Niagara Peninsula CONSERVATION
nature for all

Coyle Creek and Draper's Creek Floodplain Mapping

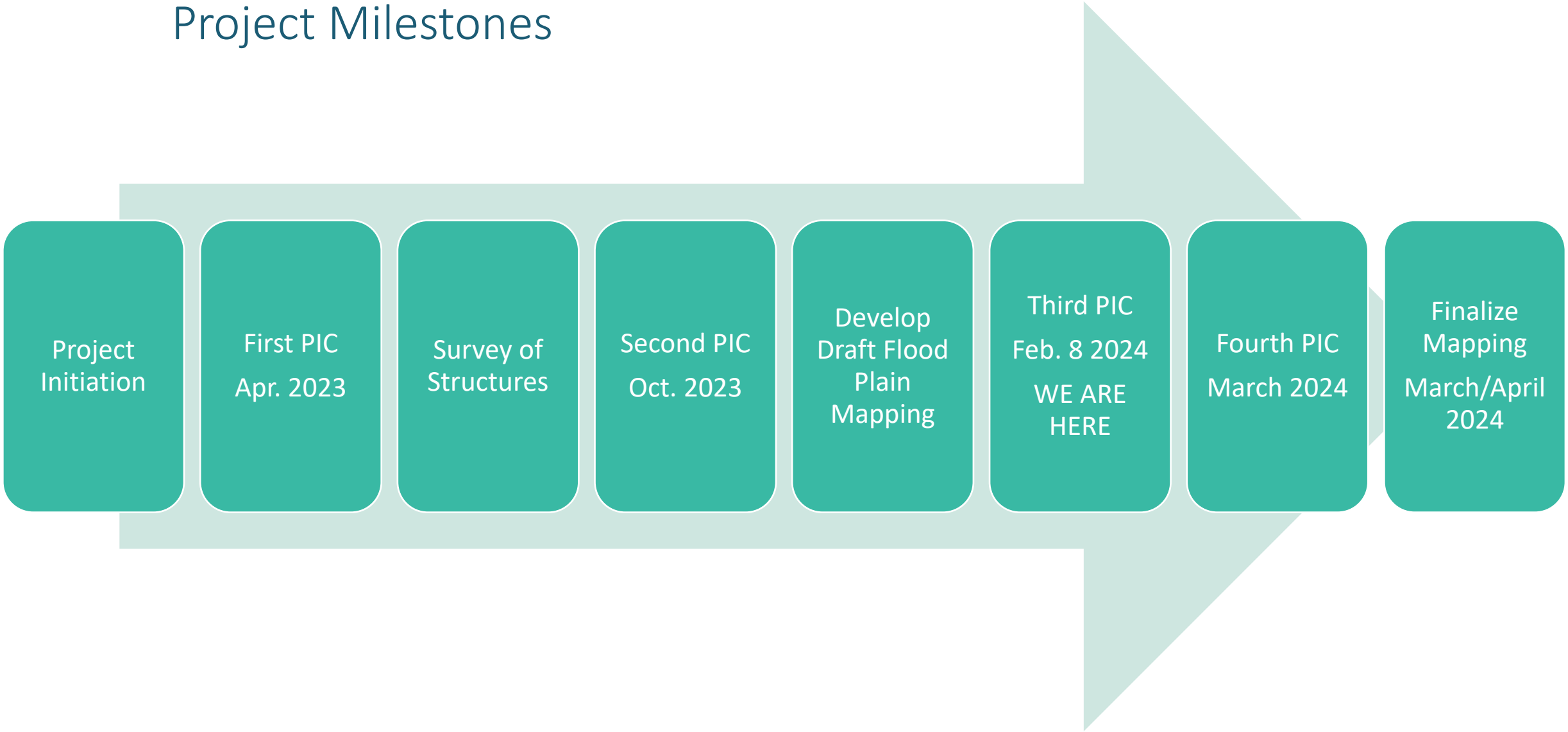
Third Public Engagement Meeting
February 8, 2024

Coyle Creek and Draper's Creek Floodplain Mapping
Third Public Engagement Meeting

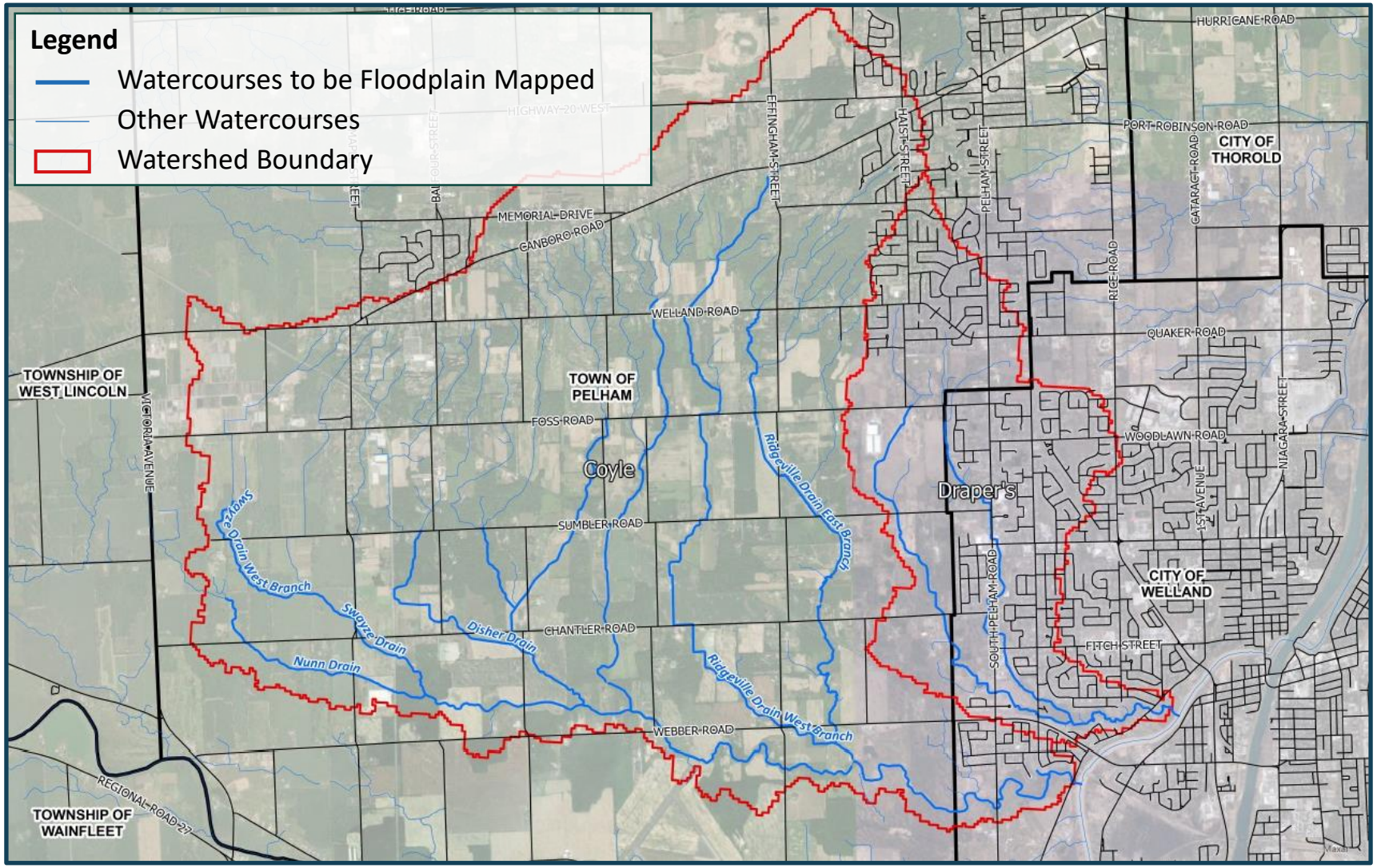
Speakers

- Leilani Lee-Yates, Director, Planning and Development, NPCA
- Tim Mereu, Program Manager, NPCA
- Rob Amos, Project Manager, Aquafor Beech Ltd.
- David Deluce, Senior Manager, Environmental Planning & Policy, NPCA

Project Milestones



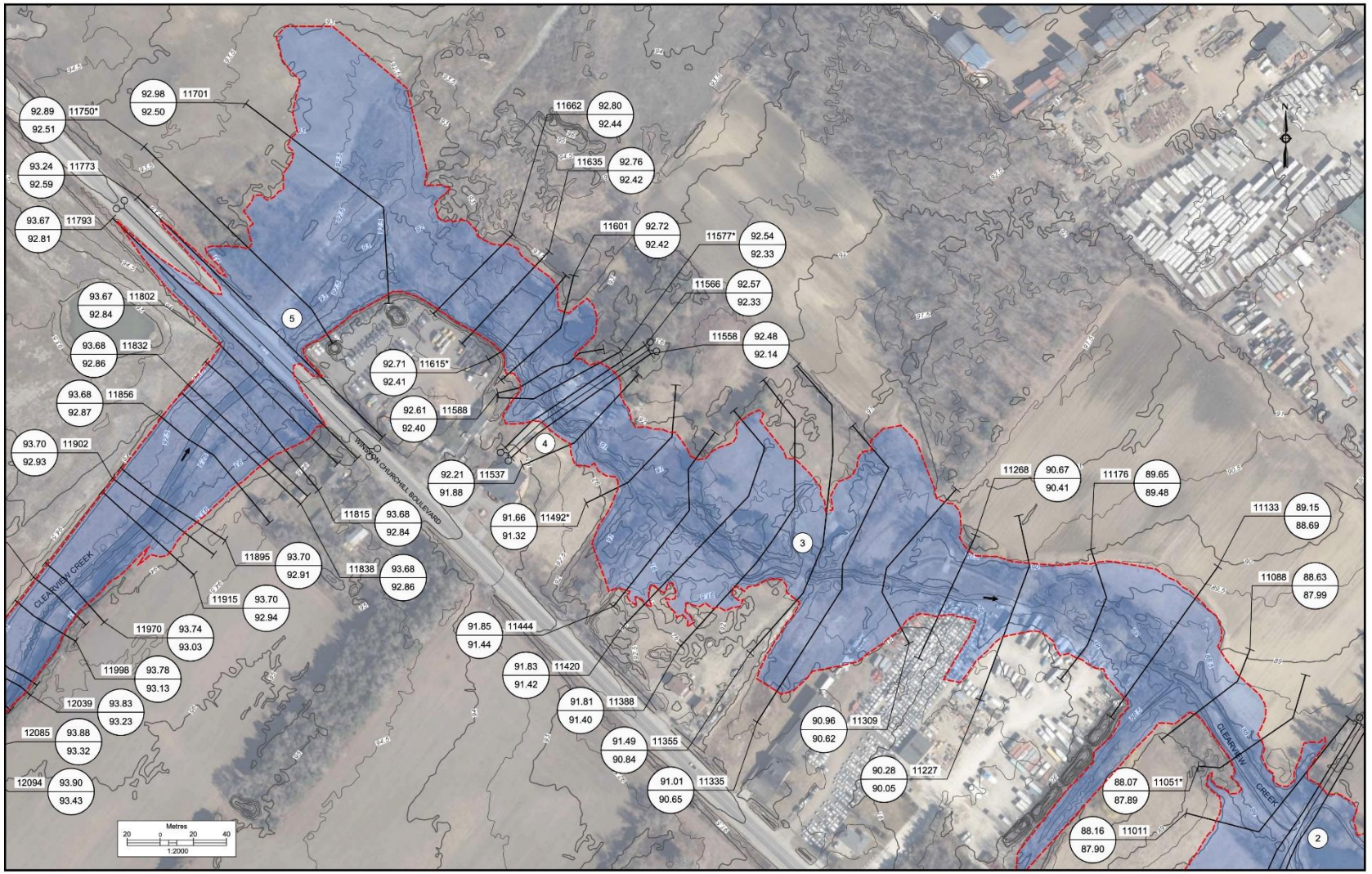
Coyle Creek and Draper's Creek Study Area



Typical Floodplain Map

The first step to reduce the cost of flood damage within a community is to have mapping that accurately shows the flood hazard.

These maps help people prepare for and respond to potential flooding.

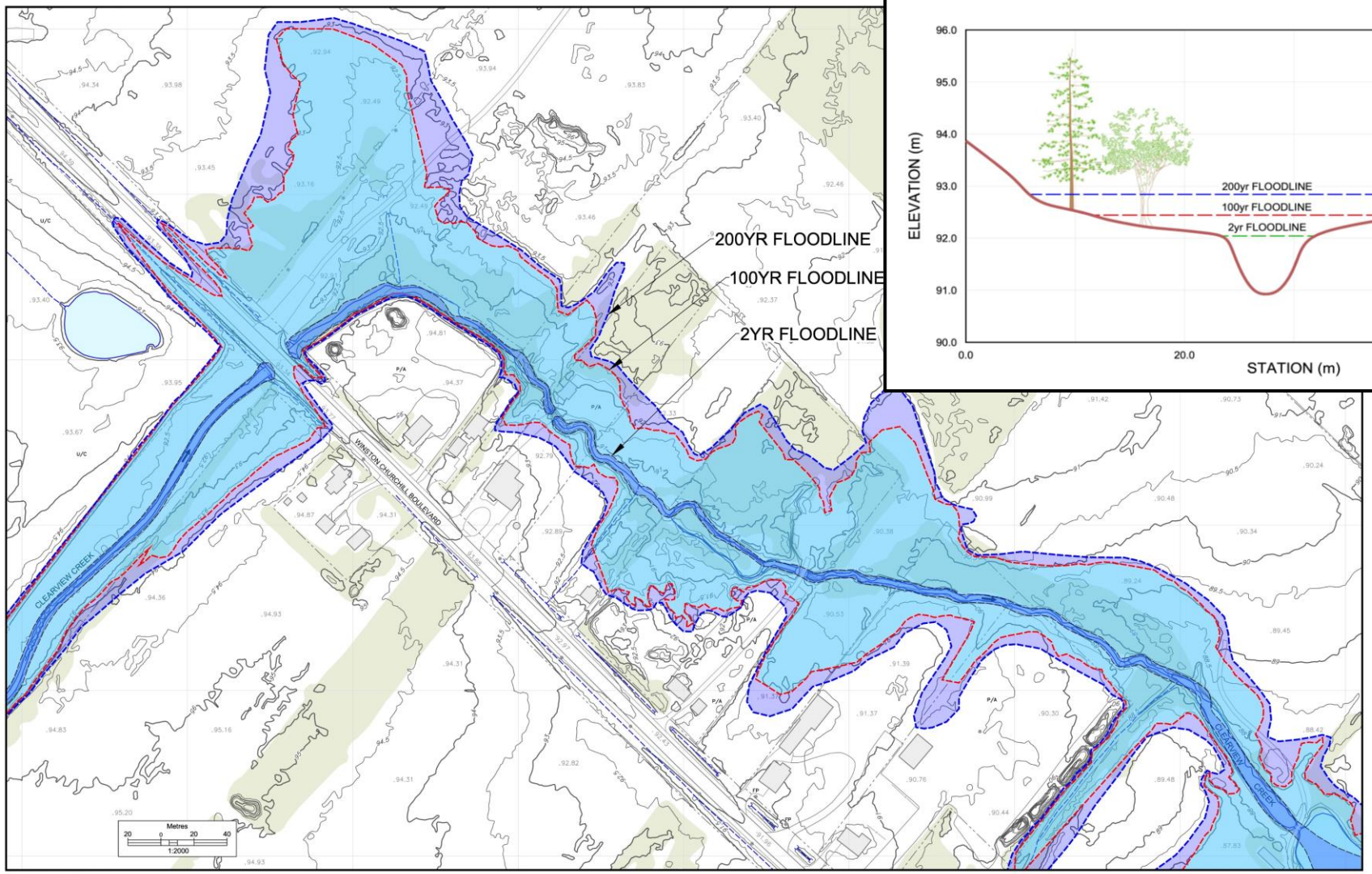


What is the 1:100 year flood and why is it used to map and regulate floodplains?

- 1% chance of happening in any given year
- The Province requires the 1:100-year flood to be mapped and the lands in the floodplain to be regulated
- To illustrate more severe flooding associated with climate change, also map floodplain with 20% increase in flows



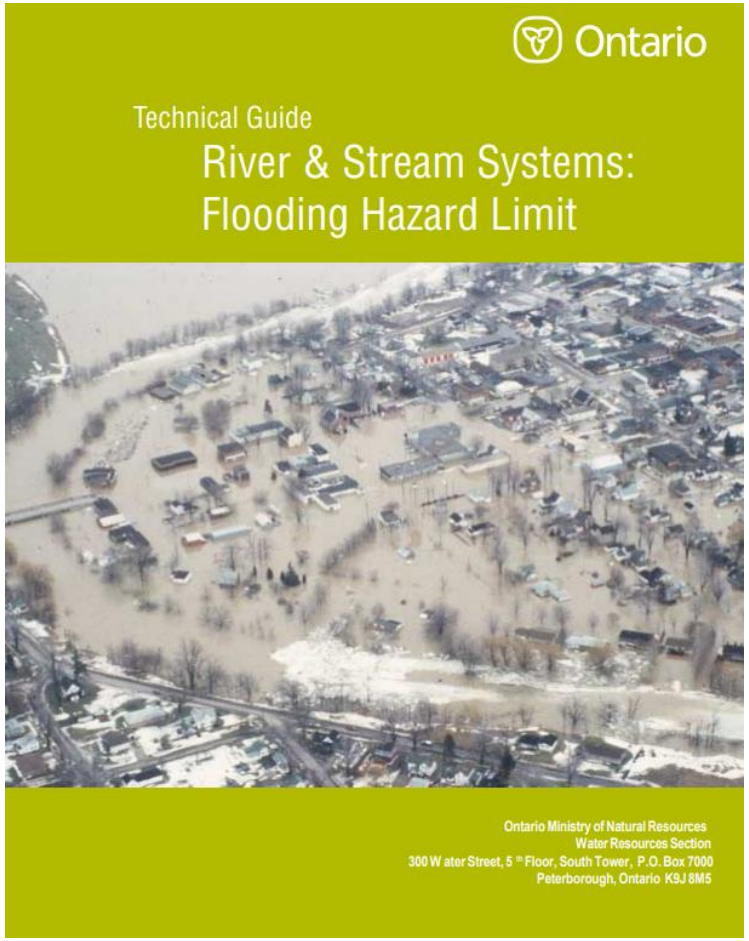
Floodplain Map: 1:2 year, 1:100 year; 1:200 year



Guidelines for Creating Floodplain Maps

- Floodplain mapping must be undertaken in a manner consistent with the Provincial Technical Guide for River and Stream Systems.

- This guide is used by all Conservation Authorities undertaking floodplain mapping projects.



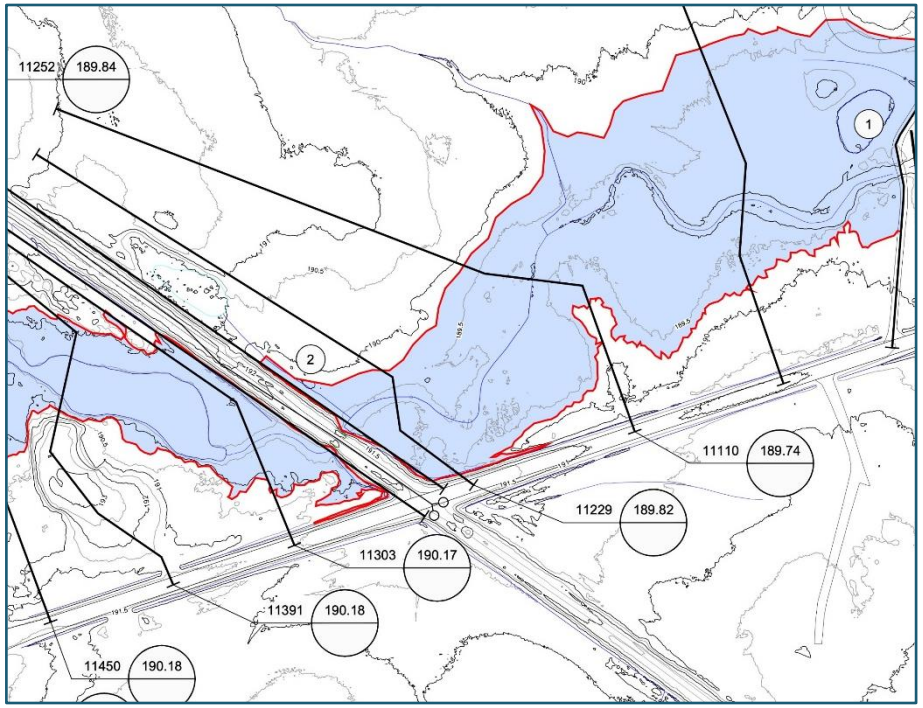
What are the key steps in preparing a floodplain map?

- Base Mapping
- Survey bridges and culverts
- Calculate the 1:100 year flow rate

PIC No. 2

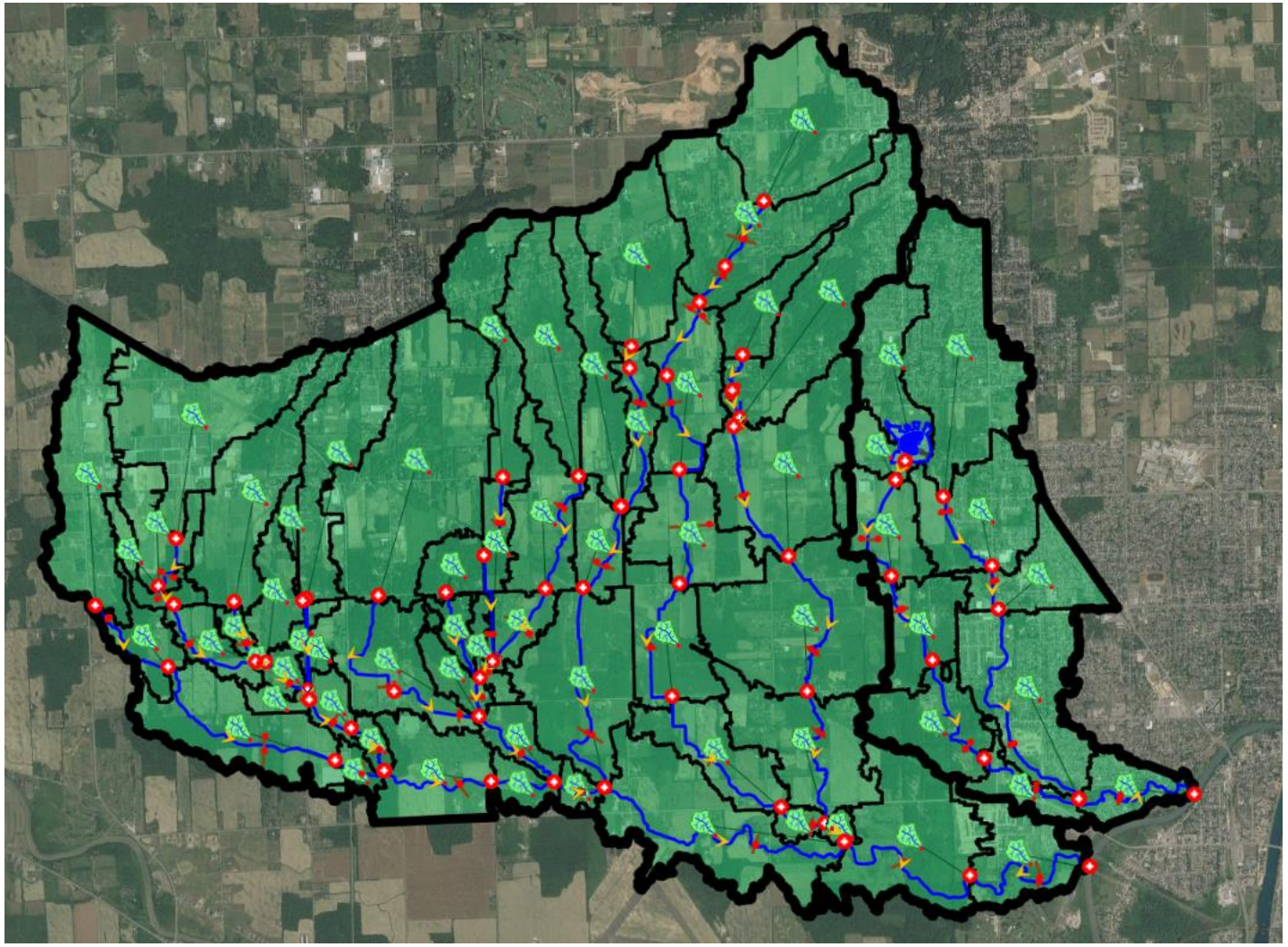
- Develop a computer model that combines all of the above to estimate flood elevations
- **Prepare the floodplain maps**

PIC No. 3



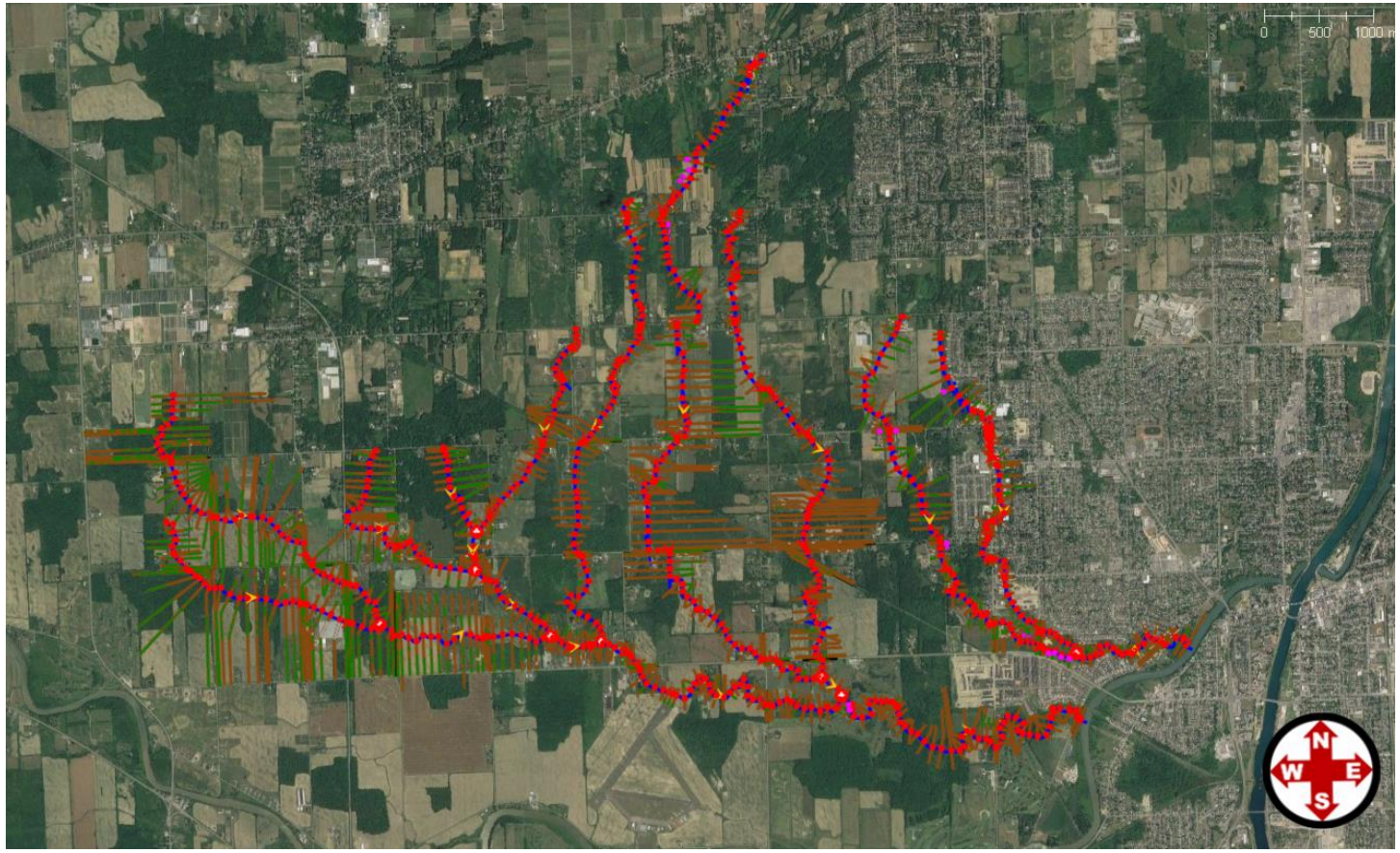
Hydrologic Model Setup

- 40.6 Km^2 for Coyle Creek
- 8.9 Km^2 for Draper's Creek
- 67 Sub-Basins
- 88 Junctions



Hydraulic Model Development

- Models Completed
  - 847 River Cross-Sections
  - 76 Hydraulic Structures
  - Stream/Floodplain Roughness Values Assigned
  - Building Obstructions Defined (conveyance obstruction)

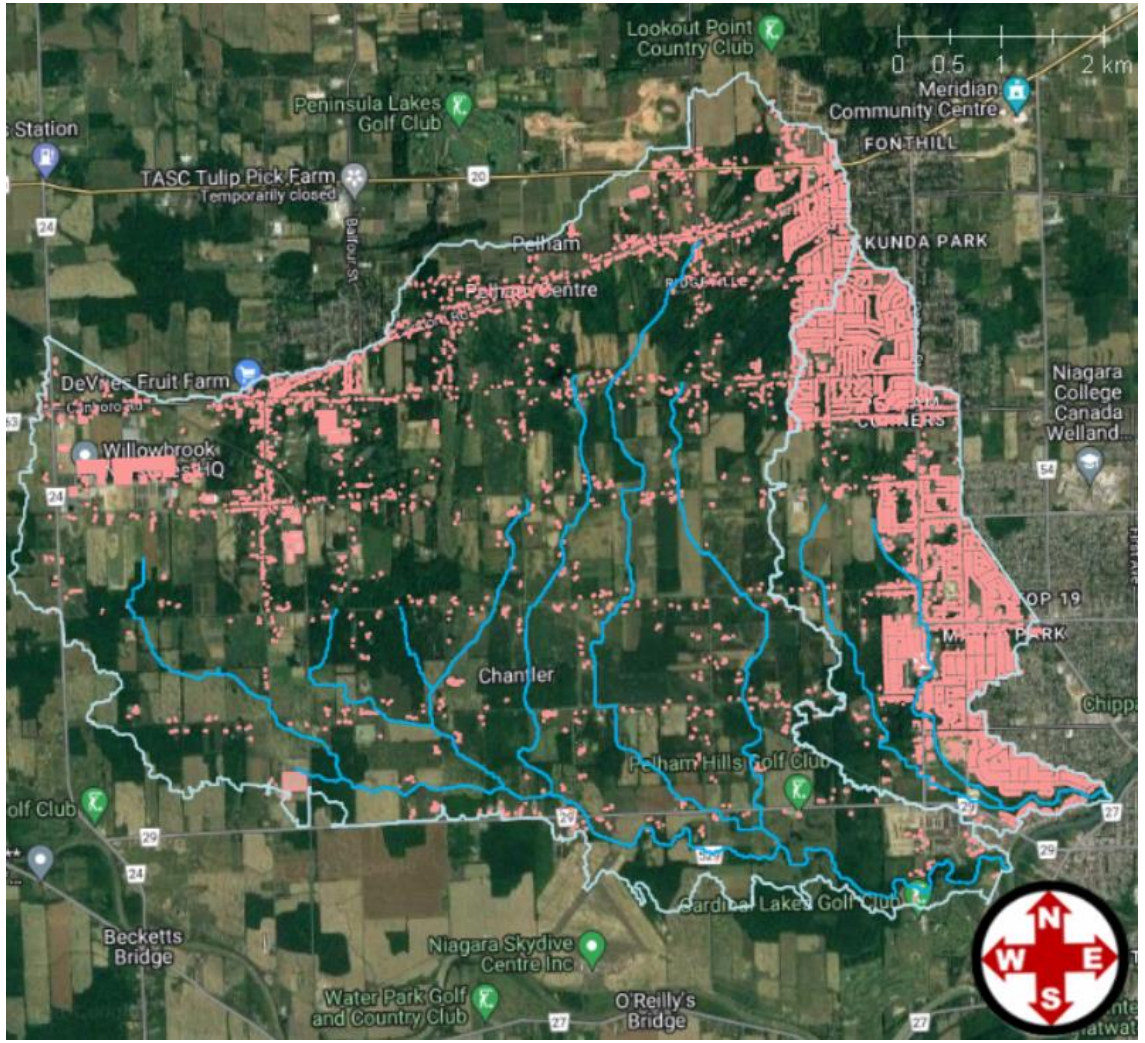


Aquafor Hydraulic Model

Hydraulic Model Development

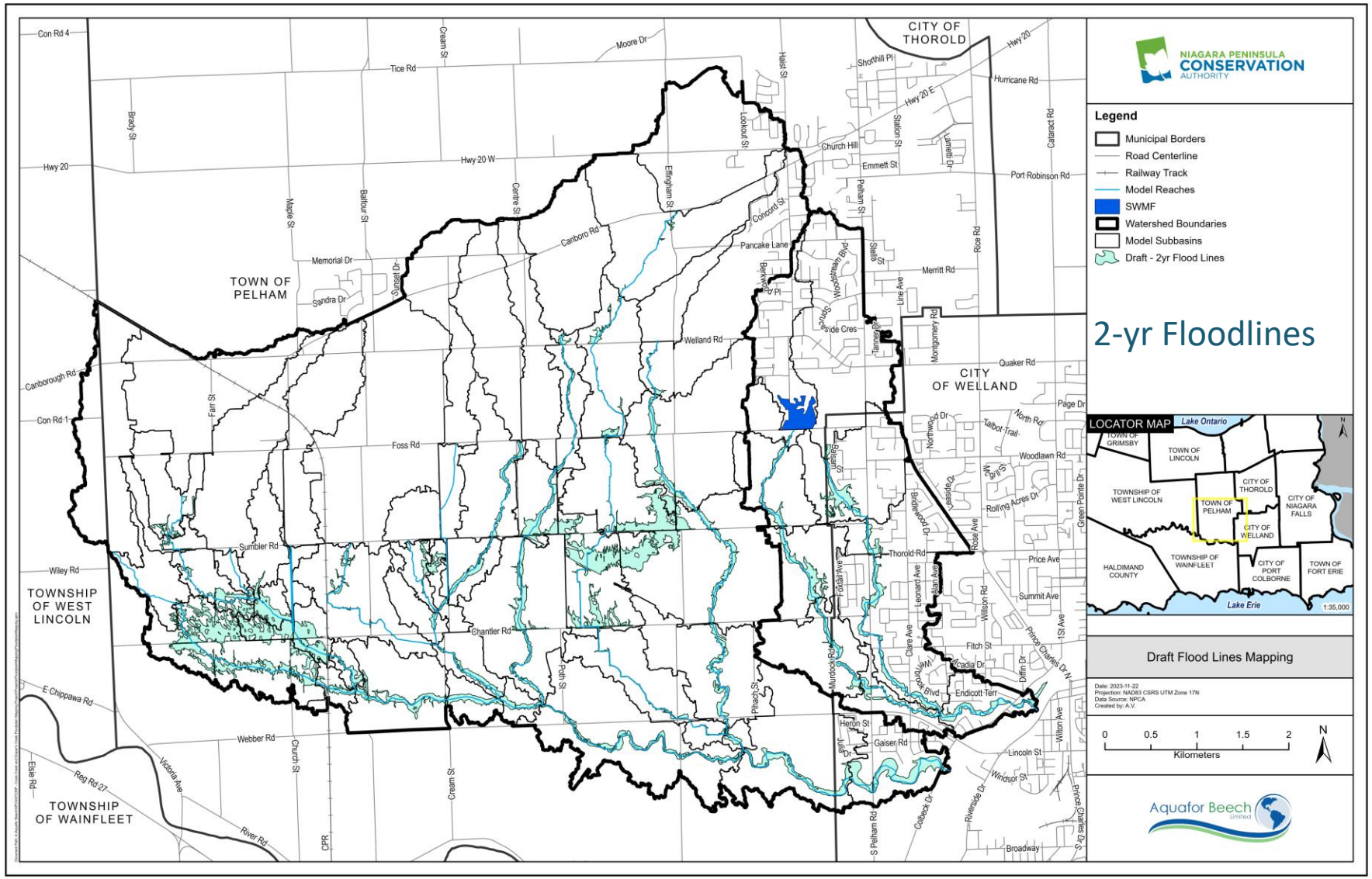
Land Use Classification (SOLRIS)	Manning Roughness
Built-up Area Impervious - Rural	0.02
Built-up Area Impervious - Urban High Density	0.045
Built-up Area Impervious - Urban Low Density	0.05
Built-Up Area – Pervious	0.055
Commercial	0.02
Coniferous Forest	0.07
Deciduous Forest	0.075
Extraction-Aggregate	0.011
Forest	0.07
Hedge Rows	0.06
Marsh	0.075
Mixed Forest	0.07
Open Water	0.035
Plantation - Tree Cultivated	0.06
Thicket Swamp	0.08
Tilled	0.055
Transportation - Rural	0.013
Transportation - Urban	0.013
Treed Swamp	0.08
Undifferentiated	0.05

Manning's Roughness Coefficients based on Land Use Classification

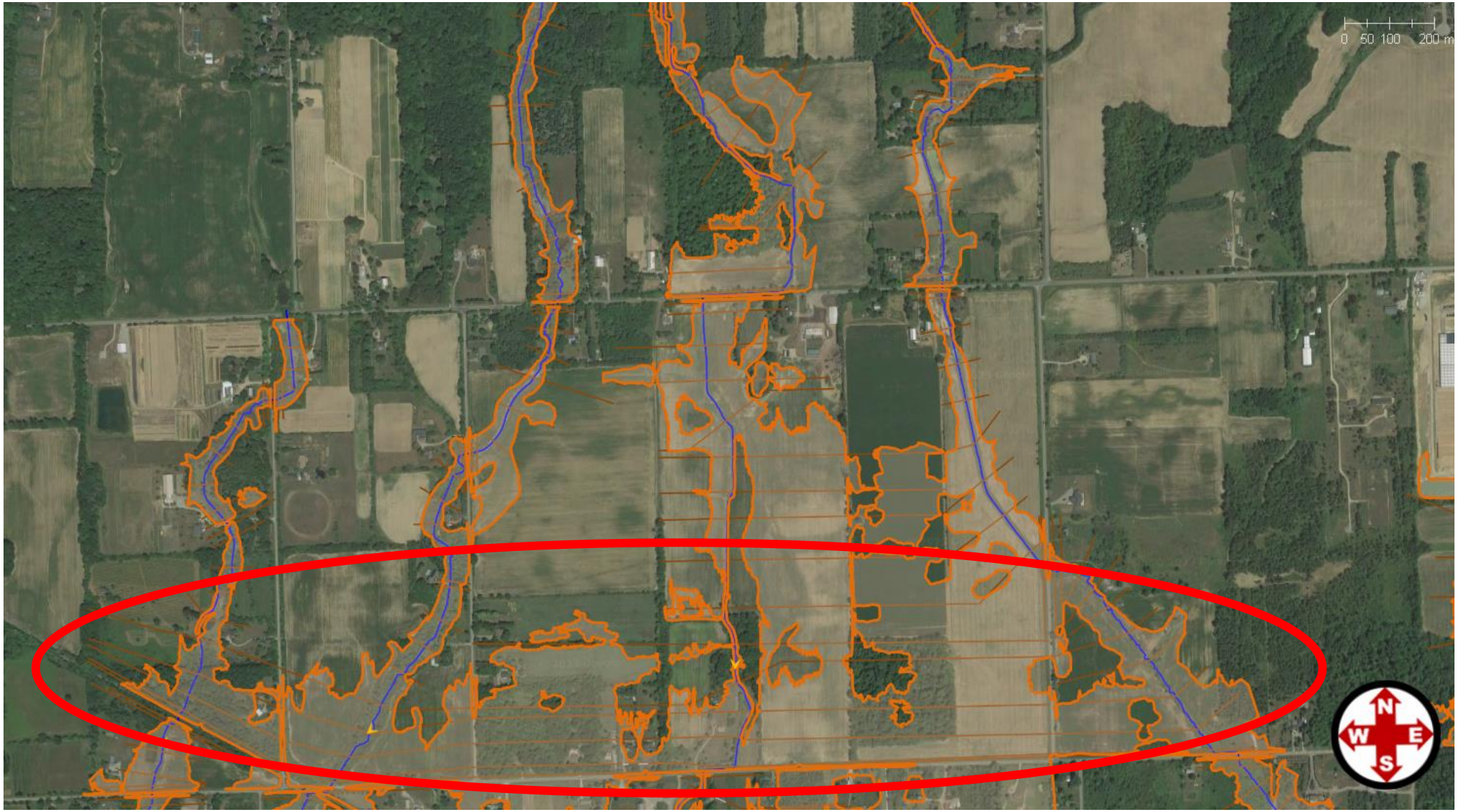


Distribution of Buildings

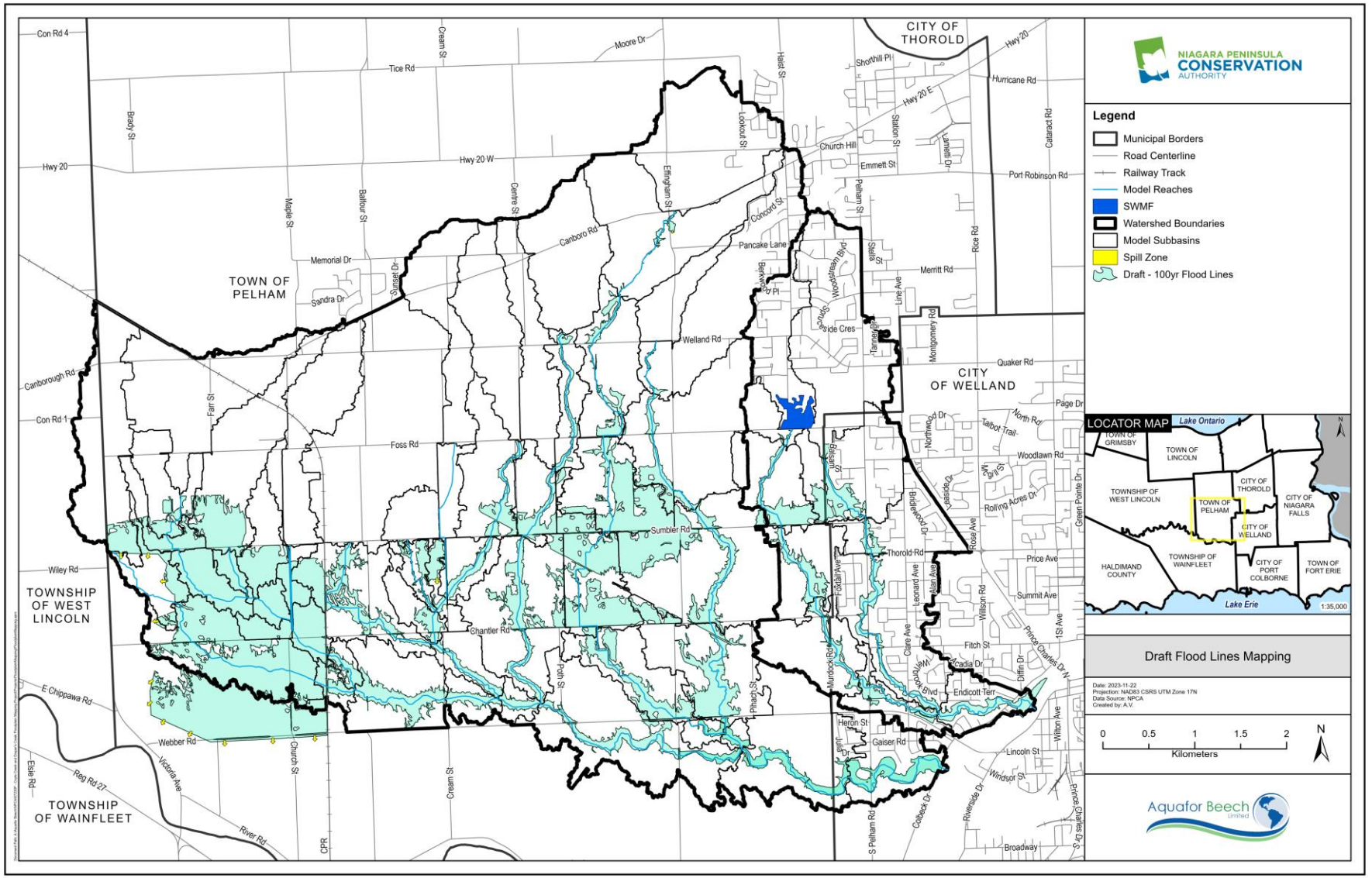
Floodline Estimates – 2 Year Return

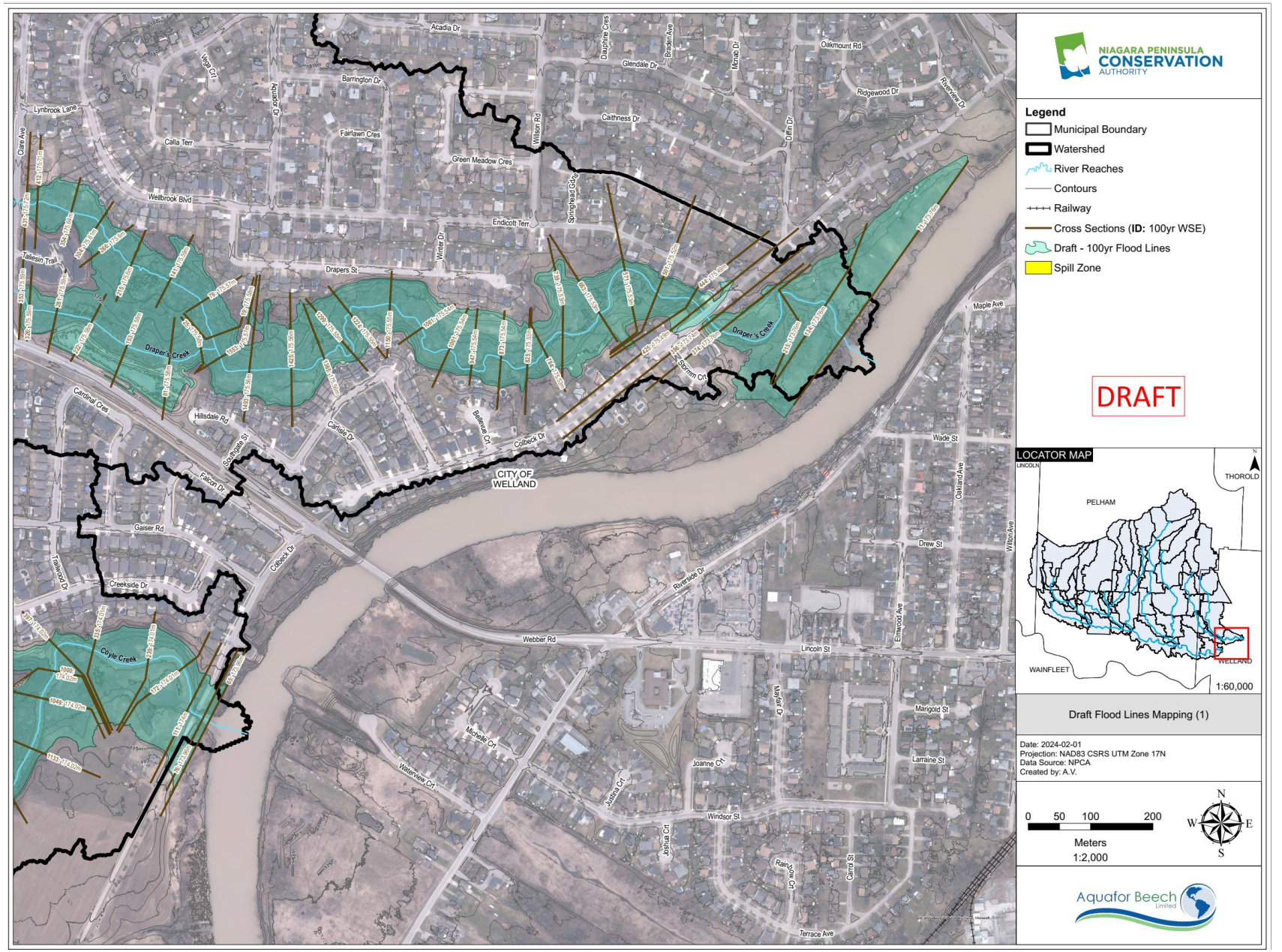


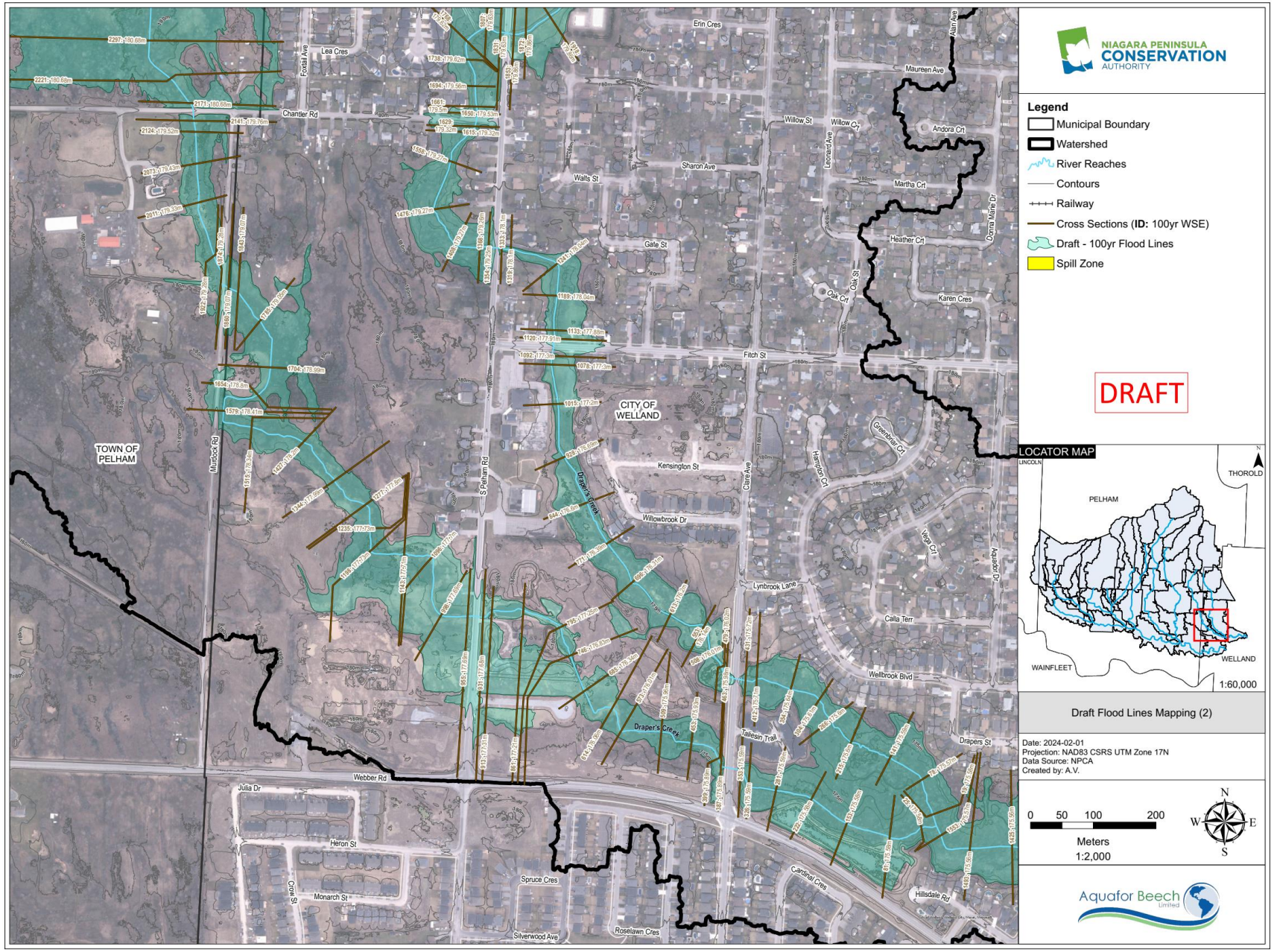
Floodline Estimates – 100 Year Return

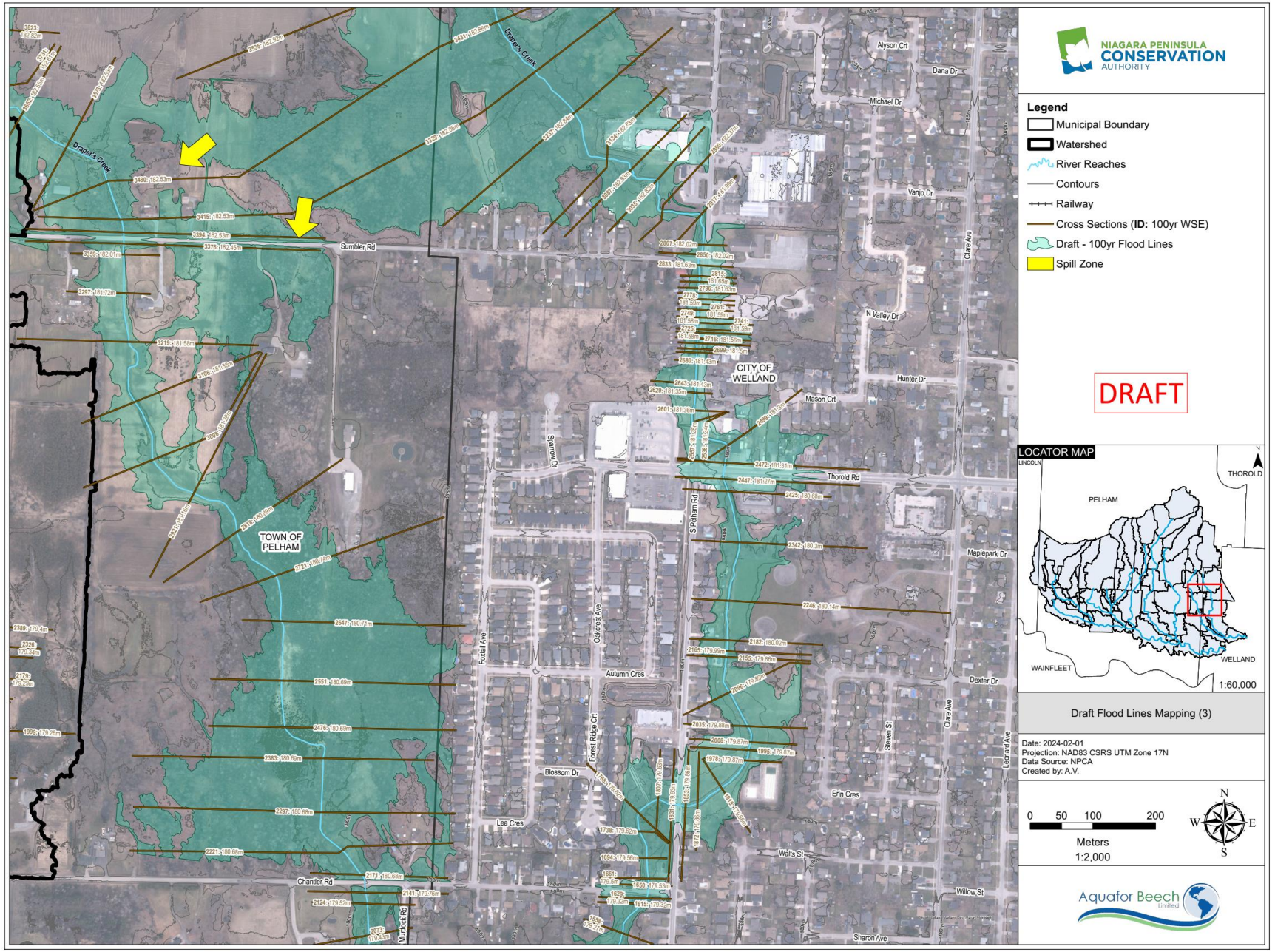


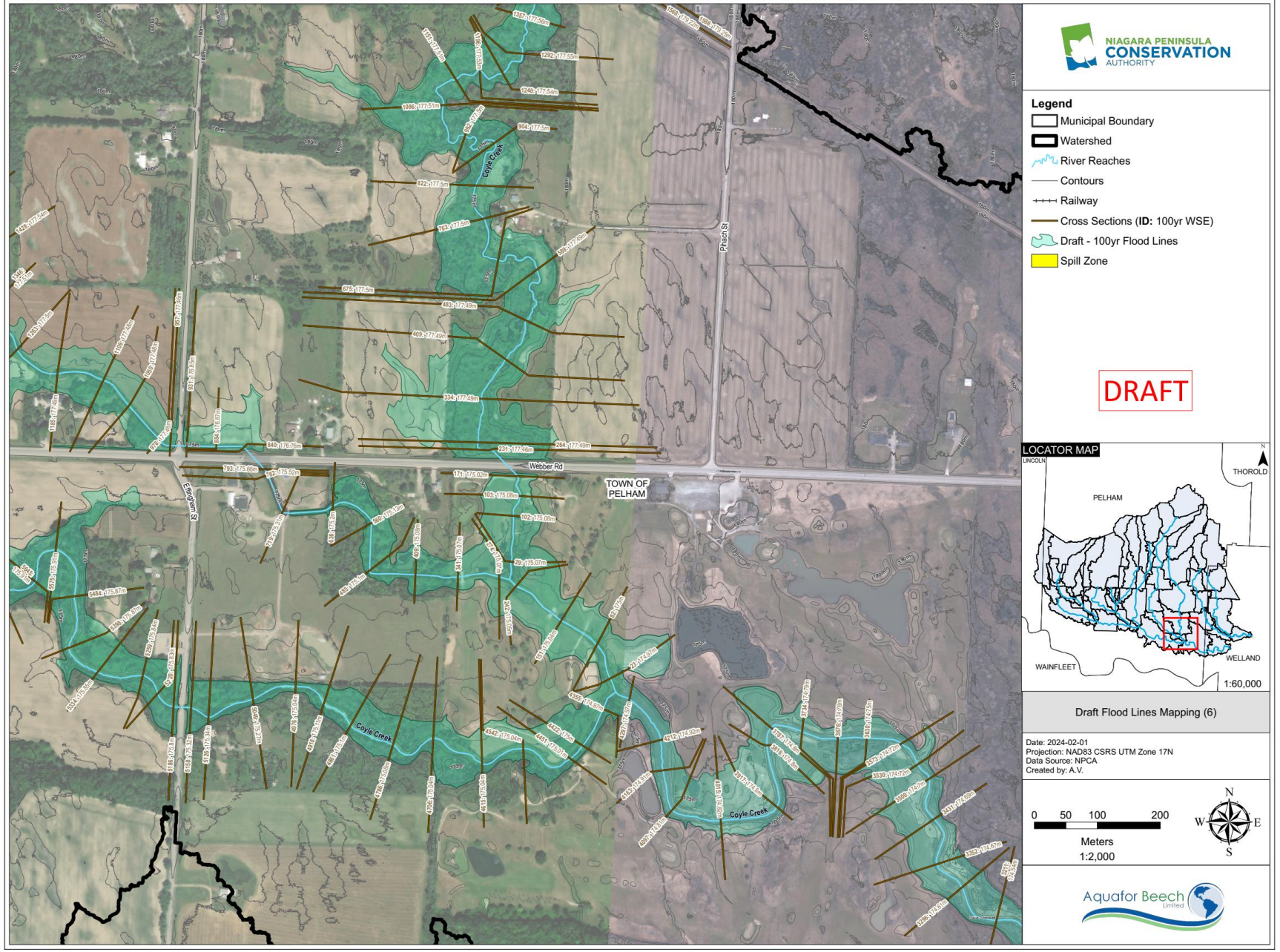
Floodline Estimates – 100 Year Return

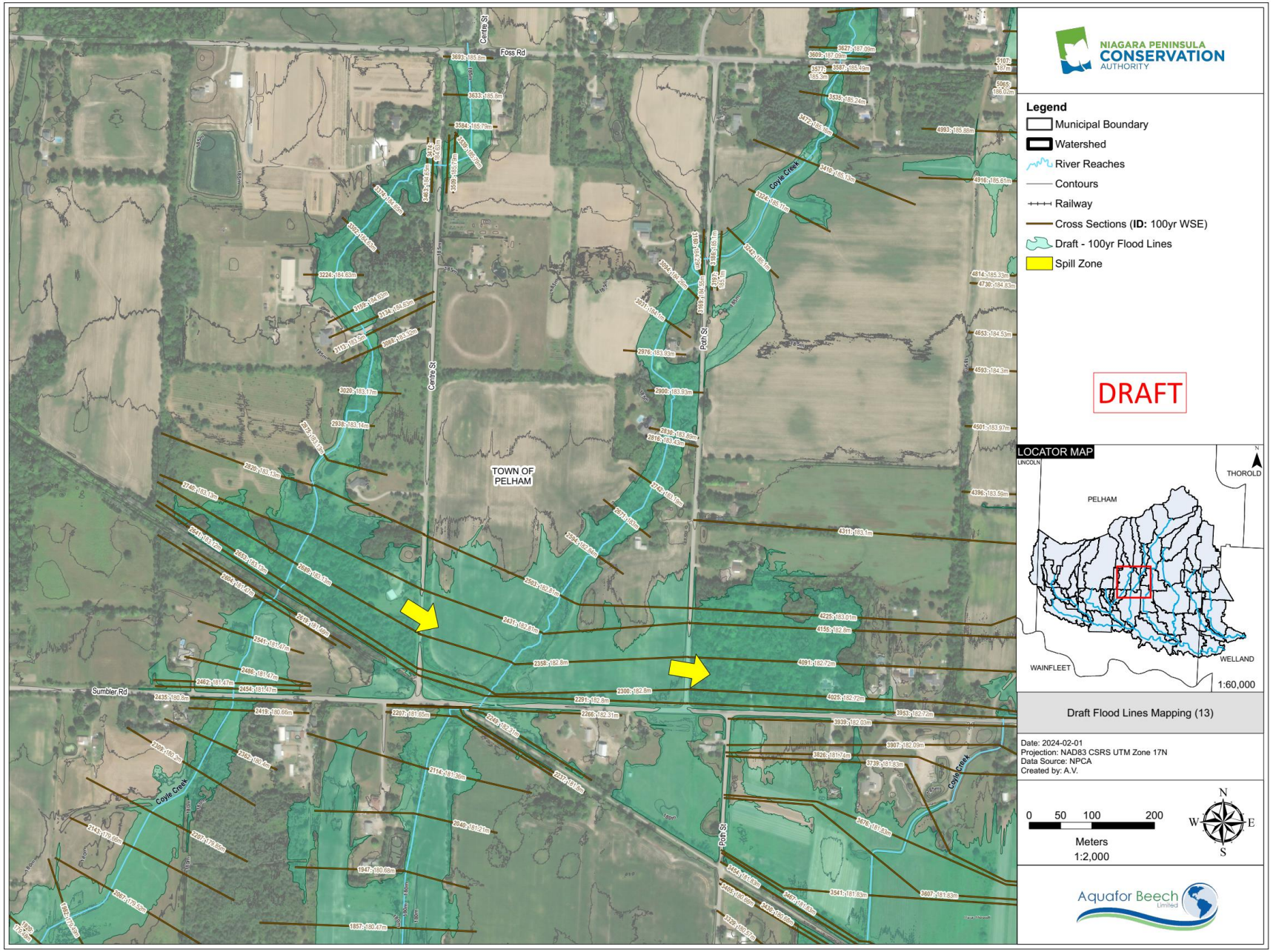



NIAGARA PENINSULA CONSERVATION AUTHORITY
Legend
Municipal Boundary
Watershed
River Reaches
Contours
Railway
Cross Sections (ID: 100yr WSE)
Draft - 100yr Flood Lines
Spill Zone
DRAFT
LOCATOR MAP
LINCOLN
THOROLD
PELHAM
WAINFLEET
WELLAND
1:60,000
Draft Flood Lines Mapping (1)
Date: 2024-02-01
Projection: NAD83 CSRS UTM Zone 17N
Data Source: NPCA
Created by: A.V.
0 50 100 200
Meters
1:2,000
N
W
E
S
Aquafor Beech Limited
CITY OF WELLAND
Acadia Dr
Barrington Dr
Glendale Dr
Oakmount Rd
Ridgewood Dr
Riverview Dr
Lynbrook Lane
Calla Terr
Fairlawn Cres
Green Meadow Cres
Caithness Dr
Wellbrook Blvd
Endicott Terr
Drapers St
Talkesin Trail
Draper's Creek
Cardinal Cres
Hillsdale Rd
Carlisle Dr
Colbeck Dr
Maple Ave
Wade St
Drew St
Riverside Dr
Webber Rd
Lincoln St
Gaiser Rd
Falcon Dr
Creekside Dr
Coyle Creek
Mangold St
Larraine St
Windsor St
Terrace Ave
Michelle Crt
Waterview Crt
Joanne Crt
Joshua Crt
Carrie Ave
Dauphine Cres
Braden Ave
Mcnall Dr
Wilson Rd
Springhead Gdns
Winter Dr
Driffin Dr
Stormont Crt
Belleview Crt
Oakland Ave
Wilbur Ave
Elmwood Ave
Talbot Dr
Talinwood Dr
Colbeck Dr
Valley Dr
Rainy Crow Crt
Carrie St


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Data Source: NPCA
Created by: A.V.
0 50 100 200
Meters
1:2,000
N
W
E
S
Aquafor Beech Limited
TOWN OF PELHAM
CITY OF WELLAND
Erin Cres
Lea Cres
Foxtal Ave
Chantler Rd
Maureen Ave
Willow St
Willow Cr
Andora Crt
Sharon Ave
Leonard Ave
Martha Crt
Walls St
Donna Marie Dr
Heather Crt
Gate St
Oak St
Oak Crt
Karen Cres
Fitch St
Greenbrier Crt
Hamilton Crt
Kensington St
Clare Ave
Willowbrook Dr
Draper's Creek
Vega Crt
Aquadel Dr
Lynbrook Lane
Calla Terr
Wellbrook Blvd
Tallesin Trail
Drapers St
Webber Rd
Julia Dr
Heron St
Crow St
Monarch St
Spruce Cres
Cardinal Cres
Hillsdale Rd
Silverwood Ave
Roselawn Cres
Muirdock Rd
S Pelham Rd


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Created by: A.V.
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Meters
1:2,000
N
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E
S
Aquafor Beech Limited
Draper's Creek
Sumbler Rd
TOWN OF PELHAM
CITY OF WELLAND
Alyson Crt
Dana Dr
Michael Dr
Vanjo Dr
Clare Ave
N Valley Dr
Hunter Dr
Mason Crt
Thorold Rd
S Pelham Rd
Maplepark Dr
Dexter Dr
Steven St
Leonard Ave
Foxtail Ave
Oakcrest Ave
Autumn Cres
Forest Ridge Crt
Blossom Dr
Lea Cres
Erin Cres
Walts St
Willow St
Sharon Ave
Chantler Rd
Murdock Rd


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0 50 100 200
Meters
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Webber Rd
TOWN OF PELHAM
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Pitton St
Coyle Creek

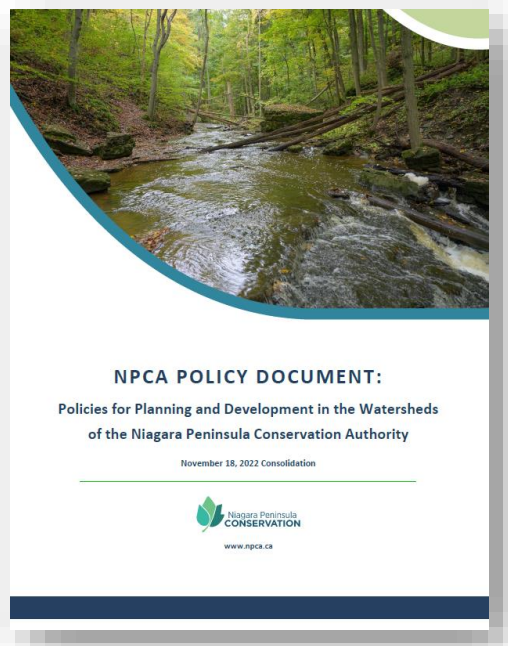

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Draft Flood Lines Mapping (13)
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0 50 100 200
Meters
1:2,000
N
W
E
S
Aquafor Beech Limited
TOWN OF PELHAM
Foss Rd
Centre St
Path St
Sumbler Rd
Coyle Creek

Niagara Peninsula CONSERVATION

nature for all

NPCA FLOODPLAIN POLICIES

February 2024



David Deluce, MCIP, RPP
Senior Manager, Environmental Planning and Policy

What is Allowed?

- Passive open space uses
- Accessory structures (subject to criteria)
- Additions to existing buildings (up to 46.5 square metres)
- New agricultural buildings (subject to criteria)
- Up to 50 cubic metres of clean fill
- Balanced cut and fill
- Other uses not likely to incur damage from floodwaters



What is Not Allowed?

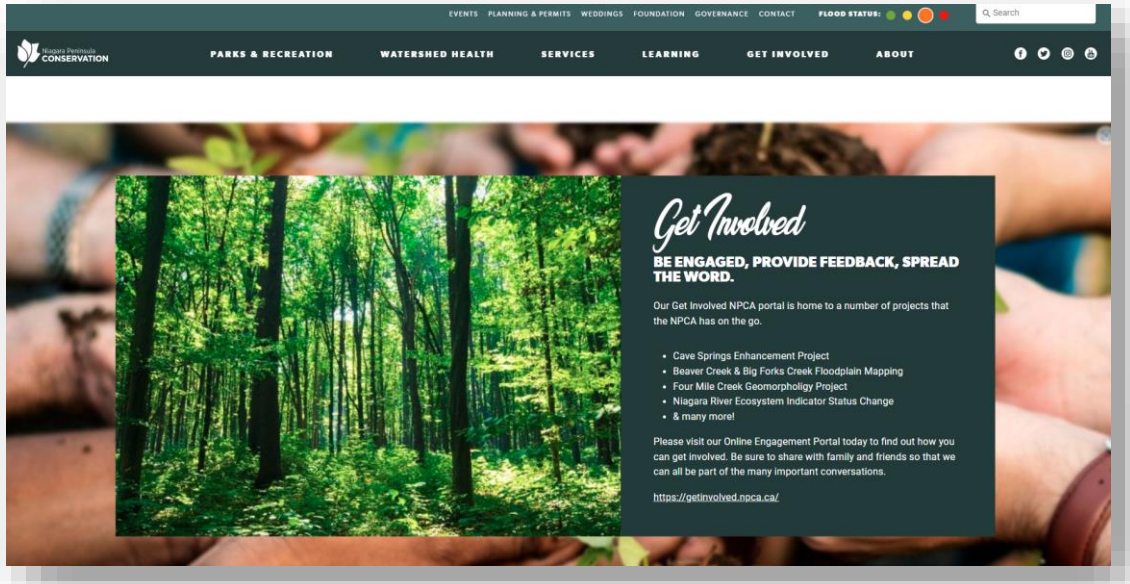
- Sensitive uses, such as hospitals, nursing homes, day-cares/pre-schools and schools
- Emergency services facilities
- Uses associated with the disposal, treatment, manufacturing/processing or storage of hazardous substances
- Any other use or development deemed to be inappropriate based on the following objectives:
  - Prevent loss of life;
  - Minimize property damage and social disruption;
  - Reduce the potential for incurring public costs associated with the impacts of flooding hazards;
  - Manage existing risks and reduce the potential for future risks;
  - Promote the conservation of land and a coordinated approach to the management of water.

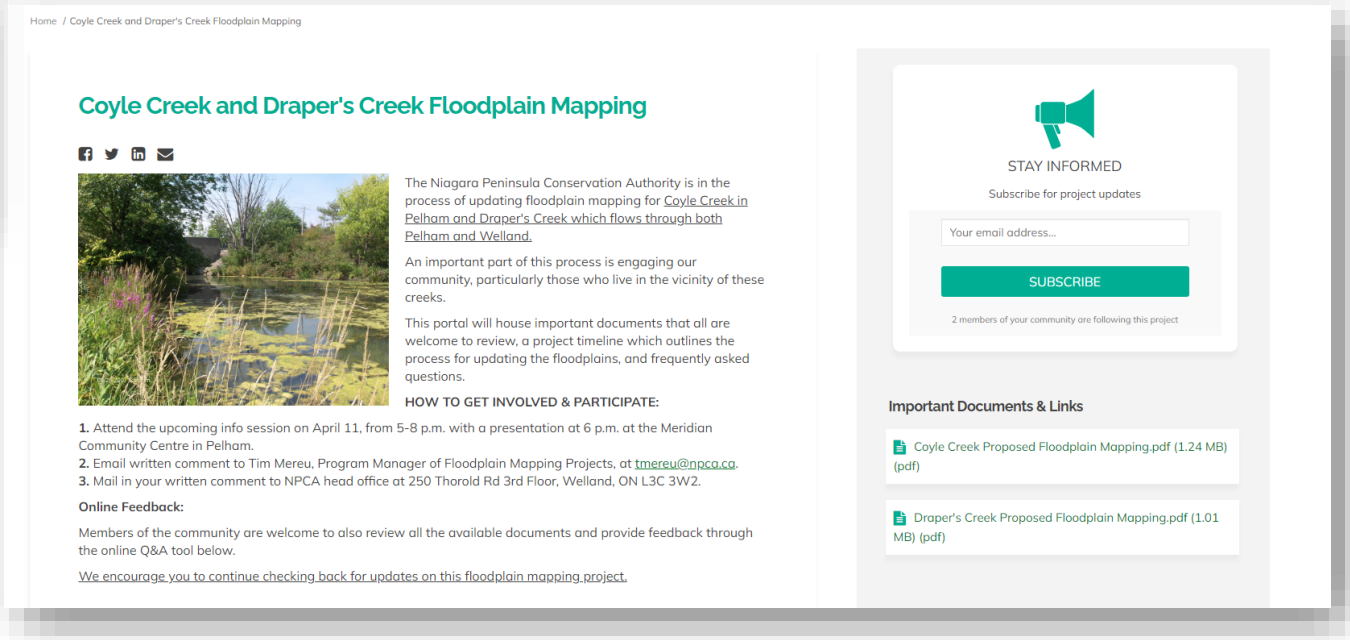


NPCA Policies for Spill Areas

- The NPCA treats spill areas differently than areas within the 100 Year Flood Plain
- The NPCA would review Planning Act applications, Environmental Assessments, Building Permit applications where known spill areas exist
- No prohibitions but encourage mitigation measures

Stay Informed and Have Your Say
www.npca.ca







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