JOHNSON CREEK WATERSHED

Summaries of Resource Site Inventories

Including Site Inventories From:
The Johnson Creek Basin Protection Plan (1991)
Brentwood-Darlington Neighborhood Plan Additions (1992)
The Outer Southeast Community Plan Addendum (1996)
And The Boring Lava Domes Supplement (1997)

Bureau of Planning
City of Portland, Oregon
June 1998

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Bureau of Planning
City of Portland, Oregon
June 1998

Introduction and Purpose

This document provides summaries of the State Goal 5 natural resource inventories for City Resource Sites within the Johnson Creek Watershed. The summaries are taken from the *Johnson Creek Basin Protection Plan* (JCBPP), the *Brentwood-Darlington Neighborhood Plan* additions (BDN), the *Outer Southeast Community Plan Addendum* (OSCPA), and the *Boring Lava Domes Supplement* (BLDS). The JCBPP was adopted by City Council in July 1991, and was amended by the BDN in February 1992, the OSCPA in January 1996, and by the BLDS in November 1997.

The purpose of this document is to provide a useful single source reference for information on the location, quantity, and quality of resources in the City Resource Sites found within the Johnson Creek Watershed. This document serves as a reference for planning staff, citizens, designers, and developers. Background information and process descriptions are provided only as they relate to the resource inventory. All other background information, the Economic, Social, Environmental, and Energy analysis (ESEE), and the appendices from the original reports are not included within this document. Copies of the original reports are available for review at the Portland Planning Bureau.

Organization of this Document

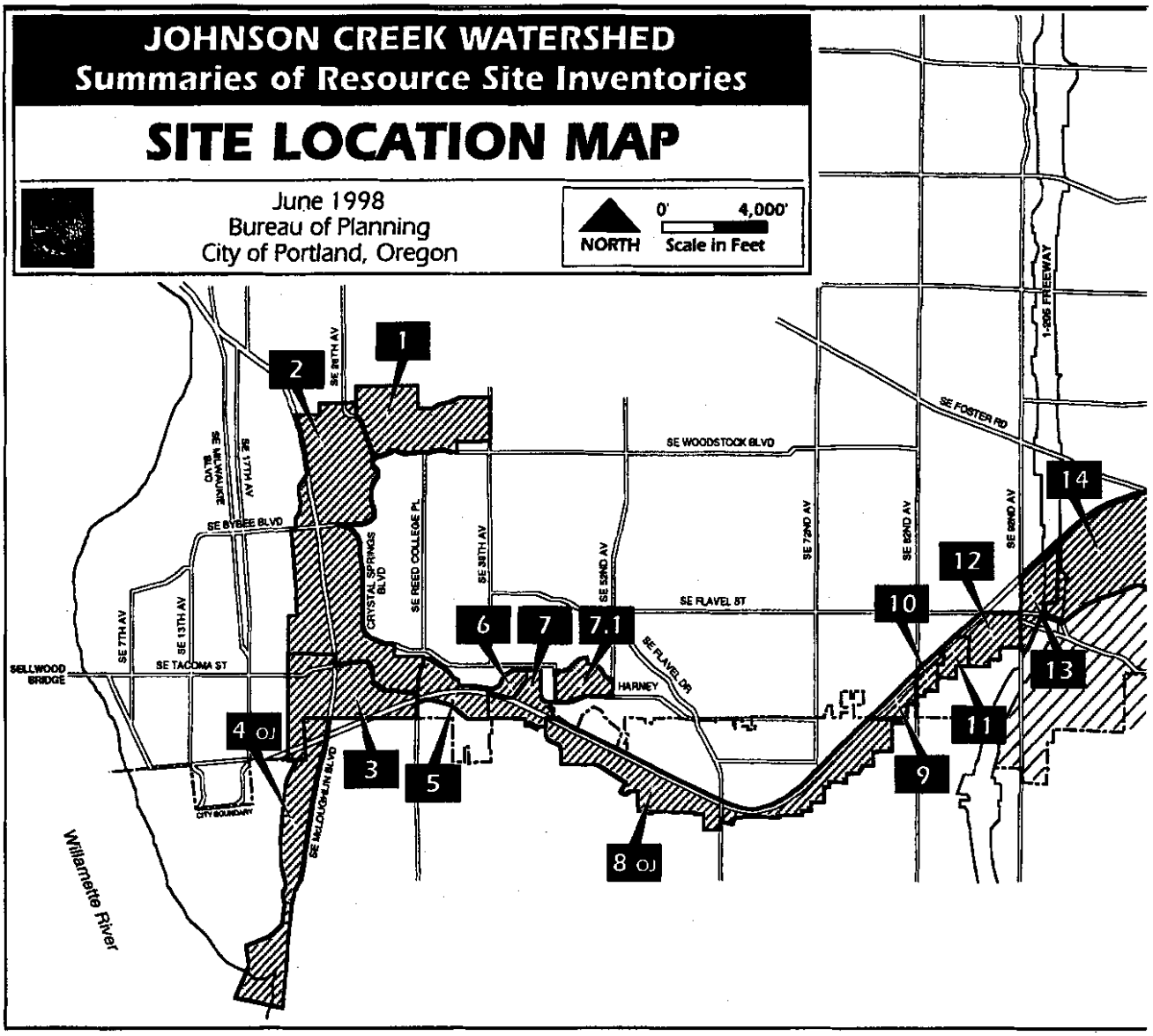
This document has three parts:

Part I: The *Johnson Creek Basin Protection Plan* (1991) and *Brentwood-Darlington Neighborhood Plan* additions (1992). Part I contains the relevant information on natural resource location, quality, and quantity for City Resource Sites 1 through 29. The single resource site added as part of the BDN is included here as Resource Site 7.1.

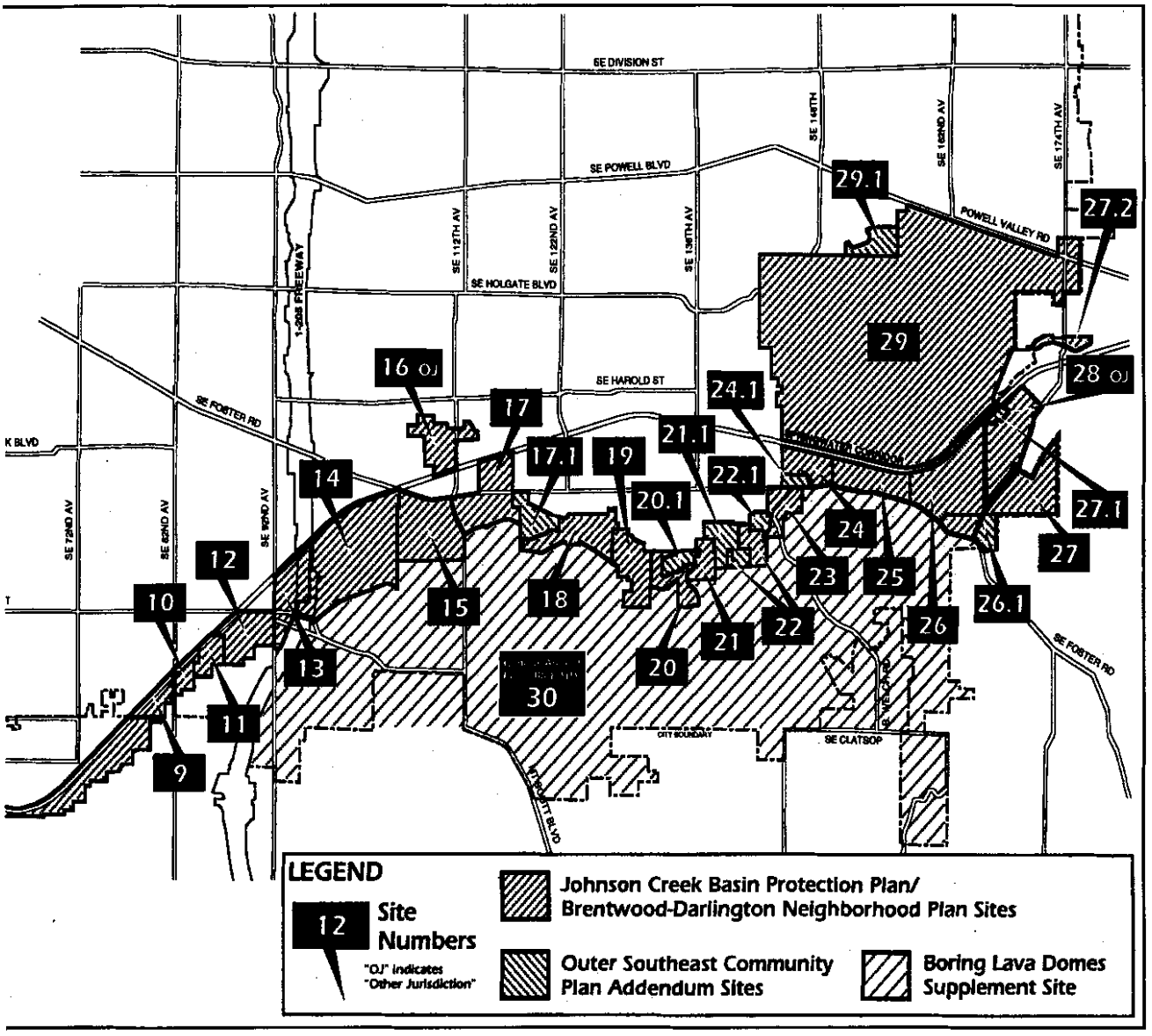
Part II: The *Outer Southeast Community Plan Addendum* (1996). Part II contains the relevant information on natural resource location, quality, and quantity for the areas annexed between 1992 and 1996 which are numbered as City Resource Sites 17.1, 20.1, 21.1, 22.1, 24.1, 26.1, 27.1, and 29.1.

Part III: The *Boring Lava Domes Supplement* (1997). Part III contains the updated natural resource inventory for City Resource Site 30.

Adopted code regulations can be found in *City of Portland Zoning Code*, Title 33, Chapters 33.535 and 33.430. The Environmental Overlay Zoning is shown on the Official City Zoning Maps.



SITE INDEX:



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Part I

JOHNSON CREEK BASIN PROTECTION PLAN

Including
Johnson Creek, Reed Lake, Crystal Springs
Powell Butte, and Mt. Scott Areas
(August 1991)

and

The Brentwood-Darlington Neighborhood Plan Addition (1992)

JOHNSON CREEK BASIN PROTECTION PLAN

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Geoff Sauncy, *Graphic Illustrator*
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Adopted by City Council July 17, 1991
Effective August 16, 1991

Ordinance No.164472

The Brentwood-Darlington Neighborhood Plan Addition

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Adopted by City Council February 12, 1992

Ordinance No.165072

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Part I JOHNSON CREEK BASIN PROTECTION PLAN (1991)

BACKGROUND

Johnson Creek's origins and course

Johnson Creek is a tributary of the Willamette River, roughly eighteen miles long, originating west of the Sandy River Canyon, east of the City of Gresham. It flows west through the City of Gresham, unincorporated east Multnomah County, the City of Portland, unincorporated north Clackamas County, and finally through the City of Milwaukie to its confluence with the Willamette River just north of Elk Rock Island. From its origin in rural lands east of the Portland metropolitan area, Johnson Creek flows through progressively more urbanized land.

Johnson Creek drainage basin is about 54 square miles

The total Johnson Creek drainage basin is about 54 square miles in size (of which only 44 square miles contribute runoff), and up to three miles wide. It also includes the cities of Cottrell, Boring, and Happy Valley. Within southeast Portland, Johnson Creek follows a generally east-west path parallel to Foster Road and the Springwater Line, a railroad right-of-way recently purchased by the City for use as a recreational trail. The study area extends from SE 174th Avenue and SE Jenne Road west to Johnson Creek's confluence with the Willamette River in the City of Milwaukie, and from the southern city limits along the crest of the Boring Lava Hills northward, encompassing Powell Butte, Beggar's Tick Marsh, Crystal Springs Creek, Reed Lake, and other natural resources related to the creek. It includes the westerly 13 miles of the creek's total 25 mile length, its tributaries and riparian areas, as well as wetlands and well as uplands which add to the natural resource values of the basin.

Johnson Creek is one of the few remaining free-flowing creeks in Portland

Johnson Creek is one of the few remaining free-flowing creeks within the Portland city limits, and the only major one on the east side. It links natural areas, parks, and wetlands within highly urbanized residential and industrial areas. Natural areas and water features in the study area were identified and inventoried in the 13-mile stream reach defined by the Portland-Gresham city limits to the east and the Portland-Milwaukie city limits to the west.

Johnson Creek flooding

Due to its geographic features, Johnson Creek has historically been a "flashy" water body, with the potential for flood waters to rise quickly and either recede quickly or persist for some time. As a result, development patterns throughout its watershed have recognized the flood potential and responded to it in various ways.

Impermeable clay soils of the steep-sided Boring Lava hills to the south of the creek contribute rapid storm water runoff in the winter and as such have been a major cause of flooding. Early settlers on the floodplain sometimes welcomed and encouraged the floods. When a landslide occurred on Mt. Scott in 1921, covering portions of Johnson Creek near 112th Avenue, farmers took advantage of the event by diverting the creek, hoping to encourage flooding and subsequent silting of their fields.

1930 Works Progress Administration project cleans channel

In the 1930s, the Works Progress Administration (WPA) cleaned and lined the creek channel. However, the channel has not been consistently maintained, and no significant improvements to it have occurred since. The channel has been partially filled in many areas with silt washed off from adjacent rural and urban lands, and stands of trees and brush have now grown up on these silt deposits. The typical 1:1 riprapped slopes created by the WPA are not conducive to plant growth, and access to the creek is limited for wildlife. Water flow in the creek is severely restricted and flooding can be exacerbated by these channel restrictions.

Urban development increases runoff

As urban development progressed, an increasing proportion of the watershed area was covered with impervious surfaces such as driveways, streets, parking lots, and rooftops. This increase in impervious surface, coupled with the removal of native vegetation, resulted in the land surface becoming less permeable, further modifying stormwater runoff quantity and timing. Development activities and urban land uses have decreased infiltration of water through the soil and altered historic drainage patterns so that the quantity of runoff directly delivered to the stream has increased. During 1964, the creek crested in 36 hours, rising at an average rate of 0.3 feet per hour with a maximum rate of 1.3 feet per hour. It then remained above bankfull stage for 53 hours.

Attempts to control increased runoff

Attempts have been made to control increased runoff in localized situations. The use of percolation sumps (dry wells) are the primary drainage system in areas which are porous, such as those found north of the creek. Combination sewers are used to collect stormwater runoff in some northwest basin locations. However, in other areas north of the creek such as Interstate 205 freeway and Gresham, storm sewer pipelines directly discharge runoff. On the south side of the creek soils are more impervious with high potential for runoff and therefore are not capable of easily absorbing water with the use of sumps. Here storm sewer pipes are used to direct runoff to Johnson Creek and its tributary streams.

Alluvial deposits form Johnson Creek drainage basin

The majority of the Johnson Creek drainage basin is characterized by the geologic classification of alluvium. Alluvial deposits include all of the material in the channels of present-day streams, their floodplains, and abandoned channels. Alluvium consists of very poorly consolidated gravel and sand in the stream channels, gravel and sand lenses usually overlain by silt and minor clay on the floodplain, and organic material usually in abandoned channels beneath several feet of silt or clay.[1] Alluvial soils are deposited and subject to erosion and redeposition by water.

The thickness of the alluvium is variable. The sand and gravel is generally thin and rests on bed rock in small stream channels where gradients are high. The smaller flood-plain deposits of silt and gravel tend to be narrow, thinning out at the canyon sides, whereas the larger flood plains may contain recent alluvium up to 30 feet thick or more.

Pollution in Johnson Creek

Pollution in Johnson Creek has been an issue for several years. From 1970 to 1975 the Oregon Department of Environmental Quality studied the lower 17 miles of Johnson Creek and identified several water quality problems. It found high levels of nutrients (nitrogen or phosphorous based compounds) which can cause undesirable growths of algae and aquatic weeds. The study also noted a drop in the amount of oxygen during summer low flow conditions, a condition that may threaten fish and other aquatic life.[2]

Portland State University collected water quality data from Johnson Creek between fall of 1979 and spring of 1981. Water quality measurements and samples were collected during both high and low flow conditions, and provided information on contamination from human or animal wastes.[3]

USGS investigated Johnson Creek water quality in 1988

The United States Geologic Society (USGS) investigated water quality along the lower 23 miles of Johnson Creek during 1988. This study identified concentrations of heavy metals and manmade organic compounds in bottom material during low flow conditions. Because many pollutants will attach to sediments, analysis of chemicals in bottom material collected during low flow is a useful technique for determining the general location of pollutant sources.

Increased runoff and decreased infiltration during the winter has severely restricted ground water recharge. Rapid runoff over impermeable surfaces has had an effect on decreased groundwater levels necessary to provide streamflow to Johnson Creek during the drier months. Groundwater is the predominate source of streamflow in the summer. Decreasing summer flow as urbanization has occurred has caused local ponding, stagnation, and increased temperatures in some parts of the creek.

DDT, PCB, and heavy metal pollution of Johnson Creek

In addition, several major pollutants have been identified that affect the creek's water quality: sediment carried into the creek from urban and agricultural runoff; fecal contamination from failing cesspools and septic tanks in nearby areas; organic pollutants such as DDT and PCB, and heavy metals. These factors and other pollution sources have contributed to the deterioration of fish and wildlife habitat and decreased recreational potential in Johnson Creek.[4]

1 Donald A. Hull, State Geologist, Oregon Department of Geology and Mineral Industries, *Geology and Geologic Hazards of Northwestern Clackamas County*, Oregon, 1979.

2 Portland Bureau of Planning files, Memorandum, *Johnson Creek Water Quality and Flood Control*, August 30, 1989.

3 ibid

4 Portland Bureau of Environmental Services files, *Johnson Creek Sediment Report*, March 1989.

Regulatory Setting

State

Statewide Land Use Planning

Statewide land use planning program established in 1973

Oregon's statewide land use planning program was established under Senate Bill 100, adopted by the Legislature in 1973 and included in the Oregon Revised Statutes (ORS) as Chapter 197. This legislation created the Land Conservation and Development Commission (LCDC) and gave it the authority to adopt mandatory Statewide Planning Goals. These goals provide the framework for Oregon's cities and counties to prepare comprehensive plans. There are nineteen Statewide Planning Goals, fifteen of which apply to the Johnson Creek Corridor.

Portland's Comprehensive Plan adopted in 1980

After local adoption, comprehensive plans are submitted to the LCDC for review to ensure consistency with the Statewide Planning Goals. Portland's Comprehensive Plan was adopted by City Council in 1980, effective January 1, 1981, and was acknowledged by LCDC in May 1981.

Periodic Review

In 1981, the Legislature amended ORS 197 to require periodic review by the state of acknowledged comprehensive plans. As stated in state statute, the purpose of periodic review is to ensure that each local government's acknowledged comprehensive plan and land use regulations are in compliance with the Statewide Planning Goals and coordinated with the plans and programs of state agencies.

Under state law, four factors must be considered during periodic review. The second factor, "new Statewide Planning Goals or rules," relates to new Goals or rules adopted since a comprehensive plan was acknowledged such that the plan or its land use regulations no longer comply.

The specific requirement to complete Portland's natural resources inventory and analysis is based on LCDC's adoption, in the fall of 1981, of a new administrative rule for Statewide Planning Goal 5, Open Spaces, Scenic and Historic Areas, and Natural Resources. The *Johnson Creek Basin Protection Plan* updates the City's Comprehensive Plan inventory and analysis of wetlands, water bodies, open spaces, and wildlife habitat areas in the Johnson Creek watershed, and addresses the new administrative rule requirements.

The Statewide Planning Goal 5 and Administrative Rule

Conserving open space and protecting natural and scenic resources

Statewide Planning Goal 5 requires cities and counties "to conserve open space and protect natural and scenic resources." When Portland's Comprehensive Plan was adopted in 1980, however, there was little guidance as to how the Goal requirements should be met.

In the fall of 1981, subsequent to acknowledgment of Portland's Plan, the Land Conservation and Development Commission adopted administrative rule, OAR 660, Division 16: Requirements and Application Procedures for Complying with Statewide Goal 5. The steps which a jurisdiction must go through in order to comply with Goal 5 include:

Resource site inventory

- inventory the resource sites;
- analyze the economic, social, environmental and energy (ESEE) consequences of conflicting uses on the resource; and
- determine the level of protection required for the resource.

The inventory is done first and includes the location, quantity, and quality of the resources present. Location of a resource must include a map or description of the boundaries of the resource site, and be as accurate as available information allows. Resource quantity requires consideration of the relative abundance of the resource. Quality of a resource is determined by comparing the resources within categories.

If a resource is not important, it may be excluded from further consideration for purposes of local land use planning, even though state and federal regulations may apply. If information is not available or is inadequate to determine the importance of the resource, the local government must commit itself to obtaining the necessary data and performing the analysis in the future. At the conclusion of this process, all remaining sites must be included in the inventory and are subject to the remaining steps in the Goal 5 process.

Identification of conflicts

The next step in the Goal 5 process includes the identification of conflicts with the protection of inventoried resources. This is done primarily by examining the uses allowed in broad zoning categories. A conflicting use, according to the Goal 5 Administrative Rule, is one which, if allowed, could negatively impact the resource. These impacts are considered in analyzing the economic, social, environmental and energy (ESEE) consequences.

If there are no conflicting uses for an identified resource, the jurisdiction must adopt policies and regulations to ensure that the resource is preserved. Where conflicting uses are identified, the ESEE consequences must be determined. The impacts on both the resource and on the conflicting use must be considered, as must other applicable Statewide Planning Goals. The ESEE analysis is adequate if it provides a jurisdiction with reasons why decisions are made regarding specific resources.

Local

Scenic Resources

Recommending Johnson Creek as a scenic corridor

The Planning Commission has forwarded to the City Council for adoption a *Scenic Resources Protection Plan.*[1] This plan recommends that Johnson Creek be designated as a scenic corridor. It also recommends designation of the following sites within the Johnson Creek Study area as scenic sites: Leach Botanical Garden (Inventory Site 19); Reed Campus (Reed Lake is Inventory Site 1); and Beggar's Tick Marsh (Inventory Site 16OJ).[2] As part of the Plan, new zoning code provisions for scenic resource protection are recommended. The recommended code describes the relationship of scenic and environmental protection measures:

"When an environmental zone has been applied at the location of a designated scenic resource, the environmental review must include considerations of scenic qualities of the resource as identified in the economic, social, environmental, and energy consequences (Scenic Sites, Vol. V) analysis for scenic resources. The development standards of [the scenic protection chapter] ... should be considered as part of that review."[3]

The analysis of the *Scenic Resources Protection Plan* is incorporated by reference and is not repeated in the analysis section of the *Johnson Creek Basin Protection Plan.* Scenic value was only one factor weighed in the Bureau of Planning's decisions to recommend environmental protection for sites associated with Johnson Creek. Scenic corridor development standards have already been recommended by the *Scenic Resources Protection Plan.* These scenic standards are not repeated in the regulations section of this protection plan.

Mineral and Aggregate Sites

The City has completed its inventory, analysis, and recommendations for mineral and aggregate sites.[4] This inventory identified no potential aggregate sites in the City of Portland portion of the

Johnson Creek basin. All decisions concerning the use of mineral and aggregate resources in the Johnson Creek basin have been made, so this protection plan does not address this use in the analyses of economic, social, environmental, and energy consequences.

1 Portland Bureau of Planning, *Scenic Views, Sites, and Corridors: Scenic Resources Protection Plan*, Portland, Oregon, 1990 (nine parts, multiple volumes).
2 ibid., Scenic Site, Volume V, pages 2, 12, and 24.
3 ibid., part vi, proposed City Code section 33.480.050, page 6 (language in brackets is not part of the original).
4 Portland Bureau of Planning, *Mineral and Aggregate Resource Inventory*, Portland, Oregon, 1988.

NATURAL RESOURCE AREA INVENTORY PROCESS

For a jurisdiction to meet Statewide Planning Goal 5 standards, the location, quantity, and quality of a resource must be determined. This section describes how each resource site was chosen, inventoried, and rated for these components.

Site Selection

1986 technical advisory committee suggested initial list of natural resource inventory areas

In 1986, a technical advisory committee of wildlife experts representing conservation groups, private industry, and public agencies suggested an initial list of natural resource inventory areas. Aerial photos were reviewed to find additional major areas of vegetation. Parks and public lands were also initially included. Finally, local wildlife literature was consulted and various city agencies and special interest groups were contacted.

Brief site visits to all areas on the list were conducted by field biologists hired for the inventory process in 1986 and 1987, and the list was modified to reflect their observations. This list was again reviewed by the technical advisory committee for completeness prior to the commencement of scheduled, detailed field work. As an additional review mechanism, letters were sent to neighborhood associations and special interest groups informing them of the study and asking if there were any additional sites which should be included. Responses were received from several groups. To update this information, brief site visits were again made in 1990 and 1991, and further information collected.

Johnson Creek Basin study area divided into thirty sites for analysis

The Johnson Creek Basin study area was divided into thirteen sites initially, and then divided further into a total of thirty sites in order to conduct a more detailed analysis. The sites are numbered downstream-to-upstream, starting from Reed Lake on the Reed College Campus, south through Crystal Springs and its confluence with Johnson Creek (near SE 21st Avenue and Clatsop St.), south to Johnson Creek's confluence with the Willamette River in the City of Milwaukie. Twenty-three additional sites extend along Johnson Creek to the city limits at SE 174th Avenue. Four additional areas abutting Johnson Creek were inventoried and included in this report Beggars Tick Marsh (Site 16-OJ); Powell Butte (Site 29), and the portion of the Boring Lava Hills that is within the City (Sites 30).

Methodology

The study area was divided into subareas chosen to encompass the variation in environmental characteristics, vegetation, geology, and soil over the subarea of concern. Sites were visited once or twice in February-March of 1986, and some again in June-August in 1990 and observed in a random manner. Sites were evaluated by biologists Michael Jennings and Esther Lev. Field notes, as well as habitat rating sheets, were completed and are on file in the Planning Bureau offices. Information was collected on the vegetation and wildlife of each area. A narrative description of the site, including information on weather, topography, vegetation, wildlife, habitat function, human use, and management potential, was completed for each site. A standard inventory form for field notes was used at each site.

Sites rated numerically for wildlife habitat value

Sites were rated numerically for wildlife habitat value. A standard rating sheet, originally developed by the City of Beaverton and subsequently modified with the input from a number of state and federal agencies and the Audubon Society of Portland, was used. The rating system was also used by the City of Portland for an inventory of natural areas along the Willamette Greenway, and has been used with minor modifications by Gresham, Milwaukie, Multnomah County, Eugene, Springfield, Hillsboro, and other jurisdictions in the state.

The rating included evaluation of the presence and availability of water, food, and cover for wildlife. Values for human and physical disturbance, interspersion with other natural areas, and the scenic and educational opportunities, and unique or rare occurrences of plant and animal species were also noted. The total number of possible points was less because scenic and educational values were taken off the sheet. Scores given by field biologists for all sites within the City ranged from a low of six to a high of 106, with the vast majority lying in the 30-80 point range. Inventory site scores for Johnson Creek ranged from a low of 18 to a high of 83, with a mean of 53. A large number of the sites were in the 30-50 numerical scale. Sites that scored over 50 included Reed Lake, Boring Hills, Beggars Tick Marsh, Bundy Park, Powell Butte, as well as some stretches of the creek itself.

The site inventory summaries contained in this document represent material gathered during field visits, as well as technical and other data collected from additional sources. Sites are arranged by natural area, and by subarea (if any), with a description of common characteristics, their history and merit.

Inventory Summaries Description

The following pages provide summary data of the natural resource information gathered for each natural resource site in the Johnson Creek Basin. The summaries describe the general location, quantity, and quality of the resources. With each inventoried resource site is a site-specific analysis of economic, social, environmental, and energy consequences of resource protection where unique conditions of the site warrant, along with recommendations regarding resource protection. If the resource at a given location is such that a particular resource value or enhancement action is desirable, it is suggested under Management Recommendations. The purpose is to guide mitigation efforts resulting from Environmental Zone review.

The summaries describe general location, quantity, and quality of resources

The summaries for each resource site are arranged in a similar manner. Following is a description of the headings of each section:

- **Site** The site number refers to one of thirty separate inventoried resource sites within the Johnson Creek Basin. Maps of each of the sites are included.
- **Unit** This is a name describing general location of the site.
- **Maps** This refers to the Multnomah County Assessor's quarter section map numbers, which also are the City of Portland Official Zoning Map numbers.
- **Site Size** This is an estimate of the number of acres contained in the site.
- **Location** This is a general description of site boundaries, using streets or geographic landmarks.
- **Neighborhood** This lists the officially-recognized neighborhoods in which the site is located.
- **Date of Inventory** This lists the dates inventory information was obtained for this study. These are not necessarily the only dates the site was visited by City personnel for this study.
- **Habitat Classification** This classifies the resource site according to characteristics developed by the US Fish and Wildlife Service, and is typically used in natural resource analyses.
- **General Description** This is a brief description of the resource, land uses and activities in and near the site, and other information which may be pertinent to the study. This is not an exhaustive description. Other site information, including land use maps, various studies and literature, site visits, etc. were used in the course of this study.
- **Significant Resource Values** These are resource values within the site to be protected by regulations of the Environmental Zone and the Johnson Creek basin Plan District.
- **Quantity of Resource** This is a brief and general description of

size or proportion of the site which contains certain land uses or resources. Other site information, including land use maps, various studies and literature, site visits, etc. were used in the course of this study.

- **Quality of Resource** This is a summary of the types of resources and resource values found at the site. It describes certain site-specific resource characteristics which are of note. Other site information, including land use maps, various studies and literature, site visits, etc. were used in the course of this study.
- **Management Recommendations** These are site-specific recommendations for treatment of the resource, and are in addition to general recommendations located elsewhere in this document.
- **Amount of Land Affected by Proposed Environmental Zones** This is an estimate of the number of acres of Environmental Overlay Zoning applied within each base zone.
- **Site-Specific ESEE Comments** These are comments related to the site-specific economic, social, environmental, and energy consequences of resource protection.
- **Site-Specific Compatible Uses and Activities** Resources at a given site may be of such a nature that, given the ESEE consequences, a level or type of development which differs from other sites may be allowed.

JOHNSON CREEK BASIN PROTECTION PLAN

RESOURCE SITE INVENTORY SUMMARIES

SITE 1: Reed Lake — Maps: 3533, 3633, 3634

SITE SIZE: 60 acres
LOCATION: SE Harold (N); SE 28th Ave. (E); SE Ellis (SW) SE Knight (SW)
NEIGHBORHOOD: Eastmoreland; Reed
DATE OF INVENTORY: February 1987, June 1990

HABITAT CLASSIFICATION

- Riverine, Lower Perennial, Unconsolidated Bottom
- Riverine, Lower Perennial Artificial, Rocky Shore
- Palustrine, Upland Forest Coniferous/Deciduous, Seasonally Flooded

GENERAL DESCRIPTION

Reed Lake is a year-round pond located on the Reed College Campus. It has an associated wetland and upland area. Single family development is located in the eastern portion of the site. Surrounding property consists generally of the college campus to the immediate south, and single and multi-family residential neighborhoods further south and to the east, north, and west.

A master plan for the Reed College campus was recently approved by the City which considered the resource (CU 41-90).

SIGNIFICANT RESOURCE VALUES

Water, storm drainage, scenic (adopted as a City of Portland Scenic Resource), fish and wildlife habitat, aesthetics, heritage, flood storage, pollution and nutrient retention and removal, sediment trapping, recreation, and education

QUANTITY OF RESOURCES

The total 60-acre site provides relatively high quality habitat. The lake is about four acres in size, with the remaining site consisting of wetland and contiguous upland areas. Reed Lake is significant in terms of quantity in part because it is the only naturally-occurring pond (or lake) remaining in the inner-city area.

QUALITY OF RESOURCES

Reed Lake is a year-round pond located on the college campus with associated wetland and upland areas. The high structural vegetative and species diversity provides habitat for many passerine, woodpecker, waterfowl (wintering and breeding), kingfisher and raptor species.

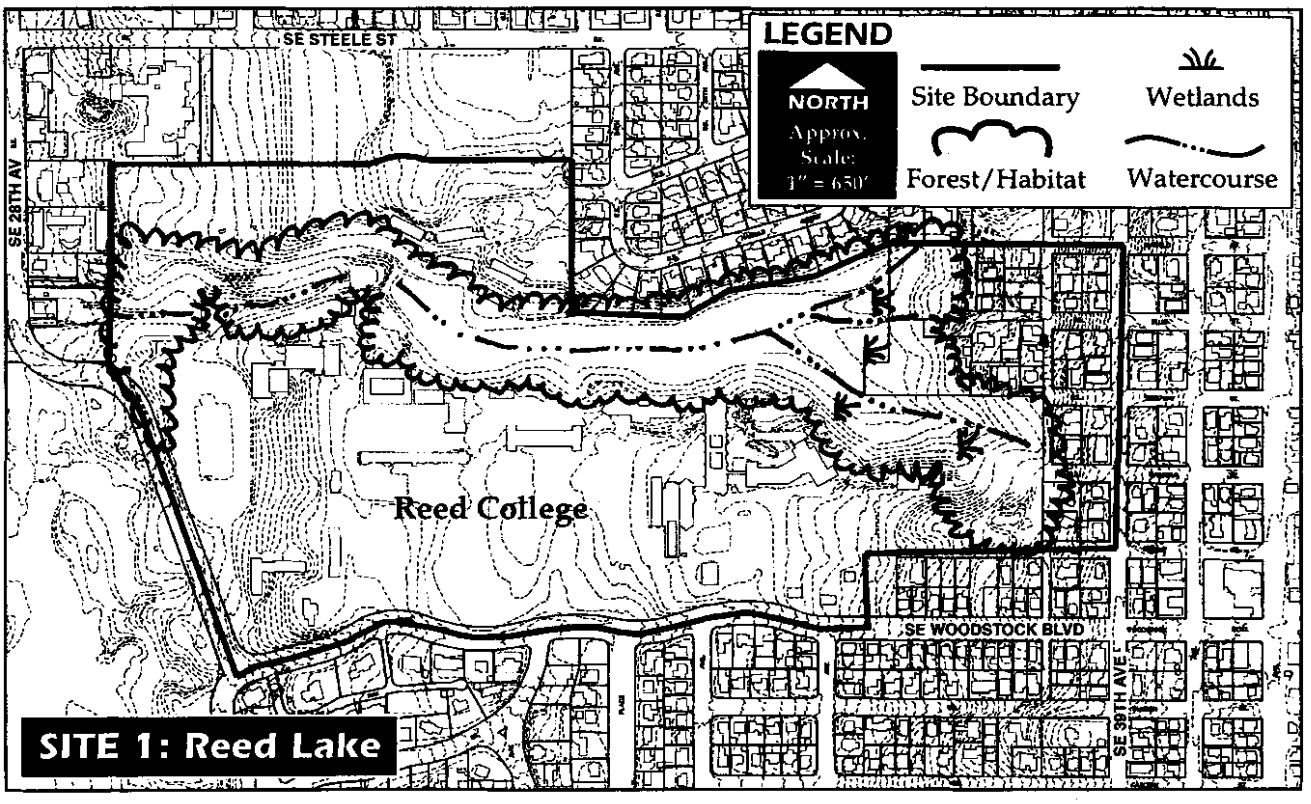
Reed Lake, by way of Crystal Springs, feeds the lower mile of Johnson Creek year-round. The source of water is ground water which emerges from the Portland Terraces. The Portland Terraces occupy 19 square miles of the Johnson Creek drainage basin and consist of silt deposits eroded during the Pleistocene flooding.[1] A large proportion of the summer water flow into Johnson Creek is provided by this aquifer, drainage system, creating a water quantity and quality suitable for year-round fisheries on the lower portion of the Johnson Creek.

Site interspersion with Johnson Creek, Crystal Springs, and Oaks Bottom/Willamette River increases the value of this site. The canyon is a mixture of deciduous/coniferous riparian vegetation with small pockets of vegetated emergent islands. Large Grand Fir, Western Red Cedar, Douglas Fir, Bigleaf Maple, and Red Alder form the overstory canopy. Elderberry, spirea, and willow form a shrub layer immediately adjacent to portions of the creek. The small islands are vegetated by spirea, cattail, and nightshade with pondweed on the surface of the water. Nest boxes have been installed throughout the canyon. Good amphibian habitat is provided by the numerous downed logs within the creek.

Reed Lake has scenic values which are enhanced by the 100-foot drop from the top of the canyon walls to the lake. With the exception of late winter, when there are no leaves on the deciduous trees, the canyon is completely enclosed with little visual intrusion from surrounding properties.

The lake environment serves as an "outdoor classroom" for Reed College students, as well as for passive and active recreation including bird watching, picnicking, walking, canoeing and boating.

There has been some invasion of non-native plant species into the canyon. Water quality has been degraded with the loss of infiltration caused by surface and piped stormwater runoff, as well as general pollution from urbanization. As recent as 1976, residents along the Portland Terrace used the ground water for domestic use.[2] The same source of information notes that portions of the Portland Terrace served by septic contributes to the degradation of the water and contamination problem. In summary, overall the resource is of high quality, although urbanization has reduced the quantity and quality of water recharge and vegetation.



Score for Wildlife Habitat Value: 83	**Range for All Sites** =18 to 83
Vegetation:	
Food (variety)	high
Cover (structural diversity)	high
Human Disturbance:	medium
Interspersion:	high

MANAGEMENT RECOMMENDATIONS

Protect significant upland forested areas, as well as water bodies. Except as provided for in the recently-approved master plan for the Reed College campus, retain the resource in its present condition with exception to removal of non-native, invasive plants such as blackberry and reed canary grass (listed in the Portland Plant List as nuisance species) and replacement with native species. Active wildlife management such as the placement of bird nest boxes would help increase wildlife.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES

Zones within Site	Area Affected by EC Zone	Area Affected by EP Zone
R2*	40 acres	15 acres
R5**	14 acres	1.5 acres

* Land owned by Reed College

** Portions owned by Reed College

SITE-SPECIFIC ESEE COMMENTS

Conflicting Uses: Identified conflicting uses within this site area would be expansion of the Reed College Campus or residential development for which the area is zoned.

Consequences of Allowing Conflicting Uses: Loss of high quality habitat and educational resource within the inner city, loss of impervious surfaces resulting in less ground water recharge and filtration of storm water, and decreased water flow into Crystal Springs effecting the fisheries, and possibly degradation to the water quality caused by hillside erosion and siltation during site construction .

Consequences of limiting or prohibiting Conflicting Uses: The portion of the site that is located on Reed Campus is intended to remain in a natural condition according to the City-approved, Reed College master plan. About 3.5 acres of protected land is outside of the Reed campus, in the northeast corner, most of which is already developed at the R5 base zone density. New residential construction would be required to mitigate for lost resource values.

SITE-SPECIFIC COMPATIBLE USES AND ACTIVITIES

- Uses specified under the Reed College master plan (CU 41-90)

1 Ethan Seltzer, *Citizen Participation in Environmental Planning: Context and Consequence, A Dissertation in Urban Planning,* 1983

2 R.A. Redfern, *Portland Physiographic Inventory, A Study of the Physical Environment and Implications to Planning and Development,* December 1976

SITE 2: Crystal Springs Maps: 3632, 3633, 3732, 3733, 3832, 3833

SITE SIZE: 101 acres
LOCATION: SE Ellis (N); SE Nehalem and Tacoma (S); SE McLoughlin and SE 22nd Ave. (W); and SE 28th Ave. (E).
NEIGHBORHOOD: Eastmoreland and Sellwood-Moreland
DATE OF INVENTORY: February 1987, June and August 1990

HABITAT CLASSIFICATION

- Riverine, Lower Perennial, Unconsolidated Bottom
- Riverine, Lower Perennial Artificial, Rocky Shore
- Palustrine, Scrub-Shrub, Broad-leafed Deciduous, Seasonally Flooded
- Palustrine, Emergent Persistent, Seasonally Flooded (Crystal Springs)

GENERAL DESCRIPTION

This highly modified site is a flat, historic floodplain is now primarily a landscaped City park (Westmoreland Park), a municipal garden (Rhododendron Gardens), and a golf course (Eastmoreland). Crystal Springs and the Rhododendron Gardens provide scenic values and the later, also provides educational value. Golf course and park activities take advantage of the creeks, riparian areas, and wetlands primarily from an aesthetic standpoint. Single and multi-family residential development is also within small portions at the northwest, southwest, and southeast corners, and a single commercial lot on the corner of SE McLoughlin Boulevard and SE Tacoma is also included. Both Crystal Springs and Johnson Creek are located within this site. The area includes water bodies, two creek channels, fisheries, and extensive permeable surfaces (open grass) that provides rain infiltration and limited habitat.

SIGNIFICANT RESOURCE VALUES

Water, storm drainage , scenic, fish and wildlife habitat, aesthetics, heritage, flood storage, recreation, and education.

QUANTITY OF RESOURCES

The overall wildlife habitat quality of this site is limited due to the extensive lawn cover. Ninety percent of this, 101-acre site area has permeable surfaces which contribute to groundwater recharge and reduction in peak flooding. About 25 acres of the site are water bodies, with most of the remainder in highly modified open space.

QUALITY OF RESOURCES

The water quality of Crystal Springs has been studied by the USGS in 1989 and 1990. The creek is known to support coho, steelhead, cutthroat trout, and some migrating fall chinook. Crystal Springs is primarily spring fed, has a year-round flow, and receives little surface runoff.

Native vegetation is limited, with more than 90% of the site being landscape lawn. However, the golf course's cultivated grass provides food for resident and wintering waterfowl. In 1986, higher concentrations of both American and European widgeons were observed at Eastmoreland than anywhere else in Portland. This combination of grassland and adjacent

water bodies provides important wintering habitat for waterfowl within the urban environment.

Rhododendron gardens consisting of azaleas, rhododendron, and other flowering shrubs provide food and nesting for hummingbirds and warblers in the spring and early summer. Golf course ponds and Crystal Springs Lake provide food and cover for wintering waterfowl. Mallards, widgeons, mergansers, shovelers wood ducks, and coot can commonly be observed. The Rhododendron gardens receive regular human use on a year-round basis, with higher numbers of visitors in spring and summer. The adjacent Eastmoreland Golf Course is used daily.

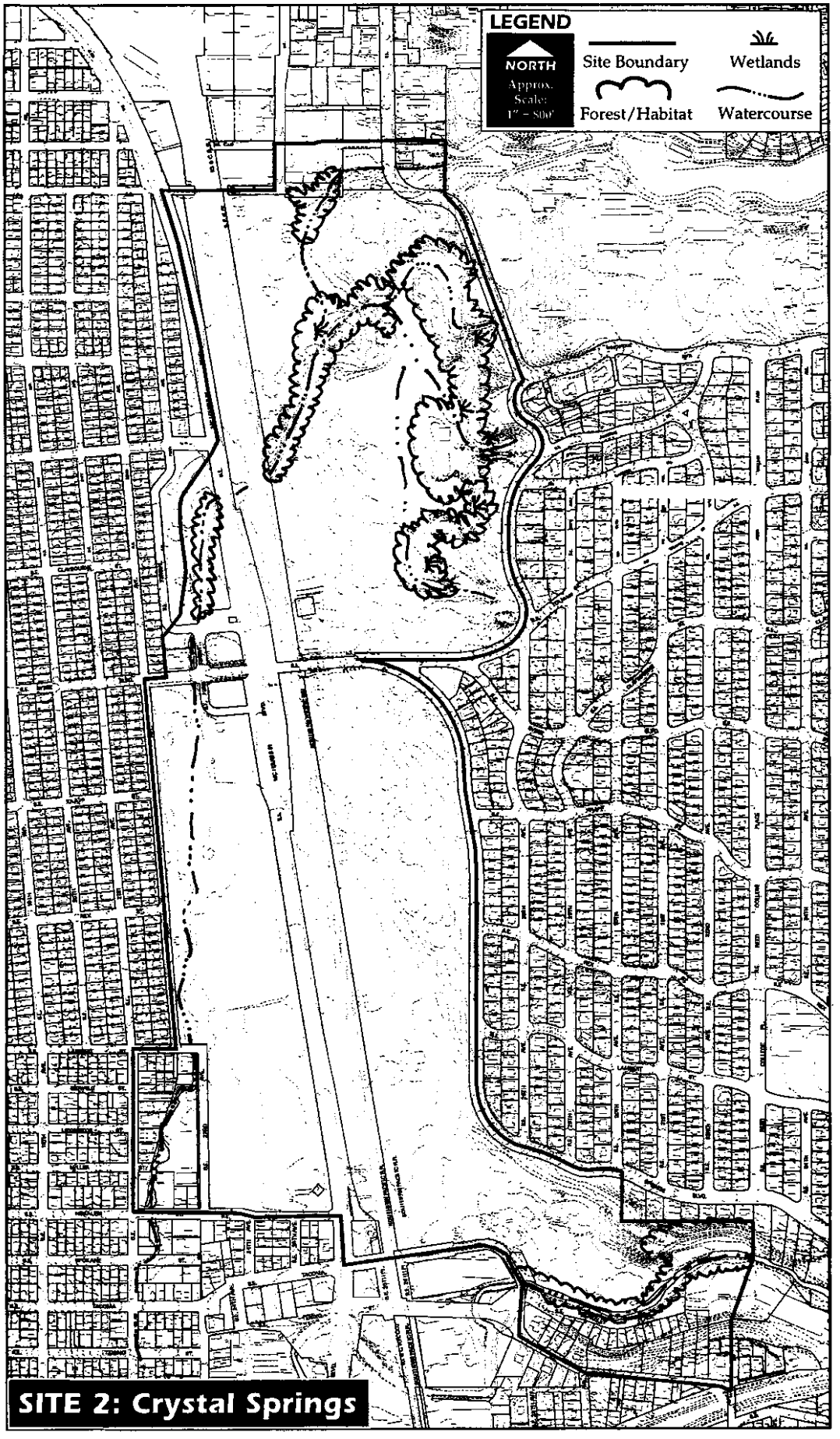
The creek channels provide aquatic habitat for steelhead, trout, and coho salmon. Crystal Springs, which flows into Johnson Creek just south of this site, is one of the few creeks within the Portland Metro area that still supports a population of native cut throat trout and steelhead. These fish spawn and migrate up Johnson Creek no farther than the Tideman-Johnson Park area.[1] A fish hatchery is located along Crystal Springs within this site. It is operated by a private volunteer and sponsored by the Oregon Department of Fish and Wildlife and stocked with Cutthroat Trout and Coho Salmon fry.

The relatively large amount of permeable surfaces on this site help maintain the infiltration capacity of the ground and ground recharge.

The Site 2 portion of Johnson Creek flows through the Eastmoreland Golf Course and Johnson Creek Park. The channel is mostly riprapped. Blackberry and willow grow in a narrow strip along the bank adjacent to the golf course green. Vegetation overhangs the creek, providing some local temperature regulation of the stream for fish and limited habitat for passerine species and small mammals. The riparian fringe functions as a corridor for some wildlife in a densely urbanized area that lacks the necessary natural vegetation and water required to attract wildlife.

Fences along the creek separating properties may inhibit travel by some mammal and herptile species throughout the length of the site. Bird species using Reed Lake probably travel regularly between the two sites.

Score for Wildlife Habitat Value: 39	**Range for All Sites** = 18 to 83
Vegetation:	
Food (variety)	medium
Cover(structural diversity)	low
Human Disturbance:	high
Interspersion:	low


LEGEND
NORTH
Approx. Scale: 1" = 500'
Site Boundary
Wetlands
Forest/Habitat
Watercourse
SITE 2: Crystal Springs

MANAGEMENT RECOMMENDATIONS

Increase native plant materials throughout site. Incorporate a wildlife habitat management program into groundskeeping practices for these three public facilities; Rhododendron Garden, Crystal Springs (West Moreland Park); and Eastmoreland Golf Course.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES

Zones	Area Affected by EC Zone	Area Affected by EP Zone
IG1	<1 acres	<1 acres
OS	39	25
R1	<1	
R2	1	1
R5	10	1
CG	1	

SITE-SPECIFIC ESEE COMMENTS

Conflicting Uses: Residential development and urban park expansion. Commercial and industrial development that impacts water quality or removes tree shading from the creek.

Consequences of Allowing Conflicting Uses: Because 90% of this site is publicly owned and in park or golf course use it is likely that there will be no redevelopment of these open spaces. There could however, be an intensification of recreation and ancillary uses which decrease the amount of open space area. Residential and Industrial development could remove creekside vegetation, add pollutants to the creek from stormwater runoff, and introduce excessive human activity.

Consequences of Limiting or Prohibiting Conflicting Uses: Application of the p, Environmental Protection, Zone should have minimal effect on residential or industrial development, as it is only within the creek Floodway in these zones. Impact of the EC, Environmental Conservation, Zone would probably require either a reduction in overall residential densities or creation of planned unit developments. Few lots in this site are now vacant, a major exception being an R2-zoned property along the southwest border of Westmoreland Park. Implementation of the recommended plan district management plan may help foster groundskeeping practices that are compatible or more supportive of wildlife through increased native plantings for cover, food, and shade, and a reduction or more sensitive application of pesticides and herbicides. New construction would be required to mitigate for lost resource values.

SITE-SPECIFIC COMPATIBLE USES AND ACTIVITIES

- Removal of concrete channel lining of Crystal Springs Creek and reestablishment of the native riparian strip and shallow wetland planting.
- Approved land use actions, including the Eastmoreland Racquet Club and Eastmoreland Golf Course activities.

1 Phone conversation with Wayne Bower, staff biologist for Oregon Department of Fish and Wildlife, July 1990

SITE 3: City of Portland/Milwaukie Limit — Maps: 3832, 3833, 3932

SITE SIZE: 87 acres
LOCATION: SE 21st Avenue (W), SE Nehalem and Tacoma Streets (N), SE 33rd Avenue (E), and the Multnomah County boundary (S)
NEIGHBORHOOD: Ardenwald and Sellwood-Moreland
DATE OF INVENTORY: June 1988; September 1990

HABITAT CLASSIFICATION

- Riverine, Lower Perennial, Unconsolidated Bottom
- Riverine, Lower Perennial Artificial, Rocky Shore
- Palustrine, Scrub-Shrub, Broad-leafed Deciduous, Seasonally Flooded

GENERAL DESCRIPTION

This site comprises the lower portion of Crystal Springs Creek, its confluence with Johnson Creek, and about one and one-quarter miles of Johnson Creek downstream from Johnson Creek Canyon. Adjacent lands are almost fully developed with a wide variety of land uses including single and multi-family housing, commercial, and industrial facilities. With the exception of residences abutting Crystal Springs Creek and Johnson Creek Park at the confluence of Crystal Springs and Johnson Creeks, water resources are virtually ignored.

SIGNIFICANT RESOURCE VALUES

Water, storm drainage, scenic, fish and wildlife habitat, aesthetics, heritage, flood storage, recreation, and education

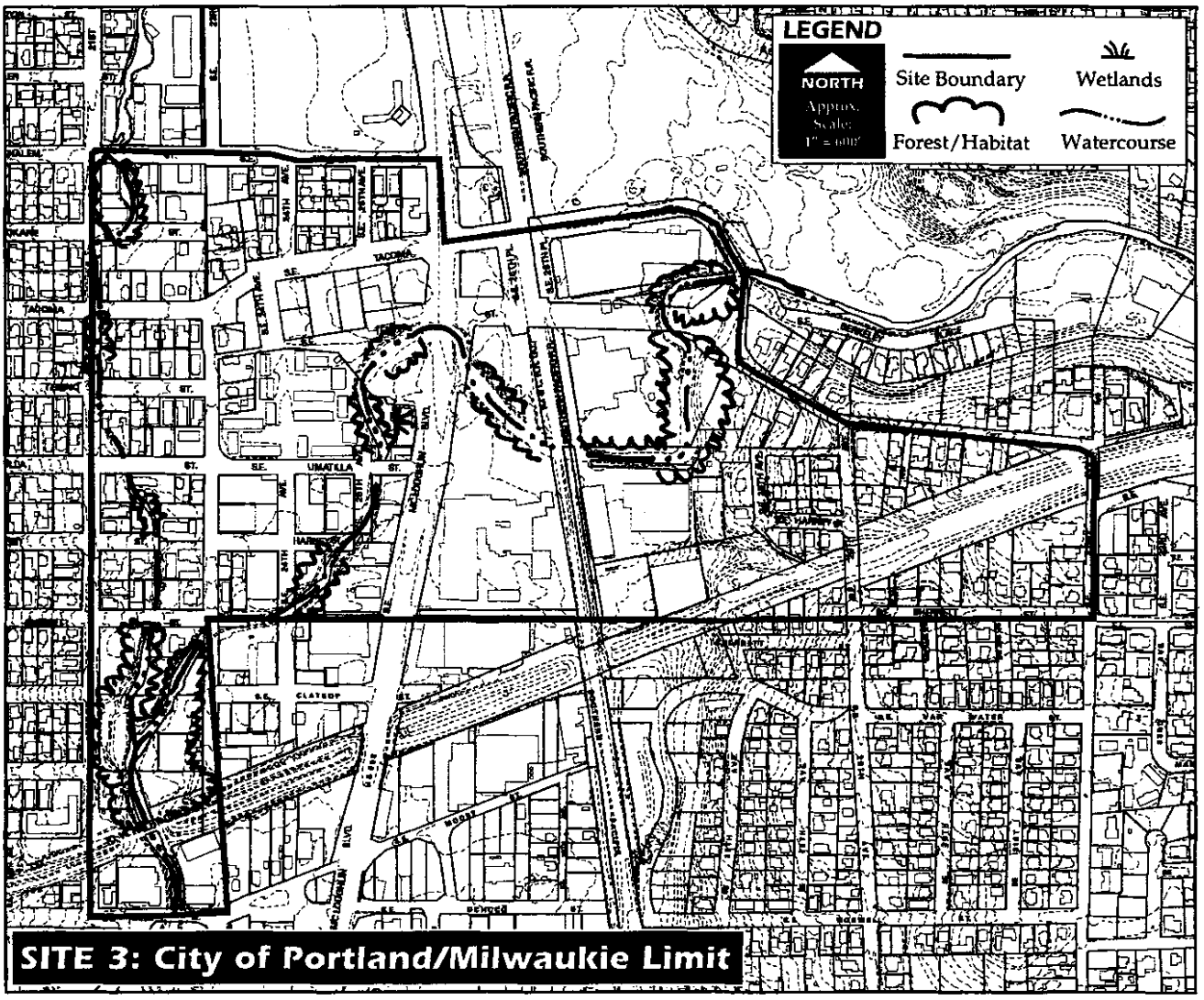
QUANTITY OF RESOURCES

This site borders the Milwaukie city limits and is ninety percent developed with primarily industrial and commercial land uses leaving the natural habitat diminished. At this point creek channel is generally, 30-50 feet wide with a 10 ft. riparian strip. Johnson Creek Park is park of about 10 acres, with about one-third (including the waterways) in natural condition.

QUALITY OF RESOURCES

The resource area of Site 3 is the creek channel and Floodway. The Floodway varies from 90 to 300 feet wide and has a 10-50 foot strip of vegetation along the steep banks. Throughout this site Himalayan blackberry and reed canarygrass are the dominant plant species with scattered stands of black cottonwood, alder, and willow. Creek banks have a 1:1 slope, limiting access to the creek by mammal and herptile species. Lawns, parking areas, and roads are immediately adjacent to the narrow riparian vegetation. Lack of canopy cover and shade, and stormwater runoff from paved surfaces limit habitat quality for fish and aquatic invertebrates.

This stretch of Crystal Springs and Johnson Creeks provides limited wildlife habitat, and is primarily used by urban-adapted wildlife species. It serves as a travel corridor for spawning cutthroat trout and steelhead between the Willamette River to Reed Lake and other areas along Johnson Creek. Johnson Creek Park is a small open space resource located within this site. It is about 10 acres, located at the confluence of Crystal Springs and Johnson Creek, near SE 21st Avenue and SE Clatsop Street.



Score for Wildlife Habitat Value: 31	**Range for All Sites** =18 to 83
Vegetation:	
Food (variety)	low
Cover(structural diversity)	low
Human Disturbance:	high
Interspersion:	low

MANAGEMENT RECOMMENDATION

To encourage greater wildlife use, terrace creek banks away from the creek and revegetate to create a wider riparian area using native tree, shrub, and ground cover species. This will also provide greater volume within creek banks, reducing width of the floodplain.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES:

Zones	Area Affected by EC Zone	Area Affected by EP Zone
IG1	5 acres	4 acres
OS	8	2
R1	<1	<1
R2	5	1
R5	1	<1
CG	2	7

SITE-SPECIFIC ESEE COMMENTS

Conflicting Uses: Urban development, particularly stormwater runoff, human activity, noise, and light.

Consequences of allowing Conflicting Uses: The condition and treatment of the creek edges would remain in the same degraded state, continuing flooding patterns. Continued development and redevelopment would result in parking lots, buildings, and fill within the narrow habitat area. Pollution from stormwater runoff would continue.

Consequences of Limiting or Prohibiting Conflicting Uses: Restoration of the creeks, including banks would be required as development and redevelopment occurs. This would help improve water quality for fisheries and at the same time provide additional cover and food for wildlife using the creek edges. As paved areas are improved, oil separators, sediment traps, and on-site retention or detention facilities can reduce surface water pollution.

SITE 4OJ*: Milwaukie Confluence

*OJ= Other jurisdiction (City of Milwaukie)

LOCATION: SE Sherrett St. (N); Willamette River confluence (S) and (W);
NEIGHBORHOOD: City of Milwaukie
DATE OF INVENTORY: June 1988; September 1990

HABITAT CLASSIFICATION

- Riverine, Lower Perennial, Unconsolidated Bottom.
- Riverine, Lower Perennial Artificial, Rocky Shore.
- Palustrine, Scrub-Shrub, Broad-leafed Deciduous, Seasonally Flooded.

GENERAL DESCRIPTION

This portion of the creek flows through industrial and commercial areas, and is largely ignored by development.

SIGNIFICANT RESOURCE VALUES

Public access, water, storm drainage , scenic, fish and wildlife habitat, aesthetics, heritage, flood storage, recreation, scenic beauty, and education

QUANTITY OF RESOURCES

The actual resource area is the Floodway channel and a narrow 10 ft. strip of vegetation along the steep banks with the exception to the confluence of Johnson Creek with the Willamette River where there is about a 5-acre wetland.

QUALITY OF RESOURCES

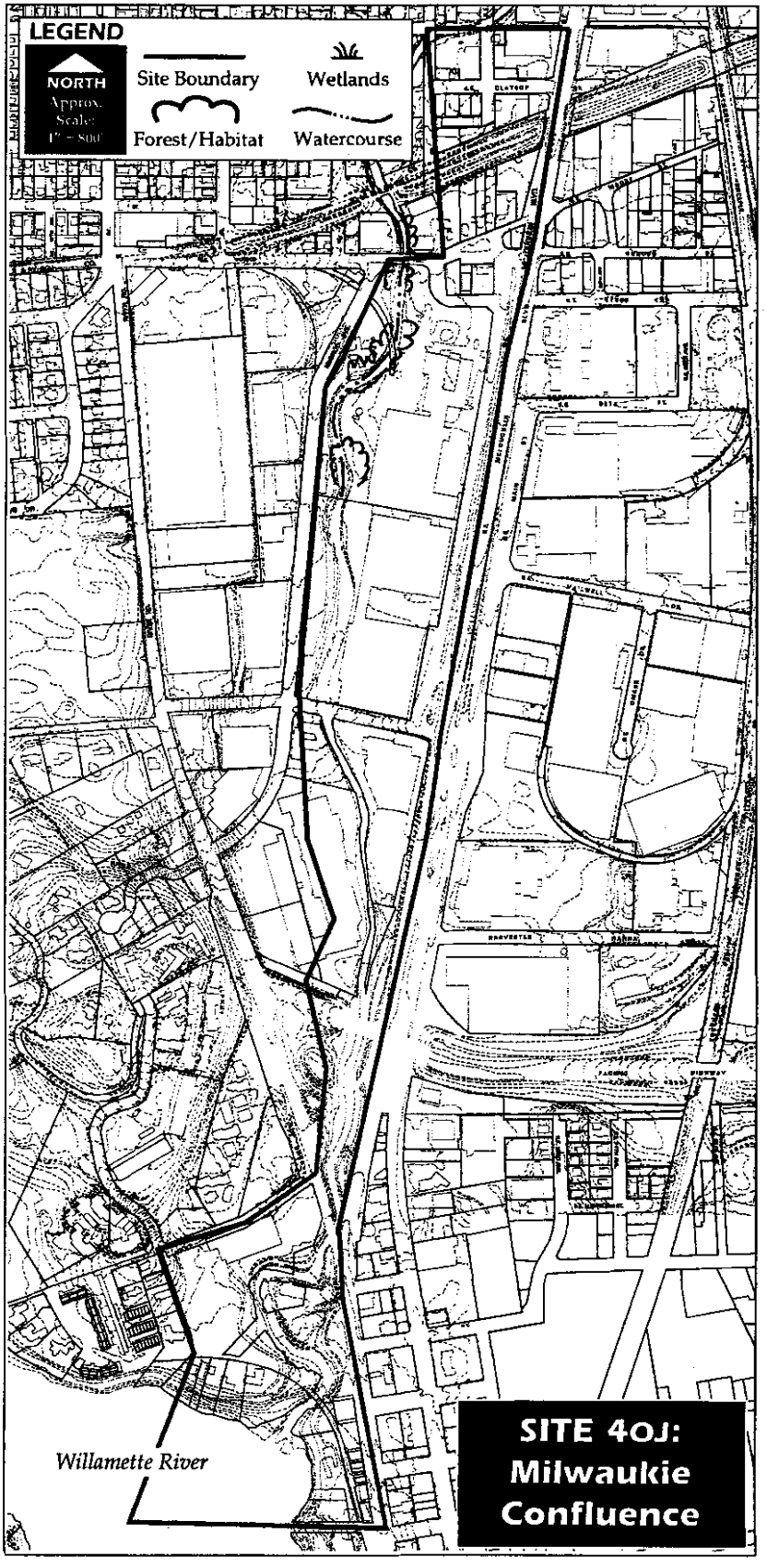
Himalayan Blackberry and Reed Canarygrass are dominant plant species, with scattered stands of black cottonwood, alder and willow. The banks are very steep, limiting access to the creek by mammals and herptiles. Lawns, parking areas and roads are immediately adjacent to the narrow riparian strip. There is limited canopy cover and shade, and probable runoff from adjacent uses limit habitat quality for fish and aquatic invertebrates. The resource has been degraded by channelization, replacement of riparian vegetation with paving up to the top of the creek bank. Presence of streets, lighting, and noise associated with urban development decrease wildlife value.

This site provides habitat for urban adapted wildlife species and includes the confluence of Johnson Creek with the Willamette River. It serves as a link between the Willamette River, Elk Rock Island, Ross Island, Oaks Bottom, and the rest of the Johnson Creek Basin for fisheries and avian wildlife. Public access, recreation, scenic beauty, and environmental education is provided at Johnson Park located on this site.

Score for Wildlife Habitat Value: 45	**Range for All Sites** =18 to 83
Vegetation:	
Food (variety)	low
Cover(structural diversity)	medium
Human Disturbance:	high
Interspersion:	high

MANAGEMENT RECOMMENDATION

Terracing and revegetating creek banks and widening the riparian zone using native trees, shrubs, and ground cover would enhance the site and encourage greater wildlife use.



SITE 5: Tideman-Johnson Park (West) Map: 3834

SITE SIZE : 39 acres
LOCATION: SE Johnson Creek Boulevard (S); SE Berkeley Way (unimproved, right-of-way) and SE Crystal Springs Boulevard (N); SE 32nd Avenue, (W); and 39th Avenue (E).
NEIGHBORHOOD: Eastmoreland
DATE OF INVENTORY: February 1987, June 1990, and August 1990

HABITAT CLASSIFICATION

- Creek Bank & Channel: Riverine, Lower Perennial, Unconsolidated Bottom
- Palustrine, Emergent Persistent, Seasonally Flooded
- Palustrine, Scrub-Shrub, Broad-leafed Deciduous, Seasonally Flooded, Upland Forest-Shrub Slope

GENERAL DESCRIPTION

Site 5 includes the Johnson Creek channel and riparian zone in the vicinity of Tideman-Johnson Park. Land on both sides of the canyon are developed single family residential neighborhoods. This site is thirty-nine acres of an approximately 117-acre wilderness canyon area, associated upland and adjacent wetland area, wildlife and fisheries travel corridor, gradual creek bank allowing access by animals, possible archaeological resources, and City park providing public access, scenic, and educational values.

SIGNIFICANT RESOURCE VALUES

Public access, water, storm drainage, scenic, fish and wildlife habitat, flood storage, recreation, scenic beauty, and education

QUANTITY OF RESOURCES

The 39-acre site is about 80% undeveloped, including about one-third of all parcels. Of the privately-owned vacant parcels, most are on the steep slopes of the southern canyon wall.

QUALITY OF RESOURCES

This site is the west end of one of two canyons in the study area, and the least urbanized of sites west of NE 117th Avenue. There are no roads into the site, and the canyon walls create a contiguous urban wilderness. One-third of the parcels within this study area are vacant and eighty percent of the total area remains undeveloped. The canyon as a whole has high scenic value.

This site includes Tideman-Johnson Park, a six acre parcel located near SE 39th Avenue on the north side of Johnson Creek. This park site was donated to the City of Portland in 1942 and remains relatively undeveloped. The lower elevations, or creek terrace, is cultivated with lawn and shade trees interspersed with native vegetation (cedar, fir, cottonwood, and oak).

The south bank vegetation of Johnson Creek is dominated by blackberry, maple, and alder. The southern canyon wall that rises 75 to 100 feet up to Johnson Creek Boulevard is an upland forest of Douglas Fir, Western Red Cedar, and Bigleaf Maple with some intrusion of introduced plants. The slope of the north canyon wall is more gentle, providing easier

access by wildlife species. It rises 60 feet above the flat, terraced area that is the center of Tideman-Johnson Park. Springs are located along the north and south canyon walls, providing moisture to the plant species and a minor water source to the creek.

At the eastern end of the park adjacent the creek channel there is 40-inch diameter cottonwood tree. This tree is a native, estimated at over 100 years old, and provides habitat for Great Blue Heron and owls.

A sanitary sewer line runs at grade and parallel to and in the creek channel for about fifty feet within Tideman-Johnson Park. The concrete sewer line is a barrier to fish migration. It is to this point that salmonids reportedly travel from the Willamette River and spawn.

Creek vegetation is primarily blackberries overhanging the channel, mixed with willow, cottonwood, grasses, and nettle. Small amounts of sedges and rushes line the littoral zone. Riparian vegetation provides food, nesting, and cover for passerine species and small mammals. The channel is suitable for feeding/resting by small fish. Reptiles and amphibians probably use the stream and riparian area. Waterfowl use the area for feeding and resting. Structural diversity on both sides of the creek is limited, but some food, cover, and nesting is provided by dense patches of shrubby vegetation and trees. Species observed include pileated woodpecker, downy woodpecker, kestrel, green backed heron, gray squirrel and garter snake.

Interspersion with other natural areas is medium. The site is influenced by urban surroundings with some fishing and swimming activity.

There have been arrowheads found in this area, giving evidence that Indians once occupied this area.[1]

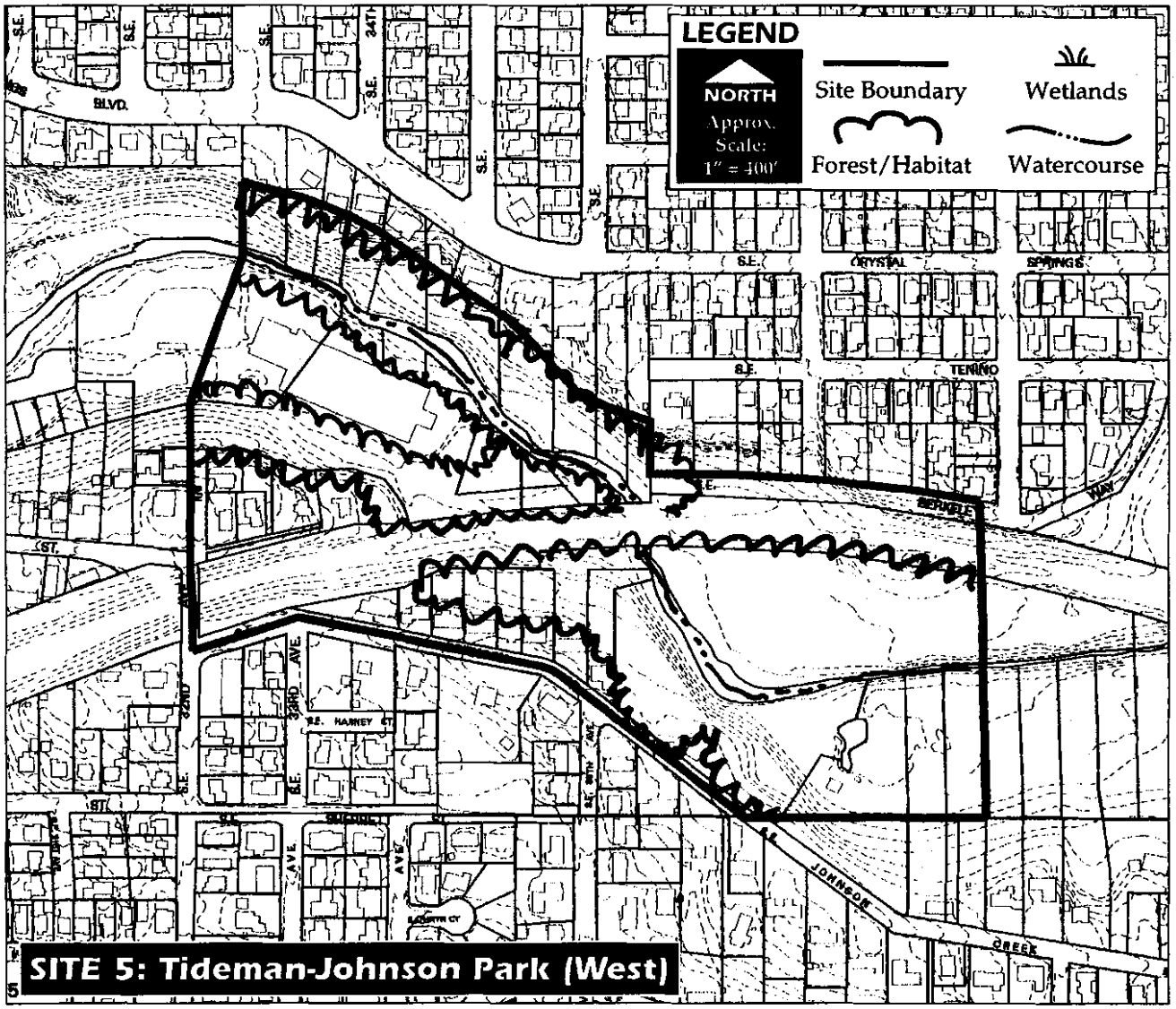
Score for Wildlife Habitat Value: 67	**Range for All Sites** =18 to 83
Vegetation:	
Food (variety)	medium
Cover(structural diversity)	medium
Human Disturbance:	high
Interspersion:	medium

MANAGEMENT RECOMMENDATIONS

- Removing non-native plant species (particularly Himalayan Blackberry) and replacing with native plants such as red osier dogwood, elderberry, willow, sword ferns.
- Continuing wildlife management practices such as placing nest boxes in Tideman-Johnson Park to encourage use by cavity-nesting bird species.
- Investigating restoration of the creek through the Oregon Department of Fish and Wildlife STEP Program, to increase fisheries.
- Constructing a fish ladder or other means to allow passage over sewer interceptor located in Tideman-Johnson Park.
- Assisting annual creek clean-ups with citizen and volunteer help.

1 Steve Johnson, *A Special Place*, 1979

- Retaining upland tree cover as development occurs.
- Considering public overlooks of the canyon from higher elevations such as along SE Johnson Creek Boulevard.



LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES

Zone	Area Affected by EC Zone	Area Affected by EP Zone
R5	16 acres	6 acres
R7	7	2
OS	3	2

SITE-SPECIFIC ESEE COMMENTS

Conflicting Uses: Residential and urban park development, and any roadway within the canyon or along Johnson Creek

Consequences of allowing Conflicting Uses: The natural habitat and character of the canyon would be diminished and irretrievably altered if not protected. The character of the park would be changed. Damage to the fisheries would result from removal of shade and

detritus material over the creek. Siltation caused during construction would further degrade the water quality and the springs on the canyon walls would be altered, resulting in a change in plant communities to one more tolerant of drier conditions which have less habitat value.

Consequences of limiting or prohibiting Conflicting Uses:
Economic Consequences: Seven acres of this 39-acre site would have a reduction in housing density from R5 and R7 densities to 1 unit per 1.05 acres.

Property values may not proportionately drop with the loss of density, as scenic qualities and close proximity to the park and creek would influence the property value.

It should be noted again that under the City's adopted Housing Goal, (Goal 10) the loss of density on the seven-acre area located Floodways, 100-year floodplains, and on "hazardous" hillside were not included in the needed housing calculations adopted by the City Council and accepted by the Department of Land Conservation and Development Commission. All lands being recommended for no development within the site fall into one of these three categories so, in effect, there is no loss of land needed to meet housing goals due to the unfeasibility of developing on these highly physically constrained sites.

Social Consequences: Full protection of the Floodway and adjacent riparian strip and partial protection of the upland area would preserve the scenic character of the canyon. Residents of Portland would continue to enjoy recreation or living in an urban wilderness.

Environmental Consequences: With protection, there would be a decrease in allowed density, more trees and natural vegetation retained, and less disturbance to hillsides. Despite the decrease in density, infill housing would have the appearance and character of an R5 development, as it would be clustered on the upland areas. Houses on smaller (i.e. 5,000 square foot) lots would be consistent with the zoning pattern of the area.

Energy Consequences: Clustering development is more energy efficient; less land and infrastructure is used. In the case of "zero lot line" development, there is an even greater energy saving because of the common-wall construction that reduces heating and cooling costs.

SITE 6: 39th-42nd Wetland — Maps: 3834, 3835

LOCATION: SE 39th Avenue (W); Springwater Line (S); Crystal Springs Boulevard (N); and NE 42nd Avenue (E)
NEIGHBORHOOD: Woodstock, Ardenwald, Eastmoreland
DATE OF INVENTORY: February 1987, June and September 1990

HABITAT CLASSIFICATION
- Riverine, Lower Perennial, Permanently Flooded, Unconsolidated Bottom.
- Palustrine, Emergent Persistent; Seasonally Flooded
- Palustrine, Scrub-Shrub; Broadleafed-Deciduous, Semi-Permanent Seasonal Flooding

GENERAL DESCRIPTION
This site includes a small wetland adjacent to Johnson Creek to the northeast of Tideman-Johnson Park. The site has slopes on the north and west sides which separate it from the adjacent residential neighborhood. Dense Himalayan blackberry, willow, and red osier dogwood dominate the site with some variation in the riparian area. Shrubs and trees provide good structural diversity for habitat for birds and small mammals. Interspersion with other natural areas is good. Dense blackberries severely limit use of this site by humans. However, this area is probably used by dogs and cats.

SITE RESOURCE VALUES
Water, storm drainage, water quality, fish and wildlife habitat, interspersion, flood storage, scenic beauty, and education

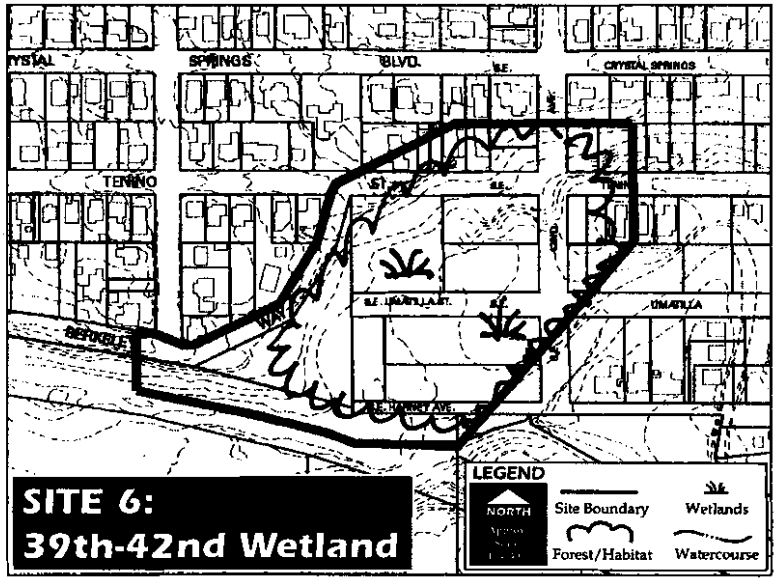
QUANTITY OF RESOURCES
This site includes a 9-acre wetland that is adjacent a 6-acre undeveloped park site and nearby upland forest. Although, much of this site is being taken over by Himalayan blackberry and reed canarygrass, the scarcity of wetlands along Johnson Creek makes it important. In this situation the dense Himalayan blackberry surrounding the wetland provide a buffer from human use.

QUALITY OF RESOURCES
The site rating of 72 is high. This wetland and associated upland provide a biological and hydrological link to the creek corridor. The wetland provides habitat for redwing blackbirds, common yellowthroats, and other wildlife species. It also provides storm water retention, groundwater recharge, and water quality filtration to the adjacent Tideman-Johnson Park and Johnson Creek. Himalayan blackberry and reed canarygrass reduce the habitat quality from what it would be if native plants occurred rather than the aggressive exotic plant species.

Score for Wildlife Habitat Value: 72	**Range for All Sites** = 18 to 83
Vegetation	
Food (variety)	medium
Cover(structural diversity)	medium
Human Disturbance:	medium
Interspersion:	medium

MANAGEMENT RECOMMENDATIONS

It is important to protect the wetland to the greatest extent possible. Invasive and exotic species should be replaced by native plants through mitigation or enhancement actions, providing greater diversity, and higher quality habitat and amenity value.



LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES

Zones	Area Affected by EC Zone	Area Affected by EN Zone
R5(R2.5)	3 acres	5 acres
R5	2	<1

SITE-SPECIFIC ESEE COMMENTS

Opportunities to locate development above the wetland area exists, so development and resource protection can both occur. The wetland enhances the wildlife value of adjacent Tideman-Johnson Park.

Conflicting Uses: Residential development. This site is zoned R5, with 80% of the site designated R2.5 by the comprehensive plan (appropriate for future attached single-family residential development).

Consequences of allowing Conflicting Uses: Degradation of the site would occur to the extent that the habitat resources would be lost. Fill would have to be placed to lift the area above the flood plain, causing additional localized flooding nearby. Water quality benefits would also be lost.

Consequences of limiting or prohibiting Conflicting Uses:

Economic Consequences: Protection as proposed would result in a loss of potential housing units. About five acres would have a reduction in allowed density to one unit per 1.05 acres for the R5(R2.5) areas recommended for EP, environmental protection zone where no development would be allowed. The density could be transferred to other portions of the site. The drop in property values would be offset somewhat by scenic qualities and desirability of living in an urban natural resource. The resource value of Tideman-Johnson Park would be increased if the surrounding properties were left in a natural condition.

Social Consequences: Civic pride and enjoyment of living within this urban wilderness area would be continued. Character of the neighborhood and City as a whole would be enhanced.

Environmental Consequences: This wetland would continue to provide wildlife habitat diversity, animal access to the creek, groundwater storage, and sediment trapping.

Energy Consequences: Combined with the adjacent park, this site provide the opportunity for residents of the area to view wildlife while avoiding the fuel and expense of car travel.

SITE 7: WPA Fish Ladder (42nd & Harney) Map: 3835

SITE SIZE: 32 acres
LOCATION: City limits near Johnson Creek Blvd.(S); South of SE Crystal Springs Boulevard (N); near SE 45th Avenue (E); and SE 39th Avenue (W).
NEIGHBORHOOD: Woodstock
DATE OF INVENTORY: August; September 1990

HABITAT CLASSIFICATION

- Riverine, Lower Perennial, Unconsolidated Bottom.
- Palustrine, Emergent Persistent, Seasonally Flooded.
- Palustrine, Scrub-Shrub, Broad-leafed Deciduous, Seasonally Flooded.

GENERAL DESCRIPTION

The resource site is either low density single-family residential development or vacant. Johnson Creek divides just west of the SE 45th Avenue bridge, forming an island which makes up much of the site. Access is by a small bridge on SE Harney Street. Residential neighborhoods are located to the north and west, while commercial and industrial activities are to the east and south.

TYPES OF RESOURCE VALUES

Historic, fish and wildlife habitat; public park land; wetland; and scenic

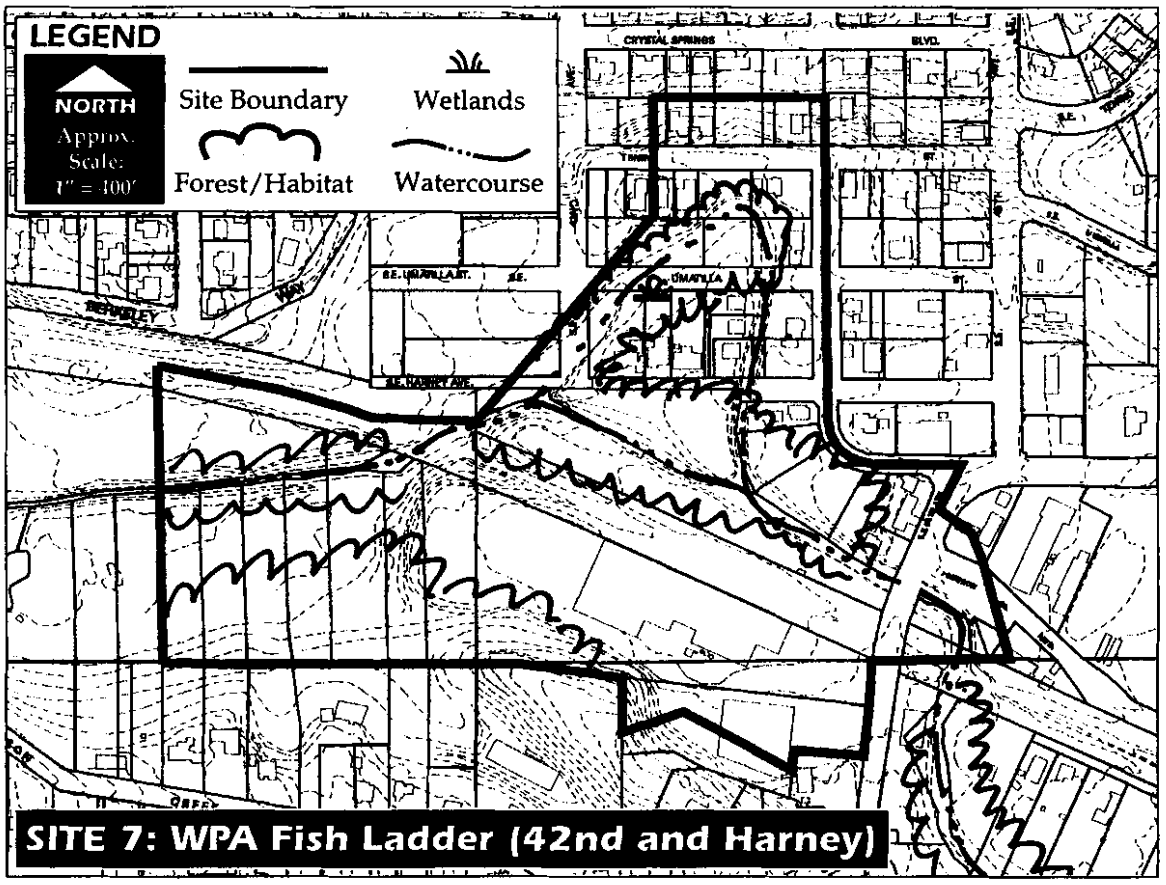
QUANTITY OF RESOURCES

About half of the site area is developed, while the remainder is creek and bank, wetlands, and slopes along the northern portion of the site which separate it from the neighborhood to the north.

QUALITY OF RESOURCES

An oxbow at this section of the creek was created by the WPA in the 1930s. The WPA also built a fish ladder, rock bridge, and waterfall. This stretch of the creek provides moderate to high wildlife habitat value. The water is usually shallow and slow moving through the oxbow. Portions of the creekbed adjacent to the oxbow have been riprapped. There are large pieces of concrete in the creek. The tree canopy is approximately 60% closed, dominated by alder and cottonwood. Shrub and herb canopies are denser, about 90% closed with willow and hawthorne. The ground cover consists primarily of the non-native species of reed canarygrass, blackberry, and tansy. There is one large snag within the site that is being used by downy woodpecker and red breasted nuthatch.

The fish ladder and waterfall attract human visitation, resulting in garbage and broken glass scattered throughout the site. The site is also being used for yard debris disposal. The riparian strip is about 25 -30 feet wide, with good shading over the creek. There are some good fish holes and the creek is well shaded, regulating the water temperature, enhancing the habitat for fish, and other aquatic species. Riprapping, steep banks, garbage, yard debris, and human use lessen the wildlife habitat use of this stretch of the creek. This is one of the few places along the creek where a (vertical) snag was observed. Interspersion is good, linking the adjacent wetland and Tideman-Johnson Park.



Score for Wildlife Habitat Value: 66	**Range for All Sites** =18 to 83
Vegetation:	
Food (variety)	medium
Cover (structural diversity)	medium
Human Disturbance:	medium
Interspersion:	medium

MANAGEMENT RECOMMENDATIONS

Garbage and solid waste in creek should be removed. Portions of the creek banks should be regraded away from the creek to a shallower angle for easier access by wildlife. Property owners should be made aware of habitat value and ways to maintain and enhance it, including the importance of maintaining shade cover over the creek, removal of invasive or non-native plants, and of degradation caused by disposal of yard debris in the habitat area.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES

Zones	Area Affected by EC Zone	Area Affected by EP Zone
OS	1	
R7	5	
R5(R2.5)	3	7
R5(M2)	5	
R5	<1	
CG	<1	
IG1	7	1

SITE-SPECIFIC ESEE COMMENTS

Conflicting Uses: Residential and commercial development and urban park expansion.

Consequences of allowing Conflicting Uses: Infill housing development would likely continue as it is today on the island, where homes are constructed on stilts to avoid flood damage and to meet the FEMA regulations administered by the Bureau of Buildings.

The southwest corner of the site is zoned R7. No protection would allow removal of the natural vegetation and further development to a density of up to one house per 7,000 square feet of lot area. This would change the wilderness character of the canyon, accelerate rates of erosion, reduce flood storage and groundwater recharge, and lose habitat.

The vacant industrial parcel to the north of the Springwater Line could be developed to the top of bank. This setback would have the negative impact of destroying the creek-side, riparian vegetation. The industrial zone parcels located to the south of the Springwater line appear fully developed. With no protective measures, sites like this will continue to have runoff from the parking lots and buildings empty directly into the creek without oil separation.

Consequences of limiting or prohibiting Conflicting Uses: These consequences are the same as are contained in Chapter 5.

SITE 7.1: Umatilla Drive Canyon (45th & Umatilla) Map: 3835

Note: This site was inventoried as part of the Brentwood-Darlington Neighborhood Plan (February 1992)

SITE SIZE: 9 acres
LOCATION: SE 45th Avenue (W); SE Tenino Drive (N); SE 52nd Avenue (E); and SE Harney Drive (S)
NEIGHBORHOOD: Brentwood-Darlington
DATE OF INVENTORY: October 1991

HABITAT CLASSIFICATION

- Riverine, Lower Perennial, Permanently Flooded, Unconsolidated Bottom
- Palustrine, Emergent Persistent; Seasonally Flooded
- Palustrine, Scrub-Shrub; Broadleafed-Deciduous, Semi-Permanent Seasonal Flooding

GENERAL DESCRIPTION

This site lies within parallel to and north of SE Harney Drive, forming a canyon with steep sides on the north and south sides when separate it from nearby residential development. The site contains three open ponds, a stream and several wet areas that may be inundated other times of the year. Only one residential structure lies within the site boundaries. A partially finished house looms over the ponds at the northern end of the canyon. The ends of the canyon flatten out toward SE 45th and SE 52nd Avenues. The site is quite isolated because the street along the canyon floor is undeveloped on the west and vacated on the east. It appears that the water level varies greatly, keeping noxious species down over much of the floor of the canyon. Dense Himalayan blackberry dominates the canyon walls and some parts of the canyon floor. Shrubs and trees provide good structural diversity for habitat for birds and small mammals. There are numerous standing snags that appear to be well-used as habitat.

SITE RESOURCE VALUES

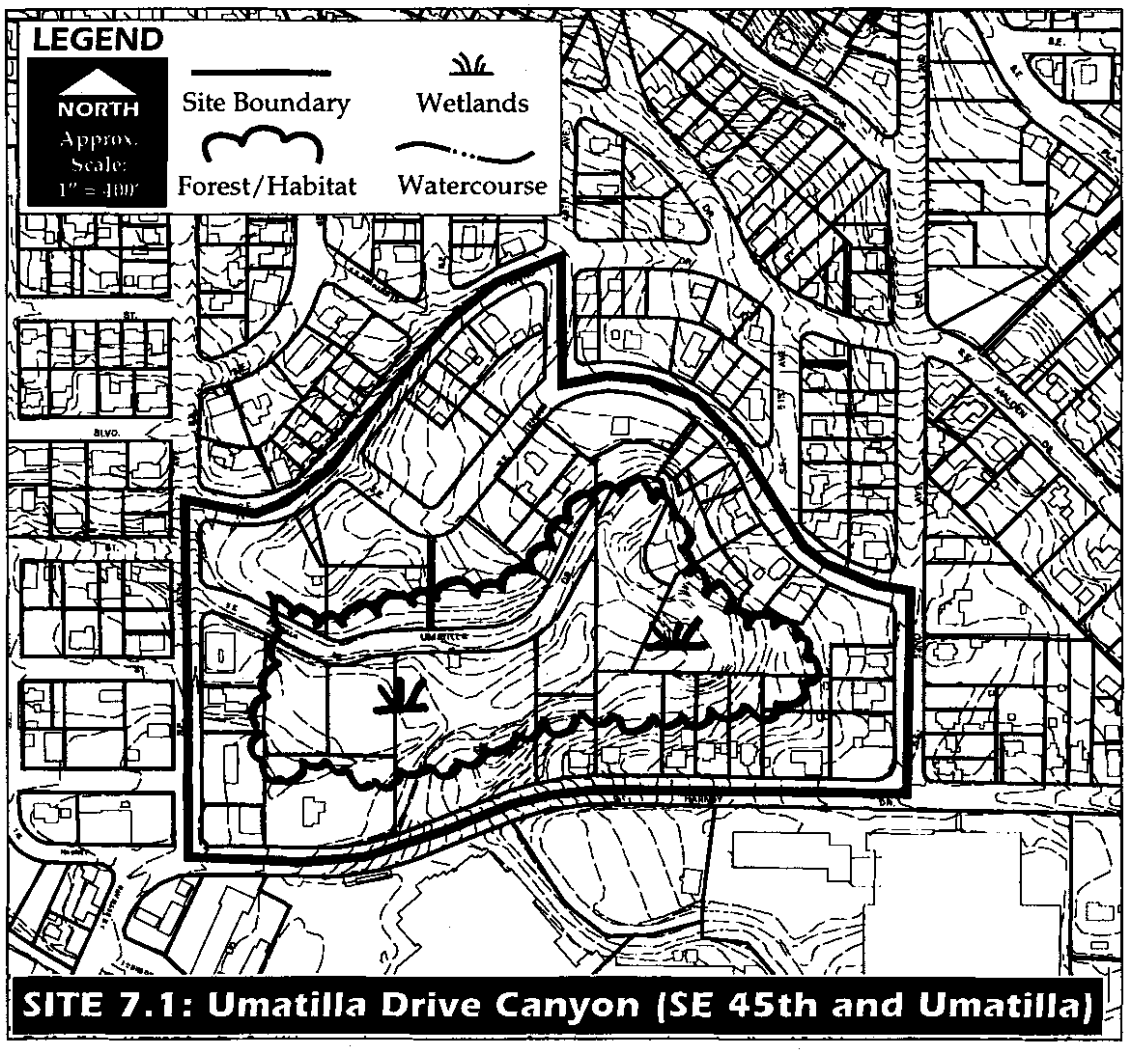
Water, storm drainage, water quality, wildlife habitat, interspersion, flood storage, scenic beauty, and education.

QUANTITY OF RESOURCES

This site includes a 6-acre wetland that is partially in public ownership (Parks Bureau) and adjacent slopes. Although much of the site is being taken over by Himalayan blackberry, the scarcity of wetlands along and near Johnson Creek makes it important. In this situation, the dense Himalayan blackberry surrounding the wetland provide a buffer from human use.

QUALITY OF RESOURCES

The site rate of 77 is high. This wetland and associated upland provide a biological and hydrological link to the creek corridor. The wetland provides habitat for squirrels, ducks, warblers, goldfinch, swamp sparrows, flickers and other wildlife species. It also provides storm water retention, groundwater recharge, and water quality filtration to the nearby Johnson Creek. Himalayan blackberry and clematis reduce the habitat quality from what it would be if native plants occurred rather than the aggressive exotic plant species.



SITE 7.1: Umatilla Drive Canyon (SE 45th and Umatilla)

Score for Wildlife Habitat Value: 77	**Range for All Sites** = 18 to 83
Vegetation:	
Food (variety)	medium
Cover (structural diversity)	medium
Human disturbance	medium
Interspersion	medium

MANAGEMENT RECOMMENDATIONS

It is important to protect the wetland to the greatest extent possible. Invasive and exotic species should be replaced by native plants through mitigation or enhancement actions, providing greater diversity, and higher quality habitat and amenity value.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES

(Based on Proposed Zoning Pattern)

Zones	Area Affected by EC Zone	Area Affected by EP Zone
OS	3/4 Acre	3/4 Acre
R5	4 1/2 Acres	1 1/2 Acre
R2.5	1/4 Acre	1/2 Acre
R2	1/8 Acre	1 Acre

SITE-SPECIFIC ESEE COMMENTS

Opportunities to locate development above the wetland area exists, so development and resource protection can both occur. The amount of the site in public ownership (1 1/2 acres) increases opportunities for making use of the site for educational purposes.

Conflicting Uses: Residential development. The site currently is predominantly zoned R5 with approximately three-quarters of that zoning having an R2.5 Comprehensive Plan Map designation. The southernmost portion of the site, which contains the stream, is zoned R2.

Consequences of Allowing Conflicting Uses: Degradation of the site would occur to the extent that the habitat resources would be lost. Fill would have to be placed to lift the area above the flood plain, causing additional localized flooding nearby. Water quality benefits would also be lost.

Consequences of Limiting or Prohibiting Conflicting Uses

Economic Consequences: Protection as proposed would result in a loss of potential housing units within the site. The R2.5 designation would be removed from approximately 2.5 acres and the R5 zoning would remain on areas recommended for EP, Environmental Protection. This potential density would be shifted to other parts of the site and to other parts of the neighborhood. Any potential drop in property values would be offset somewhat by scenic qualities and the desirability of living in an urban natural resource area. The resource value of the publicly owned property would be increased if the surrounding properties were left in a natural condition.

Social Consequences: Civic pride and enjoyment of living within this urban wilderness area would be continued. The semi-rural character and attractiveness of the neighborhood would be enhanced as would the overall appeal of the city as a place of residence.

Environmental Consequences: This wetland would continue to provide wildlife habitat diversity, animal access to water, groundwater storage, and sediment trapping.

Energy Consequences: This site provides the opportunity for residents of the area to view wildlife while avoiding the fuel and expense of car travel to more distant natural areas.

SITE 8OJ*: Clackamas Co.(45th-77th Ave.) Maps: 3935, 3936, 3937, 3938

*OJ= Other jurisdiction

Note: The inventoried site includes less than the Unit area, only the creek and a small adjacent shrub wetland at 72nd Avenue

LOCATION: SE 45th Avenue (W); Railroad Tracks (N); SE 77th Avenue (E); and SE Overland Street (S)

DATE OF INVENTORY: June 1988, June 1990

HABITAT CLASSIFICATION

- Riverine, Permanently Flooded, Unconsolidated Bottom
- Palustrine, Scrub-Shrub, Broad-leaved Deciduous, Seasonally Flooded

SIGNIFICANT RESOURCE VALUES

Fish and wildlife habitat providing food, nesting, and cover for birds, reptiles, amphibians, and beaver, historic, open space, scenic, recreational, educational; and 1,600 foot-long strip of mature Cottonwood trees.

QUANTITY AND QUALITY OF RESOURCES

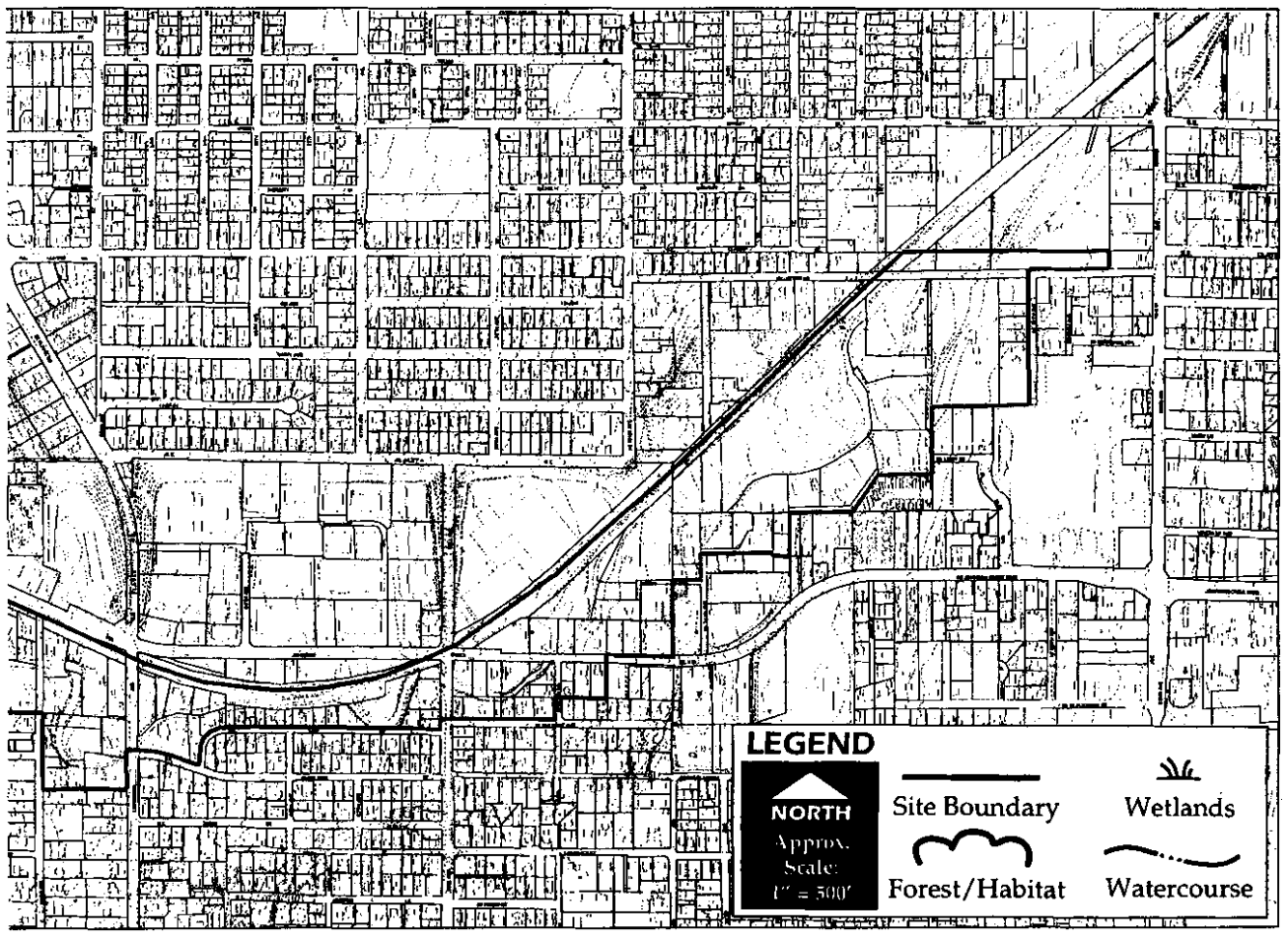
This site provides limited wildlife habitat value, primarily for those species that adapt to urbanization. Heavy human use and garbage disposal along this stretch of the creek inhibit

SITE 8OJ: Clackamas Co. (45th-77th Ave.)

use by wildlife. Although separated from other habitat areas along Johnson Creek, this site does function as a travel corridor for wildlife .

Willows dominate the vegetation community with some blackberry and grasses. This small area represents a portion of the natural riparian vegetation which existed along Johnson Creek prior to urbanization. The scrub-shrub wetland provides food, nesting, and cover for birds, reptiles, amphibians, and beaver. Streambank vegetation is disturbed by human trails and fishing activity. Litter and garbage are present. Interspersion with other natural areas is low, as it is separated by railroad tracks and surrounded by industrial and residential development.

Score for Wildlife Habitat Value: 48	**Range for All Sites** =18 to 83
Vegetation:	
Food (variety)	medium
Cover(structural diversity)	medium
Human Disturbance:	high
Interspersion:	low



SITE 9: 77th-82nd Ave. Map: 3838

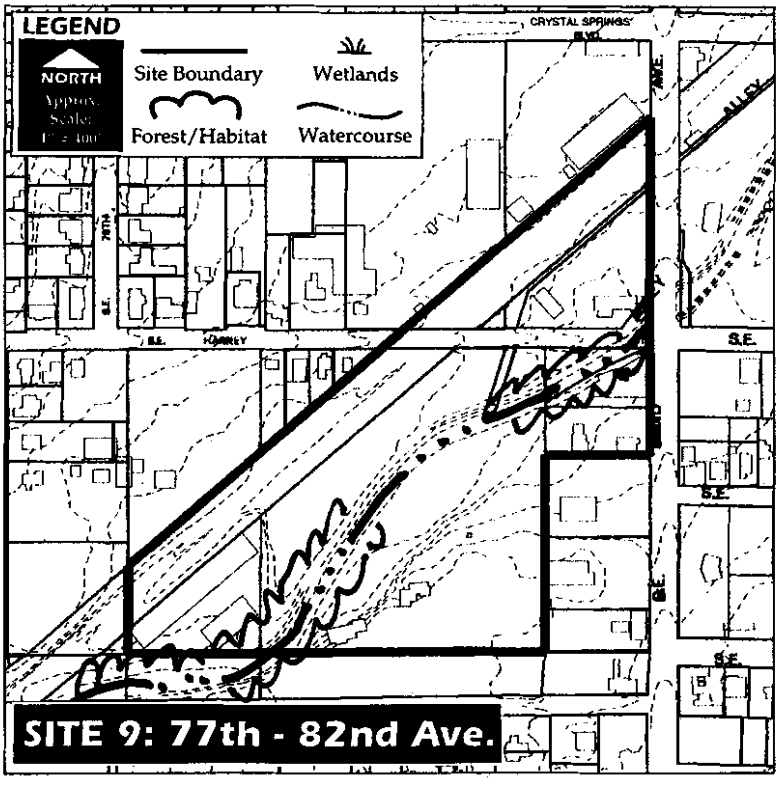
SITE SIZE: 17 acres
LOCATION: SE 78th Avenue (W); SE Clatsop Street/City Limits (S); S. of Crystal Springs Boulevard (E); and SE 82nd Avenue (E).
NEIGHBORHOOD: Brentwood-Darlington
DATE OF INVENTORY: June, August 1990

HABITAT CLASSIFICATION
- Riverine, Permanently Flooded, Unconsolidated Bottom.
- Palustrine, Scrub-Shrub, Broad-leaved Deciduous, Seasonally Flooded.

GENERAL DESCRIPTION
This is an area of agricultural activity along most of the creek, surrounded largely by industrial activity.

SIGNIFICANT RESOURCE VALUES
Fisheries, wildlife travel corridor, and water source for wildlife.

QUANTITY OF RESOURCES
This stretch of Johnson Creek has a very steep, 1:1 riprapped slope. Where present, the riparian, tree-covered strip is narrow, only 10 ft. wide. The primary ground cover is blackberry plus 10% big leaf maple and 30% willow. The substrata is rocky with a lot of additional large garbage and debris. Bank erosion is problematic in the areas where the vegetation has been removed. All of the creekside vegetation has been removed and the creek bank has been pushed to the extreme edge of the creek in order to maximize upland use of the land except for a 10-foot wide strip. Except for about 40% of the 10-foot strip that has trees, the creek is exposed to direct sunlight and heating.



QUALITY OF RESOURCES
The wildlife habitat quality of this stretch of the creek is limited. Wildlife species that adapt well to urbanization, proliferation of introduced plant species, and poor water quality are the most common resource characteristics found here.

Score for Wildlife Habitat Value: 43	**Range for All Sites** = 18 to 83
Vegetation:	
Food (variety)	medium
Cover(structural diversity)	medium
Human Disturbance:	medium
Interspersion:	medium

MANAGEMENT RECOMMENDATION

Creek banks should be regraded away from the creek to create better animal access and slopes that will not be so susceptible to erosion. The riparian strip and creek bank should be planted with native vegetation, particularly trees and shrubs, to create cover and shade.

Planting of major trees such as western red cedars and other plantings on both sides of SE 82nd Avenue can indicate creek location from the roadway and create a gateway into the City.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES

Zones	Area Affected by EC Zone	Area Affected by EP Zone
GM	4 acres	3 acres
HM	1	2

SITE-SPECIFIC ESEE COMMENTS

Conflicting Uses: Agricultural and urban development has created the present poor state of creek channel and creek edge.

Consequences of Allowing Conflicting Uses: Continued heat exposure to the creek during the summer months will contribute to the decline of fish. Water temperatures exceeding sixty-eight degrees are difficult on fish; exceeding the mid-seventies is lethal to fisheries.

Consequences of Limiting or Prohibiting Conflicting Uses: There would be a 5-acre reduction in development area, of which most is Floodway area. Development in the Floodway is already limited by FEMA regulations.

SITE 10: 82nd Ave. East Unit — Map: 3839

SITE SIZE: 10 acres
LOCATION: SE 82nd Avenue (W); S. of SE Harney Street (S); Springwater Line (N); and SE 84th Avenue (E)
NEIGHBORHOOD: Lents
DATE OF INVENTORY: June, August 1990

HABITAT CLASSIFICATION

- Riverine, Permanently Flooded, Unconsolidated Bottom.
- Palustrine, Scrub-Shrub, Broad-leaved Deciduous, Seasonally Flooded.

GENERAL DESCRIPTION

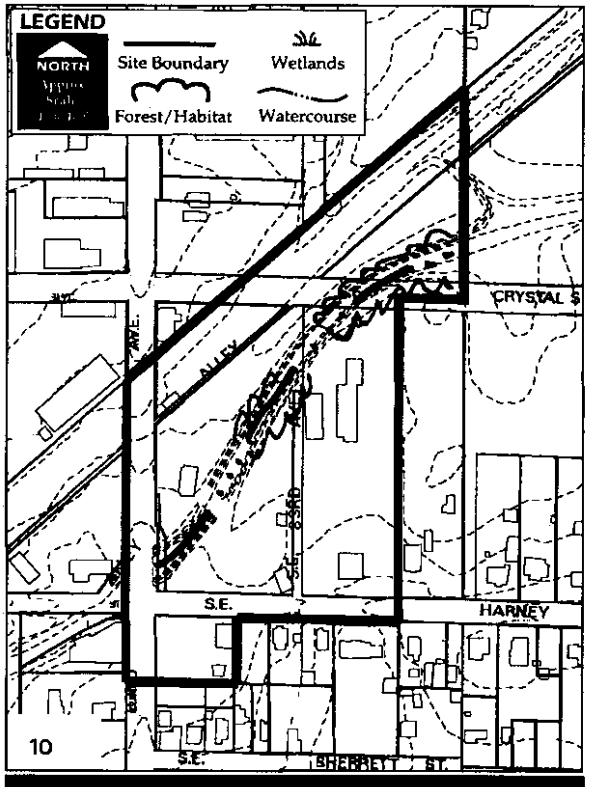
This site is, with the exception of the creek, in commercial, trailer park, and industrial use. The wildlife habitat value of this stretch of Johnson Creek has been severely affected by adjacent land uses. A trailer park immediately adjacent to the south bank of the creek limits wildlife access to the creek. (On one visit several of the trailers were hanging over the bank). The steep banks are dominated by Himalayan blackberry and reed canarygrass growth. There is an abundance of garbage and grocery shopping carts throughout this stretch. The creek is exposed with little shade provided from the few scattered ash and big leaf maple trees. Remnants of an old bridge abutment still remain in the creek, acting as a garbage trap.

SIGNIFICANT RESOURCE VALUES

Water, interspersion, fisheries.

QUANTITY OF RESOURCES

Properties abutting the creek are mostly paved, leaving an unpaved area of about 50-feet wide between each bank. The riparian vegetation is sparse. In its current condition, the primary resource is the creek itself. It serves as a travel corridor. The Floodway, which occupies more than one-third of the site, represents a potential habitat area as redevelopment occurs. The Floodway is over 200 feet wide across most of the site, widening to 470 feet at the eastern end. With the exception to a less than one acre tract next to Harney Street, the remainder of the ten-acre site is within the 100-year flood plain.



SITE 10: 82nd Ave. East Unit

QUALITY OF RESOURCES

This site is greatly degraded and very little impervious surface remains. As with the rest of Johnson Creek, this section functions as a travel corridor for wildlife moving up and down the creek, as well as linking some upland sites with

the creek. This site received 26 points, one of the lowest ratings for wildlife habitat value along Johnson Creek. In addition to the removal of native vegetation, SE 82nd Avenue, a major arterial street, degrades habitat value of the site because of the traffic noise and debris generated from the street.

Score for Wildlife Habitat Value: 26	**Range for All Sites** = 18 to 83
Vegetation:	
Food (variety)	low
Cover(structural diversity)	low
Human Disturbance:	high
Interspersion:	med.

MANAGEMENT RECOMMENDATIONS

Removal of garbage, terracing slopes, revegetation, and creation of a buffer between the resource area and the adjacent land use would greatly enhance the habitat value of the site.

SE 82nd Avenue can be reinforced as a historic and current major route into the City by creating a gateway with trees that will be large at maturity.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES

Zones	Area Affected by EC Zone	Area Affected by EP Zone
R10(R5)	<1 acre	<2 acres
IG2	<1	<1
EG	<1	4
SC	<1	

SITE-SPECIFIC ESEE COMMENTS

Conflicting Uses: Residential, commercial, and industrial development along the creek channel and Floodway.

Consequences of Allowing Conflicting Uses: Continued degradation of fisheries and wildlife habitat.

Consequences of Limiting or Prohibiting Conflicting Uses: The existing trailer court would become a non-conforming use.

SITE 11: 86th Ave. Forest — Map: 3839

SITE SIZE: 13 acres
LOCATION: SE 84th Avenue (W); SE 87th Ave. (E), Springwater Line (N); and North of SE Harney Street (S)
NEIGHBORHOOD: Lents
DATE OF INVENTORY: June, September 1990

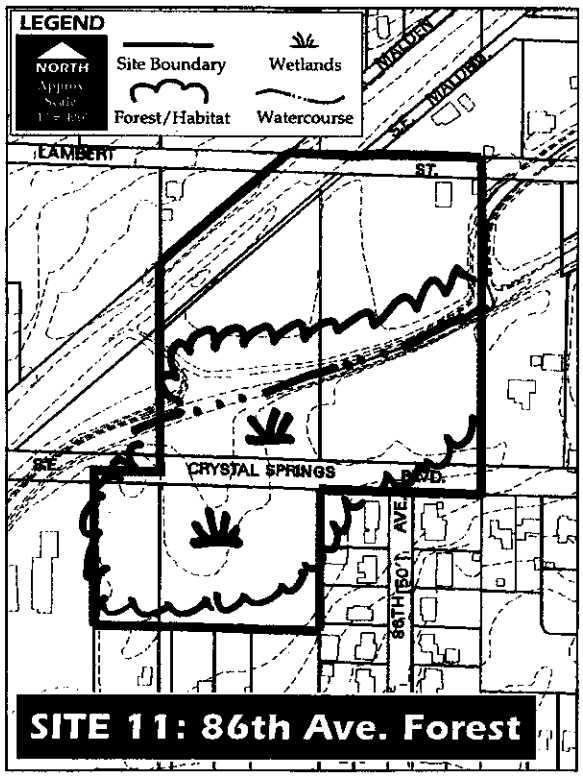
HABITAT CLASSIFICATION
- Upland Forest; coniferous, deciduous.

GENERAL DESCRIPTION
This is an unusual forested area, bordered on the east and south by single-family development, industrial and commercial activities on the west, and the Springwater Line on the north. Johnson Creek passes through it. Much of the site is within the Floodway, and all is within the 100-year flood plain.

SIGNIFICANT RESOURCE VALUES
Water, interspersion, wildlife and fisheries habitat, aesthetics, storm drainage and flood storage, recreation, and education

QUANTITY OF RESOURCES
The forested portion of the site covers about ten of the 13-acre site. The forest has a 90% closed tree canopy, making it relatively dense. There are no other forested uplands near or adjacent the creek within several miles each side of this site. There are very few forests or woodlot pockets at the lower elevations on the east side of the City.

QUALITY OF RESOURCES
The rarity of a forested upland along Johnson Creek and on the east side of the City make this an important site. The forest is dominated by Douglas fir, red alder, and Bigleaf maple with a shrub layer of Oregon hazel, vine maple, and Himalayan blackberry. There is very little ground cover with large expanses of bare ground. The areas surrounding the forest is dense blackberry, making access to the site difficult. The trees and shrubs provide food for towhees, robin, black capped chickadees, kinglets and western wood peewees. The surrounding area is underdeveloped with large, half-acre parcels and a small 15-lot subdivision bordering the southeast corner of the forest. Use by domestic animals is high, which may limit use by wildlife species. Interspersion with other sites is gained by the adjacency of this forest to Johnson Creek.



Although the structural diversity of this forest has been decreased by the removal of much of the understory vegetation, the forest plays an important role in the Johnson Creek ecosystem by providing habitat for birds, mammals, and herptile species that require forested areas adjacent to the creek for cover, food, resting and breeding.

Score for Wildlife Habitat Value: 62	**Range for All Sites** =18 to 83
Vegetation:	
Food (variety)	high
Cover(structural diversity)	high
Human Disturbance:	medium
Interspersion:	medium

MANAGEMENT RECOMMENDATION

Removing blackberries and garbage, limiting unnecessary human intrusion, and reestablishing the under and overstory with native plantings would increase resource value significantly.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES

Zones	Area Affected by EC Zone	Area Affected by EP Zone
LR-10	1 acre	4 acres
LR-7	3	3

SITE-SPECIFIC ESEE COMMENTS

Conflicting Uses: Residential development.

Consequences of allowing Conflicting Uses: An important resource "island" between Tideman-Johnson Park and the Mt. Scott area would be lost, decreasing interspersion value of the creek corridor for terrestrial species.

Consequences of limiting or prohibiting Conflicting Uses: Residential development would be limited to EC-designated areas (4 acres of the 11-acre site) or outside the resource, requiring clustering and possible overall reductions in density.

SITE 12: 88th Ave. Oxbow — Map: 3839

SITE SIZE: 35 acres
LOCATION: Springwater Line (N); I-205 (E); SE 92nd Avenue (W);
NEIGHBORHOOD: Lents
DATE OF INVENTORY: June, September 1990

HABITAT CLASSIFICATION

- Riverine, Permanently Flooded, Unconsolidated Bottom.
- Palustrine, Scrub-Shrub, Broad-leaved Deciduous, Seasonally Flooded.

GENERAL DESCRIPTION

This site is primarily single and multi-family development or cleared open space.

SIGNIFICANT RESOURCE VALUES

Water, stormwater, interspersion, fisheries

QUANTITY OF RESOURCES

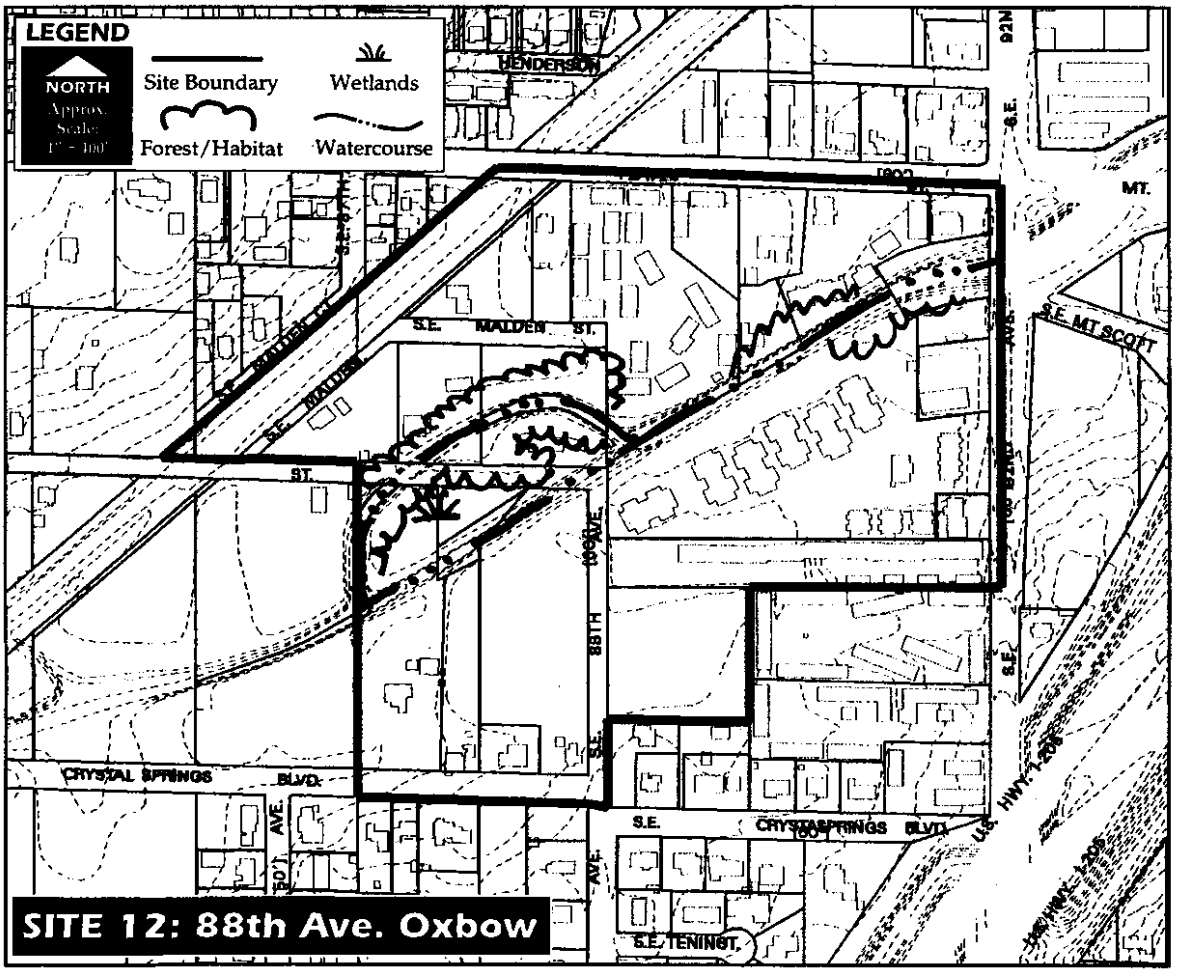
Outside of the creek corridor, little resource is present. The steep banked section of Johnson Creek is vegetated by a closed canopy scrub, shrub-willow and blackberry community. There are no trees present along this stretch of the creek. The area was probably cleared and filled during construction of the I-205 interchange. The riparian strip is only about 10 feet wide. Interspersion with other areas is limited by the roads and interstate on all sides. There is a small island covered with reed canarygrass in the middle of the creek, providing potential nesting area for waterfowl.

QUALITY OF RESOURCES

This is one of the lowest rating stretches for wildlife habitat value along Johnson Creek. In it's present state, the scenic value of Johnson Creek is almost non-existent at this point. Because of the unresponsive surrounding urban design there is little indication of the creek's presence.

As the rest of Johnson Creek, this section functions as a travel corridor and water source for wildlife moving up and down the creek.

Score for Wildlife Habitat Value: 30	**Range for All Sites** =18 to 83
Vegetation:	
Food (variety)	low
Cover(structural diversity)	medium
Human Disturbance:	high
Interspersion:	medium



MANAGEMENT RECOMMENDATIONS

Removing garbage, terracing slopes, and revegetating with native species to establish an under and overstory of plant materials would increase existing resource values significantly. Creating a treed riparian fringe for drivers viewing the City from I-205 would increase the visual presence of Johnson Creek and reinforce the notion of the livability of Portland.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES:

Zones	Area Affected by EC Zone	Area Affected by EP Zone
LR10	<1	3
R2	1	<1
LR7	1	1
CN	<1	<1

SITE-SPECIFIC ESEE COMMENTS

Conflicting Uses: Industrial, residential, commercial development.

SITE 13: I-205 West — Maps: 3740, 3840

SITE SIZE: 26 acres
LOCATION: Springwater Line (N), SE 92nd Avenue (E), SE 87th Avenue (W); and SE Crystal Springs Boulevard (S)
NEIGHBORHOOD: Lents
DATE OF INVENTORY: June, September 1990

HABITAT CLASSIFICATION

- Riverine, Permanently Flooded, Unconsolidated Bottom.
- Palustrine, Scrub-Shrub, Broad-leafed Deciduous, Seasonally Flooded.

GENERAL DESCRIPTION

Natural resources are confined almost entirely to the creek and bank, unpaved portions of the I-205 right-of-way, and a large field on the southern portion of the site. The site is bounded by I-205 on the east and south, industrial activities along the north and northwest, and multi-family development to the southwest. Industrial activities also occupy the land between Johnson Creek and the Springwater Line.

SIGNIFICANT RESOURCE VALUES

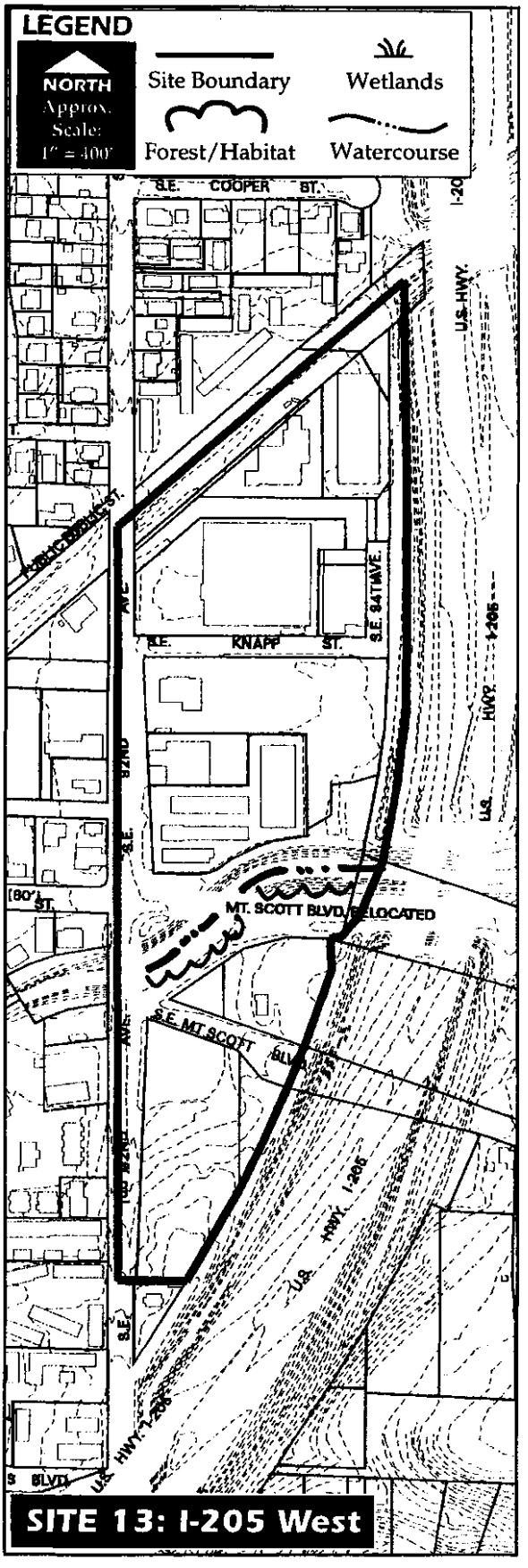
Water, stormwater, interspersion, fisheries.

QUANTITY OF RESOURCES

Significant remaining resources are located almost entirely within the creek and banks.

QUALITY OF RESOURCES

This section of the creek was lined with concrete during construction of I-205. In spite of this, riparian shrubs are being reestablished, providing limited shading of the creek. As with the rest of Johnson Creek, this section functions as a travel corridor and water source for wildlife moving up and down the creek.



Score for Wildlife Habitat Value: 30	**Range for All Sites** =18 to 83
Vegetation:	
Food (variety)	low
Cover (structural diversity)	low
Human Disturbance:	low
Interspersion:	high

MANAGEMENT RECOMMENDATIONS

Removing garbage, terracing slopes, revegetating, and creating a buffer between the resource area and the adjacent land use would greatly enhance the habitat value of the site. Large trees at this site and the east side of I-205 would provide a visual gateway into southeast Portland, and "showcase" the creek corridor.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES

Zones	Area Affected by EC Zone	Area Affected by EN Zone
IH	<1 acre	<1 acre
IG2	<1	
R10(R2)	<1	1

ESEE COMMENTS

Conflicting Uses: Residential and future neighborhood commercial development south of SE Flavel Street, and general industrial use to the north.

SITE 14: I-205 East — Maps: 3740, 3741, 3840

SITE SIZE: 121 acres
LOCATION: I-205 (W); Springwater Line (N); SE Knapp Street (S); E 105th Avenue (E)
NEIGHBORHOOD: Lents
DATE OF INVENTORY: February 1987, September 1990

HABITAT CLASSIFICATION

- Riverine, Lower Perennial, Permanently Flooded, Unconsolidated Bottom
- Palustrine, Emergent, Persistent, Seasonally Flooded
- Urban Hardtop

GENERAL DESCRIPTION

This is a large industrial site that has been vacant for a number of years. Most of it is open. It is surrounded by single-family residential development to the east and on Mt. Scott to the south. I-205 is its west border, while industrial and mixed residential development is to the north, between the Springwater Line and SE Foster Road.

SIGNIFICANT RESOURCE VALUES

Water, storm drainage, fish and wildlife habitat, aesthetics, flood storage, pollution and nutrient retention and removal, sediment trapping, and interspersion.

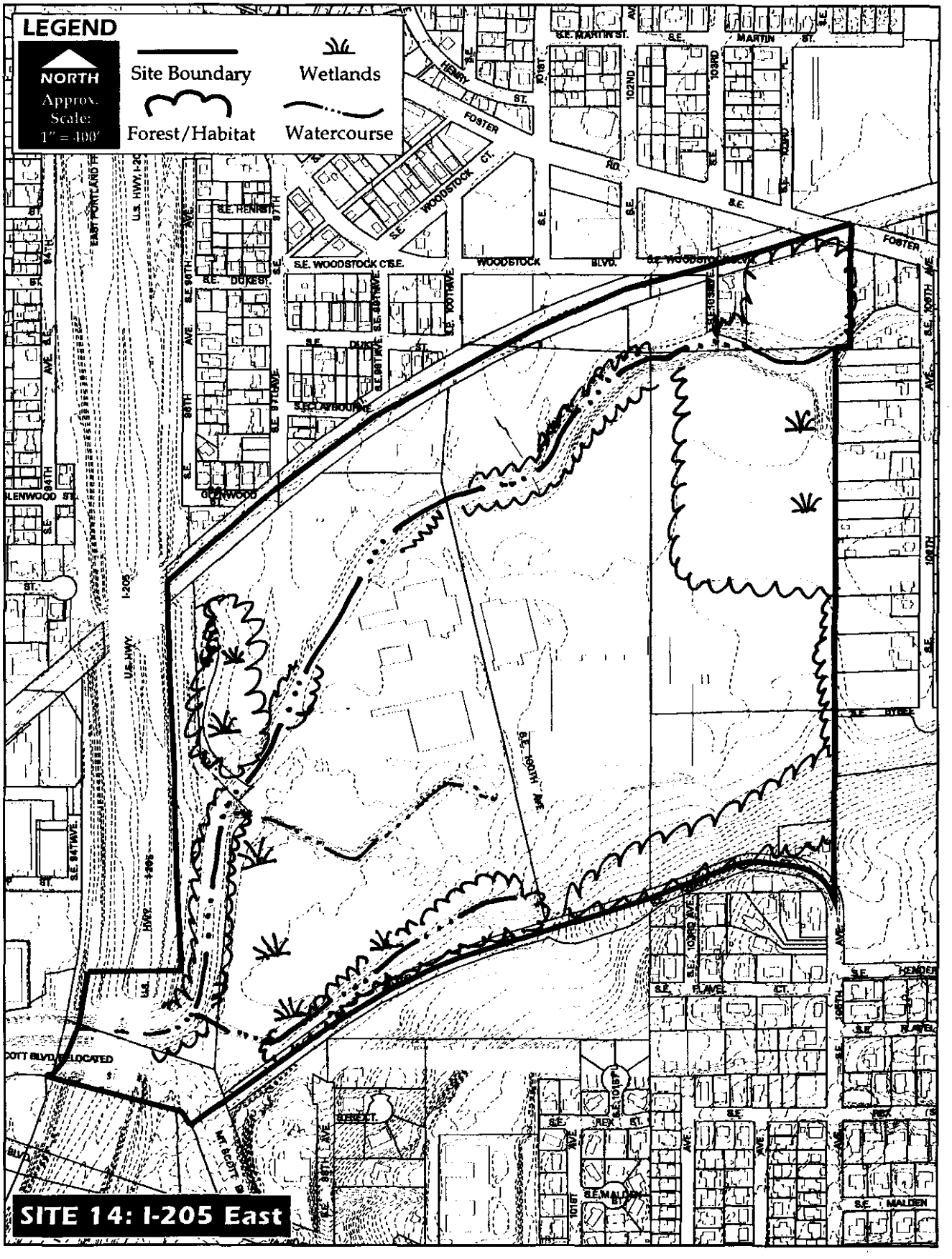
QUANTITY OF RESOURCES

This 121-acre site is a flat bottomland (Publisher's Paper) with moderate seasonal watercourses and depressions. A wetland of about five acres is located in the northwest corner of the site, next to I-205. The Johnson Creek channel is lined with intermittent stands of cottonwood, blackberry, and grasses. Eighty-to-ninety percent of the site is weedy, disturbed vegetation, and about two-thirds within the 100-year flood plain. The Floodway is uniformly 200 feet wide through the site.

This site has great potential for habitat restoration. In its present condition this section functions as a travel corridor for wildlife moving up and down the creek, and to and from the adjacent, Mt. Scott upland which borders to the south.

A small flat grassland bordered by trees and blackberries is adjacent to the drainageway in the northeast corner of the site. Ten-to-fifteen percent of the total site is hardtop surface. The combination of hardtop and weedy vegetation provides very limited cover or habitat except for some urban adapted wildlife species such as starlings, pigeons, and crows. The small grassland with tree border increase the food/cover for a greater diversity of potential species such as flickers, black-capped chickadees, song sparrows, rabbits, etc.

A 10-acre wooded strip about 200 feet deep along the south boundary slopes steeply upward as the base of Mt. Scott at its northern edge there is a drainageway which directs stormwater to the west and into Johnson Creek near I-205.


LEGEND
NORTH
Approx. Scale: 1" = 400'
Site Boundary
Wetlands
Forest/Habitat
Watercourse
SITE 14: I-205 East

QUALITY OF RESOURCES

The site provides limited value for wildlife along Johnson Creek, except for those species that adapt well to urbanization. The wetland in the northwest corner is isolated, and provides some protection to wildlife.

There is speculation that much of the site is overlaid with several feet of sawdust from historic use of the site as a sawmill. Sawdust draws nitrogen from the soil, making it generally a poor planting or growing medium.

From an urban design standpoint, natural resources on this site have much to offer. To the south, Mt. Scott provides a scenic backdrop and edge to any future development. Johnson Creek also provides an edge for the large southern portion, or a seam (unifying element) for the entire site. The wetland in the northwest corner can serve as a landmark and gateway into the Lents neighborhood and Portland for those traveling north on I-205.

Score for Wildlife Habitat Value: 41	**Range for All Sites** =18 to 83
Vegetation:	
Food (variety)	medium
Cover(structural diversity)	low
Human Disturbance:	high
Interspersion:	low

MANAGEMENT RECOMMENDATIONS

Because of its size, location, and relatively undeveloped state, the site has more management potential for water resources and wildlife than any other site along Johnson Creek. It also has much development potential, although constrained by the flood plain, access, and load bearing limitations of the soil, if there is a high organic content as previously speculated. Many uses have been suggested for the site by neighbors, including a dam and stormwater detention, multi-family residential development, a park (including RV facilities), and employment-intensive industrial or commercial activity. All could be compatible with existing resources, although the existing Comprehensive Plan designation and zoning would preclude residential and most commercial activities.

Following are recommendations for resource protection and ways the resource could be incorporated into any future development:

- Retain the forested slope along the southern site boundary to provide a backdrop for future development;
- Consider enhancement of the drainageway on the southern boundary at the foot of the slope, possibly extending it eastward into the next site and connecting to Johnson Creek at NE 112th Avenue to serve as an overflow channel;
- Consider incorporating stormwater detention or retention facilities throughout future development as amenities such as ponds, wetlands, or open lawns or fields;
- Establish a forested riparian strip along the creek for both wildlife and to increase the visual presence of the waterway;
- Use the creek corridor as a major unifying design element for the entire site; and
- Protect and enhance the wetland in the northwest corner, to serve as a refuge for wildlife and a gateway feature for drivers entering Portland along I-205.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES

Zones	Area Affected by EC Zone	Area Affected by EN Zone
IH	16 acres	21 acres
IG2	1	5

SITE-SPECIFIC ESEE COMMENTS

Conflicting Uses: Industrial development

SITE 15: 106th-112th Unit — Map: 3741

SITE SIZE: 66 acres
LOCATION: SE 105th Avenue (W); SE 112th Avenue (E); SE Foster Road (N), and the base of Mt. Scott, North of SE Knapp Street (S)
NEIGHBORHOOD: Lents, Informal neighborhood group known as Land Owners And Friends of Johnson Creek (LOAF)
DATE OF INVENTORY: March 1987, September 1990

HABITAT CLASSIFICATION
- Riverine, Lower Perennial, Permanently Flooded, Unconsolidated Bottom
- Riverine, Lower Perennial, Seasonally Flooded, Artificial Rocky Shore

GENERAL DESCRIPTION
This is a well-defined neighborhood of primarily single-family homes. To the west is the Publisher's Paper site, SE Foster Road and industrial properties along the north side, SE 112th Avenue to the east, and the toe of the northern slope of Mt. Scott to the south. Small conforming and nonconforming commercial and industrial uses are located along SE Foster Road and throughout the site. Roads are unimproved and, although a sewer interceptor runs along the southern boundary, few properties are connected. Most of the area is within the 100-year flood plain.

SIGNIFICANT RESOURCE VALUES
Water, storm drainage, scenic, fish and wildlife habitat, pollution and nutrient retention and removal, sediment trapping, recreation.

QUANTITY OF RESOURCES
A major portion of the 65-acre site is in the designated Floodway. The creek winds through the site with four major bends in the creek, creating about 3,400 feet of creek channel across the 2,000-foot wide site. In some portions of the creek, the lack of vegetation (trees, shrubs, and groundcover) reduces habitat area and increases summer water temperatures.

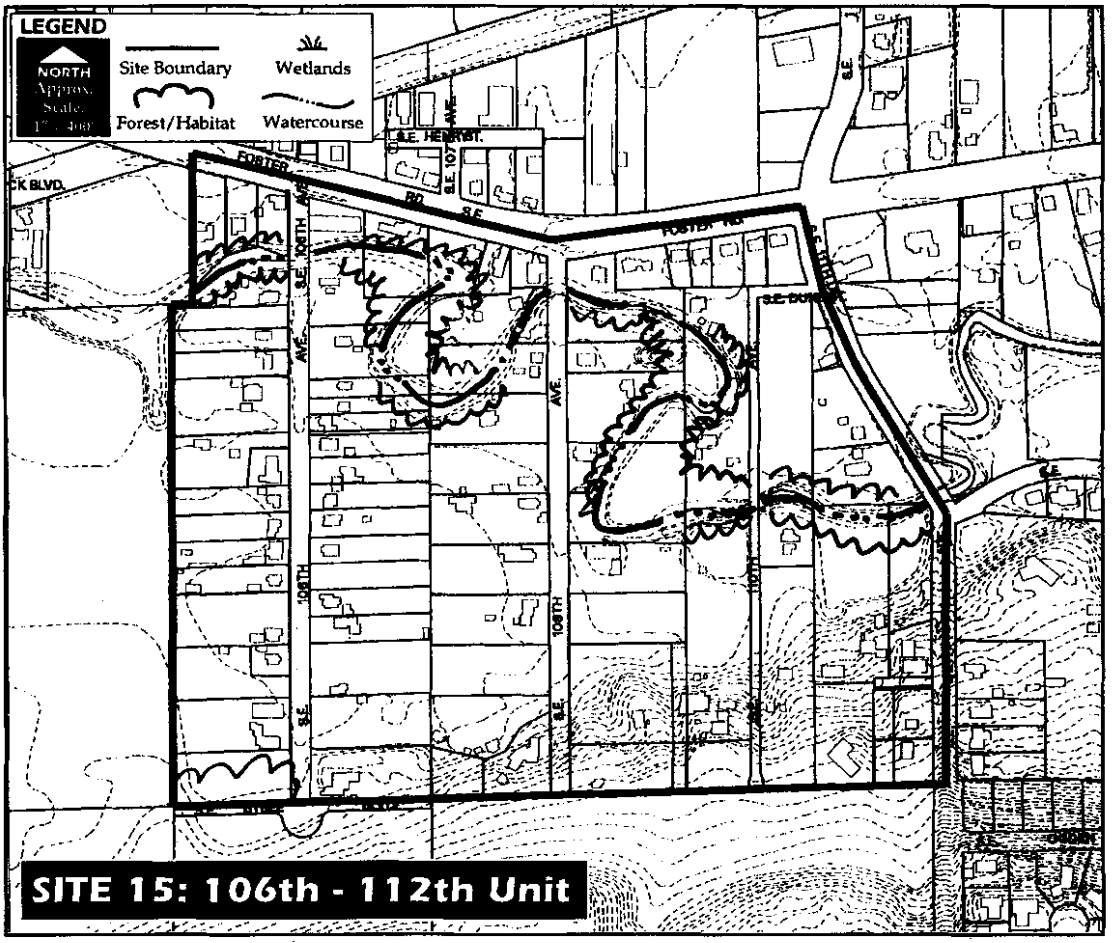
QUALITY OF RESOURCES
Prior to 1921 the Johnson Creek channel was located at the foot of Mt. Scott. In 1921 the hillside was clearcut. Later that winter it slid and diverted the creek to its present course. Annual flooding was encouraged by local farmers to deposit the creek's rich silt. The stream channel was lined during the early 1930s WPA project, some of which is visible today. According to residents, land near the historic channel at the foot of Mt. Scott is lower than along the present creek, causing ponding to occur during periods of heavy rainfall. This area drains generally to the west, to the southern drainageway of Site 14.

Most of the site is dominated by a residential landscape treatment of lawn and garden up to the creek banks. There is some blackberry, willow, and alder growing in the riprap but native vegetation is minimal. Despite extensive human use, the stream and existing riparian vegetation provide habitat for beaver and muskrat. There are also signs that the cut bank along the stream provides nesting habitat for swallows. The wooded hillside of Mt.

Scott is connected to the creek corridor loosely by vegetation throughout the neighborhood, allowing travel between the uplands and water. Litter and garbage are present.

The upland and stream habitat is degraded. The site provides limited value for wildlife along Johnson Creek, except for those species that adapt well to urbanization. However, habitat for beaver and muskrat exists.

From an urban design standpoint, the site has much to offer. It has well-defined boundaries and access points, giving a strong sense of place. Like Site 14 to the immediate west (Publisher's Paper), Mt. Scott provides a strong visual backdrop, as well as upland habitat value. Johnson Creek is near SE Foster Road, and forms a strong northern boundary which must be crossed to enter into the neighborhood on NE 106th and 108th Avenues.



Score for Wildlife Habitat Value: 50	**Range for All Sites** =18 to 83
Vegetation:	
Food (variety)	medium
Cover(structural diversity)	medium
Human Disturbance:	medium
Interspersion:	medium

MANAGEMENT RECOMMENDATIONS

- Through restoration and revegetation, this site could be enhanced for its wildlife habitat value.
- To reduce water temperature, plant trees to shade the creek.
- Plant trees along the riparian strip to enhance visual impact, edge to the neighborhood, and "sense of place."
- Consider establishing an overflow channel from where the creek crosses SE 112th Avenue, west along the toe of Mt. Scott, to connect with the south drainageway at Publisher's Paper, to reduce flooding and bank erosion along the serpentine main channel;
- Regrading to create shallower banks reduce erosion, help stabilize the banks while reducing siltation into the creek.
- Because of high visibility, lack of paved roads, and relative ubiquity, consider using this site as a test area for alternative road construction or drainage treatment techniques that reduce surface runoff and control pollution.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES:

Zones within Site	Amount Affected by EC Zone	Amount Affected by EP Zone
EG2	1	<1
CN	<1	<1
R10	7	6

SITE-SPECIFIC ESEE COMMENTS

Conflicting Uses: Residential, Commercial, light industrial

Consequences of allowing Conflicting Uses: According to residents, recent channel improvements have reduced flooding considerably (the last reported event was in 1982). However, much of the site continues to remain in the 100-year flood plain, according to FEMA. Because of the broad flat nature of this site, when flooding does occur, large areas can be inundated. In its present condition this site provides flood storage and decreases the storm water velocity during flooding, possible resulting in less downstream flooding, erosion, and property damage (at the expense of this site).

Allowing continued development without reducing the flood threat would simply subject continually greater investment to possible flood damage. Additionally, present regulations limit residential densities within the flood plain to half of what they would be out of it.

Consequences of limiting or prohibiting Conflicting Uses: Limiting conflicting uses along the creek corridor and reducing flood potential through use of a bypass, detention system, or a combination would actually increase development potential in the residential area, as the plan district would allow a doubling of density for lands removed from the flood plain. This results in major economic gain.

Retention and enhancement of the riparian strip would separate and buffer light industrial and commercial uses fronting SE Foster Road from the residential area, protecting and increasing livability of the neighborhood.

SITE-SPECIFIC COMPATIBLE USES

Repair or replacement of existing (but not new) pedestrian bridges serving property under the same ownership but divided by the creek if:

- A maximum riparian area of 10 feet on each bridgehead is disturbed;
- There is no enlargement or relocation of bridge piers;
- There is no filling or blocking of the Floodway; and
- They are elevated to the height required by FEMA regulations.

SITE 160J*: Beggar's Tick Marsh — Map: 3641

*OJ= Other jurisdiction is Multnomah County

(See also the East Buttes, Terraces, and Wetlands Conservation Plan, 1993)

SITE SIZE: 20 acres
LOCATION: West of SE 111th Avenue north of SE Foster Road.
DATE OF INVENTORY: March 1987, July 1990, September 1990

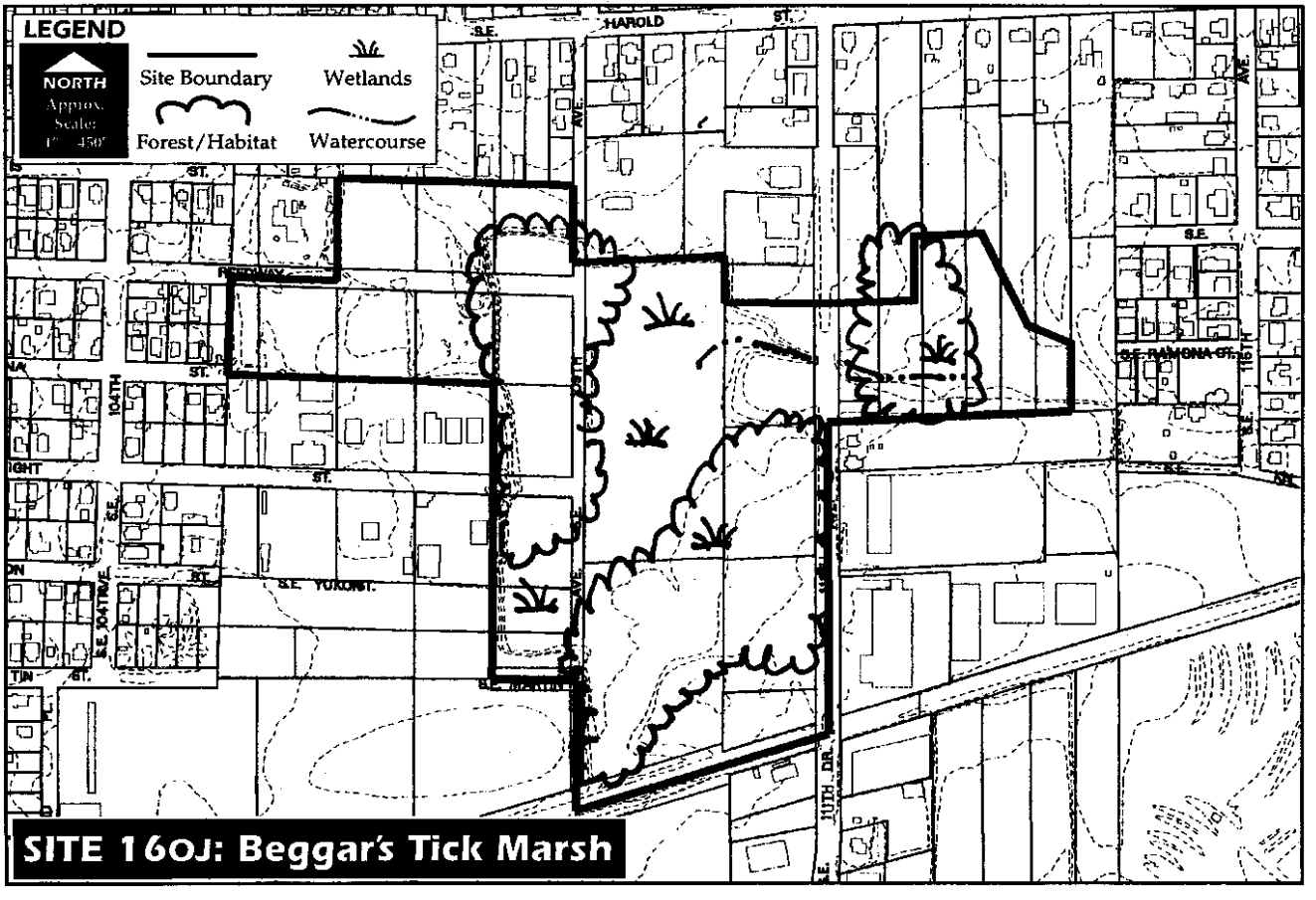
HABITAT CLASSIFICATION

- Palustrine, Emergent Persistent (plants), Permanently, Semipermanently, and Seasonally Flooded.
- Palustrine, Scrub-Shrub, Semipermanently and Seasonally Flooded.

GENERAL DESCRIPTION

This is the highest-rated site in the Johnson Creek basin. It is located in and maintained by Multnomah County as a wildlife habitat preserve. Its primary significance is the plant diversity, which in turn supports a greater wildlife diversity.

Beggar's Tick is a 20-acre marsh surrounded by residential and industrial development. The littoral is a dense growth of blackberry, willow, and hawthorne. About 20% of the inundated area consists of emergent cattail, spike-rush, sedge, and spirea. The marsh provides resting area and food for a large diversity of wintering waterfowl, as well as habitat for reptile, amphibian, and aquatic mammal (muskrats, beavers) species. More than one hundred ducks were counted during a January visit to the site. The surrounding vegeta-



tion provides food, cover, nest, and perching habitat for passerine, raptor, pheasant, and small mammal species. This high quality natural area serves as an island refuge for diverse wildlife species which formally occupied the surrounding urban region. The diversity and number of birds observed illustrate the importance of the marsh as a habitat for wintering species.

The educational potential is extremely high. The marsh is surrounded on all sides by residential and commercial/industrial development. People with horses ride through the marsh in the summer months when water levels are low. Some bird watching and fishing occurs. Local residents could be educated about source and non-point source pollution, storm water retention, and the flora and fauna of a wetland.

Beggars Tick Marsh has been included in this inventory because of its proximity to Johnson Creek, as an example of an undisturbed and relatively large wetland, and because of its hydrologic connection to Johnson Creek (which is presently not well understood but being studied).

QUANTITY OF RESOURCES

Wetland sites of 20 acres within the urban area are rare and provide important habitat for many songbird, waterfowl, mammal and herptile species. The diversity of the scrub/shrub and emergent wetland promotes greater wildlife species diversity.

QUALITY OF RESOURCES

Beggar's Tick Marsh is one of the highest ranking sites for wildlife habitat value within the City of Portland. It has been designated as one of the model sites for this study, representing a predominantly native wetland plant community. It is hoped that other sites within the basin can be modeled after Beggar's Tick Marsh in terms of plant species diversity, design, and creation of wetland, restoration, or enhancement projects.

Score for Wildlife Habitat Value: 83	**Range for all sites** = 18 to 83
Vegetation:	
Food (variety)	high
Cover(structural diversity)	high
Human Disturbance:	medium
Interspersion:	medium

SITE-SPECIFIC ESEE COMMENTS

This site is owned and in the jurisdiction of Multnomah County. The site was acquired by the County in 1968 to serve as flood storage. In 1987, the County rezoned the property from light industrial to low density residential in order to preserve its natural qualities. It has recently been zoned as Open Space, and the County has taken steps to protect the natural resource values. The City of Portland has no authority to control zoning or protection of this habitat area.

The management plan for Beggar's Tick Marsh prepared by Multnomah County states that contaminants from surrounding industrial land uses adversely impact the resource, as do garbage dumping and inappropriate recreation uses like horseback riding through the marsh.

SITE 17: 112th - 117th Meadow Map: 3741

SITE SIZE: 27 acres
LOCATION: Springwater Line (N), SE 110th Avenue (W), extension of SE 117th Avenue (E), and SE Brookside Drive (S).
NEIGHBORHOOD: Powellhurst-Gilbert
DATE OF INVENTORY: March 1987, July and August 1990, April and July 1991

HABITAT CLASSIFICATION

- Riverine, Lower Perennial, Permanently Flooded, Unconsolidated Bottom.
- Palustrine, Emergent Persistent, Seasonally Flooded.

GENERAL DESCRIPTION

This site includes an abandoned, 16-acre pasture and wetland that is presently dominated by reed canarygrass, blackberry, and willow. The streambank is overgrown with blackberries and small strips of willow. On the southern boundary of the site there is approximately a 50-foot wide strip of deciduous trees that buffer this site from the adjacent and relatively new, residential subdivision. Land bordering SE Foster Road is zoned commercial and industrial, and is presently generally a mix of this and low-density residential uses. A drive-in theater is located on the northern side of SE Foster Road, south of the Springwater line.

Large expanses of reed canarygrass provide habitat for birds and small mammals. Adjacent forests bordering on the east provide perch sites for raptors who feed on small mammals. This site provides an important function of providing flood storage during peak flooding.

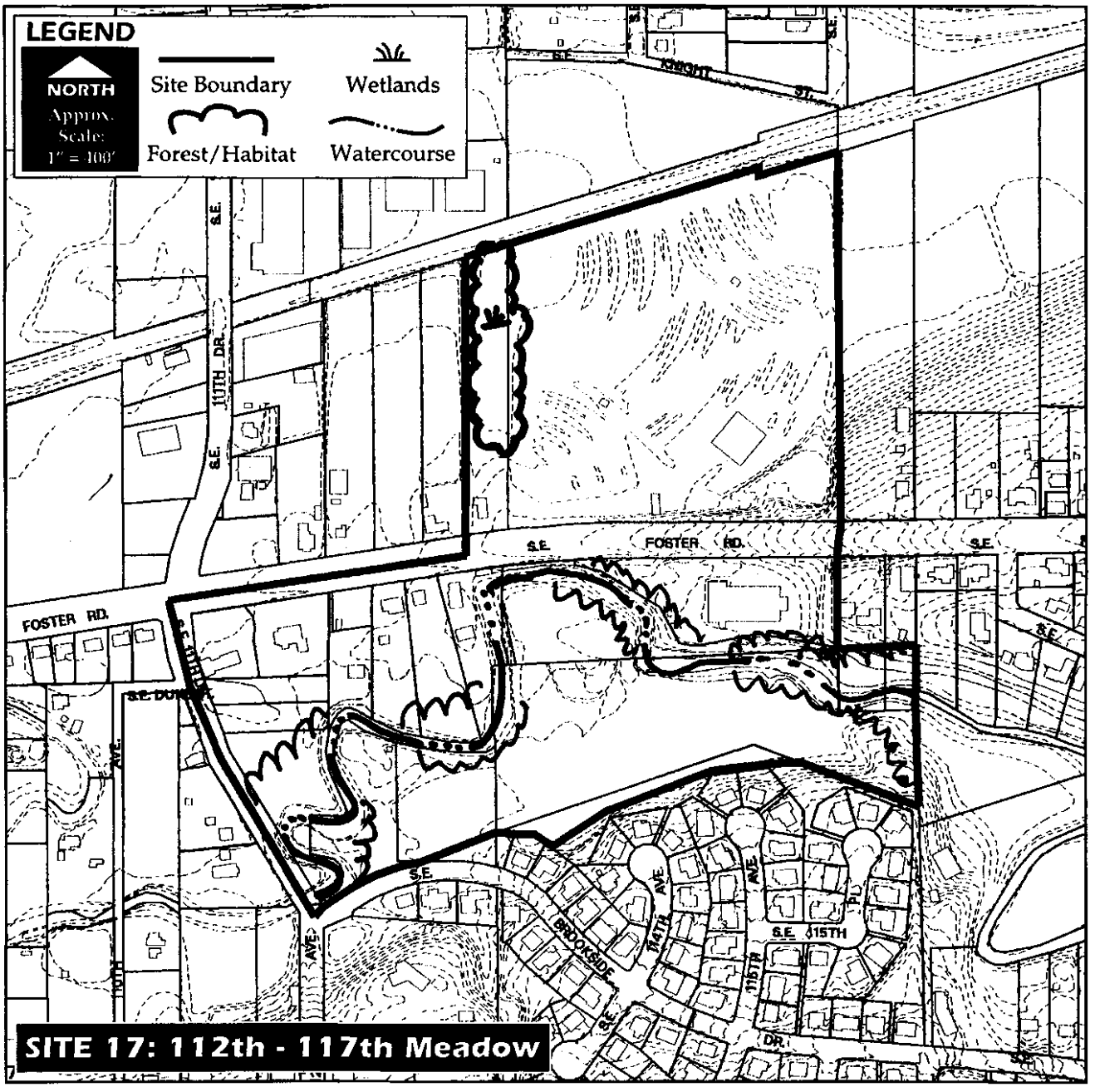
SIGNIFICANT RESOURCE VALUES

Water, storm drainage, scenic, fish and wildlife habitat including connection between Johnson Creek and Beggar's Tick Marsh, pollution and nutrient retention and removal, sediment trapping, recreation

QUANTITY OF RESOURCES

Only about five of the twenty-seven acres on this site are developed. The combination of wetland, open grassland, deciduous trees, and adjacent coniferous forest is uncommon within the Johnson Creek Basin. This range of habitat type supports a diversity of species. The curvilinear character of the creek and gradual grades result in a Floodway that extends over two-thirds of the site. The Floodway or wetland area is up to 400 feet wide, narrowing to 70 feet at the eastern edge. Three-fourths of the remainder of the site is in the 100-year flood plain.

The open space north of SE Foster Road acts as a wildlife corridor, allowing the potential for wildlife recharge from Johnson Creek to Beggar's Tick Marsh, a significant natural resource fully protected by Multnomah County.



QUALITY OF RESOURCES

Although the wetland area along Johnson Creek has been disturbed and is dominated by Himalayan blackberry and reed canarygrass, it provides an important wildlife habitat function within the Johnson Creek basin. The combination of meadow, wet meadow, forest, riparian and creek habitat allows use and travel by a large diversity of wildlife species. Since none of the property within the Floodway is developed there is little or no property damage caused by flooding.

A small pond with an island has been created in the north-central portion as mitigation for wetland fill in the southwest, adjacent to SE Brookside Drive. This provides still water and a relatively protected spot for birds from neighborhood pets.

Adjacent residential development has provided pedestrian access easements to an open space strip that borders the creek property. This allows the opportunity for viewing wildlife and suggests use of the area by children and domestic animals.

The combination of habitats is an uncommon and valued resource within the Johnson Creek basin. The diversity of habitats present supports a diversity of species.

Score for Wildlife Habitat Value: 71*	**Range for All Sites** = 18 to 83
Vegetation:	
Food (variety)	medium
Cover(structural diversity)	medium
Human Disturbance:	medium
Interspersion:	medium

* Because of structural similarities, the open space portion of the site north of SE Foster Road was inventoried as part of Site 16OJ (Beggar's Tick Marsh), but because it is within the city limits, it has been included inside Site 17.

MANAGEMENT RECOMMENDATIONS

Retaining and enhancing the existing habitats will add to the aesthetic and economic value of the nearby residential properties. Undeveloped and vacant land, particularly the wetland and open space directly west of the Foster Drive-In and the drive-in itself, should be considered for flood retention or detention areas, as well as continuing to function as a wildlife corridor.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES:

Zones	Area affected by EC Zone	Area Affected by EP Zone
EG2	1 acre	<1 acre
CG	2	<1
IG2	2	0
R10	8	6

SITE-SPECIFIC ESEE COMMENTS

Conflicting Uses: Single family residential development to the south and west, commercial and light industrial development north of Johnson Creek, along the south side of SE Foster Road. General industrial development along the north side of SE Foster Road.

Consequences of allowing Conflicting Uses: Not protecting the resource would likely result in development that would be subject to annual flooding damage similar to the site to the west. There would also be a loss of habitat and habitat diversity that is rare within the Johnson Creek drainage basin. Beggar's Tick Marsh, a wildlife refuge that is fully protected by Multnomah County, may lose wildlife species and population over time due to the loss of a corridor connection for population recharge between it and Johnson Creek.[1]

1 The January 1987 issue of the Natural Areas Journal contains several articles on habitat fragmentation, patch dynamics, and the values of wildlife corridors. Additionally, Michael Soule's article "Land Use Planning and Wildlife Maintenance", Journal of the American Planning Association, Summer 1991, describes wildlife population and species impacts resulting from habitat fragmentation, corridor destruction, and adverse urban impacts.

Consequences of limiting or prohibiting Conflicting Uses: About 80% of the four acres zoned Commercial General on this site is in the Floodway. Protecting the resource will result in a loss of this potentially developable land. In order to protect the resources while achieving the comprehensive plan, residential density, it will be necessary to have attached, clustered units. This can be done on the filled land adjacent to SE Brookside Drive.

Protection of open space created by this habitat area would have a positive economic effect on the value of the existing Northern Lights subdivision because of proximity and access to view wildlife. There are four pedestrian access easements from Northern Lights to a part of this open space area (see zoning map).

Protection of resources north of SE Foster Road would remove land from potential industrial development. Use of it for stormwater retention or detention in conjunction with an overall flood control plan for the Johnson Creek basin would, however, result in greater development opportunities throughout lands in the existing flood plain.

SITE 18: Leach Garden/Canyon — Maps: 3742, 3743

SITE SIZE: 41 acres
LOCATION: Near SE Foster Place (N); SE Brookside Drive and SE 122nd Avenue (S); SE 128th Avenue (E); and SE 117th Avenue (W).
NEIGHBORHOOD: Pleasant Valley
DATE OF INVENTORY: February 1987, June and September 1990, October 1996

HABITAT CLASSIFICATION

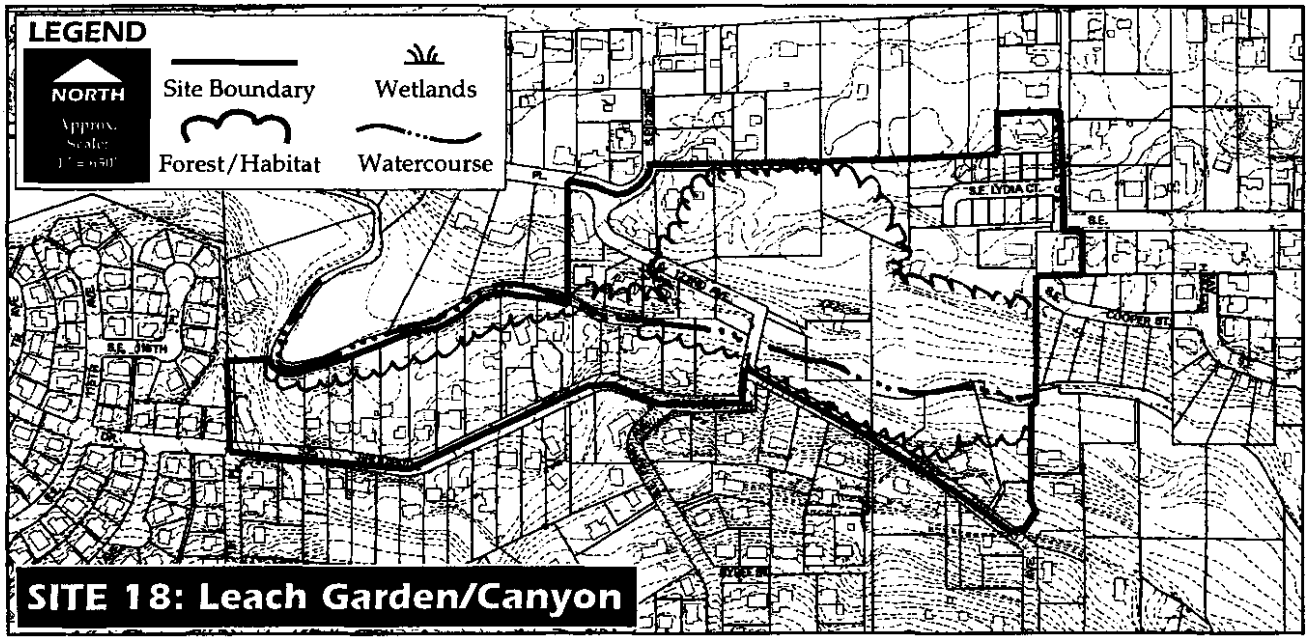
- Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded.
- Palustrine, Forested, Deciduous/Conifer, Seasonally Flooded and Saturated.

GENERAL DESCRIPTION

The entire site, as well as surrounding area, is zoned and developed in single family residential or recreation (Leach Botanical Garden) use. The canyon provides a secluded, forested setting which is taken advantage of in the botanical garden development.

The creek channel is rip-rapped and overgrown with blackberry. Dominant vegetation influencing the channel is a mixed forest of Douglas fir, cedar, alder, cottonwood, maple, willow, and various ornamental trees, as well as lawns and gardens. Several tributary streams enter Johnson Creek on the south side coming down from the Cedar Creek Watershed in the Lava Domes providing connectivity to Resource Site 30, Just to the west, a broad floodplain bordered by forested slopes occurs at a large s-curve in Johnson creek.

Interspersion of this area is high, lying near large forested areas such as Powell Butte north of the creek, the Lava Boring Hills south, and the developed and undeveloped portions of Leach Botanical Garden and Bundy Park (SE 142nd and Cooper). This juxtaposition of the creek channel with large forested natural areas and parks provides not only an important source of water to animals that use the larger forested areas, but also serves as a corridor providing cover and food for movements and dispersals between the areas.



Leach Botanical Garden, straddles Johnson Creek and is located in this site area at 6704 SE 122nd Avenue. It is a historic and environmental education resource and designated as a "scenic resource" by the City. It has a Rank 1 status on the City of Portland's, Historic Inventory and is eligible for the National Register. The colonial revival-styled home was built in 1933 by John and Lilla Leach. Mrs. Leach was a nationally known botanist with particular interest in native plants and Mr. Leach was a local pharmacist and civic leader. The property is now owned by the City of Portland and operated by a non-profit organization. Environmental education programs are offered, and the creek and garden are used as outdoor classrooms.

SIGNIFICANT RESOURCE VALUES

Water, storm drainage, scenic, fish and wildlife habitat, aesthetics, heritage, flood storage, pollution and nutrient retention and removal, sediment trapping, recreation, and education

QUANTITY OF RESOURCES

This site is made up of half-acre-plus sized lots that are occupied with homes constructed in the 1950s. The oversized lot sizes have allowed for the natural growth of Douglas Fir and Western Red Cedars trees to remain. The forest canopy is intact and the surrounding low-density residential provides a quiet setting that is conducive to wildlife.

Natural understory areas have been replaced with lawns and exotic garden plants. The riparian area on each side of the creek is generally less than 30-feet wide, dominated by blackberries, willows, and alders. Due to the steepness of the canyon walls, the Floodway is confined to a narrow strip that is generally 100 feet wide, with the 100-year flood plain somewhat less. An exception to this is the broad—up to 300 foot-wide—floodplain where the creek makes an s-curve in the vicinity of SE 117th.

From SE 117th Avenue east, Johnson Creek follows the base of the north slope of Mt. Scott. The canyon walls rise 70 feet from the creek channel with 20% slopes. Interspersion of this area is high, being near large forested areas such as Powell Butte to the north of the creek, the Boring Lava Hills to the south, and the developed and undeveloped parks of Leach Botanical Garden and Bundy Park (SE 142nd Avenue and SE Cooper Street).

QUALITY OF RESOURCES

This site received a score of 69, which is a relatively high rating. The forest overstory remains, but the riparian understory has been largely replaced with residential gardens, reducing the quality and amount of habitat area.

Score for Wildlife Habitat Value: 69	**Range for All Sites** =18 to 83
Vegetation:	
Food (variety)	medium
Cover(structural diversity)	medium
Human Disturbance:	high
Interspersion:	medium

MANAGEMENT RECOMMENDATIONS

To enhance this site for both wildlife and recreation, native vegetation should be planted along the entire channel in the riparian zone and within the forest canopy area to shade and control the water temperature extremes of Johnson Creek and to replace habitat lost by infill development. Riprapping should be removed to increase the amount of area for plant growth, nesting, and fish spawning. Replacement of lawn with riparian plant species would increase habitat diversity.

SITE-SPECIFIC ESEE COMMENTS

Consequences of allowing Conflicting Uses: The parcels in this area are characteristically, half-acre lots with over 300 feet of depth making them suitable for partitioning into two lots. Due to the oversized lots, it appears that infill development and resource protection can occur simultaneously. Consideration will need to be given to preventing erosion during site construction and to retention of vegetation. In some cases the location of existing homesites will limit infill development.

Property values in the area would likely drop if the native vegetation, particularly the Douglas fir and western red cedar, were removed as infill development occurs. It is the canyon slopes, creek, and forest cover that creates the unique neighborhood character.

Consequences of limiting or prohibiting Conflicting Uses: Protection will reinforce the social and economic value placed on the natural beauty of this neighborhood. Protecting the forest and creek habitat in this area will reinforce the character of Leach Botanical Garden and the public investment made there.

SITE-SPECIFIC COMPATIBLE USES AND ACTIVITIES

- Development in conformance with the *Resource Management Plan for Leach Botanical Garden.*

Conclusion and Conflict Resolution

Site 18 is the western end of the 2nd canyon within the study area. The canyon extends between 117th and 145th Avenues. It is a forested, urban wilderness with scenic and habitat value. It is zoned low-density residential and open space; the open space area is Leach Botanical Garden, an 11-acre part of the 41-acre site. The creek corridor, floodplains, and adjacent banks warrant the highest level of protection. The creek is a significant, irreplaceable resource, and major wildlife habitat corridor with City-wide significance. The creek also provides important storm water conveyance and urban design functions.

Decision

The decision for Site 18 is to fully protect the Floodway and 100-year flood plain; to allow limited conflicting uses to an adjacent 50 to 400 feet; and to fully allow conflicting uses on the balance of the site.

Prohibit Conflicting Uses

The fully protected area along the creek is 100-foot wide. The fully protected area covers the essential aspects of the resources; the creek and adjacent banks. The creek is a significant, irreplaceable resource warranting full protection. The fully protected resource values

include fish and wildlife, storm drainage, flood storage, pollution and nutrient retention and removal, sediment trapping, recreation, heritage, education, and public access to the creek which is provided at Leach Botanical Garden.

Allow Limited Conflicting Uses

The limited conflicting uses (EC zone) area extends 50 to 400 feet from the fully protected area (EP zone) and in a 75 foot-wide area along the two tributaries to the south. The resource and economic benefits of allowing development both have value. Allowing flexibility in development is necessary in order to balance the two objective of protection and development in order to have positive ESEE consequence. The delineation is based on Floodway and flood plain (based on F.E.M.A. Hazard maps) locations, topography, tree cover, and conflicting use analysis.

Allow Conflicting Uses Fully*

The decision to allow conflicting uses fully on about 63% of the 41-acre site will allow in-fill development on the .75 to 1-acre sized parcels. The unprotected area occurs on the developed upland slopes away from the creek where existing development and infrastructure exists. The economic value of the in-fill development outweighs the resource value. This area can be developed without negatively impacting the adjacent resources.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES:

Zone	Area Affected by EC Zone	Area Affected by EP Zone
R10	5.4 acres	8.4 acres
OS	6	2

* Johnson Creek Basin Plan District regulations (Chapter 33.535) apply.

SITE 19: 127th-131st (South of Cooper) Map: 3743

SITE SIZE: 34 acres
LOCATION: SE 127th Avenue (W); SE 131st Avenue (E); North of Flavel St. (S).
NEIGHBORHOOD: Pleasant Valley
DATE OF INVENTORY: February 1987, September 1990, October 1996

HABITAT CLASSIFICATION

- Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded.
- Palustrine, Forested, Deciduous/Conifer, Seasonally Flooded and Saturated.

GENERAL DESCRIPTION

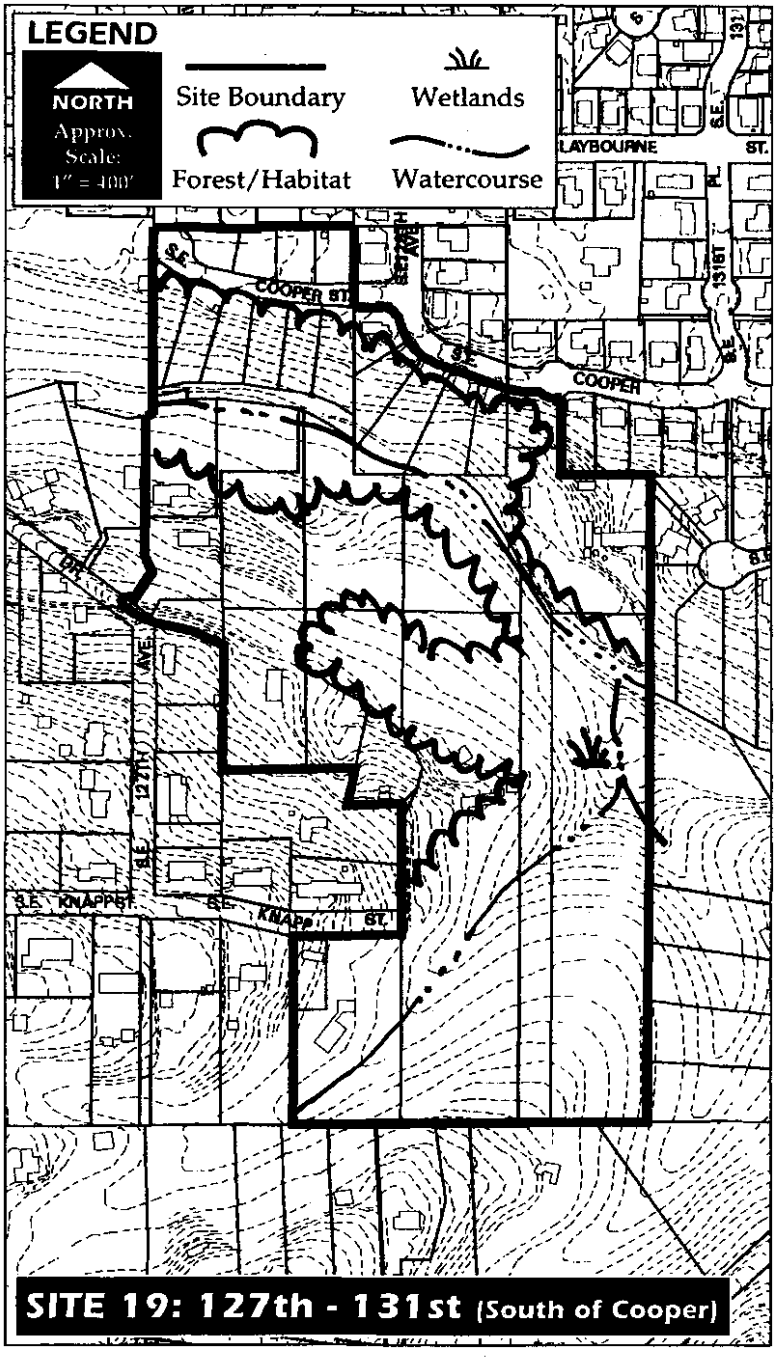
The site is a mix of developed and undeveloped single family residential land, surrounded by similar uses. Areas which have not been subdivided are largely open fields or are forested.

SIGNIFICANT RESOURCE VALUES

Water, storm drainage, fish and wildlife habitat, aesthetics, scenic, flood storage, pollution and nutrient retention and removal, sediment trapping.

QUANTITY OF RESOURCES

The creek and canyon character are the same as the site to the west (Site 18). There are 20%-sloped canyon walls that rise 70 feet above the creek. A significant tributary stream passes through the southern portion of the site and feeds into Johnson Creek. Sixty percent of the 34-acre site has a mixed, deciduous/coniferous forest cover, 30% is open pastureland, and about ten percent is developed with homes. There are no roads through this site to cut-off or disrupt animal access to the creek. Steep slopes may impede animal access to the creek in some areas.



QUALITY OF RESOURCES

Other than past logging and conversion of forest land to agricultural land, this site has little disturbance. This mid-section of the (second) Johnson Creek canyon has relatively high quality due to the combinations of habitats that are adjacent to one-another, including riparian strip, open grassland, upland, and mixed forest. No roads and the few homes (five or so) provide a relatively quiet, natural area with cover and food, and where wildlife can move freely.

Interspersion of this area is high, lying near large forested areas such as Powell Butte to the north of the creek, the Lava Boring Hills to the south and the developed and undeveloped parks of Leach Botanical Garden and Bundy Park (SE 142nd and Cooper). A forested tributary to Johnson Creek provides good connectivity to the adjoining Lave Domes habitats.

Score for Wildlife Habitat Value: 67	**Range for All Sites** =18 to 83
Vegetation:	
Food (variety)	medium
Cover(structural diversity)	medium
Human Disturbance:	medium
Interspersion:	medium

MANAGEMENT RECOMMENDATIONS

To enhance this site for both wildlife and recreation, it is suggested that native vegetation be encouraged along the entire channel in the riparian zone and forest canopy be retained and expanded, to shade and control summer water temperature of Johnson Creek.

SITE-SPECIFIC ESEE COMMENTS

Consequences of allowing Conflicting Uses: The whole site is zoned R10, low density residential. Allowing unchecked residential development would result in continued degradation of the water quality caused by erosion of the highly erodible, clayey soils. Indiscriminate removal of vegetation would reduce habitat area, affect water temperature, and reduce detritus material for fisheries.

Consequences of limiting or prohibiting Conflicting Uses: This site is part of the Powell Butte Mt. Scott Plan District area, where consideration is given to protecting more-difficult-to-build-on areas of the site. Planned-unit development is an option where density is transferred from one area of the site(s) to another. Limiting residential development to flatter, more upland areas, away from stream and creek drainages will help keep development costs lowered, thus reducing housing costs while also protect habitat areas and limit soil erosion into Johnson Creek.

<u>Conclusion and Conflict Resolution</u>

Site 19 a 34-acre site is one of the least developed sites in the study area. The site has significant scenic value, is rural in character, and primarily wooded with some open pasture land. To the north of the creek the slopes descend 70 feet into a well-defined canyon where Johnson Creek is located. The creek is a significant, irreplaceable resource with City-wide significance for its' function as a major wildlife habitat corridor, drainage system, and

contributor to neighborhood identity. Forested slopes and a tributary stream provide good habitat connectivity to the south.

The site has important resource values and conflicting use values. In order to balance providing needed housing and protection of the natural resources, a combination of protection levels have been applied. This site has a housing potential for at least 85 additional units. This amount of units can be achieved on the site by clustering the units.

Decision

The decision for Site 19 is to fully protect the Johnson Creek channel and adjacent banks and the tributary stream to the south that is part of the "Wahoo Creek" watershed contained in Site 30. The remainder of the site with tree-cover and/or slopes that exceed 30% warrant directed protection. Developed or improved areas do not warrant protection. This decision is based on the habitat resource inventory, soils, slopes, tree cover, and conflicting use analysis.

Prohibit Conflicting Uses

The fully protected area corresponds with the Floodway and 100-year flood plain which are uniformly 50-feet wide on the bottom of the deep, well defined canyon. A significant tributary stream south of Johnson Creek also warrants full protection. The resource values fully protected include water purification, storm drainage, flood storage, fish and wildlife habitat, scenic, pollution and nutrient retention and removal, and sediment trapping.

Allow Limited Conflicting Uses

The decision to allow limited conflicting uses applies to about 75% of the 34-acre site. The delineation corresponds to areas with tree-cover and/or slopes not associated with the creek that exceed 30%. This decision allows residential development where impacts on the resources are controlled or mitigated. This decision balances resource protection and development opportunities resulting in positive ESEE consequences. The protected resource values include water purification, storm drainage, flood storage, fish and wildlife habitat, scenic, pollution and nutrient retention and removal, and sediment trapping.

Allow Conflicting Uses Fully*

The area where conflicting uses may fully occur are located on the periphery of the site where the resources have been removed and infrastructure exists. Allowing full development of this area will have positive economic consequences. The erosion control regulations implemented through the Building Bureau will adequately protect the creek and site resources without additional environmental protection.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES:

Zone	Area Affected by EC Zone	Area Affected by EP Zone
R10	actual 14 acres reduced to 5.7	11.3 acres
R10 SEC	1	2

* Johnson Creek Basin Plan District regulations (Chapter 33.535) apply.

SITE 20: Deardorf Road (West) Map: 3744

SITE SIZE: 22 acres
LOCATION: Near 131st Avenue (W); South of SE Knapp Street (S); SE Deardorf Road (E); and near SE Blackberry Circle (N.)
NEIGHBORHOOD: Pleasant Valley
DATE OF INVENTORY: February 1987, September 1990, October 1996

HABITAT CLASSIFICATION

- Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded.
- Palustrine, Forested, Deciduous/Conifer, Seasonally Flooded and Saturated.

GENERAL DESCRIPTION

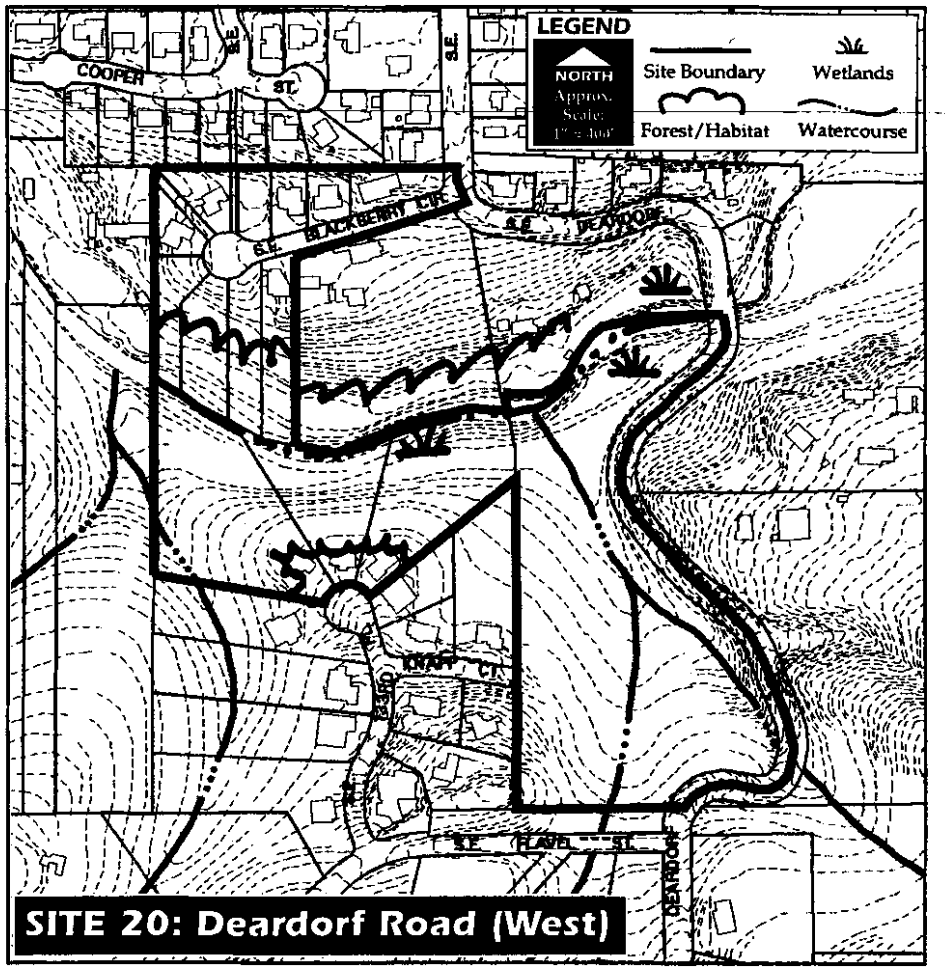
Most of this site is undeveloped, with single family subdivisions to the north and south. The creek bisects the site in an east-west direction. A tributary stream enters the site from the south (Site 30) at SE Flavel.

SIGNIFICANT RESOURCE VALUES

Water, storm drainage, fish and wildlife habitat, aesthetics, flood storage, pollution and nutrient retention and removal, sediment trapping.

QUANTITY OF RESOURCES

Two-thirds of this 22 acre site is forested with a mixed deciduous/ coniferous forest. On the south side of the creek there is an intermittent stream that runs through an undeveloped, eight-acre parcel that is parallel and west of Deardorf Rd. The grades are relatively steep on both sides of Johnson Creek, ranging from 10 to 20% and up to 35% along tributaries. The dryer north side appears ready for development. There is a relatively new street surrounded by a four acres of open, grass-covered land.



QUALITY OF RESOURCES

The Johnson Creek channel is riprapped and overgrown with blackberry. Dominant vegetation influencing the channel is a mixed forest of Douglas-fir, cedar, alder, cottonwood, maple, willow and various ornamental trees, as well as lawns and gardens. The creek is well-shaded throughout this stretch with some pools providing habitat for fish and other aquatic species. Interspersion of this area is high, lying near large forested areas such as Powell Butte to the north of the creek, the Lava Boring Hills to the south and the developed and undeveloped parks of Leach Botanical Garden and Bundy Park (SE 142nd and Cooper). This juxtaposition of the creek channel with large forested natural areas and parks provides not only a potential important source of water to animals that use the larger forested areas, but also acts as a corridor providing cover and food, and movement and dispersal between sites. A forested tributary to the south provides high quality habitat and connectivity to Lava Domes habitats in Site 30. This site shows the impacts of human use (residential development and riprap) on the stream corridor. A covered bridge along Deardorf Road crosses the creek at this section. There is a lot of garbage along and in the creek on both sides of the road.

Score for Wildlife Habitat Value: 65	**Range for All Sites** = 18 to 83
Vegetation:	
Food (variety)	medium
Cover(structural diversity)	medium
Human Disturbance:	medium
Interspersion:	medium

MANAGEMENT RECOMMENDATIONS

To enhance this site for both wildlife and recreation it is suggested that natural vegetation be encouraged along the entire channel in the riparian zone and encourage a forest canopy to shade and control the water temperature extremes of Johnson Creek.

SITE-SPECIFIC ESEE COMMENTS

Consequences of allowing Conflicting Uses: The whole site is zoned R10, low density residential. Allowing unchecked, residential development would result in continued degradation of the water quality caused by erosion of the clayey soils. Indiscriminate removal of vegetation would reduce habitat area and adversely impact the temperature and condition of the stream and reduce detritus material for fisheries.

Consequences of limiting or prohibiting Conflicting Uses: The majority of the 22-acres is undeveloped land. R10 density can be achieved while protecting the habitat if there is careful site analysis and construction, and clustering of units. In order to disrupt the least amount of ground and habitat, attached units are the best solution. Attached units would have an energy savings benefit created by common wall construction. There would be a social benefit of providing a housing type other than single-family residential, while also having the enjoyment of natural surroundings.

Conclusion and Conflict Resolution

Site 20 is significant as a highly scenic, well-vegetated part of the study area that has medium to high habitat value. This site extends north and south of the creek. There is a

covered bridge over Johnson Creek in Site 20 that is a Goal 5-designated, scenic resource. Adjacent the bridge is an undeveloped, 8-acre wooded parcel that gently slopes north and has a seasonal creek through the middle of it. The site has important resource values and conflicting use values. This residentially-zoned, 22-acre site has housing potential for at least 20 additional units. In order to balance needed housing and resource protection, a combination of protection levels are appropriate.

Decision

The decision for Site 20 is to protect the most valuable site resources that correspond to about half of the site and to allow conflicting uses fully on half the site. See specific descriptions below.

Prohibit Conflicting Uses

The area where conflicting uses are prohibited is uniformly 50-feet wide along the channel that is located in a well-defined canyon. Full protection is necessary in order to ensure protection of the creek, an irreplaceable resource with City-wide environmental value. This level of protection is consistent throughout the study area. Full protection is further warranted along the significant tributary feeding Johnson Creek from the south. The protected values include water purification, fish and wildlife habitat, scenic, recreational, education, and storm and flood storage values.

Allow Limited Conflicting Uses

The area where limited conflicts are allowed (EC zone) is a 40-to-200 foot wide area adjacent the fully protected Johnson Creek and its tributary within the 8-acre undeveloped, wooded parcel. This level of protection will achieve positive ESEE consequences by balancing natural resource protection and housing potential. The protected resource values include wildlife habitat, scenic, sediment trapping, recreation, and education.

Allow Conflicting Uses Fully*

On the north side of Johnson Creek only a 50-foot wide area is protected; north of this area, conflicting uses may fully occur. This decision is based on the habitat resource inventory and conflicting use analysis; this area has been cleared and a recently constructed street provides access.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES:

Zone	Area Affected by EC Zone	Area Affected by EP Zone
R10	2 acres	10 acres

* Johnson Creek Plan District (Chapter 33.535) regulations apply.

SITE 21: Deardorf Road (East) Map: 3744

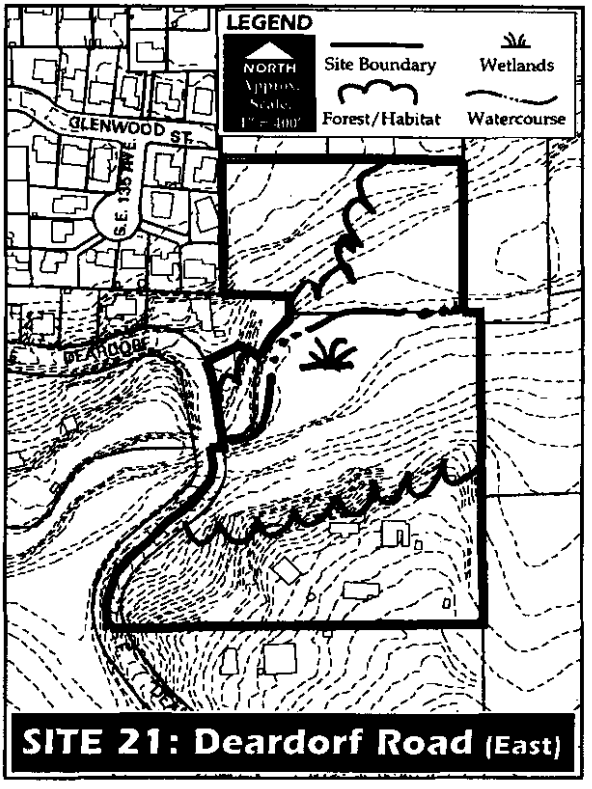
SITE SIZE: 13 acres
LOCATION: SE Deardorf Rd. (W); 750 feet west of SE Deardorf Rd. (E); City Limits east of SE Glenwood Dr. (N); and north of SE Clatsop Street (N)
NEIGHBORHOOD: Pleasant Valley
DATE OF INVENTORY: February 1987, September 1990, October 1996

HABITAT CLASSIFICATION
- Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded.
- Palustrine, Forested, Deciduous/Conifer, Seasonally Flooded and Saturated.

GENERAL DESCRIPTION
The present condition of the site is undeveloped with only two homes and upland northern and southern halves of the site in agricultural uses. The more severely sloping areas on each side of the creek have at least a 200-foot wide area that is in forest cover. The floodplain widens as you move east across the site.

SIGNIFICANT NATURAL RESOURCES
Water, storm drainage, fish and wildlife habitat, aesthetics, flood storage, pollution and nutrient retention and removal, sediment trapping.

QUANTITY OF RESOURCES
This 13-acre site is made up of two parcels that are both occupied with homes and used partially for agricultural uses. Half of the site is in a natural condition with second growth mixed deciduous/coniferous forest, and the rest is open field and pastureland located on the flatter, upland areas away from the creek.
The floodplain broadens out to a width of 400 feet at the east end of the site. Land north of the site is in single family residential development, while the south side is bordered by forests or agricultural uses.



QUALITY OF RESOURCES
The channel is rip-rapped and overgrown with blackberry. The dominant vegetation influencing the channel are a mixed forest of Douglas-fir, cedar, alder, cottonwood, maple, willow, and various ornamental trees, as well as lawns and gardens. The creek is shaded throughout this site and has some pools, providing relatively good habitat for fish and other aquatic species. Interspersion of this area is high, lying near the large forested areas of Powell Butte to the north of the creek, the Lava Boring Hills to the south and the developed and undeveloped parks of Leach Botanical Garden and Bundy Park (SE

142nd Avenue and SE Cooper Street). This juxtaposition of the creek channel with large forested natural areas and parks provides not only a potential important source of water to animals that use the larger forested areas but also acts as a corridor providing cover and food, and for movements and dispersals between areas.

The canyon begins to open up allowing a broad floodplain within this stretch of the creek, and adjacent agricultural uses are present. These agricultural uses decrease the habitat quality through chemical runoff, clearing of vegetation, and sedimentation. A covered bridge crosses the creek at this location. There is a lot of garbage along and in the creek on either side of the road.

Score for Wildlife Habitat Value: 63	**Range for All Sites** = 18 to 83
Vegetation:	
Food (variety)	medium
Cover(structural diversity)	medium
Human Disturbance:	low
Interspersion:	medium

MANAGEMENT RECOMMENDATIONS

To enhance this site for both wildlife and recreation, it is suggested that native vegetation be encouraged along the entire channel in the riparian zone and a forest canopy shade Johnson Creek.

SITE-SPECIFIC ESEE COMMENT

Consequences of allowing Conflicting Uses: There is a potential for about forty-two additional housing units on this site. Allowing unchecked, residential development would result in continued degradation of the water quality caused by erosion of the clayey soils. Indiscriminate removal of vegetation would reduce habitat area, shading of the creek, and the amount of detritus material for fisheries.

Consequences of limiting or prohibiting Conflicting Uses: Residential density can be achieved while protecting the habitat through careful site analysis, construction, and clustering of units. In order to disrupt the least amount of ground and habitat, attached units would be the best solution. Attached units would have an energy savings benefit created by the common-wall construction. There would also be the social benefit of providing a housing type other than single-family residential, while also having the enjoyment of natural surroundings.

Conclusion and Conflict Resolution

Site 21 is significant because it contains Johnson Creek, is part of the Boring Lava Hills, and the eastern terminus of a 7,500 foot-long canyon. There are 40% slopes that rise 70 feet above the 400-foot wide flood plain. The slopes are half forested and half in pasture land and there are 2 homes on the site. The habitat value is moderate with a wildlife habitat value of 63 (range for all site is 18 to 83). The site has important resource values and conflicting use values. This residentially-zoned, 13-acre site has housing potential for at least 20 additional units. Based on the habitat inventory and ESEE analysis both housing development and resource protection can be achieved by applying a combination of protection levels.

Decision

The decision for Site 21, a 13-acre site is to fully protect the creek corridor (equivalent to 1-acre) and floodplain; to allow limited conflicting uses on 5 acres; and to allow full development* of the outer portions of the site or about 7 acres.

Prohibit Conflicting Uses

The fully protected area over the channel is based on the top of bank and is 50 to 100 feet wide. Fully protecting the channel and floodplain is commensurate with the protection level for the rest of the channel and the quality, rarity, and City-wide significance of Johnson Creek as a wildlife, storm drainage, and flood storage corridor. The fully protected resource values include water purification, storm drainage, fish and wildlife habitat, scenic, flood storage, pollution and nutrient retention and removal, sediment trapping.

Allow Limited Conflicting Uses

The area where limited conflicts are permitted is on the primarily forested slopes adjacent the fully-protected creek channel. This area is primarily forested and covers about 5-acres. This level of protection balances the need for housing and the associated economic benefits with resource protection. The amount of units allowed under the R10 zone is achievable particularly through clustering of the units on lots less than 10,000 square feet. The protected resource values include wildlife habitat, scenic, pollution and nutrient retention and removal, sediment trapping.

Allow Conflicting Uses Fully*

The area where conflicting uses are fully allowed is south of the crest of the slope (400 feet south of the creek) where the forest is no longer contiguous and where some development occurs. This site is best suited for development because it is relatively flat and is where the forest canopy is broken-up (non-contiguous) and therefore, has less habitat value.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES

Zone	Area Affected by EC Zone	Area Affected by EP Zone
R10	2 acres	4 acres

* The Johnson Creek Plan District (Chapter 33.535) applies which has environmental protection provisions.

SITE 22: Bundy Park Canyon — Map: 3744

SITE SIZE: 14 acres
LOCATION: Bundy Park and areas east on SE Cooper Street, and Tract C of Eastridge Park Subdivision
NEIGHBORHOOD: Pleasant Valley
DATE OF INVENTORY: February1987, June 1990, October 1996

HABITAT CLASSIFICATION

- Palustrine, Emergent Persistent Permanently, Semipermanently, and Seasonally Flooded.
- Palustrine, Forested, Semipermanently and Seasonally Flooded.

GENERAL DESCRIPTION

Bundy Park , a well-kept secret, is a 3.6-acre City park accessible only be a narrow dirt road (SE 141st Avenue) off SE Foster Road. The rest of the site is open space or undeveloped property abutting the park.

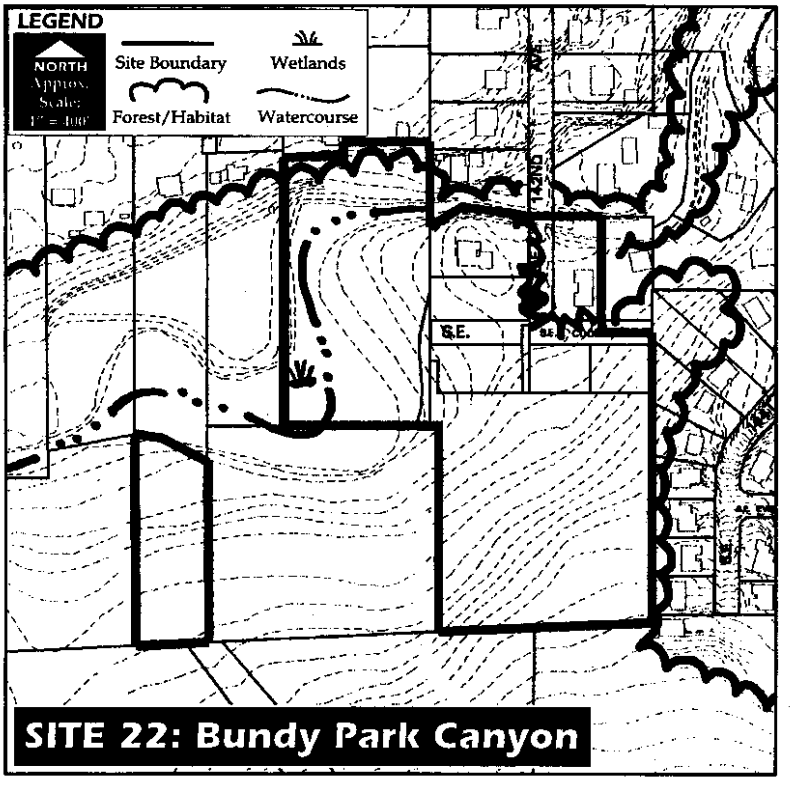
SIGNIFICANT RESOURCE VALUES

Water, storm drainage, fish and wildlife habitat, aesthetics, flood storage, pollution and nutrient retention and removal, sediment trapping, recreation, and education values.

QUANTITY OF RESOURCES

This site (Bundy Park, Tract C, and privately-held properties) is undeveloped and a remnant of what much of the Johnson Creek riparian corridor looked like prior to alterations and removal of forested vegetation. Structural diversity is high, characterized by a Western Red Cedar and Douglas Fir overstory and a well-developed native shrub and herbaceous layer understory. Plant species diversity is high and primarily comprised of native plants.

Eastridge Subdivision's Tract C is on a north facing slope above the creek. It is an undeveloped 1.5 acre site that is a part of the Boring Lava Hills and surrounding undeveloped forested area. It has similar vegetative cover and habitat attributes as Bundy Park. Two tributary streams cross the southern portion of the site, draining small basins within the Lava Domes.



QUALITY OF RESOURCES

Bundy Park is one of the few areas of primarily-native riparian vegetation left intact within the Johnson Creek basin. Bundy Park has been chosen as a model site to demonstrate the structure and species diversity of a primarily native riparian forest. This is a high quality habitat site.

Score for Wildlife Habitat Value: 81	**Range for All Sites** =18 to 83
Vegetation:	
Food (variety)	high
Cover(structural diversity)	high
Human Disturbance:	low
Interspersion:	high

MANAGEMENT RECOMMENDATIONS

Riparian restoration projects within the Johnson Creek basin should look to Bundy Park as an example of a primarily native riparian forest that has well-defined structure and species diversity. Bundy Park should be developed as a natural area for residents of the area to enjoy rather than as an urban neighborhood park. The small size of the park makes it more suitable for a natural area.

SITE-SPECIFIC ESEE COMMENTS

Conflicting Uses: Identified conflicting uses within this site area include urban park development with extensive paved surfaces and removal of trees for park landscaping, play fields, play equipment, or auxiliary park facilities such as parking lots and restrooms. The residential development intended for the portion of the site southeast of the park also presents a conflict.

Consequences of Allowing Conflicting Uses: Both Bundy Park and the Tract C could be lost to urban park-type development without some level of protection, resulting in further degradation of the creek corridor through loss of vegetation that provides food, cover and shade.

In order to construct one of the three housing units possible within the resource area it would be necessary to demonstrate that the FEMA regulations were being met. This would likely result in no construction or construction on stilts for one unit. The remaining potential two units (created through land division) would be within 50 feet of the Floodway and with in 100 feet of the center of the creek channel. This close proximity to the creek would result in a loss of habitat and flood storage area.

Consequences of limiting or prohibiting Conflicting Uses: Placing overlay zoning on the two open space sites would limit any park design and function. A likely result of the zoning would be a "natural treatment" of both areas limiting park uses to passive activities.

For the remainder of the site, which is zoned R10 and formerly part of the Powell Butte/ Mt. Scott Plan District (now Johnson Creek Basin Park District), there would be no loss of development potential on privately-held lots, although environmental review to ensure protection of the Johnson Creek corridor would be required.

Conclusion and Conflict Resolution

This 14-acre site is zoned low-density residential and open space. This site received the second highest habitat rating in the study area. It is significant as a part of the Boring Lava Hills; it has high habitat quality, excellent habitat interspersion (connection of riparian and coniferous, upland forests). The habitat value outweighs the conflicting use value on portions of the site, particularly around Bundy Park, the area that gave the site such a high habitat rating. However, in-fill development and expansion of the existing homes have value. A combination of resource protection levels have been applied to this site in order to balance resource protection, housing and recreation.

Decision

The decision for Site 22 is to fully protect the creek corridor and to limit conflicts on the remaining 14-acres with the exception to about 2 acres where the resources have been replaced with residential development.

This fully protected area is based on the top of bank location with exception to one location. This is a 150-foot long strip of land adjacent the creek that is fully protected 70 to 90 away from the channel. This area corresponds to the 100-foot wide flood plain (based on F.E.M.A. Flood hazard maps) and is part of a designated, private open space tract. The decision to fully protect this area is based on the high quality habitat resources and need to eliminate conflicting uses which include potential, active recreation.

Site 22 has the second to highest habitat rating in the study area. The two open space tracts are undeveloped and are Bundy Park (3.34 acres) and privately held properties, and a designated, private open space tract ("Tract C"). Bundy Park is nearly 4-acres and is a high quality habitat site because of the plant and structural diversity is high, characterized by a Western Red Cedar and Douglas Fir overstory and a well-developed native shrub layer and herbaceous understory.

Prohibit Conflicting Uses

The fully protected area over the channel is uniformly 50 feet wide. Fully protecting the channel is commensurate with the protection level for the rest of the channel and the quality, rarity, and importance of Johnson Creek as a wildlife, storm drainage, and flood storage corridor. The fully protected resource values include water, storm drainage, fish and wildlife habitat, aesthetics, flood storage, pollution and nutrient retention and removal, sediment trapping. This fully protected area is based on the top of bank location with one exception. This exception is a 150-foot long strip of land adjacent the creek that is fully protected 70 to 90 away from the channel. This area corresponds to the 100-foot flood plain and is part of a designated, private open space tract. The decision to fully protect this area is based on the high quality habitat resources and need to eliminate conflicting uses which include potential, active recreation.

Allow Limited Conflicting Uses

A decision has been made to limit conflicting uses on the undeveloped portions of the site setback 50-feet from Johnson Creek. The undeveloped area has relatively high habitat value because of the well-established vegetative cover, native plant diversity, and connectivity to the Boring Lava Hills. The Boring Lava Hills extend east out of the City and cover

over 4,000 acres. The part of the Boring Lava Hills next to this site are primarily undeveloped and provide wildlife habitat. The undeveloped portion of the site also has economic value for housing development. The EC balances needed housing and habitat protection.

This decision allows flexibility to allow mitigation in lieu of prohibiting development and results in no loss of development potential and positive ESEE consequences. This decision permits the development of the two designated open space tracts. Partial protection will be achieved through the application of the environmental conservation zone regulations and Johnson Creek Plan District requirements. The resource values protected include wildlife habitat, scenic, pollution and nutrient retention and removal, sediment trapping, recreation, education.

Allow Conflicting Uses Fully*
Conflicts may fully occur on about 2 acres where single family development exists.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES:

Zone	Area Affected by EC Zone	Area Affected by EP Zone
R10	2 acres	4 acres
OS		4 acres

* The Johnson Creek Plan District (Chapter 33.535) applies which has environmental protection provisions.

SITE 23: Barbara Welch/Foster — Maps: 3645, 3745

SITE SIZE: 28 acres
LOCATION: South of SE Foster Road, spanning SE Barbara Welch Road for a distance of about 1,200 feet, to SE Cooper Street
NEIGHBORHOOD: Pleasant Valley
DATE OF INVENTORY: February 1987, July 1990

HABITAT CLASSIFICATION

- Palustrine, Emergent Persistent (plants), Permanently, Semipermanently, and Seasonally Flooded.
- Palustrine, Forested, Semipermanently and Seasonally Flooded.

GENERAL DESCRIPTION

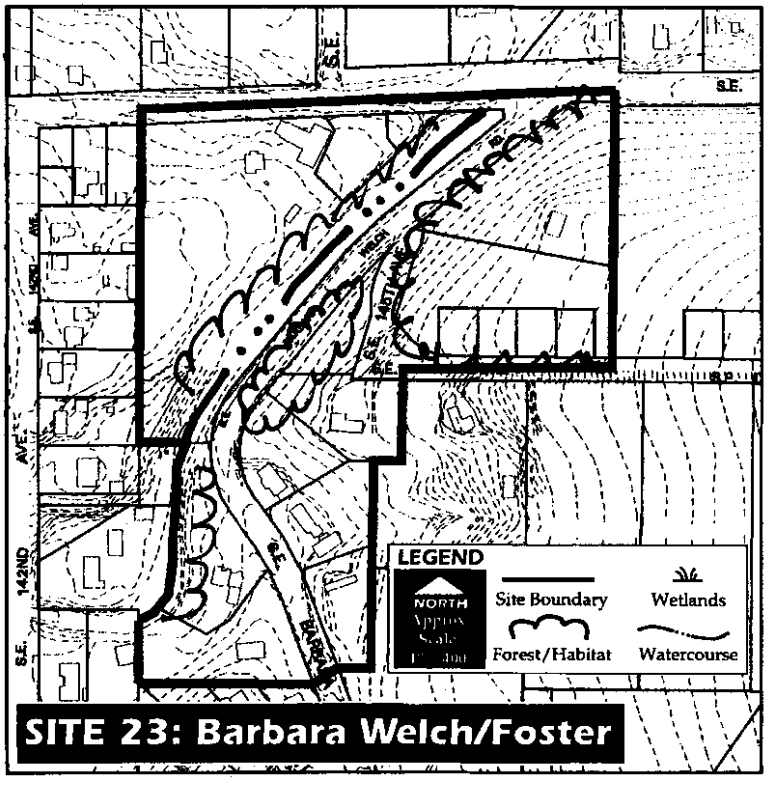
This site is located in an area of low-density single family homes and undeveloped forested or cleared lots. It is at the base of the Boring Hills.

NATURAL RESOURCE VALUES

Water, storm drainage, fish and wildlife habitat, aesthetics, flood storage, pollution and nutrient retention and removal, sediment trapping,

QUANTITY OF RESOURCES

The Floodway is uniformly about 70-feet wide through this site, with a narrow 100-year flood plain (0' to 120' wide) on each site of the creek. The riparian strip and tree covered area corresponds to the Floodway, and are also only about 70 feet wide. The once-gradual slopes are now filled, and drop at a 1:1 slope 30 feet to the creek channel. This site has a geologic hazard rating of moderate-severe, severe, and extremely severe, with a major portion of the site classified as severe. West of the creek the grades smooth out where filling has occurred. To the east of Barbara Welch Road the grades continue at a 1:1 slope. The southeast portion of this site is part of what is suspected to be an ancient, inactive, deep-rooted large landslide area.



QUALITY OF RESOURCES

This stretch of Johnson Creek has been filled and altered within the past twenty years. The banks are steep, high, and vegetated with young alder, willow, bigleaf maple, and Himalayan blackberry. The Floodway is narrow and well-

shaded at this point. There are roads and buildings immediately adjacent both sides of the creek. Runoff and erosion are potential problems.

Resource value in this portion of the creek is limited, due to adjacent land uses which have negatively modified the creek habitat by removing vegetation and creating steep banks. Interspersion with other areas is high, proximity to Powell Butte and Bundy Park. This section of the creek functions with the rest of Johnson Creek as a travel corridor for wildlife up and down the creek as well as a connector to the adjacent upland sites.

Score for Wildlife Habitat Value: 45	**Range for All Sites** =18 to 83
Vegetation:	
Food (variety)	medium
Cover(structural diversity)	medium
Human Disturbance:	medium
Interspersion:	high

MANAGEMENT RECOMMENDATIONS

Continuation and enhancement of the riparian strip and erosion control are major actions which would protect the resource.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES

Zone	Area Affected by EC Zone	Area Affected by EP Zone
R5	1 acre	1 acre
R10	20	<1

SITE-SPECIFIC ESEE COMMENTS

Conflicting Uses: Residential development at both R5 (about 7 acres) and R10 density

Consequences of allowing Conflicting Uses: Loss of forest canopy and connection of the forested uplands to the creek would occur with uncontrolled urban development.

Consequences of limiting or prohibiting Conflicting Uses: Clustering of units on the R5-zoned property would probably be required in order to achieve full densities.

SITE 24: SW of Powell Butte (145th Ave. East) Map: 3645

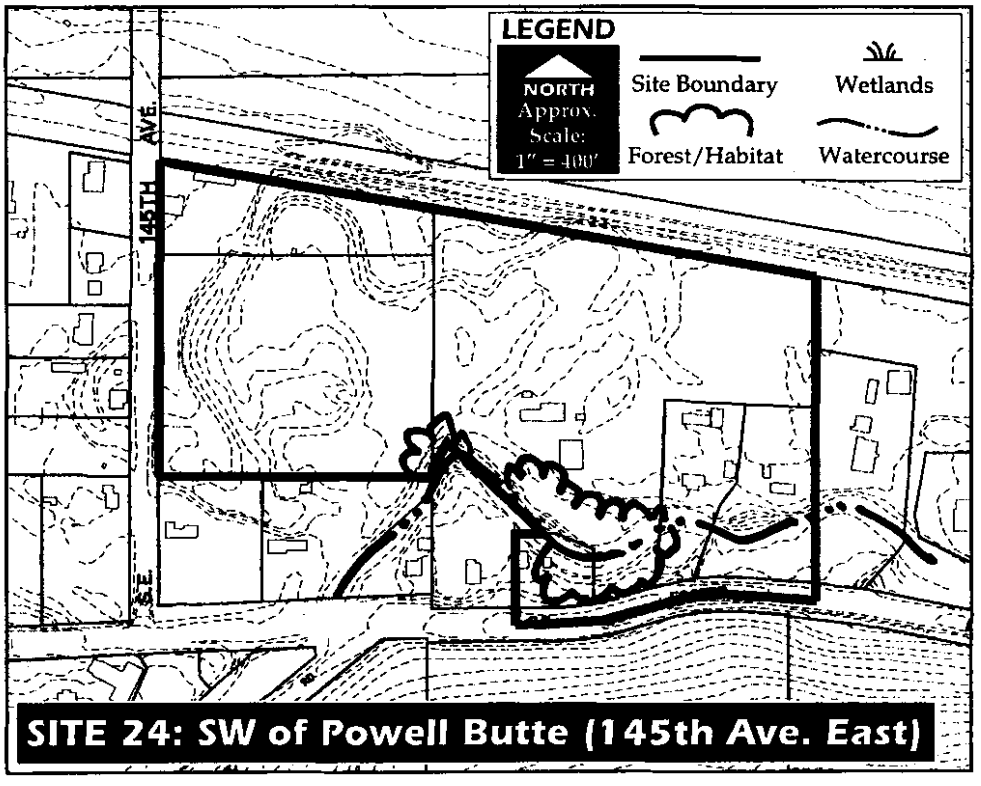
SITE SIZE: 21 acres
LOCATION: North of SE Foster Road and south of the Springwater Line; between SE 145th Avenue and 900' east of SE Barbara Welch Road
NEIGHBORHOOD: Pleasant Valley
DATE OF INVENTORY: February 1987, July 1990

HABITAT CLASSIFICATION
- Palustrine, Forested, Deciduous/Conifer, Seasonally Flooded, Saturated
- Palustrine, Emergent, Persistent, Seasonally Flooded

GENERAL DESCRIPTION
This site is the westernmost portion of a broad valley between Powell Butte and the Boring Hills. It is in and surrounded by low density single family and agricultural development.

NATURAL RESOURCE VALUES
Water, storm drainage, fish and wildlife habitat, aesthetics, flood storage, pollution and nutrient retention and removal, sediment trapping

QUANTITY OF RESOURCES
The riparian strip in this area is generally, 50-feet wide (and up to 100-feet) but only occurs for half the creek length. Native vegetation in the remaining area has been replaced with lawns. SE Foster Road, bordering to the south, is the where the forested canyon area located on the north face of Boring Lava Hills ends and where the low-lying, floodplain of Johnson Creek located south of Powell Butte begins. In this area the creek Floodway wid-



ens to 250 feet, and the 100-year flood plain extends over the whole site except for 10-50-foot wide band of along Foster Road. On the northern edge of the site adjacent the Springwater Line there is a 2-acre stand of deciduous trees.

QUALITY OF RESOURCES

This area is a mosaic of low density residential consisting of small farms, pasture land, and forests with seasonally saturated soils with some ponding. Patches of young-to-medium-aged forests, primarily Douglas-Fir, Western Red Cedar, and shrubs (small blackberry patches) provide potential food, cover, perch, and nest sites for passerines, woodpeckers, raptors, small mammals, and reptiles. Some properties along this stretch have manicured lawns to the edge of the creek channel, which is a 1:1 sloped, riprapped channel. This treatment of the creek and creek edge limits wildlife access to and use of the creek. This area is juxtaposed with Powell Butte, the Boring Lava Hills, and Johnson Creek channel providing a diversity of habitat types.

Despite the low density of development human use of this area is high with a mixture of roads, houses, fences, power lines, railroad tracks, and drainage ditches. Bridges serving properties fronting on SE Foster Road cross the creek. The Springwater Line (site of the recreation trail) is immediately north.

Trees provide some habitat for bird and mammal species, but do not have as high of value for wildlife as the stretches of Johnson Creek directly to the east. The eastern stretches have more structural and species diversity and age class diversity, presence of a few snags, and water thermo-regulation through shade.

This area is juxtaposed with Powell Butte, Bundy Park and the Johnson Creek channel, providing a diversity of habitat types and a travel corridor between these upland and riparian areas.

Score for Wildlife Habitat Value: 49	**Range for All Sites** = 18 to 83
Vegetation:	
Food (variety)	medium
Cover(structural diversity)	medium
Human Disturbance:	medium
Interspersion:	medium/high

MANAGEMENT RECOMMENDATIONS

Retain R20 zoning to maintain maximum area for flood storage. Consideration for increase in density to R10 would be more appropriate once solution for flooding and water quality information is determined as a part of the Bureau of Environmental Services plan.

The riparian strip should be reestablished, and further human intrusion (such as any recreation trail) discouraged. Since access to many properties must be across the creek, maintenance of existing bridges to serve existing dwellings should be allowed, as long as existing resources are protected.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES

Zone	Area Affected by EC Zone	Area Affected by EP Zone
R20(R10)	3 acres	2 acres

SITE-SPECIFIC ESEE COMMENTS

Conflicting Uses: Residential development, grazing, and agricultural uses

Consequences of allowing Conflicting Uses: Allowing conflicting uses results in the removal of native vegetation, pesticides use, and possibly use of the creek for irrigation. Use of the creek for irrigation reduces the summer water flow and increases the stream temperatures, diminishing the fishery resources.

SITE-SPECIFIC COMPATIBLE USES AND ACTIVITIES

Rebuilding and replacement of existing bridges to minimum building code requirements if:

- a maximum of 25 feet of riparian vegetation on each side of the creek is disturbed;
- there is no filling;
- there are no new piers or abutments, or enlargement of existing ones; and
- the bridge will serve only the dwelling or dwellings served at the time of adoption of this plan.

SITE 25: South of Powell Butte — Maps: 3645, 3646

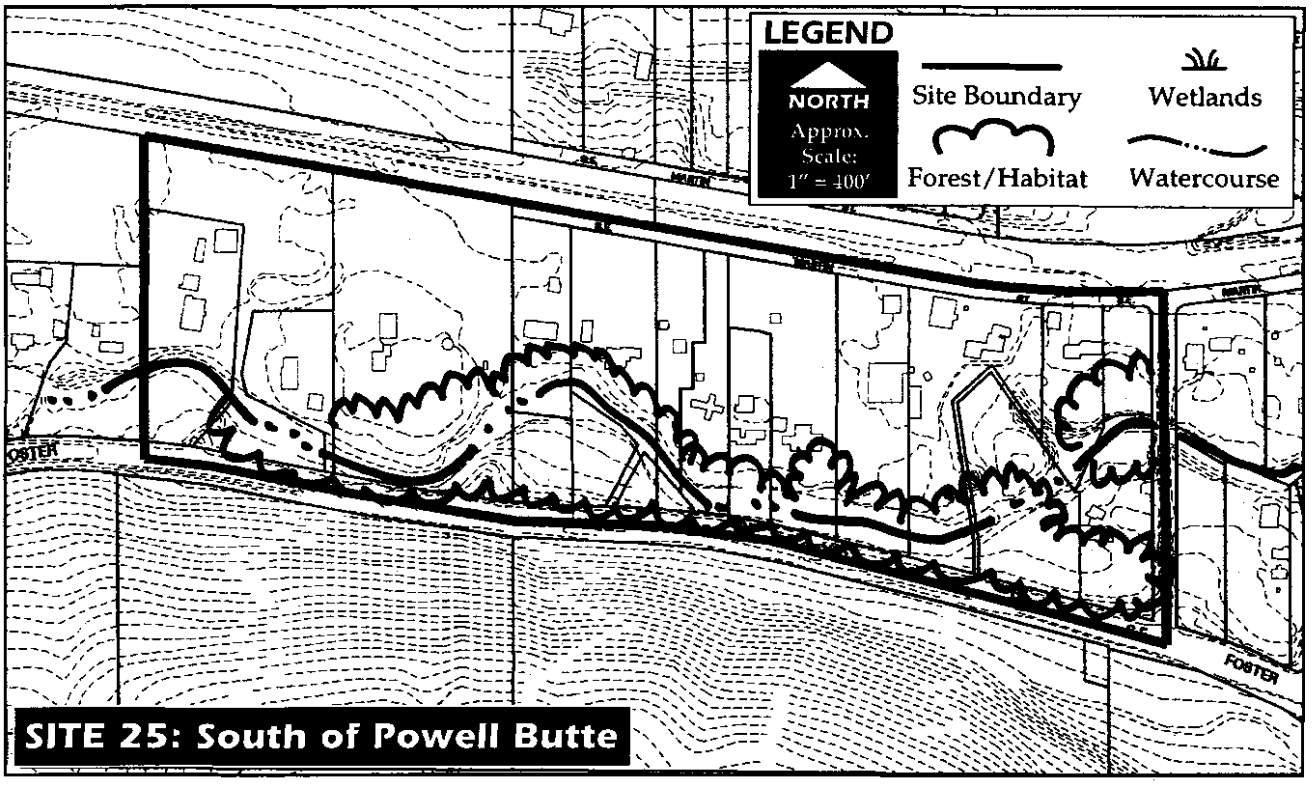
SITE SIZE: 31 acres
LOCATION: South of SE Martin Street/Springwater Line, north of SE Foster Road, between SE 158th Avenue and 900 feet east of SE Barbara Welch Road
NEIGHBORHOOD: Pleasant Valley
DATE OF INVENTORY: February 1987, July 1990

HABITAT CLASSIFICATION

- Palustrine, Emergent, Persistent, Seasonally Flooded
- Palustrine, Scrub-Shrub, Broad-leaved Deciduous, Seasonally Flooded
- Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded

GENERAL DESCRIPTION

This site is a large cultivated grazed pasture to the west of Johnson Creek and on the southeast side of Powell Butte. Willows and blackberry overhang the stream. The cultivated and grazed riparian zone provides poor habitat for wildlife and little sediment and erosion control for the bank. The pasture is extensively grazed by livestock.



NATURAL RESOURCE VALUES

Water, storm drainage, fish and wildlife habitat, aesthetics, flood storage, pollution and nutrient retention and removal, sediment trapping

QUANTITY OF RESOURCES

With the exception of two stands of trees in the northwest and north-central portions of the site, significant resources are confined to the creek corridor.

QUALITY OF RESOURCES

Grazing of this area limits its value for wildlife. Grasses and other forb species are eaten to the ground, leaving very little food or cover for non-domestic animals. Dense blackberry and willow overhanging the stream, provide habitat for urban-adapted birds. Portions of the creek within this stretch are well shaded, keeping the water temperature cooler and better habitat for fish and aquatic species.

Score for Wildlife Habitat Value: 32	**Range for All Sites** = 18 to 83
Vegetation:	
Food (variety)	medium
Cover(structural diversity)	low
Human Disturbance:	medium
Interspersion:	medium

MANAGEMENT RECOMMENDATIONS

Retain R20 zoning to maintain maximum area for flood storage. Consideration for increase in density to R10 would be more appropriate once solution for flooding and water quality information is determined as a part of the Bureau of Environmental Services plan.

The riparian strip should be reestablished, and further human intrusion (such as any recreation trail) discouraged. Since access to some properties are across the creek, maintenance of existing bridges to serve existing dwellings should be allowed, as long as existing resources are protected.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES

Zone	Area Affected by EC Zone	Area Affected by EP Zone
R20 (R10)	5 acres	3 acres

SITE SPECIFIC ESEE COMMENTS

Conflicting Uses: Residential development, grazing and agricultural uses, and recreation

Consequences of allowing Conflicting Uses: Allowing conflicting uses results in the removal of native vegetation, pesticides use, and possibly use of the creek for irrigation. Use of the creek for irrigation reduces the summer water flow and increases the stream temperatures, which diminish fishery resources.

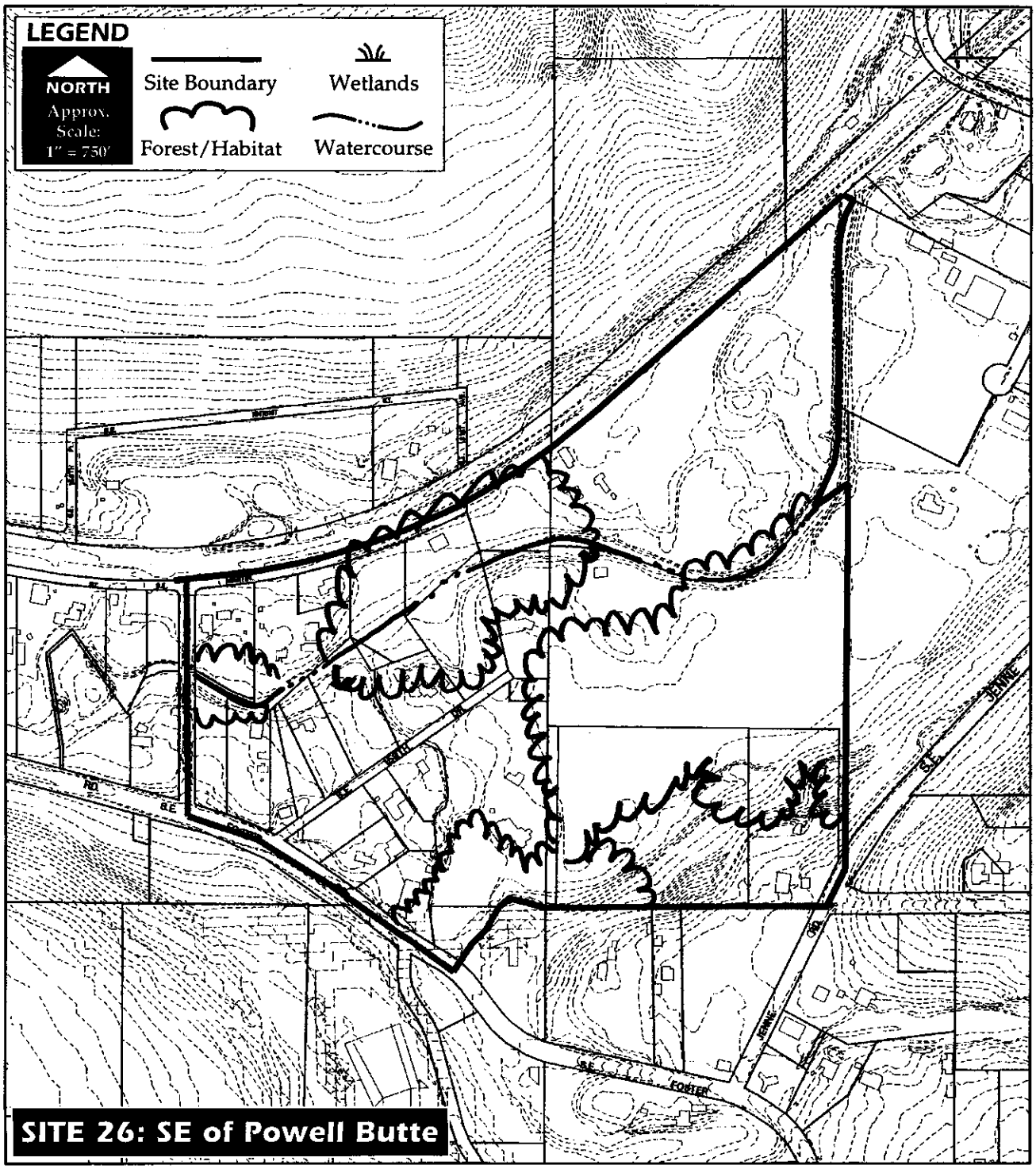
SITE-SPECIFIC COMPATIBLE USES AND ACTIVITIES

Rebuilding and replacement of existing bridges to minimum building code requirements if:

- a maximum of 25 feet of riparian vegetation on each side of the creek is disturbed;
- there is no filling;
- there are no new piers or abutments, or enlargement of existing ones; and
- the bridge will serve only the dwelling or dwellings served at the time of adoption of this plan.

SITE 26: SE of Powell Butte — Maps: 3646, 3647

SITE SIZE: 70 acres
LOCATION: Between Springwater Line and SE Foster Rd., west of Jenneyland Acres, and east of SE 158th Avenue
NEIGHBORHOOD: Pleasant Valley
DATE OF INVENTORY: February 1987, June 1990, October 1996



HABITAT CLASSIFICATION

- Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded.
- Palustrine, Forested, Deciduous/Conifer, Permanently Flooded.

GENERAL DESCRIPTION

This site is the eastern end of the valley between Powell Butte and the Boring Lava Hills. It is a mixture of low-density residential, agricultural, and undeveloped uses, surrounded by the same.

SIGNIFICANT RESOURCE VALUES

Water, storm drainage, fish and wildlife habitat, aesthetics, flood storage, pollution and nutrient retention and removal, sediment trapping.

QUANTITY OF RESOURCES

In the western portion of the site, significant natural resources are largely confined to the bed and banks of Johnson Creek and Kelley Creek, a perennial tributary to Johnson Creek. Toward the east, forested areas away from Johnson Creek hold significant values.

QUALITY OF RESOURCES

This is a historic, forested floodplain with some present-day wetland. There are occasional small forest stands of cedar/alder (10-60 year old) mixed with low density residences and small farms with seeded pasture and livestock. The site includes the channel of Johnson Creek to the southeast side of Powell Butte and its tributary Kelley Creek. The Johnson Creek and Kelley Creek riparian zones contain blackberries overhanging the channel interspersed with lawns, western red cedar and willow. The streams flow through an urbanized forest in the central portion of the site. Dense blackberries scattered throughout provide cover and nesting habitat for passerines and small mammals. Large cedar and Douglas fir trees interspersed with willow and alder provide important habitat for many bird species including chickadees, nuthatches, kingfisher, and warblers. This section of Johnson Creek is an important wildlife travel corridor and link to Powell Butte, upland buttes in Gresham and to the Boring Lava Hills along Kelley Creek and buttes to the west.

Human use along Johnson Creek is high. The western portion is primarily a residential area with more of a rural than urban atmosphere, and a classic pattern of human settlement along waterway bottomlands. Minus the blackberry and other introduced species, the cedar/alder forest can serve as a model of structural and species diversity of native riparian habitat for future restoration or riparian creation projects.

Score for Wildlife Habitat Value: 64	**Range for All Sites** = 18 to 83
Vegetation:	
Food (variety)	medium
Cover(structural diversity)	medium
Human Disturbance:	medium
Interspersion:	medium

MANAGEMENT RECOMMENDATIONS

R20 zoning should be retained to maintain maximum area for flood storage. Consideration for increase in density to R10 would be more appropriate once a solution for flooding and water quality information is determined as a part of the Bureau of Environmental Services plan. The riparian strip should be continued or reestablished, and further human intrusion (such as any recreation trail) discouraged.

SITE-SPECIFIC ESEE COMMENT

Conflicting Uses: Agricultural, residential.

SITE-SPECIFIC COMPATIBLE USES

Rebuilding and replacement of existing bridges to minimum building code requirements if:

- a maximum of 25 feet of riparian vegetation on each side of Johnson Creek is disturbed;
- there is no filling;
- there are no new piers or abutments, or enlargement of existing ones; and
- the bridge will serve only the dwelling or dwellings served at the time of adoption of this plan.

Conclusion and Conflict Resolution

Site 26 is significant because it contributes to the area habitat diversity; links Powell Butte and the Boring Lave Hills (both are significant wildlife areas) and contains Johnson and Kelley Creeks. Sites 24-28 share the same broad flood plain. All 5 sites provide important flood storage and ground water recharge functions. (Ground water is Johnson Creek's primary summer water source). About 2/3rds of Site 26's seventy-acres have tree-cover. The site has moderate habitat value.

This site has 3 parcels that are over 10 acres and many smaller parcels that can be further divided. There is housing potential for at least thirty more units. (This site is not, however, part of the City's buildable lands inventory because it is in a flood plain). The conflicting uses are principally residential and agricultural activities. The Johnson and Kelly Creek channels and banks require full protection in order to have positive ESEE consequences. The creek provides functions that are irreplaceable. On the non-creek portions of the site both the natural resources and housing potential have equal value.

Decision

The decision for Site 26 is to fully protect the Johnson and Kelley Creek channels, to limit conflicting uses where both resources (other than the creek channel) and housing potential exist, and to fully allow conflicting uses on locations away from the creek where native vegetation has been removed.

The 100-year flood plain is not fully protected. Based on the ESEE analysis and habitat inventory, an EC or EP designation over the flood plain is not justified. However, some protection is provided through Sec. 33.535. 120.D when development occurs. This code provision requires on-site storage for runoff greater that 110% of the existing conditions. Also, included in the Johnson Creek Basin Protection Plan is a recommendation that the R20 zoning not be changed to the R10, comprehensive plan designation on this site until the storm water management and in particular, flooding on Johnson Creek is better resolved.

Prohibit Conflicting Uses

The fully protected area over the Johnson Creek channel is 50 to 70 feet wide. This width protects the main channel and 10 feet of the adjacent banks. The fully protected area of Kelley Creek is approximately 40 feet wide. The fully protected resource values for this portion of the site include water purification, storm drainage, fish and wildlife habitat, aesthetics, flood storage, pollution and nutrient retention and removal, sediment trapping.

Allow Limited Conflicting Uses

Limiting conflicting uses (EC-zoned areas) applies to 19 of the 70-acre site on three distinct locations. One of the EC-zoned areas is the forested lands on each side of the creek. This area extends 100 to 200 feet from the fully protected creek channel. Protection of this area is to help preserve water quality and a small portion of the 100-year flood plain for ground water recharge. The 2nd (EC-zoned) area is 9.5 acre undeveloped, forested flood plain. The resource values protected include wildlife habitat, scenic, ground water recharge and flood storage.

Allow Conflicting Uses Fully*

Conflicting uses may occur fully on 48 of the 70-acre site. The unprotected resources include part of the 100-year flood plain which extends over most of the site for flood storage and ground water recharge. Also unprotected are the open fields, lawns, and pasture land which have some habitat value.

LAND AFFECTED BY ENVIRONMENTAL OVERLAY ZONES

Zone	Area Affected by EC Zone	Area Affected by EP Zone
R20(R10)	19 acres	4.2 acres

* Johnson Creek Plan District (Chapter 33.535) regulations apply.

SITE 27: Jenne Road - Northwest — Map: 3647

(See also OSCP Site #26.1 in Part II)

SITE SIZE: 40 acres
LOCATION: East of SE Jenne Road and north of SE McKinley Road
NEIGHBORHOOD: Pleasant Valley
DATE OF INVENTORY: February 1987, June 1990, October 1996

HABITAT CLASSIFICATION

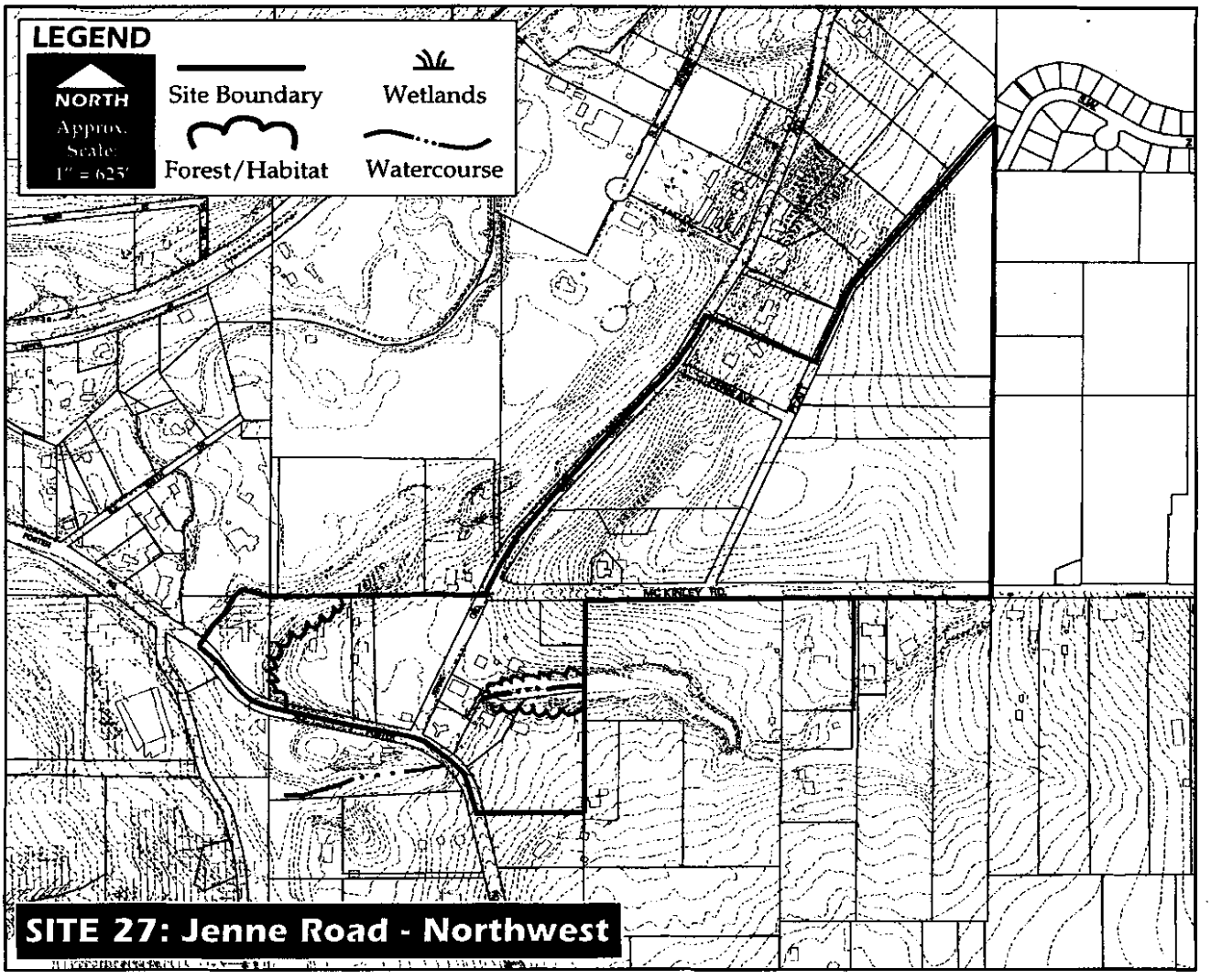
- Palustrine, Forested, Coniferous/Broadleaved Deciduous, Seasonally Flooded.
- Agricultural

GENERAL DESCRIPTION

This site includes a large farm, which contributes to the visual character of the area. Zoning is R20 with a Comprehensive Plan designation of R10.

SIGNIFICANT RESOURCE VALUES

Groundwater recharge, aesthetics, pollution and nutrient retention and removal, sediment trapping



SITE QUANTITY AND QUALITY

This site holds little resource value, except along a tributary to Kelley Creek. Activities at Site 27 also affect nearby creek-related resources such as water quantity and quality.

MANAGEMENT RECOMMENDATIONS

Control water quality.

SITE-SPECIFIC ESEE COMMENTS

Conflicting Uses: Agricultural, housing, commercial use.

Conclusion and Conflict Resolution

This 40-acre site is pasture land with only a few scattered trees and little habitat resource value although it provides flood storage and ground water recharge affecting Johnson Creek's water quantity and quality. Johnson Creek is not on this site but about 500 feet of a tributary creek is located on the southeast side of the site near Jenne Road. Activities associated with agricultural, commercial and housing uses are the principle conflicting uses. The zoning is R20 with a Comprehensive Plan designation of R10. The site resources are limited. In order to have positive ESEE consequences conflicting uses should be allowed on most of the site.

Decision

The decision for Site 27 is to provide limited protection for the tributary creek on the southeast side of the site and to allow conflicting uses to the remainder of the site.

Allow Limited Conflicting Uses

As described above, the natural vegetative cover on this site has been removed except for over the tributary creek (located 50-feet east of the Jenne and Foster Road intersection). The tributary creek is an important water source for Kelley/Johnson Creek which provides wildlife habitat, and handles storm drainage. The Johnson Creek Basin Plan District requirements apply which restricts storm drainage affecting the water quality and quantity.

Prohibit Conflicting Uses

No part of the site warrants full protection. The economic value of development except along the tributary creek outweighs the natural resource value.

Fully Allow Conflicting Uses

Based on the ESEE analysis and habitat inventory, only the creek corridor warrants protection. There are no other identified resources which warrant protection.

LAND AFFECTED BY ENVIRONMENTAL OVERLAY ZONES:

Zone	Area Affected by EC Zone	Area Affected by EP Zone
CG		
R20(R10)	>1 acre	

* Johnson Creek Plan District (Chapter 33.535) regulations apply.

SITE 27OJ: Jenne Road - Southwest Map: 3547

Multnomah County Jurisdiction
(See also OSCP Site #26.1 in Part II)

LOCATION: Both sides of SE Jenne Road, between the Springwater Line and SE Jenne Road
JURISDICTION: Multnomah County
DATE OF INVENTORY: February 1987, June 1990

HABITAT CLASSIFICATION
- Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded.
- Palustrine, Forested, Needle-leafed Evergreen, Seasonally Flooded.

SIGNIFICANT RESOURCE VALUES
Water, storm drainage, fish and wildlife habitat, aesthetics, flood storage, pollution and nutrient retention and removal, sediment trapping

TYPE OF RESOURCES
Within this site shrubs are sparse along the channel banks and ferns are the dominant herb component. The riparian zone is primarily forested with Douglas-fir and western red cedar providing shade for the stream channel and food, roosting, perching, and nesting habitat for passerines and woodpeckers. The stream bank integrity has more or less been maintained in conjunction with low density residential development. This is a fairly scenic reach of Johnson Creek.

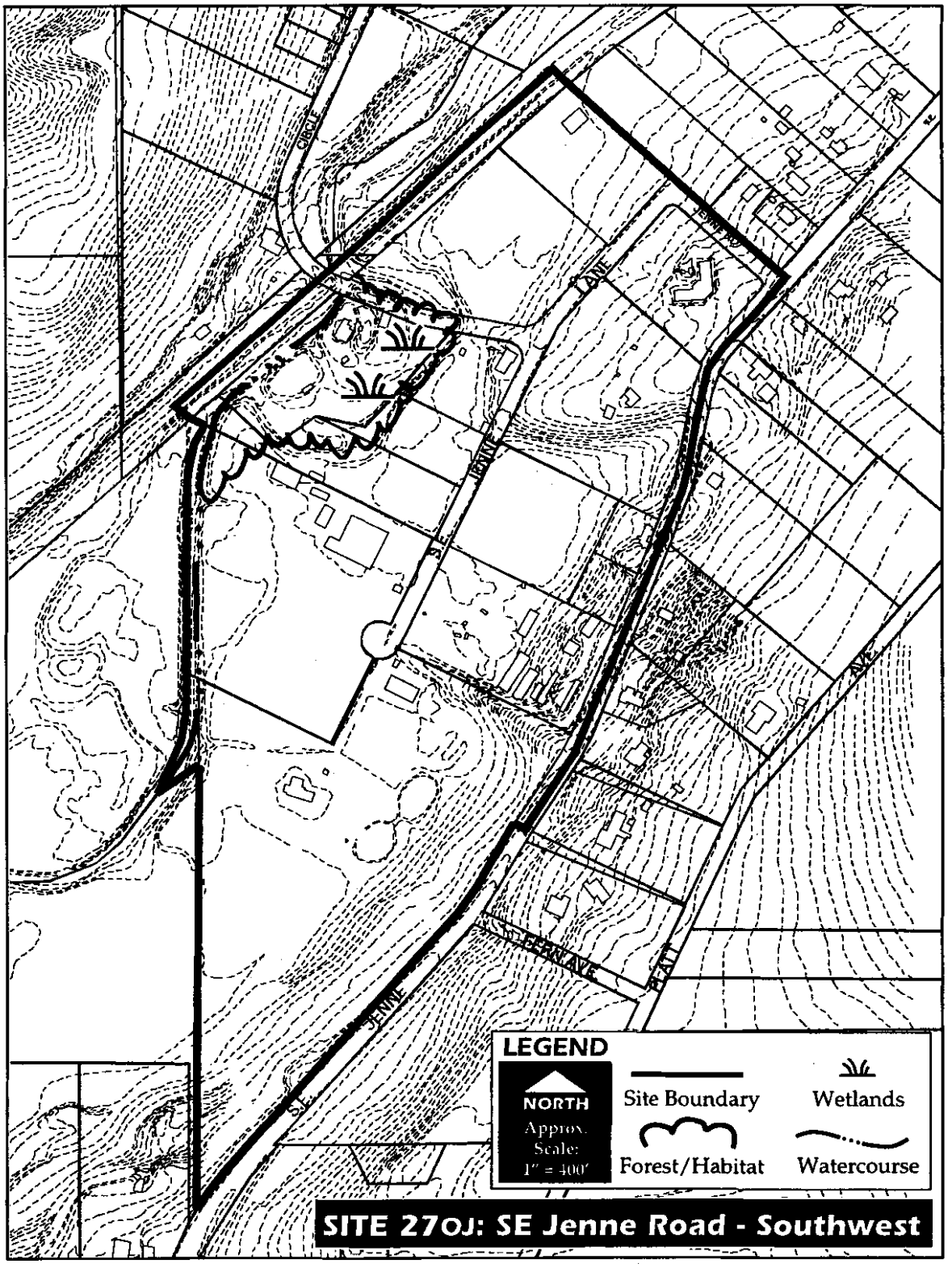
QUALITY OF RESOURCES
This is a high value wildlife habitat area along Johnson Creek. Much of the riparian vegetation is still intact with comparatively little invasion by alien, introduced plant species. The dense canopy cover shades the creek through this stretch, increasing the habitat value for fish and other aquatic animals. This site includes a forest canopy of primarily Douglas-fir and western red cedar mixed with alder and maple retained in a small acreage residential area with open pasture and buildings. Several small snags were noted providing some woodpecker and nuthatch habitat. Woody debris are absent on the forest floor. The habitat that occurs now is functional for primarily urban adapted species such as starlings and house sparrows. Some ground foraging by Towhees, Robins, and wrens may occur. Domestic animals are present. Interspersion here is high due to close proximity to Powell Butte and Johnson Creek channel.

The cedar alder forest can serve as a model of the structural and species diversity of this native riparian habitat for future restoration or riparian creation projects.

This section of creek is an important wildlife travel corridor and link to Powell Butte, upland buttes in Gresham, the Boring Lava Hills and other sections of Johnson Creek.

Continued maintenance of forest canopy will retain the native character of the site. The current residential density is compatible with some wildlife use such as an access corridor for animals traveling to and from Johnson Creek and Powell Butte.

Score for Wildlife Habitat Value: 54	**Range for All Sites** = 18 to 83
Vegetation:	
Food (variety)	medium
Cover(structural diversity)	medium
Human Disturbance:	high
Interspersion:	high



SITE 29: Powell Butte — Maps: 3445-48, 3545-48, 3645-47

SITE SIZE: 600 acres (570 ac. in public ownership)
LOCATION: East of SE 136th Avenue, west of SE 174th Avenue, north of the Springwater Line, and south of SE Powell Boulevard
NEIGHBORHOOD: Powellhurst
DATE OF INVENTORY: February 1987, June 1990, February 1997

HABITAT CLASSIFICATION

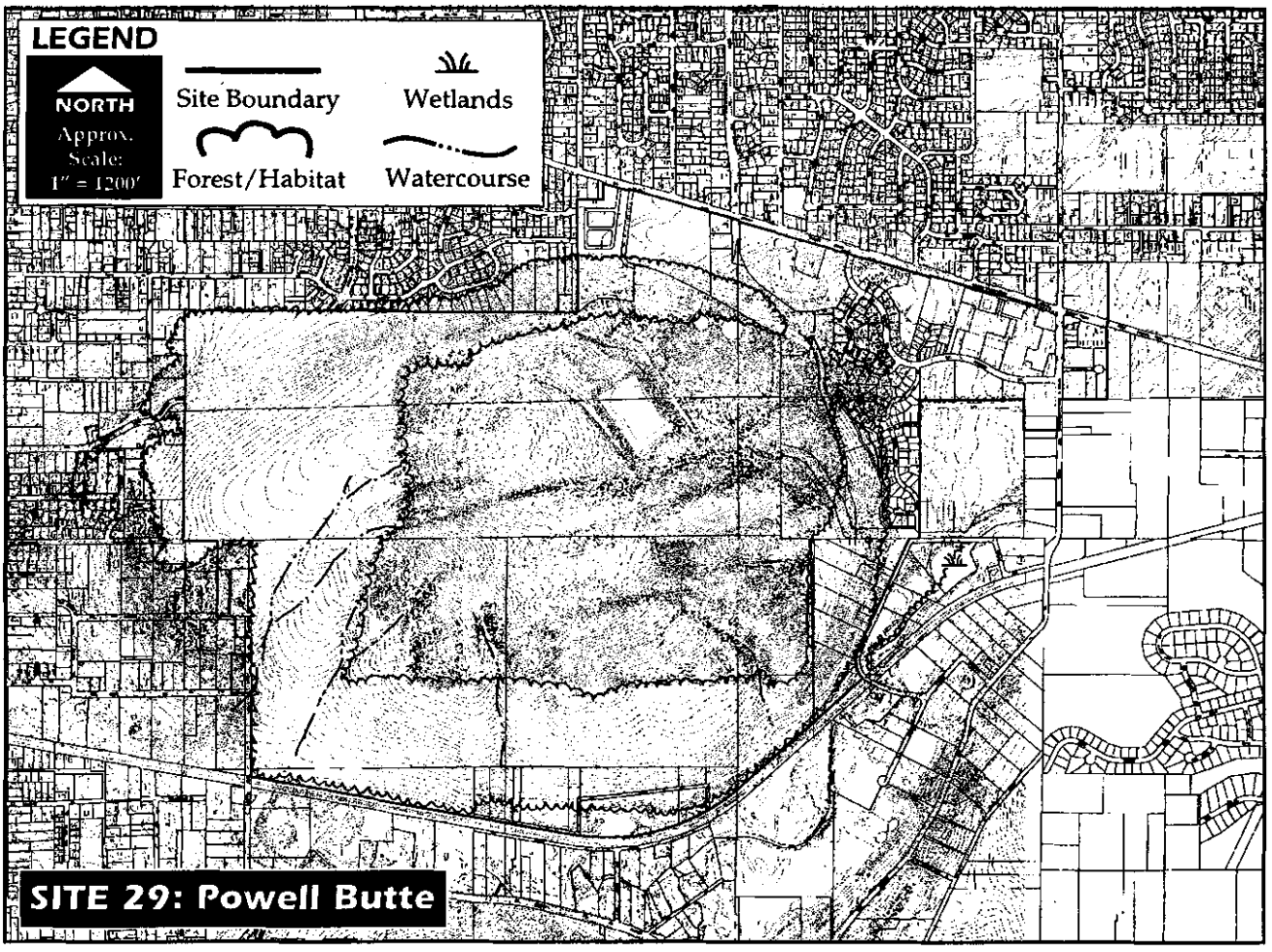
- Forested, Broadleaved Deciduous Intermittent.
- Open meadow

GENERAL DESCRIPTION

This site is the top and southern portions of Powell Butte, a large part of which was once a dairy but is now owned by the City of Portland. Urban development is on the west, north, and east, while natural resource sites 24-26 are to the south.

SIGNIFICANT RESOURCE VALUES

Water, storm drainage, aesthetics, scenic, pollution and nutrient retention and removal, sediment trapping, recreation, education, heritage



QUANTITY OF RESOURCES

This site is a major butte surrounded by residential development at its base to the north, west, and south, but with relatively non-intensive residential development on the east side. This is one of the more unique uplands in southeast Portland and perhaps within the Urban Growth Boundary. This butte consists of primarily two major habitat types: an open grassland (2/3) and a mid-serial stage forest (1/3). At the base of the butte to the east is a one-acre forested wetland bordering Johnson Creek.

The forest consists of mature deciduous trees (maple, alder) and 30-50 year old conifers (Douglas fir). Snags are common and there is some downed dead wood from windthrow. The grassland is an abandoned ungrazed and unharvested pasture with some invading hawthorne trees. There was a vernal pond noted within this grassland during the time of the first inventory (2/20/87).

QUALITY OF RESOURCES

Powell Butte provides very important wildlife habitat within Johnson Creek and the Portland metropolitan area. There are very few upland meadows left in the metropolitan area. The large size and combination of upland meadow, forest, and adjacency to Johnson Creek is rare and provides habitat for a large diversity of bird, large and small mammal, and reptile species.

This combination of forest and grassland provides potential for good quality habitat. The forest provides foraging, perching, roosting, and nesting habitat for hawks, falcons, owls, and bats. The grassland provides nesting habitat for birds such as meadowlarks and sparrows. The grass sod and thatch provide high quality habitat for small mammal production. The grassland/forest ecotone provides a valuable edge effect to wildlife, potentially supporting greater densities than other habitat types.

Forested wetland situated along Johnson reek corridor and at the base of Powell Butte provides excellent connectivity as well as nesting forage and cover habitat for birds, amphibians and small mammals.

Powell Butte has very high scenic quality with a panoramic view of the Cascade mountains, Columbia River, and the Portland metropolitan area.

The site also shows signs of historical disturbance in forms of logging and farming; however, it now shows less sign of human use.

Score for Wildlife Habitat Value: 73	**Range for All Sites** = 18 to 83
Vegetation:	
Food (variety)	medium
Cover(structural diversity)	medium
Human Disturbance:	high
Interspersion:	high

MANAGEMENT RECOMMENDATIONS

Retain the variety of habitat, including the meadow and wetlands. Protect the forested perimeter. Develop Powell park area to take advantage of its natural attributes. As a condition of any future water reservoir expansion, require an alternative or modified practice of water release that is compatible with the goals and objectives of the *Johnson Creek Basin Protection Plan.*

SITE-SPECIFIC ESEE COMMENTS

Conflicting Uses: Residential development, removal of trees for firewood (or any other reason), some aspects of the park use (both incompatible recreation and overuse of compatible recreation), and Water Bureau operations which discharge water into Johnson Creek in large amounts over short periods of time.

Consequences of allowing Conflicting Uses: The Powell Butte Master Plan was adopted in 1987. It gives considerable protection to the natural resource aspects of the park that are in public ownership. The master plan intends that Powell Butte will develop as a natural, regional park providing generally passive activities. The master plan recognizes the value of the natural resources. With the master plan in place, application of the Environmental Zone is less important on the publicly owned lands, which is about 570 acres of Powell Butte.

SITE-SPECIFIC COMPATIBLE USES

- Park development approved under the 1987 conditional use

Conclusion and Conflict Resolution

Site 29 is significant because it is Powell Butte which is a major geographic feature of Portland with City-wide significance as wildlife habitat and scenic value. Site 29 has one of the highest habitat ratings in the study area. The combination of upland meadow, forest, wetlands and adjacency to Johnson Creek is rare. In particular, there are few upland meadows left in the metropolitan area. Powell Butte provides habitat for a large diversity of birds, large and small mammals, and reptile species. Powell Butte contributes to the regions' identity plus provides panoramic views of the Cascade mountains, Columbia River, and the Portland metropolitan area.

The conflicting uses are residential development and overuse or incompatible recreational uses. About 570 acres of the 600-acre site is in public park use. The adopted Powell Butte Master Plan gives considerable protection to the natural resource aspects of the parks and directs that Powell Butte be developed as a natural, regional park providing passive activities.

The significant resource values are water purification, storm drainage, scenic, pollution and nutrient retention and removal, sediment trapping, recreation, education, and heritage.

Decision

The decision for Powell Butte is to fully protect the forested areas and forested wetland; to allow limited conflicting uses on the residentially-zoned areas where habitat resources exist and on the open space designated area where the forest cover has been removed; and to fully allow conflicting uses where habitat resources no longer exist.

Prohibit Conflicting Uses

The areas where conflicting uses are prohibited correspond to the forested steep slopes and forested wetland. Eliminating conflicting uses is necessary based on the habitat inventory and in order to ensure positive ESEE consequences. This decision is consistent with the master plan for the park and will not result in loss of housing potential at the wetland site because redistribution of units to avoid wetlands is readily accomplished.

Allow Limited Conflicting Uses

The areas where limited conflicting uses may occur are either tree covered and/or steeply sloping residential land (about 30 acres is designated EC-zone) or park land with no tree cover (about 470 acres).

Allow Conflicting Uses Fully*

The areas where conflicting uses may fully occur are where the resources have been removed. These areas correspond to developed areas located on the northeast corner of the site where several single-family residential and commercial developments exist.

LAND AREA AFFECTED BY ENVIRONMENTAL OVERLAY ZONES

Zone	Area Affected by EC Zone	Area Affected by EP Zone
OS	400	170
R20(R10)	30	
R10	1.35 acres	
R5	1.9 acres	4.3 acres

SITE 30: Boring Lava Domes

Maps: 3647, 3547, 3646, 3546
3446, 3445, 3645, 3545

SITE SIZE: Approx. 1,370 acres
LOCATION: I-205 east to City Limits near SE Foster Road, natural resource sites along Johnson Creek south to the southern City Limits
NEIGHBORHOOD: Lents, Pleasant Valley

See Part III, Boring Lava Domes Supplement.

Part II

OUTER SOUTHEAST COMMUNITY PLAN

ADDENDUM TO THE JOHNSON CREEK BASIN PROTECTION PLAN (January 1996)

OUTER SOUTHEAST COMMUNITY PLAN ADDENDUM

Portland City Council

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Charlie Hales, *Commissioner of Public Safety*
Earl Blumenauer, *Commissioner of Public Works*
Gretchen Kafoury, *Commissioner of Public Affairs*
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Charlie Hales, *Commissioner in Charge*
David C. Knowles, *Planning Director*
Michael S. Harrison, AICP, *Chief Planner, Neighborhood Planning*

Project Staff

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Laurie Wall, AICP, *City Planner*
Susan Gregory, *Word Processing Operator*

Adopted by City Council January 31, 1996

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Part II OUTER SOUTHEAST COMMUNITY PLAN (1996)

SUMMARY

Johnson Creek Basin Protection Plan adopted on July 17, 1991

The *Johnson Creek Basin Protection Plan* (JCBPP), adopted by City Council on July 17, 1991, inventoried and analyzed sites within the area shown on Map 1. These sites were located within the City of Portland. This *Addendum to the Johnson Creek Basin Protection Plan* inventories and analyzes ten sites within or contiguous to this area which were recently annexed into the City or are anticipated for annexation in the near future.

Both the *Johnson Creek Basin Protection Plan* and this *Addendum* have been prepared to protect natural, scenic and open space resources in compliance with Statewide Planning Goal 5. Seven of these sites were annexed into the City of Portland on July 1, 1994. Three sites were inventoried as part of the *Johnson Creek Basin Protection Plan.* All sites are adjacent to existing environmentally-zoned properties in the City. The sites are easy to identify because of previous Multnomah County environmental designations, previous City inventories and adjacent City environmental zones.

The ten resource sites in this *Addendum* are Johnson Creek between 117th and 122nd, at Canyon/Deardorf Road, West of Bundy Park, East of Bundy Park, southwest of Powell Butte at 145th Avenue, and Circle Avenue; an unnamed tributary at Foster and Jenne Roads; north slope of Powell Butte; and Boring Lava Hills at Barbara Welch Road.

Primary conservation measure for resource sites is the application of the City's environmental overlay zones

The primary conservation measure for these resource sites is the application of the City's environmental overlay zones. These zones protect identified resources and functional values and provide a mechanism through which conflicts between resources and human uses can be resolved. Full protection (the more restrictive protective, "p", zone) is proposed for high valued resources next to Johnson Creek and its tributaries. Limited protection (the conservation, "c" zone) is proposed for significant resources to balance conflicts between land uses and resources. No protection is proposed where resources are not significant or where protection of significant resources has overall negative consequences. Adopted environmental zones will be shown on city zoning maps.

PURPOSE

Inventory, analysis and recommendations for protection of resources in the Johnson Creek Basin

This *Addendum* to the *Johnson Creek Basin Protection Plan* provides the inventory, analysis and recommendations for protection of recently annexed significant natural, scenic and open space resources in the Johnson Creek Basin, as well as those which are expected to be annexed in the near future. These resources were given interim environmental zoning based on similar Multnomah County environmental zoning. This study is being done in conjunction with the *Outer Southeast Community Plan.* There are ten resource sites including areas along Johnson Creek, one unnamed tributary to Johnson Creek, the north slopes of Powell Butte, and an area of Multnomah County straddling Barbara Welch Road near Clatsop Street,

Goal 5 requirements

This *Addendum* is designed to comply with the Oregon Land Conservation and Development Commission (LCDC) Statewide Planning Goal 5 requirements. State Goal 5 requires all jurisdictions in Oregon to "conserve open space and protect natural and scenic resources." The Goal 5 Administrative Rule prescribes the following three-step planning process:

1) Inventory of the location, quantity and quality of Goal 5 resources;
2) Analysis of the economic, social, environmental and energy (ESEE) consequences of allowing, limiting or prohibiting land uses which conflict with identified resources; and
3) Development of a program to protect significant resources.

Relation to Other Resource Planning Projects

This *Addendum to the Johnson Creek Basin Protection Plan* is being done in conjunction with the *Outer Southeast Community Plan.* The Johnson Creek Basin Protection Plan evaluated the area of Johnson Creek that was inside the City limits in 1991 in order to comply with Statewide Planning Goal 5. This plan was adopted on July 17, 1991.

The *East Buttes, Terraces and Wetlands Conservation Plan* (1993) includes Beggars Tick Marsh, Kelly Butte, and Glendoveer Golf Course which are in the Outer Southeast Community Plan study area. The *Scenic Resources Protection Plan* (1991) includes Kelly Butte, Powell Butte, Leach Park, Willamette National Cemetery, and Johnson Creek as a Scenic Corridor, all of which are in the Outer Southeast Community Plan study area.

Bureau of Environmental Services published the Johnson Creek Resources Management Plan in May, 1995

The Portland Bureau of Environmental Services published the *Johnson Creek Resources Management Plan* (JCRMP) in May, 1995 to protect and restore the natural resources of the watershed. One main purpose of the JCRMP is to address flooding and water quality issues on a basin-wide, multi-jurisdictional level. It contains a series of actions which would result in the gradual environmental enhancement of Johnson Creek and its watershed, through flood management, pollution prevention, fish and wildlife habitat enhancement and watershed stewardship. The JCRMP indicates that all jurisdictions need to establish comprehensive and effective regulations for new developments to enhance and restore the riparian corridor. The JCRMP promotes management and implementation of zoning and development standards. The JCRMP supports Portland's environmental zoning of Johnson Creek and calls for similar regulation for the entire watershed. The four cities and two counties in the watershed have already or will shortly consider adoption of the portions of the JCRMP that are applicable to their jurisdiction.

RESOURCE SITE INVENTORY AND ANALYSIS

Inventory and Analysis Methods

Field inventory work conducted in 1995

Field inventory work for this study was conducted during January, February, May, and November, 1995. Two forms of analysis were used: 1) Wildlife Habitat Assessment forms and, 2) Determination of Resource Significance Field Sheets. Copies of both are found in Appendix A.

Additional information was gathered from the following sources: United States Geologic Survey (USGS) and city topographic maps, National Wetlands Inventory maps, USDA Soil Conservation Service maps, local inventories or land use cases and 1989 and 1991 infra-red aerial photographs (Bergman). Additional references used during the development of the *Addendum* inventory and analysis are cited in the Bibliography (Appendix E).

Decision Factors

Inventory objective is to establish location, quantity, and quality of resources within the planning area

The object of the inventory is to establish the location, quantity, and quality of resources within the planning area. These features and other notable aspects of identified resources are summarized for each site in Part C, Site by Site Inventory and Analysis, later in this chapter. To evaluate the relative significance of a resource, several factors were considered. Each resource has certain functional values. Depending on the location, quantity and quality of the particular resource, these values may be important or they may not be important.

Contributing factors

If the values are important when considering the factors discussed below, the resource was deemed significant. Decision factors are those factors which, on their own, are important and established the significance of a resource. Contributing factors may have limited or moderate importance on their own, but when two or more contributing factors for the same resource area are combined, that resource is deemed significant. In general, contributing factors are associated with resource values which may be limited due to the geographic, physiographic or related conditions in the Johnson Creek Basin Addendum study area.

DECISION FACTORS USED FOR THE OSCP ADDENDUM

Resource Value	Decision Factors
Fish/Wildlife Habitat	Provides habitat for threatened, endangered or state-listed sensitive species; or Wildlife Habitat Assessment is 45 points or more; or provides a viable connection between or enhances adjoining habitat areas
Water Purification	If 75% of creek length has an average vegetative coverage of 25% or greater in riparian zone, vegetation has positive influence on water quality and riparian zone significant.
Flood Storage	Creek or water source is located within the 100-year floodplain or provides measurable reduction of intensity of floods.
Slope/Soil Stabilization	Vegetative cover is significant if on slopes of 50% or more, soils have vegetative cover of 75% or more.

Resource Value	Decision Factors
Groundwater Recharge	Resource is pervious and permits infiltration to aquifers or groundwater reserves which supply water for domestic use or sustain flows in significant creeks during dry season.
Surface Drainage	Creeks conduct runoff water, sediments and nutrients from highlands to low-lying land or water bodies.
Heritage	Site contains artifacts or other evidence of prehistoric or historical use.

CONTRIBUTING FACTORS USED FOR THE OSCP ADDENDUM

Resource Value	Contributing Factors
Fish/Wildlife Habitat	Resource provides positive influence on off-site habitat for threatened, endangered or state-listed sensitive species
Domestic Water Supply	The site contributes to surface or groundwater usage.
Slope/Soil Stabilization	Vegetative cover on slopes of 30% or more, soils have vegetative canopy cover of at least 75%.
Education	Resource is or potentially could be used for public educational purposes, or is ecologically or scientifically significant according to the Natural Heritage Program.
Recreation	Resource is within a designated open space are, or public park or right-of-way and is or potentially could be an integral part of area's recreational activities.
Visual/Scenic Amenity	Resource is visible from a public area, provides amenity value to adjoining land uses, or is an identified urban design element of the neighborhood or city.
Buffering Land Uses	Resource provides a visual or auditory buffer between residential neighborhoods or different land uses.

Wildlife Habitat Assessment

Analysis of physical environments for which wildlife have known preferences

City field inventories used the Wildlife Habitat Assessment (WHA) process, which involves analysis of physical environments for which wildlife have known preferences. The Wildlife Habitat Assessment forms include information on weather, topography, vegetation, wildlife, habitat function, human use and management potential. The WHA form was originally developed by the City of Beaverton and subsequently modified with input from state and federal resource agencies and the Audubon Society of Portland. This rating system was previously used by the City of Portland for resource inventories along the Willamette Greenway, the Columbia Corridor, the West Hills, the Johnson Creek basin, in the East Buttes, Terraces and Wetlands area, and along the Skyline Corridor. It has also been used with minor modifications by Multnomah County and the cities of Gresham, Milwaukie, Eugene, Springfield, Hillsboro and other Oregon jurisdictions in the course of their Goal 5 inventory process.

The habitat assessment process involves analysis of physical environments for which wildlife have known preferences. The

WHA form is used to rate habitat values numerically based on the presence and availability of three basic elements: food, water and cover. Values for human and physical disturbance, interspersion with other natural areas, and unique or rare habitats or plant and animal occurrences are also noted. Habitat scores for the planning area ranged from a low of 52 to a high of 77.

The method used for inventorying resources provides an acceptable base of information while allowing for augmentation from other sources. It has been used successfully by the city and other jurisdictions in the state, and has been reviewed by LCDC and found acceptable for Goal 5 compliance.

Conflicting uses

Once a resource is found to be significant, existing and potential uses which may conflict with the preservation of that resource must be identified. Where there are no conflicts, the resource must be fully protected. Where conflicts arise, a conflicting use analysis must be carried out. This analysis involves weighing economic, social, environmental and energy considerations (ESEE). For detailed information on the conflicting use analysis and the ESEE analysis for this study area see the original OSCP Addendum to the Johnson Creek Basin Protection Plan, on file at the Bureau of Planning..

Site-Specific Discussion Format

Summarizing material gathered during field visints and from other sources

The inventory and analysis of resource sites in the following section summarizes material gathered during field visits and from other sources as noted above. Discussion of the inventory and analysis is identical for each site. This section discusses what each particular element of the analysis means.

Resource Site #: Each site has been given a distinct number. Numbers correspond to sites in the *Johnson Creek Basin Protection Plan* (JCBPP). In almost all cases, the numbers follow those in the Protection Plan. For example, the first site is the recently annexed area between JCBPP Sites 17 and 18. This site has been given the number 17.1.

Name: Each site has been given a unique, descriptive name. For example, site 17.1 has been named Johnson Creek 117th to 122nd.

Map #: These refer to Quarter Section map numbers.

Resource Site Size: Approximate acreage of resource site

Approx. Boundaries: Approximate north, east, south and west boundaries

Neighborhoods: Names of local neighborhood(s)

Inventory Dates: Dates of field inventories of the resource site

Habitat Classification: Based in part on the National Wetlands Inventory Classification System; see Glossary for definitions

Types of Resources: Natural resources found at the site. These were described above in Part I: Resource Functions and Values.

Functional Values: Importance of the resources to the human and natural ecosystem. These were described above in Part I: Resource Functions and Values.

Location and Description of Resource Site: Narrative description of the location and significant resource features of each individual site.

Quantity and Quality of Resources: Evaluation of the resource quantity and quality using information from field inventories, previous studies, aerial and infra-red photos, and other sources.

Habitat Rating: Summary of the relative quality of wildlife habitat within a particular resource site. The top of the habitat rating box includes two scores: 1) the individual site's composite habitat score and, 2) the range of scores for all sites in the planning area. The latter ranges from 52 to 77. The highest that any site could achieve would be 108.

The functional value of the three principal habitat components (water, food and cover) is then summarized with assessments ranging from "low" to "high" based on the following scores for these components:

	Low	Moderately Low	Medium	Moderately High	High
Water	2 - 7	8 -12	13 - 18	19 - 24	25 - 30
Food	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24
Cover	0 - 5	6 - 11	12 - 16	17 - 22	23 - 28

The three remaining categories, interspersion, uniqueness and disturbance, are classified in a similar fashion using "low," "medium" and "high." The terms are rated in the following manner:

Interspersion: Assessed as a separate entity directly from the WHA form

Uniqueness: Combination of the site's unique features, i.e. habitat type, flora and fauna

Disturbance: Combination of physical and human disturbance. This is the only value inversely related to scoring; i.e. a high score corresponds to a low disturbance.

	Low	Medium	High
Interspersion	0 - 1	2 - 4	5 - 6
Uniqueness	0 - 3	4 - 7	8 - 12
Disturbance	8 - 6	5 - 3	2 - 0

Summary of Inventory Description

This section summarizes the above inventory and the significance of individual resources. The inventory and analysis of the significance of the resources sets the stage for determining the consequences of certain actions.

SITE 17.1: Johnson Creek (117th-122nd) Map: 3742

RESOURCE SITE SIZE: 13 acres
APPROX. BOUNDARIES: 116th Place (W), Foster Rd. (N), 122nd (E), Johnson Creek (S).
NEIGHBORHOOD: None
INVENTORY DATES: January 27, 1995; February 2, 1995

RESOURCE CLASSIFICATION

- Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded Stream
- Palustrine, Scrub Shrub, Forested, Deciduous/Conifer, Seasonally Flooded and Saturated Wetlands
- Forested open uplands
- Soil types: Multnomah silt loam (29D), Wapato silt loam (55)

FUNCTIONAL VALUES

Food, water, cover and territory for fish and wildlife; filter and purification of water and provision of domestic water supplies; flood storage, storm drainage, and dissipation of erosive forces of stormwater; retention and removal of excess nutrients and chemical contaminants; ground water recharge and discharge; retention of soils, slope stabilization, sediment trapping and filtration, and erosion control; microclimate amelioration; enhancement of neighborhood livability and scenic amenities; provision of recreational and educational opportunities.

RESOURCE LOCATION AND DESCRIPTION

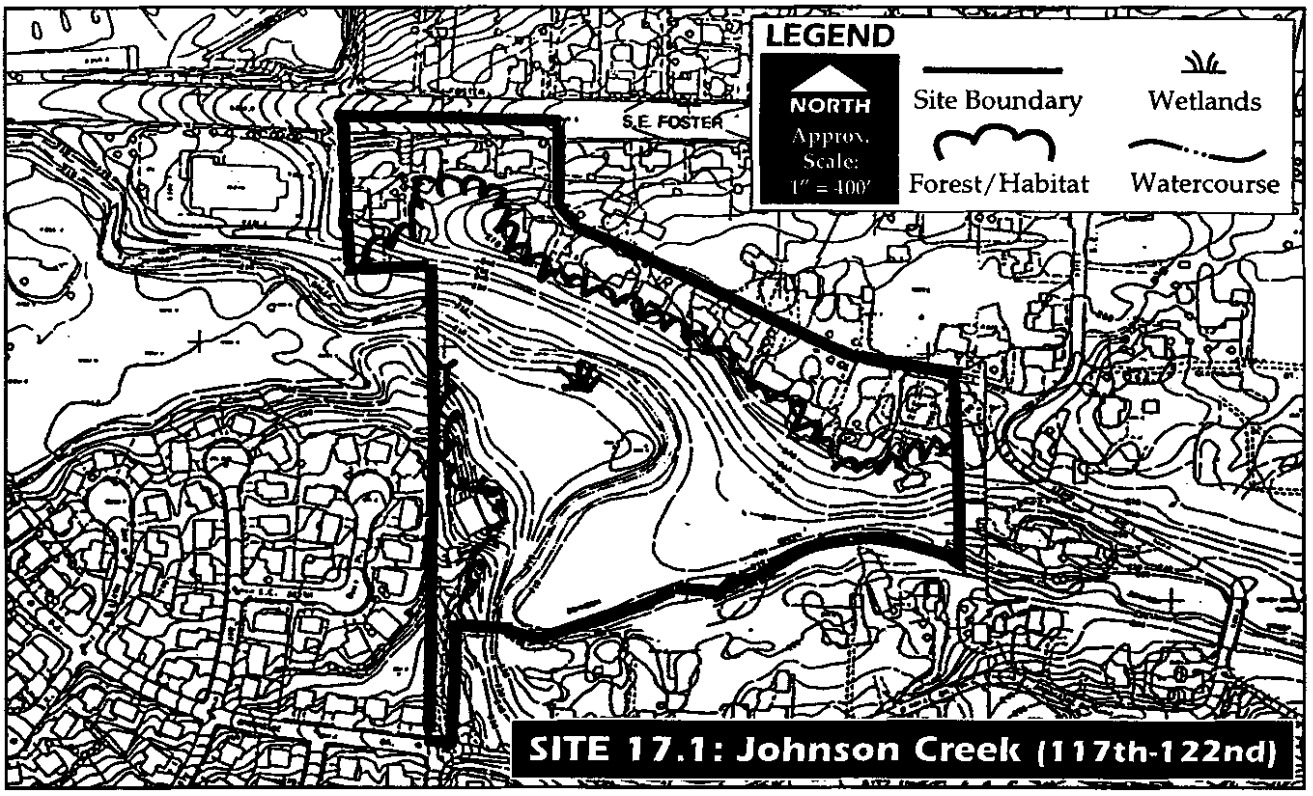
Site 17.1 straddles both sides of Johnson Creek at a reverse "S" turn. The Creek is in a canyon at this location and has a broad tree canopy. The area was zoned "sec" "Significant Environmental Concern" when it was in Multnomah County.

The Floodway or wetland area is up to 500 feet wide, narrowing to 100 feet at the eastern edge. Three-fourths of the remainder of the site is in the 100-year flood plain.

There are single family homes on the 9 lots on the north side of the Creek. The houses sit close to Foster Road and at some distance, an average of more than 100 feet, from the Creek. The two lots on the southwest side of the Creek each have a house on them but the houses are situated closer to the street than the Creek. Pedestrian access easements from these adjacent residences lead to an open space strip that borders the Creek property.

RESOURCE QUANTITY AND QUALITY

Both sides of the bank are overgrown with blackberries and willow. The forested area consists of both coniferous and deciduous trees, including western red cedar *(Thuja plicata)*, big-leaf maple *(Acer macrophyllum)*, western hemlock *(Tsuga heterophylla)*, grand fir *(Abies grandis)*, and red alder *(Alnus rubra)*. Reed canary grass and Himalayan blackberry is mixed in with the trees. Not seen during this particular inventory, but known to occur along Johnson Creek, are the American crow, American robin, mallard, wood duck, raccoon, moles, and beaver.



Less than half of the site is developed. Although the wetland area along Johnson Creek has been disturbed and is dominated by Himalayan blackberry and reed canary grass, the combination of meadow, wet meadow, deciduous trees, forest, open grassland, and riparian and creek habitat is uncommon in the Johnson Creek Basin, allowing use and travel by a large diversity of wildlife species.

Since none of the property within the Floodway is developed there is little or no property damage caused by flooding. The pedestrian access easements allows the opportunity for viewing wildlife.

Habitat Rating

Wildlife Habitat Score: 70	**Range for All Sites** = 52-77
Water:	Moderately High
Food:	Moderately High
Cover:	Moderately High
Interspersion:	Medium
Uniqueness:	Medium
Disturbance:	Medium

SUMMARY OF INVENTORY

Johnson Creek has long been recognized as a premier scenic and natural resource area in Portland. The site is accessible only through private property. The site's appearance is similar to the sites on either side, forested with blackberries and other shrubs. The high natural resource value and low physical and human disturbance result in a moderate to highly significant natural resource site.

SITE 20.1: Johnson Creek at Canyon/Deardorf Rd. Map: 3744

SITE SIZE: 5 acres
LOCATION: Johnson Creek (S), extension of 133rd (W), 250 feet north of Johnson Creek (N), 134th (E)
NEIGHBORHOOD: Pleasant Valley
DATE OF INVENTORY: January 19, 1995

RESOURCE CLASSIFICATION

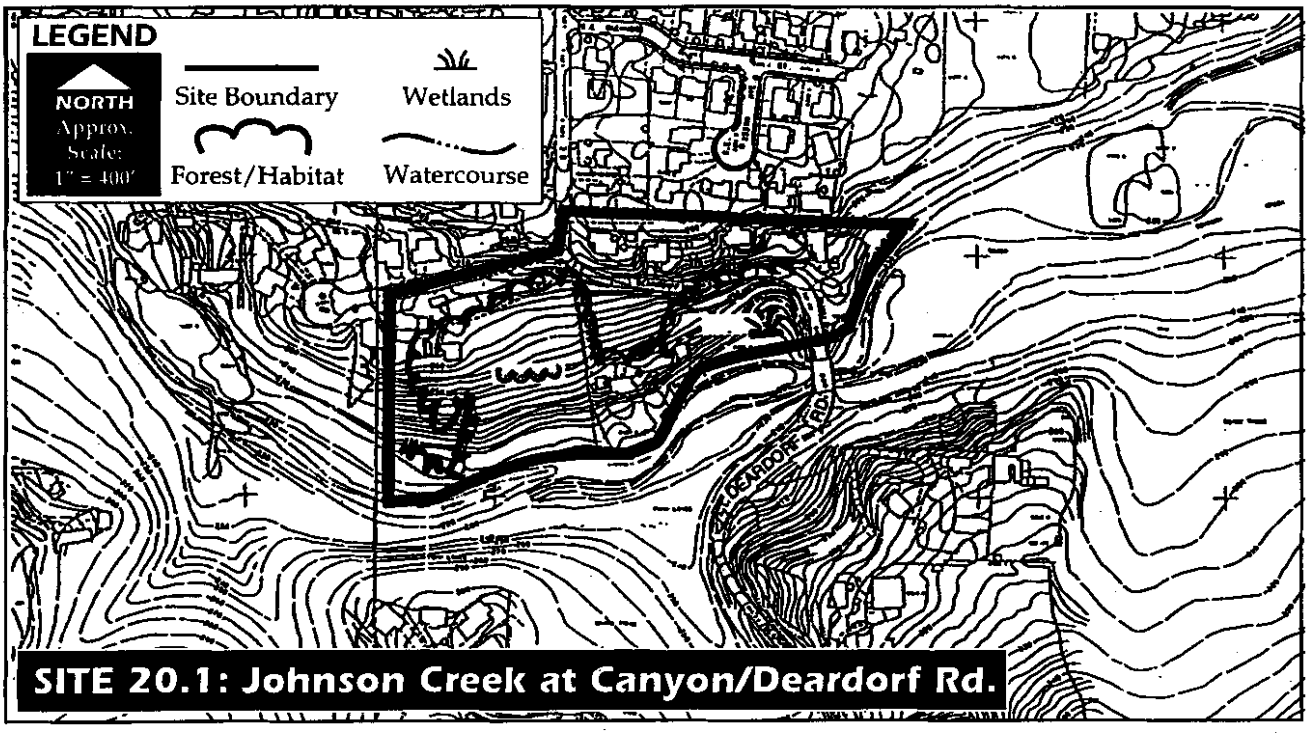
- Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded Stream
- Palustrine, Forested, Coniferous/Broadleaf Deciduous Forest, Seasonally Flooded and Saturated Wetlands
- Forested and open uplands
- Soil types: Multnomah silt loam (29C), Wapato silt loam (55), Cascade silt loam (7E)

FUNCTIONAL VALUES

Food, water, cover and territory for fish and wildlife; filter and purification of water and provision of domestic water supplies; flood storage, storm drainage, and dissipation of erosive forces of stormwater; retention and removal of excess nutrients and chemical contaminants; ground water recharge and discharge; retention of soils, slope stabilization, sediment trapping and filtration, and erosion control; microclimate amelioration; enhancement of neighborhood livability and scenic amenities; provision of recreational and educational opportunities.

RESOURCE LOCATION AND DESCRIPTION

Site 20.1 encompasses the north side of the Creek east and west of Deardorf Road. A wooden covered bridge, Cedar Crossing, enhances Deardorf Road's crossing of Johnson Creek at this location. There is a small right-of-way pull out area south and west of the



bridge. There are structures on all but one lot north of Deardorf Road. A low-lying ponding wetland is located just west of Deardorf Road. The site is within the 10-year flood plain of Johnson Creek (i.e. it is subject to flooding on the average of at least once every 10 years).

RESOURCE QUANTITY AND QUALITY

The site is deciduous and coniferous forest with some cultivated grass at the west portion. The channel is rip-rapped and overgrown with Himalayan blackberry. The grade is about 15% from the Creek water level to the top of bank. The dominant vegetation are Douglas-fir *(Pseudotsuga menziesii)*, western red cedar *(Thuja plicata)*, red alder *(Alnus rubra)*, black cottonwood *(Populous balsamifera)*, big-leaf maple *(acer macrophyllum)*, willow and various ornamental trees and some lawn. The Creek is shaded throughout the site.

Interspersion of this area is high, because of its proximity to the large forested areas of Powell Butte to the north, the lava Boring Hills on the south and the developed and undeveloped parks of Leach Botanical Garden and Bundy Park. This juxtaposition of the Creek channel with large forested natural areas and parks provides not only a potential important source of water to animals that use the larger forested areas but also acts as a corridor providing cover and food, and for movements and dispersals between areas. In addition, the Creek's shading provides relatively good habitat for fish and other aquatic species.

Habitat Rating

Wildlife Habitat Score: 72	**Range for All Sites** = 52-77
Water:	Moderately High
Food:	Medium
Cover:	Moderately High
Interspersion:	High
Uniqueness:	High
Disturbance:	Medium

SUMMARY OF INVENTORY

Johnson Creek has long been recognized as a premier scenic and natural resource area in Portland. The site is accessible only through private property. The site's appearance is similar to the sites on either side. The medium to moderately-high natural resource value and medium physical and human disturbance result in a moderately significant natural resource site.

SITE 21.1: Johnson Creek West of Bundy Park Map: 3744

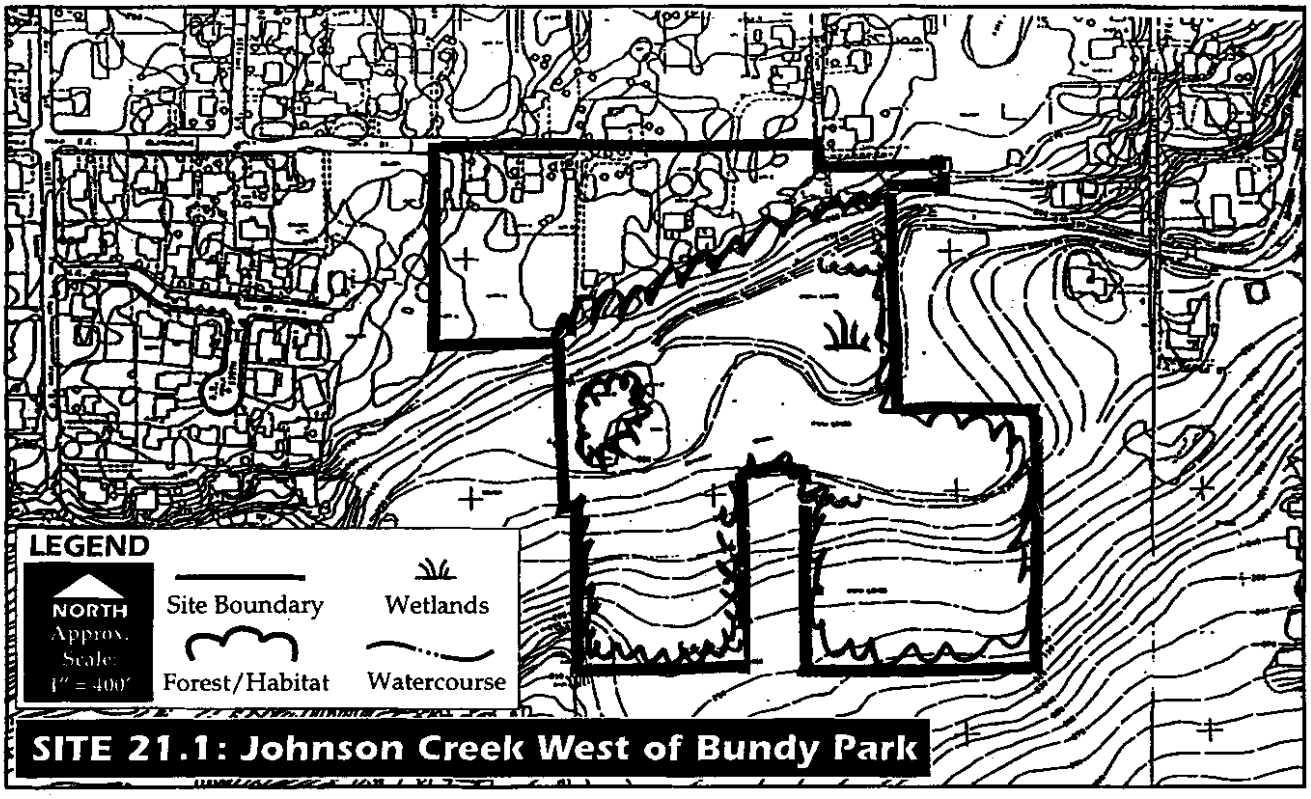
SITE SIZE: 21 acres
LOCATION: SE Claybourne St. (extension of) (N); SE 141st (extension of) (E); SE Knapp Ct. (extension of) (S); SE 137th Ave. (extension of)(W)
NEIGHBORHOOD: Pleasant Valley
DATE OF INVENTORY: January 19, 1995; November 14, 1995

RESOURCE CLASSIFICATION

- Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded Stream
- Palustrine, Forested, Coniferous/Broadleaf Deciduous Forest, Seasonally Flooded and Saturated Wetlands
- Forested and open uplands
- Soil types: Multnomah silt loam (29C), Wapato silt loam (55), Multnomah-Urban land complex (30B)

FUNCTIONAL VALUES

Food, water, cover and territory for fish and wildlife; filter and purification of water and provision of domestic water supplies; flood storage, storm drainage, and dissipation of erosive forces of stormwater; retention and removal of excess nutrients and chemical contaminants; ground water recharge and discharge; retention of soils, slope stabilization, sediment trapping and filtration, and erosion control; microclimate amelioration; enhancement of neighborhood livability and scenic amenities; provision of recreational and educational opportunities.



RESOURCE LOCATION AND DESCRIPTION

Site 21.1 is largely undeveloped and adjacent to - west and south of - Bundy Park, an undeveloped city-owned open space. Each side of the Creek at this location has at least a 200-foot wide area that is in forest cover except at the west end of the site, where residential landscaping of grass and arborvitae has been created.

Most of the creek bank at this site is lined with rock from a 1930 WPA project. The more natural portion is a remnant of what much of the Johnson Creek riparian corridor looked like prior to alterations and removal of forested vegetation. Land north of the site is in single dwelling residential development, while the other sides are bordered by forests or agricultural uses. Two undeveloped lots encompassing almost 8 acres on a north facing slope above the Creek is part of the Boring Lava Hills and surrounding undeveloped forested area. On the north portion of the site, a house sites on each of the lots, well back from the Creek. The site is within the 10-year flood plain of Johnson Creek.

RESOURCE QUANTITY AND QUALITY

Most of the site is in natural condition with second growth mixed deciduous/ coniferous forest, and the rest is planted with lawn-type grass and shrubs.

Structural diversity is high, characterized by a western red cedar *(thuja plicata)* and Douglas fir *(Pseudotsuga menziesii)* overstory and a well-developed native shrub and herbaceous layer understory. Plant species diversity is high and primarily comprised of native plants. Plants include wild rose, vine maple *(Acer circinatum)*, elk fern, Piggy back plant *(Tolmiea menziesii)*, Oregon holly, Oregon grape *(Mahonia nervosa)*, reed canary grass *(Phalaris arundinacea)*, and swordfern *(Polystichum munitum)*. Introduced species include Himalayan blackberry *(Rubus discolor)* and English ivy. Standing and fallen snags provide food and shelter for wildlife. Snags are numerous, at about 2 per acre.

The channel is rock lined and overgrown with blackberry in some places. The dominant vegetation influencing the channel are a mixed forest of Douglas-fir, cedar, alder, cottonwood, maple, willow, and various ornamental trees, as well as a lawn and a garden. The Creek is shaded throughout this site and has some pools, providing relatively good habitat for fish and other aquatic species.

Interspersion of this area is high, lying near the large forested areas of Powell Butte to the north of the Creek, the Boring Lava Hills to the south and the developed and undeveloped parks of Leach Botanical Garden and Bundy Park. This juxtaposition of the Creek channel with large forested natural areas and parks provides not only a potential important source of water to animals that use the larger forested areas, but also acts as a corridor providing cover and food, and for movements and dispersals between areas. The site is aesthetically pleasurable. Passive recreation, especially walking along the Creek in an expanded, undeveloped urban park would not be a conflicting use.

Habitat Rating

Wildlife Habitat Score: 77	**Range for All Sites** = 52-77
Water:	Moderately High
Food:	Moderately High
Cover:	Moderately High
Interspersion:	Moderately High
Uniqueness:	Moderately High
Disturbance:	Low

SUMMARY OF INVENTORY

Johnson Creek has long been recognized as a premier scenic and natural resource area in Portland. Site 21.1 is accessible only through private property or Bundy Park. Bundy Park itself is accessible only by 141st Street, a narrow dirt road off of SE Foster Road. The site's appearance is similar to Bundy Park. The high natural resource value and low physical and human disturbance result in a highly significant natural resource site.

SITE 22.1: Johnson Creek East of Bundy Park — Maps: 3744, 3745

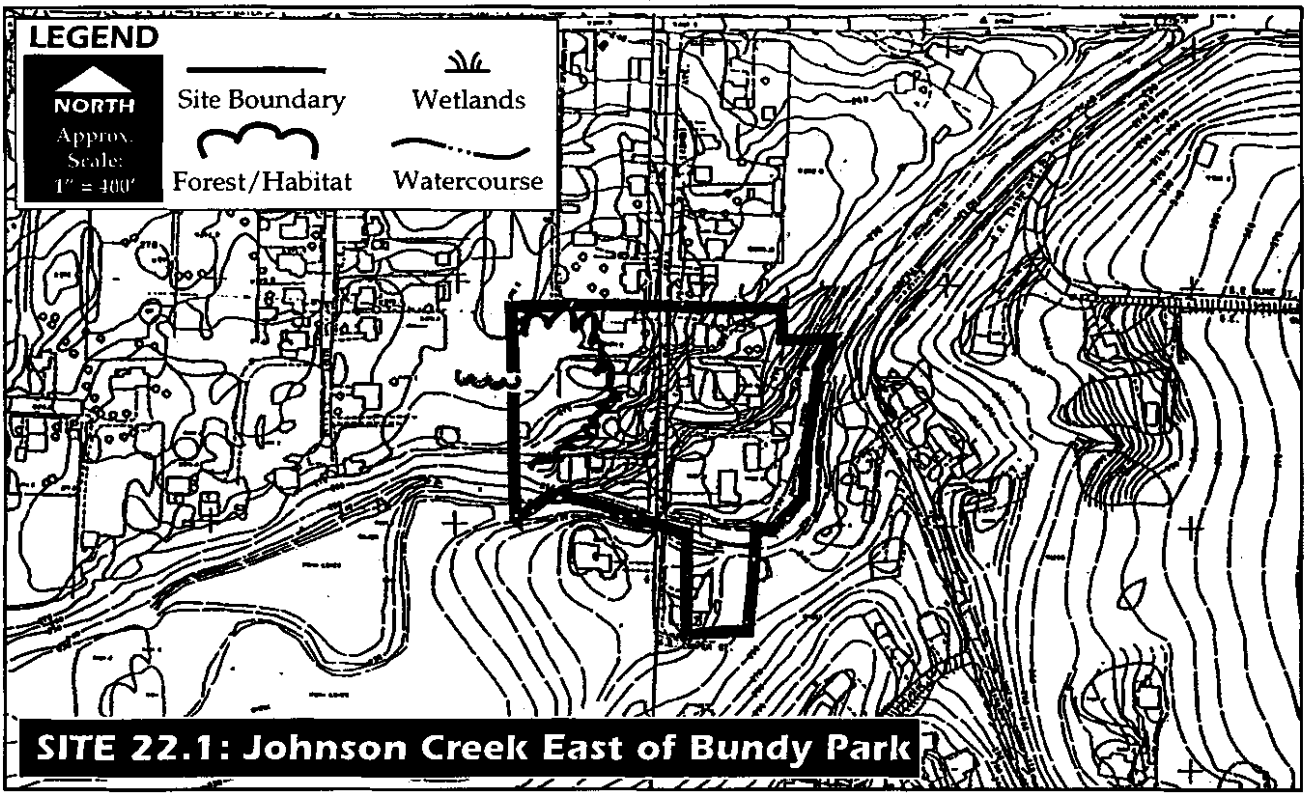
SITE SIZE: 5 acres
LOCATION: 141st (W), Claybourne (N), Johnson Creek at Barbara Welch Road (E), Johnson Creek (S)
NEIGHBORHOOD: Pleasant Valley
DATE OF INVENTORY: January 26, 1995; November 14, 1995

RESOURCE CLASSIFICATION

- Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded Stream
- Palustrine, Forested, Coniferous/Broadleaf Deciduous Forest, Seasonally Flooded and Saturated Wetlands
- Forested and open uplands
- Soil types: Multnomah silt loam (29C), Wapato silt loam (55), Cascade silt loam (7E)

FUNCTIONAL VALUES

Food, water, cover and territory for fish and wildlife; filter and purification of water and provision of domestic water supplies; flood storage, storm drainage, and dissipation of erosive forces of stormwater; retention and removal of excess nutrients and chemical contaminants; ground water recharge and discharge; retention of soils, slope stabilization, sediment trapping and filtration, and erosion control; microclimate amelioration; enhancement of neighborhood livability and scenic amenities; provision of recreational and educational opportunities.



RESOURCE SITE LOCATION AND DESCRIPTION

Site 22.1 is adjacent to the east boundary of Bundy Park. There are single-dwelling homes on each of the lots on both sides of 142nd Avenue. A bridge crosses the Creek near the south end of 142nd. Most of the site is within the Johnson Creek 10-year floodplain (i.e., it is subject to flooding on the average of at least once every 10 years).

The Creek here provides a pleasant setting for the adjacent and nearby residential area and contributes to Portland's high quality of life and its attractiveness as a place to live and work. Protection of the natural, scenic and open space resources would have a positive effect on local neighborhoods and on nearby property values.

RESOURCE QUANTITY AND QUALITY

The portion of the site within the 10-year flood plain is not developed. Some of the understory vegetation has been cleared. Riparian trees are numerous and line the gently sloping banks of the creek. Well over two dozen mallard, wood, and white ducks were observed in this section of the Creek, as well as large numbers of squirrels. Domestic dogs were abundant in yards and in the street near the site.

The forest composition includes a wide variety of both coniferous and deciduous trees: Douglas fir *(Pseudotsuga menziesii)*, western red cedar *(Thuja plicata)*, western hemlock *(Tsuga heterophylla)*, big leaf maple *(Acer macrophyllum)* and red alder *(Alnus rubra)*. The diverse shrub population includes willows, red twig dogwood, Himalayan blackberry and rhododendron. Non-native shrubs include blackberry, holly, laurel and camellias. Landscaped yards sometimes extend into the floodplain areas. Several snags are also present within the forest.

Habitat Rating

Wildlife Habitat Score: 63	**Range for All Sites** = 52-77
Water:	Moderately High
Food:	Moderately High
Cover:	Moderately High
Interspersion:	Medium
Uniqueness:	Medium
Disturbance:	High

SUMMARY OF INVENTORY

Johnson Creek has long been recognized as a premier scenic and natural resource area in Portland. The site is accessible from the right-of-way, beside and under the bridge. Because of this accessibility, the forest, wildlife habitat, wetlands, scenic and recreational values within the 10-year flood plain portion of the site are of moderately high significance relative to other resource sites within the planning area.

SITE 24.1: Johnson Creek SW of Powell Butte at 145th — Map: 3645

SITE SIZE: 5 acres
LOCATION: 145th (W), S boundary tax lot 2, SW 1/4 Sec. 13 1S 2E (N), E boundary tax lot 6, SW 1/4 Sec. 13 1S 2E (E), Foster Road (S)
NEIGHBORHOOD: Pleasant Valley
DATE OF INVENTORY: January 27, 1995; November 20, 1995

HABITAT CLASSIFICATION

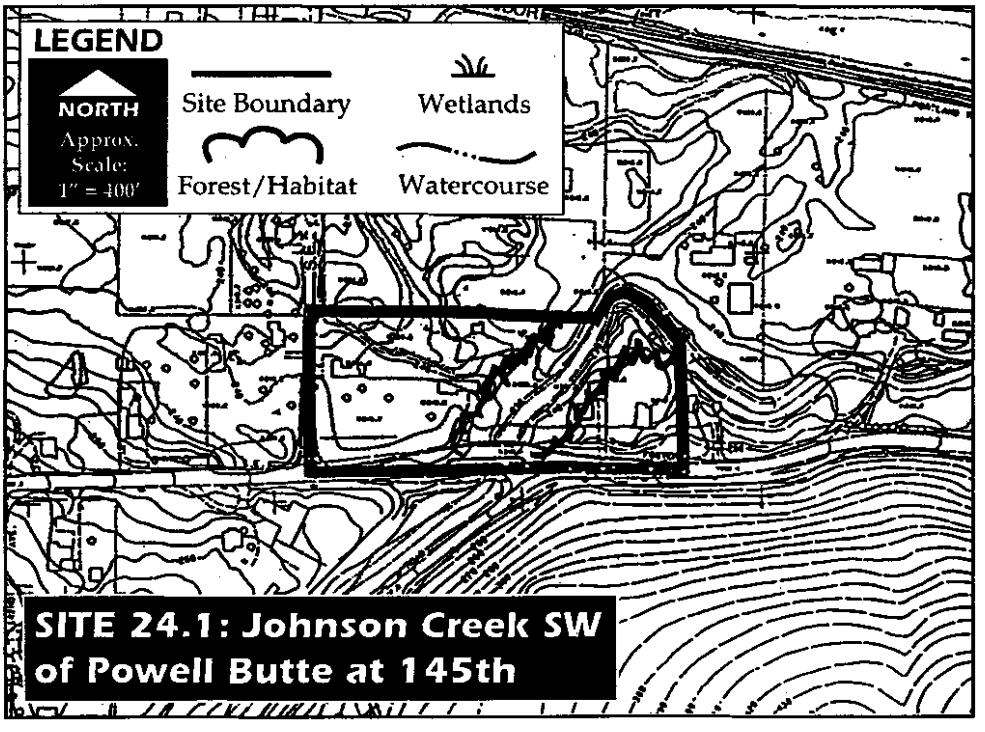
- Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded Stream
- Palustrine, Forested, Coniferous/Broadleaf Deciduous Forest, Seasonally Flooded and Saturated Wetlands
- Forested and open uplands
- Soil types: Multnomah-Urban land complex (30B), Wapato silt loam (55), Powell silt loam (34D)

FUNCTIONAL VALUES

Food, water, cover and territory for fish and wildlife; filter and purification of water and provision of domestic water supplies; flood storage, storm drainage, and dissipation of erosive forces of stormwater; retention and removal of excess nutrients and chemical contaminants; ground water recharge and discharge; retention of soils, slope stabilization, sediment trapping and filtration, and erosion control; microclimate amelioration; enhancement of neighborhood livability and scenic amenities; provision of recreational and educational opportunities.

RESOURCE LOCATION AND DESCRIPTION

Site 24.1 contains two houses east of 145th and west of the Creek, and one house east of the Creek. Beyond the north boundary of the site by some 1,100 feet is the east-west route of



the Springwater Corridor and just beyond that to the north is Powell Butte. The Creek is riprapped as it heads under the bridge crossing Foster Road.

The site is low-lying and almost completely within the 10 year floodplain (i.e., it is subject to flooding on the average of at least once every 10 years). The only portion outside the ten year floodplain is adjacent to Foster Road and the east end of the site.

RESOURCE QUANTITY AND QUALITY

The portion of the site within the 10-year flood plain is developed with housing. Much of the understory vegetation has been cleared. Riparian trees are not as numerous at this location as other areas along the Creek which are analyzed in this *Addendum*. Dogs, horses and cows were found in much of this site. Several wood ducks and mallards were seen.

The sparse forest composition includes a wide variety of trees: Douglas fir *(Pseudotsuga menziesii)*, western red cedar *(thuja plicata)*, big leaf maple *(acer macrophyllum)* and red alder *(Alnus rubra)*. The shrub population includes willows, red twig dogwood and Himalayan blackberry. Landscaped yards, primarily with domestic grass, sometimes extend into the floodplain areas.

Habitat Rating

Wildlife Habitat Score: 52	**Range for All Sites** = 52-77
Water:	Moderately High
Food:	Medium
Cover:	Moderately Low
Interspersion:	Low
Uniqueness:	Low
Disturbance:	High

SUMMARY OF INVENTORY

Johnson Creek has long been recognized as a premier scenic and natural resource area in Portland. The site is not easily accessible from the right-of-except through private property. The 10-year flood plain aspect of the site indicates that the area is particularly significant for flood storage purposes.

Development of housing at this site has reduced and degraded this resource. Native vegetation has been replaced by lawns and pasture land in most of the area. Despite the low density of development of human use of this area it is high with a mixture of roads, houses, fences, power lines and drainage ditches.

Nevertheless, because of the site's juxtaposition with Powell Butte, Bundy Park and the Johnson Creek channel, the site provides a diversity of habitat types and a travel corridor between these upland and riparian areas.

SITE 26.1: Tributary at Foster & Jenne Roads Map: 3747

SITE SIZE: 9.5 acres
LOCATION: Foster Road (W), Unnamed tributary to Johnson Creek at Jenne Road (N), City limits (E), City limits (S), i.e. Tax lot 192, NW 1/4 Sec 19 1S 3E
NEIGHBORHOOD: Pleasant Valley
DATE OF INVENTORY: January 27, 1995; February 3, 1995; November 14, 1995

RESOURCE CLASSIFICATION

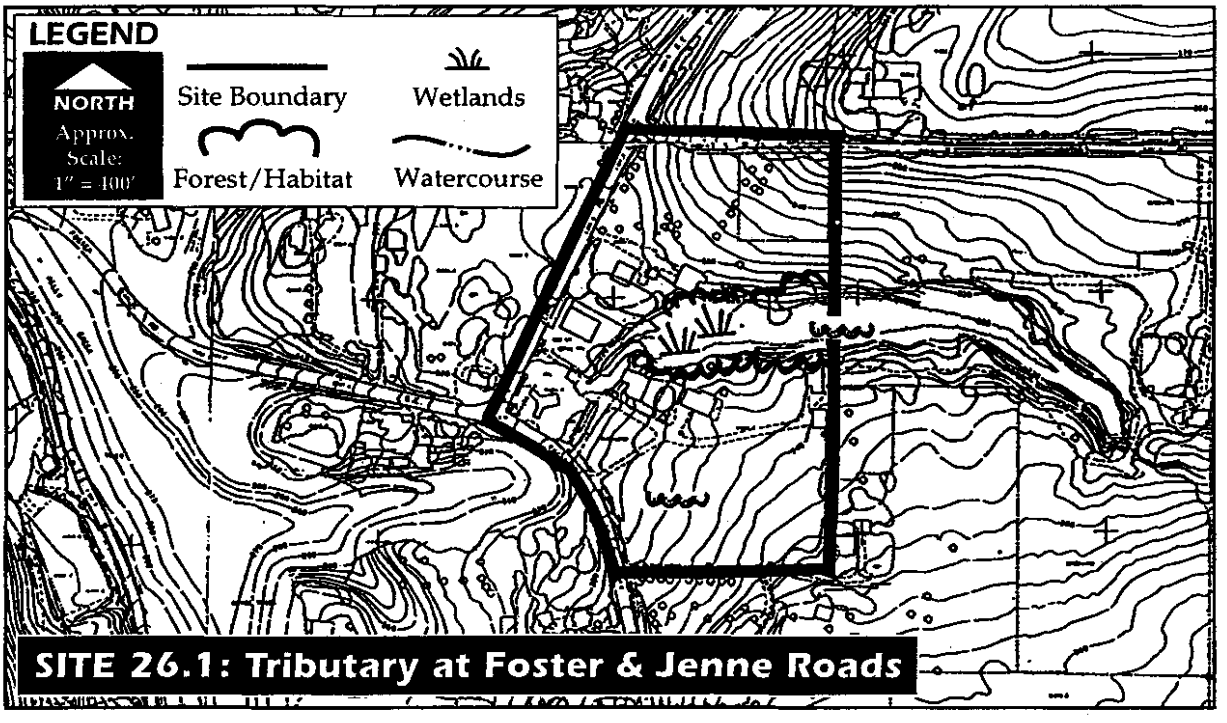
- Palustrine, Forested, Deciduous/ Conifer, Seasonally flooded, Saturated Stream
- Upland Deciduous/Conifer Mixed Forest
- Soil types: Powell silt loam (34B and 34D)

FUNCTIONAL VALUES

Flood storage, storm drainage, filter and purification of water; food, cover and territory for wildlife; ground water recharge; microclimate amelioration; sediment trapping; air quality protection

RESOURCE LOCATION AND DESCRIPTION

Site 26.1 is located northeast of the intersection of Foster and Jenne Roads. This site is composed of a gently sloping hillside with a creek at the north end. A mix of coniferous and deciduous trees—Douglas fir *(Pseudotsuga menziesii)*, western red cedar *(thuja plicata)*, red alder *(Alnus rubra)*, western hemlock *(Tsuga heterophylla)*, and big leaf maple *(Acer macrophyllum)*—line the creek. This somewhat sparsely forested habitat provides roosting, perching, feeding and nesting habitat for some passerine species, woodpeckers, and perhaps small owls. The forest litter and soils provide burrowing habitat for some mammals.



The drainage area contains a swale with a seasonal creek, which is fully in a culvert for the southwest half of its length on this lot. The culvert runs under two lots, one of which is a gas station/auto repair shop and the other is a house. The creek daylights on the north half of the site and again on the southwest side of Foster Road into Kelly Creek.

The site is developed for residential use, Christmas tree farming, and a gas station. A number of horses and cows grazed along the slopes. Horse chestnut trees line McKinley Road to the north. The drainage area is year-round with lower flows in the summer. The daylighted portion of the drainage areas is very overgrown with blackberries.

RESOURCE QUANTITY AND QUALITY

The natural resources are largely confined to the bed and banks of the creek. The site contains blackberries overhanging the channel, interspersed with lawns, Western red cedar and willow. Dense blackberries provide cover and nesting habitat for passerines and small mammals. Large cedar and Douglas fir trees interspersed with willow and alder provide habitat for many bird species including chickadees, nuthatches, kingfisher, and warblers.

Because a large percentage of the site is culverted and cultivated, wildlife habitat values are limited. The partial forest cover also helps to stabilize the steep slope and control erosion. Deer in this area are common. The deer are attracted to the drainage area as a source of drinking water.

Habitat Rating

Wildlife Habitat Score: 52	**Range for All Sites** = 52-77
Water:	Medium
Food:	Medium
Cover:	Medium
Interspersion:	Medium
Uniqueness:	Medium
Disturbance:	Medium

SUMMARY OF INVENTORY

If the blackberries and other introduced species were eliminated, the cedar/alder forest would provide a valuable native riparian habitat.

SITE 27.1: Johnson Creek at Circle Avenue — Map: 3647

SITE SIZE: 4 acres
LOCATION: Lot 25, Jennelynd; Johnson Creek (W), Circle Avenue (N), Original Johnson Creek bed (E and S)
NEIGHBORHOOD: Pleasant Valley
DATE OF INVENTORY: January 19, 1995; November 20, 1995

RESOURCE CLASSIFICATION

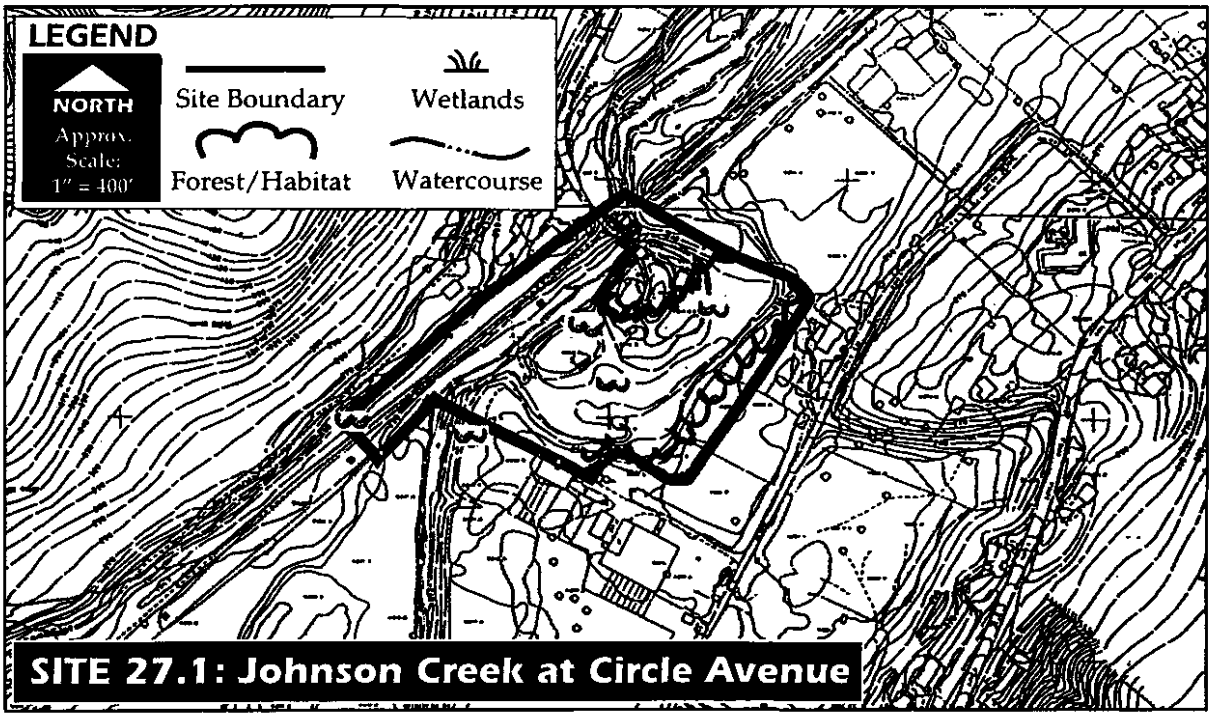
- Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded
- Palustrine, Forested, Coniferous/Broadleaf Deciduous Forest, Seasonally Flooded and Saturated
- Forested and open uplands
- Soil types: Multnomah silt loam (29A), Wapato silt loam (55)

FUNCTIONAL VALUES

Food, water, cover and territory for fish and wildlife; filter and purification of water and provision of domestic water supplies; flood storage, storm drainage, and dissipation of erosive forces of stormwater; retention and removal of excess nutrients and chemical contaminants; ground water recharge and discharge; retention of soils, slope stabilization, sediment trapping and filtration, and erosion control; microclimate amelioration; enhancement of neighborhood livability and scenic amenities; provision of recreational and educational opportunities

RESOURCE LOCATION AND DESCRIPTION

Site 27.1 is in Multnomah County but within the Portland Urban Service boundary. It is currently zoned Rural Residential (RR) with a Floodway fringe (ff) overlay zone. It is proposed for R10 base zoning as part of the *Recommended Outer Southeast Community Plan.*



The Springwater Corridor is adjacent to the portion of Johnson Creek that bounds this property on the west. The remainder of the site is bounded by the original channel of Johnson Creek prior to the 1930s when the WPA project straightened the bend in the channel and lined the new channel with rock. The site is within the 10-year flood plain of Johnson Creek (i.e. it is subject to flooding on the average of at least once every 10 years).

Immediately northwest of the site across the Springwater Corridor is a small farm with chickens, goats, pea-hens, and horses. On the northern corner of the site itself at the end of Circle Drive and across a small bridge sits a small single-dwelling residence and several outbuildings. Sheep graze immediately north and east of the site. The site is aesthetically very pleasurable. The site is extremely interesting and scenic, especially as viewed from the adjacent Springwater Corridor.

RESOURCE QUANTITY AND QUALITY

This is a 10-year floodplain area with some present-day wetland. The site includes a forest canopy of Douglas fir *(Pseudotsuga menziesii)* and Western red cedar *(Thuja plicata)* mixed with red alder *(Alnus rubra)*, willow, and big-leaf maple *(Acer macrophyllum)*, especially in the area of the original Creek bed. The site's riparian zone contains blackberries and Western red cedar. Aquatic vegetation included common reed, horsetails (scouring rush, *Equisetum hyemale)*, rushes, common velvet grass, and other water grasses. Adjacent vegetation included scot's broom and cattails. The blackberries provide habitat for many bird species, including chickadees, nuthatches, kingfisher and warblers. Several mallards cruised the Creek.

This site is a high value wildlife habitat area along Johnson Creek. Much of the riparian vegetation is still intact, although it is heavily dominated by Himalayan blackberry. The canopy cover shades the Creek through this stretch, increasing the habitat value for fish and other aquatic animals. Several small snags on the site provide habitat for woodpeckers and nuthatches. A large amount of floating debris, perhaps attributable to a recent storm, created a number of pools and eddies.

This section of the Creek is an important wildlife travel corridor and link to Powell Butte, upland buttes in Gresham, the Boring Lava Hills and other sections of Johnson Creek. Interspersion, therefore, is high here.

The portion of the site which was the original Johnson Creek bed is a wetland. Wetland vegetation is predominant and provides habitat for birds and small mammals. This area provides overflow flood storage for Johnson Creek. The City Bureau of Environmental Services is considering enhancing this old Creek bed for flood storage purposes as one of the actions proposed in the *Johnson Creek Resource Management Plan.*

The site's principle resource value is riparian and wetland habitat. Scenic value is also provided, especially as viewed from the adjacent Springwater Corridor.

Habitat Rating

Wildlife Habitat Score: 74	**Range for All Sites** = 52-77
Water:	High
Food:	Moderately High
Cover:	Moderately High
Interspersion:	Medium
Uniqueness:	Medium
Disturbance:	Medium

SUMMARY OF INVENTORY

Johnson Creek has long been recognized as a premier scenic and natural resource area in Portland. Site 27.1 is easily accessible directly off of the Springwater Corridor and Circle Drive. The high natural resource value and low physical disturbance result in a highly significant natural resource site.

SITE 27.2: Johnson Creek at Jenne & 174th Maps: 3547, 3548

SITE SIZE: 8.5 acres
LOCATION: West boundary tax lot 75 map 3547 (W), North boundaries tax lots 75, 26 map 3547, tax lot 49 map 3548 (N), tax lot 49 map 3548 (E), Johnson Creek (S)
NEIGHBORHOOD: Pleasant Valley
DATE OF INVENTORY: January 26, 1995, February 3, 1995

RESOURCE CLASSIFICATION

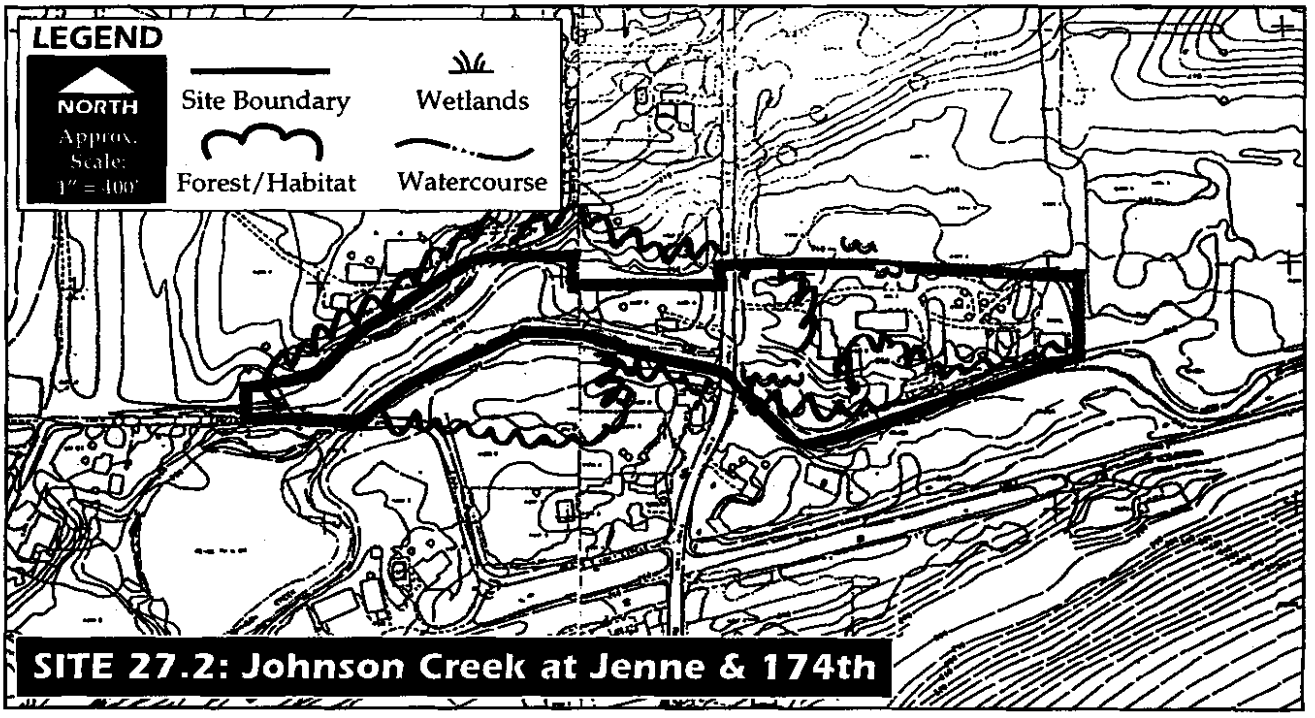
- Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded Stream
- Palustrine, Forested, Coniferous/Broadleaf Deciduous Forest, Seasonally Flooded and Saturated Wetlands
- Forested and open uplands
- Soil types: Multnomah silt loam (29A), Wapato silt loam (55)

FUNCTIONAL VALUES

Food, water, cover and territory for fish and wildlife; filter and purification of water and provision of domestic water supplies; flood storage, storm drainage, and dissipation of erosive forces of stormwater; retention and removal of excess nutrients and chemical contaminants; ground water recharge and discharge; retention of soils, slope stabilization, sediment trapping and filtration, and erosion control; microclimate amelioration; enhancement of neighborhood livability and scenic amenities; provision of recreational and educational opportunities

RESOURCE SITE LOCATION AND DESCRIPTION

Site 27.2 is in Multnomah County, but within the Portland Urban Services boundary. There are single dwelling homes on each of the lots on both sides of 174th Avenue. Both of these homes are on the north side of the Creek. The site is vacant east and west of the single



family homes. These vacant lands have no right-of-way access. The bridge crossing the Creek, constructed of concrete and steel, carries two lanes of traffic, one in each direction. A small commercial nursery is located on the east side of 174th.

The Springwater Corridor lies south of the site. The site is entirely within the Johnson Creek 10-year floodplain (i.e. it is subject to flooding on the average of at least once every 10 years). It is currently zoned Rural Residential (RR) with a Floodway fringe (ff) overlay zone by Multnomah County.

Of the ten sites in this Addendum, Site 27.2 has been given the most dense comprehensive plan designation, R2a, in the Outer Southeast Community Plan. R2 is a low-density multi-family dwelling zone. The "a", alternative design density, overlay would allow more units to be built than the base zone if certain design criteria are met. This could include design elements which could tie directly to Johnson Creek as a valuable natural and scenic element of the area.

RESOURCE QUANTITY AND QUALITY

The forest composition includes a wide variety of trees: Douglas fir *(Pseudotsuga menziesii)*, western red cedar *(Thuja plicata)*, western hemlock *(Tsuga heterophylla)*, big leaf maple *(Acer macrophyllum)*, and red alder *(Alnus rubra)*. The diverse shrub population includes willows, red twig dogwood, ferns, Himalayan blackberry and rhododendron. Non-native shrubs include blackberry, holly, laurel and camellias. Landscaped yards and English ivy sometimes extend into the flood fringe areas. Several snags are also present within the forest.

Major portions of the site have not been developed. Much of the understory vegetation remains intact. Riparian trees are numerous and line the gently sloping banks of the Creek. Many mallard ducks were observed in this section of the Creek. Some garbage lined the Creek bank.

Habitat Rating

Wildlife Habitat Score: 74	**Range for All Sites** = 52-77
Water:	Moderately High
Food:	Moderately High
Cover:	Moderately High
Interspersion:	Medium
Uniqueness:	Medium
Disturbance:	Medium

SUMMARY OF INVENTORY

Johnson Creek has long been recognized as a premier scenic and natural resource area in Portland. The site is accessible from the right-of-way, beside and under the bridge. The forest, wildlife habitat, wetlands, scenic and recreational values within the 10-year flood plain portion of the site are of moderately high significance relative to other resource sites within the planning area.

SITE 29.1: North Slope of Powell Butte — Maps: 3445, 3446

SITE SIZE: 9 acres
LOCATION: Division between Ski-U-Mah and Verra Vista Subdivisions (W), SE Gladstone and Francis Streets (N), 157th Avenue (E), Powell Butte - city owned property (S)
NEIGHBORHOOD: Centennial
DATE OF INVENTORY: January 26, 1995; May 10, 1995

RESOURCE DESCRIPTION

- Forested, Coniferous/Broadleaf Deciduous
- Soil types: Multnomah silt loam (29E: 30-60% slopes; in this case, almost the entire site), Multnomah-Urban land complex (30B: lower elevations only)

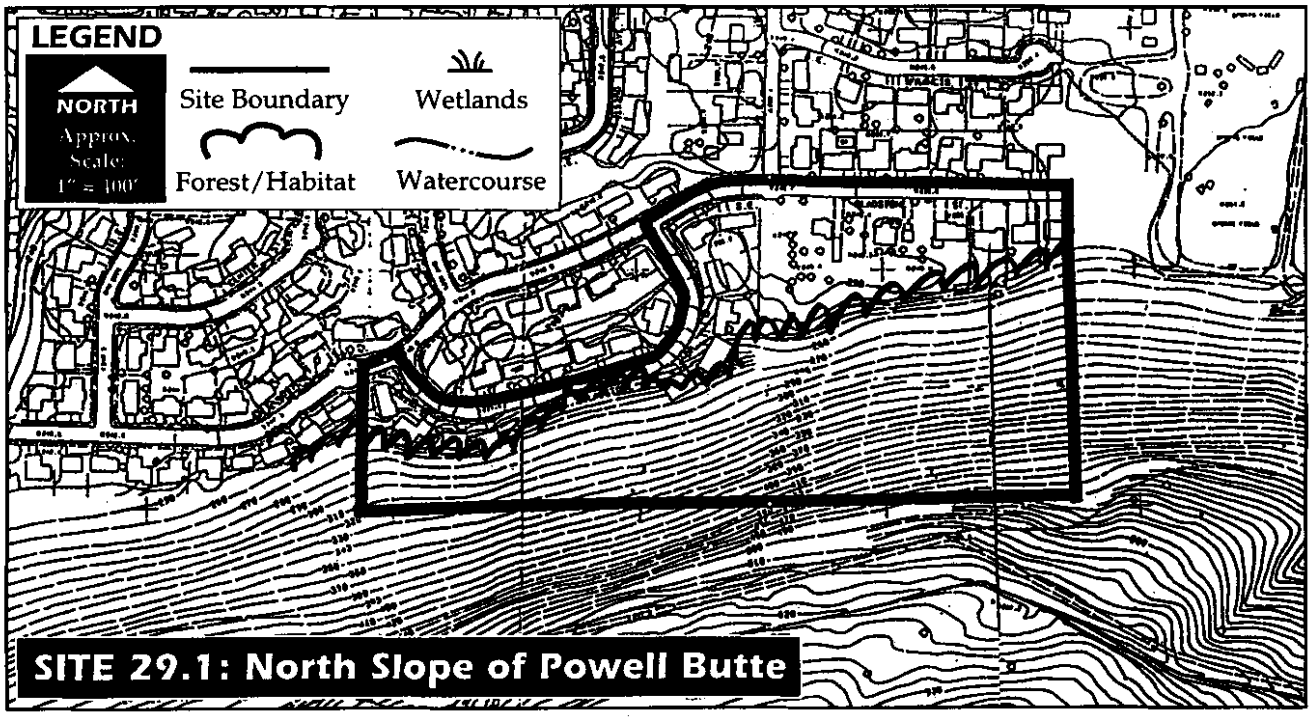
FUNCTIONAL VALUES

Food, water, cover and territory for wildlife; ground water recharge and discharge; slope stabilization erosion control; water purification; storm drainage; microclimate amelioration, air and water quality protection; enhancement of neighborhood livability, scenic amenities, and geologic values; provision of recreational and educational opportunities

RESOURCE SITE LOCATION AND DESCRIPTION

The site is adjacent to the north boundary of Powell Butte. Powell Butte is recognized as one of the more unique uplands in southeast Portland and perhaps within the Urban Growth Boundary. There are single-dwelling homes on each of the lots. The slope of the lots increase with distance from the street as the lots approach the city-owned property of Powell Butte.

A 1978 geologic and engineering slope-hazard study[1] indicated that this is an area of known or potential slope hazard. This north-facing site, has a slope of approximately 70%.



Part of the site was clearcut in August-September, 1994. Primarily as a result of that action, the Portland City Council adopted a new amendment to Title 24, the building code, in the fall of 1994. This amendment requires that a report and plan be approved by the Bureau of Buildings for any disturbance of lands, including tree cutting, on slopes over 25 degrees in slope. This amendment would apply to this site. The main objective of this amendment is to control erosion on steep slopes.

Powell Butte is an important feature of environment in outer southeast Portland. Powell Butte is a natural feature that gives the community its unique identity and enhances community environmental quality. Natural features such as Powell Butte are examples of reference points that help to define neighborhoods.

RESOURCE QUANTITY AND QUALITY

This site is a major butte surrounded by residential development at its base to the north, west, and south, but with relatively non-intensive residential development on the east side. This is one of the more unique uplands in southeast Portland and perhaps within the Urban Growth Boundary.

This site is a healthy mixed deciduous/confer forest approximately 40-70 years old. The forest consists of mature deciduous trees - big leaf maple (*Acer macrophyllum*) and red alder (*Alnus rubra*) and 30-50 year old conifers, primarily Douglas fir (*Pseudotsuga menziesii*). Snags are common and there is some downed dead wood.

The list of herb species is extensive: woodfern, fringecup, cleavers, thistle, swordfern, spring beauty, false Solomon's seal, inside-out flower, coltsfoot, trillium, vanilla leaf, licorice fern, nettles and orchard grass. Shrub species include thimbleberry, vine maple, witch hazel, Indian plum, red huckleberry, red elderberry, blackcap, western dogwood, and Himalayan blackberry. The site also contains considerable crane's bill and English ivy. In addition, tall bugbane (*Cimicifuga elata*), a rare and endangered species in Portland, was also found.

Woodpeckers, sparrows, and other songbirds were heard.

QUALITY OF RESOURCES

The north slope of Powell Butte provides important wildlife habitat within the Johnson Creek basin and the Portland metropolitan area. The forest canopy and proximity to Johnson Creek is a rare situation and provides habitat for a large diversity of bird, large and small mammal, and reptile species.

This forest provides potential for good quality habitat. The forest provides foraging, perching, roosting, and nesting habitat for hawks, falcons, owls, and bats.

The north slope of Powell Butte has very high scenic quality with a panoramic view of the Cascade mountains, Columbia River, and the Portland metropolitan area.

The site also shows significant signs of disturbance in forms of recent (fall 1994) logging.

Several snags are also present within the forest.

Habitat Rating

Wildlife Habitat Score: 52	**Range for All Sites** = 52-77
Water:	Medium
Food:	Medium
Cover:	Medium
Interspersion:	High
Uniqueness:	Medium
Disturbance:	High

SUMMARY OF INVENTORY

Powell Butte, of which this site is a part (but not to be confused with the city-owned property) has long been recognized as a premier scenic and natural resource area in Portland. The steep slopes limit access to and development of this site. The forest, wildlife habitat and scenic values are significant.

SITE 30.1: Boring Lava Hills at Barbara Welch Road
Maps: 3746, 3845, 3846

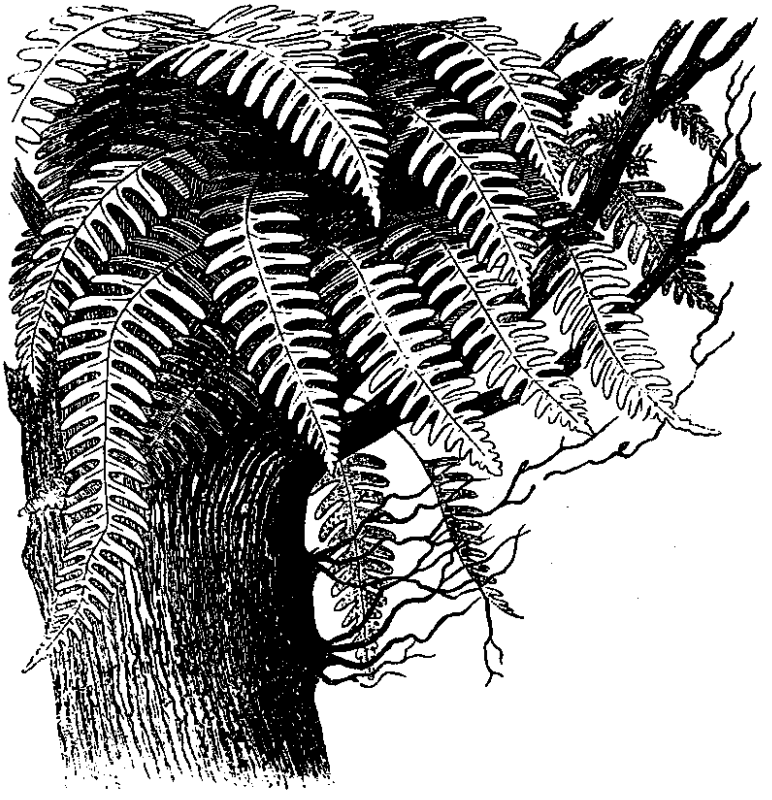
SITE SIZE: 93 acres
LOCATION: North boundary Tax lot 13 Map 3746 (N), from the east side current City boundary (E), Clatsop Street (S), west side current city boundary to point of beginning (W)
NEIGHBORHOOD: Pleasant Valley

See Part III, Boring Lava Domes Supplement

Part III

BORING LAVA DOMES

Supplement to Johnson Creek Basin Protection Plan (1997)



BORING LAVA DOMES SUPPLEMENT

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Adopted by City Council November 5, 1997

Ordinance No. 171740

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Part III BORING LAVA DOMES SUPPLEMENT (1997)

PLAN BACKGROUND

This report updates the resource inventory, analysis and protection program for City of Portland Resource Site 30, Boring Lava Domes, (Lava Domes). This site was initially reviewed in 1991 as part of the *Johnson Creek Basin Protection Plan* (JCBPP). The JCBPP is one of eight plans developed by the City to comply with Statewide Planning Goal 5, which requires all cities and counties in Oregon to "conserve open space and protect natural and scenic resources." The JCBPP was acknowledged by the Oregon Land Conservation and Development Commission on July 25, 1995 (Periodic Review Order #95-PR/00447). The purpose of the present study is to provide supplemental resource inventories, analyze conflicting uses and refine the Goal 5 protection plan as appropriate within the site.

This study was initiated to implement Action Item EC7 of the Outer Southeast Community Plan, which reads: "Conduct a new study within the next three years to consider the refinement of environmental zoning in the Johnson Creek basin."[1] The Portland City Planning Commission asked for this study in response to concerns raised by local citizens and City bureaus, which called attention to the significance of the Lava Domes and the need for particular study and refinement in that part of the basin.

Supplemental Inventory

This section presents supplemental Goal 5 inventory information for the Boring Lava Domes. City staff and consultants conducted field visits throughout the site in October and November 1996 to document current natural resource conditions. This inventory supplements previous City surveys of the site in 1986-1987 and 1990-1991. Characteristic vegetation, wildlife habitat, riparian corridors, streams and other physical features were documented using the City's Wildlife Habitat Assessment (WHA) form. This information, combined with existing inventory data, recent topographic maps and aerial photographs, was used to evaluate resource significance based on the functions and values described in the JCBPP.

Resource values identified by the City (JCBPP, as amended April 19, 1995) include: fish and wildlife habitat, water purification, storm drainage, groundwater recharge and discharge, aesthetics, scenic, flood storage, pollution and nutrient retention/removal, sediment trapping and erosion control, education and recreation.

Site Location

This site is located in the southeast corner of the City of Portland. The eastern site boundary follows the city limits in the vicinity of SE 162nd Avenue. The southern site boundary follows the city limits in the vicinity of SE Clatsop Street but extends outside of the current city limits in three areas to include potential future urban lands located within the City's Urban Services Boundary. The western boundary generally follows Interstate 205 (I-205). The northern boundary borders other city resource sites along the Johnson Creek lowlands south of SE Foster Road. The general location of the study area is shown in Figure 1.

Land uses within the Lava Domes site include single-dwelling residences, cemeteries, parks and agricultural areas. There are two primary City of Portland Comprehensive Plan designations for the site: residential and open space. Approximately 90 percent of the site is designated single-dwelling residential land and 10 percent is open space (predominantly cemetery use). The open space land is located at the western end of the site, in the vicinity of SE 112th Avenue and Mt. Scott Boulevard. The remaining land within the site is residential.

The Lava Domes contain similar environmental and land use characteristics, making it possible to treat the entire area as one site. Because of the large area, multiple field inventories were conducted within the site. Inventories generally cover distinct subbasins of the Johnson Creek watershed. This inventory method provides detailed information about the site and permits each of the creek tributaries to be distinguished and their relative resource value to be assessed. Inventories were conducted for 13 such subbasins, or subdistricts, each named for the primary creek tributary or natural feature within it. Where existing tributary names do not exist, a name was created based on a distinguishing characteristic (e.g., "Cottonwood Creek") or a significant named feature (e.g., "Deardorf Creek" along Deardorf Road). Figure 2 shows the location of Lava Domes subdistricts. Table 1 provides a summary of subdistrict size, habitat features and relative values.

Resource Quality and Quantity

Encompassing about 1370 acres, the Lava Domes site is defined by a series of buttes, typically forested and steep, which are divided by perennial and seasonal streams flowing north into Johnson Creek. These buttes are volcanic in origin, formed several hundred thousand years ago when a group of shield and cinder cone volcanoes—the "Lava Domes"—erupted across the lower Willamette Valley. These now dormant volcanoes are comprised mainly of high-alumina basalts, but locally contain ash, cinders and other materials. The basalts are similar to those of Mount Hood and other Cascade mountains and the origin of the Lava Domes is therefore believed to be tied to the uplift of the Cascade Range.

Figure 1: Site Area Map

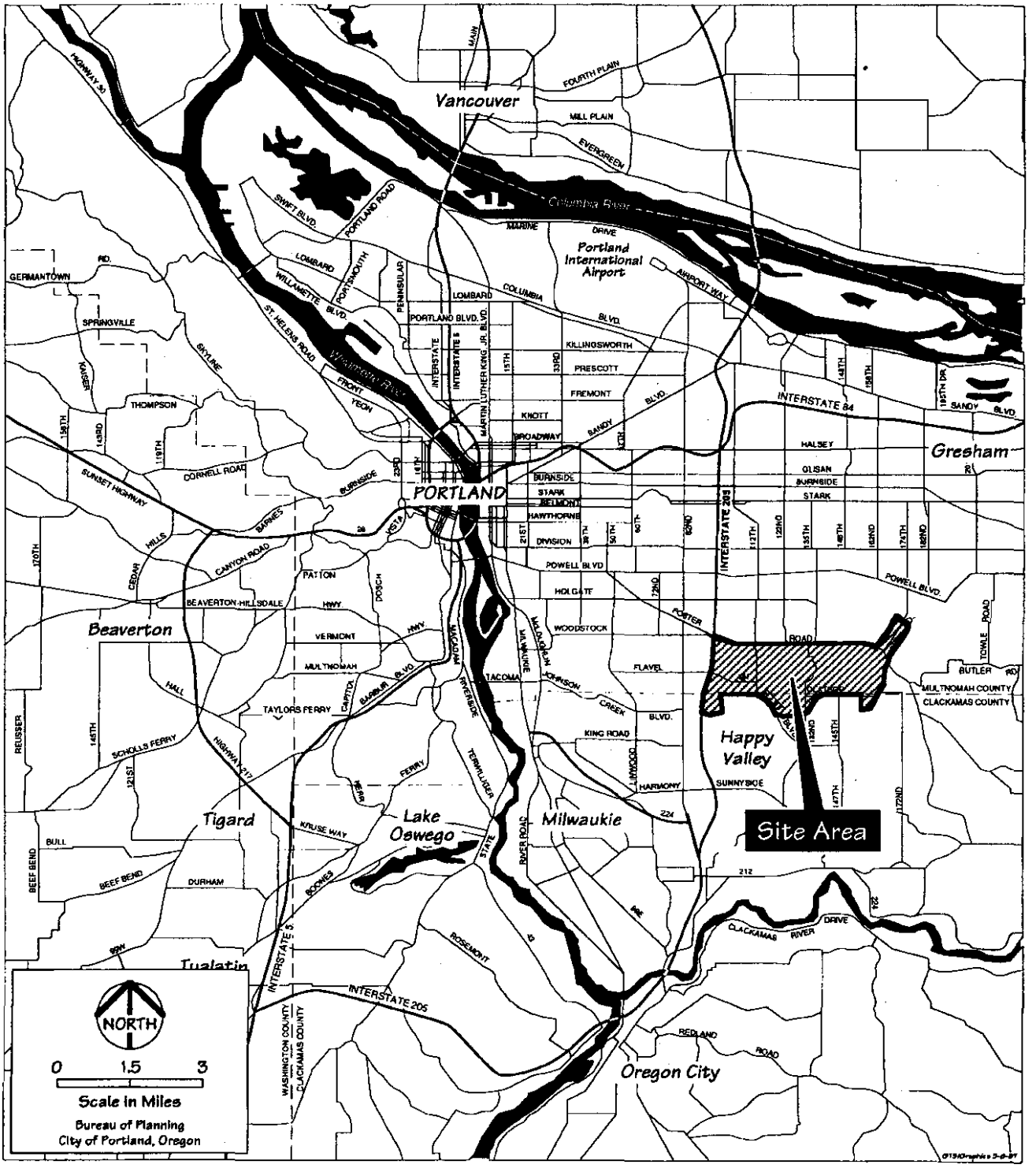
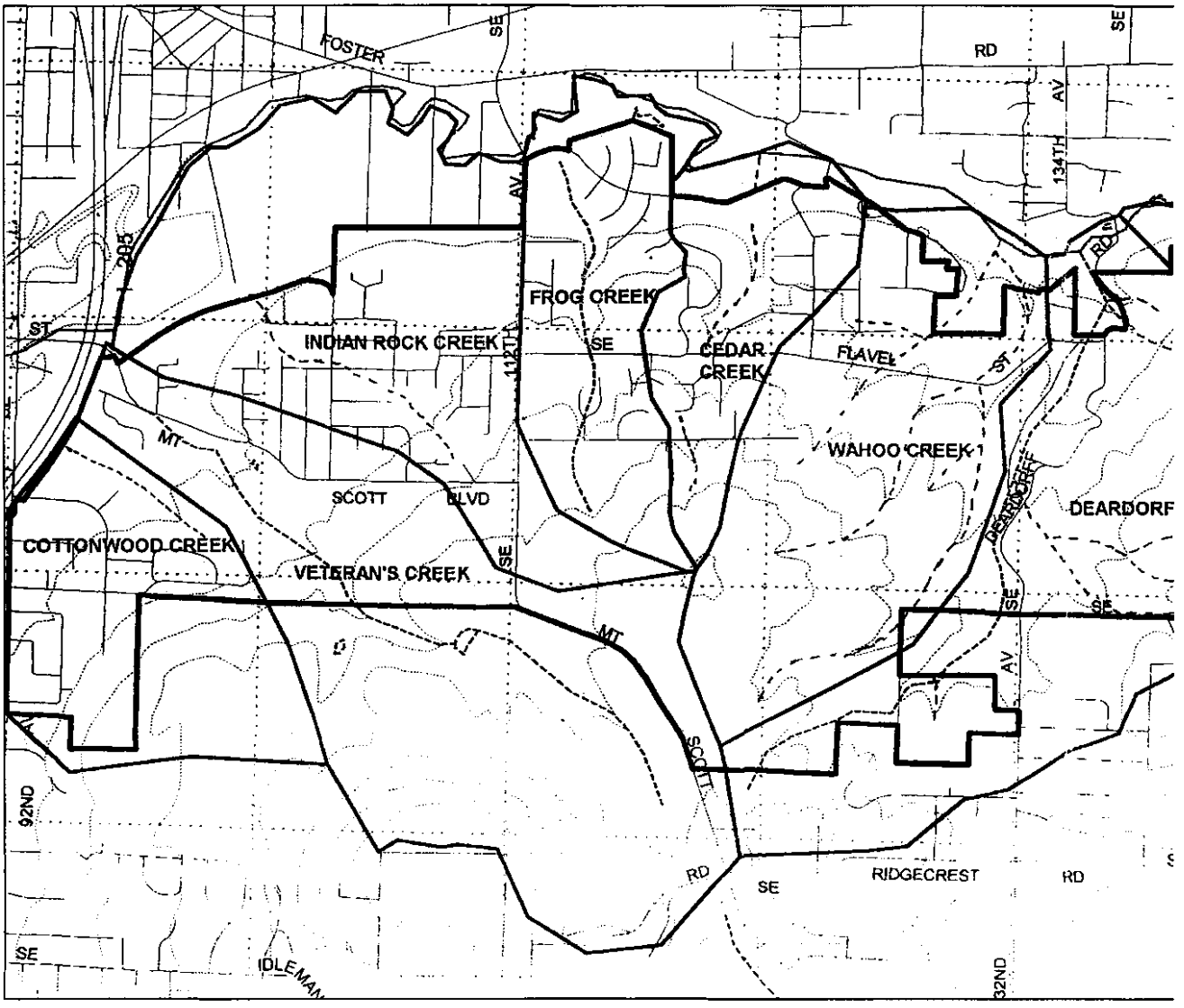
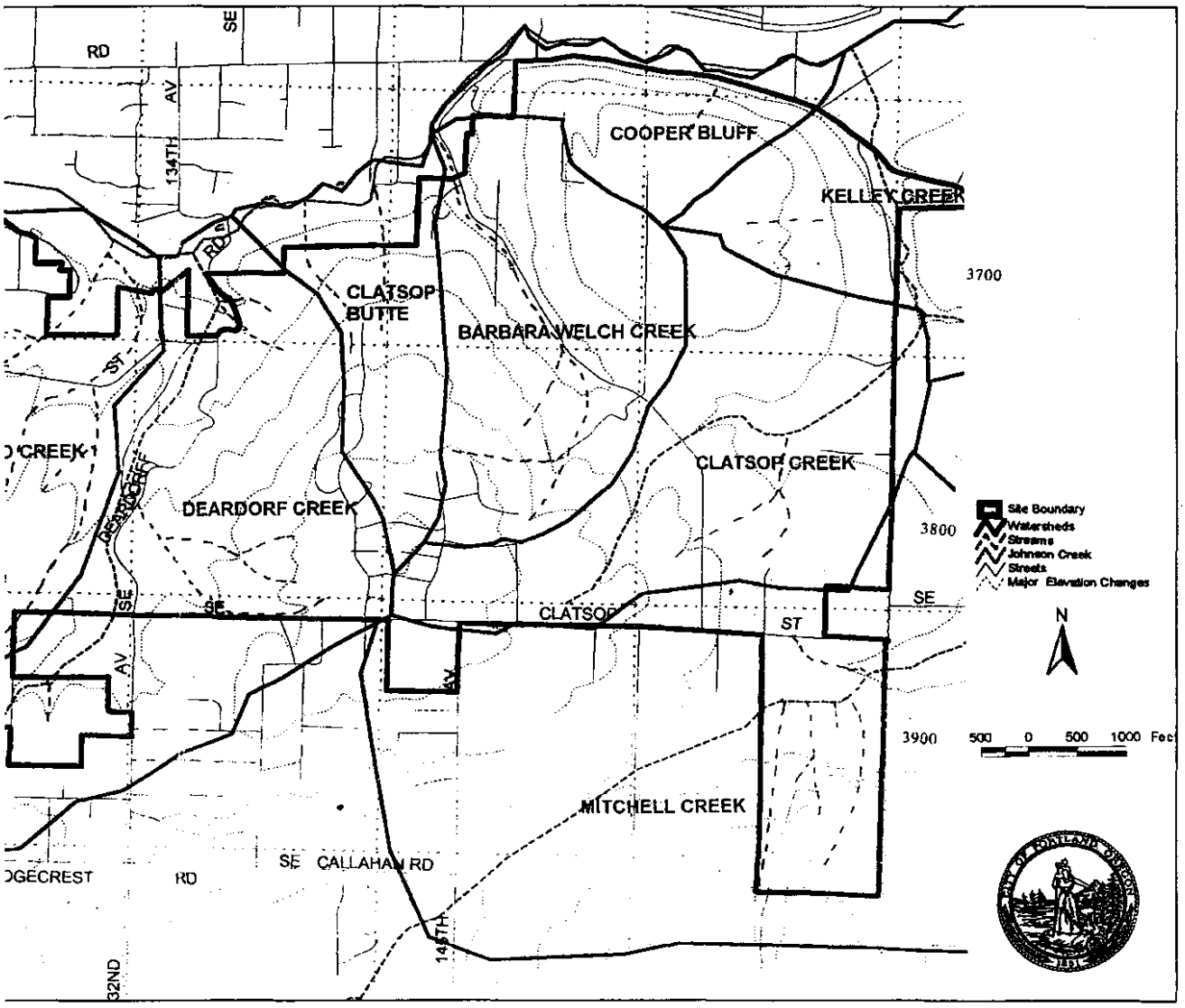


Figure 2: Boring Lava Domes Subdistricts



The site's streams are first and second order, generally high gradient streams with low to moderate flows. The streams are generally cool and clear; most of the streams support a healthy macroinvertebrate population, and several support amphibians and fish. Average channel gradients are between 10 and 12 percent, with some high elevation reaches exceeding 25 percent. As they near Johnson Creek, stream gradients drop to 2 or 3 percent. The Lava Dome hillsides, which include the side slopes of the stream ravines, can reach gradients of as much as 65 percent and occasionally more where rock cliffs and outcroppings occur.

The forest that historically covered the gentle sloping Lava Domes ridges and lowlands was partially cleared in the early 1900s for agriculture, timber and cemetery uses. Forest clearing has increased dramatically in recent years as housing development expanded from the lowlands and ridges onto the hillside slopes. Presently, about one half (700 acres) of the site is forested. Because of the Lava Domes poorly drained clay soils, the recent clearing and development activities have had direct influence on water quality and quantity within the lower Johnson Creek basin, often exacerbating local flooding and increasing sedimenta-



tion and turbidity. The important relationship between the Lava Domes and the rest of the Johnson Creek basin was one factor that prompted the City Planning Commission to request a reevaluation of natural resources within the Lava Domes.

The Lava Domes forest straddles the border between the Willamette Valley vegetation zone and the Western Hemlock zone (Franklin and Dyrness), see Figure 3. The Lava Domes forest community exhibits characteristics common to both of these zones. The prominent occurrence of western red cedar and the presence of hemlock suggests that the forest is best characterized by the *Thuja plicata/Acer circinatum/Polystichum munitum* (red cedar/vine maple/sword fern) community of the Western Hemlock zone.

The Willamette Valley *Pseudotsuga menziesii/Acer circinatum/Polystichum munitum* (Douglas fir/vine maple/sword fern) community is similar though cedars are less common associates. Both of these communities frequently occur on north slopes such as the those that make up the Lava Domes planning area.

The Lava Domes forest generally ranges from 60 to 100 year old second growth stands in a mid-successional stage referred to as *conifer topping hardwood.* Certain areas of the site, however, contain much older forest with tree diameters reaching five feet or more. As summarized in Table 1, the Lava Dome subdistricts are typically comprised of a mixed conifer/deciduous forest with western red cedar (THPL[2]), bigleaf maple (ACMA) and Douglas fir (PSME) frequently occurring as dominant tree species. Other occasional dominant trees include red alder (ALRU), western hemlock (TSHE) and black cottonwood (POBA). Dominant shrubs in the forest community include vine maple (ACCI), western hazel (COCO), Indian plum (OECE) and snowberry (SYAL). On the ground layer, common herbaceous plants include sword fern (POMU) and stinging nettle (URDI). For a complete list of species detected during the 1996 field reconnaissance, refer to Appendix B. For previous inventories, consult the *Johnson Creek Basin Protection Plan.*

Table 1. Summary of Subdistrict Characteristics

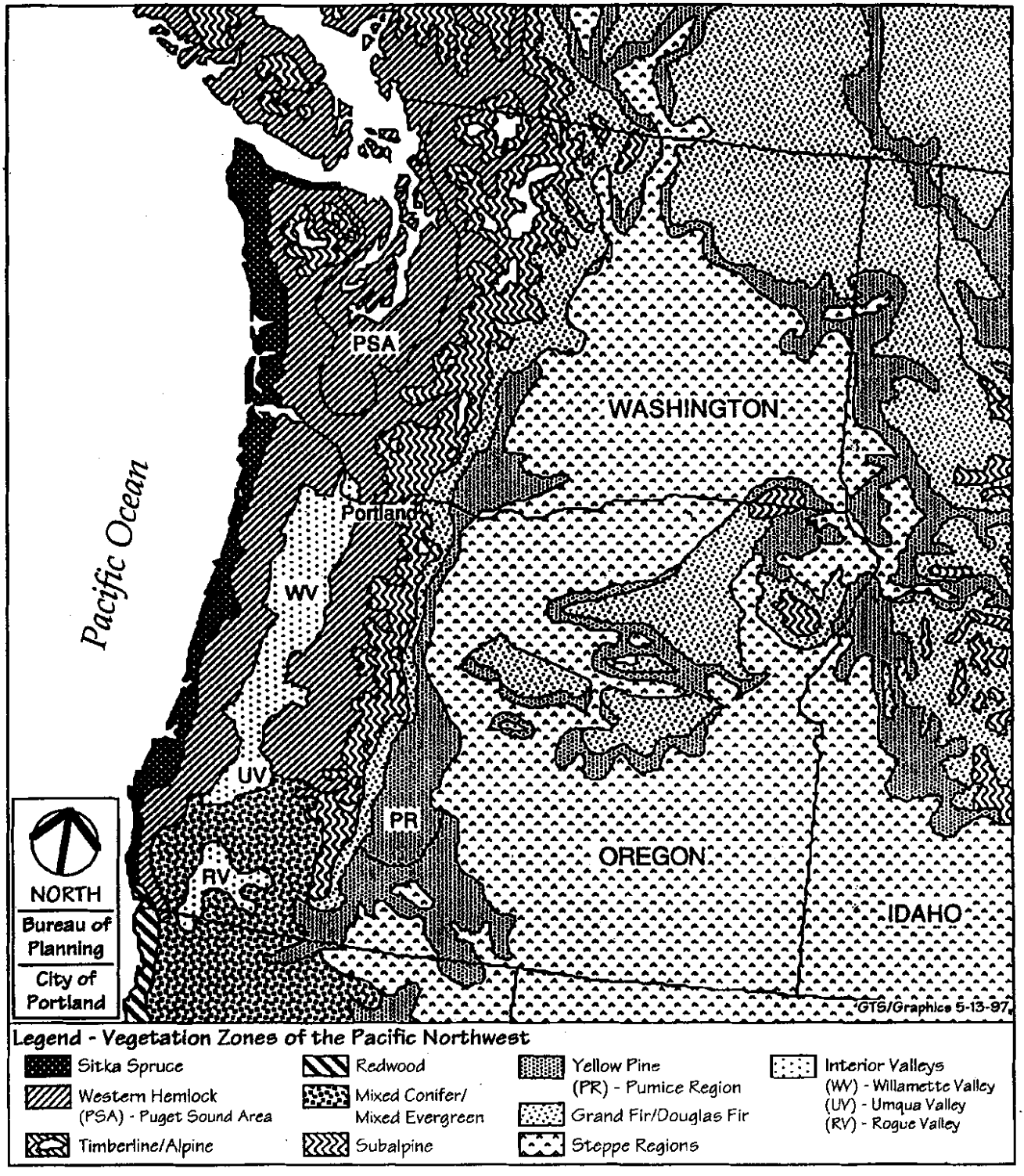
Sub-Area	Name	Acres	WHA Score	Aquatic Habitat	Terrestrial Habitat	Special Features
A	Cottonwood Creek	98/ 56[1]	65	Intermittent stream; Carex obnupta wetland	Deciduous forest: POBA/URDI[2]	Large cottonwoods
B	Veteran's Creek	401/ 121	79	Perennial stream; Carex obnupta wetland	Mixed forest: ACMA-ALRU/SARA/URDI	100+ year-old cedar and fir
C	Indian Rock Creek	182/ 162	47	Intermittent stream; Phalaris wetland	Mixed forest: ACMA/SYAL-ACCI/POMU	Large wetland, falls
D	Frog Creek	150/ 150	84	Perennial/intermittent stream; permanent pond	Mixed forest: ACMA.COCO/POMU	Red-legged frog
E	Cedar Creek	107/ 107	80	Intermittent stream; Glyceria wetland	Mixed forest: THPL-ACMA/COCO-SYAL/POMU	Salamanders
F	Wahoo Creek	287/ 283	87	Perennial/intermittent streams; Scirpus wetland	Mixed forest: PSME-ACMA/ACCI-OECE/POMU	Red-legged frog, pileated woodpecker
G	Deardorf Creek	378/ 255	75	Intermittent stream; Scirpus, Carex, Salix, Cornus wetlands	Mixed forest: THPL-ALRU/ACCI/POMU-URDI	Pileated woodpecker
H	Clatsop Butte	86/ 86	72	Intermittent stream	Mixed forest: PSME/ACCI-OECE/POMU	Direct link to Johnson Creek
I	Barbara Welch Creek	221/ 215	68[3]	Intermittent stream	Mixed forest: THPL-ACMA/ACCI/POMU	Ampibians
J	Cooper Bluff	99/ 99	48	Ephemeral stream	Mixed forest: PSME-ACMA/COCO/POMU	Rock outcrops/ cliffs
K	Clatsop Creek	233/ 129	72	Intermittent stream, Typha wetland	Mixed forest: THPL-ACMA/ACCI/POMU	Pileated woodpecker
L	Mitchell Creek	566/ 96	91	Perennial/intermittent stream; pond	Mixed forest: THPL-TSHE/ACCI/POMU	Cutthroat trout, red-legged frog
M	Kelley Creek (lower reach)	2380/ 144	80	Perennial stream; ponds	Mixed forest: THPL-ALRU/COCO/POMU	Cutthroat and steelhead trout
	Median size/score	*221/ 129*	*75*			

1 Two numbers are shown for acreage. The first is the total acreage of the subbasin, including land outside Portland; the second shows acreage within the current City limits of Portland.

2 Each four letter alpha code represents a dominant species within the plant community, as discussed further in the Supplemental Inventory section.

3 Score represents slopes and tributaries; the main stem of Barbara Welch Creek is degraded with score of 23.

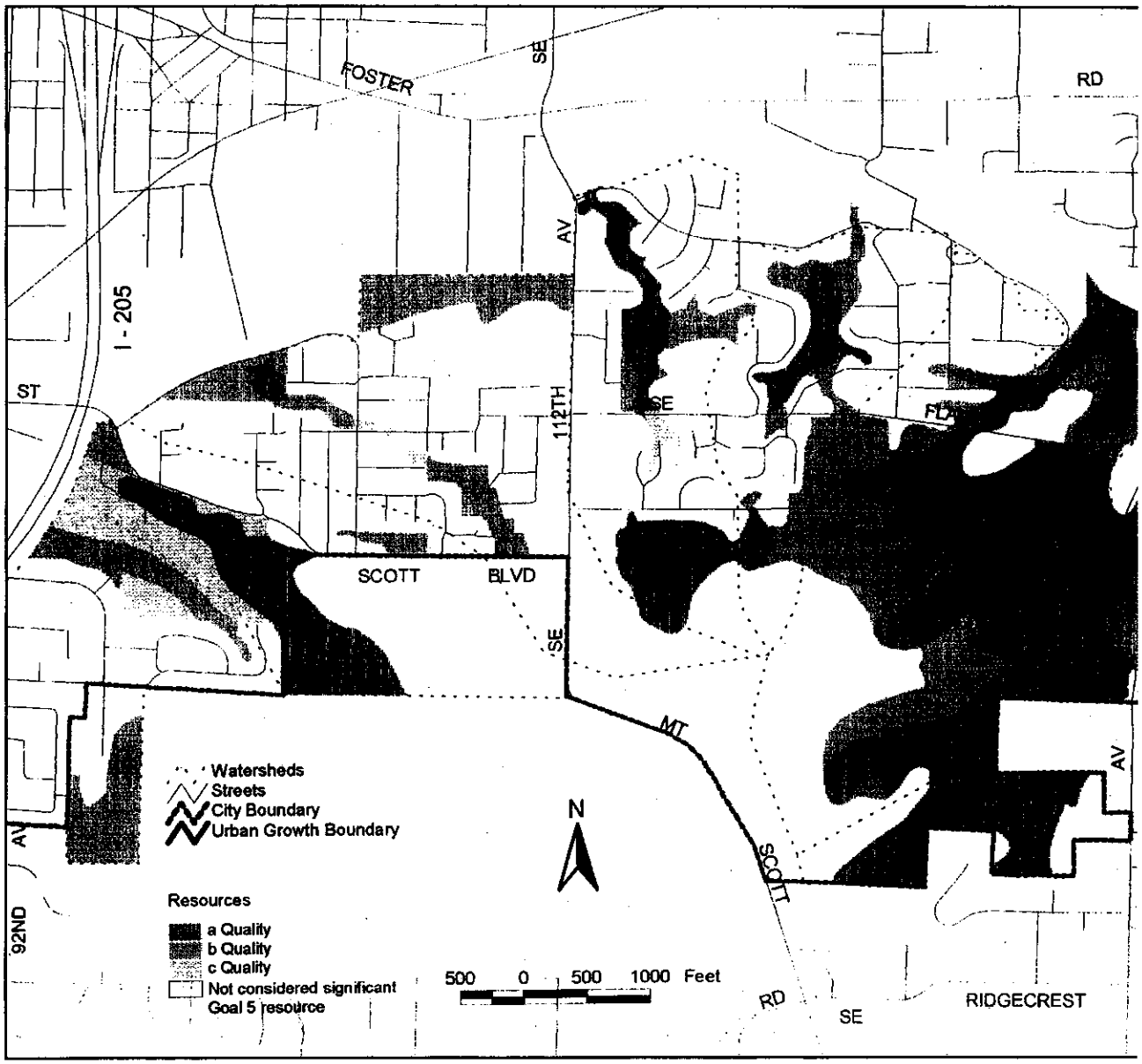
Figure 3. Pacific Northwest Vegetation Zones



Riparian Corridors and Wildlife Habitat

Riparian systems contain the three critical habitat components: water, cover and food. They also provide important migration corridors and territory (space) for wildlife. Riparian corridors are transitional areas between aquatic and terrestrial ecosystems and as such support a variety of plants and animals common to both environments. The structural diversity of riparian corridors tends to be high, in part due to the corridors position at the low point of the landscape where fallen trees, stumps and other organic debris collect. Due to the range of plant composition and structure, riparian corridors often support a diverse assemblage of wildlife species. Field surveys during the 1980s and 1990s have shown this to be true of riparian corridors throughout the Lava Domes. Uplands within the Lava Domes have a direct influence upon these riparian corridors and provide important habitat and migratory linkages for wildlife including birds, mammals, reptiles and certain amphibian species.

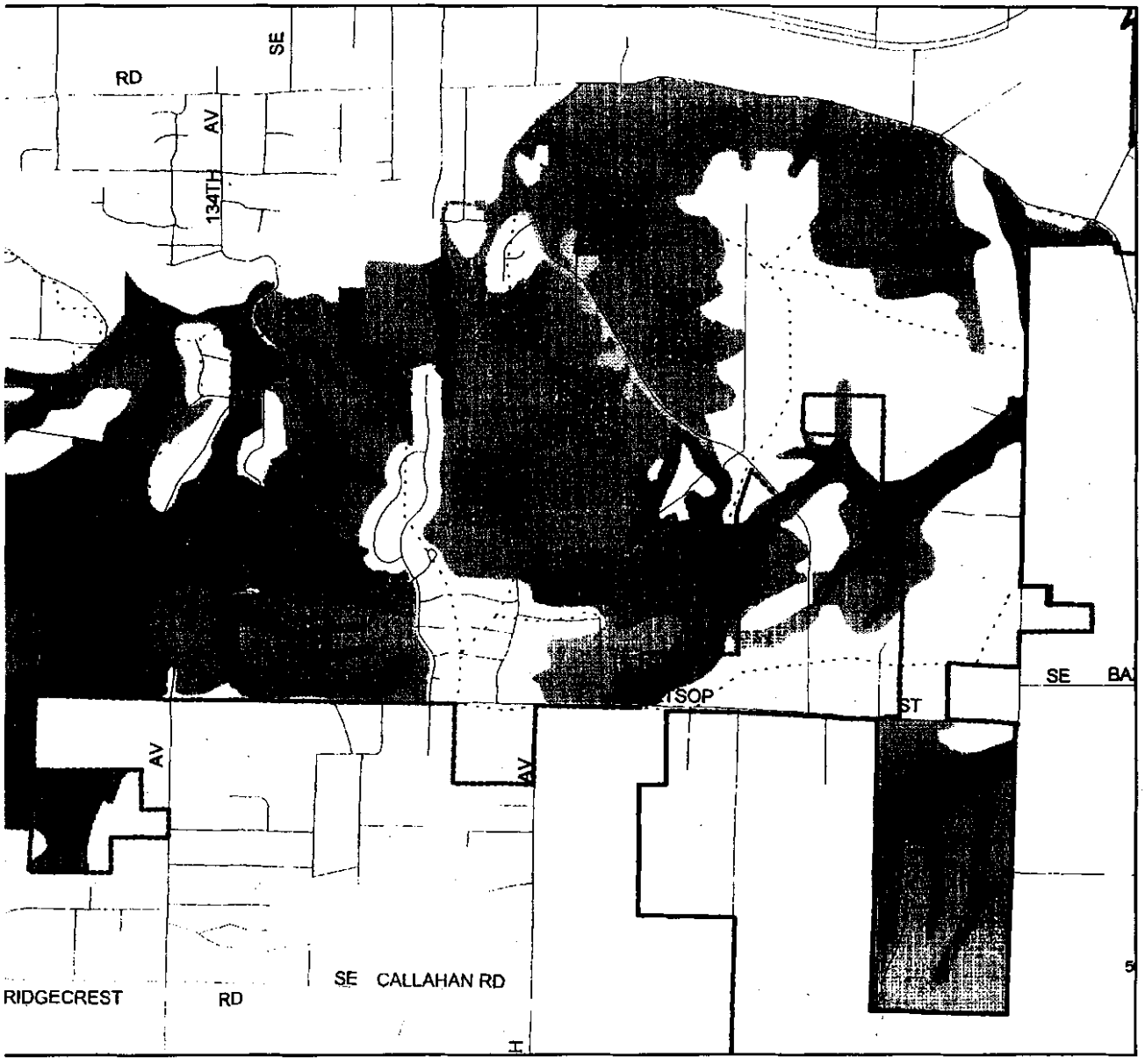
Figure 4. Resource Significance



The site's habitat classification is as follows[3]:

Riparian Broad-leaved Deciduous Forest
Palustrine, Forested, Coniferous/Broad-leafed Deciduous, Permanent/Semipermanent/Seasonal
Palustrine, Emergent, Persistent
Palustrine, Open Water, Permanent, Artificial, Impounded
Riverine, Upper Perennial, Open Water, Permanent
Upland Coniferous/Broad-leafed Deciduous Forest

As discussed previously, the City documented characteristic vegetation, wildlife habitat, riparian corridors, streams and other physical features using the Wildlife Habitat Assessment (WHA) survey forms. This inventory method has been acknowledged by the Oregon Land Conservation and Development Commission as complying with Goal 5 requirements. Field reconnaissance conducted in October and November 1996, supplements previous



City surveys of the site in 1986-1987 and 1990-1991. For comparison purposes, the WHA form attributes a habitat "score" to each site so that relative functional values may be determined. From a habitat perspective, a resource with a WHA score of at least 45 is significant; the following section reviews significance criteria for other resource values.

As the following habitat rating summary indicates, the Lava Domes is a significant resource site. A sample of the Wildlife Habitat Assessment form is provided in Appendix C. An explanation of the low to high rankings shown below is provided in Appendix D.

Habitat Rating

Wildlife Habitat Score: 78	**Range for City Resource Sites:** 6 - 106	**Range for Lava Domes districts:** 23 - 91
Water:	Moderately High	
Food:	High	
Cover:	Moderately High	
Interspersion:	Medium	
Uniqueness:	Medium	
Disturbance:	Medium	

Sensitive Species

In response to the City's request, the U.S. Fish and Wildlife Service (USFWS) provided a list of potential threatened and endangered species, and species proposed for listing, within the study area; USFWS also provided a list of candidate species and species of concern. The City also requested and received information on sensitive species occurrence from the Oregon Department of Fish and Wildlife and the Oregon Natural Heritage Program (ONHP) database. In addition, published information on sensitive plants and animals was consulted. A copy of the letter from the USFWS listing potentially occurring species is provided in Appendix F. A detailed review of the requirements and known occurrence of each identified species is contained in Appendix G. Table 2 provides a summary of identified species, their federal and state status, and their known (or expected) occurrence within the study area.

Resource Significance

The object of the inventory is to establish the location, quantity and quality of resources within the Lava Domes site. To evaluate the relative significance of a resource, several factors were considered. "Decision factors" and "contributing factors" were established by the City to weigh the significance of individual resources (see Table 3 below). These factors are tied to identified resource values. Depending on the location, quantity and quality of the particular resource, these values may be important or they may not be important. If the values are important when considering the factors identified in Table 3, the resource was deemed significant. Decision factors are those factors which, on their own, are important and establish the significance of a resource. Contributing factors may have limited or moderate importance on their own, but when two or more contributing factors for the same resource are combined, that resource is deemed significant. Table 3 shows the significance factors established for the Lava Domes inventory, based on similar factors adopted for other City resource sites.

Significance field sheets were completed for each subdistrict as part of the field reconnaissance. A sample field sheet is included in Appendix K. The site's resources provide multiple values that meet the significance factors of Table 3. For example, the resource provides habitat for threatened, endangered or state listed sensitive species and its Wildlife Habitat Assessment score exceeds 45 making it significant in terms of fish and wildlife habitat values. Other significant values include slope/soil stabilization, water purification and flood desynchronization.

The supplemental inventory conducted as part of the present study confirms the City's prior determination (as part of the *Johnson Creek Basin Protection Plan)* that the Lava Domes is a significant Goal 5 resource site.

Table 2. Status of Potential Sensitive Species within the Lava Domes

	Scientific Name	Common Name	Federal Status	State Status	Presence
PLANTS	*Aster curtus*	white top aster	SOC	LT	P
	Castilleja levisecta	golden Indian paintbrush	LT	LE	N
	Cimicifuga elata	tall bugbane	SOC	C	Yes
	Delphinium leucophaeum	pale larkspur	SOC	LE	P
	Delphinium pavonaceum	peacock larkspur	SOC	LE	P
	Erigeron decumbens decumbens	Willamette daisy	C	LE	P
	Howellia aquatilis	Howellia	LT	-	N
	Lomatium bradshawii	Bradshaw's lomatium	LE	LE	N
	Lupinus sulphureus v. *kincaidii*	Kincaid's lupine	SOC	LT	N
	Montia howellii	Howell's montia	SOC	C	P
	Sildacea nelsoniana	Nelson's checker-mallow	LT	LT	P
	Sullivantia oregana	Oregon sullivantia	SOC	C	P
FISH AND WILDLIFE	*Clemmys marmorata marmorata*	northwestern pond turtle	SOC	SC	P
	Dryocopus pileatus	pileated woodpecker	-	SV	Yes
	Empidonax traillii brewsteri	little willow flycatcher	SOC	-	P
	Haliaeetus leucocephalus	bald eagle	LT	LT	N*
	Myotis evotis	long-eared myotis	SOC	SU	P
	Myotis thysanodes	fringed myotis	SOC	SV	P
	Myotis volans	long-legged myotis	SOC	SU	P
	Myotis yumanensis	yuma myotis	SOC	SU	P
	Onchorhyncus clarki clarki	cutthroat trout	-	SC	Yes
	Onchorhyncus kisutch	coho salmon	C	SC	P
	Plecotus townsendii townsendii	Pacific wester big-eared bat	SOC	SC	P
	Rana aurora aurora	northern red-legged frog	SOC	SU	Yes

Legend:

LE = Listed Endangered
LT = Listed Threatened
PT = Proposed Threatened
C = Candidate
SOC = Species of concern
SC = Sensitive-Critical
SV = Sensitive-Vulnerable
SU = Sensitive - Undetermined
Yes = Species detected at site
P = Potential occurence (suitable habitat, range)
N = Not expected based on habitat, range
N* = Not expected though reported nearby

Table 3. Significance Factors

Resource Value	Decision Factors	Resource
Fish/Wildlife Habitat	- habitat for threatened, endangered or state-listed sensitive species; or - Wildlife Habitat Assessment score is 45 points or more; or - resource connects or enhances significant habitats	Forest/stream/ wetland/other
Slope/Soil Stabilization	- slopes >50% have minimum 75% woody vegetative cover - slopes 30-50% have 100% woody vegetative cover	Vegetation, soil
Water Purification	- 75% of creek length has >25% riparian cover, or - streamside wetlands filter pollutants, nutrients, sediment	Vegetation, wetland
Flood storage & Desynchronization	- located within the 100-year floodplain, or - creek channel, floodplain or adjacent wetlands provide measurable reduction of intensity of floods	Floodplain/wetland; other
Groundwater Recharge & Discharge	- uplands allow recharge of groundwater which supplies domestic use or its discharge into creek sustains summer flow - infiltration significantly reduces storm runoff and flood peaks	Soil/seep/spring
Water supply	- groundwater or surface water use (with water right)	Stream/groundwater (well)
Heritage	- unique cultural, scenic or natural value	Archeological site/ other

Resource Value	Contributing Factors	Resource
Fish/Wildlife Habitat	- positive off-site influence on threatened, endangered or state-listed sensitive species habitat; or - Wildlife Habitat Assessment score between 35 and 44	Forest/stream/ wetland/other
Slope/Soil Stabilization	- slopes of 30-50% have minimum 75% woody vegetative cover - slopes >20% have 100% herbaceous or mixed herbaceous/ woody vegetative cover	Vegetation, soil
Storm drainage	- watercourse conducts runoff, sediments, nutrients	Stream
Education	- current or potential public educational uses; or - ecologically or scientifically significant area	Vegetation/wetland/ other
Recreation	- open space area, public park or right-of-way; and - potential for recreational use without significant impacts	Forest/stream/ wetland/other
Aesthetics/ Scenic Amenity	- City-identified scenic resource; or - provides amenity value for nearby park, development or road	Forest/stream/ wetland/other
Buffering land uses	- visual or auditory buffer between neighborhoods, land uses	Forest/other

[1] Adopted by Ordinance #169763, Resolution #35491, on January 31, 1996.

[2] This alpha code represents a dominant species within the plant community. The first two letters indicate the first two letters of the genus—in this case, TH for Thuja—and the last two letters indicate the species—PL for plicata. For the scientific names of other species, refer to Appendix H.

[3] The classification system is based on Cowardin et al. (1979).