Beaver Lake LMD Advisory Board
Meeting: 25 April 2013
7:00 – 8:30 pm
Sammamish City Hall
801 - 228th Avenue SE

Agenda:	Approximate Time:
1. Call to Order	7:00 PM
2. Public Meeting Procedure	7:01 PM
3. Environmentally Critical Areas • Lake Management Area • Isolated / small wetland	7:15 PM
4. Public Comment	7:40 PM
5. Adjourn	8:30 PM

NOTE: Public comment is an opportunity for the public to address the Beaver Lake Management District Board. Speakers may address the Beaver Lake Management District Board for up to three minutes. If you are submitting written materials please supply 6 copies. (5 for the Board and one for the record). Public Comment will be recorded and reviewed for further consideration as the Beaver Lake Management District Board formulates recommendations to the City Council.

The City of Sammamish Beaver Lake Management District Board is appointed and is advisory board to the City Council on the implementation of the Beaver Lake Management District (BLMD) program. The BLMD program is based upon the adopted Beaver Lake Management plan. Board members are selected to from the Beaver Lake basin and as many" walks of life" as possible. The actions of the Board are not final decisions; they are in the form of recommendations to City Council who must ultimately make the final decision.

THE BOARD MAY ADD OR TAKE ACTIONS ON ITEMS NOT LISTED ON THIS AGENDA.

Memorandum

Date: April 25, 2013
To: City of Sammamish Beaver Lake Management District Board
From: Evan Maxim, Senior Planner
Re: Public Meeting Procedure

The Beaver Lake Management bylaws do not establish a typical process for allowing public comment on the activities of the Board. The Board has indicated that guidance from the city staff would be useful in establishing a procedure for accepting public comment.

1. The Board shall appoint a Chair Pro Tem for the purposes of running the portion of the meeting associated with public comment.

2. The Chair Pro Tem will be responsible for opening and closing the public comment portion of the meeting, and ensuring that public comment received by the Board follows the approved Public Meeting Procedure.

3. Members of the public who wish to address the Board shall provide their name and address prior to submitting public comment.

4. The Chair Pro Tem will first call members of the public to comment who have signed up on a "Sign Up" sheet, and then shall call for general public comment after all names on the "Sign Up" sheet have been called.

5. Public comments are typically limited to 3 minutes for citizens and 5 minutes for the representatives of a recognized community organization or group.

6. 6 copies of written public comment should be provided to the Board (5 for the Board and 1 for the record).

7. Board members shall accept public comment in a polite manner and shall refrain from discussing or deliberating the subject of the public comments. Board members may ask clarifying questions of members of the public who have provided public comment.

Memorandum

Date: April 25, 2013

To: City of Sammamish Beaver Lake Management District Board

From: Evan Maxim, Senior Planner

Re: Environmental Critical Areas Regulations - Update

Background

The Planning Commission has recently recommended that the City Council adopt a number of amendments to the Environmental Critical Area (ECA) regulations, including amendments that relate to the Lake Management Area protections. The Lake Management Area regulations provide additional water quality protection to Beaver and Pine Lake, in particular related to the control of phosphorous.

The Beaver Lake Management District Board has requested an update from the city on the Planning Commission's recommended amendments to the ECA regulations, as they relate to the protection of the Lake Management Area and Isolated Wetlands.

Lake Management Area

These amendments are generally summarized as follows:

A) Introduce thresholds to trigger stormwater treatment for redeveloped sites and pervious pollutant generating areas (item 3-12).

B) Allowing stormwater treatment technologies that have been tested using Ecology's TAPE protocol and given a General Use Level designation to be incorporated into stormwater treatment systems in the Lake Management Areas (item 3-13).

C) Reference the King County or Ecology manual procedures to size, analyze, and design stormwater treatment BMPs for phosphorus reduction (item 3-14).

Isolated Wetlands

These amendments are generally summarized as follows:

D) Allow reduction of the buffer to 15-feet wide (plus 15 foot building setback) for low quality category III & IV wetlands under 4,000 square feet.
   a. Criteria for authorizing a reduced buffer would include:
   b. Evaluation of whether or not the wetland was part of a wetland mosaic.
   c. Habitat score of less than 15 (as opposed to 20 in item 3-19b).
   d. Mitigation to include enhancement of remaining buffer/wetland or alternative high value area.
   e. No further buffer averaging or reduction.

E) Increase the isolated wetland size exemption from avoidance sequencing for isolated wetlands from 1,000 to 4,000 square feet, provided that the area of impacted wetland does not exceed 2,500 square feet, and is mitigated consistent with the mitigation requirements.

21A.50.355 Lake management areas – Special district overlay.

(1) The purpose of lake management areas is to designate the Beaver Lake and Pine Lake watersheds as special management areas for total phosphorus loading control and to establish standard procedures for evaluating drainage plans and related materials for applications of development within the Beaver Lake and Pine Lake Watersheds (within the East Lake Sammamish drainage basin).

(2) The lake management areas special overlay district shall be designated on critical areas maps maintained by the department of community development.

~~(3) Definitions. In addition to the definitions listed below, all definitions included in the King County Surface Water Design Manual are hereby adopted by reference.~~

~~(a) "AKART" means all known, available, and reasonable methods of prevention, control, and treatment.~~

~~(b) "Eutrophic" means a trophic status characterized by moderately high algal productivity, more serious oxygen depletion in the bottom waters, some recreational use impairment, summer chlorophyll a concentration greater than 10 micrograms/liter, a summer Secchi depth of less than two meters, and a winter total phosphorus concentration greater than 20 micrograms/liter.~~

~~(c) "Hypereutrophic" means a trophic status characterized by high algal productivity, intense algal blooms, fish kills due to oxygen depletion in the bottom waters, frequent recreational use impairment, summer chlorophyll a concentration greater than 10 micrograms/liter, a summer Secchi depth generally less than two meters, and a winter total phosphorus concentration greater than 30 micrograms/liter.~~

~~(d) "Lake management plan" means the plan (and supporting documents as appropriate) describing the lake management recommendations and requirements.~~

~~(e) "Mesotrophic" means a trophic status characterized by moderate algal productivity, oxygen depletion in the bottom waters, usually no recreational use impairment, summer chlorophyll a concentration averaging four to 10 micrograms/liter, a summer Secchi depth of two to five meters, and a winter total phosphorus concentration ranging from 10 to 20 micrograms/liter.~~

~~(f) "Oligotrophic" means a trophic status characterized by low algal productivity, algal blooms are rare, water clarity is high, all recreational uses unimpaired, summer chlorophyll a concentration average less than four micrograms/liter, a summer Secchi depth greater than five meters, and a winter total phosphorus concentration ranging from zero to 10 micrograms/liter.~~

~~(g) "Phosphorus" means elemental phosphorus and for the purposes of this section shall be measured as total phosphorus.~~

~~(h) "Phosphorus concentration" means the mass of phosphorus per liquid volume.~~

~~(i) "Phosphorus loading" means the total mass of phosphorus per time basis.~~

~~(j) "Total phosphorus" means the phosphorus concentration as determined by a state-certified analytical laboratory using EPA 365.3 or SM 4500-P B, E or an equivalent method.~~

~~(k) "Trophic state index" means a classification system which uses algal biomass as the basis for classification which can be independently measured by chlorophyll a, Secchi depth, and total phosphorus concentration.~~

~~(l) "Trophic status" means a classification which defines lake quality by the degree of biological productivity.~~

Comment [CdS1]: Item 5-18 (1 of 13)

(~~4~~3) The Beaver Lake watershed as generally identified in the Beaver Lake management plan, which is available at the City of Sammamish community development department, is a sensitive lake and is hereby designated a critical drainage area. This designation is:

(a) Existing whole-lake total phosphorus concentration for the combined Beaver Lake system is 23 micrograms/liter. Beaver Lake 1 and Beaver Lake 2, individually, have whole-lake total phosphorus concentrations of 36 (±2) micrograms/liter and 20 (±1) micrograms/liter, respectively;

(b) Whole-lake total phosphorus concentration, chlorophyll a, and Secchi depth indicate that the Beaver Lake system is bordering on eutrophic conditions;

(c) Modeling of the Beaver Lake system's future trophic status indicates that the lake will become hypereutrophic with a whole-lake total phosphorus concentration predicted to be 36 micrograms/liter without additional phosphorus removal via storm water treatment; and

(d) Maintaining existing trophic status is a management plan goal. To maintain existing trophic status, an 80 percent total phosphorus annual loading removal goal was established for new impervious surface development prior to storm water discharges to Beaver Lake.

(~~5~~4) The Pine Lake watershed is generally identified in the City of Sammamish comprehensive plan (Figure IV-1 in the comprehensive plan or as updated). All appropriate Beaver Lake specific water quality regulations shall be extended to the Pine Lake drainage basin~~ as well~~.

(a) These ~~interim~~ regulations shall only be in effect until such time that a customized Pine Lake water quality strategy is developed and development regulations are adopted based on approved findings of the study.

(b) An applicant for development within the Pine Lake drainage basin may apply for a variance from the standards specified in subsection (8) of this section if it can be proven that conditions are clearly different than at Beaver Lake.

(~~6~~5) The standards specified in subsection (8) of this section shall apply to all development proposals located within the Beaver Lake and Pine Lake watersheds which require drainage review as specified in the King County Surface Water Design Manual.

(~~7~~6) Development proposals within the Beaver Lake or Pine Lake watersheds may be exempt from management plan requirements if they demonstrate to the satisfaction of the community development department that on-site surface and storm water runoff drainage does not in fact drain into the basin in question.

(~~8~~7) Phosphorous Control Required.

(a) Applicability. Unless the conditions identified in subsection (6) of this section are documented to the satisfaction of the Department of Community Development, the following development proposals are subject to the conditions and standards contained subsections 7(b) through 7(d) below:

(i) ~~For p~~Projects ~~which~~ that create greater than 5,000 square feet of new impervious surface subject to vehicular use in the Beaver Lake or Pine Lake watersheds~~, the following conditions shall apply, unless the conditions identified in subsection (6) of this section are documented to the satisfaction of the community development department:~~; or

(ii) Projects that create greater than one acre of pollution generating pervious surface in the Beaver Lake or Pine Lake watersheds.

(b~~a~~) The proposed storm water facilities shall be designed to remove 80 percent of all new total phosphorus loading on an annual basis due to new development (and associated storm water discharges) in the Beaver Lake or Pine Lake watersheds where feasible or utilize AKART if infeasible.

(c~~b~~) ~~Currently t~~The AKART standard or ~~interim~~ best management practices for phosphorus-sensitive lakes can be fulfilled by~~-~~ achieving the 50% phosphorous removal standard from adopted King County Stormwater Design Manual and City of Sammamish addendum together with additional applicant proposed measures as follows:

(i) For all development proposals subject to this section, the applicant shall demonstrate that a reduction of 80% total phosphorous is achievable through the use of engineering design computations. Development proposals using on-site infiltration shall demonstrate 80% or better phosphorus treatment can be expected with on-site infiltration than by methods described in subsection (7)(c)(iii) of this section.

Comment [EM2]: Item 3-12 (1 of 2)

Comment [C3]: Item 3-12 (2 of 2)

Comment [EM4]: Item 3-14 (1 of 2)

Comment [EM5]: Item 3-14 (2 of 2)

(ii) As the adopted King County Surface Water Design Manual is updated and additional treatment options and designs for total phosphorus removal become available, new treatment systems may be approved by the city if the AKART standard for phosphorus removal can be demonstrated using the Department of Ecology's Technology Assessment Protocol – Ecology (TAPE protocol).

Comment [EM6]: Item 3-13

(iii) Where soils are suitable, on-site infiltration of storm water runoff can be pursued through the variance process as an AKART alternative using methods described in the manual, as well as providing an organic soil layer consistent with the standards of the adopted King County Surface Water Design Manual and City of Sammamish addendum

~~the following storm water treatment design criteria:~~

~~(i) A wetpond or combined detention/wetpond with a permanent pool volume equal to four and one-half times the volume of runoff from the mean annual storm (VB/VR=4.5).~~

~~(A) Mandatory roof downspout infiltration, unless shown to be infeasible, and maximization of forest or native vegetation retention.~~

~~(B) Pond volume can be reduced by maximizing forest retention according to the following schedule:~~

~~Forest (%)~~	~~VB/VR ratio~~
~~25~~	~~4.25~~
~~30~~	~~4.00~~
~~40~~	~~3.50~~
~~50~~	~~3.25~~
~~60~~	~~3.00~~

~~(C) Forest retention areas shall be in tracts dedicated to the City. Buffers without trails can be counted in the percent forest figure.~~

~~(D) The VB/VR ratio is the volume of the wetpond basin divided by the volume of the runoff from the mean annual storm. The mean annual storm is equal to 0.46 inches at SeaTac. Runoff can be estimated using a runoff coefficient of 0.9 for impervious area and 0.25 for all other pervious area. Forested areas in tracts dedicated to the City need not be included in the~~

~~calculation of pond sizing (i.e., zero new runoff volume assumed). If this method is used in other areas, and SeaTac precipitation statistics underestimate the rainfall as judged by the isopluvial distribution of the two-year 24-hour precipitation, the mean annual rainfall should be adjusted upward.~~

~~(ii) Although current King County SWM designs are not complete for sand filtration, incorporation of sand filters into storm water treatment facility designs (i.e., treatment trains) can be pursued through the variance process to achieve additional total phosphorus removal. The proponent must demonstrate that equivalent or improved total phosphorus treatment can be expected with an alternative treatment system which incorporates sand filtration other than by methods described in subsection (8)(b)(i) of this section.~~

~~(iii) Where soils are suitable, on-site infiltration of storm water runoff can be pursued through the variance process as an AKART alternative. Soils are considered suitable for infiltration if at least two feet of soil exist where one of the following soil conditions are met:~~

~~(A) The cation exchange capacity of the soil equals or is greater than five milliequivalents;~~

~~(B) The organic content of the soil is equal to or greater than five percent;~~

~~(C) The grain size distribution of site soils is equivalent to not more than 25 percent gravel by weight (75 percent passing the No. 4 sieve) and of that passing the No. 4 sieve, either (1) 50 percent minimum passes the No. 40 sieve and two percent minimum passes the No. 100 sieve, or (2) 25 percent minimum passes the No. 40 sieve and five percent minimum passes the No. 200 sieve; and~~

~~(D) The infiltration rate is 2.4 inches/hour or less.~~

~~Additionally, the proponent must demonstrate that equivalent or better phosphorus treatment can be expected with on-site infiltration than by methods described in subsection (8) of this section.~~

~~(iv) As the King County Surface Water Design Manual is updated and additional treatment options and designs for total phosphorus removal become available, alternative treatment systems may be utilized if the AKART standard for phosphorus removal can be demonstrated.~~

(d~~c~~) Hydrologic analysis shall be determined using a continuous hydrologic model such as the Hydrologic Simulation Program – Fortran (HSPF) or~~,~~ the King County Runoff Time Series Program (KCRTS)~~, the Santa Barbara Urban Hydrograph, or the VB/VR~~ methodology. These methodologies may be revised or superseded by other methodologies for achieving the same

performance goal as stipulated by future revision to the Surface Water Design Manual. (Ord. O2005-193 § 1)

Isolated wetland exemption and Wetland buffer exemption

Ratings are either: large positive (P), small positive (p), neutral, large negative (N), small negative (n)			
Environmental	**n**	**Implementation**	**Neutral**
• Decreased on-site protection of wetlands • Decreased protection of public assets and resources (e.g. streets, water quality) • Increased cumulative impacts to wetlands • Increased effect on potential to restore damaged wetland buffer areas • Increased chance of damage to wetlands • Neutral potential to damage high quality, unique wetlands • Some net loss of wetland functions and values The proposed amendment to increase the wetland exemption to 4,000 square feet would allow for more wetlands to fall under the exemption, thereby allowing more cumulative impacts and net loss of overall wetland functions and values. However, limiting the area of impact to 4,000 square foot wetlands to 2,500 square feet, combined with wetland mitigation, will reduce the loss of wetland functions and values while providing greater flexibility.		• Neutral effect on clarity, neutral chance for unintended consequences • Neutral effect on consistent, efficient implementation by the staff • Neutral likelihood of support/approval by other agencies • Decreased effective mitigation, easier to monitor The proposed amendment would have little impact on regulation clarity or on application review, although it may have some impact on the quantity of mitigation projects that must be reviewed and tracked by the city.	
Property	**P**	**Overall Effect**	
• Increased flexibility and options for property owner's use of property • Neutral predictability for permit applicants and neighbors • Increased recognition of site improvements and existing uses in standards • Neutral expense / more time The proposed amendment to increase the wetland exemption to 2,500 square feet would offer greater flexibility for applicants seeking to develop sites constrained by an isolated wetland. It would not affect predictability. The property owner might incur a greater cost as a result of the critical areas study, but in return would have greater flexibility in property use. The additional allowance for wetland buffer modifications associated with type III and IV wetlands up to 4,000 square feet would further increase flexibility for property owners with relatively small low value wetland areas.		**Positive**	

Isolated wetland exemption and Wetland buffer exemption

Item 3-19e

Existing Regulation(s)	Proposed Amendment & Description
Current regulations allow for isolated wetlands less than 1,000 square feet to be exempted from the Wetland Development Standards of the SMC provided any impacts are mitigated pursuant to an approved mitigation plan.	The proposed modification to item 4-19d would increase the wetland size exemption from avoidance sequencing for isolated wetlands from 1,000 to 4,000 square feet, provided that the area of impacted wetland does not exceed 2,500 square feet, and is mitigated consistent with the mitigation requirements.
Desired Result of Amendment: This alternative modifies the proposed item 3-19d, which allows reduced wetland buffers. The proposed modification would allow for wetlands with an area of up to 4,000 square feet to be altered, provided that no more than 2,500 square feet is filled.	

Amendment Source:
Staff

Best Available Science Support: Not Supported

- Best Available Science Report "Wetlands" by AMEC Environment & Infrastructure, Inc.

Relevant Information (includes technical papers and/or references) (if applicable):

- Wetlands in Washington State, Volume 1: A Synthesis of the Science; Sections 5.3.3 and 5.3.4; Ecology Publication #05-06-006, March 2005.
- Wetlands and CAO Updates: Guidance for Small Cities, Western Washington Version; 1st revision July 2011; Ecology Publication #10-06-002.

Affected Code Section(s) (incudes duplicative and overlapping sections):

- 21A.50.320 – Wetlands – Limited exemption
- Possibly a new code section

Public Comment Reference(s):
33, 67-70, 84, 85, 88, 101, 105, 116, 182, 220

Notes:

21A.50.320 Wetlands – ~~Limited exemption~~ Development Flexibilities. The following alterations shall be authorized if the City determines that the cumulative impacts do no unduly counteract the purposes of this chapter SMC 21A.50 Environmentally Critical Areas and are mitigated pursuant to an approved mitigation plan.

(1) Isolated wetlands~~,~~, as designated by a qualified professional in a written and approved critical areas study meeting the requirements of SMC 21A.50.130 and, which includes the use of the adopted Washington State Wetland Rating System for Western Washington, with a total area with an area ~~of less~~up to ~~than~~ 1,000 square feet may be exempted from the avoidance sequencing provisions of SMC 21A.50.135(1)(a) and the provisions of SMC 21A.50.290 ~~and may be altered by filling or dredging if the City determines that the cumulative impacts do not unduly counteract the purposes of this chapter and are mitigated pursuant to an approved mitigation plan~~.

(2) Isolated category III and IV wetlands, as designated by a qualified professional in a written and approved critical areas study meeting the requirements of SMC 21A.50.130 and, which includes the use of the adopted Washington State Wetland Rating System for Western Washington, with a total area of more than 1,000 square feet and up to 4,000 square feet, may be exempted from the avoidance sequencing provisions of SMC 21A.50.135(1)(a) and the provisions of SMC 21A.50.290 and may be altered, provided:

(a) The total area of wetland alterations shall be limited to 2,500 square feet; and

(b) A critical areas study is prepared, which includes the use of the adopted Washington State Wetland Rating System for Western Washington, includes a review of the existing functions that the wetland provides, determines how the isolated wetland should be managed for ecological function of the watershed as a whole, and according to the approved critical areas study meets all of the following criteria:

(i) The wetland is not adjacent to a riparian area; and

(ii) The wetland is not part of a wetland mosaic; and

(iii) The wetland does not score 15 points or greater for habitat; and

(iv) The wetland does not contain habitat identified as essential for local populations of priority species identified by Washington Department of Fish and Wildlife; and,

(c) Mitigation to replace lost wetland functions and values, consistent with SMC 21A.50.310 shall be prepared for review and approval by the City.

(3) Category III and IV wetlands with a total area of 4,000 square feet or less may have the buffer reduced to 15 feet, provided:

(a) The wetland does not score 15 points or greater for habitat in the adopted Western Washington Rating System; and,

(b) The wetland is not part of a wetland mosaic; and,

Comment [EM1]: Item 3-7 & 3-19e

Comment [EM2]: Item 3-19d

(c) The buffer functions associated with the area of the reduced buffer width are mitigated through the enhancement of the wetland, the remaining on-site wetland buffer area, and/or other adjoining high value habitat areas as needed to replace lost buffer functions and values; and

(d) No subsequent buffer reduction or averaging is authorized.