9.5 Environmental Evaluation (Cont'd)

The implementation of either Alternative 1, 2, 3 or 4 would result in a marginal increase in phosphorus loading to Grass and Kashagawigamog Lakes. The increase, however, will be less than that which could occur if the individual resorts and businesses were left to treat their own wastewater via septic tank system.

Since the existing treatment plant is located on a steep bank of the Drag River, it is likely that some soil and silt may wash into the river and increase the turbidity of water during construction under Alternatives 1, 2, 3 and 5.

Mitigative measures include the installation of silt curtains, or other silt barriers, prompt sodding of cleared areas and ensuring that the cleared and excavated areas do not remain open for an extended period of time.

The discharge of effluent into the deeper section of Grass Lake could enhance the quality of the Drag River between Head and Grass Lakes. This area is important to aquatic life as it is a spawning and habitat area for various fish species.

Dredging during the installation of the outlet sewer in Grass Lake may resuspend the bottom sludge and increase the turbidity in the lake.

Mitigative measures include the installation of silt curtains or barriers at the site and good construction practices to ensure that the disturbed areas are restored as soon as possible.

Site clearance at the new plant site and the installation of an outlet sewer into Kashagawigamog Lake may have some short term impacts on the water quality during construction. Resuspension of silt and sludge from the lake bottom due to construction activities will increase the turbidity of the lake.

Mitigative measures include the installation of silt curtains.

9.5 Environmental Evaluation (Cont'd)

Dredging during the installation of the outlet sewer in the Burnt River may result in siltation and an increase in turbidity within the river.

Mitigative measures include the installation of silt barriers and immediate sodding of cleared areas.

9.5.7 Terrestrial Environment

Protection of trees and the natural habitats of wildlife are concerns that must be addressed in the evaluation of alternative solutions. The installation of a new outlet sewer to Grass Lake under Alternative 2 will require some clearing and the felling of some trees. Most of the construction activity related to the plant expansion will be restricted to the fenced enclosure of the existing treatment plant.

On the whole, no significant negative impacts on the terrestrial environment are anticipated with Alternatives 1, 2 and 3.

With respect to Alternatives 3 and 4, site clearance for the new sewage treatment plant and the outlet sewer may require the felling of some mature trees, which may have some adverse impacts on the terrestrial environment.

9.5.8 Growth Potential

Implementation of any alternative presented herein will likely increase job opportunities and stimulate community growth in Haliburton.

9.6 Selection of Preferred Alternative

The selection of the preferred alternative is based on three concerns: technical performance, costs (capital and operating) and environmental impacts.

9.6 Selection of Preferred Alternative (Cont'd)

All five alternatives will utilize an extended aeration process for secondary biological treatment, with chlorination and filtration of the effluent prior to discharging it into the watercourse. Such a plant is less susceptible to shock hydraulic loading, is simple to operate and can provide adequate treatment to meet the proposed effluent criteria. Therefore, as far as technical performance is concerned, all five alternatives are equally acceptable.

Although slight water quality improvement would be realized by diverting all treated effluent to the Burnt River, the excessive costs make Alternative 5 impractical.

A summary of the capital and operating costs of the alternatives is indicated in Table 9.16. The present worth of the operating costs for a 20 year period, based on a 5% inflation rate and a 10% interest rate is also shown. It is clear from Table 9.16 that Alternative 1 is by far the most preferred alternative as far as costs are concerned.

9.6 Selection of Preferred Alternative (Cont'd)

Table 9.16

Cost Summary of Alternatives

	Altern. 1	Altern. 2	Altern. 3	Altern. 4	Altern. 5
Capital Cost	$2,160,000	$2,676,000	$3,684,000	$4,012,800	$4,860,000
Year 1 Operating Cost	$ 138,000	$ 138,000	$ 170,400	$ 144,000	$ 157,000
Capitalized 20 Year Total Value of Operating Cost	$1,901,600	$1,901,600	$2,348,100	$1,984,300	$2,163,500
Total Cost	$4,199,600	$4,715,600	$6,202,500	$6,141,100	$7,180,500

Although both Grass and Kashagawigamog Lakes may be affected due to increased phosphorus loadings, these impacts will be minimal when compared to the impacts that would result from the use of septic tank systems for sewage disposal. As stated previously in the report, the shallow depths of overburden are not conducive to maintaining an adequate, well functioning tile bed system. The high percentage of malfunctioning systems has been well documented in the 1980 survey of the Cottage Pollution Control Program.

Based on a review of technical performance, estimated costs, and environmental impacts of each alternative, Alternative 1 is selected as the preferred alternative for the expansion of sewage treatment facilities at Haliburton.

All of which is respectfully submitted,

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