

***DRAINAGE MEMO***

*For*

***CRANSTON MUNICIPAL EMPLOYEES CREDIT UNION***

***PROPOSED***

***BANK WITH DRIVE THRU***

***1224 Oaklawn Avenue  
Cranston, Rhode Island  
Providence County***

Prepared by:

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**BOHLER** //

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## I. EXECUTIVE SUMMARY

This report examines the changes in drainage that can be expected as the result of the development of a proposed bank with drive thru located on the easterly side of Oaklawn Avenue in the City of Cranston, Rhode Island. The site, which contains approximately 0.57 acres of land, contains an existing paved parking area and gravel areas.

The proposed project includes the construction of a new 2,500± sf freestanding “CME Credit Union” bank with drive thru along with new paved parking areas, landscaping, storm water management components and associated utilities. This report addresses a comparative analysis of the pre- and post-development site runoff conditions. Additionally, this report provides calculations documenting the design of the proposed stormwater conveyance/management system as illustrated within the accompanying Site Development Plans prepared by Bohler. The project will also provide erosion and sedimentation controls during the demolition and construction periods, as well as long term stabilization of the site.

For the purposes of this analysis the pre- and post-development drainage conditions were analyzed at one (1) “design point” where stormwater runoff currently drains to under existing conditions. These design points are described in further detail in **Section II** below. A summary of the existing and proposed conditions peak runoff rates and volumes for the 1-, 10-, 25-, and 100-year storms can be found in **Table 1.1** and **Table 1.2** below. In addition, the project has been designed to meet or exceed the *RIDEM Stormwater Management, Design, and Installation Rules* as detailed herein.

**Table 1.1: Design Point Peak Runoff Rate Summary**

Point of Analysis	1-Year Storm			10-Year Storm			25-Year Storm			100-Year Storm		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
DP-1	1.55	1.27	<b>-0.28</b>	2.89	2.66	<b>-0.23</b>	3.62	3.41	<b>-0.21</b>	5.18	5.01	<b>-0.17</b>

*\*Flows are represented in cubic feet per second (cfs)*

**Table 1.2: Design Point Volume Summary**

Point of Analysis	2-Year Storm			10-Year Storm			25-Year Storm			100-Year Storm		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
DP-1	0.123	0.093	<b>-0.030</b>	0.236	0.202	<b>-0.034</b>	0.298	0.262	<b>-0.036</b>	0.433	0.395	<b>-0.038</b>

*\*Volumes are represented in acre-feet (ac-ft)*

## II. EXISTING SITE CONDITIONS

### Existing Site Description

The site consists of approximately 0.57 acres of land located along the easterly side of Oaklawn Avenue in the City of Cranston, Rhode Island. The site contains an existing paved parking area and gravel areas.

### On-Site Soil Information

Soils within the analyzed area consist of the following as classified by the Natural Resource Conservation Service (NRCS):

**Table 2.1: Existing Soil Information**

<b>Soil Unit Symbol</b>	<b>Soil Name / Description</b>	<b>Hydrologic Soil Group (HSG)</b>
PD	Paxton-Urban land complex, 3 to 15 percent slopes	D
Ur	Urban Land	N/A

Refer to **Appendix C** for additional information.

### Existing Collection and Conveyance

The site drains overland to the west and into the Oaklawn Avenue drainage system. Slopes on the site range from 1%-7% with on-site elevations ranging from 79 adjacent to Oaklawn Avenue to 82 at the easterly portion of the property.

### Existing Watersheds and Design Point Information

For the purposes of this analysis, the pre- and post-development drainage conditions were analyzed at one (1) "design point" as described below where stormwater runoff currently drains to under existing conditions. The existing site was subdivided into one (1) separate sub catchments, as described below, to analyze existing and proposed flow rates at each design point. The minimum time of concentration for all proposed areas is calculated as 6 minutes (0.1 hr).

Design Point #1 (DP-1) is the Oaklawn Avenue. Under existing conditions, this design point receives stormwater flows from approximately 0.62 acres of land, designated as watershed "E-1". Refer to Table 2.2 below for additional detail.

**Table 2.2: Existing Sub-Catchment Summary**

<b>Sub-catchment Name</b>	<b>Total Area (acres)</b>	<b>Cover Description</b>	<b>Curve Number (CN)</b>	<b>Time of Concentration (Tc, minutes)</b>
E-1	0.62±	Paved parking, gravel, grass areas	97	6.0

Refer to **Table 1.1 and 1.2** for the existing conditions peak rates of runoff and volumes.

### III. PROPOSED SITE CONDITIONS

#### **Proposed Development Description**

The proposed project consists of the construction of a new 2,500± sf freestanding bank with drive thru including paved parking areas, landscaping, associated utilities, and a new stormwater management system. The site, including the proposed parking areas, has been designed to drain to deep-sump, hooded catch basins. The catch basins will capture and convey stormwater runoff, via an underground pipe system, to the proposed connection point to the system within Oaklawn Avenue. Rooftop runoff has been designed to flow to the underground pipe system as well. The redevelopment of the site will result in a proposed decrease in impervious area of approximately 1,442 sf.

#### **Proposed Development Collection and Conveyance**

Deep sump hooded catch basins are proposed to collect and route runoff from the paved parking areas to the existing system within Oaklawn Avenue. Pipes have been designed for the 25-year storm using the Rational Method.

#### **Proposed Watersheds and Design Point Information**

The project has been designed to maintain existing drainage watersheds to the greatest extent possible, with the same design points described in **Section II** above. The site was subdivided into one (1) separate sub catchments for the proposed conditions as described below. The minimum time of concentration for all proposed areas is calculated as 6 minutes (0.1 hr).

Under proposed conditions DP-1 receives stormwater flows from approximately 0.62 acres of land, designated as watershed "P-1". Refer to Table 3.1 below for additional detail.

**Table 3.1: Proposed Sub-catchment Summary**

<b>Sub-catchment Name</b>	<b>Total Area (acres)</b>	<b>Cover Description</b>	<b>Curve Number (CN)</b>	<b>Time of Concentration (Tc, minutes)</b>	<b>Hydrologic Routing</b>
P-1	0.62±	Rooftops, paved parking, grass areas	91	6.0	DP-1

Refer to **Table 1.1, 1.2, 6.1, and 6.2** for the calculated proposed conditions peak rates of runoff and volumes.

#### IV. METHODOLOGY

##### Peak Flow Calculations

Methodology utilized to design the proposed stormwater management system includes compliance with the guidelines set forth in the latest edition of the Massachusetts DEP Stormwater Handbook. The pre- and post-development runoff rates being discharged from the site were computed using the HydroCAD computer program. The drainage area and outlet information were entered into the program, which routes storm flows based on NRCS TR-20 and TR-55 methods. The other components of the model were determined following standard NRCS procedures for Curve Numbers (CNs) and times of concentrations documented in the appendices of this report. The rainfall data utilized and listed below in table 4.1 below for stormwater calculations is based on Northeast Regional Climate Center (NRCC) per the *Rhode Island Stormwater Management, Design, and Installation Rules*. Refer to **Appendix A** for more information.

**Table 4.1: Providence County, RI NRCC Rainfall Intensities**

Frequency	1 year	10 year	25 year	100 year
Rainfall* (inches)	2.7	4.9	6.1	8.7

\*Values derived from Northeast Regional Climate Center (NRCC) per the *Rhode Island Stormwater Management, Design, and Installation Rules*

The proposed stormwater management as designed will provide a decrease in peak rates of runoff from the proposed facility for the 1-, 10-, 25- and 100-year design storm events. Additionally, the proposed project meets, or exceeds, the *RIDEM Stormwater Management, Design, and Installation Rules*. Compliance with these standards is described further below.

## V. STORMWATER MANAGEMENT STANDARDS

The existing site has greater than 40% existing impervious surface coverage, and the proposed development will result in a decrease in impervious area. Therefore, the site is considered a redevelopment, and only standards 2, 3, and 7-11 must be addressed. However, the site has been designed to meet the remaining standards to the maximum extent practicable.

### **Minimum Standard #1: LID Site Planning and Design Strategies (Section 8.7)**

As outlined in Table 1.1, the redevelopment of the site and the reduction in impervious area have been designed so that the post-development peak rates of runoff are attenuated to the maximum extent practicable for the 1-, 10-, 25-, and 100-year storm events. Post-development peak rates of runoff are below pre-development conditions for the 1-, 10-, 25-, and 100-year storm events for DP-1.

Some low impact development practices in the proposed design include but are not limited to: reduction of driveway widths, minimize impervious surfaces (proposing open space percentage greater than is required by Zoning Ordinance).

### **Minimum Standard #2: Ground Water Recharge (Section 8.8)**

The proposed redevelopment of the site is designed to reduce impervious area by approximately 1,442± sf from the existing condition. With the decrease in impervious area on-site, the overall stormwater runoff for the site will be reduced.

### **Minimum Standard #3: Water Quality (Section 8.9)**

Water quality treatment is provided via deep sump catch basins and the increased landscaped area on site. With the decrease in impervious area on-site, the overall stormwater runoff for the site will be reduced.

### **Minimum Standard #4: Conveyance and Natural Channel Protection (Section 8.10)**

The impervious coverage as part of the proposed development is less than 1 acre, and the proposed peak discharge rate for the 1-year storm event is less than 2 cfs, so this requirement does not apply to the proposed development.

**Minimum Standard #5: Overbank Flood Protection (Section 8.11)**

The 10- and 100-year discharges from the developed site are designed to be less than the existing discharges.

**Minimum Standard #6: Redevelopment and Infill Projects (Section 8.12)**

As stated above, the existing site has greater than 40% impervious coverage, and the proposed development will result in a decrease in impervious area. Therefore, the site is considered a redevelopment.

**Minimum Standard #7: Pollution Prevention (Section 8.13)**

The site has been designed to minimize the impact that the land use may have on stormwater runoff. A pollution prevention plan is included in **Appendix B**.

**Minimum Standard #8: Land Uses with Higher Potential Pollutant Loads (Section 8.14)**

This site is not a Land Use with Higher Potential Pollutant Loads, as defined in Section 8.14.C of the *Rhode Island Stormwater Management, Design, and Installation Rules*.

**Minimum Standard #9: Illicit Discharges (Section 8.15)**

This project has been designed to avoid illicit discharges into the stormwater management system.

**Minimum Standard #10: Construction Erosion and Sedimentation Control (Section 8.16)**

The total site disturbance associated with this project will be approximately 0.62 acres. A Stormwater Pollution Prevention Plan is included with the project documents. The project will include the use of construction-period erosion and sedimentation control measures, as shown within the site plan set.

**Minimum Standard #11: Stormwater Management System Operation and Maintenance (Section 8.17)**

A stormwater management system Operation and Maintenance (O&M) Plan has been prepared for this project and is included in **Appendix B** of this report. The O&M Plan includes specific requirements for the long-term function of each component of the proposed system, in order to ensure compliance with these minimum standards. The O&M Plan indicates the responsible party

(the property owner) and provides an estimated annual budget. The O&M for this site will be privately financed by the owner.

## VI. SUMMARY

In summary, the proposed stormwater management system illustrated on the drawings prepared by Bohler results in a reduction in peak rates of runoff and volumes from the subject site when compared to pre-development conditions for the 1-, 10-, 25- and 100-year storm frequencies. In addition, the proposed stormwater management system and decreased impervious coverage will result in improved water quality from the post-development runoff. The pre-development versus post-development stormwater discharge comparisons are contained in **Table 6.1** and **Table 6.2** below:

**Table 6.1: Design Point Peak Runoff Rate Summary**

Point of Analysis	1-Year Storm			10-Year Storm			25-Year Storm			100-Year Storm		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
<b>DP-1</b>	1.55	1.27	<b>-0.28</b>	2.89	2.66	<b>-0.23</b>	3.62	3.41	<b>-0.21</b>	5.18	5.01	<b>-0.17</b>

*\*Flows are represented in cubic feet per second (cfs)*

**Table 6.2: Design Point Volume Summary**

Point of Analysis	2-Year Storm			10-Year Storm			25-Year Storm			100-Year Storm		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
<b>DP-1</b>	0.123	0.093	<b>-0.030</b>	0.236	0.202	<b>-0.034</b>	0.298	0.262	<b>-0.036</b>	0.433	0.395	<b>-0.038</b>

*\*Volumes are represented in acre-feet (ac-ft)*

As outlined in the tables above, the proposed stormwater management system as designed will provide a decrease in peak rates of runoff from the proposed facility for the 1-, 10-, 25- and 100-year storm events. Additionally, the project meets or exceeds the *Rhode Island Stormwater Management, Design, and Installation Rules* to the maximum extent practicable as described further herein.

## **APPENDIX A: SOIL AND RAINFALL INFORMATION**

- NRCS CUSTOM SOIL REPORT
- NATIONAL REGIONAL CLIMATE CENTER RAINFALL DATA



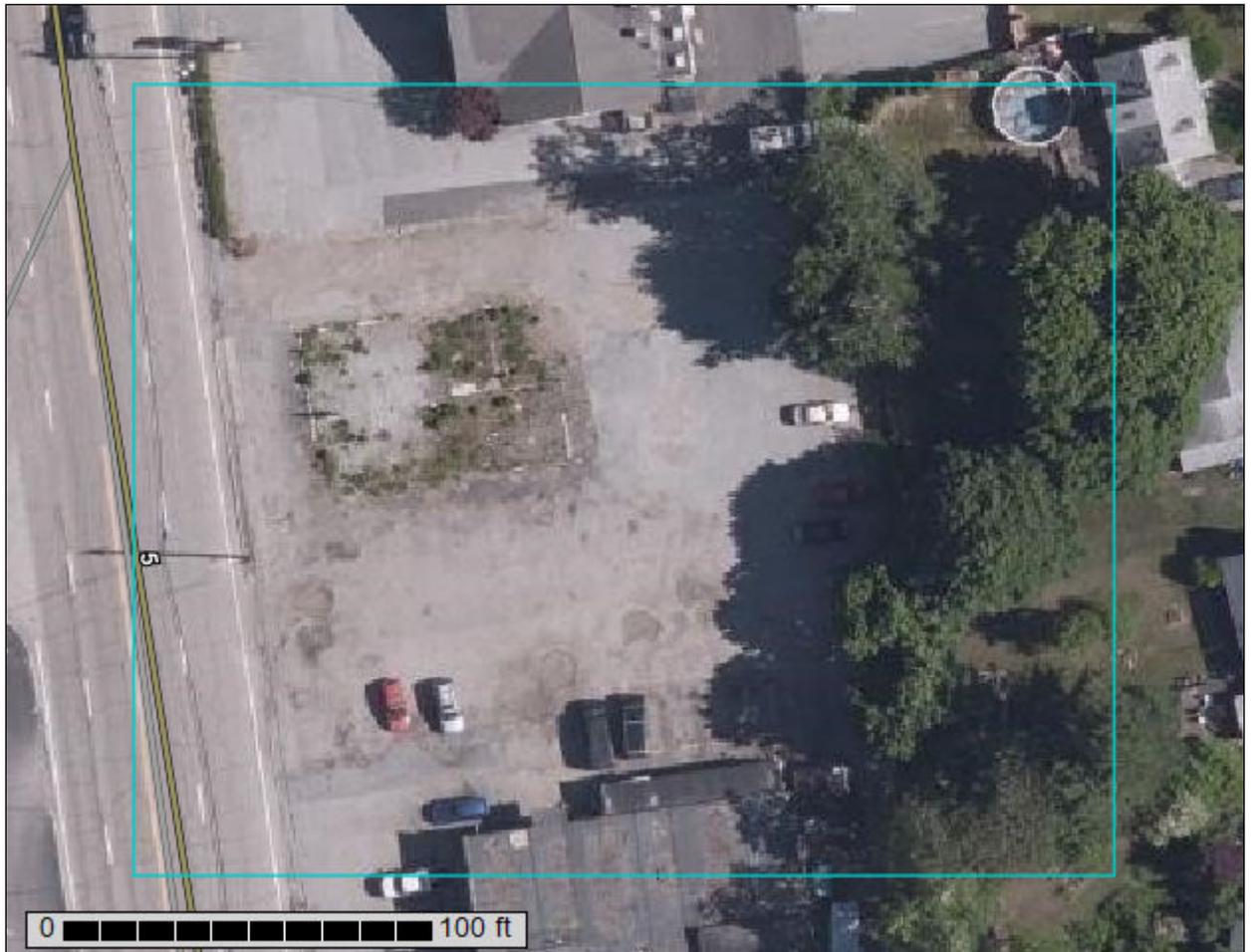
United States  
Department of  
Agriculture

**NRCS**

Natural  
Resources  
Conservation  
Service

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

# Custom Soil Resource Report for State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties



# Preface

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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](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

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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

## Custom Soil Resource Report

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

## Custom Soil Resource Report

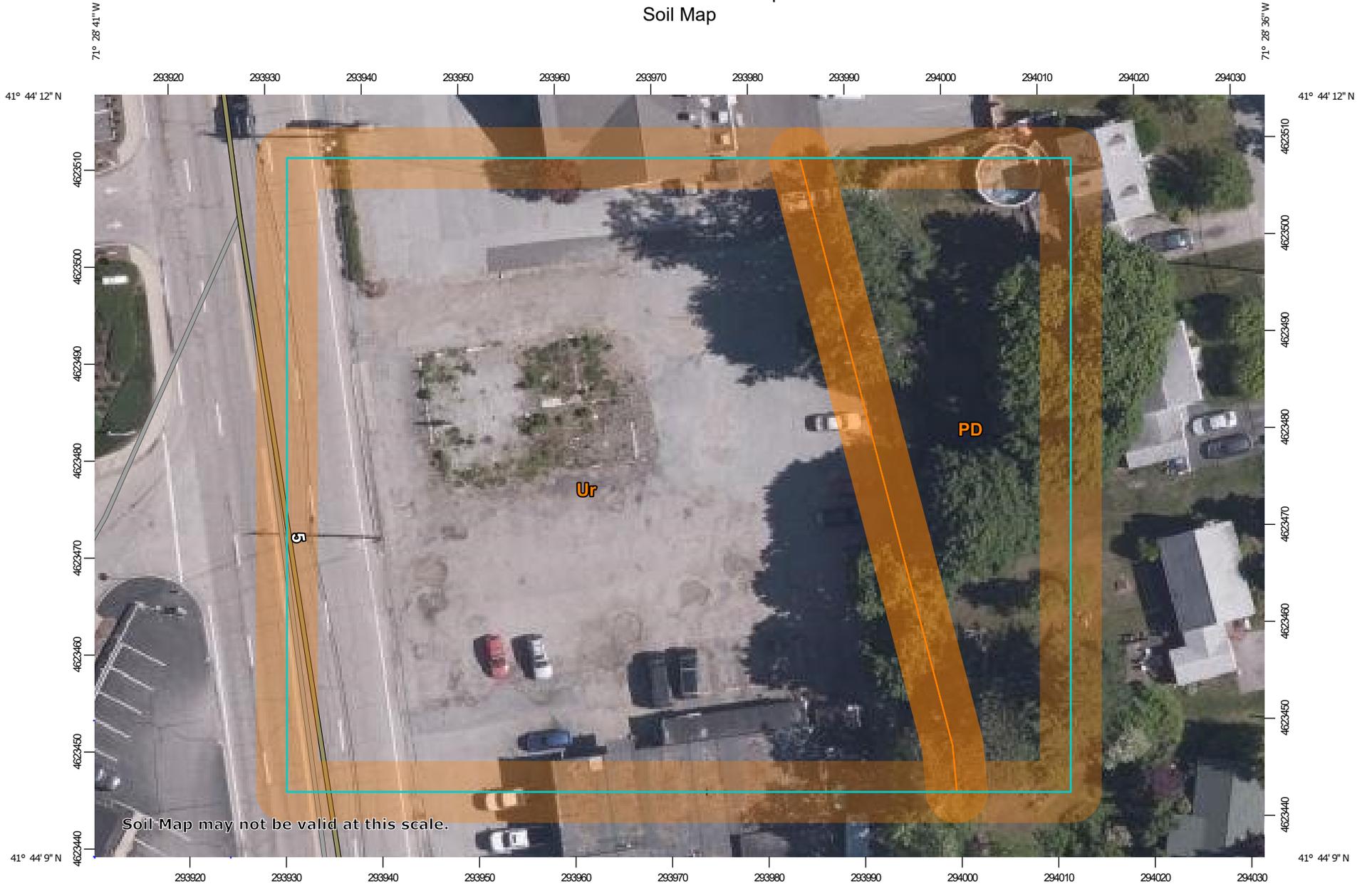
identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

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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: 1:554 if printed on A landscape (11" x 8.5") sheet.

0 5 10 20 30 Meters

0 25 50 100 150 Feet

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 1:12,000.

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

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

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

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

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

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

Soil Survey Area: State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties  
 Survey Area Data: Version 22, Sep 12, 2022

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

Date(s) aerial images were photographed: May 24, 2020—Jul 18, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

**MAP LEGEND**

**MAP INFORMATION**

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
PD	Paxton-Urban land complex, 3 to 15 percent slopes	0.3	24.1%
Ur	Urban land	1.0	75.9%
<b>Totals for Area of Interest</b>		<b>1.3</b>	<b>100.0%</b>

## 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,

## Custom Soil Resource Report

onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

## State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties

### PD—Paxton-Urban land complex, 3 to 15 percent slopes

#### Map Unit Setting

*National map unit symbol:* 2w67k  
*Elevation:* 0 to 930 feet  
*Mean annual precipitation:* 36 to 71 inches  
*Mean annual air temperature:* 39 to 55 degrees F  
*Frost-free period:* 145 to 240 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Paxton and similar soils:* 45 percent  
*Urban land:* 35 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Paxton

##### Setting

*Landform:* Ground moraines, hills, drumlins  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Side slope, crest  
*Down-slope shape:* Convex, linear  
*Across-slope shape:* Convex  
*Parent material:* Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

##### Typical profile

*Ap - 0 to 8 inches:* fine sandy loam  
*Bw1 - 8 to 15 inches:* fine sandy loam  
*Bw2 - 15 to 26 inches:* fine sandy loam  
*Cd - 26 to 65 inches:* gravelly fine sandy loam

##### Properties and qualities

*Slope:* 3 to 15 percent  
*Depth to restrictive feature:* 20 to 39 inches to densic material  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.14 in/hr)  
*Depth to water table:* About 18 to 37 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 4.1 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3e  
*Hydrologic Soil Group:* C  
*Ecological site:* F144AY007CT - Well Drained Dense Till Uplands  
*Hydric soil rating:* No

## Description of Urban Land

### Typical profile

*M - 0 to 10 inches:* cemented material

### Properties and qualities

*Slope:* 3 to 15 percent

*Depth to restrictive feature:* 0 inches to manufactured layer

*Runoff class:* Very high

*Capacity of the most limiting layer to transmit water (Ksat):* Very low (0.00 to 0.00 in/hr)

*Available water supply, 0 to 60 inches:* Very low (about 0.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 8

*Hydrologic Soil Group:* D

*Hydric soil rating:* Unranked

## Minor Components

### Woodbridge

*Percent of map unit:* 9 percent

*Landform:* Ground moraines, hills, drumlins

*Landform position (two-dimensional):* Summit, backslope, footslope

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

*Down-slope shape:* Concave

*Across-slope shape:* Linear

*Hydric soil rating:* No

### Charlton

*Percent of map unit:* 6 percent

*Landform:* Hills

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

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

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

### Udorthents

*Percent of map unit:* 4 percent

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Hydric soil rating:* No

### Ridgebury

*Percent of map unit:* 1 percent

*Landform:* Drumlins, depressions, ground moraines, hills, drainageways

*Landform position (two-dimensional):* Footslope, toeslope

*Landform position (three-dimensional):* Head slope, base slope

*Down-slope shape:* Concave, linear

*Across-slope shape:* Concave, linear

*Hydric soil rating:* Yes

## Ur—Urban land

### Map Unit Setting

*National map unit symbol:* 9lxx  
*Elevation:* 0 to 810 feet  
*Mean annual precipitation:* 44 to 50 inches  
*Mean annual air temperature:* 48 to 50 degrees F  
*Frost-free period:* 100 to 211 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

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

## Description of Urban Land

### Setting

*Parent material:* Human transported material

## Minor Components

### Udorthents

*Percent of map unit:* 5 percent  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

### Canton

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

### Pittstown

*Percent of map unit:* 2 percent  
*Landform:* Drumlins  
*Down-slope shape:* Linear  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

### Charlton

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

**Merrimac**

*Percent of map unit:* 1 percent  
*Landform:* Terraces, outwash plains, kames  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**Newport**

*Percent of map unit:* 1 percent  
*Landform:* Drumlins  
*Down-slope shape:* Linear  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**Sudbury**

*Percent of map unit:* 1 percent  
*Landform:* Terraces, outwash plains  
*Down-slope shape:* Linear  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

**Sutton**

*Percent of map unit:* 1 percent  
*Landform:* Drainageways, depressions  
*Down-slope shape:* Concave, linear  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

# Soil Information for All Uses

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## Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

## Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

## Hydrologic Soil Group

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

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

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

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

## Custom Soil Resource Report

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

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

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

# Custom Soil Resource Report Map—Hydrologic Soil Group



Map Scale: 1:554 if printed on A landscape (11" x 8.5") sheet.

0 5 10 20 30 Meters

0 25 50 100 150 Feet

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 Rating Polygons**

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

**Soil Rating Lines**

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

**Soil Rating Points**

-  A
-  A/D
-  B
-  B/D

-  C
-  C/D
-  D
-  Not rated or not available

**Water Features**

 Streams and Canals

**Transportation**

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

**Background**

 Aerial Photography

### MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties  
 Survey Area Data: Version 22, Sep 12, 2022

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

Date(s) aerial images were photographed: May 24, 2020—Jul 18, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

**MAP LEGEND**

**MAP INFORMATION**

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

**Table—Hydrologic Soil Group**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
PD	Paxton-Urban land complex, 3 to 15 percent slopes	C	0.3	24.1%
Ur	Urban land		1.0	75.9%
<b>Totals for Area of Interest</b>			<b>1.3</b>	<b>100.0%</b>

**Rating Options—Hydrologic Soil Group**

*Aggregation Method: Dominant Condition*

*Component Percent Cutoff: None Specified*

*Tie-break Rule: Higher*

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163. "Water quality volume" or "WQv" means the storage needed to capture and treat 90% of the average annual stormwater runoff volume. In Rhode Island, this equates to 1-inch of runoff from impervious surfaces.
164. "Watershed inches" means a measurement used to compare stormwater volume requirements between sites of varying sizes. Required volumes in acre-feet can be converted to watershed inches by dividing by the total site area in acres and multiplying by 12 inches/feet.
165. "Wet swale" means an open drainage channel or depression, explicitly designed to retain water or intercept groundwater for water quality treatment.
166. "Wet vegetated treatment system" or "WVTS" means shallow, constructed pools that capture stormwater and allow for the growth of characteristic emergent vegetation. See also definition of shallow WVTS and gravel WVTS.

## **8.6 Stormwater Management Standards and Performance Criteria Overview**

- A. Applicants for all applicable new and redevelopment projects in the State of Rhode Island are required to meet the eleven minimum standards and comply with the specific performance criteria in §§ 8.6 through 8.17 of this Part. In the case of restoration or retrofitting, deviation from these standards may be appropriate at the discretion of the approving agency.
- B. All applicable project proposals must include a stormwater management site plan for review by State and local government. The plan must address the minimum standards in §§ 8.6 through 8.17 of this Part.
- C. When a project's stormwater management system is designed, installed, and maintained in accordance with the requirements of this Part, its runoff impacts will be presumed to be in compliance with applicable state regulatory standards and requirements.
- D. Unless otherwise noted, all storm events referred to herein are 24 hours in duration and utilize US Natural Resources Conservation Service Type III precipitation distribution. Rainfall amounts for Rhode Island for various return frequencies are provided in § 8.6(E) of this Part and shall be used for design unless otherwise specified.
- E. Design Rainfall Amounts for Rhode Island: All Rhode Island County rainfall values were obtained from the Northeast Regional Climate Center (NRCC) using regional rainfall data processed by NRCC from the period of record through December 2008.

RI County	24-hour (Type III) Rainfall Amount (inches)						
	1-Year	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Providence County	2.7	3.3	4.1	4.9	6.1	7.3	8.7
Bristol County	2.8	3.3	4.1	4.9	6.1	7.3	8.6
Newport County	2.8	3.3	4.1	4.9	6.1	7.3	8.6
Kent County	2.7	3.3	4.1	4.8	6.2	7.3	8.7
Washington County	2.8	3.3	4.1	4.9	6.1	7.2	8.5

- F. If the standard or criterion is not used or achieved, a written technical justification that is acceptable to the approving agency must be provided.
- G. The design practices described in this Part shall be implemented by an individual with a demonstrated level of professional competence, such as a professional engineer licensed to practice in the State of Rhode Island.

**8.7 Minimum Standard 1: Low Impact Development (LID) Site Planning and Design Strategies**

- A. LID site planning and design strategies must be used to the maximum extent practicable in order to reduce the generation of the water runoff volume for both new and redevelopment projects.
- B. Applicants need to document that the full list of approved LID methods and/or procedures were explored at the site and need to supply a specific rationale in the event LID strategies are rejected as infeasible. The site planning process must be documented and include how the proposed project will meet the following measures and/or methods to:

## **APPENDIX B: OPERATION AND MAINTENANCE**

- STORMWATER OPERATION AND MAINTENANCE PLAN
- INSPECTION REPORT
- INSPECTION AND MAINTENANCE LOG FORM
- LONG-TERM POLLUTION PREVENTION PLAN
- ILLCIT DISCHARGE STATEMENT
- SPILL PREVENTION

**STORMWATER OPERATION AND  
MAINTENANCE PLAN (O&M)**

*For*

**CRANSTON MUNICIPAL EMPLOYEES CREDIT UNION**

***BANK WITH DRIVE THRU***

***1224 Oaklawn Avenue  
Cranston, Rhode Island  
Providence County***

Prepared by:

BOHLER ENGINEERING  
352 Turnpike Road  
Southborough, MA 01772  
(508) 480-9900 TEL.

Joshua G. Swerling, P.E.  
Rhode Island P.E. Lic. #11425

**BOHLER //**

January 31, 2023  
#MAA220223.00

# **STORMWATER OPERATION AND MAINTENANCE PLAN**

*Proposed Bank with Drive Thru  
1224 Oaklawn Avenue  
Cranston, RI*

## **RESPONSIBLE PARTY DURING CONSTRUCTION:**

*Cranston MECU  
1615 Pontiac Avenue  
Cranston, RI*

## **RESPONSIBLE PARTY POST CONSTRUCTION:**

*Cranston MECU  
1615 Pontiac Avenue  
Cranston, RI*

### **Construction Phase**

During the construction phase, all erosion control devices and measures shall be maintained in accordance with the final record plans, local/state approvals and conditions, the EPA / RIPDES Construction General Permit and the Stormwater Pollution Prevention Plan (SWPPP) if applicable. Additionally, the maintenance of all erosion / siltation control measures during construction shall be the responsibility of the general contractor. Contact information of the OWNER and CONTRACTOR shall be listed in the SWPPP for this site. The SWPPP also includes information regarding construction period allowable and illicit discharges, housekeeping and emergency response procedures. Upon proper notice to the property owner, the Town/City or its authorized designee shall be allowed to enter the property at a reasonable time and in a reasonable manner for the purposes of inspection.

### **Post Development Controls**

Once construction is completed, the post development stormwater controls are to be operated and maintained in compliance with the following permanent procedures (note that the continued implementation of these procedures shall be the responsibility of the Owner or its assignee):

1. Parking lots: Sweep at least four (4) 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 RIDEM and other applicable requirements.

Approximate Maintenance Budget: \$4,000/year

2. Catch basins, manholes and piping: Inspect four (4) times per year and at the end of foliage and snow-removal seasons. These features shall be cleaned four (4) times per year or whenever the depth of deposits is greater than or equal to one half the depth from

the bottom of the invert of the lowest pipe in the catch basin or underground system. Accumulated sediment and hydrocarbons present must be removed and properly disposed of off-site in accordance with RIDEM and other applicable requirements.

Approximate Maintenance Budget: \$250/year per structure.

All components of the stormwater system will be accessible by the owner or their assignee.

**STORMWATER MANAGEMENT SYSTEM**  
**POST-CONSTRUCTION INSPECTION REPORT**

**LOCATION:**

***Proposed Bank with Drive Thru  
1224 Oaklawn Avenue  
Cranston, RI***

**RESPONSIBLE PARTY:**

***Cranston MECU  
1615 Pontiac Avenue  
Cranston, RI***

NAME OF INSPECTOR:	INSPECTION DATE:
Note Condition of the Following (sediment depth, debris, standing water, damage, etc.):	
Catch Basins:	
Other:	
Note Recommended Actions to be taken on the Following (sediment and/or debris removal, repairs, etc.):	
Catch Basins:	
Other:	
Comments:	



# **LONG-TERM POLLUTION PREVENTION PLAN**

*Proposed Bank with Drive Thru  
1224 Oaklawn Avenue  
Cranston, RI*

## **RESPONSIBLE PARTY DURING CONSTRUCTION:**

*Cranston MECU  
1615 Pontiac Avenue  
Cranston, RI*

## **RESPONSIBLE PARTY POST CONSTRUCTION:**

*Cranston MECU  
1615 Pontiac Avenue  
Cranston, RI*

For this site, the Long-Term Pollution Prevention Plan will consist of the following:

- The property owner shall be responsible for “good housekeeping” including proper periodic maintenance of building and pavement areas, curbing, landscaping, etc.
- Proper storage and removal of solid waste (dumpsters).
- Sweeping of parking lots, drive aisles and access aisles a minimum of four (4) times per year with a commercial cleaning unit. Any sediment removed shall be disposed of in accordance with applicable local and state requirements.
- Regular inspections and maintenance of Stormwater Management System as noted in the “O&M Plan”.
- Snow removal shall be the responsibility of the property owner. Snow shall not be plowed, dumped and/or placed in forebays, infiltration basins or similar stormwater controls. Salting and/or sanding of pavement / walkway areas during winter conditions shall only be done in accordance with all state/local requirements and approvals.
- No outdoor maintenance or washing of vehicles allowed.
- Trash and other debris shall be removed from all areas of the site at least twice yearly.
- Reseed any bare areas as soon as they occur. Erosion control measures shall be installed in these areas to prevent deposits of sediment from entering the drainage system.

- Grass shall be maintained at a minimum blade height of two to three inches and only 1/3 of the plant height shall be removed at a time. Clippings shall not be disposed of within stormwater management areas or adjacent resource areas.
- Plants shall be pruned as necessary.
- Snow piles shall be located adjacent to or on pervious surfaces in upland areas. This will allow snow melt water to filter into the soil, leaving behind sand and debris which can be removed in the springtime.
- In no case shall snow be disposed of or stored in resource areas (wetlands, floodplain, streams, or other water bodies).
- In no case shall snow be disposed of or stored in the detention basins, infiltration basins or bioretention areas.
- If necessary, stockpiled snow will be removed from the Site and disposed of at an off-site location in accordance with all local, state and federal regulations.
- The amount of sand and deicing chemicals shall be kept at the minimum amount required to provide safe pedestrian and vehicle travel.
- Deicing chemicals are recommended as a pretreatment to storm events to minimize the amount of applied sand.
- Sand and deicing chemicals should be stockpiled under covered storage facilities that prevent precipitation and adjacent runoff from coming in contact with the deicing materials. Stockpile areas shall be located outside resource areas.
- The primary agents used for deicing at parking lots, sidewalks and the access roads shall consist of salt alternatives such as calcium carbonate ( $\text{CaCO}_3$ ) or potassium chloride (KCl) or sodium chloride.
- Deliveries shall be monitored by owner or owner's representative to ensure proper delivery and in the event that a spillage occurs it shall be contained and cleaned up immediately in accordance with the spill prevention program for the project.
- Recycle materials whenever possible. Provide separate containers for recycle materials. Recycling products will be removed by a certified waste hauler.

## **OPERATON AND MAINTENANCE TRAINING PROGRAM**

The Owner will coordinate an annual in-house training session to discuss the Operations and Maintenance Plan, the Long-Term Pollution Prevention Plan, and the Spill Prevention Plan and response procedures. Annual training will include the following:

### Discuss the Operations and Maintenance Plan

- Explain the general operations of the stormwater management system and its BMPs
- Identify potential sources of stormwater pollution and measures / methods of reducing or eliminating that pollution
- Emphasize good housekeeping measures

### Discuss the Spill Prevention and Response Procedures

- Explain the process in the event of a spill
- Identify potential sources of spills and procedures for cleanup and /or reporting and notification
- Complete a yearly inventory or Materials Safety Data sheets of all tenants and confirm that no potentially harmful chemicals are in use.

## **ILLICIT DISCHARGE STATEMENT**

Certain types of non-stormwater discharges are allowed under the U.S. Environmental Protection Agency Construction General Permit. These types of discharges will be allowed under the conditions that no pollutants will be allowed to come in contact with the water prior to or after its discharge. The control measures which have been outlined previously in this LTPPP will be strictly followed to ensure that no contamination of these non-storm water discharges takes place. Any existing illicit discharges, if discovered during the course of the work, will be reported to RIDEM and the local DPW, as applicable, to be addressed in accordance with their respective policies. No illicit discharges will be allowed in conjunction with the proposed improvements.

Duly Acknowledged:

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Name & Title

Date

## **SPILL PREVENTION AND RESPONSE PROCEDURES** **(POST CONSTRUCTION)**

In order to prevent or minimize the potential for a spill of Hazardous Substances or Oil or come into contact with stormwater, the following steps will be implemented:

1. All Hazardous Substances or Oil (such as pesticides, petroleum products, fertilizers, detergents, acids, paints, paint solvents, cleaning solvents, etc.) will be stored in a secure location, with their lids on, preferably under cover, when not in use.
2. The minimum practical quantity of all such materials will be kept on site.
3. A spill control and containment kit (containing, for example, absorbent materials, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided on site.
4. Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be trained regarding these procedures and the location of the information and cleanup supplies.
5. It is the OWNER's responsibility to ensure that all Hazardous Waste on site is disposed of properly by a licensed hazardous material disposal company. The OWNER is responsible for not exceeding Hazardous Waste storage requirements mandated by the EPA or state and local authorities.

In the event of a spill of Hazardous Substances or Oil, the following procedures should be followed:

1. All measures should be taken to contain and abate the spill and to prevent the discharge of the Hazardous Substance or Oil to stormwater or off-site. (The spill area should be kept well ventilated and personnel should wear appropriate protective clothing to prevent injury from contact with the Hazardous Substances.)
2. For spills of less than five (5) gallons of material, proceed with source control and containment, clean-up with absorbent materials or other applicable means unless an imminent hazard or other circumstances dictate that the spill should be treated by a professional emergency response contractor.
3. For spills greater than five (5) gallons of material immediately contact the RIDEM at the toll-free 24-hour statewide emergency number: **1-401-222-2700**, the local fire department (**9-1-1**) and an approved emergency response contractor. Provide information on the type of material spilled, the location of the spill, the quantity spilled, and the time of the spill to the emergency response contractor or coordinator, and proceed with prevention, containment and/or clean-up if so desired. (Use the form provided, or similar).
4. If there is a Reportable Quantity (RQ) release, then the National Response Center should be notified immediately at (800) 424-8802; within 14 days a report should be submitted to the EPA regional office describing the release, the date and circumstances of the release and the steps taken to prevent another release. This Pollution Prevention Plan should be updated to reflect any such steps or actions taken and measures to prevent the same from reoccurring.



Cause of Spill: \_\_\_\_\_  
\_\_\_\_\_

Measures Taken to Clean up Spill: \_\_\_\_\_  
\_\_\_\_\_

Type of equipment: \_\_\_\_\_ Make: \_\_\_\_\_ Size: \_\_\_\_\_

License or S/N: \_\_\_\_\_

Location and Method of Disposal \_\_\_\_\_  
\_\_\_\_\_

Procedures, method, and precautions instituted to prevent a similar occurrence from recurring: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Additional Contact Numbers:

- DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) EMERGENCY PHONE: 1-888-304-1133
- NATIONAL RESPONSE CENTER PHONE: (800) 424-8802
- U.S. ENVIRONMENTAL PROTECTION AGENCY PHONE: (888) 372-7341