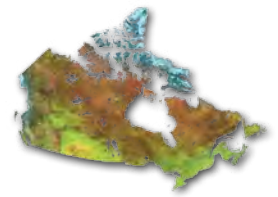




Natural Resources
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Surveyor General Branch

Beyond Boundaries

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Annual Review 2010–2011



Canada

Surveyor General Branch

Natural Resources Canada

ANNUAL REVIEW
2010–2011

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1 Purpose

This is the first Annual Review of the Surveyor General Branch (SGB) of Natural Resources Canada (NRCan).¹ It describes the work of SGB by focusing on what we do (as set by legislation), why we do it (vis-à-vis Government of Canada objectives), and how well we do it (measured in terms of volumes and efficiency).

SGB is a regional organization, closely linked and aligned with users, be they First Nations or Inuit

communities, Territorial Governments or National Parks. Services are delivered through four regional operation centres (in Edmonton, Ottawa, Yellowknife and Whitehorse) and eight client liaison units (serving Atlantic Canada, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia and Nunavut).

2 NRCan strategic outcomes and SGB responsibility

A key NRCan strategic outcome in the 2010–2011 Program Activity Architecture² is safety, security and stewardship. This means having natural resource knowledge, landmass and management systems that strengthen the safety and security of Canadians and

the stewardship of Canada's natural resources and lands. Such knowledge and systems are supported by essential geographic information, which has Canada's legal boundaries as one of its fundamental components.

3 SGB delivers Canada's legal boundaries³

Canada – United States International Boundary

Commission: SGB maintains the international boundary between Canada and the United States for many purposes: law enforcement, customs, immigration, provincial/territorial/municipal jurisdiction and resource management.

Canada's survey programs: SGB manages boundary surveys of Aboriginal settlement lands to meet Canada's obligations in land claim settlement agreements and legislation and other boundary surveys as required by the Government of Canada.

Canada's survey registries: SGB registers plans of survey to allow parcels to be created on Canada Lands.⁴ There are now 265,770 parcels in the cadastral dataset.⁵ There are also historical documents from the International Boundary and legal surveys dating to pre-confederation Canada in this public archive.

To effectively carry out this work, SGB manages a complex web of relationships between administrators with responsibilities for Canada Lands. Refer to Appendix 2.

¹ SGB is one of six substantive branches within the Earth Sciences Sector of NRCan.

² NRCan programs deliver strategic outcomes within the Program Activity Architecture.

³ Program Activity Architecture: Sub element 3.2.1.1.

⁴ See Appendix 1 for the definition of Canada Lands.

⁵ As of March 31, 2011.

4 Other strategic outcomes and responsibilities

Establishing and re-establishing boundaries of Canada Lands is an essential condition to permitting rights in parcels of land to be enjoyed. Rights take two forms. Sovereign rights require that administering government departments are confident as to the limits of jurisdiction; real property rights require that possessors and users of land know the spatial extent of their parcels.

Such certainty and confidence enable economic and social development and mesh well with the strategic outcomes of other government departments. For example, SGB is closely linked with Aboriginal Affairs

and Northern Development Canada (AANDC) in the North and on First Nations' Reserves. Thus, managing boundaries, parcels and surveys aligns with at least two principles within the Canada–First Nation Joint Action Plan — enabling strong, self-sufficient communities and creating conditions to accelerate economic development opportunities. Both principles inform the Plan's goal of economic development.⁶ SGB also works closely with other Government of Canada departments, such as Parks, Environment, Fisheries and Oceans, Public Works and Justice.

5 The mandate

The Minister of Natural Resources has the administration, direction and control of surveys under the *Canada Lands Surveys Act* (CLS Act).⁷ Subject to the direction of the Minister, the Surveyor General has two broad responsibilities:

- the management of surveys under the CLS Act; and
- the custody of all the original plans, journals, field notes and other papers connected with those surveys.⁸

In addition, the Surveyor General has responsibilities under land claim agreements between Aboriginal peoples and Canada. For example, the Nunavut Agreement sets out that surveys of Inuit Owned Lands shall only be conducted in accordance with the instructions of the Surveyor General and the CLS Act;⁹ the Tlicho Agreement sets out that the boundaries of

Tlicho lands shall be surveyed in accordance with the instructions of the Surveyor General and the CLS Act.¹⁰

SGB focuses on setting standards, developing policies, issuing instructions for and examining plans of survey, recording plans in and providing information from Canada's Survey Registries, providing boundary opinions, advising other government departments, liaising with First Nations and managing contracts. Most surveys are contracted to the private sector – to Canada Lands Surveyors.

Parts of the CLS Act apply to surveys under any other Act of Parliament, or under any territorial legislation (NWT, Nunavut, Yukon) if the Act or legislation requires the surveys to be made by a CLS.¹¹ The CLS Act also allows a survey to be made of any other lands belonging to Canada or of which Canada has power to dispose.¹²

⁶ AANDC and AFN. Canada–First Nations Joint Action Plan. June 9, 2011.

⁷ There are seven other sections of the CLS Act that speak to the role of the Minister; all deal with the circumstances in which Canada Lands or any federal Crown lands shall be surveyed.

⁸ *Canada Lands Surveys Act*, s.3.

⁹ *Agreement between the Inuit of the Nunavut Settlement Area and Canada*. s.19.8.11. 1993.

¹⁰ *Land Claims and Self-Government Agreement among the Tlicho and the Government of the Northwest Territories and the Government of Canada*. s.18.4.1. 2003.

¹¹ *Canada Lands Surveys Act*, s.22.

¹² *Canada Lands Surveys Act*, s.47.



Figure 1. Tlicho Land Claim.

6 Responsibilities on the Canada–US international boundary

The Surveyor General is appointed by Order in Council as the Canadian Commissioner to the International Boundary Commission (IBC). The boundary between Canada and the United States — from Atlantic to Pacific and from Pacific to Beaufort — came into being through 20 treaties, conventions, protocols, decisions and awards between 1783 and 1925. The IBC dates itself to the 1908 Treaty of Washington, which appointed two Commissioners — one each from Canada and the United States — to mark the boundary between the two countries. A permanent IBC, established by the 1925 International Boundary Treaty, has the mandate to continue to maintain

the boundary under the supervision of the two Commissioners.

The IBC’s mandate is thus found in the 1908 and 1925 treaties and, for the Canadian section only, in the 1960 *International Boundary Commission Act*. Field operations of the IBC are carried out by Canadian and United States sections, with each section reporting to its respective Commissioner. For operational purposes the Canadian section is embedded within SGB; the Canadian Commissioner also reports to the Department of Foreign Affairs and International Trade (DFAIT) pursuant to the 1925 treaty.

7 Responsibilities on the Alberta–British Columbia boundary

The Surveyor General also participates on inter-provincial/territorial boundary commissions when active. Currently he is appointed by Order in Council as the Canadian Commissioner to the Alberta–British Columbia Boundary Commission. Canada and the two

provinces established the Boundary Commission in 1974, “with powers to resurvey the sinuous boundary line, settle disputes respecting the boundary and establish and maintain survey monuments and other physical evidence of the boundary.”¹³

¹³ *Alberta–British Columbia Boundary Act*, 1974, s.4.

8 Association of Canada Lands Surveyors (ACLS)

The ACLS¹⁴ is a critical partner with SGB in surveying Canada Lands. The Minister of Natural Resources has oversight of the ACLS, which is the only federally-regulated profession in Canada.¹⁵ The ACLS establishes and maintains standards of qualifications,

conduct, knowledge and skill among its members and its member companies. It provides continuing professional development and through its practice review program inspects licensed members' projects every three years.



Figure 2. Precise Point Positioning (PPP) and Real Time Kinematic (RTK) GPS for legal surveys — Banff National Park.

9 Four important 2010–2011 initiatives

i. *Facilitating economic development activity on Canada Lands through a more efficient land survey system*

MyCLSS (My Canada Lands Surveys System) is a joint venture between the ACLS and SGB that resulted in the development of a web portal integrating respective statutory processes. The objective is to bring efficiencies in the delivery of both organizations' mandates by:

- eliminating duplication and sharing common information between both organizations;
- improving access to the information of the SGB;
- providing tools to support CLSs with the delivery of their mandates;
- providing the ACLS Practice Review Department with the tools and information it requires to effectively carry out its mandate;
- providing consistent quality control processes within the surveying profession;
- reducing timelines for plan reviews and registration;
- creating the backbone of a fully on-line survey management system.

¹⁴<http://www.acls-aatc.ca/>

¹⁵*Canada Lands Surveyors Act*, ss. 7 and 15.

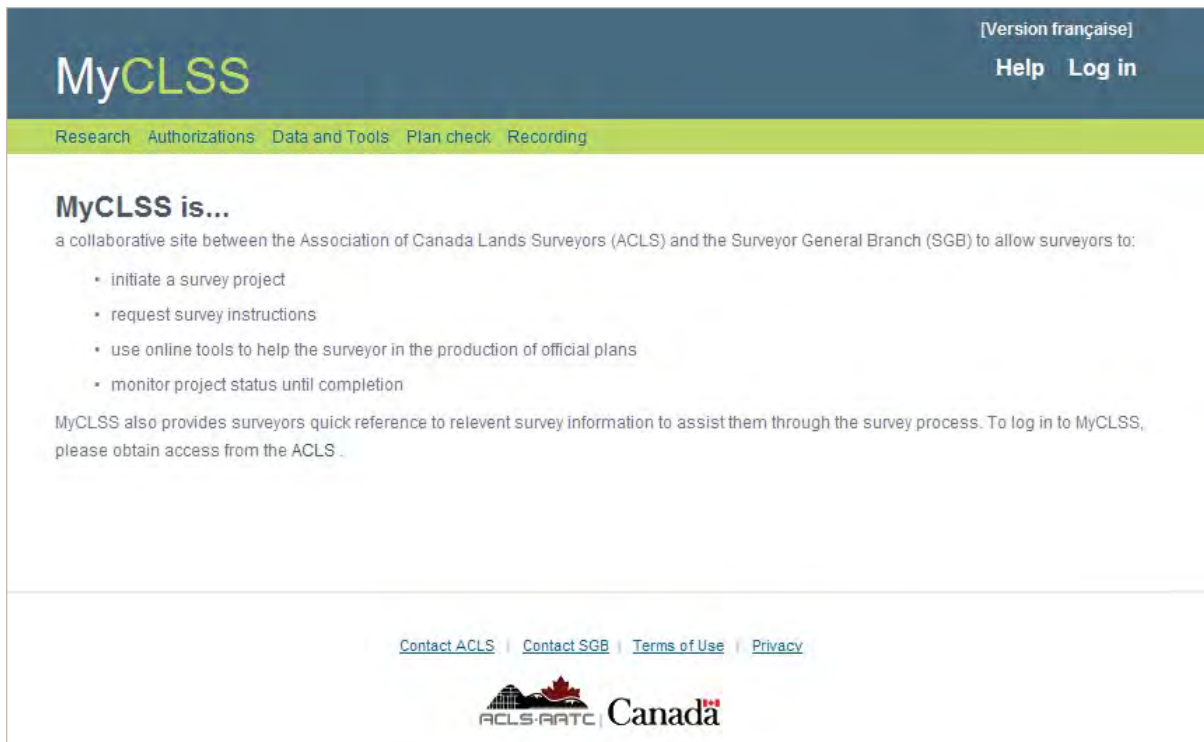


Figure 3. Opening screen of MyCLSS.

ii. Providing an enabling foundation for community and economic development

Parcel fabric renewal: In partnership with AANDC and five First Nations, pilot projects were undertaken at Eel Ground, Uashat, Akwesasne, Brokenhead and Mount Currie First Nations to renew parcel fabric within each reserve. The initiative had four goals:

1. To demonstrate the critical importance of land parcels to land use planning and property rights;
2. To enhance boundary infrastructure and the ability to use it;

3. To ascertain the causes and implications of poor fabric;
4. To allow SGB to develop survey standards and faster more cost effective parcel creation processes.

Work is now underway on developing coordinate-only Community Parcel Plans and monumented Individual Parcel Plans, and on linking the next phase to AANDC's land use planning initiative.



Figure 4. Uashat Reserve: before and after parcel renewal.

iii. Communicating how Canada Lands work — Understanding a complex land management system

Canada Lands handbook: To assist with the difficult exercise of surveying a few acres of snow,¹⁶ SGB wrote and published a 160-page handbook entitled *Surveys, Parcels and Tenure on Canada Lands*. Set out in 10 chapters, rigorously supported by reference to legislation, case law, policy, practice and secondary sources, and lavishly illustrated with photographs and maps, the handbook is a beacon for those working on or with Canada Lands. It is available in English and French in both hard-copy and pdf formats (the latter from the SGB and ACLS web sites), and is already much in demand from other government departments, such as AANDC and Justice Canada. It is intended to assist such departments and others — surveyors, land administrators, students, Aboriginal peoples, land developers, and resource extractors.

iv. Managing key jurisdictional boundaries

Alberta–British Columbia boundary: After significant effort, the Alberta–BC Boundary Commission completed and approved a Policy and Procedural Manual for inter-provincial boundary maintenance. This manual will help provide direction to future commissioners regarding management and demarcation of the watershed (height of land) boundary separating the two provinces.

Also, in conjunction with Parks Canada and to commemorate the 200th anniversary of David Thompson’s exploration of the Rockies, the Alberta–British Columbia Boundary Commission re-established boundary monument 1N in Howse Pass. The monument was erected in 1917, had not been maintained since, and was in disrepair.

¹⁶ Paraphrasing Voltaire’s description of Canada: *Candide*, 1759.



Figure 5. SGB's Jim Mackenzie taking GPS measurements on monument 1N of the Alberta–British Columbia boundary.

Nunavut–Northwest Territories boundary: The 2,100 km boundary between Nunavut and NWT was defined in the 1993 *Nunavut Act* but never marked on the ground. There are now many mineral claims and much exploration and development activity (cumulatively valued in the billions of dollars) that straddle the boundary. A clearly marked boundary links the description to the ground. Such certainty is required to determine which jurisdiction has the right to administer the lands and resources.

were developed to minimize costs. For example, monuments were set every 10 km, rather than every kilometre as is the norm for interprovincial boundary surveys. Boundaries of adjacent mineral claims were connected to the survey to provide clear direction for land administration. In addition, the provisions of the Nunavut and Tlicho land claims agreements were followed. Other active parts of the boundary will be surveyed over the next few years as required.

Consequently, 668 km of the boundary were surveyed and 312 monuments were set. Special standards

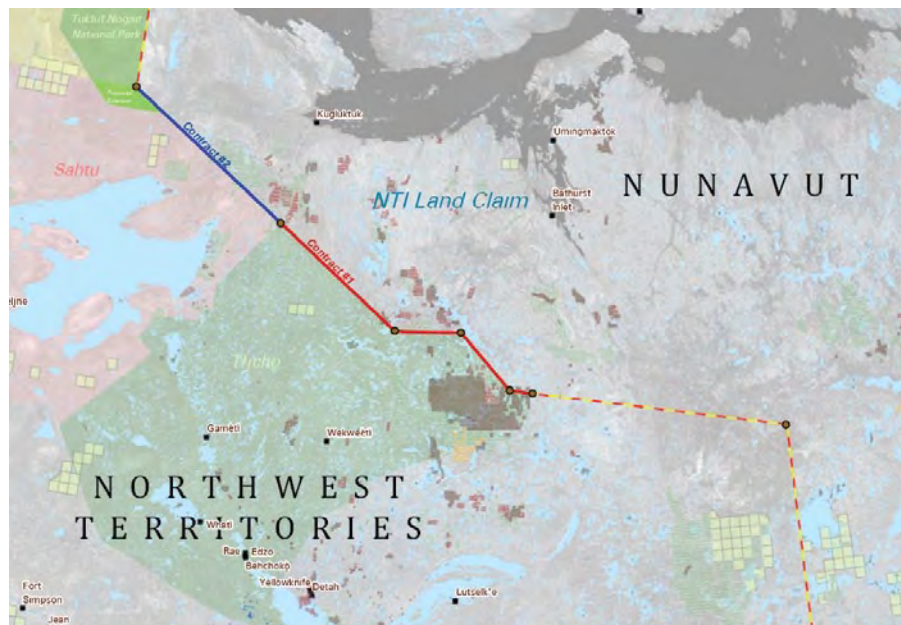


Figure 6. Survey of Nunavut–Northwest Territories boundary.

10 A look ahead — SGB priorities for 2011–2012

1. **MyCLSS implementation** — Complete on-line access and quality control applications; develop options for the implementation of legal signatures for survey plans.
2. **Parcel fabric phase 2** — Develop a road map for renewal of the survey system on First Nations Reserves.
3. **Managing boundaries** — Ensure Canada's legal and treaty commitments for boundary surveys are met. Revise the 15-year boundary maintenance plan of the IBC.
4. **Developing cadastral systems** — Answer the question "How can we use geomatics and cadastral systems to help unlock the economic potential of Canada's ocean space?"
5. **Collaborate with the Mapping Information Branch and the Canada Centre for Remote Sensing** towards the re-vitalization of *Geomatics Canada* through the six-point Pan-Canadian Geomatics Action Plan.¹⁷

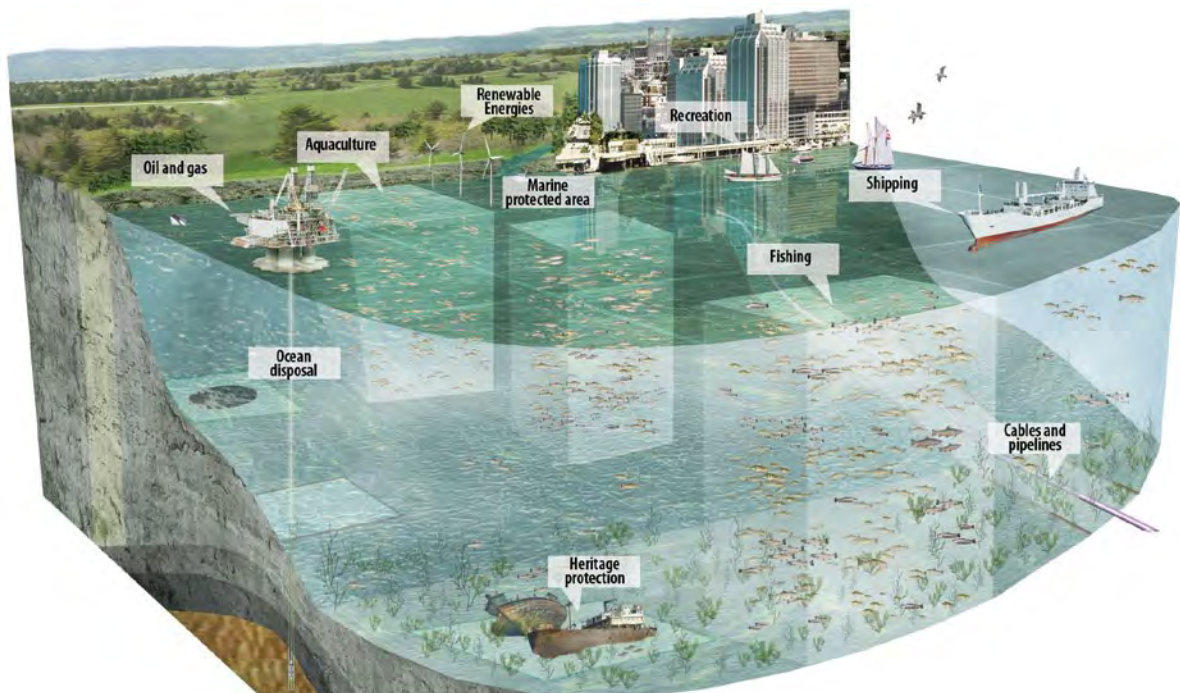


Figure 7. Marine cadastre – Geospatial rights management in Canada's offshore.

¹⁷Pan-Canadian Geomatics Action Plan – Geomatics Roundtable, Calgary 2010, and the Canadian Council on Geomatics (CCOG).

11 Results and performance measures 2010–2011¹⁸

Results and performance measures are based on the Natural Resources Canada Program Activity Architecture (PAA) and Performance Management Framework (PMF) 2010-2011.

Expected result:

“Stakeholders use geographic information, expertise and services to make evidence based decisions ...”

Performance indicators:

“The obligations of the Government of Canada are met to a high level of user satisfaction related to:

- *Defining legal boundaries of real properties on Canada Lands; and*
- *A well defined international boundary with the United States.”*

Outputs:

1. *“A framework for legal surveys on Canada Lands that includes a land surveying profession, standards for legal surveys, demarcated boundaries, access to official records of surveys and an inventory of real property parcels”*
2. *“Demarcated parcels of Aboriginal Land Claims and lands for other government departments having control and administration of property rights on Canada Lands”*
3. *“International boundary line maintenance where the “Vista”¹⁹ was cleared, surveyed and demarcated with monuments”*

Summary:

The volume of work continues to increase with activity on Canada Lands. All obligations to Aboriginal land claims were met. The Yukon Claim is nearing completion as are the comprehensive land claims in the Northwest Territories and Nunavut. Several claims under negotiation in the NWT are forecasted to generate ongoing demand for legal surveys for at least another 7 years.

Aboriginal self-government initiatives in southern Canada are increasing the demand for the surveyed parcels needed to support economic and community development.

The IBC is returning to a 15 year maintenance plan as a result of increased resources from the US Section. Currently the plan is at 73% completion of the scheduled 15 year plan. This gap is expected to close within 3 years.

¹⁸Results — outcomes and outputs — have been redefined for the 2011–2012 fiscal year.

¹⁹The “Vista” is a zone 3 metres wide on each side of the international boundary to be kept clear of vegetation and obstructions.

2010–2011 Results:

| Output | 2009–2010 | 2010–2011 |
|---|----------------------|----------------------|
| Parcels created in cadastral dataset | 4,773 | 5,480 |
| Documents registered | 1,943 | 2,206 |
| Instructions issued | | |
| Direct | 219 | 213 |
| Indirect | 505 | 609 |
| Total | 857 | 958 |
| Plans reviewed/signed by SG | | |
| Direct | 276 | 377 |
| Indirect | 824 | 733 |
| Total | 1,277 | 1,297 |
| Saskatchewan treaty land entitlement | | |
| Area of parcels described | 5,365ha (13,258 A.) | 8,803ha (21,754 A.) |
| Progress | 36% | 37% |
| Manitoba treaty land entitlement | | |
| Area surveyed | 21,823ha (53,927 A.) | 10,313ha (25,485 A.) |
| Progress | 44% | 46% |
| Tlicho land claim agreement ²⁰ | | |
| Boundary surveyed | 95 km | 300 km |
| Progress | 60% | 90% |
| Nunavut land claim agreement | | |
| Boundaries surveyed | 0 | 120 km |
| Parcels created | 0 | 14 |
| Progress | 99% | 100% |
| Nunavik land claim agreement ²¹ | | |
| Boundaries surveyed | | 65 km |
| Progress | | 100% |
| Yukon land claims agreements | | |
| Boundaries surveyed | 426 km | 400 km |
| Parcels created | 74 | 29 |
| Progress | 90% | 97% |
| IBC — 15 year maintenance plan | | |
| Actual progress against expected | 64% | 73% |
| FNLMA | | |
| Legal description reports drafted | 21 | 40 |
| Surveys contracted | 54 | 10 |
| Inter-departmental letters of agreement | | |
| Number | 36 | 40 |
| Value | \$6.3 M | \$8.7 M |
| Survey contracts issued to the private sector ²² | | |
| Number | 245 | 306 |
| Value | \$12.2 M | \$13.8 M |
| Benchmarks: | | |
| Client satisfaction (scale of 1-5) | | |
| First Nations and Inuit (2003–2004) | | 4.1 |
| Other government departments (2004–2005) | | 4.6 |
| Canada Lands Surveyors (2005–2006) | | 4.1 |
| Staff satisfaction (2010–2011) | | |
| Proportion who like their job | | 86% |
| Proportion who are satisfied in their work | | 79% |
| New service standard targets: ²³ | | |
| Time for SGB to review a plan | | 20 calendar days |
| Time for SGB to prepare a LDR | | 200 calendar days |
| Proportion of plans with critical errors ²⁴ | | Less than 5% |

²⁰ Of one very large parcel.

²¹ Surveying of the four parcels only began in 2010–2011.

²² Includes IBC vista clearing (B-Base), land claim surveys (C-Base) and surveys for other government departments (such as INAC and Parks).

²³ To be applied to projects starting in 2011–2012.

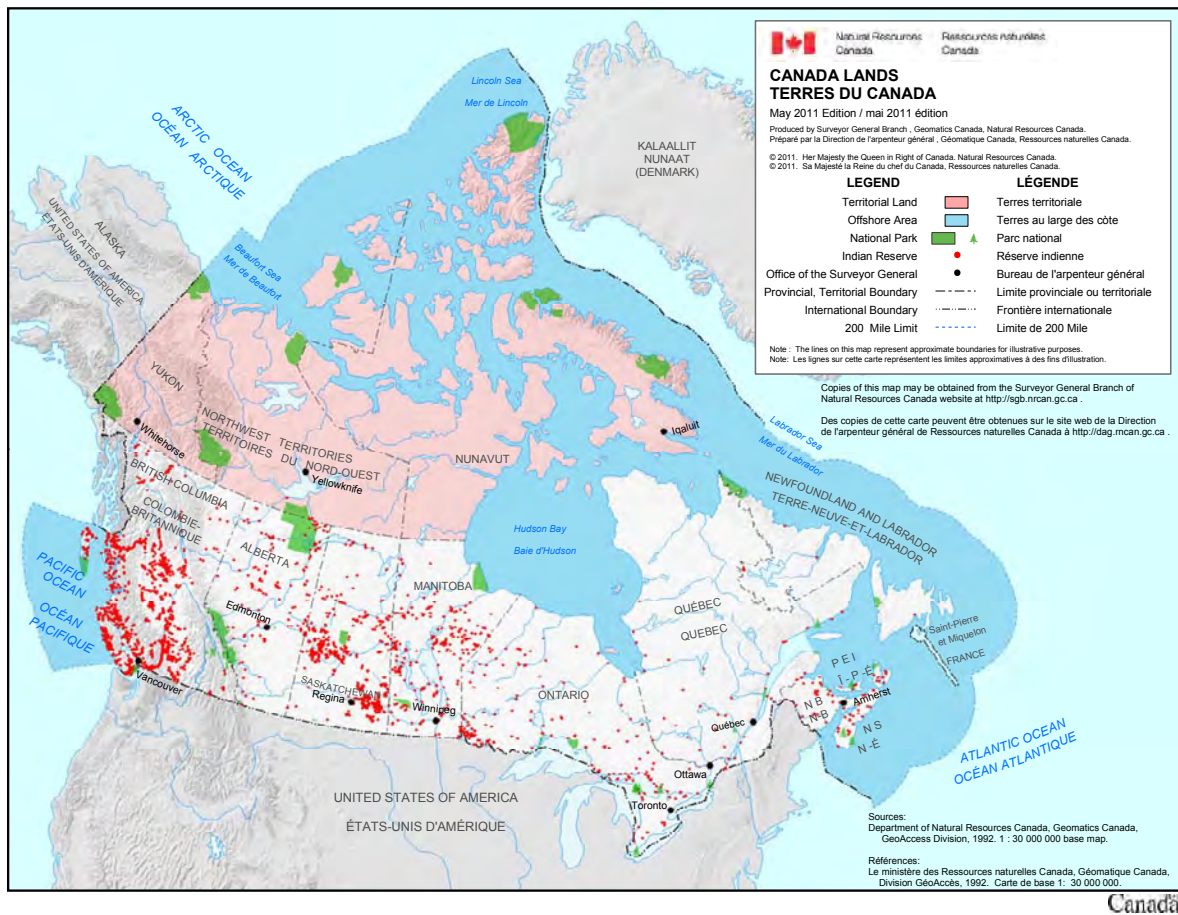
²⁴ As identified in the plan review process and part of the continuous improvement cycle implemented through MyCLSS to ensure integrity of the survey system.

Appendix 1 – Canada Lands

Canada Lands are defined in the *Canada Lands Surveys Act* (CLS Act). In the terrestrial environment, they are any lands belonging to the federal Crown (Canada) or of which Canada has power to dispose, that are situated in Yukon, the Northwest Territories, Nunavut or in any National Park and any lands that are:

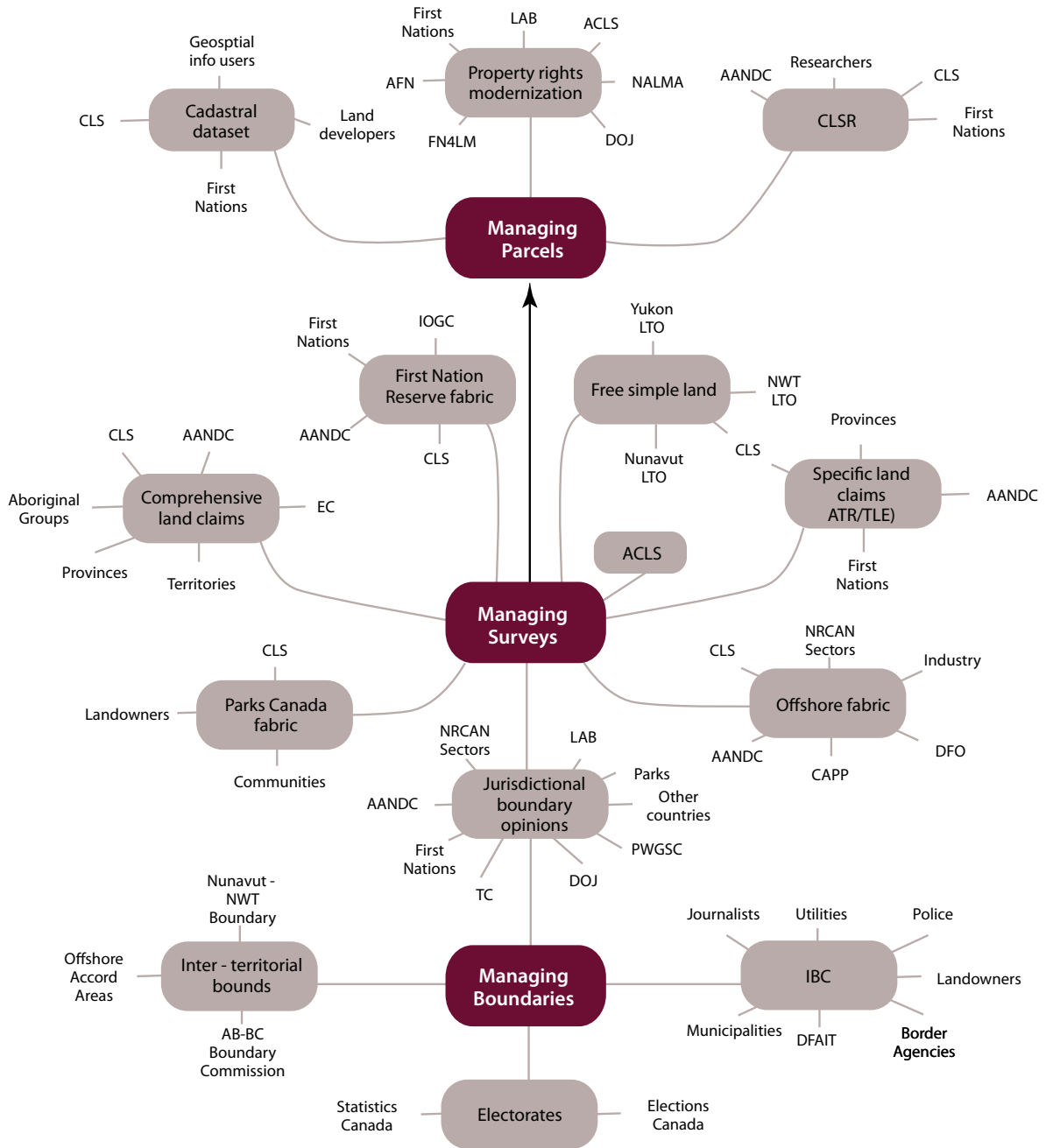
- (i) surrendered lands or a reserve, as defined in the *Indian Act*,
- (ii) Category IA land or IA-N land, as defined in the *Cree-Naskapi (of Quebec) Act*,
- (iii) Sechelt lands, as defined in the *Sechelt Indian Band Self-Government Act*,
- (iv) settlement land, as defined in the *Yukon First Nations Self-Government Act*, and lands in which an interest is transferred or recognized under s.21 of that Act,
- (v) lands in the Kanesatake Mohawk interim land base, as defined in the *Kanesatake Interim Land Base Governance Act* (other than Doncaster Reserve No. 17), or
- (vi) Tlicho lands, as defined in s.2 of the *Mackenzie Valley Resource Management Act*.

Canada Lands are also any lands under water belonging to the federal Crown (Canada) or in respect of any rights in which Canada has power to dispose.²⁵



²⁵ Canada Lands Surveys Act, s.24.

Appendix 2 – SGB web of relationships



Acronyms:

| | |
|--------|--|
| AANDC | Department of Aboriginal Affairs and Northern Development Canada ²⁶ |
| ACLS | Association of Canada Lands Surveyors |
| AFN | Assembly of First Nations |
| ATR | Additions to Reserves |
| CAPP | Canadian Association of Petroleum Producers |
| CLS | Canada Lands Surveyor |
| CLSR | Canada Lands Surveys Records |
| DFAIT | Department of Foreign Affairs and International Trade Canada |
| DFO | Department of Fisheries and Oceans Canada |
| DOJ | Department of Justice Canada |
| EC | Department of Environment Canada |
| FN | First Nations |
| FN4LM | First Nations for Land Management |
| FNCIDA | First Nations Commercial and Industrial Development Act |
| FNLMA | First Nations Land Management Act |
| IBC | International Boundary Commission |
| INAC | Department of Indian and Northern Affairs Canada |
| IOGC | Indian Oil and Gas Canada |
| LAB | Lands Advisory Board (to implement FNLMA) |
| LDR | Legal description reports (pursuant to FNLMA) |
| LTO | Land Titles Office (Nunavut, NWT and Yukon) |
| NALMA | National Aboriginal Lands Managers Association |
| PAA | Program Activity Architecture (Government of Canada) |
| PWGSC | Department of Public Works and Government Services Canada |
| SG | Surveyor General |
| SGB | Surveyor General Branch, Earth Sciences Sector, NRCan |
| TC | Department of Transport Canada |
| TLE | Treaty Land Entitlement |

²⁶ As used since since June 9, 2011.

Appendix 3 – 2010-2011 Standards updates

Chapter D8 – “Mineral Claim Surveys in the Northwest Territories and Nunavut” is now available at:

- <http://class.nrcan.gc.ca/standards-normes/d8-v3-eng.asp>
- The specimen plan of *Chapter D8 – “Mineral Claim Surveys in the Northwest Territories and Nunavut”*, as well as *Schedule E3-3, Abbreviations, of Appendix E3*, were updated accordingly.