

APPENDIX L

Glossary and Acronyms

East Credit Subwatershed Study
Phase I Report – Characterization, and
Phase III Report – Management Plan and Implementation

Prepared for:

Region of Peel
Town of Caledon

Prepared by:

Credit Valley Conservation

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APPENDIX L: GLOSSARY AND ACRONYMS

Abiotic - Not relating to living things.

AEM - Adaptive Environmental Management - an approach to environmental management aimed at improving understanding of the ecosystems being managed, the institutions charged with their management, and the coupling of the two (Gunderson et. al., 1995).

amsl - above mean sea level

ANSIs - Areas of Natural and Scientific Interest - areas of land and water containing natural landscapes or features that have been identified by the Ontario Ministry of Natural Resources as having life (ecologic) science or earth (geologic) science values related to protection, scientific study, or education (Provincial Policy Statement, 2005). These areas are recognized and protected under the Ontario's Planning Act, Provincial Policy Statement, Oak Ridges Moraine Conservation Plan, Niagara Escarpment Plan, Greenbelt Plan, Growth Plan, and municipal official plans.

Aquatic - growing or living in, or frequenting water.

Aquifer - A saturated permeable geologic unit that can transmit significant quantities of water under ordinary hydraulic gradients.

Attenuation (Flow) - Flow that is lessened or weakened, or the severity reduced.

AVI - Aquifer Vulnerability Index - is a relative measure of the physical properties of the material(s) that overlie an aquifer and provide protection if a contaminant was released at, or just below, ground surface. Aquifers have a greater level of protection where they are overlain by thick layers of low permeability material(s) such as clay or silt. Conversely, aquifers are the most vulnerable to surficial / shallow contamination when they are near ground surface and are not afforded protection from overlying fine-grained confining layers.

Bank Stability - The ability of a stream bank to resist change.

Base Flow - The water that flows into a stream through the subsurface.

Bedrock - The solid rock underlying unconsolidated surface material.

Bedrock Geology - The study of the solid rock underlying unconsolidated surface material. Also refers to the description of bedrock types.

Benthic Invertebrates - Organisms without an internal skeletal structure that live on or in a body of water, e.g., water insects.

bgs - below ground surface

Biological Diversity - the variability among organisms and the ecological complexes of which they are a part.

Biomass - The amount of living matter, usually measured per unit area or volume of habitat.

Biotic - Relating to or caused by living beings.

BMP - Best Management Practices

BOD - Biological Oxygen Demand – measure of the oxygen consumed during the biochemical oxidation of organic oxidants, and organic nitrogenous matter.

CAMC - Conservation Authorities Moraine Coalition - nine conservation authorities across the Oak Ridges Moraine joined together in 2000 as the Conservation Authorities Moraine Coalition to advocate for and protect the moraine along its 160-kilometre length. The CAMC was formed in response to the need for a comprehensive policy, planning and management approach geared to sustaining the health of the entire Oak Ridges Moraine.

cBOD₅ - Carbonaceous Biological Oxygen Demand - is the amount of oxygen required to biologically transform organic material to simpler end products.

CDWQG – Canadian Drinking Water Quality Guidelines - developed by the Federal-Provincial-Territorial Committee on Drinking Water.

Climate - The average weather conditions of a place or region throughout the seasons.

COD - Chemical Oxygen Demand – measures the amount of oxygen consumed during the chemical oxidization of both organic and inert oxidants.

COFSP - Canada-Ontario Farm Stewardship Program

Conductivity - The quality or power of conducting or transmitting.

Contiguous - Having contact with, or touching along a boundary or point.

COWSEP - Canada-Ontario Water Supply Expansion Program

CRFMP - Credit River Fisheries Management Plan - is a resource document that provides background information about the historic and current fish community and about physical conditions within the watershed. The plan is used to set management directions for the fish community, the fish habitat, and human use of the resource.

CRWMS - Credit River Water Management Strategy - is a plan of action that is designed to ensure that we have “abundant, clean and safe water” in the Credit River watershed, now and into the future.

CRWMSU - Credit River Watershed Management Strategy Update – is the updated version of the CRWMS, which was finalized in 2007.

CVC - Credit Valley Conservation

CWQG - Canadian Water Quality Guideline - are a set of acceptable levels derived by Environment Canada for substances or conditions that affect water quality such as toxic chemicals, temperature and acidity. These are designed to protect all plants and animals that live in our lakes, rivers, and oceans and to protect sensitive crop species that may be exposed to toxic substances such as pesticides in irrigation water.

DFO - Department Of Fisheries and Oceans

Discharge Area - An area where water leaves the saturated zone across the water table surface.

DO - Dissolved Oxygen - the concentration of oxygen dissolved in water, expressed in mg/l or as percent saturation.

Drainage Density - Length of watercourse per unit drainage area.

Ecological - Relating to the totality or pattern relations between organisms and their environment.

Ecosystem - Systems of plants, animals and micro-organisms together with the non living components of their environment, related ecological process and humans.

EFP - Environmental Farm Plan

EIR – Environmental Implementation Report

ELC - Ecological Land Classification - seeks to address all the dimensions of ecosystems and as such incorporates the interactions among landforms, soil, water, climate, fauna and human activities. In other words, this approach classifies natural environments based on a limited number of ecological factors, none of which is predominant.

Elevation - The height of a portion of the earth’s surface in relation to its surroundings.

Entrain - To draw in and transport through water.

Episodic - Made up of separate loosely connected episodes.

EPT - Ephemeroptera, Plecoptera, Trichoptera – categories of benthic invertebrates.

Erosion - The wearing away of the land by the action of water, wind or glacial ice.

ESA - Environmentally Significant Areas - areas of land and water containing natural landscapes which contain or support natural forms, features, or attributes deemed to be significant or essential, using a set of approved criteria, in the context of the watershed or municipality which have been designated by conservation authorities, and incorporated into conservation authorities' policies and municipal official plans (Town of Caledon, 2004).

Floodplain - A plain bordering a river, which has been formed from deposits of sediment carried down the river. When a river rises and overflows its banks, the water spreads over the floodplain.

Flood Pulse - The peak flow during a flooding event.

Flow Regime - The pattern of how water levels change in a stream.

Flow Stability - Determined by measuring the ratio of surface discharge to groundwater discharge on an annual basis.

Fluvial - Relating to a stream or river.

FON - Federation of Ontario Naturalists - since 1931, the FON has fought for the creation of parks and protected areas, the preservation of wetlands and woodlands, the protection of threatened species and the responsible management of public lands.

GAWSER - Guelph All-Weather Simulation Events Runoff

GBP – Greenbelt Plan – created through the *Greenbelt Act, 2005* is enforced by the Ministry of Municipal Affairs and Housing. This plan protects about 1.8 million acres of environmentally sensitive and agricultural land in the Golden Horseshoe from urban development and sprawl.

GC - Greencover Canada

GIS - Geographic Information System

Geology - The science of the composition, structure and history of the earth. It thus includes the study of the materials of which the earth is made, the forces which act upon these materials and the resulting structures.

Geomorphology - The scientific study of the origin of land, riverine and ocean features on the earth's surface.

GGH – Greater Golden Horseshoe – includes the cities of Toronto, Hamilton, Kawartha Lakes, Guelph, Peterborough, Barrie, Orillia, and Brantford, the regional municipalities of Halton, Peel, York, Durham, Waterloo and Niagara and the counties of Haldimand, Brant, Wellington, Dufferin, Simcoe, Northumberland and Peterborough.

Glaciation - The covering of an area or the action on that area, by an ice sheet or by glaciers.

Gradient - The rate of regular or graded ascent or descent.

Granular - Having a texture composed of small particles.

Groundwater - Water below the earth's surfaces that lies in the area of total saturation. Groundwater can exist in rock or granular material.

Groundwater Table - The meeting point between the groundwater and the unsaturated layer above it.

GSC - Geological Survey of Canada - is a part of the Earth Sciences Sector of Natural Resources Canada and is Canada's premier agency for geoscientific information and research.

GUDI - Groundwater Under Direct Influence of surface water

Habitat - The environment of an organism; the place where it is usually found.

HADD - harmful alterations, disruption or destruction

HBI - Hilsenhoff's Biotic Index - a benthic invertebrate index used as an indicator of impairment, and increased nutrients.

HPMARA - High Potential Mineral Aggregate Resource Areas

Hydrogeology - The scientific study of groundwater.

Hydrology - The scientific study of surface water.

IBI - Index of Biotic Integrity - is a tool (index) which we use to determine the overall health and integrity of the fish and benthic community (biotic) in a given river.

Imperfect Drainage – Occurs when water cannot easy flow over the land surface through a well formed drainage network.

Inactive aggregate – Previously used as an aggregate extraction pit, but currently not in use. Activity may or may not resume at these pits in the future.

Infiltration – Water entering the pores of the earth's surface.

Intermittent Stream – A watercourse that does not flow permanently year round.

Invertebrates – Animals lacking a spinal column.

ISI – Intrinsic Susceptibility Index – is a calculated value that estimates the susceptibility of a given groundwater aquifer to surficial contamination at a given point.

IWMP - Integrated Watershed Monitoring Program – an intensive, long-term monitoring program implemented by CVC which measures key environmental indicators.

KWRMA – Ken Whillans Resource Management Area, owned by Credit Valley Conservation

Local Discharge - Discharge to a watercourse that originates nearby. The water moves through the upper layers of the groundwater system.

Lowflow - The flows that exist a stream channel in dry conditions.

LRIA - Lakes and River Improvement Act

Macroinvertebrates - Animals lacking a spinal column that are visible with the unaided eye.

Meandering - A curve in the course of a river which continually swings from side to side.

Meltwater Channel - The path of drainage, and leftover sedimentary deposits from ice or snow melt.

MNR - Ministry of Natural Resources (see Phase I Glossary, Appendix L)

MOE - Ministry of the Environment

MOEE - Ministry of Environment and Energy

Moraine - The debris or rock fragments brought down with the movement of a glacier.

Morphology - See geomorphology

N/A - Not Applicable

NEC - Niagara Escarpment Commission (see Phase I Glossary, Appendix L)

NEP - Niagara Escarpment Plan - created through the *Niagara Escarpment Planning and Development Act, 1990*. The NEP serves as a framework of objectives and policies to strike a balance between development and preservation of this important resource.

NEPOSS - Niagara Escarpments Parks and Open Space System

NGO - Non-Government Organizations

NHIC - Ontario Natural Heritage Information Centre - is part of the MNR and compiles, maintains and distributes information on natural species, plant communities and spaces of conservation concern in Ontario.

Non Renewable Resources - A resource that is not capable of being replaced by natural ecological cycles or sound management practices within the timeframe of a human life.

Nutrient - Something that nourishes and promotes growth. It is possible to have too many nutrients in an ecosystem, which can result in an unhealthy imbalance or overgrowth of certain species.

OBM - Ontario Base Maps

ODWS - Ontario Drinking Water Quality Standards – standards for drinking water quality in Ontario, prescribed in O. Reg. 169/03 under the *Safe Drinking Water Act, 2002*.

OMAFRA - Ontario Ministry of Agriculture, Food and Rural Affairs

OMNR - Ontario Ministry of Natural Resources

OP - Official Plans

Organic Matter - Of, relating to, or derived from, living organisms.

ORM - Oak Ridges Moraine - is a regionally significant topographical feature that extends from Lake Scugog west to the Niagara Escarpment.

ORMCP - Oak Ridges Moraine Conservation Plan – was created under the *Oak Ridges Moraine Conservation Act, 2001* and is enforced by the Ministry of Municipal Affairs and Housing. The ORMCP is an ecologically based plan established to protect the ecological and hydrological integrity of the Oak Ridges Moraine, and to provide land use and resource management direction for the Oak Ridges Moraine.

ORMF - Oak Ridges Moraine Foundation

Permeability - The quality of having pores or openings that allow liquids to pass through.

PESA - Potentially Environmentally Significant Areas designated using a set of criteria developed by CVC, incorporated into CVC policies, and if adopted by the municipalities they are recognized by the Provincial Policy Statement.

Physiography - Study or description of landforms (see geomorphology).

POCs - Parameters of Concern – water quality parameters that have the potential to impact the habitat for aquatic biota, drinking water and recreational use for humans.

PPS - Provincial Policy Statement - is issued under the authority of Section 3 of the *Planning Act*. It provides direction on matters of provincial interest related to land use planning and development, and promotes the provincial “policy-led” planning system.

Precipitation - The deposits of water in either liquid or solid form which reach the earth from the atmosphere. It includes rain, sleet, snow and hail.

Productivity - Rate of production, especially of food or solar energy by producer organisms.

PSW – Provincially Significant Wetlands - Lands inventoried and assessed by certified professionals using the Ontario Wetland Evaluation System to calculate a score based on the wetland’s biology, hydrology, uniqueness, and social values. Wetlands are designated to be provincially significant by the Ontario Ministry of Natural Resources based on the score calculated through the evaluation. Provincially Significant Wetlands are protected from development and site alteration by the Ontario's Planning Act, Provincial Policy Statement, Oak Ridges Moraine Conservation Plan, Niagara Escarpment Plan, Greenbelt Plan, Growth Plan, Conservation Authorities Act, and municipal official plans.

PTTW - Permit to Take Water – a permit required when the total volume of water obtained from either a surface or groundwater source exceeds 50,000 L/day.

PWQMN - Provincial Water Quality Monitoring Network – is a network of partnerships including MOE, conservation authorities, municipalities and Ontario Parks, who collect surface water quality information from rivers and streams across Ontario.

PWQO - Provincial Water Quality Objective - are numerical and narrative criteria which serve as chemical and physical indicators representing a satisfactory level for surface waters (i.e. lakes and rivers) and ground water of the Province. The PWQO are set at a level of water quality which is protective of all forms of aquatic life and all aspects of the aquatic life cycles during indefinite exposure to the water. The Objectives for protection of recreational water uses are based on public health and aesthetic considerations.

Recharge Area - An area where water enters saturated zone at the water table surface.

Regional Discharge - Water that has traveled deep beneath the ground through the saturated zone and resurfaces at the water table.

Renewable Resources - A resources that is capable of being replaced through ecological processes or sound management practices.

Return Period - The frequency in which a flow event in a stream is likely to repeat itself.

RGA - Rapid Geomorphic Assessment - is a type of channel assessment technique developed by MOE to assess reaches in urban channels. RGA’s involve recording evidence of channel instability. The instability features for each category are tallied and used to calculate a reach stability index, which corresponds to a stability classification

Riffle:Pool System - A riverine system that alternates cycles of shallow broken water (riffle) and deeper still water (pool).

Riparian - Relating to or located on the bank of a watercourse.

Riparian Zone - Areas adjacent to a stream that are saturated by groundwater or intermittently inundated by surface water at a frequency and duration sufficient to support the prevalence of vegetation typically adapted for life in saturated soil.

ROP - Regional Official Plan - is Regional Council's long-term policy framework for decision making. It sets the Regional context for detailed planning by protecting the environment, managing resources, directing growth and setting the basis for providing Regional services in an efficient and effective manner. The Plan provides direction for future planning activities and for public and private initiatives aimed at improving the existing physical environment.

ROPA - Regional Official Plan Amendments - Changes to the Regional Official Plan.

RSAT - Rapid Stream Assessment Technique - A type of channel assessment technique developed by MOE to assess reaches in urban channels but involves a broader, more qualitative assessment of the overall health and function of the reach. This included numerically ranking the reach based on six indicators: channel stability, scour / deposition, instream habitat, water quality, riparian conditions and biological indicators. The scores of these indicators are totaled to give an overall rank. Lower values indicate a stream with relatively poor health while high values represent a relatively rich and healthy, functional stream. Also included in the RSAT are general observations of channel dimensions.

Saturated Soil - Soil that is full of moisture.

Scale - A graduated series or scheme of rank or order.

Sediment - Material deposited by water, wind or glaciers.

Sedimentary Bedrock - Rock formed of mechanical, chemical or organic sediment such as rock formed from sediment transported from elsewhere, by chemical precipitation from solution or from inorganic remains of living organisms.

Slope - Ground that forms a natural or artificial incline.

SMP - Salt Management Plan

SOD - Sediment Oxygen Demand - The rate of oxygen consumption exerted by the bottom sediment on the overlying water.

Spawn - To produce or deposit eggs in the reproductive process (used of aquatic animals).

SS - Suspended Solids - Small solid particles which remain in suspension in water.

STP - Sewage Treatment Plant - A Plant where, through physical-chemical and biological processes, organic matter, bacteria, viruses and solids are removed from residential, commercial and industrial wastewaters before they are discharged in rivers, lakes and seas.

Stratigraphy - Geology that deals with the origin, composition, distribution and succession of layers of the earth.

Stream - A body of running water flowing on the surface of the earth.

Substrate - The base on which an organism lives.

Subwatershed - A region or area bounded peripherally by a water parting and draining ultimately to a tributary of a larger watercourse or body of water.

Subwatershed Planning - A method used to deal with environmental concerns over broad areas of land. The subwatershed plan integrates the functions of resource management and the land use planning process. A subwatershed plan does not set out ideal land uses, but it does make valuable contributions to the land use decision making process by developing a detailed understanding of the subwatershed ecosystem and making recommendations regarding the management of the ecosystem, in light of alternative land use patterns.

Surficial Geology - Deals with the study and description of the forms on the outer layer of the earth.

SWM - Storm Water Management

TDS - Total Dissolved Solids - Comprise inorganic salts and small amounts of organic matter that are dissolved in water.

Terrestrial - Living on or growing on land.

Thermal Regime - The characteristic behaviour and pattern of temperature.

Till - A tough unstratified clay loaded with stones originating from finely ground rock particles that were deposited by glacial activity.

TKN - Total Kjeldahl Nitrogen – Reduced forms of nitrogen such as organic nitrogen, ammonia nitrogen, ammonium nitrogen.

Topography - A detailed description or representation of the features, both natural and artificial, of an area. Also, it is the physical and natural features of an area, and their structural relationships.

TOT - Time of travel - The time for groundwater to travel from a potential source of contamination to the well head.

TP - Total Phosphorus - The sum of all phosphorus forms.

TRCA - Toronto Regional and Conservation Authority

Valley - A long, narrow depression on the earth's surface, usually with a fairly regular downward slope. A river or stream usually flows through it.

Water Budget - Allows the user to determine the source, and quantity of water flowing through the hydrologic cycle. From a groundwater perspective the key components of a water budget are: infiltration, contribution to baseflow, deeper groundwater flow outside the study area, and groundwater taking.

Water Cycle - The continuous movement of water from the oceans to the atmosphere (by evaporation), from the atmosphere to the land by condensation and precipitation, and from the land back to the sea (via stream flow).

Water Quality Indicator - An entity that provides information on the condition and quality of water through their life cycle patterns. Water quality can also be determined through non living sources, like chemical sampling.

Watershed - A region or area bounded peripherally by a water parting and draining ultimately to a particular watercourse or body of water.

Weathering - The disintegration of the earth's crust by exposure to the atmosphere, most importantly, rain.

Wetland - Lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case, the presence of abundant water has caused the formation of hydric soils (formed under flooding or saturation) and has favoured the dominance of either hydrophytic (water-loving) plants or water tolerant plants. The four major types of wetland are swamps, marsh, fen, and bog (in order of abundance in the Credit River Watershed). Periodically soaked or wet lands being used for agriculture purposes which no longer exhibit wetland characteristics are not to be considered wetlands for the purpose of this definition (Provincial Policy Statement, 2005).

WHI - Waterloo Hydrogeologic Inc.

WHPA - Wellhead Protection Area - Protection of all or part of the area surrounding a well from which the well's ground water is drawn.

WQI - Water Quality Index - An indicator of water quality impairment using biological water quality results. This index is calculated by averaging the sensitivity values of

benthic macroinvertebrates found at each site. Each species has a sensitivity value based on its preferred habitat, and they can be used as indicators of water quality conditions.

WT - Water Temperature

WWIS - Water Well Information System - A database maintained by the MOE containing Well Records. This database contains attributes such as spatial position, and geological and hydrogeological conditions recorded when a water well is constructed in the province.

YPDT - York Peel Durham Toronto