Village Green Park

Invasive Plant Management

PENINSULA
ENVIRONMENTAL

PREPARED FOR

Village Green Metropolitan Park District
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DATE

February 2023

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1 Executive Summary

Invasive plants are undesirable plant species, that are poisonous to humans, and/or can successfully colonize and thrive beyond their natural ranges, often out-competing native plants. Characteristically, such species are highly adaptable and aggressive and have a high reproductive capacity. The spread of nonnative plant species in wetland, riparian, and upland areas is a concern for several reasons including: the maintenance of endemic vegetation, the preservation of habitat for native wildlife species, adverse aesthetic effects, and potential to increase tree risk.

Village Green Metropolitan Park District requested Peninsula Environmental to conduct an inventory of undesirable, invasive and noxious weeds at Village Green Park in Kingston. Managers of the park and volunteers will utilize this plan to manage the current population and the spread of these plants.

The onsite riparian, wetland areas, and surrounding upland areas, are currently inundated with noxious weeds. Control, maintenance, and monitoring are critical steps in reducing invasive weeds across the site to support the native plant communities that provide important wildlife habitat as well as ecological benefits to the community.

The Village Green Park District is committed to stewardship and long-term sustainability of the park. The forested park including critical areas provide important public, social and ecological functions that create an accessible greenspace. This Invasive Plant Management Plan (the “Plan”) strategizes invasive plant control, removal, and restoration of this greenspace.

This Plan includes guidelines for the long-term control of invasive, undesirable plant species found in the park, and has the following components:

1. Identifies a baseline for noxious weed abundance across the Park and specific location for invasive plants observed;
2. Provides an approach for invasive plant management by prioritizing achievable goals and best practices;
3. Provides easy to follow guidelines for invasive plant removal;
4. Provides herbicide recommendations for use by a licensed pesticide applicator/staff; and
5. Lists the native plants observed throughout the Park, and lists recommended native species for plant enhancement in areas where invasive plants are removed.

2 Background and Site Properties

2.1 Project Specifications

Village Green Metropolitan Park District requested Peninsula Environmental Group, Inc. ("the Consultant") to conduct a noxious weed assessment at Village Green Park ("the Park") located at 26126 Dulay Rd NE, Kingston, WA 98346; Kitsap County parcel no. 262702-4-089-2009 ("the Site").

Project Purpose

1. Assess and inventory Washington State and Kitsap County listed noxious weeds that occur within the Park.
2. Provide multiple control options for noxious weeds onsite.
3. Develop site map showing locations of noxious weeds.
4. Outline findings in a comprehensive report.

Professional Assumptions & Limitations

This Report summarizes the data collected during the Consultant's site assessment, conversations regarding the project, and the Consultant's professional opinions and recommendations. The Consultant's recommendations are compiled using industry standards, best available- science, and currently accepted best management practices.

1. The Consultant visited the Site on January 10th, 2023. This Report summarizes site characteristics as they were observed on this day only.
2. This Report is intended for the exclusive use of the Client and their agents, and only for specific application to the referenced property. This Report should not be applied to any other property for any purpose.

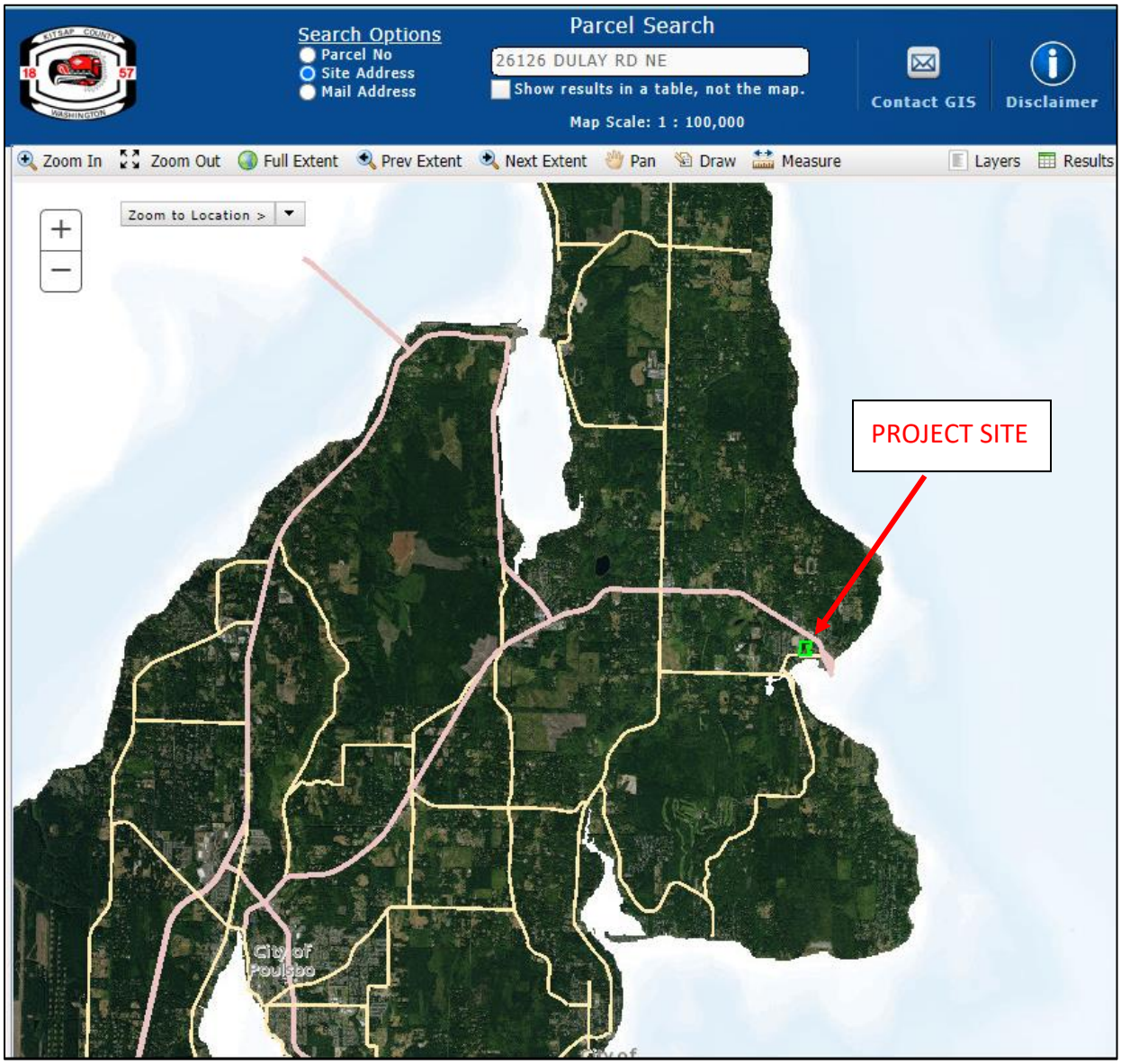
2.2 Site Properties

Table 1. Kitsap County Site Properties

Taxpayer	Village Green Metro Park District
Parcel	262702-4-089-2009
Site Address	26126 Dulay RD NE, Kingston, WA 98346
Comprehension Plan Designation	Urban Low-Intensity Commercial/Mixed Use
Existing Structures	Community Center, sport court, playground
Total Site Acreage	12.60 (approx. 548,856-sf)
Elevation	~30 to 80-ft
Latitude/Longitude	47.79966908, -122.50279127
Section/Township/Range/Quarter	SEC 26, TWP 27, RNG 2E (SE/4)
Kitsap County Mapped Critical Areas	Stream, Wetlands and Wetland buffers

Figure 1. Google Imagery of Site.

Figure 2. Kitsap County vicinity map with Site outlined in green. Park is near Appletree Cove in Kingston.



3 Invasive Plant Classifications

All landowners, including city, county, and state governments, are required to eradicate all Class A species, control and prevent the spread of any Class B species, and selected Class B or C species on their property. Control of onsite state and county listed noxious weed and monitor list species will be achieved through a mix of manual/mechanical removal, herbicide application (Licensed Pesticide Applicators only), and monitoring. Continued maintenance, supported by the fostering of a native plant communities across Village Green Park, will reduce invasive plant coverage potentially to manageable levels.

Class A

Species are generally not well-established; the possibility of eradicating them still exists. Eradication of Class A Noxious Weeds is required by State law.

Class B

Species are generally sporadically found. Control is required where they are not yet established; OR when local county weed boards determine control is necessary.

Class C

Species are generally widespread throughout Washington and well-established. Example: Himalayan blackberry (*Rubus armeniacus*). Control of these species is not required by the state, although individual counties may require control at their discretion.

Invasive plant species typically spread rapidly through multiple propagation methods (seed, stem pieces, root pieces, etc.), and may dominate native species through sheer numbers as well as by outcompeting them for nutrients and water. Non-native plants often also lack natural controls such as insects or disease. Invasive plant species do not provide the same level of ecosystem services and function in an environment that native plants do, through reduced habitat diversity, poor associations with native insects and wildlife, potential toxicity to native plants and animals, or other detrimental factors.

The Washington State Noxious Weed Control Board establishes county Noxious Weed Control Boards throughout the state to provide resources and education to help control invasive plant species. A State Noxious Weed List is developed to designate non-native plant species that are harmful to agriculture, the environment, and people. Listed plants are divided into three classes.

- A full list of Washington State listed weeds may be found online at

  https://www.nwcb.wa.gov/printable-noxious-weed-list

- The Kitsap County Noxious Weed List may be found at

  https://www.nwcb.wa.gov/pdfs/Kitsap-County.pdf

3.1 Kitsap County Top 12 Noxious Weeds Of Concern

Eleven of Kitsap County's top 12 Noxious Weeds of Concern were not observed onsite. These weeds have been chosen as high priority weeds within Kitsap County and should be monitored for. These species can be found online at https://www.nwcb.wa.gov/pdfs/Kitsap-County.pdf and include:

1) Butterfly bush (*Buddleia davidii*)
2) Dalmatian toadflax *(Linaria dalmatica ssp. Dalmatica)*
3) **English ivy (mapped onsite)**
4) Fragrant water lily (*Nymphaea odorata*)
5) Giant hogweed (*Heracleum mantegazzianum*)
6) Gorse (*Ulex europaeus*)
7) Knapweeds
    a. Bighead (*Centaurea macrocephala*)
    b. Meadow (*C. pratensis*)
    c. Spotted (*C. stoebe*)
    d. Diffuse (*C. diffusa*)
    e. Russian (*Acroptilon repens*)
8) Knotweeds
    a. Bohemian (*Polygonum bohemicum*)
    b. Giant (*P. sachalinense*)
    c. Himalayan (*P. polystachyum*)
    d. Japanese (*P. cuspidatum*)
9) Loosestrifes
    a. Purple (*Lythrum salicaria*)
    b. Wand (*L. virgatum*)
    c. Garden (*Lysimachia vulgaris*)
10) Poison-hemlock (*Conium maculatum*)
11) Policeman's helmet (*Impatiens glandulifera*)
12) Tansy ragwort (*Senecio jacobaea*)

4 Best Management Practices

The preferred approach for invasive plant control is Integrated Pest Management (IPM). IPM involves selecting from a range of possible control methods to match the management requirements of each specific site or zone. The goal is to maximize effective control and to minimize negative environmental, economic and social impacts. Use a multifaceted and adaptive approach. Select control methods which reflect the available time, funding, and labor of the participants, the land use goals, and the values of the community and landowners. Management will require dedication over a number of years and should allow for flexibility in method as appropriate.

Within critical areas, control practices should be selected to minimize soil disturbance or efforts should be taken to mitigate or reduce impacts of disturbance. Any disturbed areas need to be stabilized for erosion and sediment control. Erosion and sediment control (ESC) means any temporary or permanent measures taken to reduce erosion, control siltation and sedimentation, and ensure that sediment-laden water does not leave the site or enter into wetlands or aquatic areas. Minimizing disturbance also avoids creating more opportunities for germination of noxious weeds.

Early detection of invasive species should remain a primary focus within the Village Green riparian corridor. Rapid response is a key strategy for successful management of invasive species. Eradication efforts are most successful on small infestations. By tracking new species and new infestations Village Green members may begin to understand unique strategies and invasion patterns which will allow for improved management actions.

The Consultant recommends that Village Green Park District follows the guidelines outlined in this Plan. After the first three to five years of manual control effort, a more selective approach should be considered using herbicides.

Manual and mechanical removal are often effective, depending on the plant; these, however, must be consistently used over long periods of time, and may disturb soils resulting in unforeseen erosion impacts or opportunities for additional noxious weed invasion. Species-specific biological controls require unique circumstances and are usually not as effective in smaller or more dispersed infestations.

Village Green Park employees can gain their own herbicide license through the Washington State Department of Agriculture. Or the park may hire a vendor providing such services. The Kitsap County Noxious Weed Group keeps a current list of available vendors providing herbicide services.

Integrated Pest Management uses a variety of methods to control weeds effectively and efficiently while causing the least possible impact to the environment, people, and property. By studying a plant's life cycle and its preferred habitats, the most effective long-term control may be determined, including timing of control measures and available resources.

Visit the following site to learn more about WSDA licensing.

https://agr.wa.gov/services/licenses-permits-and-certificates/pesticide-license-and-recertification

While herbicide application is often the quickest, easiest and most thorough means of control, it has the potential to be the most detrimental to the environment if proper procedures and formulations are not followed. ***Chemical treatment at the Site requires a Washington State Department of Agriculture (WSDA) pesticide applicator's license.***

4.1 General Methodology for Manual Removal

Physical removal of invasive and noxious plants can be effective for some species but may also be time consuming. These methods include hand pulling, shoveling and grubbing, weed whacking/brush cutting, dead-heading seeds, mowing, tiling and other similar methods.

In most scenarios, tilling or digging out roots, or otherwise disturbing of soils near noxious weeds will cause more harm than good. When digging out plants by hand or machine and disturbing soils, those soils become prime habitat for seeds released by those plants.

We advise against actual ground disturbance in all physical removal. That still permits dead-heading, mowing, and any other form of cutting of plants.

COMMON TOOLS FOR INVASIVE PLANT REMOVAL	
Work gloves	Hand claws and garden tools
Heavy duty garbage bags	Loppers or pruners
Small chainsaw	Garden rake
Pruning saw	Pick mattock
Tarps and carboard	Pulaskis
Wheelbarrow	Shovel
Hard hats	Work boots

MANUAL AND MECHANICAL

Mechanical or manual treatments involve hand tools, powered hand tools, and heavy equipment. Brush cutting a large field of blackberry or using a tractor to mow a field of scotch broom.

DEAD-HEADING

Dead-heading involves removal of the seed head after flowing. This is primarily used for biannual plants which die after their seed cycle, or long-lived seeds like Scotch broom.

Be sure to bag and dispose of seed heads after cutting. Leaving seed heads on the ground, even undeveloped seed heads, will result in seed dispersal. Always dispose of deadhead seeds at the waste or disposal site. Never a composting facility.

By installing native herbaceous cover, shrubs, and small trees in areas where invasive plants are removed, a healthy, multistoried, plant community can be further established.

4.2 Herbicide Application Techniques

Herbicides are commonly used to treat invasive plants and noxious weeds in a variety of environments. When used as labeled, and as appropriate for the plant growing in a specific environment, herbicides are safe for humans, wildlife and soils. Current Best Available Science (BAS) shows the long-term safety of licensed herbicides.

SPOT TREATMENT

This herbicide technique is the most common. Herbicide is applied to the foliage of the plant via directed, spot applications. It is useful for smaller infestations, or when invasive plants are intermixed with native plants. This treatment saves native plants but is more time consuming.

BROADCAST

Broadcast herbicide treatments are the opposite of spot treatments. When broad, large infestations of a certain plant exist a broadcast treatment may be suitable. This treatment treats monocultures of plants on a large scale and with little concern for the surrounding plants (as this should be a monoculture, there are few surrounding native plants). This method can cover ground very quickly.

CUT-STUMP

This technique involves cutting a woody plant (Laurel, Holly, Himalayan blackberry) near the base and immediately (less than 1-minute delay) applying a high concentration of herbicide to the wound. This is only effective on plants that have a large enough stem to take in the herbicide after cutting, generally more than ½ inch in diameter. This is often applied through a fabricated PVC pipe with a turn valve and sponge at one end. Cut stumps are normally done with 100% herbicide concentrate or 50% herbicide and 50% surfactant.

INJECTION

This technique uses a lance to inject small herbicide filled capsules into a woody plant. Diameter of plant is normally greater than 1 inch. This application method is very direct and highly effective.

5 Vegetation Assessment

5.1 Invasive Plant Survey

The Consultant's survey of Village Green Park identified the following Washington State and Kitsap County listed noxious weeds.

- Six noxious weed species were observed
- Two monitor list species were observed
- Twenty-six native species were observed

Although noxious weed diversity is relatively low onsite, the overall abundance is high. Noxious weeds are suppressing and displacing native species and creating deep shade which reduces native plant germination and growth. Complete eradication of all invasive plants from the park is unlikely, and it not commonly the goal of invasive plant management. In these public settings, invasive plant management goals revolve around planned control of invasive spread, and preservation and enhancement of existing native plant population.

The park has significant infestations of English/Irish ivy (*Hedera helix or H. hibernica*) and Himalayan blackberry (*Rubus armeniacus*). These species have formed dense monocultures and thickets and are negatively impacting native plant communities and decreasing habitat for wildlife. Herb Robert (*Geranium robertianum)*, Scotch broom (*Cytisus scoparius)*, and bull thistle (*Cirsium vulgare*) abundance is relatively low onsite, and manual removal and eradication of these species from the Site may be achievable.

5.2 Invasive Plants

Our team assessed invasive plants through observational techniques while griding the park on foot. Data was collected on ESRI Field Maps and ESRI Survey123. The following is a list of the identified invasive plants. Identification of these plants can be viewed in Appendix B.

Table 2. Village Green Noxious Weeds and Invasive Species

Common Name	Scientific Name	Kitsap County Noxious Weed Class	Washington State Noxious Weed Class
Bull thistle	*Cirsium vulgare*	C*	C
Cutleaf/evergreen blackberry	*Rubus laciniatus*	C*	C
English holly	*Ilex aquifolium*	Monitor list	Monitor List*
English ivy/Irish ivy	*Hedera helix & H. hibernica*	C **	C
English laurel	*Prunus laurocerasus*	Monitor list	Monitor List*
Herb Robert	*Geranium robertianum*	B*	B
Himalayan blackberry	*Rubus armeniacus*	C*	C
Scotch broom	*Cytisus scoparius*	B*	B

* Control recommended but not required.
** Listed as high priority within Kitsap County.

5.3 Native Plants

The Site contains a healthy forested upper canopy of native trees with several large habitat snags near the riparian corridor. See the table below for a complete list of native vegetation observed onsite.

Table 3. Village Green Native Plants

Common Name	Scientific Name	Overall Abundance	Indicator Status[1]
Upper Strata: Trees			
Douglas-fir	*Pseudotsuga menziesii*	High	FACU
Red alder	*Alnus rubra*	Moderate	FAC
Western hemlock	*Tsuga heterophylla*	Low	FACU
Western redcedar	*Thuja plicata*	Low	FAC
Middle Strata: Small Trees and Shrubs			
Cascara	*Frangula purshiana*	Low	FAC
Common snowberry	*Symphoricarpos albus*	Low	FACU
Osoberry	*Oemleria cerasiformis*	Moderate	FACU
Red elderberry	*Sambucus racemosa*	Low	FACU
Redosier dogwood	*Cornus sericea*	Low	FACW
Salal	*Gaultheria shallon*	Moderate	FACU
Salmonberry	*Rubus spectabilis*	High	FAC
Twinberry	*Lonicera involucrata*	Low	FAC
Willow, Pacific	*Salix lasiandra*	Low	FAC
Lower Stata: Subshrubs, Forbs, Grass, and Sedges			
Bracken fern	*Pteridium aquilinum*	Low	FACU
Cooley's hedge nettle	*Stachys cooleyae*	Low	OBL
Common bedstraw	*Galium aparine*	Low	FACU
Dull Oregon grape	*Mahonia nervosa*	Low	FACU
Giant horsetail	*Equisetum telmateia*	Low	FACW
Orange honeysuckle	*Lonicera ciliosa*	Low	NI
Slough sedge	*Carex obnupta*	Moderate	OBL
Stinging nettle	*Urtica dioica*	Low	FAC
Stream violet	*Viola glabella*	Low	FACW
Water parsley	*Oenanthe sarmentosa*	Low-Mod	OBL
Western ladyfern	*Athyrium cyclosorum*	Low	FAC
Western starflower	*Lysimachia latifolia*	Low	NI
Western swordfern	*Polystichum munitum*	Moderate	FACU
Yellow skunk-cabbage	*Lysichiton americanus*	Moderate	OBL
Youth-on-age	*Tolmiea menziesii*	Moderate	FAC

[2] Wetland Indicator Status- Obligate wetland (OBL) Occurs almost always under natural wetland conditions, rarely in uplands Facultative Wetland (FACW) Usually occurs in wetlands, but occasionally found in uplands. Facultative (FAC) Equally likely to occur in wetlands or uplands. Facultative Upland (FACU) Usually occurs in uplands, but occasionally found on wetlands. Upland (UPL) Rarely found in wetlands, almost always in uplands. No indicator (NI) Insufficient information was available to determine an indicator status.

6 Management Zones

Four Invasive Plant Management Zones are defined to assist in control of the invasive species. Our Management Zones are based on regulated removal priority and ecological significance of where the invasive plants are located.

See **Appendix D** for zone locations.

See **Appendix B**. for further identification and detailed control methods.

1st PRIORITY: Management Zone 1 – Class B Noxious Weeds

- **Prioritizes** Class B noxious weeds (Herb Robert and Scotch Broom).

2nd PRIORITY: Management Zone 2 – Sensitive Habitat

- **Prioritizes** Class C noxious weeds and monitor list species that are located within the three onsite wetlands and the riparian corridor (20-ft of streambank).

3rd PRIORITY: Management Zone 3 – Kitsap County Weeds of Concern

- **Prioritizes** removal of English ivy across the Park.

4th PRIORITY: Management Zone 4 – Class C and Monitor List Species

- **Prioritizes** removal of Class C noxious weeds Himalayan blackberry, evergreen Blackberry, and bull thistle; and monitor list English holly and laurel.

6.1 Management Zone 1 – Class B Noxious Weeds

Short-term goal: maximized initial effort to remove all the mapped Class B noxious weeds.

Long-term goal: routine surveys and removal maintenance throughout the growing season to eradicate new growth.

Target Species: Class B noxious weeds, herb Robert and Scotch broom, are the **highest priority** for control. These Class B noxious weeds currently occur at a low abundance onsite, and eradication onsite may be possible.

Scotch broom

Scotch broom is currently not far spread and is manageable onsite. This species was identified only on the northwestern edge of the Park near the skate park. This weed out-competes and displaces native and beneficial plants, slowing reforestation and native plant growth. Scotch Broom also impedes the passage of wildlife, is toxic to livestock, and is a fire hazard. Scotch broom spreads aggressively in sunny areas with disturbed soil. A single plant produces thousands of seeds each year, and its seeds are viable for dozens of years once embedded in the soil.

Herb Robert

Herb Robert is an herbaceous groundcover and occurs mostly on the northwestern portion of the Site growing with and underneath ivy and along trails. This species is shallow-rooted and may be easily pulled by hand, a great volunteer opportunity for community members. Management strategies include walking transects (grid surveying) within the mapped area, removing and bagging the plant as it is encountered.

Size: approximately 0.25-ac

Photo 1. Scotch broom in Zone 1.

6.2 Management Zone 2 – Sensitive Habitat

Short-term goal: best initial effort to remove ivy from trees and to remove Class C and monitor list species that are outcompeting with and inhibiting the growth of native species.

Long-term goal: full eradication may not be possible due to the density of noxious weeds; therefore, the long-term goal is to continue removal efforts and install native vegetation in areas where weeds have been removed.

Target Species: includes heavy infestations invasive species located within the onsite wetlands and riparian corridor which extends approximately 20 feet from the bank of the stream.

- English ivy
- Himalayan blackberry and evergreen/cutleaf blackberry
- English laurel
- English holly

Size: approximately 1-ac

Photo 2. Himalayan blackberry infestation, Zone 2.

Photo 3: English Ivy infestation, Zone 2.

6.3 Management Zone 3 – Kitsap County Weeds of Concern

Short term goal: best initial effort to remove ivy from trees and native plants.

Long-term goal: full eradication may not be possible due to the density of noxious weeds; therefore, the long-term goal is to continue removal efforts and install native vegetation in areas where weeds have been removed.

Target Species: English Ivy throughout the rest of the Park.

English Ivy has formed dense from monocultures throughout the Site and is shading out and outcompeting native species.

Revegetation efforts in areas where ivy is removed is a key component to long term success. Native species like oceanspray, mock orange, tall Oregon grape, and/or Red Flowering Currant to shade out and compete with future seedlings.

Size: approximately 2.5-ac

Photo 5. Ivy growing over native dull Oregon grape.

Photo 4. Ivy growing up trees along the trail might increase tree hazard.

6.4 Management Zone 4 – Class C Noxious Weeds

Short term goal: best initial effort to remove Class C noxious weeds and monitor list species in areas where they are outcompeting with and shading out native plants.

Long-term goal: full eradication may not be possible due to the density of noxious weeds; therefore, the long-term goal is to continue removal efforts and install native vegetation in areas where weeds have been removed.

Target Species: includes heavy infestations of Class C noxious weeds and monitor list species in the remainder of the Park.

- Bull thistle
- Himalayan blackberry and evergreen/cutleaf blackberry.
- English laurel
- English holly

Size: approximately 3-ac

Photo 6. Bull thistle and Himalayan blackberry, Zone 4.

Photo 7. English laurel, Zone 4.

7 Consultant Qualifications

Consultant Qualifications

John Bornsworth | Senior Ecologist | john@peninsulaeg.com

John Bornsworth is the senior ecologist, project manager and general contractor with Peninsula Environmental. John is a Board-Certified Master Arborist & Registered Consulting Arborist with over 17 years of resource management experience specifically managing trees, vegetation and water in Washington shorelines and other critical areas. John is trained on shoreline restoration and construction, USACOE 1987 Wetland Delineation Manual, Western WA 2014 Wetland Rating System, and WA Ecology's coastal permitting. John provides project management, general contractor services and technical assistance to shoreline, steep slope, wetland and riparian construction and restoration, and stormwater management and commonly provides expert testimony on related matters. John sits on the Washington State Department of Natural Resource's Washington Community Forestry Council as an executive advisor of commercial arboriculture.

Liz Donadio | Wetland (WPIT) & Wildlife Biologist | liz@peninsulaeg.com

Liz Donadio is a wetland and wildlife biologist with Peninsula Environmental. She has consulted on aquatic resources throughout western Washington since 2015. Liz has graduate level education in wetland and soil sciences and is trained through the Washington Department of Ecology to assess hydrogeomorphic classifications, provide wetland ratings and ordinary high water mark delineations. Liz is trained on the USACOE 1987 Delineation Manual and is certified as a Wetland Professional in Training by the Society of Wetland Scientists. She is Certified Erosion and Sediment Control Lead (CESCL). In 2005, Liz obtained a Bachelor of Science in Wildlife Management and Conservation from Humboldt State University. For 20 years Liz has worked on numerous resource projects throughout the United States, including wetland delineating and rating, mitigation planning and monitoring, critical area assessments, bird, mammal, fish, amphibian and reptile surveying and monitoring, marine and riverine restoration.

Kia Sutter | GIS Analyst & Biologist (WPIT) | kia@peninsualeg.com

Kia Sutter is a biologist and GIS analyst with Peninsula Environmental. Kia obtained her Bachelor of Science from the University of Washington in Biology and Conservation, as well as a certificate in GIS from the UW. Kia is trained to conduct wetland ratings through the Washington Department of Ecology, has training on the USACOE 1987 Wetland Delineation manual and is certified as a Wetland Professional in Training by the Society of Wetland Scientists. She is certified in Electrofishing through Smith-Root. Her experience includes wetland delineations and ratings, critical areas assessments, timber management plans and geospatial analysis and mapping.

8 References and Resources

NOXIOUS WEED ASSESSMENT AND MANAGEMENT	
Wetland Plant List	WSDOT Wetland Monitoring Plant List https://wsdot.wa.gov/sites/default/files/2017/07/24/Env-Wet-PlantList.pdf
Noxious Weed Lists	Washington State Noxious Weed Control Board. https://www.nwcb.wa.gov/identify-a-noxious-weed
	Kitsap County Noxious Weed List. https://www.nwcb.wa.gov/pdfs/Kitsap-County.pdf
Noxious Weed Management	King County Noxious Weed Bulletin, English Ivy. https://www.nwcb.wa.gov/images/weeds/english-ivy-control_King.pdf
	King County Best Management Practices, Scotch Broom. https://www.nwcb.wa.gov/images/weeds/Scotch-Broom-Control_King.pdf
	King County Best Management Practices, Himalayan and Evergreen Blackberry. https://www.nwcb.wa.gov/images/weeds/Herb-Robert-Control_King.pdf
	King County Best Management Practices, Herb Robert. https://www.nwcb.wa.gov/pdfs/blackberry-control_King.pdf
	King County Cherry laurel identification and control. https://kingcounty.gov/services/environment/animals-and-plants/noxious-weeds/weed-identification/english-laurel.aspx
	Pacific Northwest Weed Management Handbook. (2019). Holly, English (Ilex aquifolium). Peachey, E., Editor. Oregon State University. https://pnwhandbooks.org/weed/problemweeds/holly-english-ilex-aquifolium
	Whatcom County. (2018). Control Options for English Holly. https://www.whatcomcounty.us/DocumentCenter/View/27064/English-HollyManagement
Native Plant Recommendations	King County Native Plant Alternative to English Ivy. https://www.nwcb.wa.gov/images/weeds/ivy-alternatives_King.pdf
JURISDICTION INFORMATION	
Kitsap County	Kitsap Code. (2023). https://www.codepublishing.com/WA/KitsapCounty/
	Kitsap GIS. (2023). https://psearch.kitsapgov.com/psearch/

Appendix A. Glossary

Class A Weeds: Class A weeds are mostly newcomers to Washington and are generally rare. The goal is to completely eradicate them before they gain a foothold. Landowners are required to completely eradicate Class A weeds. (Eradicating weeds means getting rid of the plants altogether, including plant roots.)

Class B Weeds: Class B weeds are those that are widespread in some parts of the state, but limited or absent in other parts of the state. The goal with Class B weeds is to prevent them from spreading into new areas, and to contain or reduce their population in already infested areas. The State Weed Board designates Class B noxious weeds for control in those parts of the state where they are limited or absent and threaten to invade. Additionally, a County Weed Board may select a Class B non-designate for control if it is considered a local priority. Landowners may be required to control Class B noxious weeds, depending on how widespread the species is and/or whether the species is a local priority. Check with your County Noxious Weed Control Board for more info on which Class B species you must control.

Class C Weeds: These weeds are often widespread or are of special interest to the agricultural industry. The State Weed Board does not require control of Class C noxious weeds. The State and many County Weed Boards provide information on identification and best management practices for these species. A County Weed Board may require landowners to control a Class C weed if it poses a threat to agriculture or natural resources. Check with your County Noxious Weed Control Board for more info on which Class C species you must control.

Dioecious: Pertaining to plants, individuals of which bear either staminate or pistillate flowers but not both (separate female and male plants).

Herbaceous: Not woody.

Floodplain: An area of low-lying ground adjacent to a river or stream and is subject to flooding during high water events.

Herbicide: A chemical substance that is toxic to plants and is used to kill unwanted vegetation.

Integrated Pest Management (IPM): is a sustainable, science-based, decision-making process that combines biological, cultural, physical and chemical tools to identify, manage and reduce risk from pests and pest management tools and strategies in a way that minimizes overall economic, health and environmental risks.

Invasive plant: A plant species that is non-native to a particular ecosystem. Likely to cause environmental harm.

Monitor List: The purpose of the monitor list is to gather more information on suspect weeds, as well as monitor for occurrence or spread. There is no legal or regulatory aspect to this list. Plants on the monitor list are not listed noxious weeds in Washington. Reasons for inclusion on the Monitor List: (1) Reason to believe this species is invasive or poses a potential threat to Washington. (2) Additional information is needed on distribution, abundance or biology. (3) The species was once present in Washington and on the State Noxious Weed List. It is now being monitored for reoccurrence. (4) Need to verify existence (site investigation), verify identification and/or obtain voucher specimen. (5) It exists in an adjacent state or province or occurs on an adjacent state or province's noxious weed list and is not known to occur in Washington. For more information on these species, please contact the sponsor or the State Noxious Weed Control Board.

Monoculture: An area entirely populated by a single species.

Native vegetation: means vegetation comprised of plant species, other than noxious weeds, that are indigenous to the coastal region of the Pacific Northwest and which reasonably could have been expected to naturally occur on the site. The list of native and indigenous plant species for Kitsap County may be obtained from the department of community development (KCC 12.08.310).

Non-native plant: A plant introduced with human help (intentionally or accidentally) to a new place or new type of habitat where it was not previously found. Note: Not all non-native plants are invasive.

Noxious weed: Noxious weeds are those plants which are highly destructive, competitive, or difficult to control by cultural or chemical practices and which are regulated by the State of Washington under RCW 17.10 and listed under Chapter 16-750 WAC.

Ordinary High-Water Mark (OHWM): Department of Ecology defines the OHWM as that mark that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland, in respect to vegetation as that condition exists on June 1, 1971, as it may naturally change thereafter, or at it may change thereafter in accordance with permits issued by a local government or the Department of Ecology.

Perennial: Pertaining to a plant which lives for more than two years.

Pesticide: A chemical substance that is toxic and is used to kill insects and other organisms.

Quarantine Weed List: The Washington State Department of Agriculture maintains a plant quarantine list, called 'Plants And Seeds Whose Sales are Prohibited in Washington State'. This quarantine list consists of both terrestrial (land) and aquatic (water) plants known to be invasive and damaging. The quarantine list includes those plants whose sale or distribution is prohibited in Washington State. This list includes yellow archangel.

Riparian area: The land that occurs along rivers and streams. They support unique soil and vegetation types that are strongly influenced by the presence of water.

Vegetative Propagation: the ability to reproduce from root and stem fragments. Indicated species must be thoroughly excavated from the ground, collected, and disposed into trash for control such as blackberry, bindweed and knotweed. Clallam County recommends to no mow and to be aware of species that have vegetative propagation and to dispose of all plant material into trash and NOT compost.

Appendix B. Invasive Plant Identification and Control Methods

Bull Thistle (*Cirsium vulgare*)

Legal Status in Kitsap County: Bull thistle is a Class C noxious weed (non-native species that can be designated for control based on local priorities) according to Washington State Noxious Weed Law, RCW 17.10.

BACKGROUND INFORMATION

IDENTIFICATION

- As a biennial, bull thistle has a two-year life cycle. Plants grow vegetatively their first year as rosettes of green, sparsely hairy leaves.
- The flowering stems elongate and flower in the second year.
- The plants die after flowering or after the first frost.
- Flowering stems reach 2 - 5 ft in height. The heads of purple flowers are 1.5 - 2 in wide and are located at the branch ends. The flower head bases are covered in spine- tipped bracts.
- The upper leaf surfaces are sparsely hairy with short prickles on the leaf surfaces and cottony hairs on the leaf undersides. There are sharp spines on the leaf margins and leaf tips.
- Prefers full sun and cannot tolerate shade.

ECOLOGICAL IMPACTS

- A common weed of roadsides, pastures, vacant fields, burned areas, and logged areas.
- Common in recently or repeatedly disturbed areas, especially pastures, overgrazed rangelands, roadsides and logged areas. Can become a dominant species following disturbance.

REPRODUCTION AND SPREAD

- Plants can flower from June until the first frost.
- Mature plants can produce up to 4,000 seeds per plant. Seeds are capped with a circle of white hairs and can be windblown for long distances; however, most fall within only a few feet of the parent plant.
- Bull thistle reproduces only by seed. Seeds usually germinate in the spring and fall. The seeds are short-lived and most on or near the soil surface do not remain viable for more than a year. Seeds buried at a depth of 5 inches may remain viable for up to three years. Tilling, grazing or other soil disturbance may cause these seeds to germinate.

BULL THISLE CONTROL METHODS

MANUAL REMOVAL

1. Pull or cut the plants after they bolt but before they flower.
2. For best effectiveness, cut about an inch below the soil surface. This stops the plant from re-sprouting. Plants may re-sprout if cut at or above the soil surface. Plants in flower can form viable seeds even after removal, so carefully bag and dispose of all flowering plants.
3. In areas where mature plants are removed, there are usually many small rosettes left in the area. Search the area for rosettes and dig them up or remove with a hoe. Removing plants is easiest when the soil is loose or wet.
4. Return to the same location in the following spring and summer to remove plants coming up from seeds already in the soil.

MECHANICAL REMOVAL

1. Mowing plants may prevent seed production when done at the pre-flower stage.
2. Avoid mowing plants in full flower, as cut flowers may still form viable seeds.
3. Mowing may need to be repeated throughout the season to prevent re-flowering.
4. Mowing will effectively control bull thistle.
5. Take care to not damage native plants when mowing.

CHEMICAL TREATMENT

1. Spot- spraying rosettes is highly effective prior to flowering. Spot spray in spring or early summer, prior to flowering. Spraying after flowing will not control seed spread.
2. Use 2-4% aquatic glyphosate 5.4 mixed with 50% volume of triclopyr 3A and appropriate surfactant.

English Holly (*Ilex aquifolium*)

Legal Status in Kitsap County: English holly is on the monitor list of the Washington State Noxious Weed List. The Board encourages and recommends control and containment of existing populations and discourages new plantings.

BACKGROUND INFORMATION

IDENTIFICATION

- Large, dense, slow-growing, evergreen tree or shrub, 15 to 50 feet tall and up to 15 feet wide or more.
- Can grow as either a single-trunk tree or a multi-stemmed thicket.
- Leaves usually have sharp, stout spines along edges although may be smooth on older stems.
- Leaves are thick, glossy, dark green and wavy, 1-3 inches long, alternate and simple.
- Flowers are small, whitish, inconspicuous, sweetly scented.
- Bunches of red, yellow or orange berries produced on female trees in winter (note: berries are toxic to people, pets and livestock).

SIMILAR LOOKING SPECIES

Resembles native plants low and tall Oregon grape (*Mahonia aquifolium* and *Mahonia nervosa*). Both Oregon grape species have paired leaflets, while English holly has alternate leaves.

HABITAT AND NOTES

- Grows in shade or sun, primarily in well-drained soil.
- English holly can tolerate a wide range of environments from full sun to deep shade and is often found in forest understories.
- Can be found in residential areas where it has been planted as an ornamental or has escaped cultivation.
- Forms dense evergreen thickets that dominate forests.
- Suppresses and displaces native species by creating deep shade which reduces germination and growth. Competes with native vegetation for nutrients and resources such as water.
- Changes soil composition by increasing sulfur, persistent organic matter, and decreases pH.
- English holly leaves produce a flammable vapor when heated, which allows them to ignite easily and may pose a fire risk.
- Berries are poisonous to people, pets and livestock but not to birds. Children are at the highest risk, ingesting results in gastroenteritis stress and drowsiness.

REPRODUCTION AND SPREAD

- Reproduces by seed and vegetatively by layering.
- Branches or stems pressed to the ground will form roots and new branches.
- Dioecious (separate female and male plants). Berries are generally ripe around October and remain on the plant through the winter.
- Female plants begin producing berries at about 15 years old although some may produce fruit at a younger age.
- One tree may produce 120,000 seeds a season.
- Relatively short-lived seed bank. Most germination occurs within a year. After three years seed banks are reduced by 80-90 percent.

ENGLISH HOLLY CONTROL METHODS

MANUAL REMOVAL

1. Small plants and seedlings can be pulled out (wear heavy gloves) or dug out when the ground is moist for easier removal of roots. Make sure to remove all of the roots or any remaining parts will re-sprout.
2. Small to medium shrubs (about 1-1 ½ inch diameter) can be pulled out with a weed wrench or similar tool. Pull slowly to work the roots out of the soil.
3. Cutting holly stems is not effective. Trees cut at the base will re-grow into a dense shrub.
4. Removal of large trees may not be feasible in most situations. Consult an arborist or tree removal specialist before attempting. Large trees generally have substantial roots that require major ground disturbance to remove.
5. Plant debris left on the ground will grow into new plants.
6. If possible, create piles of pulled holly plants on downed trees or brush piles to avoid direct contact with the soil.
7. Plants can be removed manually throughout the year. Although if plants are removed when berries are present it may lead to seed spread. If berries are left on the ground, make sure to monitor the area for four years for any seeds that have germinated.
8. Soil disturbance encourages seeds to germinate.
9. Since English holly readily re-sprouts, it is important to monitor treatments for effectiveness for at least four years.

MECHANICAL CONTROL, GRAZING AND BURNING

1. Mowing and brush cutting are not effective, plants will regrow from below ground parts. Berries are poisonous to livestock.
2. Burning is not recommended. English holly leaves are flammable, burning does not destroy the roots and plants will re-sprout.

CHEMICAL CONTROL

1. Inject stems >1 inch. Cut-stump treatment with 100% glyphosate is effective for smaller plants. Treat in spring. Hand-pulling is not effective. Sap may cause a rash.

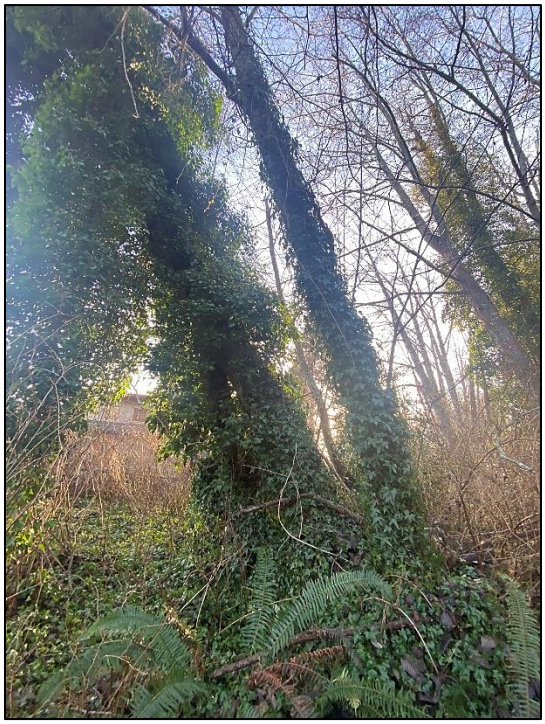
English ivy (*Hedera helix*) and Irish ivy (*H. hibernica or H. helix hibernica*)

Legal Status in Kitsap County: Class C, Top 12 Noxious Weeds of Concern. The Kitsap County Noxious Weed Board recommends, but does not require, property owners to control and precent the spreads of herb Robert on private and public lands throughout the county. Containment of current infestations and prevention of new populations are strongly encouraged.

BACKGROUND INFORMATION

IDENTIFICATION

- English and Irish ivy are very similar plants in the Ginseng family (Araliaceae).
- Woody, evergreen, perennial vine, trailing or climbing. There are two distinct forms and growth stages of English ivy – the juvenile and the mature form.
- Leaves on non-flowering stems (juvenile stage): dull green, lobed, with distinct light veins; stems produce roots at nodes; most common leaf type on plant.
- Leaves on flowering stems (mature stage): glossy green, unlobed; stems produce umbrella-like clusters of greenish flowers, followed by dark berry-like fruits.
- Vines typically grow 90 feet long with stems up to one foot in diameter; can grow up 300-foot trees.
- Adventitious roots are formed at the leaf nodes of immature plants, and they help ivy climb by adhering or anchoring to surfaces – they do not penetrate the surface.



HISTORY AND ECOLOGY

- Hedera is native to Europe and Asia and was widely introduced into temperate parts of the world. It has a long history as a garden plant. Introductions to the Pacific Northwest date back to at least the 1890's.
- More than 400 different English ivy cultivars vary in leaf shape, size, color and growth form. While many cultivars are sold as ornamental plants, recent research indicates that several cultivars are invasive and should be avoided as landscape plants in the Pacific Northwest. Four cultivars of English ivy were added to the 2002 Washington State Noxious Weed List as Class C weeds. They are: *Hedera helix 'Baltica'; H. helix 'Pittsburgh'; H. helix 'Star'* and *H. hibernica 'Hibernica'*
- Ivy tolerates a wide range of light conditions, but growth is stimulated by light.
- Once mature, also spreads by bird-dispersed seeds found in berry-like fruits. Flowers in the fall; fruits mature in early spring. Roots are long and mostly creeping (usually 1-4 inches deep).
- Plants are long-lived, 50 to 100 years or more.

ECOLOGICAL THREATS

- Provides hiding places for rats and other vermin. In natural areas, crowds out native plants and takes over the forest floor.
- Adds substantial weight to trees, which can contribute to blowdowns.
- Forms thick mats that can accelerate rot and deteriorate structures.
- Shallow-rooted ivy mats on hillsides can increase risk of slope slippage.
- The entire plant contains slightly toxic compounds. Berries and leaves are toxic to people or livestock if eaten in a large quantity.
- The sap can cause dermatitis and blistering.

Photo 8: English ivy in Zone 4.

ENGLISH IVY CONTROL METHODS

PRIORITIZE

English ivy can be intimidating. It's best to prioritize your control of the plant. This is best approached through the following:

1. Apply the management zones identified in this plan.
2. Cut English ivy growing onto trees.
3. Control the spread; remove English ivy in least dense areas.
4. Once those areas are accomplished, focus on the dense areas.

SAFETY: Do NOT pull English ivy off trees without wearing a hard hat and performing a tree evaluation first. Pulling ivy off trees may cause limbs to break or dead trees to fall. This may cause serious injury.

MANUAL REMOVAL

Even though it is labor intensive, the most effective control method is manual removal.

NOTE: Remove all cut stems from soil contact. Vines may reroot if left on soil, so pile them root-side up or discard them with yard waste. Wear gloves and protective clothing. The sap can cause a reaction in some people.

IVY ON GROUND

1. For ivy growing on the ground, the most effective control method is pulling or digging out plants and removing the roots. Fall to spring is usually the best time for this because the ground is moist.
2. Remove flowers or seed heads you can reach.
3. Hand pull or dig out accessible plants.
4. Mowing is effective in areas that are mowed regularly. Clippings need to be removed.
5. Mulching – apply an 8 inch thick mulch layer. The plants can be cut or removed and then mulched, or a mulch layer can be directly applied on top of plants. This is not an option in steep areas.

IVY ON TREES

1. For ivy growing in trees, the key is separating the climbing vines from their roots. Ivy can only grow from roots in soil. (It doesn't get nutrients from tree trunks).
2. Cut and remove all vines to a comfortable height around the tree trunk. This will kill the upper vines; the lower vines will need to be pried off the tree and pulled out of the ground. Try to minimize damage to tree bark.
3. Clear at least 3-6 feet around tree.

IVY DISPOSAL METHODS

After removal, ivy can be left onsite to compost, or it can be taken off site to a local waste station or composting facility. For composting onsite, English ivy must be piled and separated from the ground. This can be done either by placing the ivy piles on cardboard, a tarp or using woody debris to make a platform to raise piles of ivy off of the ground.

1. For large projects where the removed ivy can remain on site and out of sight, the cut stems can be balled or stacked on top of itself and left on site. Lift the ivy piles to keep the cut stems and rootlets from soil contact, or regularly turn the clippings to keep exposing the rootlets to the air.
2. Pile the ivy and let it dry out or decompose. Cover the piles to speed the process.
3. Wrap the pulled vines into medium sized bundles, leave them on site to dry up and die.

KEEP IN MIND

- Based on research it typically requires from 300 to well over 1,000 human hours to perform the initial manual clearing on an acre of heavily infested ground. This assumes extensive ivy cover, gently sloped land and moist soil. Lower numbers may result from situations in which there are few or no native plants remaining, or if the ivy cover is not extensive. Higher numbers, sometime substantially higher will result from areas with abundant native vegetation mixed with heavy ivy cover, very steep slopes, dry soil or barriers such as logs and (native or non-native) blackberry.
- The pulling rate will also be greatly affected by the strength and dedication of the person(s) doing the pulling, root depth and density and soil conditions.

Nearly all sites require at least a second round of clearing to complete the initial restoration, then, annual or bi-annual maintenance to control stubbornly resprouting roots and new seedlings

Photo 9: English ivy in Zone 3.

English/Cherry laurel (*Prunus laurocerasus*)

Cherry laurel is on the monitor list of the Washington State Noxious Weed List and it is legal to sell and grow it in Washington. New plantings are discouraged especially where it could impact forest lands. For more information see Noxious weed lists and laws or visit the website of the Washington State Noxious Weed Control Board.

BACKGROUND INFORMATION

IDENTIFICATION

- Tall, dense, spreading thicket-forming shrub or small tree, 10 to 30 feet tall (usually kept shorter by pruning), grows as either a single-trunk tree or a multi-stemmed shrub.
- Evergreen leaves are dark green on top and pale underneath, thick, shiny, large (3 to 8 inches long), oblong, abruptly pointed at the tips, alternate on the stems, and have finely toothed edges and short leaf stalks.
- Flowers are found in upright clusters (racemes) of small, cream to white, fragrant, cup-shaped flowers with 5 petals and yellow stamens. The blooming period occurs from April to May.
- Fruits are cherry-like, small purplish-black, cone-shaped, clustered fruits.
- Twigs green and smooth
- Poisonous parts include wilted leaves, stems, and seeds (may be fatal if eaten).

REPRODUCTION AND SPREAD

- Reproduces through seeds, which are distributed by birds and possibly other animals
- Also spreads laterally by layering (growing roots from stems where they touch the ground.
- When cut, cherry laurel will sucker from the roots and re-sprout from cut stems.
- Grows in sun or shade, moist or dry soils, but does best in moist, well-drained soils.

ENGLISH LAUREL CONTROL METHODS

MANUAL AND MECHANICAL REMOVAL

1. Small plants can dug up when soil is moist (take care when handling because this plant is poisonous if ingested).
2. To control larger plants, cut stems and trunks by hand or chainsaw, cutting as close to the ground as possible. Rooting of the stems if left in place is unlikely.
3. After cutting larger plants, dig out as much of the roots as possible. Stumps should be turned upside down and soil should be brushed off roots to stop it from rerooting. Mature laurel trees have deep and extensive roots so digging is labor-intensive and may result in considerable soil disturbance.

CHEMICAL CONTROL

1. Chemical control of English laurel is most effective. Methods of control include cut stump treatment and injection. Foliar spraying of leaves is not highly effective due to the plants waxy cuticles.
2. Injections should be done with an EZ Ject lance, using Copperhead capsules (impazpic), per manufacturers direction.
3. Cut stump treatment can be applied to stumps immediately after cutting. Applying herbicide just 5 minutes after cutting a stump will result in ineffective treatment. Application should consist of 50% aquatic glyphosate 5.4 or 50% triclopyr 3A and remaining surfactant or kerosine. You only need to apply cut stump herbicide mixes to the outer 2-3 inches of bark, not the entire cut stump, as in photo below.

Herb Robert (*Geranium robertianum)*

Legal Status in Kitsap County: Class B noxious weed of concern (not in top 12). The Kitsap County Noxious Weed Board recommends, but does not require, property owners to control and precent the spreads of herb Robert on private and public lands throughout the county. Containment of current infestations and prevention of new populations are strongly encouraged.

BACKGROUND INFORMATION

IDENTIFICATION

- Herb Robert can grow up to a foot tall; however, under shady conditions, they will mature and flower at just two to three inches.
- The stems are covered with white hairs, branched and brittle at the joints; in bright light conditions they can be red. The stems may also sprawl along the ground.
- The leaves are finely divided, giving the plant a fern-like appearance. When crushed they emit an unpleasant odor; the plant is sometimes referred to as “Stinky Bob.” The leaves turn red in the fall.
- The flowers are usually pink, five-petaled, about half an inch across.
- The seed-pod has a long beak, like a stork’s bill.
- The roots are fibrous and pull up easy.

Photo 10. Noxious herb Robert in flowering phase (above) and seedling phase (below).

SIMILAR LOOKING SPECIES

- **Bleeding heart**, (*Dicentra formosa*), is a native plant that resembles herb Robert. Some differences are: bleeding heart is hairless but the stems and leaves of herb Robert are hairy. The stems of bleeding heart are not jointed. The flowers of bleeding heart are bell-shaped but herb Robert's are star-like.

- **Shiny geranium** (*Geranium lucidum*), Class B noxious weed, and the much more common dovesfoot geranium (*Geranium molle*) are also highly detrimental to natural areas. Both can be differentiated from herb Robert by their lobed, rounded to kidney shaped leaves and lack of offensive odor. Shiny geranium mostly differs from dovesfoot by having very glossy, less densely-lobed leaves with fewer, coarser hairs and smooth, hairless, bright-red stems.

Photo 11. Herb Robert (on left) look similar to native bleeding heart (right).

ECOLOGY

- Herb Robert thrives in moist shady areas, but is adaptable to most environments; it can grow on rocks, in sand, in wet or dry sites and in bright sun or deep shade.
- It is one of the few noxious weed species that will grow in undisturbed areas.
- It reproduces solely by seed and is normally an annual; however, in mild climates such as ours it can become a biennial or perennial.
- Flowers bloom and produce seed year-round, so the seed bank (the number of viable seeds in the soil) is constantly being replenished.
- Seeds are viable in seed bank for up to 5 years.

HERB ROBERT CONTROL METHODS

MANUAL CONTROL

1. Although easy to pull, the stem is brittle at its base, breaking easily and allowing the highly branched roots to remain embedded in the soil. To prevent its re-flowering, remove the entire root structure by grasping it by the crown. Avoid spreading seeds by bagging the plants as they are pulled. Be aware that the seeds can adhere to clothing, gloves, and shoes.
2. Hand-pulling is most effective in spring or summer before flowers begin to develop.
3. Plants should be disposed of carefully. If put on compost piles or left on the ground, they will very likely re-grow.
4. Seedlings will continue to appear until the seed bank is exhausted, so the site should be monitored, and seedlings removed as they appear.

HERB ROBERT DISPOSAL METHODS

1. Since herb-Robert can set seed after it has been pulled from the ground, it is necessary to bag the entire plant and discard it in the trash.

CHEMICAL CONTROL

1. Spot- spraying rosettes is highly effective prior to flowering. Spot spray in spring or early summer, prior to flowering. Spraying after flowing will not control seed spread.
2. Use 2-4% aquatic glyphosate 5.4 mixed with 50% volume of triclopyr 3A and appropriate surfactant.

Photo 12. Dense clump of herb Robert.

Himalayan blackberry (*Rubus armeniacus*) and Evergreen Blackberry (*Rubus laciniatus*)

Legal Status in Kitsap County: Himalayan blackberry and evergreen blackberry are Class C noxious weeds (non-native species that can be designated for control based on local priorities) according to Washington State Noxious Weed Law, RCW 17.10. The State Weed Board has not designated these species for control in Kitsap County. The Kitsap County Weed Control Board recommends control of these species where feasible but does not require it.

BACKGROUND INFORMATION

IDENTIFICATION

1. Himalayan blackberry

- Himalayan blackberry is a robust, sprawling perennial with stems having large stiff thorns.
- Main canes up to 10 feet long with trailing canes reaching up to 40 feet.
- Trailing canes typically take root at the tips.
- Leaves are large, round to oblong and toothed typically come in sets of three (trailing canes) or five (main stems).
- Individual canes can reach a density of 520 canes per square meter.
- Flowers are white to pink, about one inch in diameter and borne in clusters of about 5 to 20 blooms.
- Develops edible black fruit that clings to the center core when picked.

2. Evergreen blackberry

- Evergreen blackberry is a robust trailing evergreen shrub that grows into impenetrable thickets.
- Ribbed reddish stems up to 10 feet in length with large curved thorns.
- Young canes arch as they grow longer, eventually reaching the ground and rooting at the nodes.
- Palmately compound leaves with 3 to 5 deeply lacerated leaflets.
- Flowers are white to pink about one inch in diameter borne in clusters.
- Develops edible black fruit that clings to the center core when picked.

Photo 13. Himalayan blackberry (1) and evergreen blackberry (2).

ECOLOGICAL IMPACT

- Highly invasive and can be found throughout Kitsap County.
- Can be very difficult to control.
- Out competes native understory vegetation and prevents the establishment of desirable native shade intolerant trees such as Pacific Madrone, Douglas Fir and Western White Pine.
- Can limit movement of large animals when forming large impenetrable thickets.

HABITAT

- Blackberry can be found in a myriad of habitats such as vacant lands, pastures, forest plantations, roadsides, creek gullies, river flats, riparian areas, fence lines, and right-of- way corridors.
- Does not grow well in wetland areas, will grow if cane tip roots.

REPRODUCTION AND SPREAD

- Reproduces vegetatively by root and stem fragments and by seed.
- Plants begin flowering in spring with fruit ripening in midsummer to early August.
- Daughter plants can form where canes touch the ground. Seeds can remain viable in the soil for several years.

BLACKBERRY CONTROL METHODS

EARLY DETECTION AND PREVENTION

- Blackberry is easily identifiable throughout the year.
- Manually control new infestations as early as possible.
- Monitor the control site and remove any plants returning from root fragments.

MANUAL REMOVAL

1. Hand-pull the stem closest to the ground and uproot the root ball.
2. This method is most effective with first year plants. Manual control works best after rain or in loose soils where the canes are suppressed because the blackberries are growing in a forest understory.
3. Digging up root crowns and major side roots is slow but will control blackberry and is effective on small infestations.
4. If removing dense patches, area should be replanted with native plants and mulched, or reseeded with a suitable grass.
5. Stems can be composted, but they will root on moist soil, so they need to be completely dried out or chipped up before composting.

MECHANICAL REMOVAL

1. Mowing, including the use of riding mowers and tractor mounted mowers, can be very effective in controlling blackberries but also may harm desirable plants present.
2. Mowing should not be used where soils are highly susceptible to compaction or erosion, or where soils are very wet.
3. Several cuttings a year over several years are necessary to exhaust the roots of their reserve food supply.
4. If only one cutting is done per year, cut when the plants begin to flower. If no follow-up is done, the blackberry may re-sprout from the root crown at a greater density and could overgrow any vegetation planted.

CHEMICAL TREATMENT

1. Spot- spraying rosettes is highly effective prior to flowering. Spot spray in spring or early summer, prior to flowering. Spraying after flowing will not control seed spread.
2. Use 2-4% aquatic glyphosate 5.4 mixed with 50% volume of triclopyr 3A and appropriate surfactant.

Scotch broom (*Cytisus scoparius*)

There is no legal requirement to control Scotch broom in most of Kitsap County, but removal is recommended as part of forestry, pasture and natural area management. The Kitsap County Weed Control Board lists this species under "other" weed of concern and recommends control where feasible but does not require it.

BACKGROUND INFORMATION

IDENTIFICATION

- Listed in 1998; Native to: Europe. Pea family.
- Deciduous shrub that grows to ten feet tall.
- The dark green woody stems have a waxy covering and are ridged. The lower leaves have three leaflets, but the upper leaves are single.
- The pea-like flowers are usually bright yellow, but can be tinged with red or purple. They bloom April to June.
- The black or brown seed pods are hairy at the edges. The hard-coated oval seeds are about 1/8th inch long.
- The plant has a deep, branched taproot.

ECOLOGY

- Because it fixes its own nitrogen, Scotch broom tolerates a wide range of conditions, but grows best in dry, well-drained soils in full sun. Seedlings can establish under the canopy of mature plants in full shade. It is tolerant of low-nutrient soils and a wide range of soil moisture conditions. Scotch broom commonly found in disturbed areas.
- A perennial that reproduces by seed; the pea like pods eject the seed up to ten feet. A three year old plant produces up to 18,000 seeds per year, which remain viable in the ground for up to sixty years. Although plants can resprout after cutting, individuals rarely live more than 10-15 years.

ECOLOGICAL THREAT

- Scotch broom displaces native and beneficial plants, causing loss of grassland and open forest.
- It aggressively spreads to form monocultures, replacing desirable forage grasses and young trees.
- Seeds are toxic to livestock and horses.

SCOTCH BROOM CONTROL METHODS

MANUAL AND MECHANICAL REMOVAL

1. Do not use pulling tools (Weed Wrench) to pull scotch broom from the ground. This causes soil tilling which encourages new scotch broom to grow. Provided the plants only grow in disturbed soils, this is the perfect medium for them to grow.
2. Cutting can be an effective control method for older plants that are no longer green at the base.
3. Cutting plants under 2” inches in diameter will likely cause regrowth. Those plants can potentially be pulled out of the ground, or the regrowth can be cut in future years.
4. Perform cutting in late July to August, when the plant is flowering but not seeding.
5. Cut stems as close to the ground as possible.
6. Use of small hand saws, chainsaws, brush cutters, axes, machetes or loppers is useful for cutting down larger specimens.
7. Expect the level of control work to be intensive for the first several years due to seed banks, soil disturbance that occurs when pulling or digging, and regrowth of cut plants.

SCOTCH BROOM DISPOSAL METHODS

1. Do not put plants with seed pods in compost or yard waste.
2. Seeds are very tough and long-lived and can contaminate mulch made from compost. Ideally, control activities should be done before plants go to seed to avoid disposal problems.
3. Scotch broom with or without seeds can be disposed of at a Kitsap County transfer station.
4. If it is not practical to dispose of the broom as recommended above, leave plants with mature seed pods on-site in order to limit spread to new areas. Pile scotch broom into 4-5 foot piles when retaining onsite.

CHEMICAL CONTROL

1. Spot- spraying rosettes is highly effective prior to flowering. Spot spray in spring or early summer, prior to flowering. Spraying after flowing will not control seed spread.
2. Use 2-4% aquatic glyphosate 5.4 mixed with 50% volume of triclopyr 3A and appropriate surfactant.

Appendix C. Native Plant Enhancement

This chapter includes recommendations for restoration and enhancement of the wetlands, riparian corridor, and upland areas to increase ecological function and value.

We recommend replanting using the instructions below after removing 1,000 to 2,000 square feet of invasive plant material, or wherever native plants are limited.

Invasive plant control should be performed prior to planting. Native vegetation can be planted over a period of several years. Upkeep of invasive plants must continue for restoration to be successful. Restoration plantings should emphasize diversity – a diverse ecosystem control invasive plants itself and promotes ecological habitat.

Diverse plants include fruit bearing shrubs and ground cover, season-wide flowering schedules, and flower persistence. Choose plants whose flowering schedules overlap and where the plant community offers pollinators a variety of flowers throughout the season. Not all plants offer foraging for pollinators all season long. A strong and resilient plant community will offer foraging opportunities throughout the season though plants with overlapping flower timing.

Stream health is closely and intricately tied to the surrounding area, the riparian habitat. The aquatic habitat interacts with its healthy riparian corridor within the watershed, in turn promoting ecosystem diversity within its healthy stream habitat. Native riparian vegetation protects the stream from erosion, temperature extremes and pollutants. Noxious weed invasions may alter critical riparian processes including forest and understory regeneration, streambank stability, soil nutrient cycling. Understory shrubs and low trees act as preferred habitat and foraging for some bird and mammalian species. Native shrub species should be retained and protected from invasive species.

Planting Guidelines

1. For every 1,000 feet of invasive plants removed, approximately 100-200 native plants should be installed at approximately 2-3 feet spacing between the new plants.
2. Hand planting is preferred. Augers may be used to dig holes, but no machinery should be used.
3. Use plants from either **Table 4** for areas near wetlands and within riparian corridor, or **Table 5** for upland, dryer areas.
4. Use bare-root plants, plugs, or potted plants purchased from local nurseries. For help purchasing native plants, see
5.
6. **Native Plant** Acquisition section below.
7. Native plants should be installed in small groups of 3-5, of the same species.
8. Planting shall ideally be performed in the late fall to early winter, and at least in the window of October to February.
9. Apply mulch as needed, described in the **Mulch Amendment Guidelines.**
10. Consider using plant protective barrier if grazers, such as deer, are impacting survival.

11. Local nursery stock should be used, when available, to ensure that the material has acclimated to local conditions and is genetically comparable with plants in the local area.

Mulch Amendment Guidelines

1. Mulch around all newly installed plants with hardwood chips such as alder (uncomposted, non-cedar). These woodchips can be provided by a tree service/arborist or purchased at a local landscape supplier.
2. Wood chips should be free of weed seed, sawdust, and shall not contain anything detrimental to plant growth. Pure bark or beauty bark should not be used. Bark is not as good a source of organic material for replenishing soil; instead use woodchips.
3. Start mulching **2-3 inches from the base of the plant working** out to around 12 or 18 inches. Do not cover stem of plant with woodchips.
4. Apply mulch approximately 2 to 3 inches thick.

Native Plant Acquisition

We recommend purchasing native plants from the following vendors:

Fourth Corner Nursery
5652 Sand Road | Bellingham, WA 98226 | (360) 592-2250 | sales@fourthcornernurseries.com
http://www.fourthcornernurseries.com

Go Natives! Nursery
2112 NW 199th St | Shoreline, WA 98177 | (206) 799-1749
https://gonativesnursery.com/

Kitsap County Conservation District
10332 Central Valley Rd NE | Poulsbo, WA 98370 | (360) 204-5529 | kcd@kitsapcd.org
https://kitsapcd.org/plant-sale

Valley Nursery, Inc
20882 Bond Rd NE | Poulsbo, WA 98370 | (360) 779-3806 | info@valleynurseryinc.com
http://valleynurseryinc.com/

Washington Association of Conservation Districts
16564 Bradley Road | Bow, WA 98232 | (360) 757-1094 | pmcsales@gmx.com
http://www.wacdpmc.org

Native Plant Recommendations

Table 4. Riparian and Wetland Restoration And Enhancement Planting List			
Form	**Scientific Name**	**Common Name**	**Habitat**
Trees	*Alnus rubra*	Red alder	Moist areas
	Populus trichocarpa	Black cottonwood	Streambanks, riparian zones, river corridors, and moist woods
Shrubs and small trees	*Cornus stolonifera*	Red-osier dogwood	Moist soil, especially along streams
	Lonicera involucrata	Black twinberry	Forest openings, edge, thickets, marshes
	Rubus leucadermis	Blackcap raspberry	Thickets, forest edge, openings
	Rubus spectabilis	Salmonberry	Moist woods and swamps
	Salix hookeriana	Coastal willow	Moist, swamps areas, coast to mountains
	Salix scouleriana	Scouler's willow	Moist woods and streambanks
	Salix sitchensis	Sitka willow	Moist woods and streambanks
Herbaceous cover	*Athyrium felix-femina*	Common lady fern	Moist woods, meadows, forest edge, and shaded riparian corridor
	Carex obnupta	Slough sedge	Sloughs, shores, wet meadows, riparian forest and ditches, sun or shade
	Fragaria chiloensis	Coastal Strawberry	Sand dunes, strand, headlands, open coastal habitats
	Fragaria vesca	Wood strawberry	Moist woods, stream banks, meadows
	Juncus bolanderi	Bolander's rush	Marshes and river bottoms, tidelands
	Juncus effusus	Hardstem bullrush	Moist areas, coastal tideflats
	Lupinus rivularis	Riverbank lupine	Gravelly prairies, open woods, riverbanks
	Oenanthe sarmentosa	Pacific water-parsley	Near shore, often in standing water
	Tolmiea menziesii	Youth-on-age	Moist woods and stream banks
	Viola glabella	Stream violet	Moist woods and stream banks

Table 5. Upland Restoration And Enhancement Planting List			
Form	**Scientific Name**	**Common Name**	**Habitat**
Trees	*Alnus rubra*	Red alder	Moist areas
	Thuja plicata	Western red cedar	Wetlands and stream edges, wet soils
	Pseudotsuga menziesii	Douglas-fir	Dry area only
Shrubs and small trees	*Corylus cornuta*	Beaked hazelnut	Moist, dry, sun, shade
	Holodiscus discolor	Oceanspray	Facultative upland
	Mahonia aquifolium	Tall Oregon grape	Grown in almost any light, from full sun to dense shade, but will grow best in partial shade
	Oemleria cerasiformis	Osoberry	Moist to dry, open forest, forest edge, and stream bank thickets
	Philadelphus lewisii	Mock orange	Sun, part shade, dry
	Prunus emarginata	Bitter cherry	Moist, dry
	Ribes sanguineum	Red flowering current	Mist to dry soils, sun and tolerates shade
	Rubus leucadermis	Blackcap raspberry	Thickets, forest edge, openings
	Rubus nivalis	Snow dwarf bramble	Open to deeply shaded, moist areas
	Rubus parviflorus	Thimbleberry	Forest edge, openings, thickets, meadows, riparian corridors
	Rubus ursinus	Trailing blackberry	Woodlands, thickets, and balds, dry soils
	Symphoricarpos albus	Common snowberry	full sun or partial shade, along stream banks and in swampy thickets, but they thrive in dry areas as well
Herbaceous cover and subshrubs	*Arctostaphylos uva-ursi*	Kinnikinnick	Facultative upland species, dry soils, shade and sun, precent surface erosion
	Dicentra formosa	Bleeding heart	Moist woods, coast, mountains
	Fragaria chiloensis	Coastal Strawberry	Sand dunes, strand, headlands, open coastal habitats
	Fragaria vesca	Wood strawberry	Moist woods, stream banks, meadows
	Mahonia nervosa	Dull Oregon grape	Full sun to deep shade
	Mahonia repens	Creeping Oregon grape	Filtered or partial sun using well-draining acidic soil
	Polystichum munitum	Western swordfern	Moist coniferous woods, shade
	Tellima grandiflora	Fringecup	Moist but well-drained soil in partial shade

Appendix D. Noxious Weed and Management Area Maps

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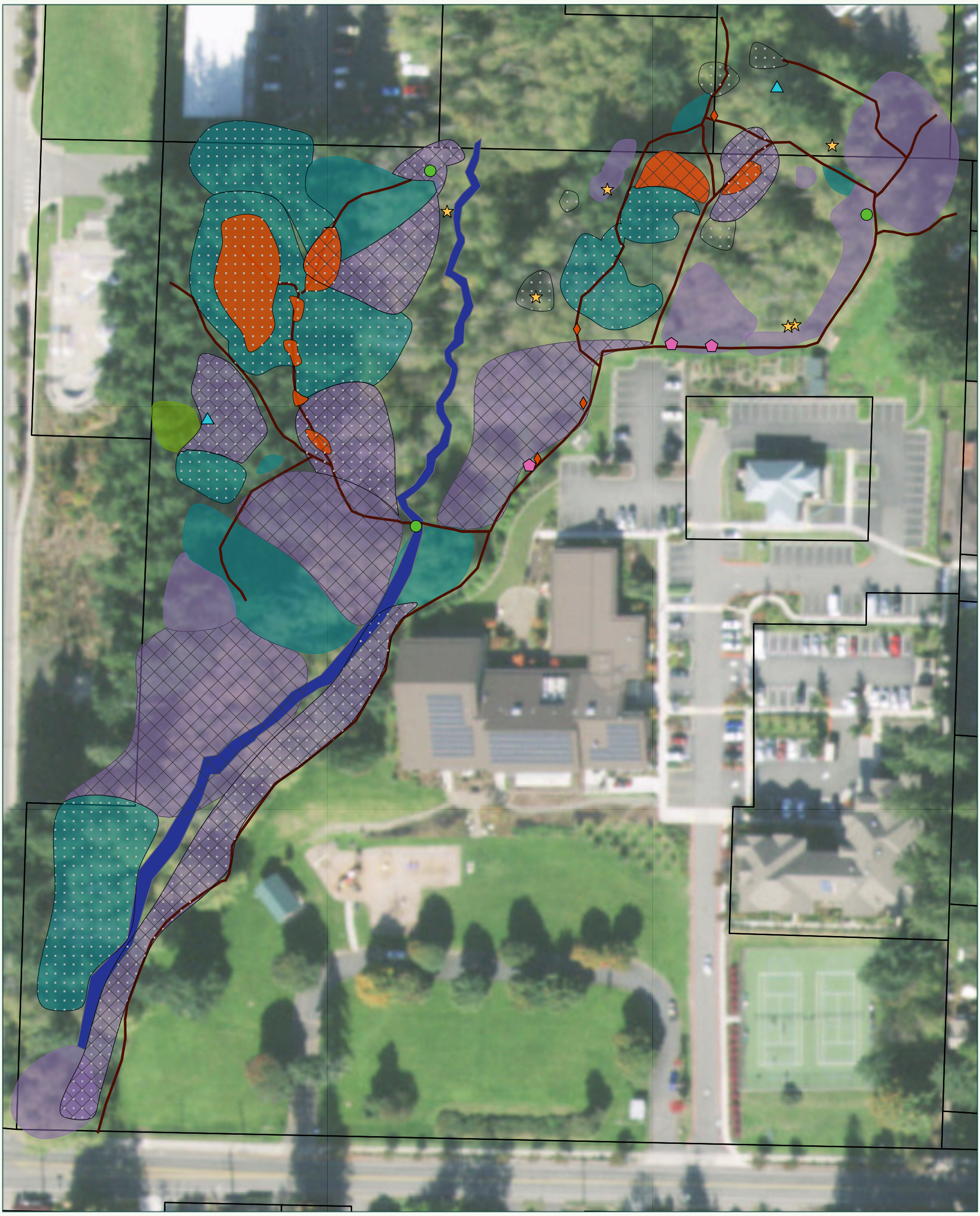
Maps on following pages.

Village Green Noxious Weeds

Invasive Management Plan



Map created January 2023
Map data collected by Consultant, parcel data sourced from Kitsap County, basemap sourced from ESRI.

Feet
0 120

Map created in partnership with Village Green Metropolitan Park District. Noxious Weeds are introduced, non-native plant species that may be aggressive, competitive, highly destructive or difficult to control. They upset the balance of natural ecosystems and can displace native plants or animals.

PENINSULA ENVIRONMENTAL
Consultant & General Contractor

Map Legend

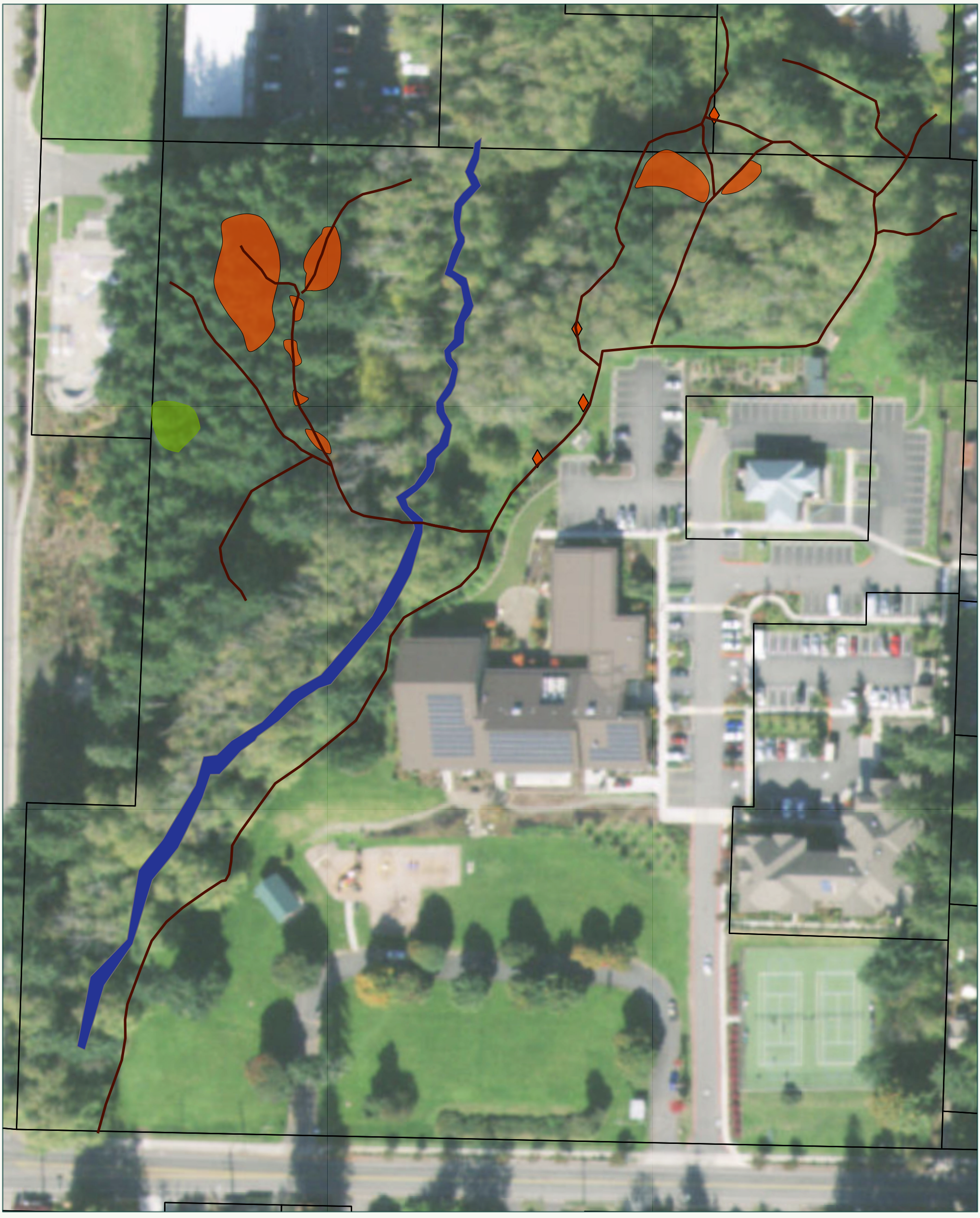
Noxious Weed Species
- Himalayan blackberry
- Ivy > 50% density
- Scotch broom
- Herb Robert
- Holly
- Ivy < 50% density

Noxious Weed point locations
- Bull thistle
- Evergreen blackberry
- Herb Robert
- Holly
- Reed canary grass

Other features
- Kingston Creek
- Trails
- Kitsap County parcels

Village Green Noxious Weeds

Management Zone 1 - Class B



Map created January 2023
Map data collected by Consultant, parcel data sourced from Kitsap County, basemap sourced from ESRI.

Management Zone 1 prioritizes Class B noxious weeds onsite (Herb Robert and Scotch Broom).

Feet
0
120

PENINSULA ENVIRONMENTAL
Consultant & General Contractor

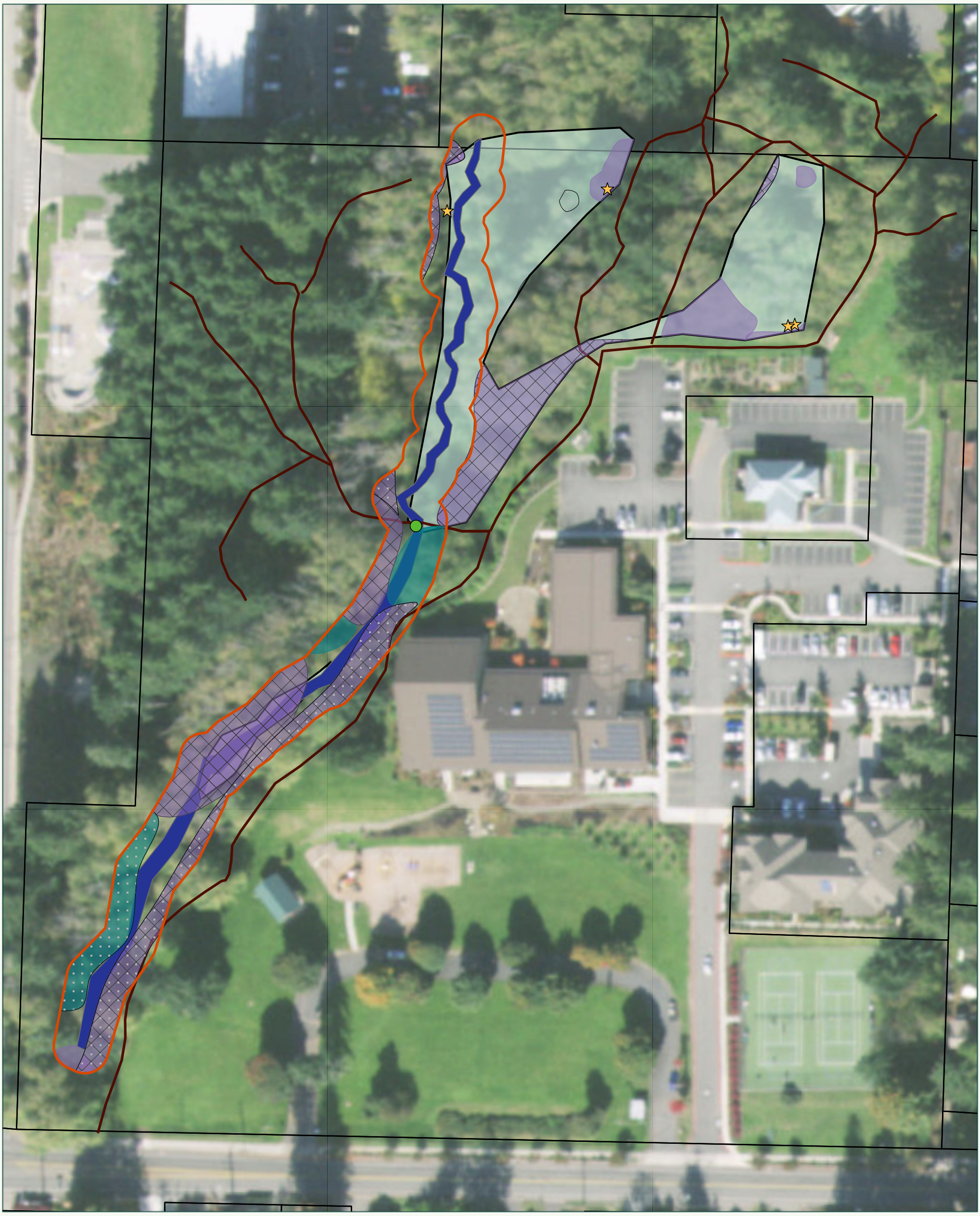
Map Legend

Class B Noxious Weeds
- Herb Robert
- Scotch broom

Other features
- Trails
- Kingston Creek
- Kitsap County parcels

Village Green Noxious Weeds

Management Zone 2 - Sensitive Habitat



Map created January 2023
Map data collected by Consultant, parcel data sourced from Kitsap County, basemap sourced from ESRI.

Feet
0 120

Management Zone 2 prioritizes Class C noxious weeds and monitor list species that are located within the three onsite wetlands and within the riparian corridor (20-ft of streambank).

PENINSULA ENVIRONMENTAL
Consultant & General Contractor

Map Legend

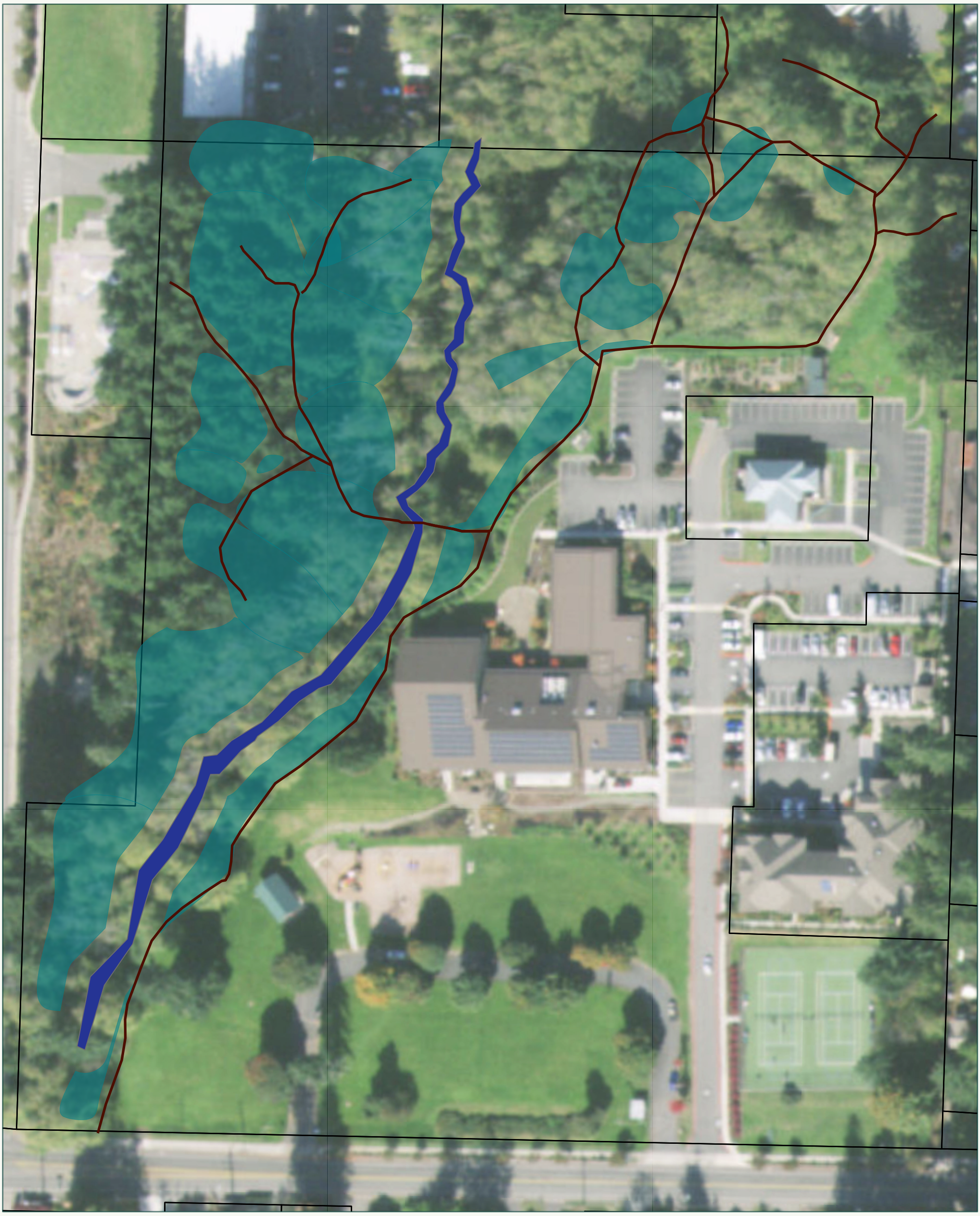
Noxious Weed Species
- Holly
- Ivy < 50% density
- Himalayan blackberry
- Ivy > 50% density
- Large holly tree
- Reed canary grass

Sensitive Areas
- Riparian corrider 20-ft from creek
- Wetland boundary
- Kingston Creek

Other Features
- Trails
- Kitsap County parcels

Village Green Noxious Weeds

Management Zone 3 - Weeds of Concern



Map created January 2023
Map data collected by Consultant, parcel data sourced from Kitsap County, basemap sourced from ESRI.

Feet
0 120

Management Zone 3 prioritizes removal of English ivy across the Park. English Ivy has formed dense from monocultures throughout the Site and is shading out and outcompeting native species.

PENINSULA ENVIRONMENTAL
Consultant & General Contractor

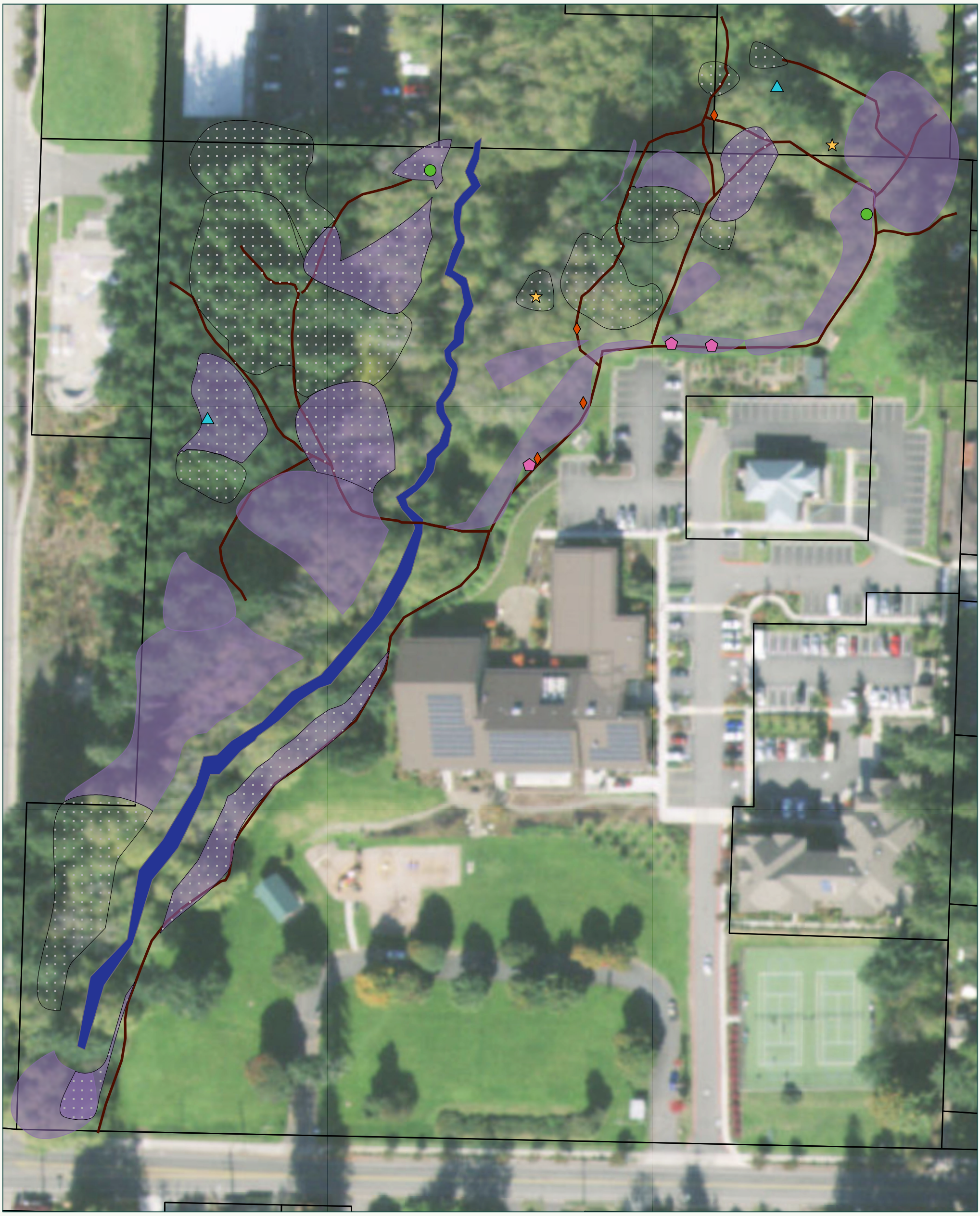
Map Legend

Noxious Weed Species
- Ivy

Other features
- Kingston Creek
- Trails
- Kitsap County parcels

Village Green Noxious Weeds

Management Zone 4 - Class C and Monitor List



Map created January 2023
Map data collected by Consultant, parcel data sourced from Kitsap County, basemap sourced from ESRI.

Feet
0 120

Management Zone 4 prioritizes removal of Class C noxious weeds Himalayan blackberry, evergreen blackberry, and bull thistle; and monitor list English holly and laurel.

PENINSULA ENVIRONMENTAL
Consultant & General Contractor

Map Legend

Species
- Himalayan blackberry
- Holly
- Bull thistle
- Evergreen blackberry
- Herb Robert
- Holly
- Reed canary grass

Other features
- Trails
- Kingston Creek
- Kitsap County parcels