

## Catch Basin

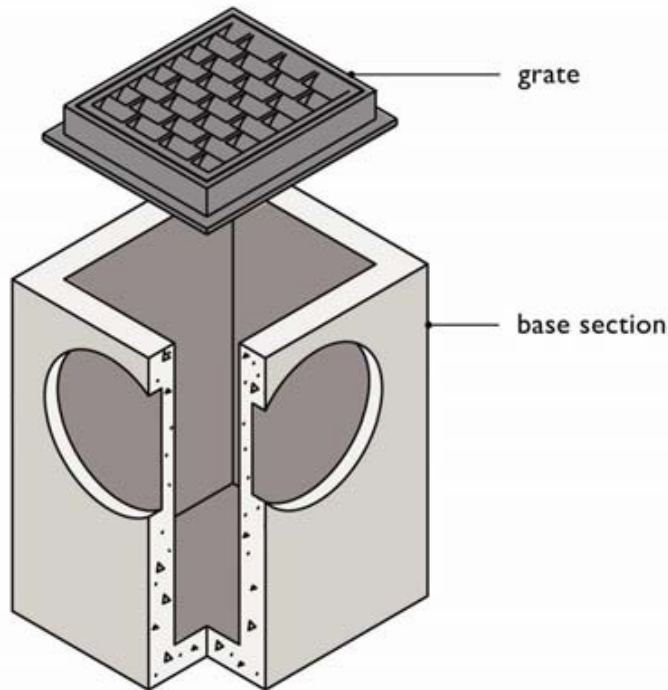
A catch basin is an underground concrete structure typically fitted with a slotted grate to collect stormwater runoff and route it through underground pipes. Catch basins can also be used as a junction in a pipe system and may have a solid lid. There are two types.

A Type 1 catch basin is a rectangular box with approximate dimensions of 3'x2'x5'. Type 1 catch basins are utilized when the connected conveyance pipes are less than 18 inches in diameter and the depth from the gate to the bottom of the pipe is less than 5 feet.

A Type 2 catch basin, also commonly referred to as a storm manhole, is listed separately under “Manhole” in this book.

Catch basins typically provide a storage volume (sump) below the outlet pipe to allow sediments and debris to settle out of the stormwater runoff. Some catch basins are also fitted with a spill control device (inverted elbow on outlet pipe) intended to contain large quantities of grease or debris.

Catch basins are frequently associated with all stormwater facilities.



**Type I**

## Key Operations and Maintenance Considerations

- The most common tool for cleaning catch basins is an industrial vacuum truck with a tank and vacuum hose (e.g. Vactor® truck) to remove sediment and debris from the sump.
- A catch basin may be an enclosed space where harmful chemicals and vapors can accumulate. Therefore, if the inspection and maintenance requires entering a catch basin, it should be conducted by an individual trained and certified to work in hazardous confined spaces.

| Catch Basin                       |                                           |                                                                                                                                                                                                                                                                                           |                                                                                     |
|-----------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Drainage System Feature           | Potential Defect                          | Conditions When Maintenance Is Needed                                                                                                                                                                                                                                                     | Minimum Performance Standard                                                        |
| Note: table spans multiple pages. |                                           |                                                                                                                                                                                                                                                                                           |                                                                                     |
| General                           | Trash and Debris                          | Trash or debris which is located immediately in front of the catch basin opening or is blocking inletting capacity of the basin by more than 10%.                                                                                                                                         | No trash or debris located immediately in front of catch basin or on grate opening. |
|                                   |                                           | Trash or debris (in the basin) that exceeds 60 percent of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of six inches clearance from the debris surface to the invert of the lowest pipe. | No trash or debris in the catch basin.                                              |
|                                   |                                           | Trash or debris in any inlet or outlet pipe blocking more than 1/3 of its height.                                                                                                                                                                                                         | Inlet and outlet pipes free of trash or debris.                                     |
|                                   |                                           | Dead animals or vegetation that could generate odors that could cause complaints or dangerous gases (e.g., methane).                                                                                                                                                                      | No dead animals or vegetation present within the catch basin.                       |
|                                   | Sediment                                  | Sediment (in the basin) that exceeds 60 percent of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of 6 inches clearance from the sediment surface to the invert of the lowest pipe.        | No sediment in the catch basin.                                                     |
|                                   | Structure Damage to Frame and/or Top Slab | Top slab has holes larger than 2 square inches or cracks wider than 1/4 inch.<br><br>(Intent is to make sure no material is running into basin.)                                                                                                                                          | Top slab is free of holes and cracks.                                               |
|                                   |                                           | Frame not sitting flush on top slab, i.e., separation of more than 3/4 inch of the frame from the top slab. Frame not securely attached.                                                                                                                                                  | Frame is sitting flush on the riser rings or top slab and firmly attached.          |
|                                   | Fractures or Cracks in                    | Maintenance person judges that structure is unsound.                                                                                                                                                                                                                                      | Basin replaced or repaired to design standards.                                     |

*Stormwater Treatment, Flow Control, and Conveyance Facility Components*

|                                    |                                     |                                                                                                                                                                                                                                                                      |                                                    |
|------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
|                                    | Basin Walls/<br>Bottom              | Grout fillet has separated or cracked wider than 1/2 inch and longer than 1 foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering catch basin through cracks.                                                                        | Pipe is regouted and secure at basin wall.         |
|                                    | Settlement/<br>Misalignment         | If failure of basin has created a safety, function, or design problem.                                                                                                                                                                                               | Basin replaced or repaired to design standards.    |
|                                    | Vegetation<br>Inhibiting<br>System  | Vegetation growing across and blocking more than 10% of the basin opening.                                                                                                                                                                                           | No vegetation blocking opening to basin.           |
|                                    |                                     | Vegetation growing in inlet/outlet pipe joints that is more than six inches tall and less than six inches apart.                                                                                                                                                     | No vegetation or root growth present.              |
|                                    | Contaminants<br>and Pollution       | Any evidence of oil, gasoline, contaminants or other pollutants. Sheen, obvious oil or other contaminants present.<br><br><ul style="list-style-type: none"> <li>• Identify and remove source, AND</li> <li>• Report to Clark County Clean Water Program.</li> </ul> | No contaminants or pollutants present.             |
| Catch Basin<br>Cover               | Cover Not in<br>Place               | Cover is missing or only partially in place. Any open catch basin requires maintenance.                                                                                                                                                                              | Catch basin cover is closed.                       |
|                                    | Locking<br>Mechanism<br>Not Working | Mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread.                                                                                                                                          | Mechanism opens with proper tools.                 |
|                                    | Cover<br>Difficult to<br>Remove     | One maintenance person cannot remove lid after applying normal lifting pressure (Intent is to keep cover from sealing off access to maintenance).                                                                                                                    | Cover can be removed by one maintenance person.    |
| Metal Grates<br>(If Applicable)    | Grate<br>Opening<br>Unsafe          | Grate with opening wider than 7/8 inch.                                                                                                                                                                                                                              | Grate opening meets design standards.              |
|                                    | Trash and<br>Debris                 | Trash and debris that is blocking more than 20% of grate surface inletting capacity.                                                                                                                                                                                 | Grate free of trash and debris.                    |
|                                    | Damaged or<br>Missing               | Grate missing or broken member(s) of the grate.                                                                                                                                                                                                                      | Grate is in place and meets design standards.      |
| Oil/Debris Trap (If<br>Applicable) | Dislodged                           | Oil or debris trap is misaligned with or dislodged from the outlet pipe.                                                                                                                                                                                             | Trap is connected to and aligned with outlet pipe. |