



**City of Bellevue
Development Services Department
Staff Report**

Proposal Name: Bortko Deck

Proposal Address: 2436 West Lake Sammamish Parkway, SE

Proposal Description: Application for a Critical Areas Land Use permit to reduce the shoreline structure setback from 25 feet to approximately 19 feet in order to expand an existing deck. No reduction of the 25-foot critical area buffer is proposed. Project includes a critical areas report with a mitigation planting plan.

File Number: 09-110406-LO

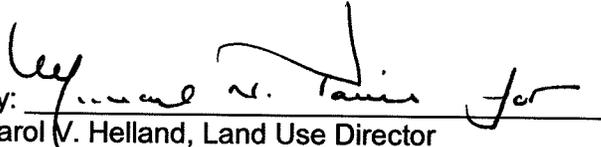
Applicant: Dennis Bortko

Decisions Included: Critical Areas Land Use Permit
(Process II. LUC 20.30P)

Planner: Drew Folsom, Assistant Land Use Planner

**State Environmental Policy Act
Threshold Determination:** Exempt per WAC 197-11-800

Director's Recommendation: **Approval with Conditions**
Michael A. Brennan, Director
Development Services Department

By: 
Carol V. Helland, Land Use Director

Application Date: 04/14/09

Notice of Application Publication Date: 05/07/09

Decision Publication Date: 07/30/09

Project/SEPA Appeal Deadline: 08/13/09

For information on how to appeal a proposal, visit Development Services at City Hall or call (425) 452-6800. Comments on State Environmental Policy Act (SEPA) Determinations can be made with or without appealing the proposal within the noted comment period for a SEPA Determination. Appeal of the Decision must be received in the City's Clerk's Office by 5 PM on the date noted for appeal of the decision.

I. DESCRIPTION OF PROPOSAL

The applicant proposes to reduce the 25-foot Shoreline Critical Area structure setback from 25 feet to approximately 19 feet in order to expand an existing deck. The total area of deck within the shoreline critical area structure setback will be 205 square feet. The proposal includes a critical areas report with a mitigation plan to install 283 square feet of native vegetation within the shoreline critical area buffer.

A critical area report and mitigation plan by EnCo Environmental Corporation dated March 5, 2009 was completed to address the impact of the proposal. The reports analyzed the proposal and probable impacts to the shoreline in accordance with the requirements of LUC Section 20.25H.

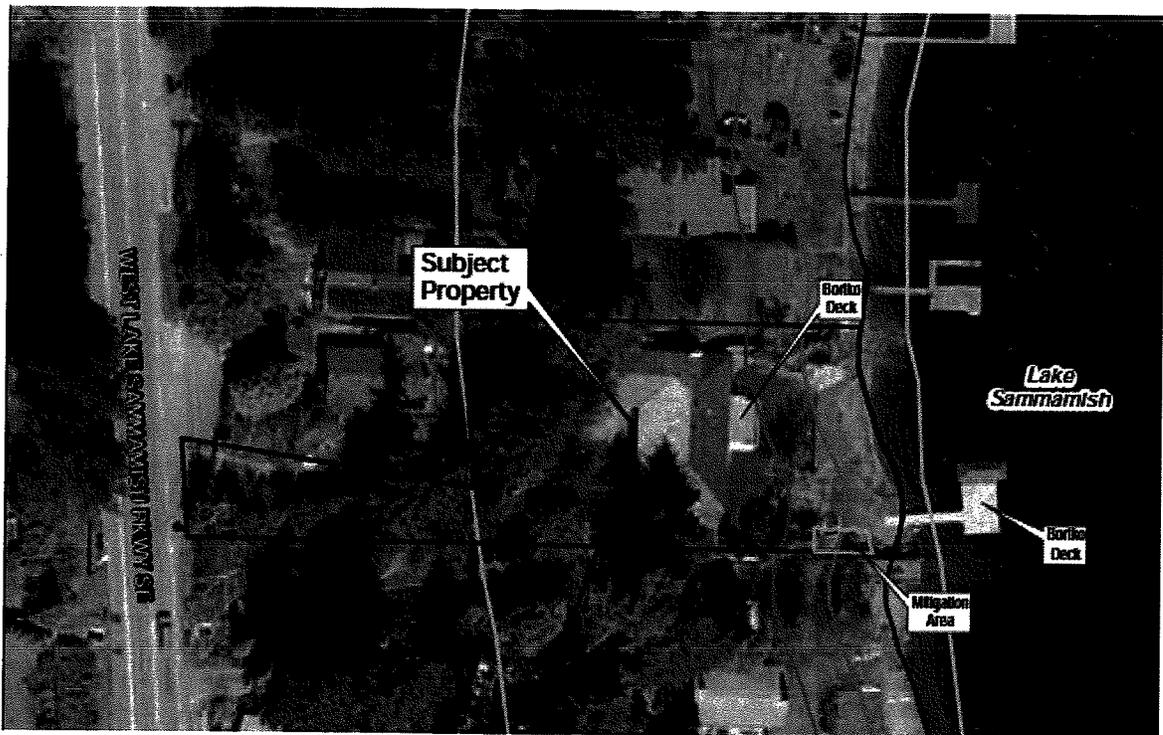
The report concluded the proposed deck within the shoreline structure setback and the associated mitigation planting area will improve function and not adversely impact the shoreline. See related condition of approval in Section IX.

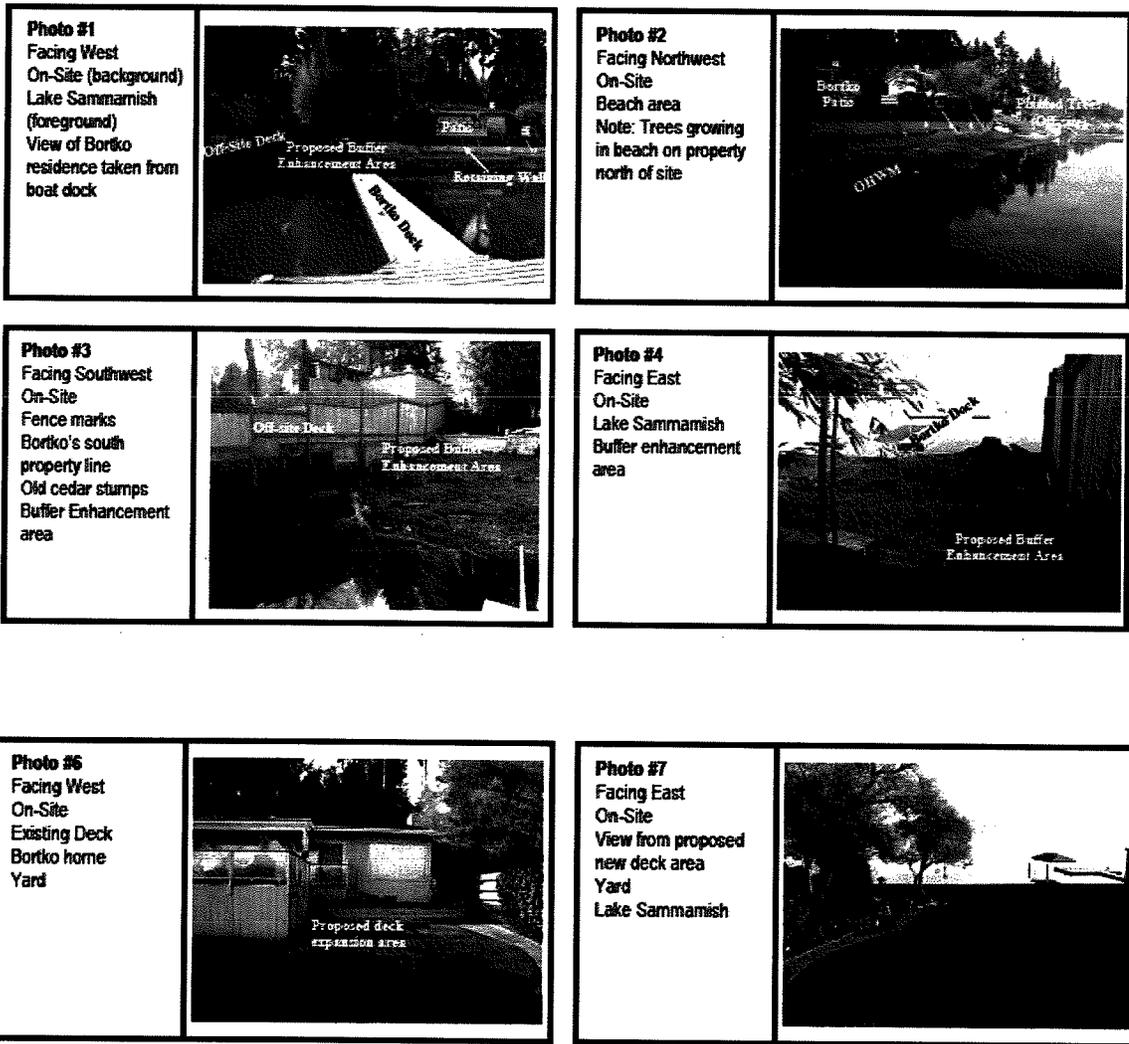
The applicant has proposed to enhance the shoreline buffer by providing a native plant restoration plan covering 283 square feet of the shoreline. This plan includes two tiers of proposed vegetation including native ground cover and shrubs.

II. SITE DESCRIPTION AND CONTEXT

The subject property is developed with an existing single family residence and is addressed as 2436 West Lake Sammamish Parkway. Historically the area between the house and the shoreline has been covered predominately by a deck, retaining wall, and lawn. There are no significant trees within the project area.

Properties to the north and west of this site are developed and contain single-family homes. The property to the south is owned by the City of Bellevue and developed with a sewage pump station. To the east of the property is Lake Sammamish.





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III. CONSISTENCY WITH LAND USE CODE/ZONING

A. Special District Requirements (Critical Areas Overlay District LUC. 20.25H)

Bellevue's Land Use Code (LUC) Section 20.25H.115 designates a 25-foot buffer measured from ordinary high water mark as a critical area and an additional 25-foot buffer as a structure setback.

Land Use Code 20.25H.230 Critical Areas Report. A critical areas report is a mechanism by which certain requirements of LUC 20.25H, LUC 20.25E as set forth in that part, and the impervious surface standards set forth in LUC 20.20.010 may be modified for a specific proposal.

Generally, the critical areas report must demonstrate that the proposal with the requested modifications leads to equivalent or better protection of critical area

functions and values than would result from the application of the standard requirements. Where the proposal involves restoration of degraded conditions in exchange for a reduction in regulated critical area buffer on a site, the critical areas report must demonstrate a net increase in certain critical area functions.

Finding: The critical area report demonstrates the critical area functions and values will be improved effectively per the report submitted by EnCo Environmental Corporation dated March 5, 2009. The area of structure setback to be modified has minimal vegetation, mainly consisting of lawn. As mitigation for the reduction of structure setback a buffer enhancement plan was submitted. As stated in the critical areas report, reducing the structure setback in order to expand an existing deck within 205 square feet of structure setback and installing native vegetation along 283 square feet of the shoreline will result in an increase of critical area function. This will be achieved by planting several native species within 283 square feet of the shoreline critical area buffer.

B. Consistency with Standard Land Use Code Requirements

BASIC INFORMATION			
Zoning District	R-3.5		
Gross Site Area	23,800 square feet		
Critical Area	2,625 square feet (25 foot shoreline buffer)		
ITEM	REQ'D/ALLOWED	PROPOSED	COMMENT
Dwelling Units/Acre	3.5	No Change Proposed	
Building Setbacks			Dimensional requirements may be modified pursuant to 20.25H.040 to avoid critical area impacts
Front Yard	20 feet	No change proposed	
Rear Yard	25 feet	44 feet	
Min. Side Yard	5 feet	No change proposed	
2 Side Yard	15 feet	No change proposed	
Access Easement	10-feet	No change proposed	
Maximum Lot Coverage	35 percent	19.5 percent	

IV. STATE ENVIRONMENTAL POLICY ACT (SEPA)

Proposed activity is SEPA exempt per WAC 197-11-800 and is not identified as a critical area per BCC 22.02.045

V. SUMMARY OF TECHNICAL REVIEWS

A. Clearing & Grading Review

The Clearing and Grading Division of the Development Services Department has reviewed the proposed site development for compliance with Clearing and Grading codes and standards. The Clearing and Grading staff found no issues with the proposed development and concurred with the findings within the Geotechnical Report.

V. PUBLIC NOTICE AND COMMUNITY INPUT

Application Date: April 14, 2009
Public Notice (500 feet): May 7, 2009
Minimum Comment Period: May 21, 2009

Notice of Application was published in the City of Bellevue's *Land Use Bulletin* and the *Seattle Times* on May 7, 2009. It was mailed to property owners within 500 feet of the project site. No comments were received from the public as of the writing of this staff report.

VII. DECISION CRITERIA

20.25H.255 Critical areas report – Decision criteria.

The Director may approve, or approve with modifications, the proposed modification where the applicant demonstrates:

- a. The modifications and performance standards included in the proposal lead to levels of protection of critical area functions and values at least as protective as application of the regulations and standards of this code:

Finding: The critical areas report & mitigation planting plan submitted by EnCo Environmental Corporation dated March 5, 2009 demonstrates the critical area functions and values will be improved effectively. The area to be modified has minimal vegetation consisting of lawn. As enhancement native shrub and ground cover will be planted on the property.

- b. Adequate resources to ensure completion of any required mitigation and monitoring efforts:

Finding: An assurance device in the amount of 100 percent of the cost of materials and installation labor for preparing and planting the site per the revegetation plan will be required. See Conditions of Approval in Section IX of this report regarding the required restoration plan and installation and maintenance security.

- c. The modifications and performance standards included in the proposal area not detrimental to the functions and values of critical area and critical area buffers off-site

Finding: The proposal will not be detrimental to the shoreline and shoreline buffers offsite. As stated in the critical area report, dated March 5, 2009, installing native vegetation in a 283 square foot area currently maintained as lawn in exchange for reducing the shoreline structure setback in a 205 square foot area will increase the critical area function by improving habitat and drainage water quality.

- d. The resulting development is compatible with other uses and development in the same land use district.

Finding: The proposal is compatible with other uses in the area. The properties in the area are developed with residential or utility uses.

20.25H.119 Critical areas report – Additional Provisions.

Modifications to the shoreline critical area buffer which would reduce the buffer to less than 25 feet shall establish by survey the site's ordinary high water mark, notwithstanding any other provision of this par or Part 20.25E.LUC:

Finding: The critical area buffer is not being reduced and will be maintained at 25 feet.

Land Use Code Decision Criteria LUC 20.30P.140

- a. The proposal obtains all other permits required by the Land Use Code; and

Finding: The applicant has already applied for necessary single family addition permit.

- b. The proposal utilizes to the maximum extent possible, the best available construction and design & development techniques which result in the least impact on the critical area and critical area buffer; and

Finding: The applicant will adhere to all applicable performance standards of the Land Use Code.

- c. The proposal incorporates the performance standards of Part 20.25H to the maximum extent applicable, and;

Finding: Section 20.25H does not contain specific performance standards related to shoreline buffers.

- d. The proposal will be served by adequate public facilities including street, fire protection and utilities; and

Finding: The site is adequately served by existing public facilities.

- e. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC Section 20.25H.210; and

Finding: The applicant will be required to implement the site restoration plan sheet L1, dated March 2, 2009.

- f. The proposal complies with other applicable requirements of this code.

Finding: As conditioned and discussed in this report, the proposal complies with all applicable code requirements including, Critical Areas Report requirements, Critical Areas Land Use Permit decision criteria, Shoreline Substantial Development decision criteria.

VIII. CONCLUSION AND DECISION

After conducting the various administrative reviews associated with this proposal, including applicable Land Use consistency, City Code, and standard compliance reviews, the Director of Development Services Department does hereby **approve with conditions**, the proposed reduction in the shoreline structure setback from 25 feet to approximately 19 feet in order to construct a deck within a 203 square area of the shoreline structure setback.

A Critical Areas Land Use Permit modification automatically expires and is void if the applicant fails to file for a building permit or other necessary development permits within one year of the effective date of the approval pursuant to LUC 20.30P.150.

IX. CONDITIONS OF APPROVAL

- A. The following conditions are imposed under authority referenced:

Compliance with Bellevue City Codes and Ordinances.

The applicant shall comply with all applicable Bellevue City Codes, Standards, and Ordinances including but not limited to:

Applicable Ordinances	Contact Person
Clearing and Grading Code- BCC 23.76	Drew Folsom, 425-452-4441
Land Use Code- BCC Title 20.25H	Drew Folsom, 425-452-4441
Noise Control- BCC 9.18	Drew Folsom, 425-452-4441

- B. **General Conditions:**

The following conditions are imposed under the Bellevue City Code Referenced:

- 1. **Rainy Season Restrictions:** Due to the proximity to a West Lake Sammamish, no clearing and grading activity may occur during the rainy season, which is defined as November 1 through April 30 without written authorization of the Development Services Department. Should approval be granted for work during the rainy season, increased erosion and sedimentation measures, representing the best available technology must be implemented prior to beginning or resuming site work.

Authority: Bellevue City Code 23.76.093.A,
Reviewer: Drew Folsom, Development Services Department

2. **Area of Modification:** The modification of critical area is limited to the area depicted on the site plan dated March 2, 2009.

Authority: Land Use Code Section 20.25H.140
Reviewer: Drew Folsom, Development Services Department

3. **Buffer Restoration Plan:** The applicant shall implement the site restoration plan as depicted in sheet L1 and described in section 14 of the Critical Areas Report & Mitigation Planting Plan submitted by EnCo Environmental Corporation dated March 5, 2009. . Any modifications to this plan must be reviewed and approved by the Development Services Department.

Authority: Land Use Code Section 20.25H.210
Reviewer: Drew Folsom, Development Services Department

4. **Monitoring and Maintenance Plan:** The applicant shall implement the monitoring and maintenance plan described in sections 16 and 17 of the Critical Areas Report & Mitigation Planting Plan submitted by EnCo Environmental Corporation dated March 5, 2009. Any modifications to this plan must be reviewed and approved by the Development Services Department.

Authority: Land Use Code Section 20.25H.220
Reviewer: Drew Folsom, Development Services Department

5. **Installation and Maintenance Assurance Devices:** To ensure the proposed plantings are installed and that the five year maintenance and monitoring plan is implemented, the applicant shall post an Installation Assurance Device and a Maintenance Assurance Device prior to building permit issuance. These devices will be released when the applicant demonstrates that the five year maintenance and monitoring plan has been implemented and the restoration successfully established and at the end of five years following implementation.

Authority: Land Use Code 20.25H.260
Reviewer: Drew Folsom, Development Services Department

6. **Noise Control:** Noise related to construction is exempt from the provisions of BCC 9.18 between the hours of 7 am to 6 pm Monday through Friday and 9 am to 6 pm on Saturdays, except for Federal holidays and as further defined by the Bellevue City Code. Noise emanating from construction is prohibited on Sundays or legal holidays unless expanded hours of operation are specifically authorized in advance. Requests for construction hour extension must be done in advance with submittal of a construction noise expanded exempt hours permit.

Authority: Bellevue City Code 9.18
Reviewer: Drew Folsom, Development Services Department

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09-110406-LO
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ATTACHMENTS

- A. Zoning Map/Vicinity Map
- B. Critical Areas Report

**CRITICAL AREA REPORT &
MITIGATION PLANTING PLAN**

**Bortko Residential Property
Deck in Shoreline Structure Setback
2436 West Lake Sammamish Parkway, SE
Bellevue, King County WA**

Prepared for:

Mr. Jim Trueblood
B & T Design and Engineering, Inc.
P.O. Box 595
Issaquah, WA 98027

Prepared by:

**EnCo Environmental Corporation
PO Box 1212
Puyallup WA 98371**

Wildlife and Wetland Biologist: _____

March 5, 2009

Job # WTJK-BortkoBellevue-1



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- FIGURE 4:** CRITICAL AREA BUFFERS AND SETBACK MAP
- FIGURE 5:** AERIAL MAP WITH MITIGATED BUFFER ENHANCEMENT AREA
- FIGURE 6:** STATE PRIORITY HABITAT & SPECIES MAP
- FIGURE 7:** BUFFER ENHANCEMENT: PROPOSED DECK MITIGATION PLANTING PLAN

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TABLES PRESENTED IN REPORT TEXT

- TABLE 1:** Legal Description and Other Characteristics
TABLE 2: Existing Shoreline Characteristics
TABLE 3: Types and Spacing Requirements for the Plantings

TABLES PRESENTED IN APPENDIX B

- TABLE 4:** Plants Characteristics for Replanting Sammamish Lake Shoreline Beach Buffer at Bortko Property



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March 5, 2009

Mr. Jim Trueblood
B & T Design and Engineering, Inc.
P.O. Box 595
Issaquah, WA 98027

**RE: CRITICAL AREA REPORT WITH MITIGATION PLANTING PLAN
Dennis and Trina Bortko Residential Property
Proposed Deck within Shoreline Structure Setback Buffer
2436 West Lake Sammamish Parkway, SE
Bellevue, King County WA**

1.0 BACKGROUND

This Critical Area Report with Mitigation Planting Plan is prepared in response to the September 25, 2008 letter from Mr. Reilly Pittman, Land Planner from the City of Bellevue. The letter presents the necessary steps for obtaining a Critical Areas Land Use Permit (LUC 20.30P) for a proposed new deck within a Shoreline Structure Setback to the Ordinary High Water Mark of Lake Sammamish. **Section 20.25E.017** of the City of Bellevue Code defines Lake Sammamish as a shoreline critical area. This report has been prepared to meet the City of Bellevue shoreline development requirements according to **LUC 20.25H.230** through **LUC 20.25H.270**.

At the request of Mr. Jim Trueblood, who represents Mr. and Ms. Bortko, EnCo Environmental Corporation (**EnCo**) performed a site visit on January 21, 2009 to determine the functions and values on the project site for the proposed wooden deck and to locate a suitable area for future mitigation plantings landward of the Ordinary High Water Mark (OHWM) of Lake Sammamish. Key personnel who worked on this project are presented in **APPENDIX C (SUPPORT DOCUMENTS)**.

2.0 SCOPE OF WORK

The following tasks were performed:

- Performed one visit to the subject property with the landowner to become familiar with the property boundary and proposed project envelope.
- Reviewed City of Bellevue shoreline and critical area regulations.
- Determined the visible characteristics of the shoreline on the project site and adjacent to the site by establishing 3 test plots in representative ecological communities.
- Determined if the proposed structure will negatively impact the existing functions and values of the shoreline and buffer.

- Reviewed a professional land and structure survey that was prepared by B & T Design.
- Prepared a **PHOTOGRAPHIC LOG (APPENDIX B)** depicting the observed landscape features and ecological communities on the project site.
- Prepared a Critical Area Report with Mitigation Planting Plan for the proposed land use change.

3.0 PURPOSE

The purpose for performing the work was to provide documentation to support constructing a 927 square foot wooden deck east of the Bortko dwelling. This new deck will replace an existing 492 square foot deck that will be demolished. This report will be used to determine if it is feasible to construct the new deck as depicted on **FIGURE 7 (BUFFER ENHANCEMENT: PROPOSED DECK MITIGATION PLANTING PLAN)** without negatively affecting the existing functions and values of the shoreline and buffer of Lake Sammamish.

4.0 SCHEDULE AND WEATHER CONDITIONS

Schedule

The project site study was performed by Mr. Jonathan Kemp of **EnCo** on January 21, 2009.

Weather

The weather conditions during the field work consisted of foggy to partly cloudy skies with ambient air temperatures ranging from 32°F to 38°F. According to researched weather data sheets 0.0 inches of precipitation fell during the time period when the field work was performed. The field work was not performed during the growing season.

5.0 SITE DESCRIPTION

Current Land Use

The project site (Parcel A) is currently occupied by a single-family dwelling with attached deck, patio, manicured yard, landscaped amenities, and a bulkhead extending into Lake Sammamish. A recent pictorial view of the subject property is depicted on **FIGURE 3 (AERIAL PHOTOGRAPH – 2008)**.

Site Location

The site is located within the jurisdiction of the City of Bellevue (**VICINITY MAP – FIGURE 1 & PLOT MAP – FIGURE 2**).

Legal Description and Zoning

The **Legal Description and Other Characteristics** of the subject property are presented in **TABLE 1**.

TABLE 1
Legal Description and Other Characteristics

Tax Parcel Identification	Jurisdiction	Address and Current Owner or Taxpayer	Zoning	Size Shape	Legal Lat/Long
Parcel A 1224059046	City of Bellevue	Dennis and Trina Borko 2436 West Lake Sammamish Pkwy, SE Olympia, WA 98501	Urban, single-family high density residential	0.55 acres Polygon	47° 35'16.50"N 122° 6'38.50"W
Total Acres:				0.55	

6.0 CONTINUOUS PROPERTY LAND USE

Property contiguous to the **north** is occupied by a single-family dwelling. Property contiguous to the **east** is occupied by Lake Sammamish. Property contiguous to the **south** is occupied by the City of Bellevue public sewer pumping station and a wooden deck. Property contiguous to the **west** is occupied by a single family dwelling.

7.0 METHODOLOGY

Based on this writers interpretation and understanding the Shoreline Structure Setback modification request presented in **SECTION 8.0** will be in compliance with the City of Bellevue's Critical Area Ordinance, as referenced below.

Ordinance 5681, Chapter 20, Part 20.25E Shoreline Overlay District and Part 20.25H – Critical Areas Overlay District, Section 20.25H.055B; Allowed Use or Development (Expansion of Existing Single-Family Primary Structures) Parts 20.25H.055.C.3.n; 20.25E.080.B, and 20.25E.080.Q.

According to the City of Bellevue regulations mitigation plans designed to mitigate impacts to shorelines, Shoreline Critical Area buffers, and structure setbacks shall meet the requirements as listed below.

A. Mitigation Preference.

Mitigation plans for shorelines and shoreline critical area buffers shall provide mitigation for impacts to critical area functions and values in the following order of preference:

1. On-site, through replacement of lost critical area buffer.
2. On-site, through enhancement of the functions and values of remaining critical area buffer.

3. Off-site, through replacement or enhancement, in the same sub-drainage basin.
4. Off-site, through replacement or enhancement, out of the sub-drainage basin but in the same drainage basin. Mitigation off-site and out of the drainage basin shall be permitted only through a critical areas report.

B. Buffer Mitigation Ratio.

Shoreline critical area buffer disturbed or impacted shall be replaced at a ratio of **one-to-one**.

Discussion

The proposed project will require mitigating measures for the loss of shoreline structure setback. The selected mitigation preference will be: On-site, through replacement of lost critical area buffer by using buffer enhancement.

8.0 BUFFER MODIFICATION

Proposed Land Use Change

The proposed land use change would be to construct a new wooden deck east of the Bortko dwelling.

Requested Modification

The applicant is requesting to modify the 25 foot wide Shoreline Structure Setback to the 25 foot wide Critical Area Buffer of Lake Sammamish by **reducing** the setback and incorporating the conditions specified in **LUC 20.25H.230** through **LUC 20.25H.270**. The applicant wishes to pursue a maximum 6 foot reduction of the 25 foot wide Shoreline Structure Setback.

In this case the standard Shoreline Structure Setback buffer width of 25 feet would be reduced up to twenty four (24) percent down to a minimum of 19 feet from the outer edge of the 25 foot wide Critical Area Buffer as depicted on **FIGURE 7**. This will result in a 205 square feet reduction at **Areas A - C** of the Shoreline Structure Setback of which 90 square feet (**Area C**) is grandfathered from a section of the existing deck which encroaches into the 25 foot structure setback from the outer edge of the 25 foot Critical Area buffer. The new segment of the proposed new deck not grandfathered (**Areas A & B**) consist of 115 square feet.

Rationale

A reduction of the Shoreline Structure Setback for the proposed new Bortko deck should be granted because the expected critical area functions and values on the project site and contiguous to the site are in a severely degraded condition. Severely degraded is defined as heavy residential development with landscaped and manicured lawns, existing bulkheads

and docks, motor boat usage, nuisance animals (such as rats and nutria) and lack of sufficient native emergent, shrub, and tree communities on the shore supportive to the use and protection of native wildlife. The new deck will not further degrade the function and value of the shoreline and buffer. However, to off-set the structure setback reduction mitigation measures (buffer enhancement) will be applied at a ratio of 285 square feet / 115 square feet = 2.5 to 1.

The mitigating measure will include buffer enhancement. Buffer enhancement will provide two positive attributes:

- 1. Buffer Enhancement:** Implementing buffer enhancement planting plan will improve the quality of the shoreline buffer of **Lake Sammamish** by providing a visual screen at the southern property boundary near the OHWM. This will be accomplished by increasing the vegetation structure, density, and diversity by planting several common native species in the buffer as depicted on **FIGURE 7**.
- 2. Habitat Enhancement:** Implementing a buffer enhancement planting plan will provide substantial habitat improvement for natural wildlife in the Critical Area buffer of **Lake Sammamish**.

9.0 TOPOGRAPHY, DRAINAGE, & FLOODPLAIN

Topography

According to readily available maps and professional surveyed contours the land generally trends downward to the east at a grade of up to 18 percent. Generally, the slope ranges from about 1 percent to 2 percent downward to the east within the footprint of the proposed new deck and about 18 percent in the proposed planting plan zone.

The approximate altitude of the project site ranges between about 30 feet to 40 feet above mean sea level for a total relief of about 10 feet over a diagonal distance of 50 feet as measured from the proposed new deck to the lowest elevation at the surface of the lake. The professionally land surveyed elevation contours are present on **FIGURE 7**.

Drainage

Surface Water Input: Surface water does not flow in definable channels with banks on the subject property. Surface water, on the developable portion of the site, occurs directly from precipitation, through ephemeral drainage courses, and as sheet flow from the west. A shallow drainage way is located on property located contiguous to the south of the subject property.

Surface Water Output: Surface water flows eastward, toward Lake Sammamish. Sammamish Lake is located contiguous to the eastern property boundary.

Drainage Basin: The subject property lies in one drainage basin known as the Lake Sammamish Drainage Basin. The surface water outlet of Sammamish Lake flows

northwesterly into Lake Washington via the Sammamish River. During historic times the U. S. Army Corps of Engineers altered the outlet of Lake Sammamish. The Corps dredge the channel of the Sammamish River and installed a weir at the outlet of the lake. The result of this activity was a significant reduction in peak winter water levels of the lake, though non-flood lake levels were largely unaltered.

10.0 REGIONAL & SITE GEOLOGIC SETTING

10.1 Ecological Region

The project site lies in the **Puget Sound Lowland Ecoregion** (2f – Central Puget Lowlands). This region consists of broad rolling lowlands and is characterized by a mild maritime climate and flanks the intricately cut coastline of Puget Sound. It occupies a continental glacial trough and has many islands, peninsulas, and bays in the Puget Sound waterway. The last glacial event occurred approximately 10,000 years to 14,000 years ago when the terminus of the Vashon Stade was in the vicinity of Olympia Washington. The geomorphology of the Puget Sound Region, including the subject property is typified by glacial outwash features (moraines) and drift uplands according to Kruckeberg - 1991. According to researched resources, land forms within this region comprise a system of glacially and fluvially sculptured features. The native subsurface materials are non-glacial deposits, consisting of recent Alluvium from the Holocene period (Qal) containing silt, sand and gravel deposits in present-day stream channels, on flood plains, and on terraces. The area consists of reworked glacial flood deposits and loess. The area may include small alluvial fans and minor mass-wasting deposits that extend onto the flood plain from tributaries.

To be more specific, the morphology of the Lake Sammamish area was formed by continental glaciers that at their maximum extent, likely covered the Issaquah area with over 3,000 feet of ice. As the glaciers retreated, a much larger Lake Sammamish emerged, initially discharging southwards through the present day Issaquah Creek and Tibbetts Creek corridors. The retreating edge of the glacier formed an ice dam preventing flow from exiting to the north, as it does now. Over time, as the ice continued to retreat, the discharge location of the lake shifted temporarily to the northwest to the Eastgate Channel, which is the present-day location of Interstate 90. Large deltas began to form at Issaquah Creek, Tibbetts Creek, and other drainages on the east side of the lake. Eventually, the glaciers receded sufficiently such that meltwater stopped entering the basin, lower elevation discharge pathways to the north along the Sammamish River alignment opened up, and the lake reduced in size to near its present configuration (Nelson 1990).

10.2 Soil Types

Based on limited field inspection and from interpretation of data and maps from the Natural Resources Conservation Service, the original undisturbed primary mapped soil series at the ground surface and down to about 60 inches below ground surface (bgs) on the property have been mapped as indicated below. The soil types are listed below in an approximate order from the most coverage to the least coverage. The studied soils were based on field estimation procedures and were not reviewed by a Soil Scientist.

Everett Gravelly Sandy Loam – King County (EvD)

The soil type mapped on **Parcel A** is classified as being **Everett Gravelly Sandy Loam**. These soils are formed from the parental material of glacial outwash with a component of volcanic ash in the upper part. The annual precipitation is 30 inches to 45 inches and the annual air temperature is 50°F. The frost free period is 180 days. The soil is somewhat excessively drained. The typical profile is a top layer of 17 inches of gravelly sandy loam, underlain by a layer from 17 inches to 32 inches of very gravelly sandy loam, and a layer from 32 inches to 60 inches of very gravelly coarse sand.

11.0 SHORELINE FUNCTIONS AND VALUES

Shoreline **functions** are defined as the physical, chemical, and biological processes that can be attributed to a shoreline ecosystem. Shoreline **values** are defined as the goods and services that benefit human needs when shorelines perform their functions. The functions and values for this project were determined by combining professional opinion with the results of a cursory shoreline analysis. A summary of existing shoreline functions and values is presented in **TABLE 2**. Critical area buffers are depicted on **FIGURE 4 (CRITICAL AREA BUFFERS AND SETBACK MAP)** and on **FIGURE 5 (AERIAL MAP WITH MITIGATED BUFFER ENHANCEMENT AREA)**.

TABLE 2
Existing Shoreline Characteristics

Location	Size (Acres)	Elevation (MSL)	Shoreline Type	Function and Value	Shoreline Buffer Critical Area Buffer Building Setback
Lake Sammamish	>100	30'	Lacustrine System Littoral Subsystem Unconsolidated Shore	Degraded and very limited due to heavy residential development	200' from OHWM 25' from OHWM 50' from OHWM

The field work included collecting limited data from three test plots as listed below:

Plot 1 - Beach Area: Hydrology should be within one foot of the ground surface; soil is gravelly sand with loam; plants include common plantain, hairy cats ear, wild geranium, Agrostis sp., miners lettuce, un-keyed aster, self heal, dandy lion, and un-keyed bunch grass.

Plot 2 - Shore Edge: Hydrology is less than 6 inches from ground surface; soil is silty sand; and plants include Creeping bentgrass, English plantain, Sitka willow, smart weed, yellow iris, and un-keyed obligate pond weed.

Plot 3 - Manicured lawn: Hydrology is greater than one foot from ground surface; soil is silty loam; and plants include domestic grass.

The results of the WDFW Priority Habitat and Species program database search (**APPENDIX E**) on the site and within a distance ranging from about 200 feet to 800 feet of the subject property within the requested Section(s), Township, and Range are depicted on **FIGURE 6**. Priority habitat and species were not identified on or in the near vicinity of the subject site.

12.0 SCHEDULE

The proposed work will not be performed in fish bearing waters or in endangered or threatened species zones, therefore no seasonal restraints will be placed when constructing the new deck. The project is anticipated to start in the early spring of 2009 (March) and should be completed within one week after the starting date.

13.0 SPECIFICATIONS

Best Management Practices for Erosion and Sedimentation Control

Best Management Practices (BMPs) that will aid in protecting surface water quality and the shoreline will include the following:

- Straw bails, silt fencing, and/or filled “socks” will be temporarily installed down slope of the new deck during construction.
- Clean tap water will be sprayed via a hose onto the disturbed ground surface if excessive air borne dust is observed.
- Significant spills or leaks of petroleum hydrocarbons from heavy equipment (if any) will be immediately cleaned up and properly disposed of.

Pre-Installation Procedures

- The landowner will select a nursery and purchase healthy and an adequate supply of the pre-selected plants.

Excavation and Grading

- Heavy equipment will not enter into the OHWM.
- The project will not involve any modification to the shoreline at the interface of land and water.
- Land clearing and demolition activities will be conducted during dry weather in order to minimize the potential for compacting and rutting of soil and to minimize down slope erosion and sediment transport.

- Construction work will be closely monitored by the landowner in order to minimize the negative impact to the shoreline. Trips in and out of the construction zone will be minimized to curtail compaction of soils. Heavy equipment will not enter the shoreline beach area when rainfall exceeds 0.25 inch over a 24 hour period or when surface water is observed at the ground surface.
- Construction activities will occur within the footprints of the structure and plantings. If equipment needs to extend beyond the grading limits the operator will take precautions to not significantly disturb or damage vegetation, soil, or drainage ways.
- Established invasive, nuisance, and non-native plant species will be grubbed out of the mitigated area prior to planting. These soils would be removed from the mitigation area.
- Piles of vegetation debris such as grubbed out invasive and nuisance plants and roots will be temporarily piled greater than 25 feet west of the outer perimeter of the mitigation area. The piles will be removed from the mitigation area within 10 days of plantings.
- Soils will be deconsolidated and amended after grading to a minimum depth of twelve inches below ground surface where shrubs are planted, at least a six inch depth for non-graminoid herbs, and four inches for graminoids. This depth will provide adequate root volume and a sufficient layer of nutrient rich soil to enhance plant growth for all stratum. This task may be performed by employing mechanical means such as rototilling or hand shoveling.

Installation

See **SECTION 14.0**

Post Installation

- A permanent wood or metal sign will be installed with the text: "*Protection of this natural area is in your care. Alteration of disturbance is prohibited by law.*" The sign shall be posted at the outer perimeter of the mitigation area.
- Construction-related damage to the shoreline, if any, will be repaired within 10 days of completion of the project.
- A final inspection may be made by the City to verify that all plants have been installed according to design specifications and are in good health.
- The silt/sediment fence or hay bails will be removed after construction.
- Post installation requirements will include meeting the goals and objectives presented in the Performance Standards, Monitoring Plan, and Contingency Plan.

Maintenance

- Weeding will be done as soon as they emerge in the spring, twice in the summer, and once in the fall or winter.
- Watering will start June 1st or sooner during dry weather and continue until steady rain occurs (> 0.1 inch).
- Mulch depth will be checked each spring. Re-applying the mulch layer will be done in the summer or fall as needed.
- Monitoring will begin in the fall 2009 and will be performed twice per year for up to five years.

Reporting

- Field conditions may differ slightly from design criteria. Where field conditions require minor change to the layout presented on **FIGURE 7**, those changes must be documented by the landowner and verbally approved by the site biologist.
- Additional documentation recording the success of the plantings may be needed depending on regulatory agency review.

Other factors for a successful shoreline buffer enhancement project are presented in **APPENDIX D**.

14.0 PLANTING PLAN

The intent of the buffer enhancement is to create a small shoreline buffer community enhanced with native species and structural diversity. The selected native plants will create a natural ecological system that is not typical of the disturbed shoreline. The vegetation selected will provide, over time, a well-matured natural buffer to the shoreline at the south property boundary.

Attributes used for selecting plant species include hydrologic requirements, wildlife support functions, water quality improvement capabilities, shade tolerance, hardiness, structure, size (length and width), nutrient value, and aesthetic appeal.

This project will rely to some degree on natural re-vegetation as allowed in the Performance Standards. Natural re-vegetation will help to re-establish native vegetation. Locally-adapted plants will be purchased from a local nursery specializing in native Washington vegetation.

Highlights

- The approximate dimensions of the buffer enhancement area is 26 feet long (east to west) by 11 feet wide (north to south)

- Plants selected for this project will be healthy, free of disease, and indigenous to King County. Plants were selected to be able to grow in the USDA hardiness zone 8A (10° to 15° F).
- Plantings will not be placed east of the OHWM of Lake Sammamish.
- The plantings and all watering activities will be supervised and performed by the landowner.
- Plant species will be planted in a landscape position suitable to shade, sun, and moisture requirements of the plants as directed by the plant supply company.
- Planting locations and species will be labeled in the field with color-coded markers as specified on **FIGURE 7** prior to any planting.
- Planting is recommended October 1 through March 30. Vegetation will not be planted in the summer months or when rain events exceed 0.25 inch in a 24 hour period.
- Plantings will follow the size, type, design, spacing, and layout as presented on **FIGURE 7** and will not be placed east of the OHWM.
- Bare root, containerized, balled, or burlapped planting material would be used depending on the where the plant is obtained, species, time of year, and plant availability. Bare rooted plants will not be placed in anaerobic soils and will be planted in the dormant season.
- Planting hole widths will be dug approximately twice as large as the diameter of the root ball diameter. Plant holes will be dug out using a shovel. Planting hole depths will be dug between four to six inches below the root mass. Surplus soil will be raked evenly about the plantings so as not to restrict water flow or to alter the elevations significantly. Care will be taken not to mound soil around the base of each plant. The soil will be packed lightly to minimize air pockets around the roots.
- The substrate for dug holes will consist of approximately 2/3 mineral soil mixed with approximately 1/3 organic-rich soil. Graded topsoil on the subject property or purchased topsoil will be used as the base material for surface substrate prior to installation of mulch. The soil used as the substrate should consist of fertile loam.
- Fine sandy to silt loam soils and silty clay loam soils normally have adequate nutrients, are soft and friable, provide good water and gas circulation, and have moderate texture to support new plants and to permit root and rhizome penetration. Gravelly soils will **not** be used as a substrate because of its hardness, compactness, lack of nutrients, and low water holding capacity.
- Using store purchased sterilized topsoil should be favorable for native plant establishment. Peaty soils are generally nutrient deficient and their soft, loose texture

will not anchor new plantings. This characteristic may cause plantings to float out or fall over. Peaty material in the upper twelve inches must be mixed with other suitable mineral soils. Peaty soils will not exceed 1/3rd of the substrate in the upper twelve inches. Topsoil will **not** be used from areas impacted with over 10% invasive and noxious plants.

- Plants will be planted erect and will be staked if over 4 feet tall. Ray Leach Tubes may be used for some of the emergent plants such as the graminoid and herbaceous plants. The 10 in³ Ray Leach Tubes are 1.5 inches wide by 8 inches long.
- If invasive or nuisance plants are identified by future growth in the topsoil the top three inches of soil will be removed to minimize colonization of invasive graminoid, rhizome-producing, species and other invasive, shallow-rooted plants.
- On-site wood chips, saw dust, leaf debris, peat, topsoil, or other suitable material may be used to attain surface moisture. The mulch layer in the buffer enhancement area will consist of about three-inches of organic (45%) mulch. The mulch will be carefully placed over the planting surface substrate in the enhancement area.
- A circular sheet of landscaping cloth may be placed at the base of sensitive herbs to minimize intrusion of invasive, nuisance, or non-native plants.
- Invasive, nuisance, or non-native plants will be trimmed or grubbed out as needed, extending to the drip line of each plant, up to a three feet radius.
- Shade dependent plants will not be placed in direct sunlight, where possible. The canopies of many of the selected taller plants will (over time) provide natural shade to the shade tolerant plants.
- The types and spacing requirements for the plantings are listed in **TABLE 3**. Information pertaining to additional characteristics of the plants is presented in **TABLE 4** in **APPENDIX B**.

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TABLE 3
Types and Spacing Requirements for the Plantings

Number of Plants	Plant ID	Common Name <i>Scientific Name</i>	Spacing on Center	Height of New Plant	Type of Container
2	ROD	Red osier dogwood <i>Cornus sericea (stolonifera)</i>	8'	3-5'	Pot – 1'
2	SB	Salmonberry <i>Rubus spectabilis</i>	4'	2-4'	Pot – 1'
3	NR	Nootka rose <i>Rosa nutkana</i>	4'	2-4'	Pot – 1'
3	WCR	Wild clustered rose <i>Rosa pisocarpa</i>	4'	2-4'	Pot – 1'
3	PWL	Pacific waterleaf <i>Hydrophyllum tenuipes</i>	1.5'	.5-1'	Pot – 6"
8	FLV	False lily of the valley <i>Maianthemum dilatatum</i>	0.5'	.2'	Pot or flat – 6"
22	FSS	False Solomon's seal <i>Maianthemum racemosum</i>	1'	.2'	Pot or flat – 6"
43	BF	Blue fescue <i>Festuca glauca</i>	.8'	.2-.5'	Flat – 6"

Irrigation

Irrigation will be required during the first one or two growing season summers after the plantings have been installed. After this time it is likely that the plantings will have established sufficient root systems to permit survival through the dry season. Under dry conditions, at least one inch of water per week will be delivered to all plantings from July 1 through October 1 for the first and perhaps the second year.

Fertilizer

Fertilizers, herbicides, and other toxic chemicals will not be applied to the buffer enhancement plantings.

15.0 PERFORMANCE STANDARDS

Performance standards are measurable and quantifiable indicators of mitigation performance relative to goals and objectives. The overall success or failure of the project will be determined by routine monitoring. Annual mid-fall monitoring will be used for documenting general hydrologic conditions, soil moisture and color, and vegetation survival, density, and cover as defined in the performance standards. The proposed performance standards for the enhanced buffer is presented below:

- ◆ Plantings shall be monitored by the landowner for a period of up to five years consistent with this planting and monitoring plan.
- ◆ 80% survival throughout the life of the monitoring period (5 years).
- ◆ Cover for woody shrub vegetation should be at least 50% by year three and 85% by year five.
- ◆ Small planted areas (less than 500 square feet to 1,000 square feet) will have a diversity of at four native shrub species and four native groundcover or low cover species.
- ◆ Invasive species shall be represented by less 10% aerial cover in the enhanced area during the monitoring period. Invasive plants include those listed in the 2004 Washington State Shoreline Rating System for Western Washington – Page 79. These plants would be identified and the percent of aerial coverage would be estimated by the landowner during each monitoring period.
- Desirable native volunteer shrubs and trees such as willows, alders, dogwoods, etc. may count for up to 20% of cover in any stratum. Where desirable native volunteers cover more than 20% of any stratum, a contingency plan should be created and implemented to restore the mitigation site to the designed level of diversity.

16.0 MONITORING PLAN

This SECTION outlines the approach for monitoring the outcome of the completed project. A Monitoring Plan may be required by the City to assess the quantitative performance standards. If required, the landowner will prepare all monitoring reports. A Monitoring Plan may be implemented to:

1. Document milestones
2. Assess if the buffer enhancement mitigation project is achieving the designed functional goals and objectives
3. Identify any maintenance requirements and/or contingency actions
4. Document compliance with regulatory requirements and to keep regulatory agencies informed about the site's status

If required, the first monitoring report will provide the baseline for measuring the success or failure of the project over time. One annual monitoring report may be prepared for a period necessary to establish that the performance standards have been met, but not for a period less than five years or until performance standards have been met.

One permanent monitoring station would be established in the enhanced buffer. The monitoring station will be marked by installing a permanent metal or wood post. The station will be used for taking compass oriented photographs (north, east, south, and west) to evaluate vegetation community vigor, response, aerial cover, and density over time.

Monitoring reports (if required) would contain sections on vegetation composition, growth, stress indicators, survival, density, cover, wildlife, snags, woody debris, soil conditions, water quality (visual appearance), and information pertaining to the overall success or failure of the project. General hydrologic conditions will be monitored by observing flow patterns of water pathways, inundation, groundwater depth, drainage ways, channels, high water marks, and drift lines. In addition, the monitoring plan will establish a protocol outlining how the monitoring data will be evaluated by agencies that may be tracking the progress of the mitigation project.

The following monitoring techniques will not be performed unless it is determined at a later date that some or all of the techniques are needed to attain the functional goals and objectives of the mitigation project:

1. Sampling and testing of soil, groundwater, and/or surface water
2. Measuring base flow rates and stormwater runoff to model and evaluate water quality predictions
3. Measuring sedimentation rates
4. Sampling wildlife populations to determine habitat utilization, species abundance, and diversity

The annual monitoring reports may be prepared according to the following schedule:

1. Within 60 days of project completion (May 30, 2009)
2. End of the first growing season (October 2009)
3. End of the second growing season (October 2010)
4. End of the third growing season (October 2011)
5. End of the fourth growing season (October 2012)
6. End of the fifth growing season (October 2013)

17.0 MAINTENANCE PLAN

Irrigation

Under dry conditions, at least one inch of water per week will be delivered to all plantings from July 1 through October 1 for the first year and perhaps the second year. Under dry conditions these replanted plants must be watered at least 1 inch of water per week until they are capable of growing on their own.

Invasive Plants

Invasive, nuisance, and non-native plant material (i.e. reed canary grass, milfoil) will be controlled in the mitigated area to levels presented in the performance standards. This task will be completed twice per year throughout the five year monitoring period. Weeding would be accomplished by hand or tool pulling, grubbing, trimming, and/or mowing with light equipment. Selective herbicides should be avoided, however, if needed, must be approved in advance by the governing agency. Invasive, nuisance, and non-native plants will be trimmed out of the mitigation areas and more specifically beyond the drip lines of planted

vegetation. Weeded plants would be bagged and removed from the premises to prevent re-seeding.

The plants considered nuisance or invasive include those listed in the 2004 Washington State Shoreline Rating System for Western Washington – Page 79. The listed plants in the referenced document include Canadian thistle, evergreen blackberry, Himalayan blackberry, Japanese knotweed, giant knotweed, garden loosestrife, purple loosestrife, European milfoil, reed canary grass, common reed, and salt cedar. In addition, other nuisance plants to be removed will be creeping buttercup, cutleaf blackberry, English ivy, morning glory, and Scots broom.

Other maintenance responsibilities may include:

- Repairing plant protection devices
- Replacing dead or severely stressed plants each year (as needed) with live plants in November
- Removing excessive sediment from possible high water marks from the lake
- Repairing damaged or missing signs, fences, and posts
- Picking up and disposing of trash
- Repairing damage caused by vandals

Predators

Plants can be protected from herbivores by fencing the planted area, installing wire cages around planted roots and shoots, placing seedlings in plastic tubes, and by installing perch posts to attract birds of prey that feed on animals such as gophers and moles.

18.0 CONTINGENCY PLAN

A Contingency Plan may be required when any monitoring report or evaluation reveals:

1. That the performance standards for the mitigation project has failed in whole or in part
2. The mitigation project is inadequately attaining its goals and objectives
3. That the identified failure is beyond the scope of routine maintenance

The Contingency Plan will identify potential courses of action and any corrective measures to be taken to remedy the identified failure. The landowner may need to work with the regulatory agency to develop a Contingency Plan specific to the identified problem. Contingency Plans can include, but are not limited to: regrading, additional plant installation, erosion control, modifications of hydrology, additional plant installations, and plant substitutions of type, size, quantity, and location. If required, Contingency Plans shall be prepared by December 31st of any year when deficiencies are discovered.

19.0 CONCLUSION

The new deck will not negatively affect the existing function and value of the shoreline because mitigating measures (buffer enhancement) will be implemented in the shoreline

buffer. Several functions will be enhanced by the native plantings such as improving food chain production, habitat quality, vegetation diversity, and biological productivity. Several values will be enhanced by improving aesthetics and by expanding a limited resource (native shrub and emergent plants).

20.0 REFERENCES

Reference Books and Documents

- Bertauski, Tony, Trident Technical College, Pearson Education, Inc., Prentice Hill, New Jersey, Plan Graphics for the Landscape Designer, 2003.
- City of Bellevue, Codes 20.30P and 20.25H, March 3, 2008.
- City of Bellevue, Critical Areas Handbook: Restoring, Enhancing, and Preserving, 120 pages, 2007.
- Nelson, Erin and Derek Booth, Sediment sources in an urbanizing, mixed land-use watershed, *Journal of Hydrology*, Volume 264, Issues 1-4, July 30, 2002, pages 51-68.
- Cooke, Sarah Spear, A Field Guide to the Common Wetland Plants of Western Washington and Northwestern Oregon, 417 pages, 1997.
- Pojar, Jim and Andy MacKinnon, *Plants of the Pacific Northwest Coast: Washington, Oregon, British Columbia, and Alaska*, 528 pages, 1994.
- Porter B. Reed. Jr., U.S. Department of the Interior, Fish and Wildlife Service, *National List of Plant Species That Occur in Wetlands: Northwest (Region 9)*, 1988, 89 pages, Updated 1993.
- Upstream Enterprises Environmental Consulting, Seattle WA, *Basic Tenets of Mitigation Design*, April 2, 2001.
- Washington Department of Ecology, Lacey WA, *Threatened and Endangered Species System List for Washington*, 2004.

Maps, Diagrams, and Photographs

- King County GIS. Downloaded 2009.
- United States Department of Agriculture, Natural Resource Conservation District, Soil Conservation Service, *Soil Survey of King County*, Aerial photograph with plotted soil descriptions.

Support Documents (Appendix D)

King County Parcel Data Sheets

Department of Fish and Wildlife Letter – December 24, 2008

Washington State Department Natural Resources Letter – December 22, 2008

Washington Department of Fish and Wildlife Priority Habitats and Species Polygon
Cross Reference Report in the Vicinity of T24R05E Section S12

City of Bellevue Letter – September 25, 2008

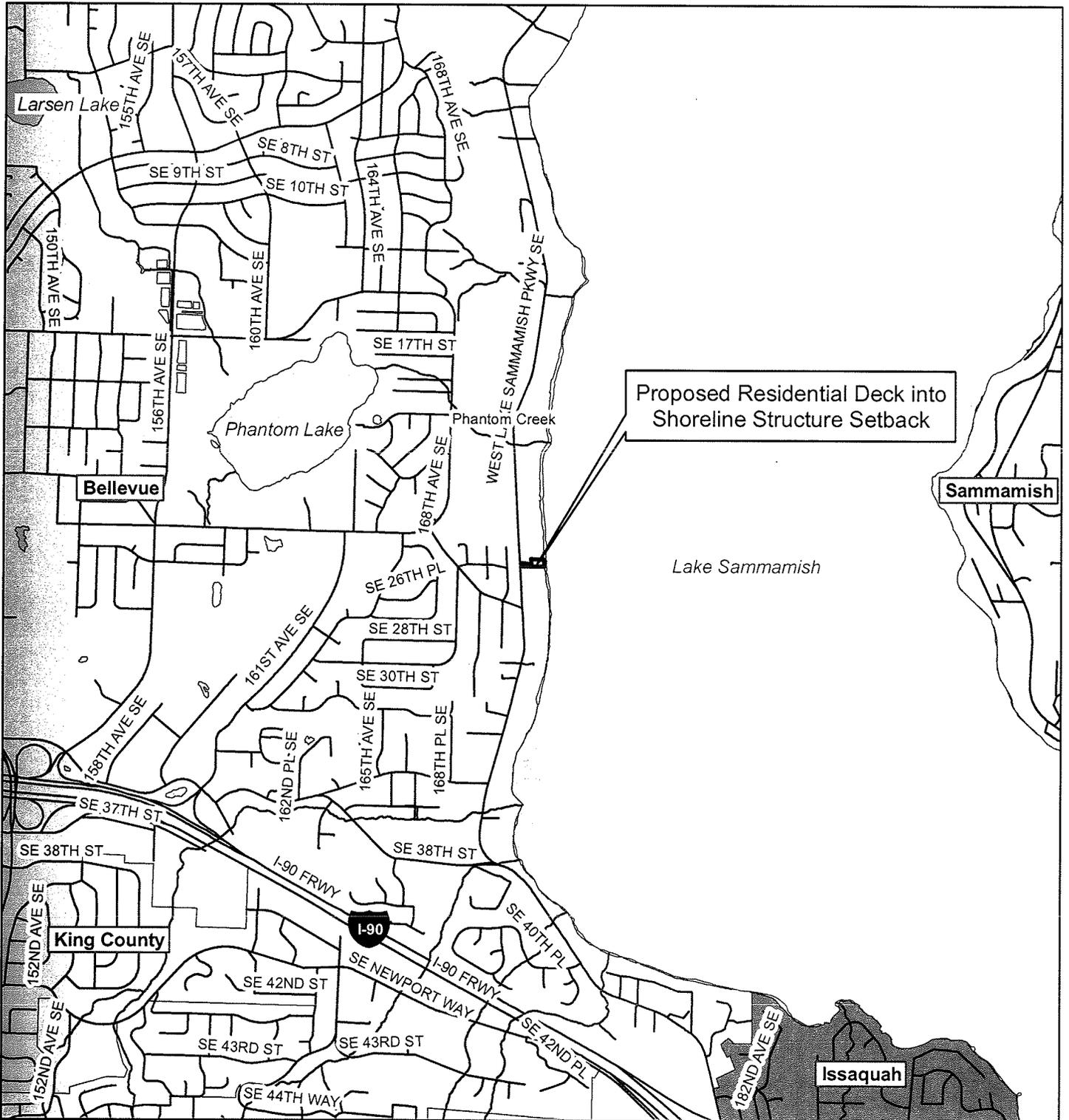
Factors for a Successful Wetland Buffer Enhancement

Resumes



APPENDIX A

Figures



Proposed Residential Deck into Shoreline Structure Setback

Sammamish

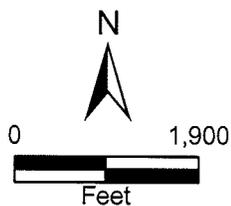
Lake Sammamish

King County

Issaquah

Legal: NWQ, S12, T24, R5
 Total Acreage: 0.55 acres
 Jurisdiction: City of Bellevue
 Coordinates: 47° 35'16.50"N 122° 06'38.50"W

- Legend**
- Roads
 - Streams
 - Site
 - Waterbodies
 - Bellevue
 - Issaquah
 - King County
 - Sammamish



Sources: King County GIS

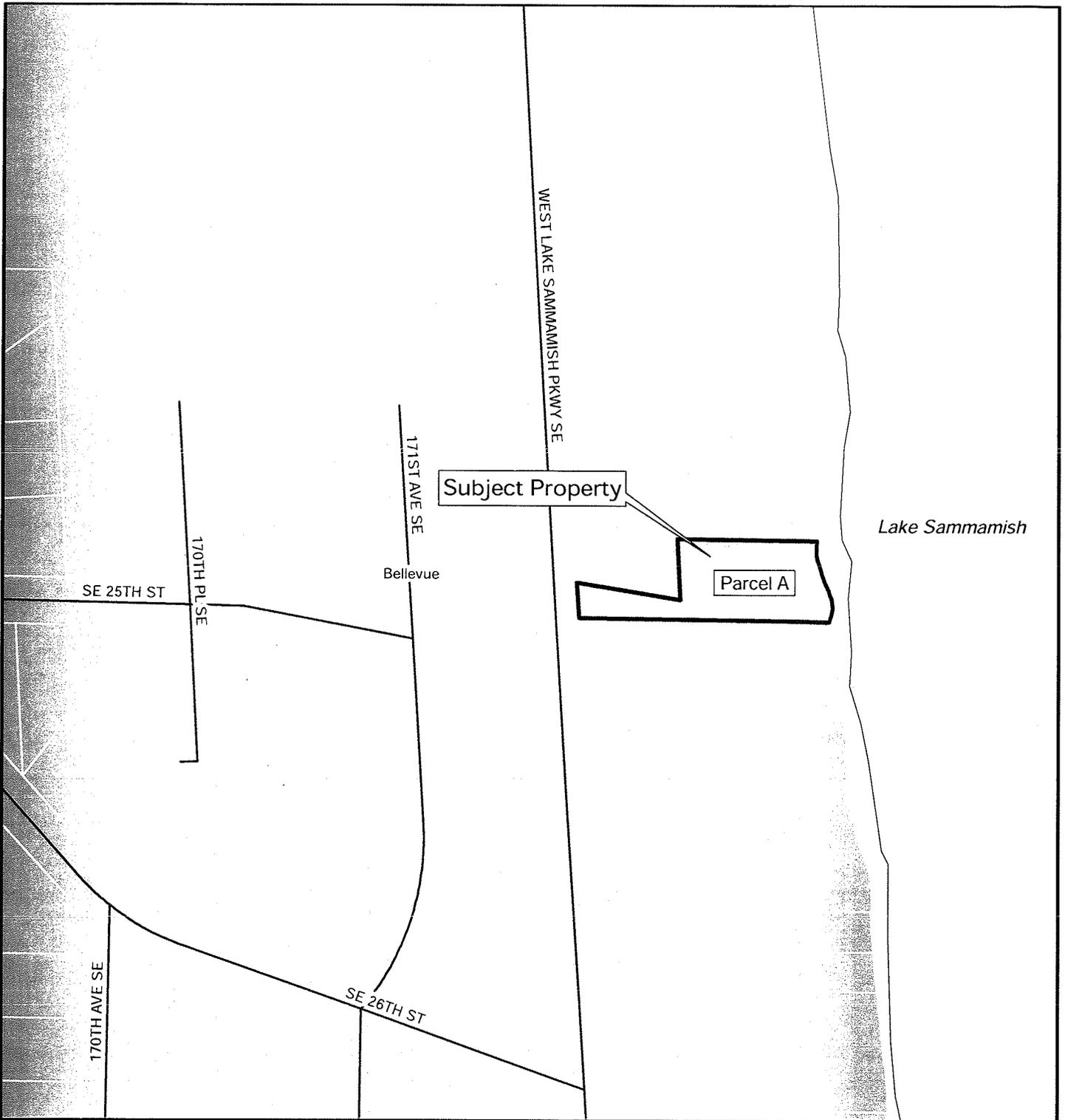
Vicinity Map

FIGURE 1

Proposed Residential Deck into Shoreline Structure Setback
 2436 West Lake Sammamish Parkway
 Bellevue, King County, 98088



PO Box 1212
 Puyallup WA 98371
 Telephone: 253.841.9710
 Fax: 253.841.0264
 www.encoec.com



Parcel #: 1224059046 (A)

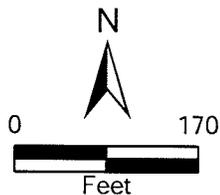
Plot Map

FIGURE 2

Proposed Residential Deck into Shoreline Structure Setback
 2436 West Lake Sammamish Parkway
 Bellevue, King County, 98088

Legend

- | | | | |
|--|-------------|--|-------------|
| | Site | | Bellevue |
| | Roads | | Issaquah |
| | Waterbodies | | King County |
| | Parcels | | Sammamish |
| | Streams | | |



Sources: King County GIS

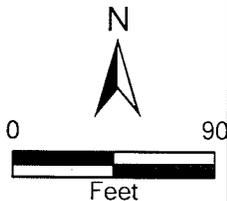


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Legend

 Site



Aerial Photograph - 2008

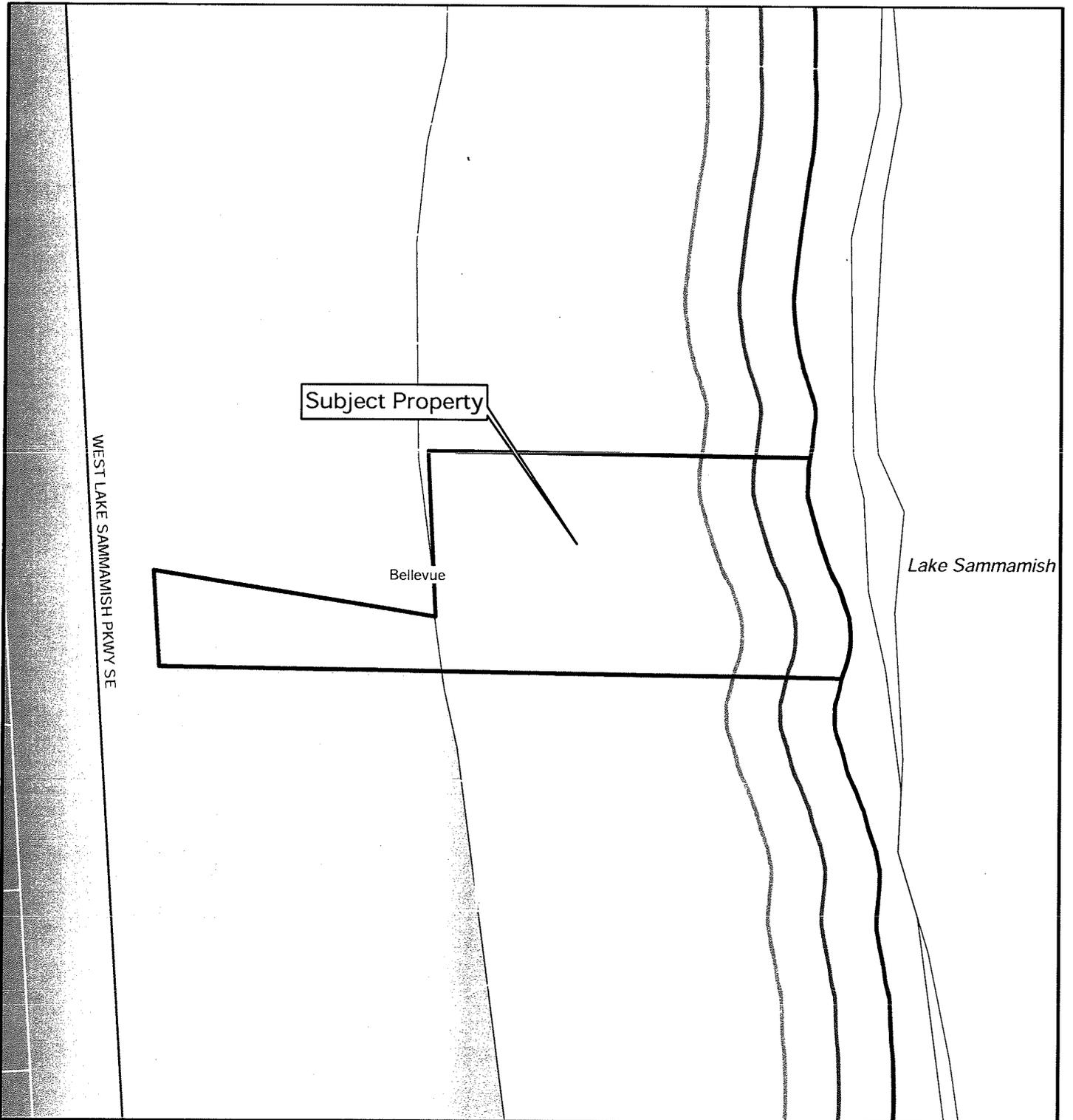
FIGURE 3

Proposed Residential Deck into Shoreline Structure Setback
 2436 West Lake Sammamish Parkway
 Bellevue, King County, 98088



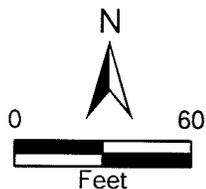
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Sources: King County GIS & Google Earth



Legend

-  Site
-  Parcels
-  Roads
-  Bellevue
-  Waterbodies
-  Shoreline Buffer 0' - 200'
-  Ordinary High Water Mark
-  Critical Area Buffer, 0' - 25'
-  Shoreline Structure Setback, 25' - 50'



Critical Area Buffers and Setback Map

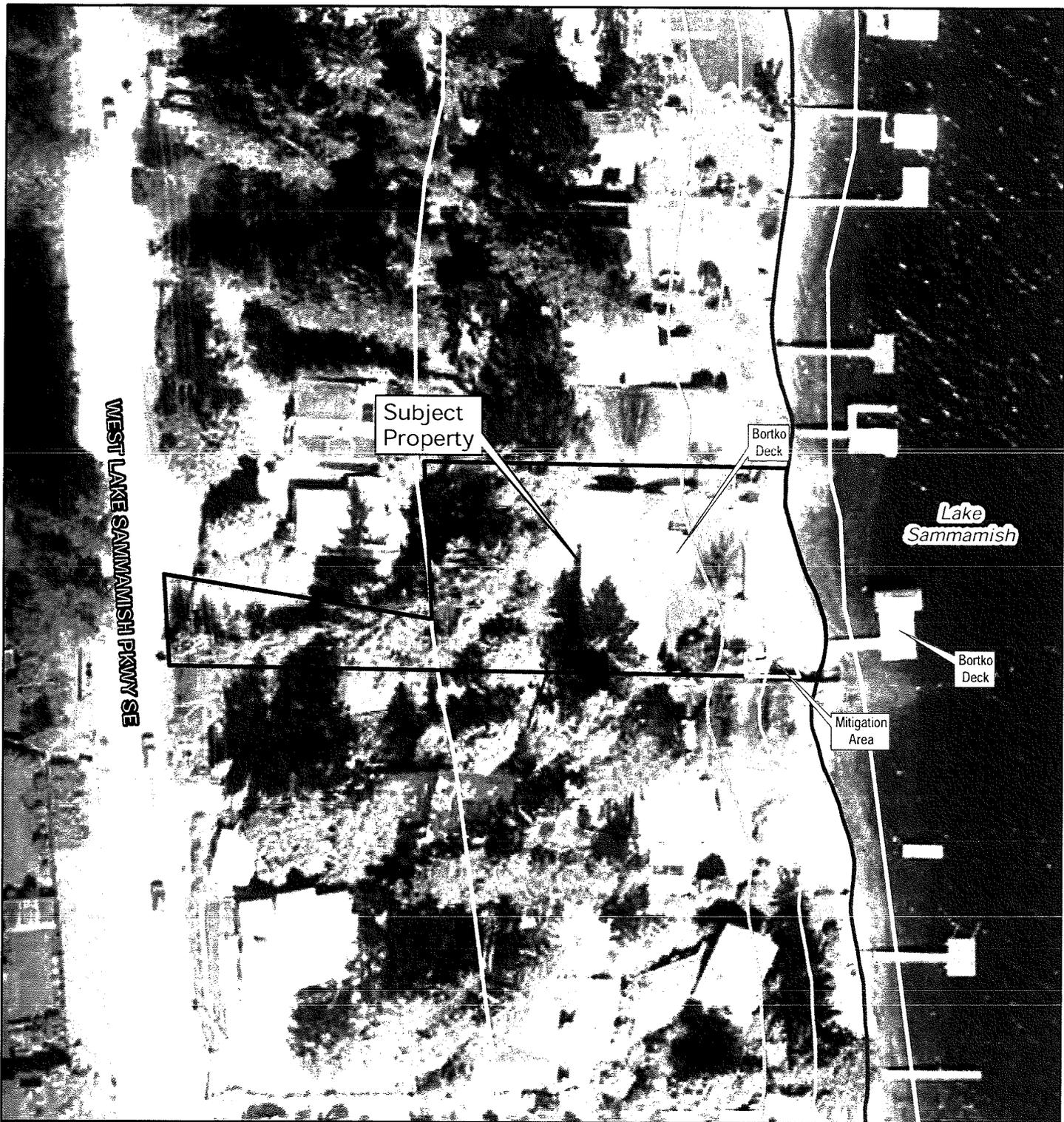
FIGURE 4

Proposed Residential Deck into Shoreline Structure Setback
 2436 West Lake Sammamish Parkway
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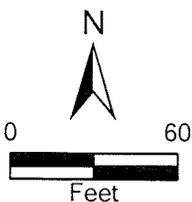
Sources: King County GIS



Legend

-  Site
-  Shoreline Buffer 0' - 200'
-  Mitigation Area
-  Ordinary High Water Mark
-  Critical Area Buffer, 0' - 25'
-  Shoreline Structure Setback, 25' - 50'

Sources: King County GIS & Google Earth 2008



Aerial Map with Mitigated Buffer Enhancement Area

FIGURE 5

Proposed Residential Deck into Shoreline Structure Setback
 2436 West Lake Sammamish Parkway
 Bellevue, King County, 98088



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APPENDIX B

Tables

TABLE 4 Plant Characteristics for Replanting Sammamish Lake Shoreline Beach Buffer at Bortko Property										
Bortko Property – Bellevue										
ID Figure #7	Plant (Common Name)	Plant (Scientific Name)	Stratum	Max Height	Growth Rate	Indicator Status	Food Source	F & W Habitat	Type & Spacing	Landscape Position
NR	Nootka Rose	<i>Rosa nutkana</i>	Shrub	3'–6'	Rapid	FAC-	Hip, Bud, Seed	Thicket, Cover, Protection	Pot 4'	Upland, dry, sun
WCR	Wild Clustered Rose	<i>Rosa pisocarpa</i>	Shrub	6'	Rapid	FAC	Hip, Bud, Seed, Fruit, Stem, Leaf, Twig, Shoot	Thicket, Cover, Nesting, Protection	Pot 4'	Shoreline edge, moist, sun to part shade
ROD	Red Osier Dogwood	<i>Cornus sericea</i>	Shrub	20'	Rapid	FACW	Fruit, Bud, Shoot, Leaf, Twig, Wood	Thicket, Nesting, Cover, Protection, Browsing,	Cutting Stake Pot 8'	Shoreline edge, moist, shade to part sun
SB	Salmonberry	<i>Rubus spectabilis</i>	Shrub	13'	Moderate	FAC+	Fruit, Nectar, Seed, Leaf, Stem	Thicket, Cover, Protection, Browsing	Pot 4'	Shoreline edge, moist, shade
BF	Blue Fescue	<i>Festuca ovina</i>	Herb	1'	Rapid	FACU	Seed, Stem	Browsing	Pot 0.8'	Upland, dry, sun, well-drained
FSS	False Solomon's Seal	<i>Maianthemum racemosum</i>	Herb	10"–18"	Rapid	FAC-	Flowers, Seeds	Pollination for Bees, Flies, Beetles	Pot 1'	Dry to moist, light shade
FLV	False Lily of the Valley	<i>Maianthemum dilatatum</i>	Herb	6"–1'	Rapid	FAC	Fruit, Leaf	Browsing	Pot 0.5'	Upland, moist, shade
PWL	Pacific Waterleaf	<i>Hydrophyllum tenuipes</i>	Herb	6"–2'	Rapid	None	Roots	Browsing	Pot 1.5'	Upland, moist, sun to part shade

Notes:

Upland (dry): Plant these species in the driest areas on shallowly sloped or flat areas with sun or shade as indicated.

Upland – (moist): Plant these species moist soils in low or flat areas with sun or shade as indicated where surface water collects for short periods of time (less than five consecutive days in the growing season).

Shoreline/Wetland Edge (moist): Plant these species with sun or shade as indicated close to the wetland edge (not in surface saturated soil or in open water areas in the growing season).

Shoreline/Wetland (wet): Plant these species with sun or shade as indicated within the footprint of the delineated wetland (with less than two feet of seasonal open water in the growing season).

Type and Spacing: The types of plantings include: seeds, bare root, soil ball, stakes, cuttings, tubes, and pots. Spacing distance for the plantings is measured on center to center.

Food Source: Food sources include: berry, fruit, seed, pod, hips, catkins, buds, nectar, flower, shoot, root, leaf (foliage), bark, wood, stem, and twig.

Fish and Wildlife Habitat: Common types of fish and wildlife habitat include: perching, nesting, roosting, browsing, protection, escape, roaming, cover, thicket, rest, mating, spawning, and rearing.



APPENDIX C

Photographic Log

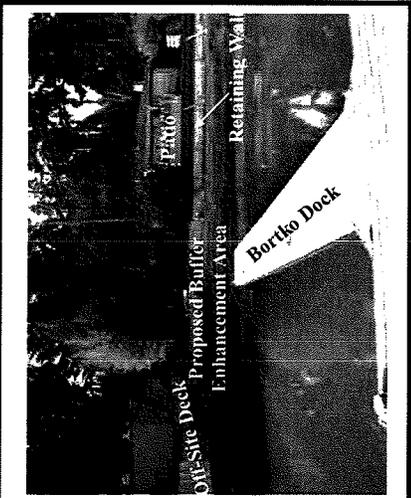


Photo #1
 Facing West
 On-Site (background)
 Lake Sammamish
 (foreground)
 View of Bortko
 residence taken from
 boat dock

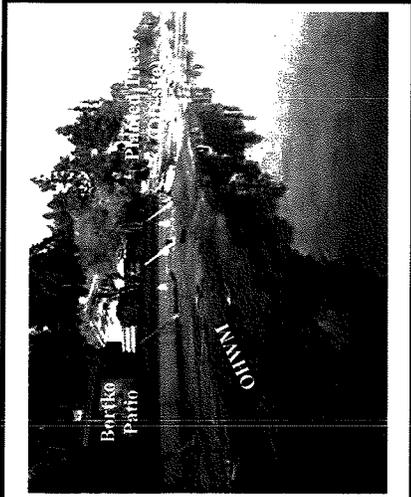


Photo #2
 Facing Northwest
 On-Site
 Beach area
 Note: Trees growing
 in beach on property
 north of site

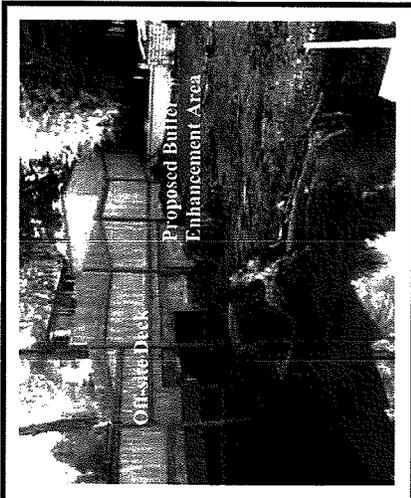


Photo #3
 Facing Southwest
 On-Site
 Fence marks
 Bortko's south
 property line
 Old cedar stumps
 Buffer Enhancement
 area

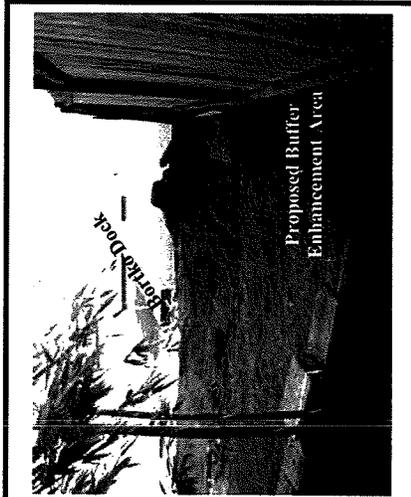


Photo #4
 Facing East
 On-Site
 Lake Sammamish
 Buffer enhancement
 area

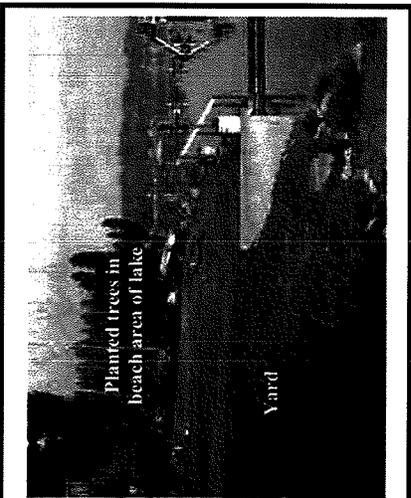


Photo #5
 Facing North
 On-Site
 Bortko's grass yard
 Off-site trees planted
 in beach area
 (Off-site)

ENCO
 Environmental Corporation
 P. O. Box 1212
 Puyallup WA 98371
 Telephone: 253.841.9710
 Fax: 253.841.0264
 Website: www.encoec.com

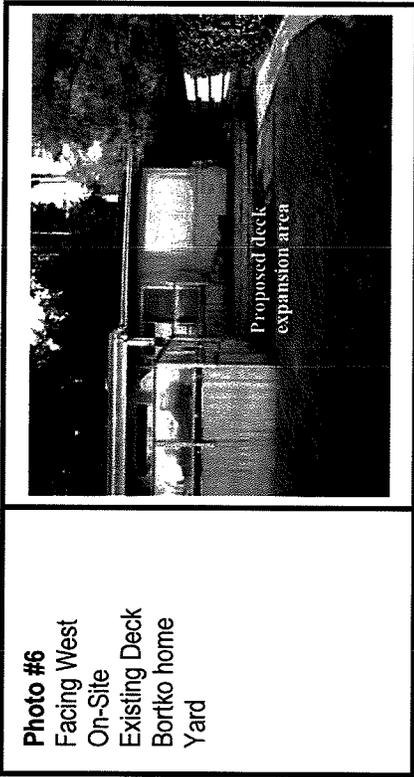


Photo #6
Facing West
On-Site
Existing Deck
Bortko home
Yard

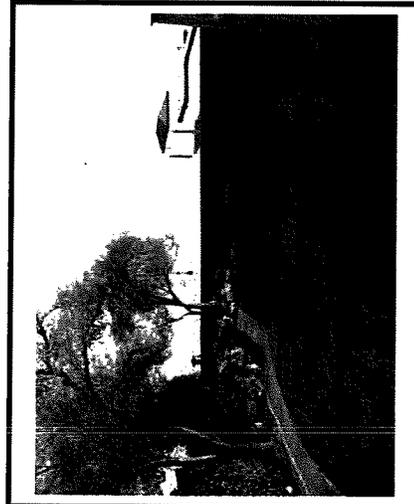


Photo #7
Facing East
On-Site
View from proposed
new deck area
Yard
Lake Sammamish

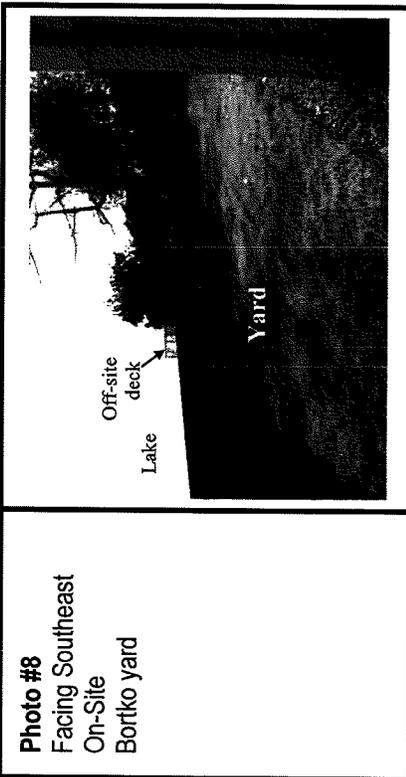


Photo #8
Facing Southeast
On-Site
Bortko yard

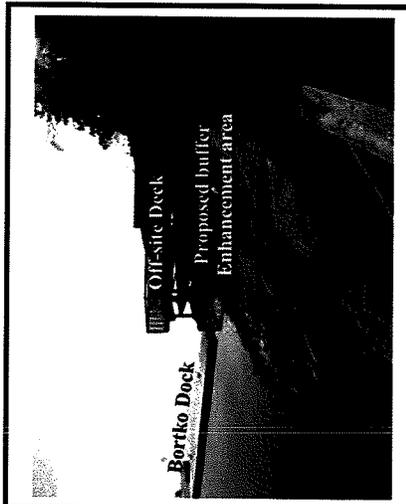


Photo #9
Facing Southeast
On-Site
Beach area

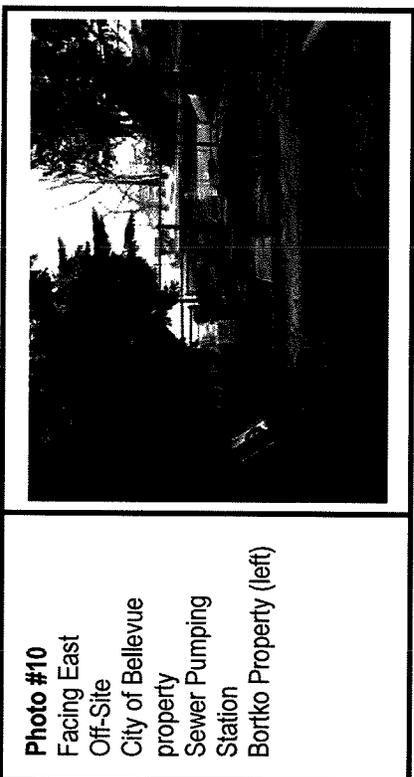


Photo #10
Facing East
Off-Site
City of Bellevue
property
Sewer Pumping
Station
Bortko Property (left)

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