

International Boundary Commission United States and Canada



2012 Joint Annual Report



International
Boundary
Commission



Commission
de la frontière
internationale



The Honorable Hillary Clinton
The Secretary of State for the United States
Washington, D.C.

The Honorable John Baird
Minister of Foreign Affairs
Ottawa

Dear Ms. Clinton and Mr. Baird:

We have the honor to submit herewith to each government, a joint report of the Commissioners regarding the maintenance and regulatory work performed in the calendar year 2012 with respect to the International Boundary between the United States and Canada.

This is the 88th annual joint report submitted by the Commissioners under the provisions of Article IV of the Treaty of Washington, February 24, 1925. This report contains a complete account of all boundary inspections and maintenance work executed.

Respectfully submitted,

Kyle K. Hipsley

Acting United States Commissioner

Peter Sullivan

Canadian Commissioner

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Introduction

This is the 88th Annual Report on the maintenance of the International Boundary between the United States and Canada as set forth by Treaty in 1908 and 1925. This report sets out how the boundary between Canada and the United States – from Atlantic to Pacific Oceans, and from Pacific Ocean to Beaufort Sea – was maintained in 2012. It is a compilation of activities, and correlates maintenance activities with short, and long-term maintenance plans.

The boundary between the United States and Canada came into being as a result of some 26 Treaties, Conventions, Protocols, Decisions and Awards between the 1783 *Treaty of Peace* (between Great Britain and the United States) and the 1925 *International Boundary Treaty* (between Canada and the United States). Although there were ad hoc boundary commissions over the years, the IBC dates to the 1908 *Boundary Treaty* which appointed two Commissioners to locate and mark the boundary between the two countries. The permanent International Boundary Commission (IBC), established by the 1925 Treaty, has a mandate to maintain the boundary under the direction of the two Commissioners.

The IBC's mandate is thus found in the 1908 and 1925 treaties, and for the Canadian section, in the *International Boundary Commission Act*, 1960. It consists of a United States and a Canadian section, each of which reports to its respective Commissioner. Technical, administrative and policy personnel within each section are supplemented by seasonal employees. The Acting United States Commissioner is Kyle Hipsley, who has long served the United States section, most recently as Deputy Commissioner. The Canadian Commissioner is Peter Sullivan, who has been appointed by Order in Council by virtue of being the Surveyor General for Canada Lands.

This report will be available on-line to support the International Boundary Commission's (IBC) commitment to allowing wide access to information while minimizing printing and distribution. A nominal number of hard copies will be produced for formal distribution and archival purposes.



Kyle Hipsley
Acting United States Commissioner



Peter Sullivan
Canadian Commissioner

MANDATE

*“The Commissioners appointed under the provisions of the Treaty of April 11, 1908, are hereby jointly empowered and directed: to inspect the various sections of the boundary line between the Dominion of Canada and the United States and between the Dominion of Canada and Alaska at such times as they shall deem necessary; to repair all damaged monuments and buoys; to relocate and rebuild monuments which have been destroyed; to keep the boundary vistas open; to move boundary monuments to new sites and establish such additional monuments and buoys as they shall deem desirable; **to maintain at all times an effective boundary line** between the Dominion of Canada and the United States and between the Dominion of Canada and Alaska”*

(International Boundary Treaty 1925)¹

Major Maintenance Activities

Major maintenance activities were mostly focused along the St. Francis River (Maine – Québec and New Brunswick), the West Line (Vermont and New York - Québec), the South and Southwest Lines (Maine – Québec), the 49th Parallel Boundary (Montana, Idaho and Washington – Alberta and British Columbia) and the 141st meridian along the Alaska – Yukon border.

St. Francis River (Maine – Québec and New Brunswick)

This section of the boundary ascends the St. Francis River a distance of 43 miles (70 km) to the source of the river at Lake Pohénégamook. The river, through much of its length, passes through dense woods on the United States side, low farm lands on the Canadian side and has a tendency to meander and change course. What was once entirely a water boundary now has long stretches where the river has diverted, leaving the boundary on land. Previous operations completed the marking of the boundary points now located on land.

For this season, two separate crews (one U.S, one Canadian) were deployed to perform verification surveys, vista clearing and monument inspections. The U.S. crew completed the survey of the section south of Rivière Bleue, extending from Turning Point 702 to 501. They also cleared the section of boundary vista that now falls on land, between Monument C-133 northerly to Reference Monument C-147, a distance of about 2.6 miles (4.4 km).

¹ Treaty regarding the Demarcation of the Boundary between the United States and Canada. Signed February 24, 1925. Ratifications exchanged at Washington on July 17, 1925.



KWB-12-06: Transportation along the St. Francis River (Maine – Quebec)

The Canadian crew also performed a check survey of the area between Monument C-133 northerly to Reference Monument C-147, utilizing GPS survey network wherever possible, and conventional survey methods for the remaining monuments. The GPS network was completed in the field with connections to two Canadian Base Network (CBN) monuments, i.e., CBN Cacouna (CBNCAC) and CBN Edmundston (CBNEDM). The final adjustment was completed with the addition of data from four US Continually Operating Reference Stations (CORS) and three Canadian Active Control Stations (CACS).



KWB-12-01: GPS control station set up on RM S-151 (Maine – Quebec)

West Line (Vermont and New York - Québec)

The 45th Parallel, or West Line boundary, from Halls Stream to the St. Lawrence River, divides fertile farmlands along southern Quebec and northern Vermont and New York. Many parts of this region were settled before any attempt had been made to define the boundary. Consequently, the line passes over fields, across a cemetery, and through villages where it intersects many buildings. The original marked line dates back before the War of Independence, and was no more than a compass-line run to establish the boundary between two British colonies. In retracing the original line, many deflections were encountered and the line was found to deviate a considerable distance from the 45th Parallel.

Numerous line houses were constructed during prohibition in the United States. While most of these have since disappeared, some still remain.

For the 2012 season, boundary maintenance activities were carried out from Monument 632, on the west side of Lake Champlain to Monument 714, near the Herdman Port-of-

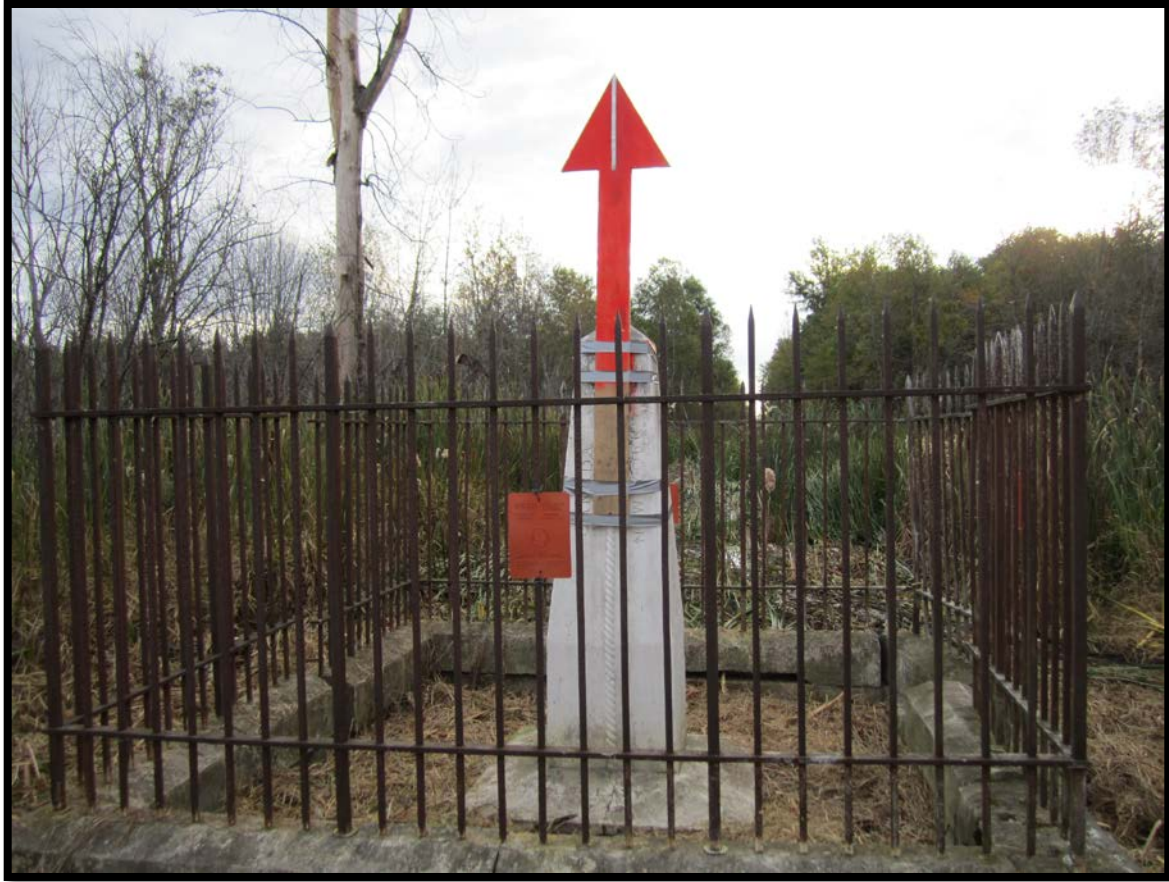


JLH12-1: Palfinger crane to unload boundary monuments (Vermont – Quebec)

entry. The main objective was to renew boundary markers and improve the demarcation at the port-of-entries along the West Line. The segment is 70 km in length and has 129 boundary markers. In total, 8 decorative and 18 standard granite obelisks were set and 10 others were repaired.

In addition, a GPS survey was conducted on the section of the West Line from Monument No. 635A on the west side of Lake Champlain westerly to Monument No. 754A on the east side of the Salmon River.

One hundred and sixty monuments were surveyed in 2012 which includes the twelve main base stations surveyed in 2011. This is a distance of 63.8 miles (102 km). The total number of monuments surveyed in 2011 and 2012, excluding control monuments, is 298 over a distance of 111.3 miles (178 km) along the International Boundary.



JLH12-1: Monument 646 west of the Richelieu River (Vermont – Quebec)

The boundary vista between monuments 722A-754A was cleared by a contractor for a total distance of 14.7 miles (23.6 km) and an additional section was cleared by a US IBC field crew between monuments 659 and 684 for a total of 6.25 miles (10.059km).

Monument and vista conditions have been in disrepair on the West Line due to the lack of upkeep over the past 20 to 100 years. The much needed maintenance of the boundary is progressing and the work will continue into 2013.



KWB-12-04: Crew transporting equipment with Kawasaki Mule along the West Line (New York – Quebec)



KWB-12-08: Entire crew lends a hand in removal of white pine from across the vista. (New York – Quebec)

South and Southwest Lines (Maine – Québec)

The Southwest Line section begins at the source of the St. Francis River near Estcourt, Québec, and follows a straight-line course in a southwesterly direction for a distance of 64 miles (103 km) to Lac Frontière, Québec. The region is heavily forested with very little development along the boundary. Access to maintenance work in this area is mainly by tracked vehicles along the boundary and over logging roads. At Lac Frontière the South Line swings in a southerly direction for a distance of 32 kilometres (20 miles) until it intersects the Southwest Branch of the St. John River.



JP2012-1: Lac de l'Est on the Southwest Line, looking east (Maine – Québec)

A contractor completed 55 miles (88 km) of vista clearing between Monuments 193 and 276. This section is characterized by mixed vegetation on mountainous terrain.

A contractor also cleared the South Line, running from Mon 276 for a distance of 19.1 miles (30.6 km) to where it crosses the Southwest Branch of the St. John River near RM 309. The vegetation consists primarily of conifers, with a number of peat bogs and other swampy areas along the line.

49th Parallel Boundary (Montana, Idaho and Washington – Alberta and British Columbia).

The boundary line through the Foothills and westward across the summit of the Rocky Mountains represents the Montana/Idaho-Alberta/British Columbia section of the International boundary. It is one of the most difficult sections of line to maintain. The boundary traverses mountain ranges upwards to 10,000 feet (3,050 meters) in elevation and few roads give access to the line. The entire section of line is heavily forested, with the exception of a few mountain peaks, and the vista can be maintained only by clearing operations. Most of the Idaho/Washington-British Columbia boundary traverses several mountain ranges as well that are predominantly forest covered.

In spite of budget constraints and limited helicopter flight time, the crew was able to complete the control survey portion of this project year from Monument 155, eastward to Monument 261. This GPS control survey will be used to establish a control on monuments at 12-mile intervals along the boundary.

While working on the GPS survey, the crew also cleared all brush and trees between Monuments 118A and Monument 132 to a twenty foot width (skyline) that had not already been completed.

One Canadian citizen is extremely fortunate that a US crew led by Phil Hargrove happened to come along on July 24. Phil and his crew were trying to locate monument 199 along a remote section of border between Washington and British Columbia when they came across some flagging strewn all over, a rock arrow in the middle of the road, and a handcrafted sign tacked to a road sign pleading for help.



PDH 12-12: Found sign on logging road (British Columbia)

It so happened that they were going down the road in the direction where this individual indicated he was trapped, so they broke out their chainsaws and cut their way into his location. Due to the recent storms, there were downed trees everywhere across the road and it took the American crew about 2 ½ hours to finally come upon the stranded Canadian's truck. He jumped out of his truck waving, and was equally surprised when he saw the US Government plates on the truck. After 4 days stuck in the bush, a quick heart- felt "Thank you guys", this gentleman made his way out, never to be heard from again.



Trapped Canadian citizen with US field crew member Ben Harris (British Columbia)



BCC 01-12: The original Canadian Customs House for the Grand Forks, BC crossing (Washington – British Columbia)

Additional Maintenance Activities

A Canadian crew was deployed along a segment of the Quebec Highlands to re-establish and reset 7 boundary disks that were reported destroyed in 2010.

Another Canadian crew performed monument reconnaissance along the South Line (Mon 276 to 308), Southwest Line (Mon 193 to 276) and Highlands (Mon 314 to 322-9).

A U.S. crew inspected two vista clearing contracts along the Alaska/Yukon boundary for a total of 75.6 miles (121 Km). They also monitored a 36 mile (58 Km) clearing contract along the 49th Parallel Boundary between North Dakota-Manitoba, near the Turtle Mountains.

Another U.S. crew completed profile surveys of the east bank of Lake Osoyoos and the east and west banks of Lake Koocanusa between Washington and British Columbia, in preparation for future installations of Range Marks.

As in recent years, Glacier National Park (Montana Alberta) trail crews were utilized to clear approximately 4 miles (6.4 Km) of boundary vista from Monuments 266 to 268.



PDH 15-12: Chopper leaving Monument 267 (Montana – Alberta)

A US crew was also deployed to verify the existing locations of Monuments 39, 40 & 41 in the Sumas, WA area south of Abbotsford, B.C. Fast static GPS observations were made on the three (3) monuments and they were recovered in “good condition”. There are some discrepancies with the published distances between these monuments and this additional survey data will help the investigation to resolve this discrepancy.

At least twice per year, the Commissioners and their Deputy Commissioners meet face to face to discuss boundary maintenance issues, set priorities and approve various documents. Minutes of these meetings are then tabulated in a duplicate “Record of Decisions” and both Commissioners sign both copies.

While the Commission staff was in Washington for meetings and training, they had the opportunity to attend an awards ceremony hosted by the International Joint Commission in the penthouse of the State Department.



Majority of IBC personnel together at State Department, Washington DC. From left to right: Bryan Cloutier, Phil Hargrove, Kevin Bagwell, US Acting Commissioner Kyle Hipsley, Canadian Commissioner Peter Sullivan, Joe Harrietha, Bob Johnson, Joel Petit, JT Moore and Daniel Fortin.

Commissioners' Field Inspections

As part of their mandate, Commissioners and their Deputy Commissioners regularly inspect various sections of the boundary as well as the work of their crews. On June 27, Commissioner Sullivan and Acting Commissioner Hipsley inspected the work of a U.S. crew working along three Ports of Entry in the region of West Kootenay. These ports had monumentation issues that required Commissioners direction on how to resolve them. After these site visits, Commissioners had an opportunity to visit the 7 Mile Dam across the Pend-Orielle River in British Columbia. The IBC crew had to cross this dam to gain access to a local survey control monument.



PDH 08-12: 7 mile Dam (British Columbia)

In October, Commissioner Sullivan and Deputy Commissioner Daniel Fortin inspected the work of the Canadian crews along the St. Francis River, the South Line and the Southwest Line.

Communications Summary

JT Moore, Engineer to the Commission for the United States Section, gave a presentation at the International Boundaries Research Unit (IBRU) in Durham, England in the summer of 2012. The presentation covered the history of the IBC and presented ongoing challenges the Commission faces ensuring for an "effectively marked boundary".

Mr. Moore also gave a presentation at a "National Boundaries Group" meeting which brings together U.S. government agencies defining and maintaining digital information of all types for the US Government, giving special attention to digital boundaries.

Field officers of the United States Section take part in routine visits to U.S. and Canadian Ports of Entry during the winter months to make sure they are aware of the IBC and its mandate. They also participate in "Borderland Task Force" meetings with Federal and State agencies in their area of operations which focus on border related issues.

A LOOK AHEAD TO 2013

United States Section

- Clearing 78 miles (125 km) of boundary vista on the North Line (ME/NB)
- Monument maintenance and construction along the Saint Francis River (ME-QC/NB)
- Conduct boring tests on the border in Lake Champlain, to support future installations of range markers
- Liaise with US landowners along Halls Stream (Vermont/Quebec)
- Clearing 36 miles (58 km) of boundary vista on the 49th parallel, near the Pembina Hills
- Performing monument recovery and maintenance along the 49th parallel (MN/ND – ON/MAN)
- Clearing 3 miles of boundary vista in Glacier National Park (MT/AB)
- Re-surveying part of the boundary along the 49th parallel, west of Glacier National Park
- Re-build a reference monument located at the mouth of Juan De Fuca Strait

Canadian Section

- Install decorative obelisks at various ports of entry along the West Line, including Blackpool, Lacolle, Covey Hill, and Franklin Centre
- Perform monument repairs and installations along the West Line (NY/QC)
- Install carsonite markers along the West Line (VT/QC), between monuments 519A and 569
- Perform reference monument recovery along the St. Lawrence River, Lake Ontario, Lake Erie and Lake Superior
- Re-surveying parts of the Southwest and South Lines (ME/QC), from monuments 178 to 308
- Vista clearing along the 141st Meridian (AK/YK) between monuments 157 and 187

Regulatory Items

Part of IBC's mandate is to regulate all construction taking place within the 20 foot vista. Accordingly, the Commissioners granted authorizations for the following projects:

- Improvements to the FAST truck Priority System; Blaine, Washington / Douglas, British Columbia
- Ethane gas pipeline; Tioga, North Dakota / Empress, Alberta

Geographic Information System (GIS)

Development of the IBC's GIS was completed in 2012. The system is now capable of producing new maps and appendix data. Data population will continue on an ongoing basis, as well as efforts to develop new applications to improve daily operations.

Financial Report



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CERTIFIED STATEMENT OF COMPARATIVE EXPENDITURES

MADE BY
CANADA AND THE UNITED STATES
JOINTLY INCURRED BY THE COMMISSIONERS IN
MAINTAINING THE DEMARCATION OF THE BOUNDARY LINE
IN ACCORDANCE WITH THE PROVISIONS OF
THE TREATY OF 1925, AS OF MARCH 31, 2012

	Expended By United States Section (US \$)	Expended By Canadian Section (Can \$)
Total to March 31, 2011	16 315 576,57 \$	19 844 330,94 \$
<u>From April 1, 2011 to March 31, 2012</u>		
Highlands Vista Clearing Contract Zone 1		114 442,00 \$
Highlands Vista Clearing Contract Zone 2		214 750,00 \$
141st Meridian Clearing Contract	741 512,96 \$	
49th Parallel monument replacement (Lake Kooicanusa)	8 679,88 \$	
West Line - Monument repair and rebuilt		170 153,21 \$
West Line - Quebec-Vermont/New York Field Survey		47 631,72 \$
West Line - Quebec-Vermont/New York Field Survey & Supervision of Clearing Contract		53 138,42 \$
49th Parallel Monument moved (Point Roberts)	17 553,33 \$	
Vista Clearing Contract Inspections		5 004,85 \$
49th Parallel Survey and Monumentation (Washington/BC)	200 192,86 \$	
Lake of the Woods to Lake Superior Reference monuments recovery and Repair	134 770,34 \$	
Glacier Park Vista Clearing - Montana-Alberta	38 091,00 \$	
St. Francis monumentation and Survey	99 076,46 \$	
West Line Vista Clearing - New York-Quebec	30 555,18 \$	
West Line Clearing Contract - Quebec-New York		159 315,00 \$
Topographic Survey Contract - Richelieu River, Champlain Lake and Lake Memphremagog		23 495,00 \$

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	Expended By United States Section (US \$)	Expended By Canadian Section (Can \$)
U.S. Section data base	21 299,00 \$	
Bernsten Survey Disks	25 385,00 \$	
Trimble GPS RTK Radio	2 756,25 \$	
Truck Maine field Office	34 844,26 \$	
ESRI Maintenance fees		14 390,00 \$
Mapping/GIS Development		33 549,45 \$
Trimble GPS, Total Station and Trimble Business Center		68 570,79 \$
Pick-up truck purchase		29 984,20 \$
Vehicle maintenance		12 427,50 \$
Technical Field Equipment Support Service (NRCAN)		20 920,23 \$
Landowner Database compilation		19 145,38 \$

Sub-total for 2011-12	<u>1 354 716,52 \$</u>	<u>986 917,75 \$</u>
Total to date	<u>17 670 293,09 \$</u>	<u>20 831 248,69 \$</u>

NOTE: It is recognized that fluctuations in exchange rates are not reflected in the total expenditures by each country.

I hereby certify that the above amount of **17 670 293,09 \$** is an accurate statement of the total amount expended to March 31, 2012 on the part of the United States in the joint maintenance of the International Boundary Line under the Article IV of the Treaty of 1925.


 Kyle Hipsley A/ United States Commissioner

GREAT FALLS, MT 4/16/13
 Place Date

I hereby certify that the above amount of **20 831 248,69 \$** is an accurate statement of the total amount expended to March 31, 2012 on the part of the United States in the joint maintenance of the International Boundary Line under the Article IV of the Treaty of 1925.


 Peter Sullivan, Canadian Commissioner

GREAT FALLS, MT APRIL 16, 2013
 Place Date

Maintenance Plan

* Completion percentages refer to the entire project. Some projects are multiyear (2 to 4 years)

YEAR	PROJECT	COMPLETION
2011	<i>Passamaquoddy Bay, inspection & clearing</i>	<i>Completed in 2010</i>
	<i>North Line & Monument Brook, vista clearing (2 year project)</i>	<i>Deferred 2017</i>
	<i>St. Francis River, vista clearing</i>	<i>Future Work</i>
	<i>Southwest and South Line, vista clearing (3 year project)</i>	<i>Future Work</i>
	<i>Highlands (S.W. Section), vista clearing (3 year project)</i>	<i>Completed in 2011</i>
	<i>West Line (Vt- Que), vista clearing & monumentation (3 year project)</i>	<i>80% Complete</i>
	<i>West Line (NY- Que), vista clearing & monumentation (2 year project)</i>	<i>50% Complete</i>
	<i>Detroit River, inspection & monumentation</i>	<i>Deferred 2012</i>
	<i>Lake Sup. To Rainy River, monumentation & clearing (2 year project)</i>	<i>50% Complete</i>
	<i>49th Parallel (Pemb.-Turtle Mts.), vista clearing (2 year project)</i>	<i>Future Work</i>
	<i>St. Mary's River, inspection & monumentation</i>	<i>5% Complete</i>
	<i>West Line Resurvey</i>	<i>60% Complete</i>
	<i>Implementation of GIS Technology & Survey processing (3 year Project)</i>	<i>80% Complete</i>
	<i>Boundary Mapping (3 year Project)</i>	<i>40% Complete</i>
	<i>North Line & Monument Brook, vista clearing (2 year project)</i>	<i>95% Complete</i>
	<i>Rainy River, inspection & monumentation (2 year project)</i>	<i>80% Complete</i>
	<i>141st Meridian, vista clearing (4 year project)</i>	<i>25% Complete</i>
	<i>(Prairies), monumentation & 49th Parallel clearing</i>	<i>50% complete</i>
	<i>49th Parallel Resurvey (MT-AB)</i>	<i>Future Work</i>
	<i>Glacier-Wateron Clearing</i>	<i>Future Work</i>
2012	<i>North Line vista & Monument Brook, vista clearing (2 year project)</i>	<i>Deferred to 2017</i>
	<i>S.W. Branch of St. John River, insp. & monumentation</i>	<i>Future Work</i>
	<i>Halls Stream, vista clearing</i>	
	<i>West Line (VT- Que), vista clearing & monumentation (3 year project)</i>	

	<i>West Line (NY- Que), vista clearing & monumentation (2 year project)</i>	<i>Slated for 2013</i>
	<i>Lake Sup. To Rainy River, inspection & monumentation (2 year project)</i>	<i>50% Complete</i>
	<i>141st Meridian, vista clearing (4 year project)</i>	<i>40% Complete</i>
	<i>49th Parallel (Pemb.- Turtle Mts.), vista clearing (2 year project)</i>	<i>Future Work</i>
	<i>Pt. Roberts Range Towers, inspection & refurbish</i>	
	<i>St. Lawrence River, inspection & monumentation</i>	
	<i>Niagara River, inspection & monumentation</i>	
	<i>Demarcation of Transboundary Waters (2 year project)</i>	
	<i>GPS Survey 49th Parallel (ID-MT to Glacier NP) (2 year project)</i>	
	<i>GPS Survey 141st (2 year project)</i>	
	<i>Pt. Roberts vista maintenance</i>	
	<i>Glacier-Waterton Clearing</i>	

2013	<i>S.W. Branch of St. John River, insp. & monumentation</i>	<i>Future Work</i>
	<i>Highlands (N.E. Section), vista clearing (3 year project)</i>	<i>Completed in 2010</i>
	<i>West Line (N.Y.- Que), vista clearing & monumentation (2 year project)</i>	<i>Future Work</i>
	<i>49th Parallel (Minn.- Man.), vista clearing (2 year project)</i>	
	<i>49th Parallel (Fraser & Columbia V.), vista clearing</i>	
	<i>GPS Survey 49th Parallel (ID-MT to Glacier NP) (2 year project)</i>	
	<i>Boundary Mapping (3 year Project)</i>	
	<i>Demarcation of Transboundary Waters (2 year project)</i>	
	<i>GPS Survey 141st (2 year project)</i>	

2014	<i>Passamaquoddy Bay, inspection & clearing</i>	<i>Future Work</i>
	<i>Highlands (N.E. Section), vista clearing (3 year project)</i>	<i>Completed in 2010</i>
	<i>West Line (N.Y.- Que), vista clearing & monumentation (2 year project)</i>	<i>Future Work</i>
	<i>49th Parallel (Minn.- Man.), vista clearing (2 year project)</i>	
	<i>141st Meridian Imagery</i>	

2015	<i>Glacier Waterton Clearing</i>	
	<i>Southwest & South Line, vista clearing (3 year project)</i>	
	<i>Highlands (N.E. Section), vista clearing (3 year project)</i>	<i>Future Work</i>
	<i>49th Parallel (Foothills to W. Koot.), vista clearing</i>	Completed in 2010
	<i>S.E. Alaska, vista clearing (3 year project)</i>	<i>Future Work</i>
	<i>Pt. Roberts Range Towers, inspection & refurbish</i>	
	<i>St. Clair River, inspection & monumentation</i>	
	<i>Mapping/GIS Updates</i>	
	<i>Glacier Waterton Clearing</i>	

2016	<i>Southwest and South Line, vista clearing (3 year project)</i>	<i>Future Work</i>
	<i>Highlands (S.W. Section), vista clearing (3 year project)</i>	
	<i>West Line (Vt- Que), 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>S.E. Alaska, vista clearing (3 year project)</i>	
	<i>Glacier Waterton Clearing</i>	
	<i>Transboundary Waters Inspection and Clearing</i>	

2017	<i>Passamaquoddy Bay, inspection & clearing</i>	<i>Future Work</i>
	<i>North Line & Monument Brook, vista clearing (2 year project)</i>	
	<i>St. John River, inspection & monumentation</i>	
	<i>St. Francis River, vista clearing & mapping</i>	
	<i>Southwest and South Line, vista clearing (3 year project)</i>	
	<i>Highlands (S.W. Section), vista clearing (3 year project)</i>	
	<i>West Line (Vt- Que), vista clearing & monumentation (3 year project)</i>	
	<i>St. Mary's River, inspection & monumentation</i>	
	<i>Rainy River, inspection & monumentation (2 year project)</i>	
	<i>49th Parallel (Pemb.-Turtle Mts.), vista clearing</i>	
	<i>49th Parallel (Foothills to W. Koot.), vista clearing</i>	
	<i>S.E. Alaska, vista clearing (3 year project)</i>	

	<i>Glacier Waterton Clearing</i>	

APPENDIX A

DETAILED MAINTENANCE AND SURVEY OPERATIONS

2012 Field Season

Table 1: Legend

Boundary Monument Type	Mon	Boundary Monument
	TP	Boundary Turning Point
	RM	Reference Monument
	LM	Line Mark
	BP	Boundary Point (unmarked)
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

Table 2: Source of St. Croix River to the St. Lawrence River

North Line (Maine-New Brunswick)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
Mon 19A1	G			MP		P	
Mon 19A2	G			MP		P	
Mon 19A3	G			MP		P	
Mon 19A4	G			MP		P	

Table 3: Source of St. Croix River to the St. Lawrence River

St. Francis River (Maine-Quebec) (1 of 8)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
RM S-137A50	G						
RM S-138A	G						
RM S-139	G						
RM S-142	G						
RM S-145	G						
RM S-147	G						
RM S-149	G			MP			S
RM S-151	G			MP			S
RM S-152	G			MP			S
RM S-155A	PO			MP			
RM S-156	G			MP			S
RM S-159A	G			MP			S

Table 3: (Continued) Source of St. Croix River to the St. Lawrence River

St. Francis River (Maine-Quebec) (2 of 8)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
RM S-160A	G			MP			S
RM S-161A	G			MP			S
RM S-162	PO			MP			
RM S-165	G			MP			S
RM S-166	G			MP			S
RM C-131A	G						
RM C-132	G						
RM C-133	PO			MP		P	S
RM C-134	G						
RM C-134A	G			MP		P	S
RM C-135	PO			MP		P	S
RM C-136	PO			MP		P	S
RM C-137	PO			MP		P	S
RM C-138	PO			MP		P	S
RM C-139	PO			MP		P	S
RM C-140	D						
RM C-141	G						
RM C-143	G						
RM C-144A	G						
RM C-145	NR						
RM C-148	G						
RM C-154A	G			MP			S
RM C-159	G			MP			
RM C-161	G			MP			S
RM C-162	G			MP			
RM C-169A	PO			MP			
RM C-171	G			MP			S
TP 361	PO						
TP 362	G						
TP 363	G						
LM 363A	D						
LM 385A	G						

Table 3: (Continued) Source of St. Croix River to the St. Lawrence River**St. Francis River (Maine-Quebec) (3 of 8)**

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
TP 386	G						
TP 391	G						
TP 392	G						
LM 392A	G						
LM 394A	NR						
TP 395	G						
TP 396	G						
LM 396A	NR						
TP 397	G						
LM 397A	G						
TP 406	G						
TP 407	G						
LM 407A	G						
LM 417A	G						
TP 418	G						
LM 418A	D						
LM 420A	G						
TP 421	G						
LM 421A	D						
TP 426	G						
TP 427	G						
LM 427A	G						
LM 429A	PO						
TP 430	PO						
TP 431	D						
TP 432	G						
TP 433	PO						
LM 433A	G						
TP 439	G						
LM 439A	NR						
LM 440A	G						
TP 441	G						
LM 441A	NR						

Table 3: (Continued) Source of St. Croix River to the St. Lawrence River

St. Francis River (Maine-Quebec) (4 of 8)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
LM 441B	G						
TP 442	G						
TP 443	G						
LM 443A	G						
LM 445A	NR						
LM 445B	NR						
LM 446A	G						
TP 447	G						
TP 448	G						
LM 452A	D						
LM 453A	G						
LM 453B	PO						
LM 453C	G						
TP 454	G						
TP 455	G						
LM 455A	G						
TP 463	G						
TP 464	G						
LM 464A	G						
LM 493A	G						
LM 493B	G						
LM 494A	G						
TP 495	G						
LM 495A	D						
LM 499A	G			MP		P	S
TP 501	G			MP		P	S
TP 502	G			MP		P	S
TP 503	G			MP		P	S
TP 504	G			MP		P	S
TP 505	G			MP		P	S
TP 506	G			MP		P	S

Table 3: (Continued) Source of St. Croix River to the St. Lawrence River

St. Francis River (Maine-Quebec) (5 of 8)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
TP 507	G			MP		P	S
LM 508A	D						
TP 509	G			MP		P	S
LM 509A	G			MP		P	S
LM 509B	G			MP		P	S
TP 511	G			MP		P	S
TP 512	G			MP		P	S
TP 513	G			MP		P	S
LM 513A	G			MP		P	S
LM 514A	G			MP		P	S
TP 515	G			MP		P	S
LM 515A	G			MP		P	S
LM 516A	G			MP		P	S
LM 516B	G			MP		P	S
LM 518A	G			MP		P	S
TP 519	G			MP		P	S
LM 519A	G			MP		P	S
LM 520A	G			MP		P	S
LM 520B	G			MP		P	S
TP 522	G			MP		P	S
TP 523	G			MP		P	S
LM 524A	G			MP		P	S
TP 525	G			MP		P	S
LM 525A	G			MP		P	S
LM 526A	G			MP		P	S
LM 526B	G			MP		P	S
LM 527A	G			MP		P	S
TP 528	G			MP		P	S
TP 529	G			MP		P	S
LM 529A	G			MP		P	S
TP 530	G			MP		P	S
LM 530A	G			MP		P	S
LM 530B	G			MP		P	S

Table 3: (Continued) Source of St. Croix River to the St. Lawrence River

St. Francis River (Maine-Quebec) (6 of 8)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
LM 530C	G			MP		P	S
LM 531A	G			MP		P	S
TP 532	G			MP		P	S
LM 532A	G			MP		P	S
LM 535A1	G			MP		P	S
TP 536	G			MP		P	S
TP 537	G			MP		P	S
LM 537A	G			MP		P	S
LM 538A	G			MP		P	S
TP 539	G			MP		P	S
LM 539A	D						
TP 540	G			MP		P	S
LM 540A	D						
LM 541A	G			MP		P	S
LM 541B	G			MP		P	S
LM 542A	D						
LM 542B	G			MP		P	S
LM 543A	G			MP		P	S
LM 543B	G			MP		P	S
LM 568A	G			MP		P	S
TP 569	G			MP		P	S
LM 570A	D						
LM 571A	G			MP		P	S
LM 571B	D						
LM 571C	G			MP		P	S
TP 572	G			MP		P	S
LM 572A	G			MP		P	S
LM 573A	G			MP		P	S
LM 573B	D						
LM 574A	G			MP		P	S
LM 574B	G			MP		P	S
LM 579A	G			MP		P	S
LM 579B	G			MP		P	S

Table 3: (Continued) Source of St. Croix River to the St. Lawrence River**St. Francis River (Maine-Quebec) (7 of 8)**

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
LM 580A	G			MP		P	S
TP 581	G			MP		P	S
LM 583A	G			MP		P	S
LM 583B	D						
LM 584A	G			MP		P	S
LM 584B	G			MP		P	S
LM 588A	G			MP		P	S
TP 589	G			MP		P	S
LM 589A	G			MP		P	S
LM 591A	G			MP		P	S
TP 592	G			MP		P	S
LM 594A	G			MP		P	S
LM 603A	G			MP		P	S
LM 603B	G			MP		P	S
TP 606	G			MP		P	S
LM 606A	G			MP		P	S
LM 607A	G			MP		P	S
LM 607B	G			MP		P	S
LM 619A	G			MP		P	S
TP 620	G			MP		P	S
LM 620A	G			MP		P	S
LM 627A	G			MP		P	S
TP 628	G			MP		P	S
LM 628A	G			MP		P	S
LM 637A	G			MP		P	S
LM 637B	G			MP		P	S
LM 641A	G			MP		P	S
LM 642A	G			MP		P	S
LM 693A	G			MP		P	S
TP 695	G			MP		P	S
LM 695A	G			MP		P	S
LM 698A	G			MP		P	S
LM 698B	G			MP		P	S

Table 3: (Continued) Source of St. Croix River to the St. Lawrence River

St. Francis River (Maine-Quebec) (8 of 8)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
LM 699A	G			MP		P	S
LM 699B	G			MP		P	S
LM 700A	G			MP		P	S
LM 700B	G			MP		P	S
LM 701A	G			MP		P	S
LM 701B	G			MP		P	S

Table 4: Source of St. Croix River to the St. Lawrence River

-Southwest and South Lines (Maine-Quebec) (1 of 5)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 193	G					P	
MON 194	G					P	
MON 195	G					P	
MON 195D	G					P	
MON 195A-88	G					P	
MON 195B	G					P	
MON 195C	G					P	
MON 196	G					P	
MON 197	G					P	
MON 198	G					P	
MON 198A-88	G					P	
MON 198B	G					P	
MON 199	G					P	
MON 200-88	G					P	
MON 201	G					P	
MON 201A	G					P	

Table 4: (Continued) Source of St. Croix River to the St. Lawrence River

Southwest and South Lines (Maine-Quebec) (2 of 5)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 201B	G					P	
MON 202	G					P	
MON 202A	G					P	
MON 202A1	G					P	
MON 202B	G					P	
MON 202B1	G					P	
MON 202C1	G					P	
MON 203	G					P	
MON 203A	G					P	
MON 204	G					P	
MON 205	G					P	
MON 206	G					P	
MON 207	G					P	
MON 207A	G					P	
MON 207B	G					P	
MON 208	G					P	
MON 208A	G					P	
MON 208B	G					P	
MON 209	G					P	
MON 210	G					P	
MON 210A	G					P	
MON 211	G					P	
MON 211A	G					P	
MON 211B	G					P	
MON 212	G					P	
MON 212A	G					P	
MON 212B to MON 214 were not visited							
MON 215	G					P	
MON 216 AND 217	G					P	
MON 218	G					P	
MON 218A	G					P	
MON 218B	G					P	

Table 4: (Continued) Source of St. Croix River to the St. Lawrence River

Southwest and South Lines (Maine-Quebec) (3 of 5)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 218C	G					P	
MON 218D	G					P	
MON 219	G					P	
MON 219A to MON 263A were not visited							
MON 264	G					P	
MON 265	G					P	
MON 265A	G					P	
MON 265B	PO					P	
MON 266	G					P	
MON 267	G					P	
MON 267A	F					P	
MON 268	G					P	
MON 268A	G					P	
MON 268B	G					P	
MON 269	G					P	
MON 269A	G					P	
MON 270	G					P	
MON 271	G					P	
MON 271A	G					P	
MON 272	G					P	
MON 272A	G					P	
MON 273	G					P	
MON 274	G					P	
MON 275	G					P	
MON 276	G					P	
MON 277	G					P	
MON 278	G					P	
MON 279	G					P	
MON 280	G					P	
MON 280A	NR						
MON 281	G					P	
MON 281A	G					P	

Table 4: (Continued) Source of St. Croix River to the St. Lawrence River

Southwest and South Lines (Maine-Quebec) (4 of 5)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 291A	G					P	
MON 282	G					P	
MON 282A	G					P	
MON 283	G					P	
MON 283A	G					P	
MON 284	G					P	
MON 285	G					P	
MON 286	G					P	
MON 287	G					P	
MON 287A1	PO					P	
MON 287A	F					P	
MON 287B	G					P	
MON 288	G					P	
MON288A-91	G					P	
MON 289	G					P	
MON 290	G					P	
MON 291	G					P	
MON 292	G					P	
MON 293	G					P	
MON 293A	G					P	
MON 294	G					P	
MON 294A	G					P	
MON 295	G					P	
MON 296	G					P	
MON 296A	NR						
MON 297-91	G					P	
MON 297A	G					P	
MON 298	G					P	
MON 299	G					P	
MON 299A	G					P	
MON 300	G					P	
MON 301-91	G					P	

Table 4: (Continued) Source of St. Croix River to the St. Lawrence River

Southwest and South Lines (Maine-Quebec) (5 of 5)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 301A	G					P	
MON 302	G					P	
MON 303	G					P	
MON 304	G					P	
MON 305	G					P	
MON 306	G					P	
MON 307	G					P	
MON 308	PO					P	

Table 5: Source of St.Croix River to the St.Lawrence River

-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	

Table 6: Source of St.Croix River to the St.Lawrence River

– Highlands (Maine-Quebec) (1 of 6)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 314	G					P	
MON 314.1	G					P	
MON 314.2	G					P	
MON 314.3	G				DU	P	
MON 314.4	G					P	

Table 6: (Continued) Source of St. Croix River to the St. Lawrence River

Highlands (Maine-Quebec) (2 of 6)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 314.5	G					P	
MON 314.6	G					P	
MON 314.7	G					P	
MON 314.8	F				DU	P	
MON 314.9	G					P	
MON 314.10	G				DU	P	
MON 314.11	G					P	
MON 315	F			MP		P	
MON 315.1	PO					P	
MON 315.2	G					P	
MON 315.3	G					P	
MON 315.4	G					P	
MON 315.5	G					P	
MON 315.6	G					P	
MON 316	G			MP		P	
MON 316.1	G					P	
MON 316.2	G					P	
MON 316.3	G					P	
MON 316.4	G					P	
MON 317	G			MP		P	
MON 317.1	G					P	
MON 317.2	G					P	
MON 317.3	G					P	
MON 318	G			MP		P	
MON 318.1	G					P	
MON 318.2	G					P	
MON 318.3	G					P	
MON 318.4	G					P	

Table 6: (Continued) Source of St. Croix River to the St. Lawrence River

Highlands (Maine-Quebec) (3 of 6)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 318.5	G					P	
MON 318.6	G					P	
MON 318.7	G					P	
MON 318.8	G					P	
MON 318A	G			MP		P	
MON 318B	G			MP		P	
MON 318.9	G					P	
MON 318.10	G					P	
MON 318.11	G					P	
MON 319	G					P	
MON 319.1	G				DU	P	
MON 319.2	G					P	
MON 319.3	G					P	
MON 319.4	G					P	
MON 319.5	G					P	
MON 319.6	G					P	
MON 319.7	G					P	
MON 319.8	G					P	
MON 319.9	G					P	
MON 319.10	G				DU	P	
MON 319.11	G					P	
MON 319.12	G					P	
MON 319.13	G					P	
MON 319.14	F					P	
MON 319.15	G					P	
MON 319.16	G					P	
MON 319.17	G					P	
MON 319.18	G					P	
MON 319.19	G					P	
MON 319.20	G					P	
MON 319.21	G					P	
MON 319.22	G					P	

Table 6: (Continued) Source of St. Croix River to the St. Lawrence River

Highlands (Maine-Quebec) (4 of 6)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 319.23	G					P	
MON 319.24	G					P	
MON 319.25	G				DU	P	
MON 319.26	G					P	
MON 319.27	G					P	
MON 319.28	G					P	
MON 319.29	G					P	
MON 319.30	F					P	
MON 319.31	G				DU	P	
MON 319.32	G				DU	P	
MON 320	D					P	
MON 320.1	G					P	
MON 320.2	G					P	
MON 320.3	G					P	
MON 320.4	G					P	
MON 320.5	G					P	
MON 320.6	G					P	
MON 320.7	G					P	
MON 320.8	G					P	
MON 320.9	F					P	
MON 320.10	G				DU	P	
MON 320.11	G					P	
MON 320.12	G					P	
MON 320.13	G					P	
MON 320.14	G					P	
MON 320.15	G					P	
MON 320.16	G					P	
MON 320.17	G					P	
MON 320.18	G				DU	P	
MON 320.19	G					P	
MON 320.20	G					P	
MON 320.21	G					P	

Table 6: (Continued) Source of St. Croix River to the St. Lawrence River**Highlands (Maine-Quebec) (5 of 6)**

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 320.22	G					P	
MON 320.23	PO					P	
MON 320.24	G					P	
MON 320.25	G					P	
MON 320.26	G					P	
MON 320.27	F					P	
MON 320.28	G					P	
MON 321	G			MP		P	
MON 321.1	F					P	
MON 321.2	G					P	
MON 321.3	G					P	
MON 321.4	G					P	
MON 321.5	G					P	
MON 321.6	G					P	
MON 321.7	G					P	
MON 321.8	F					P	
MON 321.9	F					P	
MON 321.10	G				DU	P	
MON 321.11	G					P	
MON 321.12	G					P	
MON 321.13	G					P	
MON 321.14	F					P	
MON 321.15	G					P	
MON 321.16	G					P	
MON 321.17	G					P	
MON 321.18	F					P	
MON 321.19	G					P	
MON 321.20	G					P	
MON 321.21	G					P	
MON 321.22	G					P	
MON 321.23	G					P	
MON 321.24	G					P	
MON 321.25	G					P	

Table 6: (Continued) Source of St. Croix River to the St. Lawrence River

Highlands (Maine-Quebec) (6 of 6)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 321.26	G					P	
MON 321.27	G					P	
MON 322	G			MP		P	
MON 322.1	G					P	
MON 322.2	G					P	
MON 322.3	G					P	
MON 322.4	G					P	
MON 322.5	G					P	
MON 322.6	G					P	
MON 322.7	G					P	
MON 322.8	G					P	
MON 322.9	G					P	
MON 322.10	G					P	
MON 322.11	G					P	
MON 322.12	G					P	
MON 322.13	G					P	
MON 322.14	G					P	
MON 387.15	G					P	S
MON 387.16	G					P	S
MON 387.17	D	R			ND	P	S
MON 387.18	G					P	S
MON 387.19	D	R			ND	P	S
MON 387.20	D	R			ND	P	S
MON 387.21	G					P	S
MON 387.22	PO	R			ND	P	S
MON 387.23	D	R			ND	P	S
MON 387.24	G					P	S
MON 387.25	F	R			ND	P	S
MON 387.26	G					P	S
MON 387.27	D	R			ND	P	S
MON 388	PO		MA		DU	P	
MON 388.1	G					P	S

Table 7: Source of St. Croix River to the St. Lawrence River

West Line (Vermont-New York-Quebec) (1 of 6)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 634	G			MP	DU	P	S
MON 634A	G	R			ND	P	S
MON 635	G		MA		DU	P	S
MON 635A	G		MA		DU	P	S
MON 635B	G	R			DU	P	S
MON 636	F			MP	DU	P	S
MON 637							S
MON 637A							S
MON 637B	PO				DU	P	S
MON 638	PO				DU	P	S
MON 638A	G				DU	P	S
MON 638B	G						S
MON 639							S
MON 639A							S
MON 640							S
MON 640A							S
MON 640B	G		MI	MP	DU	P	S
MON 641	PO		MA		DU	P	S
MON 641A-81	PO	R			DU	P	S
MON 641B	PO	R			DU	P	S
MON 641C	PO		MA		DU	P	S
MON 642	PO		MA		DU	P	S
SITE MON 642W	NR				DU		
Noyan E Plaque	G	NM			ND	P	S
Noyan W Plaque	G	NM			ND	P	S
MON 642AA - 2012	G	NM			ND	P	S
MON 642A	G		MI	MP	DU	P	S
MON 642B	G		MA	MP	DU	P	S
MON 643-72	G		MA		DU	P	
MON 643A	G		MA	MP	DU	P	S

Table 7: (Continued) Source of St. Croix River to the St. Lawrence River

West Line (Vermont-New York-Quebec) (2 of 6)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 643B	G		MA		DU	P	
MON 643C	G		MI	MP	DU	P	S
MON 643D	G		MI	MP	DU	P	S
MON 644	PO				DU	P	S
MON 645A	F		MI		DU	P	S
MON 646	G		MA		DU	P	S
MON 647	D		MI		DU	P	S
MON 648	G		MA		DU	P	S
MON 649	PO				DU	P	S
MON 649A	F				DU	P	S
MON 649B	F				DU	P	S
MON 650	PO				DU	P	S
MON 650A	G		MA		DU	P	S
MON 651	PO				DU	P	S
MON 651A	F				DU	P	S
MON 652							S
MON 652A							S
MON 653							S
SITE MON 653A-76	NR				DU		
MON 654	F		MA		DU	P	S
MON 655							S
MON 656							S
MON 657							S
MON 657A							S
MON 658							S
MON 659							S
MON 660	PO				DU	P	S
MON 661	G			MP		P	S
MON 662	G			MP		P	S
MON 663	G			MP		P	S
MON 663A	G			MP		P	S
MON 664	G			MP		P	S

Table 7: (Continued) Source of St. Croix River to the St. Lawrence River

West Line (Vermont-New York-Quebec) (3 of 6)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 665	G			MP		P	S
MON 665A	G			MP		P	S
MON 666	G			MP		P	S
MON 667	F		MI	MP	DU	P	S
MON 667A	G	NM			ND	P	S
MON 668	G		MA		DU	P	S
MON 669	G		MA	MP	DU	P	S
MON 669A	G	R			ND	P	S
MON 670	G			MP	DU	P	S
MON 671	PO					P	S
MON 672	G			MP		P	S
MON 673	G		MA	MP	DU	P	S
MON 674	G		MA	MP	DU	P	S
MON 674A	G			MP		P	S
MON 675	G			MP		P	S
MON 676	PO				DU	P	S
MON 676A	PO				DU	P	S
MON 677	PO				DU	P	S
MON 678	G			MP		P	S
MON 678A	G			MP		P	S
MON 679	PO					P	S
MON 679A	G			MP		P	S
MON 680	G			MP		P	S
MON 681	G			MP		P	S
MON 682	G			MP		P	S
MON 683							S
MON 683							S
MON 684							S
MON 685							S
MON 686							S
MON 687							S
MON 688							S

Table 7: (Continued) Source of St. Croix River to the St. Lawrence River

West Line (Vermont-New York-Quebec) (4 of 6)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 689							S
MON 690							S
MON 691							S
MON 692							S
MON 693							S
MON 694							S
MON 695							S
MON 695A							S
MON 696							S
MON 697							S
MON 698							S
MON 699							S
MON 699A							S
MON 700							S
MON 701							S
MON 702							S
MON 703							S
MON 704-705							S
MON 706							S
MON 706A							S
MON 707							S
MON 708							S
MON 709							S
MON 710							S
MON 711							S
MON 712							S
MON 713							S
MON 713A							S
MON 714A	D				DU	P	S
MON 714A	G	NM			ND	P	S
MON 715							S
MON 716							S

Table 7: (Continued) Source of St. Croix River to the St. Lawrence River

West Line (Vermont-New York-Quebec) (5 of 6)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 717							S
MON 718							S
MON 719							S
MON 720							S
MON 721							S
MON 722							S
MON 722A	D				DU	P	S
MON 723	F				DU	P	S
MON 724	G				DU	P	S
MON 725	PO				DU	P	S
MON 726	PO				DU	P	S
MON 726A	G			MP	DU	P	S
MON 727	G				DU	P	S
MON 727A	G			MP	DU	P	S
MON 728	G				DU	P	S
MON 729	G				DU	P	S
MON 730	G				DU	P	S
MON 731	G				DU	P	S
MON 732	G				DU	P	S
MON 733A	G			MP	DU	P	S
MON 734-76	G			MP	DU	P	S
MON 735	G				DU	P	S
MON 736	G				DU	P	S
MON 737	PO				DU	P	S
MON 738	G				DU	P	S
MON 739	G				DU	P	S
MON 740	G				DU	P	S
MON 741	PO				DU	P	S
MON 742	F				DU	P	S
MON 743	PO				DU	P	S
MON 743 RMA							S
MON 744	D				DU	P	S

Table 7: (Continued) Source of St. Croix River to the St. Lawrence River

West Line (Vermont-New York-Quebec) (6 of 6)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 745	G				DU	P	S
MON 746	PO				DU	P	S
MON 747	PO				DU	P	S
MON 748	PO				DU	P	S
MON 749	PO				DU	P	S
MON 750	F				DU	P	S
MON 751	F				DU	P	S
MON 751A	G				DU	P	S
MON 752	G				DU	P	S
MON 753	PO				DU	P	S
MON 754	NR				DU		S
MON 754A	G			MP	DU	P	S
MON 755	PO				DU	P	

Table 8: Gulf of Georgia to the Northwesternmost Point of Lake of the Woods

49th Parallel (Washington, Idaho/British Columbia) (1 of 3)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 155	G					P	S
Mon 156	G				DU	P	
Mon 157	G			MP	DU	P	S
Mon 158	G				DU	P	
Mon 159	F		MI		DU	P	
Mon 160	F		MI		DU	P	
Mon 162	F		MI		DU	P	
Mon 164	G				DU	P	

Table 8: (Cont.) Gulf of Georgia to the Northwesternmost Point of Lake of the Woods

49th Parallel (Washington, Idaho/British Columbia) (2 of 3)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
Mon 165	G			MP	DU	P	S
Mon 165A	G				DU	P	
Mon 165B	G				DU	P	
Mon 166	G				DU	P	
Mon 167	F		MI		DU	P	
Mon 168	G		MI		DU	P	
Mon 169	F		MI		DU	P	
Mon 170	F		MI		DU	P	
MON 171	G			MP		P	S
Mon 172	F		MI		DU	P	
Mon 173	G				DU	P	
Mon 174	F		MI		DU	P	
Mon 174A	G		MA	MP	DU	P	
Mon 174B	G		MA	MP	DU	P	S
Mon 175	PO		MA	MP	DU	P	
Mon 176	F		MI		DU	P	
Mon 177	F		MI		DU	P	
MON 181	G			MP		P	S
MON 181A		NM		MP		P	
MON 182	NR					NP	
Mon 183	G			MP	DU	P	S
MON 184	G					P	
MON 188	G			MP		P	S
MON 192	NR					NP	
MON 194	G			MP		P	S
MON 195	PO0					NP	
MON 199	G					P	S
MON 204	G			MP		P	S
MON 208	G					P	S
MON 216	G			MP		P	S

Table 8: (Cont.) Gulf of Georgia to the Northwesternmost Point of Lake of the Woods

49th Parallel (Washington, Idaho/British Columbia) (3 of 3)

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
MON 224	G			MP		P	S
MON 229	F					P	S
MON 230	NR					NP	
MON 235	NR					NP	
MON 236	G			MP		P	S
MON 240	G					P	S
MON 243	G					P	
MON 244-70	G					P	
MON 246A	G					P	S
MON 247	G					NP	
MON 254	G					NP	
MON 256	G					P	S
MON 261	G					P	S

Table 9: Gulf of Georgia to the Northwesternmost Point of Lake of the Woods

49th Parallel (Washington, Idaho/British Columbia)

HARN & CBN MONUMENTS RECOVERED

Boundary Monument Type & Number	Reconnaissance	Established	Repairs	Painted	Description	Photo	Monument Surveyed
Turnbull	G						S
Kellogg	G						S
Foster	G						S
Onion Creek	G						S
R46	G						S
PRLA	G						S
Doak	G						S
89HP3C	G						S
Rogers	G						S
Dominion	N						
Dutch	G						S
L280	G						S
U512	G						S
Mineral	G						S

APPENDIX B

Summary of Boundary Maintenance Operations

MONUMENTS

Recovered in Good Condition.....	415
Recovered in Fair Condition.....	35
Recovered in Poor Condition.....	39
Found Destroyed.....	11
Not Recovered.....	9
New.....	6
Renewed.....	12
Minor Repairs Made To.....	18
Major Repairs Made To.....	21
Painted.....	96
Descriptions Updated.....	122
New Descriptions.....	14
Photographed.....	469
Not Photographed.....	72
Surveyed.....	236

REFERENCE MONUMENTS

Recovered in Good Condition.....	29
Recovered in Poor Condition.....	10
Found Destroyed.....	2
Not Recovered.....	1
Painted.....	24
Photographed.....	8
Not Photographed.....	32
Surveyed.....	19

LINE MARKS (on land)

Recovered in Good Condition.....	92
Recovered in Poor Condition.....	2
Found Destroyed.....	13
Not Recovered.....	6
Painted.....	71
Photographed.....	71
Surveyed.....	71

VISTA CLEARING

Southwest Line (Maine – Québec).....	55.0 mi / 88.0 km
South Line (Maine – Québec).....	19.1 mi / 30.6 km
West Line (New York – Québec).....	22.7 mi / 36.3 km
St. Francis River (Maine – Québec).....	2.6 mi / 4.2 km
141st Meridian (Alaska – Yukon).....	75.6 mi / 121.7 km
49 th Parallel Boundary (North Dakota – Manitoba).....	36.0 mi / 57.6 km
49 th Parallel Boundary, Glacier Park (Montana – Alberta).....	3.1 mi / 5.0 km

TOTAL VISTA CLEARED.....214.1 mi / 344.6 km