



July 23, 2010

City of Normandy Park
Public Works Department
Attn: Peter Landry and Karl Franta
801 SW 174th St
Normandy Park, WA 98166

Dear Peter and Karl,

Enclosed you will find the Final Restoration Report for our *Marine View Park Community Restoration Program*. As part of our requirements through the KCD grant funding, we have completed this report documenting the pre- and post-implementation site conditions for the KCD Restoration Area, the restoration work completed during the grant period, and monitoring and maintenance guidelines for the next three years.

Section D: "Monitoring Guidelines for Normandy Park", on page 8 can be used for your reference as you maintain this restoration area to ensure the grant's 90% plant survival rate criteria.

Thank you for your help in coordinating this program and we wish you all the best in the continued community parklands restoration projects in your city. It was a pleasure to work with you and to spend the time in the upland forest and along the beautiful coast at Marine View Park.

Sincerely,

A handwritten signature in blue ink, appearing to read "Elsa Sargent".

Elsa Sargent
Land Stewardship Project Associate

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206.577.9357 fax

elsas@cascadeland.org



CITY OF NORMANDY PARK

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May 15, 2009

King Conservation District
Member Jurisdiction and WRIA Forum Grant Program
1107 SW Grady Way, Suite 130
Renton, WA 98057

Dear Review Committee:

The City of Normandy Park is committed to restoring habitat in its parks and open space areas and we are very excited about this opportunity to work with Cascade Land Conservancy and King Conservation District.

This particular project will bring together at least 100 community members and conservationists in an effort to remove a minimum of 10,000 square feet of non-native plant species and to enhance a minimum of 660 linear feet of existing trails within Marine View Park, which is located within a priority nearshore protection and restoration area for juvenile Green Duwamish Chinook. After invasive species control is complete, the site will be replanted with native trees, shrubs and ground covers to enhance long-term habitat conditions and ecological processes.

Cascade Land Conservancy will lead the initial community restoration work and the City of Normandy Park will be responsible for monitoring the site for 3 years and ensuring that a minimum of 90% of the native plants survive. We estimate this match contribution to be at least \$7100 over the three years.

We urge your support of this excellent community habitat restoration opportunity and welcome any questions or comments you may have.

Sincerely,

Douglas Schulze
City Manager

Cc: Jodie Salz
Peter Landry
Karl Franta
File

Marine View Park Final Restoration Report



June 30, 2010
Normandy Park, WA

Cascade Land Conservancy

KCD Marine View Park Community Restoration Program 2009 Grant



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Section A: Site Information

Property Summary:

Marine View Park is a 30 acre park located in Normandy Park, WA, 15 miles south of Seattle. It is owned by the city of Normandy Park and is maintained and managed by the City's Public Works department.

Cascade Land Conservancy (CLC), the largest land conservation, stewardship and community building organization in Washington State, with support from a grant from the King County Conservation District (KCD) helped to conserve and restore coastal habitat, native plant communities, and the threatened feeder bluff ecosystems in and around the park.

This is the **Final Restoration Report** for a year-long project to remove invasive species and replant with native vegetation in a 10,000 square foot "KCD Restoration Area" in the upland forest. Due to the success of in volunteer recruitment and contracted crew time, CLC was able to extend this "KCD Restoration Area" to a 25,625 square foot area. This Final Report documents pre- and post-implementation conditions of the Restoration Area, restoration work completed by volunteers, contracted conservation crews and CLC and Parks staff during the grant period, and future maintenance plans and schedules to be completed by the City Parks Department. The "Marine View Park Community Restoration Program of 2009" was designed to develop long-term habitat protection and enhancement in the KCD Restoration Area and can also be used to extend the restoration work to adjoining areas of similar forest composition, slope, soil and hydrological types throughout the 30 acre park.

Driving Directions to Marine View Park:

From WA-509, take the S 160th St exit. Turn off exit ramp to go west on 160th St. Turn left at 1st Ave S. Drive approximately 3 miles then turn right onto SW 211th St. Marine View Park will be on your left in approximately 0.2 miles. This is the park's only public entrance and is marked with a large wooden sign at the paved driveway into the parking lot.

Directions from park entrance to restoration area:

From the parking lot enter the park on the main trail and walk west to the large park rules and map sign. This sign is in the northeast corner of the restoration area. The restoration area extends 50 feet west beyond this sign, to the right and north for approximately 30 feet and then to the left approximately 150 feet south down the trail. There is another node to the restoration area on the eastern side of this trail measuring 50 feet by 20 feet. See Marine View Park and Restoration Area locator map with topography in Appendix B.I for spatial reference.

Landscape Summary:

Marine View Park has an upland Douglas-fir-Pacific madrone forest. In addition to associated native forest understory vegetation, including salal, oceanspray, sword fern, salmonberry, beaked hazelnut and trailing blackberry, the park's forestlands are heavily infested with non-native English ivy and Himalayan blackberry. Steep wooded hillsides of this same forest composition and dense invasive cover lead down to nearly ¼ mile of Puget Sound seashore. Marine View Park is an important link in a feeder bluff system that contributes sediment to the Southwest Drift Cell within Central Puget Sound. The park is located within a priority nearshore protection and restoration area for the Green/Duwamish Watershed. This watershed and the park's waterfront and feeder bluff systems are priority habitat for Chinook salmon, steelhead trout, and other "at risk" marine dependent species.

Plant Communities:

Using Christopher Chappell's "Upland Plant Associations of the Puget Trough Ecoregion, Washington" Marine View Park's forested parkland represents the Douglas-fir- Pacific madrone Forest.

USDA Soil Survey:

USDA's Natural Resources Conservation Service (NRCS) Web Soil Survey maps the Restoration Area to be comprised of 85% Alderwood and Kitsap soils (AkF) and 15% Everett gravelly sandy loam (EvB). AkF is moderately well drained with a depth to the water table of about 18 to 36 inches. The profile down to 60 inches is a continuous gravelly sandy loam. This soil type is especially prevalent on the steep slopes. EvB is excessively drained with a depth to the water table of more than 80 inches. The profile is a gravelly sandy loam to 32 inches with a gravelly coarse sand extending from 32 to 60 inches. Both are glacial outwash soils with a small component of volcanic ash.

Topography:

The Restoration Area is located at the crest of a formation of steep ravines and hillsides, sloping at angles of 40% or more down to the shoreline. These steeper areas are documented and regulated under Normandy Park's Critical Area Ordinances. However the entire Restoration Area is on the flat upland area with slopes of 0-15%. The southern 1,000 ft² of the Restoration Area slopes gradually (2-5%) to the southwest.

Section B: Pre- Implementation Documentation

Vegetation Inventory and Percent Cover:

Native-

*Percent estimates for native vegetation indicate average percent cover of given vegetation layer across entire Restoration Area

Canopy:

- Douglas fir *Pseudotsuga menziesii* 40%
- Red Alder *Alnus rubra* 20%
- Big Leaf Maple *Acer macrophyllum* 10%
- Western hemlock *Tsuga heterophylla* 10%
- Vine Maple *Acer circinatum* 5%
- Pacific Madrone *Arbutus menziesii* 5%
- Western red cedar *Thuja plicata* 5%
- Grand fir *Abies grandis* 5%

Shrub:

- Salmonberry *Rubus spectabilis* 30%
- Indian plum *Oemleria cerasiformis* 20%
- Salal *Gaultheria shallon* 20%
- Oceanspray *Holodiscus discolor* 10%
- Beaked Hazelnut *Corylus cornuta* 5%
- Snowberry *Symphoricarpos albus* 5%
- Low Oregon grape *Mahonia nervosa* 5%
- Red elderberry *Sambucus racemosa* 5%

Herb:

- Sword fern *Polystichum munitum* 75%
- Fringecup *Tellima grandiflora* 10%
- Bracken fern *Pteridium aquilinum* 10%
- Stinging Nettle *Urtica dioica* 5%

Groundcover:

- Trailing blackberry *Rubus ursinus* 100%

Non-native-

*Percent estimates for non-native vegetation are average coverage including native and nonnative vegetation of a given layer across entire Restoration Area

Canopy:

- English ivy *Hedera helix* 10%
- English holly *Ilex aquifolium* 5%
- European mountain ash *Sorbus aucuparia* 5%

Shrub:

- Himalayan blackberry *Rubus discolor* 15%
- Evergreen blackberry *Rubus laciniatus* 5%

Herb:

Groundcover:

- English ivy *Hedera helix* 95%
- Herb Robert *Geranium robertianum* 5%

Soil and Topography Conditions:

Soil Survey Results for Restoration Area:

Nine soil sample survey pits were dug within the KCD Restoration Area and sent to the University of Massachusetts soil and plant tissue testing laboratory for soil analysis.

Results were as follows;

Soil pH- 5.3

Buffer pH- 5.6

Nitrogen- 1 ppm

Organic Matter- 9.2% (Desirable range 4-10%)

Phosphorus- 9 ppm (medium level)

Potassium- 115 ppm (high level)

Calcium- 841 ppm (medium-high level)

Magnesium- 114 ppm (high level)

Cation Exchange- 21.2 Meq/100g

Percent Base Saturation- K=1.4, Mg=4.4, Ca=19.8

Micronutrient Levels- All Normal

Extractable Aluminum- 162 ppm (Soil range: 10-250 ppm)

Lead- low

Soil sample recommendations for needleleaf evergreen trees and shrubs:

- Soil pH is in the desired range. No adjustment required.
- Fertilizer- The organic matter level of this soil appears to be quite high. When properly fertilized and provided proper drainage it should provide a good growing medium for woody ornamentals which prefer a humus rich soil.

Section C: Post-Implementation Documentation

Vegetation Inventory and Percent Cover:

Native-

*Percent estimates for native vegetation indicate average percent cover of given vegetation layer across entire Restoration Area

Canopy:

- Douglas fir *Pseudotsuga menziesii* 40%
- Red Alder *Alnus rubra* 20%
- Big Leaf Maple *Acer macrophyllum* 10%
- Western hemlock *Tsuga heterophylla* 10%
- Vine Maple *Acer circinatum* 5%
- Pacific Madrone *Arbutus menziesii* 5%
- Western red cedar *Thuja plicata* 5%
- Grand fir *Abies grandis* 5%

Shrub:

- Salmonberry *Rubus spectabilis* 30%
- Indian plum *Oemleria cerasiformis* 20%
- Salal *Gaultheria shallon* 20%
- Oceanspray *Holodiscus discolor* 10%
- Beaked Hazelnut *Corylus cornuta* 5%
- Snowberry *Symphoricarpos albus* 5%
- Low Oregon grape *Mahonia nervosa* 5%
- Red elderberry *Sambucus racemosa* 5%

Herb:

- Sword fern *Polystichum munitum* 75%
- Fringecup *Tellima grandiflora* 10%
- Bracken fern *Pteridium aquilinum* 10%
- Stinging Nettle *Urtica dioica* 5%

Groundcover:

- Trailing blackberry *Rubus ursinus* 5%

Non-native-

*Percent estimates for non-native vegetation are average coverage including native and nonnative vegetation of a given layer across entire Restoration Area

Canopy:

- English ivy *Hedera helix* 0%
- English holly *Ilex aquifolium* 5%
- European mountain ash *Sorbus aucuparia* 0%

Shrub:

- Himalayan blackberry *Rubus discolor* 0%
- Evergreen blackberry *Rubus laciniatus* 0%

Herb:**Groundcover:**

- English ivy *Hedera helix* 5%
- Herb Robert *Geranium robertianum* 5%

Restoration Works Accomplished:

1. 25,625 square feet cleared of invasive species
2. 600 plants installed
3. Restoration area covered with 6-8" mulch to suppress weeds
4. 151 community volunteers engaged in environmental restoration
5. 5 days of invasive removal and plant maintenance by WCC crews

Section D: Monitoring Guidelines for City of Normandy Park

The city of Normandy Park is responsible for monitoring and maintaining the Restoration Area for three years. To ensure native plant success young plants must be watered, mulched, weeded and replanted as necessary to ensure a 90% survival rate.

Watering- Native plantings should be watered seasonally until they become established enough to not require manual watering. A thick mulch application necessitates less water. Regardless watering and mulching immediately following plant installation will help lessen the transplant shock common of container plants. Continued watering of all native plantings especially in the June through September dry summer season will be required for the 3 years following planting.

Mulching- Wood chip mulch applied at a thickness of at least 6-8 inches throughout the Restoration Area will suppress invasive weed regrowth, retain soil moisture and moderate soil temperature to foster native plant success. More mulch can be periodically added as the earlier applications compact and/or break down. Mulching is especially critical when plants are young and in the summer months when evaporation rates are the highest. Special care should be taken to apply a “doughnut” ring of mulch around new plants as packing mulch around the stem of the young plant can cause it to rot. The ring also helps funnel moisture directly to the root system of the young plants.

Weeding- Weeding is generally scheduled for the early growing season when invasive regrowth is the most rapid but should be monitored and addressed throughout the summer and early fall for the entire 3 year monitoring period. Frequent monitoring of English ivy regrowth amidst the shrub and ground cover layers and proactive manual removal by hand of any regrowth is the most effective control and maintenance technique. Any English ivy regrowth on tree trunks and extending into the canopy should be controlled by the continued cutting of survival rings. Himalayan and Evergreen blackberry regrowth again is most effectively controlled by mulching and by proactive monitoring and removal. Frequent hand pulling of young blackberry shoots growing from a previously restored area will curtail their reinfestation. In areas well away from native plants, shovels may be used to attempt to grub out the blackberry root masses.

Replanting suggestions- If planting success drops below 90% survival, replanting native vegetation will be necessary. Drought and shade tolerant species such as salal, sword fern, and thimbleberry should be prioritized for their greater survival potential. These plants should be started on the 3 year watering, mulching and weeding maintenance course following installation.

Costs- Budgeting for restoration maintenance is dependent on a myriad of climatic, logistical, and site specific conditions. However exorbitant maintenance costs can be avoided by frequent monitoring and immediate remediation of ailing plants or invasive regrowth. Volunteer assistance may be available to help in continued mulching and

weeding around the native plantings. If acquiring water and irrigating is logistically difficult, scheduled watering or weeding can be contracted to conservation crews.

Appendices:

Appendix A: Precondition Photo Index

Appendix B: Post-condition Photo Index

Appendix C: KCD Restoration Area Maps for Marine View Park

Appendix A: Precondition Photo Index



NE corner of Restoration Area behind Park entrance sign
Photo Point 1 (see Precondition Photo Point map in Appendix B.3 for spatial reference)



NW corner of Restoration Area near large debris pile
Photo Point 2



Eastern border of Restoration Area
Photo Point 3



Western border of Zone 4 in Restoration Area across Main Trail
Photo Point 4



Southeastern portion of Restoration Area viewed from Main Trail
Photo Point 5a



Looking north up Main Trail from southeastern portion of Restoration Area
Photo Point 5b

Appendix B: Post-implementation Photo Index



NE corner of Restoration Area behind Park entrance sign
Photo Point I



NW corner of Restoration Area near large debris
Photo point 2



Eastern border of Restoration Area
Photo Point 3



Western border of Zone 4 in Restoration Area across Main Trail
Photo Point 4



Southeastern portion of Restoration Area viewed from Main Trail
Photo Point 5a



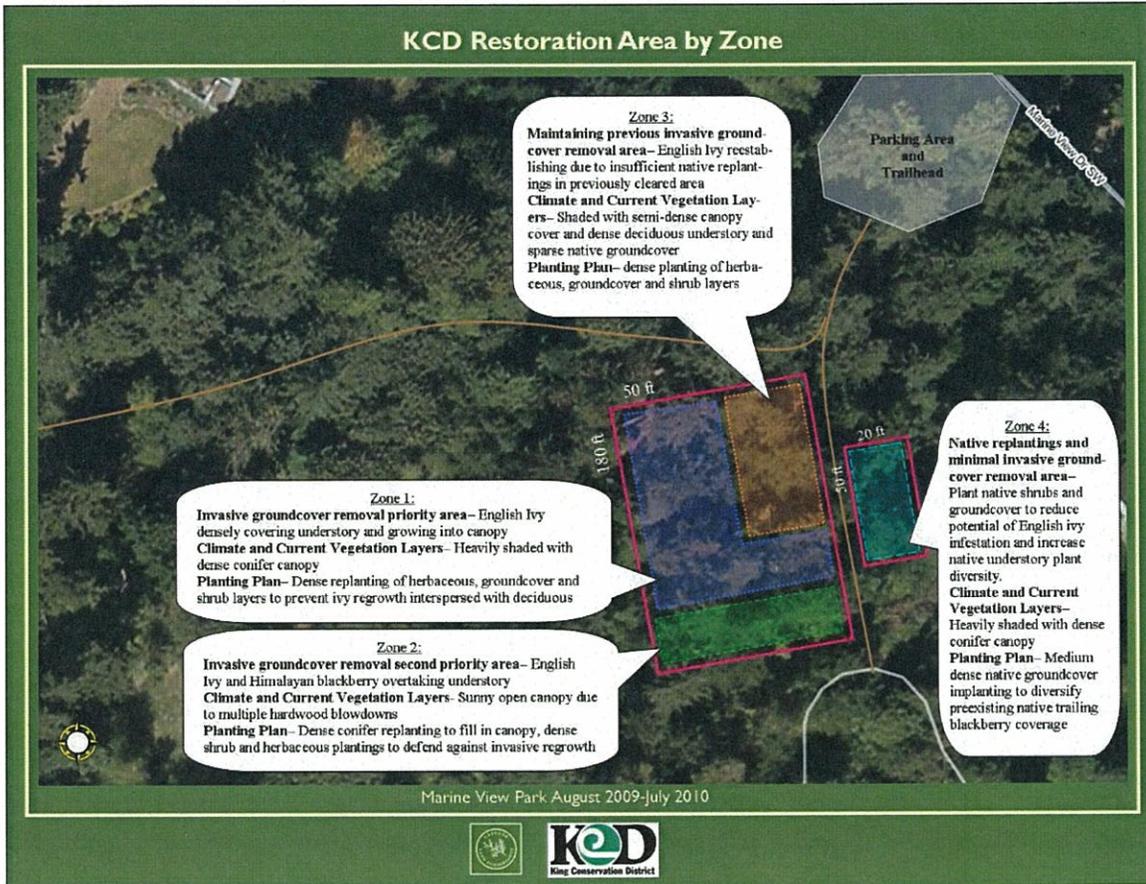
Looking north up Main Trail from southeastern portion of Restoration Area
Photo Point 5b

Appendix C: KCD Restoration Area Maps for Marine View Park

Map C.1 Marine View Park and Restoration Area locator map with topography



Map C.2 KCD Restoration Area by Zone



Map C.3 Precondition Photo Point Map

