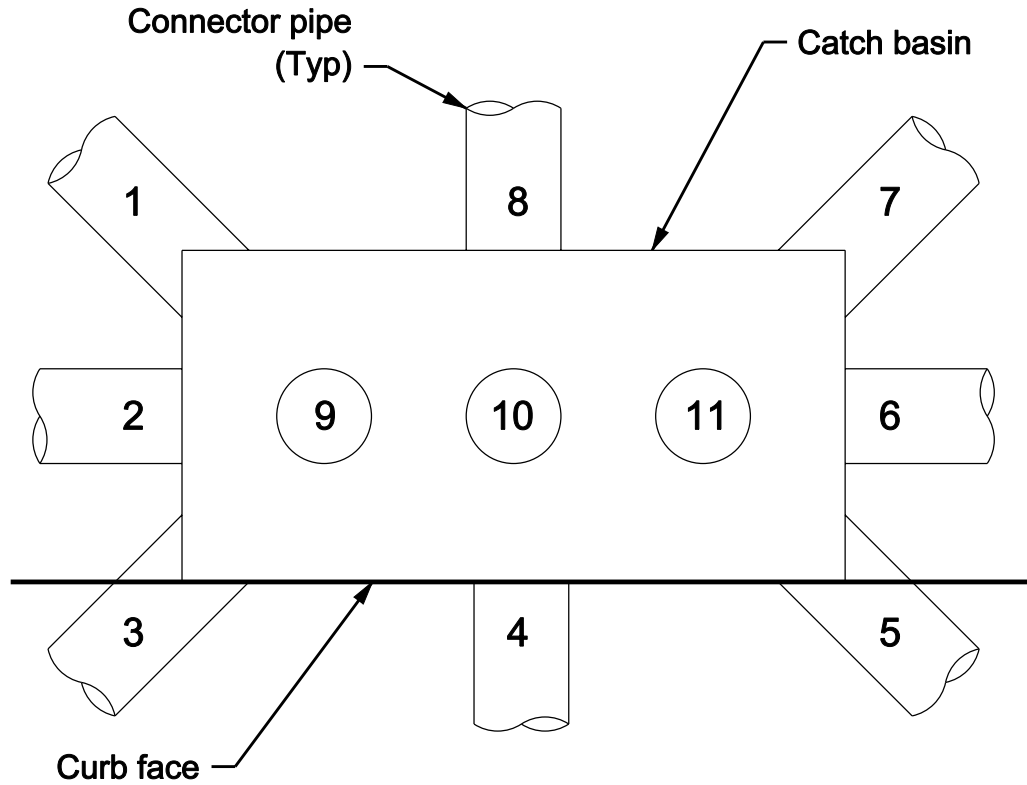


APPENDIX A-4: CONNECTOR PIPE LOCATION KEY



NOTE

1. This illustration shall be used to identify the location of a catch basin's connector pipe. The number chosen shall be that which most nearly represents the actual location of the connector pipe.

Attachment A

Automatic Retractable Screens (ARS) Requirements

The ARS prevents trash and debris from entering a catch basin during dry weather and moderate storm flows by keeping the trash and debris in the street gutter for collection by street sweepers. ARS are not allowed on CBs connecting to drains of less than 4-year frequency design storm.

The City and its contractor shall adhere to the requirements, conditions, and provisions listed below and on the Permit:

1. The City's contractor will be required to perform a field operational test on 25 out of each 100 CBs in which ARS units were installed, as required in the Public Works' specifications for ARS contracts (Attachment B). Any units that do not open, close, and lock closed automatically under the test conditions, shall be repaired or replaced and retested. This process shall be repeated until the failed unit passes the test. If five or more of the units tested do not open as described above and require re-testing, Public Works will select, at its discretion, as many additional CBs as needed to be tested to ensure the 100 CBs that were installed are functioning properly.
2. The exposed ends of the protection bar, when removed, must be drilled out to a minimum depth of 1/4-inch and refilled with neat "Sikadur 32, Hi-Mod" or Agency-approved equal. When CB protection bars are removed, each ARS unit shall be fitted with a permanent, fixed horizontal, 3/4-inch diameter solid stainless steel bar located at the same distance above the flow line as the existing protection bar. Butt welding of the protection bar will not be allowed. The new protection bar shall remain fixed when the unit opens and shall not protrude beyond the projected curb face. However, the protection bar replacement will be waived when both of the following conditions are met:
 - Where CB curb face height is 12 inches or less.
 - When the opening, between the ARS unit, in fully open position, and the flow line is such that a sphere of 4 inches in diameter cannot pass through.
3. The City shall, during storm events; patrol the locations where ARS units are installed and clear any trash lodged on the screen to allow storm flows to enter the catch basin.

Attachment A (cont.)

Connector Pipe Screen (CPS) Requirements

The CPS prevents trash and debris from entering the storm drain system during dry weather and moderate storm flows by keeping the trash and debris inside the catch basin.

The CPS shall be designed to retain all trash larger than 5 mm (0.197 inches) in the catch basin, and shall comply with the following items:

1. The CPS shall be sized, fabricated and installed conforming to the configurations shown in the CPS Sizing Table 1, Appendices A-1, A-2, and A-3.
2. The CPS shall not interfere with the operation of an existing or proposed ARS.
3. The CPS unit shall have a sufficient structural integrity to withstand a lateral force of standing water (62.4 lb/ft³) within the catch basin area when the screen becomes 100% clogged. The CPS unit shall be bolted to the catch basin walls.
4. The CPS shall be configured with deflector plates or screens preventing trash from falling between the screen and connector pipe. The deflector plate shall be designed to withstand a vertical load of 10 lbs per square foot.
5. The gap at the bottom, sides, and joints of the CPS unit shall not exceed 5mm (0.197 inches).
6. The perimeter of the CPS shall include a structural frame for stiffness, a bolting surface to fasten the CPS to the wall of the catch basin, and support for the upper portion of the CPS unit referred to as the "bypass" (see Appendix A-1).
7. All parts/components of the CPS unit must be sized to fit through the catch basin's manhole opening.
8. When the CPS unit encroaches more than 4 inches into the manhole opening, the Contractor shall install a Removable CPS unit. The Removable CPS unit shall be designed and installed with a removable panel allowing access into the catch basin. The removable panel shall be easily disengaged from the rest of CPS assembly upon entry or from the outside of the catch basin. The Contractor shall submit shop drawings for review and approval of the Agency. It is the responsibility of the Contractor to field verify the location and dimensions of these basins.
9. The CPS frame shall be fabricated from S-304 stainless steel, or an Agency approved equal stainless steel alloy. The Structural members shall have a minimum thickness of 3/16 inches.
10. The CPS screen shall be fabricated from perforated metal of Type S-304 stainless steel, or an Agency approved equal stainless steel alloy. The screen shall have a minimum thickness of fourteen (14) gauge (0.0781 inches) The geometrical opening shape shall have a diameter of 5mm (0.197 inches).

Attachment A (cont.)

11. The screen material used shall have at least 45% open area.
12. Any edge of the CPS that is not flush with the wall or floor of the catch basin shall be smooth with no prongs or jagged edges.
13. The assembly bolts, screws, nuts, and washers shall be fabricated entirely from S-316 stainless steel. The concrete anchor bolts shall use a Red Head Multi-Set II drop-in anchor, SSRM-38, with Type 316 stainless steel threaded rods, nuts and washers, or Agency approved equal.

Preliminary Measurement. The Contractor shall make detailed measurements of each catch basin, including the size and location of the connector pipe, for the proper fabrication of the devices. The Contractor shall submit written records of its measurements to the District for review and approval prior to fabrication of the CPS units. Improper fabrication of devices due to errors in the measurements shall be corrected at the Contractor's expense.

Cleaning of Existing Catch Basins. The Contractor shall furnish all materials, equipment, tools and labor to cleanout (i.e. remove and dispose of all debris from within and around) all catch basins in which retrofit devices will be installed under this Contract to the maintenance standards specified. Cleanout shall also include the catch basin connector pipe openings and the first 6 feet thereof. The catch basin shall be clean at the time of the installation of the retrofit device. Any trash and debris that accumulates between the dates the catch basin is cleaned and the date the device will be installed shall be removed prior to installation of the device at the Contractor's expense.

Maintenance Conditions and Maintenance Standards. Following are deficiencies in maintenance conditions and their corresponding maintenance standards which shall apply to this Contract. The cleanout of each catch basin shall meet the maintenance standards listed as follows:

	Description of Maintenance Condition Deficiency	Description of Maintenance Standard
1.	Trash and debris located immediately in front of curb opening or side opening of catch basin, and on top or between metal grates of grated catch basin.	No trash and debris located immediately in front of catch basin opening, and on top or between metal grates.
2.	Vegetation growing across and/or blocking the basin opening.	No vegetation blocking catch basin opening.
3.	Trash and debris in the basin.	No trash and debris within the catch basin.
4.	Trash and debris in the connector pipe opening, upstream or downstream.	No trash and debris in connector pipe opening and/or in the connector pipe for a distance of 6 feet from the opening.

Attachment A (cont.)

Trash and debris shall include, but is not limited to, mud, vegetation, and garbage.

Upon completion of a cleanout operation at a catch basin and before leaving it, the Contractor shall sweep the top surface of the catch basin and the area 2 feet around the basin, and shall remove any trash and debris resulting from the cleanout operations. No debris is to be left at a catch basin for future pick-up.

Method of Removal. All trash and debris required to be removed from the catch basins shall be removed in a manner to be determined by the Contractor. The Contractor shall not allow any trash or debris to enter the connector pipe or main line as a result of the cleanout operations.

Debris Disposal. All trash and debris removed under this Contract shall become the property of the Contractor and shall be legally disposed of away from the basin sites. The Contractor is responsible for proper disposal of the trash and debris, including obtaining approvals from all jurisdictional agencies, as applicable. The contractor shall contact LA County Animal Care and Control for pickup and disposal of dead animals. However, the Contractor shall be responsible for removing any dead animal from inside a catch basin. The Contractor shall also be responsible for contacting and coordinating with Animal Care and Control, a list of local Animal Care and Control offices may be obtained at <http://animalcare.lacounty.gov/locationByCity.asp>.

Staff Gauge. The contractor shall paint a staff gauge per Appendix A-2. The staff gauge shall be located such that it is visible through the curb opening or grating of the catch basin.