BUFFALO STREET MITIGATION SITE

LONG-TERM MANAGEMENT PLAN

Port of Portland

MAY 8, 2024

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Abbreviations

BMP	Best management practice
CWA	Clean Water Act
DEQ	Oregon Department of Environmental Quality
DSL	Oregon Department of State Lands
FAA	Federal Aviation Administration
EPA	Environmental Protection Agency
ESA	Endangered Species Act
LTMP	Long-term Management Plan
Metro	Metropolitan Service District
NMFS	National Marine Fisheries Service
MOA	Memorandum of Agreement
ODA	Oregon Department of Agriculture
ODFW	Oregon Department of Fish and Wildlife
ORS	Oregon Revised Statutes
PDX	Portland International Airport
Port	Port of Portland
RPZ	Runway Protection Zone
SWCA	SWCA Environmental Consultants
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

Land Acknowledgement

We acknowledge that the Port of Portland is located on lands that have been occupied and stewarded since time immemorial by people from the Cascade, Clackamas and Multnomah Bands of the Chinook Tribe.

Many other indigenous peoples have their homes in, travel through, harvest and use the plentiful natural resources of the Columbia River, Willamette River, and the other lands and waters within the Port's district.

The Port of Portland respects the history of the federally recognized sovereign Tribal Nations of the Northwest, whose people were forcibly dispossessed and removed from their homes and lands by the United States government following treaties entered into between 1851 and 1855. And we are committed to recognizing the ongoing relationship that exists between indigenous peoples and these places.

Introduction

Mitigation Management Program

The Port of Portland (Port) initiated their Mitigation Management Program in 1997 to respond to ongoing and proposed mitigation requirements and mandates from various regulatory agencies to address impacts to wetlands and other natural resources. The Port currently manages over 900 acres of mitigation sites and natural areas.

Mitigation and other natural resource enhancement projects are designed to provide a number of wildlife, ecological, and community benefits. These benefits include increasing wildlife value by enhancing or creating nesting, foraging, and resting habitat; creating and enhancing riparian zone functions; improving connectivity between wildlife areas; improving or restoring wetland hydrological functions; improving water quality; providing flood attenuation through water storage; reducing and controlling the spread of invasive weeds; improving habitat for wildlife including avifauna, amphibians, sensitive turtles, and pollinators while providing valuable "green space" in highly urbanized areas. Mitigation planning, designing, monitoring, and reporting follow federal and state regulations, general authorizations, and guidelines.

Long-term management of mitigation sites is vital to ensure that these areas continue to provide ecological benefits to wildlife and the local community. The Port's Natural Resources Policy states that "The Port will manage natural resources in a manner that protects the integrity of the natural environment; promotes natural ecosystems that favor native biodiversity, reduces ecological fragmentation, and improves ecological connectivity, and protects and enhances natural resources of ecological significance." While the Port's Natural Resource staff are dedicated to long-term management of mitigation sites and natural areas, it is not the Port's primary mission. The Port will continue to seek cooperation and partnerships to foster the long-term management of Port mitigation sites and natural areas including transferring mitigation land to new owners for long-term management. The conservation group, land trust or local agency that may in the future assume responsibility for the ongoing management of these sites shall be referred to as the "steward" for the remainder of this document. This long-term management plan (LTMP) summarizes the Port's knowledge of the Buffalo Street mitigation site and will provide a new steward with valuable tools for long-term management to ensure the site's values and functions over time.

Project Background & Site Description

In 1993 the Port filled approximately 65 acres of wetlands at the SW Quadrant (SW Quad) of Portland International Airport to eliminate wildlife hazards to aviation and to allow for airport expansion. Compensatory mitigation for this project as defined in the wetland fill permit consisted of 1) creating approximately 30 acres of wetlands and enhancing approximately 237 acres of existing wetlands on Government Island at Jewett Lake and providing more than the 149 Habitat Units lost at SW Quad, and 2) enhancing 28 acres of riparian habitat at two sites in the Columbia South Shore: Buffalo Street and Elrod Road sites.

The primary goal of the Buffalo mitigation site was to improve connectivity of wildlife habitat by enhancing riparian vegetation along the Columbia Slough. The Buffalo site is located in NE Portland on

NE Buffalo Street west of NE 42nd Avenue and surrounded on three sides by slough channels, including the Columbia Slough and Buffalo Slough, see Figure 1. The site is 15.56 acres and includes approximately 1.0 acre of forest/scrub-shrub wetland, 8.5 acres of upland woodland, 7.0 acres of upland meadow, and 1.3 acres of emergent marsh. The site was initially enhanced in 1994.

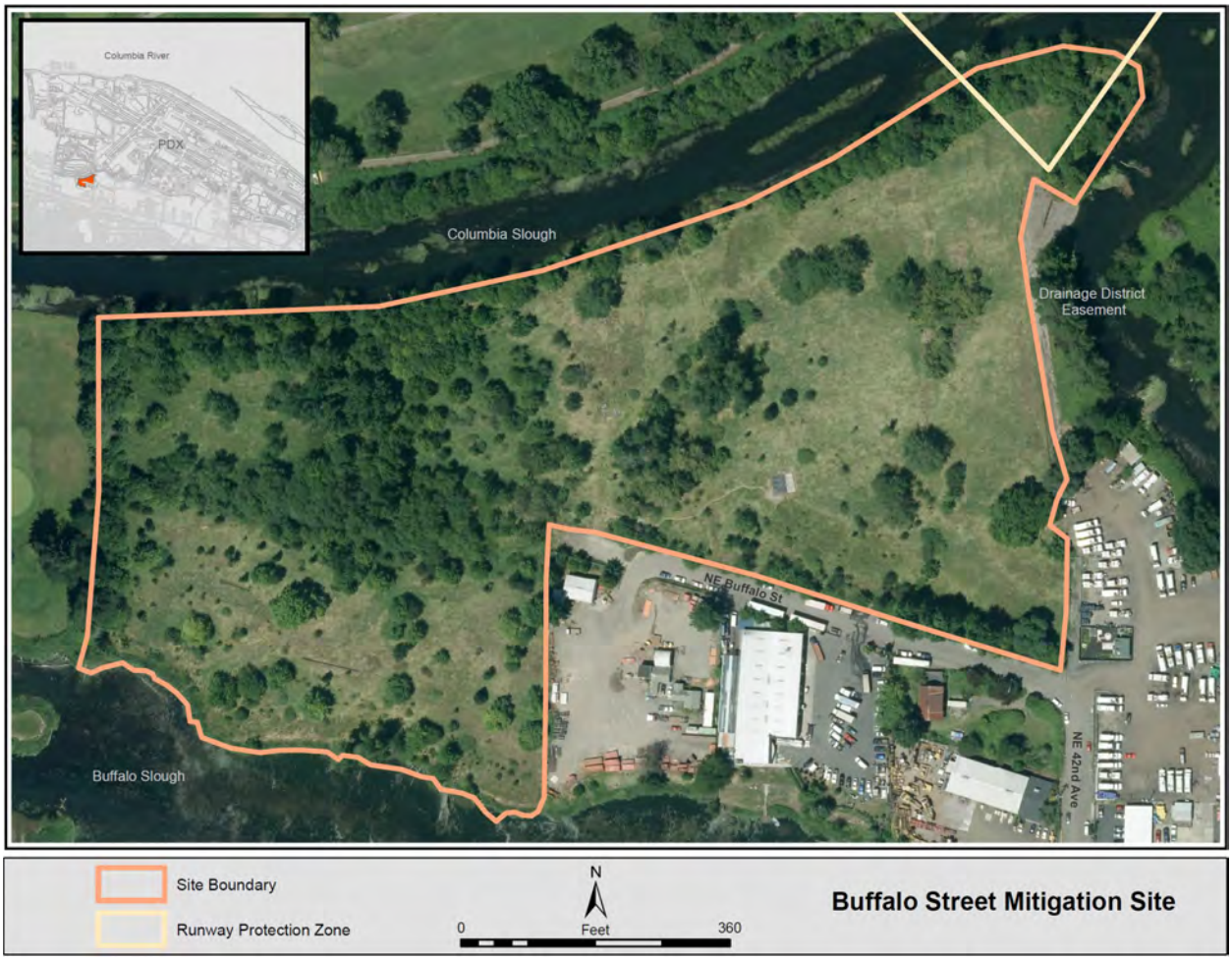


Figure 1: Buffalo Street Mitigation Site Overview

Ecological Setting

Land Use and Habitat

The Buffalo site is located adjacent to two waterbodies - the Columbia Slough to the north and east and Buffalo Slough to the south. The Columbia Slough provides an important wildlife corridor, and the Buffalo site offers refuge and habitat. Adjacent and west of the site is a former golf course that is now closed, but still provides contiguous open space. At the time this plan was written, the golf course parcel was owned by Prologis NE Columbia Blvd LLC and development plans were unknown. Surrounding land is zoned General Industrial and adjacent businesses includes Portland Disposal & Recycling, equipment rental and autobody paint services.

Prior to enhancement of the Buffalo site, much of the property was leased for limited livestock grazing and was dominated by pasture grasses and weedy forbs. Dense native tree and shrub establishment on the north edge of the property, adjacent to the Columbia Slough, now provides excellent cover and forage habitat within the Columbia Slough corridor for local and migratory wildlife. Other areas of the site include forest/scrub-shrub wetland, upland woodland, upland meadow, and emergent marsh habitats. See Appendix A, Site Photos.

Invasive Species

Effective invasive species management is a critical component of the Port's stewardship role. Invasive species can affect both ecological and economic systems and are one of the primary maintenance concerns for the Port's mitigation sites. Once established, invasive species can be costly to remove; therefore, preventing the introduction and establishment of invasive species has been shown to be the most cost-efficient strategy for long-term management. The Port documents invasive species management strategies approximately every two years in a Vegetation Management Plan that is publicly available on the Port of Portland website: https://www.portofportland.com/Environment/Mitigation

The Buffalo site is located in an urban-industrial setting making invasive species an on-going management issue. The Port implements a variety of control methods depending on multiple factors including the species, ODA rank, size of weed population, time of year, etc. The Port seeks to minimize the use of chemical herbicides by prioritizing manual and mechanical removal of invasive species when feasible. Early Detection Rapid Response[1] (EDRR) is employed to prevent the spread of identified invasive species. Target invasive species can fluctuate over time depending on site conditions, introductions, and control efficacy. At the time this document was published, target species included those listed below in Table 1.

Table 1: Target Invasive Plants

Botanical Name	Common Name
Alopecurus pratensis	meadow foxtail
Amorpha fruticosa	false indigo bush
Brassica rapa	field mustard
Bromus diandrus	ripgut brome
Cardamine hirsuta	hairy bittercress
Cichorium intybus	chicory
Cirsium arvense	Canada thistle
Cirsium vulgare	bull thistle
Conium maculatum	poison hemlock
Daucus carota	Queen Anne's lace
Dipsacus fullonum	Fuller's teasel
Hypericum perforatum	St. John's wort
Impatiens capensis	common jewelweed
Iris pseudacorus	yellowflag iris

[1] More information on Early Detection and Rapid Response prevention efforts is available at: https://www.usgs.gov/ecosystems/invasive-species-program/science/early-detection-and-rapid-response

Botanical Name	Common Name
Lactuca serriola	prickly lettuce
Leucanthemum vulgare	oxeye daisy
Lolium perenne	perennial ryegrass
Phalaris arundinacea	reed canarygrass
Phytolacca americana	American pokeweed
Rubus armeniacus	Himalayan blackberry
Schedonorus arundinaceus	tall fescue
Senecio jacobaea	tansy ragwort
Senecio vulgaris	old-man-in-the-spring
Silybum marianum	milk thistle
Solanum dulcamara	climbing nightshade
Solanum nigrum	black nightshade
Sonchus asper	prickly sowthistle
Tanacetum vulgare	common tansy
Trifolium pratense	red clover
Trifolium repens	white clover
Verbascum blattaria	moth mullein
Verbascum thapsus	common mullein

Restored Native Vegetation

The site was initially enhanced in 1994 as per the mitigation plan approved by the DSL, USACE and other signatories of a Memorandum of Agreement (MOA) (the MOA and the mitigation plan are discussed further in the following section; see Appendix B, Site Figures). Supplemental plantings were used to enhance specific areas including buffers and the marsh community. See Appendix C, Site Chronology and Enhancement Projects.

In 2002, the Port entered into an Intergovernmental Agreement (IGA) with the City of Portland Bureau of Environmental Services (BES) to plant 2.3 acres along the Columbia Slough from the waterline to the top of bank at the Buffalo site, among others. The area was planted at a density of 1,000-1,210 trees per acre and a minimum of 1,000 shrubs per acre. BES monitored and maintained the plantings for five years which are well established now providing corridor habitat and shade to the Columbia Slough.

Additional native plantings were installed in subsequent years providing enhanced buffers, riparian and woodland habitats. Herbicide treatments of pasture grasses also occurred followed up with native seeding in several areas providing pollinator habitat. Native shrubs were installed along the Buffalo Slough as part of an Airport Futures project in conjunction with the creation of native turtle nesting habitat in 2014. Nine logs and nine root wads were added to the Buffalo slough to provide turtle basking habitat as part of this project.

Wildlife Species

Improving wildlife habitat was a goal of the Buffalo Street mitigation project. Cumulative species observed on site are documented in Appendix D, and include over 120 bird species, several native mammals including beaver, coyote, black-tailed deer and muskrat, Pacific chorus frog, garter snakes, fish

and other observations. Breeding birds that were confirmed by observing young or finding nests included American robin, mallard, red-tailed hawk, song sparrow, wood duck, black-tailed deer and coyote.

Regulatory Framework[2]

Port mitigation projects provide compensation for unavoidable permanent and temporary impacts to wetlands and other natural resources resulting from development and operational activities undertaken by the Port. If new development is proposed where wetlands or other regulated natural resources are impacted, federal, state, and local laws and regulations require that project alternatives be evaluated to 1) avoid the impact, 2) minimize the impact, and 3) mitigate or compensate for the unavoidable impacts to these natural resources. Mitigation is usually in the form of restoration, establishment (creation), enhancement, or preservation of the habitats and functions lost through the proposed development activities.

Permitting and compliance responsibilities for all mitigation sites are primarily enforced by USACE, DSL, and Oregon Department of Environmental Quality (DEQ), with associated federal, state, and local agencies having influence and offering comments on permit conditions. Mitigation for development impacts may also be required through local municipal regulations. The Buffalo Street mitigation site was officially released from further obligations by DSL and the USACE in 2003.

Federal and State Regulations

Clean Water Act, Section 404

Section 404 of the Clean Water Act (CWA), initially enacted in 1972, establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Activities in waters of the United States regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and mining projects. Section 404 requires a permit from the USACE before dredged or fill material may be discharged into waters of the United States, unless the activity is exempt from Section 404 regulation (e.g., certain farming and forestry activities). The applicant must first demonstrate that steps have been taken to avoid impacts to wetlands, streams, and other aquatic resources; that potential impacts have been minimized; and that compensation will be provided for all remaining unavoidable impacts.

Oregon Department of State Lands Removal-Fill Law

The DSL's Removal-Fill Law (Oregon Revised Statute (ORS) 196.795-990) requires a permit to be obtained from DSL prior to removing or placing material in waters of the state. The purpose of the law, enacted in 1967, is to protect public navigation, fishery, and recreational uses of the waters. "Waters of the state" are defined as "all natural waterways including all tidal and non-tidal bays, intermittent streams, constantly flowing streams, lakes, wetlands and other navigable and non-navigable bodies of water in this state…, where removal of fill activities are regulated under a state-assumed permit

[2] Regulatory Framework language was developed by SWCA Environmental Consultants for the Port's Randall (2016) and Vanport Wetlands (2018) Long-term Management Plans.

program..." (ORS 196.800(15)). The law applies to all landowners, whether private individuals or public agencies.

Endangered Species Act of 1973

The purpose of the Endangered Species Act (ESA) of 1973 is to protect and recover imperiled species and the ecosystems upon which they depend. It is administered by the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS). The USFWS has primary responsibility for terrestrial and freshwater organisms, while the responsibilities of NMFS are mainly marine wildlife such as whales and anadromous fish such as salmon. Under the ESA, species may be listed as either endangered or threatened. *Endangered* means a species is in danger of extinction throughout all or a significant portion of its range. *Threatened* means a species is likely to become endangered within the foreseeable future. The ESA makes it unlawful for a person to take a listed animal without a permit. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." Section 7 of the ESA requires federal agencies to use their legal authorities to promote the conservation purposes of the ESA and to consult with the USFWS and NMFS, as appropriate, to ensure that effects of actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of listed species.

Migratory Bird Treaty Act

The purpose of the Migratory Bird Treaty Act, initially enacted in 1918, is to protect migratory bird species by making it illegal for anyone to "take, possess, import, export, transport, sell, purchase, barter, or offer of sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to federal regulations." It is administered and enforced by the USFWS. The Migratory Bird Treaty Act implements conventions between the United States and four other countries (Canada, Mexico, Japan, and Russia) for protection of migratory birds. A complete list of migratory bird species protected under this act are listed in 50 Code of Federal Regulations 10.13.

Local Ordinances

City of Portland Land Use Regulations

Development and land management activities within the City of Portland (COP) are regulated by COP Planning and Zoning (Title 33). Specifically, the areas adjacent to the Columbia slough within the Buffalo Slough site that are designated C-zone. The Environmental Protection overlay zone is applied wherever the COP determines that *highly* significant resources and functional values are present, which is shown on the Official Zoning Maps with a "p" symbol (p (preservation)-zone). The Environmental Conservation overlay zone is applied wherever the COP determines that significant resources and functional values are present, which is shown on the Official Zoning Maps with a "c" symbol (c (conservation)-zone). Development and other activities within areas mapped as p- and c-zones that are not exempt must adhere to the regulations included in Chapter 33.430 of the Overlay Zoning Code. Additional environmental regulations may either supplement or supersede the regulations outlined in Chapter 33.430 of the Overlay Zoning Code if the mitigation site is within one of the specific Plan Districts or Natural Resource Management Plans listed in Chapter 33.430.030 of the Environmental Overlay Zoning Code.

Buffalo Street Mitigation Site Permitting

Permit Summary

A Memorandum of Agreement (MOA) was a requirement of the DSL removal/fill permit (RF-6273), DEQ's Section 401 Water Quality Certification, and the USACE Section 404 permit (1997-00053) to address wildlife hazard conditions near PDX at the SW Quadrant site. The MOA between the Port, DSL, USACE, DEQ, ODFW, EPA, and USFWS, has specific requirements for the upland areas of the Buffalo Street site and is referenced in the DSL permit conditions. The MOA includes mitigation obligations beyond the Buffalo site. In addition, the City of Portland required a Land Use Review (LUR 93-00539) for the enhancement project. Regulatory agencies officially released the site from further obligation to monitor and report in 2003 (DSL, September 2003; USACE, November 2003, see Appendix E).

Mitigation Plan

The mitigation site was designed to promote habitat connectivity and to provide nesting habitat, food, and cover for a variety of terrestrial and avian species. The goal was to create connectivity between existing natural areas and the Columbia Slough. The plan included enhancing the slough banks, riparian woodland, emergent wetland, and upland meadow habitats. The 15.56-acre site includes approximately 1.0 acre of forest/scrub-shrub wetland, 8.5 acres of upland woodland, 7.0 acres of upland meadow, and 1.3 acres of emergent marsh. The site was initially planted and seeded with native species in 1994. Prior to grading, site preparation included herbicide application and disking in the spring and fall of 1994. Planted, seeded, and observed species are listed in Appendix F, Cumulative Plant Species List for Buffalo Street Mitigation Site.

Mitigation Results and Site Conditions

Starting in November 1994 existing vegetation was augmented with additional native plants, and non-native, nuisance species were removed and managed. A 350-foot length of the Slough bank was graded to 1:2.5 slope and planted with native riparian species to improve the connectivity of wildlife habitat between the upland and riparian area. Livestock grazing was discontinued in 1998.

Compliance monitoring of the site took place between 1995 and 2002. In 1998, vegetation survival was estimated to be 57%, and did not meet the 80% requested by DSL in their letter to the Port on March 30, 1998. Replanting of portions of the site was conducted in the fall of 1998, early in 1999, and again in early 2001. A status report documenting survival of areas that had been replanted since 1999 was submitted to USACE and DSL in June 2001. Regulatory agencies officially released the site from further obligation to monitor and report in 2003 (DSL, September 2003; USACE, November 2003, see Appendix E).

In 2000 the Port entered into an agreement (IGA No. 2000-039) with the City of Portland, BES to enhance multiple Port-owned riparian areas totaling over 70 acres along the Columbia Slough and its tributaries. The projects were undertaken to improve water quality in the Slough. At the Buffalo site, the plan was to further enhance 2.3 acres (1,970 LF) from the ordinary high-water line to the top of bank on the north side of the site adjacent to the Columbia Slough. Site prep began in 1999, the site was planted in January 2000, inter-planted in 2001 and 2002 and maintained and monitored by BES through 2004.

The Buffalo mitigation site plays a critical compliance role with respect to the Willamette River TMDL. The TMDL implementation plan requires the continued management of these sites to provide increased shade on the Columbia Slough. This metric is tracked through documentation of the annual maintenance (including inter-planting) performed on these sites. The well-established, dense riparian plantings along the Columbia Slough at the Buffalo site is included in the Port's annual progress reports to DEQ.

Wildlife use of the sites was documented from 1993 to 2019 and includes a variety of migratory and resident birds, mammals, amphibians, reptiles, fish and invertebrate species (Appendix D).

Conservation and Management Strategy

The goal for long-term management of the Buffalo Street mitigation site is to conserve and maintain natural conditions through continued monitoring and management of on-site natural resources. Long-term management is intended to be adaptive; therefore, adaptive management should be implemented, as defined in the federal mitigation rule 33 Code of Federal Regulations 2.332 (2008):

> ***Adaptive management*** *means the development of a management strategy that anticipates likely challenges associated with compensatory mitigation projects and provides for the implementation of actions to address those challenges, as well as unforeseen changes to those projects. It requires consideration of the risk, uncertainty, and dynamic nature of compensatory mitigation projects and guides modification of those projects to optimize performance. It includes the selection of appropriate measures that will ensure that the aquatic resource functions are provided and involves analysis of monitoring results to identify potential problems of a compensatory mitigation project and the identification and implementation of measures to rectify those problems.*

Most permit requirements specify that mitigation sites be monitored for 5 years; however, after such a short period of time, the functions and values of mitigation sites rarely match those of natural sites. To meet the Port's objective to "strive to achieve sites that are more sustainable through management actions" the Port's stewardship over the Buffalo Street mitigation site will be passed to the Steward, who will continue monitoring and managing the site beyond the immediately foreseeable future even after there is no regulatory requirement to do so. Long-term maintenance will help to ensure that habitat integrity continues to improve, and the site sustains its enhanced condition with minimal intervention.

Permanent Protection Instrument

A declaration of restrictive covenant was recorded in 2003 and protects the 15.56-acre site in perpetuity "as an area to be used exclusively for natural habitat, with management for non-native species removal and weed control". The declaration of restrictive covenant (03-040) is included in Appendix E. The Steward would be responsible for financing continued site management.

Limits of Responsibility

The Steward will not be responsible for future failure of the Buffalo Street mitigation site attributed to natural catastrophes such as flood, drought, disease, regional pest infestation, and others that are

beyond their reasonable control. Active management is not expected to prevent events of natural ecological change that come about as a result of processes such as climate change, sedimentation due to flooding, excessive drought, and other naturally occurring events that were not caused by or that could not have been prevented by on-site management activities. Over time, natural processes could occur that may reduce wetland function or reduce the current wetland habitat acreage. For example, deposition of sediments during high flows and flooding in parts of the wetlands could result in a natural filling of some areas. Management activities to prevent this natural filling are unnecessary.

Public Use and Access

Given that the mitigation site is located adjacent to developed areas dominated by industrial and commercial infrastructure, vandalism and unauthorized access are issues that affect the maintenance of and public access to the Buffalo site. To protect the site to the greatest degree possible from vandalism, unauthorized camping, trail users, weeds, and disturbances to wildlife, public access to some sites are currently restricted by fencing, locked gates, and/or signage. In the future, the site will continue to be protected with a combination of fencing, locked gates, and signage maintained by the Steward. Future public access may include limited access for research and educational opportunities, such as bird watching or plant identification, if the Steward determines that these uses will not conflict with the long-term management objectives of the site and the terms of the conservation easement. The site is intended to remain a natural area with no development of infrastructure including access roads.

Long-Term Management Considerations

Surrounding Land Use

Long-term management of the Buffalo Street mitigation site is limited to the area covered under the restrictive covenant and Port property boundaries. The condition of the surrounding properties, their land uses, and management practices could potentially affect conditions within the site and threaten the continued conservation of natural resources within the mitigation site. Site constraints, zoning designations, landscape positions, and potential threats to natural resources associated with surrounding properties are described below.

Site Constraints

Restrictive Covenant

As previously mentioned, a declaration of restrictive covenant (03-040) was recorded in 2003 and protects the 15.56-acre site in perpetuity from development (Appendix E). The site is to be used exclusively for natural habitat, allowing for the management of non-native species.

Runway Protection Zone (RPZ)

Due to the proximity of the Buffalo site to Runway 3-21 at PDX, a small area of the site (approx. 0.4 acres) located in the NE corner, falls within the Runway Protection Zone (RPZ) (See Figure 1 and Appendix B). An RPZ is a trapezoidal area located at the end of a runway that serves to protect people and property on the ground in the event an aircraft lands or crashes beyond the end of the runway. The Federal Aviation Administration (FAA) prohibits certain land uses within the RPZ, such as residences and places of public assembly.

Multnomah County Drainage District (MCDD) Easement

The MCDD holds an access road easement (2015-062) with the Port to provide boat and machinery ingress and egress to the Columbia Slough. The easement is approximately 0.4 acres and adjacent to the Columbia Slough on the east side of the site. See Figure 1 and Appendix B.

In 2019, the Oregon Legislature created a new district to modernize the management of four flood control systems. The Urban Flood & Water Quality District (UFSWQD) will ultimately replace the four Drainage Districts that currently manage the system (PEN1, PEN2, MCDD, SDIC) and will help establish a safer, more modern and sustainable way to manage flood safety along the Columbia River in the Portland metro region.[3]

Human Influence

Human influences could harm the Buffalo Street site in multiple ways, including vandalism, unauthorized habitation, trespassing, and littering. Regular site visits and maintenance will be necessary to address these issues. Site cleanups could be implemented as part of a community volunteer program or non-profit organization's operations. During regular site visits, the sites can be inspected for the presence of unauthorized camps and vandalism. Monitoring public access to the sites and maintaining fencing, gates and signage where feasible is an important aspect of site management.

Catastrophic Events

Catastrophic events could be naturally driven, or human caused, including climate-driven events. Possible catastrophic events at the Buffalo Street site may include fires, massive floods, new species invasions, diseases, excessive long-term drought, etc. Other than flooding, these rare events seldom occur in the area but could cause drastic changes to the site. However, with consideration of the regional effects of climate change on natural systems, the frequency and magnitude of certain catastrophic events such as flooding, wildfires, and drought, is expected to increase over time[4]. If any of the events were to occur, they may affect the ability to meet the biological goals and objectives in the future at which time the ecological functions of the site should be documented and analyzed to determine future management goals. The management plan should then be revised based on the new site conditions and environmental/human drivers.

Long-Term Management Actions

Long-term management actions will need to be taken to ensure sustained wetland and habitat functions. These actions should be based on results of regular site inspections and specific monitoring and may change over time in response to changes in site conditions. Management activities at a minimum should include invasive species management and restoration of areas where invasive species have displaced native vegetation or where other disturbance has occurred. Other management activities

[3] MCDD Flood Protection. https://www.mcdd.org/ . Accessed December 18, 2023.

[4] Dalton, M., and E. Fleishman, editors. 2021. Fifth Oregon Climate Assessment. Oregon Climate Change Research Institute, Oregon State University, Corvallis, Oregon. https://blogs.oregonstate.edu/occri/oregon-climate-assessments/.

may include replanting or reseeding areas of native plant diversity decline, continued restoration of upland areas with native species that support pollinators and turtle nesting habitat, and repairing or installing wildlife structures. Details of preferred best management practices (BMPs), vegetation management, and site maintenance are described in this section.

The long-term vision of management actions should be based on the following key parameters:

- Continual monitoring of vegetation and hydrology
- Controlling invasive species and promoting native vegetation
- Providing wetland and riparian habitat for wildlife
- Through management actions, strive to achieve sites that are more sustainable
- Protecting the site from incompatible land uses
- Support community outreach, research, and education opportunities

Best Management Practices

BMPs should be implemented for all management actions, including ground disturbance, herbicide application, seed application, and planting. BMPs are especially important when handling and applying herbicides on-site, because misuse of these chemicals can cause negative impacts to native plants, wildlife, and water quality. The Port's Vegetation Management Plan discusses herbicide application and includes a list of invasive species commonly encountered at the Buffalo Street mitigation site, the types of herbicides to use, and handling and operation of relevant equipment. BMPs pertaining to the prevention of invasive species reestablishment, invasive species monitoring, wildlife considerations, general equipment cleaning, and long-term herbicide use considerations are discussed as well. The latest version is available online at: https://www.portofportland.com/Environment/Mitigation.

An invasive species control plan is important to establish before implementation of new methods or use of new chemical herbicides. The plan should include the species that will be controlled by the measures and the strategies that will most efficiently control them. These strategies should attempt to integrate the use of mechanical, chemical, and biological methods of controlling the target species, as opposed to relying on one single method of control. Herbicides should always be applied according to their labels and the BMPs described in the most recent Port Vegetation Management Plan.

The Buffalo Street mitigation site supports many wildlife species that may be harmed as a result of certain management activities especially during critical life cycle stages. BMPs provided in the Port's Vegetation Management Plan help minimize impacts to wildlife by avoiding certain management activities during critical life cycle stages, cleaning boots and other equipment to prevent the spread of amphibian disease and minimizing the use of herbicides.

One of the primary goals of the site is to establish a diverse, native plant community. Given this, it is very important to use chemicals selectively on the target species to avoid contact and harm to native plants. In general, herbicides will be applied by spot spraying or wicking rather than broadcast spraying to avoid harming native plants. All herbicide applicators must be certified and licensed by the Oregon Department of Agriculture.

On-going Vegetation Management

Prior to the creation of the Buffalo Street mitigation project, the property contained numerous invasive and non-native species especially pasture grasses and Himalayan blackberry. Through restoration, enhancement and ongoing maintenance by the Port, these invasive species have been reduced and native species have established. Due to the urban-industrial surroundings at Buffalo and to prevent the potential establishment of new invasive species over time, the site should continue to be managed for invasive species in perpetuity.

The best management strategy to prevent the colonization of invasive species is to maintain a healthy, diverse native plant community. Plant communities that have a complex and diverse composition are typically more resilient in the face of invasive and non-native species encroachment. However, if invasive species manage to become established within the site, then the following guidelines can help control them.

An adaptive management strategy is the best approach for developing long-term management actions to prevent the establishment and spread of non-native and invasive species. Management actions should be tailored to the specific situation and conditions whenever possible to achieve the best results. These actions should entail identifying weeds on the site, mapping the distribution of these weeds, researching currently accepted and effective methods for control, implementing weed control plans for each species, and monitoring the efficacy of control efforts.

Specific objectives to be achieved through adaptive non-native and invasive species management include:

- Protect and maintain healthy native plant communities.
- Minimize unnatural ground disturbance that promotes the invasion of non-native/invasive species.
- Prevent the establishment of new non-native/invasive infestations. Conduct regular surveillance for nonnative/invasive species infestations – practice Early Detection Rapid Response.
- Reduce the vigor of existing non-native/invasive populations and limit their spread.
- Eliminate non-native/invasive plant populations or portions of populations.
- Exhaust the non-native/invasive seed bank: prevent seed production and eradicate established plants.
- Monitor efficacy of control methods.
- As infestations decrease in size, locate, treat and monitor isolated patches.
- Reevaluate species and control methods.
- Seed or plant in areas that have been disturbed or treated for invasive species with native species to establish native plant communities able to compete with invasive species.

These guidelines are circular and reflect an adaptive management approach to controlling non-native and invasive species. The intensity of the monitoring and management actions should depend on the relative threat the invasive species pose to the site's integrity and ecosystem and the speed at which the particular species can become established and spread within the site.

Vegetation Succession

Vegetation succession is a constant driver upon the landscape. The goal for the Buffalo Street mitigation site was to create connectivity between existing natural areas in the Columbia Slough Watershed. The plan included enhancing the slough banks, riparian woodland, emergent wetland, and upland meadow habitat to provide cover to the slough and to provide nesting habitat, food, and cover for a variety of terrestrial and avian species. Additional habitat improvements included the placement of large woody material throughout the site. DSL requested 80% survival of vegetation in their letter to the Port dated March 30, 1998. The site is well-established in nearly all plan communities. Native vegetation has replaced blackberry hedges in the buffers and the Slough banks are dense with native trees and shrubs, providing shade to the Slough.

General Site Maintenance

In addition to vegetation maintenance, the Steward will be responsible for general maintenance of the site. The Steward will maintain the existing fences and gates surrounding the Buffalo Street mitigation site. The current signage associated with the site, and any signs that are erected in the future, will also be maintained by the Steward. The Steward will remove trash from the site and work to correct any damage resulting from trespassing or vandalism. Periodic tree maintenance, such as pruning or removal of dead trees that pose a safety hazard, may be required. Removal of mature trees within the site must be coordinated with the City of Portland. Other maintenance activities may include habitat enhancement like native planting or seeding to maintain site integrity.

Long-Term Monitoring and Research

Monitoring

The Buffalo Street mitigation site was monitored for regulatory compliance from 1995 to 2001 with contributions from different agencies, organizations, consultants and Port mitigation staff. Since the initial planting in 1994, different areas of the site were interplanted and seeded, and various habitat enhancement projects completed such as turtle nesting habitat and distribution of large woody material. Previous monitoring efforts focused on invasive species presence and cover, stem density and wildlife use.

A complete list of reports and other documentation can be found in Appendix G, Buffalo Street Document List. The Port also provides periodic site management updates in the Mitigation Management Program Site Status Report available on the Port's public website: https://www.portofportland.com/Environment/Mitigation

Future monitoring activities on the Buffalo Street mitigation site are not mandated by DSL or USACE, but regular site inspections for invasive species and other maintenance needs should continue to ensure conservation of habitat and site function. Monitoring activities in partnerships with other groups such as Metro, City of Portland, grad students and others, that would likely continue into the future may include turtle nesting surveys, monitoring of wildlife use and site conditions, ecological succession, water quality, and diversity of wildlife usage of the site. Other possible monitoring activities could include monitoring plant growth and changes over time (herbaceous productivity, tree/shrub growth, etc.) and avian use of the site.

Future Restoration

Continued enhancement of on-site natural resources could increase ecological functions and habitat diversity within the Buffalo Street mitigation site and benefit both the local community and natural environment. Future restoration programs could involve enhancement of one or more functions, such as improving habitats for nesting birds, amphibians and turtles, and enhancement of upland buffers by increasing native plant diversity. Restoration opportunities may present themselves in the future and could be pursued in conjunction with other monitoring and research efforts.

Opportunities for Research

Long-term management of the Buffalo Street mitigation site could allow for multiple research opportunities. Many research ideas could be implemented in conjunction with regular management activities with minimal cost. Information resulting from research conducted on the site would help to inform future management actions. Understanding the effectiveness of conservation strategies could help inform future mitigation programs. Select research studies may be eligible for additional funding from outside sources to aid in implementation.

APPENDIX A

SITE PHOTOS

Buffalo Slough April 2024

Southwest Woodland April 2024

West Buffer April 2024

West Buffer April 2024

Emergent Marsh/Woodland April 2024

Emergent Marsh, Slough Sedge April 2024

Riparian Zone West Side April 2024

Riparian Zone East Side April 2024

East Side Meadow and Woodland April 2024

East Meadow April 2024

Slough Sedge April 2024

Red Flowering Currant April 2024

APPENDIX B

SITE FIGURES

Site Boundary

Runway Protection Zone

N

0 Feet 360

Buffalo Street Mitigation Site

NO	DATE	BY	REVISIONS	CK'D	APP'V'D
2	3/95	HJJ	AS CONSTRUCTED		
1	5/8/94	GEM	AS BID		

PORT OF PORTLAND
PORTLAND, OREGON

93D074 DESIGN NUMBER
21747 PROJECT NUMBER

DESIGNED BY	T. VAN WORMER
DRAWN BY	G. MOYLE
CHECKED BY	T. VAN WORMER
DATE	FEB 1994
SCALE	1" = 200'

PORTLAND INTERNATIONAL AIRPORT

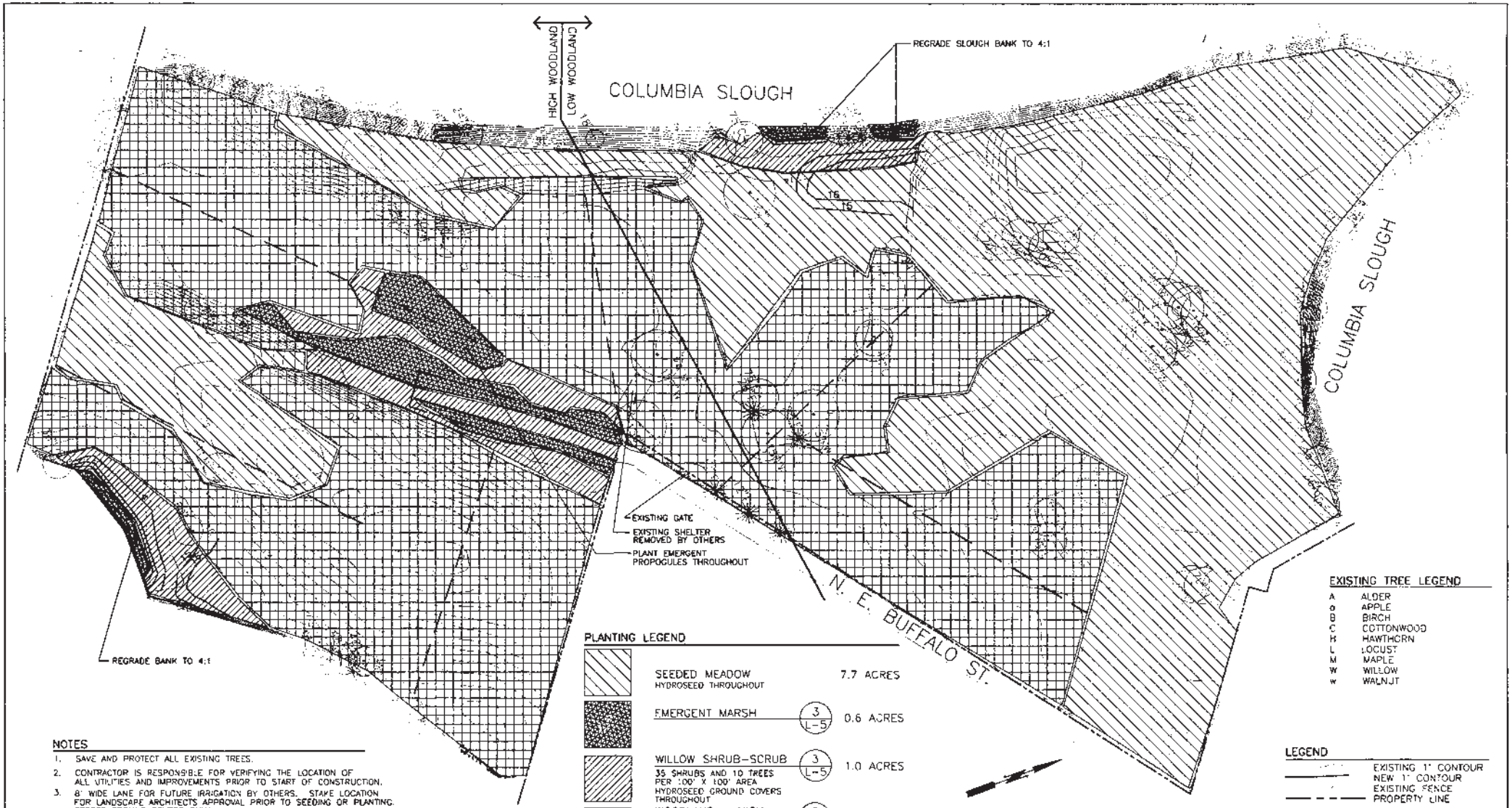
AIRTRANS CENTER WEST AND NE BUFFALO STREET MITIGATION
GRADING AND LANDSCAPING

SITE PLAN

SUBMITTED BY

DRAWING NO. PDX 94-5 1/5 (L-1)

MICROFILMED



PLANTING LEGEND

SEEDED MEADOW HYDROSEED THROUGHOUT		7.7 ACRES
EMERGENT MARSH	3 / L-5	0.6 ACRES
WILLOW SHRUB-SCRUB 35 SHRUBS AND 10 TREES PER 100' X 100' AREA HYDROSEED GROUND COVERS THROUGHOUT	3 / L-5	1.0 ACRES
WOODLAND – HIGH 25 SHRUBS AND 10 TREES PER 100' X 100' AREA	2 / L-5	5.7 ACRES
WOODLAND – LOW 25 SHRUBS AND 10 TREES PER 100' X 100' AREA	1 / L-5	2.8 ACRES

HYDROSEED GROUND COVERS THROUGHOUT

PLANTING PLAN 1 / L-2
SCALE: 1" = 50'

EXISTING TREE LEGEND

A	ALDER
a	APPLE
B	BIRCH
C	COTTONWOOD
H	HAWTHORN
L	LOCUST
M	MAPLE
W	WILLOW
w	WALNUT

LEGEND

- EXISTING 1' CONTOUR
- NEW 1' CONTOUR
- EXISTING FENCE
- PROPERTY LINE
- EXISTING POWER POLE
- 8' LANE, SEE NOTE 3.

NOTES

1. SAVE AND PROTECT ALL EXISTING TREES.
2. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL UTILITIES AND IMPROVEMENTS PRIOR TO START OF CONSTRUCTION.
3. 8' WIDE LANE FOR FUTURE IRRIGATION BY OTHERS. STAKE LOCATION FOR LANDSCAPE ARCHITECTS APPROVAL PRIOR TO SEEDING OR PLANTING. SEEDED GROUND COVERS ONLY.
4. CONTRACTOR SHALL SUBMIT AN EROSION CONTROL PLAN FOR PORT OF PORTLAND APPROVAL PRIOR TO START OF CONSTRUCTION. EROSION CONTROL PLAN SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTLAND'S EROSION CONTROL TECHNICAL GUIDANCE MANUAL. CONTRACTOR SHALL PROVIDE ADDITIONAL EROSION CONTROL MEASURES AS NECESSARY TO PREVENT SEDIMENTATION OF THE COLUMBIA SLOUGH.

AS CONSTRUCTED

NO.	DATE	BY	REVISIONS	CK'D	APP'VD
2	3/96	YMJ	AS CONSTRUCTED		
1	7/18/94	BEM	AS BID		

PORT OF PORTLAND
PORTLAND, OREGON

21747 DESIGN NUMBER
21747 PROJECT NUMBER

REGISTERED LANDSCAPE ARCHITECT OREGON

DESIGNED BY	T. VAN WORMER
DRAWN BY	T. VAN WORMER
CHECKED BY	
DATE	FEBRUARY, 1994
SCALE	AS SHOWN

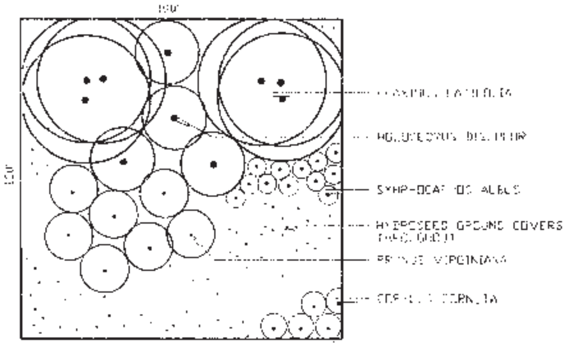
PORTLAND INTERNATIONAL AIRPORT

AIRTRANS CENTER WEST AND NE BUFFALO STREET MITIGATION
GRADING AND LANDSCAPING
BUFFALO STREET PLANTING AND GRADING PLAN

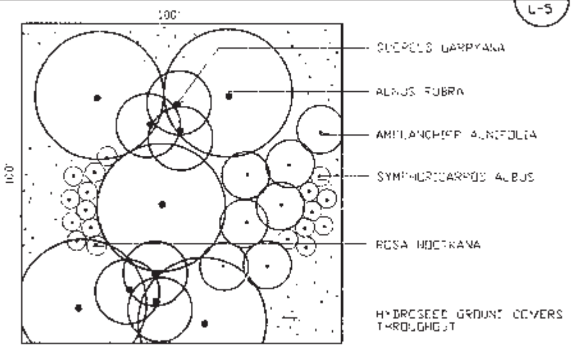
SUBMITTED BY

DRAWING NO. PDX 94-5 2/5 (L-2)

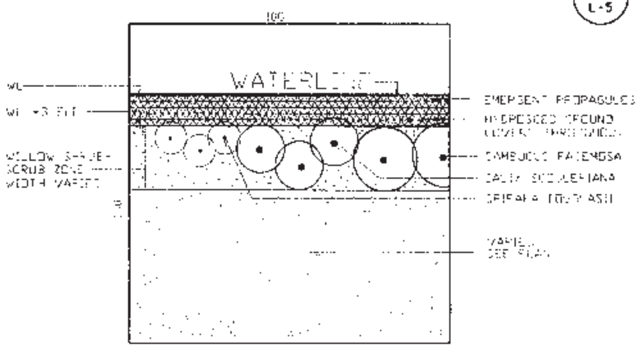
MICROFILMED



LOW WOODLAND SAMPLE PLANTING (1 / L-5)



HIGH WOODLAND SAMPLE PLANTING (2 / L-5)



EMERGENT MARSH/WILLOW SHRUB-SCRUB SAMPLE PLANTING AT WATER (3 / L-5)

BUFFALO SITE PLANT LISTS

LOW WOODLAND PLANT LIST

TYPE	PLANTING NOTES	QUANTITY
Trees		
Fraxinus latifolia	4-5', cont., Groups of 3-5, 60' O.C.	125
Shrubs		
Prunus virginiana	3-4', cont., Group of 3-5, 40' O.C.	40
Crataegus douglasi	3-4' cont., 20' O.C., Group of 3	125
Holodiscus discolor	3-4' cont., 15' O.C.	40
Symphoricarpos albus	3-4' cont., 6' O.C.	40
Corylus cornuta	3-4' cont., Groups of 3-5, 40' O.C.	60
Ground Covers		
Elymus glaucus	10 lbs./Acre, Hydroseed mix throughout	
Festuca rubra v. 'Rubra'	10 lbs./Acre, Hydroseed mix throughout	
'Regreen' (Cover Crop)	5 lbs./Acre, Hydroseed mix throughout	
Lupinus bicolor	1 lbs./Acre, Hydroseed mix throughout	

HIGH WOODLAND PLANT LIST

TYPE	PLANTING NOTES	QUANTITY
Trees		
Alnus rubra	3-4', cont./, Groups of 3-5, 40' O.C.	125
Quercus garryana	1-2 gal., Groups of 3, 10' O.C.	125
Shrubs		
Amelanchier alnifolia	3-4' cont., 15' O.C.	175
Rosa nootkana	3-4' cont., 6' O.C.	175
Symphoricarpos albus	3-4' cont., 6' O.C.	175
Corylus cornuta	3-4' cont., Groups of 3-5, 40 O.C.	125
Ground Covers		
Elymus glaucus	10 lbs./Acre, Hydroseed mix throughout	
Festuca rubra v. 'Rubra'	10 lbs./Acre, Hydroseed mix throughout	
'Regreen' (Cover Crop)	5 lbs./Acre, Hydroseed mix throughout	

WILLOW SHRUB-SCRUB PLANT LIST

TYPE	PLANTING NOTES	QUANTITY
Trees		
Fraxinus latifolia	4-5' cont., 40', O.C. -- Group of 3	44
Shrubs		
Cornus stolonifera	2-3' cont., -- 15' O.C.	16
Physocarpus capitatus	2-3' cont., -- 8' O.C.	14
Ribes sanguineum	1-2' cont., -- 8' O.C.	17
Rosa pisocarpa	1-2' cont., -- 8' O.C.	20
Salix scouleriana	1-2' cont., Groups of 3, -- 15' O.C.	15
Sambucus racemosa	3-4' cont., Groups of 3, -- 20' O.C.	15
Spiraea douglasii	2-3' cont., Groups of 3, -- 10' O.C.	20
Ground Covers		
Alopecurus geniculatis	.5 lbs./Acre, Hydro-Seed mix throughout	
Elymus glaucus	10 lbs./Acre, Hydro-Seed mix throughout	
Festuca rubra v. 'Rubra'	10 lbs./Acre, Hydro-Seed mix throughout	
Regreen' (Cover Crop)	5 lbs./Acre	

EMERGENT MARSH PLANT LIST

TYPE	PLANTING NOTES
Ground Covers	
Alopecurus geniculatus	.5 lbs./Acre - Hydroseed throughout
Beckmannia syzigachne	10 lbs./Acre - Hydroseed throughout
Carex densa	1" Propagules - 5' o.c. (WL - WL+3' elev.)
Carex obnupta	1" Propagules - 5' o.c. (WL - WL+3' elev.)
Deschampsia caespitosa	4 lbs./Acre - Hydroseed
Eleocharis palustris	1" Propagules - 5' o.c. (WL - WL+3' elev.)
Elymus glaucus	3 lbs./Acre - Hydroseed throughout
Juncus effusus	1" Propagules - 5' o.c. (WL - WL+3' elev.)
Juncus tenuis	1" Propagules - 5' o.c. (WL - WL+3' elev.)
'Regreen' (Cover Crop)	5 lbs./Acre - Hydroseed throughout
Scirpus microcarpus	1" propagules - 5' o.c. (WL - WL+3' elev.)

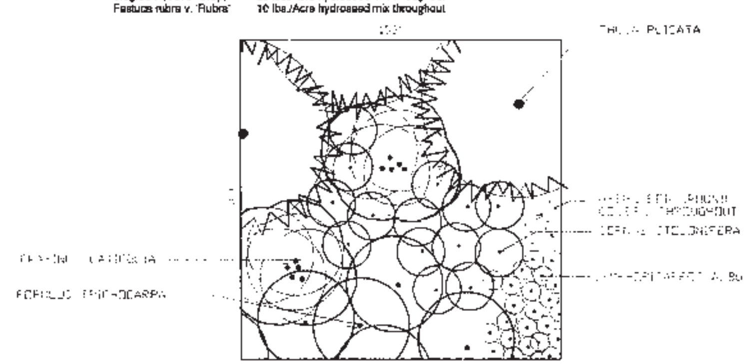
SEEDED MEADOW PLANT LIST

TYPE	PLANTING NOTES
Ground Cover	
Achillea millefolium	1/2 oz./acre, hydroseed as mix throughout
Agrostis gigantea	2 lbs./acre, hydroseed as mix throughout
Aster chilensis halli	1 oz./acre, hydroseed as mix throughout
Aster subspicatus	1 oz./acre, hydroseed as mix throughout
Anaphalis margaritacea	1 lb./acre, hydroseed as mix throughout
Aquilegia formosa	5 oz./acre, hydroseed as mix throughout
Bromus carinatus	4 lbs./acre, hydroseed as mix throughout
Clarkia amoena	2 oz./acre, hydroseed as mix throughout
Elymus glauca	10 lbs./acre, hydroseed as mix throughout
Festuca rubra v. 'Rubra'	10 lbs./acre, hydroseed as mix throughout
Lupinus bicolor	2 lbs./acre, hydroseed as mix throughout
Lupinus polyphyllus	2 lbs./acre, hydroseed as mix throughout
Regreen (covercrop)	5 lbs./acre, hydroseed as mix throughout
Solidago canadensis	2 oz./acre, hydroseed as mix throughout

ELROD SITE PLANT LIST

WOODLAND BUFFER PLANT LIST

TYPE	PLANTING NOTES	QUANTITY
Trees		
Abies grandis	3' - 4' cont., -- 60' O.C.	50
Fraxinus latifolia	4'-5' cont., Groups of 3-5, 60' O.C.	400
Populus trichocarpa	4'-5' cont., -- 30' O.C.	280
Thuja plicata	3'-4' cont., -- 60' O.C.	100
Pseudotsuga menziesii	3'-4' cont., -- 60' O.C.	50
Shrubs		
Corylus Cornuta	3'-4' cont., Groups of 3-5, 40' O.C.	375
Physocarpus capitatus	1'-2' cont., - 8' O.C.	100
Cornus stolonifera	3'-4' cont., - 15 O.C.	250
Holodiscus discolor	3'-4' cont., - 15' O.C.	125
Rosa nutkana	1'-2' cont., -- 6' O.C.	375
Salix sitchensis	3'-4' cont., -- 15' O.C.	75
Symphoricarpos albus	3'-4' cont., -- 6' O.C.	286
Acer circinatum	3'-4' cont., multi-stem, Groups of 3-5, 45' O.C.	350
Ground Covers		
Elymus glaucus	10 lbs./Acre hydroseed mix throughout	
Festuca rubra v. 'Rubra'	10 lbs./Acre hydroseed mix throughout	
Lupinus bicolor	1 lb./Acre hydroseed mix throughout	
'Regreen' (Cover Crop)	5 lbs./Acre hydroseed mix throughout	
Ground Layer		
Elymus glaucus	10 lbs./Acre hydroseed mix throughout	
'Regreen' (Cover Crop)	20 lbs./Acre hydroseed mix throughout	
Festuca rubra v. 'Rubra'	10 lbs./Acre hydroseed mix throughout	



WOODLAND BUFFER SAMPLE PLANTING (4 / L-5)

PLANTING NOTES

SAMPLE PLANTING PLANS DEPICT GENERAL PLANT LAYOUT AND SPACING.
ACTUAL SITE CONDITIONS, SOILS, TOPOGRAPHY AND EXISTING VEGETATION SHALL BE TAKEN INTO ACCOUNT DURING PLANTING. PLANT TREES, SHRUBS AND GROUNDCOVERS IN NATURAL PATTERNS CORRESPONDING TO EXISTING CONTOURS AND VEGETATION.
LAYOUT ALL TREES AND SHRUBS FOR LANDSCAPE ARCHITECT'S APPROVAL PRIOR TO PLANTING

AS CONSTRUCTED

NO	DATE	BY	REVISIONS	CK'D	APP'V'D
2	3/95	HJJ	AS CONSTRUCTED		
1	3/8/94	GEM	AS BID		

PORT OF PORTLAND
PORTLAND, OREGON

REGISTERED LANDSCAPE ARCHITECT — OREGON

DESIGNED BY: T. VAN WORMER
DRAWN BY: T. VAN WORMER
CHECKED BY:
DATE: FEBRUARY, 1994
SCALE: 1" = 20'

PORTLAND INTERNATIONAL AIRPORT
AIRTRANS CENTER WEST AND NE BUFFALO STREET MITIGATION
GRADING AND LANDSCAPING
SITE DETAILS

SUBMITTED BY:
DRAWING NO. PDX 94-5 5/5 (L-5)

MICROFILMED

APPENDIX C

SITE CHRONOLOGY AND ENHANCEMENT PROJECTS

Appendix C: Site Chonology and Enhancement Projects

Year	Event or Project Description	Location of Enhancement
1992	Port obtained USACE permit No. 9753	Jewett Lake, Buffalo and Elrod sites
1993	Port obtained DSL permit No. 6273	Jewett Lake, Buffalo and Elrod sites
1994	Buffalo site constructed and planted as per plan	Entire site
1995	MOA signed by multiple agencies	Jewett Lake, Buffalo and Elrod sites
1998	Livestock removed from site	Fenced-off meadow area of Buffalo
2000	Installed willow stakes	Marsh habitat area
2000	Port entered into an agreement (IGA No. 2000-039) with the City of Portland, BES to enhance multiple Port-owned riparian areas including the Buffalo site; BES installed initial plantings in 2.3 acres along Slough (675 native trees and 175 native shrubs planted per acre)	Riparian zone on north side of site adjacent to Columbia Slough
2001	Installed 270 native trees and shrubs	Northfacing slope, adjacent to marsh habitat area
2001	BES interplanted along Slough bank (quantity unknown)	Riparian zone on north side of site adjacent to Columbia Slough
2002	Port and City sign IGA for Slough Enhancements	Riparian zone on north side of site adjacent to Columbia Slough
2002	Installed willow and dogwood livestakes	Buffer along fenceline adjacent to Buffalo Street
2002	Reseeded slope with native species; installed willow stakes to shade reed canarygrass; installed large woody material in marsh habitat area	Northfacing slope, adjacent to marsh habitat area
2003	Blackberry removal and planting of 80 native trees and shrubs; seeded 0.25 acre with native grasses	Buffer along fenceline adjacent to Buffalo Street
2003	USACE and DSL officially release the Port of further obligations to monitor and provide annual reports	Jewett Lake, Buffalo and Elrod sites
2004	Installed native 30 trees and shrubs	Buffer along fenceline adjacent to Buffalo Street
2004	BES completed monitoring/maintenance of 2.3 acre site along Slough; final survey counts were 1133 native trees and 122 native shrubs per acre.	Riparian zone on north side of site adjacent to Columbia Slough
2005	Installed willow stakes in reed canarygrass area of marsh	Marsh habitat area
2007	Blackberry removal and planting of 950 native trees and shrubs; seeded 1.0 acre with natives grasses	West buffer adjacent to former golf course
2009	Caged alders near Slough to prevent beaver damage	Riparian habitat adjacent to Columbia Slough
2012	Supplemental native shrubs installed	South side of site adjacent to Buffalo Slough
2016	Turtle nesting habitat enhancement project; basking logs installed in Buffalo Slough	South side of site adjacent to Buffalo Slough
2019	Installed 1,200 native shrubs; seeded 3 acres with native grasses	Southwest upland woodland
2020	Supplemental native shrubs installed	Southwest upland woodland
2022	Installed 800 native shrubs	Northwest riparian habitat adjacent to Columbia Slough

APPENDIX D

CUMULATIVE WILDIFE OBSERVATIONS

Appendix D: Cumulative Wildlife Observations at Buffalo Street Mitigation Site 1993-2019

Observations include flyovers and adjacent sloughs. Observations collected by Mt. Hood Community College interns, Port Natural Resources staff, contractors and City of Portland, BES staff.

Common Name	Scientific Name	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2013	2014	2015	2016	2019
BIRDS																									
accipiter, unidentified	unidentified						X						X								X				
American coot	*Fulica americana*		X	X	X	X	X	X	X												X				
American crow	*Corvus brachyrhynchos*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X
American goldfinch	*Carduelis tristis*		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			X	X			X
American kestrel	*Falco sparverius*				X	X	X			X	X														
*American robin	*Turdus migratorius*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X		X
American wigeon	*Anas americana*	X	X	X	X	X	X	X	X	X	X	X	X	X						X	X	X			
Anna's hummingbird	*Calypte anna*																				X	X	X		X
ash-throated flycatcher	*Myiarchus cinerascens*											X													
Audubon's Warbler	*Setophaga coronata auduboni*																				X				
bald eagle	*Haliaeetus leucocephalus*						X	X				X		X		X									
band-tailed pigeon	*Columba fasciata*		X	X	X	X					X														
barn owl	*Tyto alba*														X										
barn swallow	*Hirundo rustica*		X	X	X	X	X	X		X	X	X	X	X	X	X	X				X				
belted kingfisher	*Ceryle alcyon*	X	X	X		X	X	X	X	X	X	X	X	X	X		X			X	X	X			
*Bewick's wren	*Thryomanes bewickii*					X	X	X	X	X	X	X	X			X	X	X			X	X		X	X
blackbird, unidentified	unidentified						X																		X
black-capped chickadee	*Poecile atricapillus*		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X		X
black-chinned hummingbird	*Archilochus alexandri*																				X				
black-headed grosbeak	*Pheucticus melanocephalus*		X										X					X							X
black phoebe	*Sayornis nigricans*																				X				
Brewer's blackbird	*Euphagus cyanocephalus*			X		X	X																		
brown creeper	*Certhia americana*																					X	X		
brown-headed cowbird	*Molothrus ater*		X			X	X		X		X							X			X				X
bufflehead	*Bucephala albeola*	X	X	X	X	X	X	X	X	X	X	X	X								X				
Bullock's oriole	*Icterus bullockii*					X	X	X		X	X	X	X					X							
bushtit	*Psaltriparus minimus*			X		X	X	X	X	X	X	X	X	X	X		X				X				X
cackling goose	*Branta canadensis minima*								X				X			X				X					
California gull	*Larus californicus*	X																							
California jay	*Aphelocoma californica*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	X			X
California quail	*Callipepla californica*		X																						
Canada goose	*Branta canadensis*		X	X	X	X	X	X	X	X	X	X	X	X		X	X	X		X	X	X	X		
canvasback	*Aythya valisineria*			X		X	X	X	X	X	X														
cedar waxwing	*Bombycilla cedrorum*			X	X	X	X	X	X	X	X	X	X	X		X	X	X		X	X	X	X		X
chickadee, unidentified	unidentified					X	X																		
cinnamon teal	*Anas cyanoptera*					X															X				
cliff swallow	*Petrochelidon pyrrhonota*			X		X	X	X													X				
common merganser	*Mergus merganser*		X	X		X	X	X	X	X	X	X	X		X	X					X				
common snipe	*Gallinago gallinago*						X		X	X	X														
common yellowthroat	*Geothlypis trichas*		X		X	X	X	X	X	X	X	X	X	X	X		X	X			X		X		X
Cooper's hawk	*Accipiter cooperii*					X	X		X																
cormorant, unidentified	unidentified				X	X																			
dark-eyed junco (Oregon)	*Junco hyemalis thurberi*		X	X		X	X	X		X	X	X	X	X	X		X								
double-crested cormorant	*Phalacrocorax auritus*		X	X		X	X	X	X	X	X	X	X	X	X						X	X			
downy woodpecker	*Picoides pubescens*				X	X	X	X	X	X	X	X	X		X	X	X	X		X	X	X	X		X
duck, domestic/hybrid	unidentified			X					X																
English house sparrow	*Passer domesticus*						X																		
Eurasian wigeon	*Anas penelope*					X	X	X		X															
European starling	*Sturnus vulgaris*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X			X
flycatcher, undentified	*Empidonax* sp.					X	X				X														

Common Name	Scientific Name	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2013	2014	2015	2016	2019
fox sparrow	*Passerella iliaca*			X	X	X			X																
gadwall	*Anas strepera*										X											X			
golden-crowned kinglet	*Regulus satrapa*		X				X																		
golden-crowned sparrow	*Zonotrichia atricapilla*	X	X	X		X	X	X	X		X		X				X								
goose, domestic	*Anatidae anser*		X																						
great blue heron	*Ardea herodias*	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X				X	X	X		X
great egret	*Ardea alba*												X												
greater white-fronted goose	*Anser albifrons*					X	X																		
great-horned owl	*Bubo virginianus*						X																		
grebe, unidentified	unidentified			X																					
green-winged teal	*Anas crecca*		X	X		X					X					X									
gull, unidentified	*Larus* sp.		X	X	X	X	X	X	X		X		X	X	X	X	X								
hawk, unidentified	unidentified					X																			
hooded merganser	*Lophodytes cucullatus*		X	X	X	X	X	X	X	X											X				
house finch	*Carpodacus mexicanus*	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X		X	X				X
house wren	*Troglodytes aedon*													X						X					
hummingbird, undentified	unidentified						X							X				X		X	X				
killdeer	*Charadrius vociferus*			X	X	X	X	X	X	X		X	X		X		X				X				
kinglet unidentified	*Regulus* sp.							X																	
lazuli bunting	*Passerina ameona*										X							X			X				X
lesser goldfinch	*Spinus psaltria*						X														X				
*mallard	*Anas platyrhynchos*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				X	X	X	X	X	X
marsh wren	*Cistothrus palustris*		X									X													
McGillivray's warbler	*Geothlypis tolmiei*						X																		
monk parakeet	*Myiopsitta monachus*								X																
mourning dove	*Zenaida macroura*		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X			X				X
northern flicker	*Colaptes auratus*		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X
northern harrier	*Chordata hudsonius*			X																					
northern shoveler	*Anas clypeata*		X			X	X	X		X	X										X	X			
nuthatch, unidentified	*Sitta* sp.															X					X				
olive-sided flycatcher	*Contopus cooperi*					X	X				X														
orange-crowned warbler	*Vermivora celata*					X																			
osprey	*Pandion haliartus*			X	X	X	X	X	X		X							X			X	X			X
peregrine falcon	*Falco peregrinus*											X													
pied-billed grebe	*Podilymbus podiceps*		X	X		X	X	X	X	X	X	X	X	X							X	X			
pigeon	*Columba livia*					X	X		X																
pileated woodpecker	*Dryocopus pileatus*																							X	
purple finch	*Haemorhous purpureus*	X	X	X				X																	
red-breasted sapsucker	*Sphyrapicus ruber*																X				X				
redhead	*Aythya americana*		X																						
*red-tailed hawk	*Buteo jamaicensis*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X		
red-winged blackbird	*Agelaius phoeniceus*	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X			X	X	X		
ring-necked duck	*Aythya collaris*		X	X		X	X	X	X	X	X	X	X								X	X			
ring-necked pheasant	*Phasianus colchicus*		X			X																			
ruby-crowned kinglet	*Regulus calendula*			X		X	X	X	X	X	X	X	X	X	X	X	X			X					
rufous hummingbird	*Selasphorus rufus*																								X
Savannah sparrow	*Passerculus sandwichensis*																				X				
sharp-shinned hawk	*Accipiter striatus*							X	X																
*song sparrow	*Melospiza melodia*		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X		X
sparrow, unidentified	unidentified				X	X																			
spotted towhee	*Pipilio maculatus*					X	X									X					X	X			X
Stellar jay	*Cyanocitta stelleri*			X	X									X											
Swainson's hawk	*Buteo swainsoni*		X																						
Swainson's thrush	*Catharus ustulatus*												X												

Common Name	Scientific Name	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2013	2014	2015	2016	2019
swallow, unidentified	unidentified						X	X			X	X	X												X
swift, unidentified	unidentified					X																			
thrush, unidentified	unidentified											X													
tree swallow	*Tachycineta bicolor*		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X		X	X	X		X
turkey vulture	*Cathartes aura*					X									X						X				
varied thrush	*Ixoreus naevius*					X																			
Vaux's swift	*Chaetura vauxi*					X	X	X	X	X	X	X	X			X	X	X		X	X				X
violet-green swallow	*Tachycineta bicolor*		X	X	X	X	X	X		X	X			X		X					X	X			X
warbler, unidentified	unidentified			X																					
warbling vireo	*Vireo gilvus*											X									X	X			X
western bluebird	*Sialia mexicana*					X	X																		
western tanager	*Piranga ludoviciana*																				X				
western wood-peewee	*Contopus sordidulus*						X	X		X		X	X	X		X						X			X
white-breasted nuthatch	*Sitta carolinensis*																	X							
white-crowned sparrow	*Zonotrichia leucophrys*	X		X				X																	
willow flycatcher	*Empidonax traillii*						X				X	X	X		X			X		X					X
Wilson's warbler	*Wilsonia pusilla*			X																			X		
*wood duck	*Aix sponsa*		X		X			X	X		X			X	X						X	X	X		
woodpecker, unidentified	unidentified		X																						
wren, unidentified	unidentified					X																			
yellow-rumped warbler	*Dendroica coronata*					X	X	X	X		X	X	X	X	X	X	X	X			X	X			
yellow warbler	*Dendroica petechia*																								X
MAMMALS																									
coyote	*Canis latrans*		X				X	X		X		X		X	X	X	X	X	X	X	X	X			
beaver	*Castor canadensis*					X				X	X	X	X	X	X	X	X			X	X				
oppossum	*Didelphis marsupialis*													X											
domestic cat	*Felis catus*	X	X			X	X	X	X	X	X	X	X								X				
North American river otter	*Lontra canadensis*											X	X								X				
vole	*Microtus sp.*						X	X		X	X	X	X	X	X		X	X							
nutria	*Myocastor coypus*		X	X	X	X	X	X	X			X		X							X			X	
black-tailed deer	*Odocoileus hemionus*					X	X	X	X		X	X								X	X		X		
Columbian black-tailed deer	*Odocoileus hemionus columbianus*																								X
muskrat	*Ondatra zibethicus*											X													
raccoon	*Procyon lotor*		X	X	X	X	X	X	X		X	X					X							X	
mole	*Scapanus* sp.	X	X			X	X		X	X	X	X	X	X	X	X	X	X			X				
tree squirrel	*Scurius* sp.									X				X							X			X	
shrew	*Sorex* sp.											X													
cottontail rabbit	*Sylvilagus floridanus*		X	X		X	X				X		X					X							
white-footed deer mouse			X																						
mouse	unidentified																				X				
HERPTILES																									
Northern Pacific treefrog	*Pseudacris regilla*					X	X	X		X	X	X	X	X							X	X			
frog, unidentified		X	X	X																					
Northern red-legged frog	*Rana aurora*					X																			
bullfrog	*Rana catesbeiana*					X		X													X			X	
common garter snake	*Thamnophis sirtalis*					X																			
garter snake	*Thamnophis* sp.		X		X			X		X	X	X	X			X	X				X				
turtle unidentified	unidentified						X																		
FISH																									
common carp	*Cyprinus carpio*					X	X			X	X	X	X								X				
fish unidentified	unidentified	X	X	X																					

Common Name	Scientific Name	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2013	2014	2015	2016	2019
OTHER (by taxonomic order)																									
Order Coleoptera																									
common lady beetle	subfamily *Coccinellinae*																				X				
Order Hymenoptera																									
yellow-faced bumble bee	*Bombus vosnesenskii*																							X	
bumble bee, unidentified	*Bombus* sp.		X																						
bald-faced hornet	*Dolichovespula maculata*																							X	
mason bee	Genus *Osmia*																							X	
Order Lepidoptera																									
tent caterpiller	*Malacosoma sp.*		X			X																			
western tiger swallowtail	*Papilio rutulus*					X	X																		
cabbage white	*Pieris rapae*																								X
painted lady	*Vanessa cardui*																								
Order Odonata																									
common whitetail	*Plathemis lydia*																								X
dragonfly	unidentified						X														X	X			
Order Unionidae																									
freshwater clam	*Anodonta sp.*																				X				
Miscellaneous																									
yellow garden spider	*Argiope aurantia*						X																		
long-jawed orbweaver	Family Tetragnathidae																							X	
praying mantis	*Stagmomantis* sp.						X																		

*Observed nest or young on site

Note: data is based (primarily) on incidental observation of a species or evidence of species presence

APPENDIX E

SUPPORTING DOCUMENTS

Oregon
Theodore R. Kulongoski, Governor

Division of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279
(503) 378-3805
FAX (503) 378-4844
www.oregonstatelands.us.

September 11, 2003

LD02/6273
Denise Rennis
Port of Portland
PO Box 3529
Portland Oregon 97208

SUBJECT: SOUTHWEST QUADRANT AT BUFFALO AND ELROD MITIGATION SITES (DSL- RF 6273, CORPS 1997-00053)

Dear Denise:

As a matter of closing the loop on these older sites, I realized, with some reminders from Kirk, that I hadn't sent a letter relieving the Port of Portland from further obligations under the permit for the Southwest Quadrant runway expansion project. This letter fulfills that error of omission since the extensive efforts by the Port at both the Buffalo and Elrod Street sites have brought them into substantial compliance with the permit conditions.

Please be advised however, that wetlands created under this permit for the purpose of providing compensatory mitigation are subject to protection under the State of Oregon's Removal-Fill Law and that a doubling of the state's standard mitigation acreage ratios will be in effect for any negative removal or fill material impacts.

The Division is very appreciative of your efforts to comply with our requirements and you have done an excellent job in bringing both of these rather difficult sites up to speed. Thank you for your good stewardship and concern for Oregon's environment.

Sincerely,

Larry Devroy
Wetland Mitigation Specialist
Field Operations

c: Kirk Jarvie, DSL Resource Coordinator
Mary Headley, Corps Regulatory Specialist

LD:jr
J:\Counties\Multnomah\Mitigation\6273-RF PortofPDXBuffaloElrodRelease.doc

03-040

After recording return to:
Port of Portland PLU 2/14/03
121 NW Everett St.
Portland OR 97209
Attn: Manager, Property & Development

Send all tax statements to:
No change.

Recorded in MULTNOMAH COUNTY, OREGON
C. Swick, Deputy Clerk
E31 4
Total : 34.00 ATKLM

2003-035688 02/14/2003 02:56:23pm

DECLARATION OF RESTRICTIVE COVENANT

A. The Port of Portland, a port district of the State of Oregon (the "Port"), is the owner in fee simple of certain real property consisting of approximately 15.56 acres located in the City of Portland, Multnomah County, Oregon, commonly known as the Buffalo Street Mitigation Site, which property is legally described on **Exhibit A** and more particularly shown on **Exhibit B** hereto (the "Site").

B. The Port desires to perform mitigation of wetlands on the Site, and wishes to place a restrictive covenant against the Site. Said covenant will protect the Site in perpetuity, with respect to the Port and all future owners of all or any portion of the Site, as an area to be used exclusively for natural habitat, with management for non-native species removal and weed control.

C. This Declaration of Restrictive Covenant (this "Declaration") is granted subject to all recorded and unrecorded easements. In making this Declaration, the Port reserves the right for itself and its assigns to access and use the Premises or to grant easements for the purpose of installing, maintaining, repairing, replacing and removing new or existing utilities related to the operation or use of Port properties, provided that such easements do not conflict with the purposes of this Declaration, including the preservation of the Site as natural habitat, and that any grades and vegetation within the Site which are disturbed during such work are completely restored upon completion of the work.

D. The Port further reserves the right, subject to prior approval by the Oregon Division of State Lands, to amend the boundaries of the Site as described in **Exhibit A** and shown on **Exhibit B**, provided that the Port shall not reduce the total acreage protected as wetlands under this Declaration.

IN WITNESS WHEREOF, the Port has set its hand this 14 day of February, 2003.

THE PORT OF PORTLAND

By: _____
Bill Wyatt, Executive Director

APPROVED AS TO LEGAL SUFFICIENCY
FOR THE PORT OF PORTLAND

By: _____
Counsel for Port of Portland

STATE OF OREGON)
) ss.
COUNTY OF MULTNOMAH)

This instrument was acknowledged before me on February 14, 2003, by Bill Wyatt as Executive Director of the Port of Portland.

_____
Notary Public for Oregon

My Commission Expires: December 29, 2004

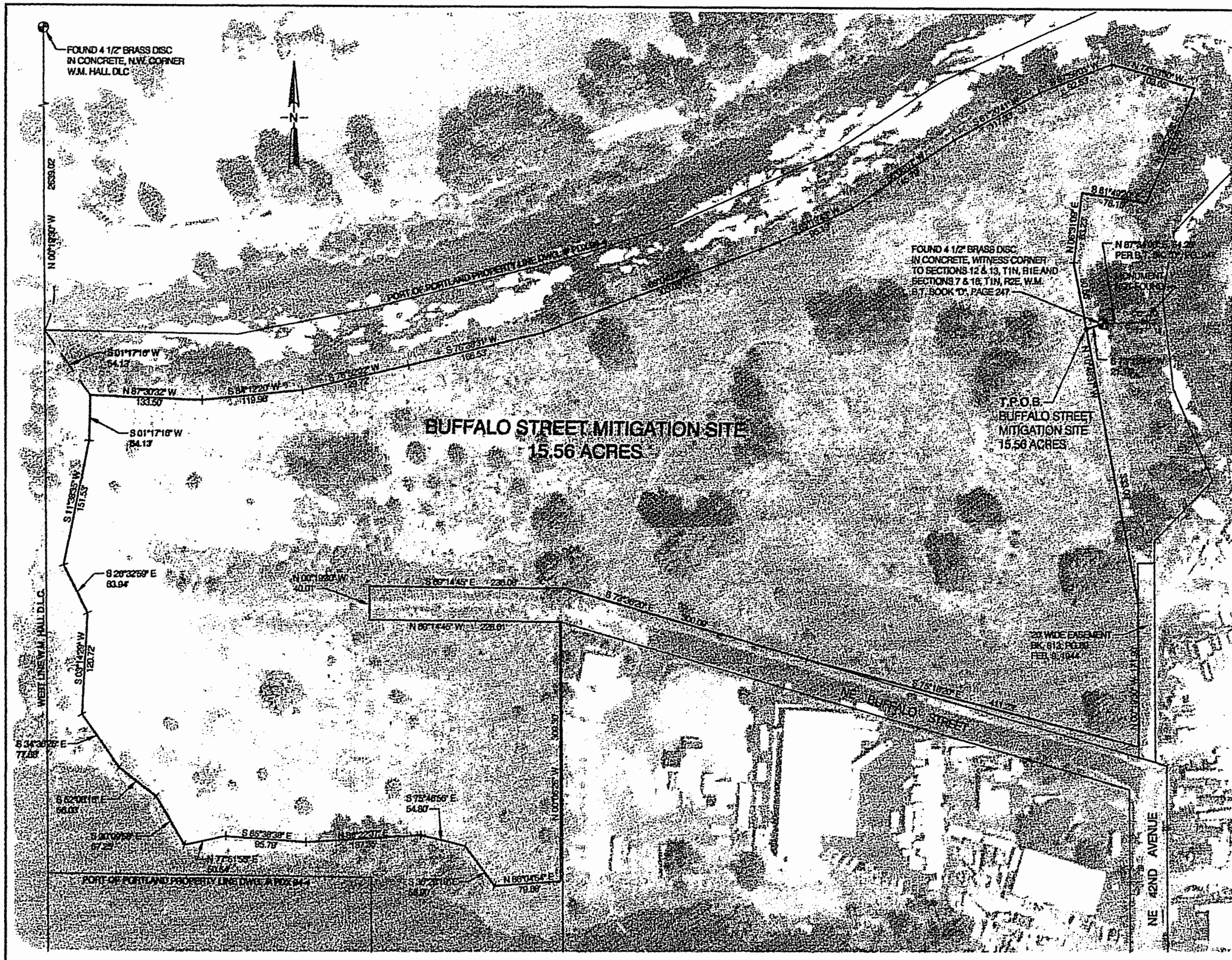
OFFICIAL SEAL
TROY A. GRAHAM
NOTARY PUBLIC-OREGON
COMMISSION NO. 340842
MY COMMISSION EXPIRES DEC. 29, 2004

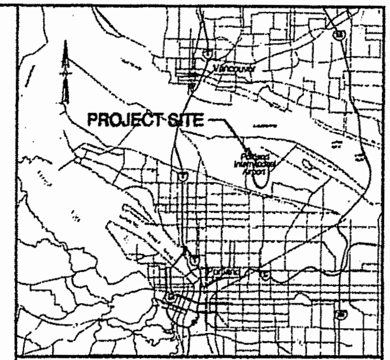
EXHIBIT "A"
BUFFALO STREET MITIGATION SITE LEGAL DESCRIPTION

A TRACT OF LAND SITUATED IN THE SOUTHEAST ONE-QUARTER OF SECTION 12 AND THE NORTHEAST ONE-QUARTER OF SECTION 13, TOWNSHIP 1 NORTH, RANGE 1 EAST AND THE SOUTHWEST ONE-QUARTER OF SECTION 7 AND THE NORTHWEST ONE-QUARTER OF SECTION 18, TOWNSHIP 1 NORTH, RANGE 2 EAST, WILLAMETTE MERIDIAN, MULTNOMAH COUNTY, OREGON BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT A FOUND 4 1/2" DIAMETER BRASS CAP IN CONCRETE, SAID CORNER BEING THE WITNESS CORNER COMMON TO SAID SECTIONS 12, 13, 7 AND 18; THENCE S73°12'34"W, 21.13' TO THE TRUE POINT OF BEGINNING OF THE LAND TO BE DESCRIBED; THENCE, ALONG THE OUTBOUND OF SAID DESCRIPTION THE FOLLOWING COURSES: NORTH 10°48'37" WEST, 80.56 FEET; THENCE NORTH 06°31'09" EAST, 83.23 FEET; THENCE SOUTH 81°49'20" EAST, 78.15 FEET; THENCE NORTH 22°52'38" EAST, 147.77 FEET; THENCE NORTH 74°03'50" WEST, 103.65 FEET; THENCE SOUTH 67°59'01" WEST, 92.53 FEET; THENCE SOUTH 61°20'41" WEST, 117.33 FEET; THENCE SOUTH 56°08'07" WEST, 145.79 FEET; THENCE SOUTH 65°19'43" WEST, 95.19 FEET; THENCE SOUTH 69°04'17" WEST, 303.03 FEET; THENCE SOUTH 76°38'31" WEST, 166.53 FEET; THENCE SOUTH 76°52'22" WEST, 129.72 FEET; THENCE SOUTH 84°12'20" WEST, 119.98 FEET; THENCE NORTH 87°30'32" WEST, 133.50 FEET; THENCE SOUTH 01°17'16" WEST, 54.13 FEET; THENCE SOUTH 11°38'35" WEST, 151.53 FEET; THENCE SOUTH 26°32'59" EAST, 63.94 FEET; THENCE SOUTH 03°14'29" WEST, 120.72 FEET; THENCE SOUTH 34°36'25" EAST, 77.88 FEET; THENCE SOUTH 52°08'16" EAST, 56.03 FEET; THENCE SOUTH 30°09'58" EAST, 67.25 FEET; THENCE NORTH 77°51'55" EAST, 50.54 FEET; THENCE SOUTH 85°38'38" EAST, 95.79 FEET; THENCE NORTH 86°22'37" EAST, 137.35 FEET; THENCE SOUTH 75°46'56" EAST, 54.80 FEET; THENCE SOUTH 36°29'10" EAST, 58.90 FEET; THENCE NORTH 86°04'54" EAST, 79.89 FEET; THENCE NORTH 00°06'26" WEST, 309.30 FEET TO THE SOUTH RIGHT OF WAY LINE OF N.E. BUFFALO STREET; THENCE, ALONG SAID RIGHT OF WAY LINE THE FOLLOWING FOUR (4) COURSES: 1) NORTH 89°14'45" WEST, 228.61 FEET; 2) THENCE NORTH 00°19'30" WEST, 40.01 FEET; 3) THENCE SOUTH 89°14'45" EAST, 236.08 FEET; 4) THENCE SOUTH 73°36'20" EAST, 300.09 FEET; THENCE, LEAVING SAID RIGHT OF WAY LINE, SOUTH 75°18'20" EAST, 411.23 FEET TO THE WEST LINE OF BOOK 813, PAGE 89, RECORDED FEBRUARY 9, 1944, MULTNOMAH COUNTY DEED RECORDS; THENCE, ALONG SAID WEST LINE, NORTH 00°19'30" WEST, 171.93 FEET; THENCE NORTH 10°48'37" WEST, 333.09 FEET TO THE POINT OF BEGINNING, CONTAINING 677,596 SQUARE FEET (15.56 ACRES) MORE OR LESS.

THE BEARINGS IN THIS DESCRIPTION ARE BASED UPON PORT OF PORTLAND DRAWING NUMBER "PDX 94-4", DATED JANUARY 25, 1994.





VICINITY MAP
SCALE: N.T.S.

EXHIBIT "A"
BUFFALO STREET MITIGATION SITE LEGAL DESCRIPTION

A TRACT OF LAND SITUATED IN THE SOUTHEAST ONE-QUARTER OF SECTION 12 AND THE NORTHEAST ONE-QUARTER OF SECTION 13, TOWNSHIP 1 NORTH, RANGE 1 EAST AND THE SOUTHWEST ONE-QUARTER OF SECTION 7 AND THE NORTHWEST ONE-QUARTER OF SECTION 18, TOWNSHIP 1 NORTH, RANGE 2 EAST, WILLAMETTE MERIDIAN, MULTNOMAH COUNTY, OREGON BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

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THE BEARINGS IN THIS DESCRIPTION ARE BASED UPON PORT OF PORTLAND DRAWING NUMBER "PDX 94-4", DATED JANUARY 25, 1994.

NOTES:

1) THE PURPOSE OF THIS SURVEY IS TO PROVIDE A LEGAL DESCRIPTION OF THE BUFFALO STREET MITIGATION SITE.

2) THE OUTBOUNDS OF THE SITE WAS SURVEYED USING GPS-RTK EQUIPMENT, THE DATA WAS COLLECTED IN A LOCAL COORDINATE SYSTEM (CENTERLINE AIRPORT). THE BASIS OF BEARINGS FOR THIS SURVEY IS PORT DWG. # PDX 94-4.

3) THE LIMITS OF THE MITIGATION IMPROVEMENTS WERE USED IN ESTABLISHING THE OUTBOUNDS FOR THIS SITE, PER THE DIRECTION OF OUR PROPERTIES AND ENVIRONMENTAL STAFF.

PORT OF PORTLAND
PORTLAND, OREGON

PROJECT MANAGER

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
CHRISTOPHER VANDERWERF
2719
SIGNED: 3/13/2003
EXP: 6/30/2004

DESIGNED BY C. VANDERWERF
DRAWN BY C. VANDERWERF
CHECKED BY R. ALDERSEBAES
DATE JAN 2003
SCALE 1" = 60'

PORTLAND INTERNATIONAL AIRPORT

BUFFALO STREET MITIGATION SITE
EXHIBIT MAP

SUBMITTED BY
SURVEY MANAGER

TYPE EP DRAWING NO. PDX 2003-19 1/1 SU-1

NO. DATE BY REVISIONS CKD APPVD NO. DATE BY REVISIONS CKD APPVD

Exhibit B

APPENDIX F

CUMULATIVE PLANT SPECIES LIST

Appendix F: Cumulative Plant Species List for Buffalo Street Mitigation Site

KEY: N=Native, I=Introduced, unk=unknown, both=considered both native and introduced in Oregon
P=Planted, S=Seeded, O=Observed
Note: This is not an exhaustive list of species present on the site

Botanical Name	Common Name	Status	Planted, Seeded, Observed
Acer macrophyllum	big-leaf maple	N	P
Achillea millefolium	yarrow	N	S, O
Agrostis capillaris	colonial bentgrass	I	O
Agrostis gigantea	redtop	I	S, O
Agrostis sp.	bentgrass species	unk.	O
Alnus rubra	red alder	N	P, O
Alopecurus geniculatus	water foxtail	I	S
Alopecurus pratensis	meadow foxtail	I	O
Amelanchier alnifolia	Saskatoon	N	P, O
Amorpha fruticosa	false indigo bush	I	O
Amsinckia sp.	fiddleneck	unk.	O
Anaphalis margaritacea	Western pearly everlasting	N	S
Aquilegia formosa	western columbine	N	S
Beckmannia syzigachne	slough grass	N	S
Betula sp.	birch	I	O
Bidens frondosa	devil's beggartick	N	O
Brassica rapa	field mustard	I	O
Brassica sp.	mustard	unk.	O
Bromus carinatus	California brome	N	S, O
Bromus diandrus	ripgut brome	I	O
Bromus sitchensis	Alaska brome	N	S
Cardamine hirsuta	hairy bittercress	I	O
Carex densa	dense sedge	N	P
Carex obnupta	slough sedge	N	P, .O
Carex sp.	sedge sp.	unk.	O
Carex stipata	sawbeak sedge	N	O
Carex unilateralis	lateral sedge	N	O
Cichorium intybus	chicory	I	O
Cirsium arvense	Canada thistle	I	O
Cirsium vulgare	bull thistle	I	O
Clarkia ameona	farewell-to-spring	N	S
Conium maculatum	poison hemlock	I	O
Convolvulus sp.	bindweed	unk.	O
Cornus sericea	red-osier dogwood	N	P, O
Corylus cornuta	beaked hazelnut	N	P, O
Crataegus douglasii	black hawthorn	N	P, O
Dactylis glomeratus	orchardgrass	I	O
Daucus carota	Queen Anne's lace	I	O
Deschampsia cespitosa	tufted hairgrass	N	S, O
Deschampsia elongata	slender hairgrass	N	S
Dipsacus fullonum	Fuller's teasel	I	O
Eleocharis palustris	common spikerush	N	P
Elymus glaucus	blue wildrye	N	S, O
Elymus trachycaulus	slender wheatgrass	N	S
Equisetum arvense	field horsetail	N	O
Euphorbia esula	leafy spurge	I	O
Festuca occidentalis	western fescue	N	S
Festuca rubra	red fescue	both	S, O

Botanical Name	Common Name	Status	Planted, Seeded, Observed
Frangula purshiana	cascara	N	P, O
Fraxinus latifolia	Oregon ash	N	P, O
Galium aparine	stickywilly	N	O
Geranium molle	dovefoot geranium	I	O
Geranium sp.	geranium	I	O
Holcus lanatus	velvet grass	I	O
Holodiscus discolor	oceanspray	N	P, O
Hordeum brachyantherum	meadow barley	N	S
Hypericum perforatum	St. John's wort	I	O
Impatiens capensis	common jewelweed	I	O
Iris pseudacorus	yellowglag iris	I	O
Juncus bolanderi	Bolander's rush	N	O
Juncus effusus	soft rush	N	P, O
Juncus ensifolius	dagger-leaf rush	N	O
Juncus tenuis	slender rush	N	P
Juncus sp.	rush	unk.	O
Lactuca serriola	prickly lettuce	I	O
Lamium purpureum purpureum	purple deadnettle	I	O
Leucanthemum vulgare	oxeye daisy	I	O
Lolium perenne	perenial ryegrass	I	O
Lonicera involucrata	black twinberry	N	P
Lupinus bicolor	miniature lupine	N	S
Lupinus polyphyllus	bigleaf lupine	N	S, O
Lupinus rivularis	streambank lupine	N	O
Mahonia aquifolium	Oregon grape	N	P, O
Nuphar lutea	yellow pond-lily	N	O
Oemleria cerasiformis	Indian plum	N	P
Phalaris arundinacea	reed canarygrass	I	O
Phleum pratense	timothy	I	O
Physocarpus capitatus	Pacific ninebark	N	P
Phytolacca americana	American pokeweed	I	O
Plantago lanceolata	narrowleaf plantain	I	O
Plantago major	common plantain	I	O
Polygonum persicaria	spotted ladysthumb	I	O
Polystichum munitum	sword fern	N	O
Populus balsamifer ssp. trichocarpa	black cottonwood	N	P, O
Prunella sp.	selfheal	unk.	O
Prunus laurocerasus	cherry laurel	I	O
Prunus virginiana	chokecherry	N	P, O
Psuedotsuga menziesii	Douglas fir	N	P, O
Quercus garryana	Oregon white oak	N	P, O
Rhamnus purshiana	cascara	N	P, O
Ranunculus repens	creeping buttercup	I	O
Raphanus sativus	cultivated radish	I	O
Ribes sanguineum	red flowering currant	N	P, O
Robinia psuedoacacia	black locust	N	O
Rorippa curvisiliqua	Western yellow cress	N	O
Rosa nutkana	Nootka rose	N	P, O
Rosa pisocarpa	swamp rose	N	P, O
Rosa sp.	rose	unk.	O
Rubus armeniacus	Himalayan blackberry	I	O
Rubus parviflorus	thimbleberry	N	P
Rubus spectabilis	salmonberry	N	P

Botanical Name	Common Name	Status	Planted, Seeded, Observed
Rumex crispus	curly dock	I	O
Rumex sp.	dock	unk.	O
Salix babylonica	weeping willow	I	O
Salix lucida sp. lasiandra	Pacific willow	N	P, O
Salix scouleriana	Scouler willow	N	P
Salix sitchensis	Sitka willow	N	P, O
Salix sp.	willow species	N	P, O
Sambucus racemosa	red elderberry	N	P, O
Schedonorus arundinaceus	tall fescue	I	O
Scirpus microcarpus	small fruited bulrush	N	P, O
Scirpus sp.	bulrush	N	O
Senecio jacobaea	stinking willie	I	O
Senecio vulgaris	old-man-in-the-Spring	I	O
Silybum marianum	milk thistle	I	O
Solanum dulcamara	climbing nightshade	I	O
Solanum nigrum	black nightshade	I	O
Solidago canadensis	Canada goldenrod	N	S
Sonchus asper	prickly sowthistle	I	O
Spiraea douglasii	Douglas' spirea	N	P, O
Sterile wheat	wheat x wheat hybrid	n/a	S, O
Symphoricarpos albus	snowberry	N	P, O
Symphyotrichum hallii	Hall's aster	N	S
Tanacetum vulgare	common tansy	I	O
Thuja plicata	Western redceder	N	P, O
Trifolium pratense	red clover	I	O
Trifolium repens	white clover	I	O
Verbascum blattaria	moth mullein	I	O
Verbascum thapsus	common mullein	I	O
Veronica americana	American speedwell	N	O
Vicia hirsuta	tiny vetch	I	O
Vicia sp.	vetch	I	O
Vivi sp.	grape non-native	I	O
	apple tree, unidentified	I	O

Note: nomenclature and status follow the PLANTS Database:
USDA, NRCS. 2022. The PLANTS Database (http://plants.usda.gov, 06/07/2022). National Plant Data Team, Greensboro, NC USA.

APPENDIX G

DOCUMENT LIST

Appendix G: Buffalo Street Document List

Document	Author	Date
General Reports & Documents		
(Alleged) Buffalo 1959 Water Well Report # 1N/1-13	State of Oregon	Dec-59
Portland International Airport Southwest Quadrant Wetland Mitigation Plan	FES	Jul-92
Proposal for Wetland Monitoring: Buffalo Street and Elrod Road Sites	MHCC	Oct-93
November 5, 1991	POP	Aug-98
Permits & Correspondence		
USACE Permit No. 9753	USACE	Dec-92
DSL Permit No. 6273	DSL	Jan-93
Memorandum of Agreement (MOA)	Mult.Agencies	Jun-95
LUR 93-00538 EN Administrative Decision Port of Portland Resource Enhancement at NE Elrod Rd.	COP	Sep-93
LUR 93-00539 EN Port of Portland Resource Enhancement at NE Buffalo	COP	Sep-93
Intergovernmental Agreement for Columbia Slough Revegetation 2000-039	COP/Port	2000
Intergovernmental Agreement for Columbia Slough Revegetation 2002-080	COP/Port	Jun-02
Declaration of Restrictive Covenant - Buffalo Street (03-040)	Mult. Co.	Feb-03
Declaration of Restrictive Covenant - Elrod Road (03-052)	Mult. Co.	Mar-03
Buffalo and Elrod DSL Release letter	DSL	Sep-03
Annual Monitoring Reports		
Buffalo Street & Elrod Road Mitigation Monitoring Report October 1993 - October 1995	MHCC	Oct-95
Executive Summary of Mitigation Monitoring on Government Island and Buffalo/Elrod	Wildlife Dynamics, Inc.	Nov-95
Buffalo Street & Elrod Road Mitigation Monitoring Report June 1996 - April 1997	MHCC	Jun-97
Buffalo Street & Elrod Road Mitigation Monitoring Report November 1996 - November 1997	MHCC	Nov-97
Buffalo Street & Elrod Road Mitigation Monitoring Report 1998	INTERN	Nov-98
Mitigation Sites	FES	Jan-99
Buffalo Street and Elrod Road Mitigation Sites Monitoring Reports December 1999	POP	Dec-99
Wetland Mitigation Final Monitoring Report 1999 SW Quadrant, Buffalo Street, Elrod Road & Government Island Mitigation Sites	FES	Jan-00
Buffalo Street and Elrod Road Mitigation Sites Monitoring Report 2000	POP	Mar-01
Buffalo and Elrod Mitigation Monitoring Letter Report 2001	POP	Jun-01