Narrative, Location Map, and Soils Information for F.W. Webb
Attachment 1: Narrative, Location Map, and Soils Map

F.W. Webb Expansion

The following can be used as a template for the narrative or guidance for how the narrative should be set up. If used as a template, please replace all brackets [ ] in this document with information specific to the current proposed project and delete this paragraph.

1. Introduction
Cross Consulting Engineers, P.C. are writing on behalf of F.W. Webb to apply for a State Stormwater Discharge Permit pursuant to General Permit 3-9015 for the above referenced project.

2. Project Description
The F.W. Webb Expansion is an expansion of an existing commercial business located on Franklin Park West Drive in the Town of St. Albans. There is one building on the site with parking and an outdoor storage area. Access to the property is from the public street. The proposed expansion of the outdoor storage area will add 0.76 acres of impervious to the property. Existing impervious, amounting to 0.08 acres, will now be treated to 2002 standards. The overall commercial development, Franklin Park West, currently has a stormwater permit (3189-INDS.1).

3. Existing Condition
The existing property (Lot 7) is partially developed, with an area of Class 3 wetlands north of the developed portion. The soils are generally Georgia stony loam on the southern portion of the site, but Massena stony loam on the northern portion. The existing drainage directs runoff from the north around the building and parking areas to an existing roadside swale that flows to the southwestern property corner. From there, the runoff is conveyed along existing drainage swale to an unnamed tributary of Stevens Brook. The soils within the site area classified as HSG ‘C’.

4. Existing Stormwater System (remove if not applicable)
The existing stormwater system consists of pre-2002 drainage swales that direct runoff to an unnamed tributary of Stevens Brook.

5. Proposed Stormwater System:
   i) Description of Impervious Area: The proposed expansion of the outdoor storage area will add 0.76 acres of new impervious, to be treated in a grass swale. The proposed swale will also treat 0.08 acres of existing impervious area.
   ii) Receiving Body: Unnamed tributary to Stevens Brook
   iii) Fish Habitat Designation for Receiving Water: Cold
iv) Description of compliance with each of the 5 Unified Sizing Criteria in the 2002 VSMM Vol. I including the treatment practices or credits/waivers used to meet each of the following standards:

(a) Water Quality Treatment Standard (WQv):
   1. S/N 002: Via Pocket Pond (P-5).

(b) Groundwater Recharge Treatment Standard:
   1. S/N 002: Via Grass Channel (O-3).

(c) Channel Protection Standard (CPv):
   1. S/N 002: Via Pocket Pond (P-5)

(d) Overbank Flood Protection Standard (Q_p10) :
   1. S/N 002: Via Pocket Pond (P-5)

(e) Extreme Flood Protection Standard (Q_p100) :
   1. S/N 002: Via Pocket Pond (P-5)

v) Offset Information
   (1) The increase in phosphorus loading is expected to be 1.21 lbs. We propose to submit an offset fee in lieu of an on-site offset. Since we meet the requirements of the standards outlined 2002 VSWMM manual, the fee is calculated to be:

   \[ 0.84 \text{ acres impervious} \times \$6000 \text{ per acre} \times (1 - 80\%) = \$1008 \]

   We request that the DEC confirm this amount, and understand that the permit will be held until the payment of the offset fee is received by DEC.

The following items are attached for review:

- **Complete NOI form**
- **Attachment 1: Narrative:** Narrative, Location Map and Soils Map.
- **Attachment 2: Worksheets:** Schedule A’s, waivers and BMP worksheets- grouped by discharge point.
- **Attachment 3: Modeling:** Runoff modeling and calculations demonstrating compliance with the applicable treatment standards.
- **Attachment 4: Plans:** Pertinent plan sheets with all required information outlined in Part 5 of the General Guidance Document.
- **A check** in the amount of **$962.40** Payable to “State of Vermont”.
Site Locus
Vermont Agency of Natural Resources

© Vermont Agency of Natural Resources

LEGEND
- Waterbody
- Stream
- Town Boundary

NOTES
F.W. Webb, Franklin Park West Drive, St. Albans
Map created using ANR's Natural Resources Atlas

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. ANR and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.

WGS_1984_Web_Mercator_Auxiliary_Sphere
© Vermont Agency of Natural Resources
THIS MAP IS NOT TO BE USED FOR NAVIGATION

1" = 2520 Ft.
1cm = 302 Meters

1: 30,246
December 1, 2016

1,536.0
0
768.00
1,536.0 Meters

Vermont.gov
Custom Soil Resource Report for
Franklin County, Vermont

December 1, 2016
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 (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

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

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

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

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means
for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.
# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preface</td>
<td>2</td>
</tr>
<tr>
<td>Soil Map</td>
<td>5</td>
</tr>
<tr>
<td>Soil Map</td>
<td>6</td>
</tr>
<tr>
<td>Legend</td>
<td>7</td>
</tr>
<tr>
<td>Map Unit Legend</td>
<td>8</td>
</tr>
<tr>
<td>Map Unit Descriptions</td>
<td>8</td>
</tr>
<tr>
<td>Franklin County, Vermont</td>
<td>10</td>
</tr>
<tr>
<td>GeA—Georgia stony loam, 0 to 3 percent slopes</td>
<td>10</td>
</tr>
<tr>
<td>GeB—Georgia stony loam, 3 to 8 percent slopes</td>
<td>11</td>
</tr>
<tr>
<td>MeA—Massena stony loam, 0 to 3 percent slopes</td>
<td>12</td>
</tr>
<tr>
<td>Soil Information for All Uses</td>
<td>14</td>
</tr>
<tr>
<td>Soil Reports</td>
<td>14</td>
</tr>
<tr>
<td>Water Features</td>
<td>14</td>
</tr>
<tr>
<td>Hydrologic Soil Group and Surface Runoff</td>
<td>14</td>
</tr>
<tr>
<td>References</td>
<td>16</td>
</tr>
</tbody>
</table>
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.
Warning: Soil Map may not be valid at this scale.
The soil surveys that comprise your AOI were mapped at 1:20,000.

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

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

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

Source of Map: Natural Resources Conservation Service
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: Franklin County, Vermont
Survey Area Data: Version 19, Sep 15, 2016

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

Date(s) aerial images were photographed: Aug 28, 2010—Oct 8, 2011

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**

<table>
<thead>
<tr>
<th>Map Unit Symbol</th>
<th>Map Unit Name</th>
<th>Acres in AOI</th>
<th>Percent of AOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>GeA</td>
<td>Georgia stony loam, 0 to 3 percent slopes</td>
<td>0.1</td>
<td>1.5%</td>
</tr>
<tr>
<td>GeB</td>
<td>Georgia stony loam, 3 to 8 percent slopes</td>
<td>2.3</td>
<td>62.3%</td>
</tr>
<tr>
<td>MeA</td>
<td>Massena stony loam, 0 to 3 percent slopes</td>
<td>1.4</td>
<td>36.1%</td>
</tr>
<tr>
<td><strong>Totals for Area of Interest</strong></td>
<td></td>
<td><strong>3.7</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

**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.
Franklin County, Vermont

GeA—Georgia stony loam, 0 to 3 percent slopes

Map Unit Setting

- National map unit symbol: 9g78
- Elevation: 90 to 600 feet
- Mean annual precipitation: 30 to 36 inches
- Mean annual air temperature: 45 to 52 degrees F
- Frost-free period: 120 to 180 days
- Farmland classification: All areas are prime farmland

Map Unit Composition

- Georgia and similar soils: 70 percent
- Minor components: 30 percent

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

Description of Georgia

Setting

- Landform: Hills, ridges
- Landform position (two-dimensional): Backslope, summit
- Landform position (three-dimensional): Interfluve, side slope
- Down-slope shape: Linear
- Across-slope shape: Linear
- Parent material: Coarse-loamy till

Typical profile

- H1 - 0 to 2 inches: loam
- H2 - 2 to 22 inches: loam
- H3 - 22 to 60 inches: fine sandy loam

Properties and qualities

- Slope: 0 to 3 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Moderately well drained
- Runoff class: Medium
- Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
- Depth to water table: About 18 to 36 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 10 percent
- Available water storage in profile: Moderate (about 8.1 inches)

Interpretive groups

- Land capability classification (irrigated): None specified
- Land capability classification (nonirrigated): 2w
- Hydrologic Soil Group: C
- Hydric soil rating: No

Minor Components

Massena

- Percent of map unit: 13 percent
- Hydric soil rating: No
St. albans
Percent of map unit: 13 percent
Hydric soil rating: No

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

GeB—Georgia stony loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 9g79
Elevation: 90 to 600 feet
Mean annual precipitation: 30 to 36 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 120 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Georgia and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the map unit.

Description of Georgia

Setting
Landform: Hills, ridges
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy till

Typical profile
H1 - 0 to 2 inches: loam
H2 - 2 to 22 inches: loam
H3 - 22 to 60 inches: fine sandy loam

Properties and qualities
Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Available water storage in profile: Moderate (about 8.1 inches)
Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

St. albans
Percent of map unit: 10 percent
Hydric soil rating: No

Massena
Percent of map unit: 10 percent
Hydric soil rating: No

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

MeA—Massena stony loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 9g7z
Elevation: 90 to 600 feet
Mean annual precipitation: 30 to 36 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 120 to 180 days
Farmland classification: Prime farmland if drained

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

Description of Massena

Setting
Landform: Depressions, drainageways
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy till

Typical profile
H1 - 0 to 8 inches: loam
H2 - 8 to 25 inches: silt loam
H3 - 25 to 44 inches: gravelly loam

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 12 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 20 percent
Available water storage in profile: Low (about 5.3 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components
Lyons
Percent of map unit: 10 percent
Landform: Depressions
Hydric soil rating: Yes

Georgia
Percent of map unit: 10 percent
Hydric soil rating: No
Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Water Features

This folder contains tabular reports that present soil hydrology information. The reports (tables) include all selected map units and components for each map unit. Water Features include ponding frequency, flooding frequency, and depth to water table.

Hydrologic Soil Group and Surface Runoff

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

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 four hydrologic soil groups are:

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.

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.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

**Report—Hydrologic Soil Group and Surface Runoff**

Absence of an entry indicates that the data were not estimated. The dash indicates no documented presence.

<table>
<thead>
<tr>
<th>Map symbol and soil name</th>
<th>Pct. of map unit</th>
<th>Surface Runoff</th>
<th>Hydrologic Soil Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>GeA—Georgia stony loam, 0 to 3 percent slopes</td>
<td>70</td>
<td>Medium</td>
<td>C</td>
</tr>
<tr>
<td>Georgia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GeB—Georgia stony loam, 3 to 8 percent slopes</td>
<td>75</td>
<td>High</td>
<td>C</td>
</tr>
<tr>
<td>Georgia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MeA—Massena stony loam, 0 to 3 percent slopes</td>
<td>80</td>
<td>Medium</td>
<td>C/D</td>
</tr>
<tr>
<td>Massena</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
References


Custom Soil Resource Report


Narrative, Location Map, and Soils Information for
Franklin Park West Commercial Business Park

(previously approved)
Attachment 1: Narrative, Location Map, and Soils Map
Franklin Park West

1. Introduction
Cross Consulting Engineers, P.C. are writing on behalf of Franklin Park West Commercial Lot Owners' Association to apply for a State Stormwater Discharge Permit pursuant to Individual Permit INDS for the above referenced project.

2. Project Description
Franklin Park West, an existing business and industrial park in St. Albans, was created in the early 1990’s. Prior to 1994, the property was generally in agricultural use. Figure 1 shows the farmstead and barns along Parah Road in 1994.

The Park is accessed from US Route 7 via Franklin Park West Drive. As of mid-2016, less than half of the park has been developed. The Park requires coverage under jurisdiction of stormwater management rules – Environmental Protection Rules, Chapter 18.

The lot first developed was the People’s Trust lot (Lot 1) and included a detention pond (“Lot 1 Pond”). The initial permit (1-1105) included 38.63 acres of impervious cover for the development of Lots 1 through 12. The runoff from these lots was to be treated through a combination of grass swales and the Lot 1 pond (“Lot 1 Pond”). This permit was renewed in 2002 (3178-9010) and included 44.14 acres of impervious area. The permit was renewed again in 2010 (3178-9010.R).

In 2000, development of Lot 19 was proposed and included a detention pond (“Lot 19 Pond”) to detain the runoff from Lot 19 and a portion of the road into what is now called Phase 3. The portion of road amounted to 0.71 acres of impervious, or about 1300 linear feet of road. The total impervious area under this permit (4219-9010) amounted to 2.63 acres. This permit was renewed in February 2013 (4219-9010.R).

Development of lots 1, 2, 3, 4, 5, 7, and 19 as of 2003 can be seen in Figure 2.

After the current stormwater rules were adopted in 2002, the Phase 3 permit application was submitted and approved (3599-9015). This application included the extension of the access road from Phase 2 and the development of Lots 13 through 16, Lot 18, and Lots 29 through 33. A detention pond meeting the 2002 standards was proposed to treat runoff from up to 15.43 acres of impervious surfaces (approximately 70% coverage of those lots). The Groundwater treatment standard was not included, but the application required each lot development to address this standard as it was developed. Though the permit was issued, the proposed detention pond was not constructed. The road extension was completed and Lots 29
and 30 were developed. A small pond ("Lot C Pond") was later constructed north of Lot 14 to treat the runoff from Lots 29 and 30. This pond ("Lot C Pond") was not permitted.

Cross Consulting Engineers reviewed the project with VTDEC staff. The following is our understanding of how to approach bringing the entire development into compliance.

- The existing impervious from Phase 1 and Phase 2, as well as the road included in the 2000 permit, will be considered existing and covered under the 4219-9010.R permit. This permit will be rolled into this application for Individual Permit coverage.
- The existing impervious within Lots 29 and 30, as well as the extension of the road beyond the 2000 permit, will be considered “new impervious”.
- The “new impervious” will be treated in the Lot C Pond per the current rules.
- The proposed expansion of Lot 5 will be treated as a new development.
- A total of 22.26 acres of impervious area is included in this permit application. This includes the existing impervious within the Park as of July 2016, and the proposed expansion of Lot 5.
- This application requests a total of 22.26 acres of impervious area (reduced from 44.14 acres previously permitted).
- The four previous permits (3178-9010, 3759-9015, 4219-9010.R, and 3599-9015) will be combined into this Individual Permit.
- New development not included in SN001, SN002, SN003 are subject to their own permit amendment.

3. Existing Condition
The Park consists of approximately 145 acres, of which 22.26 acres is impervious (buildings, roads, parking, and outdoor storage areas). The land use varies, but is generally commercial or light industrial in nature. There are three distinct discharge points.

a) S/N 001
SN-001 is located at the western-most edge, adjacent to US Route 7. The Lot 1 Pond discharges into a municipal stormwater collection system that ultimately discharges into an unnamed tributary of Stevens Brook. There are no plans of the existing pond. The pervious areas are generally lawns in good condition. The existing collection systems appear to be working adequately. Runoff within SN-001 is treated to pre-2002 standards.

<table>
<thead>
<tr>
<th>Lot</th>
<th>Use</th>
<th>Impervious Area</th>
<th>Level of Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lot 1</td>
<td>Bank</td>
<td>1.08 ac</td>
<td>Pre-2002</td>
</tr>
<tr>
<td>Lot 2</td>
<td>Car dealership</td>
<td>1.17 ac</td>
<td>Pre-2002</td>
</tr>
<tr>
<td>Lot 3</td>
<td>Car dealership</td>
<td>0.37 ac</td>
<td>Pre-2002</td>
</tr>
<tr>
<td>Road</td>
<td>Public road</td>
<td>0.07 ac</td>
<td>Pre-2002</td>
</tr>
</tbody>
</table>

Total 2.69 ac
b) S/N 002

The second discharge point, SN-002, is located at the northwestern property corner, at the end of Parah Road, and is the discharge into an unnamed tributary of Stevens Brook. This watershed, approximately 86 acres in size, includes most of the development to date. The stormwater pond on Lot 19 (“Lot 19 Pond”) treats runoff to pre-2002 standards. There are no plans available of the pond.

The stormwater pond on Lot 5 (“Lot 5 Pond”) has been upgraded to meet the 2002 standards. Most of the pervious area is on lots that have not been developed, and are generally in a meadow condition.

Table 2 - Impervious Areas within SN 002

<table>
<thead>
<tr>
<th>Lot</th>
<th>Use</th>
<th>Impervious Area</th>
<th>Level of Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lot 2</td>
<td>Car dealership</td>
<td>2.03 ac</td>
<td>Pre-2002</td>
</tr>
<tr>
<td>Lot 3</td>
<td>Car dealership</td>
<td>0.71 ac</td>
<td>Pre-2002</td>
</tr>
<tr>
<td>Lot 4</td>
<td>Car dealership</td>
<td>1.08 ac</td>
<td>Pre-2002</td>
</tr>
<tr>
<td>Lot 5</td>
<td>Self storage</td>
<td>5.53 ac</td>
<td>2002 - pond</td>
</tr>
<tr>
<td>Lot 7</td>
<td>Retail – plumbing supply</td>
<td>1.08 ac</td>
<td>Pre-2002</td>
</tr>
<tr>
<td>Lot 8</td>
<td>Ag research office</td>
<td>0.89 ac</td>
<td>Pre-2002</td>
</tr>
<tr>
<td>Lot 9</td>
<td>American Legion</td>
<td>1.69 ac</td>
<td>Pre-2002</td>
</tr>
<tr>
<td>Lot 19</td>
<td>Retail – equipment sales</td>
<td>3.06 ac</td>
<td>Pre-2002 pond</td>
</tr>
<tr>
<td>Road</td>
<td>Public road</td>
<td>1.58 ac</td>
<td>Pre-2002</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>17.65 ac</strong></td>
<td></td>
</tr>
</tbody>
</table>

c) S/N 003

The final discharge point, SN-003, is located midway along the northern property line, adjacent to Interstate 89. This ditch discharges into the drainage system along the interstate, which eventually flows into an unnamed tributary of Stevens Brook. This watershed of approximately 55 acres includes the developed Lots 29 and 30, along with the Franklin Park West Drive. A detention pond on Lot C (“Lot C Pond”), north of Lot 14, and treats the runoff from Lots 29 and 30, as well as a portion of the street. Figure 3 presents an aerial image taken in 2011.

Table 3 - Impervious Areas within SN 003

<table>
<thead>
<tr>
<th>Lot</th>
<th>Use</th>
<th>Impervious Area</th>
<th>Level of Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lot 16</td>
<td>Adult daycare</td>
<td>0.55 ac</td>
<td>2002 - pond</td>
</tr>
<tr>
<td>Road</td>
<td>Public Road</td>
<td>0.62 ac</td>
<td>2002 - pond</td>
</tr>
<tr>
<td>Road</td>
<td>Public road</td>
<td>0.75 ac</td>
<td>Pre-2002</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>1.92 ac</strong></td>
<td></td>
</tr>
</tbody>
</table>
Figure 4 presents the soil types along with the watersheds.

4. **Existing Stormwater System**

a) **S/N 001**

The existing stormwater system within SN-001 consists of grass swales, drainage piping, and a detention pond ("Lot 1 Pond") that discharges into the municipal collection system. The Lot 1 Pond only provides for detention to ensure that the 10-year peak flows do not exceed the pre-development 10-year peak.

b) **S/N 002**

Within SN-002, the stormwater system includes separate detention ponds on Lots 5 and 19. These ponds provide detention of the 10-year runoff to ensure that it does not exceed the pre-development levels.

c) **S/N 003**

An existing pond north of Lot 14 ("Lot C Pond") provides treatment and detention for Lots 29 and 30, as well as a portion of the park access drive, and was designed under the 2002 regulations.

5. **Proposed Stormwater System:**

a) **S/N 001**

i) **Description of Impervious Area:** No new impervious is proposed to be constructed. **Existing impervious (2.69 acres) consists of streets, driveways, parking areas, sidewalks, and buildings.**

ii) **Receiving Body:** Unnamed tributary to Stevens Brook

iii) **Fish Habitat Designation for Receiving Water:** Warm/Cold (Appendix A of Vermont Water Quality Standards: [Cold](http://www.anr.state.vt.us/dec/waterq/stormwater/docs/msgp/sw_water_quality_standards.pdf))

iv) **Description of compliance with each of the 5 Unified Sizing Criteria in the 2002 VSMM Vol. I including the treatment practices or credits/waivers used to meet each of the following standards:**

   (a) **Water Quality Treatment Standard (WQv):**

   1. Treated according to pre-2002 regulations via roadside vegetated swales and overland flow to a detention pond ("Lot 1 Pond").

   (b) **Groundwater Recharge Treatment Standard:**

   1. Treated according to pre-2002 regulations via roadside vegetated swales and overland flow to a detention pond ("Lot 1 Pond").

   (c) **Channel Protection Standard (CPv):**

   1. Treated according to pre-2002 regulations via roadside vegetated swales and overland flow to a detention pond ("Lot 1 Pond").
(d) Overbank Flood Protection Standard \((Q_p 10)\) :
   1. Treated according to pre-2002 regulations via roadside vegetated swales and overland flow to a detention pond (“Lot 1 Pond”).

(e) Extreme Flood Protection Standard \((Q_p 100)\) :
   1. Waived – less than 10 acres of impervious.

v) Offset Information
   (1) Not Applicable

b) S/N 002

   i) Description of Impervious Area: No new impervious is proposed to be constructed, with the exception of an expansion of Lot 5 (1.64 acres of new impervious). Existing impervious (16.01 acres) consists of streets, driveways, parking areas, sidewalks, and buildings.

   ii) Receiving Body: Unnamed tributary to Stevens Brook


   iv) Description of compliance with each of the 5 Unified Sizing Criteria in the 2002 VSMM Vol. I including the treatment practices or credits/waivers used to meet each of the following standards:

   (a) Water Quality Treatment Standard (WQv):
      1. Treated according to pre-2002 regulations via overland flow and grass lined swales; Lot 5 development to meet 2002 standard with Pocket Pond (P-5) (“Lot 5 Pond”).

   (b) Groundwater Recharge Treatment Standard:
      1. Lot 5 meets the standard with Grass Channel (O-3). Meeting the recharge standard will be required as each lot is developed.

   (c) Channel Protection Standard (CPv):
      1. Treated according to pre-2002 regulations via overland flow and grass lined swales; Lot 5 development to meet standard with Pocket Pond (P-5) (“Lot 5 Pond”).

   (d) Overbank Flood Protection Standard \((Q_p 10)\) :
      1. Treated according to pre-2002 regulations via overland flow and grass lined swales; Lot 5 development to meet standard with Pocket Pond (P-5) (“Lot 5 Pond”). Lot 19 has a detention pond (“Lot 19 Pond”) that meets this standard.

   (e) Extreme Flood Protection Standard \((Q_p 100)\) :
      1. Treated according to pre-2002 regulations via overland flow and grass lined swales; Lot 5 development to meet standard with Pocket Pond (P-5) (“Lot 5 Pond”).

v) Offset Information
   (1) Not Applicable
c) S/N 003

Description of Impervious Area: The existing impervious area (1.92 acres) on Lots 29 and 30, as well as the portion of the road that drains into the Lot C Pond, will be treated according to the 2002 regulations.

i) Receiving Body: Unnamed tributary to Stevens Brook


iii) Description of compliance with each of the 5 Unified Sizing Criteria in the 2002 VSMM Vol. I including the treatment practices or credits/waivers used to meet each of the following standards:

(a) Water Quality Treatment Standard (WQv):
   1. S/N 003: An area will be set aside as a Conservation Area for the existing impervious area.

(b) Groundwater Recharge Treatment Standard:
   1. S/N 003: an area will be set aside as a Conservation Area for the existing impervious area.

(c) Channel Protection Standard (CPv):
   1. S/N 003: Micropool Extended Detention Pond (P-1) (“Lot C Pond”) for the existing impervious area.

(d) Overbank Flood Protection Standard (Qp10):
   1. S/N 003: Micropool Extended Detention Pond (P-1) (“Lot C Pond”) for the existing impervious area.

(e) Extreme Flood Protection Standard (Qp100):

iv) Offset Information
   (1) Not Applicable

The following items are attached for review:

- **Complete NOI form**
- **Attachment 1: Narrative:** Narrative, Location Map and Soils Map.
- **Attachment 2: Worksheets:** Schedule A’s, waivers and BMP worksheets- grouped by discharge point.
- **Attachment 3: Modeling:** Runoff modeling and calculations demonstrating compliance with the applicable treatment standards.
- **Attachment 4: Plans:** Pertinent plan sheets with all required information outlined in Part 5 of the General Guidance Document.
- **A check** in the amount of $________ Payable to “State of Vermont”.
Location Map

[Insert project specific location map here. You may download topographic map from the Natural Resource Atlas. Please show the site outline, the location of the discharge point(s) and receiving waters. The scale of the location map should be between 1:20,000 and 1:40,000.]
Soils Map

[Insert project specific soils map here. Soils information can be found at the Web Soil Survey website. Hydrologic Soil Groups—“HSGs” shall be overlaid with site outline. Soils information can also be provided as data layer on an existing or proposed condition plan sheet (if included as a data layer on one of the plan sheets please indicate that here)]