Water and Sediment Control Basin (WASCoB) Design Information Sheet (Single WASCoB System)

Note: Use this Design Information Sheet if only one WASCoB is to be constructed and drained through a single subsurface tile outlet.

WASCoB Identification

1. Watershed area _____ha _____ac

2. Watershed slope _____%

3. Runoff curve number from Tables 2.2 – 2.4

4. Peak flow from watershed for 10-year storm from Table 4.25-M to 4.31-M (4.25-I to 4.31-I)
_____m^3/s _____ft^3/s

5. Peak flow from watershed for 25-year storm from Table 4.25-M to 4.31-M (4.25-I to 4.31-I)
_____m^3/s _____ft^3/s

6. Obtain the storm duration for a 10-year storm from Table 4.25-M to 4.31-M (4.25-I to 4.31-I)
_____hrs

7. Obtain the storm volume expected for a 10-year storm from Table 4.25-M to 4.31-M(4.25-I to 4.31-I)
_____m^3 _____ft^3

8. Determine slope of ponding area upstream from storage berm from field measurements
_____%

9. Determine slope of side of ponding area upstream from storage berm from field measurements. If side slopes are different use the average of the two slopes. _____%

10. Determine soil loss expected above ponding area from Table 4.32-M (4.32-I)
_____tonnes/ha/yr _____tons/ac/yr

11. Storage required for eroded soil for 15-year life expectancy
Line (10)_____ x Line (1)_____ x 15 = _____tonnes x 0.68 m^3/tonne = _____m^3
Line (10)_____ x Line (1)_____ x 15 = _____tons x 21.7 ft^3/ton = _____ft^3)
_____m^3 _____ft^3

12.Total pond storage
Line (7)_____ + Line (11)_____ = _____m^3 (_____ft^3) _____m^3 _____ft^3

13. Determine volume factor
Line (12)_____ x Line (8)_____ x Line (9)_____ = _____m^3 (_____ft^3)
_____m^3 _____ft^3

14. Obtain pond depth (design berm height) from Table 4.33-M (4.33-I) _____m _____ft

15. Determine pond length
Line (14)_____ ÷ Line (8)_____x 100 = _____m (_____ft)
_____m _____ft

16. Determine maximum pond width
Line (14)_____ ÷ Line (9)_____ x 200 = _____ x 200 = _____m (_____ft)
_____m _____ft
If pond side slopes vary by more than 50%, the calculated pond width will be different than the actual field pond width. For accuracy, separate the sides and calculate individually.

17. Obtain maximum flooding time from Table 4.34 _____hrs

18. Determine outlet capacity
Line 7_____ ÷ Line (17)_____ - Line (6)_____ x 0.000277 = _____m^3/s (_____ft^3/s)

19. Determine the riser pipe and horizontal pipe sizes. Complete the following:
– horizontal pipe slope _____%
– horizontal pipe diameter (Table 4.18-M (4.18-I) or Figure 4.31 or OMAFRA Publication 29, Drainage Guide for Ontario _____mm _____in
– riser pipe diameter (Tables 4.19-M to 4.22-M (4.19-I to 4.22-I))
_____mm _____in
– orifice diameter (if required) (Tables 4.21-M to 4.22-M (4.21-I to 4.22-I))
_____mm _____in

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21. Determine emergency overflow spillway capacity from Line (5) _____m^3/s_____ft^3/s

22. Determine emergency overflow spillway notch dimensions from Table 4.35-M (4.35-I) to meet capacity requirements from Line (21)
– notch width (L) _____m _____ft
– notch depth (D) _____m _____ft

23. Actual berm height (Note: Freeboard is 10% of Line (14) to maximum of 0.15 m (6 in.))
Line (14)_____ + freeboard_____ + notch depth (D) (Line (22))_____ =
_____m (_____ft)

24. Actual berm length
Line 23_____ ÷ Line (9)_____ x 200 = _____m (_____ft)

25. Berm side slope (minimum 2:1, maximum 8:1) _____ :1

26.Top width of berm (Note: Default width of 1.2 m (4 ft)) _____1.2 m _____4 ft

27.Bottom width of berm
Line (26)_____ + (2 x Line (23)_____ x Line (25)_____) = _____m (_____ft)

28.Earth volume for berm from Table 4.36-M to 4.38-M (4.36-I to 4.38-I) _____m^3 _____yd^3