



THE ENCLAVE AT OAK TREE

Integrated Pest Management Plan

Prepared for:

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TABLE OF CONTENTS

I.	INTRODUCTION.....	3
	Background.....	3
	Responsible Parties.....	3
	Project Description.....	3
	Landscape, Pest Control & Maintenance Activities.....	4
II.	INTEGRATED PEST MANAGEMENT PRINCIPALS.....	6
	General.....	6
	Planning/Prevention.....	6
	Identify Problem.....	7
	Inspection/Monitoring.....	7
	Establish Control Thresholds.....	7
	Appropriate Control Actions.....	7
	Evaluate Results.....	7
III.	RECOMMENDED BEST MANAGEMENT PRACTICES.....	8
	General.....	8
	Landscape Design and Maintenance.....	8
	Pest Control.....	11
	Pesticide Management.....	11
	Stormwater Control.....	12
	Table 1.....	14
IV.	RELATED DOCUMENTS.....	15
	Resource Listing.....	15
	Reference Material.....	15
	Glossary.....	15

I. INTRODUCTION

Background

When urban development covers the land with buildings, houses, streets and parking lots, much of the native topsoil, duff, trees, shrubs and grasses are replaced by homes, asphalt, concrete and landscaping. Along with the development, people come bringing the potential for contamination to area lakes, streams and groundwater supplies.

Much of Thurston County is classified as an “Aquifer Sensitive” area. That is to say that the groundwater resource, upon which the vast majority of Thurston County residents rely for water, is vulnerable to contamination from land activities. Many of the aquifers serving Thurston County are relatively shallow and largely unprotected by intervening impermeable layers of soil. Consequently, activities on the surface can have an impact on the water supply. The Enclave at Oak Tree project site is located within Category 1, Category 2 and Category 3 critical aquifer recharge areas as mapped by the Thurston County Geodata website.

In addition to protecting the aquifer, this project contains a portion of a Category III wetland 4.58 acres in size. The wetland is susceptible to contamination from development and future activities on the project site. Wetlands and their buffers are typically home to a variety of aquatic life including plants, insects and animals. Some wetlands support protected species under local, state and federal regulations, although the critical area report prepared for the project concludes that no listed species were observed on the site or documented in any local, state or federal database.

This Integrated Pest Management Plan (IPMP) seeks to address potential sources of contamination of both the wetland and groundwater. Moreover, it provides guidance to future homeowners of this project to identify actions and activities that can be mitigated to reduce the potential for contamination.

Responsible Parties

All property owners within the Pattison Street Plat subdivision are members of the Homeowners’ Association (HOA). The HOA is responsible for many of the mitigation measures discussed herein. However, most of the responsibility for protection of our water resources lies with each individual property owner. This IPMP is attached to and a part of the Covenants, Conditions and Restrictions for this subdivision and, as such, is recorded against the title for all properties within the subdivision. Enforcement of the recommendations of this IPMP lies with the HOA, but responsibility rests with each property owner.

Specific Responsibilities

Landscape Maintenance	Individual Owners / HOA / Maintenance or Construction Contractor
Stormwater Facilities	HOA / Maintenance or Construction Contractor

Project Description

The Enclave at Oak Tree Plat represents a subdivision of 36.22 acres into 182 single family lots. The existing site is undeveloped and contains a mixture of open grass areas and evergreen and deciduous forest. See site plan on page 4.

The project site is located within a portion of the SW ¼ of the SE ¼ of the SE ¼ of section 23 and a portion of the NE ¼ of the NE ¼ of Section 26, Township 18 North, Range 1 West. Thurston County tax parcel numbers 11823430100, 11826110000 and 11826110300. For further information, see the Site Location Map in this section. The property has two separate zoning designations, with 18.64 acres of the site carrying a Low-Density Residential (LD) zone designation and 17.58 acres of the site carrying a Moderate-Density Residential (MD) zone designation. A total of 38 lots are proposed in the LD zone at a net density of 3.18 dwelling units per acre and 144 lots are proposed in the MD zone designation at a net density of 8.19 dwelling units per acre. The project will provide 13.11 acres of open space (36.1% of the gross site area) in 9 separate tracts that will be owned and maintained by the Homeowners Association.

Construction includes frontage improvements along Marvin Road SE, a roadway classified as a major collector by Thurston County. The new internal public roadways will be classified as a Local Residential. The completed Local Residential roadway through the property includes (2) 10-foot travel lanes, 6-foot parking both sides, 6-foot planter both sides and 5-foot sidewalks on both sides.

Installation of utilities includes street lighting, dry utilities, sewer, water and storm drainage. The site will be served by a City of Lacey 4-inch PVC STEP forcemain. Utilities will be stubbed to the future single-family lots within the plat.

According to the USDA Soils Survey for Thurston County, onsite soils include Spanaway gravelly loam, Indianola loamy sand, Cagey loamy sand and Mukilteo muck in the wetland area. The soils encountered during field exploration by a Geotechnical Engineer include loose to medium dense deposits of silty sand with varying gravel, sand with varying silt and gravel, silty gravel with varying sand, and gravel with varying silt and sand, and localized medium stiff silt.

The recommended design infiltration rate to handle stormwater on the project site is 7.4 inches per hour.

Landscape, Pest Control & Maintenance Activities

All areas of The Enclave at Oak Tree site not used for buildings, vehicular parking and circulation, sidewalks, etc., will be fully landscaped with ornamental and native plantings. Landscaping will be implemented by professional contractors concurrently with the building construction and prior to occupancy. The landscape design will include trees, shrubs, and groundcovers that are endemic to the Pacific Northwest or proven to be adapted to the local climate.

Management activities will change over time, as buildings age and landscape areas mature. Landscape maintenance activities will include culture and pruning, removal/replacement of plants, mowing, fertilizing, maintaining turf areas, and operation of irrigation systems. Key to successful establishment and long-term performance of the landscaped areas is the monitoring and identification of disease and pest problems and proper management thereof.

Other maintenance activities on the site that could impact soil and ground water include utility and storm water maintenance, cleaning or repainting buildings, and resurfacing or restriping paved areas.

II. INTEGRATED PEST MANAGEMENT PRINCIPALS

General

Pesticides¹ and fertilizers are commonly used, and often overused, in the landscape. Many times, property owners apply too much chemical or apply the right amount but at the wrong time, such as before heavy rains or any time the plants will not be able to absorb the chemicals. Excess chemicals are easily introduced into stormwater runoff and can cause algae blooms (fertilizers) or kill off aquatic organisms (pesticides) in surface waters. Large quantities of fertilizer can negatively impact nitrate levels in drinking water supplies as well.

The individual property owner and HOA are responsible to implement the following IPMP plan principals. Any landscape maintenance contractors the individual property owners or the HOA may hire shall also use this plan as part of their operations. Contracted firms shall include provisions for specific IPM tasks incorporated into their routine maintenance program, along with IPM strategies, treatment thresholds, and a hierarchy of control measures.

Planning/Prevention

Careful planning by the individual property owners, HOA, their contractor(s), and the design professionals can prevent many pest and disease problems. The landscape design has many built-in features to reduce maintenance and prevent issues requiring IPM action. These include:

Plant selection- The plant palette for the approved landscape design includes a combination of well-adapted ornamental species and native plants, most with proven resistance to pest and disease issues.

Soil Amendment- The initial installation will attend to replacement of A-horizon soils to provide better root development and nutrient quality for landscape materials. Topsoil type is required to meet Post-Construction Soil Quality per the Drainage Manual in conjunction with the stormwater design.

Plant Locations and Methods- The planting plan optimizes plant species in terms of their ultimate size and function in the landscape, as well as solar exposure/tolerance. Planting amendments and methods of installation are detailed and should be followed for any subsequent replacements that may be required.

Mulching- All landscape areas call for mulching which decreases evapotranspiration and water use, and generally assists with control of transient weeds/grasses. Periodic maintenance of the mulch surfacing is recommended. Ideally, establishment of contiguous groundcovers will reduce the potential for weeds and associated controls.

Resources- Consult the following sources and references listed in Part IV. for other IPM strategies for prevention: http://www.co.thurston.wa.us/health/ehipm/ipm_homeowner.html and <http://www.co.thurston.wa.us/health/ehcsg/guides.html>

¹ As used here, the word pesticide can mean any herbicide, insecticide, rodenticide, miticide or other chemicals used in a similar manner.

Identify Problems

Pests (insect and herbaceous) and disease problems need proper identification before choosing an appropriate control action. Consult the references listed in Part IV for common disease and plant problems with Northwest landscape materials. Also contact WSU/Thurston County Cooperative Extension or local pest control professionals for assistance when needed. A basic recommended list of IPM issues will include attention to biotic and abiotic symptoms. Look for plant stress, leaf discoloration or patterns, and known pest vectors during the appropriate life-cycle or stage.

Inspection/Monitoring

The IPM approach relies on frequent monitoring of the landscape for the occurrence diseases and pests. Monitoring should be the responsibility of a combination of the HOA, individual owners and landscape maintenance contractors. Monitoring methods can include careful plant examination/observation, pheromone traps, sticky colored traps, and pitfall traps. Time of year and weather/temperature will affect monitoring initiation and frequency. General monitoring of plant health/problems during the growing season is recommended on a weekly basis by individual owners and HOA representatives who may lack detailed knowledge of the vectors, and on a monthly basis (or during weekly mowing) for specific pest pressure, by landscape contractors. The contractor(s) should also monitor nutrient adjustments needed on a seasonal basis.

Establish Control Thresholds

The mere presence of a pest or disease issue does not automatically dictate control responses. The appropriate Economic or Aesthetic Thresholds should be determined prior to implementing a hierarchical system of treatment.

Appropriate Control Actions

Four general methods to manage insect, disease, and weed problems involve cultural, biological, mechanical, and chemical approaches. Begin control actions with the least-impactive measures (cultural, mechanical, non-chemical). These tactics may be implemented incrementally (hierarchical), concurrently, or at different times depending on the pressure encountered. Generally, reducing chemical (pesticide) treatments may reduce potential impacts to water resources. Pick control measures that are cost-effective and use proper rotational controls to reduce resistance/tolerance. See detailed Best Management Practices (BMP's) in Part III, below.

Evaluate Results

Assess the results of control measures soon after implementation. Evaluate efficacy of the least-impactive control measures to see if thresholds are achieved. If not, an increase in intensity or type of control measure (biological or chemical measures) can be used. An IPM program is not static and must be adjusted based on the efficacy of the least-impactive control measures needed to reduce problems below the set thresholds. Use post-treatment evaluation to adjust Preventative and Inspection/Monitoring measures.

See specific BMP's in Part III, below for recommended IPM responses to various landscape related issues.

III. RECOMMENDED BEST MANAGEMENT PRACTICES

General

Individual owner, the HOA and maintenance contractors shall follow the Best Management Practices (BMP's) below. Care must be taken when using pesticides, fertilizers, and other hazardous substances so as not to contaminate the stormwater runoff that leaves your property. The following ideas will help reduce the risks of stormwater and groundwater contamination from many common products or practices.

Fertilizing a lawn can be done in an environmentally sensitive manner. Also, rather than bringing out the sprayer whenever a pest infestation occurs in the garden, consider using other alternatives. Evaluate all factors that might affect the garden, including environmental effects, before chemicals are applied. Pesticides should only be used as a last resort. Some of the tactics that can be used to decrease or eliminate the use of pesticides are discussed below.

Landscape Design and Maintenance

Individual owners, the HOA, and landscape maintenance contractor(s) are responsible for applying IPMP techniques to maintain landscaped areas. This includes Pest Control, Pesticide Management, and watering. The following techniques shall be applied.

1. Use of Native Plants: If existing plants need replacement, or if new landscaped areas are proposed in the future, use of native plants shall be used.

One of the best methods of reducing impacts to water resources is by using landscaping materials that do not require extensive care. Native plants have adapted themselves to our region, particularly their root structure and water needs. These plants have also built tolerances over the centuries to local pests and disease. By using native plants in the landscape, we are less likely to need fertilizers, herbicides and pesticides. Native plants are also more tolerant of drought conditions and typically require less water.

Native plants come in all shapes and sizes so there is probably one that will fit into your landscape plans. There are deciduous and evergreen varieties of trees, shrubs and groundcovers. Some suggested species of native plants are listed below. Contact local plant suppliers or your landscape architect for more ideas on use of native plants.

Evergreen Plants

Trees: Western red cedar, Douglas-fir, Western hemlock

Shrubs: rhododendron, evergreen huckleberry, tall Oregon-grape

Ferns: lady fern, sword fern, deer fern

Groundcover: manzanita, kinnikinnik, common juniper

Deciduous Plants:

Trees: big leaf maple, Pacific dogwood, bitter cherry

Shrubs: western azalea, Nootka rose, red huckleberry

2. Grasses for Lawns: Lawn areas are a major component of the landscape on the individual lots within the Pattison Street Plat. IPM methods should be used to maintain healthy and sustainable turf areas. New turf areas shall utilize grass species and cultivars well suited to our area to increase establishment and reduce maintenance requirements. The

National Turfgrass Evaluation studies various types of grasses for their resistance to insects, drought tolerance, seasonal appearance, density, the strength of their sod and leaf texture. Based upon these characteristics, specific grass types are recommended for specific areas throughout the country. Fescue and perennial rye grass are recommended for this area.

3. **Mulching:** Mulch acts as a physical barrier to weeds and is an excellent alternative to herbicides. Mulch can be compost, bark or wood chips, or leaves and grass clippings. It should be spread around the base of plants and within flowerbeds. The recommended depth of mulch varies between plant varieties but should typically be 2- to 4 inches. Use of native plants will greatly reduce the need for fertilizer. Use of mulch may eliminate the need altogether.
4. **Use of Fertilizers:** Proper use of fertilizers yields better plants and reduces negative impacts to our water resources. Fertilizers typically contain high levels of nitrogen and phosphorus, both of which can damage ground and surface waters. The following are a few tips to optimize the use of fertilizers in the landscaped areas.
5. **Soil Testing:** The first step in fixing a problem is to know what that problem is. Therefore, before applying any fertilizer, test your soil. Existing soil conditions, particularly nitrogen, phosphorus, potassium and pH levels, can be easily determined by using kits available at garden stores or from the WSU Cooperative Extension. Applying fertilizer before knowing the components of the soil could lead to over loading certain areas that may impact our water resources.
6. **Proper Fertilization:** Proper fertilization is important in maintaining a healthy lawn that resists environmental stress, including competition with weeds and moss and drought stress. Because Spring and Fall are periods of optimal growth, these are the most important times to fertilize. The use of slow release fertilizers is recommended. Natural organic and synthetic organic fertilizers (such as IBDU, sulfur or polymer coated urea, or methylene urea) behave similarly once they are applied to the soil.

Although some people feel that natural organic fertilizers provide added benefits to soil health, research has not shown this to be true as a general rule. The natural organic nutrient sources in these products are often supplemented with synthetic plant nutrients anyway. The most important thing to remember is to use a slow release fertilizer. Extensive research around the country has shown that when these materials are applied properly there is very little risk of surface or groundwater contamination, and they provide an even feeding, which is better for your lawn. Remember to sweep granules off pavement to prevent washing into storm drains.

Many soils can benefit from the use of organic fertilizers such as compost or peat. These substances add nutrients to soil and increase the porosity of the soil as well as its ability to hold water.

7. **Fertilizing the Lawn:** Turf fertilization practices for the entire year are built around what is done in the fall. Apply fertilizer in early to mid-September to promote regrowth from summer stress. Another application in November is important in keeping the grass competitive with moss through the winter. If you fertilize in November, you probably don't need an early spring fertilization. If not, your lawn will probably be ready for fertilizer in the spring. Again, use a slow release fertilizer so that you don't promote a big flush of growth.

Fertilize again in early June so that the grass has the nutrients it needs to grow at a moderate rate through the summer stress period.

If you want to maintain a lawn of moderate quality, a minimum of three fertilizations through the year is needed. Additional light fertilizations can be added if you are looking for a higher quality lawn. In general, you should apply no more than one pound of actual fertilizer nitrogen per 1,000 square feet at a time, although this rate can be increased to 1.5 pounds in the fall when using slow release products. (If the fertilizer analysis is 24-4-12, for example, it contains 24% nitrogen. To apply 1 pound of Nitrogen per 1,000 square feet, apply 4.2 pounds of fertilizer: $1 \div 0.24 = 4.2$).

Return clippings (grasscycle) when you mow to recycle nutrients into the lawn. Use mulching mowers to return grass clippings directly to the lawn. Essential nutrients from the decomposed grass can then be retained in the soil thereby reducing the need for fertilizer.

8. **Water Before Fertilizing:** Water plants and lawns before fertilizing. Water enough to dampen the ground thoroughly, but not enough to cause surface runoff. Dampening the soil prevents fertilizer from being washed from the surface of dry soil in the first rain or watering after application.
9. **Proper Watering:** Proper watering can help build strong plants resistant to drought, pests and disease. Water infrequently but enough to dampen soil down to 10 inches. Be careful not to water so rapidly that water runs off the surface. Frequent, shallow watering promotes shallow root depths making the plants susceptible to damage during periods of drought. Unhealthy plants are easy targets for pests and disease. Also, water during early morning hours rather than during the day or at night. Irrigating during the day loses a sizable amount of water to the atmosphere through evaporation. Watering at night can lead to mold and fungi growth on plants left damp over a cool night.

The irrigation system should be programmed to provide about 1" of water per week during the growing season. This includes normal precipitation. The system shall be provided with rain sensors which can suspend watering, and soil moisture sensors which can automatically adjust watering intervals and run times (e.g. Cycle-Soak).

10. **Weed Control:** Use of mechanical means for weed control is typically less attractive due to the cost. However, non-chemical controls for transient and invasive weed problems shall be emphasized in the IPM program in efforts to reduce overall environmental impacts. The quick establishment of a thick, healthy, native or ornamental groundcover planting will reduce the need for weed control. Implement measures to reduce this establishment time by increasing plant density (decrease spacing), adding/replacing groundcovers, and using groundcover species that are spreading or widely-mounding. Reduce compaction to mulch to encourage groundcover establishment and cover-rate.

The initial establishment of groundcovers may require more weed control. When the need for chemical treatment is necessary over woody groundcovers, carefully determine the target broadleaf or grass species, and choose a selective herbicide that specifically labeled for application over the type of planting. Use labeled rates and ensure proper training for applicators and handlers for proper coverage.

Reduce the need for selective broadleaf herbicide treatments in lawn areas by using clean soil amendment and turf seed, proper installation, and appropriate nutrient applications for the lawn area. Use selective mechanical measures to remove broadleaf weeds in newly

seeded lawn areas. Proper watering and mowing height will increase vigor and reduce broadleaf pressure in lawn areas established with turf.

Pest Control

Some of the tactics that can be used to decrease or eliminate the use of pesticides include:

1. **Use of Natural Predators or Pathogens:** Because chemical sprays generally kill many beneficial insects instead of just the target pest, it may be necessary to introduce natural predators back into the garden. Ladybugs, lacewings, predatory wasps and nematodes are all commercially available. Garter snakes and toads are also predators and should not be eliminated from the garden.

There are some bacteria, viruses and insect parasites that are specific to pests and will not harm other insects or animals. A commonly used bacterium in the Puget Sound area is *Bacillus thuringiensis* (Bt), which is intended to control infestations of tent caterpillars.

2. **Habitat Changes:** Many times a change of habitat can control pest infestations. Removal of any item that will pond water, like buckets or tires, can cut down on the mosquito population by removing a convenient location for them to breed in. Removing last year's leaves from under rose bushes can cut down on the incidence of mildew and blackspot, as these fungi overwinter in dead leaves.
3. **Timing:** Crops that can overwinter (such as leeks or carrots) should be planted in the fall. This gives them time to become established before pests arrive in the spring.
4. **Mechanical:** Many eggs, larvae, cocoons and adult insects can be removed by hand. Be sure that the insect is properly identified prior to removing it so those beneficial insects are not destroyed in error. Drowning insects in plain water or spraying them with soapy water are alternatives to squashing them.
5. **Resistant Plants:** Plants that are native to this area are often more resistant to pests and tolerant of the climate than are introduced plants. Many plant cultivars have been developed which are resistant to such diseases as verticillium wilt and peach leaf curl. Grass seed mixes are also available for lawns that need much less watering, mowing and chemical use.
6. **Growing Conditions:** Plants, such as hostas, that require some shade are more susceptible to pests when they are growing in the sun. Improperly fertilized or watered plants are less vigorous in growth and tend to attract pests. Plants that prefer an acid soil, such as azaleas, will perform better and be less susceptible to pests when they are grown in soil with the proper pH.
7. **Chemicals:** Chemicals are a small part of the IPM plan and should be applied only as needed after reviewing all other alternatives. Avoid the use of broad-spectrum pesticides which may kill beneficial insects.

Pesticide Management

When use of a chemical is the best or only option, follow the basic guidelines below. Individual property owners, the HOA and any landscape maintenance contractors shall always follow the Pesticide Label.

1. Know your target pest before spraying. Use the pesticide according to the manufacturer's instructions, and buy only the needed quantity. Many pesticides have a limited shelf life and may be useless or degrade into even more toxic compounds if stored for extended periods of time.
2. Do not apply more than the specified amount. Overuse can be dangerous to your health as well as the health of wildlife and the environment. If more than one chemical can be used to control the pest, choose the least toxic. The word "caution" on the label means that the chemical is less toxic than one that is labeled "warning".
3. Do not spray on windy days, in the morning of what will be a very hot day or when rain is likely. Herbicides can drift and injure valuable ornamental plants. Do not water heavily after application. Plants should be lightly watered before application to prevent burning of the foliage and to help evenly spread the chemical.
4. Never apply pesticides near streams, ponds or wetlands (exception: approved applications for aquatic weeds). Do not apply pesticides to bare eroded ground. Many pesticides bind to soil particles and can be easily carried into a stream or storm drain.
5. Pesticides should be stored well away from living areas. Ideally, the storage area should have a cement floor and be insulated from temperature extremes. Always keep pesticides in their original containers with labels intact. Labels often corrode and become illegible in this climate and may have to be taped onto the container.
6. Federal law now requires that all pesticides be labeled with the appropriate disposal method. Leftovers should never be dumped anywhere, including a landfill. Take unwanted pesticides to Hazo House located at the former landfill at 2420 Hogum Bay Road NE, Lacey. Call the Thurston County Hazardous Waste Section at (360) 867-2664 for more information.
7. Empty pesticide containers should be triple rinsed and the rinse water used in the same manner as the product. Once containers are rinsed they can be disposed of as regular garbage.
8. If a pesticide is spilled onto pavement, it can be absorbed using kitty litter or sawdust. The contaminated absorbent should be bagged, labeled and taken to Hazo House.
9. If the pesticide is spilled onto dirt, dig up the dirt, place it in a plastic bag and take it to Hazo House.
10. Many pest control companies and licensed applicators have access to pesticides that are more toxic than those available to the consumer. Check with the company before they spray indoors or outdoors to find out what spray they will be using and what precautions, if any, are necessary after the operator leaves.

Stormwater Control

All stormwater facilities located on individual lots shall be owned and maintained by the individual property owners, their heirs, successors and assigns. All stormwater facilities located in common tracts with The Enclave at Oak Tree Plat shall be owned and maintained by the HOA. Operation and maintenance requirements for the proposed stormwater management facilities are included in a Stormwater Maintenance Plan on file with Thurston County.

Care must be taken when using pesticides, fertilizers and other household substances so as not to contaminate stormwater runoff that leaves your property.

Table 1 - Best Management Practices, Summary	
Planning/Prevention	<p>Design and use pest-resistant species & varieties</p> <p>Use native or naturalized plant materials</p> <p>Use quality nursery grown materials from reliable sources</p>
Identify Problems	<p>Biotic factors: bacteria, fungi, insects/mites, slugs, rodents</p> <p>Abiotic factors: weather, fertility, water management, location/exposure</p>
Inspection/Monitoring	<p>Annually: Soil Health- soil nutrient and pH testing</p> <p>Seasonally: Observe growth factors for proper response; tree and shrub architecture (canopy/limbs/etc.) to determine pruning</p> <p>Monthly: Look for disease expressions on foliage, plant vigor, insect or slug damage, structural problems;</p> <p>Weekly: Adjust irrigation timing as needed for precipitation; grass height (mowing); insect pest presence</p> <p>On Occurrence: Examine diseased plant material for root diseases; take unidentified pest problems to outside resources like WSU Extension field office, or Master Gardeners</p>
Establish Thresholds	<p>“Unacceptable damage” is pest or disease pressure negatively impacting more than one plant or species of plant, <u>and/or</u> a pest or disease presence that has the <u>potential</u> to negatively impact more than one plant or species of plants</p> <p>“Negative impact” means injure, kill, and/or harmful to plants to a point it can no longer fulfill its role in the landscape (including aesthetically)</p>
Appropriate Controls	<p>Use the least intensive, least-toxic controls initially; use pesticides that are narrow-spectrum and “selective”</p> <p>Use predatory/beneficial biologicals when possible</p> <p>Use mechanical or hand-removal of pests where cost effective</p> <p>See other BMP’s listed above in this Chapter</p>
Evaluate Treatment	<p>Watch for secondary outbreaks following treatment/controls, follow-up treatment; keep records on efficacy of control methods used;</p>

IV. RELATED DOCUMENTS

Resource Listing

If you suspect a problem exists, please contact your local jurisdiction at one of the numbers below and ask for Technical Assistance.

CONTACT NUMBERS

City of Lacey Stormwater Utility	(360) 491-5600
Thurston County (Storm & Surface Water)	(360) 754-4681
Washington State University (WSU) Cooperative Extension	(360) 867-2189

OWNER / OPERATOR INFORMATION

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ENGINEER'S INFORMATION

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Reference Material

Washington State Dept. of Ecology, Hazardous Waste Pesticides, 89-41, August 1989.

Washington State University Cooperative Extension, Pacific Norwest Landscape Integrated Pest Management Manual, Problem Diagnosis and Management Options, 1999.

Washington State University Cooperative Extension, Landscape Plant Problems, 1996.

Gardening with Native Plants of the Pacific Northwest by Arthur Kruckeberg

Glossary

BEST MANAGEMENT PRACTICE (BMP) - Structures, conservation practices or regulations that improve quality of runoff or reduce the impact of development on the quantity of runoff.

CRITICAL AREA – Areas, such as wetlands, streams and steep slopes, defined by ordinance or resolution of the jurisdiction. Also known as “environmentally sensitive areas.”

INFILTRATION - The soaking of water through the soil surface into the ground (percolation). (Many ponds are designed to fully infiltrate stormwater and thus do not have a regularly used discharge pipe.)

INFILTRATION FACILITY (or STRUCTURE) - A facility (pond or trench) that retains and percolates stormwater into the ground, having no discharge (to any surface water) under normal operating conditions.

JURISDICTION - Olympia, Lacey, Tumwater or Thurston County (as applicable).

RUNOFF - Stormwater.