

Glossary of Terms used in the Stormwater Industry

Term	Code	Definition
Habitat	Eco	The type of environment in which a plant or animal, or community of plants and animals, lives or grows, including physical and biological conditions.
Hadley circulation	Met	The circulation of air as it rises near the equator, travels in the upper atmosphere towards the poles, then descends into the lower atmosphere before returning back towards the equator.
Hail	Met	Precipitation of small balls or pieces of hard and partly transparent ice that fall separately or frozen together into irregular lumps.
Half-bankfull discharge	Wwy	The channel flow rate that occurs when the water level is midway between the channel invert and the channel bank elevation above which water begins to spill out onto the floodplain.
Half-life	Eco	Time required to reduce by one-half the concentration of a material in a medium (eg. soil or water) or organism (e.g. fish tissue) by transport, degradation, transformation or depuration.
Hardness	Wat	The concentration of all metallic cations, except those of the alkali metals, present in water. In general, hardness is a measure of the concentration of calcium and magnesium ions in water and is frequently expressed as mg/L calcium carbonate equivalent.
Hazard	Gen	A source of potential harm, adverse health, or environmental effect.
Hazard analysis	Gen	The systematic process undertaken to understand the nature of potential hazards and the level of risk associated with each hazard.
Hazard assessment	Gen	The overall process of hazard identification, hazard analysis and hazard evaluation.
Hazard evaluation	Gen	The process of comparing the level of hazard against a given assessment criteria.
Head	Hyd	1. The height above a standard datum of the surface of the column of water that can be supported by the static water pressure at a given point.
	Hyd	2. The difference in static water pressure head upstream and downstream of a structure or component of a structure, e.g. the operating head of a hydraulic structure. Usually expressed in units of length or equivalent water depth.
Head loss	Hyd	The difference in static water pressure upstream and downstream of a structure or component of a structure.
Head loss coefficient	Hyd	A dimensionless coefficient that, when multiplied by the velocity head at a specified location (e.g. the outlet of a pit), gives the reduction in static water pressure across a structure or component of a structure. Also known as PRESSURE CHANGE COEFFICIENT and PRESSURE LOSS COEFFICIENT.

Head-cut	Wwy	<p>A condition of soil erosion represented by a sudden change in the bed elevation within a gully or stream forming an obvious downward step (in the direction of flow). The erosion of the gully or stream primarily results from this 'step' migrating up the gully line or stream channel.</p> <p>A head-cut often forms the upper limits of gully erosion, but may also appear within boundaries of an existing gully.</p>
Head-cutting	Wwy	Erosion caused by the migration of a 'head-cut' up a gully line or along a stream channel.
Headwall	Eng	<p>A structural retaining wall at the ends of a culvert, or at the end of a drainage conduit, used primary to control seepage from behind the wall and to prevent under mining of the structure.</p> <p>Also known as an END WALL.</p>
Headward erosion	Wwy	<p>The process of gully enlargement in an upstream direction caused by an incision of concentrated runoff and the formation of a waterfall and splash pool leading to undercutting and slumping of the gully head.</p> <p>Head-cutting is a form of headward erosion.</p>
Headwater	Hyd	The height of water above the invert of a culvert measured at the inlet of the culvert.
Headwaters	Wwy	Small streams on the higher ground of a catchment that flows into a major watercourse.
Heavy clays	Sol	<p>A soil with a clay content usually greater than 45 per cent.</p> <p>A bolus of heavy clay formed in the hand can be rolled to a thread 3 to 4mm thick and formed into a ring in the palm of the hand without fracture. The soil is smooth and very plastic, with moderate–strong resistance to rolling out.</p>
Heavy metals	Gen	A term of no scientific meaning commonly used to describe metals.
Heavy rainfall	Hyd	<p>Rainfall with:</p> <ul style="list-style-type: none"> (i) an intensity equal to, or greater than, 10mm/hr but less than 50mm/hr; or (ii) a total rainfall depth equal to, or greater than, the equivalent of the one hour duration, 1 in 2 year ARI design storm rainfall depth over a 24-hour period, but less than the equivalent of the one hour duration, 1 in 10 year ARI design storm rainfall depth over a 24-hour period. <p>For example, if the 1 hour duration, 1 in 2yr and 1 in 10yr ARI average rainfall intensity at a given location is 47mm/hr and 70mm/hr respectively, then heavy rainfall would be a rainfall depth of 47 to 70mm within any 24-hour period, or a rainfall intensity between 10 and 50mm/hr at any given time.</p>
HEC	Hyd	The US Army Corps of Engineers' Hydraulic Engineering Center—the developer of hydraulic models such as HEC-RAS, HEC-1, HEC-2, etc.

Heel	Eng	Sometimes used to define the upstream toe of a concrete gravity dam, that being the junction of the upstream face of dam with the ground surface (foundation).
Height of dam	Eng	Normally the difference in elevation between the natural bed of the stream or watercourse at the downstream toe of the dam and the top of dam. If the dam is not located across a watercourse, then the height is taken to be the difference in elevation between the lowest elevation of the outside limit of the barrier and the top of dam.
Herring-bone sub-drainage system	Hyd	A system of parallel, lateral feeder subsoil drainage pipes connected at a common angle to a central drainage pipe.
Heterogenous	Gen	Pertaining to a substance having different characteristics in different locations.
Heterotrophic	Eco	Relating to a substance that has different characteristics in different locations.
Heterotrophs	Eco	Relating to organisms that use organic carbon as an energy source.
Heterotrophy	Eco	A bacterium or other organism that depends on organic carbon for food.
Highest Astronomical Tide (HAT)	Coa	The highest tide level that can be predicted to occur under average meteorological conditions and under any combination of astronomical conditions.
High level basin outlet	Sto	The outlet of a detention/retention storage basin from which flows greater than those handled by the low-level outlet will discharge. The outlet is usually a weir type or glory hole spillway.
Homogeneous	Gen	Relating to a substance that has identical characteristics wherever it occurs.
Honeycomb geotextile	Eng	A geotextile formed from strips of stiff geotextile or plastic sheets laid perpendicular to the plane of the structure and assembled to form a thick honeycomb. Usually used to confine soil into cells to provide soil reinforcement and erosion control.
Horseshoe vortex	Hyd	The vortex caused by the increased headwater on the upstream side of an open channel obstruction and the subsequent acceleration of the flow around the nose of the pier or abutment.
Humic acid	Sci	A large-molecule organic acid that dissolves in water. See also FULVIC ACID.
Humic substances	Eco	Organic substances only partially broken down that occur in water, mainly in a colloidal state. Humic acids are large-molecule organic acids that dissolve in water.
Hydraulically operated trash rack	Sto	A stormwater pollution trap incorporating a hydraulically driven sluice gate to control flow conditions. Treated stormwater is filtered through a series of vertical screens before flowing under a fixed brick baffle wall, then over a weir. The hydraulically operated sluice gate is activated during flood conditions to allow flood waters to pass through the device without disturbing the collected pollutants.

Hydraulic analysis	Hyd	The process of numerically analysing actual or expected flow conditions (such as water surface elevation and velocity) associated with a given hydraulic structure.
Hydraulic calculations	Hyd	1. The process of numerically analysing flow conditions such as water surface elevation and velocity.
	Hyd	2. The result or product of the numerically analysing flow conditions such as water surface elevation and velocity.
Hydraulic check	Hyd	The process of verifying a numerically analysis of a given flow condition by performing an independent numerically analysis. The hydraulic check may not be as detailed as the original analysis, and may only be used to check for gross errors.
Hydraulic conductivity	Eng	A constant used in Darcy's law.
	Min	A coefficient of proportionality describing the rate at which water can move through a permeable medium. The density and kinematic viscosity of the water must be considered in determining hydraulic conductivity.
	Sol	The flow of water through soil per unit of energy gradient. For practical purposes it may be taken as the steady-state percolation rate of a soil when infiltration and internal drainage are equal, measured as depth per unit time.
Hydraulic control	Hyd	A location or cross-section within an open channel where critical flow conditions occur and a fixed and definable relation exists between the stage and the discharge. Also known as the CONTROL SECTION.
Hydraulic depth	Hyd	A measure of flow depth determined by dividing the cross-sectional area of open channel flow by the top surface width of the flow.
Hydraulic design	Hyd	The act or process of numerically analysing expected flow conditions (such as water surface elevation and velocity) associated with a given structure as part of the design of that structure.
Hydraulic diameter	Hyd	The equivalent pipe diameter of a flow cross-section defined as four times the cross-sectional area of the flow divided by its wetted perimeter.
Hydraulic failure	Hyd	1. Structural failure of a device or system caused primarily by hydraulic forces.
	Hyd	2. The surcharging or overtopping of a device or hydraulic system where the flow rate exceeds the maximum design discharge, or the water level exceeds the maximum design water level.
Hydraulic grade line (HGL)	Hyd	A line representing the pressure head along a conduit, corresponding to the effective static water elevation of the system.
Hydraulic gradient	Hyd	The slope of the hydraulic grade line. Also known as the FRICTION SLOPE and PRESSURE GRADIENT.
Hydraulic head	Hyd	The total static pressure head, which is equal to the sum of the elevation (relative to a given datum) plus the pressure head at a given cross-section.

Hydraulic jump	Hyd	<p>An abrupt, turbulent rise in the water surface of open channel flow resulting from the transition of supercritical flow into subcritical flow. The rate of rise in water surface and the degree of turbulent both within and immediately downstream of the hydraulic jump is related to the Froude number of the approaching flow</p> <p>Hydraulic jumps are a form of standing wave.</p>
Hydraulic model	Hyd	A numerical or physical simulation of a hydraulic condition, e.g. a numerical model of a river flood, or a physical model of a dam spillway.
Hydraulic radius	Hyd	The ratio of the cross-sectional area of a flowing liquid to the wetted perimeter of the flow. The hydraulic radius may be determined for both free surface flow and closed conduit flow (flowing full).
Hydraulic residence time	Hyd	<p>The average length of time the water stays in a defined water body such as a lake or wetland.</p> <p>Also known as the RESIDENCE TIME.</p>
Hydraulic roughness	Hyd	<p>The effective roughness of a surface with respect to its ability to influence flow condition such as flow velocity.</p> <p>Some channel surfaces may appear rough to touch, but have a relatively low impact on channel hydraulics, whereas other surfaces can appear relatively smooth, but actually have a high hydraulic roughness because the surface roughness is irregular.</p>
Hydraulics	Gen	The study of water or other liquid flow in conduits and open channels.
Hydraulic structure	Hyd	A conduit or open channel used to contain or transport water or other liquid, or a component of such a conduit or open channel that controls or alters the flow conditions.
Hydraulic system	Hyd	Any hydraulic structure, or network of structures, used to manage the containment or passage of water or other liquid.
Hydrocarbons	Gen	A group of substances composed only of carbon and hydrogen, e.g. methane, ethylene, acetylene and benzene.
	Sto	A term usually used to refer to an oil or fuel-based pollutants.
Hydrodynamics	Gen	The science of the mechanics of fluids, generally liquids, including hydrostatics and hydrokinetics.
Hydrodynamic separator	Hyd	A stormwater treatment device that separates pollutants from stormwater by inducing a vortex in the stormwater flow as it enters the separation chamber. The system relies on the secondary flows caused by the vortex action to concentrate sediments in the bottom of the chamber.
Hydrogeology	Gel	The study of the interrelationships of geologic materials and processes with water, especially groundwater.
Hydrograph	Hyd	A graph showing the discharge, stage (elevation), velocity, or other properties of the flow with respect to time for a given point on a stream.

Hydrograph (discharge)	Hyd	The tabular or graphical relationship between flow rate (discharge) and time for a given period of time and location within a drainage catchment. The highest point of the flood hydrograph represents the peak discharge.
Hydrograph (flood)	Hyd	A plot or recording of stream discharge versus time over the duration of a flood at a given location along a watercourse. A design flood hydrograph represents the discharge from a theoretical design storm. The highest point of the flood hydrograph represents the peak discharge.
Hydrograph model	Hyd	A numerical simulation of a drainage catchment in order to either reproduce the outflow hydrograph of a historical storm, or estimate the response of a catchment to a given rainfall event.
Hydrologic	Hyd	Relating to water on the land or under the Earth's surface, its properties, laws, geographical distribution, and so on.
Hydrological	—	see HYDROLOGIC.
Hydrologic cycle	Gen	The circulation of water from the oceans and other water bodies through the atmosphere to the land and ultimately back to the ocean.
Hydrologic design	Sto	The component of hydraulic design involving the determination of storm runoffs and hydrologic processes, including assessing the impact of hydrologic events on a water resource system and choosing values for the key variables (model coefficients) of the system or model so that it will perform adequately.
Hydrologic drought	Hyd	Periods of below-normal stream flow and/or depleted reservoir storage.
Hydrology	Gen	The study of water on the land or under the Earth's surface, its properties, laws, geographical distribution, and so on.
Hydrolysis	Sci	1. The process of chemical decomposition by which a compound is resolved into other compounds by taking up the elements of water, e.g. the formation of an acid and a base from a salt by the ionic dissociation of water.
	Sci	2. The process of decomposition of organic compounds by interaction with water.
Hyetograph	Hyd	A plot of rainfall depth or intensity as a function of time.
Hypogean ecosystem	Eco	Micro-invertebrates and microbial communities that occur within the water-filled pore spaces of the saturated zone.
Hypolimnion	Wwy	The layer of water below the thermocline in stratified water bodies.
Hyporheos	Eco	The zone, often quite deep, beneath the stream bed within which a complex of microscopic animals occur.