

APPENDIX O
Response to Comments on the Lake Sawyer
Draft Management Plan



**King County
Department of Natural Resources**

Yesler Building
400 Yesler Way, Room 700
Seattle, WA 98104-2637
(206) 296-6500

June 14, 2000

William Kombol
Post Office Box 10
Black Diamond, WA 98010

Response to Comments on the Lake Sawyer Draft Management Plan, February 7, 1997

1. Conditions that prevent or interfere with proper septic system function include unsuitable soils, high water tables, steep slopes, poor system design, poor maintenance, and improper use. During the wet season, soils are often saturated and water tables rise contributing to increased failure rate.
2. The State Grant for the development of the Lake Sawyer Management Plan requires the "compilation and ranking of restoration alternatives". However, in the implementation of the strategies within the plan will be based upon the priorities of the local jurisdictions and funding sources available.
3. Implementation of the Rock/Ginder Stormwater Drainage Plan (Strategy LS-13 in Final Plan) will address much of the loading from "existing development".

While new development has had stricter controls than in the past, studies have shown that there are still significant increases in nonpoint pollution in spite of these controls. This is why the County adopted the stricter water quality controls that are required in the Sensitive Lake Protection Standards. Prevention is always more cost effective than restoration.

Costs for LS-1 (Lake Protection Standard) have been recalculated in the Final Plan.

4. See response to comment #2 and #3.
5. TMDL is discussed in Chapter 4.
6. The statement quoted is for a much larger area, the Covington Creek Basin, of which Rock Creek is a small component. Management plans address specific water bodies and their watersheds. The text has been changed to read "significantly impacted over the years from human activities".
7. The Tahoma/Raven Heights figure has been taken out of the Final Plan.

It is beyond the scope of this plan to calculate per lot costs for specific recommendations. Costs per lot could vary depending on the funding mechanism (i.e. Lake Management District versus City Stormwater fee) and how the fee structure is designed.

8. Comment noted.
9. Land development outside the Lake Sawyer Basin impacts either the Ravensdale Creek or Rock Creek subbasins.
10. This is discussed more thoroughly in Chapter 4 of the Final Plan.
11. The statement in the text is in reference to why the same level of analysis was not done on the other subbasins. Text has been changed for clarification in Final Plan.
12. Phosphorus is a natural component of soils. Thus much of the loading to Rock creek is from phosphorus attached to particulate matter which gets washed into the creek. Groundwater was not analyzed for this study due to cost restrictions. Based on information from other studies, groundwater phosphorus concentrations in Western Washington can be as high or higher than surface waters depending upon area geology. This can be a significant loading factor to lakes, which have a high percentage of water coming in via groundwater (i.e. American Lake in Pierce County). However, groundwater seepage into Lake Sawyer was estimated to be only 2 to 3 percent of the total water coming into the lake. Therefore, management efforts would best be focused elsewhere.
13. It is beyond the scope of this study to conduct a watershed wide septic survey. As noted in your comment to #11 above, there are relatively few septic systems in the other subbasins. Phosphorus contributions from these watershed onsite septic systems were assumed to be accounted for in calculated loads from Rock or Ravensdale Creeks.
14. Noted. Text is changed.
15. The regional treatment facility is no longer considered as a management measure in the Final Management Plan.
16. Noted. Appendix does have TMDL correspondence.
17. Without further investigation into the subbasin the sources of phosphorus in Ravensdale Creek can not be identified.
18. Ravensdale Creek provides a greater percentage of the load during the dry season, relative to the load contributed by Rock Creek. Overall, loading from both Rock and Ravensdale Creek subbasins is greater during the wet seasons. (see response to #15 above).
19. See response to comment #15.
20. See Table 4-11 in Final Plan.
21. The water that enters homes and leaves via the drainfields is accounted for as part of the seepage component of the water budget.

- 22. See response to comment #21.
- 23. See memo in Appendix L on land use categories.

Only land within the Lake Sawyer watershed was used in modeling efforts.

- 24. Any "upstream" input from plant decay would be included in the overall estimated loading from each creek.
- 25. Soluble phosphorus released from the wetlands in the summer months is part of a natural wetland process. This contribution is small relative to other watershed sources. According to sampling that has been done since 1994 (see Chapter 4) the wetlands appear to be providing a filtering mechanism during wet weather conditions as noted in the lower total suspended solids concentrations downstream of the wetlands. Due to regulations regarding wetlands, it would not be feasible or practical to manage the summer soluble phosphorus coming from the wetlands.
- 26. Comparison of nearshore loading is not typically included because of the variability in factors which affect the loading estimates (i.e., age and number of septic systems, deep and shallow groundwater contributions, etc.).
- 27. See memo in Appendix L on land use categories. The modeling done for this management plan does not have the capabilities to estimate loading differences based upon landscaping within a particular development site. Worst case scenarios were used to estimate future impacts to the lake.
- 28. Comment noted.
- 29. Predictions are based on modeling efforts. The model was calibrated using the 1994-95 data set. If the year used to calculate the model is relatively high, then predictions could also be high.
- 30. Text has been changed.
- 31. Comment noted.
- 32. Comment noted.
- 33. Comment noted.
- 34. Yes. Parks and ballfields should be required to implement and maintain BMPs.
- 35. See Measure LS-11, Regional Stormwater and Phosphorus Control in the Final Report.
- 36. Comment noted.
- 37. The cost effectiveness listed in the Draft Report was calculated by dividing the estimated costs by kg-year of phosphorus removal. "proposed spending" is the same as the estimated costs. It is up to the discretion of the plan implementors to propose funding above the estimated costs.

38. Road runoff is not considered a "point source".
39. See comment #37 above.
40. "Removed" refers to taking the phosphorus out of the water.
41. See response to #15.
42. Comment noted.
43. Text has been changed.
44. Comment noted.
45. Text has been modified.
46. Management alternatives have been modified in final report.
47. See response to #15.
48. See response to #15.
49. Management alternatives have been modified in final report.
50. Management alternatives have been modified in final report.
51. Management alternatives have been modified in final report.
52. See memo in Appendix L on land use categories.
53. Comment noted.

January 15, 1997

Joanne Davis, Senior Water Quality Specialist
King County Water and Land Resources Division
700 Fifth Avenue, Suite 2200
Seattle, WA 98104

RECEIVED
JAN 23 1997
KING COUNTY
WATER & LAND RESOURCES DIVISION

Re: Draft Lake Sawyer Management Plan (January, 1997)

Dear Ms. Davis:

I wish to make the following comments on the Draft Lake Sawyer Management Plan issued in January, 1997. These comments are in addition to my memo dated January 9, 1997 recommending that two new alternatives be assessed.

PAGE ES-2: The report notes that most internal loading of phosphorus is during late November and early December and has a limited effect on the recreation season. I assume the recreation season is primarily June through September. My reading of Table 4-5 on page 4-27 indicates that most phosphorus loading by Rock Creek occurs during the non-recreation season (85%) as opposed to the recreation season (15%). Ravensdale Creek appears to be a more significant contributor of phosphorus during the recreation season. However, recreation season phosphorus loading seems to have the most serious affect on the recreational uses of the lake. It is unclear when most phosphorus loading from on-site septic tanks occurs but this is no doubt worthy of discussion and analysis.

PAGE ES-6 Paragraph 2: The management approach for Lake Sawyer and its watershed should be designed to address nutrient loading from all the sources including the watershed. The management approach should concentrate limited resources on those cost effective measures that are most likely to produce the desired effect of reductions in phosphorus loading. If, for example, forest retention can achieve significant phosphorus load reductions at a cost of \$1,300 per kilogram of phosphorus removed, there is no justification to implement LS-2 which costs \$33,200 per kilogram of phosphorus removed. In fact, to misspend resources on low effectiveness measures is to simultaneously allow great opportunities for phosphorus reduction to go unrealized.

3
PAGE ES-6 Paragraph 6: The Draft states that "new development offers greater opportunities to apply watershed management techniques than do existing developments" and that "retroactive fitting of structural techniques is difficult and expensive". These statements are both curious and wrong. Because much existing development was installed with little, if any, stormwater management controls, the opportunities for new controls are myriad. Also, new development is already obligated to install expensive stormwater management controls due to existing regulations. So the marginal benefit from even stricter controls for new development is limited while the costs are often astronomical (witness the projected costs and effectiveness for LS-1 on Table ES-2). In contrast, relatively small expenditures for enhanced maintenance of stormwater from existing development can yield huge phosphorus load reductions. For example, LS-14 anticipates enhanced maintenance of the stormwater control devices from existing developed areas. Yet, LS-14 is the single most cost effective solution for reducing phosphorus loading. LS-14 which addresses phosphorus loading from existing development is 21 times more cost effective than LS-1 which addresses added controls on new development. If one were interested in limiting phosphorus loading but had only limited dollars to spend, it is simple and obvious that those dollars would be spent on measures offering the largest marginal benefit.

The last paragraph on page ES-6 should be re-written as follows:

"New development offers good opportunities to apply watershed management techniques during construction and eventual occupancy. However, new development is already well-regulated when compared to many existing developments which were built without any stormwater management features. Retroactive fitting of structural techniques in existing developments can offer some of the most cost-effective approaches to phosphorus load reductions. While some existing developments present engineering challenges for structural techniques, the net marginal benefit frequently exceeds the net marginal costs. For example, Recommendation LS-14 which calls for enhanced maintenance of retention/detention facilities, swales, catch basins, and ditches in existing developments, is the most cost effective solution as measured per kilogram of phosphorus removed. Many of the existing developed areas in the Lake Sawyer Watershed are characterized by large lot development with plenty of surrounding open spaces. These conditions are ideal for retroactive fitting of existing developments."

4
PAGE ES-7 MANAGEMENT ALTERNATIVES: Please see my memo dated January 9 1997 in which two new alternatives (Alternative 4 and Alternative 5) are suggested.

PAGE ES-11: The limitation on the examination of Alternatives constrains a report reader or decision maker from choosing the most cost-effective recommendations that achieve the greatest phosphorus load reduction. Two other alternatives should be proposed and assessed. They are: Alternative 4 consisting of those "cost effective controls" costing less than \$1800 per kilogram of phosphorus removed (LS-3, LS-4, LS-7, LS-8, LS-12, LS-13, LS-14, LS-15, LS-16, and LS-17) and Alternative 5 consisting of those "lowest cost controls" costing less than \$1500 per kilogram of phosphorus removed (LS-3, LS-4, LS-7, LS-8, LS-12, LS-13, LS-14, LS-15, and LS-16).

Another approach that should be utilized is an alternative that proposes increased spending on cost effective (\$/kg P removed) recommendations up to the point that they are no longer cost effective. This approach would utilize a net marginal benefit to net marginal cost ratio in determining the optimum spending on different recommendations. This approach recognizes that the first dollar spent on a particular recommendation yields more phosphorus reduction than the last dollar spent on that same recommendation. This concept is intuitively obvious. For example, while spending \$20,000 on LS-7 (Farm Management Plans) might yield a reduction of 43 kilograms of phosphorus per year, it probably isn't cost effective to spend \$2,000,000 for LS-7. The key is to determine the optimum spending level for each recommendation. The optimum spending for LS-7 might be \$80,000 which might result in let's say, 80 kilogram per year of phosphorus load reduction. The cost effectiveness under this scenario would rise to \$1,000 per kg P removed (i.e. \$80,000/80 kg/yr). By knowing the marginal effectiveness of each recommendation the optimum spending level could be established for each recommendation. Monetary resources would then be spent where they are most likely to achieve significant phosphorus reductions. For example, if \$2,759,000 were to magically appear with a stipulation that it could be spent on any recommendation, it is unlikely that a prudent person interested in phosphorus load reduction would spend it on LS-1. A rational person (i.e. one who is interested in receiving the greatest phosphorus reduction for each dollar s/he spent) would likely spend the money on LS-3, LS-4, LS-7, LS-8, LS-12, LS-13, LS-14, LS-15, and LS-16. Assuming that the people who wrote this report and who guided its development are indeed rational, I find it curious that the most cost effective

approaches for phosphorus load reductions have not been emphasized as the preferred alternatives. Instead, the preferred alternative has been weighted down with one of the highest priced and least cost effective recommendations, namely LS-1.

I suggest that recommendations (LS-1 through LS-25) be re-prioritized so that more emphasis is given to the most cost effective recommendations. In fact, the recommendations should include a suggested spending level which would optimize cost effectiveness. It may be far more cost effective to spend \$3,000,000 per year on LS-3 (Forest Retention) and spend far less on other recommendations. Without an analysis of the marginal costs and marginal benefits for each recommendation, it is difficult for a reviewer to suggest an optimum package of recommendations and appropriate spending levels.

Another deficiency in some of the recommendations, but particularly "command and control" recommendations such as LS-1, is that they don't effectively deal with the dynamics of substitution. Let me explain. Assume that the \$2.759 million per year figure for LS-1 is a reasonable estimate of private expenditures. Let's also assume that those costs are added onto the finished price of lots to be developed. Over the next 20 years, (1996-2015) the City of Black Diamond expects a population increase to 8,660 or 3,295 total households (see Table 3.4 City of Black Diamond Population Projections, City of Black Diamond Comprehensive Plan, August, 1996). This is an increase of about 2700 households from the current 600, or about 135 households per year for 20 years. If we assume one lot per household, this equals about 135 lots per year. While precise figures are not available for the rest of the Lake Sawyer basin, one could conservatively assume twice as much growth outside the City of Black Diamond (COBD), so say 270 lots per year. The City/County total is then 405 lots per year rounded to 400. With regard to commercial/industrial development, the COBD has set aside 317 acres of developable land for calculating capacity (see Appendix D, COBD Comprehensive Plan). Since Black Diamond is the only area with any significant land zoned or available for commercial/industrial development, let us assume that Black Diamond accounts for 80% of the future commercial/industrial development. That means that another 80 + acres are available elsewhere in the basin for a total of 397 acres rounded to 400. Over the next twenty years then, there would be an average of 20 acres of commercial/industrial development per year. Thus in summation, there will be 400 residential lots and 20 commercial/industrial acres per year to divide up the \$2.759

million in annual costs. While it is not clear how these costs would be divided, let us assume that the 400 residential lots built on 100 acres (i.e. 4 du/acre) has the same costs as 20 acres of commercial/industrial. Therefore the 2.759 million per year gets divided to \$1.38 million for 400 residential lots and \$1.38 million for 20 acres of commercial/industrial development. The extra cost per residential lot is \$3,450 while the extra cost per commercial/industrial acre is \$69,000. An investor who owns 10 acres of residential land which he plans to plat to 4 Du/acre for 40 lots will face extra costs of \$138,000 or \$13,800 per acre. These costs are significant and could well result in different land development decisions by investors. The 10 acre owner in the above example might decide that it is better to create only four 2 ½ acre lots which future owners could use for hobby farms. These hobby farm uses with horses, cows, sheep, chickens, etc. might produce far more phosphorus than 40 suburban homes. The same scenario is true for commercial/industrial. The \$69,000 derived figure for enhance phosphorus removal is extremely significant in an area in which raw commercial/industrial land prices might only average \$60-80,000 per acre. The dynamic impact of such huge costs on future land uses are difficult to predict. However, it is safe to predict they will be significant.

Unfortunately, the Draft Plan does not analyze the dynamic impact on land use decisions from the implementation of LS-1. Nonetheless, they will be significant and they may produce different and far less desirable land uses with associated costs to the Lake Sawyer phosphorus budget. The Draft Plan simply does not give us answers to these important questions as it casually recommends an alternative which would spend \$2.759 million per year without fully analyzing its impacts.

(6)
PAGE 1-3 Total Maximum Daily Load: It might be useful to state what Ecology has established as the TMDL for phosphorus for Lake Sawyer. Appendix F was not made available to this reviewer.

PAGE 2-5 Aquatic Habitat: I believe it is hyperbolic and overstatement to claim that Rock Creek has been severely degraded over the years by human activities. In fact the Soos Creek Basin Plan (June, 1990) states that the Covington Creek basin (which includes Rock Creek) "generally is in excellent condition and aquatic habitat is among the most diverse and abundant in western King County" (page 100).

PAGE 2-6 Community and Population: The population figures presented for the Tahoma/Raven Heights (T/RH) Community Planning Area and for the City of Black Diamond (COBD) include land areas that are both within and outside of the Lake Sawyer basin boundaries. It would be useful to state that fact and to estimate how much new T/RH and COBD growth will actually occur within the Lake Sawyer basin. It would also be useful to state the COBD 20 year growth projections in terms of population and new households. A chart showing T/RH, COBD, and total population growth and new households within the Lake Sawyer basin would be an extremely useful tool in determining how much growth the Lake Sawyer basin is expected to experience over the 20 year planning horizon. While these figures are only projections, they would be both useful planning tools and a way to calculate the per lot costs which new residents are expected to pay for specific recommendations in the Draft Plan. New residents to this area can then take ownership and pride in knowing their specific monetary contributions to the Lake Sawyer Management Plan.

2) PAGE 2-9 The first sentence on this page should be changed as follows: "The primary land use designations within the City of Black Diamond are urban residential and urban commercial/industrial. As an urban area and pursuant to GMA, Black Diamond is not expected to designate land for rural uses."

3) PAGES 2-6 through 2-9: It is important to note that approximately 10-20% of the land area of the City of Black Diamond is outside of the Lake Sawyer Basin. Land development activities in those areas outside of the Lake Sawyer Basin are not expected to affect Lake Sawyer water quality.

10) PAGE 2-15 Watershed Water Quality: In comparing the 1989-90 Rock Creek phosphorus concentrations to the 1992-94 phosphorus concentrations presented in the text, it appears that minimum, maximum, and average phosphorus concentrations declined measurably. This fact deserves more discussion in light of the Modeling Results and phosphorus loading discussion presented in Chapter 5 and in Table 5-2.

PAGE 2-15 Groundwater: I found it surprising that groundwater monitoring wells showed phosphorus concentrations which exceeded Ravensdale Creek flows, despite mining, forestry, agriculture, and other human activities in the Ravensdale Creek subbasin. The report should more fully discuss phosphorus concentrations in

groundwater versus phosphorus concentrations in surface water and how they might affect Lake Sawyer water quality.

11 PAGE 3-8 On-Site Septic Systems: Figure 2-2 shows a Lake Sawyer sub-basin that included about 1,324 acres and extends about one mile northeast of the lake proper. The final sentence of the paragraph regarding on-site septic systems states that "it was assumed that any phosphorus loading from outside the immediate vicinity of the lake (i.e. not in the Lake Sawyer sub-basin) would be transported by a stream to the lake and so would already be included in the watershed loading (in Rock and Ravensdale sub-basins). This is a curious and somewhat confusing statement. First, the entire City of Black Diamond is sewered so there are no septic systems in the city and generally none in the Rock Creek sub-basin. Second, the Ravensdale Creek sub-basin is very undeveloped so there are probably no more than a couple dozen septic systems in that entire sub-basin. Third, the Lake Sawyer sub-basin is the most developed of the three sub-basins and is not generally served by public sewers. Therefore, any phosphorus contribution from on-site septic systems that are generated from within the Lake Sawyer sub-basin could not theoretically be transported to the Rock or Ravensdale Creek sub-basins. These facts should be addressed in the Draft Plan.

12 PAGE 4-3 Phosphorus: According to page 2-15 of the Draft, phosphorus also exists naturally in groundwater within the watershed.

13 PAGE 4-20 On-Site Septic Systems: This section of the report deals only with on-site septic systems that are directly adjacent to the lake. However, there is a considerable number of on-site septic systems that exist within the Lake Sawyer sub-basin. To a lesser extent, some on-site septic systems exist in the Ravensdale and Rock Creek sub-basins. This section of the Draft should detail the number, age, and potential impact of on-site septic systems in the Lake Sawyer, Ravensdale Creek, and Rock Creek sub-basins.

14 PAGE 4-25 Nutrients: My reading of Table 4-4 indicates that the main concentration of nitrogen (TN) in Ravensdale Creek (LSIN9) exceeded that of Rock Creek (LSIN1) measured at the outlet of each. The first sentence of the text should be corrected.

15 PAGE 4-25 Nutrients: If the large wetland between stations 1 and 3 is indeed a source of dissolved phosphorus during the summer low flow season, then it will presumably be

unaffected by recommendations LS-1 through LS-16. It would seem that LS-17 would be the only way to deal with phosphorus loading from a wetland during the summer low flow season. Perhaps Recommendation LS-17 could be re-configured so as to work primarily during the summer low flow season. This would reduce the size of constructed stormwater ponds, the amount of alum needed for injection, and the months necessary for operation of the facility. Under a "summer only" approach, the costs of LS-17 might be reduced considerably. This approach should be discussed and examined in light of the summer low flow loading of phosphorus.

16
PAGE 4-25 Nutrients: The paragraph stating Ecology's rationale for not listing Lake Sawyer on the 303(d) list was eliminated between the Technical Advisory Committee pre-draft and the January, 1997 Draft. I believe that Ecology's position and rationale is a useful inclusion in the text because it helps a reader better understand the science and politics of external and internal phosphorus loading. The explanation of Ecology's position should be re-inserted into the Draft plan and Appendix C should include copies of relevant correspondence explaining Ecology's position.

17
PAGE 4-27 Table 4-5: Ravensdale Creek exceeded the total maximum daily load of phosphorus on several occasions, as did Rock Creek. Given the fact that the Ravensdale Creek sub-basin is essentially undeveloped, there should be an explanation of where all the Ravensdale Creek phosphorus is coming from.

18
PAGE 4-28: The first paragraph states that Ravensdale Creek provides a greater percentage of the load during the dry season. Given the fact that the Ravensdale Creek sub-basin is essentially undeveloped, this phosphorus loading will continue irregardless of the ameliorative benefits from recommendations LS-1 through LS-16. Recommendation LS-17 should be re-configured so as to work primarily during the summer low flow season when Ravensdale Creek is apparently providing higher phosphorus loads. This would reduce the size of the constructed stormwater ponds, the amount of alum needed for injection, and the months necessary for operation of the facility. Under a "summer only" approach, the costs of LS-17 might be reduced considerably. This approach should be discussed and examined in light of the summer low flow loading of phosphorus from Ravensdale Creek.

19
PAGE 4-30: The last paragraph notes that the highest concentrations of phosphorus "still generally occur during the dry summer months." Given this fact, the Draft should

consider an alternative that utilizes recommendation LS-17 on a reduced basis operating during the summer low flow season. This approach might save considerable costs by reducing pond size, the amount of alum needed for injection, and the months of facility operation.

20 PAGE 4-33: Table 4-9 should be expanded or a new table created in order to show the comparative TSI index results for Lake Sawyer 1989-90.

21 PAGE 5-1 Hydrologic (water) Budget: Where does the water that enters homes from public water purveyors and leaves homes through septic tank and drainfields fit into the water budget equation? This should be discussed and accounted for. I'm sure the various water districts could provide figures on the total water consumed by homes in a geographic area (i.e. the Lake Sawyer sub-basin). Assuming those homes use on-site septic systems, "water-in" must equal "water discharged" through those systems. A small percentage of water consumed during summer months might be used for irrigation. Even this water though would be a new addition to the water budget.

22 PAGE 5-4 Groundwater: Please see the preceding comments regarding new water input from homes purchasing water from water purveyors.

23 PAGE 5-5: The City of Black Diamond Draft Comprehensive Plan (1995) is considerably different than the adopted City of Black Diamond Comprehensive Plan (August, 1996). The adopted Plan should be used for modeling full buildout conditions. Also, it is important to account for the fact that approximately 10-20% of the land area of the City of Black Diamond is outside of the Lake Sawyer watershed. The affect of full buildout on the simulated water budget should be adjusted accordingly.

24 PAGE 5-7 Watershed Sources: Where does the upstream input from aquatic plant decay fit into the phosphorus budget? This should be featured and discussed.

25 PAGE 5-7 Losses of Phosphorus: Phosphorus taken up by plants during the spring and summer for their growth results in a seasonal loss of phosphorus. Because phosphorus loading is more critical during low flow summer months, this seasonal phosphorus loss is important to the phosphorus budget and possible recommendations for dealing with the low flow summer problems.

26
PAGE 5-10: The third paragraph which compares the phosphorus loading for the three sub-basins fails to compare the Lake Sawyer sub-basin to another area sub-basin. This should be done to give the reader a sense of the phosphorus loading rate for this urbanized area.

27
PAGE 5-11 Future Conditions: The future zoning for the City of Black Diamond should use the zoning from the adopted Comprehensive Plan (August, 1996) rather than the Draft Plan (1995). There are significant land use and land area differences. Also, it is important to adjust the City of Black Diamond acreage figures so as to exclude those portions of the City of Black Diamond that are outside of the watershed boundaries (approximately 10-20%). I also question the assumption that commercial/industrial zoned property will be completely impervious. I do not think this is the intent of the COBD Comprehensive Plan nor do I think the market for commercial/industrial uses in this area will accept development without there being considerable areas of native vegetation or landscaped vegetation. These vegetated areas will not be impervious.

PAGE 5-12: The reasons that the amount of phosphorus from the Rock Creek sub-basin did not decrease to the extent predicted should include the following factor:

28
The baseline assumptions for the Rock Creek sub-basin without the contribution from the wastewater treatment plant were too low. Therefore, the predicted decrease was unrealistic and unachievable.

29
PAGE 5-12: The current (1994-95) in-lake phosphorus concentrations are only slightly higher than those for 19-89-90. The difference (18 vs. 20) is hardly significant and could be the result of minor measuring or averaging errors. In addition, the current land use calculated figure of 23 exceeds the measured figure of 20 by 15%. Does that mean that the predicted figure of 38 is also 15% too high?

30
PAGE 6-1 Summary of Current and Future Conditions of Lake Sawyer: The statement that "total phosphorus concentrations in Lake Sawyer increased in 1983 following start-up of the Black Diamond WWTP" has no reference or source. I could find no data in the report to back up that claim. If this statement is to remain in the Plan, a source of information and reference should be included. If there is no source or reference, the statement should be deleted.

31
PAGE 6-1: The third reason that Lake Sawyer has been slower to improve than predicted is that there may be other

conditions present. (such as failed on-site septic system loading) that the report has not measured and thus has insufficient modeled those conditions.

32
PAGE 6-7: Forest Retention: This section states that "forest retention is one of the most effective mechanisms by which future loadings can be significantly decreased". Later it is stated that "forest retention . . . is important to the long-term protection of Lake Sawyer". If this is indeed the case, why is the recommended funding level for LS-3 (\$344,000 per year) so pitifully small. Money should be spent where the greatest impact can be achieved. Forest retention was shown in Table ES-2 to be one of the more cost effective (i.e. \$/kg P removed) recommendations. If Table ES-2 is to be believed and if the statements of forest retention effectiveness and long term protection qualities are to be believed, than an incredible mistake has been made in the recommended funding level for recommendation LS-3.

33
PAGE 6-8 LS-4: There should be more examples of what additional incentives could be developed for buffer enhancements. NGPE and SAO buffer enhancements are also shown to be a cost effective solution. Perhaps the recommended funding level for incentives should be increased from the relatively small \$50,000 per year.

34
PAGE 6-8 LS-5: Parks and ballfields are often developed and maintained like golf courses. Shouldn't parks and ballfields be required to implement and maintain BMPs?

35
PAGE 6-11 LS-10: The retrofitting of existing stormwater facilities might be one of the most cost effective measures for dealing with significant export of phosphorus (see page 4-28 of this report and the sampling of Station 8A). There are a number of other facilities that might benefit handsomely from increased attention to phosphorus removal. In addition, there are a number of developed areas, particularly in the historic section of Black Diamond and in the Lake Sawyer sub-basin which were built without any stormwater facilities. There could be significant phosphorus reductions from retrofitting these unserved areas of intense urban development.

36
PAGE 6-11 LS-11: A section on beaver ponds included in the pre-draft review copy was omitted from the January, 1997 Draft. I found the section on beaver ponds to be interesting and was surprised that it was eliminated from this Draft.

37
PAGE 6-12 LS-14: The enhanced maintenance of R/Ds, swales, catchbasins, and ditches is shown by Table ES-2 to be the most cost effective (\$200 per kg of P removed) measure to reduce phosphorus loading. It should be noted that Black Diamond, King County, and the State of Washington all maintain public highways within the watershed. Based upon the experience referenced on page 4-28 with the sampling of Station 8A, it appears that public highways are a significant source of phosphorus, metals, and petroleum products. Given the outstanding cost effectiveness of LS-14, why is the proposed spending of \$21,500 per year so pathetically small?

38
PAGE 6-12: The pre-draft review copy had a recommendation labeled "LS-14 Retrofitting Point Sources of Pollution". This seemed like a very good idea that has been inexplicably omitted from the January, 1997 Draft. Why? Retrofitting developed areas including highways and roads with pollution controlling devices might make significant headway in reducing phosphorus loading. It's very surprising that this approach, which is ideal for a lightly developed area like Lake Sawyer and Black Diamond, should have been abandoned.

39
PAGE 6-13 LS-16: Table ES-2 lists homeowner BMPs as one of the most cost effective methods to reduce phosphorus loading. Why does this recommendation have such a low level of funding (\$10,000 per year) associated with it.

40
PAGE 6-14 Wetponds/Constructed Wetlands: This section needs to be re-written so as to clarify that phosphorus is not removed by wetponds or wetlands, it is simply stored. The only way to remove the phosphorus from the wetpond or wetland is to remove the vegetation or to remove the sediment. If the vegetation or sediment is not removed, the phosphorus remains in the system and may contribute phosphorus during the summer low flow season as detailed on Page 4-25 of this Draft's description of the large wetland between Stations 1 and 3.

41
PAGE 6-14 Alum Injection: This system should be analyzed for a system that would only operate during the summer low flow season when phosphorus loading is a particular problem. By designing the system for lower flows, the size of the ponds could be significantly reduced as well as the alum costs and operation costs. This may reduce the overall cost of this system significantly while still realizing significant and permanent phosphorus removal. Other systems often simply store or inventory the phosphorus in sediment or vegetation which means it still has to be dealt with at a

later date. Alum injections remove phosphorus permanently and effectively.

The costs associated with LS-17 should also distinguish between the alum injection system costs and the wetpond/constructed wetland costs. According to Figure 7-1 of the pre-draft plan (Lake Sawyer Watershed Regional Treatment Pond Locations: General) Three wetpond/detention facilities located upstream in the watershed were planned. Each facility is assumed to be 10 acres (30 acres total). These upstream facilities do not appear to be related to the alum injection system which will presumably be located at the mouths of Rock and Ravensdale Creeks. The costs associated with the three upstream facilities should not be lumped together with the alum injection system since they are different approaches. If the three upstream facilities are deserving of additional study, they and their costs should be analyzed separately from the alum injection system costs.

42
PAGE 6-15 Measures Not Related to Phosphorus Reduction - Aquatic Plant Management: According to the Draft Plan, in-lake aquatic plant decay accounts for about 5% or 66 kilograms of phosphorus loading per year. This appears to be a fairly important source of phosphorus. It would seem that an aquatic plant management program that removed aquatic plants would have a salutary effect on phosphorus loading. Aquatic plant management and removal should be considered as a measure to reduce phosphorus in the lake.

43
PAGE 7-1: The Draft states that "the water quality of the lake has declined since the mid 1980s" but provide no reference to back up said claim. According to page 2-9 of this Draft, a 1973 survey of Lake Sawyer rated it "in the bottom third of all lakes studied based upon a relative rating of 'questionable water quality conditions'". It also notes 1973 water quality problems including high phosphorus concentrations and algal blooms. According to the "An Investigation of Fifteen Lakes in King County" (Metro, 1982), "a cursory comparison of the [Lake Sawyer] 1979-80 data with that collected in 1973 does not show evidence of deterioration of water quality". The "Status of Water Quality in Small Lakes: 1985 Survey" (Metro, June, 1986) notes "the historical data shows this lake [Sawyer] to be in a mesotrophic state although the total phosphorus levels have usually been in the eutrophic range". The 1985 survey also speaks of unprecedented algae blooms in the summers of 1984 and 1985. The "Status of Water Quality in Small Lakes: 1988 Survey" (Metro, August, 1989) states that "the 1988 data shows it [Lake Sawyer] edging into the eutrophic

range". However, the "Status of Water Quality in Small Lakes: 1989 Survey" (Metro, November, 1990) notes that "phosphorus levels were considerably lower in 1989" and that water quality improvements in 1989 confirm the mesotrophic condition of the lake. The "Water Quality of Small Lakes and Streams: 1990-1993" (Metro, February, 1994) indicates that Lake Sawyer's "mesotrophic characterization is probably accurate". The Carlson TSI rating for Lake Sawyer averaged 43 to 46 over the 1991-1993 data. Given the historic data and the most recent data (1994-95), I have a difficult time accepting the statement that "the water quality of the lake has declined since the mid-1980s". I think it would be more accurate to state that "Lake Sawyer water quality remained relatively constant from 1973 until the mid to late 1980s when water quality deteriorated. Since that time period, lake water quality has improved somewhat".

44
PAGE 7-1 Management Strategies and Approach: The second paragraph notes the potential for a 30 year complete build-out of the watershed and highlights the City of Black Diamond's growth. It should be noted that King County has designated a significant portion of the watershed as its own Urban Growth Area where King County officials hope to direct growth over the next 20 years. It would be also interesting to see the relationship between COBD growth projections and T/RH growth projections over the next 20-30 years. (Please see my earlier comments regarding page 2-6 of this Draft).

45
PAGE 7-1: The following sentence should be revised as follows: "Therefore, water quality management should focus on measures that protect the lake's mesotrophic condition during the watershed's development."

46
PAGE 7-2 Management Alternatives: The alternatives assessed are not the best alternatives that could have been assessed. Alternatives 4 and 5 detailed in my Memo dated January 9, 1997 should also be assessed.

47
PAGE 7-6 Alternative 1: Regional Treatment (LS-17): This alternative could be revised to deal primarily with low flows during the summer season. The land area, size of facilities, alum costs, and operation costs could be reduced significantly by limiting operations to the low flow season when treatment is most important.

48
PAGE 7-6: The assumption that three wetponds/detention facilities located upstream in the watershed is needed may unnecessarily add to the costs of Alternative 1. These unnecessary costs should be removed from the costs associated with the alum injection facilities. The two

components of this alternative (alum injection and constructed upstream wetponds) should be analyzed separately so the cost/benefit ratio of each component is better understood.

49
PAGE 7-6 Alternative 2: Alternative 2 is not a cost effective alternative because it combines low effectiveness measures such as LS-1 and LS-2 with highly effective measures such as LS-14 and LS-16. By lumping low cost effective measures with high cost effective measures, the proponents of Alternative 2 mask better approaches to lake water quality protection.

50
PAGE 7-8: Alternative 3 is a similarly phony alternative because it does not discriminate between measures which are highly cost effective and those which are costly and produce low cost/benefit ratios.

51
PAGES 7-8 and 7-9 Predicted Benefits of Each Management Alternative: The failure to assess better alternatives skews the results and distorts the selection toward an alternative that is more costly and less effective than other alternatives that were not considered.

52
PAGE 7-10 LS-1: The commercial and residential acreage figures are not accurate given the City of Black Diamond Comprehensive Plan's growth projections and King County's growth projections for those areas of the Tahoma/Raven Heights Community Planning Area that are also in the watershed.

PAGE 7-13 Costs and Funding: This section does not address the concept that the market reacts in a dynamic fashion to new and significant costs such as are addressed in certain of the LS measures. If the cost per lot is indeed \$6,500, a dynamic market would produce a different land development result than the one predicted. The different land development scenarios could very well result in more or less phosphorus loading depending upon the uses to which the land is put. If larger lots are used for small hobby farm purposes, the phosphorus loading from large lots may be greater than from more intensely developed small lots.

In conclusion, the Draft Lake Sawyer Management Plan (January, 1997) has serious deficiencies of both a technical nature and a policy nature. The recommendations in the report are faulty because better alternatives were not assessed and considered. The report writers seem to have chosen an alternative first and then written a report to

bolster their preferred alternative. This is not good science nor is it good policy.

Very truly yours,

A handwritten signature in cursive script, appearing to read "William Kombol".

William Kombol
P.O. Box 10
Black Diamond, WA 98010



King County
Department of Natural Resources
Yesler Building
400 Yesler Way, Room 700
Seattle, WA 98104-2637
(206) 296-6500

June 14, 2000

Bob Eatou
23232 SE 312th
Kent, WA 98042

Response to Comments on the Lake Sawyer Draft Management Plan, January 8, 1997

The discussion of wetlands and their influence on the phosphorus loading to Lake Sawyer has been modified in the Final Report (see Chapters 4 and 5). Wetlands have been found to release some phosphorus through natural processes during low-flow conditions. The wetlands you mention adjacent to the south end of the lake do indeed act like a retention pond, particularly during high-flow storm events. Monitoring results show that this wetland filters out particulate matter before it enters the lake.

tv F717-10

COMMENT SHEET

RECEIVED
JAN 16 1997

Name: Bob Eaton

KING COUNTY
WATER & LAND RESOURCES DIVISION

Address: 23231 SE 31th Kent WA 98042 (South end Lake Sawyer)

Phone: 360-886-7327

I would like to make the following comments to King County Water and Land Resources about the Lake Sawyer Draft Management Plan:

The overall plan for improving Lake Sawyer water quality sounds good if - if it will all work out.

One possible area of pollution which I did not hear any comments on is - the swamp area south of Roberts Drive that flows into Rock Creek. This area was where the Black Diamond Treatment plant discharged the "Treated" water. I am sure that in the summer and fall when Rock Creek had low flow of water - most of the "Treated" water was retained in the swamp.

Also another area to look at would be "Frog Pond" as it is called by some people. It is on the south east end of Lake Sawyer with Rock Creek going into it. The Pond acts like a retention pond in late summer with very little flow into the lake.

With heavy rain and snow melt, these areas can discharge a lot of sediment into the lake. The water in front of my place turns brown with this run off.



**King County
Water and Land Resources Division**

Department of Natural Resources
201 South Jackson Street, Suite 600
Seattle, WA 98104-3855
(206) 296-6519
(206) 296-0192 FAX

June 14, 2000

Michael Conaboy
Environmental Coordinator
Pacific Coast Coal Company
Post Office Box 450
Black Diamond, WA 98010

Response to Comments on the Lake Sawyer Draft Management Plan, February 5, 1997

All of the figures in the report have been changed to show Mud Lake as a wetland rather than an open water lake.

tv F717-5





David J. Morris
General Manager
900 Fourth Ave., Suite 3625
Seattle, WA 98164
(206) 624-6590
Fax (206) 340-2267

Bruno A. Ridolfi
Manager of Operations

30700 Black Diamond - Ravensdale Rd. • P.O. Box 450 • Black Diamond, WA 98010 • (360) 886-1060 • Fax (206) 432-8755

February 5, 1997

Ms. Joanne Davis
Senior Water Quality Specialist
King County Surface Water Management Division
Department of Natural Resources
700 Fifth Avenue, Suite 2200
Seattle, Washington 98104

Re: Draft Lake Sawyer Management Plan

Dear Ms. Davis:

Thank you for the opportunity to review and comment upon the draft of the Lake Sawyer Management Plan issued by the King County Surface Water Management Division in January, 1997.

Throughout the study, Mud Lake is referred to and depicted as a lake (Figure 1-2, page 1-4; Figure 2-1, p. 2-2; Figure 2-2, p. 2-4; Figure 3-2, p. 3-5). In fact it is a receding wetland. It was a natural depression that was dammed for use by the town of Black Diamond in the early 1900's to retain water to be used for fire fighting, etc., and was never more than a few feet deep. The earthen levee breached during heavy rains in 1971, the area drained and has been drying and shrinking ever since, as upland vegetation progressively takes over more of the area each year. A vegetation survey was conducted by the Washington Department of Game in 1981 and 1982 and they described the area as a "wetland dominated by some of the typical wetland plant species of western Washington, but there is no open water remaining in what was once called Mud Lake." We feel that this is an extremely important distinction that must be made, as the "Mud Lake Wetlands" could itself be a significant source of phosphorous reaching Lake Sawyer.

Please contact me at (360) 886-1060 if I can be of further assistance.

Sincerely,

Michael W. Conaboy
Environmental Coordinator



**King County
Water and Land Resources Division**

Department of Natural Resources
201 South Jackson Street, Suite 600
Seattle, WA 98104-3855
(206) 296-6519
(206) 296-0192 FAX

June 14, 2000

George H McPherson
29062 — 222nd Place SE
Kent, WA 98042

Response to Comments on the Lake Sawyer Draft Management Plan, January 8, 1997

Your concern for the water quality of Lake Sawyer is noted.

TV F7(7-8



LAKE SAWYER DRAFT MANAGEMENT PLAN PUBLIC MEETING, January 8, 1997

COMMENT SHEET

Name: George H McPherson

Address: 29062 - 222 Pl. SE, Kent 98042

Phone: 360-886-2239

I would like to make the following comments to King County Water and Land Resources about the Lake Sawyer Draft Management Plan:

I would like to see the quality of Lake Sawyer improved but recognize the high costs of doing so as stated in footnote A in Table 6-1 on page 6-3, if it turns out funds are available to improve lake water quality "measures additional to the specific recommendations of the Plan could be implemented in an effort to improve lake quality." Short of this, I believe that all of the recommendations of the study should be implemented.

With regard to the mining operations, in LS-9, there does not seem to be a time-line or deadline for these mines to bring their operations into compliance. Is there a time limit for this?

Appreciated very much the work of SWM and the time they took to meet with the Lake Sawyer Community Club.

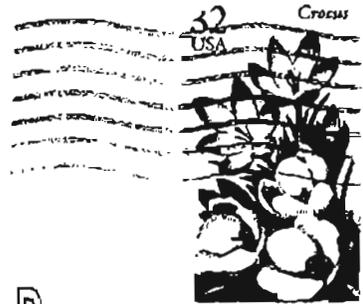
For mailing, fold with address on outside and apply postage.

P.S. Joanne - Thanks for a very fine presentation.
George McPherson

McPherson
4062 - 2nd Pl. SE
Seattle, WA 98142

King County Water and Land Resources Division
700 Fifth Avenue, Suite 2200
Seattle, WA 98104

ATTN: Joanne Davis



RECEIVED
JAN 14 1997

KING COUNTY
WATER & LAND RESOURCES DIVISION

98104/5022





**King County
Water and Land Resources Division**

Department of Natural Resources
201 South Jackson Street, Suite 600
Seattle, WA 98104-3855
(206) 296-6519
(206) 296-0192 FAX

June 14, 2000

Brian L. Holtzclaw
Law Offices of Cairncross & Hempelmann, P.S.
701 Fifth Avenue
Seattle, WA 98104

Response to Comments on the Lake Sawyer Draft Management Plan, February 7, 1997

1. The County last pumped water from Horseshoe Lake into Lake Sawyer for ten days in 1997. Pumping was discontinued in 1997. The Washington State Department of Fish and Wildlife and the Washington Department of Ecology informed the County that they will not issue emergency permits for this problem since it appears to be ongoing rather than emergency in nature. The County Executive has recommended that the residents flood proof their homes. Therefore, the concerns regarding the County pumping water from Horseshoe Lake to Lake Sawyer are no longer relevant to the management of Lake Sawyer.

F717-1



LAW OFFICES

CAIRNCROSS & HEMPELMANN, P.S.

A PROFESSIONAL SERVICE CORPORATION

70TH FLOOR, COLUMBIA CENTER, 701 FIFTH AVENUE
SEATTLE, WASHINGTON 98104-7016
(206) 587-0700

BRIAN L. HOLTZCLAW

FAX: (206) 587-2308
EMAIL: bholtzclaw@cairncross.com

February 7, 1997

VIA HAND DELIVERY

Joanne Davis
King County Department of Natural Resources
Water and Land Resources Division
700 Fifth Avenue, Suite 2200
Seattle, Washington 98104

Re: Draft Lake Sawyer Management Plan

Dear Ms. Davis:

We represent the "Friends of Lake Sawyer, an L.L.C. to be formed". This letter is submitted regarding the Water and Land Resources Division's "Draft Lake Sawyer Management Plan" ("Draft Plan") and regarding the Determination of Nonsignificance ("DNS") issued for the Draft Plan under the State Environmental Policy Act ("SEPA"), chapter 43.21C RCW. Please include this letter as part of the comments received regarding the Draft Plan and the related DNS. As discussed in more detail below, we have serious concerns regarding the County's pumping from Horseshoe Lake to Rock Creek/Lake Sawyer and the extent to which this pumping activity is discussed and analyzed in the Draft Plan and related DNS.

Over the last five years, the County has conducted pumping on an "emergency" basis to alleviate high water in and around Horseshoe Lake, which is located south of Lake Sawyer. Despite the fact that Horseshoe Lake sits in a low basin, which is prone to flooding, the County permitted development of several homes around Horseshoe Lake that become threatened when the water level rises each winter. To alleviate the high water at Horseshoe Lake, the County during three extended periods over the past five years has pumped overflow water from Horseshoe Lake to Rock Creek, which is one of the primary tributaries to Lake Sawyer. The County first conducted this pumping in 1991. Pumping was more recently done in February and April 1996, and again in January 1997. Moreover, we have recently discovered that the County is yet again presently pumping from Horseshoe Lake.

The County conducted a study -- the "Horseshoe Lake Surface and Groundwater Analysis" ("Horseshoe Lake Study") -- to identify possible solutions to alleviate the flooding of Horseshoe Lake: pumping from Horseshoe Lake to Rock Creek/Lake Sawyer was eliminated from consideration as a solution to Horseshoe Lake's flooding early in the study process.¹ In fact, of approximately 12 identified potential solutions, the study committee ranked pumping from Horseshoe Lake to Rock Creek/Lake Sawyer next to last! The County completed its study in September 1996 and recommended four solutions, none of which included pumping from Horseshoe Lake to Rock Creek/Lake Sawyer. The preferred alternative identified in the Horseshoe Lake Study is to pump the overflow to an infiltration basin located south of Horseshoe Lake. Notwithstanding the results of this exhaustive study (the results of which identified pumping to Rock Creek/Lake Sawyer as one of the least desirable solutions), when the water level of Lake Sawyer rose with the significant rainfall this winter, the County again pumped the Horseshoe Lake overflow to Rock Creek/Lake Sawyer. In addition, the County is apparently yet again pumping to Rock Creek/Lake Sawyer at the present time.

In regards to the Draft Plan, we are concerned with the impacts this pumping has had, and is continuing to have, on Lake Sawyer and the extent to which this pumping is discussed in the Draft Plan. We believe there is a significant danger that the County is pumping contaminated water from Horseshoe Lake to Rock Creek/Lake Sawyer. The County apparently has conducted the most recent pumping to Rock Creek/Lake Sawyer because funding has not yet been secured to implement the preferred alternative identified in the Horseshoe Lake Study. The lack of funding, however, is not an adequate justification for this pumping activity given the fact that the County has expressly rejected pumping to Rock Creek/Lake Sawyer as a viable option for solving the high water problems with Horseshoe Lake. Moreover, given that the flooding is reasonably anticipated to occur anytime there is significant rainfall, and given the County's awareness of the problem as reflected in the Horseshoe Lake Study, there is no longer a sufficient "emergency" to justify pumping to Rock Creek/Lake Sawyer without first obtaining the necessary permits and conducting the appropriate review under SEPA. The County should consider implementing any of the other solutions identified in the Horseshoe Lake Study on an "emergency basis" rather than continuing to pump to Lake Sawyer.

The Draft Plan does acknowledge that the Horseshoe Lake Study has been completed and transmitted to the County Council in October 1996. The Draft Plan, however, only cursorily addresses the impacts of the pumping activity on Lake Sawyer. Given the County has demonstrated that it will (and currently is) pumping to Lake Sawyer on an "emergency basis" (despite the finding that this is not a preferred solution to the Horseshoe Lake flooding) until funding is obtained to implement the Horseshoe Lake Study, the Draft Plan does not adequately

¹ Friends of Lake Sawyer intend to submit a separate comment letter to the County regarding the Horseshoe Lake Study and its implementation.

Joanne Davis
February 7, 1997
Page 3

address and analyze the impacts of this pumping activity on Lake Sawyer. Accordingly, the County should implement one of the alternatives identified in the Horseshoe Lake Study on an "emergency" basis rather than pumping to Rock Creek/Lake Sawyer. Given that the County continues to pump to Rock Creek/Lake Sawyer on an emergency basis, the Draft Plan does not adequately address the impacts and consequences of this activity on the water quality of Lake Sawyer. It is interesting that while the Draft Plan is intended to protect and enhance the water quality of Lake Sawyer, the Draft Plan at the same time gives little attention to the pumping from Horseshoe Lake, which can have a significant impact on the water quality of Lake Sawyer. In fact, an open letter dated March 5, 1996 from the County's Surface Water Management Division to the residents of the Lake Sawyer community documents low levels of fecal coliform in Horseshoe Lake. Given that pumping from Horseshoe Lake to Rock Creek/Lake Sawyer may result in probable, significant adverse impacts, the impacts of the pumping activity should be more fully analyzed through either preparation of an environmental impact statement or through mitigating conditions in a mitigated DNS to address the adverse impacts of pumping into Lake Sawyer.

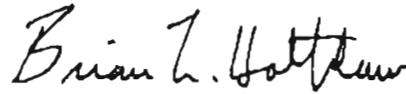
The Draft Plan also states that the "emergency" pumping to Rock Creek/Lake Sawyer has been conducted with the approval of the "Lake Sawyer Community Club." But it is not clear from the Draft Plan exactly which property owners are purportedly represented by this Community Club, let alone identify what (if any) authority the Community Club has to "authorize" such pumping activity. Despite the Community Club leaders' "approval" of pumping to Lake Sawyer, there is considerable opposition to this pumping activity as documented by the enclosed petitions signed in 1996 and 1997 by residents who live on and around Lake Sawyer, as well as other concerned citizens in the area. Thus, the Draft Plan incorrectly suggests that pumping to Rock Creek/Lake Sawyer has been approved by all interested parties when in fact there is substantial opposition. The Draft Plan should be revised to reflect the significant opposition to the County's continued pumping from Horseshoe Lake to Lake Sawyer and include the 1996 and 1997 protests.

In closing, we appreciate the County's efforts to address the water quality of Lake Sawyer through the measures identified in the Draft Plan and to identify solutions to the flooding of Horseshoe Lake through the Horseshoe Lake Study. However, we hope the County will act promptly to implement the preferred alternative identified in the Horseshoe Lake Study to avoid any further pumping from Horseshoe Lake to Rock Creek/Lake Sawyer. Given that the County intends to pump to Rock Creek/Lake Sawyer on an emergency basis (as demonstrated by the pumping occurring at this time), the Draft Plan and related DNS should more fully identify and discuss the impacts of this activity, which directly impacts the water quality of Lake Sawyer.

Joanne Davis
February 7, 1997
Page 4

Thank you for considering these comments.

Very truly yours,

A handwritten signature in cursive script that reads "Brian L. Holtzclaw". The signature is written in dark ink and is positioned above the printed name.

Brian L. Holtzclaw

BLH:fd

Encl.

15711.M89

cc: Client (w/o enclosure)
Metropolitan King County Council (w/ encl.)

PROTEST TO KING COUNTY COUNCIL
 JANUARY 10, 1997

We protest any pumping of water from Horseshoe Lake into Lake Sawyer regardless of whether the water is contaminated with human waste or not.

Further, we protest the inaction by King County Surface Water Management as to developing a long-term solution to this problem (since at least 1991).

NAME	ADDRESS
Peggy Carpenter	32209 Sunny Lane BIK Diamond 99010
Brent Gonyl	23523 SE 287th Kent WA 98142
Donna Cammilleri	24029 220th Pl SE Kent WA 98012
Thomas J. Russell	24023 829th Ave SE Kent WA 98042
Nita Parkers	22555 SE 298th Kent 98042
Mary Beth Skotts	19814 SE COV-SUNYR KENT, 98042
Robert J. Swin	20625 SE 288th Pl. Kent 98042
H. HARVEY PICKETT, JR	22963 SE 292nd Place Kent 98042-7025
Rena Craft	20792 Auburn BIK Dandel Nulmen 98096
Sharon Campbell	22029 SE 271st Maple Valley 98038
Dale Boulter	29357 215th Pl SE Kent 98042
RUTH SILSAR	17210 SE K. MALEY SMITH RD 98042-5218
KEVIN THIEL	20546 SE 264th Pl 98042
C. Gombart	21719 SE 290th St. 98042
Dennis Sarr	14919 SE 300th St 98042
Tom Sarr	28017-197 4th Ave SE... Kent 98042
Maureen Sarr	28017-197 4th Ave SE... Kent 98042
Conrad Reed	2504 11th Pl SE Kent 98042
Les Van	20045 MAXWELL RD SE MAPLE VALLEY
David A. Podes	22957 SE 292 Pl Kent
Patty Skowron	18328 SE COV. SUNYR Pl Kent 98042
Kelly Zamel	24410 235th Ave SE
Amelia Bartz	21116 SE 277th St. Maple Valley 98038
ON	13213 138 Ave SE Renton
Lisa Russell	21116 SE 277th Pl Kent 98042
Les Parkers	21711 SE 288th St Kent 98042
Ruth Caldwell	20926 SE 281st Kent 98042

PROTEST TO KING COUNTY COUNCIL
January 10, 1997

We protest any pumping of water from Moresnoh Lake into Lake Sawyer regardless of whether the water is contaminated with human waste or not.

Further, we protest the inaction by King County Surface Water Management as to developing a long-term solution to this problem (since at least 1991).

NAME

ADDRESS

Cindy Hakman 29114 213rd AVE SE Kent 98042

Pamela R. C. Hill 29050 222nd Pl. SE Kent WA 98042

John Keel 22025 SE 285th Kent WA 98042

Richard Young 23004 SE 304th Kent, WA 98042

for Wallace 30201 S.E. 302 Kent, WA 98042

James Hill P.O. Box 585 Mill

Maribel J. J. J. 21701 SE 290th St Kent 98040

Eric Scott 24459 232nd SE Kent WA 98042

Helena Williams 30201 - 224th Ave SE Kent WA 98042

LIND MAYER 19106 118th AVE SE KENT WA 98042

Paul D. J. 19937 SE 293rd St. Kent WA 98042

Christine Thompson 33324 300 AVE SE Auburn, WA 98092

Peter C. 21220 SE 284 Kent WA 98042

Walter K. 24501 210th Pl SE Kent 10007 98042

Tommy J. 23673 275 Kent WA 98042

David S. 21711 SE 288 St Kent WA 98042

Anna J. 20034 SE 290th Pl Kent WA 98042

Terrance J. 21220 SE 284 Kent WA 98042

Sherry H. 22214 SE 300th St Kent, WA 98042

**PROTEST TO KING COUNTY COUNCIL
January 10, 1997**

We protest any pumping of water from Horseshoe Lake into Lake Sawyer regardless of whether the water is contaminated with human waste or not.

Further, we protest the inaction by King County Surface Water Management as to developing a long-term solution to this problem (since at least 1991).

NAME	ADDRESS
Holly Nichols	22404 SE 30th St Kent
Paul Pickett	22963 SE 292nd Pl Kent
KACU SECHORN	28829 220th Pl. SE. KENT
Rich Chalk	29452 216 SE
Kris Busch	28817 191 Pl SE KENT WA.
Ken Adams	32327 Morgan Dr. Black Dia.
David Parsons	30465 227 Pl SE Kent WA
Chris Sartan	15044 SE 72nd Kent WA
Shellie Robertson	29002 212th Ave SE Kent, WA
Carson Weber	34122 158th Pl SE Auburn, Wa
Patsy G. Coe	22136 SE 300th Kent WA
Janice J. Mason	21507 SE 292nd Pl Kent WA
Harold Mason	30824 229th Pl SE
Christopher Johnson	31108 320 AVE Black Diamond
Patte Trench	21125 SE 276th St Kent
Al Blum	27507 WILHE RD SE.
John H. H.	22500 SE 317th St Kent WA
Shirley Hayward	21214 SE 271st Pl KENT

PROTEST TO KING COUNTY COUNCIL
January 10, 1997

We protest any pumping of water from Horseshoe Lake into Lake Sawyer regardless of whether the water is contaminated with human waste or not.

Further, we protest the inaction by King County Surface Water Management as to developing a long-term solution to this problem (since at least 1991).

NAME	ADDRESS
Tracy Gley	24000 222 nd Pl SE Kent
Jeff Burt	28817 1915 PL SE Kent
Swanson	99012 218 th Pl. SE. Kent
Lorna Steward	19824 SE 287 th Kent
Eric B. Steward	22226 SE 245 th Pl Kent
Sharon Shin	19433 A.B.D. AUB
Barbara Rice	21224 SE 291 st Kent
Dolores H. Moore	50851 229 th Pl SE Kent
Sharon Davenport	29751 224 th Ave SE Kent
ERIC M. BURMAN	29427 215 th AVE SE KENT
Angela Schubert	21211 SE 292 nd Pl Kent
Christi Johnson	31057 E. C. W. 200 th SE. Kent 98042
Jillie Williams	28620-192 nd Pl SE Kent 98042
Richard Johnson	2848 192 nd Pl SE Kent 98042
Joan Butch	29725 224 th Ave SE Kent 98042
Craig Essick	27825 SE 307 th Pl Kent 98042
Jim Hest	21007 SE 272 nd Pl Kent 98042
Paula Brown	" " " " " "

**PROTEST TO KING COUNTY COUNCIL
January 10, 1997**

We protest any pumping of water from Horseshoe Lake into Lake Sawyer regardless of whether the water is contaminated with human waste or not.

Further, we protest the inaction by King County Surface Water Management as to developing a long-term solution to this problem (since at least 1991).

NAME

ADDRESS

Kelina Miller	29717 225 Pl SE Kent
John Fahey	22433 SE 296 th Kent
Michelle Dutsch	22035 S2 2615 th Pl. Kent
Mike Bertsch	29725 224 th Ave SE
Helen N. Kirklin	30446-227 th Pl. S. E Kent
Dawn Johnston	31003 230 th Pl SE Kent
David P. King	2711 SE 288 ST KENT WA 98042
Mary Lee Col	30028-205 th Ave. SE. Kent, WA 98042
Barbara Burren	21227 SE 292 Pl Kent WA
Theresa Day	29420 215 th AVE SE- KENT WA 98042
WHA	22440 SE 300 th ST KENT WA 98042
Maureen	18610 SE 277 th Pl. Kent 98042
Colyn C. Welch	19925 S.E. 293 rd CRT, Kent 98042
Colyn N. Jones	28906 220 th Pl SE Kent, WA 98042
Phillip W. Williams	22705 SE 324 th Kent WA 98042
David Ruder	22957 St. 292 nd Pl. Kent, WA 98042
Ronald STEVENS	28865 187 th Pl SE Kent WA 98042
Nancy Kelly	29000-222nd Pl. SE Kent, WA 98042

**PROTEST TO KING COUNTY COUNCIL
January 10, 1997**

We protest any pumping of water from Horseshoe Lake into Lake Sawyer regardless of whether the water is contaminated with human waste or not.

Further, we protest the inaction by King County Surface Water Management as to developing a long-term solution to this problem (since at least 1991).

NAME	ADDRESS
Callie McLaughlin	32010 Morgan Dr. Black Diamond
Timothy M. Weber	30040 224th Ave. SE. 98042
Tonnie Mendenhall	22430 SE 30th St 98042
Janice Namuy	19428 SE 28th St 98042
Debra Ayers	72522 SE 32nd St 98042
John Ward	22210 SE 29th St 98042
Joe Knecht	23204 SE 31st St 98042
Steve Brown	22031 SE 29th St 98042
Walt [unclear]	20018 SE 30th St Kent 98042
C.L. Miller	29811 273 S.E. Kent 98042
Samuel Perkins	29051 210 PISE Kent 98042
David Shiff	25800 224th SE Kent
Joe Sturman	STURMANVICH 22510 SE 30th Pl Kent 98042
Jim [unclear]	30625 20th SE KENT 98042
Robert [unclear]	21318 SE 27th Pl Kent 98042
Benjamin Browning	22108 SE 30th Kent 98042
Chuck [unclear]	32505 28th Ave SE Black Diamond 98042
Joe [unclear]	2595 Griffiths Rd 98366 Port Orford

PROTEST TO KING COUNTY COUNCIL
 January 10, 1997

We protest any pumping of water from Horseshoe Lake into Lake Sawyer regardless of whether the water is contaminated with human waste or not.

Further, we protest the inaction by King County Surface Water Management as to developing a long-term solution to this problem (since at least 1991).

NAME	ADDRESS
DARREN LEE	32323 277 th AVE. S.E. KENT
Gregory A. Gust	18731 SE 314 ST Auburn
Danny THOMAS	19020 SE CIV/504 RD
Cory Swanson	29228 218 th PL SE Kent 98042
DANIEL WALTERS	22040 SE 300 th ST Kent 98042
James Lee	29026 222 nd 1 st SE Kent WA 98042
Paul Wilson	22401 SE 308 th S. Kent 98042
Margaret Vees	16829 SE 298 th Kent 98042
Lee Lee	29258 218 th PL SE KENT 98042
Suzanne Jamison	30840 202 nd AVE SE Kent 98042
Virgin Procoris	29323 202 nd AVE SE Kent 98042
Lee Wiley	28217 195 th Ave SE Kent 98042
Lyndee Blunt	22245 190 th Ave SE Auburn 98002
Jean Sipe	31054 230 th PL SE KENT 98042
Calley Russell	30478 227 PL SE Kent 98042
Ray Churchill	30644 224 th AVE SE KENT 98042
Annita Ackman	31036 207 th Ave SE Kent 98042
John Maddin	28124 220 th SE Kent
John East	22533 SE 304 th PL Kent
Don Moore	28130 203 rd SE Kent, WA, 98042
Kayce Jette-Torgerson	29438 216 th SE Kent, Wa. 98042
Don Berneri	30730 229 th PL S.E. Kent WA 98042
Brad Roney	28820 235 th PL SE Kent, WA 98042
Cynthia Campbell	30018 225 th PL S.E. Kent WA 98042
Robert W. Robbins	22555 SE 294 th ST Kent, 98042

PROTEST

February 28, 1996

We protest the pumping of water contaminated with even a minute amount of sewage into the environment.

We protest inaction by King County Surface Water Management as to developing a long term solution to this problem (since at least 1991).

Name

Address

Billie J Johnson	22211-276 Ave SE Maple Vly 98038
Roy Anderson	21628 SE 266th St Maple Valley WA 98058
[Signature]	25830 193rd PI SE Kent WA 98042
[Signature]	22936 SE 188 ST KENT WA 98042
Laura [Signature]	24011 137th Ave SE Kent WA 98042
Allen L. [Signature]	22307 SE [Signature] Kent WA 98042
[Signature]	30470 SE 355th [Signature] WA 98042
[Signature]	29724 33rd Ave SE Kent WA 98042
[Signature]	22325 SE 290th Kent WA 98042
[Signature]	22307 SE 290th - Kent WA 98042
[Signature]	4039 E. Shorewood Pl. #639 M.I. 98040
[Signature]	4809 SW 329th Way - Federal Way -
Kristi Hare	4809 SW 329th Way Federal Way 98023
Carol Wade	24321 140th Ave SE Kent, WA 98042

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Name

Address

- ~~Ellery B. Cruse 32322 124th Ave SE Kent WA~~
- ~~M.J. STRAND 29036 214th Kent WA 98042~~
- ~~T.W. STRAND 29036 214th Kent WA 98042~~
- ~~Genny & Crighton 20018 SE 3167th St. Kent WA 98042~~
- ~~Ralph Royan 27741-215th St SE Kent WA 98042~~
- ~~Rand Anderson 31031 SE 202nd Kent WA 98042~~
- ~~John K. Kusz 29111-213th Ave SE Kent WA 98042~~
- ~~Raymond ... 21214 SE 270th St Kent WA 98042~~
- ~~Louise E. Fisher-Ferguson 27130 216th Ave SE Kent WA 98042~~
- ~~Let them pay for it KWK not ME~~
- ~~Ferguson 19935 SE 310th St Kent WA 98042~~
- ~~James ... 19605 SE 255th St Kent WA 98042~~
- ~~Pat Brown 23625 SE 286th Kent WA 98042~~

PROTEST

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Name

Address

Anna Fiedler	21415 21st St NE	Bellevue, WA
P. Swanson	29210 21st St NE	Kenmore
Gerrit Swanson	29210 21st St NE	Kenmore
John Swanson	20275 SE 2nd St	Bellevue
John Swanson	31955 SE 2nd St	East Lynn
John Swanson	21227 SE 2nd St	Kenmore
Andy Holmgren	20851 227th Ave SE	
Expto G. Holmgren	22020 SE 304th St	Kenmore
John Holmgren	29002 2nd St	Kenmore
Scott Hedlund	28405 180th Ave SE	Kenmore
Robert Swanson	30215 7th Ave SE	Kenmore
John Swanson	20905 SE 2nd St	Kenmore
Harley VanAntwerp	29221 2nd St NE	Kenmore
Harley VanAntwerp	20111 1st St NE	Kenmore

PROTEST

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Name

Address

Michele Lyette	21419 SE 28th St
Tera Anglemeyer	21419 SE 28th St
Don W Perkins	21711 SE 28th St
Sharon L. Cade	25854 187th Ave
Robert J. Smith	30234 227th Ave SE
R. J. Denton	23256 205th Ave SE
Greg McHenry	"
David B. ...	23435 218th Ave SE
Alison Skim	29739 226th Ave SE Kent WA 98042
Keth Slack	29327 227th Ave SE Kent WA 98042
Jack A. Bloodworth	21180 SE 29th Ave, Kent WA 98042
Steven Turner	30202 187th Ave SE Kent WA 98042
Rebecca D. ...	30461 227th Ave SE Kent WA 98042

PROTEST

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Name

Address

Friedricks	30901 E. Kirkman Dr. SE
Suzanne Manchester	21632 SE. 292 nd Kent WA
Dea Russell	21116 SE. 277 th pl Kent
Deek Schick	28829 176 th Ave SE
Melody MAND	31005 233 rd Pl SE Kent WA 98042
Wadek Mahany	24228 21511 th SE Kent, WA 98042
Cory Swanson	21328 21511 th SE Kent
John Sanger	23242 SE 277 th Kent
Sharon Tab	25027 177 th Pl SE Kent (30124)
Gary Brewer	37607 297 th Pl SE Enumclaw WA
STEVEN GARVICH	22590 SE. 304 th Pl KENT WA
Barbara J. Wilson	20012 SE 287 th Kent WA
Paul J. Hest	22855 229 th SE Kent
W. H. G. Co	28247 193 rd Ave Kent WA

PROTEST

February 28, 1996

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Name

Address

<i>Alan Edgell</i>	<i>19724 205th Ave S.E., Renton WA 98058</i>
<i>Melody M. Todd</i>	<i>30845 31st Ave N, Kent WA 98042</i>
<i>Ernie Anderson</i>	<i>28828 224th St SE, Renton WA 98042</i>
<i>MIKE BERESCH</i>	<i>29725 224th Ave SE</i>
<i>JOE WELCOME</i>	<i>30201 224th Ave S.E.</i>
<i>Pat Johnson</i>	<i>3221 Chrysalis Blvd #1, Pacific WA 98047</i>
<i>Robert Hall</i>	<i>4056 Blk. T, Renton WA 98042</i>
<i>Dennis Johnson</i>	<i>27724 190th Ave SE, Kent WA 98042</i>

PROTEST

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Name

Address

~~William C Banner 29012 222nd Pl SE Kent~~

~~Waggon Banner 29012 222nd Pl SE Kent~~

~~Norman Sully 27000 203rd Pl SE Kent, WA~~

~~Kyle Britton 22006 Sweeney Rd SE Maple Valley, WA 98038~~

~~Ken Sully 20316 SE 119th St Issaquah, WA 98027~~

~~Phillip S. Johnson 1125 NW 20th St Seattle, WA 98107~~

~~Allyson K. Brown 21910 Woodlawn St Seattle, WA 98148~~

~~William H. Brown 15774 SE 25th St Bellevue, WA 98008~~

~~William R. Child 11111 1st Ave S Burien, WA 98148~~

~~Steve Cloutman 14273 120th St NE Everett, WA 98203~~

~~Dennis M. Wood 7221 5th St Everett, WA 98203~~

~~Ken Sully 4825 So. 210th Auburn, WA 98001~~

~~Diane LeBeau 26075 11th St Everett, WA 98203~~

~~Robert F. Johnson~~

Leon Kinnunen

Carol A. Sander

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Name

Address

Cecilia Miller 123 7th 423 Hickory 98001

GARY NUNOKAWA 14731 SE 63RD ST BELLEVUE 98006

SPENCER M. MURPHY 13210 SE 31ST AVENUE TACOMA WA 98409

George H. ...

ANGELA M. STINL 10803 SE 241 ST PL SE S102 KENT WA 98031

Sally Granlund 18215 Reuben Thayer Hwy Rd - SE 7th Ave Bellevue

Shelby Mackay 21631 SE 253rd Pl Maple Valley WA 98038

11511 SE 8th Ave S.W. Vancouver 98007

13500 SE 29th Pl Tukwila 98162

Jan Beckman 13309 S.E. 52nd Pl Bellevue, WA 98006

Empty lines for additional names and addresses.

PROTEST

February 28, 1996

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Name

Address

- Dorian Soodan 29346 215th Pl SE Kent WA 98042
- Ram Bosley 20808 SE 271st Kent WA 98042
- Jan K Thompson 28818-191st Pl SE Kent WA 98042
- Bryce Lesinski 22205 SE 295 Pl Kent "
- Buzz Manchester 21632 SE 292nd St. Kent 98042
- Callen Willes 21723 SE 291st St Kent 98042
- Alice Schepeldecker 22975 SE 292nd Pl. Kent 98042
- Max Livingston 16624 SE 279 Pl " "
- Jim Nordquist 31016 230th Pl SE. Kent
- Jason Anderson 30486 227 Pl SE Kent
- Cindy A. Eide 40311 298th AV SE Enumclaw, WA 98022
- Edward H. Laing 29023 220th Pl SE Kent WA 98042
- Minny Ward 29446 216th Ave SE Kent 98042
- Whe 29258 218 Pl SE Kent 98042

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Name

Address

<i>Nelly Nichols</i>	22404 SE 300 th St Kent
<i>[Signature]</i>	22404 SE 300 th St Kent
<i>Ceresa Baum</i>	31001 229th Ave SE Kent
<i>Jack Jay</i>	21625 SE 292nd St Kent
<i>Angela [Signature]</i>	22506 SE 300 th St Kent
<i>Lee S Shook</i>	34312 202nd Ave SE Kent
<i>MICHAEL C SCORBY</i>	22217 SE 295th PL KENT
<i>Robert [Signature]</i>	21770 S.E 279 Kent
<i>[Signature]</i>	21711 SE 205 th Kent
<i>[Signature]</i>	5416 James Ave SE Auburn
<i>Patricia Throck</i>	21125 SE 276th St Kent
<i>Sharon [Signature]</i>	30482 227 th Ave SE Kent
<i>Herold Dennis</i>	19428 SE 286 Kent WA
<i>Louise Mendenhall</i>	22430 SE 300 th St Kent
<i>John W [Signature]</i>	30490 227 th SE Kent WA
<i>James [Signature]</i>	20307 SE 284 th Kent, WA
<i>Ryan [Signature]</i>	29641 185 SE Kent WA
<i>Don K [Signature]</i>	30482 227 th PL SE Kent WA

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Name	Address	Ave	City	State	Zip
James Carter	28237	201 Ave SE	Kent WA	98042	
Eric Sundvall	29523	196 Ave SE	Kent WA	98042	
Mark Salimbe	20440	SE 281st St	Kent	98042	
Alison Stern	29139	226th Ave SE	Kent	98042	
Mike Jones	28631	184 Pl SE	Kent	98042	
Wynne Brown	21310	SE 291st	Kent	98042	
Jason Brown	21220	SE 281st	Kent WA	98042	
Mary Eddley	19724	SE Dov-Saw Rd	Kent	98042	
Jim Underbaugh	32121	197 Ave SE	Kent	98042	
Jim Hattberg	30738	229th Pl SE	Kent	98042	
Bret A. Long	23323	SE 281st	Kent WA	98042	
Kousha Thompson	29573	216th St NW	EDU	98010	
Jim V. Wintz	2842	302nd St		98023	
Linda Foster	21426	218th Pl SE			
Clay Lee	29103	216th SE			
Dorothy Lane	22513	SE 300th			
Pat B. Boderick	22200	SE 295th St		98042	
John Harris	17625	SE 272nd	Kent	98042	
Joseph Carter	28237	201 SE	Kent WA	98042	



**King County
Department of Natural Resources**

Yesler Building
400 Yesler Way, Room 700
Seattle, WA 98104-2637
(206) 296-6500

June 14, 2000

Fred Rohrbach
29655 —232nd Avenue SE
Kent, WA 98042

Response to Comments on the Lake Sawyer Draft Management Plan, January 13, 1997

1. The County last pumped water from Horseshoe Lake into Lake Sawyer for ten days in 1997. Pumping was discontinued in 1997. The Washington State Department of Fish and Wildlife and the Department of Ecology informed the County that they would not issue emergency permits for this problems since it appears to be ongoing rather than emergency in nature. The County Executive has recommended that the residents flood proof their homes. Therefore, the concerns regarding the County pumping water from Horseshoe Lake to Lake Sawyer are no longer relevant to the management of Lake Sawyer.
2. Comment noted.
3. The County has adopted a Lake Protection Standard in the Surface Water Design Manual. Management measure LS-1 recommends that the City of Black Diamond also adopt this standard (see Chapter 6 in the Final Plan).
4. Management measure LS-2 Forest Retention/Conservation addresses this concept (see Chapter 6 in the Final Plan). King County purchased 60 acres of open space along the southeastern shoreline from Palmer Coking Coal Company in October 1999, which will become a new County Park.
5. See Chapters 5 and 6 in the Final Plan for a discussion of the data collected along Rock and Ginder Creeks.

RECEIVED
JAN 13 1997
KING COUNTY
WATER & LAND RESOURCES DIVISION

January 13, 1996

To - Joanne Davis - Senior water quality specialist
King County Water and Resources Division
700 Fifth Ave., Suite 2200
Seattle, Wa. 98104

Re - Management Plan for Lake Sawyer and its watershed.

Dear Mrs. Davis,

I would like to compliment you, your office and others who contributed for a well done report on Lake Sawyer.

Being a resident of Lake Sawyer I have the following comments to make.

1. **HORSESHOE LAKE** - Excess water should not be discharged into Rock Creek and then Lake Sawyer. Lake Sawyer already has enough phosphorous and any more is too much. Also, homes should never have been built on Horseshoe Lake as even old timers will attest to the fact that the water level goes up and down. Why and who at DDES issued the building permits for the homes on Horseshoe Lake? The current homeowners at Horseshoe Lake have been dealt a mis-service by DDES and have to suffer because someone at DDES and SWM wasn't doing their job.

2. **THE POND AT GREENBRIAR** or on your draft management plan Lake no. 3. The last I heard this pond is slated for residential development. This pond was historically part of Lake Sawyer and is now separated by a local road. It is about 100 yards in a straight line from Lake Sawyer. It has no visible inlet or outlet, but interacts with Lake Sawyer via the ground water table.

If this pond is developed, someone will have made a serious mistake, as this pond is similar to Horseshoe Lake in that it goes way up and stays that way for many months. I invite you to look at it now, as it is way up and would flood any homes that are built there. On the East side of the pond, west of 232nd Av. SE are a couple of depressions that currently have standing water, this water is there about 3-5 months a year. These are not connected to the pond but collect water from runoff.

If homes are built near this pond people will fertilize their lawns, etc. Since there is no inlet or outlet this pond will turn into an algae infested scum looking body of water. I'm sure there will be complaints from future homeowners about the quality of water at this pond. Will they also want excess water pumped into Lake Sawyer like Horseshoe Lake?

The recommended course of action is to leave it as it is - undeveloped, and not create future problems. We all consider Lake Sawyer a jewel and want to improve, not maintain, the current quality of water.

3

Because Lake Sawyer is unique and the largest lake in SE King County its watershed should be treated differently regarding the King County Growth Management Plan.

This lake is used for many recreational activities and use will only increase as more homes are built in the area. Your report states about 73% of the land is forested now and is projected to go down to 22%. This means Lake Sawyer's water quality will worsen.

The majority of land in the Lake Sawyer watershed is owned by a few companies. They are currently logging and clear cutting large tracts of forested land, primarily in the Ravensdale Creek area. With less trees the runoff increases and if this land is developed there will be more inflow of nutrients to Lake Sawyer.

4

I suggest that these private companies be given tax incentives or King County buys some of their land, especially on both sides of Ravensdale and Rock Creek to create a sizable buffer and not a ~~soft~~ buffer.

soft

The bottom line is that we can't stop development, but why does everything have to be clear-cut. Houses can be built with sizable clumps of trees left standing and not a few peckerpoles as is the case now. Development can come with enough of the original vegetation and trees left in place.

5

In your December 20, 1994 study your report shows high concentrations of contaminants at station 8A. This definitely has an impact on Lake Sawyer. What is SWM doing about it? And how bad is it?

In conclusion, there are some things that we can do now and others that will take time to implement.

I think a good study has been done and want any future moneys to be spent on projects that will produce tangible results and not more studies.

Money for lake restoration will be hard to come by and should be used for things like land acquisition, education, etc. and not additional studies.

We should try and protect all original forest cover now in the Lake Sawyer watershed. These private landowners should be compensated in the form of an outright purchase of their land or tax incentives. We can plan and prevent further loss of water quality now, but can't do so later.

The key word has to be prevent and anticipate. Everyone knows what the problem is, now lets execute, and do something meaningful to protect Lake Sawyer. The longer we

wait to do anything the more the quality of Lake Sawyer will deteriorate and it will become only far more expensive at a later date to correct the problem.

Surface Water Management should take a more aggressive role in this besides the public in Lake Sawyer Watershed. The perception is that SWM takes the path of least resistance and goes after the individual homeowners when it also should educate the large landowners in our watershed.

Sincerely,



Fred Rohrbach
29655 232nd AV SE
Kent, WA 98042
206-630-0803

COPY TO KENT PULLER.



**King County
Department of Natural Resources**

Yesler Building
400 Yesler Way, Room 700
Seattle, WA 98104-2637
(206) 296-6500

June 14, 2000

Rick Luther
City of Black Diamond
Post Office Box 599
Black Diamond, WA 98010

Response to Comments on the Lake Sawyer Draft Management Plan, February 6, 1997

1. We agree that an alternative that is implemented is better than one that is not. Knowing what funding sources are available would be useful. However, the availability of any given funding source within the State can change from year to year. It is beyond the scope of this plan to identify funding sources for all of the proposed management strategies.
2. Substantial monitoring has been and continues to be done through the combined City and the County efforts. In addition, the County prepared a Conceptual Stormwater Plan for Rock Creek/Ginder Creek Drainage. Implementation of this stormwater plan is now listed as Management Strategy LS-13. As discussed in Chapter 4, there are some general areas of concern (see discussion in Chapter 4 of the Final Plan) within the Rock Creek/Ginder Creek drainage. However, monitoring to date has not identified a "significant point source" which should be targeted. Rather, it appears that the cumulative impacts of stormwater runoff would be best addressed through the implementation of the Stormwater Plan.
3. The City is to be commended on its planning efforts that will minimize impervious surfaces within the City. The modeling effort for this plan is designed to be conservative (worst-case scenario) and does not have the resolution to be able to determine load differences based upon landscaping within a particular development site. However, there are other models available that can do this. The Center for Watershed Protection recently published a document that describes a model entitled "Simplified Urban Nutrient Output Model (SUNDM)." This model is reported to compute nutrient loads for alternative development scenarios. The title of the publication is *Loading from Conventional and Innovative Site Development*, July 1998. The Center can be reached at (410) 461-8323.
4. The County greatly appreciates the cooperative efforts the City of Black Diamond staff has had with regards to the monitoring efforts and planning efforts to protect Lake Sawyer.



City of Black Diamond

P.O. Box 599
25510 Lawson Street
BLACK DIAMOND, WA 98010
(360) 886-2560 • FAX (360) 886-2592

Ms. Joanne Davis
King County Surface Water Management
700 Fifth Avenue, Suite 2200
Seattle, WA 98104

February 6, 1996

RE: Final Draft Management Plan: "Lake Sawyer and Its Watershed"

Dear Ms. Davis,

Thank you for the opportunity to comment upon the Final Draft Lake Sawyer Management Plan. I appreciate your efforts to respond to many of the City's earlier comments in this Final Draft, and I am hopeful that the following comments from Black Diamond Staff and on-going dialog between King County SWM and the City of Black Diamond will serve to ensure the development of a realistic plan that serves the best interest of all who live within the watershed.

Ability to Implement Plan

As I noted in the City's earlier letter, the ability to implement a plan for lake management is very important. Given the costs projected for many of the implementation measures in this Final Draft, it is clear to City Staff that a significant amount of funding from outside sources will be necessary to effectively address the goal of maintaining the quality and state of Lake Sawyer. Identifying the types of funding actually available for plan implementation may further aid in the identification of the best alternatives, as an alternative that is implemented is better than one that is not.

A Targeted Approach

As you are aware, City Staff continue to monitor water quality within the Rock Creek drainage basin on a regular basis. One important goal of this monitoring is to further delineate those portions of the drainage basin which contribute most significantly to the phosphorous loading situation at Lake Sawyer. Prior to expending significant public funds and/or burdening new development with cost prohibitive or untested water retention and treatment facility requirements on a "global" basis, City Staff feel it is necessary to better understand the specific areas where limited funding can be best

targeted to address what may be significant "point sources". Preliminary testing indicates that loading in areas of the basin containing the same characteristics as the wetland area in Ravensdale Creek may be occurring, and would not necessarily be reduced with the development specific measures proposed in the plan.

Development Pattern

3
It is also important to note for modeling purposes that the City of Black Diamond has made a focused effort to direct future development consistent with the "Rural by Design" approach. Key to this development concept is the retention and preservation of open space throughout the City. As an example, a business park in Black Diamond is not likely to consist of impervious building areas and asphalt parking lots. Instead, buildings will be clustered, parking maximized with significant landscaping, and open space will occur throughout the development site. While such development will not occur until sometime in the future, the consultants should evaluate the impact that such a development pattern could have upon the quality of surface water generated within the City. At a minimum, it seems that one would expect minimized impervious surfaces contributing to the phosphorous loading.

Continued Cooperation

4
In general, implementation of any plan for Lake Sawyer will require the cooperation of all affected. Black Diamond Staff remain committed to ensuring that every tool currently available is utilized to minimize phosphorous loading in the basin. While I understand the necessary deadlines for completing work on this stage of the project, implementation of specific measures and/or any adoption of the plan will require additional review and comment by both the King County and Black Diamond Council's.

I look forward to being a part of this future study, review, and discussion as we work to identify acceptable and cost effective solutions for this important problem.

Sincerely,


Rick Luther
City Administrator



King County
Department of Natural Resources
Yesler Building
400 Yesler Way, Room 700
Seattle, WA 98104-2637
(206) 296-6500

June 14, 2000

Richard Chase
Water Quality Engineer
City of Kent
220 Fourth Avenue South
Kent, WA 98032

Response to Comments on the Lake Sawyer Draft Management Plan, February 10, 1997

1. Appendix C describes the HSPF model used for the water budget and the lake response phosphorus model.
2. Comment noted. This table has been modified.
3. Comment noted. Tables have been modified.
4. Text and table have been modified. Alternatives have been restructured.
5. Unclear what the comment means with reference to the "Horseshoe Lake/Rock Creek discussion" and directional arrows on inlet and outlet flow channels. The text identifies that Rock Creek and Ravensdale Creek flow into Lake Sawyer and that the outlet is Covington Creek on the central western shoreline of the lake.
6. Most recent update on Horseshoe Lake is included in Final Report.
7. Comment noted.
8. Text has been modified and "severely degraded" removed. Total wetland area for the entire Lake Sawyer watershed is identified in Table 2-1. Total wetland area for each subbasin was not listed but can be obtained from the County hydrologists upon request.
9. The word "mean" has been inserted. Chapter 4 contains a more in-depth discussion of the historical and current water quality of the lake. Washington Department of Ecology's Ecology data are available in its report and are not duplicated in full in the Lake Sawyer Management Plan. Discussion of the 1990 and 1995 data are included where appropriate.
10. The historical data is from the Metro Small Lake Monitoring Program as stated in the text. A footnote will be added to the table.
11. No SRP data from the 11/92—5/93 effort. The word "total" has been deleted.

12. A Swoffer 2100B flow meter was used. Stream stage height was measured every six hours at the mouth of Rock Creek from June 1994 through November 1994 using the Unidata electronic stage recorder. From November 1994 through September 1995, measurements were made once daily. Flows for Ravensdale Creek were based upon daily staff gauge readings and were independent of the values recorded on Rock Creek.
13. This information is part of a large spreadsheet and was not included in the report. It is available upon request.
14. Last paragraph was a typo and has been deleted. N:P ratios are typically done on total nutrients rather than soluble nutrients. There have been many papers written on this topic and can be found through a literature search. However, in this region, as stated in the text, phosphorus is typically the nutrient of concern and most easily managed.
15. The statement "not clear" has been deleted from the text. The lake is predominantly P limited. Phosphorus is the focus of management strategies because nitrogen can be replenished through natural processes. Management strategies, which reduce phosphorus, will also reduce nitrogen.



February 10, 1997

Ms. Joanne Davis
 Water and Land Resources Division
 King County Dept. of Natural Resources
 700 Fifth Ave., Suite 2200
 Seattle, Wa. 98104

RE: **Lake Sawyer Draft Management Plan**

Dear Ms. Davis,

Below are some brief comments on the draft Lake Sawyer Management Plan. In general, the document is well organized and is easily read. Based on our recently conducted wellhead protection study, the majority of the Ravensdale Creek and Lake Sawyer sub-basins lie within the one-year and five-year modeled capture zones for the Kent Springs water supply and within the ten-year capture zone for our Armstrong Springs wells. The Lake Sawyer Management Plan should mention this fact and discuss the ancillary benefits of watershed BMPs to Kent's water supplies.

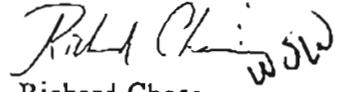
<i>PAGE</i>	<i>COMMENTS</i>
vii	① Although not included in the draft, the proposed Appendix C should adequately describe the WAQCEM model, including all the assumptions used and any sensitivity analysis performed.
ES-2	② Are these TP and chl a numbers average values and how many summer samples is each studie's average based on? This information would be useful (even in the executive summary).
Table ES-2	③ Blank lines in columns should have "NA" or "not estimated" to make it appear complete. No estimates for P load reduction for LS-9, 10, 11, 18, 24, 25...? More clarification is needed on "annual cost" headings; ie. which are truly annual and for how many years and which are one time expenditures? (same for Table ES-3).
Table ES-3	④ Can this table be clarified to better relate how Alternative 3 load reduction is derived. Intuitively, combining Alt. 1 and 2 (Alt. 3) would result in a combined reduction equal to the sum of A and B (under future conditions). Is the discrepancy related to the increasing difficulty in removing P at lower concentrations...?

- Figure 1-2 (5) Place directional arrows on inlet/outlet channels (relevant to Horseshoe Lake/Rock Creek discussion). Label Covington Creek. (same for Fig. 2-1).
- Page 1-5 (1) Provide most recent update on Horseshoe Lake situation in final report.
- Chapter 2 (7) Chapter 2 goes back and forth from watershed scale discussion to lake-level discussion. It might flow better to progress from watershed scale (land use, basin description, geology, creek water quality, etc.) to lake scale (general limnology, water quality, etc.). Include larger scale map of lake itself in this chapter, showing outlet weir, other relevant features....
- Page 2-5 (8) It would be useful to know the total wetland area in each sub-basin as a percentage of sub-basin area. It is hard to visualize just how "severely degraded" Rock Creek is. Representative photo-documentation for each creek's aquatic habitat would help (in an appendix).
- Page 2-13 (9) Third paragraph. These values are means (insert "average" before volume-weighted). Was the epilimnetic depth range the same in 1989-1990 1995 study (0-6 meters). (Appendix B not provided, but should include 1989-1990 data also). How does the 6.2 chl a value compare to the values in Table 2-3? A discussion of the comparability between the 1990 and 1995 data with respect to differences in method or assumptions would be helpful (in Chapter 3 or 4).
- Table 2-3 (10) Source(s) of this data?
- Page 2-15 (11) No SRP data from the 11/92-5/93 sampling? Tables similar to Table 2-4 would be helpful for the combined 1992-1994 sampling. Groundwater: "total soluble phosphorus"?
- Page 3-6 (12) Stream flow measurement instrument used? Every six hour stage heights for how long; and how were these recorded values used with the daily staff readings on Ravensdale Creek (correlation used?)
- Page 3-8 (13) A table of maximum/minimum (range) epilimnetic and hypolimnetic volumes used based on the weekly lake volumes and updated bathymetry maps would be helpful.
- Page 4-8 (14) Last paragraph seems out of place (not directly related to discussion of nutrient limitation). Any relevance in looking at soluble N and P ratios? More discussion on this topic would be interesting, ie. any recent research on ratios....
- Page 4-10 (15) Stating that the lake is P-limited conflicts with discussion on page 4-8 ("not clear"). The limiting nutrient from April thru October is the most important aspect of the evaluation; during this time period, the lake may only be clearly P-limited in the spring months, but this may be a critical time for P control to minimize spring algae blooms.

We hope these comments are of some value in finalizing the report.
protect Lake Sawyer and its watershed.

We appreciate your efforts to

Sincerely,

Handwritten signature of Richard Chase in cursive script, with the initials 'WJW' written to the right of the signature.

Richard Chase
Water Quality Engineer

cc: Bill Wolinski
Brad Lake



King County
Department of Development
and Environmental Services
3600 - 136th Place Southeast
Bellevue, Washington 98006-1400

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FEB 11 1997

KING COUNTY
SURFACE WATER MANAGEMENT DIVISION
DEBBIE ARIMA

Joanne Davis

RECEIVED
FEB 11 1997

KING COUNTY
WATER & LAND RESOURCES DIVISION

February 6, 1997

TO: Jim Kramer, Manager, Surface Water Management Division
Department of Natural Resources

FM: *Mark Carey*, Land Use Services Manager

RE: Lake Sawyer Draft Management Plan

Thank you for the opportunity to review the State Environmental Policy Act Environmental Checklist and Determination of Non-Significance (DNS) for the above-referenced project.

My staff have reviewed the Checklist and the DNS and do not believe that the project as proposed will result in any significant adverse environmental impacts that cannot be addressed under current code authority. This project will not require a clearing and grading permit.

If you need further assistance in this matter, please contact Randy Sandin, Supervisor of the Site Development Services Division, at 296-6778.

MC:lm
track.ltr/LkSawyer.MW

cc: Pam Bissonnette, Director-Designee, Department of Natural Resources
ATTN: Ken Guy, Assistant Manager, Surface Water Management Division
Robert S. Derrick, Director, Department of Development and Environmental Services
ATTN: Randy Sandin, Supervisor, Site Development Services Section





**King County
Water and Land Resources Division**

Department of Natural Resources
201 South Jackson Street, Suite 600
Seattle, WA 98104-3855
(206) 296-6519
(206) 296-0192 FAX

June 14, 2000

William Kombol
Post Office Box Box 10
Black Diamond, WA 98010

Response to Comments on the Lake Sawyer Draft Management Plan, January 9, 1997

The alternatives have been restructured in the Final Plan. Although all alternatives in the Final Plan would assist in the protection of lake water quality, implementation of any of the management measures is dependent upon funding availability and the cooperative efforts of the Lake Sawyer community at large.

Thank you again for your comments. A final copy of the plan will be available in early July.

TV F717-7



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JAN 10 1997

KING COUNTY
WATER & LAND RESOURCES DIVISION

TO: Joanne Davis, Senior Water Quality Specialist
FAX: 206-296-0192

FROM: Bill Kombol, Lake Sawyer Technical Advisory
Committee

RE: The Draft Management Plan for Lake Sawyer and
its Watershed

DATE: January 9, 1997

My preliminary review of the Draft Management Plan for Lake Sawyer and its Watershed indicates a serious deficiency in the alternatives being assessed as management alternatives. It appears that the structuring of the alternatives does not give the reviewing public the best alternatives available. Instead the alternatives are structured so as to allow King County Surface Water Management decision-makers to choose a high cost and low effectiveness alternative; specifically Alternative 2.

As a member of the Lake Sawyer Technical Advisory Committee and one who is thoroughly familiar with the Draft, I propose that two other alternatives be assessed. They are listed as Alternative 4 and Alternative 5 on the attached pages. Alternative 4 consists of "cost effective controls" costing less than \$1800 per kg of P removed. Alternative 5 consists of the "lowest cost controls", those costing less than \$1500 per kg of P removed. Alternative 5 could be further enhanced by boosting spending on selected cost effective recommendations such as LS-3 (Forest Retention).

Enclosure: 2 pages

DRAFT LAKE SAWYER MANAGEMENT PLAN

Alternative 4: Cost Effective Controls (LS-3, LS-4, LS-7, LS-8, LS-12, LS-13, LS-14, LS-15, LS-16, and LS-17; i.e. recommendations costing less than \$1,800 per kg of Phosphorous removed)

SUMMARY OF COSTS, LOAD REDUCTION AND EFFECTIVENESS FROM TABLE ES-2

Load Reduction (kg P/Yr)	1,412
Estimated Annual Public & Private Costs	\$1,891,800
Cost Effectiveness (\$/kg P removed)	\$1,340

Alternative 4 may offer more load reduction at a lesser cost resulting in a more cost effective solution for phosphorous removal.

Alternative 4 utilizes the most cost effective recommendations from Table ES-2 consisting of the following:

- LS-3 Forest Retention
- LS-4 NGPE and SAO buffer enhancements
- LS-7 Farm Management Plans
- LS-8 Commercial Business Source Controls
- LS-12 Forestry BMPs
- LS-13 Public Involvement and Education Programs
- LS-14 Enhanced facility maintenance
- LS-15 Lake & Watershed Steward
- LS-16 Homeowner BMPs
- LS-17 Regional Alum Injection through stormwater ponds and constructed wetlands

DRAFT LAKE SAWYER MANAGEMENT PLAN

Alternative 5: Lowest Cost Controls (LS-3, LS-4, LS-7, LS-8, LS-12, LS-13, LS-14, LS-15, and LS-16; i.e. recommendations costing less than \$1,500 per kg of Phosphorous removed)

SUMMARY OF COSTS, LOAD REDUCTION AND EFFECTIVENESS FROM TABLE ES-2

Load Reduction (kg P/Yr)	645
Estimated Annual Public & Private Costs	\$567,200
Cost Effectiveness (\$/kg P removed)	\$879

Alternative 5 offers less load reduction but at the lowest cost resulting in the most cost effective solution for phosphorous removal.

Alternative 5 utilizes the lowest cost effective recommendations from Table ES-2 consisting of the following:

LS-3	Forest Retention
LS-4	NGPE and SAO buffer enhancements
LS-7	Farm Management Plans
LS-8	Commercial Business Source Controls
LS-12	Forestry BMPs
LS-13	Public Involvement and Education Programs
LS-14	Enhanced facility maintenance
LS-15	Lake & Watershed Steward
LS-16	Homeowner BMPs

* **Alternative 5:** Spending levels on Alternative 5 recommended solutions could be increased thereby improving phosphorous load reductions. For example, if spending on LS-3 (Forest Retention) were doubled to \$688,000, permanent load reductions could be achieved at a fraction of the costs estimated for the more speculative LS-1.



**King County
Department of Natural Resources**

Yesler Building
400 Yesler Way, Room 700
Seattle, WA 98104-2637
(206) 296-6500

June 14, 2000

William Kombol
Post Office Box 10
Black Diamond, WA 98010

Response to Comments on the Lake Sawyer Draft Management Plan, January 24, 1997

- A. Future land use maps have been modified. The area you are referring to is now shown as forest and single-family low density. See Figure 2-4 in Final Report.
- B. Future land use maps have been modified. See Figure 2-4 in Final Report.
- C. The land use is categorized as "Impervious." However, hydraulically, it is modeled as 15 percent pervious and 85 percent "effective impervious." The City's Comprehensive Plan does contain several mechanisms to assist in the protection of water quality, including open space requirements, clustering, and density transfer programs. However, worst-case scenarios are used in modeling future conditions.
- D. Modeling is based upon how the land use is zoned and attempts to model worst-case scenarios. The model does not make provisions for how quarry managers will utilize their land.
- E. Modeling is based upon how the land use is zoned and attempts to model worst-case scenarios.
- F. Land use maps have been modified.
- G. The King County 4:1 program is not a requirement; rather, an incentive program.
 1. See Appendix L for discussions on land use categories used in modeling efforts.
 2. See Appendix L for discussions on land use categories used in modeling efforts. Hydraulically, clear-cut areas are not considered forests until approximately 20 years into growth.
 3. The concentration of phosphorus in the runoff may be only 16 percent different between grassland and forestland. However, the overall loading may be different due to the differences in the hydrology of the two land use types. A mature forest will not have as much surface water exiting as an immature one. Likewise, grassland may have greater volumes of water leaving the site than a forest. The overall loading in the watershed is

based on assigning a phosphorus concentration and then multiplying that concentration by the volume of water flowing off the area.

4. The amount of phosphorus being released through the natural wetland process is not considered a "significant summer loading."
5. "Phosphorus removal" refers to removal of the nutrient from the water (i.e., becoming immobilized from the water by attenuating to soils), not from the area. Nearshore landscaping can be a very significant loading factor. However, it is much more difficult to quantify the amount of phosphorus contributed through poor landscaping and homeowner practices and therefore not singled out in the model. Homeowner's Best Management Practices are recommended in the Plan.
6. The delineated "conservancy area" has been changed.

January 24, 1997

RECEIVED
JAN 30 1997

KING COUNTY
WATER & LAND RESOURCES DIVISION

Joanne Davis, Senior Water Quality Specialist
King County Water and Land Resources Division
700 Fifth Avenue, Suite 2200
Seattle, WA 98104

Re: Draft Lake Sawyer Management Plan (January, 1997)

Dear Ms. Davis:

Thank you for providing me with a copy of the Appendix for the Draft Lake Sawyer Management Plan. I wish to make the following comments on both the Draft Plan and the Appendix. These comments are in addition to and supplement my comments contained in a Memo dated January 9, 1997 and a letter dated January 15, 1997.

Draft Plan Page 2-10; Figure 2-5: Future Land Use of Lake Sawyer Watershed: I have reviewed this map of future land use in the context of the Black Diamond and King county Comprehensive Plans and have found a number of irregularities and inconsistencies. To aid in your review of my comments, I have photocopied and enlarged the map portion of Figure 2-5. My following comments are indexed to correspond with letters A through F which appear on the enlarged photocopy (attached).

- A. This area in the southeast corner of the watershed is shown as impervious. This area is not part of the Black Diamond Urban Growth Area (UGA). The King County zoning for the property is either rural or forestry. I know of no reason why it would be considered impervious in the future.
- B. The so-called "783 acre annexation area" located in the southwest corner of Black Diamond is committed to a development pattern that leaves 50% of the area as open space with the other 50% developed to medium density residential (4 Du/Acre). This fact is well established in the Black Diamond Comprehensive Plan. The future land use map does not appear to conform to this information.
- C. The commercial/industrial zoned area of central Black Diamond is unlikely to develop to a

completely impervious land use. The City of Black Diamond (COBD) Comprehensive Plan (August, 1996) anticipates that much of the commercial/industrial/business park zoned land would include buffering and landscaping to provide for a corporate campus setting. The Comprehensive Plan vision statement and other components of the plan does not lead one to conclude that commercial/industrial development will be covered with wall-to-wall buildings, paving, and parking lots. To assume a totally impervious area in all commercial/industrial areas of Black Diamond, I believe is a misrepresentation of the COBD Comprehensive Plan and an overstatement of future impacts anticipated by the Lake Sawyer Draft Plan.

- D. The two quarries shown in the east and north portions of the watershed are scheduled for reclamation to forested land uses during the life of the plan. Also both quarries incorporated a number of buffers, and other non-disturbed forested uses into their mine plans. A review of the current land uses (Figure 2-4) and Future Land Use (Figure 2-5) maps show a considerable enlargement of quarry uses. This is contrary to both common sense and common mining practices. Figure 2-5 apparently assumes that if a property is zoned mineral extraction then the entire future use of the site will be quarrying. There is no provision made for the fact that usually only a portion of any site is actually mined and that mined sites are reclaimed to other uses (such as forestry) at the cessation of mining. Figure 2-5 assumes full mining of the entire site in the future and no reclamation. This assumption is patently absurd.
- E. The area around Lake Sawyer is shown as high density single family residential on the future land use map. This assumption is problematic given the existing detached single family development around the lake, the lotting pattern, and the absence of public infrastructure improvements (primarily sewer, roads, and stormwater retention/detention facilities) that would allow re-development of this area. Given high priced waterfront homes on narrow, separately owned, waterfront lots,

the opportunities for re-development to high density residential are well-nigh impossible. If we assume that a developer is willing to buy up expensive waterfront homes in order to conglomerate existing narrow lots, then said developer is still faced with no sewer, narrow and poor roads, and no stormwater facilities. Our profit-motivated developer in this scenario then has to bear those considerable infrastructure costs in order to redevelop to high density single family residential. This redevelopment scenario seriously strains credibility.

- F. The single family low density designation for large portions of the north central watershed is a bit of a stretch given the rural-5 and rural-10 acre minimum zone classifications given to these areas. I'm not sure what density assumption is anticipated by the "single family low density" future land use classification but it shouldn't be very dense. Also, much of this land is included in King County's Rural Forestry Program where 1 DU per 20 acres is anticipated. Have the concepts from King County's adopted Rural Forestry Program been incorporated into the "runoff" assumptions of the "single family low density" future land use assumption?
- G. The impact of the King County-Black Diamond Urban Growth Area (KC-BD UGA) agreement has not been fully reflected on Figure 2-5. While the development side of the equation has been shown, the 4:1 matching open space component has not been shown. The KC-BD UGA agreement anticipates approximately 1600 acres of new, permanent, open space most of which is located in the watershed area. Yet Figure 2-5 shows many of these areas as development lands. This is incorrect since the new UGA acres can not be zoned urban (which Figure 2-5 shows as being the case) without the simultaneous creation of open space acres. Figure 2-5 and Table 2-1 should be corrected so as to properly account for permanent open space acreage called for under the KC-BD UGA agreement. Alternately, if you do not choose to show the permanent open space acreage anticipated from this agreement, then Figure 2-5 and Table 2-1 should not show the development acreage anticipated by an expanded Black Diamond

UGA. There appears to be perhaps 1,000 acres of open space in the watershed area that have not been properly mapped by Figure 2-5 nor accounted for by Table 2-1.

PAGE 2-11; Table 2-1 Summary of Current vs Future Land Use: I had a difficult time correlating Table 2-1 with the table from which it is presumably derived; "Table E-1 Distribution of Land Cover Types from Appendix C: Modeling Water/Nutrient Budget - Methods and Assumptions". These are critical issues and assumptions because to a large extent these figures drive future phosphorus load calculations. First, a comparison of Table E-1 to Table 2-1 shows several significant discrepancies. Table E-1's forested future conditions anticipates 2,346 acres of forest compared to Table 2-1's 1,807 acres of future forests. Table E-1 anticipates 3,726 acres of residential compared to Table 2-1's 3,836 acres of future residential. Focusing on Table 2-1, there is a serious question as to why future low density residential is only shown as a grass condition and not a forest condition. It would seem that a combination of Rural-5, Rural-10, Rural Forestry-20, and a large lot residential market that favors homes in treed and forested settings, would facilitate development of very low density single family homes in forested settings on 5, 10, and 20 acre tracts.

Also, the 2,108 future acres of high density single family residential is a vast overstatement. For reasons stated earlier, redevelopment of existing low density residential areas is unlikely given existing lotting patterns and the difficulty of aggregating enough lots to make the investment worthwhile. For high density residential to work in this market, there generally needs to be significant set-aside open space to entice buyers into a higher density setting. It is highly unlikely that the wall-to-wall high density single family residential can actually develop absent attractive forested and open space features that would draw new homeowners to this area. While an area might be zoned so as to allow high density residential, the actual development of high density residential is dependent upon a number of other factors (roads, utilities, market demand, supply of development-suitable acreage) which are not present in the Lake Sawyer watershed area.

The assumption of 631 acres of future impervious surfaces was questioned earlier in my comments regarding commercial/industrial development standards. I think it is highly unlikely to see commercial/industrial development in either Black Diamond or unincorporated King County that

would allow 100% building and paving coverage of a commercial/industrial site.

2
Another curiosity in the Table 2-1 figures is the derivation of the current and future forestry acres. As categorized in Table 2-1, forestry has two components: clear-cut and forest. Figure 2-4 and Table 2-1 show large areas of so-called "clear-cut" land that has already been replanted and is currently in a highly forested state (i.e. 5-20 year old Douglas fir plantations). These so-called "clear-cut" sites are well-managed lands generally with 100% tree coverage. Today's "clear-cuts" are tomorrow's growing forests. Yet Table 2-1's future figure of 1,807 acres of forests belies those facts. It is rather incredible to believe that so many of today's so-called "clear-cut" (i.e. managed tree plantations) will not be managed to their economic maturity when said trees bring economic value to the owner. The assumption that these plantations will be converted to other uses assumes that the owner of these plantations sees greater profit opportunities by converting the plantations before the trees may be harvested for their forestry value. Given high values for mature Douglas fir forest products, the plantation conversion assumption is very weak.

APPENDIX C Table E-1: Please see my comments above.

3
APPENDIX C Table E-4: Average Phosphorus Concentrations Assumed for Land Uses in the Lake Sawyer Watershed: I found it fascinating that the average assumed phosphorus concentrations for forest lands and grass lands were so close to each other. In fact, the interflow figure for forest lands exceeded the grass land figure. If indeed the grass land phosphorus concentration assumption is only 16% greater (58 vs. 50) than forest lands, can we assume that a wholesale conversion of watershed lands from forests to grass will only result in a 16% increase in phosphorus concentrations within watershed?

4
APPENDIX C Page 6: The second paragraph indicates that "a large wetland area in the headwaters of [Ravensdale] creek" promotes summer phosphorus releases to Lake Sawyer. Presumably the strict land use controls anticipated by Recommendation LS-1 will have no affect on these important phosphorus releases to the lake. Given the opinion that "control of external sources [of phosphorus] is preferred in achieving the greatest water quality benefits" (page 6-1 Draft Plan), how does the Draft Plan anticipate dealing with this significant summer loading of phosphorus from Ravensdale Creek? Recommendation LS-1 does not address this type of phosphorus loading at all. The Draft Plan should

discuss and compare the summer load of phosphorus from watershed wetlands with respect to the various Recommendations. It would seem that Recommendation LS-17 (Alum Injection) is the best way to deal with summer loading of phosphorus from uncontrollable sources such as wetlands upstream in the watershed.

5

APPENDIX C Pages 6-7 Septic Tanks: I found the assumptions regarding septic tanks to be half-baked and incongruous. The primary problem with the septic tank section is an assumption of phosphorus removal. The only removal from septic tanks occurs as a result of pumping. All other phosphorus contributed to the system remains in the system, although it may be in an immobilized form. Nonetheless, it remains in the system. The phosphorus doesn't leave the site, it just is continually loaded into the drainfield area. If the drainfield area is in any proximity to the lake, then the years and years of phosphorus loading has to express itself somewhere; if not directly into the lake then into the groundwater system that feeds the lake. Even properly functioning systems do not really allow for phosphorus removal, only phosphorus storage. Unless the septic tank effluent is physically pumped and leaves the site, the phosphorus is simply stored in some way, shape, or form on site. Eventually, the phosphorus will achieve equilibrium by migrating to lower concentration areas such as the groundwater or the lake. The other component of near-lake phosphorus loading that was not properly characterized is near-lake landscaping, lawn care, and other human activities such as car washing, etc. The proximity of phosphorus to the lake is far more important than addressed in the Appendix C or the Draft Plan. One pound of phosphorus sprinkled on a lawn ten feet from the lakeshore is far more significant than a pound of phosphorus released two miles upstream 1000 feet from a tributary stream.

6
10/20/21

APPENDIX D Aquatic Plan Management Plan: Page 16 and 17: I strongly object to the portion of the aquatic plant control zone which would establish a conservancy area adjacent to my residential lot. I own tax lot 102106-9018 which is located near the south-east corner of the lake (please see a copy of figure 6-1 with a red dot indicating the location of my property). I am currently building a home on this lot to replace the cabin that has been there since 1921. Historic aerial photos of the lake (see 1942 aerial photo attached) show no aquatic plants adjacent to my shoreline and only a small patch of aquatic plants about 300 feet south. Unfortunately, over the years, the lake area in front of my property has been invaded by several species of non-native aquatic plants, specifically Eurasian milfoil and

waterlilies. These plants severely restrict the summertime use of my property and make swimming almost impossible. As a family who loves to swim this situation is unacceptable. I request that the conservancy area in front of my property be changed to a herbicide treatment area. It is simply not fair to render my property's recreational potential unusable. The plan must recognize the historic usability of our waterfront property, the historic absence of non-active invasive plants in front of our property, and our right to a residential recreational use and clear swimming and boating zones.

Thank you for this opportunity to comment upon the Draft Plan and Appendices.

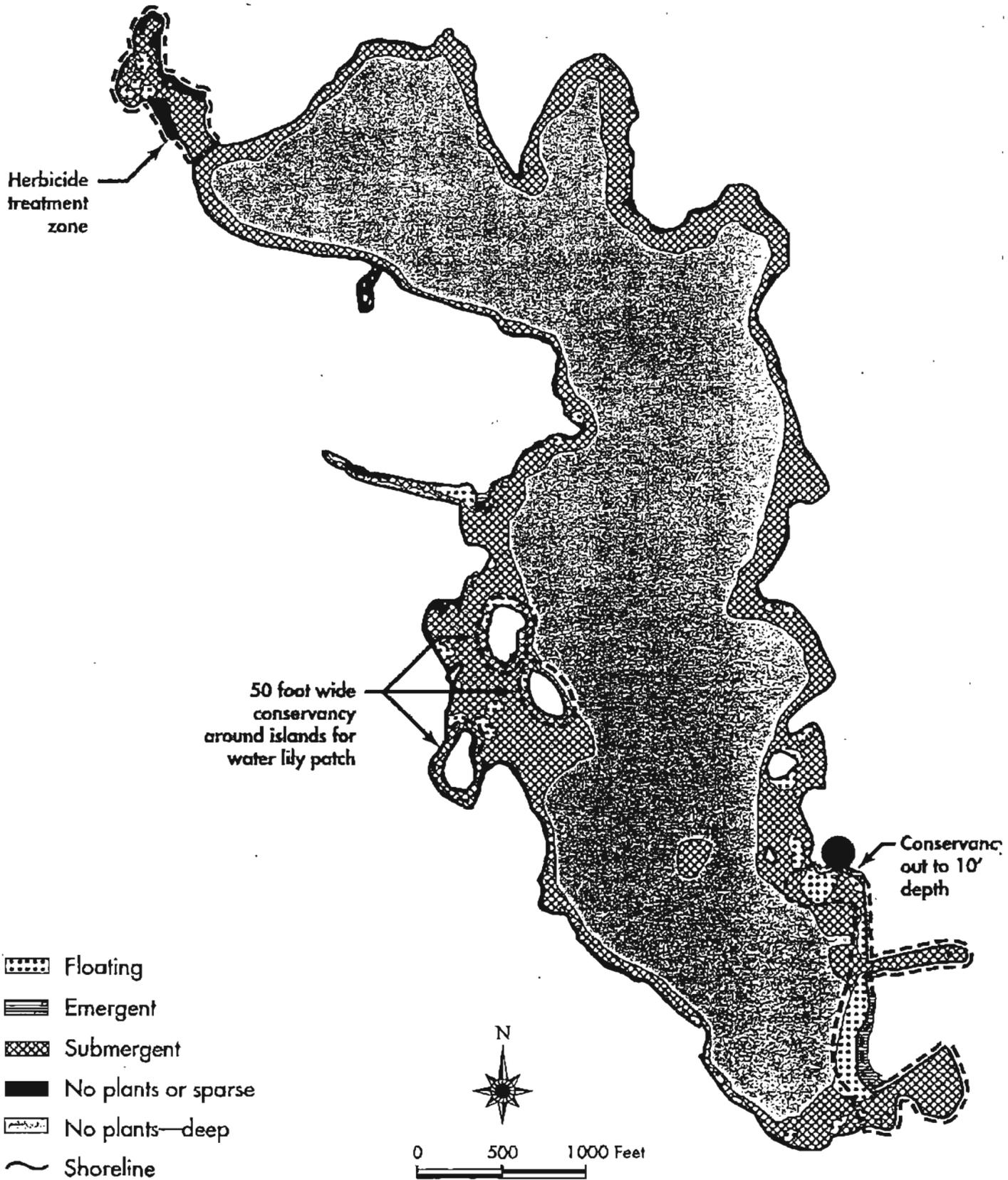
Very truly yours



William Kombol
P.O. Box 10
Black Diamond, WA 98010



Figure 6-1
*Aquatic Plant Control Zones
 in Lake Sawyer*



1942 Aerial photo showing
aquatic plants in front
T.L. 102106-9018

FIGURE 2-5 (map enlarged)





Bouchard, Debra

To: Rothschilds, Robert J
Cc: Mark Davis; Jason Paulson
Subject: Lake Sawyer Comments

Bob -

Thank you for the fast feedback. I appreciated you comments. Here are my responses. Do you want me to include these in the appendices?

Debra

-----Original Message-----

From: Robert Rothschilds [mailto:rrothsc@attglobal.net]
Sent: Tuesday, June 13, 2000 1:32 AM
To: Rothschilds, Robert J; 'Bouchard, Debra'
Cc: mwd@curranlaw.com; BD City Administrator
Subject: Re: Comments on the Review Copy - Sawyer Plan

We're looking forward to seeing the final report. Let me know what the plan from here is.

Thanks again for all your help. I met one of our volunteer water quality monitors out on the Lake collecting samples. I told him this report was nearly complete. He was glad to hear that his efforts were being documented.

Regards,
Bob Rothschilds

-----Original Message-----

From: Rothschilds, Robert J <Robert.Rothschilds@PSS.Boeing.com>
To: 'Bouchard, Debra' <Debra.Bouchard@METROKC.GOV>; 'rrothsc@attglobal.net' <rrothsc@attglobal.net>
Cc: 'mwd@curranlaw.com' <mwd@curranlaw.com>; 'BDCity@aol.com' <BDCity@aol.com>
Date: Sunday, June 11, 2000 2:33 PM
Subject: Comments on the Review Copy - Sawyer Plan

>Debra, Jason, Mark,

>

>The following are my comments on the Review Copy of the Lake Sawyer Management Plan up to page 5-12. I'll finish my review on Monday afternoon and send it to all of you.

>

>1) page 1-1, Background: Is it just the park that is now under Black Diamond control? I would have thought that the boat launch was also under control of the city. Jason, please clarify. The report implies that the Wash. Dept. of Fish and Wildlife controls the launch.

- Based upon feedback from Jason, wording has been changed to indicate control by the City.

>

>2) page 1-4, TMDL: Since this paragraph mentions the TMDL established for Lake Sawyer it is appropriate to put the number in here also.

- The TMDL is set for various loading sources. The allocation between sources and the justification for these allocations is included in the Appendix. Text describing/justifying this did not seem appropriate here.

>
>3) page 2-6, Public Access: Comment #1 applies here also since "WDFW public boat launch" is mentioned again.

- Text has been changed.

>
>4) page 2-9, Historical Water Quality, RIBCO Study: In the last paragraph some of the important data is included. Please add to the next to last paragraph some of the numbers from the RIBCO Program if any are available. Documenting the data herein is important since it is difficult to get copies of these reports.

- Metro data is summarized and discussed as part of the historical data comparison in Chapter 4.

>
>5) Figure 4-2, page 4-5: It is interesting to note that the variability in the Secchi Transparency data from one study to another. During May through October, 1994, the Phase 1 study on page 4-5 shows 3.5 to 6.1 with an average of about 4.7 while the Metro data (Figure 2-3, page 2-14) from the same time period has an average of 3.4. This shows we must be careful when interpreting data.

- Comment noted.

>
>6) Table 4-1, page 4-6: The Total Phosphorus data, 20ug/l, in the Phase 1 study (Table 4-1, page 4-6) is within 15% of the Metro data, 23ug/l, (Figure. 2-3, page 2-14). Much closer than the Secchi disk data which can be influenced by operator and weather conditions.

- Comment noted.

>
>7) page 4-9, Figure 4-4: Where does the phosphorus go when the TP declines during the November to April timeframe. Is this flushing of the lake with water with lower TP and/or plants using up TP?

- It is primarily the result of dilution and flushing.

>
>8) page 4-9, Figure 4-4: It would be nice to know if internal generation or some big storms are responsible for the dramatic rise in TP from May through November. Maybe it is both. This is important since there is a major source of TP entering the water during this time period.

- It is primarily from internal phosphorus loading. Figure 4-4 shows a volume-weighted whole lake phosphorus concentration, which includes nutrient rich water from the hypolimnion. Figure 4-3 illustrates the epilimnion versus hypolimnion concentrations during the same time period. If the increase in phosphorus were the result of storm events, the epilimnion concentrations would be greater.

>
>9) page 4-10, next to last paragraph: Almost all the data shows a strong bias towards Phosphorus limitation (i.e., TN:TP > 20) during the summer months.

This seems to be in conflict with the sentence "It is not clear which nutrient is limiting during the remainder of the year".

- Text has been changed for clarification.

>
>10) page 4-29: Text at the end of the page is repeated on page 4-30.

- Text has been corrected.

>
>11) page 4-35: It is important to note that during wetter months in late '99 and early '00 the total Phosphorus loading from Rock and Ravensdale Creeks has consistently exceeded the loading standard of 1.4 kg/day.

- Comment noted.

>
>12) page 4-39: It seems that the program used to calculate the Trophic State Index for TP (and maybe others) limits the value to below 50. The bottom row on page 4-39 shows TP=25. Based on Table 4-9 the TSI for TP=2.5 should be greater than 50. It doesn't appear that it was the intent of the creator of the Trophic States Index to limit the values to below 50. I've seen this error before and I believe it to be an error in the program used to calculate the TSI.

- The calculation is based upon a fairly simple log transformation. Each major division (30, 40, 50, etc.) represents a doubling of algal biomass. The calculated value in the bottom row of Table 4-9 was 50.6 and should have been rounded up to 51. Correction has been made.

>
>13) page 5-7: In the next to last sentence on "In-lake Sources" the word "inhibit" should be "inhabit".

- Text has been corrected.

>
>14) page 5-12: The TP loading/acre/year for the adjacent lake Sawyer Subbasin is high because of the strong influence from the septic systems. The modeling of the septic systems is highly subjective and may not account for the continuous upgrading of septic systems that people accomplish when they remodel or build new houses. Furthermore is there any data that indicates septic systems have a 40 year lifetime and then fail. A well maintained septic system could last forever. I realize this may not be one of the most significant features of the study, but I wanted this documented since I have mentioned it in the previous meetings and reviews.

- Comment noted.

>
>15) page 5-12, top of page: Is the internal loading calculated by subtracting the outflows from the inflows (creeks, shoreline, rain)? In this case the outflows must be higher than the inflows to get positive internal loading. This question is important since the internal loading is so significant. I want to make sure I understand how the internal loading was calculated.

- Internal loading is calculated as:
the inputs minus the outputs = the change in phosphorus stored in the lake.

If there is an increase in lake concentrations that is not accounted for in the outflow or inflow it is attributed to internal loading, if there is a decline in lake concentrations that is not accounted for then it is attributed to sedimentation.

16) page 5-13, second bullet: Has there been any results from the aeration project at Lake Stevens? The 80% could be adjusted based on their results.

This is very significant since the Lake Stevens project is not just a study.

- 80 percent is the standard used in estimating the effectiveness of aeration. You could contact Gene Williams at Snohomish County to see if they have data for the last five or so years. However, it would be important to keep in mind that Lake Stevens is a much deeper lake than Lake Sawyer.

17) page 6-3, Goals # 9 and #10: I strongly recommend adding King County as a partner in Goals #9 and #10. This is especially true given the County purchase of a "trophy property" to be developed into a regionally significant park by King County. I believe King County is now the largest waterfront landowner.

- King County has been added to these goals.

18) Table 6-6, LS-2: It seems like there was an estimate for this measure in past reports because I remember that it was one of the most efficient at keeping Phosphorus from entering the lake in terms of kg removed per dollar spent.

- The estimate was based upon retaining/conserving all the forest land in the watershed. I could find no record of how this was calculated per acre of forest land. Since there is no funding available at this time for this, acquisition of all forest lands within the watershed did not seem like an attainable goal.

Debra Bouchard, Limnologist

King County Lake Stewardship Program
201 South Jackson, Suite 600
Seattle, WA 98104
(206) 296-1989
debra.bouchard@metrokc.gov