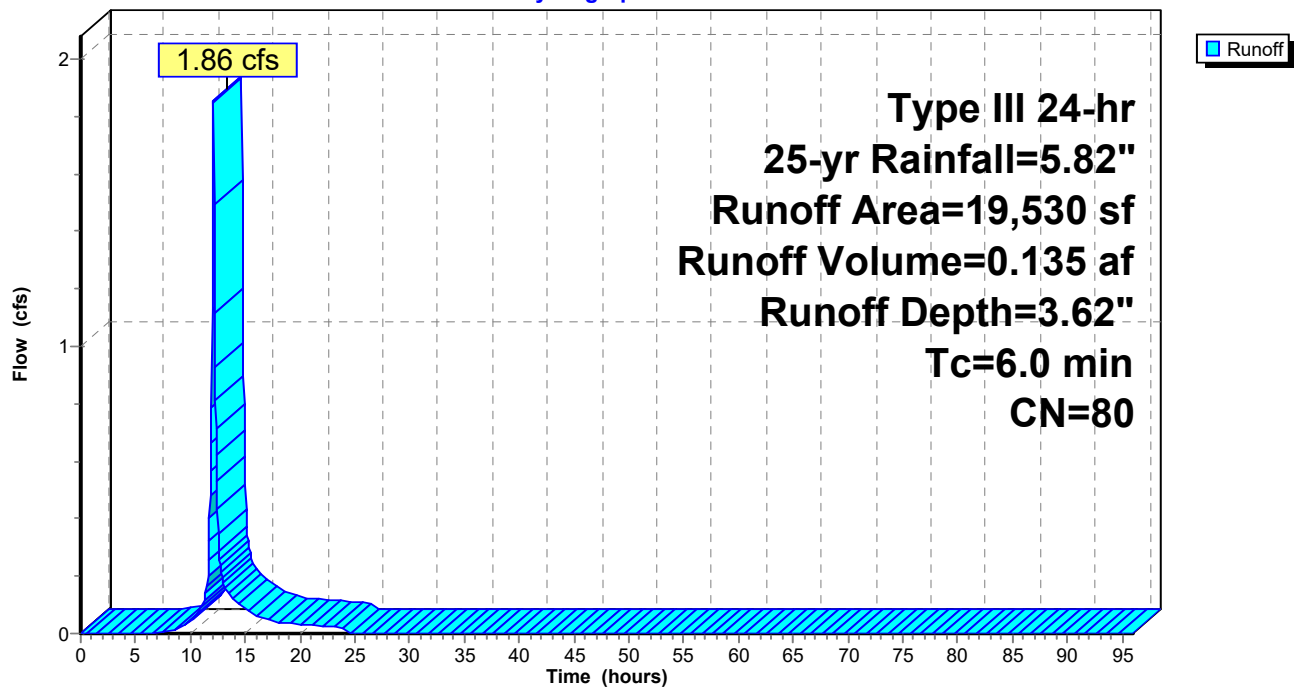
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=5.82"

Area (sf)	CN	Description
2,630	79	Woods/grass comb., Good, HSG D
16,900	80	>75% Grass cover, Good, HSG D
19,530	80	Weighted Average
19,530		100.00% Pervious Area

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

Subcatchment Ex_Ws1: Ex_Ws_1

Hydrograph



4 Earle St_Pre

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Type III 24-hr 25-yr Rainfall=5.82"

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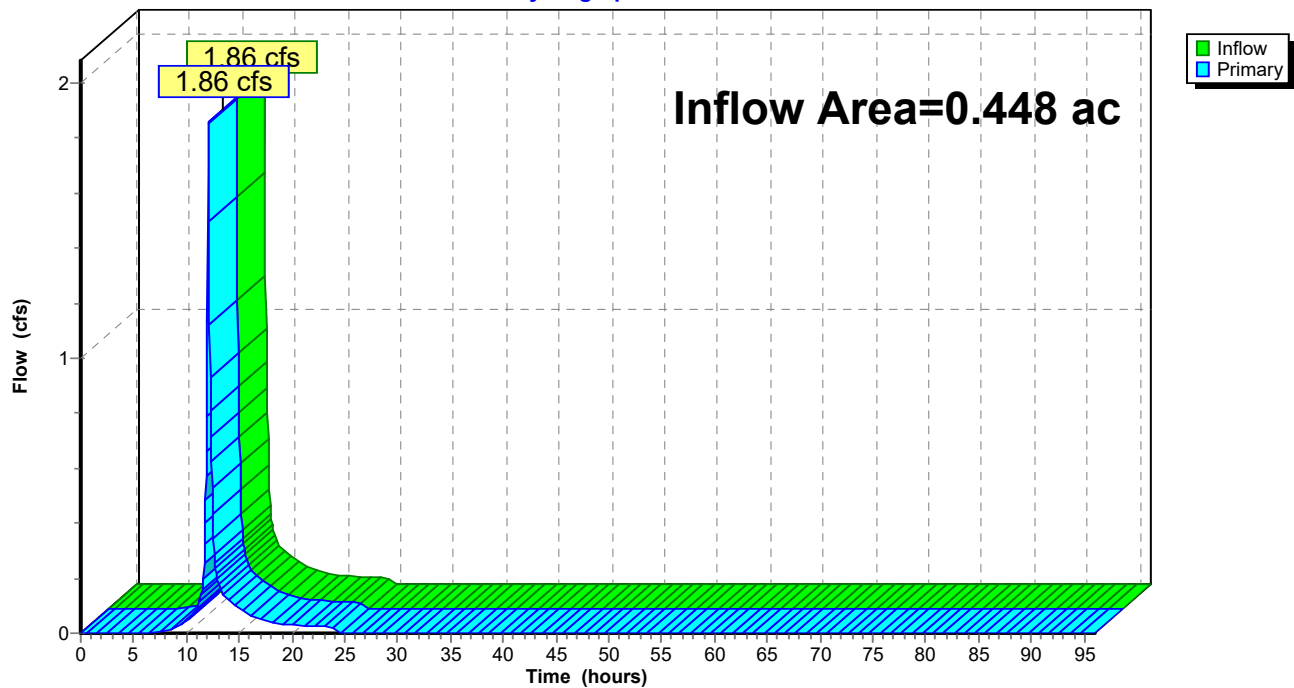
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Primary = 1.86 cfs @ 12.09 hrs, Volume= 0.135 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Link #1: POA-1

Hydrograph



4 Earle St_Pre

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Type III 24-hr 100-yr Rainfall=7.48"

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Summary for Subcatchment Ex_Ws1: Ex_Ws_1

Runoff = 2.61 cfs @ 12.09 hrs, Volume= 0.192 af, Depth= 5.14"
Routed to Link #1 : POA-1

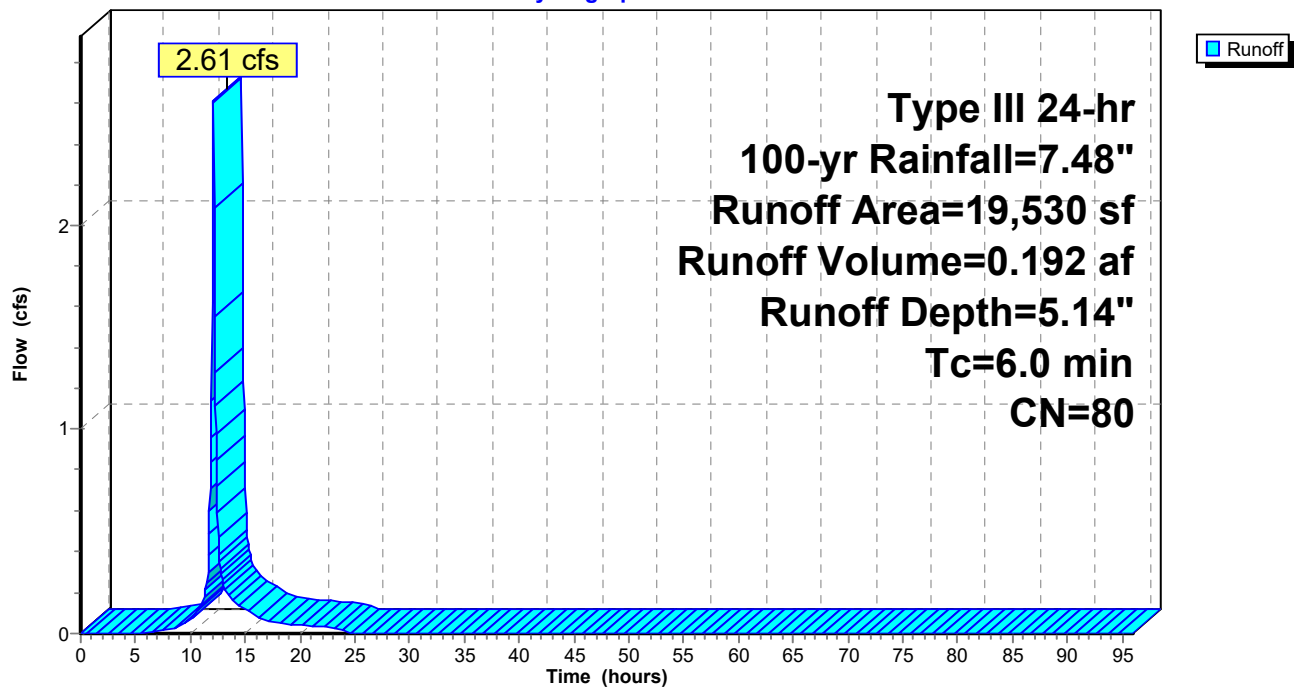
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Type III 24-hr 100-yr Rainfall=7.48"

Area (sf)	CN	Description
2,630	79	Woods/grass comb., Good, HSG D
16,900	80	>75% Grass cover, Good, HSG D
19,530	80	Weighted Average
19,530		100.00% Pervious Area

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

Subcatchment Ex_Ws1: Ex_Ws_1

Hydrograph



4 Earle St_Pre

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Type III 24-hr 100-yr Rainfall=7.48"

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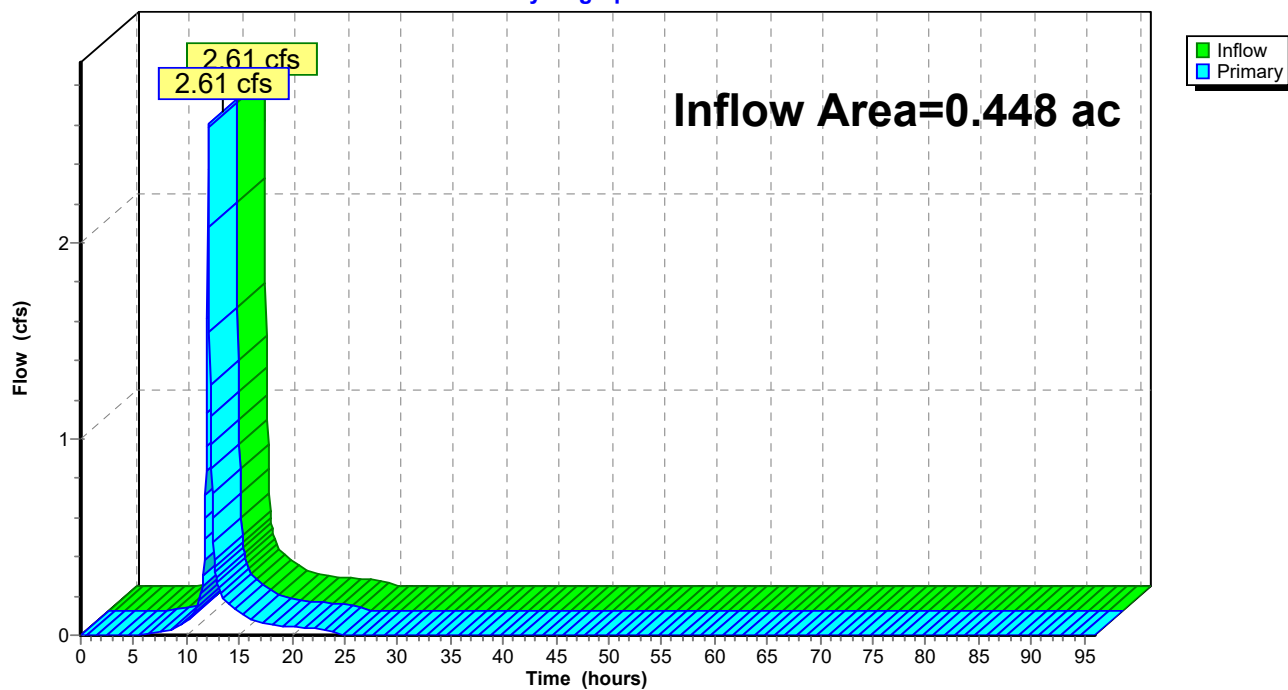
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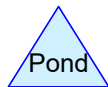
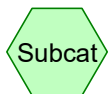
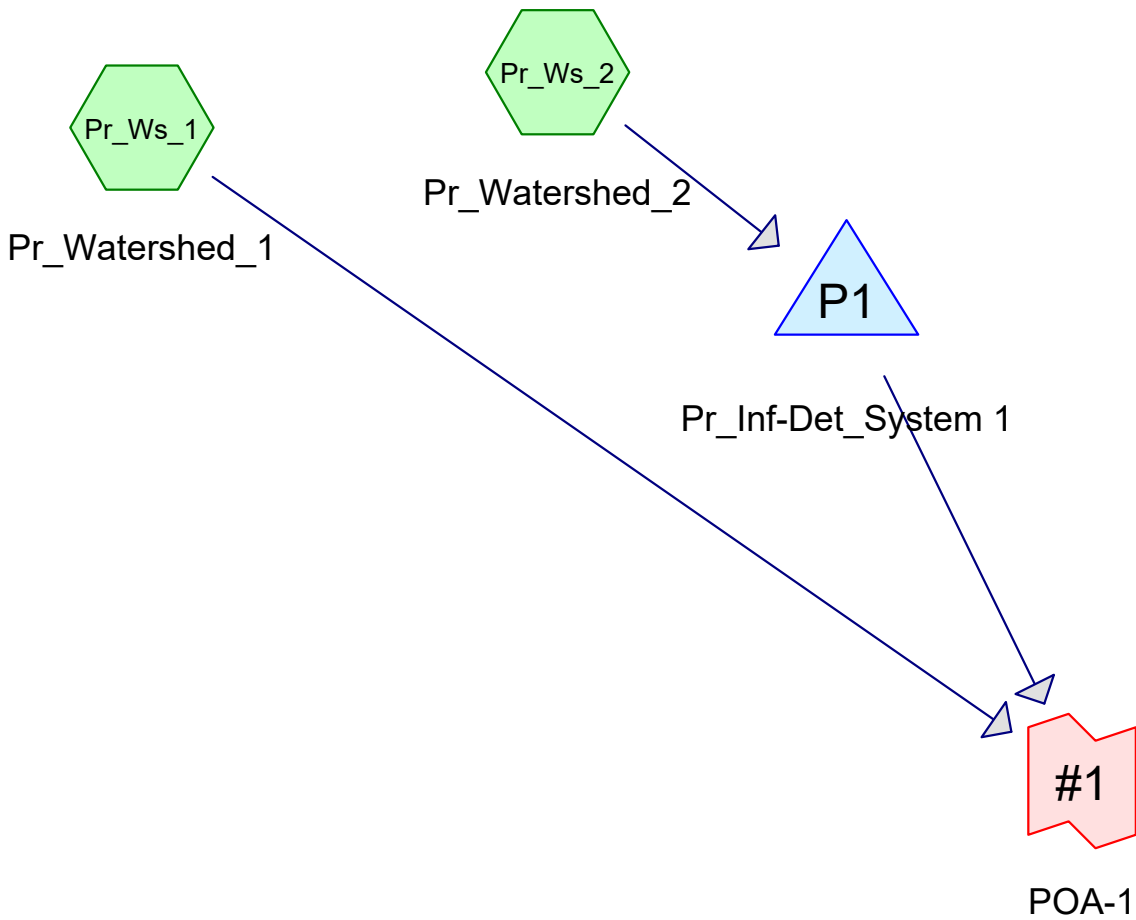
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Inflow = 2.61 cfs @ 12.09 hrs, Volume= 0.192 af
Primary = 2.61 cfs @ 12.09 hrs, Volume= 0.192 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Link #1: POA-1

Hydrograph





4 Earle St_Post

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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type III 24-hr		Default	24.00	1	3.20	2
2	10-yr	Type III 24-hr		Default	24.00	1	4.75	2
3	25-yr	Type III 24-hr		Default	24.00	1	5.82	2
4	100-yr	Type III 24-hr		Default	24.00	1	7.48	2

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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.285	80	>75% Grass cover, Good, HSG D (Pr_Ws_1, Pr_Ws_2)
0.062	90	Gravel Road (Pr_Ws_1, Pr_Ws_2)
0.019	98	Unconnected pavement, HSG D (Pr_Ws_2)
0.039	98	Unconnected roofs, HSG D (Pr_Ws_1)
0.043	79	Woods/grass comb., Good, HSG D (Pr_Ws_1)
0.448	84	TOTAL AREA

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Type III 24-hr 2-yr Rainfall=3.20"

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Summary for Subcatchment Pr_Ws_1: Pr_Watershed_1

Runoff = 0.63 cfs @ 12.09 hrs, Volume= 0.046 af, Depth= 1.54"
Routed to Link #1 : POA-1

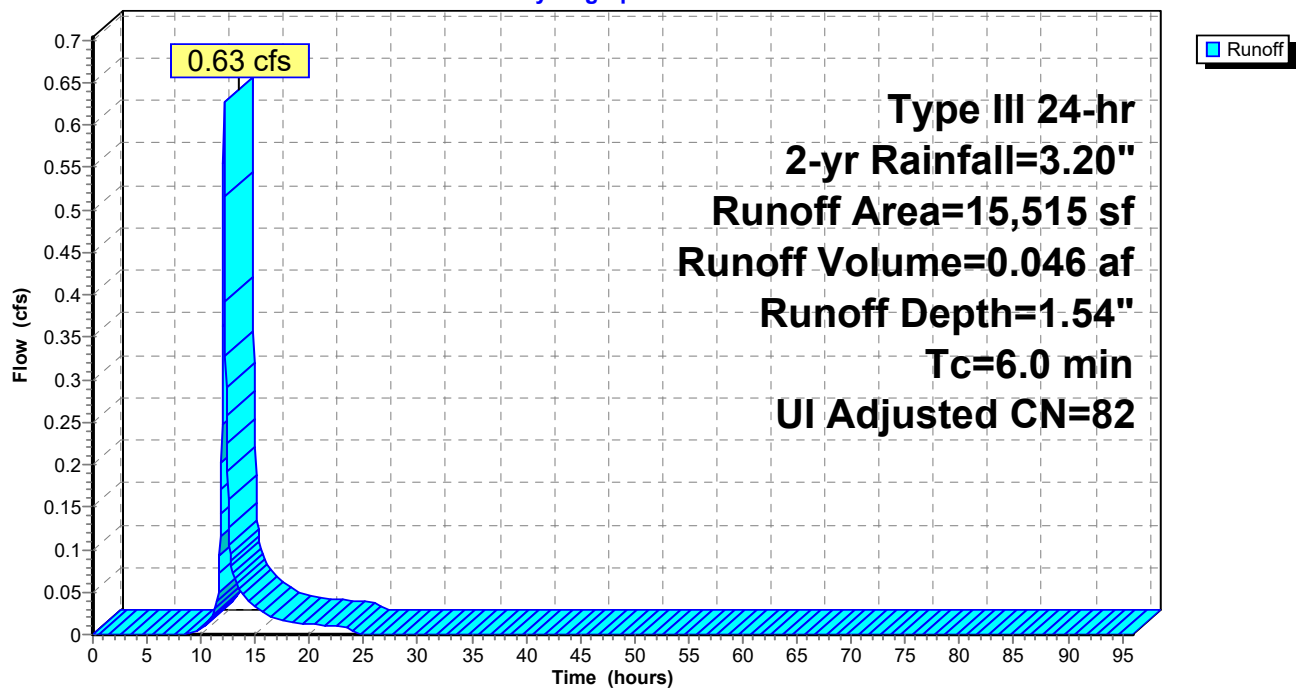
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Adj	Description
10,668	80		>75% Grass cover, Good, HSG D
1,685	98		Unconnected roofs, HSG D
* 1,291	90		Gravel Road
1,871	79		Woods/grass comb., Good, HSG D
15,515	83	82	Weighted Average, UI Adjusted
13,830			89.14% Pervious Area
1,685			10.86% Impervious Area
1,685			100.00% Unconnected

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

Subcatchment Pr_Ws_1: Pr_Watershed_1

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.20"

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Summary for Subcatchment Pr_Ws_2: Pr_Watershed_2

Runoff = 0.19 cfs @ 12.09 hrs, Volume= 0.014 af, Depth= 1.84"
Routed to Pond P1 : Pr_Inf-Det_System 1

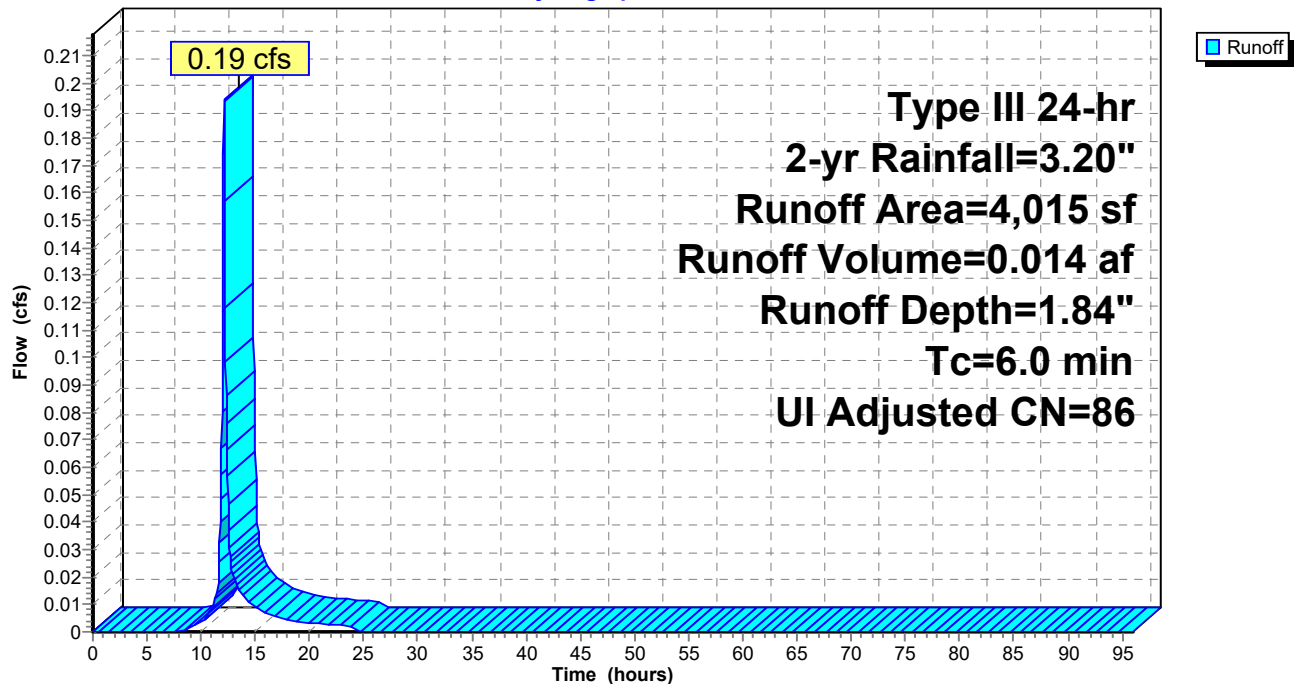
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Adj	Description
1,766	80		>75% Grass cover, Good, HSG D
835	98		Unconnected pavement, HSG D
* 1,414	90		Gravel Road
4,015	87	86	Weighted Average, UI Adjusted
3,180			79.20% Pervious Area
835			20.80% Impervious Area
835			100.00% Unconnected

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

Subcatchment Pr_Ws_2: Pr_Watershed_2

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Type III 24-hr 2-yr Rainfall=3.20"

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Summary for Pond P1: Pr_Inf-Det_System 1

Inflow Area = 0.092 ac, 20.80% Impervious, Inflow Depth = 1.84" for 2-yr event
Inflow = 0.19 cfs @ 12.09 hrs, Volume= 0.014 af
Outflow = 0.03 cfs @ 12.58 hrs, Volume= 0.014 af, Atten= 83%, Lag= 29.1 min
Discarded = 0.03 cfs @ 12.58 hrs, Volume= 0.014 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link #1 : POA-1

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Peak Elev= 61.38' @ 12.58 hrs Surf.Area= 602 sf Storage= 194 cf

Plug-Flow detention time= 45.2 min calculated for 0.014 af (100% of inflow)

Center-of-Mass det. time= 45.2 min (867.8 - 822.5)

Volume	Invert	Avail.Storage	Storage Description
#1	61.00'	1,179 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
61.00	405	0	0
62.00	917	661	661
62.50	1,154	518	1,179

Device	Routing	Invert	Outlet Devices
#1	Discarded	61.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	63.00'	5.0' long x 4.0' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50 5.00 5.50
			Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66
			2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.03 cfs @ 12.58 hrs HW=61.38' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=61.00' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

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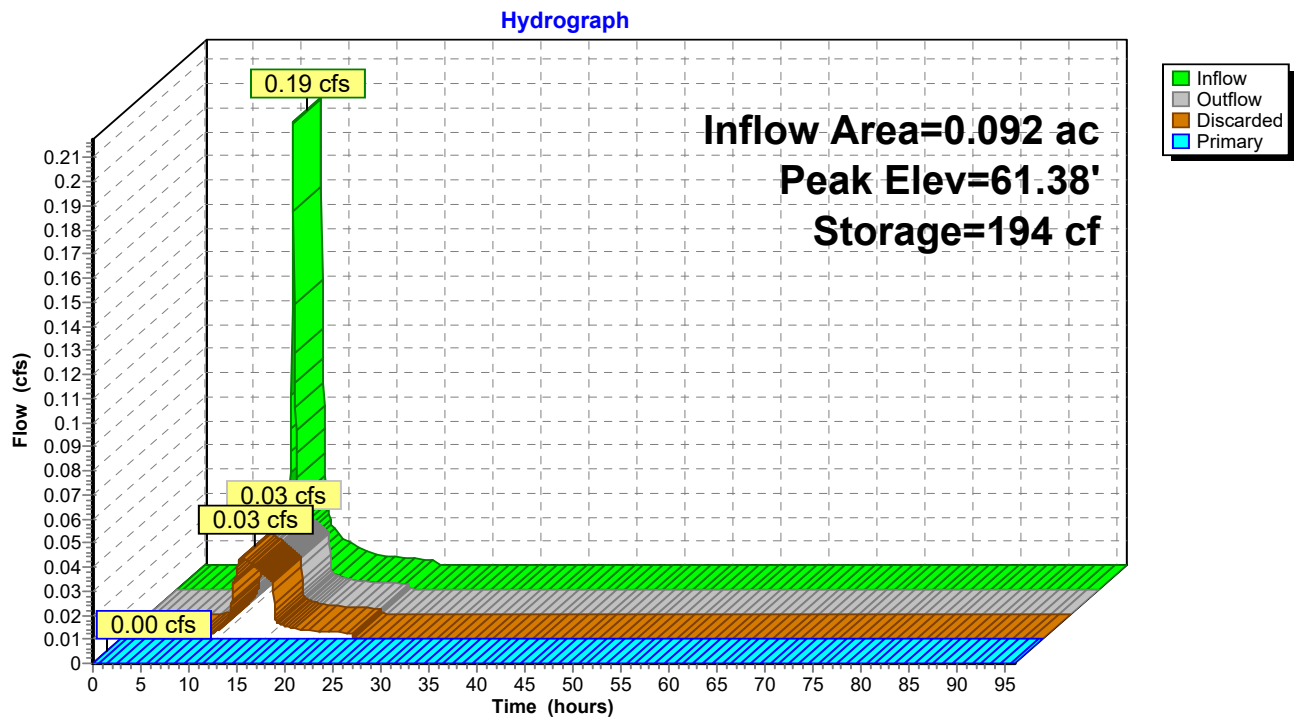
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Type III 24-hr 2-yr Rainfall=3.20"

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Pond P1: Pr_Inf-Det_System 1



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Type III 24-hr 2-yr Rainfall=3.20"

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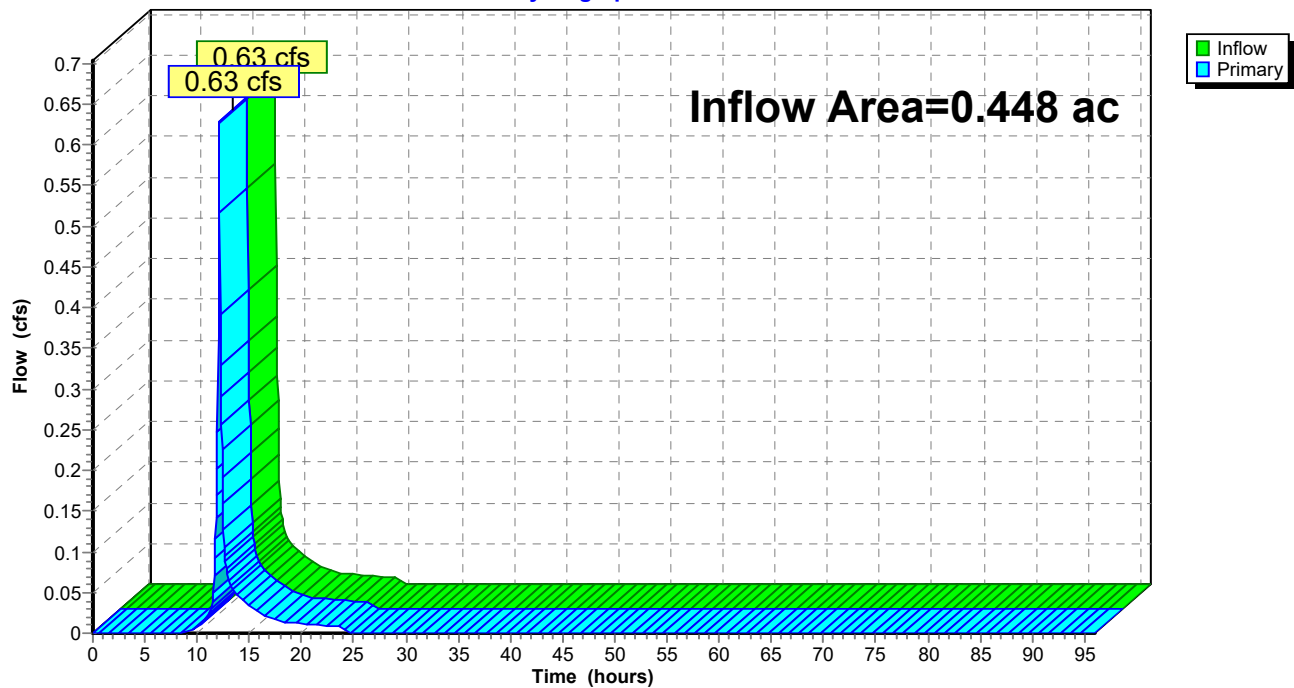
Summary for Link #1: POA-1

Inflow Area = 0.448 ac, 12.90% Impervious, Inflow Depth = 1.22" for 2-yr event
Inflow = 0.63 cfs @ 12.09 hrs, Volume= 0.046 af
Primary = 0.63 cfs @ 12.09 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Link #1: POA-1

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Type III 24-hr 10-yr Rainfall=4.75"

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Summary for Subcatchment Pr_Ws_1: Pr_Watershed_1

Runoff = 1.17 cfs @ 12.09 hrs, Volume= 0.085 af, Depth= 2.86"
Routed to Link #1 : POA-1

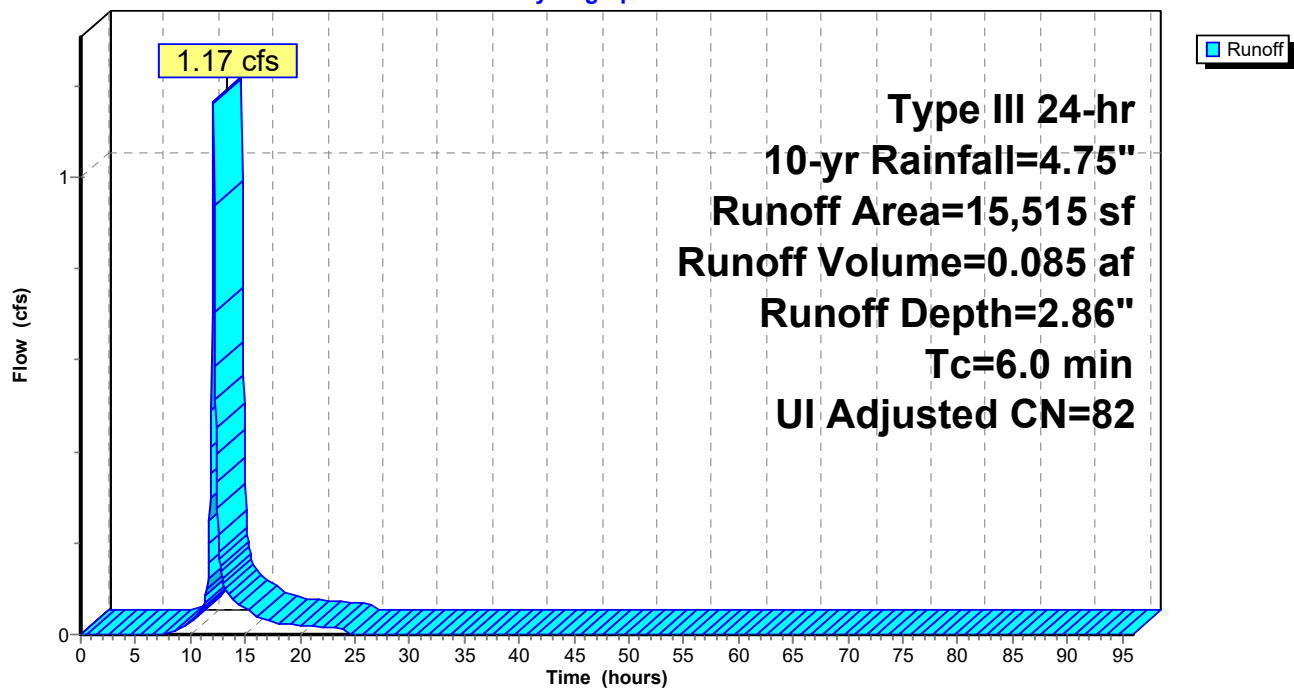
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.75"

	Area (sf)	CN	Adj	Description
	10,668	80		>75% Grass cover, Good, HSG D
	1,685	98		Unconnected roofs, HSG D
*	1,291	90		Gravel Road
	1,871	79		Woods/grass comb., Good, HSG D
	15,515	83	82	Weighted Average, UI Adjusted
	13,830			89.14% Pervious Area
	1,685			10.86% Impervious Area
	1,685			100.00% Unconnected

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

Subcatchment Pr_Ws_1: Pr_Watershed_1

Hydrograph



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Type III 24-hr 10-yr Rainfall=4.75"

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Summary for Subcatchment Pr_Ws_2: Pr_Watershed_2

Runoff = 0.34 cfs @ 12.09 hrs, Volume= 0.025 af, Depth= 3.23"
Routed to Pond P1 : Pr_Inf-Det_System 1

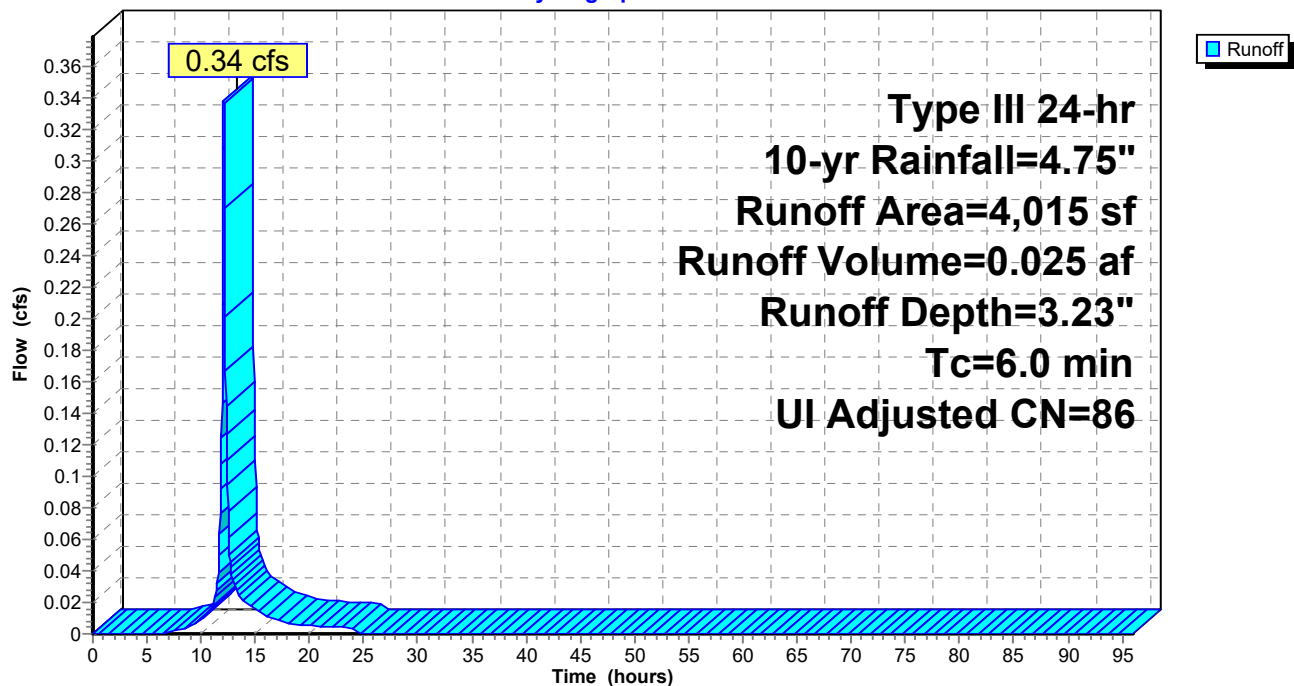
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.75"

Area (sf)	CN	Adj	Description
1,766	80		>75% Grass cover, Good, HSG D
835	98		Unconnected pavement, HSG D
* 1,414	90		Gravel Road
4,015	87	86	Weighted Average, UI Adjusted
3,180			79.20% Pervious Area
835			20.80% Impervious Area
835			100.00% Unconnected

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

Subcatchment Pr_Ws_2: Pr_Watershed_2

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Type III 24-hr 10-yr Rainfall=4.75"

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Summary for Pond P1: Pr_Inf-Det_System 1

Inflow Area = 0.092 ac, 20.80% Impervious, Inflow Depth = 3.23" for 10-yr event
Inflow = 0.34 cfs @ 12.09 hrs, Volume= 0.025 af
Outflow = 0.04 cfs @ 12.71 hrs, Volume= 0.025 af, Atten= 87%, Lag= 37.4 min
Discarded = 0.04 cfs @ 12.71 hrs, Volume= 0.025 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link #1 : POA-1

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 61.69' @ 12.71 hrs Surf.Area= 758 sf Storage= 401 cf

Plug-Flow detention time= 84.0 min calculated for 0.025 af (100% of inflow)
Center-of-Mass det. time= 84.0 min (890.4 - 806.4)

Volume	Invert	Avail.Storage	Storage Description
#1	61.00'	1,179 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
61.00	405	0	0
62.00	917	661	661
62.50	1,154	518	1,179

Device	Routing	Invert	Outlet Devices
#1	Discarded	61.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	63.00'	5.0' long x 4.0' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50 5.00 5.50
			Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66
			2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.04 cfs @ 12.71 hrs HW=61.69' (Free Discharge)

↑1=**Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=61.00' (Free Discharge)

↑2=**Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

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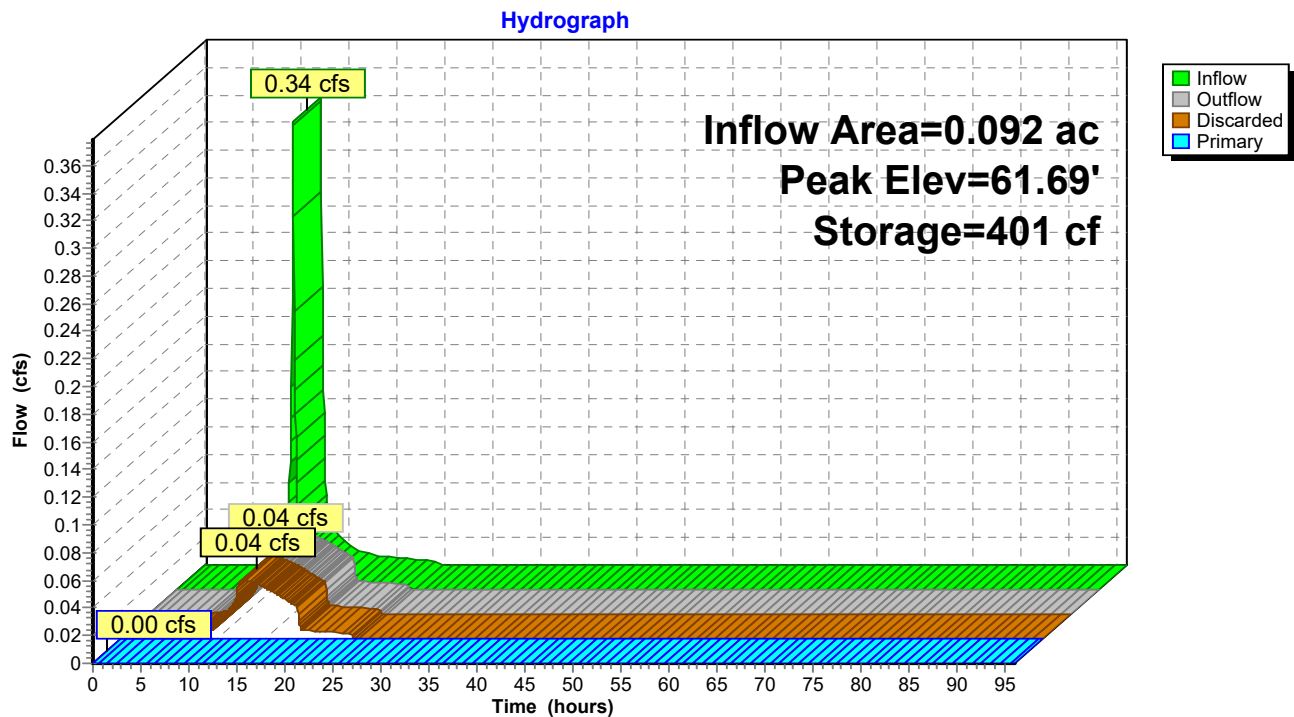
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Type III 24-hr 10-yr Rainfall=4.75"

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Pond P1: Pr_Inf-Det_System 1



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Type III 24-hr 10-yr Rainfall=4.75"

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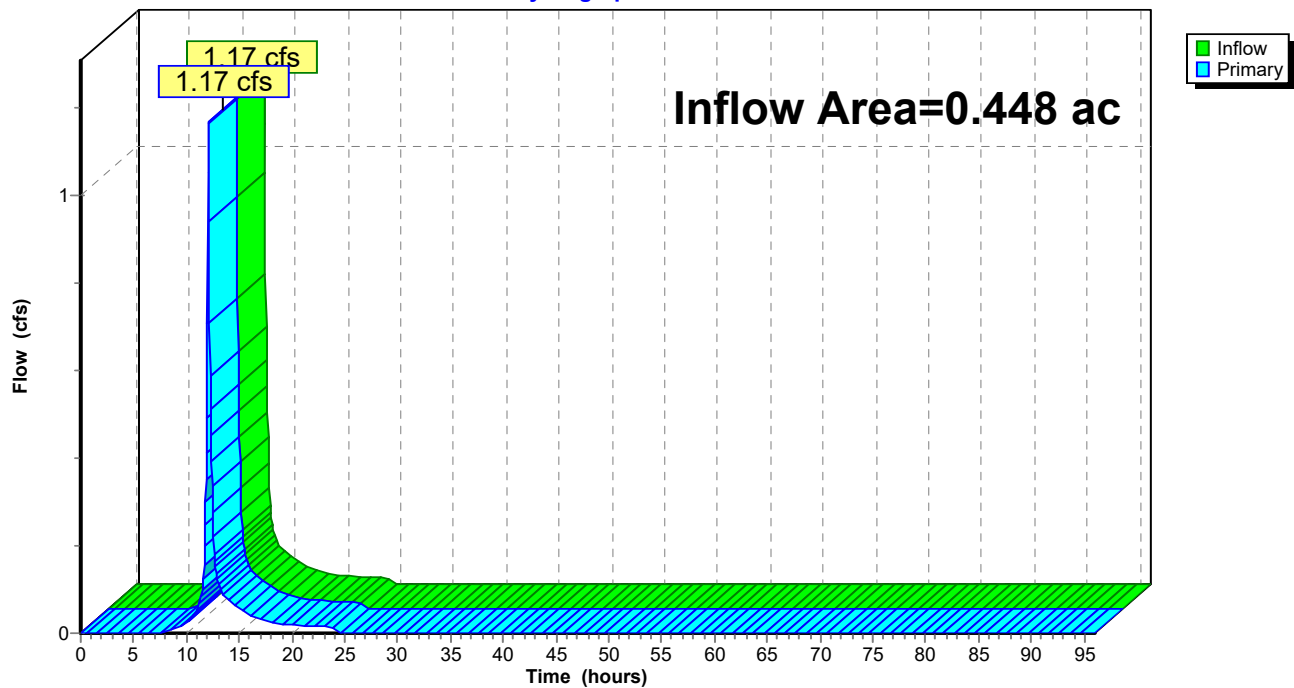
Summary for Link #1: POA-1

Inflow Area = 0.448 ac, 12.90% Impervious, Inflow Depth = 2.27" for 10-yr event
Inflow = 1.17 cfs @ 12.09 hrs, Volume= 0.085 af
Primary = 1.17 cfs @ 12.09 hrs, Volume= 0.085 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Link #1: POA-1

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Type III 24-hr 25-yr Rainfall=5.82"

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Summary for Subcatchment Pr_Ws_1: Pr_Watershed_1

Runoff = 1.55 cfs @ 12.09 hrs, Volume= 0.113 af, Depth= 3.82"
Routed to Link #1 : POA-1

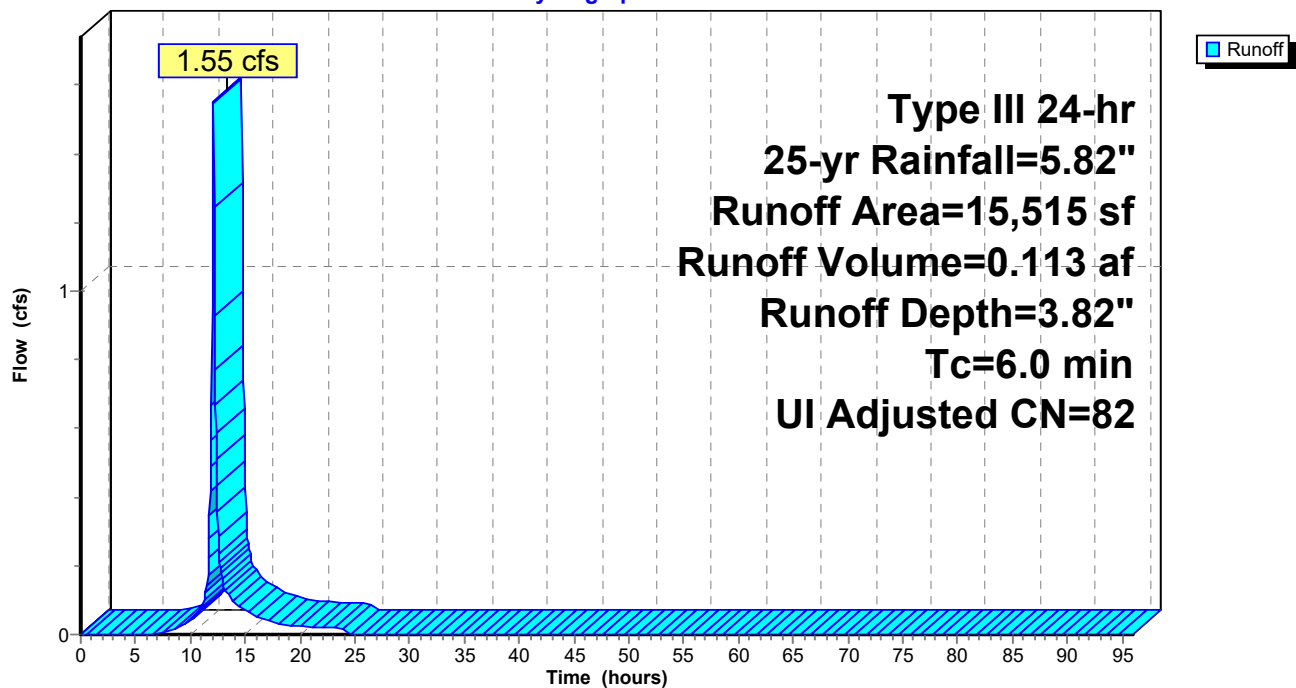
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=5.82"

Area (sf)	CN	Adj	Description
10,668	80		>75% Grass cover, Good, HSG D
1,685	98		Unconnected roofs, HSG D
* 1,291	90		Gravel Road
1,871	79		Woods/grass comb., Good, HSG D
15,515	83	82	Weighted Average, UI Adjusted
13,830			89.14% Pervious Area
1,685			10.86% Impervious Area
1,685			100.00% Unconnected

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

Subcatchment Pr_Ws_1: Pr_Watershed_1

Hydrograph



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Type III 24-hr 25-yr Rainfall=5.82"

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Summary for Subcatchment Pr_Ws_2: Pr_Watershed_2

Runoff = 0.44 cfs @ 12.09 hrs, Volume= 0.033 af, Depth= 4.24"

Routed to Pond P1 : Pr_Inf-Det_System 1

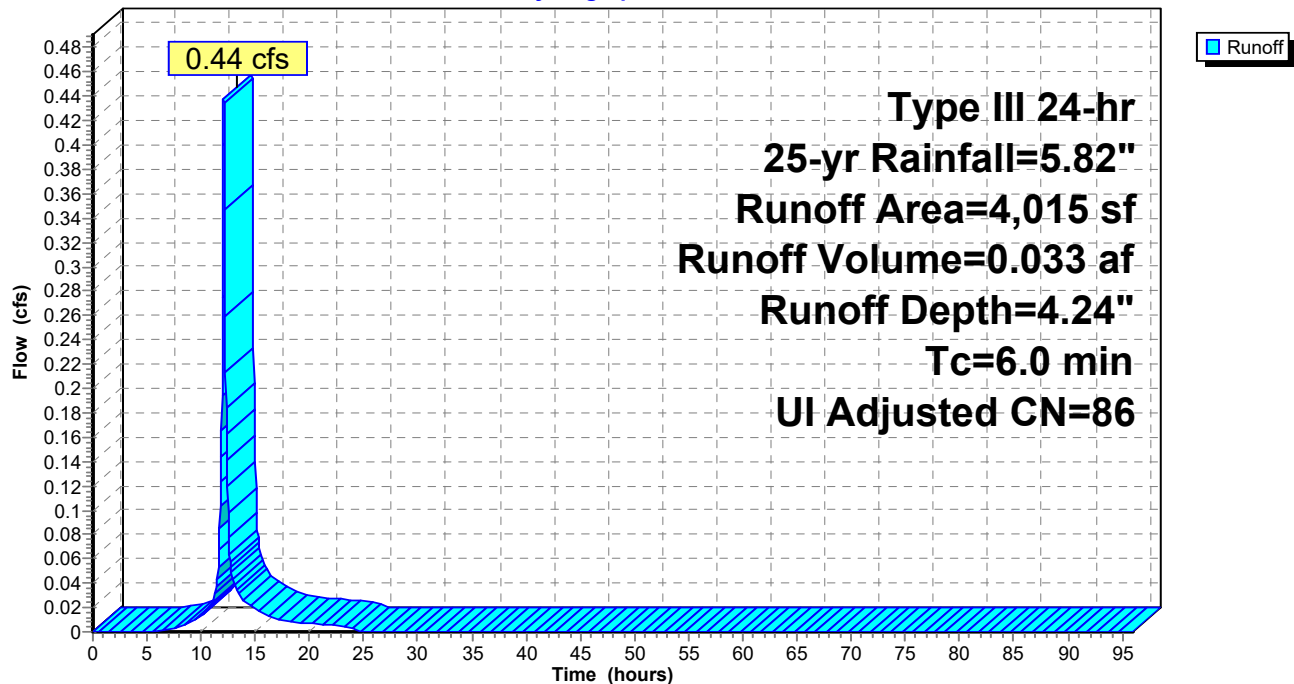
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=5.82"

Area (sf)	CN	Adj	Description
1,766	80		>75% Grass cover, Good, HSG D
835	98		Unconnected pavement, HSG D
* 1,414	90		Gravel Road
4,015	87	86	Weighted Average, UI Adjusted
3,180			79.20% Pervious Area
835			20.80% Impervious Area
835			100.00% Unconnected

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

Subcatchment Pr_Ws_2: Pr_Watershed_2

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Type III 24-hr 25-yr Rainfall=5.82"

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Summary for Pond P1: Pr_Inf-Det_System 1

Inflow Area = 0.092 ac, 20.80% Impervious, Inflow Depth = 4.24" for 25-yr event
Inflow = 0.44 cfs @ 12.09 hrs, Volume= 0.033 af
Outflow = 0.05 cfs @ 12.83 hrs, Volume= 0.033 af, Atten= 89%, Lag= 44.6 min
Discarded = 0.05 cfs @ 12.83 hrs, Volume= 0.033 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link #1 : POA-1

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 61.89' @ 12.83 hrs Surf.Area= 859 sf Storage= 560 cf

Plug-Flow detention time= 108.8 min calculated for 0.033 af (100% of inflow)
Center-of-Mass det. time= 108.7 min (907.5 - 798.8)

Volume	Invert	Avail.Storage	Storage Description
#1	61.00'	1,179 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
61.00	405	0	0
62.00	917	661	661
62.50	1,154	518	1,179

Device	Routing	Invert	Outlet Devices
#1	Discarded	61.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	63.00'	5.0' long x 4.0' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50 5.00 5.50
			Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66
			2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.05 cfs @ 12.83 hrs HW=61.89' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=61.00' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

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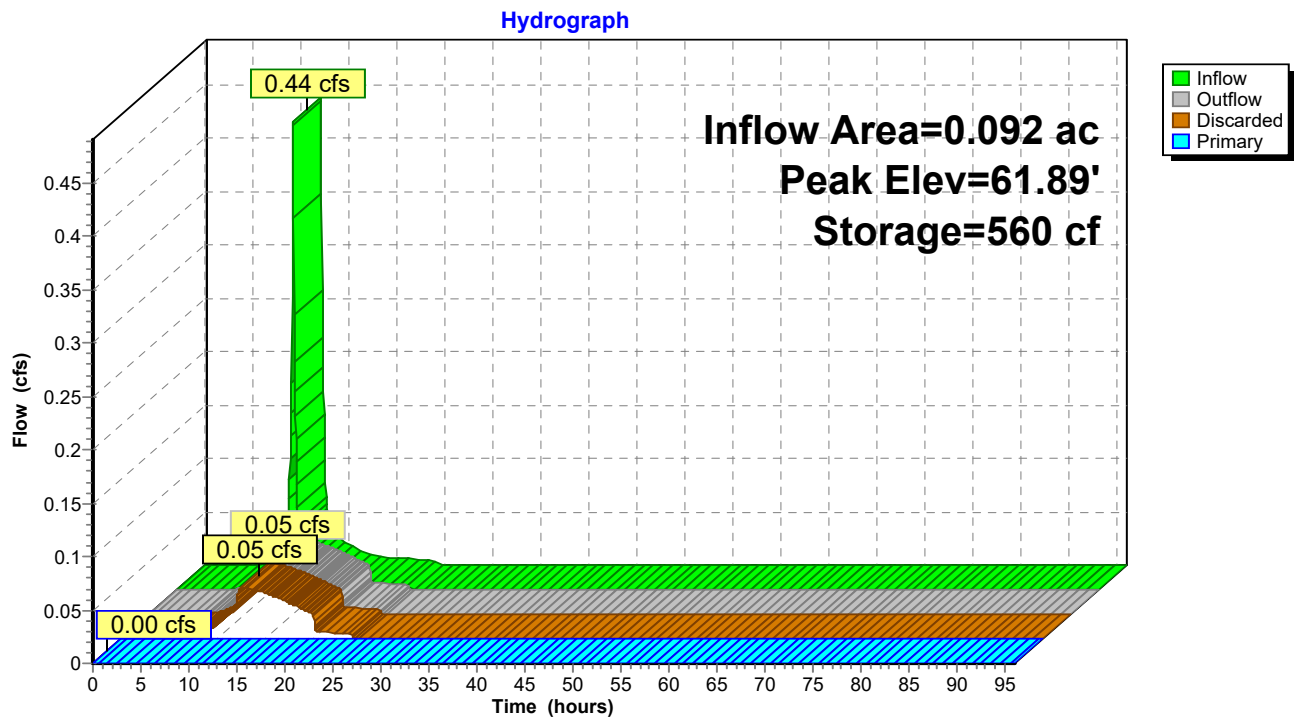
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Type III 24-hr 25-yr Rainfall=5.82"

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Pond P1: Pr_Inf-Det_System 1



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Type III 24-hr 25-yr Rainfall=5.82"

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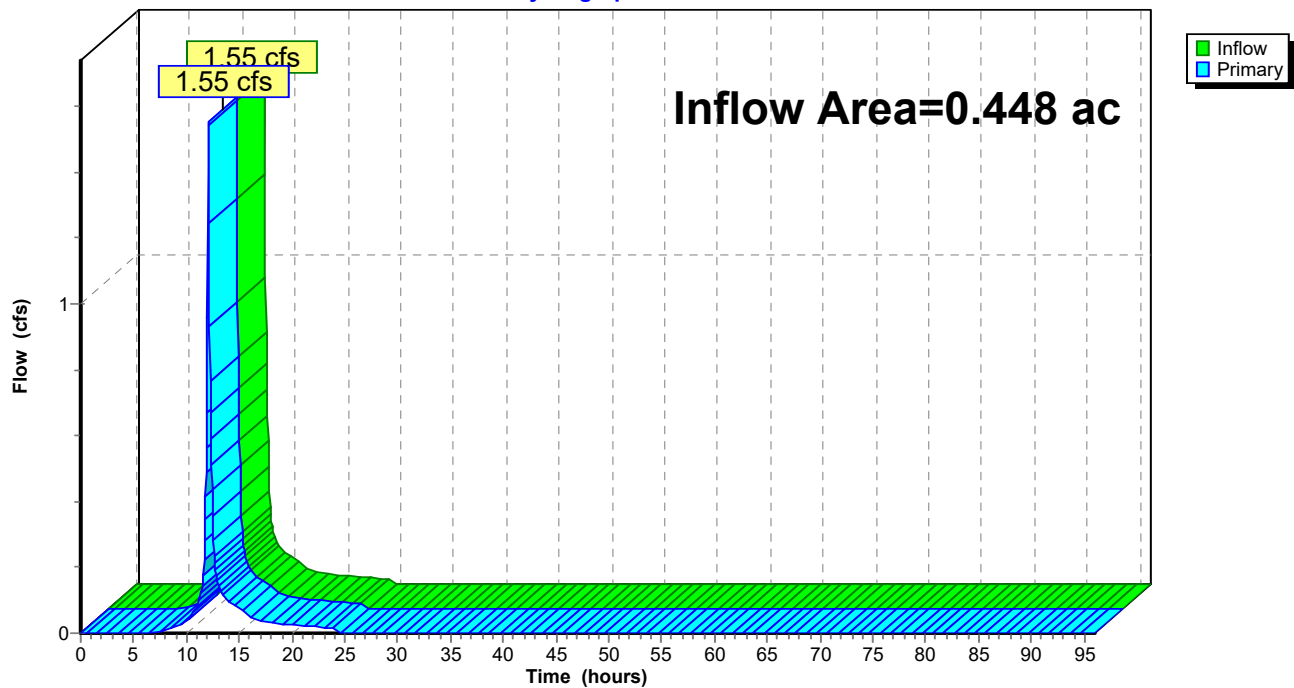
Summary for Link #1: POA-1

Inflow Area = 0.448 ac, 12.90% Impervious, Inflow Depth = 3.04" for 25-yr event
Inflow = 1.55 cfs @ 12.09 hrs, Volume= 0.113 af
Primary = 1.55 cfs @ 12.09 hrs, Volume= 0.113 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Link #1: POA-1

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Type III 24-hr 100-yr Rainfall=7.48"

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Summary for Subcatchment Pr_Ws_1: Pr_Watershed_1

Runoff = 2.15 cfs @ 12.09 hrs, Volume= 0.159 af, Depth= 5.37"
Routed to Link #1 : POA-1

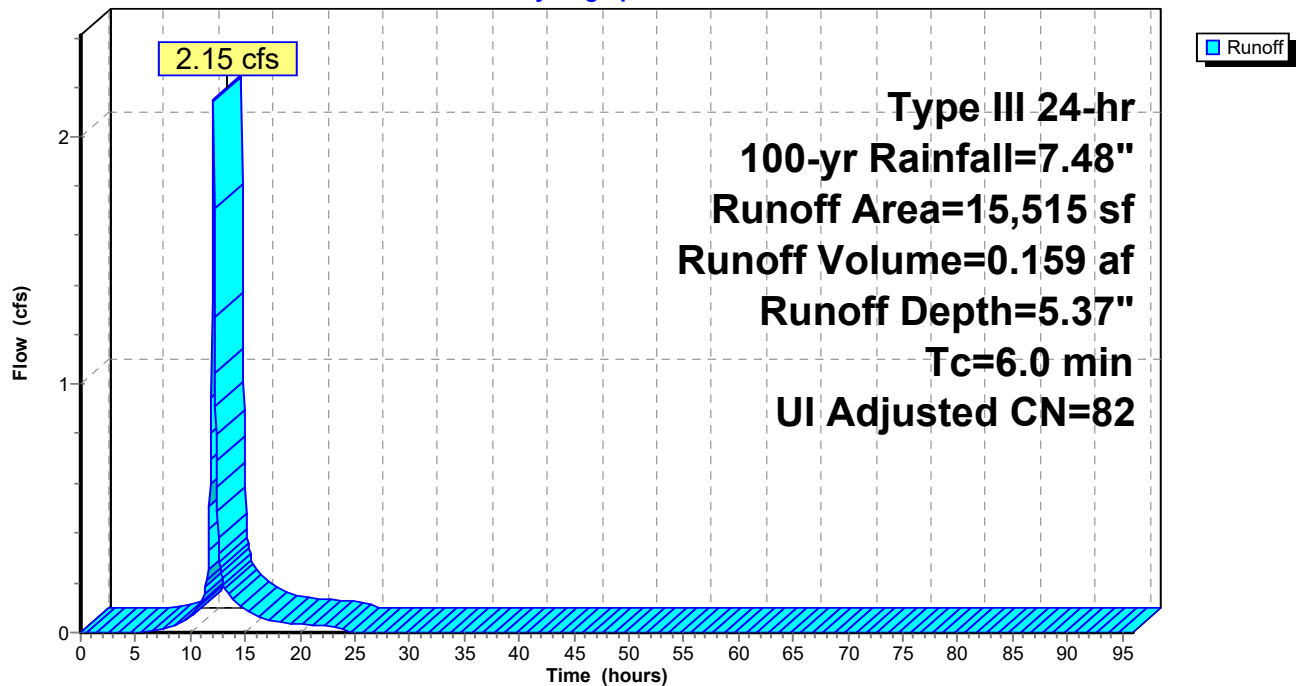
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.48"

Area (sf)	CN	Adj	Description
10,668	80		>75% Grass cover, Good, HSG D
1,685	98		Unconnected roofs, HSG D
* 1,291	90		Gravel Road
1,871	79		Woods/grass comb., Good, HSG D
15,515	83	82	Weighted Average, UI Adjusted
13,830			89.14% Pervious Area
1,685			10.86% Impervious Area
1,685			100.00% Unconnected

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

Subcatchment Pr_Ws_1: Pr_Watershed_1

Hydrograph



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Type III 24-hr 100-yr Rainfall=7.48"

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Summary for Subcatchment Pr_Ws_2: Pr_Watershed_2

Runoff = 0.59 cfs @ 12.09 hrs, Volume= 0.045 af, Depth= 5.83"
Routed to Pond P1 : Pr_Inf-Det_System 1

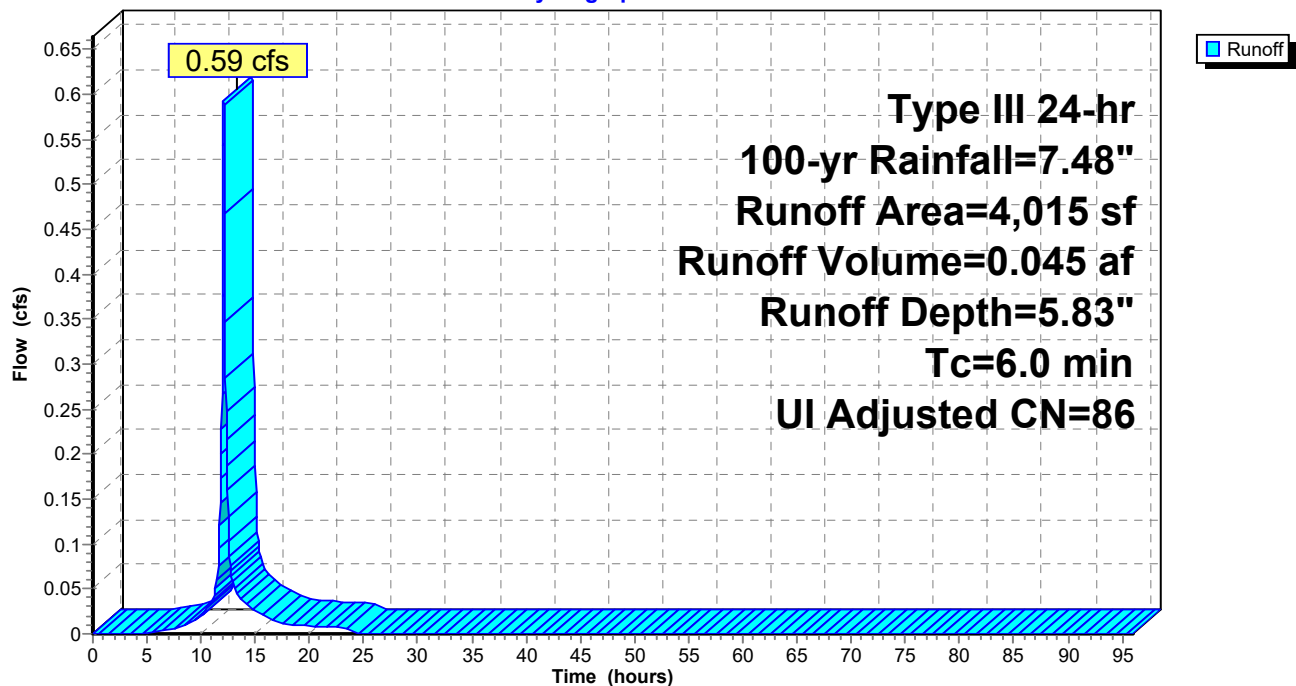
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.48"

Area (sf)	CN	Adj	Description
1,766	80		>75% Grass cover, Good, HSG D
835	98		Unconnected pavement, HSG D
* 1,414	90		Gravel Road
4,015	87	86	Weighted Average, UI Adjusted
3,180			79.20% Pervious Area
835			20.80% Impervious Area
835			100.00% Unconnected

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

Subcatchment Pr_Ws_2: Pr_Watershed_2

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Type III 24-hr 100-yr Rainfall=7.48"

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Summary for Pond P1: Pr_Inf-Det_System 1

Inflow Area = 0.092 ac, 20.80% Impervious, Inflow Depth = 5.83" for 100-yr event
Inflow = 0.59 cfs @ 12.09 hrs, Volume= 0.045 af
Outflow = 0.06 cfs @ 12.96 hrs, Volume= 0.045 af, Atten= 91%, Lag= 52.3 min
Discarded = 0.06 cfs @ 12.96 hrs, Volume= 0.045 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link #1 : POA-1

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 62.18' @ 12.96 hrs Surf.Area= 1,001 sf Storage= 830 cf

Plug-Flow detention time= 145.7 min calculated for 0.045 af (100% of inflow)
Center-of-Mass det. time= 145.6 min (935.7 - 790.0)

Volume	Invert	Avail.Storage	Storage Description
#1	61.00'	1,179 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
61.00	405	0	0
62.00	917	661	661
62.50	1,154	518	1,179

Device	Routing	Invert	Outlet Devices
#1	Discarded	61.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	63.00'	5.0' long x 4.0' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50 5.00 5.50
			Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66
			2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.06 cfs @ 12.96 hrs HW=62.18' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=61.00' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

4 Earle St_Post

Prepared by KBM Design Group

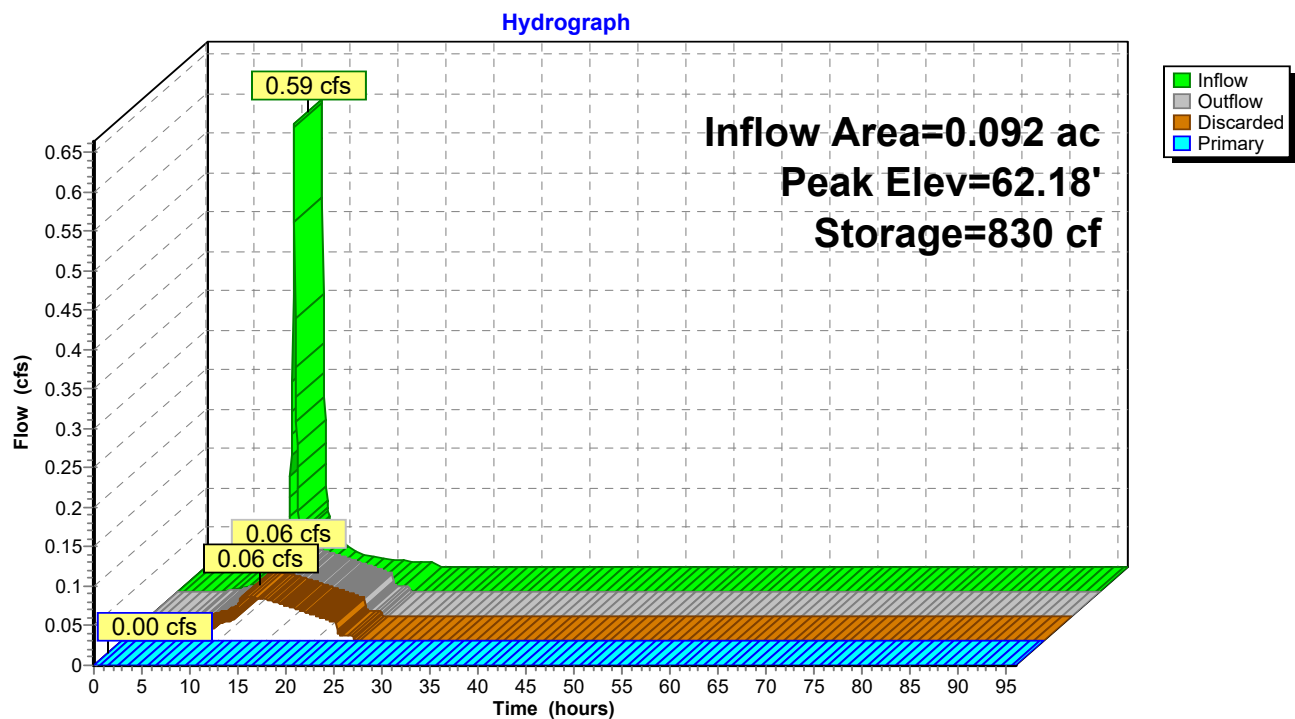
HydroCAD® 10.20-9a s/n 13780 © 2026 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=7.48"

Printed 10/4/2026

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Pond P1: Pr_Inf-Det_System 1



4 Earle St_Post

Prepared by KBM Design Group

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Type III 24-hr 100-yr Rainfall=7.48"

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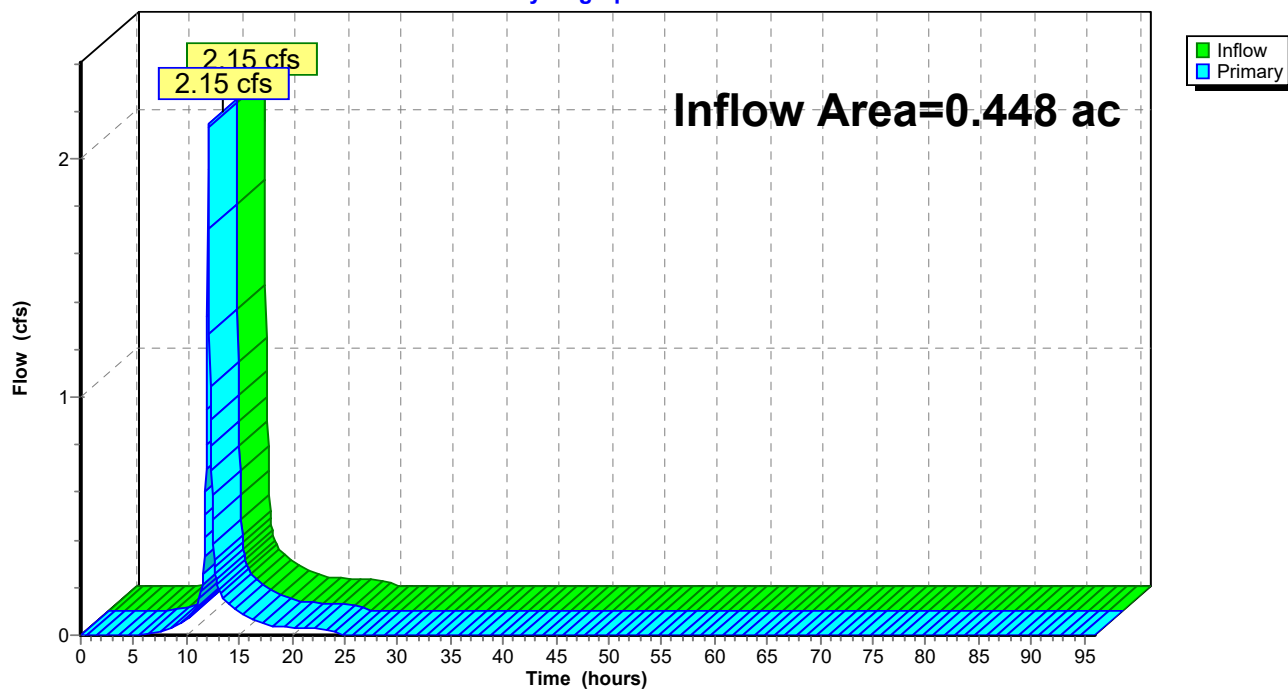
Summary for Link #1: POA-1

Inflow Area = 0.448 ac, 12.90% Impervious, Inflow Depth = 4.26" for 100-yr event
Inflow = 2.15 cfs @ 12.09 hrs, Volume= 0.159 af
Primary = 2.15 cfs @ 12.09 hrs, Volume= 0.159 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Link #1: POA-1

Hydrograph



APPENDIX B

SEDIMENT FOREBAY SIZING CALCULATIONS

This analysis is to evaluate sizing criteria of all proposed sediment forebays according to "Volume 2 Chapter 2: Structural BMP Specifications for the Massachusetts Stormwater Handbook." The proposed sediment forebay will receive surface runoff prior to discharge to downstream infiltration BMPs.

Forebay 1

Tributary Impervious Area	= 2601 ft ²
Forebay Volume Required	= 0.1 inches per impervious acre
	= (2601 ft ²) x (1 ac/43,560 ft ²) x (0.1/12)
	= 0.0005 ac-ft
	= 22 ft ³
Forebay 1 Volume Provided riprap at elevation 61.90 ft	= Volume between bottom of forebay at elevation 61.00 and
	= 122 ft ³ > 22 ft ³

4 Earle St_Post

Prepared by KBM Design Group

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Type III 24-hr 100-yr Rainfall=7.48"

Printed 10/4/2026

Summary for Pond 1P: Sediment Forebay

[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Avail.Storage	Storage Description
#1	61.00'	122 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
61.00	63	0	0
61.90	208	122	122

GROUNDWATER RECHARGE CALCULATIONS

Review of the United States Department of Agricultural (USDA) Natural Resources Conservation Service (NRCS) indicates that the parent soils within the limit of Watersheds Pr_WS1 comprise Urban Land that is mostly fill (Hydrologic Soil Group “D” based on site being in fill)

The Massachusetts Stormwater Handbook determines the required recharge volume using a calculation of 0.10 inches of runoff for “D” soils multiplied by the total contributing impervious cover of the watersheds. Watershed Pr_WS1 & 2 comprises of bituminous paved driveway, gravel road, roof area grassed areas and wooded areas. Runoff from these watersheds flow to proposed infiltration/detention system P1

The total impervious cover of Watershed Pr_Ws1&2 is 5,225 ft², therefore:

Mass DEP Requirement

$$\begin{aligned}\text{Required Recharge Volume} &= 0.10 \text{ inches} \times \text{Total Impervious Area for “D” soils} \\ &= 0.10 \text{ inches} \times 5,225 \text{ ft}^2 \times (1/12 \text{ in/ft}) = \underline{44 \text{ ft}^3}\end{aligned}$$

$$\text{Total Required Recharge Volume for Overall Project} = \underline{44 \text{ ft}^3}$$

Recharge to Groundwater Provided

The required recharge volume is provided within the footprint of proposed infiltration basin P1.

$$\text{Volume Provided within Infiltration Basin P1} = \underline{890 \text{ ft}^3}$$

The total recharge volume provided exceeds the minimum recharge requirement for “D” soils.

$$\text{Total Recharge Volume Provided} = \boxed{890 \text{ ft}^3 > 44 \text{ ft}^3}$$

INSTRUCTIONS:

1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Version 1, Automated: Mar. 4, 2008

Location: 4 Earle Street Fairhaven MA

TSS Removal Calculation Worksheet	B	C	D	E	F
	BMP ¹	TSS Removal Rate ¹	Starting TSS Load*	Amount Removed (C*D)	Remaining Load (D-E)
	Sediment Forebay	0.25	1.00	0.25	0.75
	Infiltration Basin	0.80	0.75	0.60	0.15
		0.00	0.15	0.00	0.15
		0.00	0.15	0.00	0.15
		0.00	0.15	0.00	0.15

Total TSS Removal =

85%

Separate Form Needs to
be Completed for Each
Outlet or BMP Train

Project: 4 Earle St
Prepared By: A.K
Date: 10/05/20026

*Equals remaining load from previous BMP (E)
which enters the BMP

APPENDIX C



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

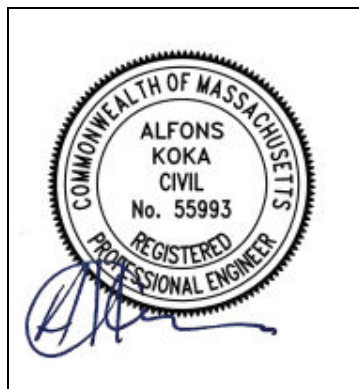
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



10.05.2026

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- ☒ New development
- ☐ Redevelopment
- ☐ Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☒ No disturbance to any Wetland Resource Areas
- ☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☐ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
 - ☐ Credit 1
 - ☐ Credit 2
 - ☐ Credit 3
- ☐ Use of "country drainage" versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☐ Other (describe): _____

Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☐ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☐ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- ☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- ☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- ☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- ☒ Soil Analysis provided.
- ☒ Required Recharge Volume calculation provided.
- ☐ Required Recharge volume reduced through use of the LID site Design Credits.
- ☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - ☒ Static
 - ☐ Simple Dynamic
 - ☐ Dynamic Field¹
- ☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.
- ☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- ☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- ☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - ☒ Site is comprised solely of C and D soils and/or bedrock at the land surface
 - ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
 - ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- ☒ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- ☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- ☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- ☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- ☐ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - ☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - ☐ is within the Zone II or Interim Wellhead Protection Area
 - ☐ is near or to other critical areas
 - ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - ☐ involves runoff from land uses with higher potential pollutant loads.
 - ☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - ☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- ☒ The BMP is sized (and calculations provided) based on:
 - ☒ The ½" or 1" Water Quality Volume or
 - ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- ☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- ☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- ☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- ☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- ☐ The NPDES Multi-Sector General Permit does **not** cover the land use.
- ☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- ☐ All exposure has been eliminated.
- ☐ All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- ☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- ☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- ☐ Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- ☐ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - ☐ Limited Project
 - ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - ☐ Bike Path and/or Foot Path
 - ☐ Redevelopment Project
 - ☐ Redevelopment portion of mix of new and redevelopment.
- ☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- ☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- ☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- ☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- ☒ The project is **not** covered by a NPDES Construction General Permit.
- ☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- ☐ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

- ☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - ☒ Name of the stormwater management system owners;
 - ☒ Party responsible for operation and maintenance;
 - ☒ Schedule for implementation of routine and non-routine maintenance tasks;
 - ☐ Plan showing the location of all stormwater BMPs maintenance access areas;
 - ☐ Description and delineation of public safety features;
 - ☐ Estimated operation and maintenance budget; and
 - ☐ Operation and Maintenance Log Form.
- ☐ The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- ☒ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- ☒ An Illicit Discharge Compliance Statement is attached;
- ☐ NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

ILLICIT DISCHARGE COMPLIANCE STATEMENT

By: Coastal Village Partners LLC.
Project Site: 4 Earle Street | Fairhaven, MA 02719

Illicit discharges to the stormwater management system are discharges that do not entirely comprise stormwater. Notwithstanding the foregoing, an illicit discharge does not include discharges from the following activities or facilities: firefighting, water line flushing, landscape irrigation, uncontaminated groundwater, potable water sources, foundation drains, air conditioning condensation, footing drains, individual resident car washing, flows from riparian habitats and wetlands, dechlorinated water from swimming pools, water used for street washing, and water used to clean residential buildings without detergents.

The Project was designed to eliminate potential illicit discharges to the stormwater management system in accordance with Standard 10 of the Massachusetts Stormwater Handbook. In accordance with Standard 10, to the best of my knowledge, information, and belief the stormwater management system as designed does not receive, nor contribute, any illicit discharges to regulated environmental resource areas or the municipal stormwater collection system.

The Long-Term Stormwater Operation and Maintenance Plan outlines measures to prevent future illicit discharges.

(signature)

(date)

Coastal Partners LLC
C/O Joel Cordero
4 Earle Street
Fairhaven, MA 02719
508.317.1771
ericatamarals@gmail.com

APPENDIX D

CONSTRUCTION PHASE OPERATIONS & MAINTENANCE PLAN

4 EARLE STREET | FAIRHAVEN MA

Date: October 05, 2026

I. OWNER:

Coastal Village
Partners LLC
C/O Eric Amaral 4
Earle Street
Fairhaven, MA 02719
508.317.1771

II. RESPONSIBLE PARTY:

Coastal Village
Partners LLC
C/O Eric Amaral 4
Earle Street
Fairhaven, MA 02719
508.317.1771

III. PROJECT OVERVIEW:

Prevention of offsite flooding and improvements to existing runoff, water quality, and groundwater recharge characteristics are the main priorities of the project with respect to the drainage design. The project will improve existing stormwater management within the property with respect to the current site condition, which includes no existing stormwater management facilities, by installing a new stormwater management system comprising various Best Management Practices (BMPs) to mitigate runoff and water quality impacts associated with the proposed site development. Water quality BMPs to mitigate the runoff generated by the site improvements during construction include straw wattle sedimentation control barriers, and temporary Siltsack® drainage inlet inserts (or similar product) in adjacent street drainage and new on-site catch basins (as installed) and periodic street sweeping along the site frontage.

It is the intent of the stormwater management design to achieve an 80% Total Suspended Solids (TSS) removal efficiency or 44% removal efficiency prior to discharge as outlined in the DEP Stormwater Management Standards.

The construction-phase BMPs used in this design were chosen for their effectiveness and ease of maintenance. Providing for maintenance requirements that are practical is essential to achieve the desired result of improved stormwater quality and peak attenuation. This plan will be provided to the property owner, property manager, and general contractor to educate them on the recommendations of this plan and the DEP Stormwater Management Guidelines.

CONSTRUCTION PHASE OPERATIONS & MAINTENANCE PLAN

4 EARLE STREET | FAIRHAVEN MA

IV. CONSTRUCTION PERIOD – BEST MANAGEMENT PRACTICES:

a) MONITORING

During construction operations, the stormwater management system will be inspected at least once every seven (7) calendar days, or once every fourteen (14) calendar days and within twenty-four (24) hours after a storm event of one quarter inch (0.25”) or greater. Sediment accumulation shall be removed once a depth of one-third the height of perimeter sedimentation control devices is achieved unless stated otherwise. Damaged or underperforming sedimentation controls shall be replaced, modified, or otherwise supplemented immediately.

b) WASTE AND RECYCLING DISPOSAL

Metal dumpster type waste and recycling disposal receptacles will be located on-site and kept covered when not in active use. The project site will be policed daily by a person appointed by the general contractor to be kept the project site free of construction debris.

c) DUST MONITORING PLAN

A dust monitoring plan will be established prior to the start of construction and kept on site at all times. This will reduce the particulate levels in the air and reduce impacts to surrounding areas. Recommended methods for controlling dust include:

- Provide vegetative cover to disturbed areas at the end of earth disturbing activities as soon as practical, but no longer than 14 days.
- Apply a mulch layer to disturbed areas at the end of earth disturbing activities as soon as practical, but no longer than 14 days.
- Cover stockpiles unused for a maximum of 7 days with poly sheeting or tarps.
- Water surface materials and soil stockpiles.
- Use covered trucks.
- Minimize spoils stockpiled on site.
- Monitor construction practices to minimize unnecessary disturbance/ transfer of soils.
- Conduct periodic street cleaning along the site frontage during excavation activities.
- Pave driveways and parking surfaces as early as possible (where applicable and feasible).
- Assign personnel to remove windblown debris daily.
- Limit the idling of engines or stopped vehicles (except asphalt and cement concrete mixing trucks and equipment) to five minutes.

d) SPILL PREVENTION, CONTAINMENT, AND CLEANUP

Construction activities for this project will necessitate the use of equipment fuels, engine fluids, paints, and adhesives on the construction site and must be considered in the spill prevention and response practices for the project.

CONSTRUCTION PHASE OPERATIONS & MAINTENANCE PLAN

4 EARLE STREET | FAIRHAVEN MA

The general contractor will ensure areas where potential pollutants can occur are well protected with erosion control barriers and clean up equipment to prevent discharge of wastewater, fuels, and oil from vehicles and any other toxic or hazardous spills from the project site.

Spill kits comprising equipment necessary to attend to spills or leaks shall be stored on site in equipment sheds or similar covered enclosures and shall consist of the following:

- Safety goggles.
- Chemically resistant gloves and overshoe boots.
- Water and chemical fire extinguishers.
- Shovels.
- Absorbent materials.
- Containers suitable for storage of site-specific materials.
- First aid kits.

Spills and leaks shall be treated according to the type, volume, and location of the released material. Generally, mitigation shall consist of the following:

- Prevention of additional material storage.
- Containment of spilled material.
- Safe, thorough, and environmentally sound removal of spilled material.
- Remediation of environmental damage.

In the event of a spill, all materials used for containment and cleanup shall be replaced in kind in the spill kits immediately. The following describes specific preventative methods to be employed for materials used on site.

Fuels, Antifreeze, and Coolant for Construction Equipment and Generators:

In the case of a fuel spill on a pervious surface, the spill shall be contained and treated with absorbent polymer material immediately and the affected soil shall be excavated and stored in an impervious, bermed area, and the Licensed Site Professional shall be contacted to coordinate next steps regarding soil management. In the case of a fuel spill on an impervious surface, the spill shall be contained to prevent runoff and treated with absorbent material.

CONSTRUCTION PHASE OPERATIONS & MAINTENANCE PLAN

4 EARLE STREET | FAIRHAVEN MA

Adhesives and Paints:

Adhesive and paint materials shall be transferred to the site on an as needed basis. Any containers to be stored on site shall be clearly labeled and stored in non-flammable lockers. Wash water from paints shall be containerized; washing of paints into storm drainage systems shall be prohibited. Water-based and latex paints shall either be recycled or dried up and thrown out with the regular household trash, and oil-based paints and thinners shall be removed from the site by a local professional hazardous material removal company.

Town of Canton Emergency Contacts are as Follows:

- Emergency Management: (888) 304-1133 (MassDEP 24-Hour Spill Reporting)
- Police Department: 911
- Fire Department: 508-991-6105

For spills of less than five (5) gallons of material, mitigation shall consist of source control, containment, and clean-up with absorbent materials, unless an imminent hazard necessitates that a local professional hazardous material removal company become involved to mitigate the spill.

For spills greater than five (5) gallons of material, the incident shall be reported immediately to the MassDEP Hazardous Waste Incident Response Group at (617)-792-7653 and a professional emergency response contractor. Information that shall be provided to the said contractor is as follows:

- Type of material spilled.
- Quantity of material spilled.
- Location of the spill.
- Time of the spill.

The contractor shall then employ measures to prevent further spillage, contain and/or clean up the spill.

If a Reportable Quantity (RQ) of material is spilled during construction, the National Response Center (NRC) shall be notified immediately at (800) 424-8802. Reportable Quantities of hazardous material are available in 310 CMR 40: Massachusetts Contingency Plan Subpart P: Massachusetts Oil and Hazardous Material List. Within 14 days a report shall be submitted to the EPA New England Regional Office describing the following:

- Type of material released.
- Date and circumstances of the release.
- Measures taken to prevent future releases.

The report shall be submitted to the EPA New England Regional Office at the following address:

EPA New England, Region 1
1 Congress Street, Suite 1100
Boston, MA 02114-2023

CONSTRUCTION PHASE OPERATIONS & MAINTENANCE PLAN

4 EARLE STREET | FAIRHAVEN MA

Frequent inspections of areas where potential spill could occur is key to prevention. Inspection shall take place, at a minimum of once every calendar days, or once every 14 calendar days and within 24 hours of the occurrence of a storm event of 0.25 inches or greater or the occurrence of runoff from snowmelt sufficient to cause a discharge.

An inspection report shall be completed within 24 hours of completing any site inspection. Each inspection report must include, at minimum, the following:

- The inspection date and time.
- The weather and temperature.
- Names and titles of personnel making the inspection.
- A summary of inspection findings, covering at a minimum the observations made in accordance with Part 4.6 of the 2022 Construction General Permit, including any necessary maintenance or corrective actions.
- If inspecting because of rainfall measuring 0.25 inches or greater, include the applicable rain gauge or weather station readings that triggered the inspection.
- If determined that it is unsafe to inspect a portion of the site, describe the reason found to be unsafe and specify the locations to which the conditions apply.

e) STATE & LOCAL SANITARY LAWS

Portable sanitary units will be placed on-site during construction and will be serviced weekly.

V. CONSTRUCTION PERIOD - STRUCTURAL BEST MANAGEMENT PRACTICES

Structural BMPs are those physical facilities that are designed to manage both stormwater quantity and quality. Proper maintenance of the proposed structural BMPs will ensure design performance, promote longevity, and decrease operator maintenance costs. The structural BMPs selected for the proposed site development include compost filter sock sedimentation control barriers, temporary Siltsack® drainage inlet inserts in adjacent existing street drainage and new on-site catch basins (as installed).

a) STRAW WATTLE EROSION CONTROL BARRIERS

Straw wattle sedimentation control barriers shall be installed as specified on the "Site Plan" (plan sheet C2) prior to commencing construction activities. The filter sock barriers shall be inspected daily and maintained throughout construction. Accumulated sediment shall be removed before it has accumulated to one-third of the above ground height of the filter sock. Any breach in the barriers shall be repaired within 24 hours or before next rainfall, whichever is sooner. Filter sock barriers shall remain in place for the duration of construction and may be supplemented and/or modified at any time. The general contractor shall maintain a stockpile of surplus compost filter sock

CONSTRUCTION PHASE OPERATIONS & MAINTENANCE PLAN

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materials equivalent to 10 percent of the overall sedimentation control barrier length as depicted on plan sheet C3.

END

Date: October 05, 2026

I. OWNER:

Coastal Village Partners LLC
C/O Joel Cordero
4 Earle Street
Fairhaven, MA 02719
508.317-1771

II. RESPONSIBLE PARTY:

Coastal Village Partners LLC
C/O Joel Cordero
4 Earle Street
Fairhaven, MA 02719
508.317-1771

PROJECT OVERVIEW

Prevention of offsite flooding and implementation of stormwater runoff, water quality, and groundwater recharge improvements where none currently exist on-site are the main priorities of the project with respect to drainage design. The project will improve existing stormwater management within the property with respect to the existing site condition, which currently includes no such improvements, by installing a stormwater management system comprising various Best Management Practices (BMPs). Long-term water quality BMPs to mitigate the runoff generated by the site improvements include a water quality unit, and an underground infiltration/detention system and periodic mechanical sweeping to remove sand and sediment from paved surfaces.

It is the intent of the stormwater management design to achieve an 80% Total Suspended Solids (TSS) removal efficiency or 44% removal efficiency prior to discharge as outlined in the DEP Stormwater Management Standards.

The permanent BMPs used in this design were chosen for their effectiveness and ease of maintenance. Providing for maintenance requirements that are practical is essential to achieve the desired result of improved stormwater quality, and peak attenuation. This plan will be provided to the property owner, property manager, and general contractor to educate them on the recommendations of this plan and the DEP Stormwater Management Guidelines.

POST-CONSTRUCTION BEST MANAGEMENT PRACTICES

a) NON-STRUCTURAL BEST MANAGEMENT PRACTICES

Implementing source controls can aid in reducing the types and concentrations of contaminants in stormwater runoff. This principle for pollution prevention and non-structural controls, or BMPs, is to minimize the volume of runoff and to minimize contact of stormwater with potential pollutants. Measures such as street sweeping, managing snow removal, and educating the owner/operator of good maintenance practices are examples of non-structural BMPs.

i. PUBLIC AWARENESS

The responsible party shall issue periodic reminders to the building tenants to avoid dumping or releasing pollutants into the storm drains and onto the ground.

ii. STREET SWEEPING

Parking lot, driveway, and loading area sweeping is an integral part of the stormwater management plan as a fundamental component of source reduction efforts. Sweeping activities shall begin on or around April 1. However, sweeping may be done after winter thaw and the onset of early spring. It is critical to remove the accumulated sediment in the parking, loading, and driveway areas from the winter months as soon as possible before spring precipitation.

Sweeping activities should be performed a minimum of two times annually (April 1 and September 1).

iii. SNOW AND SNOWMELT MANAGEMENT

The removal contractor shall avoid stockpiling snow directly on top of catch basin grates and avoid stockpiled snow within the paved parking lot to allow normal vehicular maneuverability. Also avoid stockpiling snow in the sediment forebay, infiltration basin and gravel trenches.

It is suggested that during snowfall events, the snow be stockpiled in at the edge of the parking area. During significant snow fall event, six (6) inches or greater, accumulated snow shall be stockpiled in paved areas only and/or removed from the site by a snow removal contractor. It is the responsibility of the owner to make sure the snow removal contractor utilizes previously approved areas. The owner shall remove sediment from snow storage areas every spring.

It is suggested that no de-icing compounds such as calcium chloride (CaCl_2), calcium magnesium acetate (CMA) or the like be used on the site. The snow removal contractor shall store all sand off-site. No quantities of sand compounds shall be stored on site.

iv. PUBLIC SAFETY FEATURES

The project has been designed with consideration for public safety and does not require any specific features as part of the stormwater management system.

b) STRUCTURAL BEST MANAGEMENT PRACTICES:

Structural BMPs are those physical facilities that are designed to manage both stormwater quantity and quality. Proper maintenance of the proposed structural BMPs will ensure design performance and promote longevity of the structure and may decrease operator maintenance costs.

i. Infiltration Basin & Sediment Forebay

An infiltration basin with a sediment forebay is proposed at the front of the site. The basin is equipped with rip-rap spillways to allow controlled downstream discharge of overflow runoff toward the wetlands. The basin is equipped with an upstream forebay, which provides water quality pre-treatment of surface runoff from proposed paved parking area. The detention/infiltration basin is sized to mitigate peak runoff increases associated with the proposed project for all storm events up to and including the 100-year storm. The basin is designed to drain completely within 72 hours.

The sediment forebay shall be inspected monthly, and cleaning shall be done on a quarterly basis. Check for erosion and cracking on side slopes and at spillways. Check for undesirable vegetative growth (i.e., trees) and differential settlement on side slopes and forebay floor. The stone apron up gradient of the forebay shall be checked for clogging and wash-out and cleaned and re-stabilized as conditions warrant. Mowing of side slopes and forebay floor shall be performed in conjunction with overall site mowing schedule; clippings shall be removed from forebay.

The infiltration basin shall be inspected twice a year at minimum and cleaned as needed. Check for erosion and cracking on side slopes. Check for undesirable vegetative growth (i.e., trees) and differential settlement on side slopes and basin floors. Confirm outlet control structure is clear of trash, sediment, debris, organics, or other obstructions. Clogged surfaces shall be broken up by way of deep tilling and re-vegetated immediately. Light machinery shall be used for all maintenance to avoid compaction of underlying soil. Mowing shall be performed in conjunction with overall site mowing schedule; clippings shall be removed from the basin.

Disposal of accumulated sediment and trash is to be in accordance with applicable local, state, and federal guidelines and regulations.

SITE FURNISHINGS BEST MANAGEMENT PRACTICES

Site furnishings, as they pertain to this Operation and Maintenance Plan, comprise driveways and parking lots; walkways and hardscape areas; fences, walls, and guardrails; landscape areas; and solid waste management facilities.

i. DRIVEWAYS AND GRAVEL ROAD

Driveway and gravel road and emergency access ways shall be inspected twice annually (early Spring and Fall) to assess damage, cracking, differential settlement, and fading of pavement markings. Deteriorated asphalt and damaged curbs and signage shall be repaired as needed based on observation. Faded striping shall be re-painted in kind as needed.

Spill Prevention, Containment, and Countermeasure Plan

Landscape maintenance and parking and loading operations which occur on site necessitate the use of various materials and must be considered in the spill prevention and response practices. The following is a summary of pollutants and the respective property use and maintenance activities generating each:

Pollutant-Generating Activity	Pollutants or Pollutant Constituents (that could be discharged if exposed to stormwater)	Location on Site
Landscaping Maintenance Operations	Gasoline (from lawnmowers), fertilizers	Lawn and landscape areas throughout site
Parking and Loading Operations	Hydraulic oil/fluid, Antifreeze, diesel/gasoline (all from automobiles)	Driveway, parking, and loading areas throughout site

The Owner/Responsible Party shall be responsible for coordinating necessary containment and cleanup efforts in the event of a spill at any location on site. Should a spill occur, equipment necessary to attend to spills or leaks shall be stored on site in a designated storage area within the building and shall consist, at minimum, of the following:

- Safety goggles.
- Chemically resistant gloves and overshoe boots.
- Water and chemical fire extinguishers.
- Shovels.
- Absorbent materials.
- Proprietary compact spill containment berms.

- Containers suitable for storage of site-specific materials.
- First aid kits.

Spills and leaks shall be treated according to the type, volume, and location of the released material. Generally, mitigation shall consist of the following:

- Prevention of additional material storage.
- Containment of spilled material.
- Safe, thorough, and environmentally sound removal of spilled material.
- Remediation of environmental damage.

The following describes specific preventative methods to be employed for materials to be used on site.

SPILLS FROM VEHICLES ACCESSING PARKING AND LOADING AREAS

Spills due to vehicular operations are not anticipated on pervious surfaces. In the case of a spill in the driveway, parking or loading areas, the spill shall be contained using spill berms and/or adhesive drain seals at all vulnerable catch basin inlets to prevent entering the subsurface drainage system, and the spill shall then be treated with absorbent material.

SPILLS FROM LANDSCAPE AND LAWN MAINTENANCE EQUIPMENT

In the case of a spill on a pervious surface, the spill shall be contained and treated with absorbent polymer material immediately and the affected soil, mulch, and/or planted vegetation shall be excavated and stored in a proprietary spill containment berm (by Ultratech or the like) for removal by a professional hazardous material removal company.

Town of Plainville Emergency Contacts are as follows:

- Emergency Management: (888) 304-1133 (MassDEP 24-Hour Spill Reporting)
- Police Department: 911
- Fire Department: 508-991-6105

For spills of less than five (5) gallons of material, mitigation shall consist of source control, containment, and clean-up with absorbent materials, unless an imminent hazard necessitates that a local professional hazardous material removal company become involved to mitigate the spill.

For spills greater than five (5) gallons of material, the incident shall be reported immediately to the MassDEP Hazardous Waste Incident Response Group at (617) 792-7653 and a professional emergency response contractor (ERC). Information that shall be provided to the said ERC is as follows:

- Type of material spilled.

- Quantity of material spilled.
- Location of the spill.
- Time of the spill.

The Owner/Responsible Party shall then employ measures to prevent further spillage, contain and/or clean up the spill.

If a Reportable Quantity (RQ) of material is spilled during site maintenance and access activities, the National Response Center (NRC) shall be notified immediately at (800) 424-8802. Reportable Quantities of hazardous material are available in 310 CMR 40: Massachusetts Contingency Plan Subpart P: Massachusetts Oil and Hazardous Material List. Within 14 days a report shall be submitted to the EPA New England Regional Office describing the following:

- Type of material released.
- Date and circumstances of the release.
- Measures taken to prevent future releases.

This Spill Prevention Plan shall then be updated to document any such preventive measures implemented. The report shall then be submitted to the EPA New England Regional Office at the following address:

EPA New England, Region 1
1 Congress Street, Suite 1100
Boston, MA 02114-2023

Any inspection reports generated in accordance with a RQ spill shall be completed within 24 hours of completing any site inspection. A hard or electronic copy of the report must be retained on site for at least three (3) years from the date of reporting at the Responsible Party's office.

MAINTENANCE AGREEMENT

I, the undersigned, hereby certify that we understand and accept the terms specified in the Town of Fairhaven Stormwater Management Rules and Regulations and acknowledge the following:

1. I am responsible for the maintenance of permanent BMPs on this Site.
2. During a transfer of ownership, I am responsible for informing prospective new owner(s) of the requirements of the Long-Term Operation and Maintenance Plan and of the requirement to amend the Maintenance Agreement with the Town of Fairhaven Stormwater Authority

I understand that failure to comply with the requirements of the approved Long-Term Operation and Maintenance Plan may result in fines and penalties in accordance with the Town of Westport Stormwater Management Bylaw and Regulations.

Owner/ Responsible Party

_____	10.05.2026
(signature)	(date)

Coastal Village Partners LLC
C/O Joel Cordero
4 Earle Street
Fairhaven, MA 02719
508.317-1771

[illegible]

DATE	NAME OF MAINTENANCE PERSONNEL/COMPANY	TYPE OF MAINTENANCE PERFORMED	ISSUES/NEED FOR FOLLOW-UP	WORK ORDER PROVIDED?

Reproduce log sheets as necessary over the life of this Operation and Maintenance Plan.

INSPECTION FORM: SEDIMENT FOREBAY

Forebay Number: ____ FB-1 ____ (Refer to Site Grading and Drainage Plan)

Inspector Name: _____

Date/Time: _____

Weather: _____

TYPE OF INSPECTION (CHECK ONE)	
☐	Routine (Monthly)
☐	Cleaning (Quarterly)
☐	Post-Storm (Depth = _____ inches; Storm Duration = _____ hrs; Storm End Date = _____)
☐	Post-Spill (Time/Date of Spill: _____)

INSPECTION CHECKLIST (CHECK ALL THAT APPLY)	
☐	Infiltration Basin inspection and form also completed?
☐	Check for erosion and cracking on side slopes and spillway
☐	Check for tree growth on side slopes and at forebay floor
☐	Check for differential settlement at forebay floor
☐	Mow side slopes and forebay floor; remove clippings
☐	Remove accumulated trash, sediment, organics

CORRECTIVE ACTION REQUIRED	

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ADDITIONAL NOTES/OBSERVATIONS	

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INSPECTION FORM: INFILTRATION BASIN

Inspector Name:

Date/Time:

Weather:

TYPE OF INSPECTION (CHECK ONE)	
☐	Routine (Every Six Months)
☐	Annual
☐	Post-Storm (Depth = _____ inches; Storm Duration = _____ hrs; Storm End Date = _____)
☐	Post-Spill (Time/Date of Spill: _____)

INSPECTION CHECKLIST (CHECK ALL THAT APPLY)	
☐	Sediment Forebay/ Precast Outlet Control Structure inspections and forms also completed?
☐	Check for erosion and cracking on side slopes
☐	Check for tree growth on side slopes and at basin floor
☐	Check for differential settlement at basin floor
☐	Confirm outlet control structure is clear of debris, organics
☐	Mow side slopes and basin floor; remove clippings
☐	Remove accumulated trash, sediment, organics

CORRECTIVE ACTION REQUIRED

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ADDITIONAL NOTES/OBSERVATIONS

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