# Welcome to the Public Information Centre for the City of Hamilton

## Elfrida Subwatershed Study

## Public Information Centre # 2

## June 12th, 2018

Growth Management Division
Infrastructure Planning Section
www.hamilton.ca

Aquafor Beech Limited

## Study Purpose

The City of Hamilton is in the process of developing the Elfrida Growth Area Secondary Plan. The Elfrida Subwatershed Study is one of several component studies which will be undertaken in support of the secondary planning process. The purpose of the Subwatershed Study is to develop a plan that allows sustainable development, while ensuring maximum benefits to the natural and human environments on a watershed basis.

## Purpose of this Meeting

- Introduce the study area
- Define the Subwatershed Study purpose
- Review the Subwatershed Study process
- Provide an opportunity for the public to review the work completed to date as well as upcoming work
- Allow the public to provide input to the study, and to discuss questions and issues with the staff of the City of Hamilton and the members of the Project Team

# Study Area

# Existing Conditions – Hydrology

**Elfrida Subwatershed Study**
**Public Information Centre No. 2**
**Date: June 12, 2018**

## Objectives

- Define flow rates within various areas of the Elfrida subwatersheds

## Study Tasks

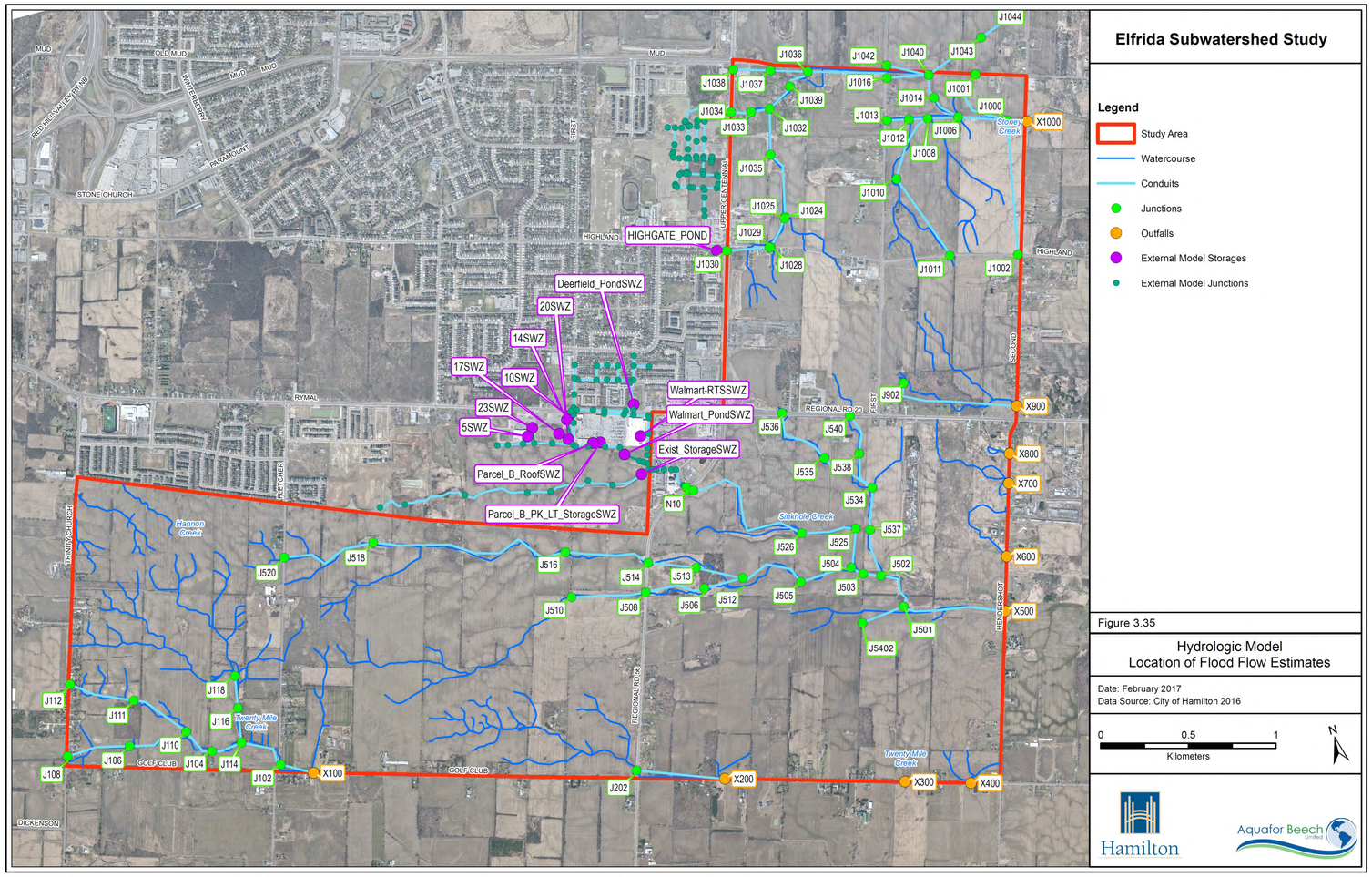
- The hydrological PCSWMM model was developed to determine flow rates at key locations along Stoney, Sinkhole, Twenty Mile and Hannon Creeks for various design storms.
- Flow rates were used to establish the flood lines using the HEC-RAS hydraulic model.

Table below shows flow rates for various storms at the locations shown on the accompanying map.

| Flow Location (Junction ID) | Drainage Area (ha) | Flood Flow ($m^3/s$) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 2-yr | 5-yr | 10-yr | 25-yr | 50-yr | 100-yr | Regional |
| **X1000** | 350.9 | 1.36 | 3.17 | 2.43 | 6.14 | 7.52 | 9.21 | 28.97 |
| **X900** | 61.68 | 0.14 | 0.37 | 0.56 | 0.80 | 1.02 | 1.32 | 5.11 |
| **X800** | 6.52 | 0.03 | 0.06 | 0.09 | 0.13 | 0.16 | 0.20 | 0.63 |
| **X700** | 11.87 | 0.04 | 0.09 | 0.13 | 0.19 | 0.24 | 0.30 | 1.08 |
| **X600** | 13.28 | 0.03 | 0.07 | 0.11 | 0.17 | 0.20 | 0.27 | 1.06 |
| **X500** | 656.15 | 1.85 | 4.57 | 6.68 | 9.47 | 11.83 | 14.99 | 45.23 |
| **X400** | 22 | 0.07 | 0.17 | 0.25 | 0.37 | 0.46 | 0.58 | 2.02 |
| **X300** | 27.4 | 0.11 | 0.26 | 0.37 | 0.54 | 0.67 | 0.83 | 2.68 |
| **X200** | 104.7 | 0.19 | 0.52 | 0.80 | 1.17 | 0.83 | 1.90 | 8.01 |
| **X100** | 250.6 | 0.62 | 1.62 | 2.43 | 3.56 | 4.48 | 5.70 | 21.08 |

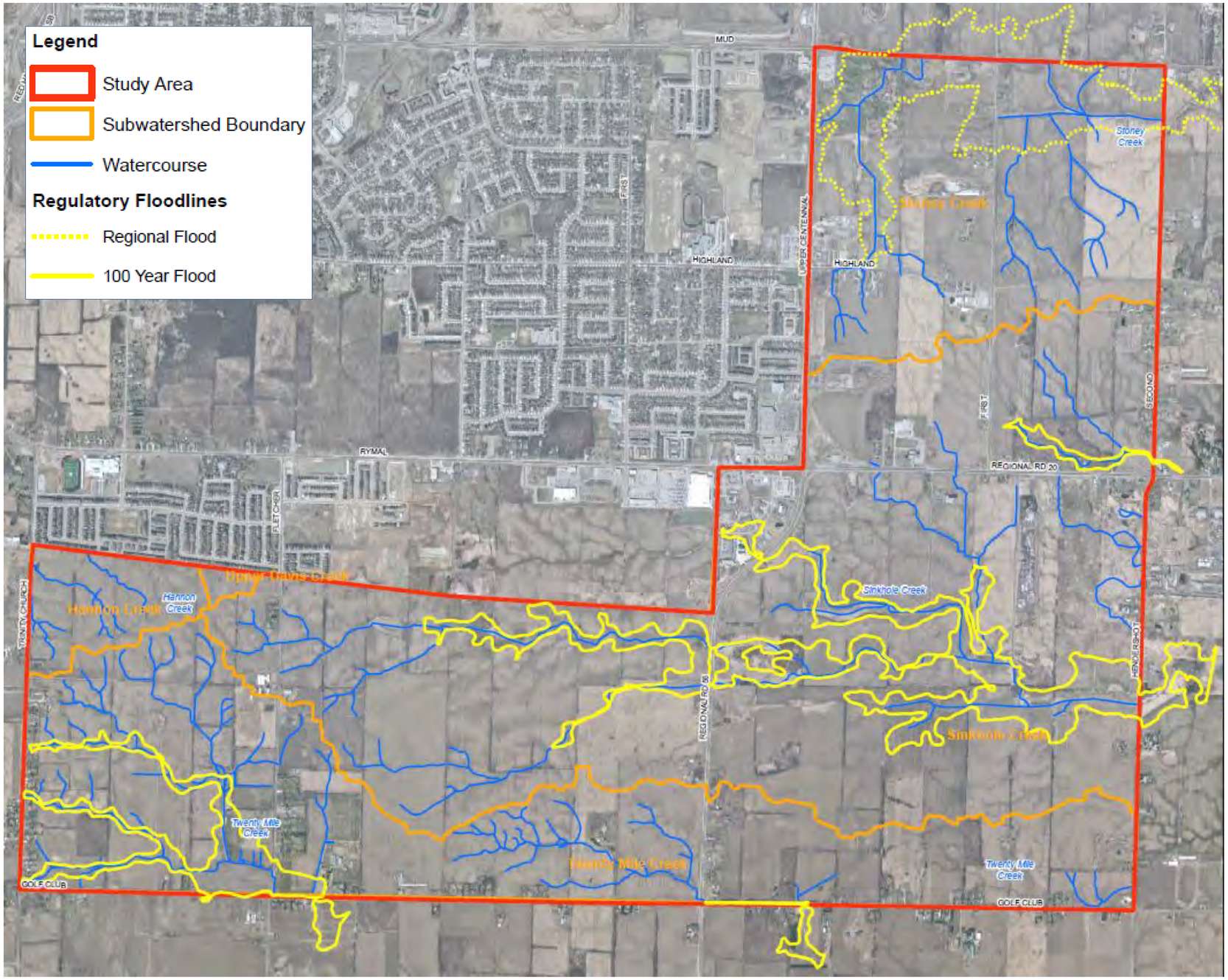
## Findings

- Interim floodlines are shown on Board 9.



# Existing Floodlines (100-Year & Regional Storms)





Stoney Creek at Second Road – spring 2016

Sinkhole Creek at Hendershot Rd. - spring 2016

# Existing Terrestrial Resources - Ecology



## Objectives

Define and characterize terrestrial natural heritage features and functions

- Terrestrial flora and fauna
- Significant Wildlife Habitat
- Species-at-risk and other species of conservation concern
- Preliminary identification of restoration and rehabilitation opportunities.

## Study Tasks

- Background information review
- Vegetation community classification
- 3-season botanical inventories
- Amphibian Surveys (anurans & salamanders)
- Breeding Bird Surveys
- Reptile Surveys
- Incidental wildlife observations
- Species-at-risk screening
- Significant Wildlife Habitat assessment
- Significant Woodland assessment
- Wetland evaluations

## Findings

Terrestrial natural heritage features are generally isolated from one another within a primarily agricultural landscape. As a means of connecting disjunct natural heritage features and strengthening the ecologic form and function of the Natural Heritage System, several areas have been identified for restoration. As illustrated on Board 12, terrestrial natural heritage features within the study area consist of the following:

- Woodlands;
- Wetlands;
- Significant Wildlife Habitat;.
- Areas of Natural and Scientific Interest (Earth Science);
- Corridors and Linkages; and,
- Restoration Areas

**Woodland adjacent to agricultural land uses**

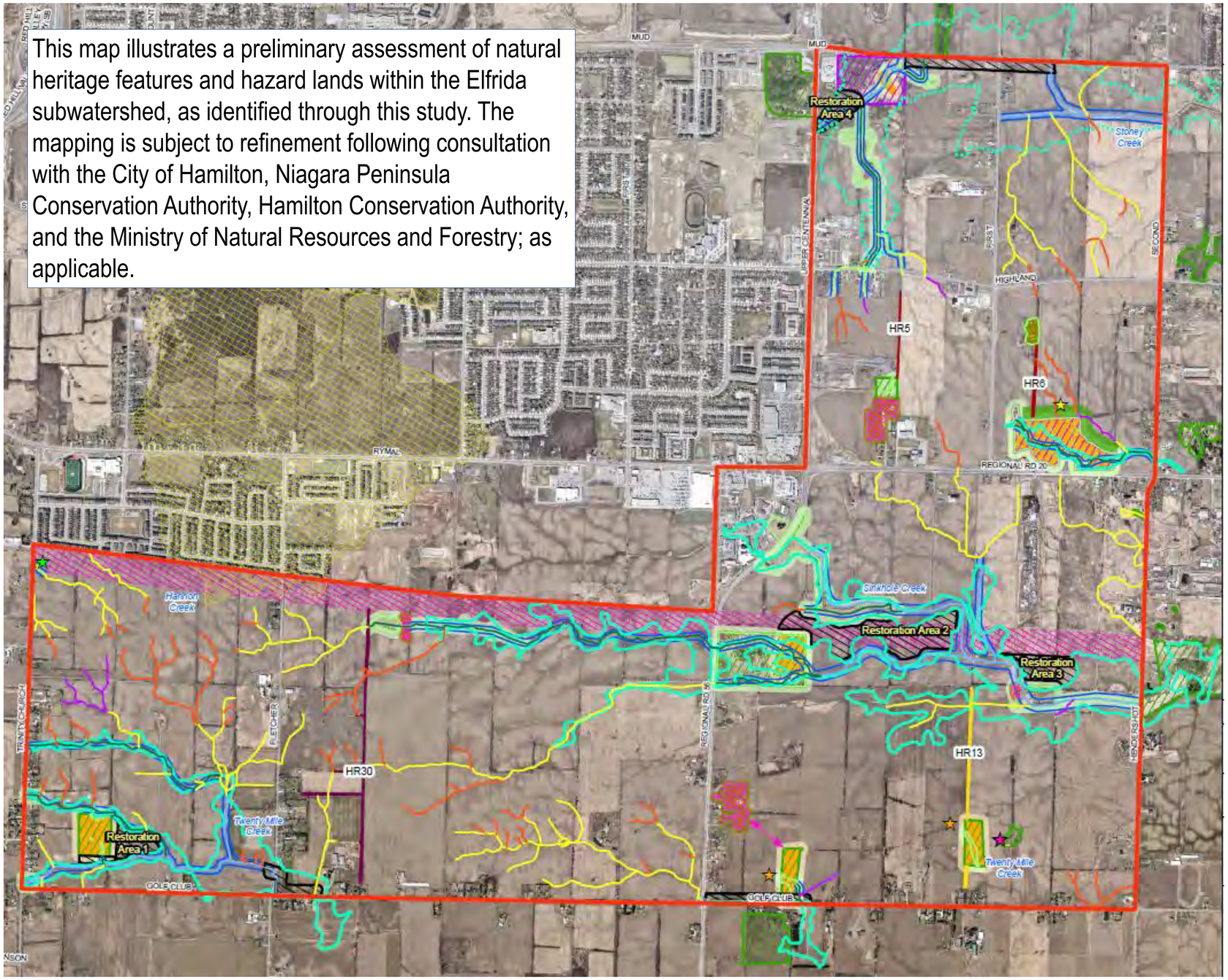
**Significant Woodland and chorus frog (inset)**

**Salamander monitoring**

# Limitations and Opportunities to Development: Detailed Mapping

**Elfrida Subwatershed Study**
**Public Information Centre No. 2**
**Date: June 12, 2018**

This map illustrates a preliminary assessment of natural heritage features and hazard lands within the Elfrida subwatershed, as identified through this study. The mapping is subject to refinement following consultation with the City of Hamilton, Niagara Peninsula Conservation Authority, Hamilton Conservation Authority, and the Ministry of Natural Resources and Forestry; as applicable.




**Legend**

- Study Area

**HAZARDS**

**Status**

- 100 Year Flood
- Regional Flood
- Geomorphic Constraint (varies 33 to 66m)
- Karst Sinkhole

**NATURAL HERITAGE SYSTEM**

- Restoration Areas

**CORE NATURAL HERITAGE FEATURES**

- Watercourse
- Eramosa Karst Provincial Earth Science ANSI
- Wetlands
- Significant Woodland

**Significant Wildlife Habitat**

- Candidate
- Confirmed

**LINKAGES**

- Linkage: Conceptual Location

**Hedgerows (HR):**

- Hedgerow Linkage: Enhance
- Hedgerow Linkage: Feature Area (consider integrating)
- Hedgerow Linkage: Retain
- Woodlands
- Potential Future Snake Corridor
- Linkages

**VEGETATION PROTECTION ZONES**

**PER RURAL OP:**

- Wetland VPZ (30m)
- Significant Woodland VPZ (30m)
- Woodland VPZ (15m)

**PER SWS:**

- Wetland VPZ (60m)

**HEADWATER DRAINAGE FEATURES**

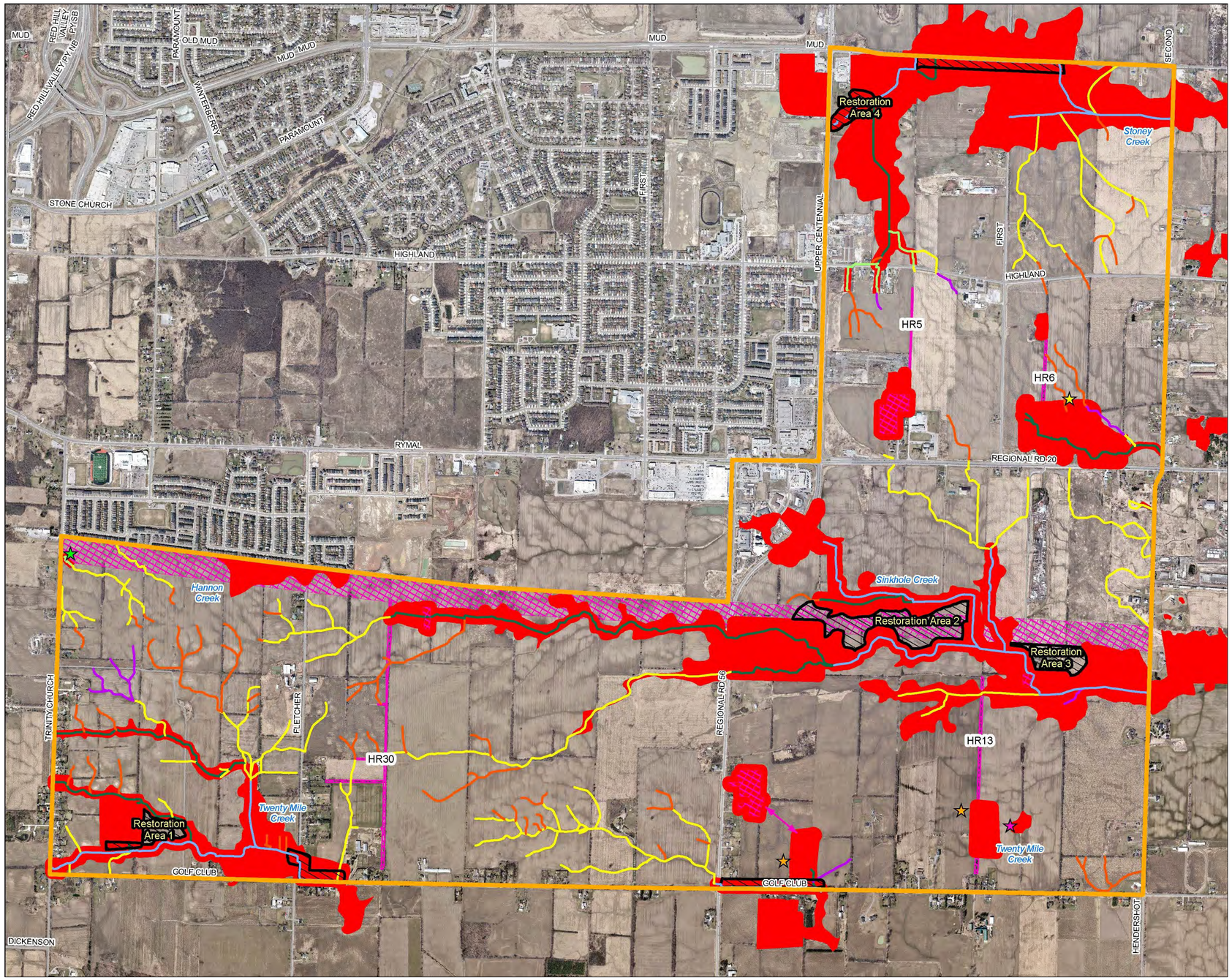
- Protection
- Conservation
- Mitigation
- No Managment Required
- No Access

**MANAGEMENT CONSIDERATIONS**

- Collect overland flow at point to maintain wetland hydrology
- Sheet flow, special considerations for vernal pools in wetland, and wildlife

# Limitations and Opportunities to Development: Overview

**Elfrida Subwatershed Study**
**Public Information Centre No. 2**
**Date: June 12, 2018**




**Legend**

- Study Area
- Limitation To Developement
- Restoration Areas
- Watercourse
- Karst Sinkhole

**LINKAGES**

- Linkages
- Linkage: Conceptual Location
- Potential Future Snake Corridor

**HEADWATER DRAINAGE FEATURES**

- Protection
- Conservation
- Mitigation
- No Managment Required
- No Access

**MANAGEMENT CONSIDERATIONS**

- Collect overland flow at point to maintain wetland hydrology
- Sheet flow, special considerations for vernal pools in wetland, and wildlife

N

This map illustrates a preliminary assessment of natural heritage features and hazard lands within the Elfrida subwatershed, as identified through this study. The mapping is subject to refinement following consultation with the City of Hamilton, Niagara Peninsula Conservation Authority, Hamilton Conservation Authority, and the Ministry of Natural Resources and Forestry; as applicable.

# Next Steps

- Preferred land use strategy to be developed (Winter 2018)

## Subwatershed Study Phase 2

- Evaluation of potential impacts of land uses on the Natural Heritage System
- Development and evaluation of preferred subwatershed management strategies
- Selection of preferred subwatershed management strategy
- Present preferred strategy

## Subwatershed Study Phase 3

- Implementation

Bur Oak Mineral Deciduous Swamp

Spring ephemerals: spring beauty (left) and red trillium (right)

# Thank You for Participating!



After this Public Information Centre, the study team will consider verbal and written comments in order to refine tasks taken as part of the Environmental Assessment.

For more information on this project, please submit your comments or feedback, by July 4th to one of the following contacts:

**Melanie Anderton**
**Project Manager, Growth Management**
**City of Hamilton**
**71 Main St W, 6th Floor**
**Hamilton, ON L8P 4Y5**
**iplanning@hamilton.ca**
**(905) 546-2424 ext.6412**

**Dave Maunder, P.Eng., M.Sc.**
**Project Manager**
**Aquafor Beech Ltd.**
**55 Regal Road, Unit 3**
**Guelph, ON N1K 1B6**
**maunder.d@aquaforbeech.com**
**(905)629-0099 ext. 290**