## Vegetated Swale 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.

<table>
<thead>
<tr>
<th>Identified Problem</th>
<th>Condition to Check for</th>
<th>Maintenance Activity</th>
<th>Maintenance Timing</th>
<th>Task Complete Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obstructed Inlet/Outlet</td>
<td>Material such as vegetation, sediment is blocking more than 10% of Inlet/outlet pipe or basin opening</td>
<td>Remove blockages from facility</td>
<td>Winter, Spring</td>
<td></td>
</tr>
<tr>
<td>Flow not distributed evenly</td>
<td>Flows unevenly distributed through swale due to uneven or clogged flow spreader</td>
<td>Level and clean the spreader so that flows spread evenly over entire swale width</td>
<td>Winter, Spring</td>
<td></td>
</tr>
<tr>
<td>Sediment Accumulation in Treatment Area</td>
<td>Sediment depth in treatment area exceeds 3 inches</td>
<td>Remove sediment from treatment area. Ensure facility is level from side to side and drains freely toward outlet; no standing water once inflow has ceased</td>
<td>Summer, Fall, Winter</td>
<td>Ideally in the dry season</td>
</tr>
<tr>
<td>Tree/Shrub Growth</td>
<td>Tree/shrub growth shades out wetland/emergent grass in treatment area. Interferes with access for maintenance/inspection</td>
<td>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</td>
<td>Winter</td>
<td>Ideal timing for pruning is winter</td>
</tr>
<tr>
<td>Hazard Trees</td>
<td>Observed dead, dying or diseased trees</td>
<td>Remove hazard trees. A certified arborist may be needed to determine health of tree or removal requirements</td>
<td>As Needed</td>
<td></td>
</tr>
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<tr>
<td>Erosion</td>
<td>Repair eroded areas and stabilize using proper erosion control measures. Establish appropriate vegetation as needed.</td>
<td>80% survival of approved vegetation and no bare areas large enough to affect function of facility</td>
<td>Spring, Summer, Fall, Winter</td>
<td>Ideal time to plant is spring and fall seasons</td>
</tr>
<tr>
<td>Poor Vegetation Coverage</td>
<td>Determine cause of poor growth and correct the condition. Replant per the approved planting plan and applicable standards at time of construction. Remove excessive weeds and all invasive plants.</td>
<td>Invasive vegetation is found in facility. Examples include: Himalayan Blackberry; Reed Canary Grass; Teasel; English Ivy; Nightshade; Clematis; Cat's Tail; Thistle; Scotch Broom</td>
<td>Spring, Summer, Fall, Winter</td>
<td>Ideal time to prune emergent wetland grass is spring. Cut tall grass to 4' to 6' and remove clippings. Prune emergent wetland grass/shrubs that have become overgrown.</td>
</tr>
<tr>
<td>Invasive Vegetation</td>
<td>Invasive Vegetation as outlined in Appendix A</td>
<td>Vegetation grows so tall it competes with or shades approved emergent wetland grass/shrubs; interferes with access or becomes fire danger</td>
<td>Spring, Summer, Fall, Winter</td>
<td>Visual evidence of trash, debris or dumping</td>
</tr>
<tr>
<td>Excessive Vegetation</td>
<td></td>
<td></td>
<td></td>
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Vegetated Swale Operation and Maintenance Plan (continued)
Vegetated Swale Operation and Maintenance Plan (continued)

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<td>Standing Water</td>
<td>Standing water in the swale between storms that does not drain freely</td>
<td>Remove sediment or trash blockages; improve grade from end to end of swale; no standing water 24 hours after any major storm (1-inch in 24 hours)</td>
<td>WINTER SPRING</td>
<td></td>
</tr>
<tr>
<td>Vector Control</td>
<td>Evidence of rodents or water piping through facility via rodent holes.</td>
<td>Repair facility if damaged. Remove harmful insects, use professional if needed.</td>
<td>As Needed</td>
<td></td>
</tr>
<tr>
<td>Contamination and Pollution</td>
<td>Evidence of oil, gasoline, contaminants, or other pollutants. Look for sheens, odor or signs of contamination</td>
<td>If contaminants or pollutants present, coordinate removal/ cleanup with local jurisdiction</td>
<td>SPRING SUMMER FALL WINTER</td>
<td></td>
</tr>
<tr>
<td>Grate Damaged, missing or not in place</td>
<td>Grate is missing or only partially in place, may have missing or broken grate members</td>
<td>Grate must be in place and meet design standards. Replace or repair any open structure, replace grate if missing.</td>
<td>As Needed</td>
<td></td>
</tr>
<tr>
<td>Damage to Outlet Structure</td>
<td>Frame not sitting flush on top slab (more than ¼ inch between frame and top slab); frame not securely attached</td>
<td>Ensure frame is firmly attached and sits flush on riser rings or on top of slab. Structure replaced or repaired to design standards</td>
<td>As Needed</td>
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<tr>
<td>Damage to Outlet Structure</td>
<td>Fractures or Cracks in Walls or Bottom. Maintenance person determines the structure is unsound. Soil entering structure through cracks</td>
<td>Structure replaced or repaired to design standards</td>
<td>As Needed</td>
<td></td>
</tr>
<tr>
<td>Damage to Outlet Structure</td>
<td>Settlement or Misalignment. Failure of basin has created a safety, function, or design problem</td>
<td>Structure replaced or repaired to design standards</td>
<td>As Needed</td>
<td></td>
</tr>
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</table>