

## DESIGN PRINCIPLES

### ■ Infiltration Trench System:

- a) Locate infiltration trench at least 3m from any building, 1.5m from property lines, and 6m from adjacent infiltration facilities (or as recommended by a geotechnical engineer).
- b) Sump: Provide a lid for periodic inspection and cleanout. Include a T-inlet pipe to trap oils, sediments and debris.
- c) Infiltration Trench: installation of distribution pipe and bottom of drainrock to be level. If more than one section of infiltration trench is required, design so that underground water is temporarily 'ponded' in each infiltration section.
- d) Install the Infiltration Trench in native ground, and avoid over-compaction of the trench sides and bottom, which reduces infiltration.
- e) Observation well for each infiltration trench (optional): vertical standpipe, with perforated sides, and locking lid, to allow the monitoring of water depth.

### ■ Soakaway Manholes System:

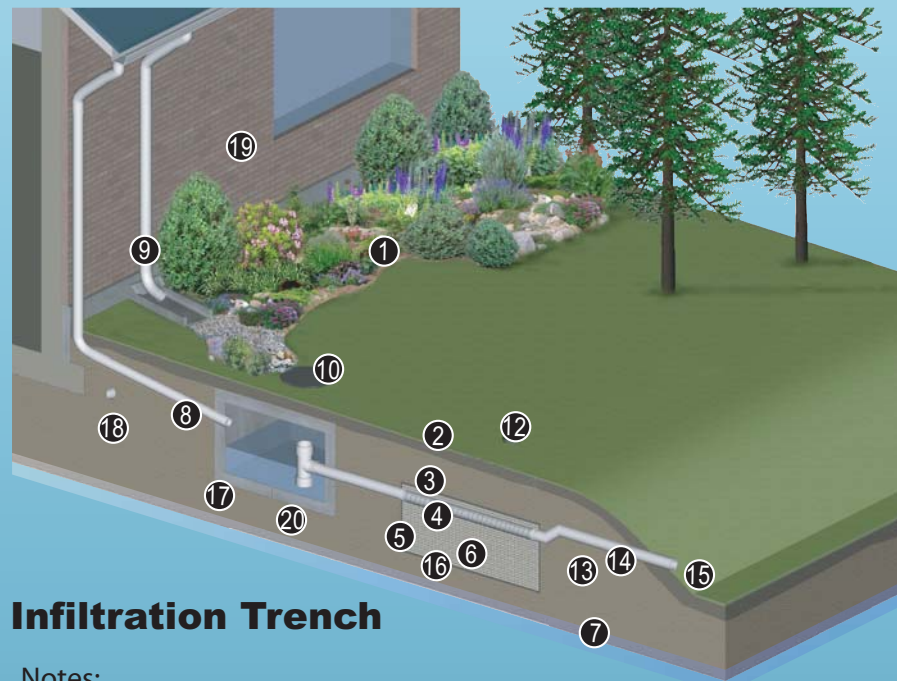
- a) Provide a report from an engineer with experience in geotechnical engineering including on-site test data of infiltration rates at the depth of the proposed infiltration. The bottom of the shaft shall be at least 600mm above the seasonal high water table or bedrock, or as recommended by the engineer.
- b) If steep slopes or drinking water wells exist within 200m horizontally from the proposed Soakaway Manhole, provide a hydro-geotechnical report to analyze site-specific risks and determine setbacks.
- c) Provide a sedimentation manhole, and a maximum of two Soakaway Manholes in series, unless otherwise approved.
- d) Provide an overflow from the Soakaway Manhole to the storm drainage system or major storm flow path.

An **Infiltration Trench** System includes an inlet pipe or water source, catch basin sump, perforated distribution pipe, infiltration trench and overflow to the storm drainage system.

A Soakaway Manhole (Sump, or Dry Well) System includes an inlet pipe, a sedimentation manhole, and one or more infiltration shafts with connecting pipes. Use of Infiltration Shaft will be limited by hydro-geotechnical conditions in much of GVRD.

Limitations of Infiltration Trench or Soakaway Manholes:

- a) To avoid groundwater pollution, do not direct un-treated polluted runoff to Infiltration Trench or Shaft:
  - Direct clean runoff (roof, non-automobile paving) to Infiltration Trench or Shaft.
  - For polluted runoff (roads > 1000 vehicles / day, parking areas, other pollution sources), provide upstream source control for pollutant reduction prior to release to Infiltration Trench or Shaft.
- b) Use infiltration trench or shaft only in areas with footing drains.



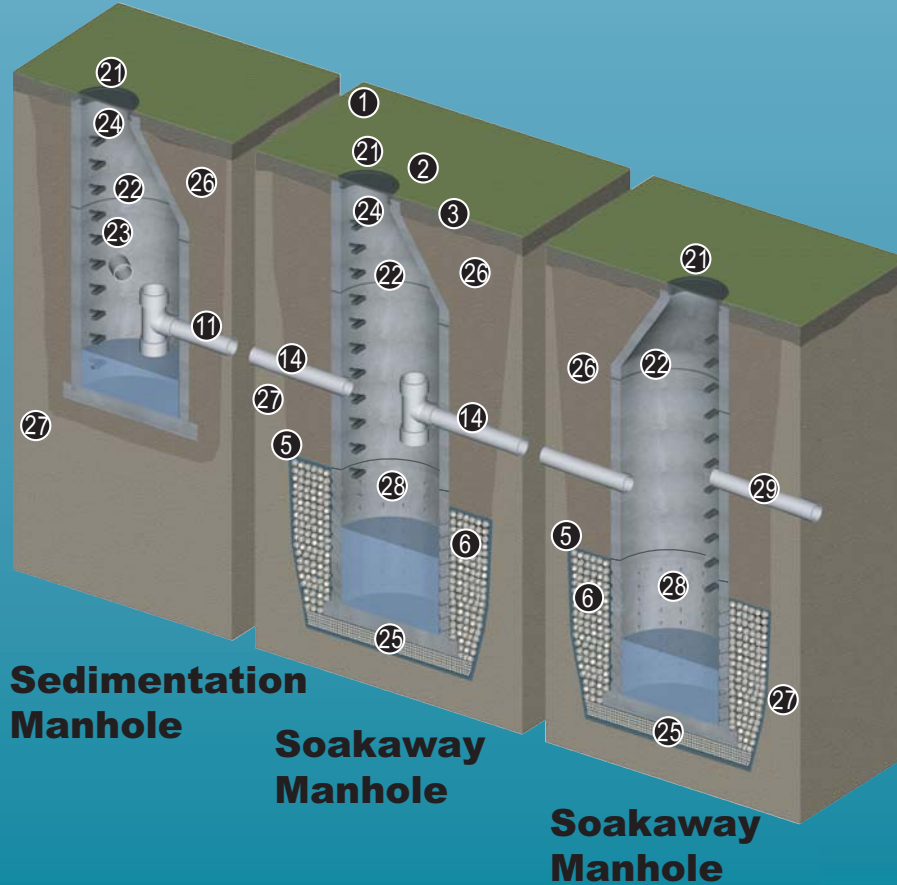
### Infiltration Trench

Notes:

All precast sections shall conform to the requirements of ASTM C 478. Provide a min. of 150mm of 25mm or 19mm clean crushed rock under all pipes.

Invert shall be level and smooth.

Soakaway Manhole barrel shall not be perforated within 1200mm of the cone.



### Sedimentation Manhole

### Soakaway Manhole

### Soakaway Manhole

1. Grass or Other Planting
2. Finish Grade
3. Growing Medium Backfill
4. 100mm Dia PVC DR28 Perforated Pipe
5. Light Non-woven Polyester Geotextile c/w Min. 400mm Laps
6. 50mm Drain Rock or Rock of Equal Porosity
7. Maximum Groundwater Elevation
8. Non-polluted Drainage From Building or Terrace
9. Alternate Surface Route - With Splash Pad and Vegetated Swale to CB
10. CB Lid / Access Hatch for Cleanout, Inspection and Inflow / Overflow from Sump
11. Solid Pipe c/w Inlet Tee
12. Observation Well (Optional)
13. Provide pipe elbows to have outlet pipe invert at top of infiltration pipe
14. PVC Solid Pipe
15. Discharge to Storm Drainage System. Ensure Drainage Does Not Impact Neighbouring Uses. Direct Discharge to Road Right-of-way if Necessary
16. Infiltration Trench with Level Bottom
17. Catch Basin
18. Building Footing Drain (Not Connected to Infiltration Facility)
19. Building
20. 50mm Dia Drain Hole
21. Standard Manhole Frame and Cover
22. Seal Joints with Cement Grout or Approved Mastic
23. Street Inlet Connection
24. Ladder Rung
25. 25mm Crush Gravel or Drain Rock Base
26. Native Soil Back Fill
27. Undisturbed Ground
28. 1200mm Perforated Barrel (Langley Concrete or Equal)
29. Overflow to storm drainage system.

# Infiltration Trench & Soakaways



Greater  
Vancouver  
Regional  
District

## Stormwater Source Control Design Guidelines 2005



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Landscape Architect

Detailed design guidelines can be found in the Design Guidelines 2005 report, available at [www.gvrd.bc.ca](http://www.gvrd.bc.ca)