Sewage System Calculation Page

1. Project information

Street Number, Street Name		Unit number	Lot/con.
Municipality	Postal code	Plan number/other description	

2. Daily design sewage flow (DDSF) (Q)

See Table 1 – DDSF values for bedrooms _____ (litres per day) **(A)**

Total floor area _____ (metres^2)
For every 10 metres^2 or part thereof over 200 metres^2, up to 400 metres^2 _____ x 100 = _____ (litres per day)
For every 10 metres^2 or part thereof over 400 metres^2, up to 600 metres^2 _____ x 75 = _____ (litres per day)
For every 10 metres^2 or part thereof over 600 metres^2 _____ x 50 = _____ (litres per day)

Total DDSF for floor area _____ (litres per day) **(B)**

See Table 2 - Total fixture units _____

Each fixture unit over 20 _____ x 50 = _____ (litres per day) **(C)**

DDSF (Q) = _____ **(A) +** _____ **(larger of (B) or (C)) =** _____ (litres per day) **(Q)**

3. Leaching bed size (metres)

Conventional - Total length of distribution pipe **(L) = (Q x T) ÷ 200**
Treatment systems or chambers - Total length of distribution pipe **(L) = (Q x T) ÷ 300**

Total length of distribution pipe (L) = (_____**(Q)** x _____**(T))** Percolation time of native or imported soil ÷ **(200 or 300)** = _____ (metres)

4. Filter bed loading area (metres^2)

If Q ≤ 3000 litres per day, use Q ÷ 75
If Q > 3000 litres per day, use Q ÷ 50   **Loading area =** _____ **(Q)** ÷ _____ **(75, 50 or 100)** = _____ (metres^2)
Level II-IV treatment unit only, use Q ÷ 100

5. Filter bed contact area (metres^2)

Contact area = (_____**(Q)** x _____**(T))** ÷ 850 = _____ (metres^2)

Contact area = (Q x T) ÷ 850

Use T of native soil; if contact area < loading area, use loading area for both values

6. Shallow buried trenches (metres)

See Table 4 - Shallow buried trench length   **(L) =** _____ **(Q)** ÷ _____ **(75, 50 or 30)** = _____ metres

7. Type A dispersal bed (metres^2)

Stone layer
If Q ≤ 3000 litres per day, use **Q ÷ 75**   **Stone layer =** _____ **(Q)** ÷ _____ **(75 or 50)** = _____ (metres^2)
If Q > 3000 litres per day, use **Q ÷ 50**
Sand layer
If T is between 1 and 15 use **(Q x T) ÷ 850**   **Sand layer = (**_____**(Q)** x _____**(T))** ÷ **(850 or 400)** = _____ (metres^2)
If T is greater than 15 use **(Q x T) ÷ 400**   Use T of native soil; if sand layer area < stone layer area, use stone layer area for both values

8. Type B dispersal bed (metres^2)

Area = (Q x T) ÷ 400

Linear loading rate   **Area = ((Q)**_____ x _____**(T))** ÷ 400 = _____ (metres^2)
If T < 24 minutes, use 50 litres per minute
If T ≥ 24 minutes, use 40 litres per minute   **Pump chamber capacity (Q) =** _____ (litres)

Table 1 – DDSF values for bedrooms
(Ontario Building Code, Division B, Part 8, Table 8.2.1.3.A)

Bedrooms	Litres per day	Bedrooms	Litres per day
1	750	4	2000
2	1100	5	2500
3	1600	Per bedroom over 5	500

Table 2 – Fixture units
(Ontario Building Code, Division B, Part 7, Table 7.4.9.3)

	Number of units	Total
Bathroom group (3 to 4 piece bathroom)	____ x 6.0 =	_____
Bathtub (with or without shower)	____ x 1.5 =	_____
Toilet	____ x 4.0 =	_____
Clothes washer	____ x 1.5 =	_____
Dishwasher	____ x 1.0 =	_____
Laundry tubs	____ x 1.5 =	_____
Shower drain	____ x 1.5 =	_____
Sinks	____ x 1.5 =	_____
Other	____ x . =	_____
Total =		_____

Table 3 – Loading rates for fill based absorption trenches and filter beds
(Ontario Building Code, Division B, Part 8, Table 8.7.4.1)

Percolation time (T) of soil (minutes)	Loading rates (litres per metres^2) per day
1 < T ≤ 20	10
20 < T ≤ 35	8
35 < T ≤ 50	6
T > 50	4

Table 4 – Shallow buried trench length
(Ontario Building Code, Division B, Part 8, Table 8.7.3.1)

Percolation time (T) of soil (minutes)	Length of distribution pipe (metres)
1 < T ≤ 20	Q ÷ 75 metres
20 < T ≤ 50	Q ÷ 50 metres
50 < T < 125	Q ÷ 30 metres

Sewage System Specifications Page

1. Project information

Street Number, Street Name		Unit number	Lot/con.
Municipality	Postal code	Plan number/other description	

Structure	❑ New ❑ Existing	❑ Residential ❑ Commercial	If the sewage system is non-residential, attach a separate copy of the specifications and plans.

Number of bedrooms	**Number of fixture units**	**Total finished area**	**Daily design sewage flow (Q)**	**Septic tank capacity (2 x Q)**
		_____ (metres^2) ❑ Including walkout basement	_____ (litres per day) Account for backwash water from any water treatment unit (i.e. water softener)	_____ (litres) (minimum of 3600 litres)
_____	_____			

Water supply	❑ Proposed ❑ Existing	❑ Drilled Well Casing depth ____ (metres)	❑ Dug, bored, or blasted well ❑ Sandpoint or drivepoint	❑ Municipal ❑ Cistern	❑ Surface water ❑ Shore well

Soils
Indicate soil types (sand, silt, clay), bedrock, and the high ground water table below.

Test Pit (metres)

```
0.0  _____
0.3  __
0.6  __
0.9  __
1.2  __
1.5  _____
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Estimated percolation rate of native soil	**Tested** percolation rate of imported soil
T = _____ (minutes per centimeter)	T = _____ (minutes per centimeter)

Method of subsurface detection
- ❑ Magnetic
- ❑ Tracer wire (14 gauge plastic coated)
- ❑ Other _____

Holding tank capacity (7 x Q)
(Class 5 only)
(minimum of 9000 litres)

_____ (litres)

Class 4 sewage system type
- ❑ Conventional leaching bed
- ❑ Chamber system leaching bed
- ❑ Filter media bed
- ❑ Building Materials Evaluation Committee area bed
- ❑ Shallow buried trenches*
- ❑ Type A dispersal bed*
- ❑ Type B dispersal bed*

* These sewage systems **require** a Level IV treatment unit certified to the CAN/BNQ 3680-600 standard, or a treatment unit described in Supplementary Standard SB-5.

Treatment unit
- ❑ Level II   ❑ Level III   ❑ Level IV
- ❑ Service agreement provided

Manufacturer _____

Model _____

- ❑ Building Materials Evaluation Committee authorization provided

Conventional leaching bed
(minimum 40 metres)

Total distribution pipe _____ (metres)

❑ Mantle required   ❑ Pump required

Chamber system leaching bed
(minimum 40 metres)

Total chamber length _____ (metres)

Manufacturer _____

Model _____

Number of pieces _____

❑ Mantle required   ❑ Pump required

Filter media bed

Loading area _____ (metres^2)

Contact area _____ (metres^2)

Total distribution pipe _____ (metres)

❑ Mantle required   ❑ Pump required

Shallow buried trenches
(minimum 30 metres)

Total trench length _____ (metres)

Building Materials Evaluation Committee area or type A dispersal bed

Stone layer area _____ (metres^2)   Sand layer area _____ (metres^2)   ❑ Mantle required

Type B dispersal bed   Stone layer area _____ (metres^2)   Linear loading rate   ❑ 50 litres per metre   ❑ 40 litres per metre
Pump chamber capacity _____ (litres)

Loading rate (from Table 3) = _____ (Q) ÷ _____ (litres per metres^2 per day) = _____ area (metres^2)

Soils Certification

I, _____ (Licensed Installer under Section 3.3 of the Building Code Act), verify that the material used in the construction of the sewage system, under the permit herein, meets the requirements of the Ontario Building Code, the percolation rate identified on the permit and the soils analysis submitted to City of Kingston

Note: Leaching bed fill means soil used for the construction of conventional and chamber leaching beds, filter beds, dispersal beds, and area beds as prescribed under specific Building Materials Evaluation Commission authorizations. It may not include a requirement for other soils as prescribed by treatment unit manufacturers; check with the manufacturer before installation. The silt content of leaching bed fill must be included in the analysis. City of Kingston may require you to submit soil samples for analysis.

Licensed installer's signature   Date: