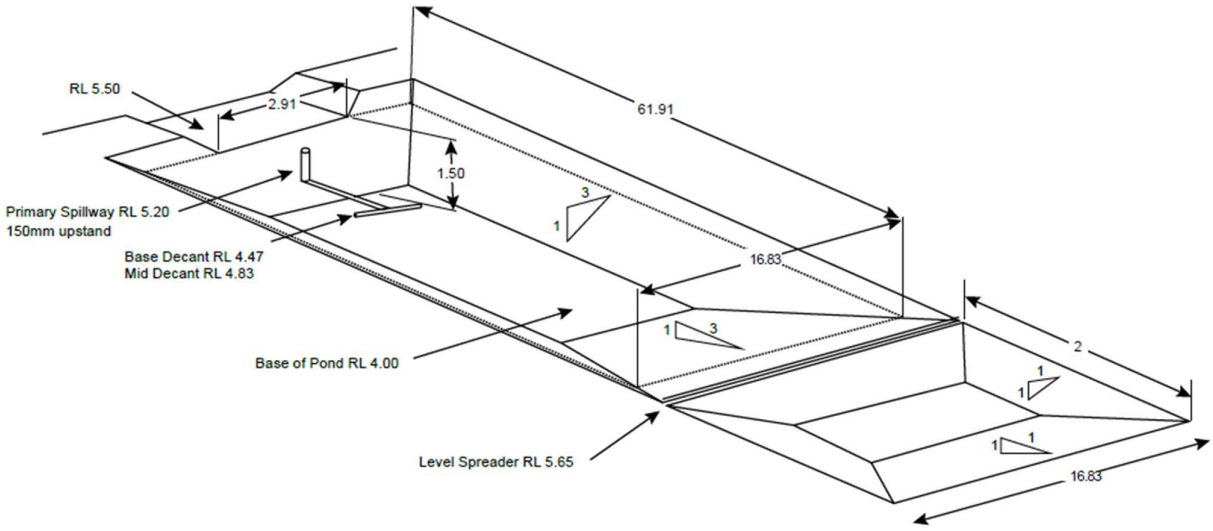
The following calculations and details summarise the proposed sizing and configuration of Sediment Retention Ponds (SRPs) 1–3 for the Otaihanga Retirement Village development. The ponds have been sized using the GD05 Erosion and Sediment Control Device Sizing Tool, based on their contributing catchments and a minimum storage volume equivalent to 3% of the catchment area. The summary includes storage volumes, pond dimensions, spillway and outlet requirements, decant arrangements and forebay dimensions. These details are to be read alongside the erosion and sediment control plans (A25556-2200 series), with final locations, levels and catchment extents confirmed before construction.

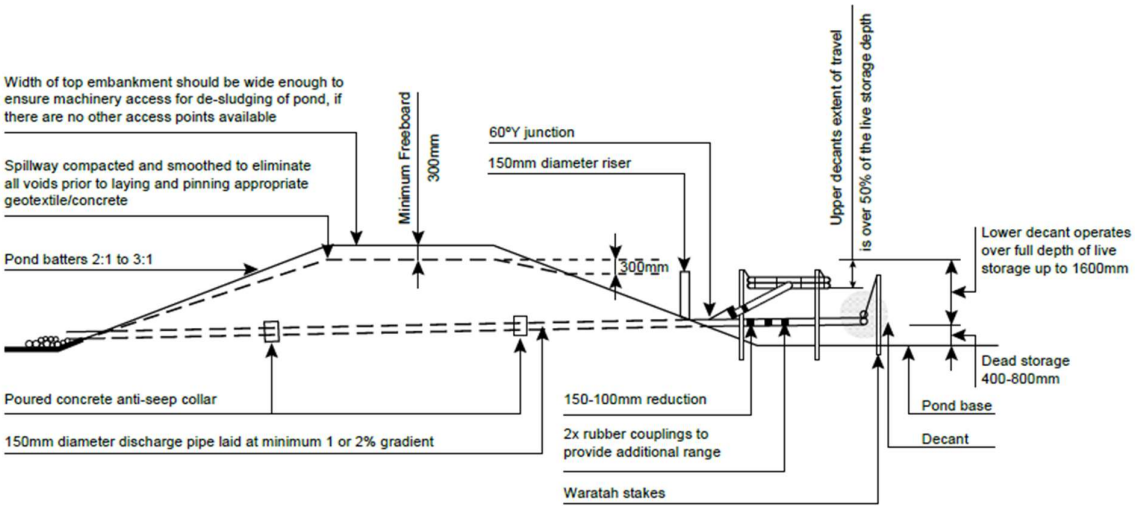
Sediment Retention Pond Calculations:

Parameter	**SRP 1**	**SRP 2**	**SRP 3**
Contributing catchment (ha)	**2.60**	**5.00**	**3.70**
Catchment length	230	380	380
Average catchment slope	1%	1%	1%
Storage volume criterion	3%	3%	3%
Minimum storage volume (m^3)	**780**	**1,500**	**1,110**
Dead storage (m^3)	234	450	333
Live storage (m^3)	546	1,050	777
Length ratio input	4:1	4:1	4:1
Side slopes (H:V)	3:1	3:1	3:1
Pond depth—base to emergency spillway	1.50	1.50	1.50
Length at emergency spillway level	61.91	81.59	71.73
Width at emergency spillway level	16.83	21.75	19.28
Base length	52.91	72.59	62.73
Base width	7.83	12.75	10.28
Emergency spillway base width	2.91	5.59	4.14
Emergency spillway depth	0.30	0.30	0.30
Minimum primary spillway size/type	150 mm upstand	1,050 mm diameter manhole	1,050 mm diameter manhole
Minimum outlet pipe diameter (mm)	150	300	300

Parameter	**SRP 1**	**SRP 2**	**SRP 3**
Number of decants	2	3	3
Number of holes per decant	173	222	164
Pond base RL	**4.00**	**4.00**	**4.00**
Emergency spillway RL	5.50	5.50	5.50
Primary spillway RL	5.20	5.20	5.20
Minimum level spreader RL	5.65	5.65	5.65
Base decant RL	4.47	4.43	4.45
Middle decant RL	4.83	4.69	4.70
Top decant RL	—	4.94	4.95
Minimum forebay depth	1.00	1.00	1.00
Forebay width	16.83	21.75	19.28
Minimum forebay length	2.00	2.00	2.00

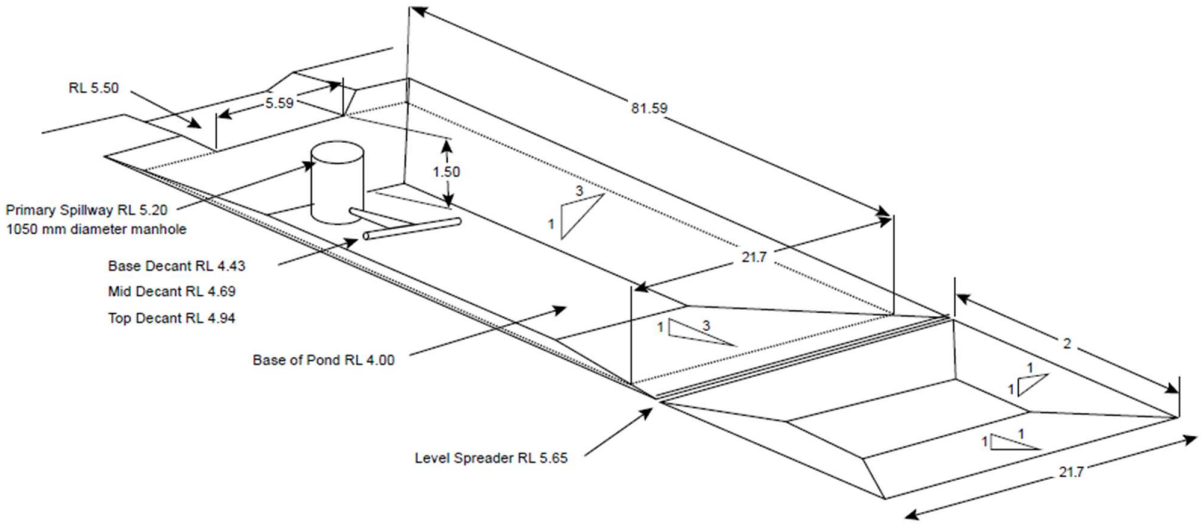
Sediment Retention Pond 1 Details:

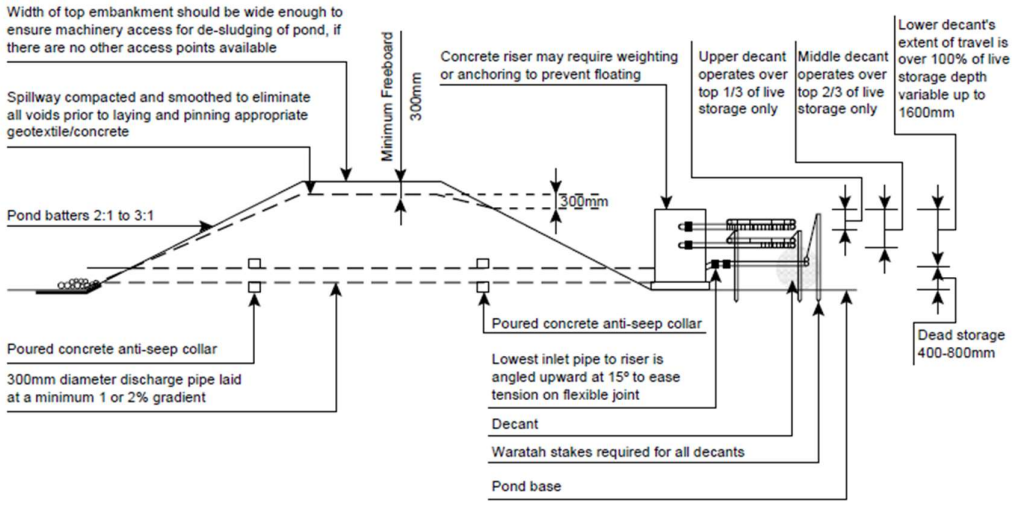




Sediment retention pond for 1.5 to 3 ha catchment

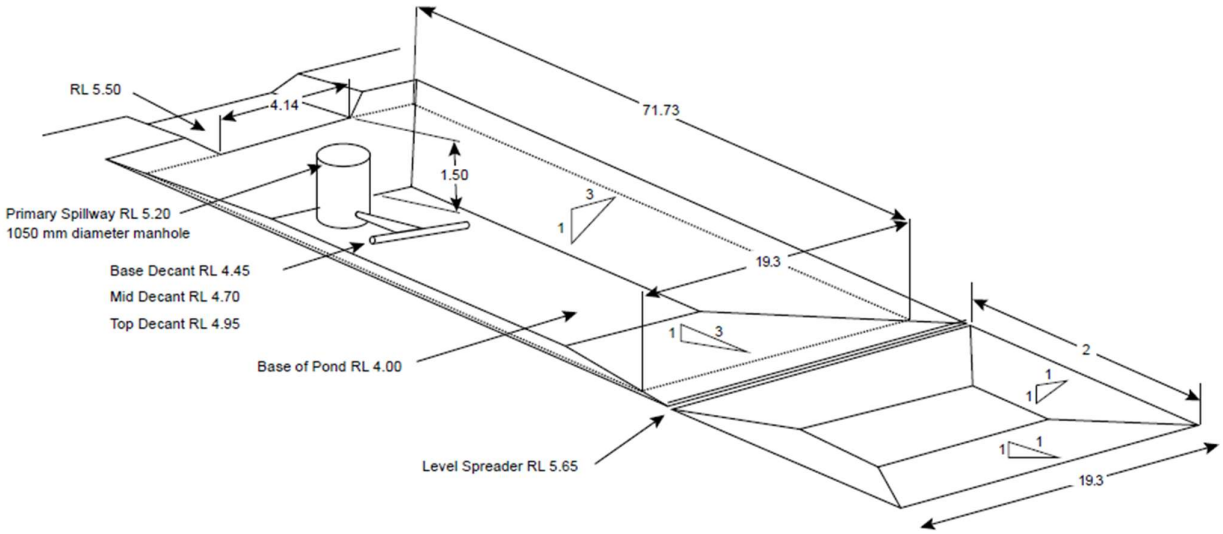
Sediment Retention Pond 2 Details:

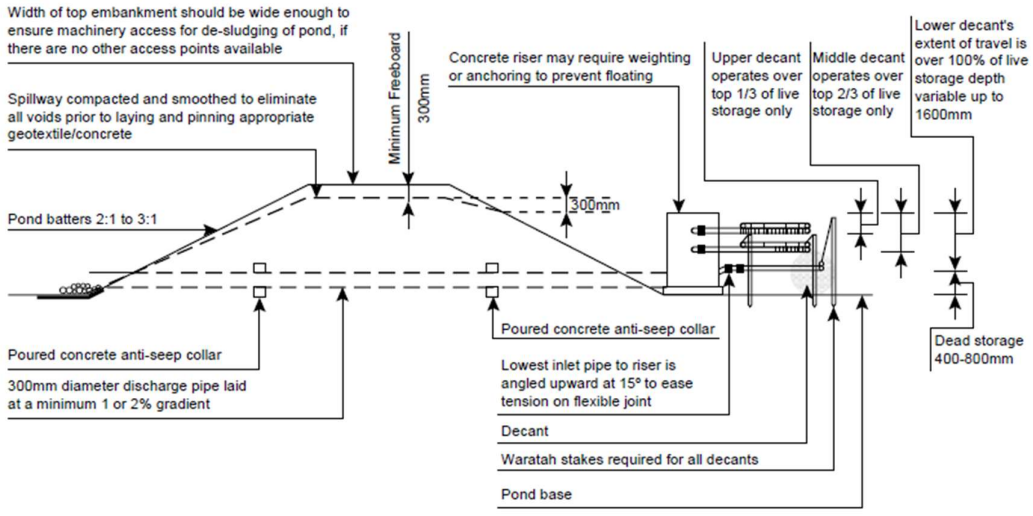




Sediment retention pond for 3 to 5 ha catchment

Sediment Retention Pond 3 Details:





Sediment retention pond for 3 to 5 ha catchment