Stormwater Management Report

Broadway Auto Sales

Tax Map 10 Lot 109
6 Dickey Street
Londonderry, NH 03038

Date:

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Prepared for:

Leon & Tamara Lampes
6 Dickey Street
Londonderry, NH 03038

TFM #: 18301.00

Prepared by:

TFM®
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

48 Constitution Drive, Bedford, NH 03110
Tel: (603) 472-4488 **Fax**: (603) 472-9747
www.tfmoran.com

Broadway Auto Sales
6 Dickey Street, Londonderry NH 03038

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Executive Summary

Broadway Auto Sales is proposing to rehabilitate the existing vehicle storage area with associated site improvements such as expanded paved parking and a stormwater management area. The subject parcel is identified as Tax Map 10 Lot 109 and is located at 6 Dickey Street in Londonderry, NH.

The existing lot is a total of 0.41± acres of which approximately 0.32± acres will be disturbed as part of the proposed development. Existing topography in the proposed area of work reflects a minimal to moderate elevational change from an approximate elevation of 310 in the center of the property to an approximate elevation of 306 in the southern corner of the property (4-feet of grade change over 5 lineal feet). No wetlands were identified on the subject property.

Existing drainage flow paths will be maintained throughout the site. An open drainage system is proposed to attenuate, convey, and treat runoff from the proposed development. Porous pavement will provide treatment and manage runoff generated from the site.

The systems have been designed to maintain peak flows and volumes during all storm conditions up to and including the 100-year storm event.

- Best Management Practices are proposed to manage stormwater from the development and provide treatment, groundwater recharge and maintain existing flow rates leaving the site.
    - Twenty (20) 5'x4'x6" porous pavement sections will collect and recharge stormwater from proposed impervious surfaces on the site. The proposed filter beds installed underneath the porous pavement sections remove pollutants, reduce the peak rates of flow, and flow volume by capturing and infiltrating stormwater. The stormwater receives treatment as it percolates through the filter beds before the stormwater infiltrates into the native soils below the filter beds. Groundwater recharge is achieved through infiltration into the native soils below the filter beds.
- The Water Quality Volume (WQV) has been met by providing the required storage below the surface elevation at the top of the porous pavement sections.

Description of Project

The proposed development is the rehabilitation of an existing vehicle storage area with associated site improvements such as repaved driveway entrance, site grading, and stormwater management area. The site subject parcel is identified on the Town of Londonderry's Tax Cards as Tax Map 10 Lot 109 (approximately 0.41 acres) and is within the Commercial II (C-II) zoning district. The site is abutted by Dickey Street to the northeast, developed C-II lots to the northwest and southeast, and an undeveloped C-II lot to the southwest.

The existing lot is a total of 0.41± acres of which approximately 0.32± acres will be disturbed as part of the proposed development.

The existing conditions of Tax Map 10 Lot 109 consist of the existing Broadway Auto Sales car wholesale dealership. Existing topography in the proposed area of work reflects a minimal to moderate elevational change from an approximate elevation of 310 in the center of the property to an approximate elevation of 306 in the southern corner of the property (4-feet of grade change over 5 lineal feet). No wetlands were identified on the subject property.

Existing drainage flow paths will be maintained throughout the site. An open drainage system is proposed to attenuate, convey, and treat runoff from the proposed development. Porous pavement will provide treatment and manage runoff generated from the site.

Town Site Plan Approval will be required for the proposed site development.

The objectives for the post-development drainage design are to use best management practices to attenuate flows, provide treatment of stormwater runoff and maintain groundwater recharge. Recharge of stormwater will take place on the northwestern portion of the property utilizing porous pavement area.

The intent of this report is: 1) to analyze the rate of runoff from the site for the pre- and post-development conditions. The drainage system will be designed to maintain the current peak rate of runoff from the site, and 2) to provide stormwater treatment and recharge for the runoff from the development prior to discharging runoff from the site in accordance with the requirements of NHDES Alteration of Terrain and the Town of Londonderry.

Storm Water Methodology

Pre-Development Conditions

Based on the existing topography, four (4) subcatchments and four (4) points of interest have been identified. The points of interest (POI) were defined by abutting parcels and Right-of-Ways (ROW). POI-A represents the runoff exiting the site towards Dickey Street. POI-B represents the runoff exiting the site towards Tax Map 10 Lot 108. POI-C represents the runoff exiting the site towards Tax Map 10 Lot 121. POI-D represents the runoff exiting the site towards Tax Map 10 Lot 110.

United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) was used to determine on-site soil types. This mapping resulted in hydrologic soil group (HSG) type A soils.

To model the site drainage, the HydroCAD Version 10.20-5c program has been used. The software is based on the SCS TR-20 technique used for modeling the hydrology and hydraulics of storm water runoff. The 2-year, 10-year, 25-year, 50-year, and 100-year storm-events are included per the requirements of the NHDES AoT and Town of Londonderry.

Rainfall amounts were obtained from the Northeast Regional Climate Center and NRCS Storm Type-III was utilized for the HydroCAD Analysis. An Extreme Precipitation Table has been provided in Section 2 of this Report.

Post-Development Conditions

Based on the proposed topography, five (5) subcatchments have been identified. All pre-development points of interest have been analyzed in the post-development conditions. After design of the site, POI-A, POI-B, POI-C, POI-D. and abutters at POI 10-105 and POI 10 -106 remain unaffected from the proposed development.

All stormwater runoff generated internal of the site will be directed towards the porous pavement area which has been strategically located in an existing low-point of the property. Stormwater runoff directed to the porous pavement area will receive treatment prior to infiltration. Twenty (20) 5’x4’x6” porous pavement sections will be located in the northwestern portion of the property in an area that was formerly a gravel driveway into the site. The proposed location of the drainage practice will accommodate vehicle storage for cars and trucks to be sold at an appointment-only basis. Stormwater runoff generated in areas outside of the vehicle storage area will maintain the existing flowpaths prior to development.

The objectives for the post-development drainage design are to use best management practices to attenuate the flow, provide treatment to collected stormwater and maintain groundwater recharge.

There is no proposed increase in discharge from the site up to and including the 100-year storm event.

Groundwater Recharge

The required GRV for the HSG A soils which have been replaced by impervious cover per AoT regulations has been provided within the porous pavement area. Supporting calculations have been provided on the GRV and Best Management Practices (BMP) Worksheet, Section 3 of this Report.

Stormwater Treatment

Best Management Practices are proposed to manage the stormwater from the development and provide treatment, groundwater recharge and maintain existing flow rates leaving the site.

The proposed porous pavement sections are designed to maintain existing recharge rates and to preserve groundwater levels. Pollutant removal is achieved as stormwater percolates through the filter bed installed underneath the porous pavement sections.

The Water Quality Volume (WQV) is fully detained within the proposed porous pavement area providing the storm water treatment.

Test pits and infiltration testing were performed as part of the project design to identify Estimated Seasonal High-Water Table (ESHWT) and subgrade infiltration rates. The infiltration rate within the proposed location of the porous pavement area measured to be 20 inches per hour. After applying a factor of safety of 2, the infiltration rates used in these calculations are 10in/hr.

Frozen Conditions

The below table illustrates that the peak rates of runoff will be mitigated at locations where stormwater leaves the property in post-development condition to not create an adverse impact on abutters or downstream interests in frozen conditions (no infiltration).

Table 1: POI – D
50-Year -Pre- to Post-development Frozen Conditions Peak Rate Flows (CFS)

Storm Event	Pre (cfs)	Post (cfs)
50-Year	0.51	0.26

Erosion Control Measures

Erosion Control Measures are found on the Site Preparation and Demolition Plan within the plan set. The erosion control and construction sequence notes on the “Site Preparation Details” sheet contains specifications for stabilizing disturbed areas and limiting the length of time these areas are exposed.

Temporary Erosion Control Measures

Silt sock and/or mulch berms are proposed along the edges and downslope of site work to prevent sediment from discharging from the project area. A stabilized construction entrance is proposed to prevent sediment from being tracked onto the Dickey Street during construction.

Permanent Erosion Control Measures

An open drainage system is proposed on the site to capture and infiltrate stormwater runoff from the project. Areas disturbed during construction which will not be impervious in post-development conditions will be loamed and seeded to restore the areas upon completion of construction.

Flood Protection

Examination of the Flood Insurance Rate Map for Rockingham County New Hampshire (All Jurisdictions), Map Numbered 33015C0339E, Effective Date: May 17, 2005, indicates no portion of the project is located within the floodplain.

Conclusion

Peak Rate Flows

There is no increase in the peak rate of runoff or in stormwater volumes at the discharge points from this project site.

Flow (cfs):

POI	2-YR		10-YR		25-YR		50-YR		100-YR	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
A	0.04	0.02	0.13	0.13	0.21	0.20	0.29	0.28	0.39	0.38
B	0.03	0.00	0. 096	0.00	0.16	0.00	0.323	0.01	0.31	0.02
C	0.03	0.00	0.13	0.01	0.14	0.02	0.35	0.06	0.49	0.11
D	0.00	0.00	0.13	0.00	0.37	0.01	0.51	0.08	0.68	0.13
10-105	0	0	0	0	0	0	0	0	0	0
10-106	0	0	0	0	0	0	0	0	0	0

Volume (cf):

POI	2-YR		10-YR		25-YR		50-YR		100-YR	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
A	170	162	425	301	665	495	909	696	1,220	958
B	132	0	356	7	573	32	796	72	1,084	135
C	155	3	473	59	794	144	1,153	248	1,573	399
D	0	0	760	15	1,179	51	1,603	323	2,142	750
10-105	0	0	0	0	0	0	0	0	0	0
10-106	0	0	0	0	0	0	0	0	0	0

Treatment

The proposed porous pavement sections have been designed to provide adequate treatment via porous pavement with subsurface infiltration of stormwater runoff associated with the proposed development.

USGS Map

Legend

- State
- County
- City/Town
- World_Street_Map

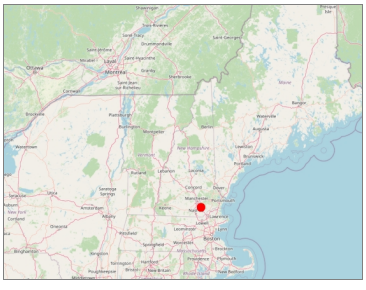
Map Scale

1: 5,000

Map Generated: 8/22/2025

Notes

Prepared by: TFMoran, Inc.



Aerial Map

Legend

- State
- County
- City/Town
- World Imagery
- Low Resolution 15m Imager
- High Resolution 60cm Image
- High Resolution 30cm Image
- Citations
- 2.4m Resolution Metadata

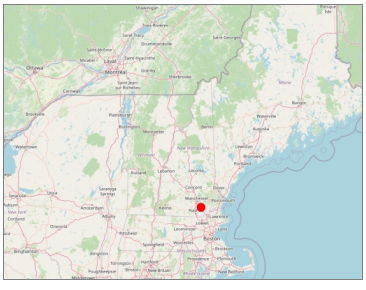
Map Scale

1: 5,000

Map Generated: 8/22/2025

Notes

Prepared by: TFMoran, Inc.



Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

Name and Number and/or Project Title: Broadway Auto Sales 6 Dickey Street, Londonderry, NH 03053	
PHOTO LOG	
Photo #	Photo Location and description
1	Dickey Street. Looking west towards the southern site entrance and existing building. (8/6/2025)
2	Dickey Street. Looking west towards the northern site entrance and Tax Map 10 Lot 110. (8/6/2025)
3	Dickey Street. Looking southwest down the northern site entrance. (8/6/2025)
4	Northern site entrance. Looking south towards the vehicle storage area. (8/6/2025)
5	Vehicle storage area. Looking southeast within the vehicle storage area. (8/6/2025)
6	Vehicle storage area. Looking southeast within the vehicle storage area. (8/6/2025)
7	Vehicle storage area. Looking east towards the existing house and southern site entrance. (8/6/2025)
8	Southern site entrance. Looking northeast towards Dickey Street. (8/6/2025)
9	GIS Aerial Imagery of Tax Map 10, Lot 109 (shown in blue).

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Photo 1

Dickey Street. Looking west towards the southern site entrance and existing building. (8/6/2025)

Photo 2

Dickey Street. Looking west towards the northern site entrance and Tax Map 10 Lot 110. (8/6/2025)

Photo 3

Dickey Street. Looking southwest down the northern site entrance. (8/6/2025)

Photo 4

Northern site entrance. Looking south towards the vehicle storage area. (8/6/2025)

Photo 5

Vehicle storage area. Looking southeast within the vehicle storage area. (8/6/2025)

Photo 6

Vehicle storage area. Looking southeast within the vehicle storage area. (8/6/2025)

Photo 7

Vehicle storage area. Looking east towards the existing house and southern site entrance. (8/6/2025)

Photo 8

Southern site entrance. Looking northeast towards Dickey Street. (8/6/2025)

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Photo 11

GIS Aerial Imagery of Tax Map 10, Lot 109 (shown in blue).

Custom Soil Resource Report
Soil Map

Map Scale: 1:590 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 5 10 20 30

Feet
0 25 50 100 150

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

United States Department of Agriculture

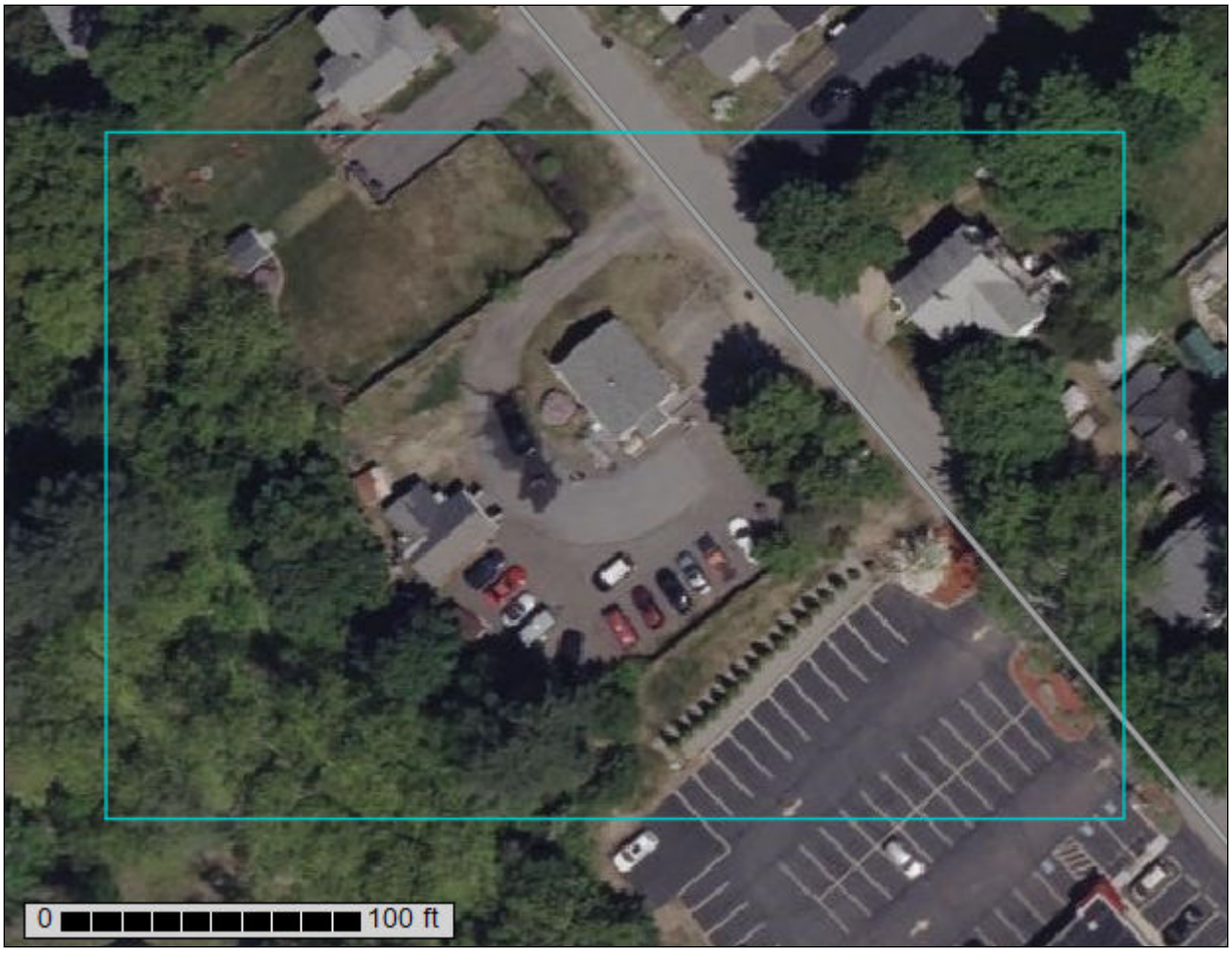
NRCS

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 Rockingham County, New Hampshire

18301-00 Lampes - NRCS Soils Report



February 10, 2025

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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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: 1:590 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 5 10 20 30

Feet
0 25 50 100 150

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N 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 1:24,000.

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: Rockingham County, New Hampshire
Survey Area Data: Version 27, Sep 3, 2024

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

Date(s) aerial images were photographed: May 22, 2022—Jun 5, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
699	Urban land	0.1	2.8%
799	Urban land-Canton complex, 3 to 15 percent slopes	1.7	97.2%
Totals for Area of Interest		**1.8**	**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.

Rockingham County, New Hampshire

699—Urban land

Map Unit Composition

Urban land: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Minor Components

Not named

Percent of map unit: 15 percent
Hydric soil rating: No

799—Urban land-Canton complex, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9cq0
Elevation: 0 to 1,000 feet
Mean annual precipitation: 42 to 46 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 55 percent
Canton and similar soils: 20 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Parent material: Till

Typical profile

H1 - 0 to 5 inches: gravelly fine sandy loam
H2 - 5 to 21 inches: gravelly fine sandy loam
H3 - 21 to 60 inches: loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

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

Minor Components

Udorthents

Percent of map unit: 5 percent
Hydric soil rating: No

Boxford and eldridge

Percent of map unit: 4 percent
Hydric soil rating: No

Squamscott and scitico

Percent of map unit: 4 percent
Landform: Marine terraces
Hydric soil rating: Yes

Scituate and newfields

Percent of map unit: 4 percent
Hydric soil rating: No

Chatfield

Percent of map unit: 4 percent
Hydric soil rating: No

Walpole

Percent of map unit: 4 percent
Landform: Depressions
Hydric soil rating: Yes

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Extreme Precipitation in New York & New England

An Interactive Web Tool for Extreme Precipitation Analysis

About this Project | Data & Products | Daily Monitoring | Documentation

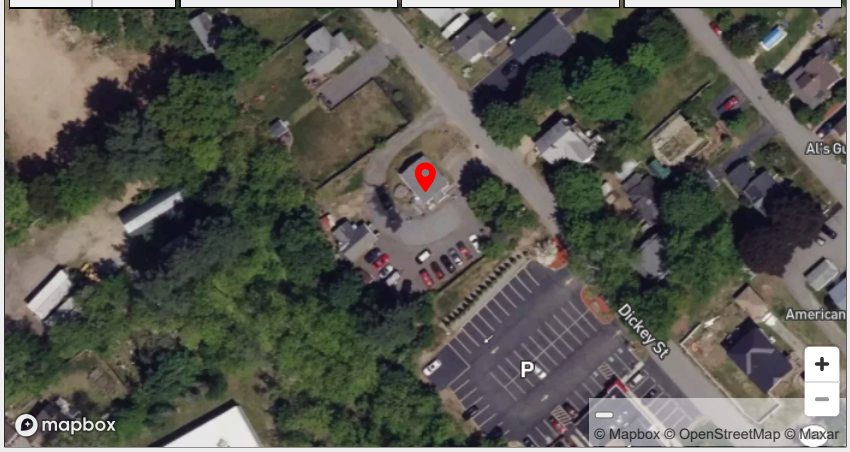
Select Product

- Extreme Precipitation Tables - HTML
- Extreme Precipitation Tables - Text/CSV
- Partial Duration Series - by Point
- Partial Duration Series - by Station
- Distribution Curves - Graphical
- Distribution Curves - Text/TBL
- Intensity Frequency Duration Graphs
- Precipitation Frequency Duration Graphs
- GIS Data Files
- Regional/State Maps

Select Location *Double-click map to place a marker, or enter address or latitude/longitude.*

Hybrid | Map | Satellite | Terrain

Locate by Address | Locate by Lat/Lon (42.87° N, -71.33° W) | Locate by State/County



Select Options

Smoothing: Yes

Delivery: Popup

Submit

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This project is a joint collaboration between:
Northeast Regional Climate Center (NRCC) | Natural Resources Conservation Service (NRCS)
Cornell University
Contact: precip@cornell.edu

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point

Smoothing	Yes
State	New Hampshire
Location	New Hampshire, United States
Latitude	42.876 degrees North
Longitude	71.336 degrees West
Elevation	90 feet
Date/Time	Mon Feb 10 2025 16:00:08 GMT-0500 (Eastern Standard Time)

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.27	0.41	0.51	0.67	0.84	1.05	**1yr**	0.72	1.00	1.22	1.54	1.95	2.47	2.69	**1yr**	2.19	2.59	3.01	3.68	4.28	**1yr**
2yr	0.33	0.50	0.63	0.83	1.04	1.31	**2yr**	0.89	1.19	1.51	1.89	2.36	2.96	3.28	**2yr**	2.62	3.15	3.66	4.36	4.96	**2yr**
5yr	0.39	0.60	0.75	1.01	1.29	1.64	**5yr**	1.11	1.49	1.91	2.39	3.00	3.75	4.19	**5yr**	3.32	4.03	4.65	5.50	6.21	**5yr**
10yr	0.43	0.68	0.86	1.17	1.52	1.96	**10yr**	1.32	1.77	2.28	2.87	3.60	4.48	5.04	**10yr**	3.97	4.85	5.58	6.54	7.36	**10yr**
25yr	0.51	0.82	1.04	1.43	1.90	2.46	**25yr**	1.64	2.21	2.88	3.64	4.57	5.68	6.44	**25yr**	5.03	6.19	7.10	8.25	9.22	**25yr**
50yr	0.57	0.92	1.19	1.66	2.25	2.95	**50yr**	1.94	2.62	3.46	4.39	5.49	6.80	7.76	**50yr**	6.02	7.46	8.52	9.84	10.94	**50yr**
100yr	0.66	1.07	1.38	1.96	2.67	3.51	**100yr**	2.30	3.11	4.14	5.25	6.57	8.15	9.35	**100yr**	7.21	8.99	10.24	11.74	12.98	**100yr**
200yr	0.75	1.23	1.59	2.29	3.16	4.20	**200yr**	2.73	3.69	4.96	6.30	7.89	9.76	11.28	**200yr**	8.64	10.85	12.30	14.01	15.41	**200yr**
500yr	0.91	1.50	1.95	2.83	3.96	5.29	**500yr**	3.42	4.63	6.27	7.99	10.02	12.41	14.46	**500yr**	10.98	13.90	15.70	17.71	19.36	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.35	0.43	0.57	0.71	0.86	**1yr**	0.61	0.84	1.09	1.36	1.64	2.18	2.54	**1yr**	1.93	2.44	2.71	3.15	3.84	**1yr**
2yr	0.31	0.48	0.59	0.80	0.99	1.18	**2yr**	0.86	1.15	1.35	1.78	2.26	2.82	3.14	**2yr**	2.49	3.02	3.52	4.20	4.77	**2yr**
5yr	0.36	0.55	0.69	0.94	1.20	1.41	**5yr**	1.03	1.38	1.59	2.07	2.64	3.48	3.73	**5yr**	3.08	3.59	4.18	5.03	5.66	**5yr**
10yr	0.40	0.61	0.75	1.05	1.36	1.60	**10yr**	1.18	1.56	1.81	2.33	2.96	4.00	4.22	**10yr**	3.54	4.06	4.77	5.76	6.38	**10yr**
25yr	0.45	0.69	0.86	1.23	1.62	1.87	**25yr**	1.39	1.83	2.14	2.72	3.44	4.82	4.96	**25yr**	4.26	4.77	5.69	6.91	7.53	**25yr**
50yr	0.50	0.76	0.95	1.36	1.83	2.12	**50yr**	1.58	2.07	2.42	3.07	3.86	5.53	5.63	**50yr**	4.90	5.41	6.52	7.95	8.44	**50yr**
100yr	0.56	0.84	1.06	1.53	2.10	2.39	**100yr**	1.81	2.34	2.75	3.46	4.35	5.45	6.37	**100yr**	4.83	6.12	7.49	9.15	9.46	**100yr**
200yr	0.62	0.93	1.18	1.71	2.39	2.70	**200yr**	2.06	2.64	3.11	3.90	4.90	6.06	7.50	**200yr**	5.37	7.22	8.61	10.55	10.57	**200yr**
500yr	0.72	1.07	1.38	2.00	2.85	3.16	**500yr**	2.46	3.09	3.68	4.58	5.74	6.95	8.96	**500yr**	6.15	8.61	10.40	12.78	12.24	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.30	0.46	0.57	0.76	0.94	1.09	**1yr**	0.81	1.07	1.23	1.63	2.07	2.74	2.85	**1yr**	2.43	2.74	3.38	4.12	4.79	**1yr**
2yr	0.34	0.52	0.64	0.87	1.08	1.28	**2yr**	0.93	1.25	1.45	1.89	2.42	3.13	3.50	**2yr**	2.77	3.36	3.85	4.58	5.27	**2yr**
5yr	0.42	0.65	0.80	1.10	1.40	1.63	**5yr**	1.21	1.60	1.87	2.40	3.04	4.05	4.69	**5yr**	3.59	4.51	5.12	6.01	6.81	**5yr**
10yr	0.51	0.78	0.97	1.35	1.74	1.99	**10yr**	1.50	1.94	2.27	2.88	3.64	5.02	5.91	**10yr**	4.44	5.68	6.39	7.43	8.40	**10yr**
25yr	0.65	0.99	1.23	1.76	2.32	2.58	**25yr**	2.00	2.53	2.94	3.67	4.59	6.69	8.05	**25yr**	5.92	7.74	8.55	9.82	11.00	**25yr**
50yr	0.78	1.19	1.48	2.13	2.87	3.16	**50yr**	2.48	3.09	3.58	4.41	5.49	8.31	10.18	**50yr**	7.35	9.79	10.64	12.12	13.57	**50yr**
100yr	0.95	1.44	1.80	2.61	3.57	3.86	**100yr**	3.08	3.77	4.36	5.30	6.55	11.55	12.86	**100yr**	10.22	12.36	13.23	14.97	16.77	**100yr**
200yr	1.15	1.73	2.20	3.18	4.43	4.72	**200yr**	3.83	4.61	5.32	6.37	7.83	14.61	15.90	**200yr**	12.93	15.29	16.45	18.49	20.75	**200yr**
500yr	1.49	2.22	2.86	4.15	5.90	6.17	**500yr**	5.09	6.03	6.92	8.14	9.93	19.99	21.61	**500yr**	17.69	20.78	21.94	24.45	27.52	**500yr**

Powered by ACIS Northeast Regional Climate Center

FILTRATION PRACTICE DESIGN CRITERIA
(Env-Wq 1508.07)

Type/Node Name: **Porous Pavement_ Rev 1 (Node 1P)**

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

Yes		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.19	ac	A = Area draining to the practice	
0.18	ac	A_I = Impervious area draining to the practice	
0.93	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.88	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.17	ac-in	WQV= 1" x Rv x A	
625	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
156	cf	25% x WQV (check calc for sediment forebay volume)	
469	cf	75% x WQV (check calc for surface sand filter volume)	
		Method of Pretreatment? (not required for clean or roof runoff)	
	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
Calculate time to drain if system IS NOT underdrained:			
400	sf	A_{SA} = Surface area of the practice	
10.00	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
		If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
n/a	Yes/No	(Use the calculations below)	
1.9	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
Calculate time to drain if system IS underdrained:			
	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
-	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
-	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	**≤ 72-hrs**
306.66	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
302.50	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
302.50	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
306.66	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	**≥ 1'**
4.16	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	**≥ 1'**
4.16	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	**≥ 1'**
308.92	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
308.66	ft	Elevation of the top of the practice	
NO		50 peak elevation ≤ Elevation of the top of the practice	**← yes**
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	**< 10 ac**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ 75%WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification.	
	Yes/No	Access grate provided?	**← yes**

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification	
	:1	Pond side slopes	**≥ 3:1**
Sheet		Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
Concrete		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
0.0	acres	A_{SA} = Surface area of the pervious pavement	
19.5	:1	Ratio of the contributing area to the pervious surface area	**≤ 5:1**
12.0	inches	D_{FC} = Filter course thickness	**12", or 18" if within GPA mod. 304.1 (see spec)**
Sheet	C-13	Note what sheet in the plan set contains the filter course spec.	

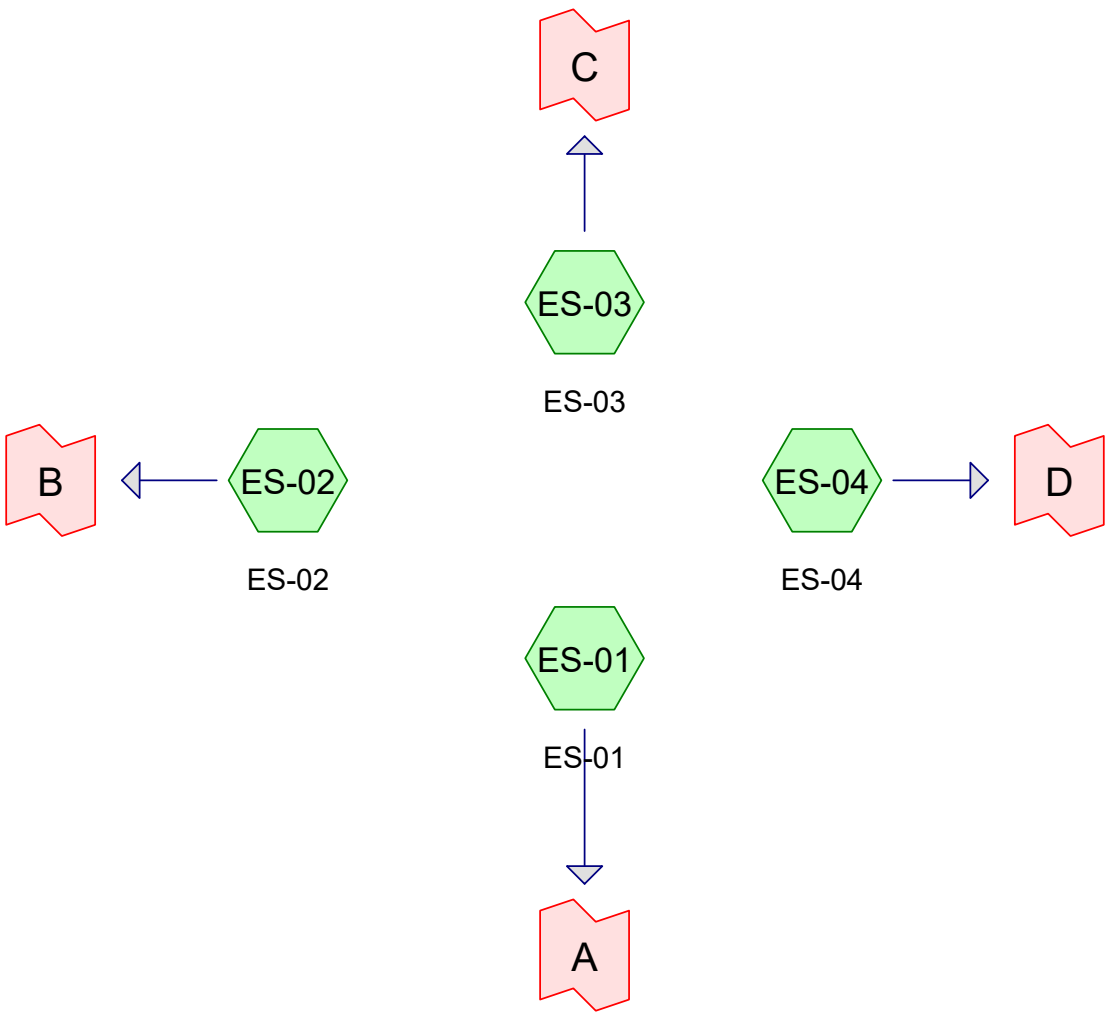
1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.

2. See lines 34, 40 and 48 for required depths of filter media.

3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

To accommodate a higher tributary area ratio, the design incorporates elevated (3")curbing, which acts as a containment measure for increased run-on volumes.



Subcat Reach Pond Link

Routing Diagram for 18301-00 Lampes - Pre _r1
Prepared by T F Moran Inc, Printed 2/16/2026

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
5,579	39	>75% Grass cover, Good, HSG A (ES-01, ES-02, ES-03, ES-04)
6,801	76	Gravel roads, HSG A (ES-01, ES-02, ES-03, ES-04)
2,075	98	Paved parking, HSG A (ES-01, ES-02, ES-04)
1,747	98	Roofs, HSG A (ES-01, ES-03, ES-04)
158	98	Unconnected pavement, HSG A (decks) (ES-01, ES-04)
1,310	30	Woods, Good, HSG A (ES-01, ES-02, ES-03)
17,670	**66**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
17,670	HSG A	ES-01, ES-02, ES-03, ES-04
0	HSG B	
0	HSG C	
0	HSG D	
0	Other	
17,670		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment ES-01: ES-01 Runoff Area=3,361 sf 21.84% Impervious Runoff Depth>0.61"
Tc=6.0 min CN=68 Runoff=0.04 cfs 170 cf

Subcatchment ES-02: ES-02 Runoff Area=3,245 sf 11.40% Impervious Runoff Depth>0.49"
Flow Length=91' Tc=8.9 min CN=65 Runoff=0.03 cfs 132 cf

Subcatchment ES-03: ES-03 Runoff Area=5,318 sf 10.91% Impervious Runoff Depth>0.35"
Flow Length=92' Tc=6.4 min CN=61 Runoff=0.03 cfs 155 cf

Subcatchment ES-04: ES-04 Runoff Area=5,746 sf 39.96% Impervious Runoff Depth>0.65"
Tc=6.0 min CN=69 Runoff=0.08 cfs 310 cf

Link A: Inflow=0.04 cfs 170 cf
Primary=0.04 cfs 170 cf

Link B: Inflow=0.03 cfs 132 cf
Primary=0.03 cfs 132 cf

Link C: Inflow=0.03 cfs 155 cf
Primary=0.03 cfs 155 cf

Link D: Inflow=0.08 cfs 310 cf
Primary=0.08 cfs 310 cf

Total Runoff Area = 17,670 sf Runoff Volume = 766 cf Average Runoff Depth = 0.52"
77.48% Pervious = 13,690 sf 22.52% Impervious = 3,980 sf

Summary for Subcatchment ES-01: ES-01

Runoff = 0.04 cfs @ 12.11 hrs, Volume= 170 cf, Depth> 0.61"
Routed to Link A :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.96"

	Area (sf)	CN	Description
	980	39	>75% Grass cover, Good, HSG A
	115	30	Woods, Good, HSG A
	462	98	Roofs, HSG A
	1,532	76	Gravel roads, HSG A
*	57	98	Unconnected pavement, HSG A (decks)
	215	98	Paved parking, HSG A
	3,361	68	Weighted Average
	2,627		78.16% Pervious Area
	734		21.84% Impervious Area
	57		7.77% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment ES-02: ES-02

Runoff = 0.03 cfs @ 12.16 hrs, Volume= 132 cf, Depth> 0.49"
Routed to Link B :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.96"

	Area (sf)	CN	Description
	549	39	>75% Grass cover, Good, HSG A
	504	30	Woods, Good, HSG A
	1,822	76	Gravel roads, HSG A
	370	98	Paved parking, HSG A
	3,245	65	Weighted Average
	2,875		88.60% Pervious Area
	370		11.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	62	0.0100	0.91		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.96"
0.4	4	0.1100	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.96"
7.4	25	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.96"
8.9	91	Total			

Summary for Subcatchment ES-03: ES-03

Runoff = 0.03 cfs @ 12.16 hrs, Volume= 155 cf, Depth> 0.35"
Routed to Link C :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.96"

Area (sf)	CN	Description
1,589	39	>75% Grass cover, Good, HSG A
691	30	Woods, Good, HSG A
580	98	Roofs, HSG A
2,458	76	Gravel roads, HSG A
5,318	61	Weighted Average
4,738		89.09% Pervious Area
580		10.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	44	0.0400	1.48		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.96"
1.5	19	0.0900	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.96"
4.4	29	0.1000	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.96"
6.4	92	Total			

Summary for Subcatchment ES-04: ES-04

Runoff = 0.08 cfs @ 12.11 hrs, Volume= 310 cf, Depth> 0.65"
Routed to Link D :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=2.96"

	Area (sf)	CN	Description
	2,461	39	>75% Grass cover, Good, HSG A
	705	98	Roofs, HSG A
	989	76	Gravel roads, HSG A
*	101	98	Unconnected pavement, HSG A (decks)
	1,490	98	Paved parking, HSG A
	5,746	69	Weighted Average
	3,450		60.04% Pervious Area
	2,296		39.96% Impervious Area
	101		4.40% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Link A:

Inflow Area = 3,361 sf, 21.84% Impervious, Inflow Depth > 0.61" for 2-YR event
Inflow = 0.04 cfs @ 12.11 hrs, Volume= 170 cf
Primary = 0.04 cfs @ 12.11 hrs, Volume= 170 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link B:

Inflow Area = 3,245 sf, 11.40% Impervious, Inflow Depth > 0.49" for 2-YR event
Inflow = 0.03 cfs @ 12.16 hrs, Volume= 132 cf
Primary = 0.03 cfs @ 12.16 hrs, Volume= 132 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link C:

Inflow Area = 5,318 sf, 10.91% Impervious, Inflow Depth > 0.35" for 2-YR event
Inflow = 0.03 cfs @ 12.16 hrs, Volume= 155 cf
Primary = 0.03 cfs @ 12.16 hrs, Volume= 155 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link D:

Inflow Area = 5,746 sf, 39.96% Impervious, Inflow Depth > 0.65" for 2-YR event
Inflow = 0.08 cfs @ 12.11 hrs, Volume= 310 cf
Primary = 0.08 cfs @ 12.11 hrs, Volume= 310 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment ES-01: ES-01 Runoff Area=3,361 sf 21.84% Impervious Runoff Depth>1.52"
Tc=6.0 min CN=68 Runoff=0.13 cfs 425 cf

Subcatchment ES-02: ES-02 Runoff Area=3,245 sf 11.40% Impervious Runoff Depth>1.32"
Flow Length=91' Tc=8.9 min CN=65 Runoff=0.09 cfs 356 cf

Subcatchment ES-03: ES-03 Runoff Area=5,318 sf 10.91% Impervious Runoff Depth>1.07"
Flow Length=92' Tc=6.4 min CN=61 Runoff=0.13 cfs 473 cf

Subcatchment ES-04: ES-04 Runoff Area=5,746 sf 39.96% Impervious Runoff Depth>1.59"
Tc=6.0 min CN=69 Runoff=0.23 cfs 760 cf

Link A: Inflow=0.13 cfs 425 cf
Primary=0.13 cfs 425 cf

Link B: Inflow=0.09 cfs 356 cf
Primary=0.09 cfs 356 cf

Link C: Inflow=0.13 cfs 473 cf
Primary=0.13 cfs 473 cf

Link D: Inflow=0.23 cfs 760 cf
Primary=0.23 cfs 760 cf

Total Runoff Area = 17,670 sf Runoff Volume = 2,013 cf Average Runoff Depth = 1.37"
77.48% Pervious = 13,690 sf 22.52% Impervious = 3,980 sf

Summary for Subcatchment ES-01: ES-01

Runoff = 0.13 cfs @ 12.10 hrs, Volume= 425 cf, Depth> 1.52"
Routed to Link A :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.48"

	Area (sf)	CN	Description
	980	39	>75% Grass cover, Good, HSG A
	115	30	Woods, Good, HSG A
	462	98	Roofs, HSG A
	1,532	76	Gravel roads, HSG A
*	57	98	Unconnected pavement, HSG A (decks)
	215	98	Paved parking, HSG A
	3,361	68	Weighted Average
	2,627		78.16% Pervious Area
	734		21.84% Impervious Area
	57		7.77% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment ES-02: ES-02

Runoff = 0.09 cfs @ 12.14 hrs, Volume= 356 cf, Depth> 1.32"
Routed to Link B :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.48"

Area (sf)	CN	Description
549	39	>75% Grass cover, Good, HSG A
504	30	Woods, Good, HSG A
1,822	76	Gravel roads, HSG A
370	98	Paved parking, HSG A
3,245	65	Weighted Average
2,875		88.60% Pervious Area
370		11.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	62	0.0100	0.91		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.96"
0.4	4	0.1100	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.96"
7.4	25	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.96"
8.9	91	Total			

Summary for Subcatchment ES-03: ES-03

Runoff = 0.13 cfs @ 12.11 hrs, Volume= 473 cf, Depth> 1.07"
Routed to Link C :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.48"

Area (sf)	CN	Description
1,589	39	>75% Grass cover, Good, HSG A
691	30	Woods, Good, HSG A
580	98	Roofs, HSG A
2,458	76	Gravel roads, HSG A
5,318	61	Weighted Average
4,738		89.09% Pervious Area
580		10.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	44	0.0400	1.48		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.96"
1.5	19	0.0900	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.96"
4.4	29	0.1000	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.96"
6.4	92	Total			

Summary for Subcatchment ES-04: ES-04

Runoff = 0.23 cfs @ 12.10 hrs, Volume= 760 cf, Depth> 1.59"
Routed to Link D :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.48"

	Area (sf)	CN	Description
	2,461	39	>75% Grass cover, Good, HSG A
	705	98	Roofs, HSG A
	989	76	Gravel roads, HSG A
*	101	98	Unconnected pavement, HSG A (decks)
	1,490	98	Paved parking, HSG A
	5,746	69	Weighted Average
	3,450		60.04% Pervious Area
	2,296		39.96% Impervious Area
	101		4.40% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Link A:

Inflow Area = 3,361 sf, 21.84% Impervious, Inflow Depth > 1.52" for 10-YR event
Inflow = 0.13 cfs @ 12.10 hrs, Volume= 425 cf
Primary = 0.13 cfs @ 12.10 hrs, Volume= 425 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link B:

Inflow Area = 3,245 sf, 11.40% Impervious, Inflow Depth > 1.32" for 10-YR event
Inflow = 0.09 cfs @ 12.14 hrs, Volume= 356 cf
Primary = 0.09 cfs @ 12.14 hrs, Volume= 356 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link C:

Inflow Area = 5,318 sf, 10.91% Impervious, Inflow Depth > 1.07" for 10-YR event
Inflow = 0.13 cfs @ 12.11 hrs, Volume= 473 cf
Primary = 0.13 cfs @ 12.11 hrs, Volume= 473 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link D:

Inflow Area = 5,746 sf, 39.96% Impervious, Inflow Depth > 1.59" for 10-YR event
Inflow = 0.23 cfs @ 12.10 hrs, Volume= 760 cf
Primary = 0.23 cfs @ 12.10 hrs, Volume= 760 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment ES-01: ES-01 Runoff Area=3,361 sf 21.84% Impervious Runoff Depth>2.38"
Tc=6.0 min CN=68 Runoff=0.21 cfs 665 cf

Subcatchment ES-02: ES-02 Runoff Area=3,245 sf 11.40% Impervious Runoff Depth>2.12"
Flow Length=91' Tc=8.9 min CN=65 Runoff=0.16 cfs 573 cf

Subcatchment ES-03: ES-03 Runoff Area=5,318 sf 10.91% Impervious Runoff Depth>1.79"
Flow Length=92' Tc=6.4 min CN=61 Runoff=0.24 cfs 794 cf

Subcatchment ES-04: ES-04 Runoff Area=5,746 sf 39.96% Impervious Runoff Depth>2.46"
Tc=6.0 min CN=69 Runoff=0.37 cfs 1,179 cf

Link A: Inflow=0.21 cfs 665 cf
Primary=0.21 cfs 665 cf

Link B: Inflow=0.16 cfs 573 cf
Primary=0.16 cfs 573 cf

Link C: Inflow=0.24 cfs 794 cf
Primary=0.24 cfs 794 cf

Link D: Inflow=0.37 cfs 1,179 cf
Primary=0.37 cfs 1,179 cf

Total Runoff Area = 17,670 sf Runoff Volume = 3,211 cf Average Runoff Depth = 2.18"
77.48% Pervious = 13,690 sf 22.52% Impervious = 3,980 sf

Summary for Subcatchment ES-01: ES-01

Runoff = 0.21 cfs @ 12.10 hrs, Volume= 665 cf, Depth> 2.38"
Routed to Link A :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.68"

	Area (sf)	CN	Description
	980	39	>75% Grass cover, Good, HSG A
	115	30	Woods, Good, HSG A
	462	98	Roofs, HSG A
	1,532	76	Gravel roads, HSG A
*	57	98	Unconnected pavement, HSG A (decks)
	215	98	Paved parking, HSG A
	3,361	68	Weighted Average
	2,627		78.16% Pervious Area
	734		21.84% Impervious Area
	57		7.77% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment ES-02: ES-02

Runoff = 0.16 cfs @ 12.14 hrs, Volume= 573 cf, Depth> 2.12"
Routed to Link B :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.68"

Area (sf)	CN	Description
549	39	>75% Grass cover, Good, HSG A
504	30	Woods, Good, HSG A
1,822	76	Gravel roads, HSG A
370	98	Paved parking, HSG A
3,245	65	Weighted Average
2,875		88.60% Pervious Area
370		11.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	62	0.0100	0.91		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.96"
0.4	4	0.1100	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.96"
7.4	25	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.96"
8.9	91	Total			

Summary for Subcatchment ES-03: ES-03

Runoff = 0.24 cfs @ 12.11 hrs, Volume= 794 cf, Depth> 1.79"
Routed to Link C :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.68"

Area (sf)	CN	Description
1,589	39	>75% Grass cover, Good, HSG A
691	30	Woods, Good, HSG A
580	98	Roofs, HSG A
2,458	76	Gravel roads, HSG A
5,318	61	Weighted Average
4,738		89.09% Pervious Area
580		10.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	44	0.0400	1.48		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.96"
1.5	19	0.0900	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.96"
4.4	29	0.1000	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.96"
6.4	92	Total			

Summary for Subcatchment ES-04: ES-04

Runoff = 0.37 cfs @ 12.10 hrs, Volume= 1,179 cf, Depth> 2.46"
Routed to Link D :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.68"

	Area (sf)	CN	Description
	2,461	39	>75% Grass cover, Good, HSG A
	705	98	Roofs, HSG A
	989	76	Gravel roads, HSG A
*	101	98	Unconnected pavement, HSG A (decks)
	1,490	98	Paved parking, HSG A
	5,746	69	Weighted Average
	3,450		60.04% Pervious Area
	2,296		39.96% Impervious Area
	101		4.40% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Link A:

Inflow Area = 3,361 sf, 21.84% Impervious, Inflow Depth > 2.38" for 25-YR event
Inflow = 0.21 cfs @ 12.10 hrs, Volume= 665 cf
Primary = 0.21 cfs @ 12.10 hrs, Volume= 665 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link B:

Inflow Area = 3,245 sf, 11.40% Impervious, Inflow Depth > 2.12" for 25-YR event
Inflow = 0.16 cfs @ 12.14 hrs, Volume= 573 cf
Primary = 0.16 cfs @ 12.14 hrs, Volume= 573 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link C:

Inflow Area = 5,318 sf, 10.91% Impervious, Inflow Depth > 1.79" for 25-YR event
Inflow = 0.24 cfs @ 12.11 hrs, Volume= 794 cf
Primary = 0.24 cfs @ 12.11 hrs, Volume= 794 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link D:

Inflow Area = 5,746 sf, 39.96% Impervious, Inflow Depth > 2.46" for 25-YR event
Inflow = 0.37 cfs @ 12.10 hrs, Volume= 1,179 cf
Primary = 0.37 cfs @ 12.10 hrs, Volume= 1,179 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment ES-01: ES-01 Runoff Area=3,361 sf 21.84% Impervious Runoff Depth>3.25"
Tc=6.0 min CN=68 Runoff=0.29 cfs 909 cf

Subcatchment ES-02: ES-02 Runoff Area=3,245 sf 11.40% Impervious Runoff Depth>2.94"
Flow Length=91' Tc=8.9 min CN=65 Runoff=0.23 cfs 796 cf

Subcatchment ES-03: ES-03 Runoff Area=5,318 sf 10.91% Impervious Runoff Depth>2.56"
Flow Length=92' Tc=6.4 min CN=61 Runoff=0.35 cfs 1,133 cf

Subcatchment ES-04: ES-04 Runoff Area=5,746 sf 39.96% Impervious Runoff Depth>3.35"
Tc=6.0 min CN=69 Runoff=0.51 cfs 1,603 cf

Link A: Inflow=0.29 cfs 909 cf
Primary=0.29 cfs 909 cf

Link B: Inflow=0.23 cfs 796 cf
Primary=0.23 cfs 796 cf

Link C: Inflow=0.35 cfs 1,133 cf
Primary=0.35 cfs 1,133 cf

Link D: Inflow=0.51 cfs 1,603 cf
Primary=0.51 cfs 1,603 cf

Total Runoff Area = 17,670 sf Runoff Volume = 4,441 cf Average Runoff Depth = 3.02"
77.48% Pervious = 13,690 sf 22.52% Impervious = 3,980 sf

Summary for Subcatchment ES-01: ES-01

Runoff = 0.29 cfs @ 12.09 hrs, Volume= 909 cf, Depth> 3.25"
Routed to Link A :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.80"

	Area (sf)	CN	Description
	980	39	>75% Grass cover, Good, HSG A
	115	30	Woods, Good, HSG A
	462	98	Roofs, HSG A
	1,532	76	Gravel roads, HSG A
*	57	98	Unconnected pavement, HSG A (decks)
	215	98	Paved parking, HSG A
	3,361	68	Weighted Average
	2,627		78.16% Pervious Area
	734		21.84% Impervious Area
	57		7.77% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment ES-02: ES-02

Runoff = 0.23 cfs @ 12.13 hrs, Volume= 796 cf, Depth> 2.94"
Routed to Link B :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.80"

Area (sf)	CN	Description
549	39	>75% Grass cover, Good, HSG A
504	30	Woods, Good, HSG A
1,822	76	Gravel roads, HSG A
370	98	Paved parking, HSG A
3,245	65	Weighted Average
2,875		88.60% Pervious Area
370		11.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	62	0.0100	0.91		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.96"
0.4	4	0.1100	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.96"
7.4	25	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.96"
8.9	91	Total			

Summary for Subcatchment ES-03: ES-03

Runoff = 0.35 cfs @ 12.10 hrs, Volume= 1,133 cf, Depth> 2.56"
Routed to Link C :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.80"

Area (sf)	CN	Description
1,589	39	>75% Grass cover, Good, HSG A
691	30	Woods, Good, HSG A
580	98	Roofs, HSG A
2,458	76	Gravel roads, HSG A
5,318	61	Weighted Average
4,738		89.09% Pervious Area
580		10.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	44	0.0400	1.48		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.96"
1.5	19	0.0900	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.96"
4.4	29	0.1000	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.96"
6.4	92	Total			

Summary for Subcatchment ES-04: ES-04

Runoff = 0.51 cfs @ 12.09 hrs, Volume= 1,603 cf, Depth> 3.35"
Routed to Link D :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR Rainfall=6.80"

	Area (sf)	CN	Description
	2,461	39	>75% Grass cover, Good, HSG A
	705	98	Roofs, HSG A
	989	76	Gravel roads, HSG A
*	101	98	Unconnected pavement, HSG A (decks)
	1,490	98	Paved parking, HSG A
	5,746	69	Weighted Average
	3,450		60.04% Pervious Area
	2,296		39.96% Impervious Area
	101		4.40% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Link A:

Inflow Area = 3,361 sf, 21.84% Impervious, Inflow Depth > 3.25" for 50-YR event
Inflow = 0.29 cfs @ 12.09 hrs, Volume= 909 cf
Primary = 0.29 cfs @ 12.09 hrs, Volume= 909 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link B:

Inflow Area = 3,245 sf, 11.40% Impervious, Inflow Depth > 2.94" for 50-YR event
Inflow = 0.23 cfs @ 12.13 hrs, Volume= 796 cf
Primary = 0.23 cfs @ 12.13 hrs, Volume= 796 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link C:

Inflow Area = 5,318 sf, 10.91% Impervious, Inflow Depth > 2.56" for 50-YR event
Inflow = 0.35 cfs @ 12.10 hrs, Volume= 1,133 cf
Primary = 0.35 cfs @ 12.10 hrs, Volume= 1,133 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link D:

Inflow Area = 5,746 sf, 39.96% Impervious, Inflow Depth > 3.35" for 50-YR event
Inflow = 0.51 cfs @ 12.09 hrs, Volume= 1,603 cf
Primary = 0.51 cfs @ 12.09 hrs, Volume= 1,603 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment ES-01: ES-01 Runoff Area=3,361 sf 21.84% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=68 Runoff=0.39 cfs 1,220 cf

Subcatchment ES-02: ES-02 Runoff Area=3,245 sf 11.40% Impervious Runoff Depth>4.01"
Flow Length=91' Tc=8.9 min CN=65 Runoff=0.31 cfs 1,084 cf

Subcatchment ES-03: ES-03 Runoff Area=5,318 sf 10.91% Impervious Runoff Depth>3.56"
Flow Length=92' Tc=6.4 min CN=61 Runoff=0.49 cfs 1,576 cf

Subcatchment ES-04: ES-04 Runoff Area=5,746 sf 39.96% Impervious Runoff Depth>4.47"
Tc=6.0 min CN=69 Runoff=0.68 cfs 2,142 cf

Link A: Inflow=0.39 cfs 1,220 cf
Primary=0.39 cfs 1,220 cf

Link B: Inflow=0.31 cfs 1,084 cf
Primary=0.31 cfs 1,084 cf

Link C: Inflow=0.49 cfs 1,576 cf
Primary=0.49 cfs 1,576 cf

Link D: Inflow=0.68 cfs 2,142 cf
Primary=0.68 cfs 2,142 cf

Total Runoff Area = 17,670 sf Runoff Volume = 6,022 cf Average Runoff Depth = 4.09"
77.48% Pervious = 13,690 sf 22.52% Impervious = 3,980 sf

Summary for Subcatchment ES-01: ES-01

Runoff = 0.39 cfs @ 12.09 hrs, Volume= 1,220 cf, Depth> 4.36"
Routed to Link A :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=8.15"

	Area (sf)	CN	Description
	980	39	>75% Grass cover, Good, HSG A
	115	30	Woods, Good, HSG A
	462	98	Roofs, HSG A
	1,532	76	Gravel roads, HSG A
*	57	98	Unconnected pavement, HSG A (decks)
	215	98	Paved parking, HSG A
	3,361	68	Weighted Average
	2,627		78.16% Pervious Area
	734		21.84% Impervious Area
	57		7.77% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment ES-02: ES-02

Runoff = 0.31 cfs @ 12.13 hrs, Volume= 1,084 cf, Depth> 4.01"
Routed to Link B :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=8.15"

	Area (sf)	CN	Description
	549	39	>75% Grass cover, Good, HSG A
	504	30	Woods, Good, HSG A
	1,822	76	Gravel roads, HSG A
	370	98	Paved parking, HSG A
	3,245	65	Weighted Average
	2,875		88.60% Pervious Area
	370		11.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	62	0.0100	0.91		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.96"
0.4	4	0.1100	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.96"
7.4	25	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.96"
8.9	91	Total			

Summary for Subcatchment ES-03: ES-03

Runoff = 0.49 cfs @ 12.10 hrs, Volume= 1,576 cf, Depth> 3.56"
Routed to Link C :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=8.15"

Area (sf)	CN	Description
1,589	39	>75% Grass cover, Good, HSG A
691	30	Woods, Good, HSG A
580	98	Roofs, HSG A
2,458	76	Gravel roads, HSG A
5,318	61	Weighted Average
4,738		89.09% Pervious Area
580		10.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	44	0.0400	1.48		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.96"
1.5	19	0.0900	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.96"
4.4	29	0.1000	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.96"
6.4	92	Total			

Summary for Subcatchment ES-04: ES-04

Runoff = 0.68 cfs @ 12.09 hrs, Volume= 2,142 cf, Depth> 4.47"
Routed to Link D :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=8.15"

	Area (sf)	CN	Description
	2,461	39	>75% Grass cover, Good, HSG A
	705	98	Roofs, HSG A
	989	76	Gravel roads, HSG A
*	101	98	Unconnected pavement, HSG A (decks)
	1,490	98	Paved parking, HSG A
	5,746	69	Weighted Average
	3,450		60.04% Pervious Area
	2,296		39.96% Impervious Area
	101		4.40% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Link A:

Inflow Area = 3,361 sf, 21.84% Impervious, Inflow Depth > 4.36" for 100-YR event
Inflow = 0.39 cfs @ 12.09 hrs, Volume= 1,220 cf
Primary = 0.39 cfs @ 12.09 hrs, Volume= 1,220 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link B:

Inflow Area = 3,245 sf, 11.40% Impervious, Inflow Depth > 4.01" for 100-YR event
Inflow = 0.31 cfs @ 12.13 hrs, Volume= 1,084 cf
Primary = 0.31 cfs @ 12.13 hrs, Volume= 1,084 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link C:

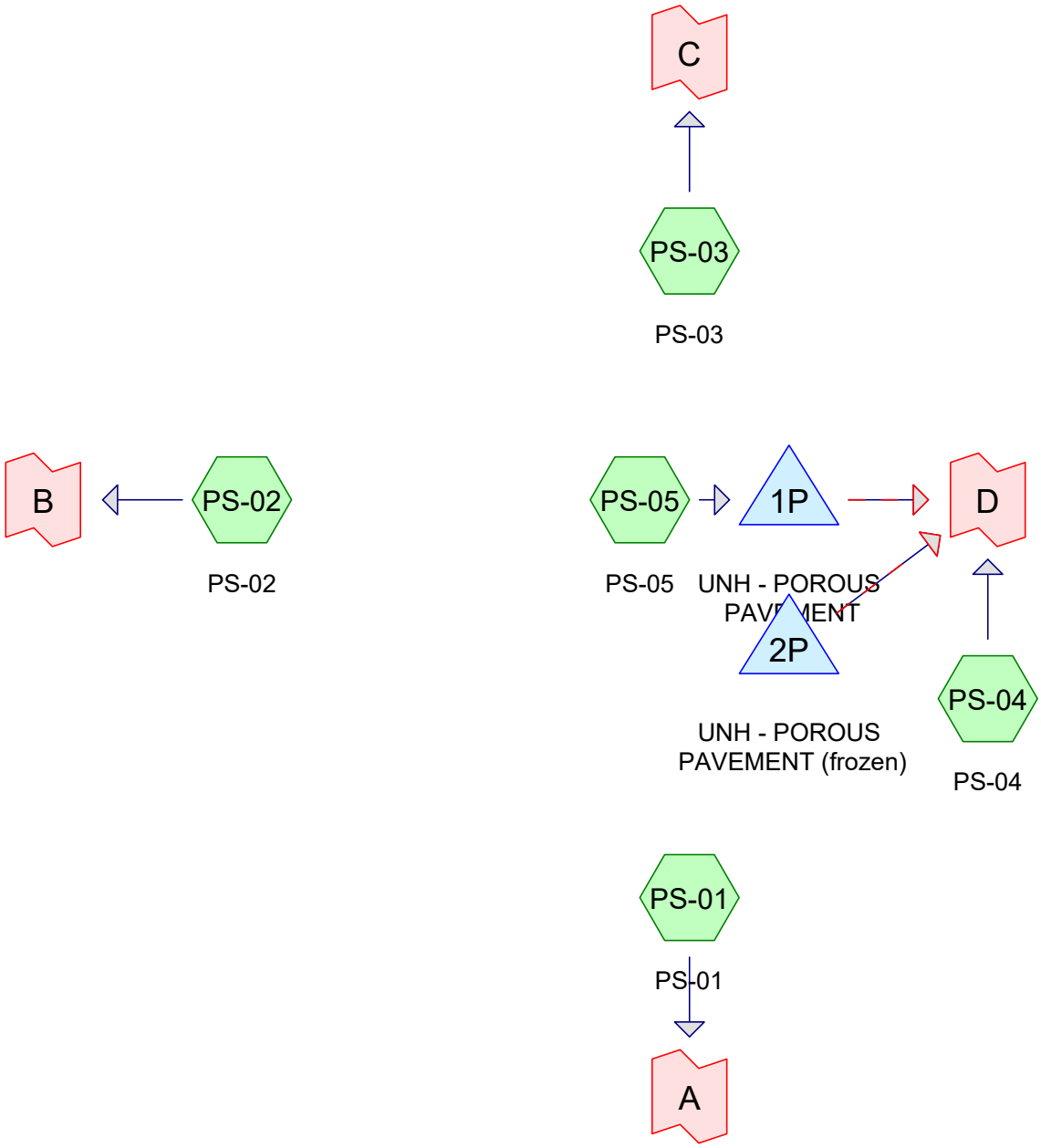
Inflow Area = 5,318 sf, 10.91% Impervious, Inflow Depth > 3.56" for 100-YR event
Inflow = 0.49 cfs @ 12.10 hrs, Volume= 1,576 cf
Primary = 0.49 cfs @ 12.10 hrs, Volume= 1,576 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link D:

Inflow Area = 5,746 sf, 39.96% Impervious, Inflow Depth > 4.47" for 100-YR event
Inflow = 0.68 cfs @ 12.09 hrs, Volume= 2,142 cf
Primary = 0.68 cfs @ 12.09 hrs, Volume= 2,142 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs



Subcat Reach Pond Link

Routing Diagram for 18301-00 Lampes - Post_r1
Prepared by T F Moran Inc, Printed 2/24/2026

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	2.96	2
2	10-YR	Type III 24-hr		Default	24.00	1	4.48	2
3	25-YR	Type III 24-hr		Default	24.00	1	5.68	2
4	50-YR	Type III 24-hr		Default	24.00	1	6.80	2
5	100-YR	Type III 24-hr		Default	24.00	1	8.15	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
7,317	39	>75% Grass cover, Good, HSG A (PS-01, PS-02, PS-03, PS-04, PS-05)
7,897	98	Paved parking, HSG A (PS-01, PS-05)
1,514	98	Roofs, HSG A (PS-01, PS-03, PS-05)
942	30	Woods, Good, HSG A (PS-01, PS-02, PS-03)
17,670	**70**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
17,670	HSG A	PS-01, PS-02, PS-03, PS-04, PS-05
0	HSG B	
0	HSG C	
0	HSG D	
0	Other	
17,670		**TOTAL AREA**

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PS-01: PS-01 Runoff Area=3,435 sf 47.92% Impervious Runoff Depth=0.57"
Tc=6.0 min CN=67 Runoff=0.04 cfs 162 cf

Subcatchment PS-02: PS-02 Runoff Area=1,716 sf 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=36 Runoff=0.00 cfs 0 cf

Subcatchment PS-03: PS-03 Runoff Area=2,797 sf 10.73% Impervious Runoff Depth=0.01"
Tc=6.0 min CN=44 Runoff=0.00 cfs 3 cf

Subcatchment PS-04: PS-04 Runoff Area=1,636 sf 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=39 Runoff=0.00 cfs 0 cf

Subcatchment PS-05: PS-05 Runoff Area=8,086 sf 92.32% Impervious Runoff Depth=2.22"
Tc=160.0 min CN=93 Runoff=0.10 cfs 1,493 cf

Pond 1P: UNH - POROUS PAVEMENT Peak Elev=306.48' Storage=9 cf Inflow=0.10 cfs 1,493 cf
Discarded=0.09 cfs 1,493 cf Secondary=0.00 cfs 0 cf Outflow=0.09 cfs 1,493 cf

Pond 2P: UNH - POROUS PAVEMENT (frozen) Peak Elev=0.00' Storage=0 cf
Secondary=0.00 cfs 0 cf

Link A: Inflow=0.04 cfs 162 cf
Primary=0.04 cfs 162 cf

Link B: Inflow=0.00 cfs 0 cf
Primary=0.00 cfs 0 cf

Link C: Inflow=0.00 cfs 3 cf
Primary=0.00 cfs 3 cf

Link D: Inflow=0.00 cfs 0 cf
Primary=0.00 cfs 0 cf

Total Runoff Area = 17,670 sf Runoff Volume = 1,658 cf Average Runoff Depth = 1.13"
46.74% Pervious = 8,259 sf 53.26% Impervious = 9,411 sf

Summary for Subcatchment PS-01: PS-01

Runoff = 0.04 cfs @ 12.11 hrs, Volume= 162 cf, Depth= 0.57"
Routed to Link A :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-YR Rainfall=2.96"

Area (sf)	CN	Description
1,679	39	>75% Grass cover, Good, HSG A
110	30	Woods, Good, HSG A
435	98	Roofs, HSG A
0	96	Gravel surface, HSG A
0	98	Unconnected pavement, HSG A
811	98	Paved parking, HSG A
400	98	Paved parking, HSG A
3,435	67	Weighted Average
1,789		52.08% Pervious Area
1,646		47.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-02: PS-02

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Link B :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-YR Rainfall=2.96"

Area (sf)	CN	Description
1,212	39	>75% Grass cover, Good, HSG A
504	30	Woods, Good, HSG A
0	96	Gravel surface, HSG A
0	98	Paved parking, HSG A
1,716	36	Weighted Average
1,716		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-03: PS-03

Runoff = 0.00 cfs @ 21.42 hrs, Volume= 3 cf, Depth= 0.01"
Routed to Link C :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-YR Rainfall=2.96"

Area (sf)	CN	Description
2,169	39	>75% Grass cover, Good, HSG A
328	30	Woods, Good, HSG A
300	98	Roofs, HSG A
0	96	Gravel surface, HSG A
2,797	44	Weighted Average
2,497		89.27% Pervious Area
300		10.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-04: PS-04

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Link D :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-YR Rainfall=2.96"

Area (sf)	CN	Description
1,636	39	>75% Grass cover, Good, HSG A
0	98	Roofs, HSG A
0	96	Gravel surface, HSG A
0	98	Unconnected pavement, HSG A
0	98	Paved parking, HSG A
1,636	39	Weighted Average
1,636		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-05: PS-05

Runoff = 0.10 cfs @ 14.04 hrs, Volume= 1,493 cf, Depth= 2.22"
Routed to Pond 1P : UNH - POROUS PAVEMENT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-YR Rainfall=2.96"

Area (sf)	CN	Description
621	39	>75% Grass cover, Good, HSG A
0	30	Woods, Good, HSG A
0	96	Gravel surface, HSG A
6,686	98	Paved parking, HSG A
779	98	Roofs, HSG A
8,086	93	Weighted Average
621		7.68% Pervious Area
7,465		92.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
160.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Pond 1P: UNH - POROUS PAVEMENT

Inflow Area = 8,086 sf, 92.32% Impervious, Inflow Depth = 2.22" for 2-YR event
Inflow = 0.10 cfs @ 14.04 hrs, Volume= 1,493 cf
Outflow = 0.09 cfs @ 14.04 hrs, Volume= 1,493 cf, Atten= 6%, Lag= 0.0 min
Discarded = 0.09 cfs @ 14.04 hrs, Volume= 1,493 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link D :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 306.48' @ 14.43 hrs Surf.Area= 400 sf Storage= 9 cf
Flood Elev= 308.66' Surf.Area= 800 sf Storage= 73 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.4 min (938.2 - 937.7)

Volume	Invert	Avail.Storage	Storage Description
#1	306.42'	53 cf	**20.00'W x 20.00'L x 0.33'H POROUS PAVEMENT BASE STONE** 132 cf Overall x 40.0% Voids
#2	307.00'	20 cf	**20.00'W x 20.00'L x 1.00'H POROUS PAVEMENT FILTER** 400 cf Overall x 5.0% Voids
#3	308.66'	135 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		208 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
308.66	25	0	0
308.83	185	18	18
308.91	375	22	40
309.10	620	95	135

Device	Routing	Invert	Outlet Devices
#1	Discarded	306.42'	**10.000 in/hr Exfiltration over Horizontal area**
#2	Secondary	308.91'	**40.0' long + 1.0 '/' SideZ x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66

2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.09 cfs @ 14.04 hrs HW=306.45' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.09 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=306.42' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: UNH - POROUS PAVEMENT (frozen)

Volume	Invert	Avail.Storage	Storage Description
#1	306.42'	53 cf	**20.00'W x 20.00'L x 0.33'H POROUS PAVEMENT BASE STONE** 132 cf Overall x 40.0% Voids
#2	307.00'	20 cf	**20.00'W x 20.00'L x 1.00'H POROUS PAVEMENT FILTER** 400 cf Overall x 5.0% Voids
#3	308.66'	135 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		208 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
308.66	25	0	0
308.83	185	18	18
308.91	375	22	40
309.10	620	95	135

Device	Routing	Invert	Outlet Devices
#1	Secondary	308.91'	**40.0' long + 1.0 '/' SideZ x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link A:

Inflow Area = 3,435 sf, 47.92% Impervious, Inflow Depth = 0.57" for 2-YR event
Inflow = 0.04 cfs @ 12.11 hrs, Volume= 162 cf
Primary = 0.04 cfs @ 12.11 hrs, Volume= 162 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Link B:

Inflow Area = 1,716 sf, 0.00% Impervious, Inflow Depth = 0.00" for 2-YR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Link C:

Inflow Area = 2,797 sf, 10.73% Impervious, Inflow Depth = 0.01" for 2-YR event
Inflow = 0.00 cfs @ 21.42 hrs, Volume= 3 cf
Primary = 0.00 cfs @ 21.42 hrs, Volume= 3 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Link D:

Inflow Area = 9,722 sf, 76.78% Impervious, Inflow Depth = 0.00" for 2-YR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PS-01: PS-01 Runoff Area=3,435 sf 47.92% Impervious Runoff Depth=1.45"
Tc=6.0 min CN=67 Runoff=0.13 cfs 415 cf

Subcatchment PS-02: PS-02 Runoff Area=1,716 sf 0.00% Impervious Runoff Depth=0.05"
Tc=6.0 min CN=36 Runoff=0.00 cfs 7 cf

Subcatchment PS-03: PS-03 Runoff Area=2,797 sf 10.73% Impervious Runoff Depth=0.26"
Tc=6.0 min CN=44 Runoff=0.01 cfs 59 cf

Subcatchment PS-04: PS-04 Runoff Area=1,636 sf 0.00% Impervious Runoff Depth=0.11"
Tc=6.0 min CN=39 Runoff=0.00 cfs 15 cf

Subcatchment PS-05: PS-05 Runoff Area=8,086 sf 92.32% Impervious Runoff Depth=3.69"
Tc=160.0 min CN=93 Runoff=0.16 cfs 2,485 cf

Pond 1P: UNH - POROUS PAVEMENT Peak Elev=307.00' Storage=53 cf Inflow=0.16 cfs 2,485 cf
Discarded=0.16 cfs 2,486 cf Secondary=0.00 cfs 0 cf Outflow=0.16 cfs 2,486 cf

Pond 2P: UNH - POROUS PAVEMENT (frozen) Peak Elev=0.00' Storage=0 cf
Secondary=0.00 cfs 0 cf

Link A: Inflow=0.13 cfs 415 cf
Primary=0.13 cfs 415 cf

Link B: Inflow=0.00 cfs 7 cf
Primary=0.00 cfs 7 cf

Link C: Inflow=0.01 cfs 59 cf
Primary=0.01 cfs 59 cf

Link D: Inflow=0.00 cfs 15 cf
Primary=0.00 cfs 15 cf

Total Runoff Area = 17,670 sf Runoff Volume = 2,981 cf Average Runoff Depth = 2.02"
46.74% Pervious = 8,259 sf 53.26% Impervious = 9,411 sf

Summary for Subcatchment PS-01: PS-01

Runoff = 0.13 cfs @ 12.10 hrs, Volume= 415 cf, Depth= 1.45"
Routed to Link A :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-YR Rainfall=4.48"

Area (sf)	CN	Description
1,679	39	>75% Grass cover, Good, HSG A
110	30	Woods, Good, HSG A
435	98	Roofs, HSG A
0	96	Gravel surface, HSG A
0	98	Unconnected pavement, HSG A
811	98	Paved parking, HSG A
400	98	Paved parking, HSG A
3,435	67	Weighted Average
1,789		52.08% Pervious Area
1,646		47.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-02: PS-02

Runoff = 0.00 cfs @ 15.67 hrs, Volume= 7 cf, Depth= 0.05"
Routed to Link B :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-YR Rainfall=4.48"

Area (sf)	CN	Description
1,212	39	>75% Grass cover, Good, HSG A
504	30	Woods, Good, HSG A
0	96	Gravel surface, HSG A
0	98	Paved parking, HSG A
1,716	36	Weighted Average
1,716		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-03: PS-03

Runoff = 0.01 cfs @ 12.40 hrs, Volume= 59 cf, Depth= 0.26"
Routed to Link C :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-YR Rainfall=4.48"

Area (sf)	CN	Description
2,169	39	>75% Grass cover, Good, HSG A
328	30	Woods, Good, HSG A
300	98	Roofs, HSG A
0	96	Gravel surface, HSG A
2,797	44	Weighted Average
2,497		89.27% Pervious Area
300		10.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-04: PS-04

Runoff = 0.00 cfs @ 14.74 hrs, Volume= 15 cf, Depth= 0.11"
Routed to Link D :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-YR Rainfall=4.48"

Area (sf)	CN	Description
1,636	39	>75% Grass cover, Good, HSG A
0	98	Roofs, HSG A
0	96	Gravel surface, HSG A
0	98	Unconnected pavement, HSG A
0	98	Paved parking, HSG A
1,636	39	Weighted Average
1,636		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-05: PS-05

Runoff = 0.16 cfs @ 14.04 hrs, Volume= 2,485 cf, Depth= 3.69"
Routed to Pond 1P : UNH - POROUS PAVEMENT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-YR Rainfall=4.48"

Area (sf)	CN	Description
621	39	>75% Grass cover, Good, HSG A
0	30	Woods, Good, HSG A
0	96	Gravel surface, HSG A
6,686	98	Paved parking, HSG A
779	98	Roofs, HSG A
8,086	93	Weighted Average
621		7.68% Pervious Area
7,465		92.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
160.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Pond 1P: UNH - POROUS PAVEMENT

Inflow Area = 8,086 sf, 92.32% Impervious, Inflow Depth = 3.69" for 10-YR event
Inflow = 0.16 cfs @ 14.04 hrs, Volume= 2,485 cf
Outflow = 0.16 cfs @ 14.00 hrs, Volume= 2,486 cf, Atten= 0%, Lag= 0.0 min
Discarded = 0.16 cfs @ 14.00 hrs, Volume= 2,486 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link D :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 307.00' @ 13.60 hrs Surf.Area= 800 sf Storage= 53 cf
Flood Elev= 308.66' Surf.Area= 800 sf Storage= 73 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 3.5 min (927.5 - 924.0)

Volume	Invert	Avail.Storage	Storage Description
#1	306.42'	53 cf	**20.00'W x 20.00'L x 0.33'H POROUS PAVEMENT BASE STONE** 132 cf Overall x 40.0% Voids
#2	307.00'	20 cf	**20.00'W x 20.00'L x 1.00'H POROUS PAVEMENT FILTER** 400 cf Overall x 5.0% Voids
#3	308.66'	135 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		208 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
308.66	25	0	0
308.83	185	18	18
308.91	375	22	40
309.10	620	95	135

Device	Routing	Invert	Outlet Devices
#1	Discarded	306.42'	**10.000 in/hr Exfiltration over Horizontal area**
#2	Secondary	308.91'	**40.0' long + 1.0 '/' SideZ x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66

2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.19 cfs @ 14.00 hrs HW=307.00' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.19 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=306.42' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 2P: UNH - POROUS PAVEMENT (frozen)

Volume	Invert	Avail.Storage	Storage Description
#1	306.42'	53 cf	**20.00'W x 20.00'L x 0.33'H POROUS PAVEMENT BASE STONE** 132 cf Overall x 40.0% Voids
#2	307.00'	20 cf	**20.00'W x 20.00'L x 1.00'H POROUS PAVEMENT FILTER** 400 cf Overall x 5.0% Voids
#3	308.66'	135 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		208 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
308.66	25	0	0
308.83	185	18	18
308.91	375	22	40
309.10	620	95	135

Device	Routing	Invert	Outlet Devices
#1	Secondary	308.91'	**40.0' long + 1.0 '/' SideZ x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Link A:

Inflow Area = 3,435 sf, 47.92% Impervious, Inflow Depth = 1.45" for 10-YR event
Inflow = 0.13 cfs @ 12.10 hrs, Volume= 415 cf
Primary = 0.13 cfs @ 12.10 hrs, Volume= 415 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Link B:

Inflow Area = 1,716 sf, 0.00% Impervious, Inflow Depth = 0.05" for 10-YR event
Inflow = 0.00 cfs @ 15.67 hrs, Volume= 7 cf
Primary = 0.00 cfs @ 15.67 hrs, Volume= 7 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Link C:

Inflow Area = 2,797 sf, 10.73% Impervious, Inflow Depth = 0.26" for 10-YR event
Inflow = 0.01 cfs @ 12.40 hrs, Volume= 59 cf
Primary = 0.01 cfs @ 12.40 hrs, Volume= 59 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Link D:

Inflow Area = 9,722 sf, 76.78% Impervious, Inflow Depth = 0.02" for 10-YR event
Inflow = 0.00 cfs @ 14.74 hrs, Volume= 15 cf
Primary = 0.00 cfs @ 14.74 hrs, Volume= 15 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PS-01: PS-01 Runoff Area=3,435 sf 47.92% Impervious Runoff Depth=2.29"
Tc=6.0 min CN=67 Runoff=0.21 cfs 656 cf

Subcatchment PS-02: PS-02 Runoff Area=1,716 sf 0.00% Impervious Runoff Depth=0.23"
Tc=6.0 min CN=36 Runoff=0.00 cfs 32 cf

Subcatchment PS-03: PS-03 Runoff Area=2,797 sf 10.73% Impervious Runoff Depth=0.62"
Tc=6.0 min CN=44 Runoff=0.02 cfs 144 cf

Subcatchment PS-04: PS-04 Runoff Area=1,636 sf 0.00% Impervious Runoff Depth=0.36"
Tc=6.0 min CN=39 Runoff=0.00 cfs 49 cf

Subcatchment PS-05: PS-05 Runoff Area=8,086 sf 92.32% Impervious Runoff Depth=4.87"
Tc=160.0 min CN=93 Runoff=0.21 cfs 3,280 cf

Pond 1P: UNH - POROUS PAVEMENT Peak Elev=308.91' Storage=114 cf Inflow=0.21 cfs 3,280 cf
Discarded=0.19 cfs 3,277 cf Secondary=0.01 cfs 2 cf Outflow=0.19 cfs 3,280 cf

Pond 2P: UNH - POROUS PAVEMENT (frozen) Peak Elev=0.00' Storage=0 cf
Secondary=0.00 cfs 0 cf

Link A: Inflow=0.21 cfs 656 cf
Primary=0.21 cfs 656 cf

Link B: Inflow=0.00 cfs 32 cf
Primary=0.00 cfs 32 cf

Link C: Inflow=0.02 cfs 144 cf
Primary=0.02 cfs 144 cf

Link D: Inflow=0.01 cfs 51 cf
Primary=0.01 cfs 51 cf

Total Runoff Area = 17,670 sf Runoff Volume = 4,161 cf Average Runoff Depth = 2.83"
46.74% Pervious = 8,259 sf 53.26% Impervious = 9,411 sf

Summary for Subcatchment PS-01: PS-01

Runoff = 0.21 cfs @ 12.09 hrs, Volume= 656 cf, Depth= 2.29"
Routed to Link A :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-YR Rainfall=5.68"

Area (sf)	CN	Description
1,679	39	>75% Grass cover, Good, HSG A
110	30	Woods, Good, HSG A
435	98	Roofs, HSG A
0	96	Gravel surface, HSG A
0	98	Unconnected pavement, HSG A
811	98	Paved parking, HSG A
400	98	Paved parking, HSG A
3,435	67	Weighted Average
1,789		52.08% Pervious Area
1,646		47.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-02: PS-02

Runoff = 0.00 cfs @ 12.48 hrs, Volume= 32 cf, Depth= 0.23"
Routed to Link B :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-YR Rainfall=5.68"

Area (sf)	CN	Description
1,212	39	>75% Grass cover, Good, HSG A
504	30	Woods, Good, HSG A
0	96	Gravel surface, HSG A
0	98	Paved parking, HSG A
1,716	36	Weighted Average
1,716		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-03: PS-03

Runoff = 0.02 cfs @ 12.16 hrs, Volume= 144 cf, Depth= 0.62"
Routed to Link C :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-YR Rainfall=5.68"

Area (sf)	CN	Description
2,169	39	>75% Grass cover, Good, HSG A
328	30	Woods, Good, HSG A
300	98	Roofs, HSG A
0	96	Gravel surface, HSG A
2,797	44	Weighted Average
2,497		89.27% Pervious Area
300		10.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-04: PS-04

Runoff = 0.00 cfs @ 12.38 hrs, Volume= 49 cf, Depth= 0.36"
Routed to Link D :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-YR Rainfall=5.68"

Area (sf)	CN	Description
1,636	39	>75% Grass cover, Good, HSG A
0	98	Roofs, HSG A
0	96	Gravel surface, HSG A
0	98	Unconnected pavement, HSG A
0	98	Paved parking, HSG A
1,636	39	Weighted Average
1,636		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-05: PS-05

Runoff = 0.21 cfs @ 14.04 hrs, Volume= 3,280 cf, Depth= 4.87"
Routed to Pond 1P : UNH - POROUS PAVEMENT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-YR Rainfall=5.68"

Area (sf)	CN	Description
621	39	>75% Grass cover, Good, HSG A
0	30	Woods, Good, HSG A
0	96	Gravel surface, HSG A
6,686	98	Paved parking, HSG A
779	98	Roofs, HSG A
8,086	93	Weighted Average
621		7.68% Pervious Area
7,465		92.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
160.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Pond 1P: UNH - POROUS PAVEMENT

Inflow Area = 8,086 sf, 92.32% Impervious, Inflow Depth = 4.87" for 25-YR event
Inflow = 0.21 cfs @ 14.04 hrs, Volume= 3,280 cf
Outflow = 0.19 cfs @ 14.52 hrs, Volume= 3,280 cf, Atten= 8%, Lag= 29.3 min
Discarded = 0.19 cfs @ 13.28 hrs, Volume= 3,277 cf
Secondary = 0.01 cfs @ 14.52 hrs, Volume= 2 cf
Routed to Link D :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 308.91' @ 14.53 hrs Surf.Area= 800 sf Storage= 114 cf
Flood Elev= 308.66' Surf.Area= 800 sf Storage= 73 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 4.5 min (921.4 - 916.9)

Volume	Invert	Avail.Storage	Storage Description
#1	306.42'	53 cf	**20.00'W x 20.00'L x 0.33'H POROUS PAVEMENT BASE STONE** 132 cf Overall x 40.0% Voids
#2	307.00'	20 cf	**20.00'W x 20.00'L x 1.00'H POROUS PAVEMENT FILTER** 400 cf Overall x 5.0% Voids
#3	308.66'	135 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		208 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
308.66	25	0	0
308.83	185	18	18
308.91	375	22	40
309.10	620	95	135

Device	Routing	Invert	Outlet Devices
#1	Discarded	306.42'	**10.000 in/hr Exfiltration over Horizontal area**
#2	Secondary	308.91'	**40.0' long + 1.0 '/' SideZ x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66

2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.19 cfs @ 13.28 hrs HW=307.03' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.19 cfs)

Secondary OutFlow Max=0.01 cfs @ 14.52 hrs HW=308.91' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 0.01 cfs @ 0.10 fps)

Summary for Pond 2P: UNH - POROUS PAVEMENT (frozen)

Volume	Invert	Avail.Storage	Storage Description
#1	306.42'	53 cf	**20.00'W x 20.00'L x 0.33'H POROUS PAVEMENT BASE STONE** 132 cf Overall x 40.0% Voids
#2	307.00'	20 cf	**20.00'W x 20.00'L x 1.00'H POROUS PAVEMENT FILTER** 400 cf Overall x 5.0% Voids
#3	308.66'	135 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		208 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
308.66	25	0	0
308.83	185	18	18
308.91	375	22	40
309.10	620	95	135

Device	Routing	Invert	Outlet Devices
#1	Secondary	308.91'	**40.0' long + 1.0 '/' SideZ x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Link A:

Inflow Area = 3,435 sf, 47.92% Impervious, Inflow Depth = 2.29" for 25-YR event
Inflow = 0.21 cfs @ 12.09 hrs, Volume= 656 cf
Primary = 0.21 cfs @ 12.09 hrs, Volume= 656 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Link B:

Inflow Area = 1,716 sf, 0.00% Impervious, Inflow Depth = 0.23" for 25-YR event
Inflow = 0.00 cfs @ 12.48 hrs, Volume= 32 cf
Primary = 0.00 cfs @ 12.48 hrs, Volume= 32 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Link C:

Inflow Area = 2,797 sf, 10.73% Impervious, Inflow Depth = 0.62" for 25-YR event
Inflow = 0.02 cfs @ 12.16 hrs, Volume= 144 cf
Primary = 0.02 cfs @ 12.16 hrs, Volume= 144 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Link D:

Inflow Area = 9,722 sf, 76.78% Impervious, Inflow Depth = 0.06" for 25-YR event
Inflow = 0.01 cfs @ 14.52 hrs, Volume= 51 cf
Primary = 0.01 cfs @ 14.52 hrs, Volume= 51 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PS-01: PS-01 Runoff Area=3,435 sf 47.92% Impervious Runoff Depth=3.15"
Tc=6.0 min CN=67 Runoff=0.29 cfs 901 cf

Subcatchment PS-02: PS-02 Runoff Area=1,716 sf 0.00% Impervious Runoff Depth=0.50"
Tc=6.0 min CN=36 Runoff=0.01 cfs 72 cf

Subcatchment PS-03: PS-03 Runoff Area=2,797 sf 10.73% Impervious Runoff Depth=1.07"
Tc=6.0 min CN=44 Runoff=0.06 cfs 248 cf

Subcatchment PS-04: PS-04 Runoff Area=1,636 sf 0.00% Impervious Runoff Depth=0.70"
Tc=6.0 min CN=39 Runoff=0.01 cfs 95 cf

Subcatchment PS-05: PS-05 Runoff Area=8,086 sf 92.32% Impervious Runoff Depth=5.97"
Tc=160.0 min CN=93 Runoff=0.26 cfs 4,025 cf

Pond 1P: UNH - POROUS PAVEMENT Peak Elev=308.92' Storage=116 cf Inflow=0.26 cfs 4,025 cf
Discarded=0.19 cfs 3,798 cf Secondary=0.08 cfs 228 cf Outflow=0.26 cfs 4,026 cf

Pond 2P: UNH - POROUS PAVEMENT (frozen) Peak Elev=0.00' Storage=0 cf
Secondary=0.00 cfs 0 cf

Link A: Inflow=0.29 cfs 901 cf
Primary=0.29 cfs 901 cf

Link B: Inflow=0.01 cfs 72 cf
Primary=0.01 cfs 72 cf

Link C: Inflow=0.06 cfs 248 cf
Primary=0.06 cfs 248 cf

Link D: Inflow=0.08 cfs 323 cf
Primary=0.08 cfs 323 cf

Total Runoff Area = 17,670 sf Runoff Volume = 5,341 cf Average Runoff Depth = 3.63"
46.74% Pervious = 8,259 sf 53.26% Impervious = 9,411 sf

Summary for Subcatchment PS-01: PS-01

Runoff = 0.29 cfs @ 12.09 hrs, Volume= 901 cf, Depth= 3.15"
Routed to Link A :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50-YR Rainfall=6.80"

Area (sf)	CN	Description
1,679	39	>75% Grass cover, Good, HSG A
110	30	Woods, Good, HSG A
435	98	Roofs, HSG A
0	96	Gravel surface, HSG A
0	98	Unconnected pavement, HSG A
811	98	Paved parking, HSG A
400	98	Paved parking, HSG A
3,435	67	Weighted Average
1,789		52.08% Pervious Area
1,646		47.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-02: PS-02

Runoff = 0.01 cfs @ 12.35 hrs, Volume= 72 cf, Depth= 0.50"
Routed to Link B :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50-YR Rainfall=6.80"

Area (sf)	CN	Description
1,212	39	>75% Grass cover, Good, HSG A
504	30	Woods, Good, HSG A
0	96	Gravel surface, HSG A
0	98	Paved parking, HSG A
1,716	36	Weighted Average
1,716		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-03: PS-03

Runoff = 0.06 cfs @ 12.12 hrs, Volume= 248 cf, Depth= 1.07"
Routed to Link C :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50-YR Rainfall=6.80"

Area (sf)	CN	Description
2,169	39	>75% Grass cover, Good, HSG A
328	30	Woods, Good, HSG A
300	98	Roofs, HSG A
0	96	Gravel surface, HSG A
2,797	44	Weighted Average
2,497		89.27% Pervious Area
300		10.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-04: PS-04

Runoff = 0.01 cfs @ 12.17 hrs, Volume= 95 cf, Depth= 0.70"
Routed to Link D :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50-YR Rainfall=6.80"

Area (sf)	CN	Description
1,636	39	>75% Grass cover, Good, HSG A
0	98	Roofs, HSG A
0	96	Gravel surface, HSG A
0	98	Unconnected pavement, HSG A
0	98	Paved parking, HSG A
1,636	39	Weighted Average
1,636		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-05: PS-05

Runoff = 0.26 cfs @ 14.03 hrs, Volume= 4,025 cf, Depth= 5.97"
Routed to Pond 1P : UNH - POROUS PAVEMENT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50-YR Rainfall=6.80"

Area (sf)	CN	Description
621	39	>75% Grass cover, Good, HSG A
0	30	Woods, Good, HSG A
0	96	Gravel surface, HSG A
6,686	98	Paved parking, HSG A
779	98	Roofs, HSG A
8,086	93	Weighted Average
621		7.68% Pervious Area
7,465		92.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
160.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Pond 1P: UNH - POROUS PAVEMENT

Inflow Area = 8,086 sf, 92.32% Impervious, Inflow Depth = 5.97" for 50-YR event
Inflow = 0.26 cfs @ 14.03 hrs, Volume= 4,025 cf
Outflow = 0.26 cfs @ 13.77 hrs, Volume= 4,026 cf, Atten= 0%, Lag= 0.0 min
Discarded = 0.19 cfs @ 13.12 hrs, Volume= 3,798 cf
Secondary = 0.08 cfs @ 13.77 hrs, Volume= 228 cf
Routed to Link D :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 308.92' @ 13.76 hrs Surf.Area= 800 sf Storage= 116 cf
Flood Elev= 308.66' Surf.Area= 800 sf Storage= 73 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 5.0 min (917.0 - 911.9)

Volume	Invert	Avail.Storage	Storage Description
#1	306.42'	53 cf	**20.00'W x 20.00'L x 0.33'H POROUS PAVEMENT BASE STONE** 132 cf Overall x 40.0% Voids
#2	307.00'	20 cf	**20.00'W x 20.00'L x 1.00'H POROUS PAVEMENT FILTER** 400 cf Overall x 5.0% Voids
#3	308.66'	135 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		208 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
308.66	25	0	0
308.83	185	18	18
308.91	375	22	40
309.10	620	95	135

Device	Routing	Invert	Outlet Devices
#1	Discarded	306.42'	**10.000 in/hr Exfiltration over Horizontal area**
#2	Secondary	308.91'	**40.0' long + 1.0 '/' SideZ x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66

2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.19 cfs @ 13.12 hrs HW=307.04' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.19 cfs)

Secondary OutFlow Max=0.07 cfs @ 13.77 hrs HW=308.92' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 0.07 cfs @ 0.22 fps)

Summary for Pond 2P: UNH - POROUS PAVEMENT (frozen)

Volume	Invert	Avail.Storage	Storage Description
#1	306.42'	53 cf	**20.00'W x 20.00'L x 0.33'H POROUS PAVEMENT BASE STONE** 132 cf Overall x 40.0% Voids
#2	307.00'	20 cf	**20.00'W x 20.00'L x 1.00'H POROUS PAVEMENT FILTER** 400 cf Overall x 5.0% Voids
#3	308.66'	135 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		208 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
308.66	25	0	0
308.83	185	18	18
308.91	375	22	40
309.10	620	95	135

Device	Routing	Invert	Outlet Devices
#1	Secondary	308.91'	**40.0' long + 1.0 '/' SideZ x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Link A:

Inflow Area = 3,435 sf, 47.92% Impervious, Inflow Depth = 3.15" for 50-YR event
Inflow = 0.29 cfs @ 12.09 hrs, Volume= 901 cf
Primary = 0.29 cfs @ 12.09 hrs, Volume= 901 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Link B:

Inflow Area = 1,716 sf, 0.00% Impervious, Inflow Depth = 0.50" for 50-YR event
Inflow = 0.01 cfs @ 12.35 hrs, Volume= 72 cf
Primary = 0.01 cfs @ 12.35 hrs, Volume= 72 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Link C:

Inflow Area = 2,797 sf, 10.73% Impervious, Inflow Depth = 1.07" for 50-YR event
Inflow = 0.06 cfs @ 12.12 hrs, Volume= 248 cf
Primary = 0.06 cfs @ 12.12 hrs, Volume= 248 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Link D:

Inflow Area = 9,722 sf, 76.78% Impervious, Inflow Depth = 0.40" for 50-YR event
Inflow = 0.08 cfs @ 13.77 hrs, Volume= 323 cf
Primary = 0.08 cfs @ 13.77 hrs, Volume= 323 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PS-01: PS-01 Runoff Area=3,435 sf 47.92% Impervious Runoff Depth=4.25"
Tc=6.0 min CN=67 Runoff=0.39 cfs 1,215 cf

Subcatchment PS-02: PS-02 Runoff Area=1,716 sf 0.00% Impervious Runoff Depth=0.94"
Tc=6.0 min CN=36 Runoff=0.02 cfs 135 cf

Subcatchment PS-03: PS-03 Runoff Area=2,797 sf 10.73% Impervious Runoff Depth=1.71"
Tc=6.0 min CN=44 Runoff=0.10 cfs 399 cf

Subcatchment PS-04: PS-04 Runoff Area=1,636 sf 0.00% Impervious Runoff Depth=1.22"
Tc=6.0 min CN=39 Runoff=0.04 cfs 166 cf

Subcatchment PS-05: PS-05 Runoff Area=8,086 sf 92.32% Impervious Runoff Depth=7.31"
Tc=160.0 min CN=93 Runoff=0.31 cfs 4,927 cf

Pond 1P: UNH - POROUS PAVEMENT Peak Elev=308.92' Storage=118 cf Inflow=0.31 cfs 4,927 cf
Discarded=0.19 cfs 4,344 cf Secondary=0.12 cfs 584 cf Outflow=0.31 cfs 4,928 cf

Pond 2P: UNH - POROUS PAVEMENT (frozen) Peak Elev=0.00' Storage=0 cf
Secondary=0.00 cfs 0 cf

Link A: Inflow=0.39 cfs 1,215 cf
Primary=0.39 cfs 1,215 cf

Link B: Inflow=0.02 cfs 135 cf
Primary=0.02 cfs 135 cf

Link C: Inflow=0.10 cfs 399 cf
Primary=0.10 cfs 399 cf

Link D: Inflow=0.13 cfs 750 cf
Primary=0.13 cfs 750 cf

Total Runoff Area = 17,670 sf Runoff Volume = 6,843 cf Average Runoff Depth = 4.65"
46.74% Pervious = 8,259 sf 53.26% Impervious = 9,411 sf

Summary for Subcatchment PS-01: PS-01

Runoff = 0.39 cfs @ 12.09 hrs, Volume= 1,215 cf, Depth= 4.25"
Routed to Link A :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-YR Rainfall=8.15"

Area (sf)	CN	Description
1,679	39	>75% Grass cover, Good, HSG A
110	30	Woods, Good, HSG A
435	98	Roofs, HSG A
0	96	Gravel surface, HSG A
0	98	Unconnected pavement, HSG A
811	98	Paved parking, HSG A
400	98	Paved parking, HSG A
3,435	67	Weighted Average
1,789		52.08% Pervious Area
1,646		47.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-02: PS-02

Runoff = 0.02 cfs @ 12.14 hrs, Volume= 135 cf, Depth= 0.94"
Routed to Link B :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-YR Rainfall=8.15"

Area (sf)	CN	Description
1,212	39	>75% Grass cover, Good, HSG A
504	30	Woods, Good, HSG A
0	96	Gravel surface, HSG A
0	98	Paved parking, HSG A
1,716	36	Weighted Average
1,716		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-03: PS-03

Runoff = 0.10 cfs @ 12.11 hrs, Volume= 399 cf, Depth= 1.71"
Routed to Link C :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-YR Rainfall=8.15"

Area (sf)	CN	Description
2,169	39	>75% Grass cover, Good, HSG A
328	30	Woods, Good, HSG A
300	98	Roofs, HSG A
0	96	Gravel surface, HSG A
2,797	44	Weighted Average
2,497		89.27% Pervious Area
300		10.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-04: PS-04

Runoff = 0.04 cfs @ 12.12 hrs, Volume= 166 cf, Depth= 1.22"
Routed to Link D :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-YR Rainfall=8.15"

Area (sf)	CN	Description
1,636	39	>75% Grass cover, Good, HSG A
0	98	Roofs, HSG A
0	96	Gravel surface, HSG A
0	98	Unconnected pavement, HSG A
0	98	Paved parking, HSG A
1,636	39	Weighted Average
1,636		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-05: PS-05

Runoff = 0.31 cfs @ 14.03 hrs, Volume= 4,927 cf, Depth= 7.31"
Routed to Pond 1P : UNH - POROUS PAVEMENT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-YR Rainfall=8.15"

Area (sf)	CN	Description
621	39	>75% Grass cover, Good, HSG A
0	30	Woods, Good, HSG A
0	96	Gravel surface, HSG A
6,686	98	Paved parking, HSG A
779	98	Roofs, HSG A
8,086	93	Weighted Average
621		7.68% Pervious Area
7,465		92.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
160.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Pond 1P: UNH - POROUS PAVEMENT

Inflow Area = 8,086 sf, 92.32% Impervious, Inflow Depth = 7.31" for 100-YR event
Inflow = 0.31 cfs @ 14.03 hrs, Volume= 4,927 cf
Outflow = 0.31 cfs @ 14.04 hrs, Volume= 4,928 cf, Atten= 0%, Lag= 0.3 min
Discarded = 0.19 cfs @ 12.92 hrs, Volume= 4,344 cf
Secondary = 0.12 cfs @ 14.04 hrs, Volume= 584 cf
Routed to Link D :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 308.92' @ 14.04 hrs Surf.Area= 800 sf Storage= 118 cf
Flood Elev= 308.66' Surf.Area= 800 sf Storage= 73 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 5.0 min (912.3 - 907.3)

Volume	Invert	Avail.Storage	Storage Description
#1	306.42'	53 cf	**20.00'W x 20.00'L x 0.33'H POROUS PAVEMENT BASE STONE** 132 cf Overall x 40.0% Voids
#2	307.00'	20 cf	**20.00'W x 20.00'L x 1.00'H POROUS PAVEMENT FILTER** 400 cf Overall x 5.0% Voids
#3	308.66'	135 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		208 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
308.66	25	0	0
308.83	185	18	18
308.91	375	22	40
309.10	620	95	135

Device	Routing	Invert	Outlet Devices
#1	Discarded	306.42'	**10.000 in/hr Exfiltration over Horizontal area**
#2	Secondary	308.91'	**40.0' long + 1.0 '/' SideZ x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66

2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.19 cfs @ 12.92 hrs HW=307.00' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.19 cfs)

Secondary OutFlow Max=0.12 cfs @ 14.04 hrs HW=308.92' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 0.12 cfs @ 0.26 fps)

Summary for Pond 2P: UNH - POROUS PAVEMENT (frozen)

Volume	Invert	Avail.Storage	Storage Description
#1	306.42'	53 cf	**20.00'W x 20.00'L x 0.33'H POROUS PAVEMENT BASE STONE** 132 cf Overall x 40.0% Voids
#2	307.00'	20 cf	**20.00'W x 20.00'L x 1.00'H POROUS PAVEMENT FILTER** 400 cf Overall x 5.0% Voids
#3	308.66'	135 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		208 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
308.66	25	0	0
308.83	185	18	18
308.91	375	22	40
309.10	620	95	135

Device	Routing	Invert	Outlet Devices
#1	Secondary	308.91'	**40.0' long + 1.0 '/' SideZ x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Link A:

Inflow Area = 3,435 sf, 47.92% Impervious, Inflow Depth = 4.25" for 100-YR event
Inflow = 0.39 cfs @ 12.09 hrs, Volume= 1,215 cf
Primary = 0.39 cfs @ 12.09 hrs, Volume= 1,215 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Link B:

Inflow Area = 1,716 sf, 0.00% Impervious, Inflow Depth = 0.94" for 100-YR event
Inflow = 0.02 cfs @ 12.14 hrs, Volume= 135 cf
Primary = 0.02 cfs @ 12.14 hrs, Volume= 135 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Link C:

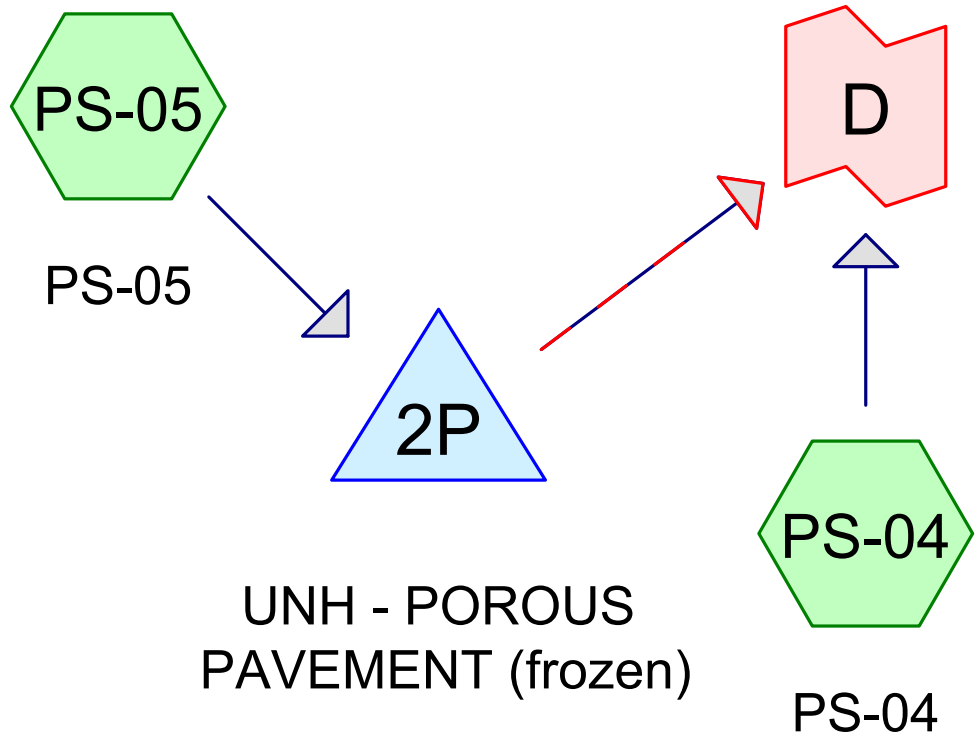
Inflow Area = 2,797 sf, 10.73% Impervious, Inflow Depth = 1.71" for 100-YR event
Inflow = 0.10 cfs @ 12.11 hrs, Volume= 399 cf
Primary = 0.10 cfs @ 12.11 hrs, Volume= 399 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Summary for Link D:

Inflow Area = 9,722 sf, 76.78% Impervious, Inflow Depth = 0.93" for 100-YR event
Inflow = 0.13 cfs @ 14.04 hrs, Volume= 750 cf
Primary = 0.13 cfs @ 14.04 hrs, Volume= 750 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs



Subcat Reach Pond Link

Routing Diagram for 18301-00 Lampes - Post_r1
Prepared by T F Moran Inc, Printed 2/24/2026

Summary for Subcatchment PS-04: PS-04

Runoff = 0.01 cfs @ 12.17 hrs, Volume= 95 cf, Depth= 0.70"
Routed to Link D :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50-YR Rainfall=6.80"

Area (sf)	CN	Description
1,636	39	>75% Grass cover, Good, HSG A
0	98	Roofs, HSG A
0	96	Gravel surface, HSG A
0	98	Unconnected pavement, HSG A
0	98	Paved parking, HSG A
1,636	39	Weighted Average
1,636		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Subcatchment PS-05: PS-05

Runoff = 0.26 cfs @ 14.03 hrs, Volume= 4,025 cf, Depth= 5.97"
Routed to Pond 2P : UNH - POROUS PAVEMENT (frozen)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50-YR Rainfall=6.80"

Area (sf)	CN	Description
621	39	>75% Grass cover, Good, HSG A
0	30	Woods, Good, HSG A
0	96	Gravel surface, HSG A
6,686	98	Paved parking, HSG A
779	98	Roofs, HSG A
8,086	93	Weighted Average
621		7.68% Pervious Area
7,465		92.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
160.0					**Direct Entry, Calc'd T'c < 6 mins**

Summary for Pond 2P: UNH - POROUS PAVEMENT (frozen)

Inflow Area = 8,086 sf, 92.32% Impervious, Inflow Depth = 5.97" for 50-YR event
Inflow = 0.26 cfs @ 14.03 hrs, Volume= 4,025 cf
Outflow = 0.26 cfs @ 14.04 hrs, Volume= 3,912 cf, Atten= 0%, Lag= 0.2 min
Secondary = 0.26 cfs @ 14.04 hrs, Volume= 3,912 cf
Routed to Link D :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 308.93' @ 14.04 hrs Surf.Area= 800 sf Storage= 121 cf
Flood Elev= 308.66' Surf.Area= 800 sf Storage= 73 cf

Plug-Flow detention time= 31.7 min calculated for 3,912 cf (97% of inflow)
Center-of-Mass det. time= 13.9 min (925.8 - 911.9)

Volume	Invert	Avail.Storage	Storage Description
#1	306.42'	53 cf	**20.00'W x 20.00'L x 0.33'H POROUS PAVEMENT BASE STONE** 132 cf Overall x 40.0% Voids
#2	307.00'	20 cf	**20.00'W x 20.00'L x 1.00'H POROUS PAVEMENT FILTER** 400 cf Overall x 5.0% Voids
#3	308.66'	135 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		208 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
308.66	25	0	0
308.83	185	18	18
308.91	375	22	40
309.10	620	95	135

Device	Routing	Invert	Outlet Devices
#1	Secondary	308.91'	**40.0' long + 1.0 '/' SideZ x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Secondary OutFlow Max=0.26 cfs @ 14.04 hrs HW=308.93' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 0.33 fps)

Summary for Link D:

Inflow Area = 9,722 sf, 76.78% Impervious, Inflow Depth = 4.95" for 50-YR event
Inflow = 0.26 cfs @ 14.04 hrs, Volume= 4,007 cf
Primary = 0.26 cfs @ 14.04 hrs, Volume= 4,007 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Inspection & Maintenance Manual

Broadway Auto Sales
6 Dickey Sreet, Londonderry, NH
February 9, 2026

Table of Contents

Description of Project

Responsible Party

Stormwater Practices – Schedule of Maintenance

Stormwater Practices – Maintenance Guidelines
- Treatment Practices
  - Permeable Pavement/Concrete
- Conveyance Practices
  - Grass Conveyance Swale
  - Grassed & Landscaped Sheet Flow Areas
- Other Maintenance
  - Paved Parking Area/Sidewalk Sweeping

Inspection & Maintenance Log

Inspection Checklist and Inspection & Maintenance Plan

Description of Project

Broadway Auto Sales is proposing to rehabilitate the existing vehicle storage area with associated site improvements such as expanded paved parking and a stormwater management area. The subject parcel is identified as Tax Map 10 Lot 109 and is located at 6 Dickey Street in Londonderry, NH.

The existing lot is a total of 0.41± acres of which approximately 0.32± acres will be disturbed as part of the proposed development. Existing topography in the proposed area of work reflects a minimal to moderate elevational change from an approximate elevation of 310 in the center of the property to an approximate elevation of 306 in the southern corner of the property (4-feet of grade change over 5 lineal feet). No wetlands were identified on the subject property.

Existing drainage flow paths will be maintained throughout the site. An open drainage system is proposed to attenuate, convey, and treat runoff from the proposed development. Porous pavement will provide treatment and manage runoff generated from the site.

The systems have been designed to maintain peak flows and volumes during all storm conditions up to and including the 100-year storm event.

- Best Management Practices are proposed to manage stormwater from the development and provide treatment, groundwater recharge and maintain existing flow rates leaving the site.
    - Twenty (20) 5'x4'x6" porous pavement sections will collect and recharge stormwater from proposed impervious surfaces on the site. The proposed filter beds installed underneath the porous pavement sections remove pollutants, reduce the peak rates of flow, and flow volume by capturing and infiltrating stormwater. The stormwater receives treatment as it percolates through the filter beds before the stormwater infiltrates into the native soils below the filter beds. Groundwater recharge is achieved through infiltration into the native soils below the filter beds.
- The Water Quality Volume (WQV) has been met by providing the required storage below the surface elevation at the top of the porous pavement sections.

Responsible Party

Owner/Applicant: Leon & Tamara Lampes

Address: 6 Dickey Street
Derry, NH 03038

Contact: Leo Lampes
Phone: (617) 549-1478
Email: pegasus.i@comcast.net

Stormwater Practices – Schedule of Maintenance

The following practices shall be inspected twice annually; once following snow-melt (spring) and once following leaf-drop (fall):

- Permeable Pavement/Concrete

The following practices shall be inspected annually following snow-melt (spring):

- Grass Swale
- Grassed & Landscaped Sheet Flow Areas

Other Maintenance:

- Paved Parking Area/Sidewalk Sweeping

An Inspection Checklist is provided on the following pages which outlines the critical components of the Facility Stormwater Management System. The Inspection Checklist shall be submitted to the Town of Londonderry for record annually.

Stormwater Practices – Maintenance Guidelines

Treatment Practices
(Inspected twice a year)

Permeable Pavement/Concrete
Maintenance Requirements:

Routine maintenance:

- Should include visual inspection of the pervious pavement to ensure that it is clean of debris and sediments, and that it will dewater between storms.
- Routine maintenance cleaning procedures would include blowing (with leaf blower or similar equipment), truck-sweeping and/or dry vacuuming.
- Maintenance should be performed as needed to keep the entire pervious concrete area clean. visually inspect the pavement periodically during or immediately following a rain event. ponding or puddles are signs that it is time to clean the pavement. in some areas.
- Moss growth can be an issue. moss can be controlled by sprinkling baking soda on the surface, followed by a dry vacuuming within a few weeks. moss growth can be retarded/eliminated with lime water applications.

Periodic maintenance:

- Perform periodic maintenance just before winter to ensure that the pervious concrete voids are clean and free of non-compressible materials that may inhibit draining and, therefore, could contribute to freeze-thaw damage.
- Periodic maintenance may be required following winter to remove any anti-skid materials that may have been used. proper cleaning procedures would include pressure washing and/or vacuuming the area with either a dry vacuum or a regenerative vacuum sweeper. care should be taken to avoid extremely high pressures with a pressure washer, as this can degrade the bonding cement paste and increase raveling. cleaning equipment should allow for the debris to be bagged and removed from the unit so it can be weighed.

Winter maintenance requirements:

- Pervious concrete should never be used as a storage area to pile snow from other areas.
- Anti-icing pre-treatments should never be used on pervious concrete pavements. if these products are used on adjacent pavements, care should be taken to prevent the adjacent runoff from infiltrating the pervious concrete.
- Deicers containing magnesium chloride, calcium magnesium acetate or potassium acetate should never be used on pervious concrete pavement.
- Deicing agents that contain fertilizer ingredients such as ammonium sulfate and ammonium nitrate cause chemical deterioration to any portland cement-based concrete pavement and should never be used.
- Calcium chloride impregnated sand can be used for deicing pavements after the first year.
- Coarse sand (minimum 1/8”), or small crushed aggregate (1/4 – 10, or similar gradation) can be used as an anti-skid material with the understanding that vacuum cleaning will be performed after the winter season. fine sands such as masonry sand or play sand should not be used on pervious concrete pavements!

- Snow plowing can be performed with trucks mounted with plows, but the plow should be fitted with a polyurethane cutting edge. use of snow blowers may be a better alternative to plowing, if available
- A site maintenance log will be kept. This log will record the dates when maintenance tasks were completed, the person who completed the task, and any observations of malfunctions in components of the stormwater management system and include a photograph of the basin.

Conveyance Practices
(Inspected once a year)

Grass Conveyance Swale
Maintenance Requirements:

- Grassed channels should be inspected annually for sediment accumulation, erosion and condition of surface lining.
- Repairs, including vegetation replacement, should be made based on inspection.
- Remove sediment and debris annually, or more frequently as warranted by inspection.
- Mow vegetated channels at least once a year to control establishment of woody vegetation. It is recommended to cut grass no shorter than 4 inches.

Grassed & Landscaped Sheet Flow Areas
Maintenance Requirements:

- Inspect at least once annually for damage, erosion and deterioration.
- Repair damages immediately and refresh with new material if needed.
- Maintain at least 85% vegetation for lawn area to ensure stabilization.
- Landscaped areas mulch depth shall be 3” minimum.

Other Maintenance

Paved Parking Area/Sidewalk Sweeping

- Sweeping efforts shall be conducted at least once per month outside of winter months. This includes the driveway, sidewalks/walks, and parking areas.

Inspection & Maintenance Log

Date	Inspector	BMPs checked	Maintenance Required

Inspection Checklist

Date:	**Project Name:** **Broadway Auto Sales**
Inspector's Name/Title:	
Inspector's Contact Information:	
☐ 1st Yearly Inspection ☐ 2nd Yearly Inspection	BMP's to be inspected: ALL BMP's to be inspected: Treatment Practices & Pretreatment Practices

BMP* **Refer to following Inspection & Maintenance Plan for BMP location**		Maintenance Required	Corrective Action Needed and Notes
#	BMP	Yes/No	Comments
1	Paved Parking Area/Sidewalk Sweeping		
2	Permeable Pavement/Concrete		
3	Grassed & Landscaped Sheet Flow Areas		
4	Grass Conveyance Swale		

Deicing Log

Date	Operator	Location	Event Began	Event End	Event Type	Total Precip	Pave ment Temp	Temp Trend	Material Used	Amount Used	Applicati on Rate

Invasive Species Management

Actions shall be taken if any invasive species begin to grow in the stormwater management practices in accordance with Env-Wq 1507.08. An Invasive Species Management Plan (ISMP) will be required

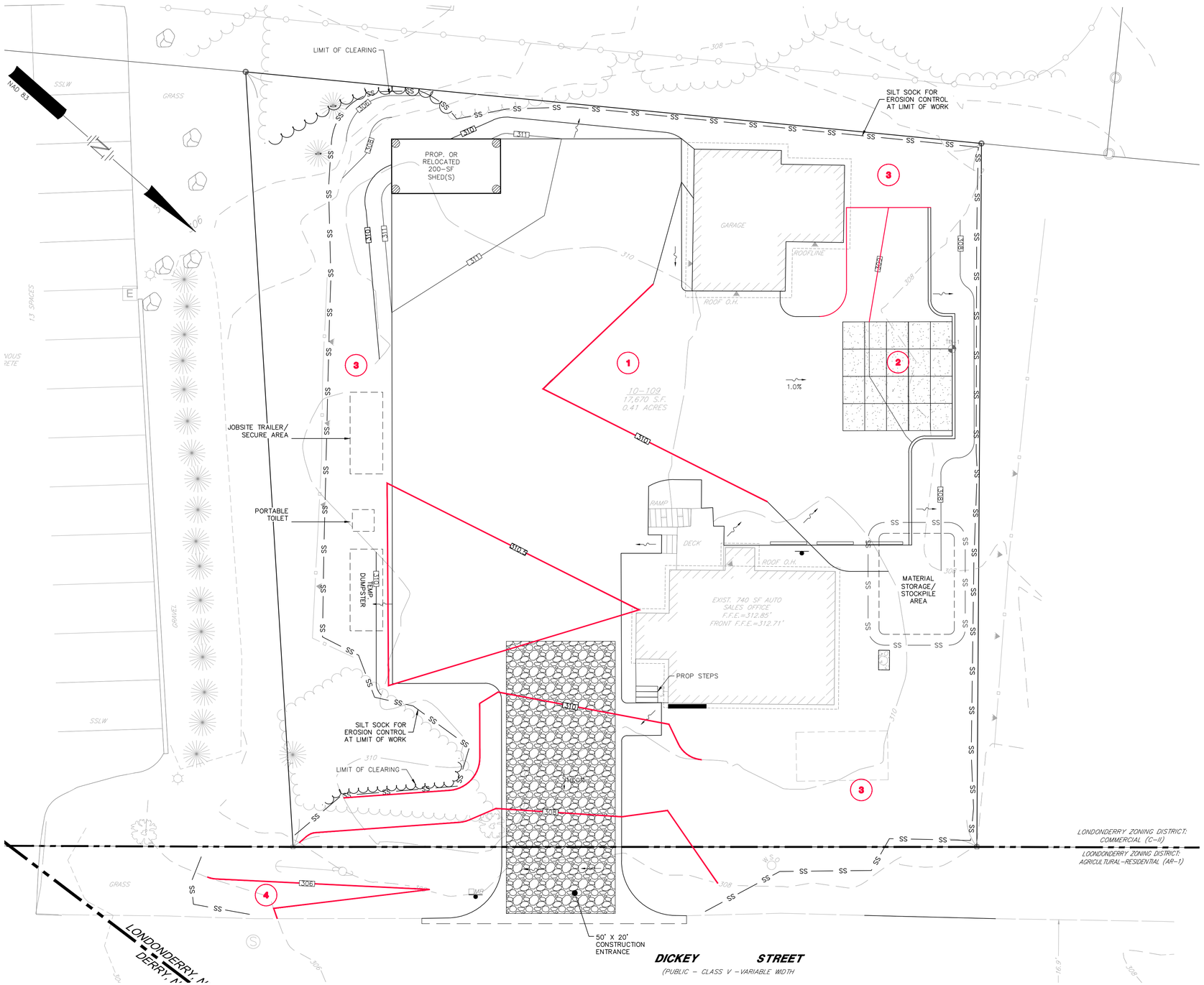
If the presence of invasive species is noted, a management plan will be prepared to address the problem and will likely require the use of several techniques. Action will be taken immediately when an invasive species is noted. Delay will only make the problem more difficult to address properly. Monitoring for invasive species will be conducted throughout the construction period as part of the regular construction environmental monitoring and will continue after completion of construction

Monitoring and management measures for invasive species will also be part of the regular ongoing operations and management activities for the components of the stormwater management system.

Invasive plant species most likely to be a problem in the constructed in stormwater facilities may include Japanese barberry, purple loosestrife, common reed and European buckthorn. Each species will be addressed according to methods most likely to be effective in control of the species. Invasive species are broadly grouped as herbaceous and woody. Each will be address in accordance with the most effective methods.

Deicing Plans

A Deicing Log should be implemented during winter months to keep records of the snow/ice maintenance needed during storm events. It is recommended that a New Hampshire Certified Green SnoPro Salt Applicator be employed to manage the snow and ice removal for the site. Additional information on salt reduction initiatives can be obtained at: http://www.des.nh.gov/organization/divisions/water/wmb/was/salt-reduction-initiative/documents/wmb-26.pdf



LEGEND

(2) INSPECTION CHECKLIST ITEM

SNOW REMOVAL & DE-ICING NOTES

1. IN THE EVENT THAT THE SNOW STORAGE AREAS PROVIDED ON THE SITE ARE COMPLETELY UTILIZED, EXCESS SNOW SHALL BE TRANSPORTED OFF SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
2. WINTER MAINTENANCE SHALL BE PERFORMED BY A GREEN SNO-PRO CERTIFIED (OR FUNCTIONAL EQUIVALENT CERTIFICATION) CONTRACTOR. ANNUAL REPORTING OF SALT USAGE SHALL BE TO NHDES STANDARDS.
3. SNOW MELT SEDIMENT WILL BE CAPTURED IN GRASS AREAS & CATCH BASIN SUMPS DURING SPRING SNOW MELT. PROPERTY OWNER SHALL INSPECT ONSITE SUMPS AND WATER QUALITY UNITS AND CONTRACT A VAC TRUCK SERVICE TO REMOVE ANY SEDIMENT. ALL SNOW MELT SEDIMENT IN LANDSCAPE AREAS SHALL BE SWEPT UP AND DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REQUIREMENTS FOR TRANSPORT AND DISPOSAL TO A PERMITTED LANDFILL.

STORMWATER SYSTEM ANNUAL REPORTING

THE LANDOWNER SHALL BE RESPONSIBLE FOR SUBMITTING AN ANNUAL REPORT TO THE DPW/EPD BY EACH YEAR THAT ALL STORMWATER MANAGEMENT AND EROSION CONTROL MEASURES ARE FUNCTIONING PER THE APPROVED STORMWATER MANAGEMENT PLAN AND I&M PLAN. THE INSPECTION AND MAINTENANCE LOG AND DEICING LOG SHALL BE INCLUDED WITH THE REPORT. THE ANNUAL REPORT SHALL NOTE IF ANY STORMWATER INFRASTRUCTURE HAS NEEDED ANY REPAIRS OTHER THAN ROUTINE MAINTENANCE AND THE RESULTS OF THOSE REPAIRS. IF THE STORMWATER INFRASTRUCTURE IS NOT FUNCTIONING PER THE APPROVED STORMWATER MANAGEMENT PLAN AND I&M PLAN, THE LANDOWNER SHALL MAKE ANY REPAIRS NECESSARY TO RESTORE THE FUNCTION AS DESIGNED WITHIN 90 DAYS OF DISCOVERING THE DEFICIENCY OR PROVIDE DOCUMENTATION TO DPW/EPD DESCRIBING WHY THE SYSTEM CANNOT BE REPAIRED WITHIN 90 DAYS AND A PROPOSED SCHEDULE FOR SUCH REPAIRS. THE LANDOWNER OF A SITE FOR WHICH A SOURCE CONTROL PLAN IS REQUIRED SHALL UPDATE THE SOURCE CONTROL PLAN AS NECESSARY TO REFLECT ANY CHANGES AND SUBMIT THE UPDATED SOURCE CONTROL PLAN TO DPW/EPD WITH ITS ANNUAL REPORT. IF NO CHANGES HAVE BEEN MADE, THE LANDOWNER SHALL DOCUMENT THIS IN THE ANNUAL REPORT. RECORDS MUST ALSO BE MADE AVAILABLE TO THE CITY OR DPW/EPD UPON REQUEST.

DESCRIPTION OF PROJECT

THE PROPOSED DEVELOPMENT IS THE CONSTRUCTION OF A PARKING LOT ON TAX MAP 10 LOT 109. IMPROVEMENTS WILL CONSIST OF GRADING, A STORMWATER MANAGEMENT SYSTEM AND LANDSCAPING. THE PROPOSED AREA OF WORK IS LOCATED PREDOMINANTLY ON TAX MAP 10 LOT 109. ACCESS TO THE SITE IS FROM DICKEY STREET.

THE SITE IS LOCATED DIRECTLY ADJACENT TO THE TOWN LINE SHARED WITH DERRY, NH. IN LONDONDERRY, THE SITE IS ABUTTED BY DEVELOPED COMMERCIAL II (C-II) PARCELS TO THE NORTH, EAST, SOUTH, AND WEST. IN DERRY, THE SITE IS ABUTTED BY DEVELOPED OBD-OFFICE BUSINESS DISTRICT PARCELS TO THE SOUTH AND SOUTHEAST.

AN OPEN DRAINAGE SYSTEM IS PROPOSED TO ATTENUATE, CONVEY, AND TREAT RUNOFF FROM THE PROPOSED DEVELOPMENT. A PERMEABLE CONCRETE/ASPHALT INFILTRATION BED IS STRATEGICALLY LOCATED TO PROVIDE PRETREATMENT/TREATMENT AND MANAGE RUNOFF.

RESPONSIBLE PARTY

BROADWAY AUTO SALES
6 DICKEY STREET
LONDONDERRY, NH 03053
CONTACT: LEO LAMPES
PHONE: (617) 549-1478
EMAIL: PEGASUS.I@COMCAST.NET

REFER TO C-11 FOR SCHEDULE OF MAINTENANCE

DEICING LOG

DATE	OPERATOR	LOCATION	EVENT BEGAN	EVENT END	EVENT TYPE	TOTAL PRECIP.	PAVEMENT TEMP	TEMP. TREND	MATERIAL USED	AMOUNT USED	APPLICATION RATE

TAX MAP 10 LOT 109

INSPECTION AND MAINTENANCE PLAN 1

BROADWAY AUTO SALES

6 DICKEY STREET, LONDONDERRY, NH

OWNED BY/PREPARED FOR

LEON & TAMARA LAMPES

6 DICKEY STREET, DERRY, NH 03038

NOVEMBER 6, 2025

HORIZONTAL SCALE 1"=10'
10 5 0 10

REV	DATE	DESCRIPTION	DR	CK
1	1/27/2026	REV. PER DRC COMMENTS	PWH	JSH

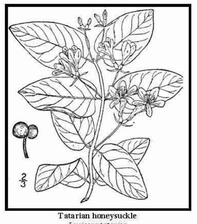
TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
48 Constitution Drive
Bedford, NH 03110
Phone (603) 472-4488
Fax (603) 472-9747
www.tfmoran.com

FILE 18301.00 | DR | CK | CADFILE: 18301-00 DESIGN_LAYOUT | C-10

UNIVERSITY of NEW HAMPSHIRE COOPERATIVE EXTENSION

Methods for Disposing Non-Native Invasive Plants

Prepared by the Invasives Species Outreach Group, volunteers interested in helping people control invasive plants. Assistance provided by the Piscataquog Land Conservancy and the NH Invasives Species Committee. Edited by Karen Bennett, Extension Forestry Professor and Specialist.



Tatarian honeysuckle
Lonicera tatarica
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions.* Vol. 3: 282.

Non-native invasive plants crowd out natives in natural and managed landscapes. They cost taxpayers billions of dollars each year from lost agricultural and forest crops, decreased biodiversity, impacts to natural resources and the environment, and the cost to control and eradicate them.

Invasive plants grow well even in less than desirable conditions such as sandy soils along roadsides, shaded wooded areas, and in wetlands. In ideal conditions, they grow and spread even faster. There are many ways to remove these non-native invasives, but once removed, care is needed to dispose the removed plant material so the plants don't grow where disposed.

Knowing how a particular plant reproduces indicates its method of spread and helps determine the appropriate disposal method. Most are spread by seed and are dispersed by wind, water, animals, or people. Some reproduce by vegetative means from pieces of stems or roots forming new plants. Others spread through both seed and vegetative means.

Because movement and disposal of viable plant parts is restricted (see NH Regulations), viable invasive parts can't be brought to most transfer stations in the state. Check with your transfer station to see if there is an approved, designated area for invasives disposal. This fact sheet gives recommendations for rendering plant parts non-viable.

Control of invasives is beyond the scope of this fact sheet. For information about control visit www.nhinvasives.org or contact your UNH Cooperative Extension office.

New Hampshire Regulations

Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

No person shall collect, transport, import, export, move, buy, sell, distribute, propagate or transplant any living and viable portion of any plant species, which includes all of their cultivars and varieties, listed in Table 3800.1 of the New Hampshire prohibited invasive species list. (Agr 3802.01)

How and When to Dispose of Invasives?

To prevent seed from spreading remove invasive plants before seeds are set (produced). Some plants continue to grow, flower and set seed even after pulling or cutting. Seeds can remain viable in the ground for many years. If the plant has flowers or seeds, place the flowers and seeds in a heavy plastic bag "head first" at the weeding site and transport to the disposal site. The following are general descriptions of disposal methods. See the chart for recommendations by species.

Japanese knotweed
Polygonum cuspidatum
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions.* Vol. 1: 676.

Burning: Large woody branches and trunks can be used as firewood or burned in piles. For outside burning, a written fire permit from the local forest fire warden is required unless the ground is covered in snow. Brush larger than 5 inches in diameter can't be burned. Invasive plants with easily airborne seeds like black swallow-wort with mature seed pods (indicated by their brown color) shouldn't be burned as the seeds may disperse by the hot air created by the fire.

Bagging (solarization): Use this technique with softer-tissue plants. Use heavy black or clear plastic bags (contractor grade), making sure that no parts of the plants poke through. Allow the bags to sit in the sun for several weeks and on dark pavement for the best effect.

Tarping and Drying: Pile material on a sheet of plastic and cover with a tarp, fastening the tarp to the ground and monitoring it for escapes. Let the material dry for several weeks, or until it is clearly nonviable.

Chipping: Use this method for woody plants that don't reproduce vegetatively.

Burying: This is risky, but can be done with watchful diligence. Lay thick plastic in a deep pit before placing the cut up plant material in the hole. Place the material away from the edge of the plastic before covering it with more heavy plastic. Eliminate as much air as possible and toss in soil to weight down the material in the pit. Note that the top of the buried material should be at least three feet underground. Japanese knotweed should be at least 5 feet underground!

Drowning: Fill a large barrel with water and place soft-tissue plants in the water. Check after a few weeks and look for rotted plant material (roots, stems, leaves, flowers). Well-rotted plant material may be composted. A word of caution- seeds may still be viable after using this method. Do this before seeds are set. This method isn't used often. Be prepared for an awful stink!

Composting: Invasive plants can take root in compost. Don't compost any invasives unless you know there is no viable (living) plant material left. Use one of the above techniques (bagging, tarping, drying, chipping, or drowning) to render the plants nonviable before composting. Closely examine the plant before composting and avoid composting seeds.

Be diligent looking for seedlings for *years* in areas where removal and disposal took place.

Suggested Disposal Methods for Non-Native Invasive Plants

This table provides information concerning the disposal of removed invasive plant material. If the infestation is treated with herbicide and left in place, these guidelines don't apply. Don't bring invasives to a local transfer station, unless there is a designated area for their disposal, or they have been rendered non-viable. This listing includes wetland and upland plants from the New Hampshire Prohibited Invasive Species List. The disposal of aquatic plants isn't addressed.

Woody Plants	Method of Reproducing	Methods of Disposal
Norway maple *(Acer platanoides)* European barberry *(Berberis vulgaris)* Japanese barberry *(Berberis thunbergii)* autumn olive *(Elaeagnus umbellata)* burning bush *(Euonymus alatus)* Morrow's honeysuckle *(Lonicera morrowii)* Tatarian honeysuckle *(Lonicera tatarica)* showy bush honeysuckle *(Lonicera x bella)* common buckthorn *(Rhamnus cathartica)* glossy buckthorn *(Frangula alnus)*	**Fruit and Seeds**	**Prior to fruit/seed ripening** Seedlings and small plants ▪ Pull or cut and leave on site with roots exposed. No special care needed. Larger plants ▪ Use as firewood. ▪ Make a brush pile. ▪ Chip. ▪ Burn. **After fruit/seed is ripe** Don't remove from site. ▪ Burn. ▪ Make a covered brush pile. ▪ Chip once all fruit has dropped from branches. ▪ Leave resulting chips on site and monitor.
oriental bittersweet *(Celastrus orbiculatus)* multiflora rose *(Rosa multiflora)*	**Fruits, Seeds, Plant Fragments**	**Prior to fruit/seed ripening** Seedlings and small plants ▪ Pull or cut and leave on site with roots exposed. No special care needed. Larger plants ▪ Make a brush pile. ▪ Burn. **After fruit/seed is ripe** Don't remove from site. ▪ Burn. ▪ Make a covered brush pile. ▪ Chip – only after material has fully dried (1 year) and all fruit has dropped from branches. Leave resulting chips on site and monitor.

Non-Woody Plants	Method of Reproducing	Methods of Disposal
garlic mustard *(Alliaria petiolata)* spotted knapweed *(Centaurea maculosa)* ▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling. black swallow-wort *(Cynanchum nigrum)* ▪ May cause skin rash. Wear gloves and long sleeves when handling. pale swallow-wort *(Cynanchum rossicum)* giant hogweed *(Heracleum mantegazzianum)* ▪ Can cause major skin rash. Wear gloves and long sleeves when handling. dame's rocket *(Hesperis matronalis)* perennial pepperweed *(Lepidium latifolium)* purple loosestrife *(Lythrum salicaria)* Japanese stilt grass *(Microstegium vimineum)* mile-a-minute weed *(Polygonum perfoliatum)*	**Fruits and Seeds**	**Prior to flowering** Depends on scale of infestation Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material. **During and following flowering** Do nothing until the following year or remove flowering heads and bag and let rot. Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material.
common reed (*Phragmites australis*) Japanese knotweed *(Polygonum cuspidatum)* Bohemian knotweed *(Polygonum x bohemicum)*	**Fruits, Seeds, Plant Fragments** Primary means of spread in these species is by plant parts. Although all care should be given to preventing the dispersal of seed during control activities, the presence of seed doesn't materially influence disposal activities.	**Small infestation** ▪ Bag all plant material and let rot. ▪ Never pile and use resulting material as compost. ▪ Burn. **Large infestation** ▪ Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile. ▪ Monitor and remove any sprouting material. ▪ Pile, let dry, and burn.

January 2010

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STORMWATER PRACTICES - MAINTENANCE GUIDELINES

(INSPECTED TWICE A YEAR)

PERMEABLE PAVEMENT/CONCRETE
MAINTENANCE REQUIREMENTS:
ROUTINE MAINTENANCE:

- SHOULD INCLUDE VISUAL INSPECTION OF THE PERVIOUS PAVEMENT TO ENSURE THAT IT IS CLEAN OF DEBRIS AND SEDIMENTS, AND THAT IT WILL DEWATER BETWEEN STORMS.
- ROUTINE MAINTENANCE CLEANING PROCEDURES WOULD INCLUDE BLOWING (WITH LEAF BLOWER OR SIMILAR EQUIPMENT), TRUCK-SWEEPING AND/OR DRY VACUUMING.
- MAINTENANCE SHOULD BE PERFORMED AS NEEDED TO KEEP THE ENTIRE PERVIOUS CONCRETE AREA CLEAN. VISUALLY INSPECT THE PAVEMENT PERIODICALLY DURING OR IMMEDIATELY FOLLOWING A RAIN EVENT. PONDING OR PUDDLES ARE SIGNS THAT IT IS TIME TO CLEAN THE PAVEMENT. IN SOME AREAS.
- MOSS GROWTH CAN BE AN ISSUE. MOSS CAN BE CONTROLLED BY SPRINKLING BAKING SODA ON THE SURFACE, FOLLOWED BY A DRY VACUUMING WITHIN A FEW WEEKS. MOSS GROWTH CAN BE RETARDED/ELIMINATED WITH LIME WATER APPLICATIONS.

PERIODIC MAINTENANCE:

- PERFORM PERIODIC MAINTENANCE JUST BEFORE WINTER TO INSURE THAT THE PERVIOUS CONCRETE VOIDS ARE CLEAN AND FREE OF NON COMPRESSIBLE MATERIALS THAT MAY INHIBIT DRAINING AND, THEREFORE, COULD CONTRIBUTE TO FREEZE-THAW DAMAGE.
- PERIODIC MAINTENANCE MAY BE REQUIRED FOLLOWING WINTER TO REMOVE ANY ANTI-SKID MATERIALS THAT MAY HAVE BEEN USED. PROPER CLEANING PROCEDURES WOULD INCLUDE PRESSURE WASHING AND/OR VACUUMING THE AREA WITH EITHER A DRY VACUUM OR A REGENERATIVE VACUUM SWEEPER. CARE SHOULD BE TAKEN TO AVOID EXTREMELY HIGH PRESSURES WITH A PRESSURE WASHER, AS THIS CAN DEGRADE THE BONDING CEMENT PASTE AND INCREASE RAVELING. CLEANING EQUIPMENT SHOULD ALLOW FOR THE DEBRIS TO BE BAGGED AND REMOVED FROM THE UNIT SO IT CAN BE WEIGHED

WINTER MAINTENANCE REQUIREMENTS:

- PERVIOUS CONCRETE SHOULD NEVER BE USED AS A STORAGE AREA TO PILE SNOW FROM OTHER AREAS.
- ANTI-ICING PRE-TREATMENTS SHOULD NEVER BE USED ON PERVIOUS CONCRETE PAVEMENTS. IF THESE PRODUCTS ARE USED ON ADJACENT PAVEMENTS, CARE SHOULD BE TAKEN TO PREVENT THE ADJACENT RUNOFF FROM INFILTRATING THE PERVIOUS CONCRETE.
- DEICERS CONTAINING MAGNESIUM CHLORIDE, CALCIUM MAGNESIUM ACETATE OR POTASSIUM ACETATE SHOULD NEVER BE USED ON PERVIOUS CONCRETE PAVEMENT.
- DEICING AGENTS THAT CONTAIN FERTILIZER INGREDIENTS SUCH AS AMMONIUM SULFATE AND AMMONIUM NITRATE CAUSE CHEMICAL DETERIORATION TO ANY PORTLAND CEMENT-BASED CONCRETE PAVEMENT AND SHOULD NEVER BE USED.
- CALCIUM CHLORIDE IMPREGNATED SAND CAN BE USED FOR DEICING PAVEMENTS AFTER THE FIRST YEAR.
- COARSE SAND (MINIMUM 1/8"), OR SMALL CRUSHED AGGREGATE (1/4 – 10, OR SIMILAR GRADATION) CAN BE USED AS AN ANTI-SKID MATERIAL WITH THE UNDERSTANDING THAT VACUUM CLEANING WILL BE PERFORMED AFTER THE WINTER SEASON. FINE SANDS SUCH AS MASONRY SAND OR PLAY SAND SHOULD NOT BE USED ON PERVIOUS CONCRETE PAVEMENTS!
- SNOW PLOWING CAN BE PERFORMED WITH TRUCKS MOUNTED WITH PLOWS, BUT THE PLOW SHOULD BE FITTED WITH A POLYURETHANE CUTTING EDGE. USE OF SNOW BLOWERS MAY BE A BETTER ALTERNATIVE TO PLOWING, IF AVAILABLE
- A SITE MAINTENANCE LOG WILL BE KEPT. THIS LOG WILL RECORD THE DATES WHEN MAINTENANCE TASKS WERE COMPLETED, THE PERSON WHO COMPLETED THE TASK, AND ANY OBSERVATIONS OF MALFUNCTIONS IN COMPONENTS OF THE STORMWATER MANAGEMENT SYSTEM AND INCLUDE A PHOTOGRAPH OF THE BASIN.

SYSTEM COMPONENTS

DRIVEWAY, SIDEWALK, AND PARKING AREAS:
MAINTENANCE REQUIREMENTS:

- SEDIMENTS AND DEBRIS SHOULD BE REMOVED AND DISPOSED FROM IMPERVIOUS AREAS BY POWER-BROOM SWEEPING.
- SWEEP AT LEAST TWO (2) TIMES PER YEAR AND ON A MORE FREQUENT BASIS DEPENDING ON SANDING OPERATIONS.
- ALL RESULTING SWEEPINGS SHALL BE COLLECTED AND PROPERLY DISPOSED OF OFFSITE IN ACCORDANCE WITH NHDES AND OTHER APPLICABLE REQUIREMENTS.

LAWNS AND LANDSCAPING AREAS:
MAINTENANCE REQUIREMENTS:

- INSPECT, MAINTAIN, AND REPAIR AS NECESSARY DEVELOPMENT AREA LAWNS AND LANDSCAPED AREAS TO ENSURE A STABILIZED SURFACE.
- MAINTAIN LAWN AREAS WITH HEALTHY TURF. TAKE STEPS TO NECESSARY TO RESTORE DISTRESSED TURF TO GOOD HEALTH.
- ENSURE THAT LANDSCAPE MULCH MATERIALS IS REFRESHED AS NECESSARY, AND DOES NOT WASH ONTO SIDEWALKS OR OTHER ADJACENT SURFACES.

GRASS CONVEYANCE SWALES:
MAINTENANCE REQUIREMENTS:

- GRASSED CHANNELS SHOULD BE INSPECTED ANNUALLY FOR SEDIMENT ACCUMULATION, EROSION AND CONDITION OF SURFACE LINING.
- REPAIRS, INCLUDING VEGETATION REPLACEMENT, SHOULD BE MADE BASED ON INSPECTION.
- REMOVE SEDIMENT AND DEBRIS ANNUALLY, OR MORE FREQUENTLY AS WARRANTED BY INSPECTION.
- MOW VEGETATED CHANNELS AT LEAST ONCE A YEAR TO CONTROL ESTABLISHMENT OF WOODY VEGETATION. IT IS RECOMMENDED TO CUT GRASS NO SHORTER THAN 4 INCHES.

CONTROL OF INVASIVE PLANTS

DURING MAINTENANCE ACTIVITIES, CHECK FOR THE PRESENCE OF INVASIVE PLANTS. IF INVASIVE PLANTS ARE FOUND, THEY SHALL BE CONTROLLED AND REMOVED IN A SAFE MANNER AS DESCRIBED ON THE FOLLOWING PAGES.

INVASIVE PLANTS ARE INTRODUCED, ALIEN, OR NON-NATIVE PLANTS, WHICH HAVE BEEN MOVED BY PEOPLE FROM THEIR NATIVE HABITAT TO A NEW AREA. SOME EXOTIC PLANTS ARE IMPORTED FOR HUMAN USE SUCH AS LANDSCAPING, EROSION CONTROL OR FOOD CROPS. THEY ALSO CAN ARRIVE AS "HITCHHIKERS" AMONG SHIPMENTS OF OTHER PLANTS, SEEDS, PACKING MATERIALS OR FRESH PRODUCE. INVASIVE PLANTS CAN CAUSE HARM BY:

- BECOMING WEEDY AND OVERGROWN;
- KILLING ESTABLISHED SHADE TREES;
- OBSTRUCTING PIPES AND DRAINAGE SYSTEMS
- FORMING DENSE BEDS IN WATER
- LOWERING WATER LEVELS IN LAKES, STREAMS, AND WETLANDS
- DESTROYING NATURAL COMMUNITIES
- PROMOTING EROSION ON STREAM BANKS AND HILLSIDES
- RESISTING CONTROL EXCEPT BY HAZARDOUS CHEMICALS.

STORMWATER PRACTICES - SCHEDULE OF MAINTENANCE

THE FOLLOWING PRACTICES SHALL BE INSPECTED TWICE ANNUALLY, ONCE FOLLOWING SNOWMELT (SPRING) AND ONCE FOLLOWING LEAF-DROP (FALL):

- PERMEABLE PAVEMENT/CONCRETE
- PAVEMENT/WALKWAY

THE FOLLOWING PRACTICES SHALL BE INSPECTED ANNUALLY FOLLOWING SNOWMELT (SPRING):

- LAWNS/LANDSCAPE AREAS
- GRASS CONVEYANCE SWALE

INSPECTION CHECKLIST

Date:	**Project Name:**
Inspector's Name:	
Inspector's Contact Information:	
☐ **1st Yearly Inspecton**	**BMPs to be Inspected: All**
☐ **2nd Yearly Inspecton**	**BMPs to be Inspected: Treatmend and Pretreatment Practices**

	BMP Refer to following Inspection & Maintenance Plan for BMP Location	Maintenance Required	Corrective Action Needed and Notes
1	PARKING LOT SWEEPING	YES/NO	
2	PERMEABLE PAVEMENT/CONCRETE	YES/NO	
3	LAWNS & LANDSCAPE AREA	YES/NO	
4	GRASS SWALE	YES/NO	

DE-ICING NOTE:

A DE-ICING LOG SHOULD BE IMPLEMENTED DURING WINTER MONTHS TO KEEP RECORDS OF THE SNOW/ICE MAINTENANCE NEEDED DURING STORM EVENTS. A NEW HAMPSHIRE CERTIFIED GREEN SNOPRO SALT APPLICATOR SHALL BE EMPLOYED TO MANAGE THE SNOW AND ICE REMOVAL FOR THE SITE. DEICING MATERIALS AND APPLICATION RATES SHALL BE REPORTED USING NHDES STANDARDS.

ADDITIONAL INFORMATION ON SALT REDUCTION INITIATIVES CAN BE OBTAINED AT: HTTP://WWW.DES.NH.GOV/ORGANIZATION/DIVISIONS/WATER/WMB/WAS/SALT-REDUCTION-INITIATIVE/DOCUMENTS/WMB-26.PDF

TAX MAP 10 LOT 109

INSPECTION AND MAINTENANCE PLAN 2

BROADWAY AUTO SALES

6 DICKEY STREET, LONDONDERRY, NH

OWNED BY/PREPARED FOR

LEON & TAMARA LAMPES

6 DICKEY STREET, DERRY, NH 03038

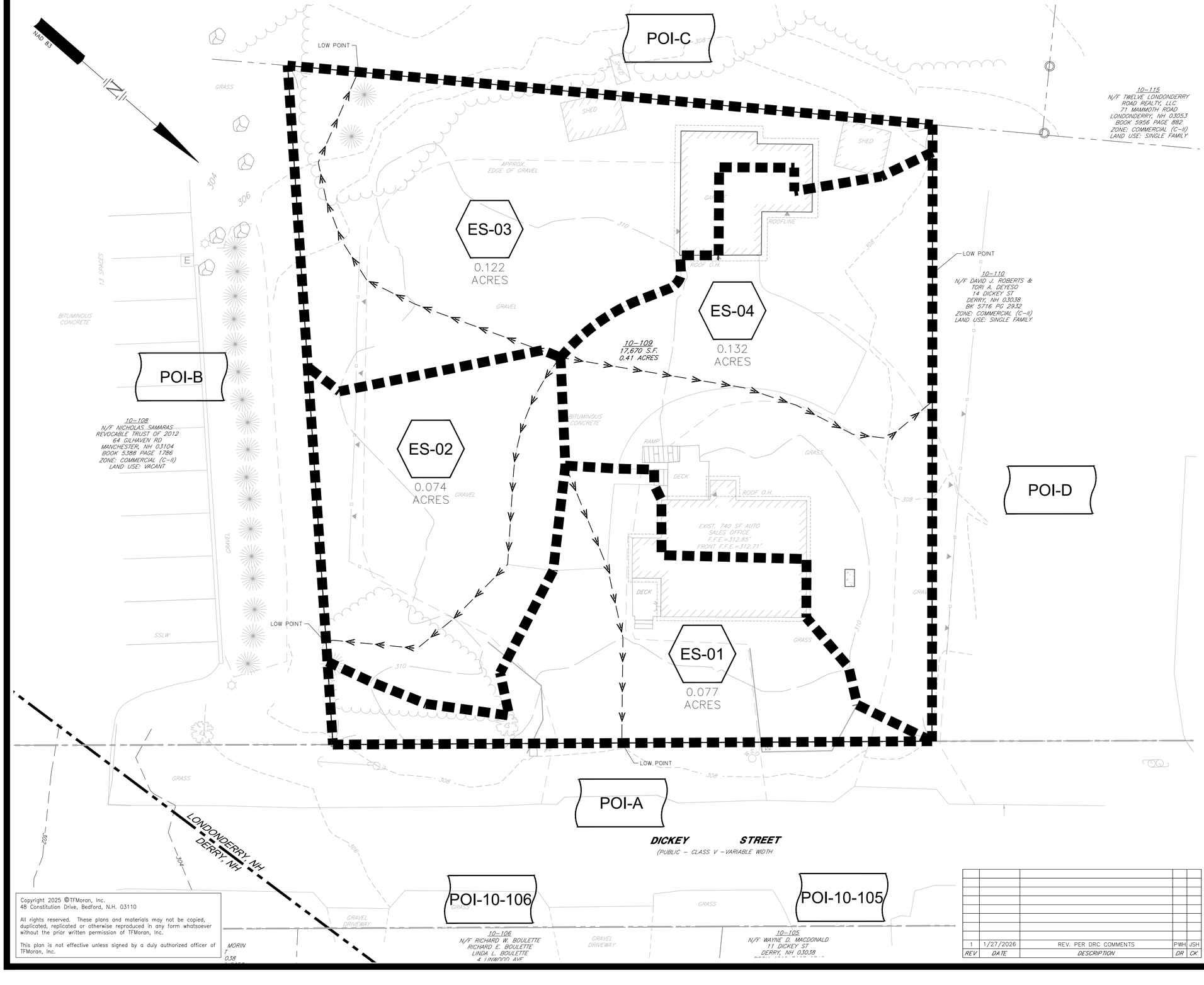
NOVEMBER 6, 2025

REV	DATE	DESCRIPTION	PWH / DR	JSH / CK
1	1/27/2026	REV. PER DRC COMMENTS	PWH	JSH

TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

48 Constitution Drive
Bedford, NH 03110
Phone (603) 472-4488
Fax (603) 472-9747
www.tfmoran.com

FILE 18301.00 | DR - | CK - | CADFILE 18301-00 DESIGN_LAYOUT | C-11



LEGEND

- PROPERTY LINE
- LIMITS OF DRAINAGE SUBCATCHMENT
- SOIL GROUP BREAKLINE
- FLOW PATH (Tc LINE)
- REACH
- POI-1 — POINT OF INTEREST
- ES-1 — SUBCATCHMENT AREA
- EP-1 — POND, CULVERT, OR CATCH BASIN
- ER-1 — REACH

NOTES

1. THE SITE SOIL INFORMATION WAS ACQUIRED ON FEBRUARY 10, 2025, USING UNITED STATES DEPARTMENT OF AGRICULTURE (USDA) NATURAL RESOURCES CONSERVATION SERVICE (NRCS).

SOIL PHASE LEGEND (PERCENT)					
A	B	C	D	E	F
0-3	3-8	8-15	15-25	25-50	50+

SOIL LEGEND (PER USDA NRCS WEB SOIL SURVEY)			
SYMBOL	DESCRIPTION	HYDROLOGIC SOIL GROUP	DRAINAGE CLASS
799	URBAN LAND-CANTON COMPLEX, 3 TO 15 PERCENT SLOPES	A	EXCESSIVELY WELL DRAINED

HORIZONTAL SCALE 1"=10'
10 5 0 10

TAX MAP 10 LOT 109

PRE-DEVELOPMENT DRAINAGE PLAN

BROADWAY AUTO SALES

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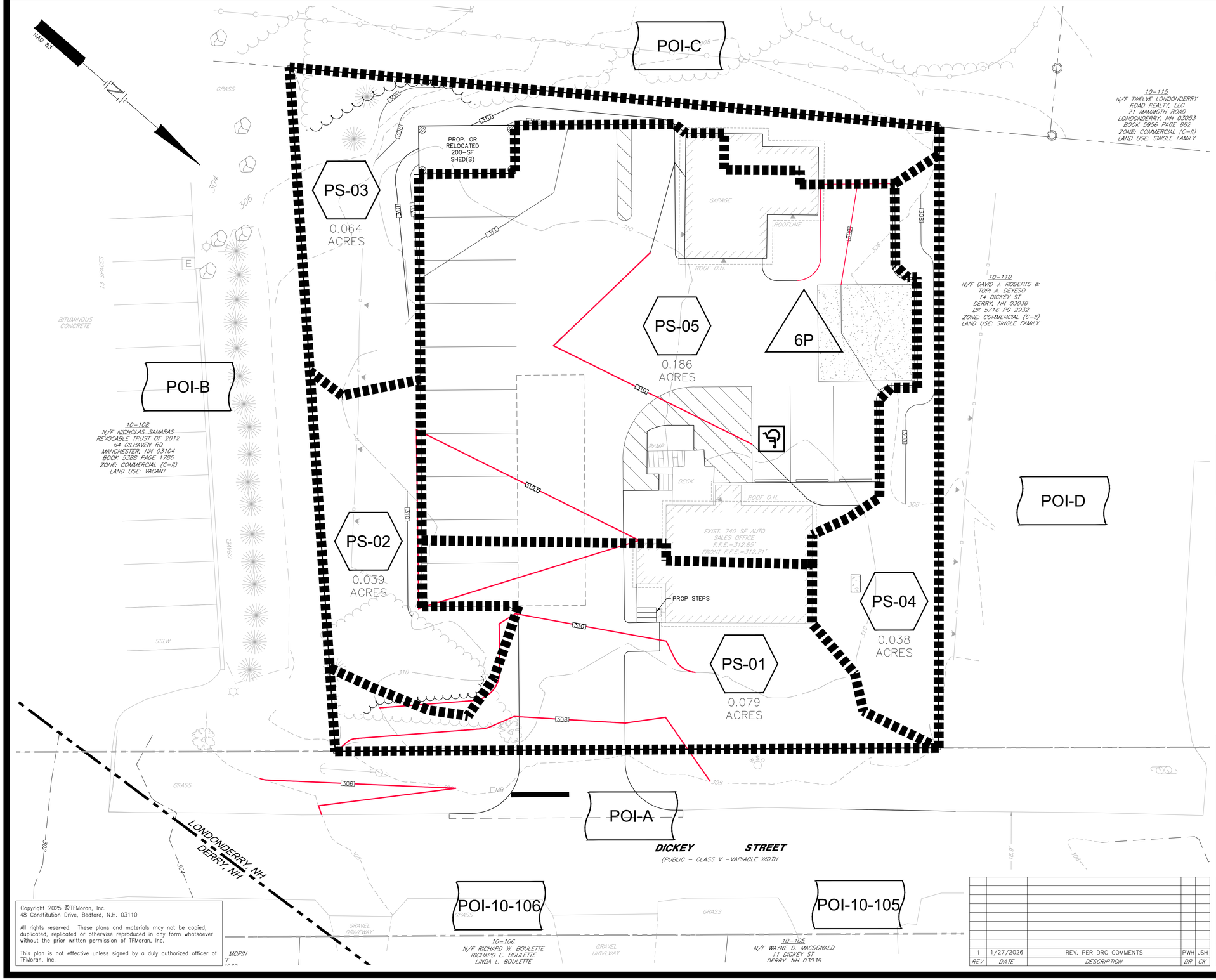
FILE	DR	CK	CADFILE		
18301.00				18301-00 DRAINAGE	DRN-01



LEGEND

- PROPERTY LINE
- LIMITS OF DRAINAGE SUBCATCHMENT
- SOIL GROUP BREAKLINE
- FLOW PATH (Tc LINE)
- REACH
- POI-1 — POINT OF INTEREST
- PS-1 — SUBCATCHMENT AREA
- PP-1 — POND, CULVERT, OR CATCH BASIN
- PR-1 — REACH

NOTES

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HORIZONTAL SCALE 1"=10'
10 5 0 10

TAX MAP 10 LOT 109

POST DEVELOPMENT DRAINAGE PLAN

BROADWAY AUTO SALES

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		CK				