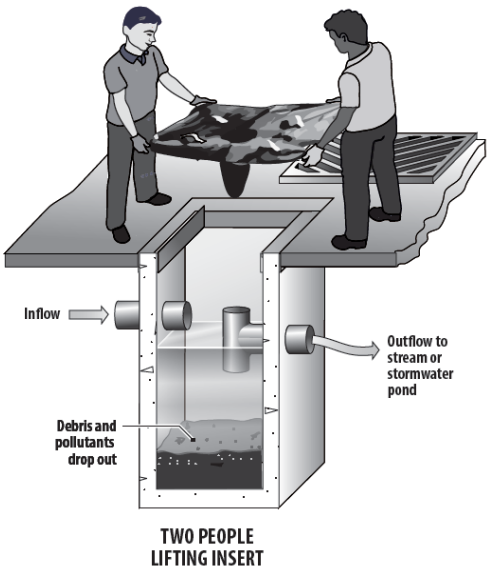
Catch Basin Inserts

A catch basin insert is a device installed in a catch basin to provide water quality treatment through filtration or absorption.



Catch basin inserts fit into existing catch basins and are configured to remove one or more of the following contaminants: coarse sediment, oil and grease, and litter and debris. Some units may be able to remove dissolved pollutants and pollutants associated with fine sediments. When selecting an insert, ensure that your specific pollutant-removal needs are met. As with any treatment BMP, catch basin inserts should never be used in place of source control practices.

Oil and Grease Removal: Inserts designed for the removal of oil and grease contain, and depend on, oil-absorbing media. The *King County Surface Water Design Manual* (KCSWDM) requires specific materials/media to be used in catch basin inserts to ensure oils are not re-released during storm flows. These inserts are appropriate for use in any area in which vehicles are used, maintained, or stored. Because of the small storage capacity of these inserts, they are not acceptable as the sole line of defense against actual oil spills in areas where large amounts of oil could be released. Large amounts of sediment entering the catch basin significantly reduce the effectiveness and longevity of the oil absorbing media. Under these conditions, an oil/water separator with a pre-settling chamber may be more appropriate.

Sediment Removal: Inserts designed for sediment removal may be used at construction sites and in situations where stockpiles or unpaved areas are likely to contribute high sediment loads. They may also be appropriate for small (low traffic) businesses. They are not considered a substitute for other source control BMPs.

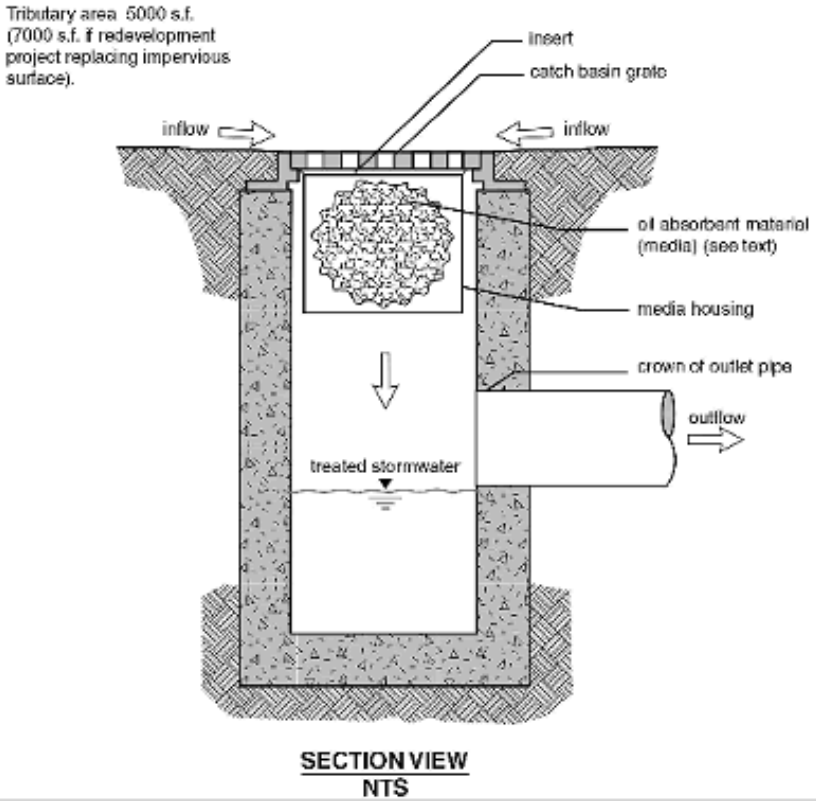
Debris Removal: Inserts can also be used for the removal of litter and debris, particularly leaf and tree material.

Design and Maintenance

Unlike most other treatment BMPs, which must be designed and constructed specifically for your site, catch basin inserts may be purchased directly from a vendor and installed by the user. While standardized insert units are available, most vendors are able to customize their systems for your site. Before purchasing a catch basin insert, the following factors must be considered.

Conveyance Capacity: The conveyance capacity refers to the amount of water that the insert can pass without causing flooding. This capacity is equal to the amount of water that is able to pass through the insert's treatment area, plus the amount that can pass through

the built-in overflow. Over time, the treatment area begins to clog and the total conveyance capacity is reduced. If maintenance is neglected or if an unusually high amount of sediment or debris is captured by the insert, the treatment capacity may drop to zero and all of the water will have to drain through the overflow (routine inspections help prevent this problem). In order to minimize the chance of flooding, the insert should function as designed and be able to handle flow from the area draining to the catch basin. The vendor should be able to tell you what the conveyance capacity is. Don't allow employees to poke holes in the insert to drain flooded areas.



The typical design of a catch basin insert is a set of filters that are specifically chosen to address the pollutants expected at that site (Source: King County, Washington, 2000)

Treatment Capacity and Bypass: The treatment capacity refers to the amount of stormwater that the insert unit will pass through its treatment area. The insert unit should be sized to ensure that most of the water entering the drain inlet is treated even as the treatment area starts to clog. The ability of the insert to remove pollutants will be reduced if water is able to seep between the catch basin grate and the edge of the pavement. Ensure that this gap is sealed. The vendor should provide you with information on how to prevent this situation and information on the treatment capacity of the system.

Maximum Weight: The maximum weight of the insert/filter will be equal to the weight of the insert/unit when new, plus the weight of the sediment and water trapped in the unit. Under the most extreme cases, the treatment area of the insert/unit may become

completely clogged, and the unit may be full of water when it comes time to service it. It is essential the maximum weight of the insert be less than what can be lifted by the people or equipment to be used during maintenance. Before ordering a system, or having a system customized to your site, be sure the vendor knows how you will be removing the insert/unit for maintenance.

Maintenance: Since the installation of one or more catch basin inserts represents a long-term commitment to maintenance, it is important that the unit selected be easy to use and maintain, and that it is built to last. Be sure to have the vendor provide a complete demonstration of the product at your site, and if possible, ask to try an insert before committing to its purchase. **Catch basin inserts are ineffective without adequate maintenance.**

Frequent inspection of the insert is necessary. Actual maintenance will generally consist of removing the insert from the catch basin, emptying accumulated sediments, cleaning or replacing the filter media (if applicable), and reinstalling the insert. In most cases these materials may be disposed of as regular solid waste, however, media used for oil and grease removal may require special treatment. See the Disposal information sheet for more information.

Maintenance frequency will vary depending on the site and on the amount and type of pollutant targeted for removal. All units should be inspected every one to two weeks (except during periods of dry weather), and complete maintenance performed whenever necessary. The simplest way to determine whether the units need maintenance is to inspect them during a rainstorm and see whether water is exiting the overflow.

Performance Problem	**Conditions When Maintenance or Replacement is Needed**	**Results Expected When Maintenance is Performed**
Sediment Accumulation	When sediment forms a cap over the insert media of the insert and/or unit.	No sediment cap on the insert media and its unit.
Trash and Debris Accumulation	Trash and debris accumulate on insert unit creating a blockage/restriction.	Trash and debris removed from insert unit. Runoff freely flows into catch basin.
Media Insert Not Removing Oil	Effluent water from media insert has a visible sheen.	Effluent water is free of oils and has no visible sheen.
Media Insert Water Saturated	Catch basin insert is saturated with water and no longer has the capacity to absorb.	Effluent water is free of oils and has no visible sheen
Media Insert-Oil Saturated	Media oil saturated due to petroleum spill that drains into catch basin.	Effluent water is free of oils and has no visible sheen
Media Insert Use Beyond Normal Product Life	Media has been used beyond the typical average life of media insert product.	Effluent water is free of oils and has no visible sheen

Additional Information

King County Wastewater Division – Industrial Waste Program
(206) 263-3000
www.kingcounty.gov/environment/wastewater/IndustrialWaste

King County Business Waste Line
(206) 263-8899
www.hazwastehelp.org

King County Surface Water Design Manual
www.kingcounty.gov/swdm

For more information or assistance contact the King County Stormwater Services at 206–477–4811 and visit kingcounty.gov/stormwater.