



# Reframing the Definition of a “Watercourse”: Implications for Interpretation and Assessment in Watershed Studies

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# Watershed/Subwatershed Study Context

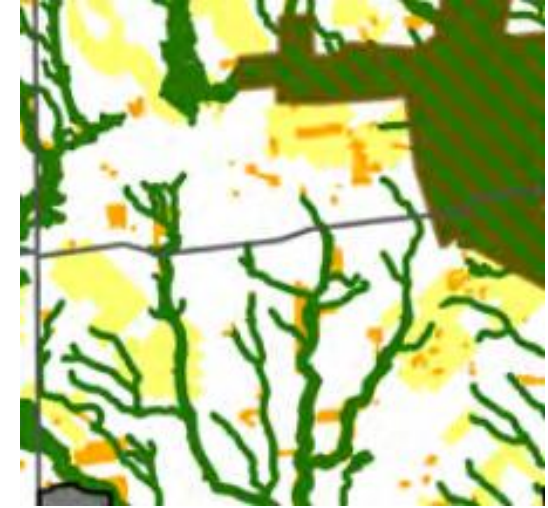


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# Watershed/Subwatershed Study Context

Identifying and characterizing surface drainage features to support Secondary Planning

- Essential to appropriate definitions, methods, and management approaches
  - Collaborate with municipalities, agencies, and other stakeholders
- Provincial Policy requires that a Water Resource System (WRS) is identified – which includes watercourses and Headwater Drainage Features (HDFs)\*
- WRS and its components are inherently interconnected with the Natural Heritage System (NHS) – e.g. linkages, valleylands, wetlands, and their habitats
- Fluvial geomorphologists often support discipline integration at the reach scale for a fulsome evaluation to support sustainable development
- Adaptable and flexible framework exists to support watercourse and HDF assessment and management



# Watershed/Subwatershed Studies - Continued

Within the Greater Toronto and Hamilton Area

- Much of the development land is agricultural and located along tablelands
- Channels are low gradient, low order, with limited development and erosion risk
  - With the exception of gullies, though most gullies are already captured within a broader constraint (long term stable top of slope setback)
- Creates challenges when identifying and managing surface water features; scoping field effort
  - Watercourses are regulated features with erosion hazard corridors
  - Important to distinguish watercourses from headwater drainage features
- Approach must be integrated, collaborative and objective



# Definition of “Watercourse” Pre-2024 and Interpretation



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# Definition of “Watercourse” Pre-2024 and Interpretation

## Conservation Authorities Act

- *"An identifiable depression in the ground in which flow of water regularly or continuously occurs"*
  - Broad strokes; necessitates interpretation to define and identify watercourses and lower-order HDFs.

## Subwatershed Study – Interpreted Definition – pre-2024

- *Watercourses are defined as permanently to intermittently flowing drainage features with defined bed and banks.*
- *They exhibit clear evidence of active channel process including planform, profile, and material sorting, with evidence of a balance between erosion and deposition throughout the reach.*
- *They are often second-order or greater but may be first order when verified by the practitioner(s).*
- *Watercourses are regulated features by the Conservation Authority, and fish are typically found within these features.*
  - Enhanced definition relative to that of the CA act. More robust.

# Headwater Drainage Features

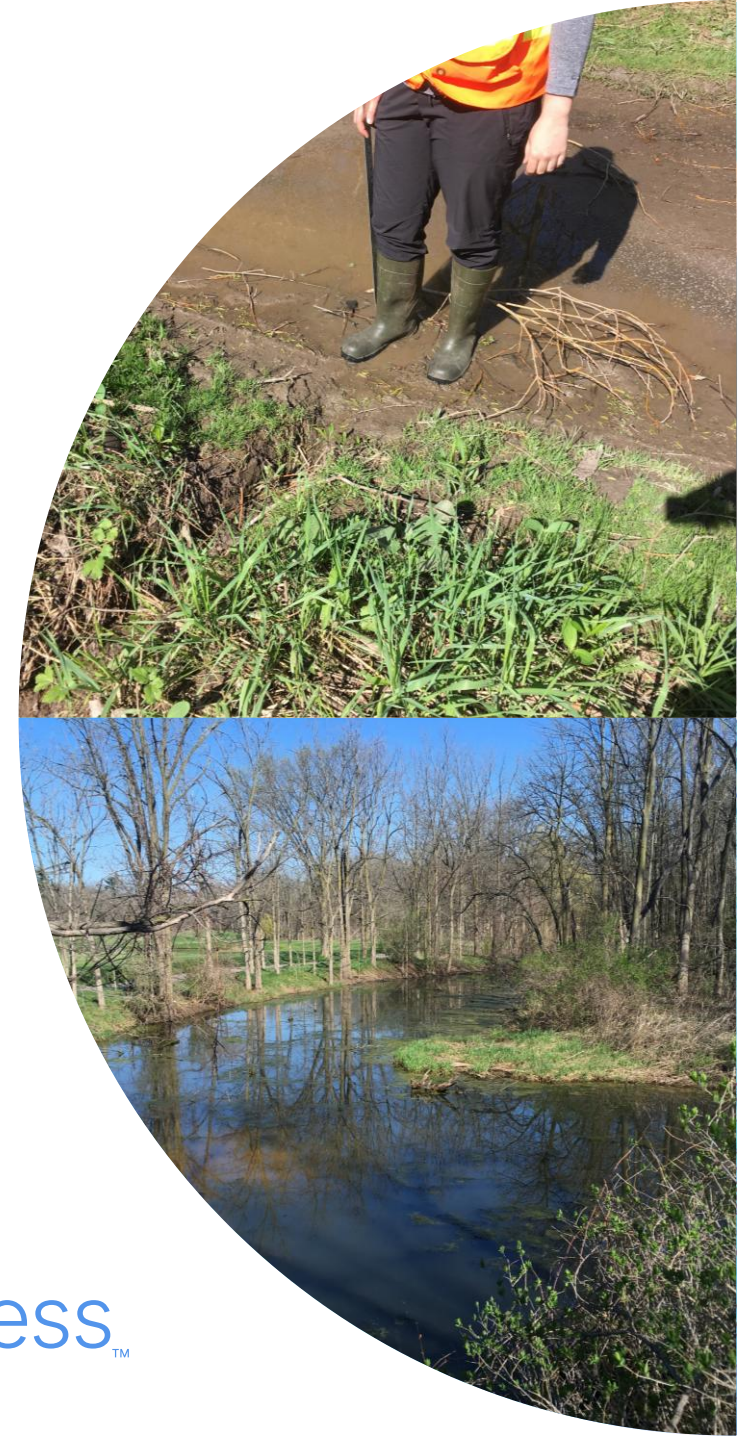
## Headwater Drainage Features Guidelines – TRCA/CVC (2014)

- *Non-permanently flowing drainage features that may not have defined bed or banks; they are first-order and zero order intermittent and ephemeral channels, swales and connected headwater wetlands, but do not include rills and furrows.*

## Subwatershed Study – Interpreted Definition – pre-2024

- *Non-permanently flowing drainage features that may not have defined bed or banks are designated as HDFs.*
- *The presence of bed and bank definition within these features may be attributed to anthropogenic intervention (e.g. cutting a drainage feature into the surface), or seasonally as spring freshet concentrates flows in depressions, causing channel development into surfaces lacking vegetated cover.*
- *HDFs are first order intermittent and ephemeral channels, swales and connected headwater wetlands, but do not include rills or furrows.*
- *They are typically not identified as regulated features, and fish may or may not be found within the feature.*
  - Initially scoped as features having drainage areas less than 30 ha (or other as agreed-upon).

Developed Framework for  
Assessing/Managing  
Watercourses & HDFs in  
Subwatershed Studies



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# Integrated Classification and Management Framework

Ref. John McDonald and Aaron Farrell – NCI Presentation 2023

- **Watercourses (Two Classifications)**

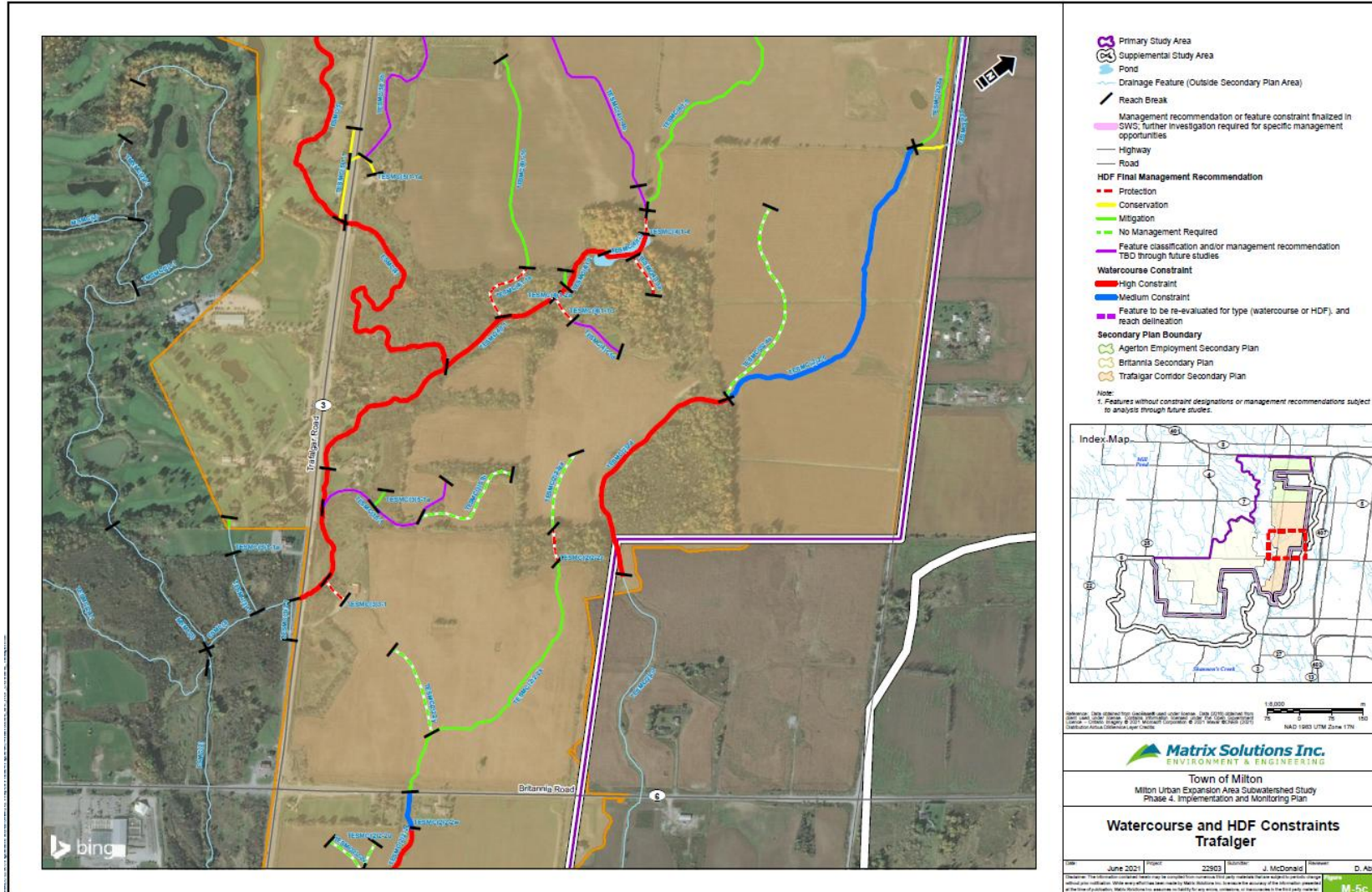
- High Constraint (Red Linework) – Protect in place, including ecological buffers and erosion hazard setbacks, and regulatory allowance.
- Medium Constraint (Blue Linework)– Maintain (with meander belt), Realignment possible for restoration or for essential infrastructure. Realignment designs must include erosion hazard and regulatory allowance. Enhancement of watercourse corridors may include: crossing enhancements, enhancing the riparian zone, barrier removal, avoid grading into floodplain, and natural channel design.

- **Headwater Drainage Features (Four classifications)**

- Protection (Red-Dashed Linework) – Protect in place, only minor enhancements. Determine appropriate buffers. Potential regulated, no erosion hazard delineation\*.
- Conservation (Yellow Linework) – Maintain, relocate, or enhance feature and riparian corridor. Maintain Linkages. Potential regulated, no erosion hazard delineation\*.
- Mitigation – Maintain, replicate, or enhance feature *functions* to receiving features.
- No management required (Green-Dashed Linework)– May be removed. Surface features (e.g. swales) or LIDs can mitigate issues relating to a loss of sediment supply and flow.
- \*Conservation Authorities may determine need to regulate specific surface water features

# Classification and Management Framework

Ref. John McDonald and Aaron Farrell – NCI Presentation 2023



▶ Current definition...O.Reg. 41/24

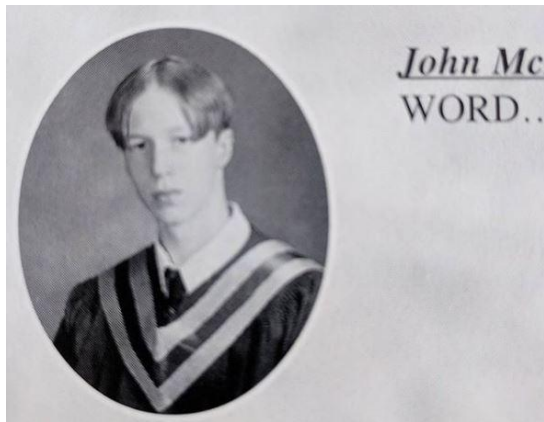


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# Watercourse - Definition

## Before

- *An identifiable depression in the ground in which flow of water regularly or continuously occurs*



*How I looked before the updated definition*

2024 – O.Reg. 41/24

- *A **defined channel** having a **bed and banks or sides**, in which flow of water regularly or continuously occurs (O.Reg. 41/24 2024).*
- *See presenter for current hair status....he still wants to collaborate to interpret the meaning... he's just dramatic is all*



Adapting and Navigating through  
this change

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# Current Status

Who's in charge of what now?

- Conservation Authorities regulate *watercourses*
- Municipalities responsible for HDFs and management

## Challenges

- Current definition adds rigidity to the interpretation
- Less apparent opportunity to collaborate to develop appropriate definitions, characterizes and management approaches
- Inconsistencies across jurisdictions existed before, and that continues today. Though there is more chance for the consistent interpretation of what is a “defined channel”
  - Conservation Authorities may be reluctant to “downgrade” watercourses to HDFs – lose regulation
- Relying on existing, dated watercourse mapping to identify watercourses not appropriate but sets current regulatory mapping in most jurisdictions
- Difficult to scope data collection and analysis at the onset; potential to overprotect low-order features
- Potential to miss important data collection that occurs through HDF protocols



# Engagement with Municipalities CAs

- Identify representatives for each that will handle review/support for watercourses and HDFs
- This is tricky for all parties to navigate – engage each to determine an understanding to the approach of identifying features
- What is a defined channel?
  - Naturally defined – evidence of active channel processes
  - Anthropogenic influence includes ditching for improved conveyance
- Sufficient rationale/observation required to categorize as HDF.
  - Example of over excavated ditch with little evidence of channel adjustment. Understand historic context.
- With low-order watercourses and HDFs in these low-gradient settings, management as an open feature (e.g. conservation HDF) with appropriate buffer may be more reasonable than erosion hazard.



## Key Considerations

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# Key Considerations in light of new definition

- Watershed/Subwatershed scale studies require an integrated approach to identifying, defining, characterizing and managing surface water features and their constraints.
- Continue to scope HDFs at the project onset, but consider including early engagement with municipality and regulator to discuss a plan to characterize and manage features, with area specific considerations
  - What is considered defined? What is considered “regularly or continuously flowing”?
  - Provide example scenarios for discussion – e.g. excavated features, channel process and evolution
- Be objective and thoughtful when approaching these discussions. Resolution may be easier than anticipated – e.g. feature management - just need an open feature
- Ensure that observations (current and historic) support decision making.





*THANK YOU FOR YOUR ATTENTION TO THIS MATTER*