

Table 3A: Criteria for Required Storage Volumes

Pond	Area (ha)	Imp. (%)	Storage Volume for Impervious Level ⁽¹⁾ (m ³ /ha)
N/A	N/A	35	140
Pond 1	84.67	55	190.00
Pond 2	45.53	53	185.00
N/A	N/A	55	190

⁽¹⁾ Protection Level for Wet Pond: Enhanced 80% long-term S.S. removal.
SWM Planning & Design Manual, Table 3.2, p.3-10 (March 2003).

Table 3B: Required Storage Volumes for SWM Facilities

Pond Component	Required Volume (m ³)	Provided Volume (m ³)	Volume Ratio	Provided Area (m ²)	Provided Elevation (m)
Pond 1 Permanent Pool (PP) ⁽¹⁾	12701	48922	3.85	10268	92.650
Pond 1 Quality Control ⁽²⁾	3387	3758	1.11	986	92.740
Pond 2 Permanent Pool (PP) ⁽¹⁾	6602	17019	2.58	13280	93.200
Pond 2 Quality Control ⁽²⁾	1821	1852	1.02	2319	93.310

⁽¹⁾ Required PP volume based on Table 3A.

⁽²⁾ Required quality control volume based on 40 m³/ha.

Table 4A: Summary of SWM Pond 1 Normal Operating Characteristics

Pond Component	Target Outflow ⁽¹⁾ (m ³ /s)	Pond Inflow ⁽²⁾ (m ³ /s)	Lower Elevation (m)	Upper Elevation (m)	Pond Outflow ⁽³⁾ (m ³ /s)	Volume Used ⁽⁴⁾ (m ³)
Permanent Pool	N/A	N/A	91.150	92.650	N/A	48922
Quality Control	0.029	N/A	92.650	92.740	0.029	3758
2yr/24hr SCS	0.330	9.271	92.740	93.296	0.261	27728
5yr/24hr SCS	2.133	14.811	93.296	93.362	0.644	30738
10yr/24hr SCS	2.629	18.053	93.362	93.421	1.248	33430
25yr/24hr SCS	3.253	21.335	93.421	93.497	2.267	36896
50yr/24hr SCS	3.737	23.826	93.497	93.554	3.162	39644
100yr/24hr SCS	4.258	26.599	93.554	93.612	4.174	42448

⁽¹⁾ Refer to Tables 3A and 3B for required permanent pool and quality control volumes. 24 hour detention time assumed for quality control volume. 2- to 100-year release rates based on pre-development flows.

⁽²⁾ Pond inflow taken as a direct summation of major and minor system inflows.

⁽³⁾ Assuming a 0.100 m² circular vertical quality control orifice at an invert of 92.65 m, a 0.074 m² circular vertical erosion control orifice at an invert of 92.74 m and a 12.0 m long quantity control weir at an invert of 93.296 m.

⁽⁴⁾ Volumes used are active storage only for all pond components except the permanent pool.

Table 4B: Summary of SWM Pond 2 Normal Operating Characteristics

Pond Component	Target Outflow ⁽¹⁾ (m ³ /s)	Pond Inflow ⁽²⁾ (m ³ /s)	Lower Elevation (m)	Upper Elevation (m)	Pond Outflow ⁽³⁾ (m ³ /s)	Volume Used ⁽⁴⁾ (m ³)
Permanent Pool	N/A	N/A	91.200	93.200	N/A	17019
Quality Control	0.018	N/A	93.200	93.310	0.018	1852
2yr/24hr SCS	N/A	3.407	93.310	93.669	0.707	8439
5yr/24hr SCS	N/A	5.204	93.669	93.789	1.069	11007
10yr/24hr SCS	N/A	6.715	93.789	93.866	1.328	12655
25yr/24hr SCS	N/A	8.684	93.866	93.958	1.661	14709
50yr/24hr SCS	N/A	10.239	93.958	94.024	1.913	16218
100yr/24hr SCS	2.235	12.076	94.024	94.094	2.193	17819

⁽¹⁾ Assuming maximum allowable release rates. Refer to Tables 3A and 3B for required permanent pool and quality control volumes.

24 hour detention time assumed for quality control volume. 100-year release rate based on capacity of 1500 mm outlet pipe at 0.1% slope.

⁽²⁾ Pond inflow taken as a direct summation of major and minor system inflows.

⁽³⁾ Assuming a 0.039 m² circular vertical quality control orifice at an invert of 93.20 m and a 1.7 m long quantity control weir at an invert of 93.31 m.

⁽⁴⁾ Volumes used are active storage only for all pond components except the permanent pool.