Habitat Management Plan and Critical Areas Study

Clearwater Commons
Low Impact Development
Snohomish County, Washington

Prepared for:

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Attention: Chad Port
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24 December 2008
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Clearwater Commons LLC
Habitat Management Plan and Critical Areas Study
Snohomish County, Washington

INTRODUCTION

The proposed project is located at 1415 196th Street SE, between 194th Street SE and 196th Street SE in the Bothell area of unincorporated Snohomish County (Figures 1 and 2). The site is approximately 7.4 acres in size and is comprised of one parcel with tax numbers 27051800401300 and 27051800404100. There are three delineated wetlands on the site as well as North Creek.

A group of families proposes to develop the site as an airspace condominium and co-housing project with a total of 16 housing units (15 new). The group's goals are to provide a pedestrian friendly community with shared on-site amenities, minimize the development impacts on the environment, and to restore the functions and values of wetlands and stream buffers on this site. The community is working with Snohomish County Surface Water Management to restore 1,400 linear feet of North Creek salmon habitat both on site and at the Clearwater School (southeast of the development).

The property previously had a nine-unit short plat submittal in with Snohomish County. It was submitted by the previous owner, Riverbend North LLC, and the project number is 05-121911SP. A wetland delineation and ordinary high water mark (OHWM) study was completed by The Watershed Company in July 2005. North Creek and three wetland areas were identified on the site. This study was approved and accepted by Patrick McGraner, Senior Biologist, and Elizabeth Larsen, Biologist, both of Snohomish County Planning and Development Services. A pre-application report was completed by ESM Consulting Engineers, also in July 2005. In Spring 2006, the property was sold to Clearwater Commons LLC and the proposal was revised (project number 06-131051LU). On September 28, 2006, a pre-application meeting was held with Snohomish County Development Services Staff for the revised 16-unit housing project.

This project is regulated under the Snohomish County Code (SCC), Chapter 30.62, Critical Areas Regulations (CAR). North Creek is also subject to Snohomish County's Salmonid Habitat Management Plan Administrative Rule (SCC 30.62.100 & 30.62.110). The intent of this report is to show how the proposed project meets the Standard Requirements (Option A) of the Habitat Management Plan Requirements, as well as the Critical Area Study and Mitigation Plan requirements of the CAR.

DESCRIPTION OF PROJECT

The proposed development would retain an existing residence, garage, and related landscaping. A new site driveway would be developed off 194th Street SE and would serve 15 new detached and semi-detached smaller single-family homes and a 31-stall central parking area. The proposed clustered development will include the existing residence, five new single-family residences, and five new duplexes for a total of 16 residential units.
Figure 1. Vicinity map of the project site (MapQuest).

Figure 2. Aerial photograph of the immediate project area (Windows Live Local, 2005).
The project will also include a common house, accessory/storage buildings, community gardens, and play areas. A private alley will double as a fire access lane and pedestrian path. The alley will start at the parking area and only limited vehicular access to the site will be allowed.

The site development will make extensive use of Low-Impact Development techniques detailed in the Low-Impact Development Technical Guidance Manual for Puget Sound (Snohomish County Code SCC 30.63C.010, Amended Ordinance 06-044, effective July 16, 2006). Green roofs and/or pin-pile foundations are being designed for all new buildings and a small footprint of 800 square feet for new residences will minimize the impact on the site. The alley/firelane and major paths are being designed using pervious surfaces, and the parking area will use a combination of pervious and impervious surfaces. Compost-amended soil will be tilled into selected open space areas and distributed rain gardens along the road will provide additional infiltration of stormwater. The use of improved infiltration techniques eliminates the need for discharge to North Creek, and closely mimics the forested conditions of the pre-developed site. In order to minimize impacts to wetlands and to promote low impact development along 194th Street SE, while still meeting Snohomish County requirements, the project is designed with a 20-foot roadway, shoulder, curb, gutter, and 5-foot sidewalk at its narrowest section (28 feet).

Individual residences will be three-bedroom with a smaller than standard total square footage (1,580 to 1,630) to minimize material usage and the overall impact of the buildings on the site. The residences will be designed to minimize material waste and the project will promote recycling of construction debris. The project will also promote the use of local and/or Forest Stewardship Council (FSC) certified wood products as well as recycled and reclaimed materials. Energy efficiency will be implemented through such techniques as advanced framing, energy star appliances and lighting, and the use of both passive and active solar energy. The residences will also incorporate materials and finishes that are both renewable and improve indoor air quality.

The project requires 81 square feet of permanent wetland fill and 7,396 square feet of permanent wetland and stream buffer loss to accommodate widening of 194th Street SE, construction of new sidewalks, the eastern portion of the required parking area, construction of Unit 8-C, paths and parking area associated with the existing house, and asphalt apron associated with the utility line. Mitigation includes 4,091 square feet of wetland buffer gain (dedicated area) and 7,825 square feet of wetland and buffer enhancement area. A total of 202,297 square feet (4.64 acres) of critical areas and buffers would be permanently protected under the proposal in a Native Growth Protection Area (NGPA). The founders of Clearwater Commons hope to create an environmentally responsible project that fosters a strong sense of community and helps promote low-impact development.

**DESCRIPTION OF PROJECT AREA**

As stated previously, this property is approximately 7.4 acres in size and slopes gradually to the southwest. There are businesses to the east, a private school and day care facility to the south, a mobile home park to the north, and residential areas to the west and south, including a fairly recent development called Victoria Heights. This property is located within the Urban section of Snohomish County.
There are three delineated wetlands on the site as well as North Creek. North Creek is a Type 2 stream that falls under the County's *Salmonid Habitat Management Plan Administrative Rule* that defines habitat preservation for threatened or endangered species. North Creek flows through the southern portion of the site. North Creek provides habitat for spawning fall-run Chinook salmon. Wetland A is a Category 2 riparian wetland located in the southern portion of the site. It lies north of the creek edge and extends toward the existing house and gravel driveway. Wetland A extends off-site to the west and south. Wetland B is a Category 3 wetland in an area of emergent vegetation north of Wetland A. The largest wetland, Wetland DEF, is a Category 3 wetland in the northeast section of the site near 194th Street SE. This wetland extends off-site to the east through several adjacent properties. The wetlands comprise 2.24 acres of the site, with their corresponding buffers comprising 1.65 acres. North Creek and its riparian setback comprise an additional 1.16 acres, leaving approximately 2.4 acres of buildable area outside of critical areas and buffers.

Currently, the site is vegetated with pasture grasses in the north half, developed and maintained landscaped areas in the central portion of the site and a variety of trees and native and invasive shrubs in the south half. There is also a small Category 3 wetland off-site to the north and a small unnamed Type 4 stream off-site to the east that flows under 194th Street SE and through a wetland area on the south side of the road. These features are adjacent to areas of required road improvements associated with the project.

Pictures of the project area are included in Appendix A.

**Sensitive Habitats**

As stated above, North Creek and three wetland areas have been identified on site. A small unnamed stream and two wetland areas also have been identified off-site, in the vicinity of proposed road improvements. These features are described in greater detail below.

**Streams and Buffers**

North Creek flows through the southern half of the subject property. North Creek is more than 12 miles long and enters the Sammamish River from the north on the right bank at River Mile 4.3 in the City of Bothell. North Creek drains a basin of approximately 23.3 square miles in area that includes portions of King County, Snohomish County, Bothell, Mill Creek, and Everett. The proposed development site is located approximately 5.25 miles upstream of the stream's mouth, between 194th Street SE and 196th Street SE north of the City of Bothell in unincorporated Snohomish County. The North Creek basin is extensively urbanized, with both developed residential and commercial areas.

North Creek is considered a Type 2 stream according to the Snohomish County CAR. North Creek is also subject to the County's *Salmonid Habitat Management Plan Administrative Rule*. This administrative rule provides for identification of Fish and Wildlife Habitat Conservation Areas (FWHCA) that have a primary association with any salmonid species listed as threatened or endangered under the Endangered Species Act. The rule prescribes additional environmental protection and mitigation steps that must be taken when development is proposed upon land containing habitat features that are considered essential for a federally threatened or endangered species.
The rule establishes a 150-foot buffer from the Ordinary High Water Mark (OHWM) of North Creek, as the creek is considered a FWHCA. In addition to the 150-foot buffer, “effective impervious surface” is not to be placed within 300 feet of listed salmonid-bearing waters. The County also requires a 15-foot building setback from critical area buffers. However, based on specific direction provided by Patrick McGraner at the September 28, 2006 pre-application meeting, limited intrusions in the 15-foot BSBL are allowed if room is provided for maintenance of structures and no trees will be impacted by the proposed intrusions.

The small unnamed stream to the east flows north to south through a culvert from under a mobile home park on the north side of 194th Street SE through a short open section, into another culvert under the road, and into a muddy channel associated with a wetland area on the south side of the road. The small open section between existing culverts is approximately 2.5 feet wide and approximately 5 feet long. This stream is a Type 4 stream with a 25-foot buffer.

Wetlands and Buffers

There are three wetland areas on the site of the proposed project. These wetlands were identified as Wetlands A, B, and DEF. According to the Snohomish County CAR, Wetland A is a Category 2 riparian wetland which extends off-site to the west and south. Wetland A is required to have a standard buffer width of 50 feet. Wetland B is a Category 3 wetland and is considered a riparian wetland due to its location within 150 feet of North Creek. It therefore has a 25-foot buffer. Wetland DEF extends off-site to the east through several adjacent properties. This wetland is rated Category 3 and requires a 25-foot buffer. Where stream and wetland buffers overlap, the wider buffer applies.

There is also a small wetland area on adjacent property north of the existing 194th Street SE, as shown on the site plans and attached mitigation plan. This wetland is also considered a Category 3 wetland with a 25-foot buffer. The wetland shown on the plans to the east of the site, south of the proposed culvert extension, has been identified and approximated on site plans. It has not been delineated or classified, but is likely a Category 3 wetland. There will be no impacts to this wetland area since the proposed work is limited to the north side of the road; see site plan.

Wetland A

Wetland A is associated with the north side of North Creek and extends northward toward the existing house and gravel driveway. The wetland continues off-site to the west and to the south. The on-site portion of this wetland on the north side of North Creek measures 38,997 square feet (0.90 acre). It includes largely riparian, non-native, ornamental and emergent vegetation. Japanese knotweed, reed canarygrass, and creeping buttercup are dominant in this wetland. A small ditch supporting soft rush is located along the west side of the house. Surrounding upland areas are dominated by reed canarygrass, creeping buttercup, and Himalayan blackberry. Few vegetative differences exist between the wetland and upland to the north.

Wetland B

Wetland B is an area of emergent vegetation north of Wetland A. This small (3,231 square feet/0.07 acre) wetland is a shallow depression dominated by reed canarygrass, with creeping buttercup and soft rush also present. Vegetation in the surrounding upland is similar to that
within Wetland B, but includes some upland species, such as evergreen blackberry and common plantain.

**Wetland DEF**

Wetland DEF is the largest (55,414 square feet/1.27 acre) of the wetlands on the site. The wetland is in the northeast section of the site and continues off-site to the east. It is primarily pasture wetland with a small amount of overhanging tree canopy at the east property boundary. Reed canarygrass, creeping buttercup, and soft rush are dominant plant species. Upland areas surrounding Wetland DEF support Himalayan blackberry, reed canarygrass, red clover, common dandelion, and various grasses.

**Sensitive Species - Salmonids**

As stated above, North Creek is subject to the County’s *Salmonid Habitat Management Plan Administrative Rule*, which prescribes additional environmental protection and mitigation steps to be taken when development is proposed upon land containing habitat features that are considered essential for a federally threatened or endangered species. Listed fish species in the Lake Washington watershed, which includes North Creek, are Puget Sound Chinook salmon, Puget Sound steelhead, and Coastal-Puget Sound bull trout, all listed as “Threatened” under the Endangered Species Act (U.S. Federal Register, 24 March 1999; 11 May 2007; and 11 November 1999, respectively). These species may be present in North Creek for at least brief periods of time during their life cycle.

**Chinook Salmon**

Chinook use of North Creek may extend as far upstream as the vicinity of McCollum Park at 128th Street SE, approximately five miles upstream of the project area. The *Snohomish County Chinook Salmon Distribution Map* shows possible Chinook salmon use extending up to the Interstate 5 crossing. Fall-run Chinook salmon migrate through Lake Washington and the Sammamish River to reach spawning grounds associated with the Sammamish River (primarily North Creek and Bear Creek) and Lake Sammamish tributaries (primarily Issaquah Creek, including WDFW’s Issaquah Creek hatchery). Chinook spawning escapement for North Creek is not known according to the 1992 *Washington State Salmon and Steelhead Stock Inventory* (SASSI) (WDF et al. 1993). The stock status of North Lake Washington Tributaries Summer/Fall Chinook salmon is listed as unknown by the SASSI, possibly due to the difficulty of ascertaining the stock status given the large number of hatchery-reared chinook which migrate up the Sammamish River and eventually to the hatchery on Issaquah Creek.

**Steelhead**

Steelhead have one of the most complex life history patterns of any anadromous Pacific salmonid species. In Washington, there are two major run types, winter and summer steelhead. The Lake Washington Basin does not have a summer steelhead stock and winter steelhead adults begin river entry in a mature reproductive state in December and generally spawn from February through May (Kerwin 2001). Naturally produced juvenile winter steelhead can either migrate to sea (anadromy) or remain in fresh water as resident rainbow trout. The vast majority of juvenile steelhead in the Lake Washington Basin smolt and migrate to salt water. Lake Washington Basin steelhead usually spend one to three years in freshwater, with the greatest proportion
spending two years (Busby et al. 1996). Because of this, juvenile steelhead rely heavily on the freshwater habitat and are present in streams all year long (Kerwin 2001).

Fish from the Lake Washington Winter Steelhead stock are currently recognized as occurring in the Sammamish River and its tributaries, including North Creek. Similar to Chinook, steelhead use of North Creek may extend as far upstream as the vicinity of McCollum Park at 128th Street SE, approximately five miles upstream of the project area (http://dnr.metrokc.gov/Wrias/8/fish-maps/steelhead/index.htm). The Lake Washington Winter Steelhead are characterized as a native stock with wild production, and their stock status was adjusted downward from “depressed” to “critical” in 2002 due to chronically low escapements and severe short-term declines in escapement in 2000 and 2001. As of 2004, these escapement numbers had not increased (WDFW 2002), and total escapement estimates for the Lake Washington basin between 2000 and 2004 have ranged between 20 and 48 fish. Only a few of these fish are likely to return to North Creek for spawning. Total steelhead escapement estimates for the Lake Washington basin were estimated at 1,816 in 1986 (the earliest year on record), and have steadily declined since that time. The current escapement goal set by WDFW is 1,600 fish.

**Bull Trout**

The 1998 *Washington Salmonid Stock Inventory* (SASI), published in July 1998 by WDFW, states that reproducing populations of bull trout “have not been confirmed in the lower Cedar River, Lake Washington, Lake Sammamish, or their tributaries.” Bull trout spawning in North Creek is highly unlikely because successful bull trout spawning in this region typically occurs only above the winter snow line, and no portion of the North Creek basin is high enough in elevation to have a winter snow line. Bull trout generally require colder water than can be provided by North Creek for successful spawning and egg incubation. Occasional rearing of stray or wandering bull trout in North Creek may be possible, but would not be common or usual, due to seasonally low stream flows and expected high temperatures. Temperatures in Issaquah Creek (and by extension, the Sammamish River and its tributaries, since they are farther downstream and likely even warmer) are probably too high to support bull trout (WDFW 1998).

**ANTICIPATED IMPACTS OF THE PROPOSED ACTION**

**Stream and Wetland Impacts**

Impacts to streams and wetlands have been avoided and minimized in the revised project design. There will be limited temporary and permanent impacts to streams, stream buffers, wetlands, and wetland buffers as detailed below.

Snohomish County requires frontage improvements to 194th Street SE along the north side of the site. The new road width at the site entrance will be 20 feet with a rain garden between the sidewalk and road to handle stormwater runoff through on-site infiltration. The new road section will consist of 20 feet of asphalt with 2-foot shoulders, a 5-foot rain garden planting strip, and a 4-foot sidewalk on the south side, resulting in a total frontage improvement width of 33 feet. See civil site plans for details.
Impacts to wetlands have been avoided and minimized by including a DeltaLok retaining wall in the proposed design along the edge of the wetlands on the north and south sides of the road; see site plans. The access drive has been redesigned to minimize buffer impacts and all of the proposed new building envelopes are completely outside of the 150-foot riparian buffer (FWHCA) associated with North Creek. Existing landscaping, access driveway and structures within riparian and wetland buffers near the existing house will continue to be maintained as shown in the project plans. The proposed new development will be connected to an existing sewer line to the southwest, and gas, cable, and electric utilities to the southeast, as shown on site plans. The utility line will include a new asphalt apron which will replace the existing gravel driveway apron at the entrance from 196th Street, as per Snohomish County Public Works requirements.

- **Stream impacts.** There will be no impacts to North Creek. Required road widening along 194th Street SE will result in reduction of the short open section of the unnamed stream to the east from 5 feet to 2.33 feet in length.

- **Wetland impacts.**

  Permanent impacts: There will be 76 square feet of permanent wetland fill of Wetland DEF for widening of the road along 194th Street SE. There will be 5 square feet of permanent wetland fill of Wetland A for installation of the sewer manhole. Total permanent wetland impacts equal 81 square feet.

  Temporary impacts: There will be 1,234 square feet of temporary wetland disturbance of Wetland DEF and the unnamed wetland north of the site from road construction. There will also be 103 square feet of temporary wetland disturbance of Wetland A from installation of the sewer line. These impacts are detailed on the Critical Area Mitigation and Enhancement Plan. Total temporary wetland impacts equal 1,337 square feet.

- **Stream and wetland buffer impacts.**

  Permanent impacts. There will be 120 square feet of permanent stream buffer loss associated with the culvert extension of the Type 4 stream east of the site required for road widening along 194th Street SE.

  There will be 3,301 square feet of permanent wetland buffer loss associated with the widening of the road along 194th Street SE. In addition, approximately 979 square feet of wetland buffer along the northwest corner of Wetland DEF will be lost for the construction of the required parking area. Approximately 718 square feet of wetland buffer north of Wetland B will be impacted by the construction of Unit 8-C. There will also be 1,989 square feet of permanent buffer loss associated with the footpath to the existing residence, community paths, parking area near the garage, and from the asphalt apron associated with the new utility line. Additions to the existing residence are being permitted separately under permit number 06-133734RK. These areas equal 289 square feet. Total permanent wetland buffer loss equals 7,396 square feet.
Temporary impacts: There will be 929 square feet of temporary impact to the 150-foot riparian buffer associated with installation of the sewer line, 36 square feet of temporary impact associated with the abandoned/demolished septic tank, and 336 square feet of temporary impact associated with the community pathway, and gas, cable and electric utilities. There will also be 1,617 square feet of temporary wetland buffer disturbance associated with the widening the road along 194th Street SE and 112 square feet of temporary buffer disturbance associated with the parking area. Total temporary stream and wetland buffer impacts equal 3,030 square feet.

Consistency with Salmonid Habitat Administrative Rule

There will be no impacts to North Creek associated with this proposed project. The project has been designed to comply with Option A of the Habitat Management Plan Requirements prescribed in the Salmonid Habitat Management Plan Administrative Rule, as explained below.

Fish and Wildlife Habitat Conservation Area (Stream buffer). The first standard mitigation measure listed in Option A is the establishment of the 150-foot wide Fish and Wildlife Habitat Conservation Area (FWHCA) in a Native Growth Protection Area (NGPA) (see Appendix B). This measure further specifies “that existing legally established structures, and non-native or ornamental landscaping, including but not necessarily limited to; gardens, yards, pastures, orchards, are not required to be designated as native growth protection areas; and that where such conditions presently exist, no subsequent development of any greater intensity shall be allowed.”

The 150-foot setback has been established and is shown on site plans (see Appendix B). There is an existing residence to be retained within this zone on the north side of North Creek. Existing associated outbuildings, including the garage and barn, will be retained. The existing shed north of the garage will be demolished. With the exception of the utility lines, all of the new proposed structures and improvements will be located outside of the FWHCA. The boundary of the NGPA, NGPA sign locations, and NGPA sign specifications are included in Appendix B plans.

Vegetation Replacement Ratios. The second standard mitigation measure listed in Option A addresses vegetation replacement ratios. As outlined in the Proposed Mitigation section below, buffer loss within wetland and stream buffers is compensated by providing buffer replacement areas as shown. In addition, plantings of native trees, shrubs and groundcovers are provided at a greater than 1:1 replacement ratio, consistent with the requirement to compensate for herbaceous vegetation loss. It is important to note that the existing wetland buffer vegetation that will be impacted is dominated by non-native and invasive species.

Temporal Losses. Temporary impact areas associated with installation of the sewer line, utility line, and widening of 194th Street SE will be restored as detailed on the mitigation and enhancement plan.

Hydrologic Impacts. The Salmonid Rule also stipulates that, “effective impervious surface shall not be placed within 300 feet of listed salmonid-bearing waters”. The site development will make extensive use of Low Impact Development (LID) techniques as detailed in the Low-Impact
Development Technical Guidance Manual for Puget Sound. Green roofs and pin-pile foundations have been designed for all new buildings. The driveway, parking area (except actual stalls), alleyways and most pathways are designed using pervious surfaces (pervious concrete, pervious pavers). Compost-amended soil will be tilled into the on-site open space to a depth of 12 inches in areas outside wetland buffers and wetlands. Distributed rain gardens provide additional infiltration of stormwater. The use of improved infiltration techniques eliminates the need for discharge to North Creek and closely mimics the forested conditions of the pre-developed site.

Snohomish County Code water quality and quantity requirements will be met through the use of these same low-impact site development techniques. The site was modeled for stormwater runoff using Western Washington Hydrology Model, Version 2, a continuous simulation flow model that provides the most conservative design for stormwater facilities, and the approach recommended in the Low Impact Development Technical Guidance Manual adopted by Snohomish County. The modeling technique developed for this site is discussed in the LID Supplemental forms included as part of this submittal. Stormwater detention and water quality treatment will be achieved by improving the infiltration of the on-site soils by amending them with compost, and by constructing a modification of a porous sidewalk design that provides additional water storage capacity, allowing stormwater to slowly infiltrate into the surrounding soils.

The approach and assumptions used to model stormwater run-off are described in the Drainage Report and LID supporting documents. The results of the model demonstrate that 100% infiltration of stormwater generated on site will be achieved under the proposal. Therefore the project will not create any effective impervious surface within 300 feet of North Creek. On the rest of the on-site area, the total amount of new impervious surface is 11,020 square feet.

The off-site increase in impervious surface from the road-widening project is 5,019 square feet. Stormwater management (treatment and detention) of the road-widening component of the project is designed to meet Ecology’s 2005 Stormwater Management Manual for Western Washington. Discharge limits are set at pre-settlement forested conditions. Infiltration is used where feasible, and the road runoff will still follow its current drainage patterns.

Thermal Impacts. The Salmonid Rule further specifies that, “the temperature of stormwater discharged from a project site to a body of water containing a listed salmonid shall not exceed Washington State Water Quality Standards for temperature”. All stormwater runoff from the site will be infiltrated as previously described. Unlike typical developments, stormwater will not be collected by a system of pipes and catch basins. This will eliminate the need to construct detention ponds, vaults and point discharges that can impact the temperature of stormwater run-off and receiving bodies. Therefore, the proposed project design, which emphasizes infiltration and enhancement of the natural run-off characteristics of the site, meets this requirement.

PROPOSED MITIGATION

Mitigation is proposed in the form of buffer area replacement and vegetation enhancement of wetland and buffer areas. See Critical Area Enhancement and Mitigation Plan in Appendix B.
A total of 4,091 square feet of new buffer gain area will be dedicated and protected within a total Native Growth Protection Area of 202,297 square feet (4.64 acres). This permanently protected area constitutes 63 percent of the total site area. Buffer and wetland plantings will result in a significant improvement over the present condition, as detailed below. This is consistent with both the *Salmonid Rule* and the *Stoohomish County CAR Innovative development design* (SCC 30.62.370).

Specific mitigation measures are detailed below:

- **Wetland mitigation.**

  Wetland filling impacts (81 square feet) will be mitigated by providing enhancement plantings within Wetland DEF at the Washington Department of Ecology prescribed ratio of 8:1 for Category III wetlands (648 square feet required). Presently Wetland DEF is primarily pasture that is dominated by non-native plants with little diversity in either species composition or community structure. Wetland enhancement plantings near the north edge of this wetland and east of the parking lot, totaling approximately 2,522 square feet, will increase wetland functions and values by providing a variety of food and cover plants to increase vegetative structure, increasing the richness of plant species and improving the interspersion of habitats. Enhancement plantings will be planted in clusters to mimic natural conditions and maximize edge habitat.

- **Stream and wetland buffer mitigation.**

  Buffer reduction areas have been offset with buffer gain areas as much as is possible. There will be 7,396 square feet of buffer loss. Approximately 3,869 square feet of stream and wetland buffer area will be added to the 150-foot riparian corridor, and 222 square feet will be added to the Wetland DEF buffer at the northwest edge. This equals a total of 4,091 square feet of stream and wetland buffer gain; see Critical Area Mitigation and Enhancement Plan in Appendix B.

  Remaining buffer loss areas are to be mitigated with buffer enhancement plantings equaling 5,303 square feet. Total enhancement area on site, including wetland, wetland buffer, and stream buffer equals 7,825 square feet. This includes 289 square feet of additional planting restoration area in the stream/wetland buffer southeast of the existing residence as compensation for additions to the house under permit number 06-133734RK.

  Buffer areas temporarily disturbed as a result of road widening will be planted as shown on the mitigation plan. Buffer areas temporarily disturbed as a result of installation of the sewerline, gas and electric utilities will be restored to pre-construction condition as shown.

Since buffer averaging and buffer width reduction cannot be achieved as per the CAR on this site, the proposed mitigation has been designed to meet the *Innovative development design criteria* of SCC 30.62.370. Specifically, implementation of the Critical Area Mitigation and Enhancement Plan as shown in Appendix B will result in a net improvement of the functions and
values of the wetland and its buffer when compared to either the existing condition or what would be permitted under the strict application of the code. The innovative project design is consistent with the purpose and objectives of SCC Chapter 30.62 as articulated in SCC Section 30.62.010, including the protection of critical areas and the balancing of private property rights with the need to protect public health, safety, and welfare and the preservation of environmentally sensitive areas. The project will not be materially detrimental to the public welfare or injurious to property or improvements in the vicinity because it will result in a net improvement in wetland and buffer functions and values.

The existing wetland, wetland buffer and stream buffers are presently vegetated with a mixture of mostly non-native grasses, clover, dandelion, and other herbaceous species, which provide little diversity in either species composition or community structure. Enhancement plantings totaling approximately 9,378 square feet will increase wetland and stream buffer functions and values by providing a variety of native plants to increase vegetative structure, increasing the richness of plant species, and improving the interspersion of habitats. Buffer enhancement plantings will also increase the screening and protection of the critical areas, while maximizing edge habitat and providing berries and other plant parts for wildlife food and structural diversity for wildlife cover. The mitigation plan will be implemented concurrent with or prior to completion of the proposed project. The completed mitigation project will be monitored for three years as outlined in Appendix B.
REFERENCES


APPENDIX A

Photographs
View of project area facing southeast. Existing shop/garage is shown in the center of photo. Existing house to be retained is also shown just behind the white truck.

View of project area facing east. Shows wetland and wetland buffer impact area associated with the required improvements to 194th St. SE and the proposed parking area.
View of Wetland DEF from north. Shows wetland and wetland buffer enhancement areas.
APPENDIX B

Critical Area Mitigation and Enhancement Plan
Native Growth Protection Area
Sign Installation Guidelines

NOTES:
1. NGPA signs shall be placed no greater than 100 feet apart around the perimeter of the Native Growth Protection Area. Minimum placement shall include one Type 1 sign per section, and at least one Type 1 sign shall be placed in any area that borders the Native Growth Protection Area, unless otherwise approved by the County.
2. Signs shall be subject to the approval of Snohomish County. Alternative sign designs may be submitted to Snohomish County for approval.
3. All signs must be secure and permanent.

NATIVE GROWTH PROTECTION AREA

BOUNDARY (262,297 S.F. = 4.64 AC.)
NGPA SIGNS @ 100-FOOT INTERVALS, TYP. (21)
PLANT INSTALLATION SPECIFICATIONS

Note: These specifications are a legally binding contract.

GENERAL NOTES

Quality Assurance
1. Plants shall meet or exceed the specifications of Federal, state, and local law requiring inspection for plant disease and insect control.
2. Plants shall be healthy, vigorous, and well-formed, with well-developed, strong root systems, free of dead branches or roots. Plants shall be free from disease caused by temperature extremes, lack or excess of moisture, insects, damaged, and mechanical injury. Plants in field shall be free of disease and good condition. Plants shall be hardened to the outdoor environmental conditions into which they will be placed (future state).
3. Trees with damaged, crooked, multiple or broken branches will be injected. Woody plants with abrasions of the bark or success will be rejected.
4. Nurseries, plant-related items shall meet the standards established by the North Central States Nursery and Landscape Association. Trees shall be labeled with scientific name, quantity, and date delivered (and generic origin if that information was previously requested).

DELIVERY, HANDLING, & STORAGE

Notification: Contractor must notify 48 hours or more in advance of delivery so that consultant may arrange for inspection.

Plant Materials
1. Transportation - During shipping, plants shall be packed to provide protection against climate extremes, breakage and drying. Proper ventilation and prevention of damage to bark, branches, and root systems must be assured.
2. Scheduling and storage - Plants shall be delivered as close to planting as possible. Plants in storage shall be protected against any condition that is detrimental to the continued health of the plants.
3. Handling - Plant materials shall not be handled by the truck, limbs, or foliage by any of the personnel. Tote bags, or other protective structure, except bareroot plants shall be tied to trucks until planting and then handled carefully by the hands or stumps. Upper parts of bareroot plants in individual pots shall be tied. Bareroot plants supplied in flats, racks, bales, or bales shall have one label per group.

WARRANTY
1. Plants must be guaranteed to true to scientific name and specific site, and to be healthy and growing by the Watershed Reclamation Consultant.
2. Plants not found meeting all of the required conditions must be removed from sites and replaced immediately at the consultant's discretion.

PLANT MATERIAL

General
1. Plants shall be nursery grown in accordance with good horticultural practices under climatic conditions similar to or more severe than those of the project site.
2. Plants shall be true to species and variety or subspecies. No cultivars or named varieties shall be used unless specified as such.

Quantities
1. See plant list on accompanying plans.

Root treatment
1. When growing plants that includes plugs, the root balls must be held together when the plant is removed from the pot, except that a small amount of soil may be on the top of the roots.

2. Plants must be root-bond; there shall be no crinkled roots present in any plants transplanted.

3. Roots that have exposed or bruised when removed from the container shall be rejected.

4. Leaky Sacks (includes fascicles, wither wounds) Live stakes must be installed before root ball is removed. Plants that already have roots at the time of installation will be rejected.

PROJECT MANAGER: DM. PROJECT MANAGER: RC. DATE: 05/20/98 SCALE: 1" = 10' APPROX. 24" ON CENTER

PROJECT MANAGER: DM. PROJECT MANAGER: RC. DATE: 05/20/98 SCALE: 1" = 10' APPROX. 24" ON CENTER

See next sheet for sequencing and mitigation notes.

PLANT SPECIFICATIONS AND DETAILS

SUBMITTALS

1. Within 30 days after award of the contract, submit a complete list of plant materials proposed to be provided demonstrating conformance with the requirements specified. Include the names and addresses of all growers and nurseries.

Product Certificates
1. Plant Materials List - Submit documentation to consultant at least 30 days prior to start of work under this section that plant materials have been ordered. Arrange procedures for inspection of plant material with consultant at time of submission.
2. Hops lists of vendor's or grower's invoices or packing slips for all plants on site during installation. Invoice or packing slip should list species by scientific name, quantity, and date delivered (and generic origin if that information was previously requested).

NEXT SHEET FOR SEQUENCING AND MITIGATION NOTES

PLANT SPECIFICATIONS AND DETAILS
Mitigation Plan Notes

Mitigation Summary: A group of families propose to develop this site as an intergenerational and multi-industry project and reutilize a total of 14 housing units (15 rows). The group's goal is to provide a multi-family residential development that will benefit the community and enhance the local economy, while maintaining the natural beauty and scenic views of the area.

Objectives and Performance Standards
The following objectives and performance standards have been established to ensure the success of the project and the mitigation plan:

- Mitigation and Monitoring
- Native and shrub vegetation will be established in the planting areas within three years after planting.

Performance Standard 1: Within the planting areas, container-grown plants shall meet a 100% survival standard at the end of Year One (to be guaranteed by the contractor) and continuing through Year Three, and an 80% survival standard at the end of Year Two and Year Three, with supplemental planting if these standards are not met. The plants shall be six to 12 months old at planting, and established planting areas shall exhibit at least 50% cover. Weedy cover by species listed by the Washington State Nuisance Weed Board as Class A, Class B, or Class C weeds may not exceed 15 percent coverage within the planting areas.

Monitoring and Maintenance:
To ensure the success of this plan, a three-year monitoring and maintenance plan will be implemented. Monitoring: The landscaped vegetation community will be monitored for three years after initial installation. Within two months of plant installation, an As-Built Report will be prepared that documents the general implementation of the mitigation plan. Any minor changes to the approved vegetation community and design conditions are required to be documented in the As-Built Report and submitted to the Snohomish County PUD. This approved As-Built Report will then become the approved plan for future inspection purposes.

Monitoring visits shall occur between July 1 and September 15. During Year One, an additional weed inspection will occur in April. The additional weed inspection will not be necessary in the remaining years unless invasive/native species exceed 15 percent cover in the previous year.

During each monitoring visit, color photographs will be taken from points to be identified in the As-Built Report that provide complete coverage of the planting areas. In addition, the following items will be noted:

- Percent survival of plants (Years Two and Three)
- Percent cover of planted species based on visual estimate (Year Three)
- Species composition, noting whether a species is native or non-native and whether plants present were planted or seed volunteers
- Percent cover of non-native or invasive species
- G. The general health of vegetation, noting whether pests or disease are present.

Particular attention shall be paid to the encroachment or emergence of Himalayan blackberry, red cedars, thistles, and Scotch broom. The emergence of these or any species listed by the Washington State Nuisance Weed Board as Class A, Class B, or Class C weeds within planting areas will be noted and recommendations for immediate manual removal will be made.

Following each year’s monitoring visit, a letter-style report shall be prepared describing the findings of the visit. This report shall include information about the condition of the planted vegetation, photographs of the site, a discussion of weed cover in the planting area, and any recommendations for corrective action. This report shall be submitted to Snohomish County PUD within a month’s time of each year’s monitoring visit. All maintenance and repair recommendations shall be completed within four months of each monitoring report, with a memo to PUD detailing any actions that were taken.

Maintenance: This project will include at least one maintenance visit per year, for three years following the completion of the mitigation plan. During these maintenance visits, the vegetative planting areas will be weeded by hand to remove any new shoots of non-native and/or invasive vegetation that are emerging. Maintenance visits will occur in August. If invasive/native species exceed 15 percent cover in the previous year’s monitoring report, two maintenance visits will be conducted in April and the second in August.

During the first and second following plant installation (Year One and Two), plantings in the mitigation areas shall be supplemented with a minimum of 2 inches of water per week from June through September. Further, if plants appear to be stressed due to drought during the third year, supplemental water shall be applied in August after plant installation (Year Three), two inches of water per week should be applied from June through September. Additional maintenance visits may also be required to respond to other maintenance recommendations as needed.