Glossary of Terms used in the Stormwater Industry

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Preface

This document was prepared to assist the stormwater industry across Australia to establish and maintain consistent terminology within guidelines, reports and technical papers.

The glossary focuses on those terms that stormwater officers are likely to confront when reviewing a Catchment Management Plan, Stormwater Management Plan, Waterway Management Plan, Floodplain Management Plan, Master Drainage Plan, Flood Study or Erosion and Sediment Control Plan.

Introduction

Terms are listed in alphabetical order. Each term is presented with a key identifying code that indicates the principle category, profession or field of science within which the presented terminology is most commonly associated. The Code does not imply that the definition is applicable only to that profession. If a term has a different meaning or usage within different professions, then alternative definitions are presented under each category.

The key categories are defined as:

Agr – Agronomy
Bio – Biology
Bot – Botany
Coa – Coastal
Eco – Ecology
Eng – Engineering
Esc – Erosion and sediment control
Gen – General
Geo – Geography
Gel – Geology
Hyd – Hydrology
Lfm – Landform
Met – Meteorological
Min – Mining
Rur – Rural
Sci – Science
Sol – Soil science
Sto – Stormwater
Top – Topography
Res – Water resources
Wat – Water testing
Wwy – Waterways

Cross-referencing is extensively used throughout the document. Cross-referenced terms are indicted in italics.

e.g. **Acute toxicity** (Eco)
Rapid adverse effect (eg. death) caused by a substance ingested or absorbed by a living organism. Can be used to define either the exposure or the response to an exposure (effect). See also *Chronic toxicity*.

Expanded description of definition categories

Code	Category	Description
Agr	Agronomy	The applied aspects of both soil science and the several plant sciences, often limited to applied plant sciences dealing with crops.
Bio	Biology	The science of life or living matter in all its forms and phenomena especially in reference to growth, reproduction, structure, etc.
Bot	Botany	The science of plants; the branch of biology that deals with plant life.
Coa	Coastal	The science or engineering of the management of coastal regions.
Eco	Ecology	The branch of biology which studies the relations between organisms and their environment.
Eng	Engineering	The art or science of making practical application of the knowledge of pure sciences such as physics, chemistry, biology, etc.
Esc	Erosion and sediment control	The study and application of short-term soil erosion and sediment control measures within building and construction industry.
Gen	General	Non specific commonly usage.
Geo	Geography	The study of the areal differentiation of the earth's surface, as shown in the character, arrangement, and interrelations over the world of elements such as climate, relief, soil, vegetation, population, land use, industries, or states, and of the unit areas formed by the complex of these individual elements.
Gel	Geology	The science which studies the earth, the rocks of which it is composed, and the changes which it has undergone or is undergoing.
Hyd	Hydrology	The science dealing with water on the land, or under the earth's surface, its properties, laws, geographical distribution, etc. Includes the science of Hydraulic analysis.
Lfm	Landform	Any of the numerous features which make up the surface of the earth, as plain, plateau, canyon.
Met	Meteorological	The science dealing with the atmosphere and its phenomena, especially as relating to weather.
Min	Mining	The action, process, or industry of extracting ores, etc. from mines.
Rur	Rural	Pertaining to, or characteristic of the country (as distinguished from towns or cities), including agricultural engineering and sciences, and rural soil conservation practices.
Sci	Science	The systematic study of man and his environment based on the deductions and inferences which can be made, and the general laws which can be formulated, from reproducible observations and measurements of events and parameters within the universe.
Sol	Soil science	The science which studies that portion of the earth's surface in which plants grow.
Sto	Stormwater	The science or engineering of the management of surface run-off of water resulting from a storm.
Top	Topography	The detailed description and analysis of the features of a relatively small area, district, or locality.
Res	Water resources	The collection, treatment, distribution, disposal and recycling of water for human use and/or benefit.
Wat	Water testing	The science or mechanics associated with the testing of water.
Wwy	Waterway	The science or engineering of the management and hydraulic design of waterways and other major water bodies including wetlands. It including the science and engineering of floodplain management.

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Glossary of Terms used in the Stormwater Industry

Term	Code	Definition
Abatement	Gen	The act of alleviation, mitigation or reduction of an action.
	Sto	Any action that reduces factors such as the level or intensity of peak stormwater discharge, pollutant concentrations or loads, during storms or floods.
Abiotic	Sci	Relating to non-living components of an ecosystem, such as climatic and soil features.
Absorb	Sci	To take up or receive in by chemical or molecular action.
Absorption	Gen	The process of sucking up or drawing in of a liquid by a porous substance.
	Bot	The process of taking substances such as water and nutrients into the body through cell membranes or, in plants, through root hairs.
Absorptivity	Gen	The ability to absorb matter (e.g. water, nutrients, dissolved chemicals, gases).
Abutment	Gen	A point or structure on which something abuts or the place where projecting parts meet.
	Eng	The part of a valley side against which a dam is constructed, or an end support of a bridge or similar structure.
Accelerated erosion	Gel	Any increase over the rate of natural erosion from wind or water as a result of human activities.
Access hole	Eng	An opening constructed in a structure to permit human access for the purpose of construction, inspection and/or maintenance. This term is replacing MANHOLE.
Access systems	Eng	The measures and devices that allow personnel and equipment access to a stormwater system or component.
Accretion	Coa	The process of sand being gradual added to a beach or lake shoreline during periods of light on-shore wind and/or lowered sea level.
	Eng	The process of an increasing channel bed elevation resulting from the accumulation of sediment deposits.
	Geo	A gradual increase in land elevation due to the accumulation of sediment and other matter.
Acid-soluble metal concentration	Sci	A measure of sediment contamination, being the concentration of a metal that passes through a 0.45μm membrane filter after the sample is acidified to pH 1.5 to 2.0 with nitric acid.
Acid sulfate soil (ASS)	Sol	A soil type containing significant amounts of iron sulfide (usually pyrite, FeS_2) which generates sulfuric acid when exposed to oxygen; typically associated with coastal lowlands (< 5m AHD) and estuarine floodplains.
ACMCANZ	Gen	The abbreviation for Agriculture and Resource Management Council of Australia and New Zealand.
Activated carbon	Wat	A type of carbon, especially in the form of charcoal, treated to have a high capacity to remove (adsorb) trace compounds from mixtures.
Acute-chronic toxicity ratio	Eco	The ratio of the mean acute toxicity value divided by the mean chronic toxicity value for the same species.
Acute toxicity	Eco	A rapid adverse effect (e.g. death) caused by a substance ingested or absorbed by a living organism. Can be used to define either the

		exposure or the response to an exposure (effect).
Additive toxicity	Eco	The toxicity of a mixture of chemicals approximately equivalent to the sum of the known toxicities of the individual chemicals present in the mixture.
Adsorption	Gen	The action of gas, liquid or dissolved substance gathering on the surface of another substance.
	Sci	The process of attaching a substance to the surface of a solid by virtue of forces arising from molecular attraction.
	Sto	The process of bonding of metals and nutrients onto the surfaces of suspended particles by way of physical, chemical and biological processes. Typical pollutants affected include hydrocarbons, phosphorus, nitrogen and metals.
Advanced water treatment	Res	The tertiary treatment of water.
Advection	Min	The process by which solutes are transported by the motion of flowing groundwater.
Advective force	Wwy	The gravitational force that moves water and its constituents longitudinally downstream.
AEP	Hyd	Annual exceedance probability
Aeration	Eng	The injection of air through diffusers into water bodies, or rapid mechanical mixing of the surface of water bodies to promote entrainment of atmospheric air into the water column; a treatment process adopted in situations of high loading of oxygen-demanding substances.
	Sci	A process by which a substance becomes permeated with air or another gas. The term is usually applied to aqueous liquids being brought into intimate contact with air by spraying, bubbling or agitating the liquid.
Aerial fauna	Eco	The animals that inhabit or frequent air space.
Aerobic	Gen	Relating to an environment in which there is free oxygen.
	Sci	Relating to a metabolic state where free oxygen (0_2) is available.
	Sol	Relating to soil conditions in which free oxygen is plentiful, and oxidising processes prevail. Such conditions are usually found in well-drained soils with good soil structure.
Aesthetics	Gen	The study of the mind and emotions in relation to the sense of beauty.
	Eng	Those aspects of water, a water body, or water conveyance system relating to the sense of beauty.
Afflux	Eng	A measure of the increase in water elevation at a given location caused by a given structure, relative to the water elevation that would have occurred at that location if no structure existed.
Aggradation	Geo	The process of building up of levels, such as stream beds and floodplains by the deposition of sediment or detritus.
Aggrade	Geo	To raise the grade or elevation of river valley or stream bed by the deposition of detritus.
Aggregate	Gen	Any hard material added to cement to make concrete, or to bitumen to make asphalt.
	Sol	A cluster of primarily soil particles held together by inter-particle (electrostatic) forces or bonds.
	Eng	**1.** A collection of mineral particles which through the agency of a

		suitable binder can be formed into a solid mass. Coarse aggregate is usually material retained on a 4.75mm or 2.36mm sieve. Fine aggregate is usually material passing a 4.75mm or 2.36mm sieve.
	Eng	**2.** Washed gravel with a near uniform particle size.
Ag-pipe	Gen	A flexible, perforated, corrugated drainage pipe used in agricultural sub-drainage. Also known as an AGRICULTURAL (SUB-DRAINAGE) PIPE.
Agricultural effluent	Wwr	The liquid waste that flows from piggeries, feedlots, dairy and aquaculture entities. Usually excludes irrigation runoff.
Agricultural purpose	Agr	Relates to a resource allocation for a specific agricultural purpose such as food crops, hydroponics, pasture production, turf farms, field crops, horticulture (nurseries, vineyards and cut flowers), forestry, irrigation and other activities (e.g. shed cleaning); not including potable purposes.
Agricultural sub-drainage	Agr	A subsoil drainage system consisting of a perforated pipe usually surrounded by a specially prepared porous media that allows lateral infiltration of soil moisture. Typically used to control soil moisture levels usually within the plant/crop root zone.
Agricultural sub-drainage pipe	Agr	The perforated subsoil drainage pipe used in agricultural sub-drainage. Also known as an AG-PIPE.
Agricultural water	Hyd	Water for agricultural purposes.
Algae	Gen	Comparatively simple chlorophyll-bearing plants that are capable of photosynthesis, and are mostly aquatic and microscopic in size without roots and leaves.
Algal bloom	Eco	An extensive growth of algae in water.
Alkalinity	Sol	The chemical condition of soil with a pH greater than 7.0. Often associated with saline soils and sodic soils.
Alkalinity factor	Sto	A measure of the acid-neutralising capacity of an aqueous system.
Allochthonous	Eco	Relating to growth in plants and animals supported by external inputs of nutrients.
	Wwy	Relating to organic material developed or derived from an external source, for example organic matter entering a stream or lake but derived from adjacent terrestrial areas.
Allotment drainage	Eng	A system of field gullies, access chambers and underground pipes constructed within private property to convey flows through and from allotments.
Alluvial	Gen	Relating to material formed from or pertaining to alluvium.
	Wwy	Relating to material deposited by, or in transit in, flowing water.
Alluvial channel	Wwy	A natural waterway channel formed primarily from flood-laid deposits of sand, silt and gravel, or a constructed channel primarily lined with alluvial material extracted from a waterway or floodplain.
Alluvial fan	Wwy	A cone or fan-shaped deposit of boulders, gravel and fine sediments that has been eroded from upstream sources and transported by flood flows, debris flows and channel migration.
Alluvial floodplain	Lfm	A floodplain formed by the ongoing long-term accumulation of alluvium directly resulting from overbank stream flow.
Alluvial plain	Lfm	A landform with extremely low relief formed by the long-term accumulation of alluvium resulting from overbank stream flow. This

		accumulation may still be occurring (floodplain) or may have ceased (terrace).
Alluvial terrace	Lfm	A landform with extremely low relief formed by the relatively inactive accumulation of alluvium resulting from overbank stream flow.
Alluvium	Gen	A deposit of sand, mud, and so on, formed by flowing water.
	Wwy	Extensive deposits of sand, silt and/or clay formed by a river or flood, typically forming a floodplain. Alluvium is generally unconsolidated.
Ambient water quality monitoring	Eco	A measurement of the general quality of the water without specifically measuring the effect of particular releases of contaminants into the water.
Ameliorate	Gen	To make or become better, improve or meliorate.
Amelioration	Gen	The act of ameliorating, putting into effect actions or efforts to minimise adverse effects of an event.
Amine	Sci	Any of a class of compounds derived from ammonia by replacing one, two, or all hydrogen atoms with organic (hydro-carbon) radicals.
Amphipod	Eco	Any invertebrate belonging to the order of Crustacea, (crustacean) including shrimps, crabs, barnacles, woodlice, etc. Amphipod bodies are commonly covered with a hard shell or crust.
Anabranch	Wwy	**1.** A branch of a watercourse which leaves the main channel and later re-enters it, in the form of a secondary channel in both size and flow.
	Wwy	**2.** One of the channels that make up a braided channel.
Anaerobic	Gen	Relating to a process or organism requiring the absence of free oxygen or not destroyed by its absence.
	Sci	Relating to a metabolic state where neither free nor bound oxygen is available.
	Sol	Relating to soil conditions in which free oxygen is deficient and chemically, reducing processes prevail. Such conditions are usually found in waterlogged or poorly drained soils in which water has replaced soil air.
ANCOLD	Eng	Australian National Committee on Large Dams
Angle of repose	Eng	The angle with the horizontal that the sloping face of a bank of loose material assumes.
Anion	Sci	A negatively charged ion attracted to the anode during electrolysis.
Anisotropy	Min	A condition where one or more of the hydraulic properties of an aquifer vary according to the direction of flow.
Annual exceedance probability (AEP)	Hyd	The probability that a particular storm or flood event will be equalled or exceeded in any year. It is the complement of the *return period* or the average recurrence interval. For example, a 20-year return period is equivalent to a 5% annual exceedance probability.
Annual flood	Hyd	The highest peak discharge in a calendar year or *water year*, the latter usually commencing at the end of the period of lowest average flow during the year.
Annual series	Hyd	A data set consisting of the highest event in each year of record, whether a calender year or some arbitrarily defined *water year* bounded at the time of lowest average rainfall or runoff.
		Statistical analysis of an annual series results in an assessment of

		the annual exceedance probability.
Anoxic	Sci	Relating to a metabolic state where there is no free oxygen, but molecularly bound oxygen is still available. It is commonly characterised as measuring less than 2mg/L of dissolved oxygen.
Antagonism (chemical)		See CHEMICAL ANTAGONISM.
Antecedent condition	Hyd	The catchment conditions, in particular soil moisture and storage level, prior to commencement of a storm.
Antecedent moisture condition	Hyd	The degree of wetness of a catchment at the beginning of a storm.
Anthropogenic	Gen	Relating to being produced or caused by humans.
Anti-seep collar	Eng	A flange fitted around a pipe to prevent seepage of water along the outside of the pipe. Typically used on the outflow pipe in earth embankment dams and sediment basins.
Anti-vortex device	Eng	A device, usually a vertical or horizontal plate, placed at the entrance of a pipe to prevent the formation of a vortex (whirlpool effect) at the pipe entrance.
ANZECC	Gen	Australian and New Zealand Environment and Conservation Council.
Application factor (AF)	Eco	A measure used to determine species toxicity sensitivity, being a numerical, non-dimensional value calculated as the threshold chronically toxic concentration of a chemical divided by its acute toxic concentration. The AF is usually reported as a range and is multiplied by the median lethal concentration of a chemical as determined in a short-term (acute) toxicity test to estimate an expected no-effect concentration under chronic exposure.
Appurtenant works	Eng	Those structures ancillary to a main structure, e.g. on a dam, such works include spillways, inlet and outlet works, tunnels, pipelines, penstocks, power stations and diversions.
Apron	Eng	A layer of concrete, stone, or other permanent material placed on the bed of a channel at the entrance and/or outlet of hydraulic structures, such as a culvert, chute, or grade control structure. Aprons are primarily used to protect the structure from excessive erosion.
Aquatic	Gen	Relating to water.
	Eco	Relating to living or growing in water.
Aquatic biota	Eco	Plant or animals with at least one phase of their life history dependent on the temporary or permanent presence of an aquatic environment.
Aquatic fauna	Eco	Animals that inhabit or frequent aquatic environments.
Aqueduct	Eng	**1.** A conduit or channel constructed for conducting water over long distances, the water usually flowing by gravity.
	Eng	**2.** A structure which supports a conduit or canal across a valley or over a river.
Aquifer	Gel	An underground water-bearing layer of soil, rock, sand or gravel able to store and transmit water.
Aquifer (confined)	Gel	An aquifer that is overlain by a confining bed. The confining bed has a significantly lower hydraulic conductivity than the aquifer.

Aquifer (perched)	Gel	A region in the unsaturated zone where the soil may be locally saturated because it overlies a low-permeability unit.
Aquifer (unconfined)	Gel	An aquifer in which there are no confining beds between the zone of saturation and the surface. There will be a water table in an unconfined aquifer.
Aquifer recharge	Eng	The infiltration or injection of natural waters or recycled waters into an aquifer, providing replenishment of the groundwater resource. Aquifer recharge may be to supplement the natural recharge, or to allow storage of water for subsequent reuse.
Aquifer storage and recovery (ASR)	Res	The process if injecting stormwater or reclaimed water into aquifers for temporary storage and later recycling.
Aquitard	Gel	A layer in the geological profile that separates two aquifers and restricts the flow between them.
Arboreal fauna	Eco	Animals adapted for living in trees.
Arboviruses	Gen	A category of viruses transmitted to people and animals by insects and acarines (mites and ticks). Arboviruses multiply in an arthropod as the immediate host and in a vertebrate as final host.
Arch bridge	Wwy	An arch structure resting on supports at both extremities (footing or abutments) without intermittent supports or piers.
Arch dam	Eng	A dam that depends on a structural arch (viewed in plan form) for transferring water-bearing forces laterally into the adjoining abutments.
Arched dam	Eng	A gravity dam that is curved in plan. Variations include the curved-gravity dam and the arch-gravity dam.
Areal reduction factor	Hyd	A factor applied to design rainfall intensities within large catchments to adjust for the fact that the statistical analysis of rainfall probabilities at any given point in time is not necessarily equally applicable over the whole catchment.
ARI	Hyd	The abbreviation for Average Recurrence Interval. The average or expected value of the periods between exceedances of a given rainfall total accumulated over a given duration. Usually expressed as Y years.
Arid	Geo	Relating to a climate or region which lacks sufficient rainfall for crop production or extensive sown pastures. Usually defined as a climate with annual average rainfall less than 250mm.
Armouring	Gen	The process of progressive coarsening of the upper rock layer protecting a soil through erosion of fine particles. The remaining coarse material layer forms an armour capable of protecting the soil below from wind or flowing water.
	Eng	The act of introducing rock, geotextile and/or vegetation to bind the soil forming the bank or bed of channels such as to resist erosion by elevated flow velocities.
Armouring layer	Wwy	The coarse layer that remains on the surface of a channel or shoreline following armouring.
ARQ	Sto	The abbreviation for *Australian Runoff Quality*, a publication produced by Engineers Australia.
ARR	Hyd	The abbreviation for *Australian Rainfall and Runoff*, a publication produced by Engineers Australia.
Artificial system	Gen	A structure or system made by human skill and labour.
Artificial wetland	Gen	Any wetland system made by human skill and labour.

	Sto	A water treatment system utilising wetland processes that do not necessarily reflect the natural environment, and where significantly high levels of maintenance are required to achieve their design performance. Examples may include some constructed sub-surface flow wetlands (i.e. gravel bed biological filters).
Aspect	Geo	The direction (e.g. north, north-west) that a slope faces, measured at right angles to the contour.
Aspect ratio	Eng	The length to width ratio, length being the longest side or the length in the direction of flow, and width the shortest side length or the length at right angles to the direction of flow.
Asphalt	Eng	A mixture of bituminous binder and aggregate with or without mineral filler, produced hot in a mixing plant. It is delivered, spread and compacted while hot.
Assimilation	Eco	The process of incorporating absorbed substances into cellular material.
Assisted natural regeneration	Wwy	The process of assisted revegetation of waterway bank or other landscape using plants generated from a local seed source and by support of any natural seed germination. Typically undertaken when the soil's natural seed bank has been depleted and species diversity is low.
Atmospheric deposition	Sto	The process of pollutants accumulating across urban surfaces as a result of the deposition of fine airborne solids.
Attached growth biological reactor	Sto	A system in which water treatment is achieved by micro-organisms growing on a solid support matrix, as opposed to a system using micro-organisms in suspension.
Attenuation	Sto	The reduction in the magnitude of stream flow, pollutant concentrations, or total pollutant loads.
Attenuation zone	Sto	The area around a release to ground water in which the concentration of contaminants in the release is reduced to ambient levels through physico-chemical and microbiological processes.
Australian Height Datum (AHD)	Eng	A level datum, uniform throughout Australia (with some adjustment for Tasmania), based on an origin determined from observations of mean sea level at 30 tide gauge stations located along the Australian coastline.
Autochthonous	Gen	Relating to having been formed in the place where found.
	Eco	The plant and animal growth sustained within the given habitat or community.
	Wwy	The organic material that is developed or produced within a particular water body.
Auxiliary spillway	Eng	A secondary spillway designed to operate only during exceptionally large floods.
Available soil water	Agr	The part of the water in the soil that can be absorbed by plant roots. This is the amount of water held between the moisture content prevailing at any point in time and the moisture content at which plant growth ceases.
Average annual volumetric runoff coefficient	Hyd	The ratio of the average annual volume of stormwater runoff from a given catchment, to the average annual volume of rainfall on the catchment.
Average recurrence interval (ARI)	Hyd	The average or expected value of the period between exceedances of a given rainfall intensity or discharge. Usually expressed as Y years.

Avoidance threshold	Eco	The lowest concentration of a substance that causes aquatic life (or any other living thing) to actively move away from the substance.
AWQ guidelines	Sci	The abbreviation for Australian Water Quality Guidelines for Fresh and Marine Waters published by ANZECC.

Term	Code	Definition	Source
Backfill	Eng	**1.** The act of returning of excavated material, such as earth, into an excavation or trench for the purpose of raising the surface of the fill material to that of the surrounding land.	5
	Eng	**2.** The material used for the purpose of backfilling an area.	5
Background level	Sci	The concentration of a substance commonly found in the local environment.	34*
Backstone	Sto	The side wall of a side-entry kerb inlet directly opposite the inlet opening (i.e. the back wall). A *backstone* differs from a *lintel* in that it does not primarily act as the horizontal support bridging over the opening or the gully pit.	5
Backwater	Wwy	The water of a stream kept above an otherwise expected elevation due to some downstream influence such as floodwaters within a downstream reach or tributary, or a downstream hydraulic obstruction.	2*
Backwater analysis	Hyd	An analytical procedure for determining water surface levels in open channels under gradually varied, subcritical flow conditions.	5
Backwater area	Wwy	That part of a stream affected by backwater.	5
Backwater channel	Wwy	That part of a waterway or drainage channel affected by backwater.	5
Backwater curve	Hyd	The longitudinal water surface profile resulting from a backwater analysis.	5
Backwater level	Hyd	The water surface elevation at a particular location in a backwater.	2*
Backwater profile	Hyd	The longitudinal water surface profile resulting from a backwater analysis.	5
Baffled pit	Sto	A modified stormwater pit fitted with baffles that are specifically designed to encourage heavy sediments and floating debris to remain in the pit. Also known as a CATCH BASIN or TRAPPED STREET GULLY.	31*
Bailer	Min	A device used to withdraw a water sample from a small diameter well or piezometer. A bailer typically is a piece of pipe attached to a wire with a check valve in the bottom.	58
Bank	Eng	An embankment formed from fill.	2*
	Wwy	The slope bordering the bed of a watercourse or channel along which water normally runs.	2*
Bankfull	Wwy	A water surface elevation estimated by various procedures that describe the channel flow condition preceding significant overbank flow. If *benches* are well established within the channel, then significant *overbank flows* might occur prior to the inundation of the floodplain. To avoid erroneous and/or highly variable results, bankfull elevation should not be determined by the shape of a single cross-section, but with observations made	5

		along a length of the channel.	
Bankfull discharge	Wwy	The channel flow rate that exists when the water surface is level with the channel bank elevation above which the water would spill out of the channel or begin to enter the floodplain. Bankfull discharge is often used as one of the critical design parameters in Natural Channel Design and sediment transport calculations. The frequency of bankfull conditions will vary according to climate regions. Also known as BANKFULL FLOW.	5
Bankfull discharge	Wwy	The channel flow rate that exists when the water surface is level with the channel bank elevation above which the water would spill out of the channel or begin to enter the floodplain. Bankfull discharge is often used as one of the critical design parameters in Natural Channel Design and sediment transport calculations. The frequency of bankfull conditions will vary according to climate regions. Also known as BANKFULL DISCHARGE.	5
Barrage	Eng	An artificial obstruction in a watercourse used to increase the depth of the water, facilitate irrigation, and similar.	11*
Barrel	Eng	**1.** A conduit placed through a dam, levee, or dike to control the release of water.	7
	Eng	**2.** The individual flow conduit of a culvert between the end walls. Also known as a CELL.	2*
Barrier	Eco	An obstruction to fish passage.	5
	Eng	Any constructed impediment to the flow of surface water, such as a flow diversion bank, normally placed along or slightly off the contour. Typically used as a temporary measure to divert overland flows away from a workplace or unstable ground, or as a permanent measure to divert flows to a stable outlet.	43*
Barrier kerb	Eng	A kerb high enough to prevent or discourage driving off the carriageway. Barrier kerbs are of interest in the stormwater industry due to their potential to interfere with the passage of floodwater over roadways. Also known as a NON-MOUNTABLE KERB.	2*
Base drain	Eng	A drainage system consisting of a pervious aggregate layer placed between an upper sealed surface (such as a paved area) and an underlying impervious base course.	5
Base flow	Hyd	The stream flow rate that cannot be directly attributed to storm events. It includes any regular, long-term inflows such as environmental flows from regulated lakes or reservoirs. The flow rate is usually not constant, but varies with groundwater levels and long-term weather conditions. Also known as DRY WEATHER FLOW.	7*, 15*
Basin	Geo	A hollow or depression within which water can be contained.	43
	Eng	A constructed water storage area used to attenuate stormwater runoff and flood flows, e.g. retention basins	5

		and the detention basins.	
	Esc	A sediment retention pond formed through excavation and/or the formation of an embankment. More commonly known as a sediment basin when used as a temporary sediment control measure, or a sedimentation basin when operated as a part of a permanent stormwater treatment system.	5
Basin lag	Hyd	**1.** The time lapse from the centroid of the rainfall hyetograph to the peak of the outflow hydrograph of a drainage catchment (basin).	48*
	Hyd	**2.** A parameter used in Snyder's synthetic unit hydrograph method.	48*
Basket	Sto	A steel mesh collection device placed in gully pits or gross pollutant traps to collect debris and other large stormwater pollutants.	15*
Batter (noun)	Eng	**1.** The side slope of a dam wall, embankment or cutting.	43*
	Eng	**2.** The degree of a slope, expressed as a ratio of horizontal (X) to vertical (1). May also be described in terms of X:1 (horizontal:vertical) or 1 in X. (Compare with *Grade*. A 10 to 1 batter has a *grade* of 0.1 or 10%.)	2*
Batter (verb)	Eng	To form a uniform side slope to a wall, bank or cutting.	2*
Batter chute	Eng	A temporary or permanent structure designed to convey concentrated storm runoff down a cut or fill embankment without causing erosion.	43*
Beaching	Wwy	A layer of loose rock placed against a slope to protect it against wave action or other water erosion. Also known as ROCK BEACHING.	2*
Bed	Wwy	The horizontal or near-horizontal section of a channel located between its banks, or the lower banks, if there is more than one set of banks. The bed of a channel may incorporate a low-flow channel, which typically meanders across the bed.	5
Bedding	Eng	A layer of suitable material placed on a foundation to provide uniform support for a structure such as a pipe or culvert.	2*
Bedform	Wwy	The topography of a channel bed identifying the macro irregularities. Characteristic bedforms within alluvial channels include ripples, dunes and antidunes.	11*
Bedload	Wwy	Sediment transported by rolling, sliding and saltation (hopping) motion along a channel bed as a result of the stream flow, whether the result of normal stream flow or higher flows.	11*
Bed trap	Wwy	A structure designed to intercept and retain sediment carried by bedload processes, i.e. rolling, sliding and saltation motion.	15*
Bench	Geo	A flat, terrace-like tract of land on a valley slope above the stream bed, or along a coast above the level of a sea or lake.	9
	Eng	**1.** A ledge cut or formed in the batter of a cutting or bank to provide greater security against slips, to collect and convey stormwater runoff laterally along the bank, or to provide maintenance access. When used to intercept	2*

		and convey stormwater runoff, the bench normally slopes in towards the bank. Also known as a BERM.	
	Eng	**2.** A step or working elevation in a mine.	9
	Wwy	A low-level bank (or shoulder) located below the top of the main bank typically formed by sediment deposits rather than by erosion.	5
Benching	Eng	The process of forming a bench or a series of benches within a batter, cutting or bank.	5
Benthic	Gen	Relating to the benthos, bed or substratum of a lake or pond.	50*
	Eco	Relating to organisms living in or on the sediments of aquatic habitats (lakes, rivers, ponds, and so on).	23*
Benthos	Gen	Bottom-dwelling organisms.	34*
	Eco	The sum total of organisms living in, or on, the sediments of aquatic habitats.	23
Berm	Eng	A ledge constructed at one or more levels between the top and bottom of a batter with the purpose of intercepting runoff and reducing slope instability. Also known as a BENCH.	4*
	Esc	A self-supporting, low-level embankment or flow diversion bank used for erosion and/or drainage control to collect up-slope stormwater runoff and direct it to a stable outlet. Typically made from impervious or slightly pervious material such as earth, concrete or compacted compost. Some commercial products allow a berm to be formed within a geotextile membrane.	5
Berm drain	Eng	A drain along a constructed ledge between the top and bottom of a batter.	4
Best management practice (BMP)	Eng	Any program, technology, process, siting criteria, operating method, or device recognised as best practice when assessed against those processes currently used nationally and internationally.	5
	Sto	Any program, technology, process, siting criteria, operating method, or device implemented to protect water quality and reduce potential for pollution associated with storm water runoff.	38*
Best practice environmental management	Gen	The management of an activity in a manner that achieves ongoing minimisation of environmental harm through cost-effective measures assessed against the measures currently used nationally and internationally for the activity.	43*
Billabong	Wwy	A river meander that has been cut off and becomes isolated from the main channel.	3
Bio-accumulation	Eco	The process by which chemical substances are accumulated by aquatic organisms either directly from the water or through consumption of food containing the chemicals.	23*
Bioassay	Eco	A test used to evaluate the relative potency of a chemical by comparing its effect on a living organism with the situation of a control that is run under identical conditions but without the test chemical.	23*

Bioavailable	Eco	Relating to the fraction of the total chemicals in the surrounding environment that can be taken up by organisms. The environment may include water, sediment, suspended particles, and food items.	23
Biochemical oxygen demand (BOD)	Sci	The oxygen consumption (respiration) resulting from bacterial breakdown of organic material or as a result of some inorganic oxygen reducing species. Specifically, BOD is the decrease in oxygen content in a sample of water (mm/L) in the dark at a certain temperature over a certain period of time, which is brought about by the bacterial breakdown of organic matter. BOD is usually measured over a period of 5 days (BOD_5), at which time 70% of the final value has usually been reached.	23*
Bioconcentration	Eco	**1.** The process by which there is a net accumulation of a chemical directly from water into aquatic organisms resulting from simultaneous uptake (eg. by gill or epithelial tissue) and elimination.	23
	Eco	**2.** The net accumulation by organisms of a substance, directly from water via simultaneous uptake and elimination.	34*
Bioconcentration factor (BCF)	Eco	A dimensionless value describing the degree to which a chemical can be concentrated in the tissues of an organism in the aquatic environment. At apparent equilibrium during the uptake phase of a bioconcentration test, the BCF is the concentration of a chemical in one or more tissues of the aquatic organisms divided by the average exposure concentration in the test.	23*
Biodegradable	Gen	Relating to the ability to be broken down by action of living organisms, especially bacteria.	57
Biodegradation	Eco	The process of decomposition of biological substances into more elementary compounds by the action of micro-organisms, usually bacteria and fungi.	34*
Biodiversity	Eco	**1.** The biological diversity or the variety of all life forms, comprising genetic diversity (within species), species diversity and ecosystem diversity.	62*
	Eco	**2.** The extent of the diversity of species of vegetation and wildlife in a given habitat.	43*
Biofilm	Eco	A gelatinous sheath of algae, polysaccharides and microorganisms (including benthic algae and bacteria) formed on gravel and sediment and surfaces of large plants, that adsorbs colloids and nutrients. Biofilm typically contains a diverse and abundant array of microfauna and micro-flora.	15*
Biofilter	Sto	See BIOFILTRATION SYSTEM.	
Biofiltration	Sto	The process of filtration and/or infiltration through a biological filter, including its growing media. The key components are biological uptake or treatment, and water filtration or infiltration.	5
Biofiltration system	Sto	A stormwater treatment swale or shallow detention system that combines vegetative filtration, soil infiltration	5

		and sub-surface filtration through a filter medium. The vegetation cover enhances the surface filtration process and delays the blockage of the sub-surface filter. Stormwater treatment processes include filtration, infiltration, adsorption, ion exchange, and biological uptake of pollutants. Biofiltration practices include swales, buffer strips, sub-surface flow wetlands, and those bioretention systems that incorporate filtration or infiltration as a significant part of the treatment process.	
Biological decomposition	Eco	The separation or resolution into constituent parts or elements through biological activity.	5
Biological degradation	Sto	The breakdown of complex compounds into simple ones through biological activity.	5
Biological filter	Sto	A filtration media or process that incorporated living matter as part of the treatment process.	5
Biological integrity (of water)	Eco	The ability of a body of water to support and maintain a balanced, integrative, adaptive community of organisms having a species composition, diversity and functional organisation comparable to that of the natural habitat of the locality in which the water is situated.	18*
Biological nutrient removal	Wat	A process in wastewater treatment in which nutrient levels in the water are reduced to environmentally acceptable levels by biological activity.	57*
Biological oxygen demand		The oxygen consumption (respiration) resulting from bacterial breakdown of organic material or as a result of some inorganic oxygen reducing species. Also known as BIOCHEMICAL OXYGEN DEMAND.	23*
Biological treatment	Wat	Any method of water treatment in which bacterial or biochemical action is intensified as a means of improving the quality of water.	57*
Biological uptake	Sci	A process by which materials are absorbed and incorporated into organic matter.	5
Biomagnification	Gen	The increase in toxicity of a chemical as a result of tits process along a food chain.	9
	Eco	The result of the processes of bioconcentration and bioaccumulation by which tissue concentrations of bioaccumulated chemicals increase as the chemical passes up through two or more trophic levels. The term implies an efficient transfer of chemicals from food to consumer, so that residue concentrations increase systematically from one trophic level to the next.	23
Biomass	Eco	The total mass of living organisms within a given volume or area.	3*
Biomass uptake (assimilation)	Eco	The uptake of ions from soil by aquatic plants through root systems, limited uptake directly from water, and uptake by algae. Typical pollutants assimilated include metals, phosphorus and nitrogen.	28*
Biomonitoring	Eco	The act of monitoring the biodiversity of selected biological groups or families, and comparison to a reference site of a similar ecosystem, used as a measure of ecosystem health.	15*
Biopod	Sto	A small, well-defined bioretention system normally	53

		incorporated into street landscapes.	
Bioretention	Sci	A process by which stormwater pollutants are absorbed and incorporated into organic matter.	5
	Sto	A stormwater retention process by which stormwater pollutants are absorbed, modified (treated), or incorporated into organic matter. The *retention* component of the system involves retaining all or a portion of the processed water for an extended period after the storm. The key components are biological uptake or treatment, and water retention. It is the *retention* component of the process, and the possible absence of significant infiltration/filtration, that distinguishes bioretention systems from some biofiltration systems.	5
Bioretention area	Sto	See *Bioretention system*.	
Bioretention cell	Sto	See *Bioretention system*.	
Bioretention system	Sto	A well-vegetated, open water retention cell, pond or basin designed to enhance the degree of water filtration through a specially prepared sub-surface filter medium. Typically formed in grass or vegetated swales through the inclusion of regularly spaced flow control barriers such as check dams or elevated driveway culvert crossings. Essentially the system requires the integration of vegetation, medium-term stormwater retention, and sub-surface filtration or infiltration. Also known as biofiltration systems or biofilters; however, medium-term retention of the stormwater must be a component of such systems in order for the term *bioretention* to be applicable.	35*
Biota	Gen	The total animal and plant life of a region or period in time.	9*
Bioturbation	Eco	The process by which organisms physically disturb sediments by burrowing and other activities.	23*
Blackwater	Res	Wastewater containing human, animal or plant waste.	57*
Blanket (geotextile)	Esc	A surface-laid geotextile primarily used in areas of sheet flow to control soil erosion.	5
Bloom	Eco	An unusually large number of organisms per unit of water, usually algae, made up of one or a few species.	23
Blue-green algae	Eco	A type of naturally occurring, microscopic, primitive photosynthetic bacteria. Also known as CYANOBACTERIA.	3
BMP	Gen	The abbreviation for best management practice, any program, technology, process, siting criteria, operating method, or device recognised as best practice when assessed against those processes currently used nationally and internationally.	5
	Sto	Any program, technology, process, siting criteria, operating method, or device implemented to protect water quality and reduce potential for pollution associated with storm water runoff.	50*

BNR	Wat	The abbreviation for biological nutrient removal, a process in wastewater treatment in which nutrient levels in the water are reduced to environmentally acceptable levels by biological activity.	
BOD	Sci	The abbreviation for biochemical oxygen demand, The oxygen consumption (respiration) resulting from bacterial breakdown of organic material or as a result of some inorganic oxygen reducing species. Specifically, BOD is the decrease in oxygen content in a sample of water (mm/L) in the dark at a certain temperature over a certain period of time, which is brought about by the bacterial breakdown of organic matter. BOD is usually measured over a period of 5 days (BOD_5), at which time 70% of the final value has usually been reached.	23
Boom diversion system	Sto	A system that employs a vertically hinged floating boom located in the stormwater flow path primarily designed to capture floating material. Under low to medium flow conditions, the boom diverts all of the flow to an off-line pollutant retention chamber. Floating pollutants are trapped in the chamber using a similar trapping technique to that used in baffled pits, while heavy pollutants sink to the bottom of the chamber. Under high flow conditions, the boom raises and deflects only buoyant items.	31*
Bore	Eng	A drilled hole lined with tubing (usually steel or PVC) that allows the inflow of groundwater at depth.	34
	Hyd	An abrupt rise in water level (i.e. a wave) that occurs at the leading edge of a flood tide within certain narrowing estuaries and tidal channels.	9*
Bottom	Wwy	The lowest or deepest surface within a channel.	30*
Bottom outlet	Eng	An opening near the bottom of a water retention structure used for draining the reservoir and/or the flushing-out of sediments.	11*
Boulder	Eng	A rounded or sub-angular stone or piece of rock of large size, usually larger than 300mm.	2
	Wwy	A type of granular bed or bank material larger than 250mm (maximum cobble size) in equivalent diameter.	56*
Box culvert	Eng	A culvert of rectangular cross-section.	2
Box drain	Eng	A small drainage structure of rectangular cross-section.	2
Brackish	Gen	Relating to a slightly salty content or briny flavour.	9*
Branch drain	Sto	The system of channels, pipes and overland flow pathways that drain to the main drain or collector drain.	15*
Bridge	Eng	A structure spanning a river, chasm, road or the like, and affording passage.	9
Brine	Gen	Strongly salted water.	57
Broadcast seeding	Agr	Any method of planting seed that scatters the seed in random pattern on the surface of the soil.	43*
Broad-crested weir	Hyd	A weir with a flat crest long enough, in the direction of flow, to permit parallel, or near-parallel, flow across the	11*

		weir. This usually occurs where the ratio of crest length (in direction of flow) to upstream head is greater than 1.5 to 3. If the crest is long enough, the pressure distribution along the crest is hydrostatic allowing critical depth to occur on the crest of the weir.	
Brook	Wwy	A small natural stream of fresh water.	9
Brownfield	Eng	An existing or potential urban development site that has had previous development on it.	45*
Buffer	Esc	A wide vegetative area of land through which sediment-laden water flows as sheet flow, allowing the capture and retention of some of the sediment. The term BUFFER ZONE is more common within the erosion and sediment control industry.	5
	Sto	The potential pollutant retention area between a place where contaminants are stored or sourced, and a gutter, drain or water.	18*
	Sci	A solution containing a weak acid and its conjugate weak base, the pH of which changes only slightly on the addition of acid or alkali.	23
Buffer strip	Wwy	A buffer zone with a length significantly greater than its width, usually located along a linear feature such as a watercourse.	5
Buffer zone	Geo	A corridor of vegetation that separates disturbed land from an adjacent watercourse, protected bushland or other sensitive areas.	5
	Eng	A corridor of vegetation that separates the edge of a stream or drainage channel and an adjacent land use activity. The buffer may incorporate wildlife corridor benefits, act as a separation barrier between two conflicting land uses, or provide pollutant retention and treatment benefits for overland and/or subsurface flows passing through the buffer.	15*
	Esc	A significant area of vegetation containing at least 70% ground cover which allows overland flow to pass as sheet flow through the buffer area without the concentration of flow. Primarily used as a coarse sediment and/or pollutant filter.	5
	Wwy	The corridor of native vegetation along the edge of a waterway or wetland that is intimately linked with the waterway.	52*
Building	Eng	A structure with a roof and walls, or a portion of such a structure, whether temporary or permanent, movable or immovable, including examples such as a habitable room; a commercial office or structure; a factory or warehouse; a basement providing car parking space, building services or equipment; or an enclosed car park or enclosed garage.	24*
Buttress dam	Eng	A special type of dam in which the upstream face consists of a series of slabs or arches supported on their downstream faces by a series of buttresses.	11*
Byewash	Eng	The ancient name for a spillway, i.e. channel to carry waste waters.	11

Bypass flow	Eng	That portion of the flow on a road or in a channel that is not collected by a gully inlet or field inlet, and which is redirected out of the system or to another inlet in the system.	24*
	Esc	That portion of the flow redirected out of a system, or around a device (such as a sediment trap or stormwater treatment system) such that the bypassed flow does not pass through, or is treated by, the device.	5
Bypass system	Sto	A hydraulic system which enables a flow to temporarily bypass a stormwater facility to allow maintenance works.	30*
Bywash	Eng	A spillway on a rural farm dam.	5
Bywash spillway	Eng	A spillway that conveys water away from or around an embankment. Its control section is generally trapezoidal in cross-section and leads to either a diversion channel, or spills directly onto the natural ground surface by way of a sill (level sill spillway).	4*

Term	Code	Definition	Source
Calcareous	Gel	Material, especially soil and rocks, containing calcium carbonate (and often magnesium carbonate) and usually having an alkaline pH.	43
Calgon	Sol	A chemical dispersant used to provide a control in the soil dispersion percentage test.	34
Calibration	Hyd	The process of adjusting model parameters so that model output adequately reflects observed field data.	5
Canal	Gen	A long, narrow arm of the sea which extends far inland, or a channel constructed to allow the passage of boats or ships inland, for example, the Suez Canal.	9*
	Eng	**1.** A channel usually of uniform or near-uniform cross-section constructed to convey water for water supply or irrigation. Very occasionally used to mean drainage channel.	45*
	Eng	**2.** A long, narrow, artificial arm of the sea constructed to allow navigable passage to inland areas, such as in a residential CANAL ESTATE.	5
Canal estate	Eng	An urban area and associated canals in proximity to the sea that has been constructed to provide waterfront properties.	5
Capacity (hydraulic)	Hyd	The maximum storage volume of a hydraulic structure. Occasionally used to mean maximum discharge capacity.	5
Capillary water	Sol	Water drawn upwards into soil pores and held by surface tension.	43
Capillary zone	Gel	The zone immediately above the water table where water is drawn upward by capillary attraction.	58
Capture trench	Min	A trench excavated to below the level of the watertable to allow the drainage of groundwater.	58*
Carcinogen	Eco	A substance that induces, or tends to induce, cancer in a living organism.	23*
Carcinogenic	Gen	Relating to any substance deemed to be a cause of cancer.	5
Cascade	Top	A succession of small drops on a watercourse that is intermediate in fall between rapids and a waterfall. The slope is steep enough to allow a succession of small drops, but not sufficient to cause the water to drop vertically, such as in a waterfall.	11*
	Eng	A constructed channel consisting of a series of steps, for example, a stepped fountain, a staircase chute, or stepped drop structure.	11*
Cataract	Top	A series of rapids or waterfalls, usually used in the context of major rivers, for example, the six cataracts of	11*

		the Nile River between Khartoum and Aswan.	
Catch bank	Esc	An excavated earth drain with an associated down-slope embankment formed from the excavated material.	5
Catch basin	Sto	A modified stormwater pit fitted with baffles that are specifically designed to encourage heavy sediments and floating debris to remain in the pit. Also known as a BAFFLED PIT or TRAPPED STREET GULLY.	31*
Catchbasin	Sto	A combined stormwater inlet and junction pit (USA).	5
Catch drain	Eng	A minor drainage channel constructed along the high side of a road or embankment, outside the batter, to intercept surface water.	2*
	Esc	A minor excavated drain, either temporary or permanent, used for such purposes as to: • limit the travel path of overland flow, to prevent or reduce soil erosion (particularly rill erosion) on exposed slopes; • divert up-slope runoff around disturbed areas to prevent the contamination of this runoff, and reduce soil wetness and erosion within the isolated area; • collect contaminated flow from within a disturbed area and direct it to a sediment trap; and • divert up-slope runoff around stockpiles of erodible material. Earth excavated to form the drain can be placed down-slope of the excavation to form a stable embankment, thus increasing the effective hydraulic capacity of the catch drain. The combined drain and embankment is also known as a CATCH BANK.	5
Catchment	Hyd	That area of land from which stormwater runoff contributes to stream flow at the most downstream point of the catchment. Also known as a DRAINAGE BASIN, DRAINAGE CATCHMENT, and WATERSHED (USA).	5
Catchment area	Hyd	The area (in plan view) of the drainage catchment. Usually measured in hectares (ha) or square kilometres (km^2).	5
Catchment basin	Hyd	See CATCHMENT.	
Catchment storage	Hyd	The volume of surface storage within a drainage catchment that collects and temporarily retains stormwater runoff, excluding in-channel and floodplain storage volumes. This can include ponds, dams, lakes and constructed detention/retention basins.	5
Catchment wetness index	Hyd	A measurement of catchment conditions before a rainfall event.	17
Catchment yield	Hyd	The volume of water that flows from a catchment past a given point (such as a stream gauging station). Typically calculated on an annual basis, but can be assessed over a defined period or a single storm. It comprises surface	19*

		runoff and base flows.	
Catch pit	Sto	A stormwater inlet or junction pit with a depressed base that accumulates coarse sediment. Can also incorporate a trash screen and/or oil skimmer.	5
Cation	Sci	A positively charged ion that is attracted to the cathode during electrolysis.	34*
Cation-exchange capacity (CEC)	Sol	The total amount of exchangeable cations that a soil can absorb, expressed in centimoles of positive charge per kilogram of soil. Cations are positive ions such as calcium, magnesium, potassium, sodium, hydrogen, aluminium and manganese, these being the most important ones found in soils. Cation exchange is the process whereby these ions interchange between the soil solution and the clay or organic matter complexes in the soil. The process is very important as it has a major controlling effect on soil properties and behaviour, stability of soil structure, the nutrients available for plant growth, soil pH, and the soil's reaction to fertilisers and other ameliorants added to the soil.	4
Causeway	Gen	A raised road or path constructed across low, wet ground or across tidal water.	9*
	Eng	A raised carriageway constructed across a watercourse or tidal waterway. The term most commonly refers to watercourse crossings where the culvert has a relatively small cross-sectional area compared to that of the raised embankment, the culvert is abutted on one or both sides by a raised roadway embankment of significant length, or a raised embankment crossing that has no low-flow culvert.	5
Cell	Eng	The individual flow conduit of a culvert between the end walls. Also known as a BARREL.	5
Centrifugal pump	Eng	**1.** Any pump in which fluid is pressurised by a rotating impeller, whether the flow is radial, axial, or a combination of both (mixed).	48*
	Eng	**2.** A radial flow pump (Europe).	48*
Channel (none)	Gen	**1.** That part of a drain or watercourse confined by its bed and banks.	5
	Gen	**2.** A well-defined deepwater passageway within a navigable channel, whether natural or constructed, such as a dredged shipping channel.	5
	Gen	**3.** A navigable route between two bodies of water, such as the English Channel between the Atlantic Ocean and the North Sea.	9*
	Eng	A natural or constructed open conduit with well-defined sides (banks). Used to transport fluid.	5

	Wwy	That part of a watercourse located between the top of each bank, or the top of the bank located immediately adjacent a floodplain if there is more than one bank on a given side of the watercourse.	5
Channel (verb)	Gen	To convey a fluid along a channel.	9*
Channel capacity	Eng	The maximum flow rate or discharge of water along a channel just prior to it spilling over its lowest bank. Channel capacity can vary depending on surface roughness conditions at any given time.	5
Channel complexity	Eng	**1.** The complexity of a channel's cross-section (that is, the irregularity of the cross-section or the number of benches).	5
	Eng	**2.** The variability of a channel's roughness within a given cross-section.	5
Channel freeboard	Eng	The vertical distance between the design water surface elevation in an open channel, and the elevation of the top of the channel bank.	24*
Channelise	Eng	The act of modifying a landform such that all or part of the overland flow is forced to flow within a channel.	5
	Wwy	The act of modifying a natural channel to increase its capacity and/or reduce its irregularity or sinuosity.	5
Channel lining	Eng	Material placed on, or incorporated into, the inner surface of a channel or chute, usually to protect the channel from erosion. May also be aesthetic, ecological, affect hydraulic capacity, or relate to operational and maintenance issues.	5
Channel stabilisation	Eng	The process of either modifying the channel surface (eg revegetation), or using a channel lining (e.g. rock lining) to stabilise a channel against the forces of flow or gravity.	5
Channel stability	Eng	A measure of a channel's resistance to erosion, displacement or damage by the forces of flow or gravity.	5
Charophytes	Eco	A class of algae (commonly known as green algae).	3
Check dam	Esc	Small, regularly spaced, flow control structures that reduce the velocity of water in drains by "damming" the water and so increasing the flow depth. Typically used to control soil erosion in newly formed drains, and/or to act as minor sediment traps. The dams may be constructed from semipervious or impervious materials, including timber, rock, sand/gravel bags or synthetic mesh.	6*
	Sto	A permanent flow control structure placed intermittently along a bio-retention cell to increase the effective flow depth, thus increasing infiltration and the water–vegetation contact time.	5
Check structure	Eng	A permanent grade control structure installed in a channel or gully to check (arrest) a worsening bed erosion problem, such as a migrating head-cut.	5
Check valve	Eng	A directional control valve that allows liquid to flow in only	5

		one direction.	
Chelate	Sci	The type of coordination compound in which a central metal ion is attached by coordinate links to two or more non-metal atoms (ligands) in the same molecule.	23*
Chemical antagonism	Eco	A process that results in a total mixture of chemicals being less toxic than would be expected from a simple summation of the toxicities of the individual chemicals in the mixture (i.e. algebraic subtraction of effects).	23*
Chemical coagulation	Res	The process of adding a chemical (coagulant) to water to cause fine or colloidal dispersed particles to combine in order to remove them by sedimentation or filtration.	57*
Chemical nutrient removal	Res	The chemical process for removing nutrients from water.	57*
Chezy coefficient	Hyd	The resistance coefficient for open channel flows first introduced by A. Chezy. The coefficient is a function of the relative roughness and Reynolds number.	11*
Chloramination	Wat	The process of disinfecting water with a mixture of chlorine and ammonia.	57*
Chloramine	Wat	The compound formed by the reaction of hypochlorus acid with ammonia.	57*
Chlorination	Wat	The application of chlorine to water, sewage or industrial wastewater for disinfection or other biological or chemical results.	57
Chlorophyll	Bot	The green pigment in plants. Used as a measure of algal biomass.	50
Choke	Hyd	A channel contraction that obstructs the flow and induces the appearance of critical flow conditions. Also known as a CONTROL SECTION.	11*
Chronic	Eco	Relating to a stimulus that is lingering or continues for a long time from several weeks to years, depending on the reproductive life cycle of the species. Can be used to refer to either the exposure or the response to an exposure (effect). Chronic exposure typically induces a biological response of relatively slow progress and long continuance.	23*
Chronic value	Eco	The measure of the geometric mean of the lower and upper limits obtained from an acceptable chronic test or by analysing chronic data using a regression analysis. A lower chronic limit is the highest tested concentration that did not cause an unacceptable adverse effect on any of the specified biological measurements, and below which no tested concentration caused unacceptable effect. An upper chronic limit is the lowest tested concentration that did cause an unacceptable adverse effect on one or more biological measurements and above which all tested concentrations also caused such an effect.	23*
Chute	Hyd	A steeply inclined section between the inlet and outlet of	4*

		a flume, or other similar hydraulic structure, that conveys the flows directly from one level to another.	
	Esc	A short open channel that conveys water down a steep slope, e.g. the spillway of a sediment basin.	5
	Sto	A permanent drainage structure designed to convey concentrated storm runoff down the face of an embankment without causing erosion.	43*
	Wwy	A steep section of a river or a steep channel used to convey materials.	9*
Chute spillway	Hyd	A spillway with a chute for its control section. Where a chute spillway incorporates a drop structure at its inlet, it is referred to as a drop inlet chute spillway.	4
Circular screens	Sto	A circular debris screen, usually contained in an enclosed chamber, which separates gross pollutants from stormwater passing through the chamber. Separated solids are kept in continuous motion by the momentum of the incoming flow, thus reducing the risk of debris blockage of the screen blockage.	31*
Circular settling tank	Sto	A primary treatment system, circular in plan view, usually used to settle gross pollutants in stormwater. Some systems can retain oil and trap floating materials. The tank can be divided into a series of chambers specifically designed to remove and retain different pollutants, such as coarse pollutant, floating pollutants, sediment, oils and grit.	31*
Cladoceran	Eco	Zooplankton (Water flea) belonging to the fourth order of the Branchiopoda, the Cladocera. Commonly found swimming in standing inland water.	23*
Clarification	Res	The process by which particles are settled out in a large quiescent tank that releases clearer water as effluent. Also known as SEDIMENTATION.	57
Clay	Sol	**1.** Soil material consisting of mineral particles smaller than 0.002mm in equivalent diameter. This generally includes the chemically active mineral part of a soil. The 3 broad classes of clay type are recognised, namely montmorillonite, kaolinite and illite.	4*
	Sol	**2.** A soil texture group containing at least 35 per cent clay and no more than 40 per cent silt.	4
Clay loam	Sol	A soil texture group comprising a well-graded soil of approximately equal parts by weight of clay, silt and sand. A bolus formed in the hand can be easily rolled to a thread 3 to 4mm thick, but it will have a number of fractures along its length. The soil becomes plastic, capable of being moulded into a stable shape. Clay content is approximately 30%.	4*
Clay-based stream	Wwy	A watercourse where clayey soils are dominant within the stream channel.	5

		In this type of watercourse, stability is usually dominated by the existence of bed and bank vegetation. In their natural condition there is usually little if any sediment flow along the creek during most flood events within minor (i.e. non-river) stream.	
Clean water	Gen	Water, (fresh, brackish or saline) that is free of contaminates.	5
	Esc	Surface runoff that has not been contaminated by a given work site, or by the actions of a construction or building activity.	5
	Min	Surface runoff that has not picked up any solid or dissolved pollutants from disturbed or contaminated surfaces.	58*
Clearing	Esc	The process of removing vegetation and debris from an area to prepare it for future works.	5
	Wwy	The removal of vegetation, structures or other objects from a watercourse or floodway.	43*
Climate	Gen	The prevailing weather conditions of a region, including temperature, pressure, humidity, precipitation, sunshine, cloudiness, and winds, averaged over years.	9*
Climate change	Met	Changes in climate attributed directly or indirectly to human activities that have altered the composition of the Earth's atmosphere.	26*
Climatological data	Gen	Data relating to local climate conditions as averaged over a series of years.	5
COAG	Gen	Council of Australian Governments.	
Coagulant	Esc	A substance that produces coagulation.	9
Coagulation	Esc	The process of converting a colloidal or finely divided suspension of particulate matter into particles that settle.	23*
Coastal erosion	Coa	An erosion process in which soil is detached and transported from the land by the action of ocean waves and/or currents.	4*
Coastal plain	Lfm	A complex landform adjacent to the coast that is level to very gently inclined. The plain is formed by the deposition of material from overbank stream flow, overland sheet flow and marine inundation.	43*
Cobble	Eng	A water-worn rounded stone usually measuring 75 to 300mm.	2*
	Wwy	Granular bed or bank material measuring 10 to 250mm equivalent diameter.	56*
Coefficient of discharge	Hyd	A dimensionless calibration coefficient used in the Rational Method to calculate the peak rate of storm runoff for a given design ARI. The coefficient is not directly related to the volumetric runoff coefficient. Also known as the COEFFICIENT OF RUNOFF, DISCHARGE COEFFICIENT, and DISCHARGE COEFFICIENT OF RUNOFF.	5

Coefficient of runoff (discharge)	Hyd	See COEFFICIENT OF DISCHARGE.	
Coefficient of runoff (volumetric)	Hyd	The ratio of the amount of water that runs off a catchment to the amount that falls on the catchment. Also known as the VOLUMETRIC RUNOFF COEFFICIENT.	2*
Cofferdam	Eng	A watertight enclosure constructed in watercourses and then pumped dry so that bridge foundations or similar may be constructed in the open. Typically incorporates two cofferdams forming the dry chamber in which channel works are performed.	9*
Cohesive sediment	Sol	Sediment material with small particles (i.e. less than 50:m) in which cohesive bonds between particles (e.g. intermolecular forces) are significant and affect the material's properties.	11*
Cohesive soil	Sol	A soil whose relevant behaviour characteristics are derived largely or entirely from the cohesive bonds associated with the fine fraction.	43
Collector drain	Sto	A channel, pipe or overland flow pathway that collects runoff from branch drains and passes it to the main drain.	5
Colloid	Eco	Fine abiotic and biotic particles typically 0.1:m to 1ηm in diameter.	15
	Sol	A state of matter that is between a true solution and a suspension, in which the material is typically 0.1:m to 1ηm diameter. Colloids (colloidal particles) cannot settle out of a circulating medium through the force of gravity.	23*
Colloidal material	Sol	The finest clay and organic material, with a particle size generally less than 0.001mm diameter. This material is made up of the finest particles removed by erosion. They remain permanently in suspension, unless subject to coagulation.	4*
Colluvial	Gen	Material mostly transported by gravity.	4*
Colluvium	Sol	Loose and incoherent deposits, usually at the foot of a slope or cliff line and deposited by gravity.	9*
Colour	Wat	The colour of water from which turbidity (suspended matter) has been removed. Colour in water may result from the presence of natural metallic ions (e.g. iron and manganese), humus and peat materials, plankton (algae), weeds or industrial wastes.	57*
Combined drain	Eng	A drain that functions as a surface water drain and as a subdrain. Several combinations are possible including: combined base drain and subdrain; and combined subdrain and stormwater drain.	14*
Combined sewer	Eng	A sewer designed to carry foul sewage and surface runoff in the same pipe or channel.	17
Combined system	Sto	A conduit designed to carry both sewage and stormwater during normal operation conditions (i.e. excluding those systems that carried combined flow during surcharge or	5

		flood conditions).	
Community	Eco	An assembly of organisms characterised by a distinctive combination of species occupying a common environment and interacting with one another.	23*
Compaction	Eng	The process of increasing the density of a material by removing air and compressing its particles. Optimum structural compaction of soils depends on the moisture content of the material.	4*
Compensation point	Eco	The depth at which assimilation and dissimilation are equal.	23
Completely mixed reactors	Sci	An ideal reactor in which the conditions are completely homogeneous throughout the reactor.	34
Complexation	Sto	The process of forming a compound by uniting a metal ion with a non-metallic ion or molecule called a ligand or complexing agent. Complex atoms are generally less available to biota.	23*
Complex outlet	Sto	The outlet of a hydraulic structure, e.g. a detention basin, that incorporates more than one type of outlet device or system. Each type of outlet device incorporated provides specific hydraulic properties at different flow rates to achieve the required complex stage-discharge relationship.	5
Composite channel section	Hyd	A cross section of a channel where the hydraulic roughness (i.e. Manning's roughness) varies across its width. Also known as a COMPOSITE CROSS-SECTION.	5
Composite cross-section	Hyd	A cross section of a channel where the hydraulic roughness (i.e. Manning's roughness) varies across its width. Also known as a COMPOSITE CHANNEL SECTION.	5
Compound channel section	Hyd	A cross section of a channel that has an irregular shape with sectors of deep and shallow flow such as a waterway channel with attached floodplain(s). Flow conditions within each sector are primarily influenced by a different value of hydraulic radius. Also known as a COMPOUND CROSS-SECTION.	5
Compound cross-section	Hyd	A cross section of a channel that has an irregular shape with sectors of deep and shallow flow such as a waterway channel with attached floodplain(s). Flow conditions within each sector are primarily influenced by a different value of hydraulic radius. Also known as a COMPOUND CHANNEL SECTION.	5
Concentrated flow	Hyd	A fluid flowing in a confined feature such as a channel, ditch, swale, or river, as opposed to a fluid flowing as *sheet flow*.	43*
	Sto	**1.** Stormwater flowing in a confined feature such as a channel, ditch, swale, or river; or stormwater discharged from a confined feature (such as a pipe) prior to the	5

		stormwater achieving *sheet flow* conditions.	
	Sto	**2.** Stormwater flowing at a greater discharge per unit width than would have naturally occurred, or prior to a specific human activity, for example, the way stormwater runoff enters a property after being confined by up-slope construction or land-reshaping.	5
Concentration	Gen	The measurement of one substance in another, e.g. milligrams per litre or parts per million.	34*
Conductivity	Wat	The ability of water to carry an electric current.	57
Conduit	Gen	A pipe, tube, or the like, used for conveying water or other fluid.	9*
Confined aquifer	Gel	An aquifer in which the upper surface is impervious and the water is held at greater than atmospheric pressure.	62
Confined sand filter	Sto	A sand filter housed inside an impervious chamber, typically a concrete chamber, where filtered stormwater either infiltrates from the sand filter into a sub-surface perforated drainage pipe, or passes into the surrounding earth through drainage slots in the wall(s) of the chamber.	5
Confluence	Wwy	The place where two or more streams meet and begin to flow together.	3*
Consequence	Gen	An outcome or impact of an event expressed qualitatively or quantitatively.	55*
Consistence	Sol	The strength of cohesion and adhesion in soil. Strength is determined by the force just sufficient to break or deform a 20mm diameter piece of soil when a compressive shearing force is applied between thumb and forefinger.	43
Consolidation	Eng	The process of increasing the density of a material through compaction or gradual drainage.	5
	Min	The process of reducing the volume of wet material, such as a slurry, by gradual drainage.	4
Constant energy structure	Hyd	A hydraulic structure designed to yield critical flow at all points for a particular discharge. At discharges greater than the design discharge choking will probably occur at the throat or barrel. Also known as MINIMUM ENERGY STRUCTURE or CRITICAL FLOW STRUCTURE.	32*
Constant loss rate	Hyd	An assumed maximum potential removal (loss) of water from the rate of rainfall to achieve a measure of stormwater runoff where the “rate of loss” is constant over a period of time within a given storm. Usually measured in units of mm/hr per unit catchment area. The assumed loss rate usually varies across the drainage catchment in accordance with known or assumed surface conditions.	5
Constructed pond	Sto	A small, artificial, low-velocity water body deeper than 2m containing zones of open water and zones of	50*

		macrophytes.	
Constructed wetland	Lfm	A wetland made by human skill and labour.	5
	Sto	A constructed shallow lake or pond, characterised by extensive areas of emergent aquatic plants/macrophytes, designed to support a diverse range of micro-organisms and plants associated with the breakdown of organic material and the uptake of nutrients. Constructed wetlands typically contain substantial areas of shallow water less than 500mm deep, but can also include areas deeper than 1m, referred to as the pond or lagoon. They may operate as permanent wet basins (perennial), or alternate between wet and dry conditions (ephemeral).	46*
Construction drainage plan (CDP)	Esc	A site drainage plan developed specifically for a given intermediate stage of a building or construction project. The plan identifies overland flow paths, areas of sheet and concentrated flow, flow entry and exit points, and flow paths of clean water and dirty water.	5
Construction flood	Eng	A flood of specified characteristics that is able to be diverted around or past a structure while it is under construction.	5
Contact time	Sto	The long-term average duration of contact between water and a given treatment process within a given water body or segment of a water body.	5
Contaminant	Eco	A toxic substance that is a health hazard to biota.	34
	Sto	A substance that renders matter impure by contact or mixing. Can be a gas, liquid or solid; an odour; an organism (whether alive or dead), including a virus; energy, including noise, heat radioactivity or electromagnetic radiation; or a combination of these. In stormwater, potential contaminants include nutrients, metals, biological organisms, temperature, dissolved oxygen, colour, turbidity, suspended sediments, leachate, hydrocarbons, and litter.	16*, 42*
Contamination	Gen	The act of contaminating biota with a contaminant.	9*
Continuing loss	Hyd	An assumed maximum potential removal (loss) of water from rainfall that occurs immediately after the removal of initial losses during the process of forming stormwater runoff.	5
Continuing loss rate	Hyd	The assumed rate of ongoing rainfall losses that occurs immediately after the removal of initial losses. The assumed loss rate usually varies across the drainage catchment in accordance with known or assumed surface conditions.	5
Continuous precipitation	Hyd	Rainfall characterised by gradual changes of intensity, usually associated with stratiform clouds that densely cover the whole sky. Applies to any precipitation that is not a shower or intermittent precipitation.	60*

Continuous simulation models	Hyd	A numerical model that simulates a long-term hydrologic process.	5
Continuously stirred tank reactor	Sto	A simple means of numerically describing mixing and the mass balance of pollutants within ponds and wetlands during rapidly changing storm discharge conditions.	50*
Control	Gen	An existing process, policy, device, practice or other action that acts to minimise negative risk, or enhance positive opportunities.	55
	Eco	A treatment in a toxicity test that duplicates all the conditions of the exposure treatments but contains no test material. The control is used to determine the absence of toxicity in the basic test conditions (e.g. health of test organisms, quality of dilution water).	23
	Hyd	A location or cross-section within an open channel where critical flow conditions occur and a fixed and definable relationship exists between the stage and the discharge. Subcritical flows are controlled by downstream flow conditions. Supercritical flows are controlled by upstream flow conditions.	11*
Control section	Hyd	A location or cross-section within an open channel where critical flow conditions occur and a fixed and definable relationship exists between the stage and the discharge. Also known as a CONTROL.	11*
Contour	Top	An imaginary line on the surface of the Earth connecting points of the same elevation. Such lines on maps portray the shape of the land surface.	4*
Contour bank	Rur	A bank constructed along the true contour forming a level channel that discharges at either or both ends depending on its design requirements. Typically used on grazing land. Also known as a LEVEL BANK.	4*
Contour ditch	Rur	A level excavated channel designed to hold and spread water on low slope country. The water accumulates and spreads along the length of the ditch, before spilling on a broad, even front. Typically used on marginal arable land of slope less than 3 percent, and constructed using a disc plough or grader blade. Normally dish-shaped in cross-section measuring approximately 150 to 300mm deep and 2 to 2.5m wide.	4*
Contour drain	Rur	A drain constructed along the contour.	4*
Contour furrow	Rur	A small level channel designed to hold water on moderately steep land. Typically constructed to increase the retention of rainfall on the land, thereby reducing runoff and erosion, and increasing pasture productivity. Most commonly formed at regular intervals down a slope with the interval being determined from soil properties, land slope and rainfall data.	4*
Contour ploughing	Rur	The process of ploughing horizontally along a contour.	43*

Control valve	Eng	A valve used in a conduit that can be partly opened to regulate flow or pressure. Also known as a FLOW CONTROL VALVE.	5
Converter	Eng	A length of drain constructed to provide a transition between two sections of a drain with different-shaped cross-sections.	2*
Conveyance	Hyd	A measure of the hydraulic properties of a channel defined by the expression, $K = Q/S_f^{1/2}$, where K is the conveyance of a channel, Q is the discharge, and S_f is friction slope (i.e. the rate of head loss due to boundary resistance).	32*
Conveyance structure	Sto	A pipe, open channel, or other facility that transports stormwater runoff from one location to another.	13*
Copepods	Eco	Crustaceans of the sub-class Copepoda. A diverse and large group of small animals that are most commonly found in freshwater and marine situations.	3*
Core	Eng	The central compacted mass of impervious soil material in an earth embankment that prevents seepage.	4*
Core trench	Eng	The excavation filled with impervious core material in the construction of an earth embankment.	4*
Coriolis coefficient	Hyd	A factor (α) when multiplied by the velocity head ($V^2/2g$) results in the *true* velocity head of flow at a given location and time. Also known as the KINETIC ENERGY CORRECTION FACTOR.	48*
Coriolis effect	Met	An effect resulting from a combination of momentum and the Earth's rotation that causes the specific rotation of large air masses. The Coriolis effect promotes the clockwise rotation of low-pressure cells and the anti-clockwise rotation of high-pressure cells in the southern hemisphere.	5
Corrosion	Gen	The process by which a surface of a solid is 'eaten away' as a result of chemical action, e.g. rusting.	5
	Sci	The process of electrochemical degradation of metals or alloys due to reaction with their environment; it is accelerated by the presence of acids or bases.	23*
Cover	Bot	Any vegetation that forms a mat on or just above the soil surface. In forests, this might be formed by low-growing shrubs, vines, or herbaceous plants under the trees.	43*
	Eng	The depth of material between the surface of the ground or carriageway and the top of a culvert or pipe.	2
	Esc	Any mat-forming vegetation (e.g. ground cover, or cover crop), organic or inorganic mulch, or synthetic material located on or just above the soil surface.	5
Cover crop	Agr	Plants, particularly cereals, grown mainly to temporarily protect the soil during or prior to the establishment of more protective plant cover.	43

Creek	Gen	A small stream, brook, or minor tributary of a river, or other watercourse sufficiently narrow to allow significant vegetation shading of the channel.	45*
	Coa	An inlet in a shoreline, channel in a marsh, or other narrow, sheltered waterway.	45*
	Wwy	A watercourse, minor in comparison to local rivers, whether natural or artificial, permanent or ephemeral, with static or flowing water that is fresh, brackish or salty. Natural in its appearance and ecological function, and with a significant ecologically association with adjacent riparian vegetation.	5
Creek whisperer	Wwy	A waterway designer or manager who has the ability to focus their design and/or management recommendations primarily on the needs of the watercourse and its ecosystem based on past experience and meticulous observations of the watercourse in question.	5
Crest	Hyd	The overflow section of a weir or similar structure.	4
Crest of dam	Eng	The top of a dam, or the level at which water overflows the spillway.	19*
Cresylic	Sci	An acidic commercial mixture of phenolic materials boiling above the cresol range (greater than 240°C).	23
Crib dam	Eng	A gravity dam built up of boxes, cribs, crossed timbers or gabions, and filled with earth or rock.	11
Criteria (water quality)	Wat	Scientific data evaluated to derive the recommended limits of water uses.	57
Critical depth	Hyd	The depth of water occurring in a channel or partially full conduit at the point of critical flow when the Froude Number is equal to 1.0 and the specific energy is a minimum. It is the flow condition that exists between supercritical and subcritical flow when the speed of the water and the speed of the hydraulic pressure wave, at a given point, are the same.	5
Critical downstream node	Sto	The most sensitive downstream water body (or bodies) in respect to sustainable pollutant loads, which dictate land use and management practices across the catchment.	15*
Critical event	Sto	A storm or flood, whether real or fictitious, that causes a specific action or consequence that is considered undesirable. The critical event may not necessarily be the design event or design storm.	5
Critical flow	Hyd	The state of flow in a section of a channel or partial-full conduit when the flow is at critical depth. Flow in which the Froude Number is equal to unity and the specific energy (of the mean flow) is a minimum.	24*
Critical flow structure	Hyd	A hydraulic structure designed to yield critical flow at all points for a particular discharge. At discharges greater than the design discharge 'choking' will probably occur at the throat or barrel. Also known as a MINIMUM ENERGY STRUCTURE or	32*

		CONSTANT ENERGY STRUCTURE.	
Critical pollutant	Sto	Pollutants of primary concern because of their impacts on water quality and biota.	50
Critical rainfall duration	Hyd	The design storm duration that produces the maximum peak discharge at a given location within a given catchment.	32*
Critical velocity	Hyd	The average velocity of flow in a section of a channel or partial-full conduit when the flow is at critical depth.	24
Cross bank	Sto	A longitudinal earth mound with low vertical curvature placed diagonally across an unsealed road or track to collect and divert stormwater runoff across the road or track to a table drain or suitable discharge point. Such banks are ordinarily designed to handle larger flows that cross drains. Also known as a WHOA BOY.	5
Cross connection	Sto	The hydraulic connection to two conduits or pipe networks that are meant to be separate systems where such a connection allows fluids from the two systems to mix.	5
Cross drain	Eng	A drain of various forms (e.g. cross bank or sub-surface pipe) that collects the flow of water on a road, trail or other access way and diverts it across the road surface. Typically required where runoff cannot be controlled by crossfall drainage.	4*
Cross drainage	Eng	A system of pipes or culverts that conveys storm flows transversely across or under a roadway.	24
Cross-section	Hyd	A vertical section on a plan showing the profile of the conduit at right-angle to the dominant direction of flow.	2*
Cross slope	Top	The slope of the land's surface measured at right angles to the general direction of the main slope.	4*
Crossfall	Eng	The slope, at right angles to the alignment, of the surface of any part of a carriageway.	43
Crossfall drainage	Eng	The type of drainage that take place when the surface of a road, trail or other access-way has sufficient cross slope to cause water to flow across and off the surface, rather than along it. Where the water flows into the hillside it is termed infall, and where flow is away from the hillside it is termed outfall.	4*
Crown	Eng	The highest point on the cross section of a carriageway with two-way crossfall.	2
Crustaceans	Eco	Invertebrate aquatic animals with hard shells. Includes daphnia, crabs, lobsters, yabbies, and prawns.	3*
Culm	Bot	An aerial stem of a grass or sedge, terminating in an inflorescence (common term is flower).	34*
Cultural significance	Gen	Sites, places, artefacts or memories that are meaningful to contemporary society or parts of society, e.g. sites exhibiting material evidence of past indigenous	34*

		occupation.	
Culvert	Gen	A drain or channel crossing under a road.	9
	Eng	One or more adjacent pipes or enclosed channels for conveying a watercourse or stream below formation level. When it has a rectangular cross section, it is termed a box culvert.	2*
Culvert leg	Eng	The vertical sidewall of a box culvert.	5
Culvert sidewall	Eng	The inside surface of the sidewall of a box culvert.	5
Curb	Eng	A kerb (USA). See KERB.	5
Curtilage	Gen	Land area within a property's (house, yard and garden) boundaries.	17
Cut	Eng	The depth from the natural surface of the ground to the finished land surface.	2*
Cut and fill	Eng	A process of slope modification in which soil is excavated from along one section of a slope and used to construct an embankment below.	4
Cut batter	Eng	An earth batter constructed by excavation of material.	5
Cut-off	Eng	An impervious barrier of material or concrete designed to prevent seepage flows through or beneath a structure.	19*
Cut-off trench	Eng	A long, narrow excavated keyway constructed along the centre line of a dam, dyke, levee or embankment and filled with relatively impervious material intended to reduce seepage of water.	7*
Cut-off wall	Eng	An impervious barrier of material or concrete designed to intercept seepage flows through or beneath a structure, and to prevent downstream bed erosion from undermining a hydraulic structure. Commonly used at culvert head walls and on the discharge apron of drop structures.	19*
Cyanobacteria	Eco	A type of naturally occurring, microscopic, primitive photosynthetic bacteria. Also known as BLUE-GREEN ALGAE.	3
Cyclopean dam	Eng	A gravity masonry dam made of very large stones embedded in concrete.	11

Term	Code	Definition	Source
d/s	Hyd	Abbreviation meaning downstream. Used to refer to any location or activity that exists within, or moves towards, the lower part of a channel or watercourse relative to a reference point within the channel or watercourse. Usually used in reference to drainage lines, channels and watercourses. Down-slope is used when referring to overland flow paths or other areas primarily subjected to sheet flow.	5
Daily rain gauge	Hyd	An instrument for measuring rainfall over a 24-hour period.	5
Dam	Gen	A barrier designed to obstruct the flow of water, or the body of water confined by such a barrier.	9
	Eng	A barrier constructed for storage, flood control and diversion purposes. A dam may be constructed across a natural waterway or on the periphery of a reservoir. When water is stored behind the dam is for irrigation or other water supply purposes, the whole complex becomes a RESERVOIR.	19*
Dam embankment	Eng	The wall or structural fill that impounds water as part of a dam.	5
Dam failure	Eng	The physical collapse of all or part of the dam or the uncontrolled release of any of its contents.	44
Darcy-Weisbach equation	Hyd	An equation used to define friction loss.	48*
Darcy-Weisbach friction factor	Hyd	A dimensionless parameter characterising the friction loss in a flow.	11*
Deadwater zone	Wwy	The part of a water body that does not effectively contribute to the flow path of liquid passing through the water body. Such zones usually have a retention time much greater than the effective hydraulic residence time of the wetland.	5
Debris	Sol	Loose and unconsolidated coarse material arising from the disintegration of rocks, soil, vegetation or other material transported and deposited by erosion.	4*
	Wwy	Large boulders, rock fragments, gravel-sized to clay-sized material and vegetative material displaced by stream flows, typically during flood events.	11*
Debris deflector wall	Eng	Vertical sloping wall placed on the inlet headwall of a culvert to minimise the risk of debris blocking of the culvert's inlet.	5
Declining loss	Hyd	An assumed stormwater loss (usually measured in mm/hr) that occurs after all initial losses have occurred, and which declines as a function of time.	5
Decomposition	Eco	The process of breaking down organic matter by aquatic	28*

		invertebrates.	
Defined Flood Event (DFE)	Sto	The flood event adopted by a local government for the management of development in a particular locality. Flooding during the Defined Flood Event (DFE) generally does not represent the full extent of flood-prone land.	26*
Deflation	Sol	The process by which the wind removes fine particles from soil.	4*
Deflocculation	Sol	The process by which masses of colloidal, or very fine clay particles or 'flocs', separate in water into their constituent particles which go into suspension.	4
Degradation	Gen	The process of decline in the quality of natural resources, usually caused by human activities.	4*
	Geo	The general lowering of the surface of the land by erosive processes.	9
	Wwy	The lowering of a channel bed in elevation as a result of erosion processes.	11*
Degree of meandering	Wwy	The measurement of the ratio of the total length of a channel reach to the straight length of the channel reach. The meandering is considered minor for ratios of 1.0 to 1.2, appreciable for ratios 1.2 to 1.5, and severe for ratios greater than 1.5.	5
Dendritic form	Wwy	A waterway with branching pattern similar to a shrub or tree. Typically occurs when the rock and weathered mantle (surface area of the drainage catchment) offer uniform resistance to erosion.	48*
Dendritic network	Eng	A pipe network with tree-like branches and no closed loops.	5
Dendritic pattern	Hyd	A drainage catchment where the main drainage lines (in plan form) has a branch-like pattern similar to a shrub or tree.	5
Denitrification	Sci	The process of microbial conversion (reduction) of nitrate or nitrite to nitrogen gas, in the absence of oxygen.	15*
Depauperate	Eco	To reduce in quality, vigour or capacity.	23
Deposit	Gen	**1.** To put, lay down, drop, leave, place, throw or precipitate matter.	18*
	Gen	**2.** Matter that has temporarily or permanently come to rest on a surface after previously being in motion, e.g. a deposit of sediment.	5
Deposition	Gen	The act of depositing.	9
	Wwy	Any loose material accumulated as a result of a reduction in the velocity of the transporting agent.	4
Design capacity	Hyd	The maximum storage volume or discharge a hydraulic structure is designed to hold or carry.	5
Design discharge	Sto	The nominated discharge (flow rate) used in the design of a hydraulic structure, or a component of the structure.	5

		The design of a hydraulic structure may involve the use of more than one design discharge, for e.g. one discharge may be used for the design of the structure's maximum hydraulic capacity, and another for the design of a specific feature such as erosion control or fish passage.	
Design flood	Hyd	A probabilistic or statistical estimate, generally being based on some form of probability analysis of flood or rainfall data. An annual recurrence interval or exceedance probability is attributed to the estimate. The use of a design rainfall in the estimation of a flood does not imply that if such rainfall occurred at a given time, the estimated flood elevations would result.	32*
	Sto	The maximum flood for which a hydraulic structure is designed to safely operate with appropriate freeboard.	22*
Design flood hydrograph	Sto	The discharge hydrograph used in the design of a hydraulic structure.	5
Design flow	—	The nominated discharge (flow rate) used in the design of a hydraulic structure, or a component of the structure. The design of a hydraulic structure may involve the use of more than one design discharge, for e.g. one discharge may be used for the design of the structure's maximum hydraulic capacity, and another for the design of a specific feature such as erosion control or fish passage.	5
Design hydrograph	Sto	The discharge hydrograph used in the design of a hydraulic structure.	5
Design life	Eng	The maximum period of time for which a structure is designed to perform its intended function.	4*
Design peak discharge	Hyd	That discharge (flow rate) used in the design of a structure's hydraulic capacity.	5
Design rainfall intensity	Hyd	That rainfall intensity used in the design of a particular component or feature of a hydraulic structure.	5
Design return period	Eng	The return period selected in order to design a particular component or feature of a structure in relation to its desired design life and performance.	5
Design standard	Sto	Design criteria or specifications that a design must meet to comply with regulations or policy.	5
Design storm	Hyd	A synthetic rainfall profile used for design or analysis of a hydraulic structure or system.	17
Design storm duration	Hyd	The duration of rainfall for a specific design storm.	5
Design velocity	Hyd	The flow velocity or velocities used to design a particular component or feature of a hydraulic structure.	5
De-silt	Esc	To remove settled or collected sediment.	5
De-snagging	Wwy	The process of removing fallen trees, branches and other large woody debris from a watercourse.	3*

Desorption	Gen	The process of releasing substances back into a solution after they have previously been adsorbed onto a surface, e.g. the release of ions from sediments under adverse conditions (eg. low pH anaerobic).	34*
Detection limit	Gen	The smallest concentration or amount of a substance that can be reported as present with a specified degree of certainty by a definite, complete analytical procedure.	23
Detention	Sto	The process of temporarily holding and/or controlled release of stormwater through the use of a hydraulic storage system.	5
Detention basin	Sto	A basin designed to temporarily hold storm or flood waters, and release such waters in a controlled manner to attenuate outflows. No water is retained within the basin between storm or flood events.	15*
Detention practices	Sto	Any stormwater detention management system—basin, parking lot, depressed grassy area, rooftop storage, buried or aboveground tank—used to temporarily detain storm or flood waters for the purposes of delaying or attenuating outflows from a site or catchment.	5
Detention structure	Sto	Any stormwater structure—basin, parking lot, depressed grassy area, rooftop storage, buried or aboveground tank—used to temporarily hold storm or flood waters for the purposes of delaying or attenuating outflows from a site or catchment.	5
Detention system	Sto	Any stormwater detention management system—basin, parking lot, depressed grassy area, rooftop storage, buried or aboveground tank—used to temporarily detain storm or flood waters for the purposes of delaying or attenuating outflows from a site or catchment.	5
Detention tank	Sto	A tank used to temporarily hold stormwater for the purposes of delaying or attenuating outflows.	17*
Detention time	Sto	The amount of time required to displace either the full or normal operating volume of a tank, basin or water body.	5
Detritivore	Eco	Any organism that feeds on dead and decaying organic matter (detritus).	3*
Detritus	Gen	Particles of rock or other material worn or broken away from a mass, usually by the action of water or glacial ice.	9
	Wwy	Unconsolidated sediments composed of both inorganic and dead or decaying organic material.	23*
Development category	Hyd	The category of land use within a catchment that defines its fraction impervious.	43*
Dewatering	Eng	The permanent or temporary removal of water from a given location.	5
De-weeding	—	See *Weeding*.	
Diatoms	Eco	A diverse group of single-celled microscopic algae found in virtually all waters.	3

Diffusion	Sto	The process of mixing water constituents throughout a water body by means of eddy and molecular diffusion.	50*
Direct runoff	Hyd	Total rainfall minus losses. Also known as stormwater runoff.	49*
Dirty water	Gen	Water, whether fresh, brackish or saline, that contains undesirable contaminates.	5
	Esc	Surface runoff that has been contaminated as a result of moving through a given property or by the actions of a given construction or building activity, whether or not the water contained some contaminates prior to entering the site.	5
	Min	Surface runoff that has picked up any solid or dissolved pollutants through contact with disturbed or contaminated surfaces.	58*
Discharge	Hyd	The instantaneous volumetric rate of flow at a specific location in a flow line or hydrologic structure. Also known as FLOW RATE.	4*
Discharge area	Hyd	An area of land where groundwater reaches the surface and flows or seeps out.	34
Discharge coefficient	Hyd	See COEFFICIENT OF DISCHARGE or DISCHARGE COEFFICIENT OF RUNOFF.	5
Discharge coefficient of runoff	Hyd	A dimensionless calibration coefficient used in the Rational Method for the calculation of the peak rate of storm runoff for a given design ARI. The coefficient is not directly related to the volumetric runoff coefficient. Also known as the DISCHARGE COEFFICIENT.	5
Discharge hydrograph	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.	5
Dish drain	Eng	A shallow paved drain across a road.	2
Disinfection	Gen	The process of destroying disease germs.	9*
	Sto	The process of destroying pathogens e.g. bacteria.	28*
Dislocation	Sto	Movement of organic matter and algae downstream during high flows.	28
Dispersible soil	Sol	A soil that is structurally unstable in water, breaking down into its constituent particles (sand, silt and clay) and consequently allowing the dispersive clay fraction to disperse and cloud the water. The dispersion is caused by the high, negative, electro-magnetic charge on the surface of clay particles typically less than 0.005mm in diameter.	5
Dispersion percentage	Sol	A measure of soil dispersibility representing the proportion of clay plus fine silt (< 0.005mm approx) in a soil which is dispersible, expressed as a percentage. It is determined in the laboratory by comparing the amount of fine material, in a soil sample, dispersed by a 10-minute	4

		shaking in water, to the amount dispersed by a 120-minute shaking in water containing dispersant. Highly dispersible clays have a high dispersion percentage	
Dispersive	Sol	Relating to soil material that readily disperses in water.	43*
Dissipater	Eng	A structure used to absorb excess kinetic energy in flowing water. Energy dissipaters are typically incorporated into the outlets of hydraulics structures to reduce outlet flow velocities and downstream erosion. (Dissipator in USA) Also known as an ENERGY DISSIPATER	4*
Dissolved air flotation	Res	A treatment process during which fine air bubbles become attached to suspended particles in the water so that the particles will float to the surface.	57
Dissolved constituent	Sto	Any constituent in a water sample that will pass through a 0.45:m membrane filter.	23*
Dissolved fraction	Sto	That part of a water sample passing through a 0.45:m pore size filter paper. It typically includes pure dissolved and the colloidal material fraction.	15*
Dissolved oxygen	Wat	**1.** Free oxygen in water available to aquatic animals and chemical reaction.	5
	Wat	**2.** The level of free oxygen in water usually reported in units of mg/L.	5
Distributed approach	Sto	Placement of stormwater treatment devices throughout a catchment or sub-catchment.	5
Ditch check	Sto	A structural barrier, wall, weir, or dam constructed across a drainage channel to control invert erosion or to prevent head-cut or gully erosion migrating up a channel past the ditch check. Effectively acting as an open channel drop structure. The term CHECK DAM is the term more commonly used within the Erosion and Sediment Control industry.	5
Diurnal	Gen	Relating to a daily occurrence.	5
Diurnal cycling	Gen	Having a period of variation of one day.	23
Diversion bank	Esc	An earth bank constructed across a slope designed to intercept and divert water. The term DIVERSION DRAIN is more commonly used within the stormwater industry.	43*
Diversion block	Sto	A small block constructed for the purpose of diverting water from the table drain to a culvert or side drain.	2
Diversion channel	Esc	A formally designed temporary or permanent drainage channel, possibly incorporating a diversion bank on the down-slope side of the channel.	5
	Sto	A constructed drainage channel or waterway used to divert water from its natural course.	11*
Diversion dam	Eng	A dam or weir built across a river to divert water into a canal. It raises the upstream water level of the river but	11

		does not provide any significant storage volume.	
Diversion drain	Sto	A drain that transports stormwater runoff from the shoulders of a road or table drain to a disposal area. Also known as a SPUR DRAIN, TURNOUT DRAIN or MITRE DRAIN.	5
Diversion flood	Hyd	A flood that is designed to be diverted around or past a structure.	5
Diversion structure	Wwy	A device used to re-route or bypass flood flows in order to reduce the peak flows at a given location.	48*
DO	Wat	Abbreviation used for dissolved oxygen, or the concentration of dissolved oxygen.	34*
Domestic dam	Eng	A dam to store water for domestic uses. Typically has a maximum capacity of 2ML.	42*
Down-cutting	Wwy	The lowering of the bed level through processes of erosion.	5
Down-slope	Hyd	Any location or activity that exists within, or moves towards, the lower part of a slope relative to a reference point on the slope. Ordinarily used to refer to overland flow paths or other areas primarily subjected to sheet flow.	5
Downstream	Hyd	Any location or activity that exists within, or moves towards, the lower part of a channel or watercourse relative to a reference point within the channel or watercourse. Ordinarily used to refer to drainage lines, channels and watercourses.	5
Downwardly inclined screens	Sto	A stormwater treatment system primary comprising of downwardly inclined trash racks. Typically incorporates a pollutant holding shelf at its base. Stormwater normally falls vertically through the trash rack bars causing gross pollutants to be trapped on the rack. Gravity and the force of the flowing water cause the pollutants to slide down the rack to the holding shelf at the base of the rack.	31*
Drain	Sto	A constructed channel or conduit used for drainage purposes.	5
Drainage	Sto	Natural or artificial means of intercepting and removing surface or subsurface water.	43*
Drainage authority	Sto	Organisation with statutory rights and duties relating to drainage.	17*
Drainage basin	—	The area of land from which stormwater runoff contributes to stream flow at the most downstream point of the catchment. Also known as a CATCHMENT, DRAINAGE CATCHMENT and WATERSHED (USA).	5
Drainage catchment	Hyd	The area of land from which stormwater runoff contributes to stream flow at the most downstream point	5

		of the catchment. Also known as a CATCHMENT, DRAINAGE BASIN and WATERSHED (USA).	
Drainage criteria	Sto	Specific design criteria, specifications or design standard used by a designer to ensure the drainage system complies with a given policy or standard.	13*
Drainage easement	Sto	A corridor of land where drainage is its primary purpose.	15
Drainage entrance treatments	Sto	Any measure that involves either preventing pollutants entering a stormwater drainage system, or captures them at, or just inside, the drain's inlet.	31*
Drainage network	Sto	The system of channels and pipes and overland flow pathways that drain a catchment area. Networks typically comprise a main drain, branch drains, and collector drains.	15
Drainage system	Sto	The system of gully inlets, pipes, overland flow paths, open channels, culverts and detention basins used to convey runoff to its receiving waters within a drainage catchment or catchments.	24*
Drainline	Sto	The pathway in which a drainage system is contained.	5
Drawdown	Min	A lowering of the watertable of an unconfined aquifer or the potentiometric surface of a confined aquifer caused by pumping of groundwater from wells.	58*
Drinking water	Res	Water of a quality suitable for drinking.	57
Drizzle	Met	Fairly uniform precipitation composed exclusively of fine droplets of water very close to one another. Drizzle droplets are so small that their individual impact on a water surface is imperceptible. Drizzle may be characterised as intermittent or continuous and is also classified by intensity. *Slight drizzle* has a rainfall up to 0.2mm per hour. Generally does not reduce visibility less than 1000m. *Moderate drizzle* has a rainfall greater than 0.2mm per hour, but not greater than 0.4mm per hour. Generally reduces visibility to between 400 and 1000m. *Thick drizzle* has a rainfall greater than 0.4mm per hour. Generally reduces visibility to less than 400m.	60
Drop	Hyd	A rapid lowering of bed elevation.	11*
Drop chamber	Sto	A junction pit in a pipe drainage system in which there is a significant variation (lowering) between the elevations of inlet and outlet pipes. Typically these chambers are used to dissipate large quantities of energy from the water when descending steep gradients. Also known as a DROP STRUCTURE.	5
Drop inlet	Hyd	An inlet to a hydraulic structure comprising a sudden or rapid lowering of the bed elevation.	5
	Sto	An inlet to a sub-surface drainage system where the water drops vertically into the connecting chamber.	5

		Also known as a FIELD INLET.	
Drop inlet culvert	Eng	A culvert that incorporates a drop at its entrance.	5
Drop pipe	Esc	A temporary drainage conduit extending down the face of a newly formed or unstable slope. Typically used as a temporary drainage system to control soil erosion while the bank is being stabilised or while an alternative (final) drainage system is being constructed. Also known as a SLOPE DRAIN.	5
Drop pit	Sto	A junction pit in a pipe drainage system in which there is a significant variation (lowering) between the elevations of inlet and outlet pipes. Typically these chambers are used to dissipate large quantities of energy from the water when descending steep gradients. Also known as a DROP STRUCTURE.	5
Drop spillway	Eng	A spillway with a vertical drop for its control section. The term includes overshot or cantilevered spillways used on small farm dams. In cases where the crest of the drop structure forms a direct continuum with the adjacent embankments, as in a weir, the spillway is known as a straight drop spillway.	4*
Drop structure	Hyd	An open channel hydraulic structure specifically designed to allow water to fall rapidly. The structure usually incorporates an energy dissipater, however, energy dissipation may also occur within the immediate downstream channel.	5
	Sto	A junction pit in a pipe drainage system in which there is a significant variation (lowering) between the elevations of inlet and outlet pipes. Typically these chambers are used to dissipate large quantities of energy from the water when descending steep gradients. Also known as a DROP PIT.	5
Drowned weir	Hyd	A type of weir flow where the nappe is discharging underwater, and the upstream water level is affected by the downstream water level. Also known as a SUBMERGED WEIR.	5
Dry detention basin	—	See DETENTION BASIN.	
Dry detention practices	—	See DETENTION PRACTICES.	
Dryland salinity	Sol	The process in which salts in the ground are brought close to the surface by the rising water table. The accumulation of salt degrades the upper soil profile and impacts on agriculture, infrastructure and the environment.	62*
Dry weather flow	Wwy	The stream flow rate that cannot be directly attributed to storm events. It includes any regular, long-term inflows such as environmental flows from regulated lakes or reservoirs. The flow rate is usually not constant, but varies with groundwater levels and long-term weather conditions.	15*

		Also known as the BASE FLOW.	
Dry wells	Sto	Small infiltration trenches used to drain small areas. Typically used in well-drained soils. The infiltration (seepage) reservoir may contain an observation well for routine inspection.	31*
Dual reticulation	Res	A domestic or industrial water distribution system consisting of two separate and distinct piping networks, one of which is designed to convey drinking water, the other water of lesser quality for non-drinking purposes.	57*
Dust	Sol	Any matter comprising a wide range of fine materials, including soil materials, which can be transported over long distances by wind. As wind velocity or air turbulence decreases, the larger and heavier particles settle, whereas many of the smallest particles are in almost permanent suspension. The suspension fraction in wind erosion is generally accepted as being less than 100µm in size.	4*
Dyke	Gen	An embankment for retaining the waters of the sea or a river.	9
	Eng	An embankment to confine or control water, often built along the bank of a river to prevent overflow of lowlands. Also known as a LEVEE.	7
	Lfm	A temporary berm or ridge of compacted earth that channels water around or away from a specific area.	8
Dynamic equilibrium	Gen	A condition where the long-term removal of a given substance from a control volume is balanced by the long-term replacement of that substance.	5
	Eco	The state at which the competing rates of uptake and elimination of a chemical within an organism or tissue are equal. An apparent steady state is reached when the concentration of a chemical in tissue remains essentially constant during a continuous exposure. Also known as STEADY STATE.	23
	Wwy	The state at which the long-term erosion rates at a given location along a waterway are balanced by the long-term accretion rates, thus resulting in insignificant long-term variations in channel or floodplain sediments volumes or levels.	5
Dynamics	Sci	The study of motion inclusive of the influence of mass and force.	48*
Dynamic wave model	Hyd	A flood routing model based upon the continuity equation in one-dimensional form and the momentum equation. Unlike the kinematic wave model, it considers all the acceleration and pressure terms in the momentum equation.	48*

Term	Code	Definition	Source
Early life-stage test	Eco	28-day to 32-day (60-day post-hatch for salmonids) exposures of the early life stages of a species of fish from shortly after fertilisation through embryonic, larval and early juvenile development. Data are obtained on survival and growth.	23
Earth dam	Eng	A massive earthen, watertight embankment with sloping faces.	11*
Easement	Gen	A right held by one person to make limited use of another person's land, e.g. right of access to water.	5
Easement (drainage)	Sto	A corridor of land of which the drainage function is the primary role.	15*
Ecological harm	Eco	Any adverse effect, or potential adverse effect (whether temporary or permanent) on an environmental value directly associated with an ecological feature.	5
Ecological integrity	Eco	The ecological values, including biodiversity, geodiversity, essential ecological processes and life support systems associated with an area or region.	62*
Ecologically sensitive area	Eco	An area that provides critical resources, connectivity or habitat, to any species, or group of species during any phase of their life cycle.	62
Ecologically Sustainable Development (ESD)	Eng	A concept that promotes protection of the environment while allowing for the development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends.	43*
Ecology	Gen	The branch of biology that studies the relationships between organisms and their environment.	9*
	Sci	The study of relationships between living organisms and their environment.	4
Ecosystem	Eco	A community of interacting organisms and the immediate physical, chemical and biological environment with which they interact, e.g. a pond or forest.	9*
Ecotone	Eco	A narrow, defined boundary between different adjacent ecosystems.	34*
Effluent	Gen	Fluid outflow from a process or treatment system, such as treated liquid waste or sewage as discharged from a treatment plant.	5
Effluent stream	Wwy	A creek that leaves a watercourse and does not return to it (the opposite of a tributary).	3
Eh (redox potential)	Wat	The value of the redox electrolyte potential, expressed in volts, using an electrochemical cell.	50
El Niño	Gen	Part of an ocean–atmosphere phenomenon characterised by temperature fluctuations in surface water in the equatorial zone of the eastern Pacific Ocean that causes a warm water current to overly the cold waters off the coast of Peru and Ecuador. Coupled with the atmospheric fluctuations of the Southern Oscillation, the so-called El Niño effect is associated with drought and higher temperatures on the mainland of eastern Australia.	48*
Electrical conductivity	Wat	A measure of the conduction of electricity through water or a water extract of soil. Measurements are expressed in siemens per metre; soil salinity is normally expressed as millisiemens per centimetre at 25 degrees Celsius.	4*

Embankment	Eng	**1.** An artificial elevation of earth, longer than it is wide, typically constructed for the purpose of controlling the flow of, or storing water as in a bank or dam.	4
	Eng	**2.** An earth slope, longer than it is high, constructed from fill material (e.g. earth, rock).	11*
Embankment flood	Eng	The flood which, when routed through the reservoir, gives a still water elevation equal to the top of dam.	22*
EMC	Sto	The abbreviation for event mean concentration, the measure of the mass of pollutant (pollutant load) washed off by a storm event divided by the runoff volume of that storm.	43*
Emergency outlet	Eng	A structure or spillway that safely conveys emergency overflows from the facility e.g. water storage. It includes the approach and exit channels.	30*
Emergency spillway	Eng	A spillway that is constructed in addition to the primary spillway or bypass system (i.e. an auxiliary spillway).	22*
	Esc	An open channel, usually with a relatively steep gradient, used to convey water from a basin, such as a sediment basin, during periods of high flow. Such a spillway may not necessarily be an *auxiliary* spillway.	5
Emergent plants	Bot	A plant whose top parts protrude above the water surface, e.g. sedges and reeds.	5
Emergent vegetation	Bot	A plant or plants the top parts of which protrude above the water surface, e.g. sedges and reeds.	34*
Emerson aggregate test	Sol	A classification of soil aggregates based on their coherence in water. Soil aggregates are classified into 8 types according the conditions in which they slake, swell and disperse, in which Class 1 is the most stable through to Class 8 which is least stable. Classes 2 and 3 may be further subdivided according to the degree of dispersion.	4*
Enclosed GPT	Sto	An in-ground, enclosed trash, rack and sediment collection sump usually located at or near the end of a stormwater pipe. Designed to trap coarse pollutants such as litter, organic debris, and coarse sediment. Also known as an ENCLOSED GROSS POLLUTANT TRAP and MINOR GPT.	36*
Enclosed gross pollutant trap	Sto	An in-ground, enclosed, trash rack and sediment collection sump usually located at or near the end of a stormwater pipe. Designed to trap coarse pollutants such as litter, organic debris, and coarse sediment. Also known as an ENCLOSED GPT and MINOR GPT.	36*
Endocrine disrupter	Res	A substance having an endocrine disrupting potential.	57
Endocrine disrupting potential	Res	The ability to interfere with endocrine mechanisms. A mode of physiological response.	57*
End wall	Eng	A retaining wall at the end of a culvert barrel. Also known as a HEAD WALL.	2
Energy dissipater	Eng	A structure used to absorb excess kinetic energy in flowing water. Energy dissipaters are typically incorporated into the outlets of hydraulics structures to reduce outlet flow velocities and downstream erosion. (Dissipator in USA)	4*
Energy equation	Hyd	A numerical expression describing the total energy (energy head) in a fluid, i.e. the combined kinetic and potential energy.	5
Energy head	Hyd	The numerical value of the total energy in a fluid being a combination of kinetic and potential energy. It is proportional to the total energy per unit mass and per	11*

		gravity unit. It is expressed in metres of water. Also known as TOTAL HEAD or TOTAL ENERGY.	
Energy loss coefficient	Hyd	A dimensionless coefficient that applies to a given hydraulic device or component of a hydraulic system for a given discharge and fluid. It is represented by the total energy loss (units of length, metres) experienced by a fluid flow as it passes through that device or component, divided by the velocity head (units of length) of the fluid at the given discharge.	5
Enteropathogenic	Bio	Capable of producing disease in the intestines.	23
Entrainment	Soil	The processes by which detached soil particles are drawn into the flow of air or water during an erosion event.	4
Entrance screen	Sto	A metal screen placed on the inlet to a drainage network to prevent gross pollutants from entering.	5
Environment	Gen	The physical, social and economic conditions in which an organism lives. Includes ecosystems and their constituent parts, e.g. people and communities; all natural and physical resources; the qualities and characteristics of locations, places and areas, however large or small that contribute to their biological diversity and integrity, intrinsic or attributed scientific value or interest, amenity, harmony and sense of community; and the social, economic, aesthetic and cultural conditions that affect, or are affected by the ecosystem.	43*
Environmental flow	Wwy	The flow, or characteristics of a flow pattern, that are either protected or created specifically to benefit the natural environment. Usually associated with flows released from storage systems to a stream to maintain or enhance the healthy state of the stream and/or downstream waters.	3*
Environmental harm	Gen	Any adverse effect, or potential adverse effect (whether temporary or permanent) on an environmental value.	18
Environmental indicator	Eco	An measurable attribute that can provide evidence of change of environmental quality. There are three types of indicators: • those normally present in the water, where any changes indicate a change in environmental quality; • those not normally found, where their presence indicates changes in environmental quality; • those normally present, where their absence indicates changes in environmental quality.	23*
Environmental integrity	Eco	The ecosystem in which there is an interdependence upon and interaction between living organisms and their immediate physical, chemical and biological environment.	62
Environmental Management Plan	Gen	A plan showing how the potential environmental impacts associated with a given activity will be managed. It identifies risks to the environment as a result of the activity, the key strategies for managing these risks and the project's environmental requirements, outcomes and performance indicators.	43*
Environmental monitoring	Gen	The action of gathering and evaluating information used for the assessment of environmental performance.	43*
Environmental	Gen	A measure of an environmental feature, at a given point	5

quality		in time, in either scientific terms (such as a water quality measurement), or another recognised environmental value of that feature.	
Environmental value	Gen	A value or use of the environment that is conducive to public welfare, safety, health or benefit (whether social, economic cultural, or environmental). Several environmental values can be designated for a specific environment or component of the environment.	23*
Environmental water requirement	Wwy	The water regimes, including seasonal water flows and levels, needed to sustain the ecological values of a water dependent ecosystems, including its process and biological diversity, with low-level risk of environmental harm.	62*
Ephemeral	Wwy	A system that flows or exhibits the presence of water only periodically, e.g. a creek that flows intermittently (whether or not water is retained in pools) or a wetland that dries up periodically.	50*
Ephemeral stream	Wwy	A watercourse that flows during and for short periods after storms.	48*
Ephemeral wetland	Lfm	A wetland that dries up periodically.	5
Epilimnion	Wwy	The well-mixed uppermost layer of water within a stratified lake, usually characterised by an essentially uniform temperature warmer than elsewhere in the lake.	23*
Epilithon	Eco	Organisms that live attached to rocks, e.g. algae and lichens.	23*
Epipelon	Eco	Algal community living in or on the surface of sediments in shallow waters where light penetrates.	50
Epiphyte	Bot	Any plant that grows on the outside of another plant, using it for support but not obtaining food from it.	23*
	Eco	The action that wears away earth surfaces.	5
Erode	Geo	The action of all forces of nature that wear away the earth's surface.	5
	Esc	The action of rainfall, flowing water, or wind that detach and transport particles from the soil surface, whether an open soil surface or the surface of a tunnel.	5
Erodibility	Sol	The susceptibility of a soil to erosion due to its mechanical, chemical and physical properties. Categorised into low, moderate, high, very high and extreme. Independent of the other factors that influence soil erosion such as topography, land use, rainfall intensity and plant cover, but might be changed by management.	4*
Erosion	Gen	The process of wearing away earth surfaces external forces e.g. running water, rainfall, wind, ice or other geological agents. Includes processes such as detachment, entrainment, suspension, transportation and mass movement.	43*
	Esc	Detachment and movement of granular material by water, wind, ice or gravity. (i.e. accelerated, geological, gully, natural, rill, sheet, splash, gully or wind erosion).	43*
Erosion and sediment control plan (ESCP)	Esc	A plan, or set of plans, including explanatory notes, that demonstrate measures to control stormwater drainage, soil erosion, and sediment runoff during the conduction/building, site stabilisation, and maintenance phases of a construction, building or other soil disturbance activity.	5
Erosion control	Esc	The protection of soil or other granular material from	5

		erosion or measures taken to reduce potential erosion.	
Erosion control blanket	Esc	A blanket of synthetic and/or natural material used to cover and protect soil against erosion caused by wind, rain, and minor overland flows.	5
Erosion control mat	Esc	A mat of synthetic and/or natural material that is primarily used to protect soil against erosion caused by concentrated surface flows.	5
Erosion control measure	Esc	A system, procedure or material used to prevent or reduce the effects of erosion on a soil or other granular material.	5
Erosion control mesh	Esc	An open weave blanket formed from synthetic or natural twine such as hessian rope (jute) or coconut fibre (coir), primarily used to protect soil against erosion caused by concentrated surface flows.	5
Erosion control structure	Esc	A system, procedure, or material used to prevent or reduce the effects of erosion on soil or other granular material.	5
Erosion hazard	Sol	A measure of the susceptibility of a site to erosion. Categorised as low, moderate, high, very high and extreme according to a combination of climate, landform, soil, land use and land management factors. Low erosion hazard implies that no appreciable erosion damage is likely to occur during or after the development of the site. Moderate erosion hazard implies that significant erosion might occur during development. High erosion hazard implies that significant erosion will occur during development. Very high erosion hazard implies that significant erosion will occur during development and after the land use is established. Erosion might even occur with intensive soil conservation measures. Extreme erosion hazard implies that erosion will occur to such an extent that even conventional soil conservation measures will be impractical and uneconomic.	4*
	Esc	**1.** The potential for soil erosion (measure in tonnes, or tonnes per hectare per year).	5
	Esc	**2.** The potential for environmental harm as a result of soil erosion—often associated with an arbitrary hazard rating.	5
Erosion risk	Sol	A measure of the susceptibility of a site to erosion, depending on a combination of climate, topographic and soil factors. Erosion risk does not take land management factors into account, unlike erosion hazard.	4*
	Esc	**1.** An evaluation of the risk of soil erosion that examines the degree of erosion and the likelihood of it occurring.	5
	Esc	**2.** An evaluation of the risk of environmental harm caused by soil erosion taking into account the degree of erosion and the likelihood of the erosion occurring.	5
Erosion risk mapping	Esc	The process of identifying and mapping of areas of erosion risk. Usually undertaken by land developers as part of initial site planning, or as part of the conceptual planning of construction procedures. Only maps those site constraints directly related to soil erosion (i.e. not overall environmental risk). In effect, a mapping exercise based on a suitable soil erosion model such as the Revised Universal Soil Loss Equation (RUSLE).	5

Erosive agent	Esc	Those active factors that cause erosion, e.g. rain, flowing water, and wind.	4*
Erosivity	Sol	**1.** A measure of the potential ability to cause erosion.	4*
	Sol	**2.** A measure of the erosive potential of rainfall expressed as the product of total storm energy and the maximum 30-minute intensity of each storm.	43
Erosivity factor	Sol	The rainfall erosivity factor (R) used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE).	5
Estimated limiting value	Hyd	A measure of the largest magnitude possible for a hydrologic event at a given location based on the best available hydrologic information.	48*
Estuary	Wwy	That part of the mouth or lower reach of a river in which its current meets the sea's tides, and is subject to their effects.	9
Euphotic zone	Wwy	The layer on the surface of a water body that has enough light for plants to carry out photosynthesis.	3*
Eutrophic	Eco	Relating to nutrient-rich water with high rates of productivity that often results in oxygen depletion below the surface layer.	23*
Eutrophication	Eco	The process of enrichment of a water body by nutrients, primarily phosphorus, which can lead to excessive algal growth or other water quality problems.	34*
Evaporation	Hyd	The act or process of rainwater evaporating from the catchment surface. It generally does not include that water evaporated from plant leaves following transpiration, but includes the evaporation of rainwater that has fallen directly onto the surface of plants.	5
Evaporation pan	Hyd	A circular tank containing water, in which the rate of evaporation is measured by the rate of fall of the water surface.	34
Evapo-transpiration	Hyd	The combined loss of water by transpiration through the leaves of plants and by evaporation off the surface of the ground.	3
Event	Gen	The occurrence of a particular set of circumstances, whether certain or uncertain.	55
	Hyd	A single precipitation and associated runoff occurrence.	15
	Wat	A rainfall or discharge condition that is significantly different (> 10 times) from the day-to-day background levels.	50
Event-based analysis	Wat	A method used to assess the short-term performance of a water body when subjected to a hydrologic event.	34
Event mean concentration (EMC)	Wat	The measure of the mass of pollutant (pollutant load) washed off by a storm event divided by the runoff volume of that storm.	5
Exceedance probability	Hyd	The probability of a flood event being equalled or exceeded within a given period. If a flood has a 1% annual exceedance probability (AEP), then there is a 1% chance that this flood will be equalled or exceeded in anyone year.	34*
Exchange capacity	Sol	A measure of the total ionic charge of a soil, expressed in centimoles of charge per kilogram of soil. Its numerical value is identical to the value expressed in milliequivalents per 100g of soil.	4*
Exchangeable sodium percentage (ESP)	Sol	The proportion of the cation exchange capacity occupied by sodium ions, expressed as a percentage. Sodic soils are categorised as those with an ESP from 6 to 14%,	4

		strongly sodic soils are those with an ESP of 15% or more. Soils with a high ESP are typically unstable and as a consequence have high erodibility and often present problems in soil conservation earthworks.	
Exfiltration system	Sto	A large underground stormwater detention tanks/pit from which stormwater is allowed to infiltrate into the surrounding soil. An infiltration trench is just one type of exfiltration system. The tank or pit typically consists of either an open-chamber tank; a three-dimensional, large void cubicle (e.g. storage tank formed from stacked plastic crates); or a rock-filled pit (also known as a soakage pit).	36*
Exfiltration trench	Sto	An exfiltration system consisting of a perforated or slotted pipe located within an excavated trench filled with coarse gravel enclosed within filter fabric. Stormwater runoff is first directed into a buried pipe from where it is allowed to percolate through the gravel envelope into the surrounding soil. Exfiltration trenches are used when the infiltration capacity (rate) of the surrounding soil is insufficient to allow the effective operation of a traditional exfiltration system. The inclusion of the perforated subsurface pipe or chamber is what differentiates an exfiltration trench from an infiltration trench or soakage pit. The chamber allows more effective removal of sediment (compared to an infiltration trench) and provides greater detention storage volume.	29*
Expansive soil	Sol	A soil that significantly shrinks and cracks when dry and expands when wet due to the presence of montmorillonite type clays.	5
Exposure	Eco	A measure of the amount of physical or chemical agent that reaches a target or receptor.	23*
Extended detention	Sto	The process by which a stormwater is detained over days rather than hours (typically 1 to 2 days).	5
Extended detention basin	Sto	A stormwater detention basin designed to drain (from full) over days rather than hours (typically 1 to 2 days) to enhance its pollution retention/treatment benefit and/or to avoid the adverse effects of coincident hydrograph peaks downstream of the basin.	5
Extended detention practices	—	Those practices that detain stormwater over days rather than hours (typically 1 to 2 days).	5
Extended Rational Method	Hyd	A modification to the traditional Rational Method as used in the DRAINS-hydrologic model that allows the estimation of discharge hydrographs based on a defined hydrograph shape (ie. triangular or trapezoidal), peak discharge and some adjustment to runoff volume. The method differs from the Modified Rational Method in that it assumes a constant continuing loss rate.	5
Extreme event	Hyd	An event, such as a flood or discharge, that is considered extremely rare or much larger than the design event of a structure or system.	5
Extreme flood	Hyd	A design flood event used to assess the upper performance limits or the hydraulic failure of a structure. Extreme flood events are normally used in hydraulic analysis to assess the economic and social impacts associated with the overtopping or failure of a structure.	24*

Extreme precipitation	Hyd	That rainfall which is expected to have an exceedance probability less than one per cent.	5
Extreme rainfall	Hyd	Rainfall with an intensity greater than 50mm/hr, and a total rainfall depth greater than the equivalent of the one hour duration, 1 in 10 year ARI design storm rainfall depth over a 24 hour period. For example, if the 1 hour duration, 1 in 10 year ARI average rainfall intensity at a given location is 70mm/hr, then extreme rainfall would be a rainfall depth greater than 70mm within any 24 hour period, or a rainfall intensity exceeding 50mm/hr at any given time.	5

Term	Code	Definition	Source
Fabric	Esc	A 2-dimensional textile produced by interweaving yarns, fibres or filaments.	20*
Facultative anaerobes	Eco	Microorganisms that are able to grow either in the presence or the absence of oxygen.	34
Fan	Lfm	A level to very gently inclined, fan-shape landform associated with rapidly migrating stream channels. The landform is formed by deposition of alluvial material through overbank stream flow and overland sheet flow.	43*
Fat clay	Sol	A clay that contains a higher proportion of clay than any other particles (as opposed to a lean clay).	34*
Fate	Eco	Disposition of a material in various environmental compartments (eg. soil or sediment, water, air, biota) as a result of transport, transformation and degradation.	23
Fetch	Coa	A measure of the length of contact between wind and water resulting in the generation of waves.	5
Field capacity	Sol	The greatest amount of water that a soil can hold in its pore spaces after excess water has drained away.	23*
Field gully	Sto	An inlet to a sub-surface drainage system located within an open area where the water falls vertically into the connecting chamber.	5
Field inlet	Sto	An inlet to a sub-surface drainage system located within an open area where the water falls vertically into the connecting chamber. Also known as a DROP INLET (USA).	5
Fill (noun)	Eng	**1.** Any material used to raise the surface of an area to a desired level prior to or during earthmoving operations. Usually made up of soil and/or rock material, but may also be solid waste.	4*
	Eng	**2.** The material used to fill an area.	5
	Eng	**3.** The depth from the finished earth surface to the natural surface.	2*
Fill (verb)	Eng	To deposit excavated material.	2
Filling	Eng	The action of placing material (excavated or imported) to raise the surface of the land above its previous elevation.	5
Filter (noun)	Eng	A granular or geotextile barrier placed between two layers of granular or earthen material to prevent or limit cross contamination between the two layers.	5
	Sto	A material designed to intercept and remove fine particulate material from water as it passes through the filter. Some filters can also adsorb dissolved pollutants. Stormwater filters include grass filter strips, sand filters, bioretention systems and synthetic filter cells/cartridges incorporated into commercial pollutant traps.	5

Filter (verb)	Sto	The action of removing contaminants from stormwater by passing it through a material barrier.	5
Filter basin	Sto	A stormwater retention basin with a base that consists primarily of a granular (sand) filter bed. Water that filters through is collected and discharged by a sub-surface drainage system.	5
Filter bed	Sto	The filtration system of a filter basin, any granular filter surface that relies on the gravity flow of water through the filter, or an area of grass or vegetated used for the filtration of contaminated water.	5
Filter blanket	Eng	A granular or geotextile barrier placed between two layers of granular or earthen material to prevent or limit cross contamination between the two layers.	5
Filter cloth	Eng	A synthetic material that allows water and some soil particles to pass through it. The size of soil particles held back depends on the mesh size of the material. It is typically used as a protective lining for earth structures, batters of channels or to separate different soil texture layers.	4*
Filter dam	Esc	A barrier, embankment or other similar structure built of pervious materials, such as stones or gabions, that is constructed in drainage lines to filter out and retain sediment carried in passing flows.	4*
Filter material	Eng	Any granular material selected to allow liquid (typically water) to pass through it but which retains particles. Also known as FILTER MEDIA.	43*
Filter media	Eng	Any granular material selected to allow liquid (typically water) to pass through it but which retains particles. Also known as FILTER MATERIAL.	5
Filter medium	Eng	Any barrier substance or material that liquid (typically water) can pass through but which retains particles.	5
Filter pond	Esc	A pit into which sediment-laden water is pumped so that the water can drain out, leaving the sediment. Usually built of pervious materials, such as filter cloth, aggregate, sediment fence fabric, or a combination of these. Typically used as a sediment control measure during de-watering operations.	5
Filter strip	Esc	A long narrow area—relative to the width of flow—of remnant or planted vegetation used to retard sheet flow thus allowing the settlement and/or filtration of sediment from the water. Typically refers to areas where grasses are the predominant vegetation.	5
	Sto	A long narrow area of remnant or planted vegetation used to retard sheet flow runoff thus filtering pollutants from the water and allowing some water to infiltrate the ground. Filter strips are narrower than buffer zones or filter beds and are primarily used to remove sediment, grit, coarse particulate matter and hydrocarbons from stormwater	5

		runoff.	
Filtration	Sto	The process of mechanically removing particles from a liquid as it passes through a filter or filter medium. Filtration includes the process of adsorption of particles from a liquid passing through a filter. Filtration is distinguished from 'infiltration' through the use of an artificial filter medium as opposed to filtration through natural ground.	5
Filtration practices	Sto	A stormwater management system that passes runoff through a medium to remove pollutants, specifically particulate pollutants. The medium can be sand, peat, or compost.	29*
Finite-difference model	Min	A digital computer model based upon a rectangular grid that sets the boundaries of the model and the nodes where the model will be solved.	58
Finite-element model	Min	A digital computer model in which an aquifer is divided into a mesh formed of a number of polygonal cells.	58*
First flush	Sto	The initial high concentration of accumulated pollutants (compared to later levels) washed from a catchment during the early stages of a storm event. First flush results from the initial washing of readily available pollutants that have accumulated on the surface of the catchment, especially impervious surfaces such as roads, parking areas and impervious drains.	34*
First order reactors	Sci	Reactions where the rate of disappearance (or production) of a particular component (e.g. BOD or N) is directly proportional to the available concentration of that component.	34
First order stream	Wwy	A non-branching segment (arm or branch) of a watercourse.	5
Fish ladder	Wwy	A constructed fishway that requires fish to 'jump' from pool to pool, or cell to cell, in order to climb the structure.	5
Fish migration	Wwy	The progressive seasonal movement of fish and other aquatic organisms up or down a watercourse as part of their life cycle. It is one form of fish passage.	5
Fish passage	Wwy	The movement of fish and other aquatic organisms up and down a watercourse.	5
Fishway	Wwy	A structure designed to enable fish to move past a physical barrier (e.g. dam or weir) in a waterway.	3
Fittings	Eng	Any structural attachments to a pipeline through which the fluid will pass, but not including the pipes.	5
Five-Day Biochemical Oxygen Demand	Wat	The oxygen used in meeting the metabolic needs of aerobic microorganisms in a sample of water containing in organic matter under controlled laboratory test conditions over a period of five days. The higher the level of organic matter, the higher the biochemical oxygen demand (BOD).	38*

Fixation	Sci	The conversion of atmospheric nitrogen into ammonia by microbial organisms and chemical fixation.	28*
Flagellates	Eco	A group of distinctive single-celled algae common in many fresh and marine waters.	3
Flash flood	Hyd	**1.** A flood of short duration with a relatively high peak flow rate.	11
	Hyd	**2.** A rapid rise in flood levels relative to normal flooding conditions. It can be caused by an event such as the failure of a water storage dam. In this context, a flash flood may represent a small component of a larger, long-duration flood event.	5
Flashy	Wwy	Of a river or stream whose discharge can rise and fall suddenly.	11*
Flexible floating booms	Sto	A stormwater treatment system that comprises a line of partly submerged floating booms strung across a drain or watercourse. Originally designed as an oil slick retention device, these systems are now designed to collect floating pollutants.	31*
Flexible lining	Eng	Surface lining of an open channel that is flexible enough to allow minor shifting or changes in the channel cross-section or elevation without failing. Typical lining includes rock riprap and vegetative lining.	5
Floating debris trap	Sto	A stormwater treatment system that operates similar to flexible floating booms but has enhanced material retention capabilities. Each trap normally incorporates a floating pollutant retention cage.	31*
Floating litter boom	Sto	A pollution trap consisting of mesh skirts hanging off a floating boom extending fully or partially across permanently wet channels, creeks and rivers. They are specifically designed to collect floating and partially submerged debris.	36*
Flocculant	Sci	A substance added to a solution to produce an agglomeration of suspended particles.	9*
Flocculate	Sci	To form a floc or woolly-looking precipitate within a solution, such as aggregated masses of suspended sediment within a water-based solution.	9*
Flocculation	Esc	The process by which colloidal or very fine clay particles, suspended in water, come together into larger masses or loose flocs. Flocculation of suspended sediment depends on the balance between exchangeable ions on the clay and those in solution and on the overall ionic strength of the solution. Technically the term only refers to the initial formation of a flocculent or floc.	4*
	Sci	To form aggregated or compound masses of particles.	9
Flocculent	Sci	To take the form of a floc or woolly-looking precipitate within a solution, e.g. aluminium hydroxide forms when ammonia is added to a solution of aluminium salt.	9*

Flood	Hyd	The inundation of land that is normally “dry” by expanses of water resulting from stream flows high enough at their peak to overtop the stream’s banks or cause flow through high-level anabranches, whether or not the water is flowing over the land or backing-up from downstream flooded areas.	5
Floodbank	Wwy	A flood control levee.	9*
Flood boundary line	Wwy	A line defining the edge of the area submerged at the height of a given flood.	43*
Flood control	Wwy	Any structural technique used to control either the frequency or severity of flooding (e.g. flood control dams) or the extent of flooding (e.g. dykes, levees and channel augmentation).	5
Flood control dam	Wwy	A basin that temporarily stores or controls flood runoff, including flood retarding basins.	44*
Flood damage	Gen	Damage to property, services or land resulting from the backing-up or spreading of floodwater passing down a watercourse or its floodplains, or from erosion caused by floodwaters passing down a watercourse.	5
Flood defence	Coa	Structural measures taken to reduce the effects or severity of flooding by rivers or the sea.	17*
Flood frequency	Hyd	The long-term frequency of exceedance of a given peak flood discharge or peak water level usually expressed as an annual exceedance probability.	5
Flood frequency analysis	Hyd	The long-term statistical analysis of either peak flood discharge or peak water level, at a given location, usually expressed as an annual exceedance probability based on an annual series data set (ie. a data set consisting of the highest discharge or water level in each year of record). The year may be a calendar year or water year. Flood frequency analysis based on a partial series data set is normally expressed as in terms of an average recurrence interval (ARI). Also known as REGIONAL FLOOD FREQUENCY ANALYSIS.	5
Floodgate	Eng	A gate designed to regulate the flow of flood waters so that the extent of flooding or the inundation of tidal water is controlled.	9*
	Rur	A gate in a fence where it crosses a watercourse or drain that allows stormwater or floodwater to pass but at other times is an integral part of the enclosure.	2*
Flood hazard	Hyd	The potential loss of life, or damage to life, property and services which can be directly attributed to a flood.	22*
Flood hazard area	Hyd	An area of flood-prone land that defines the limits of a given flood hazard. Usually based on the 1 in 100-year flood.	5
Flood hazard map	Hyd	Graphical representation of areas representing a defined flood hazard.	5

Flood hydrograph	Hyd	A plot or recording of stream discharge verse 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.	5
Flooding	Hyd	The inundation of land resulting from tidal water or overflow of a watercourse.	5
Flood inundation	Hyd	The infiltration and covering of land, properties of structures by floodwaters.	5
Flood mark	Hyd	A mark or line indicating the highest point reached by a historical flood at a given location.	9*
Flood meadow	Wwy	Pasture that is regularly flooded as part of a river control strategy.	17*
Flood model	Hyd	A numerical or physical simulation of the expected flood conditions at a given location.	5
Floodplain	Wwy	Land area adjoining rivers, streams, artificial channels, lakes, dams, bays, or oceans, that is inundated during flood events due to overbank stream flows or abnormal high tides resulting from severe storms. Other than floodplains defined by tidal inundation, floodplains extend to the expected limits of the Probable Maximum Flood (PMF).	48*
Floodplain management	Wwy	The operation of an overall program of corrective and preventative measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works, and floodplain management regulations.	48
Floodplain management planning	Wwy	Technical and non-technical studies, policies, management strategies, statutes and ordinances developed for the purpose of managing floodplains.	13*
Floodplain management program	Wwy	Policies, management strategies, statutes and ordinances developed for the purpose of managing floodplains.	5
Floodplain storage	Wwy	The volumetric capacity of a floodplain. Floodplain storage is normally defined over a specified reach length and to the peak elevation of a specified flood event.	5
Flood-prone area	Wwy	The part of the drainage catchment defined by the floodplain.	5
Flood proofing	Wwy	A range of structural measures designed to reduce the potential flood damage likely to be experienced by an individual structure. The measures can include waterproofing exterior walls, the raising structures, and the moving vulnerable equipment to higher in the building.	48*
Flood retarding basin	Wwy	A large open basin or enlarged floodplain designed to retard all, or part of, floodwaters passing through the basin so as to reduce flooding downstream of the basin.	5

Flood risk	Wwy	The probability of a given location being flooded.	5
Flood routing	Hyd	The numerical analysis or modelling of the passage of a flood wave through a reservoir or along a watercourse.	5
Flood runners	Wwy	Distributary channels carrying water away from the river channel.	3
Flood stage	Wwy	The elevation of floodwater, at a given instant, measured relative to a given datum.	5
Flood storage area	Wwy	An area of a floodplain where the storage of floodwaters is a critical component of the floodplain management program.	5
Flood surcharge	Eng	The maximum rise of basin water level above a reservoir's full supply level during a flood. Typically the maximum rise in basin water level above the primary spillway crest.	22*
Flood tide	Coa	The rising tide.	9
Flood warning system	Wwy	A real-time flood prediction tool (or model) and associated communication system used to provide flood-related information in advance of such flooding occurring.	5
Floodwater	Wwy	Stream flow during a flood, including the water that overflows the floodplain.	5
Flood wave	Wwy	The total flood from the first rise in the water to its peak to the water level returning to pre-flood level, represented as a long-wave, i.e a wave of water with a very long wavelength and period.	5
Floodway	Gen	A channel or passage through which floodwaters pass.	9*
	Eng	Longitudinal depression in a carriageway constructed to allow floodwater to cross without damage to the road.	43
	Wwy	The channel of a stream and that portion of the floodplain that must be kept free of encroachment by development or excessive vegetation so that a defined flood—typically the 1 in 100-year flood—can pass through without damage to the surrounding land or an unacceptable increase in flood heights. The floodway represents that portion of the floodplain where the appropriate management of its hydraulic (discharge) capacity is critical.	48*
Floodway fringe	Wwy	That portion of the floodplain that could be completely obstructed without increasing the water surface elevation of the defined flood event—typically the 1 in 100-year flood—by more than a defined amount.	48*
Flow	Gen	**1.** The movement of water either across a surface or within a conduit.	5
	Gen	**2.** The volume of water movement over a defined period or within a given event.	5
Flow attenuation	Sto	A reduction in the magnitude of flow either in terms of peak discharge or volume.	5

Flow balancing	Sto	The process of reducing peak discharge by temporarily storing the water.	17*
Flow control valve	Eng	A valve used in a conduit that can be partly opened to regulate flow or pressure. Also known as a CONTROL VALVE.	5
Flow rate	Gen	The volume of flow that passes a given section in a flow stream per unit time. Also known as DISCHARGE.	48*
Flow regime	Wwy	The pattern of flow in a watercourse described in terms of the quantity and variability of flows.	3*
Flow-through system	Eco	An exposure system for aquatic toxicity tests in which the test material solutions and control water flow into and out of test chambers on a once-through basis either intermittently or continuously.	23
Fluid	Gen	A substance that is capable of flowing and offers no permanent resistance to changes of shape, whether a liquid or a gas.	9*
Flume	Gen	A deep narrow passage for water flow.	9*
	Hyd	A horizontal constriction (i.e. choke) within an open channel, possibly including a vertical constriction (i.e. weir) on the bed, that hydraulically functions as a broad-crested weir allowing critical depth to occur at the choke. As a flow measuring device, flumes (in comparison to weirs) provide the advantage of allowing the near-free passage of bed sediments.	5
	Sto	A hydraulic structure incorporating an inlet, chute and outlet, to convey concentrated water to a lower level without causing erosion.	4*
Flush kerb	Sto	Roadside edging with an upper surface flush with the adjacent road surface that allows stormwater runoff to “sheet” off the road onto the road shoulder.	5
Fluting	Gen	A series of vertically elongated grooves (flutes) down gully sides caused by rill erosion. Most commonly experienced in dispersive soils. In severe cases the rills may become isolated from the gully walls to form narrow tapered pinnacles.	4*
Fluvial	Wwy	Relating to or produced by a river—for example, fluvial sediment.	3
Fluvial hydraulics	Hyd	The study of water flow in a stream, river or associated floodplain.	5
Fluvial sediment	Wwy	Any sediment deposits produced by stream or river action.	7*
Flux	Sci	Rate of movement of a mass or quantum of heat.	50
Footslope	Top	A moderate to very gently sloping landform at the lower end of a slope caused by degradation or erosion by sheet flow, earthflow or creep.	4*

Forb	Bot	Herbaceous (ie. non-woody) plant other than a grass, especially a broad-leaved herb growing in a field.	9*
Ford	Gen	A shallow place where a river or other body of water may be crossed by wading or otherwise passing through the water.	9*
	Eng	A carriageway formed directly on the channel bed in a shallow section of a watercourse.	2
Form roughness	Hyd	Channel roughness affecting the stream flow that results from medium-scale irregularities in the bed and banks of a channel, including dunes and ripples on the bed of an alluvial channel.	5
Foundation	Eng	The material of the valley floor and abutments on which a dam's embankment is constructed.	22*
Fraction impervious	Hyd	That part of a catchment that is impervious. The amount being expressed as a decimal or percentage.	24*
Framework gravel	Wwy	Riverbed gravel supported by underlying gravel.	48*
Free surface flow	Hyd	Flow in which a continuous free liquid surface is exposed to a gaseous state, usually atmospheric air. Free-surface flow can occur in an enclosed conduit provided the conduit is flowing partly full. Also known as OPEN CHANNEL FLOW.	5
Free water surface wetland	Wwy	A wetland where water flow is predominantly across the surface in a pond or retaining structure.	34*
Freeboard	Eng	The vertical distance between the upper design water level (flood level) and the crest of a waterway bank, dam or embankment, the underside of a bridge, or floor of a building. The minimum design freeboard is usually influenced by the risk assessment of overtopping damage resulting from such things as flows in excess of the design flow, changes in hydraulic roughness, effects of wave action, and the settlement of earth embankment.	4*
Freezing rainfall	Met	Rain drops that freeze on impact with the ground or objects on the Earth's surface.	60*
French drain	Sto	A trench loosely backfilled with rock so that water can flow between the rocks. The largest rocks are placed at the bottom and the rock size gradually decreases towards the top.	14*
Frequency	Gen	A measure of the number of occurrences per unit time.	55
Frequency factor	Hyd	A factor applied to the *coefficient of discharge* nominated for the 1 in 10 year storm (C_{10}) to determine the *coefficient of discharge* for a selected design frequency (C_Y) for a selected catchment.	24*
Freshes	Wwy	Flows that produce a substantial rise in river height for a short period, but which do not overtop the river bank.	3
Friability	Sol	A soil property that describes the ease with which a soil can respond to agricultural tillage operations. When a	43

		very friable soil is cultivated, it will break into a wide range of aggregate sizes, whereas a non-friable soil may break only into large aggregates or fine powder, and may be unsuitable for seed germination.	
Friable	Sol	Relating to easily crumbled soil.	34*
Friction slope	Hyd	The slope of the line representing the pressure head, or piezometric head in a pipeline. Also known as the HYDRAULIC GRADIENT or PRESSURE GRADIENT.	24*
Froude number	Hyd	A dimensionless parameter defined by ratio of inertial and gravitational forces acting on the water. The Froude Number (F) provides a criterion for determining whether a given flow is subcritical (F<1), critical (F=1) or supercritical (F>1).	32*
Fry	Eco	The young of fishes.	9*
Full supply level	Eng	The level of the water surface when the reservoir is at maximum operating level, excluding periods of flood discharge.	22
Fulvic	Gen	Dull yellowish brown or tawny.	23
Fulvic acid	Sci	An organic acid with similar properties to humic acid.	34
Furrow	Agr	A narrow longitudinal channel or trench in the earth made by a plough or grader.	4*
Furrow irrigation	Rur	A method of irrigation in which water runs along small ditches or furrows which lead from the supply channel, thus wetting only part of the ground surface.	57

Term	Code	Definition	Source
Gabion	Eng	A basket filled with rock, or similar material, usually rectangular in profile, used in the construction of retaining walls and erosion-control structures. Historically, gabions consisted of cylindrical wicker baskets filled with earth and used for military defence. Gabion baskets are most commonly made from specially coated weir baskets, but can be made from Gabions filled with soil and brush cuttings (termed soft gabions) are used for stream stabilisation. Gabions that are relatively thin compared to their width and length, are commonly referred to as mattresses.	11*, 43*
Gate and entrance screen	Sto	A coarse screen barrier placed across the face of a stormwater inlet that filters gross pollutants from stormwater entering the attached drainage system.	5
Gauge	Eng	A measure of the thickness of metal, e.g. diameter of wire, or wall thickness of sheet metal or steep pipe.	7
	Hyd	A device for measuring either precipitation, water level, discharge, velocity, pressure, temperature, or similar, such as a rain gauge.	7*
Gauged catchment	Hyd	The drainage catchment upstream of a stream gauging station that allows for reliable calibration of its hydrologic characteristics.	5
Gaussian distribution	Hyd	A statistical analysis represented by a normal distribution of variables. Also known as NORMAL DISTRIBUTION.	48*
Geocell	Eng	A three-dimensional structure filled with soil that forms a mattress. Used to increase the bearing capacity and manoeuvrability on loose or compressible subsoils.	20*
Geocomposite	Eng	A manufactured material using geotextiles, geogrids, and/or geomembranes in laminated or composite form.	20
Geogrid	Eng	A geotextile formed by drawing a perforated polymer in one or two perpendicular directions forming large rectangular openings usually 10 to 100mm in size. The strands have a large degree of molecular orientation resulting from the drawing process. Geogrids are usually used for soil reinforcement.	54*
Geological erosion	Geo	Erosion occurring under natural environmental conditions and over long geological periods, unaffected by human activities Also known as NATURAL EROSION.	4
Geomorphic characteristics	Geo	The features of a landform or landscape including, but not limited to, the bed and banks of a watercourse, floodplain of a watercourse or lake, cliffs, soils, rocks and other mineral forms.	42*

Geomorphology	Geo	The branch of both physiography and geology that deals with the form of the earth, the general configuration of its surface, and the changes that take place in the evolution of landforms.	4
Geonet	Eng	A geotextile consisting of two sets of coarse parallel extruded strands intersecting with a constant angle (generally between 60 and 90 degrees). Strands of one set are connected to strands of the other set by partial melting at the intersection. Typically, the size of strands is 1 to 5mm and the size of opening is from a few millimetres to several centimetres. Geonets are typically used for soil reinforcement and fabricating gabions. They can also be combined with woven or non-woven geotextiles acting as filters to form a drainage structure.	54*
Geosynthetics	Eng	The generic term for a human-made product, either made from synthetics or natural fibres, used to enhance the engineering performance of works constructed in or on the ground. The term includes geotextiles and geomembranes, or any combination thereof, used with foundation, soil, rock, earth or any other geotechnical engineering-related material.	34*
Geotextile	Eng	Any permeable textile material used with foundation, soil, rock, earth, or any other geotechnical engineering-related material, that is an integral part of a construction project or construction system. Types of geotextiles that best fit this definition are the knitted, woven and non-woven fabrics.	20*
Geotextile (composite)	Eng	A geotextile formed by combining two different geotextiles e.g. composite sediment fence fabric formed by combining a woven and a non-woven geotextile. Composites may also consist of layers of soil and polymeric elements such as: fibres, filaments, yarns, and microgrids.	54*
Geotextile (geocomposite)	Eng	A geotextile formed by combining a geotextile and a geotextile-related product. Usually used to form subsoil drainage products.	54*
Giardia	Res	The common name for single-celled microbes (*Giardia lamblia*) which, when ingested can cause a gastrointestinal disease called giardiasis (also commonly known as giardia). Symptoms may include diarrhoea, fatigue and cramps. Waterborne giardiasis may occur as a result of inadequate disinfection or filtration procedures.	62*
GIS	Gen	The common name and abbreviation used to refer to a Geographic Information System (GIS) of hardware and software used for storage, retrieval, mapping, and spatial analysis of geographic data.	38*
GPT	Sto	The abbreviation of gross pollutant trap. A pollution trap designed to intercept coarse particulate material (by settlement) and gross pollutants such as litter and organic debris (by screens or booms).	46*

		The trap may operate either as a wet or dry basin, with a collection area/chamber is usually concrete-lined to allow for efficient pollutant removal.	
GPT (Enclosed)	Sto	An in-ground, enclosed, combined sediment sump and trash rack usually located at the downstream end of a stormwater pipe network. Primarily designed to trap coarse pollutants such as litter, organic debris and coarse sediment. Also known as an ENCLOSED GPT, MINOR GPT and MINOR GROSS POLLUTANT TRAP.	5
GPT (Open)	Sto	An open gross pollutant trap consisting of a combined sediment basin and trash rack usually located at the downstream end of a stormwater pipe network or constructed drainage channel. Also known as a MAJOR GPT, OPEN GROSS POLLUTANT TRAP and OPEN GPT.	5
Gradation	Sol	The distribution of the various sized particles that constitute a sediment, soil, or other material such as riprap.	7
Grade (none)	Eng	The rate of longitudinal rise or fall of a slope with respect to the horizontal, usually expressed as a ratio or as a percentage, e.g. a 10:1(H:V) batter has a grade of 0.1 or 10%.	2*
Grade (verb)	Eng	**1.** To design the longitudinal profile of a road.	2
	Eng	**2.** To secure a predetermined level or inclination to a road or other surface.	2
	Eng	**3.** To shape or smooth a surface using a grader or similar implement.	2*
	Eng	**4.** To arrange aggregate or other material by particle size.	2*
Grade control structure	Wwy	An engineered structure that stabilises the grade (slope) of a gully or other watercourse, thereby preventing further head-cutting or lowering of the channel bed. Grade control structures include flumes, chutes, and open channel drop structures.	5
Grade stabilisation structure	—	See GRADE CONTROL STRUCTURE.	
Graded bank	Rur	A flow diversion bank built with a fall along its length to allow water to flow in a specified direction at a specified velocity. Primarily used on arable land, but also on grazing land to some extent.	4*
Graded material	Eng	Material having a wide and continuous distribution for sizes from coarse to fine, the large size being several times larger than the small size.	2
Grading (noun)	Eng	The percentage of the various grain sizes present in a soil or other material, e.g. a well-graded soil has particles of a range of sizes; a poorly graded soil contains mainly particles of the same size.	34*

Grading (verb)	Eng	The process of stripping, cutting, filling, stockpiling, or a combination of these processes that modifies the land surface.	43
Gradually varied flow	Hyd	A free surface flow condition characterised by relatively small changes in velocity and pressure distributions over a short distance.	11*
Grain roughness	Hyd	The surface roughness associated with the texture of the surface rather than the shape of the surface or the irregularity of the channel cross-section. Also known as SURFACE ROUGHNESS or TEXTURE ROUGHNESS.	5
Grain size distribution	Sol	The statistical distribution of grain (by weight) passing a range of sieve sizes.	15
Grass channel	Eng	A drainage channel primarily vegetated with grasses.	5
Grass filter strip	Esc	A strip of turf placed along the contour and at regular intervals down a slope on exposed soil slopes, or around newly formed impervious surfaces, such as kerbs and footpaths as a minor (supplementary) sediment trap. When placed along the contour and at regular intervals down a slope of exposed soil, grass filter strips can also delay the formation of rill erosion by maintaining even sheet runoff down the slope.	5
	Sto	A large area of grass used to retard sheet flow runoff while filtering out pollutants – sediment, grit, coarse particulate matter and hydrocarbons – from the stormwater runoff and allowing the infiltration of only a portion of the water. Usually used to treat shallow overland flow before it enters an impervious drainage system, area of concentrated flow, or watercourse, drainage basin, reservoir, or adjacent property. Filter strips are narrower than buffer zones or filter beds and do not formally separate two distinct land-use categories. Also known as FILTER STRIPS and VEGETATED FILTER STRIPS.	5
Grass swale	Sto	A shallow, low-gradient, grass-lined drainage channel used to convey and treat shallow, concentrated stormwater runoff. The swale may or may not contain a subsoil drainage system. Grass swales treat stormwater by settling, filtration and infiltration; they remove pollutants such as sediment, grit, nutrients and hydrocarbons.	5
Grate	Sto	A grid of metal or other material used to prevent debris from entering a drain or pit while allowing pedestrians and vehicles to pass safely over the opening.	2*
Grate and entrance screen	Sto	A metal screen that covers the inlet to the stormwater pit or chamber. The screen allows water to pass through while preventing larger gross pollutants from entering the	31*

		pit. Also known as a GRATE INLET SCREEN.	
Grating	Sto	The placement of a metal grid over the entrance to a drain or pit to prevent debris from entering a drain while providing for safe passage for pedestrians and vehicular traffic.	2*
Gravel	Eng	A mixture of coarse mineral particles primarily larger than 2mm but less than 75mm in equivalent diameter. Washed gravel with a near uniform particle size is commonly referred to as aggregate.	4*
	Wwy	Granular bed or bank material of a size 2 to 250mm in equivalent diameter.	56*
Gravel-based stream	Wwy	A watercourse with a channel bed primarily consisting of gravel, cobbles and boulders. Flood events generally cause a slow, progressive movement of the gravel and cobbles down the watercourse. Gravel-based systems commonly contain pool-riffles systems along the bed.	5
Gravity dam	Eng	A dam that relies on its weight for stability. Usually refers to a masonry or concrete dam.	11*
Greenfield	Eng	Relating to a previously undeveloped site for commercial development or exploitation.	45*
Greenfield development	Eng	A broadacre subdivision on land previously used for agriculture or native vegetation.	50
Greenhouse effect	Sci	Changes in the Earth's climate as a result of human activities causing changes in the levels of certain atmospheric gases referred to as greenhouse gases. Such changes include global warming, and rising sea levels.	24*
Greywater	Gen	Non-potable water derived from household uses, suitable (with or without treatment) for other uses such as toilet flushing or garden watering.	15
Greywater system	Res	Any appliance, fitting, or device that recycles greywater from any single source or a combination of sources.	57*
Grid	Rur	An open floored structure designed to be crossed by motor vehicles but not by animals.	25
Gridiron subdrainage system	Sto	A combination of a herring-bone and parallel arrangements of subsurface drainage pipes (USA).	5
Grit	Eng	Fine sharp aggregate or coarse sand; or fine screenings substantially free from dust, usually passing a 4.75mm sieve.	2*
Gross pollutant	Sto	A stormwater contaminant that would be retained by a 5mm mesh screen, usually consists of litter and organic debris.	40*
Gross pollutant trap (GPT)	Sto	A pollution trap designed to intercept coarse particulate material (by settlement) and gross pollutants such as	46*

		litter and organic debris (by screens or booms). The trap may operate either as a wet or dry basin, with a collection area/chamber that is usually concrete-lined to allow for efficient pollutant removal.	
Gross water use	Eng	The act of taking water from a source for storage or use, and the recirculation or reuse of the water.	48*
Ground	Gen	The Earth's solid surface consisting of firm or dry land. Also known as SOIL.	9*
Ground cover	Bot	A low spreading plant that covers the soil and retards the growth of weeds.	9*
	Esc	A vegetative layer of grasses, ground-hugging plants, or plant residues that protects the soil against erosion. Generally a minimum percentage ground cover of 70 per cent is required to provide adequate protection against soil erosion; however, as the expected rainfall intensity increases so does the minimum cover requirement.	4*
Ground level	Eng	The elevation of the Earth's surface, at a given location, relative to a given survey datum.	5
Groundwater	Gen	The water beneath the surface of the ground.	9
	Eng	Sub-surface water contained in a saturated zone of soil or rock.	3
	Min	The water in a confined aquifer, or contained in interconnected pores below the water table in an unconfined aquifer.	58*
	Wwy	The water that is naturally occurring under the channel surface. Subterranean streams are flows of groundwater parallel to and adjoining stream waters, and usually considered to be integral parts of the visible streams.	38*
Groundwater (confined)	Min	The water contained in a confined aquifer. Pore water pressure is greater than atmospheric at the top of the confined aquifer.	58
Groundwater (perched)	Min	The water in an isolated, saturated zone located in the zone of aeration caused by a layer of material of low hydraulic conductivity, called a perched bed.	58*
Groundwater (unconfined)	Min	The water in an aquifer where there is a water table.	58
Groundwater flow	Gen	Saturated flow through the ground as opposed to unsaturated flow, known as subsurface flow.	48*
Grout curtain	Min	An underground wall designed to stop water flow through the ground. It can be created by injecting grout into the ground to form an impermeable barrier.	58*
Grouting	Eng	The process of pouring or forcing liquids such as tar, bitumen, or concrete mortar into the interstices of a pavement surfacing, of a structure or of a natural formation.	2*

Grubbing	Eng	The process of removing roots and stumps below ground level.	43*
Guideline (water quality)	Wat	A recommendation in the form of a numerical concentration limit or a statement that aims to support and maintain a designated water use within a receiving water. A guideline may refer to the water quality of stormwater discharges from a site, or to conditions or water quality within a specific receiving water.	23*
Gully	Lfm	An open, incised erosion channel in the landscape generally deeper than 30 cm deep. Active gullies are characterised by moderately to very gently inclined floors and precipitous walls. Gullies are formed by complex processes but a major factor is a concentrated surface water flow, hence they are frequently found in drainage lines. Major flows only occur in gullies during and/or immediately after periods of heavy rainfall.	4*
	Sto	A pit, usually of concrete or brick, where surface water can enter an underground drain.	2
Gully erosion	Esc	A complex of processes in which soil removal is characterised by large incised channels, usually deeper than 30 cm. The severity of gully erosion may be recorded as minor, moderate, severe or very severe.	4*
Gully head	Esc	The upstream end of a gully where runoff from the catchment above falls to the gully floor. It is the exposed part of the gully upon which erosive forces, including water flow, splash and seepage, act to cause the gully to extend upstream by headward erosion.	4
Gully inlet	Sto	A grated and/or side-flow weir drainage inlet located within the kerb of a road. Also known as a KERB INLET and SIDE INLET.	5
Gully inlet screen	Sto	A coarse screen placed across the face of a stormwater inlet that filters gross pollutants from stormwater entering the attached drainage system. Also known as a GRATE AND ENTRANCE SCREEN.	5
Gully pit	—	See GULLY.	
Gutter	Eng	A table drain that is pitched or paved.	2
	Sto	A hard surface channel at the side of a road or street.	9*
Gutter crossing	Sto	A structure prepared for vehicles to cross a gutter, which may be an invert crossing, a pipe or a small bridge.	2
Guttering	Sto	A channel on the eaves of a roof designed for carrying off rainwater.	9*
Gypsum	Gen	A soft crystalline mineral that is the hydrated form of calcium sulphate ($CaSO_4 2H_2O$). It occurs naturally in arid inland areas of Australia. Gypsum is also a by-product of the manufacture of	4*

phosphoric acid (dump gypsum).

Gypsum is normally used as a soil ameliorant to improve soil structure and reduce crusting in hardsetting clayey soils. When applied to certain soils, the calcium increases soil aggregation resulting in improved water infiltration, seed germination and root growth.

Gypsum is a useful source of nutrient calcium and sulphur, and can also be used for flocculating suspensions of dispersive clay.

Term	Code	Definition	Source
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.	3*
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.	48*
Hail	Met	Precipitation of small balls or pieces of hard and partly transparent ice that fall separately or frozen together into irregular lumps.	60*
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.	5
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.	23
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.	23
Hazard	Gen	A source of potential harm, adverse health, or environmental effect.	55*
Hazard analysis	Gen	The systematic process undertaken to understand the nature of potential hazards and the level of risk associated with each hazard.	5
Hazard assessment	Gen	The overall process of hazard identification, hazard analysis and hazard evaluation.	5
Hazard evaluation	Gen	The process of comparing the level of hazard against a given assessment criteria.	5
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.	34*
	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.	43*
Head loss	Hyd	The difference in static water pressure upstream and downstream of a structure or component of a structure.	5
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	24*

		structure or component of a structure. Also known as PRESSURE CHANGE COEFFICIENT and PRESSURE LOSS COEFFICIENT.	
Head-cut	Wwy	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. A head-cut often forms the upper limits of gully erosion, but may also appear within boundaries of an existing gully.	5
Head-cutting	Wwy	Erosion caused by the migration of a 'head-cut' up a gully line or along a stream channel.	5
Headwall	Eng	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. Also known as an END WALL.	2*
Headward erosion	Wwy	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. Head-cutting is a form of headward erosion.	4*
Headwater	Hyd	The height of water above the invert of a culvert measured at the inlet of the culvert.	43
Headwaters	Wwy	Small streams on the higher ground of a catchment that flows into a major watercourse.	3*
Heavy clays	Sol	A soil with a clay content usually greater than 45 per cent. 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.	4
Heavy metals	Gen	A term of no scientific meaning commonly used to describe metals.	5
Heavy rainfall	Hyd	Rainfall with: (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. 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	5

		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.	
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).	44*
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.	22*
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.	5
Heterogenous	Gen	Pertaining to a substance having different characteristics in different locations.	58
Heterotrophic	Eco	Relating to a substance that has different characteristics in different locations.	34*
Heterotrophs	Eco	Relating to organisms that use organic carbon as an energy source.	50*
Heterotrophy	Eco	A bacterium or other organism that depends on organic carbon for food.	23*
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.	24*
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.	24*
Homogeneous	Gen	Relating to a substance that has identical characteristics wherever it occurs.	58*
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.	54*
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.	48*
Humic acid	Sci	A large-molecule organic acid that dissolves in water. See also FULVIC ACID.	34*
Humic substances	Eco	Organic substances only partially broken down that occur	23

		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 floodwaters to pass through the device without disturbing the collected pollutants.	31*
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.	5
Hydraulic calculations	Hyd	**1.** The process of numerically analysing flow conditions such as water surface elevation and velocity.	5
	Hyd	**2.** The result or product of the numerically analysing flow conditions such as water surface elevation and velocity.	5
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.	5
Hydraulic conductivity	Eng	A constant used in Darcy's law.	48*
	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.	58
	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.	4
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.	11*
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.	5
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.	5
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.	11*
Hydraulic failure	Hyd	**1.** Structural failure of a device or system caused	5

		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.	5
Hydraulic grade line (HGL)	Hyd	A line representing the pressure head along a conduit, corresponding to the effective static water elevation of the system.	24*
Hydraulic gradient	Hyd	The slope of the hydraulic grade line. Also known as the FRICTION SLOPE and PRESSURE GRADIENT.	24*
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.	34*
Hydraulic jump	Hyd	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 Hydraulic jumps are a form of standing wave.	5
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.	5
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).	4*
Hydraulic residence time	Hyd	The average length of time the water stays in a defined water body such as a lake or wetland. Also known as the RESIDENCE TIME.	34*
Hydraulic roughness	Hyd	The effective roughness of a surface with respect to its ability to influence flow condition such as flow velocity. 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.	5
Hydraulics	Gen	The study of water or other liquid flow in conduits and open channels.	48*
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.	5
Hydraulic system	Hyd	Any hydraulic structure, or network of structures, used to manage the containment or passage of water or other liquid.	5
Hydrocarbons	Gen	A group of substances composed only of carbon and hydrogen, e.g. methane, ethylene, acetylene and	2

		benzene.	
	Sto	A term usually used to refer to an oil or fuel-based pollutants.	5
Hydrodynamics	Gen	The science of the mechanics of fluids, generally liquids, including hydrostatics and hydrokinetics.	9
Hydrodynamic separator	Sto	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.	31*
Hydrogeology	Gel	The study of the interrelationships of geologic materials and processes with water, especially groundwater.	58
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.	7*
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.	5
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.	5
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.	5
Hydrologic	Hyd	Relating to water on the land or under the Earth's surface, its properties, laws, geographical distribution, and so on.	9*
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.	58
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.	24*
Hydrologic drought	Hyd	Periods of below-normal stream flow and/or depleted reservoir storage.	48*
Hydrology	Gen	The study of water on the land or under the Earth's surface, its properties, laws, geographical distribution, and so on.	9*

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.	9*
	Sci	**2.** The process of decomposition of organic compounds by interaction with water.	23*
Hyetograph	Hyd	A plot of rainfall depth or intensity as a function of time.	48
Hypogean ecosystem	Eco	Micro-invertebrates and microbial communities that occur within the water-filled pore spaces of the saturated zone.	62
Hypolimnion	Wwy	The layer of water below the thermocline in stratified water bodies.	50
Hyporheos	Eco	The zone, often quite deep, beneath the stream bed within which a complex of microscopic animals occur.	3

Term	Code	Definition	Source
ICM	Sto	The abbreviation for Integrated Catchment Management, a system for managing natural resources within a 'whole of system' approach. In a stormwater context, this requires a whole of catchment approach incorporating the total water cycle. Consideration is given to all associated land and water processes and values. Also known as TOTAL CATCHMENT MANAGEMENT.	47*
ICOLD	Eng	The abbreviation for International Commission of Large Dams.	
IFD	Hyd	The abbreviation for intensity-frequency-duration, which refers to tables and graphs that present design rainfall intensity data for various design storm frequencies and storm durations.	5
IFD data	Hyd	Tables or graphs that present design rainfall intensity data for various design storm frequencies and storm durations.	5
Imminent failure flood	Eng	A flood event that, when routed through a reservoir, just threatens failure of the reservoir embankment. The reservoir is assumed to be initially at maximum normal operating level.	44*
Impact Assessment Study (IAS)	Gen	A detailed study of the likely effects (both positive and negative) on the environment and of the ameliorative strategies proposed for a particular project.	43
Impact block	Hyd	A solid, bluff (non-streamlined) object incorporated into an energy dissipater to dissipate the energy of an approaching jet or stream of water, and/or initiate significant turbulence within the passing fluid. The height of an impact block generally being no greater than its width (perpendicular to the direction of flow).	5
Impact column	Hyd	A solid, bluff (non-streamlined) column incorporated into an energy dissipater to dissipate the energy of an approaching jet or stream of water, and/or initiate significant turbulence within the passing fluid. The height of an impact column being significantly greater than its width (perpendicular to the direction of flow).	5
Impermeable	Gen	Describes the condition of not permitting the passage of a gas or fluid such as air or water, but commonly refers only to water penetration.	9*
Impermeable area	Hyd	A surface or area that significantly restricts the infiltration of water, even though some minor infiltration may occur through minor pores and cracks, e.g. the initial 'wetting' of concrete surfaces. Impermeable surfaces can include concrete, road surfaces, roofs and saturated ground such as a lake or pond.	17*
Impervious	Gen	Relating to the condition of being impermeable to water.	5

Impervious area	Hyd	A surface or area within a drainage catchment that significantly restricts the infiltration of water, even though some minor infiltration may occur through minor pores and cracks, e.g. the initial 'wetting' of concrete surfaces. Impervious surfaces can include concrete, road surfaces, roofs and saturated ground such as a lake or pond.	17*
Impervious surface area	Hyd	The total area of impervious surfaces within a drainage catchment.	5
In vitro	Eco	Outside the intact organism—generally applied to experiments involving biochemical events occurring in tissue fragments or fractions.	23
In vivo	Eco	Within an intact animal or organism.	23
In-bank area	Wwy	The part of a channel, including bed and banks, below the channel bank elevation above which the water would spill out of the channel or begin to enter the floodplain.	5
In-bank flow	Wwy	The channel flow rate that exists when the water surface is below the channel bank elevation above which the water would spill out of the channel or begin to enter the floodplain.	5
Incident	Eco	An event that could deteriorate and become a situation causing serious environmental harm and/or significant structural damage.	44*
Incidental release	Sto	An acceptable release of polluted water to waters, including groundwaters, that happens incidental to carrying out a controlled activity.	5
Incipient LC_{50}	Eco	The concentration of a chemical that is lethal to 50% of the test organisms as a result of exposure for periods sufficiently long that acute lethal action has essentially ceased. The asymptote (part of the toxicity curve parallel to the time axis) of the toxicity curve indicates the value of the incipient LC_{50} approximately.	23
Increased water temperature	Sto	A form of stormwater pollution resulting from the release of runoff that has a temperature higher (or lower) than natural receiving water in which such water has the potential to cause environmental harm.	29*
Incremental flood hazard	Eng	The potential incremental loss of life, property or services that can be directly attributable to the failure of a reservoir due to inadequate spillway capacity.	22*
Incremental flood hazard category	Eng	Categories of incremental losses and effects as a consequence of reservoir failure due to inadequate spillway capacity. Used for selection of the recommended design flood annual exceedence probability.	22*
Indirect drainage	Sto	The drainage of impervious surfaces where runoff is forced to pass over a pervious surface before entering an impervious drainage system.	5
Indirectly connected impervious surface	Sto	An impervious drainage surfaces that does not have a direct drainage connection to an impervious drainage	5

area		system. Stormwater runoff from such areas is forced to pass over a pervious surface before entering any impervious drainage system.	
Indirect potable water recycling	Res	The abstraction, treatment and distribution of drinking water from a natural source fed in part by wastewater discharge effluent or reclaimed water.	57
Indirect recycling	Res	The process in which reclaimed water is returned to a raw water source (e.g. lake, river aquifer) where it mixes with the natural water for later use in potable, industrial or agricultural purposes.	57*
Infiltration	Sol	The downward movement of water into the soil, which is largely governed by the structural condition of the soil, the nature of the soil surface including presence of vegetation, and the antecedent moisture content of the soil.	4
	Sto	The downward movement of water into a catchment surface or infiltration system.	43*
Infiltration basin	Sto	An excavated basin designed to capture and temporarily retain stormwater runoff specifically for the purpose of allowing the stormwater to infiltrate into the underlying soil profile. Such basins are normally excavated at or very close to the source of runoff. Infiltration basins are normally maintained in a dry state between storms. They rely on suitable in-situ soil conditions for effective operation. Pollutant removal occurs principally through filtration and the adsorption of soluble pollutants onto soil particles.	5
Infiltration practices	Sto	A set of stormwater management practices that temporarily impound a specified volume of runoff (the treatment volume) allowing it to primarily discharge through percolation into the underlying soil profile. Infiltration systems that incorporate significant amounts of vegetation for the purposes of promoting evapo-transpiration are usually termed *bioretention systems*. Infiltration systems are normally maintained in a dry state between storms. They rely on suitable in-situ soil conditions for effective operation. Pollutant removal occurs principally through filtration and the adsorption of soluble pollutants onto soil particles. Infiltration practices include the use of basins, trenches, dry wells, pervious pavements and some stormwater treatment swales.	29*
Infiltration rate (soil)	Sol	The rate at which water enters the soil surface, usually expressed in units of mm/hr or cm/hr. When the rainfall rate exceeds the infiltration rate on a given surface, runoff occurs. The infiltration rate usually varies with time during a storm and generally decreases as the soil profile approaches a saturated condition. The saturated infiltration rate is the soil infiltration rate that occurs when the soil is saturated and infiltration and	48*

		soil drainage are equal.	
Infiltration system	—	See INFILTRATION PRACTICES.	
Infiltration trench	Sto	A pit, trench or other deep excavation filled with rock or highly porous modular units. Used for providing a sub-surface stormwater detention system that discharges primarily by allowing the stormwater to infiltrate into the underlying soil profile. The void capacity of the trench acts as the detention storage volume. The system's detention storage can be enhanced by recessing the infiltration trench into a surface basin. Infiltration trenches can enhance runoff infiltration into low-porosity soils by increasing the hydraulic head and the effective surface area of the infiltration basin.	5
Inflow	Gen	The fluid flowing into a structure or location such as a stream cross-section.	9*
Ingestion	Eco	The act of swallowing or taking in of food material.	23*
Initial loss	Hyd	An assumed stormwater loss, measured as a depth of rainfall over a given portion of a catchment, that occurs during the initial stages of a storm, and continues to occur until the total rainfall equals the assumed initial loss.	5
Initial mixing zone	Sto	An area or volume of a receiving water where water released from a system mixes rapidly with the receiving waters primarily as a result of the momentum of the released (discharged) water and the natural turbulence of the receiving water flow.	18*
Inlet	Coa	A narrow water passage between coastal heads, peninsulas or islands.	11*
	Sto	The entrance to any structure through which water may flow. It can be as simple as a grated entrance to a pipe, or as complex as the entrance to a sophisticated stormwater pollution trap.	4*
Inlet (basin)	Sto	A location or conduit from which water discharges directly into a basin.	5
Inlet control	Hyd	A flow condition in which discharge through a culvert is governed by either critical flow or orifice flow conditions at the inlet of the culvert. In such cases flow conditions are dictated by the depth of headwater (relative to the culvert invert) and entrance geometry of the culvert. Inlet control can only occur when free surface flow conditions exist within the culvert immediately downstream of the inlet.	43*
Inlet pipe	Sto	A pipe or conduit that discharges water into a hydraulic structure or water body.	5
Inlet screen (grate)	Sto	A coarse screen barrier placed across the face of a stormwater inlet. The screen can provide maintenance access, filter gross pollutants from passing stormwater, and a trafficable surface (essential in the case of a kerb	5

		inlet screen).	
Inlet screen litter trap	Sto	A coarse screen barrier placed across the face of a stormwater inlet that filters gross pollutants from stormwater entering the attached drainage system. Also known as GRATE AND ENTRANCE SCREENS and GULLY INLET SCREENS.	5
Input	Gen	Anything that flows into a system.	5
In-situ	Gen	A term meaning 'in place'.	5
	Eng	Construction activities that primarily occur on-site rather than being partially constructed off-site for later assembly on the site.	5
	Sol	Rocks, fossils and soil that are situated in the place where they were originally formed or deposited. When used to describe soils, the term usually refers to those formed directly from and on bedrock.	4
Intake	Eng	A structure in a reservoir through which water can be drawn into an outlet waterway or pipe.	11*
Integrated Catchment Management (ICM)	Sto	A system for managing natural resources within a 'whole of system' approach. In a stormwater context, this requires a whole of catchment approach incorporating the total water cycle. Consideration is given to all associated land and water processes and values. Also known at TOTAL CATCHMENT MANAGEMENT.	47
Integrated Catchment Planning (ICP)	Sto	The development of natural resource policies and planning tools within a 'whole of system' approach. In a stormwater context, this requires consideration of a whole of catchment approach incorporating the total water cycle and consideration of is all associated environmental values.	5
Intensity-frequency-duration (IFD)	Hyd	Tables or graphs that present design rainfall intensity data for various design storm frequencies and storm durations.	5
Intensity-frequency-duration data	Hyd	Design rainfall intensity data, presented as tables or graphs, for various design storm frequencies and storm durations. Also known as IFD DATA.	5
Intercepting ditch	Sto	Drainage channel located at the top of a cutting to intercept lateral runoff and prevent it from spilling over the cutting.	5
Interception	Hyd	The process in which rainwater collects on a surface above ground level, and does not become part of storm runoff, e.g. rainfall landing on trees or roofs.	5
Interception drain	Sto	A drainage system installed to intercept the flow of lateral surface or sub-surface water that may otherwise have adversely affected a nearby area, such as a roadway.	5
Interceptor drain	Sto	A type of side drain that prevents water from flowing towards the road, normally sited away from the road.	43*

		Also known as a CATCH DRAIN.	
Inter-event period	Hyd	The time period between the end of one rainfall event and start of the next. It may also refer to the period between rainfall events that are significant enough to cause runoff or trigger action by the device in question.	5
Interflow	Hyd	Water that infiltrates the soil surface and moves laterally through the upper soil layers (i.e. above normal groundwater levels) until it discharges as surface flow above the groundwater level.	3*
Intermittent precipitation	Hyd	A type of irregular precipitation associated with stratiform clouds that cover the whole sky or nearly so, though there may be considerable variation in the density of the layers. Intermittent precipitation is characterised by gradual changes of intensity.	60
Intermittent stream	Wwy	A watercourse with a base flow only during the wet season or other periods of extended wet weather. An intermittent stream is a permanent stream during part of the year and ephemeral stream during the remainder of the year.	48*
Interstitial	Eco	Relating to occurring in interstices or spaces. It applies to water, flora, and fauna found living between sand grains and soil particles.	23*
Invert	Eng	The lowest portion of the internal surface of a drain at a given location or cross-section.	2*
Invertebrates	Eco	Animals without backbones (dorsal column of vertebrae or a notochord), includes zooplankton, shellfish, worms, insects, shrimps, crabs and snails.	3*
Ionic	Sci	Relating to ions, i.e. atoms with electrostatic charge caused by extra or less than usual numbers of electrons.	34*
Ionic composition	Sci	The composition and concentration of anions and cations in water.	50
Isochrone	Hyd	A line on a catchment joining points at which water has an equal time of travel to the outlet.	5
Isoerodent map	Sol	A map showing lines of equal soil erosivity.	39
Isohyet	Hyd	A contour of constant rainfall depth.	48*
Isohyet map	Hyd	A series of isohyets drawn to develop an interpolation of rainfall data recorded at gauged points.	48*
Isolation valve	Eng	A flow control valve used to shut down portions of a pipeline or distribution system.	5
Isotropy	Gel	The condition in which hydraulic properties of an aquifer are equal in all directions.	58

Term	Code	Definition	Source
Joint action	Sci	The process in which two or more chemicals exerting their effects simultaneously.	23*
Junction pit	Sto	A pit or chamber constructed at the junction of two or more pipes, or at a change of grade.	43
Jute	Esc	A strong vegetable fibre used for making fabrics, cordage, and similar.	9*
Kerb	Sto	A structural border formed at the edge of a carriageway. A kerb can either be raised above the road surface to concentrate and channel stormwater runoff, or be set flush with the road surface (called a flush kerb) to promote the sheeting of runoff from the road.	2*
Kerb inlet	Sto	A grated and/or side-flow weir drainage inlet located within the kerb of a road. Also known as a SIDE INLET and GULLY INLET.	5
Kerb-in-line gully inlet	Sto	A roadside stormwater inlet set into the kerb where the kerb inlet aligns with the main kerb alignment. The stormwater grate and the surrounding lip of the kerb usually extends into the trafficable area of the road.	5
Kerb opening	Sto	The lateral (side flow) opening located within a roadside kerb.	5
Key	Eng	The zone at the base of an earth embankment that provides a bond between the embankment and the surface on which it is constructed. Usually achieved by deep ripping the surface prior to placement of the first layers of embankment material. The presence of key is important in constructing soil conservation earthworks such as banks, sediment basins and gully control structures.	4*
Keystones	Eng	Those rocks that support a local matrix of rocks such that any movement of a keystone is likely to result in the mass movement of the surrounding rocks. Reference may be to structural rock, such as a stone arch, or to rock stabilisation of earth surfaces, such as creek banks and coastlines.	5
Keyway	Eng	A slot cut into the surface of in-situ earth to prevent horizontal displacement of the overlying fill material, and/or help bind the fill and in-situ materials.	5
Kinematics	Gen	The study of motion exclusive of the influence of mass and force.	48
Kinematic wave model	Hyd	A mathematical description (equation) of overland flow developed from the one-dimensional form of the continuity equation and a simplified form of the momentum equation.	48*
Kinetic energy	Gen	The energy that a body possesses by virtue of its motion.	9*

Kinetic energy correction factor	Hyd	A factor (α) when multiplied by the velocity head ($V^2/2g$) results in the *true* velocity head of flow at a given location and time. Also known as the CORIOLIS COEFFICIENT.	48*
Knitted geotextile	Eng	A geotextile formed by interlocking a series of loops of one or more yarns to form a sheet.	5

Glossary of Terms used in the Stormwater Industry

Term	Code	Definition	Source
Lacunae	Bot	Air space within the cellular tissue of plants. Lacunae are a characteristic feature of non-woody water plants. They provide for the storage and movement of gases and act as non-living support structures reducing metabolic costs.	34*
Lake	Gen	A large open body of water (fresh or saline) surrounded by land.	9*
	Sto	A large open body of water (fresh or saline) primarily surrounded by land where the volume of water greatly exceeds the volume of stormwater runoff from all but extreme storms. It includes the bed and banks, and any other element confining or containing the water.	5
Laminar flow	Gen	A smooth, steady, uniform, non-turbulent flow of a viscous fluid in which there is little or no mixing of neighbouring layers.	34*
	Hyd	A flow condition characterised by fluid particles moving along smooth paths in laminas or layers, with one layer gliding smoothly over an adjacent layer. The viscous properties of the fluid suppress any random (turbulent) motion of fluid particles thus preventing mixing between adjacent layers. Agitation of fluid particles is of molecular nature only. Random disturbances by wall roughness are rapidly dampened by viscous action.	5
Land drain	Rur	A drain designed to intercept and collect subsoil water to reduce the moisture content of the subsoil and the height of the water table.	17*
Land drainage	Rur	All aspects of the drainage of undeveloped land.	17
Land use (development)	Hyd	The particular use or uses of land within a catchment such as central business, commercial, industrial, residential, open space and parks, major and minor roads.	43
Landslide	Sol	A general term used to describe mass movement where the material is displaced down-slope and along distinct surfaces of separation. The term encompasses a wide variety of materials but relates specifically to slope failures that involve the moving material sliding over the ground surface. Classification of landslides can be based on their constituent materials. A further subdivision is commonly related to whether the material in motion is greatly deformed or not, and to whether the slide is rotational or translational.	4*
Landslip	Sol	A landslide extending over relatively a short distance and composed predominantly of debris and/or earth material.	4*
Langelier Saturation Index	Wat	Index (SI) relating the actual pH of water (pH) to the pH at which water is just saturated with calcium carbonate	23

		(pH_s). SI = pH-pH_s.	
Large dam	Eng	A dam satisfying the minimum requirements for inclusion in the ICOLD World Register of Dams.	22*
Large detention storage		A large detention or retention storage such as a lake, pond, basin or large car park, designed or able to significantly reduce and attenuate the peak discharge from the contributing catchment for those storms with an average recurrence interval of at least 50 years.	24*
Larvivorous	Eco	Relating to larvae-eating predators such as fish, mayflies, and similar.	34
Lateral connectivity	Wwy	The extent of the connections between the river and its floodplain, that is from the river to the floodplain and back from the floodplain to the river, by overbank flows or through flood runners.	3
Lateral erosion	Esc	Gully enlargement in a lateral direction due to incision by concentrated runoff entering at the gully sides and/or by undercutting and slumping and/or by sheet, rill and splash erosion of the gully sides.	4
Lawful point of discharge	Sto	A point of discharge which is either under the control of a local government or statutory authority, or at which discharge rights have been granted by registered easement in favour of the local government or statutory authority, and at which discharge from a development will not create a worse situation for downstream property owners than that which existed prior to the development.	24
Leachate	Sol	Water that has passed through a soil and that contains soluble material removed from that soil.	23
Leaching	Sol	The process of the removal in solution of the more soluble minerals and salts by water seeping through a soil, rock, ore body or waste material.	4
Lean clay	Sol	A soil contains significant amounts of silt and sand particles and a smaller proportion of clay.	34
Left bank	Wwy	The left bank or the left channel wall when looking downstream.	11*
Legal point of discharge	Sto	A point of discharge which is either under the control of a local government or statutory authority, or at which discharge rights have been granted by registered easement in favour of the local government or statutory authority.	24*
Lentic	Wwy	Relating to standing water.	5
Lethal	Eco	Causing death by direct action. Death of aquatic organisms is the cessation of all visible signs of biological activity.	23
Levee	Eng	An embankment built along the banks of a watercourse or around an area of land to prevent or limit flood inundation.	4*
	Lfm	A long linear rise bordering a watercourse, comprising part of the floodplain formed by deposition of sediment	4*

		from overbank flow during floods. Relief is typically low and the outer slope very gentle.	
Level bank	Rur	A bank constructed along the true contour forming a level channel that discharges at either or both ends depending on its design requirements. Typically used on grazing land. Also known as a CONTOUR BANK.	4*
Level of performance	Eng	The design performance standard of a constructed or managed system.	5
Level of service	Eng	The actual performance of a constructed or managed system. The term is being replaced by STANDARD OF SERVICE.	5
Level pool routing	Hyd	A simple numerical procedure for calculating the outflow hydrograph from a reservoir assuming a horizontal water surface.	48*
Level spreader	Esc	Finely contoured end-of-drain profile designed to allow concentrated flow to be released as even sheet flow over a nominated width of stable vegetated (grassed) land.	6*
Life cycle costing	Eng	A process to determine the sum of all expenses associated with a product or project, including acquisition, installation, operation, maintenance, refurbishment, discarding and disposal costs. Life-cycle costs provide an important input into the evaluation of various stormwater management options.	41*
Life-cycle study	Eco	A chronic study in which the significant life stages of an organism are exposed to a test material. Generally, a life-cycle test involves an entire reproductive cycle of the organism. A partial life-cycle toxicity test includes the part of the life cycle observed to be especially sensitive to chemical exposure.	23*
Light clays	Sol	A soil with approximately 35 to 40% clay content. A bolus of a light clay soil can be rolled to a thread 3 to 4mm thick without fracture. Plastic behaviour is evident and the soil has a smooth feel with some resistance to rolling out.	4*
Light rainfall	Hyd	Rainfall with an intensity less than 2mm/hr, and a total rainfall depth less than the equivalent of the 1-hour duration, 1 in 1 year ARI design storm rainfall depth over a 24 hour period. For example, if the 1 hour duration, 1 in 1 year ARI average rainfall intensity at a given location is 36mm/hr, then light rainfall would be a rainfall depth less than 36mm within any 24-hour period with an intensity not exceeding 2mm/hr at any given time.	5
Likelihood	Gen	The probability or frequency of an event or outcome.	5
Limnetic	Wwy	The open water region of a lake. A zone of deep water between surface and compensation depth.	23
Limnology	Wwy	The study of bodies of fresh water, including biological,	23*

		geological, physical and chemical aspects.	
Lintel	Sto	The upper cover of a side-flow stormwater inlet, such as a roadside kerb inlet.	5
Lip-in-line gully inlet	Sto	A roadside stormwater inlet recessed into the kerb such that the concrete lip surrounding the grated inlet aligns with the adjacent kerb lip. The kerb inlet and grate do not extends into the trafficable area of the road.	5
Lipophilic	Eco	Relating to an affinity for fats or other lipids. Substances that concentrate in fatty tissues of organisms.	23*
Liquid	Gen	A substance composed on molecules that move freely among themselves but do not tend to separate like those of gasses. A substance neither gaseous of solid.	9*
Litter	Gen	Things discarded and scattered about as rubbish. Primarily manufactured objects made from paper, plastic, cardboard, glass, metal, etc. but not including materials of natural origin such as gravel or vegetation.	38*
	Sol	The uppermost layer of organic material in a soil, consisting of freshly fallen or slightly decomposed organic materials which have accumulated at the ground surface.	4
Litter bag	Sto	A pollution retention bag placed inside a roadside gully inlet chamber. The bags are either a self-supporting woven geotextile, or non-woven geotextile filter bag enclosed inside a basket. Litter bags trap litter, debris and finer pollutants such as coarse sediment and road grit.	5
Litter basket	Sto	An in-pipe litter and debris collection basket installed within an inlet or junction pit of a piped drainage system. The basket may either be an open mesh suitable for trapping litter and debris, but not sediment.	47*
Litter collection basket	—	See LITTER BASKET.	
Litter rack	Sto	A grill, grate or other barrier located across a channel or pipe to trap litter and debris. The bars may be vertical, horizontal or angled (relative to the direction of inflow) depending on hydraulic and environmental requirements, such as fish passage or exclusion requirements. Also known as a TRASH RACK.	5
Littoral	Coa	Pertaining to the shore of a lake, sea or ocean.	9
Littoral zone	Coa	The area of land pertaining to the shore of a lake, sea or ocean. Normally taken as the zone bounded by high and low tide levels.	4*
Loading	Sto	The total mass of a pollutant discharged during a storm event. The term may also be used to describe the mass of pollutant intercepted (g/squ. metre) by a device during a storm event, or on an annual basis.	15
Loam	Sol	A medium-textured soil of approximate composition 10 to 25% clay, 25 to 50% silt, and less than 50% sand.	4*

		A strip of soil mouldered in the hand can be rolled into a thick thread, but this will break up before it is 3 to 4mm thick. The soil has a smooth spongy feel with no obvious sandiness.	
Long orifice	Hyd	An opening in the wall of a tank or in a plate located within a conduit normal to the axis of flow in which the thickness of the wall or plate is greater than the orifice diameter.	5
Long section	Eng	A vertical section, usually with an exaggerated vertical scale, showing streambed elevations along a channel centre line. Also known as LONGITUDINAL SECTION.	25*
Longitudinal connectivity	Wwy	The extent of connections within the watercourse channel along its length from headwaters (upstream) to channel mouth (downstream).	3*
Longitudinal section	Eng	A vertical section, usually with an exaggerated vertical scale, showing streambed elevations along a channel centre line. Also known as LONG SECTION.	25*
Looped network	Eng	A pipe network that includes some closed loop sectors.	5
Loss	Gen	Any negative consequence or adverse effect, financial or otherwise.	55
	Hyd	**1.** Stormwater volume or discharge permanently or temporarily removed from a given surface flow.	5
	Hyd	**2.** The difference between the total rainfall on a catchment during a given storm and the total catchment discharge that can be directly related to the storm.	5
Loss model	Hyd	Numerical simulation of stormwater losses.	5
Loss rate	Hyd	The rate at which rainfall is lost through processes such as infiltration, evaporation and local storage, and therefore does not contribute to surface runoff.	43
Losses (rainfall)	Hyd	The volumetric difference between the observed total rainfall hyetograph and the rainfall excess hydrograph.	48*
Lotic	Wwy	Relating to flowing water.	5
Lower regime flow	Wwy	A state of flow that causes only minor changes (if any) in the surface form of sandy channel beds usually resulting in the formation of small ripples or dunes in the bed.	5
Lowest astronomical tide (LAT)	Coa	The lowest tide level that can be predicted to occur under average meteorological conditions and under any combination of astronomical conditions.	24*
Lowest observed effect concentration (LOEC)	Eco	The lowest concentration of a material used in a toxicity test that has a statistically significant adverse effect on the exposed population of test organisms as compared with the controls.	23
Lowest observed effect level (LOEL)	Eco	The lowest concentration that produces an observable effect in a test species. Below this concentration there	23

		are no observed effects in the test species.	
Low-flow	Wwy	The underlying flow rate that cannot be directly attributed to storm events. It includes any regular, long-term inflows such as environmental flows from regulated lakes or reservoirs. The low-flow is usually not constant, but varies with groundwater levels and long-term weather conditions. Also known as the DRY WEATHER FLOW.	7*
Low-flow bypass	Eco	The release of minimum flow or base flow from a regulated water body for maintenance of the downstream ecosystem.	62
	Sto	The bypassing of dry weather base flows around an instream structure in order to aid in the de-watering of that structure, or allow maintenance works to occur within the structure without contamination of the flow.	5
Low-flow pipe	Sto	A subsurface drainage pipe sized to convey dry weather inflows and minor storm runoff to the principal outlet without storage.	5
Low-flow system	Sto	Surface and/or subsurface measures that convey low and dry weather inflows to the principal outlet without storage.	30
Low level basin outlet	Sto	The outlet of a detention/retention storage system sized to convey dry weather inflows and minor storm runoff.	24*

Term	Code	Definition	Source
Macrograzer	Eco	An organism that feeds on relatively large particles.	23*
Macroinvertebrates	Eco	Small but non-microscopic fauna without backbones, including a number of insect species that spend at part of their lifecycle in water.	34*
Macrophyte	Bot	A type of water plant that is not microscopic algae.	5
Main drain	Sto	The primary channel, pipe, or overland flow path that drains a catchment area.	5
Maintenance	Eng	Routine work required to maintain existing works and systems in a safe and functional condition.	44*
Major design storm	Hyd	The rainfall event for the ARI chosen for the design of the major drainage system.	24
Major drainage system	Sto	The part of the overall drainage system that controls flows greater than those controlled by the minor drainage system and up to and including flows from the major design storm.	24*
Major drainageway	Sto	A readily recognisable natural or modified channel that conveys runoff that is beyond the capacity of the minor drainage system; it includes emergency overflow facilities.	13*
Major GPT	Sto	An open gross pollutant trap consisting of a combined sediment basin and trash rack usually located at the downstream end of a stormwater pipe network or constructed drainage channel.	5
Major overland flow path	Sto	An overland flow path that drains water from more than one property, has no suitable flow bypass, and has a water depth in excess of 75mm during the major design storm.	47
Major road	Eng	A road whose primary function is to serve through traffic, includes collector roads, sub-arterial and arterial roads.	47
Major storm	Hyd	The design storm with an average recurrence interval selected on the basis of satisfying requirements for flood immunity and safety and an average rainfall intensity equivalent to that adopted for the design of the major drainage system.	43*
Major system	—	See MAJOR DRAINAGE SYSTEM.	
Manhole	Eng	An opening constructed in a structure to permit human access for the purpose of construction, inspection and/or maintenance. This term is being replaced by ACCESS HOLE or ACCESS CHAMBER.	2*
	Sto	A stormwater pipe junction pit that allows human access for construction, inspections and/or maintenance.	5
Manning's	—	See MANNING'S ROUGHNESS COEFFICIENT.	

coefficient			
Manning's formula	Hyd	A formula used to predict the velocity of uniform fluid (water) flow in an open channel or other conduit. $V = (1/n) . R^{2/3} . S^{1/2}$ (Metric SI units) where: V = mean velocity of flow [metres/seconds] R = hydraulic radius [metres] S = channel slope [metres/metre] n = Manning's roughness coefficient of the channel lining [dimensionless] Note the coefficient '1.0' is assumed to have units of $[m^{1/3}/s]$ and therefore converts to 1.486 in English units, thus: $V = (1.486/n) . R^{2/3}. S^{1/2}$ (English units)	4*
Manning's roughness	Hyd	The numerical representation of the hydraulic roughness of a conduit, flow path or channel as used in the Manning's formula.	5
Manning's roughness coefficient	Hyd	A dimensionless parameter (n) used in the Manning's formula that defines channel or conduit roughness—that being a combination of both form and surface roughness. The coefficient is assumed to be dimensionless thus allowing the same coefficient to be used in both the SI (metric) and English unit versions of the formula.	5
Masonry dam	Eng	A dam constructed mainly of stone, brick or concrete blocks jointed with mortar.	11
Mass movement	Sol	The erosion process in which gravity is the primary force acting to dislodge and transport land surface materials. Mass movement depends upon the interaction of various factors including landform, lithology, soil type, rainfall intensity and duration, drainage characteristics, vegetal over, and human intervention. Types of mass movement include earthflows, landslides and landslips.	4*
Master Drainage Plan	Sto	A plan that formulates the proposed management of urban stormwater runoff for a particular project or drainage area. A master drainage plan typically addresses issues such as infiltration and runoff characteristics, flow paths of major overland flow paths and concentrated flow, location and size of stormwater drainage components such as detention/retention systems and stormwater quality improvements structures.	13*
Mat (geotextile)	Eng	A geotextile made of coarse filaments joined in a tortuous shape and bonded at their intersections to form an open structure 10 to 20mm thick.	54*
Matrix gravel	Wwy	Riverbed gravel supported by a matrix of sand or sediment.	48*
Maximum	Eco	The concentration of a toxic substance that may be	23

acceptable toxicant concentration (MATC)		present in a receiving water without causing significant harm to its productivity or uses as determined by chronic toxicity tests.	
Maximum permitted outflow	Sto	The design maximum discharge from an attenuation-control device or from a development site.	17*
Mean annual runoff	Hyd	The average annual runoff from a catchment.	34
Mean High Water Neaps (MHWN)	Coa	The long-term average of the heights of two successive high tides when the range of tide is the least, at the time of the first and last quarter of the moon.	24
Mean High Water Spring (MHWS)	Coa	The long-term average of the heights of two successive high tides when the range of tide is greatest, at full moon and new moon.	24
Mean Low Water Neaps (MLWN)	Coa	The long-term average of the heights of two successive low tides when the range of tide is the least, at the time of the first and last quarter of the moon.	24
Mean Low Water Springs (MLWS)	Coa	The long-term average of the heights of two successive low tides when the range of tide is greatest, at full moon and new moon.	24
Mean Sea Level (MSL)	Coa	The average level of the sea over a long period.	24
Meandering channel	Wwy	A stream channel characterised by a series of alternating bends (meanders) caused by erosion.	11*
Measured flow-through test	Eco	A toxicity test for a constant flow or continuous flow of water where the concentration of the substance in the water is measured.	23*
Media		See FILTER MEDIA.	
Median diameter	Sol	The diameter (d_{50}) corresponding to the 50 per cent finer by weight (or by volume) in the size distribution curve known as the gradation curve.	48
Median effective concentration (EC_{50})	Eco	The concentration of material in water to which test organisms are exposed that is estimated to be effective in producing some lethal response in 50% of the test organisms. The LC_{50} is usually expressed as a time-dependent value (e.g. 24-hour or 96-hour LC_{50}).	23
Median lethal concentration (LC_{50})	Eco	The concentration of material in water to which test organisms are exposed that is estimated to be lethal to 50 per cent of the test organisms. The LC_{50} is usually expressed as a time-dependent value (e.g. 24-hour or 96-hour LC_{50}; the concentration estimated to be lethal to 50 per cent of the test organisms after 24 or 96 hours of exposure).	23
Median lethal dose (LD_{50})	Eco	The dose of material that is estimated to be lethal to 50 per cent of the test organisms. Appropriate for use with test animals such as rats, mice and dogs. It is rarely applicable to aquatic organisms because it indicates the quantity of a material introduced directly into the body by injection or ingestion rather than the concentration of the material in water in which	23*

		aquatic organisms are exposed during toxicity tests.	
Median tolerance limit (TL_m or TL_{50})	Eco	The concentration of material in water at which 50 per cent of the test organisms survive after a specified time of exposure. The TL_{50} (equivalent to the TL_m) is usually expressed as a time dependent value (e.g. 24-hour or 96hour TL_{50}; the estimated concentration at which 50 per cent of the test organisms survive after 24 or 96 hours of exposure). Unlike lethal concentration and lethal dose, the term 'tolerance limit' is applicable in designating a level of any measurable lethal condition (e.g. extremes in pH, temperature, dissolved oxygen). TL_m and TL_{50} have been replaced by median lethal concentration (LC_{50}) and median effective concentration (EC_{50}).	23
Medium		See Filter medium.	
Mesotrophic	Eco	Relating to organisms providing a moderate amount of nutrition.	23
Metabolism	Eco	The sum of all chemical processes occurring in an organism or a single cell by which food is built up (anabolism) into living protoplasm and by which protoplasm is broken down (catabolism) into simpler compounds with the exchange of energy.	9
Metabolite	Eco	Any product of metabolism.	23
Metals	Sto	Any class of elementary substances which are crystalline when solid, or an alloy composed of such substance. Metals of particular interest include copper (Cu), lead (Pb), zinc (Zn), cadmium (Cd), arsenic (As), nickel (Ni), chromium (Cr), mercury (Hg), selenium (Se), and silver (Ag).	29*
Meteorological data	Gen	Data relating to past, current or predicted weather conditions.	5
Meteorological tide	Coa	An atmospherically driven rise in sea level caused by extreme surface winds and low atmospheric pressure associated with severe weather conditions, usually cyclones. Also known as a STORM SURGE.	47*
Meteorology	Gen	The science dealing with the atmosphere and its phenomena, especially weather.	9*
Microbial processes	Eco	The processes that are undertaken by microorganisms.	34
Micrograzer	Eco	An organism feeding on small particles of food.	23
Microhabitats	Eco	Small components of the environment which are used by animals for shelter, nesting, food gathering, and so on.	34*
Microorganisms	Eco	Microscopic fauna and flora, e.g. bacteria, fungi and algae.	34
Mineralise	Gen	To convert to a mineral substance, or impregnate with mineral material.	23

Mini wetland	Sto	A small, usually ephemeral wetland, often located adjacent to stormwater outlets or in association with a landscaped area specifically constructed to provide stormwater quality benefits. They may or may not incorporate stormwater retention and usually do not rely on sub-surface filtration due to the typical long-term saturation of the clayey soil bed.	36*
Minimum energy loss culvert	Hyd	A culvert designed to minimise hydraulic energy losses for the water passing through the culvert. The design of a minimum energy loss culvert is associated with the concept of constant total head. The inlet and outlet must be streamlined in such a way that significant form losses are avoided.	11*
Minimum energy structure	Hyd	A hydraulic structure designed to yield critical flow at all points for a particular discharge. At discharges greater than the design discharge choking will probably occur at the throat or barrel. Also known as a CRITICAL ENERGY STRUCTURE or CRITICAL FLOW STRUCTURE.	32*
Minor design storm	Sto	The rainfall event for the ARI chosen for the design of the Minor Drainage System.	24
Minor drainage system	Sto	The portion of the total drainage system that collects, stores and conveys stormwater runoff from those frequently occurring storms with a duration, volume and average intensity less than that of the designated minor design storm. The minor drainage system comprises most roadside drainage systems, roof water drainage systems, pipe drainage systems and those drainage systems primarily constructed for the purpose of providing pedestrian safety and convenience, and vehicle access.	24
Minor GPT	—	See MINOR GROSS POLLUTANT TRAP.	
Minor gross pollutant trap	Sto	An in-ground, enclosed, combined sediment sump and trash rack usually located at the downstream end of a stormwater pipe network. Primarily designed to trap coarse pollutants such as litter, organic debris and coarse sediment. Also known as an ENCLOSED GPT.	5
Minor road	Eng	A road that provides access to abutting allotments, such as residential streets.	5
Minor storm	Sto	A storm with both a duration and average intensity less than that of the designated minor design storm for a given stormwater system or location.	5
Minor system	Sto	See MINOR DRAINAGE SYSTEM.	
Missouri charts	Hyd	Design charts providing pressure changes coefficients at storm drain junctions, developed by the University of Missouri.	5
Mitigation	Gen	The act of lessening the force, severity or risk of an event	9*

		such as a flood risk.	
Mitre drain	Sto	A drain constructed at an angle to its outlet channel, e.g. the drainage of a road shoulder to a disposal area from the road alignment.	2*
Mixing zone	Sto	An area or volume of a receiving water where water released from a system mixes with the receiving waters primarily as a result of the momentum of the released water and the natural turbulence of the receiving water flow.	18*
Mobility	Eco	The ability of small particles and substances to move, either by random motion or under the influence of fields or forces.	34
Model	Hyd	A numerical or physical simulation of a system, event or condition, e.g. a model of a river flood. Physical models may be larger or smaller than, or the same size as the modelled system.	5
Model calibration	Hyd	The process by which the independent variables of a numerical computer model are varied in order to calibrate a dependent variable against a known value.	58*
Model verification	Hyd	The process by which a calibrated numerical computer model is tested to see if it can generate a known response from a given set of input data.	5
Moderate rainfall	Hyd	Rainfall with: (i) an intensity equal to, or greater than, 2mm/hr but less than 10mm/hr; or (ii) a total rainfall depth equal to, or greater than, the equivalent of the one hour duration, 1 in 1 year ARI design storm rainfall depth over a 24-hour period, but less than the equivalent of the one hour duration, 1 in 2 year ARI design storm rainfall depth over a 24-hour period. For example, if the 1 hour duration, 1 in 1yr and 1 in 2yr ARI average rainfall intensity at a given location is 36mm/hr and 47mm/hr respectively, then heavy rainfall would be a rainfall depth of 36 to 47mm within any 24-hour period, or an intensity between 2 and 10mm/hr at any given time.	5
Modified aquatic ecosystem	Eco	An aquatic ecosystem that is, or has been, subject to human interference through releases—whether direct or indirect—into a water body forming part of the ecosystem, or activities in the water's catchment area.	18*
Modified compaction	Eng	The soil compaction (density) achieved in a modified compaction test.	5
Modified compaction test	Eng	A standardised soil test used to determine dry soil density achieved when a soil is compacted under controlled conditions at a given moisture content. The test consists of placing a layer of a given soil in a 101mm diameter by 152mm high cylinder and compacting by dropping a 4.54kg weight 25 times through a height of 457mm onto the soil. Four additional layers are then	59*

		placed in the same way.	
Modified Rational Method	Hyd	A modification to the traditional Rational Method that allows the estimation of discharge hydrographs based on a defined hydrograph shape (i.e. triangular or trapezoidal), peak discharge and some adjustment to runoff volume. (The method is more commonly used in the USA).	5
Modular pavement	Eng	A pavement consisting of strong structural materials with regularly interspersed void areas that are filled with pervious materials such as sand, gravel, or sod. Typically used in low-volume traffic areas e.g. the outer parts of a parking lot or in parking lots serving parks or recreational areas.	5
Monitor	Gen	To check, supervise, observe critically or measure the progress of an activity, action or system on a regular basis in order to identify change from the performance level required or expected.	55
Monomeric	Eco	A chemical compound comprising single molecules.	23
Mountable kerb	Eng	A kerb designed so that it can be mounted without damage to a vehicle.	2
Mud	Gen	Wet, soft earth or earthy matter, e.g. the ground after rain, or at the bottom of a pond.	9*
Mulch (noun)	Esc	A natural or artificial layer of plant residue (e.g. straw) or other material (e.g. rock) used to cover the ground surfaces. Mulch is usually used to conserve soil moisture, help establish plant cover, and protect soil from raindrop impact erosion and minor surface flows.	7*
Mulch (verb)	Esc	To cover ground surfaces with mulch.	9*
Multi-period storm	Hyd	A storm that has more than one period of rainfall excess. The duration of each period is equal to the specified time period.	32*
Multiple use	Gen	Relating to facilities that fulfil a range of functions.	15*
Multiple-purpose stormwater facility	Sto	An urban stormwater facility that fulfils multiple functions (e.g. enhancement of runoff quality, erosion control, wildlife habitat, or public recreation) in addition to its primary goal of conveying or controlling runoff.	13*
Multi-variate	Eco	A type of statistical analysis concerned with data collected on several dimensions of the same organism.	23*
Munsell Scale	Sol	A system of reporting soil colour that is based on three established colour variables: hue, value and chroma.	5
Muskingum method	Hyd	A commonly used hydrologic routing method that is based upon a variable discharge–storage relationship. Storage volume within the channel is represented by a combination of wedge and prism storage. The assumed shape of the instream storage varies between the rising limb and falling limb of the flood wave.	48*

Mutagenesis	Eco	The process of alteration of the genetic material of a cell in such a manner that the alteration is transmitted to subsequent generations of cells.	23*

Term	Code	Definition	Source
Nannoplankton	Eco	A type of organism suspended in open water that is too small to be collected by nets but can be recovered by sedimentation or centrifugation.	23*
Nappe	Hyd	The underside surface of a jet of water discharging from a weir.	5
Natural biological controls	Eco	Naturally occurring bacteria, fungi or microorganisms that are cultured and added to waste materials to break down contaminants.	18*
Natural Channel Design (NCD)	Wwy	A channel design concept based on the planning, design, construction and maintenance of a watercourse channel that is compatible with current and future hydrologic, ecological and social requirements for the catchment.	47*
Natural erosion	Geo	Erosion occurring under natural environmental conditions and over long geological periods, unaffected by human activities Also known as GEOLOGICAL EROSION.	4*
Natural flow regime	Wwy	The pattern of flow prior to any human alteration.	3*
Natural recharge	Gel	The infiltration of water into an aquifer from the surface as a result of rainfall, stream flow, or irrigation.	62*
Natural regeneration	Wwy	The process of re-establishing native vegetation within a disturbed area primarily through the promotion of natural regrowth and assisted regrowth using the local seed source. Usually applied when native plants exist on site in sufficient numbers and diversity to provide propagative material.	5
Natural system	Gen	A system formed by nature as opposed to an artificial or constructed system.	5
Natural wetland	Wwy	A wetland originally formed by natural processes.	18*
Nekton	Eco	Free swimming organisms in aquatic ecosystems e.g. fish, swimming insects, cetaceans.	5
Netting	Esc	A coarse synthetic fabric with a uniform open mesh, most commonly used as a short-term control for loose mulch. Common netting materials include wire, plastic, jute and coir.	5
Network	Sto	A system of connecting pipes, usually interconnecting pipes supplying water.	5
Neuston	Eco	The collective term for microscopic components of the pleuston that are adapted to the interface habitat between air and water. The neuston comprises those organisms adapted to living on the upper surface of the interface film (the epineuston) and those living on the underside of the surface film (the hyponeuston).	23*
Nitrification	Sci	The process of microbial conversion of ammonia to	28

		nitrite, then to nitrate.	
Nitrogen fixation	Bot	The conversion of atmospheric nitrogen into stable compounds useable by plants. The nitrogen is carried out by bacteria that colonise the roots of most legumes.	7*
Nominal diameter	Eng	The diameter of a circle or sphere having the same area or volume as the given pipe or aggregate.	48*
Non-cohesive soil	Sol	A soil without the fine fraction is lacking, resulting in a loss of the cohesive bonds associated with this fraction.	43*
Non-mountable kerb	Eng	A kerb high enough to prevent or discourage vehicles driving off the carriageway. Also known as a BARRIER KERB.	2
Non-point source pollution	Sto	A diffuse pollution source without a single point of origin or specific discharge point.	15
Non-structural control	Wwy	A method of controlling the impacts of river flooding without engineering works, e.g. by flood warning or development control.	17
Non-structural measures	Sto	Stormwater treatment measures that do not involve construction, e.g. education, regulatory instruments and complementary enforcement programs, illicit discharge elimination programs, street sweeping.	41
Non-uniform flow	Hyd	A state of flow in which the streamlines are not straight, causing a directional change in velocity, or the streamlines are not parallel causing a change in speed along the streamlines.	48*
Non-woven geotextile	Eng	A geotextile formed from fibres arranged in an oriented or random pattern to form a sheet. The fibres are bonded chemically, thermally or mechanically.	54*
Normal depth	Hyd	The depth at which uniform flow occurs at a given discharge in a channel of given cross-section, slope and roughness.	32
Normal distribution	Hyd	A statistical analysis represented by a normal distribution of variables where the skew coefficient is zero. Also known as the GAUSSIAN DISTRIBUTION.	48*
Normal flow conditions	Hyd	A free-surface flow condition where normal depth and velocity of flow is achieved consistent with the prevailing channel shape, slope and roughness.	24*
Not detectable	Wat	Relating to a state below the limit of detection of a specified method of analysis.	23*
NTU	Wat	The abbreviation for Nephelometric Turbidity Units.	
Numerical model	Hyd	A numerical simulation of a system, event or condition, e.g. a model of a river flood. Also known as a MATHEMATICAL MODEL.	5
Nutrients	Sci	Substances that provide nourishment to biota, including aquatic plants such as algae. Nutrients include substances such as phosphorus and nitrogen. Their excessive input into receiving waters can	38*

		over-stimulate the overfeeding (eutrophication) of aquatic plants. Nutrients in stormwater may be either dissolved or particulate, with particulate forms typically being more prevalent.
NWQM Strategy	Sto	The abbreviation for National Water Quality Management Strategy developed by ANZECC and ARMCANZ.

Term	Code	Definition	Source
Objective (water quality)	Sto	A numerical concentration limit or narrative statement that has been established to support and protect the designated uses of water at a specified site.	23
Obvert	Eng	The highest portion of the internal surface of a culvert or arch at a given cross-section. Also known as the SOFFIT.	2
Octanol-water partition coefficient (P_{ow})	Eco	The ratio of a chemical's solubility in n-octanol and water at equilibrium. The logarithm of P_{ow} is used as an indication of a chemical's propensity for bioconcentration by aquatic organisms.	23
Off-line	Sto	Relating to not being in the direct flow path of the stormwater drainage system.	50*
Off-line device	Sto	A stormwater system, such as a tank or pond, in which the water level is independent of the level of flow in the associated drain or watercourse and through which flow does not pass during normal operating conditions.	17*
Off-site	Eng	Relating to not being on the site, e.g. an off-site sediment trap located down-slope of a development site.	17*
Off-stream	Wwy	Relating to being away from the main stream channel.	34*
Off-stream basin	Sto	A flood detention/retention basin located away from the main stream channel, e.g. a basin located on an adjacent floodplain.	5
Off-stream dam	Eng	A water storage dam located away from the main stream channel in which water must be collected and pumped or channelled into the dam.	5
Off-stream wetland	Wwy	A wetland located away from the main stream channel, e.g. a wetland separated from the main channel by a natural or constructed embankment.	5
Off-take	Eng	A structure or point of diversion for water transfer, e.g. where water is released from a dam.	5
Oil-grit separator	Sto	A type of pollutant trap comprising two or three underground retention chambers designed to remove litter, coarse sediment and oils. The first chamber is used for sedimentation and the collection of large debris. The second chamber is used for oil separation. The third chamber (if used) collects and disperses flow into the stormwater system.	36*
Oil trap	Sto	A stilling tank configured to separate lighter oily matter, scums and hydrocarbons from stormwater.	15
Oligotrophic	Wwy	Relating to waters with a small supply of nutrients.	23*
One-dimensional flow	Hyd	A type of flow in which significant variations in flow conditions occur only along the primary direction of flow. One-dimensional flow analysis neglects the variations and changes in velocity and pressure transverse to the	32*

		main flow direction.	
On-line	Sto	Relating to being in the direct flow path of the stormwater drainage system.	50*
On-line device	Sto	A stormwater system, such as a tank or pond, in which the water level is the same as the level of flow in the associated drain or watercourse and through which flow passes during normal operating conditions.	17*
On-site	Eng	Relating to being on the site, e.g. in an on-site sediment trap located within an urban development.	17*
On-site detention (OSD)	Sto	A stormwater detention system that is located wholly within a given property.	5
On-stream	Wwy	Relating to being within the existing stream channel.	34*
On-stream dam	Eng	A dam, wall, or other structure placed on, or constructed across, a watercourse or drainage path for the purpose of holding back and storing the natural flow of that watercourse or the surface water run-off flowing along that drainage path.	42
Open channel	Wwy	A flow channel not enclosed by a roof, arch or other structural lid.	5
Open channel flow	Hyd	A condition of flow where there is a free surface, whether or not the flow is located in an open channel or enclosed conduit.	48*
Open GPT	Sto	An open (non-enclosed) gross pollutant trap consisting of a combined sediment basin and trash rack usually located at the downstream end of a stormwater pipe network or constructed drainage channel. Also known as a MAJOR GPT and OPEN GROSS POLLUTANT TRAP.	5
Open gross pollutant trap	Sto	An open (non-enclosed) gross pollutant trap consisting of a combined sediment basin and trash rack usually located at the downstream end of a stormwater pipe network or constructed drainage channel. Also referred to as a MAJOR GPT and OPEN GPT.	5
Open subsoil drain	Sto	An open drain used to collect and remove subsoil water rather than surface water.	2*
Operating head	Hyd	The difference in static water pressure upstream and downstream of a structure or component of a structure.	5
Organism	Eco	Any living thing capable of carrying on life processes.	23*
Organoleptic	Eco	Relating to or perceived by a sensory organ.	23*
Orifice	Hyd	An opening in the wall of a tank or in a plate located within a conduit normal to the axis of flow. Typically used to either measure or control the flow rate.	48*
Orifice meter	Hyd	A flow rate measuring instrument based on the hydraulic properties of an orifice.	5
Orthophosphorus	Sci	A soluble form of phosphorus (PO_4) applied to urban and	34*

		agricultural land as a fertiliser.	
OSD	Sto	Abbreviation for on-site detention. See ON-SITE DETENTION.	5
Osmolality	Sci	A measure of osmotic concentration that refers to the total number of osmotically active particles in a litre of solvent.	23*
Osmosis	Sci	The process in which a solvent diffuses through a semi-permeable membrane into a more concentrated solution that tends to equalise the concentrations on both sides of the membrane.	23*
Outfall	Hyd	A point of discharge from a sewer or drain to a water body.	17*
Outflow	Hyd	A discharge from a sewer or drain to a water body.	5
Outlet	Hyd	The point at which water discharges from a river, creek or other flow line; lake, tidal basin or drainage depression; or pipe, channel, dam or other hydrologic structure.	4
Outlet (basin)	Sto	The location or locations where water discharges from a basin.	5
Outlet (stormwater)	Sto	The point at which water discharges from a stormwater pipe or drain.	5
Outlet approach	Sto	A stormwater quality management system that relies on the placement of stormwater treatment devices at the outlet of a catchment or sub-catchment.	5
Outlet control	Hyd	A hydraulic condition in which factors downstream of a culvert's entrance govern the discharge characteristics.	43*
Outlet facility	Sto	Any receiving water into which a storm drainage system discharges.	13*
Outlet litter cage	Sto	A trash and litter collection cage attached to the outlet of a stormwater pipe. Gross pollutants collected by the cage are usually held above normal water level.	36
Outlet protection	Sto	Erosion protection measures placed downstream of a pipe or culvert outlet.	5
Outlet works	Sto	The combination of intake structures, screens, conduits, tunnels and valves that permit water to discharge under controlled conditions from a tank, basin or reservoir.	22*
Overbank	Wwy	Relating to not being located between the top of the banks of a channel.	5
Overbank flow	Wwy	The portion of a flood flow that flows outside the main river channel at relatively small depths over part of or the full width of the floodplain and in a direction essentially parallel with the direction of the main channel.	32*
Overland flow	Sto	**1.** Surface runoff that occurs in the form of sheet flow on the land surface without concentrating in clearly defined channels.	48

	Sto	**2.** Any surface runoff whether flowing as sheet flow or shallow concentrated flow e.g. flow within road reserves, shallow grassed channels and overbank flows, but not flow within deep drains, drainage channels or streams.	5
Overland flow path	Sto	The flow path of overbank flow, including roadways and shallow drainage easements over which stormwater flows in excess of the capacity of the minor drainage system.	24*
Overshot spillway	Eng	A spillway that discharges over the embankment.	4*
Overtopping	Hyd	High discharge rates that exceed outlet pipe or primary spillway capacity, and flow over the top of the embankment or weir bounding the reservoir.	50*
Oviposition	Eco	The act of egg laying typical of mosquitoes.	5
Oxic	—	See AEROBIC.	
Oxidation	Sci	The process of combining oxygen with a substance, or removing hydrogen from it or, more generally, any reaction in which an atom loses electrons.	23*
Oxidised	Sci	Relating to substances or atoms that have undergone oxidation.	34
Oxycline	Sol	The plane of maximum rate of oxygen concentration decrease in respect to sediment depth.	50
Oxygenation	Sci	The process of adding dissolved oxygen to a solution.	23
Oxygen-demanding substances	Sto	Numerous organic materials that are decomposed by microorganisms and create a need for oxygen.	29*

Term	Code	Definition	Source
Palaeochannel	Wwy	A channel formed a long time ago and now not usually part of an active river system.	3
Paleofloods	Hyd	Major floods that have occurred outside the historical record for which geological, geomorphological or botanical evidence exists.	32*
Paleohydrology	Hyd	The study of the hydrological characteristics of paleofloods.	5
Parameter	Gen	A measurable or quantifiable characteristic or feature.	23
Parshall flume	Hyd	A specific design of a straight-edged, horizontal, open channel flume developed by Dr. Ralph Parshall. The flume has a straight-edged vertical constriction (weir) on the bed, which hydraulically functions as a broad-crested weir allowing critical depth to occur at the choke.	5
Partial area effects	Hyd	A hydrologic catchment condition where a greater peak discharge is achieved within the Rational Method when a storm is assumed to applied to only part of the catchment, as compared to a longer duration storm being applied to the whole catchment.	5
Partial series	Hyd	A data set consisting of the events greater than an arbitrary base value, but including only the greatest event from any group of dependent events. Statistical analysis of a partial series of historical rainfall data produces an assessment of the ARI.	32*
Particle size analysis	Sol	The quantifiable separation of a soil sample into predetermined particle size groups such as clay, silt, fine sand, coarse sand and gravel. The amounts are normally expressed as percentages by weight of dry soil and are determined by dispersion, sedimentation, sieving, micrometry or combinations of these techniques.	4*
Particulate	Gen	Existing as, composed of, or pertaining to particles.	9
Passive recreation	Gen	A non-motorised activity that requires minimal visitor facilities and services and that does not impact natural values.	5
	Wwy	A type of recreation that does not involve primary or secondary contact with the water body, e.g. bird watching, walking, etc.	34*
Pathogen	Sto	An organism capable of causing disease symptoms in another organism, e.g. faecal coliform bacteria, enterococcus bacteria, protozoa and viruses.	23*
Pea gravel	Wwy	Granular material between 2 and 10mm equivalent diameter.	56*
Peak discharge	Hyd	The peak flow rate for a given flood event at a given location.	34*
Peak flow	—	See PEAK DISCHARGE.	

Pediment	Lfm	A gently inclined to level landform with rapidly migrating and very shallow incipient stream channels. A pediment lies down-slope from adjacent hills with markedly steeper slopes. Typically underlain by bedrock in the upper parts, and formed by a combination of alluvial and gravitational (colluvial) processes.	43*
Pedology	Gen	The study of soils, particularly their formation, morphology, distribution and classification.	4
Pelagic	Eco	**1.** Relating to living at or near the surface of an ocean or sea, far from land.	9*
	Eco	**2.** Relating to organisms living in the upper part of the water column.	9*
Percentile	Gen	A way of describing sets of data by ranking the data set and establishing the value for each percentage of the total number of data records, i.e. the 90th percentile of the distribution is the value such that 90% of the observations fall at or below it.	62*
Percolation	Sol	The downward movement of water through soil, contributing to internal drainage.	4
Percolation rate	Sol	The rate, usually expressed as mm/hr or mm/day, at which water moves through the soil profile.	7
Perennial	Gen	Relating to lasting for an indefinitely long time.	9*
Perennial plant	Bot	A plant whose lifecycle extends for more than two years and continues to live from year to year.	4*
Perennial stream	Wwy	A watercourse with a continuous flow regime.	5
Perimeter bank	Esc	A small flow diversion bank constructed adjacent a property boundary or the outer perimeter of a soil disturbance. Perimeter banks are usually constructed of earth, but may be formed from composted material, or a tightly placed row of straw bales.	5
Periphyton	Eco	Organisms (plants and animals) attached to submerged objects such as rocks, logs or other plants; usually microscopic.	3*
Permeability	Gen	Relating to being permeable and having the capacity for water to pass through it.	5
Permeability (soil)	Soil	The characteristic of a soil, soil horizon or soil material that governs the rate at which water moves through it. It is a composite expression of soil properties and depends largely on soil texture, soil structure, the presence of compacted or dense soil horizons, and the size and distribution of pores in the soil.	4*
Permeability rate	Sol	The rate at which water will move through a saturated soil. The qualitative categories of permeability for general use are: (i) Slowly permeable – less than 10 mm per day	4*

		(ii) Moderately permeable – 10 to 1000 mm per day (iii) Highly permeable – more than 1000 mm per day.	
Permeable (porous) pavement	Sto	A pavement made of materials that allow rainwater to infiltrate and transfer to the underlying sub-soil. Also known as a POROUS PAVEMENT and PERVIOUS PAVEMENT.	5
Permissible site discharge (PSD)	Sto	A specified discharge from a stormwater detention device for the specified design storm frequency.	5
Pervious	Gen	Relating to allowing the passage or entrance of water.	5
Pervious pavement	Sto	A pavement with traditional strength characteristics but which allows rainfall and runoff to percolate through it.	29*
Pervious surface (pervious area)	Hyd	A surface or area within a drainage catchment where some of the rainfall will infiltrate.	24*
Pesticide	Sto	A chemical agent designed to control pest organisms. The most common forms of pesticides are organic chemicals designed to target insects (insecticides) and vascular plants (herbicides).	38
pH (soil)	Sol	A measure of the acidity or alkalinity of a soil. A pH of 7.0 denotes neutrality, higher values indicated alkalinity, and lower values indicate acidity. Strictly it represents the negative logarithm of the hydrogen ion concentration in a specified soil/water suspension on a scale of 0-14.	4
pH (water)	Sto	A measure of the acidity or alkalinity of a water. A pH of 7.0 denotes neutrally, higher values indicated alkalinity, and lower values indicate acidity. Strictly it represents the negative logarithm of the hydrogen ion concentration on a scale of 0-14.	4*
Photodegradation	Sci	The process whereby ultraviolet radiation in sunlight attacks a chemical bond or link in a chemical structure.	23*
Photolysis	Sci	The process of decomposition of a compound into simpler units as a result of absorbing one or more quanta of radiation.	23*
Photo-oxidation	Sci	The process of oxidation induced by radiant energy.	23*
Photosynthesis	Bot	The process of conversion of carbon dioxide to carbohydrates in the presence of chlorophyll using light energy, undertaken by most plants.	34*
Phreatic surface	Gel	The free surface of groundwater where pressures are equal to atmospheric pressure along this surface.	58*
Phreatophytes	Bot	A plant that depends on underground water.	62*
Physical trapping	Sto	The trapping of stormwater pollutants by a screen or barrier, e.g. floating litter trapped by a trash rack, or litter boom.	28*
Physiology	Gen	The study of the functioning of organisms and their parts.	23
Phytophthora	Bot	A root parasite.	23
Phytoplankton	Eco	Planktonic (floating) algae.	3

Phytoremediation	Sto	The process of treating runoff in channels by phreatic vegetation.	1
Piezometer	Hyd	An instrument used to measure the static pressure of a flowing fluid within a section of straight pipe. Usually attached to a pressure gauge or U-tube manometer.	5
	Gel	A non-pumping well, generally of small diameter, that is used to measure the elevation of the water table or potentiometric surface. A piezometer generally has a short well screen through which water can enter.	58
Piezometric head	Gel	The pressure head experienced by a given body of water, comprising both static levels and inertial forces.	58*
Piezometric surface	Hyd	Surface or elevation of the hydraulic grade line.	5
Pipe	Sto	A hollow cylinder or tube, solid or flexible, used to convey liquids.	5
Pipe drain	Sto	A drain constructed using pipes or in the form of a pipe.	2*
Pipe flow	Hyd	A condition of flow in which pressurised water occurs within an enclosed chamber and there is no free surface except at the ends of the chamber.	5
Pipe spillway	Hyd	A spillway with a pipe for its control section. An inclined pipe spillway consists of a pipe passing through an embankment with a fall throughout its length. A drop Inlet pipe spillway consists of a pipe passing through the embankment horizontally, or near horizontally, where flows enter the pipe through a drop inlet.	4*
Piping	Sol	The process of losing sub-surface soil due to water-induced erosion (tunnel erosion) while the surface soil remains relatively intact. The tunnel may eventually collapse to form a gully.	5
Piping failure	Sol	The failure of an earthwork due to tunnel erosion (piping).	4*
Pitching	Eng	Large stones laid by hand to a regular slope or surface shape on a road, cutting, embankment or on the bed and slopes of a channel.	2
Plan form	Eng	A bird's-eye view of a structure or land surface.	5
Plankton	Eco	Plants (phytoplankton) and animals (zooplankton), usually microscopic, suspended, floating or a drift in aquatic systems.	34*
Planktonic algae	Eco	Algae suspended in water.	50
Plant	Bot	Any member of the vegetable, herb, shrub or tree group of living organisms.	9
	Eng	Equipment, including fixtures, machinery, tools, etc. and often the buildings, necessary for any individual business.	9
Plant succession	Bot	A gradual change in the number of individuals of each plant species of a community and the establishment of	34

		new species populations over time.	
Plug flow	Hyd	A flow condition in which a fluid passes sequentially through a structure such that the retention time for an individual element of the fluid is similar to the average retention time of the fluid.	5
Plug flow reactor	Sto	An ideal reactor in which an element of material moves sequentially through the reactor.	34*
Plunging jet	Hyd	A liquid jet impacting (or impinging) on a receiving pool of liquid.	11*
Pluviometer	Hyd	An instrument for measuring rainfall in a continuous manner that allows for the determination of rainfall intensity.	5
Pluviograph	Hyd	Numerical or graphical data output from a pluviometer rainfall gauge.	5
PMF	Hyd	The abbreviation for Probably Maximum Flood, meaning the largest flood that could conceivably occur at a particular location, resulting from the probable maximum precipitation (PMP) and, where applicable, snowmelt, coupled with the worst flood-producing catchment conditions that can be realistically expected in the prevailing meteorological conditions. The PMF defines the extent of flood-prone land.	26*
PMP	Hyd	The abbreviation for probable maximum precipitation, meaning the greatest depth of precipitation for a given duration meteorologically possible for a given size storm area at a particular location at a particular time of year.	58*
Podzolic soils	Sol	Soils with distinct layers (horizons) down the profile.	50
Point source	Sto	A discernible, confined and discrete source of a given substance, e.g. the release of given pollutant from a known property or process.	15*
Pollutant	Gen	Anything that pollutes.	5
	Sto	Any constituent present in sufficient quantity to impair the beneficial uses of a receiving water body.	38
Pollutant retention	Sto	The proportion of pollutant load intercepted and retained by a device, either on an event or annual basis.	15
Pollution containment system	Sto	Typically a non-free-draining pond designed to capture and hold pollution spills, such as that resulting from traffic accidents. The trapped pollution usually being collected and treated and/or disposed of off-site.	47*
Pollution control ponds	Sto	A shallow pool of water, characterised by areas of emergent aquatic plants and open water, designed to intercept event discharges and enable adsorption and sedimentation of pollutants, and to support a diverse range of microorganisms and plants associated with the breakdown of organic material and uptake of nutrients.	15
Pond	Sto	**1.** Small to medium, open body of water where the pond volume is less than the typical volume of stormwater	5

		runoff from a regular, but not an irregular or extreme, storm or flood event.	
	Sto	**2.** The open water region of a wetland usually surrounded by emergent macrophytes.	5
Pool	Wwy	A section of a channel bed where the normal water depth is deeper than in the adjoining channel regions and where water can pond during periods of zero flow.	5
Porosity (soil)	Sol	The degree to which the soil mass is permeated with pores or cavities, usually expressed as a percentage of the whole volume of a soil horizon that is unoccupied by solid particles.	4*
Porous pavement	Sto	A pavement made of materials that allow rainwater to infiltrate and transfer to the underlying sub-soil. Also known as a PERMEABLE PAVEMENT.	5
Potable water	Gen	Water suitable, on the basis of both health and aesthetic considerations, for drinking or culinary purposes.	23
Potential infiltration rate	Sol	The infiltration rate of a given soil at the point when water begins to pond on the soil surface.	48*
Precipitation	Hyd	Particles of liquid or solid water formed within a cloud and falling to the ground.	60
	Sci	The process of separation by gravity of chemical substances from solution in which they combine to form insoluble compounds.	28*
Pre-entrance treatments	Sto	Stormwater treatment measures that either use infiltration techniques to separate out entrained sediments from stormwater before it enters the drainage network, or use enhanced sedimentation to contain contaminants.	31*
Pressure	Hyd	The force exerted per unit area by a fluid upon a body or the internal surface of a conduit. The SI unit of pressure is the pascal.	9*
Pressure change	Hyd	The change in average fluid pressure between two specified locations, such as the inlet and outlet of a component of a hydraulic conduit.	5
Pressure change 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 HEAD LOSS COEFFICIENT and PRESSURE LOSS COEFFICIENT.	24*
Pressure gradient	Hyd	The slope of the line representing the pressure head, or piezometric head in a pipeline. Also known as the FRICTION SLOPE and HYDRAULIC GRADIENT.	5
Pressure head	Hyd	The pressure of a fluid at a given point in a system divided by the unit weight of the fluid. The pressure head represents the height of the column	34*

		of water that can be supported above a given point in a fluid by the static water pressure at that point. The pressure head is representative of the potential energy of the water column.	
Pressure 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 HEAD LOSS COEFFICIENT and PRESSURE CHANGE COEFFICIENT.	24*
Primary contact	Wwy	Frequent direct contact with water by humans either as part of an activity or accidentally, e.g. swimming, surfing, windsurfing, diving and water skiing.	34*
Primary producers	Eco	Organisms that can produce their own food, such as green plants.	3*
Primary production	Eco	The production of organic matter from inorganic materials.	23
Primary treatment	Sto	The treatment of water by physical screening, separation or settling (rapid sedimentation). Typical retained contaminants include sediment, solids, litter, hydrocarbons (oil separation) and organic matter.	5
Principal outlet	Sto	The hydraulic structure, or component of a hydraulic structure, through which discharge occurs to a receiving environment during normal operating conditions, but not necessarily during extreme discharge events.	5
Pristine aquatic ecosystem	Eco	An aquatic ecosystem that has not been, or is not, subject to human interference through releases (whether direct or indirect) into water that is part of the ecosystem, or activities in the water's catchment area.	18
Probable maximum flood (PMF)	Hyd	The largest flood that could conceivably occur at a particular location, resulting from the probable maximum precipitation (PMP) and, where applicable, snowmelt, coupled with the worst flood-producing catchment conditions that can be realistically expected in the prevailing meteorological conditions. The PMF defines the extent of flood-prone land.	26*
Probable maximum precipitation (PMP)	Hyd	The greatest depth of precipitation for a given duration meteorologically possible for a given size storm area at a particular location at a particular time of year.	58
Problematic soil	Esc	Any soil type of condition that could result in significant short-term or ongoing environmental harm if disturbed, even if current best practice construction and ESC procedures are adopted during the disturbance. Such soil conditions are likely to include highly dispersive soils (ESP >15%) and actual or potential acid sulfate soils. Note: Soils are not in themselves a problem or problematic. Problems arise through disturbance or management of the soil.	5
Producers	Eco	Organisms that are able to build up their body substance	23

		from inorganic materials.	
Prolarvae	Eco	Newly hatched larvae during the first few days when they feed on their supply of embryonic yolk.	23
Proportional loss rate	Hyd	An assumed stormwater loss rate that is represented as a constant fraction of the rainfall intensity.	5
Protect	Gen	To defend or guard from attack, annoyance, alteration, or damage. To cover or shield from injury or danger.	9*
Protection	Eco	**1.** The act of protecting.	9*
		2. The state of being protected.	9*
PSD	Sto	The abbreviation for permissible site discharge, a specified discharge from a stormwater detention device for the specified design storm frequency.	5
Pug (verb)	Eng	To pack with clay or similar plastic material, generally for the purpose of checking leakage of water.	2

Term	Code	Definition	Source
Palaeochannel	Wwy	A channel formed a long time ago and now not usually part of an active river system.	3
Paleofloods	Hyd	Major floods that have occurred outside the historical record for which geological, geomorphological or botanical evidence exists.	32*
Paleohydrology	Hyd	The study of the hydrological characteristics of paleofloods.	5
Parameter	Gen	A measurable or quantifiable characteristic or feature.	23
Parshall flume	Hyd	A specific design of a straight-edged, horizontal, open channel flume developed by Dr. Ralph Parshall. The flume has a straight-edged vertical constriction (weir) on the bed, which hydraulically functions as a broad-crested weir allowing critical depth to occur at the choke.	5
Partial area effects	Hyd	A hydrologic catchment condition where a greater peak discharge is achieved within the Rational Method when a storm is assumed to applied to only part of the catchment, as compared to a longer duration storm being applied to the whole catchment.	5
Partial series	Hyd	A data set consisting of the events greater than an arbitrary base value, but including only the greatest event from any group of dependent events. Statistical analysis of a partial series of historical rainfall data produces an assessment of the ARI.	32*
Particle size analysis	Sol	The quantifiable separation of a soil sample into predetermined particle size groups such as clay, silt, fine sand, coarse sand and gravel. The amounts are normally expressed as percentages by weight of dry soil and are determined by dispersion, sedimentation, sieving, micrometry or combinations of these techniques.	4*
Particulate	Gen	Existing as, composed of, or pertaining to particles.	9
Passive recreation	Gen	A non-motorised activity that requires minimal visitor facilities and services and that does not impact natural values.	5
	Wwy	A type of recreation that does not involve primary or secondary contact with the water body, e.g. bird watching, walking, etc.	34*
Pathogen	Sto	An organism capable of causing disease symptoms in another organism, e.g. faecal coliform bacteria, enterococcus bacteria, protozoa and viruses.	23*
Pea gravel	Wwy	Granular material between 2 and 10mm equivalent diameter.	56*
Peak discharge	Hyd	The peak flow rate for a given flood event at a given location.	34*
Peak flow	—	See PEAK DISCHARGE.	

Pediment	Lfm	A gently inclined to level landform with rapidly migrating and very shallow incipient stream channels. A pediment lies down-slope from adjacent hills with markedly steeper slopes. Typically underlain by bedrock in the upper parts, and formed by a combination of alluvial and gravitational (colluvial) processes.	43*
Pedology	Gen	The study of soils, particularly their formation, morphology, distribution and classification.	4
Pelagic	Eco	**1.** Relating to living at or near the surface of an ocean or sea, far from land.	9*
	Eco	**2.** Relating to organisms living in the upper part of the water column.	9*
Percentile	Gen	A way of describing sets of data by ranking the data set and establishing the value for each percentage of the total number of data records, i.e. the 90th percentile of the distribution is the value such that 90% of the observations fall at or below it.	62*
Percolation	Sol	The downward movement of water through soil, contributing to internal drainage.	4
Percolation rate	Sol	The rate, usually expressed as mm/hr or mm/day, at which water moves through the soil profile.	7
Perennial	Gen	Relating to lasting for an indefinitely long time.	9*
Perennial plant	Bot	A plant whose lifecycle extends for more than two years and continues to live from year to year.	4*
Perennial stream	Wwy	A watercourse with a continuous flow regime.	5
Perimeter bank	Esc	A small flow diversion bank constructed adjacent a property boundary or the outer perimeter of a soil disturbance. Perimeter banks are usually constructed of earth, but may be formed from composted material, or a tightly placed row of straw bales.	5
Periphyton	Eco	Organisms (plants and animals) attached to submerged objects such as rocks, logs or other plants; usually microscopic.	3*
Permeability	Gen	Relating to being permeable and having the capacity for water to pass through it.	5
Permeability (soil)	Soil	The characteristic of a soil, soil horizon or soil material that governs the rate at which water moves through it. It is a composite expression of soil properties and depends largely on soil texture, soil structure, the presence of compacted or dense soil horizons, and the size and distribution of pores in the soil.	4*
Permeability rate	Sol	The rate at which water will move through a saturated soil. The qualitative categories of permeability for general use are: (i) Slowly permeable – less than 10 mm per day	4*

		(ii) Moderately permeable – 10 to 1000 mm per day (iii) Highly permeable – more than 1000 mm per day.	
Permeable (porous) pavement	Sto	A pavement made of materials that allow rainwater to infiltrate and transfer to the underlying sub-soil. Also known as a POROUS PAVEMENT and PERVIOUS PAVEMENT.	5
Permissible site discharge (PSD)	Sto	A specified discharge from a stormwater detention device for the specified design storm frequency.	5
Pervious	Gen	Relating to allowing the passage or entrance of water.	5
Pervious pavement	Sto	A pavement with traditional strength characteristics but which allows rainfall and runoff to percolate through it.	29*
Pervious surface (pervious area)	Hyd	A surface or area within a drainage catchment where some of the rainfall will infiltrate.	24*
Pesticide	Sto	A chemical agent designed to control pest organisms. The most common forms of pesticides are organic chemicals designed to target insects (insecticides) and vascular plants (herbicides).	38
pH (soil)	Sol	A measure of the acidity or alkalinity of a soil. A pH of 7.0 denotes neutrality, higher values indicated alkalinity, and lower values indicate acidity. Strictly it represents the negative logarithm of the hydrogen ion concentration in a specified soil/water suspension on a scale of 0-14.	4
pH (water)	Sto	A measure of the acidity or alkalinity of a water. A pH of 7.0 denotes neutrally, higher values indicated alkalinity, and lower values indicate acidity. Strictly it represents the negative logarithm of the hydrogen ion concentration on a scale of 0-14.	4*
Photodegradation	Sci	The process whereby ultraviolet radiation in sunlight attacks a chemical bond or link in a chemical structure.	23*
Photolysis	Sci	The process of decomposition of a compound into simpler units as a result of absorbing one or more quanta of radiation.	23*
Photo-oxidation	Sci	The process of oxidation induced by radiant energy.	23*
Photosynthesis	Bot	The process of conversion of carbon dioxide to carbohydrates in the presence of chlorophyll using light energy, undertaken by most plants.	34*
Phreatic surface	Gel	The free surface of groundwater where pressures are equal to atmospheric pressure along this surface.	58*
Phreatophytes	Bot	A plant that depends on underground water.	62*
Physical trapping	Sto	The trapping of stormwater pollutants by a screen or barrier, e.g. floating litter trapped by a trash rack, or litter boom.	28*
Physiology	Gen	The study of the functioning of organisms and their parts.	23
Phytophthora	Bot	A root parasite.	23
Phytoplankton	Eco	Planktonic (floating) algae.	3

Phytoremediation	Sto	The process of treating runoff in channels by phreatic vegetation.	1
Piezometer	Hyd	An instrument used to measure the static pressure of a flowing fluid within a section of straight pipe. Usually attached to a pressure gauge or U-tube manometer.	5
	Gel	A non-pumping well, generally of small diameter, that is used to measure the elevation of the water table or potentiometric surface. A piezometer generally has a short well screen through which water can enter.	58
Piezometric head	Gel	The pressure head experienced by a given body of water, comprising both static levels and inertial forces.	58*
Piezometric surface	Hyd	Surface or elevation of the hydraulic grade line.	5
Pipe	Sto	A hollow cylinder or tube, solid or flexible, used to convey liquids.	5
Pipe drain	Sto	A drain constructed using pipes or in the form of a pipe.	2*
Pipe flow	Hyd	A condition of flow in which pressurised water occurs within an enclosed chamber and there is no free surface except at the ends of the chamber.	5
Pipe spillway	Hyd	A spillway with a pipe for its control section. An inclined pipe spillway consists of a pipe passing through an embankment with a fall throughout its length. A drop Inlet pipe spillway consists of a pipe passing through the embankment horizontally, or near horizontally, where flows enter the pipe through a drop inlet.	4*
Piping	Sol	The process of losing sub-surface soil due to water-induced erosion (tunnel erosion) while the surface soil remains relatively intact. The tunnel may eventually collapse to form a gully.	5
Piping failure	Sol	The failure of an earthwork due to tunnel erosion (piping).	4*
Pitching	Eng	Large stones laid by hand to a regular slope or surface shape on a road, cutting, embankment or on the bed and slopes of a channel.	2
Plan form	Eng	A bird's-eye view of a structure or land surface.	5
Plankton	Eco	Plants (phytoplankton) and animals (zooplankton), usually microscopic, suspended, floating or a drift in aquatic systems.	34*
Planktonic algae	Eco	Algae suspended in water.	50
Plant	Bot	Any member of the vegetable, herb, shrub or tree group of living organisms.	9
	Eng	Equipment, including fixtures, machinery, tools, etc. and often the buildings, necessary for any individual business.	9
Plant succession	Bot	A gradual change in the number of individuals of each plant species of a community and the establishment of	34

		new species populations over time.	
Plug flow	Hyd	A flow condition in which a fluid passes sequentially through a structure such that the retention time for an individual element of the fluid is similar to the average retention time of the fluid.	5
Plug flow reactor	Sto	An ideal reactor in which an element of material moves sequentially through the reactor.	34*
Plunging jet	Hyd	A liquid jet impacting (or impinging) on a receiving pool of liquid.	11*
Pluviometer	Hyd	An instrument for measuring rainfall in a continuous manner that allows for the determination of rainfall intensity.	5
Pluviograph	Hyd	Numerical or graphical data output from a pluviometer rainfall gauge.	5
PMF	Hyd	The abbreviation for Probably Maximum Flood, meaning the largest flood that could conceivably occur at a particular location, resulting from the probable maximum precipitation (PMP) and, where applicable, snowmelt, coupled with the worst flood-producing catchment conditions that can be realistically expected in the prevailing meteorological conditions. The PMF defines the extent of flood-prone land.	26*
PMP	Hyd	The abbreviation for probable maximum precipitation, meaning the greatest depth of precipitation for a given duration meteorologically possible for a given size storm area at a particular location at a particular time of year.	58*
Podzolic soils	Sol	Soils with distinct layers (horizons) down the profile.	50
Point source	Sto	A discernible, confined and discrete source of a given substance, e.g. the release of given pollutant from a known property or process.	15*
Pollutant	Gen	Anything that pollutes.	5
	Sto	Any constituent present in sufficient quantity to impair the beneficial uses of a receiving water body.	38
Pollutant retention	Sto	The proportion of pollutant load intercepted and retained by a device, either on an event or annual basis.	15
Pollution containment system	Sto	Typically a non-free-draining pond designed to capture and hold pollution spills, such as that resulting from traffic accidents. The trapped pollution usually being collected and treated and/or disposed of off-site.	47*
Pollution control ponds	Sto	A shallow pool of water, characterised by areas of emergent aquatic plants and open water, designed to intercept event discharges and enable adsorption and sedimentation of pollutants, and to support a diverse range of microorganisms and plants associated with the breakdown of organic material and uptake of nutrients.	15
Pond	Sto	**1.** Small to medium, open body of water where the pond volume is less than the typical volume of stormwater	5

		runoff from a regular, but not an irregular or extreme, storm or flood event.	
	Sto	**2.** The open water region of a wetland usually surrounded by emergent macrophytes.	5
Pool	Wwy	A section of a channel bed where the normal water depth is deeper than in the adjoining channel regions and where water can pond during periods of zero flow.	5
Porosity (soil)	Sol	The degree to which the soil mass is permeated with pores or cavities, usually expressed as a percentage of the whole volume of a soil horizon that is unoccupied by solid particles.	4*
Porous pavement	Sto	A pavement made of materials that allow rainwater to infiltrate and transfer to the underlying sub-soil. Also known as a PERMEABLE PAVEMENT.	5
Potable water	Gen	Water suitable, on the basis of both health and aesthetic considerations, for drinking or culinary purposes.	23
Potential infiltration rate	Sol	The infiltration rate of a given soil at the point when water begins to pond on the soil surface.	48*
Precipitation	Hyd	Particles of liquid or solid water formed within a cloud and falling to the ground.	60
	Sci	The process of separation by gravity of chemical substances from solution in which they combine to form insoluble compounds.	28*
Pre-entrance treatments	Sto	Stormwater treatment measures that either use infiltration techniques to separate out entrained sediments from stormwater before it enters the drainage network, or use enhanced sedimentation to contain contaminants.	31*
Pressure	Hyd	The force exerted per unit area by a fluid upon a body or the internal surface of a conduit. The SI unit of pressure is the pascal.	9*
Pressure change	Hyd	The change in average fluid pressure between two specified locations, such as the inlet and outlet of a component of a hydraulic conduit.	5
Pressure change 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 HEAD LOSS COEFFICIENT and PRESSURE LOSS COEFFICIENT.	24*
Pressure gradient	Hyd	The slope of the line representing the pressure head, or piezometric head in a pipeline. Also known as the FRICTION SLOPE and HYDRAULIC GRADIENT.	5
Pressure head	Hyd	The pressure of a fluid at a given point in a system divided by the unit weight of the fluid. The pressure head represents the height of the column	34*

		of water that can be supported above a given point in a fluid by the static water pressure at that point. The pressure head is representative of the potential energy of the water column.	
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Primary contact	Wwy	Frequent direct contact with water by humans either as part of an activity or accidentally, e.g. swimming, surfing, windsurfing, diving and water skiing.	34*
Primary producers	Eco	Organisms that can produce their own food, such as green plants.	3*
Primary production	Eco	The production of organic matter from inorganic materials.	23
Primary treatment	Sto	The treatment of water by physical screening, separation or settling (rapid sedimentation). Typical retained contaminants include sediment, solids, litter, hydrocarbons (oil separation) and organic matter.	5
Principal outlet	Sto	The hydraulic structure, or component of a hydraulic structure, through which discharge occurs to a receiving environment during normal operating conditions, but not necessarily during extreme discharge events.	5
Pristine aquatic ecosystem	Eco	An aquatic ecosystem that has not been, or is not, subject to human interference through releases (whether direct or indirect) into water that is part of the ecosystem, or activities in the water's catchment area.	18
Probable maximum flood (PMF)	Hyd	The largest flood that could conceivably occur at a particular location, resulting from the probable maximum precipitation (PMP) and, where applicable, snowmelt, coupled with the worst flood-producing catchment conditions that can be realistically expected in the prevailing meteorological conditions. The PMF defines the extent of flood-prone land.	26*
Probable maximum precipitation (PMP)	Hyd	The greatest depth of precipitation for a given duration meteorologically possible for a given size storm area at a particular location at a particular time of year.	58
Problematic soil	Esc	Any soil type of condition that could result in significant short-term or ongoing environmental harm if disturbed, even if current best practice construction and ESC procedures are adopted during the disturbance. Such soil conditions are likely to include highly dispersive soils (ESP >15%) and actual or potential acid sulfate soils. Note: Soils are not in themselves a problem or problematic. Problems arise through disturbance or management of the soil.	5
Producers	Eco	Organisms that are able to build up their body substance	23

		from inorganic materials.	
Prolarvae	Eco	Newly hatched larvae during the first few days when they feed on their supply of embryonic yolk.	23
Proportional loss rate	Hyd	An assumed stormwater loss rate that is represented as a constant fraction of the rainfall intensity.	5
Protect	Gen	To defend or guard from attack, annoyance, alteration, or damage. To cover or shield from injury or danger.	9*
Protection	Eco	**1.** The act of protecting.	9*
		2. The state of being protected.	9*
PSD	Sto	The abbreviation for permissible site discharge, a specified discharge from a stormwater detention device for the specified design storm frequency.	5
Pug (verb)	Eng	To pack with clay or similar plastic material, generally for the purpose of checking leakage of water.	2

Term	Code	Definition	Source
Q	Hyd	The symbol for discharge, typically appears with units of L/s or m^3/s.	5
q	Hyd	The symbol for discharge per unit length, typically appears with units of L/s/m, $m^3/s/m$ or m^2/s.	5
Rain	Gen	Precipitation in the form of liquid water drops, either as drops of appreciable size or of smaller widely scattered drops. Rain can be characterised as either intermittent, continuous or showers.	60, 61
	Met	Precipitation in the form of a liquid that exceeds a rate of 0.8 mm per hour.	60*
Raindrop impact erosion	Esc	The splattering of soil particles caused by the impact of raindrops on the soil surface. The loosened particles may or may not be subsequently removed by runoff. Raindrop impact erosion is a component of sheet erosion. Also known as SPLASH EROSION.	4
Raindrop splash	Esc	The result of the violent break up and dispersion of raindrops when they hit the ground surface. If the surface is not protected soil particles might be dislodged and spattered a considerable distance by the energy of the raindrop's impact.	4*
Rainfall	Gen	**1.** An episode of rain precipitation. The spatial distribution of rainfall events can be described using the following terms: Few: Showers that are widely separated, and not occurring often. Isolated: Showers that are well separated in location during a given period. Local: Showers restricted to certain, usually relatively small, areas. Patchy: Precipitation occurring irregularly throughout an area or district. Scattered: Showers that are not widespread but which occur widely throughout an area. Denotes a slightly greater incidence than 'isolated'. Sporadic: Occasional or isolated rainfall events. Widespread: Precipitation occurring extensively throughout an area.	61*
	Gen	**2.** The amount of water falling as rain, snow, or similar, within a given time and area, ordinarily expressed as a hypothetical depth of coverage over the catchment.	9*
Rainfall excess	Hyd	The rainfall that is neither retained on the land surface nor infiltrated into the soil.	48
Rainfall intensity	Hyd	The average rate of rainfall over a given time interval, ordinarily expressed in millimetres per hour (mm/hr).	4*
Rainfall losses	Hyd	The volumetric difference between the observed total	48*

		rainfall hyetograph and the rainfall excess hydrograph.	
Rain garden	Sto	A bioretention-based stormwater treatment system integrated into an urban environment. Also known as BIORETENTION SYSTEMS.	5
Rainwater	Gen	Water that has fallen as rain.	5
Rainwater harvesting	Sto	The capture and storage of rainfall for later usage, but not rainfall which is captured and released as part of a detention/retention system where the water performs no other function or usage.	5
Rainwater tank	Sto	A tank, above or below ground, used to collect and store rainfall from roofs and other relatively clean surfaces.	5
Ramsar wetland	Res	A wetland identified as internationally important for the protection of migrating birds by the Ramsar Convention on Wetlands of 1971 held in the Iranian town of Ramsar which resulted in a United Nations treaty enacted in 1975.	5
Range	Hyd	Maximum measured or predicted stream flow rate minus the minimum measured or predicted flow rate.	5
Rapidly varied flow	Hyd	A condition of free surface flow where the streamlines are either not near-horizontal, near-parallel, or are heavily curved. Rapidly varied flow is normally associated with an abrupt change in water depth and/or channel width, e.g. flow conditions associated with a sharp-crested weir, sluice gate, or hydraulic jump.	5
Rare flood	Hyd	Arbitrary adopted as a flood with an exceedance probability greater than 1 in 100.	5
RAS	Hyd	Abbreviation of the U.S. Army Corps of Engineers' *River Analysis System* as used in the numerical model HEC-RAS.	5
Rating curve	Hyd	The numerical or graphical relationship between the water surface elevation and its associated discharge at a given location along an open channel or stream. Also known as the STAGE-DISCHARGE CURVE.	5
Rational formula	Hyd	A formula for estimating peak discharge of runoff from a given catchment area. $Q = CIA/360$ (SI units) Where: Q = peak discharge [m^3/s]; C = runoff coefficient [non-dimensional]; I = the rainfall intensity [mm/hr] for the selected return period [yrs] and storm duration equal to the time of concentration for the catchment; and A = the catchment area [ha].	5
Rational Method	Hyd	A hydrologic procedure involving use of the Rational formula.	5
Raw water	Res	**1.** Water which has received no treatment.	57
	Res	**2.** Water entering a plant for further treatment.	57

Reach	Sto	The smallest subdivision of the drainage system consisting of a length of near uniform open channel.	7
	Wwy	A discrete portion of a river, stream or creek between bends.	42*
Reaction rate equations	Sci	A measure of how rapidly a particular component (e.g. BOD, SS, N) either forms or disappears in a given environment as a function of the conditions (e.g. temperature, mixing) there.	34*
Receiving water	Sto	The body of water into which runoff or effluent is discharged	5
Recharge	Res	Water that infiltrates through the soil surface to the watertable.	3
Recharge area	Res	An area in which there is a net downward movement of water into the aquifer.	34
Recharge basin	Res	A basin provided to increase infiltration for the purpose of replenishing groundwater supply.	7
Recharge capability	Res	The quantitative ability of the soils and underlying material to allow precipitation and runoff to infiltrate and reach the aquifer.	57*
Recharge well	Res	A stormwater infiltration device that disposes of stormwater directly into the subsurface via a perforated vertical pipe or porous well.	48*
Reclaimed water	Res	Contaminated water collected and treated to a useable form.	5
Recreational use of water	Wwy	Primary contact recreational use of a water body, or secondary contact recreational use, or visual recreational use.	18
Rectangular flume	Hyd	A curved horizontal constriction (choke) within an open channel, with a horizontal flat bed, that hydraulically functions as a broad-crested weir allowing critical depth to occur at the choke. As a flow-measuring device, Rectangular flumes provide the advantage of allowing the near-free passage of bed sediments thus allowing flume to remain generally free settled sediment. See also FLUME.	5
Recurrence interval	Hyd	The average interval of time within which the magnitude of a hydrologic event will be equalled or exceeded at least once on average.	48*
Recycle	Gen	To treat materials so that new products can be manufactured from them, for example, wastewater being treated so that it can be used for irrigation, industrial, or domestic purposes.	9*
Recycled water	Res	Treated stormwater, grey water or black water suitable for a range of uses including toilet flushing, irrigation and industrial processing. May also apply to the treatment of wastewater to drinking water standard.	15*

Recycling of waste water	Res	The process of reusing water discharged from a process or property.	5
Redox	Sci	The potential of a soil to oxidise or reduce chemical substances.	34
Redox potential	Sci	The measurement of the state of oxidation of a system.	34
Reduce	Gen	To lower the demand on a substance, such as potable water, or to lower the degree or intensity of an effect such as flooding.	5
Reduced conditions	Sci	The removal of oxygen, or the addition of hydrogen from a substance, or more generally, any reaction in which an atom accepts an electron.	34*
Reduced level (RL)	Eng	The elevation of a point or mark relative to a given datum.	2*
Reduction	Sci	The process of chemical removal of oxygen, addition of hydrogen ions, or addition of electrons, by a reducing agent.	50*
Redundancy in design	Eng	A design process that ensures that failure of a single component of the system does not result in the failure of the entire system.	34*
Referable dam	Eng	Any artificial barrier, temporary or permanent, including related works, which does or could impound, divert or control water, other liquids, silt, debris or other liquid-borne material that complies with or exceeds a set of minimum criteria usually specified by a State agency.	22*
Regional flood frequency analysis	Hyd	The long-term statistical analysis of either peak flood discharge or peak water level, at a given location, usually expressed as an annual exceedance probability based on an annual series data set (i.e. a data set consisting of the highest discharge or water level in each year of record). The year may be a calendar year or water year. Flood frequency analysis based on a partial series data set is normally expressed as in terms of an average recurrence interval (ARI). Also known as FLOOD FREQUENCY ANALYSIS.	5
Regional flood model	Hyd	A numerical flood routing model that has been calibrated to best represent the type of stream and catchment conditions associated with a given region.	5
Regional hydrographic equation	Hyd	A hydrographic (rainfall-runoff) equation that has been calibrated to best represent those catchment conditions and stream response times most commonly associated with a given climatic or geographic region.	5
Regional hydrographic model	Hyd	A numerical hydrographic model that has been calibrated to best represent those catchment conditions most commonly associated with a given region.	5
Regional skew	Hyd	**1.** Methodology where the assessed skew of a statistical analysis is improved by weighting from pooled information for other sites in the region.	5

	Hyd	**2.** The skew of a statistical analysis based on data collected from a region rather than a single recording station.	5
Regular pattern	Lfm	A particular layout of the branches of a major watercourse as viewed in plan form, where the branches and main channel are primarily straight and generally intersect at approximately 90 degrees, but adjacent watercourses are not necessarily parallel to each other. Typically occurs in faulted areas where streams follow a more easily eroded fractured rock in fault lines.	48*
Regular storm event	Sto	A storm event that is expected to be equalled or exceeded on a regular basis. Ordinarily assumed to have a frequency of less than a 1 in 3-month or 1 in 1-year event.	5
Regulated	Wwy	A river or creek in which water is released from storage to meet diversion requirements downstream, or to reduce flooding.	3
Rehabilitate	Gen	To restore to a condition appropriate for the desired ongoing land use, and sufficiently stabile to achieve the desired discharge water quality objectives.	5
Rehabilitation	Wwy	The process of improving the geomorphological and ecological conditions of a waterway to those more closely resembling natural conditions. This includes channel enhancement to minimise erosion and siltation, stream bank protection and revegetation of the waterway channel and corridor.	46
Reinforced-grass	Esc	A turfing application based on pre-grown grass reinforced with a geosynthetic mat or mesh. The reinforcing may consist of surface-laid webbing placed over newly seeded topsoil; a geotextile mat placed beneath turf strips; or a three-dimensional cellular grid system that is topsoiled and seeded or turfed.	6*
Release net	Sto	A litter collection net attached to the end of a stormwater pipe outlet used to filter gross pollutant, excluding sediment, from passing stormwater. A release system allows the net to break free of the pipe outlet in the case of extreme flows or excessive hydraulic pressure caused by debris blockage of the net.	36*
Remediation	Wwy	The act of enhancing the ecological condition, landscape, open space, and recreational values of a watercourse. The aim might not necessarily be achieving a pre-impact condition.	40*
Remobilisation	Sci	The process of transforming sedimented pollutants by microbial or chemical processes into a dissolved form and transfer by diffusion from the sediment pore water into the water column.	15*
Reno mattress	Eng	A commercial brand of a ROCK MATTRESS.	
Reservoir	Res	**1.** An artificial dam, lake, pond or basin for storage, regulation or control of water, silt, debris or other liquid or	22*

		liquid-carried material.	
	Res	**2.** The water impoundment behind a barrier constructed across a natural waterway or on the periphery of a reservoir.	48*
Reservoir capacity	Res	The total storage capacity up to 'full supply level', but not up to maximum flood level.	22*
Residence time	Sto	The average length of time that water stays in a defined body such as a lake or wetland. Also known as RETENTION TIME.	34*
Residual moisture content	Sol	The soil moisture content after it has been thoroughly drained.	48*
Residual risk	Eng	The risk remaining after implementation of an action plan for controlling the level of risk.	55*
Residue	Wat	The constituents in a water sample that are retained on a specific filter medium. Also known as the SUSPENDED CONSTITUENT.	23
Restoration	Wwy	The process of restoring original (natural) values and structure, such as returning a waterway ecosystem back to a pre-impact condition.	40*
Re-suspension	Sto	The process of remobilising particles by wind or the physical entrainment of settled particles by hydraulic turbulence, or as a result of sediment bio-turbation. Typical water pollutants affected by re-suspension include sediments, hydrocarbons and metals.	15*
Retardation basin	Sto	A stormwater detention, extended detention or retention basin.	5
Retardation storage	Sto	The maximum design storage volume of any drain, channel, tank, pond or basin designed to delay the passage of water beyond that required to allow the efficient transportation of the water.	5
Retardation system	Sto	Any detention, extended detention or retention system, including on-site detention systems and rainwater tanks.	5
Retention	Sto	A reduction in flow volume by long-term storage or discharge to an alternative outlet such as evaporation or infiltration.	34*
Retention basin	Sto	A large, open basin designed to retain a portion of the stormwater inflow either for water quality treatment benefits, or to assist in reducing the volume of runoff discharged from the basin. The upper, free-draining portion of the basin may be designed to operate as a traditional detention or extended detention system.	5
Retention pond	Sto	A stormwater or flood retention system based around the controlled operation of a pond or lake.	5
Retention practices	Sto	Stormwater detention systems that incorporate a permanent pool of water, detain and release runoff over five days or even longer, and allow sedimentation, flocculation, and chemical and biological processes to	5

		occur, reducing stormwater pollutants. During and immediately after storms, runoff is temporarily stored above the permanent water pool. Also known as WET DETENTION PRACTICES.	
Retention system	Sto	Any stormwater collection systems that retains a portion of the stormwater inflow either for water quality treatment benefits, or to assist in reducing the volume of runoff discharged from the basin.	5
Retention time	Sto	The average length of time that water stays in a defined water body such as a lake or wetland. Also known as RESIDENCE TIME.	34*
Retro-fit	Wwy	To modify or rehabilitate a system such that it integrates into the existing infrastructure and surrounding environment.	5
Return flow litter basket	Sto	A stormwater treatment system comprising of an inlet area with weir, leading to a labyrinth litter basket assembly. These devices use the force of return-flow water leaving the collection basket to produce a hydraulically driven barrier to divert incoming water into the collection basket.	31*
Return period	Hyd	The average period between occurrences of an event or one greater than it, or the expected value of the recurrence interval.	17*
Reuse	Gen	To use a product, with little of no treatment or modification, for a second or subsequent time for the same purpose as its original use.	5
Revegetation	Esc	The process of re-establishing plants on an area of ground depleted or devoid of vegetation in order to protect the ground against erosive agents; improve the nutrient and sediment interception and filtration capacity; and to provide improved fauna habitat.	46*
Reverse osmosis	Wat	An advanced method used in water and wastewater treatment that relies on a semi-permeable membrane to separate the water from its impurities.	57
Revetment	Eng	A facing of stone, riprap or other erosion-resistant material placed on a sloping face of earth such as the edge of stream channel or shoreline, to stabilise the bank and protect it from the erosive action of water.	4*
Revetment mattress	Eng	A hard surface armouring formed by using pocketed pervious fabric filled with concrete (grout). Ordinarily used for scour control.	58*
Revised Universal Soil Loss Equation (RUSLE)	Sol	A numerical soil loss model used to predict the long-time (average) soil loss rates resulting from sheet and rill erosion, but not wind or gully erosion. The model is a revision of the Universal Soil Loss Equation (USLE). Often referred to as the UNIVERSAL SOIL LOSS EQUATION.	5
Reynolds number	Hyd	Dimensionless number proportional to the ratio of the inertial force over the viscous force.	11*

		The Reynolds number provides an indication of the degree of turbulence of a flow.	
Rhizosphere	Bot	The chemical sphere of influence of plant roots in soils.	34
Riffle	Wwy	A shallow area of a river where water flows rapidly and often turbulently over stones or gravel.	3
Right bank	Hyd	The right bank of a watercourse or the right channel wall when looking downstream.	11*
Rigid lining (channel)	Eng	A non-flexible surface lining of an open channel that does not allow minor shifting or adjustments in the channel cross-section or elevation without causing catastrophic failure. Rigid channel linings include concrete, grouted riprap, stone masonry and asphalt.	5
Rill	Esc	A small channel, cut by concentrated runoff, through which water flows during and immediately after rain. Rills typically form as a result of the action of heavy rainfall on exposed soil surfaces such as recently tilled land or constructed batters. They might be up to 30cm deep but can be largely obliterated by tillage operations. This distinguishes them from gullies.	4*
Rill erosion	Esc	The process of removal of soil by runoff from the land surface whereby numerous small channels, generally up to 30cm deep, are formed.	4*
Riparian	Wwy	Relating to the bank of a river or other body of water. Ordinarily used to describe the rights of access to a river via its banks, and the vegetation that occurs along the riverbanks.	4*
Riparian vegetation	Wwy	Vegetation that occurs from normal river level to the edge of the floodplain, and has a direct association/link with the watercourse.	5
Riparian zone	Wwy	That part of the landscape adjacent to a watercourse that influences, and is influenced by, watercourse processes. Usually includes the instream habitats, beds, banks and floodplains of watercourses, or their parts.	62*
Riprap	Eng	Loose, medium to large rock or stone used to protect earth surfaces against erosion by flowing water or wave action, as in a revetment.	4*
Risk	Gen	The chance of something happening that will have undesirable effects or an impact on objectives. Often specified in terms of an event or circumstances and the consequences that may flow from it. Risk is measured in terms of a combination of the consequences of an event and their likelihood of occurrence. Risk may have a positive or negative impact. Estimates of risk may be expressed in absolute or relative terms. Absolute risk is the excess risk due to exposure. Relative risk is the ratio of the risk in the exposed population to the risk in the unexposed population.	55*
Risk analysis	Gen	The systematic process undertaken to understand the	55*

		nature of potential risks and the level of risk.	
Risk assessment	Gen	The overall process of risk identification, risk analysis and risk evaluation.	55*
Risk-based design	Eng	The design of urban stormwater management facilities on the basis of local standards and also on the basis of the risk (cost) of the flow exceeding a selected design.	13*
Risk criteria	Gen	The terms of reference by which the significance of risk is assessed. It may include associated costs and benefits, legal and statutory requirements, socioeconomic and environmental aspects, the concerns of stakeholders, priorities and other inputs to the assessment.	55*
Risk evaluation	Gen	The process of comparing the level of risk against a given risk assessment criteria.	55
Risk identification	Gen	The process of determining what, where, when, why and how something could happen.	55
Risk management	Gen	The culture, processes and structures that are directed towards realising potential opportunities at the same times as managing adverse effects.	55
Risk reduction	Gen	The act of lessening the likelihood, and/or negative consequences associated with a risk.	55*
Risk treatment	Gen	The process of selection and implementation of measures to modify risk.	55
River	Wwy	A major watercourse relative to other streams within a given region, ordinarily with a high natural sediment flow, a near constant base flow and with sufficient bed width to result in an open canopy. Bed vegetation is normally sparse and usually does not usually play a significant role in channel stability due to the disturbing influence of the high sediment load.	5
River basin	—	See CATCHMENT.	
Riverhead	Wwy	The source of a river.	9
River reach	Wwy	A discrete portion of a river between two bends.	42*
Riverine	Wwy	Relating to rivers and their floodplains.	3
Riverside	Wwy	The bank of a river	9
Rivulet	Wwy	A very small stream.	45
Roadside pollution containment system	Sto	A pollution trap designed to capture and hold a given volume of fluid released from a road surface. The units are designed to capture oil, fuel or chemical spills from traffic accidents, and/or a specified depth of runoff (first flush) from the connected catchment. Water quality treatment may or may not occur within the system. Ordinarily the captured pollution is pumped from the basin and treated at an off-site location.	36*
Rock	Gen	A large single mass of stone, or mineral matter of various composition.	9*

Rock beaching	Wwy	A protective layer of loose stones placed against a slope to protect it against wave action or other water erosion. Also known as BEACHING.	2*
Rock filter dam	Esc	A sediment trap consisting of a rock embankment lined with aggregate and/or filter cloth on the upstream face. The embankment provides structural support while the aggregate and/or filter cloth acts as both a filter medium and flow control system.	5
Rock mattress	Eng	A low profile flexible rock-filled basket with a length and width significantly greater than its depth thus forming a 'mattress' like structure. Ordinarily used for scour protection in areas of high flow velocity and/or turbulence. The multi-celled wire mattresses are usually heavily galvanised and coated with PVC to extend their design life within aquatic environments.	5
Rockfill	Eng	Material composed of large rocks or stones loosely placed.	11
Rockfill dam	Eng	An embankment dam in which more than 50 per cent of the total volume comprises compacted or dumped pervious natural stones.	11*
Roller	Hyd	A large-scale turbulent eddy, such as that found in some hydraulic jumps.	11*
Roofwater	Sto	Stormwater runoff released from elevated, relatively 'clean' surfaces, such as roofs, that has not passed over the ground or within a ground-level drain.	5
Roofwater harvesting	Sto	The process of collecting and storing stormwater runoff from roofs for later on-site use.	5
Roughness (base)	Hyd	The channel roughness that would exist if the channel was straight and uniform in cross section. The base roughness depends on the material form of the channel (i.e. cohesive earth, sand, gravel, cobbles, boulders, or bedrock) and the type and density of vegetation cover. The stability of the channel material and the degree of natural sediment flow significantly influence the base roughness of the channel.	5
Roughness (bed form)	Hyd	Channel roughness directly related to the type of exposed bed material and the degree of irregularity in the bed form where such irregularity is minor compared to the size and irregularity of the channel cross section within a given reach. Bed form roughness is a function of flow, grain size, bed shear and water viscosity (i.e. water temperature).	5
Roughness (channel)	Hyd	The overall hydraulic roughness of a channel, including base roughness, channel irregularity, channel meander, channel cross-sectional variation, channel vegetation and channel obstructions.	5
Roughness (channel	Hyd	Channel roughness directly related to either unusual roughness irregularities (eg. a large, isolated, in-bank	5

irregularity)		tree) or cross-sectional irregularities (eg. scalloped bank) where such irregularities are significant compared to the width of the channel. The effects of channel irregularity on channel roughness are usually only significant when the ratio of channel width to depth is small.	
Roughness (channel meander)	Hyd	Channel roughness directly relating to the hydraulic effects of channel meanders.	5
Roughness (channel variation)	Hyd	Channel roughness directly relating to the effects of changes in cross-sectional shape or size within a given reach of a channel.	5
Roughness (cross section)	Hyd	Channel roughness relating only to those factors associated with the channel as opposed to those factors relating to the floodplain.	5
Roughness (form)	Hyd	Channel roughness affecting the stream flow that results from medium-scale irregularities in the bed and banks of a channel, including dunes and ripples on the bed of an alluvial channel.	5
Roughness (hydraulic)	Hyd	A property of the surface roughness or channel form that directly affects the flow properties of a conduit, channel or overland flow path. The flow properties of specific interest include turbulence, average flow velocity and the variation of flow velocity within a section of flow.	5
Roughness (material)	Hyd	Hydraulic roughness directly related to the type of exposed material. Material roughness is a function of flow, grain size, bed shear and water viscosity (i.e. water temperature).	5
Roughness (obstruction)	Hyd	Channel roughness directly relating to irregular channel obstructions such as logs, large boulders, pipe crossings and bridge piers.	5
Roughness (surface)	Hyd	Hydraulic roughness directly related to the type of surface material and the degree of irregularity in the surface where such irregularity is minor compared to the size and irregularity of the flow cross section. Surface roughness is a function of flow, grain size, bed shear and water viscosity (i.e. water temperature).	5
Roughness (vegetation)	Hyd	Channel roughness directly relating to the type and density of vegetation contained within the flow.	5
Roughness coefficient	Hyd	A factor describing the roughness (irregularities) of surfaces in relation to energy loss in flows passing over the surface. Most commonly used as a coefficient within hydrodynamic equations. Common hydraulic roughness coefficients include Manning's 'n', and the Chezy 'C'.	15*
Routing	Hyd	The process of determining the time and magnitude of flow (i.e. hydrograph) at a point on a watercourse from known or assumed hydrographs at one or more points upstream. It includes the numerical simulation of the passage of a	48*

		flood wave through a reservoir. Also known as FLOOD ROUTING.	
Rubble	Eng	Material consisting of stone of irregular shapes and sizes, broken brick or the like, used to provide a stable or permeable filling.	2*
Rubble drain	Sto	An excavated trench either filled or partially filled with selected rubble, broken stone, or gravel through which water can percolate either longitudinally along the trench and/or laterally into the adjacent soil. Also known as a SPALL DRAIN.	2*
Runoff	Hyd	That part of rainfall, snow or hail not lost to infiltration, evaporation, transpiration or depression storage that flows from the catchment area past a specified point. It includes that portion of precipitation that appears as flow in streams; and drainage or flood discharges that leave an area as surface flow or as pipeline flow, having reached a channel or pipeline by either surface or sub-surface routes.	4*
Runoff routing	Hyd	The process of determining the time and magnitude of flow (i.e. hydrograph) at a point on a catchment from known or assumed hydrographs at one or more points up-slope.	48*
Run-on	Hyd	Surface water flowing onto an area as a result of runoff occurring higher up the slope. Commonly used in an urban context as a contributing factor to increased erosion hazard.	4*
	Rur	Surface water flowing onto an area as a result of runoff occurring higher up the slope, or surface water that is diverted from sloping country onto flatter land to achieve increased agricultural production from such land.	4*
Rural catchment	Hyd	A drainage catchment consisting predominantly of rural or rural-residential lands.	5
Ryzner stability index (RSI)	Eco	A number used to provide an extra margin of safety beyond the known or estimated sensitivities of aquatic organisms. Often applied when sufficient information about the toxicity, particularly the chronic toxicity, of a particular substance is not well known.	23

Term	Code	Definition	Source
S80	Gen	A measure of statistical variation. Denotes the difference between the 10 per cent and 90 per cent exceedence values of a data set, divided by the median (50 per cent exceedence). The higher the S80, the more variable the value.	3*
Safe	Eng	An operational condition where a system represents no measurable or anticipated risk of directly or indirectly causing harm, injury, or danger to humans and/or the greater environment. Unless otherwise stated, the conditions refer only to those risks attributable directly to humans.	5
Safety factor	Eng	**1.** A factor or constant used during the design process to either increase a design parameter to a value above the value that would cause system failure, or to decrease a maximum allowable operational condition to a level below the condition that would normally cause failure.	5
	Eng	**2.** The ratio of the value of a design parameter, such as flow rate, at the point of system failure, divided by the maximum expected operational value of that parameter.	5
Saint-Venant equation	Hyd	A one-dimensional unsteady flow routing equation.	48*
Salinity	Sci	The concentration of salts in soil or water, usually sodium chloride.	3
Saltation	Sol	Particle movement in water or wind where particles skip or bounce along a stream bed or land surface.	4
Sand	Sol	A soil separate consisting of particles between 0.02 and 2.0mm in equivalent diameter. Fine sand is defined as particles between 0.02 and 0.2mm, and coarse sand as those between 0.2 and 2.0mm. A bolus of sand formed in the hand will have very little or no coherence and cannot be rolled into a stable ball. Individual sand grains adhere to the fingers.	4
Sand drain	Sto	A subsurface drainage system formed by a narrow, excavated trench filled with sand.	5
Sand filter	Sto	A bed of sand or other media through which surface runoff passes. The filtered runoff is then collected by a subsurface drainage system and discharged. Sand filters usually operate in association with an upstream pre-treatment system to remove coarse sediment and to ensure an even inflow distribution across the filter. Sand filters differ from infiltration systems in that the bulk of the treated water drains to surface waters or a piped drainage system rather than rely on soil infiltration.	31*
Sand filter bed	Sto	A sand filter set into the ground as oppose to a filter confined within a container. An example of the former	5

		being a system used for stormwater treatment. An example of the latter being a commercial swimming pool filter.	
Sand-base stream	Wwy	A watercourse that has a channel bed primarily consisting of sand. Typically the sand moves down the bed during flood events. The channel bed may contain significant quantities of vegetation, but the bed vegetation is usually smothered or partly buried by bed sediment during flood events and thus usually does not play a significant role in the long-term stability of the channel. If a low-flow channel exists, it can be highly mobile with a constantly changing bed/plan form.	5
Sandy clay	Sol	A mixture, usually artificial, of sand and clayey soils suitable for pavement construction.	2
Sandy loam	Sol	A loam containing enough sand or grit to make the material friable. A bolus formed in the hand will have some coherence and can be rolled into a stable ball, but not a thread. Sand grains can be felt during manipulation. Clay content is approximately 10–15 per cent.	2*
Saprobian system	Eco	A community of organisms that feed on decaying organic matter.	23*
Saturated infiltration rate (soil)	Sol	The soil infiltration rate that occurs when the soil is saturated and infiltration and soil drainage are equal.	4*
Saturated overland flow	Hyd	Overland flow that occurs when all or part of the surface horizon of the soil becomes saturated as a result of either the build-up of a saturated zone above a soil horizon of lower hydraulic conductivity, or due to the rise of a shallow water table to the surface.	32*
Saturated zone	Sol	The zone in which voids in rocks are filled with water, e.g. in an aquifer.	34*
Scale	Gen	A calcareous deposit in water tubes or steam boilers resulting from deposition of mineral compounds present in the water.	23
Scour	Gen	The displacement or removal of material from a surface as a result of shear stress caused by wind or water. Commonly used to mean localised erosion of a soil surface as a result of excessive flow velocity.	5
Scour velocity	Gen	The flow velocity or wind velocity that initiates scour. The scour velocity must be defined relative to either the distance the velocity is measured from the affected surface, or the depth of flow—in which case the scour velocity is defined as the average velocity over the depth of flow.	5
Scouring	Gen	**1.** The act or action of scour erosion.	5
	Gen	**2.** Material removed or displaced by the actions of scour.	9*
Screening	Sto	The process of separating coarse pollutants from	5

		stormwater by passing the water through a coarse screen.	
Screenings	Sol	An aggregate of small size, usually passing a 26.5mm sieve and retained on a 4.75mm sieve.	2*
Second order stream	Wwy	A branch of a watercourse that receives only first-order streams (i.e. all upstream tributaries being first-order streams).	5
Secondary benefits	Sto	Stormwater treatment benefits, or other economic, hydrologic or environmental benefits provided by the management system that are incidental to the primary goal of removing the target pollutant.	31*
Secondary contact	Wwy	Body contact with water that is less frequent than primary contact and not a main component of an activity, e.g. boating or fishing.	5
Secondary treatment	Sto	The removal of pollutants from water through the actions of adsorption, filtration, flocculation (finer particle settlement) and infiltration (adsorption and filtration). Typical retained contaminants include fine sediments, nutrients, pathogens, and metals.	31*
Sediment	Esc	Material of varying size, both mineral and organic, moving or moved from its site or origin by the action of wind, water, gravity, or ice, that comes to rest on the Earth's surface. It includes mineral-based matter displaced by de-silting and de-watering operations, or mechanically displaced on the tyres or tracks of vehicles. It does not include mineral and organic matter formally displaced by the primary excavating or storage components of earthmoving equipment.	4*
	Wwy	Any solid material carried in suspension by the flow or as bed load that would settle to the bottom in the absence of fluid motion.	11
Sediment barrier	Esc	A general term used to describe a sediment trap that either surrounds, or separates sediment-laden water from a stormwater inlet.	5
	Min	Structures placed in a drainage channel to promote settling out of sediment until a stable flow slope is achieved between each barrier. Usually used for erosion prevention.	58*
Sediment basin	Esc	A dam and associated settling/stilling pond used to capture and retain sediment from the passing flow. The design component generally consist of an excavated or natural basin, stabilised flow entry points, de-watering system, and high-flow emergency spillway.	5
	Sto	A basin or tank designed for the temporary detention of stormwater flow to facilitate the settling of coarse suspended sediments and other heavy pollutants.	46*
Sediment control	Esc	The process of trapping of sediment released from some up-slope or upstream erosion process.	5

Sediment control measure	Esc	A system, measure or device primarily used to trap and retain sediment that is either moving along the drainage surface (bed load), or contained within flowing water (suspended sediment).	5
Sediment control structure	Esc	A constructed device, whether permanent or temporary, primarily used to trap and retain sediment that is either moving along the drainage surface (bed load), or contained within flowing water (suspended sediment).	5
Sediment curtain	Esc	See SILT CURTAIN.	
Sediment load	Wwy	**1.** The amount of sediment carried by a stream.	3*
	Wwy	**2.** The sediment carried in flowing water, including sediment in suspension and bed load.	4
Sediment training wall	Sto	A small wall raised above bed level at the entrance of selected 'dry' cells in a multi-cell culvert to concentrate low-flows into the nominated 'wet' cells, and to control the movement and deposition of sediment. Usually used to trap sediment upstream of a culvert to reduce sedimentation within the culvert.	5
Sediment transport	Esc	The movement of sediment by wind, ice or water, including mineral-based matter displaced by de-silting and de-watering operations, or mechanically displaced on the tyres or tracks of vehicles.	11*
Sediment transport capacity	Wwy	The measurement of the ability of a stream to carry a given volume of sediment material per unit time for given flow conditions.	11*
Sediment trap	Esc	A structure designed to intercept and retain sediment transported by the flow.	5
Sediment yield	Esc	The total amount of sediment produced by a catchment and delivered by flowing water to a point under evaluation, usually the catchment outlet. It can be expressed in terms of a single rainfall event or in terms of a specified period of time, and includes bed-load and suspension.	4*
Sedimentation	Gen	The process of depositing or accumulating sediment. Also known as SILTATION.	9*
	Sto	The process of particles and adsorbed pollutants from the water column settling by force of gravity. The sedimentation efficiency is a function of eddy forces in the settling basin, and the period of detention of flow in the basin. Typical pollutants affected include sediment, hydrocarbons and metals.	28*
Sedimentation basin	Gen	A tank or basin in which sediment collects primarily through the actions of gravitational settlement.	5
	Sto	A sediment collection basin in the form of a tank or basin designed for low-velocity, low-turbulent flows suitable for settling coarse particles from stormwater. The term usually applies to permanent basins, but can also apply to the temporary basins used on construction	47*

		sites.	
Seedbank	Bot	A population of viable dormant seed that accumulates in and on soil, and in sediments under water.	3
Seep	Gen	To pass gradually, as liquid, through a porous substance.	9
Seepage	Gen	**1.** The process of seeping, e.g. liquid, through a porous substance.	9*
	Gen	**2.** A liquid that passes through a porous substance.	9*
	Min	A common term for groundwater flow, encompassing the characteristic slow flow processes.	58
	Sto	The interstitial movement of water through a porous substance to a location outside the substance.	5
Semi-arid	Gen	Relating to climates or regions that lack sufficient rainfall for regular crop production. Usually defined as a climate with annual average rainfall greater than 250mm but less than 375mm.	4*
Senescence	Bot	The array of biological changes displayed by macrophytes in unfavourable environmental conditions, often halting growth and withdrawing nutrients from the leaves until favourable conditions return.	34*
Separate system	Sto	A sewer and stormwater drainage system in which sewage and stormwater flow in separate conduits during normal operation conditions (i.e. excluding those periods of surcharge or flood conditions).	5
SEPT	Sto	The abbreviation for Side Entry Pit Trap, debris baskets placed within the collection pit of roadside gully inlets. The baskets are fitted below the invert of the gutter and are usually designed to allow 100 per cent bypass in case of full blockage. Basket mesh size is typically 5 to 20mm.	31*
Sequent depth	Hyd	A theoretical flow depth that exists immediately upstream and downstream of a transition between supercritical and subcritical flow resulting from the solution of the momentum equation.	11*
Settling pond	Esc	A small sediment retention basin where sediment is allowed to settle from the water through gravity as the water passes slowly through the pond.	5
Severe rainfall	Met	Rainfall with: (iii) an intensity equal to, or greater than 50mm/hr; or (iv) a total rainfall depth equal to, or greater than, the equivalent of the one hour duration, 1 in 10 year ARI design storm rainfall depth over a 24-hour period. For example, if the 1 hour duration, 1 in 10yr ARI average rainfall intensity at a given location is 70mm/hr, then severe rainfall would be a rainfall depth equal to or greater than 70mm within any 24-hour period, or a rainfall intensity equal to or greater than 50mm/hr at any given time.	60*

Sewage	Res	The refuse liquid or waste matter carried off by sewers. Can be a combination of water-carried wastes from residences and industries together with groundwater, surface water and storm water.	11*
Sewer	Res	A subterranean conduit designed to carry wastewater, sewerage, or waste matter.	11*
Sewer overflow	Res	The discharge of sewage to surface water or stormwater drainage as a result of sewage flow exceeding the sewer capacity (infiltration of rainwater), or sewer blockage.	15
Sharp-crested weir	Hyd	A thin plate mounted perpendicular to the flow with the top of the plate having a bevelled, sharp edge, which makes the nappe spring clear from the plate.	48*
Sheet erosion	Sol	The removal of a fairly uniform layer of soil from the land surface by raindrop splash and/or runoff. No perceptible channels are formed. Can relate to wind erosion.	4*
Sheet flow	Hyd	Flow that passes evenly over the ground as a thin sheet of water as opposed to concentrated flow. Normally occurs on plan surfaces (ground not heavily concaved), and on uniformly grassed areas when the depth of flow is not significantly greater than the blade length of the grass.	5
Sheet piling	Eng	A system of sheet-like piles driven into the ground with their edges in close contact or interlocking to provide a tight wall to prevent leakage of water and soft materials or driven to resist the lateral pressure of adjacent ground.	2*
Shelter	Eco	A location or habitat in which wildlife can take shelter from predators, adverse weather conditions, or high velocity stream flows.	5
Short circuiting	Hyd	A process in which flow passing through a pond or wetland, follows a direct route to the outlet without fully mixing across the water body.	50*
Shoulder drain	Sto	A drain through the shoulder to drain the sub-grade.	2
Shower	Hyd	A brief fall of rain, hail, sleet or snow, associated with cumuliform clouds. Because of the isolated nature of these clouds there is, usually, at least a partial clearing of the sky between the cumuliform clouds so that a break is visible. Showers are characterised by rapid changes of intensity and the suddenness with which they start and stop. Showers are also associated with sudden short changes in wind speed (down draft) and direction. Showers seldom last more than 1-hour, most often less than 15 minutes. Showers may occur in combination with intermittent or continuous precipitation, in which case the showers are indicated by the sudden increases and decreases precipitation intensity. Isolated showers are generally insufficient to cause runoff from pervious surfaces.	9*, 60
Shrink/swell	Sol	A characteristic of soils that tends to make the clays	34

		within them expand on contact with water and shrink (and crack) when they dry.	
Shrink–swell potential	Sol	The capacity of soil material to change volume with changes of moisture content, frequently measured by a laboratory assessment of the soil's linear shrinkage, which is typically related to the soil's content of montmorillonite clay.	4*
Side-channel spillway	Eng	A side-channel running along the foot of a spillway and carrying the flow away in a direction parallel to the spillway crest.	11
Side drain	Sto	A surface drain running approximately parallel and adjacent to a structure or property alignment, e.g a drain located between a road and the road boundary.	5
Side entry kerb opening	Sto	A stormwater inlet formed into the side of a raised kerb, usually on a roadway.	5
Side entry pit traps (SEPT)	Sto	Debris baskets placed within the collection pit of roadside gully inlets. The baskets are fitted below the invert of the gutter and are usually designed to allow 100 per cent bypass in case of full blockage. Basket mesh size is typically 5 to 20mm.	31*
Side inlet	Sto	A grated and/or side-flow weir drainage inlet located within the kerb of a road. Also known as a GULLY INLET or KERB INLET.	5
Side slope	Eng	A type of slope at a dam, embankment, spillway, and facility perimeter constructed through excavation or filling. Slope grade is normally defined in terms of X:1, or 1 in X (being a rise of 1 metre for a run of X metres) the equivalent of (100/X)% slope.	30*
Sill	Eng	**1.** A horizontal section at the outlet of a soil conservation or hydrologic structure that spreads water flowing from the structure, hence reducing the potential for it to re-concentrate and cause rill or gully erosion.	4*
	Eng	**2.** The raised outlet lip of a recessed energy dissipation pool of a drop structure or spillway energy dissipater.	5
	Esc	The outlet structure for a level spreader.	5
Silt	Sol	A soil separate consisting of particles between 0.002 and 0.02mm in equivalent diameter.	4
Siltation	Gen	The process of depositing or accumulating sediment. Also known as SEDIMENTATION.	5
Silt curtain	Esc	A large sheet of material, typically geotextile, attached to floats and weights that extends from the floor of a water body to the water surface. Used to isolate potentially contaminated water from the main water body. Also known as a SEDIMENT CURTAIN.	43*
Sinuosity	Wwy	The repetitive, though variable, curvature of a watercourse channel measures as the channel length	5

		(thalweg distance) divided by valley length. The sinuosity of the low-flow channel (if any) can be totally different from the sinuosity of the main channel.	
Siphon	Eng	A tube or conduit in the form of an inverted U through which liquid flows between two water bodies. Water pressure within the siphon usually becomes sub-atmospheric. An inverted-siphon (i.e. a U-shaped siphon) carries water between two reservoirs with a pressure greater than atmospheric.	11*
Siphon spillway	Eng	A pipe for discharging water over a wall or embankment crest.	11*
Site storage requirement (SSR)	Sto	A prescribed storage volume specified for on-site detention systems.	5
Slaking	Sol	The process of natural collapse of a soil aggregate in water where its mechanical strength is insufficient to withstand the swelling of clay and the expulsion of air from pore spaces. It does not include the effects of soil dispersion. Slaking aggregates readily break down when immersed in water, but do not disperse. Clouding of the water, if any, is limited to just around individual aggregates. Slaking soils are highly erosive and structurally unstable, but readily settle in water.	4*
Slight rainfall	Met	See LIGHT RAINFALL	
Slope	Eng	**1.** The inclination of a surface with respect to the horizontal expressed as rise or fall over a certain longitudinal distance, such as X:1, or 1 in X (being a rise of 1 metre for a run of X metres) the equivalent of (100/X)% slope.	2*
	Eng	**2.** The inclined surface of a bank or embankment.	2*
Slope drain	Esc	A temporary drainage conduit (pipe) extending down the face of a newly formed or unstable slope. Typically used as a temporary drainage system to control soil erosion while the bank is being stabilised, or while the final drainage system is being constructed. Also known as a DROP PIPE.	5
Slotted drain	Sto	A drainage conduit, usually recessed below the invert of a shallow open drain, which has an inlet consisting of slots cut into the obvert of the conduit.	5
Slotted drain inlet	Sto	The inlet of a drain consisting of slots cut along the longitudinal axis of the drainage conduit (usually a pipe). The conduit usually being recessed below the invert of a shallow open drain.	48*
Slug (sand/sediment)	Wwy	An isolated deposit of granular material, usually sand or coarse sediment, that appears to slowly migrate down a watercourse channel as a result of significant stream flows. Generally, little if any movement of the material	5

		occurs during normal dry weather (base) flows. Sand/sediment slugs generally have an elongated streamline shape resulting from the flow-induced scour and deposition process. The shape and general appearance of the deposition allows it to be clearly distinguished from other deposited material, including other sand/sediment slugs.	
Sluice gate	Eng	An underflow gate with a vertical sharp edge for stopping or regulating flow.	11*
Slump	Sol	An earth slide where the material in motion is not greatly deformed but has rotated backward on a more or less horizontal axis, i.e. displacement is primarily along a concave surface of separation. Ordinarily slumping results from the removal or death of specific vegetation, such as deep-rooted plants, or a rapid lowering of water level adjacent to the earth slope, e.g. at the end of some flood events.	4*
Slumping	Sol	The process of slump erosion occurring within an earth bank or slope, or soil erosion in the form of a slump.	5
Slurry wall	Min	An underground wall designed to stop groundwater flow, usually constructed by digging a trench and backfilling with slurry rich in bentonite clay.	58*
Small detention storage	Sto	A small stormwater detention or retention storage system e.g. that formed by a small car park or underground storage tank.	24*
Snag	Wwy	Fallen tree, trees or branches held fast to the bed or bank of a watercourse channel that could potentially impede flow or navigation.	9*
Snow	Met	Precipitation in the form of ice crystals. The crystals are usually branched to form six pointed stars and interlock to form snowflakes.	60
Soakage pit	Sto	An excavated pit filled with rubble or other open void material into which stormwater is drained for ultimate discharge (infiltration) into the surrounding ground.	9*
Soakaway	Sto	A subsurface trench or pit into which surface water is conveyed for ultimate discharge (infiltration) into the surrounding ground.	17*
Sod (turf)	Gen	A piece of earth containing plants with matted roots. Frequently used for the establishment of grassed surfaces. Grasses such as kikuyu and couch, which have stolons, are particularly suited to this method of revegetation.	4*
Sodic soil	Sol	A soil containing sufficient exchangeable sodium to adversely affect soil stability, plant growth and/or land use. Such soils are dispersible and typically contain a horizon in which the exchangeable sodium percentage (ESP), expressed as a percentage of cation exchange capacity, is 6 per cent or more. Strongly sodic soils are considered to be those with an ESP of 15 per cent or	4*

		more.	
Soffit	Sto	The highest portion of the internal surface of a culvert, barrel or arch. Also known as the OBVERT.	2
Soil	Sol	The natural dynamic matrix of unconsolidated mineral and organic material at the Earth's surface that has been developed by physical, chemical and biological processes including the weathering of rock and the decay of vegetation. Soil materials include organic matter, clay, silt, sand and gravel mixed in such a way as to provide the natural medium for the growth of land plants. Soil comprises organised profiles of layers (horizons) more or less parallel to the Earth's surface and formed by the interaction of parent material, climate, organisms and topography over generally long period of time.	4*
Soil amendment	Sol	The process of altering the properties of a soil by the addition of substances such as lime, gypsum and sawdust, for the purpose of making the soil more suitable for plant growth.	4*
Soil dispersion	Sol	The process by which soil aggregates breakdown and disperse into individual particles (clay, silt and sand) in water.	43*
Soil erosion	Sol	The detachment and transportation of soil and its deposition at another site by wind, water or gravitational effects. Although a component of natural erosion, it becomes the dominant component of accelerated erosion as a result of human activities, and includes the removal of chemical materials.	4
Soil matrix	Sol	Skeletal structure of soil, within which honeycombs of pores exist.	58
Soil permeability	Sol	The characteristic of a soil profile, soil horizon, or soil material that governs the rate at which water moves through it. When applied to a soil profile, the rate of water transmission is controlled by the least permeable layer in the soil profile. Soil permeability is a composite expression of soil properties and depends largely on soil texture, soil structure, the presence of compacted or dense soil horizons, and the size and distribution of pores in the soil. The qualitative categories of permeability for general use include; *slow* (less than 10 mm per day), *moderate* (10 to 1000 mm per day) and *high* (more than 1000 mm per day).	4*
Soil porosity	Sol	Relating to the degree to which a soil is permeated with pores or cavities. Porosity can be generally expressed as a percentage of the whole volume of a soil horizon that is unoccupied by solid particles. In addition, the number, sizes, shapes, and distribution of the voids are important.	4*

		Generally, the pore space of surface soil is less than one half of the soil mass by volume, but in some soils it is more than half. The part of the pore space that consists of small pores that hold water by capillary action is called capillary porosity. The part that consists of larger pores that do hold water by capillary action is called non-capillary porosity.	
Soil stabilisation	Sol	The process of stabilising a soil, soil profile, or soil surface against the erosive forces of wind, rain or flowing water, or increasing a soil's bearing capacity.	5
Soil stabiliser	Sol	A substance or material used to improve soil stability, strength or bearing capacity.	4
Soil structure	Sol	The combination in a spatial arrangement of primary soil particles (clay, silt, sand, gravel) into aggregates such as peds or clods and their stability to deformation. Structure may be described in terms of the grade, class and form of the soil aggregates.	4
Solar treatment	Sto	The act of destroying pathogens (e.g. bacteria) and the breakdown of hydrocarbons by ultra-violet light.	5
Sorption	Sci	A surface phenomenon that may be either absorption or adsorption, or a combination of the two. The term is often used when the specific mechanism is not known.	23
Source control	Sto	A pollution control measure used at the point of release of pollutants into stormwater runoff.	5
Spall drain	Sto	An excavated trench either filled or partially filled with selected rubble, broken stone, or gravel through which water can percolate either longitudinally along the trench and/or laterally into the adjacent soil. Also known as a RUBBLE DRAIN.	2*
Species	Eco	A group of organisms that resemble each other to a greater degree than members of other groups and that form a reproductively isolated group that will not normally breed with members of another group.	23*
Specific energy	Hyd	The total energy per unit weight of water at any section of a channel or part-full conduit measured with respect to the invert or bottom of the channel or conduit.	24*
Spillway	Eng	An open channel, weir, conduit, tunnel or other structure designed to allow discharges from a dam or similar storage, gully control or detention structure. Principally used to safely discharge flood flows, but may be used to release water for other purposes. The spillway may be termed 'controlled' or 'gated' if a gate is used to control the uppermost level of the reservoir, or 'uncontrolled' (a free-overflow spillway) if discharge occurs when the water level rises above a fixed crest. Spillways may be constructed to convey water away around the embankment (bywash spillway), over the embankment (overshot spillway), or through the embankment (pipe spillway).	19*

		On larger structures, more than one spillway may be necessary. The first spillway to accept excess flows is termed the primary spillway and is constructed to accept the design discharge. Flows in excess of this discharge are carried by a secondary (emergency) spillway.	
	Esc	An open channel, usually with a relatively steep gradient, used to convey overflow water from a basin, such as a sediment basin, during periods of high flow. Also known as an EMERGENCY SPILLWAY.	5
Spillway crest	Eng	The uppermost portion of a spillway overflow section.	44*
Splash erosion	Sol	The spattering of soil particles caused by the impact of raindrops on the soil surface. The loosened particles might be subsequently removed by runoff. Splash erosion is a component of sheet erosion. Also known also as RAINDROP IMPACT EROSION.	4*
Splitter	Eng	An obstacle, such as a concrete block, installed on at the base of a chute or spillway to split the flow and increase the rate of energy dissipation.	11*
Spoon drain	Sto	A drain with a semi-circular cross-section with no associated ridge embankment of soil.	4*
Sprigging	Agr	The process of planting of pieces of rhizome or stolon over an area to encourage the establishment of the applied vegetation to a soil disturbance. The method typically uses such grasses as couch or kikuyu that can quickly spread over the disturbed soil.	4*
Sprinkle	Hyd	A type of light rainfall represented by a scattering of raindrops, usually insufficient to cause stormwater runoff.	5
Spur drain	Sto	A drain that transports stormwater runoff from the shoulders of a road or table drain to a disposal area. Also known as a DIVERSION DRAIN, TURNOUT DRAIN or MITRE DRAIN.	5
SQUID	Sto	The abbreviation for stormwater quality improvement device, any physical device or component of a stormwater network used to improve stormwater quality.	5
SS	Wat	The abbreviation for suspended solids, any particulate matter suspended in a liquid, whether the liquid is in motion or stationary, or the concentration of such matter within the liquid.	5
SSR	Sto	The abbreviation for site storage requirement, a prescribed storage volume specified for on-site detention systems.	5
Stabilise	Gen	To make stable or to achieve a stabilised surface.	9*
Stabilised soil	Sol	Any soil or soil profile that has been modified to improve or maintain its load carrying capacity. Modification may be by the addition of other materials such as sand, loam or clay, or of manufactured materials such as bitumen, lime, cement or other synthetic material.	2

Stabilised surface	Esc	Any surface, or region of a drainage catchment, that has sufficient resistance to erosion to limit the displacement of granular materials and other specified matter to an acceptable rate. The acceptable rate may be defined as an average annual erosion rate (typical units of t/ha/yr), or pollutant concentration (typical units of mg/L) based on a specified water quality objective. In cases where an acceptable rate has not been defined, a stabilised surface may be defined as a surface which erodes or otherwise allows the displacement of pollutants from its surface at a rate no greater than a similar surface in its natural (i.e. undisturbed) condition.	5
Stage	Hyd	The elevation of the water surface above an arbitrary horizontal datum plane.	32
Stage-discharge curve	Hyd	The numerical or graphical relationship between the water surface elevation and its associated discharge at a given location along an open channel or stream. Also known as the RATING CURVE.	5
Stakeholder	Gen	A person or organisation who may affect, be affected by, or perceive themselves to be affected by a decision, activity or risk. The term may also include interested persons.	55*
Standard (water quality)	Gen	Water quality objectives that are recognised and supported by enforceable environmental control laws.	23*
Standard-based design	Sto	The design of urban stormwater management facilities based on a specified set of regulatory standards or codes.	13*
Standard compaction	Eng	The soil compaction (density) achieved in a standard compaction test.	5
Standard compaction test	Eng	A standard soil test used to determine dry soil density achieved when a soil is compacted under controlled conditions at a known moisture content. The test is carried out by placing a layer of a given soil in a 101mm diameter by 152mm high cylinder and compacting by dropping a 2.49kg weight 25 times through a height of 305mm onto the soil. Two further layers are then placed in the same way.	59*
Standard of service	Eng	The actual performance of a constructed or managed system. The term is replacing LEVEL OF SERVICE.	5
Standing water	Res	Water at rest.	5
Standing wave	Hyd	Water in the form of a wave (i.e. an obvious rise and/or fall in the water surface over a short distance) where the position of the wave does not move relative to the observer. In hydraulics, standing waves are most commonly associated with the leading edge of hydraulic jumps, and supercritical flow within irregular channels.	5

Static system	Eco	An exposure system of aquatic toxicity tests in which the test chambers contain solutions of the test material or control water that are not usually changed during the test. Depending upon conditions, a static system may or may not be in equilibrium.	23
Steady flow	Hyd	Flow in which conditions (depth, velocity, and so on) at a given location do not change with time. In many cases, flow conditions change so slowly that the changes occurring over reasonable periods of time are negligible and the flow may accordingly be considered steady. Also known as STEADY STATE FLOW.	32*
Steady state	Eco	The state at which the competing rates of uptake and elimination of a chemical within an organism or tissue are equal. An apparent steady state is reached when the concentration of a chemical in tissue remains essentially constant during a continuous exposure. Also known as DYNAMIC EQUILIBRIUM.	23
Steady state conditions	Hyd	The state at which specific conditions, such as velocity, erosion or chemical uptake, do not change with time.	5
Steady state flow	Hyd	Flow in which conditions (depth, velocity, and so on) at a given location do not change with time. In many cases, flow conditions change so slowly that the changes occurring over reasonable periods of time are negligible and the flow may accordingly be considered steady. Also known as STEADY FLOW.	32*
Stilling basin	Hyd	A pond formed at the outlet of a conduit, or the foot of a flume, spillway or similar structure as part of an energy dissipation system. Energy dissipation is achieved through the turbulence induced within the pond by the incoming flow. Stilling basins are usually associated with large hydraulic structures such as dam spillways and plunge pool dissipaters.	4*
Stilling pond	Esc	A small sediment retention basin where suspended sediment is allowed to settle from the water under gravity as the water rests stationary within the pond. Sediment-laden water is normally pumped into the pond from de-watering operations, allowed to settle, then decanted to a lawful point of discharge.	5
Stochastic	Gen	A random process that can be described using certain statistical patterns.	34
Stock dam	Rur	A dam that stores water for use by livestock, usually does not exceed 5ML.	42*
Stoichiometric weight	Sci	The relative quantities of elements in a chemical compound according to their combined weights.	23*
Stokes' law	Hyd	A scientific law that states that the drag force exerted on a sphere moving through a viscous fluid is proportional to its speed, radius and the viscosity of the fluid.	34*

Stone	Eng	A piece of rock of small or moderate size.	9
Stone pitching	Eng	Large stones laid by hand to a regular slope of surface shape on a road, cutting, embankment, or on the bed and banks of a channel.	2*
Stop board	Sto	Panels used to temporarily shut-off through flow within an outlet chamber. The panels usually consist of heavy timber boards that slot into recessed groves formed within the sidewalls of an outlet chamber, or a single solid panel that slides along rubber-lined groves to form a watertight gate. Typically used to manually control discharge from a basin or pollution containment system.	5
Storage	Gen	The act of storage, or the capacity of a storage system.	9*
Storage capacity	Gen	The volume or retention capacity of a storage system, e.g. the volume of a water reservoir.	48*
Storage delay time	Hyd	The time shift of a flood hydrograph as it passes through a water reservoir.	5
Storage-discharge relation	Hyd	The numerical or graphical relationship between a water storage (sometimes represented by water surface elevation) and its associated discharge from the reservoir.	5
Storm	Hyd	A heavy rainfall event associated with winds of unusual force, often accompanied by thunder and lightning.	9*
	Met	A rainfall event associated with a wind of Beaufort scale force 10, i.e. average wind speed of 48 to 55 knots (89 to 102 km/h).	9*
Storm damage	Sto	Damage to property, services or land resulting from: • the direct contact of wind or rainfall associated with a rainfall event, whether or not such an event is classified as a storm; • the actions of stormwater runoff during its passage to a receiving water body, such as a creek, lake, wetland, river or bay; • the erosion caused by stormwater passing down a drain, channel or watercourse. Storm damage does not include damage to property, services or land directly resulting from floodwaters that back-up from a watercourse or spread across a floodplain.	5
Storm drain	Sto	A buried pipe, conduit or constructed open channel that conveys stormwater runoff. It may include components of open channels such as culverts, and inlet and outlet structures.	13*
Storm drainage system	Sto	The physical facilities that collect, store, convey, and treat stormwater runoff, including detention and retention facilities, streets, storm drains, overland flow paths, access and junction pits, and the inlets and outlets to these facilities.	13*

Storm sewer	Sto	An alternative name of a storm drain commonly used in those regions where the sewer and drainage systems are combined.	5
Storm surge	Coa	An atmospherically driven rise in sea level caused by extreme surface winds and low atmospheric pressure associated with severe weather conditions, usually cyclones. Also known as a METEOROLOGICAL TIDE.	47*
Stormwater	Gen	The runoff of water as a direct consequence of rainfall, whether surface flow, or flow within conduits, including any contaminants collected by the water during its passage.	5
Stormwater channel	Sto	A constructed channel with well-defined bed and banks, used to convey stormwater or floodwater.	5
Stormwater damage	Sto	Damage to property, services or land resulting from: • the direct contact of rainfall associated with a rainfall event; • the actions of stormwater runoff during its passage to a receiving water body, such as a creek, lake, wetland, river or bay; • the erosion caused by stormwater passing down a constructed drain, or channel.	5
Stormwater filter	Sto	A stormwater treatment system that incorporates a confined or unconfined filter, such as a sand filter.	5
Stormwater harvesting	Sto	The process of capturing and storing rainfall or stormwater runoff from ground surfaces for later usage, but not rainfall which is captured and released as part of a detention/retention system where the water performs no other function or usage.	5
Stormwater improvement	Sto	Any physical or chemical change in stormwater whereby its water quality is improved with respect to the desired water quality objectives.	5
Stormwater inlet	Sto	Any inlet to a stormwater pipe, conduit or open channel, including kerb inlets, grated inlets and field inlets.	5
Stormwater inundation	Sto	The inundation of land, properties or structures by rainwater or stormwater runoff during its passage to a receiving water body, such as a creek, lake, wetland, river or bay.	5
Stormwater management	Sto	The act of managing, handling, directing, controlling or treating stormwater.	5
Stormwater Management Plan (SMP)	Sto	A plan or policy developed for the management of stormwater within a specified region or catchment.	5
Stormwater management program	Sto	An action-based plan developed for the management of stormwater within a specified region or catchment.	5
Stormwater	Sto	A general policy developed for the management of	5

management strategy		stormwater, or used as the basis for the development of stormwater management plans, including stormwater quality management plans.	
Stormwater quality improvement device (SQID)	Sto	Any physical device or component of a stormwater network used to improve stormwater quality. The term includes such devices as trash racks, GPTs, filtration and infiltration systems, and constructed wetlands. Also known as a STORMWATER QUALITY INTERCEPTION DEVICE.	5
Stormwater quality interception device	—	See STORMWATER QUALITY IMPROVEMENT DEVICE	
Stormwater Quality Management Plan (SQMP)	Sto	A plan or policy developed for the management of stormwater quality within a specified region or catchment.	5
Stormwater quality management program	Sto	An action-based plan developed for the management of stormwater quality.	5
Stormwater treatment	Sto	Any physical or chemical change in stormwater whereby its water quality is improved with respect to the desired water quality objectives.	5
Stratification	Res	Layers of water in a dam, lake or pond that do not readily mix with each other, usually due to variations in density resulting from differences in temperature and/or salinity.	3*
Stream	Wwy	A small watercourse such as a creek or brook with a sustained base flow that may or may not be permanent. Creeks stemming from well-established springs or seasonal snowmelts are often referred to as streams. When used in relation to streambed, stream bank and stream flow, the term may refer to any type of watercourse, whether or not there is a sustained base flow.	5
Stream bank	Wwy	A bank of a watercourse channel, not including those banks along the outer edge of a floodplain.	5
Stream bank erosion	Wwy	The removal of soil from a stream bank by the direct action of stream flow, wind or wave action, or the displacement of soil from a stream bank caused by the natural felling of vegetation.	4*
Stream bank protection	Wwy	Any measure used to protect stream banks from eroding, including revegetation and rock beaching, but not including measures such as reducing flow velocities through non-structural means.	5
Stream bed	Wwy	The part of a watercourse channel located between the lower banks, including the surface material and the underlying material.	5
Streamlines	Hyd	Lines drawn through a fluid field so that the velocity vectors of the fluid at all points on the streamline are tangent to the streamline at any instant in time.	48
Street sweeping	Sto	The process of removing particulates and litter from	15*

		street surfaces by sweeping and/or vacuuming.	
Strickler's formula	Hyd	An empirical formula that relates the effective surface roughness (i.e. Manning's roughness) of deep-water alluvial channels with the grain size. It does not account for form roughness resulting from such things as channel irregularities or meanders. The formula is considered most appropriate when the hydraulic radius of the flow at any given cross section is significantly larger than the d_{90} grain size (ie. the grain or rock size of which 90 per cent of the exposed material is smaller).	5
Structural controls	Sto	Stormwater quality treatment measures that incorporate structural components such as screens, filters, pollutant retention baskets or ponds.	5
	Wwy	A method of controlling flooding through the use of engineering works, such as levees, flood-relief channels, detention storages.	17*
Structural soil	Sol	A soil profile formed by integrating either synthetic or natural materials with the soil to improve its bearing strength, wear characteristics or trafficability. Ordinarily the soil is vegetated with grasses to control surface erosion and reduce the displacement of any loose materials such as gravel.	5
Structure	Eng	Any built or constructed item, including, but not limited to, a building, bridge, dam, framework or retaining wall.	9*
Structure (soil)	Sol	The combination of spatial arrangement of primary soil particles (clay, silt, sand, gravel) into aggregates such as peds or clods and their stability to deformation. Structure may be described in terms of the grade, class and form of the soil aggregates.	4
Sub-area	Hyd	A portion of a drainage catchment defined by common hydrologic parameters. Usually used in hydrologic numerical modelling to define a portion of a catchment that can be represented by uniform model parameters.	5
Sub-armour	Wwy	The layer of armour rock and/or gravel below the primary exposed armour layer.	48*
Sub-catchment	Hyd	An area of land determined by topographical features, which drains a tributary, or branch drain of a primary stream, to a particular point along the stream.	15*
Sub-channel	Wwy	**1.** A branch of a watercourse which leaves and later re-enters the watercourse. The channel takes the form of a secondary channel in both size and flow. Also known as an ANABRANCH.	5
	Wwy	**2.** One of the various channels that make up a braided channel.	5
Subcritical flow	Hyd	A free-surface flow condition which has a Froude number less than one (1), a depth greater than the critical depth, and a velocity less than the critical velocity.	43*

		During subcritical flow, flow conditions at a given location are primarily controlled by flow conditions immediately downstream of that location.	
Sub-drain	Sto	A subsurface drain that aims to remove free ground water, usually for the purpose of lowering the water table sufficiently to prevent loss of stability of pavement sub-grades and turfed areas.	14*
Sub-grade	Eng	The trimmed or prepared portion of the formation on which the road pavement is constructed.	2*
Sub-grade drain	Eng	A sub-soil drain to remove water from the sub-grade of a road foundation.	2*
Sub-lethal	Eco	Relating to a stimulus below the level that causes death.	23*
Sub-littoral	Wwy	The shore zone from the lowest water level to the lower boundary of plant growth.	23
Submerged weir	Hyd	A type of weir flow where the nappe is discharging underwater, and the upstream water level is affected by the downstream water level. Also known as a DROWNED WEIR.	5
Subsoil	Sol	Sub-surface soil material comprising the B-horizons of soils with distinct profiles. In soils with weak profile development, the subsoil can be defined as the soil below the topsoil.	4
Subsoil drain	Sto	A sub-surface drain, with all or part of the backfilling being formed from porous material that facilitates the collection and drainage of water along its length. It may include pipes that collect this water through apertures, open joints, or porous walls.	2*
Substrate	Wwy	The material, whether organic and inorganic, found on the bed of the watercourse.	3*
Sub-surface drain	Sto	A drain designed to intercept sub-surface water and thus reduce the soil–water content, lower the water table, or generally improve site drainage conditions.	15*
Sub-surface flow	Sol	Saturated flow through the ground.	48*
Sub-surface flow wetland	Sto	A wetland where water flow primarily moves through a sub-surface matrix, usually soil or gravel, that is typically planted with macrophytes.	34*
Subterranean stream	Wwy	The sub-surface flow of water (groundwater) parallel to and adjoining a stream, and usually determined to be an integral part of the visible stream.	38*
Succession	Eco	The natural replacement of one kind of community by another, such as the progressive changes in vegetation following changes to climatic conditions or maintenance activities (e.g. mowing frequency or grazing activities).	3*
Sump	Sto	A hole or depression into which water is drained to facilitate its removal, generally by pumping.	2
Supercritical flow	Hyd	A free-surface flow condition which has a Froude number greater than one (1), a depth less than the critical depth,	43*

		and a velocity greater than the critical velocity. During supercritical flow, flow conditions at a given location are primarily controlled by flow conditions immediately upstream of that location.	
Superelevation	Hyd	The elevation of a water surface above the mean water level at a given cross section. The phenomenon is commonly observed on the outside of a channel bend during normal channel flow. The superelevation of the outer water surface increases with increasing flow velocity and decreasing bend radius.	5
Surcharge	Eng	The increase in water level above the outlet crest of a water storage, such as the spillway crest of a reservoir.	34*
	Hyd	The flow condition within a conduit where the water level at a junction pit or chamber is allowed to rise above the crest of the pit causing water to spill from the chamber. Surcharge normally occurs when the flow rate entering a junction pit exceeds the downstream conduit capacity.	5
Surcharge outflow	Hyd	The surface discharge from a junction pit, inlet chamber or surcharge chamber during surcharge conditions. The term may be interchanged with *SURCHARGE OVERFLOW*.	5
Surcharge overflow	Eng	The discharge of water over a spillway or bywash. The term may be interchanged with SURCHARGE OUTFLOW.	5
Surcharge volume	Eng	The volume of water contained within a reservoir above the spillway crest elevation during surcharge conditions.	5
Surface condition	Hyd	The characteristic appearance of the catchment surface with regard to those parameters that affect runoff conditions such as surface storage capacity, infiltration capacity, vegetation type, land slope and surface roughness.	5
	Sol	The characteristic appearance of the soil surface when dry. Conditions including cracking, firm, loose and soft.	43*
Surface roughness	Hyd	The hydraulic roughness associated with the texture of the surface rather than the shape of the surface or the irregularity of the channel cross section. Also known as GRAIN ROUGHNESS or TEXTURE ROUGHNESS.	5
Surface storage	Hyd	The volume of stormwater retained on the surface of the catchment and within minor surface depressions causing the water to be removed from the stormwater runoff hydrograph.	5
Surface water	Hyd	Water on the surface of the land, for example, in rivers, creeks, lakes and dams.	3
Surge	Coa	A large swelling or abrupt wave.	9
	Hyd	A sudden change of flow depth, whether an increase or decrease in depth.	11*

		An abrupt increase in flow depth is known as a positive surge (e.g. a bore); while a sudden decrease is termed a negative surge.	
Survival time	Eco	The time interval between initial exposure of an aquatic organism to a harmful parameter and its death.	23*
Suspended constituent	Wat	The constituents in a water sample that are retained on a specific filter medium. Also known as the RESIDUE.	23*
Suspended load	Wwy	Transported sediment material maintained in suspension.	11*
Suspended sediment	Wat	Particulate matter, both organic and inorganic, held in suspension at the time of sampling, whether the water is in motion or stationary. Suspended sediment concentrations are generally high when a water is in motion rather then when stationary.	3*
Suspended solid	Wat	Any particulate matter suspended in a liquid, whether the liquid is in motion or stationary, or the concentration of such matter within the liquid.	5
Suspended solids concentration	Wat	The concentration of particulate matter suspended in a liquid, whether the liquid is in motion or stationary, usually measured in units of mg/L.	5
Suspension	Wat	A system in which very small particles (solid, semi-solid, or liquid) are more or less uniformly dispersed in a liquid or gaseous medium. If the particles are small enough to pass through filter membranes, the system is termed a colloidal suspension. If the particles are larger than colloidal dimensions they will tend to precipitate if heavier than the suspending medium, or agglomerate and rise to the surface if lighter than the suspending medium, or stay in suspension if dispersive.	23*
Sustainable water use	Hyd	The use of water that supports the ability of human society to endure and flourish into the indefinite future without undermining the integrity of the hydrologic cycle or the ecological systems that depend on it.	48*
Swale	Gen	A low place in a tract of land, usually moister and often having ranker vegetation than the adjacent higher land.	9
	Lfm	A linear level-flooded open depression excavated by wind or formed by the build-up of two adjacent ridges. Typically associated with the depression between two adjacent sand dunes and shallow, constructed, grassed drainage channels; or a low or hollow place, especially a marshy depression between ridges.	4*
	Sto	A shallow, low-gradient, vegetated drainage channel designed to convey and treat shallow, concentrated stormwater runoff. Vegetation may consist of grasses (grass swale) or herbaceous plants and shrubs (vegetated swale). Swales are generally characterised by a broad top width to depth ratio and gentle grades.	5

Swale drain	Sto	An alternative name for a stormwater treatment swale.	5
Swirl separator	Sto	A device that uses the flow energy to create a vortex, enhancing the separation by gravity of particulate matter from a liquid.	15*
Synergism	Eco	A phenomenon in which the toxicity of a mixture of chemicals is greater than that to be expected from a simple summation of the toxicities of the individual chemicals present in the mixture.	23
Synthetic storm	Hyd	An artificial rainfall hydrograph that does not necessarily represent an actual rainfall event. Synthetic storms are usually generated using parameters developed from observed catchment responses to past storm events.	5
Synthetic storm hyetograph	Hyd	An artificial rainfall hyetograph that does not necessarily represent an actual rainfall event.	5
Synthetic unit hydrograph	Hyd	An artificial unit hydrograph generated using parameters developed from observed catchment characteristics.	32*

Term	Code	Definition	Source
Table drain	Sto	The side drain of a road adjacent to the shoulders, and comprising part of the road formation. The invert of the drain is commonly below the subgrade level and being part of the formation.	2*
Tailwater	Hyd	Relating to the hydraulic conditions immediately downstream of a given hydraulic structure, flow path, or a given reach of a flow path.	5
Tailwater depth	Hyd	The flow depth, whether actual or assumed, at the downstream limit of a given flow path within a hydraulic model.	5
Tailwater level	Hyd	The free-surface water elevation, whether actual or assumed, at the downstream limit of a given flow path within a hydraulic model.	5
TCM	Sto	The abbreviation for Total Catchment Management, a system for managing natural resources within a 'whole of system' approach. In a stormwater context, this requires a whole of catchment approach incorporating the total water cycle. Consideration is given to all associated land and water processes and values. Also known as INTEGRATED CATCHMENT MANAGEMENT.	47*
Tenth percentile flow rate	Hyd	The flow rate obtained from a time weighted annual flow duration curve (with a time step of 1 day) that is greater than or equal to 10 per cent of all flows during that period.	42*
Teratogen	Eco	An agent that increases the incidence of congenital malformations.	23
Terrace	Lfm	A former floodplain on which alluvial deposition and erosion are barely active or inactive.	43
Terracing	Lfm	A land management technique that reduces slope length through the creation of benches.	43*
Terrestrial fauna	Eco	Animals that inhabit or frequent land environments. Depending on its usage, *terrestrial fauna* may or may not be further distinguished from two subgroups, arboreal (living in trees) and aerial (pertaining to the air space).	5
Tertiary treatment	Res	An additional or advanced stage of the water treatment process beyond the secondary biological stage. Tertiary treatment can include processes such as coagulation, flocculation and filtration through various media, or reverse osmosis, or the use of constructed wetlands.	57*
	Sto	Stormwater treatment based on aeration, biological decomposition, biological uptake, disinfection, fixation, enhanced filtration and solar treatment (volatilisation and disinfection). Typical retained contaminants include pathogens, nutrients and metals.	31*
Texture roughness	Hyd	Surface roughness associated with the texture of the	5

		surface rather than the shape of the surface or the irregularity of the channel cross section. Also known as GRAIN ROUGHNESS and SURFACE ROUGHNESS.	
Thalweg	Wwy	A notional line joining the deepest points of a stream channel.	9*
Thalweg distance	Wwy	The channel length measured along the thalweg.	5
Thalweg profile	Wwy	A long-section of a channel surveyed along the path of the deepest water depth.	5
Thermocline	Coa	The spatial plane representing the locations of maximum rate of temperature change within a volume. An ocean, lake or reservoir thermocline can be near horizontal representing the intersection between two water layers of significantly different temperature and density. An ocean thermocline can also be near vertical representing the intersection between two poorly mixed ocean currents of significantly different temperature.	5
Thermotolerant coliforms	Eco	A type of coliform bacteria found in the intestinal tract of humans and other warm-blooded animals, e.g. *E. coli*. The presence of thermotolerant coliforms can by used as an indicator of faecal contamination.	57*
Thiessen polygon	Hyd	A polygon whose boundaries are formed by the perpendicular bisectors of the lines joining adjacent rainfall gauges.	48*
Third order stream	Wwy	A branch of a watercourse immediately downstream of the junction of two second-order streams.	5
Threshold concentration	Eco	The concentration of a given substance above which some effect or response will be produced, and below which it will not.	23*
Through-flow	Hyd	The water that flows down to the watertable and enters the groundwater.	50*
Thunderstorm	Met	A combination of thunder and lightning, with or without precipitation. Thunderstorms are categorised according the occurrence of thunder: Slight – occasional thunder Moderate – frequent thunder Heavy – almost continuous thunder	60*
Time of concentration	Hyd	A variable used in the Rational Method to determine the critical, average rainfall intensity for a given catchment area based on the assessed critical storm duration for the catchment. It is represented by the shortest time necessary for all points on a catchment area to contribute simultaneously to flow past a specified point. It is equivalent to the time required for runoff to flow from the most hydraulically remote part of the catchment to the point of interest, usually the catchment outlet.	4*

Time of redistribution	Hyd	The time shift between the centroid of the inflow hydrograph and the centroid of the outflow hydrograph resulting from flood routing through a large reservoir such as a dam.	48*
Time of translation	Hyd	The time shift between the centroid of the inflow hydrograph and the centroid of the outflow hydrograph resulting from flood routing along a channel.	48*
Time series analysis	Hyd	A method used to assess long-term performance of a system when subjected to a long-term flow sequence.	34*
TKN	Wat	The abbreviation for total Kjeldahl nitrogen, the sum of organic nitrogen and ammonia nitrogen. Total Kjeldahl nitrogen and oxidised nitrogen (nitrite plus nitrate) represent the total nitrogen in a substance.	40*
TN	Wat	The abbreviation for total nitrogen, a measure of organic and inorganic nitrogen forms in a substance.	34*
TOC	Wat	The abbreviation for total organic carbon, a measure of all carbon atoms covalently bonded in organic molecules.	40*
Toe drain	Eng	A drain located along the toe of a slope or batter specifically for draining runoff discharged from the slope.	5
Toe of dam	Eng	The junction of the downstream (or upstream) face of dam with the ground surface (foundation). Sometimes the term 'heel' is used to define the upstream toe of a concrete gravity dam.	44
Tolerance	Eco	The ability of an organism to withstand adverse or other environmental conditions for an indefinitely long exposure without dying.	23
Top of dam	Eng	The elevation of the uppermost surface of the dam proper, not taking into account any camber allowed for settlement, kerbs, parapets, guardrails or other structures that are not a part of the main water retaining structure. This elevation may be a roadway, walkway or the non-overflow section of the dam.	44
Topsoil	Sol	That part of the soil profile, typically the A1 horizon, containing material that is usually more fertile and better structured than underlying layers. When the A2 horizon also meets these criteria, it can be included.	4*
Total Catchment Management (TCM)	Sto	A system for managing natural resources within a 'whole of system' approach. In a stormwater context, this requires a whole of catchment approach incorporating the total water cycle. Consideration is given to all associated land and water processes and values. Known also as INTEGRATED CATCHMENT MANAGEMENT.	47
Total dissolved solids	Wat	The sum of all cations or anions, sometimes measured in parts per million as calcium carbonate. It comprises inorganic salts (principally calcium, magnesium, potassium, sodium, bicarbonates, chlorides and sulfates) and small amounts of organic matter that are dissolved in water.	38*

Total head	Hyd	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. The SI unit for head is the metric length, metres (m). It is the numerical value of the total energy in a fluid being a combination of kinetic and potential energy.	34*
Total Kjeldahl nitrogen	Wat	The sum of organic nitrogen and ammonia nitrogen. Total Kjeldahl nitrogen and oxidised nitrogen (nitrite plus nitrate) represent the total nitrogen.	40*
Total metal	Wat	The concentration of a metal in an unfiltered sample that is digested in strong nitric acid.	23
Total nitrogen	Wat	The abbreviation for total nitrogen, a measure of organic and inorganic nitrogen forms in a substance.	34
Total organic carbon	Wat	A measure of all carbon atoms covalently bonded in organic molecules.	40
Total phosphorus	Wat	The sum of dissolved and particulate phosphorus. Can be subdivided into reactive, acid-hydrolysable and organically bound phosphorus according to its chemical availability.	40
Total recoverable metal	Wat	The concentration of a metal in an unfiltered sample following treatment with hot dilute mineral acid.	23
Total suspended solids (TSS)	Wat	A measure of the filterable matter within a water sample, usually reported in units of mg/L.	38*
Total urban water-cycle based management	Sto	The integrated management of all components of the hydrological cycle within urban areas (surface water, soil interflow, groundwater, water supply and recycled wastewater) and the landscape to secure a range of social, economic and environmental benefits.	15
Toxicant	Eco	An agent or material capable of producing an adverse response (effect) in a biological system, seriously injuring structure or function or producing death.	23
Toxicity	Eco	The inherent potential or capacity of a material to cause adverse effects in a living organism.	23
	Sol	The characteristic of a soil relating to its content of elements or minerals that adversely affect plant growth. It is of particular concern in relation to acid soils. Soils with pH less than 5.0 may give rise to manganese and aluminium toxicities that reduce plant growth and hence ground cover.	4*
Toxicity test	Wat	The means by which the toxicity of a chemical or other test material is determined. A toxicity test is used to measure the degree of response produced by exposure to a specific level of stimulus (or concentration of chemical).	23
Toxin	Sto	A poisonous product generated by a pathogenic micro-organism; a causative agent in disease.	9*
TP	Wat	The abbreviation for total phosphorus, the sum of	40*

		dissolved and particulate phosphorus. Can be subdivided into reactive, acid-hydrolysable and organically bound phosphorus according to its chemical availability.	
Training wall	Eng	The sidewall of chute spillway.	11
Transient flow	Hyd	A short-term flow condition that occurs when one steady-state flow condition suddenly changes to another steady-state condition, e.g. water hammer.	48*
Transitional flow conditions	Wwy	A state of flow between the lower regime flow and upper regime flow condition.	5
Transition loss coefficient	Hyd	A coefficient associated with the head loss at open channel transitions.	24*
Transpiration	Gen	To emit or give off water vapour through the surface of leaves.	9*
Trapped street gully	Sto	A modified stormwater pit fitted with baffles that are specifically designed to encourage heavy sediments and floating debris to remain in the pit. Also known as a BAFFLED PIT and CATCH BASIN.	31*
Trash rack	Hyd	A grill, grate or other barrier placed across the inlet of a hydraulic structure to prevent litter, trash and debris from entering and blocking the structure.	4*
	Sto	A grill, grate or other barrier located across a channel or pipe to trap litter and debris. The bars may be vertical, horizontal or angled (relative to the direction of inflow) depending on hydraulic and environmental requirements, such as fish passage or exclusion requirements. Also known as a LITTER RACK.	5
Treatment (water quality)	Sto	The act of physically or chemically changing stormwater whereby its water quality is improved with respect to the desired water quality objectives.	5
Treatment train	Sto	A series of treatment processes designed to collectively meet a prescribed water quality objective in which the treatment systems vary in both the type of treatment (i.e. settlement, filtration, infiltration, adsorption) and the standard of treatment (i.e. primary, secondary and tertiary treatment standard).	50*
Treatment volume	Sto	The maximum volume or capacity of a treatment system at a given instant.	5
Trellis pattern	Wwy	The description of the layout (in plan form) of the branches of a major watercourse where the branches and main channel are primarily straight and generally intersect at approximately 90-degrees, and adjacent watercourses are generally parallel to each other. The trellis pattern typically occurs where rocks being dissected are of unequal resistance so that the extension and daunting of tributaries is most rapid on least resistant areas.	48*
Triangular weir	Hyd	A sharp-crested, V-shaped weir generally used to control and/or measure small flow rates; can also function well	48*

		for reasonably large flows. Also known as a V-NOTCH WEIR.	
Tributary	Wwy	A watercourse contributing flows to a larger watercourse or other water body. Constructed stormwater drains, whether piped or open channel, that enter a watercourse are generally referred to as inputs or inflows, rather than tributaries, but no formal separation of the terms is recognised.	5
Triple interceptor pit	Sto	A type of pollutant trap which comprising three underground retention chambers designed to remove litter, coarse sediment and oils. The first chamber is used for sedimentation and the collection of large debris. The second chamber is used for oil separation. The third chamber collects and disperses flow into the stormwater system. Also known as a OIL-GRIT SEPARATOR.	31*
TRM	Esc	Means *Turf Reinforcement Mat*. A rolled erosion controlled product composed of non-degradable synthetic fibres, filaments, nets, wire mesh, and/or other elements, processed into a permanent, three-dimensional matrix with a sufficient thickness of a least 6mm and at least 80% UV stability.	63*
True colour	Wat	The colour of water resulting from substances that are totally in solution; not to be mistaken for apparent colour resulting from colloidal or suspended matter.	23
TSS	Wat	The abbreviation for total suspended solids. A measure of the filterable matter within a water sample.	34*
Tunnel erosion (tunnelling)	Sol	An erosion process involving the removal of sub-surface soil by water while the surface soil remains relatively intact. Water seeps through soil causing the dispersion and/or slaking of soil particles. The dispersed soil is then removed by seepage until the seepage path takes the form of a tunnel.	4*
Turbidity	Wat	A measure of the opaqueness, clarity or clearness of a liquid usually measured by passing a beam of white or infra-red light through a sample and measuring the amount of light scattered or transmitted with a light sensitive cell or diode and comparing with a colorimetric scale. It indicates how much silt, algae and other material is suspended in the liquid.	10*
Turbit	Wat	Opaque or muddy liquid containing particles of foreign suspended matter.	9*
Turbulence	Hyd	A type of fluid motion characterised by its unpredictable behaviour, strong mixing properties and eddy formation.	11*
Turbulent	Hyd	Relating to non-laminar flow.	34
Turbulent flow	Hyd	A flow condition characterised by fluid particles moving along irregular flow paths. The viscous properties of the fluid are insufficient to suppress any turbulent motion of fluid particles causing an exchange of momentum and	11*

		mixing between adjacent layers. Turbulent flows have great mixing potential and involve a wide range of eddy length scales.	
Turf (sod)	Gen	A piece of earth containing plants with matted roots. Frequently used for the revegetation of critical areas where a stable vegetative sward is required for erosion control. Grasses such as kikuyu and couch, which have stolons, are particularly suited to this method of revegetation.	4
Turnout drain	Sto	A drain that transports stormwater runoff from the shoulders of a road or table drain to a disposal area. Also known as a DIVERSION DRAIN, SPUR DRAIN, or MITRE DRAIN.	5

Term	Code	Definition	Source
u/s	Hyd	The abbreviation for upstream, any location or activity that exists within, or moves towards, the higher part of a channel or watercourse relative to a reference point within the channel or watercourse.	5
Unconfined sand filter	Sto	A sand filter constructed into a pervious media such as earth. Stormwater that has passed through the filter can percolate into the surrounding earth, or pass along the sand filter towards a formal outlet structure (if one exists).	5
Undular hydraulic jump	Hyd	A hydraulic jump characterised by steady stationary free-surface undulations downstream of the jump and by the absence of a formed roller. The undulations can extend far downstream of the jump with decaying wavelengths.	11
Ungauged catchment	Hyd	A drainage catchment that has insufficient stream gauging records to allow for reliable calibration or interpretation of its hydrologic characteristics.	5
Unified Soil Classification System (USCS)	Sol	A widely used soil classification system that groups soils according to particle size, grading, liquid limit and plasticity index.	34*
Uniform flow	Hyd	A flow condition in which hydraulic conditions, such as depth and velocity, are the same at all locations along the flow field at a given instant.	32*
Unit hydrograph	Hyd	The hydrograph resulting from a unit depth of surface runoff produced by a storm of uniform intensity and specified duration. The unit depth of surface runoff is ordinarily taken to be 1mm over the entire drainage basin.	32*
Unit threshold flow rate	Hyd	The flow rate ($L/s/km^2$) of a sub-catchment determined by dividing the 10th percentile flow rate (L/s) for a surface water sub-catchment zone by the area of the surface water sub-catchment zone (km^2).	42
Univariate	Eco	Statistical analysis concerned with data collected on one dimension of the same organism.	23
Universal Soil Loss Equation (USLE)	Sol	A soil loss estimation equation developed to predict the long-term, average annual soil loss resulting from sheet and rill erosion acting on a given soil area. The equation does not account for soil erosion occurring within drainage channels or resulting from gully erosion. The equation's soil loss output (A) has units of tonnes per hectare per year, and incorporates variables accounting for rainfall erosivity (R), soil erodibility (K), slope length and grade (SL), erosion control practices (P) and ground cover and management (C). USLE equation: A = R.K.LS.P.C [tonnes/ha/yr]	5
Unsaturated zone	Sol	The zone within the earth between the land surface and the water table.	34

Unsteady flow	Hyd	A state of flow in which velocity varies in magnitude or direction at a point in the flow field with respect to time.	48*
Upper regime flow	Wwy	A state of flow that typically causes significant changes in the surface form of sandy channel beds. Upper regime flow conditions usually result in the formation of waves on the surface of a sandy channel bed that are in phase with the water surface waves.	5
Up-slope	Hyd	Any location or activity that exists within, or moves towards, the higher part of a slope relative to a reference point on the slope. Usually used in reference to overland flow paths or other areas primarily subjected to sheet flow.	5
Upstream (u/s)	Hyd	Any location or activity that exists within, or moves towards, the higher part of a channel or watercourse relative to a reference point within the channel or watercourse.	5
Uptake	Eco	A process by which materials are absorbed and incorporated into a living organism.	23
Urban area	Gen	Land associated with, or part of, a gazetted city or town.	13
Urban capability mapping	Geo	A land mapping system that rates the suitability of a defined area for urban development. Usually used as a planning tool to assist in responsible planning and management of urban development.	5
Urban catchment	Hyd	A drainage catchment, or sub-catchment, primarily consisting of a range of urban land uses.	5
Urban waterway	Wwy	A waterway, whether natural or artificial, located within, or passing through, an urban area. Though strictly referring only to navigable channels and watercourses, it commonly refers to any urban watercourse.	5
USCS	Sol	The abbreviation for Unified Soil Classification System, a widely used soil classification system that groups soils according to particle size, grading, liquid limit and plasticity index.	34*
USLE	Sol	The abbreviation for Universal Soil Loss Equation. A soil loss estimation equation developed to predict the long-term, average annual soil loss resulting from sheet and rill erosion acting on a given soil area.	5
V-notch weir	Hyd	A sharp-crested, V-shaped weir generally used to control and/or measure small flow rates; can also function well for reasonably large flows. Also known as a TRIANGULAR WEIR.	48*
Vadose	Sol	Relating to water found above the watertable.	9*
Vadose zone	Sol	The area between the land surface and the watertable. The pore spaces within this zone contain both water and gases.	34
Values	Gen	Any property of a thing that makes it esteemed, desirable, or useful, or the degree of worth (monetary or	9*

		intangible) this property possesses.	
Varied flow	Hyd	A state of flow in which, at a given instant, conditions vary significantly from point to point within the flow field. Varied flow includes the conditions of gradually varied flow and rapidly varied flow. Also known as NON-UNIFORM FLOW.	32*
Vectors	Eco	Any agent that acts as an intermediate carrier or an alternative host for a pathogenic organism and transmits it to a susceptible host.	57
Vegetated channel	Wwy	A channel primarily lined with vegetation other than grasses. Vegetated channels typically incorporate vegetation from the four main groups: aquatic plants, ground covers (including grasses), understorey plants (including shrubs and small trees) and upper storey (canopy cover) trees.	5
Vegetated swale	Sto	A shallow, low-gradient, vegetated drainage channel designed to convey and treat shallow, concentrated stormwater runoff. Vegetation usually consists of grasses, herbaceous plants and shrubs. The swale may or may not contain a sub-soil drainage system depending on the soil conditions and treatment requirements. Also known also as a VEGETATIVE SWALE.	5
Vegetated waterway	Wwy	A natural or constructed waterway primarily lined with vegetation other than grasses.	5
Vegetative cover	Esc	A type of ground cover or soil stabilisation primarily consisting of living vegetation.	5
Vegetative protection	Esc	The process of stabilising erodible areas by establishing living vegetation.	43*
Vegetative roughness	Hyd	That component of hydraulic roughness directly associated with the interaction between vegetation and fluid flow.	5
Vegetative swale	Sto	A shallow, low-gradient, vegetated drainage channel designed to convey and treat shallow, concentrated stormwater runoff. Vegetation usually consists of grasses, herbaceous plants and shrubs. The swale may or may not contain a sub-soil drainage system depending on the soil conditions and treatment requirements. Also known also as a VEGETATED SWALE.	5
Velocity	Hyd	The rate of movement of water flowing past a point in a specific direction.	4*
Velocity head	Hyd	A measure of the kinetic energy of flow in a pipe or channel obtained by dividing the square of the velocity by twice the acceleration of gravity. Velocity head at a point along a streamline is determined using the flow velocity at that point. Velocity head at a flow cross section is ordinarily determined using the average flow velocity of the cross section, and as such, may require use of a velocity head coefficient to determine a true representation of the velocity head.	24*

Velocity head coefficient	Hyd	A coefficient ($\forall$) used in the determination of the velocity head and Froude number for open channel flow that compensates for the effects of variations in flow velocity throughout the width and depth of the cross section. The velocity head coefficient of unity (1.0) is commonly assumed for channels of simple rectangular, circular or trapezoidal cross section (i.e. channels without overbank flow areas).	5
Venturi meter	Hyd	A device that measures the rate of flow of fluids, consisting of a narrow tube containing a well-defined constriction. The static pressure change between the constricted and unconstricted flow is directly related to the rate of fluid flow.	9*
Verification	Hyd	The act of independently comparing model and field results to verify the adequacy of the model representation.	48*
Violent rainfall		See SEVERE RAINFALL.	
Visual amenity	Gen	Aspects of the landscape that provide an interesting, agreeable or pleasing view.	34*
Volatile	Eco	Relating to a low boiling or subliming pressure (i.e. a high vapour pressure).	23*
Volatilisation	Sto	The process of converting a chemical substance from a liquid or solid to a gaseous or vapour state. Typical stormwater pollutants treated by volatilisation include hydrocarbons and mercury.	34*
Volumetric flow rate	Hyd	Instantaneous discharge measured in units of displacement volume per unit time.	5
Volumetric runoff coefficient	Hyd	The ratio of the volume of stormwater runoff to the volume of rainfall that produced the runoff. Different coefficients will be obtained when analysing single storm events compared to the assessment of the average annual runoff (average annual volumetric runoff coefficient).	47

Term	Code	Definition	Source
Wake vortex	Wwy	A vertically aligned vortex forming downstream of a pier or other obstruction in open channel flow.	48*
Wash load	Wwy	That part of the total suspended sediment load finer than the bed material.	48*
Wastewater	Eng	The liquid waste that includes wash-water from construction equipment and industrial/commercial activities, excess water released after its use is not longer needed, and cooling water from construction activities such as diamond saw cutting.	5
	Res	The water discharged from residential, commercial and industrial properties through a formal sewer system.	5
Water	Gen	The liquid state of the hydrogen–oxygen combination H_2O that, in a more or less impure state, constitutes rain, oceans, lakes, rivers, and so on. In its pure state it is a transparent, odourless, tasteless liquid.	9*
Water body	Res	Any surface water of a landscape, including: • All waters subject to the ebb and flow of the tide. • All waters such as lakes, rivers, streams (perennial or ephemeral), watercourses (natural or constructed), mudflats, sandflats, wetlands, sloughs, wet meadows, or natural ponds. • All impoundments of waters, including all water reservoirs, natural or constructed. • The bed, banks and wetted surface of such water bodies that allows distinction between the different types of water bodies, e.g. a creek, river, lake, estuary.	38*
Water-column	Eco	The part of a water body between the bottom and water surface.	5
Water consumption	Hyd	The use of water in a manner that prevents its immediate reuse, e.g. evaporation, plant transpiration, contamination, or incorporation into a finished product.	48
Watercourse	Gen	A channel with defined bed and banks, including any gullies and culverts associated with the channel, down which surface water flows on a permanent or semi-permanent basis or at least, under natural conditions, for a substantial time following periods of heavy rainfall within its catchment.	4*
Water-dependent ecosystem	Eco	Those parts of the environment, the species composition and natural ecological processes, that are determined by the permanent or temporary presence of flowing or standing water, above or below ground. It includes the in-stream area of rivers, riparian vegetation, springs; wetlands, floodplains, estuaries and lakes are all water-dependent ecosystems.	62*

Water erosion	Esc	The erosion process in which soil is detached and transported from the land by the action of rainfall, runoff, seepage and/or ice.	4*
Waterfall	Wwy	A steep fall, cascade or flow of water from a height.	9*
Waterfront	Gen	Land abutting on a body of water.	9
Water hammer	Hyd	**1.** A relatively short-term, transient flow condition that occurs when one steady-state flow condition suddenly changes to another slower-velocity (or zero velocity) steady-state condition.	48*
	Hyd	**2.** The concussion caused by a positive pressure wave moving along a pipe or pipe network following a sudden change in the steady-state flow rate.	5
Water harvesting	Res	The collection and storage of surplus water for later use.	9*
Water-level	Hyd	The surface level of any body of water.	9
Water-meter	Gen	A device for measuring and registering the quantity of water that passes through a pipe.	9
Water quality	Gen	The chemical, physical and biological condition of water.	37
Water quality indicators	Wat	Measurable water properties that indicate a likely change in an environmental value, such as the properties linked to unsustainable seagrass growth. There are three types of water quality indicators: • Indicators that are normally present in the water and can be usefully monitored for change that can be linked to a change in the environmental value. • Indicators that are not normally present but if detected can be used to identify a change in an environmental value. • Indicators that are normally present and whose absence reflects a change in an environmental value.	5
Water quality objectives (WQOs)	Wat	Upper limits or ranges within which median values of water quality should lie. Typically used as targets to guide the actions of water resource and environmental managers.	5
Water reclamation	Res	The process of treating wastewater to produce water of suitable quality for beneficial uses.	57*
Water recycling	Res	The sustainable use of appropriately treated wastewater, urban stormwater and rainwater for beneficial purposes, in ways that safeguard public health and environmental values.	37*
Water regime	Wwy	The typical seasonal or temporal characteristics of inflow to a water body.	5
Water resource	Res	The sources of supply of groundwater and surface water in a given area.	37
Water resource engineering	Eng	The engineering of both water supply and the management of wastewater, groundwater and stormwater for the purposes of water supply.	5

Water resources	Res	The areas of study in the biological sciences, engineering, physical sciences, and social sciences relating to water as a resource.	5
Water right	Res	The right to make use of the water from a particular body of water.	9*
Waters	Gen	The tidal waters below mean high water mark, and the waters of perennial and ephemeral streams, gullies, rivers, lakes, coastal lagoons, wetlands and other forms of natural and constructed water bodies, including the bed and banks of these waters.	5
Waterscape	Gen	A picture or view of the sea or other body of water.	9
Water Sensitive Urban Design	Sto	A holistic approach to the planning and design of urban development with aims of minimising negative impacts on the natural water cycle, protecting the health of aquatic ecosystems, and promoting the integration of stormwater, water supply and sewage management at a development scale.	47*
Watershed	Hyd	**1.** The ridge or crest line dividing two drainage areas.	9
	Hyd	**2.** The area of land from which stormwater runoff contributes to stream flow at the most downstream point of the catchment (USA). Also known as a CATCHMENT, DRAINAGE CATCHMENT, and DRAINAGE BASIN.	9*
Waterside	Gen	The margin, bank, or shore of a water body.	9*
Water surface elevation	Hyd	The elevation of the water surface relative to a given datum.	24*
Water surface superelevation	Hyd	The phenomenon where the water surface around a horizontal curve in an open channel is at a higher level at the outer edge than at the inner edge of the curve.	24*
Watertable	Sol	**1.** A surface that defines the top of the saturated zone in an unconfined aquifer at which the pressure is atmosphere.	37*
	Sol	**2.** The upper limit of the portion of ground saturated with water within a confined aquifer.	37*
Water-tower	Res	A vertical pipe or tower into which water is pumped to obtain a required head.	9
Water use	Hyd	All water flows that are a result of human intervention within the hydrologic cycle.	48*
Waterway	Gen	A term commonly interchangeable with the term ‘watercourse’. The legal definition may vary from state to state, and region to region.	5
	Rur	A stable overland flow path of sufficient capacity to discharge surplus runoff from pasture or cultivation paddocks and to allow it to flow to a lower level without causing erosion. The runoff would normally be concentrated within the waterway by the natural landscape or by soil conservation banks and/or gully	4*

		control structures.	
	Wwy	A river, canal, or other body of water used as a route or way of travel or transport (i.e. navigable channel), including the area available for water to pass through or under a structure such as a bridge or culvert.	9*
Waterway channel	Wwy	The area of land between the overbank riparian zones, or the area of land located below the top of the lower banks (i.e. not including the floodplain), whichever is the greater.	5
Waterway officer	Wwy	A regulator or manager of waterways, including creeks, rivers, wetlands and estuaries.	5
Water year	Hyd	A 12-month period usually beginning at the end of the period of lowest average flow during the year. Commonly set at 1 September to 31 August within tropical regions.	32
Wave	Hyd	A disturbance of the surface of a liquid body, e.g. sea or a lake, in the form of a ridge, swell or surge.	9*
Wave celerity	Hyd	The velocity with which either a change in flow rate, or a change in water surface elevation, travels on the surface (i.e. the speed of the wave).	48*
Wave erosion	Coa	An erosion process in which soil is detached and transported from the land by the action of waves. It is typically associated with coastal areas and is often referred to as coastal erosion. Wave erosion may occur at the margin of any water body, such as a retention structure, lake or dam.	4*
Wave run-up	Coa	The maximum vertical height attained by a wave running up a dam face, measured from the still-water level.	22
Wave setup	Coa	The raising of sea level inside the surf zone resulting from the momentum flux of broken waves.	24
Webbing (geotextile)	Eng	A coarse woven geotextile made of strips a few centimetres wide to resemble coarse slit film woven fabric. Usually used for erosion control, bank protection, and soil reinforcement.	54*
Weep-hole	Eng	A small hole through an abutment or retaining wall for drainage of soil water.	2*
Weir	Hyd	An open channel flow control device, or overflow structure, placed normal to the direction of flow causing upstream sub-critical flow to pass through critical depth at the weir crest.	5
	Wwy	A structure or wall built across a channel, drain or watercourse to raise the water level to allow diversion or measurement of discharge rate. Weirs may be either sharp-crested or broad-crested, and may operate in either a state of free discharge, or a submerged or drowned state.	4*
Weir pool	Wwy	The still body of water that is held back by the presence of a weir.	3*

Wet detention practices	Sto	Stormwater detention systems that incorporate a permanent pool of water, detain and release runoff over five days or even longer, and allow sedimentation, flocculation, and chemical and biological processes to occur, reducing stormwater pollutants. During and immediately after storms, runoff is temporarily stored above the permanent water pool. Also known as RETENTION PRACTICES.	29
Wet pond	Sto	A large, permanent open water treatment pond often incorporating a heavily vegetated macrophyte) area, e.g. retention basin, lake, wetland.	36*
Wet storage pond	Sto	A storage pond designed to retain water during dry weather.	17
Wetland	Wwy	**1.** An area of land inundated temporarily or permanently with shallow water that is usually slow moving or stationary, including areas of marine water up to 6m deep; emergent and submerged plants are the dominant feature.	3*
	Wwy	**2.** An area of marsh, fen, peatland or water, natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water up to 6m at low tide (as defined in the Ramsar Convention). May include rivers, streams, billabongs, river overflow areas such as floodplains and swamps, some riparian forests, melaleuca (tea-tree) swamps, lakes, ponds, salt lakes, claypans, lagoons, mangrove areas, mud flats and salt marshes.	51*
Wetland flow control structure	Wwy	A culvert or flume used to control water movement into and out of a wetland, with or without the provision of vehicular passage across the structure.	25
Wetted perimeter	Hyd	The length of wetted contact between the flowing stream and the solid boundary (i.e. wetted bed and banks) of a channel with a cross-section normal to the dominant flow direction.	11*
Wetted surface	Hyd	The surface area in contact with the flowing liquid within an open channel.	11*
White water	Wwy	A non-technical term used to describe free-surface aerated flows.	5
Whoa boy	Sto	A longitudinal earth mound with low vertical curvature placed diagonally across an unsealed road or track to collect and divert stormwater runoff across the road or track to a table drain or suitable discharge point. Such banks are ordinarily designed to handle larger flows that cross drains. Also known as a CROSS BANK.	5
Wicking	Sto	The act of selectively applying herbicide to tall grasses within small drains using a length of stiff wire shaped to the approximate cross-section of the drain and wrapping	5

		it in cloth soaked with herbicide. The wick is then passed down the drain so that the herbicide only comes in contact with the taller grasses.	
Wind erosion	Esc	An erosion process in which soil is detached and transported from the land surface by the action of wind. Where the removal of a fairly uniform layer of soil from the land surface occurs, the term 'sheet erosion' may be used. The transport of wind-blown particles occurs by suspension, saltation or surface creep.	4
Wind set-up	Coa	The rise in stillwater level caused by wind stress on the surface of the body of water.	22
Windrow	Agr	A longitudinal accumulation of straw, timber, soil or other material, stacked or piled-up by mechanical means. Ordinarily associated with hay crops, whereby after cutting, the hay is windrowed to allow more uniform drying prior to bailing.	4*
	Eng	A longitudinal accumulation of straw, timber, soil or other material, stacked or piled-up by mechanical means. Earth windrows are typically created by spillage at the edge of a bulldozer blade during earthmoving operations, e.g. during the construction and maintenance of trails.	4*
Windrow drains	Sto	A drain formed by a windrow along the edge of a trail, used to direct stormwater runoff to a stable outlet.	4*
Wing wall	Eng	A wall forming an extension of an abutment or headwall, as in a bridge or culvert, used for retaining the slope of earth filling.	2*
Withdrawal	Hyd	The act of taking water from a source for storage or use.	48*
Work area	Eng	The area that will be disturbed by building or construction works, including the area that fully encloses any soil disturbances, the building activities, materials stockpiles and vehicle pathways.	5
Work site	Eng	The area of potential disturbance by building or construction works, including any area enclosed by temporary exclusion fencing, the area of ground disturbance and building activities, any structures, materials stockpiles and vehicle pathways.	5
Woven geotextile	Eng	A geotextile formed from by systematically interlacing two sets (warp and filling) of parallel yarns to form a sheet.	54*
WQO	Wat	Abbreviation for water quality objective. The upper limit or range within which the median value of a given water quality parameter should lie. Typically used as a target to guide the actions of water resource and environmental managers.	5
Xenobiotic	Eco	A foreign chemical or material not produced in nature and not normally considered a constitutive component of a specified biological system, usually applied to manufactured chemicals.	23*
Xeriscaping	Bot	A type of landscaping involving the selection and placement of plant species specifically adapted to the	5

		local environment in order to reduce water consumption.	
Xeromorphic	Bot	Vegetation adapted to dry climatic conditions and able to withstand prolonged droughts.	4
Yield	Res	The amount of runoff produced or expected to be produced from a catchment.	4
Zooplankton	Eco	Small animal organisms that float or drift in water at or near the surface.	9*