



SAHTU Land & Water Board  
P.O. Box 1  
Fort Good Hope, NT  
X0E 0H0



January 12, 2011

Judith Wright-Bird  
Chairperson, SLUPB  
P.O. Box 235  
Fort Good Hope, NT  
X0E0H0

Our File: SLUPB

Your File:


Dear Judith:

**Re: Water Withdrawal for Lac Belot  
Information as Requested  
Colville Lake Community Engagement Meeting**

On August 19, 2010 a SLWB staff accompanied the SLUPB to Colville Lake for the Colville Lake Community Engagement Meeting. During the meeting a request came to the Department of Fisheries and Oceans and the Sahtu Land and Water Board to provide information regarding bathymetrics and the potential for water withdrawal from Lac Belot. The Elders of Colville Lake had expressed concerns about water withdrawal for industrial purposes and had stated that the water level within Lac Belot had dropped from previous levels. The Elders did not want any water to be withdrawn from Lac Belot because of this. Based on this request, the SLWB contacted Fisheries and Oceans for bathymetric data and were informed that no data had been acquired due to cost (Approximately \$25,000.00). Therefore, the Sahtu Land and Water Board has drawn information from other sources and while it is not complete, I hope it is helpful.

According to calculations from the Government of the Northwest Territories-Department of Transportation, a safe under ice water withdrawal limit at 5% of lake volume is 5,192,000 m<sup>3</sup> or 500,000 water trucks. DFO changed the under ice water withdrawal limit to 10% in 2009. Therefore a potential safe-under ice withdrawal limit could be as many as 1,000,000 water trucks. MWH-Northern EnviroSearch has provided bathymetric data for two bays on the east side of Lac Belot. Maximum depths of 18 m were recorded during the summer. It is important to note that both these bays are inflows to Lac Belot. Original submitted data comes from an expired water licence and has been attached at the end of this document.

**Sahtu Land and Water Board**



Joan Gordey  
Regulatory Director

## Lac Belot Water Withdrawal

Lac Belot - Approximately 275 km<sup>2</sup> in area with depths greater than 10 m

S04L8-014 - GNWT-DOT Winter Road: Expires December 23, 2014

Water is taken at two points from Lac Belot – km 134 and 145. Within the Water Licence, 100 m<sup>3</sup> of water is allocated for each kilometre of winter road constructed.

S07L1-006 – Explor Geophysical: Expires January 02, 2013

15800 m<sup>3</sup> - construction of winter access road and seismic lines, program partially completed. Explor has not indicated when or if they will complete the program.

S08L1-002 – Explor Geophysical: Expires December 22, 2013

30000 m<sup>3</sup> – construction of Colville Lake winter road, program has not been completed. Explor has not indicated when or if they will complete the program.

S08L1-001 – British Gas International (BGI): Expires November 27, 2013

33000 m<sup>3</sup> – construction of winter access road, drill and camp lease

BGI has completely withdrawn from the Sahtu and has let any exploration interests run out. This program is very unlikely to go ahead.

Estimated of area of Lac Belot - 275 km<sup>2</sup>

Depth – unknown but in some places greater than 10 m according to bathymetrics completed on behalf of Explor Geophysical by MWH Northern EnviroSearch and accepted by Fisheries and Oceans Canada (DFO).

GNWT-DOT estimates that 5,192,000 m<sup>3</sup> can be taken from Lac Belot and still be within the 10% under ice volume allowed by DFO. Information provided in their 2006-2007, 2007-2008 annual reports.

Year of withdrawal:	2006	2007	2008	2009
GNWT-DOT S04L8-014	180 m <sup>3</sup>	316 m <sup>3</sup>		
Explor Geophysical – S08L1-002			0	0
Explor Geophysical – S07L1-006 -no actual reporting but licence value		15800 m <sup>3</sup>		

DFO, GNWT and the MVLWB are developing a water withdrawal database where the total amount of water available from a water source, the amount licenced from the water source and the actual amount withdrawn from the water source will be available.

Fisheries and Oceans Canada has a report (will provide electronic copy when available) indicating receding water levels are being recorded across much of Canada and is an issue that is concerning many people.

portion of the southeast arm of this lake was assessed due to its size but the e-line transect into the body of the lake revealed depths in excess of 14m.

*Volume Calculations*

The recorded field data from the echo sounder and perimeter tracks from the handheld GPS were processed using GIS mapping software to extract the information to determine volume calculations and create contour maps. The GPS perimeter tracks were interpolated first to create a polygon of the water bodies that were surveyed. The sonar data (depth to bottom) was combined with the perimeter track to create a contour map of each lake. The volume was then calculated using both the depth recordings and the polygons.

The volume calculations were assumed using a 1.5m ice thickness (as per consultation with Kathleen Simms) which is the maximum thickness expected. The table on the following page shows the volume of water, as determined from the field data, as well as the volume minus 1.5m of ice cover to account for the water that will be unavailable.

**Table 1: Volume Calculations for Lakes 12-19**

Potential Water Source	Area (m <sup>2</sup> )	Area (ha)	Maximum Depth (m)	Volume (m <sup>3</sup> )	Volume of Water Less Ice (m <sup>3</sup> )	Volume of Ice (m <sup>3</sup> )	Available Water (m <sup>3</sup> ) (5% volume)	Water Budget (m <sup>3</sup> )
Lake 12 (Tweed Lake)	1,556,719	155.67	15.39	n/a	n/a	n/a	n/a	1,500
Lake 13	201,104	20.11	1.25	247,542.00	0.00	247,542.00	0.00	875
Lake 14	92,152	9.22	12.61	186,712.10	144,163.70	42,548.40	7,208.19	1,450
Lake 15	174,802	17.48	1.36	203,632.25	0.00	203,632.25	0.00	1,075
Lake 16	264,001	26.40	16.66	1,760,504.80	n/a	25,228.00	86,763.90	2,925
Lake 17 (Tunago Lake)	3,457,270	345.73	9.54	n/a	n/a	n/a	n/a	1,750
Lake 18 (Lac Belot)	8,084,756	808.48	18.66	n/a	n/a	n/a	n/a	2,000
Lake 19 (Lac Belot)	500,394	50.04	14.64	n/a	n/a	n/a	n/a	1,750

Volume is based on the interpolated polygon derived from the tract data.

The ice thickness was calculated at 1.5 meters.

If the sonar data is positive, it is converted to zero.

\* Volume reflected from 5% removal limit.

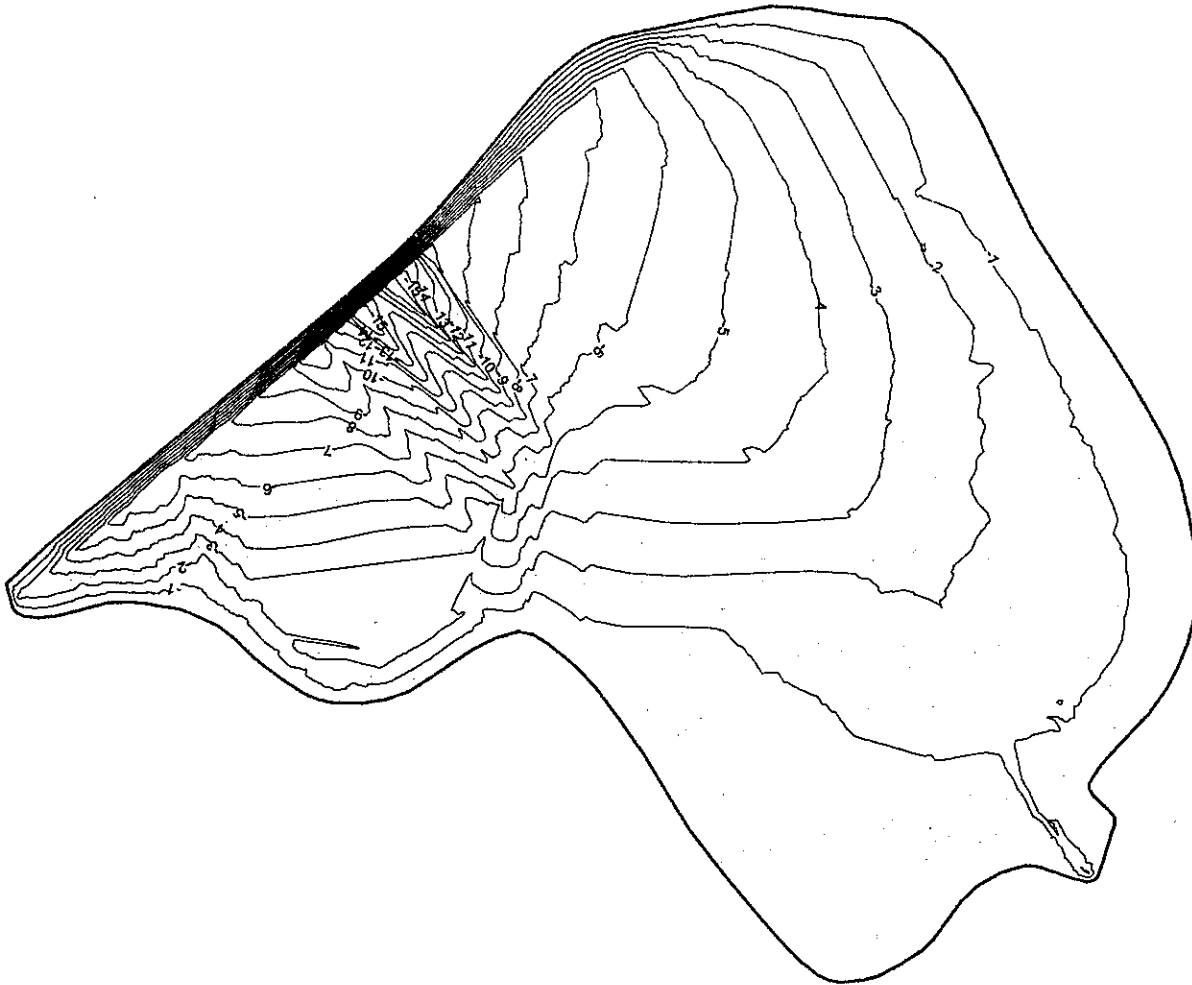
Lakes 12, 14, 16, 17, 18 and 19 meet the requirements for the minimum acceptable depth of 3.7m. Water volumes will be carefully tracked to ensure the 5% maximum withdrawal is not exceeded. If additional water volumes are required, they will be drawn from sources that have remaining allowable volumes.



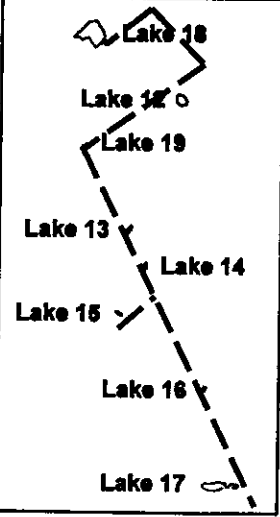
# Lake Eighteen (Lac Belot) Contours

N 66° 53.857' W 126° 05.793' Datum: NAD 27 Canada

Contour Interval = 1m

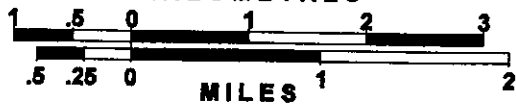


## Water Sources



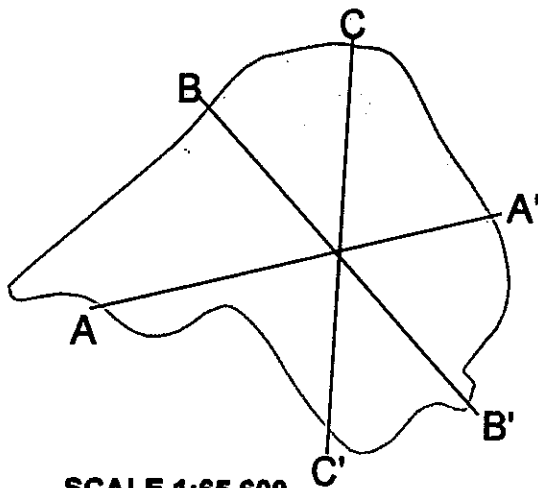
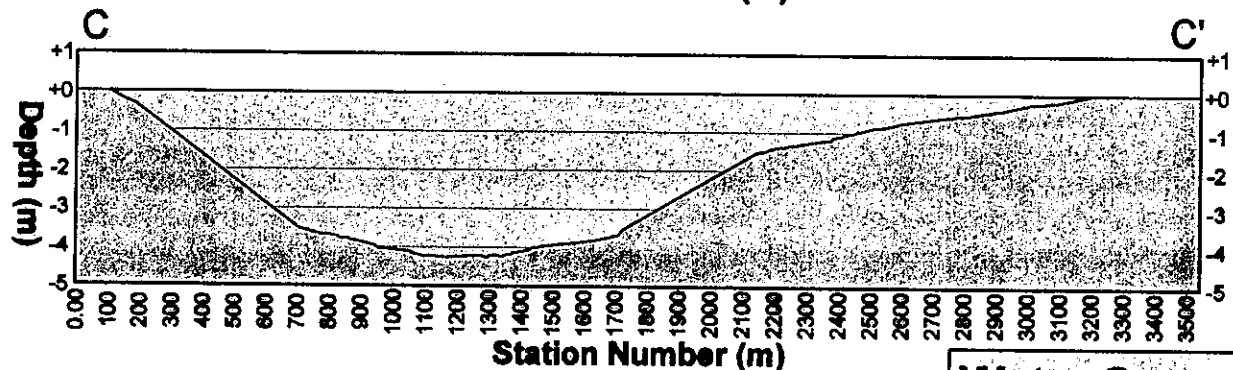
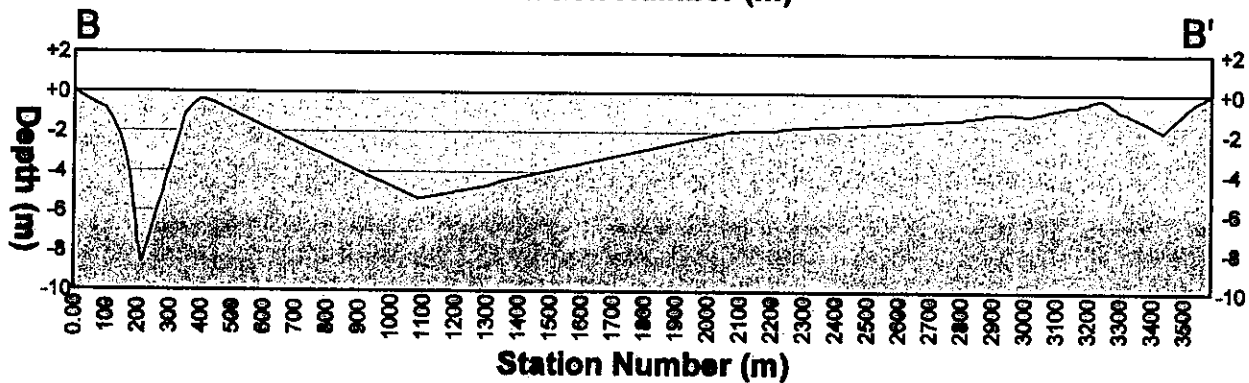
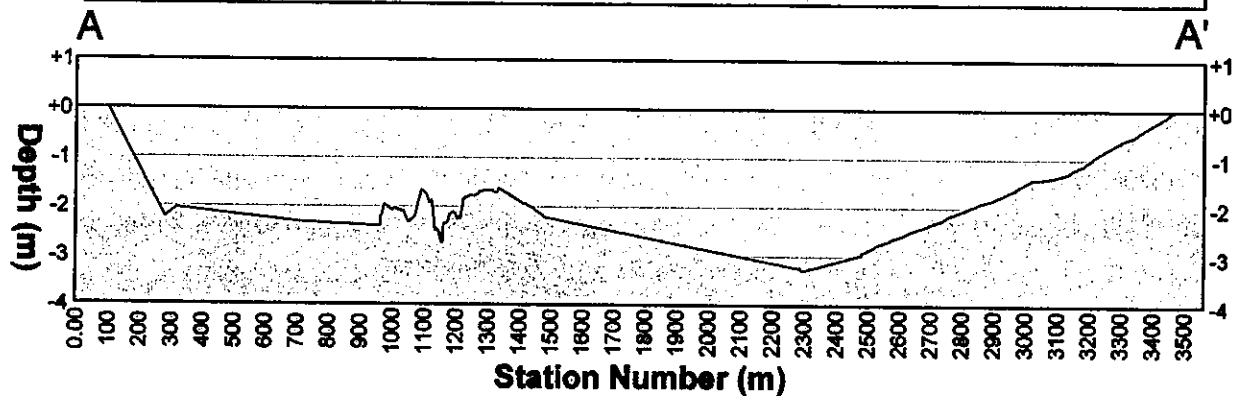
divestco.com

SCALE 1:26,500  
KILOMETRES

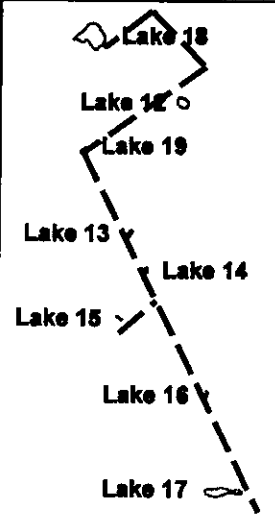


# Lake Eighteen (Lac Belot) Cross Sections

N 66° 53.857' W 126° 05.793' Datum: NAD 27 Canada



## Water Sources



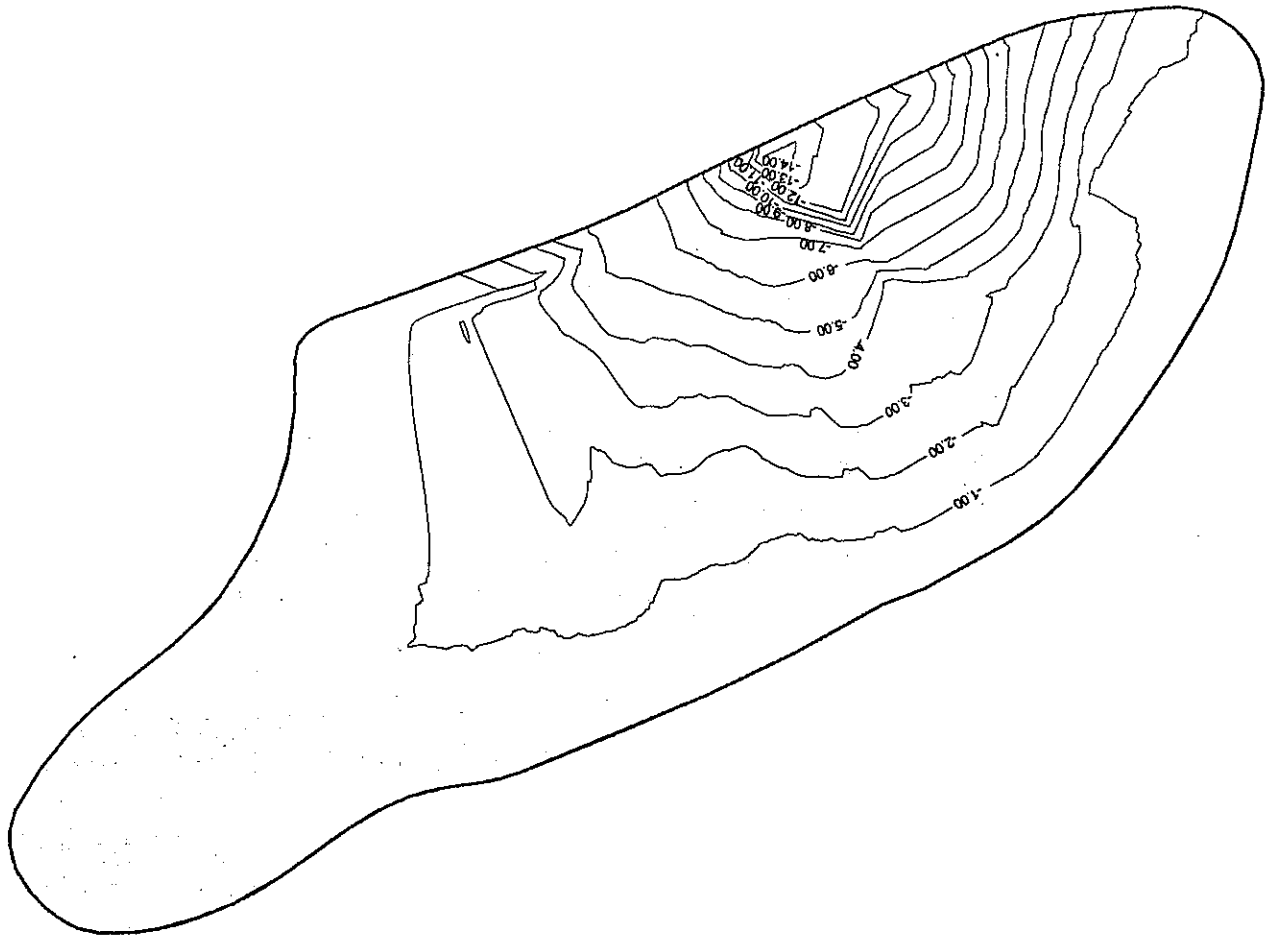
divestco.com

SCALE 1:65,600

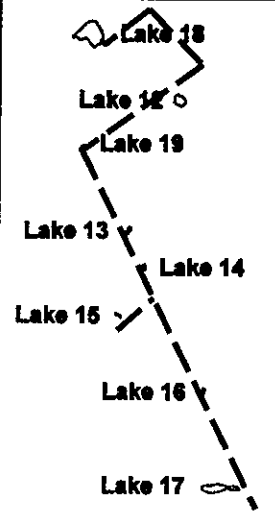
# Lake Nineteen (Lac Belot) Contours

N 66° 46.542' W 126° 09.475' Datum: NAD 27 Canada

Contour Interval = 1m



## Water Sources



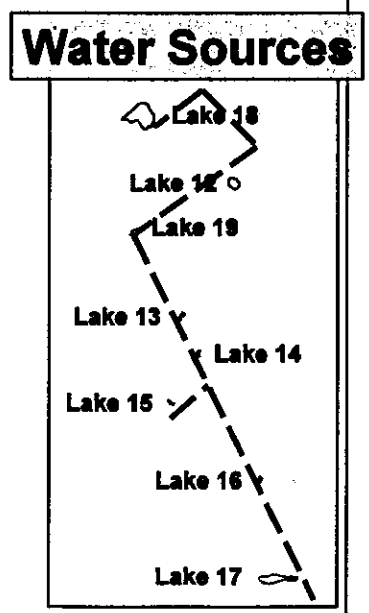
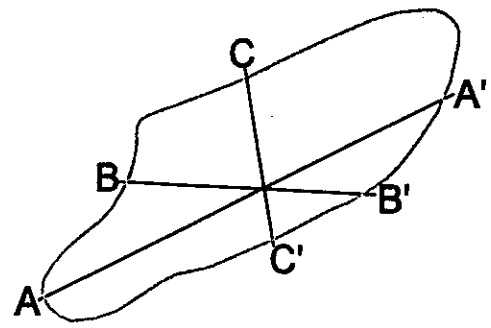
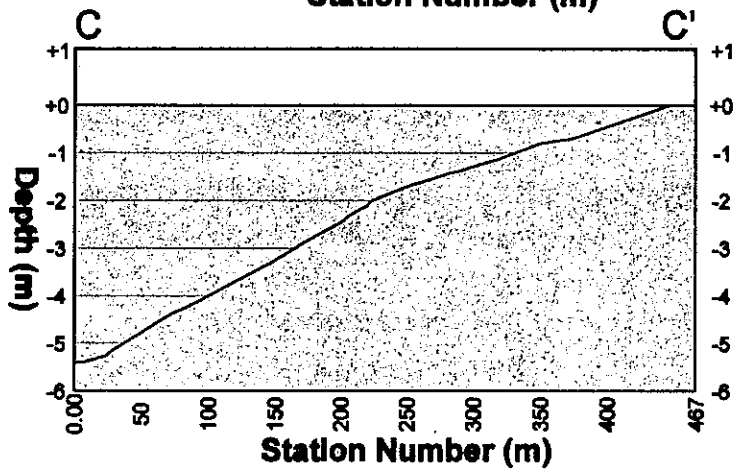
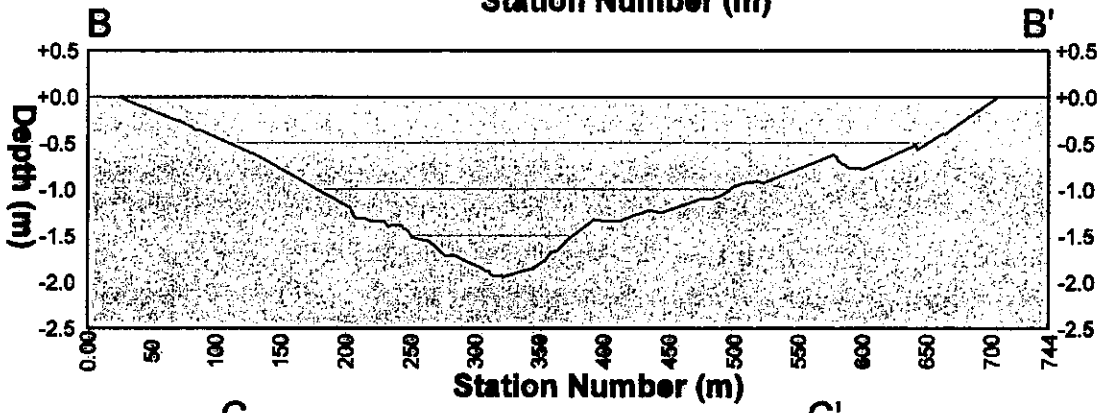
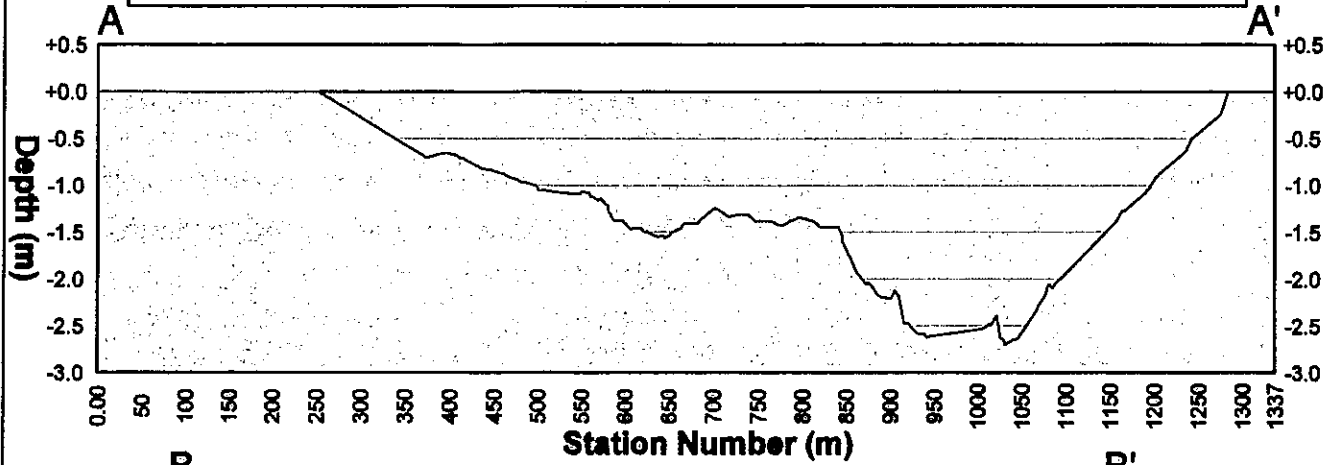
divestco.com

SCALE 1:7,300  
KILOMETRES



# Lake Nineteen (Lac Belot) Cross Sections

N 66° 46.542' W 126° 09.475' Datum: NAD 27 Canada



SCALE 1:21,800