

**ASSOCIATION OF CANADA LANDS SURVEYORS
BOARD OF EXAMINERS**

**PROFESSIONAL EXAMS - ITEM 1
ACTS AND REGULATIONS RELATING TO SURVEYS OF CANADA LANDS**

October 2011

Notice to Candidates:

This examination is based on the General Instructions for Surveys, e-Edition.

This examination consists of 10 questions on 3 pages.

<u>Q. No</u>	<u>Time: 3 hours</u>	<u>Marks</u>	
		<u>Value</u>	<u>Earned</u>
1	a) Describe three circumstances for which monumentation must be placed on artificial boundaries being surveyed.	3	
	b) Describe three types of marker posts that can be used to protect monuments and make them easier to find.	3	
	c) Identify five types of CLS monuments that could be encountered in the surveys of Canada lands in the northern territories.	5	
2	<p>During the resurvey of a Klondike region creek base line in Yukon under instructions from the Surveyor General, a Canada Lands Surveyor finds the remains of a squared wooden post with a legible carved inscription "Angle 7". A careful search of the immediate ground area uncovers an axe-hewn post butt still in place and within 0.3 metres of its theoretical plan distance from Angle 6 previously recovered and restored.</p> <p>Assuming any necessary information, describe the monumentation he should place at this location and give the notations he will show for Angle 7 on his survey returns.</p>	5	
3	a) What absolute accuracy requirement for monuments must be met for geo-referencing a survey where GPS methods are used to control or measure all or part of the boundaries?	2	
	b) List three items of support documentation which must be included with survey returns where natural boundaries are located from a photogrammetric or mapping process.	3	
	c) List three acceptable forms for preparation of official field notes for submission with survey returns.	3	
4	<p>An approximately square parcel is to be surveyed for a remote forested cottage site at a navigable lake in Yukon pursuant to the <i>Territorial Lands (Yukon) Act</i>. The sketch attached to the agreement for sale indicates that the west and north boundaries are each 120.0 metres long, the east boundary is 120.0± metres long and that all three are in cardinal directions. The sketch also shows that the south boundary generally parallel to the shoreline is intended to be 15.24 metres perpendicularly distant from the OHWM. The specific instructions for the survey of Lot 1004, Quad 115G/6 direct the CLS to establish one or more monumented straight lines generally parallel to the OHWM for the south boundary and at a minimum perpendicular distance of 15.24 metres from the OHWM.</p> <p>The CLS commences his survey and establishes the west, north and east rectilinear boundaries in cardinal directions with lengths of 120.00, 120.00 and 118.50 metres</p>		

	<p>respectively. He uses two monumented lines to define the south boundary having first determined by right angle offsets that the resulting boundaries will lie between 15.5 and 21.0 metres from the OHWM. He completes his monumentation and makes ties to the small log cabin and frame privy building on the surveyed parcel. There are no other surveyed parcels within fifteen kilometres.</p> <p>a) What options were available to him for the derivation of a bearing for his survey?</p> <p>b) What requirement should be met for the geo-referencing of his survey?</p> <p>c) What plotting accuracy is required for the OHWM on the plan and field notes?</p> <p>d) Given that the boundary monuments were intervisible, what is the acceptable angular misclosure for his survey?</p> <p>e) The total perimeter length of the surveyed parcel is 488.6 metres. What is the minimum linear accuracy requirement for the survey based on the semi-major axis of the 95% confidence region ellipse?</p> <p>f) Making any necessary assumptions for additional information, compile ONLY the body of the combined plan and field notes prepared for this survey. Use authorized abbreviations and symbols to represent the monumentation and references established. Exact mathematical computation is not required.</p> <p>g) Use an identifying colour to outline the lands included in the resulting title notification and resulting extent of ownership assuming no particular action is taken by the Commissioner in Executive Council. Explain your reasoning.</p>	<p>3</p> <p>3</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p> <p>4</p>	
5	<p>Draw a neatly labeled and dimensioned sketch showing a typical Yukon placer mining creek base line, a discovery creek claim of maximum size, an adjoining creek claim of maximum size and a Tier 2 Right limit bench claim of maximum size.</p>	6	
6	<p>On April 3, 2011 John Ivy locates two standard mineral claims A1 and A2 pursuant to the <i>Quartz Mining Act (Yukon)</i> lying left and right of a common location line having a true bearing of 5°. His location line length determined by subsequent survey is 1,487.6 feet. Two days later he returns and locates two additional claims A3 and A4 adjoining the A1 and A2 claims on their north. His second location line, intended to be co-linear with his earlier line, turns out to be 1,524.6 feet long with a true bearing of 19°. Ivy's claims are 102 miles from the office of the mining recorder. There are no other claims in the vicinity.</p> <p>a) By what date must he record his A1 and A2 claims?</p> <p>b) What location information will appear on his post no. 2 for the A1 claim?</p> <p>c) You are engaged as a CLS to make a survey of Ivy's four claims. Compile a neatly labeled and dimensioned sketch showing with a coloured line the area you will include in your survey and explain your reasoning.</p> <p>d) Compile a similar sketch as in c) but for the case that the A1-A2 location line is found to be 1,525.0 feet long. Explain your reasoning and any actions you would take on your client's behalf.</p> <p>e) Consider the situation outlined in d) but with the additional complication of June 2011 staking in the area by Willy Michael. Michael locates a large contiguous group of WILLY claims using location lines in an east-west direction and does not notice Ivy's location lines as he crosses them. His WILLY 25 and 27 claims cover the area between the A1-A2 and the A3-A4 claims. The mining recorder accepts his unintentional oversight when he presents his applications and sketch, records his claims and subsequently issues grants, relying on the legislation to resolve any conflicts arising. Compile a similar sketch as in d) and use a coloured line to indicate the area(s) you would include in Ivy's claim group and give your reasoning.</p>	<p>2</p> <p>2</p> <p>4</p> <p>5</p> <p>5</p>	

7	A CLS also holding an ALS commission is engaged to survey an addition to an undeveloped Indian Reserve in Alberta as part of a specific claim settlement. The addition lands are provided from Alberta Crown lands and private lands that will be transferred to Canada for consolidation with the original reserve. Which of provincial or federal survey standards and monumentation should be used for this project?	4	
8	The work of Canada Lands Surveyors is governed by numerous jurisdictions and authorities. Give the proper name of the official or entity having statutory responsibility for the following: a) authorization of the survey of reserves pursuant to the <i>Indian Act</i> b) issuance of a certificate of title pursuant to the <i>Land Titles Act (Yukon)</i> c) granting permission to move a legal post for a mineral claim located pursuant to the Northwest Territories and Nunavut Mining Regulations d) direction and control of surveys under the <i>Canada Lands Surveys Act</i> e) cancellation in whole or in part or amendment or alterations of a plan of survey filed or registered in the Yukon Land Titles Office f) administration, management and control of National Parks	2 2 2 2 2 2	
9	Describe the provision in place with respect to legal survey monumentation for a group of contiguous mineral or placer mining claims in Yukon under the same ownership. What minimum requirement must be met?	4	
10	A survey for a lot enlargement is to be made in Teslin, Yukon. Walter and Mabel Bell own Lot 17, Block 9, Teslin, Plan 43016 CLSR, 21008 LTO and have an agreement to purchase the adjoining Lot 18 from the Government of Yukon. They are required to consolidate their private lot and the Yukon lands into a single parcel by survey and Lot 21 is issued by the Surveyor General for this purpose. Identify the signatures on the plan of survey for Lot 21 when it is presented for registration in the Yukon Land Titles Office.	4	
	Total Marks:	100	