

## 13.0 GLOSSARY OF TERMS

**Abutment:** a wall or mass supporting the end of a bridge, span, or open-bottom culvert and sustaining the pressure of the abutting earth

**Alignment:** the fixing of points on the ground for the laying out of a culvert, bridge, abutment or pier

**Arch:** a curved structure designed to exert horizontal forces on its supports when subjected to vertical loads; commonly used as a bridge or support for a roadway or railroad track

**Armor rock:** natural, angular quarry stone, which has been chosen for its durability and resistance to wear and erosion; normally produced from blasting operations

**Aquatic:** living or growing in, on or near water; aquatic life refers to organisms that live in water and can include fish, invertebrates, and shellfish

**Backfill:** fill used to replace material removed during construction of a structure such as a bridge or culvert

**Backslope:** slope between the bottom of the ditch and original ground

**Baffle:** a barrier or obstruction that deflects, checks, or dampens water flow

**Bank:** any elevated slope of earth that borders a body of water, especially the rising ground that confines a watercourse to its channel bank

**Bed:** the ground beneath a body of water

**Bed load:** soil particles carried by the natural flow of a watercourse on or immediately above its bed

**Berm:** a small dyke

**Benching:** a technique of grading or placement of fill to create a series of level benches or steps on a slope

**Borrow area:** excavated material along the road right-of-way or from precut pits outside the road right-of-way to be used in the subgrade or grade of the road

**Box Culvert:** a culvert of rectangular or square cross-section

**Bridge:** a structure built over a watercourse, the deck of which forms a link in the road, footpath, or railbed

**Brush:** a thick growth of shrubs, bushes, small trees, and other non-merchantable woody vegetation

**Bullpen:** a flattened soil covered, bulldozed ramp of grubbed material located in natural or precut openings adjacent to the road right-of-way

**Camber:** to curve upward or slightly rise near the middle; culverts are cambered so that upon settlement of the roadbed, they take on a more or less uniform slope

**Channel:** the open depression in which water may or does flow; the space above the bed and between the banks of a watercourse

**Check dam:** a low fixed structure constructed of hay bales, timber, or loose rock to control water flow in an erodible channel or ditch

**Cobble:** somewhat rounded rock fragments larger than gravel and smaller than boulders ranging in size from 100-200 millimetres

**Cofferdam:** a temporary structure constructed around an excavation to exclude water so that work in or adjacent to a watercourse can be carried out in isolation of stream flow

**Confluence:** the place where two or more watercourses come together

**Constriction:** narrowing of a channel to less than its normal or average width as a result of human-made or natural slide controls

**Culvert:** a covered structure which conveys the flow of water in a watercourse under a roadway whereby the top of the cover material is graded to form the travel surface

**Design flow:** the discharge which a structure is designed to accommodate without exceeding the adopted design constraints

**Design headwater:** the vertical distance from the culvert invert at the inlet end to the energy line of the headwater pool

**Discharge:** the flow rate of a fluid at a given point in time expressed as volume per unit of time, such as cubic metres per second, gallons per minute, etc.

**Dissolved oxygen:** the concentration of oxygen dissolved in the water, expressed as mg/L or the percent saturation, where saturation is the maximum amount of oxygen that can theoretically be dissolved in water at a given altitude and temperature

**Downstream:** in the direction of the normal flow of a watercourse

**Drainage area:** the area of land drained by a watercourse

**Dyke:** an impervious embankment constructed along the bank of a watercourse to prevent the overflow of water onto lowlands and to retain floodwaters

**Erosion:** the loosening, wearing away and transportation from one place to another of materials from the earth's surface by the action of wind, water, and ice

**Erosion control work (or erosion protection products):** structures or vegetation used to stabilize and protect the banks of a watercourse from the scouring and erosive action of water, ice or floating debris within the stream flow or surface runoff from the land bordering the watercourse

**Filter:** a device or porous structure through which a liquid is passed to remove solids or impurities

**Fish/construction/work window:** the period of time from June 1<sup>st</sup> to September 30<sup>th</sup> in which instream work is typically permitted

**Flood plain:** flat land bordering a watercourse which is subject to flooding

**Fluvial:** pertaining to or produced by the water flow in a watercourse

**Foreslope:** slope between the road shoulder to the bottom of the ditch or base of slope where there is no ditch

**Gabion:** wire baskets filled with coarse gravel or rock used especially to support the bank of a watercourse or an abutment

**Grade:** the slope of a roadway, ditch, or bed of a watercourse expressed as a function of the amount of vertical drop over a given distance; also to prepare a roadway or other land surface of uniform slope

**Gravel:** rounded pebbles larger than sand and smaller than cobble ranging in diameter from 5-15 millimetres

**Grubbing:** removal and disposal of stumps, roots, brush, and small trees

**Habitat:** fish habitat is defined in the *Federal Fisheries Act* as water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas

**Headwall:** a retaining wall at the inlet/outlet of a culvert serving as protection against scouring and erosion of the foreslope

**Hydraulic:** pertaining to fluid in motion and the mechanics of that motion

**Hyperventilation:** condition of breathing excessively

**Impervious:** not permitting water or other fluid to pass through

**In isolation of stream flow:** separated from the wetted portion of the channel

**Interstitial:** small narrow spaces between substrate

**Inert:** having no inherent power of action, motion, or resistance

**Invert:** the floor or bottom of a pipe, pipe arch or artificial channel

**Landing stage:** any place where round timber is stacked for further transport

**Littoral zone:** the near-shore section of water where light penetrates to the bottom; these zones are often highly productive because the penetration of light initiates primary food production

**Maintenance flow:** the quantity of flow prescribed by regulation or guidelines to be retained in a watercourse downstream of a point of withdrawal required to maintain the integrity of the aquatic ecosystem or to meet downstream water demands

**Maximum design velocity:** the maximum flow velocity a bridge or open-bottom culvert can withstand and not reduce the life of the structure

**Meanders:** a series of bends, loops or curves in a watercourse formed by the action of flowing water

**Merchantable trees:** any softwood tree at least 12.7 centimetres in diameter at breast height; any hardwood tree at least 7.6 centimetres in diameter at breast height

**Mulch:** a protective covering, such as hay or straw that is spread over exposed soil to prevent erosion and evaporation, maintain an even soil temperature, control weeds, and enrich the soil

**Nomograph:** a graph with three lines graduated, so a straight line intersecting any two of the lines at their known values intersects the third at the value of the related variable

**Obstruction:** watercourse alterations which involve the construction of structures on the watercourse, impeding or preventing the flow of water/fish migration

**Open-bottom culvert:** semi-circle, rectangular or elliptical corrugated metal, concrete, wooden or plastic arch founded on footings, with the sides and top encased in earth fill, designed to carry water under a travel surface

**Ordinary high water mark:** the visible high water mark of a watercourse where the presence and action of water are so usual and so long continued in ordinary years as to mark upon the bed a character distinct from that of the bank thereof with respect to vegetation and the nature of the soil

**Peak:** maximum instantaneous stage or discharge of a watercourse in flood

**Peak flow:** the maximum instantaneous value of discharge over a specified period of time

**Pier:** on bridges of more than one span, the intermediate supports between abutments

**Pipe arch:** a type of culvert with a shape of greater span than the rise, an arch-shaped top and a curved integral bottom

**Pools:** depressions in a bed of a watercourse, frequently a resting place for fish

**Probable maximum flood (PMF):** the greatest flood that may reasonably be expected, taking into account all pertinent conditions of location, meteorology, hydrology and terrain

**R5 rip-rap:** solid, well-mixed rock containing approximately the following size distribution: 100% <220 millimetres, 70-90% <190 millimetres, 40-55% < 150 millimetres, 0-15% <70 millimetres in approximate diameter

**R25 rip-rap:** solid, well-mixed rock containing approximately the following size distribution: 100% <380 millimetres, 70-90% <330 millimetres, 40-55% < 260 millimetres, 0-15% <120 millimetres in approximate diameter

**Riffle:** shallow water extending across the bed of a flowing watercourse with rapid current and with surface flow broken into waves by submerged obstructions such as gravel and cobble

**Right-of-way:** the width and length of the cleared area along the road alignment which contains the roadbed, ditches, fore and backslopes

**Rise:** the distance from the bed of the watercourse to the underside of the stringers of a bridge, or the vertical dimension of an arched pipe

**Sand:** loose mineral and rock particles ranging in diameter from 0.02-2 millimetre

**Scour:** an erosion process resulting in the abrading of the bed of a watercourse or the undermining of a foundation by the action of flowing water/ice

**Sedimentation:** the deposition of fine particles, such as sand, silt, and clay, which have been eroded from exposed soils and transported by water

**Settling pond:** artificial ponds designed to collect suspended sediment and separate suspended particles from water by gravity settling

**Sheet flow:** the overland flow of surface runoff over a relatively smooth land surface in the form of a continuous thin film that is not concentrated in channels larger than rills

**Shoulder of the bank of the watercourse:** the point in the bank of a watercourse where the sharpest break in slope occurs, and the steep sides slope down to meet the exposed mineral bed of the watercourse

**Silt fence:** specially designed synthetic fabrics fastened on supporting posts which are designed to efficiently control and trap sediment runoff from construction sites

**Skidding:** the short-distance movement of tree lengths or segments over unimproved terrain to loading points on transportation routes

**Sorbent material:** material that has the capacity to absorb another substance

**Span:** the horizontal distance between the interior face of the abutments/supports of a bridge

**Stream morphology:** shape of a watercourse channel and how it changes in shape and direction over time

**Stripping:** the removal of organic material and mineral soil that is unsuitable for creating a roadbed

**Subgrade:** the bed of ground on which the foundations of a road are laid

**Substrate:** the materials making up the bed of the watercourse

**Terracing:** construction of an embankment or combination of embankment and channel across a slope at a suitable spacing to control erosion by diverting or storing surface runoff instead of permitting it to flow uninterrupted down the slope

**Thalweg:** the line defining the lowest points along the length of a river bed or valley; the lowest channel of flow within a watercourse; the “current”

**Turnout:** a section where a narrow roadway is broader, allowing vehicles to pass each other, pull over, or park

**Upstream:** towards the sources or against the current of a watercourse

**Watercourse (legal):** the full width and length, including the bed, banks, sides and shoreline, or any part, of a river, creek, stream, spring, brook, lake, pond, reservoir, canal, ditch or other natural or artificial channel open to the atmosphere, the primary function of which is the conveyance or containment of water whether the flow be continuous or not

**Watercourse or Wetland Alteration (legal):** Any temporary or permanent change made at, near or to a watercourse or wetland or to the water flow in a watercourse or wetland and includes:

- Any change made to existing structures in a watercourse or wetland including repairs, modifications or removal, whether the water flow in the watercourse or wetland is altered or not.
- The operation of machinery on the bed of the watercourse other than at a recognized fording place or in or on a wetland.
- Any deposit or removal of sand, gravel, rock, topsoil or other material into or from a watercourse or wetland or within 30 m of a wetland or the bank of a watercourse.
- Disturbance of the ground within 30 m of a wetland or a bank of a watercourse except grazing by animals; the tilling, ploughing, seeding, and harrowing of land; the harvesting of vegetables, flowers, grains, and ornamental shrubs; and any other agricultural activity prescribed by regulation that occurs more than 5 m from a wetland or the bank of a watercourse.
- Any removal of vegetation from the bed or bank of a watercourse.
- Any removal of trees from within 30 m of the bank of a watercourse.
- Any removal of vegetation from a wetland or from within 30 m of a wetland except the harvesting of vegetables, flowers, grains and ornamental shrubs and any other agricultural activity prescribed by regulation that occur more than 5 m from a wetland.

**Watercourse and wetland alteration permit:** a permit signed by the minister of the Department of Environment and Local Government and issued according to the *Watercourse and Wetland Alteration Regulation*

**Waterway opening:** the cross-sectional area under a bridge available for the passage of water, also known as “end area

**Wetland (legal):** land that either periodically or permanently, has a water table at, near or above the land’s surface or that is saturated with water, and sustains aquatic processes as indicated by the presence of hydric soils, hydrophytic vegetation and biological activities adapted to wet conditions. These lands are transitional between terrestrial and aquatic systems

**Wingwall:** a lateral wall built onto an abutment serving to retain earth in the embankment