GRCA Metadata

Name: **Surface Hydrology - Watercourse**

Production

General Description

Full Name	WATERCOURSE
Abstract	The Grand River Conservation Authority (GRCA) maintains a large-scale, fully connected, 3D network representing surface water hydrology in the Grand River watershed. The Watercourse layer represents surface water hydrology features such as streams, culverts, ditches, and more. Some uses of this layer include showing surface water drainage features and the flow direction of water on the surface. As well, a subset of these features are considered 'Regulated Watercourse' as described in Ontario Regulation 41/24. An associated 'Regulation 41/24' attribute is included to identify these features. Also includes, where available, stream name. Refer to the Attributes section of the metadata for details. The Watercourse layer represents flow through features; the line work does not represent the boundaries of such features. A Waterbody layer representing polygon features is also available which contains double-line streams, ponds, lakes, and other area based water features. IMPORTANT NOTE: The text of Ontario Regulation 41/24 supersedes the mapping as represented by the 'Regulated Watercourse' subset. In the event of a conflict a site specific determination may be made by GRCA staff.
Feature Type	Line
Location	SDE_GRCA
Geographic Extent	GRCA Watershed
Maintenance Status	Quarterly

Georeferencing and Accuracy

Horizontal Datum	North American Datum 1983 (EPSG: 6269)
Vertical Datum	CGVD28 (EPSG: 5114-datum)
Spatial Projection	NAD83 UTM Zone 17N (EPSG: 26917)

Data Sources and Restrictions

Access Constraint	GRCA Open Data Licence v2
Use Constraint	None - in accordance with licence agreement
Citation	Produced using information under License with the Grand River Conservation Authority © Grand River Conservation Authority, 20** [** insert year of publication of IP].
Agency Originator	Grand River Conservation Authority (GRCA)
Agency Distributor	Grand River Conservation Authority (GRCA)
Online Link	https://data.grandriver.ca/downloads-geospatial.html
Methodology	The data capture approach is partially based on MNRF's "Large Scale Data Capture Specification for Hydrographic Features" technical documentation. The main hydrographic classes are "watercourse" and "waterbody". Water features that meet minimum width requirements (>30m wide continuous) are captured as waterbodies (polygons); otherwise they are captured as watercourses (line). In addition, most waterbodies have one or more watercourse ("virtual flow") features within them, to provide continuity to the flow network. Surface hydrology is digitized in a 3D stereo viewing system using DAT/EM Summit Evolution softcopy, Planar stereo monitor, and a 3D mouse coupled with ArcGIS.
Supplemental Info	Data available for download from data.grandriver.ca is 2D.
Related Documents	Data Capture Specifications for Hydrographic Features [internal] Large Scale Hydrology Data Capture User Guide [internal] GRCA Surface Hydrology and Regulations v4 [internal]

Attributes

Full Name	Alias name	Description and Values
COMMON_NAME	Common Name	The common name of the watercourse for reference and label purposes

Full Name	Alias name	Description and Values
COMMON_NAME_SOURCE	Common Name Source	Source of information for the naming of the watercourse • GRCA Communication: GRCA Communication • GRCA Study/Report: GRCA Study/Report • MNR Listing: MNR Listing • NTS Mapping: NTS Mapping
STRAHLER	Strahler Number	Strahler is calculated to define stream size based on a hierarchy of tributaries. • 1 - 7: Codes 1 to 7, for first-order (small tributaties) up to seventh-order features (main river) • Null: Flow Classification of “Secondary” or “Flow Gap”. Some Ditch and Culvert features have a Strahler value of Null depending on the upstream and downstream connecting watercourse feature.
GR_ID	GRCA Unique ID	Internal Unique ID for linking to Strahler Stream Order information. Shouldn't be used for long term reference to a unique feature.
REGULATION	Regulation 41/24	Flag determining if the feature should be considered Regulated based on the text definition of Regulation 41/24 (formerly150/06). • 0: Non-regulated feature • 1: Regulated feature
OBJECTID	Object ID	System-managed unique identifier
WATERCOURSE_TYPE	Watercourse Type	Type of Watercourse feature • Conduit: An artificial system, such as an aqueduct, penstock, flume, or sluice, designed to carry water for purposes other than drainage (at surface) • Constructed Drain: Constructed Drains are watercourses in the form of ditches, natural watercourses that have been modified to improve drainage, or buried tile systems. (LIO, 2011) • Culvert: A metal, plastic, or concrete structure through which surface water can flow under roads, railroads, embankments, bridges, etc • Ditch: An open manmade channel constructed through earth or rock for the purpose of conveying water parallel to a road (regardless of size) • Piped Watercourse: Underground or buried watercourse feature • Stream: A natural body of water (such as a river, stream or creek) through which water flows • SWM Drain: Storm Water Management drain • Tidal Stream: A natural body of water in which flow and water surface elevation are affected by the tide • Virtual Canopy Cover: A surface feature that is difficult to capture due to thick vegetation or canopy cover • Virtual Connector: A surface or subsurface feature that cannot be viewed from imagery or LiDAR • Virtual Flow: A watercourse feature inside a waterbody needed to maintain the continuity of water flow within water polygon water features. These are lines through a waterbody that connect all adjacent water features
FLOW_CLASSIFICATION	Flow Classification	Used to determine primary and secondary flow (includes flow gaps) • Flow Gap: Flow gap along secondary flow route • Primary: Primary flow route • Secondary: Secondary flow route

Full Name	Alias name	Description and Values
CAPTURE_METHODOLOGY	Capture Method	Capture methodology (Acquisition technique) - Aerial refers to raw scans used in 3D software - Ortho refers to processed (orthorectified) imagery used in GIS software [SWOOP 2006/2010/2015; Aerial/Ortho] • Brant 2017 Ortho: Brant 2017 Ortho • GPS: GPS • KWCG 2019 Ortho: KWCG 2019 Ortho • KWCG 2021 Ortho: KWCG 2021 Ortho • Other: Other • RMOW 2018 Ortho: RMOW 2018 Ortho • SWOOP 2006 Aerial: SWOOP 2006 Aerial • SWOOP 2006 Ortho: SWOOP 2006 Ortho • SWOOP 2010 Aerial: SWOOP 2010 Aerial • SWOOP 2010 Ortho: SWOOP 2010 Ortho • SWOOP 2015 Aerial: SWOOP 2015 Aerial • SWOOP 2015 Ortho: SWOOP 2015 Ortho • SWOOP 2020 Aerial: SWOOP 2020 Aerial • SWOOP 2020 Ortho: SWOOP 2020 Ortho • SWOOP 2025 Ortho: SWOOP 2025 Ortho • Unknown: Unknown
SOURCE	Source	To capture the individual or data source of the digital information [GRCA, GTA] • GRCA: Grand River Conservation Authority • GTA: Greater Toronto Area
GENERAL_COMMENTS	Comments	Comments for hydrology editors
SHAPE	Shape	Feature Geometry
BUFFER_WIDTH	Buffer Width	Stores width of stream from centerline to water edge (1/2 of total width) for DEM processing

Update History, last 5 (yyyy-mm-dd)

2026-09-28	Data Update: Site specific updates
2026-06-29	Data Update: Site specific updates
2026-04-27	Data Update: Site specific updates
2025-11-28	Data Update: Various site specific updates
2025-09-28	Data Update: Site specific updates

Contact Information

Contact	Supervisor of Geomatics

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