A-26: Landscaping Activities, Vegetation Management, and Irrigation

Stormwater runoff (rainwater and snow melt) is the largest source of pollution to our lakes, streams and Puget Sound. King County requires businesses to implement measures to protect our shared waters. If the requirements below do not prevent pollution, additional measures are necessary.

The following best management practices (BMPs) apply to landscaping, vegetation management and irrigation activities which include grading, soil transfer, vegetation planning, and vegetation removal. For storage and use of pesticides and fertilizers see activity sheet A-5: Storage and Use of Pesticides and Fertilizers.

Required BMPs – Landscaping and Vegetation Management

- Do not dispose of collected vegetation into surface waters or stormwater drainage systems.
- Do not blow vegetation or other debris into the stormwater drainage system, sidewalks, or street. Dispose of collected vegetation by recycling or composting.
- Use mulch or other erosion control measures when soils are exposed for more than one week during the dry season (May 1 to September 30) or two days during the rainy season (October 1 to April 30).
- Ensure sprinkler systems do not "overspray" vegetated areas resulting in the excess water discharging into the stormwater drainage system.
- Ensure that plants selected for planting are not on the noxious weed list. Remove, bag, and dispose of class A and B noxious weeds in the garbage immediately. Make reasonable attempts to remove and dispose of class C noxious weeds. Do not compost noxious weeds as it may lead to spreading through seed or fragment if the composting process is not hot enough.
- New and expanding golf courses must have a Golf Course Management Plan as described in addressed in the King County Golf Course BMP Manual

Required BMPs - Irrigation

- Ensure sprinkler systems do not overspray vegetated areas resulting in runoff discharging into surface waters or stormwater drainage systems. Adjust watering times and schedules to ensure that the appropriate amount of water is being used to minimize runoff. Consider factors such as soil structure, grade, time of year, and type of plant material in determining the proper amounts of water for a specific area.
- Inspect irrigated areas regularly for signs of erosion and/or discharge.
- Do not irrigate plants during or immediately after fertilizer application. The longer the period between fertilizer application and irrigation, the less fertilizer runoff occurs.

- Do not irrigate plants during or immediately after pesticide application (unless the pesticide label directs such timing).
- Reduce frequency and/or intensity of watering as appropriate for the wet season (October 1 to April 30).

Supplemental BMPs - Landscaping and Vegetation Management

- Select the right plants for the planting location based on proposed use, available maintenance, soil conditions, sun exposure, water availability, height, sight factors, and space available.
- Use native plants in landscaping. Native plants do not require extensive fertilizer or pesticide applications.
- Install engineered soil/landscape systems to improve the infiltration and regulation of stormwater in landscaped areas.
- Use at least an eight-inch "topsoil" layer with at least 8 percent organic matter to provide a sufficient vegetation-growing medium.
    - Organic matter is the least water-soluble form of nutrients that can be added to the soil. Composted organic matter generally releases only between 2 and 10 percent of its total nitrogen annually, and this release corresponds closely to the plant growth cycle. Return natural plant debris and mulch to the soil, to continue recycling nutrients indefinitely.
- Select the appropriate turfgrass mixture for the climate and soil type.
    - Certain tall fescues and rye grasses resist insect attack because the symbiotic endophytic fungi found naturally in their tissues repel or kill common leaf and stem-eating lawn insects.
        - The fungus causes no known adverse effects to the host plant or to humans.
        - Tall fescues and rye grass do not repel root-feeding lawn pests such as Crane Fly larvae.
        - Tall fescues and rye grass are toxic to ruminants such as cattle and sheep.
    - Endophytic grasses are commercially available; use them in areas such as parks or golf courses where grazing does not occur.
    - Local agricultural or gardening resources such as Washington State University Extension office can offer advice on which types of grass are best suited to the area and soil type.
- Adjusting the soil properties of the subject site can assist in selection of desired plant species. Consult a soil restoration specialist for site-specific conditions.
- Remove weeds/vegetation in stormwater ditches by hand or other mechanical means and only use chemicals as a last resort. If herbicides are used, refer to activity sheet A-5: Storage and Use of Pesticides and Fertilizers for required BMPs.
- Conduct mulch-mowing whenever practicable.

- Till a topsoil mix or composted organic material into the soil to create a well-mixed transition layer that encourages deeper root systems and drought-resistant plants.
- Apply an annual topdressing application of 3/8" compost. Amending existing landscapes and turf systems by increasing the percent organic matter and depth of topsoil can:
    - Substantially improve the permeability of the soil.
    - Increase the disease and drought resistance of the vegetation.
    - Reduces the demand for fertilizers and pesticides.
- Disinfect gardening tools after pruning diseased plants to prevent the spread of disease.
- Prune trees and shrubs in a manner appropriate for each species.
- If specific plants have a high mortality rate, assess the cause, and replace with another more appropriate species.
- When working around and below mature trees, follow the most current American National Standards Institute (ANSI) ANSI A300 standards, http://www.tcia.org/TCIA/BUSINESS/ANSI_A300_Standards_/TCIA/BUSINESS/A300_Standards/A300_Standards.aspx?hkey=202ff566-4364-4686-b7c1-2a365af59669, and International Society of Arboriculture BMPs to the extent practicable (e.g., take care to minimize any damage to tree roots and avoid compaction of soil).
- Monitor tree support systems (stakes, guys, etc.).
    - Repair and adjust as needed to provide support and prevent tree damage.
    - Remove tree supports after one growing season or maximum of 1 year.
    - Backfill stake holes after removal.
- When continued, regular pruning (more than one time during the growing season) is required to maintain visual sight lines for safety or clearance along a walk or drive, consider relocating the plant to a more appropriate location.
- Re-seed bare turf areas until the vegetation fully covers the ground surface.
- Watch for and respond to new occurrences of especially aggressive weeds such as Himalayan blackberry, Japanese knotweed, morning glory, English ivy, and reed canary grass to avoid invasions.
- Aerate lawns regularly in areas of heavy use where the soil tends to become compacted. Con-duct aeration while the grasses in the lawn are growing most vigorously. Remove layers of thatch greater than ¾-inch deep.
- Set the mowing height at the highest acceptable level and mow at times and intervals designed to minimize stress on the turf. Generally mowing only 1/3 of the grass blade height will prevent stressing the turf.
    - Mowing is a stress-creating activity for turfgrass.
    - Grass decreases its productivity when mowed too short and there is less growth of roots and rhizomes. The turf becomes less tolerant of

environmental stresses, more disease prone and more reliant on outside means such as pesticides, fertilizers, and irrigation to remain healthy.

Supplemental BMPs - Irrigation

- Repair broken or leaking sprinkler nozzles as soon as possible.
- Water deeply, but infrequently, so that the top 6 to 12 inches of the root zone is moist. Appropriately irrigate lawns based on the species planted, the available water holding capacity of the soil, and the efficiency of the irrigation system.
    - The depth from which a plant normally extracts water depends on the rooting depth of the plant. Appropriately irrigated lawn grasses normally root in the top 6 to 12 inches of soil; lawns irrigated on a daily basis often root only in the top 1 inch of soil.
- Irrigate with the minimum amount of water needed. Never water at rates that exceed the infiltration rate of the soil.
- Maintain all irrigation systems so that irrigation water is applied evenly and where it is needed.
- Place sprinkler systems appropriately so that water is not being sprayed on impervious surfaces instead of vegetation.
- Place irrigation systems to ensure that plants receive water where they need it. For example, do not place irrigation systems downgradient of plant's root zones on hillsides.
- Use soaker hoses or spot water with a shower type wand when an irrigation system is not present.
    - Pulse water to enhance soil absorption, when feasible.
    - Pre-moisten soil to break surface tension of dry or hydrophobic soils/mulch, followed by several more passes. With this method, each pass increases soil absorption and allows more water to infiltrate prior to runoff.
- Add a tree bag or slow-release watering device (e.g., bucket with a perforated bottom) for watering newly installed trees when irrigation system is not present.
- Identify trigger mechanisms for drought-stress (e.g., leaf wilt, leaf senescence, etc.) of different species and water immediately after initial signs of stress appear.
- Water during drought conditions or more often if necessary, to maintain plant cover.
- Adjust irrigation frequency / intensity as appropriate after plant establishment.
- Annually inspect irrigation systems to ensure:
    - That there are no blockages of sprayer nozzles.
    - Sprayer nozzles are rotating as appropriate.
    - Sprayer systems are still aligned with the plant locations and root zones.
- Consult with the local water utility, King Conservation District, or Cooperative Extension office to help determine optimum irrigation practices.

- Do not use chemigation and fertigation in irrigation systems. This will help avoid over application of pesticides and fertilizers.

Additional Information

- Potential pollutants can include: fecal coliform bacteria, metals, nutrients, oil and grease, oxygen demanding substances, PCBs, and sediment.
- *Stormwater Pollution Prevention Manual*, Chapter 3: Commercial and Multifamily BMPs
    - A-5: Storage and Use of Pesticides and Fertilizers
    - A-49: Nurseries and Greenhouses
- Natural Yard Care Program: http://your.kingcounty.gov/solidwaste/naturalyardcare/watering.asp
- The King County *Best Management Practices for Golf Course Development and Operation* https://your.kingcounty.gov/dnrp/library/water-and-land/stormwater/stormwater-pollution-prevention-manual/Best%20Manangement%20Practices%20for%20Golf%20Course.pdf
- The King County Noxious Weed List can be found at https://www.kingcounty.gov/services/environment/animals-and-plants/noxious-weeds/laws.aspx. Additional information on the Washington State Noxious Weed List can be found at https://www.nwcb.wa.gov/printable-noxious-weed-list
- The King County Noxious Weed Control Program provides best management practices for the removal of typical noxious weeds such as blackberry and purple loosestrife. Call 206-296-0290 or see: http://www.kingcounty.gov/environment/animalsandplants/noxious-weeds/weed-control-practices.aspx for more information

For more information or assistance contact the King County Stormwater Services at 206–477–4811 and visit kingcounty.gov/stormwater.