Issaquah Highlands

AN URBAN VILLAGE

Water-Wise Living In Issaquah Highlands

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With
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Welcome to Issaquah Highlands

The Issaquah Highlands

Nestled on 2,223 acres at the southern end of the Sammamish Plateau, northeast of Issaquah, Washington, Issaquah Highlands is a unique 688-acre planned community development consisting of residential, commercial, retail, parks, open space, community facilities, utilities, roads, and rural sites. The community ultimately will have 3,250 homes—including single-family homes, townhouses, and multi-family buildings—as well as 2.95 million square feet of commercial office space, 425,000 square feet of retail shops, a village green, its own elementary school, and parks.

Our Vision and Goals

Our vision is to develop and maintain a sustainable community that cares for and preserves the natural environment for both present and future generations. We have incorporated this philosophy during development—logged trees have been recycled into chips for ground cover; old asphalt has been reused in new road beds, and large boulders have been relocated and incorporated into the landscaping. Our vision includes the following goals for the future:

- To protect wildlife habitat, maintain the area's natural water cycle, and reduce the need for auto travel within the community;
- To encourage leadership and technologies that protect the natural environment by providing key technical information; and
- To foster an awareness of our united responsibility as stewards of our developed and natural environment.

Because our community is situated atop aquifers that store the water used by the citizens of the City of Issaquah, we are especially concerned about preserving and protecting our groundwater.

Special Features

Issaquah Highlands incorporates many protected landscape features that help minimize human impact on the Issaquah Highlands watershed. These include:

- ***Ponds, marshes, and wetlands***—These are essential to the land's ability to hold water and gently release it to lakes, streams, and the groundwater table.
- ***Grassy swales and weedy ditches***—The plants and grasses that line small watercourses filter out a significant amount of the pollutants in surface runoff before they reach our lakes.
- ***Native plants and trees***—Slopes, woods, or wetland areas with a healthy mix of native plants provide a self-sustaining, biologically diverse sample of our Northwest flora.
- ***Buffers***—Areas with natural vegetation and soil structure provide a buffer between runoff-producing areas, such as roads and homes, and downstream neighbors, slopes, or other sensitive areas.
- ***Open spaces***—The community is surrounded by more than 1,400 acres of permanent forest open space, including neighborhood parks and trails.

Special Restrictions

Special restrictions apply to residences and businesses adjacent to *transition zones*, areas such as wetland areas, ponds, edges, buffers or open space. Although it may be tempting to do so, these areas are *not* to be treated as extensions of your property. Check with your builder or inspect your title report to see if any special restrictions apply to you.

What we do to our Water we do to Ourselves

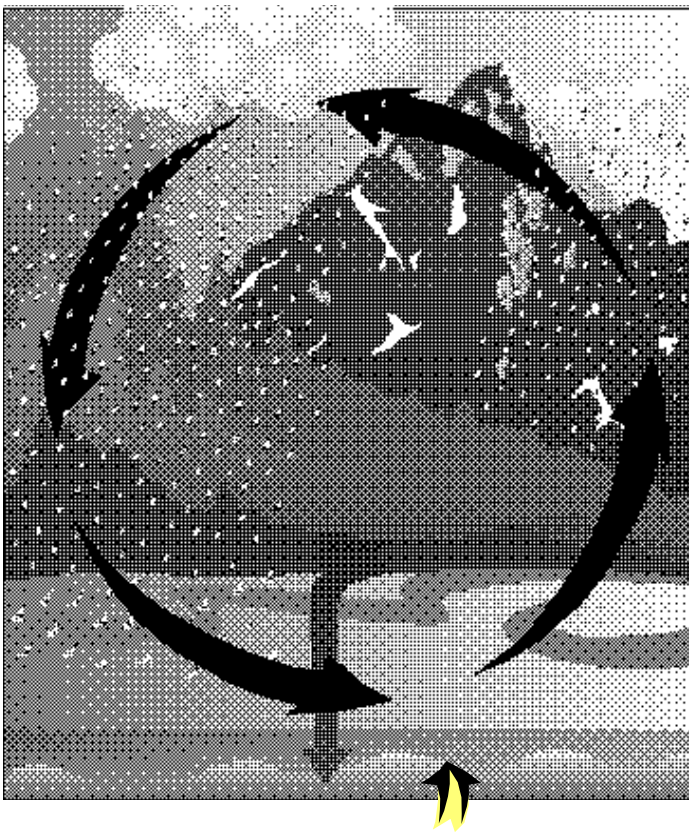
The Cycle of Our Water

Our quality of life depends critically upon maintaining adequate supplies of clean water for everyday use. Let's take a look at how water cycles through nature and where the water in Issaquah Highlands comes from.

Water moves in a circular pattern called the hydrologic cycle or water cycle. Clouds hold water vapor, which falls to the earth as rain, snow, or sleet. About three-fourths of that water returns directly to the air—either by evaporating from the earth's surface or transpiring from the pores of plants. Much of the water that remains on the earth's surface is stored in streams, lakes, ponds, wetlands, aquifers (groundwater), and oceans. Lakes such as our Lake Sammamish serve as temporary holding areas for water before it circulates again through the hydrologic cycle. The water we use in our homes is pumped from the Lower Issaquah Aquifer beneath us.

We preserve and protect our water supplies when we prevent pollution of existing groundwater, when we promote replenishment of the aquifer, and when we conserve water.

The Water Cycle



Why this Manual?

How You Can Help

As an Issaquah Highlands resident, you play a key role in preserving and protecting our groundwater supplies, as well as surrounding waterways. This manual can provide you with specific tips on how to protect your lawn and garden, maintain your roof, and use household chemicals without harming the environment. And if you remodel, you'll learn about some environmentally-friendly and water-wise construction practices to use.

What happens when you use pesticides only when necessary or plant native trees, shrubs, and plants, for example? As a result of easy-to-use techniques in this manual, you and your children can enjoy our pristine water supplies for years to come.

You'll also:

- Protect your property values by preserving the beauty and purity of the Issaquah Valley, Lower Sammamish region, and the Sammamish Plateau;
- Reduce or eliminate utility fee increases associated with waste handling and water purification;
- Reduce the demand for new or expanded sewage treatment facilities, saving tax dollars;
- Protect the watershed from diversions that harm aquatic life; and
- Reduce the amount of energy used to heat water for your household needs (and the amount you pay to heat the water).

Lawn and Garden Care

Water-Wise Landscaping

Most of the rain that falls on our homes, lawns, and driveways eventually finds its way into our water supply, so what we do with and on our land directly affects the quality of our water. Thoughtful landscaping and lawn and garden care practices helps protect our aquifers and lakes.

The City of Issaquah and Issaquah Highlands developers have incorporated a water-wise landscape palette that uses native plants, preserves and promotes replenishment of the ground water; minimizes the use of harmful fertilizers, herbicides, and pesticides; and is drought tolerant. As a homeowner, your everyday actions can also conserve water and reduce the amount of toxic chemicals and nutrients that can harm lakes, including Lake Sammamish, and eventually flow into Puget Sound. Here are some ways to get started:

Planning Your Plantings

Reduce your lawn and bare areas by increasing the number and variety of shrubs and trees. Trees, shrubs, and groundcover help reduce runoff, minimize erosion, and enhance the appearance and value of your property. If possible, leave as much of the original vegetation as possible. Leaving the vegetation not only reduces runoff and pollution, but also gives you a head start on your final landscaping and increases the value of your home.

In addition, if you own a lot adjacent to a transition zone, you must observe the special restrictions noted on your title report.

Well-planned landscaping has other benefits too:

- Planting choices and locations can reduce heating and cooling costs for your house by as much as 30%.
- Trees, shrubs, and groundcover require less maintenance than grass.
- Trees, shrubs, and groundcover also require less fertilizer and fewer pesticides than grass, reducing the chances of your yard adding polluting runoff to nearby lakes and streams.
- New shrubs and trees attract birds and wildlife.

Plant Selection

Matching the needs of your plants to the conditions of your landscape reduces the need for extra water and fertilizer and increases your plant's resistance to disease and pests. Native plants that grow naturally in the forests and open lands of the Puget Sound basin are well suited to our rainfall patterns and are bothered less by common disease and insect problems than most plants introduced from other areas. So as a first step in plant selection, look for native species. Next, call the Washington Toxics Coalition at (206) 632-1545 and request *Appropriate Plants for Northwest Landscapes*, a fact sheet that describes appropriate drought-tolerant groundcovers, shrubs, and trees. Other resources include the WSU Cooperative Extension and your local professional nursery. Section 3 of the *Issaquah Highlands Water Conservation Standards*, reference 1, contains specific standards for quality landscaping that conserves water and protects the environment. If you hire a landscaper, make sure they are familiar with and use these standards.

Lawn Care

No single feature of the home requires as much water, petrochemical input, time, and sweat as our lawns. The picture-perfect, deep green lawn is not necessarily a *healthy* lawn and is impossible without regular doses of pesticides and chemical fertilizers. If we adjust our idea of what landscaping should be, we can save staggering amounts of water, money, and leisure time, and still have functional and attractive lawns.

One way to start is to replace areas covered by high-maintenance turf varieties with trees, native groundcovers, shrubs, or hardy-drought-resistant grass combinations as discussed

above, along with incorporation of appropriate soil amendments. In Western Washington, perennial rye grasses and fescues are good choices for turf. Options for planting new lawns include scattering seeding by hand or with a seeder, hydro-seeding (usually used for large areas), or sod. If you use sod, purchase it fresh—avoid the stacks sitting in the sun in front of your garden center.

Maintain the health of your lawn by consistently follow proper maintenance practices, (1) mowing and cultivation, (2) fertilization, (3) watering, and (4) pest management, discussed below. The more attention paid to the first three points, the less need there will be for pest management.

Mowing

Mow with a sharp blade set at the correct height. Never remove more than one third of the grass blade at one mowing because this will diminish nutrient reserves causing stress conditions and a decline in lawn health. Mowing height for perennial rye grass west of the Cascades should generally be between 1-1/2 inches and 2 inches. Taller grasses encourage deeper roots, which tap into more moisture and nutrients. However, grass that is too tall tends to thin out, contributing to weed infestation. Frequent mowing (weekly) increases grass shoot density, inhibiting weeds. It is not necessary to remove grass clippings—they usually break down quickly, do not contribute to thatch buildup, and actually add nitrogen to the soil. Mowers with mulching attachments speed the process of breakdown by finely chopping the clippings during the mowing cycle.

Cultivation

Cultivation, or aeration, is the process of removing small cylindrical cores of soil from the lawn, relieving soil compaction and allowing water and air to penetrate. A home lawn may require aeration only once every two to four years, depending upon use and soil type. Thatching removes the mat of old grass rhizomes that develops at the soil surface, preventing the penetration of water and fertilizer. Thatching needs to be done when the thatch layer exceeds about 1/2 inch. The job is best done with a special thatching rake, or for large areas, a thatching machine, available from rental yards. Encourage the presence of earthworms and ants. Nothing aerates the soil as efficiently, and these are the first species to disappear in the presence of pesticides.

Fertilization

Proper fertilizer type, quantity, and timing will protect your lawn *and* your environment.

Type—Substitute organic or synthetic slow-release type fertilizers for regular synthetic fertilizers. Look for "organic," "slow release," or "controlled release" on the fertilizer packaging, or ask your nursery professional for recommendations. These contain nutrients that break down over a long period of time, benefiting the diverse flora and fauna of the soil.

Avoid:

- "Weed-and-feed" fertilizers—They apply powdery chemical herbicides over the entire lawn, whether or not a pest problem exists.
- Chemical fertilizers, especially phosphorus—They are all too easily washed from land surfaces into ditches and streams or directly into lakes, where they can feed aquatic plants and cause nuisance algae blooms.
- Lawn subscription services that spray lawns routinely—They apply regular heavy doses of chemical fertilizers, whether or not a need exists.

Quantity—Always follow label directions for amounts and application instructions, and consult Cooperative Extension publications for general recommendations.

Timing—If you fertilize once, do it in mid-November. This encourages the development of strong root systems that support vigorous, steady top growth through the following spring and summer. If you fertilize twice, make the first application in late June (after the rainy season is over and the rapid spring growth has slowed) and the second application in mid-November.

Fertilize during dry weather. During rainy weather, your fertilizer ends up in runoff instead of in your lawn.

Avoid spring applications. In addition to fertilizer runoff caused by the rainy spring weather, spring feedings promote rapid top growth spurts that require more frequent mowing and contribute to increased yard waste and water use.

Watering

To thrive, a lawn needs adequate water. Two common lawn-watering mistakes are over-watering (which causes runoff and wasted water) and frequent, short watering cycles (which encourages shallow root systems). Infrequent, long watering cycles allow moisture to penetrate the soil, encouraging deep roots and drought-resistant plants. (However, always be sure soil and slope conditions permit penetration and do not promote run-off.)

Your lawn needs about 1 inch of water per week during the hottest summer month, typically July. During other months, you can reduce the amount to ½ to ¾ inch per week. To find out how much water your irrigation system produces, place several flat-bottomed tuna fish or cat food cans around your sprinkler. Turn on your sprinklers for 15 minutes. Measure the amount of water in each can and add the amounts together. Divide this total by the number of cans to find the average amount of water sprinkled in 15 minutes. Refer to the following chart and read the number of minutes you should water, every third or fourth day (generally twice per week). Skip one or more watering during weeks when there is heavy rainfall.

Finally, water in the morning before 10 a.m. for maximum uptake. Evening watering is an acceptable second choice. Watering in mid-day can stress plants and results in water loss through high evaporation and wind loss.

Lawn Watering Guide

Average Depth in Test Cans after 15 Minutes ς	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1–1/8"
Minutes to Water Every Third to Fourth Day (Twice per Week) in: I								
Spring (March through May)	30	15	10	7–1/2	6	5	4	3–1/3
Summer (June through August)	60	30	20	15	12	10	8	6–2/3
Fall (Sept. through October)	24	12	8	6	4–3/4	4	3–1/3	2–1/2

Use this chart as a guide. Decrease watering times and frequencies during cool or humid weather. Stop watering after any substantial rainfall until the lawn shows signs of stress such as excessive browning or thinning. (Note: Brown grass is only dormant, not dead.)

Managing Those Pests

Once viewed as safe and effective for insect control, chemical pesticides are now recognized poisons that can contaminate the soil and harm wildlife and humans—especially children. Some of this poison finds its way into our lakes, streams, and groundwater supplies, where it disrupts the balance of life. Reducing the use of pesticides protects lakes and contributes to a healthier environment for fish, wildlife, and people.

Integrated Pest Management (IPM) is a horticultural practice that focuses on prevention by considering the ecosystem as a whole. IPM prevents pest problems by using appropriate, adapted plant varieties, providing the necessary nutrients and moisture, and following through with good maintenance practices. When considering a treatment, the goal is not to eradicate the pest, but to use the least toxic treatment that will drop the pest level below an established threshold. Although it may sound pretty technical, applying the IPM method to home garden and lawn care is not difficult.

IPM at Home

Here are some ways *you* can practice IPM:

- Don't expect to kill all pests or have picture-perfect plants every time. Some insects will always be in your garden, and they do have a place in the ecosystem. Monitor your plants carefully and tolerate some damage.
- Build good soil and give the plants the sun, water, and nutrients they need. A healthy plant is better able to resist insect pests and diseases, but even a pest-resistant plant may have pest problems if it is not properly placed or cared for. Avoid watering too often or too shallowly. A long slow soaking is usually preferable to a short heavy watering, much of which may run off. Don't apply water faster than the soil can absorb it. Adding organic matter to the soil will help it to absorb and retain moisture. Water in the early morning rather than late in the evening to reduce the chance of mildew problems. Do not water during the day after 10:00 a.m.
- Plant a variety of species using pest-resistant plants and plants that attract beneficial insects and birds. Mixed plantings are less susceptible to insect damage.
- Keep garden pathways and beds clean and clear of weeds and other objects that may harbor pests. Remove garden wastes to the compost pile.
- Outwit pests by rotating crops and timing plantings to avoid peak insect invasions. Fall or early spring plantings can produce a good yield before insects are active.
- Introduce and encourage natural predators like the lacewing, ladybug, praying mantis, nematodes, dark ground beetle, garter snakes, toads, and spiders.

If Pest Control is Necessary

If the pests level exceeds your limits, use IPM to decrease their population by:

- First try appropriate physical controls, such as traps, barriers, or hand removal. Physical controls include screening (such as Reemay™) which prevents insects from laying their eggs on plant leaves, or barriers to deter slugs or ants. Hand picking of insect eggs and larvae, or removal of infested leaves are also examples of physical controls. Prune out diseased or infested vegetation and put it in the garbage, not the compost. Use water spray to physically remove pests from plants.
- If needed, use biological controls such as beneficial insects or bacteria. One common biological control is bacillus thuringiensis (B.t.--brand names Dipel™, Thuricide™, Safer™ Caterpillar Killer) for control of tent caterpillars, gypsy moths, cabbage loopers, tomato hornworms and other leaf-eating caterpillars.
- Use pans of beer to attract slugs and snails or hand pick slugs, snails, and caterpillars, and drop them into a bucket of soapy water.
- Use insect hormones that prevent the insect from growing into a sexually mature adult.
- When damage occurs, be sure to identify the pest properly. The insect you see near a damaged leaf may actually be a beneficial insect that devours pests. For assistance in identifying insects and other pests, consult the King County Cooperative Extension Master Gardener (296-3440).
- Use least toxic chemical/organic controls. Discourage pests with scattered borax and soapy water. Spray aphids with soapy water or insecticidal soaps such as Safer™ Soap.
- As a last resort, use least-toxic chemicals such as insecticidal soap, pyrethrum, baking soda (as fungicide), sulfur, and horticultural oil. However, even the less toxic chemicals may be a hazard to fish or beneficial insects, especially if used improperly, so be sure to read the label carefully, and use the product only as directed.

  If you must use a chemical, take special care that the chemical only goes where it should. Never apply pesticides during windy weather or within 100 feet of a lake, stream, or wetland. Follow label directions, and properly dispose of all hazardous

waste. You are in violation of federal law if you fail to follow label directions. Call the King County Hazards Line (296-4692) for advice about disposal of any unwanted pesticide products.

Use synthetic pesticides with a short life, only as needed, and applied at the correct part of the insect's life cycle. Choose the least lethal pesticides and be sure they are not toxic to aquatic life.

Finally, do not over-water! This may cause pesticide runoff that can contaminate water supplies.

For more information about IPM, contact the King County Cooperative Extension Master Gardener (296-3440). The Washington Toxics Coalition (632-1545) has the brochure *Garden Insect Pests*, as well as brochures on clothing moths, fleas, spiders, ants, flies, cockroach, and tent caterpillar control. You can obtain a catalog of materials, Least Toxic Pest Management, from the Bio-Integral Resource Center, Box 7242, Berkeley, CA 94707.

Automatic Sprinkling Systems

If you have an automatic lawn-sprinkling system, regular routine maintenance activities keep it working efficiently and avoid wasted water. Regular maintenance activities:

- Prevent, detect, and repair irrigation system damage, excess wear, and leakage
- Maintain a uniform coverage
- Activate the irrigation system for use in the spring, and
- Deactivate and winterize the irrigation system in the fall.

If you observe these problems, your system needs maintenance:

- Dry areas between sprinkler heads
- Wet areas due to over coverage
- Water applied to areas not requiring water or run-off onto a sidewalk or street
- Ponding water at sprinkler heads
- Loss of water pressure

Here is a list of routine maintenance tasks for irrigation systems:

Sprinkler heads
- Repair heads that have been damaged from mowers, vandalism, and physical wear.
- Clean soil from system
- Adjust heads which are out of alignment
- Adjust heads which are not properly set with finish grade

Automatic valves
- Clean valves which malfunction due to soil intrusion
- Repair solenoid failure on electric valves

Control wires
- Repair wires damaged by hand digging or power equipment

Winterization
- Fully drain or blow out the system to prevent freeze damage during the winter

Automatic controllers

- Adjust watering times based on weather conditions to avoid over-watering

NOTES: *If you add a new automatic irrigation system or if you change an existing system, you must comply with Issaquah Highlands Water Conservation Standards, reference 1.*

Single family residential lots that install automatic irrigation systems other than low volume systems and/or propose irrigation of 2000 square feet or more and all multi-family residential lots must submit a water budget, landscape and irrigation design certification, and landscape and irrigation installation certification. See reference 1 for details.

Moss Control

Managing Moss

Moss, lichen, and algae grow actively in our moist Northwest climate, appearing on rooftops, decks, lawns, walkways, and shady sides of outdoor structures. They are slippery and they will shorten the life span of a roof if not controlled. However, many commercial moss controls contain chemicals that are hazardous and a potential threat to our water supplies. Here are some tips for water-wise moss control:

- Scrape away as much moss as possible using a stiff brush or broom. For hard to reach areas, a power washer works well. (If you use a power washer, try to recycle the water onto your lawn or plants.)
- Keep all organic debris, such as leaves and branches, off your roof, deck, or patio.
- Remove branches that overhang your roof and decks to allow direct sunlight, good aeration, and faster drying.
- As a last resort, use commercial, chemical moss removers to kill moss and algae and keep them from returning. These are best applied when the moss is actively growing, in fall, winter, and spring. If possible, apply during a dry spell.

Permissible chemical moss removers are those made with potassium salts of fatty acids. These soap-based products are biodegradable, non-corrosive, and pose minimal hazard to people and animals. However, be sure to thoroughly rinse over-spray that falls on plants and foliage.

There are other chemical treatments available on the market. However, these are not permitted at Issaquah Highlands due to environmental effects. They include:

1. Zinc sulfate (monohydrate)—This metal salt is less toxic than copper sulfate (below), but is not bio-degradable.
2. Copper sulfate (also called blue stone)—This chemical is toxic and corrosive to metals.

In addition, do not use table salt to kill moss and algae. It is corrosive to metal and is not very effective.

Zinc galvanized ridge caps, copper flashing, and copper wires, sometimes installed on roofs to discourage moss and other growth, are also prohibited.

Hazardous Waste

What is a Hazardous Product?

A hazardous product is one that can harm the user or the environment. A substance is considered hazardous if it is *toxic* (poisonous), *flammable*, *caustic* (causes burns), or chemically *reactive*. Hazardous products are used throughout the household. Some of the most dangerous include pesticides, drain and oven cleaners, paint strippers, and solvents. These products must be carefully handled, transported, and disposed of.

Why are these Products

Pesticides may kill beneficial plants and animals. Lawn chemicals, waste oil, and antifreeze washed by rain from yards and streets into storm drains go directly into creeks, lakes, or Puget

Hazardous?

Sound. Household products poured down the drain or toilet enter the sewage system. Because they may contain chemicals that are not broken down by sewage treatment, they can eventually be released into the environment causing air or groundwater contamination.

How Can I Use Less Hazardous Household Products?

Choose safer, less-toxic products, and use less. Most jobs can be done with safer products, and safer alternatives often cost less. For general cleaning throughout the home, baking soda, vinegar, and soap are items your grandmother used. Less toxic commercial products can be also be substituted for those more toxic products you may be using now. Contact the King County Hazards Line (296-4692) or the Washington Toxics Coalition (632-1545) for information about safer cleaning alternatives.

Here are some strategies to help you begin to reduce the household toxics around your home or business:

- Read product labels—Avoid household cleaners and other products marked "DANGER". Choose products marked "CAUTION" or "WARNING", or better yet, choose products that don't need warnings. Choose water-based products, such as latex paint, white glue, water-based paint strippers, and household cleaners. Avoid chlorinated compounds, petroleum distillates, phenols, and formaldehyde.
- Reduce or eliminate pesticide use—See discussion on Integrated Pest Management above.
- Examine your painting needs—Use latex or water-based paints whenever possible. Buy only what you need and use it all up or give it away
- Use wood preservatives only when necessary—Don't use a wood preservative if a water repellent will do. Don't use wood treated with creosote or penta.
- Use cleaners wisely—Use heavy duty cleaners only for heavy duty jobs. Clean more often so that dirt is easier to remove. Use less toxic cleaners—some cleaners contain very hazardous ingredients that can burn your eyes, skin, or lungs. Look for safer name brand substitutes or use simple alternatives.
- Avoid aerosol products—Wipe-on applications are safest. Pump sprays avoid propellants that are harmful to the atmosphere.
- Avoid chemical air fresheners—Correct the source of the odors. Use baking soda to soak up odors. Use flowers, sachets, or simmering cinnamon.
- Re-use solvents.
- Use water-based products whenever possible.
- Buy or rent a hand snake for unclogging drains in lieu of using chemicals.
- Buy only the amount of product you need. Use up the products you buy or give the leftovers to someone who will.
- Recycle your motor oil—When you change your oil, drain it into a leak-proof container with a secure top and bring the container to a participating auto parts store, gas station, or lube shop. Make sure that you don't mix your oil with anything else. Contamination can ruin not only the oil you bring in, but all the other oil in the collection tank also. For a current list of collection sites, call the King County Hazards Line at 296-4692.

Be sure you properly store household chemicals to avoid spillage and contamination.

How Can I Dispose of Hazardous Household Waste?

If you use hazardous products, it is important that you dispose of them properly. Some products require special disposal. See the Appendix A for special hazardous material disposal procedures. *Materials designated for hazardous waste disposal must not be put in the trash can.* These products must be taken to a special household hazardous waste collection site, from which they are disposed of or recycled. (There is no charge for disposal of materials taken to an approved household hazardous waste facility.) Carefully pack the materials to avoid spilling. When you transport these materials, place them in the trunk, rather than the passenger compartment of the car. Don't take children along on this trip.

If You Remodel

Renovating resourcefully

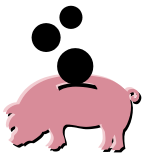
When you remodel, follow the Four R's—Reduce waste, Reuse, Recycle, and buy Recycled—and properly dispose of or recycle all waste. In so doing, you will:

* Reduce the amount of raw materials used to build the development
* Protect the soil and natural vegetation
* Prevent pollution of surface and ground waters, and
* Reduce the land and other resources used to build and maintain local disposal facilities.

Use Resource-efficient Materials

Resource-efficient building and landscaping materials include recycled material or are manufactured in a way that minimizes the use of limited resources. Many high quality resource-efficient products are available, in a variety of colors and sizes. Examples include recycled paint, carpet, and insulation, drywall made with recycled gypsum, and wood products made from sustainable grown, fast-growing tree species or engineered in a way to eliminate production waste. Landscaping materials, such as mulch using composted organic materials diverted from the waste stream, are now available. You can also save resources by using materials that have been manufactured locally. This saves fuel used to transport the goods, promoting both clean air *and* the local economy.

Resourceful Purchasing



Make sure your contractor:

- Estimates material quantities as accurately as possible and avoids over-ordering. Suppliers can often provide tips on estimating specific materials to help you accomplish this.
- Specifies and installs recycled-content or resource-efficient building and landscaping materials wherever possible.
- Chooses suppliers who use reusable, recyclable, or recycled-content packaging. Uses suppliers who use less packaging, such as cardboard, plastic shrink wrap, Kraft paper, wood pallets or frames, and metal bands. Uses suppliers who take their packaging back after delivery. Lets your suppliers know that what you are looking for.
- Purchases re-used building materials where possible. One example of a reused building product is good quality hardwood salvaged and re-milled for flooring.

Resourceful Design

- If you are involved in the design of the renovation, incorporate standard dimensions to reduce wasted lumber, drywall, and other materials.

Resourceful Construction

Make sure your contractor:

- Re-uses materials whenever possible.
- Requires or encourages solid waste reduction in remodeling contractor agreements.

- Sets up a central area for cutting and storage of scraps for re-use.
- Uses quality tools and cleans them thoroughly between uses.
- Avoids throw-away equipment.
- Sets up labeled bins for different sized nails.
- Re-uses small or warped pieces of dimensional lumber as blocking, bracing, shims, back framing or form stakes.

- Uses wood-saving advanced framing techniques, including one or more of the following:
  - Drywall stops or clips for backing. This eliminates the need for extra studs where one wall abuts another or where two walls intersect at corners.
  - Two-stud corners. With two-stud corners, back-up for interior finish materials can be provided by drywall clips spaced two feet apart.
  - Insulated headers for exterior window and door openings. Insulated headers reduce thermal transfer (bridging) found in standard construction using solid wood headers.
  - 24-inch on-center framing. Refer to the Uniform Building Code for stud-sizing requirements. When using this method, apply plywood on a horizontal axis (making the system similar to roof assembly) to eliminate "wavy" walls. This has been shown to provide structural integrity while reducing wood use 15%.
- For additions, preserve existing natural vegetation as landscaping by making sure your contractor takes the following precautions during construction:
  - Clears only what is needed to install driveways, parking areas, and building foundations.
  - Clearly marks areas to be graded on plans and field stakes/flags on-site.
  - Fences critical areas, such as tree root zones, to avoid damage.
  - Reviews sites to be graded with excavation crew.
  - Seeds and/or re-plants exposed areas as soon as practicable.
  - Restricts use of treated roofing materials.

Recycle

Cardboard, wood, gypsum, and concrete/asphalt rubble are easily recycled in King County. Your remodeling contractor can take advantage of these cost-saving and waste-reducing opportunities:

- Recycle wood scraps that can't be reused, cardboard, metal scraps, drywall, asphalt roofing, and concrete/asphalt rubble.
- Sell or give away any wood scraps.
- Donate or sell re-usable items from the job.

Waste Disposal

Make sure your contractor:

- Follows guidelines for hazardous waste management and disposal discussed above.
- Ask suppliers for MSDS (Material Safety Data Sheets) as a routine part of purchasing building materials that have been identified as potentially hazardous. Informs suppliers that you prefer cost-effective, least-toxic alternatives.
- Avoids chlorinated solvents. Considers using citrus-based solvents. Re-uses spent solvent for cleaning.
- After re-using solvents as much as possible, disposes of them properly.
- Promptly and properly disposes of hazardous items and all other waste materials not targeted for reuse or recycling (See Appendix A).

Water for the Future

Pure and Plenty

We preserve the *purity* of our water supplies through practices that prevent its pollution. We ensure an adequate *supply* of water through water conservation practices and through practices that promote aquifer recharge (refilling of the aquifer). Aquifer recharge has long been a concern in urban areas.

In a natural forested landscape, rain is captured by vegetation, and the soil, and is slowly released to ground water or streams. In urban areas, rain falls on roofs, driveways, and yards, and little water soaks into the ground. Much more storm water is generated, resulting in stream erosion and flooding during winter, low flows during summer, and diminished ground water supplies.

The City of Issaquah and the Issaquah Highlands Development is committed to practices that ensure that the quality and quantity of runoff, plant material absorption, and ground water recharge are as near their natural state as feasible. Our community contains surface water management facilities such as detention/retention basins, ground water recharge basins, and biofiltration swales that control storm water run-off and promote recharge of the aquifer. Future development in the community will incorporate individual storm water management facilities where needed.

As a homeowner, you can take an active role in promoting aquifer recharge by:

- Installing a roof drain/catch facility (infiltration system). Infiltration systems convey roof into the ground through a variety of different structures (for example, trenches, dry wells, rock pockets, and splash blocks), providing temporary storage for the water and opportunity for the water to soak into the ground.
- Increasing the areas of permeable surfaces, uncovered uncompacted ground where rainwater can soak back into the earth. For example, use crushed rock for drives, walkways, and decks instead of paving or concrete.
- Preserve natural soils and vegetation where practicable
- Promote drainage to plant beds, surface depressions, and level vegetated areas.
- Minimize/reduce lawn area over shallow soil layers or highly compacted soils. Use appropriate soil amendments. Avoid using impermeable ground covers (for example, plastic weed barriers).

For more information on what you can do to incorporate on-site stormwater management, contact the Department of Ecology, Northwest Regional Office at 206/649-7000.

References

1. Issaquah Highlands Water Conservation Standards, August 1997
2. Issaquah Highlands Contractor's Guide, 1997-1998

Appendix A
How to Dispose of Household Hazardous Waste

Note: See *Hazardous Waste* section for ways to eliminate or reduce household hazardous wastes.
If you must use hazardous products, here's how to properly dispose of them:

	Product	Hazard*	Proper Disposal
Pesticides and Herbicides	Weed killer, insecticides, slug bait, rose dust, mothballs, flea and roach powder, etc.	Poisonous	Take to Household Hazardous Waste (HHW) collection site. ** Pesticides that are not banned*** or restricted use*** may be used up according to label directions or offered to others who can use them.
	Wood preservatives	Poisonous and flammable	Dispose of exactly like pesticides.
	Empty pesticide containers	Poisonous residue	Rinse container three times. Save rinse water and use as full-strength pesticide. Wrap container in plastic bag and discard it in the trash.
Paints and Solvents	Paint	Flammable	Use up leftover paint: Give a wall and extra coat or use a base coat on another project. Latex paint: If only a small amount is left (one inch or less), open can and let liquid evaporate outdoors, away from children and pets. Dispose of can in the trash (leave lid off). Take oil-based paint, paint containing lead, and cans of latex paint too full to dry out to HHW collection site.**
	Used paint thinner	Flammable	Recycle by storing in a closed jar until particles settle. Strain off the clear liquid for reuse. Dry remaining sludge, wrap in plastic, and discard in trash.
	Rust remover, turpentine, furniture stripper, other	Flammable	Take to HHW collection site.**
Automotive	Used motor oil	Poisonous and flammable	Recycle.
	Antifreeze	Poisonous and flammable	Don't pour antifreeze down the drain. Take to HHW collection site.**
	Car batteries	Corrosive (acid).	Trade in for new battery or take to recycling center. Call the HAZARDS LINE for locations.
Cleaners	Drain openers, oven and toilet bowl cleaners, bleach	Corrosive and poisonous	Use up according to label directions or offer to others who can use them. Dispose of in small amounts by pouring down drain with lots of water.
	Furniture polish, spot removers	Flammable	Use up according to label directions or offer to others who can use them. Or take to HHW collection site.**
Miscellaneous	Small engine fuel	Varies	Prevent fuel from breaking down by using a fuel additive for long-term storage. Take bad fuel to HHW collection site.**
	Hobby chemicals from crafts, photography, lab sets, etc.	Flammable	Call HAZARDS LINE for disposal of specific chemicals.

*Key to Hazardous Effects:

Poisonous—Highly toxic. Poisons can cause severe illness or death if swallowed. Many can be inhaled or absorbed directly through the skin.

Flammable—Burns easily. Many flammable products contain solvents that irritate skin, eyes, and lungs. They can be fatal if swallowed. Many are volatile, give off harmful vapors, and should be used only with proper ventilation.

Corrosive—Can cause severe burns on contact and is very poisonous if swallowed. Vapors can burn eyes, nose, and throat.

**Household Hazardous Waste Collection Sites: The Household Hazardous Wastemobile travels to two locations in King County each month to accept wastes. In addition, there are two Haz Sheds in Seattle: one at the South Transfer Station, 8100 2nd Avenue S., and one in North Seattle (open by appointment only). Call the King County Hazards Line (296-4692) for appointments or disposal site hours and locations.

***Banned or restricted pesticides include: aldrin, chlordane, creosote, DDT, dieldrin, kepone, lindane, mirex, pentachorophenol, silven, 2,4,5-T, toxaphene.

For more information, call the Seattle-King County Department of Public Health HAZARDS LINE at 296-4692.

Appendix B - Water-wise Week-Ending

Here are some ways to be water-wise as you work around your home and yard this weekend.

Cleaning

- Use "green" cleaning recipes that use non-toxic materials such as baking soda, vinegar, liquid castile soap, and salt.
- Do not purchase products with "DANGER" on the label. Choose products marked "CAUTION" or "WARNING". Better, use safer alternatives that do not need warnings.
- Use wipe-on products or pump sprays instead of aerosols.
- Buy only the amount of product that you need.
- Carefully follow label directions for use.

Use heavy-duty cleaners only for heavy-duty jobs.

Yardwork

- Mow weekly with a sharp blade set at the correct height.
- Fertilize in the fall with an organic, slow-release fertilizer.
- If you water your lawn during the dry season, water to provide about 1 inch of water per week. (Do not water during rainy periods or during water shortages.) Water in the morning before 10 a.m.
- As you water your lawn and garden, ensure paved areas such as walkways and driveways are not being wetted.
- Place two to three inches of bark, wood chips, straw, or other mulch on garden beds. This will reduce both your weeding and watering chores.
- Inspect your lawn and garden for unwanted pests and weeds. Remove by hand or use other IPM measures to control their presence.

Washing the Car

- Take your car to a commercial car wash where used water is captured and recycled.
- If you wash your own car, boat, or motorhome, wash it only when absolutely necessary, and use a hose with a shut-off nozzle.

Painting

- Use latex or water-based paints whenever possible. Buy only what you need, and use it all up, or give it away.
- Reuse solvents.
- Avoid using wood preservatives—use them only when necessary. Consider using alternatives such as plastic lumber for outside decks.

Changing Your Oil

- When you change the oil in your vehicles, drain it into a leak-proof container with a secure top and bring the container to a participating recycling auto parts store, gas station, or lube shop. Never pour waste oil down a storm or household drain.
- Take care to avoid spilling oil on the lawn or driveways.

Outside the house

- Remove moss from roofs and other areas using a stiff brush, broom, or power washer for hard-to-reach areas. (Copper and zinc products are prohibited at Issaquah Highlands.)
- Remove organic debris (leaves, branches) from your roof, deck, and patio.
- Remove branches that overhang your roof and decks to let in sunlight and air that discourage moss and algae growth.
- Use a broom, not a hose, to clean driveways and walkways.

Locate and label the master water supply valve so that you can quickly shut it in case of a major leak or broken pipe. Consider turning off your water and hot water heater when going out of town.

Waste Disposal

- Round up leftover household hazardous products such as pesticides, cleaners, paint strippers, and solvents, and make a trip to an approved hazardous waste collection site. Be sure products are clearly labeled. Do not mix these chemicals. Transport them in your trunk, not in the passenger compartment, and do not take children along.
- Round up paper, cardboard, glass, metals, and plastics, and take them to an approved recycling collection site.
- If necessary, round up household hazardous products such as pesticides, drain and oven cleaners, paint strippers, and solvents, and make a trip to an approved hazardous waste collection site. Be sure products are clearly labeled. Do not mix these chemicals. Transport them in your trunk, not in the passenger compartment, and do not take children along on this trip.
- Round up paper, cardboard, glass, metals, and plastics, and take them to an approved recycling collection site.

The Extra Mile

- Build birdhouses, provide clean water and feeders for birds.
- Landscape with native vegetation that will attract wildlife.
- Start a compost pile to produce fertile soil from yard debris.
- Check your toilets for leaks. Drop food coloring or a leak-detection tablet in the toilet tank. If color appears in the bowl, there is a leak that requires immediate attention.
- Check faucets and pipes for leaks, and repair them. Even a small drip from a worn washer can waste 20 or more gallons of water a day.
- Insulate water pipes. Water in the pipes will stay warm longer between uses, and you won't have to run the water as long to get hot water.
- Inspect your automatic sprinkling system to make sure it is working efficiently.

Appendix C
Definitions

***Aquifer*—**A water-bearing stratum of permeable rock, sand, or gravel.

Construction Waste (Solid Waste) —The regulatory definition of construction waste includes concrete, drywall, masonry, roofing, siding, structural metal, wire, insulation, and other building material; and plastics, Styrofoam, twine, baling and strapping materials, can, buckets, and other packaging materials and containers. It also includes sand, rocks and dirt that are used in construction. In no event shall construction waste include dangerous or extremely hazardous waste or any kind, garbage, sewerage waste, animal carcasses, or asbestos.

Contaminant—Any substance that can harm the environment.

Drought tolerant—Drought tolerant is used to describes plants capable of withstanding long periods of dry weather.

Ecosystem—A community of living things interacting with one another and with their physical environment, such as a rain forest, pond, estuary, or city. Damage to any part may affect the whole.

Erosion—The wearing away of the land surface by water, wind, ice, or other geological processes.

Ground Water—That part of the subsurface water which is in the zone of saturation.

Hazardous Waste—A waste that is a solid or liquid material with certain properties that could pose dangers to human health, property, or the environment.

Heavy Metals—Elements such as mercury, led, nickel, zinc, and cadmium that are of environmental concern because they can accumulate in the food chain and, in high enough concentrations, can be toxic to life.

Impermeable—Not permitting the passage of liquids or gases.

Impervious surface—Material which is nonabsorbent and sheds fluids.

Infiltration—The movement of water from the surface downward through the soil.

IPM (***Integrated Pest Management***)—The management of pest populations below levels that cause economic damage by using a compatible balance of biological, cultural, chemical, genetic, and other control methods.

Petrochemical—Any chemical substance obtained from petroleum or natural gas.

Pesticide—Any chemical agent used for control of specific organisms such as insecticides, herbicides, fungicides.

Pollution Prevention—Source reduction as defined under the Pollution Prevention Act, and other practices that reduce or eliminate the creation of pollutants through increased efficiency in the use of raw materials, energy, water or other resources or protection of natural resources by conservation.

Recycling—Either source separation or the processing of solid waste mechanically or by hand to segregate materials for sale or reuse. Materials which can be removed through recycling include but are not limited to mixed paper, newsprint, cardboard, aluminum, glass, plastics, chemicals, oil, wood, compostable organics (food and yard/land clearing debris), ferrous metal, and inorganics (rubble and inert material). Recycling does not include combustion of solid waste or preparation of fuel from solid waste.

Restricted Materials—The restricted use of galvanized and copper materials and the use of moss killers on roofs or treated roofing materials as defined in the 2-Party Agreement between the City of Issaquah and the owners of Issaquah Highlands.

Retention—the process of storing runoff in a manner such that all or a significant portion of the water filters into the ground rather than being released to a surface water body.

Runoff—Rainwater flowing over the land surface to the drainage system or waterway. Source of pollution when it carries sediment, toxic substances, or other contaminants.

Sensitive Area—Stream corridors, wetlands, floodplains, shorelines, and steep slopes.

Solvents—An organic chemical such as ammonia, acetone, benzene, methylene chloride, toluene, trichloroethane, and tetrachlororethylene. Solves are used in products such as strippers, cleaners, spot removers, degreases, thinners, and oil-based paints.

Storm drainage system—A network of pipes and channels for carrying storm and surface waters (not domestic, industrial, and commercial waste waters) to surface water bodies such as streams and lakes, or to infiltration systems.

Storm water—That portion of rain or snowfall that does not naturally filter into the ground or evaporate, but flows overland or through channels or pipes into a defined channel, or a retention/detention facility.

Swales—A grass-lined channel. More specifically, a natural or constructed waterway (usually broad and sallow covered with erosion-resistant grasses) used to convey surface runoff.

Surface Water—All lakes, rivers, ponds, wetlands, streams, inland waters, streams, salt waters and all other water and water courses within the jurisdiction of the state of Washington.

Thatch—A matted layer of dead vegetation at the base of lawn grasses that prevents the absorption of water and nutrients.

Transition Zone—A natural or man-made undeveloped area such as a wetland area, pond, edge, buffer, or open space. Such spaces are incorporated into the Issaquah Highlands development to promote and protect native vegetation and animal life. Transition zones are protected areas, and special restrictions may apply if you own a lot adjacent to a transition zone. Check with your builder or inspect your title report to see if any special restrictions apply to you.

Watershed—A geographic area within which all surface water drains into a particular body of water.

Wetland—Land where groundwater is at nor near the surface, or where the land is covered by shallow water for all or part of the year. Wetlands provide a variety of habitat for fish and wildlife. Legal definitions are currently being reviewed.

Xeriscaping—Design of residential and park landscape using various methods for minimizing the need for water use.

Appendix D
Where to Go for More Information—Resources for Taking the Next Steps

Washington Toxics Coalition
4516 University Way NE
Seattle, WA 98105
A series of fact sheets on alternatives are available—206/632-1545

WSU Cooperative Extension/King County
612 Smith Tower
Seattle, WA 98104
Ask a Master Gardener specific questions about pests—206/296-3440
Free tapes about pests, vegetable gardens, lawns, and soil health—206/296-DIAL
Publications on Integrated Pest Management—206/296-3900
Web site—http://gardening.wsu.edu

Seattle Tilth Association
Good Shepherd Center
4649 Sunnyside Ave., N.
Seattle, WA 98103
Workshops on all aspects of gardening without pesticides—206/633-0451

Green Gardening Program
Brochure detailing least toxic solutions for the top ten Northwest pest problems—206/547-7561

King County Solid Waste
400 Yesler Way, Room 600
Seattle, WA 98104-2637
Information on composting

Hazards Hotline—206/296-4692

Sammamish Plateau Water and Sewer District—206/392-6256
Information on water conservation

Washington Office of Environmental Health Programs—206/753-4299
Information on water conservation

Department of Ecology, Northwest Regional Office—206/649-7000
Information on storm water management

King County Health Department (message line) —206/386-4093
Information on "product swaps"—leftover usable products

City of Issaquah Resource Conservation Office—425/391-1004
Information on waste reduction and disposal options

Industrial Materials Exchange
http://www.metrokc/gov//hwmp/cesqg/imextoc.htm
Information on waste reduction and disposal options

Do's and Don'ts

Here are a few reminders to help you be a water-wise member of the Issaquah Highlands community.

Do's

- DO dispose of or recycle oil, antifreeze, paints, and other household chemicals properly. Otherwise, they will eventually reach the stream, killing fish and wildlife.
- DO flush the toilet *only* when necessary.
- DO take a bath instead of a shower.
- DO take shorter showers, if you shower.
- DO turn off the water after wetting your toothbrush, and use a glass of water to rinse.
- DO run the dishwasher and washing machine only when full.
- DO use fertilizers and lawn care chemicals sparingly. Try organic alternatives to harsh pollutants. Choose an appropriate IPM measure instead to control unwanted pests and weeds.
- DO plant native, drought-resistant trees, shrubs, and groundcover to help reduce runoff, minimize erosion, enhance the appearance and value of your property, and reduce the need for toxic pesticides and herbicides.
- DO carpool whenever possible. Exhaust emitted from cars introduces many pollutants to our watersheds.
- DO participate in community recycling and anti-litter programs.

Don'ts

- DON'T pour any toxic waste down any household drain.
- DON'T put household hazardous wastes in the trash.
- DON'T pour *anything* down a storm drain. Water and any contaminants from storm drains flow directly into the nearest stream, untreated.
- DON'T disturb native vegetation or soil in transition zones such as wetland areas, ponds, edges, buffers, or open spaces. If you live next to one of these areas, this area is not to be treated as an extension of your property.
- DON'T use weed-and-feed lawn fertilizers on your lawn.
- DON'T subscribe to lawn services that routinely spray lawns with chemicals.
- DON'T over water your lawn and garden.
- DON'T water your lawn during times of water shortages or during rainy weather.
- DON'T water your pavement.

BEST MANAGEMENT PRACTICES
AT ISSAQUAH HIGHLANDS

Fertilizers (See Page 5 for more information.)

- Use organic or synthetic fertilizers.
- Use slow or controlled release fertilizers.
- For lawns, use a fertilizer with a ratio of 3-1-2 (nitrogen, phosphorus, potash).
- For other plants including shrubs, ground cover, trees, and gardens, use a fertilizer with a ratio of 1-2-2 (nitrogen, phosphorus, potash).
- For the application rates, follow the directions specified on the label of the fertilizer container.
- Time the application to avoid applying during a rainy period. If you fertilize once per year, apply during mid-October. If you fertilize twice per year, apply during June and mid-October.

Insecticides and Herbicides (See Pages 6 through 8 for more information.)

- Use Integrated Pest Management (IPM) to control insects. IPM uses the least toxic treatment to get the pest level to an acceptable level.
- Don't expect to kill all pests or remove all weeds.
- For the application rates, follow those stated on the label of the insecticide or herbicide container.
- Use insecticides and herbicides with a short life cycle.

Moss Control (See Page 9 for more information.)

For roofs, walkways, decks, and other structures:

- Scrape or power wash as much moss as possible.
- Keep leaves and branches cleared off..
- Remove branches that overhang structures. They block direct sunlight and prevent fast drying.
- As a last resort, use potassium salts of fatty acids; apply during fall, winter, or spring during a dry spell.
- Zinc and cooper products are prohibited, including zinc sulfate, monohydrate, copper sulfate, blue stone, galvanized ridge caps, copper flashing, or copper wires.

In deciding to live in the Issaquah Highlands community, you have committed to helping preserve the environment that is such an essential component of its character. The most important way you can help is by complying with the following mandatory requirements.

TOP EIGHT WAYS TO COMPLY WITH ISSAQUAH HIGHLANDS REQUIREMENTS

- Do not encroach into Critical Area Buffers. If your property is adjacent to a critical area, check your title to determine if you have a Building Setback Line within your property. All insecticides and herbicides are prohibited within Building Setback Lines; only the fertilizers specified in the *Best Management Practices* (see inside back cover) are permitted within the Building Setback Line.
- If your property is adjacent to a Storm Detention Pond you may not plant big leaf maple, alder, or willow trees on your property.
- Only controlled or slow release fertilizers are permitted at Issaquah Highlands; all other fertilizers are prohibited. Only fertilizers containing low phosphorus are permitted, as specified in *Best Management Practices* (see inside back cover).
- The use of copper and zinc are prohibited on the exterior of your house or roof.
- Only herbicides, insecticides, and moss control products specified *Best Management Practices* (see inside back cover) may be used at Issaquah Highlands.
- Single family residential that use irrigation systems other than low volume systems (e.g. drip) or that irrigate more than 2,000 square feet must comply with the Issaquah Highlands Water Conservation Standards and receive a permit. All multi-family residential must comply with the Issaquah Highlands Water Conservation Standards and receive a permit.
- If you replace your roof, treated materials are prohibited.
- Hazardous chemicals, if necessary, should be used, stored, and disposed of in a manner that prevents them from getting into the environment. This includes the soil, creeks. Wetlands, streets, storm drains, storm detention ponds, and even sewer systems.

For more information on how to implement these requirements

See the specific sections of this manual.