

# 1 LONG TERM MAINTENANCE TASKS

## 1.1 Schedule of visits

1.1.1 Schedule of Site Visits (Regular Inspec & Maint)	
Purpose of visit	Frequency
Inspection	Regular inspection and maintenance should be carried out to ensure the system functions as designed. It is recommended that these checks be undertaken on a three monthly basis during the initial period of operating the system. A less frequent schedule might be determined after the system has established.
Maintenance	

## 1.2 Tasks

The scope of maintenance tasks should include verifying the function and condition of the following elements:

- Filter media
- Horticultural
- Drainage infrastructure
- Other routine tasks

1.2.1 FILTER MEDIA TASKS	
Sediment deposition	Remove sediment build up from forebays in raingardens and from the surface of bioretention street trees. Frequency – 3 MONTHLY AFTER RAIN
Holes or scour	Infill any holes in the filter media. Check for erosion or scour and repair, provide energy dissipation (e.g. rocks and pebbles at inlet) if necessary. Frequency – 3 MONTHLY AFTER RAIN
Filter media surface porosity	Inspect for the accumulation of an impermeable layer (such as oily or clayey sediment) that may have formed on the surface of the filter media. A symptom may be that water remains ponded in the raingarden or tree pit for more than a few hours after a rain event. Repair minor accumulations by raking away any mulch on the surface and scarifying the surface of the filter media between plants. For bioretention tree pits without understorey vegetation, any accumulation of leaf litter should be removed to help maintain the surface porosity of the filter media. Frequency – 3 MONTHLY AFTER RAIN
Litter Control	Check for litter (including organic litter) in and around treatment areas. Remove both organic and anthropogenic litter to ensure flow paths and infiltration through the filter media are not hindered. Frequency – 3 MONTHLY OR AS DESIRED FOR AESTHETICS

1.2.2 HORTICULTURAL TASKS	
Pests and Diseases	<p>Assess plants for disease, pest infection, stunted growth or senescent plants. Treat or replace as necessary. Reduced plant density reduces pollutant removal and infiltration performance.</p> <p>Frequency – 3 MONTHLY OR AS DESIRED FOR AESTHETICS</p>
Maintain original plant densities	<p>Infill planting: Between 6 and 10 plants per square metre should (depending on species) be adequate to maintain a density where the plant's roots touch each other. Planting should be evenly spaced to help prevent scouring due to a concentration of flow.</p> <p>Frequency – 3 MONTHLY OR AS DESIRED FOR AESTHETICS</p>
Weeds	<p>It is important to identify the presence of any rapidly spreading weeds as they occur. The presence of such weeds can reduce dominant species distributions and diminish aesthetics. Weed species can also compromise the systems long term performance. Inspect for and manually remove weed species. Application of herbicide should be limited to a wand or restrictive spot spraying due to the fact that raingardens and bioretention tree pits are directly connected to the stormwater system.</p> <p>Frequency – 3 MONTHLY OR AS DESIRED FOR AESTHETICS</p>
1.2.3 DRAINAGE TASKS	
Perforated pipe	<p>Ensure that perforated pipes are not blocked to prevent filter media and plants from becoming waterlogged.</p> <p>A small steady clear flow of water may be observed discharging from the perforated pipe at its connection into the downstream pit some hours after rainfall. Note that smaller rainfall events after dry weather may be completely absorbed by the filter media and not result in flow. Remote camera (e.g. CCTV) inspection of pipelines for blockage and structural integrity could be useful.</p> <p>Frequency – 6 MONTHLY AFTER RAIN</p>
High flow inlet pits, overflow pits and other stormwater junction pits	<p>Ensure inflow areas and grates over pits are clear of litter and debris and in good and safe condition. A blocked grate would cause nuisance flooding of streets. Inspect for dislodged or damaged pit covers and ensure general structural integrity.</p> <p>Remove sediment from pits and entry sites etc. (likely to be an irregular occurrence in mature catchment).</p> <p>Frequency – MONTHLY AND OCCASIONALLY AFTER RAIN</p>
1.2.4 OTHER ROUTINE TASKS	
Inspection after rainfall	<p>Occasionally observe raingarden or bioretention tree pit after a rainfall event to check infiltration. Identify signs of poor drainage (extended ponding on the filter media surface). If poor drainage is identified, check landuse and assess whether it has altered from design capacity (e.g. unusually high sediment loads may require installation of a sediment forebay).</p> <p>Frequency – TWICE A YEAR AFTER RAIN</p>

1.2.5 FORM (REGULAR INSPECTION & MAINTENANCE)						
Location		Raingarden/Tree Pit				
Site Visit Date:			Site Visit By:			
Weather:						
Purpose of the Site Visit	Routine Inspection	<input type="checkbox"/>	Complete section 1 (below)			
	Routine Maintenance	<input type="checkbox"/>	Complete sections 1 and 2 (below)			
<b>NOTE: Where maintenance is required ('yes' in Section 2), details should be recorded in the 'Additional Comments' section at the end of this document.</b>						
1. Filter media						
*In addition to regular inspections, it is recommended that inspection for damage and blockage is made after significant rainfall events that might occur once or twice a year.			Section 1		Section 2	
			Maintenance Required?		Maintenance Performed	
			Yes	No	Yes	No
Filter media (CIRCLE – pooling water/accumulation of silt & clay layer/scour/holes/sediment build up)			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Litter (CIRCLE – large debris/accumulated vegetation/anthropogenic)			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Vegetation						
Vegetation health (CIRCLE – signs of disease/pests/poor growth)			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vegetation densities (CIRCLE – low densities– infill planting required)			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Build up of organic matter, leaf litter (CIRCLE – requires removal) BIORETENTION TREE PITS ONLY			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Weeds (CIRCLE – isolated plants/infestation) (SPECIES – .....)			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Pits, pipes and inflow areas				
	Section 2		Section 3	
	Maintenance Required?		Maintenance Performed	
	Yes	No	Yes	No
Perforated pipes (CIRCLE - full blockage/partial blockade/damage)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inflow areas (CIRCLE - scour/excessive sediment deposition/litter blockage)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Over flow grates (CIRCLE - damage/scour/blockage)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pits (CIRCLE - poor general integrity/sediment build up/litter/blockage)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other stormwater pipes and junction pits (CIRCLE - poor general integrity/sediment build up/litter/blockage)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Additional Comments				

