ENVIRONMENTAL OVERLAY ZONE MAP CORRECTION PROJECT

VOLUME 3, PART C:

Tryon Creek & Southwest Hills East, Natural Resources Inventory and ESEE Decisions

Discussion Draft

November 2019

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon

How to Comment

You may submit comments to Bureau of Planning and Sustainability staff on the Environmental Overlay Zone Map Correction Discussion Draft by:

Email
Send an email to ezone@portlandoregon.gov

U.S. Mail
Bureau of Planning and Sustainability
1900 SW 4th Avenue, Suite 7100
Portland, Oregon 97201
Attention: Ezone Map Correction Project

For more information
Visit the project website: https://www.portlandoregon.gov/bps/e-zone
Contact the project team: 503-823-4225

COMMENTS DUE: **January 31, 2020**

Acknowledgements

This plan is the culmination of three years of work across the City of Portland. Many thanks to the thousands of stakeholders, property owners, renters, business owners and interested people who attended dozens of neighborhood and community meetings and invited staff to their homes and businesses to perform site visits.

Portland City Council

Ted Wheeler, Mayor & Commissioner in Charge

Chloe Eudaly, Commissioner

Nick Fish, Commissioner

Amanda Fritz, Commissioner

JoAnn Hardesty, Commissioner

Portland Planning and Sustainability Commission

Katherine Schultz, Chair

Chris Smith, Vice Chair

Eli Spevak, Vice Chair

Jeff Bachrach

Ben Bortolazzo

Mike Houck

Katie Larsell

Akasha Lawrence Spence

Oriana Magnera

Daisy Quiñonez

Steph Routh

Bureau of Planning and Sustainability

Andrea Durbin, Director

Joe Zehnder, Chief Planner

Sallie Edmunds, River and Environmental Planning Manager

Project Managers and Core Team

Mindy Brooks, Environmental Planner, Project Manager

Daniel Soebbing, Assistant Planner

Neil Loehlein, GIS Analyst

Chad Smith, Environmental Specialist (BES)

Marc Peters, Environmental Specialist (BES)

Matt Vesh, Environmental Specialist (BES)

Contributing Staff

Shannon Buono, Eden Dabbs, Krista Gust, Nick Kobel, Carmen Piekarski

Bureau of Environmental Services: Kaitlin Lovell, Marie Walkiewicz, Paul Ketcham

Bureau of Parks and Recreation: Brett Horner, Emily Roth

Bureau of Development Services: Morgan Steele

Consultants: Barney & Worth, facilitation services

Bureau of Planning and Sustainability

Innovation. Collaboration. Practical Solutions.

Table of Contents

Maps

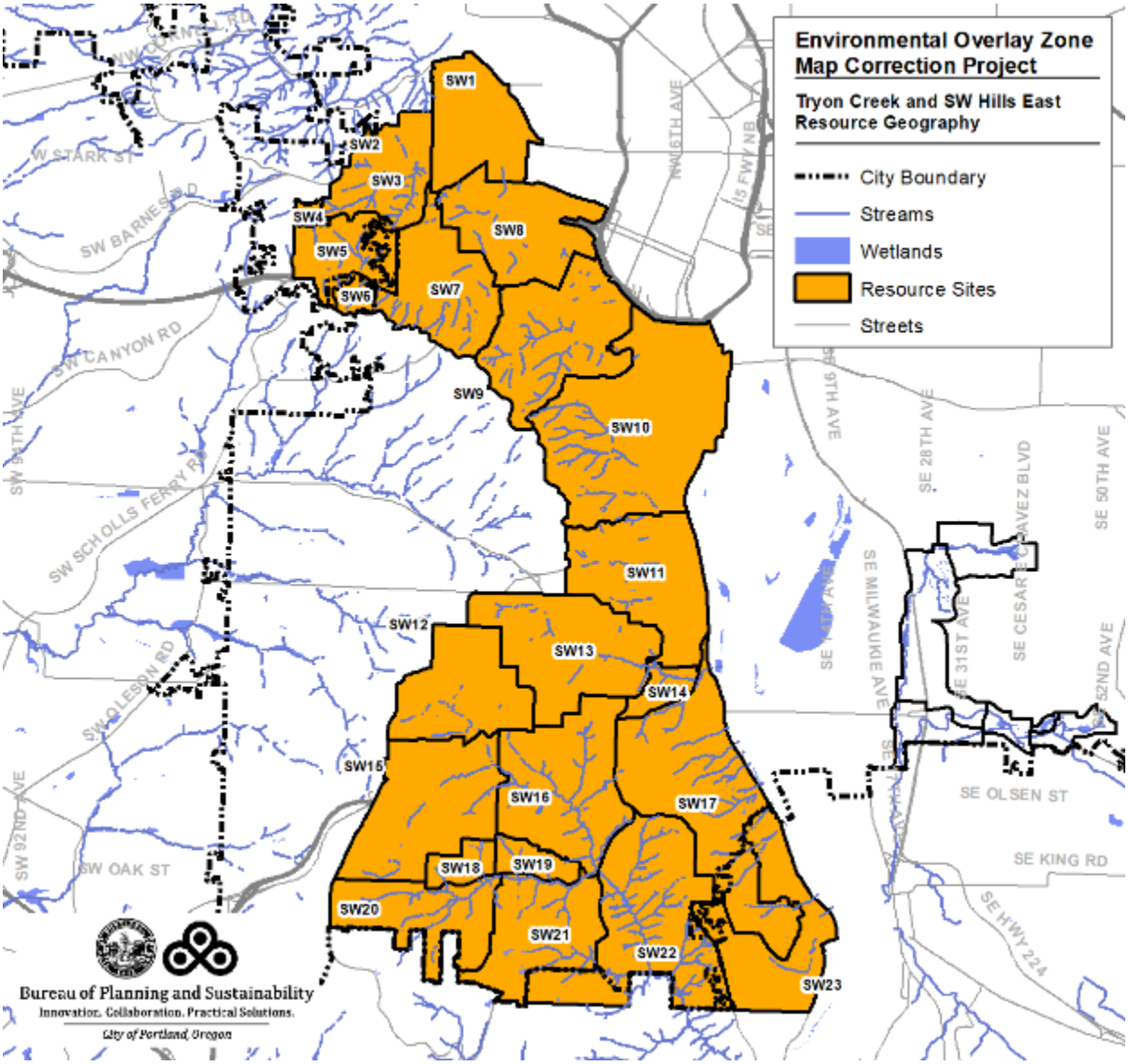
Tables

A. Introduction

Volume 3, Part C, includes the results for resource sites in the Southwest Hills geography (see Map 1). For each resource site the following is presented:

1. Natural resources inventory of riparian corridors and wildlife habitat pursuant to OAR 660-023-0030, 660-023-0090 and 660-023-0110.
2. Economic, Social, Environmental and Energy analysis pursuant to OAR 660-023-0040.
3. Economic, Social, Environmental and Energy decisions pursuant to OAR 660-023-0040.
4. Program implementation recommendations pursuant to OAR 660-023-0050.

The program to implement the inventory, ESEE decisions and recommendations are the updated zoning maps and codes found in Volume 1.



Map 1: Tryon Creek and Southwest Hills East Resource Geography

B. How to Use this Document

Below is a description of how to use the information found in this volume during quasi-judicial reviews.

Significant Natural Resource Feature and Functions Descriptions and Maps

Natural resource features include rivers, streams, , wetlands, flood area, vegetation (forest, woodland, shrubland and herbaceous), steep slopes and Special Habitat areas. These features are factual data that are mapped following the in the natural resources inventory. The descriptions are based on supplemental inventories, reports and site visits. Natural resource functions are the riparian corridor and wildlife habitat benefits provided by the features. The methodology uses to map and identify the natural resource features and function is documented in the Natural Resources Inventory (Appendix B) and Wetland Inventory Project (Appendix C).

The natural resource features maps can be updated at any time based on more current and accurate data, such as a wetland delineation. The environmental overlay zone boundaries may be corrected based on new topographic feature data through 33.885.070, Correction to the Official Zoning Maps, or through 33.430.250.D, Modification of Zone Boundaries.

Economic, Social, Environmental and Energy Analysis

The general ESEE analysis and recommendations are found in Volume 2. For each resource site, the general ESEE analysis and recommendations are affirmed, clarified or modified based on resource site-specific information. An ESEE decisions is made for each resource site. The ESEE decision describes which significant natural resource features and functions should be protected from the impacts of conflicting uses.

Implementation

The results of the inventory and ESEE decision for each resource site are implement by updates to the zoning code and maps found in Volume 1.

C. Natural Resources Definitions

Additional details can be found in Volume 4, Appendix B: Natural Resources Inventory, and Appendix C: Updated Wetland Mapping Protocol.

Waterbodies

Stream: A stream is a channel that has a defined bed and bank and carries water continuously for a week or more during at least the wet season (October through April). Streams may be naturally occurring or may be a relocated, altered or created channel. Streams may contribute water into another waterbody or the water may flow into a pipe or culvert. Streams may flow for some distance underground. Streams are also referred to as *drainageways, ditches,* or *drainages* in other City of Portland reports, codes and rules or by other agencies including but not limited to Oregon Department of State Land or US Army Corps of Engineers. Streams include:

- the water itself, including any vegetation, aquatic life or habitat;
- the channel, bed and banks located between the top-of-bank; the channel may contain water, whether or not water is actually present;
- intermittent streams, which flow continuously for weeks or months during the wet season and normally cease flowing for weeks or months during dry season;
- sloughs, which are slow-moving, canal-like channels that are primarily formed by tidal influences, backwater from a larger river system, or groundwater;
- oxbows and side channels connected by surface flow to the stream during a portion of the year; and
- drainage from wetlands, ponds, lakes, seeps or springs, which may or may not form a defined bed and bank.

Drainage: A drainage is an area on the land that conveys flowing water for only hours or days following a rainfall. If a drainage drains water from a wetland, pond, lake, seep, or spring even if it does not have a defined bed and bank, then it is classified as a stream.

Roadside Ditch: A roadside ditch is a constructed channel typically parallel and directly adjacent to a public or private road. A roadside ditch is designed to capture and convey stormwater runoff from the road and is routinely cleaned (i.e., mechanically scoured or scraped of vegetation and debris) to maintain water conveyance capacity. Naturally occurring streams and drainages that have been relocated due to the construction of a road are not considered a *roadside ditch*.

Wetlands: Areas where shallow water is present long enough to create hydric soils and could support hydrophilic vegetation, although due to landscaping, seeding, mowing or grazing hydrophilic vegetation may not be present.

Floodplain: Areas with a 1% or greater chance of flooding in any given year and areas that were inundated with water during the 1996 floods.

Vegetation

Vegetation Patch: An area of contiguous vegetation greater than ½ acre in size containing a distinct pattern, distribution, and composition of vegetation relative to surrounding vegetated and non-vegetated areas.

Forest: Trees with their crowns overlapping, generally forming 60-100% of cover.

Woodland: Open stands of trees with crowns not usually touching, generally forming 25-60% of cover. Tree cover may be less than 25% in cases where it exceeds shrubland and herbaceous vegetation.
Shrubland: Shrubs generally greater than 0.5 m tall with individuals or clumps overlapping to not touching, generally forming more than 25% of cover with trees generally less than 25% of cover. Shrub cover may be less than 25% where it exceeds forest, woodland, and herbaceous vegetation. Vegetation dominated by woody vines (i.e., blackberry) is generally included in this class.
Herbaceous: Herbs (graminoids, forbs, ferns and shrubs less than 0.5m tall) dominant, generally forming at least 25% of cover. Herbaceous cover may be less than 25% where it exceeds forest, woodland and shrubland vegetation. This includes shrubs less than 0.5 m tall.

Steep slopes: Land with a 25% or greater slope.

Riparian Corridors: Rivers, streams, wetlands and floodplains plus the areas bordering the waterbodies; the width of the riparian corridor varies by waterbody as well as the vegetation and slopes surrounding the waterbody.

Wildlife Habitat: Waterbodies, floodplain, land, vegetation and other features that support fish and wildlife during one or more life cycle phase; manmade features may provide wildlife habitat.

Special Habitat Areas: Designated by the City of Portland in accordance with Metro's Urban Growth Management Functional Plan Title 13, Nature in Neighborhoods, areas that contain or support special status species, sensitive/unique plant populations, or other unique natural or manmade habitat features.

D. Resource Site Boundaries

Statewide Land Use Planning Goal 5 requires local jurisdictions to establish resource sites within which the natural resources are inventoried and the ESEE analysis is performed. OAR 660-023-0010 defines resource site, or site, as "a particular area where resources are located. A site may consist of a parcel or lot or portion thereof or may include an area consisting of two or more contiguous lots or parcels."

Portland established resource sites through the previously adopted conservation and protection plans. This project is remapping resource site boundaries to be more consistent and easier to implement.

The resource sites were remapped in the following way:

1. The previous resource site boundaries were used to the maximum extent practicable. The intent is to maintain consistency between the past plans and this project.
2. Resource site boundaries were expanded to capture contiguous or similar and adjacent natural resource features.
3. Resource site boundaries were expanded to eliminate unnecessary gaps between resource sites.
4. Very small resource sites, with similar natural resource features and functions, were consolidated into one single larger resource site.
5. Resource site boundaries were adjusted to include entire properties within a single resource site. In some cases, adjacent lots under the same ownership may be in different resource sites; however, in these situations the resource site boundary follows lot lines.
6. Centerlines of streets, bridges, railroad tracks or other transportation facilities are often used to delineate resource site boundaries.
7. The City Boundary or Urban Service Boundary is used along the edges of Portland to provide the outer edge of resource sites.

E. Results

The results begin with a description of the Johnson Creek natural resources generally. The general description is applicable to each resource site. Following the general description are results for the resource sites. For each resource site the following information is provided:

1. Inventory of Natural Resources – The quantity and quality of natural resource features, such as streams miles or acres of forest, based on the Natural Resources Inventory methodology (Appendix B), Wetland Inventory Project (Appendix C) and site visits is presented. A description of the natural resources is also provided.

2. Determination of Significance – Statement of which natural resources are significant for purposes of State Land Use Planning Goal 5.

3. Resource Site-Specific ESEE – Additional analysis addressing site-specific conditions resulting in a decision for the resource site. The decision may confirm, clarify or modify the general ESEE recommendation found in Volume 2.

4. Maps
    A. Zoning – base zones
    B. Water Features – rivers, streams, wetlands and flood areas
    C. Land Features – forest, woodland, shrubland and herbaceous vegetation, steep slopes, Special Habitat Areas
    D. Riparian Corridors – natural resource features providing one or more riparian corridor functions
    E. Wildlife Habitat – natural resource features providing one or more wildlife habitat functions
    F. Determination of Significance – Goal 5 significant natural resources
    G. ESEE Decision – where to strictly limit, limit and allow conflicting uses in areas of significant natural resources

Tryon Creek and Southwest Hills East Natural Resources

The Southwest Hills forest protects and conserves important resources such as watersheds and soils. Forest vegetation moderates the effects of winds and storms, stabilizes and enriches the soil, and slows runoff from precipitation, thereby minimizing erosion and allowing the forest floor to filter out sediments and nutrients as the water soaks down into groundwater reserves or passes into streams. By decreasing runoff and increasing groundwater infiltration, the forest protects downstream neighborhoods from flooding. Also, by stabilizing the soil and reducing runoff and erosion, the forest protects the community from landslides and other land hazards.

By protecting watershed resources in this manner, the forest also protects habitat for terrestrial and aquatic organisms. The different layers of tree tops, branches, trunks, shrubs and plants on the forest floor provide breeding, feeding and refuge areas for many species of insects, birds and mammals. The forest canopy helps to maintain stream flows, filter out potential pollutants and moderate stream temperatures, thereby sustaining viable habitat for fish, amphibians and aquatic organisms as well as providing an important upland water source for terrestrial wildlife. Also, by filtering out water pollutants, the forest maintains good quality drinking water for local residents who use wells. The ability of these diverse and interdependent elements of the forest community to function properly is an important measure of the general health and vitality of the local environment. A healthy forest ecosystem is crucial to the forest's value as a scenic, recreational and educational resource, and to its continued contribution to Portland's high quality of life.

The forest provides additional values which accrue to local landowners and broader segments of society. The dense, coniferous and deciduous forest acts as a buffer from the sights and sounds of the large urban metropolis. The forest mutes the noise of highways and nearby industrial activities and absorbs some air pollutants caused by auto and industrial emissions. The forest also moderates climate extremes. The microclimate of the forest, created in part by the shade of the vegetation and the transpiration of water from the leaves, keeps surrounding air at an even temperature. The forest thus acts as a natural "air conditioner" for adjacent residential areas, cooling the air during the day and warming it at night.

<u>Geology</u>
Information on the geologic history of the Southwest Hills was compiled from four principal sources: Portland Physiographic Inventory (Redfern 1976), Portland's Changing Landscape (Price 1987), Forest Park: One City's Wilderness (Houle 1988), and Open File Report 0-90-2: Earthquake-Hazard Geology Maps of the Portland Metropolitan Area, Oregon (Madin 1990).

The Portland Hills (Tualatin Mountains) are a narrow northwest-trending, complexly faulted range that rises about 1,000 feet above the Tualatin and Portland basins on either side. The major events leading to the formation of these hills began 16 million years ago during the Miocene period. Volcanic fissures far to the east of Portland began discharging hundreds of cubic miles of molten lava which flowed through an ancient Columbia River Gorge, flooding the Willamette River Basin region. The solidified lava, known today as Columbia River Basalt, covered the Scappoose Formation, a siltstone and shale deposit which had formed 22 million years ago when the Portland area was submerged under marine waters. Today, after millions of years of weathering, the basalt measures roughly 700 feet in depth below the West Hills (Madin 1990; Houle 1988).

Geologic disturbances continued through the late Miocene period, when the present-day Cascade and Coast Ranges were formed. During the same period, a large upheaval of the Columbia River basalt base, under what is now Portland, created the Tualatin Mountain ridge and simultaneously formed the Portland and Tualatin valleys. The same mountain-building disturbances caused the formation of numerous parallel and transverse high-angle faults, and several southeast-dipping thrust faults along the ridge. The valley floors settled over the course of several million years until, in the Pliocene period, their basins breached, forming eddies in the Columbia River into which large quantities of quartzite and granite river rock were deposited. Today these deposits, known as the Troutdale Formation, cover the original basalt layer along the lower half of the West Hills and provide an excellent aquifer (Madin 1990; Price 1987).

Later in the Pliocene period, the West Hills themselves became volcanically active. Small volcanoes at several locations along the Tualatin Mountain ridge began erupting Boring Lava, evident today in a layer of grey basalt found around these volcanoes.

The last major activity affecting the Southwest Hills area was the wind-blown deposition of up to 100 feet of loess, known as Portland Hills Silt. This silt was eroded from the Columbia River flood plain, carried down the gorge, and finally wind-deposited on the West Hills. Massive late Pleistocene flooding eroded this silt away from all areas below 300 feet, but replaced it with Lacustrine deposits of silt and sand. In the more recent geologic past, silt and sand (alluvium) deposits were formed along the Columbia and Willamette River flood plains (Madin 1990).

The presence of Portland Hills Silt along the Tualatin Mountains has important implications for land use and development. This silt becomes very unstable when wet, and the potential for slope failure is particularly high after winter rains have saturated the soil (Madin 1990). Landslides, mud slides and slumps are common on steep areas in the West Hills. These slope failures, often associated with logging and building activities, have substantially altered the face of the hillside over the last century.

Soils

Soils in the Southwest Hills belong to the Cascade-Goble series, as identified in the Multnomah County Soil Survey (Soil Conservation Service 1983). This soil group is comprised predominantly of silt loam high in aluminum-rich volcanic ash weathered from the parent material, Columbia River Basalt.

Approximately 90 percent of the study area is made up of Cascade and Cascade-Urban soils. Cascade soil is somewhat poorly-drained dark-brown silt loam to a depth of about eight inches, below which is a dark-brown silt loam subsoil about 19 inches thick, with a substratum of silt loam forming a dark-brown, mottled fragipan to a depth of 60 inches or more (SCS 1983:23). This fragipan is a hard, brittle soil layer with low permeability: a hardpan that impedes percolation of groundwater, causing a thin groundwater table to develop, perched above the regional water table. The fragipan layer restricts rooting depth for plants to 30 to 48 inches. The Cascade silt loams have severe limitations for building site development and sanitary facilities.

According to the Soil Conservation Service (SCS), this means that "soil properties or site features are so unfavorable or difficult to overcome that a major increase in construction effort, major soil reclamation, special designs or intensive maintenance is required" (SCS 1983:98).

Approximately five percent of the study area is made up of Cornelius soils. This soil is made up of moderately well-drained silt loams on remnants of terraces that have been dissected and are rolling. The surface layer is dark-brown silt loam about eight inches thick, below which is a substratum of a brown, mottled, silt loam fragipan to a depth of 60 inches or more (SCS 1983:32). Permeability is slow and effective rooting depth is limited by the fragipan layer.

Approximately two percent of the study area is made up of Delena silt loam. This poorly drained soil occurs on broad, high terraces. The surface layer is mottled, very dark grayish brown silt loam about 13 inches thick, with a subsoil of mottled, dark grayish brown over grayish brown silty clay loam about 10 inches thick. The substratum is a mottled, grayish brown silty clay and variegated silty clay loam fragipan to a depth of 60 inches or more (SCS 1983:36).

Topography and Slopes

The eastern face of the Tualatin Mountain range is dissected by creeks and creek channels flowing eastward to the Willamette River. In the study area, the terrain rises sharply from the lowlands near Willamette River to the crest of the hills (over 1,000 feet in elevation in certain places), with some slopes in excess of 50 percent. The western face of this range, by contrast, slopes more gently into the Tualatin Valley.

A physiographic inventory of Portland (Redfern 1976) classified slopes in excess of 30 percent as generally having "severe landslide potential." Between 60 and 75 percent of the upland slopes within the study area exceed 30 percent. Slopes of only 15 percent have been known to fail in the West Hills, particularly during the saturated soil conditions prevalent in mid-winter (Redfern 1976). In determining areas with "severe landslide potential," Redfern included slopes of less than 30 percent which had a history of failures (e.g., major slumps and landslides).

Vegetation

Information of plant communities, successional patterns and general vegetation resources was compiled from several sources. Data on vegetation types, distribution and resource values was gathered through aerial photo-interpretation and on-site reconnaissance. Field surveys were conducted throughout the study area between September, 1990 and January, 1992. Current scientific literature on the subject was consulted during this time, with primary sources including Natural Vegetation of Oregon and Washington (Franklin and Dyrness 1973), Flora of the Pacific Northwest (Hitchcock and Cronquist 1973), "Forest Park--One City's Wilderness: Its Wildlife and Habitat Interrelationships" (Houle 1982) and "Portland Bureau of Planning Goal Five Study: West Hills" (Lev 1986).

The eastern slopes of the Tualatin Mountains are clothed by coniferous forest of the Tsuga heterophylla (western hemlock) vegetation zone.[1] This zone extends throughout the wet, mild, maritime climate of British Columbia, western Washington and Oregon. A vegetation zone, as defined by Franklin and

[1] Evidence of historic vegetation types is presented in Houle (1982) and Munger (1960).

Dyrness (1973), delineates a region of essentially uniform macroclimatic conditions with similar moisture and temperature gradients where one plant association predominates. The lowlands immediately adjacent to the forest are part of the more prairie-like Willamette Valley Zone.

Emergent, scrub-shrub and forested wetland plant communities reside along some of the creeks and in the palustrine wetlands that occur within the study area. Western hemlock and western red cedar (Thuja plicata) are considered climax species within the Western Hemlock Zone based on their potential as dominants. The subclimax Douglas fir (Pseudotsuga menziesii), however, tends to dominate large areas within this region. Historically, Douglas fir has dominated forest regeneration over much of the zone in the last 150 years (Munger 1930, 1940).

While virtually all of the plants characteristic to the Western Hemlock Zone occur in the Tualatin Mountain forests, two less common hardwood species, bigleaf maple and red alder, have become widely established as a result of repeated disturbance to the natural vegetation caused by logging, development and brush fires. Over time, these events have depleted nutrients from the soil. The depletion of nutrients, coupled with the depletion of mycorrhizal fungi which help to process nutrients for plant uptake and are particularly important to conifers, has given the hardwoods an edge over the firs, cedars, and hemlocks. Pioneer species such as red alder,[2] above a species common only in riparian areas under natural conditions, quickly colonize these disturbed areas and are now widely established on the upland slopes. Thus, past disturbances have strongly influenced the composition of the plant communities in the Southwest Hills.

The Tsuga heterophylla/Polystichum munitum (western hemlock/sword fern) association generally characterizes the herb-rich community found in the Southwest Hills forests.[3] Overstory species of this association typically include Douglas fir, western red cedar and western hemlock. The understory is dominated by a lush growth of herb species including sword fern, wild ginger, inside-out flower, Oregon oxalis, trillium, Smith's fairybells and deerfern. Shrubs occurring in the understory include red huckleberry, Oregon grape, trailing blackberry, Wood's rose and salmonberry (Franklin and Dyrness 1973:58)

Early observations of Portland's Tualatin Mountains point to the dynamic pattern of successional stages active within the forest community over the past two centuries. The predominantly old growth coniferous forest that William Clark, of Lewis and Clark, recorded in 1806 has been transformed through logging and fire into a younger, mixed hardwood/coniferous forest (Munger 1960). Despite these disturbances, signs of a returning Western Hemlock climax forest community are widely apparent. The

[2] Red alder helps to heal degraded land by replenishing the soil with nutrients: they can provide 40-150 kg/ha of nitrogen per year. Alders also colonize sites that are plagued by laminated root rot facilitate regeneration of the pre-existing plant community. Recent studies have shown that alders serve as hosts to mycorrhizal fungi, the same fungi which colonize Douglas fir roots, process nutrients and enable the trees to grow (Norse 1990).

[3] Related West Hills plant associations include Tsuga heterophylla/Berberis nervosa/Polystichum munitum, Tsuga heterophylla/Athyrium filix-femina, Tsuga heterophylla/Tiarella trifoliata, Tsuga heterophylla/Holodiscus discolor, and Tsuga heterophylla/Gaultheria shallon.

forest types occurring in the Southwest Hills can be seen as a sequence of successional stages of forest regeneration following logging and fire. These stages closely parallel those of the Western Hemlock Zone as described by Franklin and Dyrness (1973) and Hall (1980).

Six distinct successional stages are evident within the West Hills; their patchwork distribution reflects the location, degree and chronology of past disturbances. Houle (1982) describes the stages of the West Hills forest succession as: Grass-forb, Shrub, Hardwood with young conifer, Hardwood topped by conifer, Mid-aged conifer, and Old growth vegetation types (see Figure 1 below).

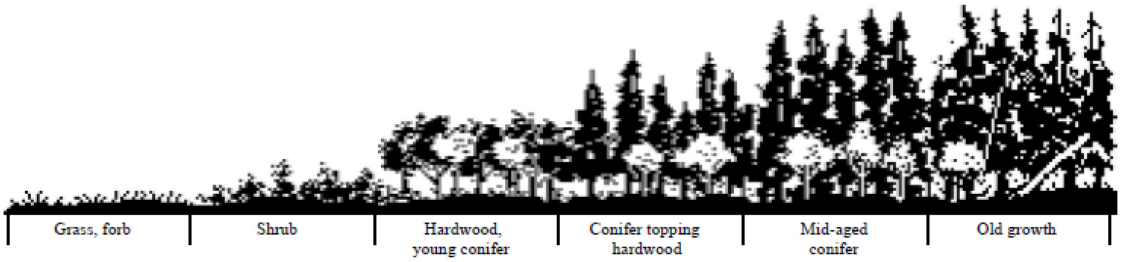


Figure 2. Stages of Northwest Hills forest succession

The grass-forb stage is comprised of low, herbaceous plants such as fireweed, bracken fern, and Canadian thistle which initially colonize an area after removal of vegetation. This stage lasts approximately two to five years and occurs along roads, power-line rights-of-way and in open fields throughout the study area.

The early seral shrub stage often develops as a thicket of such species as thimbleberry, salmonberry, blackberry, red huckleberry, salal and Indian plum. This stage typically lasts between three and ten years, but will persist as long as 30 years in the absence of conifer regeneration.

The hardwood with young conifer stage is a young, vigorous broadleaf forest predominantly made up of red alder and big-leaf maple, though often includes bitter cherry, black cottonwood and juvenile Douglas fir. Understory species include sword fern, Oregon grape and red elderberry. This young, second growth forest usually occurs ten to 35 years following a disturbance.

The fourth stage of succession, conifer topping hardwood, is still a vigorous, though now mixed, hardwood and conifer forest. While the alders and maples approach 100 feet in height during this stage, conifers, primarily Douglas fir, break through the hardwood canopy and grow to heights of 180 feet or more. Characteristic conifer species also include young western red cedar and western hemlock. This mixed stage of second growth forest follows 30-80 years after disturbance and is the most widely distributed vegetation type within the study area.

The next successional stage, mid-aged conifer, is dominated by Douglas fir. Young, shade-tolerant western hemlock, western red cedar and pacific yew are gradually making their way up through the understory, while some of the older hardwoods such as alder and cherry, are beginning to fall to the

forest floor. Sword fern, salal, Oregon grape, red huckleberry and vine maple thrive as the older trees begin to fall. Eighty to 250 years have passed since the last major disturbance.

If the forest is left undisturbed following the mid-aged conifer stage, it progresses into an old growth forest community. The old growth stage is self-perpetuating and will continue indefinitely unless fire, logging or other disturbances set back the forest to an earlier stage of succession. Though western hemlock and western red cedar are climax species, long-lived seral species can remain a component of the community for several hundred years.

Several small areas within the study area are beginning to develop old growth characteristics such as the presence of large snags and downed logs in various stages of decay.

Special Habitat Areas

The Tualatin Mountain forest is home to several special or unique flora features. The following discussion illustrates some of these features; others are described later in the report in connection with wildlife, scenic and educational resources.

Several species have special merit for other reasons. The pacific yew (Taxus brevifolia), for example, is an exceptionally slow growing climax tree species most abundant in ancient forests of the Pacific Northwest. In recent years, a cancer-fighting substance known as "taxol" was discovered in the bark of the yew. Taxol has proven effective in fighting ovarian cancer[4] and early results indicate that the substance may also prove effective for treating leukemia and colon, lung, mammary, prostrate and pancreatic cancers (Wood 1990, Norse 1990). In September, 1990, a petition was filed with the U. S. Fish and Wildlife Service to list the pacific yew as a threatened species under the Endangered Species Act.

The western wahoo (Euonymous occidentalis) inhabits moist, creekside habitats in the Southwest Hills and is common in Tryon Creek State Park. The wahoo was placed on the "1976 Provisional List of Rare and Endangered Plants in Oregon." Its populations have now substantially recovered.

The forest as a whole represents a unique urban amenity. The West Hills provide a fine example of the Pacific Northwest's western hemlock forest community, unique among all temperate forests in the world (Waring and Franklin 1979).[5] In addition to its value as a recreational, educational and scenic resource (to be discussed later), the forested hills also help to define Portland as a place and contribute to the identity of the region.

Wildlife

Wildlife use different portions of the Southwest Hills forest habitat to complete different portions of their life cycle such as mating, feeding and denning. The vegetative structure of the habitat (e.g., downed logs, snags, herb, shrub and tree layers) is a key factor in determining the distribution and

[4] Ovarian cancer kills 12,400 women annually in the United States (High Country News 11/19/90).

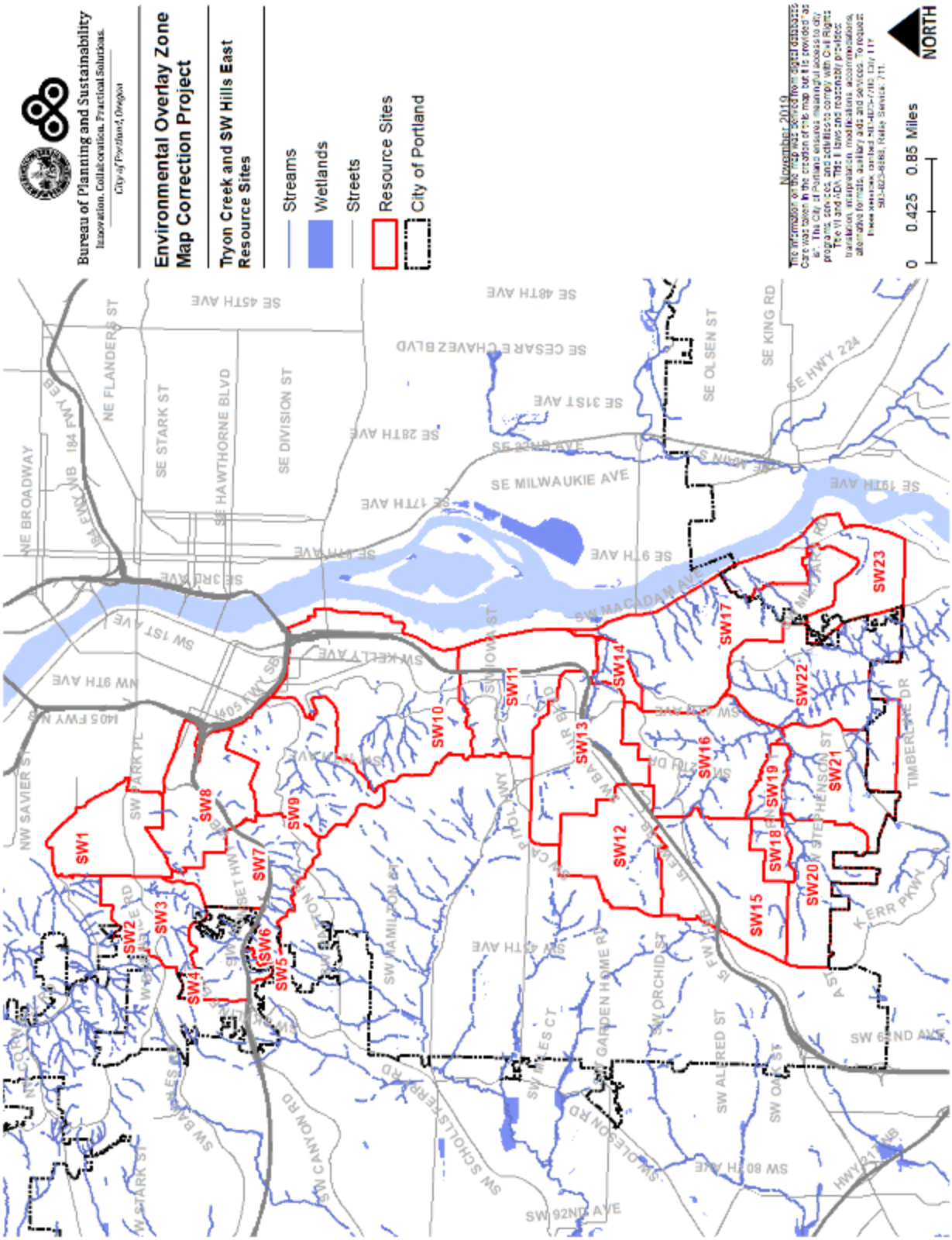
[5] The western hemlock forest of the Pacific Northwest has the greatest biomass accumulation of any plant community in the temperate zone and in it are found the largest and (usually) longest lived species of conifers within the zone.

abundance of wildlife (Thomas 1979). Each stage of forest succession in the Southwest Hills (see previous section) has its own specific structure. Wildlife species have known preferences for structural components found in distinct successional stages and use these vegetative types to meet all or part of their life cycle requirements (Maser and Thomas 1978; Harris 1984).

The Fanno Creek Watershed is used by about a hundred bird species, several small and medium sized mammals, and a few fish species. Commonly seen mammals include beaver, raccoon, opossum, spotted skunk, Douglas Squirrel, and Townsend's Chipmunk. Occasional visitors include black-tail deer and coyote There was one coyote siting in 1993. The last elk siting was in 1992, the last black bear sighting was about ten years ago, and the last cougar siting was about 30 years ago.

Fanno Creek contains Cutthroat trout (Oncorhyncus clarki). There are different types of these trout, and each type has a distinct life cycle. Some live in the ocean and spawn in streams; others live in lakes and spawn in streams; a third kind lives in large streams and spawns in small streams, and the last kind spends its entire life in small streams. This last kind doesn't grow very large (about seven inches). These small fish are full year residents of Fanno Creek and may only migrate a few hundred yards in an entire life time. Ocean and lake dwelling cutthroat do not visit Fanno Creek, but an occasional large trout will swim up the Willamette and Tualatin Rivers to spawn in Fanno Creek. The spawning beds for both these cutthroat types are in the faster, gravel-bottomed headwaters. The portion of the watershed within Portland contains almost all known spawning areas. This is because the small hillside tributaries north of Beaverton-Hillsdale Highway, and the Woods Creek tributary south of Beaverton-Hillsdale Highway, have gravel bottoms. Topography flattens out as the creeks near the Washington County line. These flat-land creeks have mud bottoms that are not suitable for spawning, but they are very important for rearing and feeding, especially during seasonal low water and droughts. Other fish species observed include sculpins, dace, and mosquito fish.

The Piliated woodpecker (Dryocopus pileatus) is a species dependent on standing dead and dying trees in older forests. The bird is a cavity nester, and is disappearing from rural areas because of timber harvest and the use of agricultural chemicals. The woodpecker is doing surprisingly well in some urban areas, and can be observed in the Fanno Creek Watershed. Protection of older forests in urban areas is an important conservation strategy for the survival of this species.



Map 2: Tryon Creek and Southwest Hills East Resource Sites

Resource Site No.: SW1 **Site Name:** Johnson Creek East

Previous Plan: Southwest Hills Resource Protection **Previous Resource Site No.:** 110

Natural Resources Features

Johnson Creek is a natural creek that flows north through the Hoyt Arboretum and then east along the south side of Burnside Street. A major tributary to Johnson Creek flows from near Skyline and Fairview Roads northeast to near Burnside Road where it joins Johnson Creek in the Hoyt Arboretum. Johnson Creek enters the combined sanitary and storm system west of the Burnside and Tichner Street intersection.

Table A: Quantity of Natural Resource Features in Resource Site SW1	
	Study Area
Stream (Miles)	0.1
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	137.4
Forest (acres)	98.2
Woodland (acres)	35.6
Shrubland (acres)	1.2
Herbaceous (acres)	2.4
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	268.2
Impervious Surface (acres)	132.5
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

The site is almost fully urbanized in the form of Kings Heights, Arlington Heights, and other residential neighborhoods. The homes are typically on steep, terraced lots that are 7,000 square feet or less in size. The neighborhoods are generally landscaped with non-native plants except for the areas which border Hoyt Arboretum and Washington Park. These areas tend to have a more natural character and greater amount of native vegetation including Douglas fir, bigleaf maple, and cottonwood along the drainageways.

About 85 percent of the site is classified as having “severe landslide potential” with the remaining 15 percent in the “moderate” potential classification. In 1987, about 25 percent of the residentially designated areas were undeveloped. Ninety percent of the remaining vacant areas designated for residential development is classified as having “severe landslide potential.” The physical constraints include steep slopes and unstable geologic conditions.

The forest representative of the site has a tree zone with 80 percent closed canopy consisting of bigleaf maples that are typically twelve inches in diameter at breast height (dbh). The Douglas firs are 16-inches dbh on average. There are also mid-aged, climax forest species including western red cedar and grand fir. The shrub layer with 30 percent canopy closure consists of Oregon grape, oceanspray, thimbleberry, elderberry, red huckleberry, Indian plum and western hazel. English holly, English ivy and Himalayan

blackberry are non-native species that are present. This site area includes an abundance of fallen wood, an important resource that provides escape and nesting places plus habitat for large insect populations that serve as a food source for other insects, birds and animals.

A 93-year old forest is located in the western portion of the site near the east border of Hoyt Arboretum. The forest was last cut in 1898. The second growth is in its later seral mid-aged conifer stage. It has good to excellent habitat quality, is relatively undisturbed, and is composed of a 50/50 mix of deciduous and evergreen trees including Douglas fir, western red cedar, bigleaf maple and vine maple. The less common pacific yew tree is also present. The tree and herbaceous layers are well defined with 70 to 90 percent canopy closure. The shrub layer is also well defined with about a 40 percent closure. This area has an abundance of dead wood (e.g., downed trees) which enhances its habitat value. The area also contains a cave believed to have been used by Native Americans.

Wildlife movement is constrained by Burnside Street's four traffic lanes and adjacent steep canyon walls. Passage can best occur in the western portion of the site particularly over the tunnel. Burnside Street's dramatic, wooded hillsides form a view corridor that contributes to the visual quality of the area and helps maintain slope stability.

Table B: Quality of Natural Resource Functions in Resource Site SW1				
Resource Site (acres) = 359.198068				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	3.2	4.4	44.9	52.6
percent total inventory site area	0.9%	1.2%	12.5%	14.6%
Wildlife Habitat*				
acres	35.0	11.8	59.0	105.8
percent total inventory site area	9.7%	3.3%	16.4%	29.4%
Special Habitat Areas**				
acres				13.2
percent total inventory site area				3.7%
Combined Total+				
acres	39.1	11.2	61.5	111.8
percent total inventory site area	10.9%	3.1%	17.1%	31.1%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW1 the following significant features and functions are present:

Significant Natural Resource Features: open stream; forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R7 and R1 base zones. Commercial uses are allowed in the CX base zone. Open space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW1, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and

air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

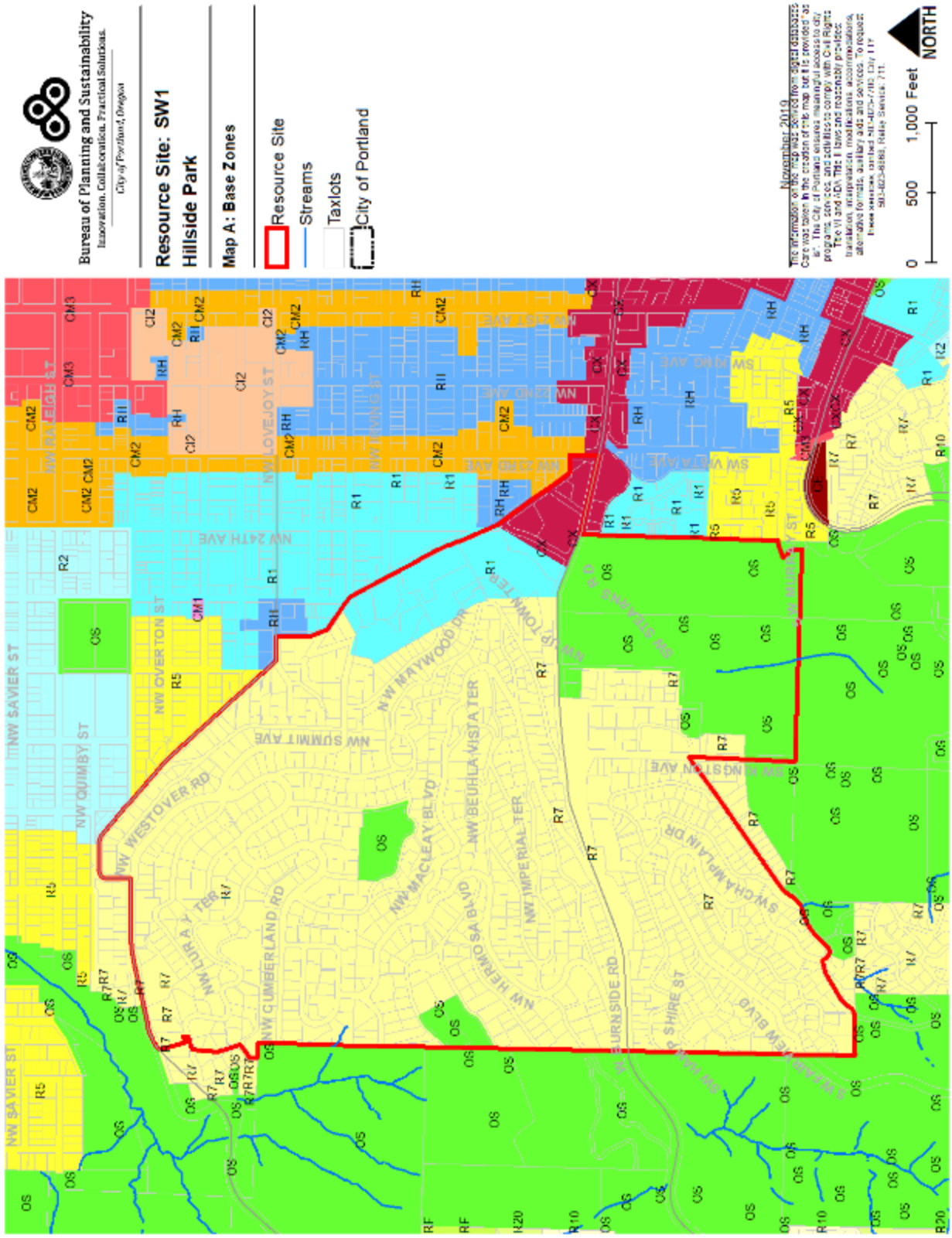
ESEE Decisions

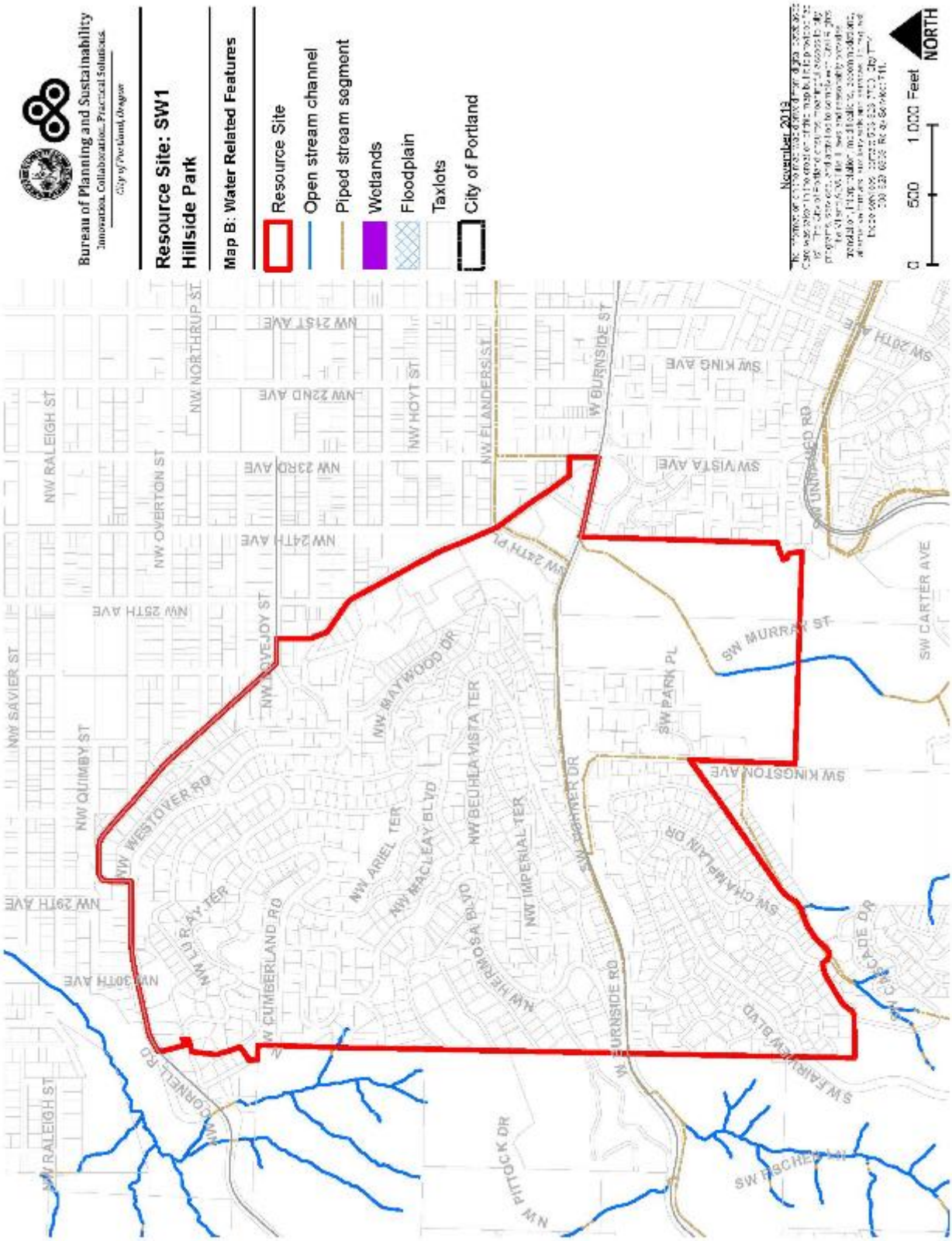
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW1 are:

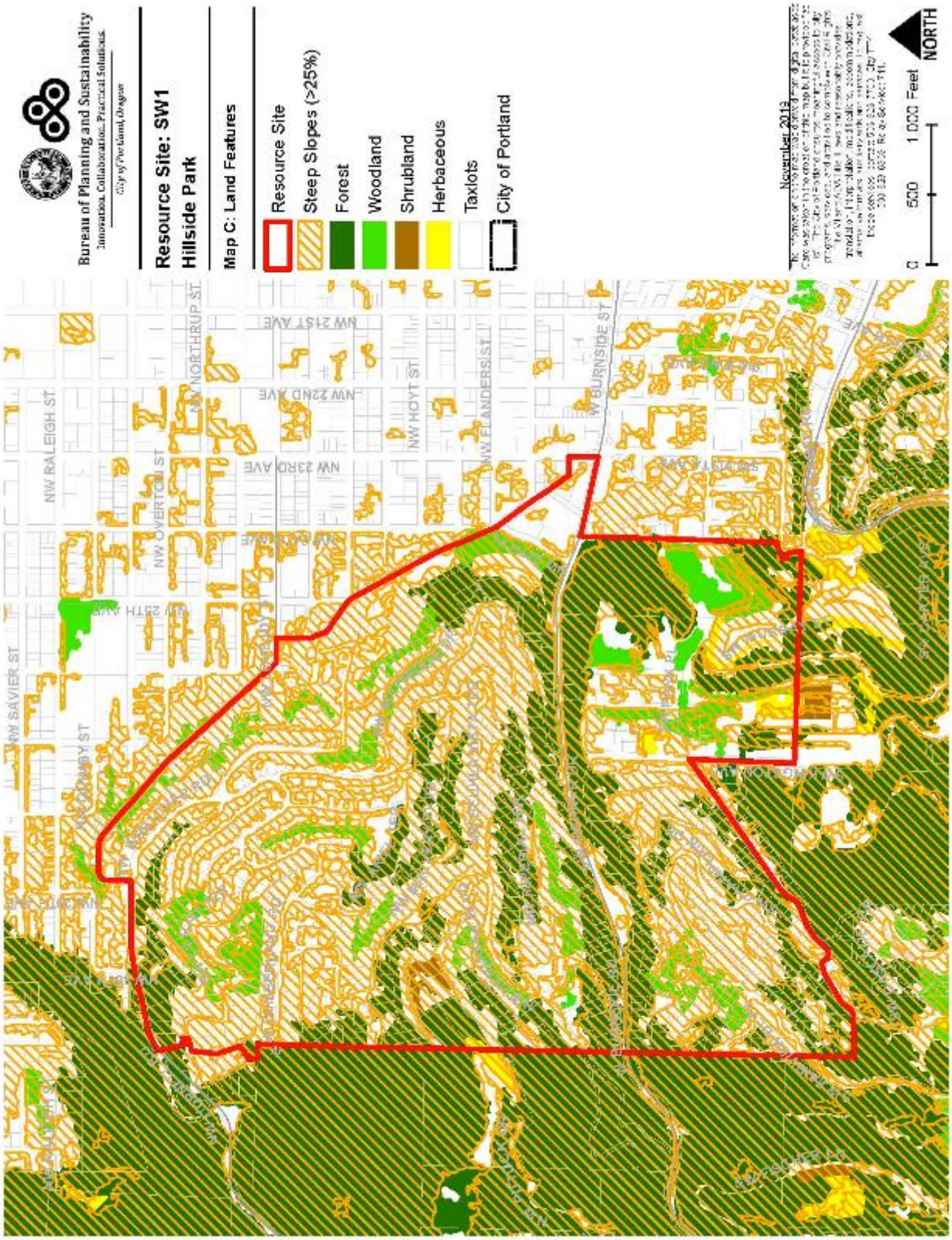
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank and land within 50 feet of stream top-of-bank.
2. *Limit* conflicting uses within areas of forest vegetation located on steep slopes that are contiguous to W Burnside Road.
3. *Allow* conflicting uses within all other areas containing significant natural resources.

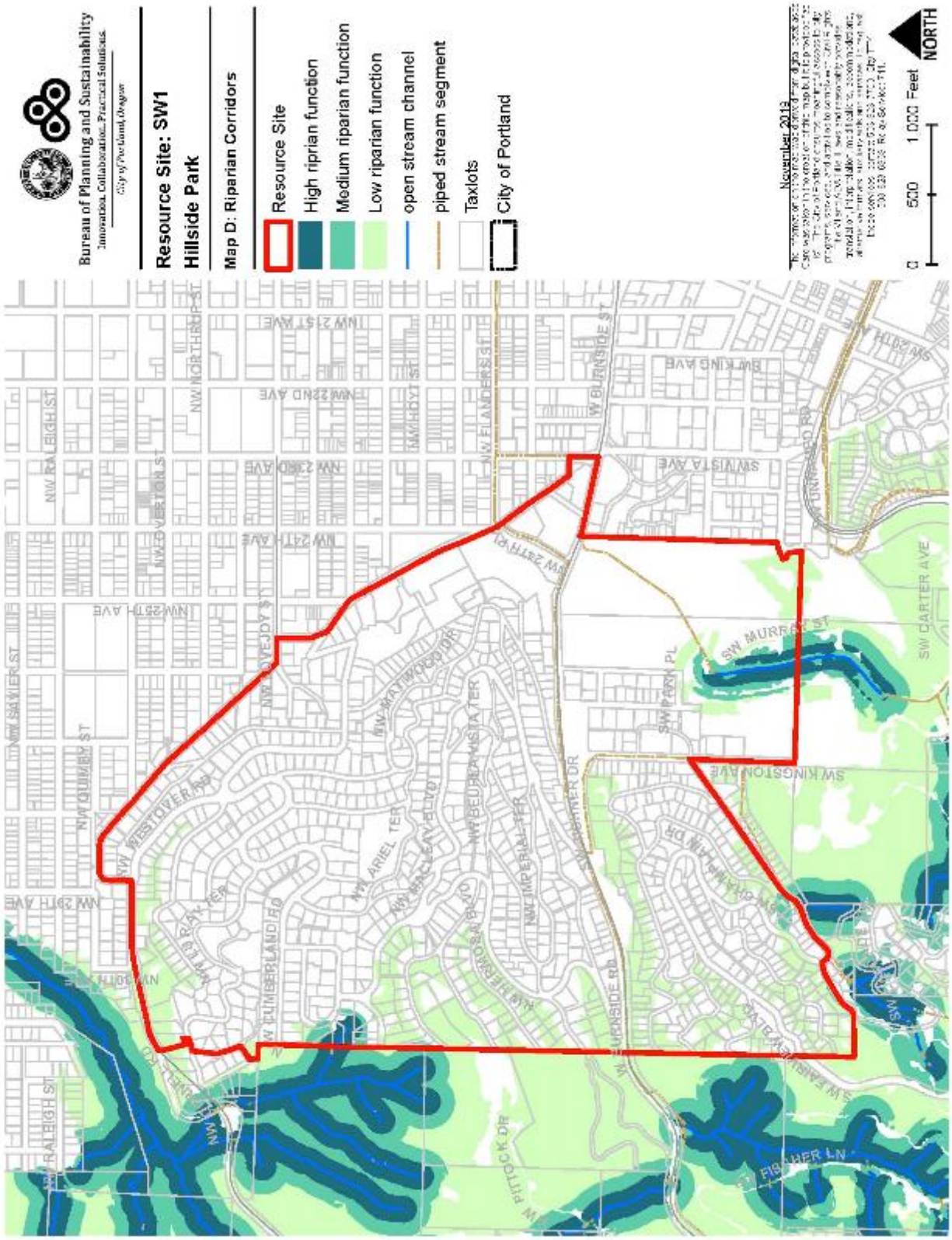
Table C: ESEE Decision for Resource Site SW1

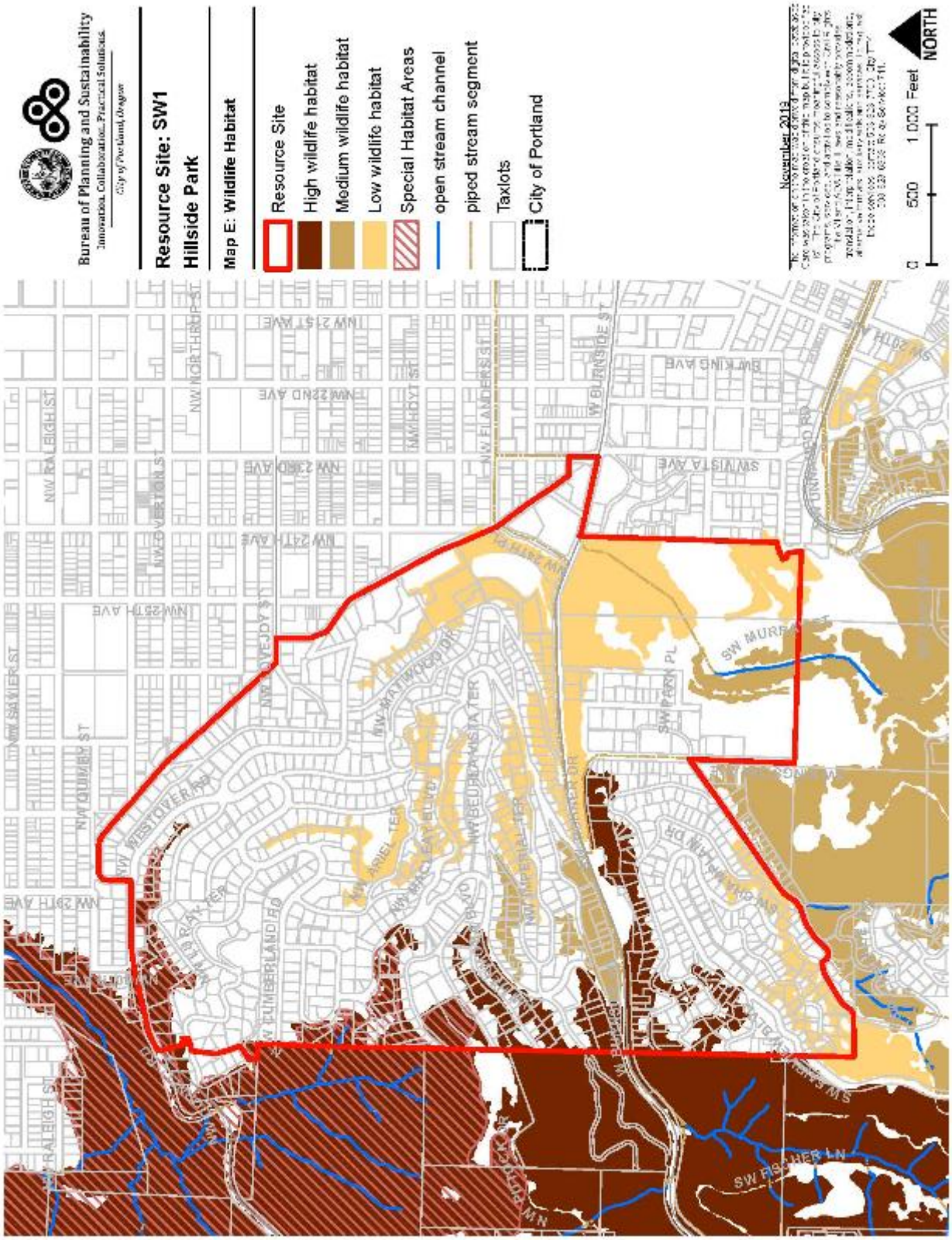
ESEE Decision	Acres
Strictly Limit	2.0
Limit	49.0
Allow	308.2

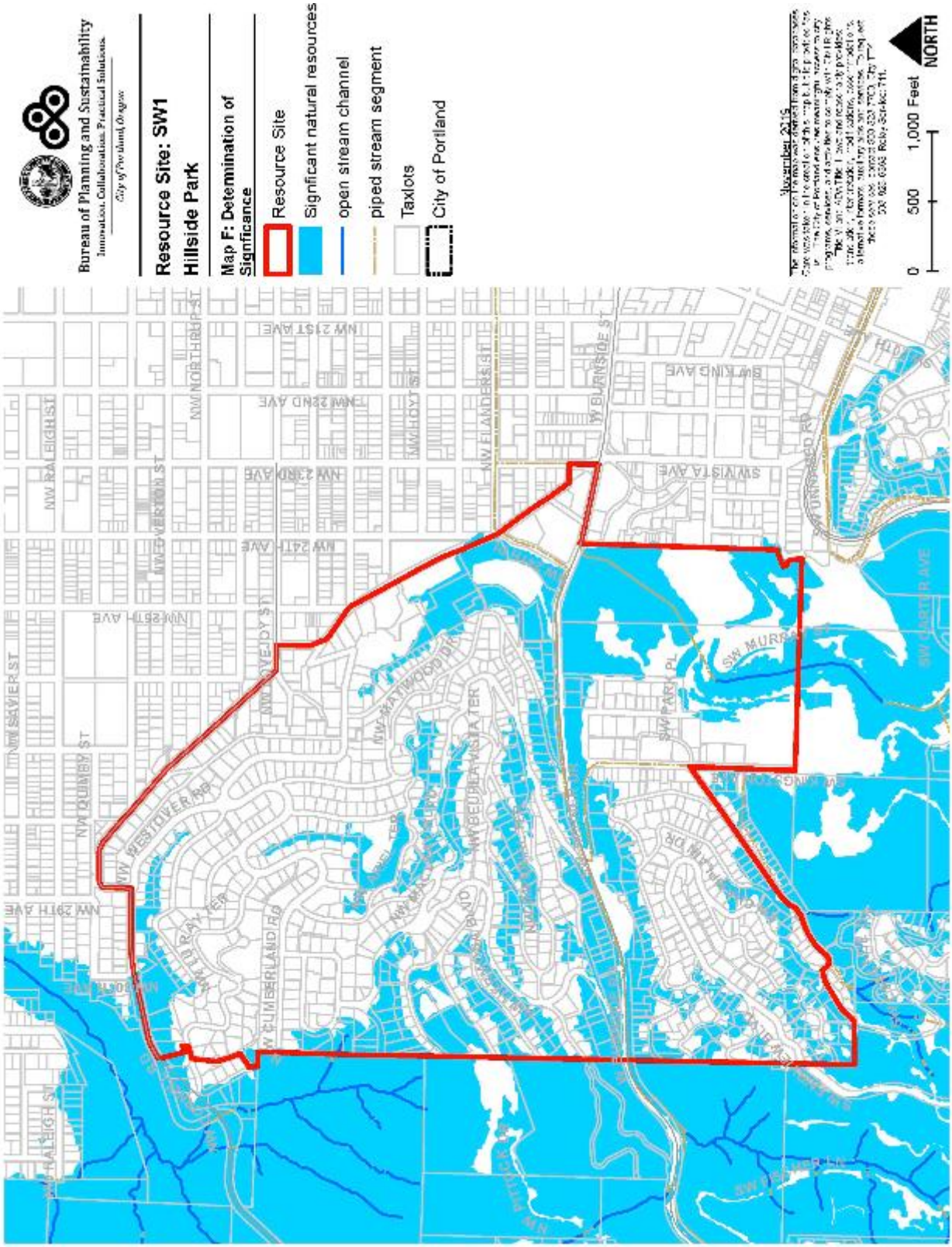

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW1
Hillside Park
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0 500 1,000 Feet
NORTH

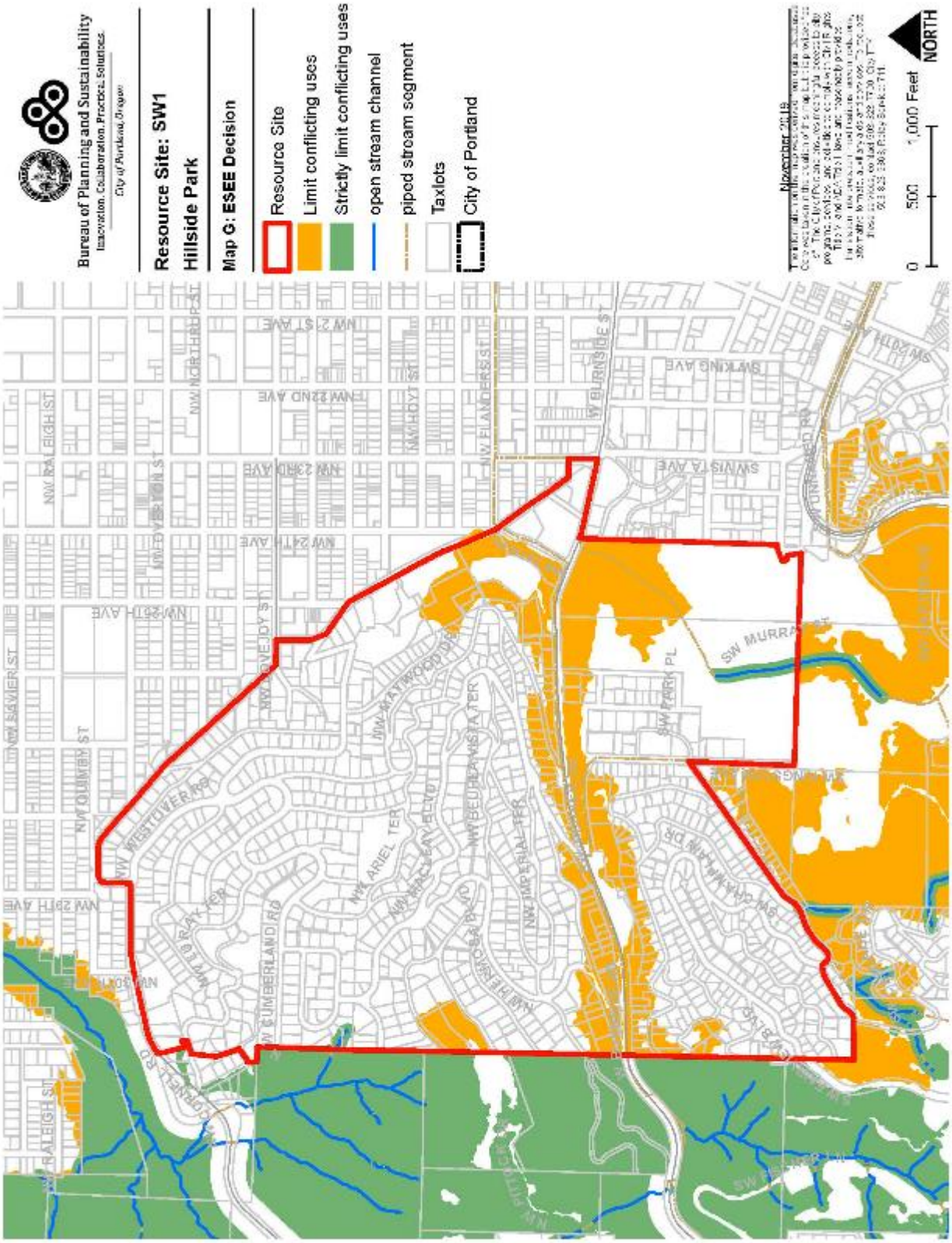

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW1
Hillside Park
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0 500 1,000 Feet
NORTH
NW RALEIGH ST
NW SAVIER ST
NW QUIMBY ST
NW 29TH AVE
NW 30TH AVE
NW 25TH AVE
NW OVERTON ST
NW NORTHRUP ST
NW 21ST AVE
NW 22ND AVE
NW 23RD AVE
NW 24TH AVE
NW LOVEJOY ST
NW HOYT ST
NW FLANDERS ST
W BURNSIDE ST
SW KING AVE
SW VISTA AVE
SW 20TH AVE
SW CARTER AVE
SW MURRAY ST
SW PARK PL
SW KINGSTON AVE
SW CHAMPLAIN DR
SW FAIRVIEW BLVD
SW FISCHER LN
NW WESTOVER RD
NW RAY TER
NW CUMBERLAND RD
NW CORNELL RD
NW MAYWOOD DR
NW ARIEL TER
NW MACLEAY BLVD
NW BEUHLA VISTA TER
NW HERMOSA BLVD
NW IMPERIAL TER
SW TOWER DR
W BURNSIDE RD
NW PITTOCK DR


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW1
Hillside Park
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2019
0 500 1,000 Feet
NORTH
NW RALEIGH ST
NW SAVIER ST
NW OVERTON ST
NW NORTHRUP ST
NW 21ST AVE
NW 22ND AVE
NW 23RD AVE
NW HOYT ST
NW FLANDERS ST
W BURNSIDE ST


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW1
Hillside Park
Map D: Riparian Corridors
Resource Site
High riparian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 500 1,000 Feet
NORTH
NW RALEIGH ST
NW 21ST AVE
NW 22ND AVE
NW 23RD AVE
NW 24TH AVE
NW 25TH AVE
NW 29TH AVE
NW 30TH AVE
NW QUIMBY ST
NW SAVIER ST
NW OVERTON ST
NW NORTHRUP ST
NW HOYT ST
NW FLANDERS ST
W BURNSIDE ST
SW BARKER AVE
SW VISTA AVE
SW MURRAY ST
SW CARTER AVE
SW WASHINGTON AVE
SW CHAMBERLAIN DR
SW PARK PL
SW MARKET ST
SW HUMPHREY BLVD
SW FISHER LN
NW RIDGEVIEW DR
NW MATTHEWS DR
NW ARIEL TER
NW BEACLAY BLVD
NW BEUDICA VISTA TER
NW IMPERIAL TER
NW CUMBERLAND RD
NW WESTOVER RD
NW RIDGEVIEW DR
NW PITTOCK DR
W BURNSIDE RD

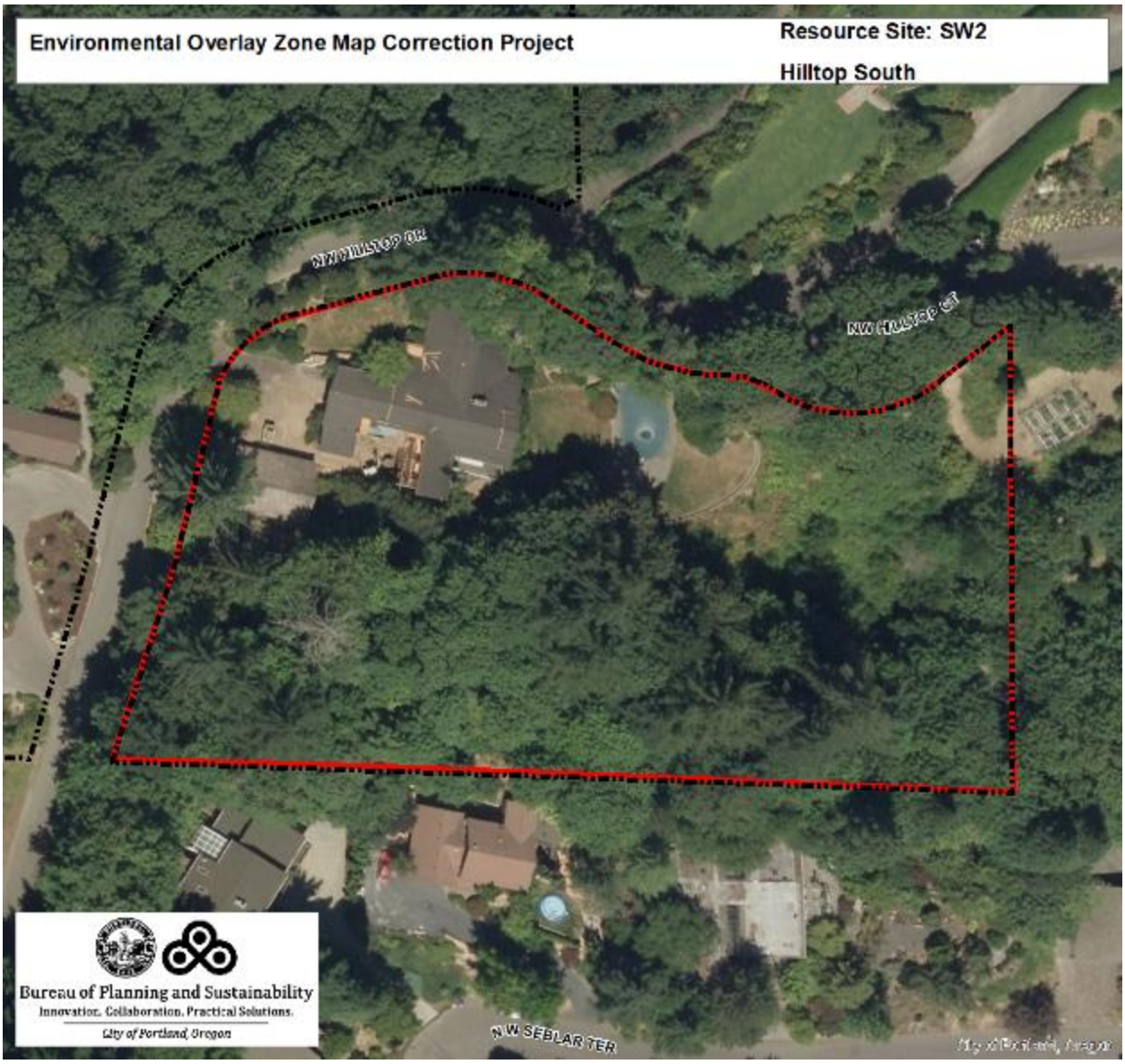

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW1
Hillside Park
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
500
1,000 Feet
NORTH
W BURNSIDE ST
SW MURRAY ST
SW PARK PL
NW WESTOVER RD
NW CUMBERLAND RD
SW FISCHER LN


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW1
Hillside Park
Map F: Determination of Significance
Resource Site
Significant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2015
0
500
1,000 Feet
NORTH
NW 21ST AVE
NW 22ND AVE
NW 24TH AVE
NW 25TH AVE
NW 29TH AVE
NW RALEIGH ST
NW SAVIER ST
NW QUIMBY ST
NW THURMAN ST
NW WESTOVER RD
NW CUMBERLAND RD
NW FLANDERS ST
NW BURNSIDE ST
SW STARK AVE
SW MARKET ST
SW CLAY ST
SW MURRAY
SW PARK PL
SW CLIFF AVE


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW1
Hillside Park
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
500
1,000 Feet
NORTH
NW 21ST AVE
NW 22ND AVE
NW 23RD AVE
NW 24TH AVE
NW 25TH AVE
NW 26TH AVE
NW 27TH AVE
NW 28TH AVE
NW 29TH AVE
NW 30TH
NW RALEIGH ST
NW QUEEN AVE
NW WESTLAKE AVE
NW WESTOVER RD
NW CUMBERLAND RD
NW ARIEL TER
NW BEAUMONT ST
NW FLANDERS ST
NW BURNSIDE ST
SW MURRAY
SW PARK PL
SW CHAMPLAIN DR
SW STARK AVE
SW MARKET ST
SW CUMBERLAND RD
SW FLANDERS ST
SW BURNSIDE ST
SW MARKET ST

Resource Site No.: SW2 **Resource Site Name:** Sylvan D

Previous Plan: Multnomah County Urban Lands **Previous Resource Site No.:** 111



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site	SW2
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	1.5
Forest (acres)	1.5
Woodland (acres)	0.0
Shrubland (acres)	0.0
Herbaceous (acres)	0.0
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	1.5
Impervious Surface (acres)	0.2

* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area.
**Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.

This site is composed of a patchwork of three soil types: Cascade silt loam, Cascade-Urban land complex and Goble silt loam. The predominant soils are the Cascade silt loam and the Cascade Urban complex. Cascade soils are somewhat poorly drained soils formed from silty materials. A two- to four-foot thick fragipan exists at a depth of 20 to 30 inches. A fragipan is a compacted layer of soil that creates a hard, impervious layer difficult for water and roots to penetrate. In winter and spring, it creates a perched water table; in summer, it creates a nearly rock-hard layer. The wetness of this layer can reduce the effectiveness of septic tank absorption fields and increases the likelihood of erosion. In addition, the shallow depth to the fragipan makes installation of some drainage systems difficult.

The Cascade-Urban complex consists of Cascade soils mixed with soils disturbed by urban development. Urban development alters the soil through excavation, filling and grading, creating a patchwork of soil characteristics. Mostly undisturbed sites have the properties of Cascade silt loam. More disturbed sites vary in their permeability and erosion potential.

Goble silt loams are located primarily in UIAs # 0, 7 and 8, on 30 to 60 percent slopes which are some of the steeper parts of the site. This is a very deep and moderately well-drained soil formed from silt and ash. Goble soils also have a thin (up to 12 inches thick) fragipan at a depth of approximately 30 to 48 inches, making it slightly less limiting for plant growth and excavation. The soil above the fragipan is moderately permeable, and the water table in winter and spring is within four feet of the surface. The steep slopes and seasonal saturation of the soil combine to make the potential for erosion and slumps high where this soil exists.

All of the parcels within the Sylvan site are located along the ridge and slopes of the Tualatin Mountains. Slopes on the east side of the ridge are generally steeper, contributing to increased slide potential. West-side slopes are also subject to slides. Shallow rooting depth, a product of the fragipan, increases

tree windfalls and slope instability. Where erosion or urban development exposes the fragipan, establishment of vegetation is difficult, compounding erosion problems.

Located on a forested ridge-top above the Willamette Valley, the plant community at this site is characteristic of the Western Hemlock vegetation zone (Franklin and Dymess 1988). The forest generally ranges in age from 50- to 120-year old second growth in a mid-seral stage of succession. With young shade-tolerant cedars well established in the understory, the older forest has entered the understory re-initiation stage (Oliver and Larson 1996).

The forest community is characterized by Douglas fir and bigleaf maple in the canopy layer, with mature western red cedar more common near Balch Creek and along Miller Road. Grand fir, red alder, bitter cherry and western hemlock are common overstory associates. Less common are Pacific dogwood and two invasive aliens, English holly and European hawthorn. In the understory, vine maple occurs in association with Indian plum, red elderberry, Oregon grape, western hazel, oceanspray, snowberry and cedar saplings. The ground layer is typically dominated by sword fem, though Pacific waterleaf and inside-out flower are occasional dominants. Several areas, most notably along Highway 26, are overrun by the exotic English ivy. Other common ground vegetation includes lady fem (on moist slopes and along streams), bracken fern, miner's lettuce, Hooker fairy-bell, false Solomon's seal, fringecup, western trillium and stream violet.

Large forest tracts within the site provide high quality habitat for a diverse wildlife assemblage. Abundant quantities of large woody debris and a thick organic layer on the forest floor provide habitat and foraging grounds for birds, reptiles, amphibians and small mammals. In most cases, the understory is a thick, diverse assemblage of berry and nut-bearing native shrubs that wildlife depend upon for forage as well as cover, especially during winter months. Other valuable habitat features within these forests include snags, large boulders, ravines and seeps.

Many species of birds were encountered during field surveys of the site: those most frequently observed include downy woodpecker, northern flicker, winter wren, black-capped chickadee, common bushtit, rufous-sided towhee, Wilson's warbler, Swainson's thrush and song sparrow. Due to the abundance of songbirds, sharp-shinned hawks and other forest-dwelling birds of prey such as great-horned owls are likely to occur within the site as well. The area is also potential foraging ground for peregrine falcons, which rely on other birds for the bulk of their diet.

Amphibians and reptiles, including western red-backed salamander, Pacific chorus frog and garter snakes, inhabit the site. Tree cavities serve as roosting and nesting sites for bats, voles, squirrels, weasels, raccoons and cavity-nesting birds, including pileated woodpecker. The abundant cover is essential for black-tail deer, coyote and other large mammals.

Balch Creek runs through a portion of this site. Resident cutthroat trout inhabit the creek; historically, other species inhabited the drainage as well. Balch and other creeks within the site flow through steep forested ravines, providing wildlife with a protected travel corridor, refuge from high summer temperatures and a permanent source of water. Thick riparian forests protect the creeks and the integrity of their banks and influence the quality of stream habitat located downstream. Large quantities of silt are present in several of the streams, providing evidence of the consequences of vegetation removal associated with previous upstream development. Other sources of silt include upstream landslides and bank failures related to new construction.

Special Status Species found in the resource site include:

- Pacific western big-eared bat
- Long-eared myotis
- Fringed myotis
- Long-legged myotis
- Pileated woodpecker
- Little willow flycatcher
- American peregrine falcon
- Olive-sided flycatcher
- Coast cutthroat trout
- Northern red-legged frog

Table B: Quality of Natural Resource Functions in Resource Site SW2				
Resource Site (acres) = 1.870733				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	0.0	0.0	1.5	1.5
percent total inventory site area	0.0%	0.0%	78.0%	78.0%
Wildlife Habitat*				
acres	1.5	0.0	0.0	1.5
percent total inventory site area	78.0%	0.0%	0.0%	78.0%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total+				
acres	1.5	0.0	0.0	1.5
percent total inventory site area	78.0%	0.0%	0.0%	78.0%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW2 the following significant features and functions are present:

Significant Natural Resource Features: forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status plant and wildlife species.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R10 base zones. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW2, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional

development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

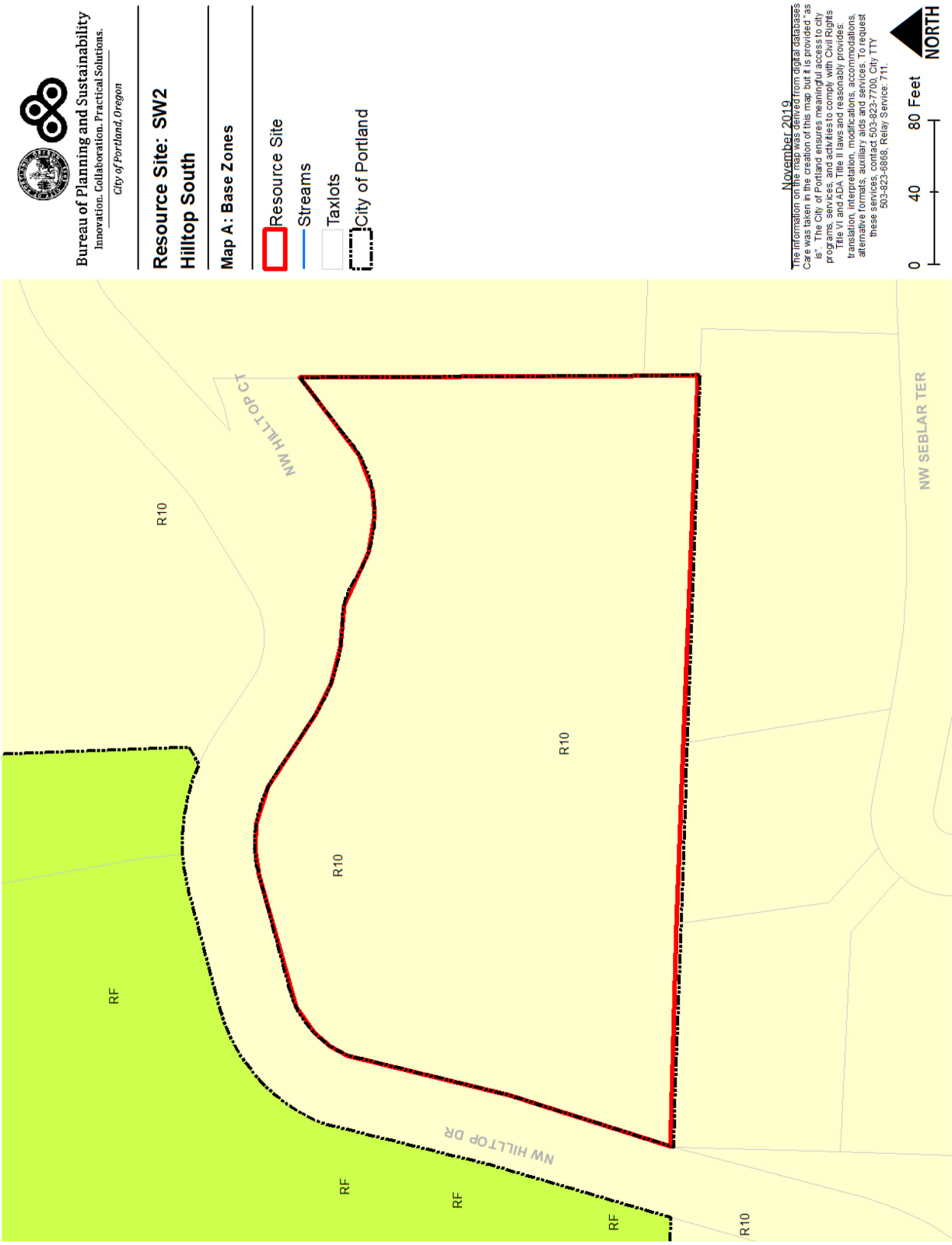
ESEE Decisions

Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW2 are:

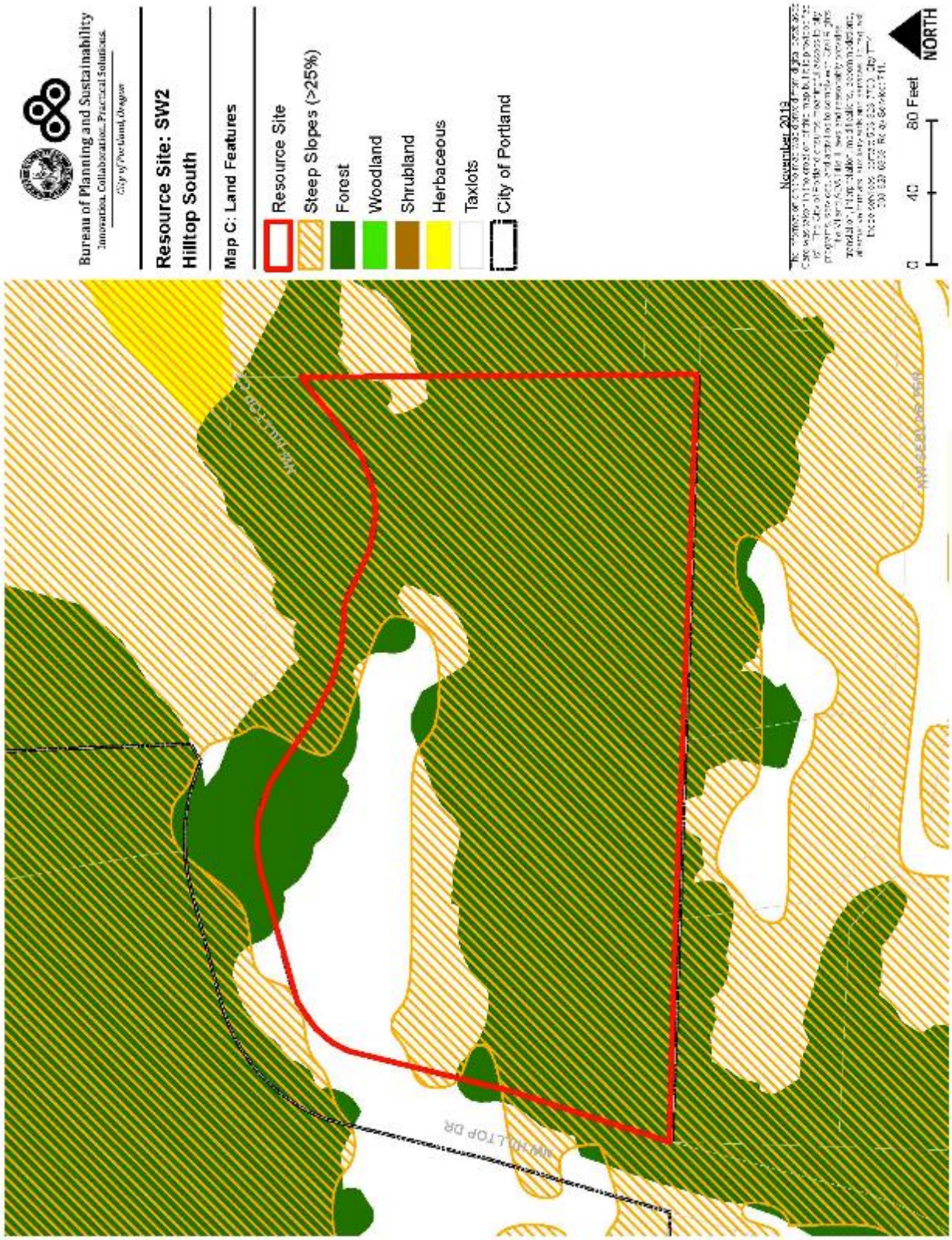
1. *Limit* conflicting uses within areas of forest vegetation on steep slopes.
2. *Allow* conflicting uses within all other areas containing significant natural resources.

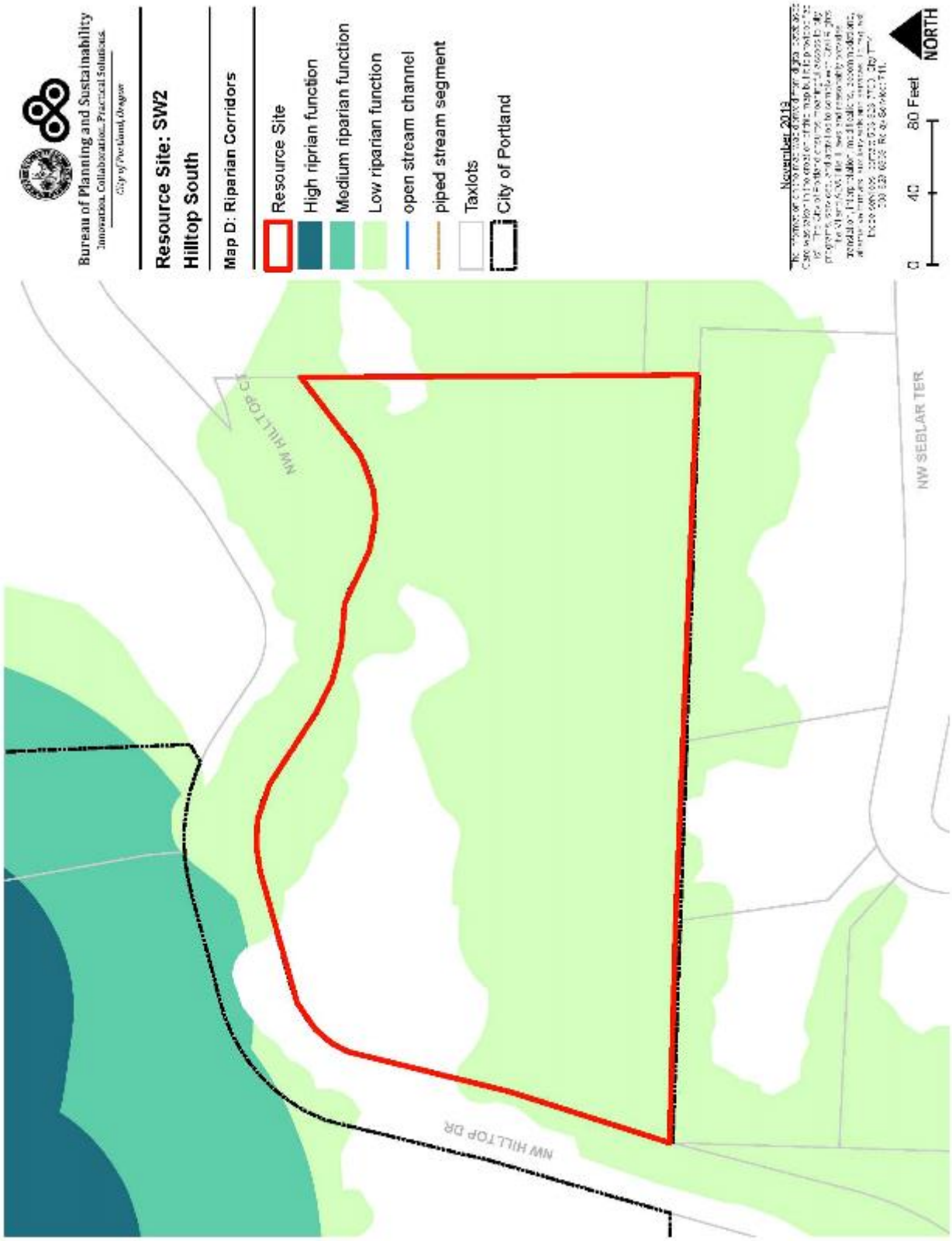
Table C: ESEE Decision for Resource Site SW2

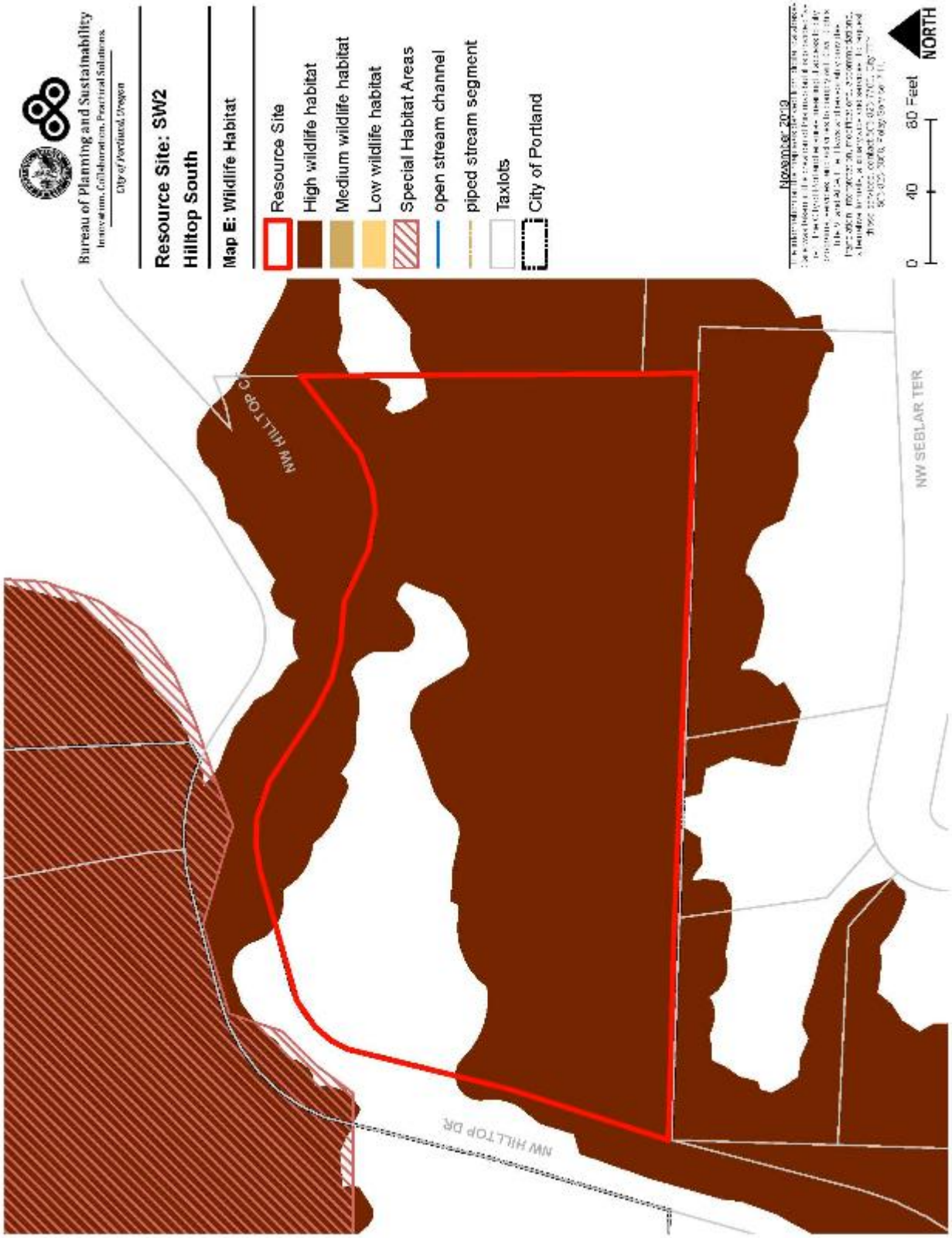
ESEE Decision	Acres
Strictly Limit	0.0
Limit	1.4
Allow	0.5

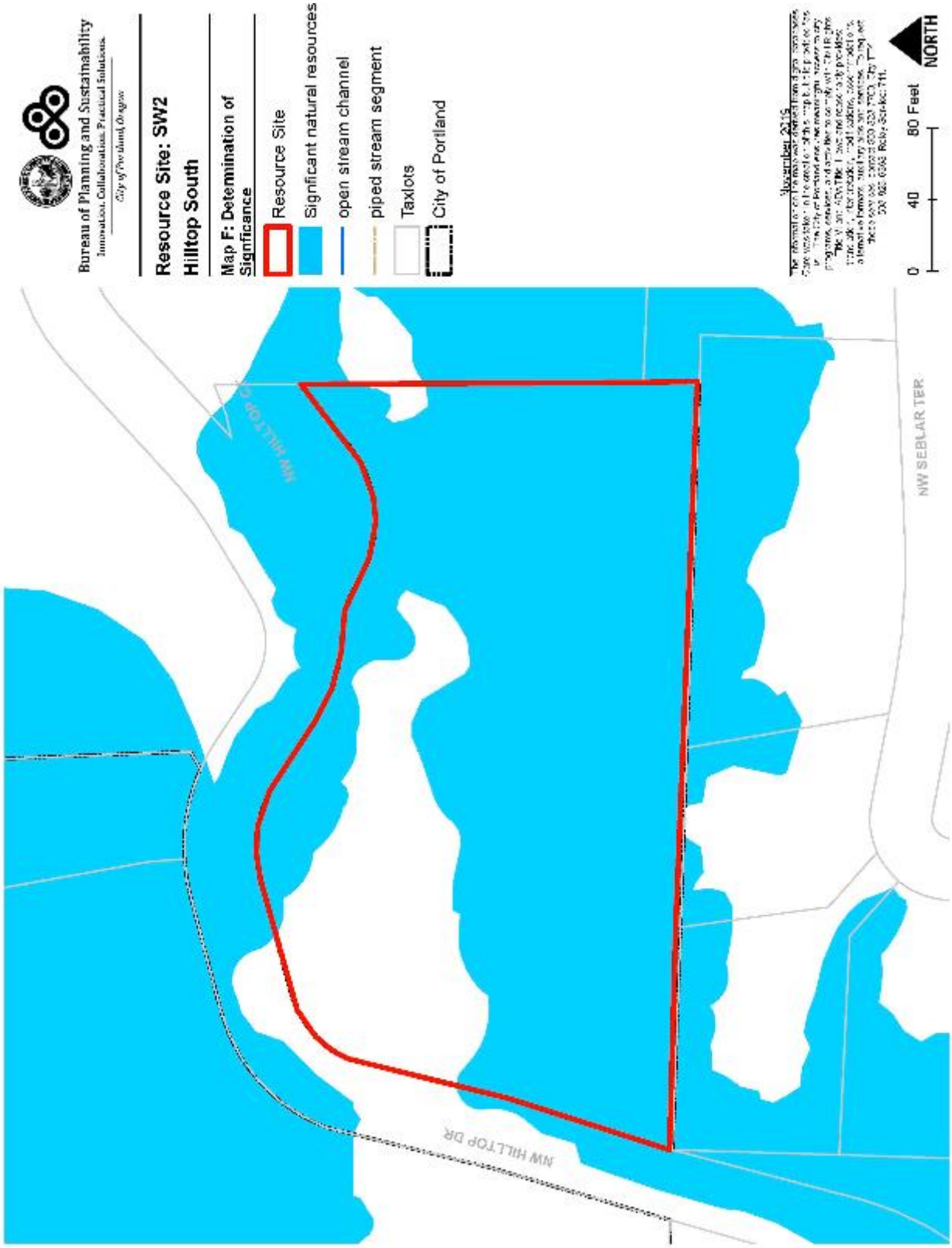

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW2
Hilltop South
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
The information on the map was derived from digital databases
Care was taken in the creation of this map but it is provided "as
is". The City of Portland ensures meaningful access to city
programs, services, and activities to comply with Civil Rights
Title VI and ADA Title II laws and reasonably provides:
translation, interpretation, modifications, accommodations,
alternative formats, auxiliary aids and services. To request
these services, contact 503-823-7700, City TTY
503-823-6868, Relay Service: 711.
0
40
80 Feet
NORTH
R10
NW HILLTOP CT
R10
R10
RF
NW HILLTOP DR
RF
RF
RF
R10
NW SEBLAR TER

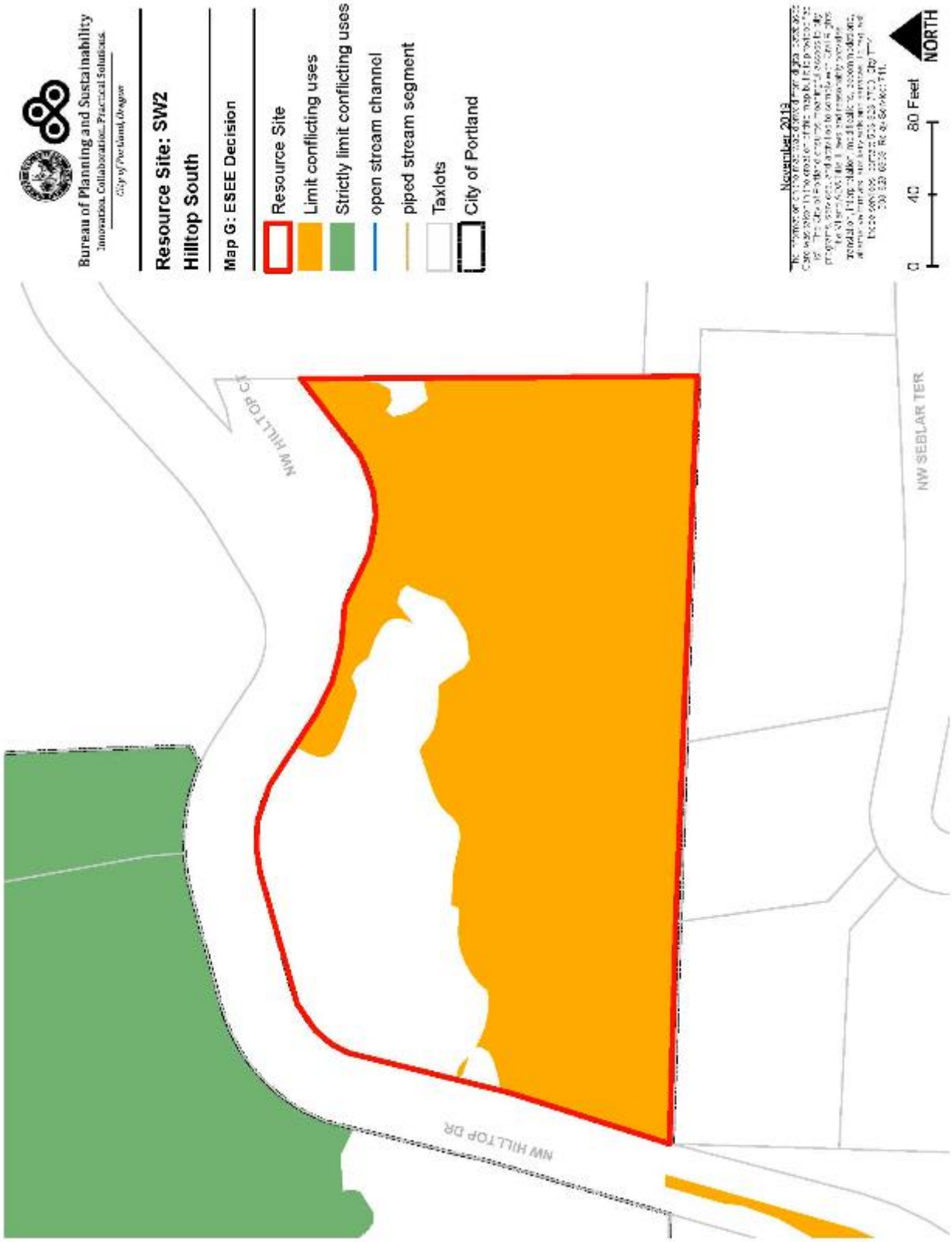

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW2
Hilltop South
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
0
40
80 Feet
NORTH
NW HILLTOP CT
NW HILLTOP DR
NW SEBLAR TER


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW2
Hilltop South
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2019
0 40 80 Feet
NORTH
SW HILLTOP DR


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW2
Hilltop South
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
40
80 Feet
NORTH
NW HILLTOP CT
NW HILLTOP DR
NW SEBLAR TER

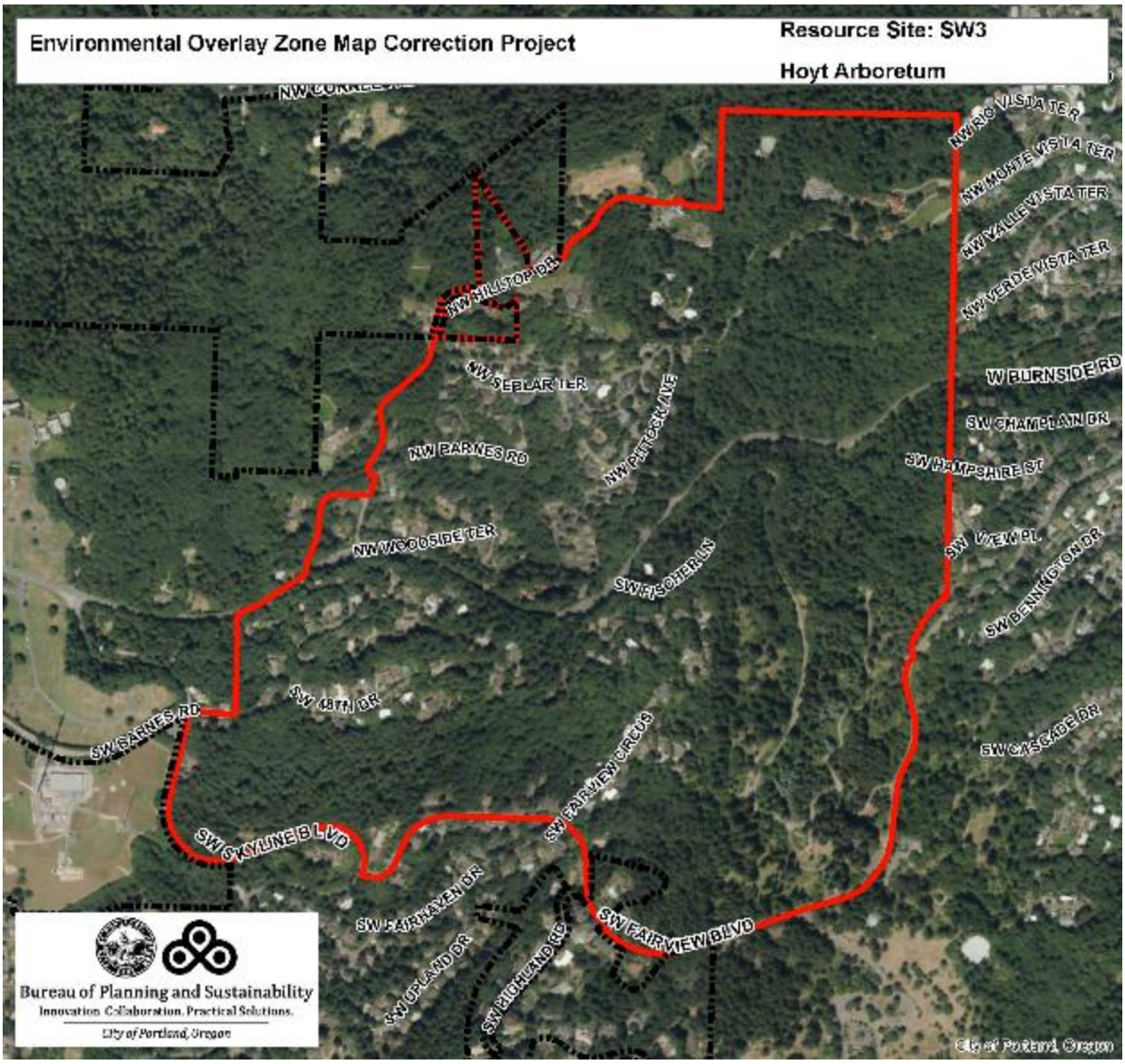

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW2
Hilltop South
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
40
80 Feet
NORTH
NW HILLTOP CT
NW HILLTOP DR
NW SEBLAR TER


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW2
Hilltop South
Map F: Determination of Significance
Resource Site
Significant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2016
0
40
80 Feet
NORTH
NW HILLTOP DR
NW HILLTOP DR
NW SEBLAR TER


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW2
Hilltop South
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
40
80 Feet
NORTH
NW HILLTOP CT
NW HILLTOP DR
NW SEBLAR TER

Resource Site No.: SW3 **Site Name:** Johnson Creek East

Previous Plan: Southwest Hills Resource Protection Plan **Previous Resource Site No.:** 110



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW3	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	228.3
Forest (acres)	215.5
Woodland (acres)	7.8
Shrubland (acres)	1.5
Herbaceous (acres)	3.5
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	250.2
Impervious Surface (acres)	43.4
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

Johnson Creek is a natural creek that flows north through the Hoyt Arboretum and then east along the south side of Burnside Street. A major tributary to Johnson Creek flows from near Skyline and Fairview Roads northeast to near Burnside Road where it joins Johnson Creek in the Hoyt Arboretum. Johnson Creek enters the combined sanitary and storm system west of the Burnside and Tichner Street intersection.

The site is almost fully urbanized in the form of Kings Heights, Arlington Heights, and other residential neighborhoods. The homes are typically on steep, terraced lots that are 7,000 square feet or less in size. The neighborhoods are generally landscaped with non-native plants except for the areas which border Hoyt Arboretum and Washington Park. These areas tend to have a more natural character and greater amount of native vegetation including Douglas fir, bigleaf maple, and cottonwood along the drainageways.

About 85 percent of the site is classified as having “severe landslide potential” with the remaining 15 percent in the “moderate” potential classification. In 1987, about 25 percent of the residentially designated areas were undeveloped. Ninety percent of the remaining vacant areas designated for residential development is classified as having “severe landslide potential.” The physical constraints include steep slopes and unstable geologic conditions.

The forest representative of the site has a tree zone with 80 percent closed canopy consisting of bigleaf maples that are typically twelve inches in diameter at breast height (dbh). The Douglas firs are 16-inches dbh on average. There are also mid-aged, climax forest species including western red cedar and grand fir. The shrub layer with 30 percent canopy closure consists of Oregon grape, oceanspray, thimbleberry, elderberry, red huckleberry, Indian plum and western hazel. English holly, English ivy and Himalayan

blackberry are non-native species that are present. This site area includes an abundance of fallen wood, an important resource that provides escape and nesting places plus habitat for large insect populations that serve as a food source for other insects, birds and animals.

A 93-year old forest is located in the western portion of the site near the east border of Hoyt Arboretum. The forest was last cut in 1898. The second growth is in its later seral mid-aged conifer stage. It has good to excellent habitat quality, is relatively undisturbed, and is composed of a 50/50 mix of deciduous and evergreen trees including Douglas fir, western red cedar, bigleaf maple and vine maple. The less common pacific yew tree is also present. The tree and herbaceous layers are well defined with 70 to 90 percent canopy closure. The shrub layer is also well defined with about a 40 percent closure. This area has an abundance of dead wood (e.g., downed trees) which enhances its habitat value. The area also contains a cave believed to have been used by Native Americans.

Portions of the 214-acre Hoyt Arboretum and 135-acre Pittock Mansion are located in the site. These sites form a wildlife corridor that connects habitat areas north and south of this site. Wildlife movement is constrained by Burnside Street's four traffic lanes and adjacent steep canyon walls. Passage can best occur in the western portion of the site particularly over the tunnel. Burnside Street's dramatic, wooded hillsides form a view corridor that contributes to the visual quality of the area and helps maintain slope stability.

Table B: Quality of Natural Resource Functions in Resource Site SW3				
Resource Site (acres) = 292.355482				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	68.3	54.2	105.4	227.9
percent total inventory site area	23.4%	18.5%	36.1%	78.0%
Wildlife Habitat*				
acres	219.1	0.1	0.0	219.2
percent total inventory site area	75.0%	0.0%	0.0%	75.0%
Special Habitat Areas**				
acres				17.5
percent total inventory site area				6.0%
Combined Total+				
acres	219.6	4.2	5.2	229.1
percent total inventory site area	75.1%	1.5%	1.8%	78.4%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site 73 the following significant features and functions are present:

Significant Natural Resource Features: open stream; forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status plant and fish species.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R20 and R10 base zones. Open space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW3, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

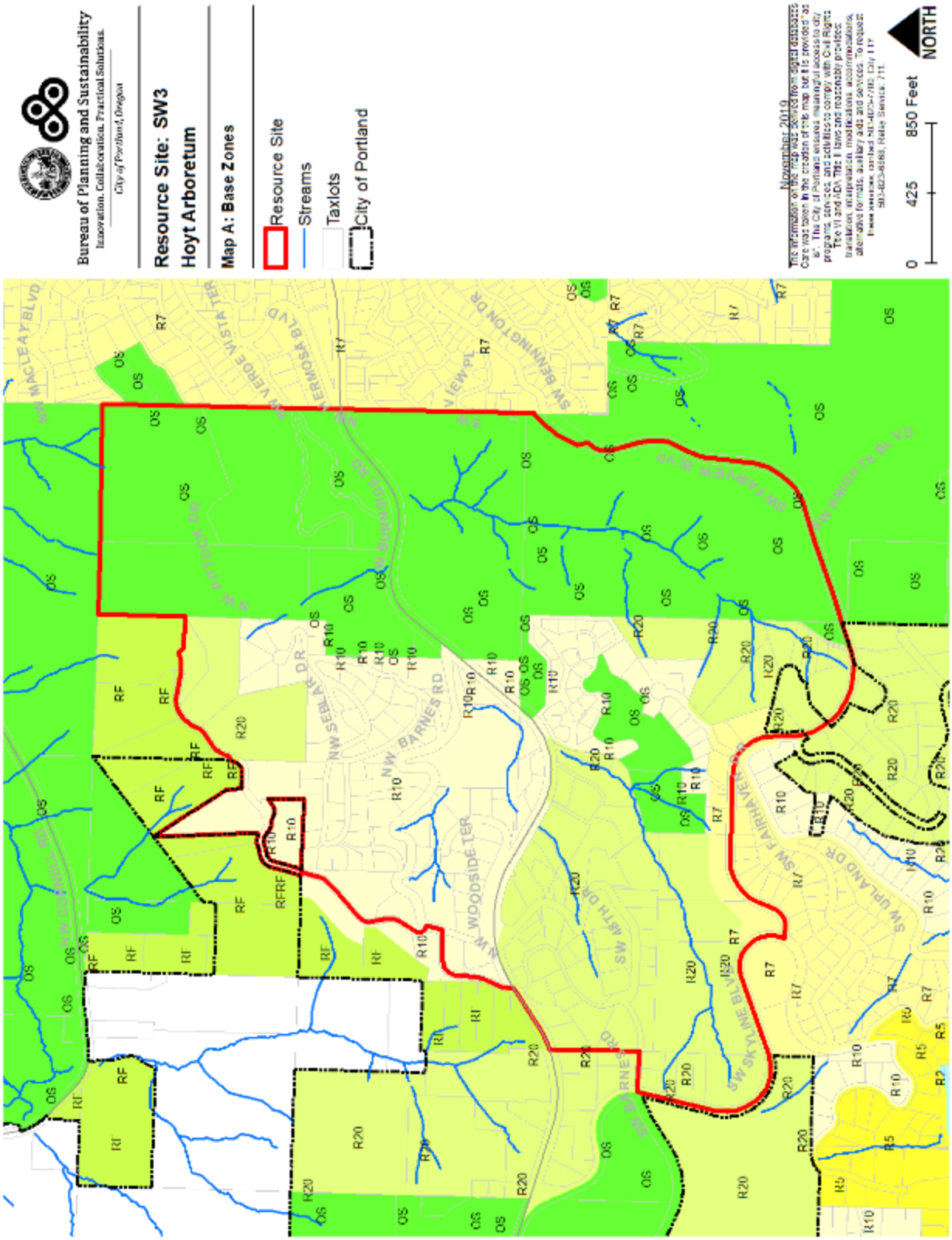
ESEE Decisions

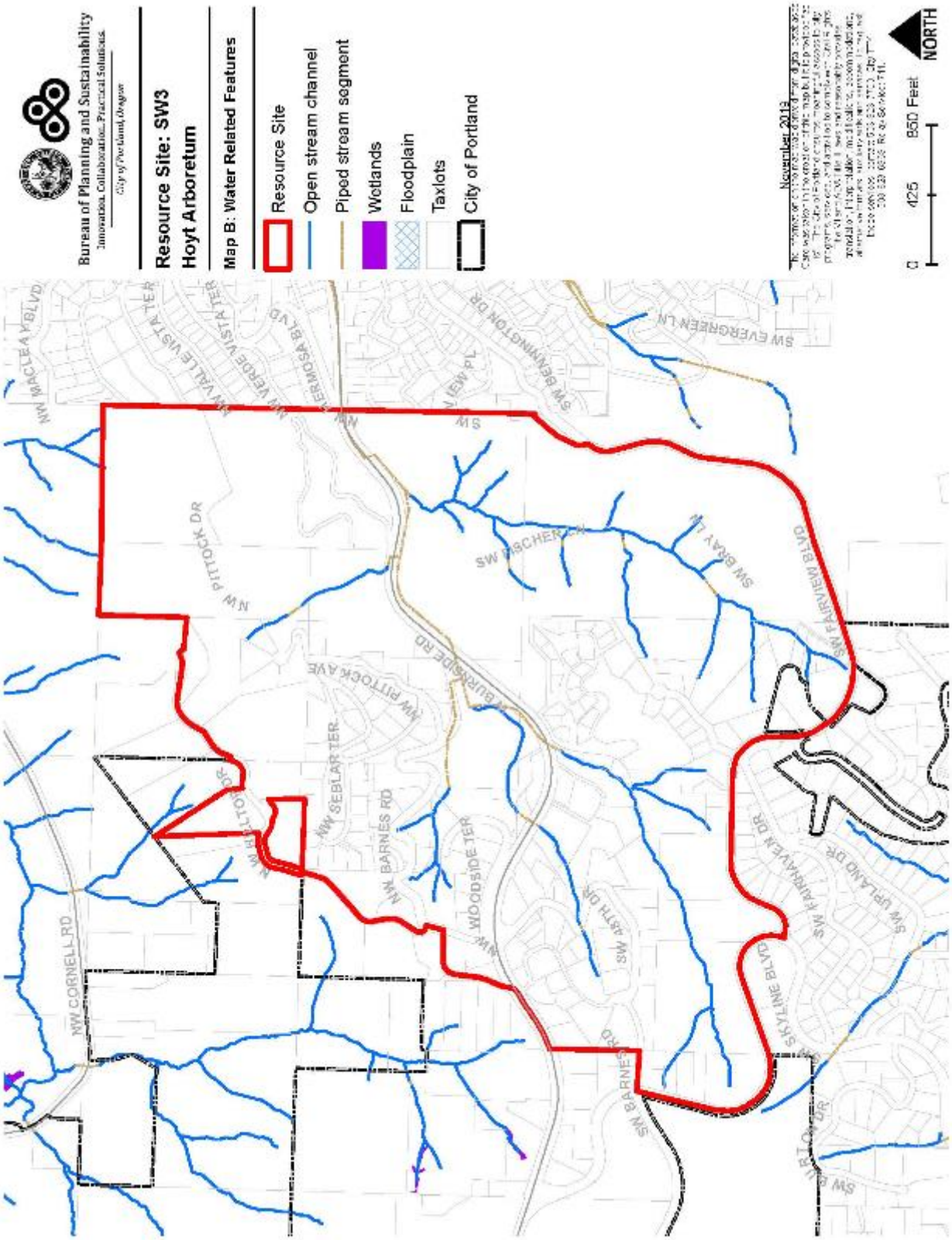
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW3 are:

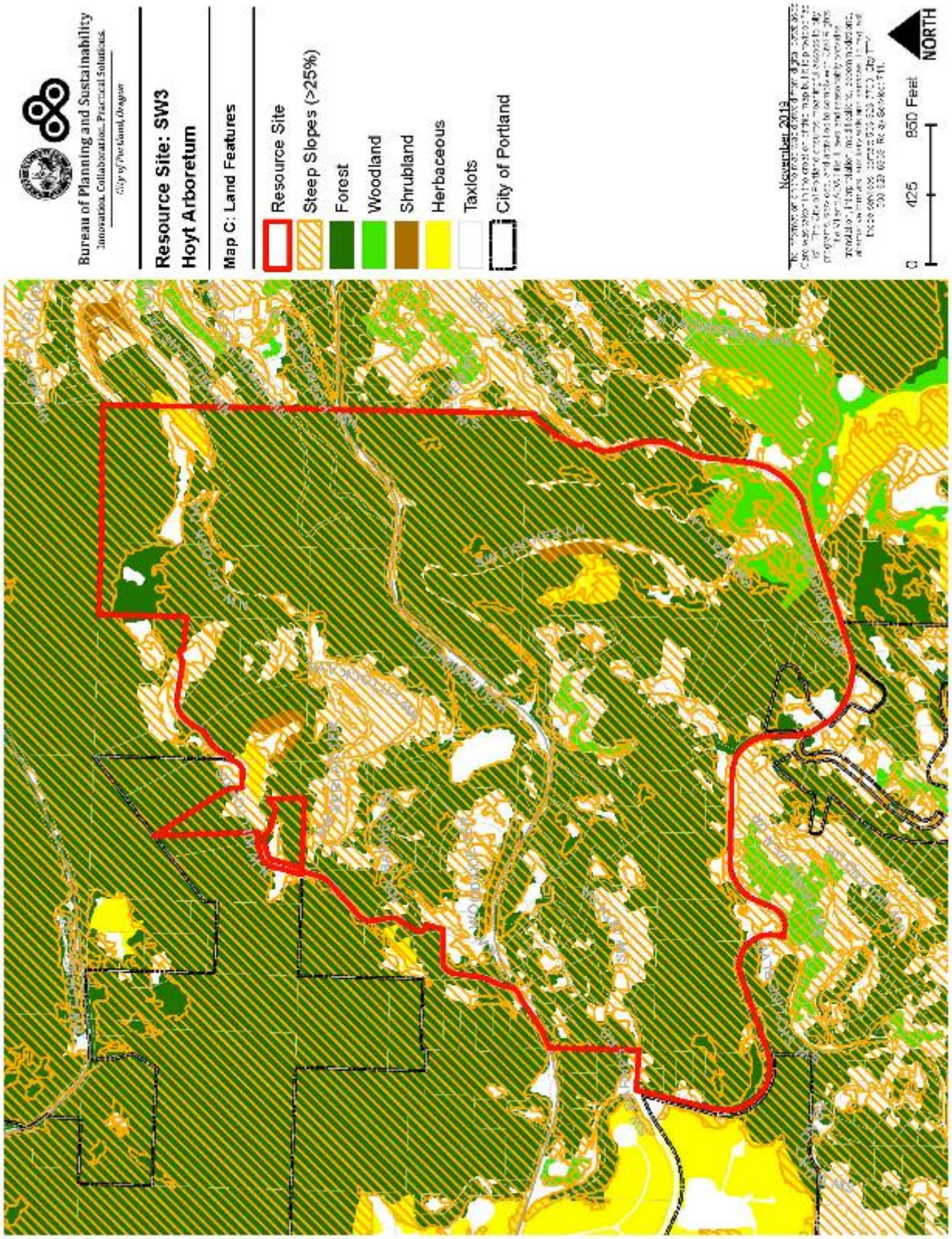
4. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, land within 50 feet of stream top-of-bank and within Pittock Acres Park and Hoyt Arboretum, areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank.
5. *Strictly limit* conflicting uses within areas of forest vegetation on steep slopes in parks.
6. Outside *of* Pittock Acres Park and Hoyt Arboretum, *limit* conflicting uses within area of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank and areas of forest vegetation on steep slopes that are contiguous to but more than 50 feet from stream top-of-bank.
7. *Allow* conflicting uses within all other areas containing significant natural resources.

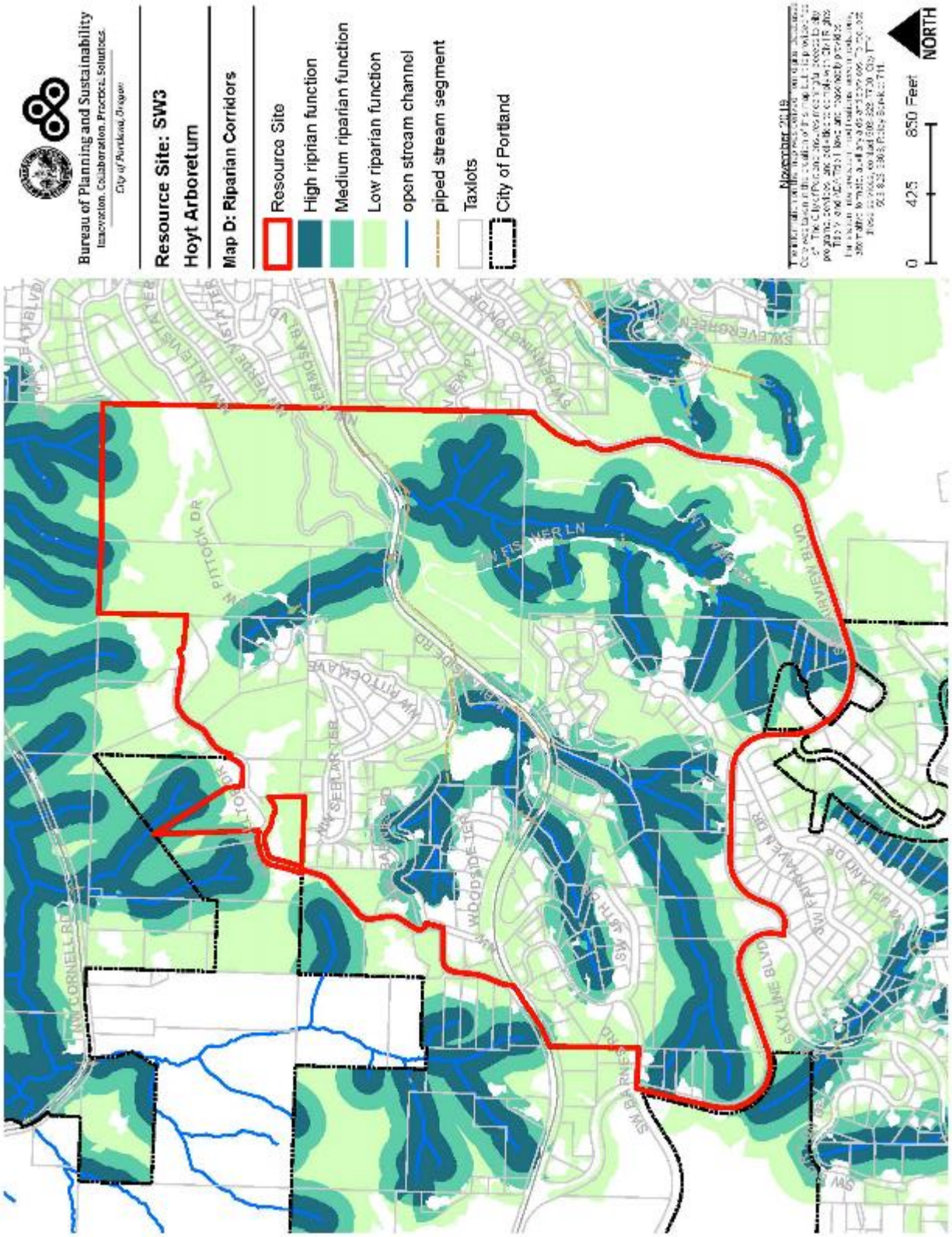
Table C: ESEE Decision for Resource Site SW3

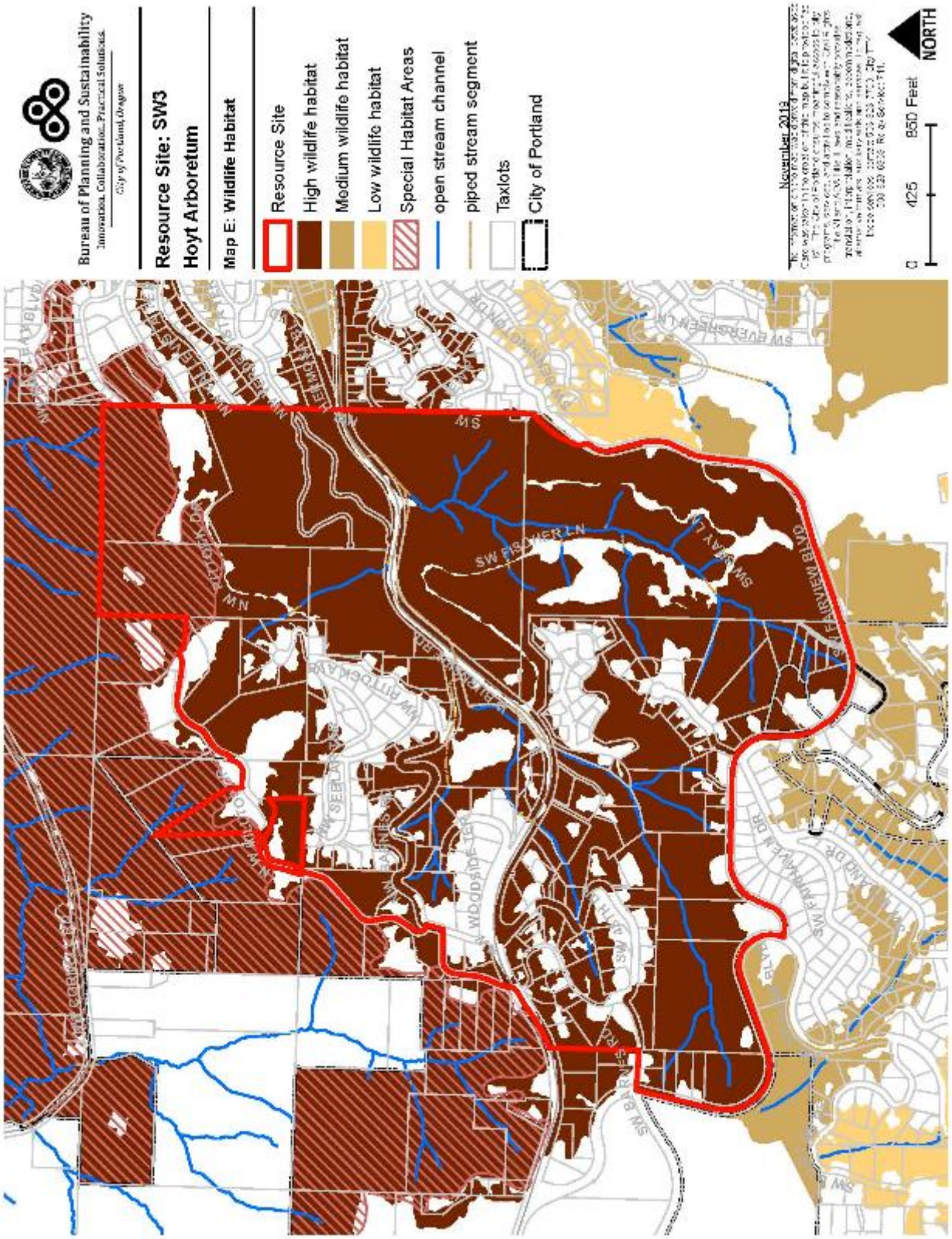
ESEE Decision	Acres
Strictly Limit	124.4
Limit	22.5
Allow	145.4

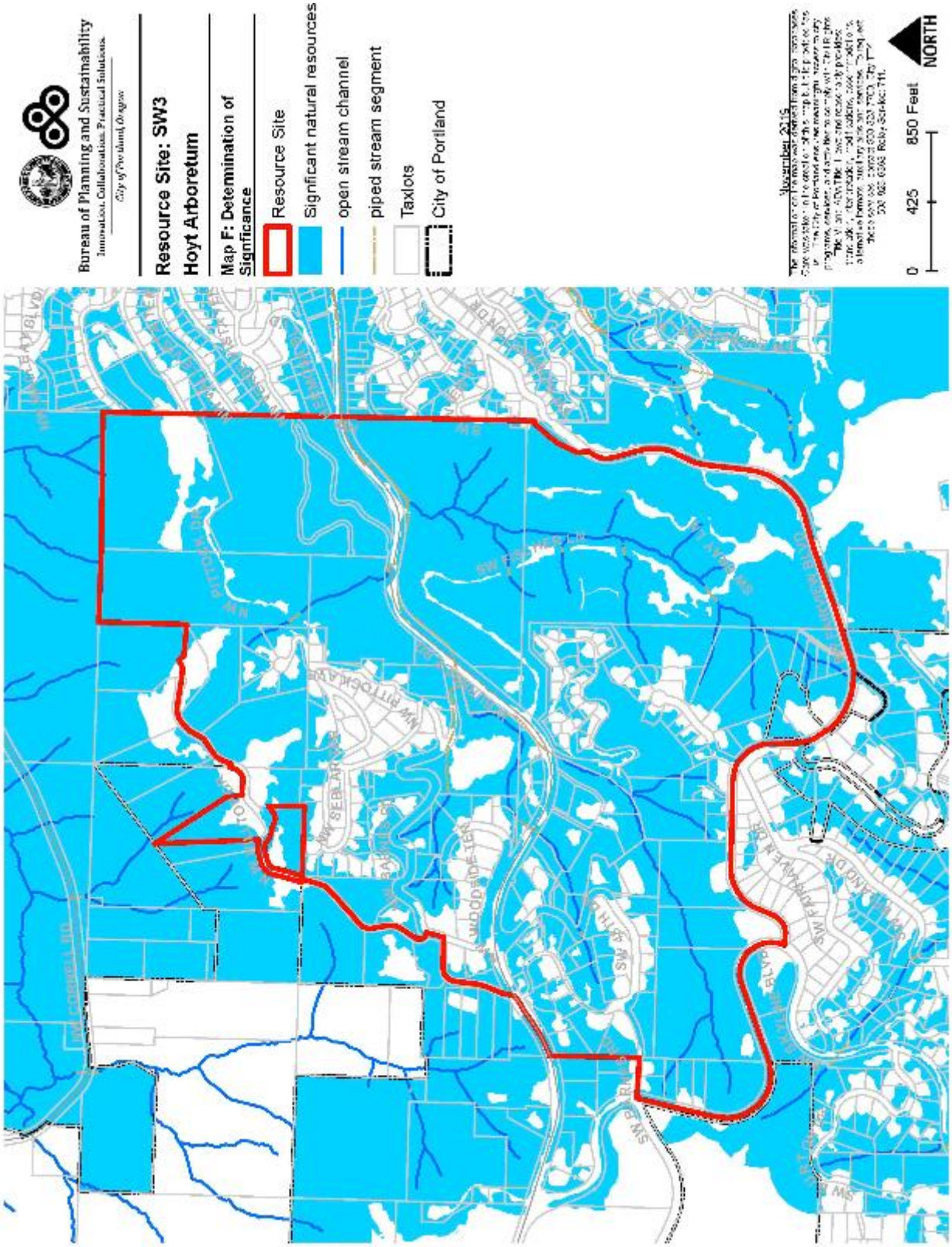

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW3
Hoyt Arboretum
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0
425
850 Feet
NORTH

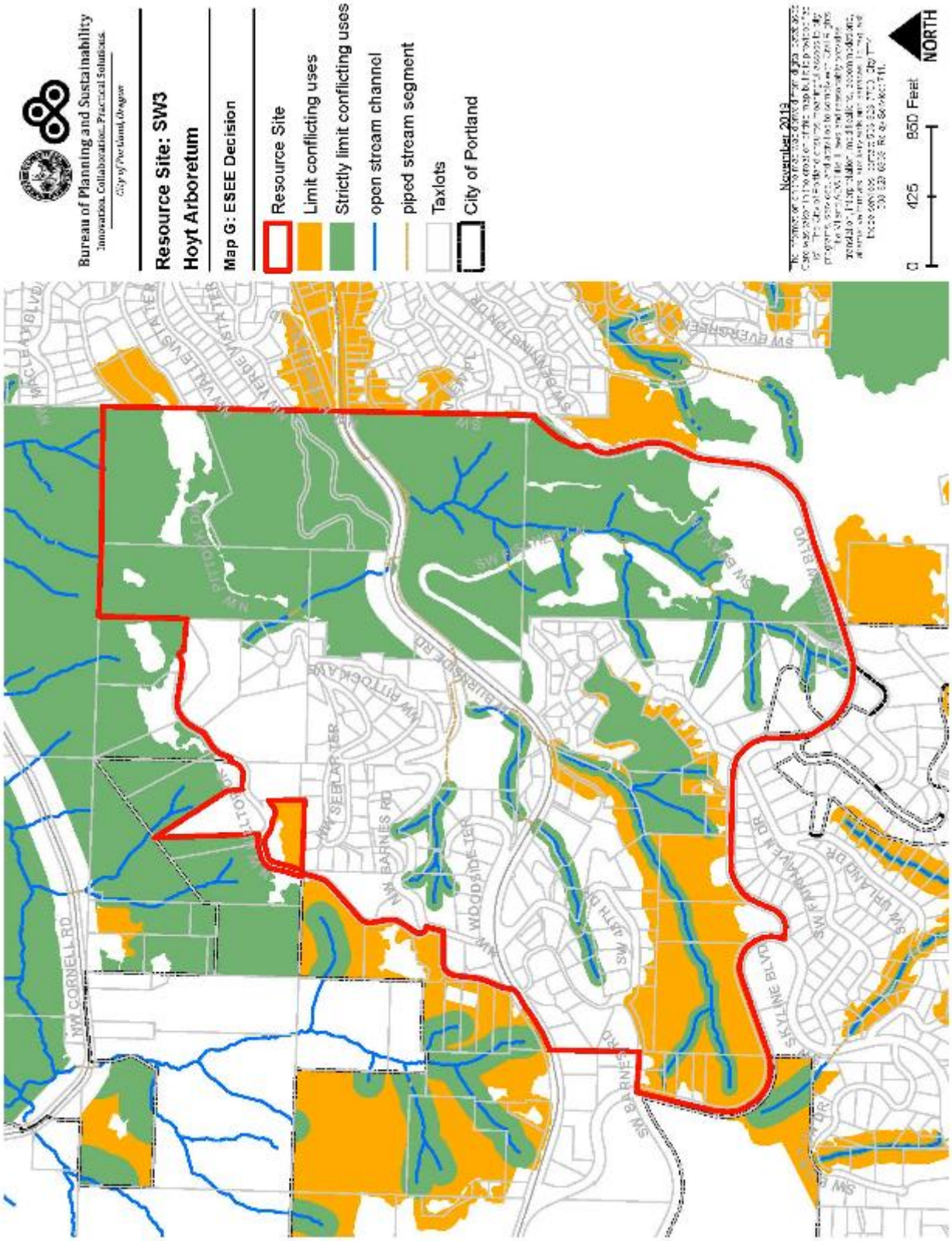

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW3
Hoyt Arboretum
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0 425 850 Feet
NORTH
NW MACLEAY BLVD
NW VALLEY VISTA TER
NW VERDE VISTA TER
NW PITTOCK DR
NW PITTOCK AVE
NW SEBLAR TER
NW BARNES RD
NW WOODSIDE TER
NW CORNELL RD
SW EVERGREEN LN
SW BENNINGTON DR
SW BURNSIDE RD
SW FAIRVIEW BLVD
SW SKYLINE BLVD
SW UPLAND DR
SW 45TH DR


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW3
Hoyt Arboretum
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2019
0 425 850 Feet
NORTH


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW3
Hoyt Arboretum
Map D: Riparian Corridors
Resource Site
High riparian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
425
850 Feet
NORTH
SW FISHER LN
SW PITTOCK DR
NW CORNELL RD
SW BARNES RD
SW SKYLINE BLVD
SW FARMVIEW DR
SW 35TH DR
SW VERMONT ST
SW VERDE VISTA TER
SW VALLEY VISTA TER
SW SEBLAR TER
SW WOODSIDE TER
SW PITTOCK AVE
SW SENNINGTON DR
SW EVERGREEN

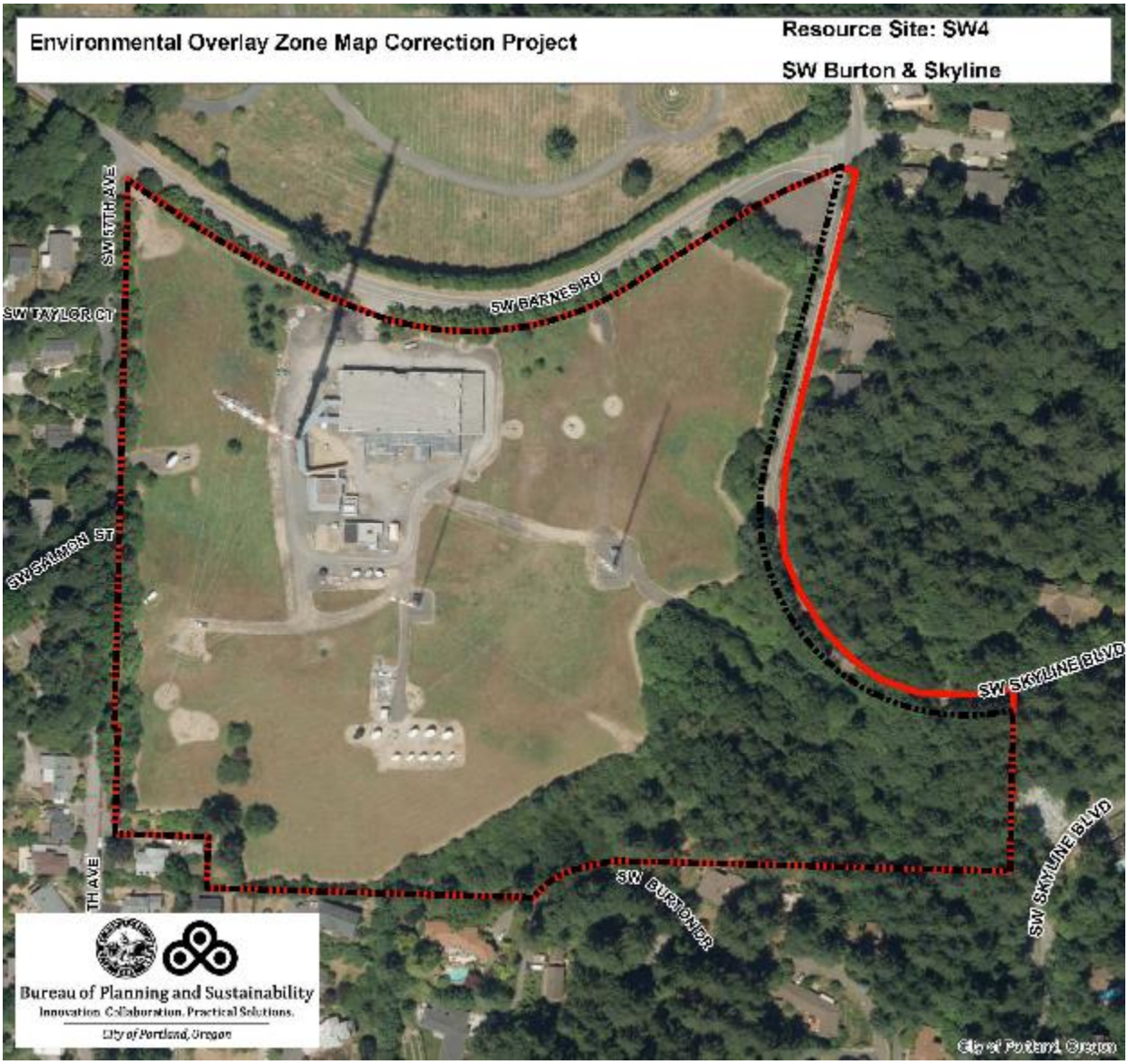

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW3
Hoyt Arboretum
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 425 850 Feet
NORTH
SW FISHER LN
SW BEAVERTON HILLSDALE HWY
SW BARNES RD
SW FAIRVIEW BLVD


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW3
Hoyt Arboretum
Map F: Determination of Significance
Resource Site
Significant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2015
0
425
850 Feet
NORTH


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW3
Hoyt Arboretum
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 425 850 Feet
NORTH
NW CORNELL RD
NW BARNES RD
SW BARNES RD
SW SKYLINE BLVD
SW BURLINGAME DR
SW BURNSIDE RD
NW SEBALD TER
NW WOODSIDE TER
NW RUTTOCK AVE
NW VERDE VISTA TER
NW VALLEY VISTA TER
SW EVERGREEN
SW SHERWOOD DR

Resource Site No.: SW4 **Site Name:** Sylvan H

Previous Plan: Multnomah County Urban Lands **Previous Resource Site No.:** 111



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW4	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	18.0
Forest (acres)	5.3
Woodland (acres)	0.0
Shrubland (acres)	0.0
Herbaceous (acres)	12.8
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	7.9
Impervious Surface (acres)	1.3
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

This site is composed of a patchwork of three soil types: Cascade silt loam, Cascade-Urban land complex and Goble silt loam. The predominant soils are the Cascade silt loam and the Cascade Urban complex. Cascade soils are somewhat poorly drained soils formed from silty materials. A two- to four-foot thick fragipan exists at a depth of 20 to 30 inches. A fragipan is a compacted layer of soil that creates a hard, impervious layer difficult for water and roots to penetrate. In winter and spring, it creates a perched water table; in summer, it creates a nearly rock-hard layer. The wetness of this layer can reduce the effectiveness of septic tank absorption fields and increases the likelihood of erosion. In addition, the shallow depth to the fragipan makes installation of some drainage systems difficult.

The Cascade-Urban complex consists of Cascade soils mixed with soils disturbed by urban development. Urban development alters the soil through excavation, filling and grading, creating a patchwork of soil characteristics. Mostly undisturbed sites have the properties of Cascade silt loam. More disturbed sites vary in their permeability and erosion potential.

Goble silt loams are located primarily in UIAs # 0, 7 and 8, on 30 to 60 percent slopes which are some of the steeper parts of the site. This is a very deep and moderately well-drained soil formed from silt and ash. Goble soils also have a thin (up to 12 inches thick) fragipan at a depth of approximately 30 to 48 inches, making it slightly less limiting for plant growth and excavation. The soil above the fragipan is moderately permeable, and the water table in winter and spring is within four feet of the surface. The steep slopes and seasonal saturation of the soil combine to make the potential for erosion and slumps high where this soil exists.

All of the parcels within the Sylvan site are located along the ridge and slopes of the Tualatin Mountains. Slopes on the east side of the ridge are generally steeper, contributing to increased slide potential. West-side slopes are also subject to slides. Shallow rooting depth, a product of the fragipan, increases

tree windfalls and slope instahility. Where erosion or urban development exposes the fragipan, establishment of vegetation is difficult, compounding erosion problems.

Located on a forested ridge-top above the Willamette Valley, the plant community at this site is characteristic of the Western Hemlock vegetatiqn zone (Franklin and Dymess 1988). The forest generally ranges in age from 50- to 120-year old second growth in a mid-seral stage of succession. With young shade-tolerant cedars well established in the understory, the older forest has entered the understory re-initiation stage (Oliver and Larson 1996).

The forest community is characterized by Douglas fir and bigleaf maple in the canopy layer, with mature western red cedar more common near Balch Creek and along Miller Road. Grand fir, red alder, bitter cherry and western hemlock are common overstory associates. Less common are Pacific dogwood and two invasive aliens, English holly and European hawthorn. In the understory, vine maple occurs in association with Indian plum, red elderberry, Oregon grape, western hazel, oceanspray, snowberry and cedar saplings. The ground layer is typically dominated by sword fem, though Pacific waterleaf and inside-out flower are occasional dominants. Several areas, most notably along Highway 26, are overrun by the exotic English ivy. Other common ground vegetation includes lady fem (on moist slopes and along streams), bracken fern, miner's lettuce, Hooker fairy-bell, false Solomon's seal, fringecup, western trillium and stream violet.

Large forest tracts within the site provide high quality habitat for a diverse wildlife assemblage. Abundant quantities of large woody debris and a thick organic layer on the forest floor provide habitat and foraging grounds for birds, reptiles, amphibians and small mammals. In most cases, the understory is a thick, diverse assemblage of berry and nut-bearing native shrubs that wildlife depend upon for forage as well as cover, especially during winter months. Other valuable habitat features within these forests include snags, large boulders, ravines and seeps.

Many species of birds were encountered during field surveys of the site: those most frequently observed include downy woodpecker, northern flicker, winter wren, black-capped chickadee, common bushtit, rufous-sided towhee, Wilson's warbler, Swainson's thrush and song sparrow. Due to the abundance of songbirds, sharp-shinned hawks and other forest-dwelling birds of prey such as great-homed owls are likely to occur within the site as well. The area is also potential foraging ground for peregrine falcons, which rely on other birds for the bulk of their diet.

Amphibians and reptiles, including western red-backed salamander, Pacific chorus frog and garter snakes, inhabit the site. Tree cavities serve as roosting and nesting sites for bats, voles, squirrels, weasels, raccoons and cavity-nesting birds, including pileated woodpecker. The abundant cover is essential for black-tail deer, coyote and other large mammals.

Balch Creek runs through a portion of this site. Resident cutthroat trout inhabit the creek; historically, other species inhabited the drainage as well. Balch and other creeks within the site flow through steep forested ravines, providing wildlife with a protected travel corridor, refuge from high summer temperatures and a permanent source of water. Thick riparian forests protect the creeks and the integrity of their banks and influence the quality of stream habitat located downstream. Large quantities of silt are present in several of the streams, providing evidence of the consequences of vegetation removal associated with previous upstream development. Other sources of silt include upstream landslides and bank failures related to new construction.

Special Status Species found in the resource site include:

- Pacific western big-eared bat
- Long-eared myotis
- Fringed myotis
- Long-legged myotis
- Pileated woodpecker
- Little willow flycatcher
- American peregrine falcon
- Olive-sided flycatcher
- Coast cutthroat trout
- Northern red-legged frog

Table B: Quality of Natural Resource Functions in Resource Site SW4				
Resource Site (acres) = 22.570657				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	2.3	2.4	3.9	8.6
percent total inventory site area	10.0%	10.5%	17.5%	38.0%
Wildlife Habitat*				
acres	0.0	4.9	0.0	5.0
percent total inventory site area	0.2%	21.9%	0.0%	22.1%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total+				
acres	2.3	2.7	3.6	8.6
percent total inventory site area	10.1%	12.0%	15.9%	38.0%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW4 the following significant features and functions are present:

Significant Natural Resource Features: open stream, forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status fish and wildlife species.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R20 base zones. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW4, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

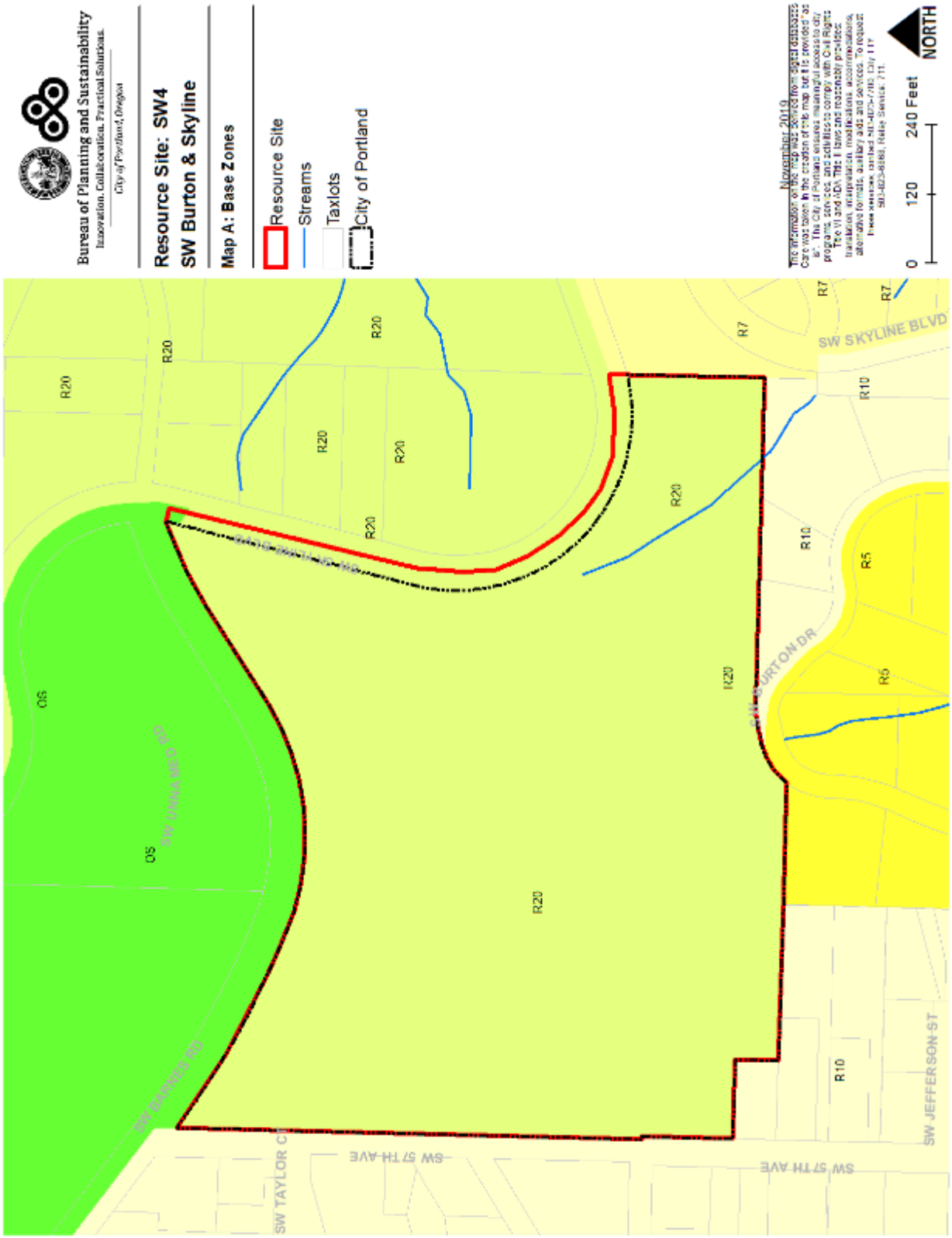
ESEE Decisions

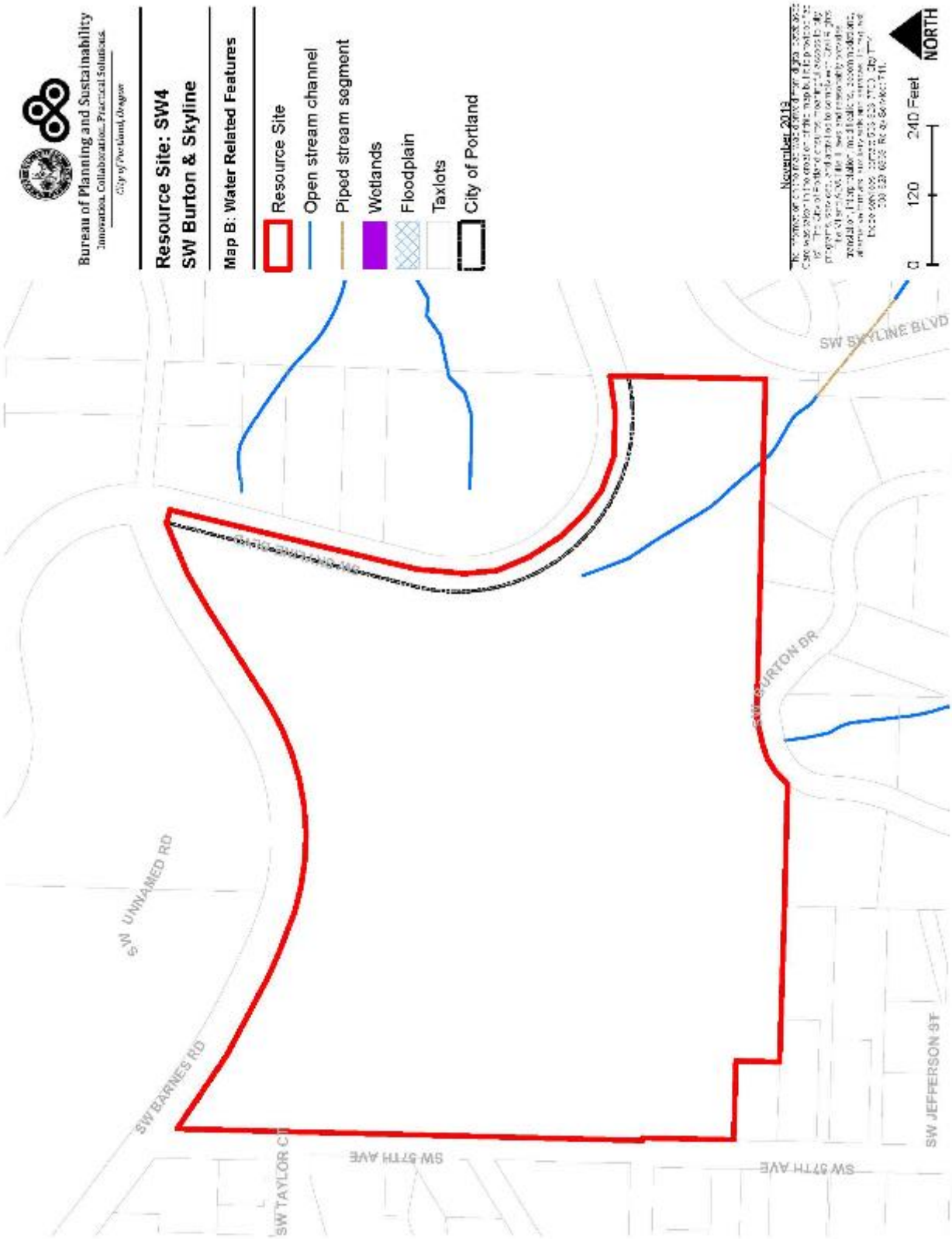
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW4 are:

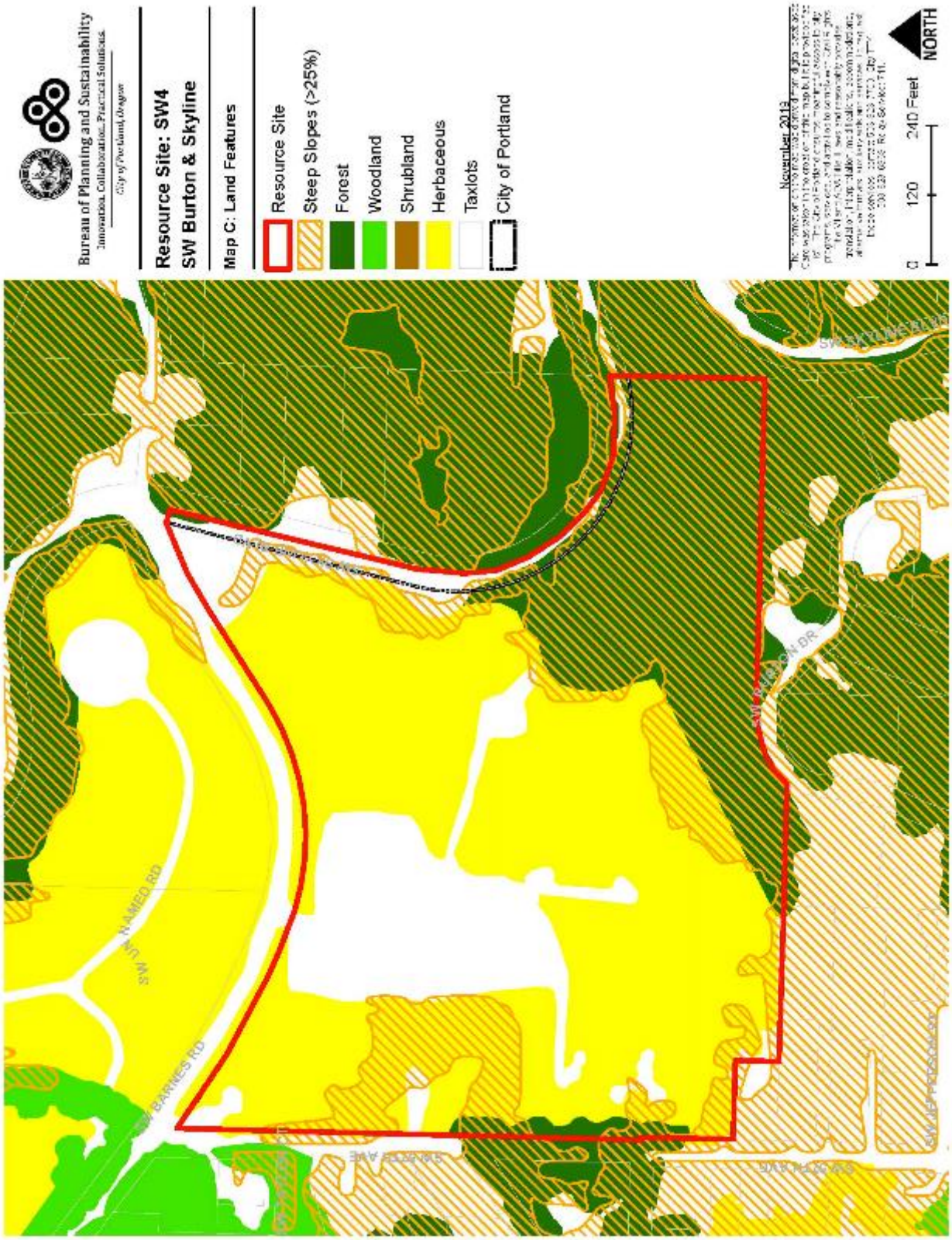
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank and land within 50 feet of stream top-of-bank.
2. *Strictly limit* conflicting uses within areas of forest vegetation contagious that are to but more than 50 feet from stream top-of-bank extending to 100 feet from top-of-bank.
3. *Limit* conflicting uses within areas of forest vegetation that are contiguous to but more than 100 feet from stream top-of-bank and areas of forest vegetation on steep slopes that are contiguous to but more than 100 feet from stream top-of-bank.
4. *Allow* conflicting uses within all other areas containing significant natural resources.

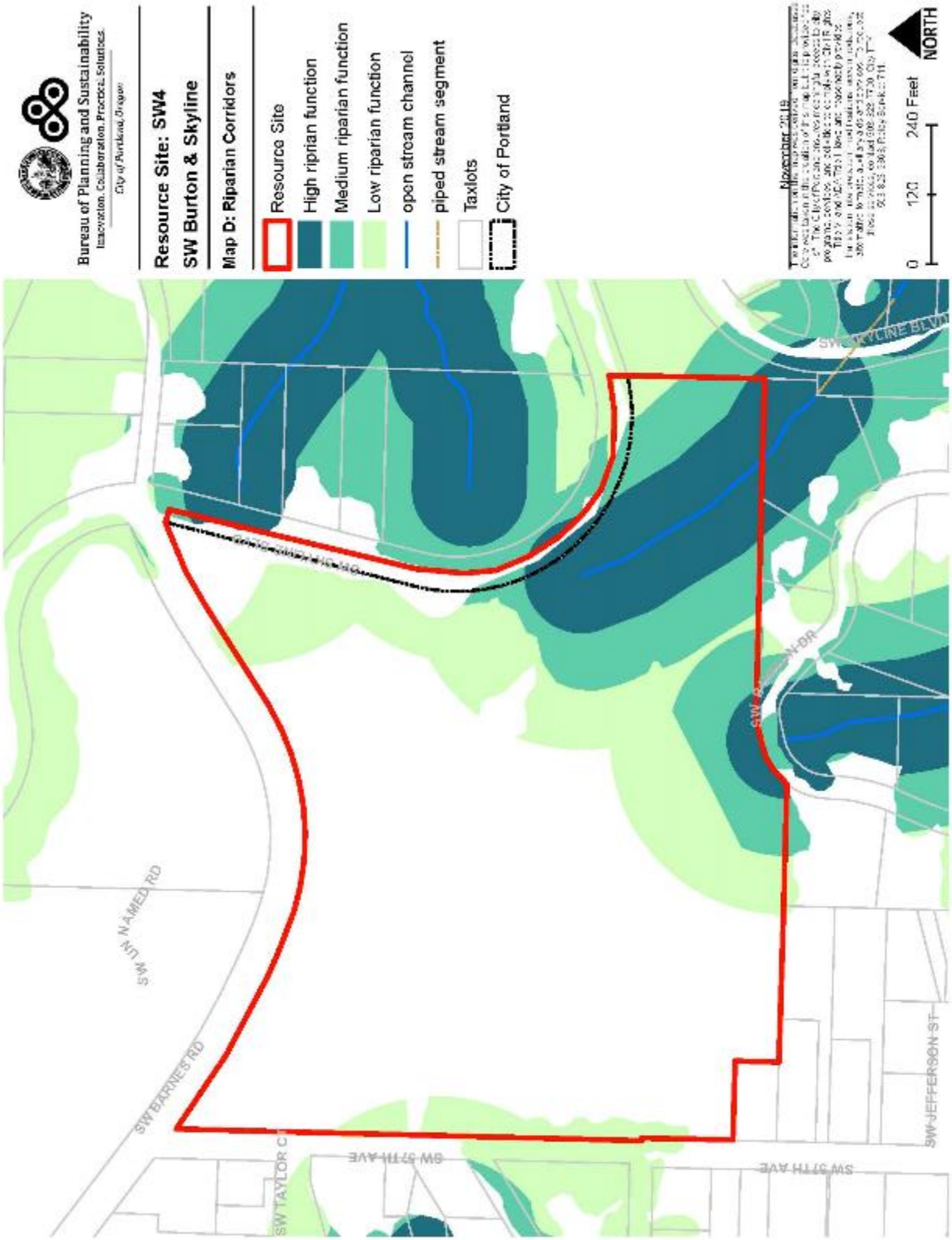
Table C: ESEE Decision for Resource Site SW4

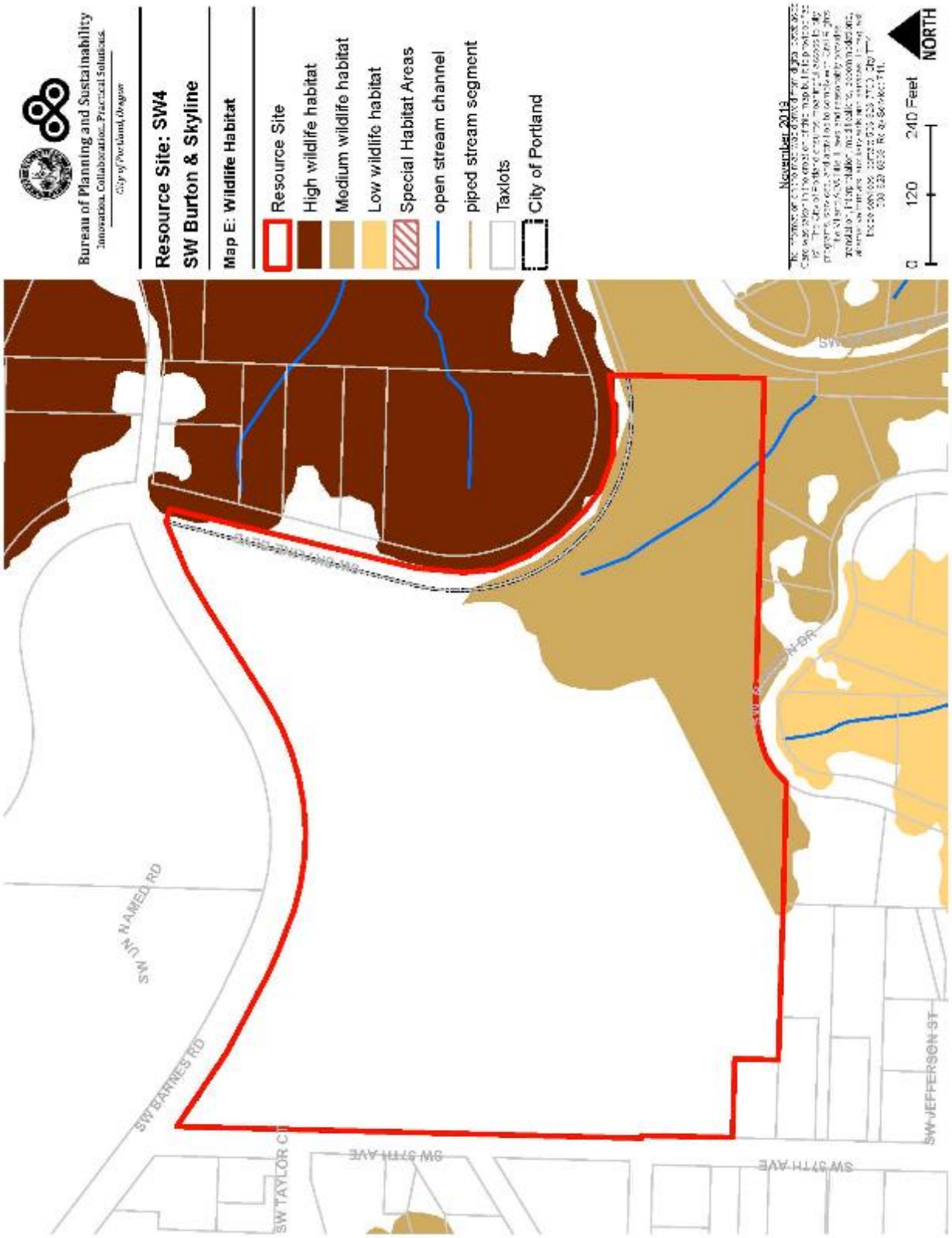
ESEE Decision	Acres
Strictly Limit	1.9
Limit	2.9
Allow	17.8

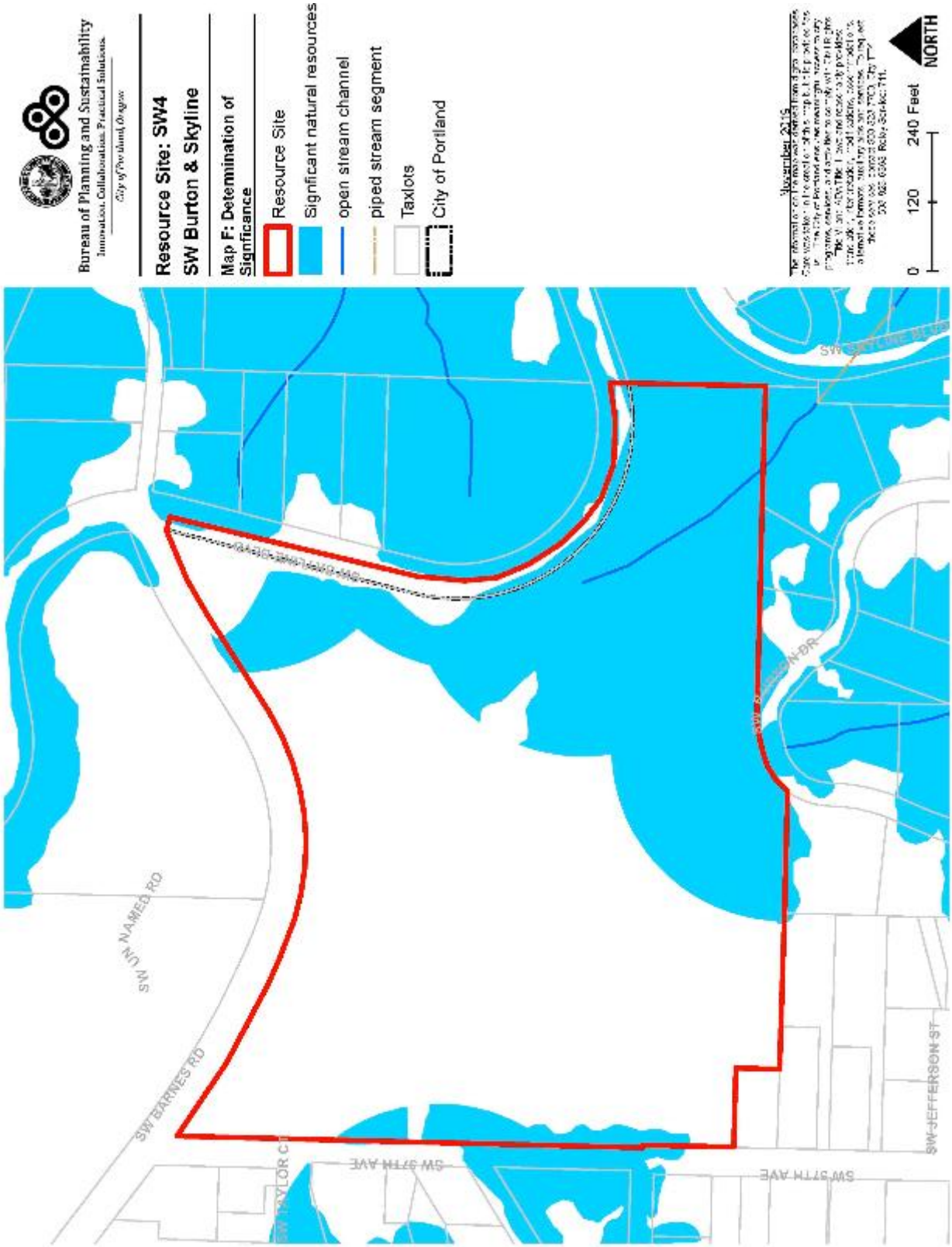

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW4
SW Burton & Skyline
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0 120 240 Feet
NORTH
R20
R7
R10
R5
OS
SW SKYLINE BLVD
SW BURTON DR
SW JEFFERSON ST
SW 57TH AVE
SW TAYLOR CT
SW BARNES RD
SW UNNAMED ST

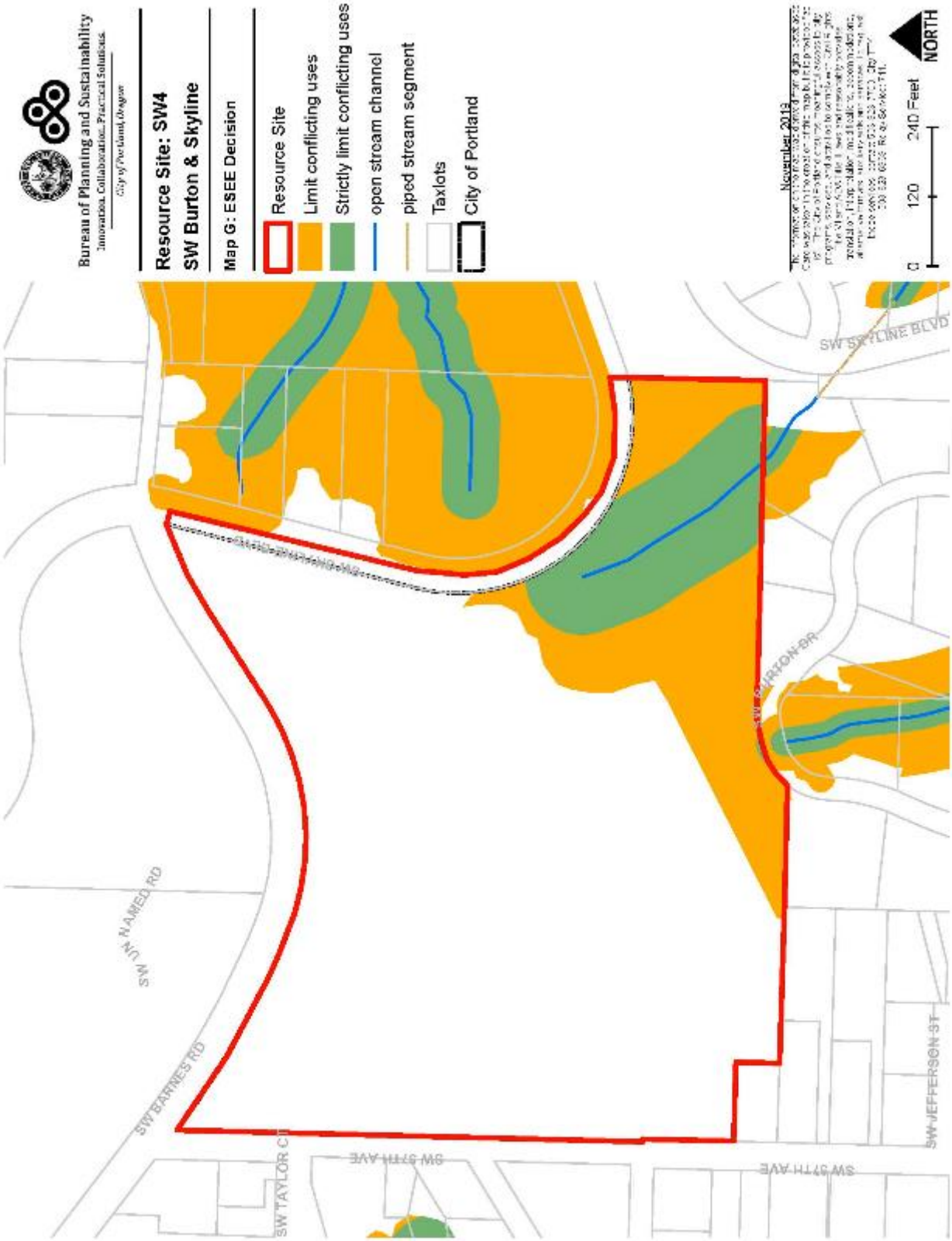

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW4
SW Burton & Skyline
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0
120
240 Feet
NORTH
SW SKYLINE BLVD
SW BURTON DR
SW UNNAMED RD
SW BARNES RD
SW TAYLOR CT
SW 57TH AVE
SW 57TH AVE
SW JEFFERSON ST


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW4
SW Burton & Skyline
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2019
0 120 240 Feet
NORTH
SW BARNES RD
SW ALAMEDA DR
SW BURTON DR
SW SKYLINE BLVD


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW4
SW Burton & Skyline
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 120 240 Feet
NORTH
SW BARNES RD
SW TAYLOR C
SW 37TH AVE
SW JEFFERSON ST

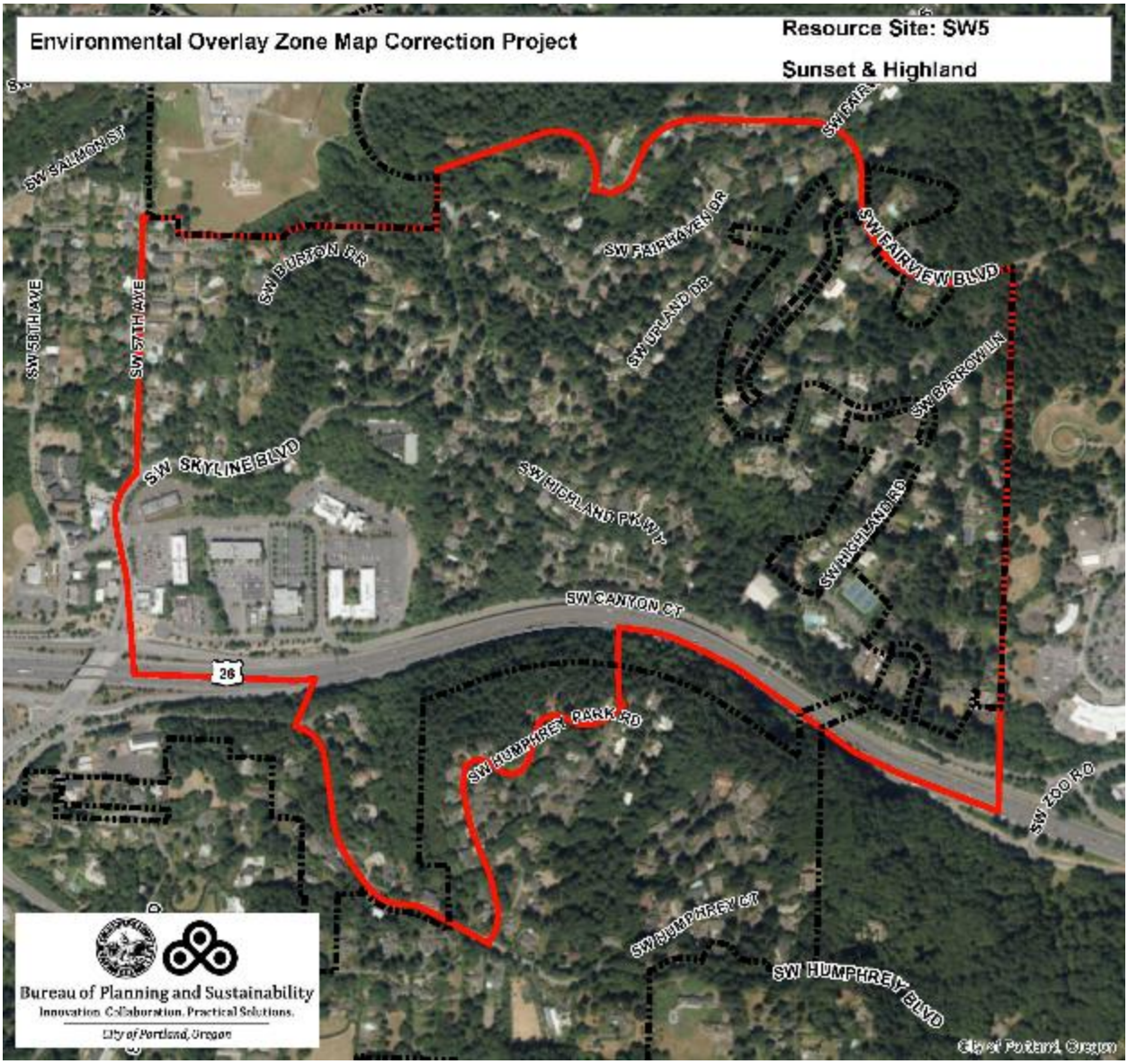

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW4
SW Burton & Skyline
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 120 240 Feet
NORTH
SW UNNAMED RD
SW BARNES RD
SW TAYLOR CT
SW 37TH AVE
SW JEFFERSON ST


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW4
SW Burton & Skyline
Map F: Determination of Significance
Resource Site
Significant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2015
0
120
240 Feet
NORTH
SW UNNAMED RD
SW BARNES RD
SW TAYLOR CT
SW 37TH AVE
SW JEFFERSON ST


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW4
SW Burton & Skyline
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 120 240 Feet
NORTH
SW SKYLINE BLVD
SW BURTON DR
SW JUNIPER PL
SW NAMED RD
SW BARNES RD
SW TAYLOR CT
SW 37TH AVE
SW JEFFERSON ST

Resource Site No.: SW5 **Site Name:** Sylvan I

Previous Plan: Multnomah County Urban Lands **Previous Resource Site No.:** 111



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW5	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.1
Vegetated Areas >= 1/2 acre (acres)	113.9
Forest (acres)	99.6
Woodland (acres)	13.2
Shrubland (acres)	1.0
Herbaceous (acres)	0.1
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	157.5
Impervious Surface (acres)	86.3
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

This site is composed of a patchwork of three soil types: Cascade silt loam, Cascade-Urban land complex and Goble silt loam. The predominant soils are the Cascade silt loam and the Cascade Urban complex. Cascade soils are somewhat poorly drained soils formed from silty materials. A two- to four-foot thick fragipan exists at a depth of 20 to 30 inches. A fragipan is a compacted layer of soil that creates a hard, impervious layer difficult for water and roots to penetrate. In winter and spring, it creates a perched water table; in summer, it creates a nearly rock-hard layer. The wetness of this layer can reduce the effectiveness of septic tank absorption fields and increases the likelihood of erosion. In addition, the shallow depth to the fragipan makes installation of some drainage systems difficult.

The Cascade-Urban complex consists of Cascade soils mixed with soils disturbed by urban development. Urban development alters the soil through excavation, filling and grading, creating a patchwork of soil characteristics. Mostly undisturbed sites have the properties of Cascade silt loam. More disturbed sites vary in their permeability and erosion potential.

Goble silt loams are located primarily in UIAs # 0, 7 and 8, on 30 to 60 percent slopes which are some of the steeper parts of the site. This is a very deep and moderately well-drained soil formed from silt and ash. Goble soils also have a thin (up to 12 inches thick) fragipan at a depth of approximately 30 to 48 inches, making it slightly less limiting for plant growth and excavation. The soil above the fragipan is moderately permeable, and the water table in winter and spring is within four feet of the surface. The steep slopes and seasonal saturation of the soil combine to make the potential for erosion and slumps high where this soil exists.

All of the parcels within the Sylvan site are located along the ridge and slopes of the Tualatin Mountains. Slopes on the east side of the ridge are generally steeper, contributing to increased slide potential. West-side slopes are also subject to slides. Shallow rooting depth, a product of the fragipan, increases

tree windfalls and slope instahility. Where erosion or urban development exposes the fragipan, establishment of vegetation is difficult, compounding erosion problems.

Located on a forested ridge-top above the Willamette Valley, the plant community at this site is characteristic of the Western Hemlock vegetatiqn zone (Franklin and Dymess 1988). The forest generally ranges in age from 50- to 120-year old second growth in a mid-seral stage of succession. With young shade-tolerant cedars well established in the understory, the older forest has entered the understory re-initiation stage (Oliver and Larson 1996).

The forest community is characterized by Douglas fir and bigleaf maple in the canopy layer, with mature western red cedar more common near Balch Creek and along Miller Road. Grand fir, red alder, bitter cherry and western hemlock are common overstory associates. Less common are Pacific dogwood and two invasive aliens, English holly and European hawthorn. In the understory, vine maple occurs in association with Indian plum, red elderberry, Oregon grape, western hazel, oceanspray, snowberry and cedar saplings. The ground layer is typically dominated by sword fem, though Pacific waterleaf and inside-out flower are occasional dominants. Several areas, most notably along Highway 26, are overrun by the exotic English ivy. Other common ground vegetation includes lady fem (on moist slopes and along streams), bracken fern, miner's lettuce, Hooker fairy-bell, false Solomon's seal, fringecup, western trillium and stream violet.

Large forest tracts within the site provide high quality habitat for a diverse wildlife assemblage. Abundant quantities of large woody debris and a thick organic layer on the forest floor provide habitat and foraging grounds for birds, reptiles, amphibians and small mammals. In most cases, the understory is a thick, diverse assemblage of berry and nut-bearing native shrubs that wildlife depend upon for forage as well as cover, especially during winter months. Other valuable habitat features within these forests include snags, large boulders, ravines and seeps.

Many species of birds were encountered during field surveys of the site: those most frequently observed include downy woodpecker, northern flicker, winter wren, black-capped chickadee, common bushtit, rufous-sided towhee, Wilson's warbler, Swainson's thrush and song sparrow. Due to the abundance of songbirds, sharp-shinned hawks and other forest-dwelling birds of prey such as great-homed owls are likely to occur within the site as well. The area is also potential foraging ground for peregrine falcons, which rely on other birds for the bulk of their diet.

Amphibians and reptiles, including western red-backed salamander, Pacific chorus frog and garter snakes, inhabit the site. Tree cavities serve as roosting and nesting sites for bats, voles, squirrels, weasels, raccoons and cavity-nesting birds, including pileated woodpecker. The abundant cover is essential for black-tail deer, coyote and other large mammals.

Balch Creek runs through a portion of this site. Resident cutthroat trout inhabit the creek; historically, other species inhabited the drainage as well. Balch and other creeks within the site flow through steep forested ravines, providing wildlife with a protected travel corridor, refuge from high summer temperatures and a permanent source of water. Thick riparian forests protect the creeks and the integrity of their banks and influence the quality of stream habitat located downstream. Large quantities of silt are present in several of the streams, providing evidence of the consequences of vegetation removal associated with previous upstream development. Other sources of silt include upstream landslides and bank failures related to new construction.

Special Status Species found in the resource site include:

- Pacific western big-eared bat
- Long-eared myotis
- Fringed myotis
- Long-legged myotis
- Pileated woodpecker
- Little willow flycatcher
- American peregrine falcon
- Olive-sided flycatcher
- Coast cutthroat trout
- Northern red-legged frog

Table B: Quality of Natural Resource Functions in Resource Site SW5				
Resource Site (acres) = 231.504963				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	38.0	26.0	44.7	108.7
percent total inventory site area	16.4%	11.2%	19.3%	47.0%
Wildlife Habitat*				
acres	0.1	79.7	19.7	99.5
percent total inventory site area	0.0%	34.4%	8.5%	43.0%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total+				
acres	38.1	56.6	15.0	109.6
percent total inventory site area	16.5%	24.4%	6.5%	47.4%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW5 the following significant features and functions are present:

Significant Natural Resource Features: open stream, wetlands, forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status fish and wildlife species.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R20, R10, R5 and R2 base zones. Commercial uses are allowed in the CE base zone. Employment uses are allowed in the EG2 base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW5, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

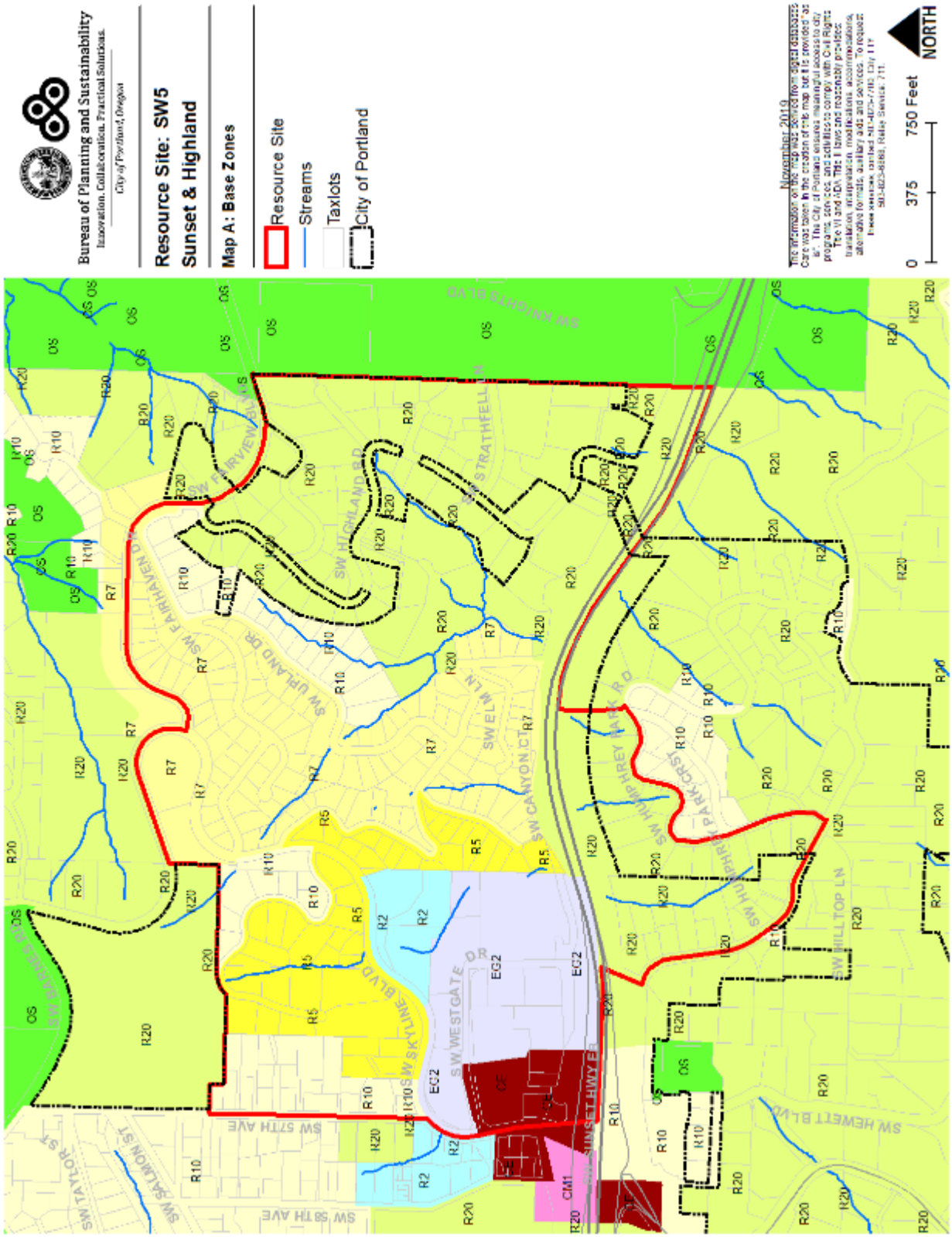
ESEE Decisions

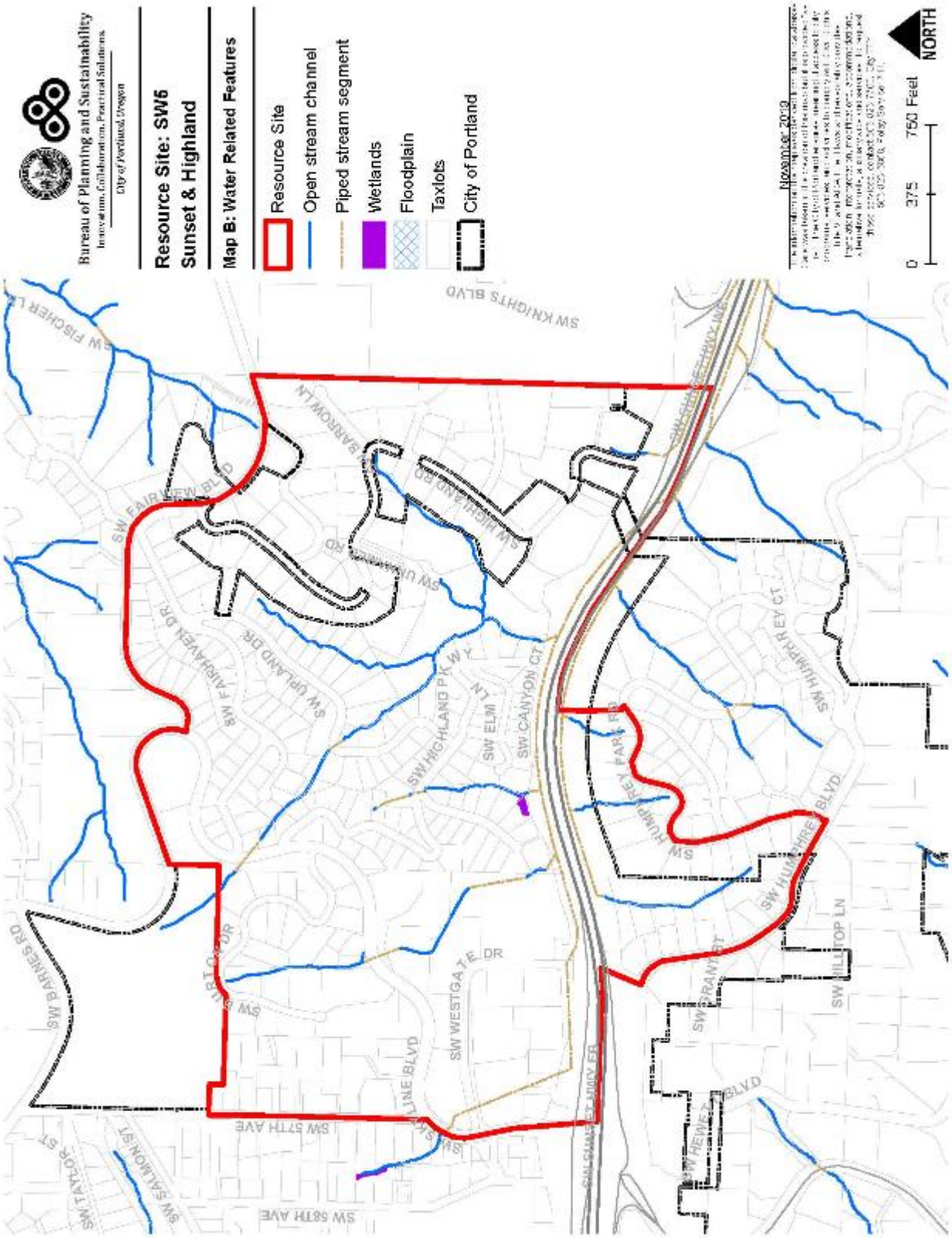
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW5 are:

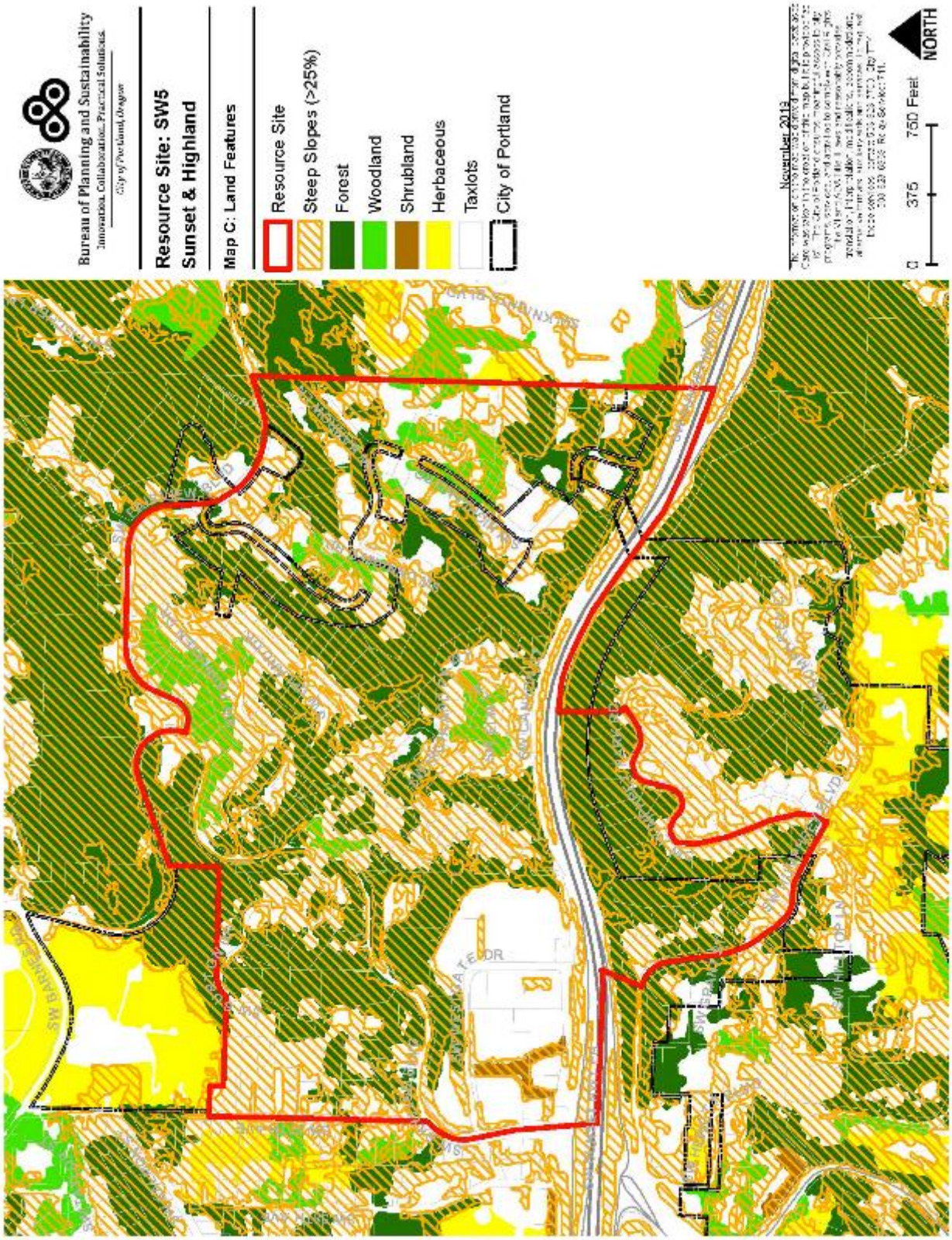
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, land within 25 feet of stream top-of-bank and land within 25 feet of wetlands.
2. *Limit* conflicting uses on land between 25 and 50 feet of stream top-of-bank, on land within 25 and 50 feet of wetlands and areas of forest vegetation that are contiguous to and between 50 and 100 feet from stream top-of-bank.
3. *Limit* conflicting uses areas of forest on steep slopes between 50 and 100 feet from stream top-of-bank.
4. *Limit* conflicting uses on large forest patches contiguous to but greater than 50 feet from stream top-of-bank located to the south of highway 26.
5. *Allow* conflicting uses within all other areas containing significant natural resources.

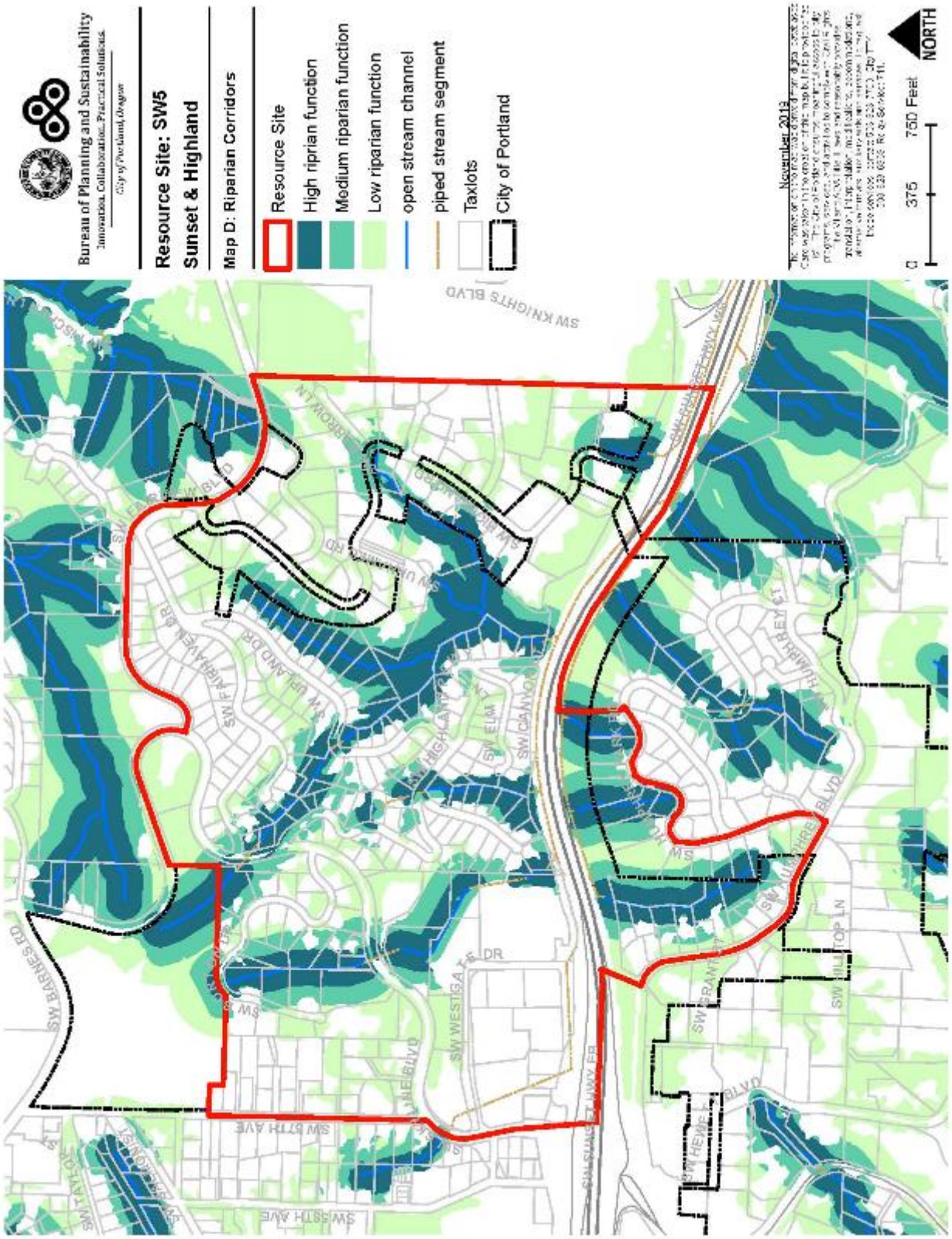
Table C: ESEE Decision for Resource Site SW5

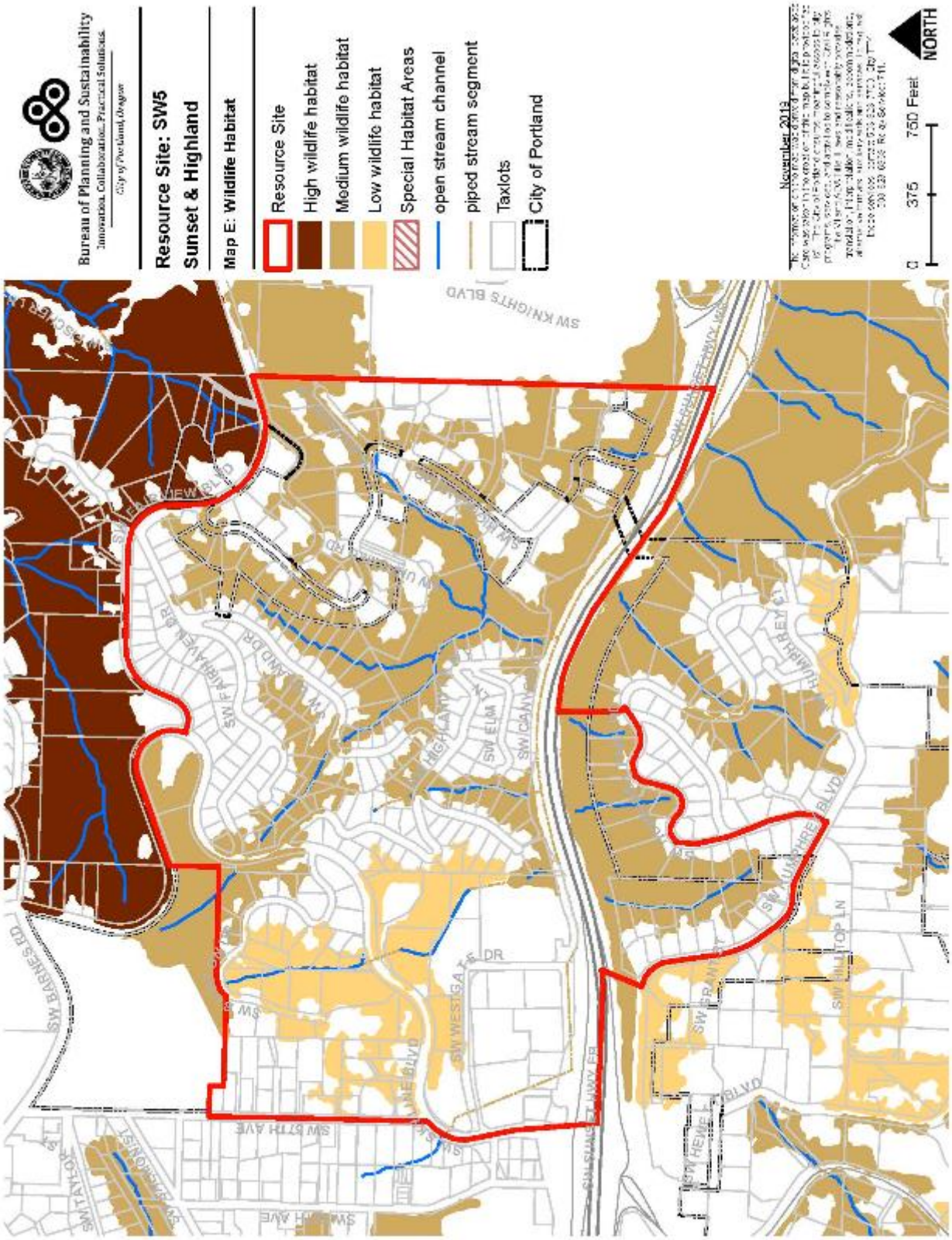
ESEE Decision	Acres
Strictly Limit	10.4
Limit	33.0
Allow	188.1

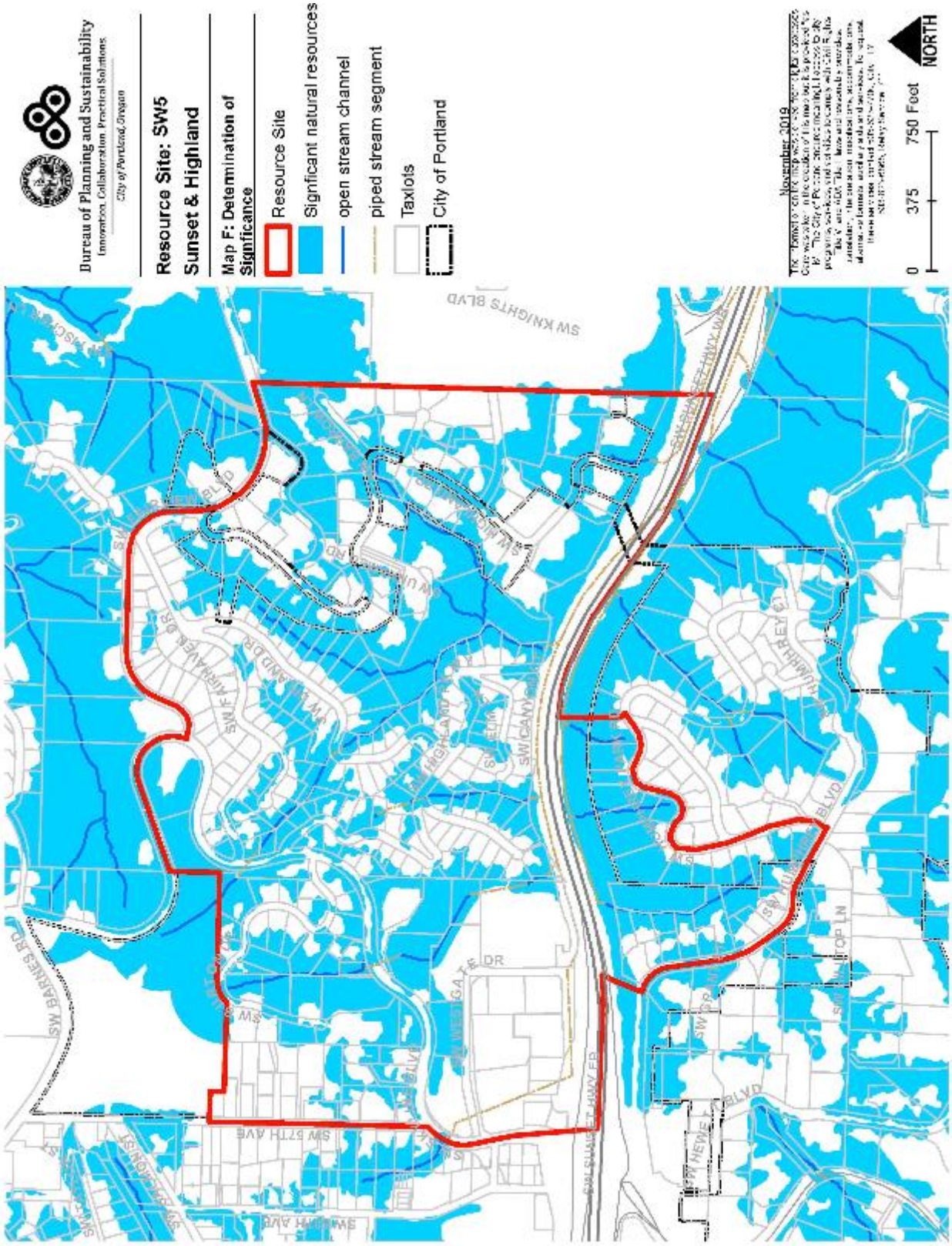

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW5
Sunset & Highland
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0 375 750 Feet
NORTH
SW 58TH AVE
SW SALMON ST
SW TAYLOR ST
SW 57TH AVE
SW SKYLINE BLVD
SW WESTGATE DR
SW SUNSET HWY
SW HEWETT BLVD
SW HILLTOP LN
SW HUMPHREY PARK RD
SW CANYON CT
SW ELM LN
SW STRATHFELLA
SW HIGHLAND RD
SW FAIRVIEW BLVD
SW FAIRHAVEN DR
SW UPLAND DR
SW KINGHORN BLVD

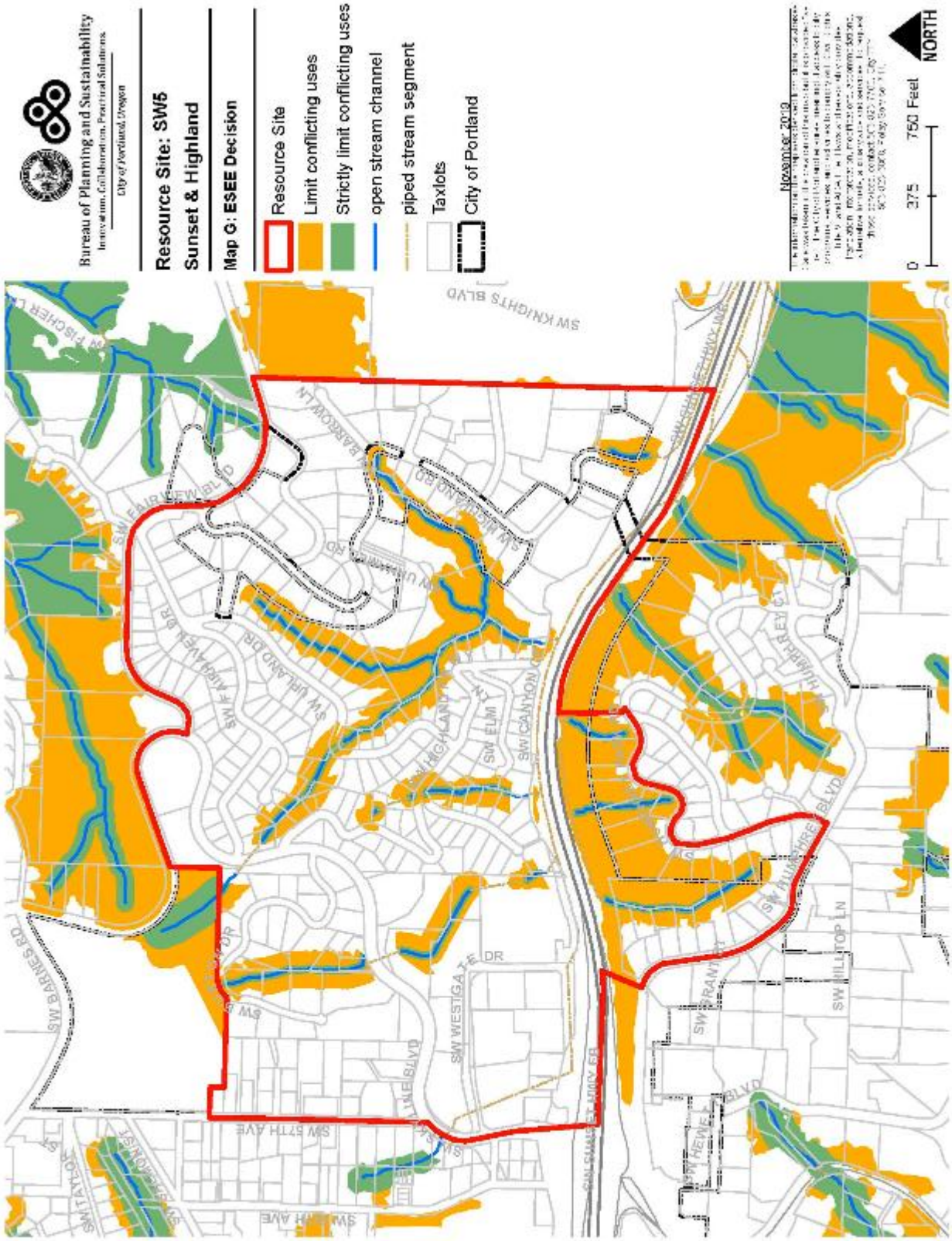

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW5
Sunset & Highland
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0 375 750 Feet
NORTH
SW KNIGHTS BLVD
SW FISCHER LN
SW FAIRVIEW BLVD
SW BARROW LN
SW HIGHLAND RD
SW UPLAND DR
SW FAIRHAVEN DR
SW HIGHLAND PK WY
SW ELM LN
SW CANYON CT
SW HUMPHREY PARK RD
SW HUMPHREY CT
SW HUMPHREY BLVD
SW HILLTOP LN
SW WESTGATE DR
SW BURTON CIR
SW BARNES RD
SW 57TH AVE
SW 58TH AVE
SW SALMON ST
SW TAYLOR ST
SW GRANT ST
SW HEWETT BLVD


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW5
Sunset & Highland
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2019
0 375 750 Feet
NORTH


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW5
Sunset & Highland
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 375 750 Feet
NORTH
SW KNIGHTS BLVD
SW BARNES RD
SW 5TH AVE
SW WESTGATE DR
SW ELM
SW CANYON
SW HIGHLAND
SW FAIRHAVEN DR
SW UPLAND DR
SW SUNSET HWY
SW HEWETT BLVD
SW HILLTOP LN
SW RANCH
SW HILLSIDE BLVD

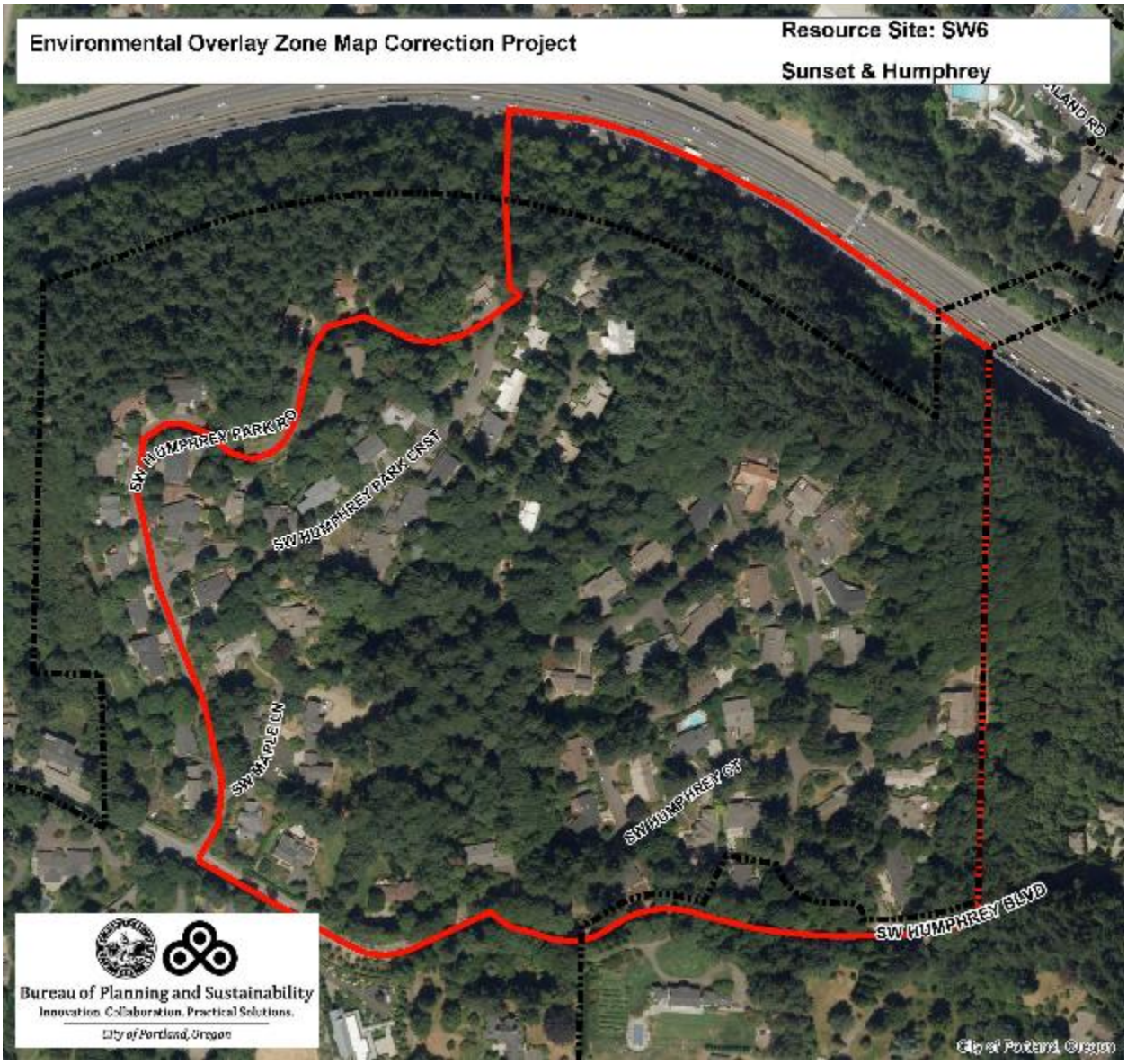

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW5
Sunset & Highland
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 375 750 Feet
NORTH
SW KNIGHTS BLVD
SW BARNES RD
SW 5TH AVE
SW TAYLOR ST
SW SUNSET HWY
SW WESTGATE DR
SW ELM
SW CANYON
SW HIGHLAND
SW FAIRVIEW BLVD
SW LAND DR
SW HEWETT BLVD
SW HILLTOP LN
SW MILLER
SW HEWETT BLVD


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW5
Sunset & Highland
Map F: Determination of Significance
Resource Site
Significant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
375
750 Feet
NORTH
SW KNIGHTS BLVD
SW BARNES RD
SW 57TH AVE
SW HIGHLAND DR
SW FAIRVIEW BLVD
SW HIGHGATE DR
SW CANYON DR
SW MILLER RD
SW NEWETT BLVD
SW TOP LN
SW HUMBERT CT
SW HUMBERT BLVD


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW5
Sunset & Highland
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 375 750 Feet
NORTH
SW KNIGHTS BLVD
SW FAIRVIEW BLVD
SW HIGHLAND DR
SW ELM
SW CANYON CT
SW WESTGATE DR
SW 57TH AVE
SW HILLTOP LN
SW HEWETT BLVD

Resource Site No.: SW6 **Site Name:** Sylvan K

Previous Plan: Multnomah County Urban Lands **Previous Resource Site No.:** 111



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW6	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	22.4
Forest (acres)	22.4
Woodland (acres)	0.0
Shrubland (acres)	0.0
Herbaceous (acres)	0.0
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	34.8
Impervious Surface (acres)	16.2
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

This site is composed of a patchwork of three soil types: Cascade silt loam, Cascade-Urban land complex and Goble silt loam. The predominant soils are the Cascade silt loam and the Cascade Urban complex. Cascade soils are somewhat poorly drained soils formed from silty materials. A two- to four-foot thick fragipan exists at a depth of 20 to 30 inches. A fragipan is a compacted layer of soil that creates a hard, impervious layer difficult for water and roots to penetrate. In winter and spring, it creates a perched water table; in summer, it creates a nearly rock-hard layer. The wetness of this layer can reduce the effectiveness of septic tank absorption fields and increases the likelihood of erosion. In addition, the shallow depth to the fragipan makes installation of some drainage systems difficult.

The Cascade-Urban complex consists of Cascade soils mixed with soils disturbed by urban development. Urban development alters the soil through excavation, filling and grading, creating a patchwork of soil characteristics. Mostly undisturbed sites have the properties of Cascade silt loam. More disturbed sites vary in their permeability and erosion potential.

Goble silt loams are located primarily in UIAs # 0, 7 and 8, on 30 to 60 percent slopes which are some of the steeper parts of the site. This is a very deep and moderately well-drained soil formed from silt and ash. Goble soils also have a thin (up to 12 inches thick) fragipan at a depth of approximately 30 to 48 inches, making it slightly less limiting for plant growth and excavation. The soil above the fragipan is moderately permeable, and the water table in winter and spring is within four feet of the surface. The steep slopes and seasonal saturation of the soil combine to make the potential for erosion and slumps high where this soil exists.

All of the parcels within the Sylvan site are located along the ridge and slopes of the Tualatin Mountains. Slopes on the east side of the ridge are generally steeper, contributing to increased slide potential. West-side slopes are also subject to slides. Shallow rooting depth, a product of the fragipan, increases

tree windfalls and slope instahility. Where erosion or urban development exposes the fragipan, establishment of vegetation is difficult, compounding erosion problems.

Located on a forested ridge-top above the Willamette Valley, the plant community at this site is characteristic of the Western Hemlock vegetatiqn zone (Franklin and Dymess 1988). The forest generally ranges in age from 50- to 120-year old second growth in a mid-seral stage of succession. With young shade-tolerant cedars well established in the understory, the older forest has entered the understory re-initiation stage (Oliver and Larson 1996).

The forest community is characterized by Douglas fir and bigleaf maple in the canopy layer, with mature western red cedar more common near Balch Creek and along Miller Road. Grand fir, red alder, bitter cherry and western hemlock are common overstory associates. Less common are Pacific dogwood and two invasive aliens, English holly and European hawthorn. In the understory, vine maple occurs in association with Indian plum, red elderberry, Oregon grape, western hazel, oceanspray, snowberry and cedar saplings. The ground layer is typically dominated by sword fem, though Pacific waterleaf and inside-out flower are occasional dominants. Several areas, most notably along Highway 26, are overrun by the exotic English ivy. Other common ground vegetation includes lady fem (on moist slopes and along streams), bracken fern, miner's lettuce, Hooker fairy-bell, false Solomon's seal, fringecup, western trillium and stream violet.

Large forest tracts within the site provide high quality habitat for a diverse wildlife assemblage. Abundant quantities of large woody debris and a thick organic layer on the forest floor provide habitat and foraging grounds for birds, reptiles, amphibians and small mammals. In most cases, the understory is a thick, diverse assemblage of berry and nut-bearing native shrubs that wildlife depend upon for forage as well as cover, especially during winter months. Other valuable habitat features within these forests include snags, large boulders, ravines and seeps.

Many species of birds were encountered during field surveys of the site: those most frequently observed include downy woodpecker, northern flicker, winter wren, black-capped chickadee, common bushtit, rufous-sided towhee, Wilson's warbler, Swainson's thrush and song sparrow. Due to the abundance of songbirds, sharp-shinned hawks and other forest-dwelling birds of prey such as great-homed owls are likely to occur within the site as well. The area is also potential foraging ground for peregrine falcons, which rely on other birds for the bulk of their diet.

Amphibians and reptiles, including western red-backed salamander, Pacific chorus frog and garter snakes, inhabit the site. Tree cavities serve as roosting and nesting sites for bats, voles, squirrels, weasels, raccoons and cavity-nesting birds, including pileated woodpecker. The abundant cover is essential for black-tail deer, coyote and other large mammals.

Balch Creek runs through a portion of this site. Resident cutthroat trout inhabit the creek; historically, other species inhabited the drainage as well. Balch and other creeks within the site flow through steep forested ravines, providing wildlife with a protected travel corridor, refuge from high summer temperatures and a permanent source of water. Thick riparian forests protect the creeks and the integrity of their banks and influence the quality of stream habitat located downstream. Large quantities of silt are present in several of the streams, providing evidence of the consequences of vegetation removal associated with previous upstream development. Other sources of silt include upstream landslides and bank failures related to new construction.

Special Status Species found in the resource site include:

- Pacific western big-eared bat
- Long-eared myotis
- Fringed myotis
- Long-legged myotis
- Pileated woodpecker
- Little willow flycatcher
- American peregrine falcon
- Olive-sided flycatcher
- Coast cutthroat trout
- Northern red-legged frog

Table B: Quality of Natural Resource Functions in Resource Site SW6				
Resource Site (acres) = 44.778237				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	10.3	6.6	5.6	22.6
percent total inventory site area	23.0%	14.8%	12.6%	50.4%
Wildlife Habitat*				
acres	0.0	19.4	3.0	22.4
percent total inventory site area	0.0%	43.3%	6.6%	50.0%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total+				
acres	10.3	9.6	2.6	22.6
percent total inventory site area	23.0%	21.5%	5.9%	50.4%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW6 the following significant features and functions are present:

Significant Natural Resource Features: open stream, forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status plant and wildlife species.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R20 and R10 base zones. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW6, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

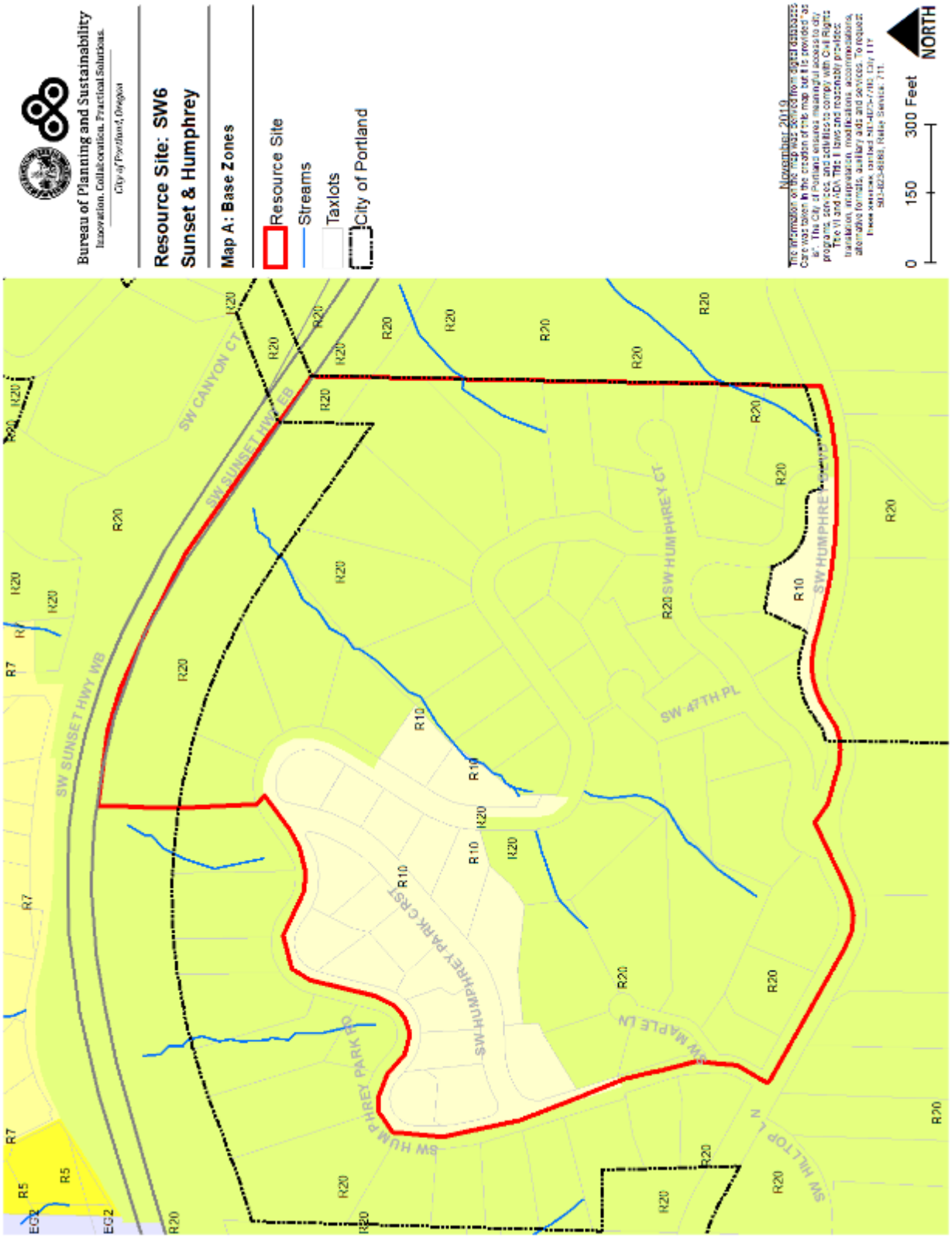
ESEE Decisions

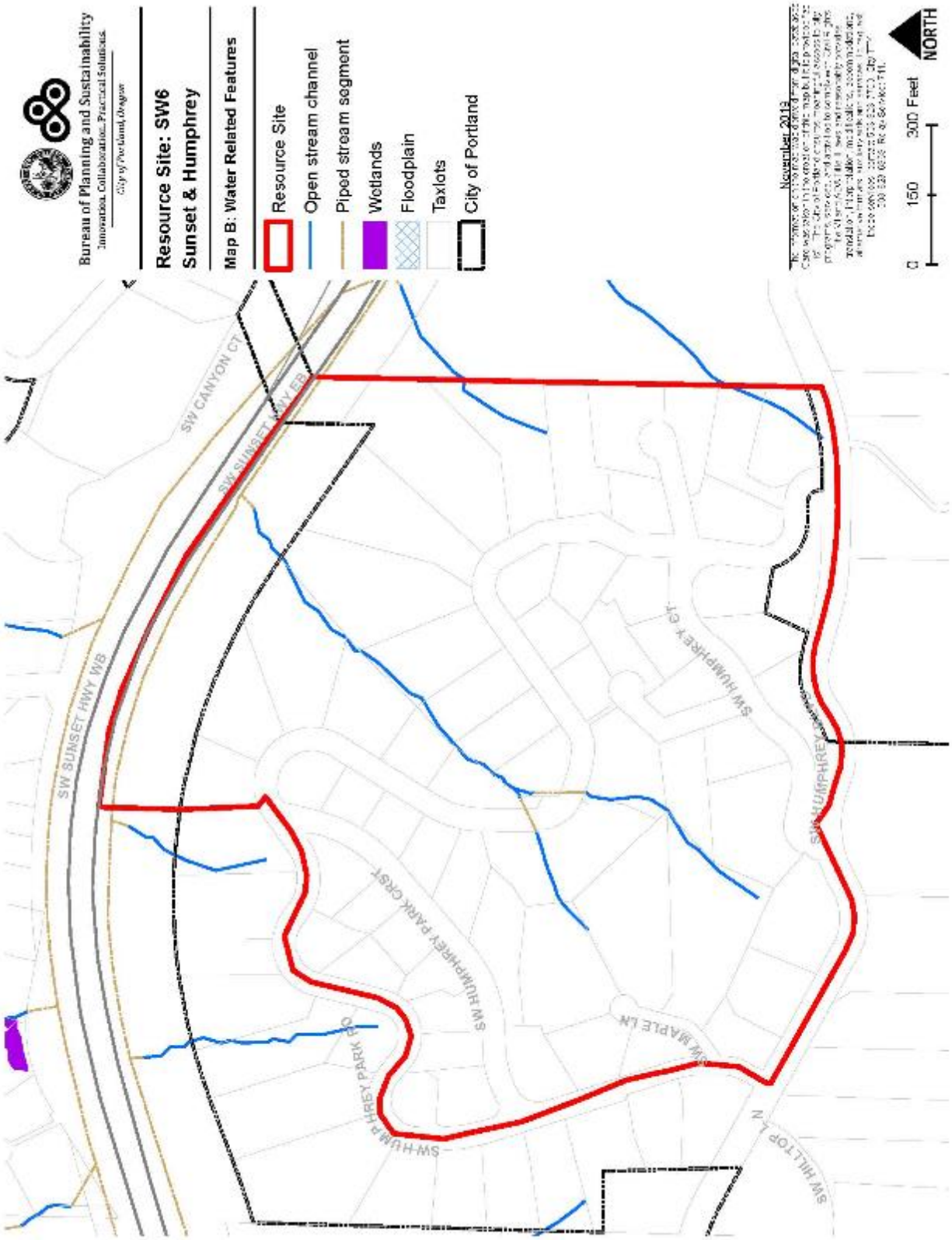
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW6 are:

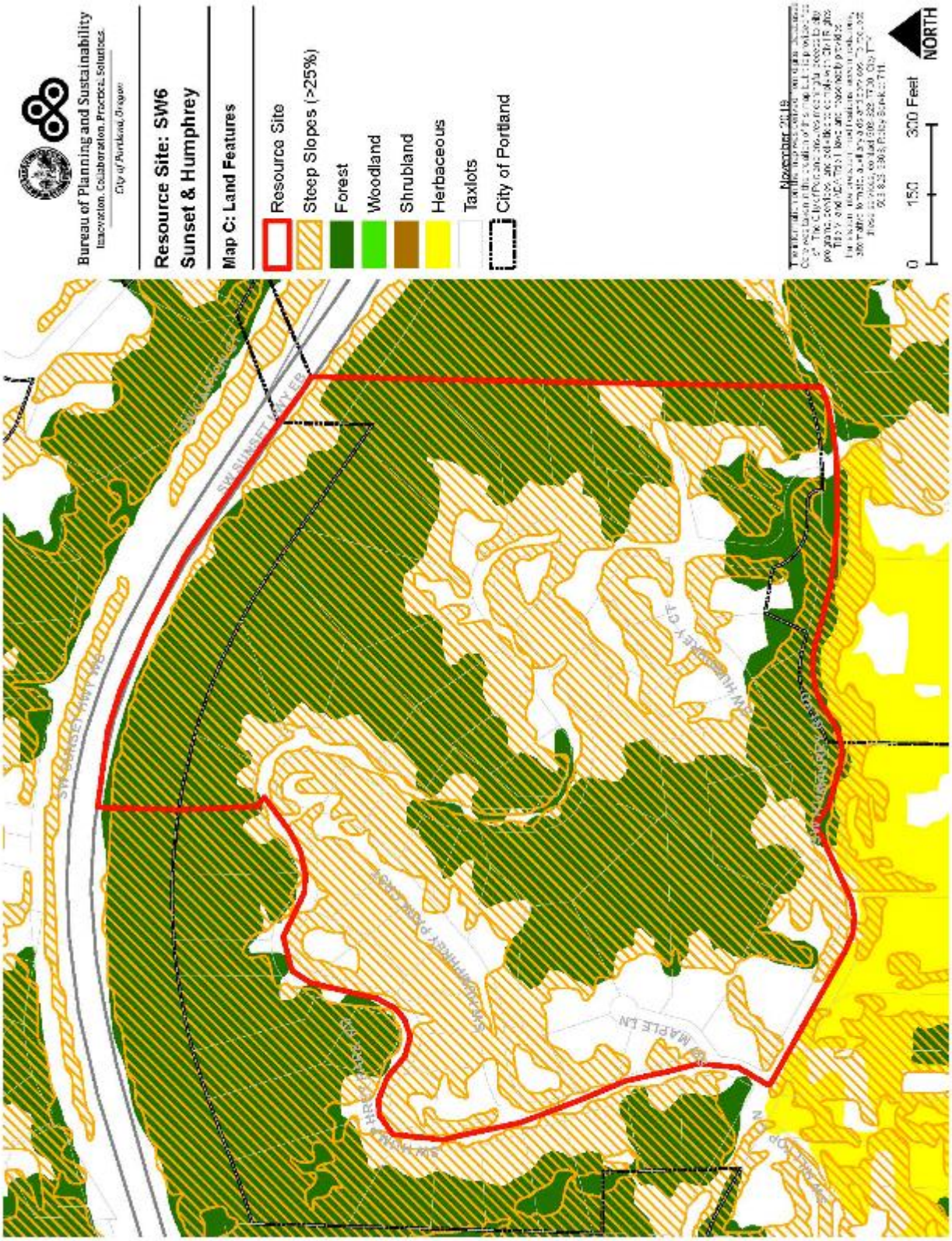
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank and land within 50 feet of stream top-of-bank.
2. *Limit* conflicting uses within areas of forest vegetation contiguous to but more than 50 feet from stream top-of-bank and within areas of forest vegetation on steep slopes contiguous to but more than 50 feet from stream top-of-bank.
3. *Allow* conflicting uses within all other areas containing significant natural resources.

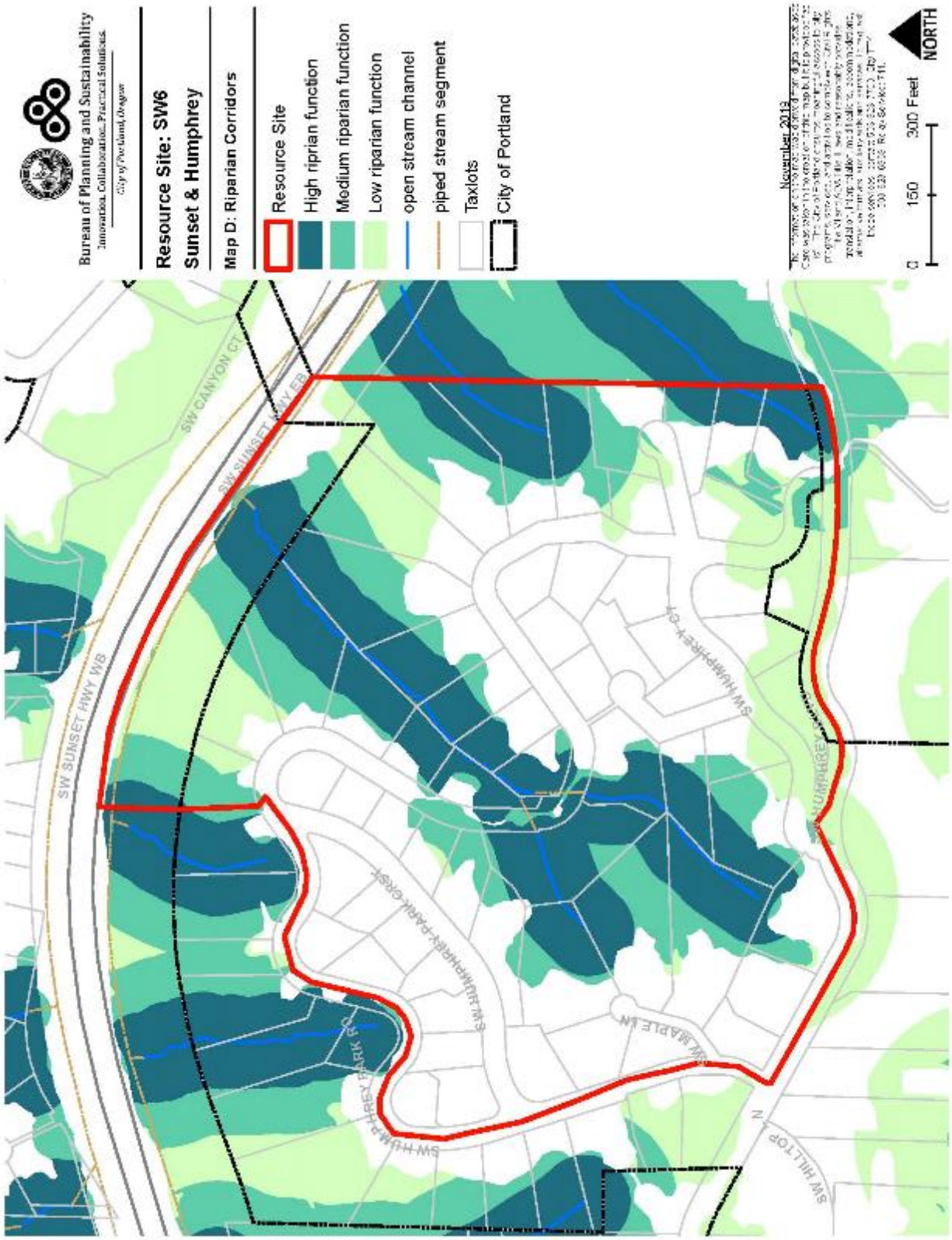
Table C: ESEE Decision for Resource Site SW6

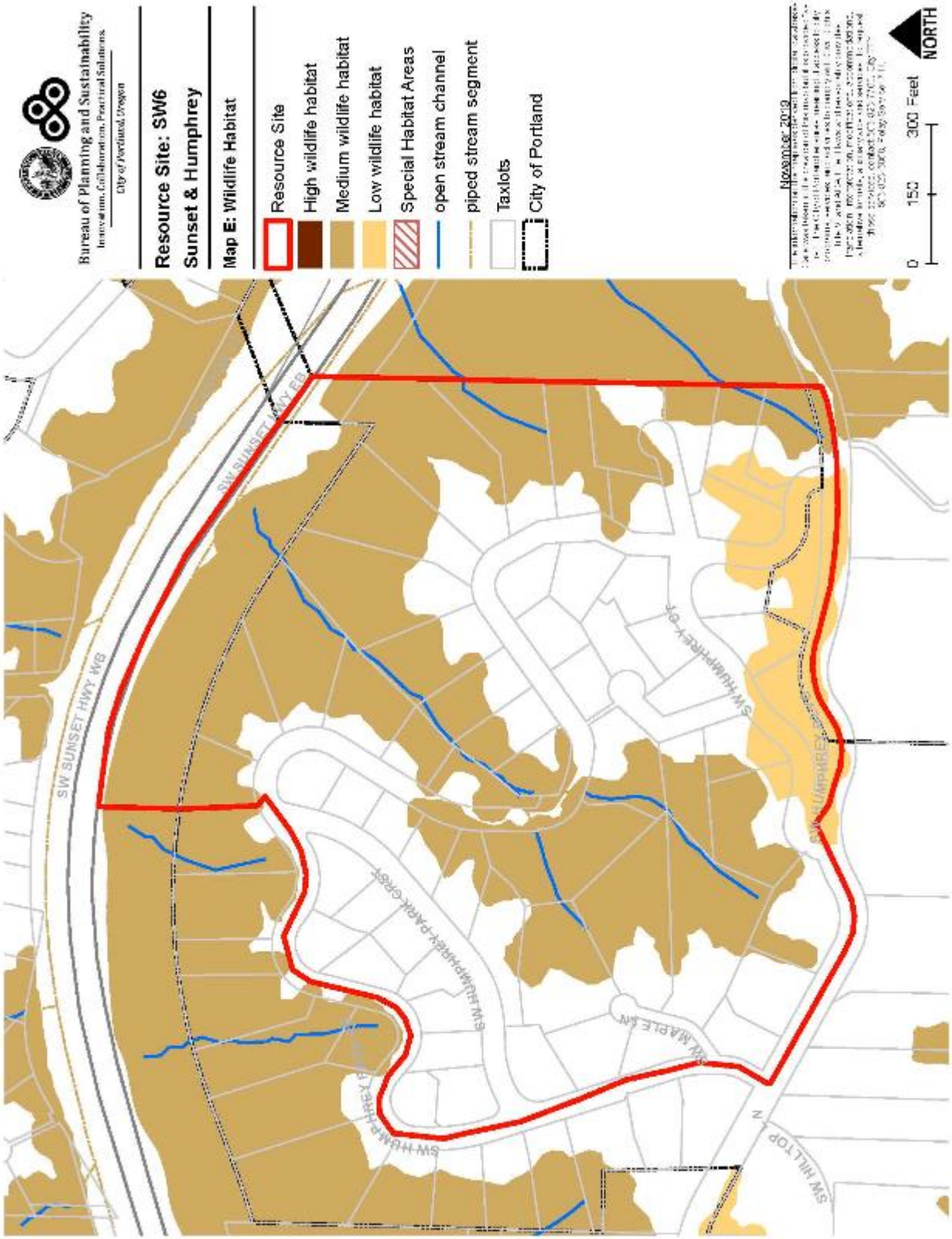
ESEE Decision	Acres
Strictly Limit	5.4
Limit	14.2
Allow	25.2

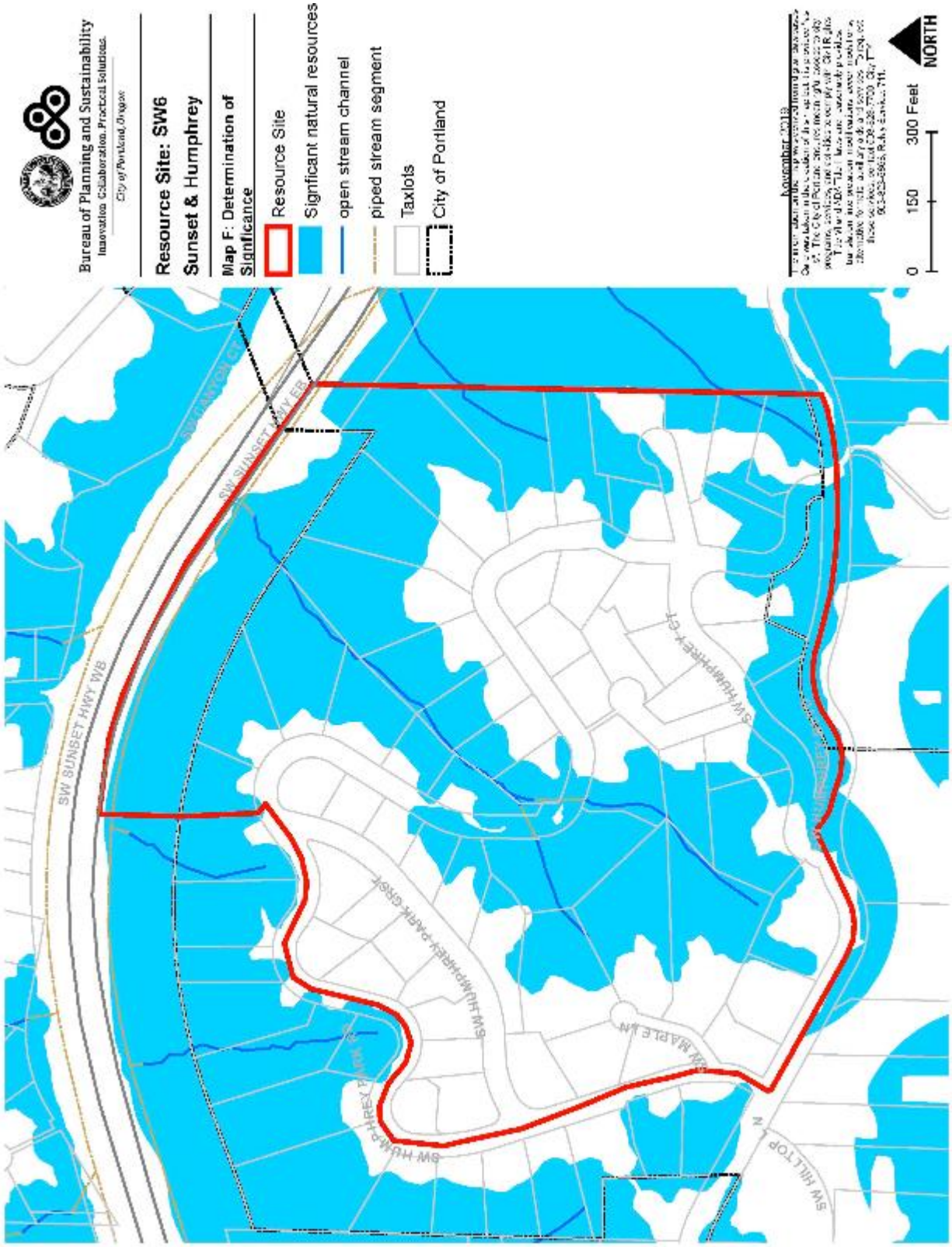

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW6
Sunset & Humphrey
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0 150 300 Feet
NORTH
SW SUNSET HWY WB
SW CANYON CT
SW SUNSET HWY EB
SW HUMPHREY PARK CREST
SW HUMPHREY PARK RD
SW HUMPHREY CT
SW 47TH PL
SW MAPLE LN
SW HILLTOP LN
R20
R10
R7
R5
EG2

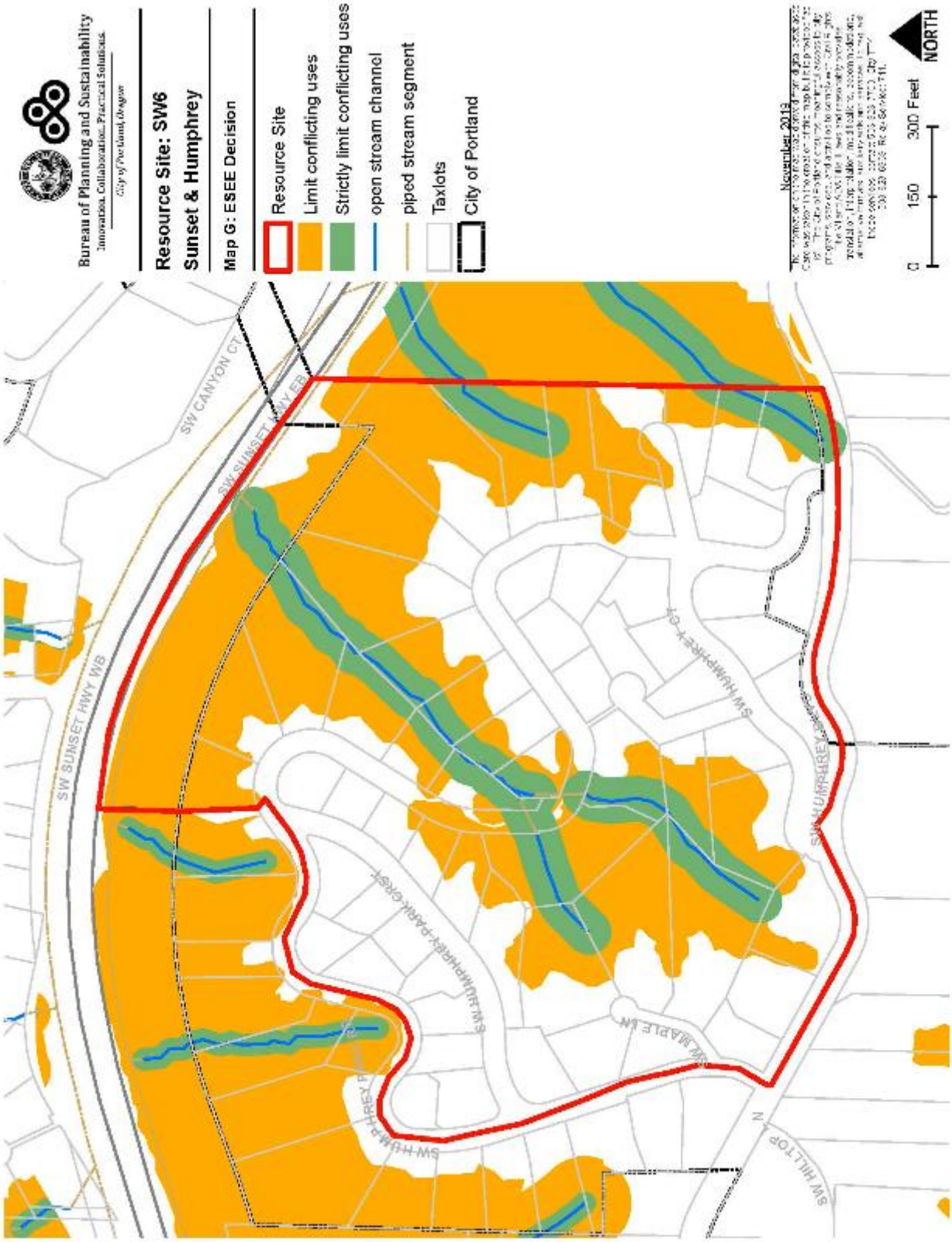

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW6
Sunset & Humphrey
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0 150 300 Feet
NORTH
SW CANYON CT
SW SUNSET HWY EB
SW SUNSET HWY WB
SW HUMPHREY CT
SW HUMPHREY
SW HUMPHREY PARK CREST
SW HUMPHREY PARK DR
SW MAPLE LN
SW HILLTOP LN


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW6
Sunset & Humphrey
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2018
0
150
300 Feet
NORTH
SW SUNSET HWY
SW MAPLE LN
SW HUMPHREY CT


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW6
Sunset & Humphrey
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 150 300 Feet
NORTH
SW SUNSET HWY WB
SW CANYON CT
SW SUNSET HWY EB
SW HUMPHREY PARK CREST
SW HUMPHREY PARK DR
SW HUMPHREY CT
SW HUMPHREY
SW MAPLE LN
SW HILLTOP LN

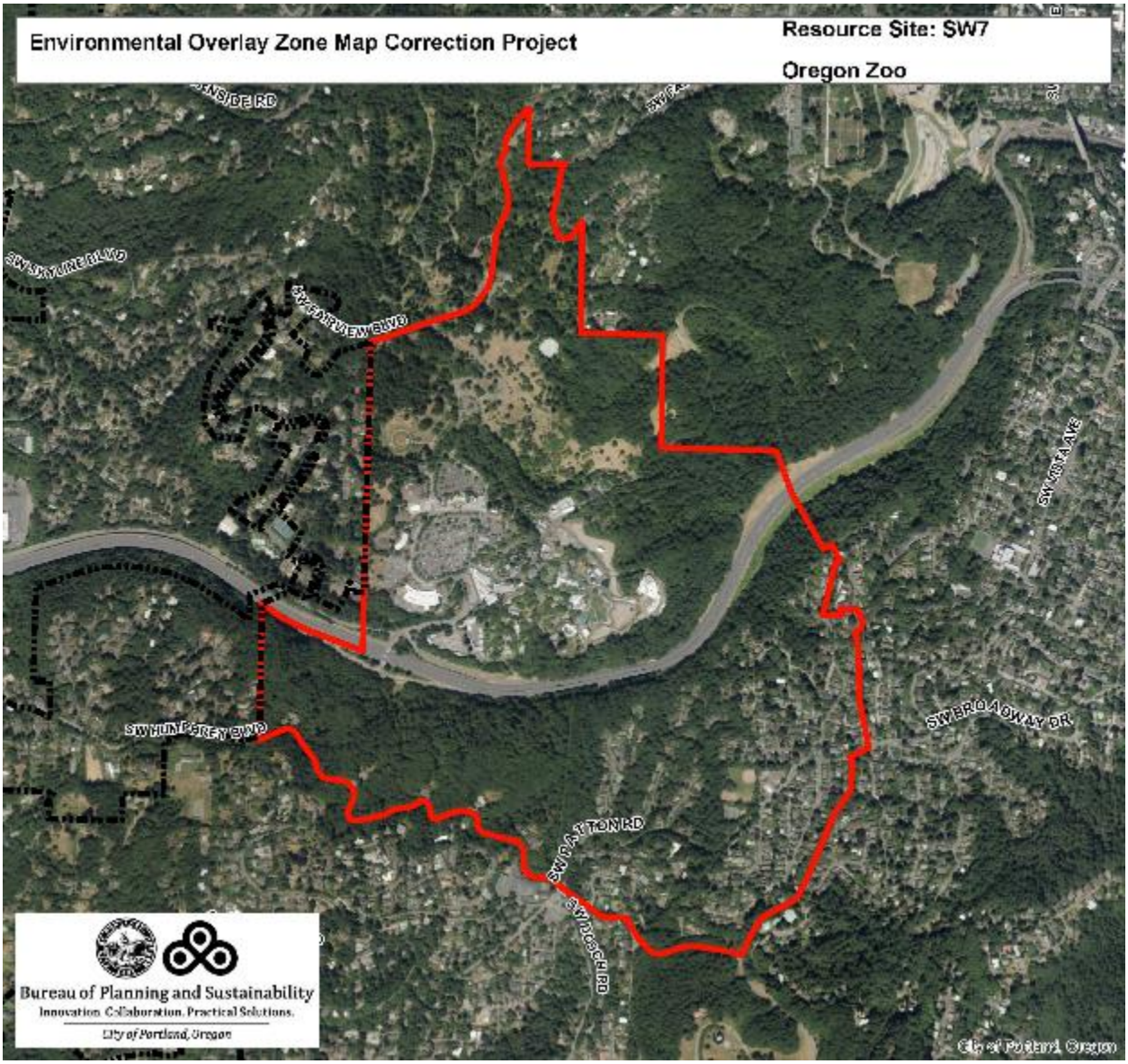

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW6
Sunset & Humphrey
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
150
300 Feet
NORTH
SW SUNSET HWY WB
SW SUNSET HWY EB
SW HUMPHREY PARK CREST
SW HUMPHREY PARK
SW HUMPHREY DR
SW HUMPHREY
SW MAPLE LN
SW HILLTOP


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW6
Sunset & Humphrey
Map F: Determination of Significance
Resource Site
Significant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
150
300 Feet
NORTH
SW SUNSET HWY WB
SW SUNSET HWY EB
SW HUMPHREY PARK CIRCLE
SW HUMPHREY CT
SW MAPLE LN
SW HILLTOP LN


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW6
Sunset & Humphrey
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 150 300 Feet
NORTH
SW CANYON CT
SW SUNSET HWY EB
SW SUNSET HWY WB
SW HUMPHREY PARK CREST
SW HUMPHREY CT
SW HUMPHREY WS
SW MAPLE LN
SW HILLTOP
SW HUMPHREY PARK

Resource Site No.: SW7 **Site Name:** Sylvan J

Previous Plan: Multnomah County Urban Lands **Previous Resource Site No.:** 111



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW7	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	240.3
Forest (acres)	186.6
Woodland (acres)	36.4
Shrubland (acres)	0.7
Herbaceous (acres)	16.6
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	277.4
Impervious Surface (acres)	99.2
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

This site is composed of a patchwork of three soil types: Cascade silt loam, Cascade-Urban land complex and Goble silt loam. The predominant soils are the Cascade silt loam and the Cascade Urban complex. Cascade soils are somewhat poorly drained soils formed from silty materials. A two- to four-foot thick fragipan exists at a depth of 20 to 30 inches. A fragipan is a compacted layer of soil that creates a hard, impervious layer difficult for water and roots to penetrate. In winter and spring, it creates a perched water table; in summer, it creates a nearly rock-hard layer. The wetness of this layer can reduce the effectiveness of septic tank absorption fields and increases the likelihood of erosion. In addition, the shallow depth to the fragipan makes installation of some drainage systems difficult.

The Cascade-Urban complex consists of Cascade soils mixed with soils disturbed by urban development. Urban development alters the soil through excavation, filling and grading, creating a patchwork of soil characteristics. Mostly undisturbed sites have the properties of Cascade silt loam. More disturbed sites vary in their permeability and erosion potential.

Goble silt loams are located primarily in UIAs # 0, 7 and 8, on 30 to 60 percent slopes which are some of the steeper parts of the site. This is a very deep and moderately well-drained soil formed from silt and ash. Goble soils also have a thin (up to 12 inches thick) fragipan at a depth of approximately 30 to 48 inches, making it slightly less limiting for plant growth and excavation. The soil above the fragipan is moderately permeable, and the water table in winter and spring is within four feet of the surface. The steep slopes and seasonal saturation of the soil combine to make the potential for erosion and slumps high where this soil exists.

All of the parcels within the Sylvan site are located along the ridge and slopes of the Tualatin Mountains. Slopes on the east side of the ridge are generally steeper, contributing to increased slide potential. West-side slopes are also subject to slides. Shallow rooting depth, a product of the fragipan, increases

tree windfalls and slope instahility. Where erosion or urban development exposes the fragipan, establishment of vegetation is difficult, compounding erosion problems.

Located on a forested ridge-top above the Willamette Valley, the plant community at this site is characteristic of the Western Hemlock vegetatiqn zone (Franklin and Dymess 1988). The forest generally ranges in age from 50- to 120-year old second growth in a mid-seral stage of succession. With young shade-tolerant cedars well established in the understory, the older forest has entered the understory re-initiation stage (Oliver and Larson 1996).

The forest community is characterized by Douglas fir and bigleaf maple in the canopy layer, with mature western red cedar more common near Balch Creek and along Miller Road. Grand fir, red alder, bitter cherry and western hemlock are common overstory associates. Less common are Pacific dogwood and two invasive aliens, English holly and European hawthorn. In the understory, vine maple occurs in association with Indian plum, red elderberry, Oregon grape, western hazel, oceanspray, snowberry and cedar saplings. The ground layer is typically dominated by sword fem, though Pacific waterleaf and inside-out flower are occasional dominants. Several areas, most notably along Highway 26, are overrun by the exotic English ivy. Other common ground vegetation includes lady fem (on moist slopes and along streams), bracken fern, miner's lettuce, Hooker fairy-bell, false Solomon's seal, fringecup, western trillium and stream violet.

Large forest tracts within the site provide high quality habitat for a diverse wildlife assemblage. Abundant quantities of large woody debris and a thick organic layer on the forest floor provide habitat and foraging grounds for birds, reptiles, amphibians and small mammals. In most cases, the understory is a thick, diverse assemblage of berry and nut-bearing native shrubs that wildlife depend upon for forage as well as cover, especially during winter months. Other valuable habitat features within these forests include snags, large boulders, ravines and seeps.

Many species of birds were encountered during field surveys of the site: those most frequently observed include downy woodpecker, northern flicker, winter wren, black-capped chickadee, common bushtit, rufous-sided towhee, Wilson's warbler, Swainson's thrush and song sparrow. Due to the abundance of songbirds, sharp-shinned hawks and other forest-dwelling birds of prey such as great-homed owls are likely to occur within the site as well. The area is also potential foraging ground for peregrine falcons, which rely on other birds for the bulk of their diet.

Amphibians and reptiles, including western red-backed salamander, Pacific chorus frog and garter snakes, inhabit the site. Tree cavities serve as roosting and nesting sites for bats, voles, squirrels, weasels, raccoons and cavity-nesting birds, including pileated woodpecker. The abundant cover is essential for black-tail deer, coyote and other large mammals.

Balch Creek runs through a portion of this site. Resident cutthroat trout inhabit the creek; historically, other species inhabited the drainage as well. Balch and other creeks within the site flow through steep forested ravines, providing wildlife with a protected travel corridor, refuge from high summer temperatures and a permanent source of water. Thick riparian forests protect the creeks and the integrity of their banks and influence the quality of stream habitat located downstream. Large quantities of silt are present in several of the streams, providing evidence of the consequences of vegetation removal associated with previous upstream development. Other sources of silt include upstream landslides and bank failures related to new construction.

Special Status Species found in the resource site include:

- Pacific western big-eared bat
- Long-eared myotis
- Fringed myotis
- Long-legged myotis
- Pileated woodpecker
- Little willow flycatcher
- American peregrine falcon
- Olive-sided flycatcher
- Coast cutthroat trout
- Northern red-legged frog

Table B: Quality of Natural Resource Functions in Resource Site SW7				
Resource Site (acres) = 396.750013				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	60.2	47.4	90.3	198.0
percent total inventory site area	15.2%	12.0%	22.8%	49.9%
Wildlife Habitat*				
acres	0.3	177.9	14.3	192.6
percent total inventory site area	0.1%	44.8%	3.6%	48.5%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total+				
acres	60.5	127.6	24.4	212.5
percent total inventory site area	15.3%	32.2%	6.1%	53.6%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW7 the following significant features and functions are present:

Significant Natural Resource Features: open stream, forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status plant and wildlife species.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R20, R10 and R5 base zones. Commercial uses are allowed in the CM1 base zone. Open space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW7, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

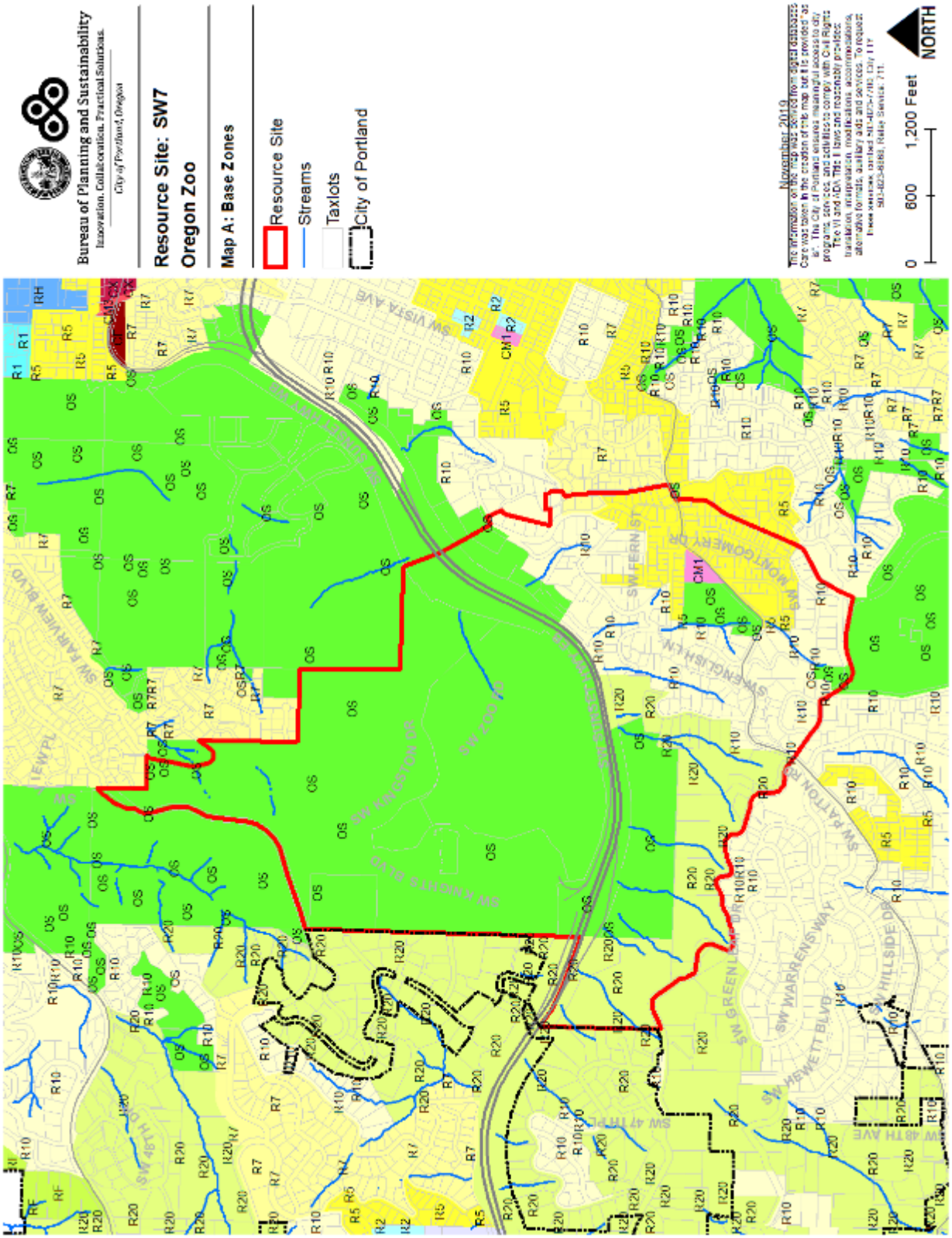
ESEE Decisions

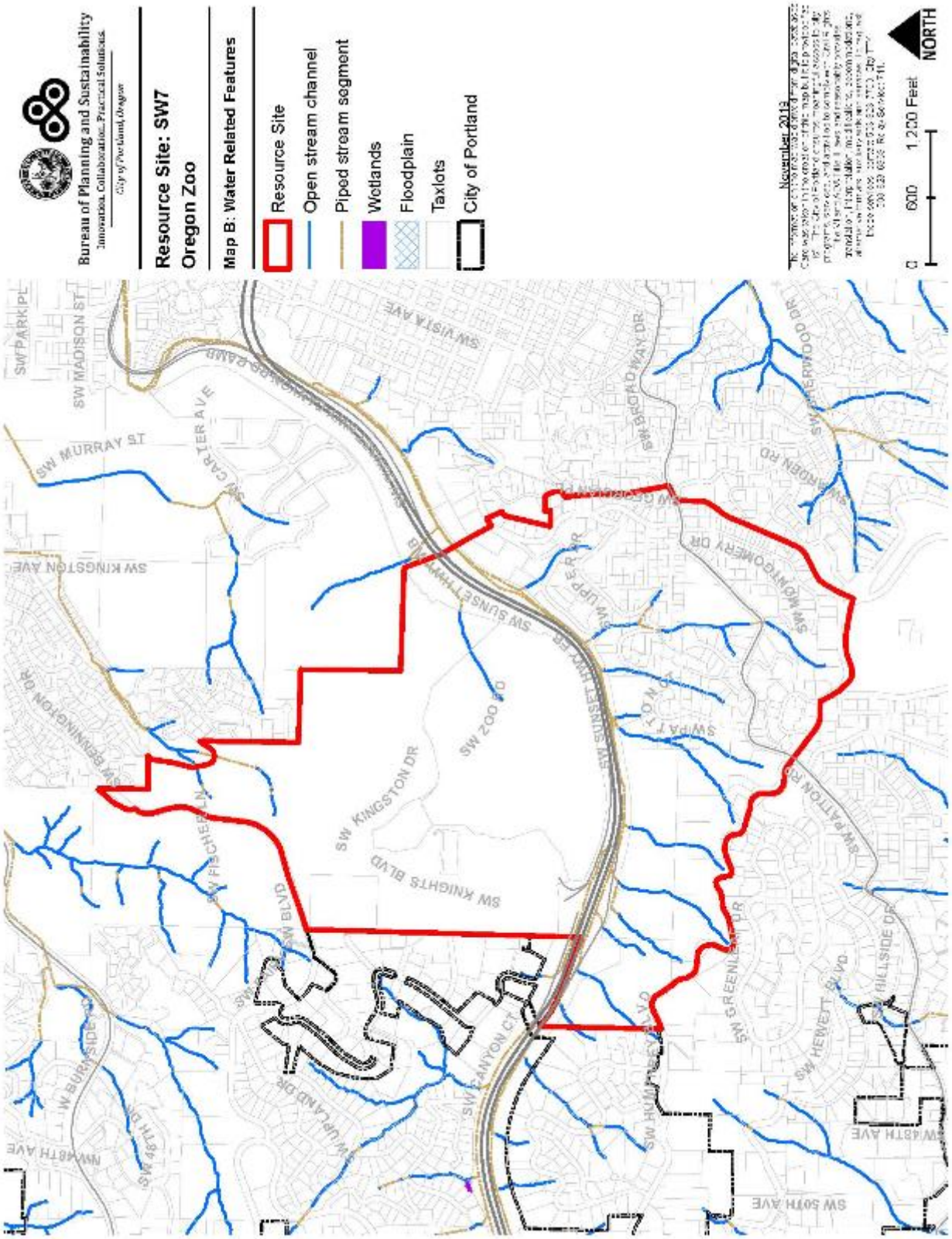
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW7 are:

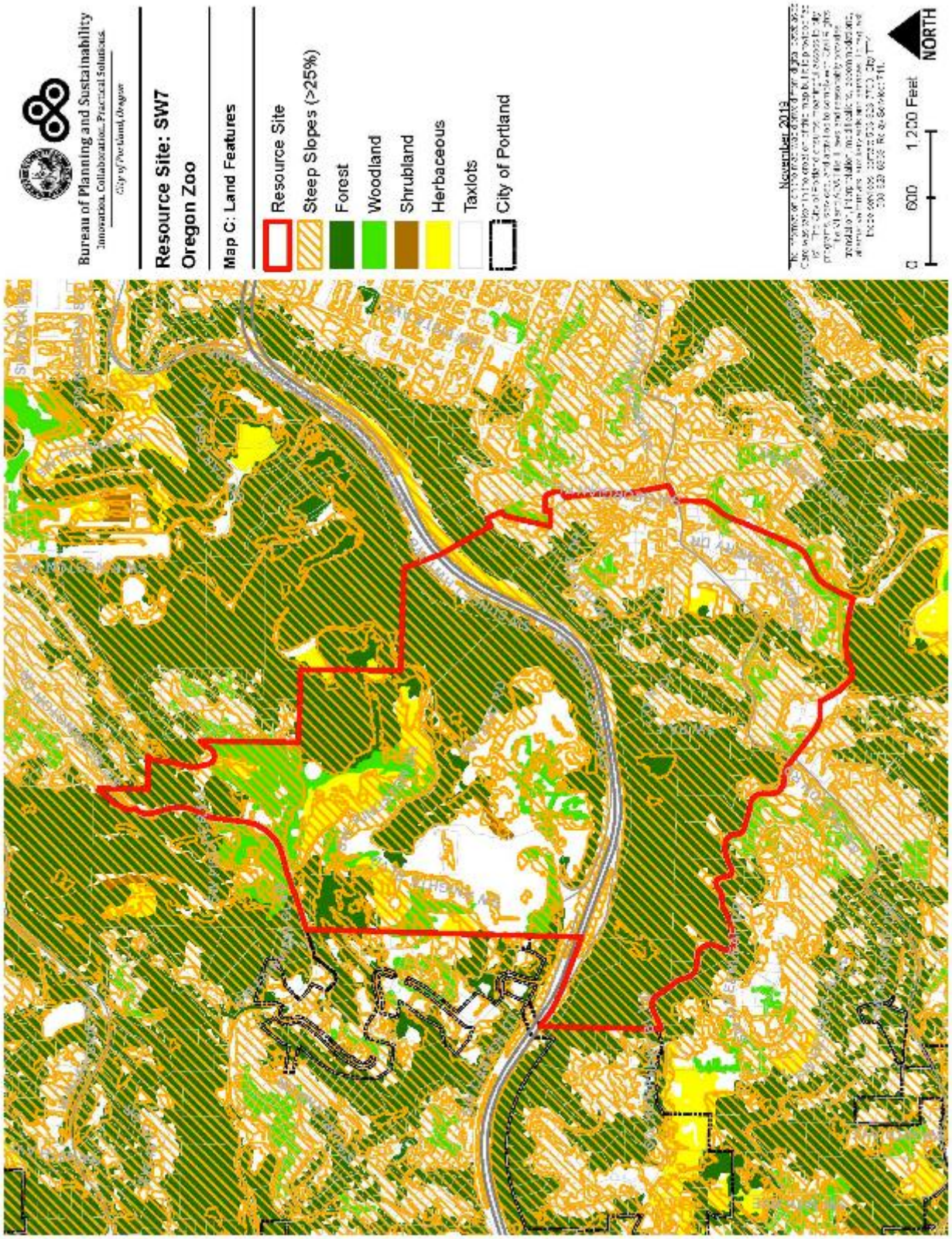
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank and land within 50 feet of stream top-of-bank.
2. *Strictly limit* conflicting uses within areas of forest vegetation in Hoyt Arboretum.
3. *Limit* conflicting uses within areas of forest vegetation contiguous to but more than 50 feet from stream top-of-bank and areas of forest vegetation located on steep slopes contiguous to but more than 50 feet from stream top-of-bank.
4. *Allow* conflicting uses within all other areas containing significant natural resources.

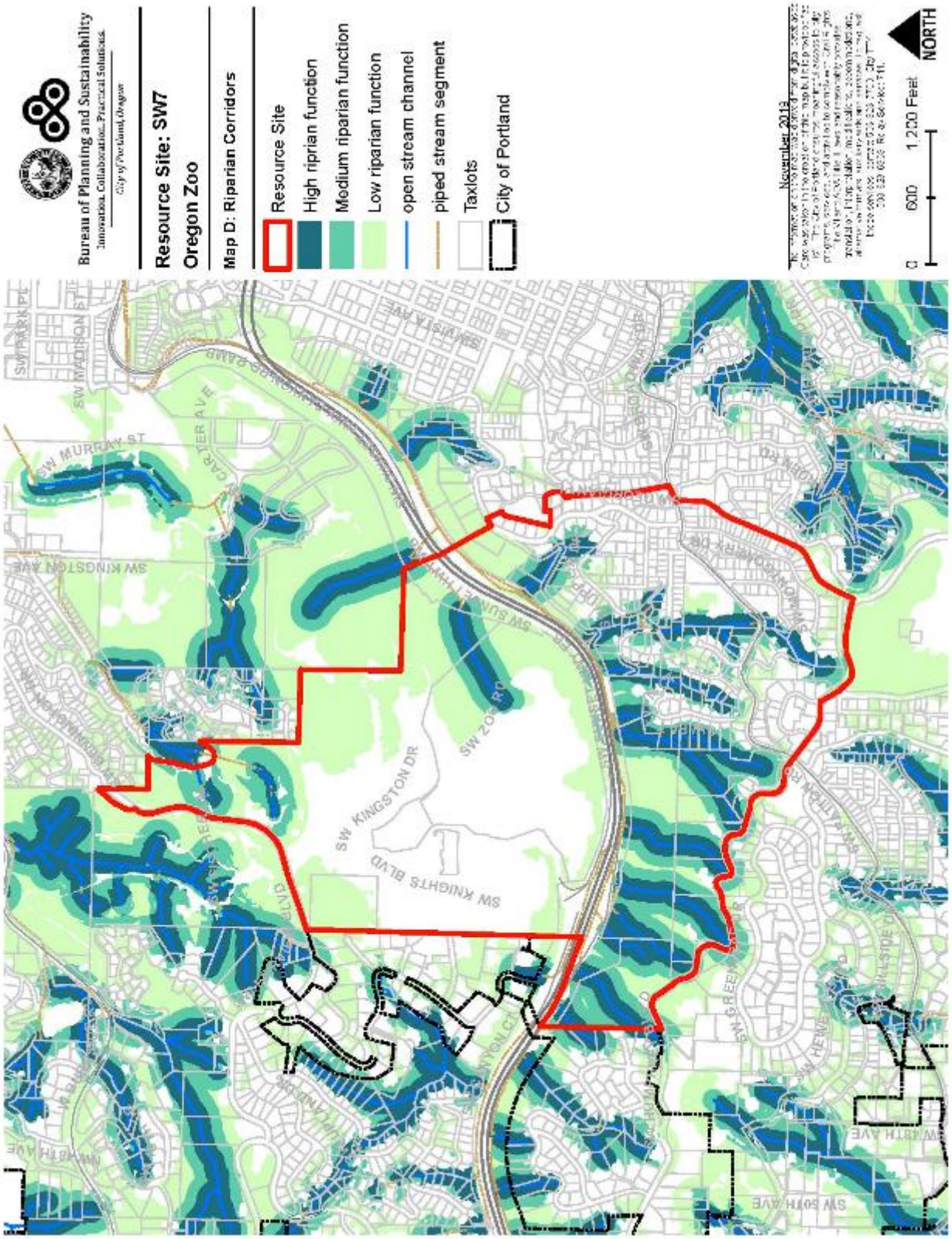
Table C: ESEE Decision for Resource Site SW7

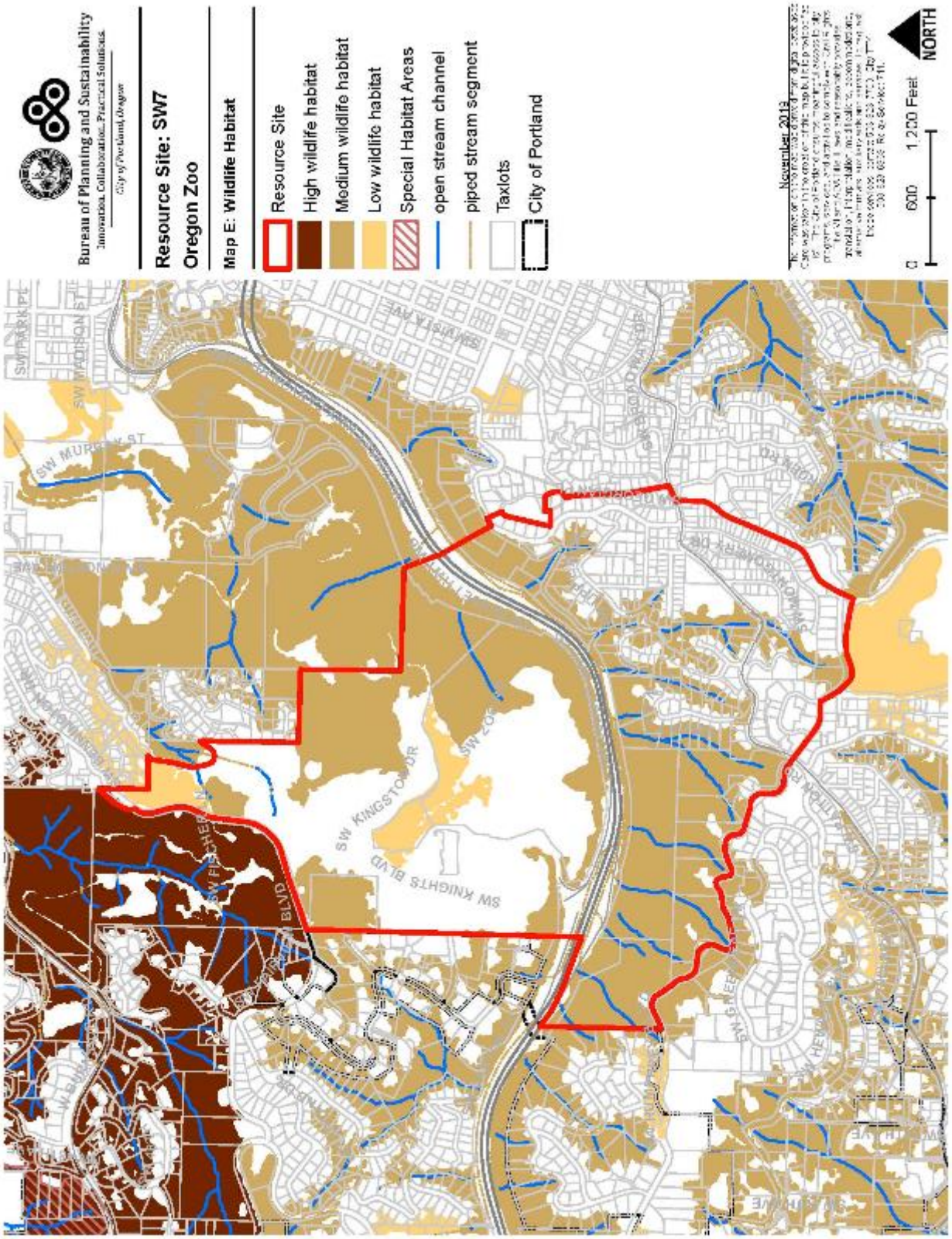
ESEE Decision	Acres
Strictly Limit	67.3
Limit	117.7
Allow	211.7

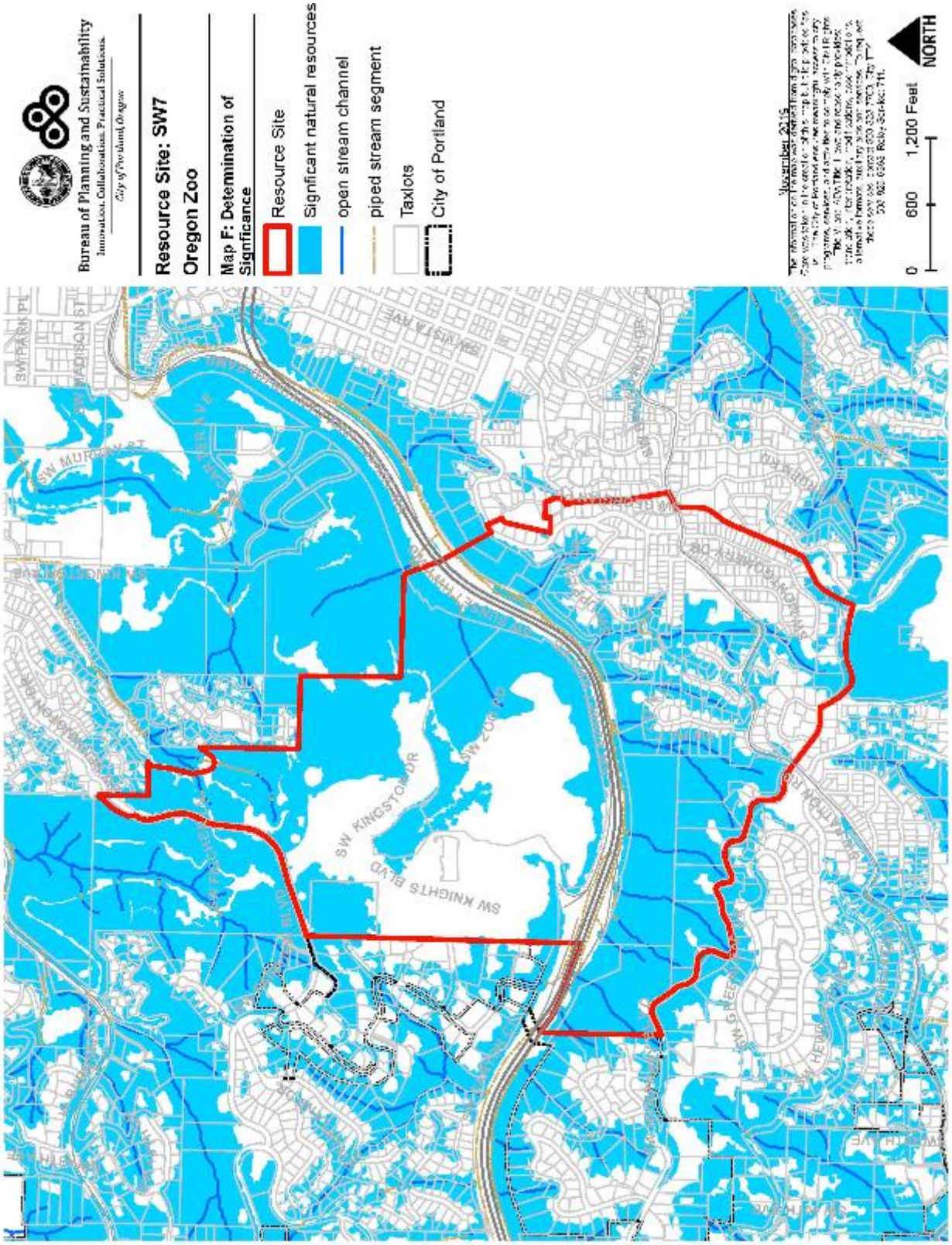

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW7
Oregon Zoo
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0 600 1,200 Feet
NORTH

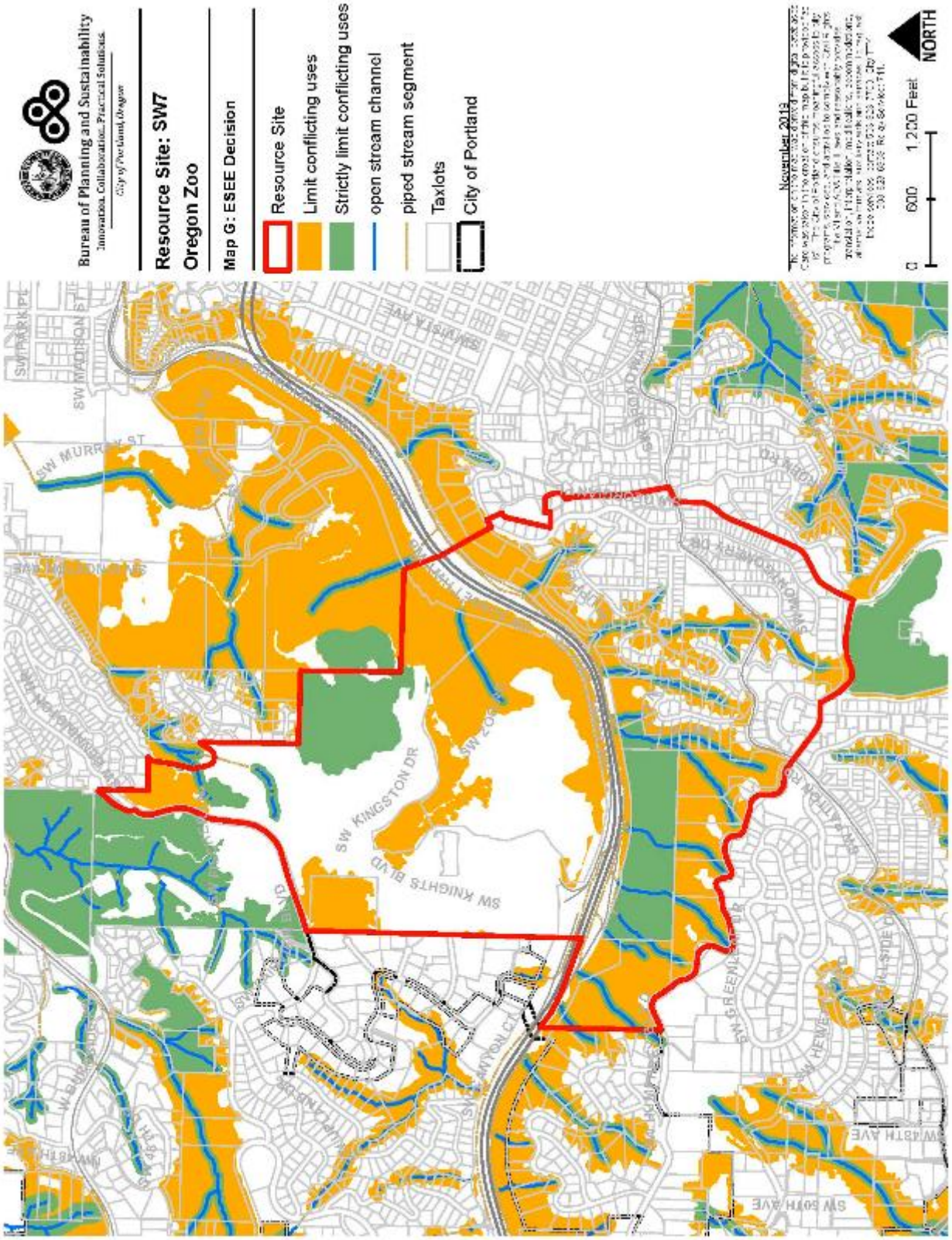

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW7
Oregon Zoo
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0 600 1,200 Feet
NORTH
SW PARK PL
SW MADISON ST
SW MURRAY ST
SW CARTER AVE
SW VISTA AVE
SW KINGSTON AVE
SW BENNINGTON DR
SW FISCHER LN
SW KINGSTON DR
SW KNIGHTS BLVD
SW ZOO RD
SW SUNSET HWY
SW BROADWAY DR
SW MONTGOMERY DR
SW PATTON RD
SW GREENLEAF DR
SW HEWETT BLVD
SW HILLSIDE DR
SW 45TH AVE
SW 50TH AVE
SW CANYON CT
SW UPLAND DR
SW BURNSIDE
NW 48TH AVE


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW7
Oregon Zoo
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2019
0 600 1,200 Feet
NORTH


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW7
Oregon Zoo
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 600 1,200 Feet
NORTH
SW MADISON ST
SW MURRAY ST
SW KINGSTON AVE
SW KINGSTON DR
SW KNIGHTS BLVD
SW 60TH AVE


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW7
Oregon Zoo
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 600 1,200 Feet
NORTH
SW MURRAY ST
SW KINGSTON DR
SW KNIGHTS BLVD


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW7
Oregon Zoo
Map F: Determination of Significance
Resource Site
Significant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2015
0
600
1,200 Feet
NORTH
SW MURRAY ST
SW KINGSTON DR
SW KNIGHTS BLVD
SW MADISON ST
SW PARK PL


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW7
Oregon Zoo
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 600 1,200 Feet
NORTH
SW MADISON ST
SW MURRAY ST
SW KINGSTON DR
SW KNIGHTS BLVD
SW 18TH AVE
SW 60TH AVE

Resource Site No.: SW8 **Site Name:** Canyon Road East

Previous Plan: Southwest Hills Resource Protection Plan **Previous Resource Site No.:** 112

Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW8	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	227.0
Forest (acres)	205.8
Woodland (acres)	8.9
Shrubland (acres)	1.2
Herbaceous (acres)	11.1
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	299.5
Impervious Surface (acres)	158.3
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

The site resources include forest uplands and ravines that have perennial and intermittent creeks. These natural features provide habitat for local wildlife. The predominant trees are Douglas fir and bigleaf maple plus the uncommon climax species, grand fir. The forest ranges from early to later seral stages, 40 to 80 years old with hardwood with young conifer and conifer topping hardwood. The representative forest has an 80 percent tree canopy closure, 20 percent shrub closure and 90 percent herbaceous closure. Approximately one snag per acre exists providing important nesting and food resources. Exotic plant species are invading and threatening the health of the habitat.

The two large tracts of contiguous forest that occur on this site increase the habitat quality. One such area exists in the form of two ridges located south of Highway 26 that cover approximately nine acres. The other area is the undeveloped portion of Washington Park that abuts the north side of Highway 26. It is about 200 acres in size (including the area that extends beyond the site boundary).

Table B: Quality of Natural Resource Functions in Resource Site SW8				
Resource Site (acres) = 423.991604				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	33.9	34.6	130.2	198.6
percent total inventory site area	8.0%	8.2%	30.7%	46.9%
Wildlife Habitat*				
acres	0.0	178.6	21.7	200.3
percent total inventory site area	0.0%	42.1%	5.1%	47.2%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total+				
acres	33.9	152.5	23.8	210.1
percent total inventory site area	8.0%	36.0%	5.6%	49.6%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW8 the following significant features and functions are present:

Significant Natural Resource Features: open stream; forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R10, R7, R5, R2, R1, and RH base zones. Commercial uses are allowed in the CX, CE and CM1 base zone. Open space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW8, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

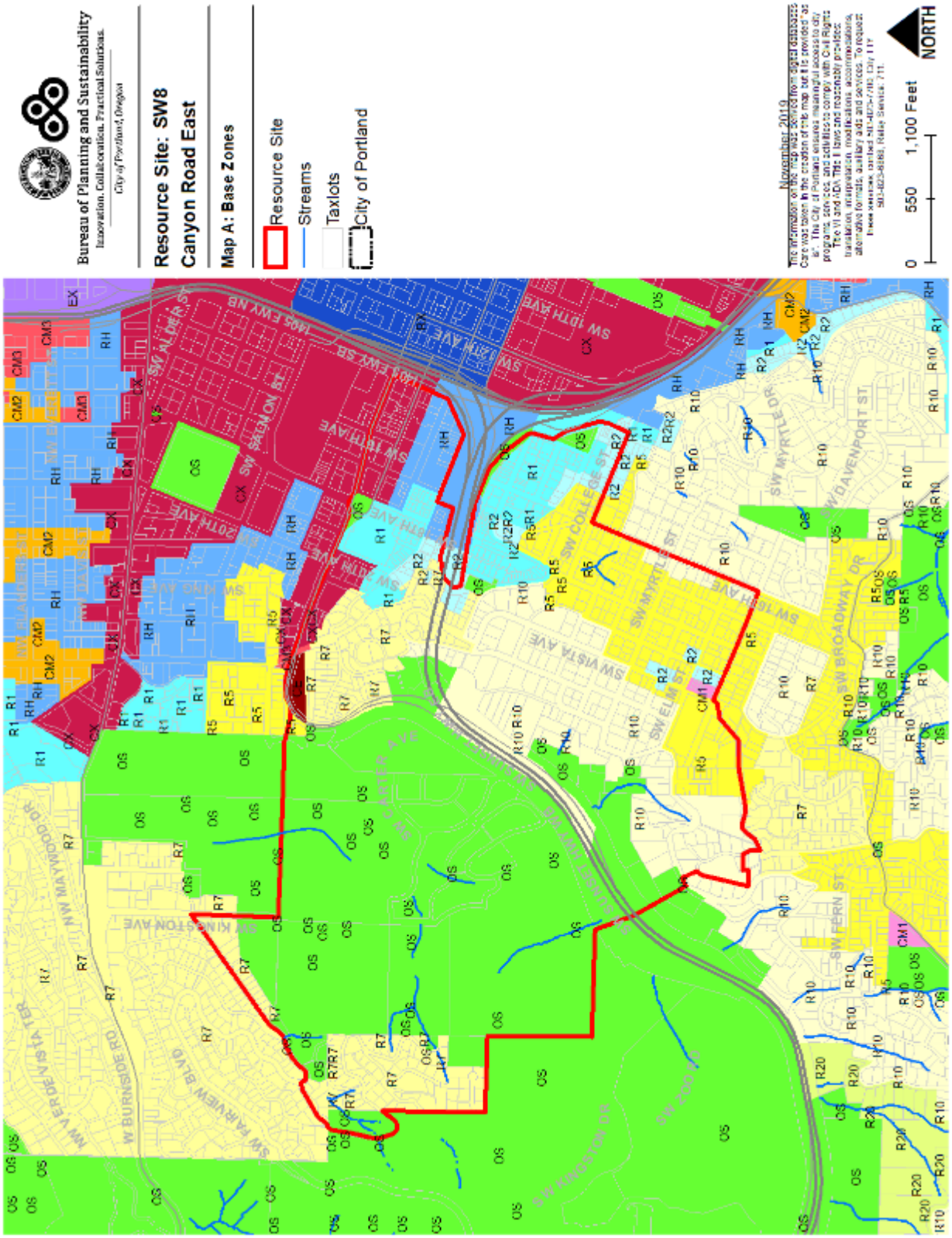
ESEE Decisions

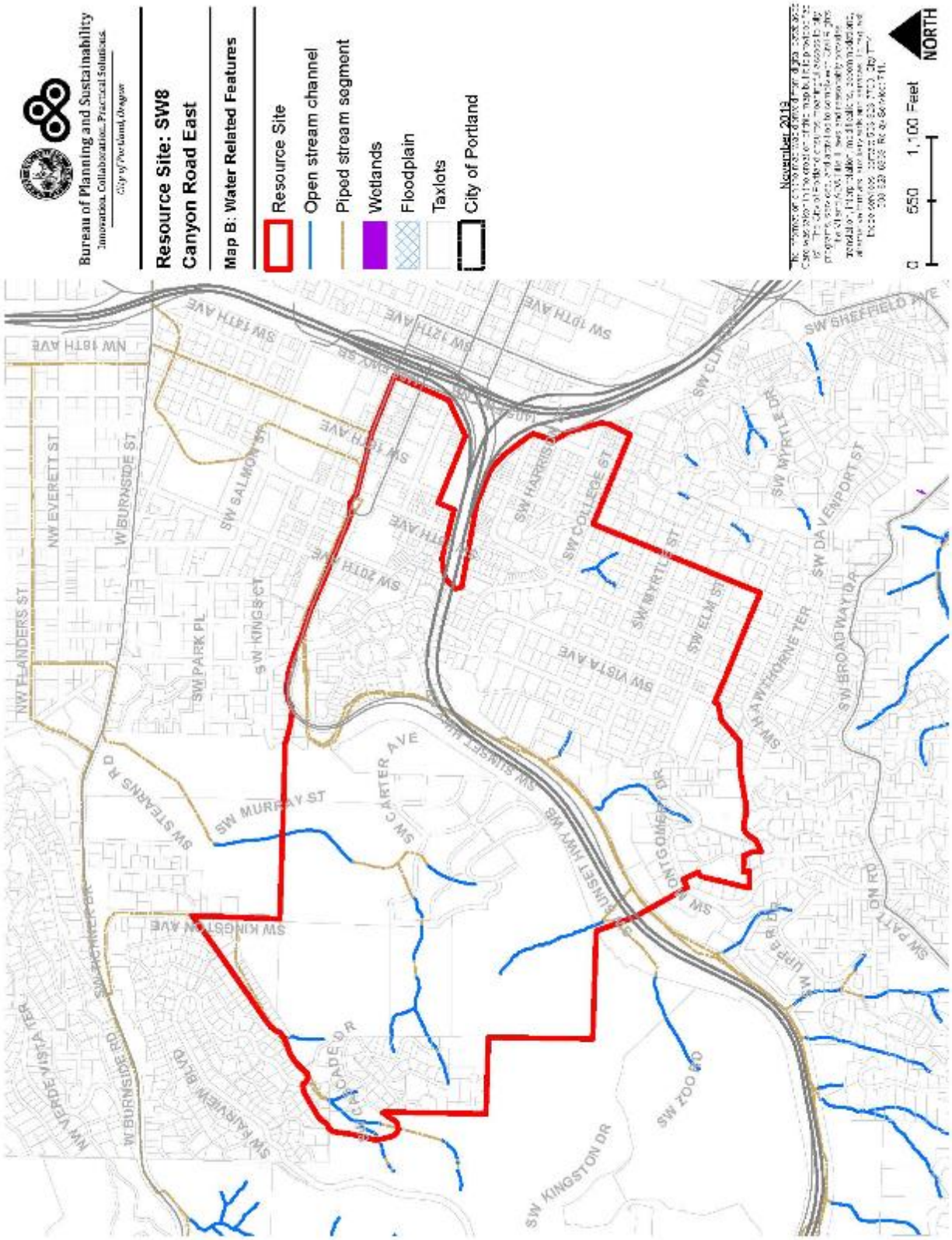
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW8 are:

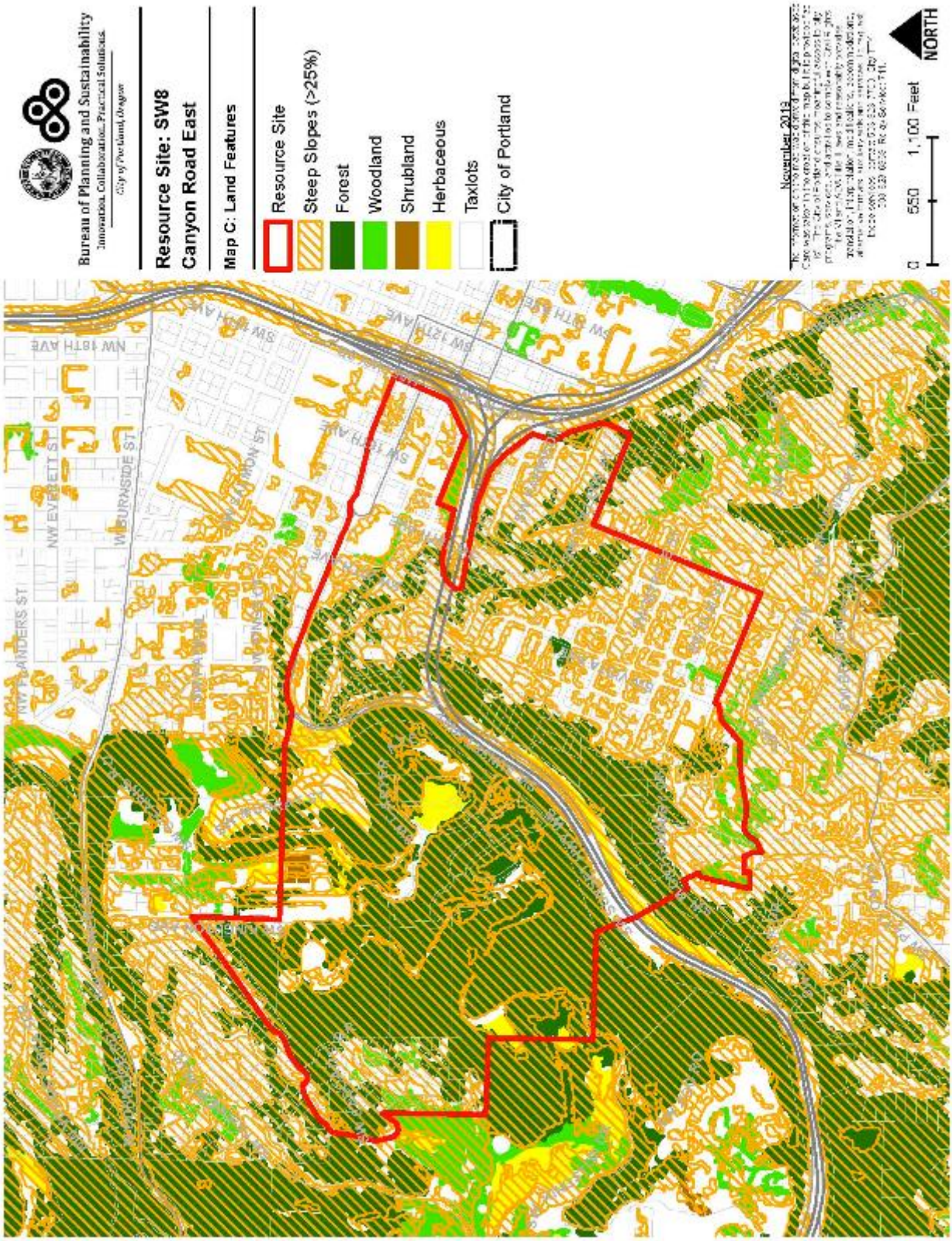
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank and land within 50 feet of stream top-of-bank.
2. *Limit* conflicting uses within areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank and on forest on steep slopes that is contiguous to but more than 50 feet from stream top-of-bank.
3. *Allow* conflicting uses within all other areas containing significant natural resources.

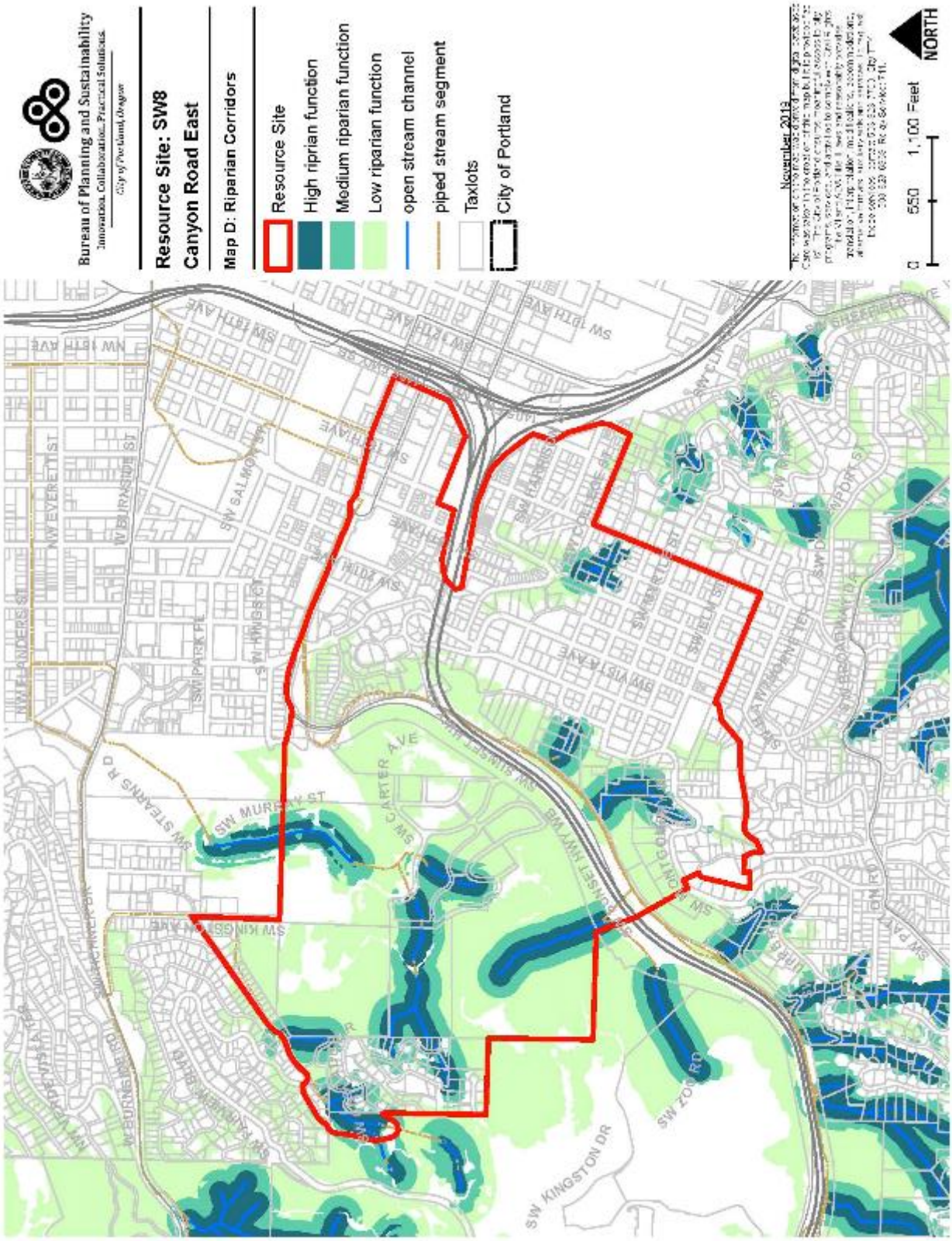
Table C: ESEE Decision for Resource Site SW8

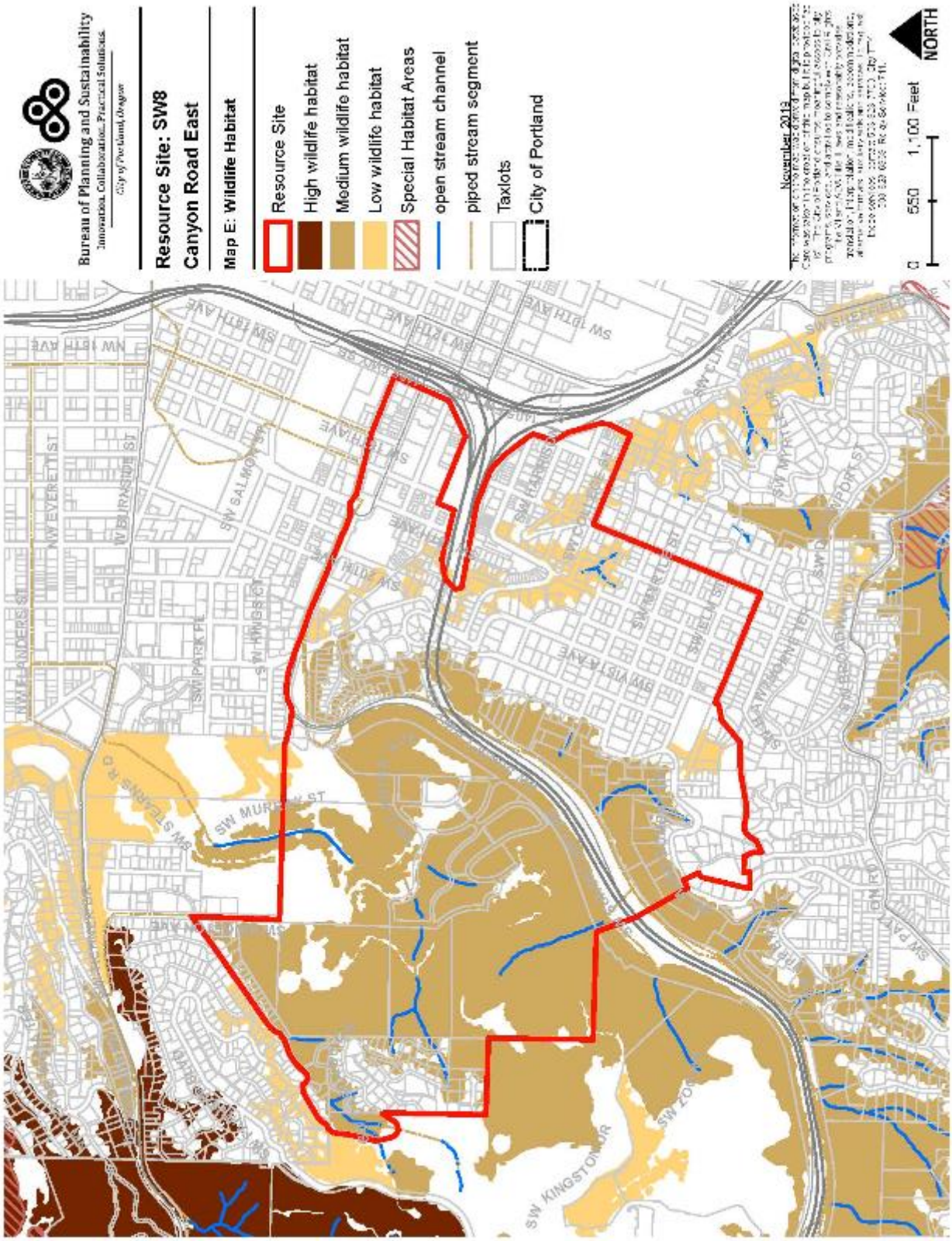
ESEE Decision	Acres
Strictly Limit	24.4
Limit	161.2
Allow	238.3

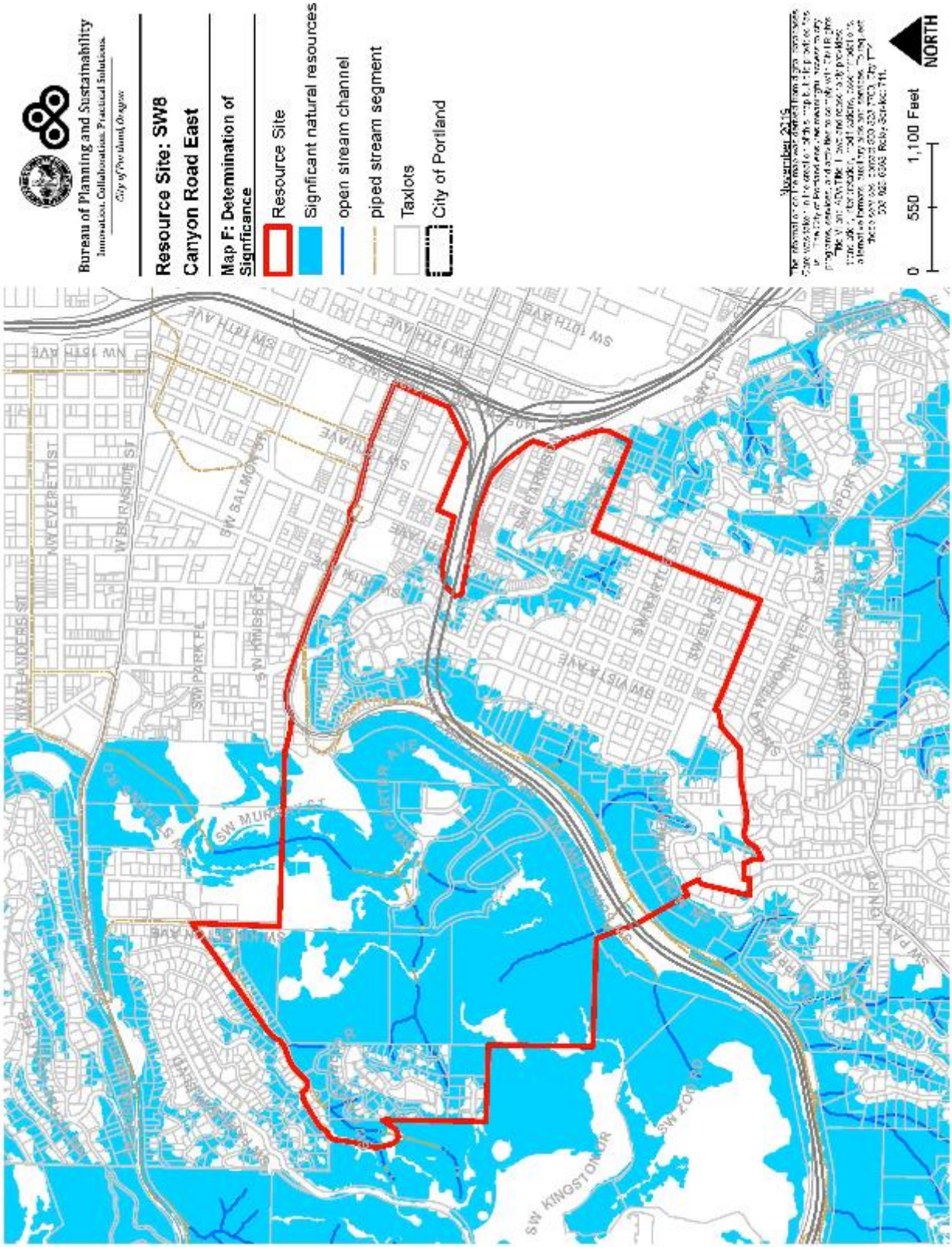

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW8
Canyon Road East
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0 550 1,100 Feet
NORTH

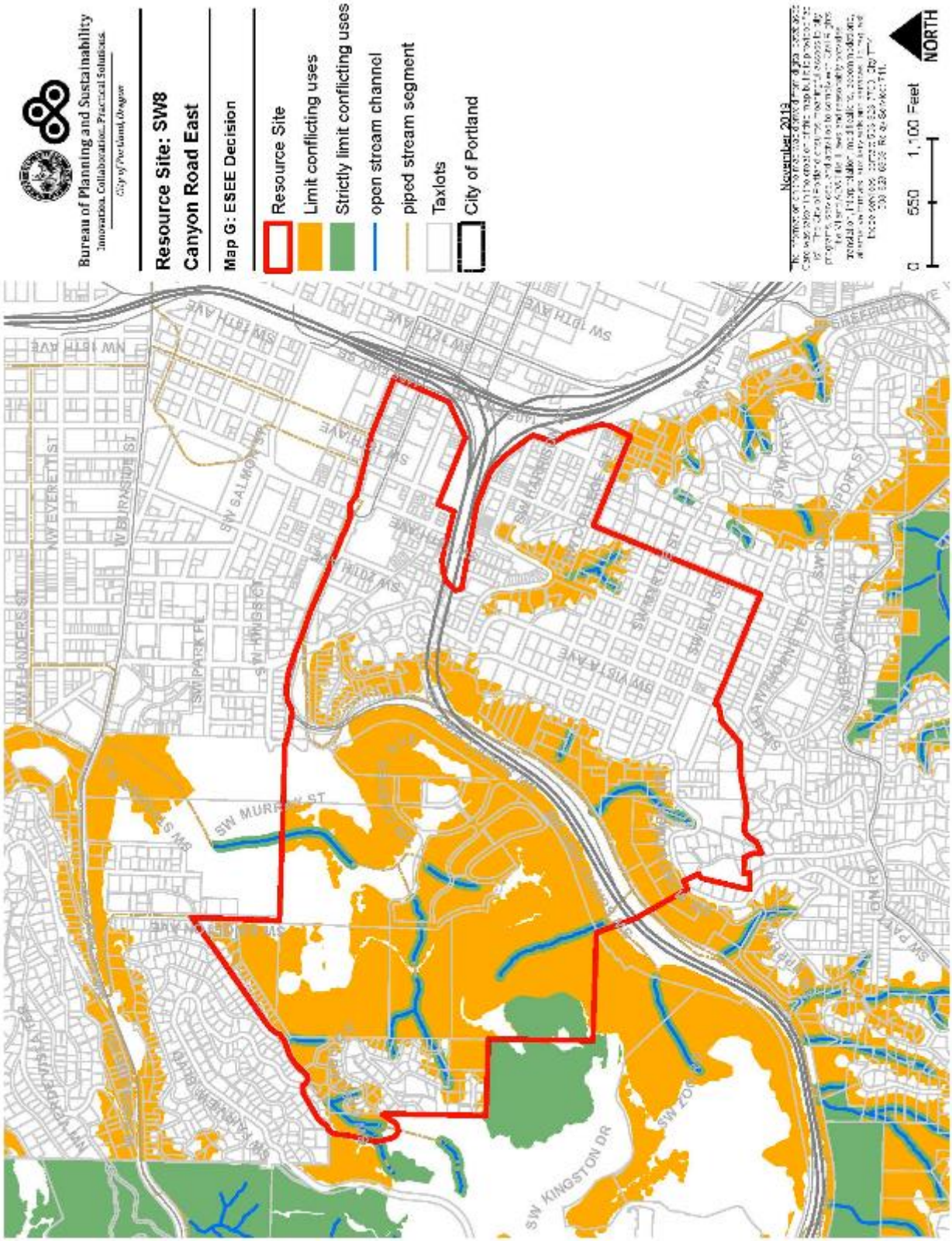

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW8
Canyon Road East
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0 550 1,100 Feet
NORTH
NW 18TH AVE
SW 18TH AVE
SW 12TH AVE
SW 10TH AVE
SW SHEFFIELD AVE
NW EVERETT ST
W BURNSIDE ST
SW SALMON ST
SW 14TH AVE
SW 20TH AVE
SW HARRISON
SW COLLEGE ST
SW MYRTLE DR
SW DAVENPORT ST
NW FLANDERS ST
SW PARK PL
SW KINGS CT
SW MYRTLE ST
SW ELM ST
SW VISTA AVE
SW HAWTHORNE TER
SW BROADWAY DR
SW STEARNS RD
SW MURRAY ST
SW CARTER AVE
SW SUNSET HWY WB
SW MONTGOMERY DR
SW PATTON RD
SW KINGSTON AVE
SW CHERRY PL
NW VERDE VISTA TER
W BURNSIDE RD
SW FAIRVIEW BLVD
SW CASCADE DR
SW ZOO DR
SW KINGSTON DR


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW8
Canyon Road East
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2019
0 550 1,100 Feet
NORTH
NW 18TH AVE
NW EVERETT ST
NW FLANDERS ST
W BURNSIDE ST
SW 18TH AVE
SW 12TH AVE
SW 6TH AVE


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW8
Canyon Road East
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 550 1,100 Feet
NORTH
SW 10TH AVE
SW 12TH AVE
SW SALMON ST
SW BURNSIDE ST
NW EVERETT ST
NW FLANDERS ST
SW PARK PL
SW KINGS CT
SW STEARNS RD
SW MURRAY ST
SW CARTER AVE
SW KINGSTON AVE
SW BURNSIDE RD
SW KINGSTON DR
SW ZOO RD
SW HARRISON
SW VISTA AVE
SW ELM ST
SW WASHINGTON PL
SW BROADWAY DR
SW PARK AVE
SW CLIFF DR
SW DOWNTOWN PL
SW SUNSET HWY WB


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW8
Canyon Road East
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
550
1,100 Feet
NORTH
NW 16TH AVE
SW 18TH AVE
SW 17TH AVE
SW 16TH AVE
NW EVERETT ST
W BURNSIDE ST
NW FLANDERS ST
SW SALMON ST
SW KINGS CT
SW PARK PL
SW VISTA AVE
SW MURRAY ST
SW STEPHENSON RD
SW KINGSTON DR
SW SHERIDAN


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW8
Canyon Road East
Map F: Detemination of Signficance
Resource Site
Signficant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
550
1,100 Feet
NORTH
NW 16TH AVE
NW EVERETT ST
W BURNSIDE ST
NW FLANDERS ST
SW PARK PL
SW KINGS CT
SW SALMON ST
SW 18TH AVE
SW 17TH AVE
SW VISTA AVE
SW ELM ST
SW CARTER AVE
SW MURRAY ST
SW KINGSTON DR
SW ZOO RD
SW BROADWAY DR
SW PATTON RD


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW8
Canyon Road East
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 550 1,100 Feet
NORTH
SW 10TH AVE
SW 12TH AVE
SW SALMON ST
SW MURRAY ST
SW KINGSTON DR
SW ZOO
SW PARK PL
SW HARRISON
SW VISTA AVE
SW ELM ST
SW MORRISON
SW BROADWAY DR
NW 10TH AVE
NW EVERETT ST
NW BURNSIDE ST
NW FLANDERS ST
NW PARK AVE
NW VIRGINIA PL

Resource Site No.: SW9 **Site Name:** Marquam Hill Ravine

Previous Plan: Southwest Hills Resource Protection Plan Previous Resource Site No.: 113

Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW9	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.1
Vegetated Areas >= 1/2 acre (acres)	272.1
Forest (acres)	234.9
Woodland (acres)	32.9
Shrubland (acres)	3.0
Herbaceous (acres)	1.3
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	441.0
Impervious Surface (acres)	184.0
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

Most of Site SW9 consists of the north, east and west slopes of Marquam Hill, a prominent feature of the Portland Hills. The lower east slope of Council Crest is also part of Site SW9. The total site acreage is 499 acres and characterized by steep, unstable slopes. Marquam Nature Park forms the centerpiece for the site natural habitat and serves to protect its unstable hillsides from development. It is a 71-acre forested upland area bisected by multiple ravines. It is designated as open space. Other open space includes Duniway Park, an 11.14-acre developed park located at the bottom of the Marquam Ravine near Barbur Boulevard and Governors Park, a six-acre forest near SW 13th and Davenport.

The natural areas including Marquam Nature Park are located in the middle and west portions of the site. The northern third of the site is primarily a north facing slope that is developed with single-family homes. It is in this area that Governors Park is located. The northern part of the Oregon Health Science University (OHSU) campus is located within this site.

Approximately 60 percent or 273 acres of Site SW9 has a mixed conifer and deciduous forested cover. Marquam Nature Park, a 71-acre designated open space area serves as a significant center piece to the surrounding natural areas within the site and connecting to adjacent sites. Marquam Creek which is the main drainage is in an open, natural condition until it reaches the Sam Jackson Road and Terwilliger Boulevard intersection where it joins a major tributary flowing from the south. The southern tributary is an one-mile long perennial creek that extends from Fairmont Street near Marquam Hill Rd.

The forest is a mid-aged coniferous forest (60 to 100 years old) with climax species present and intermittent creeks flowing through it. This site has about two dozen seasonal creeks that are tributaries of three watersheds. The creeks are associated with ravines that have 40 to 60 percent side-slopes. The

ravines and waterways provide an important source of water for the plants and animals of the area. Generally, a higher quality of habitat exists along the creeks as a result of the diversity in plant species supported by the creek.

The forested areas are well represented throughout the site ranging from 80 percent canopy closure in the vicinity of Marquam Gulch to 60 percent closure near SW Fairmont and Mt. Adams Streets. Climax species of hemlock, cedar and grand fir are well established in the east side of the site. The herbal, shrub and tree layers are well defined by each having a 70-80 percent canopy closure. Each layer has good diversity of species indicating a healthy forest community. However, non-indigenous plants such as ivy and blackberries have invaded the area.

The observed bird species include: downy woodpecker, rufous-sided towhee, orange crown warbler, black-throated grey warbler, varied thrush and kinglets as well as more commonly seen birds.

The forest provides open space, recreational, scenic and educational resources. The Marquam Hill Nature Trail provides pedestrian access through the park in the form of an unpaved path that is a part of the 40-Mile Loop regional bike and trail system. In addition to the path system, there is a shelter and interpretive information. Signs of erosion are present along the Marquam Trail. Other signs of erosion are found throughout the site in the form of slumping and bowed trees.

There are about four miles of unimproved right-of-way in Site SW9. The majority of these rights-of-way are undisturbed natural areas that contribute to the habitat quality of the area and in some cases provide pedestrian and wildlife passage. A portion of the unimproved rights-of-way is part of the Portland Homestead Addition that is designated open space.

Marquam Nature Park located in the Marquam Gulch is located north of Barbur Boulevard and south of Broadway Drive. Two creeks in the Marquam Gulch are designated wetlands on the 1989 National Wetland Inventory. The most northerly creek which runs in a northeast direction is defined as a riverine, intermittent streambed with cobble-gravel. The southerly wetland which runs in a northern direction into the above-mentioned creek/wetland is defined as a palustrine, forested wetland with an aquatic bed.

In total there are two dozen tributary creeks associated with the three watersheds in Marquam Gulch. The creeks provide storm drainage, habitat and groundwater recharge.

Other resources include the scenic value of the natural vegetation that covers over 60 percent of the site. Visual resources also include views into the wooded ravines and hilltops as well as views out to the city. Included are views of Mt. Hood and Mt. St. Helens, the eastern buttes, the Columbia and Willamette Rivers and the cityscape. As mentioned above, Marquam Hill is a prominent hill within the West Hills. The area open space contributes to the image of the West Hills as a whole. The visual impact of the greenery of the West Hills when viewed from the east, north and south sides of the city or when flying over the city, contributes to the image of Portland as a “City of Roses” and a livable city.

Governors Park, located in the northern part of the site, is six acres in size and has a stand of mature Douglas fir. This park provides wildlife habitat, marks the top of the hill and creates a gateway into the neighborhoods on each side of it. All of these elements contribute to the urban design and quality of the area.

Retention of natural vegetation helps maintain soil and slope stability. Gross removal of vegetation has been noted as a major contributing cause of land instability on the slope of the Portland Hills.24 The geology and landslide potential of Marquam Hill has been well documented in the Environmental Geology for Planning of the Marquam Hill Area, prepared by Dr. Leonard Palmer for the Bureau of Planning in 1973. Extensive areas on Marquam Hill are in the extreme hazard classification.25 Many of these areas were either purchased or given to the city in the late 1970's in order to remain undeveloped. These areas now exist as designated open space.

Table B: Quality of Natural Resource Functions in Resource Site SW9				
Resource Site (acres) = 536.150667				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	94.1	78.5	83.9	256.5
percent total inventory site area	17.5%	14.6%	15.6%	47.8%
Wildlife Habitat*				
acres	0.0	208.3	25.0	233.4
percent total inventory site area	0.0%	38.9%	4.7%	43.5%
Special Habitat Areas**				
acres				13.4
percent total inventory site area				2.5%
Combined Total+				
acres	105.0	125.1	27.6	257.6
percent total inventory site area	19.6%	23.3%	5.1%	48.0%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW9 the following significant features and functions are present:

Significant Natural Resource Features: open stream; forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status fish species.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R10, R7, R5, R2, R1, and RH base zones. Commercial uses are allowed in the CE, CM3 and CM2 base zone. Employment is allowed in the EX base zone. Open space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW9, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk

species, maintaining the flow moderation, water quality and flood control functions of streams and wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

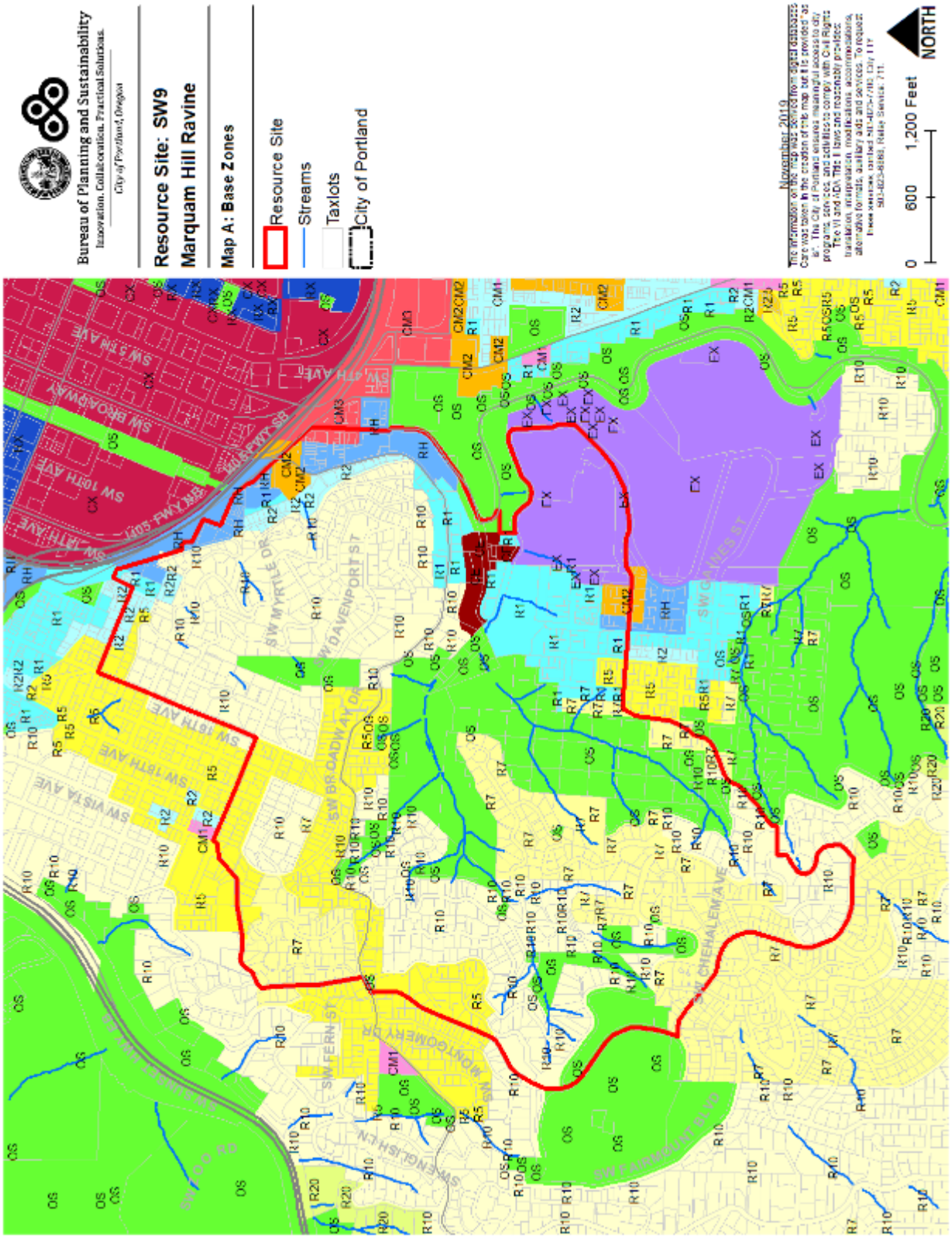
ESEE Decisions

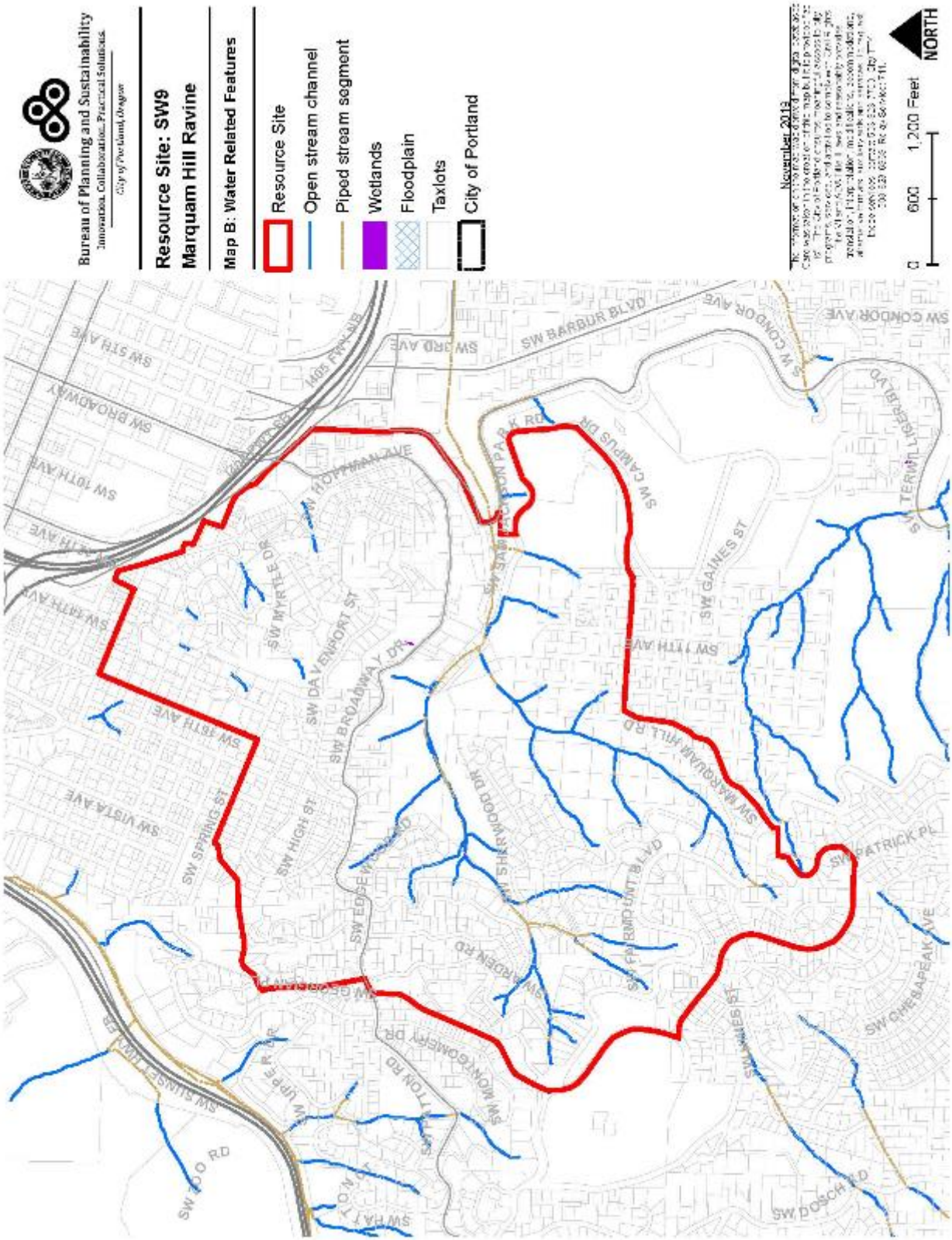
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW9 are:

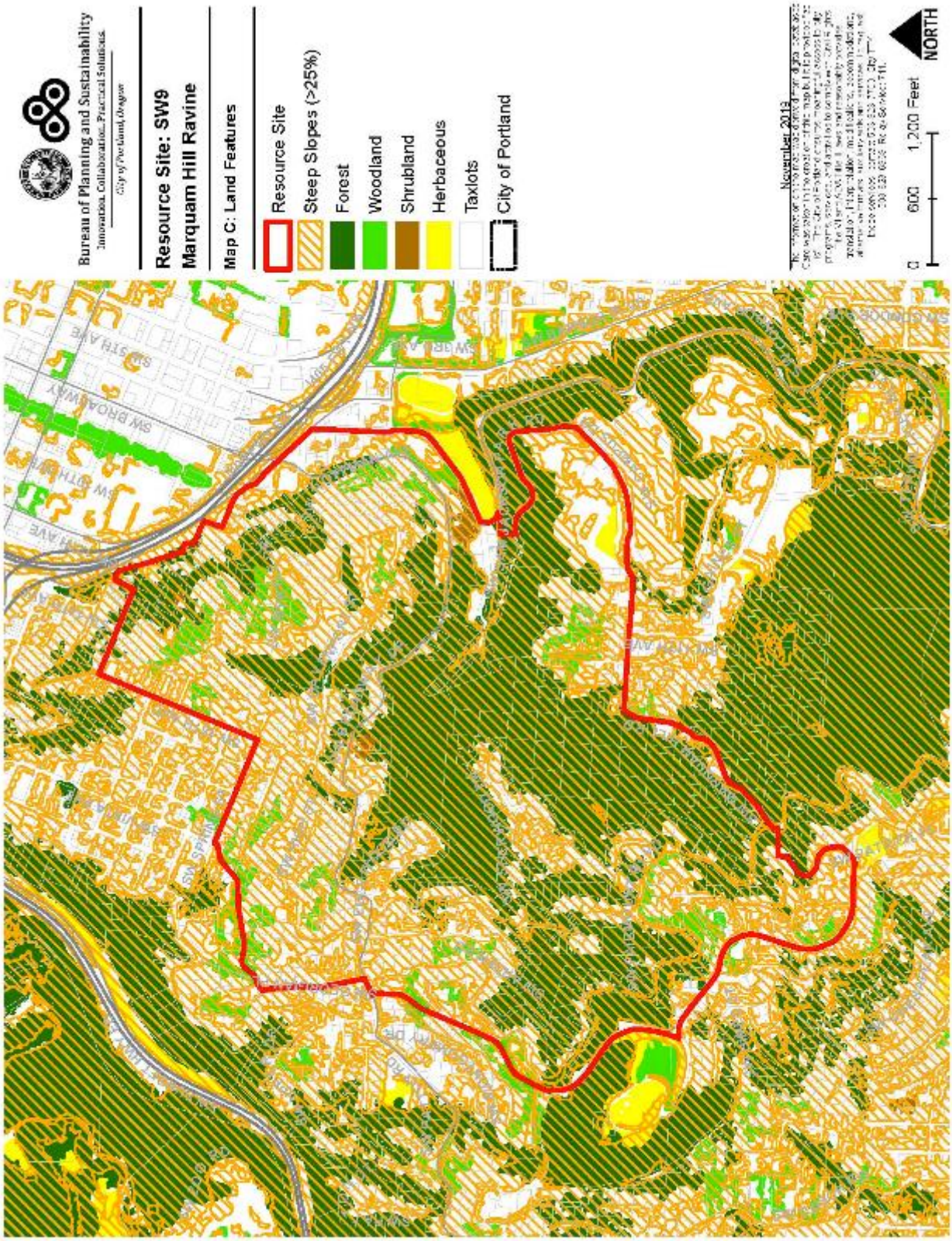
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank and land within 50 feet of stream top-of-bank.
2. Inside Marquam Nature Park, s*trictly limit* conflicting uses within areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank and inside Marquam Nature Park, forest on steep slope that is contiguous to stream top-of-bank.
3. Outside Marquam Nature Park, *limit* conflicting uses within areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank and within areas of forest on steep slope that are are contiguous to but more than 50 feet from stream top-of-bank.
4. *Allow* conflicting uses within all other areas containing significant natural resources.

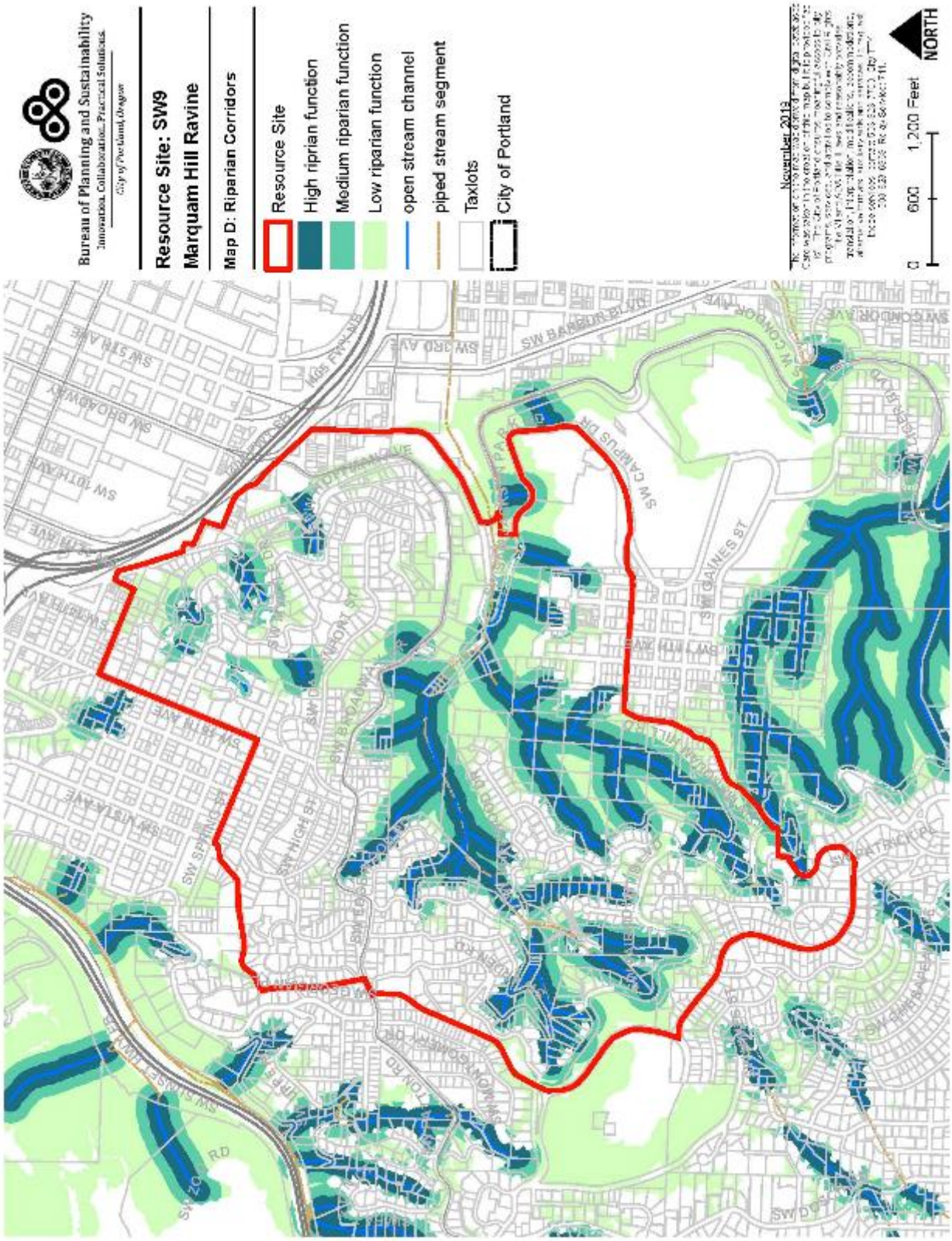
Table C: ESEE Decision for Resource Site SW9

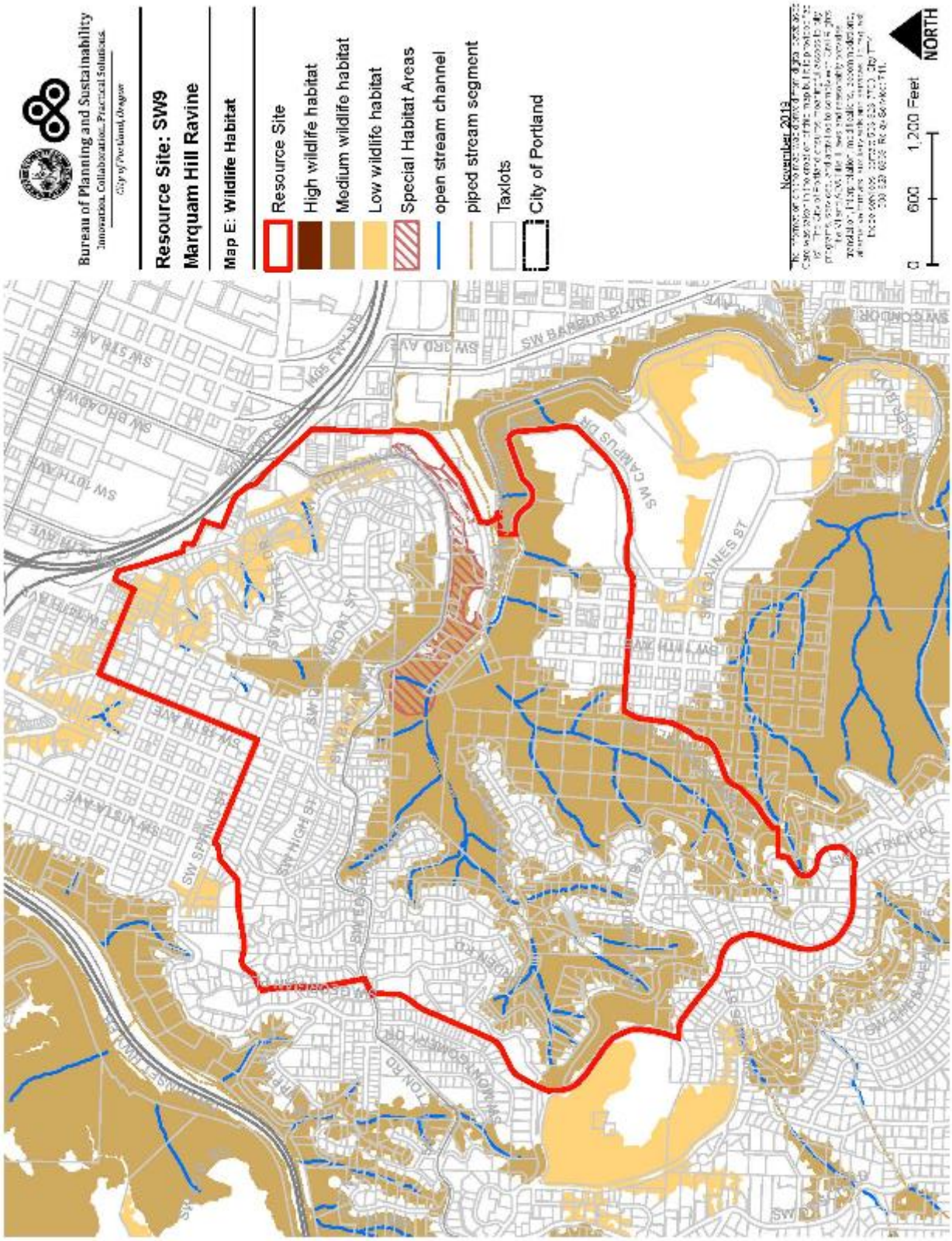
ESEE Decision	Acres
Strictly Limit	115.7
Limit	111.5
Allow	308.9

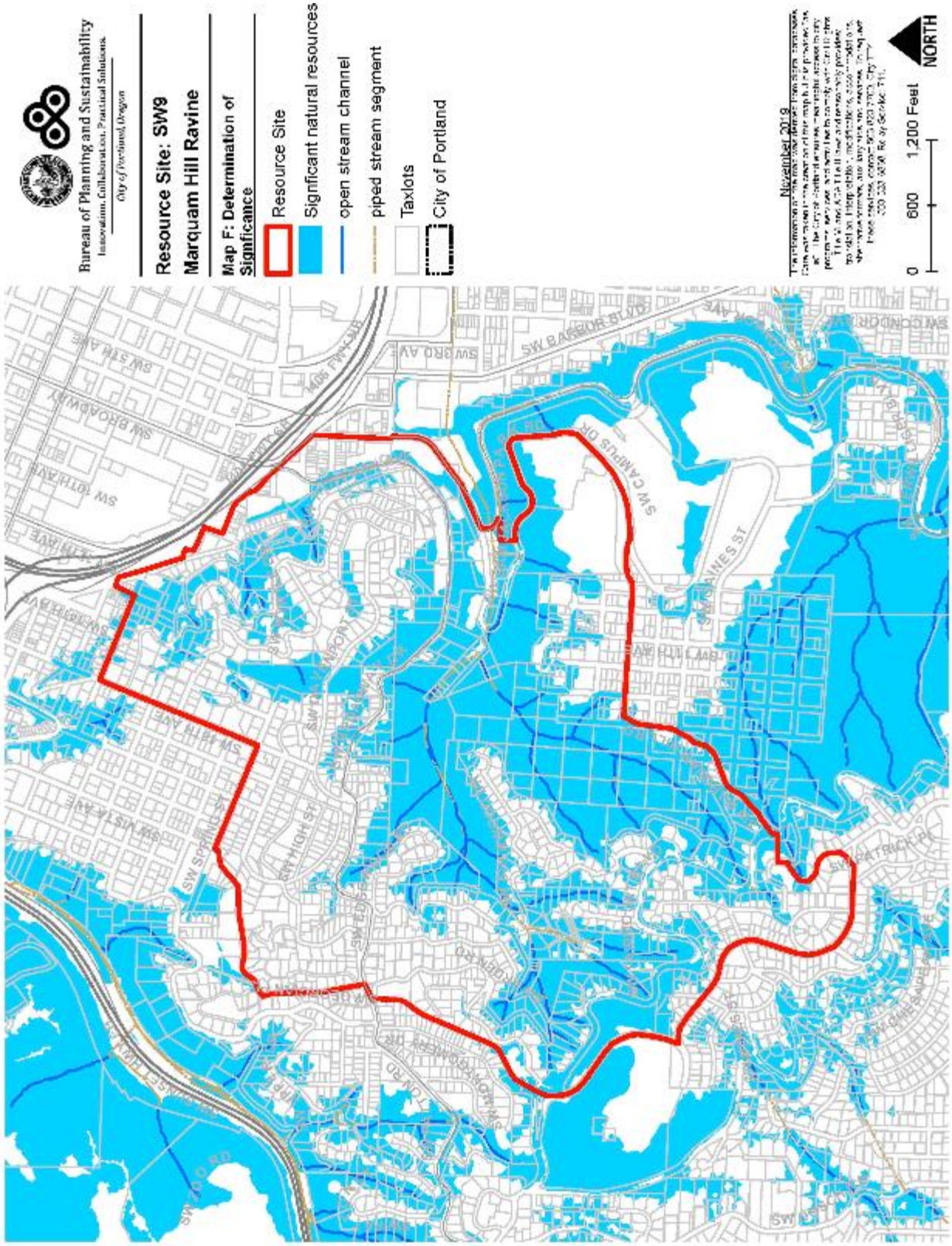

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW9
Marquam Hill Ravine
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0 600 1,200 Feet
NORTH

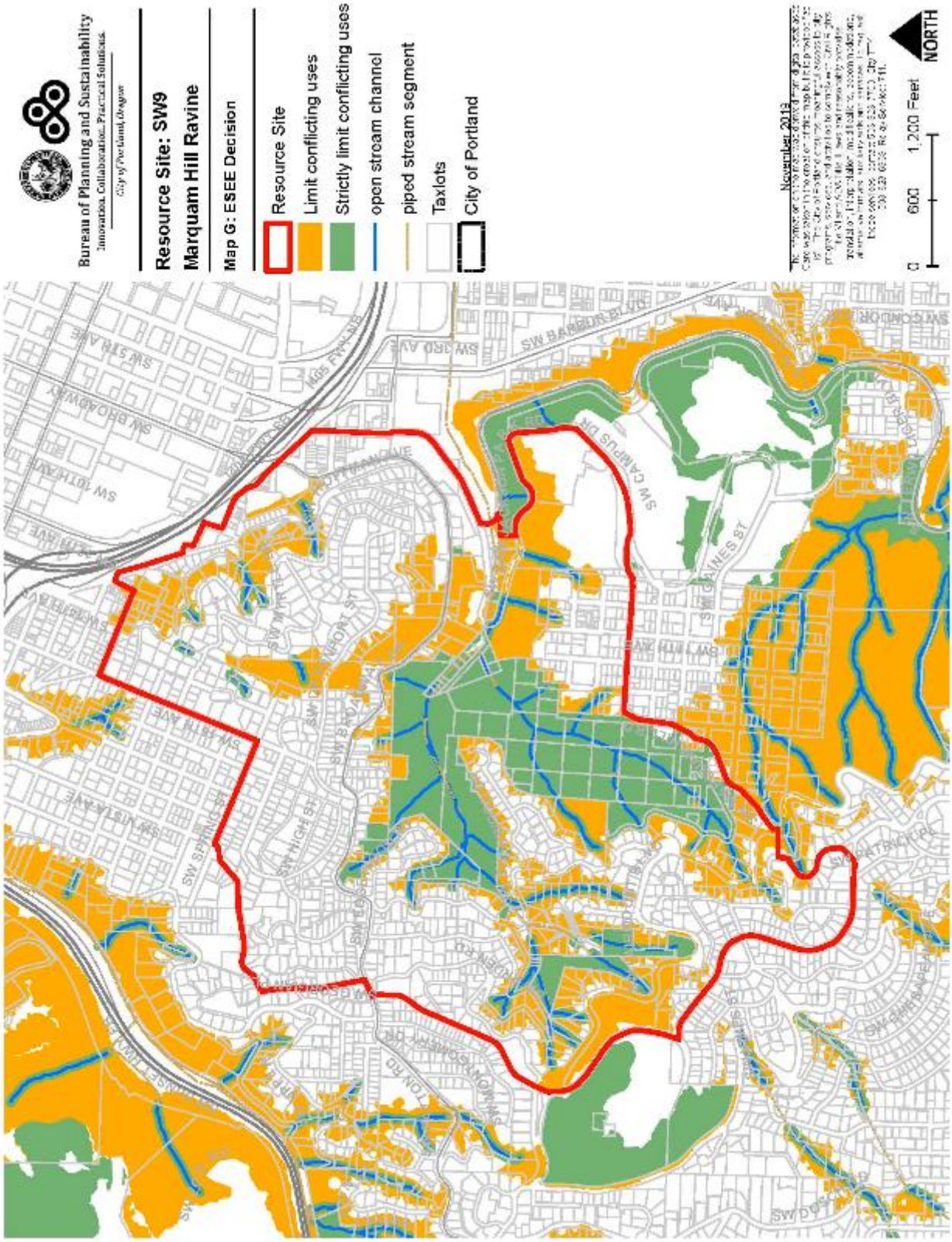

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW9
Marquam Hill Ravine
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0 600 1,200 Feet
NORTH
SW BARBUR BLVD
SW CONDOR AVE
SW CAMPUS DR
SW GAINES ST
SW 11TH AVE
SW MARQUAM HILL RD
SW PATRICK PL
SW CHESAPEAKE AVE
SW DOSCH RD
SW TERWILLIGER BLVD
SW 3RD AVE
SW STH AVE
SW BROADWAY
SW 10TH AVE
SW 7TH AVE
SW 6TH AVE
SW 5TH AVE
SW 4TH AVE
SW 3RD AVE
SW VISTA AVE
SW SPRING ST
SW HIGH ST
SW DAVENPORT ST
SW BROADWAY DR
SW MYRTLE DR
SW HOFFMAN AVE
SW EDGEWOOD RD
SW MONTGOMERY DR
SW SUNSET HWY
SW DOO RD


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW9
Marquam Hill Ravine
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2019
0
600
1,200 Feet
NORTH


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW9
Marquam Hill Ravine
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 600 1,200 Feet
NORTH
SW BARBUR BLVD
SW 3RD AVE
SW CONDOR AVE
SW CAMPUS DR
SW GAINES ST
SW BROADWAY
SW 10TH AVE
SW 18TH AVE
SW 19TH AVE
SW SPRING RD
SW HIGH ST
SW ZOO RD
SW SUNSET BLVD

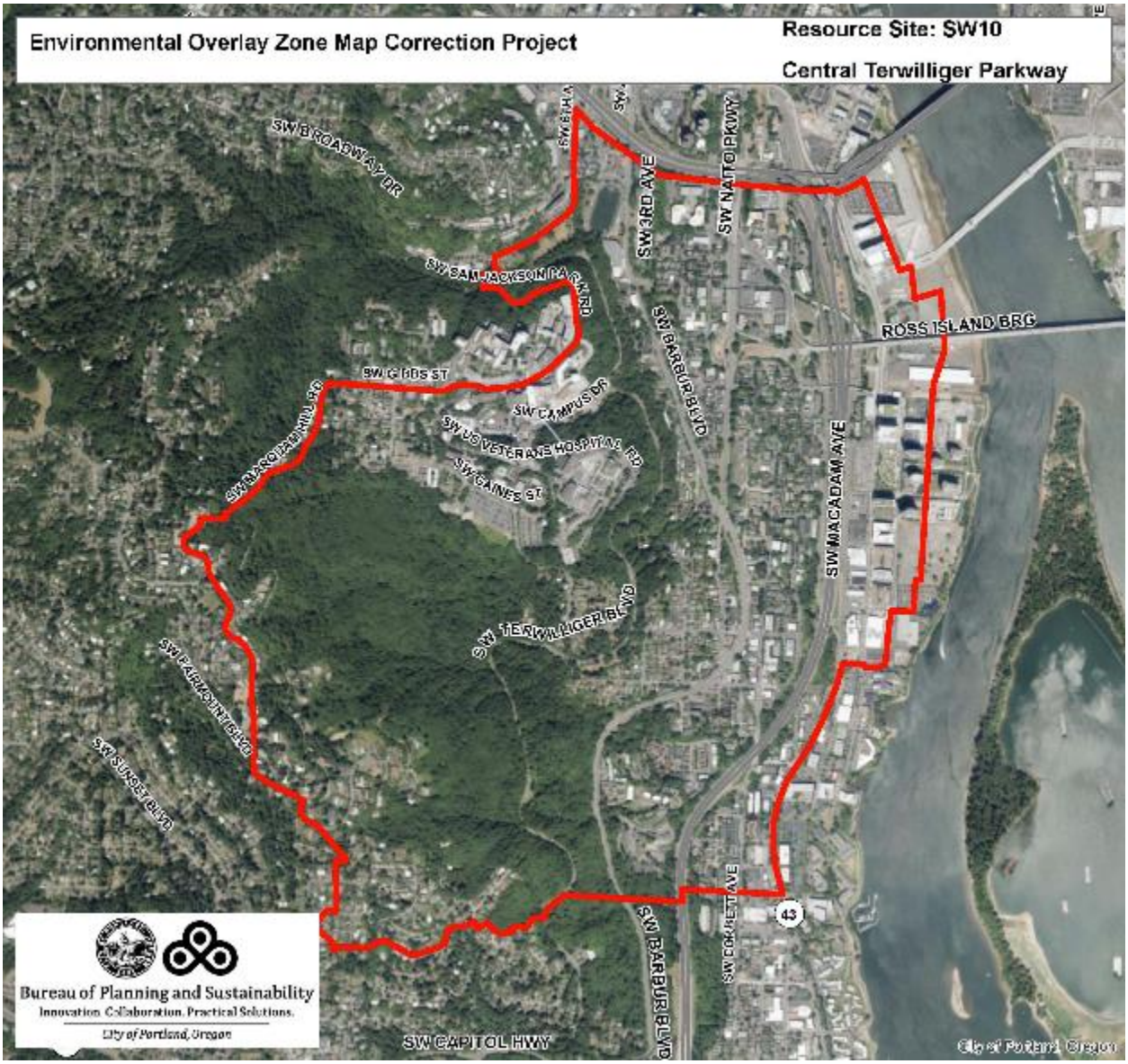

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW9
Marquam Hill Ravine
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 600 1,200 Feet
NORTH
SW BARBUR BLVD
SW 3RD AVE
SW 10TH AVE
SW BROADWAY
SW STARK AVE
SW CAMPUS DR
SW GAINES ST
SW HILL AVE
SW MARKET ST
SW HIGH ST
SW SPRING RD
SW MILL AVE
SW MILL ST
SW CAPITOL HWY
SW TERWILLIGER BLVD
SW BOONES FERRY RD
SW MACADAM AVE


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW9
Marquam Hill Ravine
Map F: Determination of Significance
Resource Site
Significant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 600 1,200 Feet
NORTH
SW BARBUR BLVD
SW 3RD AVE
SW CAMPUS DR
SW BROADWAY
SW 10TH AVE
SW 5TH AVE
SW MAINES ST
SW PATRICK PL


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW9
Marquam Hill Ravine
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 600 1,200 Feet
NORTH
SW BARBUR BLVD
SW 3RD AVE
SW CAMPUS DR
SW GAINES ST
SW HILL AVE
SW BROADWAY
SW 10TH AVE
SW 18TH AVE
SW 19TH AVE
SW 1ST AVE
SW HIGH ST
SW SPRING ST
SW MARKET ST
SW CAPITOL HWY
SW BOND AVE
SW LOOP DR
SWIMMING POOL DR
SW DOSCH RD
SW CHERRY PARK RD
SW CONDOR DR

Resource Site No.: SW10 **Site Name:** Central Terwilliger Parkway

Previous Plan: Southwest Hills Resource Protection Plan **Previous Resources Site No.:** 114



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW10	
	Study Area
Stream (Miles)	1.7
Wetlands (acres)	0.1
Vegetated Areas >= 1/2 acre (acres)	438.8
Forest (acres)	356.7
Woodland (acres)	36.0
Shrubland (acres)	10.9
Herbaceous (acres)	35.2
Flood Area*	34.4
Vegetated (acres)	0.4
Non-vegetated (acres)	34.0
Steep Slopes (acres)**	567.4
Impervious Surface (acres)	491.6
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

This 455-acre site contains the greatest amount of potentially developable land in the study area. The western half or about 200 acres of Site SW10 is unsewered, representing the largest unsewered area in the study area and a constraint to development. These undeveloped hillsides have primarily a mixed coniferous/deciduous forest cover. This site has three additional unique features: portions of the Terwilliger Parkway, the Oregon Health Sciences University (OHSU), and the 40-Mile Loop Trail. The middle section or about 1.2 miles of the three-mile long Terwilliger Parkway is located in Site SW10. The Terwilliger Parkway is a 77-acre parkway envisioned in 1903 by John Olmsted27 and presently part of a design overlay zone. The parkway is primarily tree covered, has lookout points, a bike path and a two-lane roadway. Terwilliger Parkway is the most popular and well-used jogging/walking corridor in the city. The middle portion of the parkway has little development with the exception to the new OHSU eye clinic at the Campus Drive entrance.

Oregon Health Sciences University is a multi-institutional center located on SW13 acres (Sites SW9 & SW10) containing over 26 buildings. According to the Framework Master Plan (May, 1991) there is one site identified as having development potential that is in a natural resource area. It is referred to as Site L and is about a 50-acre undeveloped, wooded site on the southeast slope of Marquam Hill south of OHSU.

This site has a series of ten ridges that form three watersheds. The elevations vary between 150 and 850 feet. Site SW10 has documented shallow and unstable soils as well as fault lines30 (also see Site SW10, Resource Areas Map). The shallow soils in Site SW10 are located on both sides of Terwilliger Boulevard and in conjunction with rock outcroppings. These features occur on the eastern slope of OHSU for about 2,800 feet in Site SW10 (see Geomorphology Map, Redfern 1972). Slopes with moderate to extreme

landslide hazard conditions exist throughout the site and are mapped in a Planning Bureau atlas. The rock outcroppings are a scenic resource as well as a constraint to development due to the increased labor cost necessary for blasting or building into bedrock.

The representative forest is second growth conifer topping hardwood. The forest is 30 to 50 years old and is generally half conifer and half deciduous. A layer of downed woody debris provides food and cover and increases habitat quality. Canopy closure in the herb zone is 90%, in the shrub zone, 15%, and in the tree zone, 60%. Pileated woodpeckers and evening grosbeaks have been observed in the area.

Today the Terwilliger Parkway is recognized as an important open space system and recreation corridor. The parkway includes a heavily used walking/jogging path and is a bicycle commuter route. In 1983, the City Council adopted the Terwilliger Parkway Corridor Plan which specifies design treatment anticipated for the private and public land along the parkway within the adopted design overlay zone. While the corridor plan was adopted as policy and intended to be enforceable, the inherent flexibility of the guidelines and allowance for exceptions has resulted in recent developments which do not fully meet the guidelines. Notwithstanding, the parkway provides great civic pride and is a visual and wildlife corridor. The Terwilliger Parkway links two miles of the six-mile length of the Southwest Hills. This forested corridor provides a great deal of civic pride and contributes to a sense of place and to Portland's identity as forested city.

The Marquam section of the 40-Mile Loop runs through Site SW10. The trail system is mapped on the official zoning maps. It connects the Zoo and a 20-acre designated open space parcel located on the south side of Highway 26 with Patton Road, Council Crest and Marquam Nature Park. It passes through unbuilt portions of SW 14th, SW Lane and SW 10th streets, and through undeveloped portions of the OHSU property (i.e., tax lots 55 and 35) to Terwilliger Boulevard. The trail continues south to George Himes Park (Site SW11) where it cuts east to Willamette Park and the Sellwood Bridge. The trail system is in place in its entirety. In Site SW10, large portions of the trail exist on private property in the form of easements. This trail system forms a habitat, scenic and recreation corridor. It is a portion of a regional asset and trail system that is over 140 miles long.

A particularly visually prominent knoll is "Eagle Point" located east of the Terwilliger and Homestead intersection where Lowell Terrace and Lowell Lane are today. It was a major element of Olmsted's 1903 plan and is identified in the Terwilliger Parkway Corridor Plan. Unfortunately, the northern loop of the "Eagle Point" was vacated in 1963. The knoll is 380 feet in elevation, 90 percent forested with a conifer topping hardwood forest, and is the most easterly extending portion of the Southwest Hills (with the exception of the River View Cemetery area). These characteristics make it significant.

Another site resource exists in the form of natural access points to and from properties adjacent to Terwilliger Boulevard formed by the natural topography. "Natural Future Access Points" and "Existing or Approved Private Access" points have been mapped as a part of the Terwilliger Parkway Corridor Study. This is important inventory and parkway development guideline information which if followed will help increase development opportunities in a rational way while protecting the more difficult to develop and fragile locations.

Table B: Quality of Natural Resource Functions in Resource Site SW10				
Resource Site (acres) = 958.821979				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	109.2	93.7	187.3	390.2
percent total inventory site area	11.4%	9.8%	19.5%	40.7%
Wildlife Habitat*				
acres	0.0	302.9	52.5	355.4
percent total inventory site area	0.0%	31.6%	5.5%	37.1%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total+				
acres	109.2	207.8	90.1	407.1
percent total inventory site area	11.4%	21.7%	9.4%	42.5%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW10 the following significant features and functions are present:

Significant Natural Resource Features: open stream; forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R20, R10, R7, R5, R2, R1, and RH base zones. Commercial uses are allowed in the CI2, CM3, CM2 and CM1 base zone. Employment is allowed in the EX base zone. Open space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW10, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

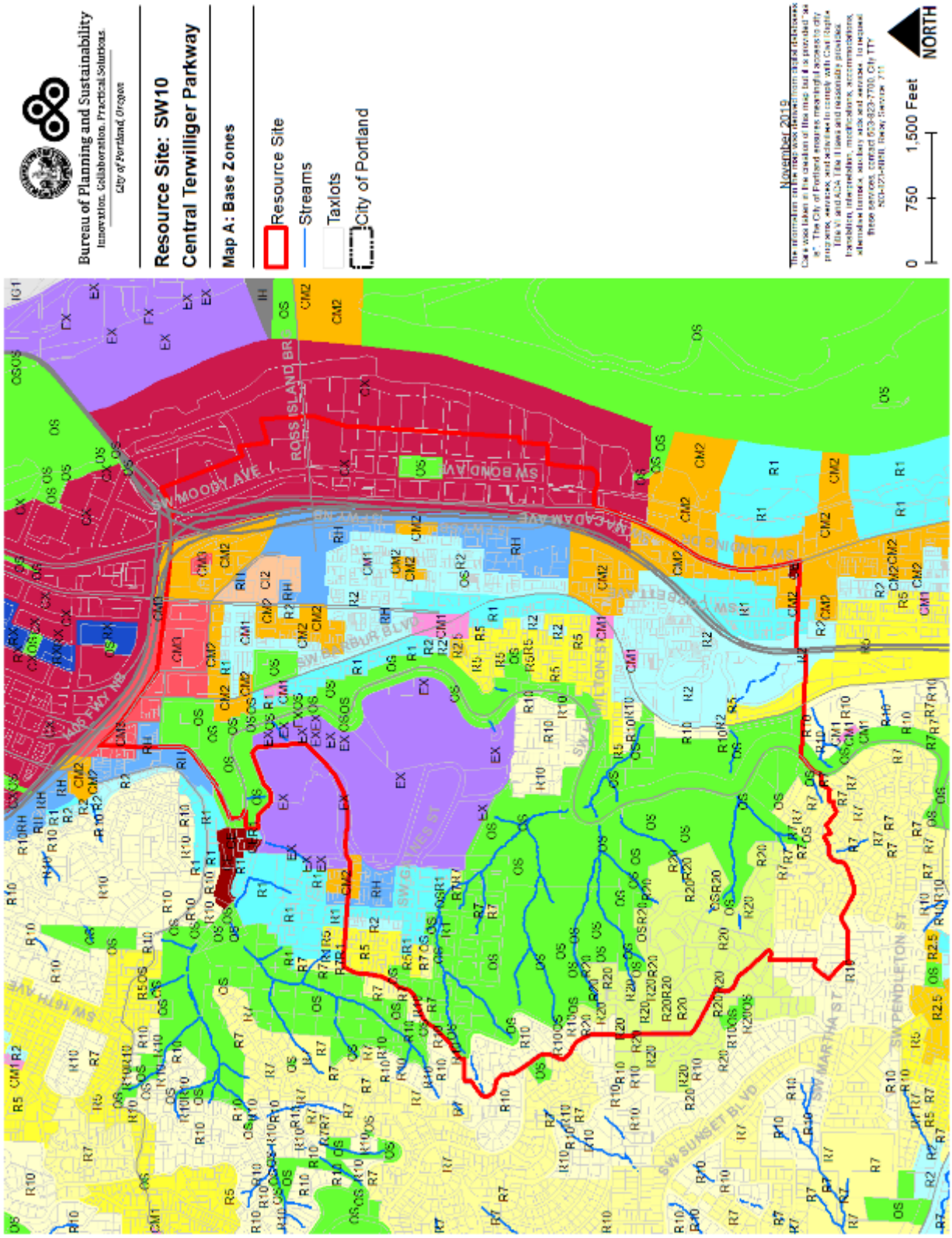
ESEE Decisions

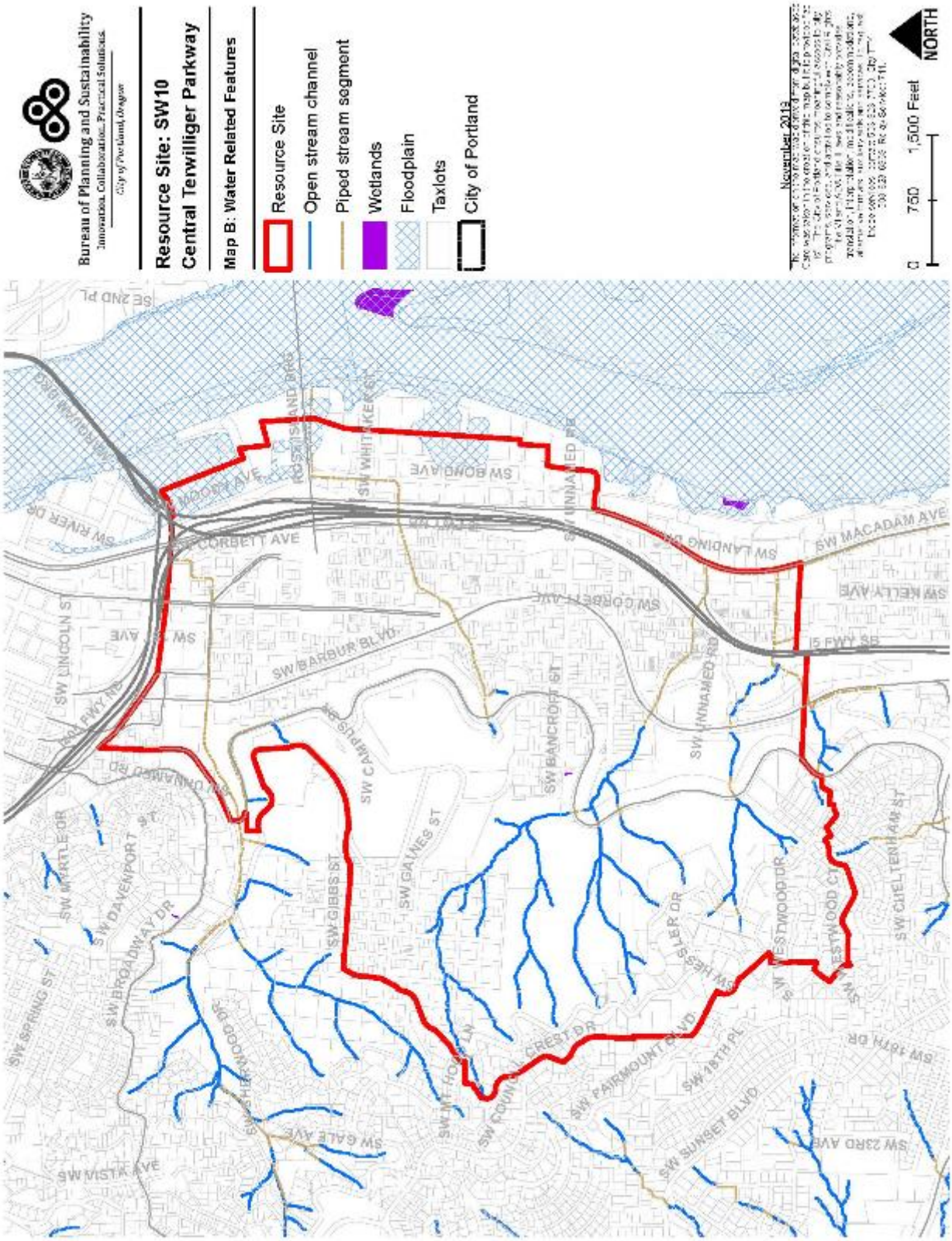
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW10 are:

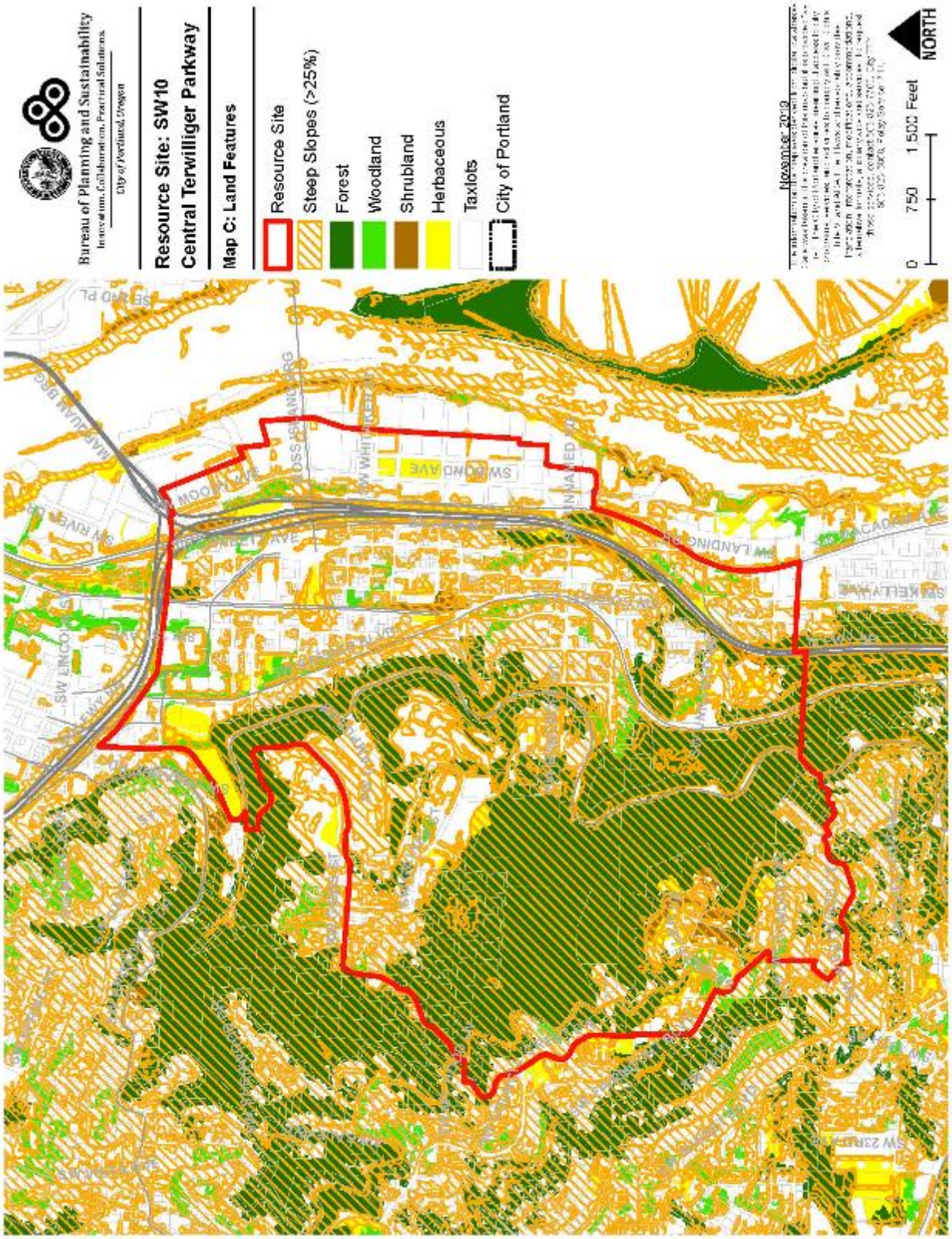
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank and land within 50 feet of stream top-of-bank.
2. *Strictly limit* conflicting uses within areas of forest vegetation on steep slopes adjacent to and west of SW Terwilliger Blvd right-of-way.
3. *Limit* conflicting uses within areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank, forest vegetation on steep slopes adjacent to and east of SW Terwilliger Blvd right-of-way, forest vegetation on steep slopes adjacent to SW Barbur Blvd or Interstate 5 right-of-way (both sides) and forest vegetation on steep slope in the EX base zone.
4. *Allow* conflicting uses within all other areas containing significant natural resources.

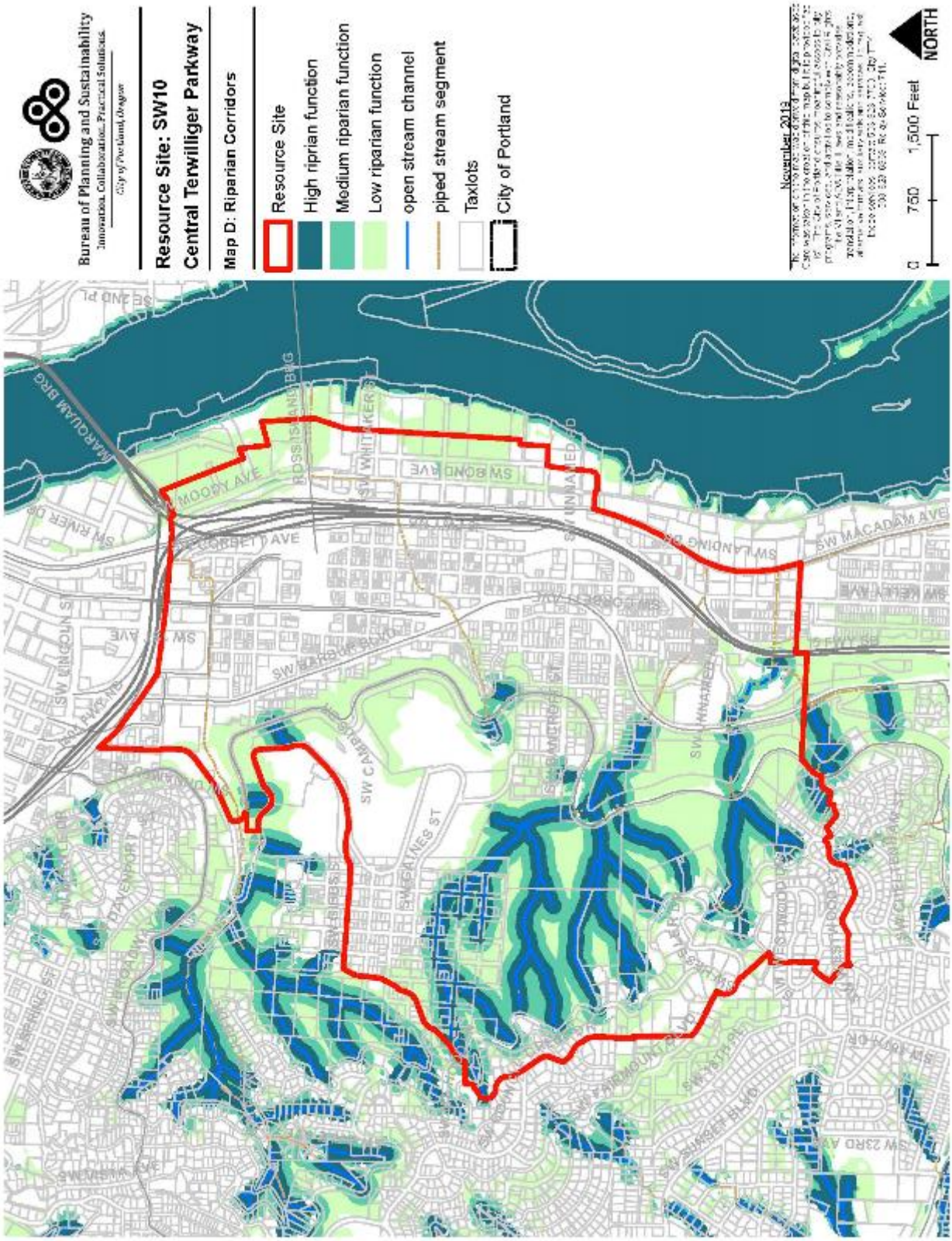
Table C: ESEE Decision for Resource Site SW10

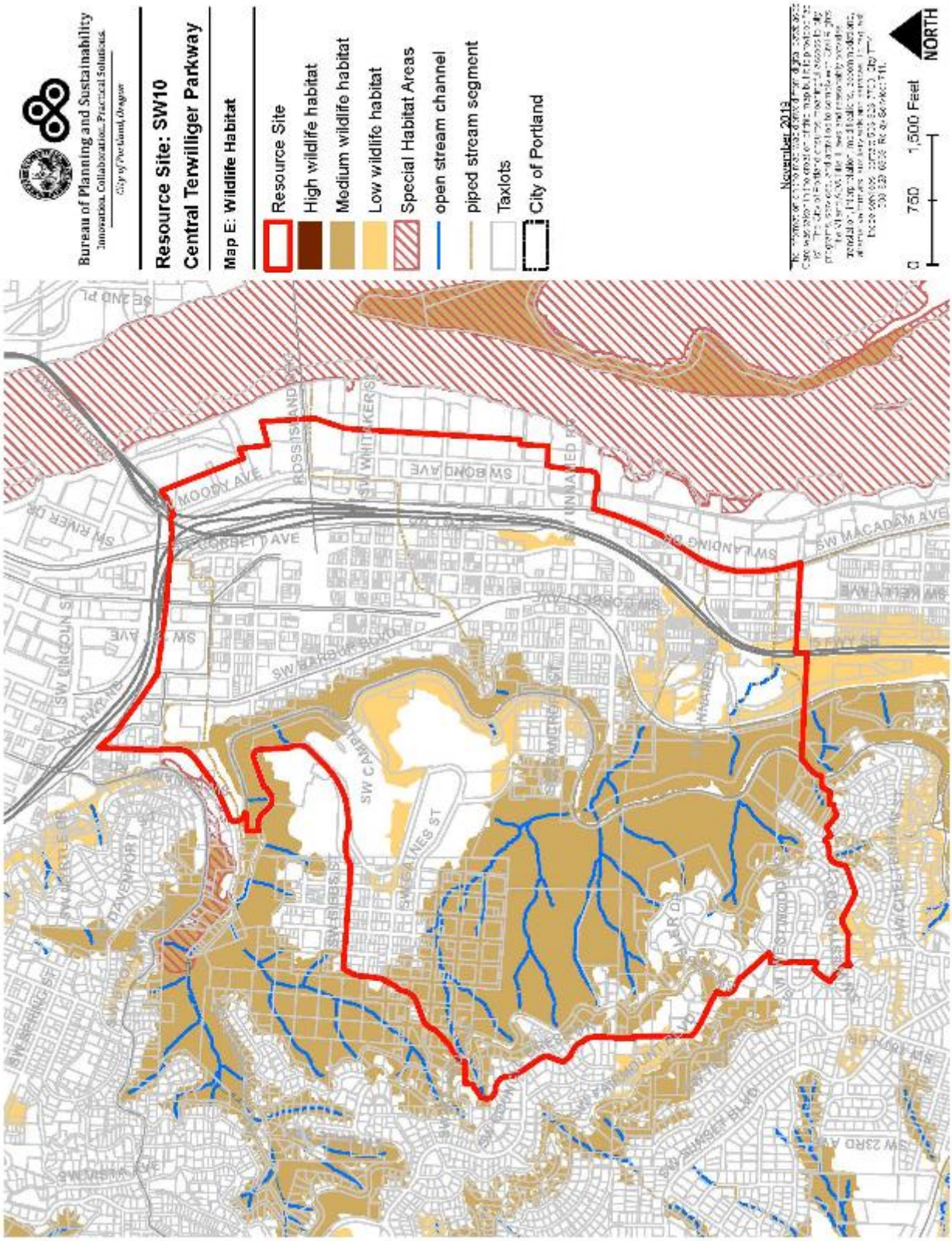
ESEE Decision	Acres
Strictly Limit	125.7
Limit	221.4
Allow	611.8

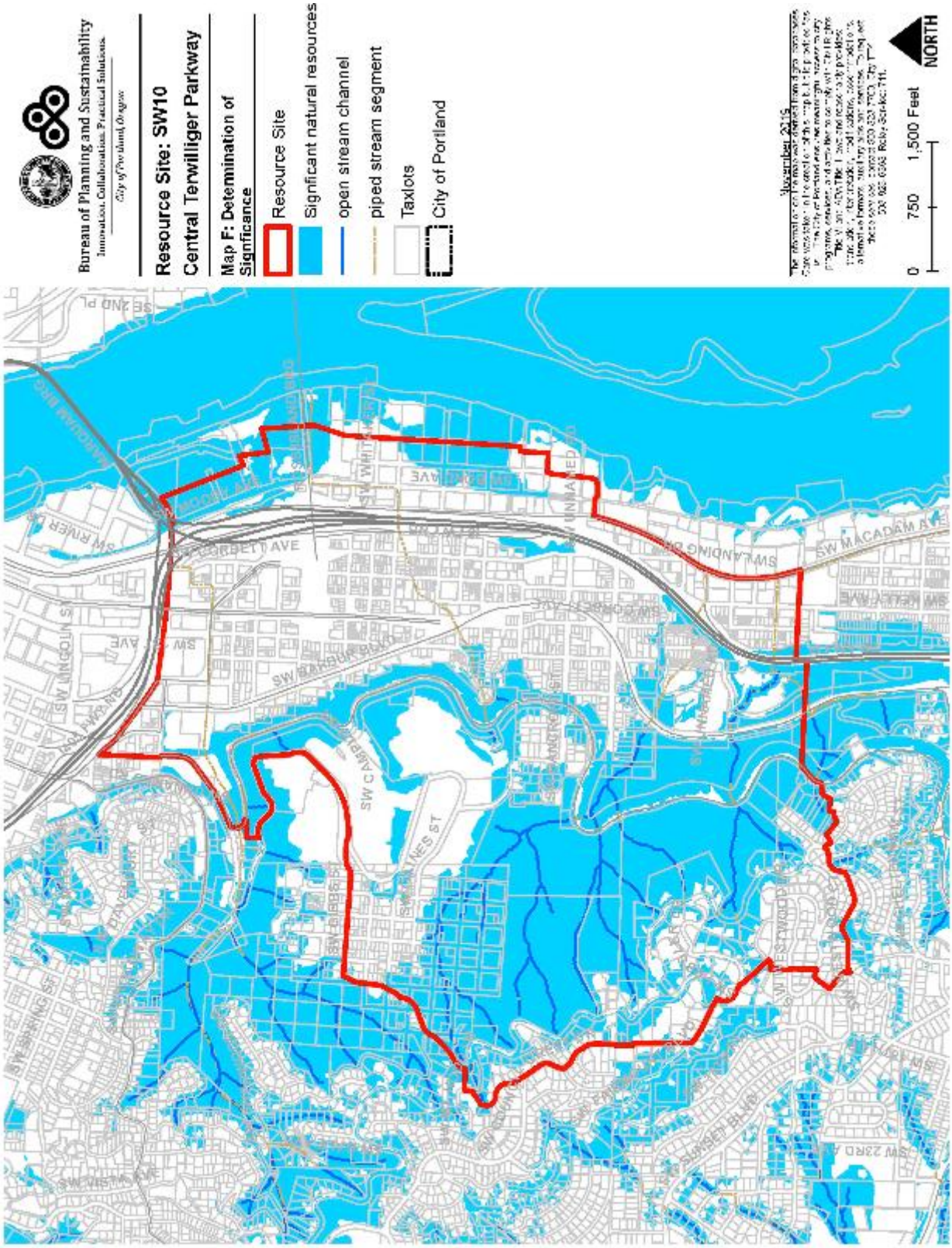

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW10
Central Terwilliger Parkway
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0 750 1,500 Feet
NORTH

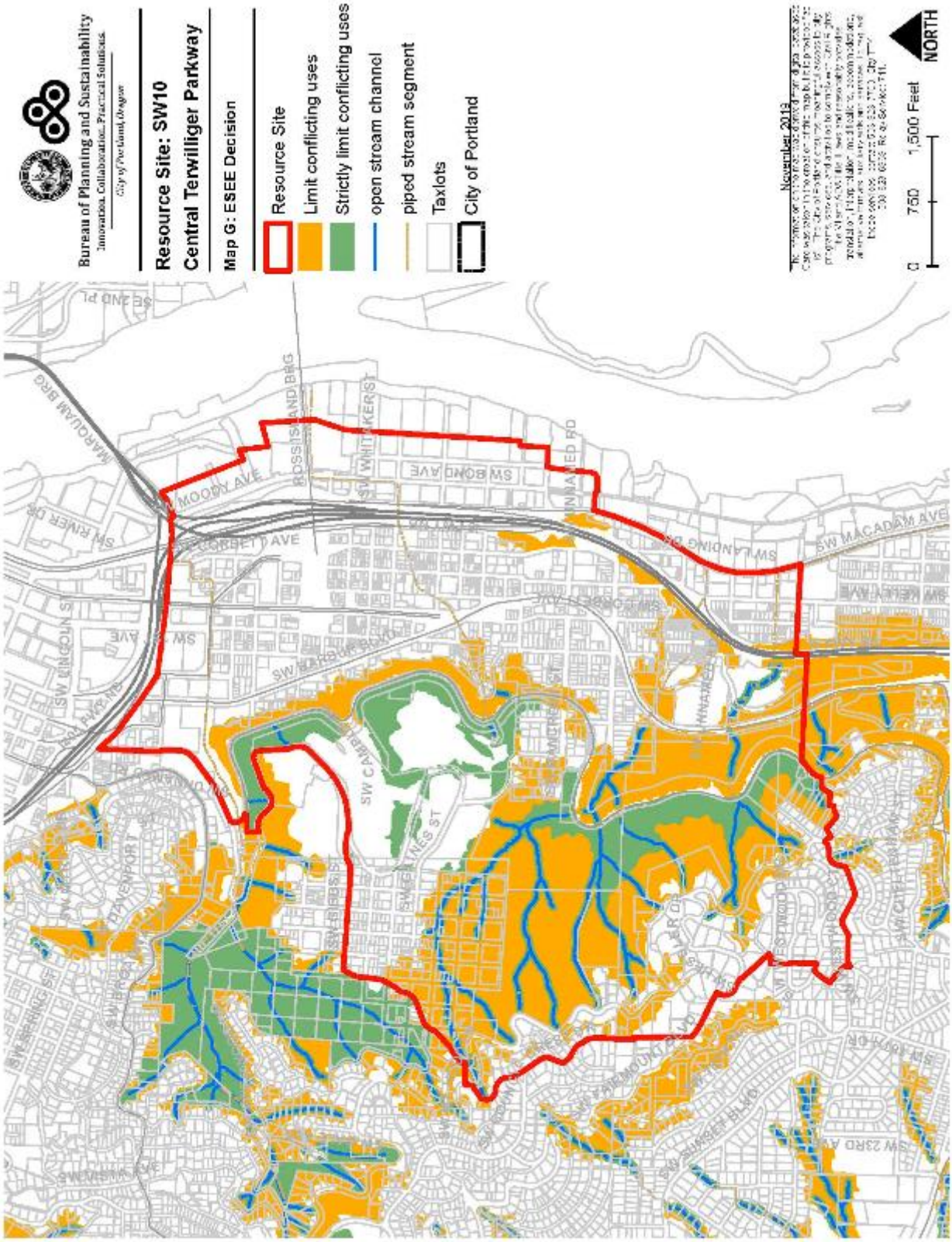

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW10
Central Terwilliger Parkway
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0 750 1,500 Feet
NORTH
SE 2ND PL
SW RIVER DR
SW CORBETT AVE
SW WHITTAKER ST
SW BOND AVE
SW LANDING DR
SW MACADAM AVE
SW KELLY AVE
I5 FWY SB
SW LINCOLN ST
SW BARBUR BLVD
SW CORBETT AVE
SW UNNAMED RD
SW CAMPUS DR
SW BANCROFT ST
SW GIBBS ST
SW GAINES ST
SW MARTLE DR
SW DAVENPORT ST
SW BROADWAY DR
SW SPRING ST
SW GALE AVE
SW WILSON AVE
SW CHELTENHAM ST
SW 19TH DR
SW 23RD AVE
SW PAIRMOUNT BLVD
SW 18TH PL
SW SUNSET BLVD
SW COUNTRY CREST DR


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW10
Central Terwilliger Parkway
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2019
0 750 1,500 Feet
NORTH


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW10
Central Terwilliger Parkway
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 750 1,500 Feet
NORTH
MARQUAM BRG
ROSSI ISLAND BRG
MOODY AVE
SW BOND AVE
SW MACADAM AVE
SW CORBETT AVE
SW LANDING DR
SW KINGSTON
SW CAMPUS
SW GAINES ST
SW 23RD AVE


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW10
Central Terwilliger Parkway
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 750 1,500 Feet
NORTH
MOODY AVE
SW BOND AVE
SW MACADAM AVE
SW CORBETT AVE
SW LANDING DR
SW KINGJUN ST
SW CAPITOL HWY
SW BARBUR BLVD
SW SEASIDE ST
SW 23RD AVE


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW10
Central Terwilliger Parkway
Map F: Determination of Significance
Resource Site
Significant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2015
0
750
1,500 Feet
NORTH
SW MACADAM AVE
SW LANDING DR
SW CORBETT AVE
SW BARBUR BLVD
SW LINCOLN ST
SW RIVER
SE 2ND PL
SW 22ND AVE


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW10
Central Terwilliger Parkway
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 750 1,500 Feet
NORTH
MARQUAM BRG
SE 2ND PL
ROSS ISLAND BRG
MOODY AVE
SW WHITTAKER ST
SW BOND AVE
NAMED RD
SW RIVER DR
SW CORBETT AVE
SW LANDING DR
SW MACADAM AVE
SW KINGSTON
SW BARBUR BLVD
SW CAPITOL HWY
SW SWEETHAVEN ST
SW DAVENPORT ST
SW 23RD AVE

Resource Site No.: SW11 **Site Name:** George Himes Park

Previous Plan: Southwest Hills Resource Protection Plan **Previous Resource Site No.:** 115

Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW11	
	Study Area
Stream (Miles)	0.4
Wetlands (acres)	0.4
Vegetated Areas >= 1/2 acre (acres)	198.5
Forest (acres)	178.1
Woodland (acres)	10.0
Shrubland (acres)	0.7
Herbaceous (acres)	9.7
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	290.1
Impervious Surface (acres)	256.3
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

This 472-acre site includes a portion of the Willamette River as well as uplands. The site is bisected east and west by Interstate 5 and Barbur Boulevard. The elevations are about 35 feet along the river, 450 feet in the the middle of the site (around George Himes Park), extending to 650 feet near Westwood Drive. A major break in the west hills occurs in this site where Capitol Hwy. and George Himes Park are located. This natural draw is a part of the Sentinel Hill Fulton drainage where a perennial creek is located. This site has the greatest diversity of land uses. The resources are typically intermingled with developed residential areas or open space designated areas. There is, however, an approximately 20-acre resource area located west of Barbur. The western half of the site is generally developed with residential neighborhoods on hillsides made up with single-family homes built in the 1950's. Wilson High School is located on the southwest corner of the site.

This site includes 6,000 feet of the Willamette River shoreline (from Boundary St. to south of Miles St.) and the river terrace (shore line to Corbett St.). Thirteen seasonal creeks and one perennial creek occur on this site with associated springs and riparian and upland forests. The creeks are dispersed across the site and intermingle with established neighborhoods except for the 20-acre site west of Barbur that is undeveloped. This site is primarily forested, has three seasonal streams and has a 40 percent slope. Ralston, an unbuilt street, runs through the site between Barbur and Terwilliger Boulevards.

The upland area is a western hemlock forest. The forest canopy is 80 to 90 percent closed and the dominant trees are bigleaf maple and Douglas fir. Generally, the forest is 10 percent coniferous with greater amounts of Douglas fir located higher in the basin and along NW Nebraska Street in George Himes Park. The forest includes old Douglas fir (over 36" dbh). The shrub layer is 30 percent closed and the herbaceous layer is 90 percent closed.

George Himes Park is 35 acres in size and is located in the middle of the 472-acre site. Four of the seasonal creeks are located in the park. The longest of the creeks extends east through the park, under Barbur Boulevard and Interstate 5 (I-5), and into the Corbett neighborhood near Iowa and Corbett Streets. Both a wildlife and a pedestrian link exists. The park commemorates George Himes, an early pioneer, with a monument located in the park.

There is little habitat connection for terrestrial animals between the Willamette River and elsewhere in the study area due to obstacles such as I-5 and Barbur Boulevard. The bridges over I-5 and Barbur Boulevard provide a pedestrian link to the Corbett neighborhood. Between Corbett Street and the river, there are no habitat connections. There is, however, a strong avian link between the upland areas of the site (plus points farther west) and the river. Birds such as great blue heron, kingfisher and osprey travel west from the river via this site through the natural break in the West Hills.

The confluence of Stephens Creek and the Willamette River occurs on the southeast corner of this site where a wetland is located (Stephens Creek flows south of Interstate 5 in Site 117). The wetland is about 1,000 square feet in size and designated on the National Wetland Inventory (PFO1W).

In addition to George Himes Park, the southern section of the Terwilliger Parkway is located in Site SW11. It serves as a significant wildlife, scenic and recreation corridor that contributes to the livability of the city, as well as the immediate area. (See Site SW10 for more resource information on Terwilliger.)

Table B: Quality of Natural Resource Functions in Resource Site SW11				
Resource Site (acres) = 502.279214				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	41.2	33.6	96.4	171.2
percent total inventory site area	8.2%	6.7%	19.2%	34.1%
Wildlife Habitat*				
acres	0.0	96.3	72.5	168.8
percent total inventory site area	0.0%	19.2%	14.4%	33.6%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total+				
acres	41.2	64.7	74.5	180.4
percent total inventory site area	8.2%	12.9%	14.8%	35.9%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW11 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetlands; forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R10, R7, R5, R2 and R1 base zones. Commercial uses are allowed in the CM2 and CM1 base zone. Institutional uses are allowed in the IR base zone. Open space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW11, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

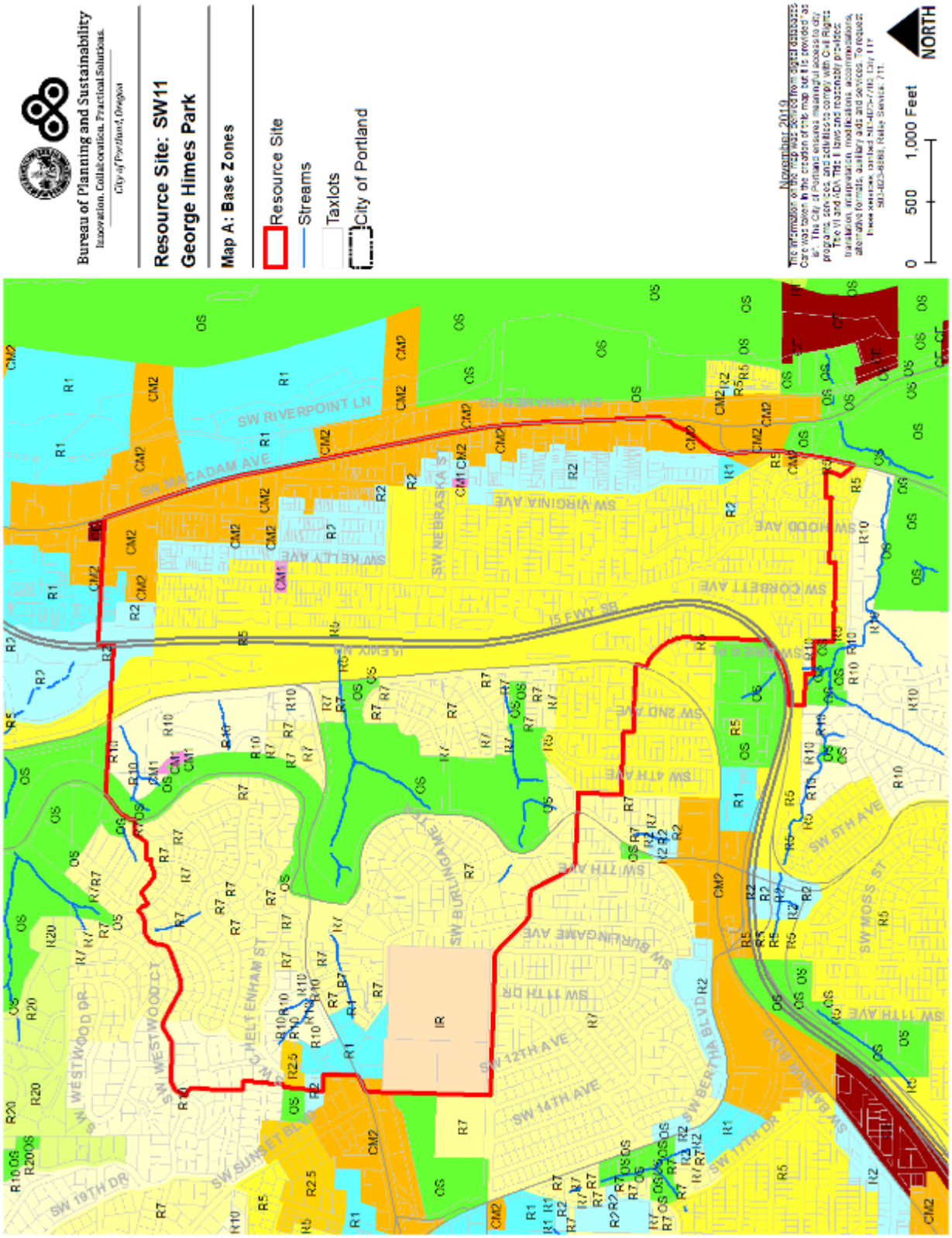
ESEE Decisions

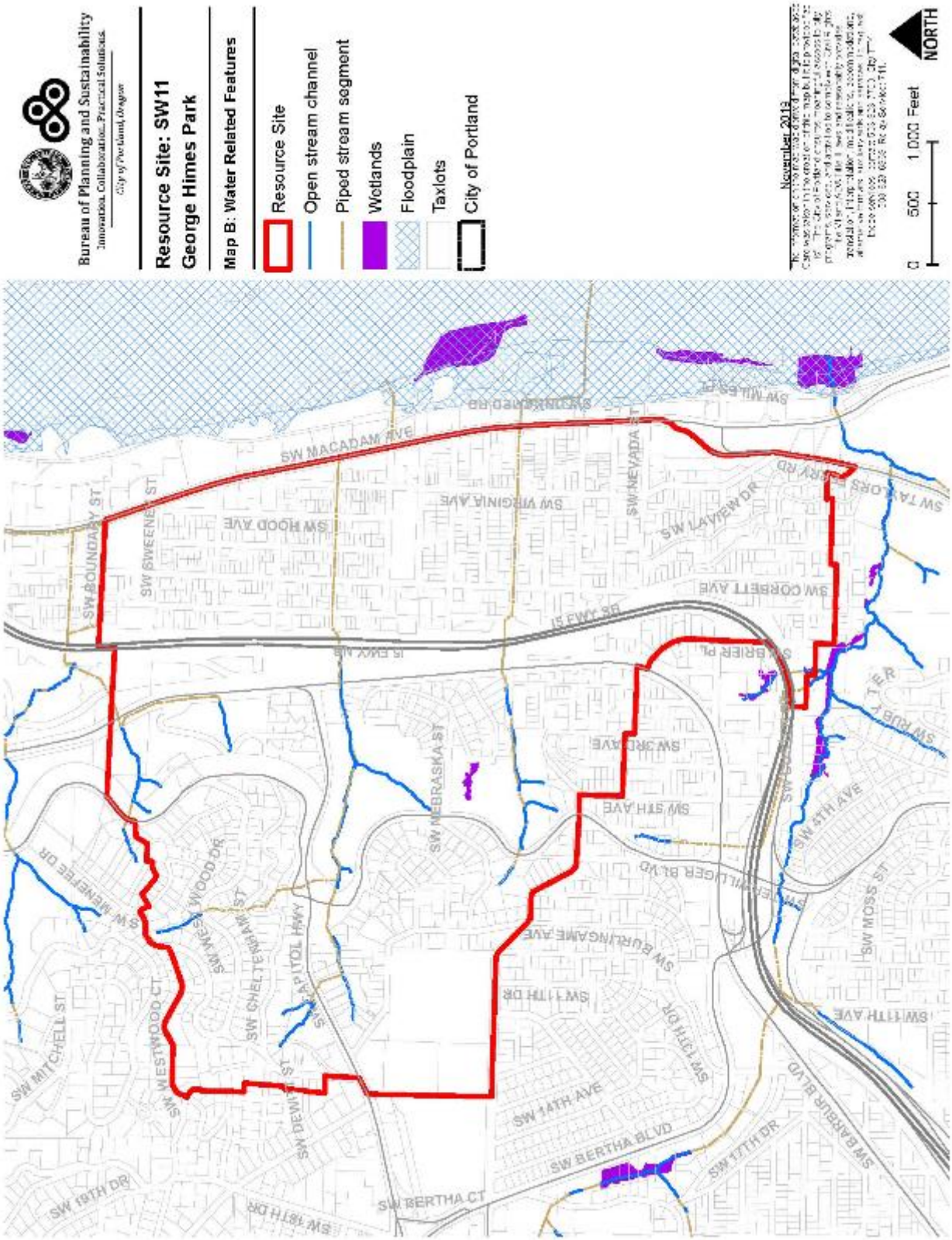
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW11 are:

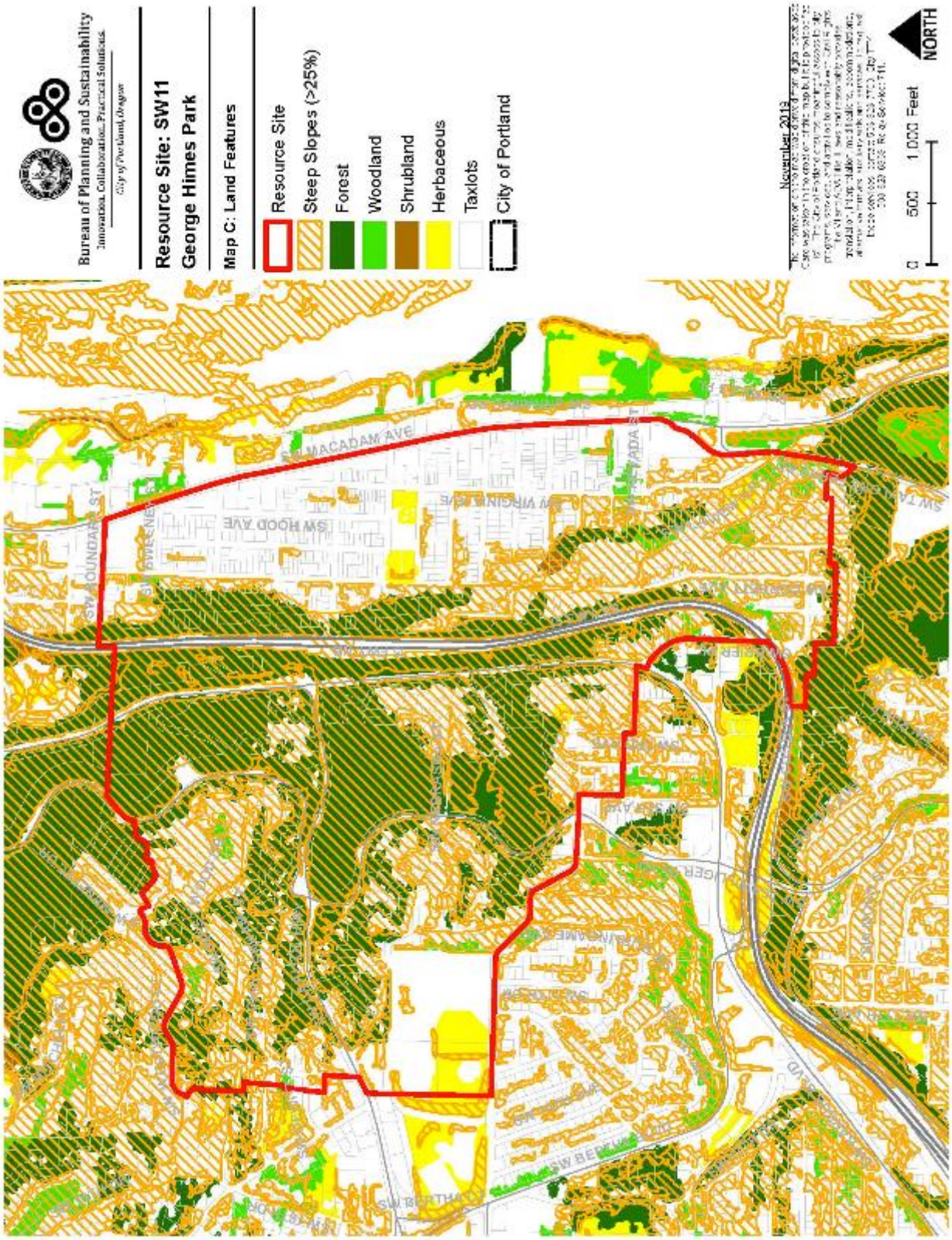
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank and land within 50 feet of stream top-of-bank.
2. Inside George Himes park, s*trictly limit* conflicting uses within areas of forest vegetation contiguous to but more than 50 feet from stream top-of-bank.
3. Outside of George Himes Park, *limit* conflicting uses within areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank extending to 100 feet from top-of-bank and forest vegetation on steep slopes that is adjacent to SW Terwilliger Blvd, SW Barbur Blvd or Interstate 5 right-of-way.
4. *Limit* conflicting uses within areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank, forest vegetation on steep slopes adjacent to and east of SW Terwilliger Blvd right-of-way, forest vegetation on steep slopes adjacent to SW Barbur Blvd or Interstate 5 right-of-way (both sides).
5. *Allow* conflicting uses within all other areas containing significant natural resources.

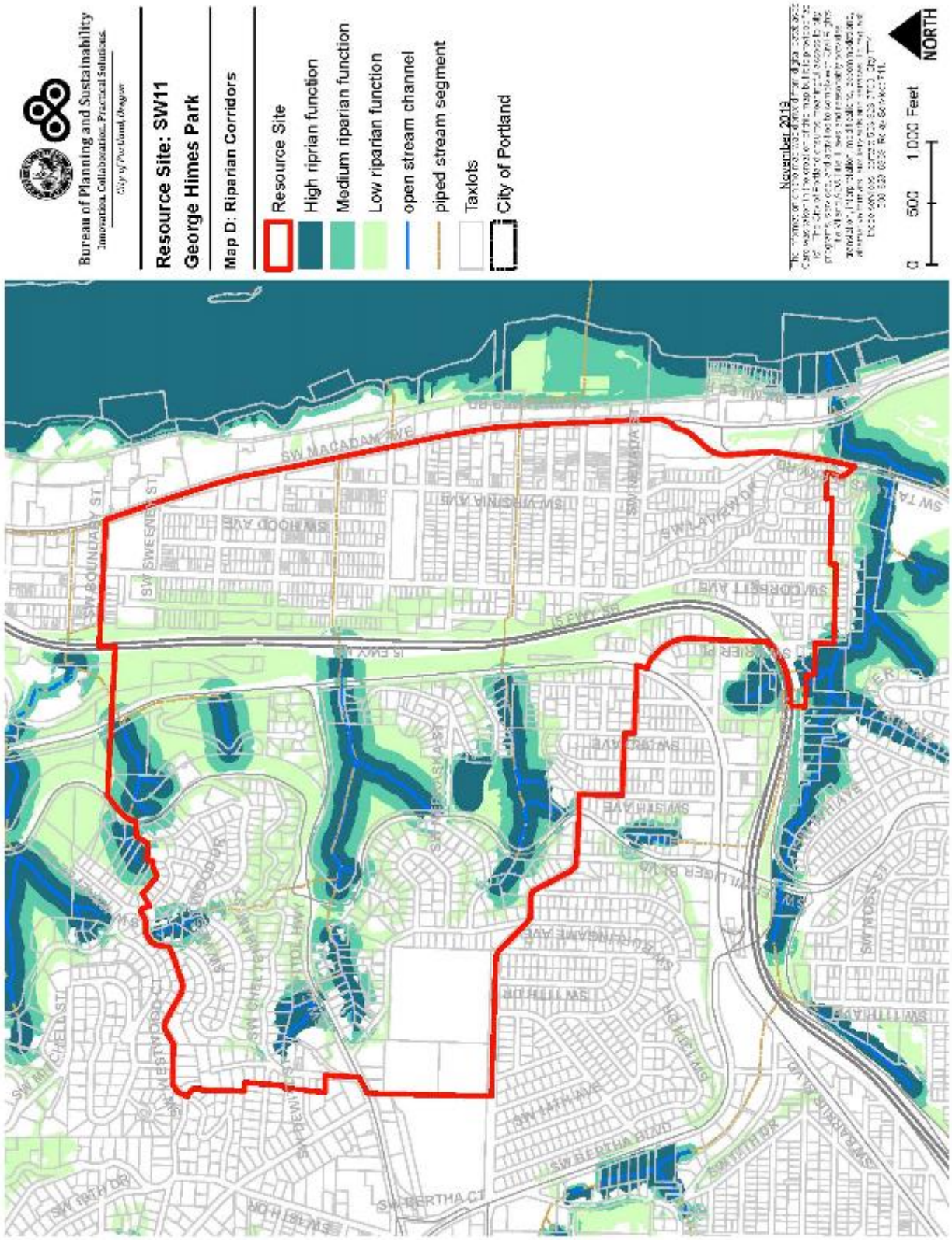
Table C: ESEE Decision for Resource Site SW11

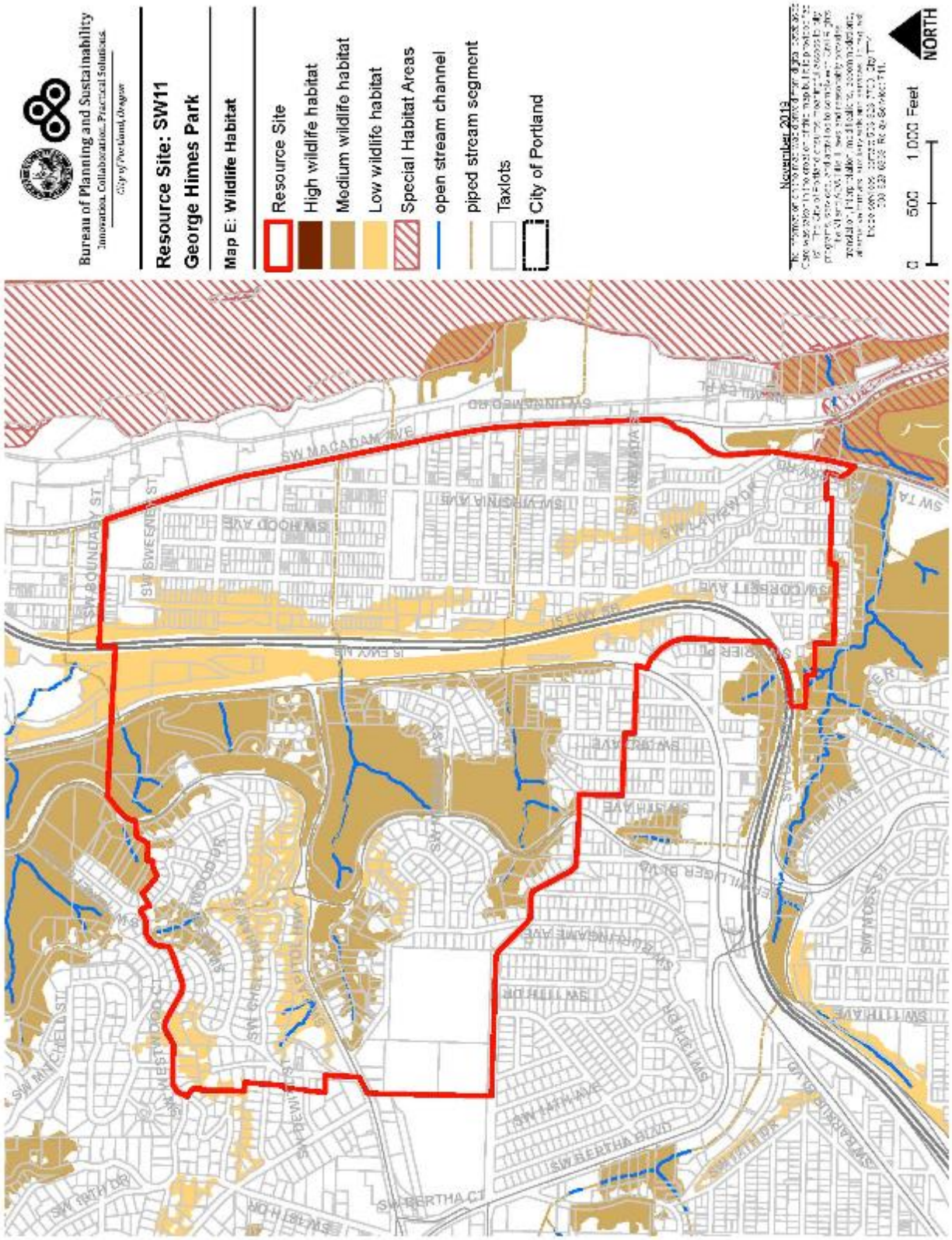
ESEE Decision	Acres
Strictly Limit	45.4
Limit	111.9
Allow	344.9

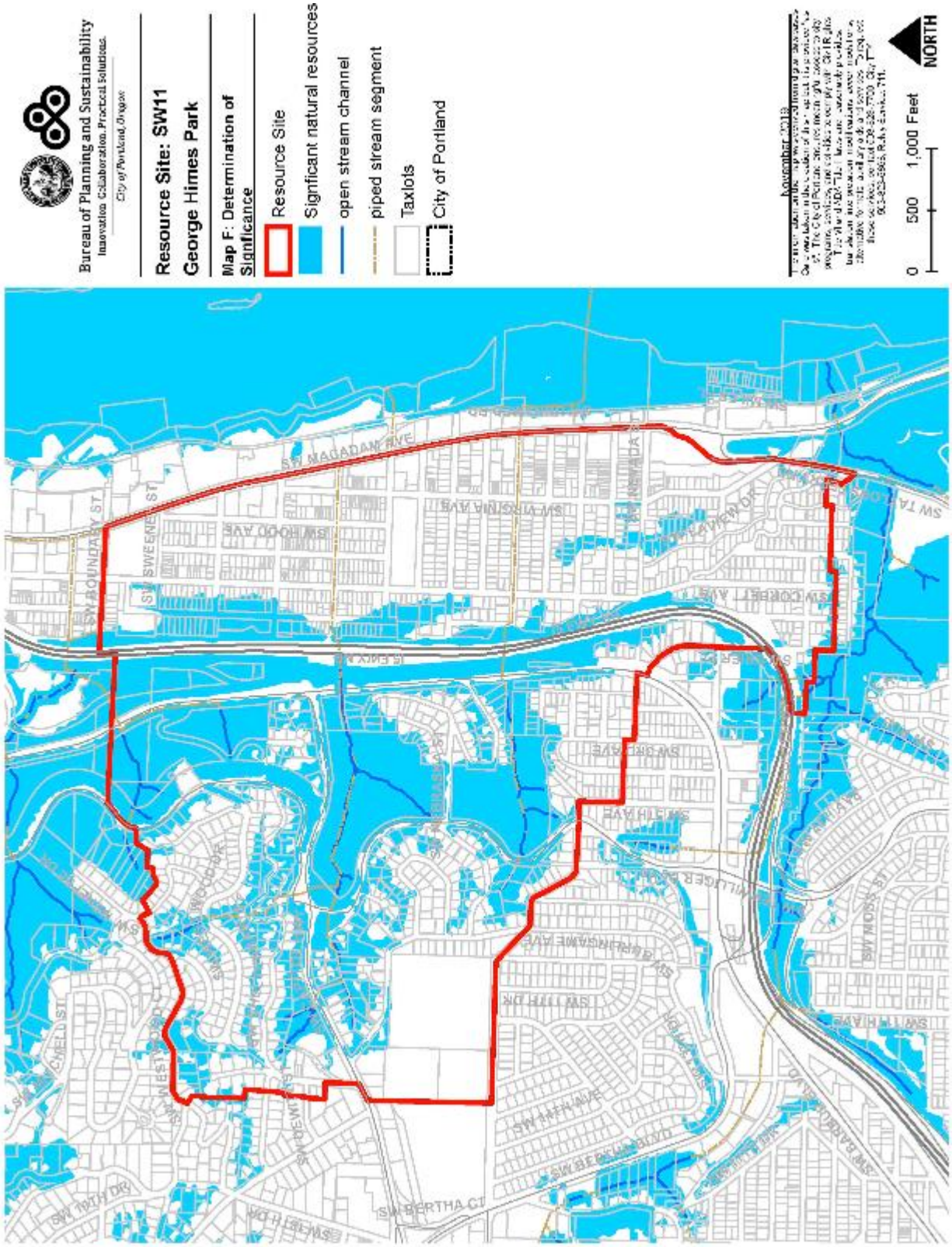

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW11
George Himes Park
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0 500 1,000 Feet
NORTH
SW RIVERPOINT LN
SW MACADAM AVE
SW NEBRASKA ST
SW VIRGINIA AVE
SW HOOD AVE
SW CORBETT AVE
SW 2ND AVE
SW 4TH AVE
SW 5TH AVE
SW MOSS ST
SW 11TH AVE
SW 11TH DR
SW 12TH AVE
SW 14TH AVE
SW 17TH DR
SW BURLINGAME AVE
SW BERTHA BLVD
SW BARBUR BLVD
SW 19TH DR
SW SUNSET BLVD
SW WESTWOOD DR
SW WESTWOOD CT
SW CHELTENHAM ST
SW MELLO AVE
I5 FWY SB

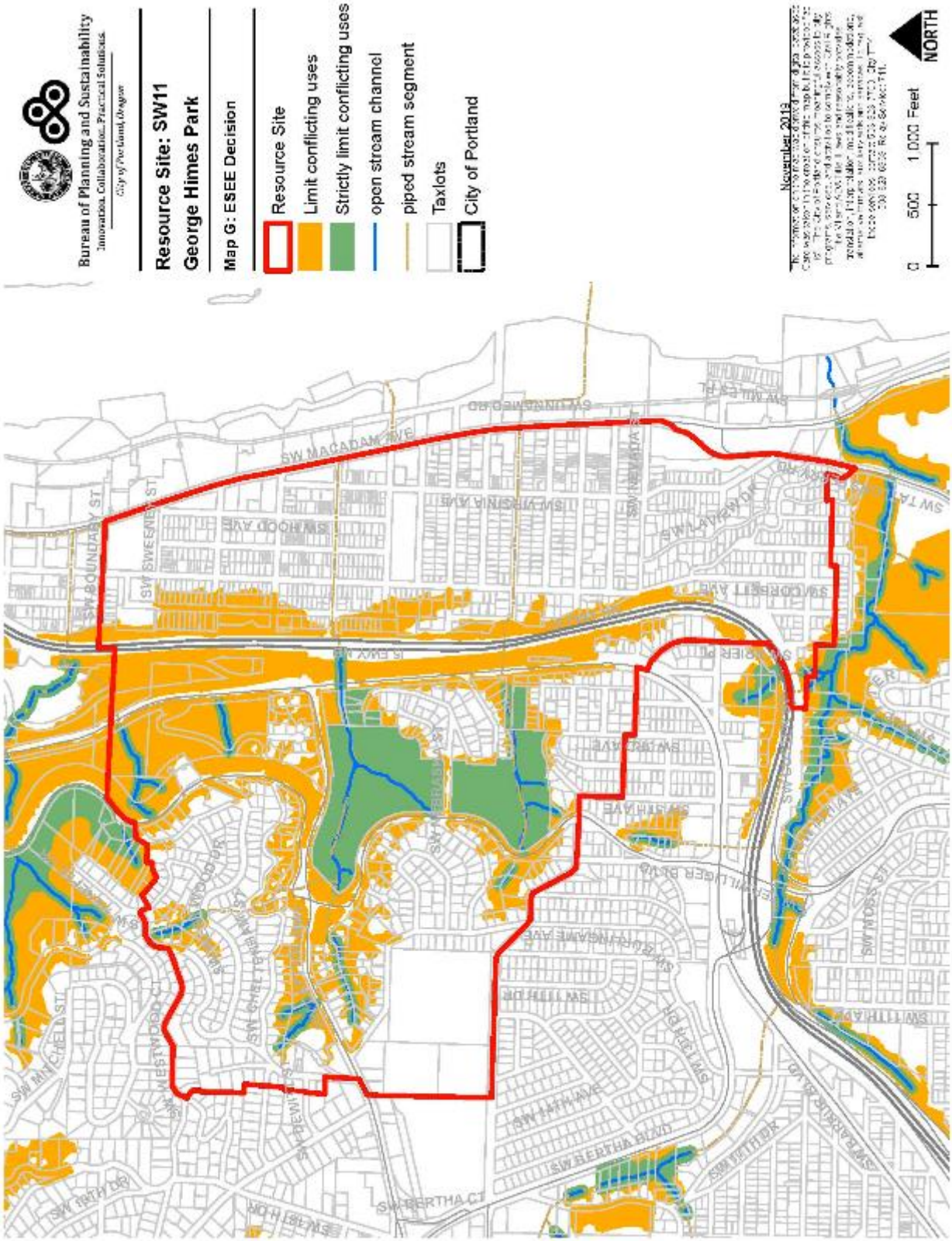

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW11
George Himes Park
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0 500 1,000 Feet
NORTH
SW MACADAM AVE
SW BOUNDARY ST
SW SWEENEY ST
SW HOOD AVE
SW VIRGINIA AVE
SW NEVADA ST
SW LAYVIEW DR
SW CORBETT AVE
SW BRIER PL
SW 3RD AVE
SW 5TH AVE
SW NEBRASKA ST
SW 4TH AVE
SW MOSS ST
SW 11TH AVE
SW 11TH DR
SW 14TH AVE
SW BERTHA BLVD
SW BERTHA CT
SW 17TH DR
SW 18TH DR
SW 19TH DR
SW MITCHELL ST
SW WESTWOOD CT
SW WESTWOOD DR
SW CHELTENHAM ST
SW CAPITOL HWY
SW DEWITT ST
SW MENEFEE DR
SW BURLINGAME AVE
SW BARBUR BLVD


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW11
George Himes Park
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2019
0 500 1,000 Feet
NORTH
SW MACADAM AVE
SW HOOD AVE
SW BOUNDARY ST
SW BERTHA


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW11
George Himes Park
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 500 1,000 Feet
NORTH
SW MACADAM AVE
SW BOUNDARY ST
SW SWEENEY ST
SW HOOD AVE
SW VIRGINIA AVE
SW NEBRASKA AVE
SW CORBETT AVE
SW TAYLORS FERRY RD
SW BERTHA BLVD
SW BERTHA CT
SW MITCHELL ST
SW WESTWOOD DR
SW CHELTON DR
SW TOLL HWY
SW MOSS ST
SW 11TH AVE
SW 11TH DR

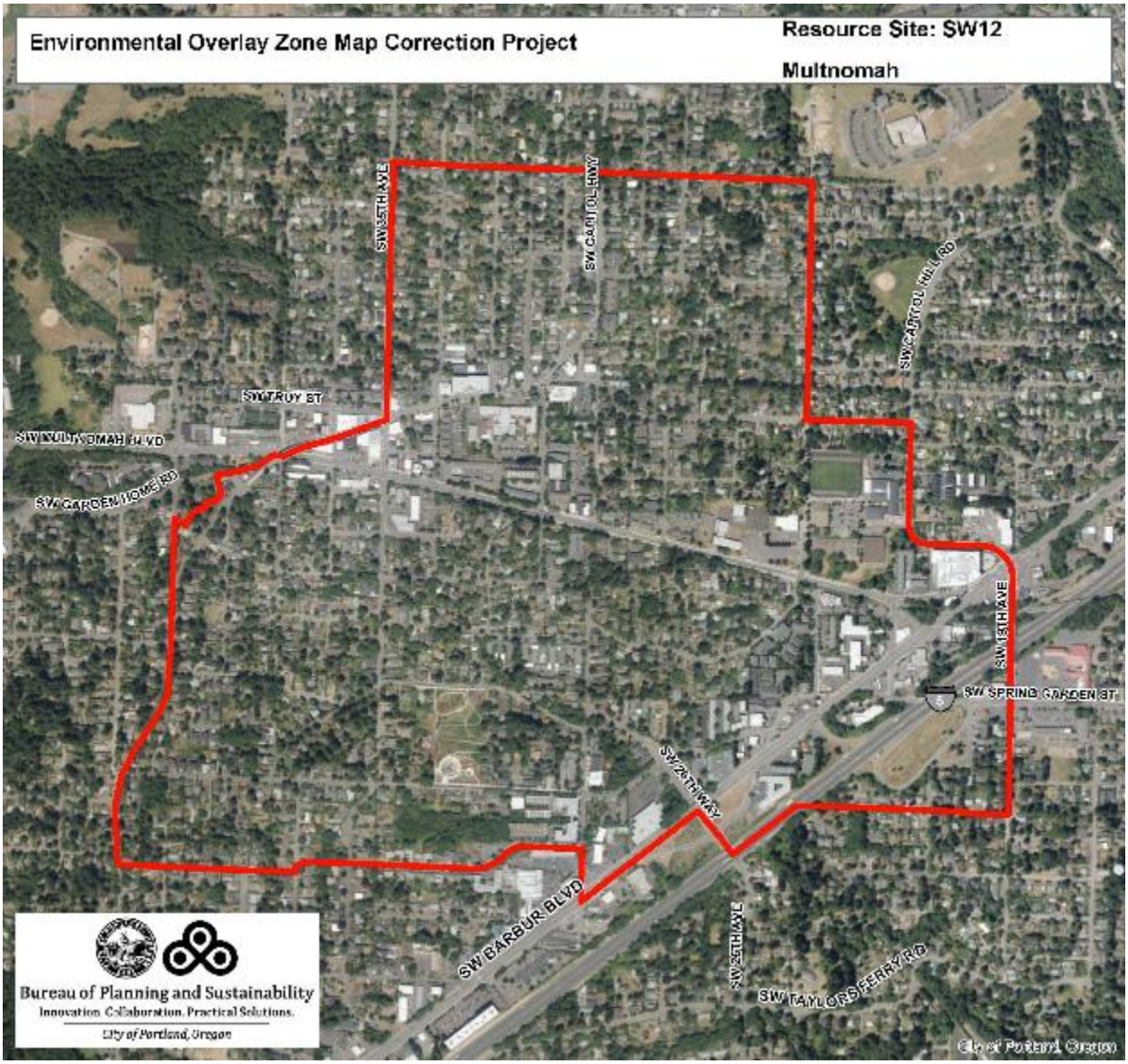

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW11
George Himes Park
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 500 1,000 Feet
NORTH
SW MACADAM AVE
SW BOUNDARY ST
SW SWEENEY ST
SW HOOD AVE
SW VIRGINIA AVE
SW CORBETT AVE
SW TAYLORS FERRY RD
SW MINCHELL ST
SW BERTHA BLVD
SW BERTHA CT


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW11
George Himes Park
Map F: Determination of Significance
Resource Site
Signficant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
500
1,000 Feet
NORTH
SW MACADAM AVE
SW BOUNDARY ST
SW SWEENEY ST
SW HOOD AVE
SW VIRGINIA AVE
SW NEVADA ST
SW CORBETT AVE
SW BERTHA CT
SW BERTHA BLVD
SW MOSS ST
SW 11TH DR
SW 10TH DR


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW11
George Himes Park
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
500
1,000 Feet
NORTH
SW MACADAM AVE
SW BOUNDARY ST
SW SWEENEY ST
SW HOOD AVE
SW VIRGINIA AVE
SW CORBETT AVE
SW LANCASTER RD
I-5 FWY
SW TERWILLIGER BLVD
SW MITCHELL ST
SW BERTHA BLVD
SW BERTHA CT
SW TAYLORS FERRY RD

Resource Site No.: SW12 **Site Name:** Multnomah

Previous Plan: Southwest Hills Resource Protection Plan **Previous Resource Site No.:** 118



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW12	
	Study Area
Stream (Miles)	2.5
Wetlands (acres)	2.2
Vegetated Areas >= 1/2 acre (acres)	86.0
Forest (acres)	9.6
Woodland (acres)	51.3
Shrubland (acres)	2.3
Herbaceous (acres)	22.7
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	72.5
Impervious Surface (acres)	178.8
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

There are two significant natural areas within Site SW12. They are between two and four acres in area and form part of a 320-acre drainage basin. The remainder of the creek has been piped until it passes under Interstate 5. From I-5, the creek re-emerges as an open system again and joins with Falling Creek which is the drainage off of the hills north of Mt. Sylvania. Site SW12 creek and Falling Creek are part of Tryon Creek's 4,477-acre drainage basin.

This relatively small creek, wetlands and pond system provides storm drainage, sediment trapping and forms an enclave for resident wildlife. Typha willow and salamanders live here. The creek banks have native ash and non-native willow trees. Blackberry, willow and grass species form the understory. The riparian vegetation along the waterway forms an urban edge and gives a sense of place. The water provides potential recreation for the children of the area. These environmental qualities contribute to the neighborhood's identity. This site received a wildlife habitat score of 50, the lowest score in the study area. The low score reflects how the habitat has been compromised as a result of development. The scarcity of remaining habitat in this part of the city should be a considered in the ESEE analysis.

Table B: Quality of Natural Resource Functions in Resource Site SW12				
Resource Site (acres) = 407.107917				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	9.7	13.7	16.8	40.2
percent total inventory site area	2.4%	3.4%	4.1%	9.9%
Wildlife Habitat*				
acres	0.0	0.0	3.0	3.0
percent total inventory site area	0.0%	0.0%	0.7%	0.7%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total+				
acres	9.7	13.7	17.8	41.2
percent total inventory site area	2.4%	3.4%	4.4%	10.1%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW12 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetlands; forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R7, R5, R2.5, R2 and R1 base zones. Commercial uses are allowed in the CE, CM2 and CM1 base zone. Employment uses are allowed in the EG2 base zone. Open Space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW12, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

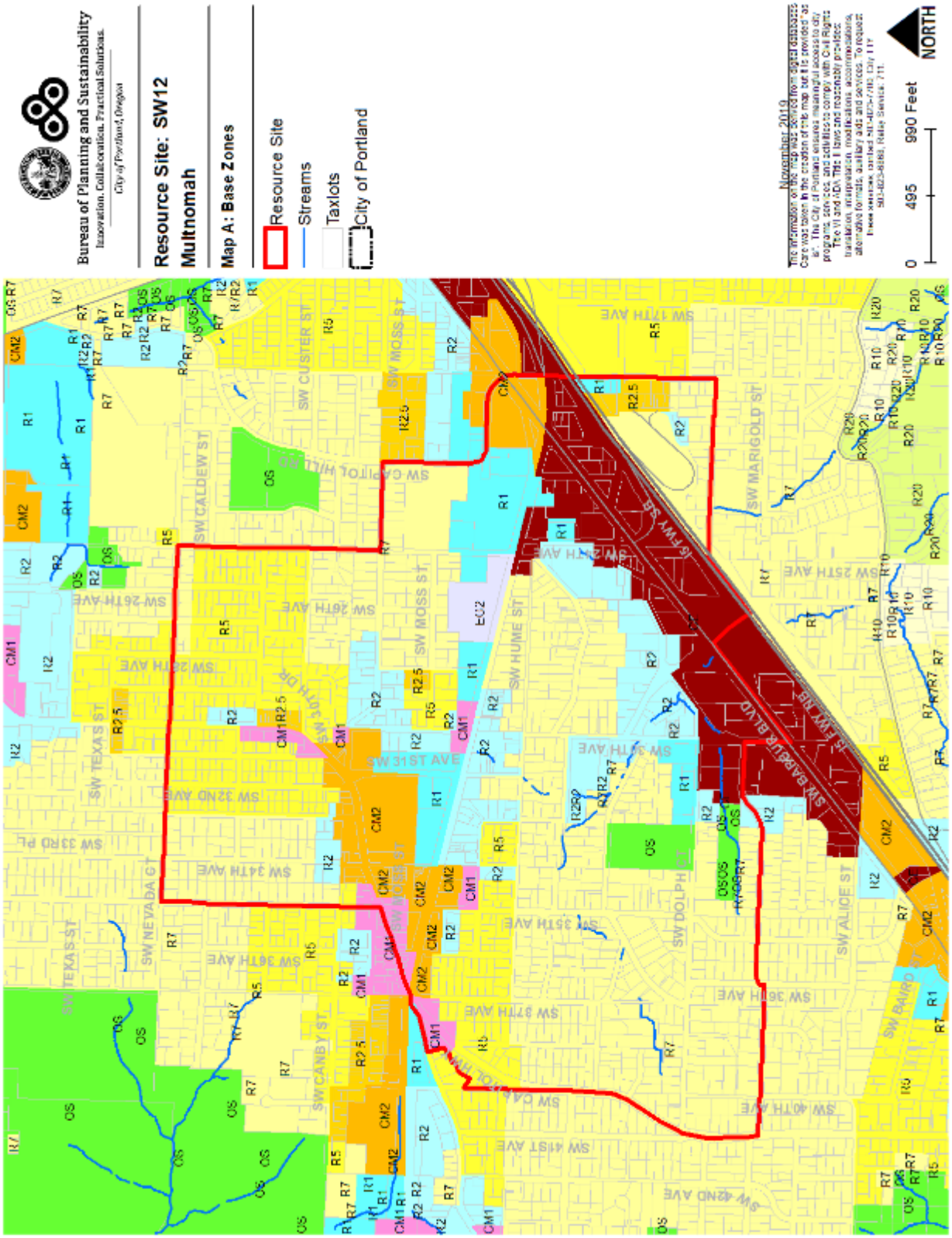
ESEE Decisions

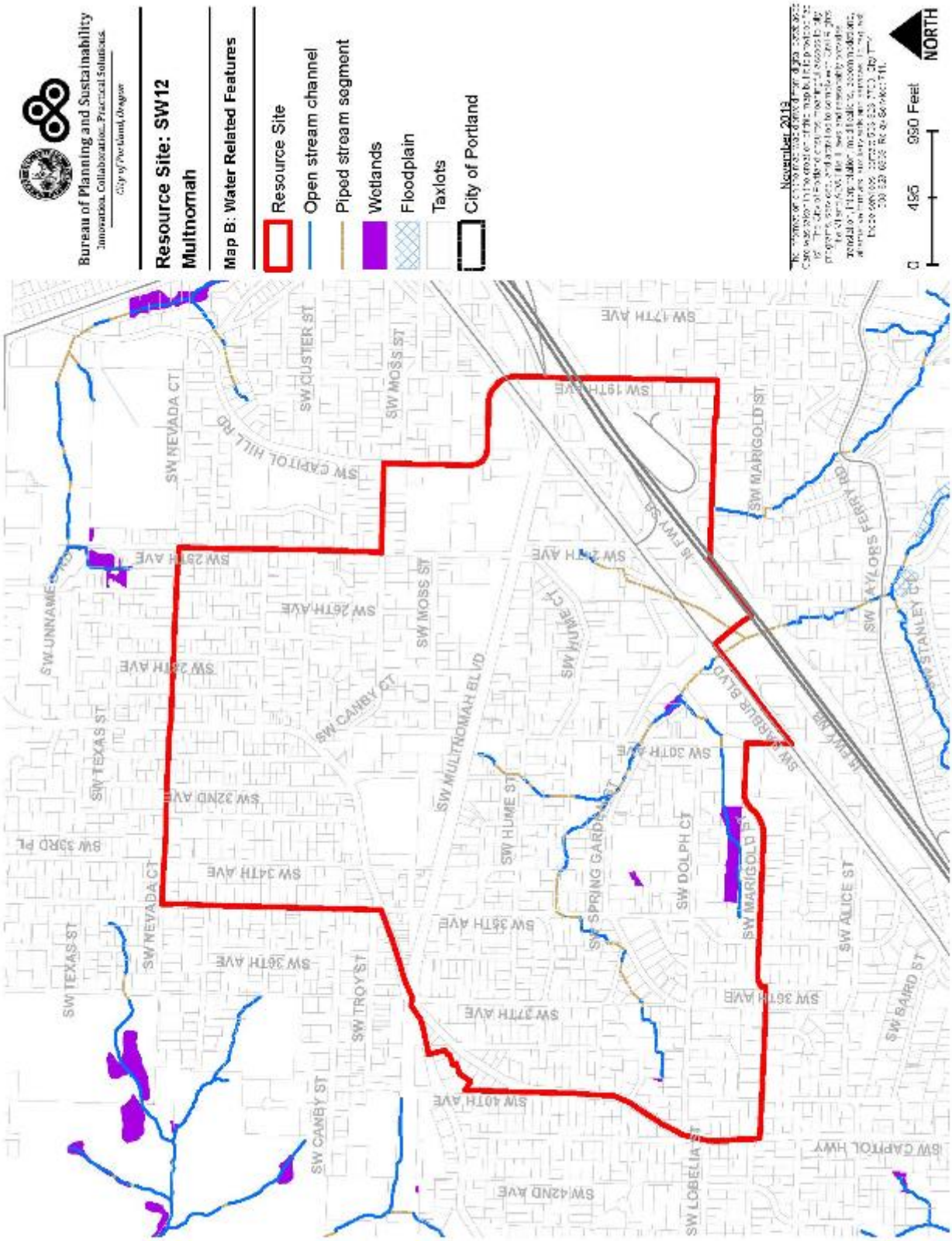
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW12 are:

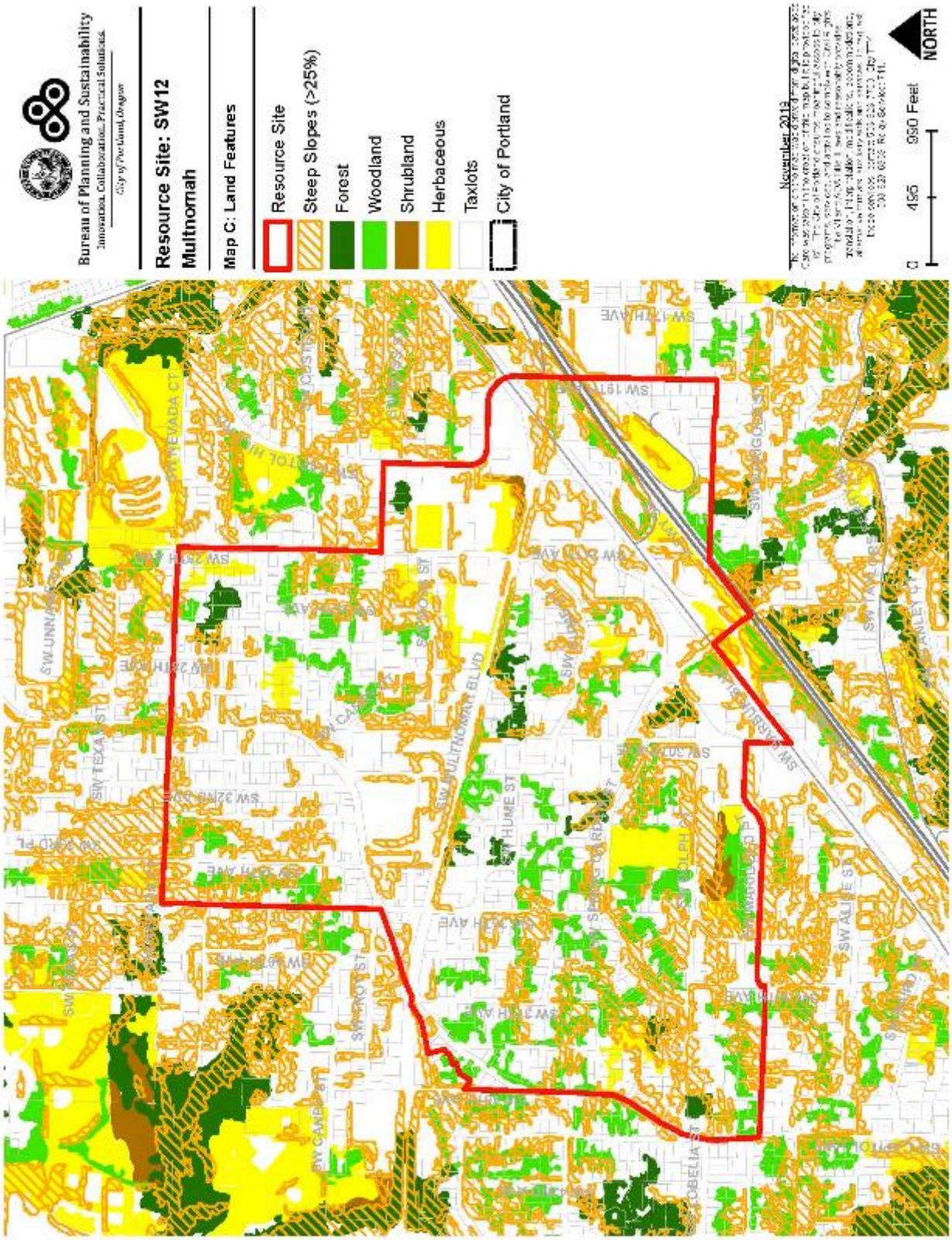
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, land within 25 feet of stream top-of-bank and land within 50 feet of wetlands.

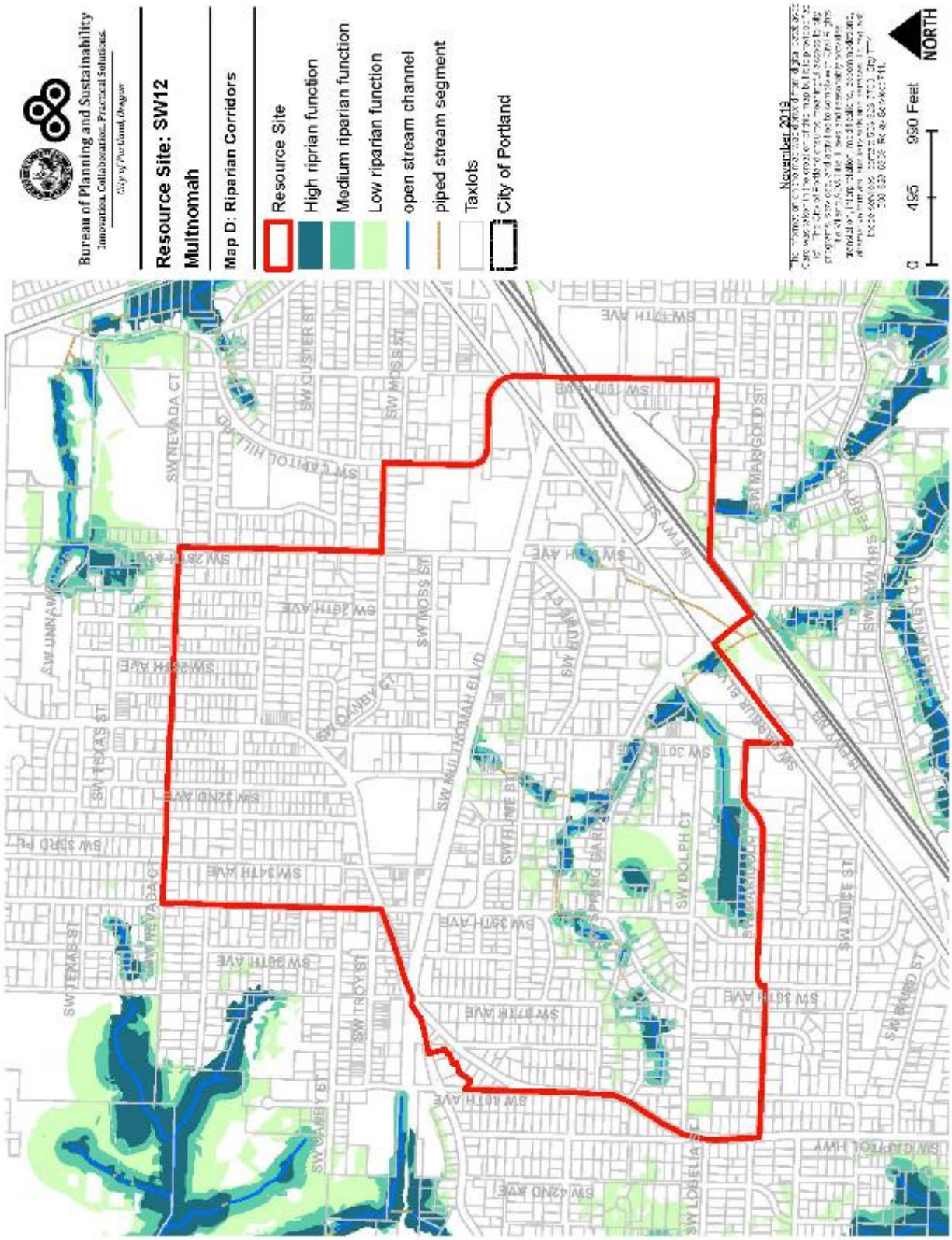
2. *Limit* conflicting uses on land between 25 and 75 feet of stream top-of-bank and on land within 50 and 75 feet of wetlands.
3. *Allow* conflicting uses within all other areas containing significant natural resources.

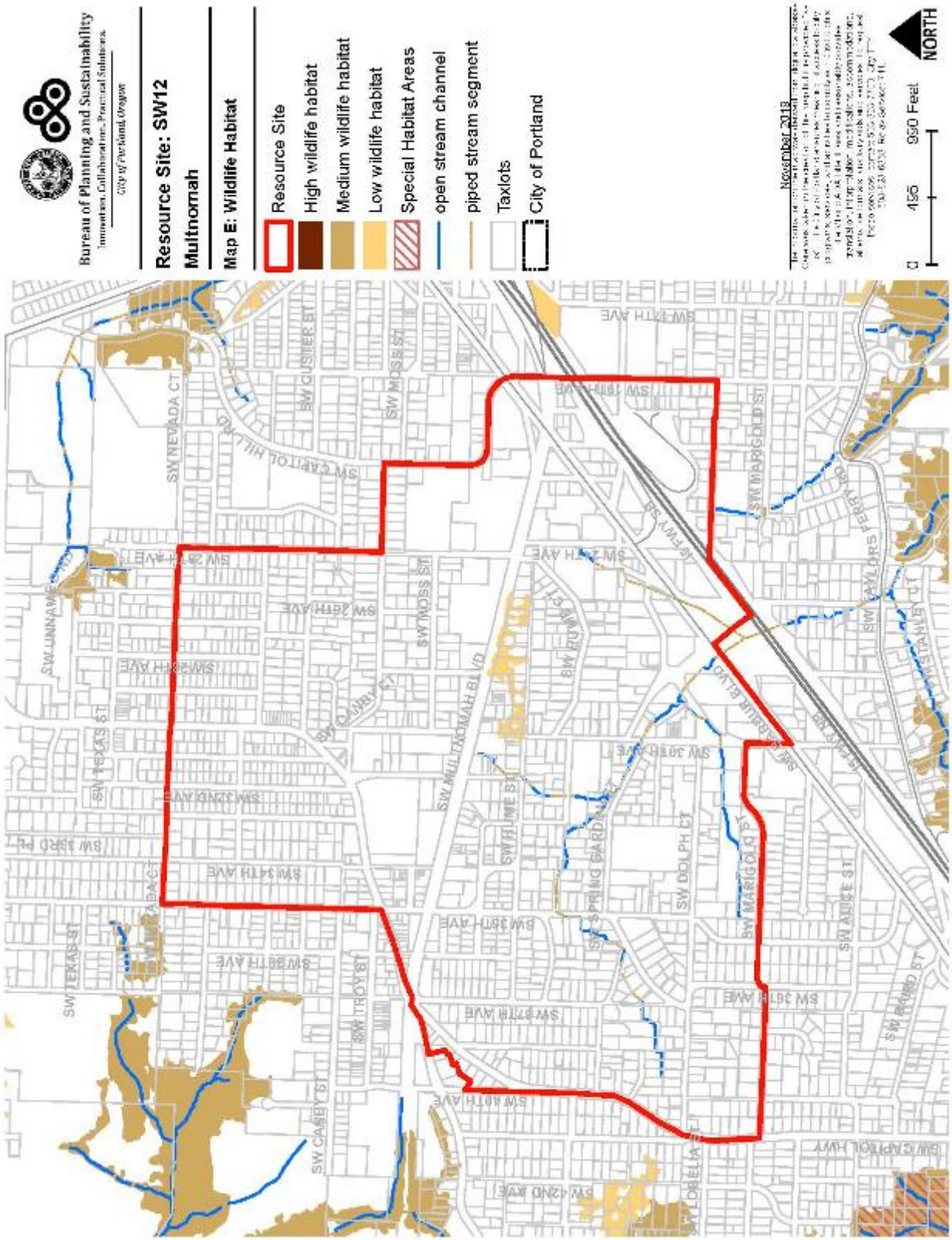
Table C: ESEE Decision for Resource Site SW12	
ESEE Decision	**Acres**
Strictly Limit	11.5
Limit	8.2
Allow	387.4

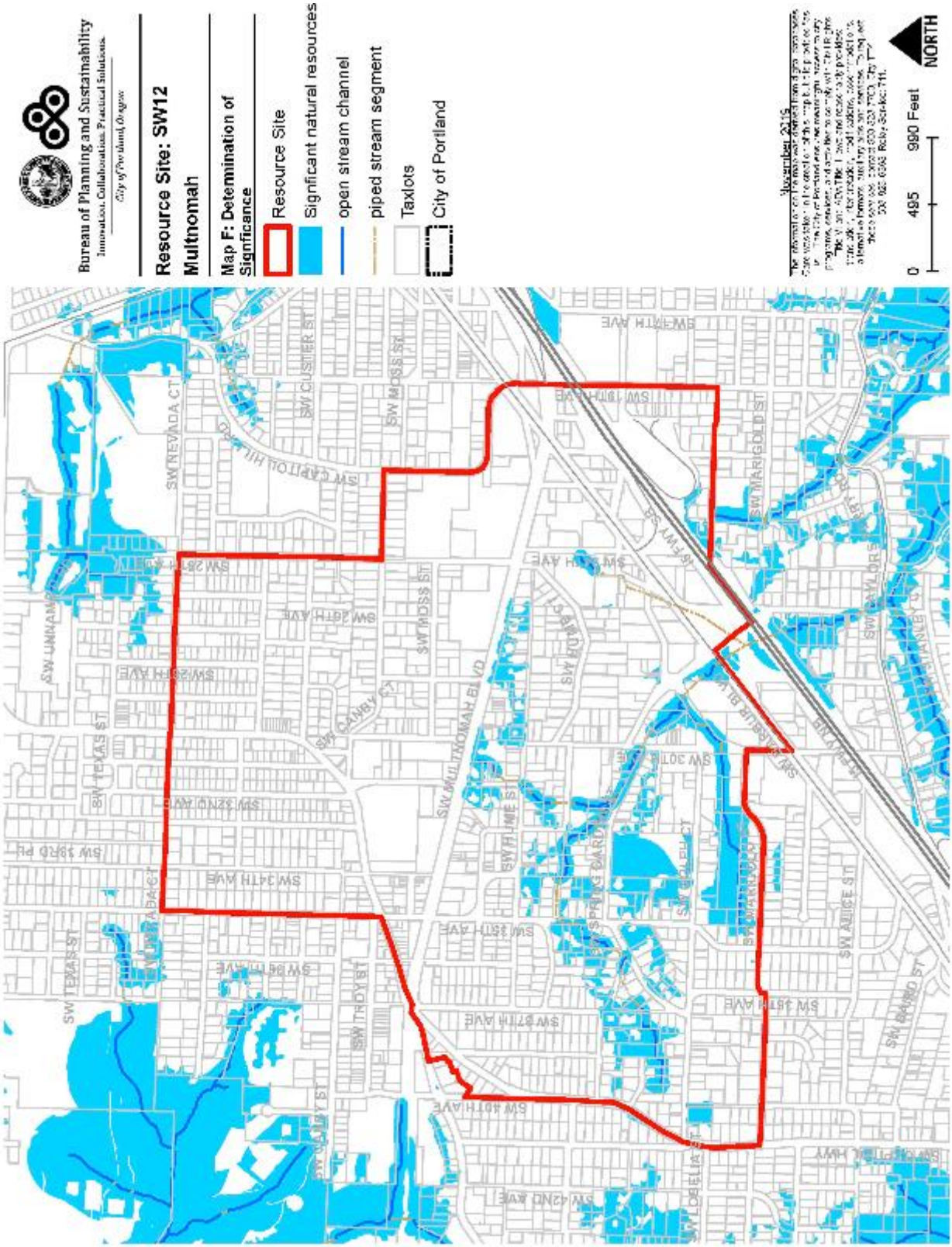

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW12
Multnomah
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0 495 990 Feet
NORTH

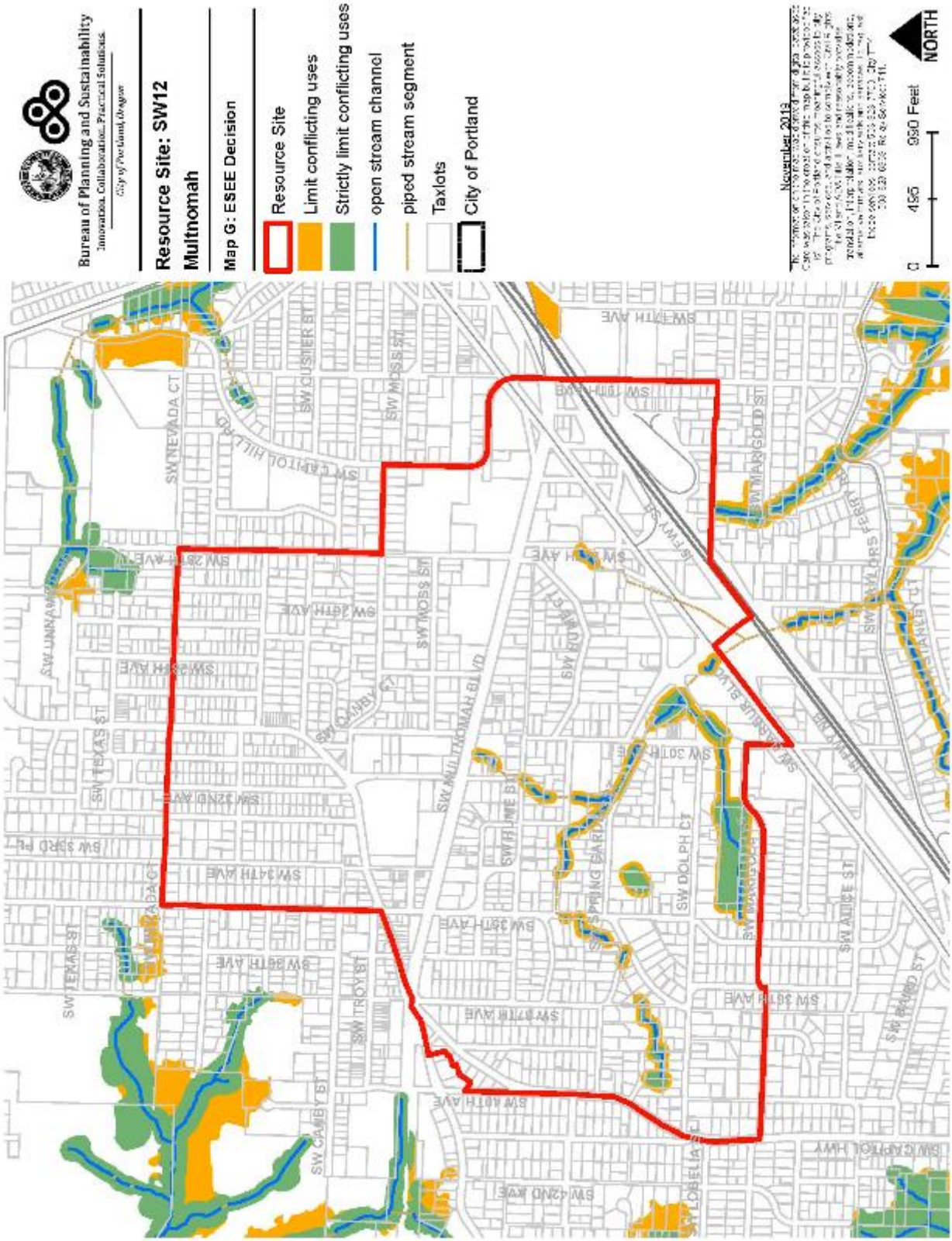

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW12
Multnomah
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0 495 990 Feet
NORTH
SW 17TH AVE
SW 19TH AVE
SW CUSTER ST
SW MOSS ST
SW NEVADA CT
SW CAPITOL HILL RD
SW MARIGOLD ST
SW 25TH AVE
SW 26TH AVE
SW 28TH AVE
SW UNNAMED RD
SW TEXAS ST
SW CANBY CT
SW MULTNOMAH BLVD
SW HUME ST
SW 30TH AVE
SW 32ND AVE
SW 33RD PL
SW 34TH AVE
SW 35TH AVE
SW 36TH AVE
SW 37TH AVE
SW 40TH AVE
SW 42ND AVE
SW TROY ST
SW SPRING GARDEN ST
SW DOLPH CT
SW ALICE ST
SW BAIRD ST
SW LOBELIA ST
SW CAPITOL HWY
SW TAYLORS FERRY RD
SW STANLEY DR


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW12
Multnomah
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2019
0 495 990 Feet
NORTH


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW12
Multnomah
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 495 990 Feet
NORTH
SW NEVADA CT
SW CAPITOL HILL RD
SW CUSHER ST
SW MOSS ST
SW 19TH AVE
SW 18TH AVE
SW 28TH AVE
SW 26TH AVE
SW 24TH AVE
SW 22ND AVE
SW 30TH AVE
SW 34TH AVE
SW 32ND AVE
SW 36TH AVE
SW 38TH AVE
SW 40TH AVE
SW 42ND AVE
SW TEXAS ST
SW TROY ST
SW CAMBY ST
SW MULTNOMAH BLVD
SW DOLPH CT
SW MARIGOLD ST
SW ADDIE ST
SW LOBELIA ST
SW CAPITOL HWY
SW FERRY ST

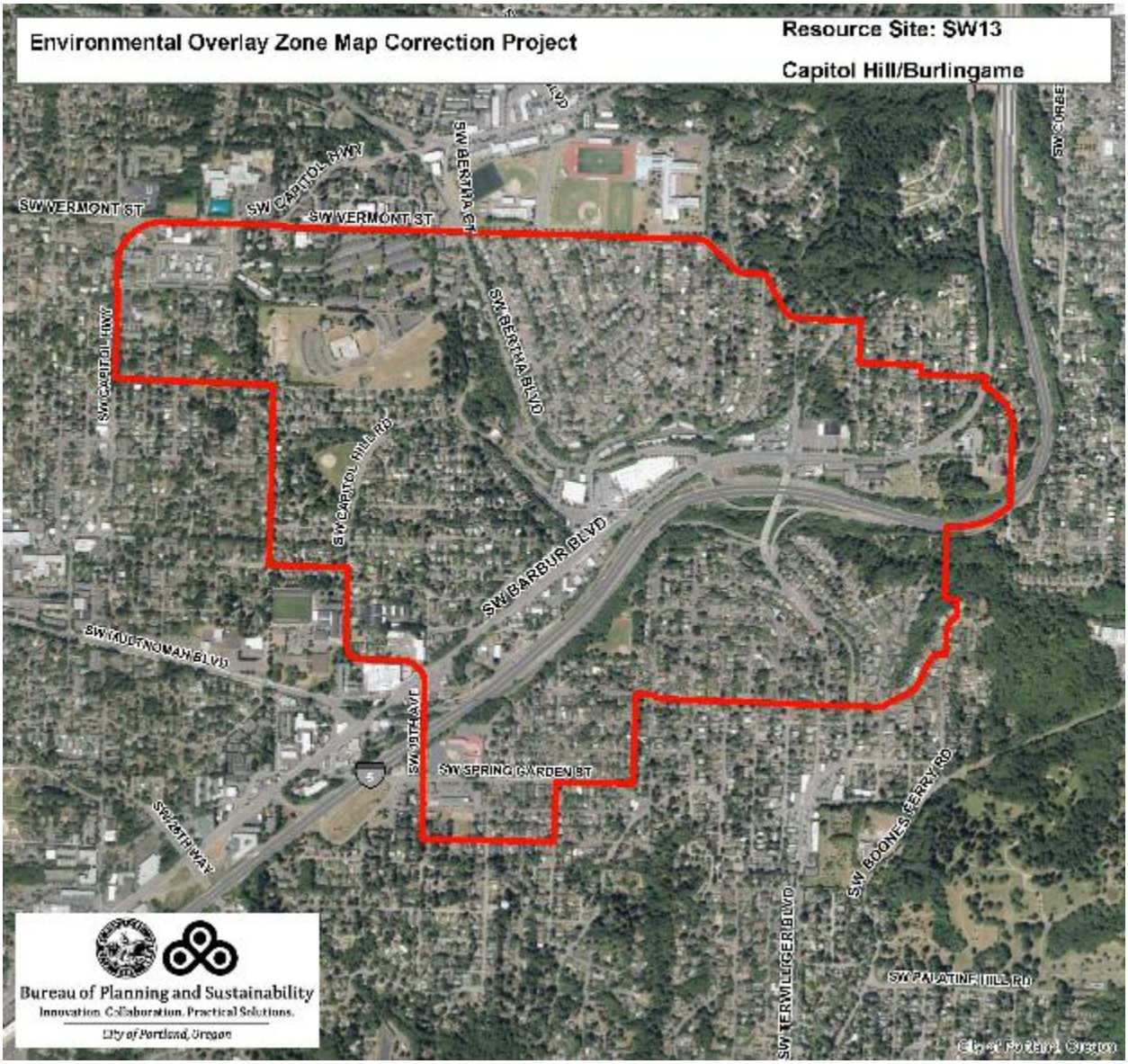

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW12
Multnomah
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 455 910 Feet
NORTH
SW NEVADA CT
SW CUSTER ST
SW MOSS ST
SW CAPITOL HILL RD
SW 26TH AVE
SW 28TH AVE
SW LUNNA AVE
SW TEXAS ST
SW 32ND AVE
SW 33RD PL
SW 34TH AVE
SW 35TH AVE
SW 37TH AVE
SW TROY ST
SW CAMBY ST
SW MULTNOMAH BLVD
SW 42ND AVE
SW 19TH AVE
SW 17TH AVE
SW MARIGOLD ST
SW TAYLORS FERRY RD
SW DOLPH CT
SW ALICE ST
SW RUTH ST
SW CAPITOL HWY


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW12
Multnomah
Map F: Determination of Signficance
Resource Site
Significant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
495
990 Feet
NORTH
SW MULTNOMAH BLVD
SW CAPITOL HWY
SW BARBUR BLVD
I-5 FWY SB
SW 30TH AVE
SW 35TH AVE
SW 40TH AVE
SW 45TH AVE


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW12
Multnomah
Map G: ESEE Decision
🟥 Resource Site
🟧 Limit conflicting uses
🟩 Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
495
990 Feet
NORTH
SW NEVADA CT
SW CUSTER ST
SW MOSS ST
SW CAPITOL HILL RD
SW 26TH AVE
SW 28TH AVE
SW 30TH AVE
SW 32ND AVE
SW 33RD PL
SW 34TH AVE
SW 35TH AVE
SW 36TH AVE
SW 37TH AVE
SW 40TH AVE
SW 42ND AVE
SW 19TH AVE
SW 17TH AVE
SW TEXAS ST
SW CANBY CT
SW CANBY ST
SW TROY ST
SW MULTNOMAH BLVD
SW DOLPH CT
SW MARIGOLD ST
SW ALICE ST
SW LOBELIA ST
SW CAPITOL HWY

Resource Site No.: SW13 **Site Name:** Capitol Hill/Burlingame

Previous Plan: Southwest Hills Resource Protection Plan **Previous Resource Site No.:** 116



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW13	
	Study Area
Stream (Miles)	1.4
Wetlands (acres)	3.8
Vegetated Areas >= 1/2 acre (acres)	126.5
Forest (acres)	53.6
Woodland (acres)	36.1
Shrubland (acres)	3.1
Herbaceous (acres)	33.8
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	199.1
Impervious Surface (acres)	269.0
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

This site has a diversity of natural relief defined by four knolls. Three of the knolls are north of Interstate 5 (I-5); the fourth is south. The gulch that is formed by the knolls contains Stephens Creek, a perennial creek that flows on the south side of I-5, north of the River View Mausoleum, and then into the Willamette River. South of Miles Street (Site SW11), there is a National Wetland Inventory (PFO1W) designated wetland.

The site elevations range from 500 feet on the west to 200 feet on the east. Five remaining natural areas ranging from two to 11 acres have been identified. Three of these areas are located in drainageways and two are hillsides above Interstate 5 that are either right-of-way areas or undeveloped parkland.

Eighty percent of Site SW13 has been developed, leaving only about 30 acres in a natural condition. Three of the sites have water courses of which Stephens Creek is the most significant. All five areas have groves of native trees including Douglas fir, cottonwood, bigleaf maple and some alder. These areas provide cover and food for animals such as raccoon, marmots and mice. The presence of water in the three drainage courses increases the area's habitat quality since water is essential for wildlife survival. West of SW Bertha Boulevard is a half-acre wetland. Wetlands are rare and valued resources because of the high plant, animal and insect species to land area ratio. Wetlands also improve water quality by trapping sediment.

This site includes the southern 1,000 feet of the Terwilliger Parkway. Terwilliger is a significant scenic and recreation corridor that also provides habitat (see Site SW10 & SW11 for more discussion).

Table B: Quality of Natural Resource Functions in Resource Site SW13				
Resource Site (acres) = 542.472787				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	30.5	18.1	32.2	80.8
percent total inventory site area	5.6%	3.3%	5.9%	14.9%
Wildlife Habitat*				
acres	0.0	34.7	10.5	45.2
percent total inventory site area	0.0%	6.4%	1.9%	8.3%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total+				
acres	30.5	24.8	26.6	81.9
percent total inventory site area	5.6%	4.6%	4.9%	15.1%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW13 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetlands; forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R10, R7, R5, R2.5, R2 and R1 base zones. Commercial uses are allowed in the CE, CM2 and CM1 base zone. Open space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW13, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

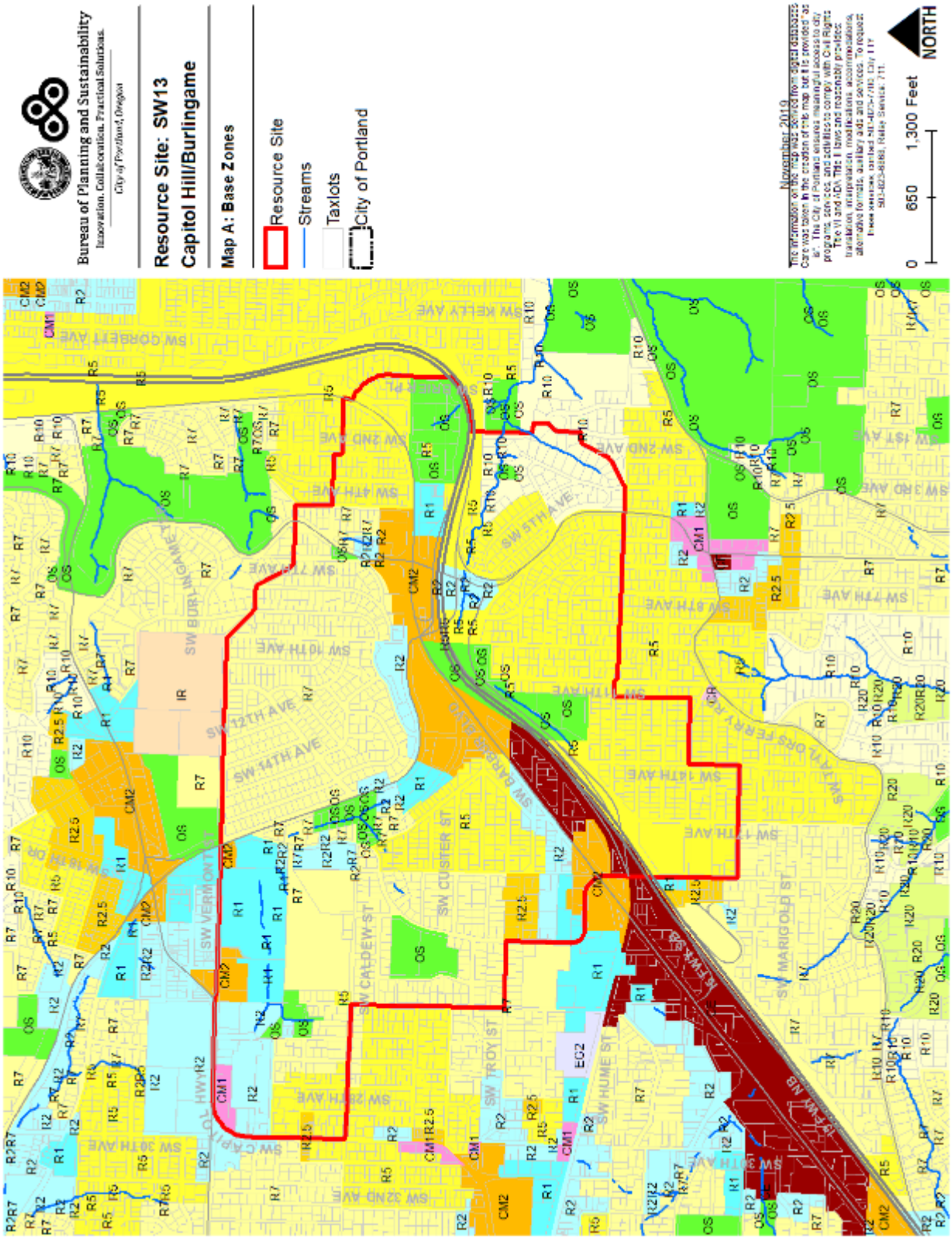
ESEE Decisions

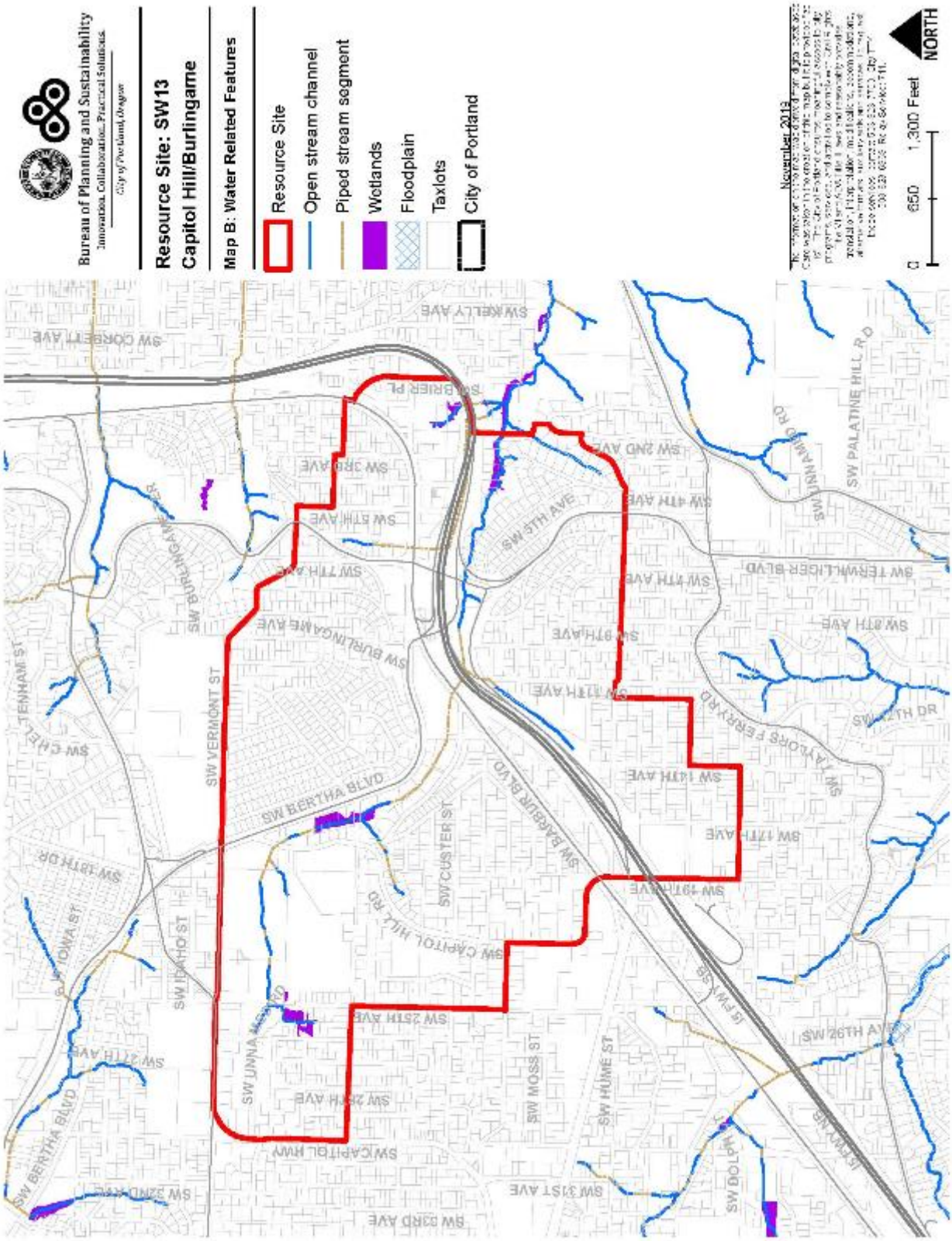
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW13 are:

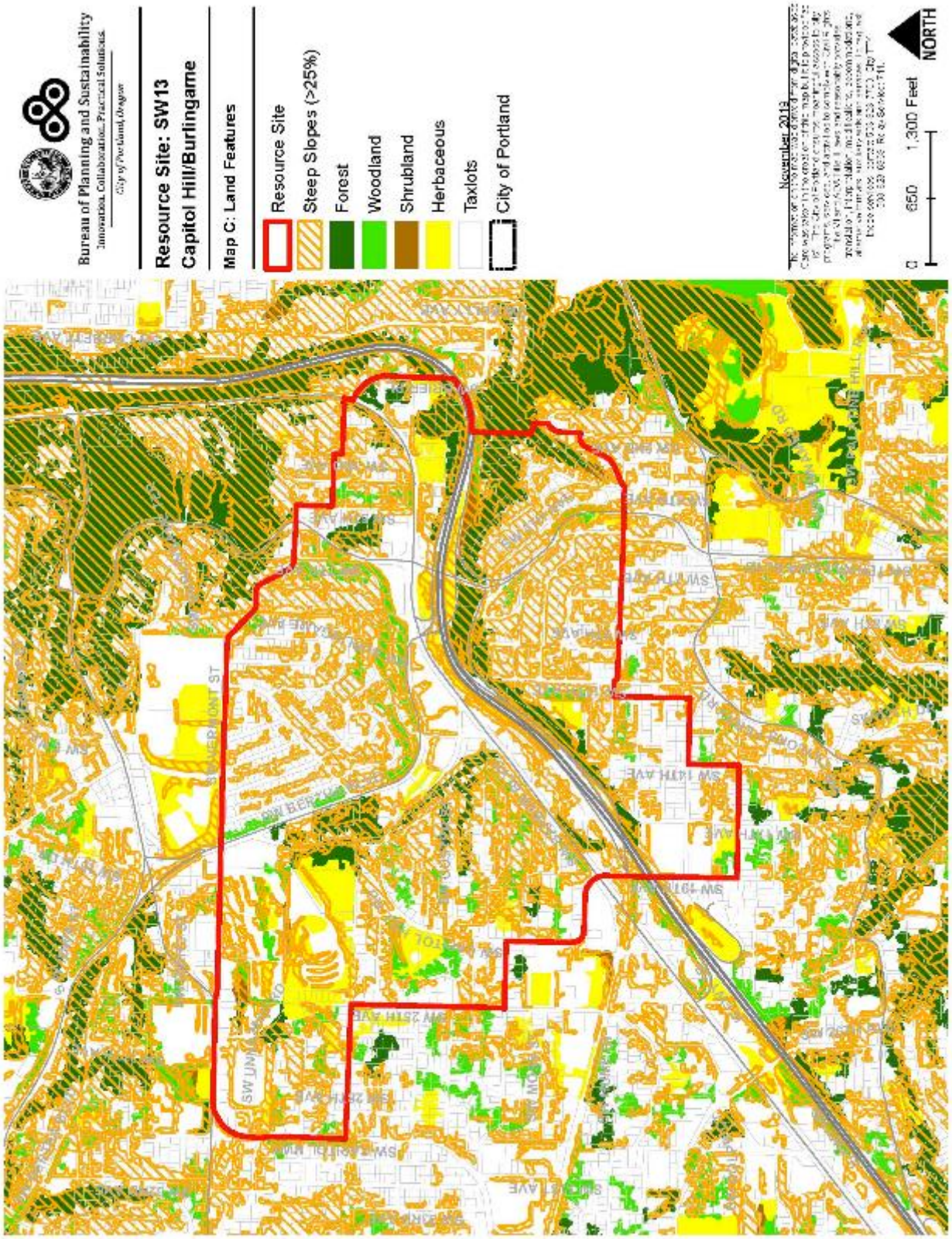
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, land within 50 feet of stream top-of-bank and land within 50 feet of wetlands.
2. *Limit* conflicting uses within areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank and within areas of forest on steep slopes that are contiguous to but more than 50 feet from stream top-of-bank.
3. *Allow* conflicting uses within all other areas containing significant natural resources.

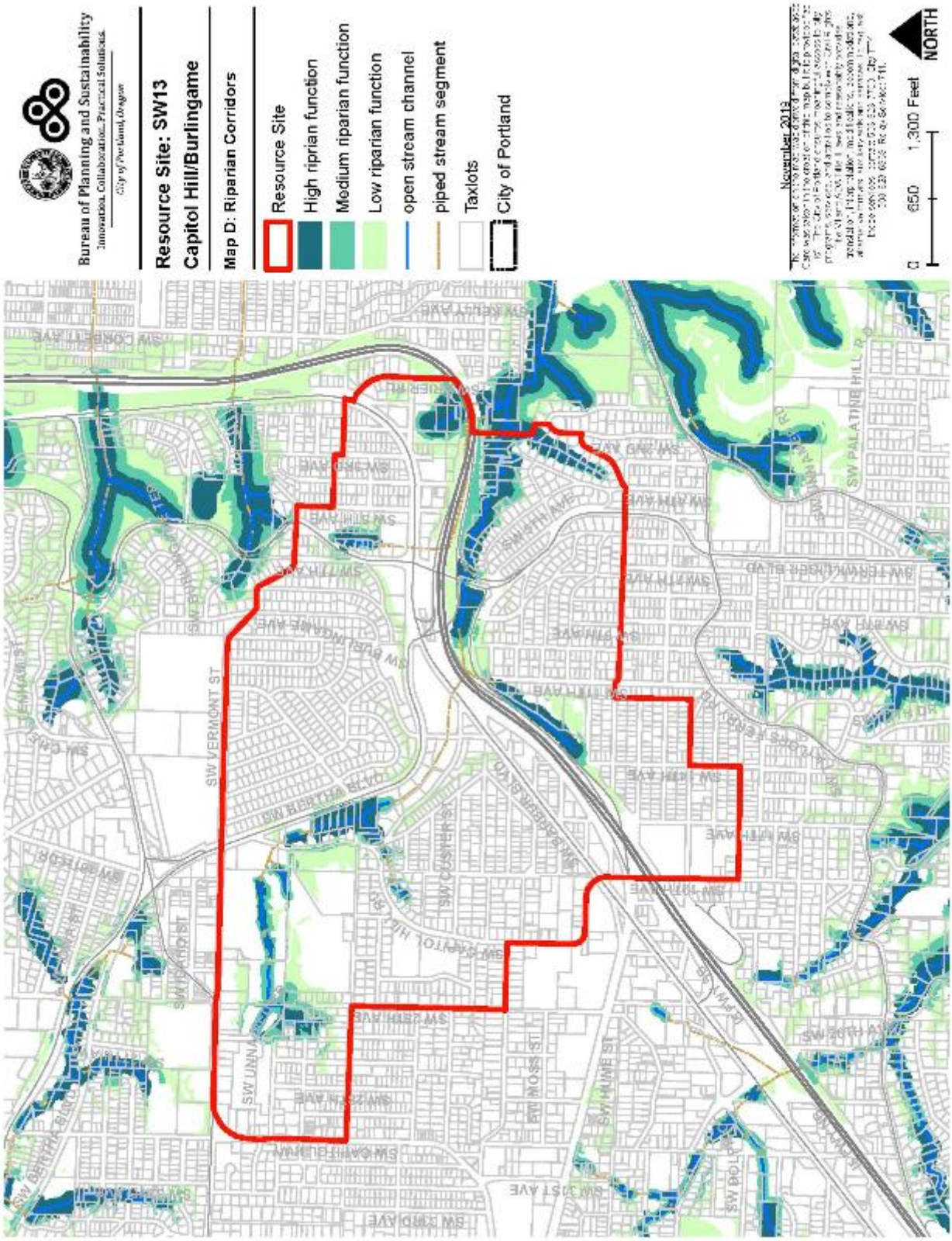
Table C: ESEE Decision for Resource Site SW13

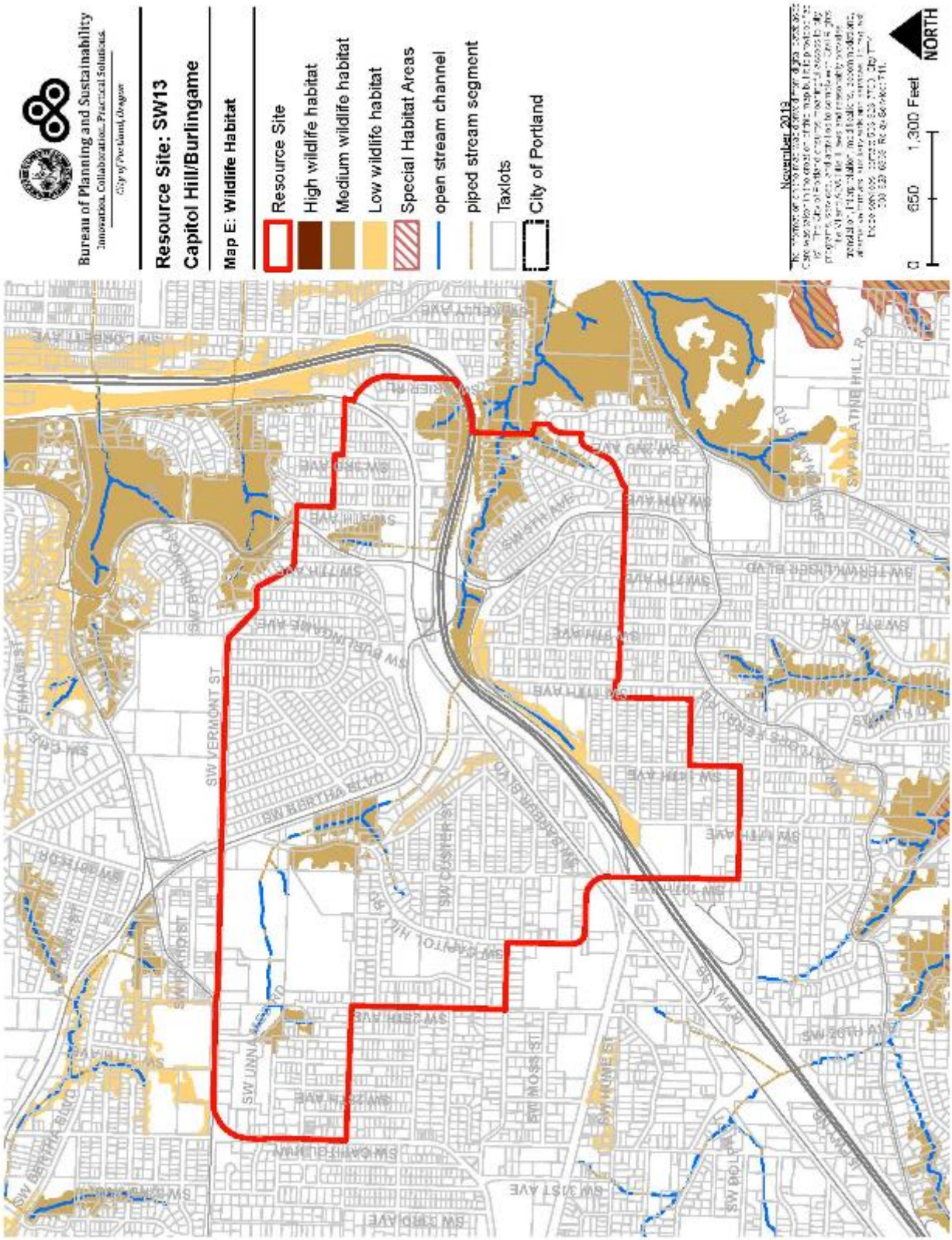
ESEE Decision	Acres
Strictly Limit	27.4
Limit	25.4
Allow	489.6

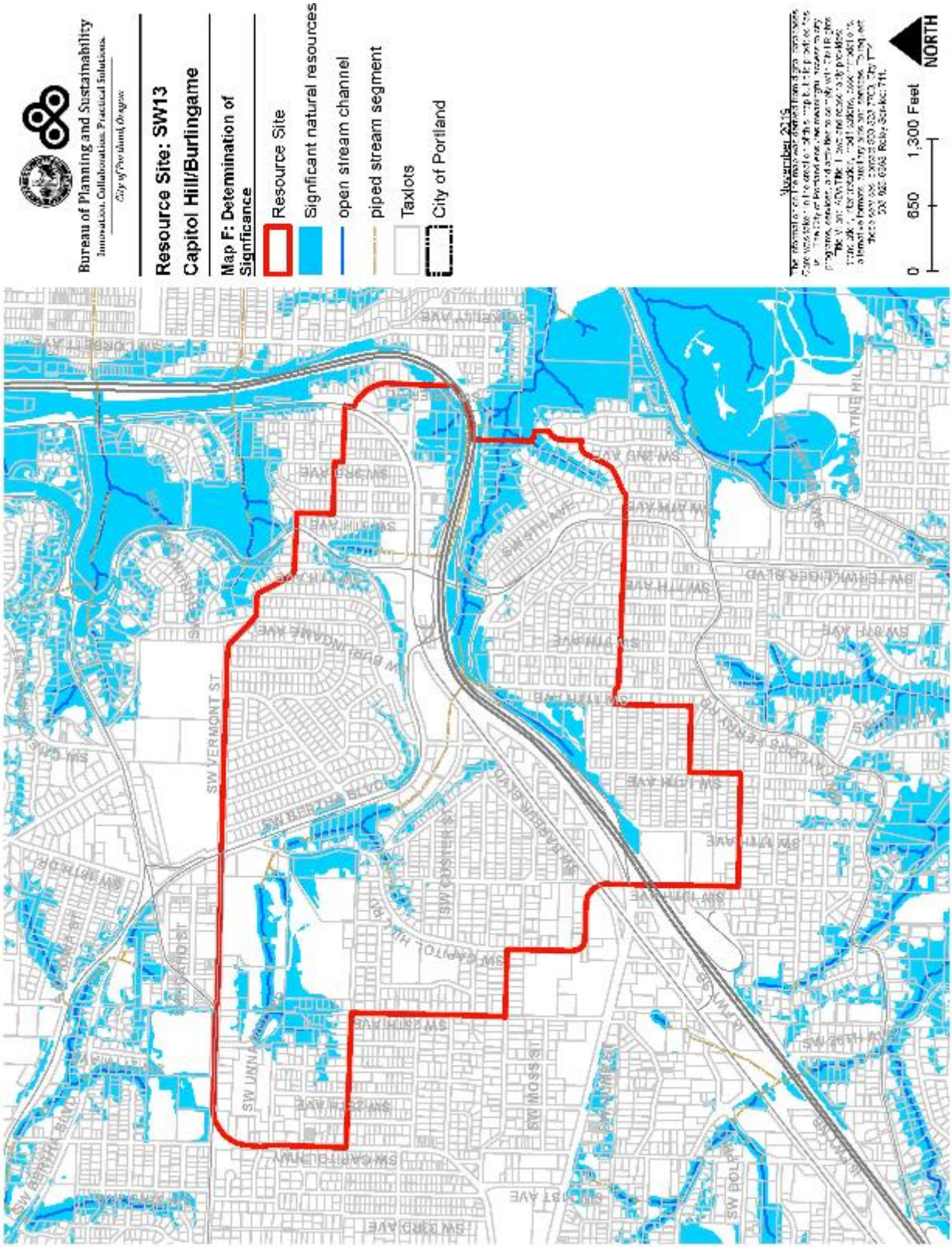

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW13
Capitol Hill/Burlingame
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0 650 1,300 Feet
NORTH

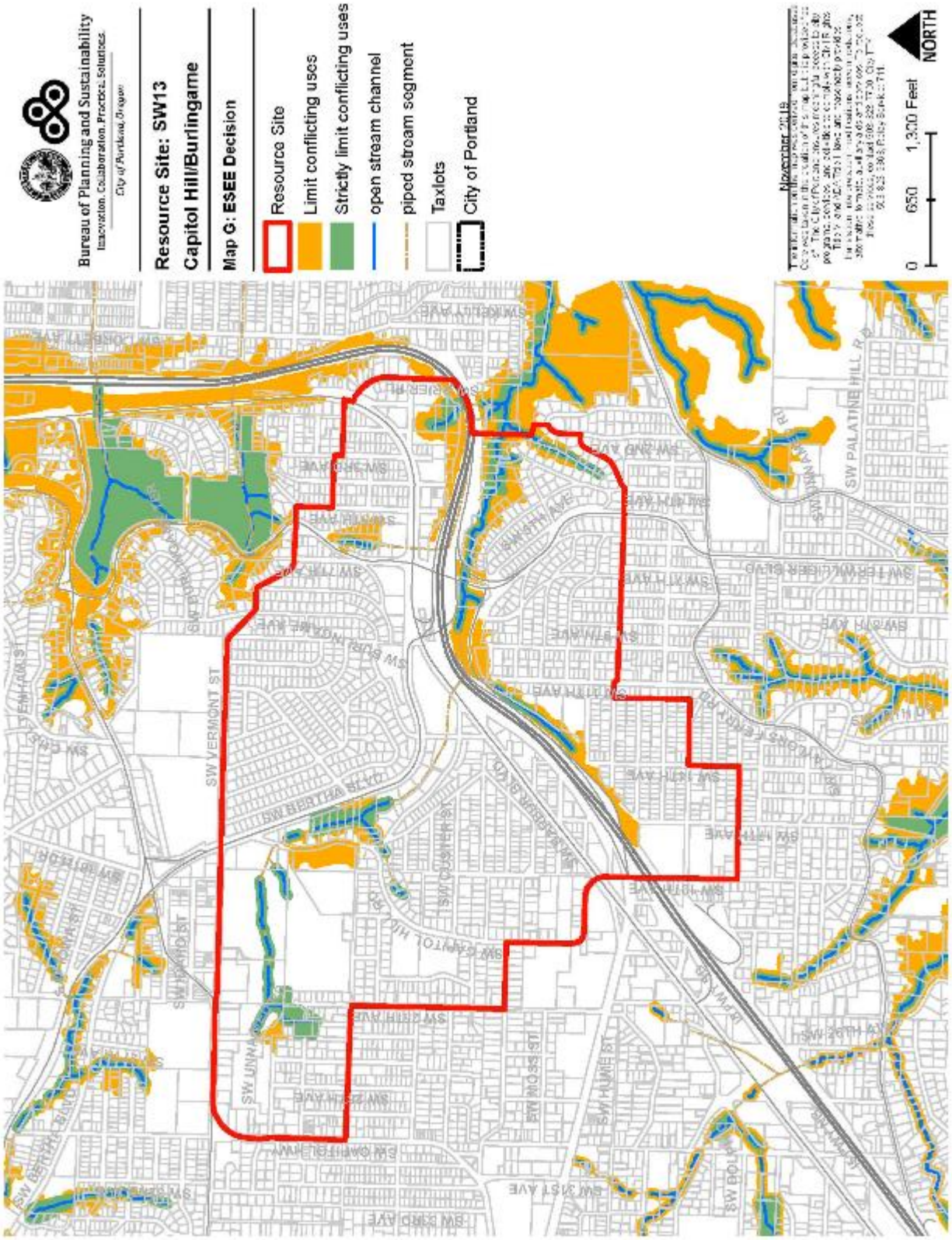

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW13
Capitol Hill/Burlingame
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0 650 1,300 Feet
NORTH
SW CORBETT AVE
SW KELLY AVE
SW BRIER PL
SW 2ND AVE
SW 3RD AVE
SW 4TH AVE
SW 5TH AVE
SW 6TH AVE
SW 7TH AVE
SW 8TH AVE
SW 9TH AVE
SW 10TH AVE
SW 11TH AVE
SW 12TH AVE
SW 13TH AVE
SW 14TH AVE
SW 15TH AVE
SW 16TH AVE
SW 17TH AVE
SW 18TH AVE
SW 19TH AVE
SW 20TH AVE
SW 21ST AVE
SW 22ND AVE
SW 23RD AVE
SW 24TH AVE
SW 25TH AVE
SW 26TH AVE
SW 27TH AVE
SW 28TH AVE
SW 29TH AVE
SW 30TH AVE
SW 31ST AVE
SW 32ND AVE
SW 33RD AVE
SW PALATINE HILL RD
SW TERWILLIGER BLVD
SW TAYLORS FERRY RD
SW 45TH DR
SW BURLINGAME AVE
SW BURLINGAME RD
SW VERMONT ST
SW BERTHA BLVD
SW BARBUR BLVD
SW CUSTER ST
SW CAPITOL HILL RD
SW CAPITOL HWY
SW UNNA
SW MOSS ST
SW HUME ST
SW DOLP
SW IDAHO ST
SW IOWA ST
SW 18TH DR
SW CHEYENNE ST
SW BERTHA BLVD
I5 FWY SB


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW13
Capitol Hill/Burlingame
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2019
0
650
1,300 Feet
NORTH


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW13
Capitol Hill/Burlingame
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 650 1,300 Feet
NORTH
SW VERMONT ST
SW PALATINE HILL RD
SW BERTHA BLVD
SW CAPITOL HIGHWAY
SW 31ST AVE


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW13
Capitol Hill/Burlingame
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 650 1,300 Feet
NORTH
SW VERMONT ST
SW BERTHA BLVD
SW CAPITOL HIGHWAY
SW 30TH AVE
SW 31ST AVE
SW PALATINE HILL RD


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW13
Capitol Hill/Burlingame
Map F: Determination of Significance
Resource Site
Significant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2015
0
650
1,300 Feet
NORTH
SW VERMONT ST
SW BERTHA BLVD
SW CAPITOL HWY
SW CUSTER ST
SW MOSS ST
SW UNIVERSITY
SW 1ST AVE
SW 3RD AVE


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW13
Capitol Hill/Burlingame
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
650
1,300 Feet
NORTH
SW VERMONT ST
SW BERTHA BLVD
SW CAPITOL HWY
SW PALATINE HILL RD
SW TERWILLIGER BLVD
SW TAYLORS FERRY RD
SW BURLINGAME AVE
SW CAPITOL HILL RD
SW 26TH AVE
SW 31ST AVE
SW 32ND AVE
SW HUME ST
SW DICKINSON ST
SW CUSTER ST
SW BARBUR BLVD
SW 13TH AVE
SW 17TH AVE

Resource Site No.: SW14 **Site Name:** Stephens Creek

Previous Plan: Southwest Hills Resource Protection Plan **Previous Resource Site No.:** 117

Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW14	
	Study Area
Stream (Miles)	4.0
Wetlands (acres)	1.0
Vegetated Areas >= 1/2 acre (acres)	40.6
Forest (acres)	37.3
Woodland (acres)	2.5
Shrubland (acres)	0.0
Herbaceous (acres)	0.8
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	43.9
Impervious Surface (acres)	24.5
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

Description to be included in the next draft.

Table B: Quality of Natural Resource Functions in Resource Site SW14				
Resource Site (acres) = 78.037934				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	15.7	9.3	15.6	40.6
percent total inventory site area	20.1%	12.0%	19.9%	52.0%
Wildlife Habitat*				
acres	0.0	39.7	0.0	39.7
percent total inventory site area	0.0%	50.9%	0.0%	50.9%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total+				
acres	15.7	24.3	0.9	40.9
percent total inventory site area	20.1%	31.1%	1.2%	52.4%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW14 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetlands; forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R10, R5, R2 and R1 base zones. Commercial uses are allowed in the CM1 base zone. Open space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW14, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

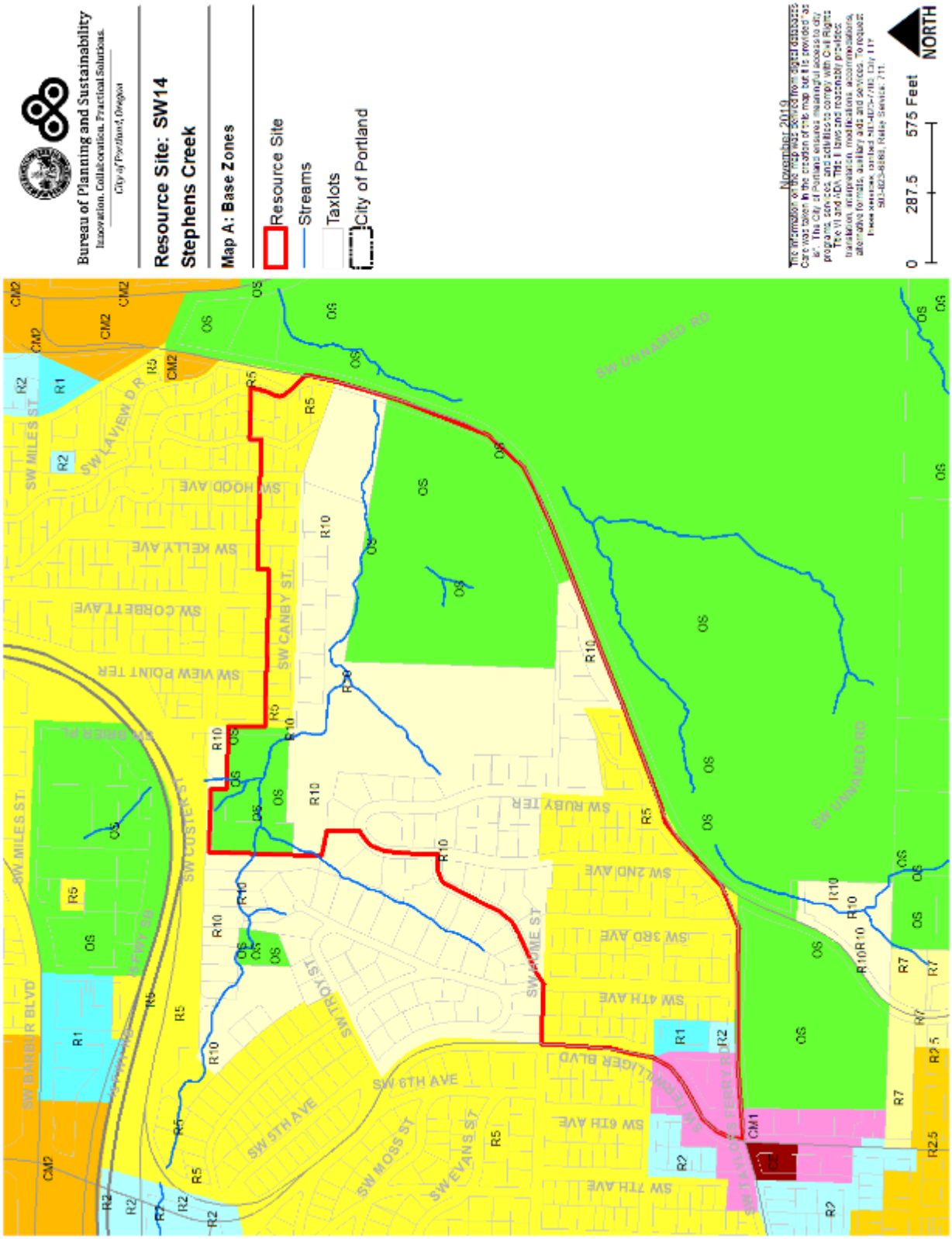
ESEE Decisions

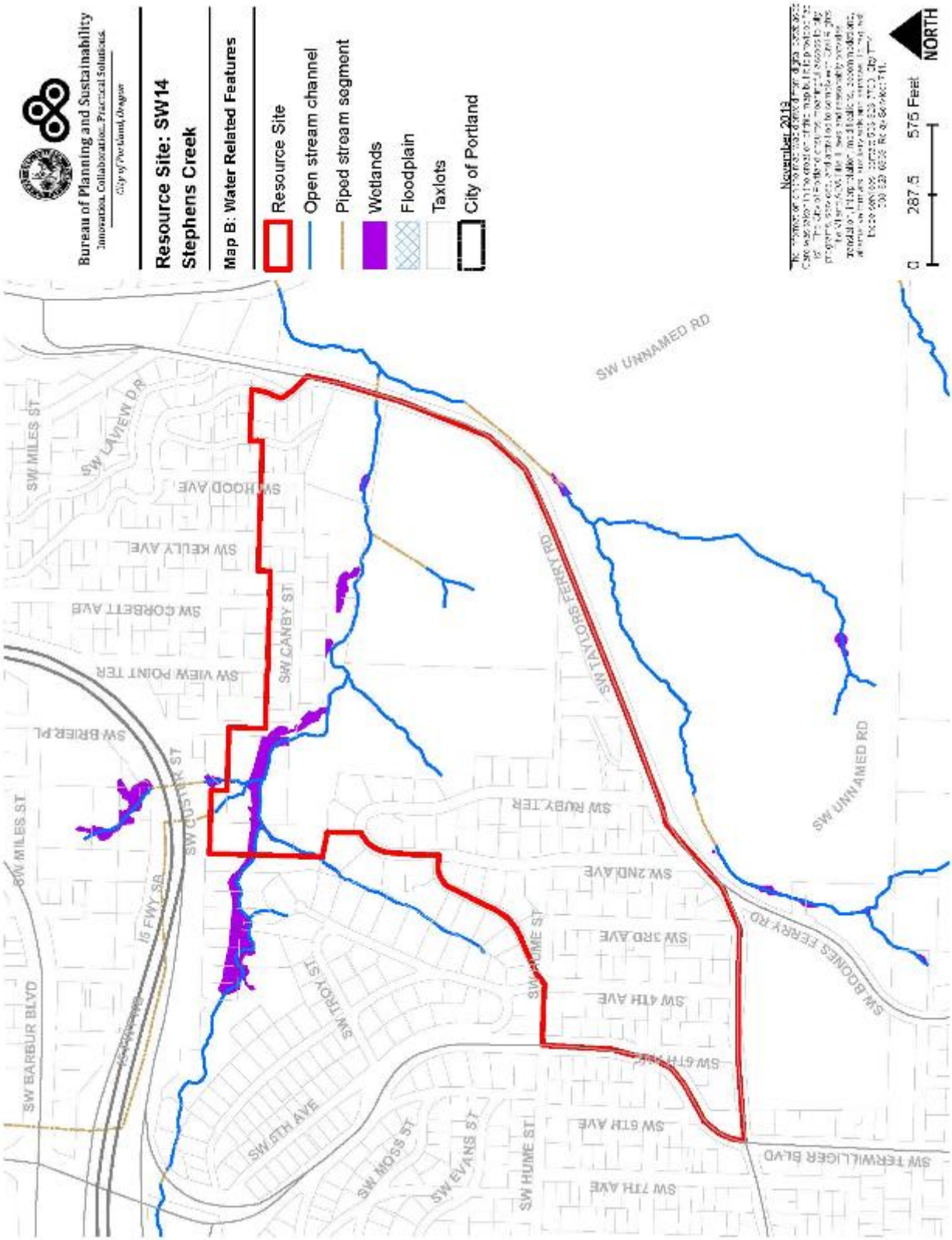
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW14 are:

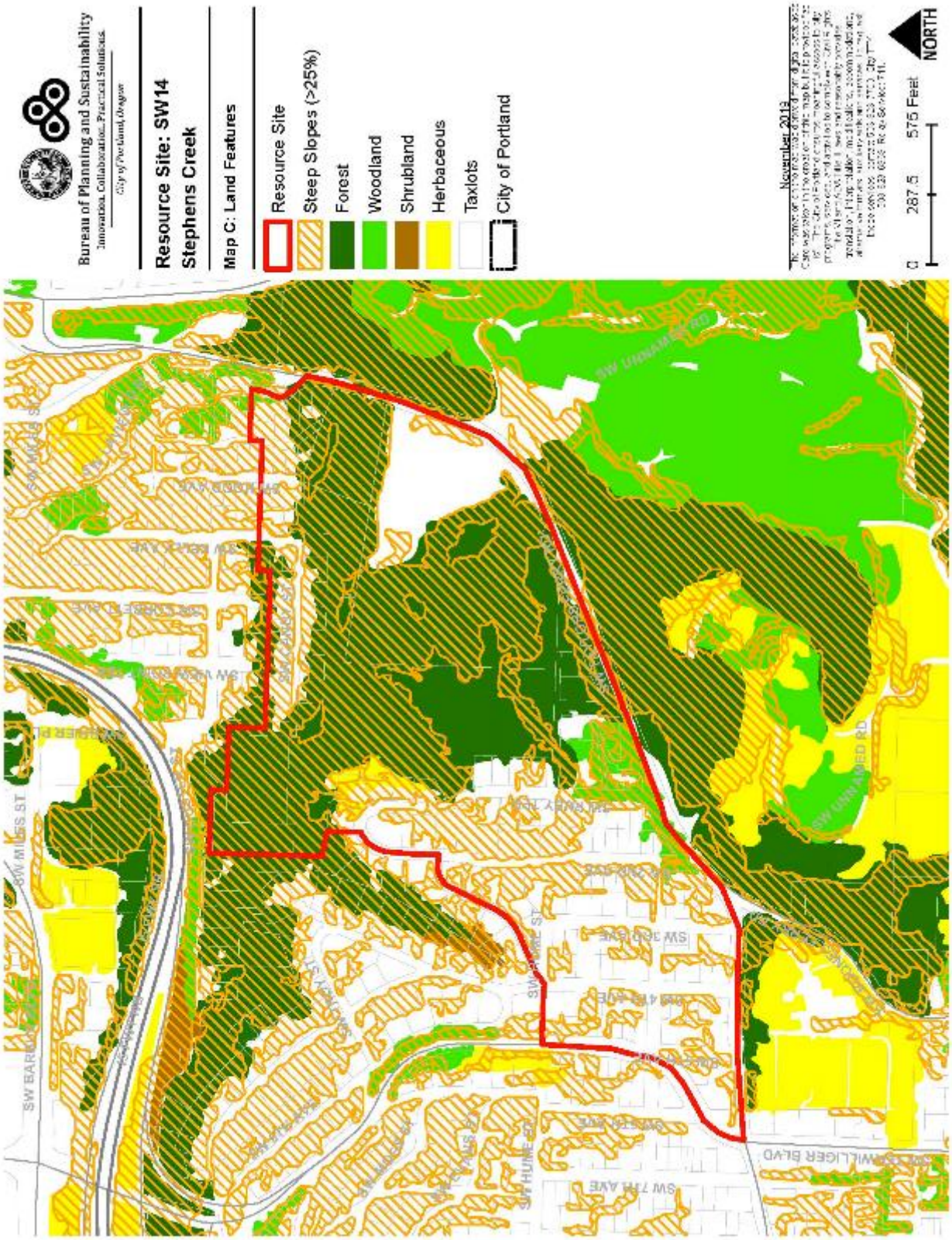
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, land within 50 feet of stream top-of-bank and land within 50 feet of wetlands.
2. *Limit* conflicting uses within areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank and land that is between 50 and 75 feet of stream top-of-bank or wetlands and within areas of forest on steep slope that are contiguous to but more than 50 feet from stream top-of-bank.
3. *Allow* conflicting uses within all other areas containing significant natural resources.

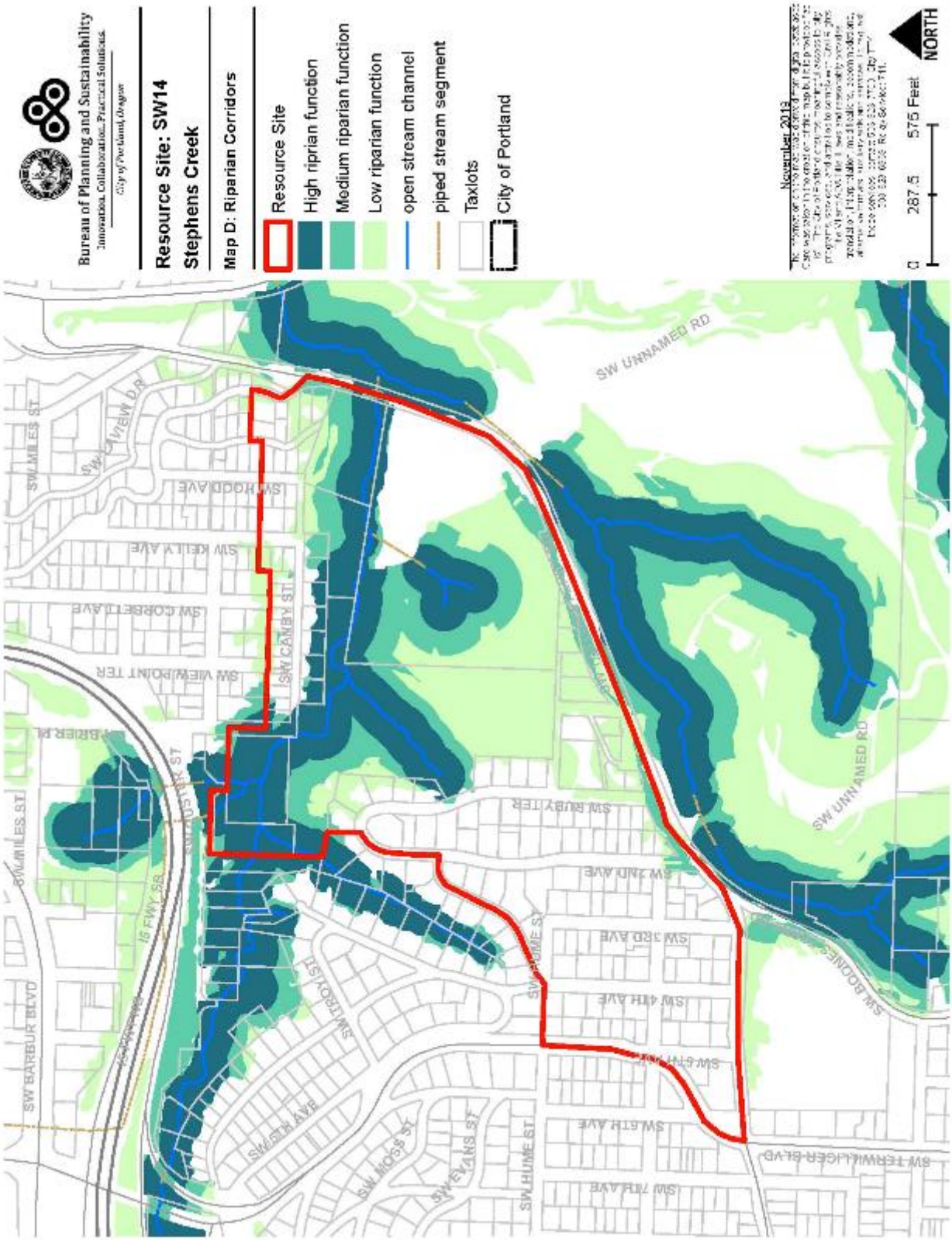
Table C: ESEE Decision for Resource Site SW14

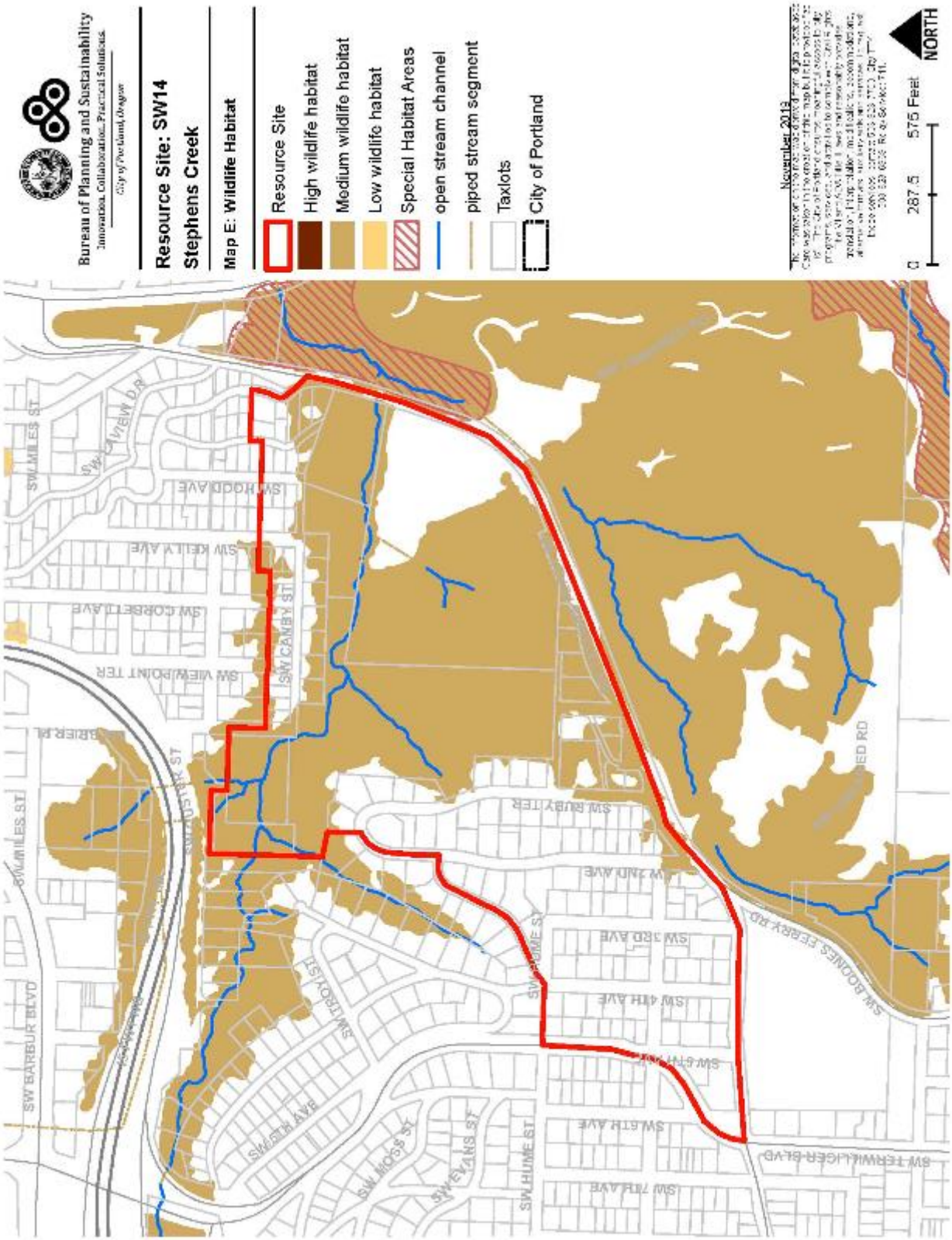
ESEE Decision	Acres
Strictly Limit	9.8
Limit	26.4
Allow	41.8


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW14
Stephens Creek
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0
287.5
575 Feet
NORTH
SW MILES ST
SW BARBUR BLVD
SW LAVIEW DR
SW HOOD AVE
SW KELLY AVE
SW CORBETT AVE
SW VIEW POINT TER
SW CANBY ST
SW CUSTER ST
SW RUBY TER
SW 2ND AVE
SW 3RD AVE
SW 4TH AVE
SW 6TH AVE
SW 5TH AVE
SW MOSS ST
SW EVANS ST
SW STROY ST
SW UNNAMED RD
SW TAYLORS FERRY RD
CM2
CM1
R1
R2
R5
R7
R10
R25
OS

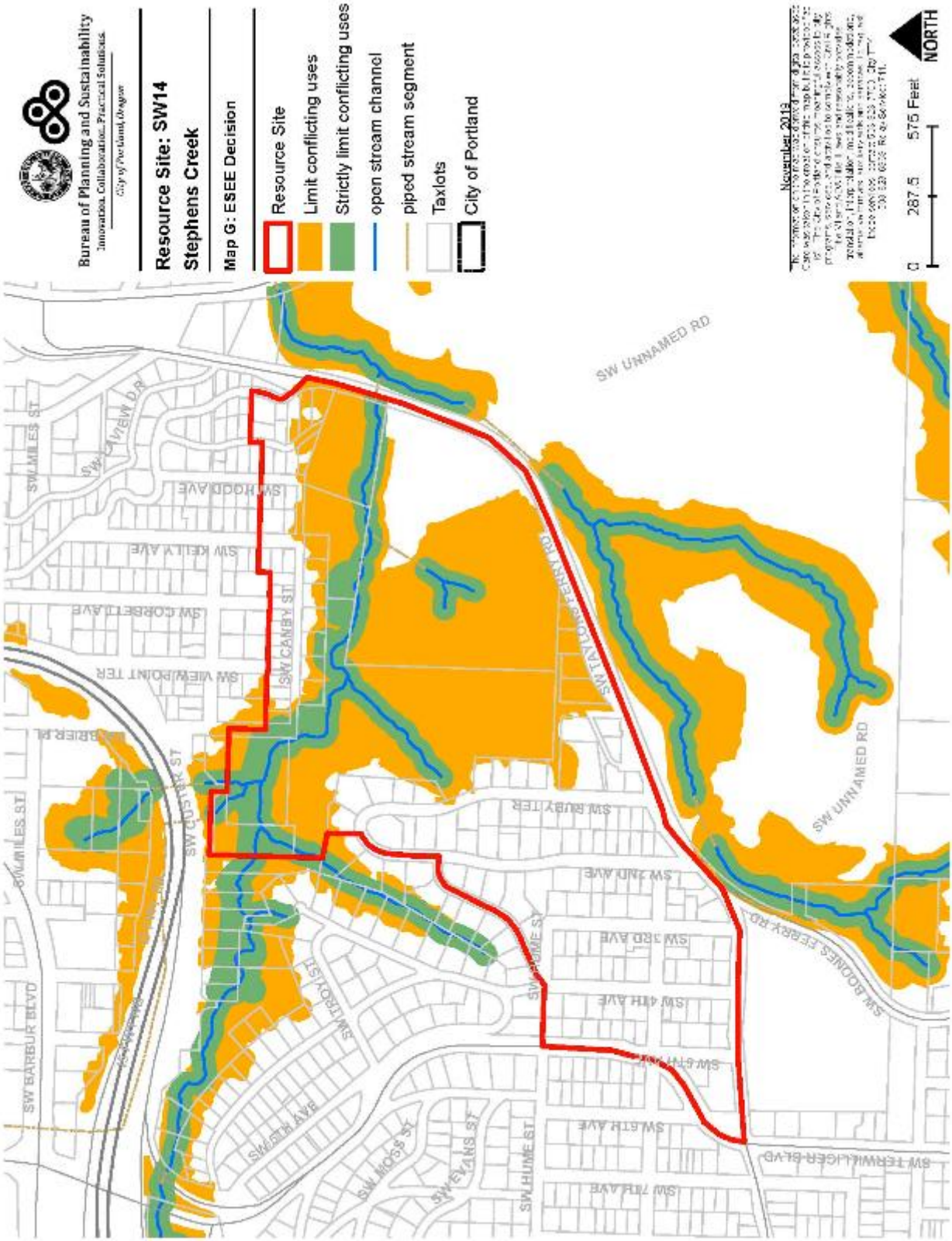

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW14
Stephens Creek
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0
287.5
575 Feet
NORTH
SW UNNAMED RD
SW LAVIEW DR
SW MILES ST
SW HOOD AVE
SW KELLY AVE
SW CORBETT AVE
SW VIEW POINT TER
SW CANBY ST
SW TAYLORS FERRY RD
SW BRIER PL
SW CARSON ST
SW RUBY TER
SW 2ND AVE
SW 3RD AVE
SW 4TH AVE
SW 6TH AVE
SW 7TH AVE
SW HUME ST
SW BOONES FERRY RD
SW TERWILLIGER BLVD
SW TROY ST
SW 8TH AVE
SW MOSS ST
SW EVANS ST
SW BARBUR BLVD
I5 FWY SB


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW14
Stephens Creek
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2019
0
287.5
575 Feet
NORTH
SW BARBUR BLVD
SW MILES ST
SW HUME ST
SW 7TH AVE
SW 4TH AVE
SW 3RD AVE
SW UNNAMED RD
SW CAPITOL HIGHWAY
SW MACADAM AVE
SW VERMONT ST
SW PATTON RD
SW MILLIGER BLVD


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW14
Stephens Creek
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
287.5
575 Feet
NORTH
SW UNNAMED RD
SW MILES ST
SW CAMBY DR
SW HOOD AVE
SW KELLY AVE
SW CORBETT AVE
SW VIEWPOINT TER
SW CAMBY ST
SW BARBUR BLVD
I5 FWY SB
SW 2ND AVE
SW 3RD AVE
SW 4TH AVE
SW 6TH AVE
SW 7TH AVE
SW HUME ST
SW EVANS ST
SW HOGS ST
SW TERWILLIGER BLVD

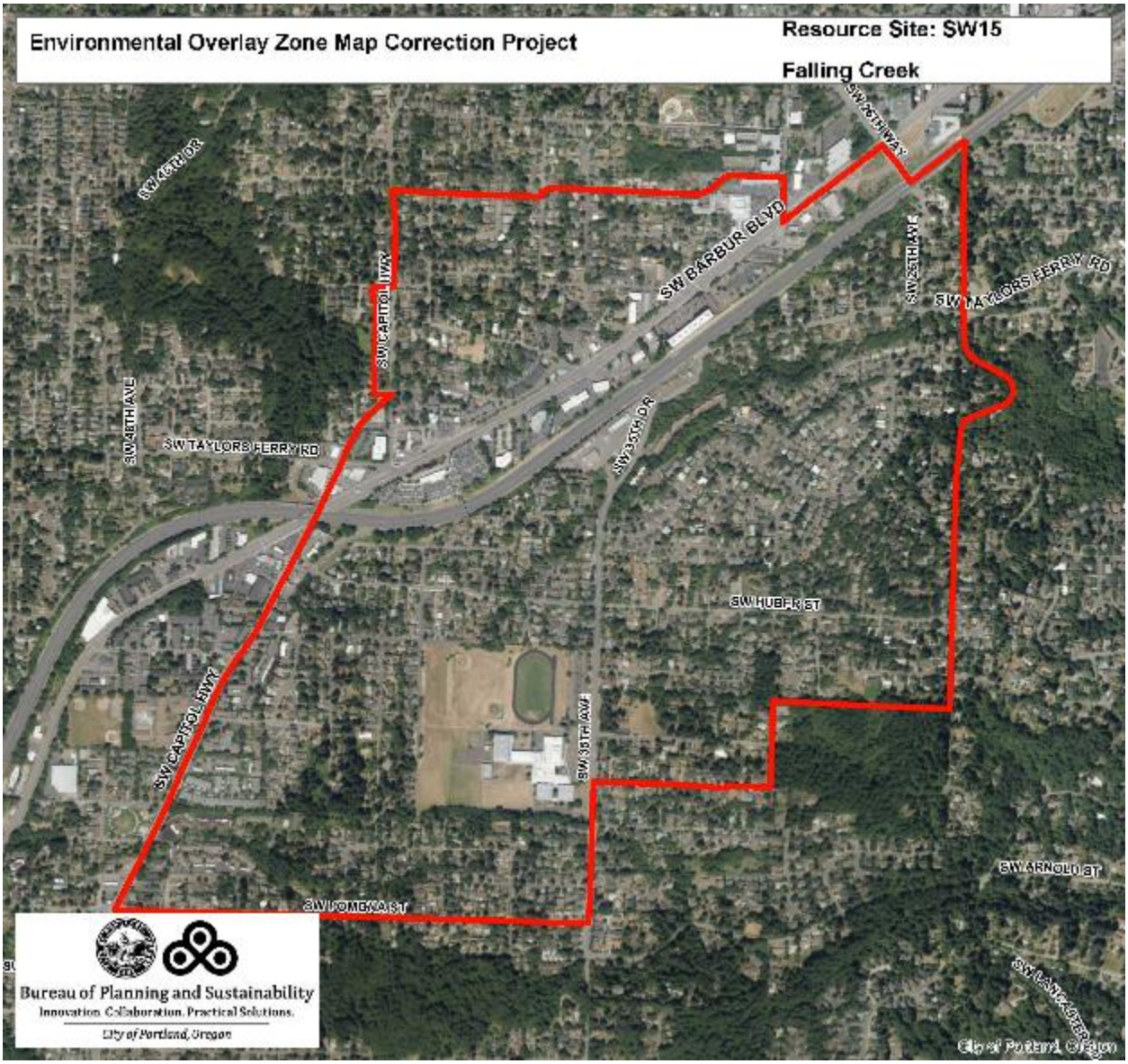

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW14
Stephens Creek
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 287.5 575 Feet
NORTH
SW MILES ST
SW HOOD AVE
SW KELLY AVE
SW CORBETT AVE
SW VIEWPOINT TER
SW CANBY ST
SW BARBUR BLVD
SW STUART ST
SW BURY TER
SW 2ND AVE
SW 3RD AVE
SW 4TH AVE
SW 6TH AVE
SW 7TH AVE
SW HUME ST
SW TROY ST
SW WEST AVE
SW HOGG ST
SW EVANS ST
SW BOONES FERRY RD
SW TERWILLIGER BLVD


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW14
Stephens Creek
Map F: Determination of Significance
Resource Site
Significant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
287.5
575 Feet
NORTH
SW UNNAMED RD
SW MILES ST
SW HOOD AVE
SW KELLY AVE
SW CORBETT AVE
SW VIEWPOINT TER
SW CANBY ST
SW RUBY TER
SW 2ND AVE
SW 3RD AVE
SW 4TH AVE
SW 6TH AVE
SW 7TH AVE
SW BARBUR BLVD
SW TERWILLIGER BLVD
SW MOSS ST
SW EVANS ST
SW HUME ST


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW14
Stephens Creek
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 287.5 575 Feet
NORTH
SW UNNAMED RD
SW MILES ST
SW HOOD AVE
SW KELLY AVE
SW CORBETT AVE
SW VIEWPOINT TER
SW CANBY ST
SW TAYLORS FERRY RD
SW BRIER PL
SW QUSTER ST
SW RUBY TER
SW 2ND AVE
SW 3RD AVE
SW 4TH AVE
SW 6TH AVE
SW 7TH AVE
SW 8TH AVE
SW BOONES FERRY RD
SW TERWILLIGER BLVD
SW BARBUR BLVD
SW HUME ST
SW EVANS ST
SW HOSS ST
SW STROSS ST
SW WESTMS AVE

Resource Site No.: SW15 **Site Name:** Falling Creek

Previous Plan: Southwest Hills Resource Protection Plan **Previous Resource Site No.:** 119



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW15	
	Study Area
Stream (Miles)	0.3
Wetlands (acres)	1.1
Vegetated Areas >= 1/2 acre (acres)	133.6
Forest (acres)	41.8
Woodland (acres)	53.6
Shrubland (acres)	0.7
Herbaceous (acres)	37.6
Flood Area*	0.5
Vegetated (acres)	0.3
Non-vegetated (acres)	0.2
Steep Slopes (acres)**	149.5
Impervious Surface (acres)	220.7
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

This site includes portions of two small hills located north of Mt. Sylvania. The elevations are 725 feet for the most westerly hill (near SW Galeburn and 42nd); and 550 feet for the other hill (located near SW Luradel and 32nd Place). Marquam Middle School (previously Jackson High School) is located between the two hills. The site elevation drops to 350 feet near Interstate 5 where the drainage from Site SW12 feeds into Falling Creek near SW 26th and Taylors Ferry. The confluence of these two creeks forms the headwaters of Tryon Creek and flows through Marshall Park.

Falling Creek and its tributary are the two primary creeks on this site. Both flow through forested, relatively narrow (50-100 feet), parallel canyons. These shallow canyons were inventoried as having hydric soils and mapped on the National Wetlands Inventory (PFO1Y). The associated forest is 80 percent deciduous with a 70 percent canopy closure. The tree species include bigleaf maple, alder, cottonwood, red cedar, Douglas fir and pacific dogwood (the latter of which is less common). The creek corridors have an estimated two snags per acre that are two feet in diameter. Mammals in the area include a small herd of mule deer. Bird species include woodpeckers, hawks and owls. In combination, the vegetation, snags and perennial creeks provide good wildlife habitat. The canyons in which the creeks are located create edges to the surrounding neighborhoods and contribute to the urban design of the area.

Table B: Quality of Natural Resource Functions in Resource Site SW15				
Resource Site (acres) = 555.697344				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	23.3	19.0	33.1	75.4
percent total inventory site area	4.2%	3.4%	6.0%	13.6%
Wildlife Habitat*				
acres	0.0	27.6	14.0	41.6
percent total inventory site area	0.0%	5.0%	2.5%	7.5%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total+				
acres	23.3	25.0	34.2	82.6
percent total inventory site area	4.2%	4.5%	6.2%	14.9%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW15 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetlands; flood area; forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R10, R7, R5, R2.5, R2 and R1 base zones. Commercial uses are allowed in the CE, CM2 and CM1 base zone. Open Space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW15, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk

species, maintaining the flow moderation, water quality and flood control functions of streams and wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

There is development located in the floodplain. The structures and impervious surface limit the flood capacity and infiltration functions of the land and increase the flood risk to the property as well as properties up and down stream. New or expanded development in the flood area should be *limited*.

There is a roughly 5-acre patch of forest vegetation located along SW Dickinson St and another roughly 5-acre patch of forest vegetation located along SW Pasadena St. These forest patches extend across multiple properties. The forest patches are located immediately uphill from the headwaters of streams and wetlands that feed into Falling Creek. The forests provide multiple functions including storage of water and reduction of overland flows, which that manages and mitigates flow within the streams and wetlands. This reduces the risk of flooding and erosion in lower Falling Creek. Impacts to the forest should be limited.

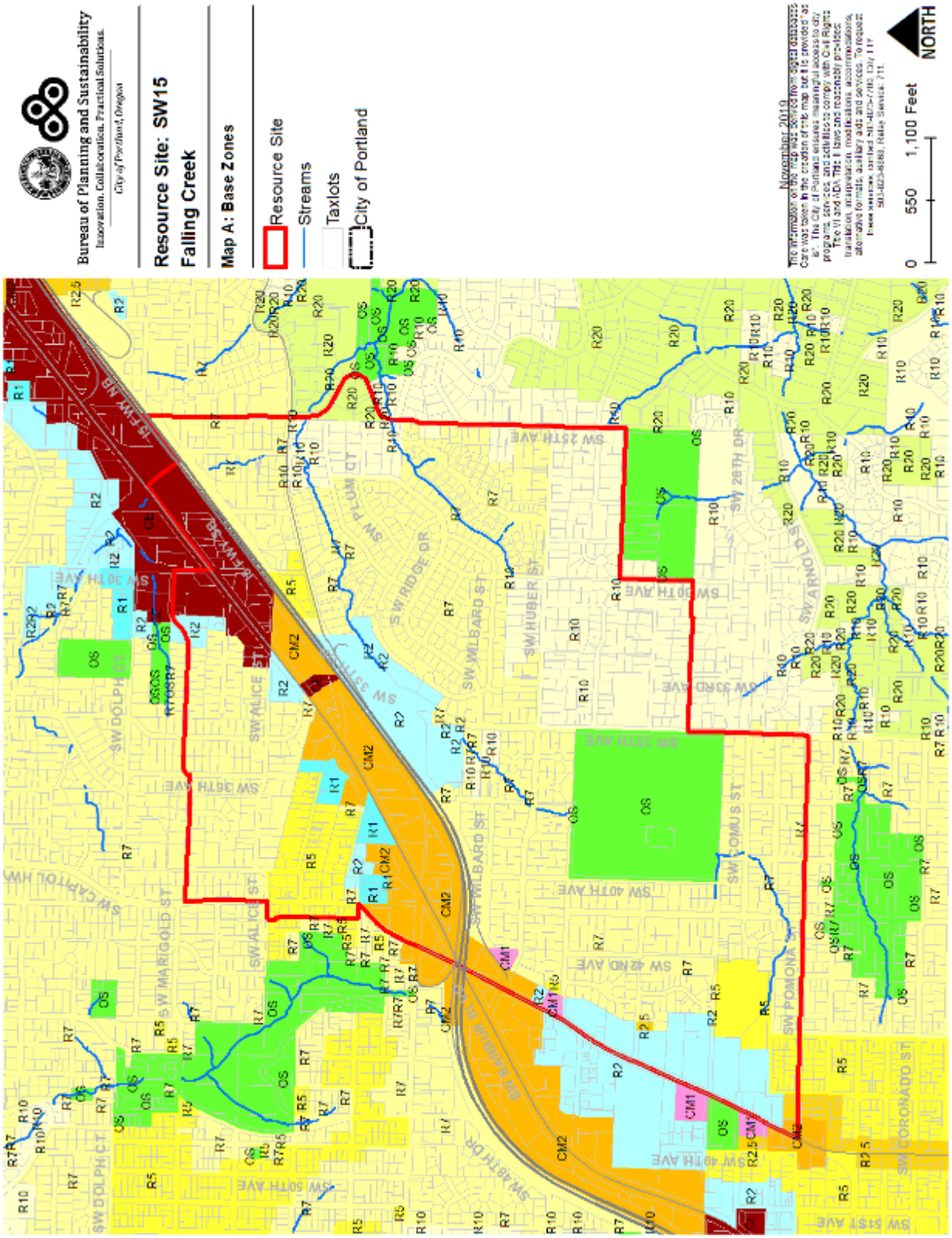
ESEE Decisions

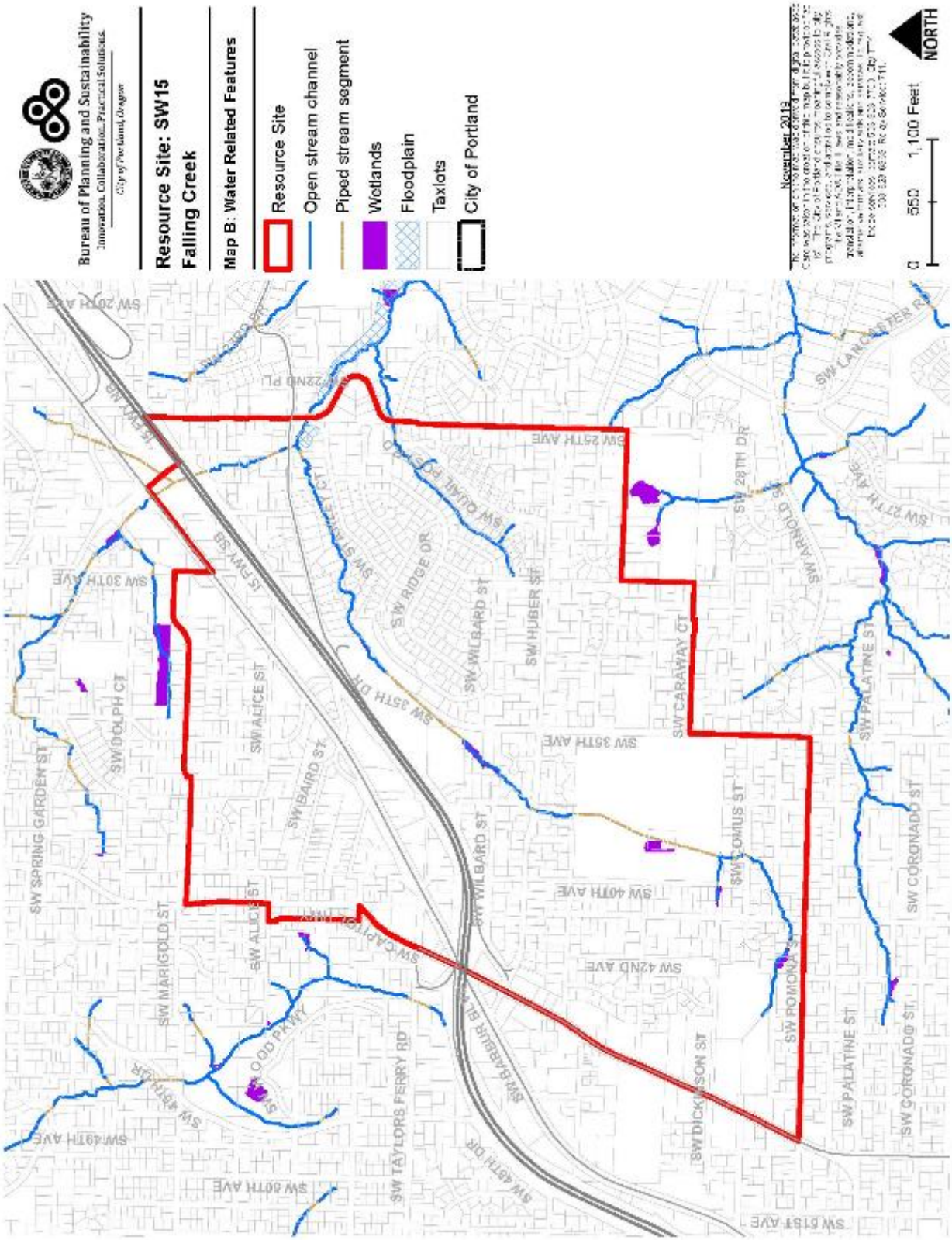
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW15 are:

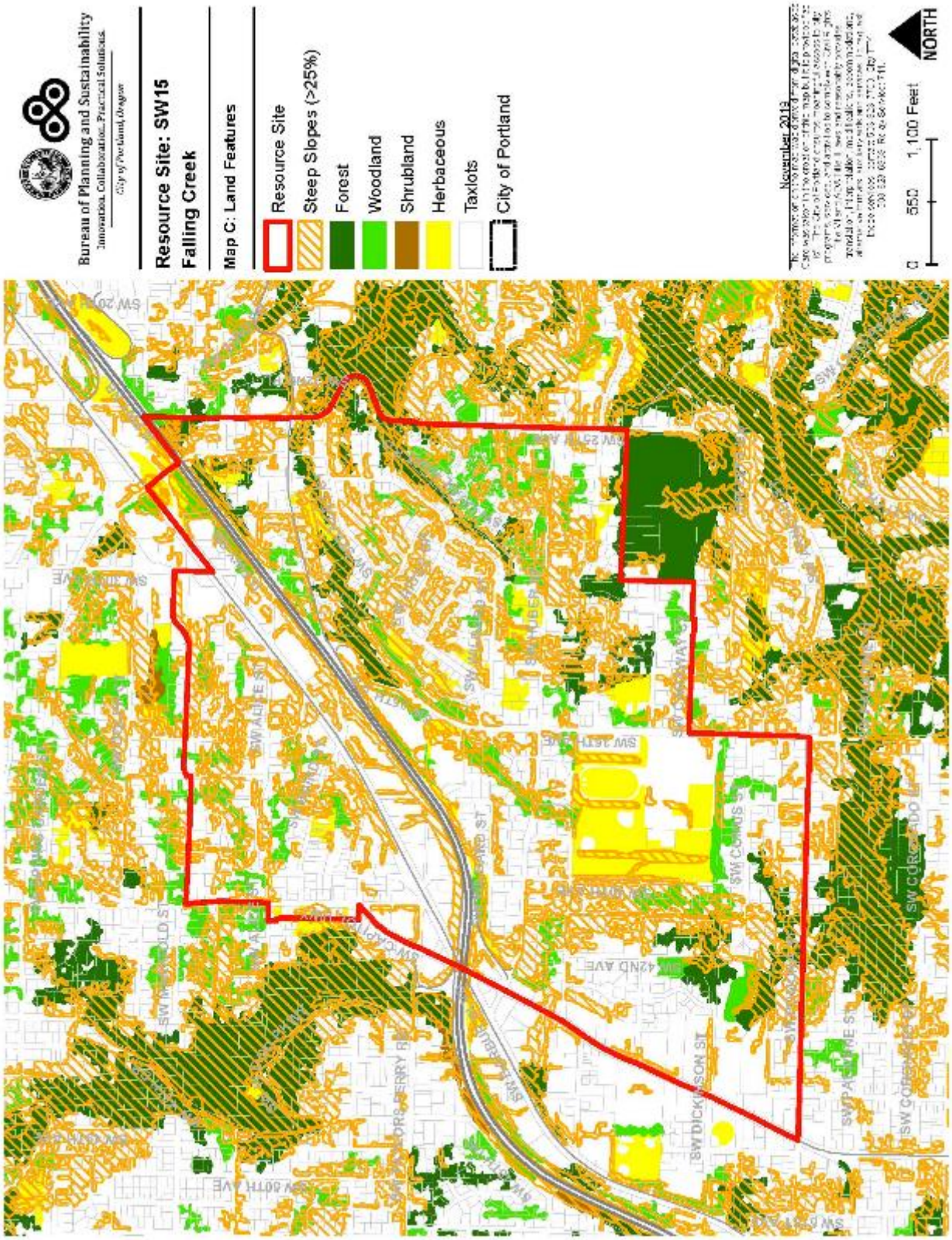
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, land within 25 feet of stream top-of-bank and land within 50 feet of wetlands.
2. *Strictly limit* conflicting uses within flood area, vegetated or developed, located between stream ordinary high water mark and 170 feet measured horizontally from the ordinary high water mark.
3. *Limit* conflicting uses within flood area, vegetated or developed, located more than 170 feet measured horizontally from the ordinary high water mark.
4. *Limit* conflicting uses on land between 25 and 75 feet of stream top-of-bank, on land within 50 and 75 feet of wetlands and on a patch of forest located between SW 41st Ave and SW 43rd Ave located on steep and non-steep slopes.
5. *Allow* conflicting uses within all other areas containing significant natural resources.

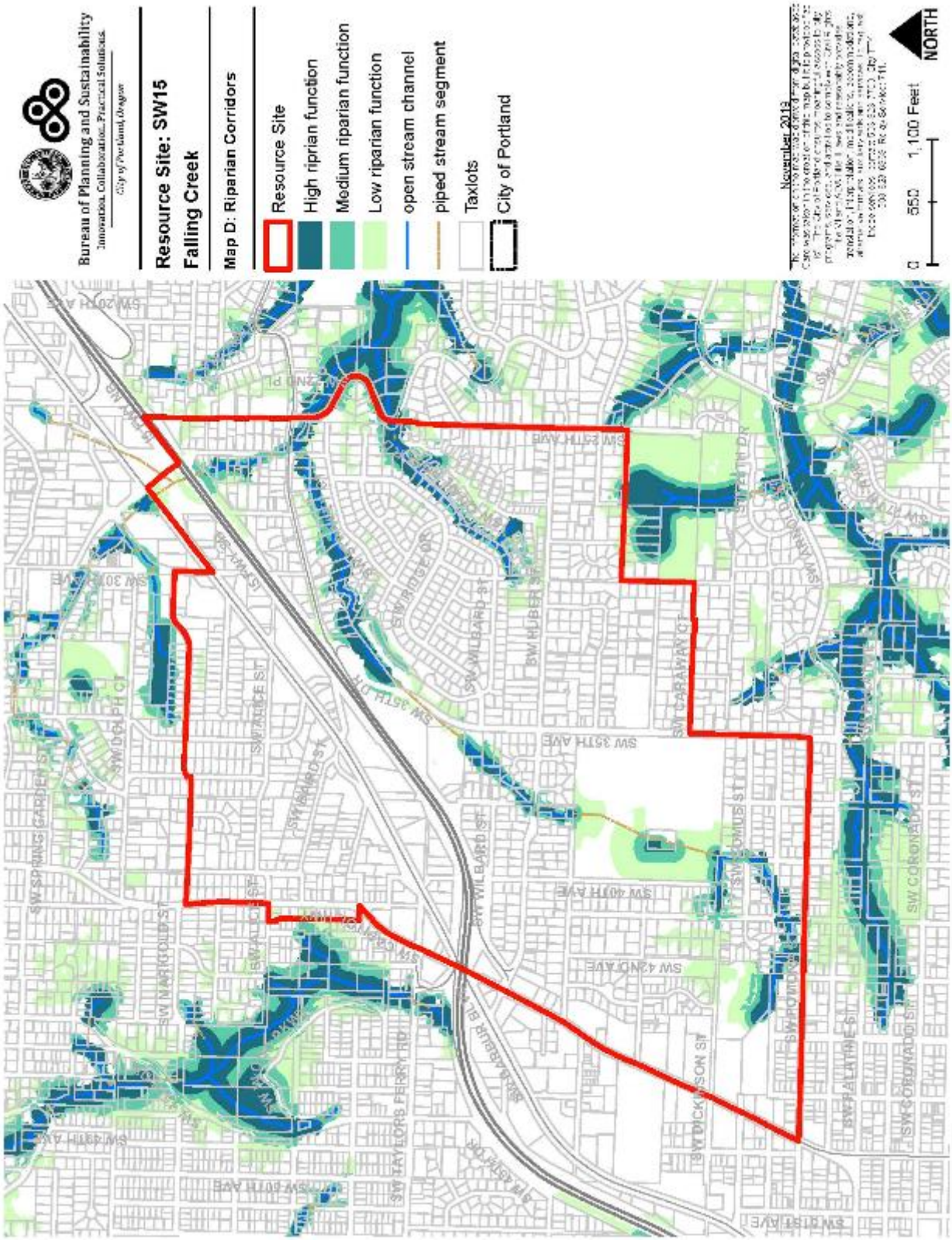
Table C: ESEE Decision for Resource Site SW15

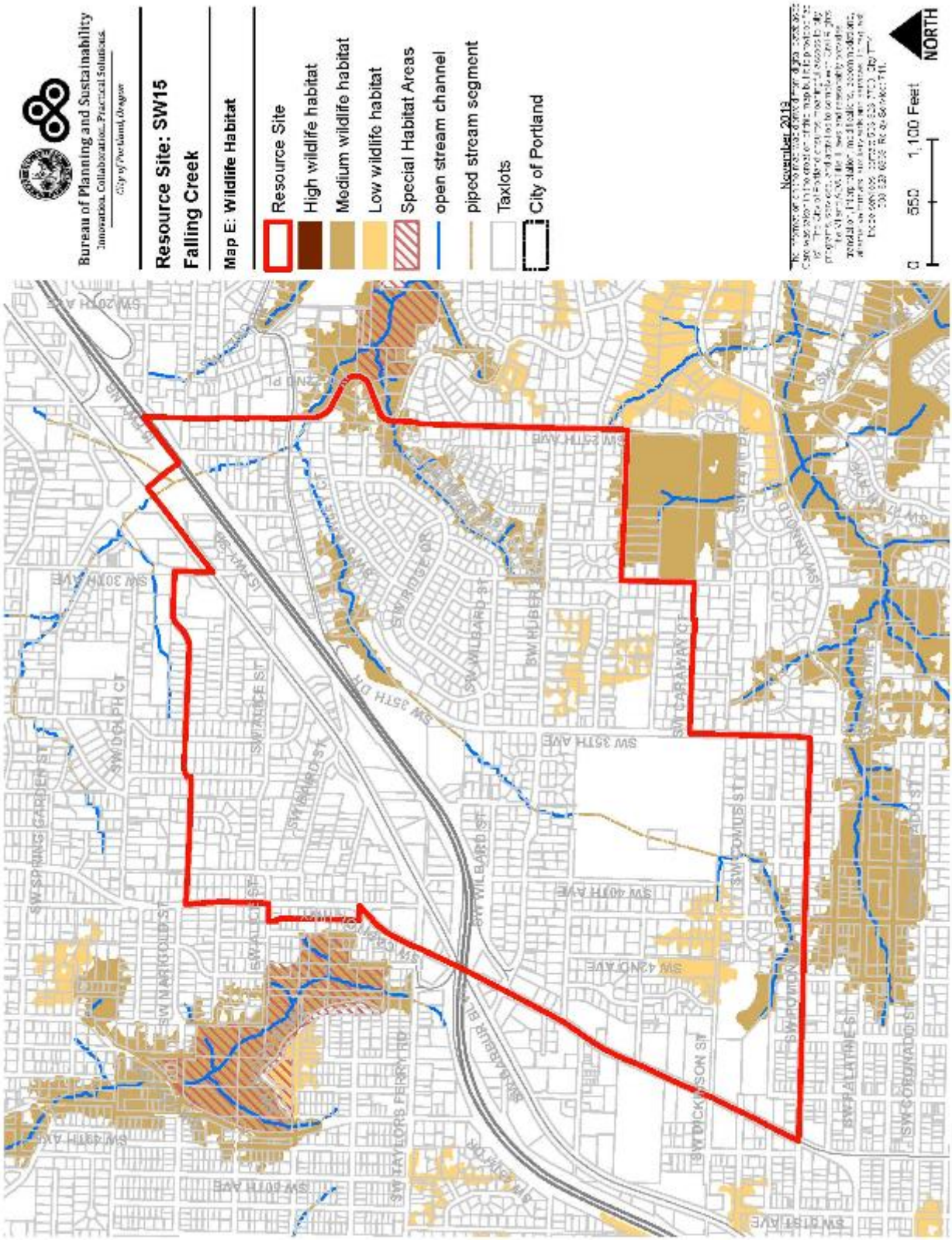
ESEE Decision	Acres
Strictly Limit	14.7
Limit	17.4
Allow	523.6

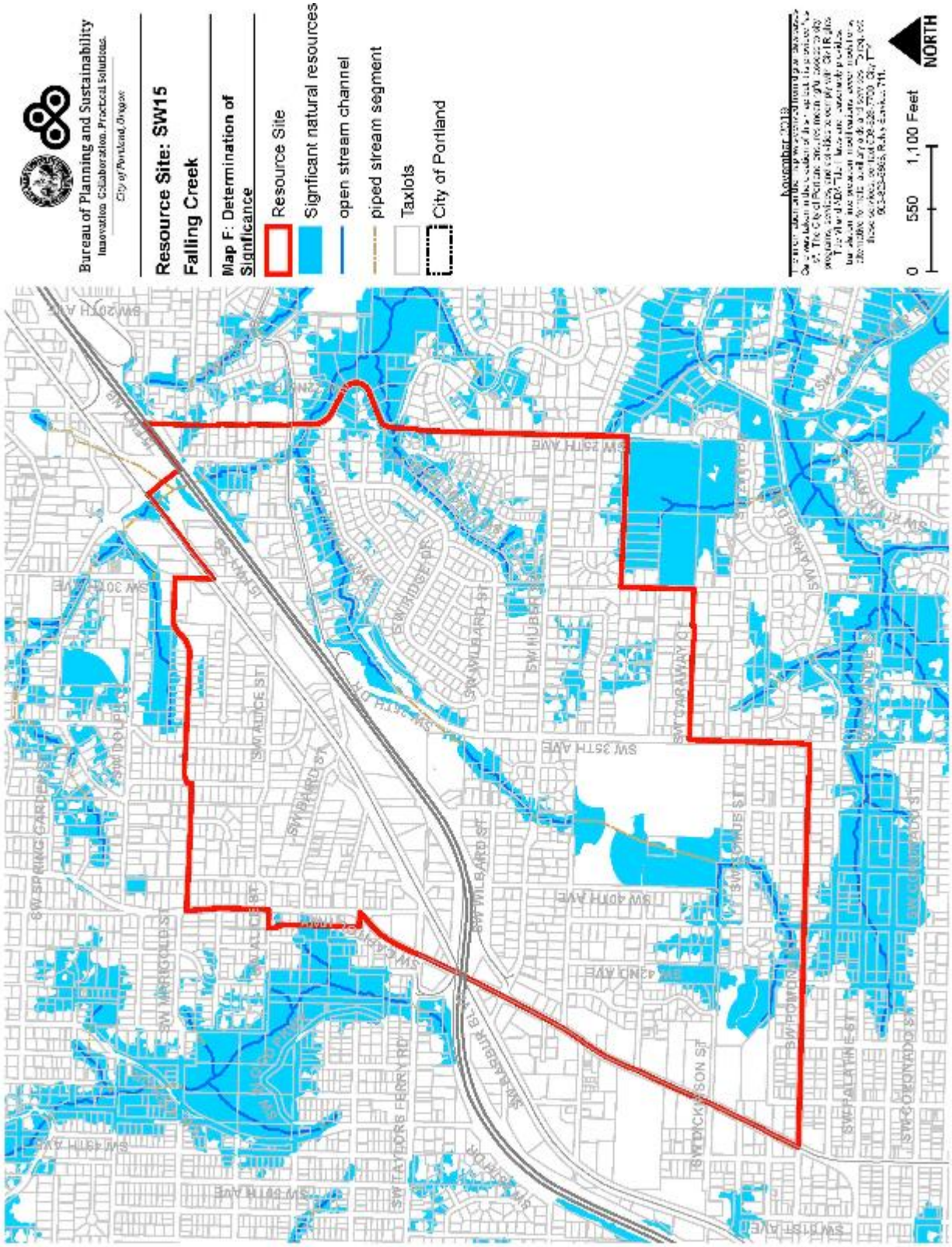

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW15
Falling Creek
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0 550 1,100 Feet
NORTH

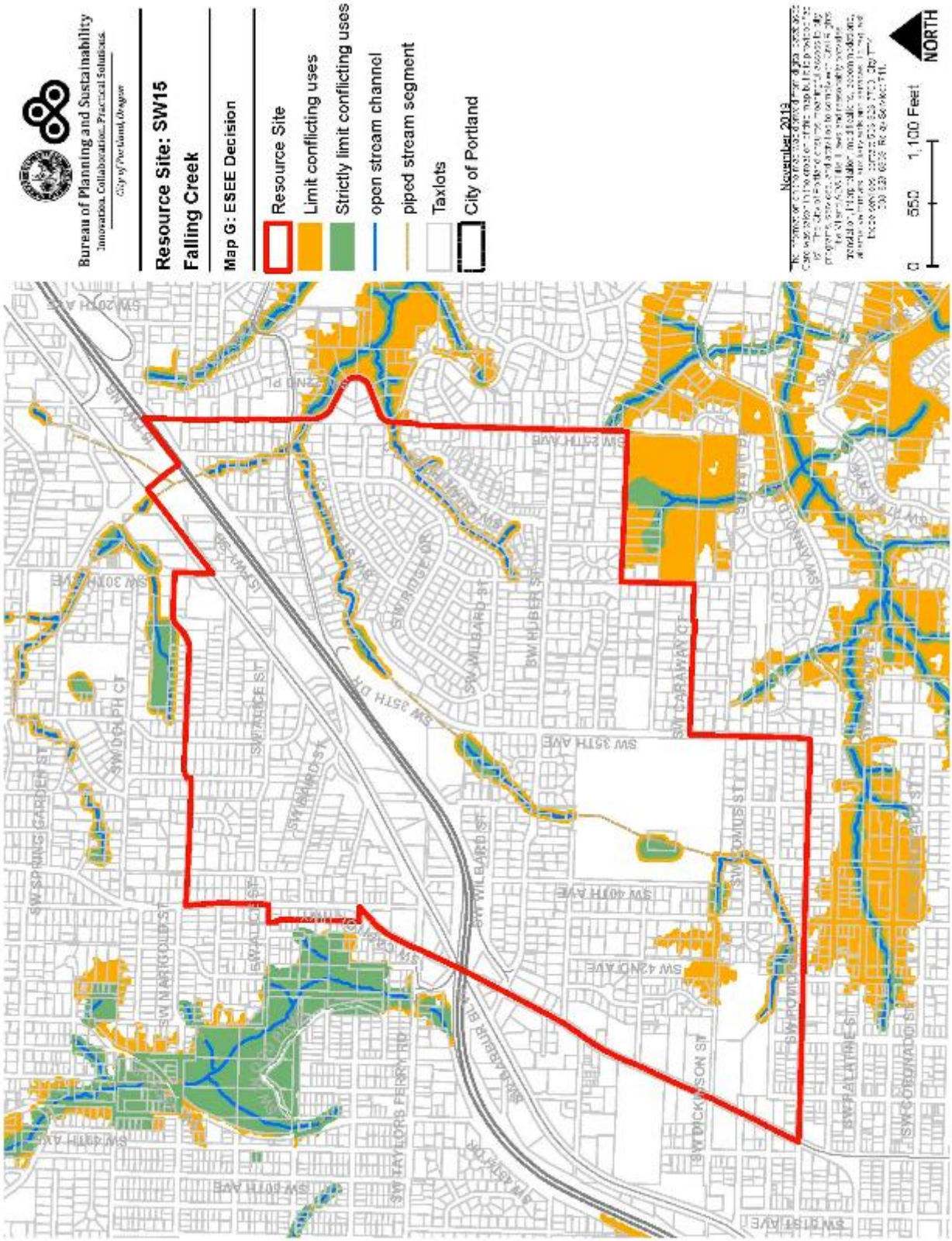

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW15
Falling Creek
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0 550 1,100 Feet
NORTH
SW 20TH AVE
SW 22ND PL
SW 25TH AVE
SW 28TH DR
SW LANCASTER RD
SW 27TH AVE
SW 30TH AVE
SW 35TH DR
SW 35TH AVE
SW 40TH AVE
SW 42ND AVE
SW 45TH AVE
SW 45TH DR
SW 49TH AVE
SW 50TH AVE
SW 61ST AVE
SW RIDGE DR
SW WILBARD ST
SW HUBER ST
SW CARAWAY CT
SW ARNOLD ST
SW PALATINE ST
SW CORONADO ST
SW COMUS ST
SW POMONA ST
SW DICKINSON ST
SW ALICE ST
SW BAIRD ST
SW DOLPH CT
SW SPRING GARDEN ST
SW MARIGOLD ST
SW TAYLORS FERRY RD
SW BARBUR BLVD
SW CAPITOL HWY
SW FWY 5S


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW15
Falling Creek
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2019
0 550 1,100 Feet
NORTH
SW 30TH AVE
SW ADELE ST
SW 25TH AVE
SW 20TH AVE
SW 18TH AVE
SW 42ND AVE
SW DICKINSON ST
SW CORBETT AVE
SW CORNELL RD


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW15
Falling Creek
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 550 1,100 Feet
NORTH
SW 20TH AVE
SW 25TH AVE
SW 35TH AVE
SW 40TH AVE
SW 42ND AVE
SW 45TH AVE
SW 30TH AVE
SW 35TH DR
SW RIBER DR
SW WILLARD ST
SW HUBER ST
SW CRAIGMONT CT
SW CORONADO ST
SW MARIGOLD ST
SW SPRING GARDEN ST
SW TAYLORS FERRY RD
SW DICKINSON ST
SW POMONA ST
SW ALTHEA ST
SW CORONADO PL
SW BARBUR BLVD
SW MACADAM AVE

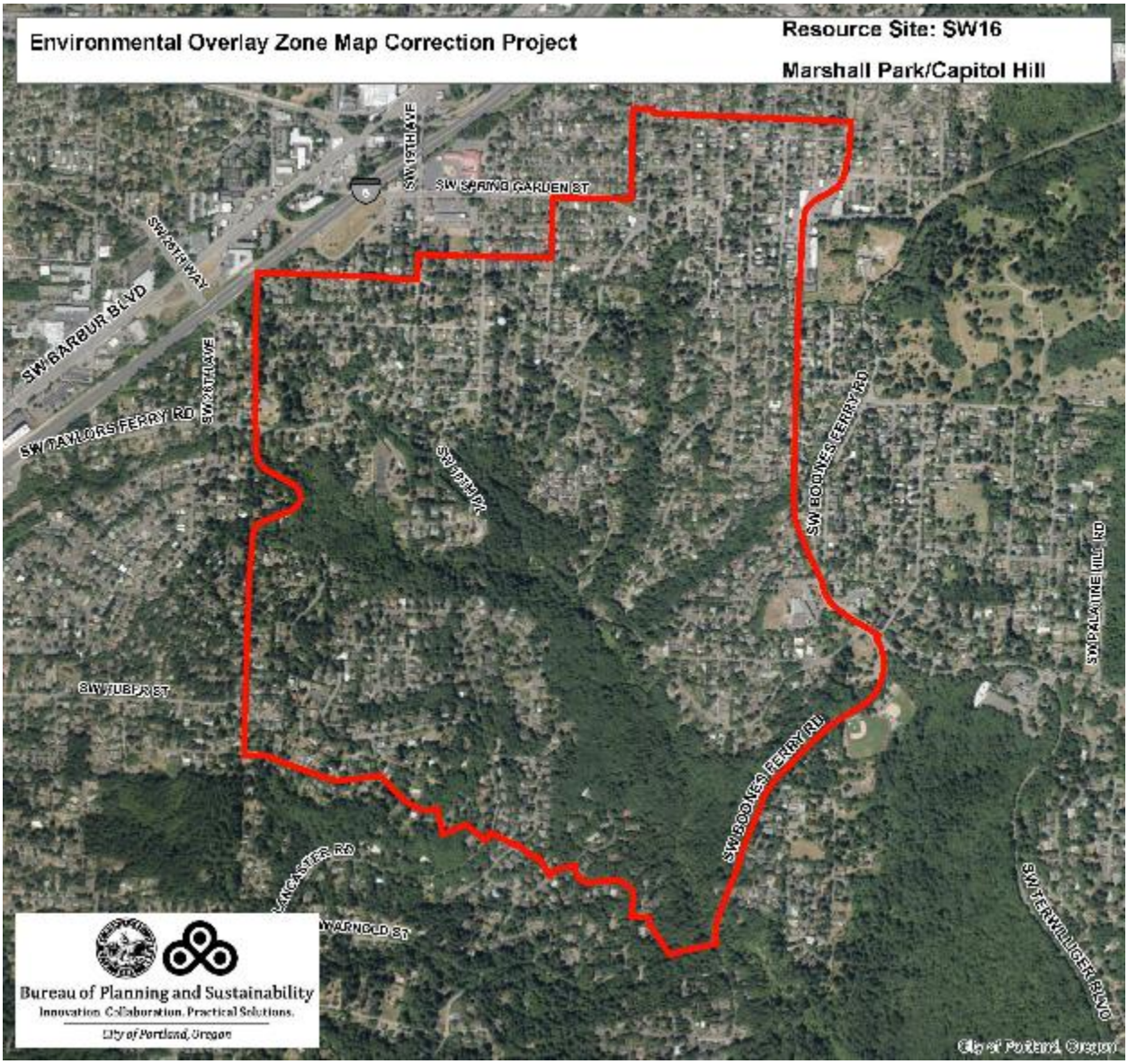

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW15
Falling Creek
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 550 1,100 Feet
NORTH


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW15
Falling Creek
Map F: Determination of Significance
Resource Site
Significant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 550 1,100 Feet
NORTH
SW 20TH AVE
SW 25TH AVE
SW 30TH AVE
SW 35TH AVE
SW 40TH AVE
SW 42ND AVE
SW 45TH AVE
SW 48TH AVE
SW 50TH AVE
SW 51ST AVE
SW ALICE ST
SW MARIGOLD ST
SW SPRING GARDEN ST
SW TAYLORS FERRY RD
SW WILLAMETTE BLVD
SW WILLAMETTE DR
SW WILLAMETTE ST
SW WILLAMETTE WAY
SW WILLAMETTE PL
SW WILLAMETTE CT
SW WILLAMETTE LN
SW WILLAMETTE AVE
SW WILLAMETTE CIR
SW WILLAMETTE TER
SW WILLAMETTE PARK
SW WILLAMETTE PARK DR
SW WILLAMETTE PARK CT
SW WILLAMETTE PARK LN
SW WILLAMETTE PARK AVE
SW WILLAMETTE PARK CIR
SW WILLAMETTE PARK TER
SW WILLAMETTE PARK PL
SW WILLAMETTE PARK WAY
SW WILLAMETTE PARK ST
SW WILLAMETTE PARK BLVD
SW WILLAMETTE PARK RD
SW WILLAMETTE PARK LOOP
SW WILLAMETTE PARK CRESCENT
SW WILLAMETTE PARK PLAZA
SW WILLAMETTE PARK TRAIL
SW WILLAMETTE PARK VIEW
SW WILLAMETTE PARK VISTA
SW WILLAMETTE PARK GARDEN
SW WILLAMETTE PARK GROVE
SW WILLAMETTE PARK HILL
SW WILLAMETTE PARK MEADOW
SW WILLAMETTE PARK POINT
SW WILLAMETTE PARK RIDGE
SW WILLAMETTE PARK SQUARE
SW WILLAMETTE PARK TERRACE
SW WILLAMETTE PARK WALK
SW WILLAMETTE PARK WOODS
SW WILLAMETTE PARK YARD
SW WILLAMETTE PARK ZONE
SW WILLAMETTE PARK ZONE 1
SW WILLAMETTE PARK ZONE 2
SW WILLAMETTE PARK ZONE 3
SW WILLAMETTE PARK ZONE 4
SW WILLAMETTE PARK ZONE 5
SW WILLAMETTE PARK ZONE 6
SW WILLAMETTE PARK ZONE 7
SW WILLAMETTE PARK ZONE 8
SW WILLAMETTE PARK ZONE 9
SW WILLAMETTE PARK ZONE 10
SW WILLAMETTE PARK ZONE 11
SW WILLAMETTE PARK ZONE 12
SW WILLAMETTE PARK ZONE 13
SW WILLAMETTE PARK ZONE 14
SW WILLAMETTE PARK ZONE 15
SW WILLAMETTE PARK ZONE 16
SW WILLAMETTE PARK ZONE 17
SW WILLAMETTE PARK ZONE 18
SW WILLAMETTE PARK ZONE 19
SW WILLAMETTE PARK ZONE 20
SW WILLAMETTE PARK ZONE 21
SW WILLAMETTE PARK ZONE 22
SW WILLAMETTE PARK ZONE 23
SW WILLAMETTE PARK ZONE 24
SW WILLAMETTE PARK ZONE 25
SW WILLAMETTE PARK ZONE 26
SW WILLAMETTE PARK ZONE 27
SW WILLAMETTE PARK ZONE 28
SW WILLAMETTE PARK ZONE 29
SW WILLAMETTE PARK ZONE 30
SW WILLAMETTE PARK ZONE 31
SW WILLAMETTE PARK ZONE 32
SW WILLAMETTE PARK ZONE 33
SW WILLAMETTE PARK ZONE 34
SW WILLAMETTE PARK ZONE 35
SW WILLAMETTE PARK ZONE 36
SW WILLAMETTE PARK ZONE 37
SW WILLAMETTE PARK ZONE 38
SW WILLAMETTE PARK ZONE 39
SW WILLAMETTE PARK ZONE 40
SW WILLAMETTE PARK ZONE 41
SW WILLAMETTE PARK ZONE 42
SW WILLAMETTE PARK ZONE 43
SW WILLAMETTE PARK ZONE 44
SW WILLAMETTE PARK ZONE 45
SW WILLAMETTE PARK ZONE 46
SW WILLAMETTE PARK ZONE 47
SW WILLAMETTE PARK ZONE 48
SW WILLAMETTE PARK ZONE 49
SW WILLAMETTE PARK ZONE 50
SW WILLAMETTE PARK ZONE 51
SW WILLAMETTE PARK ZONE 52
SW WILLAMETTE PARK ZONE 53
SW WILLAMETTE PARK ZONE 54
SW WILLAMETTE PARK ZONE 55
SW WILLAMETTE PARK ZONE 56
SW WILLAMETTE PARK ZONE 57
SW WILLAMETTE PARK ZONE 58
SW WILLAMETTE PARK ZONE 59
SW WILLAMETTE PARK ZONE 60
SW WILLAMETTE PARK ZONE 61
SW WILLAMETTE PARK ZONE 62
SW WILLAMETTE PARK ZONE 63
SW WILLAMETTE PARK ZONE 64
SW WILLAMETTE PARK ZONE 65
SW WILLAMETTE PARK ZONE 66
SW WILLAMETTE PARK ZONE 67
SW WILLAMETTE PARK ZONE 68
SW WILLAMETTE PARK ZONE 69
SW WILLAMETTE PARK ZONE 70
SW WILLAMETTE PARK ZONE 71
SW WILLAMETTE PARK ZONE 72
SW WILLAMETTE PARK ZONE 73
SW WILLAMETTE PARK ZONE 74
SW WILLAMETTE PARK ZONE 75
SW WILLAMETTE PARK ZONE 76
SW WILLAMETTE PARK ZONE 77
SW WILLAMETTE PARK ZONE 78
SW WILLAMETTE PARK ZONE 79
SW WILLAMETTE PARK ZONE 80
SW WILLAMETTE PARK ZONE 81
SW WILLAMETTE PARK ZONE 82
SW WILLAMETTE PARK ZONE 83
SW WILLAMETTE PARK ZONE 84
SW WILLAMETTE PARK ZONE 85
SW WILLAMETTE PARK ZONE 86
SW WILLAMETTE PARK ZONE 87
SW WILLAMETTE PARK ZONE 88
SW WILLAMETTE PARK ZONE 89
SW WILLAMETTE PARK ZONE 90
SW WILLAMETTE PARK ZONE 91
SW WILLAMETTE PARK ZONE 92
SW WILLAMETTE PARK ZONE 93
SW WILLAMETTE PARK ZONE 94
SW WILLAMETTE PARK ZONE 95
SW WILLAMETTE PARK ZONE 96
SW WILLAMETTE PARK ZONE 97
SW WILLAMETTE PARK ZONE 98
SW WILLAMETTE PARK ZONE 99
SW WILLAMETTE PARK ZONE 100


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW15
Falling Creek
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
550
1,100 Feet
NORTH

Resource Site No.: SW16 **Site Name:** Marshall Park/Capitol Hill

Previous Plan: Southwest Hills Resource Protection Plan **Previous Resource Site No.:** 120



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW16	
	Study Area
Stream (Miles)	0.3
Wetlands (acres)	0.8
Vegetated Areas >= 1/2 acre (acres)	245.9
Forest (acres)	205.9
Woodland (acres)	25.4
Shrubland (acres)	0.0
Herbaceous (acres)	14.5
Flood Area*	16.4
Vegetated (acres)	14.7
Non-vegetated (acres)	1.7
Steep Slopes (acres)**	269.8
Impervious Surface (acres)	158.9
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

Marshall Park forms the backbone of this part of the city's natural area. Marshall Park is an undiscovered jewel located in the middle of a 4,000-foot wide canyon. The canyon is a natural drainage basin formed by the west slope of the Palatine Hill, the hills northwest of Mt. Sylvania and by Tryon Creek that runs through it. The surrounding area has a mixture of low-density residential development and/or no development. There is also a wholesale plant nursery. The street system appears incomplete in the south half of the site where the creek canyon leaves the site.

About half of Site SW16 or 200 acres is undeveloped and has a forested cover. Thirty-seven acres are designated open space. Marshall Park is 23.25 acres in size and 14 acres of Tryon State Creek Park are in the southeast corner of this site. Marshall Park has a waterfall that has white water flowing year-round and is framed by rock boulders and fallen trees. This stretch of Tryon Creek has several species of fish including coho salmon and spawning steelhead.

The forest is 40 percent coniferous defined by Douglas fir, hemlock, pacific yew, and western red cedar trees. The Douglas fir are typically three feet in diameter at breast height (dbh). The forest tree canopy and herbaceous layer both have 90 percent closure and the shrub layer has a 40 percent closure. A diversity of shrub types are present including the western wahoo, an uncommon native shrub. The native banana slug was also observed.

The confluence of Falling Creek and its tributary north of Marshall Park occurs in a narrow, forested canyon.

Table B: Quality of Natural Resource Functions in Resource Site SW16				
Resource Site (acres) = 561.034105				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	102.6	45.0	71.6	219.2
percent total inventory site area	18.3%	8.0%	12.8%	39.1%
Wildlife Habitat*				
acres	0.0	166.9	26.4	193.3
percent total inventory site area	0.0%	29.7%	4.7%	34.5%
Special Habitat Areas**				
acres				65.2
percent total inventory site area				11.6%
Combined Total+				
acres	130.1	50.2	46.6	226.9
percent total inventory site area	23.2%	8.9%	8.3%	40.4%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW16 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetlands; flood area; forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R20, R10, R7, R5, R2.5, and R2 base zones. Commercial uses are allowed in the CE and CM1 base zone. Open Space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW16, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk

species, maintaining the flow moderation, water quality and flood control functions of streams and wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

There is development located in the floodplain. The structures and impervious surface limit the flood capacity and infiltration functions of the land and increase the flood risk to the property as well as properties up and down stream. New or expanded development in the flood area should be *limited*.

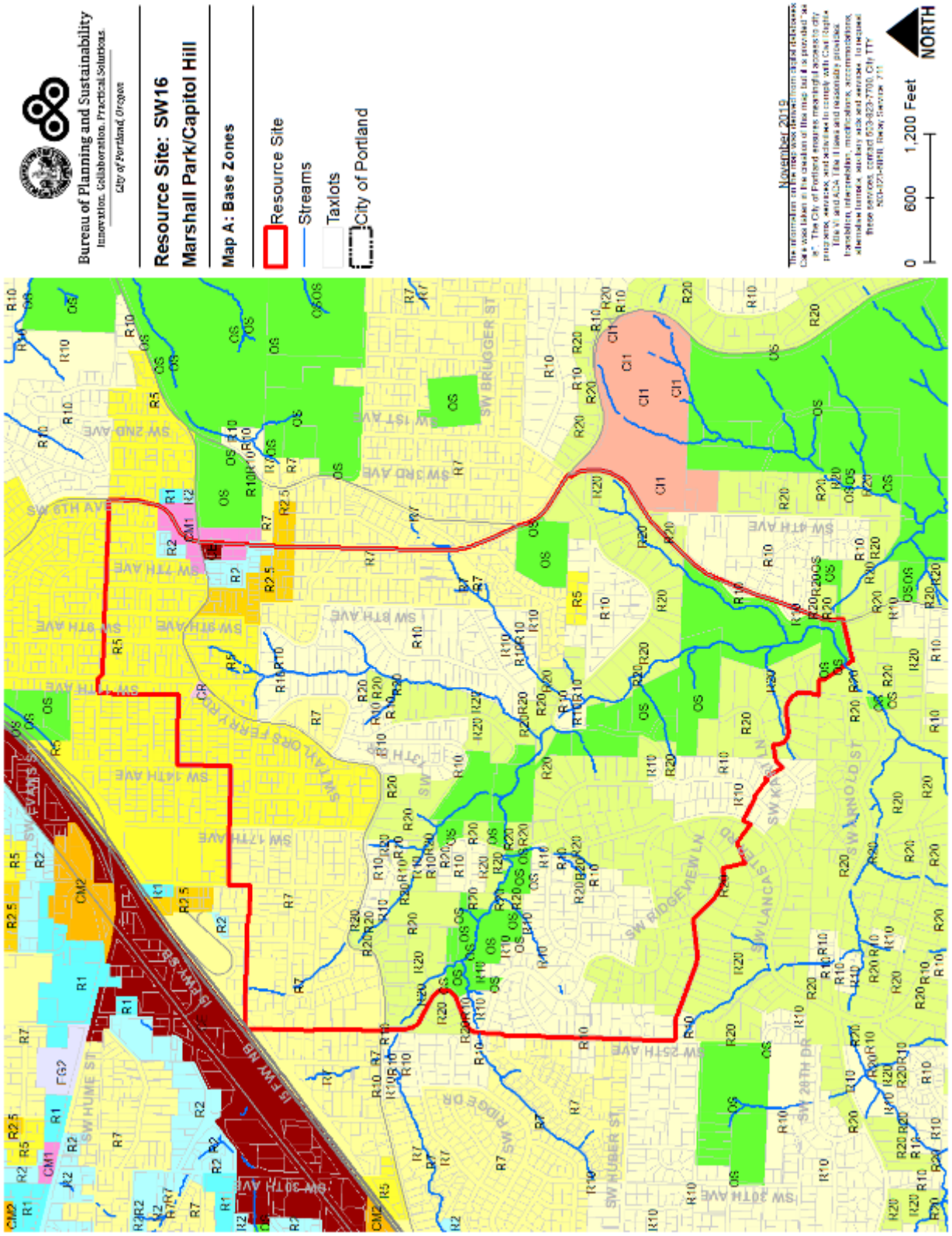
ESEE Decisions

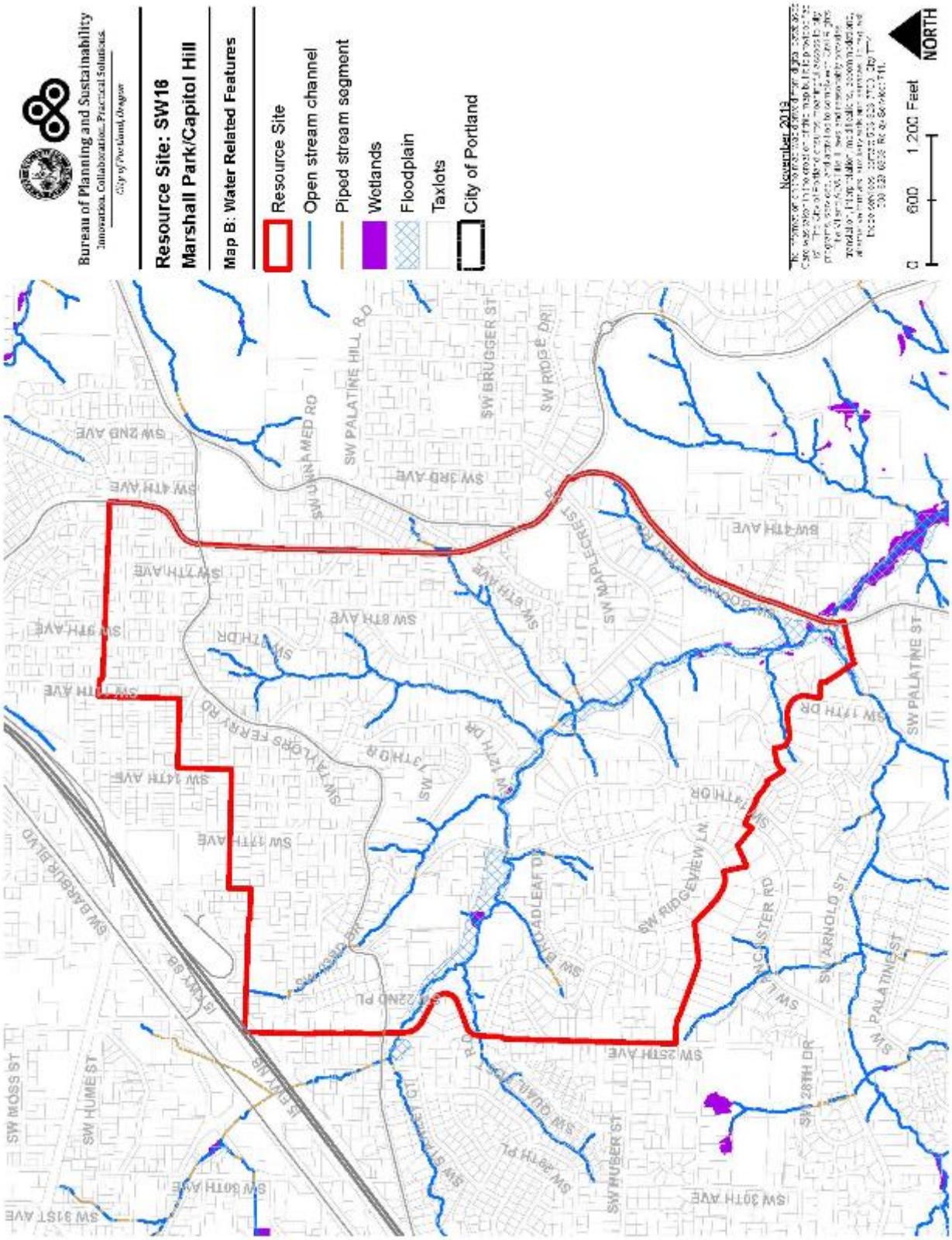
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW16 are:

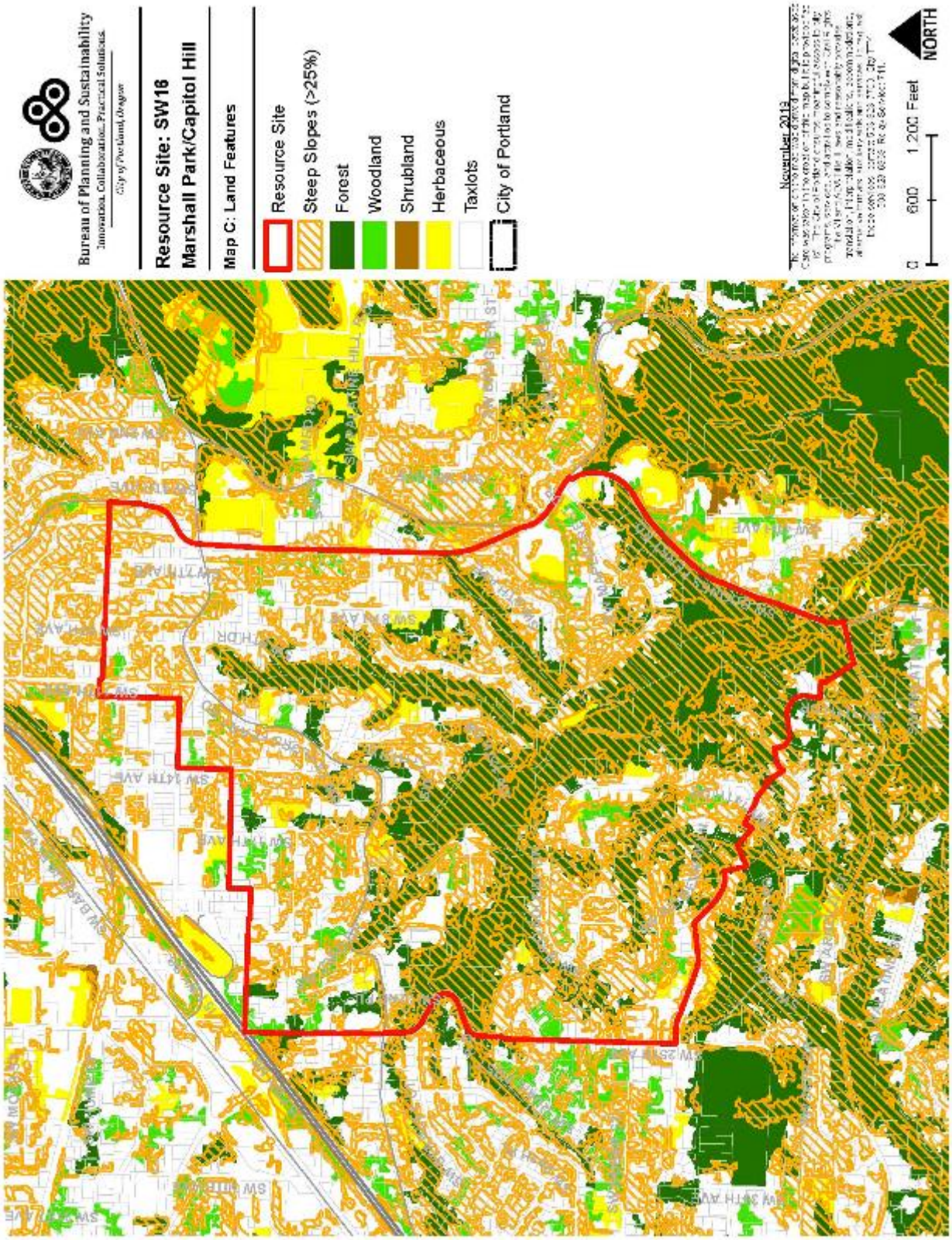
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, land within 50 feet of stream top-of-bank and land within 50 feet of wetlands.
2. *Strictly limit* conflicting uses within flood area, vegetated or developed, located between stream ordinary high water mark and 170 feet measured horizontally from the ordinary high water mark.
3. Inside Marshall Park, s*trictly limit* conflicting uses within areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank and areas of forest vegetation on steep slopes that are contiguous to but more than 50 feet from stream top-of-bank.
4. *Limit* conflicting uses within flood area, vegetated or developed, located more than 170 feet measured horizontally from the ordinary high water mark.
5. Outside Marshall Park, *limit* conflicting uses within areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank or wetlands, within areas of forest on steep slopes that are contiguous to but more than 50 feet from stream top-of-bank, and on land between 50 and 75 feet of streams and wetlands.
6. *Allow* conflicting uses within all other areas containing significant natural resources.

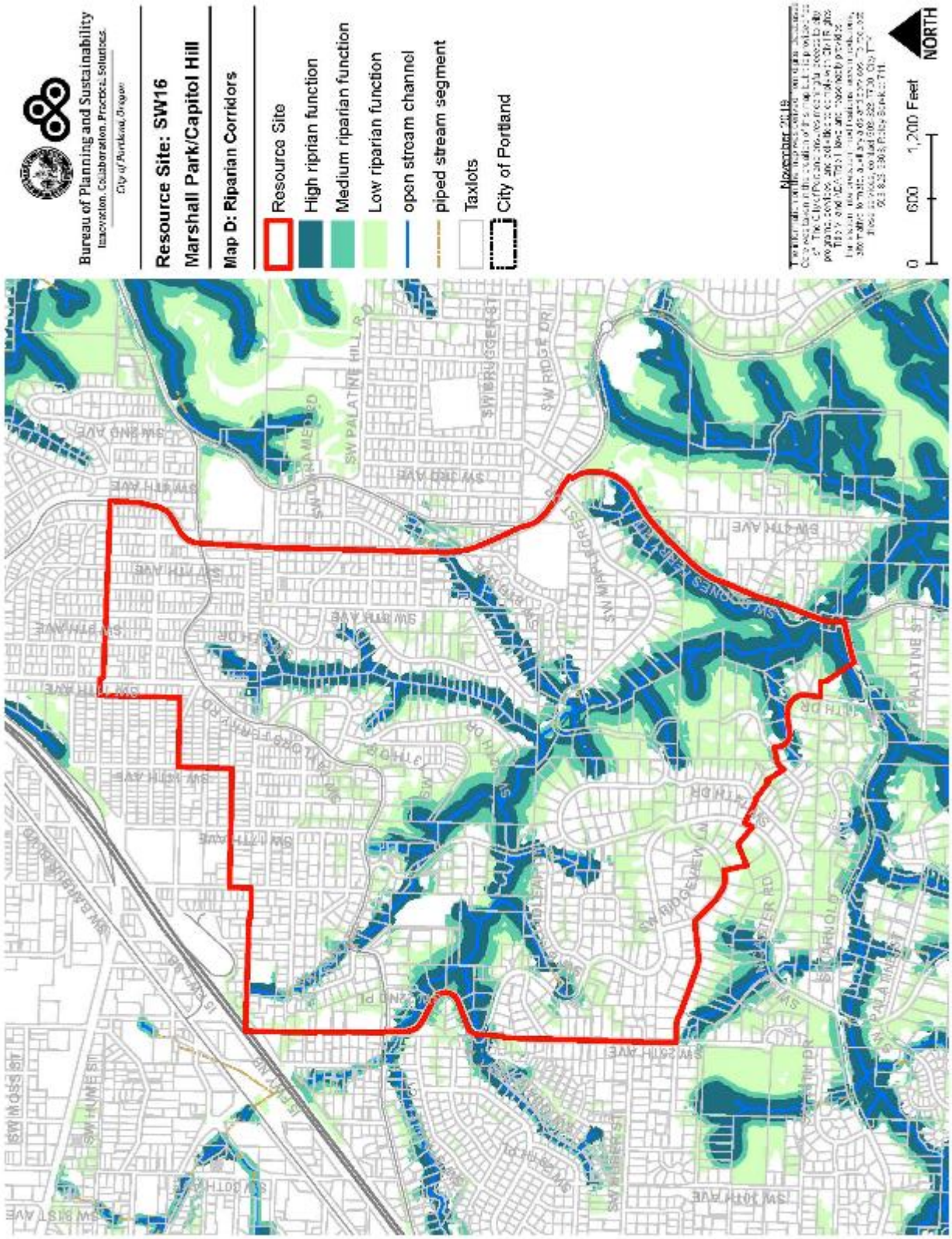
Table C: ESEE Decision for Resource Site SW16

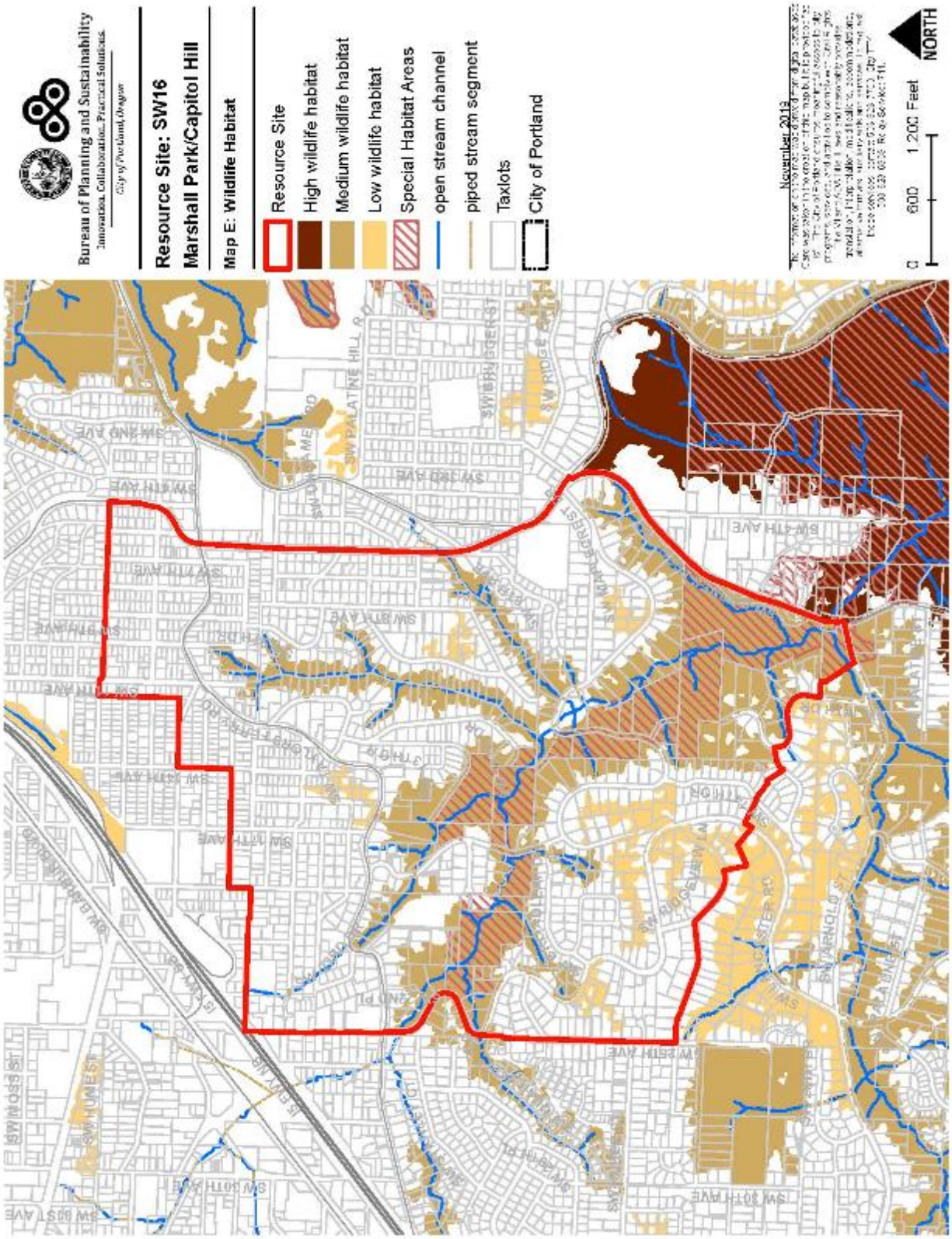
ESEE Decision	Acres
Strictly Limit	102.3
Limit	86.5
Allow	372.2

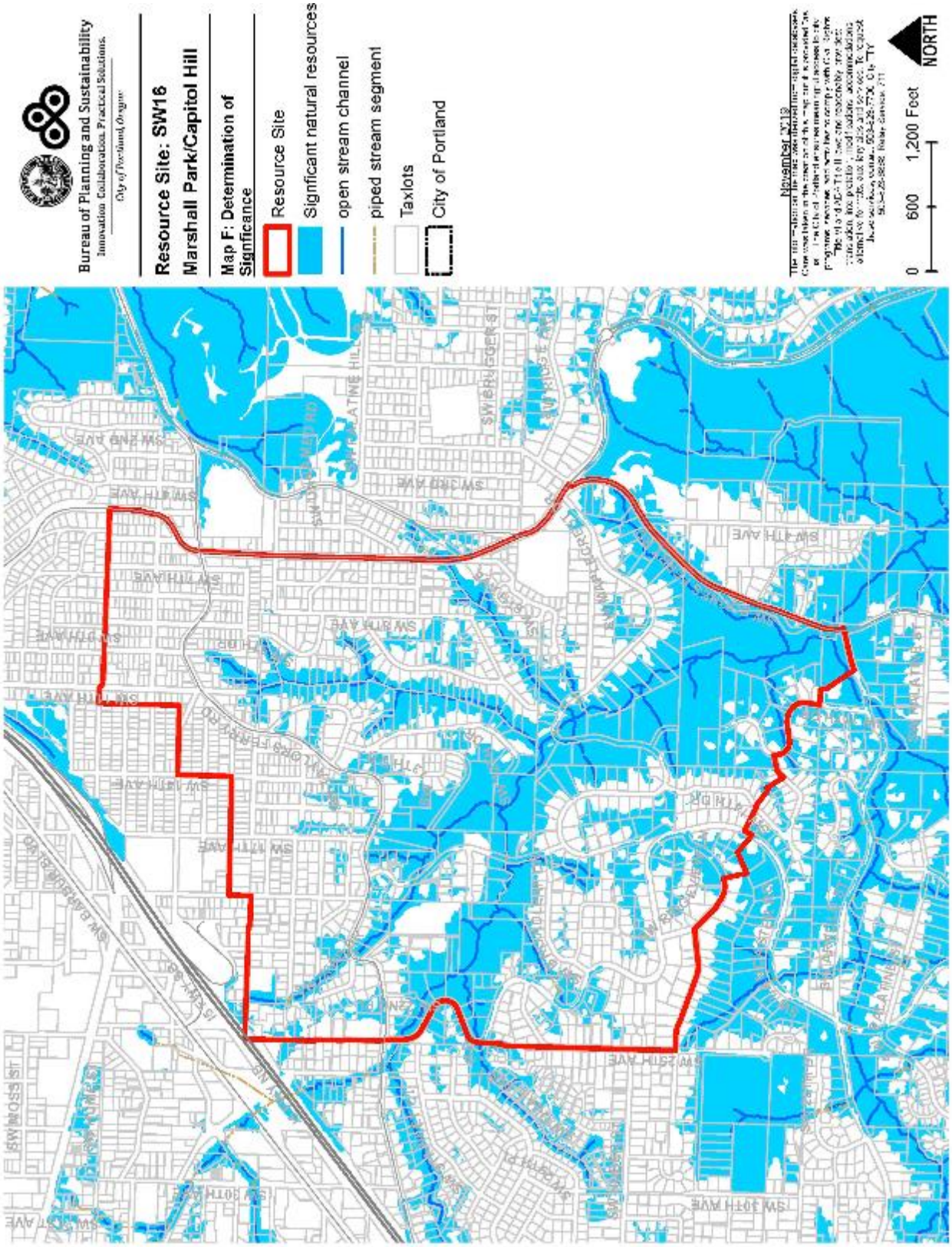

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW16
Marshall Park/Capitol Hill
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0 600 1,200 Feet
NORTH

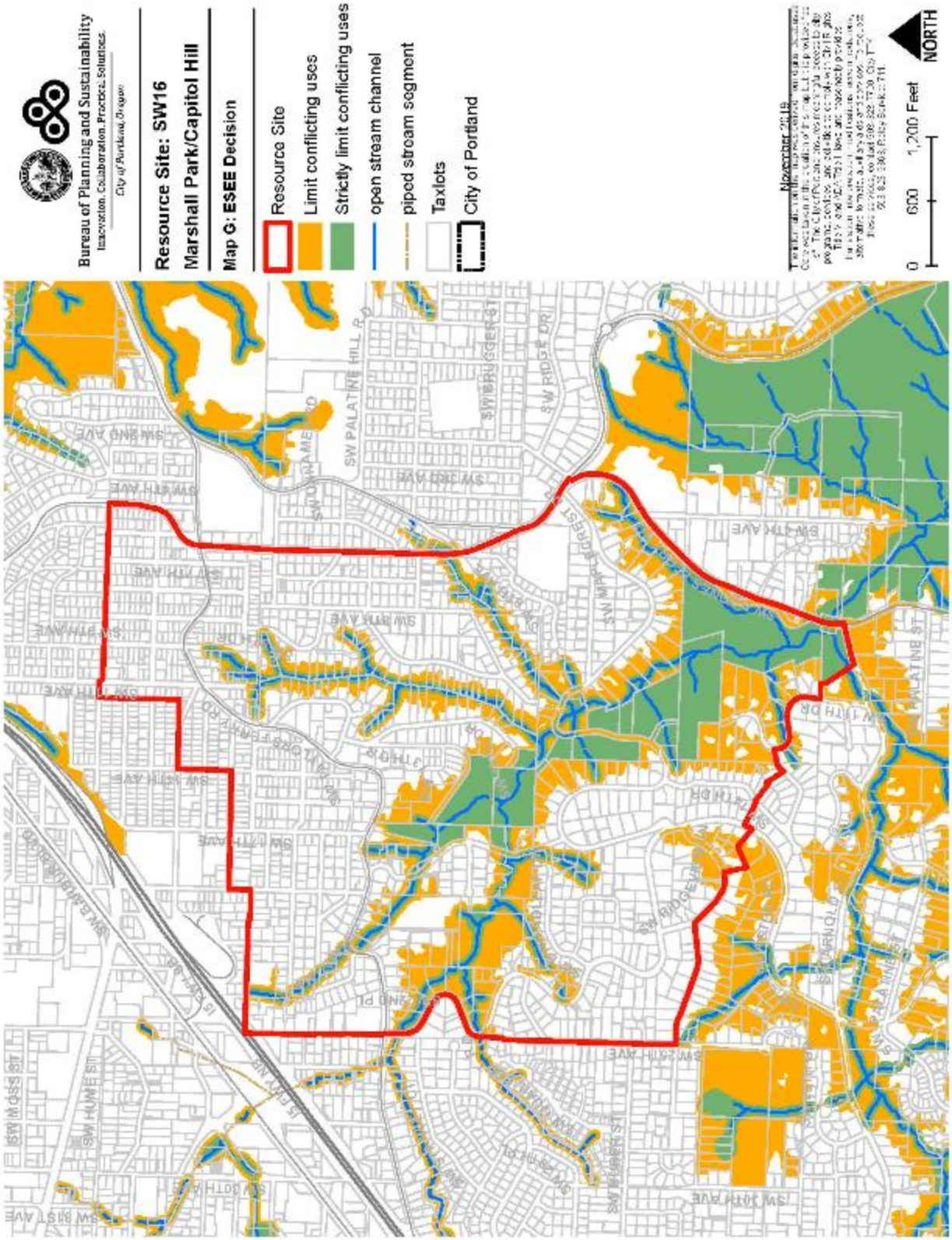

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW16
Marshall Park/Capitol Hill
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0 600 1,200 Feet
NORTH
SW PALATINE HILL RD
SW BRUGGER ST
SW RIDGE DR
SW 2ND AVE
SW 3RD AVE
SW 4TH AVE
SW 7TH AVE
SW 8TH AVE
SW 9TH AVE
SW 10TH AVE
SW 11TH AVE
SW 14TH AVE
SW 17TH DR
SW 17TH AVE
SW 18TH AVE
SW 19TH DR
SW 20TH DR
SW 22ND PL
SW 25TH AVE
SW 28TH DR
SW 30TH AVE
SW 31ST AVE
SW MOSS ST
SW HUME ST
SW BARBUR BLVD
SW VALLEY VIEW RD
SW RIDGEVIEW LN
SW ARNOLD ST
SW PALATINE ST
SW HUBER ST
SW MAPLECREST DR


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW16
Marshall Park/Capitol Hill
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2019
0 600 1,200 Feet
NORTH


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW16
Marshall Park/Capitol Hill
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2018
0
600
1,200 Feet
NORTH
SW PALATINE HILL RD
SW RIDGE DR
SW 30TH AVE
SW 31ST AVE
SW MOSS ST
SW HUNT ST
SW BARBUR BLVD

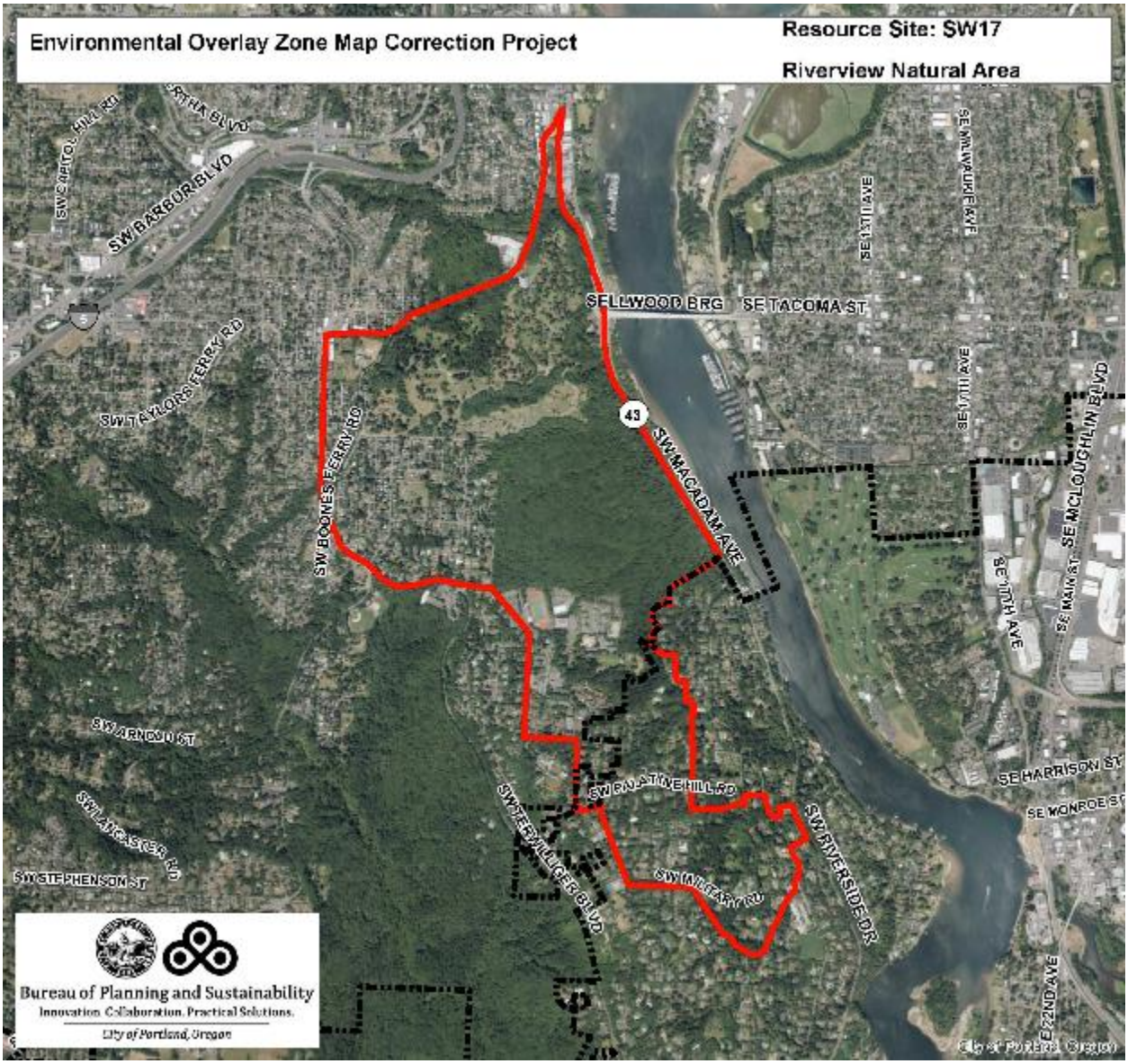

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW16
Marshall Park/Capitol Hill
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 600 1,200 Feet
NORTH


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW16
Marshall Park/Capitol Hill
Map F: Determination of Significance
Resource Site
Significant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
600
1,200 Feet
NORTH


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW16
Marshall Park/Capitol Hill
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
600
1,200 Feet
NORTH
SW PALATINE HILL RD
SW BRUGGER ST
SW RIDGE DR
SW 2ND AVE
SW 3RD AVE
SW 4TH AVE
SW 6TH AVE
SW 9TH AVE
SW 11TH AVE
SW 13TH AVE
SW 14TH AVE
SW 17TH AVE
SW 20TH AVE
SW 25TH AVE
SW 30TH AVE
SW 31ST AVE
SW 22ND PL
SW 11TH DR
SW 14TH DR
SW MARIGOLD
SW BOONES FERRY RD
SW PALATINE ST
SW MOSS ST
SW HUME ST
SW HEWETT ST
SW BARBUR BLVD
I-5 FWY

Resource Site No.: SW17 **Site Name:** Riverview Natural Area

Previous Plan: Southwest Hills Resource Protection Plan **Previous Resource Site No.:** 117



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW17	
	Study Area
Stream (Miles)	0.3
Wetlands (acres)	3.0
Vegetated Areas >= 1/2 acre (acres)	510.2
Forest (acres)	346.1
Woodland (acres)	92.6
Shrubland (acres)	0.6
Herbaceous (acres)	70.9
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	360.0
Impervious Surface (acres)	120.3
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

This site is the northern portion of a broad, massive ridge that is about two miles long, includes Palatine Hill and extends south to Lake Oswego. The ridge is about 1,500 feet wide, 550 feet high and consists of a series of ravines. About half of the site is in a natural condition. The west slope forms the east face of the Tryon Creek Canyon and the east side drops vertically to the Willamette River and Macadam Avenue. Stephens Creek flows through the northern part of this site in a deep ravine that separates Fulton Park and Burlingame neighborhoods. The major land uses include River View Cemetery, Lewis and Clark College and low density residential.

The representative forest cover is in its mid-seral second growth stage, with a 70 percent deciduous and 30 percent coniferous composition. Red alder and bitter cherry are common associates of the maple. Several unusually large specimens of pacific dogwood and cascara are present. Understory shrub species include serviceberry, thimbleberry, Indian plum, wild rose and snowberry that provide wildlife food and cover. However, the non-native Himalayan blackberry is a dominant understory plant. Blackberry plus English ivy, clematis, morning glory, English laurel, English holly and European hawthorn are suppressing the growth of native flora. The site soils are prone to slides and slumps when saturated. At particular risk are the steep, sloped ravines. Erosion caused by the failure of these slopes would negatively impact the habitat and water quality.

There are six perennial creeks including Stephens Creek, plus several seasonal creeks. Crawfish and aquatic insects inhabit these streams. There are also small ponds throughout the site which support newts, salamanders and frogs. Three of the creeks are included on the National Wetland Inventory (PFO1Y). All three flow into Stephens Creek near the Willamette River. Bird species observed include great blue heron, cedar wax wing, pileated and downy woodpeckers, Oregon junco, golden eagle, redtail

hawks, flickers, owls and ducks. Mammals in the area include mule deer and foxes. Over 40 plant species are present at the site and 15 wildlife species were observed during an one-hour visit. Over 60 bird and 30 mammal species have known proclivities for the vegetation type found at the site, both in terms of breeding and feeding activities.

This site has important visual resources. The tree-covered condition of the site contributes to the neighborhood character. Because of the relatively high ridge elevation, broadness and tree cover, this ridge is an important feature of the West Hills and to the surrounding region. Palatine Hill provides a foreground to the Cascades Mountains when viewed from areas near Council Crest.

Table B: Quality of Natural Resource Functions in Resource Site SW17				
Resource Site (acres) = 754.892891				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	154.4	89.8	168.5	412.8
percent total inventory site area	20.5%	11.9%	22.3%	54.7%
Wildlife Habitat*				
acres	0.0	387.5	16.0	403.5
percent total inventory site area	0.0%	51.3%	2.1%	53.4%
Special Habitat Areas**				
acres				222.0
percent total inventory site area				29.4%
Combined Total+				
acres	278.3	122.5	58.5	459.3
percent total inventory site area	36.9%	16.2%	7.7%	60.8%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW17 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetlands; forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status wildlife species.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R20, R10, R7 and R2.5 base zones. Commercial uses are allowed in the CI1 and CM1 base zone. Open space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW17, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk

species, maintaining the flow moderation, water quality and flood control functions of streams and wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

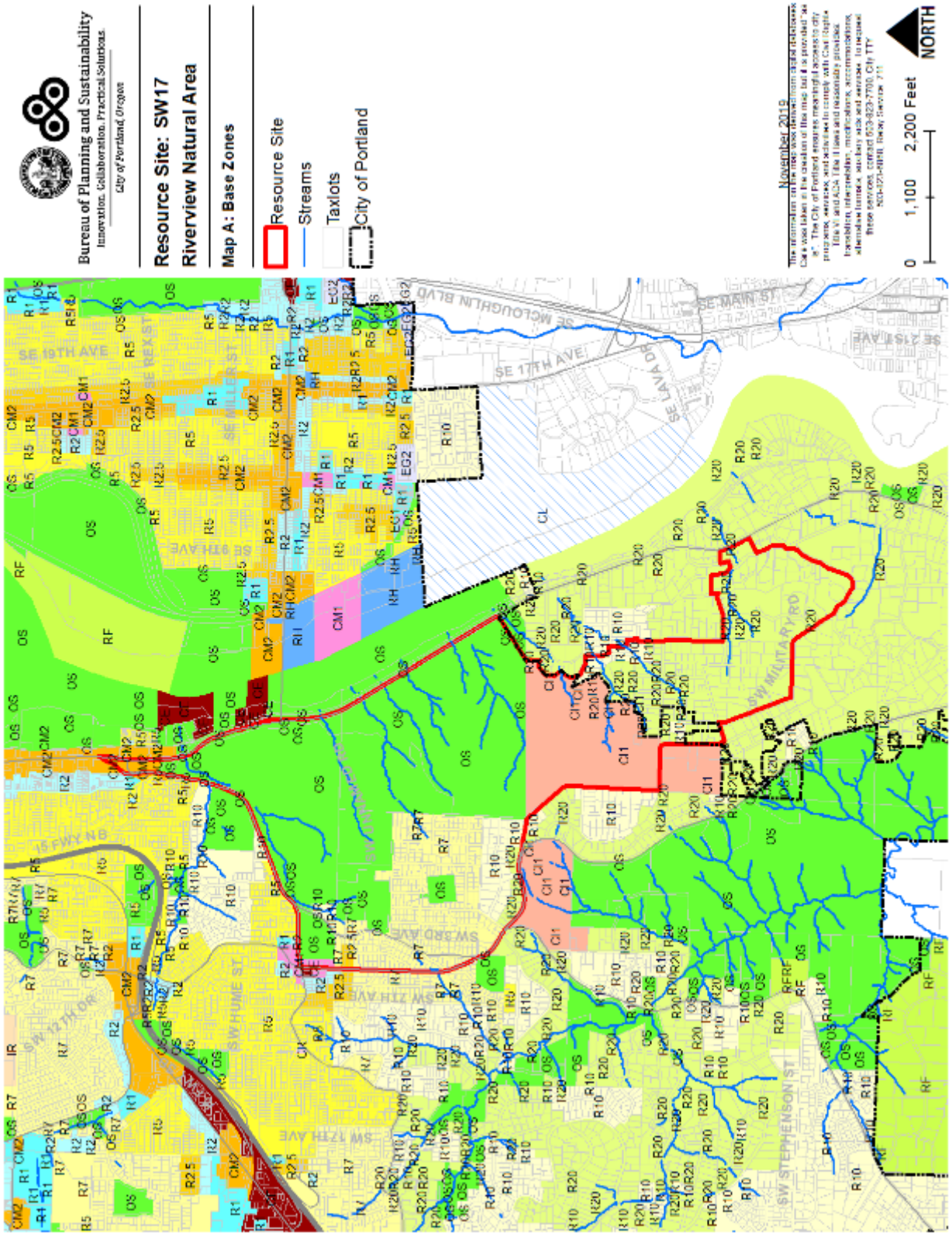
ESEE Decisions

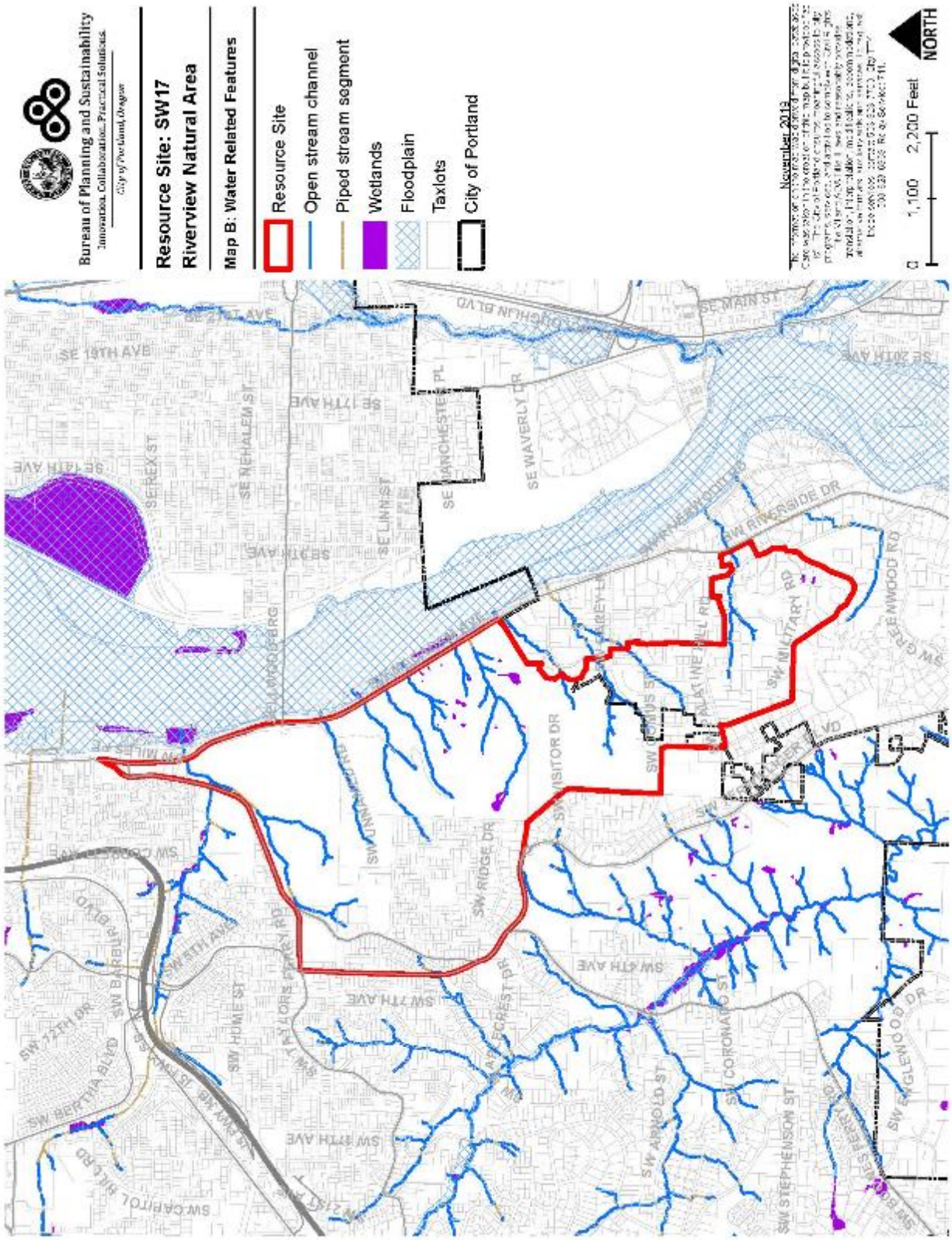
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW17 are:

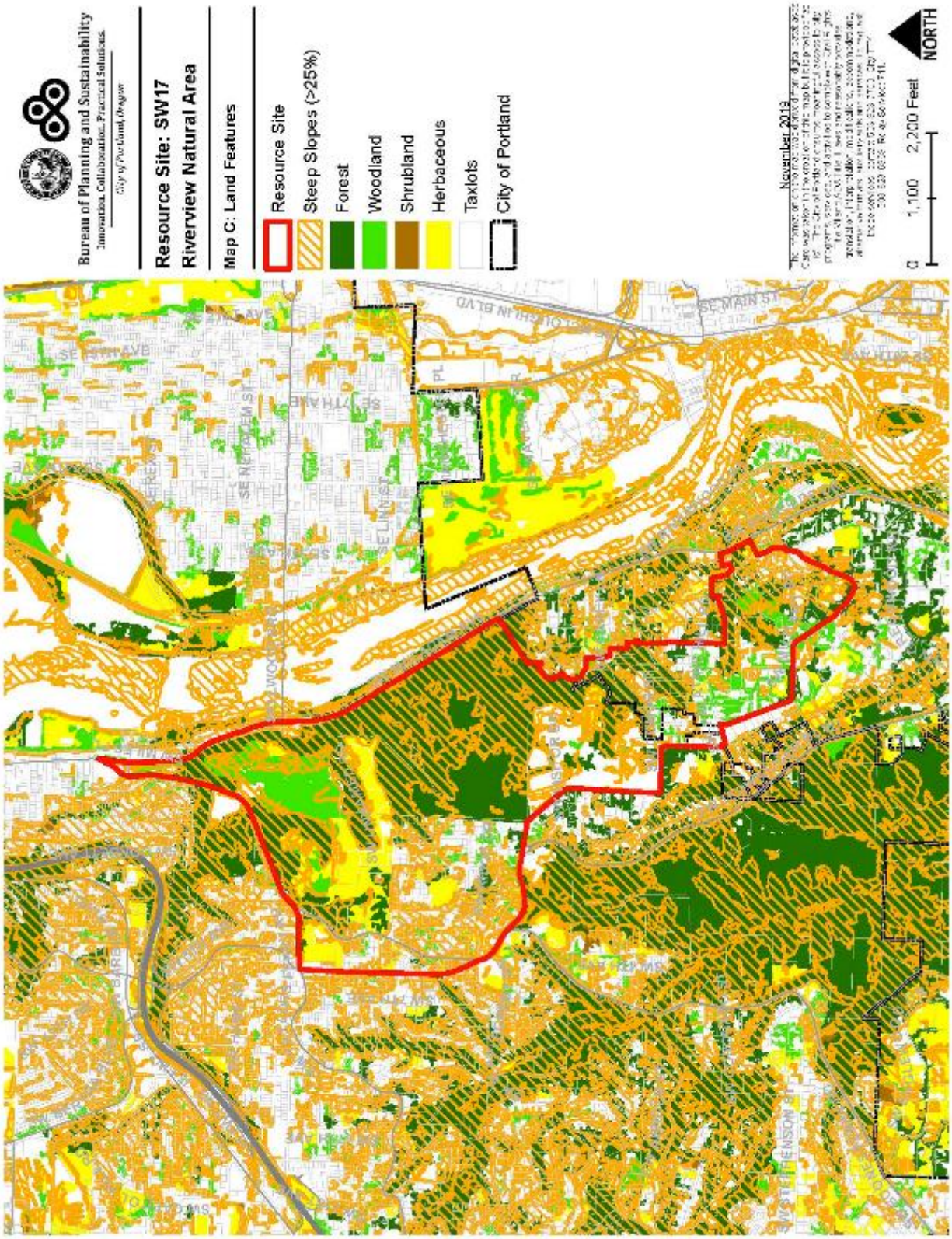
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, land within 50 feet of stream top-of-bank and land within 50 feet of wetlands.
2. Inside the River View Natural Area, *strictly limit* conflicting uses within areas of forest vegetation on steep slopes that is contiguous to but more than 50 feet from stream top-of-bank.
3. *Limit* conflicting uses within areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank, within areas of forest on steep slopes contiguous to but more than 50 feet from stream top-of-bank, and land that is between 50 and 75 feet of stream top-of-bank or wetlands.
4. *Allow* conflicting uses within all other areas containing significant natural resources.

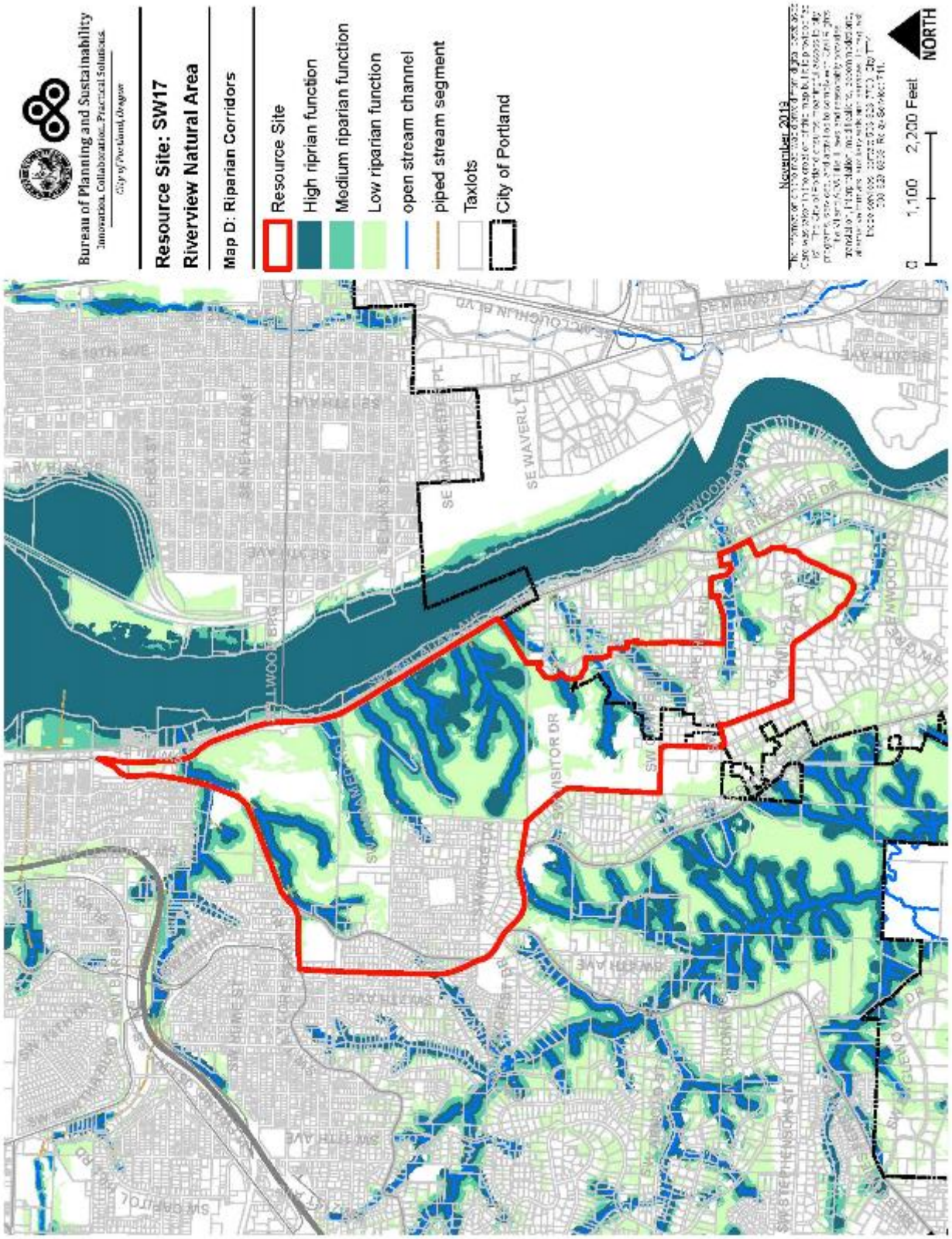
Table C: ESEE Decision for Resource Site SW17

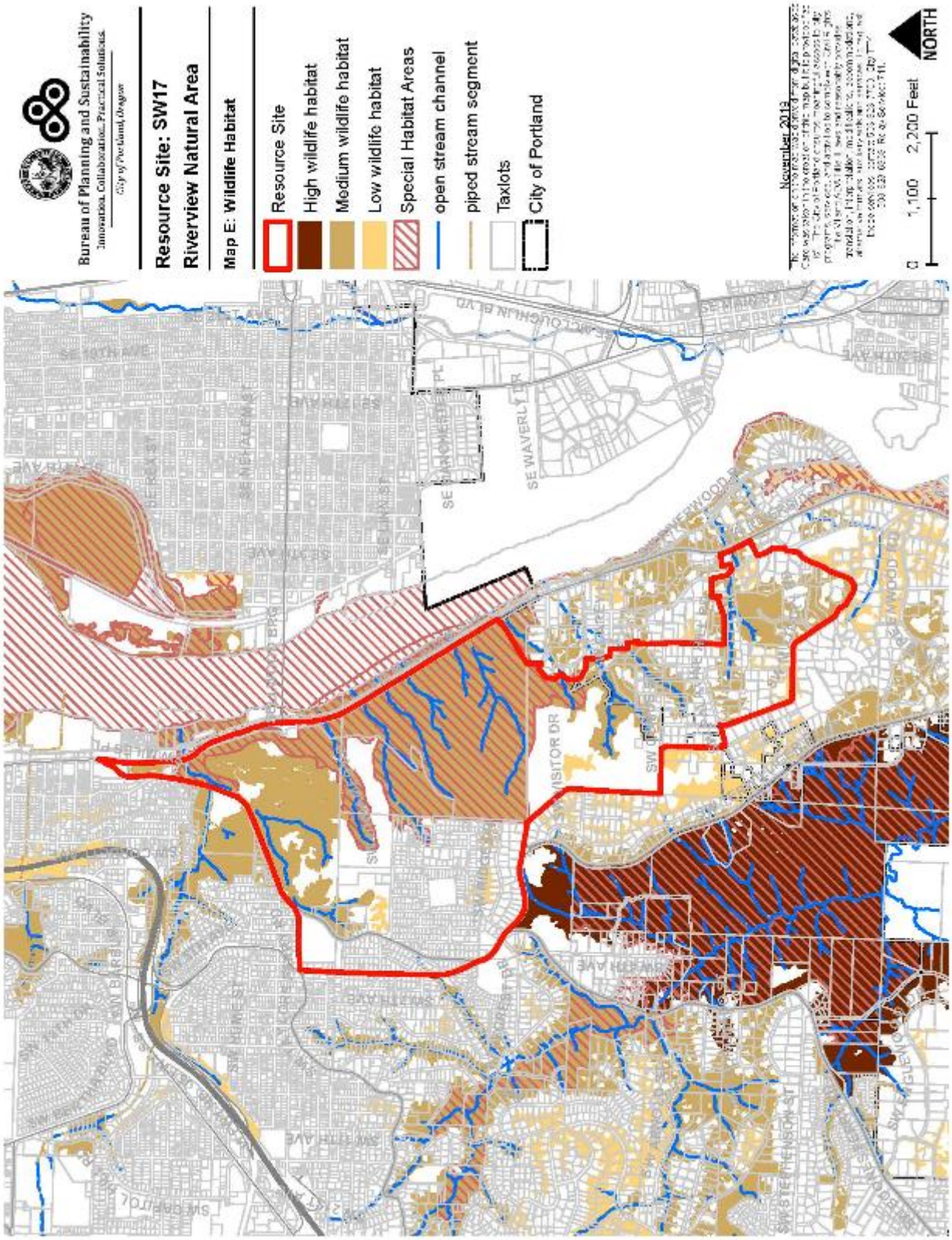
ESEE Decision	Acres
Strictly Limit	149.5
Limit	162.5
Allow	443.0

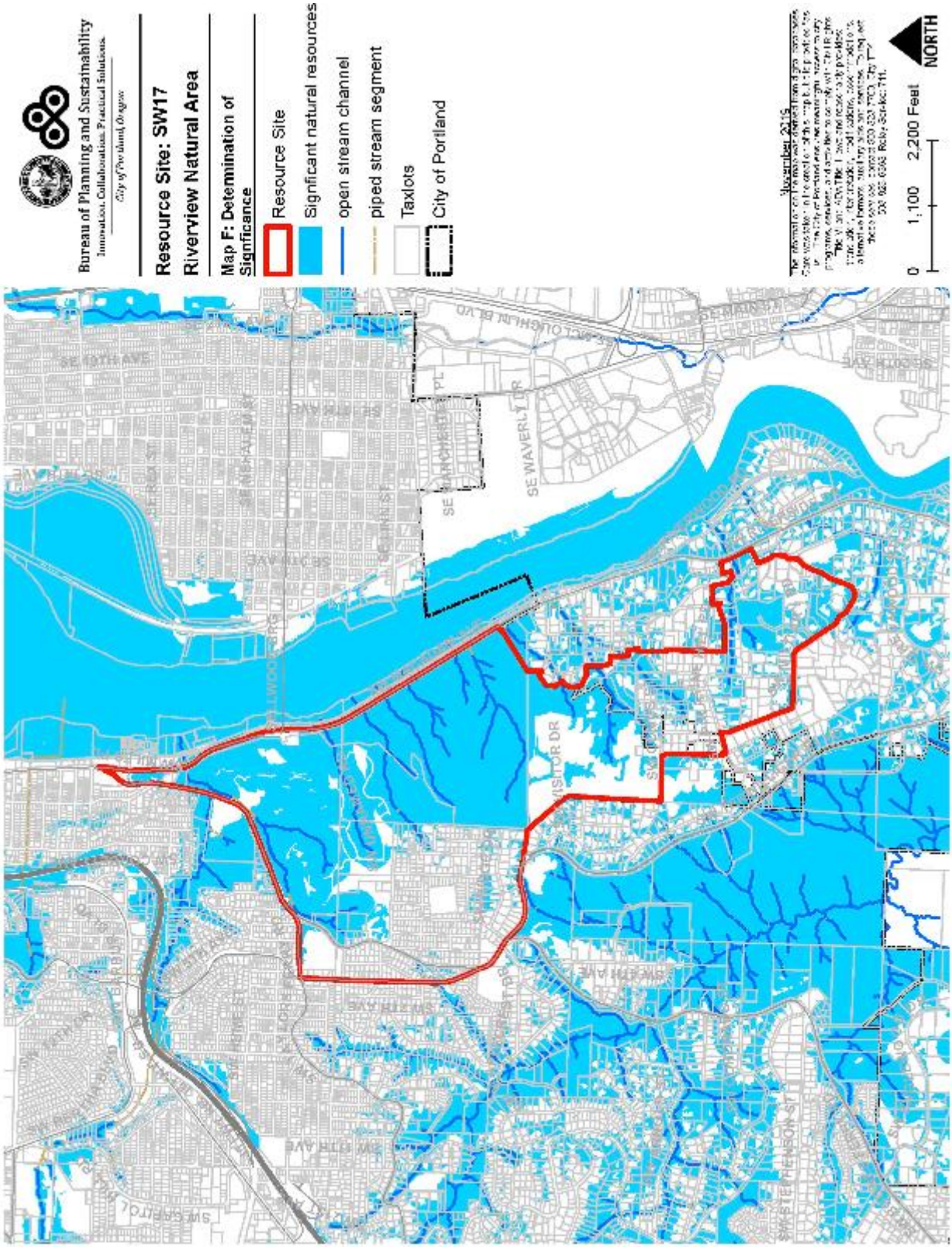

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW17
Riverview Natural Area
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0 1,100 2,200 Feet
NORTH

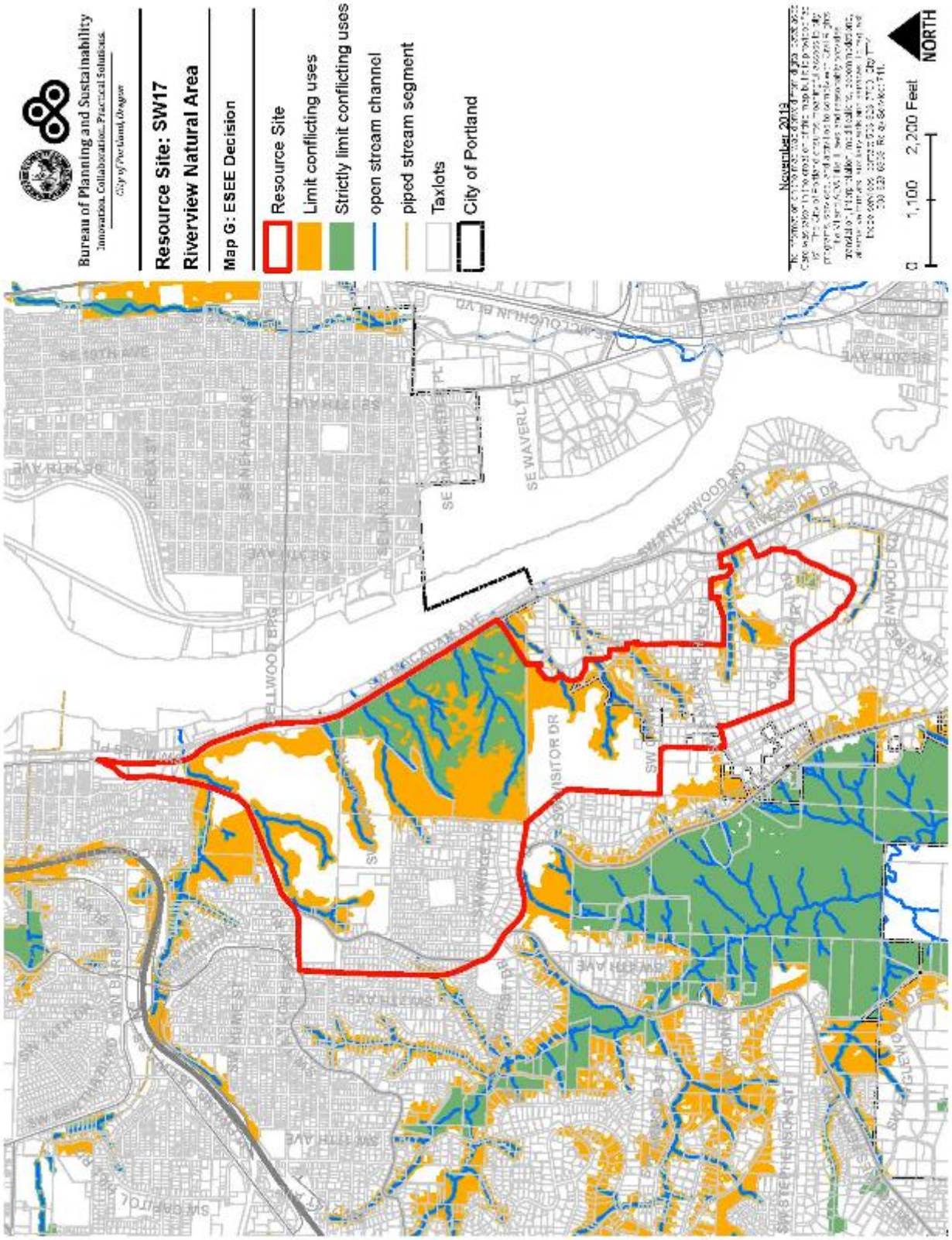

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW17
Riverview Natural Area
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0 1,100 2,200 Feet
NORTH
SE 19TH AVE
SE 17TH AVE
SE 13TH AVE
SE REHALEM ST
SE LINN ST
SE WAVERLY DR
SE MAIN ST
SE 20TH AVE
SW RIVERSIDE DR
SW MILITARY RD
SW GREENWOOD RD
SW VISITOR DR
SW RIDGE DR
SW 4TH AVE
SW 5TH AVE
SW 6TH AVE
SW 12TH DR
SW BERTHA BLVD
SW BARBUR BLVD
SW HOME ST
SW CAPITOL HIL LRD
SW ARNOLD ST
SW CORONADO ST
SW STEPHENSON ST
SW GLENWOOD DR


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW17
Riverview Natural Area
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2019
0 1,100 2,200 Feet
NORTH


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW17
Riverview Natural Area
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 1,100 2,200 Feet
NORTH
SE WAVERLY DR
SW VISITOR DR
SW STEPHENSON ST


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW17
Riverview Natural Area
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 1,100 2,200 Feet
NORTH
SE 19TH AVE
SE WAVERLY DR
SE MCLOUGHLIN BLVD
SE MILWAUKIE AVE
SE TACOMA ST
SE PLACIDA ST
SE STEELE ST
SE RAMONA ST
SE REEDWOOD ST
SE VISITOR DR
SW GLENWOOD ST
SW STEPTOE ST
SW GLENWOOD DR
SW CAPITOL HWY


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW17
Riverview Natural Area
Map F: Determination of Significance
Resource Site
Significant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
0
1,100
2,200 Feet
NORTH
SE 15TH AVE
SE MILWAUKIE AVE
SE WAVERLY DR
SE VISTA DR
SW 53RD AVE
SW 55TH AVE
SW SEMINARY ST


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW17
Riverview Natural Area
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 1,100 2,200 Feet
NORTH
SE 19TH AVE
SE 17TH AVE
SE BARBARA WELCH RD
SE MCLOUGHLIN BLVD
SE WAVERLY DR
SE RIVERWOOD RD
SW VISITOR DR
SW MCADAM AVE
SW TERWILLIGER BLVD
SW STEPTOE WOOD ST
SW GLENWOOD DR

Resource Site No.: SW18 **Site Name:** Maricara Natural Area

Previous Plan: Southwest Hills Resource Protection Plan Previous Resource Site No.: 121

Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW18	
	Study Area
Stream (Miles)	0.5
Wetlands (acres)	1.2
Vegetated Areas >= 1/2 acre (acres)	37.9
Forest (acres)	32.7
Woodland (acres)	2.6
Shrubland (acres)	0.0
Herbaceous (acres)	2.5
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	31.8
Impervious Surface (acres)	19.9
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

Description to be included in the next draft.

Table B: Quality of Natural Resource Functions in Resource Site SW18				
Resource Site (acres) = 82.984301				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	11.3	6.1	17.3	34.6
percent total inventory site area	13.6%	7.4%	20.8%	41.7%
Wildlife Habitat*				
acres	0.0	29.5	2.0	31.5
percent total inventory site area	0.0%	35.6%	2.4%	38.0%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total+				
acres	11.3	20.8	2.6	34.6
percent total inventory site area	13.6%	25.1%	3.1%	41.7%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW18 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetlands; forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R20 and R10 base zones. Open Space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW18, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

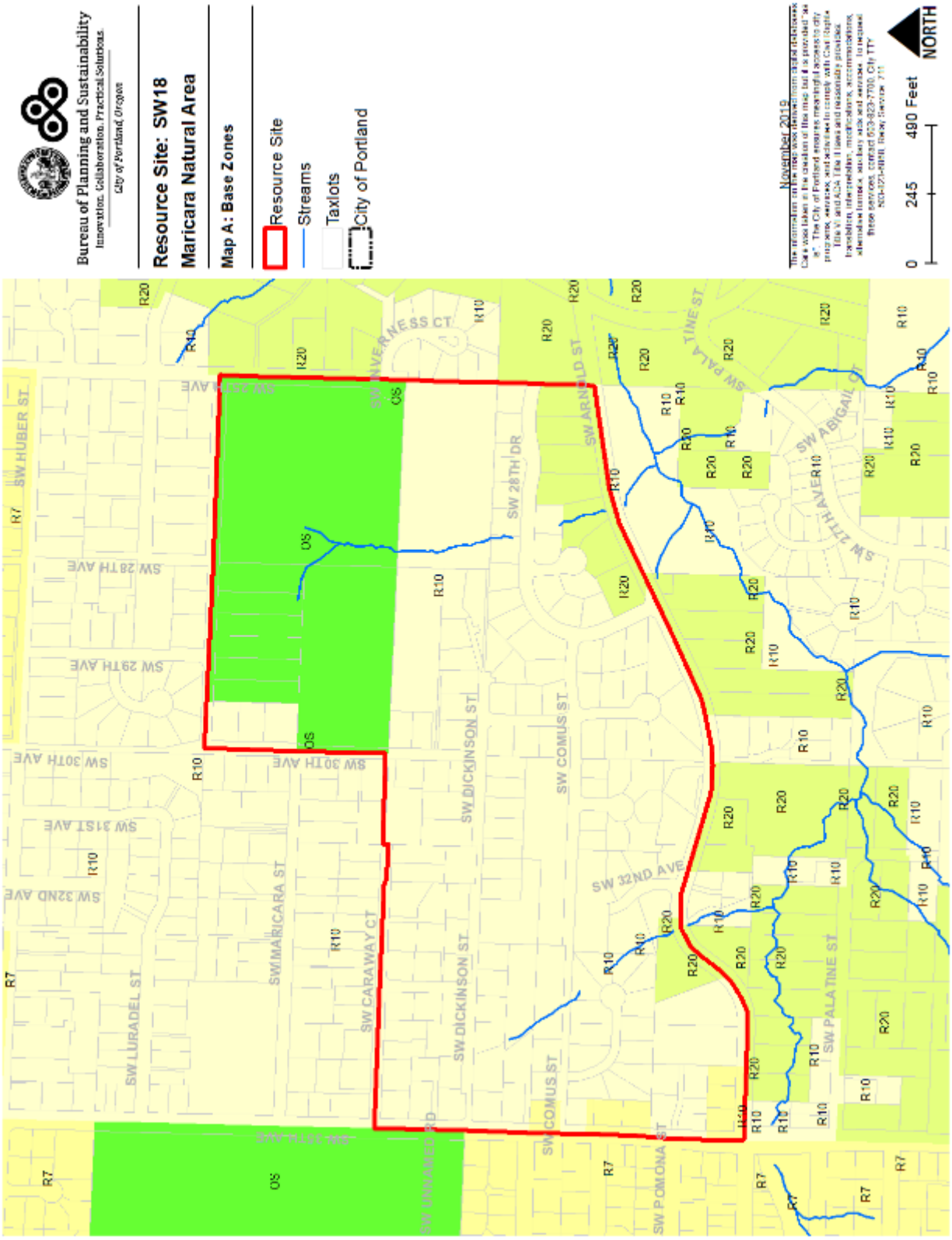
ESEE Decisions

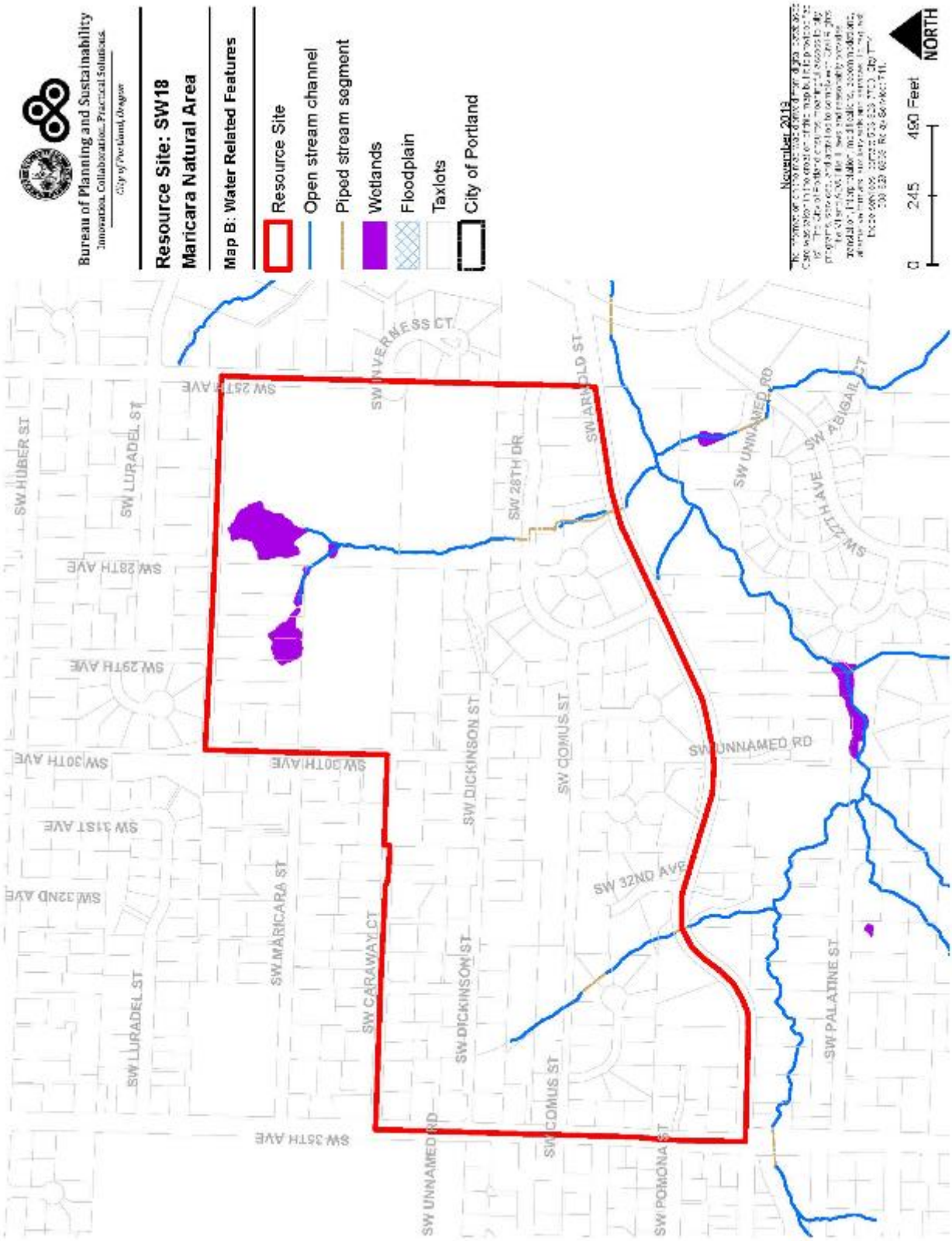
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW18 are:

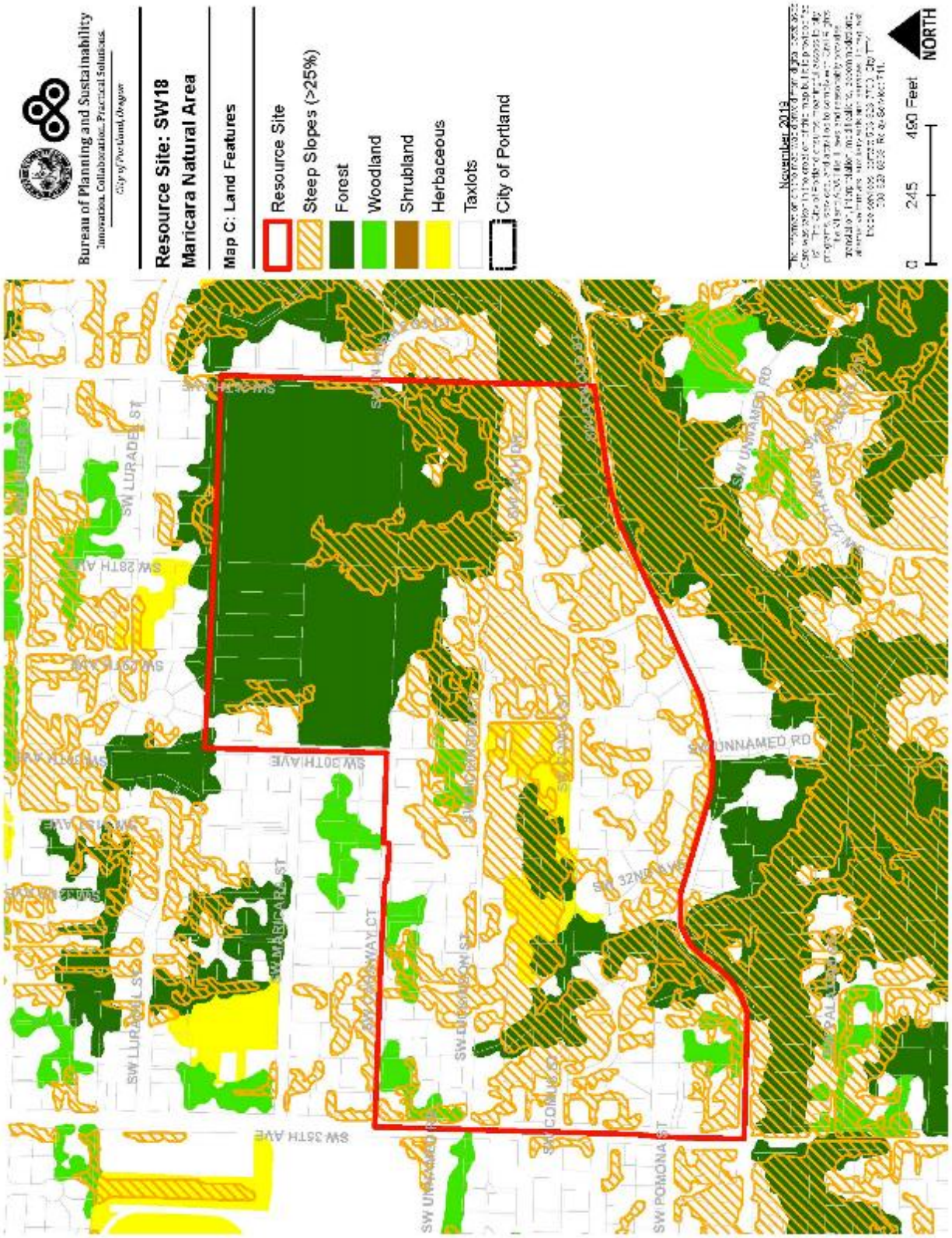
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, land within 50 feet of stream top-of-bank and land within 50 feet of wetlands.
2. *Limit* conflicting uses within areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank, within areas of forest vegetation that are contiguous to but more than 50 feet from wetlands, and within areas of forest vegetation on steep slopes that are contiguous to but more than 50 feet from streams or wetlands.
3. *Allow* conflicting uses within all other areas containing significant natural resources.

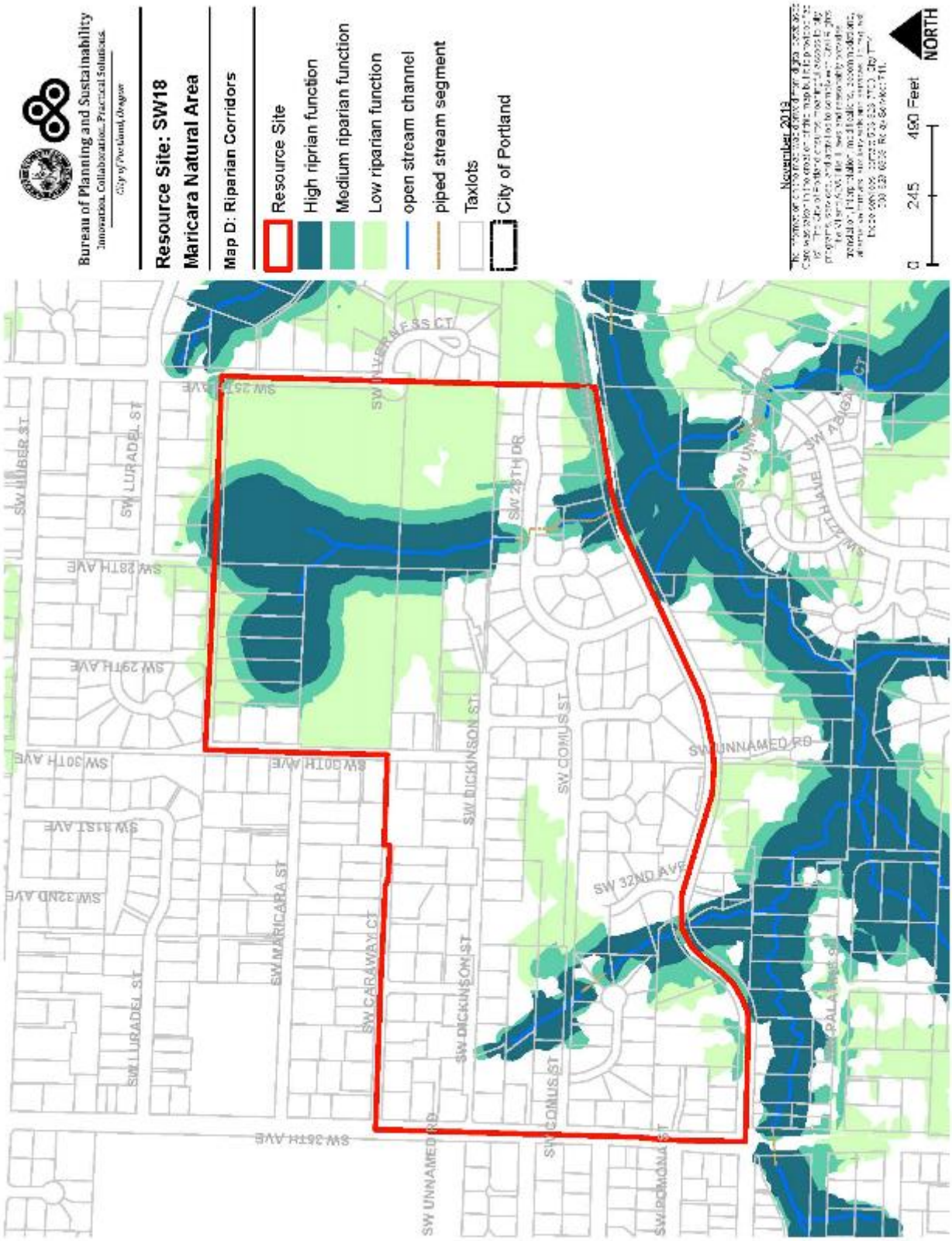
Table C: ESEE Decision for Resource Site SW18

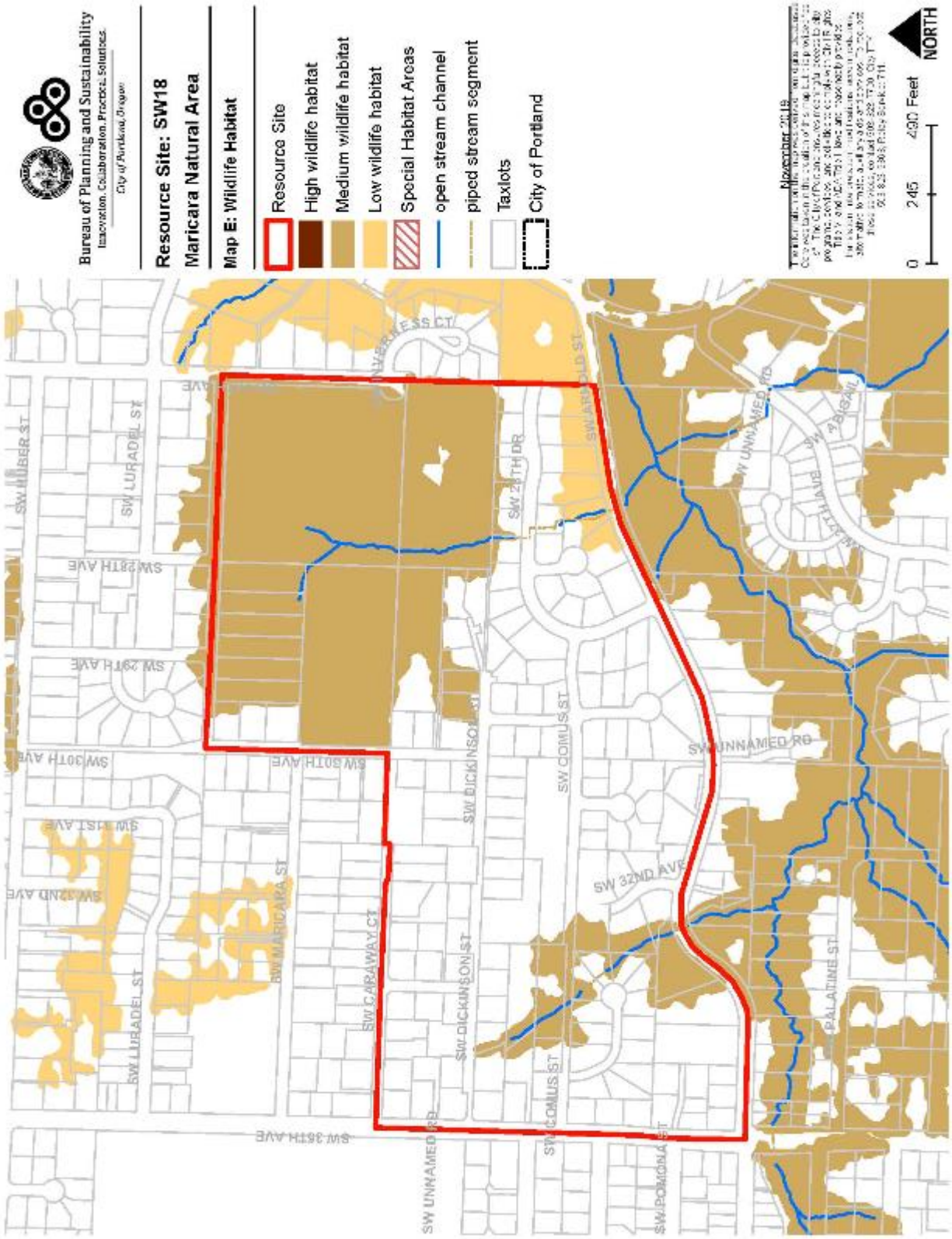
ESEE Decision	Acres
Strictly Limit	7.5
Limit	24.8
Allow	50.7

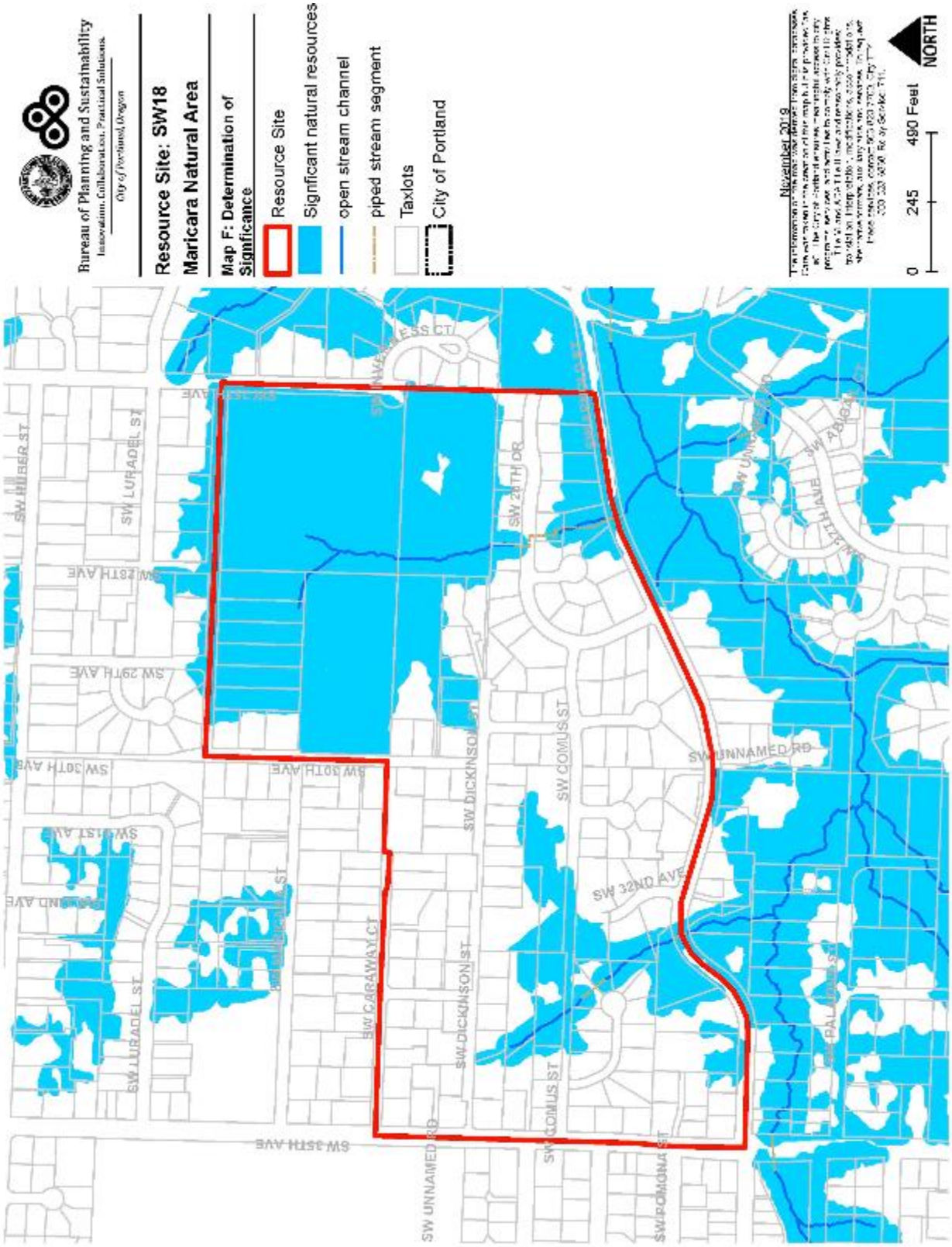

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW18
Maricara Natural Area
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0 245 490 Feet
NORTH
SW HUBER ST
SW 28TH AVE
SW 29TH AVE
SW 30TH AVE
SW 31ST AVE
SW 32ND AVE
SW LURADEL ST
SW MARICARA ST
SW CARAWAY CT
SW DICKINSON ST
SW COMUS ST
SW 28TH DR
SW ARNELD ST
SW 32ND AVE
SW POMONA ST
SW PALATINE ST
SW ABIGAIL CT
SW 27TH AVENUE
R7
R10
R20
OS

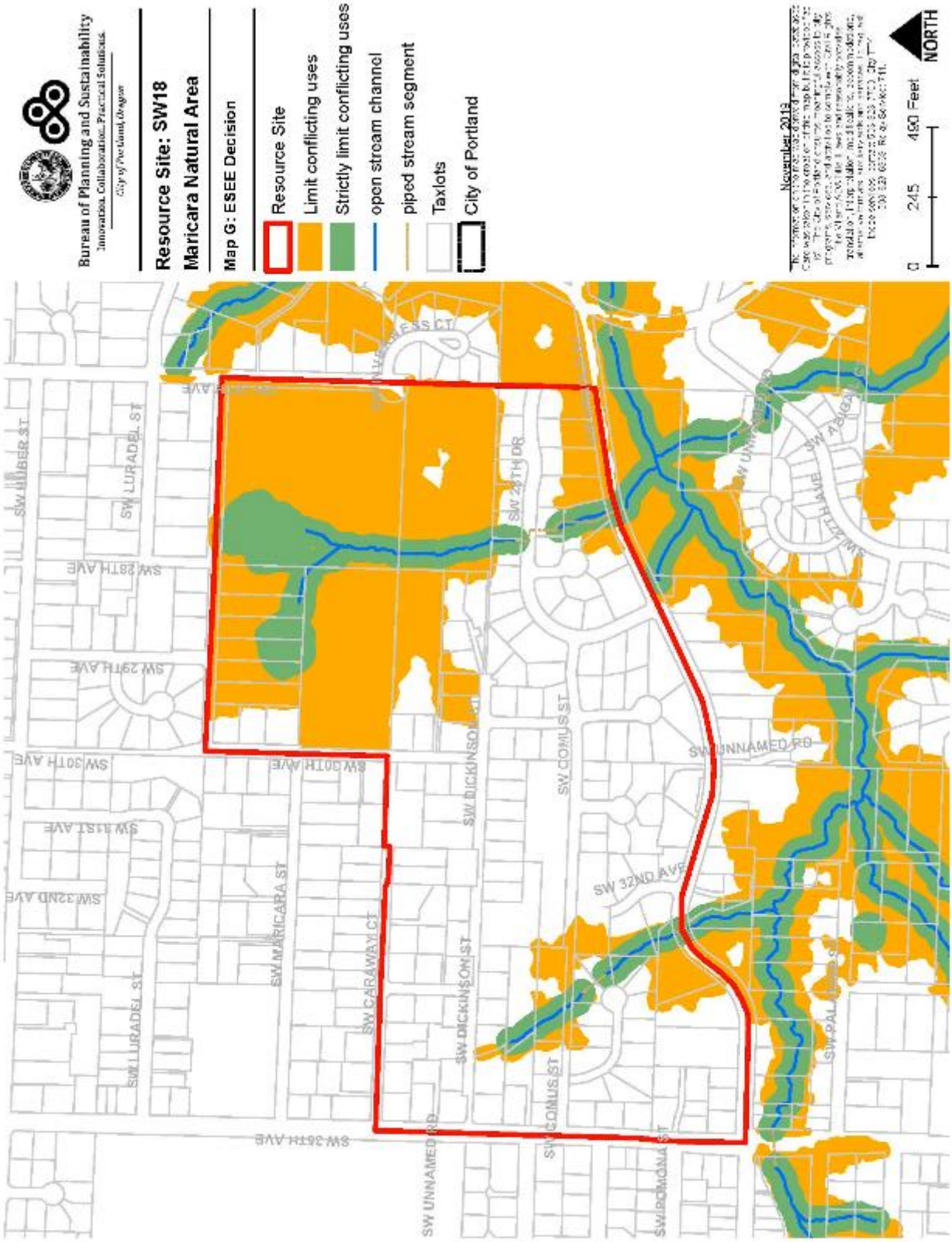

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW18
Maricara Natural Area
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0 245 490 Feet
NORTH
SW VERMESS CT
SW 25TH AVE
SW HUBER ST
SW LURADEL ST
SW 28TH AVE
SW 29TH AVE
SW 28TH DR
SW ARNOLD ST
SW UNNAMED RD
SW ABIGAIL ST
SW 27TH AVE
SW 30TH AVE
SW DICKINSON ST
SW COMUS ST
SW UNNAMED RD
SW 31ST AVE
SW 32ND AVE
SW MARICARA ST
SW CARAWAY CT
SW PALATINE ST
SW 35TH AVE
SW POMONA ST


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW18
Maricara Natural Area
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2013
0 245 490 Feet
NORTH
SW LURADEL ST
SW 28TH AVE
SW 30TH AVE
SW 35TH AVE
SW UNNAMED RD
SW 32ND AVE
SW POMONA ST
SW COMUS ST
SW DIRKSON ST
SW MARICARA ST
SW MARICARA WAY CT


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW18
Maricara Natural Area
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 245 490 Feet
NORTH
SW 25TH AVE
SW 28TH AVE
SW 29TH AVE
SW 30TH AVE
SW 31ST AVE
SW 32ND AVE
SW 36TH AVE
SW LURADEL ST
SW MARICARA ST
SW CARAWAY CT
SW DICKINSON ST
SW COMUS ST
SW UNNAMED RD
SW 32ND AVE
SW PIPONIA ST
SW 23RD DR
SW ABIGAIL CT

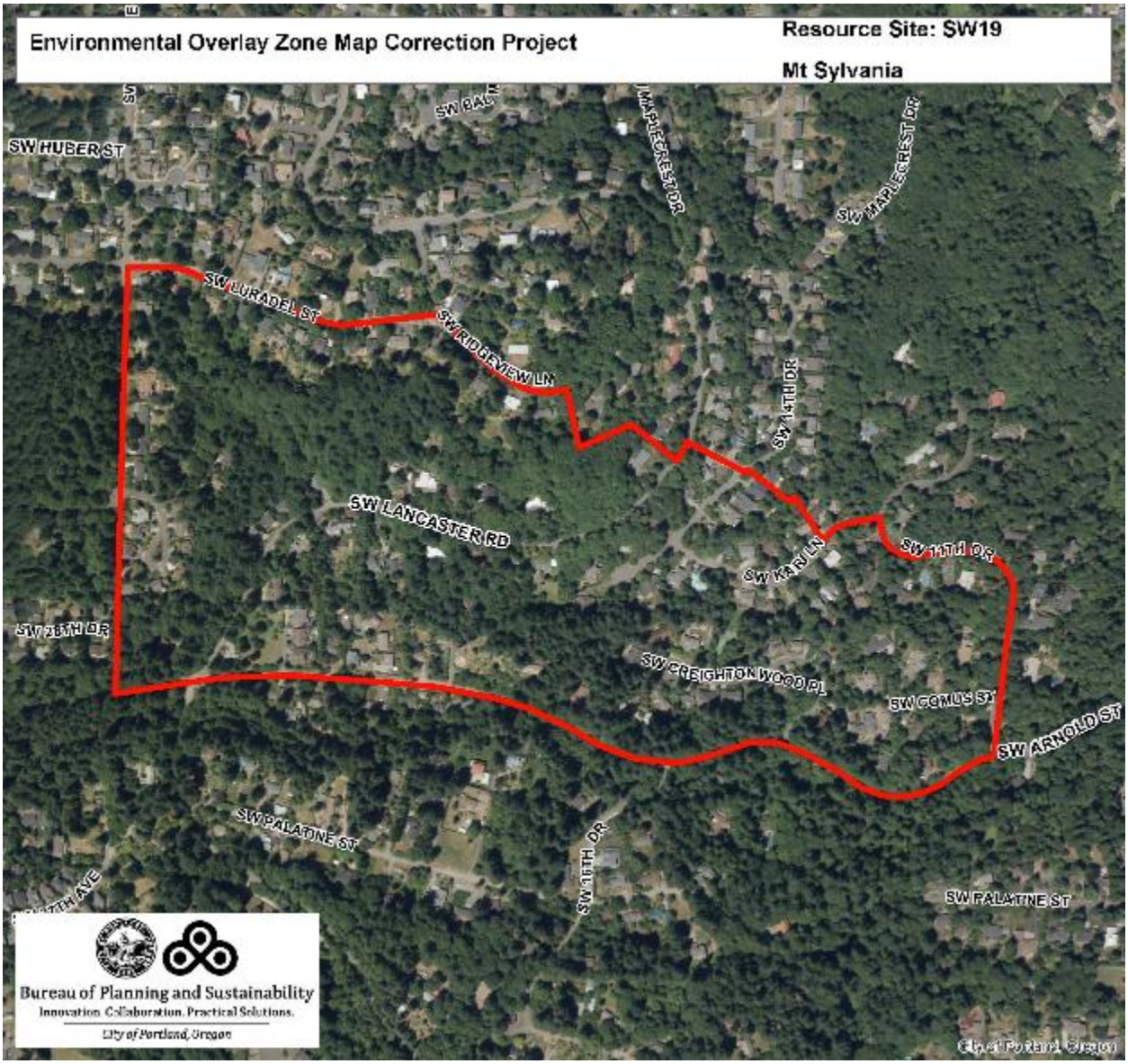

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW18
Maricara Natural Area
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2018
0 245 490 Feet
NORTH
SW 28TH DR
SW DICKINSON ST
SW COMUS ST
SW UNNAMED RD
SW 32ND AVE
SW 30TH AVE
SW 31ST AVE
SW 32ND AVE
SW 35TH AVE
SW MARICARA ST
SW CARAWAY CT
SW LURADEL ST
SW HUBER ST
SW 28TH AVE
SW 29TH AVE
SW UNNAMED RD
SW POMONA ST
PALATINE ST


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW18
Maricara Natural Area
Map F: Determination of Significance
Resource Site
Significant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
245
490 Feet
NORTH
SW 29TH AVE
SW 30TH AVE
SW 31ST AVE
SW 32ND AVE
SW 28TH AVE
SW LURADEL ST
SW HUBER ST
SW 20TH DR
SW DICKINSON ST
SW COMUS ST
SW UNNAMED RD
SW CARAWAY CT
SW PORTLAND ST
SW PALLADIUM ST


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW18
Maricara Natural Area
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 245 490 Feet
NORTH
SW 30TH AVE
SW 31ST AVE
SW 32ND AVE
SW 28TH AVE
SW 29TH AVE
SW 36TH AVE
SW LURADEL ST
SW MARICARA ST
SW CARAWAY CT
SW DICKINSON ST
SW COMUS ST
SW UNNAMED RD
SW 32ND AVE
SW 25TH DR

Resource Site No.: SW19 **Site Name:** Mt Sylvania

Previous Plan: Southwest Hills Resource Protection Plan **Previous Resource Site No**.: 122



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW19	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	52.9
Forest (acres)	45.4
Woodland (acres)	3.7
Shrubland (acres)	0.0
Herbaceous (acres)	3.8
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	50.2
Impervious Surface (acres)	18.8
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

Description to be included in the next draft.

Table B: Quality of Natural Resource Functions in Resource Site SW19				
Resource Site (acres) = 86.152109				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	9.9	10.4	29.6	49.9
percent total inventory site area	11.5%	12.1%	34.4%	57.9%
Wildlife Habitat*				
acres	0.0	5.3	42.1	47.4
percent total inventory site area	0.0%	6.1%	48.9%	55.0%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total+				
acres	9.9	12.3	30.7	52.9
percent total inventory site area	11.5%	14.3%	35.7%	61.4%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW19 the following significant features and functions are present:

Significant Natural Resource Features: open stream; forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R20 and R10 base zones. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW19, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and

air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

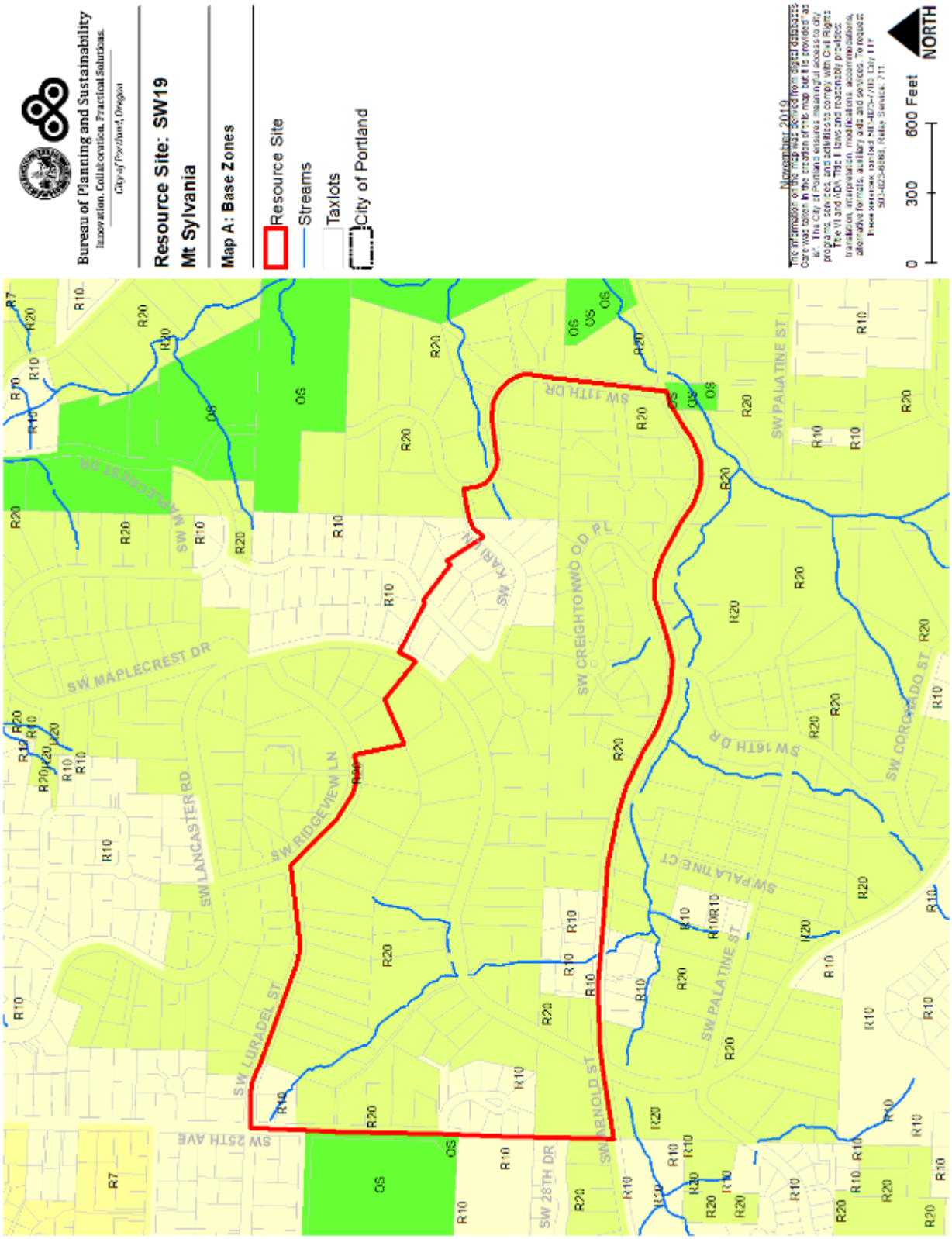
ESEE Decisions

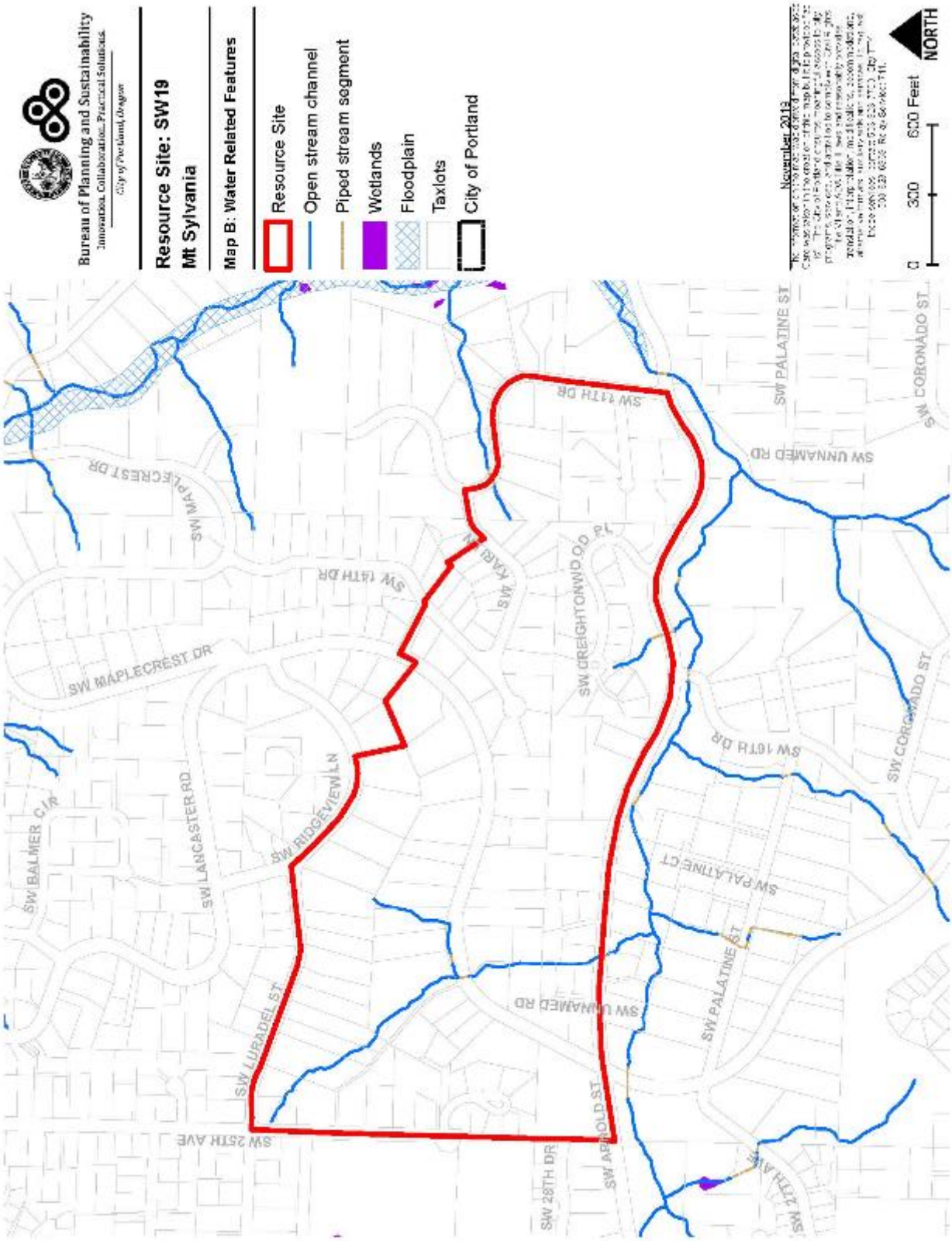
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW19 are:

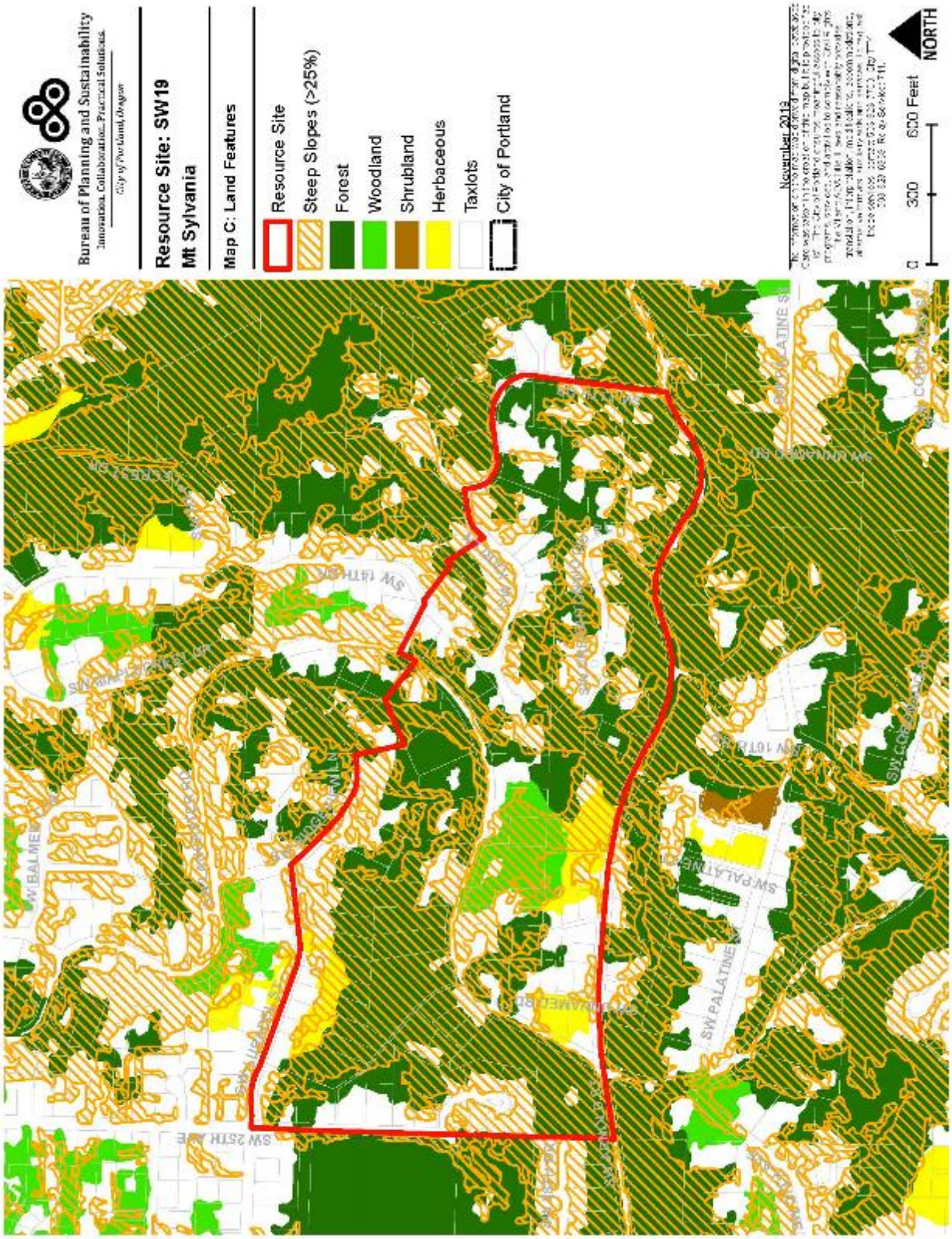
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank and land within 50 feet of stream top-of-bank.
2. *Limit* conflicting uses within areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank and within areas of forest on steep slopes that are contiguous to but more than 50 feet from stream top-of-bank.
3. *Allow* conflicting uses within all other areas containing significant natural resources.

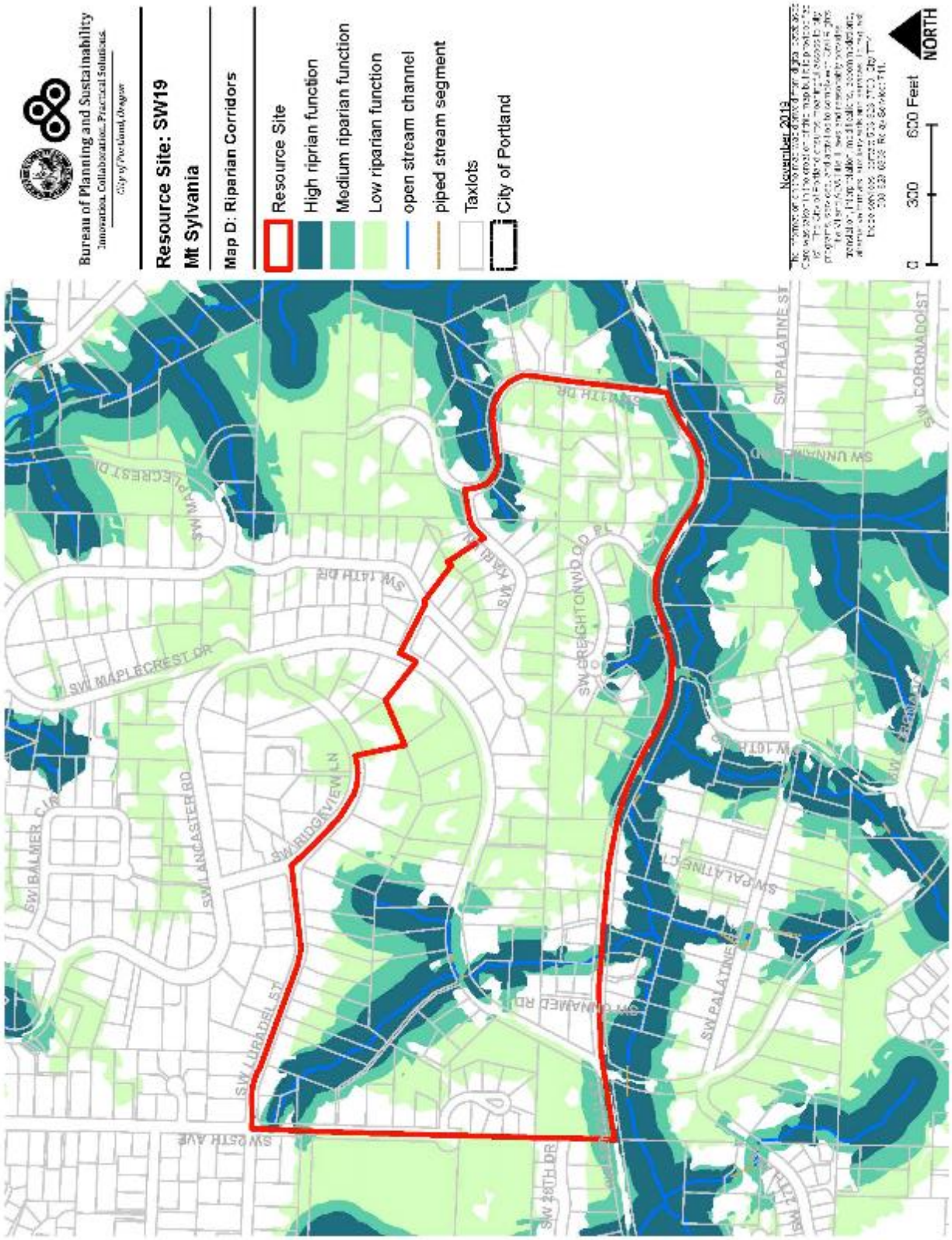
Table C: ESEE Decision for Resource Site SW19

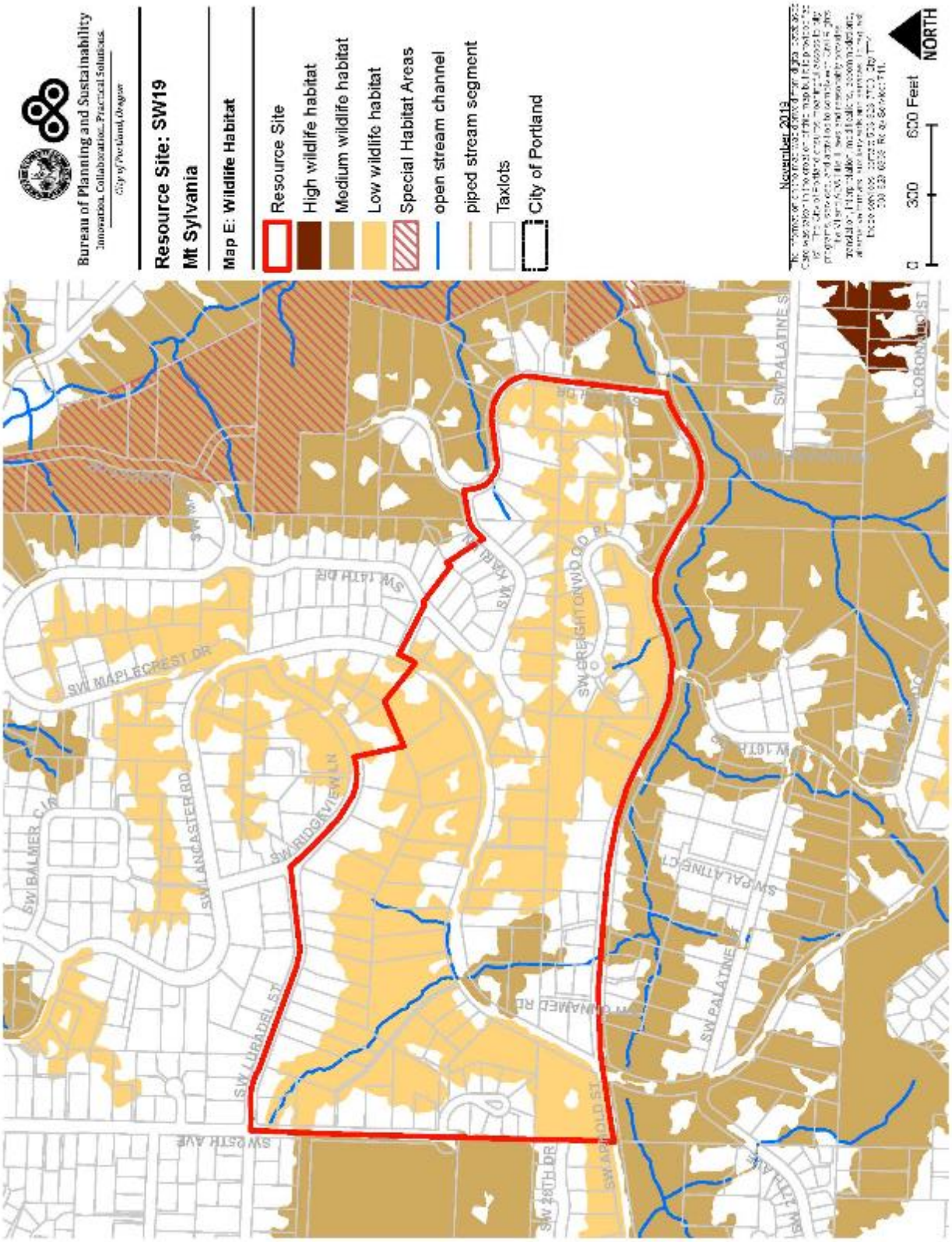
ESEE Decision	Acres
Strictly Limit	6.6
Limit	27.9
Allow	51.6

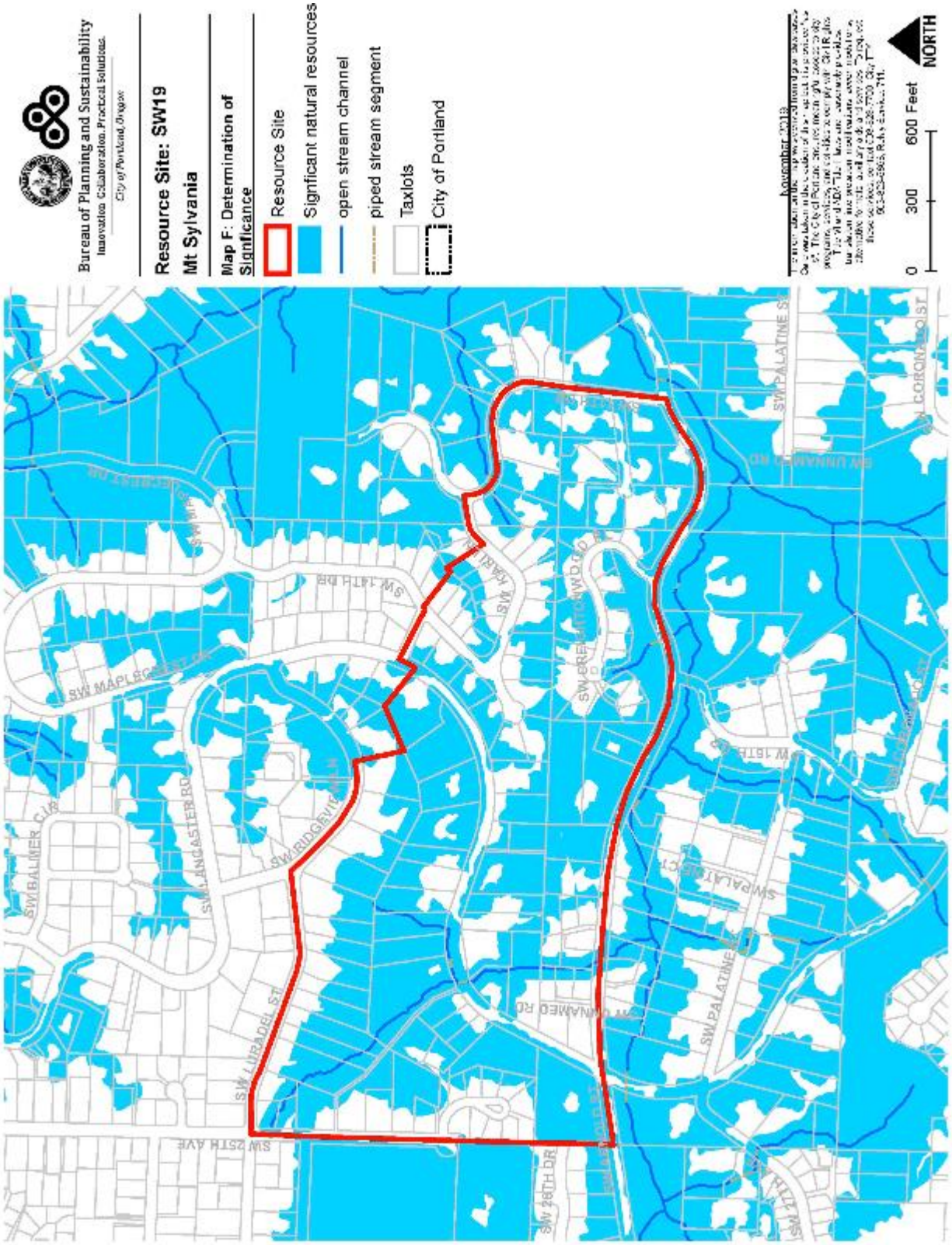

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW19
Mt Sylvania
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0 300 600 Feet
NORTH
SW MAPLECREST DR
SW RIDGEVIEW LN
SW LANCASTER RD
SW LURADEL ST
SW 25TH AVE
SW 28TH DR
SW ARNOLD ST
SW CREIGHTON WOOD PL
SW 11TH DR
SW PALATINE ST
SW PALATINE CT
SW CORONADO ST
OS
R10
R20

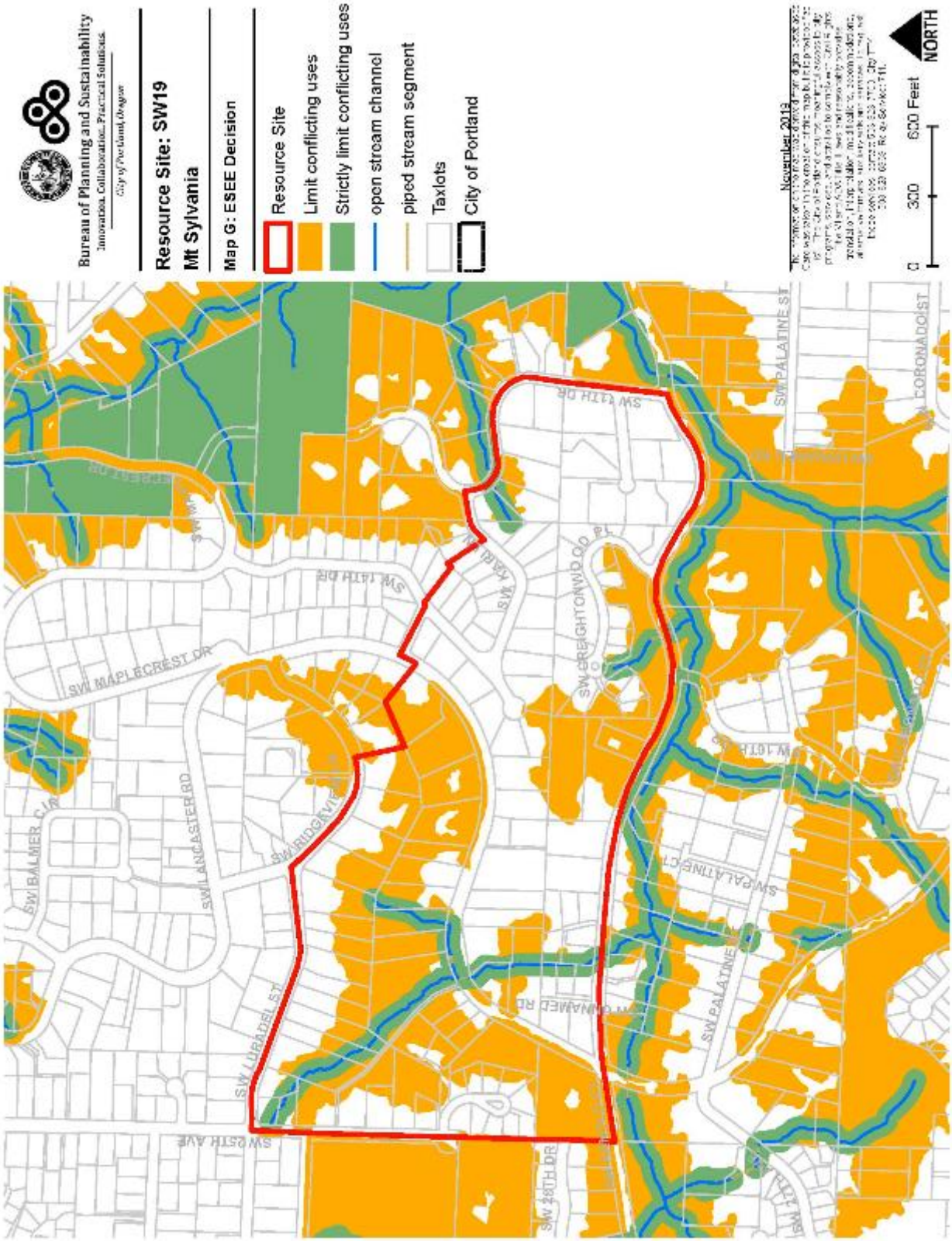

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW19
Mt Sylvania
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0 300 600 Feet
NORTH
SW 25TH AVE
SW LUPADEL ST
SW BALMER CIR
SW LANCASTER RD
SW RIDGEVIEW LN
SW MAPLECREST DR
SW 14TH DR
SW MAPLECREST DR
SW 28TH DR
SW ARNOLD ST
SW UNNAMED RD
SW KARL LN
SW CREIGHTON WOOD PL
SW 11TH DR
SW PALATINE CT
SW PALATINE ST
SW 10TH DR
SW UNNAMED RD
SW PALATINE ST
SW CORONADO ST
SW CORONADO ST
SW 27TH AVE


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW19
Mt Sylvania
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2019
0 300 600 Feet
NORTH
SW BALMER
SW 25TH AVE
SW 14TH DR
SW 10TH
SW PALATINE
SW COLDWATER


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW19
Mt Sylvania
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 300 600 Feet
NORTH
SW MAPLECREST DR
SW 14TH DR
SW MAPLECREST DR
SW BALMER CIR
SW LANCASTER RD
SW RIDGEVIEW LN
SW LUPADA ST
SW 25TH AVE
SW 28TH DR
SW UNNAMED RD
SW PALATINE CT
SW PALATINE ST
SW CORONADO ST
SW 10TH

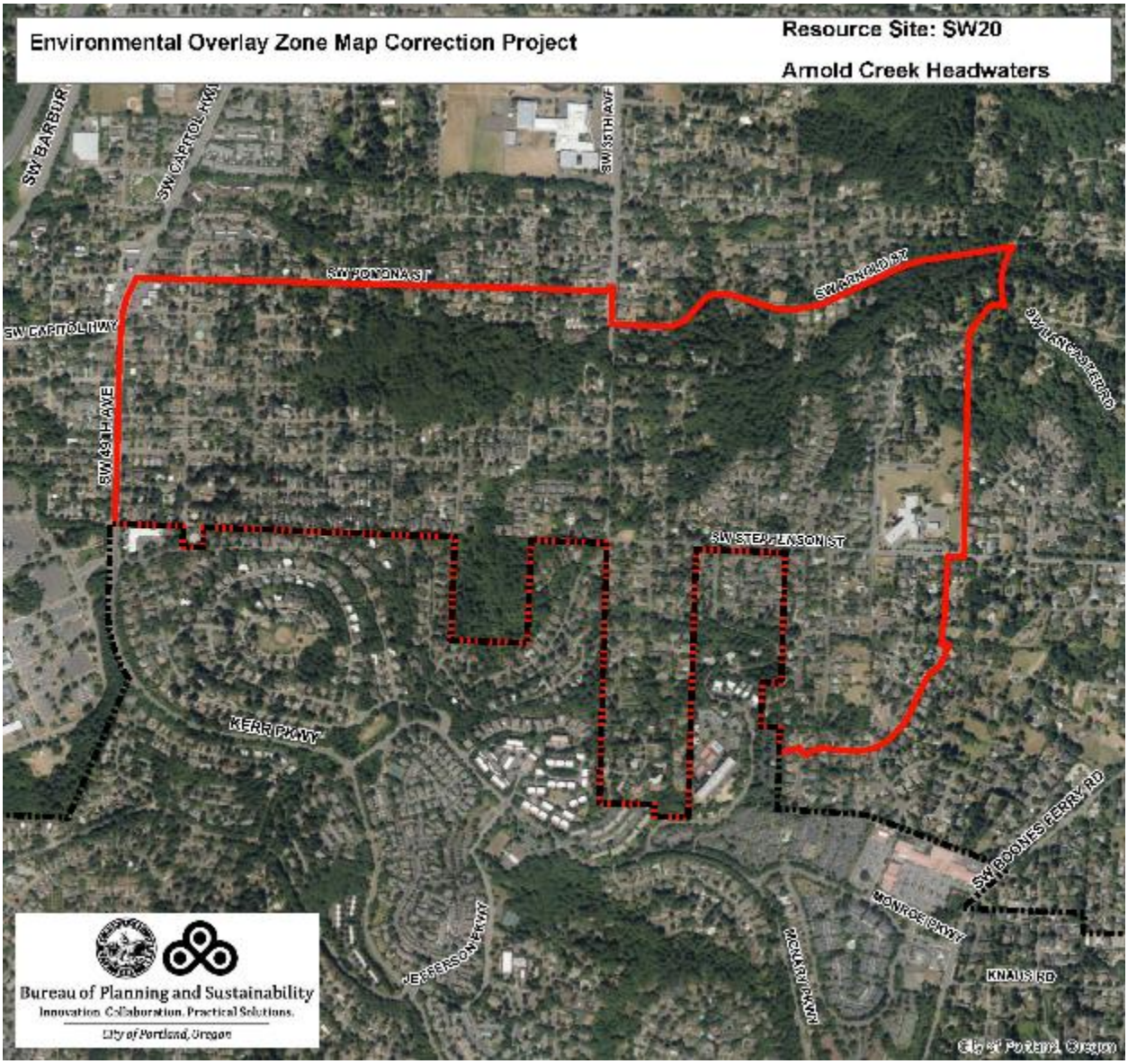

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW19
Mt Sylvania
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 300 600 Feet
NORTH
SW MAPLECREST DR
SW 14TH DR
SW BALMER CIR
SW LANCASTER RD
SW RIDGEVIEW LN
SW LUPADA ST
SW 10TH AVE
SW 28TH DR
SW PALATINE
SW PALATINE CT
SW PALATINE S
SW CREIGHTON WOOD DR
SW UNNAMED RD
SW APPOLD ST
SW 10TH S
SW 14TH AVE
SW 14TH S
SW CORONADO ST


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW19
Mt Sylvania
Map F: Determination of Significance
Resource Site
Significant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
0
300
600 Feet
NORTH
SW 14TH DR
SW MAPLECREST DR
SW BALMER CIR
SW LANCASTER RD
SW RIDGEVIEW DR
SW LUPADEL ST
SW 25TH AVE
SW 26TH DR
SW UNNAMED RD
SW PALATINE ST
SW PALATINE CT
SW 18TH ST
SW CORONA ST


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW19
Mt Sylvania
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 300 600 Feet
NORTH
SW 12TH DR
SW PALATINE ST
SW CORONADO ST
SW 10TH DR
SW MAPLECREST DR
SW 13TH DR
SW KELL
SW CREIGHTONWOOD CO
SW BALMER CIR
SW LANCASTER RD
SW RIDGEVIEW
SW PALATINE CT
SW PALATINE
SW UNNAMED RD
SW LORADO ST
SW 25TH AVE
SW 28TH DR

Resource Site No.: SW20 **Site Name:** Arnold Creek Headwaters

Previous Plan: Southwest Hills Resource Protection Plan **Previous Resource Site No.:** 121



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW20	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	1.0
Vegetated Areas >= 1/2 acre (acres)	135.6
Forest (acres)	104.8
Woodland (acres)	16.4
Shrubland (acres)	0.7
Herbaceous (acres)	13.7
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	137.1
Impervious Surface (acres)	116.9
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

This area contains the headwaters of Arnold Creek and is a part of Tryon Creek's 4,447- acre drainage basin. Arnold Creek travels from near SW 45th Avenue east for about two miles to the Arnold Street and Boones Ferry Road intersection (Site SW16) where it empties into Tryon Creek. This site drains the northeast slope of Mt. Sylvania, the west slope of a small knoll and the south slope of the hill north of Pomona Street. These surrounding hills are 1/2 mile within the headwaters of Arnold Creek and are 660, 670 and 970 feet in elevation from north to south, respectively.

This site is sparsely populated and largely undeveloped. West of SW 35th Ave. the area is platted as West Portland Park into 25-foot by 100-foot lots in 250-foot by 450-foot blocks with 40-foot wide public rights-of-way. West Portland Park was platted in 1889 without regard for the topography, which resulted in a street and lot pattern that conflicts with development and protection of the natural topography. Developing according to the grid will result in environmental damage to the area and increased development costs due to cut and fill requirements necessitated by the steep slopes and creek.

With the exception of a few new developments along Stephenson Street, the site has a wooded character. The area forest is mature, second growth conifer topping hardwood forest, 80-100 years old, with a 60 percent deciduous/40 percent coniferous composition. Three areas within the site have forests that are contiguous. These forest areas are 35, 10 and 18 acres in size (west to east, respectively).

Hydric soils are extensive throughout this site indicating possible wetlands. No wetlands in this area are inventoried on the National Wetlands Inventory. The area around Palatine between 35th and 37th forms a natural drainage basin which is part of Arnold Creek. Arnold Creek's drainage basin is 743.3 acres in

size and extends outside of the city limits. A storm drainage storage reservoir exists on the west side of Arnold St., at SW 34th Ave.34 The rare flora includes old western hemlock and grand fir trees, as well as Indian pipe plants.

The vegetation includes mature second growth Douglas fir, mature western red cedar, western hemlock, bigleaf maple, red alder and pacific yew. The forest is structurally diverse with a healthy understory. Bird species include: quails, pheasants, pileated and hairy woodpeckers. Deer have been observed in this area.

Table B: Quality of Natural Resource Functions in Resource Site SW20				
Resource Site (acres) = 352.326567				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	54.8	23.0	33.5	111.3
percent total inventory site area	15.5%	6.5%	9.5%	31.6%
Wildlife Habitat*				
acres	0.0	99.3	1.1	100.3
percent total inventory site area	0.0%	28.2%	0.3%	28.5%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total+				
acres	54.8	52.1	4.6	111.5
percent total inventory site area	15.5%	14.8%	1.3%	31.6%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW20 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetlands; forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R20, R10, R7, R5, and R2.5 base zones. Commercial uses are allowed in the CM2 base zone. Open Space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW20, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk

species, maintaining the flow moderation, water quality and flood control functions of streams and wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

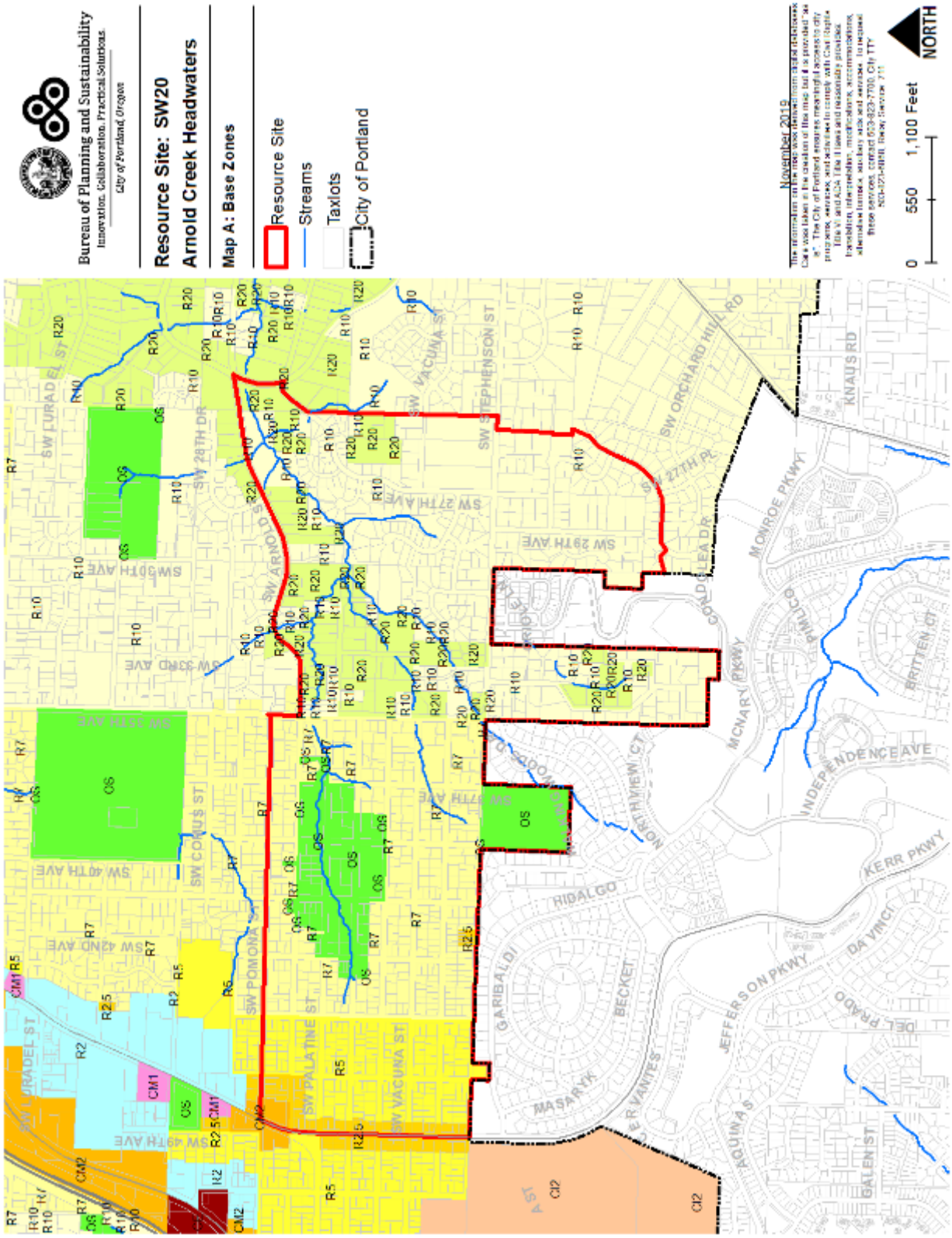
ESEE Decisions

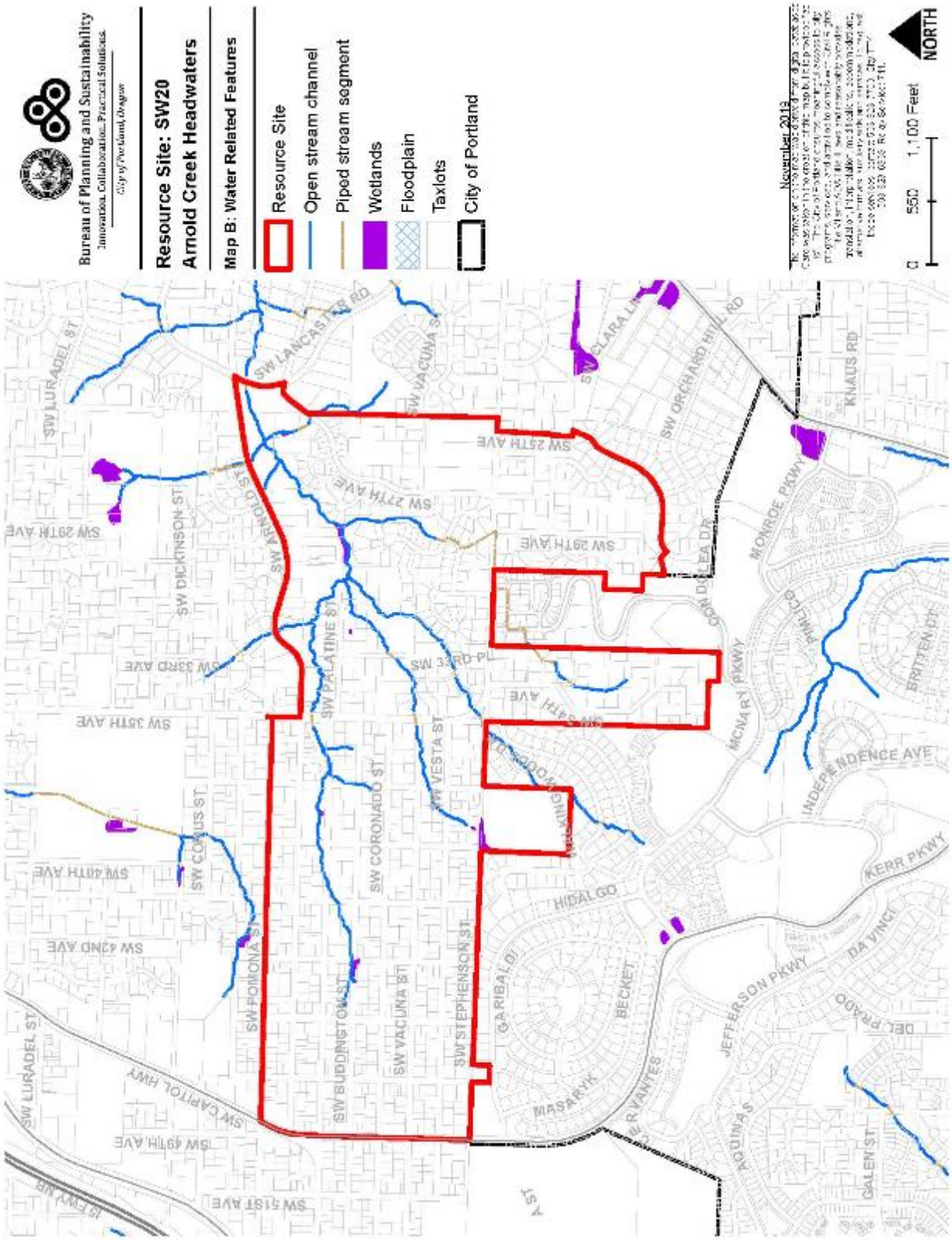
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW20 are:

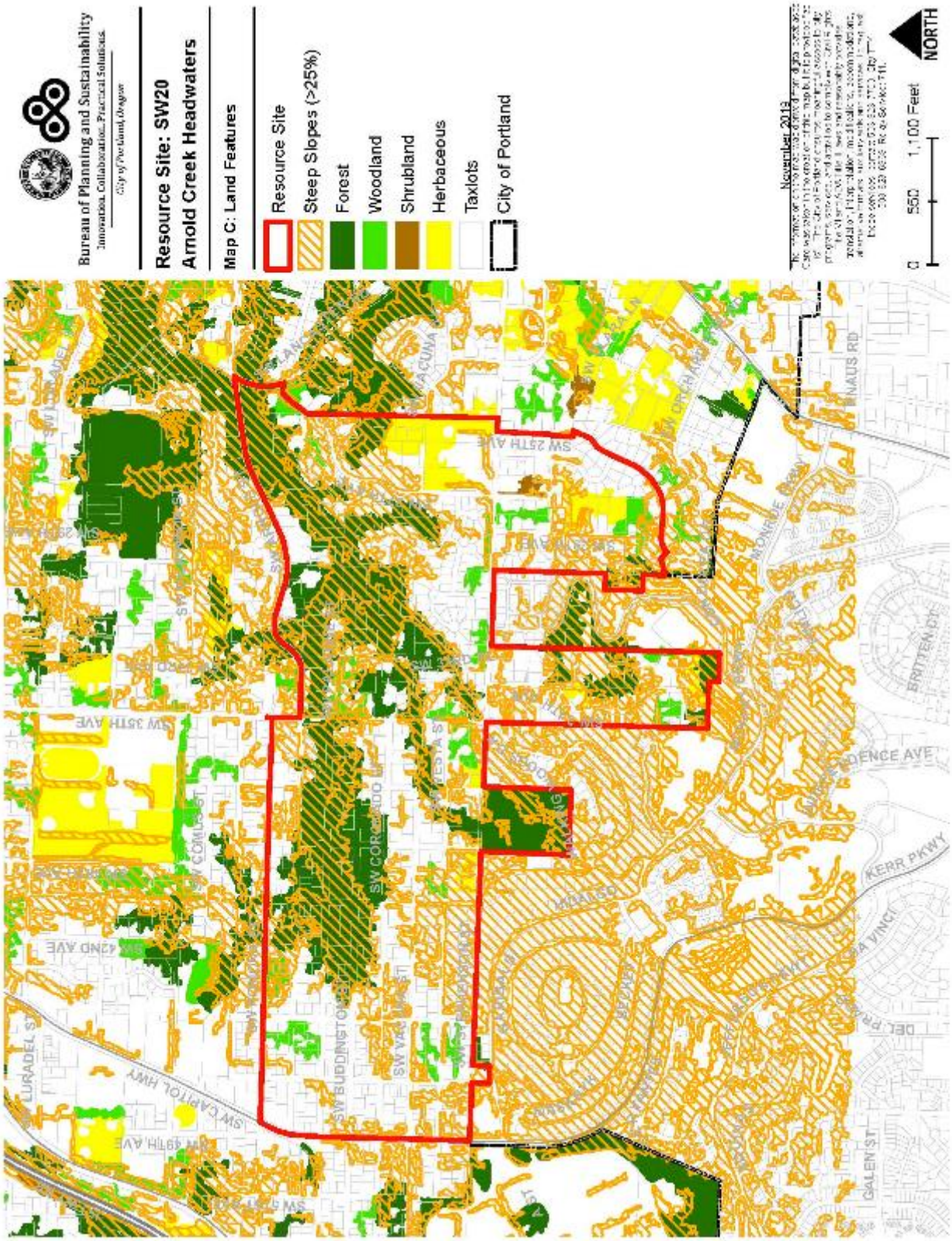
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, land within 50 feet of stream top-of-bank and land within 50 feet of wetlands.
2. *Limit* conflicting uses within areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank, within areas of forest vegetation that are contiguous to but more than 50 feet from wetlands, and on areas of forest on steep slopes that are contiguous to but more than 500 feet from streams or wetlands.
3. *Allow* conflicting uses within all other areas containing significant natural resources.

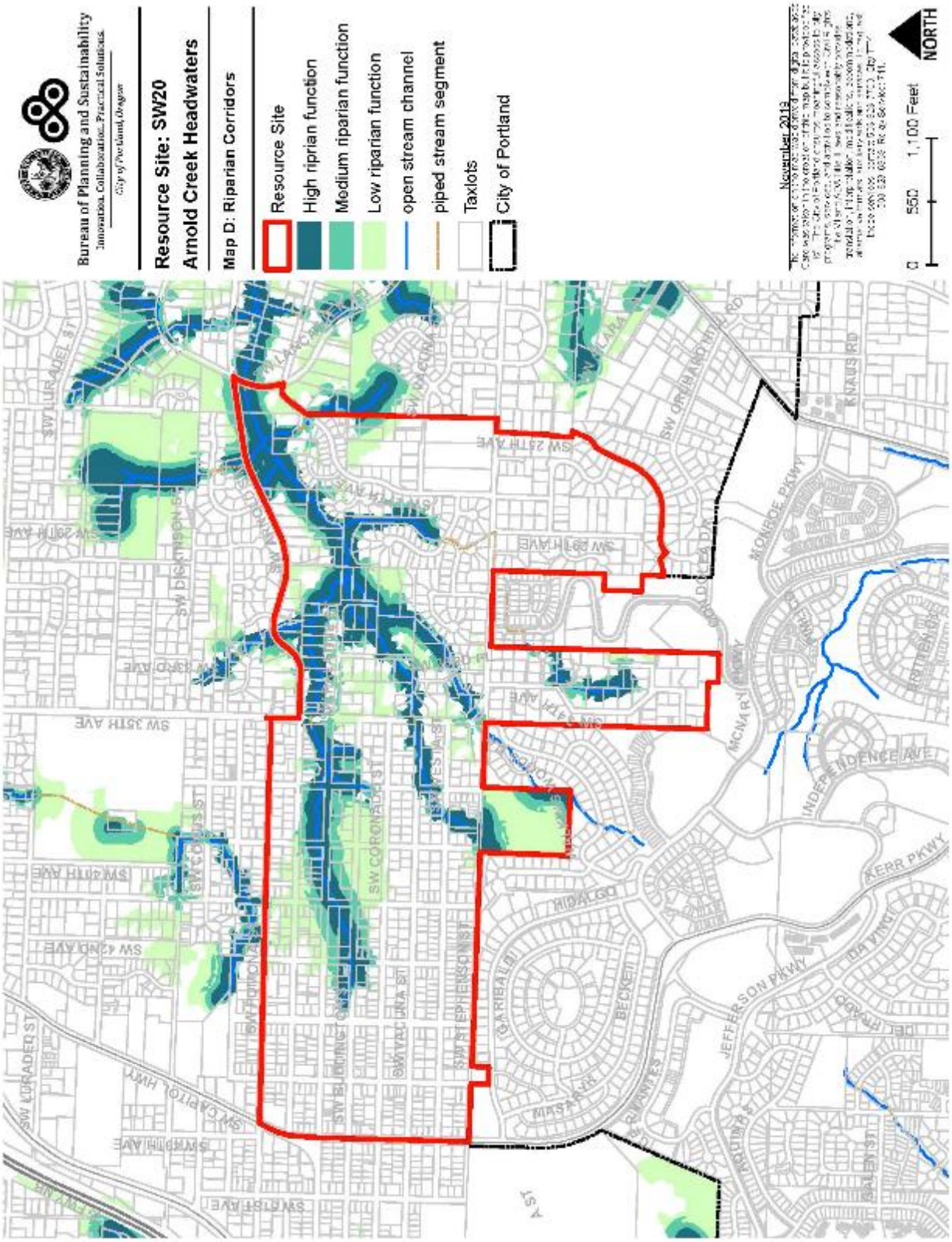
Table C: ESEE Decision for Resource Site SW20

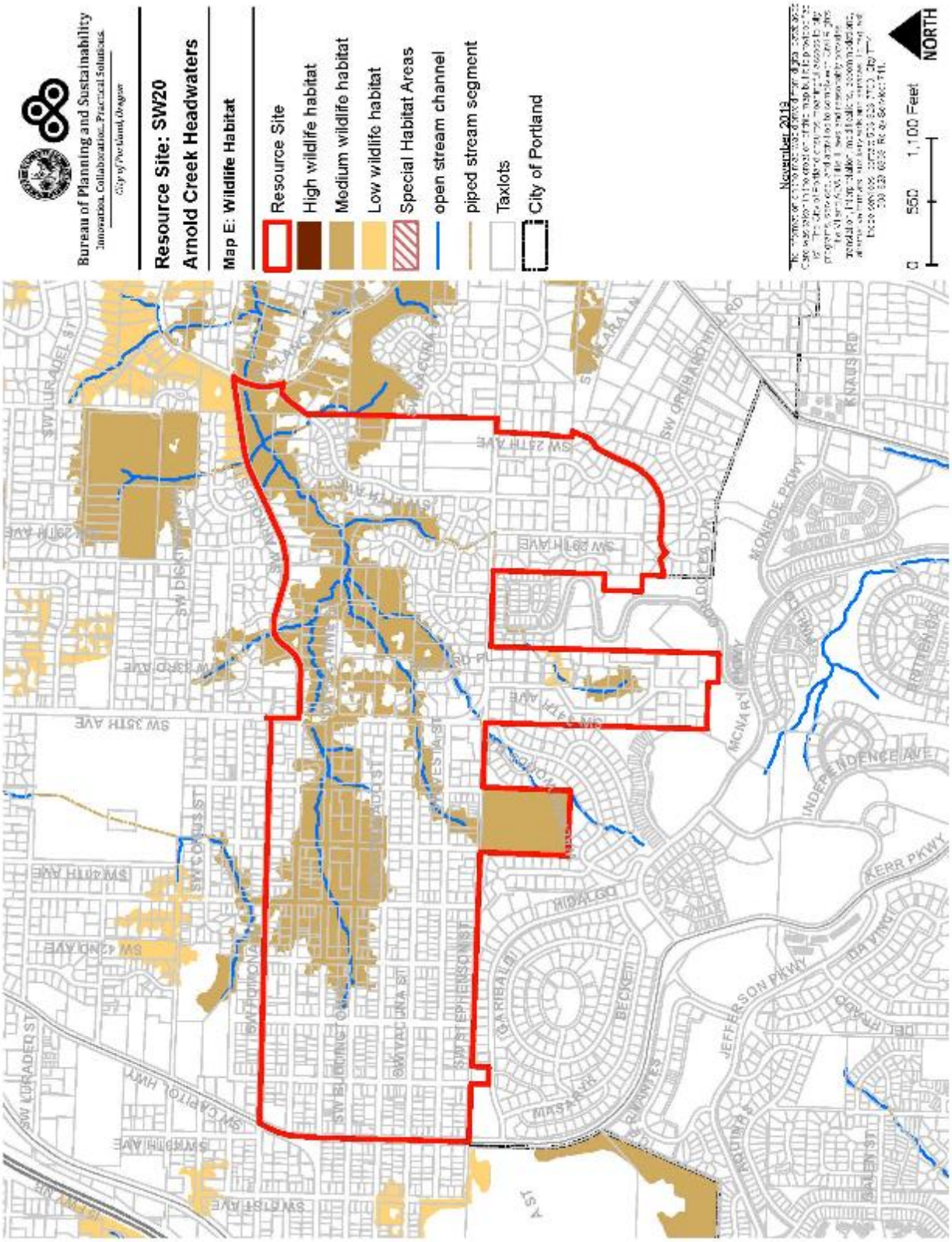
ESEE Decision	Acres
Strictly Limit	36.8
Limit	64.8
Allow	250.7

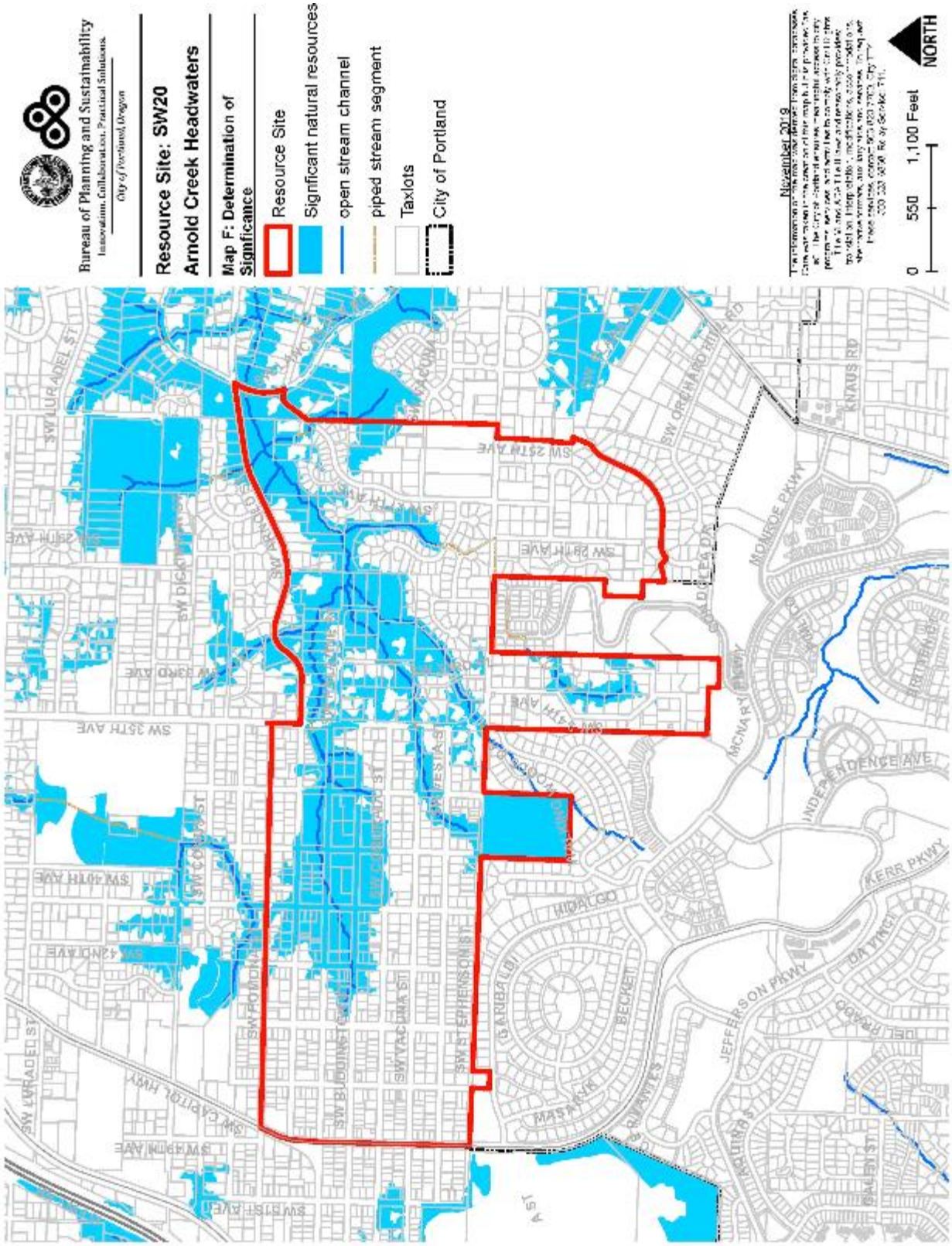

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW20
Arnold Creek Headwaters
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0 550 1,100 Feet
NORTH
SW CURADEL ST
SW 28TH DR
SW 30TH AVE
SW 33RD AVE
SW 37TH AVE
SW 40TH AVE
SW 42ND AVE
SW 49TH AVE
SW CORBUS ST
SW POMONA
SW PALATINE ST
SW VACUNA ST
SW ARNOLD
SW 27TH AVE
SW 29TH AVE
SW STEPHENSON ST
SW ORCHARD HILL RD
SW 27TH PL
COLD LEA DR
KNAUS RD
MONROE PKWY
MCNARY PKWY
INDEPENDENCE AVE
KERR PKWY
RIDALGO
GARIBALDI
BECKET
MASARYK
JEFFERSON PKWY
DA VINCI
DEL PRADO
GALEN ST
BRITTEN CT
OS
R7
R10
R20
R5
R2.5
R2
CM1
CM2
CM R5
C2

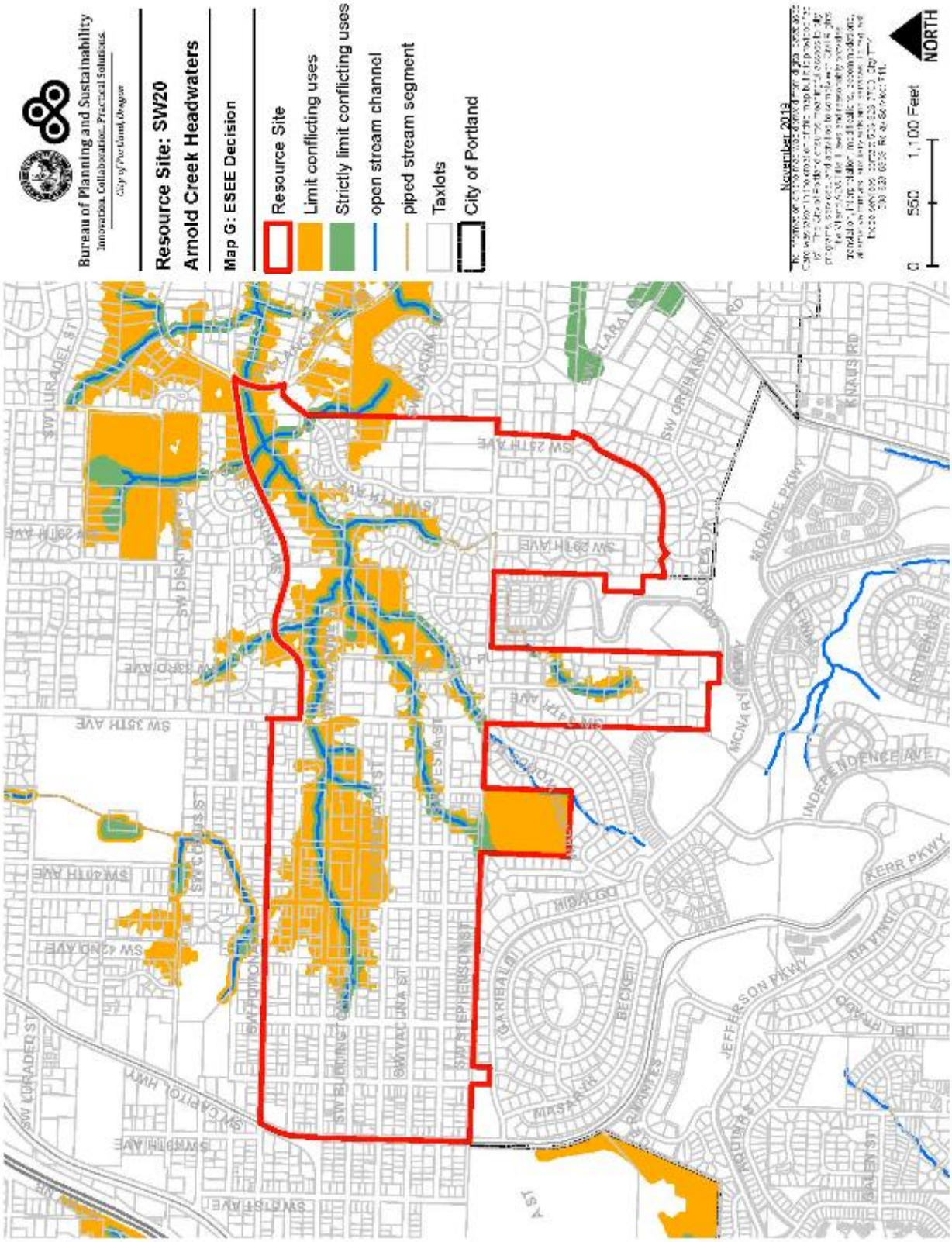

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW20
Arnold Creek Headwaters
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0 550 1,100 Feet
NORTH
SW LURADEL ST
SW LANCASTER RD
SW VACUNA ST
SW CLARA LN
SW ORCHARD HILL RD
KNAUS RD
SW 29TH AVE
SW 27TH AVE
SW DICKINSON ST
SW ARNOLD ST
SW 33RD AVE
SW 35TH AVE
SW PALATINE ST
SW 33RD PL
SW 34TH AVE
SW CORONADO ST
SW VESTA ST
SW COMUS ST
SW 40TH AVE
SW 42ND AVE
SW POMONA ST
SW BUDDINGTON ST
SW VACUNA ST
SW STEPHENSON ST
SW CAPITOL HWY
SW 49TH AVE
SW 51ST AVE
I5 FWY NB
DOLLEA DR
MONROE PKWY
PHILCO
BRITTEN DR
MCNARY PKWY
INDEPENDENCE AVE
KERR PKWY
HIDALGO
GARIBALDI
BECKET
MASARYK
R. YANKES
JEFFERSON PKWY
DA VINCI
DEL PRADO
AQUINAS
GALEN ST
A ST


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW20
Arnold Creek Headwaters
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2019
0
550
1,100 Feet
NORTH
SW 25TH AVE
SW 35TH AVE
SW 42ND AVE
SW 49TH AVE
SW CAPITOL HWY
SW LURADEL ST
SW CORONADO
SW BUDDINGTON
SW VACUNA
SW COMUS ST
HIDALGO
BRITTEN CT
KERR PKWY
GALEN ST
DEL PRADO
KNAUS RD
MONROE
SW VESTA ST
SW ORCHARD


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW20
Arnold Creek Headwaters
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
550
1,100 Feet
NORTH
SW 25TH AVE
SW 29TH AVE
SW 35TH AVE
SW 40TH AVE
SW 42ND AVE
SW 26TH AVE
SW CORONADO ST
SW CAPITOL HWY
SW KORADEL ST
MCNARY PKWY
MONROE PKWY
INDEPENDENCE AVE
KERR PKWY
JEFFERSON PKWY
HIDALGO
BECKER
GARIBALDI
KNAUS RD
A ST

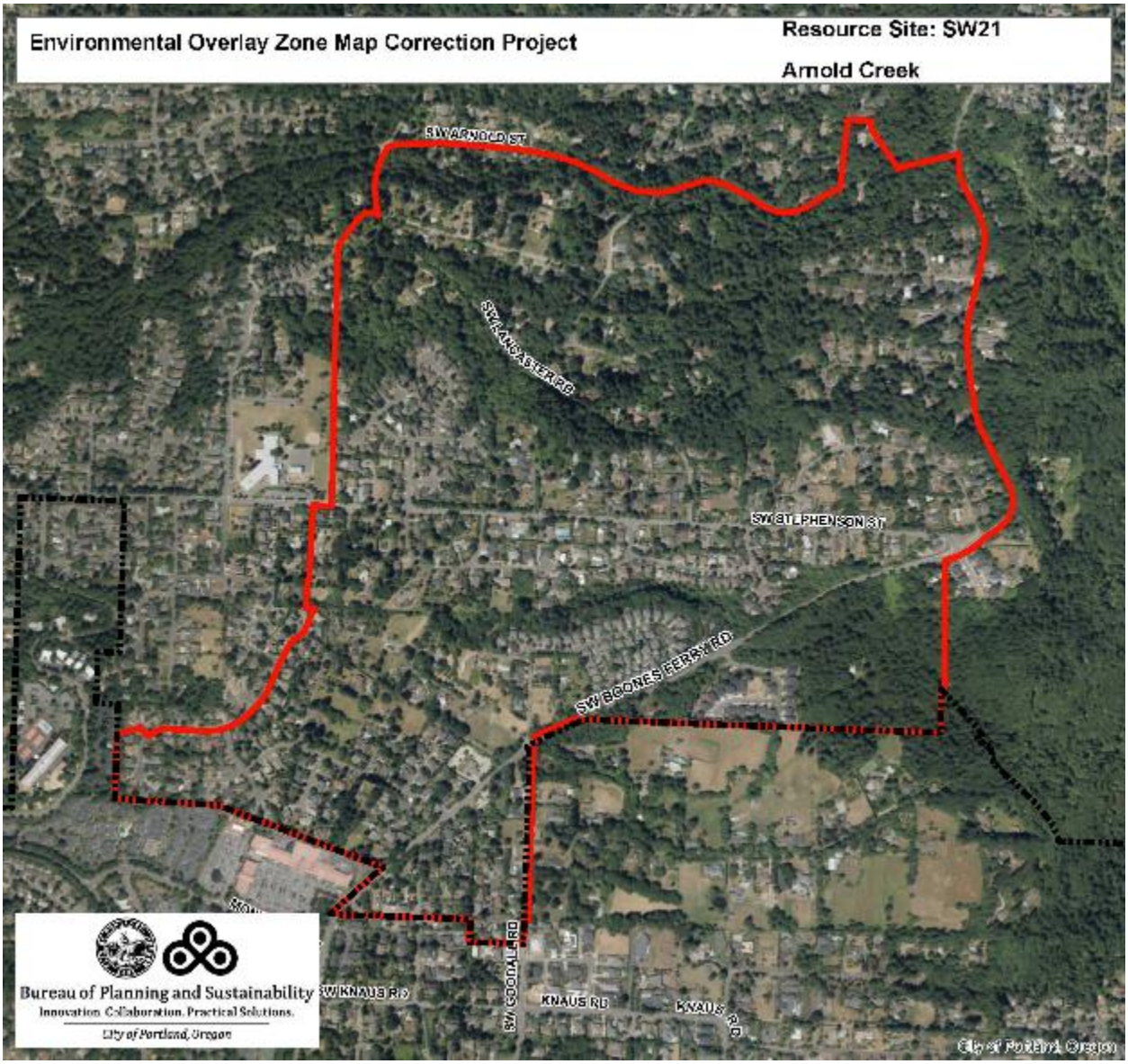

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW20
Arnold Creek Headwaters
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 550 1,100 Feet
NORTH
SW 25TH AVE
SW 29TH AVE
SW 35TH AVE
SW 42ND AVE
SW 47TH AVE
SW 49TH AVE
SW 51ST AVE
SW LORADEL ST
SW CAPITOL HWY
SW COLUMBIA ST
SW BUCHANAN ST
SW STEPHENSON ST
SW VESTA ST
SW DICKINSON ST
SW MONROE ST
SW DOLCEDA DR
SW DREW MONTE RD
SW MCARA LN
KNAUS RD
MONROE PKWY
MCNARY PKWY
INDEPENDENCE AVE
KERR PKWY
JEFFERSON PKWY
HIDALGO
GARIBALDI
BECKER
MASAPUN
RUSHFIES
DAYTON
DEL HOMBRE
MARTIN ST
BALENTI ST


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW20
Arnold Creek Headwaters
Map F: Determination of Significance
Resource Site
Significant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 550 1,100 Feet
NORTH
SW 25TH AVE
SW 28TH AVE
SW 30TH AVE
SW 42ND AVE
SW 45TH AVE
SW 47TH AVE
SW 51ST AVE
SW 53RD AVE
SW CAPITOL HWY
SW LURADEL ST
SW DICKINSON ST
SW MACADAM AVE
SW BOUNDARY ST
SW STEPHENSON ST
SW ORCHARD HILL RD
KNAUS RD
MONROE PKWY
MCNARY PKWY
INDEPENDENCE AVE
KERR PKWY
HIDALGO
GARIBALDI
BECKER
MASTRYK
JEFFERSON PKWY
DA VINCI
DELPRADO
GALEN ST
MARTINS


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW20
Arnold Creek Headwaters
Map G: ESEE Decision
🟥 Resource Site
🟧 Limit conflicting uses
🟩 Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
550
1,100 Feet
NORTH
SW 25TH AVE
SW 29TH AVE
SW 33RD AVE
SW 35TH AVE
SW 40TH AVE
SW 42ND AVE
SW 49TH AVE
SW 51ST AVE
SW CAPITOL HWY
SW LURADEL ST
SW STEPHENSON ST
SW BUDDINGTON ST
SW VACUNA ST
MCNARY PKWY
MONROE PKWY
INDEPENDENCE AVE
KERR PKWY
JEFFERSON PKWY
HIDALGO
GARIBALDI
BECKET
KNAUS RD
A ST

Resource Site No.: SW21 **Site Name:** Arnold Creek

Previous Plan: Southwest Hills Resource Protection Plan Previous Resource Site No.: 122



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW21	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	3.8
Vegetated Areas >= 1/2 acre (acres)	201.2
Forest (acres)	144.9
Woodland (acres)	20.5
Shrubland (acres)	2.9
Herbaceous (acres)	32.9
Flood Area*	0.3
Vegetated (acres)	0.3
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	158.6
Impervious Surface (acres)	86.4
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

Between Mt. Sylania's northeast and south slope lies a deep canyon where Arnold Creek flows. Arnold Creek drops 500 feet over its two-mile course between the headwaters (in Site 121) and the confluence with Tryon Creek near the junction of Boones Ferry and Arnold Street (in Site SW16). The canyon is about 2,000 feet wide and, unlike the other canyons in the study area, runs east/west. The creek parallels the south side of Arnold Street. Prior to the 1980's this area was sparsely developed. Since that time, there have been 300-400 homes built (Sites 121 and 122). Arnold and Stephenson Streets are the only east/west streets through the site and there are no connecting north/south streets.

The forest is densely wooded and dominated with mature western red cedars and hemlocks. The forest is in the conifer topping hardwood stage. The shrub layer is well established with 50 percent closure and the herbaceous layer is 70 percent closed.

Table B: Quality of Natural Resource Functions in Resource Site SW21				
Resource Site (acres) = 393.955662				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	64.3	41.9	65.0	171.3
percent total inventory site area	16.3%	10.6%	16.5%	43.5%
Wildlife Habitat*				
acres	25.4	120.3	3.7	149.3
percent total inventory site area	6.4%	30.5%	0.9%	37.9%
Special Habitat Areas**				
acres				9.7
percent total inventory site area				2.5%
Combined Total+				
acres	78.3	79.6	15.7	173.6
percent total inventory site area	19.9%	20.2%	4.0%	44.1%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW21 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetlands; forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R20 and R10 base zones. Open Space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW21, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

ESEE Decisions

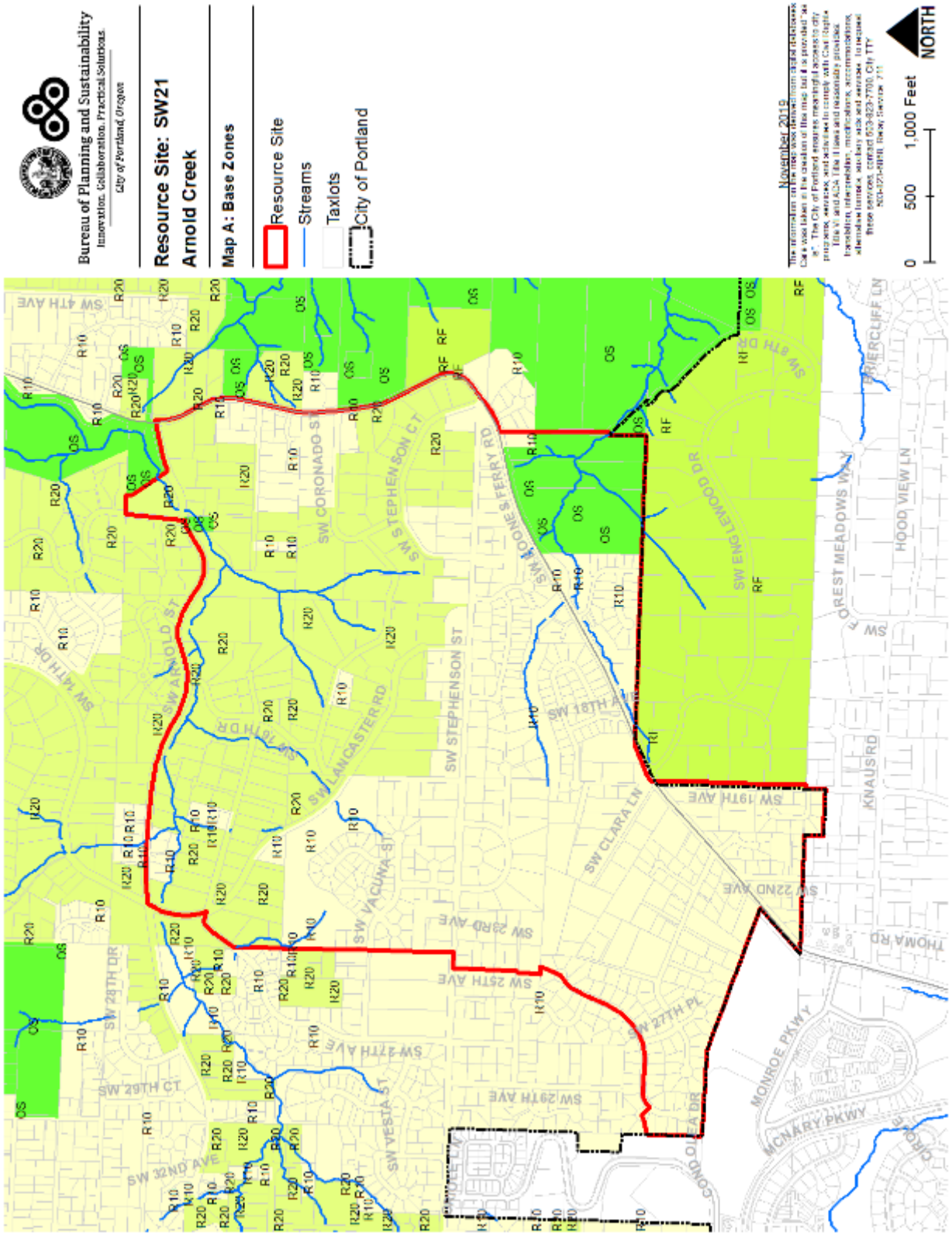
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW21 are:

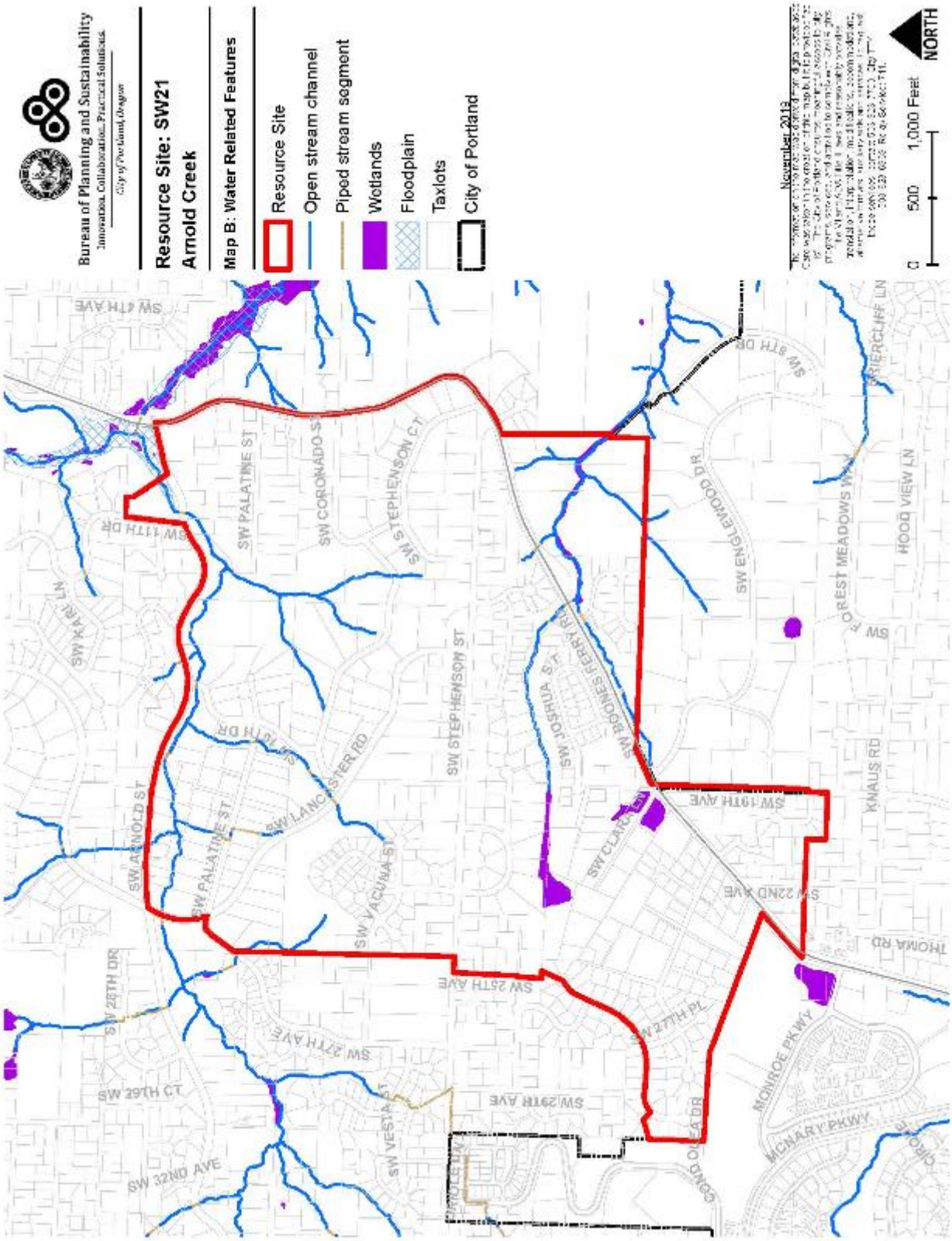
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, seeps land within 50 feet of stream top-of-bank, wetlands and seeps.
2. *Limit* conflicting uses within areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank, within areas of forest vegetation that are contiguous to but more than 50 feet from wetlands, and within areas of forest on steep slopes that are contiguous to but more than 50 feet from streams or wetlands.
3. *Allow* conflicting uses within all other areas containing significant natural resources.

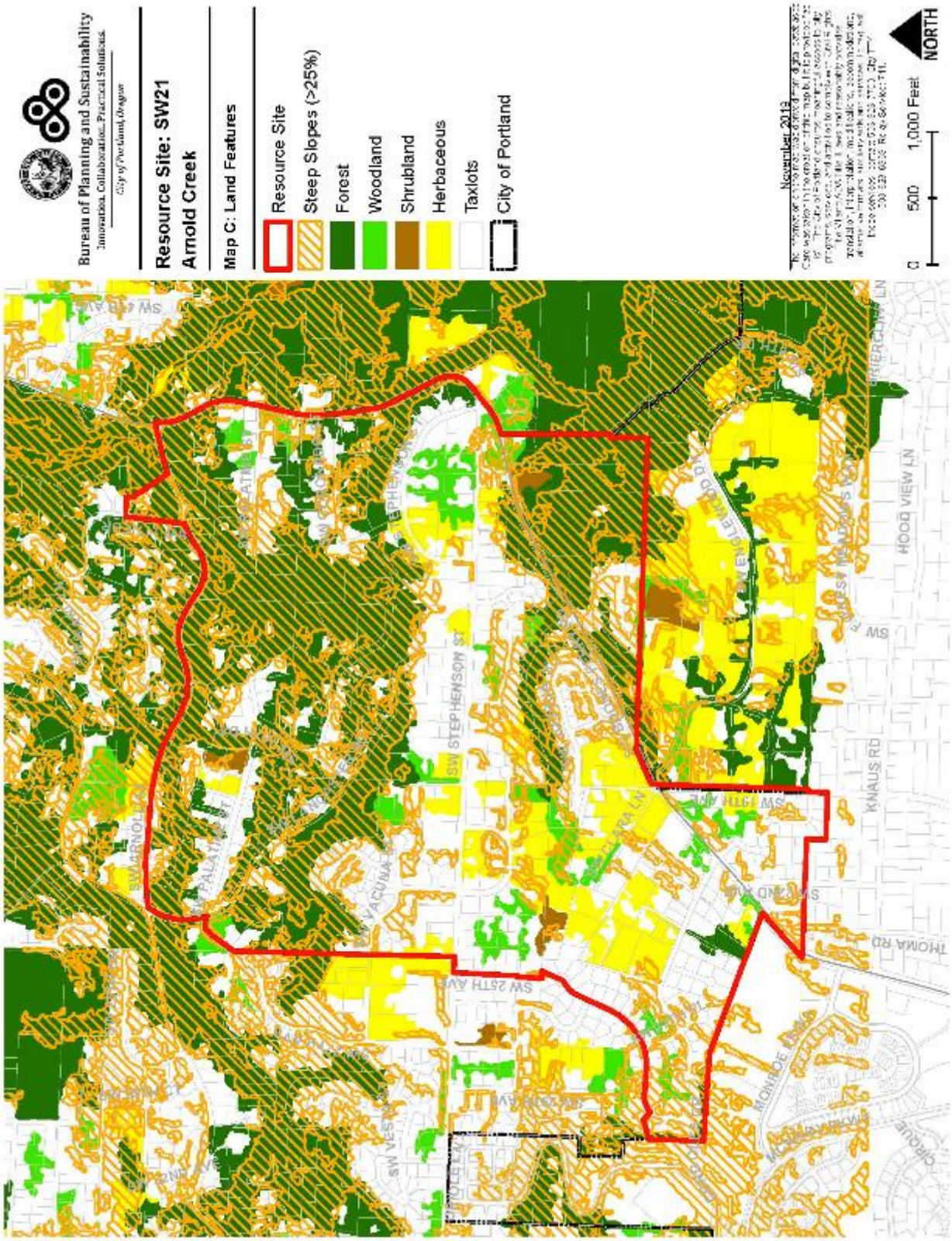
There is a seep located just south of SW Coronado St, near SW Lancaster Rd, that forms the headwaters of a tributary to Arnold Creek. The seep was documented during a site visit on DATE. There are likely other seeps in the area; however, those have not been documented to-date. If additional seeps are found, it is appropriate to apply the *strictly limit* decision to those natural resource features.

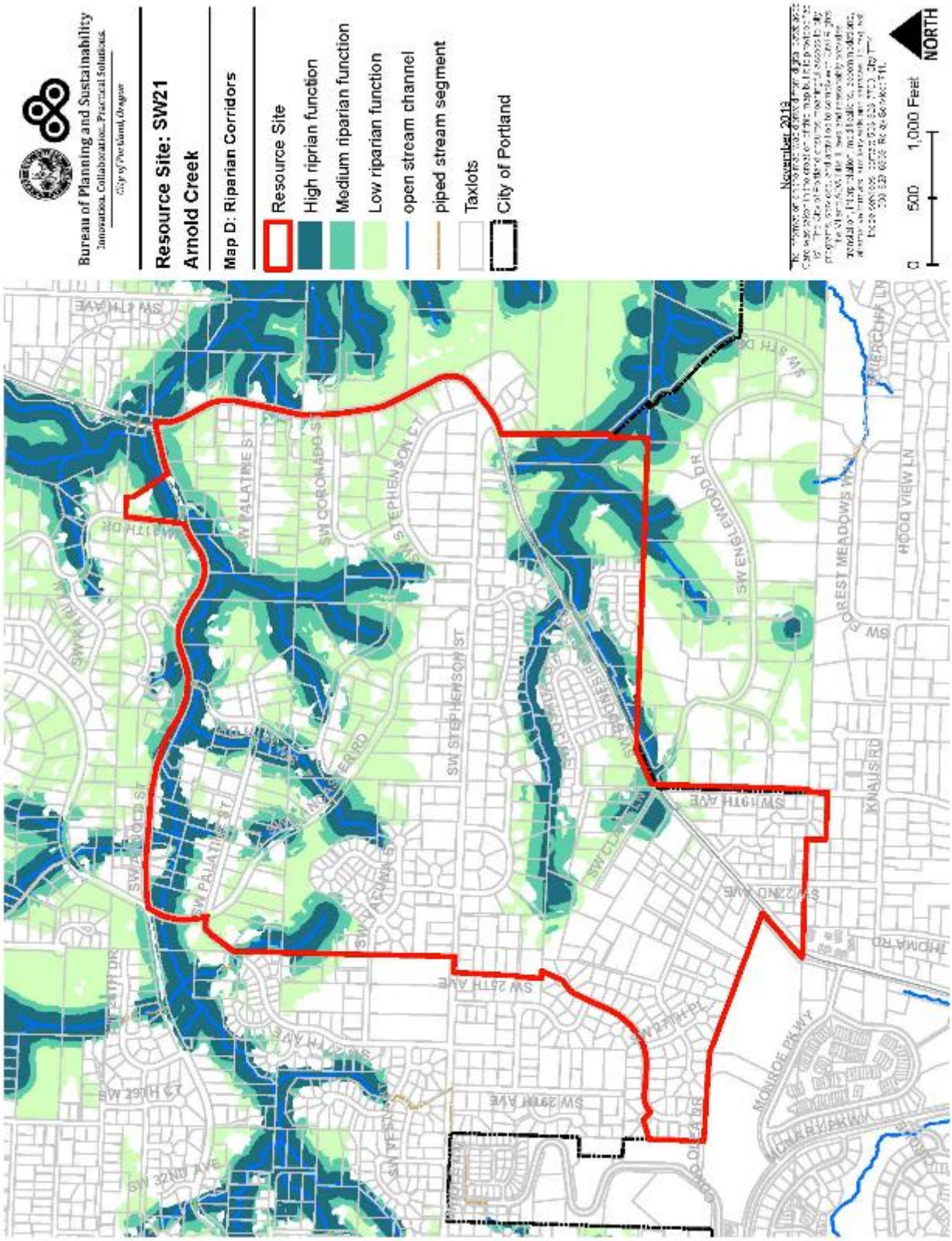
Table C: ESEE Decision for Resource Site SW21

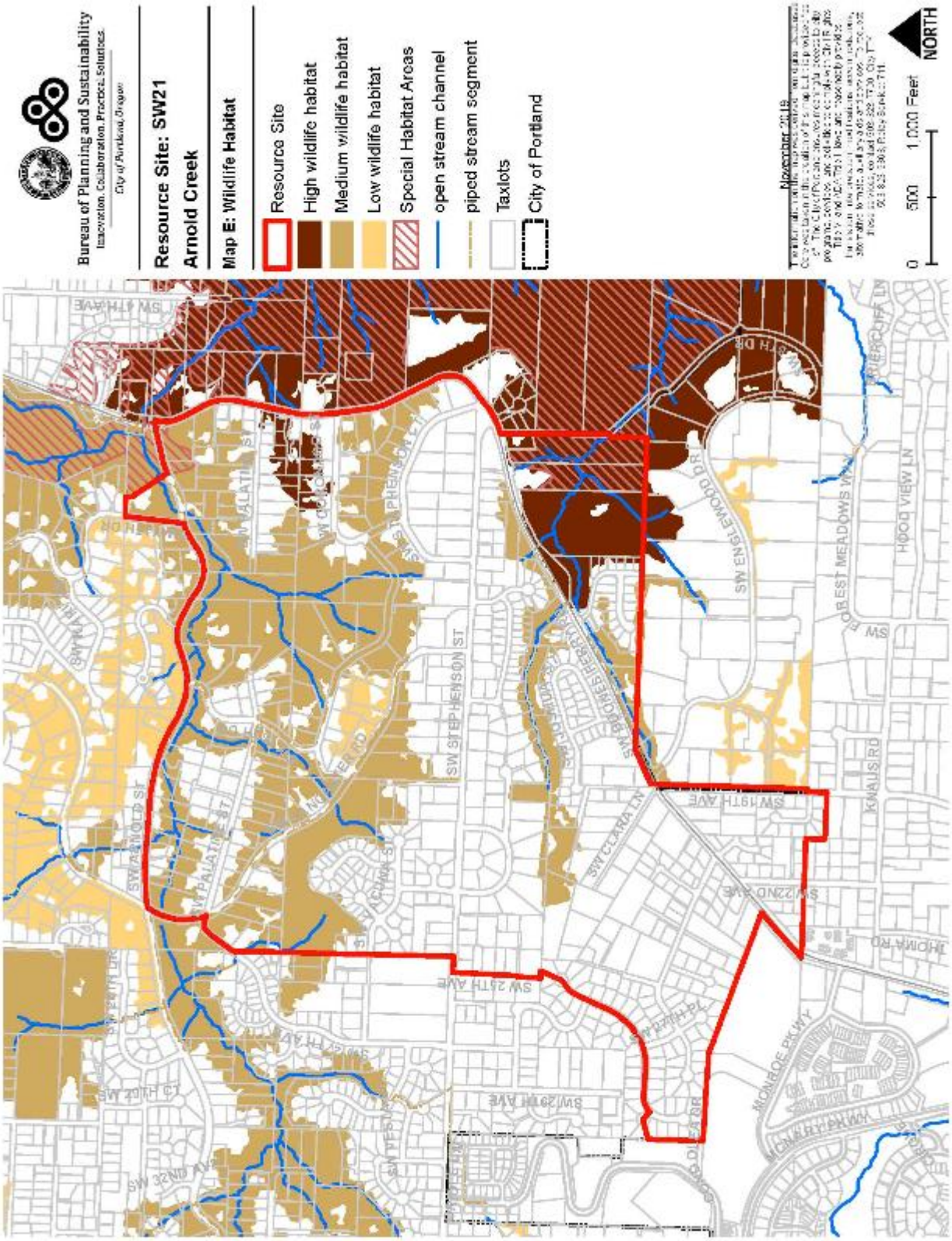
ESEE Decision	Acres
Strictly Limit	45.8
Limit	95.7
Allow	252.4

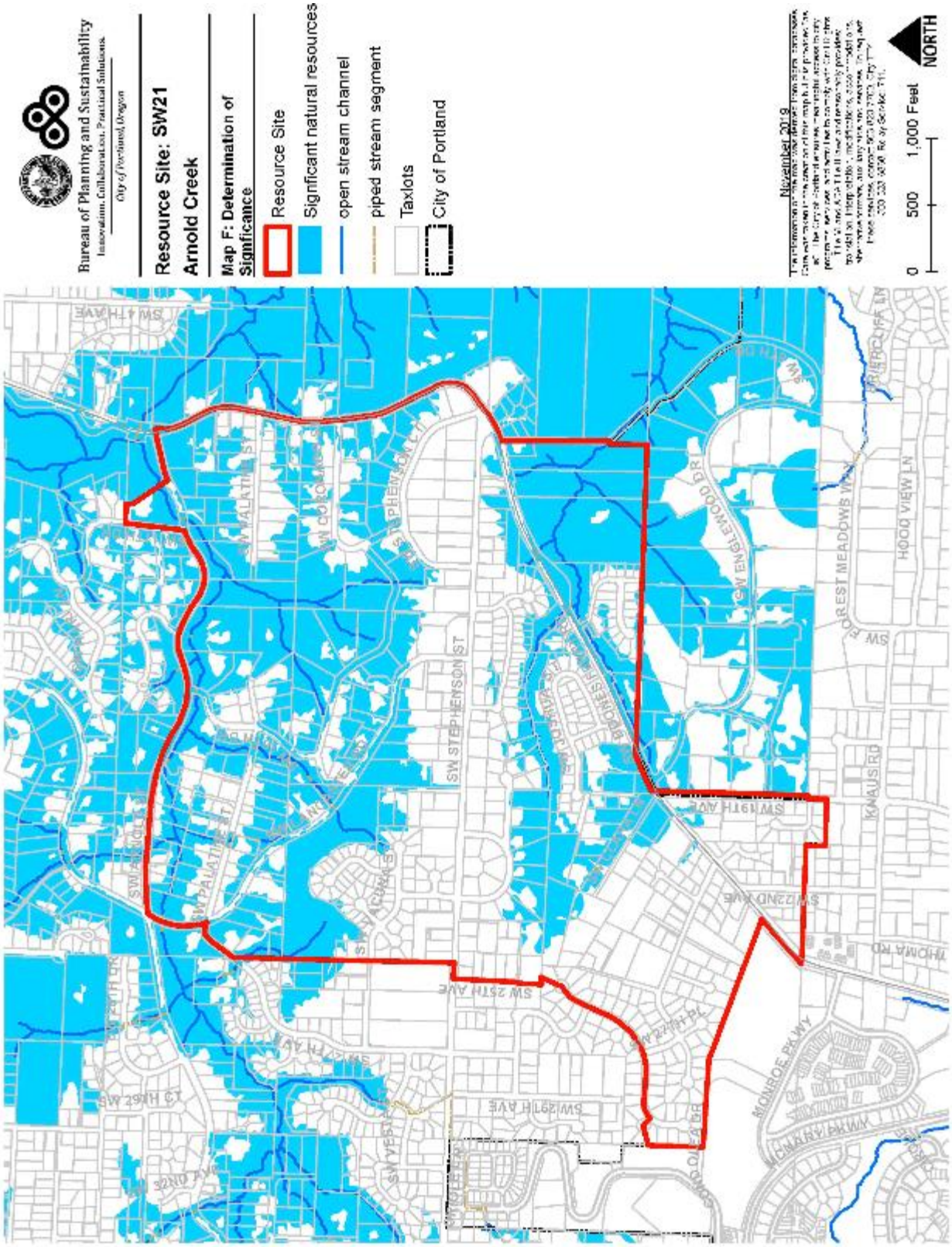

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW21
Arnold Creek
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0 500 1,000 Feet
NORTH
SW 4TH AVE
SW 14TH DR
SW 18TH DR
SW 28TH DR
SW 29TH CT
SW 32ND AVE
SW ARNOLD ST
SW CORONADO ST
SW STEPHENSON CT
SW STEPHENSON ST
SW LANCASTER RD
SW VACUNA ST
SW VESTA ST
SW 27TH AVE
SW 25TH AVE
SW 23RD AVE
SW 29TH AVE
SW 27TH PL
SW CLARA LN
SW 22ND AVE
SW 19TH AVE
SW 18TH AVE
SW 8TH DR
SW ENGLEWOOD DR
FOREST MEADOWS WAY
HOOD VIEW LN
KNAUS RD
THOMA RD
MONROE PKWY
MCNARY PKWY
R10
R20
OS
RF

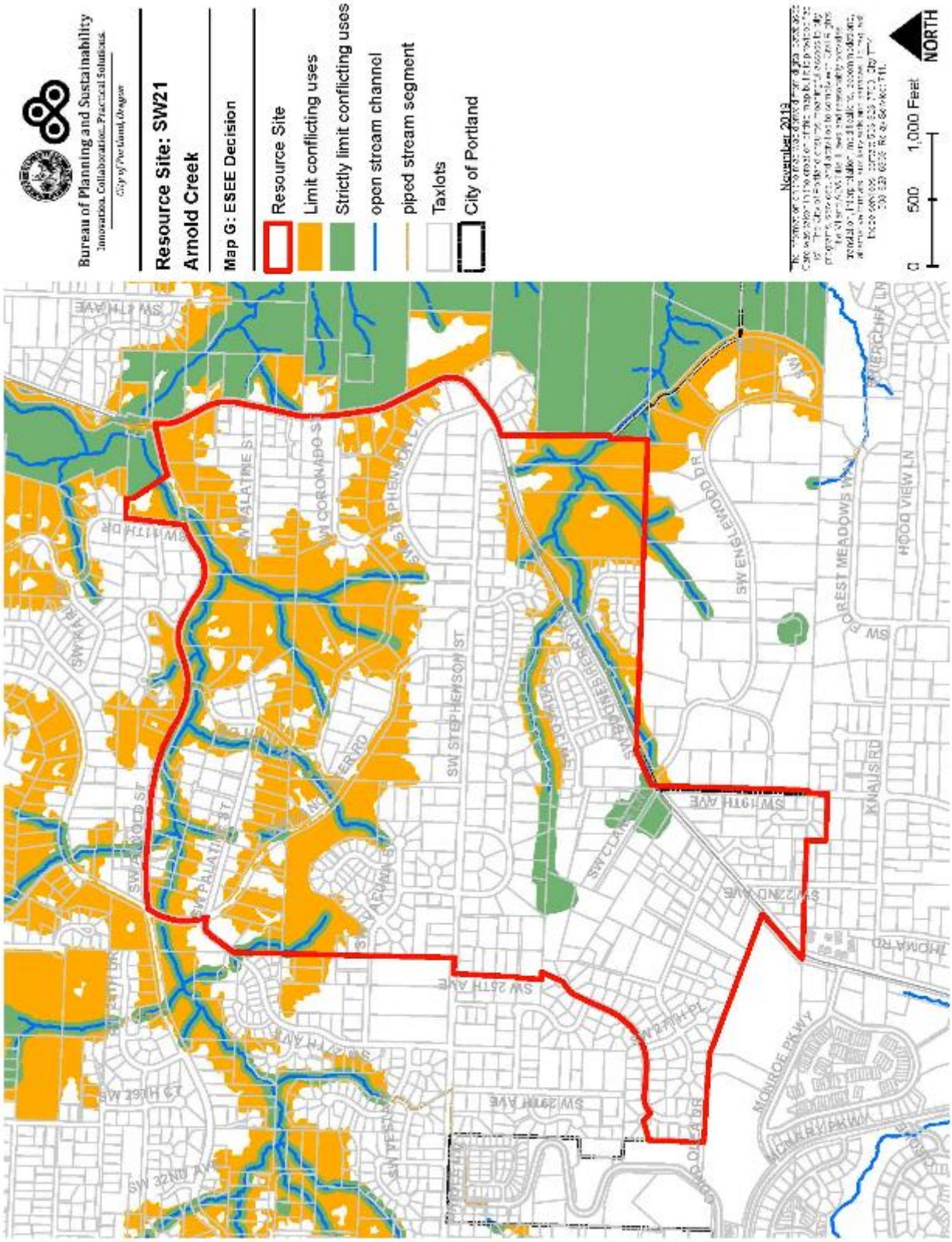

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW21
Arnold Creek
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0 500 1,000 Feet
NORTH
SW 4TH AVE
SW 11TH DR
SW KARI LN
SW ARNOLD ST
SW PALATINE ST
SW CORONADO ST
SW STEPHENSON CT
SW STEPHENSON ST
SW LANCASTER RD
SW VACUNA ST
SW JOSHUA ST
SW BOONES FERRY RD
SW CLARK
SW 19TH AVE
SW 22ND AVE
SW 25TH AVE
SW 27TH AVE
SW 27TH PL
SW 28TH DR
SW 29TH AVE
SW 29TH CT
SW 32ND AVE
SW VESTAL
SW 8TH DR
SW ENGLEWOOD DR
SW FOREST MEADOWS WAY
HOOD VIEW LN
PRIERCLIFF LN
KNAUS RD
THOMA RD
MONROE PKWY
MCNARY PKWY


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW21
Arnold Creek
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2019
0 500 1,000 Feet
NORTH
SW STEPHENSON ST
SW 25TH AVE
SW 19TH AVE
KNAUS RD
THOMA RD
HOOD VIEW LN
SW VESTA
SW MARNOLD
SW PALATINE HILL RD
SW VACUNA
SW MONROE
SW MONROE PKWY
SW CIRCLE
SW 4TH AVE


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW21
Arnold Creek
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 500 1,000 Feet
NORTH
SW 4TH AVE
SW 11TH DR
SW PALATINE ST
SW CORONADO ST
SW STEPHENSON CT
SW STEPHENSON ST
SW 19TH AVE
SW 22ND AVE
SW 25TH AVE
SW 27TH AVE
SW 32ND AVE
SW 23RD AVE
SW 24TH DR
SW 24TH AVE
SW 17TH DR
SW ARNOLD ST
SW PALATINE ST
SW ARNOLD PL
SW CLEMENTINE LN
SW ELSENWOOD DR
SW FOREST MEADOWS WAY
HOOD VIEW LN
KNAUS RD
THOMAS RD
MONROE PKWY
SW 24TH PL
SW 24TH DR

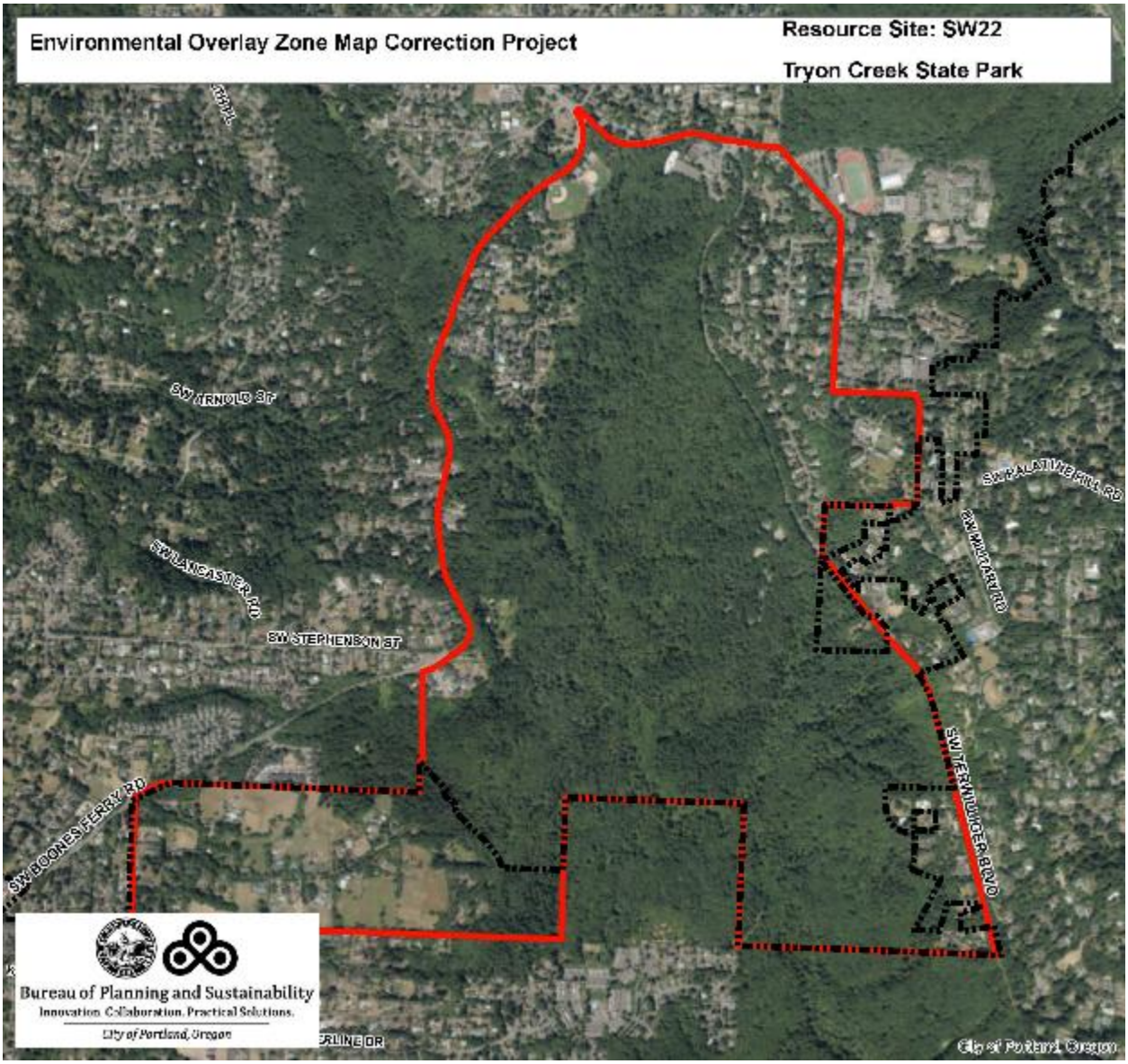

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW21
Arnold Creek
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 500 1,000 Feet
NORTH
SW 4TH AVE
SW ARNOLD ST
SW PALATINE ST
SW STEPHENSON ST
SW 19TH AVE
SW 22ND AVE
SW 25TH AVE
SW 27TH AVE
SW 32ND AVE
SW ENGLEWOOD RD
SW CLEARVIEW LN
SW MONTGOMERY PKWY
SW MONROE PKWY
FOREST MEADOWS WAY
HOOD VIEW LN
KNAUS RD
SW HOOD AVE


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW21
Arnold Creek
Map F: Determination of Significance
Resource Site
Significant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 500 1,000 Feet
NORTH
SW 4TH AVE
SW MALTHA ST
SW STEPHENSON ST
SW ENGLEWOOD DR
FOREST MEADOWS WAY
HOOD VIEW LN
SW 19TH AVE
KNAUS RD
SW 22ND AVE
THOMAS RD
SW 25TH AVE
SW 29TH AVE
SW 29TH CT
SW 32ND AVE
MONROE PKWY
SW MARTIN PKWY


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW21
Arnold Creek
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 500 1,000 Feet
NORTH
SW 19TH AVE
SW 25TH AVE
SW 29TH AVE
SW 32ND AVE
SW 22ND AVE
SW STEPHENSON ST
SW CORONADO ST
SW PALATINE ST
SW ENGLEWOOD DR
SW FOREST MEADOWS WAY
HOOD VIEW LN
KNAUS RD
THOMAS RD
MOUNTAIN PKWY
SW 17TH DR

Resource Site No.: SW22 **Site Name:** Tryon Creek State Park

Previous Plan: Southwest Hills Resource Protection Plan **Previous Resources Site No.:** 123



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW22	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	13.7
Vegetated Areas >= 1/2 acre (acres)	610.3
Forest (acres)	521.8
Woodland (acres)	19.3
Shrubland (acres)	4.3
Herbaceous (acres)	65.0
Flood Area*	4.4
Vegetated (acres)	4.3
Non-vegetated (acres)	0.1
Steep Slopes (acres)**	351.3
Impervious Surface (acres)	63.7
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

The site is primarily a V-shaped canyon formed by the east slope of Mt. Sylvania and west slope of Palatine Hill. (The elevation of Mt. Sylvania's summit is 970 and located about 1.7 miles to the southwest. Palatine Hill reaches 450 feet in height where the ridge top is relatively wide and long. The east slope of Palatine Hill borders the Willamette River). The site elevations are 400 feet near Boones Ferry Rd.; 100 feet along Tryon Creek canyon floor; and 450 feet at the eastern border of the site. The majority of the site is in Tryon Creek State Park which is 641-acres in size. Tryon Creek originates northwest of Barbur Boulevard and Terwilliger and flows into the Willamette River near the Boones Ferry and State Street in Lake Oswego. The remaining site acreage consists of sparsely developed low-density housing and the Lewis and Clark Law School. The law school is on 20 acres bisected by two tributary streams located near the Boones Ferry Road and Terwilliger Boulevard intersection.

Tryon Creek drainage basin is 4,477 acres in size and encompasses portions of Sites SW12 through 123. In 1982, the basin was estimated to have 22 percent of the land vacant. Wildlife plant, animal and fish habitat inventories have been conducted for Tryon Creek State Park since 1987. Over 80 species of birds and small mammals including beaver live in the park. The second growth forest is 60 to 80 years old and has a coniferous and deciduous tree mixture (40 and 60 percent respectively). The sensitive pileated woodpecker inhabits the area. Plant species that are notable are western wahoo and pacific yew.

The park has eight miles of hiking trails, 3.5 miles of horse trails and three miles of bike trails for recreational uses.

Steelhead and coho utilize Tryon Creek for spawning.37 It has not been determined whether the steelhead and coho present have strayed from the Willamette River or are residents. The lower 1.5 to two miles of the creek appears to be suitable habitat for these fish species, however, some have been

inventoried farther upstream. Trout are found throughout the creek system but have the greatest population 0.75 miles up from the confluence with the Willamette River.38 Tryon Creek is included on the National Wetland Inventory (PFOIY).

There are some disturbances in the surrounding area which affect the creek. There is periodic trash dumping, newly developed residential areas have caused some erosion in the area, and oil can be detected in the creek.

Table B: Quality of Natural Resource Functions in Resource Site SW22				
Resource Site (acres) = 714.528028				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	227.9	116.0	212.8	556.6
percent total inventory site area	31.9%	16.2%	29.8%	77.9%
Wildlife Habitat*				
acres	475.7	15.6	35.2	526.5
percent total inventory site area	66.6%	2.2%	4.9%	73.7%
Special Habitat Areas**				
acres				403.8
percent total inventory site area				56.5%
Combined Total+				
acres	485.6	23.1	64.2	573.0
percent total inventory site area	68.0%	3.2%	9.0%	80.2%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW24 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetlands; flood area; forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status fish and wildlife species.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the RF, R20 and R10 base zones. Commercial uses are allowed in the CI1 base zone. Open Space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW22, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

There is development located in the floodplain. The structures and impervious surface limit the flood capacity and infiltration functions of the land and increase the flood risk to the property as well as properties up and down stream. New or expanded development in the flood area should be *limited*.

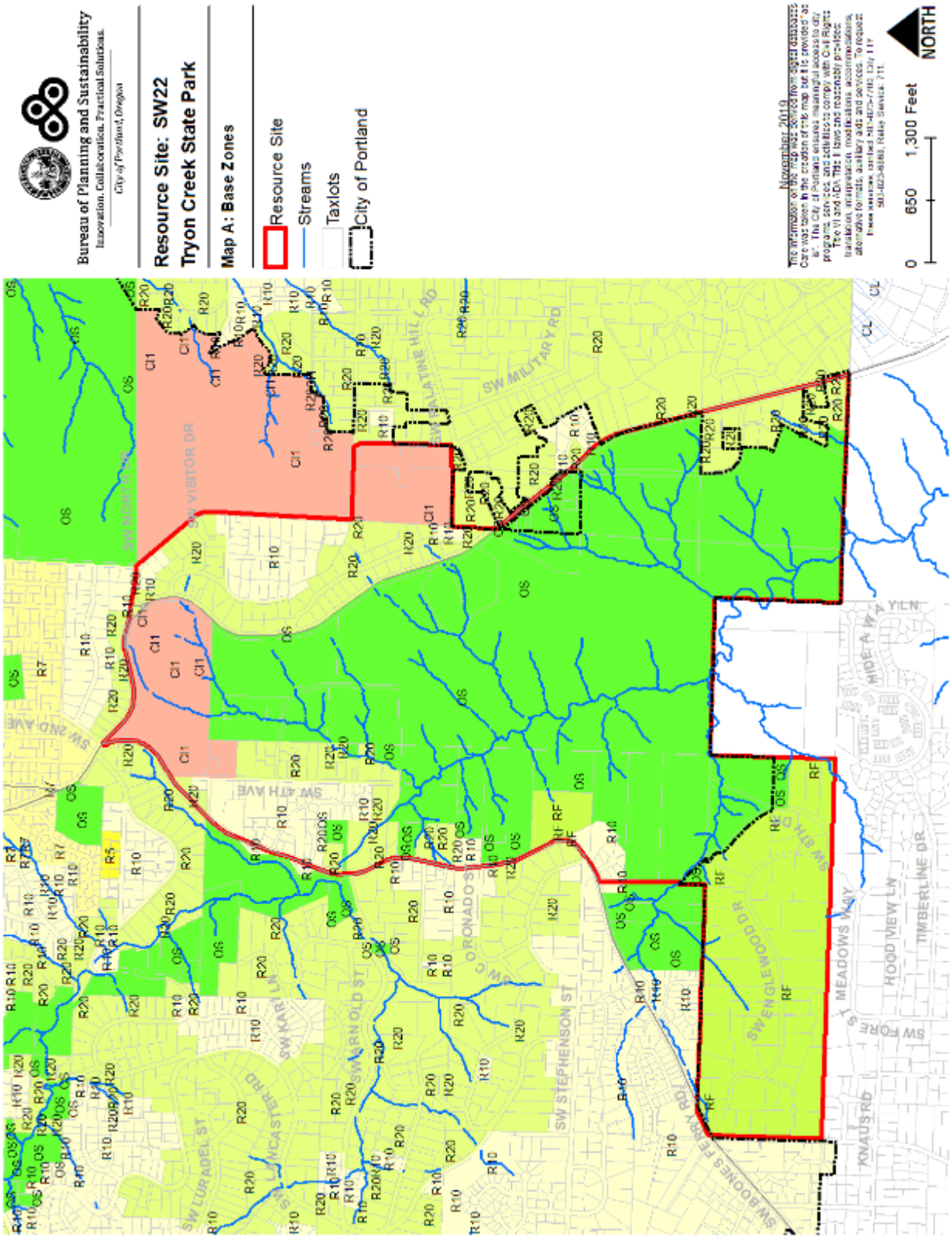
ESEE Decisions

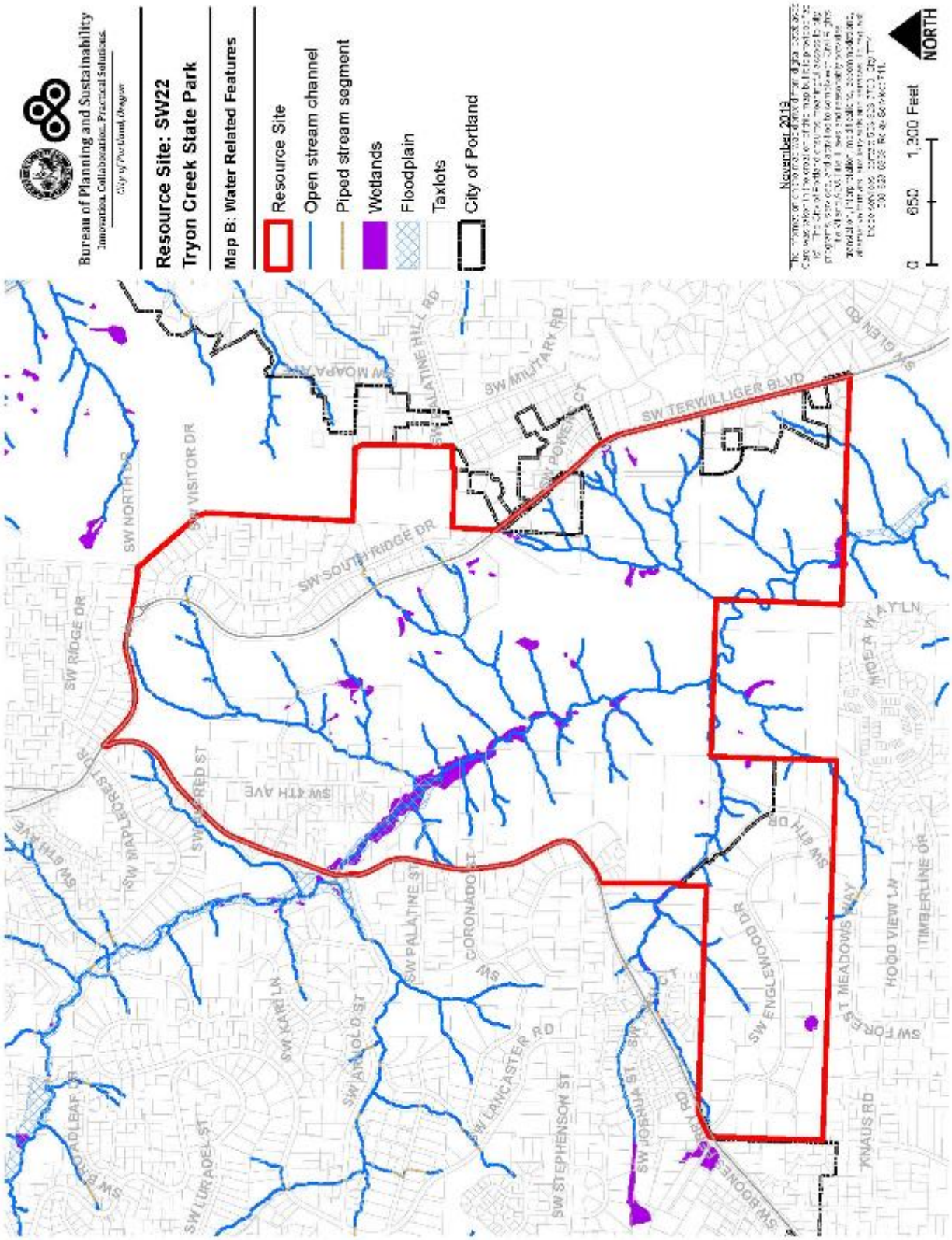
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW22 are:

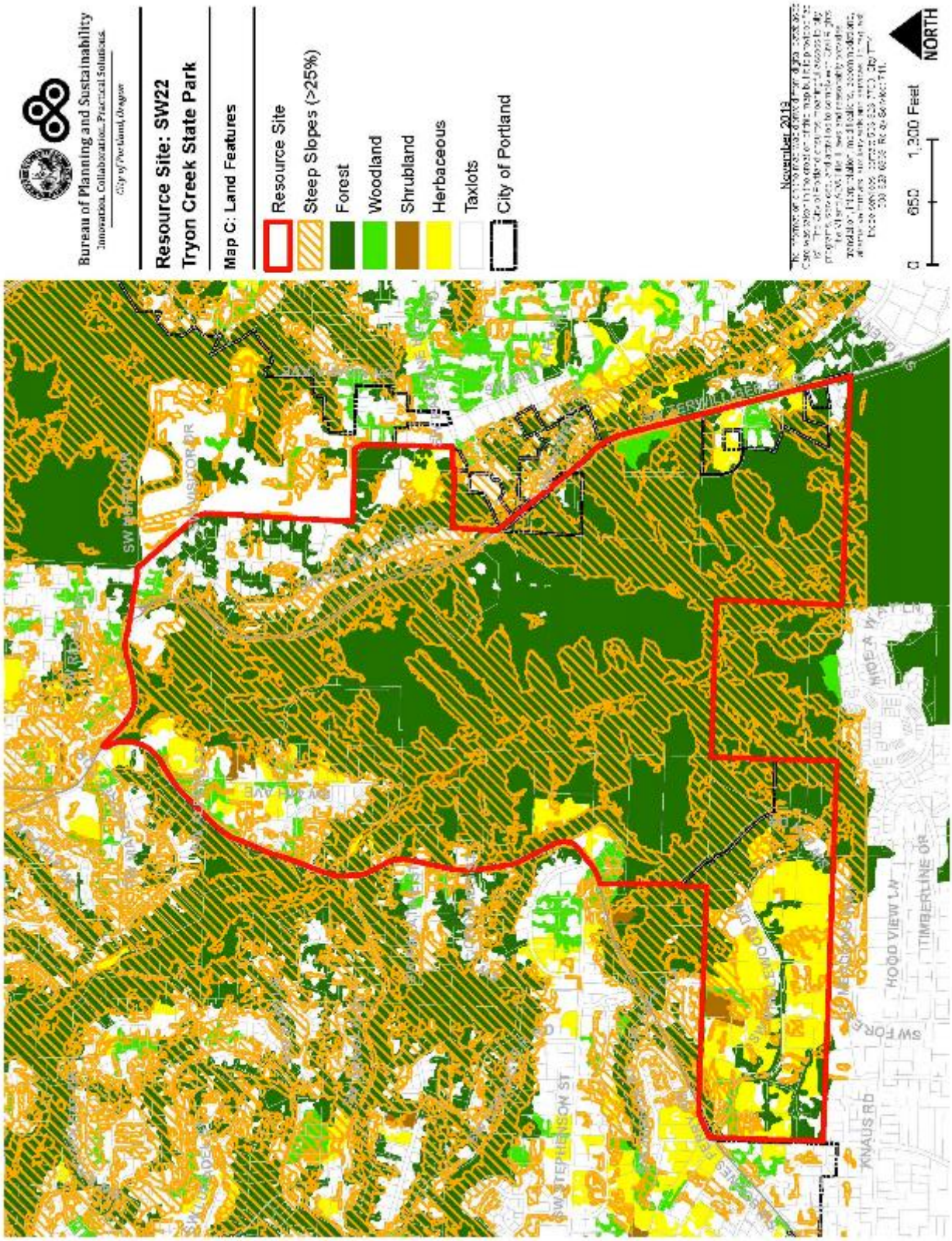
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, land within 50 feet of stream top-of-bank and land within 50 feet of wetlands.
2. *Strictly limit* conflicting uses within flood area, vegetated or developed, located between stream ordinary high water mark and 170 feet measured horizontally from the ordinary high water mark.
3. Inside Tryon Creek State Park, *strictly limit* conflicting uses within areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank and areas of forest on steep slopes that are contiguous to but more than 50 feet from stream top-of-bank.
4. *Limit* conflicting uses within flood area, vegetated or developed, located more than 170 feet measured horizontally from the ordinary high water mark.
5. Outside of Tryon Creek State Park, *limit* conflicting uses within areas of forest vegetation that are contiguous to but more than 50 feet from stream top-of-bank and areas of forest vegetation on steep slopes adjacent to SW Terwilliger Blvd or contiguous to but greater than 50 feet from stream top-of-bank.
6. *Allow* conflicting uses within all other areas containing significant natural resources.

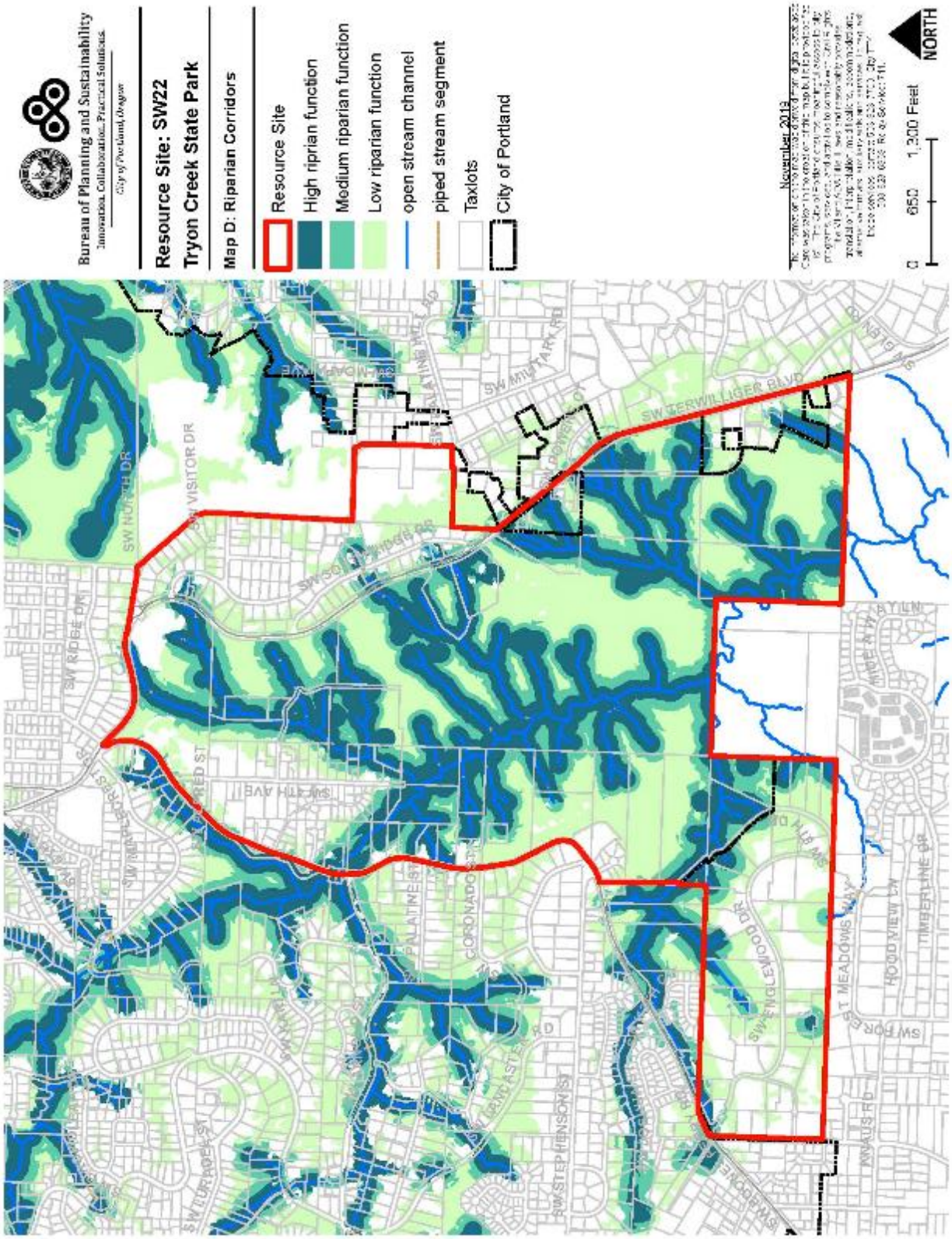
Table C: ESEE Decision for Resource Site SW22

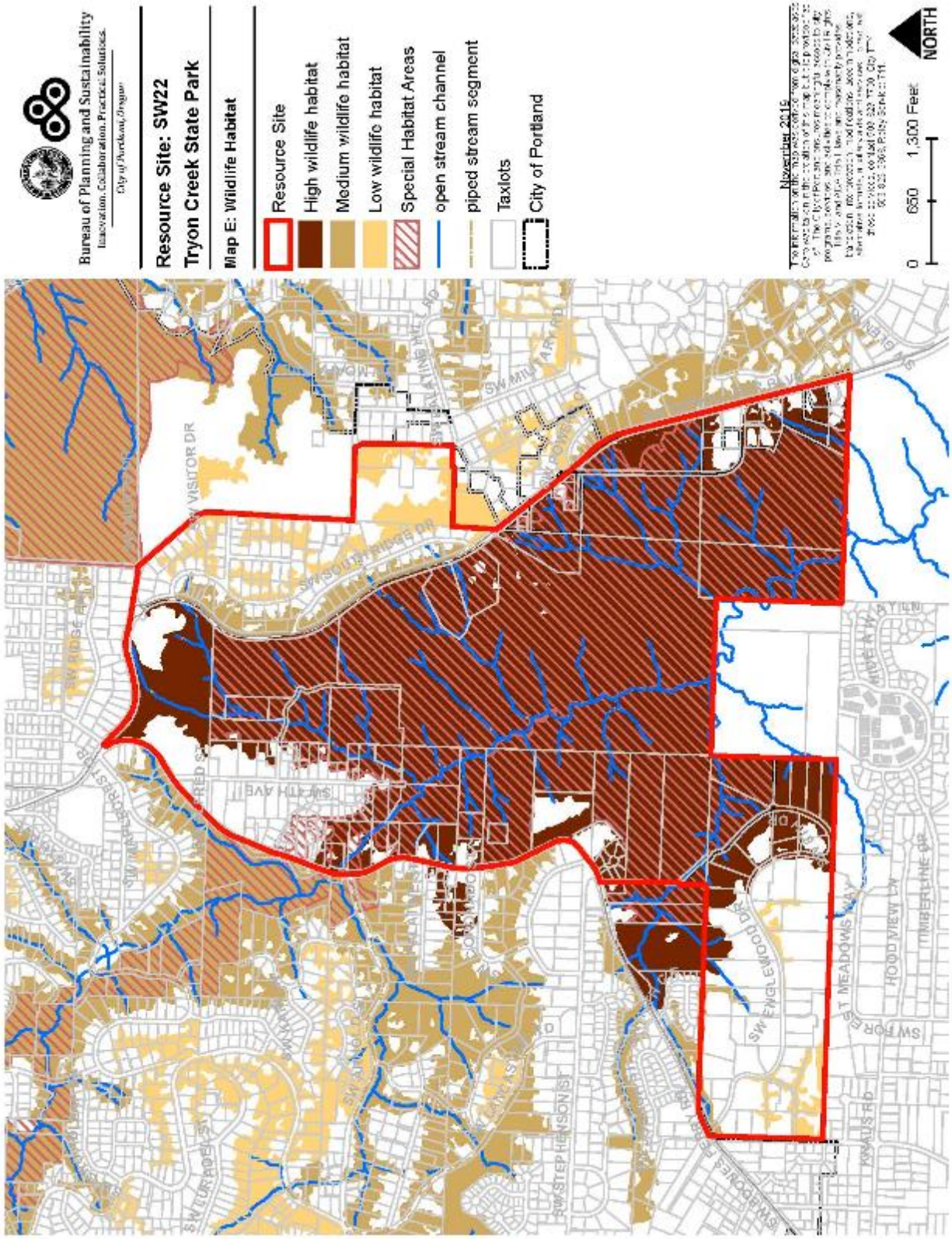
ESEE Decision	Acres
Strictly Limit	423.2
Limit	73.3
Allow	218.1

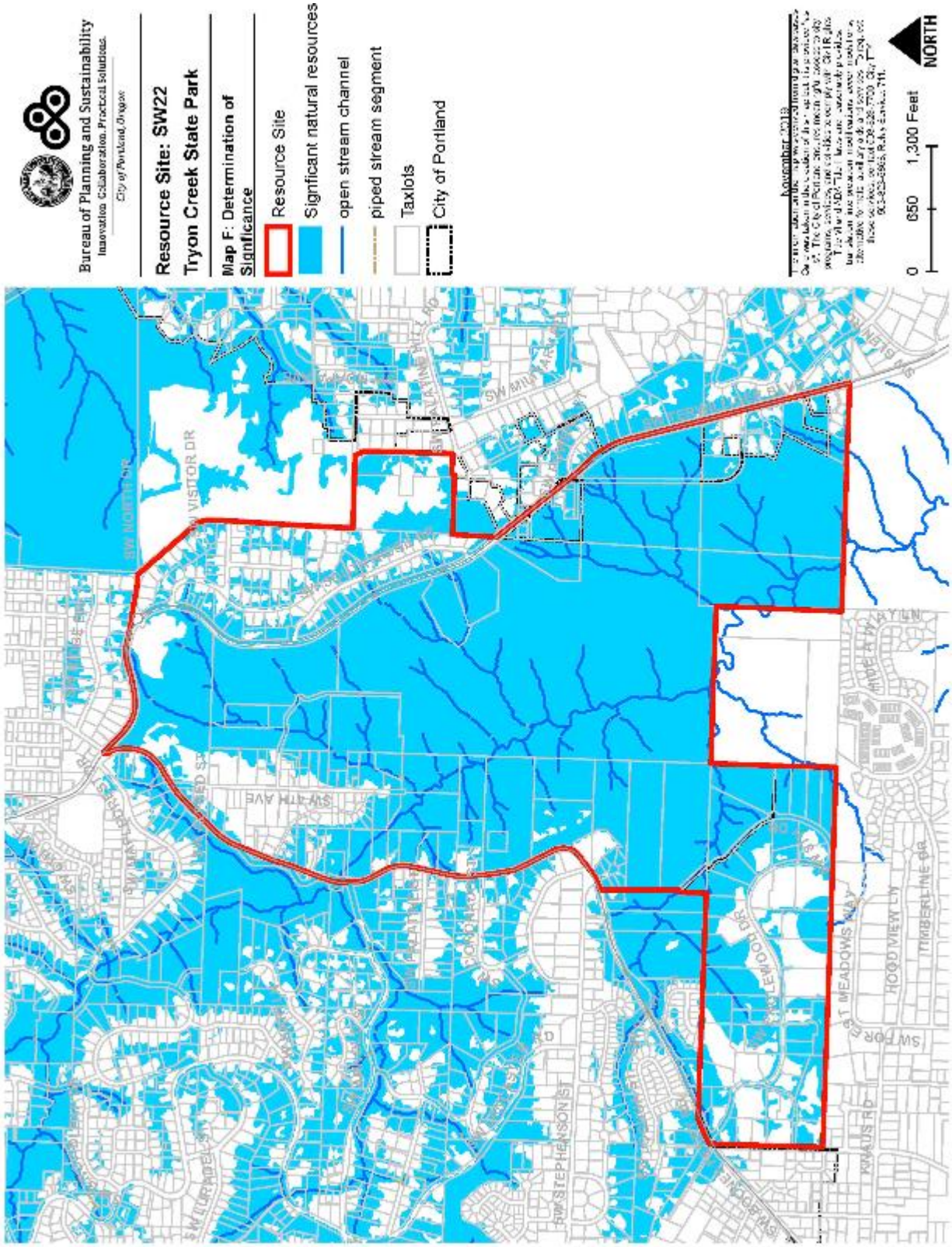

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW22
Tryon Creek State Park
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0 650 1,300 Feet
NORTH
SW VISITOR DR
SW MILITARY RD
SW 2ND AVE
SW 4TH AVE
SW LURADEL ST
SW KARL LN
SW OLD ST
SW STEPHENSON ST
SW ENGLEWOOD DR
SW BOONES FERRY RD
SW FOREST MEADOWS WAY
HOOD VIEW LN
TIMBERLINE DR
KNAUS RD

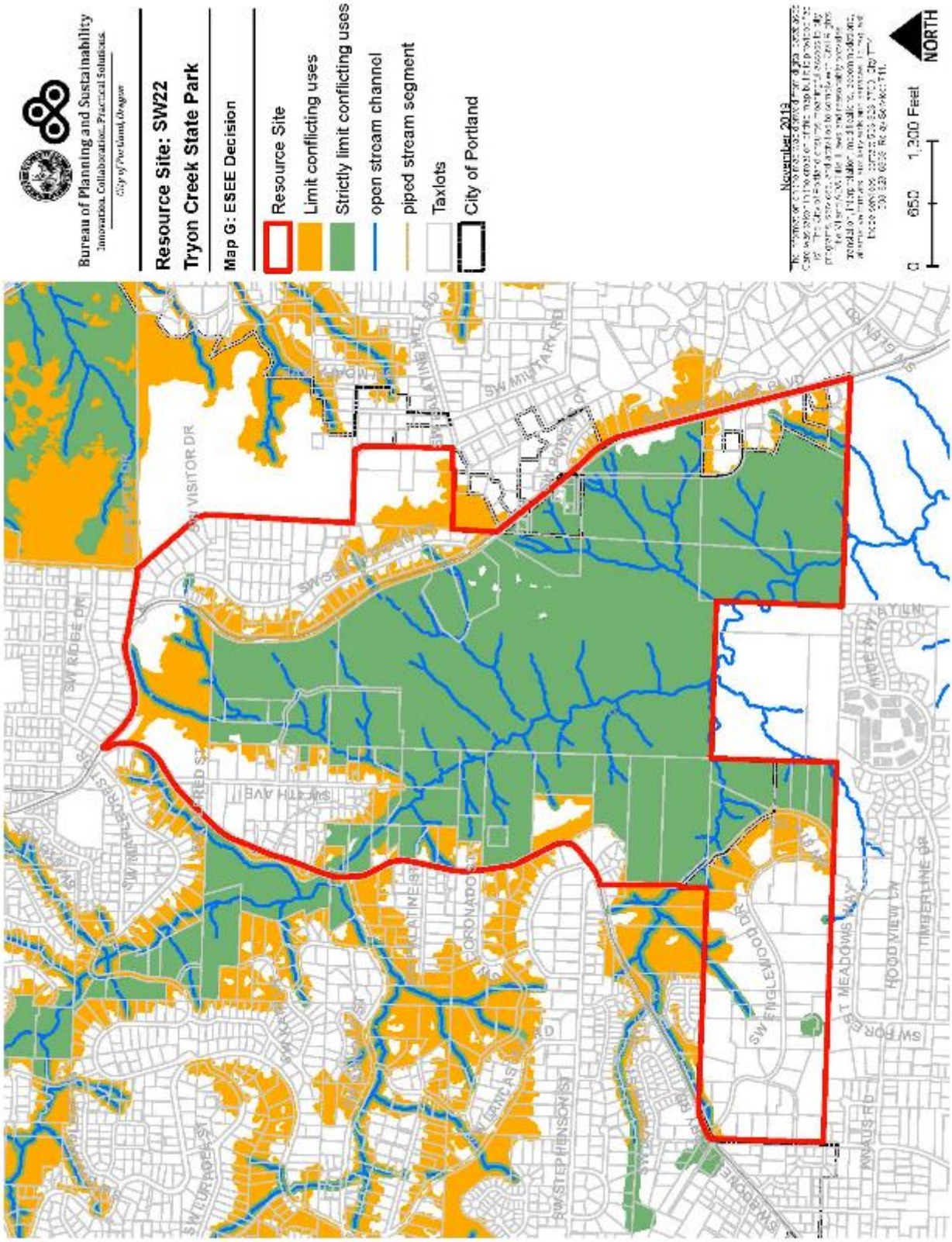

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW22
Tryon Creek State Park
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0 650 1,300 Feet
NORTH
SW MOAPA AVE
SW PALATINE HILL RD
SW MILITARY RD
SW POWELL CT
SW TERWILLIGER BLVD
SW GLEN RD
SW VISITOR DR
SW NORTH DR
SW SOUTH RIDGE DR
SW RIDGE DR
SW 4TH AVE
SW 4TH DR
SW ENGLEWOOD RD
SW FOREST MEADOWS WAY
HOOD VIEW LN
TIMBERLINE DR
KNAUS RD
SW PALATINE ST
SW CORONADO ST
SW LANCASTER RD
SW STEPHENSON ST
SW JOSHUA ST
SW KARI LN
SW ATHOL ST
SW LURADEL ST
SW BROADLEAF DR
SW MAPLECREST DR
SW FRED ST


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW22
Tryon Creek State Park
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2019
0
650
1,300 Feet
NORTH
SW TERWILLIGER BLVD
SW VISTA AVE
SW STEPHENSON ST
SW FOREST
HOOD VIEW LN
TIMBERLINE DR
KNAUS RD


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW22
Tryon Creek State Park
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
650
1,300 Feet
NORTH
SW TERWILLIGER BLVD
SW NORTH DR
SW VISITOR DR
SW RIDGE DR
SW BOONES FERRY RD
SW 11TH AVE
SW PALATINE ST
SW CORONADO ST
SW ENGLEWOOD DR
SW FOREST MEADOWS WAY
SW STEPHENSON ST
SW LANCASTER RD
SW HOOD VIEW LN
SW TIMBERLINE DR
SW KNAUS RD
SW MILITARY RD
SW ARNOLD ST

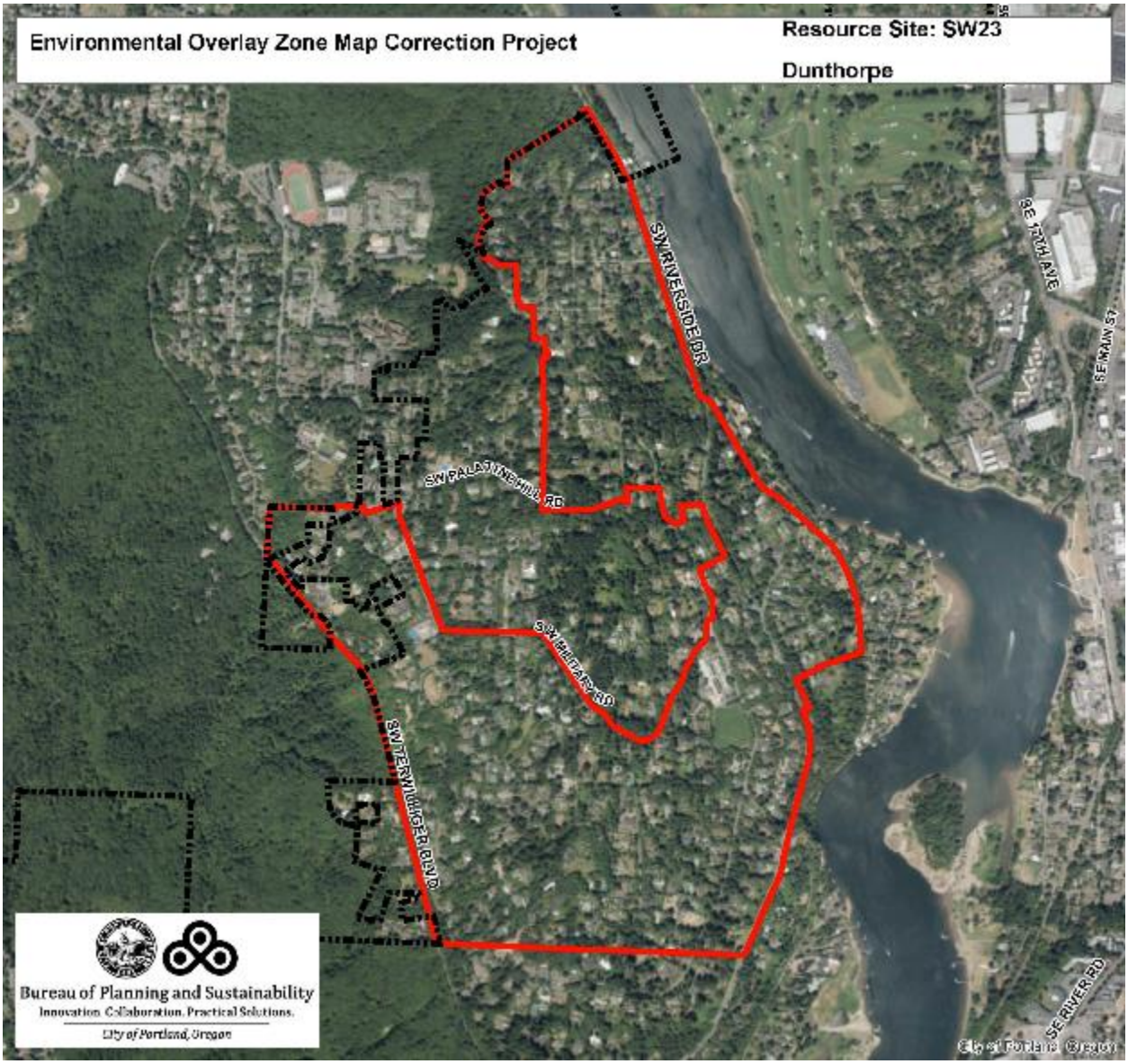

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW22
Tryon Creek State Park
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2015
0 650 1,300 Feet
NORTH
SW VISITOR DR
SW TAYLORS FERRY RD
SW MILL AVE
SW 45TH AVE
SW ENGLEWOOD DR
SW STEPHENSON ST
SW TERWILLIGER BLVD
SW BOONES FERRY RD
SW MOUNTAIN VIEW LN
SW TIMBERLINE DR
SW FOREST MEADOWS WAY
SW FOREST LN
SW BOONES FERRY RD
KOHLS RD


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW22
Tryon Creek State Park
Map F: Determination of Significance
Resource Site
Significant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 650 1,300 Feet
NORTH
SW VISITOR DR
SW 37TH AVE
SW STEPHENSON ST
SW MEADOWS WAY
HOODVIEW LN
TIMBERLINE DR
KRAUS RD


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW22
Tryon Creek State Park
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 650 1,300 Feet
NORTH
SW VISITOR DR
SW RIDGE DR
SW 5TH AVE
SW CORONADO ST
SW STEPHENSON ST
SW TURNER ST
SW FOREST MEADOWS WAY
SW TIMBERLINE DR
SW HOODVIEW LN
SW MILITARY RD
SW POWELL BLVD

Resource Site No.: SW23 **Site Name:** Dunthorpe

Previous Plan: Multnomah County Urban Lands **Previous Resource Site No.:** 117-A



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site SW23	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	229.5
Forest (acres)	171.4
Woodland (acres)	32.9
Shrubland (acres)	0.0
Herbaceous (acres)	25.3
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	149.0
Impervious Surface (acres)	88.3
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are area with a slope greater than 25%.	

This site is a predominantly low-density residential area covering the ridge between Tryon Creek State Park and the Willamette River. Lake Oswego is located south of the site and the City of Portland is to the north and west. Across the river to the east is the City of Milwaukie.

The south and east boundaries of this site are relatively well defined as the Multnomah Clackamas County line and the Willamette River, respectively. To the north, the site borders Lewis and Clark College and the River View Cemetery. The western boundary is the Portland City Limits, which follows a circuitous route around properties and rights-of-way in the vicinity of Terwilliger Boulevard.

A north to south ridge passes through the site, with several secondary ridges and ravines extending east toward the Willamette River. This ridge is the southern tip of the Tualatin Mountain Range, before it descends to the Willamette lowlands. The site has an elevation change of 500 feet from the high point along the ridge-top to the Willamette River at near sea level. The hilltop terrain has moderate to gentle grades. Near the river, the terrain becomes steep, particularly at the south end of the site where a 200-foot, near-vertical cliff drops from the bluff along Riverside Drive to the river below. Low-lying floodplain and riparian areas up to 800 feet wide occur along certain parts of the Willamette.

To the west of the ridge, the site descends at up to 30 percent grades into the Tryon Creek basin. Several springs and seasonal watercourses form headwater tributaries to the creek. Like some of the steeper areas draining to the Willamette, the slopes along the western boundary of this site (near Terwilliger Boulevard) remain partly forested.

Table B: Quality of Natural Resource Functions in Resource Site SW23				
Resource Site (acres) = 427.950813				
	High	**Medium**	**Low**	**Total**
Riparian Corridors*				
acres	20.7	24.2	119.5	164.3
percent total inventory site area	4.8%	5.7%	27.9%	38.4%
Wildlife Habitat*				
acres	0.0	110.7	63.6	174.4
percent total inventory site area	0.0%	25.9%	14.9%	40.7%
Special Habitat Areas**				
acres				12.7
percent total inventory site area				3.0%
Combined Total+				
acres	30.5	106.1	64.1	200.6
percent total inventory site area	7.1%	24.8%	15.0%	46.9%

* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Special Habitat Areas rank high for wildlife habitat.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site SW23 the following significant features and functions are present:

Significant Natural Resource Features: open stream; forest vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R20 and R10 base zones. Open space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site SW23, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and wetlands, maintaining vegetation on steep slopes, and maintaining the stormwater management and

air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

ESEE Decisions

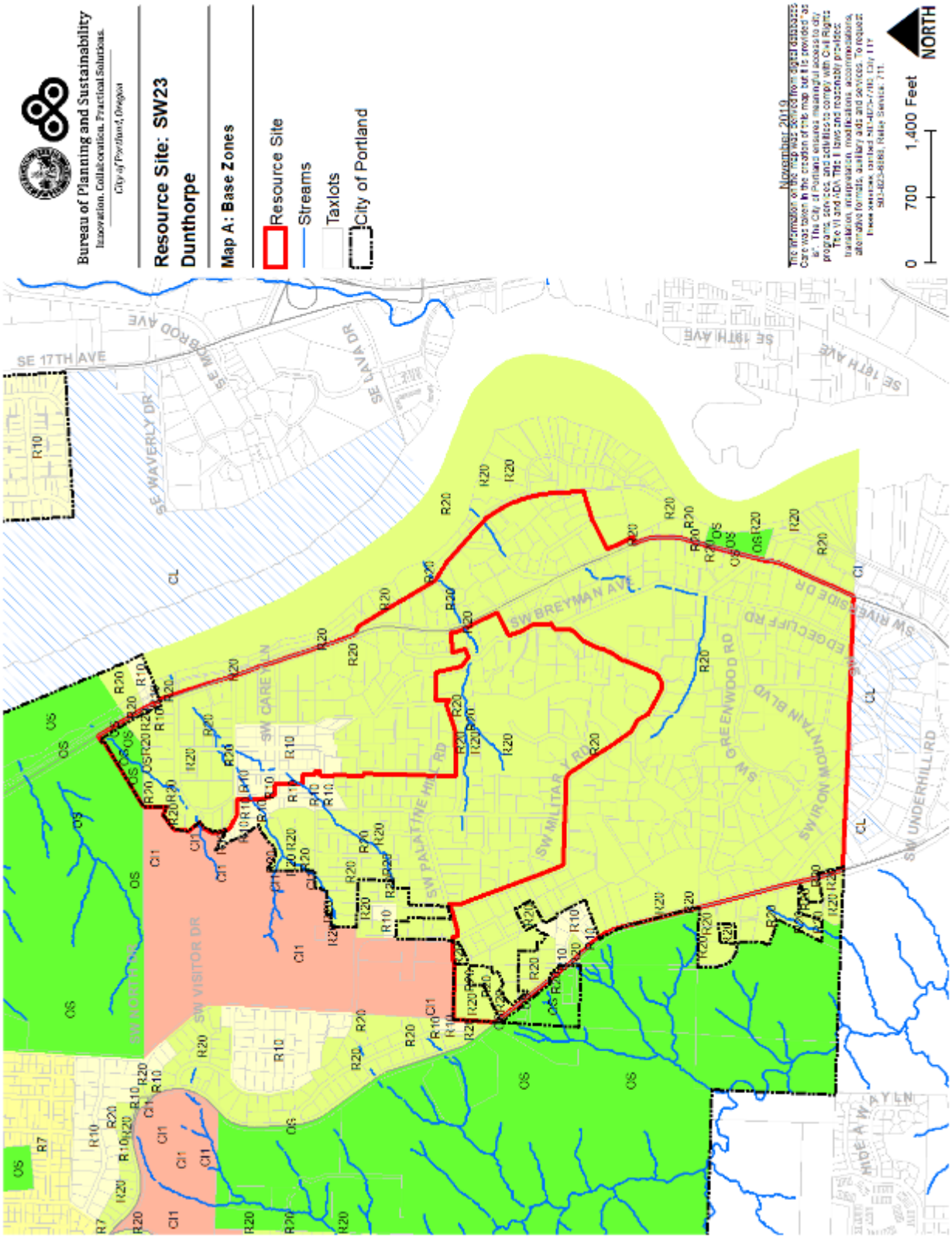
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site SW23 are:

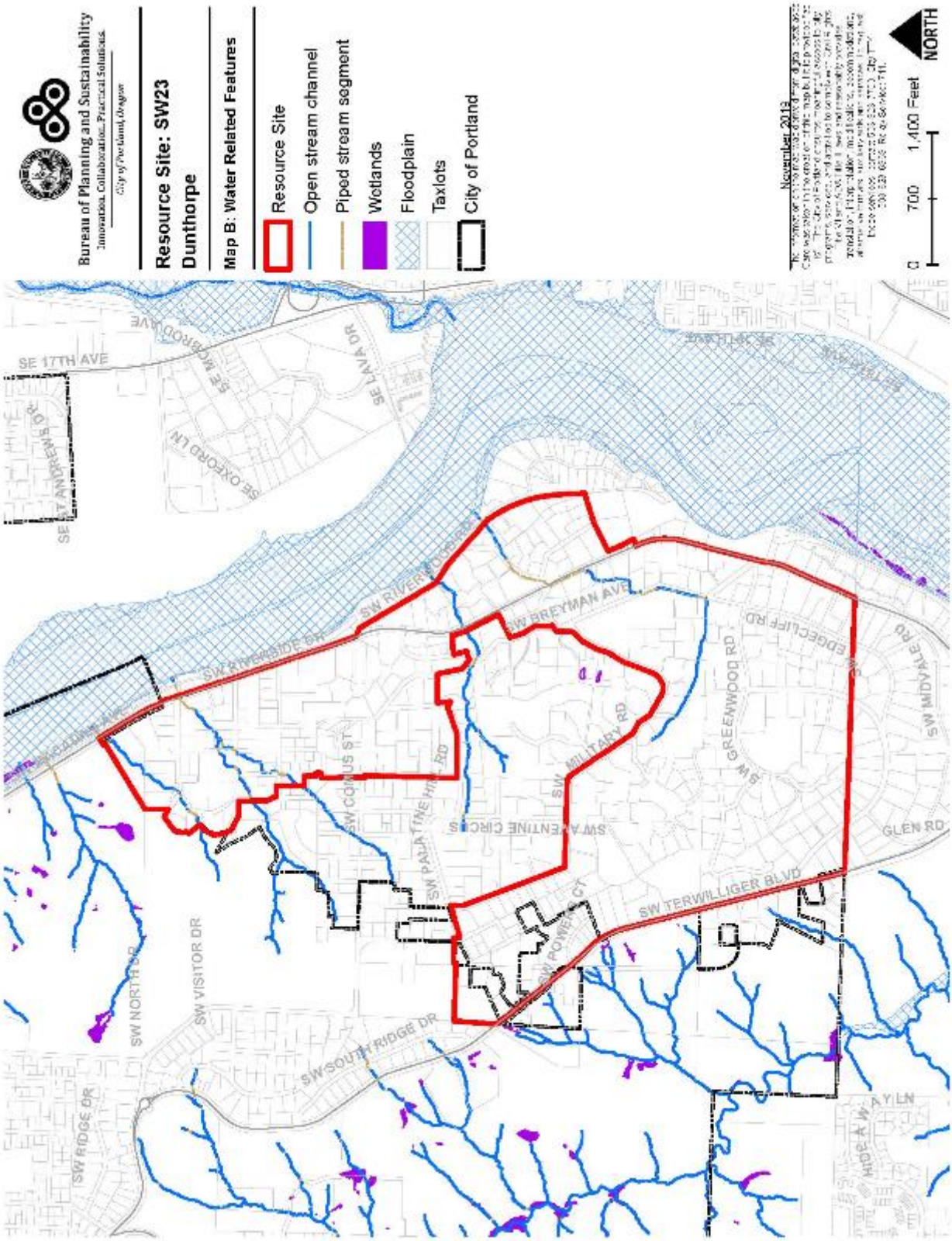
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank and land within 25 feet of stream top-of-bank.
2. *Limit* conflicting uses within land between 25 and 50 feet of stream top-of-bank, within areas of forest vegetation on steep slopes adjacent to SW Terwilliger Blvd right-of-way, within Special Habitat Area W19 and forest on steep slopes in Special Habitat Area W19.
3. Inside the River View Natural Area, *limit* conflicting uses within areas of vegetation that are contiguous to but more than 50 feet from stream top-of-bank and within areas of forest on steep slope contiguous to but more than 50 feet from stream top-of-bank.
4. *Allow* conflicting uses within all other areas containing significant natural resources.

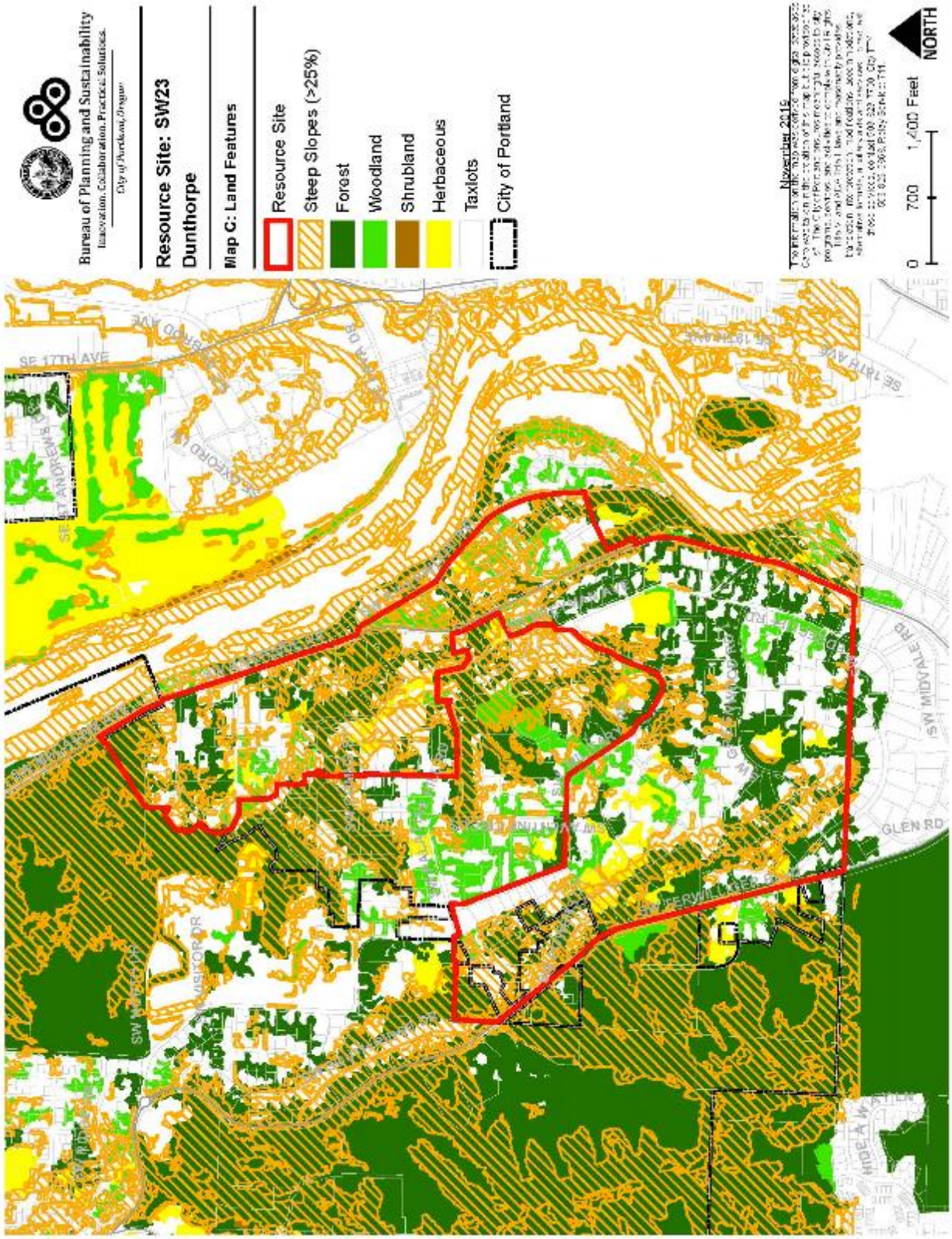
Special Habitat Area W19 contains large stands of Oregon White Oak, a special status plant species. This habitat type is found on the ridge lines along the Willamette River. Forest vegetation contiguous to the Oak Habitat may not contain Oregon White Oak, but does increase wildlife habitat functions of the overall vegetation patch by increasing area and decreasing edge impacts.

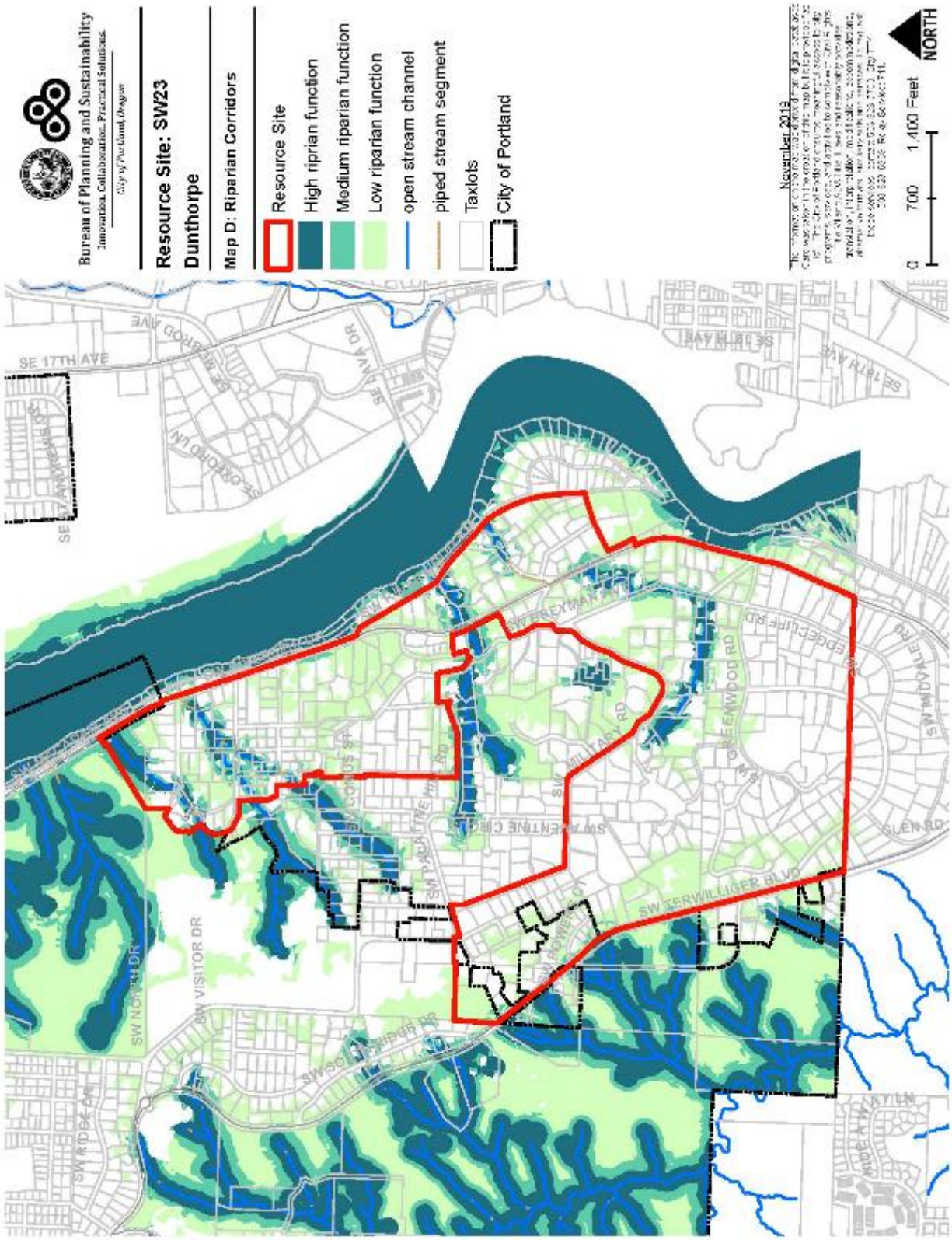
Table C: ESEE Decision for Resource Site SW23

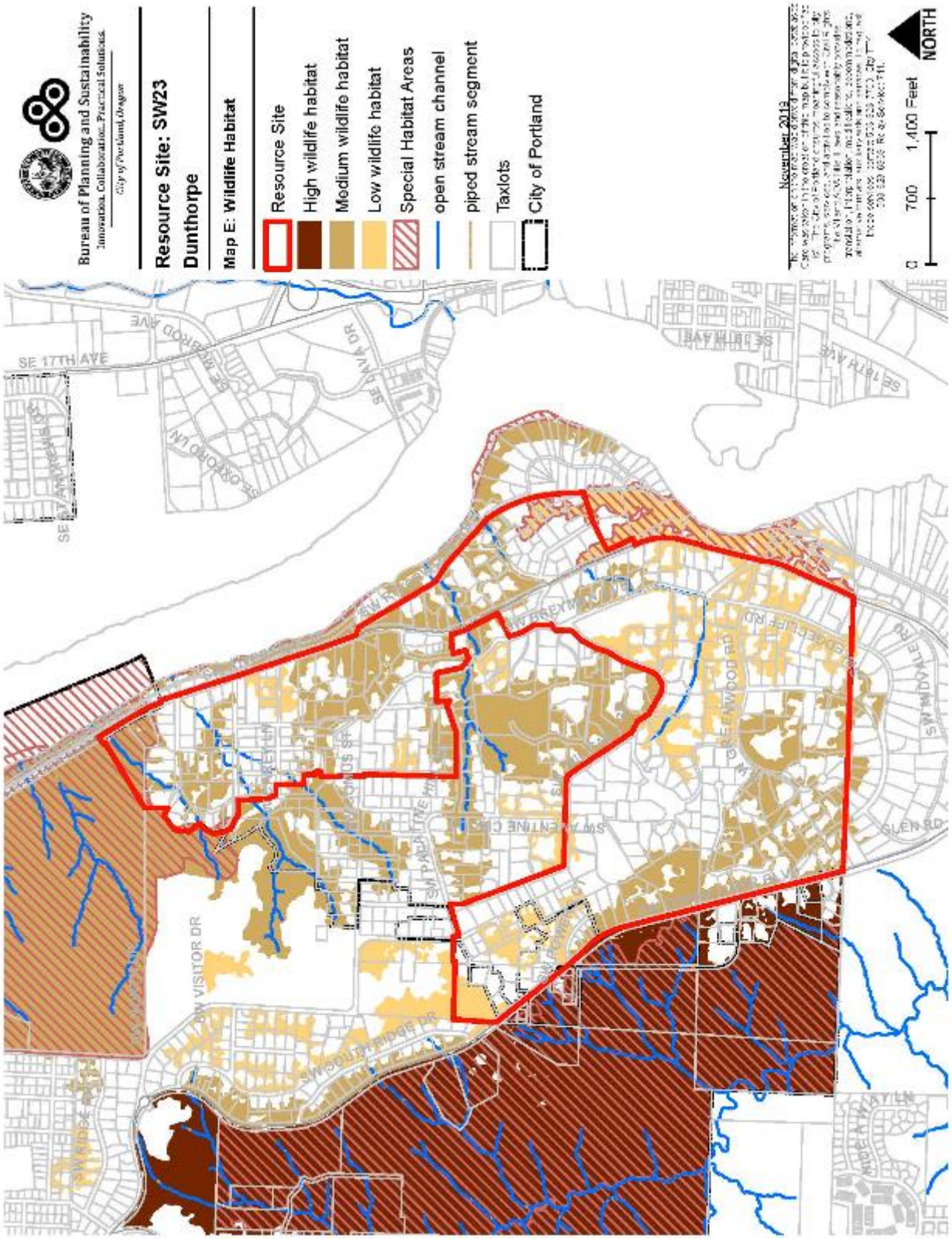
ESEE Decision	Acres
Strictly Limit	9.2
Limit	37.1
Allow	381.7

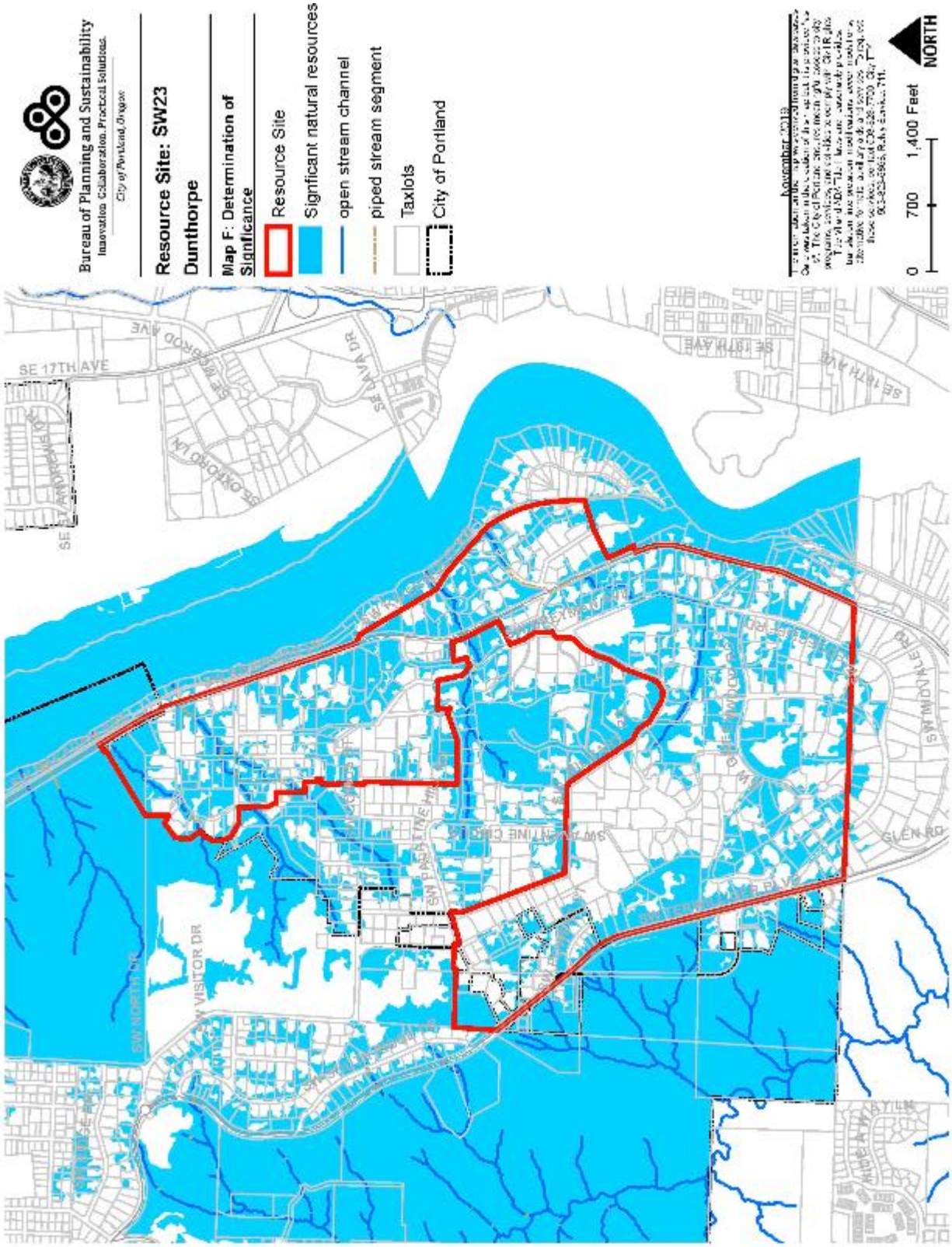

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW23
Dunthorpe
Map A: Base Zones
Resource Site
Streams
Taxlots
City of Portland
November 2019
0 700 1,400 Feet
NORTH
SE 17TH AVE
SE WAVERLY DR
SE MORGAN AVE
SE LAVA DR
SE 19TH AVE
SW CARE LN
SW VISITOR DR
SW PALATINE HILL RD
SW MILITARY RD
SW BREYMAN AVE
SW GREENWOOD RD
SW MOUNTAIN BLVD
SW IRON MOUNTAIN BLVD
SW EDGECLIFF RD
SW RIVERSIDE DR
SW UNDERHILL RD
MIDEAL LN

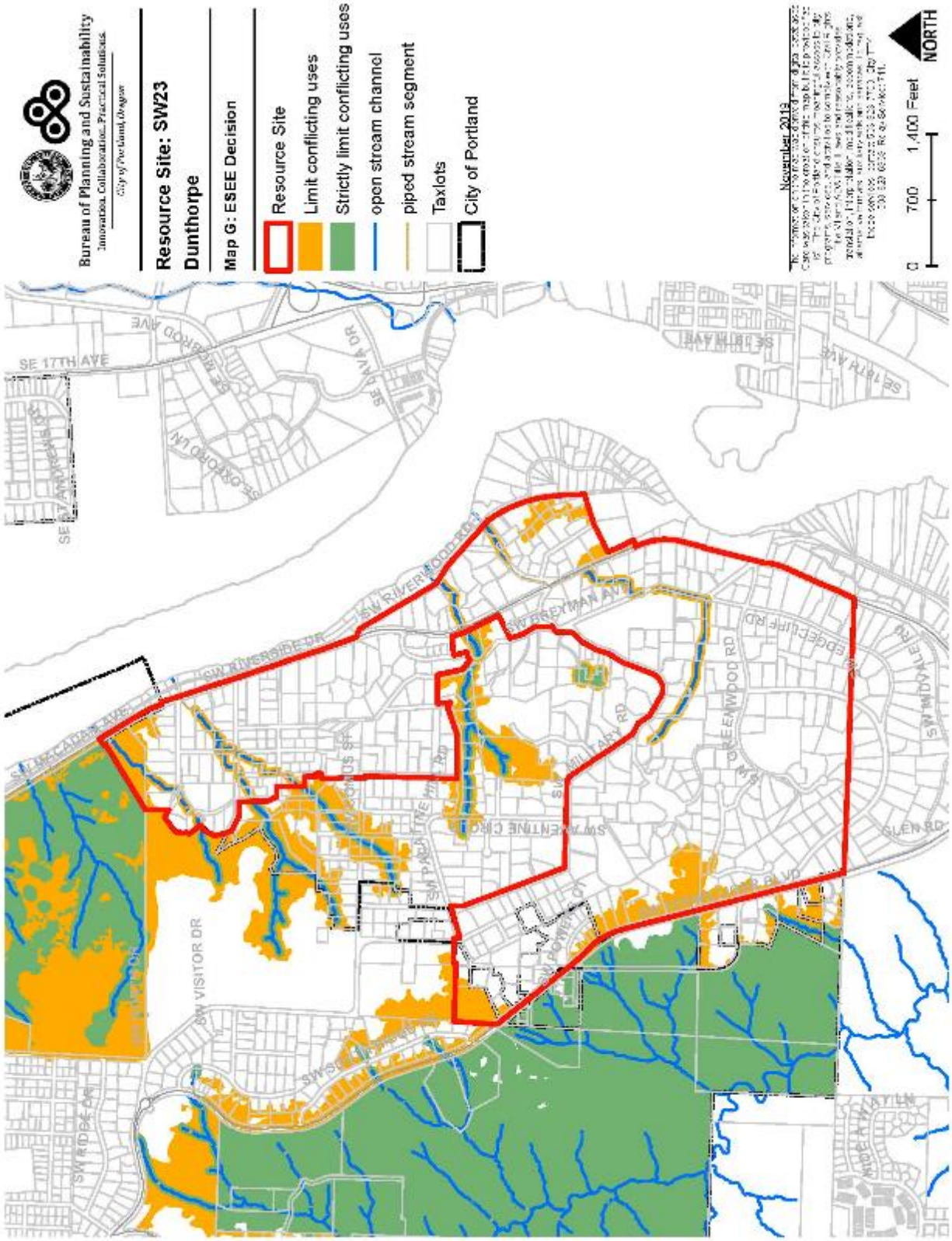

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW23
Dunthorpe
Map B: Water Related Features
Resource Site
Open stream channel
Piped stream segment
Wetlands
Floodplain
Taxlots
City of Portland
November 2019
0 700 1,400 Feet
NORTH
SE 17TH AVE
SE MCGROD AVE
SE LAVA DR
SE OXFORD LN
SE ANN ROBERTS DR
SW RIVERSIDE DR
SW RIVER PARKWAY
SW BREYMAN AVE
SW EDGECLIFF RD
SW MIDVALE RD
SW GREENWOOD RD
SW MILITARY RD
SW CORBUS ST
SW PALATINE HILL RD
SW AVENTINE CIRCLE
SW POWELL CT
SW TERWILLIGER BLVD
GLEN RD
SW NORTH DR
SW VISITOR DR
SW SOUTH RIDGE DR
SW RIDGE DR
HIDEAWAY LN


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW23
Dunthorpe
Map C: Land Features
Resource Site
Steep Slopes (>25%)
Forest
Woodland
Shrubland
Herbaceous
Taxlots
City of Portland
November 2015
0 700 1,400 Feet
NORTH
SE 17TH AVE
SE 13TH AVE
SW MIDVALE RD
GLEN RD
SW DUNTHORPE DR


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW23
Dunthorpe
Map D: Riparian Corridors
Resource Site
High riprian function
Medium riparian function
Low riparian function
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 700 1,400 Feet
NORTH
SE 17TH AVE
SE BADGER AVE
SE OXFORD LN
SE BAVA DR
SE 17TH AVE
SW FREEMAN RD
SW MILITARY RD
SW GREENWOOD RD
SW EDGECLIFF RD
SW MOVALLEY RD
SW ADAMS ST
SW MAPLELINE RD
SW MAPLELINE CIR
SW VISITOR DR
SW NORTH DR
SW SERVICE DR
SW SERWILLIGER BLVD
GLEN RD
SW MIDDLEWAY LN


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW23
Dunthorpe
Map E: Wildlife Habitat
Resource Site
High wildlife habitat
Medium wildlife habitat
Low wildlife habitat
Special Habitat Areas
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 700 1,400 Feet
NORTH
SE 17TH AVE
SE 13TH AVE
SE 26TH AVE
SE OXFORD LN
SE BAYA DR
SW VISITOR DR
SW SOUTH RIDGE DR
SW PARKLINE
SW MENTONE CIR
SW GREENWOOD RD
SW WINDVALE
GLEN RD
SW FREEMAN LN
SW FREEMAN
SW MIDTOWN LN


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW23
Dunthorpe
Map F: Determination of Signficance
Resource Site
Signficant natural resources
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0
700
1,400 Feet
NORTH
SE 17TH AVE
SE 13TH AVE
SE 19TH AVE
SW NORTH DR
SW VISITOR DR
SW PALATINE HILL RD
GLEN RD


Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.
City of Portland, Oregon
Resource Site: SW23
Dunthorpe
Map G: ESEE Decision
Resource Site
Limit conflicting uses
Strictly limit conflicting uses
open stream channel
piped stream segment
Taxlots
City of Portland
November 2019
0 700 1,400 Feet
NORTH
SE 17TH AVE
SE BARBARA DR
SE OXFORD LN
SW RIVERWOOD RD
SW RIVERSIDE DR
SW FREYMAN AVE
SW MILITARY RD
SW MAPLELINE RD
SW MENTINE CIR
SW VISITOR DR
SW GREENWOOD RD
SW EDGECLIFF RD
SW MOUNTAIN VIEW RD
SW MOUNTAIN VIEW CT
SW MOUNTAIN VIEW BLVD
SW MOUNTAIN VIEW LN
SW WINDVALE RD
GLEN RD
SW RIDGE DR

The *Environmental Overlay Zone Map Correction Project* plan documents:

Volume 1 – Project Report, Summary of Results and Implementation

The purpose of the Project Report is to document the overall project approach and methodology, summarize public engagement, provide an at-a-glance summary of the results by resource site, and present the updated zoning code maps and refinements to zoning code chapter 33.430, Environmental Zones.

Volume 2 – General Economic, Social, Environmental and Energy Analysis

The General ESEE evaluates the tradeoffs between protecting natural resources and other city goals for economic development, housing, public health, etc. The General ESEE provides an overall recommendation regarding which natural resource features should be protected. The General ESEE recommendations are then affirmed, clarified or modified for each resource site based on resource site-specific circumstances. The resource site-specific ESEEs are presented in Volume 3, Part A-H.

Volume 3 – Resource Site Inventory and ESEE Decisions

For the each of the geographies listed below, each document presents an inventory of natural resource features and functions, a site-specific Economic, Social, Environmental and Energy Analysis (ESEE), and the ESEE decisions regarding which natural resource should be protected for each resource site.

Part A1 – Forest Park and Northwest District, Resource Sites 1 – 20

Part A2 – Forest Park and Northwest District, Resource Sites 21 – 41

Part B – Skyline West

Part C – Tryon Creek and Southwest Hills East

Part D – Fanno Creek

Part E – East Buttes and Terraces

Part F – Johnson Creek

Part G – Boring Lava Domes

Volume 4 – Appendices

Appendices include the Regulatory Context; 2012 NRI Project Report; stream, vegetation and wetland mapping protocols; and the at-risk species list.