



















Constructed Water Quality Wetland Operation and Maintenance Plan

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	Task Complete Comments
Trash and Debris	Visual evidence of trash, debris or dumping	Remove trash and debris from facility. Dispose of properly	 SPRING  SUMMER  FALL  WINTER	
Contaminants and Pollution	Evidence of oil, gasoline, or other contaminants. Look for signs such as sheens or odors.	Locate source of contamination and correct. Remove oil using oil-absorbent pads or vacor truck. If low levels of oil persist plant wetland plants that can uptake small concentrations of oil such as Juncus effuses. (soft rush) If high levels of contaminants or pollutants are present, coordinate removal/cleanup with local jurisdiction.	 SPRING  SUMMER  FALL  WINTER	
Erosion	Erosion or channelization that impacts or effects the function of the facility or creates a safety concern	Repair eroded areas and stabilize using proper erosion control measures. Establish appropriate vegetation as needed.	 SPRING  WINTER	
Obstructed Inlet/Outlet or basin opening	Material such as vegetation, sediment, trash is blocking more than 10% of inlet/outlet pipe or basin opening	Remove blockages from facility.	 SPRING  WINTER Inspect after major storm (1-inch in 24 hours)	
Invasive Vegetation as outlined in Appendix A	Invasive vegetation found in facility. Examples include: Himalayan Blackberry; Reed Canary Grass; Teasel; English Ivy; Nightshade; Clematis; Cattail; Thistle; Scotch Broom	Remove excessive weeds and all invasive plants. Attempt to control even if complete eradication is not feasible. Refer to Clean Water Services Integrated Pest Management Plan for appropriate control methods, including proper use of chemical treatment.	 SPRING  SUMMER  FALL	


Constructed Water Quality Wetland Operation and Maintenance Plan (continued)

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Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	Task Complete Comments
Tree/Shrub Growth	Tree/shrub growth shades out wetland/emergent grass in treatment area. Interferes with access for maintenance/inspection	Prune trees and shrubs that block sun from reaching treatment area. Remove trees that block access points. Do not remove trees that are not interfering with access or maintenance without first contacting Clean Water Services or local City.	 WINTER Ideal timing for pruning is winter	
Poor Vegetation Cover	80% survival of approved vegetation and no bare areas large enough to affect function of facility.	Determine cause of poor growth and correct the condition. Sediment accumulation or competition with invasive vegetation could be cause. Replant with plugs or containerized plants per the approved planting plan and applicable standards at time of construction. Remove excessive weeds and all invasive plants.	 SPRING FALL Ideal time to plant is spring and fall seasons	
Hazard Trees	Observed dead, dying or diseased trees	Remove hazard trees. A Certified Arborist may need to determine health of tree or removal requirements.	As Needed	
Vector Control	Evidence of rodents, or water piping through facility via rodent holes. Harmful insects present such as wasps and hornets that interfere with maintenance/inspection activities	Repair facility if damaged. Remove harmful insects, use professional service if needed. Refer to Clean Water Services Integrated Pest Management Plan for management options.	As Needed	
Sediment Accumulation in Wetland Bottom	Sediment depth in wetland bottom exceeds 6 inches or affects inlet/outlet functions or plant growth in treatment area	Remove sediment from wetland bottom. Re-establish designed wetland shape and depth; re-seed if necessary to control erosion, or replant to achieve treatment.	 SUMMER FALL Ideally in the dry season	

Constructed Water Quality Wetland Operation and Maintenance Plan (continued)

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Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	Task Complete Comments
Settlement of Pond Dike/Berm	Look for any part of dike/berm that has settled 4 inches or more lower than the design elevation	Repair dike/berm to approved design specifications. A licensed civil engineer should be consulted to determine the source of settlement.	As Needed	
Excessive Vegetation	Vegetation grows so tall that it competes with approved emergent wetland grass/shrubs, interferes with access or becomes a fire danger	Cut tall grass to 4" to 6" and remove clippings. Prune emergent wetland grass/shrubs that have become overgrown	 SPRING Ideal time to prune emergent wetland grass is spring. Cut grass in dry months	
Grate Damaged, missing or not in place	Grate is missing or only partially in place, may have missing or broken grate members	Grate must be in place and meet design standards. Replace or repair any open structure, replace grate if missing.	As Needed	
Damage to Outlet Structure	Frame not sitting flush on top slab (more than 3/4 inch between frame and top slab); frame not securely attached	Frame is firmly attached and sits flush on the riser rings or top slab. Structure replaced or repaired to design standards.	As Needed	
Damage to Outlet Structure	Fractures or Cracks in walls or bottom. Maintenance person determines the structure is unsound. Soil entering structure through cracks	Structure replaced or repaired to design standards	As Needed	
Damage to Outlet Structure	Settlement or Misalignment of Outlet Basin. Failure of basin has created a safety, function, or design problem	Structure replaced or repaired to design standards	As Needed	