

## Glossary of Terms

**100-year flood** – A large, but infrequent, flood event that has a 1% chance of occurring in any given year (occurs, on average, once every 100 years).

**100-year floodplain** – Areas adjacent to a stream or river that are subject to flooding during a storm event that has a 1% likelihood of occurrence in any given year (occurs, on average, once every 100 years). Most municipalities require a floodplain development permit for new development within areas mapped as the 100-year floodplain.

**Aquifer** – A permeable body of rock capable of yielding quantities of groundwater to wells and springs.

**Bankfull** – The full capacity of the stream channel to the top of the bank on either side. The bankfull discharge is the flow at which water first overtops the banks onto the floodplain, which occurs, on average, every 1.2 to 2.0 years. Bankfull flow is largely responsible for the shape of the stream channel and is sometimes called the channel-forming flow.

**Bankfull stage** – An established gage height at a given location along a river or stream, above which a rise in water surface will cause the river or stream to overflow the lowest natural stream bank somewhere in the corresponding reach. The term "lowest bank" is however, not intended to apply to an unusually low place or a break in the natural bank through which the water inundates a small area. Bankfull stage is not necessarily the same as flood stage.

**Base flow** – The portion of stream flow that comes from groundwater seepage into the channel; this constitutes the natural dry weather flow in the stream.

**Biological diversity** – The variety and complexity of species present and interacting in an ecosystem, and the relative abundance of each.

**Bioswales** – Stormwater runoff conveyance systems that provide an alternative to storm sewers. They can absorb low flows or carry runoff from heavy rains to storm sewer inlets or directly to surface waters. Bioswales improve water quality by infiltrating the first flush of storm water runoff and filtering the large storm flows they convey.

**Certified floodplain manager** – The Association of State Floodplain Managers has established a national program for professional certification of floodplain managers. The program recognizes continuing education and professional development that enhance the knowledge and performance of local, state, federal, and private-sector floodplain managers. The role of the nation's floodplain managers is expanding due to increases in disaster losses, the emphasis being placed upon mitigation to alleviate the cycle of damage-rebuild-damage, and a recognized need for professionals to adequately address these issues. Floodplain managers come from a variety of curricula and backgrounds; there is no college-level degree program for floodplain management. This certification program will lay the foundation for ensuring that highly qualified individuals are available to meet the challenge of breaking the damage cycle and stopping its negative drain on the nation's human, financial, and natural resources.

**Channel** – A natural or artificial watercourse with a definite bed and banks that conveys continuously-or-periodically-flowing water.

**Channelization** – Straightening or deepening of a natural stream channel.

**Chemical wastes** – Wastes that consist of or contain harmful chemicals.

**Culvert** – A pipe or closed conduit for the free passage of surface drainage water. Culverts are typically used by highway departments to control water running along and under the road, and to provide a crossing point for water from roadside drainage ditches to the stream, as well as for routing tributary streams under the roads. Landowners also use culverts to route roadside drainage ditch water under their driveways.

**Debris** – Floating or submerged material, such as trash, branches, logs, or other vegetation transported by a stream.

**Degradation (degrading or down cutting)** – The general and progressive lowering of a channel due to downward erosion of the streambed over a relatively long channel length. A degrading stream may have high, unstable banks and be disconnected from its floodplain.

**Detention pond** – A storm-water management facility installed on, or adjacent to, tributaries of river, stream, lake or bay. It is designed to protect against flood and, in some cases, downstream erosion by storing water for a limited period of a time.

**Dike (levee)** – An embankment to confine or control water, often built along the banks of a river or stream to contain over-bank flow and prevent inundation of floodplain development.

**Discharge (stream flow)** – The rate of flow passing a fixed point in a stream, expressed as a volume of water per unit time, usually cubic feet per second (cfs).

**Erosion** – The detachment and movement of soil or rock fragments by water, wind, ice, or other geological agents. In streams, erosion is a natural process that can be accelerated by poor stream management practices.

**Flood** – any high flow, overflow, or inundation by water which causes or threatens damage.

**Floodplain** (see also 100-year floodplain) – Any flat or nearly flat lowland bordering a stream that is periodically inundated by water during floods. The floodplain acts to reduce the velocity of floodwaters, increase infiltration, reduce stream-bank erosion, and encourage deposition of sediment. Vegetation on floodplains greatly improves these functions.

**Floodplain management** – Floodplain management includes structural and non-structural measures, flood loss reduction efforts, education, warning, evacuation, insurance, flood mitigation, watershed-based planning and management, and many other approaches. The intent is to focus attention on improving many aspects of the relationship between human activity, the flood hazard, and the flood-prone lands, rather than simply on minimizing property damage.

**Flood stage** – An established gage height for a given location above which a rise in water surface level begins to create a hazard to lives, property, or commerce. The issuance of flood (or in some cases flash flood) warnings is linked to flood stage. Not necessarily the same as bankfull stage.

**Floodway** – That portion of the floodplain required to store and discharge floodwaters without causing potentially damaging increases in flood heights and velocities.

**Grade (gradient)** – The slope of a stream, measured along the length of the stream channel.

**Green roof** – A roofing system that utilizes vegetation to absorb rainwater and reduce heat absorption.

**Green space** – Open, undeveloped land with natural vegetation.

**Groundwater** – Water beneath the earth's surface, found at varying depths, where every space between soil or rock particles is filled with water.

**Headwater** – Where a river begins.

**Hydraulics** – The applied science that deals with the behavior and flow of liquids. When used in reference to a stream, hydraulics refers to the processes by which water flows within the channel.

**Hydrograph** – A graphical representation of stage or discharge at a point on a stream as a function of time.

**Hydrologic cycle** – The global circulation of water above, on, and below the surface of the Earth. The cycle consists of four stages: storage (in the ground, oceans, lakes, rivers, ponds, ice caps, and glaciers), evaporation, precipitation, and runoff.

**Hydrology** – The science that deals with the occurrence and movement of water in the atmosphere, upon the surface, and beneath the land areas of the Earth. In reference to a particular stream, the hydrology is the amount and timing of water flow into the stream.

**Impervious** – Those surfaces that cannot effectively infiltrate rainfall and snow melt (e.g. rooftops, pavement, sidewalks, driveways, etc.). Impervious cover causes an increase in the volume of surface runoff.

**Incised stream** – A stream in which degradation (erosion of the streambed) has caused deepening of the channel to a point where the stream is no longer connected to its floodplain.

**Infiltration** – The process of water percolating into the soil.

**Instability (unstable)** – An imbalance in a stream's capacity to transport sediment and maintain its channel shape, pattern, and profile.

**Intermittent stream** – A stream or portion of a stream that flows in a well-defined channel during the wet seasons of the year, but not the entire year.

**Invasive plant** – A species of plant that is not native to a region and has the ability to compete with and replace native species in natural habitats. Invasive plants present a threat when they alter the ecology of a native plant community.

**Kinetic energy – Energy of motion.** The kinetic energy of a stream is equal to one-half the mass of water, times the square of the velocity at which the water is moving.

**Levee** – See dike.

**Meander** – Refers to both the winding pattern of a stream (“meander bends”) and to the process by which a stream curves as it passes through the landscape (a “meandering stream”). A meandering stream channel generally exhibits a characteristic process of bank erosion and point bar deposition associated with systematically shifting meanders.

**National Flood Insurance Program** – Federal program that makes available subsidized flood insurance in those jurisdictions within which the local government regulates development in identified flood hazard areas. Local regulations must be at least as stringent as federal standards.

**Natural stream design** – A stream restoration method that uses data collection, modeling techniques, and stable or reference channels in the design of ideal channel configurations.

**No Adverse Impact®** – No Adverse Impact® floodplain management is an approach which ensures that the action of one property owner or a community does not adversely impact the properties and rights of other property owners, as measured by increased flood peaks, flood stage, flood velocity, erosion, sedimentation, costs now, and costs in the future. A No Adverse Impact® approach focuses on planning for and lessening flood impacts resulting from land use changes. It is essentially a “do no harm” policy that will significantly decrease the creation of new flood damages. No Adverse Impact® means that your neighbor should build in such a way that does not increase the risk of flooding to your property or that of others. This management approach is endorsed by the Association of State Floodplain Managers.

**Nutrients** – Essential chemicals, including nitrogen and phosphorous, that are needed by plants and animals for growth. Excessive amounts of nutrients can lead to degradation of water quality and algal blooms.

**Organic waste** – A type of waste typically originating from plant or animal sources, which may be broken down by other living organisms.

**Pattern (of a stream channel)** – The shape of a stream as seen from above or on a map.

**Peak flow** – The maximum stream flow from a given storm condition at a specific location.

**Porous pavement** – A hard surface that can support some vehicular activities, such as parking and light traffic, and which can also allow significant amounts of water to pass through. Conventional asphalt pavement consists of a mixture of large and small stone particles bonded together with asphalt tar. For porous pavement, the smaller particles are left out and the percentage of tar is reduced.

**Point bar** – A stream deposition feature usually found on the inside of a bend; consists of sand, gravel, or other sediment and lacks permanent vegetation.

**Pool** – A stream feature in which water is deeper and slower than in adjacent areas. Pools typically alternate with riffles along the length of a stream channel.

**Potential energy** – Energy that results from gravitational pull on an object. The potential energy in a stream is equal to the weight of water times the elevation of a specified point relative to the mouth of the stream.

**Profile** – The shape of a stream drawn along the length of its channel to show both the streambed and the water surface.

**Rain garden** – A landscaping feature that is planted with native perennial plants and is used to manage stormwater runoff from impervious surfaces such as roofs, sidewalks, and parking lots.

**Reach** – The continuous, uninterrupted extent of water.

**Retention pond** – A manmade pond where stormwater is directed and held.

**Riffle** – A stream feature in which water flow is shallow and rapid compared to adjacent areas. Riffles typically alternate with pools along the length of a stream channel.

**Riparian** – The area of land along a stream channel and within the valley walls where vegetation and other land uses directly influence stream processes.

**Riparian buffer** (or stream buffer) – Zone of variable width along the banks a stream that provides a protective natural area along the stream corridor.

**Riparian rights** – The rights of an owner whose land abuts water.

**Riprap** – Broken rock placed on a streambank or other surface to protect against scouring and erosion.

**River basin** – see watershed

**Rock vanes** – Rock structures built below the water level to control the direction of flow within a stream.

**Root wad** – Stream-bank stabilization technique in which a one or more tree trunks are embedded in the stream bank with the root mass facing the flow to dissipate energy.

**Roughness** (hydraulic roughness) – In a stream, roughness refers to the frictional resistance to flow.

**Runoff** – See surface runoff.

**Runoff footprint** – a measure of the impact by human activities on flooding, or the potential for flooding, in terms of the amount of water that is discharged (runs off) from a drainage area over a given time period.

**Scour** – The process by which the erosive action of flowing water removes material from the bed or banks of a stream.

**Sediment** – Solid material, both mineral and organic, that is being transported or has been moved by air, water, gravity, or ice from its site of origin (streambank or hillside) to the place of deposition (in the stream channel or on the floodplain).

**Stable** – Although no stream is truly stable in the sense that it doesn't change over time, a stream may be described as stable if it is in dynamic equilibrium, with no appreciable change from year to year.

**Storm flow** – The portion of stream flow that comes from surface runoff and constitutes the main component of high stream flows during rainy weather.

**Storm hydrograph** – A graph of stream discharge against time for a single storm event.

**Stormwater** – Surface runoff; generally referred to as stormwater when the surface runoff is from developed areas.

**Stormwater management** – The use of structural or non-structural practices that are designed to reduce storm water runoff and mitigate its adverse impacts on property, natural resources, and the environment. Structural practices involve construction of systems that provide short-term storage and treatment of storm-water runoff. Non-structural techniques use natural measures to reduce pollution levels, do not require extensive construction efforts, and/or promote pollutant reduction by eliminating the pollutant source.

**Stratiform rainfall** – Generally, light rain consisting of small droplets; often associated with broad, layered clouds (stratus or nimbostratus).

**Stream** – A natural watercourse with a definite bed and banks that conducts continuously or periodically flowing water.

**Streambed (bed)** – The bottom of a stream channel bounded by banks.

**Stream bank (bank)** – The sides of a stream channel between which the flow is normally confined.

**Stream restoration** – The process of converting an unstable, altered, or degraded stream corridor, including the adjacent riparian zone and flood-prone areas, to its natural stable condition; recent and future watershed conditions are a consideration in the process.

**Stream stabilization** – The in-place stabilization of a severely eroding streambank and/or streambed. Although stabilization techniques address the immediate problem, they may not restore the system's dynamic equilibrium.

**Sub-watershed** – A part of the watershed. The division may be based on branches of a river and/or political jurisdictions.

**Surface runoff** (see also storm water) – The portion of precipitation or snow melt that reaches the stream channel by flowing over the land surface.

**Transpiration** – The process by which water taken up by plants is returned to the atmosphere by evaporation from leaves.

**Triage approach to stream assessment** – A process for moving from recognition of a stream problem to selection of an appropriate intervention, based on a relatively quick assessment of the problem, the causes, and the urgency of the situation.

**Tributary** – A stream that feeds into another stream; usually the tributary is smaller in size than the main stream.

**Velocity** – In streams, the speed at which water is flowing, usually measured in feet per second.

**Water bar** – A shallow trench or diversion ditch that diverts surface runoff from roads, fire breaks, or skid trails into a dispersion area. Water bars are used to disperse flow, minimize erosion, and enhance conditions for re-vegetation.

**Watershed** – A unit of land on which all the water that falls (or emanates from springs) collects by gravity and runs off via a common outlet (stream).

**Wetland** – An area that is permanently or periodically saturated by water with vegetation adapted for life under those soil conditions. Swamps, bogs, fens, and marshes are wetlands.

**Zero datum** – In hydrologic terms, a reference "zero" elevation for a stream or river gage. This "zero" can be referenced (usually within ten feet of the bottom of the channel) to mean sea level, or to any other recognized datum.

(Portions of the Glossary were used with permission from “*Stream Processes A Guide to Living In Harmony with Streams*” prepared by Janet Thigpen, Southern Tier Central Regional Planning and Development Board)