

IPM for Innovative Water Quality Controls

City of Austin - Watershed Protection and Development Review Department
July 8, 2008

Integrated Pest Management (IPM) plans are required for the following innovative water quality controls described in the Environmental Criteria Manual (ECM):

- ECM 1.6.7.A Retention/Irrigation
- ECM 1.6.7.B Vegetative Filter Strip
- ECM 1.6.7.C Biofiltration
- ECM 1.6.7.D Rainwater Harvesting (if used in conjunction with vegetation)
- ECM 1.6.7.F Vegetative Filter Strip – Disconnection of Impervious Cover
- ECM 1.6.7.G Non-Required Vegetation
- ECM 1.6.7.H Rain Garden

The management of these water quality controls must adhere to the techniques and control options described within this IPM plan. IPM is a continuous system of controlling pests (weeds, diseases, insects or others) in which pests are identified, action thresholds are considered, all possible control options are evaluated and selected control(s) are implemented. Control options--which include biological, cultural, manual, mechanical and chemical methods--are used to prevent or remedy unacceptable pest activity or damage. Choice of control option(s) is based on effectiveness, environmental impact, site characteristics, worker/public health and safety, and economics. The goal of an IPM system is to manage pests and the environment to balance benefits of control, costs, public health and environmental quality. IPM takes advantage of all appropriate pest management options.

Manage the treatment system in conformance with the following criteria. Refer questions regarding the proper application of these criteria to the City of Austin IPM Coordinator (phone 512-974-2550):

1. **Vegetation Functions:** The vegetation in this stormwater treatment system is integral and necessary for it to function properly. A minimum of 95% of the vegetation specified in the project construction documents shall be alive and viable throughout the life of the system. No bare areas greater than 1 square foot may exist. These performance requirements apply to the entire treatment facility, as well as to areas immediately adjacent to and related to the facility (including access areas, easements, etc.)
2. **Drainage Issues and Vegetation Establishment:** Water management is critical during plant establishment, and remains crucial through the life of the system for proper vegetation management. Allow newly-planted roots to become established before flooding soils for an extended period.
3. **Mowing and/or Trimming:** Mowing and/or trimming of vegetation shall occur with certain restrictions.
 - a. **Tall and Medium Herbaceous Plants:** Trimming activities must not impinge on the growing tips (basal crown) of the bunchgrasses. Cutting these grasses below the basal crown will severely stress and possibly kill them. These plants shall be cut no lower than 18" from the ground. In all cases, clippings and trimmings shall be bagged and removed from the site.
 - b. **Turf and other Short Herbaceous Plants:** Sod-forming grasses may be mown or trimmed to an appropriate height. These plants shall not be scalped; cut no lower than 3" from the ground. All clippings and trimmings shall be bagged and removed from the site.
4. **Weed Management:** A weed is generally defined as any plant in the wrong place. Refer to the original design and construction documents when uncertainty exists as to the appropriateness of a specific plant. Preventing the introduction of weeds is the most practical and cost-

- effective method for their management. Avoid bare soil by minimizing soil disturbance and properly managing desirable vegetation. Remove weeds early in their growth stage, before they set seed. Allow the desired vegetation to out-compete the weeds. It is necessary to allocate greater resources on landscape maintenance during the initial 3-year establishment period. During this time weed "pressure" from the drainage area will be greatest, as will availability of bare surface areas within the treatment system. These factors allow weeds to gain a foothold, especially during the first few months of the life of the water quality control. The preferred method of weed control is to physically remove the weeds. Cut the weed roots below the soil to reduce root carbohydrates. This shall be done by hand tools only; using cultivating machines is not acceptable within the treatment system. Repeat cultivation at regular intervals during the growing season. Any bare areas resulting from this process must be re-vegetated. See the earth wise guide to Weeds for further information.
5. Pesticides (includes herbicides) and Fertilizer: The use of landscape chemicals, including fertilizer and pesticides, are not allowed within the treatment system without the approval of the City's IPM Coordinator (phone 512-974-2550). Herbicide use will be restricted to that of organic, least-toxic formulations. Be aware that organic herbicides must be used with caution and can be dangerous, especially in concentrated form. Personal protective equipment must be used: rubber gloves, long pants, eye protection, etc. The use of organic herbicides is generally restricted to the following products. These may not be effective on all weed species:
 - a. Acetic acid (20% vinegar) is effective on small annuals
 - b. Essential oils: Includes cinnamon, clove, summer savory and thyme must be used at the appropriate concentration.
 6. Plant species listed as invasive by the state of Texas are not allowed. Refer to the following website for a list of plants and additional information.
http://www.texasinvasives.org/Invasives_Database/Invasives.html
 7. Mosquito Management: This water quality treatment system shall not be a breeding place for mosquitoes. Incidental standing water must not be present for longer than three days (72 hours). If water exists for periods longer than this, the party responsible for maintenance shall remove the water from the system and conduct any repairs or design flaws to ensure that this condition is not repeated. See the earth wise guide to Mosquitoes for further information.
 8. Wildlife and Pet Management: In addition to water quality treatment, this facility offers environmental benefits such as providing food and habitat for wildlife. Pets may also be attracted to them. However, activities by animals within the water quality control shall not interfere with its functions and design objectives. Digging or burrowing by animals is particularly troublesome. Defecation from pets must be picked up on a regular basis. Where problems with wildlife exist, fencing or similar exclusionary methods shall be implemented.
 9. Irrigation System Performance: Not all water quality treatment facilities include an irrigation system. When an irrigation system exists evaluate the efficiency of the system on a periodic basis, especially at the beginning of each irrigation season. The evaluation shall identify problems with the system, highlight strengths and weaknesses in system performance, and ensure that problems are properly addressed.
 10. Erosion: Erosion damage to the treatment system shall be repaired immediately. Determine the cause of the erosion and address the situation to prevent it from recurring.
 11. Digging: Contact utility companies to request that all underground utilities be located and marked prior to excavating in or near stormwater facilities. At least one of the following systems shall be contacted.
 - a. Dig-Tess (Texas Excavation Safety System): 1-800-344-8377
 - b. Texas One-Call System: 1-800-245-4545
 12. Pest Management Plans: Refer to the Grow Green website for updated versions of pest management plans. <http://www.ci.austin.tx.us/growgreen/>