TEMPORARY SEDIMENT BASIN DESIGN DATA SHEET

Computed by DWL  Date 1-04  Checked by PLS  Date 1-04
Project Snokees Pond  Basin #1
Location Manlius, NY  Total Area draining to basin 20 Acres

BASIN SIZE DESIGN

1. Minimum sediment storage volume = 134 cu. yds. x 20 acres of drainage area = 2,680 cu.yds.
2. a. Cleanout at 50 percent of minimum required volume = 1,340 cu. yds.
   b. Elevation corresponding to scheduled time to clean out 96.5 ft.
   c. Distance below top of riser 3.5 ft.
3. Minimum surface area is larger of 0.01 Q_{(1)} 0.32 or, 0.015 DA = 0.30 use 0.32 Acres

DESIGN OF SPILLWAYS & ELEVATIONS

4. Q_{(10)} = 88 cfs
   (EFH, Ch. 2, TR-55, or Section 4; Attach runoff computation sheet)

Pipe Spillway (Q_{p})
5. Min. pipe spillway cap.  Q_{p} = 0.2 x 20 ac. Drainage = 4 cfs
   Note: If there is no emergency spillway, then req'd Q_{p} = Q_{(10)} = ______ cfs.
6. H = 10 ft. Barrel length = 85 ft
7. Barrel: Diam. 12 inches; Q_{p} = (Q) \cdot 10.2 \cdot (cor.fac.) \cdot 945 = 9.6 cfs.
8. Riser: Diam. 21 inches; Length 9 ft.; h = 1.0 ft. Crest Elev. 100.0
9. Trash Rack: Diam. 30 inches; H = 11 inches

Emergency Spillway Design
10. Emergency Spillway Flow, Q_{e} = Q_{p} - Q_{m} = 88 - 10 = 78 cfs.
11. Width 20 ft.; H_{p} 1.4 ft  Crest elevation 101.0 ft; Design High Water Elev. 102.4
    Entrance channel slope = 2% ; Top of Dam Elev. 103.4
    Exit channel slope > 2.7% 

ANTI-SEEP COLLAR/
SEEPAGE DIAPHRAGM DESIGN

Collars:
12. y = \frac{8}{2} ft; z = \frac{2}{1}; pipe slope = \frac{1}{2} %, L_s = 50 ft
    Use 2 collars, 4' - 6" inches square; projection = 1.8 ft.

Diaphragms:
# 1  width 7 ft.  height 10 ft.

DEWATERING ORIFICE SIZING

13. \frac{A_o = A_s \cdot (2h)^{0.5}}{122,568} = 0.30 sq. ft.; h = 3.5 ft.; therefore use, 7.4" \rightarrow USE 6" orifice
Figure 5A.24(2)
Sediment Basin Design Example #2

TEMPORARY SEDIMENT BASIN DESIGN DATA SHEET

Computed by DWL Date 1-04 Checked by PLS Date 1-04
Project SNOWS POND Basin # 1
Location MANlius, NY Total Area draining to basin 20 Acres

BASIN SIZE DESIGN

1. Minimum sediment storage volume = 134 cu. yds. x 20 acres of drainage area = 2,680 cu. yds.
2. a. Cleanout at 50 percent of minimum required volume = 1,340 cu. yds.
   b. Elevation corresponding to scheduled time to clean out 96.5
   c. Distance below top of riser 3.5 feet
3. Minimum surface area is larger of 0.01 Q(0) 0.32 or, 0.015 DA = 0.30 use 0.32 acres

DESIGN OF SPILLWAYS & ELEVATIONS

4. Qp(0) = 88 cfs
   (EFH, Ch. 2, TR-55, or Section 4; Attach runoff computation sheet)

Pipe Spillway (Qp)

5. Min. pipe spillway cap, Qp = 0.2 x 20 ac. Drainage = 4 cfs
   Note: If there is no emergency spillway, then req'd Qp = Qp(0) = 88 cfs.
6. H = 10 ft. Barrel length = 8.5 ft
7. Barrel: Diam. 36 inches; Qp = (Q) 91.2 x (cor. fac.) .955 = 87.1 cfs.
8. Riser: Diam. 54 inches; Length 9.5 ft.; h = 1.7 ft. Crest Elev. 100.0
9. Trash Rack: Diam. 78 inches; H = 2.5 inches

Emergency Spillway Design

10. Emergency Spillway Flow, Qe = Qp - Qp = = = 0.0 cfs.
11. Width ft.; H_p ft. Crest elevation %; Design High Water Elev.;
    Entrance channel slope ; Top of Dam Elev. ;
    Exit channel slope

ANTI-SEEP COLLAR/
SEEPAGE DIAPHRAGM DESIGN

Collars:
12. y = 8 ft.; z = 2 : 1; pipe slope = 1 %, L_p = 50 ft.
    Use 2 collars, 4’ - 6 inches square; projection = 1.8 ft.
Diaphragms:
    # 1 width 7 ft. height 10 ft.

DEWATERING ORIFICE SIZING

13. Ao = A_c x (2h)^0.5
    = 0.30 sq. ft.; h = 3.5 ft.; therefore use, 7.4” -> USE 6” orifice
Figure 5A.25
Riser Inflow Chart (USDA - NRCS)
### Pipe Flow Chart

#### For Corrugated Metal Pipe Inlet \( K_m = K_{pm} + K_{ps} = 1.0 \) and 70 Feet of Corrugated Metal Pipe Conduit (full flow assumed)

#### *Note correction factors for pipe lengths other than 70 feet*

#### Diameter of Pipe in Inches

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### Figure 5A.26

Pipe Flow Chart; \( n = 0.025 \)

- USDA - NRCS

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**For Erosion and Sediment Control**

- New York Standards and Specifications

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**Pipe Flow Chart; \( n = 0.025 \) (USDA - NRCS)**

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Figure 5A.27
Pipe Flow Chart; “n” = 0.013 (USDA - NRCS)