# "Proposed 7 Lot Subdivision"

## 1040 Main Street
## Glastonbury, Connecticut

## Draft Drainage Calculations

## Prepared For

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*Submitted To:*

## The Town of Glastonbury

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Date: May 27, 2021

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## 1.0 PROJECT DESCRIPTION

This project consists of the subdivision of an existing 9.3 acre parcel currently known as #1040 Main Street into 7 Lots. The subject parcel is located on the east side of Main Street, across from Southgate Drive. The proposed development is located in the Residence AA and Groundwater Protection Zone 1 zoning districts.

## 2.0 EXISTING CONDITIONS

The existing parcel is primarily wooded. There is a steep upward slope that begins approximately 20 feet east of Main Street and extends to a north/south ridge. The property then gradually slopes down to the northeast corner of the property. There are two wetland areas on the property, as well as a vernal pool that is located in the southeast corner of the property.

## 3.0 PROPOSED CONDITIONS

It is proposed to develop the parcel into 7 residential building lots. The proposed road is 650 feet long and 22 feet wide, and will have curbing along each gutter. The proposed roadway drainage system consists of Type "C" catch basins and a sediment structure connected with reinforced concrete pipe, with 15" diameter minimum pipe size. Runoff from the proposed roadway, building lots, and driveways will be directed to the proposed stormwater/water quality basin. Roof leader drains are proposed to be directed into underground stormwater infiltration chambers. The stormwater basin was designed to provide a zero increase in runoff for the 2, 10, 25, and 100-year storm events assuming zero infiltration into the basin floor (conservative). An underdrain is proposed to drain the basin following storm events. The following table summarizes the pre and post development flows for the watershed that is being routed through the stormwater management area:

| DRAINAGE SUMMARY | | | | |
|---|---|---|---|---|
| CONDITION | FLOW (CFS) | | | |
| | 2 Year | 10 Year | 25 Year | 100 Year |
| Existing Conditions at Analysis Point | 0.02 | 0.88 | 2.62 | 7.06 |
| Discharge From Stormwater Management Area | 0.00 | 0.71 | 2.13 | 5.30 |
| Proposed Flow at Analysis Point | 0.02 | 0.88 | 2.58 | 6.53 |
| Change in Flow at Analysis Point | 0.00 | 0.00 | -0.04 | -0.53 |

All of the proposed flows and design calculations for the proposed drainage system and stormwater basins are attached to this document.

## 4.0 METHODS

The SCS method was used to determine the peak discharge rates contributing to the stormwater management area. The rational method was used to calculate flow to each catch basin and the storm sewer system was sized and analyzed for the 10-year storm event using procedures outlined in Chapter 6 of the Drainage Manual for Hydrology and Chapter 11 for stormwater piping design. Soil types were obtained from NRCS soil mapping. Groundwater Recharge Volume calculations were performed in accordance with the 2004 Connecticut Stormwater Quality Manual Hydrologic Soil Group Approach.

# 5.0 - N.R.C.S. SOIL REPORT

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

# Custom Soil Resource Report for State of Connecticut


January 15, 2021

# 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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# Contents

# How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

# Soil Map

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

# Custom Soil Resource Report
## Soil Map


Map Scale: 1:1,790 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

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

## MAP LEGEND

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

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

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

**Water Features**
- Streams and Canals

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

**Background**
- Aerial Photography

## MAP INFORMATION

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

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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

Soil Survey Area: State of Connecticut
Survey Area Data: Version 20, Jun 9, 2020

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

Date(s) aerial images were photographed: Jul 15, 2019—Aug 29, 2019

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

# Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| 15 | Scarboro muck, 0 to 3 percent slopes | 1.2 | 10.3% |
| 37C | Manchester gravelly sandy loam, 3 to 15 percent slopes | 1.3 | 10.8% |
| 37E | Manchester gravelly sandy loam, 15 to 45 percent slopes | 5.0 | 42.9% |
| 306 | Udorthents-Urban land complex | 0.4 | 3.0% |
| 704A | Enfield silt loam, 0 to 3 percent slopes | 2.5 | 21.0% |
| 704B | Enfield silt loam, 3 to 8 percent slopes | 1.4 | 11.8% |
| **Totals for Area of Interest** | | **11.7** | **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.

# State of Connecticut

## 15—Scarboro muck, 0 to 3 percent slopes

**Map Unit Setting**

*National map unit symbol:* 2svkt
*Elevation:* 0 to 1,350 feet
*Mean annual precipitation:* 36 to 71 inches
*Mean annual air temperature:* 39 to 55 degrees F
*Frost-free period:* 140 to 240 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**

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

**Description of Scarboro**

**Setting**

*Landform:* Outwash deltas, depressions, drainageways, outwash terraces
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope, tread, dip
*Down-slope shape:* Concave
*Across-slope shape:* Concave, linear
*Parent material:* Sandy glaciofluvial deposits derived from schist and/or gneiss and/or granite

**Typical profile**

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

**Properties and qualities**

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

**Interpretive groups**

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

**Minor Components**

**Timakwa**

*Percent of map unit:* 10 percent
*Landform:* Swamps
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope, tread, dip
*Down-slope shape:* Linear, concave
*Across-slope shape:* Linear, concave
*Hydric soil rating:* Yes

**Walpole**

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

**Deerfield**

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

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

**Map Unit Setting**

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

**Map Unit Composition**

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

**Description of Manchester**

**Setting**

*Landform:* Terraces, eskers, kames, outwash plains
*Down-slope shape:* Convex
*Across-slope shape:* Convex

*Parent material:* Sandy and gravelly glaciofluvial deposits derived from sandstone and shale and/or basalt

**Typical profile**

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

**Properties and qualities**

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

**Interpretive groups**

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

**Minor Components**

**Penwood**

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

**Hartford**

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

**Branford**

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

**Ellington**

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

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

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

## 37E—Manchester gravelly sandy loam, 15 to 45 percent slopes

**Map Unit Setting**
*National map unit symbol:* 9ln7
*Elevation:* 0 to 1,200 feet
*Mean annual precipitation:* 43 to 54 inches
*Mean annual air temperature:* 45 to 55 degrees F
*Frost-free period:* 140 to 185 days
*Farmland classification:* Not prime farmland

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

**Description of Manchester**

**Setting**
*Landform:* Eskers, kames, outwash plains, terraces
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Parent material:* Sandy and gravelly glaciofluvial deposits derived from sandstone and shale and/or basalt

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

**Properties and qualities**
*Slope:* 15 to 45 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Excessively drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (5.95 to 19.98 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water capacity:* Very low (about 2.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 7e
*Hydrologic Soil Group:* A
*Ecological site:* F145XY008MA - Dry Outwash
*Hydric soil rating:* No

**Minor Components**

**Penwood**

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

**Branford**

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

**Hartford**

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

**Walpole**

*Percent of map unit:* 3 percent
*Landform:* Depressions on terraces, drainageways on terraces
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

**Scitico**

*Percent of map unit:* 2 percent
*Landform:* Terraces, depressions, drainageways
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

## 306—Udorthents-Urban land complex

**Map Unit Setting**

*National map unit symbol:* 9lmg
*Elevation:* 0 to 2,000 feet
*Mean annual precipitation:* 43 to 56 inches
*Mean annual air temperature:* 45 to 55 degrees F

*Frost-free period:* 120 to 185 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Udorthents and similar soils:* 50 percent
*Urban land:* 35 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Udorthents**

**Setting**

*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Parent material:* Drift

**Typical profile**

*A - 0 to 5 inches:* loam
*C1 - 5 to 21 inches:* gravelly loam
*C2 - 21 to 80 inches:* very gravelly sandy loam

**Properties and qualities**

*Slope:* 0 to 25 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Well drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to high (0.00 to 1.98 in/hr)
*Depth to water table:* About 54 to 72 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water capacity:* Moderate (about 6.8 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3e
*Hydrologic Soil Group:* B
*Hydric soil rating:* No

**Description of Urban Land**

**Typical profile**

*H - 0 to 6 inches:* material

**Interpretive groups**

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

**Minor Components**

**Unnamed, undisturbed soils**

*Percent of map unit:* 8 percent
*Hydric soil rating:* No

**Udorthents, wet substratum**

*Percent of map unit:* 5 percent

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

**Rock outcrop**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

## 704A—Enfield silt loam, 0 to 3 percent slopes

**Map Unit Setting**
*National map unit symbol:* 2y07p
*Elevation:* 0 to 1,200 feet
*Mean annual precipitation:* 43 to 54 inches
*Mean annual air temperature:* 45 to 55 degrees F
*Frost-free period:* 140 to 185 days
*Farmland classification:* All areas are prime farmland

**Map Unit Composition**
*Enfield and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Enfield**

**Setting**
*Landform:* Outwash terraces, outwash plains
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Parent material:* Coarse-silty eolian deposits over sandy and gravelly glaciofluvial deposits derived from granite, schist, and/or gneiss

**Typical profile**
*Ap - 0 to 7 inches:* silt loam
*Bw1 - 7 to 15 inches:* silt loam
*Bw2 - 15 to 25 inches:* silt loam
*2C - 25 to 60 inches:* stratified very gravelly coarse sand to loamy sand

**Properties and qualities**
*Slope:* 0 to 3 percent
*Depth to restrictive feature:* 16 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 high to high (0.57 to 1.98 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None

*Available water capacity:* Low (about 4.3 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 1
*Hydrologic Soil Group:* B
*Ecological site:* F145XY009CT - Well Drained Outwash
*Hydric soil rating:* No

**Minor Components**

**Haven**

*Percent of map unit:* 5 percent
*Landform:* Outwash terraces, outwash plains
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Tisbury**

*Percent of map unit:* 5 percent
*Landform:* Valley trains, outwash terraces, outwash plains, deltas
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* No

**Agawam**

*Percent of map unit:* 3 percent
*Landform:* Kames, moraines, outwash terraces, outwash plains, kame terraces
*Landform position (two-dimensional):* Summit, shoulder
*Landform position (three-dimensional):* Side slope, crest, tread
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Hydric soil rating:* No

**Raypol**

*Percent of map unit:* 2 percent
*Landform:* Depressions, drainageways
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

## 704B—Enfield silt loam, 3 to 8 percent slopes

**Map Unit Setting**

*National map unit symbol:* 2y07q
*Elevation:* 0 to 1,200 feet
*Mean annual precipitation:* 43 to 54 inches
*Mean annual air temperature:* 45 to 55 degrees F
*Frost-free period:* 140 to 185 days

*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

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

**Description of Enfield**

**Setting**

*Landform:* Outwash terraces, outwash plains
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Parent material:* Coarse-silty eolian deposits over sandy and gravelly glaciofluvial deposits derived from granite, schist, and/or gneiss

**Typical profile**

*Ap - 0 to 7 inches:* silt loam
*Bw1 - 7 to 15 inches:* silt loam
*Bw2 - 15 to 25 inches:* silt loam
*2C - 25 to 60 inches:* stratified very gravelly coarse sand to loamy sand

**Properties and qualities**

*Slope:* 3 to 8 percent
*Depth to restrictive feature:* 16 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 high to high (0.57 to 1.98 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water capacity:* Low (about 4.3 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2e
*Hydrologic Soil Group:* B
*Ecological site:* F145XY009CT - Well Drained Outwash
*Hydric soil rating:* No

**Minor Components**

**Haven**

*Percent of map unit:* 5 percent
*Landform:* Outwash plains, outwash terraces
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Tisbury**

*Percent of map unit:* 5 percent
*Landform:* Outwash plains, deltas, valley trains, outwash terraces
*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* No

**Agawam**

*Percent of map unit:* 3 percent
*Landform:* Kames, moraines, outwash terraces, outwash plains, kame terraces
*Landform position (two-dimensional):* Backslope, shoulder, footslope, summit, toeslope
*Landform position (three-dimensional):* Side slope, crest, head slope, nose slope, tread
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Hydric soil rating:* No

**Raypol**

*Percent of map unit:* 2 percent
*Landform:* Drainageways, depressions
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

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# 6.0 - HYDROLOGY AND DRAINAGE CALCULATIONS

# 6.1 - HYDROLOGIC DATA AND DETENTION POND CALCULATIONS

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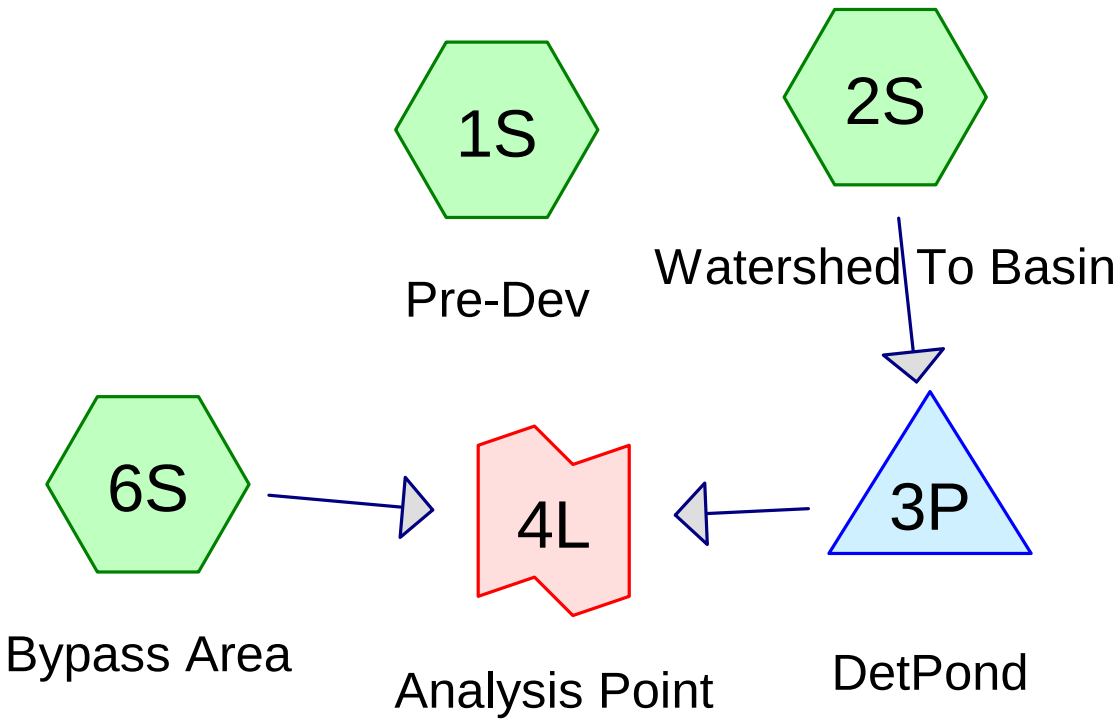



Subcat Reach Pond Link

**Routing Diagram for 1040HCad**
Prepared by {enter your company name here}, Printed 5/26/2021

## Project Notes

Defined 6 rainfall events from PF_Depth_English_PDS IDF
Defined 4 rainfall events from PF_Depth_English_PDS IDF

## 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 | 5.01 | 2 |
| 3 | 25-yr | Type III 24-hr | | Default | 24.00 | 1 | 6.14 | 2 |
| 4 | 100-yr | Type III 24-hr | | Default | 24.00 | 1 | 7.88 | 2 |

## Area Listing (all nodes)

| Area (acres) | CN | Description (subcatchment-numbers) |
|---|---|---|
| 2.380 | 39 | >75% Grass cover, Good, HSG A (2S, 6S) |
| 2.160 | 61 | >75% Grass cover, Good, HSG B (2S, 6S) |
| 0.121 | 80 | >75% Grass cover, Good, HSG D (2S, 6S) |
| 0.030 | 98 | Paved parking, HSG A (6S) |
| 0.760 | 98 | Paved roads w/curbs & sewers (2S) |
| 5.610 | 30 | Woods, Good, HSG A (1S, 2S, 6S) |
| 3.400 | 55 | Woods, Good, HSG B (1S, 2S, 6S) |
| 1.100 | 77 | Woods, Good, HSG D (1S, 6S) |
| **15.561** | **48** | **TOTAL AREA** |

## Soil Listing (all nodes)

| Area (acres) | Soil Group | Subcatchment Numbers |
|---|---|---|
| 8.020 | HSG A | 1S, 2S, 6S |
| 5.560 | HSG B | 1S, 2S, 6S |
| 0.000 | HSG C | |
| 1.221 | HSG D | 1S, 2S, 6S |
| 0.760 | Other | 2S |
| **15.561** | | **TOTAL AREA** |

## Ground Covers (all nodes)

| HSG-A (acres) | HSG-B (acres) | HSG-C (acres) | HSG-D (acres) | Other (acres) | Total (acres) | Ground Cover | Subcatchment Numbers |
|---|---|---|---|---|---|---|---|
| 2.380 | 2.160 | 0.000 | 0.121 | 0.000 | 4.661 | >75% Grass cover, Good | 2S, 6S |
| 0.030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.030 | Paved parking | 6S |
| 0.000 | 0.000 | 0.000 | 0.000 | 0.760 | 0.760 | Paved roads w/curbs & sewers | 2S |
| 5.610 | 3.400 | 0.000 | 1.100 | 0.000 | 10.110 | Woods, Good | 1S, 2S, 6S |
| **8.020** | **5.560** | **0.000** | **1.221** | **0.760** | **15.561** | **TOTAL AREA** | |

## Pipe Listing (all nodes)

| Line# | Node Number | In-Invert (feet) | Out-Invert (feet) | Length (feet) | Slope (ft/ft) | n | Width (inches) | Diam/Height (inches) | Inside-Fill (inches) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2S | 0.00 | 0.00 | 755.0 | 0.0050 | 0.011 | 0.0 | 15.0 | 0.0 |
| 2 | 3P | 93.00 | 92.40 | 120.0 | 0.0050 | 0.013 | 0.0 | 18.0 | 0.0 |

Time span=0.00-40.00 hrs, dt=0.05 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: Pre-Dev** Runoff Area=7.620 ac 0.00% Impervious Runoff Depth=0.02"
Flow Length=945' Tc=18.9 min CN=43 Runoff=0.02 cfs 0.014 af

**Subcatchment 2S: Watershed To Basin** Runoff Area=5.431 ac 13.99% Impervious Runoff Depth=0.31"
Flow Length=1,324' Tc=18.1 min CN=57 Runoff=0.70 cfs 0.140 af

**Subcatchment 6S: Bypass Area** Runoff Area=2.510 ac 1.20% Impervious Runoff Depth=0.06"
Flow Length=584' Tc=9.3 min CN=46 Runoff=0.02 cfs 0.012 af

**Pond 3P: DetPond** Peak Elev=96.72' Storage=6,106 cf Inflow=0.70 cfs 0.140 af
Outflow=0.00 cfs 0.000 af

**Link 4L: Analysis Point** Inflow=0.02 cfs 0.012 af
Primary=0.02 cfs 0.012 af

**Total Runoff Area = 15.561 ac Runoff Volume = 0.166 af Average Runoff Depth = 0.13"**
**94.92% Pervious = 14.771 ac 5.08% Impervious = 0.790 ac**

## Summary for Subcatchment 1S: Pre-Dev

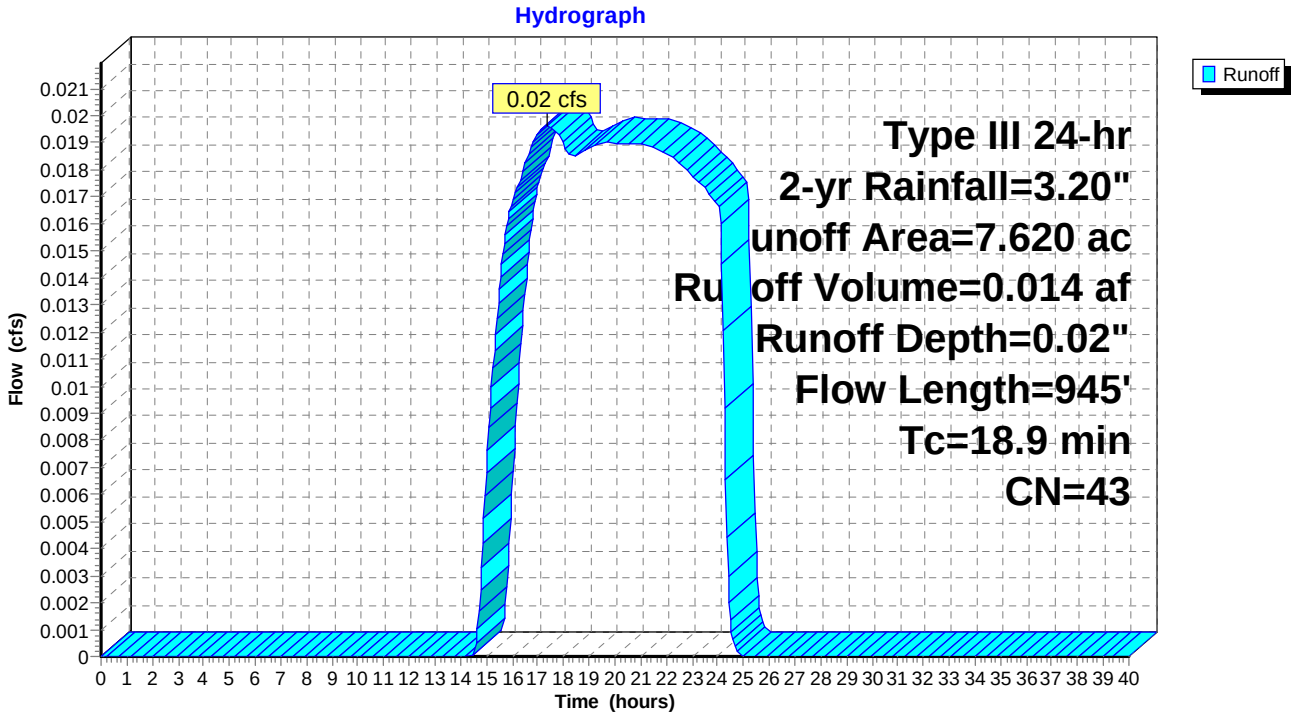
Runoff = 0.02 cfs @ 17.36 hrs, Volume= 0.014 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.20"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 4.090 | 30 | Woods, Good, HSG A |
| | 2.920 | 55 | Woods, Good, HSG B |
| | 0.610 | 77 | Woods, Good, HSG D |
| | 7.620 | 43 | Weighted Average |
| | 7.620 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 7.6 | 100 | 0.2700 | 0.22 | | **Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 10.4 | 667 | 0.0460 | 1.07 | | **Shallow Concentrated Flow, Shallow Woods** Woodland Kv= 5.0 fps |
| 0.9 | 178 | 0.0120 | 3.37 | 13.50 | **Trap/Vee/Rect Channel Flow, Int Stream** Bot.W=2.00' D=1.00' Z= 2.0 '/' Top.W=6.00' n= 0.035 Earth, dense weeds |
| 18.9 | 945 | Total | | | |

## Subcatchment 1S: Pre-Dev



## Hydrograph for Subcatchment 1S: Pre-Dev

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 |
| 0.50 | 0.02 | 0.00 | 0.00 |
| 1.00 | 0.03 | 0.00 | 0.00 |
| 1.50 | 0.05 | 0.00 | 0.00 |
| 2.00 | 0.06 | 0.00 | 0.00 |
| 2.50 | 0.08 | 0.00 | 0.00 |
| 3.00 | 0.10 | 0.00 | 0.00 |
| 3.50 | 0.12 | 0.00 | 0.00 |
| 4.00 | 0.14 | 0.00 | 0.00 |
| 4.50 | 0.16 | 0.00 | 0.00 |
| 5.00 | 0.18 | 0.00 | 0.00 |
| 5.50 | 0.21 | 0.00 | 0.00 |
| 6.00 | 0.23 | 0.00 | 0.00 |
| 6.50 | 0.26 | 0.00 | 0.00 |
| 7.00 | 0.29 | 0.00 | 0.00 |
| 7.50 | 0.33 | 0.00 | 0.00 |
| 8.00 | 0.36 | 0.00 | 0.00 |
| 8.50 | 0.41 | 0.00 | 0.00 |
| 9.00 | 0.47 | 0.00 | 0.00 |
| 9.50 | 0.53 | 0.00 | 0.00 |
| 10.00 | 0.60 | 0.00 | 0.00 |
| 10.50 | 0.69 | 0.00 | 0.00 |
| 11.00 | 0.80 | 0.00 | 0.00 |
| 11.50 | 0.95 | 0.00 | 0.00 |
| 12.00 | 1.60 | 0.00 | 0.00 |
| 12.50 | 2.25 | 0.00 | 0.00 |
| 13.00 | 2.40 | 0.00 | 0.00 |
| 13.50 | 2.51 | 0.00 | 0.00 |
| 14.00 | 2.60 | 0.00 | 0.00 |
| 14.50 | 2.67 | 0.00 | 0.00 |
| 15.00 | 2.73 | 0.00 | 0.01 |
| 15.50 | 2.79 | 0.00 | 0.01 |
| 16.00 | 2.84 | 0.00 | 0.02 |
| 16.50 | 2.87 | 0.00 | 0.02 |
| 17.00 | 2.91 | 0.00 | **0.02** |
| 17.50 | 2.94 | 0.01 | **0.02** |
| 18.00 | 2.97 | 0.01 | 0.02 |
| 18.50 | 2.99 | 0.01 | 0.02 |
| 19.00 | 3.02 | 0.01 | 0.02 |
| 19.50 | 3.04 | 0.01 | 0.02 |
| 20.00 | 3.06 | 0.01 | 0.02 |
| 20.50 | 3.08 | 0.01 | 0.02 |
| 21.00 | 3.10 | 0.01 | 0.02 |
| 21.50 | 3.12 | 0.02 | 0.02 |
| 22.00 | 3.14 | 0.02 | 0.02 |
| 22.50 | 3.16 | 0.02 | 0.02 |
| 23.00 | 3.17 | 0.02 | 0.02 |
| 23.50 | 3.19 | 0.02 | 0.02 |
| 24.00 | **3.20** | **0.02** | 0.02 |
| 24.50 | 3.20 | 0.02 | 0.00 |
| 25.00 | 3.20 | 0.02 | 0.00 |
| 25.50 | 3.20 | 0.02 | 0.00 |
| 26.00 | 3.20 | 0.02 | 0.00 |
| 26.50 | 3.20 | 0.02 | 0.00 |
| 27.00 | 3.20 | 0.02 | 0.00 |
| 27.50 | 3.20 | 0.02 | 0.00 |
| 28.00 | 3.20 | 0.02 | 0.00 |
| 28.50 | 3.20 | 0.02 | 0.00 |
| 29.00 | 3.20 | 0.02 | 0.00 |
| 29.50 | 3.20 | 0.02 | 0.00 |
| 30.00 | 3.20 | 0.02 | 0.00 |
| 30.50 | 3.20 | 0.02 | 0.00 |
| 31.00 | 3.20 | 0.02 | 0.00 |
| 31.50 | 3.20 | 0.02 | 0.00 |
| 32.00 | 3.20 | 0.02 | 0.00 |
| 32.50 | 3.20 | 0.02 | 0.00 |
| 33.00 | 3.20 | 0.02 | 0.00 |
| 33.50 | 3.20 | 0.02 | 0.00 |
| 34.00 | 3.20 | 0.02 | 0.00 |
| 34.50 | 3.20 | 0.02 | 0.00 |
| 35.00 | 3.20 | 0.02 | 0.00 |
| 35.50 | 3.20 | 0.02 | 0.00 |
| 36.00 | 3.20 | 0.02 | 0.00 |
| 36.50 | 3.20 | 0.02 | 0.00 |
| 37.00 | 3.20 | 0.02 | 0.00 |
| 37.50 | 3.20 | 0.02 | 0.00 |
| 38.00 | 3.20 | 0.02 | 0.00 |
| 38.50 | 3.20 | 0.02 | 0.00 |
| 39.00 | 3.20 | 0.02 | 0.00 |
| 39.50 | 3.20 | 0.02 | 0.00 |
| 40.00 | 3.20 | 0.02 | 0.00 |

## Summary for Subcatchment 2S: Watershed To Basin

House roofs to underground infiltration systems.

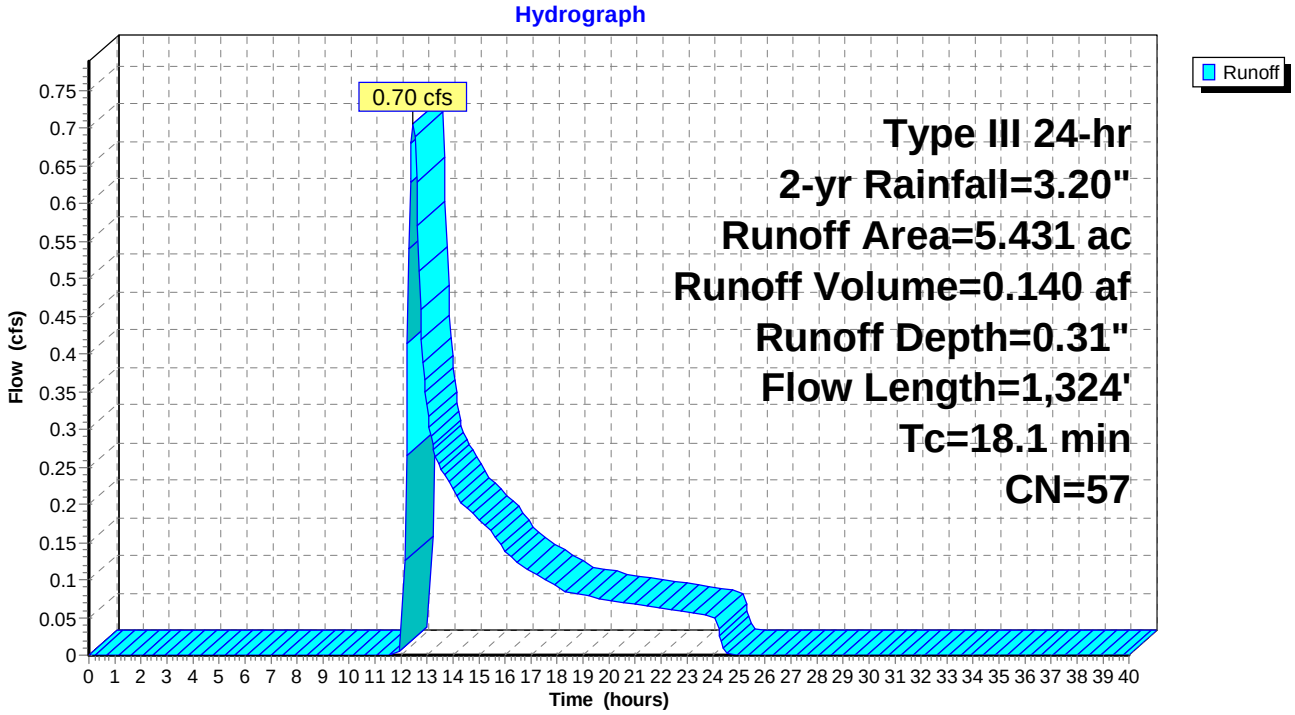
Runoff = 0.70 cfs @ 12.47 hrs, Volume= 0.140 af, Depth= 0.31"
Routed to Pond 3P : DetPond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.20"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.760 | 98 | Paved roads w/curbs & sewers |
| | 1.950 | 39 | >75% Grass cover, Good, HSG A |
| | 2.050 | 61 | >75% Grass cover, Good, HSG B |
| | 0.001 | 80 | >75% Grass cover, Good, HSG D |
| | 0.220 | 30 | Woods, Good, HSG A |
| | 0.450 | 55 | Woods, Good, HSG B |
| | 5.431 | 57 | Weighted Average |
| | 4.671 | | 86.01% Pervious Area |
| | 0.760 | | 13.99% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.6 | 70 | 0.0570 | 0.11 | | **Sheet Flow, Sheet Flow Woods**<br>Woods: Light underbrush n= 0.400 P2= 3.20" |
| 2.2 | 30 | 0.2000 | 0.23 | | **Sheet Flow, Sheet Flow Grass**<br>Grass: Dense n= 0.240 P2= 3.20" |
| 1.2 | 161 | 0.0960 | 2.17 | | **Shallow Concentrated Flow, Shallow Grass**<br>Short Grass Pasture Kv= 7.0 fps |
| 1.2 | 308 | 0.0450 | 4.31 | | **Shallow Concentrated Flow, Gutter**<br>Paved Kv= 20.3 fps |
| 2.9 | 755 | 0.0050 | 4.40 | 5.40 | **Pipe Channel, Pipe**<br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.011 Concrete pipe, straight & clean |
| 18.1 | 1,324 | Total | | | |

## Subcatchment 2S: Watershed To Basin



## Hydrograph for Subcatchment 2S: Watershed To Basin

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 |
| 0.50 | 0.02 | 0.00 | 0.00 |
| 1.00 | 0.03 | 0.00 | 0.00 |
| 1.50 | 0.05 | 0.00 | 0.00 |
| 2.00 | 0.06 | 0.00 | 0.00 |
| 2.50 | 0.08 | 0.00 | 0.00 |
| 3.00 | 0.10 | 0.00 | 0.00 |
| 3.50 | 0.12 | 0.00 | 0.00 |
| 4.00 | 0.14 | 0.00 | 0.00 |
| 4.50 | 0.16 | 0.00 | 0.00 |
| 5.00 | 0.18 | 0.00 | 0.00 |
| 5.50 | 0.21 | 0.00 | 0.00 |
| 6.00 | 0.23 | 0.00 | 0.00 |
| 6.50 | 0.26 | 0.00 | 0.00 |
| 7.00 | 0.29 | 0.00 | 0.00 |
| 7.50 | 0.33 | 0.00 | 0.00 |
| 8.00 | 0.36 | 0.00 | 0.00 |
| 8.50 | 0.41 | 0.00 | 0.00 |
| 9.00 | 0.47 | 0.00 | 0.00 |
| 9.50 | 0.53 | 0.00 | 0.00 |
| 10.00 | 0.60 | 0.00 | 0.00 |
| 10.50 | 0.69 | 0.00 | 0.00 |
| 11.00 | 0.80 | 0.00 | 0.00 |
| 11.50 | 0.95 | 0.00 | 0.00 |
| 12.00 | 1.60 | 0.00 | **0.00** |
| 12.50 | 2.25 | 0.07 | **0.70** |
| 13.00 | 2.40 | 0.09 | 0.33 |
| 13.50 | 2.51 | 0.12 | 0.25 |
| 14.00 | 2.60 | 0.14 | 0.22 |
| 14.50 | 2.67 | 0.15 | 0.20 |
| 15.00 | 2.73 | 0.17 | 0.18 |
| 15.50 | 2.79 | 0.19 | 0.16 |
| 16.00 | 2.84 | 0.20 | 0.14 |
| 16.50 | 2.87 | 0.21 | 0.12 |
| 17.00 | 2.91 | 0.22 | 0.11 |
| 17.50 | 2.94 | 0.23 | 0.10 |
| 18.00 | 2.97 | 0.24 | 0.09 |
| 18.50 | 2.99 | 0.24 | 0.08 |
| 19.00 | 3.02 | 0.25 | 0.08 |
| 19.50 | 3.04 | 0.26 | 0.08 |
| 20.00 | 3.06 | 0.27 | 0.07 |
| 20.50 | 3.08 | 0.27 | 0.07 |
| 21.00 | 3.10 | 0.28 | 0.07 |
| 21.50 | 3.12 | 0.28 | 0.07 |
| 22.00 | 3.14 | 0.29 | 0.06 |
| 22.50 | 3.16 | 0.29 | 0.06 |
| 23.00 | 3.17 | 0.30 | 0.06 |
| 23.50 | 3.19 | 0.31 | 0.05 |
| 24.00 | **3.20** | **0.31** | 0.05 |
| 24.50 | 3.20 | 0.31 | 0.00 |
| 25.00 | 3.20 | 0.31 | 0.00 |
| 25.50 | 3.20 | 0.31 | 0.00 |
| 26.00 | 3.20 | 0.31 | 0.00 |
| 26.50 | 3.20 | 0.31 | 0.00 |
| 27.00 | 3.20 | 0.31 | 0.00 |
| 27.50 | 3.20 | 0.31 | 0.00 |
| 28.00 | 3.20 | 0.31 | 0.00 |
| 28.50 | 3.20 | 0.31 | 0.00 |
| 29.00 | 3.20 | 0.31 | 0.00 |
| 29.50 | 3.20 | 0.31 | 0.00 |
| 30.00 | 3.20 | 0.31 | 0.00 |
| 30.50 | 3.20 | 0.31 | 0.00 |
| 31.00 | 3.20 | 0.31 | 0.00 |
| 31.50 | 3.20 | 0.31 | 0.00 |
| 32.00 | 3.20 | 0.31 | 0.00 |
| 32.50 | 3.20 | 0.31 | 0.00 |
| 33.00 | 3.20 | 0.31 | 0.00 |
| 33.50 | 3.20 | 0.31 | 0.00 |
| 34.00 | 3.20 | 0.31 | 0.00 |
| 34.50 | 3.20 | 0.31 | 0.00 |
| 35.00 | 3.20 | 0.31 | 0.00 |
| 35.50 | 3.20 | 0.31 | 0.00 |
| 36.00 | 3.20 | 0.31 | 0.00 |
| 36.50 | 3.20 | 0.31 | 0.00 |
| 37.00 | 3.20 | 0.31 | 0.00 |
| 37.50 | 3.20 | 0.31 | 0.00 |
| 38.00 | 3.20 | 0.31 | 0.00 |
| 38.50 | 3.20 | 0.31 | 0.00 |
| 39.00 | 3.20 | 0.31 | 0.00 |
| 39.50 | 3.20 | 0.31 | 0.00 |
| 40.00 | 3.20 | 0.31 | 0.00 |

## Summary for Subcatchment 6S: Bypass Area

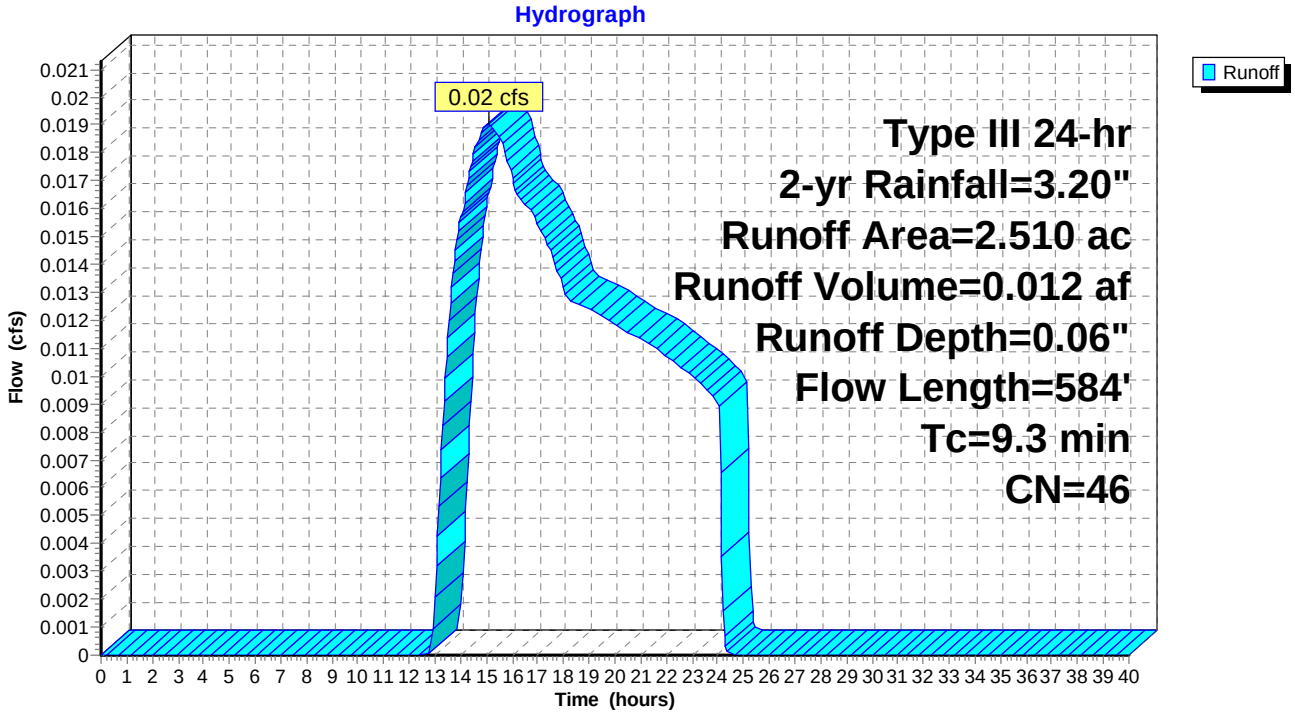
Runoff = 0.02 cfs @ 15.10 hrs, Volume= 0.012 af, Depth= 0.06"
Routed to Link 4L : Analysis Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.20"

| Area (ac) | CN | Description |
|---|---|---|
| 1.300 | 30 | Woods, Good, HSG A |
| 0.030 | 55 | Woods, Good, HSG B |
| 0.490 | 77 | Woods, Good, HSG D |
| 0.430 | 39 | >75% Grass cover, Good, HSG A |
| 0.110 | 61 | >75% Grass cover, Good, HSG B |
| 0.120 | 80 | >75% Grass cover, Good, HSG D |
| 0.030 | 98 | Paved parking, HSG A |
| 2.510 | 46 | Weighted Average |
| 2.480 | | 98.80% Pervious Area |
| 0.030 | | 1.20% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.8 | 100 | 0.3600 | 0.25 | | **Sheet Flow, Sheet Flow**<br>Woods: Light underbrush n= 0.400 P2= 3.20" |
| 1.6 | 306 | 0.3900 | 3.12 | | **Shallow Concentrated Flow,**<br>Woodland Kv= 5.0 fps |
| 0.9 | 178 | 0.0120 | 3.37 | 13.50 | **Trap/Vee/Rect Channel Flow, Int stream**<br>Bot.W=2.00' D=1.00' Z= 2.0 '/' Top.W=6.00'<br>n= 0.035 |
| 9.3 | 584 | Total | | | |

## Subcatchment 6S: Bypass Area



## Hydrograph for Subcatchment 6S: Bypass Area

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 |
| 0.50 | 0.02 | 0.00 | 0.00 |
| 1.00 | 0.03 | 0.00 | 0.00 |
| 1.50 | 0.05 | 0.00 | 0.00 |
| 2.00 | 0.06 | 0.00 | 0.00 |
| 2.50 | 0.08 | 0.00 | 0.00 |
| 3.00 | 0.10 | 0.00 | 0.00 |
| 3.50 | 0.12 | 0.00 | 0.00 |
| 4.00 | 0.14 | 0.00 | 0.00 |
| 4.50 | 0.16 | 0.00 | 0.00 |
| 5.00 | 0.18 | 0.00 | 0.00 |
| 5.50 | 0.21 | 0.00 | 0.00 |
| 6.00 | 0.23 | 0.00 | 0.00 |
| 6.50 | 0.26 | 0.00 | 0.00 |
| 7.00 | 0.29 | 0.00 | 0.00 |
| 7.50 | 0.33 | 0.00 | 0.00 |
| 8.00 | 0.36 | 0.00 | 0.00 |
| 8.50 | 0.41 | 0.00 | 0.00 |
| 9.00 | 0.47 | 0.00 | 0.00 |
| 9.50 | 0.53 | 0.00 | 0.00 |
| 10.00 | 0.60 | 0.00 | 0.00 |
| 10.50 | 0.69 | 0.00 | 0.00 |
| 11.00 | 0.80 | 0.00 | 0.00 |
| 11.50 | 0.95 | 0.00 | 0.00 |
| 12.00 | 1.60 | 0.00 | 0.00 |
| 12.50 | 2.25 | 0.00 | 0.00 |
| 13.00 | 2.40 | 0.00 | 0.00 |
| 13.50 | 2.51 | 0.00 | 0.01 |
| 14.00 | 2.60 | 0.01 | 0.02 |
| 14.50 | 2.67 | 0.01 | 0.02 |
| 15.00 | 2.73 | 0.01 | **0.02** |
| 15.50 | 2.79 | 0.02 | **0.02** |
| 16.00 | 2.84 | 0.02 | 0.02 |
| 16.50 | 2.87 | 0.02 | 0.02 |
| 17.00 | 2.91 | 0.03 | 0.02 |
| 17.50 | 2.94 | 0.03 | 0.01 |
| 18.00 | 2.97 | 0.03 | 0.01 |
| 18.50 | 2.99 | 0.03 | 0.01 |
| 19.00 | 3.02 | 0.04 | 0.01 |
| 19.50 | 3.04 | 0.04 | 0.01 |
| 20.00 | 3.06 | 0.04 | 0.01 |
| 20.50 | 3.08 | 0.04 | 0.01 |
| 21.00 | 3.10 | 0.05 | 0.01 |
| 21.50 | 3.12 | 0.05 | 0.01 |
| 22.00 | 3.14 | 0.05 | 0.01 |
| 22.50 | 3.16 | 0.05 | 0.01 |
| 23.00 | 3.17 | 0.05 | 0.01 |
| 23.50 | 3.19 | 0.06 | 0.01 |
| 24.00 | **3.20** | **0.06** | 0.01 |
| 24.50 | 3.20 | 0.06 | 0.00 |
| 25.00 | 3.20 | 0.06 | 0.00 |
| 25.50 | 3.20 | 0.06 | 0.00 |
| 26.00 | 3.20 | 0.06 | 0.00 |
| 26.50 | 3.20 | 0.06 | 0.00 |
| 27.00 | 3.20 | 0.06 | 0.00 |
| 27.50 | 3.20 | 0.06 | 0.00 |
| 28.00 | 3.20 | 0.06 | 0.00 |
| 28.50 | 3.20 | 0.06 | 0.00 |
| 29.00 | 3.20 | 0.06 | 0.00 |
| 29.50 | 3.20 | 0.06 | 0.00 |
| 30.00 | 3.20 | 0.06 | 0.00 |
| 30.50 | 3.20 | 0.06 | 0.00 |
| 31.00 | 3.20 | 0.06 | 0.00 |
| 31.50 | 3.20 | 0.06 | 0.00 |
| 32.00 | 3.20 | 0.06 | 0.00 |
| 32.50 | 3.20 | 0.06 | 0.00 |
| 33.00 | 3.20 | 0.06 | 0.00 |
| 33.50 | 3.20 | 0.06 | 0.00 |
| 34.00 | 3.20 | 0.06 | 0.00 |
| 34.50 | 3.20 | 0.06 | 0.00 |
| 35.00 | 3.20 | 0.06 | 0.00 |
| 35.50 | 3.20 | 0.06 | 0.00 |
| 36.00 | 3.20 | 0.06 | 0.00 |
| 36.50 | 3.20 | 0.06 | 0.00 |
| 37.00 | 3.20 | 0.06 | 0.00 |
| 37.50 | 3.20 | 0.06 | 0.00 |
| 38.00 | 3.20 | 0.06 | 0.00 |
| 38.50 | 3.20 | 0.06 | 0.00 |
| 39.00 | 3.20 | 0.06 | 0.00 |
| 39.50 | 3.20 | 0.06 | 0.00 |
| 40.00 | 3.20 | 0.06 | 0.00 |

## Summary for Pond 3P: DetPond

Inflow Area = 5.431 ac, 13.99% Impervious, Inflow Depth = 0.31" for 2-yr event
Inflow = 0.70 cfs @ 12.47 hrs, Volume= 0.140 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 4L : Analysis Point

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Peak Elev= 96.72' @ 25.05 hrs Surf.Area= 3,546 sf Storage= 6,106 cf

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

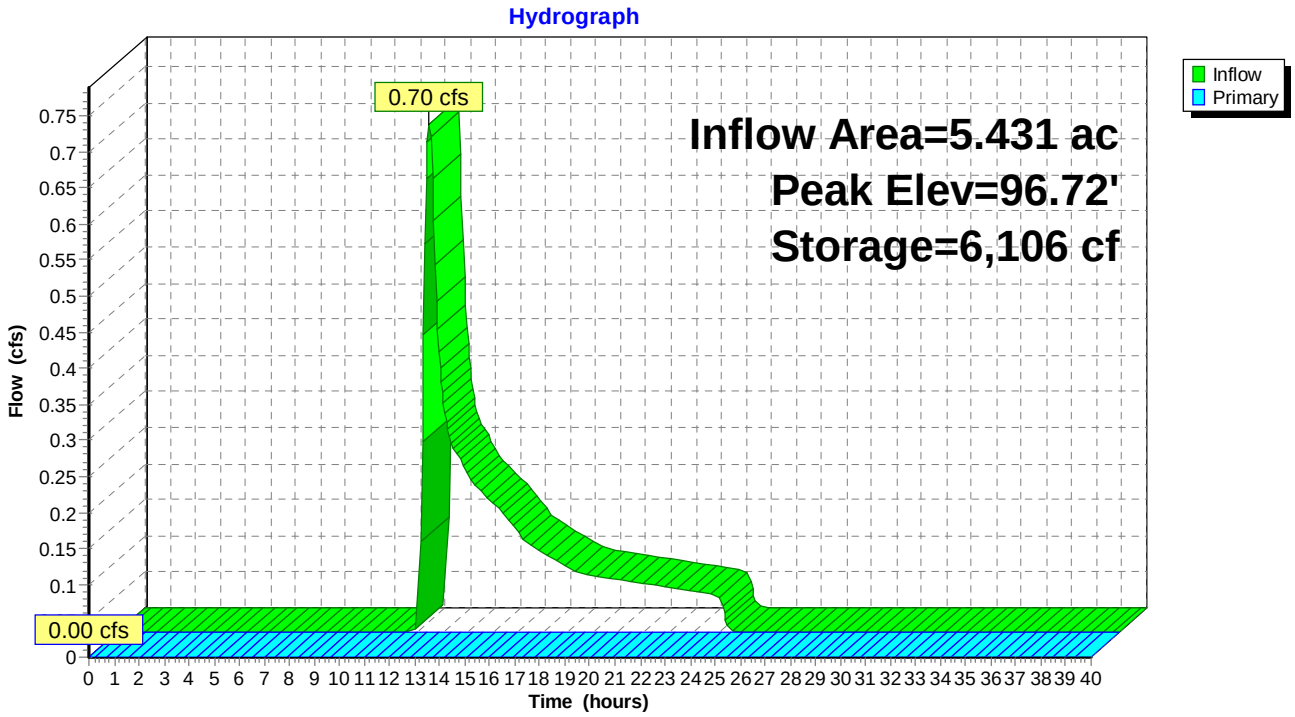
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 94.00' | 24,410 cf | **Custom Stage Data (Irregular)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 94.00 | 1,107 | 174.0 | 0 | 0 | 1,107 |
| 96.00 | 2,850 | 235.0 | 3,822 | 3,822 | 3,134 |
| 98.00 | 4,985 | 299.0 | 7,736 | 11,558 | 5,906 |
| 99.00 | 6,430 | 358.0 | 5,692 | 17,251 | 9,008 |
| 100.00 | 7,914 | 384.0 | 7,159 | 24,410 | 10,587 |

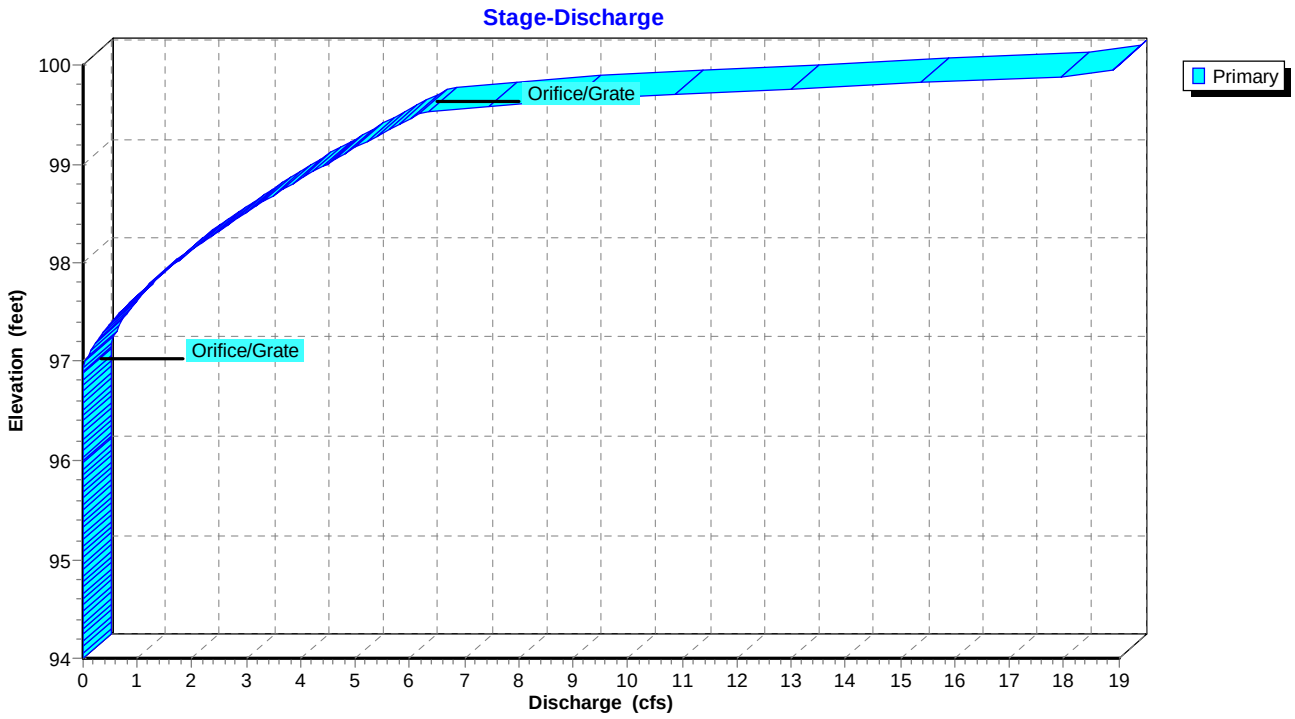
| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 93.00' | **18.0" Round Culvert**<br>L= 120.0' RCP, groove end w/headwall, Ke= 0.200<br>Inlet / Outlet Invert= 93.00' / 92.40' S= 0.0050 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf |
| #2 | Device 1 | 96.90' | **5.5" W x 31.2" H Vert. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |
| #3 | Device 1 | 99.50' | **36.0" x 48.0" Horiz. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=94.00' (Free Discharge)
↑**1=Culvert** (Passes 0.00 cfs of 3.55 cfs potential flow)
↑**2=Orifice/Grate** ( Controls 0.00 cfs)
**3=Orifice/Grate** ( Controls 0.00 cfs)

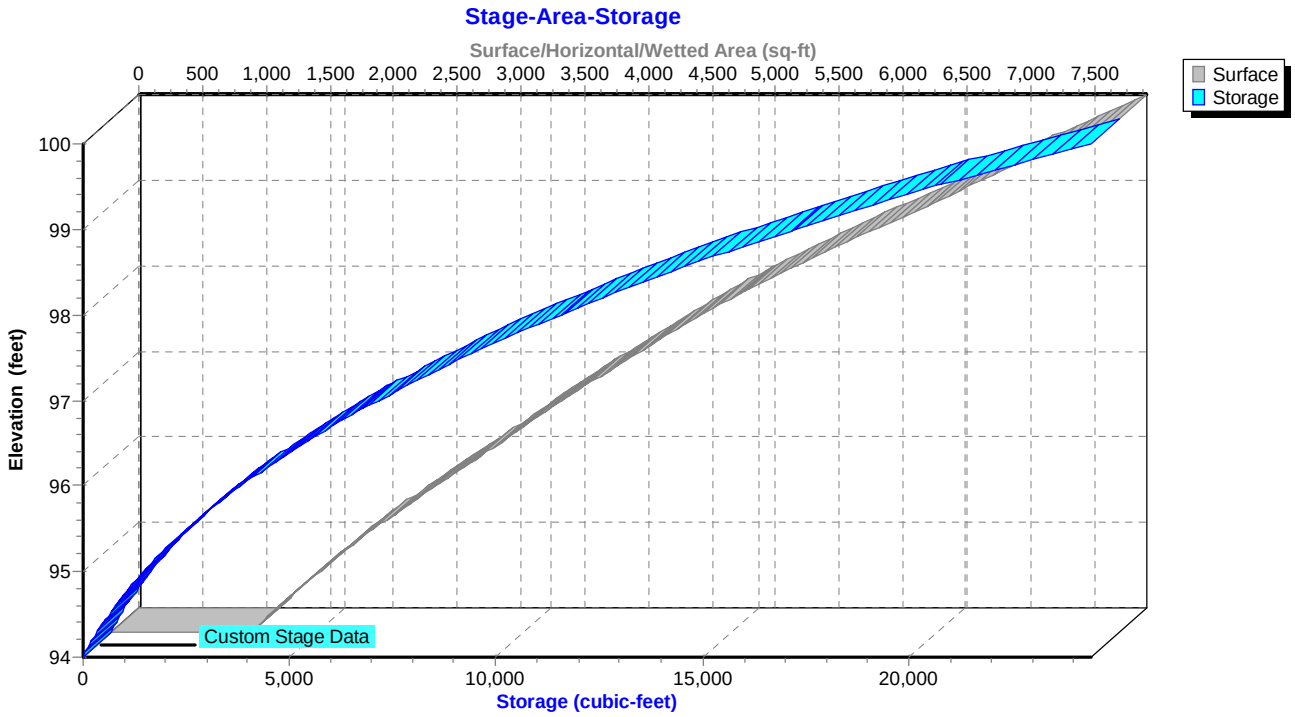
## Pond 3P: DetPond




## Pond 3P: DetPond



## Pond 3P: DetPond



## Hydrograph for Pond 3P: DetPond

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|
| 0.00 | 0.00 | 0 | 94.00 | **0.00** |
| 1.00 | 0.00 | 0 | 94.00 | 0.00 |
| 2.00 | 0.00 | 0 | 94.00 | 0.00 |
| 3.00 | 0.00 | 0 | 94.00 | 0.00 |
| 4.00 | 0.00 | 0 | 94.00 | 0.00 |
| 5.00 | 0.00 | 0 | 94.00 | 0.00 |
| 6.00 | 0.00 | 0 | 94.00 | 0.00 |
| 7.00 | 0.00 | 0 | 94.00 | 0.00 |
| 8.00 | 0.00 | 0 | 94.00 | 0.00 |
| 9.00 | 0.00 | 0 | 94.00 | 0.00 |
| 10.00 | 0.00 | 0 | 94.00 | 0.00 |
| 11.00 | 0.00 | 0 | 94.00 | 0.00 |
| 12.00 | **0.00** | 0 | 94.00 | 0.00 |
| 13.00 | **0.33** | 1,553 | 95.04 | 0.00 |
| 14.00 | 0.22 | 2,480 | 95.48 | 0.00 |
| 15.00 | 0.18 | 3,194 | 95.77 | 0.00 |
| 16.00 | 0.14 | 3,775 | 95.98 | 0.00 |
| 17.00 | 0.11 | 4,219 | 96.14 | 0.00 |
| 18.00 | 0.09 | 4,584 | 96.26 | 0.00 |
| 19.00 | 0.08 | 4,883 | 96.35 | 0.00 |
| 20.00 | 0.07 | 5,158 | 96.44 | 0.00 |
| 21.00 | 0.07 | 5,411 | 96.51 | 0.00 |
| 22.00 | 0.06 | 5,645 | 96.58 | 0.00 |
| 23.00 | 0.06 | 5,860 | 96.65 | 0.00 |
| 24.00 | 0.05 | 6,055 | 96.70 | 0.00 |
| 25.00 | 0.00 | **6,106** | **96.72** | 0.00 |
| 26.00 | 0.00 | **6,106** | **96.72** | 0.00 |
| 27.00 | 0.00 | 6,106 | 96.72 | 0.00 |
| 28.00 | 0.00 | 6,106 | 96.72 | 0.00 |
| 29.00 | 0.00 | 6,106 | 96.72 | 0.00 |
| 30.00 | 0.00 | 6,106 | 96.72 | 0.00 |
| 31.00 | 0.00 | 6,106 | 96.72 | 0.00 |
| 32.00 | 0.00 | 6,106 | 96.72 | 0.00 |
| 33.00 | 0.00 | 6,106 | 96.72 | 0.00 |
| 34.00 | 0.00 | 6,106 | 96.72 | 0.00 |
| 35.00 | 0.00 | 6,106 | 96.72 | 0.00 |
| 36.00 | 0.00 | 6,106 | 96.72 | 0.00 |
| 37.00 | 0.00 | 6,106 | 96.72 | 0.00 |
| 38.00 | 0.00 | 6,106 | 96.72 | 0.00 |
| 39.00 | 0.00 | 6,106 | 96.72 | 0.00 |
| 40.00 | 0.00 | 6,106 | 96.72 | 0.00 |

## Stage-Discharge for Pond 3P: DetPond

| Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|---|
| 94.00 | 0.00 | 96.70 | 0.00 | 99.40 | 5.82 |
| 94.05 | 0.00 | 96.75 | 0.00 | 99.45 | 5.99 |
| 94.10 | 0.00 | 96.80 | 0.00 | 99.50 | 6.17 |
| 94.15 | 0.00 | 96.85 | 0.00 | 99.55 | 6.84 |
| 94.20 | 0.00 | 96.90 | 0.00 | 99.60 | 7.93 |
| 94.25 | 0.00 | 96.95 | 0.02 | 99.65 | 9.28 |
| 94.30 | 0.00 | 97.00 | 0.05 | 99.70 | 10.86 |
| 94.35 | 0.00 | 97.05 | 0.09 | 99.75 | 12.62 |
| 94.40 | 0.00 | 97.10 | 0.13 | 99.80 | 14.55 |
| 94.45 | 0.00 | 97.15 | 0.18 | 99.85 | 16.63 |
| 94.50 | 0.00 | 97.20 | 0.24 | 99.90 | 18.85 |
| 94.55 | 0.00 | 97.25 | 0.30 | 99.95 | 18.93 |
| 94.60 | 0.00 | 97.30 | 0.37 | 100.00 | **19.01** |
| 94.65 | 0.00 | 97.35 | 0.44 | | |
| 94.70 | 0.00 | 97.40 | 0.52 | | |
| 94.75 | 0.00 | 97.45 | 0.60 | | |
| 94.80 | 0.00 | 97.50 | 0.68 | | |
| 94.85 | 0.00 | 97.55 | 0.77 | | |
| 94.90 | 0.00 | 97.60 | 0.86 | | |
| 94.95 | 0.00 | 97.65 | 0.96 | | |
| 95.00 | 0.00 | 97.70 | 1.05 | | |
| 95.05 | 0.00 | 97.75 | 1.15 | | |
| 95.10 | 0.00 | 97.80 | 1.26 | | |
| 95.15 | 0.00 | 97.85 | 1.36 | | |
| 95.20 | 0.00 | 97.90 | 1.47 | | |
| 95.25 | 0.00 | 97.95 | 1.58 | | |
| 95.30 | 0.00 | 98.00 | 1.70 | | |
| 95.35 | 0.00 | 98.05 | 1.81 | | |
| 95.40 | 0.00 | 98.10 | 1.93 | | |
| 95.45 | 0.00 | 98.15 | 2.06 | | |
| 95.50 | 0.00 | 98.20 | 2.18 | | |
| 95.55 | 0.00 | 98.25 | 2.31 | | |
| 95.60 | 0.00 | 98.30 | 2.44 | | |
| 95.65 | 0.00 | 98.35 | 2.57 | | |
| 95.70 | 0.00 | 98.40 | 2.70 | | |
| 95.75 | 0.00 | 98.45 | 2.84 | | |
| 95.80 | 0.00 | 98.50 | 2.98 | | |
| 95.85 | 0.00 | 98.55 | 3.12 | | |
| 95.90 | 0.00 | 98.60 | 3.26 | | |
| 95.95 | 0.00 | 98.65 | 3.41 | | |
| 96.00 | 0.00 | 98.70 | 3.55 | | |
| 96.05 | 0.00 | 98.75 | 3.70 | | |
| 96.10 | 0.00 | 98.80 | 3.85 | | |
| 96.15 | 0.00 | 98.85 | 4.01 | | |
| 96.20 | 0.00 | 98.90 | 4.16 | | |
| 96.25 | 0.00 | 98.95 | 4.32 | | |
| 96.30 | 0.00 | 99.00 | 4.48 | | |
| 96.35 | 0.00 | 99.05 | 4.64 | | |
| 96.40 | 0.00 | 99.10 | 4.80 | | |
| 96.45 | 0.00 | 99.15 | 4.97 | | |
| 96.50 | 0.00 | 99.20 | 5.13 | | |
| 96.55 | 0.00 | 99.25 | 5.30 | | |
| 96.60 | 0.00 | 99.30 | 5.47 | | |
| 96.65 | 0.00 | 99.35 | 5.64 | | |

## Stage-Area-Storage for Pond 3P: DetPond

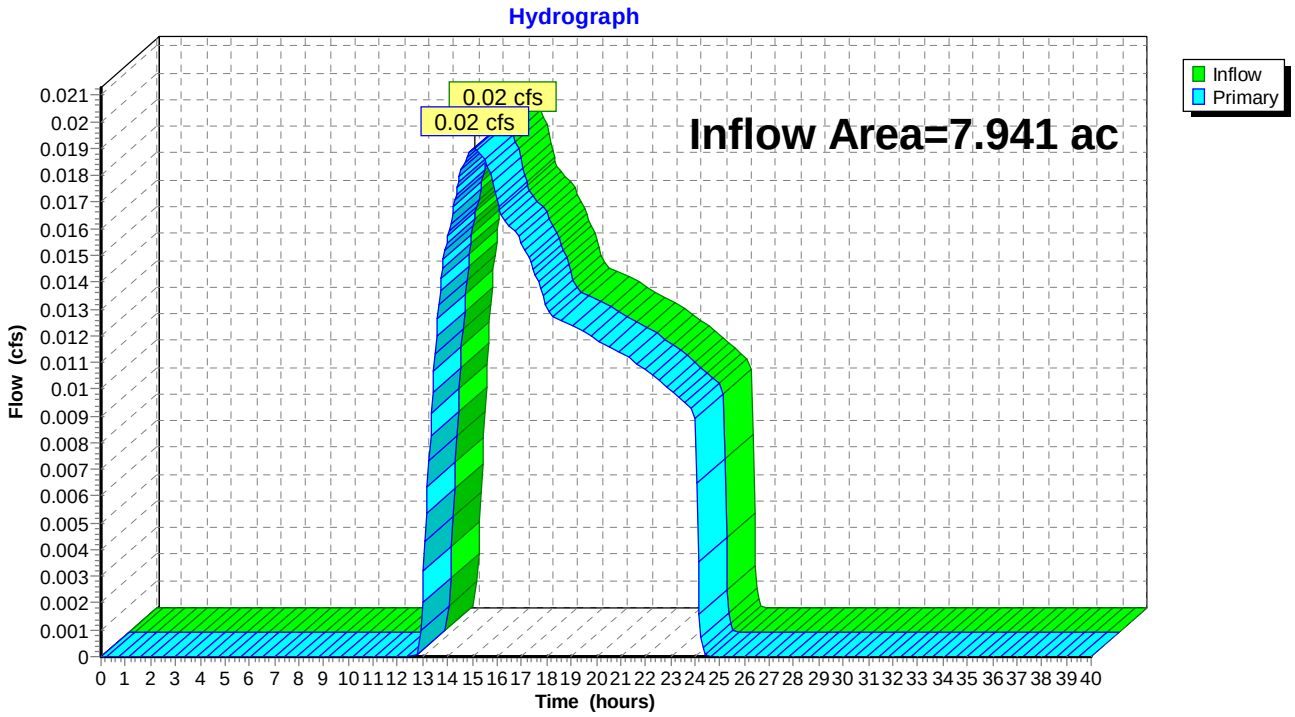
| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|---|---|---|
| 94.00 | 1,107 | 0 |
| 94.10 | 1,175 | 114 |
| 94.20 | 1,245 | 235 |
| 94.30 | 1,317 | 363 |
| 94.40 | 1,391 | 498 |
| 94.50 | 1,467 | 641 |
| 94.60 | 1,545 | 792 |
| 94.70 | 1,625 | 950 |
| 94.80 | 1,707 | 1,117 |
| 94.90 | 1,791 | 1,292 |
| 95.00 | 1,877 | 1,475 |
| 95.10 | 1,966 | 1,667 |
| 95.20 | 2,056 | 1,868 |
| 95.30 | 2,148 | 2,079 |
| 95.40 | 2,242 | 2,298 |
| 95.50 | 2,338 | 2,527 |
| 95.60 | 2,437 | 2,766 |
| 95.70 | 2,537 | 3,015 |
| 95.80 | 2,639 | 3,273 |
| 95.90 | 2,744 | 3,542 |
| 96.00 | 2,850 | 3,822 |
| 96.10 | 2,943 | 4,112 |
| 96.20 | 3,037 | 4,411 |
| 96.30 | 3,132 | 4,719 |
| 96.40 | 3,230 | 5,037 |
| 96.50 | 3,328 | 5,365 |
| 96.60 | 3,428 | 5,703 |
| 96.70 | 3,530 | 6,051 |
| 96.80 | 3,633 | 6,409 |
| 96.90 | 3,737 | 6,777 |
| 97.00 | 3,843 | 7,156 |
| 97.10 | 3,951 | 7,546 |
| 97.20 | 4,060 | 7,947 |
| 97.30 | 4,170 | 8,358 |
| 97.40 | 4,282 | 8,781 |
| 97.50 | 4,396 | 9,215 |
| 97.60 | 4,511 | 9,660 |
| 97.70 | 4,627 | 10,117 |
| 97.80 | 4,745 | 10,585 |
| 97.90 | 4,864 | 11,066 |
| 98.00 | 4,985 | 11,558 |
| 98.10 | 5,121 | 12,064 |
| 98.20 | 5,259 | 12,583 |
| 98.30 | 5,399 | 13,116 |
| 98.40 | 5,541 | 13,663 |
| 98.50 | 5,685 | 14,224 |
| 98.60 | 5,830 | 14,799 |
| 98.70 | 5,977 | 15,390 |
| 98.80 | 6,126 | 15,995 |
| 98.90 | 6,277 | 16,615 |
| 99.00 | 6,430 | 17,251 |
| 99.10 | 6,571 | 17,901 |
| 99.20 | 6,714 | 18,565 |
| 99.30 | 6,859 | 19,244 |
| 99.40 | 7,005 | 19,937 |
| 99.50 | 7,153 | 20,645 |
| 99.60 | 7,302 | 21,367 |
| 99.70 | 7,453 | 22,105 |
| 99.80 | 7,605 | 22,858 |
| 99.90 | 7,759 | 23,626 |
| 100.00 | **7,914** | **24,410** |

## Summary for Link 4L: Analysis Point

Inflow Area = 7.941 ac, 9.95% Impervious, Inflow Depth = 0.02" for 2-yr event
Inflow = 0.02 cfs @ 15.10 hrs, Volume= 0.012 af
Primary = 0.02 cfs @ 15.10 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

## Link 4L: Analysis Point



## Hydrograph for Link 4L: Analysis Point

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | **0.00** | 0.00 | 27.00 | 0.00 | 0.00 | 0.00 |
| 0.50 | 0.00 | 0.00 | 0.00 | 27.50 | 0.00 | 0.00 | 0.00 |
| 1.00 | 0.00 | 0.00 | 0.00 | 28.00 | 0.00 | 0.00 | 0.00 |
| 1.50 | 0.00 | 0.00 | 0.00 | 28.50 | 0.00 | 0.00 | 0.00 |
| 2.00 | 0.00 | 0.00 | 0.00 | 29.00 | 0.00 | 0.00 | 0.00 |
| 2.50 | 0.00 | 0.00 | 0.00 | 29.50 | 0.00 | 0.00 | 0.00 |
| 3.00 | 0.00 | 0.00 | 0.00 | 30.00 | 0.00 | 0.00 | 0.00 |
| 3.50 | 0.00 | 0.00 | 0.00 | 30.50 | 0.00 | 0.00 | 0.00 |
| 4.00 | 0.00 | 0.00 | 0.00 | 31.00 | 0.00 | 0.00 | 0.00 |
| 4.50 | 0.00 | 0.00 | 0.00 | 31.50 | 0.00 | 0.00 | 0.00 |
| 5.00 | 0.00 | 0.00 | 0.00 | 32.00 | 0.00 | 0.00 | 0.00 |
| 5.50 | 0.00 | 0.00 | 0.00 | 32.50 | 0.00 | 0.00 | 0.00 |
| 6.00 | 0.00 | 0.00 | 0.00 | 33.00 | 0.00 | 0.00 | 0.00 |
| 6.50 | 0.00 | 0.00 | 0.00 | 33.50 | 0.00 | 0.00 | 0.00 |
| 7.00 | 0.00 | 0.00 | 0.00 | 34.00 | 0.00 | 0.00 | 0.00 |
| 7.50 | 0.00 | 0.00 | 0.00 | 34.50 | 0.00 | 0.00 | 0.00 |
| 8.00 | 0.00 | 0.00 | 0.00 | 35.00 | 0.00 | 0.00 | 0.00 |
| 8.50 | 0.00 | 0.00 | 0.00 | 35.50 | 0.00 | 0.00 | 0.00 |
| 9.00 | 0.00 | 0.00 | 0.00 | 36.00 | 0.00 | 0.00 | 0.00 |
| 9.50 | 0.00 | 0.00 | 0.00 | 36.50 | 0.00 | 0.00 | 0.00 |
| 10.00 | 0.00 | 0.00 | 0.00 | 37.00 | 0.00 | 0.00 | 0.00 |
| 10.50 | 0.00 | 0.00 | 0.00 | 37.50 | 0.00 | 0.00 | 0.00 |
| 11.00 | 0.00 | 0.00 | 0.00 | 38.00 | 0.00 | 0.00 | 0.00 |
| 11.50 | 0.00 | 0.00 | 0.00 | 38.50 | 0.00 | 0.00 | 0.00 |
| 12.00 | 0.00 | 0.00 | 0.00 | 39.00 | 0.00 | 0.00 | 0.00 |
| 12.50 | 0.00 | 0.00 | 0.00 | 39.50 | 0.00 | 0.00 | 0.00 |
| 13.00 | 0.00 | 0.00 | 0.00 | 40.00 | 0.00 | 0.00 | 0.00 |
| 13.50 | 0.01 | 0.00 | 0.01 | | | | |
| 14.00 | 0.02 | 0.00 | 0.02 | | | | |
| 14.50 | 0.02 | 0.00 | 0.02 | | | | |
| 15.00 | **0.02** | 0.00 | **0.02** | | | | |
| 15.50 | **0.02** | 0.00 | **0.02** | | | | |
| 16.00 | 0.02 | 0.00 | 0.02 | | | | |
| 16.50 | 0.02 | 0.00 | 0.02 | | | | |
| 17.00 | 0.02 | 0.00 | 0.02 | | | | |
| 17.50 | 0.01 | 0.00 | 0.01 | | | | |
| 18.00 | 0.01 | 0.00 | 0.01 | | | | |
| 18.50 | 0.01 | 0.00 | 0.01 | | | | |
| 19.00 | 0.01 | 0.00 | 0.01 | | | | |
| 19.50 | 0.01 | 0.00 | 0.01 | | | | |
| 20.00 | 0.01 | 0.00 | 0.01 | | | | |
| 20.50 | 0.01 | 0.00 | 0.01 | | | | |
| 21.00 | 0.01 | 0.00 | 0.01 | | | | |
| 21.50 | 0.01 | 0.00 | 0.01 | | | | |
| 22.00 | 0.01 | 0.00 | 0.01 | | | | |
| 22.50 | 0.01 | 0.00 | 0.01 | | | | |
| 23.00 | 0.01 | 0.00 | 0.01 | | | | |
| 23.50 | 0.01 | 0.00 | 0.01 | | | | |
| 24.00 | 0.01 | 0.00 | 0.01 | | | | |
| 24.50 | 0.00 | 0.00 | 0.00 | | | | |
| 25.00 | 0.00 | 0.00 | 0.00 | | | | |
| 25.50 | 0.00 | 0.00 | 0.00 | | | | |
| 26.00 | 0.00 | 0.00 | 0.00 | | | | |
| 26.50 | 0.00 | 0.00 | 0.00 | | | | |

Time span=0.00-40.00 hrs, dt=0.05 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: Pre-Dev** Runoff Area=7.620 ac 0.00% Impervious Runoff Depth=0.36"
Flow Length=945' Tc=18.9 min CN=43 Runoff=0.88 cfs 0.226 af

**Subcatchment 2S: Watershed To Basin** Runoff Area=5.431 ac 13.99% Impervious Runoff Depth=1.11"
Flow Length=1,324' Tc=18.1 min CN=57 Runoff=4.14 cfs 0.502 af

**Subcatchment 6S: Bypass Area** Runoff Area=2.510 ac 1.20% Impervious Runoff Depth=0.49"
Flow Length=584' Tc=9.3 min CN=46 Runoff=0.58 cfs 0.103 af

**Pond 3P: DetPond** Peak Elev=97.52' Storage=9,286 cf Inflow=4.14 cfs 0.502 af
Outflow=0.71 cfs 0.347 af

**Link 4L: Analysis Point** Inflow=0.88 cfs 0.450 af
Primary=0.88 cfs 0.450 af

**Total Runoff Area = 15.561 ac Runoff Volume = 0.832 af Average Runoff Depth = 0.64"**
**94.92% Pervious = 14.771 ac 5.08% Impervious = 0.790 ac**

## Summary for Subcatchment 1S: Pre-Dev

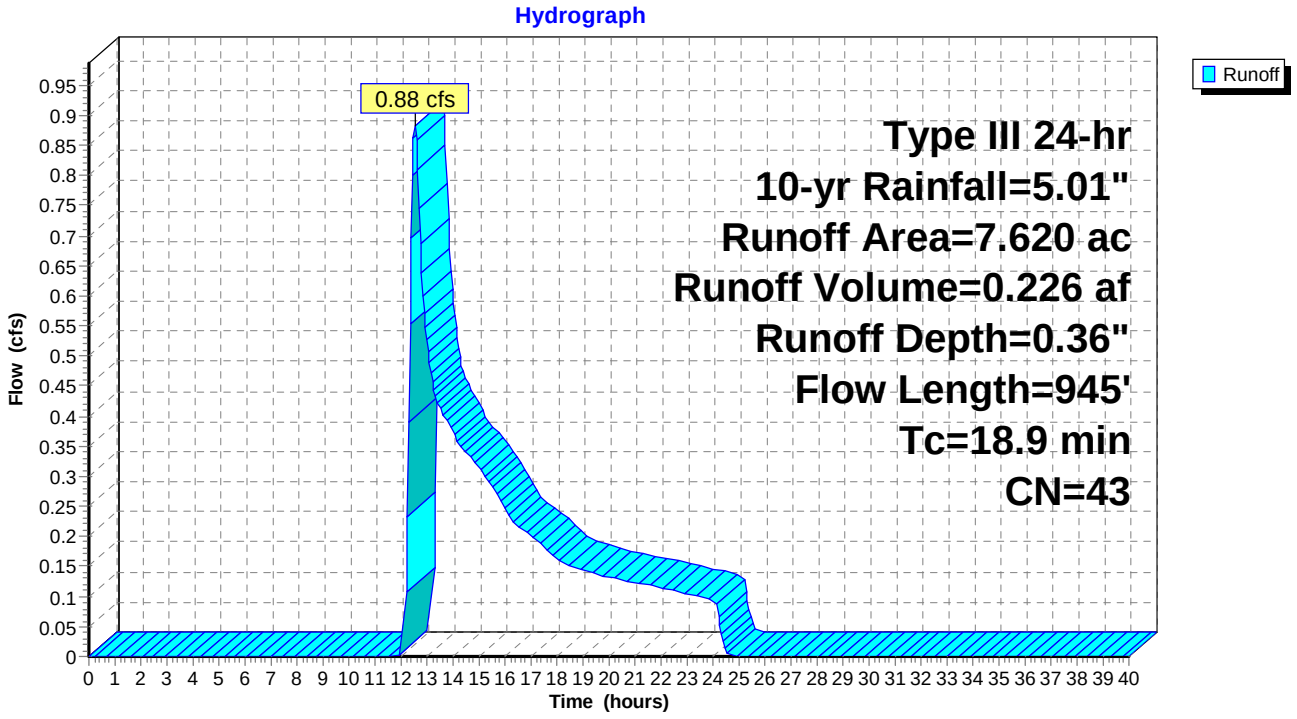
Runoff = 0.88 cfs @ 12.55 hrs, Volume= 0.226 af, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.01"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 4.090 | 30 | Woods, Good, HSG A |
| | 2.920 | 55 | Woods, Good, HSG B |
| | 0.610 | 77 | Woods, Good, HSG D |
| | 7.620 | 43 | Weighted Average |
| | 7.620 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 7.6 | 100 | 0.2700 | 0.22 | | **Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 10.4 | 667 | 0.0460 | 1.07 | | **Shallow Concentrated Flow, Shallow Woods** Woodland Kv= 5.0 fps |
| 0.9 | 178 | 0.0120 | 3.37 | 13.50 | **Trap/Vee/Rect Channel Flow, Int Stream** Bot.W=2.00' D=1.00' Z= 2.0 '/' Top.W=6.00' n= 0.035 Earth, dense weeds |
| 18.9 | 945 | Total | | | |

## Subcatchment 1S: Pre-Dev



## Hydrograph for Subcatchment 1S: Pre-Dev

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 |
| 0.50 | 0.03 | 0.00 | 0.00 |
| 1.00 | 0.05 | 0.00 | 0.00 |
| 1.50 | 0.08 | 0.00 | 0.00 |
| 2.00 | 0.10 | 0.00 | 0.00 |
| 2.50 | 0.13 | 0.00 | 0.00 |
| 3.00 | 0.15 | 0.00 | 0.00 |
| 3.50 | 0.18 | 0.00 | 0.00 |
| 4.00 | 0.22 | 0.00 | 0.00 |
| 4.50 | 0.25 | 0.00 | 0.00 |
| 5.00 | 0.28 | 0.00 | 0.00 |
| 5.50 | 0.32 | 0.00 | 0.00 |
| 6.00 | 0.36 | 0.00 | 0.00 |
| 6.50 | 0.40 | 0.00 | 0.00 |
| 7.00 | 0.45 | 0.00 | 0.00 |
| 7.50 | 0.51 | 0.00 | 0.00 |
| 8.00 | 0.57 | 0.00 | 0.00 |
| 8.50 | 0.64 | 0.00 | 0.00 |
| 9.00 | 0.73 | 0.00 | 0.00 |
| 9.50 | 0.83 | 0.00 | 0.00 |
| 10.00 | 0.95 | 0.00 | 0.00 |
| 10.50 | 1.08 | 0.00 | 0.00 |
| 11.00 | 1.25 | 0.00 | 0.00 |
| 11.50 | 1.49 | 0.00 | 0.00 |
| 12.00 | 2.50 | 0.00 | 0.00 |
| 12.50 | 3.52 | 0.05 | **0.86** |
| 13.00 | 3.76 | 0.09 | **0.53** |
| 13.50 | 3.93 | 0.11 | 0.41 |
| 14.00 | 4.06 | 0.14 | 0.38 |
| 14.50 | 4.18 | 0.16 | 0.34 |
| 15.00 | 4.28 | 0.18 | 0.32 |
| 15.50 | 4.37 | 0.20 | 0.28 |
| 16.00 | 4.44 | 0.21 | 0.25 |
| 16.50 | 4.50 | 0.23 | 0.22 |
| 17.00 | 4.56 | 0.24 | 0.20 |
| 17.50 | 4.61 | 0.25 | 0.18 |
| 18.00 | 4.65 | 0.26 | 0.16 |
| 18.50 | 4.69 | 0.27 | 0.15 |
| 19.00 | 4.73 | 0.28 | 0.14 |
| 19.50 | 4.76 | 0.29 | 0.14 |
| 20.00 | 4.79 | 0.30 | 0.13 |
| 20.50 | 4.83 | 0.31 | 0.13 |
| 21.00 | 4.86 | 0.31 | 0.12 |
| 21.50 | 4.89 | 0.32 | 0.12 |
| 22.00 | 4.91 | 0.33 | 0.11 |
| 22.50 | 4.94 | 0.34 | 0.11 |
| 23.00 | 4.96 | 0.34 | 0.10 |
| 23.50 | 4.99 | 0.35 | 0.10 |
| 24.00 | **5.01** | **0.36** | 0.09 |
| 24.50 | 5.01 | 0.36 | 0.01 |
| 25.00 | 5.01 | 0.36 | 0.00 |
| 25.50 | 5.01 | 0.36 | 0.00 |
| 26.00 | 5.01 | 0.36 | 0.00 |
| 26.50 | 5.01 | 0.36 | 0.00 |
| 27.00 | 5.01 | 0.36 | 0.00 |
| 27.50 | 5.01 | 0.36 | 0.00 |
| 28.00 | 5.01 | 0.36 | 0.00 |
| 28.50 | 5.01 | 0.36 | 0.00 |
| 29.00 | 5.01 | 0.36 | 0.00 |
| 29.50 | 5.01 | 0.36 | 0.00 |
| 30.00 | 5.01 | 0.36 | 0.00 |
| 30.50 | 5.01 | 0.36 | 0.00 |
| 31.00 | 5.01 | 0.36 | 0.00 |
| 31.50 | 5.01 | 0.36 | 0.00 |
| 32.00 | 5.01 | 0.36 | 0.00 |
| 32.50 | 5.01 | 0.36 | 0.00 |
| 33.00 | 5.01 | 0.36 | 0.00 |
| 33.50 | 5.01 | 0.36 | 0.00 |
| 34.00 | 5.01 | 0.36 | 0.00 |
| 34.50 | 5.01 | 0.36 | 0.00 |
| 35.00 | 5.01 | 0.36 | 0.00 |
| 35.50 | 5.01 | 0.36 | 0.00 |
| 36.00 | 5.01 | 0.36 | 0.00 |
| 36.50 | 5.01 | 0.36 | 0.00 |
| 37.00 | 5.01 | 0.36 | 0.00 |
| 37.50 | 5.01 | 0.36 | 0.00 |
| 38.00 | 5.01 | 0.36 | 0.00 |
| 38.50 | 5.01 | 0.36 | 0.00 |
| 39.00 | 5.01 | 0.36 | 0.00 |
| 39.50 | 5.01 | 0.36 | 0.00 |
| 40.00 | 5.01 | 0.36 | 0.00 |

## Summary for Subcatchment 2S: Watershed To Basin

House roofs to underground infiltration systems.

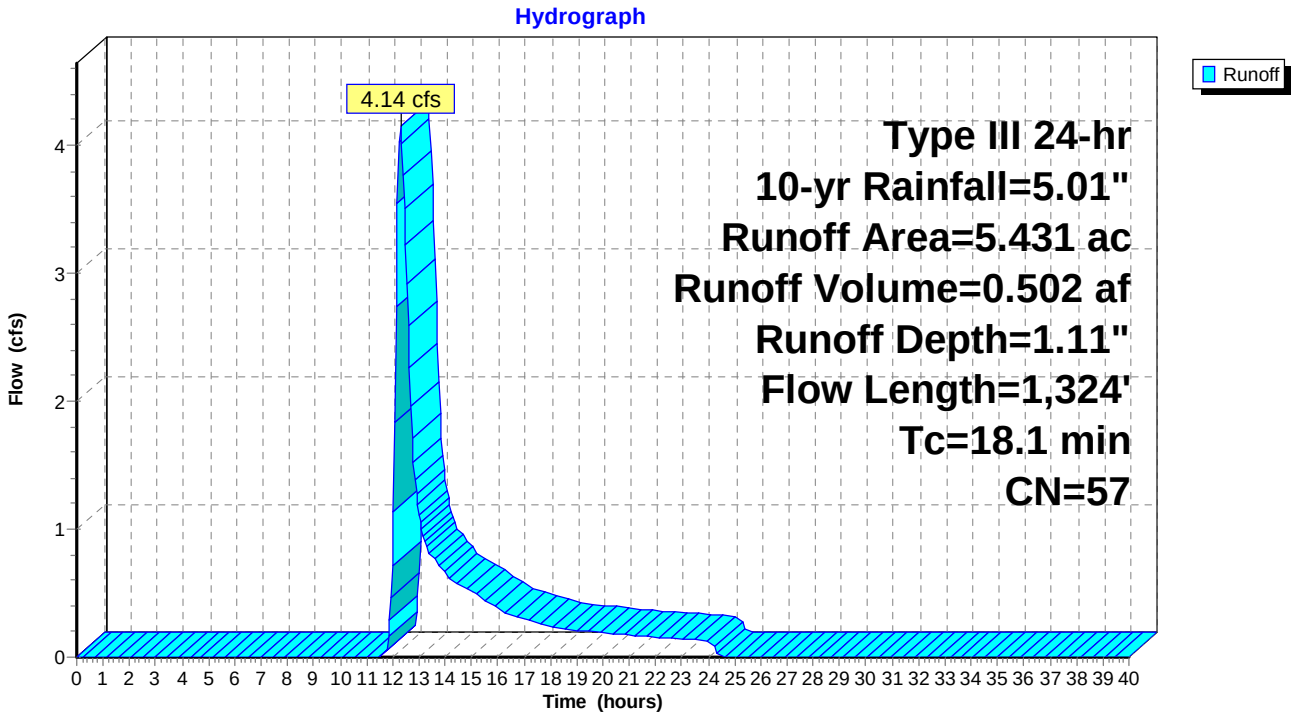
Runoff = 4.14 cfs @ 12.30 hrs, Volume= 0.502 af, Depth= 1.11"
Routed to Pond 3P : DetPond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.01"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.760 | 98 | Paved roads w/curbs & sewers |
| | 1.950 | 39 | >75% Grass cover, Good, HSG A |
| | 2.050 | 61 | >75% Grass cover, Good, HSG B |
| | 0.001 | 80 | >75% Grass cover, Good, HSG D |
| | 0.220 | 30 | Woods, Good, HSG A |
| | 0.450 | 55 | Woods, Good, HSG B |
| | 5.431 | 57 | Weighted Average |
| | 4.671 | | 86.01% Pervious Area |
| | 0.760 | | 13.99% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.6 | 70 | 0.0570 | 0.11 | | **Sheet Flow, Sheet Flow Woods**<br>Woods: Light underbrush n= 0.400 P2= 3.20" |
| 2.2 | 30 | 0.2000 | 0.23 | | **Sheet Flow, Sheet Flow Grass**<br>Grass: Dense n= 0.240 P2= 3.20" |
| 1.2 | 161 | 0.0960 | 2.17 | | **Shallow Concentrated Flow, Shallow Grass**<br>Short Grass Pasture Kv= 7.0 fps |
| 1.2 | 308 | 0.0450 | 4.31 | | **Shallow Concentrated Flow, Gutter**<br>Paved Kv= 20.3 fps |
| 2.9 | 755 | 0.0050 | 4.40 | 5.40 | **Pipe Channel, Pipe**<br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.011 Concrete pipe, straight & clean |
| 18.1 | 1,324 | Total | | | |

## Subcatchment 2S: Watershed To Basin



## Hydrograph for Subcatchment 2S: Watershed To Basin

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 |
| 0.50 | 0.03 | 0.00 | 0.00 |
| 1.00 | 0.05 | 0.00 | 0.00 |
| 1.50 | 0.08 | 0.00 | 0.00 |
| 2.00 | 0.10 | 0.00 | 0.00 |
| 2.50 | 0.13 | 0.00 | 0.00 |
| 3.00 | 0.15 | 0.00 | 0.00 |
| 3.50 | 0.18 | 0.00 | 0.00 |
| 4.00 | 0.22 | 0.00 | 0.00 |
| 4.50 | 0.25 | 0.00 | 0.00 |
| 5.00 | 0.28 | 0.00 | 0.00 |
| 5.50 | 0.32 | 0.00 | 0.00 |
| 6.00 | 0.36 | 0.00 | 0.00 |
| 6.50 | 0.40 | 0.00 | 0.00 |
| 7.00 | 0.45 | 0.00 | 0.00 |
| 7.50 | 0.51 | 0.00 | 0.00 |
| 8.00 | 0.57 | 0.00 | 0.00 |
| 8.50 | 0.64 | 0.00 | 0.00 |
| 9.00 | 0.73 | 0.00 | 0.00 |
| 9.50 | 0.83 | 0.00 | 0.00 |
| 10.00 | 0.95 | 0.00 | 0.00 |
| 10.50 | 1.08 | 0.00 | 0.00 |
| 11.00 | 1.25 | 0.00 | 0.00 |
| 11.50 | 1.49 | 0.00 | 0.00 |
| 12.00 | 2.50 | 0.12 | **0.71** |
| 12.50 | 3.52 | 0.42 | **3.22** |
| 13.00 | 3.76 | 0.52 | 1.12 |
| 13.50 | 3.93 | 0.59 | 0.78 |
| 14.00 | 4.06 | 0.65 | 0.66 |
| 14.50 | 4.18 | 0.70 | 0.57 |
| 15.00 | 4.28 | 0.74 | 0.51 |
| 15.50 | 4.37 | 0.79 | 0.45 |
| 16.00 | 4.44 | 0.82 | 0.38 |
| 16.50 | 4.50 | 0.85 | 0.33 |
| 17.00 | 4.56 | 0.88 | 0.30 |
| 17.50 | 4.61 | 0.90 | 0.27 |
| 18.00 | 4.65 | 0.92 | 0.24 |
| 18.50 | 4.69 | 0.94 | 0.22 |
| 19.00 | 4.73 | 0.96 | 0.21 |
| 19.50 | 4.76 | 0.98 | 0.20 |
| 20.00 | 4.79 | 1.00 | 0.19 |
| 20.50 | 4.83 | 1.01 | 0.18 |
| 21.00 | 4.86 | 1.03 | 0.17 |
| 21.50 | 4.89 | 1.04 | 0.17 |
| 22.00 | 4.91 | 1.06 | 0.16 |
| 22.50 | 4.94 | 1.07 | 0.15 |
| 23.00 | 4.96 | 1.09 | 0.14 |
| 23.50 | 4.99 | 1.10 | 0.14 |
| 24.00 | **5.01** | **1.11** | 0.13 |
| 24.50 | 5.01 | 1.11 | 0.01 |
| 25.00 | 5.01 | 1.11 | 0.00 |
| 25.50 | 5.01 | 1.11 | 0.00 |
| 26.00 | 5.01 | 1.11 | 0.00 |
| 26.50 | 5.01 | 1.11 | 0.00 |
| 27.00 | 5.01 | 1.11 | 0.00 |
| 27.50 | 5.01 | 1.11 | 0.00 |
| 28.00 | 5.01 | 1.11 | 0.00 |
| 28.50 | 5.01 | 1.11 | 0.00 |
| 29.00 | 5.01 | 1.11 | 0.00 |
| 29.50 | 5.01 | 1.11 | 0.00 |
| 30.00 | 5.01 | 1.11 | 0.00 |
| 30.50 | 5.01 | 1.11 | 0.00 |
| 31.00 | 5.01 | 1.11 | 0.00 |
| 31.50 | 5.01 | 1.11 | 0.00 |
| 32.00 | 5.01 | 1.11 | 0.00 |
| 32.50 | 5.01 | 1.11 | 0.00 |
| 33.00 | 5.01 | 1.11 | 0.00 |
| 33.50 | 5.01 | 1.11 | 0.00 |
| 34.00 | 5.01 | 1.11 | 0.00 |
| 34.50 | 5.01 | 1.11 | 0.00 |
| 35.00 | 5.01 | 1.11 | 0.00 |
| 35.50 | 5.01 | 1.11 | 0.00 |
| 36.00 | 5.01 | 1.11 | 0.00 |
| 36.50 | 5.01 | 1.11 | 0.00 |
| 37.00 | 5.01 | 1.11 | 0.00 |
| 37.50 | 5.01 | 1.11 | 0.00 |
| 38.00 | 5.01 | 1.11 | 0.00 |
| 38.50 | 5.01 | 1.11 | 0.00 |
| 39.00 | 5.01 | 1.11 | 0.00 |
| 39.50 | 5.01 | 1.11 | 0.00 |
| 40.00 | 5.01 | 1.11 | 0.00 |

## Summary for Subcatchment 6S: Bypass Area

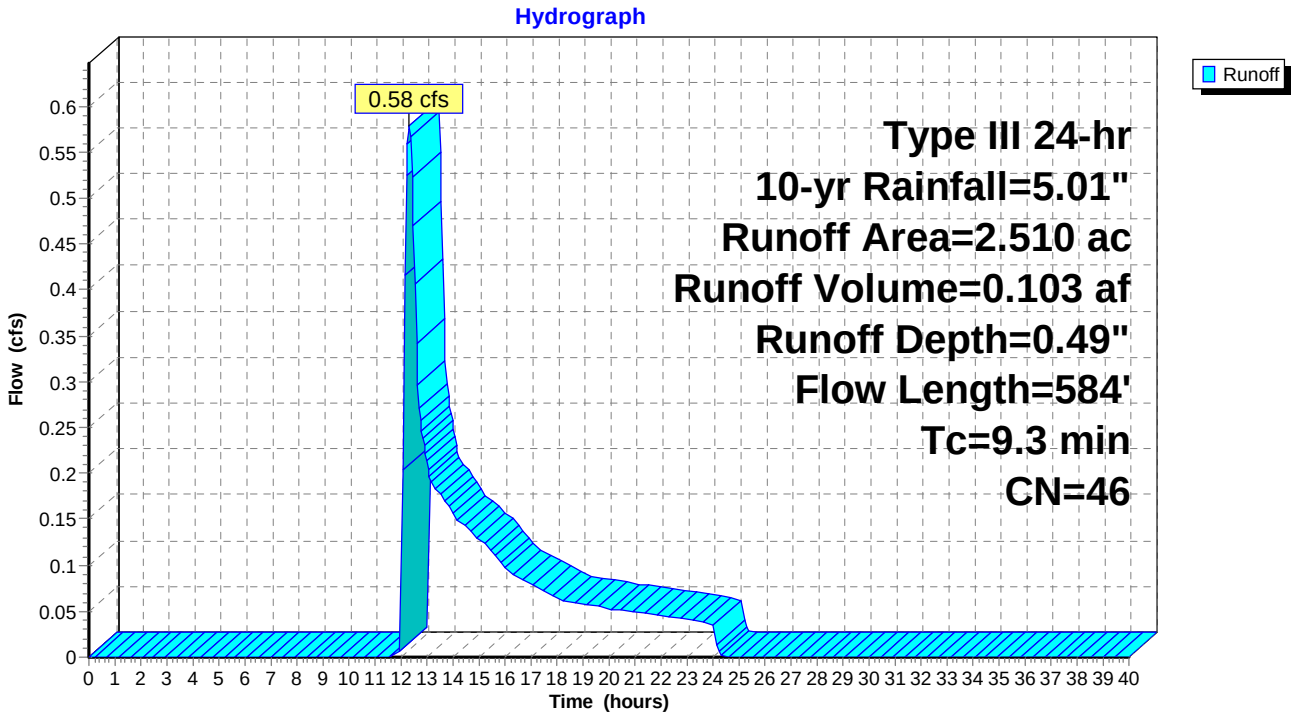
Runoff = 0.58 cfs @ 12.33 hrs, Volume= 0.103 af, Depth= 0.49"
Routed to Link 4L : Analysis Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.01"

| Area (ac) | CN | Description |
|---|---|---|
| 1.300 | 30 | Woods, Good, HSG A |
| 0.030 | 55 | Woods, Good, HSG B |
| 0.490 | 77 | Woods, Good, HSG D |
| 0.430 | 39 | >75% Grass cover, Good, HSG A |
| 0.110 | 61 | >75% Grass cover, Good, HSG B |
| 0.120 | 80 | >75% Grass cover, Good, HSG D |
| 0.030 | 98 | Paved parking, HSG A |
| 2.510 | 46 | Weighted Average |
| 2.480 | | 98.80% Pervious Area |
| 0.030 | | 1.20% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.8 | 100 | 0.3600 | 0.25 | | **Sheet Flow, Sheet Flow**<br>Woods: Light underbrush n= 0.400 P2= 3.20" |
| 1.6 | 306 | 0.3900 | 3.12 | | **Shallow Concentrated Flow,**<br>Woodland Kv= 5.0 fps |
| 0.9 | 178 | 0.0120 | 3.37 | 13.50 | **Trap/Vee/Rect Channel Flow, Int stream**<br>Bot.W=2.00' D=1.00' Z= 2.0 '/' Top.W=6.00'<br>n= 0.035 |
| 9.3 | 584 | Total | | | |

## Subcatchment 6S: Bypass Area



## Hydrograph for Subcatchment 6S: Bypass Area

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 |
| 0.50 | 0.03 | 0.00 | 0.00 |
| 1.00 | 0.05 | 0.00 | 0.00 |
| 1.50 | 0.08 | 0.00 | 0.00 |
| 2.00 | 0.10 | 0.00 | 0.00 |
| 2.50 | 0.13 | 0.00 | 0.00 |
| 3.00 | 0.15 | 0.00 | 0.00 |
| 3.50 | 0.18 | 0.00 | 0.00 |
| 4.00 | 0.22 | 0.00 | 0.00 |
| 4.50 | 0.25 | 0.00 | 0.00 |
| 5.00 | 0.28 | 0.00 | 0.00 |
| 5.50 | 0.32 | 0.00 | 0.00 |
| 6.00 | 0.36 | 0.00 | 0.00 |
| 6.50 | 0.40 | 0.00 | 0.00 |
| 7.00 | 0.45 | 0.00 | 0.00 |
| 7.50 | 0.51 | 0.00 | 0.00 |
| 8.00 | 0.57 | 0.00 | 0.00 |
| 8.50 | 0.64 | 0.00 | 0.00 |
| 9.00 | 0.73 | 0.00 | 0.00 |
| 9.50 | 0.83 | 0.00 | 0.00 |
| 10.00 | 0.95 | 0.00 | 0.00 |
| 10.50 | 1.08 | 0.00 | 0.00 |
| 11.00 | 1.25 | 0.00 | 0.00 |
| 11.50 | 1.49 | 0.00 | 0.00 |
| 12.00 | 2.50 | 0.00 | **0.00** |
| 12.50 | 3.52 | 0.11 | **0.47** |
| 13.00 | 3.76 | 0.15 | 0.21 |
| 13.50 | 3.93 | 0.19 | 0.18 |
| 14.00 | 4.06 | 0.22 | 0.16 |
| 14.50 | 4.18 | 0.25 | 0.14 |
| 15.00 | 4.28 | 0.27 | 0.13 |
| 15.50 | 4.37 | 0.30 | 0.11 |
| 16.00 | 4.44 | 0.32 | 0.10 |
| 16.50 | 4.50 | 0.33 | 0.09 |
| 17.00 | 4.56 | 0.35 | 0.08 |
| 17.50 | 4.61 | 0.36 | 0.07 |
| 18.00 | 4.65 | 0.38 | 0.06 |
| 18.50 | 4.69 | 0.39 | 0.06 |
| 19.00 | 4.73 | 0.40 | 0.06 |
| 19.50 | 4.76 | 0.41 | 0.06 |
| 20.00 | 4.79 | 0.42 | 0.05 |
| 20.50 | 4.83 | 0.43 | 0.05 |
| 21.00 | 4.86 | 0.44 | 0.05 |
| 21.50 | 4.89 | 0.45 | 0.05 |
| 22.00 | 4.91 | 0.46 | 0.05 |
| 22.50 | 4.94 | 0.47 | 0.04 |
| 23.00 | 4.96 | 0.48 | 0.04 |
| 23.50 | 4.99 | 0.48 | 0.04 |
| 24.00 | **5.01** | **0.49** | 0.04 |
| 24.50 | 5.01 | 0.49 | 0.00 |
| 25.00 | 5.01 | 0.49 | 0.00 |
| 25.50 | 5.01 | 0.49 | 0.00 |
| 26.00 | 5.01 | 0.49 | 0.00 |
| 26.50 | 5.01 | 0.49 | 0.00 |
| 27.00 | 5.01 | 0.49 | 0.00 |
| 27.50 | 5.01 | 0.49 | 0.00 |
| 28.00 | 5.01 | 0.49 | 0.00 |
| 28.50 | 5.01 | 0.49 | 0.00 |
| 29.00 | 5.01 | 0.49 | 0.00 |
| 29.50 | 5.01 | 0.49 | 0.00 |
| 30.00 | 5.01 | 0.49 | 0.00 |
| 30.50 | 5.01 | 0.49 | 0.00 |
| 31.00 | 5.01 | 0.49 | 0.00 |
| 31.50 | 5.01 | 0.49 | 0.00 |
| 32.00 | 5.01 | 0.49 | 0.00 |
| 32.50 | 5.01 | 0.49 | 0.00 |
| 33.00 | 5.01 | 0.49 | 0.00 |
| 33.50 | 5.01 | 0.49 | 0.00 |
| 34.00 | 5.01 | 0.49 | 0.00 |
| 34.50 | 5.01 | 0.49 | 0.00 |
| 35.00 | 5.01 | 0.49 | 0.00 |
| 35.50 | 5.01 | 0.49 | 0.00 |
| 36.00 | 5.01 | 0.49 | 0.00 |
| 36.50 | 5.01 | 0.49 | 0.00 |
| 37.00 | 5.01 | 0.49 | 0.00 |
| 37.50 | 5.01 | 0.49 | 0.00 |
| 38.00 | 5.01 | 0.49 | 0.00 |
| 38.50 | 5.01 | 0.49 | 0.00 |
| 39.00 | 5.01 | 0.49 | 0.00 |
| 39.50 | 5.01 | 0.49 | 0.00 |
| 40.00 | 5.01 | 0.49 | 0.00 |

## Summary for Pond 3P: DetPond

Inflow Area = 5.431 ac, 13.99% Impervious, Inflow Depth = 1.11" for 10-yr event
Inflow = 4.14 cfs @ 12.30 hrs, Volume= 0.502 af
Outflow = 0.71 cfs @ 13.79 hrs, Volume= 0.347 af, Atten= 83%, Lag= 89.3 min
Primary = 0.71 cfs @ 13.79 hrs, Volume= 0.347 af
Routed to Link 4L : Analysis Point

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Peak Elev= 97.52' @ 13.79 hrs Surf.Area= 4,414 sf Storage= 9,286 cf

Plug-Flow detention time= 255.9 min calculated for 0.347 af (69% of inflow)
Center-of-Mass det. time= 144.7 min ( 1,041.0 - 896.4 )

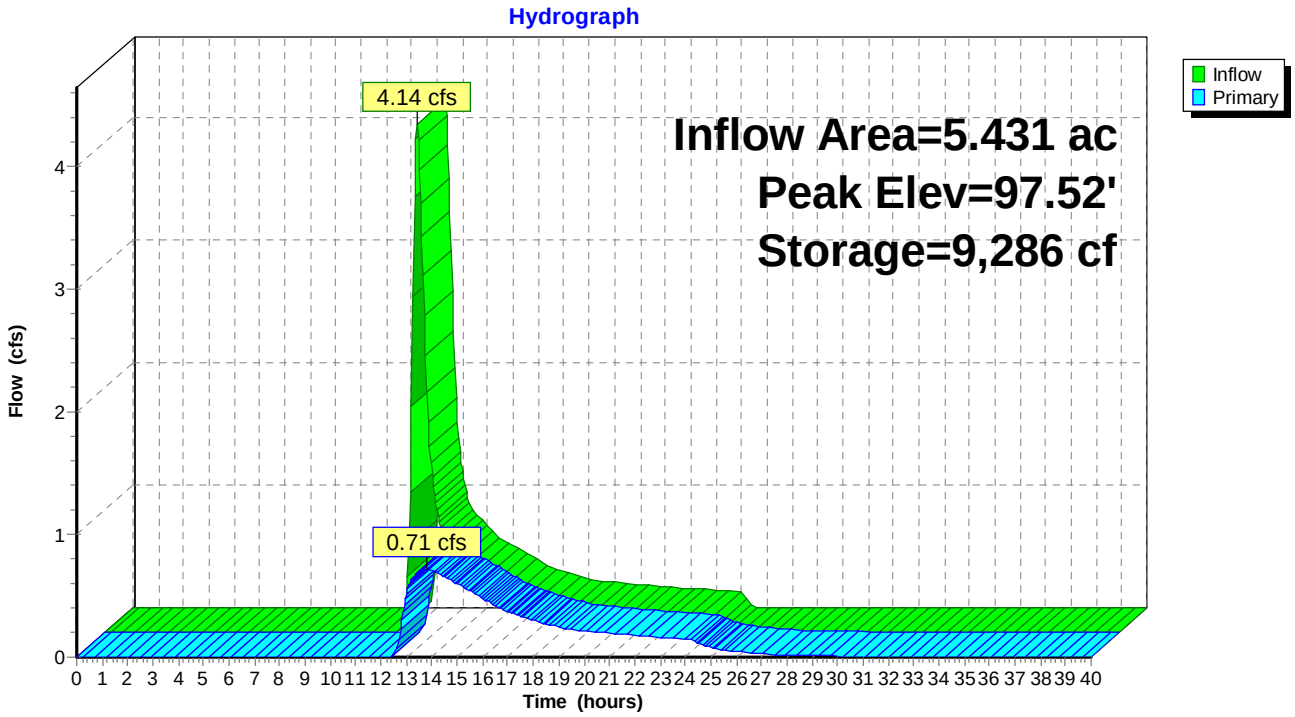
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 94.00' | 24,410 cf | **Custom Stage Data (Irregular)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 94.00 | 1,107 | 174.0 | 0 | 0 | 1,107 |
| 96.00 | 2,850 | 235.0 | 3,822 | 3,822 | 3,134 |
| 98.00 | 4,985 | 299.0 | 7,736 | 11,558 | 5,906 |
| 99.00 | 6,430 | 358.0 | 5,692 | 17,251 | 9,008 |
| 100.00 | 7,914 | 384.0 | 7,159 | 24,410 | 10,587 |

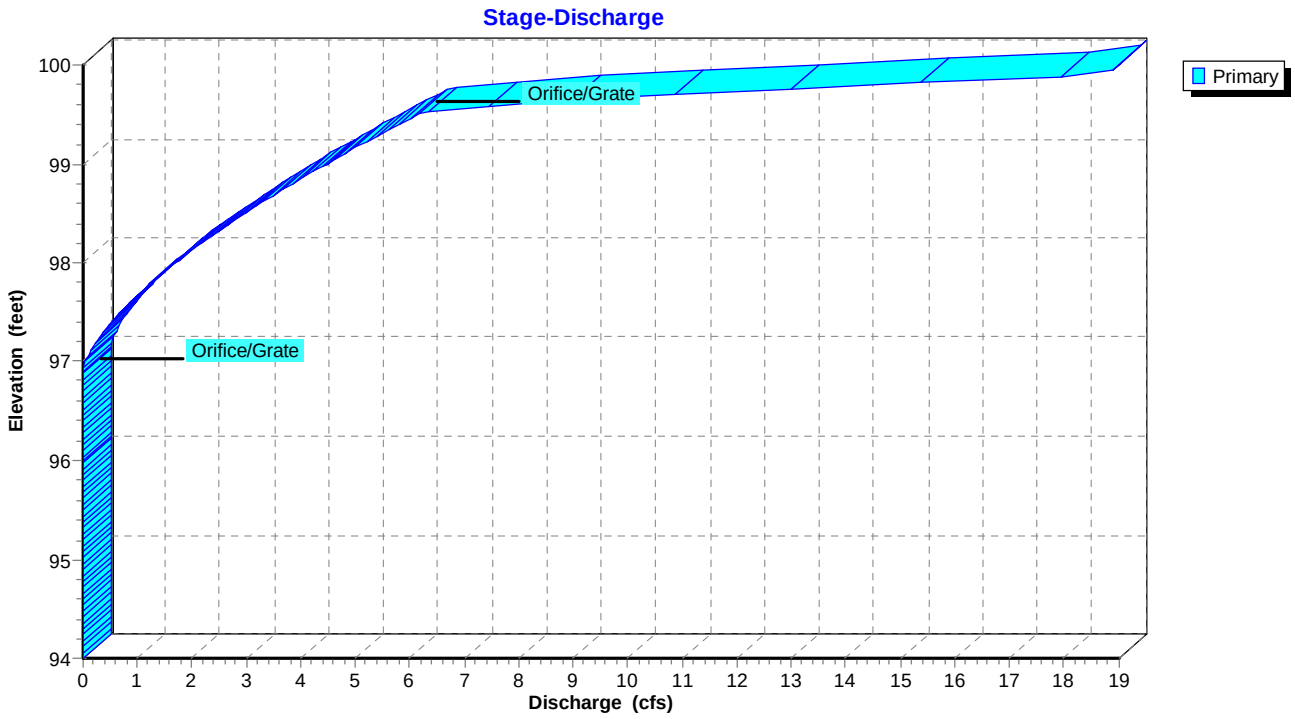
| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 93.00' | **18.0" Round Culvert**<br>L= 120.0' RCP, groove end w/headwall, Ke= 0.200<br>Inlet / Outlet Invert= 93.00' / 92.40' S= 0.0050 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf |
| #2 | Device 1 | 96.90' | **5.5" W x 31.2" H Vert. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |
| #3 | Device 1 | 99.50' | **36.0" x 48.0" Horiz. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=0.71 cfs @ 13.79 hrs HW=97.52' (Free Discharge)
↑**1=Culvert** (Passes 0.71 cfs of 14.64 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.71 cfs @ 2.52 fps)
**3=Orifice/Grate** ( Controls 0.00 cfs)

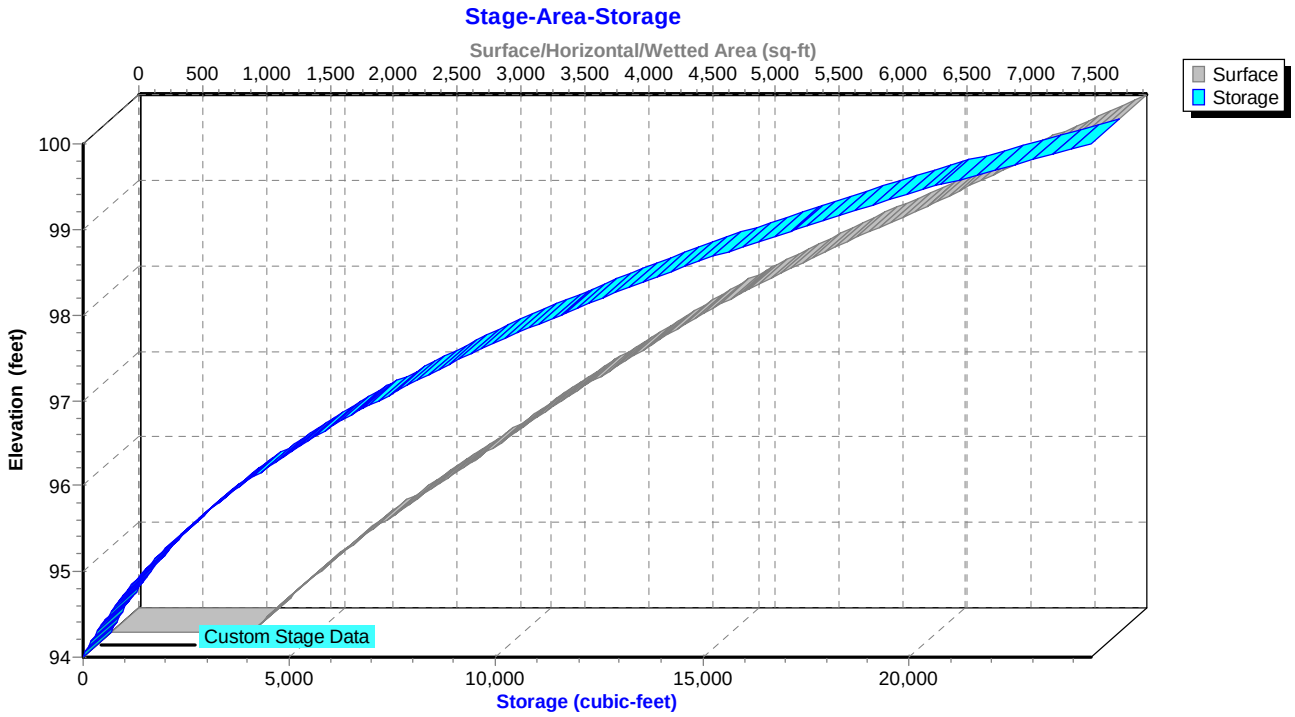
## Pond 3P: DetPond




## Pond 3P: DetPond



## Pond 3P: DetPond



## Hydrograph for Pond 3P: DetPond

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|
| 0.00 | 0.00 | 0 | 94.00 | 0.00 |
| 1.00 | 0.00 | 0 | 94.00 | 0.00 |
| 2.00 | 0.00 | 0 | 94.00 | 0.00 |
| 3.00 | 0.00 | 0 | 94.00 | 0.00 |
| 4.00 | 0.00 | 0 | 94.00 | 0.00 |
| 5.00 | 0.00 | 0 | 94.00 | 0.00 |
| 6.00 | 0.00 | 0 | 94.00 | 0.00 |
| 7.00 | 0.00 | 0 | 94.00 | 0.00 |
| 8.00 | 0.00 | 0 | 94.00 | 0.00 |
| 9.00 | 0.00 | 0 | 94.00 | 0.00 |
| 10.00 | 0.00 | 0 | 94.00 | 0.00 |
| 11.00 | 0.00 | 0 | 94.00 | 0.00 |
| 12.00 | **0.71** | 253 | 94.21 | 0.00 |
| 13.00 | **1.12** | **8,774** | **97.40** | **0.52** |
| 14.00 | 0.66 | **9,269** | **97.51** | **0.71** |
| 15.00 | 0.51 | 8,989 | 97.45 | 0.60 |
| 16.00 | 0.38 | 8,665 | 97.37 | 0.48 |
| 17.00 | 0.30 | 8,354 | 97.30 | 0.37 |
| 18.00 | 0.24 | 8,127 | 97.24 | 0.30 |
| 19.00 | 0.21 | 7,950 | 97.20 | 0.24 |
| 20.00 | 0.19 | 7,847 | 97.18 | 0.21 |
| 21.00 | 0.17 | 7,771 | 97.16 | 0.19 |
| 22.00 | 0.16 | 7,710 | 97.14 | 0.18 |
| 23.00 | 0.14 | 7,654 | 97.13 | 0.16 |
| 24.00 | 0.13 | 7,597 | 97.11 | 0.14 |
| 25.00 | 0.00 | 7,311 | 97.04 | 0.08 |
| 26.00 | 0.00 | 7,111 | 96.99 | 0.04 |
| 27.00 | 0.00 | 7,001 | 96.96 | 0.02 |
| 28.00 | 0.00 | 6,937 | 96.94 | 0.01 |
| 29.00 | 0.00 | 6,898 | 96.93 | 0.01 |
| 30.00 | 0.00 | 6,868 | 96.92 | 0.01 |
| 31.00 | 0.00 | 6,846 | 96.92 | 0.01 |
| 32.00 | 0.00 | 6,829 | 96.91 | 0.00 |
| 33.00 | 0.00 | 6,816 | 96.91 | 0.00 |
| 34.00 | 0.00 | 6,807 | 96.91 | 0.00 |
| 35.00 | 0.00 | 6,800 | 96.91 | 0.00 |
| 36.00 | 0.00 | 6,794 | 96.90 | 0.00 |
| 37.00 | 0.00 | 6,790 | 96.90 | 0.00 |
| 38.00 | 0.00 | 6,787 | 96.90 | 0.00 |
| 39.00 | 0.00 | 6,785 | 96.90 | 0.00 |
| 40.00 | 0.00 | 6,783 | 96.90 | 0.00 |

## Stage-Discharge for Pond 3P: DetPond

| Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|---|
| 94.00 | 0.00 | 96.70 | 0.00 | 99.40 | 5.82 |
| 94.05 | 0.00 | 96.75 | 0.00 | 99.45 | 5.99 |
| 94.10 | 0.00 | 96.80 | 0.00 | 99.50 | 6.17 |
| 94.15 | 0.00 | 96.85 | 0.00 | 99.55 | 6.84 |
| 94.20 | 0.00 | 96.90 | 0.00 | 99.60 | 7.93 |
| 94.25 | 0.00 | 96.95 | 0.02 | 99.65 | 9.28 |
| 94.30 | 0.00 | 97.00 | 0.05 | 99.70 | 10.86 |
| 94.35 | 0.00 | 97.05 | 0.09 | 99.75 | 12.62 |
| 94.40 | 0.00 | 97.10 | 0.13 | 99.80 | 14.55 |
| 94.45 | 0.00 | 97.15 | 0.18 | 99.85 | 16.63 |
| 94.50 | 0.00 | 97.20 | 0.24 | 99.90 | 18.85 |
| 94.55 | 0.00 | 97.25 | 0.30 | 99.95 | 18.93 |
| 94.60 | 0.00 | 97.30 | 0.37 | 100.00 | **19.01** |
| 94.65 | 0.00 | 97.35 | 0.44 | | |
| 94.70 | 0.00 | 97.40 | 0.52 | | |
| 94.75 | 0.00 | 97.45 | 0.60 | | |
| 94.80 | 0.00 | 97.50 | 0.68 | | |
| 94.85 | 0.00 | 97.55 | 0.77 | | |
| 94.90 | 0.00 | 97.60 | 0.86 | | |
| 94.95 | 0.00 | 97.65 | 0.96 | | |
| 95.00 | 0.00 | 97.70 | 1.05 | | |
| 95.05 | 0.00 | 97.75 | 1.15 | | |
| 95.10 | 0.00 | 97.80 | 1.26 | | |
| 95.15 | 0.00 | 97.85 | 1.36 | | |
| 95.20 | 0.00 | 97.90 | 1.47 | | |
| 95.25 | 0.00 | 97.95 | 1.58 | | |
| 95.30 | 0.00 | 98.00 | 1.70 | | |
| 95.35 | 0.00 | 98.05 | 1.81 | | |
| 95.40 | 0.00 | 98.10 | 1.93 | | |
| 95.45 | 0.00 | 98.15 | 2.06 | | |
| 95.50 | 0.00 | 98.20 | 2.18 | | |
| 95.55 | 0.00 | 98.25 | 2.31 | | |
| 95.60 | 0.00 | 98.30 | 2.44 | | |
| 95.65 | 0.00 | 98.35 | 2.57 | | |
| 95.70 | 0.00 | 98.40 | 2.70 | | |
| 95.75 | 0.00 | 98.45 | 2.84 | | |
| 95.80 | 0.00 | 98.50 | 2.98 | | |
| 95.85 | 0.00 | 98.55 | 3.12 | | |
| 95.90 | 0.00 | 98.60 | 3.26 | | |
| 95.95 | 0.00 | 98.65 | 3.41 | | |
| 96.00 | 0.00 | 98.70 | 3.55 | | |
| 96.05 | 0.00 | 98.75 | 3.70 | | |
| 96.10 | 0.00 | 98.80 | 3.85 | | |
| 96.15 | 0.00 | 98.85 | 4.01 | | |
| 96.20 | 0.00 | 98.90 | 4.16 | | |
| 96.25 | 0.00 | 98.95 | 4.32 | | |
| 96.30 | 0.00 | 99.00 | 4.48 | | |
| 96.35 | 0.00 | 99.05 | 4.64 | | |
| 96.40 | 0.00 | 99.10 | 4.80 | | |
| 96.45 | 0.00 | 99.15 | 4.97 | | |
| 96.50 | 0.00 | 99.20 | 5.13 | | |
| 96.55 | 0.00 | 99.25 | 5.30 | | |
| 96.60 | 0.00 | 99.30 | 5.47 | | |
| 96.65 | 0.00 | 99.35 | 5.64 | | |

## Stage-Area-Storage for Pond 3P: DetPond

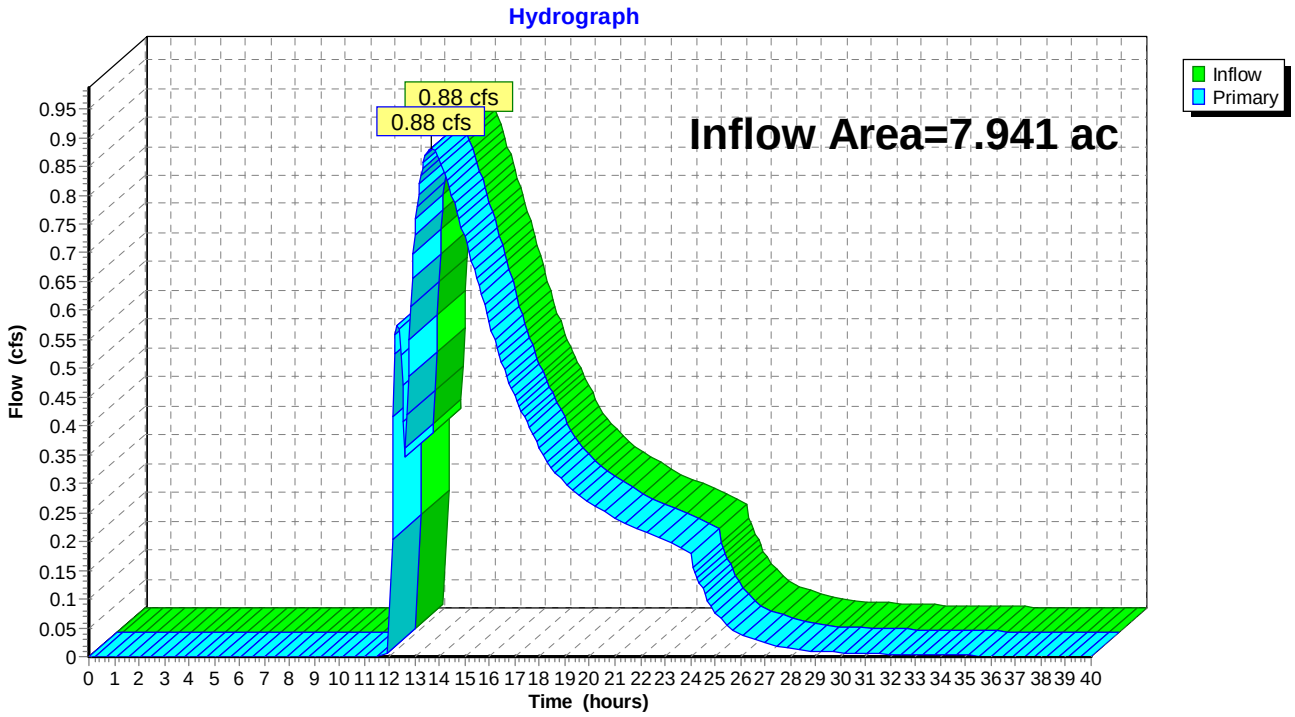
| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|---|---|---|
| 94.00 | 1,107 | 0 |
| 94.10 | 1,175 | 114 |
| 94.20 | 1,245 | 235 |
| 94.30 | 1,317 | 363 |
| 94.40 | 1,391 | 498 |
| 94.50 | 1,467 | 641 |
| 94.60 | 1,545 | 792 |
| 94.70 | 1,625 | 950 |
| 94.80 | 1,707 | 1,117 |
| 94.90 | 1,791 | 1,292 |
| 95.00 | 1,877 | 1,475 |
| 95.10 | 1,966 | 1,667 |
| 95.20 | 2,056 | 1,868 |
| 95.30 | 2,148 | 2,079 |
| 95.40 | 2,242 | 2,298 |
| 95.50 | 2,338 | 2,527 |
| 95.60 | 2,437 | 2,766 |
| 95.70 | 2,537 | 3,015 |
| 95.80 | 2,639 | 3,273 |
| 95.90 | 2,744 | 3,542 |
| 96.00 | 2,850 | 3,822 |
| 96.10 | 2,943 | 4,112 |
| 96.20 | 3,037 | 4,411 |
| 96.30 | 3,132 | 4,719 |
| 96.40 | 3,230 | 5,037 |
| 96.50 | 3,328 | 5,365 |
| 96.60 | 3,428 | 5,703 |
| 96.70 | 3,530 | 6,051 |
| 96.80 | 3,633 | 6,409 |
| 96.90 | 3,737 | 6,777 |
| 97.00 | 3,843 | 7,156 |
| 97.10 | 3,951 | 7,546 |
| 97.20 | 4,060 | 7,947 |
| 97.30 | 4,170 | 8,358 |
| 97.40 | 4,282 | 8,781 |
| 97.50 | 4,396 | 9,215 |
| 97.60 | 4,511 | 9,660 |
| 97.70 | 4,627 | 10,117 |
| 97.80 | 4,745 | 10,585 |
| 97.90 | 4,864 | 11,066 |
| 98.00 | 4,985 | 11,558 |
| 98.10 | 5,121 | 12,064 |
| 98.20 | 5,259 | 12,583 |
| 98.30 | 5,399 | 13,116 |
| 98.40 | 5,541 | 13,663 |
| 98.50 | 5,685 | 14,224 |
| 98.60 | 5,830 | 14,799 |
| 98.70 | 5,977 | 15,390 |
| 98.80 | 6,126 | 15,995 |
| 98.90 | 6,277 | 16,615 |
| 99.00 | 6,430 | 17,251 |
| 99.10 | 6,571 | 17,901 |
| 99.20 | 6,714 | 18,565 |
| 99.30 | 6,859 | 19,244 |
| 99.40 | 7,005 | 19,937 |
| 99.50 | 7,153 | 20,645 |
| 99.60 | 7,302 | 21,367 |
| 99.70 | 7,453 | 22,105 |
| 99.80 | 7,605 | 22,858 |
| 99.90 | 7,759 | 23,626 |
| 100.00 | **7,914** | **24,410** |

## Summary for Link 4L: Analysis Point

Inflow Area = 7.941 ac, 9.95% Impervious, Inflow Depth > 0.68" for 10-yr event
Inflow = 0.88 cfs @ 13.67 hrs, Volume= 0.450 af
Primary = 0.88 cfs @ 13.67 hrs, Volume= 0.450 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

## Link 4L: Analysis Point



## Hydrograph for Link 4L: Analysis Point

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | **0.00** | 0.00 | 27.00 | 0.02 | 0.00 | 0.02 |
| 0.50 | 0.00 | 0.00 | 0.00 | 27.50 | 0.02 | 0.00 | 0.02 |
| 1.00 | 0.00 | 0.00 | 0.00 | 28.00 | 0.01 | 0.00 | 0.01 |
| 1.50 | 0.00 | 0.00 | 0.00 | 28.50 | 0.01 | 0.00 | 0.01 |
| 2.00 | 0.00 | 0.00 | 0.00 | 29.00 | 0.01 | 0.00 | 0.01 |
| 2.50 | 0.00 | 0.00 | 0.00 | 29.50 | 0.01 | 0.00 | 0.01 |
| 3.00 | 0.00 | 0.00 | 0.00 | 30.00 | 0.01 | 0.00 | 0.01 |
| 3.50 | 0.00 | 0.00 | 0.00 | 30.50 | 0.01 | 0.00 | 0.01 |
| 4.00 | 0.00 | 0.00 | 0.00 | 31.00 | 0.01 | 0.00 | 0.01 |
| 4.50 | 0.00 | 0.00 | 0.00 | 31.50 | 0.00 | 0.00 | 0.00 |
| 5.00 | 0.00 | 0.00 | 0.00 | 32.00 | 0.00 | 0.00 | 0.00 |
| 5.50 | 0.00 | 0.00 | 0.00 | 32.50 | 0.00 | 0.00 | 0.00 |
| 6.00 | 0.00 | 0.00 | 0.00 | 33.00 | 0.00 | 0.00 | 0.00 |
| 6.50 | 0.00 | 0.00 | 0.00 | 33.50 | 0.00 | 0.00 | 0.00 |
| 7.00 | 0.00 | 0.00 | 0.00 | 34.00 | 0.00 | 0.00 | 0.00 |
| 7.50 | 0.00 | 0.00 | 0.00 | 34.50 | 0.00 | 0.00 | 0.00 |
| 8.00 | 0.00 | 0.00 | 0.00 | 35.00 | 0.00 | 0.00 | 0.00 |
| 8.50 | 0.00 | 0.00 | 0.00 | 35.50 | 0.00 | 0.00 | 0.00 |
| 9.00 | 0.00 | 0.00 | 0.00 | 36.00 | 0.00 | 0.00 | 0.00 |
| 9.50 | 0.00 | 0.00 | 0.00 | 36.50 | 0.00 | 0.00 | 0.00 |
| 10.00 | 0.00 | 0.00 | 0.00 | 37.00 | 0.00 | 0.00 | 0.00 |
| 10.50 | 0.00 | 0.00 | 0.00 | 37.50 | 0.00 | 0.00 | 0.00 |
| 11.00 | 0.00 | 0.00 | 0.00 | 38.00 | 0.00 | 0.00 | 0.00 |
| 11.50 | 0.00 | 0.00 | 0.00 | 38.50 | 0.00 | 0.00 | 0.00 |
| 12.00 | 0.00 | 0.00 | 0.00 | 39.00 | 0.00 | 0.00 | 0.00 |
| 12.50 | 0.47 | 0.00 | 0.47 | 39.50 | 0.00 | 0.00 | 0.00 |
| 13.00 | 0.73 | 0.00 | 0.73 | 40.00 | 0.00 | 0.00 | 0.00 |
| 13.50 | **0.88** | 0.00 | **0.88** | | | | |
| 14.00 | **0.86** | 0.00 | **0.86** | | | | |
| 14.50 | 0.80 | 0.00 | 0.80 | | | | |
| 15.00 | 0.73 | 0.00 | 0.73 | | | | |
| 15.50 | 0.65 | 0.00 | 0.65 | | | | |
| 16.00 | 0.58 | 0.00 | 0.58 | | | | |
| 16.50 | 0.51 | 0.00 | 0.51 | | | | |
| 17.00 | 0.45 | 0.00 | 0.45 | | | | |
| 17.50 | 0.40 | 0.00 | 0.40 | | | | |
| 18.00 | 0.36 | 0.00 | 0.36 | | | | |
| 18.50 | 0.33 | 0.00 | 0.33 | | | | |
| 19.00 | 0.30 | 0.00 | 0.30 | | | | |
| 19.50 | 0.28 | 0.00 | 0.28 | | | | |
| 20.00 | 0.27 | 0.00 | 0.27 | | | | |
| 20.50 | 0.25 | 0.00 | 0.25 | | | | |
| 21.00 | 0.24 | 0.00 | 0.24 | | | | |
| 21.50 | 0.23 | 0.00 | 0.23 | | | | |
| 22.00 | 0.22 | 0.00 | 0.22 | | | | |
| 22.50 | 0.21 | 0.00 | 0.21 | | | | |
| 23.00 | 0.20 | 0.00 | 0.20 | | | | |
| 23.50 | 0.19 | 0.00 | 0.19 | | | | |
| 24.00 | 0.18 | 0.00 | 0.18 | | | | |
| 24.50 | 0.12 | 0.00 | 0.12 | | | | |
| 25.00 | 0.08 | 0.00 | 0.08 | | | | |
| 25.50 | 0.05 | 0.00 | 0.05 | | | | |
| 26.00 | 0.04 | 0.00 | 0.04 | | | | |
| 26.50 | 0.03 | 0.00 | 0.03 | | | | |

Time span=0.00-40.00 hrs, dt=0.05 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: Pre-Dev** Runoff Area=7.620 ac 0.00% Impervious Runoff Depth=0.73"
Flow Length=945' Tc=18.9 min CN=43 Runoff=2.62 cfs 0.462 af

**Subcatchment 2S: Watershed To Basin** Runoff Area=5.431 ac 13.99% Impervious Runoff Depth=1.76"
Flow Length=1,324' Tc=18.1 min CN=57 Runoff=7.15 cfs 0.797 af

**Subcatchment 6S: Bypass Area** Runoff Area=2.510 ac 1.20% Impervious Runoff Depth=0.93"
Flow Length=584' Tc=9.3 min CN=46 Runoff=1.61 cfs 0.194 af

**Pond 3P: DetPond** Peak Elev=98.18' Storage=12,482 cf Inflow=7.15 cfs 0.797 af
Outflow=2.13 cfs 0.642 af

**Link 4L: Analysis Point** Inflow=2.58 cfs 0.835 af
Primary=2.58 cfs 0.835 af

**Total Runoff Area = 15.561 ac Runoff Volume = 1.453 af Average Runoff Depth = 1.12"**
**94.92% Pervious = 14.771 ac 5.08% Impervious = 0.790 ac**

## Summary for Subcatchment 1S: Pre-Dev

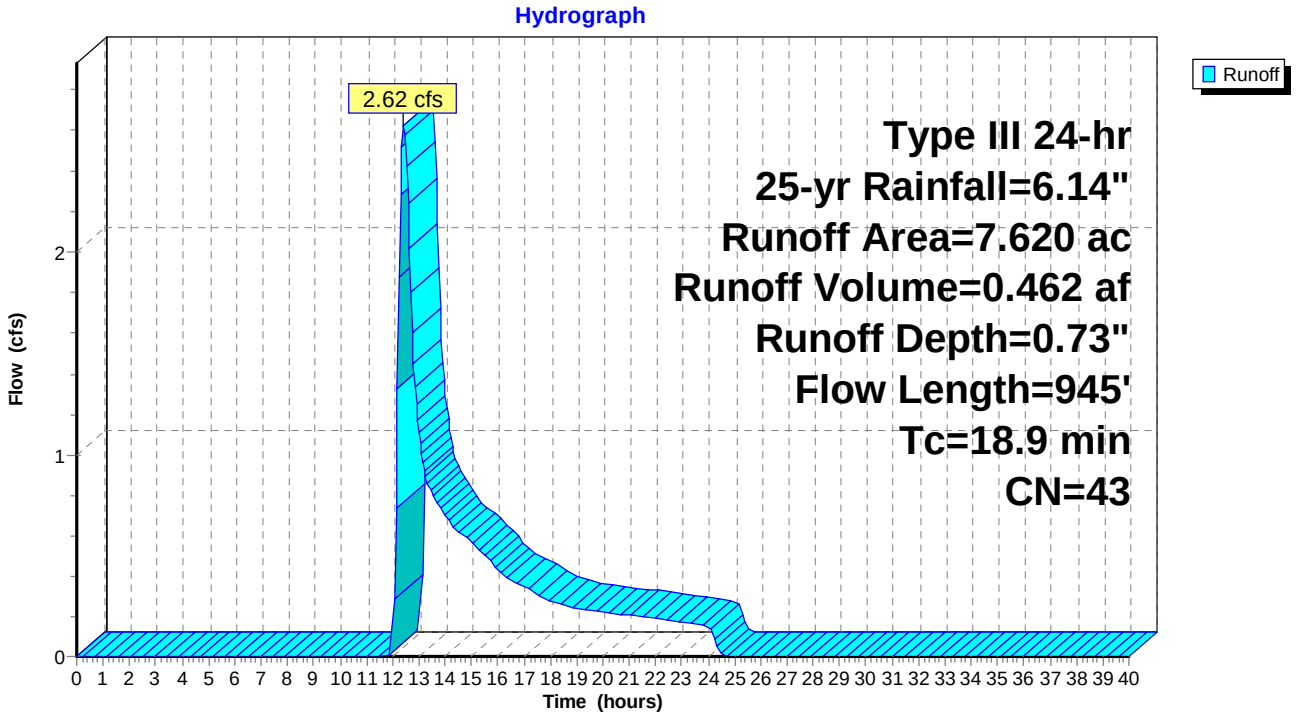
Runoff = 2.62 cfs @ 12.43 hrs, Volume= 0.462 af, Depth= 0.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.14"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 4.090 | 30 | Woods, Good, HSG A |
| | 2.920 | 55 | Woods, Good, HSG B |
| | 0.610 | 77 | Woods, Good, HSG D |
| | 7.620 | 43 | Weighted Average |
| | 7.620 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 7.6 | 100 | 0.2700 | 0.22 | | **Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 10.4 | 667 | 0.0460 | 1.07 | | **Shallow Concentrated Flow, Shallow Woods** Woodland Kv= 5.0 fps |
| 0.9 | 178 | 0.0120 | 3.37 | 13.50 | **Trap/Vee/Rect Channel Flow, Int Stream** Bot.W=2.00' D=1.00' Z= 2.0 '/' Top.W=6.00' n= 0.035 Earth, dense weeds |
| 18.9 | 945 | Total | | | |

## Subcatchment 1S: Pre-Dev



## Hydrograph for Subcatchment 1S: Pre-Dev

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 |
| 0.50 | 0.03 | 0.00 | 0.00 |
| 1.00 | 0.06 | 0.00 | 0.00 |
| 1.50 | 0.09 | 0.00 | 0.00 |
| 2.00 | 0.12 | 0.00 | 0.00 |
| 2.50 | 0.15 | 0.00 | 0.00 |
| 3.00 | 0.19 | 0.00 | 0.00 |
| 3.50 | 0.23 | 0.00 | 0.00 |
| 4.00 | 0.26 | 0.00 | 0.00 |
| 4.50 | 0.31 | 0.00 | 0.00 |
| 5.00 | 0.35 | 0.00 | 0.00 |
| 5.50 | 0.39 | 0.00 | 0.00 |
| 6.00 | 0.44 | 0.00 | 0.00 |
| 6.50 | 0.50 | 0.00 | 0.00 |
| 7.00 | 0.56 | 0.00 | 0.00 |
| 7.50 | 0.62 | 0.00 | 0.00 |
| 8.00 | 0.70 | 0.00 | 0.00 |
| 8.50 | 0.79 | 0.00 | 0.00 |
| 9.00 | 0.89 | 0.00 | 0.00 |
| 9.50 | 1.02 | 0.00 | 0.00 |
| 10.00 | 1.16 | 0.00 | 0.00 |
| 10.50 | 1.33 | 0.00 | 0.00 |
| 11.00 | 1.54 | 0.00 | 0.00 |
| 11.50 | 1.83 | 0.00 | 0.00 |
| 12.00 | 3.07 | 0.01 | **0.01** |
| 12.50 | 4.31 | 0.18 | **2.56** |
| 13.00 | 4.60 | 0.25 | 1.11 |
| 13.50 | 4.81 | 0.30 | 0.81 |
| 14.00 | 4.98 | 0.35 | 0.71 |
| 14.50 | 5.12 | 0.39 | 0.62 |
| 15.00 | 5.25 | 0.42 | 0.57 |
| 15.50 | 5.35 | 0.46 | 0.50 |
| 16.00 | 5.44 | 0.48 | 0.43 |
| 16.50 | 5.52 | 0.51 | 0.38 |
| 17.00 | 5.58 | 0.53 | 0.35 |
| 17.50 | 5.64 | 0.55 | 0.31 |
| 18.00 | 5.70 | 0.57 | 0.28 |
| 18.50 | 5.75 | 0.59 | 0.25 |
| 19.00 | 5.79 | 0.60 | 0.24 |
| 19.50 | 5.83 | 0.62 | 0.23 |
| 20.00 | 5.88 | 0.63 | 0.22 |
| 20.50 | 5.92 | 0.64 | 0.21 |
| 21.00 | 5.95 | 0.66 | 0.21 |
| 21.50 | 5.99 | 0.67 | 0.20 |
| 22.00 | 6.02 | 0.68 | 0.19 |
| 22.50 | 6.05 | 0.70 | 0.18 |
| 23.00 | 6.08 | 0.71 | 0.17 |
| 23.50 | 6.11 | 0.72 | 0.16 |
| 24.00 | **6.14** | **0.73** | 0.15 |
| 24.50 | 6.14 | 0.73 | 0.01 |
| 25.00 | 6.14 | 0.73 | 0.00 |
| 25.50 | 6.14 | 0.73 | 0.00 |
| 26.00 | 6.14 | 0.73 | 0.00 |
| 26.50 | 6.14 | 0.73 | 0.00 |
| 27.00 | 6.14 | 0.73 | 0.00 |
| 27.50 | 6.14 | 0.73 | 0.00 |
| 28.00 | 6.14 | 0.73 | 0.00 |
| 28.50 | 6.14 | 0.73 | 0.00 |
| 29.00 | 6.14 | 0.73 | 0.00 |
| 29.50 | 6.14 | 0.73 | 0.00 |
| 30.00 | 6.14 | 0.73 | 0.00 |
| 30.50 | 6.14 | 0.73 | 0.00 |
| 31.00 | 6.14 | 0.73 | 0.00 |
| 31.50 | 6.14 | 0.73 | 0.00 |
| 32.00 | 6.14 | 0.73 | 0.00 |
| 32.50 | 6.14 | 0.73 | 0.00 |
| 33.00 | 6.14 | 0.73 | 0.00 |
| 33.50 | 6.14 | 0.73 | 0.00 |
| 34.00 | 6.14 | 0.73 | 0.00 |
| 34.50 | 6.14 | 0.73 | 0.00 |
| 35.00 | 6.14 | 0.73 | 0.00 |
| 35.50 | 6.14 | 0.73 | 0.00 |
| 36.00 | 6.14 | 0.73 | 0.00 |
| 36.50 | 6.14 | 0.73 | 0.00 |
| 37.00 | 6.14 | 0.73 | 0.00 |
| 37.50 | 6.14 | 0.73 | 0.00 |
| 38.00 | 6.14 | 0.73 | 0.00 |
| 38.50 | 6.14 | 0.73 | 0.00 |
| 39.00 | 6.14 | 0.73 | 0.00 |
| 39.50 | 6.14 | 0.73 | 0.00 |
| 40.00 | 6.14 | 0.73 | 0.00 |

## Summary for Subcatchment 2S: Watershed To Basin

House roofs to underground infiltration systems.

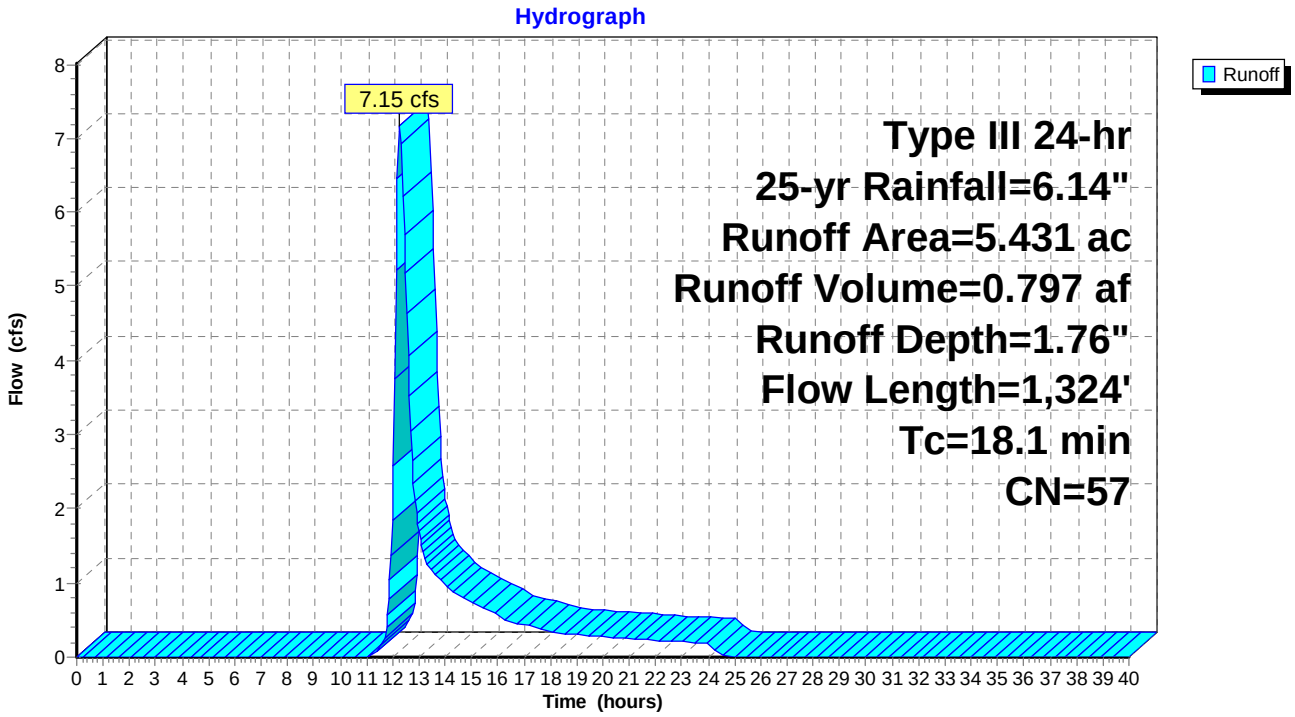
Runoff = 7.15 cfs @ 12.28 hrs, Volume= 0.797 af, Depth= 1.76"
Routed to Pond 3P : DetPond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.14"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.760 | 98 | Paved roads w/curbs & sewers |
| | 1.950 | 39 | >75% Grass cover, Good, HSG A |
| | 2.050 | 61 | >75% Grass cover, Good, HSG B |
| | 0.001 | 80 | >75% Grass cover, Good, HSG D |
| | 0.220 | 30 | Woods, Good, HSG A |
| | 0.450 | 55 | Woods, Good, HSG B |
| | 5.431 | 57 | Weighted Average |
| | 4.671 | | 86.01% Pervious Area |
| | 0.760 | | 13.99% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.6 | 70 | 0.0570 | 0.11 | | **Sheet Flow, Sheet Flow Woods**<br>Woods: Light underbrush n= 0.400 P2= 3.20" |
| 2.2 | 30 | 0.2000 | 0.23 | | **Sheet Flow, Sheet Flow Grass**<br>Grass: Dense n= 0.240 P2= 3.20" |
| 1.2 | 161 | 0.0960 | 2.17 | | **Shallow Concentrated Flow, Shallow Grass**<br>Short Grass Pasture Kv= 7.0 fps |
| 1.2 | 308 | 0.0450 | 4.31 | | **Shallow Concentrated Flow, Gutter**<br>Paved Kv= 20.3 fps |
| 2.9 | 755 | 0.0050 | 4.40 | 5.40 | **Pipe Channel, Pipe**<br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.011 Concrete pipe, straight & clean |
| 18.1 | 1,324 | Total | | | |

## Subcatchment 2S: Watershed To Basin



## Hydrograph for Subcatchment 2S: Watershed To Basin

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 |
| 0.50 | 0.03 | 0.00 | 0.00 |
| 1.00 | 0.06 | 0.00 | 0.00 |
| 1.50 | 0.09 | 0.00 | 0.00 |
| 2.00 | 0.12 | 0.00 | 0.00 |
| 2.50 | 0.15 | 0.00 | 0.00 |
| 3.00 | 0.19 | 0.00 | 0.00 |
| 3.50 | 0.23 | 0.00 | 0.00 |
| 4.00 | 0.26 | 0.00 | 0.00 |
| 4.50 | 0.31 | 0.00 | 0.00 |
| 5.00 | 0.35 | 0.00 | 0.00 |
| 5.50 | 0.39 | 0.00 | 0.00 |
| 6.00 | 0.44 | 0.00 | 0.00 |
| 6.50 | 0.50 | 0.00 | 0.00 |
| 7.00 | 0.56 | 0.00 | 0.00 |
| 7.50 | 0.62 | 0.00 | 0.00 |
| 8.00 | 0.70 | 0.00 | 0.00 |
| 8.50 | 0.79 | 0.00 | 0.00 |
| 9.00 | 0.89 | 0.00 | 0.00 |
| 9.50 | 1.02 | 0.00 | 0.00 |
| 10.00 | 1.16 | 0.00 | 0.00 |
| 10.50 | 1.33 | 0.00 | 0.00 |
| 11.00 | 1.54 | 0.00 | 0.00 |
| 11.50 | 1.83 | 0.01 | 0.12 |
| 12.00 | 3.07 | 0.27 | **1.85** |
| 12.50 | 4.31 | 0.76 | **5.17** |
| 13.00 | 4.60 | 0.90 | 1.69 |
| 13.50 | 4.81 | 1.01 | 1.16 |
| 14.00 | 4.98 | 1.09 | 0.98 |
| 14.50 | 5.12 | 1.17 | 0.84 |
| 15.00 | 5.25 | 1.24 | 0.75 |
| 15.50 | 5.35 | 1.30 | 0.65 |
| 16.00 | 5.44 | 1.35 | 0.55 |
| 16.50 | 5.52 | 1.39 | 0.48 |
| 17.00 | 5.58 | 1.43 | 0.43 |
| 17.50 | 5.64 | 1.46 | 0.39 |
| 18.00 | 5.70 | 1.50 | 0.34 |
| 18.50 | 5.75 | 1.52 | 0.31 |
| 19.00 | 5.79 | 1.55 | 0.30 |
| 19.50 | 5.83 | 1.58 | 0.28 |
| 20.00 | 5.88 | 1.60 | 0.27 |
| 20.50 | 5.92 | 1.62 | 0.26 |
| 21.00 | 5.95 | 1.65 | 0.25 |
| 21.50 | 5.99 | 1.67 | 0.24 |
| 22.00 | 6.02 | 1.69 | 0.23 |
| 22.50 | 6.05 | 1.71 | 0.22 |
| 23.00 | 6.08 | 1.73 | 0.20 |
| 23.50 | 6.11 | 1.75 | 0.19 |
| 24.00 | **6.14** | **1.76** | 0.18 |
| 24.50 | 6.14 | 1.76 | 0.01 |
| 25.00 | 6.14 | 1.76 | 0.00 |
| 25.50 | 6.14 | 1.76 | 0.00 |
| 26.00 | 6.14 | 1.76 | 0.00 |
| 26.50 | 6.14 | 1.76 | 0.00 |
| 27.00 | 6.14 | 1.76 | 0.00 |
| 27.50 | 6.14 | 1.76 | 0.00 |
| 28.00 | 6.14 | 1.76 | 0.00 |
| 28.50 | 6.14 | 1.76 | 0.00 |
| 29.00 | 6.14 | 1.76 | 0.00 |
| 29.50 | 6.14 | 1.76 | 0.00 |
| 30.00 | 6.14 | 1.76 | 0.00 |
| 30.50 | 6.14 | 1.76 | 0.00 |
| 31.00 | 6.14 | 1.76 | 0.00 |
| 31.50 | 6.14 | 1.76 | 0.00 |
| 32.00 | 6.14 | 1.76 | 0.00 |
| 32.50 | 6.14 | 1.76 | 0.00 |
| 33.00 | 6.14 | 1.76 | 0.00 |
| 33.50 | 6.14 | 1.76 | 0.00 |
| 34.00 | 6.14 | 1.76 | 0.00 |
| 34.50 | 6.14 | 1.76 | 0.00 |
| 35.00 | 6.14 | 1.76 | 0.00 |
| 35.50 | 6.14 | 1.76 | 0.00 |
| 36.00 | 6.14 | 1.76 | 0.00 |
| 36.50 | 6.14 | 1.76 | 0.00 |
| 37.00 | 6.14 | 1.76 | 0.00 |
| 37.50 | 6.14 | 1.76 | 0.00 |
| 38.00 | 6.14 | 1.76 | 0.00 |
| 38.50 | 6.14 | 1.76 | 0.00 |
| 39.00 | 6.14 | 1.76 | 0.00 |
| 39.50 | 6.14 | 1.76 | 0.00 |
| 40.00 | 6.14 | 1.76 | 0.00 |

## Summary for Subcatchment 6S: Bypass Area

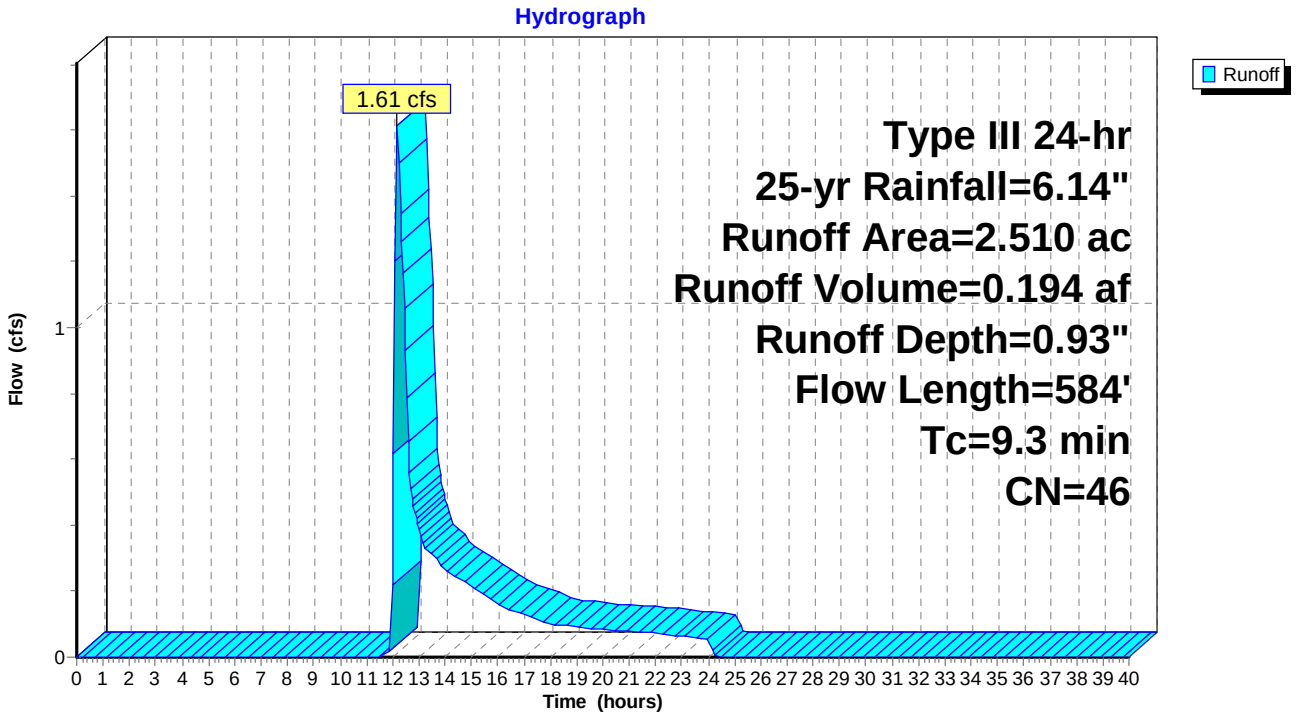
Runoff = 1.61 cfs @ 12.17 hrs, Volume= 0.194 af, Depth= 0.93"
Routed to Link 4L : Analysis Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.14"

| Area (ac) | CN | Description |
|---|---|---|
| 1.300 | 30 | Woods, Good, HSG A |
| 0.030 | 55 | Woods, Good, HSG B |
| 0.490 | 77 | Woods, Good, HSG D |
| 0.430 | 39 | >75% Grass cover, Good, HSG A |
| 0.110 | 61 | >75% Grass cover, Good, HSG B |
| 0.120 | 80 | >75% Grass cover, Good, HSG D |
| 0.030 | 98 | Paved parking, HSG A |
| 2.510 | 46 | Weighted Average |
| 2.480 | | 98.80% Pervious Area |
| 0.030 | | 1.20% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.8 | 100 | 0.3600 | 0.25 | | **Sheet Flow, Sheet Flow**<br>Woods: Light underbrush n= 0.400 P2= 3.20" |
| 1.6 | 306 | 0.3900 | 3.12 | | **Shallow Concentrated Flow,**<br>Woodland Kv= 5.0 fps |
| 0.9 | 178 | 0.0120 | 3.37 | 13.50 | **Trap/Vee/Rect Channel Flow, Int stream**<br>Bot.W=2.00' D=1.00' Z= 2.0 '/' Top.W=6.00'<br>n= 0.035 |
| 9.3 | 584 | Total | | | |

## Subcatchment 6S: Bypass Area



## Hydrograph for Subcatchment 6S: Bypass Area

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 |
| 0.50 | 0.03 | 0.00 | 0.00 |
| 1.00 | 0.06 | 0.00 | 0.00 |
| 1.50 | 0.09 | 0.00 | 0.00 |
| 2.00 | 0.12 | 0.00 | 0.00 |
| 2.50 | 0.15 | 0.00 | 0.00 |
| 3.00 | 0.19 | 0.00 | 0.00 |
| 3.50 | 0.23 | 0.00 | 0.00 |
| 4.00 | 0.26 | 0.00 | 0.00 |
| 4.50 | 0.31 | 0.00 | 0.00 |
| 5.00 | 0.35 | 0.00 | 0.00 |
| 5.50 | 0.39 | 0.00 | 0.00 |
| 6.00 | 0.44 | 0.00 | 0.00 |
| 6.50 | 0.50 | 0.00 | 0.00 |
| 7.00 | 0.56 | 0.00 | 0.00 |
| 7.50 | 0.62 | 0.00 | 0.00 |
| 8.00 | 0.70 | 0.00 | 0.00 |
| 8.50 | 0.79 | 0.00 | 0.00 |
| 9.00 | 0.89 | 0.00 | 0.00 |
| 9.50 | 1.02 | 0.00 | 0.00 |
| 10.00 | 1.16 | 0.00 | 0.00 |
| 10.50 | 1.33 | 0.00 | 0.00 |
| 11.00 | 1.54 | 0.00 | 0.00 |
| 11.50 | 1.83 | 0.00 | 0.00 |
| 12.00 | 3.07 | 0.04 | **0.22** |
| 12.50 | 4.31 | 0.28 | **0.93** |
| 13.00 | 4.60 | 0.36 | 0.39 |
| 13.50 | 4.81 | 0.43 | 0.31 |
| 14.00 | 4.98 | 0.48 | 0.27 |
| 14.50 | 5.12 | 0.53 | 0.24 |
| 15.00 | 5.25 | 0.57 | 0.22 |
| 15.50 | 5.35 | 0.61 | 0.19 |
| 16.00 | 5.44 | 0.64 | 0.16 |
| 16.50 | 5.52 | 0.67 | 0.14 |
| 17.00 | 5.58 | 0.70 | 0.13 |
| 17.50 | 5.64 | 0.72 | 0.12 |
| 18.00 | 5.70 | 0.74 | 0.10 |
| 18.50 | 5.75 | 0.76 | 0.10 |
| 19.00 | 5.79 | 0.78 | 0.09 |
| 19.50 | 5.83 | 0.80 | 0.09 |
| 20.00 | 5.88 | 0.82 | 0.08 |
| 20.50 | 5.92 | 0.83 | 0.08 |
| 21.00 | 5.95 | 0.85 | 0.08 |
| 21.50 | 5.99 | 0.86 | 0.07 |
| 22.00 | 6.02 | 0.88 | 0.07 |
| 22.50 | 6.05 | 0.89 | 0.07 |
| 23.00 | 6.08 | 0.90 | 0.06 |
| 23.50 | 6.11 | 0.91 | 0.06 |
| 24.00 | **6.14** | **0.93** | 0.06 |
| 24.50 | 6.14 | 0.93 | 0.00 |
| 25.00 | 6.14 | 0.93 | 0.00 |
| 25.50 | 6.14 | 0.93 | 0.00 |
| 26.00 | 6.14 | 0.93 | 0.00 |
| 26.50 | 6.14 | 0.93 | 0.00 |
| 27.00 | 6.14 | 0.93 | 0.00 |
| 27.50 | 6.14 | 0.93 | 0.00 |
| 28.00 | 6.14 | 0.93 | 0.00 |
| 28.50 | 6.14 | 0.93 | 0.00 |
| 29.00 | 6.14 | 0.93 | 0.00 |
| 29.50 | 6.14 | 0.93 | 0.00 |
| 30.00 | 6.14 | 0.93 | 0.00 |
| 30.50 | 6.14 | 0.93 | 0.00 |
| 31.00 | 6.14 | 0.93 | 0.00 |
| 31.50 | 6.14 | 0.93 | 0.00 |
| 32.00 | 6.14 | 0.93 | 0.00 |
| 32.50 | 6.14 | 0.93 | 0.00 |
| 33.00 | 6.14 | 0.93 | 0.00 |
| 33.50 | 6.14 | 0.93 | 0.00 |
| 34.00 | 6.14 | 0.93 | 0.00 |
| 34.50 | 6.14 | 0.93 | 0.00 |
| 35.00 | 6.14 | 0.93 | 0.00 |
| 35.50 | 6.14 | 0.93 | 0.00 |
| 36.00 | 6.14 | 0.93 | 0.00 |
| 36.50 | 6.14 | 0.93 | 0.00 |
| 37.00 | 6.14 | 0.93 | 0.00 |
| 37.50 | 6.14 | 0.93 | 0.00 |
| 38.00 | 6.14 | 0.93 | 0.00 |
| 38.50 | 6.14 | 0.93 | 0.00 |
| 39.00 | 6.14 | 0.93 | 0.00 |
| 39.50 | 6.14 | 0.93 | 0.00 |
| 40.00 | 6.14 | 0.93 | 0.00 |

## Summary for Pond 3P: DetPond

Inflow Area = 5.431 ac, 13.99% Impervious, Inflow Depth = 1.76" for 25-yr event
Inflow = 7.15 cfs @ 12.28 hrs, Volume= 0.797 af
Outflow = 2.13 cfs @ 12.85 hrs, Volume= 0.642 af, Atten= 70%, Lag= 34.4 min
Primary = 2.13 cfs @ 12.85 hrs, Volume= 0.642 af
Routed to Link 4L : Analysis Point

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Peak Elev= 98.18' @ 12.85 hrs Surf.Area= 5,233 sf Storage= 12,482 cf

Plug-Flow detention time= 178.7 min calculated for 0.642 af (80% of inflow)
Center-of-Mass det. time= 97.6 min ( 978.3 - 880.7 )

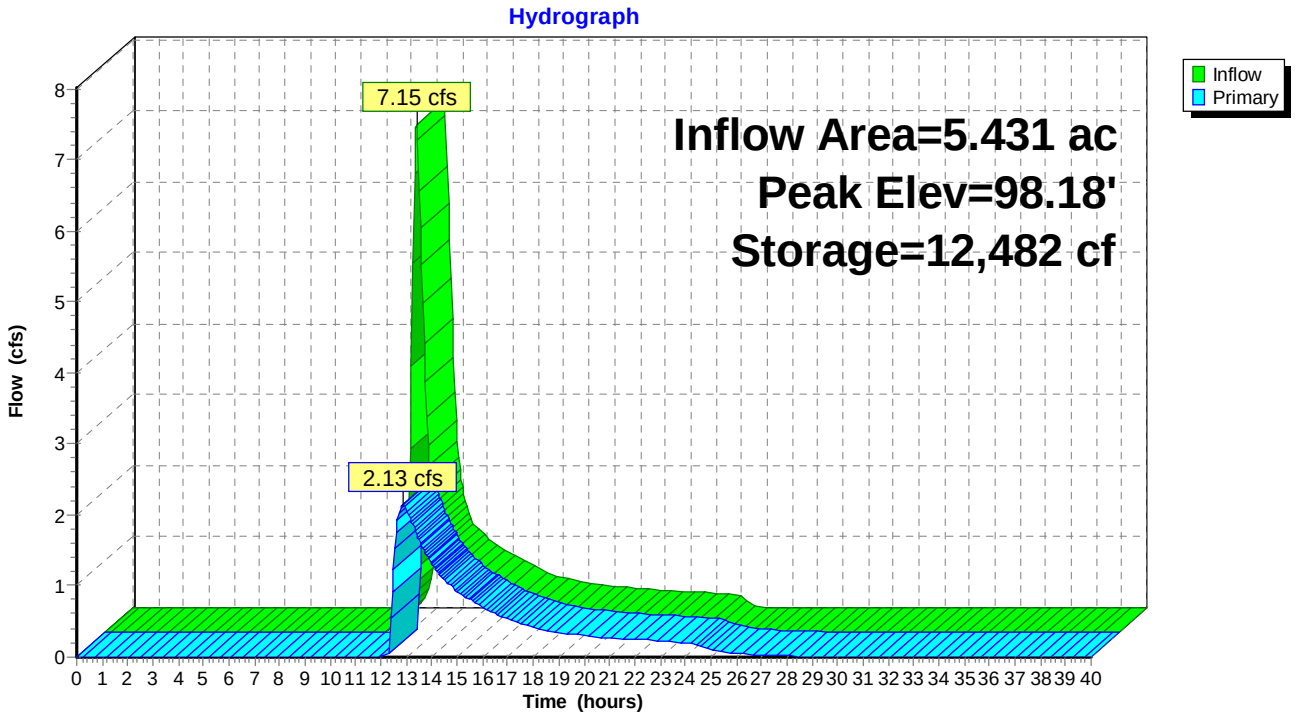
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 94.00' | 24,410 cf | **Custom Stage Data (Irregular)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 94.00 | 1,107 | 174.0 | 0 | 0 | 1,107 |
| 96.00 | 2,850 | 235.0 | 3,822 | 3,822 | 3,134 |
| 98.00 | 4,985 | 299.0 | 7,736 | 11,558 | 5,906 |
| 99.00 | 6,430 | 358.0 | 5,692 | 17,251 | 9,008 |
| 100.00 | 7,914 | 384.0 | 7,159 | 24,410 | 10,587 |

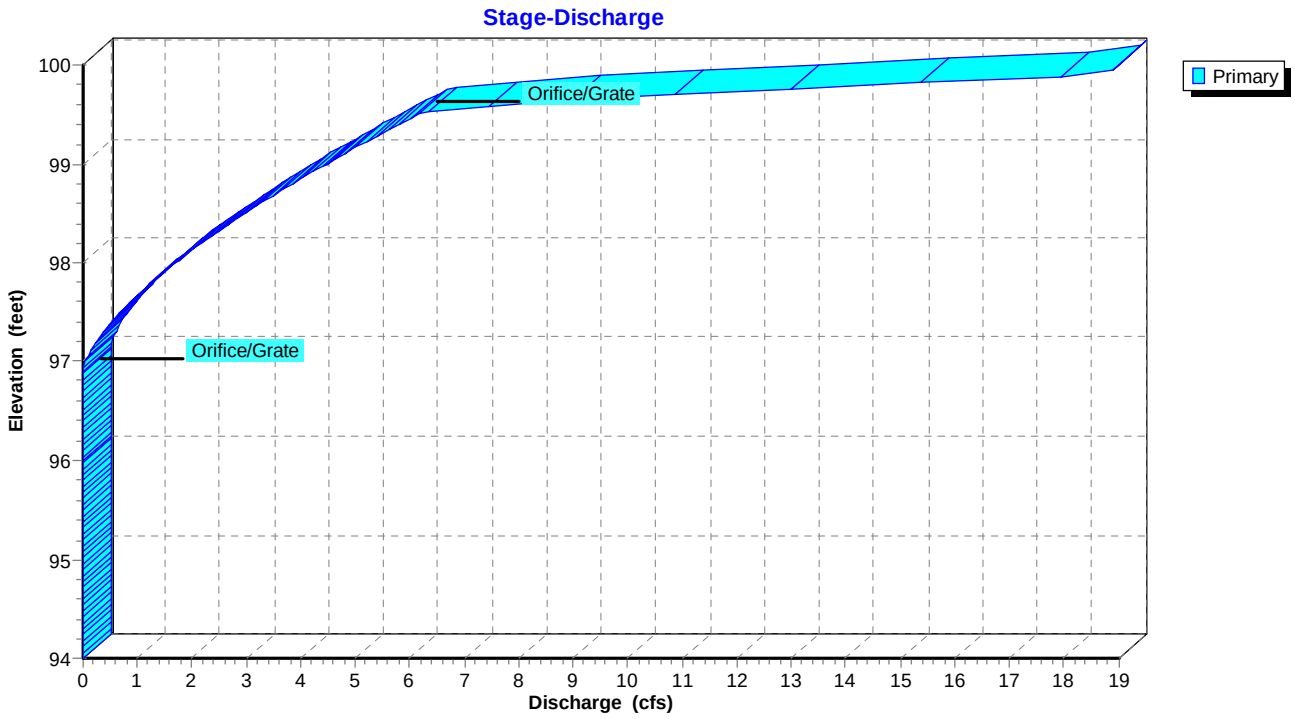
| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 93.00' | **18.0" Round Culvert**<br>L= 120.0' RCP, groove end w/headwall, Ke= 0.200<br>Inlet / Outlet Invert= 93.00' / 92.40' S= 0.0050 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf |
| #2 | Device 1 | 96.90' | **5.5" W x 31.2" H Vert. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |
| #3 | Device 1 | 99.50' | **36.0" x 48.0" Horiz. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=2.13 cfs @ 12.85 hrs HW=98.18' (Free Discharge)
↑—**1=Culvert** (Passes 2.13 cfs of 15.93 cfs potential flow)
↑—**2=Orifice/Grate** (Orifice Controls 2.13 cfs @ 3.63 fps)
—**3=Orifice/Grate** ( Controls 0.00 cfs)

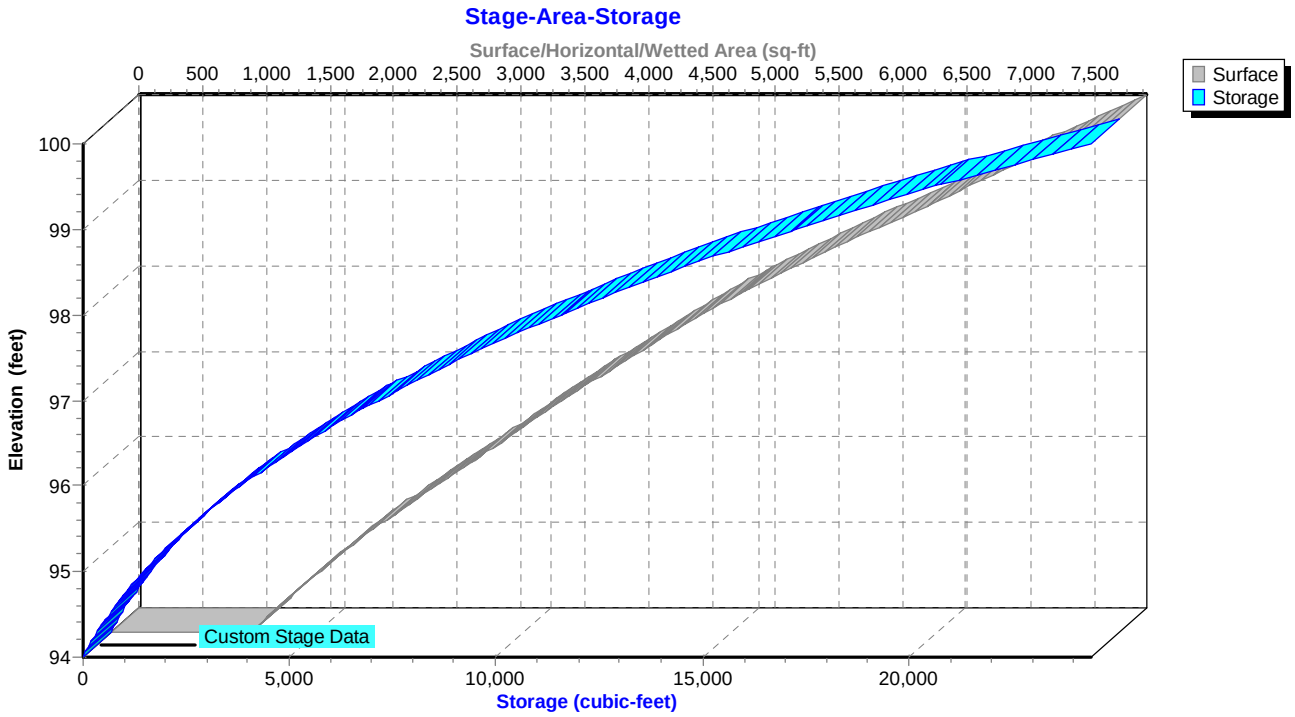
## Pond 3P: DetPond




## Pond 3P: DetPond



## Pond 3P: DetPond



## Hydrograph for Pond 3P: DetPond

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|
| 0.00 | 0.00 | 0 | 94.00 | 0.00 |
| 1.00 | 0.00 | 0 | 94.00 | 0.00 |
| 2.00 | 0.00 | 0 | 94.00 | 0.00 |
| 3.00 | 0.00 | 0 | 94.00 | 0.00 |
| 4.00 | 0.00 | 0 | 94.00 | 0.00 |
| 5.00 | 0.00 | 0 | 94.00 | 0.00 |
| 6.00 | 0.00 | 0 | 94.00 | 0.00 |
| 7.00 | 0.00 | 0 | 94.00 | 0.00 |
| 8.00 | 0.00 | 0 | 94.00 | 0.00 |
| 9.00 | 0.00 | 0 | 94.00 | 0.00 |
| 10.00 | 0.00 | 0 | 94.00 | 0.00 |
| 11.00 | 0.00 | 0 | 94.00 | 0.00 |
| 12.00 | **1.85** | **1,154** | **94.82** | **0.00** |
| 13.00 | **1.69** | **12,361** | **98.16** | **2.07** |
| 14.00 | 0.98 | 10,720 | 97.83 | 1.32 |
| 15.00 | 0.75 | 9,818 | 97.63 | 0.93 |
| 16.00 | 0.55 | 9,257 | 97.51 | 0.70 |
| 17.00 | 0.43 | 8,808 | 97.41 | 0.53 |
| 18.00 | 0.34 | 8,501 | 97.33 | 0.42 |
| 19.00 | 0.30 | 8,268 | 97.28 | 0.34 |
| 20.00 | 0.27 | 8,136 | 97.25 | 0.30 |
| 21.00 | 0.25 | 8,039 | 97.22 | 0.27 |
| 22.00 | 0.23 | 7,961 | 97.20 | 0.25 |
| 23.00 | 0.20 | 7,888 | 97.19 | 0.22 |
| 24.00 | 0.18 | 7,813 | 97.17 | 0.20 |
| 25.00 | 0.00 | 7,424 | 97.07 | 0.10 |
| 26.00 | 0.00 | 7,166 | 97.00 | 0.05 |
| 27.00 | 0.00 | 7,033 | 96.97 | 0.03 |
| 28.00 | 0.00 | 6,956 | 96.95 | 0.02 |
| 29.00 | 0.00 | 6,911 | 96.94 | 0.01 |
| 30.00 | 0.00 | 6,878 | 96.93 | 0.01 |
| 31.00 | 0.00 | 6,853 | 96.92 | 0.01 |
| 32.00 | 0.00 | 6,835 | 96.92 | 0.00 |
| 33.00 | 0.00 | 6,821 | 96.91 | 0.00 |
| 34.00 | 0.00 | 6,810 | 96.91 | 0.00 |
| 35.00 | 0.00 | 6,802 | 96.91 | 0.00 |
| 36.00 | 0.00 | 6,796 | 96.90 | 0.00 |
| 37.00 | 0.00 | 6,791 | 96.90 | 0.00 |
| 38.00 | 0.00 | 6,788 | 96.90 | 0.00 |
| 39.00 | 0.00 | 6,785 | 96.90 | 0.00 |
| 40.00 | 0.00 | 6,783 | 96.90 | 0.00 |

## Stage-Discharge for Pond 3P: DetPond

| Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|---|
| 94.00 | 0.00 | 96.70 | 0.00 | 99.40 | 5.82 |
| 94.05 | 0.00 | 96.75 | 0.00 | 99.45 | 5.99 |
| 94.10 | 0.00 | 96.80 | 0.00 | 99.50 | 6.17 |
| 94.15 | 0.00 | 96.85 | 0.00 | 99.55 | 6.84 |
| 94.20 | 0.00 | 96.90 | 0.00 | 99.60 | 7.93 |
| 94.25 | 0.00 | 96.95 | 0.02 | 99.65 | 9.28 |
| 94.30 | 0.00 | 97.00 | 0.05 | 99.70 | 10.86 |
| 94.35 | 0.00 | 97.05 | 0.09 | 99.75 | 12.62 |
| 94.40 | 0.00 | 97.10 | 0.13 | 99.80 | 14.55 |
| 94.45 | 0.00 | 97.15 | 0.18 | 99.85 | 16.63 |
| 94.50 | 0.00 | 97.20 | 0.24 | 99.90 | 18.85 |
| 94.55 | 0.00 | 97.25 | 0.30 | 99.95 | 18.93 |
| 94.60 | 0.00 | 97.30 | 0.37 | 100.00 | **19.01** |
| 94.65 | 0.00 | 97.35 | 0.44 | | |
| 94.70 | 0.00 | 97.40 | 0.52 | | |
| 94.75 | 0.00 | 97.45 | 0.60 | | |
| 94.80 | 0.00 | 97.50 | 0.68 | | |
| 94.85 | 0.00 | 97.55 | 0.77 | | |
| 94.90 | 0.00 | 97.60 | 0.86 | | |
| 94.95 | 0.00 | 97.65 | 0.96 | | |
| 95.00 | 0.00 | 97.70 | 1.05 | | |
| 95.05 | 0.00 | 97.75 | 1.15 | | |
| 95.10 | 0.00 | 97.80 | 1.26 | | |
| 95.15 | 0.00 | 97.85 | 1.36 | | |
| 95.20 | 0.00 | 97.90 | 1.47 | | |
| 95.25 | 0.00 | 97.95 | 1.58 | | |
| 95.30 | 0.00 | 98.00 | 1.70 | | |
| 95.35 | 0.00 | 98.05 | 1.81 | | |
| 95.40 | 0.00 | 98.10 | 1.93 | | |
| 95.45 | 0.00 | 98.15 | 2.06 | | |
| 95.50 | 0.00 | 98.20 | 2.18 | | |
| 95.55 | 0.00 | 98.25 | 2.31 | | |
| 95.60 | 0.00 | 98.30 | 2.44 | | |
| 95.65 | 0.00 | 98.35 | 2.57 | | |
| 95.70 | 0.00 | 98.40 | 2.70 | | |
| 95.75 | 0.00 | 98.45 | 2.84 | | |
| 95.80 | 0.00 | 98.50 | 2.98 | | |
| 95.85 | 0.00 | 98.55 | 3.12 | | |
| 95.90 | 0.00 | 98.60 | 3.26 | | |
| 95.95 | 0.00 | 98.65 | 3.41 | | |
| 96.00 | 0.00 | 98.70 | 3.55 | | |
| 96.05 | 0.00 | 98.75 | 3.70 | | |
| 96.10 | 0.00 | 98.80 | 3.85 | | |
| 96.15 | 0.00 | 98.85 | 4.01 | | |
| 96.20 | 0.00 | 98.90 | 4.16 | | |
| 96.25 | 0.00 | 98.95 | 4.32 | | |
| 96.30 | 0.00 | 99.00 | 4.48 | | |
| 96.35 | 0.00 | 99.05 | 4.64 | | |
| 96.40 | 0.00 | 99.10 | 4.80 | | |
| 96.45 | 0.00 | 99.15 | 4.97 | | |
| 96.50 | 0.00 | 99.20 | 5.13 | | |
| 96.55 | 0.00 | 99.25 | 5.30 | | |
| 96.60 | 0.00 | 99.30 | 5.47 | | |
| 96.65 | 0.00 | 99.35 | 5.64 | | |

## Stage-Area-Storage for Pond 3P: DetPond

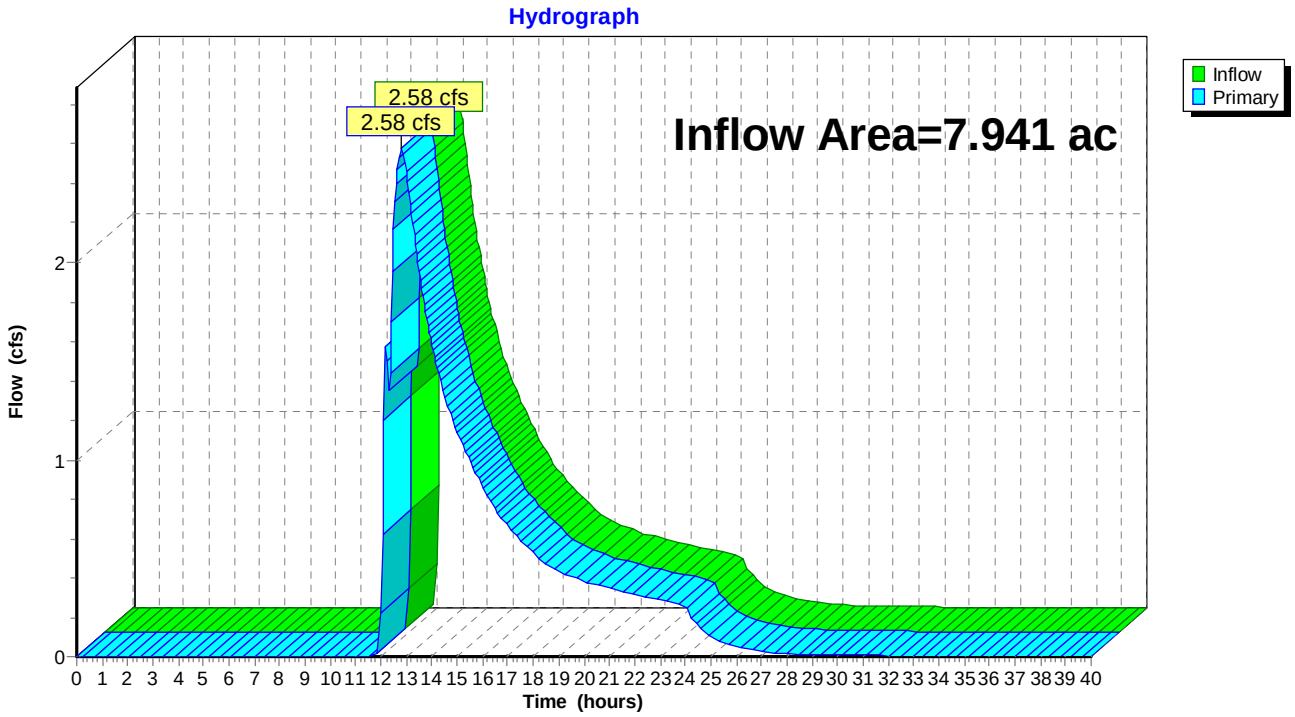
| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|---|---|---|
| 94.00 | 1,107 | 0 |
| 94.10 | 1,175 | 114 |
| 94.20 | 1,245 | 235 |
| 94.30 | 1,317 | 363 |
| 94.40 | 1,391 | 498 |
| 94.50 | 1,467 | 641 |
| 94.60 | 1,545 | 792 |
| 94.70 | 1,625 | 950 |
| 94.80 | 1,707 | 1,117 |
| 94.90 | 1,791 | 1,292 |
| 95.00 | 1,877 | 1,475 |
| 95.10 | 1,966 | 1,667 |
| 95.20 | 2,056 | 1,868 |
| 95.30 | 2,148 | 2,079 |
| 95.40 | 2,242 | 2,298 |
| 95.50 | 2,338 | 2,527 |
| 95.60 | 2,437 | 2,766 |
| 95.70 | 2,537 | 3,015 |
| 95.80 | 2,639 | 3,273 |
| 95.90 | 2,744 | 3,542 |
| 96.00 | 2,850 | 3,822 |
| 96.10 | 2,943 | 4,112 |
| 96.20 | 3,037 | 4,411 |
| 96.30 | 3,132 | 4,719 |
| 96.40 | 3,230 | 5,037 |
| 96.50 | 3,328 | 5,365 |
| 96.60 | 3,428 | 5,703 |
| 96.70 | 3,530 | 6,051 |
| 96.80 | 3,633 | 6,409 |
| 96.90 | 3,737 | 6,777 |
| 97.00 | 3,843 | 7,156 |
| 97.10 | 3,951 | 7,546 |
| 97.20 | 4,060 | 7,947 |
| 97.30 | 4,170 | 8,358 |
| 97.40 | 4,282 | 8,781 |
| 97.50 | 4,396 | 9,215 |
| 97.60 | 4,511 | 9,660 |
| 97.70 | 4,627 | 10,117 |
| 97.80 | 4,745 | 10,585 |
| 97.90 | 4,864 | 11,066 |
| 98.00 | 4,985 | 11,558 |
| 98.10 | 5,121 | 12,064 |
| 98.20 | 5,259 | 12,583 |
| 98.30 | 5,399 | 13,116 |
| 98.40 | 5,541 | 13,663 |
| 98.50 | 5,685 | 14,224 |
| 98.60 | 5,830 | 14,799 |
| 98.70 | 5,977 | 15,390 |
| 98.80 | 6,126 | 15,995 |
| 98.90 | 6,277 | 16,615 |
| 99.00 | 6,430 | 17,251 |
| 99.10 | 6,571 | 17,901 |
| 99.20 | 6,714 | 18,565 |
| 99.30 | 6,859 | 19,244 |
| 99.40 | 7,005 | 19,937 |
| 99.50 | 7,153 | 20,645 |
| 99.60 | 7,302 | 21,367 |
| 99.70 | 7,453 | 22,105 |
| 99.80 | 7,605 | 22,858 |
| 99.90 | 7,759 | 23,626 |
| 100.00 | **7,914** | **24,410** |

## Summary for Link 4L: Analysis Point

Inflow Area = 7.941 ac, 9.95% Impervious, Inflow Depth > 1.26" for 25-yr event
Inflow = 2.58 cfs @ 12.80 hrs, Volume= 0.835 af
Primary = 2.58 cfs @ 12.80 hrs, Volume= 0.835 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

## Link 4L: Analysis Point



## Hydrograph for Link 4L: Analysis Point

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | **0.00** | 0.00 | 27.00 | 0.03 | 0.00 | 0.03 |
| 0.50 | 0.00 | 0.00 | 0.00 | 27.50 | 0.02 | 0.00 | 0.02 |
| 1.00 | 0.00 | 0.00 | 0.00 | 28.00 | 0.02 | 0.00 | 0.02 |
| 1.50 | 0.00 | 0.00 | 0.00 | 28.50 | 0.01 | 0.00 | 0.01 |
| 2.00 | 0.00 | 0.00 | 0.00 | 29.00 | 0.01 | 0.00 | 0.01 |
| 2.50 | 0.00 | 0.00 | 0.00 | 29.50 | 0.01 | 0.00 | 0.01 |
| 3.00 | 0.00 | 0.00 | 0.00 | 30.00 | 0.01 | 0.00 | 0.01 |
| 3.50 | 0.00 | 0.00 | 0.00 | 30.50 | 0.01 | 0.00 | 0.01 |
| 4.00 | 0.00 | 0.00 | 0.00 | 31.00 | 0.01 | 0.00 | 0.01 |
| 4.50 | 0.00 | 0.00 | 0.00 | 31.50 | 0.01 | 0.00 | 0.01 |
| 5.00 | 0.00 | 0.00 | 0.00 | 32.00 | 0.00 | 0.00 | 0.00 |
| 5.50 | 0.00 | 0.00 | 0.00 | 32.50 | 0.00 | 0.00 | 0.00 |
| 6.00 | 0.00 | 0.00 | 0.00 | 33.00 | 0.00 | 0.00 | 0.00 |
| 6.50 | 0.00 | 0.00 | 0.00 | 33.50 | 0.00 | 0.00 | 0.00 |
| 7.00 | 0.00 | 0.00 | 0.00 | 34.00 | 0.00 | 0.00 | 0.00 |
| 7.50 | 0.00 | 0.00 | 0.00 | 34.50 | 0.00 | 0.00 | 0.00 |
| 8.00 | 0.00 | 0.00 | 0.00 | 35.00 | 0.00 | 0.00 | 0.00 |
| 8.50 | 0.00 | 0.00 | 0.00 | 35.50 | 0.00 | 0.00 | 0.00 |
| 9.00 | 0.00 | 0.00 | 0.00 | 36.00 | 0.00 | 0.00 | 0.00 |
| 9.50 | 0.00 | 0.00 | 0.00 | 36.50 | 0.00 | 0.00 | 0.00 |
| 10.00 | 0.00 | 0.00 | 0.00 | 37.00 | 0.00 | 0.00 | 0.00 |
| 10.50 | 0.00 | 0.00 | 0.00 | 37.50 | 0.00 | 0.00 | 0.00 |
| 11.00 | 0.00 | 0.00 | 0.00 | 38.00 | 0.00 | 0.00 | 0.00 |
| 11.50 | 0.00 | 0.00 | 0.00 | 38.50 | 0.00 | 0.00 | 0.00 |
| 12.00 | 0.22 | 0.00 | 0.22 | 39.00 | 0.00 | 0.00 | 0.00 |
| 12.50 | **2.17** | 0.00 | **2.17** | 39.50 | 0.00 | 0.00 | 0.00 |
| 13.00 | **2.46** | 0.00 | **2.46** | 40.00 | 0.00 | 0.00 | 0.00 |
| 13.50 | 1.95 | 0.00 | 1.95 | | | | |
| 14.00 | 1.58 | 0.00 | 1.58 | | | | |
| 14.50 | 1.32 | 0.00 | 1.32 | | | | |
| 15.00 | 1.14 | 0.00 | 1.14 | | | | |
| 15.50 | 1.00 | 0.00 | 1.00 | | | | |
| 16.00 | 0.86 | 0.00 | 0.86 | | | | |
| 16.50 | 0.75 | 0.00 | 0.75 | | | | |
| 17.00 | 0.66 | 0.00 | 0.66 | | | | |
| 17.50 | 0.59 | 0.00 | 0.59 | | | | |
| 18.00 | 0.52 | 0.00 | 0.52 | | | | |
| 18.50 | 0.47 | 0.00 | 0.47 | | | | |
| 19.00 | 0.43 | 0.00 | 0.43 | | | | |
| 19.50 | 0.41 | 0.00 | 0.41 | | | | |
| 20.00 | 0.38 | 0.00 | 0.38 | | | | |
| 20.50 | 0.36 | 0.00 | 0.36 | | | | |
| 21.00 | 0.35 | 0.00 | 0.35 | | | | |
| 21.50 | 0.33 | 0.00 | 0.33 | | | | |
| 22.00 | 0.32 | 0.00 | 0.32 | | | | |
| 22.50 | 0.30 | 0.00 | 0.30 | | | | |
| 23.00 | 0.29 | 0.00 | 0.29 | | | | |
| 23.50 | 0.28 | 0.00 | 0.28 | | | | |
| 24.00 | 0.26 | 0.00 | 0.26 | | | | |
| 24.50 | 0.16 | 0.00 | 0.16 | | | | |
| 25.00 | 0.10 | 0.00 | 0.10 | | | | |
| 25.50 | 0.07 | 0.00 | 0.07 | | | | |
| 26.00 | 0.05 | 0.00 | 0.05 | | | | |
| 26.50 | 0.04 | 0.00 | 0.04 | | | | |

Time span=0.00-40.00 hrs, dt=0.05 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: Pre-Dev** Runoff Area=7.620 ac 0.00% Impervious Runoff Depth=1.48"
Flow Length=945' Tc=18.9 min CN=43 Runoff=7.06 cfs 0.939 af

**Subcatchment 2S: Watershed To Basin** Runoff Area=5.431 ac 13.99% Impervious Runoff Depth=2.92"
Flow Length=1,324' Tc=18.1 min CN=57 Runoff=12.55 cfs 1.320 af

**Subcatchment 6S: Bypass Area** Runoff Area=2.510 ac 1.20% Impervious Runoff Depth=1.77"
Flow Length=584' Tc=9.3 min CN=46 Runoff=3.90 cfs 0.371 af

**Pond 3P: DetPond** Peak Elev=99.25' Storage=18,892 cf Inflow=12.55 cfs 1.320 af
Outflow=5.30 cfs 1.165 af

**Link 4L: Analysis Point** Inflow=6.53 cfs 1.535 af
Primary=6.53 cfs 1.535 af

**Total Runoff Area = 15.561 ac Runoff Volume = 2.630 af Average Runoff Depth = 2.03"**
**94.92% Pervious = 14.771 ac 5.08% Impervious = 0.790 ac**

## Summary for Subcatchment 1S: Pre-Dev

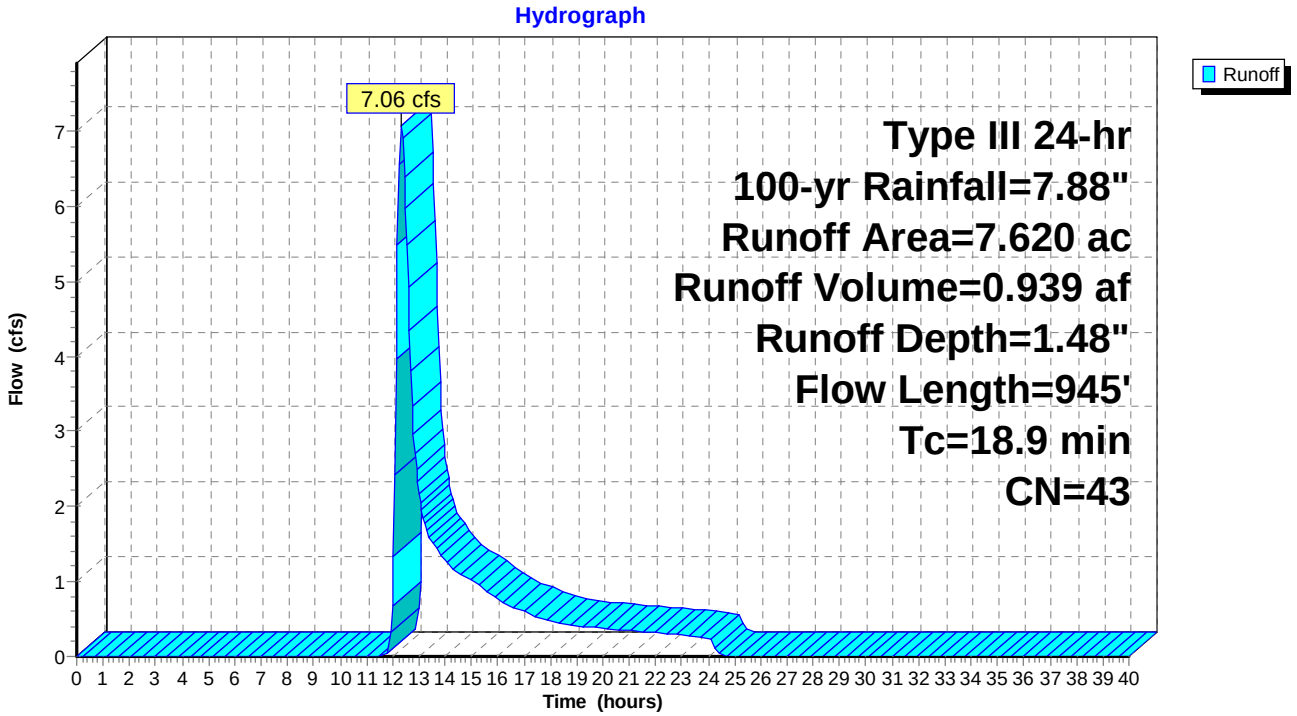
Runoff = 7.06 cfs @ 12.33 hrs, Volume= 0.939 af, Depth= 1.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.88"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 4.090 | 30 | Woods, Good, HSG A |
| | 2.920 | 55 | Woods, Good, HSG B |
| | 0.610 | 77 | Woods, Good, HSG D |
| | 7.620 | 43 | Weighted Average |
| | 7.620 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 7.6 | 100 | 0.2700 | 0.22 | | **Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20" |
| 10.4 | 667 | 0.0460 | 1.07 | | **Shallow Concentrated Flow, Shallow Woods** Woodland Kv= 5.0 fps |
| 0.9 | 178 | 0.0120 | 3.37 | 13.50 | **Trap/Vee/Rect Channel Flow, Int Stream** Bot.W=2.00' D=1.00' Z= 2.0 '/' Top.W=6.00' n= 0.035 Earth, dense weeds |
| 18.9 | 945 | Total | | | |

## Subcatchment 1S: Pre-Dev



## Hydrograph for Subcatchment 1S: Pre-Dev

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 |
| 0.50 | 0.04 | 0.00 | 0.00 |
| 1.00 | 0.08 | 0.00 | 0.00 |
| 1.50 | 0.12 | 0.00 | 0.00 |
| 2.00 | 0.16 | 0.00 | 0.00 |
| 2.50 | 0.20 | 0.00 | 0.00 |
| 3.00 | 0.24 | 0.00 | 0.00 |
| 3.50 | 0.29 | 0.00 | 0.00 |
| 4.00 | 0.34 | 0.00 | 0.00 |
| 4.50 | 0.39 | 0.00 | 0.00 |
| 5.00 | 0.45 | 0.00 | 0.00 |
| 5.50 | 0.51 | 0.00 | 0.00 |
| 6.00 | 0.57 | 0.00 | 0.00 |
| 6.50 | 0.64 | 0.00 | 0.00 |
| 7.00 | 0.71 | 0.00 | 0.00 |
| 7.50 | 0.80 | 0.00 | 0.00 |
| 8.00 | 0.90 | 0.00 | 0.00 |
| 8.50 | 1.01 | 0.00 | 0.00 |
| 9.00 | 1.15 | 0.00 | 0.00 |
| 9.50 | 1.31 | 0.00 | 0.00 |
| 10.00 | 1.49 | 0.00 | 0.00 |
| 10.50 | 1.71 | 0.00 | 0.00 |
| 11.00 | 1.97 | 0.00 | 0.00 |
| 11.50 | 2.35 | 0.00 | 0.00 |
| 12.00 | 3.94 | 0.11 | **0.67** |
| 12.50 | 5.53 | 0.51 | **5.98** |
| 13.00 | 5.91 | 0.64 | 2.18 |
| 13.50 | 6.17 | 0.74 | 1.51 |
| 14.00 | 6.39 | 0.82 | 1.30 |
| 14.50 | 6.57 | 0.90 | 1.12 |
| 15.00 | 6.73 | 0.96 | 1.01 |
| 15.50 | 6.87 | 1.02 | 0.89 |
| 16.00 | 6.98 | 1.07 | 0.76 |
| 16.50 | 7.08 | 1.11 | 0.66 |
| 17.00 | 7.17 | 1.15 | 0.60 |
| 17.50 | 7.24 | 1.18 | 0.54 |
| 18.00 | 7.31 | 1.21 | 0.48 |
| 18.50 | 7.37 | 1.24 | 0.43 |
| 19.00 | 7.43 | 1.27 | 0.41 |
| 19.50 | 7.49 | 1.29 | 0.40 |
| 20.00 | 7.54 | 1.32 | 0.38 |
| 20.50 | 7.59 | 1.34 | 0.36 |
| 21.00 | 7.64 | 1.36 | 0.35 |
| 21.50 | 7.68 | 1.39 | 0.33 |
| 22.00 | 7.73 | 1.41 | 0.32 |
| 22.50 | 7.77 | 1.43 | 0.30 |
| 23.00 | 7.81 | 1.44 | 0.29 |
| 23.50 | 7.85 | 1.46 | 0.27 |
| 24.00 | **7.88** | **1.48** | 0.26 |
| 24.50 | 7.88 | 1.48 | 0.02 |
| 25.00 | 7.88 | 1.48 | 0.00 |
| 25.50 | 7.88 | 1.48 | 0.00 |
| 26.00 | 7.88 | 1.48 | 0.00 |
| 26.50 | 7.88 | 1.48 | 0.00 |
| 27.00 | 7.88 | 1.48 | 0.00 |
| 27.50 | 7.88 | 1.48 | 0.00 |
| 28.00 | 7.88 | 1.48 | 0.00 |
| 28.50 | 7.88 | 1.48 | 0.00 |
| 29.00 | 7.88 | 1.48 | 0.00 |
| 29.50 | 7.88 | 1.48 | 0.00 |
| 30.00 | 7.88 | 1.48 | 0.00 |
| 30.50 | 7.88 | 1.48 | 0.00 |
| 31.00 | 7.88 | 1.48 | 0.00 |
| 31.50 | 7.88 | 1.48 | 0.00 |
| 32.00 | 7.88 | 1.48 | 0.00 |
| 32.50 | 7.88 | 1.48 | 0.00 |
| 33.00 | 7.88 | 1.48 | 0.00 |
| 33.50 | 7.88 | 1.48 | 0.00 |
| 34.00 | 7.88 | 1.48 | 0.00 |
| 34.50 | 7.88 | 1.48 | 0.00 |
| 35.00 | 7.88 | 1.48 | 0.00 |
| 35.50 | 7.88 | 1.48 | 0.00 |
| 36.00 | 7.88 | 1.48 | 0.00 |
| 36.50 | 7.88 | 1.48 | 0.00 |
| 37.00 | 7.88 | 1.48 | 0.00 |
| 37.50 | 7.88 | 1.48 | 0.00 |
| 38.00 | 7.88 | 1.48 | 0.00 |
| 38.50 | 7.88 | 1.48 | 0.00 |
| 39.00 | 7.88 | 1.48 | 0.00 |
| 39.50 | 7.88 | 1.48 | 0.00 |
| 40.00 | 7.88 | 1.48 | 0.00 |

## Summary for Subcatchment 2S: Watershed To Basin

House roofs to underground infiltration systems.

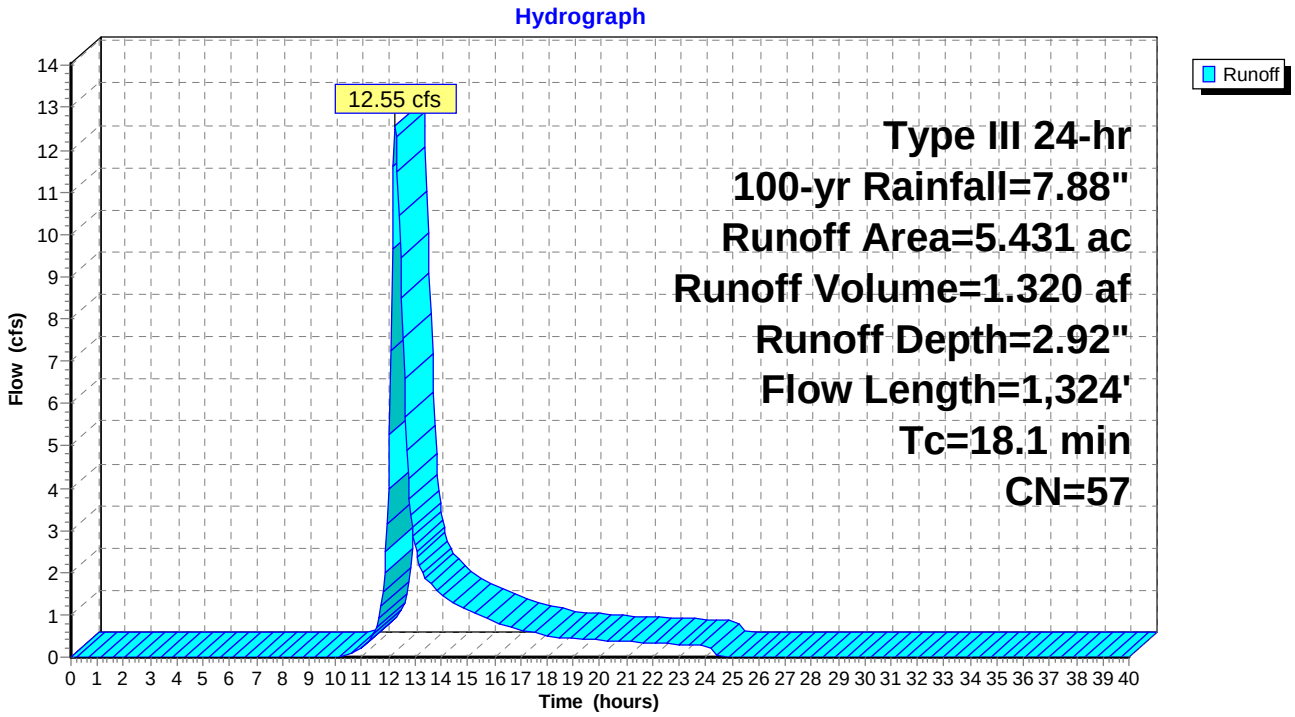
Runoff = 12.55 cfs @ 12.27 hrs, Volume= 1.320 af, Depth= 2.92"
Routed to Pond 3P : DetPond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.88"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.760 | 98 | Paved roads w/curbs & sewers |
| | 1.950 | 39 | >75% Grass cover, Good, HSG A |
| | 2.050 | 61 | >75% Grass cover, Good, HSG B |
| | 0.001 | 80 | >75% Grass cover, Good, HSG D |
| | 0.220 | 30 | Woods, Good, HSG A |
| | 0.450 | 55 | Woods, Good, HSG B |
| | 5.431 | 57 | Weighted Average |
| | 4.671 | | 86.01% Pervious Area |
| | 0.760 | | 13.99% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.6 | 70 | 0.0570 | 0.11 | | **Sheet Flow, Sheet Flow Woods**<br>Woods: Light underbrush n= 0.400 P2= 3.20" |
| 2.2 | 30 | 0.2000 | 0.23 | | **Sheet Flow, Sheet Flow Grass**<br>Grass: Dense n= 0.240 P2= 3.20" |
| 1.2 | 161 | 0.0960 | 2.17 | | **Shallow Concentrated Flow, Shallow Grass**<br>Short Grass Pasture Kv= 7.0 fps |
| 1.2 | 308 | 0.0450 | 4.31 | | **Shallow Concentrated Flow, Gutter**<br>Paved Kv= 20.3 fps |
| 2.9 | 755 | 0.0050 | 4.40 | 5.40 | **Pipe Channel, Pipe**<br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.011 Concrete pipe, straight & clean |
| 18.1 | 1,324 | Total | | | |

## Subcatchment 2S: Watershed To Basin



## Hydrograph for Subcatchment 2S: Watershed To Basin

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 |
| 0.50 | 0.04 | 0.00 | 0.00 |
| 1.00 | 0.08 | 0.00 | 0.00 |
| 1.50 | 0.12 | 0.00 | 0.00 |
| 2.00 | 0.16 | 0.00 | 0.00 |
| 2.50 | 0.20 | 0.00 | 0.00 |
| 3.00 | 0.24 | 0.00 | 0.00 |
| 3.50 | 0.29 | 0.00 | 0.00 |
| 4.00 | 0.34 | 0.00 | 0.00 |
| 4.50 | 0.39 | 0.00 | 0.00 |
| 5.00 | 0.45 | 0.00 | 0.00 |
| 5.50 | 0.51 | 0.00 | 0.00 |
| 6.00 | 0.57 | 0.00 | 0.00 |
| 6.50 | 0.64 | 0.00 | 0.00 |
| 7.00 | 0.71 | 0.00 | 0.00 |
| 7.50 | 0.80 | 0.00 | 0.00 |
| 8.00 | 0.90 | 0.00 | 0.00 |
| 8.50 | 1.01 | 0.00 | 0.00 |
| 9.00 | 1.15 | 0.00 | 0.00 |
| 9.50 | 1.31 | 0.00 | 0.00 |
| 10.00 | 1.49 | 0.00 | 0.00 |
| 10.50 | 1.71 | 0.01 | 0.05 |
| 11.00 | 1.97 | 0.03 | 0.22 |
| 11.50 | 2.35 | 0.08 | 0.59 |
| 12.00 | 3.94 | 0.59 | **3.97** |
| 12.50 | 5.53 | 1.40 | **8.50** |
| 13.00 | 5.91 | 1.62 | 2.65 |
| 13.50 | 6.17 | 1.78 | 1.79 |
| 14.00 | 6.39 | 1.92 | 1.50 |
| 14.50 | 6.57 | 2.03 | 1.28 |
| 15.00 | 6.73 | 2.14 | 1.14 |
| 15.50 | 6.87 | 2.23 | 0.99 |
| 16.00 | 6.98 | 2.30 | 0.83 |
| 16.50 | 7.08 | 2.37 | 0.72 |
| 17.00 | 7.17 | 2.42 | 0.65 |
| 17.50 | 7.24 | 2.48 | 0.58 |
| 18.00 | 7.31 | 2.52 | 0.51 |
| 18.50 | 7.37 | 2.57 | 0.46 |
| 19.00 | 7.43 | 2.61 | 0.44 |
| 19.50 | 7.49 | 2.64 | 0.42 |
| 20.00 | 7.54 | 2.68 | 0.40 |
| 20.50 | 7.59 | 2.72 | 0.38 |
| 21.00 | 7.64 | 2.75 | 0.37 |
| 21.50 | 7.68 | 2.78 | 0.35 |
| 22.00 | 7.73 | 2.81 | 0.33 |
| 22.50 | 7.77 | 2.84 | 0.32 |
| 23.00 | 7.81 | 2.87 | 0.30 |
| 23.50 | 7.85 | 2.89 | 0.28 |
| 24.00 | **7.88** | **2.92** | 0.27 |
| 24.50 | 7.88 | 2.92 | 0.02 |
| 25.00 | 7.88 | 2.92 | 0.00 |
| 25.50 | 7.88 | 2.92 | 0.00 |
| 26.00 | 7.88 | 2.92 | 0.00 |
| 26.50 | 7.88 | 2.92 | 0.00 |
| 27.00 | 7.88 | 2.92 | 0.00 |
| 27.50 | 7.88 | 2.92 | 0.00 |
| 28.00 | 7.88 | 2.92 | 0.00 |
| 28.50 | 7.88 | 2.92 | 0.00 |
| 29.00 | 7.88 | 2.92 | 0.00 |
| 29.50 | 7.88 | 2.92 | 0.00 |
| 30.00 | 7.88 | 2.92 | 0.00 |
| 30.50 | 7.88 | 2.92 | 0.00 |
| 31.00 | 7.88 | 2.92 | 0.00 |
| 31.50 | 7.88 | 2.92 | 0.00 |
| 32.00 | 7.88 | 2.92 | 0.00 |
| 32.50 | 7.88 | 2.92 | 0.00 |
| 33.00 | 7.88 | 2.92 | 0.00 |
| 33.50 | 7.88 | 2.92 | 0.00 |
| 34.00 | 7.88 | 2.92 | 0.00 |
| 34.50 | 7.88 | 2.92 | 0.00 |
| 35.00 | 7.88 | 2.92 | 0.00 |
| 35.50 | 7.88 | 2.92 | 0.00 |
| 36.00 | 7.88 | 2.92 | 0.00 |
| 36.50 | 7.88 | 2.92 | 0.00 |
| 37.00 | 7.88 | 2.92 | 0.00 |
| 37.50 | 7.88 | 2.92 | 0.00 |
| 38.00 | 7.88 | 2.92 | 0.00 |
| 38.50 | 7.88 | 2.92 | 0.00 |
| 39.00 | 7.88 | 2.92 | 0.00 |
| 39.50 | 7.88 | 2.92 | 0.00 |
| 40.00 | 7.88 | 2.92 | 0.00 |

## Summary for Subcatchment 6S: Bypass Area

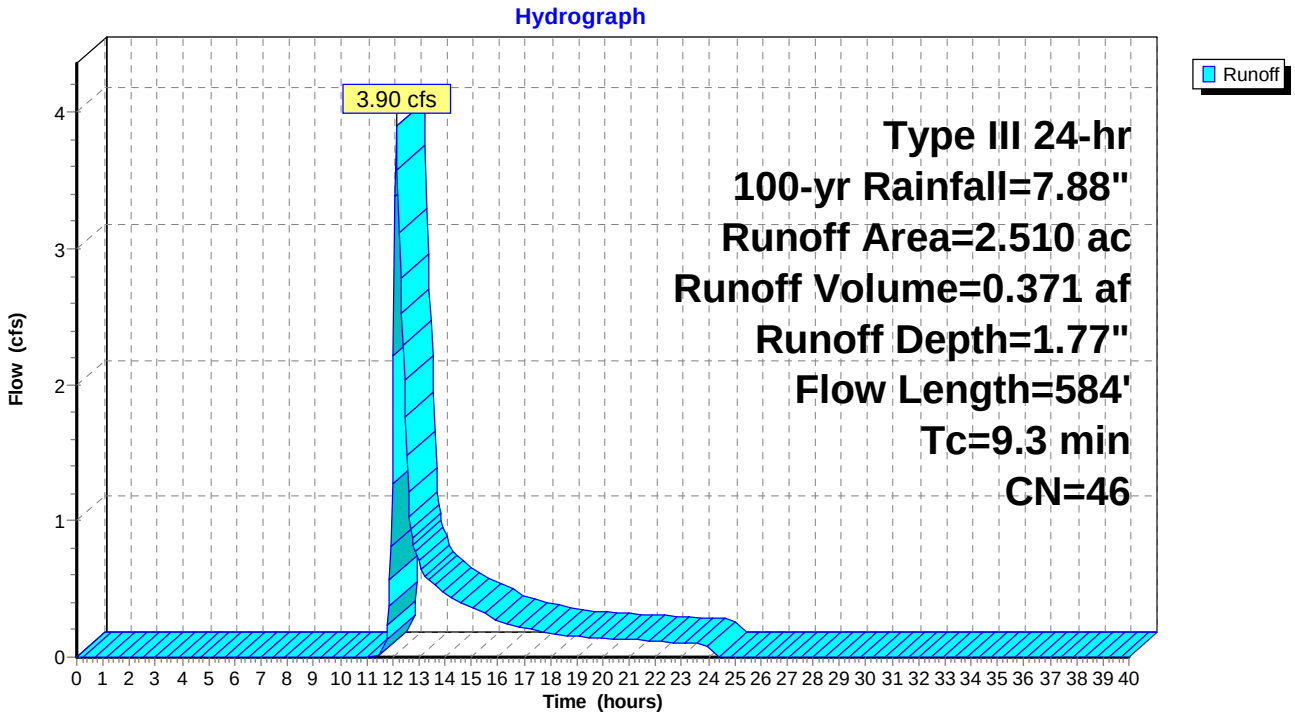
Runoff = 3.90 cfs @ 12.16 hrs, Volume= 0.371 af, Depth= 1.77"
Routed to Link 4L : Analysis Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.88"

| Area (ac) | CN | Description |
|---|---|---|
| 1.300 | 30 | Woods, Good, HSG A |
| 0.030 | 55 | Woods, Good, HSG B |
| 0.490 | 77 | Woods, Good, HSG D |
| 0.430 | 39 | >75% Grass cover, Good, HSG A |
| 0.110 | 61 | >75% Grass cover, Good, HSG B |
| 0.120 | 80 | >75% Grass cover, Good, HSG D |
| 0.030 | 98 | Paved parking, HSG A |
| 2.510 | 46 | Weighted Average |
| 2.480 | | 98.80% Pervious Area |
| 0.030 | | 1.20% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.8 | 100 | 0.3600 | 0.25 | | **Sheet Flow, Sheet Flow**<br>Woods: Light underbrush n= 0.400 P2= 3.20" |
| 1.6 | 306 | 0.3900 | 3.12 | | **Shallow Concentrated Flow,**<br>Woodland Kv= 5.0 fps |
| 0.9 | 178 | 0.0120 | 3.37 | 13.50 | **Trap/Vee/Rect Channel Flow, Int stream**<br>Bot.W=2.00' D=1.00' Z= 2.0 '/' Top.W=6.00'<br>n= 0.035 |
| 9.3 | 584 | Total | | | |

## Subcatchment 6S: Bypass Area



## Hydrograph for Subcatchment 6S: Bypass Area

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 |
| 0.50 | 0.04 | 0.00 | 0.00 |
| 1.00 | 0.08 | 0.00 | 0.00 |
| 1.50 | 0.12 | 0.00 | 0.00 |
| 2.00 | 0.16 | 0.00 | 0.00 |
| 2.50 | 0.20 | 0.00 | 0.00 |
| 3.00 | 0.24 | 0.00 | 0.00 |
| 3.50 | 0.29 | 0.00 | 0.00 |
| 4.00 | 0.34 | 0.00 | 0.00 |
| 4.50 | 0.39 | 0.00 | 0.00 |
| 5.00 | 0.45 | 0.00 | 0.00 |
| 5.50 | 0.51 | 0.00 | 0.00 |
| 6.00 | 0.57 | 0.00 | 0.00 |
| 6.50 | 0.64 | 0.00 | 0.00 |
| 7.00 | 0.71 | 0.00 | 0.00 |
| 7.50 | 0.80 | 0.00 | 0.00 |
| 8.00 | 0.90 | 0.00 | 0.00 |
| 8.50 | 1.01 | 0.00 | 0.00 |
| 9.00 | 1.15 | 0.00 | 0.00 |
| 9.50 | 1.31 | 0.00 | 0.00 |
| 10.00 | 1.49 | 0.00 | 0.00 |
| 10.50 | 1.71 | 0.00 | 0.00 |
| 11.00 | 1.97 | 0.00 | 0.00 |
| 11.50 | 2.35 | 0.00 | 0.00 |
| 12.00 | 3.94 | 0.19 | **1.27** |
| 12.50 | 5.53 | 0.68 | **1.76** |
| 13.00 | 5.91 | 0.83 | 0.69 |
| 13.50 | 6.17 | 0.94 | 0.55 |
| 14.00 | 6.39 | 1.04 | 0.46 |
| 14.50 | 6.57 | 1.12 | 0.41 |
| 15.00 | 6.73 | 1.19 | 0.36 |
| 15.50 | 6.87 | 1.26 | 0.32 |
| 16.00 | 6.98 | 1.31 | 0.27 |
| 16.50 | 7.08 | 1.36 | 0.24 |
| 17.00 | 7.17 | 1.40 | 0.21 |
| 17.50 | 7.24 | 1.44 | 0.19 |
| 18.00 | 7.31 | 1.48 | 0.17 |
| 18.50 | 7.37 | 1.51 | 0.16 |
| 19.00 | 7.43 | 1.54 | 0.15 |
| 19.50 | 7.49 | 1.57 | 0.14 |
| 20.00 | 7.54 | 1.59 | 0.14 |
| 20.50 | 7.59 | 1.62 | 0.13 |
| 21.00 | 7.64 | 1.64 | 0.13 |
| 21.50 | 7.68 | 1.67 | 0.12 |
| 22.00 | 7.73 | 1.69 | 0.12 |
| 22.50 | 7.77 | 1.71 | 0.11 |
| 23.00 | 7.81 | 1.73 | 0.10 |
| 23.50 | 7.85 | 1.75 | 0.10 |
| 24.00 | **7.88** | **1.77** | 0.09 |
| 24.50 | 7.88 | 1.77 | 0.00 |
| 25.00 | 7.88 | 1.77 | 0.00 |
| 25.50 | 7.88 | 1.77 | 0.00 |
| 26.00 | 7.88 | 1.77 | 0.00 |
| 26.50 | 7.88 | 1.77 | 0.00 |
| 27.00 | 7.88 | 1.77 | 0.00 |
| 27.50 | 7.88 | 1.77 | 0.00 |
| 28.00 | 7.88 | 1.77 | 0.00 |
| 28.50 | 7.88 | 1.77 | 0.00 |
| 29.00 | 7.88 | 1.77 | 0.00 |
| 29.50 | 7.88 | 1.77 | 0.00 |
| 30.00 | 7.88 | 1.77 | 0.00 |
| 30.50 | 7.88 | 1.77 | 0.00 |
| 31.00 | 7.88 | 1.77 | 0.00 |
| 31.50 | 7.88 | 1.77 | 0.00 |
| 32.00 | 7.88 | 1.77 | 0.00 |
| 32.50 | 7.88 | 1.77 | 0.00 |
| 33.00 | 7.88 | 1.77 | 0.00 |
| 33.50 | 7.88 | 1.77 | 0.00 |
| 34.00 | 7.88 | 1.77 | 0.00 |
| 34.50 | 7.88 | 1.77 | 0.00 |
| 35.00 | 7.88 | 1.77 | 0.00 |
| 35.50 | 7.88 | 1.77 | 0.00 |
| 36.00 | 7.88 | 1.77 | 0.00 |
| 36.50 | 7.88 | 1.77 | 0.00 |
| 37.00 | 7.88 | 1.77 | 0.00 |
| 37.50 | 7.88 | 1.77 | 0.00 |
| 38.00 | 7.88 | 1.77 | 0.00 |
| 38.50 | 7.88 | 1.77 | 0.00 |
| 39.00 | 7.88 | 1.77 | 0.00 |
| 39.50 | 7.88 | 1.77 | 0.00 |
| 40.00 | 7.88 | 1.77 | 0.00 |

## Summary for Pond 3P: DetPond

Inflow Area = 5.431 ac, 13.99% Impervious, Inflow Depth = 2.92" for 100-yr event
Inflow = 12.55 cfs @ 12.27 hrs, Volume= 1.320 af
Outflow = 5.30 cfs @ 12.67 hrs, Volume= 1.165 af, Atten= 58%, Lag= 24.5 min
Primary = 5.30 cfs @ 12.67 hrs, Volume= 1.165 af
Routed to Link 4L : Analysis Point

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Peak Elev= 99.25' @ 12.67 hrs Surf.Area= 6,784 sf Storage= 18,892 cf

Plug-Flow detention time= 125.9 min calculated for 1.163 af (88% of inflow)
Center-of-Mass det. time= 71.4 min ( 936.5 - 865.0 )

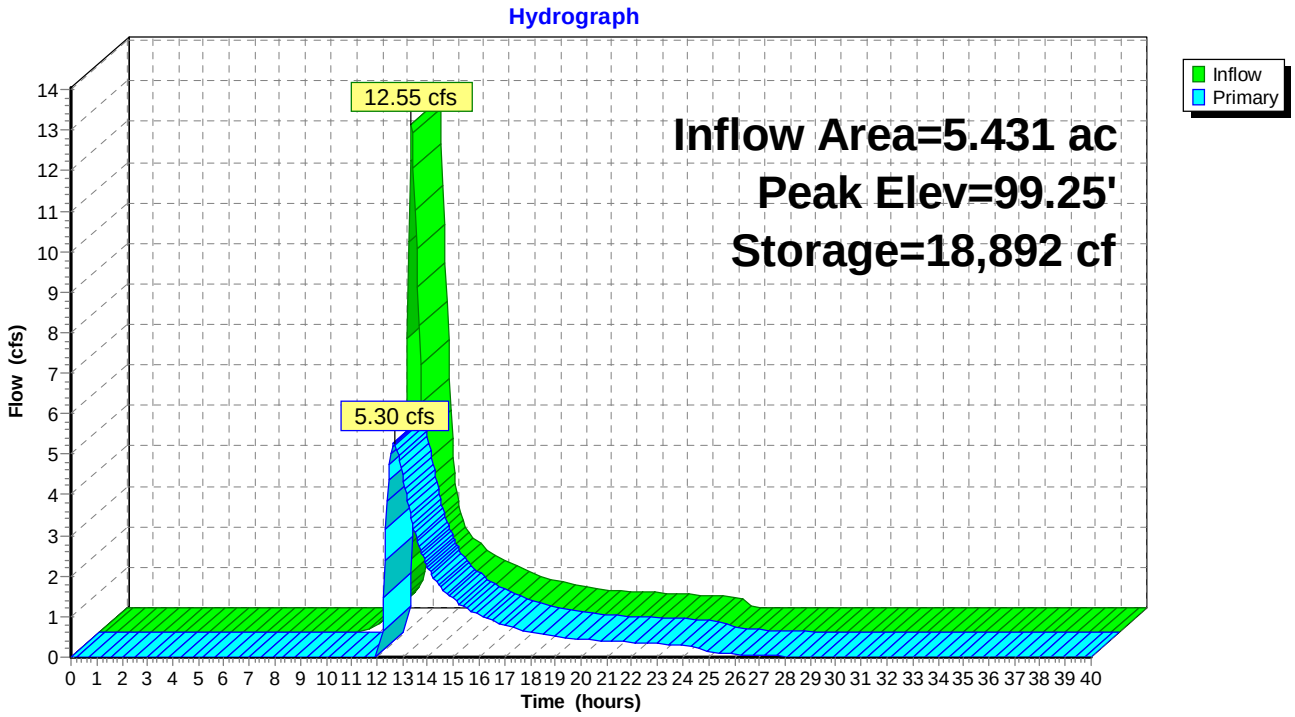
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 94.00' | 24,410 cf | **Custom Stage Data (Irregular)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 94.00 | 1,107 | 174.0 | 0 | 0 | 1,107 |
| 96.00 | 2,850 | 235.0 | 3,822 | 3,822 | 3,134 |
| 98.00 | 4,985 | 299.0 | 7,736 | 11,558 | 5,906 |
| 99.00 | 6,430 | 358.0 | 5,692 | 17,251 | 9,008 |
| 100.00 | 7,914 | 384.0 | 7,159 | 24,410 | 10,587 |

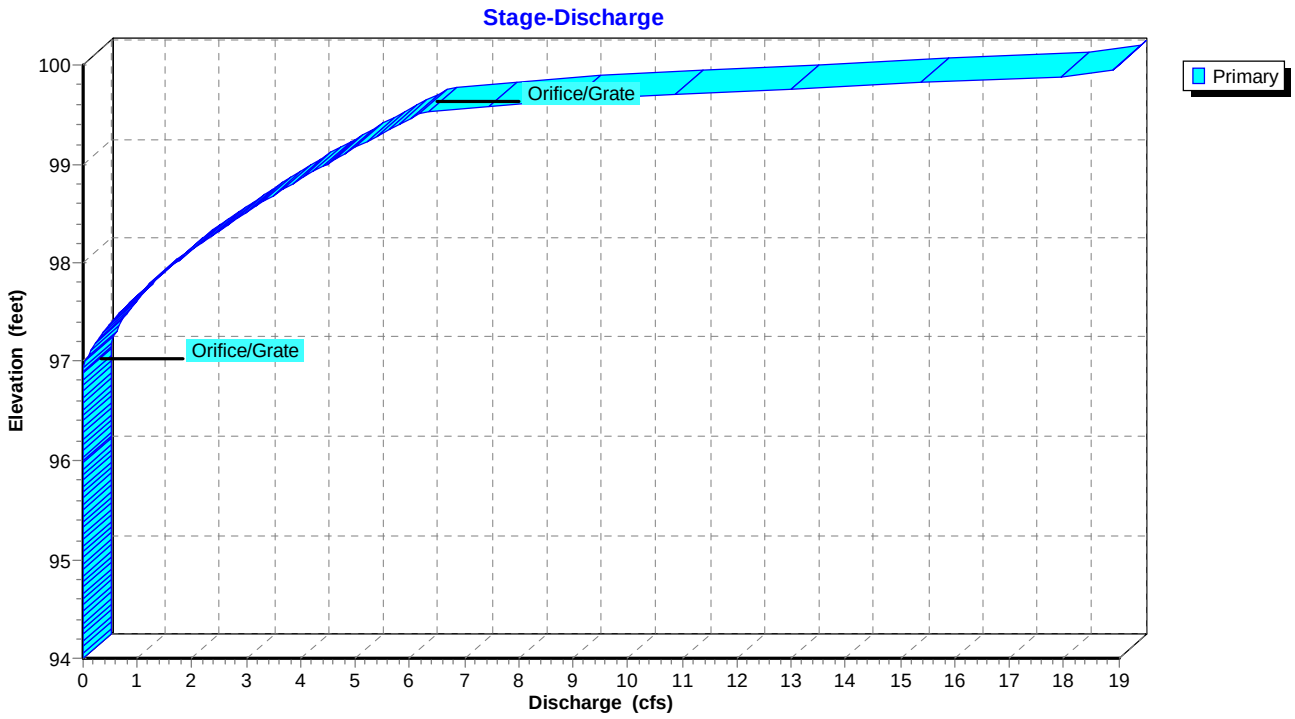
| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 93.00' | **18.0" Round Culvert**<br>L= 120.0' RCP, groove end w/headwall, Ke= 0.200<br>Inlet / Outlet Invert= 93.00' / 92.40' S= 0.0050 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf |
| #2 | Device 1 | 96.90' | **5.5" W x 31.2" H Vert. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |
| #3 | Device 1 | 99.50' | **36.0" x 48.0" Horiz. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=5.28 cfs @ 12.67 hrs HW=99.25' (Free Discharge)
↑└**1=Culvert** (Passes 5.28 cfs of 17.80 cfs potential flow)
↑├**2=Orifice/Grate** (Orifice Controls 5.28 cfs @ 4.92 fps)
└**3=Orifice/Grate** ( Controls 0.00 cfs)

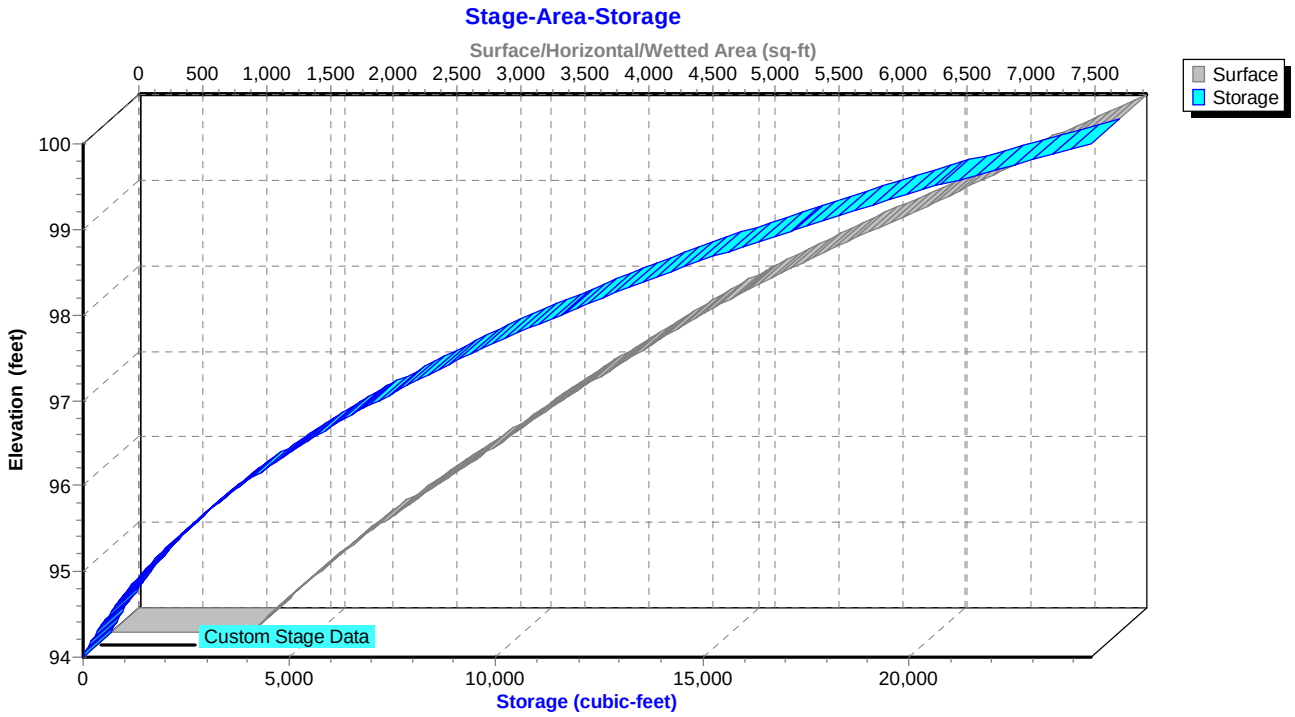
## Pond 3P: DetPond




## Pond 3P: DetPond



## Pond 3P: DetPond



## Hydrograph for Pond 3P: DetPond

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|
| 0.00 | 0.00 | 0 | 94.00 | 0.00 |
| 1.00 | 0.00 | 0 | 94.00 | 0.00 |
| 2.00 | 0.00 | 0 | 94.00 | 0.00 |
| 3.00 | 0.00 | 0 | 94.00 | 0.00 |
| 4.00 | 0.00 | 0 | 94.00 | 0.00 |
| 5.00 | 0.00 | 0 | 94.00 | 0.00 |
| 6.00 | 0.00 | 0 | 94.00 | 0.00 |
| 7.00 | 0.00 | 0 | 94.00 | 0.00 |
| 8.00 | 0.00 | 0 | 94.00 | 0.00 |
| 9.00 | 0.00 | 0 | 94.00 | 0.00 |
| 10.00 | 0.00 | 0 | 94.00 | 0.00 |
| 11.00 | 0.22 | 252 | 94.21 | 0.00 |
| 12.00 | **3.97** | **3,775** | **95.98** | **0.00** |
| 13.00 | **2.65** | **17,296** | **99.01** | **4.50** |
| 14.00 | 1.50 | 12,661 | 98.21 | 2.22 |
| 15.00 | 1.14 | 10,972 | 97.88 | 1.43 |
| 16.00 | 0.83 | 10,105 | 97.70 | 1.05 |
| 17.00 | 0.65 | 9,465 | 97.56 | 0.78 |
| 18.00 | 0.51 | 9,043 | 97.46 | 0.62 |
| 19.00 | 0.44 | 8,729 | 97.39 | 0.50 |
| 20.00 | 0.40 | 8,555 | 97.35 | 0.44 |
| 21.00 | 0.37 | 8,427 | 97.32 | 0.40 |
| 22.00 | 0.33 | 8,324 | 97.29 | 0.36 |
| 23.00 | 0.30 | 8,225 | 97.27 | 0.33 |
| 24.00 | 0.27 | 8,124 | 97.24 | 0.30 |
| 25.00 | 0.00 | 7,578 | 97.11 | 0.14 |
| 26.00 | 0.00 | 7,237 | 97.02 | 0.06 |
| 27.00 | 0.00 | 7,072 | 96.98 | 0.03 |
| 28.00 | 0.00 | 6,979 | 96.95 | 0.02 |
| 29.00 | 0.00 | 6,925 | 96.94 | 0.01 |
| 30.00 | 0.00 | 6,888 | 96.93 | 0.01 |
| 31.00 | 0.00 | 6,861 | 96.92 | 0.01 |
| 32.00 | 0.00 | 6,841 | 96.92 | 0.00 |
| 33.00 | 0.00 | 6,825 | 96.91 | 0.00 |
| 34.00 | 0.00 | 6,813 | 96.91 | 0.00 |
| 35.00 | 0.00 | 6,805 | 96.91 | 0.00 |
| 36.00 | 0.00 | 6,798 | 96.91 | 0.00 |
| 37.00 | 0.00 | 6,793 | 96.90 | 0.00 |
| 38.00 | 0.00 | 6,789 | 96.90 | 0.00 |
| 39.00 | 0.00 | 6,786 | 96.90 | 0.00 |
| 40.00 | 0.00 | 6,784 | 96.90 | 0.00 |

## Stage-Discharge for Pond 3P: DetPond

| Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|---|
| 94.00 | 0.00 | 96.70 | 0.00 | 99.40 | 5.82 |
| 94.05 | 0.00 | 96.75 | 0.00 | 99.45 | 5.99 |
| 94.10 | 0.00 | 96.80 | 0.00 | 99.50 | 6.17 |
| 94.15 | 0.00 | 96.85 | 0.00 | 99.55 | 6.84 |
| 94.20 | 0.00 | 96.90 | 0.00 | 99.60 | 7.93 |
| 94.25 | 0.00 | 96.95 | 0.02 | 99.65 | 9.28 |
| 94.30 | 0.00 | 97.00 | 0.05 | 99.70 | 10.86 |
| 94.35 | 0.00 | 97.05 | 0.09 | 99.75 | 12.62 |
| 94.40 | 0.00 | 97.10 | 0.13 | 99.80 | 14.55 |
| 94.45 | 0.00 | 97.15 | 0.18 | 99.85 | 16.63 |
| 94.50 | 0.00 | 97.20 | 0.24 | 99.90 | 18.85 |
| 94.55 | 0.00 | 97.25 | 0.30 | 99.95 | 18.93 |
| 94.60 | 0.00 | 97.30 | 0.37 | 100.00 | **19.01** |
| 94.65 | 0.00 | 97.35 | 0.44 | | |
| 94.70 | 0.00 | 97.40 | 0.52 | | |
| 94.75 | 0.00 | 97.45 | 0.60 | | |
| 94.80 | 0.00 | 97.50 | 0.68 | | |
| 94.85 | 0.00 | 97.55 | 0.77 | | |
| 94.90 | 0.00 | 97.60 | 0.86 | | |
| 94.95 | 0.00 | 97.65 | 0.96 | | |
| 95.00 | 0.00 | 97.70 | 1.05 | | |
| 95.05 | 0.00 | 97.75 | 1.15 | | |
| 95.10 | 0.00 | 97.80 | 1.26 | | |
| 95.15 | 0.00 | 97.85 | 1.36 | | |
| 95.20 | 0.00 | 97.90 | 1.47 | | |
| 95.25 | 0.00 | 97.95 | 1.58 | | |
| 95.30 | 0.00 | 98.00 | 1.70 | | |
| 95.35 | 0.00 | 98.05 | 1.81 | | |
| 95.40 | 0.00 | 98.10 | 1.93 | | |
| 95.45 | 0.00 | 98.15 | 2.06 | | |
| 95.50 | 0.00 | 98.20 | 2.18 | | |
| 95.55 | 0.00 | 98.25 | 2.31 | | |
| 95.60 | 0.00 | 98.30 | 2.44 | | |
| 95.65 | 0.00 | 98.35 | 2.57 | | |
| 95.70 | 0.00 | 98.40 | 2.70 | | |
| 95.75 | 0.00 | 98.45 | 2.84 | | |
| 95.80 | 0.00 | 98.50 | 2.98 | | |
| 95.85 | 0.00 | 98.55 | 3.12 | | |
| 95.90 | 0.00 | 98.60 | 3.26 | | |
| 95.95 | 0.00 | 98.65 | 3.41 | | |
| 96.00 | 0.00 | 98.70 | 3.55 | | |
| 96.05 | 0.00 | 98.75 | 3.70 | | |
| 96.10 | 0.00 | 98.80 | 3.85 | | |
| 96.15 | 0.00 | 98.85 | 4.01 | | |
| 96.20 | 0.00 | 98.90 | 4.16 | | |
| 96.25 | 0.00 | 98.95 | 4.32 | | |
| 96.30 | 0.00 | 99.00 | 4.48 | | |
| 96.35 | 0.00 | 99.05 | 4.64 | | |
| 96.40 | 0.00 | 99.10 | 4.80 | | |
| 96.45 | 0.00 | 99.15 | 4.97 | | |
| 96.50 | 0.00 | 99.20 | 5.13 | | |
| 96.55 | 0.00 | 99.25 | 5.30 | | |
| 96.60 | 0.00 | 99.30 | 5.47 | | |
| 96.65 | 0.00 | 99.35 | 5.64 | | |

## Stage-Area-Storage for Pond 3P: DetPond

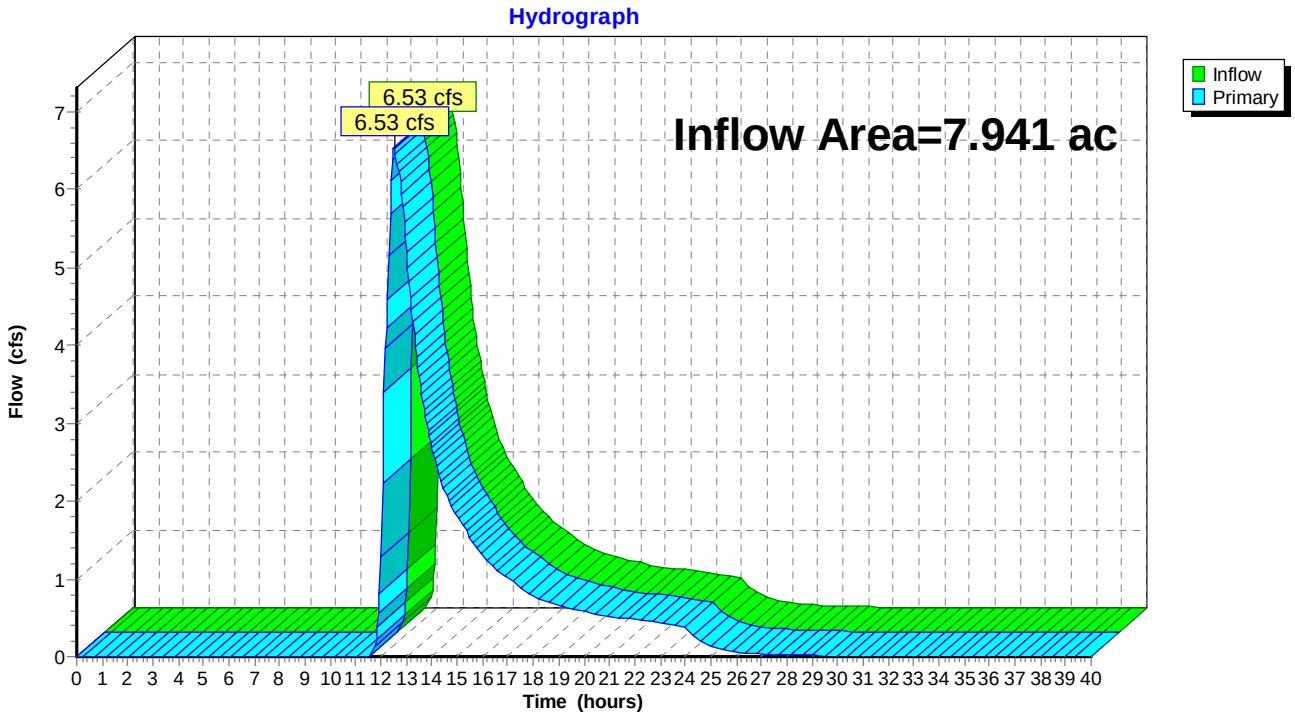
| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|---|---|---|
| 94.00 | 1,107 | 0 |
| 94.10 | 1,175 | 114 |
| 94.20 | 1,245 | 235 |
| 94.30 | 1,317 | 363 |
| 94.40 | 1,391 | 498 |
| 94.50 | 1,467 | 641 |
| 94.60 | 1,545 | 792 |
| 94.70 | 1,625 | 950 |
| 94.80 | 1,707 | 1,117 |
| 94.90 | 1,791 | 1,292 |
| 95.00 | 1,877 | 1,475 |
| 95.10 | 1,966 | 1,667 |
| 95.20 | 2,056 | 1,868 |
| 95.30 | 2,148 | 2,079 |
| 95.40 | 2,242 | 2,298 |
| 95.50 | 2,338 | 2,527 |
| 95.60 | 2,437 | 2,766 |
| 95.70 | 2,537 | 3,015 |
| 95.80 | 2,639 | 3,273 |
| 95.90 | 2,744 | 3,542 |
| 96.00 | 2,850 | 3,822 |
| 96.10 | 2,943 | 4,112 |
| 96.20 | 3,037 | 4,411 |
| 96.30 | 3,132 | 4,719 |
| 96.40 | 3,230 | 5,037 |
| 96.50 | 3,328 | 5,365 |
| 96.60 | 3,428 | 5,703 |
| 96.70 | 3,530 | 6,051 |
| 96.80 | 3,633 | 6,409 |
| 96.90 | 3,737 | 6,777 |
| 97.00 | 3,843 | 7,156 |
| 97.10 | 3,951 | 7,546 |
| 97.20 | 4,060 | 7,947 |
| 97.30 | 4,170 | 8,358 |
| 97.40 | 4,282 | 8,781 |
| 97.50 | 4,396 | 9,215 |
| 97.60 | 4,511 | 9,660 |
| 97.70 | 4,627 | 10,117 |
| 97.80 | 4,745 | 10,585 |
| 97.90 | 4,864 | 11,066 |
| 98.00 | 4,985 | 11,558 |
| 98.10 | 5,121 | 12,064 |
| 98.20 | 5,259 | 12,583 |
| 98.30 | 5,399 | 13,116 |
| 98.40 | 5,541 | 13,663 |
| 98.50 | 5,685 | 14,224 |
| 98.60 | 5,830 | 14,799 |
| 98.70 | 5,977 | 15,390 |
| 98.80 | 6,126 | 15,995 |
| 98.90 | 6,277 | 16,615 |
| 99.00 | 6,430 | 17,251 |
| 99.10 | 6,571 | 17,901 |
| 99.20 | 6,714 | 18,565 |
| 99.30 | 6,859 | 19,244 |
| 99.40 | 7,005 | 19,937 |
| 99.50 | 7,153 | 20,645 |
| 99.60 | 7,302 | 21,367 |
| 99.70 | 7,453 | 22,105 |
| 99.80 | 7,605 | 22,858 |
| 99.90 | 7,759 | 23,626 |
| 100.00 | **7,914** | **24,410** |

## Summary for Link 4L: Analysis Point

Inflow Area = 7.941 ac, 9.95% Impervious, Inflow Depth = 2.32" for 100-yr event
Inflow = 6.53 cfs @ 12.52 hrs, Volume= 1.535 af
Primary = 6.53 cfs @ 12.52 hrs, Volume= 1.535 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

## Link 4L: Analysis Point



## Hydrograph for Link 4L: Analysis Point

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | **0.00** | 0.00 | 27.00 | 0.03 | 0.00 | 0.03 |
| 0.50 | 0.00 | 0.00 | 0.00 | 27.50 | 0.03 | 0.00 | 0.03 |
| 1.00 | 0.00 | 0.00 | 0.00 | 28.00 | 0.02 | 0.00 | 0.02 |
| 1.50 | 0.00 | 0.00 | 0.00 | 28.50 | 0.01 | 0.00 | 0.01 |
| 2.00 | 0.00 | 0.00 | 0.00 | 29.00 | 0.01 | 0.00 | 0.01 |
| 2.50 | 0.00 | 0.00 | 0.00 | 29.50 | 0.01 | 0.00 | 0.01 |
| 3.00 | 0.00 | 0.00 | 0.00 | 30.00 | 0.01 | 0.00 | 0.01 |
| 3.50 | 0.00 | 0.00 | 0.00 | 30.50 | 0.01 | 0.00 | 0.01 |
| 4.00 | 0.00 | 0.00 | 0.00 | 31.00 | 0.01 | 0.00 | 0.01 |
| 4.50 | 0.00 | 0.00 | 0.00 | 31.50 | 0.01 | 0.00 | 0.01 |
| 5.00 | 0.00 | 0.00 | 0.00 | 32.00 | 0.00 | 0.00 | 0.00 |
| 5.50 | 0.00 | 0.00 | 0.00 | 32.50 | 0.00 | 0.00 | 0.00 |
| 6.00 | 0.00 | 0.00 | 0.00 | 33.00 | 0.00 | 0.00 | 0.00 |
| 6.50 | 0.00 | 0.00 | 0.00 | 33.50 | 0.00 | 0.00 | 0.00 |
| 7.00 | 0.00 | 0.00 | 0.00 | 34.00 | 0.00 | 0.00 | 0.00 |
| 7.50 | 0.00 | 0.00 | 0.00 | 34.50 | 0.00 | 0.00 | 0.00 |
| 8.00 | 0.00 | 0.00 | 0.00 | 35.00 | 0.00 | 0.00 | 0.00 |
| 8.50 | 0.00 | 0.00 | 0.00 | 35.50 | 0.00 | 0.00 | 0.00 |
| 9.00 | 0.00 | 0.00 | 0.00 | 36.00 | 0.00 | 0.00 | 0.00 |
| 9.50 | 0.00 | 0.00 | 0.00 | 36.50 | 0.00 | 0.00 | 0.00 |
| 10.00 | 0.00 | 0.00 | 0.00 | 37.00 | 0.00 | 0.00 | 0.00 |
| 10.50 | 0.00 | 0.00 | 0.00 | 37.50 | 0.00 | 0.00 | 0.00 |
| 11.00 | 0.00 | 0.00 | 0.00 | 38.00 | 0.00 | 0.00 | 0.00 |
| 11.50 | 0.00 | 0.00 | 0.00 | 38.50 | 0.00 | 0.00 | 0.00 |
| 12.00 | 1.27 | 0.00 | 1.27 | 39.00 | 0.00 | 0.00 | 0.00 |
| 12.50 | **6.51** | 0.00 | **6.51** | 39.50 | 0.00 | 0.00 | 0.00 |
| 13.00 | 5.19 | 0.00 | 5.19 | 40.00 | 0.00 | 0.00 | 0.00 |
| 13.50 | 3.60 | 0.00 | 3.60 | | | | |
| 14.00 | 2.68 | 0.00 | 2.68 | | | | |
| 14.50 | 2.13 | 0.00 | 2.13 | | | | |
| 15.00 | 1.79 | 0.00 | 1.79 | | | | |
| 15.50 | 1.54 | 0.00 | 1.54 | | | | |
| 16.00 | 1.31 | 0.00 | 1.31 | | | | |
| 16.50 | 1.13 | 0.00 | 1.13 | | | | |
| 17.00 | 1.00 | 0.00 | 1.00 | | | | |
| 17.50 | 0.89 | 0.00 | 0.89 | | | | |
| 18.00 | 0.79 | 0.00 | 0.79 | | | | |
| 18.50 | 0.71 | 0.00 | 0.71 | | | | |
| 19.00 | 0.65 | 0.00 | 0.65 | | | | |
| 19.50 | 0.61 | 0.00 | 0.61 | | | | |
| 20.00 | 0.58 | 0.00 | 0.58 | | | | |
| 20.50 | 0.55 | 0.00 | 0.55 | | | | |
| 21.00 | 0.52 | 0.00 | 0.52 | | | | |
| 21.50 | 0.50 | 0.00 | 0.50 | | | | |
| 22.00 | 0.48 | 0.00 | 0.48 | | | | |
| 22.50 | 0.45 | 0.00 | 0.45 | | | | |
| 23.00 | 0.43 | 0.00 | 0.43 | | | | |
| 23.50 | 0.41 | 0.00 | 0.41 | | | | |
| 24.00 | 0.39 | 0.00 | 0.39 | | | | |
| 24.50 | 0.23 | 0.00 | 0.23 | | | | |
| 25.00 | 0.14 | 0.00 | 0.14 | | | | |
| 25.50 | 0.09 | 0.00 | 0.09 | | | | |
| 26.00 | 0.06 | 0.00 | 0.06 | | | | |
| 26.50 | 0.04 | 0.00 | 0.04 | | | | |

# 6.2 - CATCH BASIN DRAINAGE AREAS, PIPE SIZING

PROJECT: 1040 Main Street

PROJECT NO.:

TOWN: Glastonbury, CT

ROUTE: Carson Way

LOCATION: See Below

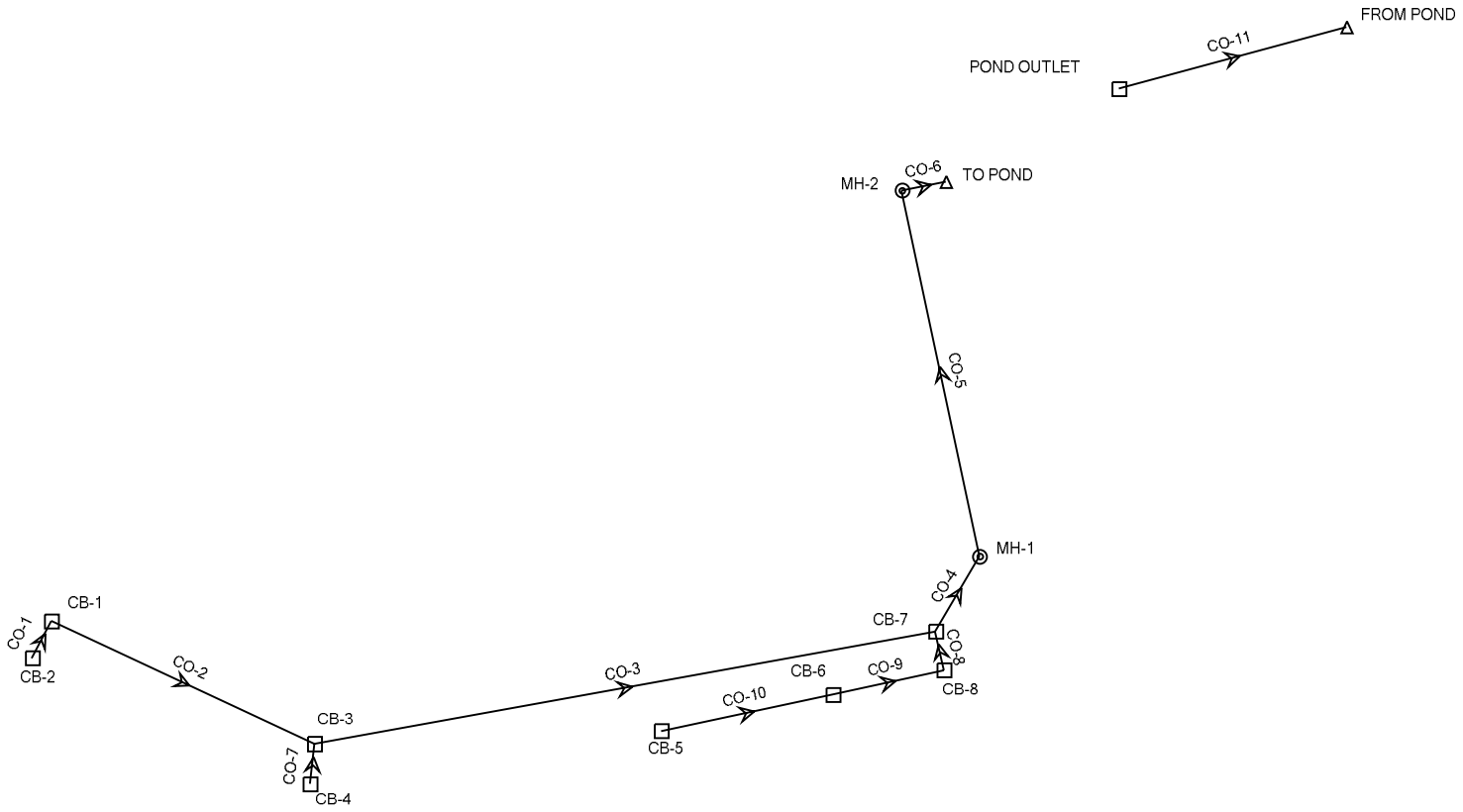
DESIGNED BY: RPW DATE: 05/26/21

CHECKED BY: RPW DATE: 05/26/21

| Inlet | Total Area (Sq. Ft.) | Total Area (Acres) | Weighted Coef. | AC |
|---|---|---|---|---|
| CB-1 | 9,742 | 0.224 | 0.40 | 0.090 |
| CB-2 | 15,956 | 0.366 | 0.39 | 0.144 |
| CB-3 | 9,782 | 0.225 | 0.39 | 0.088 |
| CB-4 | 31,232 | 0.717 | 0.368 | 0.264 |
| CB-5 | 2,994 | 0.069 | 0.556 | 0.038 |
| CB-6 | 25,930 | 0.595 | 0.358 | 0.213 |
| CB-7 West | 16,120 | 0.370 | 0.38 | 0.140 |
| CB-7 East | 6,643 | 0.153 | 0.62 | 0.094 |
| CB-7 Total | 22,763 | 0.523 | 0.45 | 0.234 |
| CB-8 West | 11,779 | 0.270 | 0.425 | 0.115 |
| CB-8 East | 28,599 | 0.657 | 0.418 | 0.274 |
| CB-8 Total | 40,378 | 0.927 | 0.42 | 0.389 |

| Pavement Area (Sq. Ft.) | Coef. | Wooded Area (Sq. Ft.) | Coef. | Grass Area (Sq. Ft.) | Coef. |
|---|---|---|---|---|---|
| 1,692 | 0.9 | 0 | 0.2 | 8,050 | 0.3 |
| 2,454 | 0.9 | 0 | 0.2 | 13,502 | 0.3 |
| 1,464 | 0.9 | 0 | 0.2 | 8,318 | 0.3 |
| 4,092 | 0.9 | 3,352 | 0.2 | 23,788 | 0.3 |
| 1,275 | 0.9 | 0 | 0.2 | 1,719 | 0.3 |
| 2,796 | 0.9 | 1,747 | 0.2 | 21,387 | 0.3 |
| 2,074 | 0.9 | 0 | 0.2 | 14,046 | 0.3 |
| 3,530 | 0.9 | 0 | 0.2 | 3,113 | 0.3 |
| 5,604 | 0.9 | 0 | 0.2 | 17,159 | 0.3 |
| 2,638 | 0.9 | 1,149 | 0.2 | 7,992 | 0.3 |
| 6,028 | 0.9 | 2,491 | 0.2 | 20,080 | 0.3 |
| 8,666 | 0.9 | 3,640 | 0.2 | 28,072 | 0.3 |

# Scenario:  1040 Main Street (10 year)



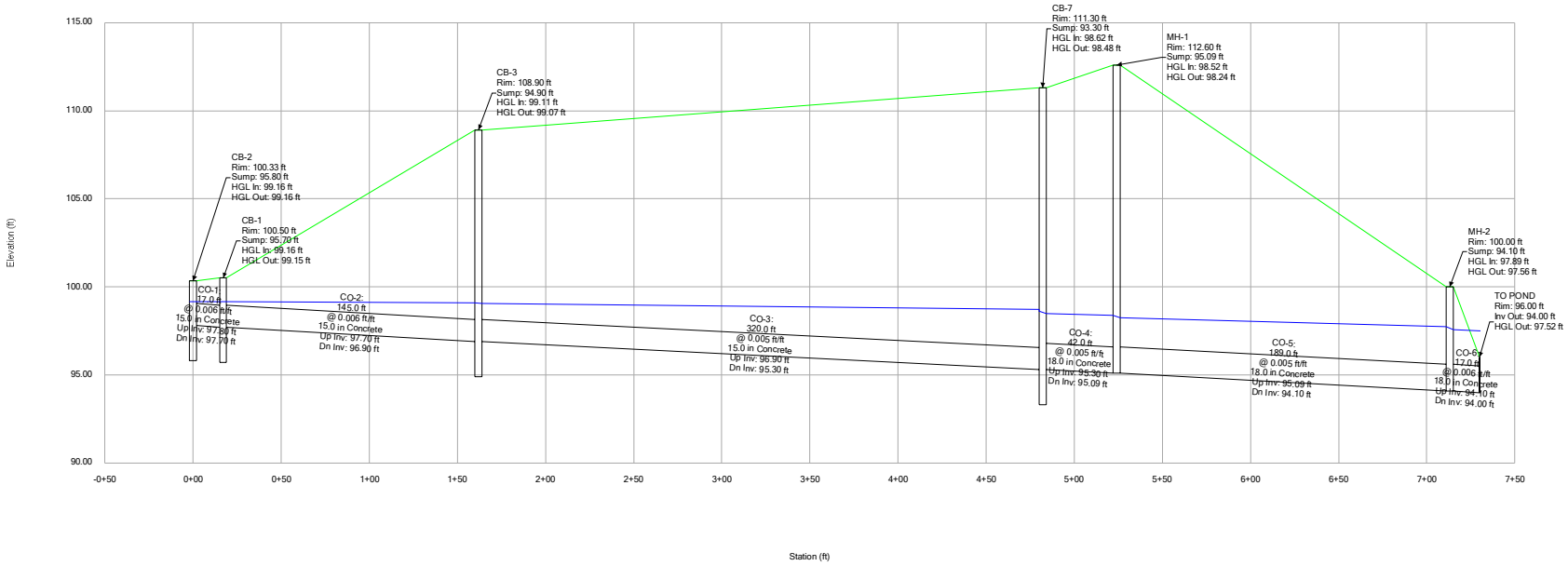
# Conduit FlexTable: Storm Drain Analysis

| Label | Start Node | Stop Node | Length (Unified) (ft) | System CA (acres) | Time (Pipe Flow) (min) | System Flow Time (min) | System Intensity (in/h) | System Rational Flow ($ft^3/s$) | Capacity (Full Flow) ($ft^3/s$) | Conduit Description | Manning's n | Slope (Calculated) (ft/ft) | Velocity (ft/s) | Invert (Start) (ft) | Invert (Stop) (ft) | Elevation Ground (Start) (ft) | Elevation Ground (Stop) (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO-1 | CB-2 | CB-1 | 17.0 | 0.137 | 0.476 | 10.000 | 5.290 | 0.73 | 4.95 | Circle - 15.0 in | 0.013 | 0.006 | 0.60 | 97.80 | 97.70 | 100.33 | 100.50 |
| CO-2 | CB-1 | CB-3 | 145.0 | 0.212 | 2.678 | 10.476 | 5.181 | 1.11 | 4.80 | Circle - 15.0 in | 0.013 | 0.006 | 0.90 | 97.70 | 96.90 | 100.50 | 108.90 |
| CO-3 | CB-3 | CB-7 | 320.0 | 0.454 | 3.129 | 13.154 | 4.571 | 2.09 | 4.57 | Circle - 15.0 in | 0.013 | 0.005 | 1.70 | 96.90 | 95.30 | 108.90 | 111.30 |
| CO-4 | CB-7 | MH-1 | 42.0 | 1.327 | 0.229 | 16.283 | 4.035 | 5.40 | 7.43 | Circle - 18.0 in | 0.013 | 0.005 | 3.05 | 95.30 | 95.09 | 111.30 | 112.60 |
| CO-5 | MH-1 | MH-2 | 189.0 | 1.327 | 1.037 | 16.513 | 4.014 | 5.37 | 7.60 | Circle - 18.0 in | 0.013 | 0.005 | 3.04 | 95.09 | 94.10 | 112.60 | 100.00 |
| CO-6 | MH-2 | TO POND | 17.0 | 1.327 | 0.095 | 17.549 | 3.921 | 5.24 | 8.06 | Circle - 18.0 in | 0.013 | 0.006 | 2.97 | 94.10 | 94.00 | 100.00 | 96.00 |
| CO-7 | CB-4 | CB-3 | 21.0 | 0.168 | 0.094 | 10.000 | 5.290 | 0.90 | 3.48 | Circle - 12.0 in | 0.013 | 0.010 | 3.71 | 105.40 | 105.20 | 108.90 | 108.90 |
| CO-8 | CB-8 | CB-7 | 17.0 | 0.643 | 0.050 | 10.205 | 5.243 | 3.40 | 7.01 | Circle - 15.0 in | 0.013 | 0.012 | 5.67 | 107.80 | 107.60 | 111.30 | 111.30 |
| CO-11 | POND OUTLET | FROM POND | 120.0 | 1.064 | 0.432 | 10.000 | 5.290 | 5.67 | 7.43 | Circle - 18.0 in | 0.013 | 0.005 | 4.63 | 93.00 | 92.40 | 99.50 | 94.00 |
| CO-10 | CB-5 | CB-6 | 90.0 | 0.031 | 0.473 | 5.000 | 7.460 | 0.23 | 9.14 | Circle - 15.0 in | 0.013 | 0.020 | 3.17 | 110.20 | 108.40 | 113.80 | 111.90 |
| CO-9 | CB-6 | CB-8 | 48.0 | 0.153 | 0.205 | 10.000 | 5.290 | 0.82 | 7.22 | Circle - 15.0 in | 0.013 | 0.013 | 3.90 | 108.40 | 107.80 | 111.90 | 111.30 |

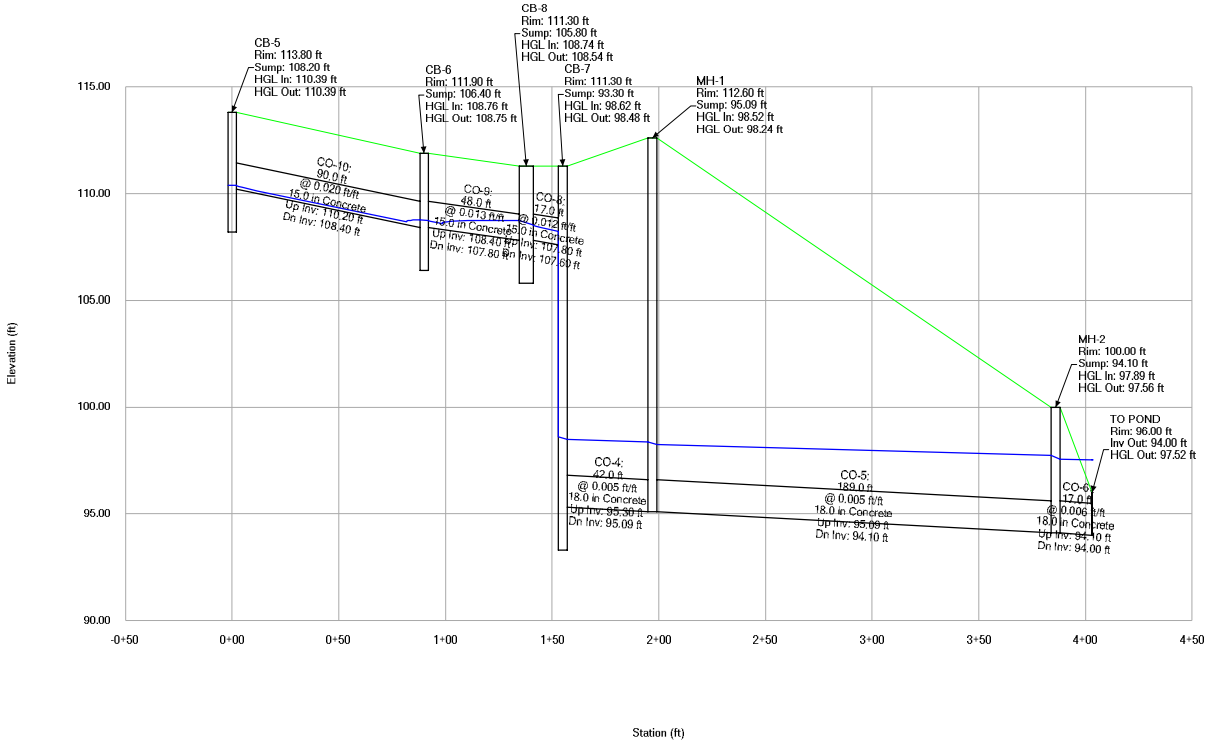
# Conduit FlexTable: HGL Report

| Label | Start Node | Stop Node | Conduit Description | Flow ($ft^3/s$) | Length (Unified) (ft) | Velocity (In) (ft/s) | Velocity (Out) (ft/s) | Velocity Head (Out) (ft) | Velocity Head (Downstream Conduit) (ft) | Energy Grade Line (In) (ft) | Energy Grade Line (Out) (ft) | Hydraulic Grade Line (In) (ft) | Hydraulic Grade Line (Out) (ft) | Elevation Ground (Start) (ft) | Elevation Ground (Stop) (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO-1 | CB-2 | CB-1 | Circle - 15.0 in | 0.73 | 17.0 | 0.60 | 0.60 | 0.01 | 0.01 | 99.17 | 99.17 | 99.16 | 99.16 | 100.33 | 100.50 |
| CO-2 | CB-1 | CB-3 | Circle - 15.0 in | 1.11 | 145.0 | 0.90 | 0.90 | 0.01 | 0.05 | 99.16 | 99.12 | 99.15 | 99.11 | 100.50 | 108.90 |
| CO-3 | CB-3 | CB-7 | Circle - 15.0 in | 2.09 | 320.0 | 1.70 | 1.70 | 0.05 | 0.14 | 99.12 | 98.78 | 99.07 | 98.74 | 108.90 | 111.30 |
| CO-4 | CB-7 | MH-1 | Circle - 18.0 in | 5.40 | 42.0 | 3.05 | 3.05 | 0.14 | 0.14 | 98.63 | 98.52 | 98.48 | 98.37 | 111.30 | 112.60 |
| CO-5 | MH-1 | MH-2 | Circle - 18.0 in | 5.37 | 189.0 | 3.04 | 3.04 | 0.14 | 0.14 | 98.38 | 97.89 | 98.24 | 97.75 | 112.60 | 100.00 |
| CO-6 | MH-2 | TO POND | Circle - 18.0 in | 5.24 | 17.0 | 2.97 | 2.97 | 0.14 | (N/A) | 97.70 | 97.66 | 97.56 | 97.52 | 100.00 | 96.00 |
| CO-7 | CB-4 | CB-3 | Circle - 12.0 in | 0.90 | 21.0 | 3.09 | 3.71 | 0.21 | 0.05 | 105.94 | 105.76 | 105.80 | 105.55 | 108.90 | 108.90 |
| CO-8 | CB-8 | CB-7 | Circle - 15.0 in | 3.40 | 17.0 | 4.47 | 5.45 | 0.46 | 0.14 | 108.85 | 108.69 | 108.54 | 108.23 | 111.30 | 111.30 |
| CO-11 | POND OUTLET | FROM POND | Circle - 18.0 in | 5.67 | 120.0 | 4.63 | 5.00 | 0.39 | (N/A) | 94.31 | 93.71 | 93.98 | 93.32 | 99.50 | 94.00 |
| CO-10 | CB-5 | CB-6 | Circle - 15.0 in | 0.23 | 90.0 | 2.04 | 0.79 | 0.01 | 0.13 | 110.45 | 108.77 | 110.39 | 108.76 | 113.80 | 111.90 |
| CO-9 | CB-6 | CB-8 | Circle - 15.0 in | 0.82 | 48.0 | 2.85 | 0.82 | 0.01 | 0.31 | 108.88 | 108.75 | 108.75 | 108.74 | 111.90 | 111.30 |

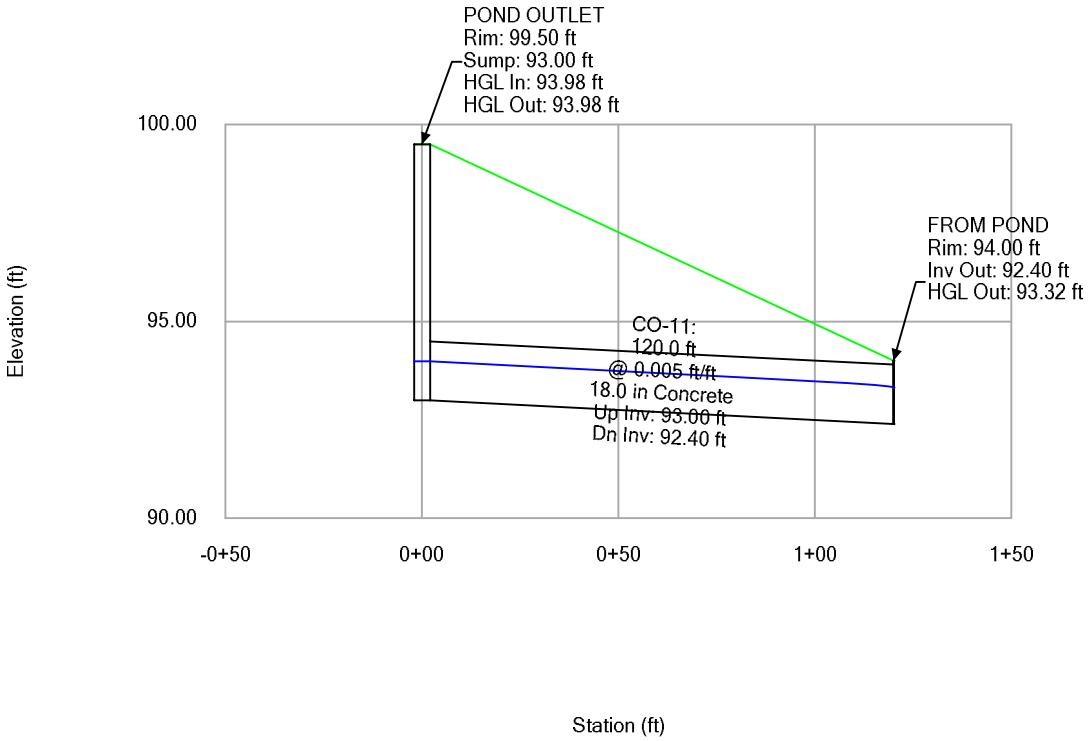
# Profile Report
# Engineering Profile - Profile - 1 (1040 Main Street.stsw)



# Profile Report
# Engineering Profile - Profile - 2 (1040 Main Street.stsw)



# Profile Report
## Engineering Profile - Profile - 3 (1040 Main Street.stsw)



# 6.3 - GUTTER FLOW ANALYSIS, LOW POINT ANALYSIS

PROJECT: 1040 Main Street
PROJECT NO.:
TOWN: Glastonbury, CT
ROUTE: Carson Way
LOCATION: See Below

DESIGNED BY: RPW DATE: 05/26/21
CHECKED BY: RPW DATE: 05/26/21

**GUTTER FLOW ANALYSIS - 10 YR STORM**

| Inlet ID | Inlet Station and Offset | Area in Acres (A) | Runoff Coeff. (C) | Time to Inlet (min.) | Rainfall Intensity (in/hr) | AC | Total AC | Q to Inlet (cfs) | Grade of Gutter ft/ft ($S_L$) | Cross Slope Of Shoulder ft/ft ($S_x$) | Depth of Flow of Gutter (ft) | Gutter Flow Width (ft) | Q Bypassing Inlet (cfs) | AC Bypassing Inlet | AC Entering Catch Basin | Inlet Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Carson Way - North Gutter from High Point Sta. 3+57 to CB at Sta. 0+60** | | | | | | | | | | | | | | | | |
| CB-3 | 2+15 11' LT | 0.225 | 0.39 | 10 | 5.29 | 0.088 | 0.088 | 0.464 | 0.075 | 0.03125 | 0.088 | 2.815 | 0.074 | 0.014 | 0.074 | "C" CB |
| CB-1 | 0+60 11' LT | 0.224 | 0.40 | 10 | 5.29 | 0.090 | 0.104 | 0.548 | 0.030 | 0.03125 | 0.111 | 3.558 | 0.151 | 0.029 | 0.075 | "C" CB |
| **Carson Way - South Gutter from High Point Sta. 3+57 to CB at Sta. 0+60** | | | | | | | | | | | | | | | | |
| CB-4 | 2+15 11' RT | 0.717 | 0.37 | 10 | 5.29 | 0.264 | 0.264 | 1.396 | 0.075 | 0.03125 | 0.133 | 4.254 | 0.507 | 0.096 | 0.168 | "C" CB |
| CB-2 | 0+60 11' RT | 0.366 | 0.39 | 10 | 5.29 | 0.143 | 0.239 | 1.266 | 0.030 | 0.03125 | 0.152 | 4.870 | 0.540 | 0.102 | 0.137 | "C" CB |
| **Carson Way - South Gutter from High Point Sta. 3+57 to Low Point at Sta. 5+44** | | | | | | | | | | | | | | | | |
| CB-5 | 3+95 11' RT | 0.069 | 0.56 | 5 | 7.46 | 0.038 | 0.038 | 0.286 | 0.020 | 0.03125 | 0.094 | 3.009 | 0.055 | 0.007 | 0.031 | "C" CB |
| CB-6 | 4+90 11' RT | 0.595 | 0.36 | 10 | 5.29 | 0.213 | 0.220 | 1.166 | 0.020 | 0.03125 | 0.159 | 5.095 | 0.521 | 0.098 | 0.122 | "C" CB |
| CB-8 | 5+44 11' RT | 0.270 | 0.43 | 10 | 5.29 | 0.115 | 0.213 | 1.128 | 0.020 | 0.03125 | 0.157 | 5.032 | Low-Point | | | "C" CB |
| **Carson Way - South Gutter from Cul-De-Sac to Low Point Sta. 5+44** | | | | | | | | | | | | | | | | |
| CB-8 | 5+44 11' RT | 0.657 | 0.42 | 10 | 5.29 | 0.275 | 0.275 | 1.453 | 0.030 | 0.03125 | 0.160 | 5.128 | Low-Point | | | "C" CB |
| **Carson Way - North Gutter from High Point Sta. 3+57 to Low Point at Sta. 5+44** | | | | | | | | | | | | | | | | |
| CB-7 | 5+44 11' LT | 0.370 | 0.38 | 10 | 5.29 | 0.141 | 0.141 | 0.744 | 0.010 | 0.03125 | 0.153 | 4.902 | Low-Point | | | "C" CB |
| **Carson Way - North Gutter from Cul-De-Sac to Low Point Sta. 5+44** | | | | | | | | | | | | | | | | |
| CB-7 | 5+44 11' LT | 0.153 | 0.62 | 10 | 5.29 | 0.095 | 0.095 | 0.502 | 0.015 | 0.03125 | 0.122 | 3.920 | Low-Point | | | "C" CB |

Notes:
1.) Manning's n = 0.016 (asphalt).

PROJECT: 1040 Main Street

PROJECT NO.:

TOWN: Glastonbury, CT

ROUTE: Carson Way

LOCATION: See Below

DESIGNED BY: RPW DATE: 05/26/21

CHECKED BY: RPW DATE: 05/26/21

**GUTTER FLOW ANALYSIS AT LOW POINT (10 YEAR)**

| ID Number | Inlet Station & Offset | Area In Acres (A) | Runoff Coeff. (C) | Time to Inlet (min.) | Rainfall Intensity (in/hr) | A*C | A*C Bypassing Previous Inlet | | Total A*C | Total Q to Low Point Inlet (cfs) | Cross Slope of Shoulder (ft/ft) | Depth of Flow of Gutter (ft) | | Width of Flow (ft) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Left | Right | | | | Weir | Orifice | | |
| **Brewer Street** | | | | | | | | | | | | | | | |
| CB-8 | 5+44 11' RT | 0.927 | 0.42 | 10 | 5.29 | 0.39 | 0.098 | 0 | 0.49 | 2.58 | 0.031 | 0.24 | 0.01 | 7.7 | use type "c" cb dbl type 2 |
| CB-7 | 5+44 11' LT | 0.523 | 0.45 | 10 | 5.29 | 0.23 | 0 | 0 | 0.23 | 1.24 | 0.031 | 0.19 | 0.01 | 6.1 | use type "c" cb |

# 7.0 - WATER QUALITY CALCULATIONS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | ***WOLFF ENGINEERING*** | | | | | | Project | |
| | ***COMPUTATION SHEET*** | | | | | | Made By: | RPW |
| Subject: | **1040 Main Street Glastonbury** | | | | | | Date: | 4/1/2021 |
| | | | | | | | Chkd by: | SDG |
| | | | | | | | Date: | 4/10/2021 |

WATER QUALITY VOLUME, (WQV)

| Contributing On-site Areas To Basin | Wooded Area (acres) | Grass Area (acres) | Paved Area (acres) | Total Area (acres) | Description |
|---|---|---|---|---|---|
| 1 | 0.67 | 4.0 | 0.760 | 5.430 | Drainage Area |
| Total | 0.670 | 4.000 | 0.760 | 5.430 | |

Equation 10.31: WQV = (1")(R)(A)/12

| | | | |
|---|---|---|---|
| I = % of Impervious Cover = | 14.0% | | |
| R = volumetric runoff coeff. 0.05 + 0.009(I) = | 0.176 | | |
| A = site area (acres) = | 5.430 | acres = | |
| Equation 10.31: WQV = (1")(R)(A)/12 = | 0.080 | acre-feet = | **3468 Cubic Feet** |

WATER QUALITY VOLUME PROVIDED IN POND

| ELEV. | AREA SQ. FT. | AVG. AREA SQ. FT. | VOLUME, CU. FT. |
|---|---|---|---|
| 96.9 | 3681 | | |
| | | 3265.5 | 2938.95 |
| 96 | 2850 | | |
| | | 1978.5 | 3957 |
| 94 | 1107 | | |
| | | | |
| **WQV PROVIDED IN BASIN =** | | | **6895.95** |

REQUIRED WQV = 3468 Cubic Feet

WQV PROVIDED IN POND OK

CHECK WQV PROVIDED IN FOREBAY

| ELEV. | AREA SQ. FT. | AVG. AREA SQ. FT. | VOLUME, CU. FT. |
|---|---|---|---|
| 96 | 756 | | |
| | | 591 | 591 |
| 95 | 426 | | |
| | | 299.5 | 299.5 |
| 94 | 173 | | |
| **WQV PROVIDED IN FOREBAY =** | | | **890.5** |

| | | |
|---|---|---|
| REQUIRED WQV IN FOREBAY = 10% OF WQV = | 347 | CUBIC FEET |
| WQV PROVIDED IN FOREBAY OK | | |

# 8.0 - GROUNDWATER RECHARGE VOLUME CALCULATIONS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | ***WOLFF ENGINEERING*** | | | | | | Project | |
| | ***COMPUTATION SHEET*** | | | | | | Made By: | RPW |
| Subject: | **1040 Main Street Glastonbury** | | | | | | Date: | 4/1/2021 |
| | | | | | | | Chkd by: | SDG |
| | | | | | | | Date: | 4/10/2021 |

GROUNDWATER RECHARGE VOLUME (GRV)

GRV =(D)(A)(I)/12

1. COMPUTE RUNOFF DEPTH TO BE RECHARGED, (D)

NRCS HYDROLOGIC SOIL GROUP: A

GROUNDWATER RECHARGE DEPTH, (D): 0.4 Inches (Table 7-4 2004, Stormwater Quality Manual)

2. COMPUTE NET INCREASE IN SITE IMPERVIOUSNESS I (Proposed) - I (Existing)

SITE AREA, A = 9.343 Acres

I (Existing) = 0

COMPUTE PROPOSED IMPERVIOUS AREAS:

| Impervious Area # | Impervious Area (acres) | Description |
|---|---|---|
| 1 | 0.600 | Road, Driveways, Roofs, Sidewalk |
| Total | 0.600 | |

I (Proposed) = 0.064

I (Proposed) - I (Existing) = 0.064

GRV REQ'D = 0.020 Acre-Ft

**GRV REQ'D = 871 cubic feet**

1. COMPUTE RUNOFF DEPTH TO BE RECHARGED, (D)

NRCS HYDROLOGIC SOIL GROUP: B

GROUNDWATER RECHARGE DEPTH, (D): 0.25 Inches (Table 7-4 2004, Stormwater Quality Manual)

2. COMPUTE NET INCREASE IN SITE IMPERVIOUSNESS I (Proposed) - I (Existing)

SITE AREA, A = 9.343 Acres

I (Existing) = 0

COMPUTE PROPOSED IMPERVIOUS AREAS:

| Impervious Area # | Impervious Area (acres) | Description |
|---|---|---|
| 1 | 0.600 | Road, Driveways, Roofs, Sidewalk |
| Total | 0.600 | |

I (Proposed) = 0.064

I (Proposed) - I (Existing) = 0.064

GRV REQ'D = 0.013 Acre-Ft

**GRV REQ'D = 545 cubic feet**

**TOTAL GRV REQ'D = 1416**

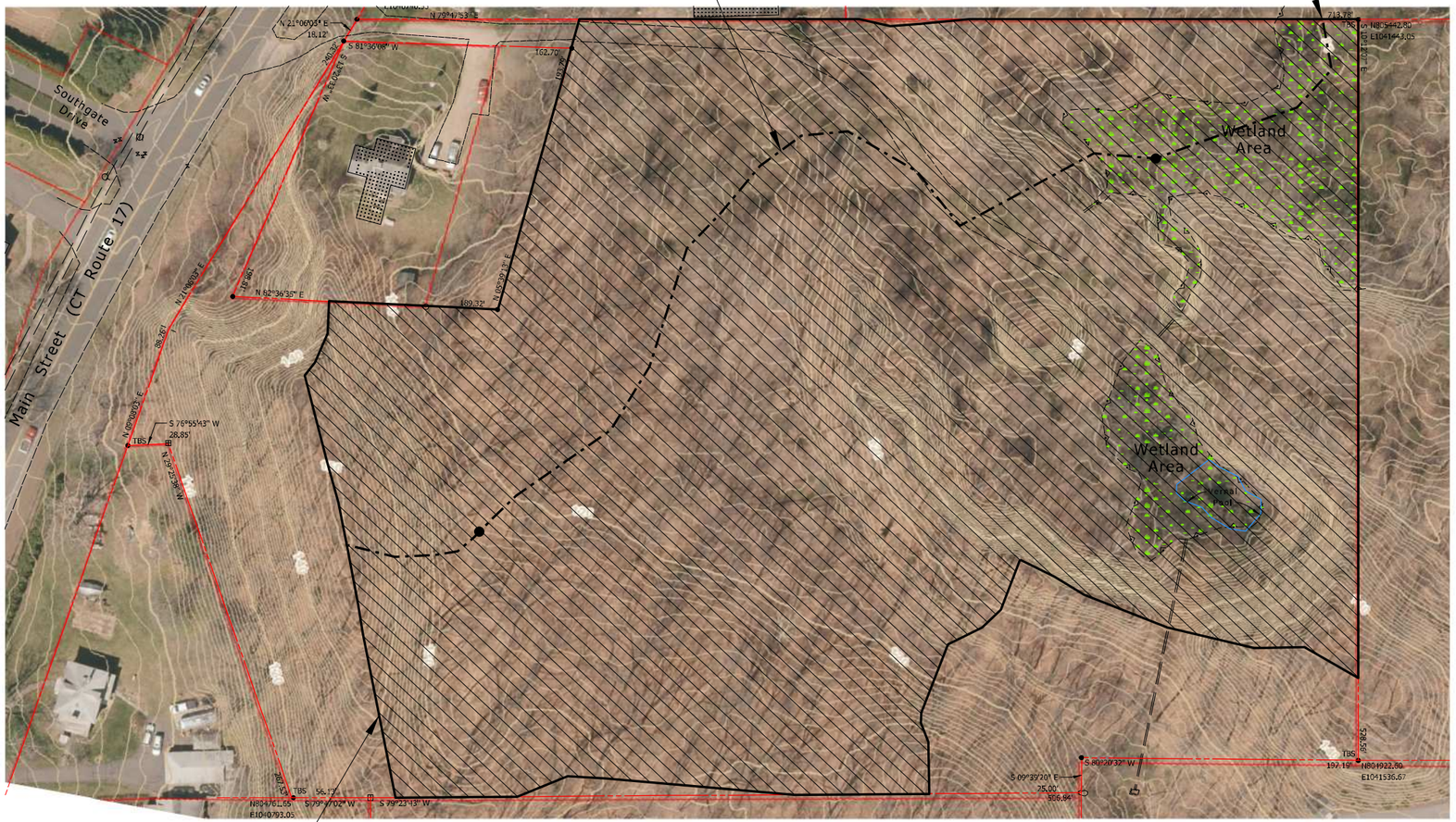
Assume a minimum of 4 Cultec R-180 stormwater chambers per house roof @ 207.7 c.f. per system

GRV Provided by House Roof stormater chambers = 1453.9 cubic feet

**Total GRV provided = 1453.9 cubic feet**

**GRV provided satisfies GRV requirement for development.**

# 9.0 - WATERSHED MAPS




CT Grid North
NAD 83

# PLAN

SCALE: 1"=100'

## EXISTING WATERSHED MAP


**WOLFF ENGINEERING**

*CIVIL & STRUCTURAL ENGINEERING*

CORNERSTONE PROFESSIONAL PARK, SUITE C101
39 SHERMAN HILL ROAD, WOODBURY, CT 06798
TEL.: 203.263.7447 FAX: 203.263.0060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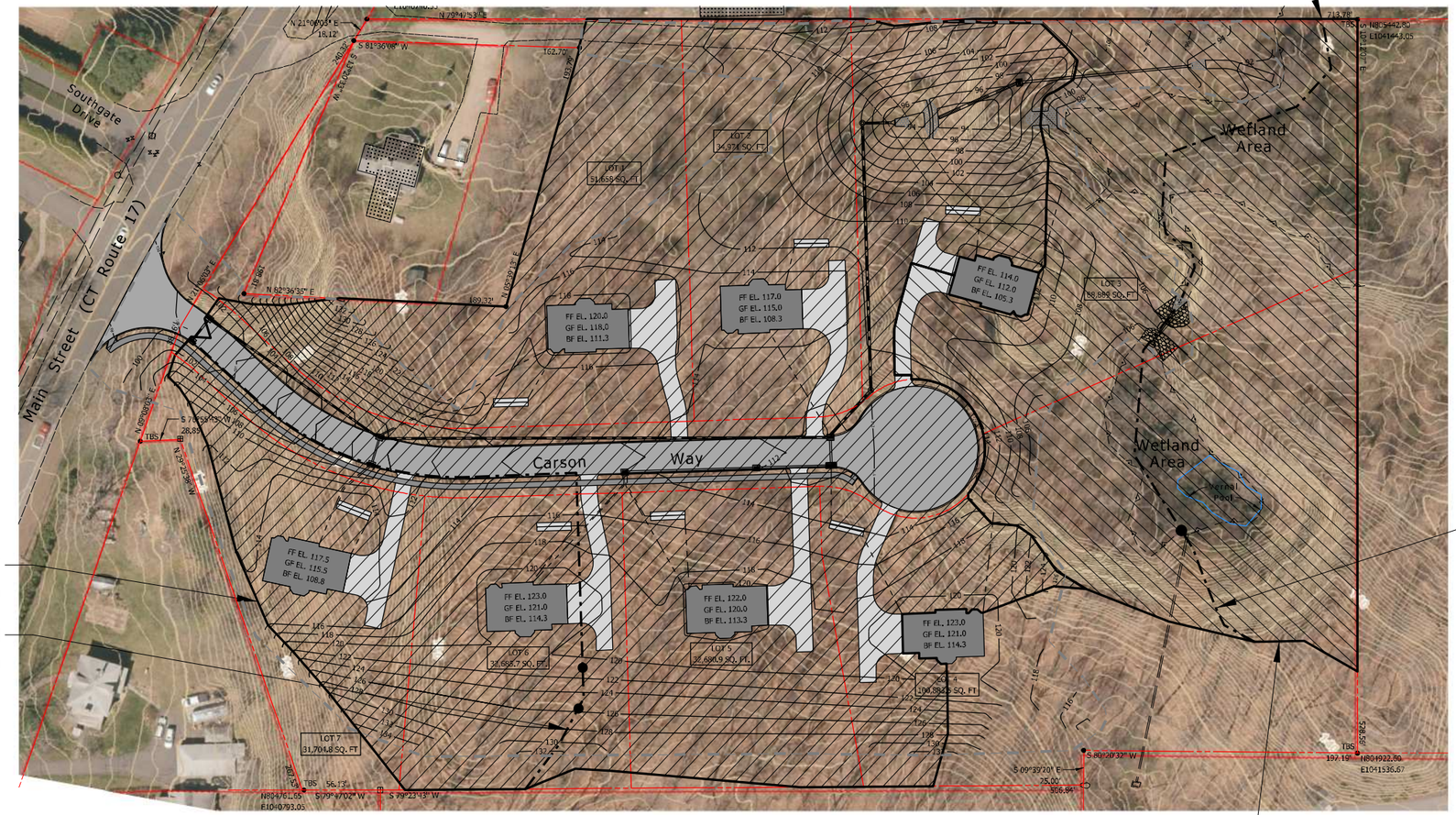
ANALYSIS POINT




WATERSHED BOUNDARY FOR STORMWATER POND

FLOW PATH (STORMWATER POND)

FLOW PATH (BYPASS AREA)

WATERSHED BOUNDARY FOR STORMWATER POND BYPASS AREA

CT Grid North NAD 83

# PLAN

SCALE: 1"=100'

# PROPOSED WATERSHED MAP


WOLFF ENGINEERING

*CIVIL & STRUCTURAL ENGINEERING*

CORNERSTONE PROFESSIONAL PARK, SUITE C101

39 SHERMAN HILL ROAD, WOODBURY, CT 06798

TEL.: 203.263.7447 FAX: 203.263.0060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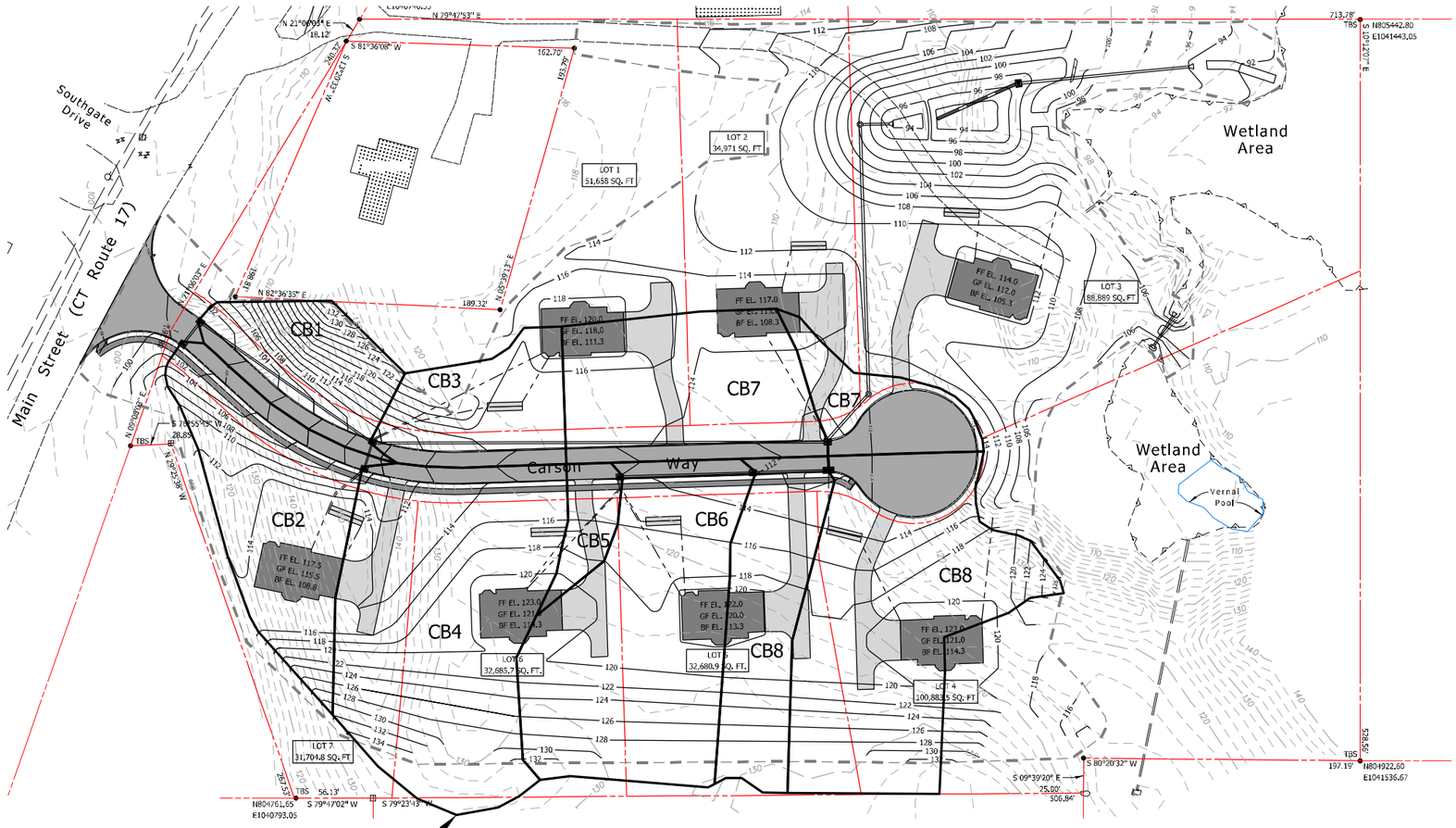


# PLAN

SCALE: 1"=100'

## CATCHBASIN WATERSHED MAP


WOLFF ENGINEERING

*CIVIL & STRUCTURAL ENGINEERING*

CORNERSTONE PROFESSIONAL PARK, SUITE C101
39 SHERMAN HILL ROAD, WOODBURY, CT 06798
TEL.: 203.263.7447 FAX: 203.263.0060


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Town of Glastonbury Engineering Division
Subdivision Plan Review Checklist

| PROJECT INFORMATION | |
|---|---|
| Approval Type: | (Subdivision) PAD ARZ Other: |
| Design Engineer Firm: | WOLFF ENGINEERING 39 Sherman Hill Road Woodbury, CT 06798 |
| Project Name: | Proposed 7 lot subdivision at 1040 Main Street |
| Project Address: | 1040 Main Street |
| Submittal Date: | 5/27/2021 |
| Review Date: | |
| Reviewed By: | |

| | GENERAL PLAN CHECKLIST |
|---|---|
| ☑ | Maps prepared in accordance with the "Minimum Standards for Surveys and Maps in the State of Connecticut" as adopted by the Connecticut Association of Land Surveyors, Inc. on September 26, 1996, as amended. |
| ☑ | Coordinate System Identified (NAD 83, NAVD 88 required) |
| ☑ | Label NAD83 coordinates and identify control points and bench marks |
| ☑ | Location Plan (1" = 1000', including outline of property or site area) |
| ☑ | North Arrow, Plan Scale, Date |
| ☑ | Sealed by a CT Licensed Land Surveyor or Professional Engineer as Applicable |
| ☑ | Note indicating Contractor requirement to "Call-Before-You-Dig" prior to any construction |
| ☑ | Complete legend identifying existing and proposed features |
| ☑ | Town Approval block included on all sheets to be filed |
| ☑ | Separate sheet included in plan set for Town approval motions and Department review memos |
| ☐ | Parcel boundary closure check performed by Engineering |
| ☐ | Addresses assigned to any newly created or combined parcels |
| ☐ | Street Names identified for private roads or private drives to be named for addressing purposes |
| ☑ | Standard Inspection Note on all applicable sheets stating:<br>NOTE:<br>THE CONTRACTOR SHALL NOTIFY THE TOWN OF GLASTONBURY ENGINEERING DIVISION 24 HOURS PRIOR TO BEGINNING ANY STORM DRAINAGE, SANITARY SEWER INSTALLATION, ROADWAY PREPARATION, PAVING, SIDEWALK, CURBING, OR ANY EXCAVATION IN THE TOWN RIGHT-OF-WAY TO SCHEDULE INSPECTIONS. THE DIVISION CAN BE REACHED BETWEEN 8:00 AM-4:30 PM MONDAY THRU FRIDAY AT (860) 652-7735. |

| SUBDIVISION PLAN CHECKLIST | |
|---|---|
| | **a. General Information** |
| ✔ | Title Box as per Office of Community Development |
| ✔ | Sheet Index Map (Title Page) including location map |
| ✔ | Name of Subdivision |
| ✔ | Name of Applicant |
| ✔ | Date of Map and Map number or identification |
| ✔ | Certification by a CT Licensed Land Surveyor that map confirms to A2 survey |
| ✔ | Surveyor statement: “The Subdivision Regulations of the Town of Glastonbury, Town Plan and Zoning Commission are part of this plan and approval of this plan is contingent on compliance with all requirements of the said Subdivision Regulations.” |
| ✔ | Lot lines and overall boundary survey to accuracy of a one one-hundredth of a foot. |
| | **b. Specific Information** |
| ✔ | Zone of parcel and abutting property. |
| ✔ | Names and owners of property and abutters at time of application |
| ✔ | Lots appropriately numbered. |
| ✔ | Size of overall parcel, and size of lots in square feet and acres.. |
| ✔ | Proposed building Lines |
| ✔ | Existing and Proposed Streets |
| ✔ | Ends of street closed by bearing and distance. Curves along right-of-way dimensioned by length, radius, tangent, and delta. |
| ✔ | Existing and proposed pins, monuments (ROW and Open Space) and conservation easement markers. |
| N/A | Rights-of-way reserved for future streets |
| ✔ | Street Names (existing and proposed) |
| ✔ | Existing and Proposed Easements and Rights-of-way with ownership. |
| ✔ | NAD 83 coordinates labeled at four points on the subdivision perimeter |
| | **c. other information** |
| | Subdivision parcel closure checked by Engineering Department |
| | |

| SUBDIVISION SITE DEVELOPMENT PLAN (TOPOGRAPHIC MAP) CHECKLIST | |
|---|---|
| | **a. General Information:** |
| ✔ | Title Box as per Office of Community Development |
| ✔ | Name of Subdivision |
| ✔ | Name of Applicant |
| ✔ | Date of Map and Map number or identification |
| ✔ | Plans certified by CT Licensed Land Surveyor and Professional Engineer |
| | |
| | **b. Specific Information:** |
| ✔ | Contours at 2 foot intervals (or 0.5 foot intervals in Flood Zone areas) with spot elevations at highpoints and depressions, based on NAVD 1988. *(Include a minimum of two (2) benchmarks per sheet based on NAVD 1988. Depict grading for the entire site.)* |
| ✔ | Source of topography noted on plan (field survey, town aerial photogrammetry, etc). Confirm that field survey meets minimum requirements of subdivision regulations. |
| ✔ | Locations and elevations of existing sanitary sewer *(including all bends, manholes and appurtenances with pipe sizes, slopes, materials and invert elevations within structure* |
| | If no sewers: available, test pit locations, boring data, percolation test data, existing soil classification, and locations of leach fields on site and within 150' of property lines (or 75 feet per Health Director) |
| ✔ | Location of existing and proposed water and/or gas mains, public or private hydrants, and community wells |
| N/A | Location of existing and proposed wells, within 150' of property lines (or 75 feet per Health Director) |
| ✔ | Existing and proposed storm drainage facilities, including structure types, pipe size, slopes, materials, invert elevations, and connections to existing drainage systems, wetlands or watercourses. Underdrains where appropriate. *(RCP only in Right of Way, Cleanouts for underdrains at 150 foot intervals)* |
| ✔ | Existing building and historical landmarks including stone walls *(Note items to be protected or demolished)* |
| ✔ | Significant natural and scenic resources |
| ✔ | Watercourses (with flow direction), ponds, and wetlands and associated upland review area with soil scientist certification. |
| ✔ | Location of trees to be saved or planted |
| ✔ | Proposed limits of clearing, with specimen trees noted for protection |
| ✔ | Proposed grades throughout site, highlighting slopes greater than 20%. |
| ✔ | Designated building areas with proposed driveway locations, limits of clearing, and approximate grading. |
| ✔ | Existing driveways on neighboring properties within 100' of the property lines. |
| N/A | FEMA 1% Annual Chance Flood Zone Limits(derived from Flood Profile Data, as applicable) |
| | |

| | |
|---|---|
| ✔ | Relationship of existing and proposed road layouts, drainage and utility systems, wetlands, watercourses, conservation easements, public and private easements and rights-of-ways, and open space within the subdivision and on adjacent land. |
| ✔ | Significant geological features such as eskers, kames, kettles, etc. |
| ✔ | Limits of earth cuts and fills |
| | **c. Soil Erosion and Sediment Control** |
| ✔ | Soil Erosion and Sediment Control measures per the 2002 E&S Guidelines incorporated into site development plans unless separate plans directed by Environmental Planner. (including narrative, area of disturbance in acres, phasing as required, construction entrance, silt fence, sediment basins, etc) |
| | Obtain CT DEEP Construction General Permit for projects that disturb 5 acres or more. |
| | |
| | **d. Other Items** |
| ✔ | Proposed building elevations for top of foundation wall, garage, first floor and basement |
| N/A | Identification of proposed basements requiring sump pumps |
| ✔ | Proposed foundation drains showing invert levels indicating gravity flow (piped discharges into the public right-of-way are prohibited by ordinance ) |
| ✔ | Proposed roof leaders with infiltration systems and overflow |
| ✔ | Rear yard drainage appropriately addressed. Confirm no concentrated discharge on to abutting private property. |
| N/A | Retaining walls with top and bottom of walls elevations noted. Confirm no grading or construction impacts on to abutting private property. |
| ✔ | Sight line adequate at proposed driveway locations |
| ✔ | Traffic control devices, pavement markings and signs |
| N/A | Rear Lot Drives widths (16 feet for 1 or 2 lots, 20 feet for 3 lots). Paved driveway for 8% slope or greater, not to exceed 15% grade |
| N/A | Guide rail and protective fencing as required for grading |
| ✔ | Sidewalks and sidewalk ramps **Sidewalks continuous through driveways, check for current Town details** |
| ✔ | Plantings minimum 10 feet away from sidewalks to avoid root intrusion, minimize plant obstruction complaints |
| | |

| | SUBDIVISION CONSTRUCTION PLAN (ROAD PLAN AND PROFILE) CHECKLIST |
|---|---|
| | **a. General Information:** |
| ✔ | Title Box as per Office of Community Development |
| ✔ | Name of Subdivision |
| ✔ | Name of Applicant |
| ✔ | Date of Map and Map number or identification |
| ✔ | Note stating “All construction shall be in accordance with Town of Glastonbury Specifications or as approved by the Town Engineer” |
| | **b. Roadway Plan and Profile:** |
| ✔ | Plan scale 1” = 40’, certified by a CT Licensed Professional Engineer |
| ✔ | Existing building and all property lines within fifty (50) feet of the edge of any rights-of-way or limit of construction |
| ✔ | Existing and proposed streets with stationing noted at all points of curves, points of tangent, and high or low points |
| ✔ | Confirm horizontal curves conform to required design speed |
| ✔ | Storm drainage pipes and structures. Elevations shall be shown for tops of frames, inverts, and flow lines of all structures. |
| ✔ | Sanitary sewer pipes and structures. Elevations shall be shown for tops of frames, inverts, and flow lines of all structures. |
| ✔ | Location, width, and type of all existing and proposed sidewalks |
| ✔ | Existing utility corridors subject to the availability of documented “asbuilt” data. Proposed utility corridors by locations or note on the plans. |
| ✔ | Limits of construction |
| | **c. Roadway Profile:** |
| ✔ | Scale 1” = 40’ horizontal, 1” = 4’ vertical, certified by a CT Licensed Professional Engineer |
| ✔ | Existing profile based on actual field elevations and proposed profile along the centerline of all proposed streets *(label grades at 50 foot intervals max)* |
| ✔ | Existing and proposed profiles along centerline of all storm drainage and sanitary sewer located outside of street right-of-way (label grades at 50’ intervals max) |
| ✔ | Roadway: percent grade, elevations at all points of vertical curve and tangent, high and low point elevations, curve length, along proposed street centerline. *(Vertical curve SSD also required by Public Improvement Standards)* |
| ✔ | Confirm vertical geometry conforms to required design speed. |
| ✔ | Storm Drainage, underdrains, and sanitary sewers: Percent grade, size, type and class of pipe, and structure locations and stationing *(RCP only in Right-of-way, cleanouts for under drains at 150’ intervals)* |

| | |
|---|---|
| | **d. Intersection Grading Plan:** |
| ✔ | Intersection grading plans shall be provided at a scale of 1" = 20', 0.5' contour interval max (at the discretion of the TPZ or Town Engineer). |
| | **e. Roadway Cross Sections:** |
| ✔ | Cross sections at a scale of 1"=5' or 1" = 10' provided at 50 foot intervals for all proposed and reconstructed streets having cuts or fills greater than 4 feet (at the discretion of TPZ or Town Engineer). |
| | **f. Other requirements (Per Public Improvement Standards):** |
| ✔ | Check horizontal sight distance for curves, identify need for sight-line easements |
| ✔ | Label Stopping Sight Distance for vertical curves |
| ✔ | Station equation and centerline elevations at proposed intersections |
| ✔ | Limits of sawcut and pavement removal for connection to existing roads |
| ✔ | Typical cross-section of the street in accordance with the Public Improvement Standards (confirm width, ROW, pavement depth) |
| | Soil boring data that adequately depicts existing subsurface conditions (when requested by Town staff or the Commission) |
| ✔ | Cul-de-sac radii per Town Standards (55 foot ROW, 45 foot pavement) |
| ✔ | Cape cod curb specified in the cul-de-sacs |
| | Roadway profile grades at intersection maximum of 3% for minimum 100 feet |
| ✔ | Traffic control devices, pavement markings and signs. Street Name sign, Stop sign, Stop Bar |
| ✔ | Proposed sidewalks (1' in front of street line) and sidewalk ramps<br>*Sidewalks must be continuous through driveways* |
| | Limits of proposed underdrains (with cleanouts at 150' intervals)<br>*Include note: "Underdrains shall be installed to address wet conditions as directed by Town Engineer"* |
| N/A | Cross-sections and profiles of all drainage ditches and channels |
| N/A | Guide rail and other protective fencing<br>*Include note: "Guiderail shall be installed within 60 days of binder course paving."* |
| N/A | Detailed Grading Plan at a scale not to exceed 1" = 10' for removal of existing cul-de-sac |
| N/A | Location of proposed streetlights as applicable |
| | Quantity Estimate Submitted by Design Engineer for Bond |

| STORMWATER MANAGEMENT REPORT CHECKLIST | |
|---|---|
| ✔ | Report signed by CT Licensed Professional Engineer |
| ✔ | Narrative summarizing the proposed project, design methods used, and table of pre- and post–development flows at appropriate downstream locations showing zero net increase in runoff from the site for the 2, 10, 25, 50 and 100-year storm events. Summarize WQV required for the project area and the WQV retained by the proposed improvements. |
| ✔ | Hydrographs and calculations identifying peak runoff, velocities and timing of peak flows from the site at critical locations in the watershed as outlined in the CTDOT Drainage Manual, latest revision. Supporting information for the drainage analysis including, but not limited to, runoff coefficients, time of concentration flow paths, drywell design, etc. |
| ✔ | Confirm use of SCS hydrology methods for proposed detention, including latest NOAA Rainfall rates and Type III rainfall distribution. |
| N/A | Inventory and evaluation of hydraulic structures both on-site and in the downstream zone of influence (as defined in the Public Improvement Standards) to identify flow capacity, pipe velocities, hydraulic grade line elevations and physical condition |
| N/A | Identification of drainage structures and watercourses that are inadequate for existing or future conditions |
| ✔ | Hydraulic grade line computations for enclosed drainage systems indicating a minimum headwater clearance of one (1) below top of frame for existing and proposed structures. |
| ✔ | Detention basin design information that includes stage-storage-discharge curves or tables, outlet control data, flood routing calculations, subsurface conditions and maximum water surface elevations |
| ✔ | Outlet protection, riprap sizing, channel sizing, and channel lining calculations |
| ✔ | Gutter flow analysis and ponding calculations for low points (when requested by the Town Engineer) |
| ✔ | Plans with scale not to exceed 1" = 100' identifying topography, watershed boundaries (for overall site and storm drainage structures), soil types, land use characteristics and time of concentration flow paths with design points and labels corresponding to the drainage calculations for pre- and post-development conditions |
| N/A | Plans with 100-year flood limits derived from Flood Profile data provided in the latest version of the FEMA Flood Insurance Study (if applicable), inland wetland boundaries, and groundwater protection zones within the project limits |
| ✔ | Computations of the <u>required</u> Water Quality Volume (WQV) to be retained on site for the project area and for the area draining to each proposed treatment system, include pre and post development impervious area and directly connected impervious area (DCIA). For redevelopment of sites that are currently developed with DCIA of 40% or more, **one-half of the WQV** from the site must be retained, **for all other sites the full WQV must be retained**.) |
| ✔ | Computations of the WQV <u>actually retained</u> by the proposed treatment system(s). NOTE: Only storage below the low-flow orifice of an outlet control structure can be considered retained for computation of the WQV. Slow release of the WQV over a 24 to 48 hour period via infiltration or a small diameter orifice will also be considered as retained for the purposes of these computations. |
| | WQV surface elevations clearly labeled and depicted on appropriate cross sections and details within the plan set. WQV retained by each proposed treatment system labeled on the plans. |
| | Town of Glastonbury MS4 DCIA tracking table accurately filled out and affixed to the site plan and/or drainage plan sheets within the plan set. |
| | |

| STORM DRAINAGE CHECKLIST | |
|---|---|
| ✔ | Plans certified by CT Licensed Professional Engineer |
| ✔ | Existing and proposed storm drainage facilities, including structure types, pipe size, slopes, materials, invert elevations, and connections to existing drainage systems, wetlands or watercourses |
| ✔ | Outlet protection properly detailed, labeled with length, width, depth, type of riprap, geotextile, etc. |
| ✔ | RCP only within Town right-of-way. Minimum pipe size 15", or 18" for cross culverts |
| ✔ | Water Quality Volume treatment measures in compliance with Town Standards and the Town MS4 Permit. |
| | Maintenance plan and schedule for all public and private stormwater management facilities **including party responsible for maintenance** shown on the site plan or utility plan as applicable |
| ✔ | Deep sump catch basins for water quality where applicable. 2' sump for detention basin outlet structures. |
| | Sedimentation structures per Town Standards, installed in off-line configuration |
| ✔ | Channels and swales properly sized, lining specified and computed |
| ✔ | Appropriate drainage easement for Town facilities |
| ✔ | Bolted covers noted for off-road public storm drainage manholes |
| | Appropriate details for non-standard structures |
| ✔ | No concentrated stormwater discharges to neighboring properties or public roadway |
| ✔ | Infiltration or subsurface detention facilities properly sized per drainage computations. Include overflow to town system where possible, inspection ports for maintenance, above groundwater elevation per test pits. |
| ✔ | Confirm detention facility outlet structure details match drainage computations |
| | Test pit data shown on plan for infiltration and subsurface detention systems |

| TOWN DETENTION BASIN CHECKLIST | |
|---|---|
| | Outer pond berm located minimum 100 feet from nearest designated residential building area |
| ✔ | Forebay sized for WQV (use stone filter berm) |
| | Bottom sloped at 1% toward outlet, Side slopes 4:1 or flatter for ease of maintenance |
| ✔ | Underdrain to ensure complete emptying of basin in 48 hours |
| ✔ | Emergency spillway sized properly with stable discharge point |
| ✔ | 2 foot sump on outlet structure. Outlet structure details consistent with drainage computations |
| ✔ | Storm elevations depicted on plan and cross section |
| ✔ | Cross sections of the embankment and spillway |
| ✔ | 12' maintenance access road to forebay and outlet structure per Town Standards |
| N/A | DEEP DAM registration for when over 20 feet deep or 50 acre-ft of storage |

| SANITARY SEWER CHECKLIST | |
|---|---|
| ✔ | Plans certified by CT Licensed Land Surveyor and Professional Engineer |
| ✔ | Existing and proposed sanitary sewer facilities, including all bends, manholes, appurtenances with pipe sizes, slopes, materials and invert elevations within structures |
| N/A | Existing sewer laterals identified properly per record drawings |
| ✔ | Minimum cover 4 feet for public sewer |
| N/A | Sewer laterals properly designed and specified per Town Standards (6-inch PVC minimum, cleanouts as required) |
| N/A | Sampling manhole provided for all commercial and industrial buildings at street line (unless lateral connects directly to an existing manhole) |
| N/A | Grease Trap or AGRU for Class III or IV Food Service Establishments (FOG Requirements) |
| N/A | 75 foot separation of pump chamber, septic tanks, or grease trap from wells |
| N/A | Appropriate sewer easement for Town facilities (25 foot wide). Must provide access to all structures with load bearing surface, grade of 15% or less. Consider need for construction easements. |
| N/A | Bolted covers noted for off-road public sewer manholes |
| N/A | Appropriate details for non-standard structures. |