STATE OF WASHINGTON
**DEPARTMENT OF ECOLOGY**

***RESERVOIR***
***REPORT OF EXAMINATION***

TO CONSTRUCT A RESERVOIR AND STORE FOR BENEFICIAL USE
WATERS OF THE STATE OF WASHINGTON

| PRIORITY DATE | APPLICATION NUMBER | PERMIT NUMBER | CERTIFICATE NUMBER |
|---|---|---|---|
| December 13, 2007 | R1-28527 | | |

NAME
The Highlands, Inc.

| ADDRESS (STREET) | (CITY) | (STATE) | (ZIP CODE) |
|---|---|---|---|
| 1000 2nd Avenue, Suite 1200 | Seattle | WA | 98104 |

| NAME OF STREAM OR OTHER SOURCE FOR RESERVOIR SUPPLY | TRIBUTARY OF (IF SURFACE WATERS) |
|---|---|
| Highlands Park well (application no. G1-28511, see associated ground water ROE) | |
| **NUMBER OF ACRE FEET STORED WHEN RESERVOIR IS FULL** | **USE(S) TO BE MADE OF IMPOUNDED WATER** |
| 10 ac-ft maximum (1.25 ac-ft currently planned) | Pond for fish & wildlife maintenance and enhancement, and for recreation purposes |

**LOCATION OF IMPOUNDING STRUCTURE**

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)
SW1/4 of NE1/4 of Section

| SECTION | TOWNSHIP N. | RANGE, (E. OR W.) W.M. | W.R.I.A. | COUNTY |
|---|---|---|---|---|
| 13 | 26N | 3E | 8 | King |

LEGAL SUBDIVISIONS OF LANDS IN WHICH THE SUBMERGED AREA IS TO BE LOCATED

Real Property situated in the County of King, State of Washington: Lot "E" of city of Shoreline Boundary Line Adjustment (BLA) No. SHLA 2007-05, recorded under recording number 20070423900002 SD BLA, records of King County, Washington, located in the south half of the northeast quarter, Section 13, Township 26 North, Range 3 East, Willamette Meridian.

The proposed pond is located in the south-central portion of Lot "E" (Parcel 132603-9090) and the source well is located in the northern portion of adjacent Lot "H2" (Parcel No. 132603-9003), both owned by The Highlands, Inc. (see Figure 1).

**LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED IF DIFFERENT THAN ABOVE**

Same description as above.

**CONSTRUCTION OF IMPOUNDING STRUCTURE**

**Note: NOPL means Normal Operating Pool Level**

| HEIGHT OF DAM (FEET) | LENGTH ON TOP (FEET) | WIDTH ON TOP (FEET) |
|---|---|---|
| 19 ft (maximum height of berm above base of pond; current plan is 13 ft) | 280 ft (maximum) | 30 to 50 ft (maximum) |

| SLOPE OF FRONT OR WATER SIDE (Number of feet horizontal to one foot vertical): | SLOPE OF BACKSIDE (Number of feet horizontal to one foot vertical)*: |
|---|---|
| 5:1 up to 2:1 slope | 3:1 up to 2:1 slope |
| HEIGHT OF DAM ABOVE WATER LINE AT NOPL (FEET) | |
| 2 to 4 feet | |

**TYPE OF CONSTRUCTION OF DAM AND CONSTRUCTION MATERIALS**

The pond is not designed with a dam or dike (earth-fill berm around lined pond)

**LOCATION AND APPROXIMATE DIMENSIONS OF SPILLWAY INCLUDING CREST LENGTH**

A small berm spillway has not yet been designed for the pond; however, the main outlet for pond water will be a discharge pipe (see below).

**LOCATION, SIZE AND TYPE OF VALVE AND OUTLET CONDUIT STRUCTURE**

The outlet structure and conveyance is in the process of conceptual design. It may consist of a 4-inch diameter Schedule 40 PVC pipe, which removes water for discharge from a pond depth of about 7 feet. This will regulate the outlet temperature of the discharge to maintain a cool-water source of water that will be released to the Boeing Creek drainage. The currently anticipated discharge rate will be 30 gpm for 2 hours per day, year-round (see G1-25811 ROE). The outlet may consist of either a release of water to the surface or to the subsurface via a shallow infiltration gallery; in either case the release is intended to recharge the stream flow of Boeing Creek.

| NUMBER OF ACRES SUBMERGED WHEN RESERVOIR IS FILLED TO NOPL | MAXIMUM DEPTH (FEET) AT NOPL | APPROX. AVG. DEPTH (FEET) |
|---|---|---|
| 0.5 acre maximum (current plan is 0.25-acre pond including wetland zone around the margin) | 17 ft in application (current plan is 13 ft) | 16 ft in application (current plan is 5 ft) |

**DEVELOPMENT SCHEDULE**

| BEGIN PROJECT BY THIS DATE: | COMPLETE PROJECT BY THIS DATE: | WATER PUT TO FULL USE BY THIS DATE: |
|---|---|---|
| Final design begun in April 2010 | December 31, 2013 | December 31, 2015 |

## RECOMMENDATIONS

It is recommended that a reservoir permit be issued for the storage of 10 acre-feet within a pond. The permit shall issue subject to the following provisions.

## PROVISIONS

1. **Safety**: Although the pond does not require plan approval by the Dam Safety Office because it will not impound more than 10 acre-feet above ground level, it will need to be constructed according to best management practices for safety and elements of geotechnical design. This applies to the inlet, outlet/discharge, conveyance piping, as well as the pond and wetland areas.
2. **Storage**: Storage in the pond shall not exceed 10 acre-feet. The amount of water granted is a maximum limit that shall not be exceeded and the water user shall be entitled only to that amount of stored water within the specified limit that is beneficially used and required.
3. **Allocation**: This authorization allows for filling of the reservoir daily, subject to the authorization of a permit for ground water appropriation. The applicant is advised that the quantity of water allocated for storage by this permit may be reduced at the time of final certification to reflect system capacity and actual storage. Such quantity applied to actual beneficial use under this permit will be calculated on the best information available to Ecology.
4. **Water Right**: A water right certificate shall not be issued until a final investigation has been made.

## FINDINGS OF FACT AND ORDER

Upon reviewing the investigator's report, I find all facts relevant and material to the subject application have been thoroughly investigated. Furthermore, I concur with the investigator that water is available from the source in question, there will be no impairment of existing rights, the purpose of use is beneficial, and there will be no detriment to the public interest.

Therefore, I ORDER approval of Application No. R1-28527, subject to existing rights and the provisions listed above.

You have a right to appeal this action to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this document. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

**To appeal, you must do the following within 30 days of the date of receipt of this document:**

- File your appeal and a copy of this document with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this document on Ecology in paper form - by mail or in person. (See addresses below.) Email is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

| Street Addresses | Mailing Addresses |
|---|---|
| Department of Ecology<br>Attn: Appeals Processing Desk<br>300 Desmond Drive SE<br>Lacey, WA 98503 | Department of Ecology<br>Attn: Appeals Processing Desk<br>P.O. Box 47608<br>Olympia, WA 98504-7608 |
| Pollution Control Hearings Board<br>Environmental Hearings Office<br>1111 Israel Road SW, Suite 301<br>Tumwater, WA 98501 | Pollution Control Hearings Board<br>P.O. Box 40903<br>Olympia, WA 98504-0903 |

*For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov*

*To find laws and agency rules visit the Washington State Legislature Website: http://www1.leg.wa.gov/CodeReviser*

Signed at Bellevue, Washington, this 19th day of October, 2011.

Jerry L. Liszak
Acting Section Manager
Water Resources Program
Northwest Regional Office

REPORT

## BACKGROUND

| | |
|---|---|
| Reservoir Water Right Application #: | R1-28527 |
| Applicant Name: | The Highlands, Inc. |
| Priority Date: | December 12, 2007 |
| Purpose of Use: | Fish and wildlife maintenance and enhancement, and recreation |
| Period of Use: | Continuous |
| Notice of Publication: | July 2 and July 9, 2008 |
| Protests: | One from Seattle Golf Club regarding pumping of ground water (see G1-28511) |
| SEPA Compliance: | Clearing & Grading Permit from the City and SEPA Checklist |

The subject application was submitted to Ecology by The Highlands, Inc., and assigned a priority date of December 13, 2007. The application is for constructing a community pond ("Highlands Park Lake") and to store water within it for use as aquatic habitat for fish and wildlife maintenance and enhancement, and for recreational purposes. The pond will be filled by use of pumped ground water from the Highlands Park well, located approximately 500 feet to the northeast. Water will be conveyed to the pond in a conduit such as a 1.25-inch diameter domestic water line. The well was installed and pump-tested in 2008, and details are included in an associated ground water Report of Examination (application number G1-28511). Information in this reservoir Report of Examination is meant to be supplemented by project descriptions in the associated ground water ROE.

The planning for the pond and surrounding aquatic habitat are still in the conceptual design phase. The pond will be initially filled during the winter time, when ground water and surface water levels are high. Periodic maintenance filling will subsequently take place throughout the year. Figure 1 shows the location of the existing well and the proposed pond and other features. The property near the proposed pond is a former local household dumping area that has been cleared of trees and leveled, with some grassy vegetation. Further land use in the area is described in the ground water ROE.

The applicant provided copies of conceptual design drawings and descriptions from 2007. After further consideration of project needs, the initial design and water-usage plan were modified somewhat and summarized in a memo from the Highlands Park Project to the Department of Ecology (Dunn, 2010). The current plans for this project include a 0.25-acre pond with a fringe of wetland and other vegetated habitat surrounding it. Much of the volume for the pond will be excavated and situated below current grade, with some berms built on the margins. Maximum dimensions as listed in the application and the dimensions from the current design plans are listed on pages 1 and 2 of this ROE, recognizing that the specifications may change somewhat as the design proceeds.

A field site visit was conducted on April 27, 2010, to view the site and conditions around the pond. The only site development to date is clearing of land and some grading to level the surface, in addition to well installation. Two existing mounds of soil exist on the flat surface outside the pond location.

## INVESTIGATION

In considering this application, the investigation included, but was not limited to, research and/or review of:

- Dunn, L. 2010. *Highlands Park Groundwater Right Application G1-28511;* memo for the Highlands Park Project to Jay Cook of Department of Ecology, January 8, 2010.
- Golder Associates. 2008. *Technical Memorandum: Highlands Park Well Completion and Testing;* November 3, 2008, submitted to Washington Department of Ecology on November 12, 2008.
- SAIC. 2009. *Phase 1 Review for The Highlands Water Right Application G1-28511;* Technical Memorandum from Thomas Dubé of SAIC to Jay Cook of Washington State Department of Ecology, Water Resources Program, March 30, 2009.
- Project design, maps, and other documents provided by the applicant.
- Personal communication with Letha Dunn (Highlands Park Project), Jamie Morin (Mentor Law Group), and Michael Klisch (Golder Associates) during a site visit and meeting on April 27, 2010, as well as subsequent communication.

### Geologic Setting

During the site visit, soil at the surface of the pond and wetland area included loose gravel, with some sand and minor fine-grained material. The unconsolidated nature of this material, and the flat graded surface of the site, suggests that this gravel represents fill material. The thickness of this fill material is not known. The geologic map of the area (included in the report by Golder, 2008) shows that Vashon till is present near the surface in the entire area in the vicinity of the pond. Till in this region is compacted and dense, with a wide-range of grain sizes, producing a hard, low-permeability material. If the till is present at or near the surface of the discharge point, and it is not too weathered, it may prevent infiltration from occurring effectively. In this case, the presence of till at the surface may aid rapid lateral surface or near-surface transport of water downslope.

### State and Local Requirements

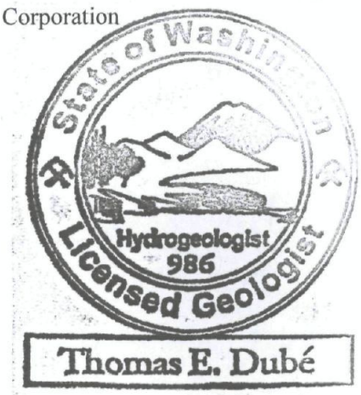
Chapters 90.03 and 90.44 RCW authorize the appropriation of public water for beneficial use and describe the process for obtaining water rights including the process to amend or change existing rights. Laws specifically governing the water right permitting process are RCW 90.03.250 through 90.03.340 and RCW 90.44.060. Changes or amendments to these rights are covered under RCW 90.03.380 and RCW 90.44.100.

Report by:

Thomas Dubé 10-17-11

Thomas Dubé, LHG
Science Applications International Corporation

Date




Reviewed by:

Jay Cook 10-12-11

Jay Cook
Washington State Department of Ecology
Water Resources Program

Date

The pond is not going to impound more than 10 acre-feet above ground level using a dam or dike. Therefore, it is exempt from plan approval by the Dam Safety Office of Ecology.

A Clearing and Grading Permit is required by the city of Shoreline to construct the reservoir. This permitting process is underway and expected to be completed by July 2010. This process is expected to trigger the need for a SEPA environmental checklist to be completed.

## FINDINGS

In accordance with state law, the following considerations must be addressed prior to the issuance of a permit, in addition to addressing any formal protests:

- Water Availability
- Impairment to Existing Rights
- Beneficial Use of Water
- Detrimental to Public Interest

### Water Availability

As stated in the associated ground water ROE, water is available at sufficient capacity from the single installed well located northeast of the pond. The pond will not receive water from any other source, and no surface water drains to the pond. Only rainfall that falls directly on or near the pond area will be captured. The filling period of the pond will take place in the winter during the high-water season. Replenishment of the pond by ground water pumping will take place year-round. Both initial filling and maintenance filling are currently planned for a rate of 30 gpm. Water is available for the requested impoundment at this flow rate.

### Impairment to Existing Rights

As discussed in the associated ground water ROE, there is no recognized impairment to existing rights as a result of this project.

### Beneficial Use

Ground water used for purposes of fish and wildlife maintenance and enhancement, for recreational purposes, and for preservation of environmental and aesthetic values are considered to be a beneficial use for waters of the state under RCW 90.54.020(1).

### Public Interest

No detriment to the public interest could be identified during the investigation of the subject application. Existing wells and surface water diversions in the area are not expected to be impaired by the anticipated operation of the subject well. The design of the pond outlet discharge needs to carefully consider the means of water release to minimize erosion, allow water to reach Boeing Creek (either on the surface or via infiltration and subsurface transport), and comply with needs for safety, aesthetics, and recreational uses of the land. The specific location and design of the discharge point may need to be pilot-tested to assure that the planned volume of discharged water is compatible with the surrounding soil type and slope.

### Protests

During the statutory 30-day protest period, a written protest was received from the Seattle Golf Club (July 31, 2008) regarding extraction of ground water from the same aquifer as some of the nearby Golf Club wells. This is addressed in the associated ground water ROE. No protests were received specifically regarding construction of the reservoir.

## CONCLUSION

In accordance with chapter 90.03 RCW, I find that there is water available for storage from the source in question and that the storage as recommended above will not impair existing rights or be detrimental to the public welfare. The use of ground water proposed to be stored within the pond reservoir was found to meet the above requirements. Therefore, a permit should be issued, subject to the above-indicated provisions.

Selected Exempt Wells
Highlands Park Proposed Infrastructure
Permit
waterline
Pond Reservoir
Property Parcel Boundary
Boeing Creek Subwatershed

N

0 250 500 Feet

0 50 100 Meters

# Figure 1
# Features in Vicinity of Highlands Park Reservoir

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