3.2.14 Catch Basins (REVISED)

Catch basins shall be located upstream of pedestrian crossings, at street intersections such as to avoid driveways, sidewalks, and walkways and, where possible, to outlet into maintenance holes.

Type:

The single (CB) and double (DCB) catch basin types shall be designed based on OPSDs, using precast concrete and amended to provide a minimum of 900mm sump. CB and DCB types that are located on arterial and collector roadways shall be curb inlet style per OPSD 400.082 and shall meet the requirements of OPSD 401.080 (fish type cover), except where high flow covers are required. All local roadways shall have catch basins with flat square frames and fish type covers as per OPSD 400.050, except where high flow covers are required.

Due to maintenance issues, RLCB's are typically not permitted by the City except when other options are not feasible. Wherever possible, site grading should be designed in such a way that RLCB's are not required.

Capacity Design:

DCB's are to be installed at the low point of any road where drainage is collected from 2 or more directions. CB's may be acceptable at low points approaching intersections where drainage is mostly from one direction.

The maximum spacing shall be in accordance with the following:

Table 3.6: CB Spacing

Road Pavement Width	Slope	Maximum Spacing
≥10 m	> 4.5%	60 m
	≤ 4.5%	75 m

3.6.2. Maintenance Hole Location and Spacing

Maintenance holes shall be provided at the beginning of each sewer line, change in alignment, grade, material and at all junctions (except in curvilinear installations).

Maintenance holes shall generally be located at the road centreline as per City Standards. To avoid undue impact loads, wherever possible, maintenance holes shall be located away from the normal wheel track.

Maintenance holes shall be located, whenever possible, with a minimum of 1.5 m clearance away from any other service.

The maximum distance between maintenance holes shall be as follows:

Table 2. Maximum Maintenance Hole Spacing

Sewer Size	Maximum Spacing
250 mm	110 m
300 – 900 mm	120 m
≥ 975 mm	150 m

3.4.7. Hydraulic Losses at Maintenance Holes, Junction Chambers

The following minimum drop values shall be used to account for hydraulic losses incurred at sewer maintenance holes.

Table 1. Hydraulic Losses at Maintenance Holes, Junctions and Transitions

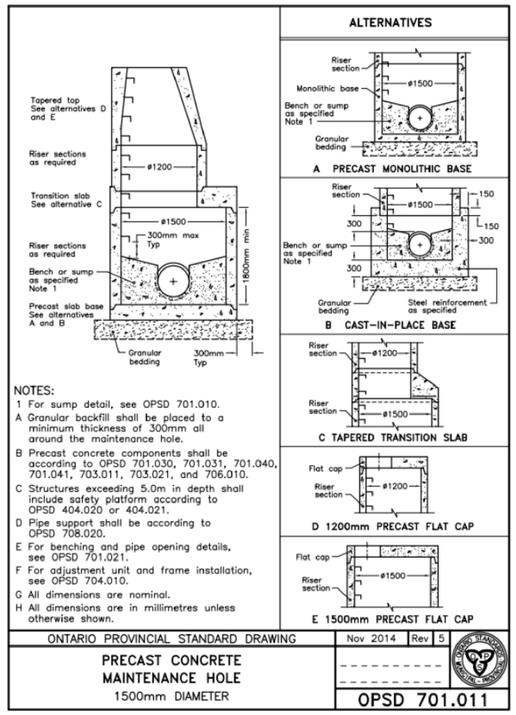
Maintenance Hole Type	Minimum Drop
Straight Run	Grade of Sewer
0-45° turn	0.03 m
46-90° turn	0.06 m
Junctions and Transitions	Physical Modeling recommended

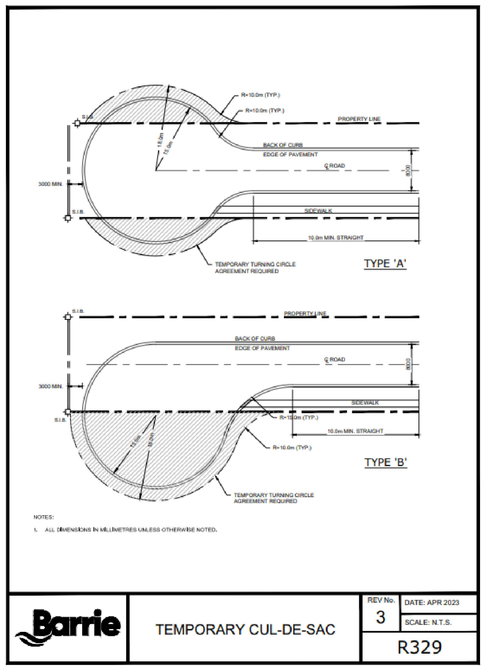
3.2.9 Depth of Storm Sewers

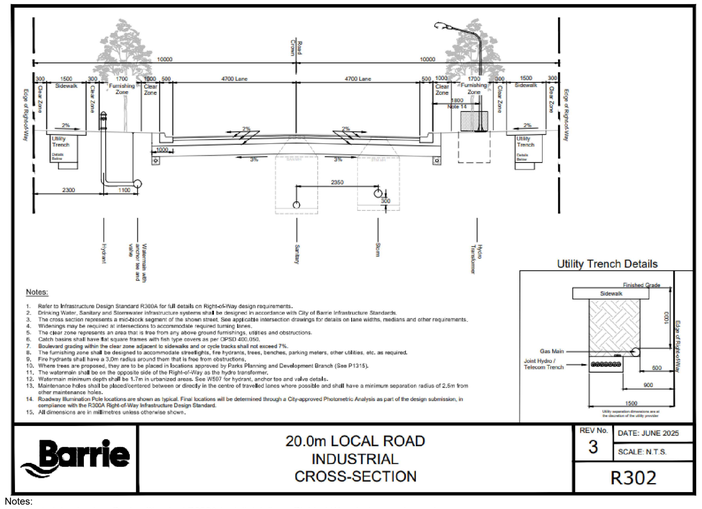
A minimum 1.5 m cover below the centerline of road to obvert shall be provided for storm sewers. Under certain conditions where sufficient cover is not feasible, shallow insulated pipes may be permitted subject to review by the City.

3.5.4. Minimum Cover

The minimum depth of cover over sewers shall be 2.5 m, measured from the sewer obvert to the finished road or ground surface elevation. The sanitary sewer main should be installed at a depth to prevent frost damage and also allow for gravity drainage of at least 2% from basements. Generally, sewers placed between 0.9 to 1.5 m below basement floor elevation will allow for sufficient drainage and cover; however it is the responsibility of the designer to determine the nature of each development to ensure depths are sufficient for servicing. In special cases where the minimum cover is not feasible, approval may be given for a lesser depth of cover subject to the provision of frost protection, if deemed necessary by the City.







Notes:
1. Refer to Infrastructure Design Standard R300A for full details on Right-of-Way design requirements.
2. Drinking Water, Sanitary and Stormwater infrastructure systems shall be designed in accordance with City of Barrie Infrastructure Standards.
3. The cross section represents a mid-block segment of the shown street. See applicable intersection drawings for details on lane widths, medians and other requirements.
4. Widenings may be required at intersections to accommodate required turning lanes.
5. The clear zone represents an area that is free from any above ground furnishings, utilities and obstructions.

6. **Catch basins shall have flat square frames with fish type covers as per OPSD 400.050.**

7. Boulevard grading within the clear zone adjacent to sidewalks and or cycle tracks shall not exceed 7%.
8. The furnishing zone shall be designed to accommodate streetlights, fire hydrants, trees, benches, parking meters, other utilities, etc. as required.

9. **Fire hydrants shall have a 3.0m radius around them that is free from obstructions.**

10. Where trees are proposed, they are to be placed in locations approved by Parks Planning and Development Branch (See P1315).
11. The watermain shall be on the opposite side of the Right-of-Way as the hydro transformer.

12. Watermain minimum depth shall be 1.7m in urbanized areas. See W507 for hydrant, anchor tee and valve details.

13. Maintenance holes shall be placed/centered between or directly in the centre of travelled lanes where possible and shall have a minimum separation radius of 2.5m from other maintenance holes.

14. Roadway Illumination Pole locations are shown as typical. Final locations will be determined through a City-approved Photometric Analysis as part of the design submission, in compliance with the R300A Right-of-Way Infrastructure Design Standard.
15. All dimensions are in millimetres unless otherwise shown.

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