



International Boundary Commission,
United States and Canada

Joint Annual Report 2015

Maintaining a Peaceful Boundary for more than a Century



International
Boundary
Commission



Commission
de la frontière
internationale



The Honorable Rex W. Tillerson
The Secretary of State for the United States
Washington, D.C.

The Honourable Chrystia Freeland
Minister of Foreign Affairs
Ottawa

Mr. Tillerson, Ms. Freeland:

We have the honour to submit herewith to each government, the Commissioners' joint report regarding the maintenance and regulatory work performed in the calendar year 2015 with respect to the International Boundary between the United States and Canada.

This is the 91st annual joint report submitted by the Commissioners under the provision of Article IV of the Treaty of Washington, February 24, 1925. This report contains a complete account of all boundary inspection and maintenance work executed from January 1st to December 31st, 2015.

Respectfully submitted,

Kyle K. Hipsley
Commissioner, United States

Peter Sullivan
Commissioner, Canada

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**International Boundary Commission
Joint Annual Report 2015**

EXECUTIVE SUMMARY

The International Boundary Commission is a joint organization composed of two Commissioners duly appointed by Canada and the United States to maintain an effective boundary line between the two countries, as per the provisions of the Treaty of 1925.

Why we do it

The International Boundary Commission ensures the maintenance and integrity of a peaceful, well-defined boundary between Canada and the United States, contributing to the mutual safety and prosperity of the citizens of both countries.

What we do

To fulfill its mandate, the Commission carries out routine inspections, repairs or replaces damaged boundary monuments, maintains open vistas through woods and forests, and keeps boundary coordinates up to date by carrying out additional surveys as required.

How we do it

The Commission is organized in two sections under the leadership of the Canadian and United States Commissioners. The maintenance work is shared equitably between the two sections, based on the long-term plan revised periodically by the two Commissioners.

What was done

Efforts were focused on Vista clearing and survey of the Yukon/Alaska boundary; Vista clearing and surveys along the 49th parallel; monument maintenance and inspection of the Quebec/New York boundary; Vista clearing and inspection of the Quebec/Vermont boundary; surveys of the Quebec/Maine boundary and reference monuments maintenance along the St. Francis River.

Measuring success

The Commission is now fully in line with the 15-year maintenance plan, and efforts are focused on updating the official maps and publication of updated official coordinates. The long-term plan is in the process of being redesigned to accommodate changes in the business processes as a result of the implementation of the Geographic Information System, and to address the mapping project.

The Commissioners

The United States Commissioner is Kyle K. Hipsley, who has long served the United States section, most recently as Deputy Commissioner. Peter Sullivan is Surveyor General of Canada Lands and therefore pursuant to the International Boundary Commission Act (Canada) is also Canada's International Boundary Commissioner.



Kyle K. Hipsley, American Commissioner



Peter Sullivan, Canadian Commissioner

INTRODUCTION

The boundary between Canada and the United States came into being as a result of some 26 treaties, conventions, protocols, decisions and awards. Although there have been ad hoc boundary commissions instituted by the U.S. and Canada over the years to implement these various agreements, the International Boundary Commission as we know it today dates back to the *Treaty of Washington of 1908*.¹ At that time, its mandate was to locate and mark the boundary between the two countries and clarify certain situations. The Commission was permanently instituted by the *Treaty of Washington of 1925*² and has been fulfilling its mandate effectively since.

The International Boundary Commission comprises a Canadian and a United States Section, each of which reports to its respective Commissioner. The Canadian Commissioner, Peter Sullivan, is appointed ex officio by virtue of being the Surveyor General for Canada pursuant to the *International Boundary Commission Act* (Canada). Following his appointment by President Obama in autumn 2014, Kyle K. Hipsley serves as the United States Commissioner.

To fulfill its mandate, as defined by the *Treaty of Washington 1925*, the Commission carries out routine inspections and repairs or replaces damaged boundary monuments, maintains open vistas through woods and forests, and keeps boundary coordinates up to date by carrying out additional surveys as required. In addition, the Commission responds to public inquiries regarding cross-border projects and requests for information by the public and private sectors.

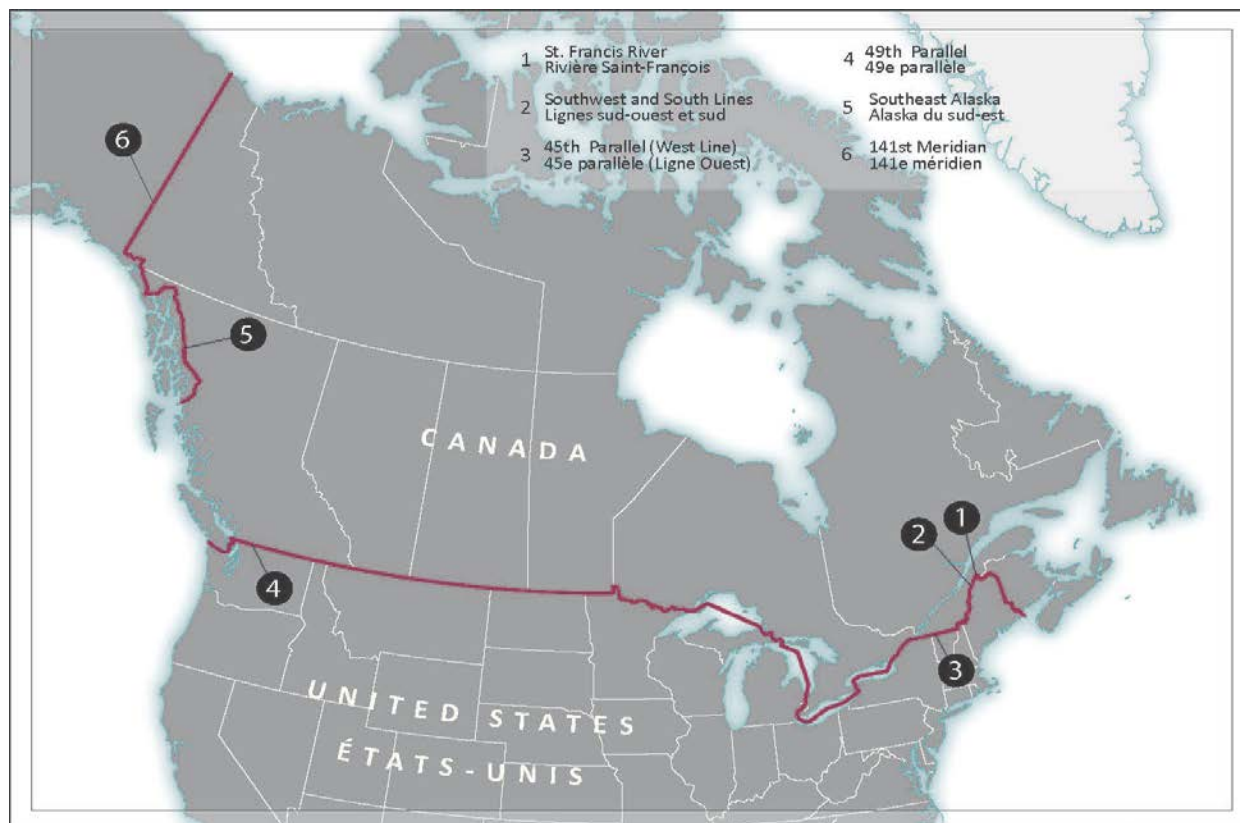
This 91st Joint Annual Report details the activities undertaken by the Commission in the period between January 1, 2015, and December 31, 2015. It contains a complete and faithful report of the projects carried out, as well as tables and plans showing the current condition of the Canada–U.S. boundary.

1 Treaty between the United States of America and the United Kingdom concerning the boundary between the United States and the Dominion of Canada from the Atlantic Ocean to the Pacific, signed at Washington, April 11, 1908, ratifications exchanged at Washington, June 4, 1908.

2 Treaty between the United States of America and His Britannic Majesty, in respect of the Dominion of Canada to define more accurately at certain points and to complete the international boundary between the United States and Canada and to maintain the demarcation of that boundary, signed at Washington, February 24, 1925, ratifications exchanged at Washington, July 17, 1925.

MAINTENANCE ACTIVITIES

The 2015 field season began in May and ended in November. Major efforts were focused along the St. Francis River, Southwest and South Lines, the West Line, the 49th Parallel, Southeast Alaska and the 141st Meridian. The following sections provide an overview of the work accomplished, while the technical appendices provide more detailed numerical information.



Monument maintenance along the St. Francis River (Quebec/Maine)



Figure 1 – Reference Monument C-110 after being renewed. (Quebec)

The St. Francis River forms the boundary between Canada and the U.S. over a distance of approximately 70 kilometers (43 miles). The source of this river is Quebec's Lake Pohénégamook and it empties into the St. John River. On the Canadian side, it borders farms and private forests whereas on the U.S. side, it snakes along heavily wooded and sparsely populated areas. This waterway winds through flood plains and has a tendency to overrun its banks in the spring which can lead to changes in its course. Consequently, long segments of the boundary, previously identified by waterway turning points, are now on dry land and need to be located and marked.

The maintenance work accomplished this year under the supervision of the United States Section entailed the renewal of reference monuments on the St. Francis River, working south from Beau Lake. Reference monuments are land-based markers used to pinpoint the location of the multiple turning points along the boundary line when it winds along a water course. These reference monuments are at the mercy of the ice jams and spring floods that are an inevitable fact of life in these areas.

This season, 29 monuments were recovered and 34 more were repaired. Field work for this section is considered complete for this cycle.

Survey of the Southwest and South Lines (Quebec/Maine)

The Southwest and South Lines stretch from the towns of Pohénégamook, Quebec, and Estcourt, Maine, and run down in two straight segments in a general south-southwesterly direction until they reach the Southwest Branch of the St. John River. Along this line, the international boundary crosses areas known for high quality lumber.

The survey activity was performed by the Canadian Section which this year surveyed nine monuments in the southern section of the line. This completed the last leg of the survey of the entire Southwest and South Lines.



Figure 2 – State-of-the-art GPS receivers set over Monuments 304 and 305 (Quebec/Maine)

Clearing and monument maintenance along the West Line (Quebec/Vermont)

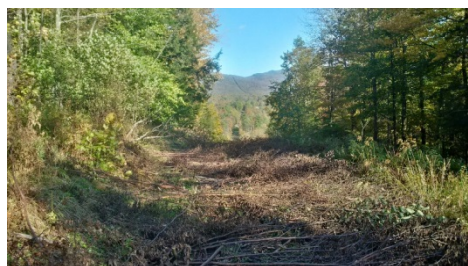


Figure 3 – View of the Vista in Sutton QC after clearing (Quebec/Vermont)

The West Line, between Quebec and Vermont, crosses the scenic mountain vistas and gently rolling hills of the Eastern Townships. It also dips into two of the most scenic lakes of the Northeast; Lake Memphremagog and scenic Lake Champlain, where many early chapters of Canadian and American history were written.

The Canadian Section this year inspected and marked 49 monuments as being “renewed”, and added a decorative obelisk at Morses Line Port of Entry. Furthermore, a contract was issued for the clearing of a 65.8 km (40.9 mi) stretch of the

Boundary Vista between Lake Memphremagog and Missisquoi Bay on Lake Champlain. This work has also been completed.

Renewal and boundary marking enhancement along the West Line (Quebec/New York)

The West Line, which separates the province of Quebec and the state of New York, crosses farms and private forests. Numerous entry points and intense traffic make this area a sensitive and important area of the international boundary.

Continuing work in progress in this area, the Canadian Section proceeded to renew boundary markers in Dundee/Fort Covington; Trout River and Morses Line while enhancing the visibility of monuments between Jamieson Line and Dundee.

In all, in this area, 10 monuments were repaired or rebuilt and 152 monuments were repainted. The overall condition of this section is considered to be good.



Figure 4 – Monument 735 at Dundee QC/Fort Covington NY Port of Entry. (Quebec/New York)

Vista clearing along the 49th Parallel – Foothills to West Kootenay River (Alberta/Montana)

By far the longest segment of the International Boundary, the 49th Parallel separates four provinces and five states. Its maintenance is an ongoing concern and process for the Commission. Spanning the rugged Rocky Mountains and rolling foothills, the boundary rises from sea level to reach upward of 3,000 meters or 10,000 feet, through steep valleys, over craggy summits and across ice fields.

Under a long-term agreement between the U.S. Section and Glacier National Park (U.S.), maintenance of the Vista is entrusted to park staff. During the year, a clearing operation was conducted along 4.2 km (2.6 mi) of the boundary.

Survey and reconnaissance along the 49th Parallel – Columbia Valley to Similkameen River (British Columbia/Washington)



Figure 5 – Setting up a GPS receiver over Monument 56 (British Columbia/Washington)

One of the most difficult sections of the boundary to maintain is where the boundary crosses the mountain ranges in the hinterland between British Columbia and Washington. The mountains are steep and densely wooded. Only one road reaches the boundary, which makes it very difficult to access and requires the use of rotary winged aircraft. Surveys are required in this particularly difficult section in order to update geographical data. An American team surveyed 36 boundary monuments along the eastern portion of the sector while a Canadian team did the preliminary surveys and reconnaissance work in order to pursue the project in 2016. The inspection revealed that several

boundary monuments are in poor condition and will require more than simple cosmetic work. A vista clearing contract overseen by the American Section had to be postponed until next year because of forest fires.

Maintenance and Vista clearing along the 49th Parallel – Pacific to Columbia Valley (British Columbia/Washington)

Under the direction of the Canadian Section, clearing and maintenance continued along this section of the boundary that originates in the brine of the Pacific Ocean.

The all-important Vista was cleared over a distance of 26 km (16 mi) between Monuments 5 and 26. Maintenance work was completed over a distance of about 165 km (102 mi) between Monuments 5 and 79.

A decorative obelisk was placed at the Sumas Port of Entry, 10 monuments were surveyed, one new monument was installed and 40 monuments were painted.



Figure 6 – Installing decorative obelisk at Sumas Port of Entry. (British Columbia/Washington)

Installation of a monument on the Southeast Alaska Section (British Columbia/Alaska)



Figure 7 – Daniel Fortin (left) and JT Moore shaking hands after installing Monument 0.

From the head of the Portland Canal fjord, between the municipalities of Stewart, BC and Hyder, AK, the boundary follows a series of mountain peaks located about 48 km (30 mi) inland from the coast until it intersects with the 141st Meridian. This land section of the border that separates southeastern Alaska from British Columbia and Yukon is 1142 km (710 mi) long and defined by 90 mountain peaks and more intermediate monuments or markers. Recent activity at the Stewart border crossing demonstrated the need to add a monument to better define the straight line that connects Boundary Monument 1 and Turning Point 28 (unmarked). A team from the American Section was charged with the task and installed Boundary Monument 0 between Monument 1 and Turning Point 28.

Vista clearing and survey along the 141st Meridian (Yukon/Alaska)

Separating Yukon and Alaska, the 141st Meridian stretches from Mount St. Elias to the Arctic Ocean. With a total length of 1045 km (650 mi), this line passes through terrain that features varied topography and vegetation. Significant efforts have been made by the Canadian and American Sections to complete the clearing



Figure 8 – Vista looking south after being cleared (Yukon/Alaska)

operation. The U.S. Section continued its efforts to clear the Vista northbound between Monuments 25 and 37 over a distance of 60.3 km (37.5 mi). From this point on, arctic tundra dominates the landscape, eliminating the need to clear the Vista further north. Further clearing was completed between Monuments 63 and 64 over a distance of about 6.8 km (4.2 mi) and between Monuments 156 and 157 for a distance of about 4.4 km (2.7 mi). Finally, the American Section oversaw the completion of the clearing contract initiated in 2014 over a distance of 34.1 km (21.2 mi) between Monuments 51 to 53 and 58 to 63. For its part, the Canadian Section required the services of a specialized firm to clear the Vista between Monuments 64 and 76 over a distance of 64.2 km (39.9 mi). These combined efforts resulted in the completion of the clearing of this difficult section.

Miscellaneous

In addition to regular maintenance activities, many special requests were dealt with to address specific stakeholders' needs:

- Upon request of the United States Border Patrol, Proclamation Land was staked at Monument 261 and 2.8 km (1.7 mi) of the Vista was cleared west toward Mount Hefty on the 49th Parallel, Foothills to West Kootenay;
- A bridge plaque was surveyed at the Ft Kent/Clare (NB/ME) International Bridge;
- 260 m (850 ft) of the Vista was cleared west of Lake Osoyoos (BC/WA);
- Vista was cleared along the 49th Parallel, Foothills to West Kootenay between Monuments 276B and 277 (1.2 km/ 0.7 mi);
- Vista was cleared at Maida/Windygates Port of Entry (400 m/1,300 ft), and St John/Lena Port of Entry (8.9 km/5.5 mi).

COMMISSIONERS' ACTIVITIES

Field inspections

The inspections carried out by the commissioners and their assistants ensure that the work performed in the field under their direction meets the standards of the Commission and is done in accordance with the Treaty. In 2015, the commissioners inspected the following areas:

Southeast Alaska (British Columbia/Alaska)

In the late summer of 2015, from September 10 to 17, JT Moore, Deputy Commissioner of the American Section and Daniel Fortin, Manager of the Canadian Section, headed for Hyder, Alaska to supervise the installation of a decorative boundary monument at the Stewart border crossing. The installation of this monument aroused great interest in the local community, and the Commission representatives used the opportunity to have discussions with the students at Hyder School. Students were invited to provide memorabilia to be inserted into a time capsule that was installed in the base of the monument. Messrs. Fortin and Moore also overflew the boundary over a distance of approximately 100 km (60 mi) to ascertain the state of the Vista and plan the maintenance work for the years ahead.



Figure 6 - Deputy Commissioner Moore installing a time capsule in the base of Monument 0. (British Columbia/Alaska)

Straits of Georgia and Juan de Fuca (British Columbia/Washington)

On September 10 and 11, 2015, Commissioners Hipsley, for the United States, and Sullivan, for Canada, accompanied by Joe Harrietha, Senior Surveyor for the Canadian Section, did an aerial reconnaissance over the Straits of Georgia and Juan de Fuca. In particular, they observed the condition of the reference monuments and discussed installing additional markers to replace the lighthouses currently in use as reference points.

Lake Erie, Detroit and St. Clair Rivers (Ontario/Michigan)

On September 23 and 24, 2015, the Canadian Commissioner, Peter Sullivan; Daniel Fortin, Manager of the Canadian Section; and Joe Harrietha, Senior Surveyor, sailed the Detroit River to observe the state of reference monuments in this section. In achieving this task, they were assisted by the Canadian Coast Guard, who graciously provided a ship and crew.

Commissioners' meetings

The Canadian and U.S. Commissioners met twice during the year to review the status of projects, approve upcoming projects, review and approve comparable expenditures, and discuss the various issues brought to their attention. The first meeting was held on April 14-15, 2015, in Washington, DC, and the second meeting was held on November 3-4, 2015, in Ottawa, ON. Most of the topics discussed are included in this report.

REGULATORY ITEMS

The Commission monitors the construction of all works within three metres (10 feet) of the boundary. Thus, all construction—whether a ditch, a building, a surface or underground structure (telephone, cable, electrical line or gas pipeline), line of communication, or other—must first be authorized by the Commission. Exceptionally, the Commission did not receive any requests in 2015.

PLANNING FOR 2016

The Commission plans to undertake the following activities in 2016. These activities are in line with the long-term plan.

Canadian Section

The Canadian Section's maintenance activities will focus on the following sections of the boundary:

1. 49th Parallel (Columbia Valley to Similkameen River): Inspection, monument maintenance and survey. Minor repairs will be performed on Monuments 43 to 76, eight monuments will be rebuilt and Monuments 46 to 70 will be surveyed.
2. West Line (Quebec/New York): Maintenance of the boundary monuments will continue along the Quebec/New York boundary with an objective to reconstruct 13 monuments and repair monuments between Monuments 722 and 755. This activity is essential, given the importance of this section of the boundary and the state of disrepair of many of its boundary monuments.
3. The Highlands N.E. Section (Quebec/Maine): A contract will be issued to clear the Vista along 125 km (78 mi), the entire length of this section. The last maintenance on this section was done in 2010 and with the implementation of this project, we return to the planned six-year cycle.

A survey crew will follow the clearing team to complete the survey begun in 2014. In addition to these routine maintenance activities, the Canadian Section will oversee the implementation of a light Geographical Information System (GIS) for use by management that will include complete reference documentation to support operations.

United States Section

The U.S. Section will be responsible for the following projects:

1. North Line – Inspection and monument maintenance (Maine/New Brunswick).
2. St. Croix River – Inspection (Maine/New Brunswick).
3. Rainy River to Lake of the Woods – Inspection and maintenance (Minnesota/Ontario).
4. 141st Meridian – Continuation of survey and monument maintenance (Alaska/Yukon).
5. Southeast Alaska – Vista clearing (five valleys) (Alaska/British Columbia).
6. Install range towers at Lake Osoyoos (Washington/British Columbia) and Lake Koocanusa (Montana/British Columbia).

ACCOMPLISHMENTS AGAINST THE LONG-TERM PLAN

As reported in previous joint annual reports, the long-term maintenance plan shows a significant gap between the current condition of the Boundary and the original forecast. This plan becomes less and less useful for planning purposes. Appendix C, which is extracted from the plan, shows that several planned activities are out of the cycle; some of these activities having been completed in advance, others having been delayed. However, the Boundary remains in excellent condition and maintenance is up to date. Boundary monuments still stand straight and visible; their inter-visibility is assured by the visible Vistas which play their role of adjunct to the Boundary.

The preparation of a new long-term maintenance plan remains a priority, but its development was delayed by the implementation of the Geographic Information System. This system is now functional, and efforts are made to accurately assess the condition of the boundary at a level of granularity that was not previously possible. This detailed information will be used for the preparation of a more accurate and functional plan.

REPORT ON COMPARABLE EXPENDITURES

This report shows the total amount spent by both sections of the Commission as at March 31, 2015, for maintenance of the Boundary Line under Section IV of the *Treaty of Washington 1925*.

The cumulative total represents the total spending of each Section, since 1925, on expenditures deemed comparable. Comparable expenditures are the subject of an agreement by both Commissioners as to the interpretation of Section IV of the *Treaty of 1925*, and are revised regularly. The current agreement has been in effect since April 1, 1999. Under the agreement, and according to the Treaty, the expenditures do not include salaries or expenditures by the Commissioner and the Commissioner's assistants, including administrative staff, i.e., the permanent staff of each Section. Therefore, this expenditure report is not a financial report, as it does not include all of the expenditures incurred by each Section.

The purpose of compiling cumulative expenditures since the Commission's origins is to demonstrate that the efforts of both governments are shared equally. Although the cumulative total shows a lag in terms of the expenditures of the U.S. Section, this gap is not a concern, as the U.S. Section's budget currently exceeds the Canadian budget. This is expected to continue, so that the U.S. Section should catch up and close the gap within four or five years.

Given that each country's fiscal year spans two calendar years, the divisible expenditure report does not always reflect all costs associated with current year projects and shows some costs associated with the previous year's projects.

Expenditures are shown in each country's respective currency.

**International Boundary Commission
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*Excerpt of Certified Comparable Expenditures to March 31, 2015
Approved by the Canadian Commissioner on January 20th, 2016
Approved by the U.S. Commissioner on February 4th, 2016*

	Expended By United States Section (USD)	Expended By Canadian Section (CAD)
Total to March 31, 2014	\$ 20,025,257.06	\$ 22,858,517.82
<u>From April 1, 2014 to March 31, 2015</u>		
West Line (QC/NY) - Monument maintenance (120 km/74.6 mi)		262,799.57
Highlands (QC/ME) - Survey and inspection		117,423.99
West Line (QC/VT) - Vista clearing contract from Mon. 518 to Mon. 570 (52.7 km/32.7 mi)		56,840.12
141st Meridian (YK/AK) - Vista clearing contract & inspection from Mon. 174 to 187A (52.7 km/32.7 mi)		376,995.67
Passamaquoddy Bay (ME/NB) - Vista clearing & maintenance (IBC Contract #01-14)	21,908.42	
St. Francis River (ME/QC-NB) - Monument maintenance	179,430.38	
West Line (QC/NY) - Soil study in Missisquoi Bay	13,692.80	
49th Parallel (MT-BC) - Survey from Mon. 216-C to Mon. 261	318,415.17	
49th Parallel (MT/BC) - Vista clearing Glacier National Park MOU (2.3 mi/3.6 km)	38,316.83	
49th Parallel (MT/BC) - Vista clearing (1.0 mi/1.6 km)	4,709.53	
49th Parallel (MT/AB) - Monument 333AAA installed at Sweetgrass POE, monument maintenance	14,443.83	
141st Meridian (AK/YK) - Vista clearing in-house from Mon 36 to 51 (44.5 mi/71.6 km)	416,351.93	
141st Meridian (AK/YK) - Vista clearing contract from Mon. 51 to 76; IBC Contract #02-14 (50 mi/80 km)	60,600.00	
Lake of the Woods (MN/ON) - Vista clearing of portages (0.4 mi/0.6 km)	13,646.81	
West Line (NY/QC) - Vista clearing (13 mi/21 km)	19,938.52	
St. John River (ME/NB) - Bridge plaque at Fort Kent	1,313.43	
<u>Other Expenditures</u>		
Vehicle Purchase		29,990.24
Monuments		43,650.00
Boundary Bay Security Signs		995.00
Landowner Database		15,624.99
Mapping/GIS Development		8,552.70
Printing Annual Reports (2013 JAR + 10-11 Appendices)		2,997.97
Helicopter charter for contract inspection AK/YK		14,652.00
Vehicle Purchase	36,659.89	
Department of Labor - Unemployment	11,178.10	
Range Tower Maintenance Boundary Bay	16,682.00	
Sub-total for 2014-15	\$ 1,167,287.64	\$ 930,522.25
Total to date	\$ 21,192,544.70	\$ 23,789,040.07

COMMISSIONERS OF THE IBC

UNITED STATES

Otto H. Tittmann	1904 – 1915
Edward C. Barnard	1915 – 1921
E. Lester Jones	1921 – 1929
James H. Van Wagenen	1929 – 1935
Thomas Riggs	1935 – 1945
John A. Ulinski	1945 – 1953
Samuel L. Golan	1953 – 1961
Edward J. King	1961 – 1969
Richard L. Herman	1969 – 1977
William M. Schreiber	1977 – 1981
Frank R. Whetstone	1981 – 1985
David C. Fischer	1985 – 1991
Allen C. Kolstad	1991 – 1993
Clyde Moore (Acting)	1993 – 1996
Thomas L. Baldini	1996 – 2002
Dennis L. Schornack	2002 – 2007
David L. Bernhardt	2007 – 2008
Kyle K. Hipsley (Acting)	2008 – 2014
Kyle K. Hipsley	2014 –

CANADA

William F. King	1904 – 1916
James J. McArthur	1917 – 1924
John D. Craig	1925 – 1931
Noel J. Ogilvie	1931 – 1947
James M. Wardle	1947 – 1950
J. Leslie Rannie	1950 – 1951
J. Earl R. Ross	1951 – 1957
A. Frederick Lambert	1957 – 1976
Alec C. McEwen	1976 – 1991
Suzanne Jacques	1991 – 1996
Michael O’Sullivan	1996 – 2005
Peter J. Sullivan	2005 –



CERTIFICATION

We certify that the foregoing is a true record of the work done by the Commissioners during the year ending December 31, 2015, on the maintenance of the International Boundary Line between Canada and the United States of America, and that the plats and tables submitted herein show the true location and geodetic position of all monuments moved and all additional monuments and marks established within the year, in accordance with the provisions of Article IV of the Treaty between the United States of America and His Britannic Majesty in respect of Canada, signed at Washington, February 24, 1925.

Peter Sullivan
Canadian Commissioner

Kyle K. Hipsley
United States Commissioner



APPENDIX A – DETAILS OF MAINTENANCE AND SURVEY WORK

APPENDIX A – DETAILS OF MAINTENANCE AND SURVEY WORK

Legend

Boundary Monument Type:	MON	Boundary Monument or Boundary Turning Point
	RM	Reference Monument or Marker
Reconnaissance:	G	Recovered In Good Condition
	F	Recovered in Fair condition (requires minor repair)
	PO	Recovered in Poor condition (requires major repair)
	D	Destroyed (evidence found but Monument not in place)
	NR	Not Recovered (no evidence found or inadequate search)
Established:	NM	New Monument constructed (in new location)
	R	Renewed (in same location)
Repairs:	MI	Minor repairs to base (cracks patched, plumbed, dirt packed at base, etc)
	MA	Major repairs (new marker installed, base partially replaced or recapped)
Painted:	MP	Monument Painted
Description:	DU	Description Updated
	ND	New Description (newly established monuments only)
Photo:	P	Photographed
	NP	Not Photographed
Monument Surveyed:	S	Survey performed to position the monument

St. John and St. Francis Rivers (Maine – Quebec/New-Brunswick)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
RM S89A-76	G					NP	
Tab NE	G				ND	P	S
Tab SW	G				ND	P	S
RM S90-76	G					NP	
RM S-114	F			MP	DU	P	
RM S-115A	P		MA	MP	DU	P	
RM C107	P		MA	MP	DU	P	
RM S116	P		MA	MP	DU	P	
RM C108	P				DU	P	
RM S-117	P		MA	MP	DU	P	
RM C109	G			MP	DU	P	
RM S-118	NR					NP	
RM S-119	P		MA	MP	DU	P	
RM C110	P		MA	MP	DU	P	
RM C-111	P		MA	MP	DU	P	
RM S120	P		MA	MP	DU	P	
RM C112	P		MA	MP	DU	P	
RM S-121	P		MA	MP	DU	P	
RM C113	P		MA	MP	DU	P	
RM S-122	P		MA	MP	DU	P	
RM S-123	P		MA	MP	DU	P	
RM C114	P		MA	MP	DU	P	
RM S-124	NR					NP	
RM C115	P		MA	MP	DU	P	
RM S-125	P		MA	MP	DU	P	
RM C116	P		MA	MP	DU	P	
RM S-126	P		MA	MP	DU	P	
RM C-117	P		MA	MP	DU	P	
RM C-118	P		MA	MP	DU	P	
RM S-127	P		MA	MP	DU	P	
RM C119	G			MP	DU	P	
RM S-128	P		MA	MP	DU	P	
RM C-120	P		MA	MP	DU	P	
RM S129	P		MA	MP	DU	P	
RM C-121	P		MA	MP	DU	P	
RM C122	P		MA	MP	DU	P	
RM C-123	P		MA	MP	DU	P	

APPENDIX A – DETAILS OF MAINTENANCE AND SURVEY WORK

St. John and St. Francis Rivers (Maine – Quebec/New-Brunswick)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
RM C-124	P		MA	MP	DU	P	
RM C-138	P		MA	MP	DU	P	
RM S-139	P		MA	MP	DU	P	
RM S-140	P		MA	MP	DU	P	
RM C-142	G					NP	S
RM C-143	G					NP	S
RM C-152A	G					NP	S
RM C-154-A	G					NP	S
RM C-156	G					NP	S
RM S-152	G					NP	S
RM S-153	G					NP	S
RM S-154	G					NP	S
RM C161	G					NP	S
RM S-155B	G					NP	S
RM C-162	P		MA	MP	DU	P	
RM S156	G					NP	S
RM C-168-A	G					NP	S
RM S-161-A	G					NP	S
RM S-163	G					NP	S
RM S-164	G					NP	S

Southwest and South Lines (Maine – Quebec)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 295	G					P	S
MON 296	G					P	S
MON 296A	P				DU	P	S
MON 297-91	G				DU	P	S
MON 297A	G					P	S
MON 298	G					P	S
MON 299	G					P	S
MON 304	G					P	S
MON 305	G			MP		P	S
MON 306	G			MP		P	S
MON 307	G			MP		P	S
MON 308	P		MI	MP		P	S

Southwest Branch of the St. John River (Maine – Quebec)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
RM 309	G					P	S

West Line (QC/VT) (Quebec/Vermont)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 525A	G			MP		P	
MON 549	G			MP		P	

APPENDIX A – DETAILS OF MAINTENANCE AND SURVEY WORK

West Line (QC/VT) *(Quebec/Vermont)*

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 549A	P		MI	MP	DU	P	
MON 550	F			MP		P	
MON 572	P			MP		P	
MON 572A	P		MA	MP	DU	P	
MON 573-99	G					P	
MON 573A	P		MA	MP	DU	P	
MON 573B	P		MI	MP		P	
MON 574	P		MA	MP	DU	P	
MON 574A	G			MP		P	
MON 575	F					NP	
MON 575A	F			MP		P	
MON 577	G			MP		P	
MON 578	G			MP		P	
MON 579	P		MA	MP	DU	P	
MON 580	P		MA	MP	DU	P	
MON 580A	G			MP		P	
MON 581	G			MP		P	
MON 581A	P			MP		P	
MON 581B	G			MP		P	
MON 582	G			MP		P	
MON 582A	G			MP		P	
MON 583	P			MP		P	
MON 584	P		MI	MP	DU	P	
MON 584A	G			MP		NP	
MON 585	F			MP		P	
MON 586	F			MP		P	
MON 587	F			MP		P	
MON 587A	F			MP		P	
MON 587B	G					P	
MON 588	G					P	
MON 588A	F		MA	MP	DU	P	
MON 588B	F			MP		P	
MON 589	G			MP		P	
MON 590	G			MP		P	
MON 592A	F		MI	MP		P	
MON 592B	G			MP		P	
MON 593	G			MP		P	
MON 593A	G			MP		P	
MON 594	P		MA	MP	DU	P	
MON 594A	P		MA	MP	DU	P	
MON 594B	G			MP		P	
MON 594C	G			MP		P	
MON 594D	G			MP		P	
MON 595	P		MA	MP	DU	P	
MON 596	D		MA	MP	DU	P	
MON 596A	G			MP		P	
MON 597	P		MA	MP	DU	P	
MON 597A	G			MP		P	
MON 597B	F		MI	MP	DU	P	
MON 598	G					P	
MON 598A	F			MP		P	
MON 599	P		MA	MP	DU	P	
MON 599A	G			MP		P	
MON 599B	G					P	
MON 600A	G					P	
MON 601	F					P	
MON 601A	G			MP		P	

APPENDIX A – DETAILS OF MAINTENANCE AND SURVEY WORK

West Line (QC/VT) *(Quebec/Vermont)*

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 602	F			MP		P	
MON 603	G			MP		P	
MON 603A	G			MP		P	
MON 604	F			MP		P	
MON 605	G			MP		P	
MON 605A	G			MP		P	
MON 605B-99	P		MA	MP	DU	P	
MON 606	F			MP		P	
MON 606A	P		MA	MP	DU	P	
MON 608	G			MP		P	
MON 608A	G			MP		P	
MON 608B	P			MP		P	
MON 608C	P			MP		P	S
MON 609	G			MP		P	
MON 609A	F			MP		P	
MON 610	P			MP		P	
MON 611-59	G			MP		P	
MON 611A	G			MP		P	
MON 612	P			MP		P	
MON 614	G			MP		P	
MON 614A	F			MP		P	
MON 614B	G			MP		P	
MON 614C	G			MP		P	
MON 616	G			MP		P	
MON 616B	G			MP		P	
MON 616C	G			MP		P	
MON 617	G			MP		P	
MON 618	P			MP		P	
MON 618A	G			MP		P	
MON 618B	P			MP		P	
MON 619	G					P	
MON 619A	G					P	
MON 619B	P					P	
MON 620A	F			MP		P	
MON 620B	P		MA	MP	DU	P	
MON 621	G			MP		P	
MON 621W	F					P	S
MON 621AA	G	NM			DU	P	S
MON 621A	F			MP		P	
MON 621B	P		MA	MP	DU	P	
MON 622	G			MP		P	
MON 622A	G			MP		P	
MON 623	G			MP		P	
MON 624	G			MP		P	
MON 625	G			MP		P	
MON 625A	G			MP		P	
MON 625B	G			MP		P	
MON 625C	F		MA	MP	DU	P	
MON 626	G			MP		P	
MON 626A	G			MP		P	
MON 627	G			MP		P	
MON 627A	G			MP		P	
MON 628	G			MP		P	
MON 629	P		MA	MP		P	
MON 629A	F			MP		P	
MON 629B	F			MP		P	
MON 629C	G			MP		P	

APPENDIX A – DETAILS OF MAINTENANCE AND SURVEY WORK

West Line (QC/VT) ***(Quebec/Vermont)***

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 629D	G			MP		P	
MON 629E	G			MP		P	
MON 629E1	G			MP		P	
MON 629F	G			MP		P	
MON 630AA	G			MP		P	
MON 630A	G			MP		P	
MON 630B	G			MP		P	
MON 631	G			MP		P	
MON 632 & 633	F			MP		P	
MON 634	G			MP		P	
MON 634A	G			MP		P	
MON 635	G			MP		P	
MON 635A	G			MP		P	
MON 635B	G			MP		P	
MON 637	G			MP		P	
MON 637A	G			MP		P	
MON 637B	G			MP		P	
MON 638	G			MP		P	
MON 639	G			MP		P	
MON 640B	P					P	
MON 641	G					P	
MON 641A-81	G					P	
MON 641B	G					P	
MON 641C	G					P	
MON 642	G					P	
MON 642AA - 2012	G			MP		P	
MON 642A	G			MP		P	
MON 643-72	G			MP		P	
MON 643A	F					P	
MON 643B	G					P	
MON 643C	F					P	
MON 643D	P		MA			P	
MON 644	G					P	S

West Line (QC/NY) ***(Quebec/New York)***

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 645A	G			MP		P	
MON 646	G			MP		P	
MON 652	G			MP		P	
MON 652A	G			MP		P	
MON 653A	G			MP		P	
MON 660	G			MP		P	
MON 681B	G			MP		P	
MON 682	G			MP		P	
MON 686	G			MP		P	
MON 687	F			MP		P	
MON 699AA	G			MP		P	
MON 699A	F			MP		P	
MON 703	F			MP		P	
MON 720	F			MP		P	
MON 721	F			MP		P	
MON 722	F			MP		P	

APPENDIX A – DETAILS OF MAINTENANCE AND SURVEY WORK

West Line (QC/NY)
(Quebec/New York)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 722A	P			MP		P	
MON 723	P	R		MP	DU	P	
MON 724	G	R		MP	DU	P	
MON 726	P	R		MP	DU	P	
MON 726A	P	R		MP	DU	P	
MON 727	F		MA	MP	DU	P	
MON 727A	F		MA	MP	DU	P	
MON 728	P			MP		P	
MON 731	P			MP		P	
MON 732	F			MP		P	
MON 733A	G					P	
MON 734-76	G	R				P	
MON 735	F	R				P	
MON 736	G		MA	MP	DU	P	
MON 737	D	R		MP		P	
MON 738	P	R		MP		P	
MON 740	F			MP		P	
MON 741	P			MP		P	
MON 742	G	R		MP	DU	P	
MON 745	F		MI	MP		P	
MON 746	G	R		MP		P	
MON 747	G	R		MP		P	
MON 748	G	R		MP		P	
MON 749	G		MI	MP		P	
MON 750	P			MP		P	
MON 751	P			MP		P	
MON 751A	F			MP		P	
MON 752	F	R				P	
MON 753	P	R				P	

Northwesternmost Point of Lake of the Woods to Lake Superior
(Ontario – New York/Ohio/Michigan)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 9 (TP 1163)	G				DU	NP	
MON 8 (TP 1162)	G				DU	NP	
MON 7 (TP 1161)	G				DU	NP	

Gulf of Georgia to Northwesternmost Point of Lake of the Woods
**(British Columbia/ Alberta/Saskatchewan/Manitoba – Washington/Idaho/Montana/
North Dakota/Minnesota)**

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 725	G				DU	NP	
MON 724	G				DU	NP	
MON 723A	G				DU	NP	
MON 723AA	G				DU	NP	
MON 723	G				DU	NP	
MON 722B	G				DU	NP	
MON 722A	G				DU	NP	
MON 722	G				DU	NP	

APPENDIX A – DETAILS OF MAINTENANCE AND SURVEY WORK

Gulf of Georgia to Northwesternmost Point of Lake of the Woods
(British Columbia/ Alberta/Saskatchewan/Manitoba – Washington/Idaho/Montana/
North Dakota/Minnesota)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 721	G				DU	NP	
MON 720	G				DU	NP	
MON 276	G					NP	S
MON 275	G					NP	S
MON 274	G					NP	S
MON 264	G					P	S
MON 263	G					P	S
MON 262	G					P	S
MON 261	G					P	S
MON 245	G					P	S
MON 244-70	G					P	S
MON 243-88	G					P	S
MON 173	G					P	S
MON 172	G					P	S
MON 171	G					P	S
MON 170	G					P	S
MON 169	G					P	S
MON 168	G					P	S
MON 167	G					P	S
MON 166	G					P	S
MON 165	G					P	S
MON 164	G					P	S
MON 163	G					P	S
MON 162	G					P	S
MON 159	G					P	S
MON 158	G					P	S
MON 128	G					P	S
MON 127	G					P	S
MON 126	G					P	S
MON 125	G					P	S
MON 124	G					P	S
MON 123	G					P	S
MON 122	G					P	S
MON 121	G					P	S
MON 84	G					P	S
MON 83	G					P	S
MON 82	G					P	S
MON 80	G					P	
MON 79	G					P	
MON 77	G					P	
MON 76	G					P	
MON 75	G					P	
MON 74	G					P	
MON 73	G					P	
MON 72A	G					P	S
MON 72	G					P	S
MON 71	F					P	S
MON 70A	NR						
MON 70	NR						
MON 69	P					P	
MON 68	G					P	
MON 67	G					P	
MON 66	NR						
MON 65	P					P	
MON 64	F					P	

APPENDIX A – DETAILS OF MAINTENANCE AND SURVEY WORK

Gulf of Georgia to Northwesternmost Point of Lake of the Woods
(British Columbia/ Alberta/Saskatchewan/Manitoba – Washington/Idaho/Montana/
North Dakota/Minnesota)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 63	F					P	
MON 62	F					P	
MON 61	P					P	
MON 60	P					P	
MON 59	P					P	S
MON 58	F					P	
MON 57	F					P	
MON 56	NR						
MON 55	P					P	S
MON 54	NR						
MON 53	NR						
MON 52	F					P	
MON 51	F					P	
MON 50	F					P	
MON 49	F					P	
MON 48	G					P	
MON 47	P					P	S
MON 46	G					P	
MON 45	F					P	
MON 42	G			MP		P	S
MON 41	G			MP		P	S
MON 40	F					P	S
MON 39	F					P	S
MON 38	G			MP		P	S
MON 37A	G			MP		P	S
MON 37	G			MP		P	
MON 36A	G			MP		P	
MON 36	G			MP		P	
MON 35	G			MP		P	
MON 34	G			MP		P	
MON 33	G			MP		P	S
MON 32A	G			MP		P	
MON 32	G			MP		P	
MON 31C		NM			ND	P	S
MON 31B	G			MP		P	S
MON 31A	G					P	
MON 31AA	G					P	
MON 30AA	G			MP		P	
MON 30AAA	G			MP		P	
MON 30	G			MP		P	
MON 29A	G			MP		P	
MON 29	G			MP		P	
MON 28A	G			MP		P	
MON 28	G			MP		P	
MON 27	G			MP		P	
MON 26	G			MP		P	
MON 25B	G			MP		P	
MON 25A	G			MP		P	
MON 25	G			MP		P	
MON 24A	G			MP		P	
MON 24	G			MP		P	
MON 23A	G			MP		P	
MON 23	G			MP		P	
MON 22A	G			MP		P	
MON 22	G			MP		P	

Gulf of Georgia to Northwesternmost Point of Lake of the Woods
***(British Columbia/ Alberta/Saskatchewan/Manitoba – Washington/Idaho/Montana/
North Dakota/Minnesota)***

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 21	G			MP		P	
MON 20B	G			MP		P	
MON 20A	G			MP		P	
MON 20	G			MP		P	
MON 19B	G			MP		P	
MON 19A	G					P	
MON 19AA	G					P	
MON 19	G					P	
MON 18A	G			MP		P	
MON 18	G			MP		P	
MON 17	G			MP		P	
MON 16	G			MP		P	
MON 15A	G			MP		P	
MON 15	G			MP		P	
MON 14	G			MP		P	
MON 13A	G			MP		P	
MON 13	G			MP		P	
MON 12A	G			MP		P	
MON 12	G			MP		P	
MON 11	G			MP		P	
MON 10	G			MP		P	
MON 9A	F			MP		P	
MON 9	G			MP		P	
MON 8A	G			MP		P	
MON 8	G			MP		P	
MON 7A	G			MP		P	
MON 7	G			MP		P	
MON 6	G			MP		P	
MON 5F-92	G			MP		P	
MON 5D1	G			MP		P	
MON 5X	G			MP		P	
MON 5C-77	G			MP		P	
MON 5B1	G			MP		P	
MON 5B	G			MP		P	
MON 5A	G			MP		P	
MON 5	G			MP		P	
MON 3B	G			MP		P	
MON 3A	G			MP		P	
MON 3	G			MP		P	
MON 2B	G			MP		P	
MON 2A-00	G			MP		P	
MON 2	P			MP		P	
MON 1B	G			MP		P	
MON 1A	G			MP		P	
MON 1	F					P	
MON 0	F			MP		P	

APPENDIX A – DETAILS OF MAINTENANCE AND SURVEY WORK

***Southeast Alaska
(British Columbia/Alaska)***

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 0	G	NM			ND	NP	S

***Arctic Ocean to Mount St. Elias (141st Meridian)
(Yukon/Alaska)***

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 179	G					NP	
MON 178	G					NP	
MON 177	G					NP	
MON 176A	G					NP	
MON 176	G					NP	
MON 175	G					NP	
MON 174	G					NP	
MON 173	G					NP	
MON 172	G					NP	
MON 171	G					NP	
MON 170	G					NP	
MON 169	G					NP	
MON 168	G					NP	
MON 167	G					NP	
MON 166	G					NP	
MON 165	G					NP	
MON 164	G					NP	
MON 163	G					NP	
MON 162B	G					NP	
MON 162A	G					NP	
MON 162	G					NP	
MON 161	G					NP	
MON 160	G					NP	
MON 159	G					NP	
MON 158	G					NP	
MON 157	G				DU	NP	
MON 157	G					NP	
MON 156	G				DU	NP	
MON 156	G					NP	
MON 155	G					NP	
MON 154	G					NP	
MON 153	G					NP	
MON 152	G					NP	
MON 151	G					NP	
MON 150	F					NP	
MON 149	G					NP	
MON 148	G			MP		P	S
MON 147-85	G			MP		P	S
MON 146	G			MP		P	S
MON 145	G			MP		P	S
MON 144	G			MP		P	S
MON 143	G			MP		P	S
MON 142	G			MP		P	S
MON 141	G			MP		P	S
MON 140	G			MP		P	S
MON 139	G			MP		P	S
MON 138	G			MP		P	S

APPENDIX A – DETAILS OF MAINTENANCE AND SURVEY WORK

Arctic Ocean to Mount St. Elias (141st Meridian)
(Yukon/Alaska)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 137	G			MP		P	S
MON 136	G			MP		P	S
MON 135	G			MP		P	S
MON 134	G			MP		P	S
MON 133	G			MP		P	S
MON 132	G			MP		P	S
MON 131	G			MP		P	S
MON 130	G			MP		P	S
MON 129	G			MP		P	S
MON 128	G			MP		P	S
MON 127	G			MP		P	S
MON 126A	G			MP		P	S
MON 126B	G			MP		P	S
MON 126	G			MP		P	S
MON 125A	G			MP		P	S
MON 125	G			MP		P	S
MON 124	G			MP		P	S
MON 123A	G			MP		P	S
MON 123	G			MP		P	S
MON 122	G			MP		P	S
MON 121	G			MP		P	S
MON 120	G			MP		P	S
MON 119	G			MP		P	S
MON 118A	G			MP		P	S
MON 118	G			MP		P	S
MON 117	G			MP		P	S
MON 116	G			MP		P	S
MON 115A	G			MP		P	S
MON 115	G			MP		P	S
MON 114A	G			MP		P	S
MON 114	G			MP		P	S
MON 113	G			MP		P	S
MON 112-36	G		MA	MP		P	S
MON 111	G			MP		P	S
MON 110	G			MP		P	S
MON 109	G			MP		P	S
MON 108	G			MP		P	S
MON 107	G			MP		P	S
MON 106	G			MP		P	S
MON 105	G			MP		P	S
MON 104	G			MP		P	S
MON 103	G			MP		P	S
MON 102	G			MP		P	S
MON 101	G			MP		P	S
MON 100	G			MP		P	S
MON 99	G			MP		P	S
MON 98	G			MP		P	S
MON 97	G			MP		P	S
MON 96	G			MP		P	S
MON 95	G			MP		P	S
MON 94	G			MP		P	S
MON 93	G			MP		P	S
MON 92	G			MP		P	S
MON 91	G			MP		P	S
MON 90	G			MP		P	S
MON 89	G			MP		P	S

APPENDIX A – DETAILS OF MAINTENANCE AND SURVEY WORK

Arctic Ocean to Mount St. Elias (141st Meridian)
(Yukon/Alaska)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 88	G			MP		P	S
MON 87	G			MP		P	S
MON 86	G			MP		P	S
MON 85	G			MP		P	S
MON 84	G			MP		P	S
MON 83	G			MP		P	S
MON 82	G			MP		P	S
MON 81	G			MP		P	S
MON 80	G			MP		P	S
MON 79	G			MP		P	S
MON 76	G					P	
MON 75	G					P	
MON 74	G					P	
MON 73	G					P	
MON 72	G					P	
MON 71	F					P	
MON 70	F					P	
MON 69	G					P	
MON 68	G					P	
MON 67	G					P	
MON 66	F					P	
MON 65	G					P	
MON 64	G					P	
MON 64	G				DU	NP	
MON 63	G				DU	NP	
MON 36	G				DU	P	
MON 35	F				DU	P	
MON 34	F				DU	P	
MON 33	G				DU	P	
MON 32-73	F				DU	P	
MON 31	F				DU	P	
MON 30	F				DU	P	
MON 29	F				DU	P	
MON 28	P				DU	P	
MON 27	P				DU	P	
MON 26	F				DU	P	
MON 25	F				DU	P	

MONUMENT MAINTENANCE

St. John and St. Francis Rivers (Maine – Quebec/New-Brunswick)

Reference Monuments recovered	55
Reference Monuments not recovered	2
Reference Monuments repaired or re-established	32
Reference Monuments painted	35
Reference Monuments established	0
Reference Monuments surveyed	17
Reference Monuments photographed	38

Southwest and South Lines (Maine – Quebec)

Monuments recovered	12
Monuments photographed	12
Monuments painted	4
Monuments repaired or re-established	1
Monuments established	0
Monument surveyed	12

Southwest Branch of the St. John River (Maine – Quebec)

Reference Monuments recovered	1
Reference Monument photographed	1
Reference Monument surveyed	1

West Line (QC/VT) (Quebec - Vermont)

Monuments recovered	148
Monuments established	1
Monuments repaired or re-established	24
Monuments photographed	148
Monuments painted	126
Monument surveyed	4

West Line (QC/NY) (Quebec – New York)

Monuments recovered	45
Monuments established	0
Monuments repaired or re-established	19
Monuments photographed	45
Monuments painted	40
Monument surveyed	0

Northwesternmost Point of Lake of the Woods to Lake Superior (Ontario – New York/Ohio/Michigan)

Monuments recovered	3
Monuments photographed	3

***Gulf of Georgia to Northwesternmost Point of Lake of the Woods
(British Columbia/ Alberta/Saskatchewan/Manitoba – Washington/Idaho/Montana/
North Dakota/Minnesota)***

Monuments recovered	125
Monuments not recovered	6
Monuments established	1
Monuments repaired or re-established	0
Monuments photographed	153
Monuments painted	75
Monument surveyed	50

***Southeast Alaska
(British Columbia/Alaska)***

Monuments established	1
Monuments photographed	1
Monument surveyed	1

***Arctic Ocean to Mount St. Elias (141st Meridian)
(Yukon – Alaska)***

Monuments recovered	63
Monuments not recovered	0
Monuments established	0
Monuments repaired or re-established	1
Monuments photographed	102
Monuments painted	77
Monument surveyed	77

VISTA MAINTENANCE

***West Line (QC/VT)
(Quebec/Vermont)***

Vista cleared between Monuments 573 and 634
Total distance = **65.82 km (40.9 mi)**

***Northwesternmost Point of Lake of the Woods to Lake Superior
(Ontario – New York/Ohio/Michigan)***

Various places
Total distance = **1.45 km (0.9 mi)**

***Gulf of Georgia to Northwesternmost Point of Lake of the Woods
(British Columbia/Alberta/Saskatchewan/Manitoba – Washington/Idaho/Montana/
North Dakota/Minnesota)***

Various places
Total distance = **9.25 km (5.7 mi)**
Vista cleared between Monuments 5 and 26
Total distance = **26 km (16 mi)**

***Arctic Ocean to Mount St. Elias (141st Meridian)
(Yukon/Alaska)***

Vista cleared between Monuments 51 and 53, and between Monuments 53 and 58
Total distance = **34.1 km (21.2 mi)**
Vista cleared between Monuments 64 and 76
Total distance = **64.2 km (40.0 mi)**

APPENDIX B – SUMMARY OF MAINTENANCE AND SURVEY WORK

APPENDIX B – SUMMARY OF MAINTENANCE AND SURVEY WORK

Monuments recovered	398
Reference monuments recovered	56
Monuments established	3
Reference monuments established	0
Monuments repaired/re-established	45
Reference monuments repaired/re-established	32
Monuments positioned	164
Reference monuments surveyed	18
Monuments surveyed	144
Vista cleared	200.8 km (124.7 mi)

APPENDIX C – 15-YEAR PLAN

APPENDIX C – 15-YEAR PLAN

YEAR	PROJECT	COMPLETION
2012	<i>North Line Vista & Monument Brook, Vista clearing</i>	<i>Completed in 2013</i>
	<i>SW Branch of St. John River, insp. & monumentation</i>	<i>Future work</i>
	<i>Halls Stream, Vista clearing</i>	<i>Deferred</i>
	<i>West Line (VT-QC), Vista clearing & monumentation</i>	<i>90% completed</i>
	<i>West Line (NY-QC), Vista clearing & monumentation</i>	<i>90% completed</i>
	<i>Lake Sup. To Rainy River, inspection & monumentation</i>	<i>50% Completed</i>
	<i>141st Meridian, Vista clearing (4-year project)</i>	<i>Completed in 2015</i>
	<i>49th Parallel (Pemb.- Turtle Mts.), Vista clearing</i>	<i>Completed in 2010</i>
	<i>Pt. Roberts Range Towers, inspection & refurbish</i>	<i>Deferred</i>
	<i>St. Lawrence River, inspection & monumentation</i>	<i>Completed in 2013</i>
	<i>Niagara River, inspection & monumentation</i>	<i>Completed in 2013</i>
	<i>Demarcation of Transboundary Waters</i>	<i>30% completed</i>
	<i>GPS Survey 49th Parallel (ID-MT to Glacier NP)</i>	<i>100% completed</i>
	<i>GPS Survey 141st</i>	<i>20% completed</i>
	<i>Pt. Roberts Vista maintenance</i>	<i>Deferred to 2016</i>
	<i>Glacier-Waterton clearing</i>	<i>Completed in 2013</i>

2013	<i>SW Branch of St. John River, insp. & monumentation</i>	<i>Future work</i>
	<i>Highlands (NE Section), Vista clearing</i>	<i>Completed in 2010</i>
	<i>West Line (NY-QC), Vista clearing & monumentation</i>	<i>90% completed</i>
	<i>49th Parallel (MN-MB), Vista clearing.</i>	<i>100% completed</i>
	<i>49th Parallel (Fraser & Columbia V.), Vista clearing</i>	<i>Completed 2015</i>
	<i>GPS Survey 49th Parallel (ID-MT to Glacier NP)</i>	<i>100% completed</i>
	<i>Boundary mapping</i>	<i>Deferred</i>
	<i>Demarcation of Transboundary Waters</i>	<i>30% completed</i>
	<i>GPS Survey 141st</i>	<i>20% completed</i>

2014	<i>Passamaquoddy Bay, inspection & clearing</i>	<i>Future work</i>
	<i>Highlands (NE Section), Vista clearing</i>	<i>Completed in 2010</i>
	<i>West Line (NY-QC), Vista clearing & monumentation</i>	<i>90% completed</i>
	<i>49th Parallel (MN-MB), Vista clearing</i>	<i>Completed in 2010</i>
	<i>141st Meridian imagery</i>	<i>Deferred</i>
	<i>Glacier-Waterton clearing</i>	<i>Completed in 2010</i>
	<i>Southwest and South Lines, Vista clearing</i>	<i>Completed in 2012</i>

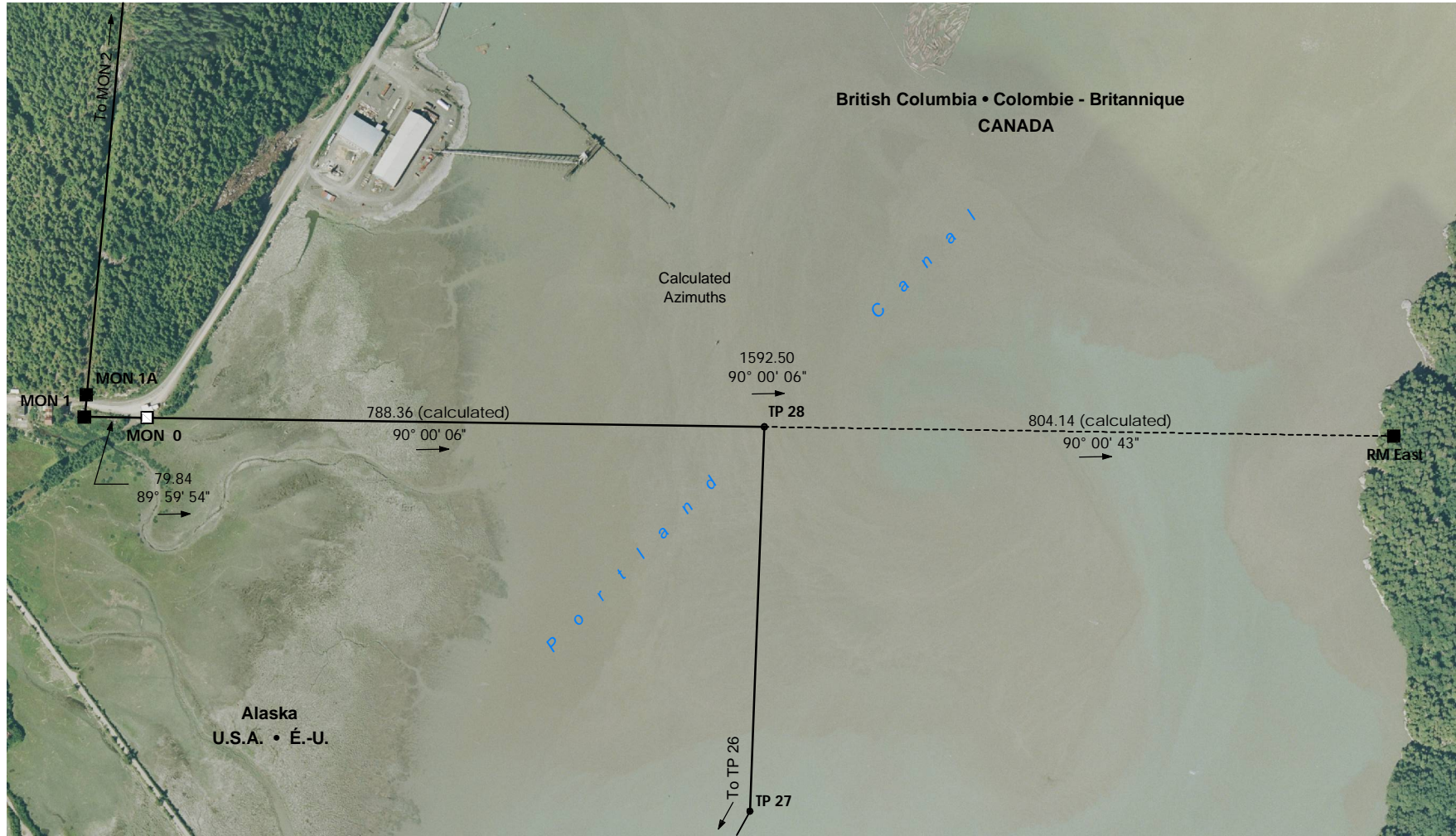
APPENDIX C – 15-YEAR PLAN

YEAR	PROJECT	COMPLETION
2015	<i>Highlands (NE Section), Vista clearing (3 year project)</i>	<i>Completed in 2010</i>
	<i>49th Parallel (Foothills to W. Koot.), Vista clearing</i>	<i>Completed in 2010</i>
	<i>SE Alaska, Vista clearing (3 year project)</i>	<i>Deferred to 2016</i>
	<i>Pt. Roberts Range Towers, inspection & refurbish</i>	<i>Deferred</i>
	<i>St. Clair River, inspection & monumentation</i>	<i>Deferred</i>
	<i>Mapping/GIS updates</i>	<i>Deferred</i>
	<i>Glacier-Waterton clearing</i>	<i>Deferred</i>

2016	<i>Southwest and South Lines, Vista clearing (3 year project)</i>	<i>Future work</i>
	<i>Highlands (SW Section), Vista clearing (3 year project)</i>	
	<i>West Line (VT-QC), Vista clearing & monumentation (3 year project)</i>	
	<i>St. Lawrence River, inspection & monumentation</i>	
	<i>Rainy River, inspection & monumentation (2 year project)</i>	
	<i>49th Parallel (Foothills to W. Koot.), Vista clearing</i>	
	<i>49th Parallel (Fraser & Columbia V.), Vista clearing</i>	
	<i>SE Alaska, Vista clearing (3 year project)</i>	
	<i>Glacier-Waterton clearing</i>	
	<i>Transboundary Waters inspection & clearing</i>	

2017	<i>Passamaquoddy Bay, inspection & clearing</i>	<i>Future work</i>
	<i>North Line & Monument Brook, Vista clearing</i>	
	<i>St. John River, inspection & monumentation</i>	
	<i>St. Francis River, Vista clearing & mapping</i>	
	<i>Southwest and South Lines, Vista clearing</i>	
	<i>Highlands (SW Section), Vista clearing</i>	
	<i>West Line (VT-QC), Vista clearing & monumentation</i>	
	<i>St. Mary's River, inspection & monumentation</i>	
	<i>Rainy River, inspection & monumentation</i>	
	<i>49th Parallel (Pemb.-Turtle Mts.), Vista clearing</i>	
	<i>49th Parallel (Foothills to W. Koot.), Vista clearing</i>	
	<i>SE Alaska, Vista clearing</i>	
	<i>Glacier-Waterton clearing</i>	

APPENDIX D – PLANS OF MONUMENTS INSTALLED



MON 1
Original Bronze Obelisk
Established in 1904



MON 0
Granite Obelisk
Established in 2015

BOUNDARY MONUMENT ESTABLISHED
BORNE FRONTIÈRE POSÉE

MON 0

IBC SECTION
Southeast Alaska

SECTION CFI
Alaska du sud-est

LOCATION
Hyder, AK
Stewart, BC (C.-B.)

LOCALISATION

Scale 1:8,000

50 0 50 100 150 200 m

LEGEND

Newly established monument

Existing monument

Turning point

International boundary

Connection line

LÉGENDE

Nouvelle borne posée

Borne existante

Point tournant

Frontière internationale

Rattachement d'arpentage

Distances shown are horizontal on ellipsoid and are expressed in metres and decimals thereof (except when shown otherwise). Geodetic azimuths are shown. All distances are derived from GPS observations and all azimuths were calculated.

Les distances apparaissant sur ce plan sont horizontales, réduites sur éllipsoïde et sont exprimées en mètres et décimales du mètre (sauf si indiqué autrement). Les azimuths géodésiques sont présentés. Les distances sont dérivées d'observations GPS et les azimuths sont calculés.

NOTES

NOTES

MON 1 - Found and accepted position as original evidence.
MON 0 - Set new decorative obelisk.
RM East - Found and accepted position as original evidence.

MONUMENTED &
SURVEYED BY

ARPENTÉE ET
BORNÉE PAR

Phillip D. Hargrove

American Section

Section américaine

DATE OF SURVEY
September 2015

DATE DE L'ARPENTAGE
septembre 2015



INTERNATIONAL BOUNDARY COMMISSION
COMMISSION DE LA FRONTIÈRE INTERNATIONALE

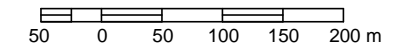
BOUNDARY MONUMENT ESTABLISHED
BORNE FRONTIÈRE POSÉE




MON 31C

IBC SECTION 49th Parallel (Pacific to Columbia Valley)	<i>SECTION CFI 49e parallèle (Pacifique à la vallée du Columbia)</i>
--	--

LOCATION	<i>LOCALISATION</i>
Abbotsford, BC (C.-B.)	Sumas, WA

Scale 1:5,000



LEGEND	<i>LÉGENDE</i>
Newly established monument	 <i>Nouvelle borne posée</i>
Existing monument	 <i>Borne existante</i>
International Boundary	 <i>Frontière internationale</i>

Distances shown are horizontal at general ground level and are expressed in metres and decimals thereof (except when shown otherwise). Geodetic azimuths are shown. All angles and distances are derived from GPS observations.

Les distances apparaissant sur ce plan sont horizontales, réduites au niveau moyen du terrain et sont exprimées en mètres et décimales du mètre (sauf si indiqué autrement). Les azimuts géodésiques sont présentés. Les angles et les distances sont dérivées d'observations GPS.

NOTES *NOTES*

MON 31C - Set new decorative monument east side of the north bound truck lane, on line.

MON 32 - Accept position of standard obelisk.

MON 31B - IBC disk found east side of north bound car lane.

MONUMENTED & SURVEYED BY	<i>ARPENTÉE ET BORNÉE PAR</i>
Joseph L. Harrietha, C.L.S.	
Canadian Section	<i>Section canadienne</i>

DATE OF SURVEY	<i>DATE DE L'ARPENTAGE</i>
August 2015	<i>août 2015</i>



INTERNATIONAL BOUNDARY COMMISSION
COMMISSION DE LA FRONTIÈRE INTERNATIONALE

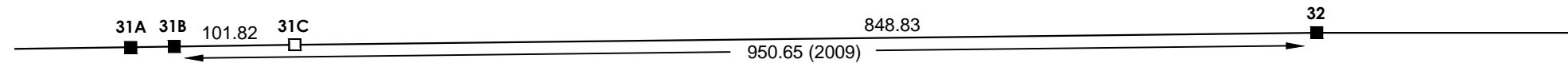
British Columbia • Colombie-Britannique

CANADA

Washington

U.S.A. • É.-U.

N

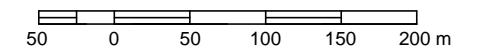


BOUNDARY MONUMENT ESTABLISHED
BORNE FRONTIÈRE POSÉE
MON 621AA

IBC SECTION *SECTION CFI*
West Line (QC/VT) *Ligne Ouest (QC/VT)*

LOCATION *LOCALISATION*
Morses Line, QC - VT

Scale 1:4,000



LEGEND		<i>LÉGENDE</i>
Newly established monument	□	<i>Nouvelle borne posée</i>
Existing monument	■	<i>Borne existante</i>
International Boundary	—	<i>Frontière internationale</i>

Distances shown are horizontal at general ground level and are expressed in metres and decimals thereof (except when shown otherwise). Geodetic azimuths are shown. All angles and distances are derived from GPS observations.

Les distances apparaissant sur ce plan sont horizontales, réduites au niveau moyen du terrain et sont exprimées en mètres et décimales du mètre (sauf si indiqué autrement). Les azimuts géodésiques sont présentés. Les angles et les distances sont dérivées d'observations GPS.

NOTES *NOTES*

MON 621AA - Set new decorative monument on west side of Route 235 on line.

MON 621 (1907) - Replaced with new decorative monument on east side of Route 235 on line.

MON 621W - Cylinder found 2ft below grade 0.05N.

MON 620B - Small obelisk no date.

Fnd. IP - Found iron post 1.78m east of MON 621 on line.

Encroachments: Fence on line east of MON 620B.

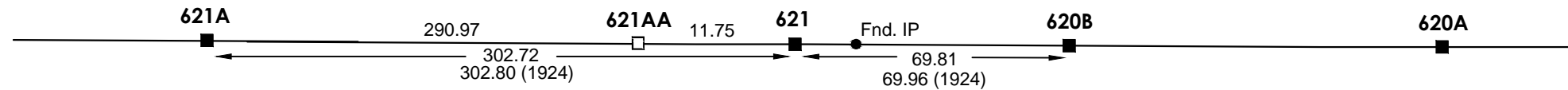
MONUMENTED & SURVEYED BY	<i>ARPENTÉE ET BORNÉE PAR</i>
Joseph L. Harrietha, C.L.S.	
Canadian Section	<i>Section canadienne</i>

DATE OF SURVEY	<i>DATE DE L'ARPENTAGE</i>
September 2015	<i>septembre 2015</i>



INTERNATIONAL BOUNDARY COMMISSION
COMMISSION DE LA FRONTIÈRE INTERNATIONALE

Quebec • Québec
CANADA



Vermont
U.S.A. • É.-U.

Survey Sketch
Not to Scale





**International Boundary Commission,
United States and Canada**

**Joint Annual Report
2015**