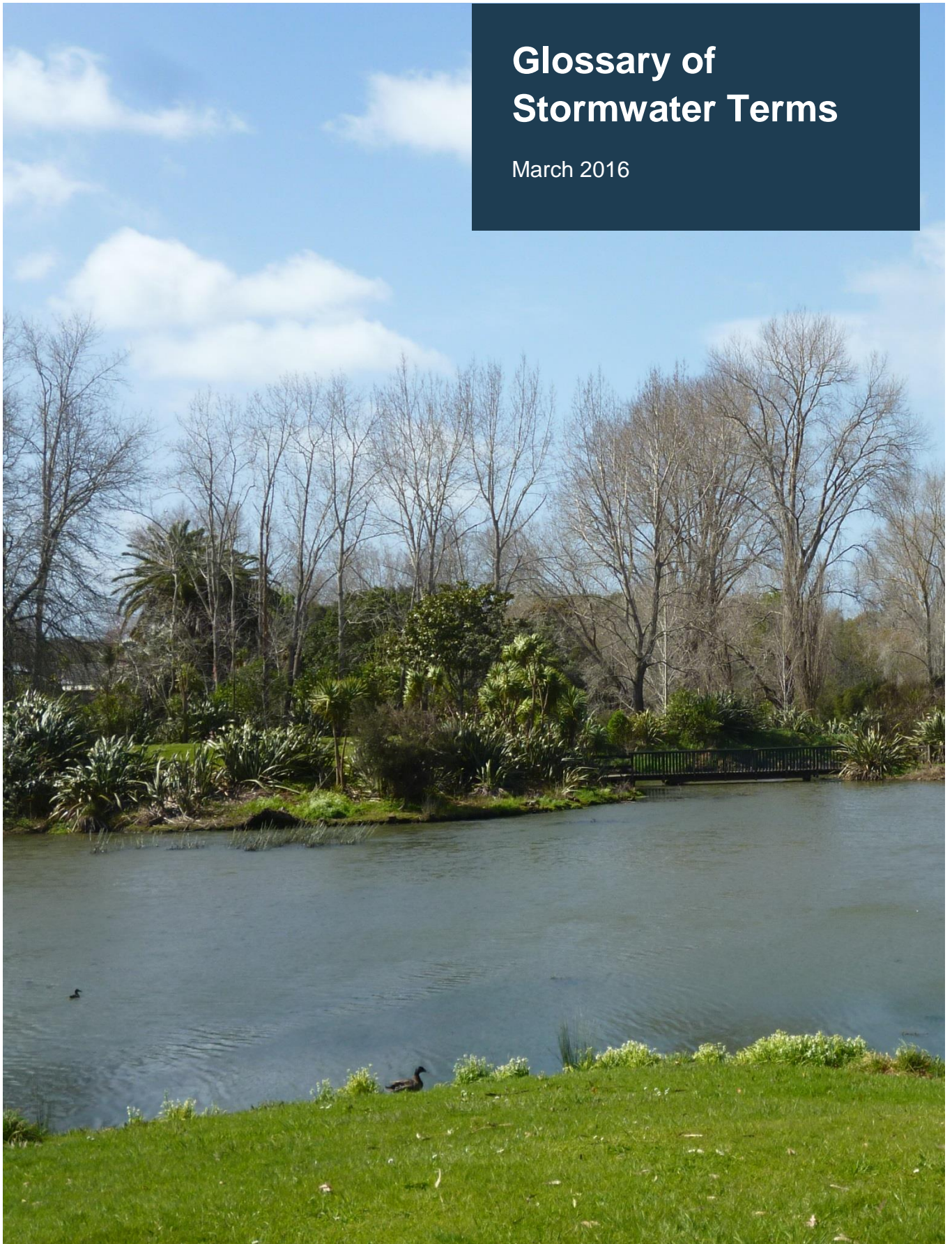


Glossary of Stormwater Terms







March 2016












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Glossary of Stormwater Terms





<p>Aerator Fountain</p>	<p>Is used in ponds to circulate water.</p> <p>Can help to reduce the build-up of silt and increase oxygen to avoid or reduce water quality issues</p>	
<p>Aquifer</p>	<p>Describes underground layers of saturated permeable material (for example, gravel or fractured rock) that can both hold and let water move through</p>	
<p>As Built Plan</p>	<p>Plans showing details of fittings and connections on a site. May also show new public assets and their connection to existing networks</p>	
<p>Baffle</p>	<p>Is a device used to deflect or regulate water flow. May also be used to enable sediment separation. See energy dissipater</p>	
<p>Bandalong</p>	<p>Is a brand name for a floating debris screen</p>	
<p>Bear Trap</p>	<p>Large inlet grille that allows access to the network during heavy rain events</p>	
<p>Bubble up catchpit</p>	<p>Describes a catchpit which does not have an outlet pipe.</p> <p>It allows the water to bubble up and flow overland to the nearest receiving point e.g. river, beach, or catchpit that is connected to the reticulation network.</p> <p>These are not commonly used.</p>	
<p>Bund</p>	<p>Barrier, dam or mound used to contain or deflect substances, particularly sediment.</p> <p>Often used to prevent a spill from entering the stormwater system</p>	









<p>Catchpit/Cesspit</p>	<p>Stormwater device composed of a grate, small chamber and sediment trap.</p> <p>May be private or public and are usually associated with drainage of roading or driveways. Varieties include supra pits, mega pits or splay pits.</p> <p>A cesspit is technically a wastewater device, although the terms are often used interchangeably</p>	
<p>Catchment Area</p>	<p>Describes an area of land where the stormwater runoff would flow to a discharge point at a watercourse or the sea.</p> <p>Runoff usually defined by land topography levels and measured in hectares</p>	
<p>Catchment Management Plan (CMP)</p>	<p>Plan for dealing with runoff generated in a catchment to meet specific water quality and quantity objectives</p>	
<p>CCTV</p>	<p>Closed circuit television camera inserted into a pipe to capture a recording of the inside for real-time or later analysis.</p> <p>The camera may be mounted on a remote controlled vehicle or flexible tubing.</p>	
<p>Chamber</p>	<p>The area within manholes and catchpits where stormwater goes before going out through the pipes</p>	
<p>Channels, Streams and Watercourses</p>	<p>A channel is a built feature which carries surface water and is open to the air.</p> <p>Streams are natural features.</p> <p>A watercourse is a generic terms that covers both channels and streams.</p> <p>Lined (with concrete) channels make the water flow away more quickly</p>	


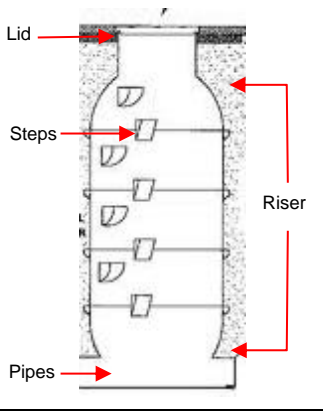





<p>Coastal Discharge/Beach Outfall</p>	<p>Beach or at-sea exit point of stormwater from the piped network</p>	
<p>Culvert</p>	<p>Pipe or concrete box structure usually installed within a watercourse.</p> <p>It may be used to allow water to pass underneath a road, railway, or embankment, or used on driveways where there is no kerb and channelling</p>	
<p>Dam</p>	<p>Built to store stormwater to control flooding, water for drinking supply, power generation, or irrigation.</p>	
<p>Detention Pond</p>	<p>Primarily for holding stormwater runoff to prevent downstream flooding and erosion by releasing water at a slower rate than at which it enters.</p> <p>Similar to a wetland but generally much larger because of the need to contain greater water volumes</p>	
<p>Debris Screen</p>	<p>Used in watercourses to ensure litter does not enter the stormwater network and eventually, harbours.</p> <p>May also be installed in manmade ponds and treatment devices. Also known as trash racks or litter traps.</p>	
<p>Downpipe</p>	<p>Pipes from guttering to the ground which carries rainwater to the reticulated stormwater or combined system, private ground soakage device or rain tank</p>	
<p>Embankment</p>	<p>Mound or wall of soil or stone around a water asset to create extra storage capacity than the natural ground level would allow</p>	
<p>Energy Dissipater</p>	<p>Rocks or concrete pads constructed at outlets to slow or regulate water flow and prevent erosion.</p> <p>Baffles are a type of energy dissipater</p>	








Erosion	<p>Abrasion, detachment and removal of soil by rain, flowing water, wind, frost, temperature change or other natural or human-made causes.</p> <p>Erosion causes soil to mix with stormwater to create sediment which may be harmful to the environment</p>	
Fish Ladder/Fish Passage	<p>Device used to enable fish species to climb barriers in built stormwater networks</p>	
Floodgate	<p>See tide gate</p>	
Flood Plain	<p>Area that a watercourse covers when it floods the surrounding land</p>	
Flood Sensitive Area	<p>Area bordering a flood plain that has potential to be inundated in a 100 year flood</p>	
Flume Bag	<p>Flexible tube with a flared end which connects to the end of a stormwater pipe.</p> <p>Often used for cliff-top discharges where its flexibility allows better positioning and flared end minimises erosion</p>	
Gabion Basket	<p>Flexible or rigid wire cage filled with rocks which acts as a retaining wall.</p> <p>May be used as a bund to separate sections in ponds</p>	
Grate/Grille	<p>Steel slotted cover primarily used as a safety device.</p> <p>Also allows runoff to enter the stormwater system, but prevents the entry of blockage-causing debris</p>	
Grease Trap/Grease Interceptor	<p>Device to prevent grease and solids entering the wastewater network and allows the grease to be collected and disposed of safely.</p> <p>Grease and fat build-up is a major cause of pipe blockages</p>	

<p>Ground Water</p>	<p>Water that has seeped from the surface to subsoil and rocks.</p> <p>Groundwater can surface again, particularly at the base of slopes, or through retaining walls. Responsibility for managing ground water lies with the property owner</p>	
<p>Gully Trap</p>	<p>Access point to private drainage (wastewater) for maintenance or cleaning.</p> <p>Located usually at side of a building and often has a metal or plastic grille on top to prevent debris entering the private line</p>	
<p>Gutter/Spouting</p>	<p>Narrow trough fixed under the eaves of a house for carrying rain water to downpipes</p>	
<p>Hinged Manhole Cover</p>	<p>A cover connected to a manhole frame using a hinge. If the manhole surcharges the lid will drop back into place rather than dislodging.</p> <p>A dislodged manhole lid is an urgent health and safety issue. See surcharging manhole</p> <p>May also be known as a Korum lid – Korum is a brand who produce them</p>	
<p>Hydro Blaster/Hydro Jet</p>	<p>High pressure water-blaster used to remove tree roots from inside pipes</p>	
<p>Impermeable or Impervious Surfaces</p>	<p>Hard surface area which prevents or retards the entry of water into the soil.</p> <p>Examples include roofs, car parks and concreted areas</p>	
<p>Infiltration</p>	<p>Passage of water through the soil to become ground water.</p> <p>Also used to describe the process of ground water entering storm or wastewater pipes</p>	
<p>Inlet</p>	<p>Entry point to a piped network.</p> <p>This is usually from a watercourse, pond, or channel</p>	

<p>Inlet Grille</p>	<p>Steel bars installed at an inlet to prevent the entry of large debris which may cause a blockage.</p> <p>It also prevents the public from entering the network</p>	
<p>Invert</p>	<p>Describes the bottom of a pipe or channel.</p> <p>GIS may show invert level or depth from the manhole lid to invert, allowing the depth below ground level of the pipe to be determined</p>	
<p>Kerb Outlet</p>	<p>Discharge point into the roadway of stormwater which is collected from a property in a pipe, then passes under the footpath/driveway.</p>	
<p>Lined Channel</p>	<p>Watercourses lined with concrete or other material to increase the rate at which water flows away and minimise erosion.</p>	
<p>Manhole</p>	<p>Chamber that provides entry to the piped network.</p> <p>Access is via a cover which may be lockable to prevent unauthorised entry. See hinged manhole cover and surcharging manhole</p>	
<p>Mega Pit</p>	<p>See catchpit</p>	
<p>100 Year Flood Plain</p>	<p>Land which may be inundated with water if a 100-year rain event occurs.</p> <p>A 100-year event is of a size that would typically occur only once in 1-100 years</p>	
<p>Orifice</p>	<p>Small outlet from a detention tank/pond that controls stormwater outflow</p>	
<p>Outlet/Outfall</p>	<p>End of a stormwater pipe or network where water leaves the built stormwater system and enters the natural environment, at a watercourse, lake or beach, pond etc</p>	


<p>Overland Flow Path</p>	<p>Route taken by runoff not captured in the reticulated or natural stormwater system.</p> <p>If there is too much rainfall for the stormwater system to contain, the water will begin to flow across the ground and concentrate in gullies.</p>	
<p>Permeable/Pervious</p>	<p>Natural ground surfaces including trees, shrubs, grass and soil which allow water to pass through and soak into the ground, reducing the volume of runoff flowing over the ground.</p>	
<p>Pump Station</p>	<p>Installation to pump stormwater from a lower to a higher area. May be inside a building or fenced</p>	
<p>Rain Tank</p>	<p>An above or below-ground tank used to store water collected from the guttering of a building.</p> <p>Not typically used for drinking water unless in areas of non-reticulated water supply such as rural properties.</p>	
<p>Rain Garden</p>	<p>Planted area of lower ground which absorbs runoff from impermeable areas.</p>	
<p>Rainwater detention/retention tank</p>	<p>A rain tank which is used to temporarily store rainwater and release it at a slower rate through a specially designed orifice.</p>	
<p>Recharge Pit</p>	<p>See soakage pit</p>	
<p>Retaining Wall</p>	<p>Reinforced wall, usually constructed from timber, concrete or masonry, designed to prevent higher ground from collapsing</p>	

<p>Reticulation</p>	<p>Piped network which carries stormwater.</p> <p>The term is also used for water supply and wastewater</p>	
<p>Riprap</p>	<p>Also known as scour.</p> <p>Rock or other material used to armour shorelines, streambeds, bridge abutments, pilings and other shoreline structures against scour and water or ice erosion.</p>	
<p>Riser</p>	<p>Underground, vertical section of a manhole which rises up from the pipes at the base to ground level</p>	
<p>Roof Garden</p>	<p>Any garden on a roof; roof gardens may delay stormwater peak flow, and reduce the volume and rate of runoff.</p> <p>The runoff may be stored for later use in the garden</p>	
<p>Root Cut</p>	<p>Water blasting or mechanical sawing to remove tree roots which penetrate pipes through cracks, joints or connections, and cause blockages</p>	
<p>Runoff</p>	<p>Water flows which result from rain water which is not absorbed by permeable surfaces or that which falls on impermeable surfaces</p>	
<p>Safety Grille</p>	<p>Metal grille bolted just under a manhole cover which prevents access if the cover becomes dislodged.</p> <p>Grille may be permanent or temporary</p>	
<p>Sand Filter</p>	<p>An above or below ground tank containing a bed of sand to filter stormwater runoff and remove sediments and contaminants</p>	

Scruffy Dome	Steel grille , usually domed, placed over the inlet of a manhole to allow stormwater runoff to enter the piped network but preventing larger debris from doing so	
Sediment	Tiny fragments of organic or inorganic matter suspended in water. Sediment is a pollutant caused by erosion and earth works	
Sediment Trap	A device which can trap coarse sediment . Also known as a silt trap	
Seepage	Usually a flow of subsoil water, sometimes containing silt or iron bacteria, appearing at ground level, in shallow excavations or from behind retaining walls. If orange coloured it's frequently confused with wastewater leaks	
Sewer	Another name for a wastewater pipe	
Slip	In relation to stormwater may be a cliff face slip associated with a stormwater asset	
Soakage Pit/Trench/Soak Holes	Belowground pit to collect runoff and allow it to soak naturally into the soil. The covers for these are same as a manhole cover.	
Spillway	Path designed to be taken by runoff when the capacity of a pond or dam is exceeded by a rain event or when the outlet is blocked	
Splay Catchpit	Usually has a higher entry capacity and lower likelihood of blockage than a standard catchpit	

<p>Stop Bank</p>	<p>An earth bund or embankment to prevent water flowing in a particular direction. Usually used to prevent frequent flooding, but will not prevent all flooding</p>	
<p>Stormwater</p>	<p>Stormwater is rain that has reached the ground</p>	
<p>Stream</p>	<p>See watercourse</p>	
<p>Subsoil drain</p>	<p>A subsoil drain is laid underground and allows for the collection and passage of subsoil water to a stormwater drain.</p> <p>This can be used to increase the stability of the land especially around building footings, reduce surface water for example, under a lawn and reduce subsoil water pressure such as in a building basement.</p>	
<p>Sucker Truck</p>	<p>Vacuum truck that sucks up debris and silt from pipes, manholes, catch pits etc</p>	
<p>Sump</p>	<p>The bottom of a catchpit below the outlet where sediments settle. Often the whole catchpit is referred to as a sump</p>	
<p>Surcharging Manhole</p>	<p>When stormwater flows out of a manhole at ground level.</p> <p>Surcharging may be caused by blockages in downstream pipes causing water to back-up, or by excess water in the pipes during a heavy rain event.</p> <p>The force of the water may dislodge the manhole cover or lift it off completely.</p> <p>A dislodged manhole lid is an urgent health and safety issue</p>	
<p>Swale</p>	<p>Area of land that has been shaped to allow a watercourse to form during heavy rain. They often indicate an overland flow path.</p> <p>See unlined channel</p>	
<p>Tide Gates</p>	<p>Gate or valve device at the outlet of a pipe or channel to prevent water backflows from a watercourse or the sea from tidal effects</p>	

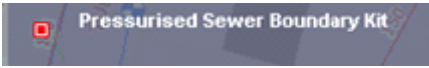
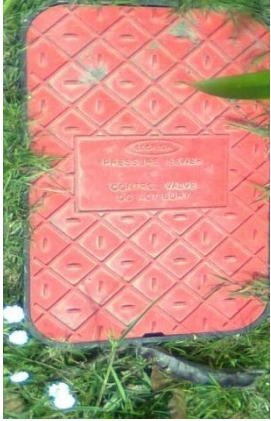




<p>Tomo</p>	<p>Area of underground erosion (not always visible) caused by the scouring action of water, often around a fixed object such as a pipe or manhole.</p> <p>May also be caused by soil entering a crack in a pipe and slowly forming a void</p>	
<p>Treatment Device</p>	<p>Generic term to cover a wide range of devices to remove contaminants from runoff. Examples of treatment devices include sand filters, detention ponds, and tree pits</p>	
<p>Tree Pit</p>	<p>Collects stormwater runoff from impermeable areas. Runoff filters through the tree roots and surrounding soil, trapping</p> <p>Collects stormwater runoff from impermeable areas.</p> <p>Runoff filters through the tree roots and surrounding soil, trapping pollutants before entering a piped storm water system</p>	
<p>Unlined Channel</p>	<p>Built channel with grass banks (also may refer to a natural section of a watercourse).</p> <p>A swale is a type of unlined channel designed to manage a larger flow</p>	
<p>Wastewater</p>	<p>Water which has been used by, and discharged from homes, businesses, farms, and industries.</p>	
<p>Water Table</p>	<p>Top of an area of permanently saturated soil underground.</p> <p>The water table level can be within a few centimetres of the surface or metres below and may change over time.</p> <p>See ground water and aquifer</p>	
<p>Watercourse/Streams</p>	<p>A natural depression in the land contour that collects and directs ground water and runoff before discharge into a pond, piped network or the sea.</p> <p>Described as permanent meaning they usually contain water all year round, or intermittent meaning that they will hold water for a short while after a rain event and then be dry until the next event.</p>	
<p>Wetland</p>	<p>Shallow pond that supports a natural ecosystem of plants and animals that are adapted to wet conditions.</p> <p>Wetlands typically provide treatment of stormwater by removing sediment which contains contaminants such as heavy metals</p>	



Wingwall	<p>Wall at an inlet or outlet from a pipeline or culvert designed to prevent erosion of the surrounding soil.</p> <p>Usually made of concrete.</p>	
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Glossary of Other Utility Company covers & lids

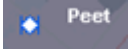





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Asset Name	Description	Photo
<p>Boundary Kit (PWC)</p>	<p>This box houses the connection point between the private property and the public wastewater network.</p> <p>They are the same size as the water meter box but have a red lid. They sit on the berm outside the property boundary.</p> <p>Shown in GIS as:</p>  <p>Written on lid: Pressure Sewer Control Valve Do Not Bury</p>	
<p>Catchpit/Cesspit (Public)</p>	<p>Stormwater device composed of a grate, small chamber and sediment trap.</p> <p>May be private or public and are usually associated with drainage off road or driveways.</p> <p>Varieties include supa pits, mega pits or splay pits.</p> <p>A cesspit is technically a wastewater device, although the terms are often used interchangeably.</p> <p>Shown on GIS as:</p> 	
<p>Catchpit (Private)</p>	<p>There are a number of these on private property and is the responsibility of the property owner. They are not usually shown on GIS.</p> <p>If there is no public stormwater shown in the vicinity on GIS then the maintenance of these falls to the property owner. They are usually smaller than what is seen out in the road areas.</p>	
<p>Channel grate/slot drain</p>	<p>These are normally in front of garages to catch any surface run off and are the responsibility of the property owner to maintain if within the private property.</p> <p>They are also found in pavements and are then the responsibility of Auckland Transport Refer to Vehicle Crossing</p>	

Downpipe	Pipes from roof gutter of house to carry rainwater to reticulated stormwater system	
Gas, Power and Telephone conduits	<p>Gas is yellow, power is orange (sometimes they use grey as it goes up the power pole), telephone is green</p> <p>Utility Company: Vector for power and gas Utility Company: Spark for telephone</p>	
Gutter (spouting)	A trough fixed under the eaves of a house for carrying rain water to downpipes and into the reticulated stormwater system	
Gully Trap	<p>Access point on private drainage usually at side of dwelling or other structure.</p> <p>Maintenance point for cleaning. Usually has a rectangular plastic grille on top to prevent debris entering the private line.</p>	
<p>Hydrant paint mark</p> <p>Blue Raised marker</p>	<p>The yellow triangle in the road indicates the hydrant – this is for easy location when the Fire Services need to locate in case of emergency</p> <p>The blue raised marker also indicates hydrant</p>	
Power company utility box	Vector or other electricity provider	
Pressure Wastewater Unit (PWC)	On site wastewater tank this unit grinds the waste before pumping to the public network – these are a recent addition to the wastewater network.	

<p>Splay Catchpit/Cesspit</p>	<p>Stormwater device composed of chamber. Usually associated with drainage of roads.</p> <p>Shown on GIS as: </p>	
<p>Telecom chamber</p>	<p>Steel lids on the berm/grass verge or sometimes on the footpath itself. This is for access to the underground telephone cables</p>	
<p>Telecom cover</p>	<p>For access to the fibre-optic cables, usually located on the footpath. Metal lid, clearly marked "Telecom"</p>	
<p>Telecom Indicator</p>	<p>Indicates underground telephone cables</p>	
<p>Utility boxes</p>	<p>Black is "live cables" and grey are old fashioned telephone cable boxes</p>	
<p>Valve marker</p>	<p>For ease of location the blue marking indicates the concrete markers (see next photo) which in turn is located very close to the valve box</p>	

<p>Valve – peet valve and sluice valve</p>	<p>Blue painted concrete marker posts marked PV or SV or just V. These relate to water supply</p> <p>Shown on GIS as: </p>	
<p>Water meter</p>	<p>Water meter boxes can have blue or black plastic lids, the box itself is also made of plastic.</p> <p>In the past, these lids were steel. Steel lids are still used in high traffic areas where vehicles could be damaging the plastic boxes.</p> <p>These are normally located on the berm, close to the property boundary.</p> <p>If the meter is ticking over, there is water usage (leakage) on the private side. If there is no movement on the meter, but there is a wet area on the berm or water is visibly running (and it is not raining currently or for the last couple of days), there might be a leak on the public side of the meter and Watercare needs to rectify.</p> <p>The round water meter cover can be found in the western areas of Auckland, these are only about 30cm across – and not to be confused with a manhole which is approx 55cm across</p>	  
<p>Water supply - blue</p>	<p>Even though this meter box is on the berm, the meter inside the box is the private/public divider.</p> <p>The water on the public side will not register on the meter, where if the private side has a leak or is using water, the meter will be turning over.</p> <p>Home owners can do an overnight test on the meter to establish if they have a leak by, last thing at night taking a meter reading, shutting the valve and then not to use any water overnight.</p> <p>First thing the next morning to go back and take another reading. When they open the valve, and water rushes through, it clearly indicates that there is a leak on the private side.</p>	

Vehicle Crossing

A vehicle crossing is the area of driveway between the council road and the private property boundary. The area of driveway on private property is not part of the vehicle crossing.

The vehicle crossing will usually replace a portion of the public footpath and may have a grate covering drainage. Vehicle crossings with grates are referred to as hi-volume vehicle crossings.

