

November 19th, 2009

Union Bay Improvement District  
5471 Island Highway  
P.O. Box 70  
Union Bay, BC V0R 3B0

**Attention: Brenda Fisher, Administrator**

Dear Madame,

**SUPPLEMENTAL REPORT FOR BATHYMETRIC SURVEY OF LANGLEY LAKE.**

Further to your request, this letter is intended to summarize the results of our recent survey of Langley Lake as well as to provide some details about the lake's physical characteristics.

The survey of the lake was completed on October 22<sup>nd</sup>, we forwarded the digital files to you in our email of November 13<sup>th</sup>, shortly after we finished sorting out the data. The data was reduced using Terramodel Version 10.3 software.

The survey data is in the NAD 83, UTM Zone 10 coordinate system, and has been reduced to contour mapping of two surfaces. One surface is the shoreline and lake bottom, and the other is the shoreline and bottom of the peat layer, which underlies the effective lake bottom. There are several peat 'islands' within the lake that are included in the lake bottom surface. No topography above the existing lake surface was included in our survey.

The contours for both surfaces are provided in the AutoCAD 2004 previously emailed. Also attached to the email were two ASCII coordinate files, one for each surface. Elevations in these files are referred to Geodetic datum.


The water level of the lake was determined to be 151.64 metres Geodetic as of the date of survey. The spillway elevation is 152.17 metres, and the elevation of the top of the round bolt set in the concrete spillway wall is 153.40 metres. The bolt's elevation is intended to provide a site benchmark, and is approximately at the level of the existing dam.

As per your request, we computed the volume of the lake to be 839,000 cubic metres, using the effective lake bottom and a 151.64 metre water level at the date of survey.

The general physical characteristics of the lake, as determined by our survey, are that it is 1200 metres (3940') long, by 350 metres (1150') wide. The shoreline perimeter as of the date of survey was approximately 2700 metres (8860'), and the area of the lake is about 30 hectares (75 acres). This area includes the six peat islands, of which, two are quite sizeable. The maximum depth is 10.5 metres (34.5'), which is located within an elongated bowl, central to the lake.

Once again, thank you for the opportunity to provide this survey. Please don't hesitate to call if you have any questions or concerns.

Yours truly,  
McELHANNEY ASSOCIATES



M.R. Kuss, BCLS  
Legal Survey Manager