TRASH FULL CAPTURE SYSTEM (FCS)TYPES V1.0

There are 14 FCS types in 2 categories. 7 are **centralized:** typically publicly owned & maintained structures, treating a large urban drainage with multiple land uses and ownership. 7 are **decentralized:** typically treating smaller impervious areas from two or fewer land uses and associated with (re)development and roadside projects.

FCS TYPE & CATEGORY	OTHER NAMES	DESCRIPTION	FCS GROUPING[1]
Bed Filter (Centralized)	*Underground Sand Filter* *Surface Sand Filter* *Perimeter Sand Filter* *Organic Media Filter*	A flow-through structure that uses granular media (e.g. sand or activated alumina) to actively filter stormwater to remove stormwater pollutants. Filtration is controlled by the flow rate through the media and discharge via an underdrain or outlet. Little to no volume loss occurs. May be confined space but not always. Its decentralized counterpart is a filtration device. May be a FCS if sized to treat the 1yr, 1hr storm event. Captures trash ≥5mm within media. Litter must be removed to ensure it is not windblown from system or transported via bypass outlet if storage capacity is exceeded during subsequent runoff event.	MULTI-BENEFIT TREATMENT SYSTEM
Bio-filtration (De-centralized)	*Lined rain garden with no infiltration* *Urban Biofilter* *Tree Box Biofilter (TreePod, Filterra)*	A vegetated BMP where stormwater is filtered through a specialized soil media and discharged via an underdrain. BMP may be lined with membrane or concrete. Outlet design requires surface ponding prior to surface outflow typically with a max ponding depth of 6″. Site designed biofiltration systems use specialized soil media ideally 18-24 inches in depth to enhance biogeochemical processes to retain and transform pollutants. Proprietary designs vary and may or may be confined space and difficult to access for inspection. Its centralized counterpart may be a wet basin or a dry basin. May be a FCS if sized to treat the 1yr, 1hr storm event. Captures trash ≥5mm within media and on surface. Litter must be removed to ensure it is not windblown from system or transported via bypass outlet if storage capacity is exceeded during subsequent runoff event.	MULTI-BENEFIT TREATMENT SYSTEM

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[1] See 2NFORM Trash Module Glossary for definitions of term.

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Bio-retention **(De-centralized)**	*Biofilter* *Rain garden with infiltration* *Self-Retaining Areas*	A vegetated retention structure where the base of the BMP is not lined and must infiltrate volumes and allow infiltration to unsaturated zone. Designs may or may not include an underdrain. Outlet design requires surface ponding prior to surface outflow typically with a max ponding depth of 6". Outlet design either passive surface outlet (e.g., curb cut) or piped overflow (e.g., overflow inlet and underdrain) used to allow retention and ponding. Constructed with specialized soil media ideally 18-24 inches in depth to enhance biogeochemical processes to retain and transform pollutants. Typically includes rock or aggregate subsurface reservoir under the soil media to enhance storage/infiltration. Designs may include settling forebay at inlet(s) to remove sediment. Vegetation types include species that can tolerate stormwater ponding and drought conditions. Its centralized counterpart is likely a dry basin. May be a FCS if sized to treat the 1yr, 1hr storm event. Captures trash ≥5mm within media and on surface. Litter must be removed to ensure it is not windblown from system or transported via bypass outlet if storage capacity is exceeded during subsequent runoff event.	MULTI-BENEFIT TREATMENT SYSTEM
Detention Basin **(Centralized)**	*Detention Pond (impervious)* *Dry Pond*	A flow-through basin with discrete inlets and outlets designed to detain stormwater runoff for some minimum time to reduce peak flows. Design treatment capacity and draw down time will vary across specific BMPs. One or more outflow offices may exist but there is at least one at base of basin to allow complete draining between storms. Increased draw down times can increase particle capture via settling within the basin, though generally these BMPs do not allow for adequate settling. Little to no volume loss via infiltration due to impervious or highly impermeable base. Vegetation may or may not be present. Its decentralized counterpart is likely a settling basin. May be a FCS if sized to treat the 1yr, 1hr storm event. Requires screen on treated outlet to captures trash ≥5mm. Litter must be removed to ensure it is not windblown from system or transported via bypass outlet if storage capacity is exceeded during subsequent runoff event. Screen must be regularly cleaned to prevent clogging and check for damage that allows particles ≥5mm to pass through into storm drain network.	MULTI-BENEFIT TREATMENT SYSTEM

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Drop Inlet (De-centralized)	*DI* *Storm Drain* *Culvert* *Catch Basin without sump*	A decentralized conveyance structure placed strictly to collect and convey stormwater. Drop inlets typically drain small-scale areas such as roadways, parking lots, or other impervious surfaces and serve as the inlet from the surface into the subsurface storm drain system. Drop inlets provide no water quality benefit and are not structural BMPs. A drop inlet that includes a sump to capture particulate pollutants is a sediment trap. Drop inlets can be retrofit with a screen to meet the definition of a trash full capture system (FCS). Screen must be regularly cleaned to prevent clogging and checked for damage that allows particles ≥5mm to pass through into storm drain network. Drop inlets fitted with proprietary devices that filter pollutants in addition to trash is a filtration device.	TRASH TREATMENT CONTROL DEVICE
Dry Basin (Centralized)	*Extended Detention Basin* *Dry Pond* *Pervious Detention Pond*	A flow-through basin with discrete inlets and outlets designed to detain stormwater runoff for some minimum time to reduce peak flows. Design treatment capacity and draw down time will vary across specific BMPs. One or more outflow offices may exist but there is at least one at base of basin to allow complete draining between storms. Increased draw down times can increase particle capture via settling within the basin. Footprint is pervious and infiltration capacity of base maintained to consistently infiltrate some fraction of volumes detained to unsaturated zone. Wetland and riparian vegetation species distribution is minimal to absent. Moderate distribution of grass and/or tree species likely and acceptable. Its decentralized counterpart is likely a bioretention. May be a FCS if sized to treat the 1yr, 1hr storm event. Requires screen on treated outlet to captures trash ≥5mm. Litter must be removed to ensure it is not windblown from system or transported via bypass outlet if storage capacity is exceeded during subsequent runoff event. Screen must be regularly cleaned to prevent clogging and check for damage that allows particles ≥5mm to pass through into storm drain network.	MULTI-BENEFIT TREATMENT SYSTEM

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FCS Type & Category	Other Names	Description	FCS Grouping[1]
Filtration Device **(De-centralized)**	*Filtration Device* *Proprietary Inserts* *Catch Basin Inserts* *Drain inserts* *Inlet filters* *Decentralized Media Filter*	A proprietary flow-through structure that uses a membrane or other media to actively filter stormwater to target the specific removal of stormwater pollutants of concern, resulting in downgradient stormwater concentration reductions. Design may include the installation of an insert within the sediment trap or drop inlet structure to treat various pollutants. Examples include REM Triton Filter, CULTEC StormFilter, FlexStorm Inlet Filters, Kristar FloGard, etc. Filtration is controlled by the flow rate through the media and discharge via an underdrain or outlet. Little to no volume loss occurs. May be confined space but not always. Its centralized counterpart is likely a media filter. May be a FCS if sized to treat the 1yr, 1hr storm event and on the state-approved list of trash treatment control devices. FCS must be regularly cleaned to ensure remaining storage capacity allows for treatment of design storm.	TRASH TREATMENT CONTROL DEVICE
Infiltration Basin **(Centralized)**	*Large-Scale Infiltration Feature*	A flow-through BMP with highly permeable substrate (aggregate or rock) designed to store and infiltrate significant volumes of stormwater into unsaturated zone. Little to no surface detainment storage. Vegetation distribution should be minimal and preferably absent. May be confined space but not usually. Its decentralized counterpart is an infiltration feature. May be a FCS if sized to treat the 1yr, 1hr storm event. **Captures trash ≥5mm within media** and on surface. Litter must be removed to ensure it is not windblown from system or transported via bypass outlet if storage capacity is exceeded during subsequent runoff event.	MULTI-BENEFIT TREATMENT SYSTEM
Infiltration Feature **(De-centralized)**	*Infiltration Trench* *Dry Well* *Exfiltration Trench* *Percolation Trench* *French Drain* *Roof Drip-Line*	A small-scale structure designed to retain stormwater from small impervious drainage area and infiltrate into unsaturated zone. Land surface modified to sustain maximum infiltration rates, typically consisting of vertical excavation of native soils and filling with coarse drain rock or other highly permeable material. Vegetation is absent. May be confined space but not usually. Its centralized counterpart is an infiltration basin. Possibly (but unlikely) a FCS if sized to treat the 1yr, 1hr storm event. Captures trash ≥5mm within media and on surface. Litter must be removed to ensure it is not windblown from system or transported via bypass outlet if storage capacity is exceeded during subsequent runoff event.	MULTI-BENEFIT TREATMENT SYSTEM

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Media Filter (Centralized)	Proprietary Subsurface Filtration Systems: Stormfilter® Perk Filter™ Jellyfish®	A proprietary subsurface flow-through structure that uses a membrane or other media to actively filter stormwater to remove stormwater pollutants. Proprietary models include media or membranes that may be selected to target the specific removal of the pollutants of concern, resulting in downgradient stormwater concentration reductions. Filtration is controlled by the flow rate through the media and discharge via an underdrain or outlet. Little to no volume loss occurs. May be confined space but not always. Its decentralized counterpart is a filtration device. May be a FCS if sized to treat the 1yr, 1hr storm event and on the state-approved list of trash treatment control devices. FCS must be regularly cleaned to ensure remaining storage capacity allows for treatment of design storm.	TRASH TREATMENT CONTROL DEVICE
Sediment Trap (De-centralized)	*Catch Basin with sump, Sediment Chamber, Vertical CMP, Small Hydrodynamic Separators, Bubble Up*	A small decentralized BMP designed to capture and retain sediment, leaf litter, trash, coarse particles and/or other stormwater pollutants. Capture of material may occur through variable flow modifications or passive settling, but result is vertical accumulation of material at base of BMP reservoir with regular material cleanout required. Minimal to no stormwater volume reduction occurs. Water quality improvement downgradient expected as result of concentration reduction due to material capture within BMP. May be confined space but not always. Its centralized counterpart is a treatment vault. May be a FCS if sized to treat the 1yr, 1hr storm event and on the state-approved list of trash treatment control devices. FCS must be regularly cleaned to ensure remaining storage capacity allows for treatment of design storm.	TRASH TREATMENT CONTROL DEVICE
Settling Basin (De-centralized)	*Settling Pond, Sediment Basin Decant Pond Concrete Forebay Forebay*	Open flow-through structures used to detain stormwater volumes and settle particulate pollutants prior to outflow. Pollutant load reductions are realized by concentration reductions with no volume reduction via infiltration due to impervious or highly impermeable base. May be confined space but not usually. Its centralized counterpart is likely a detention basin. May be a FCS if sized to treat the 1yr, 1hr storm event. Captures trash ≥5mm within media that must be removed to ensure litter is not windblown from system or transported via bypass outlet if storage capacity is exceeded.	MULTI-BENEFIT TREATMENT SYSTEM

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FCS TYPE & CATEGORY	OTHER NAMES	DESCRIPTION	FCS GROUPING[1]
Trash Trap **(Centralized)**	*End of line trash nets* *End of pipe netting* *Debris fence*	Trash traps are placed at the outfall of the storm drainage system to capture the trash flowing from an urban catchment or urban drainage system. May be a FCS if the screen meets the definition of a trash full capture system (FCS). Screen must be regularly cleaned to prevent clogging and checked for damage that allows particles ≥5mm to pass through into storm drain network. Outfalls fitted with proprietary devices that filter and/or pollutants in addition to trash is a media filter or treatment vault.	TRASH TREATMENT CONTROL DEVICE
Treatment Vault **(Centralized)**	*Hydrodynamic Separator (e.g. Vortechs, CDS®, DVS)* *Wet Vault* *Detention Vault* *Flow Separation Vault* *Gross Solids Retention Devices* *Large Scale Settling Basins*	A subsurface flow-through structure that physically separates sediment, trash, leaf litter, debris and other particulate pollutants from stormwater via various separation or settling techniques. No volume reduction occurs due to impervious base. May be confined space but not always. Its decentralized counterpart is a sediment trap. May be a FCS if sized to treat the 1yr, 1hr storm event and on the state-approved list of trash treatment control devices. FCS must be regularly cleaned to ensure remaining storage capacity allows for treatment of design storm.	TRASH TREATMENT CONTROL DEVICE